

151 FERC ¶ 61,208  
UNITED STATES OF AMERICA  
FEDERAL ENERGY REGULATORY COMMISSION

Before Commissioners: Norman C. Bay, Chairman;  
Philip D. Moeller, Cheryl A. LaFleur,  
Tony Clark, and Colette D. Honorable.

PJM Interconnection, L.L.C.	Docket Nos. ER15-623-000 EL15-29-000 ER15-623-001
Essential Power Rock Springs, LLC, Essential Power OPP, LLC, and Lakewood Cogeneration, L.P. v. PJM Interconnection, L.L.C.	EL15-41-000

ORDER ON PROPOSED TARIFF REVISIONS

(Issued June 9, 2015)

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1. On December 12, 2014, in Docket No. ER15-623-000, PJM Interconnection, L.L.C. (PJM) submitted proposed changes to its Open Access Transmission Tariff (OATT) and Reliability Assurance Agreement Among Load Serving Entities (RAA), pursuant to section 205 of the Federal Power Act (FPA),<sup>1</sup> to establish a new capacity product, a Capacity Performance Resource, on a phased-in basis, to ensure that PJM's capacity market provides adequate incentives for resource performance (Capacity Performance Filing). In a related, contemporaneous filing, PJM submitted in Docket No. EL15-29-000 proposed changes to its Amended and Restated Operating Agreement (Operating Agreement) and to its OATT, pursuant to FPA section 206,<sup>2</sup> to address these performance issues, as applicable to PJM's energy market (Energy Market Filing).<sup>3</sup>

2. For the reasons discussed below, we conditionally accept PJM's Capacity Performance Filing, effective April 1, 2015, as requested, subject to the condition that PJM submit a compliance filing within 30 days of the date this order issues.<sup>4</sup> In addition, we grant, in part, and deny, in part, PJM's complaint in its Energy Market Filing and direct PJM to submit a compliance filing within 30 days of the date this order issues.<sup>5</sup> We find that PJM has demonstrated that its existing energy market rules addressing operating parameters, force majeure, and generator outages are unjust and unreasonable. We accept PJM's proposed revisions to rules related to force majeure and generator

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<sup>1</sup> 16 U.S.C. § 824d (2012).

<sup>2</sup> *Id.* § 824e.

<sup>3</sup> PJM notes that the Energy Market Filing revisions arise primarily under the PJM Operating Agreement, which requires PJM to obtain a two-thirds vote from its members to support a section 205 filing. PJM states, however, that its proposed revisions were considered by its stakeholders under a special procedure, without a vote. Accordingly, PJM requests approval of its Operating Agreement revisions, pursuant to section 206, and seeks approval of its proposed OATT provisions, pursuant to section 205. For the reasons addressed by the Commission in its guidance on electronic filings, our review of the Energy Market Filing will be undertaken pursuant to section 206, *i.e.*, by the filing code chosen by PJM. *See Electronic Tariff Filings*, 130 FERC ¶ 61,047 at P 8 (2010) (the treatment of any "combined filing," *i.e.*, a filing whose different parts would, if filed individually, have different Type-of-Filing codes, will depend on the code chosen by the filing entity).

<sup>4</sup> See Appendix C for a complete list of the conditions to acceptance in Docket No. ER15-623-000.

<sup>5</sup> See Appendix D for a complete list of the compliance directives that PJM is to submit in Docket No. EL15-29-000.

outages, accept, in part, and reject, in part, PJM's proposed revisions to rules related to operating parameters, and direct further modifications to the operating parameters rules. Lastly, we find that PJM has not demonstrated that its rules related to Maximum Emergency Offers are unjust and unreasonable and therefore deny this aspect of PJM's complaint.

3. In the December 12, 2014 filing, PJM proposed to implement the tariff changes addressed in its filings effective April 1, 2015, in advance of a May 2015 Base Residual Auction, i.e., for the capacity procurements applicable to the 2018-19 delivery year. However, on March 31, 2015, the Commission notified PJM that the December 12, 2014 filing was deficient and that the Commission would need further information to process the proposal (Deficiency Letter). On April 7, 2015, PJM filed a request for waiver of its OATT to delay the 2015 Base Residual Auction for the 2018-19 delivery year. On April 10, 2015, PJM supplemented the December 12, 2014 filing by submitting a response to the deficiency letter (Deficiency Letter Response). On April 24, 2015, the Commission granted PJM's request to delay the 2015 Base Residual Auction for the 2018-19 delivery year,<sup>6</sup> which was previously scheduled for May 11-15, 2015, and instead conduct the auction within 30-75 days after the Commission issues a merits order in this proceeding, but no later than the week of August 10-14, 2015.<sup>7</sup>

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<sup>6</sup> *PJM Interconnection, L.L.C.*, 151 FERC ¶ 61,067 (2015).

<sup>7</sup> On January 30, 2015, Essential Power Rock Springs, LLC, Essential Power OPP, LLC, and Lakewood Cogeneration, L.P. (Essential Power) filed a complaint with the Commission against PJM in Docket No. EL15-41-000. In it, Essential Power argues that capacity sellers' decisions to seek, or not seek, a capacity market must-offer exception request by the tariff-determined deadline of January 11, 2015, should not be binding due to the pendency of the instant proceeding. In addition, Morgan Stanley submitted comments in the instant proceeding, requesting that the Commission require that PJM delay the date capacity sellers must submit a sell offer or seek an exception to the capacity market must-offer requirement until after a final order is issued in the proceeding. On February 5, 2015, Essential Power and PJM filed with the Commission a joint motion to dismiss the complaint, stating that they had reached an agreement whereby capacity sellers will be able to amend their must-offer exception requests within seven days after the Commission issues an order in the instant proceeding. We grant the request to dismiss Essential Power's complaint. We note that, in its waiver request to delay the 2015 Base Residual Auction for the 2018-19 delivery year, PJM committed to announce the deadlines for market participants to update their pre-auction submissions, such as offer quantities, offer-price caps, and credit submissions, as necessary and appropriate to reflect the Capacity Performance rules accepted by the Commission, shortly after the Commission's action on the deficiency letter response. *See PJM*

## I. Introduction

4. Today's order approves, as modified, significant reforms to PJM's capacity market construct, as well as corresponding changes within PJM's energy markets. As discussed at length below, the Commission finds that PJM has demonstrated the need for these reforms to ensure the long-term reliability of electric supply in the PJM region. We also find that PJM has demonstrated that its proposal, as modified herein, is just and reasonable.

5. PJM relies on a three-year forward capacity market construct to ensure resource adequacy at a reasonable cost through the use of an annual auction and subsequent incremental auctions closer to the delivery year.<sup>8</sup> PJM states, however, that its construct has failed to keep pace with the level of resource commitments required, has applied inadequate charges for sub-par performance, and otherwise has not adequately ensured actual performance. PJM adds, and we agree, that a resource adequacy construct that fails to provide adequate incentives for resource performance can threaten the reliable operation of PJM's system and force consumers to pay for capacity without receiving commensurate reliability benefits.

6. To address these problems with its current capacity construct, PJM's Capacity Performance Filing would establish, on a phased-in basis, a new capacity product, i.e., a Capacity Performance Resource, to provide greater assurance of delivery of energy and reserves during emergency conditions. PJM also proposes to establish charges for poor performance (Non-Performance Charges) and credits for superior performance (Performance Bonus Payments), a must-offer requirement as applicable to Capacity Performance Resources, and a transition mechanism to remain in effect through May 31, 2020. PJM also proposes, in its Energy Market Filing, changes to its energy market tariff rules to implement the performance obligations and corresponding payments and penalties associated with its capacity market reforms. PJM proposes to implement its proposed changes for the 2018-19 delivery year, with a transition mechanism for the 2016-17 and 2017-18 delivery years that will facilitate improved resource performance during those years. Ultimately, PJM proposes to procure 100 percent of the region's capacity resources as Capacity Performance Resources.

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*Interconnection, L.L.C.*, 151 FERC ¶ 61,067 at P 6. We find that this commitment addresses the concerns of Essential Power, as well as Morgan Stanley. Specifically, PJM will announce the specific timing for the rescheduled 2018-19 Base Residual Auction, including an amended deadline for market participants to update their pre-auction submissions.

<sup>8</sup> *PJM Interconnection, L.L.C.*, 117 FERC ¶ 61,331 (2006).

7. The Commission approves PJM's proposed reforms, as modified herein, because we find that these reforms are a significant step toward addressing a confluence of changes in the PJM markets, including both recent performance issues that PJM has demonstrated are impacted by inadequate incentives and penalties for resource performance under its current construct,<sup>9</sup> and ongoing changes in PJM's resource mix that are projected to accelerate. Given the forward nature of PJM's capacity market, failure to act today to address recent generator performance issues and anticipated resource fleet changes could cause reliability issues years from now, at realized cost levels potentially significantly higher to customers -- in the form not just of extreme price spikes like those seen in January 2014, but potentially in loss of load or other reliability events. We find that taking action at this time to increase reliability, and to ensure incentives for resource performance (including both existing and new capacity), is both appropriate and necessary.

8. The Commission has been actively involved in the review of capacity markets and larger trends regarding resource adequacy and fuel assurance. In particular, we note that the Commission recently recognized the need to address resource performance issues in ISO New England Inc. (ISO-NE),<sup>10</sup> and in a generic proceeding in which the Commission: (i) directed regional transmission organizations (RTOs) and independent system operators (ISOs) to file reports on the status of their efforts to address fuel assurance issues; and (ii) provided guidance to assist RTOs and ISOs in these efforts.<sup>11</sup> PJM states that its proposed reforms were prepared in the context of these related policy initiatives, and are designed to ensure that resources committed as capacity to meet PJM's reliability needs will deliver the promised energy and reserves when called upon in emergencies, and thus will provide the reliability that the region expects and requires. We recognize that PJM's reforms are part of a broader effort at the Commission to ensure that the competitive wholesale markets continue to meet the needs of customers, and to encourage evolution of the markets based on operational experience.

9. Furthermore, we find persuasive PJM's argument that its existing capacity construct must be substantially reformed to meet these challenges, and that incremental change to capacity or energy market rules alone might be inadequate to address the long-

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<sup>9</sup> Although we do not base our approval today solely on the recent degradation of resource performance in PJM during times of system stress, we note that this poor performance has led to significant and expensive price spikes.

<sup>10</sup> *ISO New England Inc.*, 147 FERC ¶ 61,172 (2014) (*ISO-NE Capacity Performance Order*), *reh'g pending*.

<sup>11</sup> *Centralized Capacity Markets in Reg'l Transmission Orgs. & Indep. Sys. Operators*, 149 FERC ¶ 61,145 (2014) (*Fuel Assurance Guidance Order*).

term resource concerns faced by the region. PJM raises serious and legitimate concerns regarding the adequacy of its current capacity market design to ensure the performance of capacity resources, which are critical to maintaining regional reliability.<sup>12</sup> Although it is correct that PJM's existing capacity construct has successfully provided an incentive for the construction of new generation to both meet load growth and replace retiring resources, it is not enough simply to ensure that "capacity," whether in the form of existing or new resources, is procured to meet reserve targets; rather, that capacity must carry with it meaningful performance obligations, and corresponding incentives and penalties, to ensure that those resources actually deliver when needed.<sup>13</sup> PJM has convincingly argued not only that its current construct fails to provide appropriate incentives and penalties, but also that its proposed reforms, as modified herein, are a just and reasonable solution to address those deficiencies and will meaningfully improve resource performance in PJM.<sup>14</sup>

10. Having concluded that PJM has met its burden under the FPA to justify substantial reforms to its capacity market construct, today's order also addresses in detail the individual components of PJM's proposed reforms. Given the length of this order, we will briefly address certain aspects of PJM's proposal to provide clarity regarding the basis for the Commission's action.

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<sup>12</sup> Although PJM has not argued that its existing capacity construct is unjust and unreasonable, we note that PJM was under no obligation to make that showing, as PJM has rights to seek changes to the capacity market provisions of its OATT pursuant to section 205 of the FPA, i.e., under the just and reasonable standard. We disagree with suggestions that PJM's election to seek reforms pursuant to section 205 undermines PJM's argument that its existing construct is not working; indeed, the fact that PJM argues that its energy market rules, which are located in the Operating Agreement and which require a two-thirds vote from its members to revise pursuant to section 205, are unjust and unreasonable highlights PJM's view of the gravity of the needed reforms. Furthermore, following the issuance of the Commission's March 31, 2015 deficiency letter, PJM took the unprecedented step of asking the Commission to delay its May 2015 BRA to allow the Commission to rule on the merits of its proposed reforms. That PJM sought, and the Commission granted, a delay in the auction indicates how significant these reforms are to the PJM region and its long-term ability to ensure reliability.

<sup>13</sup> See *ISO-NE Capacity Performance Order*, 147 FERC ¶ 61,172 at P 36.

<sup>14</sup> As noted below in paragraph 49, in making that case, PJM is not required by the FPA or Commission precedent to provide the mathematical specificity of a cost-benefit analysis to support a market rule change.

11. PJM proposes to revise its market mitigation for capacity market offers to establish, consistent with the Commission's acceptance of a similar proposal in ISO-NE,<sup>15</sup> a default offer cap based on the estimated level of capacity revenues that a representative resource would require to incur a capacity obligation. Also consistent with the proposal accepted in ISO-NE,<sup>16</sup> offers above the default offer cap are subject to a unit-specific review by PJM and the Market Monitor. PJM proposes to base its default offer cap, as well as its proposed penalty level (referred to as the Non-Performance Charge), upon an assumption that PJM will experience 30 Emergency Action hours per year.<sup>17</sup>

12. As discussed below in section V.F, we find that PJM's proposed market mitigation construct is just and reasonable. It is precisely because the PJM capacity market is structurally non-competitive that mitigation is necessary, and we conclude that PJM's proposal, which is modeled on the construct previously accepted by the Commission in ISO-NE,<sup>18</sup> is an appropriate mitigation construct. Indeed, we note that the Market Monitor, who evaluates the competitiveness of PJM's capacity markets, supports PJM's proposed mitigation design, including its proposed default offer cap.<sup>19</sup> We also disagree that PJM's proposal creates improper arbitrage opportunities that could undermine the effectiveness of its reforms. PJM's proposal does not create new or different drivers of price difference between the Base Residual Auction and Incremental Auctions for the relevant delivery year. To the extent reforms to the number or design of PJM's incremental auctions are needed, we note that the Commission has a pending proceeding under section 206 of the FPA to investigate whether PJM's capacity market fails to promote long-term reliability by possibly permitting speculative sell offers.<sup>20</sup>

13. As discussed below in section V.C, we also accept PJM's 30 hour proposal and find that it is a reasonable approximation of the upper bound of hours during which the

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<sup>15</sup> See *ISO-NE Capacity Performance Order*, 147 FERC ¶ 61,172 at P 96.

<sup>16</sup> *Id.* P 91.

<sup>17</sup> The Emergency Action hours are, in turn, the Performance Assessment Hours during which a Capacity Performance Resource's performance will be evaluated for, among other things, possible assessment of Non-Performance Charges (for under-performance) or receipt of bonus payments (for over-performance).

<sup>18</sup> PJM Deficiency Letter Response at 3.

<sup>19</sup> Market Monitor comments to PJM's Deficiency Letter Response at 2.

<sup>20</sup> *PJM Interconnection, L.L.C.*, 147 FERC ¶ 61,108 (2014).

PJM system is likely to experience Emergency Actions over the relevant commitment period, and therefore reasonable to use in the calculation of both the default offer cap and Non-Performance Charge. PJM's proposal is based on recent experiences with extreme weather across the PJM system and, given that PJM's proposal is intended to ensure resource performance during times of system stress, is an appropriate number to use going forward. As a result, we also disagree with assertions that PJM's assumption that its system will experience 30 Emergency Action hours each year leads to an improper imbalance of risks and rewards under PJM's proposal, or otherwise constitutes a fundamental design flaw, that warrants rejection of PJM's entire proposal. Nonetheless, as part of the Commission's ongoing monitoring of PJM's markets, we require that PJM submit informational filings with the Commission after the conclusion of each of the first five delivery years under PJM's proposal, beginning with the 2016-2017 delivery year, to evaluate the impact of this 30 hour assumption on resource performance during Performance Assessment Hours, as well as the possible impact of alternative Non-Performance Charges based on higher and lower estimates of the number of Emergency Action hours during each delivery year. We also encourage PJM, as it gains more experience under its new capacity construct, to reassess the assumed number of Performance Assessment Hours and file with the Commission if it believes a revision is warranted.<sup>21</sup>

14. In today's order, the Commission also conditionally accepts in part, and rejects in part, PJM's proposed changes to what a capacity market seller may reflect in its operating parameters in the energy market. The purpose of Capacity Performance is to ensure performance during extreme events. We find that PJM's proposal, as revised below, undergirds the overall Capacity Performance proposal because it ensures that resources needed to perform during those events can also recover their costs of doing so.<sup>22</sup> Lacking such assurance, resources faced with actual constraints will be in a position of weighing nonperformance penalties against costs of performance that are specifically disallowed in make-whole payments, which could discourage the very performance that PJM seeks to encourage. Further, we believe that today's order appropriately ensures that resources cannot quantify and include in their capacity performance sell offer firm fuel costs and/or risks that will be recovered in make whole payments.

15. Ultimately, the Commission has an ongoing obligation to ensure that rates are just and reasonable, and that obligation does not end with today's order. We note that while some have disagreed with the balance struck in the PJM proposal between capacity

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<sup>21</sup> *Infra* paragraph 163.

<sup>22</sup> While we recognize that these resources may present PJM with limits on their flexibility, we do not believe our findings in today's order discourage flexibility; in any event, the PJM markets provide numerous incentives to encourage resource flexibility.

payments, Non-Performance Penalties and Bonus Performance Payments, the Commission sees great value in a tariff-defined mechanism that establishes a transparent, operative framework to provide an incentive for resource reliability. Under PJM's current capacity construct, resources may not have sufficient incentives to deliver on their capacity commitments when needed; under PJM's proposal, which we accept today, capacity resources in PJM will face new and substantial penalties for non-performance that we conclude will help ensure the reliability of the PJM system. Maintaining reliability is not optional, and it is critical that PJM's forward capacity market, which plays an essential role in that reliability effort, work to provide an incentive for resource performance during times of system stress. Therefore, while we accept PJM's proposal (as modified), the Commission can and will actively monitor its implementation, and we will act where necessary to modify it to ensure the proper alignment of performance obligations, incentives, and penalties.

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

16. Notice of PJM's filing in Docket No. ER15-623-000 was published in the *Federal Register*, 79 Fed. Reg. 77,467 (2014) and notice of PJM's filing in Docket No. EL15-29-000 was published in the *Federal Register*, 79 Fed. Reg. 76,321 (2014), with interventions and protests due on or before January 20, 2014.<sup>23</sup> Notices of intervention and timely-filed motions to intervene were submitted by the entities listed in the Appendices to this order.<sup>24</sup> In addition, motions to intervene out-of-time were submitted, in Docket No. ER15-623-000, by Panda, Covanta, Noble, AEIF, and Morgan Stanley, and in Docket No. EL15-29-000, by Panda, EKPC, AEIF, and Morgan Stanley.

17. Comments and/or protests were submitted by numerous entities, as summarized below. In addition, answers were submitted, in Docket No. ER15-623-000, by PJM, the Indiana Commission, the PJM Utilities Coalition, EKPC, Exelon, the Maryland Commission, Panda, Calpine, the Transition Coalition,<sup>25</sup> Brookfield, EKPC, the Market Monitor, Direct Energy, Homer City, LS Power, Duke, AEMA, Joint Protestors,<sup>26</sup>

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<sup>23</sup> See Notice Granting Extension of Time (issued Dec. 24, 2014).

<sup>24</sup> The abbreviated names or acronyms by which these entities are referred to in this order are noted in the Appendices.

<sup>25</sup> The Transition Coalition is comprised of the following entities: the Delaware Commission, Duquesne Light Company, Direct Energy, NextEra, Noble, ODEC, PJM Industrial Coalition, Rockland, SMEC, and WGL Energy Services, Inc.

<sup>26</sup> Joint Protestors is comprised of the following entities: AMP, ODEC, and SMEC.

NRG/Dynegy, Dominion, Moxie, Rockland, P3, Joint Consumers, RESA, and H.Q. Energy Service (U.S.) Inc. Answers were submitted, in Docket No. EL15-29-000, by PJM, Exelon, the Maryland Commission, the PJM Utilities Coalition, Calpine, the Market Monitor, Joint Protestors, Dominion, Rockland, and Joint Consumers.

18. Notice of PJM's Deficiency Letter Response was published in the Federal Register, 80 Fed. Reg. 21,716 (2015), with interventions and protests due on or before April 24, 2015. Timely motions to intervene were filed by Public Citizen, Inc and SunEdison Utility Holdings, Inc.

19. Comments and/or protests were submitted by numerous entities, as summarized below.

### **III. Procedural Matters**

20. Pursuant to Rule 214 of the Commission's Rules of Practice and Procedure, 18 C.F.R. § 385.214 (2014), the notices of intervention and timely, unopposed motions to intervene serve to make the entities that filed them parties to the proceedings in which these pleadings were filed. In addition, given their interest in the proceedings, the early stage of the proceedings, and the absence of undue prejudice or delay, we grant the unopposed, late-filed interventions submitted, in Docket No. ER15-623-000, by Panda, Covanta, Noble, AEIF and Morgan Stanley, and in Docket No. EL15-29-000, by Panda, EKPC, AEIF, and Morgan Stanley.

21. Rule 213(a)(2) of the Commission's Rules of Practice and Procedure prohibits an answer to a protest and an answer to an answer unless otherwise ordered by the decisional authority. We accept the aforementioned answers, in the proceedings in which they were submitted, because they have provided information that has assisted us in our decision-making process.

### **IV. Capacity Market Revisions**

22. As discussed more fully below, we conditionally accept PJM's Capacity Performance filing, subject to PJM's submitting a compliance filing within 30 days of the date this order issues. PJM has demonstrated that, in light of recent events and changes in the PJM region, its existing capacity market rules addressing capacity performance should be revised because they do not provide adequate incentives for resource performance and may negatively impact reliability. We find that most of the proposed tariff revisions in the Capacity Performance Filing, as modified by certain aspects of PJM's Deficiency Letter Response, are just and reasonable and will provide appropriate incentives for resource performance. However, we condition our acceptance upon PJM's submission of a compliance filing to effectuate the modifications outlined in Appendix C and discussed in detail in the body of this order.

23. Unless otherwise noted herein, we find that PJM's Capacity Performance proposal, as modified by its Deficiency Letter Response,<sup>27</sup> is just and reasonable.<sup>28</sup> In the sections of this order that follow, we consider the specific elements of PJM's proposal, beginning with the need for reforms to PJM's capacity market.

**A. PJM's Justification for the Proposed Changes**

**1. PJM's Proposal**

24. PJM designed its existing capacity market construct (the Reliability Pricing Model, or RPM), to ensure resource adequacy at a reasonable cost through the use of an annual auction.<sup>29</sup> PJM states, however, that these rules have failed to keep pace with the level of commitments required, apply inadequate charges for sub-par performance, and do not adequately ensure actual performance. PJM adds that a resource adequacy construct that fails to provide adequate incentives for resource performance can threaten the reliable operation of PJM's system and force consumers to pay for capacity without receiving commensurate reliability benefits.

25. PJM explains that its existing rules compensate a capacity resource based on its real-time performance, by increasing, or decreasing, its total capacity revenue. Under these rules, a resource's "availability" during peak hours is determined based on whether the resource is able to operate in a given hour at expected levels, subject to a Peak Hour Assessment Charge. PJM states, however, that this existing penalty structure is inadequate, given that it places most of the risk of resource under-performance on loads, not on resource owners or operators. PJM notes, in its answer, a seller can earn substantial revenues through PJM's capacity auctions by committing its resource as capacity, with little concern that it will lose much of that revenue even if it performs poorly.<sup>30</sup> As such, the Peak Hour Assessment Charge provides little incentive to the seller to make capital improvements, or increase its operating expenses for the purpose of enhancing the availability of its unit during emergency conditions.

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<sup>27</sup> In its answer, PJM proposes to withdraw one element of its proposal in Schedule 8 of the RAA addressing load serving entity capacity obligation allocations. We therefore condition acceptance of PJM's proposal on removal of this element. PJM may, at its election, make a separate filing with the Commission addressing this matter.

<sup>28</sup> Nothing in this order prevents the enforcement of the Commission's Anti-Manipulation Rule. 18 C.F.R. § 1c.2 (2014).

<sup>29</sup> *PJM Interconnection, L.L.C.*, 117 FERC ¶ 61,331 (2006).

<sup>30</sup> See PJM answer at 7.

26. PJM states that its existing rules also limit a seller's opportunity to recover through the capacity market certain costs associated with improving the performance capability of its resource. Specifically, PJM's currently-effective offer cap for existing generators (the Avoidable Cost Rate), while allowing for the recovery of certain capital costs (*e.g.*, investments in dual-fuel capability), does not allow sellers to include in their sell offers the costs attributable to natural gas firm transportation arrangements. PJM states, however, that allowing capacity sellers to include costs of firm natural gas transportation in their capacity offers is not, alone, sufficient to fully address the problem. According to PJM, even if a seller could include such costs in its Avoidable Cost Rate, PJM's existing rules provide inadequate deterrents to poor performance to incent it to incur such costs. PJM explains that doing so would reduce the seller's probability of clearing the capacity market because the seller must compete with other sellers that can clear in the auction and receive all, or most, of their allotted capacity payments without making the same type of investments.

27. PJM contends that the deficiencies in PJM's existing rules, in this regard, will only be exacerbated, if they remain in effect, as additional natural gas-fired resources come online. PJM states that in the years following its implementation of PJM's capacity auctions, its generator forced outage rates have increased. In particular, PJM notes that resource performance fell well below expected levels during the extreme weather events of January 2014 (*i.e.*, during the polar vortex), when PJM's forced outage rate (22 percent) far exceeded its 7 percent historical average.<sup>31</sup>

28. In response to these deficiencies, PJM proposes to replace its existing capacity products with a new capacity product, a Capacity Performance Resource, capable of sustained, predictable operation such that the resource will be reliably available to provide energy and reserves in an emergency condition. As a transition to the Capacity Performance product, PJM proposes a separate, interim capacity product with a lower performance expectation, referred to as a Base Capacity Resource, for the 2018-19 and 2019-20 delivery years. PJM states that it will procure at least 80 percent of the region's capacity requirement for those years in the form of Capacity Performance Resources, with the remainder composed of Base Capacity Resources. For the 2020-21 delivery year and beyond, PJM proposes to procure all of the region's capacity requirement in the form of Capacity Performance Resources.

29. PJM contends that because RPM secures capacity commitments on a three-year forward basis, RPM reforms, for the most part, can only take full effect on a three-year-forward basis. It notes that the next RPM Base Residual Auction will secure capacity commitments for the delivery year that starts on June 1, 2018. PJM states that if it deferred these proposed changes to the following Base Residual Auction, held in

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<sup>31</sup> *See id.* at 21-22.

May 2016 for the delivery year that starts on June 1, 2019, five years would pass after 2014 without implementing a full remedy to the manifestly deficient performance requirements in the current rules.

## 2. Protests and Comments

30. Intervenors protest PJM's Capacity Performance proposal, and the associated energy market changes, as premature and insufficiently vetted with stakeholders. Numerous protestors argue that PJM sought, and received, inadequate stakeholder input on its proposal. APPA/NRECA protest the breadth and haste of PJM's proposal, asserting a "dearth of evidence that such drastic changes are necessary" at this time. Allegheny likewise argues that a "comprehensive stakeholder process" is needed to more fully define and develop an appropriate solution. Direct Energy and Dominion argue that further stakeholder processes would allow market participants to discuss whether there are more appropriate solutions than PJM's proposal. PHI asserts that, prior to approving the proposal, the Commission should require PJM to provide stakeholders a comprehensive financial impact analysis of the proposed changes.

31. Intervenors characterize PJM's proposed establishment of a Capacity Performance Resource as a disproportionate response to the abnormal weather patterns experienced in January 2014. Joint Consumers assert that these conditions were anomalous, i.e., that they had not been experienced for many years and are not likely to recur during future delivery years. OPSI points out that PJM has undertaken other initiatives to address and resolve reliability concerns highlighted by the events in January 2014, including improvements to coordination of the natural gas and electric markets, transmission systems, and fuel assurance. Public Interest Organizations concur, noting that the one-time gap between capacity commitments and actual performance has decreased. Essential Power argues that PJM's proposal is unjust and unreasonable because it fails to make changes to its day-ahead energy market scheduling practices so that generators have notice of their obligation to run in time to use their firm natural gas transportation rights.

32. APPA/NRECA, PHI, Allegheny, and Joint Protestors argue that PJM has not explained why less extensive measures to address unit performance currently being developed and implemented are insufficient. U.S. Agencies, the Delaware Commission, and Direct Energy, too, state their concern that PJM's proposal appears to be an overreaction to potential supply shortages with low probabilities. Illinois Commission protests that PJM has not demonstrated why, after the transition period, it is necessary that all capacity in PJM be Capacity Performance Resources, suggesting that PJM consider the development of a capacity product with seasonal characteristics. Joint Protestors argue that the focus should be on addressing operational issues directly

through improved price formation, noting that PJM reported improvements in unit availability during January 2014.<sup>32</sup>

33. Intervenors challenge PJM's proposal as unduly expensive and unsupported as to its cost impact. The Pennsylvania Commission asserts that PJM has not attempted to quantify the cost impact of its proposal. The Delaware Commission argues that there are many aspects of PJM's proposal for which the costs and benefits cannot be estimated with any degree of certainty. Joint Consumers, CleanGrid, Allegheny, and APPA/NRECA argue that PJM's proposal will increase capacity costs dramatically for consumers without providing any additional assurances of reliability that are not already being provided, or could not be provided, through more surgical means. OPSI and the Delaware Commission similarly argue that PJM has not provided sufficient data to show that the expenditures proposed are needed for reliability and asserts that the cost-effectiveness of the proposal must be examined through a hearing. Direct Energy argues that PJM's proposal will lead to significant unwarranted capacity cost increases, including during the proposed transition period.

34. Public Interest Organizations point out that while, in the *Fuel Assurance Guidance Order*, the Commission emphasized the need to consider both costs and benefits in evaluating any capacity performance proposal, PJM's proposal fails to demonstrate that the asserted benefits outweigh the costs. Specifically, Public Interest Organizations cite to PJM's cost-benefit study of its October 7, 2014 capacity performance proposal, showing net incremental costs (taking into account the savings from load payments and uplift) for the next three delivery years would be in the range of \$1.4 to 4.0 billion, i.e., that it would be less costly to pay uplift during extreme weather conditions. CleanGrid argues that, by compromising the participation of renewables, demand response, and energy efficiency, which drives down market clearing prices, PJM's proposal will lead to "dramatically higher" costs for consumers.

35. Intervenors also question whether the approach taken by ISO-NE to address capacity performance can be applied to PJM's markets. Direct Energy argues that there are significant differences in the PJM and ISO-NE markets that warrant different capacity performance proposals. Public Interest Organizations argue the PJM region is larger than ISO-NE and requires a more diverse supply of resources. The PJM Utilities Coalition argues that the alternative approach to fuel assurance taken by ISO-NE (a price-incentive approach) would not be appropriate for PJM, given the speculative offer behavior in PJM's capacity auctions and the fact that offers will not always reflect the physical attributes of the underlying resource.

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<sup>32</sup> Joint Protestors comments to PJM's Deficiency Letter Response at 14-15.

### 3. PJM's Answer

36. PJM, in its answer, defends its proposal to improve resource performance in its markets. PJM argues that it did not file its Capacity Performance proposal to address one year or one set of circumstances. Rather PJM contends that its proposal is designed to address a fundamental shortcoming in PJM's capacity construct. In response to claims that PJM's proposal is an overreaction to the Polar Vortex, PJM asserts that while the Polar Vortex provided a dramatic demonstration of these adverse effects, the lack of similar disruptions this winter do not demonstrate that the conditions seen in January 2014 were a one-time event that could not be duplicated in the future. PJM contends that, given projected retirement trends and the region's increased reliance on natural gas, it is prudent for PJM to eliminate disincentives to sound unit performance even if another Polar Vortex does not occur in the near future.

37. PJM also responds to intervenors' assertion that PJM's proposal is deficient, absent the consideration of a cost-benefit analysis. PJM asserts that the Commission, generally, does not require such a showing, when the proposed changes are otherwise just and reasonable.<sup>33</sup> PJM adds that, regardless, it did prepare a cost-benefit analysis for its stakeholders, with input from the Market Monitor, with findings that highlight the overall economic benefits of PJM's proposal, including improved performance and a reduction in uplift. PJM asserts that, based on these findings, the economic benefits attributable to its proposal exceed the economic costs in years with extreme weather.

### 4. Additional Answers

38. Calpine, in its answer, responds to the Joint Consumers' claim that PJM's filing represents an over-reaction to the Polar Vortex. Calpine argues that PJM's filing addresses valid reliability concerns and the underlying deficiencies in PJM's existing capacity market construct, including the incentives and allowances that give rise to PJM's forced outage rates.<sup>34</sup> The PJM Utilities Coalition notes that, in February, the PJM system has experienced its fifth and seventh highest winter peaks on record and that if nothing is done to improve performance, PJM could experience a loss-of-load event as early as delivery year 2015-16, if conditions similar to the events of January 2014 occur.

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<sup>33</sup> PJM answer at 15 (citing *Sw. Power Pool, Inc.*, 141 FERC ¶ 61,048, at P 57 (2012)).

<sup>34</sup> Calpine adds that, while the Polar Vortex itself may have been a highly unusual event, the problems it highlighted have been developing for years and, if not addressed, will jeopardize reliability of the PJM grid, even if there is never another Polar Vortex.

39. Exelon answers that, without rule changes, capacity performance will continue to decline in the coming years, due to the failure of PJM's existing rules to provide adequate incentives for performance. Exelon notes that operations and maintenance spending for coal units has declined, resulting in worsening forced outage rates; an unprecedented number of coal plants are scheduled to retire; and additional coal and nuclear plants are at risk of retirement. Exelon further notes that these units will be replaced by single-fuel natural gas plants that will draw on the same constrained supply infrastructure that resulted in the curtailment of one-fifth of PJM's natural gas fleet last winter.

40. Exelon also responds to intervenors' argument that PJM's establishment of a Capacity Performance Resource product, as proposed, is too costly. Exelon argues that the Commission's prior acceptance of PJM's one-event-in-10-years loss-of-load expectation carries with it an implicit finding that the benefits attributable to achieving this standard are cost-justified. In response to intervenors' claims that PJM's proposal is too costly and is unsupported by any cost-benefit analysis, Exelon states that it conducted its own cost-benefit analysis and that the analysis demonstrates that the benefits of PJM's proposal will outweigh its costs.

## 5. Commission Determination

41. We find that PJM has provided sufficient justification for its proposed revisions to its capacity market rules. Under PJM's existing rules, if PJM procures capacity in an amount that exceeds the region's Net Installed Capacity Requirement, resource adequacy for the relevant delivery year is assumed to have been achieved. However, this existing procurement standard notwithstanding, PJM demonstrates that the combination of deteriorating resource performance and the ongoing change in the resource mix in the PJM region makes rule changes appropriate.

42. PJM presents evidence that generator equivalent forced outage rates have steadily increased since implementation of RPM and the Peak-Hour Period Availability charge with delivery year 2007-08.<sup>35</sup> In addition, the Polar Vortex of January 2014 was notable not only for the 22 percent forced outage rate, but also for the scope and breadth of reasons resources were unable to deliver energy during the extreme cold temperatures. While PJM reports that natural gas interruptions accounted for the largest single cause of resource non-performance, on a MW basis, roughly three-quarters of the over 40,000 MW on forced outage were due to other causes.<sup>36</sup> This evidence reasonably supports PJM's concern that the problem is one in which resources are not being properly incented

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<sup>35</sup> PJM transmittal at 15-16 (Docket No. ER15-623-000).

<sup>36</sup> *Id.* at 17-18.

to make the investments required to perform reliably, including during extreme weather conditions.

43. PJM also presents evidence that, absent rule changes, resource performance will continue to decline in future delivery years, given the current retirement trends in the region and resource owners' increasing reliance on natural gas as a fuel source. PJM states that "[c]umulatively since 2008, and projecting forward to 2019, over 26,000 MW of coal and oil-fired generation in the PJM [r]egion have retired or are expected to retire."<sup>37</sup> PJM further states that the vast majority of resources seeking to enter the PJM region in every one of the past five years has been natural gas-fired, and that, currently, natural gas-fired projects account for approximately 82 percent of the projects listed in its interconnection request queue.<sup>38</sup> Although the *Fuel Assurance Guidance Order* noted that the Commission's concerns regarding fuel assurance issues are not limited to natural gas-fired resources,<sup>39</sup> this resource type – and a re-weighting of PJM's fleet toward natural gas – does present unique challenges. Accordingly, we find that these significant ongoing changes to the resource mix in PJM and the demonstrated deterioration in existing resource performance in recent years together provide sufficient justification for PJM's proposal to enhance the reliability of resources in the capacity market.

44. Some parties argue that generators already improved cold-weather performance in response to the outages experienced during the Polar Vortex. In support of this assertion, these parties point to lower outage rates in the current 2014-15 delivery year. While encouraging, this does not assuage the long-term reliability concerns raised by historical unit performance. Moreover, it is not uncommon for performance to improve after an event, only to trail off later. PJM has shown that, although its capacity market construct has been successful in procuring commitments three years in the future, it has not been successful in ensuring that resources actually perform when called upon three years in the future. The record reflects that there are three primary reasons for this failure to perform: (1) a lack of an adequate penalty structure; (2) a limited ability to recover costs of necessary investments; and (3) an incentive to trim capital improvement plans and operating budgets.<sup>40</sup> We discuss each of these shortcomings of the current market design, below.

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<sup>37</sup> *Id.* at 12.

<sup>38</sup> *Id.* at 12-13.

<sup>39</sup> *Fuel Assurance Guidance Order*, 149 FERC ¶ 61,145 at P 7.

<sup>40</sup> PJM transmittal at 23-25 (Docket No. ER15-623-000); Exelon January 20, 2015 comments at 11, 16-17 (citing PJM Interconnection L.L.C., 2014 Reserve Requirement

45. As to the lack of an adequate penalty structure, while PJM's existing OATT includes charges for capacity resources that fail to perform when called upon, PJM's experience has shown these charges to be insufficient. As PJM indicates, even poorly performing resources can expect to pay only minimal penalties, placing most of the risk of under-performance on load. For example, PJM's Peak-Hour Period Availability Charge applies when a resource's actual availability, during 500 peak hours of the delivery year, is worse than the resource's five-year average annual outage experience. As PJM demonstrates, this charge creates a perverse incentive, whereby a poorly-performing resource can avoid penalties by improving its performance only slightly over its five-year average. It also applies to too many hours of the delivery year, allowing resources to offset poor performance during critical emergency hours with adequate performance during other peak hours. As PJM shows, for the 2013-14 delivery year that saw the significant forced outage rates during Polar Vortex days described above, Peak-Hour Period Availability Charges totaled approximately \$38.9 million, or just 0.6 percent of total capacity revenues.<sup>41</sup> While PJM will also reduce a capacity resource's saleable megawatt (MW) value to reflect its forced outage history, such reductions are only realized in subsequent years, and will typically only change a resource's saleable capacity by a few percentage points each year. Without more stringent penalties, PJM has shown there is little incentive for a seller to make capital improvements, or increase its operating maintenance for the purpose of enhancing the availability of its unit during emergency conditions.

46. As to limited recovery of costs for necessary investments, PJM shows that its existing rules also limit the seller's opportunity to recover, as a capacity resource, the costs it must incur to improve the performance capability of its resource. Specifically, PJM's currently-effective offer cap for existing generators (the Avoidable Cost Rate), while allowing for the recovery of certain capital costs (*e.g.*, investments in dual-fuel capability), skews investment decisions toward capital procurement and does not allow sellers to include in their sell offers costs attributable to other means of securing reliable fuel, such as natural gas firm transportation arrangements or priority fuel procurement contracts. PJM asserts that the deficiencies in its existing rules, in this regard, will only be exacerbated if they remain in effect as additional natural gas-fired resources come on line.

47. Additionally, PJM explains that its existing rules operate in manner that encourages a seller to trim its capital improvement plans and operating budgets to remain competitive with resources that can clear in PJM's auction. As PJM indicates, faced with

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Study, October 9, 2014, at 8-9, <http://www.pjm.com/~media/planning/res-adeq/2014-pjm-reserve-requirementstudy.ashx>.)

<sup>41</sup> PJM transmittal at 9 (Docket No. ER15-623-000).

only minimal penalties, many resources offer into PJM's auction as price-takers, displacing resources that submit higher priced bids that account for such investments and incenting resources to delay prudent investments that would enhance fuel security or otherwise improve their performance capability.

48. For the reasons discussed above, we find that PJM adequately demonstrates the appropriateness of revising its existing capacity market construct at this time. PJM has shown that its existing payment features not only inadequately incent resource performance, but may perversely select less reliable resources over more reliable resources because a capacity seller's decision to forego investments that would improve resource performance allows it to offer in PJM's capacity market at a lower price and be paid the clearing price while providing less reliable service.

49. As to intervenors' arguments that PJM's proposal lacks the supportive findings of a cost-benefit analysis, we note, as a threshold matter, that the Commission does not generally require the mathematical specificity of a cost-benefit analysis to support a market rule change. Rather, the Commission considers the proposal in light of the currently effective tariff and comments in support and opposition to reach its determination. Here, on balance and in light of other changes on which we condition our acceptance, we find the proposal to be just and reasonable.

50. Intervenors' argue that better incentives for performance could be achieved through other means, including energy and ancillary services markets reforms. As discussed above, PJM has provided sufficient justification for its proposal and has shown that acting at this time to revise the existing capacity market construct is appropriate. We are unpersuaded that any of the reforms identified by intervenors are substitutes for this proposal or render it unjust and unreasonable. For example, although better alignment of electric market and natural gas pipeline scheduling deadlines would improve operations, it would not provide capacity market sellers the incentive to perform. We nevertheless note that the Commission will continue to take appropriate steps to encourage proper incentives and improved price formation in energy markets.<sup>42</sup>

## **B. Performance Requirements**

### **1. PJM's Proposal**

51. PJM states that a Capacity Performance Resource must be capable of sustained, predictable operation that allows the resource to be available to provide energy and

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<sup>42</sup> See *Price Formation in Energy and Ancillary Services Markets Operated by Regional Transmission Organizations and Independent System Operators*, Docket No. AD14-14-000.

reserves whenever PJM determines an emergency condition exists. PJM states that, rather than establishing prescriptive eligibility requirements such as delineating acceptable fuel transportation arrangements, storage requirements for dual fuel capable units, or weatherization requirements, PJM proposes that an offer as a Capacity Performance Resource include a representation, described in more detail below, that the Capacity Market Seller has made, or will make, the necessary investment to ensure the resource has the capability to provide energy when called upon by PJM.

52. PJM proposes that all annual Capacity Resources are eligible to offer in as Capacity Performance Resources, unless such resources qualify for an exception under the new proposed must-offer requirement in section 6.6A of Attachment DD.<sup>43</sup> PJM also proposes that an Annual Demand Resource be permitted to aggregate with other eligible resource types to submit a Capacity Performance offer.<sup>44</sup>

53. PJM notes that, as it moves towards a single Capacity Performance product, certain resources, including Intermittent Resources and Capacity Storage Resources, may not be capable of sustained, predictable operation and may not be able to provide energy during both summer and winter emergency conditions. PJM states, however, that resources of this sort should be encouraged to continue to participate in PJM's capacity market. Accordingly, PJM proposes that sellers that own one or more Capacity Storage Resources, Intermittent Resources, Demand Response Resources, or Energy Efficiency Resources that are located within the same Locational Deliverability Area be permitted to submit an offer as a Capacity Performance Resource, as represented by the aggregated unforced capacity value of such resources (aggregated offer).

54. PJM proposes that, given the application of Non-Performance Charges and Performance Bonus Payments under the Capacity Performance design (as discussed in Section V.C, below), compliance for PJM-dispatched load reductions should be based on real-time energy load reductions provided using the same Customer Baseline Load methodology that PJM currently utilizes for measuring load reductions in the energy market.<sup>45</sup> PJM proposes to determine the unforced capacity value of Demand Resources,

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<sup>43</sup> PJM thus proposes to eliminate Limited Demand Resources and Extended Summer Demand Resources.

<sup>44</sup> See proposed OATT at Attachment DD, section 5.6.1(h).

<sup>45</sup> See proposed RAA at Schedule 6, section G and proposed OATT at Attachment DD-1, section G. PJM states that for Demand Resources that employ direct load control to measure and ensure reductions in load based on the time period of the control signal, it does not propose to change non-summer compliance measurement to the customer baseline load method because direct load control-based resources have established the ability to reduce load in response to a control signal and thus the control signal is

starting with the 2018-19 delivery year, as the nominated value times the forecast pool requirement and to eliminate the step of multiplying that product by the “demand response factor.”<sup>46</sup> PJM asserts that, under its proposal, demand response factor discounting due to assumed constant quantities of load reductions at high load levels is no longer necessary.<sup>47</sup>

55. PJM also proposes rule changes applicable to Energy Efficiency Resources, similar to those summarized above for Demand Resources. First, PJM proposes to broaden the definition of Energy Efficiency Resources to allow for winter-peak reductions, in addition to summer-peak reductions. PJM also proposes to establish a new energy efficiency resource product, called Annual Energy Efficiency Resource, and to rename the existing product as Base Capacity Energy Efficiency Resource.<sup>48</sup>

56. PJM proposes that an Annual Energy Efficiency resource be permitted to offer as either (or both) a Capacity Performance Resource or a Base Capacity Resource, while a Base Capacity Energy Efficiency Resource be permitted to offer only as a Base Capacity Resource. PJM also proposes that Energy Efficiency Resources be permitted to

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sufficient to determine compliance. PJM also proposes no change in the measurement of load reductions during the summer months, regardless of whether the Demand Resource is a Base Capacity Resource or a Capacity Performance Resource.

<sup>46</sup> Proposed RAA at Schedule 6, section L and proposed OATT at Attachment DD, section 5.11(a)(iii). The demand response factor is the increase in the peak load carrying capability in the PJM region due to demand response resources divided by the total nominated value of demand response resources in the PJM region. It is determined using a probabilistic approach to determine reliability. *See e.g.* RAA at Schedule 6, section B and proposed OATT at Attachment DD-1, section B.

<sup>47</sup> For this same reason, PJM also proposes to eliminate consideration of the demand response factor from the determination of an Energy Efficiency Resource’s unforced capacity value. *See* proposed RAA at Schedule 6, section L(3) and proposed OATT at Attachment DD-1, section L(3)

<sup>48</sup> *See* proposed RAA at Schedule 6, section L(2) and proposed OATT at Attachment DD-1, section L(2). PJM adds that an Annual Energy Efficiency Resource is designed to achieve a continuous reduction in energy consumption in both the summer and winter peak seasons, with a reduction time-frame from 2:00 p.m. to 6:00 p.m. over the summer months (June through August) – the same summer time-frame as will apply to Base Capacity Energy Efficiency Resource. PJM states that the winter peak season will be from January through February, with a reduction time-frame from 7:00 a.m. to 9:00 a.m. and from 6:00 p.m. to 8:00 p.m. each day. *Id.*

aggregate and submit offers, whether coupled or not, as a Base Capacity Resource or a Capacity Performance Resource.

57. PJM also proposes that a Capacity Performance offer be accompanied by a good faith representation as to the seller's performance ability.<sup>49</sup> With respect to External Generation Capacity Resources, PJM proposes that any such resource be required to represent that it meets the criteria for obtaining an exception to the Capacity Import Limit as contained in section 1.7A of the RAA.<sup>50</sup> PJM also proposes that knowingly false representations may be determined by PJM to constitute a violation of, and may subject the seller to penalties under, PJM's market rules and/or the Commission's market rules.

58. PJM also proposes to reserve the ability for PJM or the Market Monitor to obtain information and documentation from a seller to evaluate whether a given resource can meet the operational and performance requirements applicable to a Capacity Performance Resource. PJM states that this review allowance is similar to the process currently in

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<sup>49</sup> Proposed PJM OATT at Attachment DD, section 5.5A(c). Specifically, the seller would be required to represent that it: (i) "has made, or is capable of demonstrating that it will make, the necessary investment to ensure the Capacity Resource has the capability for the entire such Delivery Year to provide energy at any time when called upon by the Office of the Interconnection"; (ii) "shall be capable of complying with the performance obligations specified in this Attachment DD and in Schedule 1 of the Operating Agreement, by the relevant Delivery Year"; (iii) "meets the criteria for obtaining an exception to the Capacity Import Limit as contained in section 1.7A of the [RAA], to the extent the underlying Capacity Resource is an external Generation Capacity Resource"; and (iv) "contemplates the physical delivery of the Capacity Performance Resource underlying such Sell Offer by no later than the commencement of the applicable delivery year." PJM notes that an offer would not be deemed to meet the standard of physical delivery if, at the time it was submitted, the seller intended to satisfy its obligation for the applicable delivery year by subsequently securing a replacement Capacity Performance Resource through either an Incremental Auction or a bilateral transaction.

<sup>50</sup> The criteria for an exception are that the external resource: (i) has met all applicable requirements to be treated as equivalent to PJM region internal generation that is not subject to North American Electric Reliability Corporation (NERC) tagging as an interchange transaction; (ii) has long-term firm transmission service confirmed on the complete transmission path from the resource into PJM; and (iii) will be subject to the same obligations imposed on Generation Capacity Resources located in the PJM region by section 6.6 of Attachment DD of the OATT, including the capacity market must-offer requirement. RAA at Article 1 – Definitions, 1.7A.

place with respect to demand response sell offers. PJM adds that, if the seller can provide a satisfactory explanation of how it intends to meet the standard of performance to deliver energy during emergency conditions, with supporting documentation, if requested, PJM will accept the seller's offer. PJM states that, under its proposal, it would be required to provide the seller and the Market Monitor with any determination to reject an offer no later than 65 days prior to the commencement of the offer period for the relevant capacity auction. The seller would thereafter be permitted to seek recourse with the Commission if it does not agree with PJM's determination.

59. PJM asserts that, in response to its proposed rule changes (including its proposed Non-Performance Charges, as discussed in Section V.C of this order, below), market participants will be encouraged to invest in plant redesign changes or new equipment, or increase operating budgets to accommodate more staff, firm fuel delivery arrangements, greater inventories, or changed operating practices. PJM emphasizes that, while it is not prescribing the manner in which sellers will ensure that their resources perform, PJM's capacity auctions, by clearing some but not all offers, will reveal which strategies are cost-effective. In further support of its proposal, PJM cites to its existing rules requiring reasonable assurances that Demand Response Resources submitting offers into PJM's capacity market will, in fact, be able to provide the offered capacity.<sup>51</sup> PJM asserts that this expectation and its corresponding requirement are as applicable to Generation Capacity Resources as they are to Demand Response Resources.

## 2. Protests and Comments

60. Some intervenors argue in their protests that PJM should clearly define eligibility requirements for Capacity Performance Resources. Joint Protestors and Exelon suggest that PJM's definitions should consist of specific criteria, not aspirational statements. Joint Protestors contend that as set forth in the proposed tariff, the eligibility criteria are: (1) the resource has either cleared a capacity auction or is otherwise committed as a capacity resource; and (2) the resource is obligated to deliver energy during the relevant delivery year as scheduled and/or dispatched by the Office of Interconnection during the Performance Assessment Hour.<sup>52</sup> Joint Protestors and Exelon recommend that PJM's eligibility requirements and process be modified such that there are clear and

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<sup>51</sup> PJM transmittal at 24 (Docket No. ER15-623-000) (citing *PJM Interconnection, L.L.C.*, 146 FERC ¶ 61,150 at P 22 (2014)).

<sup>52</sup> Proposed PJM OATT at Attachment DD, section 2.48A. (“Performance Assessment Hour’ shall mean each whole or partial clock-hour for which an Emergency Action has been declared by the Office of the Interconnection, provided, however, that Performance Assessment Hours for a Base Capacity Resource shall not include any hours outside the calendar months of June through September.”)

understandable eligibility requirements, which would eliminate both opportunities for conflict and manipulation by sellers and the necessity for PJM or the Market Monitor to judge whether the resources qualify. Joint Protestors claim that PJM's proposal will be unworkable and overly cumbersome and therefore unjust and unreasonable. Exelon requests that the Commission direct PJM to create Capacity Performance eligibility screens for units that historically have performed poorly.

61. Intervenors protest PJM's proposed treatment of renewable resources. Wind Energy and Renewables Coalition argues that PJM's proposal would incent renewable and intermittent resources to offer less capacity than their true value and does not account for all resources' full contribution to the total power system capacity. U.S. Agencies, Public Interest Organizations, and CleanGrid argue that PJM's proposal fails to value renewable resources, conflicts with important state and federal public policies, and functionally eliminates the participation of renewables, demand response, and energy efficiency and storage in PJM's capacity market.

62. Intervenors also argue that PJM's proposal creates unnecessary barriers to entry to demand response, potentially reducing the absolute volume of Demand Resources that may participate and decreasing the forms of demand response available. The Pennsylvania Commission characterizes PJM's existing demand response rules as well-designed and argues that PJM's proposed expansion of its existing hours-of-performance requirements for Demand Resources represent a disproportionate response that will likely lead to less demand response participation, less reliability, higher costs to consumers, and less resource diversification. Intervenors also object to PJM's proposed elimination of Limited and Extended Summer Demand Response. Joint Consumers and Rockland argue that there are cost savings associated with these summer peaking resources and that a mix of resource types, including Limited Demand Response, Extended Summer Demand Response, and peaking generation resources, is appropriate to meet PJM's expected peak load service obligations.<sup>53</sup>

63. Public Interest Organizations assert that PJM's proposal to allow for aggregated offers from certain resources (i.e., from Capacity Storage Resources, Intermittent Resources, Demand Resources, or Energy Efficiency Resources) will help alleviate the

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<sup>53</sup> *See also* Public Interest Organizations comments at 12 (arguing that eliminating sub-annual demand response will increase costs to consumers by more than \$2.2 billion, as shown by the Market Monitor's 2017-18 Base Residual Auction sensitivity analysis); Rockland protest at 6-7 (arguing that it is unreasonable to assume that Limited and Extended Summer Demand Response will be able to pool with other demand response to participate as Capacity Performance Resources and that PJM's proposal fails to adequately recognize steps already taken to address concerns that such resources have limited availability).

adverse impact that PJM's Capacity Performance Resource requirements will have on these resources. Nonetheless, Public Interest Organizations, and others, assert that clarification of this allowance is required, given that the proposed language could be read to require that aggregated resources must come from the same seller or be controlled by the same seller, an interpretation they argue could unduly favor sellers with large portfolios. The Illinois Commission and Essential Power agree, arguing that PJM's proposal to prohibit resource aggregation across companies or across Locational Deliverability Areas will foreclose competition from companies that do not own a diverse portfolio of different resource types. Joint Protestors similarly claim that PJM's proposal discriminates against single-plant capacity owners by not allowing them to aggregate with other units. ESA requests clarification that the intent of PJM's proposal is to allow resources to be aggregated, so long as they are located within the same unconstrained Locational Deliverability Area group, rather than the same Locational Deliverability Area. Wind Energy and Renewables Coalition assert that PJM should also allow variable resources to aggregate with any other type of resource.

64. The Pennsylvania Commission characterizes PJM's proposal to exclude resources other than Capacity Storage Resources, Intermittent Resources, Demand Resources, and Energy Efficiency Resources as unsupported. Joint Protestors argue that the proposal gives undue preference to variable resources because the differing treatment has no valid basis in reliability considerations or other relevant factors.

65. EPSA protests that allowing Demand Resources to submit aggregated offers is contrary to the intent underlying PJM's Capacity Performance construct and is at odds with PJM's efforts in other proceedings to require demand response to participate on an equal or more comparable footing with generation resources.

66. Covanta asserts that small power production facilities operating as qualifying facilities under the Public Utility Regulatory Policies Act of 1978 (PURPA)<sup>54</sup> should be allowed to use fossil fuels to deliver energy and reserves when participating as Capacity Performance Resources.<sup>55</sup>

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<sup>54</sup> 16 U.S.C. § 2601 *et seq.* (2012).

<sup>55</sup> Covanta therefore requests that the Commission exempt such qualifying facilities' use of fossil fuels, when called upon by PJM during emergencies, from the 25 percent limitation set forth in Section 292.205(b) of the Commission's regulations. In the alternative, Covanta asks the Commission to require PJM to revise its proposal to permit such qualifying facilities that are waste resources to participate as Capacity Performance Resources in a way that will not jeopardize their status under PURPA. *See* Covanta comments at 5 (asserting that such an exemption would be consistent with Section 292.204(b)(2) of the Commission's regulations which permits the use of fossil

67. Intervenors protest PJM's proposal to reserve for itself the ability to evaluate whether a given resource meets the operational and performance requirements applicable to a Capacity Performance Resource. NRG/Dynegy asserts that the provisions allowing PJM to reject a resource's Capacity Performance offer are too ambiguous and give PJM excessive discretion. NRG/Dynegy adds that PJM's proposal creates un-hedgeable risks for suppliers. The Market Monitor asserts that PJM's proposal fails to set clear, appropriately stringent standards regarding the ability of a resource to be physically delivered, particularly as this requirement will apply to Demand Resources, planned generation, and imports. The Market Monitor further argues that in addition to the authority that PJM seeks to review and, when appropriate, reject a sell offer, the Market Monitor should also be authorized to reject an offer. The PJM Utilities Coalition characterizes, as unduly rushed, PJM's proposed process by which a seller deemed ineligible to perform could appeal that ruling to the Commission in advance of the relevant auction.

68. Intervenors also object to PJM's proposed good faith representation requirement. The PJM Utilities Coalition argues that such a requirement will be difficult to enforce, especially in the case of a resource that is simply unrealistic (but strategic) about its ability to secure firm fuel arrangements. Wind Energy and Renewables Coalition assert that market forces alone are sufficient to meet PJM's underlying objective. Brookfield requests clarification that a capacity market seller's good faith representation cannot be deemed to be knowingly false or inconsistent, or in violation of PJM or Commission market rules, if it is given in accordance with Good Utility Practice. With respect to PJM's proposal that a seller be required to make a good faith representation that its offer contemplates the physical delivery of its Capacity Performance Resource, the Pennsylvania Commission objects to the proposed corollary requirement that such an offer will not be found to have met this standard if, at the time it is submitted, the seller intends to satisfy its obligation by subsequently securing a replacement resource through an Incremental Auction or a bilateral transaction. The Pennsylvania Commission argues that such a rule could have a negative impact on the procurement of demand response, given that customers who participate in demand response markets, through curtailment service providers, often switch providers.

69. The PJM Utilities Coalition requests that PJM be required to adopt tariff language specifying that, to qualify as a Capacity Performance Resource, a resource will either have on-site fuel back-up or firm natural gas supply. The PJM Utilities Coalition further argues that "firm natural gas supply" should be defined as firm natural gas supply commodity and firm natural gas supply transportation, storage, or the equivalent, and that

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fuels for "emergencies, directly affecting the public health, safety, or welfare which would result from electric power outages").

any resource failing to meet this criteria should be required to submit an officer-certified plan demonstrating its reasonable expectation to meet this standard by the required delivery year. The PJM Utilities Coalition argues that such plan would be consistent with the Commission's approvals in the case of PJM's Demand Resources.<sup>56</sup>

70. Intervenors also challenge the eligibility requirements that will apply to the designation of a Capacity Performance Resource. UGI raises the issue of a natural gas-fired generator subject to a state law-based natural gas curtailment process. UGI argues that, in this circumstance, it cannot be concluded that such a resource is categorically unable to perform, or otherwise not similarly situated to other natural gas-fired generators. Gas Alliance seeks clarification regarding the treatment of natural gas-fired generators receiving fuel from a local distribution company behind the city gate. Essential Power argues that generators that are unable to perform due to tariff-based limitations that preclude their operation (*i.e.*, due to the need to preserve natural gas service to other customers), should not be penalized, as ineligible, under PJM's proposal. Shell argues that PJM's proposal fails to describe what investment is adequate to demonstrate eligibility. Specifically, Shell argues that it is unclear how a generator could qualify as a Capacity Performance Resource when it does not own the relevant resource, but rather operates that unit under a long-term contract.

71. The Illinois Commission and Joint Consumers argue that planned generation resources should not be required to execute an Interconnection Facilities Service Agreement before being eligible to offer into PJM's capacity markets, arguing that such a requirement would act as a barrier to entry and reduce competition. The Illinois Commission asserts that such a requirement is unwarranted, unless and until PJM can identify any negative market outcomes from allowing planned generation resources to offer into PJM's capacity markets. Joint Consumers assert that, given the three-year forward nature of PJM's capacity market, a System Impact Study should be sufficient for a resource to qualify as a Planned Generation Capacity Resource.

72. Finally, intervenors address the effect of PJM's proposed designations on external resources. Brookfield requests clarification that, during an Emergency Action, PJM will not be authorized to recall a resource that is physically located within the PJM region but either has not cleared in a capacity auction or has secured replacement capacity, if such resource is exporting energy or capacity to another region. Joint Protestors and the Illinois Commission protest PJM's proposal to limit external resources' Capacity Performance offers to those resources that have exceptions to PJM's Capacity Import Limit, which include a requirement that the external generation become pseudo-tied by the beginning of the delivery year. The Illinois Commission argues that this requirement

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<sup>56</sup> PJM Utilities Coalition protest at 53 (citing *PJM Interconnection, L.L.C.*, 146 FERC ¶ 61,150 (2014)).

will unreasonably deter the entry of external resources into PJM's capacity market and exacerbate seams issues between PJM and adjacent regions. In addition, Joint Protestors and the Illinois Commission assert that the Commission has already rejected similar recommendations that the pseudo-tie requirement be made a requirement for all external resources seeking to participate in PJM's capacity auctions.<sup>57</sup>

### **3. PJM's Answer**

73. PJM responds to intervenors' arguments regarding PJM's proposed treatment of renewable resources. PJM asserts that requiring these resources to perform as a Capacity Performance Resource presents opportunities for these resources, not obstacles. PJM explains that none of these resource types will be obligated to offer as a Capacity Performance Resource during the transition period (as discussed in Section V.E, below) and, if they do choose to submit an offer, it may be aggregated. PJM adds that Demand Resources, Capacity Storage Resources, and Intermittent Resources will have the flexibility to determine the amount of capacity to offer into PJM's Base Residual Auctions, and, with this flexibility, will have the opportunity to profit by their over-performance.

74. PJM asserts that the aggregated offer option for Intermittent Resources, Capacity Storage Resources, Energy Efficiency Resources, and Demand Resources should alleviate intervenors' concerns regarding the potential for under-estimating the value of these resource types. PJM also clarifies how resources in different Locational Deliverability Areas, and resources that are owned by multiple entities, can be aggregated in the capacity account of a single market participant. Specifically, PJM states that aggregation will be feasible across Locational Deliverability Areas. PJM also states that, if directed to do so, it will submit revised tariff language addressing this proposed allowance.

75. PJM also responds to intervenors' argument that aggregation among any resource type should be permitted. PJM argues that such an approach would transform PJM's capacity bidding process from an individual unit approach to a portfolio bidding approach. PJM asserts that such an approach would be unwarranted. Nevertheless, PJM states that a traditional generation resource that is environmentally limited as a result of a government regulation, and which therefore could not otherwise offer as a Capacity Performance Resource, could potentially aggregate with another such limited resource or with an Intermittent Resource, Capacity Storage Resource, Demand Resource, or Energy Efficiency Resource. PJM also clarifies that aggregated resource offers are not required

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<sup>57</sup> Illinois Commission comments at 7 (citing *PJM Interconnection, L.L.C.*, 147 FERC ¶ 61,060, at P 21 (2014) (*Capacity Import Limit Order*); see also Joint Protestors protest at 68-70.

to be from the same entity and that it will consider resources to be in the same portfolio, to the extent such arrangements are reflected in the seller's account.

76. PJM also responds to intervenors' arguments regarding PJM's proposed good faith representation requirements. PJM clarifies that, under its proposal, Demand Resources will not be required to go beyond the requirements, including the "reasonable expectation" standard, as accepted by the Commission in Docket No. ER13-2108-000.<sup>58</sup> PJM further proposes to add additional guidelines to its good faith representation requirement, as applicable to fossil-fueled generation resources.<sup>59</sup>

77. PJM also clarifies that, under its proposal, a Capacity Performance Resource will not be required to operate during all hours of a delivery year; rather, it need only be

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<sup>58</sup> See PJM February 13, 2015 answer at 31 (citing *PJM Interconnection, L.L.C.*, 146 FERC ¶ 61,150 (2014)).

<sup>59</sup> Specifically, PJM proposes to revise Attachment DD, section 5.5A(a)(i) to provide that, in submitting a sell offer for a Capacity Performance Resource, the seller represents that

[E.] to the extent that the Capacity Performance Resource is not an Intermittent Resource, Capacity Storage Resource, Demand Resource or Energy Efficiency Resource, has obtained and holds, or reasonably expects to obtain and hold, the contractual and other rights necessary to ensure firm fuel supply to each of its affected units during the delivery year. For such purpose, units intending to rely on on-site fuel storage must be able to demonstrate, as needed, the basis for their reasonable expectation that such arrangements as may be necessary to replenish the on-site fuel on a rolling basis will be in place by the start of the delivery year in order to assure unit performance at all times throughout such delivery year; and units not intending to rely on on-site fuel storage must be able to demonstrate, as needed, the basis for their reasonable expectation that sufficient transmission, storage and fuel commodity supply contracts or arrangements will be in place by the start of the delivery year to assure unit performance at all times throughout the delivery year.

[F.] to the extent the Capacity Market Seller proposes to offer a Demand Resource as a Capacity Performance Resource, the representation in this subsection shall not be read to impose any greater, or lesser, obligation on a Capacity Market Seller offering a Demand Resource into [a capacity market] Auction than is established by Section A.1 of Schedule 6 to the RAA, or any officer certification provided thereunder.

capable of delivering energy and reserves when needed, including during emergency conditions. In response to UGI's concerns about single-fueled resources behind a local natural gas distribution company, PJM clarifies that there may be legitimate ways in which such a resource can meet its performance obligations, and that for this reason, PJM will request additional information from that resource at the outset and work with that resource to understand the basis for its sell offer and representation.

78. With respect to PJM's proposal to vest authority in itself to approve or reject a sell offer, PJM asserts that it must have this ability, consistent with its existing rules allowing PJM to reject a sell offer if it determines that the relevant resource does not qualify as a capacity resource.

79. PJM also responds to the objection made by the Illinois Commission and Joint Protestors in opposition to PJM's proposal that external resources, in order to submit a Capacity Performance Resource offer, must obtain an exception to PJM's Capacity Import Limit, which requires external resources to be pseudo-tied to PJM. PJM argues that its proposal is appropriate because it will ensure that external resources are on equal footing with internal resources. PJM asserts that it must be able to monitor what these resources are doing during the operating day. PJM adds that the exception requests it has received to its capacity import limit demonstrate that this requirement will not create a barrier to entry.

80. PJM also responds to intervenors' objections to PJM's proposed method for measuring demand response performance during non-summer emergency and compliance events. PJM argues that non-summer consumption that falls below the summer-based peak load contribution is insufficient to demonstrate performance, because any seasonal difference in demand is already accounted for in the planned outage schedules that PJM uses in calculating its installed reserve margin.<sup>60</sup>

81. Finally, PJM responds to the Illinois Commission's argument that a planned generation resource should not be required to execute a Facilities Study Agreement as a condition to its right to submit an offer into PJM's Base Residual Auction. PJM argues that its proposal is appropriate given its operational experience, i.e., that historically, project developers that have executed a Facilities Study Agreement have been more likely to complete their project in advance of the relevant delivery year.

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<sup>60</sup> PJM argues that, in the absence of a non-summer equivalent of peak load contribution, it must use an alternative measure of performance and customer baseline load is an appropriate alternative. PJM adds that any end user may have a lower nominated demand response value in non-summer months, and that if the resource wishes to submit an offer as a Capacity Performance Resource, it may do so at the non-summer capacity value or aggregate with another resource.

#### **4. Additional Answers**

82. Exelon, in its answer, also responds to AMP's argument that an eligibility standard requiring external resources to be tied to PJM under a long-term firm transmission service agreement, and subject to PJM's must-offer requirement, is unduly discriminatory. Exelon argues that PJM's proposed rules, as to external resources, are based on a reasonable classification that recognizes the degree to which firm transmission into PJM has been curtailed. Exelon also cites the Commission's prior finding that the risk of non-performance attributable to external resources, seeking to participate in PJM's capacity auctions, suggests that, in satisfying a capacity requirement, these resources may not be equal to internal resources.<sup>61</sup>

83. LS Power, in its answer, opposes PJM's proposed additions to Attachment DD, section 5.5A(a)(i), as addressed in PJM's answer. LS Power asserts that, on its face, PJM's proposed language would appear to require generators that do not have on-site storage to have firm fuel supply arrangements in place to assure performance at every moment of every day of the delivery year. LS Power asserts, however, that such a requirement is inconsistent with PJM's general approach to resource eligibility. Accordingly, LS Power seeks clarification that under PJM's proposed language, sellers will only be required to have the fuel supply arrangements necessary to provide a reasonable expectation, based on individual unit characteristics and the sellers' experiences with such units, that their generation facilities will be able to satisfy the Capacity Performance Resource obligations.

84. Joint Protestors, in their answer, argue that PJM's proposed eligibility requirements for a Capacity Performance Resource, as clarified by PJM in its answer, remain ill-defined and will subject reliable resources to the risk of not qualifying as Capacity Performance Resource or incurring excessive penalties based on excessively narrow excuses for non-performance. Joint Protestors also characterize PJM's review criteria as non-transparent and overly-subjective.

#### **5. Deficiency Letter, PJM's Response, and Protests and Comments**

85. The Deficiency Letter asked what mechanisms, other than the proposed seller representations, could be used to supplement the Non-Performance Charge to better incent resource performance. In addition the Deficiency Letter requested PJM to describe how it evaluates the performance of external resources that are not pseudo-tied to PJM, specifically, how and when PJM receives the data necessary to perform its evaluation.

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<sup>61</sup> See Exelon answer at 41 (citing *PJM Interconnection, L.L.C.*, 150 FERC ¶ 61,041 at P 14 (2015)).

86. In its answer, PJM states that it proposed an increased market seller offer cap which will allow resources to include the increased operating and capital costs necessary to improve resource performance. PJM posits that varying strategies will allow resources to determine the most efficient and cost effective ways to improve resource performance.<sup>62</sup> PJM contends that the opportunity to earn additional revenues with Performance Bonus Payments coupled with the Non-Performance Charge incent resources to perform because those resources with the highest performance will have the opportunity to earn the most revenue. PJM notes that, when coupled with its proposed rules regarding operating parameter limitations, resources are incented to increase performance at least cost. PJM contends that its proposed rules are designed to work together to reflect supply and demand fundamentals and rules that prevent units from avoiding the obligation to provide energy when needed.

87. In response to questions about measuring external resource performance, PJM states that external resources that are not dynamically transferred into PJM through either a pseudo-tie or a dynamic schedule are required to schedule their energy delivery into PJM via external interchange transactions.<sup>63</sup> PJM states that, for external resources using external interchange transactions, PJM does not receive unit-specific performance information.<sup>64</sup> Rather, PJM states that external interchange transactions are identified by customer account and the external balancing authority from which the energy being scheduled into PJM is sourced.

88. PJM contends that the fact that external interchange transactions are not unit-specific, and therefore cannot be tied to any specific external resource, is one of the reasons underlying the PJM proposal to require that external units be pseudo-tied into PJM to qualify as Capacity Performance Resources. PJM argues that without the benefit of the pseudo-tie, PJM cannot accurately determine whether an external capacity resource owner met its commitment to deliver energy to PJM from the specific resource committed as a Capacity Performance Resource. PJM contends that this information is critical to ensure that the performance assessment evaluations are completed accurately and that any Non- Performance Charges are applied correctly.

89. The PJM Utilities Coalition reiterates its request that PJM be required to adopt tariff language specifying more stringent and objective qualification criteria for capacity

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<sup>62</sup> PJM Deficiency Letter Response at 26.

<sup>63</sup> *Id.* at 29.

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

market participation, arguing that such criteria would have an even greater impact on ensuring reliable performance than the deterrent effect of Non-Performance Charges.<sup>65</sup>

90. Joint Protestors request that PJM modify the Capacity Performance seller representation that the seller “has made or is capable of demonstrating that it will make, the necessary investment to ensure the Capacity Resource has the capability for the entire such delivery year to provide energy at any time when called upon by the Office of the Interconnection.” Joint Protestors argue that it is physically impossible for any generation resource, even a Capacity Performance Resource, to be available 100 percent of the time and requiring such a certification as a condition precedent to qualify as a Capacity Performance Resource unreasonably exposes the certifying official to civil and criminal charges and significant penalties for making knowingly false statements.<sup>66</sup>

## **6. Commission Determination**

91. For the reasons discussed below, we accept, subject to conditions, PJM’s proposal addressing the performance requirements and expectations applicable to Capacity Performance Resources.

92. We find that PJM’s proposed mechanism for reviewing and, when appropriate, rejecting a sell offer is just and reasonable, subject to PJM removing the phrase “to the satisfaction of the Office of the Interconnection” from proposed section 5.5A(ii)(B) of Attachment DD. PJM’s existing tariff gives PJM the authority to reject a seller offer, as applicable to a capacity resource.<sup>67</sup> We find that this same authority is generally appropriate in the case of a Capacity Performance Resource offer, given that it will enable PJM to reject offers from resources that: (i) cannot reasonably be relied on to perform, as required, during emergency conditions; (ii) are purely speculative; or (iii) would otherwise undermine the intent of PJM’s Capacity Performance construct. We also accept PJM’s commitment to modify this provision, so that PJM will only reject an offer when a resource fails to demonstrate that it can reasonably be expected to meet Capacity Performance obligations consistent with the resource’s offer by the relevant delivery year. However, as the Commission has found previously, the scope of PJM’s

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<sup>65</sup> PJM Utilities Coalition comments to PJM’s Deficiency Letter Response at 11.

<sup>66</sup> Joint Protestors protest to PJM’s Deficiency Letter Response at 16 (citing 18 C.F.R. section 1c (2014) and FPA section 316A).

<sup>67</sup> *See* PJM OATT at Attachment DD, sections 5.6.6 and 5.8(i).

review authority must be appropriately defined and limited.<sup>68</sup> The phrase “to the satisfaction of the Office of the Interconnection” is too ambiguous and allows PJM too much discretion in determining whether a resource can meet the operational and performance requirements of Capacity Performance Resources.

93. We disagree with the Market Monitor’s argument that, in addition to PJM’s authority to review and, as appropriate, reject the sell offer of a Capacity Performance Resource, the Market Monitor should also be given the authority to reject an offer. Under PJM’s proposal, PJM will be required to consult with the Market Monitor and seek the Market Monitor’s advice and recommendations concerning a sell offer. We are not persuaded that the separate layer of review requested by the Market Monitor is required. We further note that, under Order No. 719, it is the RTO that is responsible for a prospective determination of this sort.<sup>69</sup>

94. PJM proposes to require a market seller submitting a Capacity Performance offer to make a good faith representation that (i) it has made, or will make, the necessary investment to ensure that its resource has the capability to provide energy when called upon; (ii) the resource meets the operational requirements and performance obligations applicable to Capacity Performance Resources; and (iii) the seller’s offer contemplates the physical delivery of the Capacity Performance Resource by no later than the commencement of the applicable delivery year. PJM also proposes that knowingly false representations may be determined by PJM to constitute a violation of, and may subject the seller to penalties under, PJM’s market rules and/or the Commission’s market rules. We are not persuaded that PJM’s proposed good faith representation requirement would provide any added value in incenting resource performance, and the scope of the required representations is unclear and could serve as an unnecessary barrier to entry for new Capacity Performance Resources.

95. In particular, we are concerned that significant aspects of the required representation are inappropriately vague and this ambiguity could incent well-performing resources to elect not to participate in the capacity market to avoid the risk of sanction under the provision, PJM’s market rules and/or the Commission’s authority. For

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<sup>68</sup> See *PJM Interconnection, L.L.C.*, 121 FERC ¶ 61,089 at P 35 (2007) (finding, in the case of credit requirements, that the review standard, “to PJM’s satisfaction,” is ambiguous and would grant undue discretion to PJM).

<sup>69</sup> See *Wholesale Competition in Regions with Organized Electric Markets*, Order No. 719, 73 Fed. Reg. 64,100 (Oct. 28, 2008), FERC Stats. & Regs. ¶ 31,281 at P 375 (2008), *order on reh’g*, Order No. 719-A, FERC Stats. & Reg. ¶ 31,292 (2009), FERC Stats. & Regs. ¶ 31,292 (2009), *order on reh’g*, Order No. 719-B, 129 FERC ¶ 61,252 (2009)

example, whether a resource meets “the operational requirements and performance obligations applicable to Capacity Performance Resources” may not be clear until a resource performs, or fails to perform. Given the significant ambiguity inherent in this requirement, and in light of the specific tariff provision designed to elicit performance and penalize failure to perform, we find that PJM has not demonstrated that the required good faith representation is either necessary or just and reasonable. Accordingly, we conditionally accept PJM’s filing, subject to the removal of this provision from its proposed tariff changes. We further note that PJM’s tariff reflects requirements that generally pertain to the good faith representations PJM seeks to elicit. PJM’s tariff currently provides, for example, that a resource with a capacity commitment must offer into the day-ahead and real-time energy markets, must leave its real-time offer open throughout the operating day, and must follow PJM’s dispatch instructions.<sup>70</sup> In addition, as discussed above, PJM will be authorized to review Capacity Performance Resource sell offers in order to mitigate speculative participation in PJM’s capacity market.

96. Notwithstanding the above finding, we find merit in PJM’s proposal that External Generation Capacity Resources be required to meet the criteria for obtaining an exception to PJM’s Capacity Import Limit (including the requirement that such resources be pseudo-tied to PJM by the relevant delivery year) to be eligible to submit a Capacity Performance Resource offer.<sup>71</sup> PJM proposes this requirement as a seller representation, but we interpret it as an eligibility requirement for External Generation Capacity Resources. The Illinois Commission and Joint Protestors assert that PJM has not shown why the required three conditions to receive an exception to the Capacity Import Limit (*i.e.*, pseudo-tie, firm transmission service, and must-offer) must be made mandatory for all external resources to qualify as Capacity Performance. However, we agree with the clarification PJM provides in its Deficiency Letter Response and find that this requirement is necessary to ensure that external resources are accountable for their individual performance when PJM’s system is experiencing Emergency Actions. Regarding the Illinois Commission’s argument that requiring external resources to become pseudo-tied will exacerbate seams issues between PJM and adjacent regions, we find that the Illinois Commission fails to specify what seams issues would be exacerbated or how such result would occur. We note that PJM is required to reach agreement with

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<sup>70</sup> See PJM Operating Agreement at Schedule 1, section 1.10.1A(d) (Day-ahead Energy Market Scheduling); and section 1.10.4(b) (Capacity Resources). Such a resource is also required to demonstrate that it has the capability to provide its capacity on, or before, the start of the delivery year. See PJM OATT at Attachment DD, section 5.5. In addition, such a resource is required to comply with PJM’s capacity import limit to the extent it is an external resource. *Id.* at section 5.5.

<sup>71</sup> Proposed OATT Attachment DD.5.5A Capacity Resource Types, 0.0.0.

external Balancing Authorities regarding all implementation issues associated with a pseudo-tied resource, including reliability and commercial obligations,<sup>72</sup> and that this process should minimize any resulting seams issues.

97. In its Deficiency Letter Response,<sup>73</sup> PJM explains that under existing rules, PJM evaluates the availability of external capacity resources based on the quantity of energy scheduled (as an external interchange transaction into PJM) or reported on outage by an external capacity resource owner. PJM explains, however, that external interchange schedules are not unit-specific and cannot be tied to any specific external resource and, therefore, PJM proposes to require that an external resource be pseudo-tied into PJM to qualify as a Capacity Performance Resource. PJM states that absent the pseudo-tie requirement, PJM will not have the unit-specific visibility of external resource performance necessary to accurately apply Non-Performance Charges to external resources. Based on the information that PJM has provided, we agree that this component of the Capacity Performance design is just and reasonable. We therefore accept PJM's proposal, subject to PJM including in its tariff revisions a requirement that an External Generation Capacity Resource must demonstrate that it meets – or will meet by the start of the delivery year – the criteria for an exception to the Capacity Import Limit in order to offer as a Capacity Performance Resource.

98. We accept PJM's proposed milestone modification requiring that planned resources execute a Facilities Study Agreement before being permitted to offer into a Base Residual Auction.<sup>74</sup> Despite the Illinois Commission's claims that PJM has not adequately supported this provision, we agree with PJM that requiring resources to complete the Facilities Study Agreement will help prevent resources that are unlikely to be in service by the relevant delivery year from clearing in a Base Residual Auction and potentially artificially suppressing prices for the region.<sup>75</sup>

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<sup>72</sup> NERC Reliability Standard INT-004-3.1, Requirement R3, *available at* <http://www.nerc.com/pa/Stand/Reliability%20Standards/INT-004-3.1.pdf>. In order for a pseudo-tie to be included in the NAESB Electric Industry Registration (EIR) publication, all entities listed in the EIR registration must approve the registration, including the source Balancing Authority. *See* NAESB Guide for Implementing EIR 13001, *available at* [https://www.naesb.org/pdf4/weq\\_jess080514a5.docx](https://www.naesb.org/pdf4/weq_jess080514a5.docx).

<sup>73</sup> PJM Deficiency Letter Response at 24-25.

<sup>74</sup> Proposed RAA, sections 1.69B and 1.70.

<sup>75</sup> PJM February 13, 2015 answer at 116.

99. We next consider PJM's proposed Capacity Performance construct as it relates to Demand Resources, Energy Efficiency Resources, Capacity Storage Resources, and Intermittent Resources, including PJM's proposal to permit aggregated offers. As a general matter, we accept PJM's proposal to establish, on a phased-in basis, an Annual Demand Resource product that will: (i) replace PJM's existing demand response capacity products; and (ii) require conformance with the standards applicable to a Capacity Performance Resource, as modified herein. We agree with PJM that, as modified, PJM's proposal is appropriate, because it creates the same expectations for all Capacity Performance Resources (i.e., the expectation that such resources will be available to provide energy and reserves when called upon), without regard to technology type. We note that currently the vast majority of Demand Resources are available to PJM during the summer peak season only, with Limited Demand Response available for 10 days and for a maximum of 6 hours a day.<sup>76</sup>

100. We also find PJM's proposal, as clarified in its answer, to permit Demand Resources, Energy Efficiency Resources, Capacity Storage Resources, and Intermittent Resources offer as stand-alone Capacity Performance Resources to be just and reasonable. Therefore, we accept this aspect of PJM's proposal, subject to PJM submitting tariff revisions clarifying that, as PJM states in its answer,<sup>77</sup> Capacity Storage Resources, Intermittent Resources, Energy Efficiency Resources, and Demand Resources may submit stand-alone Capacity Performance sell offers in a MW quantity consistent with their average expected output during peak-hour periods.

101. Next we address PJM's proposal to allow certain types of resources to combine with other resources to submit a Capacity Performance sell offer representing the total Unforced Capacity value of the aggregated resources. In its initial filing, PJM proposed to allow Capacity Storage Resources, Intermittent Resources, Demand Resources, and Energy Efficiency Resources to submit aggregated offers. In its answer, PJM offers to additionally permit aggregated offers from environmentally-limited resources, and to permit aggregated offers composed of resources from different entities so long as the associated bilateral arrangements are reflected in PJM's system.<sup>78</sup> We find merit in PJM's proposal to allow resources that would generally not be able to offer as Capacity Performance Resources to aggregate their capabilities in order to reliably perform during emergency conditions. Permitting such resources to submit aggregated offers as Capacity

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<sup>76</sup> PJM transmittal at 34, n.96 (Docket No. ER15-623-000) (noting that in the most recent Base Residual Auction, for the 2017-18 delivery year, only 13.6 percent of the Demand Resources that cleared were Annual Demand Resources).

<sup>77</sup> PJM February 13, 2015 answer at 23-24.

<sup>78</sup> *Id.* at 27-28.

Performance will likely enhance their ability to provide reliability benefits to the PJM region and may increase competition in the capacity market. We also agree with PJM that extending this allowance to environmentally-limited resources and permitting aggregated offers from different entities are appropriate modifications. We therefore accept this aspect of PJM's proposal, subject to PJM submitting tariff revisions consistent with its commitment to clarify that: (i) aggregated offers from environmentally-limited resources are permitted; and (ii) aggregated offers composed of resources from different entities, so long as the associated bilateral arrangements are reflected in PJM's system, are permitted.

102. Although some intervenors argue that permitting aggregated offers from only certain resource types is unduly discriminatory and request that PJM provide the same allowance to all resource types, we do not find that such a change is necessary. The aggregated offer allowance is designed to provide an avenue to Capacity Performance participation by resources that otherwise may be unable or unwilling to participate on a stand-alone basis because no reasonable amount of investment in the resource can mitigate non-performance risk to an acceptable level within the Capacity Performance market design. Generally speaking, other resource types do not face this same limitation. We also agree with PJM that allowing aggregated offers from all resources could transform the RPM bidding process from an individual unit approach to a portfolio bidding approach, which is a change that we do not find necessary for PJM's proposal to be just and reasonable.

103. Regarding PJM's proposal to allow eligible resources in different Locational Deliverability Areas to submit aggregated offers, we find that PJM has failed to show how this provision is necessary and appropriate. PJM has not demonstrated why Capacity Emergency Transfer Limits should not be taken into account for purposes of aggregating a Capacity Performance offer.<sup>79</sup> PJM's Capacity Emergency Transfer Limits recognize system constraints and the ability to provide capacity across Locational Deliverability Areas. We are not persuaded that aggregation will be feasible across Locational Deliverability Areas in all circumstances, or would be able to provide the required resource adequacy during emergency conditions. Moreover, allowing aggregation across Local Deliverability Areas appears inconsistent with the design of PJM's Capacity Performance proposal. As discussed in greater detail in sections V.C and V.F of this order, several Capacity Performance rate parameters, such as the Non-Performance Charge rate, Performance Bonus Payment rate, stop-loss limits, and default offer caps, are designed to be Locational Deliverability Area-specific. Although there may be value in permitting aggregation across Locational Deliverability Areas, PJM has not adequately supported how it would determine clearing prices, Non-Performance

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<sup>79</sup> See PJM Manual 14B at Attachment C.

Charges, and Performance Bonus Payments across multiple Locational Deliverability Areas.

104. Brookfield requests clarification that during an Emergency Action PJM will not be authorized to recall a resource that does not hold a capacity commitment for that delivery year but which is physically located within the PJM region and is exporting energy or capacity to another region. We dismiss Brookfield's request as beyond the scope of this proceeding because PJM proposes no such ability for itself in the instant filing.

105. We deny Covanta's requests that the Commission exempt Qualifying Facilities' use of fossil fuels from the 25 percent limitation set forth in Section 292.205(b) of the Commission's regulations. To the extent such resources are unable to meet the Capacity Performance Resource obligations, they can seek an exception to PJM's Capacity Performance must-offer requirement. We also note that, consistent with our findings in section VI.C below, Qualifying Facilities may use Maximum Emergency Offers if they are only able to deliver energy during emergencies.

**C. Non-Performance Charges**

106. Under PJM's existing rules, a capacity resource commitment that fails to provide energy and reserves, when needed, is subject to certain charges and adjustments. A capacity resource's saleable MW value, for example, is subject to discount, to reflect that resource's forced outage history.<sup>80</sup> In addition, a generation capacity resource is subject to a Peak-Hour Period Availability charge or credit, employing a peak-period availability metric to assess whether generation resources committed as capacity are available at expected levels during peak periods.<sup>81</sup>

107. PJM asserts, however, that the Peak-Hour Period Availability charge is flawed. Specifically, PJM asserts that this charge assesses the performance or availability of a resource over too many hours, allowing poor performance during the most critical times to be masked by adequate performance during other, less critical times. In addition, PJM argues that its Peak-Hour Period Availability charge broadly excuses unavailability.

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<sup>80</sup> See RAA at Schedule 5 (describing PJM's existing demand-equivalent forced outage rate, or EFORD, calculation).

<sup>81</sup> See PJM OATT at Attachment DD-1, section 10.

## 1. PJM's Proposal

108. PJM proposes to replace the existing Peak-Hour Period Availability Charge and certain related charges<sup>82</sup> with a new Non-Performance Charge. PJM states that its proposed charge is generally modeled on a comparable charge recently accepted by the Commission in the *ISO-NE Capacity Performance Order*.<sup>83</sup> PJM states that its proposed charge will be based on the expected performance of each Capacity Resource, as compared to its actual performance during an Emergency Action declared by PJM.<sup>84</sup>

109. PJM proposes that it will measure capacity resources' performance during Performance Assessment Hours, which will be triggered when PJM declares an Emergency Action.<sup>85</sup> PJM explains that it bases the definition of Emergency Action on the conditions and events identified in PJM's Manual 13, section 2.3, as "Warnings" or "Actions" for capacity emergencies. PJM also states that its declarations of these actions must be consistent with the operating procedures specified by NERC and the corresponding regional reliability entity for the PJM region, ReliabilityFirst Corporation.

110. PJM states that, if a capacity resource's actual performance falls short of its expected performance, this shortfall will be subject to a Non-Performance Charge, absent a valid excuse (as summarized below), or the application of a stop-loss limit (as also

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<sup>82</sup> In addition to the Peak-Hour Period Availability Charge, additional currently-effective provisions of PJM's OATT addressing resource availability and performance include the Peak-Season Maintenance Compliance Penalty Charge (*see* OATT at Attachment DD, section 9) and the Demand Resource Compliance Penalty Charge (*see id.* at Attachment DD, section 11). PJM notes that any resources that voluntarily commit to being a Capacity Performance Resource for the 2016-17 or 2017-18 delivery years will be subject on the Non-Performance Charge provisions in section 10A and will not be subject to the capacity performance provisions in sections 9 or 10.

<sup>83</sup> *See ISO-NE Capacity Performance Order*, 147 FERC ¶ 61,172 at P 4.

<sup>84</sup> *See* proposed PJM OATT at Attachment DD, section 10A.

<sup>85</sup> Proposed PJM OATT at Attachment DD, section 2.23A. ("Emergency Action" shall mean any Emergency Action for locational or system-wide capacity shortages that either utilizes pre-emergency mandatory load management reductions or other emergency capacity, or initiates a more severe action including, but not limited to, a Voltage Reduction Warning, Voltage Reduction Action, Manual Load Dump Warning, or Manual Load Dump Action.)

summarized below). PJM adds that while certain existing capacity deficiency charges<sup>86</sup> will remain in place after implementation of the new Non-Performance Charge, and operate in tandem with the Non-Performance Charge, it will assess only the greater of the two charges when they apply to the same event or occurrence.

111. PJM states that the measure of expected performance and actual performance will differ based on the resource type at issue and PJM's existing rules governing these resources. PJM notes, for example, that a Generation Capacity Resource is expected to provide a share of the PJM system's hourly needs for energy and reserves based on a ratio of its capacity commitment to the total capacity commitment of all Generation Capacity Resources.<sup>87</sup> On the other hand, for a Qualifying Transmission Upgrade or an Energy Efficiency Resource, expected performance is defined as the MW quantity of that resource's cleared capacity commitment. For a Demand Resource, actual performance will be based on the load reduction provided during the relevant emergency, as determined through the load response settlement process.

112. PJM proposes to base the Non-Performance Charge on yearly Net CONE for a Capacity Performance Resource (*i.e.*, the value of a performance shortfall), or the yearly resource clearing price for a Base Capacity Resource, divided by 30 (the assumed Emergency Action hours per year).<sup>88</sup> PJM states that while its proposed Non-Performance Charge will apply to both a Base Capacity Resource and a Capacity Performance Resource, it is appropriate that a Base Capacity Resource be subject to a lower exposure, given that it is an interim product not intended to incent investment. PJM also proposes that a Base Capacity Resource be subject to a Non-Performance Charge only for its performance shortfalls during Emergency Actions in the summer months, consistent with PJM's classification of summer-only Demand Resources and Energy Efficiency Resources as a Base Capacity Resource.

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<sup>86</sup> These include the generator testing provision (*see* OATT at Attachment DD, section 7), the capacity deficiency charge provision (*see* OATT at Attachment DD, section 8), and the Demand Resource testing provision (*see* OATT at Attachment DD, section 11A).

<sup>87</sup> *See* PJM OATT at Attachment DD, section 10A(c).

<sup>88</sup> PJM asserts that a rate divisor based on 30 hours of total annual Emergency Actions is reasonable, given its experience over the 2013-14 delivery year during which Emergency Actions were in effect for 23 hours. PJM argues that it would not be appropriate to set its rate divisor any lower than that level and that the additional hedge it is proposing is appropriate, given the possibility of supply shortages, and given the fact that increased hours in the divisor will moderate the hourly rate.

113. PJM also proposes to exempt from its charges a performance shortfall attributable to: (i) a planned or a maintenance outage approved by PJM; (ii) non-dispatch by PJM; or (iii) a reduced-level dispatch by PJM.<sup>89</sup> PJM adds, however, that it will not be an acceptable excuse if the resource was not dispatched, or was dispatched down, due to resource parameter limitations specified by the seller, or due to the seller's submission of a market-based offer in excess of a cost-based offer.

114. PJM also proposes to place a cap, or "stop-loss" limit, on the total Non-Performance Charges it will be authorized to assess, for the purpose of limiting a seller's financial exposure. PJM asserts that such a provision is necessary, given that the combination of an unusually high number of Emergency Actions and/or poor performance could lead to a total net charge liability that would be disproportionate to the risks that a resource reasonably should undertake in committing capacity. Accordingly, PJM proposes that, for a calendar month, its maximum charge for each resource, *i.e.*, its monthly stop-loss limit, will be 0.5 times Net CONE times the relevant resource's installed capacity.<sup>90</sup> For a calendar year, PJM proposes a maximum charge equal to 1.5 times Net CONE times the relevant resource's installed capacity. PJM adds that, for Base Capacity Resources, a calendar year limit will apply that is equal to the relevant resource's total capacity revenues for that delivery year.

115. PJM states that revenue collected from payment of Non-Performance Charges will be distributed, as a bonus, to resources that perform above expectations, based on the ratio of the relevant resource's bonus performance level to the total bonus performance from all resources over the same Performance Assessment Hour. Specifically, PJM proposes to distribute Non-Performance Credits for a Performance Assessment Hour "to each Market Participant, whether or not such Market Participant committed [capacity] for [that hour], that provided energy or load reductions above the levels expected for such resource during such hour."<sup>91</sup> PJM states, however, that, contrary to the approach taken by ISO-NE, its proposed mechanism will assess performance during Emergency Actions,

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<sup>89</sup> See proposed PJM OATT at Attachment DD, section 10(A)(d).

<sup>90</sup> PJM notes that its proposed use of Net CONE, in this context, corresponds to the maximum clearing price allowed by PJM's Variable Resource Requirement curve, *i.e.*, PJM's capacity auction clearing mechanism, and is appropriate, given that that PJM's capacity auction could clear at 1.5 times Net CONE.

<sup>91</sup> See proposed PJM OATT at Attachment DD, section 10(A)(g).

which include warnings and pre-emergency actions, rather than only during shortage or scarcity conditions.<sup>92</sup>

116. Finally, PJM proposes to limit its currently effective excuses for non-performance. PJM notes that, currently, an event classified by NERC as “outside management control” is not considered a forced outage for the purpose of calculating a forced outage rate or peak-hour period penalties. PJM proposes, however, that beginning with the 2018-19 delivery year, such events will be treated as forced outages.<sup>93</sup> PJM also proposes that a performance shortfall not be assessed a charge if the resource was unavailable during the hour solely because it was on an approved Generator Planned Outage.

## 2. Protests and Comments

117. Intervenors challenge PJM’s claim that PJM’s proposed penalty provisions will, in fact, penalize non-performance during the hours when capacity is needed most. Some argue that PJM’s penalty mechanism will not operate to recover capacity market revenues from non-performing resources, given the number of hours used to compute the charge, i.e., the divisor of 30 performance hours in PJM’s formula. Joint Consumers argue that the use of 30 hours, as the divisor, represents an unwarranted 30 percent increase over the anomalous totals represented by the extreme weather events of January 2014 and should be revised to reflect no more than an actual, historically-experienced number of performance hours in a single delivery year, or an averaging of prior delivery years.<sup>94</sup> Joint Consumers note that, in the three delivery years prior to 2013-14, the cumulative number of hours during which Emergency Actions were in effect totaled only nine such hours, such that PJM’s charge will only rarely, if ever, apply. Accordingly, Joint Consumers request that PJM’s proposed charge be rejected, or in the alternative, set for hearing.

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<sup>92</sup> See proposed PJM OATT at Attachment DD, section 2.23A (defining Emergency Actions as locational or system-wide capacity shortages, including Voltage Reduction Warnings, Manual Load Dump Warnings, Voltage Reduction Actions, and Manual Load Dump Actions, that cause pre-emergency mandatory load management reductions or a more severe action).

<sup>93</sup> See proposed RAA at Schedule 5.

<sup>94</sup> See also Wind Energy and Renewables Coalition comments at 10-11 (asserting that the proposed stop-loss provisions are unjust and unreasonable, arguing that the provisions would lead to excessively high and excessively punitive charges. Wind Energy and Renewables Coalition add that the stop-loss limit proposal is a barrier to entry to small generation, because it drives high credit requirements, and should instead be calculated as a function of capacity revenues).

118. Exelon, too, argues that PJM's proposed Non-Performance Charge rate, coupled with the proposed stop-loss provisions, will result in inappropriately low penalty charges and, therefore, will not adequately incent resources to make the investments necessary to enhance reliability. Exelon asserts that PJM must revise its methodology for calculating the hourly penalty and, instead, use a probabilistic modeling approach to determine the expected number of Performance Assessment Hours, based upon all potential weather scenarios and capacity supply performance at the target levels consistent with a 0.1 loss of load expectation. Exelon argues that relying on capacity resources' poor performance in a single year with very extreme weather, January 2014, is inappropriate, particularly because the historical average number of Performance Assessment Hours is significantly less. Exelon acknowledges that it is unlikely this probabilistic approach could be effectuated for the Base Residual Auction for the 2018-19 delivery year or the Transition Incremental Auctions, given the complexity of the modeling that would be needed. Nevertheless, Exelon maintains that it is critical that PJM's hourly penalty be calibrated to the expected number of Performance Assessment Hours. Thus, Exelon argues, PJM should revise the divisor for the Non-Performance Charge formula for the transition period to 20 and increase the monthly stop-loss limit to 0.75 times Net CONE.

119. The Market Monitor and Joint Consumers protest that PJM's proposal does not provide adequate performance incentives, because the parameters are not defined correctly. Joint Consumers argue that the stop-loss provisions compound the unlikelihood of non-performing resources facing significant capacity revenue forfeiture. Joint Consumers contend that there is no logical basis for limiting the exposure of non-performing resources through a monthly stop-loss provision, arguing that this provision must be eliminated. The Market Monitor argues that the Non-Performance Charge should not be based on the distribution of emergency events within a delivery year, but rather should be based on performance anytime the system is in a critical capacity scarcity condition. The Market Monitor adds that, by preventing the forfeiture of capacity revenue for non-performance, the monthly stop-loss provision reduces resources' incentives to make the investments needed to improve reliability, and therefore, should be eliminated. The Market Monitor also argues that the estimated number of Performance Assessment Hours should be reduced from 30 and calculated based on a defined method that considers specific forecasts, such as forecast weather conditions and forecast resource mix and availability. In addition, the Market Monitor argues that PJM's proposal must define how expected performance is calculated for emergencies that are declared at the zonal or sub-zonal levels. The Market Monitor also contends that PJM's proposed Balancing Ratio<sup>95</sup> fails to appropriately incorporate performance of energy efficiency and Demand Resources.

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<sup>95</sup> As proposed in section 10A of Attachment DD of the OATT, the Balancing Ratio is a determinant of any capacity resource's Expected Performance during a

120. Other intervenors object to PJM's proposed Non-Performance Charge for Capacity Performance Resources as excessive and inconsistent with those charges accepted by the Commission in the *ISO-NE Capacity Performance Order*.<sup>96</sup> The PJM Utilities Coalition argues that, as compared to ISO-NE's phased-in penalty structure, PJM's proposed rate is approximately double the ISO-NE initial rate, in place over the first several years, with monthly and annual stop-loss provisions resulting in penalty caps that are approximately four times as high. Coalition of Resource Projects similarly objects to PJM's comparison with the stop-loss provisions adopted in ISO-NE, arguing that PJM's proposal is "far more likely" to result in excessive penalties on generators. Coalition of Resource Projects argues that PJM's proposed Non-Performance Charge, coupled with the proposed stop-loss provisions, are unfairly punitive and place unsustainable risk upon generators. Dominion argues that PJM's proposed penalty structure may be too punitive and, as such, could undermine the incentives it is intended to create. Dominion requests that PJM revise the Non-Performance Charge to allow "minor deviations from expected performance" with less substantial penalties.

121. Intervenors also protest PJM's proposal to base the Non-Performance Charge on Net CONE. Invenergy, Coalition of Resource Projects, and Dominion assert that PJM's proposed penalty and stop-loss provisions should be revised to ensure an appropriate relationship between revenues resources receive as capacity payments and penalties.<sup>97</sup> Invenergy argues that the penalty amount should be tied to annual capacity market revenues, namely the capacity market clearing price, rather than Net CONE. Invenergy argues that this flaw in PJM's proposal is particularly egregious when clearing prices differ significantly from Net CONE, because the relationship between risk and reward is distorted. Coalition of Resource Projects argues that it is inappropriate to base the Non-

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Performance Assessment Hour (*i.e.*, the quantity of energy or reserves that the capacity resource must deliver in order to exactly fulfill its capacity obligation within the two-settlement capacity market design). PJM proposes that the Balancing Ratio equal the sum of all actual generation performance, storage resource performance, net energy imports, and demand response bonus performance divided by the sum of all committed generation and storage capacity (these components are defined in section 10A of Attachment DD), and that a capacity resource's Expected Performance during any Performance Assessment Hour equal the resource's committed capacity times the Balancing Ratio.

<sup>96</sup> See, e.g., PJM Utilities Coalition comments at 12; Rockland comments at 7; Coalition of Resource Projects protest at 6; and AEP/Duke Energy protest at 33.

<sup>97</sup> See Invenergy comments at 7 (proposing the use of 1.25 times a resource's total annual revenue for the annual stop-loss limit).

Performance Charge on Net CONE, when capacity auctions in the region routinely may clear at far less than Net CONE. In addition, Coalition of Resource Projects believes the monthly stop-loss limit should be calculated using a 30-day period, rather than a calendar month. The PJM Utilities Coalition argues that PJM's proposed stop-loss provisions fail to take account of the energy price penalties to which Capacity Performance Resources will be exposed during shortage conditions, *i.e.*, the fact that generators that are forced out during emergency hours are also likely replacing their day-ahead energy commitment through higher energy purchases. Dominion argues that PJM should include a daily stop-loss provision that would limit resources' exposure for an individual emergency event.

122. The PJM Utilities Coalition also argues that basing performance penalties for a Capacity Performance Resource on Net CONE, and not on the relevant Locational Deliverability Area clearing price, has a discriminatory effect on resources in western PJM (*i.e.*, on resources located in zones with lower clearing prices) that are not similarly situated to resources located in eastern PJM. The PJM Utilities Coalition adds that, while ISO-NE has tied its penalties to auction prices, and not to zonal clearing prices, ISO-NE has not experienced PJM's persistent price separation. To remedy this discriminatory effect, the PJM Utilities Coalition proposes a stop-loss provision tied to an historical, three-year rolling average of capacity clearing prices similar to the method by which the energy and ancillary services offset is determined for purposes of calculating Net CONE.

123. AEMA argues that Demand Resource performance during Emergency Actions should be measured against their capacity commitment rather than Customer Baseline Load because PJM and the Market Monitor have previously stated that it would be inappropriate to measure demand reductions in the capacity markets through performance in the energy market.<sup>98</sup> AEMA also asserts that PJM's proposal to base performance penalties on Net CONE is inappropriate because Net CONE does not represent the true cost of new entry and the rate would be discriminatory against Demand Resources because "demand response resources have no relationship to Net CONE."<sup>99</sup> Furthermore, AEMA claims that Demand Resources already have sufficient penalties in place and should not be subject to PJM's proposed penalties.<sup>100</sup> Finally, AEMA argues that the stop-loss limits should be based on 1.2 times the Base Residual Auction clearing price to reduce unnecessary risk exposure.<sup>101</sup>

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<sup>98</sup> AEMA protest at 18-20.

<sup>99</sup> *Id.* at 22-23.

<sup>100</sup> *Id.* at 20-22.

<sup>101</sup> *Id.* at 23-24.

124. Public Interest Organizations argue that PJM's proposed charges are unduly discriminatory as to non-fueled resources who do have the ability to supply year-round capacity by way of resource upgrades, and thus cannot be incented to do so through the risk of penalty exposures. Public Interest Organizations argue that an alternative approach would be to exempt non-fuel based resources from PJM's proposed penalties, or to reduce the penalties.<sup>102</sup>

125. The PJM Utilities Coalition also notes that PJM has proposed duplicative transition penalties, perhaps inadvertently. Specifically, the PJM Utilities Coalition asserts that, under PJM's proposed tariff language, a Capacity Performance Resource will pay both the currently-effective Peak-Hour Period Availability Charge *and* PJM's proposed Non-Performance Charge, as applicable. The PJM Utilities Coalition requests that PJM be directed to correct this error by limiting the application of Peak-Hour Period Availability Charges to annual resources, extended summer demand resources, and limited summer demand resources for the 2016-17 and 2017-18 delivery years.

126. Intervenors also protest PJM's proposal to impose Non-Performance Charges on a resource that is uncommitted due to the seller's submission of a market-based offer that is higher than its cost-based offer. NRG/Dynegy and the PJM Utilities Coalition argue that the proposal is unsupported, adding that PJM has not provided evidence demonstrating that such resources possess the market power to incent them to manipulate their bidding strategy. The PJM Utilities Coalition argues that, while the ostensible rationale for this proposed rule change is the deterrence of economic withholding, such a concern is not at issue here, given that PJM's software screens for the ability to exercise market power through the application of the three-pivotal supplier test on every five-minute dispatch interval and imposes cost-based mitigation when this test is failed. LS Power protests that the effect of this aspect of PJM's proposal is to effectively eliminate sellers' ability to submit market-based offers for Performance Assessment Hours. Dominion similarly argues that PJM's proposal effectively nullifies price offers in emergency situations and unreasonably exposes market sellers to penalty risk, particularly where resources have no opportunity to update their price offer.<sup>103</sup>

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<sup>102</sup> Public Interest Organizations comments at 15; *see also* Solar Association comments at 4 (requesting clarification that solar generators either can serve as Capacity Performance Resources alone or are exempt from PJM's proposed must-offer requirement).

<sup>103</sup> *See also* NRG/Dynegy protest at 27-28 (arguing that PJM's proposal will convey improper price signals by encouraging certain resources to submit energy market offers below their actual marginal cost of operating).

127. Coalition of Resource Projects protests PJM's proposal to impose Non-Performance Charges on resources during "catastrophic weather conditions, such as hurricanes or tornadoes," arguing that PJM has offered no explanation why it continues to excuse non-performance by transmission owning utilities during such weather conditions but not Capacity Performance Resources. Coalition of Resource Projects similarly objects to imposing penalties on resources "behind citygates" subject to state-based interruptible service.

128. Dominion protests that PJM's proposal would impose Non-Performance Charges on resources that PJM did not commit, or dispatched down, due to parameter limitations that account for the resources' physical operating characteristics. Citing pumped storage as an example, Dominion argues that PJM could conceivably exhaust all of a pumped storage resource's capability during or prior to an Emergency Action and then ask for more, even though PJM is fully aware that energy storage has been exhausted. In this situation, Dominion states, the resource would still be penalized for non-performance even though it fully performed to its known physical capability as directed by PJM.

129. Intervenors protest PJM's proposal to allocate the revenue collected from payment of Non-Performance Charges, the Performance Bonus Payment, only to those resources that perform above expectations. The Pennsylvania Commission argues that load should also receive a reasonable share of these revenues, to the extent it is forced to bear the additional costs of higher locational marginal prices and energy uplift costs associated with net-generator non-performance. Homer City argues that the Commission should clarify that market participants that act as energy importers are likewise eligible to receive the Performance Bonus Payments.

130. Calpine protests PJM's process for billing and crediting the Non-Performance Charge. Calpine asserts that, according to PJM's proposal, Non-Performance Charges may not be collected within three months, but rather may be collected in installments over the balance of the relevant delivery year. Calpine argues that this "delayed invoicing mechanism" increases risk to over-performers, and should either be revised or allowed to accrue interest.

131. Brookfield protests that it is unclear how PJM will assess Non-Performance Charges during the transition period, particularly for resources (or coupled resources) that submit offers as both Capacity Performance Resources and Base Capacity Resources. Brookfield argues that PJM should clarify that it will attribute the output of such a resource first to any Capacity Performance obligations and any remaining output to Base Capacity. In addition, Brookfield argues, PJM should assess the Non-Performance Charge for any shortfall first based on the Base Capacity amount and only second as Capacity Performance. Brookfield argues that this approach is just and reasonable because the output of an offer made jointly as Capacity Performance and Base Capacity during the transition period is fungible, regardless of the amount that cleared as a Base Capacity Resource versus a Capacity Performance Resource.

132. Intervenors also protest PJM's proposed trigger for Performance Assessment Hours. The Market Monitor argues that PJM should define the trigger for Performance Assessment Hours clearly, using a calculated metric based on the available reserves, and should use an "annual probabilistic analysis" with the same inputs used for the installed reserve margin study to approximate the appropriate Non-Performance Charge rate. Invenergy protests that there is no limit on the number of hours each year during which PJM could implement Emergency Actions. Invenergy argues that, while some flexibility is warranted, PJM must recognize that the number of hours will drive capacity market sellers' penalty risk exposure. Therefore, Invenergy asserts, PJM must revise its proposal to incorporate a process by which PJM will review and identify the circumstances under which Emergency Actions are declared and a trigger for that review. Specifically, Invenergy argues that, if the total number of hours during which Emergency Actions are implemented in a single year exceeds 40, PJM should be required to conduct this review process. Invenergy argues that this review will allow the Commission to consider whether the Non-Performance Charge should be modified to reflect more than 30 hours of expected Emergency Actions. Exelon argues that PJM should have flexibility to revise both the triggers for Performance Assessment Hours and the stop-loss provisions, in the event the calculation results in unacceptably high or low Non-Performance Charges.

133. Dominion argues that PJM's proposed changes are unjust and unreasonable because they could penalize a resource for following PJM's instructions or due to a transmission maintenance outage outside of the generator's control.<sup>104</sup> Dominion argues that the Commission should reject this aspect of PJM's proposal because the proposed penalty for generator outages caused by transmission system outages bears no relation to PJM's goal of incenting performance.

### **3. PJM's Answer**

134. In response to protestors, PJM asserts that the Non-Performance Charge is reasonably based on Net CONE regardless of the clearing price for any particular capacity auction. PJM argues that Net CONE is an appropriate measure because it reflects the cost of new capacity under equilibrium conditions, an accepted reference point for the value of capacity. In contrast, PJM responds, using the energy market shortage price as Coalition of Resource Projects suggests is inappropriate, because the shortage price is an energy market value.

135. PJM disagrees with the Market Monitor's and Exelon's suggested approaches for calculating a performance penalty. PJM asserts that either method could result in changes to the performance penalty rate after the relevant Base Residual Auction is cleared. Thus, PJM concludes, such approaches "appear to sacrifice rate predictability."

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<sup>104</sup> See also Essential Power protest at 12.

Nevertheless, PJM explains that it is willing to revise the OATT to state that the denominator in the Non-Performance Charge calculation will contain a number of hours equal to the annual average of the Performance Assessment Hours in the three calendar years preceding PJM's posting of parameters for the Base Residual Auction for a delivery year.<sup>105</sup>

136. PJM disagrees with the Market Monitor's assertion that the Balancing Ratio should include actual performance and commitments of Demand Resources and Energy Efficiency Resources. PJM argues that including these factors incorrectly assumes that the expected performance of Demand Resources and Energy Efficiency Resources is based on the Balancing Ratio itself, which, thereby, leads to an inflated figure. PJM explains that it measures performance by demand response and energy efficiency resources through a separate calculation, because such resources are always expected to provide their full committed load reduction values. Thus, PJM argues that the Market Monitor's calculation does not correspond to what the system expects or needs and should be rejected.

137. PJM also disagrees with protestors seeking to require a lower penalty charge for Demand Resources. PJM argues that it is reasonable for Demand Resources to be subject to the same penalty provisions as generators, regardless of whether they cleared as Base Capacity or Capacity Performance. PJM adds that the new capacity construct should not have differentiated penalties based on how well different resource types have performed in the past.

138. In response to intervenors' arguments seeking exemptions from the Non-Performance Charge for resources that do not perform in specific circumstances, PJM argues that granting such exemptions unreasonably seeks to shift to loads the adverse effects of poor performance that is traceable to an economic decision of the capacity provider. For example, PJM explains that when a resource submits a market-based offer that is higher than its cost-based offer, the resource indicates its economic choice not to be dispatched at its cost-based level. PJM adds that, in this situation, the financial consequences of the offer strategy should fall on the market seller.<sup>106</sup>

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<sup>105</sup> PJM adds that, to ensure market seller expectations are honored, this denominator will not change once it is used in the Base Residual Auction. PJM asserts that this approach would afford market sellers notice of the Non-Performance Charge rate at the time they submit their capacity offers for the relevant delivery year. *See* PJM February 13, 2015 answer at 65.

<sup>106</sup> Similarly, PJM argues, physical resource limitations are a "design and economic choice by the resource provider" and exposing resources to the consequences

139. PJM reiterates that the proposed Non-Performance Charge and performance payment “closely track” the approach the Commission recently approved for ISO-NE, with “only one notable departure,” the proposed stop-loss limit mechanism. PJM argues that this departure is warranted, because utilizing the ISO-NE method in the PJM region would effectively eliminate the threat of loss of all revenues for a delivery year. In particular, PJM explains, under the ISO-NE stop-loss method, a resource would have to trigger the monthly stop-loss limit *in eight months* in order to lose its capacity auction revenue for the year. This result is nearly impossible in PJM, PJM argues, and would inhibit the performance incentives it seeks to establish and dampen its ability to shift performance risk from load to suppliers.

140. With regard to Joint Consumers’ protest that Base Capacity Resources should be subject to a performance penalty that exceeds the capacity auction clearing price, PJM responds that Base Capacity Resources are only transitional under the new construct. PJM adds that units that clear as Base Capacity Resources will become subject to the Non-Performance Charge for Capacity Performance after the end of the transition period, so market sellers will know that they will face more stringent penalty provisions in the future. PJM argues that this eventuality “should provide all the incentive the seller needs” to make appropriate investments now and in the future.

141. PJM also responds to intervenors’ arguments regarding the ability of PJM to appropriately calculate performance for coupled offers. PJM explains that, under its proposal, output will be attributed first to the Capacity Performance Resource performance requirement, with any output over and above that quantity attributed to the Base Capacity performance requirement.<sup>107</sup> PJM disagrees with protestors who assert that PJM should distribute Non-Performance Charge revenues to load rather than over-performing resources. PJM argues that its approach corresponds to the method accepted for ISO-NE, reflects the logic that resource owners are responsible for resource performance, and will promote competition among better-performing resources. In return, PJM adds, load receives the reliability the capacity market is intended to provide.

#### **4. Additional Answers**

142. Exelon, in its answer, renews its objections to PJM’s proposed hourly penalty rate because it is too low. Exelon notes that, while PJM’s proposal is based on the

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of such choices will result in more flexible and better performing resources over time. *Id.* at 70.

<sup>107</sup> PJM also commits to include in its Manuals the methodology for calculating capacity values for Intermittent Resources, Capacity Storage Resources, Demand Resources, and Energy Efficiency Resources.

assumption that there will be approximately 30 Performance Assessment Hours a year going forward, creating a static divisor based on the worst performance PJM has ever experienced will establish penalties that will forever be too low.

143. Exelon also responds to the PJM Utilities Coalition's argument that an hourly penalty paid by a non-performing resource located in a Locational Deliverability Area that has a relatively low capacity clearing price will be unduly discriminatory, given that it will constitute a larger share of that resource's total capacity revenues relative to the hourly penalty paid by a non-performing resource in a Locational Deliverability Area that has a relatively high clearing price. Exelon argues that, in fact, PJM's proposal will penalize non-performance in the same manner, regardless of location or technology, based on the cost of replacement capacity valued at Net CONE. Exelon asserts that, regardless, any resource will be free to incorporate the exposure risk attributable to a penalty into its sell offer.

144. The PJM Utilities Coalition, in its answer, responds to Exelon's argument that the fixed denominator established under PJM's proposed hourly penalty rate relies on an excessive estimate as to poor performance. The PJM Utilities Coalition argues that PJM's divisor is appropriate, given the recent increase in unit retirements.

145. The PJM Utilities Coalition also responds to the Pennsylvania Commission's argument that the revenue collected from payment of Non-Performance Charges should be allocated to load, to the extent that load is forced to bear the additional costs of higher locational marginal prices and energy uplift costs associated with net-generator non-performance. The PJM Utilities Coalition argues that, to generate the revenues required to maintain reliability and to properly incent resource performance, it is critical that PJM's capacity rules allocate performance payments to suppliers.<sup>108</sup>

146. Finally, the Market Monitor, in its answer, responds to arguments made by NRG/Dynegy and LS Power, in opposition to PJM's proposal to impose Non-Performance Charges on a resource that is uncommitted due to the seller's submission of a market-based offer that is higher than its cost-based offer. The Market Monitor asserts that PJM's proposal is appropriate, given that the risk of non-performance in the capacity market is explicitly incorporated into a seller's offer. The Market Monitor argues that, under these circumstances, performance should not be excused on the basis of an energy offer.

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<sup>108</sup> The PJM Utilities Coalition adds that allocating performance payments to load would incent offers that reflect only a downside risk attributable to the capacity being offered, with the resulting clearing price not reflecting the risk-adjusted value of capacity. *See* PJM Utilities Coalition Answer at 15.

## 5. Deficiency Letter, PJM's Response, and Protests and Comments

147. The Deficiency Letter asked whether it is appropriate for PJM to phase-in its Non-Performance Charge by transitioning from its proposed rate, based on 30 expected Performance Assessment Hours, to a more stringent penalty assessment.

148. The Deficiency Letter also requested PJM to provide any analysis it has completed that indicates the expected frequency with which a Capacity Performance Resource would hit the monthly or the annual stop-loss limit and any analysis it has completed of expected performance charges and bonus payments for Capacity Performance Resources under PJM's Capacity Performance proposal.

149. Regarding the proposed stop loss provisions, PJM indicates that while it has not performed unit-specific analysis to determine when or the frequency with which a Capacity Performance Resource can be expected to hit the monthly or annual stop-loss limits, it paid careful attention to the number of full non-performance hours required for any capacity resource to reach either the monthly or annual stop-loss limits.<sup>109</sup> PJM notes that using the data from Emergency Actions declared by PJM during the 2013-14 delivery year that ran from June 1, 2013 through May 31, 2014, the Market Monitor calculated the Non-Performance Charges that would have been paid by a non-performing resource.<sup>110</sup> PJM indicates that the analysis shows the monthly stop-loss limit would have reduced a resource's exposure to the Non-Performance Charge by \$6.5 million compared to the outcome without a stop-loss limit. Similarly, PJM states that on a per-MW basis, the total Non-Performance Charge is \$13,626/MW lower with the stop-loss limit compared to what it would have been without the stop-loss limit.<sup>111</sup>

150. PJM states that it is willing to eliminate the proposed monthly stop-loss limit in this proceeding or to commit to review the monthly stop-loss limit and any impact on performance incentives at an appropriate time after implementing the Capacity Performance design.<sup>112</sup> PJM contends that, while the monthly stop-loss limit is beneficial from the market seller's perspective because it reduces exposure to the Non-Performance Charge in a month like January 2014, the monthly stop-loss limit dilutes the core incentives by allowing under-performance without consequence once a resource has

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<sup>109</sup> PJM Deficiency Letter Response at 20.

<sup>110</sup> *Id.* at 21-22.

<sup>111</sup> *Id.* at 21-22.

<sup>112</sup> *Id.* at 23.

reached the monthly stop-loss limit.<sup>113</sup> Additionally, PJM states that the monthly stop-loss limit decreases the total pool of dollars collected from Non-Performance Charges, thereby reducing the size of Performance Bonus Payments available to resources that exceed their commitments. PJM states that the annual stop-loss limit is based on the premise that no resource should be penalized more than 1.5 times Net CONE times its capacity commitment because the Variable Resource Requirement curve sets 1.5 times Net CONE as the maximum price load will pay for capacity.

151. Finally, PJM suggests that, given its proposed transition mechanism, there is no need for any further phase-in of the Non-Performance Charge rate.<sup>114</sup> PJM contends that its transition mechanism assures load that Capacity Performance Resources have the full incentive to invest appropriately in their resources from the 2018-19 delivery year forward. PJM believes that phasing in the Non-Performance Charge rate beyond what PJM has already proposed in its transition mechanism would inappropriately dilute incentives to perform. PJM suggests that a stringent Non-Performance Charge is critical to ensure that sufficient incentive exists for Capacity Market Sellers to invest any increased capacity payments in preparing their resources to be capable of providing energy to the system when they are most needed for reliability.

152. Exelon states that it would not object to PJM using a divisor of 30 Performance Assessment Hours to calculate the penalty rate for the Transition Incremental Auctions and for the Base Residual Auction for delivery year 2018-19, and then moving to a more accurate and stringent penalty assessment based on the annual average of Performance Assessment Hours over the last three years preceding the Base Residual Auction.<sup>115</sup> Dominion, in contrast, opposes a phase-in of the penalty rate.<sup>116</sup> Panda argues that allowing the rate to fluctuate would perversely cause the Non-Performance Charge rate to increase as reliability, and thus expected performance, improves.<sup>117</sup> The Pennsylvania Commission argues that PJM's assumption of non-performance hours should reflect a more current number of emergency events.<sup>118</sup>

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<sup>113</sup> *Id.* at 22.

<sup>114</sup> *Id.* at 24.

<sup>115</sup> Exelon comments to PJM's Deficiency Letter Response at 10.

<sup>116</sup> Dominion comments to PJM's Deficiency Letter Response at 6-9.

<sup>117</sup> Panda comments to PJM's Deficiency Letter Response at 3-4.

<sup>118</sup> Pennsylvania Commission comments to PJM's Deficiency Letter Response at 8.

153. Regarding PJM's proposed Non-Performance Charge mechanism, the Pennsylvania Commission and Joint Consumers argue that an appropriate penalty for non-performance is based on actual capacity market clearing prices. Joint Consumers contend that the relationship between the penalty rate and the opportunity cost component of the Revised Offer Cap would result in escalated RPM clearing prices if penalties are based on Net CONE, regardless of the actual marginal units' operating costs.<sup>119</sup> The Pennsylvania Commission suggests that basing the penalty rate on Net CONE effectively requires a capacity resource to "return a payment which it has not earned."<sup>120</sup> The Pennsylvania Commission argues that, if PJM eliminates the monthly stop-loss limit, it should adjust the base penalty rate calculation to reflect actual capacity market clearing prices, rather than Net CONE. AEMA contends that penalties that are too high, increase risk, possibly deter market entry, and increase capacity costs for ratepayers. AEMA suggests that, in years during which there are very few emergency hours, the Non-Performance Charge rate and Performance Bonus Payment rate could rise to astronomical levels, potentially compressing a year's worth of penalty into a single hour.<sup>121</sup> AEMA contends that PJM's proposed Balancing Ratio discriminates against Demand Resources and that future Performance Bonus Payments are diluted, because such resources are not eligible to have their expected performance during Performance Assessment Hours reduced by the Balancing Ratio.<sup>122</sup> Panda agrees, adding that PJM's proposal appears to discriminate against Energy Efficiency Resources as well.<sup>123</sup>

154. Panda and the Coalition of Resource Projects state that it appears the value for the Balancing Ratio could exceed one, both in concept and in practice, and that a resource delivering its contractually committed capacity during a compliance hour might still be exposed to paying the Non-Performance Charge.<sup>124</sup> Panda adds that it is illogical to

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<sup>119</sup> Joint Consumers comments to PJM's Deficiency Letter Response at 15.

<sup>120</sup> Pennsylvania Commission comments to PJM's Deficiency Letter Response at 3.

<sup>121</sup> AEMA comments to PJM's Deficiency Letter Response at 18.

<sup>122</sup> *Id.* at 21-22.

<sup>123</sup> Panda comments to PJM's Deficiency Letter Response at 7.

<sup>124</sup> *Id.* at 9-11 (referring to testimony from Dr. Poray); Coalition of Resource Projects comments to PJM's Deficiency Letter Response at 9.

include Net PJM Energy Imports in the Balancing Ratio for a Locational Deliverability Area, but that this appears to be PJM's proposed approach.<sup>125</sup>

155. Some intervenors support PJM's commitment to eliminate the monthly stop-loss limit. The Market Monitor requests that the Commission condition approval of the Capacity Performance Proposal on elimination of the monthly stop-loss provision.<sup>126</sup> Exelon agrees, arguing that the monthly stop-loss limit dilutes the core incentives by allowing under-performance without consequence any time a resource has reached the monthly stop-loss limit.<sup>127</sup> Additionally, Exelon argues, it decreases the total pool of money funding Performance Bonus Payments. PSEG argues that eliminating the monthly stop-loss provision is consistent with the overall goal of the Capacity Performance Proposal – to shift the risk of non-performance to suppliers. PSEG adds that the Commission should direct PJM to include a provision that requires the periodic review of the impact of the monthly stop-loss limit and considers whether it is necessary once PJM gains operational experience with the Capacity Performance design.<sup>128</sup>

156. Others protest PJM's proposed elimination of the monthly stop-loss provision. Multiple intervenors contend that, due to the probable discrepancy between the penalty rate, based on Net CONE, and capacity revenues that will likely be lower than Net CONE, eliminating the monthly stop loss would tip the risk-to-reward balance of PJM's Capacity Performance proposal.<sup>129</sup> In particular, such intervenors are concerned that eliminating the monthly stop-loss limit could threaten a resource's financial viability and create an inappropriate level of risk in the market. Essential Power argues that it is ineffective to attempt to balance total Non-Performance Charge revenue with expected Performance Bonus Payments when, in reality, such speculative revenues are highly discounted in the financing process.<sup>130</sup> PJM Utilities Coalition adds that unreasonably

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<sup>125</sup> Panda comments to PJM's Deficiency Letter Response at 8-9.

<sup>126</sup> Market Monitor comments to PJM's Deficiency Letter Response at 3.

<sup>127</sup> Exelon comments to PJM's Deficiency Letter Response at 8-9.

<sup>128</sup> PSEG comments to PJM's Deficiency Letter Response at 4.

<sup>129</sup> Rockland comments to PJM's Deficiency Letter Response at 2-6; Essential Power comments to PJM's Deficiency Letter Response at 6-7; Dominion comments to PJM's Deficiency Letter Response at 3-4; Panda comments to PJM's Deficiency Letter Response at 6-7; Pennsylvania Commission comments to PJM's Deficiency Letter Response at 8; PJM Utilities Coalition comments to PJM's Deficiency Letter Response at 6-10.

<sup>130</sup> Essential Power comments to PJM's Deficiency Letter Response at 6-7.

high penalty exposure will forestall, not encourage, needed capital investments.<sup>131</sup> PJM Utilities Coalition and Pennsylvania Commission argue that a monthly stop-loss limit reduces risk and thus capacity prices borne by consumers.<sup>132</sup> Panda adds that PJM does not justify or explain the significantly higher risk, particularly in light of the Commission's finding that ISO-NE's stop-loss limit was sufficient to incent reliable performance.<sup>133</sup> Panda requests that, if the Commission accepts the stop-loss limits as proposed, the provisions be subject to the review conducted under Section 5.10 of Attachment DD of the Tariff.<sup>134</sup>

157. Dominion disagrees with PJM that the monthly stop-loss limit could undermine incentives by allowing a capacity resource to under-perform without incurring additional penalties once the stop-loss limit is reached. Dominion points out that there are numerous consequences outside of the capacity market penalty structure that incent resources to perform, for example, the fact that Capacity Performance Resources that fail to perform will also forego all revenues from the energy markets.<sup>135</sup>

## **6. Commission Determination**

158. For the reasons discussed below, we accept PJM's proposed Non-Performance Charge mechanics, subject to the condition that PJM modify certain aspects in a compliance filing. We generally find the proposed mechanics to be a just and reasonable alternative to PJM's existing rules to adjust a capacity resource's compensation based on its real-time performance. PJM argues, and we agree, that under the existing rules a seller can earn substantial revenues through PJM's capacity auctions by committing its resource as capacity, with little concern that it will lose significant revenue even if it performs poorly.<sup>136</sup> PJM's experience in the winter of 2013-14 demonstrated that, while the system suffered from outage rates two to three times that of historical norms,

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<sup>131</sup> PJM Utilities Coalition comments to PJM's Deficiency Letter Response at 9.

<sup>132</sup> *Id.* at 6-7; Pennsylvania Commission comments to PJM's Deficiency Letter Response at 8.

<sup>133</sup> Panda comments to PJM's Deficiency Letter Response at 6-7.

<sup>134</sup> *Id.* at 7-8.

<sup>135</sup> Dominion comments to PJM's Deficiency Letter Response at 4-5.

<sup>136</sup> PJM transmittal at 9 (Docket No. ER15-623-000); PJM February 13, 2015 answer at 7 (Docket No. ER15-623-000).

penalties constituted just 0.6 percent of total capacity revenue.<sup>137</sup> The existing rules therefore place most of the risk of resource under-performance on load, not on capacity sellers, and provide little incentive to capacity sellers to make capital improvements or increase operating expenses to enhance the performance of its unit during emergency conditions. By contrast, we find that PJM's proposed Non-Performance Charge, and the mechanics by which it will be applied, will provide incentive to capacity sellers to invest in and maintain their resources by tying capacity revenues more closely with real-time delivery of energy and reserves during emergency system conditions.

159. Consistent with the Commission's finding in the *ISO-NE Capacity Performance Order*, we find reasonable PJM's proposal to base the Non-Performance Charge rate on Net CONE.<sup>138</sup> We disagree with the assertions of multiple intervenors that relying on Net CONE would result in a punitive or inappropriate penalty rate.<sup>139</sup> We continue to find that Net CONE is a reasonable estimate of the cost of providing new capacity.<sup>140</sup> We find that it is appropriate to set the penalty rate at a level that would require resources that fail to perform for any Emergency Action hours of a commitment period to pay the expected full cost of replacement capacity for that period. Furthermore, a Non-Performance Charge rate based on Net CONE is more likely to prevent non-performing resources from receiving positive net capacity revenues over the long run. We find that this is consistent with the overall Capacity Performance market design that aims to provide incentives for resource owners to make appropriate investments and maintain their resources.<sup>141</sup> In addition, a Non-Performance Charge rate based on Net CONE is likely to discourage non-performing resources from taking on capacity obligations, because over time the penalties are likely to fully offset the capacity revenues from the capacity market auctions.

160. In addition, by relying on Net CONE, which is known in advance of the auction, as the basis for a capacity Non-Performance Charge rate, participants know the rate

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<sup>137</sup> PJM transmittal at 9, 17 (Docket No. ER15-623-000).

<sup>138</sup> See *ISO-NE Capacity Performance Order*, 147 FERC ¶ 61,172 at P 74.

<sup>139</sup> PJM Utilities Coalition comments at 12, 61-62, 65-67; Rockland comments at 7; Coalition of Resource Projects protest at 6-8; AEP/Duke Energy protest at 32-33; Invenergy comments at 5-6; Dominion protest, Docket No. ER15-623-000, at 33-35; AEMA comments at 22-23; Wind Energy and Renewables Coalition comments at 10-11.

<sup>140</sup> See *PJM Interconnection, L.L.C.*, 149 FERC ¶ 61,183, at PP 55 & n.41, 125-126 (2014); *PJM Interconnection, L.L.C.* 143 FERC ¶ 61,090 (2013).

<sup>141</sup> See *ISO-NE Capacity Performance Order*, 147 FERC ¶ 61,172 at P 70.

before they submit their offers. This is a reasonable component of the penalty mechanics as it allows for some degree of certainty before the capacity auction. While resource owners will not know the quantity and timing of Performance Assessment Hours in the relevant delivery year, they will at least be able to rely on a known Non-Performance Charge rate as a basis to assess risk and develop sound investment decisions and offer strategies.

161. Intervenors request that PJM base the capacity Non-Performance Charge rate on energy prices or actual clearing prices, or some variant thereof, rather than on Net CONE. While multiple reasonable approaches could exist, we find, on balance, that the Net CONE penalty approach is just and reasonable. With regard to the PJM Utilities Coalition's concerns about the lack of a penalty phase-in, we note that we are accepting PJM's proposed transition mechanism, which provides for incremental quantities of resource participation and lower Non-Performance Charge rates for Base Capacity Resources, as discussed further below in Section V.E of this order (addressing PJM's proposed transition mechanisms).

162. The PJM Utilities Coalition also asserts that the Non-Performance Charge rate for Base Capacity Resources is too low. We find it acceptable to have a lower Non-Performance Charge rate for Base Capacity Resources than for Capacity Performance Resources, given that Base Capacity Resources will not receive the higher revenues associated with the Capacity Performance product. A lower Non-Performance Charge rate for Base Capacity Resources also allows resources the opportunity to gain experience with the new mechanism and gives Base Capacity Resources that may later offer as Capacity Performance the time to make the investments necessary to meet the stringent requirements of the full Capacity Performance product while still providing strong incentives to perform during summer Performance Assessment Hours.

163. We also accept PJM's proposal to rely on an estimate of 30 hours of Emergency Actions to formulate the Non-Performance Charge rate. PJM's reliance on the historical Emergency Action hours experienced during the 2013-14 commitment period to approximate the number of Performance Assessment Hours, with an adder for the possibility that even more Emergency Action hours may occur, represents a reasonable approximation of the upper bound of hours during which the system is likely to experience Emergency Actions over the relevant commitment period. However, given that the Performance Assessment Hour estimate affects core components of the Capacity Performance design, including the Non-Performance Charge rate and the default offer cap, we condition our acceptance of PJM's proposal on PJM making annual informational filings with the Commission to provide updates on the use of 30 hours for

this parameter.<sup>142</sup> PJM should submit an informational filing within 180 days of the conclusion of each delivery year for five years, beginning with the 2016-2017 delivery year. Each informational filing should describe average net capacity revenues (i.e. capacity auction revenues plus Performance Bonus Payments minus Non-Performance Charges) for groups of Capacity Performance Resources with varying levels of performance during Performance Assessment Hours (*i.e.* with varying values for the parameter “A,” as described in the Deficiency Letter Response and in section V.F of this order) under: (i) the actual Non-Performance Charge rate based on 30 hours; and (ii) higher and lower alternative Non-Performance Charge rates based on less than and greater than 30 hours.<sup>143</sup> We also encourage PJM to reassess the assumed number of Performance Assessment Hours after it has gained more experience with Capacity Performance and submit a filing if it finds a revision is warranted.

164. We also accept, as just and reasonable, PJM’s proposed annual Non-Performance Charge stop-loss limit equal to 1.5 times annual Net CONE. We agree with intervenors that, because PJM’s annual stop-loss limit is based on Net CONE rather than the auction clearing price, PJM’s stop-loss limit will likely be higher than ISO-NE’s.<sup>144</sup> However, this discrepancy does not alone render PJM’s approach unjust or unreasonable. First, as noted above, an important element of PJM’s overall proposal is to put at risk full capacity auction revenues if a resource completely fails to perform during Performance Assessment Hours. Because the proposed annual stop-loss limit is equal to the maximum clearing price allowed by PJM’s Variable Resource Requirement curve, it meets this criterion. In addition, basing the limit on Net CONE ensures that market participants will know their maximum risk exposure in assuming a Capacity Performance commitment and be in a position to formulate their sell offers accordingly.

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<sup>142</sup> The filing will be for informational purposes only and will not be noticed for comment or subject to Commission order.

<sup>143</sup> For example, PJM could present the average net capacity revenues of groups of Capacity Performance Resources with “A” values in the 25<sup>th</sup>, 50<sup>th</sup>, and 75<sup>th</sup> percentiles of all Capacity Performance Resources under (i) the actual Non-Performance Charge rate based on 30 hours, and (ii) higher and lower alternative Non-Performance Charge rates based on less than and greater than 30 hours.

<sup>144</sup> ISO-NE’s annual stop-loss limit is set at a resource’s annual capacity revenues plus three months of the difference between the auction clearing price and the auction starting price (the greater of gross CONE or 1.6 times Net CONE). *See* ISO New England Inc. Transmission, Markets and Services Tariff at III.13.7.3.2 Annual Stop-Loss (38.0.0).

165. However, we agree with PJM that the monthly stop-loss limit equal to 0.5 times annual Net CONE significantly weakens the incentives created by the Non-Performance Charge by allowing under-performance without consequence once a resource has reached the monthly stop-loss limit. A monthly stop-loss limit at this level could mean that a Capacity Performance Resource's penalties would be capped after failing to perform in only 15 Performance Assessment Hours in a month. Historical data submitted by PJM in its Deficiency Letter Response suggests that the majority of Performance Assessment Hours in PJM are likely to occur during a few peak months of the year.<sup>145</sup> For any delivery year during which Performance Assessment Hours are highly concentrated in a single month, such as delivery year 2013-14, the monthly stop-loss limit will inappropriately increase the likelihood that a non-performing resource could earn positive net capacity revenues over the long run, and thus severely dilute the very performance incentives that the Capacity Performance design is intended to create. We find that the likely high concentration of Performance Assessment Hours in a few peak months in PJM warrants removal of PJM's proposed monthly stop-loss limit, and we therefore recognize PJM's commitment to eliminate the monthly stop-loss limit and condition our acceptance of PJM's proposal on such removal.

166. We are not persuaded by PJM Utilities Coalition's argument that the stop-loss levels fail to account for energy price penalties that non-performing resources may face. PJM's proposed stop-loss provisions are intended to limit the amount of capacity revenue that can be lost due to failures to perform in the energy market. They are not designed to provide absolute limits to all forms of risk that resources may face.

167. PJM proposes two Non-Performance Charge exemptions whereby a capacity resource that does not deliver its share of energy or reserves during a Performance Assessment Hour will nonetheless not be assessed a Non-Performance Charge.<sup>146</sup> The first is if the resource is on a PJM-approved Generator Planned Outage or Generator Maintenance Outage and PJM determines that the resource was unavailable during the hour solely because it was on such an outage. The second is if PJM did not schedule the resource to operate for reasons other than seller-specified operating parameter limitations or the seller's submission of a market-based offer price higher than its cost-based offer price. As PJM indicates, these exemptions are strictly circumscribed and can be traced to a determination by PJM that the resource's unavailability is appropriate in a given hour. PJM's proposal also reinforces the incentive to follow PJM's dispatch instructions,

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<sup>145</sup> PJM Deficiency Letter Response at Appendix 2. We note that, in the 2013-14 delivery year, over 70 percent of the RTO-wide Performance Assessment Hours occurred in one month, and in each of the 2012-13 and 2011-12 delivery years, 100 percent of the RTO-wide Performance Assessment Hours occurred in one month.

<sup>146</sup> Proposed OATT, Attachment DD, section 10A(d).

because capacity resources are not penalized for being on an PJM-approved outage or for PJM's determination, based on its independent assessment of the needs of the bulk power system at a given point in time, not to schedule a capacity resource or to dispatch the capacity resource down. For these reasons, we find the proposed exemptions reasonable and unlikely to undermine the resource performance incentives that are at the core of the Capacity Performance construct.<sup>147</sup> We therefore accept them, subject to the condition described below.

168. PJM Utilities Coalition, LS Power, and Dominion protest an aspect of PJM's proposed scheduling exemption whereby a resource will not be exempt from Non-Performance Charges if the resource is not scheduled by PJM due to the seller's submission of a market-based offer price greater than its cost-based offer price. The parties state that this application of the scheduling exemption will serve as additional mitigation of resources' energy market offers without those resources having been found to possess market power. We disagree that the scheduling exemption as proposed will serve as *de facto* mitigation. Without the limited application of the exemption that PJM proposes, a resource that is experiencing performance challenges could attempt to avoid Non-Performance Charges by offering well above cost in the hope of not being scheduled. Therefore, we find that PJM's proposed application of the scheduling exemption is needed to preserve the incentives embodied by the rest of its proposal. PJM's proposal does not preclude resources from submitting market-based offers in excess of their cost-based offers. We recognize that the scheduling exemption rules could have the effect of compelling a capacity resource to submit a market-based offer price equal to its cost-based offer price at times when the resource perceives that a

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<sup>147</sup> As discussed in greater detail in section VI.C, we recognize value in allowing a Capacity Performance Resource to designate all or a portion of its capacity as a Maximum Emergency offer in all conditions, and therefore determine that it is not just and reasonable to preclude Capacity Performance Resources from submitting Maximum Emergency offers during emergency conditions and hot or cold weather alerts. Nevertheless, consistent with PJM's proposal and our finding in the paragraph above, we note that PJM should treat any portion of a Capacity Performance Resource's cleared capacity that is designated as a Maximum Emergency offer as non-performing for purposes of applying Non-Performance Charges if, due to the capacity's designation as a Maximum Emergency offer, the offer does not reflect the unit-specific operating parameter limits and PJM does not schedule that capacity during a Performance Assessment Hour for that reason. Similarly, any portion of the Maximum Emergency offer capacity that PJM schedules and that is delivered to the system as energy or reserves during a Performance Assessment Hour should be credited to the resource's performance when determining Non-Performance Charges or Performance Bonus Payments.

Performance Assessment Hour may occur. However, we agree with PJM that a seller exercising its option to only be scheduled based on its market-based offer price is making an economic decision. In such a scenario, we find it reasonable for the seller to assume the risk of non-performance resulting from its offer strategy.

169. NRG/Dynegy argues that a resource's short-run marginal cost for a given hour will often exceed the price of its cost-based offer, particularly during Performance Assessment Hours when fuel prices can be highly volatile, and that this possibility renders the proposed scheduling exemption unjust and unreasonable. We appreciate the issue raised by NRG/Dynegy, but we are not persuaded that the Capacity Performance proposal exacerbates it. NRG/Dynegy is arguing that a resource's cost-based offer may not reflect the resource's true marginal costs, but PJM's cost-based offer rules are not directly before us in this proceeding.<sup>148</sup> We also anticipate that NRG/Dynegy's concern will be limited by the fact that during the emergency conditions that trigger Performance Assessment Hours, PJM will typically be scheduling all resources that are available to perform.

170. While we accept the proposed scheduling exemption, we find that two clarifications are appropriate with regard to the tariff language in proposed section 10A(d) of the OATT to avoid ambiguity or misinterpretation. In relevant part, section 10A(d) states the following:

[A] Capacity Resource or Locational UCAP of a Capacity Market Seller or Locational UCAP Seller shall not be considered in the calculation of a Performance Shortfall for a Performance Assessment Hour to the extent such Capacity Resource or Locational UCAP was unavailable during such Performance Assessment Hour solely because the resource on which such Capacity Resource or Locational UCAP is based...was not scheduled to operate by the Office of the Interconnection, or was online but was scheduled down, by the Office of the Interconnection, *for reasons other than* (i) limitations specified by such seller in the resource

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<sup>148</sup> See *Duke Energy Corp., et al. v. PJM Interconnection, L.L.C.*, 151 FERC ¶ 61,206 (2015) (directing PJM to submit a filing either to: (1) report whether it will propose tariff changes that (a) allow market participants to submit day-ahead offers that vary by hour and to update their offers in real time, including during emergency situations, and (b) make any associated modifications to its market power mitigation rules; such report must include a proposed timeline from PJM explaining how it will implement such changes by November 1, 2015, or as soon as practicable thereafter; or (2) explain why such changes are not necessary).

operating parameters, or (ii) the submission by such seller of a market-based offer higher than its cost-based offer.<sup>149</sup>

171. First, we interpret the clause on seller-specified limitations on resource operating parameters to mean that if PJM does not schedule a resource during a Performance Assessment Hour due to *any* operating parameter limitation specified in a market seller's energy offer,<sup>150</sup> the resource will be subject to Non-Performance Charges. In other words, a capacity resource will only be exempt from Non-Performance Charges if it is not scheduled by PJM because the resource was not needed to alleviate the capacity shortage. This interpretation is consistent with PJM's statements in its transmittal letter, including the following:

[N]ot scheduling a resource, or dispatching it down, due to parameter limitations specified by the seller in its energy market offer are attributable to choices made by the seller, rather than actions dictated by PJM. Even physically based resource parameter limits reflect choices controlled by the seller as to the nature of the resource that it is offering to the PJM Region as capacity. Parameter limits should not be viewed as a permanent entitlement to underperform. Instead, those limits should be exposed to financial and market consequences: if sellers of resources with fewer operating limits earn more from the capacity market (after taking Non-Performance Charge and Performance credits into account) than sellers of resources with more restrictive operating limits, then all sellers will be incented to find ways to minimize those operating limits, which should over time increase overall fleet performance and benefit loads in the region.<sup>151</sup>

Thus, we find that the proposed wording, "limitations specified by such seller in the resource operating parameters," could be misinterpreted to mean only those operating parameter limitations that are less flexible than a resource's pre-determined parameter-limited schedule and, in turn, allow less flexible resources to avoid Non-Performance

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<sup>149</sup> PJM OATT Attachment DD, section 10A - Charges for Non-Performance and Credit for Performance (emphasis added).

<sup>150</sup> Including limitations consistent with the resource's pre-determined parameter-limited schedule in Attachment K, section 6.6, of the OATT.

<sup>151</sup> PJM transmittal at 46 (Docket No. ER15-623-000).

Charges more often than more flexible resources. To prevent misinterpretation, we find that a clarification is warranted to make clear what parameter limitations are at issue in this provision.

172. Second, we interpret the clause on submission of a market-based offer higher than the cost-based offer to mean that if a capacity resource is not scheduled by PJM after submitting a market-based offer higher than its cost-based offer, but would also not have been scheduled even if its market-based offer had been equal to its cost-based offer, any undelivered megawatts will not be counted as a performance shortfall. In this scenario, the reason that PJM did not schedule the resource is not that the resource's market-based offer was higher than its cost-based offer. Rather, PJM did not schedule the resource because it was not needed, even at its cost-based offer price. This interpretation is based on our literal reading of the provision, and we find it to be the appropriate interpretation in light of PJM's stated intent for the scheduling exemption. Nonetheless, we find that, as written, this provision may be ambiguous and open to different interpretations.

173. Accordingly, to provide maximum clarity, we accept PJM's proposal, subject to the condition that PJM submit modifications to proposed section 10A(d) of the OATT to make clear that: (i) if a capacity resource is not scheduled by PJM due to any operating parameter limitations submitted in the resource's offer, any undelivered megawatts will be counted as a performance shortfall; and (ii) if a capacity resource is not scheduled by PJM after submitting a market-based offer higher than its cost-based offer but would have been scheduled if its market-based offer had been equal to its cost-based offer, any undelivered megawatts will be counted as a performance shortfall.

174. Several intervenors<sup>152</sup> request that PJM extend additional performance exemptions to resources for a number of reasons. However, in submitting proposed tariff changes pursuant to a FPA section 205 filing, PJM need only demonstrate that its proposed revisions are just and reasonable, not that its proposal is the most just and reasonable among all possible alternatives. Therefore, having found PJM's proposed exemptions to be just and reasonable and not unduly discriminatory, subject to the condition described above, we decline to address the proposed alternative or additional exemptions in the context of this section 205 proceeding.<sup>153</sup>

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<sup>152</sup> See Coalition of Resource Projects protest at 15; Dominion protest at 38.

<sup>153</sup> *City of Bethany v. FERC*, 727 F.2d 1131, 1136 (D.C. Cir. 1984) (the Commission's authority to review rates under the FPA is 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); *Louisville Gas and Elec. Co.*, 114 FERC ¶ 61,282 at P 29 (2006) (the just and reasonable standard under the FPA is not so rigid as to limit rates to a “best rate” or “most efficient

175. Turning now to PJM's proposed performance evaluation mechanics, we agree with the Market Monitor that PJM's proposal does not specify how PJM will assess performance for energy imports and when Emergency Action hours only occur within individual zones or sub-zones.<sup>154</sup> In proposed PJM OATT Attachment DD, section 10A(c), PJM proposes to measure a resource's actual performance against its expected performance to determine performance payments. For generation and storage resources, PJM proposes to calculate the expected performance by multiplying the resource's cleared UCAP quantity by the Balancing Ratio, which is the ratio of all actual generation and storage performance, Net Energy Imports, and demand response bonus performance to all committed generation and storage. PJM proposes to define Net Energy Imports as "the sum of interchange transactions importing energy into PJM not including those associated with external Capacity Resources and therefore included in All Actual Generation Performance minus the sum of interchange transactions exporting energy out of PJM, but not less than zero."<sup>155</sup> However, PJM does not explain why system-wide net imports and exports for PJM would factor into the calculation of the Balancing Ratio for a zonal- or sub-zonal-only Emergency Action. We agree with the Market Monitor that if an Emergency Action is limited to a zone or sub-zone region, transmission into the affected region is likely restricted, so including a system-wide measure of Net Energy Imports would likely distort the Balancing Ratio.

176. Additionally, proposed PJM OATT Attachment DD, section 10A(c), indicates that PJM will apply the performance assessment calculation only to resources "located in the area defined by the Emergency Action." Proposed section 10A(g) also points to proposed section 10A(c) as governing PJM's calculation of actual performance in determining Performance Bonus Payments. Together, the proposed sections imply that energy imported from resources outside the Emergency Action area will not be eligible for Performance Bonus Payments. To the extent that the Emergency Action area is at the zonal or sub-zonal level, we find this treatment reasonable. However, if the Emergency Action area is PJM-wide, these tariff sections imply that PJM will not calculate either an expected performance value or an actual performance value for resources external to the

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rate" standard; rather, a range of alternative approaches often may be just and reasonable), *reh'g denied, E. ON U.S. LLC*, 116 FERC ¶ 61,020 (2006); *see PJM Interconnection, L.L.C.*, 147 FERC ¶ 61,103, at P 59 (2014); *Cal. Indep. Sys. Operator Corp.*, 149 FERC ¶ 61,058, at P 38 (2014); *Cal. Indep. Sys. Operator Corp.*, 128 FERC ¶ 61,265, at P 21 (2009).

<sup>154</sup> *See* Market Monitor January 20, 2015 comments at 23-24 and Market Monitor February 25, 2015 answer at 7.

<sup>155</sup> *See* proposed OATT at Attachment DD, section 10A(c).

PJM region, regardless of whether or not they have capacity commitments in PJM. As a result, external resources would neither be subject to Non-Performance Charges nor be eligible for Performance Bonus Payments. With respect to external resources with capacity commitments, such treatment would be inconsistent with PJM's proposed treatment of internal capacity resources within the Capacity Performance design. We find that a clarification is warranted to avoid any ambiguity as to how PJM will assess the performance of external resources.

177. We also agree with Panda and the Coalition of Resource Projects that, as proposed, the Balancing Ratio could exceed one and, thereby, cause capacity resources' expected performance during a Performance Assessment Hour to exceed their full cleared UCAP quantity. Such an outcome is inconsistent with the capacity obligation within the Capacity Performance design.

178. For the reasons discussed above, we accept PJM's proposed performance evaluation mechanics, subject to PJM submitting tariff revisions to clarify the definition of Net Energy Imports<sup>156</sup> to avoid the distortion of the Balancing Ratio described above for Emergency Action hours limited to a zonal or sub-zonal area, and to reflect the performance calculation for imports from outside an Emergency Action area to ensure proper compensation for Performance Bonus Payments to resources outside the Emergency Action area. In addition, we accept PJM's proposed performance evaluation mechanics, subject to PJM clarifying how it will apply the performance assessment calculation to external resources with and without a capacity commitment when an Emergency Action is triggered PJM-wide. Lastly, we accept PJM's proposed performance evaluation mechanics, subject to PJM clarifying in section 10A(c) that a capacity resource's expected performance for any Performance Assessment Hour shall not exceed 100 percent of its cleared UCAP quantity, or explaining why the absence of such a statement is just and reasonable.

179. Regarding the Market Monitor's concern about how Demand Resource and Energy Efficiency Resource performance is incorporated into the Balancing Ratio, we agree with PJM's answer<sup>157</sup> that incorporating such resources would produce a ratio that does not correspond to what PJM's system expects or needs because these resources are subject to different performance expectations. We find that PJM's proposal to measure performance of demand response and energy efficiency resources using a different Balancing Ratio accurately accounts for differences inherent in these products.

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<sup>156</sup> *Id.*

<sup>157</sup> PJM February 13, 2015 answer at 35-38.

180. We also accept PJM's proposal to use Customer Baseline Load as the measure of a Demand Resource's performance during non-summer Emergency Action hours.<sup>158</sup> We are not persuaded by AEMA's claims that it is inappropriate to use an energy market measure for performance of a capacity resource. We note that the stated aim of PJM's capacity performance revisions is to tie capacity revenue to resource's performance in the energy markets during Emergency Action hours. Because Customer Baseline Load is an appropriate measure of such performance, we find that it is a reasonable measure for assessing performance and penalties during non-summer Emergency Action hours.

181. Concerning the penalty assessment calculation for resources that submit coupled offers, we find that the clarification PJM has provided in its answer – that credit for performance will be assigned to a resource's Capacity Performance obligation first with any remaining performance awarded to the resource's Base Capacity obligation<sup>159</sup> – to be just and reasonable because it allows resources to satisfy their highest priority obligations first. We therefore accept PJM's proposed treatment of coupled offers, subject to PJM modifying the relevant tariff provisions to reflect the clarification that PJM provides in its answer.

182. Regarding PJM's proposal to allocate Non-Performance Charge revenues to over-performing resources, we find PJM's proposal to distribute these penalties to generators to be just and reasonable. The redistribution of capacity revenues from under-performing resources to over-performing resources provides the appropriate incentives for all resources to perform when they are most needed. PJM's proposal balances a capacity resource's risk of paying Non-Performance Charges against the potential to receive Performance Bonus Payments. Distributing all or a portion of Non-Performance Charge revenues to load would de-link the Performance Bonus Payment rate from the Non-Performance Charge rate, reduce the Performance Bonus Payment rate, and disproportionately increase the risk exposure of capacity resources. To the extent their additional risk is reflected in capacity offers, it may raise capacity auction clearing prices such that the increased cost to load exceeds the amount of Non-Performance Charge revenue being distributed to load. Further, a reduced Performance Bonus Payment rate would also dampen the incentive for resources without capacity commitments to provide energy during emergency conditions.

183. The strong incentives for resources to perform should reduce the number of hours that the system is in or approaching shortage conditions, resulting in a more reliable system. Over the long term, the fleet-wide outage rate may even decrease to an extent

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<sup>158</sup> See proposed RAA, Schedule 6, section G; proposed PJM OATT, Attachment DD-1, section G.

<sup>159</sup> See PJM February 13, 2015 answer at 22.

that PJM can achieve its reliability goals with fewer MWs of installed capacity, and therefore lower costs, per unit of demand. For these reasons, we find that PJM's proposed method of allocating Non-Performance Charge revenues is appropriate.

184. With regard to PJM's proposal to assess Non-Performance Charges no later than three calendar months after the calendar month of the Performance Assessment Hour and to bill and credit appropriate charges over the remaining months of the relevant delivery year,<sup>160</sup> Calpine argues that PJM should be required to bill and credit the Non-Performance Charges at the time of assessment or allow the balances to accrue interest.<sup>161</sup> While PJM's proposal to delay payment without interest may reduce the value of over-performance payments by not accounting for the time-value of such funds, we find reasonable PJM's argument<sup>162</sup> that not assessing interest reduces the liquidity risk for resources that may be subject to Non-Performance Charges and increases the probability of full recovery of Performance Bonus Payments by the over-performer. We thus find PJM's proposed process to be just and reasonable and accept it.

185. The PJM Utilities Coalition notes that PJM's proposed tariff revisions contain an apparent drafting error whereby a Capacity Performance Resource can face both Non-Performance Charges, per section 10A of Attachment DD of the OATT, and Peak Season Maintenance Compliance penalties or Peak Hour Period Availability penalties, per sections 9 and 10 of Attachment DD of the OATT, for the same event during the transition period. Such application runs contrary to PJM's statement in its transmittal letter that any resource that voluntarily commits to be a Capacity Performance Resource for the 2016-17 or 2017-18 delivery years will be subject only to the Non-Performance Charge provisions in section 10A and will not be subject to the penalty provisions in sections 9 and 10.<sup>163</sup> Accordingly, we accept PJM's proposal subject to PJM correcting this apparent oversight, or otherwise clarifying how its proposed tariff provisions achieve the stated intent.

186. Finally, we accept PJM's proposal to use the declaration of Emergency Actions as the trigger for Performance Assessment Hours. We note that ISO-NE triggers performance assessments when it experiences a shortage of system 30-minute reserves, system 10-minute reserves, or zonal 30-minute reserves.<sup>164</sup> While PJM's proposed

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<sup>160</sup> PJM transmittal at 48 (Docket No. ER15-623-000).

<sup>161</sup> Calpine comments at 9-10.

<sup>162</sup> PJM February 13, 2015 answer at 96 (Docket No. ER15-623-000).

<sup>163</sup> PJM transmittal at 53 (Docket No. ER15-623-000).

<sup>164</sup> See *ISO-NE Capacity Performance Order*, 147 FERC ¶ 61,172 at 5 (2014).

trigger is more expansive, to include certain warnings and pre-Emergency Actions,<sup>165</sup> we find that PJM's approach would accurately correspond with conditions and events during which the system is experiencing, or may reasonably expect to experience, a shortage of capacity. We find that this approach will appropriately trigger Performance Assessment Hours when performance is most critical to the PJM system.

#### **D. Fixed Resource Requirement Plans**

187. Under PJM's existing rules, the capacity requirements of a load serving entity may be met either through participation in PJM's capacity auctions, or through the submission of an alternative Fixed Resource Requirement plan, *i.e.*, through a self-supply arrangement providing for the long-term commitment of resources.<sup>166</sup> PJM's rules require a Fixed Resource Requirement entity to submit its plan at least one month prior to the Base Residual Auction and subject that entity to deficiency and Non-Performance Charges similar to those applicable to auction participants.

##### **1. PJM's Proposal**

188. In conjunction with its transition mechanisms, as discussed in Section V.D, below, PJM proposes to limit the quantity of Base Capacity that a Fixed Resource Requirement entity will be permitted to include in its plan for the 2018-19 and 2019-20 delivery years, consistent with the limitations proposed as to auction participants.<sup>167</sup> PJM proposes that,

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<sup>165</sup> Proposed PJM OATT at Attachment DD, section 2.23A (“‘Emergency Action’ shall mean any Emergency Action for locational or system-wide capacity shortages that either utilizes pre-emergency mandatory load management reductions or other emergency capacity, or initiates a more severe action including, but not limited to, a Voltage Reduction Warning, Voltage Reduction Action, Manual Load Dump Warning, or Manual Load Dump Action.”).

<sup>166</sup> See RAA at Schedule 8.1. A load-serving entity seeking to satisfy its capacity obligation, through such plan, is required to obtain sufficient capacity for all load and expected load growth in its service area.

<sup>167</sup> PJM proposes that these limitations also be applied to any updated amounts that the Fixed Resource Requirement entity may be required to include in its plan due, for example, to increased load expectations. See proposed RAA at Schedule 8.1, section D.2. PJM also proposes that resources committed in a Fixed Resource Requirement plan not be permitted to participate in PJM's proposed Transition Incremental Auctions (*see* Section V.D of this order, below), given that these plans are submitted and approved three years in advance of the delivery year.

at the conclusion of the transition period, all resources included in a Fixed Resource Requirement plan meet the requirements of a Capacity Performance Resource.

189. PJM also proposes to permit Fixed Resource Requirement entities to choose between financial or physical satisfaction of the Non-Performance Charge when a resource in the entity's Fixed Resource Requirement plan fails to meet its expected performance during a Performance Assessment Hour.<sup>168</sup> Under the financial option, the entity pays the same Non-Performance Charge that applies to RPM Capacity Performance Resources. Under the physical option, the entity must commit an additional 0.5 MW of capacity in the subsequent delivery year for each MW of performance shortfall.<sup>169</sup>

## **2. Protests and Comments**

190. The Ohio Commission argues that, because PJM's Capacity Performance proposal is predicated on a demonstrated reliability need, it must be applied on equal terms to *all* resources, including any resource commitments, as reflected in a Fixed Resource Requirement plan.

191. Other intervenors object to PJM's proposal to require a resource included in a Fixed Resource Requirement plan to meet the requirements applicable to a Capacity Performance Resource. The Indiana Commission and Indiana Consumer Counselor assert that applying these requirements to Fixed Resource Requirement entities is unnecessary, given that the states overseeing these entities' supply arrangements have not experienced the performance degradation issues giving rise to PJM's filing. The Indiana Commission and Indiana Consumer Counselor add that the incentives that resources face in these retail jurisdictions differ from the circumstances at play in PJM's markets. AEP/Duke Energy agree, noting that Fixed Resource Requirement entities are already subject to strong performance incentives and that applying PJM's additional requirements, as proposed, could subject these entities to conflicting reliability requirements.

192. Intervenors also argue that PJM's proposal is incompatible with the cost-of-service model under which a Fixed Resource Requirement entity operates and the extent to which this model may prohibit such an entity to pass through penalty charges. AEP/Duke Energy argue that the Fixed Resource Requirement model was adopted because a utility that would continue to operate as a vertically-integrated utility should not be forced to participate in PJM's bid-based auctions. The Indiana Commission and

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<sup>168</sup> Proposed RAA at Schedule 8.1, sections G.1.

<sup>169</sup> Proposed RAA at Schedule 8, section G.

Indiana Consumer Counselor argue that applying PJM's proposed Capacity Performance requirements to these entities runs contrary to the carefully constructed settlement giving rise to PJM's capacity market. OPSI adds that, as proposed, PJM's approach would impermissibly infringe on state authority by altering the Fixed Resource Requirement option to the extent that it no longer meets the opt-out requirement. Michigan Commission also expresses concern that PJM's proposal infringes on state jurisdictional authority by limiting the types of generation resources that Fixed Resource Requirement entities can rely upon. For example, Michigan Commission observes that PJM's definition of capacity resources excludes Intermittent Resources such as wind and solar, and these resources have made significant contributions to reliability during emergency conditions.

193. AEP/Duke Energy argue that subjecting a Fixed Resource Requirement entity to PJM's Capacity Performance requirements would unduly impede upon that entity's reasonable expectations, as manifested in its long-term resource commitments. The Indiana Commission and Indiana Consumer Counselor add that PJM's proposal would place unreasonable financial burdens on such an entity, noting that as few as one or two outages at an entity's larger facilities could result in significant penalties that could threaten its economic viability. AEP/Duke Energy argue that, if the Commission accepts PJM's proposal, a Fixed Resource Requirement entity should be permitted to elect between the physical and financial Non-Performance Charge at the time that the Non-Performance Charge is assessed, not at the time proposed by PJM, *i.e.*, when the plan is submitted. AEP/Duke Energy further argue that PJM's proposed physical satisfaction option should be based on 0.5 times the *average* performance shortfall, not on the *maximum* shortfall, as proposed by PJM.<sup>170</sup> Michigan Commission also argues that PJM's proposal is unjust and reasonable because PJM has failed to adequately support its reasoning for not allocating performance payments to over-performing resources that select the physical payment option.<sup>171</sup>

194. Finally, AEP/Duke Energy further argue that the effective date proposed by PJM, as to the 2015 auction, is unworkable, requiring that a Fixed Resource Requirement entity give notice to PJM by March 11, 2015 and submit a plan by April 11, 2015, leaving little time for that entity to evaluate its options following the Commission's issuance of its order herein.

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<sup>170</sup> *See also* Market Monitor comments at 24 (characterizing PJM's proposed physical alternative as inadequate).

<sup>171</sup> Michigan Commission protest at 9-10.

### **3. PJM's Answer**

195. PJM, in its answer, responds to intervenors' concerns regarding its proposal to allow Fixed Resource Requirement entities to elect either financial or physical satisfaction of any Non-Performance Charges they incur. With respect to PJM's proposed physical option (requiring the commitment of increased capacity in the entity's plan for the following delivery year), PJM states that it is willing to include a monthly stop-loss limit similar to the monthly stop-loss limit that will apply under the financial option, *i.e.*, a stop-loss limit equal to one third of the maximum Non-Performance Charge for each month in which there are Performance Assessment Hours. Under the monthly stop-loss limit, PJM explains that a resource would accrue an obligation to add no more than 0.166 MW to its plan for the next delivery year for any one month during which it incurs a Non-Performance Charge. PJM also states that, if directed to do so, it will include an annual stop-loss limit whereby an entity choosing the physical option will incur an obligation for the following delivery year to add no more than 0.5 MW for each MW of non-performance.<sup>172</sup>

196. PJM also responds to AEP/Duke Energy's request that PJM allow Fixed Resource Requirement entities to elect financial or physical payment at the time of the non-performance assessment. PJM states that it would be willing to revise its proposal to allow such an election prior to the start of each delivery year. PJM explains that this proposal would be consistent with its goal of aligning the election with the time Fixed Resource Requirement entities submit their first Fixed Resource Requirement capacity plans.

197. PJM also responds to AEP/Duke Energy's concerns regarding the timing aspects relating to the May 2015 auction. PJM asserts that if a load serving entity needs additional time to make its election as to a submission of a plan following the Commission's issuance of its order in this proceeding, PJM would be agreeable to a waiver of the March 11 notice deadline.

### **4. Additional Answers**

198. The Indiana Commission, in its answer, responds to the Ohio Commission's argument that Fixed Resource Requirement entities should not be permitted to opt out of PJM's Capacity Performance requirements (as PJM proposes) in order to treat these entities on an equal basis *vis a vis* sellers participating in PJM's capacity market. The Indiana Commission argues that this asserted equality is inappropriate and unnecessary, given that traditionally regulated states already have adequate mechanisms in place to assure reliable performance.

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<sup>172</sup> See PJM February 13, 2015 answer at 114 (Docket No. ER15-623-000).

199. Exelon, in its answer, responds to the AEP/Duke Energy argument that PJM's Capacity Performance proposal should not be applied to Fixed Resource Requirement entities, given that the Commission lacks jurisdiction to require these entities to procure Capacity Performance Resources. Exelon argues that Non-Performance Charges are deficiency charges that will be imposed in order to prevent Fixed Resource Requirement entities from relying on resources located elsewhere in PJM to meet their peak load requirements. Exelon asserts that, as such, Non-Performance Charges are a federal wholesale charge.

200. Duke, in its answer, argues that PJM's proposal, even as revised by PJM in its answer, should be rejected, given that any such rules, as designed for PJM's capacity auctions, should not apply to existing Fixed Resource Requirement entities. Duke argues that if the Commission does accept PJM's proposal, Fixed Resource Requirement entities should be given a reasonable period, namely until 2020-21 delivery year, to adjust to these rule changes.

201. Finally, Duke responds to PJM's proposal to allow Fixed Resource Requirement entities to choose between the financial or the physical penalty prior to the start of a delivery year, rather than three years in advance of that delivery year. Duke argues that the physical option, while a potential beneficial alternative to the financial penalty, would be viable only if the Fixed Resource Requirement entity has a reasonable opportunity to obtain additional capacity.<sup>173</sup>

## **5. Commission Determination**

202. For the reasons discussed below, we accept PJM's Fixed Resource Requirement proposal, subject to the modifications outlined in this section. As an initial matter, we find it generally appropriate to apply the increased performance expectations, including more stringent consequences for failing to deliver energy or reserves during emergency conditions, to Fixed Resource Requirement entities.

203. Intervenors argue that PJM's proposal should be rejected, given that Fixed Resource Requirement entities are already subject to strong performance incentives from state regulators. Fixed Resource Requirement entities that already meet comparable performance standards, however, will not be unduly burdened by a requirement that they also meet PJM's standards. To the contrary, these resources can be expected to benefit,

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<sup>173</sup> Duke adds that if a non-performance event occurs late in the delivery year, Fixed Resource Requirement entities may not have a reasonable way to purchase capacity to meet the physical assessment in time for the upcoming delivery year. *See* Duke answer at 8.

to the extent that their good performance, relative to other PJM resources, yields additional revenue in the form of Performance Bonus Payments.

204. We are not persuaded that a strong historical record of performance supports the conclusion that Fixed Resource Requirement entities warrant exemption from PJM's Capacity Performance requirements. In fact, while Fixed Resource Requirement entities do not procure their capacity commitments through PJM's capacity auctions, the ability of these resources to perform is equally critical to system reliability. Under these circumstances, applying a lesser performance standard to such entities could undermine the very purpose of PJM's Capacity Performance proposal – to ensure resources that receive capacity payments perform reliably.

205. With regard to OPSI's argument that PJM's proposed revisions would impermissibly infringe on state authority by effectively eliminating states' choice to opt out of the RPM auction process,<sup>174</sup> we note that PJM is making additional changes outlined below to ensure that the Fixed Resource Requirement option remains a viable mechanism to afford states such a choice. We are not persuaded that further changes are necessary to satisfy the opt-out requirement.

206. Regarding the Michigan Commission's allegation that PJM's proposal infringes on state jurisdictional authority by limiting the types of generation resources that Fixed Resource Requirement entities can rely upon,<sup>175</sup> we find that PJM's proposal makes no such limitation. Specifically, the Michigan Commission cites PJM's omission of Intermittent Resources in the definition of capacity resources as an example of how PJM's proposal restricts the Michigan Commission's choice of resources to satisfy its capacity requirements. However, as clarified in its answer and conditionally accepted in this order, PJM's proposal allows for such resources to participate individually or in combination with other such resources.

207. Intervenors also argue that PJM's new performance rules should not be applied to Fixed Resource Requirement entities because these rules are inconsistent with the cost-of-service model under which Fixed Resource Requirement entities operate. However, under PJM's existing rules, Fixed Resource Requirement entities are already subject to penalties similar to those to which resources participating in PJM's capacity auctions are subject.<sup>176</sup> Moreover, while PJM's proposed Non-Performance Charges are purposely

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<sup>174</sup> OPSI comments at 10.

<sup>175</sup> Michigan Commission protest at 3-6.

<sup>176</sup> PJM RAA at Schedule 8.1, section G (“Any Capacity Resource committed by an FRR Entity in an FRR Capacity Plan for a Delivery Year shall be subject during such

more stringent than PJM's existing penalties, we are not persuaded that these charges are any less consistent with the cost-of-service model under which a Fixed Resource Requirement entity operates.

208. We also find that PJM's proposed physical non-performance assessment option is generally appropriate and should be adopted as an accommodation for the difficulties Fixed Resource Requirement entities may face to cover their risk of non-performance through their retail tariffs. While PJM did not originally propose an annual stop-loss limit for resources choosing the physical non-performance assessment option, PJM clarifies in its answer that the total physical penalty would not exceed 0.5 MW for each MW of non-performance in a delivery year.<sup>177</sup> We agree with PJM that subjecting Fixed Resource Requirement entities to an annual maximum Non-Performance Charge of adding 50 percent of the entities' committed MW to its Capacity Plan for the next delivery year is reasonably comparable to the maximum financial penalty of 150 percent of Net CONE. We therefore accept PJM's proposal subject to the condition that PJM add an annual stop-loss limit for Fixed Resource Requirement resources selecting the physical option, consistent with the clarification PJM provides in its answer. In its answer, PJM also offers to add a monthly stop-loss limit for resources selecting the physical option. However, consistent with our finding in section V.C above, we do not find that a monthly stop-loss limit is necessary or appropriate within the Capacity Performance design.

209. However, while adding an annual stop-loss limit offers an improvement, we find that PJM's proposed physical option penalty rate is not just and reasonable because it could unduly penalize Fixed Resource Requirement entities. Specifically, the physical penalty option PJM outlines lacks an hourly charge rate relative to the additional capacity per MW of non-performance. As originally proposed, PJM's physical penalty rate appears to apply a penalty of procuring 0.5 additional MW per MW of non-performance any time Performance Assessment Hours are triggered, potentially resulting in disproportionate penalties.<sup>178</sup> In its answer, PJM proposes an alternative mechanism that

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Delivery Year to the charges set forth in sections 7, 9, 10, 11, and 13 of Attachment DD to the PJM Tariff...").

<sup>177</sup> PJM February 13, 2015 answer at 114.

<sup>178</sup> See proposed RAA at Schedule 8.1, section G.2. A Fixed Resource Requirement entity subject to the physical payment option will be "required to update its Fixed Resource Requirement Capacity Plan with an additional 0.5 MW of Capacity Performance Resources for each MW of Performance Shortfall using the formulae contained in section 10A(c)." Under section 10A(c), a non-performing resource with a 100 MW commitment could have as much as a 100 MW shortfall for a one-hour event, and would be responsible for adding 50 MW to its Fixed Resource Requirement capacity

would instead automatically apply the maximum monthly penalty rate, adjusted for the resource's performance, regardless of the duration or number of Emergency Action events that occur in that month.<sup>179</sup> This could have the effect of penalizing a non-performing Fixed Resource Requirement entity at the proposed maximum monthly level, even if there is just one Performance Assessment Hour in a given month. Accordingly, we accept PJM's proposal subject to the condition that PJM derive and incorporate a comparable Non-Performance Charge rate for the physical payment option in terms of additional capacity per MWh of non-performance.

210. We also condition our acceptance on PJM modifying its proposal, consistent with its answer,<sup>180</sup> to allow a Fixed Resource Requirement entity to choose between the physical non-performance assessment option and the financial non-performance assessment option at the start of the relevant delivery year, rather than when the Fixed Resource Requirement entity submits its first Fixed Resource Requirement Capacity Plan. We find that this delay will allow a Fixed Resource Requirement entity to make its decision on the best information available.

211. We dismiss the Michigan Commission's suggestion that Fixed Resource Requirement entities that choose the physical non-performance assessment option should also be eligible for Performance Bonus Payments. As discussed above, PJM included the physical non-performance assessment option as an accommodation for Fixed Resource Requirement entities which may be unable to pay Non-Performance Charges due to retail rate constraints. We find it appropriate that a Fixed Resource Requirement resource that

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plan. This would suggest that if there were 10 separate one-hour events in a year, a non-performing resource with a 100 MW commitment could be responsible for adding 500 MW to its FRR Capacity plan. With the annual stop-loss limit, such a resource could reach its maximum annual physical penalty level with one hour of non-performance.

<sup>179</sup> PJM February 13, 2015 answer at 114 ("PJM would modify the Tariff to provide that an FRR Entity that chooses the physical payment option and incurs a non-performance penalty would accrue an obligation to add 0.166 MW to its Capacity Plan for the next delivery year for each month that includes Performance Assessment Hours..." We interpret this to mean that, when Performance Assessment Hours occur in a month, PJM would establish a resource's shortfall in terms of MW using the calculations in section 10A(c), regardless of the number of Emergency Action hours or events occurring in that month. So, a non-performing resource with a 100 MW commitment could have a performance shortfall of 100 MW and would be obligated to add 16.6 MW to its FRR capacity plan, regardless of whether there was one Performance Assessment Hour or 15 Performance Assessment Hours in the month.).

<sup>180</sup> *Id.*

selects the physical option is excluded from sharing in Performance Bonus Payments. The Fixed Resource Requirement resource is earning revenue by selling its capacity but is voluntarily opting out of the financial penalty-and-reward construct, and therefore not contributing to the Non-Performance Charge revenues collected when it under-performs. While we agree that the physical option is a reasonable accommodation for Fixed Resource Requirement entities, we find that its voluntary nature also makes it reasonable that resources choosing the physical option be ineligible for Performance Bonus Payments.

212. Finally, because Fixed Resource Requirement entities are subject to long planning horizons and multi-year plans, and because they must coordinate with state commissions in developing such plans, we find that a phase-in of the Capacity Performance rules for these entities is appropriate. We therefore accept PJM's proposal on the condition that PJM apply the Capacity Performance rules to Fixed Resource Requirement entities only after the conclusion of the Fixed Resource Requirement plans to which these entities are currently obligated as of the date of this order.

## **E. Transition Mechanisms**

### **1. PJM's Proposal**

213. On an interim basis, through May 31, 2020, PJM proposes to reclassify its existing capacity market product as a Base Capacity product, subject to certain conditions and requirements summarized below. PJM proposes to permit Base Capacity Resources to participate in PJM's capacity auctions, as applicable to the 2018-19 and 2019-20 delivery years.<sup>181</sup> PJM asserts that this transitional approach is appropriate, given that not all capacity resources will be able to perform as a Capacity Performance Resource in the near term.

214. PJM states that its incremental transition period provides opportunity for resources to invest in, and sufficient time to build, improvements necessary to meet the operational and performance requirements expected of Capacity Performance Resources. PJM argues that this period also allows resources to make gradual improvements, and thereby ease any burden such improvements may impose. This transition mechanism is contrasted with an immediate switch to 100 percent Capacity Performance Resources, which PJM argues could impose significant burdens on resources, and create risks of increased price volatility or shortage concerns.

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<sup>181</sup> Proposed PJM OATT at Attachment DD, sections 2.2B and proposed RAA at sections 1.2A.

215. PJM states that, under its proposal, Base Capacity Resources will include: (i) internal and external generation capacity resources; (ii) Intermittent Resources; (iii) Capacity Storage Resources; (iv) Annual Demand Resources; (v) Base Capacity Demand Resources; and (vi) Base Capacity Energy Efficiency Resources.<sup>182</sup> PJM states that summer-only resources seeking to submit offers as a Base Capacity Resource will be required to demonstrate that they are, or will be, physically incapable of meeting the year-round performance expected of a Capacity Performance Resource. PJM proposes to calculate the constraints on clearing Base Capacity Resources by applying a ten percent increase in its loss-of-load expectation, from a 1-event-in-10 years standard to a 1.1-event-in-10 years standard, as an appropriate reliability tolerance.

216. With respect to Base Capacity Resources and Base Capacity Energy Efficiency Resources, PJM proposes to allocate this tolerance level equally (i.e., as a loss-of-load expectation equal to 1.05-events-in-10-years standard). PJM states that these constraints will be determined in a manner similar to that for existing resource constraints. PJM also proposes to divide the 10 percent increase in loss-of-load expectation evenly, as between: (i) Base Capacity Demand Resources and Base Capacity Energy Efficiency Resources; and (ii) generation resources that clear as Base Capacity Resources.

217. PJM proposes to determine its Base Capacity resource constraint, for both the PJM region and each modeled Locational Deliverability Area, through an iterative process. PJM states that this methodology is similar to the approach recently accepted by the Commission in the case of sub-annual resources.<sup>183</sup>

218. In determining the clearing price for a Base Capacity Resource, PJM proposes to use the price decrement methodology it currently applies in the case of lower-availability products (*i.e.*, in the case of Limited and Extended Summer Demand Response). First, PJM proposes to establish a Base Capacity Demand Resource price decrement equal to

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<sup>182</sup> Proposed PJM OATT at Attachment DD, section 5.5A(ii)(b).

<sup>183</sup> See PJM transmittal at 69 (Docket No. ER15-623-000) (citing *PJM Interconnection, L.L.C.*, 146 FERC ¶ 61,052 at P 74 and P 66 (2014)). PJM states that, accordingly, for the Base Capacity Resource constraint, it proposes to model the commitment of varying levels of Base Capacity Resources and Energy Efficiency Resources as interruptible, from June 1 through September 30, and otherwise unavailable for the remainder of the delivery year, and then proposes to reduce the level of Capacity Performance Resources committed and calculate the resulting impact on its loss-of-load expectation. For the Base Capacity Resource constraint, PJM proposes to model the amount of Base Capacity Resource and Energy Efficiency permitted by the Base Capacity Resource constraint, and then model the commitment of varying levels of generation Base Capacity Resources that will be available.

the difference between the clearing price for Base Capacity Demand Resources and Base Capacity Energy Efficiency Resources, and the clearing price for all other Base Capacity Resources.<sup>184</sup> Second, PJM proposes to establish a price decrement for Base Capacity Resources equal to the difference between the clearing prices for Base Capacity Resources and Capacity Performance Resources, representing the cost to procure additional Capacity Performance Resources out-of-merit when the sub-annual resource constraint is binding.<sup>185</sup>

219. PJM states that a Base Capacity Resource will also be subject to a Non-Performance Charge, if it fails to perform under emergency conditions during the months of June through September.<sup>186</sup> PJM further states that, while a Base Capacity Resource will face a reduced exposure to Non-Performance Charges (relative to a Capacity Performance Resource), it can be expected to clear the auction at a lower price and will not be permitted to invoke an offer cap, absent the submission of a unit-specific review request.<sup>187</sup> PJM also proposes certain conditions and requirements to facilitate its transition to a fully-implemented Capacity Performance Resource model, beginning June 2020. PJM states that these provisions are necessary to carry out the transition in an orderly fashion and to mitigate potential price volatility, or shortage concerns.<sup>188</sup>

220. To accomplish these objectives, PJM proposes to hold two Incremental Auctions to seek voluntary offers of Capacity Performance Resources: one for the 2016-17 delivery year, covering up to 60 percent of PJM's reliability requirement; and the second for the 2017-18 delivery year, covering up to 70 percent of PJM's reliability

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<sup>184</sup> See proposed PJM OATT at Attachment DD, section 2.2C. PJM notes that this decrement would represent the cost to procure additional Capacity Performance Resources, or other Base Capacity Resources out of merit order, when the Base Capacity Resource is binding.

<sup>185</sup> Proposed PJM OATT at Attachment DD, sections 2.2G and 5.14(a).

<sup>186</sup> Proposed PJM OATT at Attachment DD, section 5.5A(b). PJM's Non-Performance Charges are discussed above, at Section V.C of this order.

<sup>187</sup> Proposed PJM OATT at Attachment DD, section 6.4.

<sup>188</sup> PJM asserts, for example, that its proposed transition allowances provide an opportunity for resource owners to invest in, and sufficient time to build, improvements necessary to meet PJM's new performance requirements, including improvements incorporating dual-fuel capabilities, and/or requiring the execution of firm natural gas contracts.

requirement.<sup>189</sup> PJM states that external generation resources will generally be permitted to offer into these auctions, subject to their receipt of a capacity import limit exception.<sup>190</sup> PJM states that, unlike in PJM's other capacity auctions, no locational requirements will be modeled in its transition auctions.<sup>191</sup> PJM notes that, as such, it will procure its specified capacity commitments, without regard to where the relevant resources are located.

221. PJM proposes to phase-in its proposed price and Non-Performance Charges. Specifically, PJM proposes to reduce these prices and charges by 50 percent, for the 2016-17 delivery year, and by 40 percent, for the 2017-18 delivery year. PJM states that resource offers will be capped at the relevant clearing price cap, *i.e.*, at 0.5 Net CONE for 2016-17 and 0.6 Net CONE for 2017-18.<sup>192</sup> PJM adds that maximum Non-Performance Charge exposure in the stop-loss limit calculation will be correspondingly reduced such that, for 2016-17, the stop-loss limit will be based on 0.75 times Net CONE for the PJM region and 0.9 times Net CONE for PJM region, for 2017-18.<sup>193</sup>

222. For the 2018-19 and 2019-20 delivery years, PJM proposes to procure, at a minimum, sufficient quantities of Capacity Performance Resources consistent with reliability, *i.e.*, an amount that corresponds to a 1.1-events-in-10-years standard.<sup>194</sup> PJM states that, for these delivery years, it will allow resources that are physically incapable of

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<sup>189</sup> Proposed PJM OATT at Attachment DD, section 5.14D (allowing any generation resource to be offered, regardless of whether it is already committed to provide capacity for the relevant delivery year). PJM originally stated that it expected to hold these Incremental Auctions in late April and early May 2015, based on auction parameters that it would post on its website.

<sup>190</sup> See proposed PJM OATT at Attachment DD, section 5.14D(B)(3) (requiring, among other things, that the external generation resource be "reasonably expected" to be pseudo-tied into PJM by the applicable delivery year).

<sup>191</sup> See proposed PJM OATT at Attachment DD, section 5.14D(B)(3).

<sup>192</sup> See proposed PJM OATT at Attachment DD, section 5.14D(B)(2). PJM states that, while the clearing price for each transition auction will be set by marginal resource offers, if the target commitment level is not cleared, the clearing price will be capped.

<sup>193</sup> See proposed PJM OATT at Attachment DD, sections 10A(h) and (i).

<sup>194</sup> PJM states that it expects this amount to be approximately 80 percent of total procurement for delivery years 2018-19 and 2019-20. PJM transmittal at 27-28 (Docket No. ER15-623-000).

meeting the Capacity Performance standard, or that are otherwise categorically exempt under the must-offer provisions, discussed below, to submit sell offers as a Base Capacity Resource. PJM also proposes, on an interim basis (i.e., for 2018-19 and 2019-20 delivery years), and up to a maximum of 20 percent of PJM's reliability requirement, that certain resources not capable of sustained, predictable operation (namely, Intermittent Resources, Capacity Storage Resources, Demand Resources, and Energy Efficiency Resources) be allowed to submit, on an aggregated basis, Capacity Performance Resource offers, Base Capacity Demand Resource offers, or coupled offers, provided that the relevant resources are located within the same Locational Deliverability Area.<sup>195</sup>

223. PJM asserts that its proposed transition period, and the market conditions supporting this approach, are distinguishable from the circumstances considered by the Commission in the *ISO-NE Capacity Performance Order*, in which a quicker implementation date (i.e., June 1, 2018) was accepted.<sup>196</sup> PJM argues that it is significantly larger than ISO-NE, relative to both geographic scope and peak demand, and has a more diverse resource mix. PJM concludes that its proposed transition period represents an appropriate balance, considering: (i) the cost and required timelines applicable to resource investment; (ii) the need to protect consumers from unnecessary price spikes; and (iii) resource adequacy and system reliability needs.

## **2. Protests and Comments**

224. PPL argues that PJM's proposed five-year phase-in of its Capacity Performance Resource product constitutes an unwarranted delay, given that the three-year forward procurements made in PJM's capacity auctions provide sufficient time for sellers to make any investments or operational adjustments that may be required to meet PJM's Capacity Performance requirements. PPL asserts that, as such, there is no reason to permit a Base Capacity Resource to participate in PJM's capacity auctions for any delivery year for which a Base Residual Auction has already been held. PPL adds that PJM should be required to adopt the no-transition approach approved by the Commission in the *ISO-NE Capacity Performance Order*.

225. RESA argues that paying higher Capacity Performance clearing prices in PJM's proposed Transition Incremental Auctions to resources that have already cleared in a

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<sup>195</sup> See proposed PJM OATT at Attachment DD, section 5.6.1(h). PJM states that, for any coupled offer, the offer price for the Capacity Performance Resource must be at least \$0.1 per MW-day greater than the offer price for the Base Capacity Resource, consistent with PJM's existing treatment of coupled offers for demand response resources. See PJM OATT at Attachment DD, section 5.6.1(3e).

<sup>196</sup> See *ISO-NE Capacity Performance Order*, 147 FERC ¶ 61,172 at P 1.

prior auction constitutes unlawful retroactive ratemaking and violates the filed rate doctrine, because load-serving entities rely on the capacity clearing price for a given Base Residual Auction when negotiating long-term fixed-price contracts to serve retail customers.<sup>197</sup>

226. Dominion argues that PJM should be required to revise its proposed transition schedule to reflect a more gradual increase in Capacity Performance Resources over time. In particular, Dominion requests that PJM “provide for an annual 5 percent increase to the reliability requirement of for Capacity Performance Resources beginning in the [2020-21] [d]elivery [y]ear and to transition to 100 percent reliance of Capacity Performance Resources based upon these smaller annual increases.”<sup>198</sup> Dominion argues that extending the transition period is reasonable given the degree of investment expected, the uncertainty about future environmental regulations, and the need to further evaluate issues associated with aggregated resources. Dominion also argues that a more measured phase-in will reduce price volatility, particularly in the first years of the transition, and better insure that reliability is not undermined.<sup>199</sup>

227. The Pennsylvania Commission questions the cost effectiveness of an early implementation approach, given that the cost increases attributable to PJM’s proposed rule changes will not be offset, over the near term by any substantive improvements in reliability. Direct Energy adds that there has been no compelling need shown to implement PJM’s transition proposal for the 2016-17 and 2017-18 delivery years. EquiPower argues that the timing of PJM’s proposal provides insufficient time for generation owners to complete the improvements required to prepare and submit accurate cost data and offers. The Pennsylvania Commission requests that PJM’s proposed changes not be implemented, to the extent they would affect existing retail electricity supplier contracts, particularly commitments extending into the 2015-16 and 2017-18 delivery years. OPSI argues that PJM’s proposed transition period will impede price certainty, as established in state retail auctions.

228. Public Interest Organizations and Concerned Scientists object to PJM’s proposed cap on Base Capacity Resources, during the transition period, as unsupported, noting that PJM’s assumed limit on outside transfers are far lower than the capacity transfer limits

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<sup>197</sup> RESA protest at 9-11.

<sup>198</sup> Dominion protest at 2.

<sup>199</sup> In contrast, Exelon contends that PJM’s Capacity Performance Resource procurement targets for the transition years are inadequate and must be adjusted upward. Exelon argues that, consistent with this adjustment, PJM should be required to increase the offer cap for the transition years to Net CONE. *See* Exelon protest at 34.

experienced during the events of January 2014. In addition, Public Interest Organizations assert that PJM's assumption that no Base Capacity Resource will be available during the winter peak is contradicted by the fact that demand response, as well as wind resources, performed well during the Polar Vortex. Public Interest Organizations add that, in calculating a cap, a more appropriate assumption regarding availability, would be 50 percent. Concerned Scientists argue that PJM's proposal phase-out Base Capacity Resources fails to adequately account for renewable resources' value and thus will place undue influence on natural gas investments.

229. Public Interest Organizations also object to PJM's proposed phase-out of Base Capacity Resources beginning in June 2020, as unwarranted. Public Interest Organizations note that, under PJM's existing rules, sub-annual Demand Resources are permitted to commit up to a level maintaining a 1.1-in-10 loss-of-load expectation.<sup>200</sup> The Ohio Commission adds that rather than create a hybrid Base Capacity Resource product for the final two years of the transition period, PJM should instead eliminate Limited and Extended Summer Demand Response products at the end of the 2017-18 delivery year and procure only Annual Demand Resources starting with the 2018-29 delivery year.

230. Brookfield argues that PJM's proposal fails to address how coupled offers will clear in the auctions for the 2018-19 and 2019-20 delivery years. Brookfield asserts that it would not be appropriate to clear all of a joint offer as Base Capacity, to achieve a least-cost solution, when a resource is willing to provide Capacity Performance.

231. The Transition Coalition argues that PJM's reliance on Transition Incremental Auctions to procure Capacity Performance Resources will inappropriately compensate highly-available resources that have already made capacity commitments in PJM's auctions. The Transition Coalition further argues that, in advancing its proposal, PJM has failed to address whether other, less expensive, options are available for improving resource performance, including an initiative designed to enhance dual-fuel capabilities.<sup>201</sup>

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<sup>200</sup> Public Interest Organizations argue that given this existing allowance and given that an exclusive reliance on Capacity Performance Resources will not be required to maintain a 1.1-in-10 standard, PJM has not supported its proposed phase-out of Base Capacity Resources.

<sup>201</sup> *Compare* Invenergy comment at 10 (arguing that, for Transition Incremental Auctions for the 2016-17 and 2017-18 delivery years, fairness dictates that market sellers that have already committed to provide capacity during these delivery years be given the first opportunity to satisfy PJM's Capacity Performance Resource needs).

232. The PJM Utilities Coalition argues that PJM's transition proposal fails to adequately address the longstanding undervaluation of generation capacity resources in PJM, and the reliability risk this poses. The PJM Utilities Coalition argues that to achieve revenue adequacy, PJM's capacity auctions must, on average, establish clearing prices that approximate Net CONE, a level that has rarely been approached. To achieve higher clearing prices, the PJM Utilities Coalition argue, among other things, that PJM's auctions must be designed to clear products with similar performance obligations, without an allowance for coupling of higher and lower quality offers, as PJM proposes. The PJM Utilities Coalition further argues that a revenue security mechanism is required.<sup>202</sup>

233. Exelon and the PJM Utilities Coalition argue that, for the 2016-17 and 2017-18 delivery years, PJM should be required to procure Capacity Performance Resources at a level higher and subject to a higher offer cap than PJM proposes, in order to avoid price suppression.<sup>203</sup>

234. Intervenors also protest PJM's proposed transition period price caps, as applicable to Capacity Performance Resources for the 2016-17 and 2017-18 delivery years. The PJM Utilities Coalition asserts that these price caps have not been justified relative to the underlying cost of investment, or related risk exposures. LS Power agrees, arguing that PJM's proposed price caps inadequately incent resources to make the investments necessary to become Capacity Performance Resources and take on the added risk of significant Non-Performance Charges. LS Power asserts that PJM should instead be required to calculate its Non-Performance Charge for the transition period years based on the difference between the clearing price in the transition auction and the price the resource will receive for its prior capacity commitment. EquiPower argues that PJM should be required to institute a floor price for Base Capacity Resources in the Base Residual Auction for the 2018-19 delivery year.

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<sup>202</sup> Two alternative mechanisms are proposed: first, a competitive offer requirement for existing resources using a revised default Avoidable Cost Rate formula; second, an administratively-determined two-year transitional price floor, equal to 0.6 time Net CONE for use in the Base Residual Auctions applicable to the 2018-19 and 2019-20 delivery years.

<sup>203</sup> The PJM Utilities Coalition note that, in the White Paper prepared by PJM in October 2014, PJM acknowledged that, for the 2017-18 delivery year, Base Capacity would have to be capped at 20 percent to maintain a loss-of-load expectation at an appropriate level. The PJM Utilities Coalition argues that, given this prior analysis, PJM's filing proposal (recommending an extension of this cap up to a 30 percent level) cannot be regarded as just and reasonable.

235. LS Power argues that PJM's transition mechanism fails to address how PJM will avoid under- or over-procurement of Capacity Performance Resources during the transition period. Accordingly, LS Power argues that, in PJM's Incremental Auctions for the 2016-17 and 2017-18 delivery years, sellers should be permitted to purchase replacement Capacity Performance Resources. Additionally, LS Power requests clarification that PJM will be required to sell back any commitments from a Base Capacity Resource during the Incremental Transition Auctions, if such commitments are determined to be unnecessary in light of PJM's procuring sufficient Capacity Performance Resources. LS Power argues that, without this requirement, PJM's proposed transition mechanism could subject customers to excessive costs at distorted price levels.

236. Finally, intervenors challenge PJM's proposed transition mechanisms, as applicable to demand response and renewable resources. EMC protests PJM's proposal to allow energy efficiency and Demand Resources to satisfy only a portion of the Base Capacity required during the transition years. EMC argues that this proposal unjustifiably prefers base generation with summer-only obligations at the expense of energy efficiency. Wind Energy and Renewables Coalition argues that the performance requirements for Base Capacity Resources should only apply to summer months and that resources clearing as Base Capacity should be paid for all winter performance.

### **3. PJM's Answer**

237. PJM, in its answer, responds to intervenors' varying concerns regarding PJM's proposed transition towards a fully-implemented Capacity Performance product. PJM asserts that its approach appropriately balances: (i) the investments and time resources will need to meet the operational and performance requirements established under PJM's proposal; (ii) consumers' interest in price stability; and (iii) the need to ensure resource adequacy and system reliability.

238. PJM also responds to PPL's argument that PJM should be required to implement its Capacity Performance Resource product, without a transition mechanism, consistent with the approach approved by the Commission in the *ISO-NE Capacity Performance Order*. PJM argues that, under FPA section 205, its burden in this case is limited to a showing that its transition mechanism, as proposed, is just and reasonable. PJM argues that, in making a section 205 proposal, it is not required to demonstrate that alternative approaches are unjust and unreasonable, or that other options have less merit than PJM's proposal.

239. PJM also responds to RESA's argument that paying higher Capacity Performance clearing prices to resources that have already cleared in a prior auction constitutes unlawful retroactive ratemaking. PJM argues that its Transition Incremental Auctions will procure a new capacity product for which no price has yet been established in any prior auction. PJM adds that the Commission has previously rejected arguments that

PJM is prohibited from implementing prospective rule changes for a given delivery year once it has held an auction applicable to that delivery year.<sup>204</sup>

240. PJM also responds to the Transition Coalition's argument that PJM's proposed Transition Incremental Auctions will unnecessarily pay generators more for capacity commitments they have already made. PJM argues that while a higher clearing price may be expected, Capacity Performance Resources that clear in the Transition Incremental Auctions will be exposed to higher risks, as compared to prior auctions, namely, exposure to Non-Performance Charges.

241. PJM also responds to Invenergy's argument that previously-cleared commitments for the 2016-17 and 2017-18 delivery years should be given a clearance preference in the Transition Incremental Auctions. PJM argues that no such preference would be warranted, given that participation in the Transition Incremental Auction is voluntary, and given that any previously-cleared resource seeking not to participate will still have its commitments honored.

242. With respect to challenges to the Transition Incremental Auctions for the 2016-17 and 2017-18 delivery years, PJM argues that its proposal mitigates concerns about price volatility and the potential for shortages, particularly in light of other factors driving changes in its existing generation fleet.<sup>205</sup> PJM also responds to Invenergy's argument that resources with prior capacity auction commitments should receive priority in the Transition Incremental Auctions. PJM argues that participation in the Transition Incremental Auctions is voluntary.

243. PJM also responds to LS Power's argument that capacity market sellers should be allowed to purchase replacement Capacity Performance Resources in the Transition Incremental Auctions. PJM argues that such an approach would be infeasible, given that the new Capacity Performance product is not a direct substitute for existing capacity and is not subject to all of the same constraints that apply to capacity resources, currently. PJM argues that, while bilateral transactions may be entered into for the purpose of procuring replacement of a Capacity Performance Resource commitment, such replacement option cannot be integrated into PJM's scheduled Incremental Auctions.

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<sup>204</sup> PJM February 13, 2015 answer at 42 (Docket No. ER15-623-000) (citing *PJM Interconnection, L.L.C.*, 150 FERC ¶ 61,020, at P 38 (2015)).

<sup>205</sup> PJM answer at 41 and n.66-67 (citing the U.S. Environmental Protection Agency's Mercury and Air Toxics Standards emission rules beginning in 2015, as well as its pending Clean Power Plan).

244. In response to Exelon's and the PJM Utilities Coalition's argument that PJM should be required to increase the target amounts of Capacity Performance Resources and offer caps in the Transition Incremental Auctions, PJM asserts that these requests underscore the careful balance its proposal achieves as between the uncertainty about resource availability, reliability considerations, and potential cost increases. PJM adds that the expedited implementation schedule sought by Exelon and the PJM Utilities Coalition would risk significantly higher clearing prices in the Transition Incremental Auctions, relative to the prior auctions held for those delivery years, without a corresponding assurance that new and existing resources would be able, in that timeframe, to make the investments necessary to meet PJM's proposed Capacity Performance requirements.

245. With regard to intervenors' argument that capacity prices under PJM's proposal will be excessive, PJM argues that the reliability value of every resource that clears, under its transition mechanism, will be reflected by the *net revenues* that resource earns. PJM argues that intermittent and Demand Resources must accept the same performance risk as all other resources. PJM adds that this risk can be appropriately managed through coupling or maintaining a portfolio of resources. PJM also responds to intervenors' argument that PJM should be required to maintain a Base Capacity procurement allowance, given that PJM will remain a summer peaking system and given that there has been no asserted need for a single, annual capacity product. PJM argues that Base Capacity must be phased-out, under the timetable it proposes, because, when called upon during an emergency, resources must be counted on to fulfill their capacity commitments.

246. Finally, PJM responds to Public Interest Organizations' objection to PJM's proposed method for determining Base Capacity constraints for the 2018-19 and 2019-20 delivery years. PJM argues that it is appropriate to base its constraint calculation on Base Capacity Resource availability during the winter peak, given that generation resources with year-round performance capability will be subject to a must-offer requirement as a Capacity Performance Resource. PJM argues that, as such, Base Capacity Resources will only comprise those resources that PJM and the Market Monitor have determined will not be physically capable of satisfying these requirements in the relevant delivery year.

#### **4. Additional Answers**

247. Exelon, in its answer, responds to the Transition Coalition's argument that PJM's transition mechanism, if approved, will inappropriately permit Capacity Performance Resources to receive compensation for capacity commitments they have already made for the 2016-17 and 2017-18 delivery years. Exelon argues that, while PJM has already secured the commitments at issue, commitment alone has not been enough to assure performance, especially during winter peaks. Exelon further argues that the selection of additional, specific investments via a targeted, supplemental procurement approach, a market-based solution, as proposed, is the superior approach that will incent unit owners to decide for themselves what investments need to be made.

248. The PJM Utilities Coalition, in its answer, responds to the Transition Coalition's argument that PJM's transition mechanism, if approved, will result in windfall revenues without delivering any incremental improvement in reliability. The PJM Utilities Coalition argues that, during the transition period, resources that choose to take on the higher performance obligations associated with a Capacity Performance Resource will face penalty risks attributable to that designation and should be compensated, accordingly.

249. The Transition Coalition, in its answer, responds to PJM's answer regarding the asserted need for transition auctions for the 2016-17 and 2017-18 delivery years. The Transition Coalition argues that PJM's defense of these auctions, as a market-based solution for incenting enhanced performance, fails to acknowledge that most, if not all, of the resources that will clear in these auctions are already performing at capacity performance levels. The Transition Coalition adds that PJM's proposal to pay previously-committed resources more to operate exactly as they otherwise would cannot be justified. The Transition Coalition further asserts that virtually all Capacity Resource Resources expected to clear in the transition auctions (77-100 percent) are highly reliable resources that will not be required to make significant investments in order to satisfy their obligations. The Transition Coalition argues that these resources will earn unwarranted profits ranging from \$2.1 to \$2.8 billion in the 2016-17 delivery year and \$0.4 to \$2.4 billion in the 2017-18 delivery year, based on the analysis of its consultant. The Transition coalition asserts that profits to these generators will range from 67-84 percent of total Incremental Auction costs for the 2016-17 delivery year and 41-79 percent for the 2017-18 delivery year.

250. The Transition Coalition also responds to Exelon's argument that the funding of performance-enhancing investments, over the near-term, will improve performance for the relevant transition period delivery years. The Transition Coalition argues that such actions have already been taken, in response to the Polar Vortex. The Transition Coalition notes that, as a result of these actions, PJM had almost 20 GW of excess capacity available when it hit a new all-time winter peak on February 20, 2015.

251. Direct Energy, in its answer, responds to PJM's answer that, while many generators have already improved their operational capability following the Polar Vortex, higher Capacity Performance payments are nonetheless appropriate, given the increased risks these resources will face. Direct Energy argues that the fact that operational gains are already in place negates the need for the increased payments PJM proposes, while any residual risks have not been shown to be cost-justified. Direct Energy adds that, in the event that PJM's transition proposal is not rejected, in the alternative hearing procedures are required to consider: (i) whether the costs attributable to PJM's proposal are outweighed by improved system performance; (ii) the extent to which would-be Capacity Performance Resources have already invested in performance enhancements; and

(iii) whether and to what extent reliability gains will be in place prior to the achievement of PJM's proposed transition targets.

252. The Transition Coalition requests that the Commission reject PJM's Incremental Auction proposal as unsupported and defer implementation of its Base Residual Auction reforms until next year.<sup>206</sup> The Transition Coalition suggests that it is unclear how, if at all, PJM could implement its proposal in the Base Residual Auction for the 2018-19 delivery year. As PJM's Deficiency Letter Response fundamentally alters core aspects of its proposal, which, if accepted by the Commission, would require a further compliance filing and action by the Commission, as well as by market participants attempting to comply with final bidding requirements.<sup>207</sup> The Transition Coalition contends that the variability of PJM's proposal has made it impossible for market participants to have any clarity with respect to their future obligations.<sup>208</sup>

## **5. Commission Determination**

253. For the reasons discussed below, we accept PJM's proposed transition mechanisms. PJM asserts, and we agree, that implementing the transition over five years will allow resources to make gradual improvements and reduce the burdens such improvements may impose. It will also mitigate the potential for short-term shortage that might result from an immediate requirement of 100 percent Capacity Performance Resources. Such a short-term shortage could create price volatility that does not provide a useful price signal for investment. PJM's proposal to acquire a mix of Capacity Performance and non-Capacity Performance Resources throughout the transition mechanism strikes an appropriate balance between the costs associated with procuring Capacity Performance Resources throughout the transition period with the needed reliability improvements over that same period. Similarly, the use of a lower Non-Performance Charge rate and annual stop-loss limit for the 2016-17 and 2017-18 delivery years will help phase in the necessary reliability benefits. We also find that the institution of price caps in the Transition Incremental Auctions will help limit load's exposure to cost increases in the applicable delivery years.

254. LS Power argues that, in keeping with its current practices, in the Incremental Auctions leading up to the 2016-17 and 2017-18 delivery years, PJM should be required to sell back any Base Capacity Resources it may not need. We note that, under PJM's existing rules, PJM is required to sell-back capacity in its Incremental Auctions in the

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<sup>206</sup> Transition Coalition comments to PJM's Deficiency Letter Response at 4-5.

<sup>207</sup> *Id.* at 4.

<sup>208</sup> *Id.* at 6.

event its load forecasts are adjusted downward.<sup>209</sup> Under PJM's proposal, this existing requirement will remain in place. Accordingly, we interpret this provision to require PJM to sell back any excess capacity resources – specifically what will be identified as Base Capacity Resources in future auctions – in the appropriate Incremental Auction if the load forecast is adjusted downward.

255. We dismiss LS Power's request that, in the scheduled Incremental Auctions for the 2016-17 and 2017-18 delivery years, PJM be required to buy and sell Capacity Performance Resources. PJM's scheduled Incremental Auctions for 2016-17 and 2017-18 delivery years only provide for the buying and selling of PJM's existing capacity product. PJM has established special, additional Incremental Auctions to procure its proposed Capacity Performance product. We find that integrating the Capacity Performance product into PJM's scheduled Incremental Auctions for the 2016-17 and 2017-18 delivery years would introduce needless complexity, given the transitional nature of these auctions. We also find that PJM has made adequate accommodations for the buying and selling of the Capacity Performance product by allowing sellers with Capacity Performance Resource commitments to seek replacement commitments, as necessary, through bilateral transactions.

256. We next consider intervenors' arguments that, as proposed, PJM's transition mechanisms will procure either too much, or too little, capacity able to qualify as a Capacity Performance Resource, or should otherwise be deferred.<sup>210</sup> For the reasons

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<sup>209</sup> See PJM OATT at Attachment DD, section 5.4(c). The Commission recently waived the requirement to sell-back excess capacity for the third Incremental Auction for the 2015-16 delivery year only, explaining that PJM's reliance on committed capacity resources, the poor performance of generating capacity resources during the previous year, and the expected high level of generation retirements justified granting waiver. See *PJM Interconnection, L.L.C.*, 150 FERC ¶ 61,122, at P 46 (2015).

<sup>210</sup> Compare Transition Coalition protest at 4-6 (arguing that there has been no showing, here, that PJM will improve reliability by acquiring Capacity Performance Resources through its Transition Incremental Auctions) with PPL protest at 6-8 (arguing that PJM should be required to procure Capacity Performance Resources alone in its May 2015 Base Residual Auction), Pennsylvania Commission comment at 32 (requesting that the transition period and full implementation of PJM's proposal be delayed for a year), Dominion protest at 24 and 28-29 (requesting that PJM acquire Capacity Performance Resources more slowly, delaying the transition to 100 percent reliance on Capacity Performance Resources) and Exelon's protest at 50 (arguing that PJM should increase the quantity of capacity purchased in the Transition Incremental Auctions, and that the offer cap be raised to Net CONE.).

discussed above, we find that PJM's approach strikes an appropriate balance between these competing claims. While, in the *ISO-NE Capacity Performance Order*, the Commission accepted ISO-NE's proposal to acquire only its performance product in its next auction, PJM has demonstrated that a phased-in approach is also just and reasonable.

257. We also disagree with intervenors' arguments that the costs attributable to PJM's proposed transition mechanisms will either not be offset by any additional reliability benefits,<sup>211</sup> or at a minimum, will not outweigh any such reliability benefits.<sup>212</sup> As we have found above, PJM's establishment of a Capacity Performance Resource product is intended to address a concrete problem of resource non-performance through the creation of performance incentives and a penalty structure that will improve overall reliability. Phasing in these same risks and rewards over the transition period in a balanced manner per PJM's proposal is reasonable. Capacity Performance Resources accept greater risks for non-performance than Base Capacity Resources, in exchange for potentially higher capacity revenues and performance payments. PJM's proposal simply allows some resources to begin taking on these additional risks and benefits earlier.

258. LS Power argues that penalties for Capacity Performance Resources purchased in the Transition Incremental Auctions should be lowered to encourage more resources to participate as Capacity Performance Resources. We note that PJM has already proposed penalties for the transition period that are less than the penalties contemplated under the 100 percent Capacity Performance construct (i.e., 50 percent of Net CONE for the 2016-2017 delivery year and 60 percent of Net CONE for the 2017-18 delivery year). We also note that resources will have an opportunity for additional payments if they over-perform during Performance Assessment Hours. We are not persuaded that any additional incentives are required to encourage the participation of Capacity Performance Resources.

259. We also deny Invenergy's request that PJM be required to modify its transition proposal, such that existing capacity commitments will clear first in the Transition Incremental Auctions. We also are not persuaded by Brookfield's argument that PJM's transition auction clearing algorithm should be revised to prioritize the Capacity Performance part of a coupled offer over a Base Capacity offer. As PJM points out, its auction clearing algorithm is appropriately designed to attain the lowest overall cost solution to meet PJM's capacity needs. Neither Brookfield nor Invenergy have demonstrated that the algorithm fails in this regard, or provide a compelling reason for the algorithm to move away from the least cost solution. In response to some of Invenergy's concerns, we note that resources with existing capacity commitments, whose

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<sup>211</sup> See Pennsylvania Commission protest at 32.

<sup>212</sup> See Transition Coalition protest at 5-6; RESA protest at 11-12.

offers fail to clear in the Transition Incremental Auctions, will not be deprived of the value of these pre-existing commitments.

260. We dismiss, as beyond the scope of this proceeding, the PJM Utilities Coalition's argument that PJM should move to a single capacity product sooner than the 2020-2021 delivery year because PJM's capacity auctions have previously undervalued generation. We disagree with the PJM Utilities Coalition that their concerns warrant moving to a single capacity product more quickly. We note that the Commission has previously accepted, as just and reasonable, elements of PJM's market design construct that clear different capacity products at different prices, based on the rationale that "lower" quality products should be paid the same, or more likely less, than "higher" quality products.<sup>213</sup>

261. Finally, we disagree with RESA's argument that the transition mechanism violates the filed rate doctrine, to the extent these prospective rule changes may affect existing commercial arrangements, as based on the clearing prices from prior auctions. Contrary to RESA's characterization, PJM's transition proposal does not impermissibly propose to revise the already-cleared BRAs for the 2016-2017 and 2017-2018 delivery years; rather, like the incremental auctions PJM already conducts, and will continue to conduct, between the initial BRA for a particular delivery year and the commencement of the delivery year, the transition auctions allow PJM to adjust the type and amount of resources needed to ensure reliability in the appropriate delivery year, and to ensure that those resources are fairly compensated. PJM does not seek to retroactively revise the rules upon which it conducted the original 2016-2017 and 2017-2018 BRAs, but instead proposes incremental procurements, with separate payment structures, to ensure that reliability is met in those delivery years. However, under RESA's view of the filed rate doctrine, the three-year forward nature of the capacity market would bar PJM from making these types of incremental adjustments in advance of the actual delivery year, an outcome that is not consistent with Commission precedent.<sup>214</sup> We further note that the instant proceeding concerns prospective changes only and provides ratepayers with sufficient notice that PJM proposed to change its tariff on file.<sup>215</sup>

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<sup>213</sup> See *PJM Interconnection, L.L.C.* 134 FERC ¶ 61,066, at P 29 (2011).

<sup>214</sup> See, e.g., *PJM Interconnection, L.L.C.*, 149 FERC ¶ 61,059, at P 18 (2014); *ISO New England Inc.*, 145 FERC ¶ 61,095, at P 28 (2013); see also *Columbia Gas Transmission Corp. v. FERC*, 895 F.2d 791, 795 (1990).

<sup>215</sup> See *Pub. Utils. Comm'n of Cal. v. FERC*, 988 F.2d 154, 160-61, 164 (D.C. Cir. 1993); *Natural Gas Clearinghouse v. FERC*, 965 F.2d 1066, 1075 (D.C. Cir. 1992) ("The filed rate doctrine simply does not extend to cases in which buyers are on adequate notice that resolution of some specific issue may cause a later adjustment to the rate being collected at the time of service."); *Columbia Gas Transmission Corp. v. FERC*, 895

## F. Market Power Mitigation

262. Due to high market share concentrations in PJM's capacity market, sell offers submitted by existing generation capacity resources are typically cost-capped by PJM, at a cost level known as the Avoidable Cost Rate, or avoidable costs of the resource.<sup>216</sup> However, PJM's Avoidable Cost Rate rules do not take account of the costs of firm transportation of natural gas. PJM asserts that these rules fail to allow recovery of capital costs reasonably needed to allow an existing generator to remain in service or improve its peak-hour availability. PJM argues that, as such, these rules promote biased fuel choices favoring natural gas-fired resources that involve dual-fuel arrangements, or which rely on interruptible transportation service.

### 1. PJM's Proposal

263. PJM proposes to revise its existing market power mitigation rules to allow for sell offers that will cover: (i) the seller's expected new costs of improving the performance of their resources; and (ii) the perceived risks of non-performance. PJM proposes a default offer cap, available to all resources. PJM also proposes to allow each resource to seek a unit-specific offer cap if it can provide data demonstrating that its costs exceed the default cap. Specifically, PJM proposes that the Market Seller Offer Cap for Capacity Performance Resources be set at the applicable Net CONE for the delivery year and Locational Deliverability Area for which the resource is offered.<sup>217</sup> PJM also proposes to clarify in its tariff that the submission of a sell offer with an offer price at, or below, the revised Market Seller Offer Cap will not be deemed an exercise of market power in

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F.2d at 797 (“Notice does not relieve the Commission from the prohibition against retroactive ratemaking. Instead, it changes what would be purely retroactive ratemaking into a functionally prospective process by placing the relevant audience on notice at the outset that the rates being promulgated are provisional only and subject to later revision.”).

<sup>216</sup> See OATT at Attachment DD, section 6.8 (defining the Avoidable Rate as the annual expenses that would not be incurred if a unit chose not to be a capacity resource for year.) Default Avoidable Cost Rates vary by technology type, and are specified in the Tariff at Attachment DD, Section 6.7. A resource may also seek a unit-specific Avoidable Cost Rate by providing its unit-specific cost data to the IMM. Each offer cap is net of Project PJM Market Revenues, which is defined in section 6.8(d) to include “all actual unit-specific revenues from PJM energy markets, ancillary services, and unit-specific bilateral contracts from such Generation Capacity Resource, net of marginal costs for providing such energy. . . .”

<sup>217</sup> See proposed OATT at Attachment DD, section 6.4(a).

PJM's capacity market.<sup>218</sup> PJM also proposes that the Market Seller Offer Cap, as applied to the third Incremental Auction, will be the greater of Net CONE, or 1.1 times the Base Residual Auction price.<sup>219</sup>

264. In addition, PJM proposes to clarify that a Market Seller Offer Cap may, at the election of the seller, exceed the Net CONE default offer cap, subject to PJM's Avoidable Cost Rate rules, as revised, *i.e.*, subject to an Avoidable Cost Rate that will permit the costs of natural gas transportation, other gas service, and a risk premium.

265. With respect to a seller's costs to obtain fuel on a firm basis, PJM proposes to establish Avoidable Fuel Availability Expenses, as an input to its Avoidable Cost Rate formula. PJM proposes to define this allowance as "avoidable operating expenses related directly to fuel availability and delivery for the generating unit that can be demonstrated by the Capacity Market Seller based on data for the twelve months preceding the month in which the data must be provided, or on reasonable projections for the delivery year supported by executed contracts, published tariffs, or other data sufficient to demonstrate with reasonable certainty the level of costs that have been or shall be incurred for such purpose."<sup>220</sup>

266. With respect to PJM's proposed allowance of a risk premium input in its Avoidable Cost Rate formula, PJM asserts that its proposed input, the Capacity Performance Quantifiable Risk, tracks the risk premium accepted by the Commission in the *ISO-NE Capacity Performance Order*.<sup>221</sup> PJM proposes to define this input as the documented and quantifiable costs of mitigating the risks associated with submission of a Capacity Resource Offer, such as insurance expenses solely attributable to the risk of being a Capacity Performance Resource.<sup>222</sup>

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<sup>218</sup> See proposed OATT at Attachment DD, section 6.4(a).

<sup>219</sup> See proposed OATT at Attachment DD, section 6.4(d).

<sup>220</sup> See proposed OATT at Attachment DD, section 6.8 (listing, as examples of such expenses, costs that may include, but not be limited to, costs "incurred for: (a) firm natural gas pipeline transportation; (b) natural gas storage costs; (c) costs of gas balancing agreements; and (d) costs of gas park and loan services.").

<sup>221</sup> See *ISO-NE Capacity Performance Order*, 147 FERC ¶ 61,172 at PP 96, 98 (rejecting intervenors' arguments that ISO-NE's proposed risk premium allowance created an overly vague standard of review or hindered the detection and mitigation of market power).

<sup>222</sup> See proposed OATT at Attachment DD, section 6.8.

267. PJM also proposes to apply its existing must-offer requirement to Capacity Performance Resources to prevent physical withholding of resources with the capability to meet the region's needs for resources that are capable of performing during emergencies.<sup>223</sup> PJM notes that, under its existing rules, any resource that is capable of qualifying as a capacity resource is required to submit an offer into PJM's annual capacity auction, subject to certain specified exceptions.<sup>224</sup> PJM asserts that a similar requirement is appropriate for a Capacity Performance Resource, given the incentives these resources may have over the near term to withhold a certain amount of their capacity and offer it only as Base Capacity Resources. Accordingly, PJM proposes that, beginning with the 2018-19 delivery year, "the installed capacity of every Generation Capacity Resource located in the PJM Region that is capable (or that reasonably can become capable) or qualifying as a Capacity Performance Resource shall be offered as a Capacity Performance Resource," subject to applicable EFORd and Unforced Capacity determinations and an exceptions process.<sup>225</sup>

268. With respect to its proposed exceptions process, PJM proposes that a must-offer exemption request be denied if the seller's claim is based on its failure to make the investments required, or to allocate the operating budget needed. PJM states that, under this standard, the term "physically incapable," will not be construed to operate as an economic feasibility test, but rather will be limited to a resource that requires capital improvements, or new fuel delivery infrastructure, that cannot be arranged, permitted, and completed in advance of the relevant delivery year. PJM states, however, that economic considerations may be reflected through the submission of coupled offers.

269. PJM also proposes to permit, but not require, sell offers into its capacity auctions for resources that are not yet in commercial operation, but that are expected by the seller to be in operation prior to the relevant delivery year.<sup>226</sup> In addition, PJM proposes to

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<sup>223</sup> See proposed OATT at Attachment DD, section 6.6A.

<sup>224</sup> See OATT at Attachment DD, section 6.6 (excusing units, through an exceptions process, that, for the relevant delivery year, will retire or be committed to a firm sale outside of the PJM region).

<sup>225</sup> See proposed OATT at Attachment DD, section 6.6A(a).

<sup>226</sup> See proposed Attachment DD, section 6.6(g).

characterize a resource as “planned” until such time as it achieves full commercial operations and interconnection service has commenced.<sup>227</sup>

270. Finally, with respect to a Planned Generation Capacity Resource that is greater than 20 MW in size, PJM proposes to modify its existing rules as to when such a resource will be permitted to submit an offer into PJM’s capacity auction. Specifically, to increase the likelihood that such a resource will reach commercial operation (and thus be able to perform) during the relevant delivery year, PJM proposes, as of the 2019-2020 delivery year, to require the completion of an Interconnection Facilities Study, as a pre-condition to participation in a Base Residual Auction.<sup>228</sup>

## **2. Protests and Comments**

271. Comments generally supportive of PJM’s proposal were filed by the Coalition of Resource Projects, Calpine, NGS, EPSA, EquiPower, and Exelon.<sup>229</sup> Calpine emphasizes that it is essential for the Commission to accept both PJM’s proposal that resources be allowed to offer up to Net CONE without having their offers subject to mitigation. Exelon asserts that PJM’s existing Avoidable Cost Rate method fails to account for numerous energy market risks and applying the method to the Capacity Performance construct will exacerbate this problem. Exelon argues that PJM’s proposed Net CONE approach balances the risk of over-mitigation against the risks of under-mitigation.

272. Intervenors challenge PJM’s assumption that its Capacity Performance proposals require PJM to modify its existing market mitigation rules. The Pennsylvania Commission argues that adopting rules to incent increased performance capabilities will do nothing to alter the underlying market power parameters in PJM’s markets, which have been (and will remain) non-competitive.

273. Intervenors also object to PJM’s proposal to replace its existing market mitigation rules, which rely on mitigated price offers at a unit-specific Avoidable Cost Rate (an offer-capping approach overseen by the Market Monitor), with an administratively-determined Net CONE approach based on a representative resource (i.e., a combustion

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<sup>227</sup> See proposed RAA at sections 1.20B (defining an Existing Generation Capacity Resource), 1.70 (defining a Planned Generation Capacity Resource), and 1.69 (defining a Planned External Generation Capacity Resource).

<sup>228</sup> See proposed RAA at sections 1.69B and 1.70.

<sup>229</sup> The Market Monitor initially filed comments supporting PJM’s proposal, but as discussed below, later submitted an answer retracting its support.

turbine unit). Joint Consumers assert that PJM's existing approach appropriately recognizes that PJM's capacity markets have been, and will remain, characterized by structural market power on the part of pivotal suppliers. OPSI and Rockland add that PJM's proposal actually increases concerns regarding the exercise of market power, particularly by incorporating a market power mitigation safe harbor up to Net CONE.<sup>230</sup>

274. Intervenors protest PJM's proposal to set the offer cap at a single, uniform level, rather than determine unit-specific limits. The Pennsylvania Commission argues that eliminating the existing review of Base Residual Auction cost-based bids below Net CONE is inconsistent with PJM's acknowledgment that generation owners with multiple units may engage in economic withholding.<sup>231</sup> Illinois Commission argues that PJM has overstated the burden of verifying the costs of investments and upgrades necessary to meet the Capacity Performance requirements. The Market Monitor notes that it is willing and able to apply unit-specific offer caps, particularly as explicit risk adders are appropriate in the Capacity Performance construct.

275. Others protest that Net CONE is an inappropriate level for the offer cap. Rockland argues that PJM's proposal threatens to become a "self-fulfilling prophecy" that would allow clearing prices to reach Net CONE even where there is a significant surplus of supply, especially because suppliers offering below Net CONE do not need to demonstrate costs. Direct Energy similarly argues that allowing unmitigated offers up to Net CONE offers market sellers with concentrated market power the ability to use it. The Pennsylvania Commission adds that PJM has failed to demonstrate whether Net CONE is a reasonable proxy for PJM capacity prices, given that historically, PJM's capacity auctions have been cleared at price levels falling well below Net CONE. Public Citizen argues that PJM must show how its proposed offer cap methodology will, in fact, protect ratepayers from anticompetitive behavior in the capacity market auctions, for example by reviewing of the results of every auction to determine whether the results reflect objectively just and reasonable prices.<sup>232</sup>

276. The Illinois Commission contends that setting the offer cap at Net CONE creates "significant upward pressure" on capacity market clearing prices and has the potential to significantly increase future capacity costs incurred by ratepayers. Joint Consumers challenge PJM's claim that a price offer equal to Net CONE may be justified, given the increased risks (and exposure) attributable to PJM's proposed Non-Performance Charge.

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<sup>230</sup> See also Illinois Commission comments at 9-10.

<sup>231</sup> See Pennsylvania Commission comments at 20 (citing PJM's Capacity Performance Filing at 43-44).

<sup>232</sup> Public Citizen protest at 8-9, 14-15.

They assert that PJM's claim is unsupported, particularly if the charge is never imposed, as Joint Consumers have asserted.<sup>233</sup> Homer City asserts that, if, in two years of the effective date, future capacity markets consistently clear at less than Net CONE, the Commission should require PJM to review its Capacity Performance proposal to address the unreasonable penalty structure.

277. The Ohio Commission states that, while it generally supports PJM's proposal to allow market sellers to offer at or below Net CONE, it does not agree with the presumption that no market power can be exercised so long as a sell offer is at or below Net CONE. Therefore, the Ohio Commission argues that PJM must continue to require market sellers to submit unit-specific cost data to PJM and the Market Monitor to support their capacity market offers.

278. The Market Monitor argues that PJM's proposal does not sufficiently protect against offers that are too low. The Market Monitor adds that offers that are too low fundamentally threaten the ability of a performance-based capacity market design to operate as intended and, therefore, PJM must implement a defined mechanism to detect and deter the potential to exercise market power associated with offers significantly below Net CONE and below the net Avoided Cost Rate.

279. Joint Consumers argue that PJM's proposed use of a combustion turbine unit, as a reference unit for an administratively-computed value of Net CONE, is unsupported by recent trends of cleared capacity in PJM's capacity auctions, which point to a development priority given to combined cycle units. Joint Consumers also argue that, under PJM's proposal, there is a significant possibility that auction clearing prices will be equal to, or exceed, Net CONE in non-constrained Locational Deliverability Areas, and thus be significantly higher than the offer levels previously determined by the Market Monitor to be competitive.

280. The PJM Utilities Coalition argues that PJM's proposed Net CONE offer cap fails to address the larger design flaws (and price suppressing trends) associated with price-taking behavior. The PJM Utilities Coalition adds that the actual offer cap level embedded in the proposed safe harbor is unreasonably low, given PJM's failure to include a Capacity Performance risk premium in its calculation of Net CONE.

281. Other intervenors protest the fact that PJM's proposal offers no protection in the case of alleged market power or market manipulation. Accordingly, they request that PJM be required to adopt additional language clarifying that unit owners that avail

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<sup>233</sup> See *supra* section V.C, addressing PJM's proposed Non-Performance Charge.

themselves of the safe harbor will not be subject to such allegations and bidding at or below Net CONE is not, in and of itself, an exercise of market power.<sup>234</sup>

282. The Market Monitor objects to PJM's proposed change to the offer cap available for third Incremental Auctions, arguing that there is no longer any reason to set the default offer cap in these auctions at 1.1 times the Base Residual Auction clearing price. The Market Monitor adds that PJM's proposal in Docket No. ER14-1461-000 to reduce the number of Incremental Auctions should be included in the Capacity Performance filing. The Market Monitor reasons that holding three Incremental Auctions encourages speculative behavior by tending to lower the Incremental Auction prices and providing multiple opportunities for buying back commitments and this problem should be addressed as part of the Capacity Performance changes.

283. Intervenors also address PJM's proposed risk premium allowance for Avoidable Cost Rate offers that exceed Net CONE and for unmitigated offers up to Net CONE. Joint Consumers argue that PJM's proposal, while relying on the ISO-NE model accepted by the Commission in the *ISO-NE Capacity Performance Order*, is otherwise unsupported by any evidence specifically tied to PJM's markets. In particular, Joint Consumers argue that PJM cannot justify its proposal based on its proposed Non-Performance Charge, given that this charge is unlikely to impose penalties of any kind.

284. The PJM Utilities Coalition, Exelon, and PSEG, by contrast, argue that PJM's proposed risk premium is unreasonably restrictive. The PJM Utilities Coalition protests PJM's focus on the costs of *mitigating* the risks of providing capacity as a Capacity Performance Resource, as opposed to the quantifiable risks associated with *providing* such a service. The PJM Utilities Coalition adds that this aspect of PJM's proposal is inconsistent with the ISO-NE approach accepted by the Commission in the *ISO-NE Capacity Performance Order*.<sup>235</sup> Exelon argues that PJM's proposal fails to address the existing flaw in the Avoidable Cost Rate formula, that resources do not have the flexibility to include unit performance and energy market risks. Exelon asserts that PJM should allow offers above Net CONE to reflect a risk premium that is reasonably supported rather than documented and quantifiable.

285. In addition, Exelon argues, PJM should revise its proposal to allow reasonable projections for the delivery year for all Avoidable Cost Rate categories, rather than just new expenditures to obtain firm natural gas supply. PSEG interprets PJM's reference to

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<sup>234</sup> See Homer City comments at 7; EPSA comments at 6; Coalition of Resource Projects protest at 17; NGSAs comments at 15; and Calpine comments at 5.

<sup>235</sup> See PJM Utilities Coalition protest at 54 (citing *ISO-NE Capacity Performance Order*, 147 FERC ¶ 61,172 at P 90)).

insurance documentation to be an example of a means of showing the costs of the risks associated with Capacity Performance offers and assumes that PJM anticipates that suppliers can submit other forms of documentation to demonstrate their own individual assessments of risk. PSEG requests further clarification from PJM that suppliers will be provided the opportunity and flexibility to develop their own risk assessments consistent with their corporate risk tolerances.

286. Exelon and PSEG also argue that PJM should create additional age categories and assumed remaining lifetimes for the purpose of amortizing capital investments, to accommodate units that may not be economic for the currently authorized amortization periods. Exelon adds that PJM should allow all technologies to adopt these remaining-life estimates. PSEG recommends generating units between 26 and 30 years old could be assumed to have five years of remaining life; units between 31 and 35 years old could be assumed to have three years of remaining life; and units between 36 and 40 years old could be assumed to have two years of remaining life. PSEG contends that the risks associated with recovering capital costs for a Capacity Performance Resource that may be reaching the end of its useful life are thus equated to the risks of recovering capital costs for a newer Capacity Performance Unit with many more years of life.<sup>236</sup>

287. PSEG further requests that PJM assure that generator owners can include costs associated with improving operational flexibility in their bids for Capacity Performance Resources. PSEG notes that typically Project Investment is the amount of project investment completed prior to June 1 of the delivery year, except for Mandatory Capital Expenditures (“CapEx”) for which the project investment must be completed during the delivery year, that is reasonably required to enable a Generation Capacity Resource that is the subject of a sell offer to continue operating or improve availability during Peak-Hour Periods during the delivery year. PSEG seeks clarification as to whether the existing definition is sufficiently broad so as to include upgrades associated with unit flexibility. PSEG requests PJM modify the definition of Avoidable Operations and Maintenance Labor costs associated with Capacity Performance to include a forward-looking estimate.<sup>237</sup>

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<sup>236</sup> See PSEG comments at 22 (arguing that PSEG’s proposed revisions are consistent with the original purpose underlying the 40 Plus Alternative Option of enabling the oldest units to recover costs for project investments more quickly than newer units in recognition of their elevated recovery risk).

<sup>237</sup> PJM defines the term, Avoidable Operations and Maintenance Labor, to consist of the avoidable labor expenses related directly to operations and maintenance of the generating unit for the twelve months preceding the month in which the data must be provided. The categories of expenses included in Avoidable Operations and Maintenance Labor are those incurred for: (i) on-site based labor engaged in operations and

288. Intervenors also challenge PJM's must-offer provisions, as proposed. The Market Monitor protests PJM's proposed "weakening of the must-offer rule for units that have offered and cleared in a prior auction" but are not yet in commercial operation, arguing that the flexibility will incent speculative offers, price suppression below the competitive level, and the exercise of market power. The Market Monitor adds that PJM has not explained why the performance risk associated with the required certification is only a problem for Generation Capacity Resources that have already cleared in a capacity auction.<sup>238</sup> The Pennsylvania Commission argues that PJM's proposal is generally acceptable, but that PJM's filing offers insufficient evidence to support it.

289. Essential Power and the PJM Utilities Coalition argue that sellers cannot be required to make multi-year investments of the sort PJM's rule changes would encourage, absent a reasonable opportunity to recover these investments. Essential Power argues that requiring generators to make investments and incur costs that could price the generators out of the capacity market is unjust and unreasonable. The PJM Utilities Coalition argues that the narrow must-offer excuse proposed by PJM (based on the physical incapability of the resources) should be revised to provide that a resource will be exempted from the must-offer requirement if the unit, without making significant capital expenditures, is likely to incur substantial penalties in connection with its performance. The PJM Utilities Coalition asserts that accepting PJM's proposed provision, as is, could result in a constructive taking of the resource owner's property.<sup>239</sup>

290. In the alternative, the PJM Utilities Coalition requests that PJM be required to adopt tariff language authorizing resources to include the entire cost of any capital improvement in the offer cap as if the unit had a "Remaining Life of Plant" balance of only a year. Dominion asserts that PJM's proposal should be revised to allow existing resources to decide whether to make the investments necessary to meet the Capacity Performance requirements. Dominion argues that there is no guarantee that, after making significant long-term investments, such resources will clear in the next, and subsequent,

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maintenance activities; (ii) off-site based labor engaged in on-site operations and maintenance activities directly related to the generating unit; and (iii) off-site based labor engaged in off-site operations and maintenance activities directly related to generating unit equipment removed from the generating unit site. *See* PJM OATT Attachment DD, section 6.8.

<sup>238</sup> Market Monitor comments at 8-9 & n.14 (referring to PJM OATT Attachment DD, section 6.6(g) and RAA Article 1 – Definitions, section 1.20B).

<sup>239</sup> PJM Utilities Coalition protest at 60 (citing U.S. Const. amend. V and *Duquesne Light Co. v. Barasch*, 488 U.S. 299, 307 (1989)).

capacity auctions. Therefore, Dominion asserts, resources should be allowed to remain in service but not participate in PJM's capacity market.

291. Dominion requests that PJM modify its proposal such that Base Capacity Resources that request a unit-specific Avoidable Cost Rate should also be able to include a risk adder that quantifies the risk associated with the new Base Capacity Performance Penalties. Dominion notes that, while PJM has proposed to allow Capacity Performance Resources to include a premium for quantifiable risks associated with such resources, PJM's Avoidable Cost Rate formula does not make a specific allowance for Base Capacity Resources. Dominion recognizes that Base Capacity Non-Performance Charges are likely to be smaller than those applied to Capacity Performance Resources. However, Dominion contends that, under PJM's proposal, Base Capacity Resources face larger performance penalties than they do under the current market rules and they should be permitted to account for the risk of those penalties in their Avoidable Cost Rate.

292. Dominion similarly suggests that PJM create a default offer cap for Base Capacity Resources. Dominion recognizes that the default offer cap should be lower given the added non-performance risk associated with Base Capacity Resources. Dominion requests the Commission to direct PJM to extend an offer cap provision to Base Capacity Resources allowing for offers up to the cap to bypass review by the Market Monitor or PJM. Dominion proposes that 50 percent of Net CONE would be an appropriate cap level to support the flexibility of pricing associated risk in the market.

293. Dominion argues that the offer requirements for Base Capacity Resources during the transition period are unclear. Dominion asserts that Base Capacity Resources should not be required to offer their capacity in the Base Residual Auctions during the transition period. Dominion argues that PJM's proposal is unreasonable, because it eliminates a resource's choice to offer only a portion of its capacity into the Base Residual Auction, or partially de-list the resource, due to restrictions affecting the resource or the risk associated with committing to operate at its full installed capacity.

294. Brookfield states that PJM's proposed language is ambiguous about whether hydroelectric generation and energy storage facilities are considered Capacity Storage Resources or Generation Capacity Resources. Nevertheless, Brookfield asserts that Capacity Storage Resources and Generation Capacity Resources are "separate and distinct types of capacity resources," and, therefore, PJM should clarify that hydroelectric generation and energy storage facilities as Capacity Storage Resources, are exempt from the Base Capacity Resource must-offer requirement. Brookfield argues that the same rationales for exempting energy storage resources from a must-offer requirement apply to

both Capacity Performance and Base Capacity Resources, in particular the fact that it is virtually impossible for any Capacity Storage Resource to possess market power.<sup>240</sup>

295. Brookfield also requests clarification that Capacity Storage Resources may offer any quantity of capacity up to the amount determined under the traditional method for calculating unforced capacity for hydroelectric generation facilities, or require PJM to work with interested market participants and the Market Monitor to determine a predictable method for quantifying the capacity such resources may offer.

296. Finally, with respect to PJM's proposed inclusion of natural firm gas supply arrangements in the Avoidable Cost Rate formula, the Pennsylvania Commission questions whether the full cost of firm natural gas transportation would be a cost-effective solution for many, if not most, generators that rely on this fuel source, and notes the failure of PJM's proposed provision to address the treatment of capacity release revenues. Accordingly, the Pennsylvania Commission requests that, if this new input is accepted, PJM be required to: (i) add a provision directing the Market Monitor (and the Commission's enforcement staff) to review all such offers; and (ii) add additional language addressing how capacity release revenues will be treated.

### **3. PJM's Answer**

297. In response to intervenors' protests to PJM's proposed offer cap, PJM asserts that setting the offer cap level at Net CONE is critical for establishing strong performance incentives while also allowing resources to craft and implement their strategies to deliver a well-performing resource. PJM argues that a high offer cap is needed to account for the substantial costs and risks that Capacity Performance Resources will face under the new construct. PJM explains that the costs and risks may be difficult to quantify, especially on a three-year forward basis. Net CONE, PJM contends, represents the expected equilibrium price in a competitive capacity market and affords market sellers flexibility to "make their best estimate" of expected returns against costs and performance risk. PJM argues that setting the proposed offer cap at Net CONE strikes a reasonable balance between supplier and load interests.

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<sup>240</sup> Alternatively, Brookfield argues, if Capacity Storage Resources are subject to a must-offer requirement with respect to Base Capacity Resources, the Commission should require PJM to allow Capacity Storage Resources to incorporate the additional risk of incurring Non-Performance Charges into its capacity offers. *See* Brookfield comments at 13.

298. PJM asserts that its existing rules concerning capacity market offer caps do not account for the new costs and risks that a Capacity Performance Resource may face.<sup>241</sup> PJM adds that, under the new Capacity Performance construct, market sellers determine the measures they must take to enable their resources to perform as a Capacity Performance Resources and bear the risk that their resources do not perform when called upon in an emergency. PJM argues that setting the offer cap at Net CONE “supports this fundamental philosophy of seller responsibility for performance” by allowing flexibility to offer at prices reflecting their best estimate of the costs and risk they face.

299. PJM further argues that, even if a market seller could reasonably know three years in advance the costs they must incur, market sellers should be allowed some flexibility in how they propose to recover those costs and in the amount of risk they can and must bear. Unlike the current Avoidable Cost Rate rules, allowing resources to bid up to Net CONE both accommodates diverse risk profiles and makes that risk more transparent, PJM argues.

300. PJM reiterates that Net CONE is an appropriate offer cap, because, though not a unit-specific measure, it is a cost-based determination that reflects the estimated replacement cost of capacity in a competitive market at equilibrium. PJM also notes that its OATT already subjects some resources to a Net CONE offer cap under specific circumstances, particularly where the resources face substantial costs to perform as capacity resources for a given delivery year.

301. Regarding protests that an offer cap based on Net CONE increases market power concerns, PJM responds that the competitive nature of the single-clearing-price capacity market design suggests that few, if any, resources will be incented to exercise significant market power. PJM argues that the incentive to clear the capacity auctions is a powerful deterrent to the exercise of market power, and the greater the difference between Net CONE and a resource’s avoidable costs, the greater the risk of loss from offering at Net CONE.

302. PJM states that it shares the Market Monitor’s concern about the potential for market sellers to submit artificially low offers and would support a compliance filing implementing the Market Monitor’s recommendation to adopt a mechanism to detect and deter the potential for such behavior.

303. In response to the PJM Utilities Coalition’s protest that market sellers should not be required to make multi-year investments without a reasonable opportunity to recover

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<sup>241</sup> PJM answer at 76-77 (noting that, under PJM’s existing rules, capacity resources generally only may offer their Avoidable Cost Rate less expected net energy and ancillary service market revenues).

the associated costs, PJM indicates that it appreciates that the time may be ripe to revisit this issue. Therefore, PJM suggests that the Commission direct PJM to further consider “issues of new entry pricing and multi-year pricing” with stakeholders and report on the results of these efforts no later than December 2015.

304. In response to the Market Monitor’s proposal that PJM eliminate the special offer cap applied to the third Incremental Auction, PJM argues that the offer cap should be retained. PJM explains that the special offer cap – 1.1 times the Base Residual Auction clearing price – can exceed Net CONE. PJM argues that market sellers with excess capacity at the time of the third Incremental Auction should be able to “recognize the value of that capacity as a possible source of replacement for their other resources that experience issues during the [d]elivery [y]ear” that could subject them to the higher performance penalty.

305. PJM states that it supports PSEG’s and Exelon’s requests to modify or clarify the risk premium element that PJM proposes to include in the Avoidable Cost Rate formula, given the importance that risk premiums reasonably reflect a market seller’s costs to commit as a Capacity Performance Resource. In particular, PJM supports PSEG’s clarification that a seller can document its risk premium in various ways.<sup>242</sup> PJM also supports Exelon’s proposals that: (1) a seller’s requested risk premium level can be “reasonably supported” rather than “documented and quantifiable”; (2) a demonstration that the seller has quantified its risks for this purpose in the same manner it quantifies risks for other corporate or business purposes would be sufficient for PJM and the Market Monitor to accept the risk premium; and (3) energy market and operational risks may be included in the risk premiums for Capacity Performance Resource offers.<sup>243</sup>

306. With respect to Homer City’s request for guidance on how a resource’s capability to offer as a Capacity Performance Resource would be determined in the must-offer review process, PJM clarifies that the resource would need to demonstrate that there is a physical reason that it would be unable to provide assurance of the ability to deliver energy during emergency conditions. PJM adds that resources that would be excused from the must-offer requirement would be those for which there are physical reasons why offering as Capacity Performance is not possible, and for which any reasonably quantifiable investment would not resolve those physical issues. However, if investment would be required to provide the necessary assurance, the market seller must quantify that investment and submit a Capacity Performance offer that reflects the costs of that investment.

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<sup>242</sup> PJM answer at 89 & n.159 (citing PSEG protest at 16-17).

<sup>243</sup> PJM answer at 89-90 & n.162 (citing Exelon protest at 69-72).

#### **4. Additional Answers**

307. The Maryland Commission, in its answer, responds to the arguments raised by the PJM Utilities Commission and PSEG in support of an Avoidable Cost Rate input reflecting a risk premium allowance. The Maryland Commission argues that a penalty/reward mechanism that refunds unearned capacity revenues is not designed to provide risk premiums.

308. Exelon, in its answer, responds to Joint Consumers' argument that a Net CONE offer cap, as proposed by PJM, will allow suppliers to exercise market power. Exelon argues that an offer cap at Net CONE is logical based on a market design that imposes Non-Performance Charges expected to equal Net CONE on average over time. Exelon further argues that Net CONE represents the expected long-term equilibrium price of PJM's capacity market.

309. Exelon also challenges Dominion's claim that PJM's proposal, to vest eligibility review authority in PJM and the Market Monitor, is vague and arbitrary. Exelon argues that the relevant inquiry – whether a capacity resource has the capability for the entire relevant delivery year to provide energy at any time when called upon – is an objective standard.

#### **5. Market Monitor Answer and Replies**

310. Although the Market Monitor initially supported PJM's proposal to set the offer cap at Net CONE, the Market Monitor withdrew its support in its answer, after conducting a detailed review of the mathematics of the Capacity Performance design. The Market Monitor, in its answer, argues that PJM's proposed offer cap should not be set at Net CONE, but rather at Net CONE times the expected average Balancing Ratio (defined as the ratio of load plus reserves to total Unforced Capacity). The Market Monitor asserts that the default offer is appropriately recognized as less than or equal to Net CONE, given that the expected average Balancing Ratio would always be less than or equal to 1.0. The Market Monitor adds that this recognition is consistent with the seller's obligation to provide energy during each Performance Assessment Hour.

311. The Market Monitor argues that, under PJM's proposal, if expected bonus performance by an energy-only resource is greater than the resource's net Avoidable Cost Rate, it can be concluded that such a resource would not take on a capacity obligation unless it would be better off by doing so. The Market Monitor adds that the willingness of a seller to take on a capacity commitment will be based on the capacity price it will receive for its commitment, which must be equal to, or in excess of, the profits it would make as an energy-only resource. The Market Monitor asserts that this value is equal to Net CONE times the expected average Balancing Ratio. The Market Monitor proposes a unit specific review for all other resources, composed of the resource's net Avoidable Cost Rate plus its expected net performance payments and any appropriate risk premium.

312. In response to the Market Monitor's alternative offer review mechanism, multiple intervenors object to the proposed process. NRG/Dynegy argues that adopting the Market Monitor's alternate mechanism would upset a carefully balanced proposal and likely reduce reliability; setting the offer cap too low presents greater risks than setting the offer cap too high; the Market Monitor's calculations are flawed because they rest on the assumption that the Non-Performance Charge rate will be equal to the Performance Bonus Payment rate; and it is impossible to calculate an accurate Balancing Ratio before the relevant delivery year. PJM, Exelon, and Joint Consumers assert that the Market Monitor's proposal adds unnecessary complexity without any considerable offsetting benefit and should be rejected. Finally, several intervenors contend that the Market Monitor's proposal should be rejected due to the late nature of its submission.

## **6. Deficiency Letter, PJM's Response, and Protests and Comments**

313. The Deficiency Letter asked PJM to answer a series of questions related to its proposed Net CONE default offer cap, how it relates to the methodology presented by the Market Monitor in its answer and employed by ISO-NE in its Forward Capacity Market, and how certain Capacity Performance design parameters might be set and interact with the proposed offer cap.<sup>244</sup>

314. In its answer PJM proposes an alternative default offer cap which it states was developed consistent with the ISO-NE methodology (Revised Offer Cap). PJM explains that it has developed the Revised Offer Cap in consultation with the Market Monitor and that it is based on defining a resource's competitive offer, which is a function of resource-specific and system variables. The resource-specific variables include marginal costs (ACR) and expected average resource performance across all Performance Assessment Hours (A), and the system variables include the Non-Performance Charge rate (PPR), the expected average Balancing Ratio across all Performance Assessment Hours (B), and the expected number of Performance Assessment Hours (H).

315. PJM contends that an appropriate competitive offer for a Capacity Performance Resource should include all of the marginal costs faced by that resource. PJM supports its Revised Offer Cap by analyzing the costs and revenues faced by a resource choosing between taking on a Capacity Performance obligation with its associated capacity payment, risk of Non-Performance Charges and opportunities for Performance Bonus Payments compared to an energy-only without capacity payments or risk of Non-Performance Charges, but increased access to Performance Bonus Payments. PJM explains that the scenarios also take into account whether the seller expects its particular resource to over-perform or under-perform relative to the expected average performance levels. Tracking the same logic and analysis used by ISO-NE, this analysis concludes

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<sup>244</sup> Deficiency Letter questions 1-5.

that the rational, profit-maximizing offer for a seller with avoidable costs below the expected capacity clearing price is Net CONE times the Balancing Ratio.

316. PJM contends that Net CONE times the Balancing Ratio is the level at which a resource with low avoidable costs would choose to take on a Capacity Performance obligation instead of perform as an energy-only resource. PJM explains that for resources with high avoidable costs that do not expect to cover their costs unless they earn capacity auction revenue, the formula provides for the inclusion of unit-specific Avoidable Cost Rate and unit-specific expected performance plus a risk premium for those with costs above the Net CONE times Balancing Ratio default offer cap. Under the Revised Offer Cap methodology, PJM will allow such resources to submit unit-specific offer caps which detail all Avoidable Cost Rate components, including a quantifiable risk as proposed by PJM in its Capacity Performance filing.

317. PJM states that the data from the previous three delivery years, 2011/2012, 2012/2013 and 2013/2014, shows that there were a total of 70 hours that would have been Performance Assessment Hours under the currently proposed rules for Capacity Performance. Of those 70 hours, 42 were RTO-wide emergencies while 28 were locational Performance Assessment Hours only.<sup>245</sup> PJM proposes to use a historical weighted average of the Balancing Ratios (B) experienced in the previous three delivery years as the methodology to produce the Balancing Ratio used in determining the default offer cap. PJM asserts that the weighted average Balancing Ratio for the PJM RTO in the most recent three delivery years is approximately 85 percent. A similar methodology would be used for LDA-specific Balancing Ratio using the higher of the parent LDA or the LDA itself.<sup>246</sup>

318. PJM notes that there is a difference between the Balancing Ratios during Performance Assessment Hours winter and summer months.<sup>247</sup> In the winter of 2014, PJM suggests that it experienced high forced outage rates and therefore had a significant number of hours that would have been considered Performance Assessment Hours. PJM contends that Capacity Performance provides strong incentives for resource availability and therefore, over time, will eliminate occurrences like those seen in the winter of 2014. As a result the expected value of the Balancing Ratio is anticipated to increase over time to a value that is more indicative of the summer Performance Assessment Hours which averaged around 93.5 percent.

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<sup>245</sup> PJM Deficiency Letter Response at 12.

<sup>246</sup> *Id.* at 7.

<sup>247</sup> *Id.* at 12.

319. Further, in response to questions concerning the number of Performance Assessment Hours, PJM contends that while Performance Assessment Hours could vary across different LDAs in the PJM Region, PJM contends that the variance is not predictable because it is dependent on the number of Emergency Actions declared by PJM operators in each LDA.<sup>248</sup> PJM suggests that the circumstances for an emergency declaration are dependent on factors such as load expectations, generator availability, and constraints on the transmission system.

320. AEMA asserts that PJM has not provided the Commission with sufficient information to make a finding that either the original or modified Capacity Performance proposals are just and reasonable, and requests that in lieu of accepting PJM's Capacity Performance proposal the Commission convene a technical conference under FPA Section 206 to assess whether the currently effective RPM rules are unjust and unreasonable and to investigate just and reasonable alternatives.<sup>249</sup>

321. AEMA also states that PJM did not respond to the Commission's first question in the Deficiency Letter and merely provided a lengthy analysis explaining how Net CONE, or something close to it, is the rational offer for most suppliers under its proposed Capacity Performance rules. Other intervenors assert that Net CONE is not an appropriate clearing price or competitive offer because it is an administratively determined estimate and not necessarily reflective of the actual cost of new entry.<sup>250</sup>

322. Multiple intervenors either support or do not oppose PJM's Revised Offer Cap.<sup>251</sup> Specifically, the Market Monitor suggests that PJM's Revised Offer Cap is competitive by definition such that offers at or below this level do not require further review of unit specific costs.<sup>252</sup> The Market Monitor asserts that PJM's response facilitates adoption of

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<sup>248</sup> *Id.* at 13.

<sup>249</sup> AEMA comments to PJM's Deficiency Letter Response at 6.

<sup>250</sup> *Id.* at 7; Joint Consumers comments to PJM's Deficiency Letter Response at 6-8; Pennsylvania Commission comments to PJM's Deficiency Letter Response at 6.

<sup>251</sup> Calpine comments to PJM's Deficiency Letter Response at 3, 14; Exelon comments to PJM's Deficiency Letter Response at 2-3; P3 comments to PJM's Deficiency Letter Response at 2-5; EPSA comments to PJM's Deficiency Letter Response at 8-9; PJM Utilities Coalition comments to PJM's Deficiency Letter Response at 5; PSEG comments to PJM's Deficiency Letter Response at 2-3; Coalition of Resource Projects comments to PJM's Deficiency Letter Response at 8-9.

<sup>252</sup> Market Monitor comments to PJM's Deficiency Letter Response at 2.

a method for calculating offer caps that has strong theoretical support and is consistent with the ISO-NE model. The Market Monitor further states that PJM's response addresses key concerns about the design details of the Capacity Performance proposal and that the Market Monitor urges the Commission to approve the proposal, with the proposed modifications included in the Market Monitor's earlier pleadings, as soon as possible. While P3, PSEG and ESPA request the Commission accept PJM's original default offer cap proposal of Net CONE, they do not oppose PJM's Revised Offer Cap.<sup>253</sup> P3 and Coalition of Resource Projects suggest that PJM's Revised Offer Cap has an administrative simplicity; further suggesting that the administrative burdens associated with calculating risk on a unit-by-unit basis are extraordinarily complex and highly subjective.<sup>254</sup> Coalition of Resource Projects contends that without a default offer cap a unit-specific mitigation approach is unjust and unreasonable and will unjustly increase costs to consumers.<sup>255</sup> P3 and EPSA contend that without higher offer caps and the opportunity for generation owners to reflect their true costs, resources that could otherwise provide the Capacity Performance product would likely exit PJM, possibly decreasing reliability.<sup>256</sup> Therefore, EPSA requests that the Commission should also accept modifications proposed by certain generation owners to clarify the risk premium element proposed by PJM for the Avoidable Cost Rate formula.<sup>257</sup>

323. Conversely, Panda and Essential Power oppose PJM's Revised Offer Cap in favor of the initial default offer cap of Net Cone.<sup>258</sup> Essential Power asserts that PJM has failed to support its Revised Offer Cap. Essential Power suggests that the information in the record supports use of PJM's initial offer cap proposal of Net CONE as the default offer cap because it represents long-term competitive price levels, is administratively manageable and will encourage competitive behavior.<sup>259</sup> Panda contends that PJM's

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<sup>253</sup> P3 comments to PJM's Deficiency Letter Response at 3; EPSA comments to PJM's Deficiency Letter Response at 8-9; PSEG comments to PJM's Deficiency Letter Response at 2-3.

<sup>254</sup> P3 comments to PJM's Deficiency Letter Response at 3-4.

<sup>255</sup> Coalition of Resource Projects comments to PJM's Deficiency Letter Response at 9.

<sup>256</sup> P3 comments to PJM's Deficiency Letter Response at 4-5.

<sup>257</sup> EPSA comments to PJM's Deficiency Letter Response at 8-9.

<sup>258</sup> Panda comments to PJM's Deficiency Letter Response at 5-6; Essential Power comments to PJM's Deficiency Letter Response at 4.

<sup>259</sup> Essential Power comments to PJM's Deficiency Letter Response at 3.

Revised Offer Cap does not include a risk adjustment to the expected revenues reflective of the Non-Performance Charge Rate proposed by PJM.<sup>260</sup> Essential Power argues that PJM and the Market Monitor incorrectly assume that parties will value potential Performance Bonus Payments, when, in reality, such speculative revenues are highly discounted in the financing process.<sup>261</sup> As a result, Essential Power suggests that PJM's Revised Offer Cap will create additional investment hurdles for new projects which then must be offset by the required revenues from capacity payments, and may result in over mitigation of supply offers.<sup>262</sup>

324. Other Interveners oppose the use of a default offer cap based on the proposal's inability to prevent the exercise of market power.<sup>263</sup> These intervenors request PJM continue its current capacity market mitigation practices, including the unit specific review for resources that fail the three pivotal supplier test. Maryland Commission suggests that PJM's proposal could cost end users an additional \$7.5 billion or more, due to the exercise of market power.<sup>264</sup>

325. Joint Consumers suggest that if the capacity market were competitive, none of the market power mitigation rules presently in place, including the requisite submission and review of unit-specific Net Avoidable Cost Rates to the Market Monitor in advance of RPM auctions, would be relevant or necessary. Joint Consumers and Joint Protestors note that PJM's assumption runs counter the Market Monitor's observations that structural market power has been "endemic" to the market, and market participants have relied on existing market power mitigation rules to assure the competitiveness of market outcomes.<sup>265</sup> Joint Consumers contend that allowing resources to submit offers up to Net CONE \* B without review in such a non-competitive environment will result in the

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<sup>260</sup> Panda Utilities Coalition comments to PJM's Deficiency Letter Response at 5 (citing Poray Testimony at 4).

<sup>261</sup> Essential Power comments to PJM's Deficiency Letter Response at 6.

<sup>262</sup> *Id.* at 7.

<sup>263</sup> AEMA comments to PJM's Deficiency Letter Response at 6; Maryland Commission comments to PJM's Deficiency Letter Response at 4-6; Joint Consumers comments to PJM's Deficiency Letter Response at 6; Joint Protestor comments to PJM's Deficiency Letter Response at 8-9.

<sup>264</sup> Maryland Commission Deficiency Letter Comments at 7.

<sup>265</sup> Joint Consumers comments to PJM's Deficiency Letter Response at 6; Joint Protestors comments to PJM's Deficiency Letter Response at 8.

auction clearing at this inappropriately high level, imposing higher costs to consumers. Joint Consumers suggest that the present unit-specific review of price offers reflecting unit-specific Net Avoidable Cost Rate has resulted in resource clearing prices that the Market Monitor has deemed competitive. Accordingly, Joint Consumers request that the Commission require PJM and the Market Monitor to continue evaluating offer caps on a unit-specific basis using each unit's Net Avoidable Cost Rate value.<sup>266</sup>

326. Joint Protestors suggest that PJM has failed to explain how either offer cap proposal will effectively prevent economic withholding in LDAs with high supplier concentration. Joint Protestors argue that a Capacity Market Seller with a portfolio of resources and high concentration in a geographic area could have a greater incentive under PJM's proposal than under the existing RPM construct to have a resource not clear at all or at least not clear as a Capacity Performance Resource, enabling large fleet owners to directly benefit from the higher clearing price and by gaining insurance against performance risk, in spite of a lower clearing volume.<sup>267</sup> Joint Protestors assert that these concerns are exacerbated during the transition period because resources are allowed to submit coupled offers and may overstate the costs necessary to clear as a Capacity Performance Resource. Accordingly, Joint Protestors request that, to the extent the Commission approves PJM's proposal, it should require PJM to reserve coupled offers for resources that must make a substantial investment to meet the Capacity Performance standards, and that large owners of resources that are indisputably and unambiguously capable should not be permitted to submit coupled offers.<sup>268</sup> Joint Protestors also suggest that PJM or the Market Monitor have too much discretion to determine that prospective fuel expense or capital investment is needed.<sup>269</sup>

327. AEMA and Pennsylvania Commission contend that PJM's logic is flawed such that in order to incent resources to take on the obligation to become a Capacity Resource, the expected revenue from selling capacity would have to be enough to cover the difference between a resource's avoidable cost and its Performance Bonus Payments. Pennsylvania Commission asserts that this results in clearing prices that reflect administratively-determined penalty levels rather than the actual avoidable costs of the marginal resource.<sup>270</sup> AEMA suggests that this results in poorly-performing units having

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<sup>266</sup> Joint Consumers comments to PJM's Deficiency Letter Response at 8-12.

<sup>267</sup> Joint Protestors comments to PJM's Deficiency Letter Response at 9.

<sup>268</sup> *Id.* at 11.

<sup>269</sup> *Id.* at 8-9.

<sup>270</sup> Pennsylvania Commission comments to PJM's Deficiency Letter Response at 5-6.

higher offer caps than well-performing units, creating perverse incentives for owners of large generation fleets. AEMA explains that large generation fleet owners may be dissuaded from investing in reliability improvements if such improvements would lower the clearing price applicable to their generation fleets.<sup>271</sup>

328. Maryland Commission refutes PJM and the Market Monitor's claims that resources should be able to reflect opportunity costs because PJM's tariff includes a must offer requirement that mandates that capacity be offered into the Base Residual Auction at its full, reliable level such that generators are prohibited from withholding capacity to achieve greater profits. In addition, Maryland Commission asserts that most generators inside of PJM do not have the necessary transmission path available to make sales to neighboring RTOs, and historical pricing levels are typically higher in PJM markets.<sup>272</sup> The Maryland Commission also requests that the commission reject PJM's proposal that the Market Monitor not be permitted to evaluate whether an offered Capacity Performance Resource meets the requirements for that status and the appropriate physical basis upon which capacity offers are to be made unless requested to do so by PJM.<sup>273</sup>

329. Essential Power, Panda, and AEMA claim that PJM fails to recognize the difference between PJM's market structure and ISO-NE. AEMA refutes PJM's contention that its methodology is appropriate because it is identical to the methodology in ISO-NE. AEMA asserts that despite the apparent use of the same equation, differences in the definition of the penalty rate between PJM and ISO-NE lead to different outcomes. Panda and Pennsylvania Commission suggests that PJM's Revised Offer Cap assumes that the Performance Bonus Payment rate is equal to the Non-Performance Charge rate in its equation representing the total cash flow for a resource that has a capacity commitment. Panda indicates that these rates will be equal only if there is no resource that has been exempted from under-performance. Pennsylvania Commission suggests that PJM assumes that penalties will always equal Net CONE divided by the assumed number of Performance Assessment Hours. However, Pennsylvania Commission explains that to extent a resource's penalties exceed the annual and monthly stop loss

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<sup>271</sup> AEMA notes that From "PJM's 2018-2019 Planning Period Parameters - Proposed Capacity Performance Filing Provisions," the Variable Resource Requirement curve between Point A and Point B decreases prices by \$0.0481/MW-day for each additional MW cleared. Assuming a clearing price of \$250/MW-day, an owner of 6,000 MW fleet who clears one additional MW gains \$250/day on that MW, but loses  $\$0.0481/\text{MW} \times 6001\text{MW} = \$288.64/\text{day}$  in revenue from the lower clearing price. AEMA comments to PJM's Deficiency Letter Response at 19-20.

<sup>272</sup> Maryland Commission comments to PJM's Deficiency Letter Response at 7-8.

<sup>273</sup> *Id.*

provisions it will not be assessed performance penalties, therefore the average penalty assessed is likely to be substantially less than Net CONE.<sup>274</sup>

330. Maryland Commission and Pennsylvania Commission request that Commission require PJM to modify or remove its provisions regarding a Capacity Performance Resource's ability to include opportunity costs in its estimation of net avoidable costs in the Avoidable Cost Rate formula. Maryland Commission and Pennsylvania Commission suggests that a generator's risk is no greater or less than its normal market risk without these penalties or rewards, *i.e.*, it might not clear in the market and thus might not receive market revenues sufficient to cover its costs. The Maryland Commission and the Pennsylvania Commission suggest that this risk is already included in the capital cost allowance covering cost recovery risks in a resource's avoidable costs.<sup>275</sup> Maryland Commission and Pennsylvania Commission suggest that ratepayers should not be required to fund hypothetical "risk premiums" to reflect the asserted potential of severe penalties for non-performance which likely will not occur.

331. Conversely, Exelon suggests that because PJM's Revised Offer Cap proposal is likely to result in a lower default offer cap than its initial proposal, it even more important for the Commission to ensure that unit-specific review of offers in excess of that cap properly accounts for all costs and risks associated with providing Capacity Performance.<sup>276</sup>

332. Regarding PJM's proposed default parameters of the Revised Offer Cap, Exelon endorses PJM's methodology for determining the Balancing Ratio – a historical weighted average of the Balancing Ratios experienced in the previous three delivery years – as well as PJM's plan to engage in an annual review based on the most recent data.<sup>277</sup>

333. Others oppose PJM's proposed methods. Essential Power argues that using a three-year historical average is unjust and unreasonable because it will use significantly outdated information to set future payments. Essential Power adds that using data from a past period will understate the expected future performance because it will not account

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<sup>274</sup> Pennsylvania Commission comments to PJM's Deficiency Letter Response at 5.

<sup>275</sup> Maryland Commission comments to PJM's Deficiency Letter Response at 3-4; Pennsylvania Commission comments to PJM's Deficiency Letter Response at 3.

<sup>276</sup> Joint Protestors comments to PJM's Deficiency Letter Response at 10.

<sup>277</sup> Exelon comments to PJM's Deficiency Letter Response at 2.

for changes in the market which may result in improved performance.<sup>278</sup> NRG/Dynegy and Indicated Suppliers request that the Commission make clear that any acceptance of the PJM RTO-wide Balancing Ratio is without prejudice to further examination of exactly how the Balancing Ratio should be calculated for future auctions.<sup>279</sup> Indicated Suppliers argue that PJM and its stakeholders should consider developing a forward-looking methodology for calculating the Balancing Ratio. In addition, NRG/Dynegy opposes PJM's suggestion that it calculate Locational Deliverability Area-specific Balancing Ratio values. NRG/Dynegy asserts that such values are likely to be considerably more volatile and that volatility could lead to greater variances between the values calculated on a backward-looking basis and actual Balancing Ratio during a given delivery year.<sup>280</sup>

## 7. Commission Determination

334. For the reasons discussed below, we accept PJM's market mitigation proposal, as amended in the Deficiency Letter Response, subject to the conditions described below.

335. In this proceeding, PJM originally proposed a default offer cap for Capacity Performance Resources equal to Net CONE. In its Deficiency Letter Response, PJM amended its proposal, stating that it has collaborated with the Market Monitor to develop the Revised Offer Cap based on the competitive offer for any resource in any Locational Deliverability Area in PJM within the Capacity Performance market design. PJM states that an appropriate competitive offer includes all of the marginal and opportunity costs faced by a resource and that those costs are fully reflected in PJM's Revised Offer Cap.<sup>281</sup> Based on this rationale, PJM proposes a default Capacity Performance Resource

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<sup>278</sup> Essential Power comments to PJM's Deficiency Letter Response at 65.

<sup>279</sup> NRG/Dynegy comments to PJM's Deficiency Letter Response at 3-4; Indicated Suppliers comments to PJM's Deficiency Letter Response at 5.

<sup>280</sup> Indicated Suppliers comments to PJM's Deficiency Letter Response at 5.

<sup>281</sup> PJM Deficiency Letter Response at 1. PJM submits the following equation to represent the competitive offer of a capacity resource:

$$p = \text{PPR} * H * \bar{B} + \max\{0, (\text{ACR} - \text{PPR} * H * \bar{A})\}$$

where  $p$  = a competitive offer from any resource; PPR = Performance Payment Rate = Net CONE/H;  $H$  = expected total number of Performance Assessment Hours in a delivery year = 30;  $\bar{B}$  = expected Balancing Ratio across all Performance Assessment Hours in a delivery year; ACR = net Avoidable Cost Rate, per proposed section 6.8 of Attachment DD of the OATT; and  $\bar{A}$  = expected availability of the resource across all

offer cap set at the product of Net CONE times the Balancing Ratio, B, and proposes to allow resources with high avoidable costs to submit unit-specific offer caps that detail all Avoidable Cost Rate components, including a quantifiable risk premium. PJM states that this approach is the same as that which the Commission approved for ISO-NE and will yield the same results as a detailed cost-based, unit-specific offer cap approach.

336. We find the Capacity Performance Resource offer cap set at Net CONE times the Balancing Ratio, as well as a standard of review of unit-specific offer caps based on the competitive offer equation presented by PJM, to be just and reasonable. The default offer cap that PJM proposes as part of its Revised Offer Cap reflects the amount that a competitive resource with low avoidable costs (Low ACR Resource) would accept in the capacity market. An energy-only resource will receive the Performance Bonus Payment rate for each MWh that it produces during Performance Assessment Hours, and it will incur no Non-Performance Charges regardless of its performance. A Low ACR Resource is one whose avoidable costs are less than its total expected Performance Bonus Payments as an energy-only resource. That resource, therefore, will be willing to take on a capacity obligation as long as the amount it can earn for capacity (including both capacity auction revenues as well as net Performance Bonus Payments) exceeds the amount it could earn in Performance Bonus Payments by participating in the energy market only.

337. A resource will receive less in Performance Bonus Payments as a capacity resource than as an energy-only resource. That is because, unlike an energy-only resource, a capacity resource would receive the Performance Bonus Payment rate during Performance Assessment Hours only for any production that exceeds its Balancing Ratio share of its total capacity obligation (and it would incur Non-Performance Charges during those hours to the extent that its production falls short of this share). For example, if the Balancing Ratio is 80 percent and a resource has a 100 MW capacity obligation, it will receive Performance Bonus Payments during a Performance Assessment Hour only to the extent that its production exceeds 80 MWh (i.e., .80 times 100 MW). So, for example, if the resource produces 85 MWh, it will receive a Performance Bonus Payment equal to the Performance Bonus Payment rate times 5 MWh. By contrast, if the resource were an energy-only resource, it would receive the Performance Bonus Payment rate for the full 85 MWh of production, which is 80 MWh more than if it was a capacity resource. By taking on a capacity obligation, the resource must forego the Performance Bonus Payments on 80 MWh of production, i.e., its obligation as measured by the Balancing Ratio times its total capacity obligation, in each Performance Assessment Hour. The

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Performance Assessment Hours in a delivery year. The net Avoidable Cost Rate is calculated by deducting all energy and ancillary service revenues net of marginal costs from Avoidable Costs. *See* PJM OATT Attachment DD, section 6.8.

Performance Bonus Payments associated with these 80 MWh are an opportunity cost incurred by taking on a capacity obligation.

338. In order to accept a capacity obligation, a competitive resource would require that the capacity payment exceed this opportunity cost. Under PJM's construct, this capacity payment is represented by the Performance Bonus Payment rate times the Balancing Ratio times the expected number of Performance Assessment Hours.<sup>282</sup> PJM's proposed Non-Performance Charge rate is calculated as Net CONE divided by 30 hours. Under the assumption that the number of Performance Assessment Hours is the same as the number used to calculate the Non-Performance Charge rate, this opportunity cost amount is equivalent to Net CONE times the Balancing Ratio (B).<sup>283</sup>

339. For a resource whose avoidable costs exceed the amount that it can earn in Performance Bonus Payments (High ACR Resource) as an energy-only resource, the default offer cap will be too low and that resource will have to seek a unit-specific offer cap. A High ACR Resource would thus be expected to submit an offer that reflects its additional costs plus the risk that it may incur significant Non-Performance Charges as a capacity resource.<sup>284</sup>

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<sup>282</sup> This applies only under a simplifying assumption that the Non-Performance Charge rate and Performance Bonus Payment rate are equal, but, as discussed below, we find that assumption to be reasonable.

<sup>283</sup> Expressed algebraically, the opportunity cost is

$$\text{PPR} * \bar{B} * H$$

where PPR = Performance Payment Rate = Net CONE/H;  $\bar{B}$  = expected Balancing Ratio across all Performance Assessment Hours in a delivery year; and H = expected total number of Performance Assessment Hours in a delivery year = 30. The opportunity cost can thus be expressed as

$$\text{Net CONE}/30 * \bar{B} * 30 = \text{Net CONE} * \bar{B}.$$

<sup>284</sup> This can be expressed algebraically by rearranging PJM's equation for the competitive offer of a High ACR Resource as follows:

$$p = \text{ACR} + \text{PPR} * H * (\bar{B} - \bar{A})$$

340. We therefore agree with PJM that it is reasonable to set a default Capacity Performance Resource offer cap equal to the competitive offer estimate for a Low ACR Resource, i.e., Net CONE times the Balancing Ratio, because that estimate will always be lower than the competitive offer estimate for a High ACR Resource. Any Capacity Performance offer below the default offer cap can properly be deemed competitive, and any offer above that level will be scrutinized by the Market Monitor and PJM to ensure that it is based on legitimate costs and reasonable estimates of unit-specific performance and system parameters.

341. Based on our finding that PJM's Revised Offer Cap methodology is just and reasonable, we accept PJM's offer cap proposal, as amended in the Deficiency Letter Response.

342. We acknowledge that the Revised Offer Cap methodology reflects the simplifying assumption that Performance Bonus Payments and Non-Performance Charges will be calculated based on the same payment rate. NRG/Dynegy argue that this assumption is false, given the proposed mechanics of the Capacity Performance construct, and assert that the two rates are actually unlikely to ever be exactly the same. We recognize this criticism and agree that the rates could be unequal.<sup>285</sup>

343. However, we find the simplifying assumption to be reasonable nonetheless. Both the Non-Performance Charge rate and the Performance Bonus Payment rate are represented as dollars per MWh. The Non-Performance Charge rate, as discussed earlier in this order, is established in advance as Net CONE divided by 30. The Performance Bonus Payment rate is calculated by spreading total charge revenues collected over the number of over-performing MWh. As the Market Monitor notes,<sup>286</sup> the Non-Performance Charge rate could equal or exceed, but never be less than, the Performance Bonus Payment rate due to the existence of two exemptions from Non-Performance

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where the difference between the Balancing Ratio and the expected availability of the resource represents the resource's expected exposure to Non-Performance Charges or Performance Bonus Payments.

<sup>285</sup> This is because the formulas behind the two rates are fundamentally different. While Non-Performance Charges are based on the charge rate of Net CONE divided by 30, Performance Bonus Payments represent an over-performing resource's *pro rata* share of all Non-Performance Charges collected.

<sup>286</sup> Market Monitor February 25, 2015 answer, Appendix A at 4; and Market Monitor March 27, 2015 answer at 7.

Charges and the stop-loss limit.<sup>287</sup> However, we expect that the number of exempted MWh will be comparatively small. Exemptions will be granted for two categories of resources. The first is resources that do not deliver energy because they are on a PJM-approved Generator Planned Outage or Generator Maintenance Outage. We expect that PJM will not approve a significant number of generator outages during the peak periods of the year when Performance Assessment Hours are most likely to occur. The second is resources that do not deliver energy because PJM did not schedule them. We expect that during the emergency conditions that trigger Performance Assessment Hours, there will not be a significant number of MWh that PJM does not need to schedule. Since we expect that the number of exempted MWh will ordinarily be small during most Performance Assessment Hours, we expect that the Performance Bonus Payment rate will generally not be significantly less than the Non-Performance Charge rate. We also expect few resources to reach the annual stop-loss limit and note that we condition acceptance of PJM's proposal in this order on removal of the monthly stop-loss limit, further reducing the likelihood that the Performance Bonus Payment rate will be significantly lower than the Non-Performance Charge rate. We therefore find that the benefit of accepting this assumption, which allows for a simpler mechanism for capacity offer review and mitigation that adequately protects against the exercise of market power, outweighs any minor distortions.

344. Joint Consumers argue that PJM's change is not just and reasonable and the existing net Avoidable Cost Rate methodology establishes a just and reasonable evaluation of capacity sell offers within the Capacity Performance design. As we note above, we find that given the redefined capacity product PJM proposes, it is reasonable to allow capacity sellers to factor into their offers the costs and risks associated with assuming the redefined capacity obligation. The existing net Avoidable Cost Rate methodology would not permit inclusion of such costs and risks and thus could prevent capacity sellers from submitting legitimate, competitive offers. With respect to use of a default offer cap, we agree with PJM that if PJM and the Market Monitor were to instead evaluate all Capacity Performance sell offers on a unit-specific basis using the competitive offer formula proposed by PJM in its Deficiency Letter Response, the

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<sup>287</sup> If no MWh are exempted from Non-Performance Charges, the Performance Bonus Payment rate will equal the Non-Performance Charge rate. That is because the number of under-performing MWh will be the same as the number of over-performing MWh, so total charge revenues will be adequate to pay over-performers at the same rate of Net CONE divided by 30. However, if some resources are either exempt from Non-Performance Charges or have reached the stop-loss limit, the number of over-performing MWh will exceed the number of MWh *deemed* to be under-performing, so total charge revenues will be insufficient to pay over-performers at the rate of Net CONE divided by 30, and they will be paid at a lower rate.

outcome would be essentially the same. As PJM explains, for any Low ACR Resource, the competitive offer formula will simplify to Net CONE times the Balancing Ratio as a permissible offer cap. High ACR Resources, which are those most likely to set the clearing price, will, under PJM's Revised Offer Cap, be subject to unit-specific offer review and must justify the assumptions and estimates in their requested offer price. The unit-specific review for all capacity offers will provide additional protections for consumers. Therefore, we disagree with Joint Consumers that PJM's proposal is unreasonable.

345. We are not persuaded by Dominion's argument that the proposal is unjust and unreasonable unless PJM modifies the default offer cap for Base Capacity. A default offer cap in large part serves to reduce the administrative burden on PJM, the Market Monitor, and market participants at offer prices that are clearly competitive. The absence of a new, Base Capacity-specific default offer cap does not prevent resources offering as Base Capacity from justifying sell offer prices above their relevant technology-specific default offer caps through the unit-specific Avoidable Cost Rate process. In addition, based on our finding *infra*, Base Capacity Resources may include in their offers quantifiable and reasonably-supported risks of taking on a Base Capacity commitment.

346. With respect to AEMA's contention that the Revised Offer Cap may dissuade owners of large portfolios from making investments to improve the performance of their resources because doing so may lower clearing prices, we find this argument to be speculative and flawed. First, AEMA's argument applies only to High ACR Resources, for which PJM proposes a formula for determining the offer cap. The unit-specific offer cap formula includes the resource's Avoidable Cost Rate plus its expected Non-Performance Charges (*i.e.*, PPR times H times B – A).<sup>288</sup> But for Low ACR Resources, for which the offer cap would be the default offer cap of Net CONE times B, the resource's offer cap does not depend on its Avoidable Cost Rate or on its expected Non-Performance Charges. For a Low ACR Resource, expenditures to further improve its availability and reduce its Non-Performance Charges could increase its profits without reducing its offer price. Thus, resources with low Avoidable Cost Rates would have strong incentives to further improve their availability.

347. Second, for High ACR Resources, where investing results in a lower net cost and a lower offer cap, AEMA's argument assumes that the lower offer cap would reduce the capacity market price by the same amount. In AEMA's example, a \$3.00/MW-day reduction in the resource's offer cap would reduce the capacity market price by

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<sup>288</sup> PPR = Performance Payment Rate = Net CONE/H; H = expected total number of Performance Assessment Hours in a delivery year = 30; and  $\bar{A}$  = expected availability of the resource across all Performance Assessment Hours in a delivery year.

\$3.00/MW-day. This assumption presumes that the resource would remain marginal whether or not it undertook the investments. However, the slopes of large sections of the capacity market supply curves have in the past been fairly flat. If the resource in question is located on a flat portion of the supply curve, the resulting cost reductions may remove it from its marginal position on the supply curve. That is, its costs and its offer price could fall by more than the fall in the capacity clearing price. In this case, the benefits to the resource resulting from its cost reductions may outweigh any reduction in the revenues received by its fleet resulting from lower capacity market prices. Moreover, AEMA's argument applies only to the owner of the marginal resource, and, by definition, there is only one marginal resource in any Locational Deliverability Area that price-separates. AEMA's argument, to the extent that it has any merit, applies only to the owner of the resource that would be marginal whether or not it invests to improve availability, but not to any other owners. The owners of fleets of resources that do not include the marginal resource would have strong incentives to invest to improve their availability.

348. Lastly, the purpose of offer mitigation is to require that resources with market power submit offers consistent with how they would offer under fully competitive circumstances. As noted above, we find that PJM's competitive offer formula reasonably represents a rational seller's competitive offer within the Capacity Performance market design. Similarly, we also find that mitigating the offer of a seller found to have market power to that estimated competitive level is just and reasonable.

349. AEMA, the Pennsylvania Commission, and Joint Consumers argue that Net CONE is not an appropriate clearing price or competitive offer because it is an administratively-determined estimate and not necessarily reflective of the actual cost of new entry. To the extent these commenters object to the Net CONE values used in RPM planning, we find these arguments beyond the scope of this proceeding. With regard to Net CONE representing a competitive offer, Net CONE, or a variant thereof, as discussed elsewhere in this order, is a proxy for a competitive outcome when such an outcome cannot otherwise be reasonably assured.

350. Essential Power, Indicated Suppliers, and NRG/Dynegy object to PJM's proposal to use a three-year historical average in setting the Balancing Ratio for use in the Revised Offer Cap. NRG/Dynegy also opposes use of Locational Deliverability Area-specific Balancing Ratios on the grounds that they will be more volatile than an RTO-wide historical average Balancing Ratio. While there may be legitimate alternative methods for setting the Balancing Ratio, we find that using a three-year historical average will provide a reasonable estimate of future Balancing Ratios. We acknowledge NRG/Dynegy's argument that Locational Deliverability Area-specific Balancing Ratios will experience greater volatility year to year, but we find that this possibility is outweighed by the benefit of using a Balancing Ratio that is more likely to accurately reflect the conditions during Performance Assessment Hours in each Locational

Deliverability Area. Accordingly, we accept PJM's proposed method for setting the Balancing Ratio.

351. In its comments, the Market Monitor proposes new buyer-side mitigation measures to prevent anticompetitive price suppression. Under its proposal, resources seeking to offer below the default Capacity Performance offer cap would have to seek a unit-specific review of their offers. PJM did not propose additional buyer-side mitigation in its proposal and therefore this request is beyond the scope of the proceeding.

352. Turning to PJM's proposed modification to its Avoidable Cost Rate formula, we accept PJM's proposed revisions to the formula to include Avoidable Fuel Availability Expenses and Capacity Performance Quantifiable Risk, subject to the condition described below. We generally find that the revised Avoidable Cost Rate methodology will properly allow capacity resources to reflect their estimates of capital costs needed to allow an existing generator to remain in service or improve peak-hour availability or operating flexibility. With respect to PJM's proposed definition of Avoidable Fuel Availability Expenses, intervenors claim that PJM's definition should be expanded to include other fuel sources. We find such clarification is unnecessary given that PJM explains that while the definition includes examples pertaining to natural gas fuel security costs, such examples are not meant to define the universe of allowable costs but rather to explicitly note that these costs are allowed given that the Market Monitor previously determined such costs could not be included. We find that the definition is sufficiently expansive to apply to other fuel costs and as such is not limited to natural gas supply costs. We find it reasonable that resources are able to reflect fuel security costs as the availability of fuel is an integral component of resource performance.

353. PJM notes that the proposed allowance for a Capacity Performance Quantifiable Risk is intended to explicitly allow suppliers to include in their offers risks that can be quantified and that are not already reflected in the formula. We agree that the Avoidable Cost Rate calculation should reflect the cost of becoming a capacity resource under the new capacity market construct and that, for some resources, the overall physical and capital expenditures required to ensure performance during emergency operations are extensive, presenting additional costs which are not currently reflected in the Avoidable Cost Rate calculation. However, we find that PJM's proposed definition of Performance Quantifiable Risk may be insufficiently narrow to permit resources to include quantifiable and reasonably-supported risks in their Avoidable Cost Rate. Further, we agree with Dominion that the ability to submit risk premiums should be afforded to Base Capacity Resources as well. Within the new market design, Base Capacity Resources face enhanced performance requirements, and it is reasonable to afford such resources an opportunity to reflect the risks associated with the new compliance obligations in their sell offers. We therefore accept PJM's proposed inclusion of a quantifiable risk component of the Avoidable Cost Rate formula, subject to the condition that PJM clarify that both Capacity Performance Resources and Base Capacity Resources

will be permitted to include quantifiable and reasonably-supported risks in their Avoidable Cost Rate.

354. We next address PJM's proposal to apply the must-offer requirement to prospective and established Capacity Performance Resources. We accept PJM's proposal, subject to the modifications discussed below. The use of a must-offer requirement is both consistent with established capacity market practice and necessary to safeguard against manipulation in the PJM capacity market. We are not persuaded by the PJM Utilities Coalition's argument that such a requirement forces resources to make capital investments without a reasonable opportunity for a return. To the contrary, we find that PJM's proposal as modified would allow resources the flexibility to weigh the risk of incurring penalties against the cost of additional investment and to reflect the resource owner's desired balance in its capacity offer. Resources that are physically capable of becoming capacity performance but whose costs of doing so would be prohibitive are expected to reflect such costs in their offers. Typically, such resources should either not clear as a Capacity Performance Resource or, if their capacity is required, should be compensated for the cost of the necessary investments. Accordingly, we find that applying the must-offer requirement coupled with the revised Avoidable Cost Rate formula discussed above will allow Capacity Performance Resources a reasonable opportunity to recover appropriate associated costs and will not constitute a taking.

355. PJM proposes two mechanisms through which a resource would not be subject to the Capacity Performance must-offer requirement. First, Intermittent Resources, Capacity Storage Resources, Demand Resources, and Energy Efficiency Resources will be categorically exempt from the Capacity Performance must-offer requirement on the grounds that they do not raise the same physical withholding concerns as do existing generation resources because their ownership is not concentrated. Second, using the proposed must-offer exception process, an individual resource may seek an exception if it demonstrates that it is reasonably expected to be physically incapable of satisfying the requirements of a Capacity Performance Resource for the delivery year. In the context of the PJM market, we find that these proposed mechanisms are reasonable and sufficiently narrow to prevent withholding. Regarding Brookfield's argument that Capacity Storage Resources should also be exempt from PJM's Base Capacity must-offer requirement, we interpret PJM's proposal to apply the existing capacity market must-offer requirements and exemptions to Base Capacity Resources for delivery years 2018-2019 and 2019-2020. In other words, resources currently subject to the capacity market must-offer requirement that will not be subject to the new Capacity Performance must-offer requirement will be required to offer as Base Capacity. We find this application to be reasonable given the limited Non-Performance Charge exposure for Base Capacity Resources.

356. However, we are not persuaded that PJM's proposal to exempt Planned Generation Capacity Resources from the capacity market must-offer requirement until they become operational is appropriate. PJM proposes to exempt such resources by altering the definitions of Existing Generation Capacity Resource, Planned Generation Capacity Resource, and Planned External Capacity Resource such that a resource will not be considered an existing resource, and therefore subject to the capacity market must-offer requirement, until such time as it achieves full commercial operation and interconnection service has commenced.<sup>289</sup> We are not persuaded by PJM's concerns that continuing to apply the must-offer requirement to planned resources that have cleared at least one RPM auction would act as a barrier to entry. In addition, we are concerned that by clearing an RPM auction with a planned resource but not following through on its construction in a timely manner, a seller could effectively withhold capacity and deter a new entrant from taking its place. Regarding PJM's expressed concerns about subjecting resources in question to the must-offer requirement, we note that PJM's current provisions allow for a resource that likely will not become operational as planned to seek an exception to the must-offer requirement.<sup>290</sup> We thus accept PJM's proposal subject to the condition that PJM remove the revisions proposed in RAA Article 1, Definition 1.20B Existing Generation Capacity Resource; RAA Definitions 1.69 and 1.70; and PJM OATT at Attachment DD, section 6.5.

357. Dominion argues that for delivery years 2018-2019 and 2019-2020, any portion of a resource's capacity that it offers as Base Capacity should be exempt from the Capacity Performance must-offer requirement. Dominion provides an example of a hypothetical combined-cycle unit which can only acquire firm natural gas transportation for a portion of its total capacity, and thus can only provide a portion of its capacity as Capacity Performance. Dominion argues that the generator might want to split its offer between Capacity Performance and Base Capacity in this circumstance, but states that PJM's proposal does not allow for such an offer. However, to the extent a resource cannot make the physical adjustments necessary to become a Capacity Performance Resource, it may seek an exception from PJM's Capacity Performance must-offer requirement. We find that it is appropriate that PJM have the opportunity to approve such requests, since allowing a resource to split its offer creates an opportunity for economic withholding. To the extent that a resource may find it too expensive to invest in necessary changes, the

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<sup>289</sup> See proposed RAA at sections 1.20B (defining an Existing Generation Capacity Resource), 1.70 (defining a Planned Generation Capacity Resource), and 1.69 (defining a Planned External Generation Capacity Resource). The current definition of Existing Generation Capacity Resource includes resources not yet in service, but which have cleared an RPM Auction.

<sup>290</sup> See PJM OATT at Attachment DD, section 6.6(g)D.

resource can submit a coupled offer with the costs of any necessary investments reflected in the resource's Capacity Performance offer.

358. Finally, regarding the Market Monitor's observation that PJM's reliance on unforced capacity could allow resources to withhold capacity,<sup>291</sup> we do not find that such a concern renders PJM's instant proposal not just and reasonable. The Market Monitor suggests that PJM should adopt ISO-NE's market design wherein ISO-NE uses resources' installed capacity values to define the demand for capacity and to define the required performance of its capacity market resources. The Market Monitor contends that the use of unforced capacity could allow a supplier with a large portfolio to reduce its available capacity from some of its resources to result in a higher clearing price for the entire portfolio. Alternatively, the Market Monitor suggests that a supplier with a large portfolio could also reduce unforced capacity available from some of its resources to retain a hedge against unexpected outages on other units. We appreciate the concern of the Market Monitor but think that the likelihood of such a strategy is mitigated by a resource deliberately forgoing considerable energy revenue in the hopes that the withholding strategy and any additional performance payments during Emergency Actions would outweigh the forgone energy revenue. The Market Monitor has the ability to closely observe market participant behavior and take the appropriate actions if such strategies are employed, including, but not limited to, working with PJM to devise an alternative mitigation mechanism.

#### **G. Credit Requirements**

359. PJM's existing credit requirements address the risks generally attributable to the forward commitment of capacity in PJM's capacity auctions, including specific credit requirements for planned resources. PJM currently requires a capacity market seller submitting a sell offer to satisfy a credit requirement equal to the MW offered times an Auction Credit Rate. The Auction Credit Rate is based on: (i) the expected final per-MW price to be paid to capacity resources in the relevant delivery year; and (ii) the seller's possible deficiency charge exposure, as based on its "net charge exposure," i.e., on that portion of its payment obligation that would not be covered by its capacity revenues.

360. According to PJM's existing tariff, the Auction Credit Rate for these sellers will be the greater of: (i) 0.3 times the Net CONE for the relevant delivery year; or (ii) \$20/MW-day times the number of days in that delivery year.<sup>292</sup> With respect to the period following the posting of the Base Residual Auction results, the PJM tariff defines

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<sup>291</sup> Market Monitor comments at 14.

<sup>292</sup> See PJM's OATT at Attachment Q, section IV.D.a(i).

the Auction Credit Rate as the number of the days in the delivery year times the greater of: (i) \$20/MW-day; or (ii) 0.2 times the capacity resource clearing price, in MW-day.<sup>293</sup>

361. Additionally, PJM's rules recognize that the risk of non-performance is higher for a resource that does not exist at the time that the corresponding commitment for that resource is made.<sup>294</sup> PJM requires market sellers offering capacity resources "for which there is a materially increased risk of non-performance" to comply with certain credit support requirements both prior to the posting of Base Residual Auction results, defined as Pre-Auction Security Requirement, and after the posting of Base Residual Auction results, defined as Post-Auction Security Requirement. The Current Post-Auction Security Requirement is based on the capacity resource clearing price, not Net CONE. Accordingly, PJM's rules require a seller submitting an offer for a planned resource to satisfy a credit requirement equal to the MW offered times the Auction Credit Rate.<sup>295</sup>

362. PJM states that, absent revision, the Auction Credit Rate (and the "net charge exposure" input on which it is based) will increase only for Capacity Performance Resources, which will face Non-Performance Charges as high as the annual stop-loss limit of 1.5 times Net CONE times all of the resource's committed capacity, with the capacity clearing price, in most cases, falling below 1.5 times Net CONE.

### **1. PJM's Proposal**

363. PJM proposes to revise the Auction Credit Rate for sellers seeking to submit offers for a Capacity Performance Resource. PJM states that, under its proposal, the Auction Credit Rate for these sellers will be the greater of: (i) 0.5 times the Net CONE for the relevant delivery year; or (ii) \$20/MW-day times the number of days in that delivery year.<sup>296</sup>

364. PJM notes that, because the clearing price cannot be known before a Base Residual Auction is held, the net charge exposure input to its Auction Credit Rate is also

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<sup>293</sup> *Id.* at Attachment Q, section IV.D.b(i).

<sup>294</sup> *See* PJM OATT at Attachment Q, section IV (providing that a resource that clears but then fails to perform, when called upon, may be subject to one or more deficiency, or non-performance, charges). Resources subject to this additional credit requirement include Planned Generation Capacity Resources, Planned Demand Resources or Energy Efficiency Resources, and Qualifying Transmission Upgrades.

<sup>295</sup> PJM OATT at Attachment Q, section IV.B.

<sup>296</sup> Proposed OATT at Attachment Q, section IV.D.a(ii).

an unknown and must be estimated. Accordingly, PJM proposes to establish a proxy clearing price, for this purpose, at Net CONE. PJM asserts that, with a Net CONE clearing price, and potential Non-Performance Charge exposure of up to 1.5 times Net CONE, an Auction Credit Rate of 0.5 times New CONE is reasonable for Capacity Performance Resources offering into PJM's Base Residual Auction. PJM adds that the \$20/MW-day minimum Auction Credit Rate is the same minimum rate used for all other provisions of the capacity market credit requirement.

365. With respect to the period following the posting of the Base Residual Auction results, PJM proposes that the Auction Credit Rate for Capacity Performance Resources be the number of the days in the delivery year times the greater of: (i) \$20/MW-day; or (ii) 0.2 times the capacity resource clearing price, in MW-day; or (iii) the lesser of 0.5 times Net CONE, or 1.5 times Net CONE (stated on an installed capacity basis) minus the applicable capacity resource clearing price for the resource, in MW-day.<sup>297</sup> With respect to a Capacity Performance Resource that has not previously been committed for a delivery year and that a seller seeks to offer in an Incremental Auction, PJM proposes that the Auction Credit Rate will be greater of: (i) 0.5 times Net CONE; or (ii) \$20/MW-day, times the number of days in such delivery year.<sup>298</sup>

366. Finally, with respect to Capacity Performance Resources committed in the Incremental Auction, PJM proposes to calculate the applicable credit requirements by using the same standard that applies to resources committed in the Base Residual Auction, subject to the use of the Incremental Auction clearing price in place of the Base Residual Auction clearing price. According to PJM's proposed tariff, the Auction Credit Rate for these sellers will be the number of days in that delivery year times the greater of: (i) 0.2 times the Incremental Auction clearing price for the relevant delivery year or \$20/MW-day; or (ii) the lesser of .5 times the Net CONE for the relevant delivery year, or 1.5 times Net CONE for the relevant delivery year minus the Incremental Auction clearing price.<sup>299</sup>

367. PJM proposes to require planned resources to provide greater financial security until their respective in-service dates. Prior to posting the results of a particular Base Residual Auction, planned resources are currently required to provide, as financial security, credit support equal to the greater of: (i) 0.3 times the Net CONE; or (ii) \$20/MW-day.<sup>300</sup> Under PJM's proposal, following posting of the Base Residual

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<sup>297</sup> Proposed OATT at Attachment Q, section IV.D.b(ii).

<sup>298</sup> Proposed OATT at Attachment Q, section IV.D.c(ii).

<sup>299</sup> Proposed OATT at Attachment Q, section IV.D.d(ii).

<sup>300</sup> Proposed OATT at Attachment Q, section IV.D.

Auction results, planned resources that cleared the Capacity Performance auction would be required to provide credit support equal to the greater of: (i) 0.2 times the Base Residual Auction clearing price for the Locational Deliverability Area within which the resource is located; (ii) \$20/MW-day; and (iii) the lesser of (a) 0.5 times Net CONE and (b) 1.5 times Net CONE minus the Base Residual Auction clearing price for the Locational Deliverability Area within which the resource is located.<sup>301</sup>

368. In support of its proposal, PJM suggests that planned resources require more collateral to provide reasonable assurance that a capacity market seller can satisfy the potentially substantially higher payments associated with the Capacity Performance Resource product.<sup>302</sup>

## **2. Protests and Comments**

369. Coalition of Resource Projects protests PJM's proposal to modify its existing credit requirements, asserting that stakeholders were not given the opportunity to review or comment on the revised credit provisions during the stakeholder process. Coalition of Resource Projects argues that PJM's proposal to use Net CONE as the basis for the pre-auction and post-auction security requirements, rather than basing the requirements on exposure, will ultimately require resources to obtain collateral in excess of their maximum penalty exposure. Coalition of Resource Projects contends that PJM should instead revise the credit requirements to reflect resources' capacity revenues and the amount of the potential penalty above the capacity revenue, *i.e.*, the risks associated with the proposed non-performance requirements.

370. Invenergy similarly asserts that the credit requirements should reasonably reflect the difference between the annual stop-loss limit and a resource's capacity revenue. Invenergy argues, however, that, given its recommendation to adjust the stop-loss provision to reflect annual capacity revenues, the credit requirements should accordingly be revised to cover the difference between annual capacity revenues and risk exposure.

371. EMC protests that PJM's proposal is unduly discriminatory, because it increases the credit requirements for some suppliers but not others without sufficient justification. EMC explains that, energy efficiency resources are disproportionately affected by the new requirements, because PJM considers them to be planned for three quarters of their lifetime. EMC argues that, contrary to PJM's assertions, planned resources do not create such a significant risk of incurring performance penalties, especially when the primary

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<sup>301</sup> Proposed OATT at Attachment Q, section IV.D.

<sup>302</sup> PJM transmittal at 72 (Docket No. ER15-623-000).

justification for the ensure suite of market reforms is non-performance by *existing* generation. EMC adds that increasing credit requirements on energy efficiency resources will unreasonably increase costs to load with no corresponding benefit, because the proposal will reduce the quantity and increase the cost of energy efficiency offers into the capacity market.

372. Panda, in its answer, objects to PJM's proposed revision to its existing credit requirements on the grounds that Panda, in planning for the development of an existing project, relied on PJM's existing provisions. Panda further asserts that PJM's revisions should not apply to projects that have an executed Interconnection Study Agreement and are fully project-financed prior to the 2015 Base Residual Auction, given that the risk of non-performance for the relevant delivery year (*i.e.*, the 2018-19 delivery year) is negligible.

373. Panda also requests that PJM be directed to tie its credit requirements for financed resources and planned resources to specific milestones, including a certification that the project is, in fact, fully financed, or that full funding is available, prior to the commencement of the Base Residual Auction, and other standard milestones that would allow the security requirement to be reduced as the project nears a timely in-service date.

### **3. PJM's Answer**

374. In its answer, PJM agrees with Coalition of Resource Projects, noting that the credit requirements will increase for planned resources under the proposal. PJM suggests that its proposal correctly defines a resource's exposure to Non-Performance Charges. However, PJM proposes to modify the proposed credit requirements to utilize Net CONE for the relevant Locational Deliverability Area in the credit calculations, where applicable, rather than Net CONE for the PJM region. PJM indicates that it will make this change in a compliance filing, subject to the Commission so directing.

375. PJM refutes EMC's implication that the new credit provisions treat energy efficiency resources differently from other resource types. PJM notes that while the credit requirement for planned Capacity Performance Resources is higher than the current credit requirement for planned resources offering into the capacity auctions, the increased credit requirement applies equally to all resource types. PJM contends that an enhanced credit requirement is reasonable for planned resources because a resource that does not exist when it clears a Base Residual Auction presents a materially greater risk of non-performance than an existing resource.

376. PJM adds that enhanced credit requirements for planned resources are also justified, in part, on a greater potential exposure to Non-Performance Charges. PJM argues that, if a planned resource is not completed, there is a 100 percent risk that the resource will fail to perform when called on during the delivery year, requiring PJM to

find other resources. PJM also suggests that its pre-auction credit requirements are consistent with Commission precedent.<sup>303</sup>

377. PJM states that, in principle, it sees merit in Panda's suggested modifications to the proposed credit requirements for planned resources and financed resources, i.e., projects that have an executed Interconnection Study Agreement and are fully project-financed prior to the 2015 Base Residual Auction. PJM states that it is willing to modify the proposed credit requirements for such resources, in accordance with Panda's suggestions, to allow the security requirement to be reduced as the project nears a timely in-service date. PJM adds that, should the Commission direct it to revise the credit requirements for planned resources and financed resources, it should also require such resources to provide an independent engineer's certification that each relevant milestone has been achieved.

#### **4. Commission Determination**

378. As discussed below, we find that PJM's proposed revisions, as modified herein, to increase the credit requirements commensurate with Capacity Performance Resources' increased risk of financial exposure are just and reasonable. Accordingly, we accept the proposal subject to PJM modifying the proposed tariff revisions consistent with the discussion below.

379. As PJM explains, the proposed security deposit is designed to ensure that PJM is made whole if a resource fails to honor its contract to provide capacity in a given delivery year. Pursuant to PJM's proposal, PJM calculates the required deposit amount based on its assessment of the funds it will need to procure new capacity, possibly on very short notice, if a resource fails to honor its capacity commitment. Accordingly, should the resource fulfill its commitments, PJM will return the required collateral to the resource. PJM's proposal reasonably balances the interests of market participants by not raising costs to an unreasonable amount while still protecting the markets and their participants from unacceptable defaults. We thus find this aspect of PJM's proposal just and reasonable.

380. We disagree with EMC's assertion that PJM's proposal unduly discriminates against energy efficiency resources and thus deny the request for modification. As PJM notes in its answer, the increased credit requirement applies equally to all resource types and EMC has not persuaded us that the risks energy efficiency resources face, as planned resources, are significantly less than the risks faced by other resources types.

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<sup>303</sup> PJM answer at 99 (Docket No. ER15-623-000) (citing *PJM Interconnection, L.L.C.*, 128 FERC ¶ 61,157, at P 118-19).

381. We also disagree with intervenors' assertions that it is unreasonable for PJM to determine a resource's riskiness based on Net CONE, rather than the difference between the resource's potential penalty exposure and its capacity market revenues. We find that Net CONE is a reasonable proxy for quantifying the obligations that a market seller undertakes, and thus the overall risk posed to the capacity market. Under these proposed rules, a seller that offers a planned resource as a Capacity Performance Resource will now face financial consequences (in the form of Non-Performance Charges) for failure to deliver its resource that are potentially much higher than the consequences such a resource would face under the existing rules.

382. While we find that PJM has demonstrated that the risk of non-performance is higher for resources that do not exist at the time a seller submits an offer committing to deliver that resource in three years, PJM's proposal fails to recognize changes in the risk a market seller faces as it transitions through various stages of development towards commercial operation. We note that PJM has committed to modifying its proposal to reflect the differences in credit requirements for financed resources and planned resources. Accordingly, we accept PJM's proposal subject to the condition that PJM modify the proposed credit requirements for planned resources and financed resources, in accordance with Panda's suggestions, to allow the security requirement to be reduced as the project nears a timely in-service date.

383. We similarly recognize that PJM has committed to modify the proposed credit requirements to utilize Net CONE for the relevant Locational Deliverability Area in the credit calculations, where applicable, rather than Net CONE for the PJM Region. As indicated above, without such revisions, PJM's proposal is unjust and unreasonable, because the amount of security required under the credit provisions should increase and decrease commensurate with the associated risk. Accordingly, we accept PJM's proposal subject to the condition that PJM revise the proposed credit requirements as necessary to recognize Locational Deliverability Area-specific Net CONE values in determining a market seller's Auction Credit Rate.

#### **H. Short-Term Resource Procurement**

384. Under PJM's existing rules, the amount of capacity PJM is required to procure in its Base Residual Auction is reduced by 2.5 percent, for the purpose of procuring this set-aside capacity, or holdback, over the over the course of PJM's three Incremental Auctions, *i.e.*, on a date that is closer in time to the relevant deliver year. The 2.5 percent holdback requirement was implemented by PJM, in 2009, to ensure participation in PJM's capacity market by short-lead time resources.<sup>304</sup>

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<sup>304</sup> See *PJM Interconnection, L.L.C.*, 126 FERC ¶ 61,275 at PP 68, 83-85 (2009).

## 1. PJM's Proposal

385. PJM proposes to eliminate the 2.5 percent holdback, as unnecessary, to become effective as of the 2018-19 delivery year.<sup>305</sup> PJM asserts that the longer-lead time associated with its Base Residual Auction has not impeded participation by short-lead time resources, including Demand Resources, energy efficiency resources, uprated generation resources, and external resources. PJM also argues that the 2.5 percent holdback warrants elimination, given that it withholds demand and thus operates to suppress market clearing prices in PJM's Base Residual Auction.

## 2. Protests and Comments

386. Intervenors object to PJM's proposal, citing the role that PJM's holdback has played in partially mitigating the effects of using an overstated load forecast in the Base Residual Auction. Joint Consumers argue that, since the inception of PJM's capacity auctions, PJM's load forecast, as of the date of the Base Residual Auction, has been overstated, on average, by 6.25 percent.

387. Intervenors also assert that maintaining (or even increasing) the holdback is necessary to protect customers from the increased costs associated with systemic over-procurement. Rockland and Allegheny add that PJM has not shown how eliminating the holdback is a necessary component of PJM's Capacity Performance proposal or is otherwise required at this time. The Ohio Commission similarly argues that PJM should retain the 2.5 percent holdback, because it has not demonstrated that its forecasting changes for the upcoming Base Residual Auction will provide better results.

388. The Illinois Commission argues that the three-year forward nature of PJM's capacity construct requires some mechanism to ameliorate the impact of an over-forecast of PJM's reliability requirements. The Pennsylvania Commission adds that PJM's holdback continues to be necessary to enable Demand Resources to participate effectively in PJM's capacity market. OPSI and the Illinois Commission similarly argue that the holdback provides an opportunity for short-term resources to participate in PJM's capacity markets, including demand reduction plans.

389. Intervenors also challenge PJM's claim that the 2.5 percent holdback suppresses market clearing prices. Public Interest Organizations argue that additional over-procurement in the Base Residual Auction (as attributable to the elimination of the holdback) would itself increase costs. The Pennsylvania Commission adds that, while the elimination of the holdback may cause a temporary increase in market clearing prices,

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<sup>305</sup> See proposed OATT at Attachment DD, sections 2.69A, 5.4(c)(2)(i), 5.10(a), and 5.12(a) and (b).

under certain circumstances, the net price impact of requiring demand response to bid into the Base Residual Auction may well be zero. Finally, the Illinois Commission contends that PJM's holdback proposal is unrelated to Capacity Performance.

### **3. PJM's Answer**

390. PJM, in its answer, responds to intervenors' argument that the holdback should be retained to accommodate short lead-time resources. PJM argues that, based on the results of recent Base Residual Auctions, participation by Demand Resources has grown to an extent that, last year, required PJM to impose limits on the quantities of sub-annual Demand Resources and Energy Efficiency Resources that may clear in PJM's capacity auctions.<sup>306</sup> PJM adds that the fact that the holdback has artificially suppressed clearing prices in Base Residual Auctions remains unchallenged. PJM also responds to intervenors' assertion that the holdback is necessary to mitigate load forecasting inaccuracies. PJM argues that it has improved its load forecasts. PJM argues that, regardless, any past over-statements do not, of themselves, justify maintaining the holdback.

### **4. Additional Answers**

391. The PJM Utilities Coalition and Exelon, in their answers, respond to Joint Consumers' argument that PJM's holdback should be retained, given that PJM's load forecasts have been historically overstated. The PJM Utilities Coalition asserts that PJM's holdback was designed, not as a load-forecasting mechanism, but to foster the participation of short-lead time resources, a purpose for which it is no longer needed. Exelon argues that to the extent these forecasts have been overstated the appropriate solution is not to retain the holdback but to adjust the load forecast methodology, as PJM, in fact, has done in its 2015 forecast.<sup>307</sup>

392. Joint Protestors, in their answer, acknowledge the robust participation by Demand Resources in PJM's Base Residual Auctions, but assert that these resources represent only one of four such short lead-time resources that is the focus of PJM's existing holdback policy. Joint Protestors add that PJM has not shown that elimination of the holdback will materially affect Base Residual Auction clearing prices.

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<sup>306</sup> PJM answer at 102-103 (citing *PJM Interconnection, L.L.C.*, 146 FERC ¶ 61,052 (2014)).

<sup>307</sup> See Exelon answer at 33 (citing *PJM Interconnection, L.L.C.*, "PJM Load Forecast Report: January 2015" (Dec. 30, 2014) at 1).

393. The Maryland Commission requests the Commission reject PJM's proposed elimination of the 2.5 percent holdback because it is proposed solely to increase market prices, and will not improve reliability. The Maryland Commission suggests that PJM's load forecasting on average over the past five years has averaged approximately 6 percent above actual delivery year load levels. Maryland Commission contends that an excessive load forecast results directly and improperly in higher prices to end users as demand in the demand/supply auction balance is improperly inflated by the overstatement, which causes a \$2.4 billion RPM revenue increase. Maryland Commission urges retention of the holdback as necessary to achieve just and reasonable pricing for end users until PJM demonstrates that it has corrected this practice.<sup>308</sup>

## 5. Commission Determination

394. For the reasons discussed below, we accept PJM's proposed elimination of its existing capacity holdback provision, to be made effective for the Base Residual Auction for delivery year 2018-19. PJM's capacity market is a three-year forward market and, under this existing design, we do not find unjust and unreasonable the application of the same rules to all resources. While PJM sought to accommodate short-term resource procurement, as of the establishment of its market, PJM is not obligated to propose to retain this provision. Moreover, PJM contends that elimination of this provision will help promote reliability by ensuring that PJM has obtained committed capacity and is not reliant on short-term procurement. Given the purpose and nature of PJM's Capacity Performance proposal, we concur.

395. PJM's existing requirement reduces, by 2.5 percent, the amount of capacity PJM is required to procure in its Base Residual Auction and requires that this capacity be procured at a later date in PJM's Incremental Auctions. PJM implemented this requirement in 2009 to ensure that short-lead time resources would be permitted to participate in PJM's capacity market.<sup>309</sup> PJM asserts in its filing, however, and we agree, that the three-year lead time element associated with PJM's annual May capacity auctions has not impeded the ability of most resources (including demand response, energy efficiency, generation uprates, or external resources) to participate in these auctions. PJM further relies on the findings made by the Market Monitor that PJM's existing holdback, by withholding demand from the Base Residual Auction, operates to suppress market clearing prices.

396. Joint Consumers assert that PJM's holdback should be retained because it mitigates the effects of overstated load forecasts. However, we are not persuaded that a

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<sup>308</sup> Maryland Commission comments to PJM Deficiency Letter Response at 9-10.

<sup>309</sup> *PJM Interconnection, L.L.C.*, 126 FERC ¶ 61,275 (2009) at P 83-85.

holdback requirement is necessary to address load forecast errors, or that the historical overstatements experienced to date are unavoidable or likely to recur at a level that requires mitigation. In fact, PJM's stakeholders have discussed these issues, including proposed modeling changes, with load forecast adjustments recently adopted by PJM.<sup>310</sup>

397. The Pennsylvania Commission argues that PJM's holdback requirement is necessary to incent additional Demand Resources to participate in PJM's capacity market. However, we are not persuaded that PJM's elimination of its holdback requirement will unduly impede the ability of Demand Resources to participate in PJM's capacity market. We also are not convinced that the benefit of any incremental Demand Resource participation resulting from retaining the holdback requirement will necessarily outweigh the economic efficiency benefit of no longer withholding demand from the Base Residual Auction, an action that can suppress market clearing prices.

398. We also disagree with the Maryland Commission's request to reject the elimination of the 2.5 percent holdback on the grounds that it is proposed solely to increase market prices and will not improve reliability. As stated above, the elimination of this provision will help ensure that PJM has obtained committed capacity.

399. Finally, we are not persuaded by Allegheny's argument that PJM's proposed elimination of its holdback requirement should be rejected on the grounds that it is unrelated to the problem that PJM purports to address in its Capacity Performance proposal. PJM has the authority to file revisions to its tariff under section 205 of the FPA and must demonstrate that the change is just and reasonable. PJM has met that burden here.

## **V. Energy Market Revisions**

400. For the reasons discussed below, we grant, in part, and deny, in part, PJM's complaint in its Energy Market Filing and direct PJM to submit a compliance filing within 30 days of the date of this order. We agree with PJM that given the changes we are accepting to its capacity market provisions, its existing energy market rules with respect to operating parameters, force majeure, and generator outages are unjust and unreasonable and must be revised. We accept PJM's proposed revisions to rules related to force majeure and generator outages, accept, in part, and reject, in part, PJM's proposed revisions to rules related to operating parameters, and direct further modifications to the operating parameters rules, consistent with the discussion below, to be submitted in the aforementioned compliance filing. Lastly, we find that PJM has not

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<sup>310</sup> See PJM Interconnection, L.L.C., Load Analysis Subcommittee report, available at: [www.pjm.com/committees-and-goups/subcommittees/las.aspx](http://www.pjm.com/committees-and-goups/subcommittees/las.aspx).

demonstrated that its rules related to Maximum Emergency Offers are unjust and unreasonable and therefore deny this aspect of PJM's complaint.

### **A. Operating Parameters**

401. PJM states that the operating parameters of individual generation resources can limit PJM's flexibility in scheduling and dispatching resources on a day-ahead and real-time basis.<sup>311</sup> PJM argues that the current energy market rules allow market sellers in certain circumstances to condition their day-ahead energy market offers on acceptance of parameter limitations that extend beyond the operating design characteristics of their specific resources and include economic or budgetary concerns. PJM asserts that, when operating its system during the adverse weather conditions of January 2014, PJM was required to dispatch generation that was relatively inflexible, and was further required to keep these resources online during uneconomic periods in order for them to be available during peak demand hours. PJM states that the ability for resources to be flexible throughout an operating day is integral to efficiently dispatching the system and minimizing uplift, especially during winter peaks.

#### **1. PJM's Proposal**

402. PJM proposes to clarify that a capacity market seller will be required to limit its energy offer output parameters to its pre-determined limits on cost-based offers, including limiting its offer parameters for market-based offers as provided under PJM's existing rules.<sup>312</sup> Specifically, PJM proposes to require market-based offers for capacity resources to be parameter limited, i.e., based on the specific physical characteristics of that resource, rather than based on economic and budgetary considerations, under circumstances that would typically precede an emergency event. PJM further proposes to clarify that, if a resource cannot actually be operated within these more flexible parameters, then it must inform PJM of the parameters to which it is capable of being

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<sup>311</sup> PJM notes, for example, that a generator relying on natural gas as its fuel source may have the need for early commitment to ensure deliverability, days ahead of PJM's day-ahead market. In addition, PJM states that resources may submit scheduling criteria that includes 24-hour, or multi-day gas commitment requirements, or the purchase of gas for an entire weekend to operate for only a few hours. PJM further notes that these generation resources may become subject to natural gas pipeline operational flow orders (*e.g.*, an order requiring the generator to take natural gas in even, incremental amounts over a 24-hour natural gas day), forcing generators to run during periods when they traditionally would be uneconomic.

<sup>312</sup> See proposed Operating Agreement at Schedule 1, section 6.6 and the proposed parallel provision of the PJM OATT.

operated. However, any operation outside of the more flexible parameter limited values will be considered inconsistent with PJM's direction. If PJM dispatches the resource only within its unit-specific physical parameter limits, costs that are not recovered as a result of operation outside of the more flexible parameter limited values would not be eligible for make-whole payments. Make-whole payments will be made to a resource only to the extent that the resource's operation is based on the more flexible parameter limited values.<sup>313</sup>

403. PJM also proposes to establish a standardized start-up and notification time of 24 hours, or less, for Capacity Performance Resources bidding into PJM's energy markets, absent the issuance of a hot or cold weather alert. PJM states that when a weather alert has been issued, the combined notice and start-up time would not be permitted to exceed 14 hours.

## **2. Protests and Comments**

404. Comments generally supportive of PJM's proposal were filed by the Market Monitor, NGSAs, and Exelon. The Market Monitor argues that, to properly protect the market from the exercise of market power and manipulation, it is essential to ensure that resources cannot avoid their performance obligations by the use of parameters and essential that the ability to perform is not tied to greater energy costs.

405. Some intervenors protest that PJM's proposal to apply parameter limited schedules to market-based offers is an unjust and unreasonable step towards eliminating market-based energy offers altogether. Dominion argues that PJM has not demonstrated that the relevant existing provisions of the Operating Agreement are unjust and unreasonable. Dominion argues that adopting the stringent operating parameters in PJM's proposal could force less flexible units out of the market and threaten future reliability by undermining efforts to promote and maintain fuel diversity. The PJM Utilities Coalition and Joint Protestors assert that PJM's proposal creates unreasonable and immitigable risk for market sellers, by restricting their ability to reflect operational considerations in their energy market offers. Specifically, Joint Protestors argue that PJM's proposal provides PJM and the Market Monitor overly broad discretion in determining a unit's "operating

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<sup>313</sup> The resource would be eligible for make-whole payments to the extent that PJM dispatches the resource outside of the parameter limits. For example, suppose that a resource's minimum run time based on its physical characteristics is four hours, but the resource faces a 24-hour ratable take requirement from its natural gas pipeline supplier that requires it to run at a constant rate for 24 hours. Under PJM's proposal, if PJM dispatches the resource to operate for 24 hours, the resource will be eligible for make-whole payments for the entire 24 hours. However, if PJM dispatches the resource for 4 hours, it will not be eligible for make-whole payments from hour 4 to 24.

design characteristics” without any indication how those determinations will be made.<sup>314</sup> They state that the effect will be that generators will be held to perform notwithstanding operational constraints that may not be reflected in the parameter limitations determined by PJM.

406. Joint Protestors argue that PJM’s proposal evidences a “clear misunderstanding of pipeline operational issues,” because it shifts to resources the risk of operational constraints outside of their control. LS Power argues that it is unjust and unreasonable to determine minimum standards based on a resource’s physically *achievable* operating design characteristics, because a unit may “not be able to achieve its maximal performance in adverse weather conditions” or may be subject to greater stress if consistently asked to perform at the “outer limits” of its physically achievable operating design characteristics. PSEG similarly asserts that theoretical operating parameters based on the unit’s original design or capabilities may not provide a fair indication of its current physical characteristics, particularly in the case of older units.

407. Some intervenors object to PJM’s proposal to establish a standardized start-up and notification time for capacity resources bidding into PJM’s energy market. The PJM Utilities Coalition argues that PJM’s proposal is a one-size-fits-all approach that is based on unilateral market design choices, rather than physical and operational considerations. The PJM Utilities Coalition characterize this approach as unduly discriminatory by failing to account for: (i) the diversity of assets needed for long-term reliability; or (ii) the costs associated with operating certain classes of generation assets.<sup>315</sup>

408. The PJM Utilities Coalition adds that, by asking generators to absorb the cost of meeting arbitrary deadlines that they are incapable of meeting, PJM’s rules may be confiscatory, in violation of the Takings Clause of the U.S. Constitution.<sup>316</sup> Joint Protestors argue that PJM’s proposed start-up and notification times are “at odds with fundamental natural gas nomination and scheduling” practices and present particularly high risk, and potentially confiscatory costs, for combustion turbines that might operate only a few days each year. Rockland adds that PJM’s standardized start-up and notification time limits discriminate against natural gas-fired units compared to onsite fuel alternatives.

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<sup>314</sup> Joint Protestors protest at 11-12.

<sup>315</sup> PJM Utilities Coalition states that the start-up and notification time limitations are discriminatory against coal-fired and nuclear generation resources. PJM Utilities Coalition protest at 3, 11.

<sup>316</sup> See PJM Utilities Coalition protest at 12 (citing U.S. Const, amend. V and *Duquesne Light Co. v. Barasch*, 488 U.S. 299, 307 (1989)).

409. With respect to PJM's proposal for developing unit-specific operating parameters, some protest that PJM's proposal affords PJM too much discretion. The Pennsylvania Commission asserts that the authority to establish parameter limited schedule values should remain with the Market Monitor. LS Power and Coalition of Resource Projects argue that resource owners must have a role in determining the resource's parameter limits, otherwise PJM's approach will usurp owners' control of their resources. Essential Power agrees, adding that market participants appear to be excluded from the process of developing unit-specific parameters.

410. The Market Monitor contends that the respective roles that market sellers, PJM, and the Market Monitor will play in developing and approving unit-specific parameters must be more clearly defined. The Market Monitor asserts that it must be clarified that: (i) market participants determine their own offers, and take full responsibility for their market behavior; (ii) PJM determines whether an offer complies with PJM's market rules; and (iii) the Market Monitor interacts directly with market participants in a defined process to review whether offers raise market power concerns. The Market Monitor argues that PJM's current proposal does not do enough to ensure objective, critical, and thorough review of market participants' calculation of unit-specific parameters, noting, however, that if the Market Monitor determines that a proposed value raises market power or manipulation concerns, it will raise the issue with the Commission through a section 206 complaint or other available option.<sup>317</sup>

411. Homer City argues that PJM must specify the parameter limitations in the OATT, rather than engaging in an annual prudency review with each unit to determine whether it is under-performing relative to an unspecified standard. Essential Power, too, protests PJM's departure from using published parameters limitations, arguing that transparency and consistency across unit types is important.

412. LS Power protests PJM's proposal to require different operating parameters for different resources. LS Power argues that, because all Capacity Performance Resources will be paid a single clearing price for providing a single product, subjecting resources to different requirements and performance obligations violates the prohibition against undue discrimination. LS Power asserts that PJM must adopt the same minimum criteria for all resources and assets classes, even if it means adopting a more stringent system-wide standard.

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<sup>317</sup> Market Monitor comments at 3, 36 (noting that, because the operating parameters rules were included in a separate section 206 filing, the Commission is not required to afford PJM's proposal the same level of deference and should, therefore, approve the best proposed elements, or revised elements, regardless of their source).

413. Intervenors also seek specific clarification as to what constitutes a “physical characteristic” and how the physical characteristic of units will be determined. Rockland and Joint Protestors assert that variations in fuel delivery are physical characteristics that PJM should recognize, arguing that natural gas-fired generators may not be able to purchase relief from the physical constraints pipeline operators impose. PSEG notes that there may be instances in which a unit, in its current conditions and configuration, may have a given set of physical operating parameters that could be improved based on capital expenditures. PSEG further notes, however, that PJM’s proposed tariff language is unclear whether, in such a case, the physical capabilities of the unit would be viewed in its present state or as enhanced through capital upgrades and whether there would ever be any financial limit to the amount of an expenditure needed to improve the unit’s physical characteristics.

414. Intervenors also protest that PJM’s proposal is unclear as to how and when PJM will consider Capacity Performance Resources’ under-performance to be unexcused in circumstances when the resource is not scheduled or is dispatched down due to the parameter limitations the market seller specified in its energy market offer. The Market Monitor argues that PJM’s proposal must be clarified to ensure that Capacity Performance Resources operating and offered in accordance with parameters approved by PJM and the Market Monitor are not subject to Non-Performance Charges. Coalition of Resource Projects argues that PJM must clarify either the market seller representation requirement in Section 5.5A to provide energy at any time or the definition of expected performance in Section 10A, to account for each unit’s PJM-determined physical limitations and characteristics. LS Power argues that PJM should be required to clarify when a resource owner will become aware that its non-performance is unexcused and, therefore, subject to a Non-Performance Charge.<sup>318</sup>

415. Joint Protestors add that PJM’s provisions regarding exceptions are overly burdensome and impose duplicative requirements on natural gas-fired resources facing the risk of pipeline constraints because, in order to be eligible for make-whole payments, those resources would have to seek an exception for multiple parameters, such as minimum run time and notification time.<sup>319</sup> PSEG asserts that PJM’s dispatch software does not adequately model the actual capabilities of combined cycle units and that, under these circumstances, it is not reasonable to impose operating requirements that cannot be accurately reflected in units’ offers, or dispatched in the PJM software.

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<sup>318</sup> LS Power protest at 8 (adding that if PJM informs a market seller that it is not being dispatched because of the operating parameter limitations specified in its offer, the seller could take steps, such as self-scheduling, to ensure the unit could be available within the required timeframe).

<sup>319</sup> Joint Protestors protest at 12.

416. The Market Monitor argues on the other hand that, while resources may request exceptions to the parameter limitation requirements, the exceptions should not be an excuse for non-performance or enable resources to receive make-whole payments. The Market Monitor also recommends excluding economic maximum from the list of parameters, because resources are already required to offer their installed capacity unless on an outage. The Market Monitor also requests clarification that resources with start-up and notification times that exceed the values agreed upon by PJM, the Market Monitor and generation owners under section 6.6 of Schedule 1, or that operate outside their unit-specific parameter limits will not be eligible for make-whole payments for their operation.<sup>320</sup>

417. While the Market Monitor supports PJM's revisions to the current operating parameters, it recommends including ramp rate and boiler temperature retention times as parameters with defined limits, because such parameters could also be used to limit generation performance. In addition, the Market Monitor argues that resources should be subject to original equipment manufacturer operating parameters, rather than parameters developed based on historical operational information. Essential Power protests that PJM does not propose to include environmental considerations in the unit-specific operating parameter determinations. Coalition of Resource Projects adds that PJM should not require the same level of flexibility on critical and non-critical days.

418. The Market Monitor asserts that, to ensure a properly functioning capacity market, PJM should be required to revise its energy market rules to treat Demand Resources in the same way as other capacity resources if they are to remain on the supply side of the capacity market. For example, the Market Monitor argues that Demand Resources should be subject to a must-offer requirement in the day-ahead energy market and should have their output metered, on five-minute intervals, rather than estimated. The Market Monitor argues that Demand Resources should be dispatched nodally, to ensure that all capacity is performing as required. The Market Monitor suggests that the Commission should require PJM to revise its methodology for collecting data and calculating compliance for Demand Resources to require real-time submissions.

419. The Market Monitor also argues that there is no reason for PJM to enforce an energy market offer cap that is higher for Demand Resources than generation, adding that, if a higher offer cap is warranted, it should be raised for all resource types. Further, the Market Monitor asserts that PJM should eliminate the provisions allowing Demand Resources to request relief from Capacity Resource Deficiency Charges under certain circumstances, arguing that the provision creates a loophole that is inconsistent with the intent and goal of the Capacity Performance proposal.

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<sup>320</sup> Market Monitor comments at 26 (citing PJM Operating Agreement, Schedule 1, sections 3.2.3(e) and 6.6).

420. ESA asserts that PJM's proposal to allow energy storage resources to self-schedule to meet their obligation to provide energy, rather than offering into the day-ahead energy market, is necessary for energy storage resources to participate in energy markets. ESA points out that this allowance "in no way excuses" Capacity Storage Resources from their Capacity Performance obligations and does not reduce the penalty such a resource would face for failing to perform. Rather, ESA asserts, the allowance responds to and provides for the fact that PJM's day-ahead energy market clearing mechanism and other energy market rules otherwise do not accommodate energy storage resources.

### **3. PJM's Answer**

421. PJM, in its answer, responds to assertions that it has not shown that the existing relevant provisions of the Operating Agreement are unjust and unreasonable. PJM argues that the existing rules unjustly and unreasonably allow resources to submit inflexible operating parameters based on inflexible fuel supply arrangements or due to a failure to make needed investment in their resources. PJM adds that if its Capacity Performance proposal is implemented, the existing rules addressing parameter limited schedules would undermine the benefits that PJM's proposed rule changes are designed to provide.

422. PJM also responds to the Market Monitor's observation that PJM's proposal fails to identify what physically-achievable operating characteristics would be considered in a unit-specific review, and whether changes in resources that can no longer operate based on their original design, or capabilities, would be taken into account. PJM argues that, in undertaking these reviews, it will be guided by the standards set forth in section 2.3.4 of Manual 11, which "include but are not limited to metallurgical restrictions due to age and long term degradation, physical design modifications, operating permit limitations, operating limits imposed by federal, state or local regulatory requirements or insurance carrier requirements, consent decrees, manufacturer technical bulletins, or environmental permit limitations under non-emergency conditions." PJM adds that it will need to revise Manual 11 to incorporate specific guidance regarding the factors that will be considered in determining unit-specific parameter limited schedule values.

423. PJM also responds to LS Power's argument that unit-specific parameter limited schedules must be based on what the resource owner determines is reasonably achievable. PJM argues that, under its proposal, market seller input and historical evaluation will be considered when PJM establishes parameter limits. PJM adds that, consistent with Order No. 719, PJM must have the authority to first determine the values on which a resource would be settled, subject to Commission review.<sup>321</sup>

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<sup>321</sup> See PJM February 13, 2015 answer at 7 (citing Order No. 719, FERC Stats. & Regs. ¶ 31,281).

424. PJM also responds to Essential Power's argument that replacing PJM's existing parameter limited schedule matrix will create uncertainty over the unit-specific requirements in operation for offers in PJM's next capacity auction. PJM states that it will provide initial parameter limited schedule values prior to the commencement of its May 2015 auction. PJM adds that, after it has determined the unit-specific parameter limited schedule for a given resource, that same schedule will continue to apply to that resource, until such time that PJM determines that operational conditions warrant a revised schedule. PJM states that, under those circumstances, the seller would be permitted to obtain an exception as to its unit-specific values.

425. PJM also responds to LS Power's argument that applying different operating parameters and performance obligations to resources, under the standards proposed by PJM, is unduly discriminatory. PJM argues that the parameter limits it proposes are based on physically achievable operating design characteristics.

426. PJM also responds to Joint Protestors' argument that PJM's revised operating parameters could force older generation resources out of the market. PJM argues that any such resource that cannot start within the shortened time frames that PJM proposes should operate as a Base Load Generation Resource, i.e., a resource capable of operating at least 90 percent of the hours that it is available to operate. PJM asserts that such resources run when they are available to run, without regard to start-up parameters, or notification. PJM adds that such resources are not, and should not, be subject to a scheduling protocol.

427. PJM also responds to the Market Monitor's recommendation that PJM use only original equipment manufacturer operating parameter specifications for resources, not historical operating data, in determining a resource's parameter limits. PJM argues that while historical operating data may not be dispositive in determining a resource's parameter limitation values, it is relevant.

428. PJM also responds to the Market Monitor's recommendation that PJM include ramp rate and boiler temperature retention times as parameters with defined limits. PJM disagrees that these elements should be recognized as parameter limits, given the difficulty in measuring and tracking this aspect of a resource's overall performance. However, PJM agrees with the Market Monitor that, under PJM's proposal, a Capacity Performance Resource may not offer any portion of its capability as Maximum Emergency, such that PJM's additional proposed inclusion of economic maximum as a parameter limit is redundant.

429. PJM also responds to the Market Monitor's recommendation that PJM clarify that resources with start-up and notification times that exceed the resource's unit-specific values determined by PJM should not be made whole for their operation, and that resources with parameters outside of the unit-specific limits will be subject to Non-Performance Charges if they do not perform during a Performance Assessment Hour.

PJM argues that the Market Monitor's recommendation is too absolute. PJM states that Market Sellers that operate their resources at PJM's direction will be made whole even if these resources exceeded their unit-specific start-up and notification time values, but will be subject to Non-Performance Charges if they cannot meet their unit-specific time frames.

#### **4. Additional Answers**

430. Exelon, in its answer, responds to Dominion's argument that tightening PJM's existing rules, as to operating parameters, is unreasonable, given that many older steam resources were designed to be baseload units and, thus, may not have the flexibility to perform a quick start-up, particularly in cold weather. Exelon argues that nothing will prevent such units from satisfying PJM's proposed requirements by self-scheduling when weather forecasts signal the likelihood of a hot or cold weather alert. Exelon adds that units anticipating the need to self-schedule in order to satisfy PJM's operating parameters can include all associated costs in their capacity offers.

431. Exelon also responds to Joint Protestors' argument that PJM's proposed operating parameters fail to consider natural gas market realities, including the need to or consequences of nominating natural gas in advance of a potential PJM dispatch. Exelon argues that that nothing will prevent a unit relying on natural gas as fuel source from making its natural gas nomination in advance of a potential dispatch when, for example, weather forecasts signal the arrival of extreme cold. Exelon asserts that, while there may be a cost associated with such actions, any such costs are simply to be expected for a unit seeking to serve as a Capacity Performance Resource and may be recovered through the market.

#### **5. Commission Determination**

432. PJM filed its proposal regarding parameter limits under section 206 of the FPA. Under that section, PJM must first demonstrate that the existing tariff provisions as they apply to parameter limits are unjust and unreasonable and/or unduly discriminatory. PJM must then demonstrate that its proposed changes are just and reasonable and not unduly discriminatory or preferential. For the reasons discussed below, we accept, in part, and reject, in part, PJM's proposed revisions and direct further modifications.

433. We find that PJM has shown that the existing tariff provisions as they apply to operating parameters are unjust and unreasonable because they can allow capacity resources to submit energy market offers with inflexible operating parameters that do not reflect their current, actual operating capabilities. During times of or approaching emergency conditions, it is appropriate that a resource that has sold its capacity to the PJM region offer that capacity in a manner that is no less flexible than its true capability. However, the existing tariff could allow, for instance, a resource to include in its energy offer a minimum run time that exceeds its actual minimum run time. Since the resource

will likely be needed during an emergency condition, such an energy offer could force PJM to also dispatch the resource out-of-merit during an unnecessary number of lower-demand hours when the resource's energy offer price was higher than the locational marginal price, thereby unreasonably increasing the resource's make-whole payments and imposing higher costs on customers. We find that such an action by a capacity resource is inconsistent with its obligation to make its capacity available to the PJM region, including during the most critical hours of the year.

434. However, while we agree that PJM's existing rules pertaining to operating parameters for capacity resources are unjust and unreasonable, we find PJM's proposed modifications to address this problem to be overly restrictive and therefore unjust and unreasonable. We therefore direct three modifications to PJM's proposed revisions, as described below.

435. PJM proposes to require that, during certain conditions, the parameter limits included in the offers by Capacity Performance Resources and Base Capacity Resources must reflect unit-specific physical constraints, but not actual constraints created by other factors such as physical limitations on natural gas pipeline flows or fuel contract requirements. PJM also proposes that costs incurred as a result of operating outside of unit-specific parameter limits would not be recovered through make-whole payments. Additionally, PJM proposes that during the 2016-2017 and subsequent delivery years, for all Capacity Performance Resources, other than Capacity Storage Resources, the combined start-up and notification time during pre-emergency and emergency events shall not exceed 24 hours when a Hot Weather Alert or a Cold Weather Alert has not been issued, and should not exceed 14 hours when a Hot Weather Alert or a Cold Weather Alert has been issued. For Capacity Storage Resources, PJM proposes that the combined Start-up and Notification times shall not exceed 1 hour and that the minimum down time shall not exceed 1 hour, whether or not a Hot Weather Alert or a Cold Weather Alert has been issued. For Base Capacity Resources during the 2018-2019 and 2019-20 delivery years, the combined start-up and notification times shall not exceed 48 hours, and when a Hot Weather Alert has been issued, the notification time shall not exceed one hour. We find that it is reasonable, during pre-emergency and emergency periods, to require that parameter limits for capacity resources reflect *actual* constraints and to deny make-whole payments to recover costs due to operations outside of these actual constraints. However, because PJM's proposed revisions are based only on physical constraints and generic time restrictions that may prevent a resource from reflecting in its energy market offer certain parameter limitations caused by legitimate, non-physical constraints, those proposed revisions are not a just and reasonable solution for addressing the potential market power problem identified above.

436. First, we do not find PJM's proposals for capping the minimum start-up and notification times for all resources and for capping the minimum down time of Capacity Storage Resources to be just and reasonable. We note that these proposed requirements

do not take into account unit-specific physical constraints faced by resources. Resources with longer minimum start-up and notification times should be permitted to accurately reflect their actual minimum times in their energy market offers, and Capacity Storage Resources should be permitted to accurately reflect their actual minimum down times if they exceed 1 hour, so that PJM's dispatch reflects the actual capabilities of dispatched resources. Additionally, when such resources submit offers that reflect their actual constraints into PJM's energy markets, they should be allowed the opportunity to recover the costs of complying with PJM's dispatch instructions through compensation in the energy markets.

437. Second, we reject PJM's proposal in Operating Agreement Section 6.6, and the parallel provision of the OATT, that the parameter limits included in the offers of Capacity Performance Resources reflect only unit-specific physical constraints. We note that actual parameter limits could be the result not only of resource physical constraints, but of other constraints as well, such as contractual limits. For example, a natural gas pipeline may impose, due to physical constraints during peak periods, a requirement that all shippers take uniform delivery throughout the day.<sup>322</sup> Such contractual provisions (which the Commission may have accepted as just and reasonable) can create an actual parameter limit with respect to a minimum run time, even though the limit is not based on the physical characteristics of the generator. Accordingly, in its compliance filing, we direct PJM to modify proposed Operating Agreement Section 6.6(b) to state that "...the Office of the Interconnection shall determine the unit-specific achievable operating parameters for each individual resource on the basis of its operating design characteristics and other constraints..." and that "These unit-specific values shall apply for the generation resource unless it is operating pursuant to an exception from those values under subsection (h) hereof due to operational limitations that prevent a resource from meeting the minimum parameters." In addition, we direct PJM to modify proposed Operating Agreement Section 6.6(f)(iv) and Section 6.6(g)(iii) to state that "parameters shall be based on the actual operational limitations" of the relevant resource type.

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<sup>322</sup> Under such circumstances, a generator dispatched for only one or two hours during the day would nonetheless be required to contract for sufficient natural gas to cover that obligation for each of hour of the day, *i.e.*, if the generator requires 100 dth of natural gas per hour to fulfill its two hour obligation, it would be required to contract for 2400 dth of natural gas in order to run for those two hours. Failure to use that gas might subject the generator to pipeline penalties and it might be unable to resell the unused natural gas at a price approximating its purchase price. Submitting a bid with a 24- hour run time parameter, therefore, would reflect the constraint imposed by the pipeline. Should PJM not require that unit for the full 24 hours, then, the unit should receive make-whole costs for its losses to help ensure that it follows PJM's dispatch.

438. Lastly, PJM argues that including parameter limits in a supply offer that do not reflect the resource's physical characteristics could be an exercise of market power. But we find that an offer that includes parameter limits based on actual constraints experienced by the resource, regardless of whether they are resource physical constraints, is reasonable and is not an exercise of market power. PJM's proposed addition to its Operating Agreement in Section 3.2.3(e),<sup>323</sup> and the parallel provision of the OATT, would deny make-whole payments to a resource that operates outside of its physically-determined parameter limitations due to external requirements such as fuel delivery arrangements, for example. We find that such a limitation is not just and reasonable and is unreasonably discriminatory. Resources should be eligible for make-whole payments based on actual constraints, including constraints that are not based on a resource's physical characteristics. Such make-whole payments provide recovery for costs that are actually incurred and do not provide compensation in excess of costs.

439. PJM argues that providing make-whole payments to a resource for costs associated with non-physical constraints, such as natural gas pipeline limitations, provides an unfair advantage to inflexible resources, and impedes the ability of more flexible resources to compete against the inflexible resource. In PJM's view such inflexible resources should attempt to recover the costs associated with its inflexibility in its capacity market offer, so that more flexible resources have an opportunity to compete against and displace the inflexible resource. But PJM currently allows the costs associated with inflexibility created by resource physical constraints to receive make-whole payments. PJM does not propose to require resources subject to its physical constraints to recover the associated costs in the capacity market. We see no reason to treat costs associated with resource physical constraints differently than costs associated with other types of actual constraints and find this distinction unduly discriminatory. Moreover, these risks generally are short-term and based on daily conditions that would be difficult, if not impossible, to forecast in advance.

440. Accordingly, we direct PJM to modify its proposed revisions to Section 3.2.3(e) of the Operating Agreement, and the parallel provision of the OATT, to permit resources to recover, through make-whole payments, the costs incurred if a resource operates within its actual constraints and not only within its unit-specific parameter limits based on its physical characteristics. In other words, a resource would only be deemed ineligible for make-whole payments if it operates outside any actual constraints faced by the resource, not only limitations based on the resource's physical constraints, as PJM proposes. Some parameter limitations, such as unit-specific physical limits, are based on constraints that do not change quickly over time, and thus, can be communicated to, and reviewed by, PJM well in advance of the day-ahead market. Other parameters may be based on

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<sup>323</sup> Operating Agreement Schedule 1 Sec 3.2 - Market Buyers, 26.0.1.

constraints, such as fuel procurement requirements, that may change quickly and may not be reviewable in advance of the day-ahead or real-time market. To accommodate this latter category of constraints, we further direct PJM to submit tariff language to establish a process through which a resource that operates outside of its unit-specific parameter limits can seek to justify such operation to PJM as the result of actual constraints, rather than the exercise of market power. If the resource provides adequate justification, it should be eligible for any appropriate make-whole payments for that operating interval.<sup>324</sup>

441. The revisions that we direct here ensure that resources are appropriately compensated for their operation in the energy market; they do not excuse a resource from failing to fulfill its capacity obligation. Providing such an exemption from Non-Performance Charges would blunt the incentives for providing energy and reserves during the hours when they are most needed. Additionally, a resource that is unable to produce energy or provide operating reserves during Performance Assessment Hours because of parameter limitations provides less capacity value to customers than a resource that is able to perform during these hours. Accordingly, it is reasonable for a resource that fails to perform because of parameter limitations to receive less net capacity revenue than a performing resource. Thus, we do not agree with commenters that a resource's non-performance during Performance Assessment Hours due to accepted parameter limitations should be excused.

442. Turning to other issues raised by intervenors, we disagree with Homer City, Essential Power, and LS Power that PJM should publish standard values for parameter limits. Parameter limit values based on actual constraints are likely to vary among resources, and, as discussed above, each resource should be allowed to reflect its actual values in its energy offer.

443. PJM has proposed to evaluate all physical parameter limits submitted to it based on manufacturers' specifications as well as other factors. We find this a just and reasonable method of evaluating such limits, and we require PJM to include, in its compliance filing, a specification of the timelines and other details as to how this provision will be implemented.

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<sup>324</sup> As noted earlier, a resource's capacity market offer cap is based, in part, on its avoidable costs less net revenues from providing energy and ancillary services. If, in developing its unit-specific offer, a resource projects that it may incur costs due to its parameter limitations, PJM and the Market Monitor, in determining the resource's capacity market offer cap, must take into account that revenues from make-whole payments may offset these costs. To the extent that the costs are offset, PJM and the Market Monitor should not consider them to be legitimate costs or risks for inclusion in a capacity market offer.

444. Intervenors assert that PJM has too much discretion in evaluating physical parameter limits and suggest either eliminating all such review or specifying the appropriate limits in PJM's tariff. We find, however, that given the diverse nature of any such limits, PJM should, instead, be required to evaluate these considerations on a case-specific basis. Market participants who may be dissatisfied with PJM's determination may file a complaint with the Commission. Other intervenors suggest that the Market Monitor, and not PJM, should review these limits. While the Market Monitor should be permitted to provide its input, ultimately a determination not to allow a parameter limit must be made by PJM. PJM's tariff, in this regard, clearly defines the Market Monitor's role, providing that PJM "shall consult with the [Market Monitor], and consider any input received from the [Market Monitor], in its determination of a resource's unit-specific parameter limited schedule values."<sup>325</sup>

445. We disagree with PSEG's request that clarification is required on whether a resource's unit-specific parameter limits reflect the present state of a resource's capability or a potential enhanced state attained through capital upgrades. As stated by PJM, a resource's unit-specific parameters limits will be determined using manufacturing operating characteristics as well as historical operational information. Section 6.6(b) of the Tariff states that PJM shall determine each resource's unit-specific physically achievable operating parameters based on its operating design characteristics, recognizing that some expenditures may be required over time to maintain these characteristics. Section 6.6(b) also states that a resource may apply for an exception from these values. Section 6.6(h) states that an exception request will be evaluated based, in part, on the Market Monitor's determination of whether the request raises market power concerns. We find that PJM's proposed process in this matter is clear and reasonably evaluates the need for incurring costs to maintain operational design parameter values over time in light of any potential market power concerns.

446. Finally, in response to the Market Monitor's comments regarding the obligations of Demand Resources, we are satisfied that PJM's proposal would treat Demand Resources and other capacity resources in a not unduly discriminatory way. The differences in treatment cited by the Market Monitor, such as whether output is metered on a five-minute basis or whether output is dispatched nodally, are not undue discrimination. Rather, they are minor but reasonable accommodations that allow Demand Resources to participate in the market and provide value to customers.

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<sup>325</sup> Proposed PJM Operating Agreement, Schedule 1, section 6.6(b); *see also* proposed PJM OATT, Attachment K-Appendix, section 6.6(b).

## **B. Force Majeure**

447. PJM states that, under its OATT, Operating Agreement, and RAA, market participants are generally excused from performing their obligations in the event of force majeure. PJM notes that while, in the history of these agreements, no entity has invoked this provision as an excuse to its non-performance in PJM's markets, clarifications are warranted, consistent with PJM's capacity performance objectives, as summarized above, and the efficient operation of a centralized, multilateral market.

### **1. PJM's Proposal**

448. PJM proposes to create a new defined term, Catastrophic Force Majeure, in the Operating Agreement to include only actions or events in which there has been a systematic failure in all or substantially all of the PJM area of either: (i) the transmission system; or (ii) the fuel delivery network.<sup>326</sup> PJM then proposes to narrow its existing force majeure provisions (as applicable to all market transactions, including the provisions of Attachment DD of the OATT and Schedule 1 of the Operating Agreement) to apply only in the event of a Catastrophic Force Majeure.<sup>327</sup> Specifically, under revised section 18.9, performance of any obligation arising under the Operating Agreement, owed by a member to either PJM or to another member (either directly or indirectly) shall not be excused or suspended by reason of an event of force majeure, unless such event constitutes an event of Catastrophic Force Majeure.

449. Revised section 18.9 also notes that an event of Catastrophic Force Majeure shall excuse a member from performing such obligations during the period such member's performance is prevented by any event of Catastrophic Force Majeure, provided such event was not caused by such member's fault or negligence. PJM states that, under this standard, the event of Catastrophic Force Majeure may suspend but shall not excuse any payment obligation owed by a member.<sup>328</sup> By contrast, PJM states that the broader, existing force majeure protections should continue to apply in the case of non-market, bilateral arrangements. PJM notes, for example, that parties to an interconnection service

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<sup>326</sup> See PJM Operating Agreement, section 1.6.01.

<sup>327</sup> PJM thus proposes replacing the existing language of section 18.9 of the Operating Agreement and the parallel provision, section 1.13AA.01 (Common Service Provisions) of its OATT.

<sup>328</sup> PJM states that, in addition, its revised provision provides that any excuse or exception to a performance obligation expressly provided for by specific terms of the Operating Agreement, OATT, or RAA shall apply according to their terms and will remain in effect.

agreement should have broader force majeure protections than a Capacity Performance Resource, due to the nature of the parties' relationship to PJM when they provide interconnection services under their agreement.

450. PJM further proposes that it be designated as the entity responsible for determining whether an event of Catastrophic Force Majeure has occurred, based on its consideration of the circumstance, and subject to Commission oversight. PJM also proposes to clarify in its OATT, at section 10.1, that the force majeure provision set forth in that section shall apply only to the provision of transmission service. PJM proposes similar clarifications to its OATT, for the purpose of limiting the applicable reach of the force majeure provision utilized, or, where appropriate, referring to PJM's proposed term, Catastrophic Force Majeure.<sup>329</sup> Finally, PJM proposes to revise its existing OATT provisions addressing Financial Transmission Rights and Auction Revenue Rights, by clarifying that, in this context, references to force majeure are improper and therefore will not apply.<sup>330</sup> PJM proposes instead to make reference to "an unanticipated event outside the control of PJM" in discussing PJM's allocation of these products.

## **2. Protests and Comments**

451. Dominion protests, as a threshold matter, that PJM has failed to establish that any revisions to the force majeure provisions are necessary or that the existing provisions are unjust and unreasonable.

452. Intervenors protest also PJM's proposed definition of a Catastrophic Force Majeure condition and the strict requirement on which it is based, i.e., an event affecting substantially all of the PJM region. Dominion argues that PJM's focus on an event that impacts all or substantially all of the PJM region is unreasonably limited and fails to account for potentially catastrophic events that are beyond market participants' control. Dominion argues that any revisions to the force majeure provisions should incent market participants to take appropriate steps to alleviate or prevent events that could impact PJM system reliability and must apply equally to all market participants and all facets of the PJM system.

453. P3, Joint Intervenors, and Essential Power assert that the new definition is unnecessarily narrow and would improperly assign risk without appropriate compensation for that risk. The PJM Utilities Coalition similarly objects to PJM's

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<sup>329</sup> Proposed OATT at Attachment K-Appendix; Attachment O, Appendix 2; Attachment P, Appendix 2, Attachment GG, Appendix 3; Attachment KK; and Attachment LL.

<sup>330</sup> Proposed OATT at Attachment K-Appendix, sections 5.2.2(f) and 7.4.2(i).

proposed list of events giving rise to a Catastrophic Force Majeure, arguing that under these triggering conditions even the most serious natural disasters or other circumstances outside the control of a utility, including Hurricane Sandy or a terror attack, would not qualify. Homer City argues that requiring that a disaster affect the entire PJM region before it qualifies for relief, at PJM's discretion, is arbitrary.

454. Essential Power argues that adopting the new force majeure provisions for existing Base Capacity Resources without providing for additional compensation is unjust and unreasonable. Essential Power argues that PJM is essentially rewriting the contractual relationship with those generators without any compensation.

455. Intervenors also dispute PJM's assertion that its proposed definition of a Catastrophic Force Majeure is warranted, based on a similar clause used by the New York Mercantile Exchange. The PJM Utilities Coalition responds that the *force majeure* provision to which PJM alludes is not as narrow as PJM's proposed language. Joint Protestors objects to the analogy, arguing that the New York Mercantile Exchange, unlike PJM's capacity markets, is not a mandatory construct. The PJM Utilities Coalition also objects to PJM's proposed designation of itself as the sole arbiter of force majeure. The PJM Utilities Coalition argues that the party that suffers such an event is typically the one with the responsibility to declare and establish that such an event has occurred. The PJM Utilities Coalition also questions PJM's asserted independence, in this context, given that PJM shares a legal responsibility for meeting the reliability standards within its region.

456. Rockland protests that PJM's characterization of the force majeure provisions is vague and unclear, particularly regarding how the provisions concerning relief from specific performance interact with the obligation to pay. Rockland argues that PJM should clarify that invocation of force majeure protection excuses performance and payment under the Capacity Performance regime.

457. Joint Protestors argue that PJM has not explained or justified how its proposed changes to the force majeure provisions impact load serving entities' Stage 1A Auction Revenue Right guarantees.

### **3. PJM's Answer**

458. PJM, in its answer, responds to Joint Protestors' argument that PJM's proposal fails to demonstrate that its existing force majeure provisions are unjust and unreasonable. PJM argues that it has met this burden, given that PJM's existing force majeure provisions could be used to excuse performance under circumstances that would conflict with underlying objectives of PJM's markets, as they relate to the provision of energy and reserves when needed the most, including in the case of emergencies.

459. PJM also responds to Joint Protestors' argument that PJM's proposed limitations, as to the circumstances giving rise to a force majeure event, are excessive, given that they will impose risks on generators that are beyond the generators' control. PJM argues that its proposed limitations do nothing more than conform the operation of *force majeure* to the intended design of PJM's markets. PJM asserts that, regardless, in a multilateral market such as PJM's, there is no opportunity for a buyer and seller to come together to negotiate which party will take on risks that neither can control. PJM argues that, instead, market participants are appropriately required to assume performance obligations under all conditions, other than those expressly recognized by PJM in the case of planned outages, maintenance outages, and circumstances relating to a dispatched-down directive.

460. PJM also responds to Rockland's request for clarification as to whether a Catastrophic *Force Majeure* event would relieve performance as well as penalties. PJM confirms that such an event would relieve performance and any Non-Performance Charges that would have otherwise accrued.

#### **4. Additional Answers**

461. Exelon, in its answer, responds to the argument raised by Dominion, Joint Protestors, and the PJM Utilities Coalition that PJM's proposed *force majeure* revisions will expose generators to penalties for circumstances beyond their control. Exelon argues that a generation outage of any kind, whether within or beyond the generator's control, is a risk that should be reflected in that generator's capacity offer, such that the resulting market clearing price will reflect the selection of the most reliable resources available. Exelon adds that, in the *ISO-NE Capacity Performance Order*, the Commission fully accepted this economic rationale in its approval of an even more stringent force majeure provision.<sup>331</sup>

#### **5. Commission Determination**

462. For the reasons discussed below, we accept PJM's proposed *force majeure* revisions. We agree with PJM that an expansive definition of force majeure in the context of PJM's markets is incompatible with reasonable expectations of performance by market participants and is therefore unjust and unreasonable in this context. PJM notes that it is not aware of any instance in which a market participant has invoked force majeure to excuse its performance. Nonetheless, we agree that the ability to do so in the context of PJM's two-settlement energy market construct is inappropriate and should be

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<sup>331</sup> See Exelon answer at 6 (citing *ISO-NE Capacity Performance Order*, 147 FERC ¶ 61,172 at P 64 ("suppliers, not consumers, are in the best position to assess and price the performance risk associated with their resources[, including] risks beyond a resource's control[.]").

remedied. Without a replacement provision narrowing the reach of a *force majeure* event to excuse performance only in the most unforeseen and catastrophic circumstances, a market participant would be able to escape its obligations under circumstances not contemplated by the design of PJM's markets.

463. Given our acceptance of PJM's proposed Capacity Performance reforms, as discussed *supra*, the need to close a related potential loophole is appropriate. As the Commission explained in the *ISO-NE Capacity Performance Order*, exemptions for non-performance should be limited.<sup>332</sup> If PJM were to implement its proposed two-settlement capacity market design without clarifying and revising the application of its force majeure provisions, exemptions for non-performance would be inappropriately broad. We therefore find that PJM has met its burden under section 206 of the FPA to demonstrate that its existing force majeure provisions of its Tariff and Operating Agreement are unjust and unreasonable.

464. We now turn to PJM's proposed force majeure revisions. Multiple intervenors argue that PJM's proposed definition of the new term, *Catastrophic Force Majeure*, is unnecessarily narrow and improperly assigns risk to capacity suppliers without compensation for bearing that risk. We disagree. As the Commission stated in the *ISO-NE Capacity Performance Order*, the risk of capacity resource non-performance must be borne by either capacity suppliers or consumers, and capacity suppliers are in the best position to assess and price the performance risk associated with their resources, including performance risks beyond a resource owner's control, such as weather-related outages.<sup>333</sup> Under PJM's proposed definition of *Catastrophic Force Majeure*, a resource will be excused from its performance in the event that all, or substantially all, of the electric transmission or fuel delivery infrastructure in the PJM region is incapacitated. We find this definition consistent with the principle that risk should be borne by the party that is best able to assess and price it.

465. Intervenors assert that PJM's analogy to a clause used by the New York Mercantile Exchange (NYMEX) is inapposite because, unlike RPM, the NYMEX is not a mandatory construct. However, our basis for accepting PJM's force majeure revisions is unrelated to PJM's reference to the NYMEX, so we need not address the proposed comparison.

466. We disagree with intervenors' argument that capacity suppliers will not be compensated for bearing this risk. An integral component of the two-settlement capacity market design is an expectation that capacity suppliers will include in their capacity

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<sup>332</sup> *ISO-NE Capacity Performance Order*, 147 FERC ¶ 61,172 at P 62.

<sup>333</sup> *ISO-NE Capacity Performance Order*, 147 FERC ¶ 61,172 at P 64.

offers the additional performance risk imposed on them by a more stringent performance standard. In fact, it is this expectation, and the likely higher clearing price for the Capacity Performance product that will result, that will help incent investments in maintenance, dual or firm fuel, or weatherization to improve capacity resource performance, particularly during summer and winter peak periods. If capacity resources price their performance risk into their capacity offers and obtain a capacity commitment, they will, in fact, be assured of compensation commensurate with the performance risk that they assume.

467. The PJM Utilities Coalition objects to PJM's proposal to designate itself as the entity who will determine whether a Catastrophic Force Majeure event has occurred. However, given that this determination will require an assessment of region-wide, or nearly region-wide, infrastructure impairment, and related operational facts, we agree with PJM that PJM is the most appropriate choice as the arbiter of this provision. In addition, any party that disagrees with a PJM decision in declaring or failing to declare Catastrophic Force Majeure will be free to seek recourse with the Commission.

468. With respect to Rockland's requested clarification that PJM's proposed Catastrophic *Force Majeure* provision, if invoked, will relieve the resource of both its performance obligation as well as any associated payment obligation, we accept PJM's clarification on this issue and will not direct a compliance requirement.

469. We disagree with Essential Power's argument that the Commission should reject PJM's proposal to apply its revised force majeure provisions to resources with existing capacity obligations in the 2016-2017 and 2017-2018 delivery years. We find it appropriate to have uniform and consistent *force majeure* provisions for capacity resources in PJM and do not believe that resources with existing obligations will be materially impacted by the revised force majeure provision.<sup>334</sup> As PJM notes, under its tariff, a force majeure event has yet to be invoked, despite instances of major storms, floods, extreme weather and numerous instances of individual unit or customer unavailability, accidents and breakages.

470. Finally, Joint Protestors argue that PJM has not explained or justified how its proposed changes will affect load-serving entities' Stage 1A Auction Revenue Right guarantees given a proposed revision to section 5.2.2(f)(ii) of the OATT. PJM proposes to remove from that provision the term "event of *force majeure*" and insert in its place the term "unanticipated event outside the control of PJM." We find PJM's proposed revision as applicable to Financial Transmission Rights and Auction Revenue Rights to be

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<sup>334</sup> See, e.g., *ISO New England Inc.*, 145 FERC ¶ 61,095 at P 29 (2013) (explaining how the Commission balances proposed revisions to market rules and market participants' reliance on existing market rules).

reasonable given that it is generally consistent with the other force majeure revisions adopted herein. We also deem it appropriate that PJM retain some discretion in determining when to relax a binding constraint in allocating Financial Transmission Rights. To the extent a market participant believes PJM to have impermissibly applied this discretion under the revised definition of “extraordinary circumstances,” that market participant may file a complaint with the Commission.

### **C. Maximum Emergency Offers**

471. PJM’s currently-effective energy market rules require all generation capacity resources to submit offers for their available capacity in the day-ahead market, but allow sellers, in certain circumstances, to designate all or part of their capacity as a Maximum Emergency Offer.<sup>335</sup> Resource capacity so designated is available to PJM only when PJM declares a Maximum Generation Emergency and requests that the relevant resource run.<sup>336</sup>

#### **1. PJM’s Proposal**

472. PJM proposes to prohibit, on a phased-in basis, a generation resource seller from designating its offer as a Maximum Emergency Offer during certain extreme weather alerts, or other more severe emergencies.<sup>337</sup> PJM states that, for Base Capacity Resources, the bar on designation as a Maximum Emergency Offer will apply during the months of June through September when PJM has issued a Hot Weather Alert<sup>338</sup> or has declared an Emergency Action.<sup>339</sup> For Capacity Performance Resources, PJM proposes

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<sup>335</sup> Operating Agreement at Schedule 1, section 1.10.1A(d). A seller may submit a Maximum Emergency Offer when its resource is subject to one or more of the following conditions: (i) environmental limitations (*e.g.*, run limits due to an air quality permit); (ii) fuel limitations (*e.g.*, temporary interruption in fuel supply); (iii) temporary emergency conditions, or (iv) the ability to provide certain of its capacity on a temporary basis only. *Id.*

<sup>336</sup> Operating Agreement at Schedule 1, at section 1.3.12A.

<sup>337</sup> Proposed Operating Agreement at Schedule 1, section 1.10.1A(d).

<sup>338</sup> Operating Agreement at Schedule 1, section 1.3.9.01 (defining a Hot Weather Alert as an alert issued by PJM to market participants and others in advance of extreme hot and/or humid weather conditions that are expected to persist).

<sup>339</sup> PJM Manual 13, section 2.3.2 (defining an Emergency Action as a Pre-Emergency Load Management Reduction Action and any more severe Emergency Action).

that the bar on designation as a Maximum Emergency Offer apply year-round at any time when PJM calls a Hot Weather Alert, an Emergency Action, or a Cold Weather Alert.<sup>340</sup>

## **2. Protests and Comments**

473. The Pennsylvania Commission filed comments generally supportive of PJM's proposal. PSEG, too, generally supports PJM's proposal to limit the use of Maximum Emergency offers during extreme conditions but argues that this change cannot be implemented for combined cycle units at this time because PJM's dispatch software does not adequately model the actual capabilities of combined cycle units. PSEG states that the Market Monitor raised this issue to the PJM membership and developed a problem statement in 2012. PSEG argues that absent a resolution of this problem, it is not reasonable to impose operating requirements on combined cycle units that cannot be accurately reflected in those units' offers. PSEG therefore requests that the Commission direct PJM to implement a combined cycle model that addresses this shortcoming.

474. Joint Protestors contend that PJM has not demonstrated that its existing provisions governing offers during Maximum Generation Emergencies are unjust and unreasonable or that its proposed revisions are just and reasonable. They argue that by not allowing a capacity resource to designate a portion of the resource as a Maximum Emergency Offer in circumstances that are warranted, PJM's proposal may have the unintended consequence of reducing resources available during certain extreme conditions if the resource's alternative action is to take a forced outage.

## **3. PJM's Answer**

475. PJM, in its answer, responds to Joint Protestors' argument that PJM's proposal, as to Maximum Emergency Offers, fails to demonstrate that PJM's existing tariff provisions are unjust and unreasonable, as to when a given resource will be permitted to submit such an offer into PJM's day-ahead energy market. PJM argues that, under its existing rules, the submission of a Maximum Emergency Offer in the day-ahead market unreasonably precludes PJM from dispatching that resource, in real-time, absent the declaration of a Maximum Generation Emergency. PJM asserts, however, that it is unjust and unreasonable that PJM cannot rely on such a resource when an emergency condition has not yet been declared but is nonetheless possible. PJM adds that it is unjust, unreasonable, and unduly discriminatory and preferential to allow certain resources to

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<sup>340</sup> PJM proposes to define a Cold Weather Alert as an alert issued by PJM to market participants and others in advance of extreme cold weather conditions. Proposed Operating Agreement at Schedule 1, section 1.3.1B.01A.

avail themselves of this excuse for their non-performance, while requiring the performance of other resources.

#### **4. Commission Determination**

476. For the reasons discussed below, we find that PJM has not demonstrated that the existing Maximum Emergency Offer provisions of its OATT and Operating Agreement<sup>341</sup> are unjust and unreasonable. We therefore reject PJM's proposed revisions with regard to Maximum Emergency Offers. However, we find that PJM has shown its OATT and Operating Agreement to be insufficiently clear, and therefore unjust and unreasonable, with respect to a Generation Capacity Resource's obligation to offer the installed capacity equivalent of the resource's cleared unforced capacity into the day-ahead energy market. We therefore accept PJM's proposed revisions with regard to clarifying the day-ahead energy market obligation for these resources.

477. PJM asserts that the existing Maximum Emergency Offer provisions allow a Generation Capacity Resource to effectively, by virtue of an uneconomic offer price, remove itself from the day-ahead energy market until PJM has reached the point of declaring a Maximum Emergency. We acknowledge PJM's concern and agree that under existing market rules, the Maximum Emergency Offer designation may be subject to misuse that allows a capacity resource to avoid honoring its capacity commitment. However, we conclude that proper application of Non-Performance Charges, rather than revision of the Maximum Emergency Offer designation, is the appropriate method of eliminating this concern.

478. Consistent with our findings in section V.C of this order, we find that any capacity that is designated by a Generation Capacity Resource as a Maximum Emergency Offer and not dispatched by PJM because of its use of a Maximum Emergency Offer should be considered non-performing for application of Non-Performance Charges. We deem this modification to PJM's Capacity Performance proposal sufficient to eliminate the existing shortcoming in the Maximum Emergency Offer rules, whereby a Generation Capacity Resource might attempt to avoid taking a forced outage by designating its capacity as a Maximum Emergency Offer. Under the application of Non-Performance Charges, a resource that attempts such a strategy will be subject to Non-Performance Charges for any of its capacity that is not dispatched by PJM during a Performance Assessment Hour. This charge exposure will thus act as an incentive for a resource to provide as much of its capacity as possible during an emergency condition, consistent with PJM's dispatch instructions.

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<sup>341</sup> PJM OATT at Attachment K-Appendix, section 1.10.1A(d); Operating Agreement at Schedule 1, section 1.10.1A(d).

479. PJM's proposal to instead preclude a Capacity Performance Resource from designating its capacity as a Maximum Emergency Offer could, as Joint Protestors contend, have the unintended consequence of reducing the number of resources available during emergency conditions if the resource's alternative action is to take a forced outage. There is, therefore, value in allowing a Capacity Performance Resource to offer capacity on an emergency-only basis when it is subject to environmental limitations, fuel limitations, or temporary emergency conditions, or when it can provide its capacity on a temporary basis only. Based on these conclusions, we reject PJM's proposal to preclude Capacity Performance Resources from using Maximum Emergency Offers during Emergency Actions and hot or cold weather alerts and direct PJM to remove this proposed revision when it submits its compliance filing.

480. We next turn to PJM's proposal related to Generation Capacity Resources' day-ahead energy market offer obligation. PJM proposes to clarify that seller offers from Generation Capacity Resources shall be based on the resource's installed capacity equivalent of the market seller's cleared unforced capacity. We agree that existing section 1.10A(d) of the OATT and its parallel section 1.10A(d) of the Operating Agreement are insufficiently clear as to this requirement, and that this lack of clarity could lead to unnecessary confusion. We also agree that a Generation Capacity Resource's day-ahead energy market sell offer should be based on the installed capacity equivalent of its unforced capacity that cleared a capacity auction. We therefore accept PJM's revisions as proposed.

481. With respect to PSEG's assertion that PJM's current dispatch software does not adequately model the actual capabilities of combined cycle units, we are not persuaded that our action here introduces or exacerbates the problem that PSEG describes. We do not have sufficient information at this point to know whether PJM's dispatch software inadequately models combined cycle units. PSEG should pursue these issues with PJM and seek a resolution of any modeling issues, as may be warranted.

#### **D. Generator Outages**

482. PJM's existing rules address both Generator Planned Outages and Generator Maintenance Outages. A Generator Planned Outage is defined as an outage taken to conduct inspection, maintenance or repair of a generating facility.<sup>342</sup> A Generator Maintenance Outage, on the other hand, is defined as an outage taken to perform repairs

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<sup>342</sup> PJM Operating Agreement at Schedule 1, section 1.9.2.

on specific components of a generating facility and is typically taken for a shorter period of time.<sup>343</sup>

### 1. PJM's Proposal

483. PJM proposes to revise its existing rules, as to Generator Maintenance Outages, by addressing contingencies similar to those addressed as to Generator Planned Outages. Specifically, PJM proposes to add language to section 1.9.3 addressing the generator's obligation to return to service if PJM rescinds approval, during an emergency. First, PJM proposes that a Generator Maintenance Outage not be allowed to proceed unless it is submitted to PJM for approval, in accordance with the standards and procedures set forth in PJM's Manuals, and is approved prior to the outage start date.<sup>344</sup> PJM also proposes to clarify its authorization to withhold approval, or withdraw a prior approval, by tying that action to the need "to ensure adequacy of reserves or the reliability of the PJM Region in connection with anticipated implementation or avoidance of Emergency procedures."<sup>345</sup>

484. PJM's proposal also provides that it will be required to give notice to the seller at least 72 hours prior to requiring the generator to return to normal operation. Finally, PJM states that, if it withholds, withdraws, or rescinds approval for an outage, it will work with the seller to reschedule the outage at the earliest practicable time.

485. With respect to Generator Planned Outages, PJM proposes that a seller, in seeking approval for such an outage, be required to provide PJM with an estimate of the amount of time it needs to return to service.<sup>346</sup> PJM states that it will use this information to facilitate a voluntary solution, should emergency conditions approach, or arise, that could implicate the need to return the resource to service.

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<sup>343</sup> PJM Operating Agreement at Schedule 1, section 1.9.3. While section 1.9.2(b) allows PJM to withhold approval of a Generator Planned Outage, or withdraw a prior approval, as necessary, to ensure the adequacy of reserves, or the reliability of the PJM region, in connection with anticipated implementation, or avoidance, of emergency procedures, section 1.9.3, by contrast, requires PJM to approve a Generator Maintenance Outage, "unless the outage would threaten the adequacy of reserves in, or the reliability of, the PJM Region."

<sup>344</sup> Proposed Operating Agreement at Schedule 1, section 1.9.3(b).

<sup>345</sup> Proposed Operating Agreement at Schedule 1, section 1.9.3(b).

<sup>346</sup> Proposed Operating Agreement at Schedule 1, section 1.9.2(b).

## 2. Protests and Comments

486. Intervenors challenge PJM's proposal giving it the authority to rescind approval for a Generator Maintenance Outage. Rockland argues that permitting PJM to rescind approval, subject to only a 72 hour notice requirement, would allow PJM to unreasonably penalize resources. Homer City asserts that returning to service, under these circumstances, should be voluntary. P3 asserts that PJM has provided no justification for its selection of a 72-hour notice period.

487. The PJM Utilities Coalition argues that PJM's proposal will be particularly burdensome for units that have extensive safety procedures or long start-up times. PSEG argues that a generator should not be required to reschedule a Generator Maintenance Outage in the event it is too expensive or difficult to do so. P3 adds that PJM should be required to excuse a unit's under-performance, in this instance, until such time as the unit is able to complete its required maintenance. Essential Power argues that PJM's proposal is unjust and unreasonable because it could require a generator to choose between safety and incurring penalties from not complying with PJM's instruction.

488. Intervenors also argue that, in the event PJM is authorized to rescind approval of a Generator Maintenance Outage, compensation should be required covering the additional risks and costs at issue.<sup>347</sup> PSEG notes that, in anticipation of a Generator Maintenance Outage, generators are required to hire contractors, rearrange staffing schedules, and incur other administrative expenses. NRG/Dynegy argues that compensation is warranted, given that it is possible that PJM, when required to rescind an outage, may have a choice as to which unit it selects. NRG/Dynegy note, for example, that the cost of rescission may be \$10,000 for one unit, but \$1,000,000 for another. NRG/Dynegy argue that, in this instance, PJM be given the incentive to select the unit with the lower cost, *i.e.*, the \$10,000-cost unit. NRG/Dynegy conclude that the efficient economic rule would be to require PJM to pay the owner of the generation unit the costs of the withdrawal or rescission, thus providing PJM the incentive to seek the lowest cost option of securing the additional generation that it is seeking. NRG/Dynegy add that such a rule would also directly compensate the generation owner for the actual costs of the PJM withdrawal or rescission notice, rather than pushing these costs into the capacity market.

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<sup>347</sup> See P3 comments at 7; PSEG protest at 4 (asserting that such a requirement would be consistent with the practice followed by the Midcontinent Independent System Operation, Inc. (MISO)); NRG/Dynegy protest at 28-29; Coalition of Resource Projects protest at 18; Essential Power protest at 12.

### 3. PJM's Answer

489. PJM, in its answer, responds to intervenors' argument that compensation should be required to cover any costs that may be incurred by a generator in the event that PJM is authorized to rescind or modify a Generator Maintenance Outage. PJM argues that no such payment should be required. PJM notes that, under its Capacity Performance proposal, as summarized in Section V.B of this order, above, approved Generator Planned Outages and Generator Maintenance Outages comprise two of only three limited excuses that would allow a seller to avoid a Non-Performance Charge it would otherwise incur during a Performance Assessment Hour. PJM adds that, in proposing this allowance, PJM balanced the seller's interest in scheduling and completing maintenance, with PJM's responsibility to ensure reliability and provide adequate reserves. PJM states that, based on this measure, its proposed revisions, as to generator outages, provide a reasonable, transparent process, authorizing PJM to take needed action, when appropriate, to address an unexpectedly high level of forced outages, or other unexpected circumstances requiring withdrawal or rescission of a prior outage approval.

490. PJM argues that for its Generator Maintenance Outage construct to work, PJM has to be given the authority to reschedule, withhold approval, or rescind a prior approval, to account for changing, unforeseen conditions that may impact reliability. PJM adds that absent this authority, it may be required to remove Generator Maintenance Outages from the Operating Agreement altogether, and require any resource seeking to conduct maintenance to take a forced outage.

491. PJM also defends its proposal as beneficial to both consumers and the affected resources. Specifically, PJM argues that consumers will benefit if PJM has input into the coordination and scheduling of a Generator Maintenance Outages in a way that reduces system impact, while resources will benefit to the extent that maintenance is carried in a way that reduces the resource's exposure to Non-Performance Charges. Finally, PJM argues that, as the Commission has held, MISO's adoption of a given rule, or practice, does not mandate that PJM conform to that rule, or practice, where its proposal is otherwise just and reasonable.<sup>348</sup>

### 4. Additional Answers

492. The Market Monitor, in its answer, responds to intervenors' argument that generation resources should be reimbursed for costs they may incur, in the event a Generator Maintenance Outages is rescinded or modified by PJM, under the circumstances set forth by PJM in its filing. The Market Monitor agrees with PJM that,

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<sup>348</sup> See PJM February 13, 2015 answer at 32 (citing Order No. 719, FERC Stats. & Regs. ¶ 31,281 at P 129).

in this instance, it is the resource, not PJM, that should be responsible for the resource's performance.

## 5. Commission Determination

493. For the reasons discussed below, we agree with PJM that the currently-effective Generator Planned Outage and Generator Maintenance Outage provisions of PJM's Operating Agreement, and the parallel provisions of PJM's OATT, are unjust and unreasonable, to the extent these existing rules impede PJM's ability to ensure reliability and maintain adequate reserves at a reasonable cost. We also accept, as just and reasonable, PJM's proposed changes, addressing PJM's authority to rescind a Generator Maintenance Outage, under specified circumstances, and to require a resource on a Generator Planned Outage to provide an estimate of the amount of time required to return to service.

494. With respect to Generator Maintenance Outages, Schedule 1, section 1.9.3 currently provides that PJM shall approve requests for such an outage "unless the outage would threaten the adequacy of reserves in, or the reliability of, the PJM Region," but grants no authority that would allow PJM to rescind such an outage, should the relevant unit be needed.<sup>349</sup> Such a limitation might not be problematic if emergency conditions were foreseeable. But emergency conditions are often not foreseeable. Accordingly, we find this allowance inconsistent with a two-settlement capacity market construct that requires resources with a capacity commitment to deliver energy or reserves when needed.

495. PJM's proposed changes make clear that a generator may not begin a maintenance outage without PJM's approval, and authorizes PJM to rescind approval of a Generator Maintenance Outage, when required. PJM also proposes that a generator will be subject to any Non-Performance Charges that may apply 72 hours following the issuance of PJM's rescission notice. We find these proposed changes to be just and reasonable and hereby accept them.

496. As an initial matter, we note that PJM's proposal applies a more lenient application of Non-Performance Charges than does the analogous proposal made by ISO-NE, which the Commission, in the *ISO-NE Capacity Performance Order*, has also found to be just and reasonable. We also note that the more significant of PJM's proposed revisions relates to Generator Maintenance Outages, not Generator Planned Outages. We agree with PJM that a generator on a planned outage should not be expected to return to service within a time interval of less than 72 hours. We also find reasonable PJM's proposal requiring a generator on a planned outage to provide PJM

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<sup>349</sup> Operating Agreement at Schedule 1, section 1.9.3.

with an estimate of the amount of time it will require to return to service. This requirement presents no significant burden to the resource, but will assist PJM in operating its system during tight conditions.

497. Intervenors argue that PJM's proposed 72-hour notice allowance is too strict. *i.e.*, that a generator on a maintenance outage should be provided more – or unlimited – time to return to service, or should be compensated for doing so. NRG/Dynegy adds that a generator that fails to perform during a Performance Assessment Hour after the 72-hour allowance period ends should not be counted as a forced outage. We reject these arguments as inconsistent with the Commission's finding in the *ISO-NE Capacity Performance Order* that a capacity market design may properly require that capacity resources deliver energy or reserves during critical times or be subject to Non-Performance Charges. A core principle of such a design is that a capacity resource is held accountable for its actual performance during these critical times and is not excused for its non-performance, even when the factors giving rise to that non-performance are beyond the resource's control. While PJM proposes, and we accept above, an outage exemption from the Non-Performance Charge, the exemption is strictly limited such that we are satisfied that it will not undermine the resource performance incentives that are at the core of the Capacity Performance construct. We do not find that extending the exemption indefinitely to resources on a Generator Maintenance Outage – by preventing PJM from recalling those resources – is a necessary addition to PJM's proposal to make it just and reasonable.

498. P3 argues that PJM's proposed 72-hour notice allowance is unjustified. We are not persuaded that a 72-hour notice allowance is unjust or unreasonable. In fact, such a notice period appears to strike an appropriate balance, *i.e.*, it appears to give a resource a reasonably sufficient interval prior to its required return to service, while giving PJM the leeway it requires in responding to any emergency conditions that may arise.

499. Essential Power argues that a notice requirement limited to a 72-hour period could compel a generator to sacrifice safety in attempting to return to service to avoid a Non-Performance Charge. We find this argument without merit. There are myriad theoretical instances where a resource owner could choose financial profit over safety if it were so inclined. An owner with a resource on an outage during times of high day-ahead and real-time energy prices would face the same possible incentive to bypass safety precautions to bring the resource back online more quickly. Market rules cannot be expected to protect against all forms of potential negligent behavior, and we do not find it reasonable to hold the instant proposed revisions to that standard.

500. Intervenors also argue that permitting PJM to rescind approval for a maintenance outage, subject to a 72-hour notice requirement, penalizes a resource for the exact maintenance behavior that PJM's Capacity Performance proposal seeks to incent. We disagree. While maintenance is a critical component of ensuring a resource's ability to perform when needed, a properly-functioning capacity market must also possess the

proper incentives, over the long term, allowing it to clear those resources that will provide the greatest value to the system at an efficient price. Viewed in this context, a resource required to take a maintenance outage for a significant period of time is providing less reliability value than a resource requiring less maintenance. We also note that the resource requiring less maintenance would be capable of submitting a lower capacity offer price and thus have a greater probability of clearing. However, if the resource requiring more maintenance is excused for its inability to perform during the duration of its maintenance outages, it could be capable of submitting a lower capacity offer than its more reliable counterpart, thus distorting the market-clearing price.

501. Finally, based on this same logic, we disagree with intervenors' argument that a capacity resource whose maintenance outage approval is rescinded by PJM should be compensated. A compensation requirement of this sort would both mask the unavailability of capacity resources that require more maintenance outages during the year and provide an out-of-market revenue stream that could skew market clearing prices. Rather than pricing the risk of charges for expected non-performance into its capacity offer, a resource could submit an artificially low capacity offer, knowing that PJM would compensate it for maintenance outage-related non-performance through a separate, out-of-market payment.

The Commission orders:

(A) PJM's proposed tariff revisions, in Docket No. ER15-623-000, are hereby accepted, in part, subject to condition, as discussed in the body of this order, and subject to making a compliance filing within 30 days of this order.

(B) PJM's tariff provisions, in Docket No. EL15-29-000, are granted, in part, subject to conditions, as discussed in the body of this order, and subject to making a compliance filing within 30 days of this order.

(C) Essential Power's request to dismiss its complaint in Docket No. EL15-41-000 is hereby granted, as discussed in the body of this order.

By the Commission. Chairman Bay is dissenting with a separate statement attached.

( S E A L )

Nathaniel J. Davis, Sr.,  
Deputy Secretary.

**Appendix A**List of Intervenors in  
Docket Nos. ER15-623-000 and ER15-623-001

AEP Companies \* (EKPC/AEP) (PJM Utilities Coalition)  
(AEP/Duke Energy)  
Advanced Energy Management Alliance \* (AEMA)  
Alevo Energy, Inc.  
Allegheny Electric Cooperative, Inc \* (Allegheny).  
American Gas Association  
American Municipal Power, Inc. (Joint Protestors)  
America's Natural Gas Alliance \* (Gas Alliance)  
American Public Power Association \* (APPA/NRECA)  
American Wind Energy Association and Mid-Atlantic Renewable Energy  
Coalition \* (Wind Energy and Renewable Energy Coalition)  
Ares EIF Management, LLC \*\* (AEIF)  
Attorney General of Kentucky  
BP Wind Energy North America Inc.  
Brookfield Energy Marketing, LP \* (Brookfield)  
Buckeye Power, Inc. \* (PJM Utilities Coalition)  
CPV Power Development, Inc. \* (Coalition of Resource Projects)  
Calpine Corporation \* (Calpine)  
Champion Energy Companies  
CleanGrid Advisors LLC \* (CleanGrid)  
Community Energy, Inc. \* (Community Energy)  
Comverge Inc.  
Consolidated Edison Companies  
CPower Corporation  
Covanta Energy LLC \*\* (Covanta)  
DC Office of the People's Counsel \* ((Joint Consumers)  
DTE Energy Trading, Inc.  
The Dayton Power and Light Company \* (PJM Utilities Coalition)  
Delaware Public Service Commission \* (Delaware Commission)  
(Transition Coalition) (Joint Consumers)  
Direct Energy Companies \* (Direct Energy) (Transition Coalition)  
Dominion Resources Services, Inc. \* (Dominion)  
Dynegy Companies \* (NRG/Dynegy)  
Duke Energy Corporation \* (Duke) (AEP/Duke Energy)  
Duquesne Light Company \* (Transition Coalition) (Joint Consumers)  
EMC Development Company, Inc. \* (EMC)  
E. ON Climate & Renewables North America LLC

East Kentucky Power Cooperative, Inc. \* (EKPC/AEP) (PJM Utilities Coalition)  
Edison Electric Institute \* (EEI)  
Electricity Consumers Resource Council  
Electric Power Supply Association \* (EPSA)  
EnergyConnect, Inc.  
EnerNOC, Inc.  
Energy Storage Association \* (ESA)  
Environmental Defense Fund \* (Public Interest Organizations)  
Environmental Law and Policy Center  
EquiPower Resources Corp. \* (EquiPower)  
Essential Power Companies \* (Essential Power) (Coalition of Resource Projects)  
Exelon Corporation  
FirstEnergy Service Company \* (PJM Utilities Commission)  
GDF Suez Energy North America, Inc.  
H.Q. Energy Services (U.S.) Inc. \* (H.Q. Energy)  
H-P Energy Resources, LLC  
Homer City Generation, L.P. \* (Homer City)  
IMG Midstream LLC  
ITC Lake Erie Connector, LLC  
Iberdrola Renewables, LLC  
Illinois Citizens Utility Board \* (Joint Consumers)  
Illinois Commerce Commission \* (Illinois Commission)  
Illinois Industrial Energy Consumers  
Illinois Municipal Electric Agency  
Indiana Office of Utility Consumer Counselor \* (Indiana Commission and Indiana Consumer Counsel) (Indicated State Regulators)  
Indiana Utility Regulatory Commission \* (Indiana Commission and Indiana Consumer Counsel) (Indicated State Regulators)  
Invenergy Companies \* (Invenergy)  
LS Power Associates, L.P. \* (LS Power)  
Macquarie Energy LLC \* (Transition Coalition)  
Maryland Office of People's Counsel \* (Joint Consumers)  
Maryland Public Service Commission \* (Maryland Commission)  
Michigan Public Service Commission\* (Michigan Commission)  
Monitoring Analytics, LLC, acting as PJM's Independent Market Monitor \* (Market Monitor)  
Morgan Stanley Capital Group Inc. and TAQA Gen X LLC \*\* \* (Morgan Stanley)  
NRG Companies \* (NRG/Dynegy)  
National Fuel Gas Distribution Corporation  
National Rural Electric Cooperative Association \* (APPA/NRECA)  
Natural Gas Supply Association \* (NGSA)  
New Jersey Board of Public Utilities \* (Joint Consumers)

New Jersey Division of Rate Counsel \* (Joint Consumers)  
NextEra Energy Resources, LLC \* (Coalition of Resource Projects) (Transition Coalition)  
Noble Americas Energy Solutions LLC \*\* (Noble)  
North Carolina Electric Membership Corporation  
Ohio Consumers' Counsel \* (Joint Consumers)  
Old Dominion Electric Cooperative \* (Transition Coalition) (Joint Protestors)  
Panda Power Funds \*\* \* (Panda) (Coalition of Resource Projects)  
Pennsylvania Office of Consumer Advocate \* (Joint Consumers)  
Pennsylvania Public Utility Commission \* (Pennsylvania Commission)  
PHI Companies \* (PHI)  
PJM Industrial Customer Coalition \* (Transition Coalition) (Joint Consumers)  
PJM Power Providers Group \* (P3)  
PPL Companies (PPL)  
PSEG Companies \* (PSEG)  
Public Citizen, Inc.  
Public Power Association of New Jersey \* (Joint Consumers)  
Public Service Commission of Kentucky \* (Indicated State Regulators)  
Public Utilities Commission of Ohio \* (Ohio Commission)  
Raven Power/Sapphire Power Companies  
Retail Energy Supply Association \* (RESA)  
Rockland Electric Company \* (Rockland) (Transition Coalition)  
Sequent Energy Management, L.P.  
Shell Energy North America (US), LP \* (Shell)  
Sierra Club \* (Public Interest Organizations)  
Solar Energy Industries Association \* (Solar Association)  
Southern Maryland Electric Cooperative, Inc. \* (Transition Coalition) (Joint Protestors)  
Steel Producers  
Sun Edison Utility Holdings, Inc. \*\*  
Sustainable FERC Project and Natural Resources Defense Council \* (Public Interest Organizations)  
UGI Companies \* (UGI)  
Union of Concerned Scientists \* (Concerned Scientists) (Public Interest Organizations)  
U.S. Federal Executive Agencies \* (U.S. Agencies)  
Virginia Municipal Electric Association No. 1  
WGL Energy Services, Inc. \* (Transition Coalition)  
West Virginia Consumer Advocate

List of Coalitions' Individual Members

Coalition of Resource Projects

CPV Power Development, Inc.  
Essential Power Companies  
NextEra Energy Resources, LLC  
Panda Power Funds

Indicated State Regulators

Indiana Office of Utility Consumer Counselor  
Indiana Utility Regulatory Commission  
Public Service Commission of Kentucky

Joint Consumers

DC Office of the People's Counsel  
Delaware Public Service Commission  
Duquesne Light Company  
Illinois Citizens Utility Board  
Maryland Office of People's Counsel  
New Jersey Board of Public Utilities  
New Jersey Division of Rate Counsel  
Ohio Consumers' Counsel  
Pennsylvania Office of Consumer Advocate  
PJM Industrial Customer Coalition  
Public Power Association of New Jersey

Joint Protestors

American Municipal Power, Inc.  
Old Dominion Electric Cooperative  
Southern Maryland Electric Cooperative, Inc.

PJM Utilities Coalition

AEP Companies  
Buckeye Power, Inc.  
The Dayton Power and Light Company  
East Kentucky Power Cooperative, Inc.  
FirstEnergy Service Company

Public Interest Organizations

Environmental Defense Fund  
Sierra Club  
Sustainable FERC Project and Natural Resources Defense Council  
Union of Concerned Scientists

Transition Coalition

Delaware Public Service Commission  
Direct Energy Companies  
Duquesne Light Company  
Macquarie Energy LLC  
NextEra Energy Resources, LLC  
Old Dominion Electric Cooperative  
PJM Industrial Customer Coalition  
Rockland Electric Company  
Southern Maryland Electric Cooperative, Inc.  
WGL Energy Services, Inc.

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- \* Entities submitting protests or comments.
  - \*\* Entities submitting motions to intervene out-of-time.

**Appendix B**

List of Intervenors in  
Docket No. EL15-29-000

AEP Companies \* (PJM Utilities Coalition)  
Alevo Energy, Inc.  
Allegheny Electric Cooperative, Inc.  
American Municipal Power, Inc. \* (Joint Protestors)  
American Public Power Association \* (APPA/NRECA)  
American Wind Energy Association and Mid-Atlantic Renewable Energy  
Coalition \* (Wind Energy and Renewable Energy Coalition)  
Attorney General of Kentucky  
Ares EIF Management, LLC \*\* (AEIF)  
BP Wind Energy North America Inc.  
Brookfield Energy Marketing, LP \* (Brookfield)  
Buckeye Power, Inc. \* (PJM Utilities Coalition)  
CPV Power Development, Inc. \* (Coalition of  
Gas Generators and Project Finance Resources)  
Calpine Corporation  
Champion Energy Companies  
DC Office of the People's Counsel \* (Joint Consumers)  
Delaware Public Service Commission \* (Joint Consumer  
Representatives)  
Direct Energy Companies  
Dominion Resources Services, Inc. \* (Dominion)  
Dynergy Companies \* (NRG/Dynergy)  
Duke Energy Corporation  
Duquesne Light Company \* (Joint Consumers)  
EMC Development Company, Inc.  
E. ON Climate & Renewables North America LLC  
East Kentucky Power Cooperative, Inc. \*\* (EKPC)  
Electricity Consumers Resource Council  
Electric Power Supply Association  
EnergyConnect, Inc.  
Energy Storage Association \* (ESA)  
Environmental Defense Fund \* (Public Interest Organizations)  
Environmental Law and Policy Center  
EquiPower Resources Corp. \* (EquiPower)  
Essential Power Companies \* (Essential Power) (Coalition of  
Gas Generators and Project Finance Resources)

Exelon Corporation \* (Exelon)  
FirstEnergy Service Company \* (PJM Utilities Commission)  
GDF Suez Energy North America, Inc.  
Homer City Generation, L.P. \* (Homer City)  
Iberdrola Renewables, LLC  
Illinois Citizens Utility Board \* (Joint Consumer  
Representatives)  
Illinois Commerce Commission  
Illinois Industrial Energy Consumers  
Invenergy Companies  
LS Power Associates, L.P. \* (LS Power)  
Macquarie Energy LLC  
Maryland Office of People's Counsel \* (Joint Consumer  
Representatives)  
Maryland Public Service Commission  
Morgan Stanley Capital Group Inc. and TAQA Gen X LLC \*\* \* (Morgan Stanley)  
NRG Companies \* (NRG/Dynegy)  
National Rural Electric Cooperative Association \* (APPA/NRECA)  
New Jersey Board of Public Utilities \*(Joint Consumer  
Representatives)  
New Jersey Division of Rate Counsel \* (Joint Consumer  
Representatives)  
NextEra Energy Resources, LLC \* (Coalition of Resource Projects)  
Noble Americas Energy Solutions LLC  
North Carolina Electric Membership Corporation  
Ohio Consumers' Counsel \* (Joint Consumers)  
Old Dominion Electric Cooperative \* (Joint Protestors)  
Organization of PJM States, Inc.  
Panda Power Funds \*\* \* (Coalition of Resource Projects)  
Pennsylvania Office of Consumer Advocate \* (Joint Consumer  
Representatives)  
Pennsylvania Public Utility Commission \* (Pennsylvania Commission)  
PHI Companies \* (PHI)  
PJM Industrial Customer Coalition \* (Joint Consumers)  
PJM Power Providers Group \* (P3)  
PPL Companies  
PSEG Companies \* (PSEG)  
Public Power Association of New Jersey \* (Joint Consumer  
Representatives)  
Raven Power/Sapphire Power Companies  
Retail Energy Supply Association \* (RESA)  
Rockland Electric Company \* (Rockland)  
Shell Energy North America (US), LP \* (Shell)

Sierra Club \* (Public Interests Organizations)  
Solar Energy Industries Association \* (Solar Association)  
Southern Maryland Electric Cooperative, Inc. \* (Joint Protestors)  
Sustainable FERC Project and Natural Resources  
    Defense Council (Public Interest Organizations)  
UGI Companies \* (UGI)  
Virginia Municipal Electric Association No. 1  
West Virginia Consumer Advocate

List of Coalitions' Individual Members

Coalition of Resource Projects

CPV Power Development, Inc.  
Essential Power Companies  
NextEra Energy Resources, LLC  
Panda Power Funds

Joint Consumers

DC Office of the People's Counsel  
Delaware Public Service Commission  
Duquesne Light Company  
Illinois Citizens Utility Board  
Maryland Office of People's Counsel  
New Jersey Board of Public Utilities  
New Jersey Division of Rate Counsel  
Ohio Consumers' Counsel  
Pennsylvania Office of Consumer Advocate  
PJM Industrial Customer Coalition  
Public Power Association of New Jersey

Joint Protestors

American Municipal Power, Inc.  
Old Dominion Electric Cooperative  
Southern Maryland Electric Cooperative, Inc.

PJM Utilities Coalition

AEP Companies  
Buckeye Power, Inc.  
The Dayton Power and Light Company  
East Kentucky Power Cooperative, Inc.  
FirstEnergy Service Company

Public Interest Organizations

Environmental Defense Fund  
Sierra Club  
Sustainable FERC Project  
Natural Resources Defense Council  
Union of Concerned Scientists

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- \* Entities submitting protests or comments.
  - \*\* Entities submitting motions to intervene out-of-time.

## Appendix C

### List of Conditions for Acceptance in Docket ER15-623-000

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- P 97
- P 100
- P 101

#### C. Non-Performance Charges

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## **Appendix D**

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UNITED STATES OF AMERICA  
FEDERAL ENERGY REGULATORY COMMISSION

PJM Interconnection, L.L.C.

Docket Nos. ER15-623-000  
EL15-29-000  
ER15-623-001

Essential Power Rock Springs, LLC

EL15-41-000

(Issued June 9, 2015)

BAY, Chairman, *dissenting*:

Today's order accepts PJM's Capacity Performance Proposal (CPP), as modified by PJM's response to FERC's deficiency letter. Unfortunately, I cannot support that result because I do not believe the CPP will result in just and reasonable rates. First, even on its own terms, the proposal has a serious design flaw that undercuts the very aim that it seeks to achieve, which is to provide greater assurance of delivery of energy and reserves during emergencies. Second, this flaw is an expensive one: the CPP may result in billions in additional costs for consumers without achieving its intended aim. PJM's capacity market is structurally non-competitive, and the CPP largely eliminates mitigation as a safety net up to .85 of Net Cost of New Entry (CONE). I recognize the difficulty of doing cost-benefit analysis and do not believe it is needed every time a market rule is changed. But, here, given the potential multi-billion dollar cost of the CPP and the burden consumers will be asked to bear, any analysis, no matter how rudimentary, would have been helpful before concluding this proposal is just and reasonable.

First, PJM's current capacity market, the Reliability Pricing Model (RPM), has worked tolerably well. PJM itself does not contend that the RPM is unjust and unreasonable; rather, it says that the current rules do not create "sufficient incentives" to ensure that capacity resources provide energy and reserves when needed. To be sure, the RPM has shortcomings, but it has been in operation for almost a decade and has allowed PJM to maintain reliability. In each year since 2007, reserve margins have been met, new capacity has been added, and, most importantly, the lights have stayed on.

Moreover, it is important to emphasize what the CPP is *not* about: it is not about the need to incent the development of new capacity, and PJM does not

advocate for the CPP on that basis.<sup>1</sup> Even under the RPM, PJM has developed sufficient capacity to meet its reserve margins. Indeed, PJM's 2014 reserve requirements study – a study completed prior to submission of the CPP – indicated that for the 2018-19 delivery year reserve margins would be met, despite significant generator retirements.<sup>2</sup> Even in the absence of CPP, PJM has forecasted adequate reserve margins through at least 2019.

Nor is the CPP necessarily required to enhance generator performance. In the winter of 2014, uplift payments were \$667 million (January - February 2014) and the forced outage rate was 22 percent.<sup>3</sup> But this winter saw marked improvement, even though it was almost as cold as last winter and PJM had a higher peak load at 143,086 megawatts.<sup>4</sup> The outage rate dropped to 12 percent, and uplift was \$105 million (January - February 2015).<sup>5</sup> Better preparation and winterization, which are relatively inexpensive fixes, and the addition of gas

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<sup>1</sup> PJM Deficiency Letter Response at 2 (“PJM’s RPM capacity market design has worked effectively to spur new investment to replace the nearly 26,000 megawatts (‘MWs’) of retiring generation since 2008, and projecting forward to 2019 and ensure forward reliability in a period of unprecedented turnover of a large portion of the generation fleet. In the 2017/2018 BRA alone, PJM procured nearly 6,000 MWs of new generation resources. Approximately, 35,000 MWs of total new generation have been procured since RPM was implemented in PJM’s markets.”).

<sup>2</sup> PJM, *2014 PJM Reserve Requirement Study*, at 15 (Oct. 9, 2014), <http://www.pjm.com/~media/committees-groups/subcommittees/raas/20141003/20141003-reserve-requirement-study-draft-update.ashx>

<sup>3</sup> Office of Enforcement, *2014 State of the Market Report*, at 17 (Mar. 19, 2015), <https://www.ferc.gov/market-oversight/reports-analyses/st-mkt-ovr/2014-som.pdf> (OE 2014 State of the Markets Report).

<sup>4</sup> PJM declared cold weather alerts on 26 days in the first three months of 2015 compared to 25 days in the first three months of 2014. *See* PJM, *State of the Market Report for PJM*, at 138 (May 18, 2015), [http://monitoringanalytics.com/reports/PJM\\_State\\_of\\_the\\_Market/2015/2015q1-som-pjm.pdf](http://monitoringanalytics.com/reports/PJM_State_of_the_Market/2015/2015q1-som-pjm.pdf).

<sup>5</sup> OE 2014 State of the Markets Report at 19.

infrastructure, with better gas-electric coordination, helped make this happen.<sup>6</sup>

Against this backdrop, PJM has proposed a new capacity market that suffers from a serious design flaw that undermines its very purpose to provide greater assurance of delivery of energy and reserves during emergency conditions. To do this, the CPP establishes a “two-settlement” process and a “Non-Performance Charge,” or, to put it more colloquially, two carrots and a partial stick. With respect to the first carrot, a resource is allowed to offer up to Net CONE times the balancing ratio (currently calculated to be .85).<sup>7</sup> But this is not a ceiling *per se* if a resource can justify higher unit specific costs; those costs in turn could drive the market clearing price even higher. Resources that over perform can receive a second carrot as well: a bonus share of penalties collected from units that fail to perform.

To approximate the expected total Non-Performance Charge a resource that fails to perform would pay, one needs to make an assumption about the expected number of performance assessment hours. The total yearly expected Non-Performance Charge or penalty payment per megawatt of capacity for a resource that never performs is calculated by multiplying .85 of Net CONE by the ratio of the number of actual performance assessment hours in the relevant capacity zone divided by 30. The number 30 is important because it represents PJM’s expectation of performance assessment hours in a year. In 2011-12, PJM declared 7; in 2012-13, 5; and in 2013-14, 30.<sup>8</sup> The average over the three-year period is 14. If the outlier is excluded (2013-14), the average is 6. An estimate of 30 expected performance assessment hours appears to be overly generous and, depending upon the number of actual assessment hours, may result in a partial stick. For example, if PJM declared 14 actual performance assessment hours in a capacity zone, a resource that failed to perform during each of those hours would be subject to a total Non-Performance Charge per megawatt of capacity of 14/30

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<sup>6</sup> *Id.* at 17.

<sup>7</sup> PJM Deficiency Letter Response at 7.

<sup>8</sup> PJM, *Performance Assessment Hours for 2011-2014*, (Mar. 23, 2015), <http://pjm.com/~media/committees-groups/committees/elc/postings/performance-assessment-hours-2011-2014-xls.ashx>

times .85 Net CONE, which equates to .40 of Net CONE for the delivery year.<sup>9</sup>

Taken together, the CPP's incentive structure creates an opportunity for resources to profit from non-performance, as long as the first carrot – the auction clearing price, which can be up to .85 of Net CONE or more if the marginal generator can justify its unit specific costs – is larger than the partial stick, which, with 14 assumed performance assessment hours, would be .40 of Net CONE. A rational profit-maximizing resource could simply seek a capacity award in the auction, fail to perform during each performance assessment hour, and likely pay a penalty less than the carrot it has received. To put it more bluntly, the resource could be paid for doing nothing during the emergency hours of the year when it is most needed and for which it has been well compensated. And there is a built-in optionality period of three years, since the auction has a delivery year of 2018-19. During that three-year period, the resource may decide whether it wishes to meet its obligation when called upon, purchase replacement capacity to buy its way out of its obligation, or fail to respond. During the delivery year itself, the resource also has optionality because it can weigh the penalty of failing to perform during each Performance Assessment Hour, as a fraction of one-thirtieth of .85 of Net CONE. In short, PJM has purchased little certainty for what may be a lot of money.

To be sure, the second carrot provides a financial incentive for resources to deliver during emergencies. But it is also true that the resource that fails to perform may be able to pocket the difference between the award it received and the penalty. As a matter of economic theory, to incent performance, a resource that never performs should pay a penalty at least as large as the amount it receives in compensation. Here, performance is not incented because the gain may be substantially greater than the penalty; the first carrot is larger than the partial stick. The second carrot provides even more compensation to incent performance but does nothing to remedy the initial disparity.

The weakness inherent in the CPP's design creates significant incentives to move auction clearing prices up to .85 of Net CONE, because only prices above that level are subject to mitigation in the form of unit specific review. The

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<sup>9</sup> PJM has another penalty, the Capacity Deficiency Charge, that is 1.2 times the capacity clearing price or clearing price plus \$20 per megawatt day, whichever is greater, but this penalty would be lower than the Non-Performance Charge imposed for failure to respond during an emergency.

temptation to exercise market power in the auction will be considerable. This would be less of a problem if one could count on the salutary benefits of competition. But, as PJM and the Market Monitor recognize, this market is structurally non-competitive.<sup>10</sup> And the mitigation rules that are usually the safety net in such markets have largely been removed. Thus, the CPP creates the very real risk of the unmitigated exercise of market power up to .85 of Net CONE.<sup>11</sup>

The majority also undercuts the CPP by rejecting PJM's proposal to limit operating parameters to unit-specific *physical* constraints.<sup>12</sup> In this order, the majority requires that resources be eligible for make-whole payments based on their "*actual* constraints," a new and ambiguous term that would, at the very least, include fuel delivery arrangements. It is unclear what other constraints would fall into this category, and the provision increases the opacity of make-whole payments. While the majority's proposal includes a reminder that a resource should consider such expected make-whole payments in its projected revenues when calculating its capacity offer, it may be impossible to reconcile whether a resource has been compensated for a constraint through its capacity payment. Nor

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<sup>10</sup> See PJM, *2014 State of the Market Report for PJM*, Vol.2: Detailed Analysis, at 179 (Mar. 12, 2015), [http://monitoringanalytics.com/reports/PJM\\_State\\_of\\_the\\_Market/2014/2014-som-pjm-volume2-sec5.pdf](http://monitoringanalytics.com/reports/PJM_State_of_the_Market/2014/2014-som-pjm-volume2-sec5.pdf).

<sup>11</sup> It is important to note that even though the Market Monitor offered support for PJM's filing, his support was qualified on a number of conditions. For instance, the Market Monitor pointed out that PJM offers no analytical basis for using 30 as the expected number of performance assessment hours. Instead, he suggested using an "annual probabilistic analysis" to approximate the appropriate Non-Performance Charge rate. In addition, the Market Monitor strongly supported PJM's proposal to limit operating parameters to unit-specific physical constraints, arguing that this would lower uplift payments during tight operational conditions and provide greater operational flexibility to PJM dispatchers.

<sup>12</sup> PJM proposed the following new language to its Operating Agreement Schedule 1, section 3.2.3(e): "A Generation Capacity Resource that operates outside of its physically determined parameter limitations due to external requirements such as fuel delivery arrangements, for example, will not receive Operating Reserve Credits nor be made whole for such operation when not dispatched by the Office of the Interconnection."

does this provision take into account the progress that has been, and continues to be, made on gas-electric coordination, and it is inconsistent with the CPP's goal of incenting generators to make more flexible fuel arrangements. A gas generator has little incentive to make such arrangements if it knows it can wait and have its costs covered anyway.

The CPP's potential cost is also troubling relative to the benefit it may provide. In October 2014, PJM estimated that the net incremental cost for the CPP would be \$1.4 to 4.0 billion. One way of viewing the CPP is that it fixes a several hundred million dollar uplift problem in the energy market with a multi-billion dollar redesign of the capacity market. Let me be clear: I support reliability. It is one of the most fundamental services a Regional Transmission Organization or Independent System Operator can provide. I also believe in the benefits of competition and markets. But the question here is not whether to support markets or reliability; rather, it is one of cost relative to the potential benefit and whether the CPP is a just and reasonable way to achieve a higher degree of performance in emergencies. Here, despite the potential multi-billion dollar burden consumers will be asked to bear, there is no analysis, however rudimentary, indicating whether the benefits are at least roughly commensurate with the costs.

The majority today accepts a flawed, complex, highly technical market construct in which there is a potential mismatch between incentives and penalties, in which mitigation has largely been eliminated in a market characterized by structural non-competitiveness, and in which there may be billions in additional capacity market costs borne by consumers. The reality is that once a market construct is accepted and implemented, it is very difficult to unwind. Of all the costs associated with the CPP, not the least among them is this: the opportunity cost of the time and resources that could have been used to develop a more sustainable, efficient, and cost-effective design.

For all those reasons, I respectfully dissent.

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Norman C. Bay  
Chairman