162 FERC ¶ 61,159
UNITED STATES OF AMERICA
FEDERAL ENERGY REGULATORY COMMISSION

Before Commissioners: Cheryl A. LaFleur, Neil Chatterjee, and Richard Glick.

PJM Interconnection, L.L.C. Docket No. ER17-367-000
ER17-367-001
ER17-367-002

ORDER ON TARIFF FILING

(Issued February 23, 2018)

1. On November 17, 2016, pursuant to section 205 of the Federal Power Act,[1] PJM Interconnection, L.L.C. (PJM) submitted proposed revisions to its Open Access Transmission Tariff (OATT) and Reliability Assurance Agreement (RAA) (collectively, Tariff) intended to enhance the ability of certain resource types to participate in PJM's Reliability Pricing Model (RPM) capacity market. The proposed tariff revisions address three areas of PJM's capacity market rules: resource "aggregation" for purposes of submitting combined capacity market sell offers; granting of winter-period Capacity Interconnection Rights;[2] and Demand Resource[3] measurement and verification.

2. On March 21, 2017, pursuant to the authority delegated by the Commission's February 3, 2017 Order Delegating Further Authority to Staff in Absence of Quorum,[4] PJM's proposed Tariff revisions were accepted for filing, suspended for a nominal

[1] 16 U.S.C. § 824d (2012).

[2] PJM defines Capacity Interconnection rights as "the rights to input generation as a Generation Capacity Resource into the Transmission System at the Point of Interconnection where the generating facilities connect to the Transmission System." PJM OATT at section I.1. Definitions, 0.0.0.

[3] All capitalized terms not defined herein are used consistent with the definitions in the PJM OATT at section I.1. Definitions, 0.0.0; the PJM OATT at Attachment DD.2 Definitions, 25.0.0; and the PJM RAA at Article 1 – Definitions, 19.0.0.

[4] *Agency Operations in the Absence of a Quorum*, 158 FERC ¶ 61,135 (2017).

period, to become effective January 19, 2017 and June 1, 2017, as requested, subject to refund and further Commission order.[5]

3. In this further order, we accept PJM's proposed Tariff revisions related to resource aggregation and winter-period Capacity Interconnection Rights, to be effective January 19, 2017, as requested, and accept PJM's proposed Tariff revisions related to Demand Resource measurement and verification, to be effective June 1, 2017, as requested.

I. Background

4. In 2015, PJM proposed, and the Commission accepted, subject to certain conditions, a number of modifications to the RPM market rules.[6] Among these modifications was a transition from multiple capacity products, including annual and sub-annual products, to a single annual capacity product known as Capacity Performance. The transition process included two Base Residual Auctions, for delivery years 2018-2019 and 2019-2020, in which PJM would procure no less than 80 percent of its capacity needs in the form of the Capacity Performance product, but could procure up to 20 percent of a sub-annual product known as Base Capacity. Resources cleared as Base Capacity for those delivery years will be subject to the new Non-Performance Charge—a penalty applied when a capacity resource fails to deliver its share of energy and reserves during an emergency condition—only during the months of June through September, when the PJM system is most likely to experience peak loads. Beginning with the May 2017 Base Residual Auction for delivery year 2020-2021, the Base Capacity product will be eliminated, and PJM will procure 100 percent of capacity to serve the PJM region from Capacity Performance Resources.

5. In advocating for its Capacity Performance proposal, PJM acknowledged that certain resource types— Capacity Storage Resources, Intermittent Resources, Demand Resources, Energy Efficiency Resources, and Environmentally-Limited Resources (collectively, Seasonal Resources)—would likely be unable, regardless of maintenance practices and investment decisions, to meet the stringent new performance requirements of serving as a Capacity Performance Resource, and thus adequately mitigate the risk of Non-Performance Charges. To accommodate the unique position of these resource types, PJM proposed, and the Commission accepted, a "resource aggregation" mechanism whereby a capacity seller that owns or controls one or more resources of the

[5] *PJM Interconnection, L.L.C.*, Docket No. ER17-367-000 (Mar. 21, 2017) (delegated letter order).

[6] *PJM Interconnection, L.L.C.*, 151 FERC ¶ 61,208 (2015) (Capacity Performance Order).

aforementioned types located within the same modeled Locational Deliverability Area may submit a Capacity Performance sell offer representing the aggregated unforced capacity value of those resources.[7]

II. Filing

6. PJM submits a set of proposed revisions to its OATT and RAA to improve the ability of Capacity Storage Resources, Intermittent Resources, Demand Resources, Energy Efficiency Resources, and Environmentally-Limited Resources to participate in PJM's capacity market. PJM asserts that the revisions will: (i) enhance its aggregation rules to provide additional ways for these resource types to participate in the capacity market; (ii) provide an opportunity for certain Intermittent Resources and Environmentally-Limited Resources to obtain additional Capacity Interconnection Rights for the winter period to support aggregation; and (iii) improve the measurement and verification of Demand Resource performance during winter periods.[8]

7. PJM explains that because the Base Residual Auction scheduled for May 2017 is the first in which all capacity committed for the associated delivery year (June 1, 2020 – May 31, 2021) must be from Capacity Performance Resources, PJM seeks Commission approval for these revisions in time for that auction. PJM states that implementing the revisions in time for the 2017 Base Residual Auction will support the continued participation of resources which otherwise would not be able to be committed and perform as Capacity Performance Resources.[9] PJM requests an effective date of January 19, 2017, for the revisions associated with enhanced aggregation rules and winter Capacity Interconnection Rights, and an effective date of June 1, 2017, for the revisions associated with Demand Resource measurement and verification.[10]

8. On December 23, 2016, the Commission notified PJM that the November 17, 2016 filing was deficient and that the Commission would need further information to process the proposal (Deficiency Letter). On January 23, 2017, PJM supplemented the November 17, 2016 filing by submitting a response to the Deficiency Letter.

9. We address the three components of PJM's proposal in turn below.

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[7] Capacity Performance Order, 151 FERC ¶ 61,208 at P 101.

[8] PJM Transmittal at 1.

[9] *Id.* at 1-2.

[10] *Id.* at 2.

III. Notice and Responsive Pleadings

10. Notice of the filing was published in the *Federal Register*, 81 Fed. Reg. 84,574 (2016), with interventions and protests due on or before December 8, 2016. Notices of intervention and timely motions to intervene were submitted by entities listed in the Appendix to this order. Additionally, a motion to intervene out-of-time was filed by CPV Power Holdings, LP. Comments and/or protests were filed by AEMA, AEP-East Kentucky Power, PJM Utilities Commission, AWEA, Avangrid, Joint Consumer Advocates,[11] Delaware Commission, EnerNOC, Exelon, LS Power, Maryland Commission, NRG, ODEC, Market Monitor, PJM Industrial Consumers, PJM Power Providers Group, PSEG, and Union of Concerned Scientists. Answers were filed by Exelon, LS Power, PJM, and PJM Power Providers Group. Comments, protests, and answers are summarized below.

11. Notice of PJM's Deficiency Letter response was published in the *Federal Register*, 82 Fed. Reg. 8747 (2017), with interventions and protests due on or before February 13, 2017. Timely comments and protests were filed by AEMA, EnerNOC, PJM Power Providers Group and PSEG. Late-filed comments and protests were filed by AWEA and ODEC. Comments and protests are summarized below.

12. On April 25, 2017, PSEG and the PJM Power Providers Group filed a request for clarification of the refund condition contained in the March 21, 2017 delegated letter order. PSEG and the PJM Power Providers Group argue that the Commission should eliminate the uplift payment mechanism for make-whole payments as of the date the Tariff revisions were accepted so as to be applicable to resources that participate in the May 2017 Base Residual Auction.

13. On November 20, 2017, AEMA filed a motion for leave to supplement the record. On December 4, 2017, a separate group of intervenors (the Indicated Parties[12]) also filed a motion for leave to supplement the record. Both motions sought to introduce

[11] The Joint Consumer Advocates include the Citizens Utility Board, the Delaware Division of the Public Advocate, the District of Columbia Office of the People's Counsel, the Indiana Office of Utility Consumer Counselor, the Maryland Office of People's Counsel, the New Jersey Division of Rate Counsel, the Pennsylvania Office of Consumer Advocate, and the Consumer Advocate Division of the Public Service Commission of West Virginia.

[12] The Indicated Parties include American Public Power Association, Old Dominion Electric Cooperative, Environmental Law & Policy Center, Union of Concerned Scientists, Sierra Club, Rockland Electric Company, PJM Industrial Customer Coalition, and NRDC/Sustainable FERC Project.

information into the record on the results of the May 2017 Base Residual Auction and a study by PJM staff evaluating PJM's seasonal reliability needs. An Answer to AEMA's motion was filed by AWEA. Answers to the Indicated Parties' motion were filed by the PJM Utilities Coalition, PJM, and the PJM Power Providers Group.

IV. Procedural Matters

14. Pursuant to Rule 214 of the Commission's Rules of Practice and Procedure, 18 C.F.R. § 385.214 (2017), the notices of intervention timely, unopposed motions to intervene serve to make the entities that filed them parties to this proceeding. In addition, given its interest in the proceedings, the early stage of the proceedings, and the absence of undue prejudice or delay, we grant the unopposed, late-filed intervention of CPV Power Holdings, LP and late-filed comments of AWEA and ODEC.

15. Pursuant to Rule 212 of the Commission's Rules of Practice and Procedure, 18 C.F.R. § 385.212 (2017), the Commission grants the motions to supplement the record from AEMA and the Indicated Parties.

16. Rule 213(a)(2) of the Commission's Rules of Practice and Procedure, 18 C.F.R. § 385.213(a)(2) (2017), prohibits an answer to a protest unless otherwise ordered by the decisional authority. We will accept the aforementioned answers because they have provided information that assisted us in our decision-making process.

V. Substantive Matters

17. We find the tariff filing just and reasonable and accept it to become effective on the dates proposed by PJM and accepted in the delegated letter order.

A. Aggregation Revisions

1. PJM's Proposal

18. PJM proposes revisions to the resource aggregation rules available to Capacity Storage Resources, Intermittent Resources, Demand Resources, Energy Efficiency Resources, and Environmentally-Limited Resources. The existing aggregation rules permit a seller that owns or controls one or more resources of these types located within the same modeled Locational Deliverability Area to submit a Capacity Performance sell offer representing the aggregated unforced capacity value of such resources.[13] PJM states that the proposed revisions address barriers to aggregation identified by stakeholders following the Base Residual Auction held in May 2016 for the 2019-2020 delivery year.

[13] *See* PJM OATT at Attachment DD, section 5.6.1(h).

PJM states that it received feedback that current rules requiring that all resources in an aggregation be located within the same Locational Deliverability Area inhibit what otherwise would be considered logical pairings of Seasonal Resources, such as abundant wind generation in western PJM with abundant solar or Demand Resources in eastern PJM.[14] PJM also reports receiving feedback that capacity market sellers are struggling to enter into commercial agreements to form aggregated resources because of difficulties in finding other sellers with complementary Seasonal Resources in the same Locational Deliverability Area, and determining how to allocate obligation penalties and credits, where to obtain collateral support within aggregations, how to formulate an auction strategy, and how to handle confidential data and audit rights for one or both parties.[15] PJM states that it expects that as capacity market sellers become more comfortable with the Capacity Performance construct such commercial transactions will likely take place—and therefore does not propose to remove the commercial aggregation option[16]—but it proposes several changes to address the reported barriers and to establish a new method of aggregation facilitated by PJM (RPM Aggregation).[17]

19. PJM's proposed aggregation rule changes are twofold. First, PJM proposes to allow aggregation across modeled Locational Deliverability Area boundaries. PJM explains that when an aggregated resource consists of constituent resources in different Locational Deliverability Areas, the resulting aggregate resource will be modeled in, and compensated based on, the "highest level" Locational Deliverability Area common to the constituent resources—i.e., the smallest Locational Deliverability Area that contains both resources. PJM provides an example: If two resources aggregate together and one is physically located in the Eastern Mid-Atlantic Area Council (EMAAC) Locational Deliverability Area and the other is in the broader RTO-wide Locational Deliverability Area, the aggregated resource will be modeled in the RTO-wide Locational Deliverability Area and compensated at the RTO-wide RPM clearing price.[18] For purposes of

[14] PJM Transmittal at 5-6.

[15] *Id.* at 6.

[16] Commercial aggregation refers to aggregation arranged by capacity sellers outside the RPM market. A commercially aggregated resource may be composed of multiple resources within an individual capacity seller's fleet or of multiple resources owned or controlled by different capacity sellers. The latter arrangement would presumably be facilitated through a contractual agreement. We use "commercial aggregation" in this order to distinguish it from the new PJM-facilitated aggregation mechanism PJM proposes in its instant filing.

[17] *Id.* at 6-7.

[18] *Id.* at 11-12.

performance evaluation during Performance Assessment Hours, PJM explains that individual resources that comprise a commercially aggregated resource will be expected to respond during a Performance Assessment Hour in the area in which each individual resource is located, and that the under- or over-performance of the commercially aggregated resource will be determined based on the total commitment and performance of all of the individual resources during the Performance Assessment. PJM states that the Non-Performance Charge rate applicable to an under-performing aggregated resource is based on the rate associated with the Locational Deliverability Area in which the under-performing underlying resources are located, weighted by the under-performance megawatt quantity of such resources.[19]

20. Second, PJM proposes a new mechanism, RPM Aggregation, through which Capacity Storage Resources, Intermittent Resources, Demand Resources, Energy Efficiency Resources, and Environmentally-Limited Resources can aggregate to offer as Capacity Performance Resources. To implement this new mechanism, PJM proposes three new defined terms: Seasonal Capacity Performance Resource, Summer-Period Capacity Performance Resource, and Winter-Period Capacity Performance Resource. A Summer-Period Capacity Performance Resource is a resource of one of the types listed above "that has an average expected energy output during summer peak-hour periods consistently and measurably greater than its average expected energy output during winter peak-hour periods."[20] A Winter-Period Capacity Performance Resource is one that possesses the same disparity in expected seasonal output but with the greater output during winter periods.[21] PJM proposes to refer to Summer-Period Capacity Performance Resource and Winter-Period Capacity Performance Resource types collectively as Seasonal Capacity Performance Resources.[22]

21. PJM explains that under RPM Aggregation, Summer-Period Capacity Performance Resources and Winter-Period Capacity Performance Resources will submit sell offers for one six-month period[23]—summer or winter—and the auction clearing

[19] *Id.* at 12-13.

[20] Proposed OATT at Attachment DD, section 5.5A(c)(i).

[21] *See* i*d.*, section 5.5A(c)(ii).

[22] *See id.*, section 5.5A(c).

[23] Summer-Period Capacity Performance Resources assume a capacity commitment for the months of June through October and the following May of a delivery year. Winter-Period Capacity Performance Resources assume a capacity commitment for the months of November through April of a delivery year.

engine will clear equal quantities of each, thereby creating annual capacity commitments. PJM states that each Seasonal Capacity Performance Resource will receive the applicable auction clearing price for the months of its capacity commitment; it will also be subject to Non-Performance Charges and Performance Credits during any Performance Assessment Hours that occur during the months of its capacity commitment. PJM states that the Non-Performance Charge Rate applicable to a Seasonal Capacity Performance Resource will be based on the physical location of that resource.[24]

22. PJM explains that while the total cleared quantity of Summer-Period Capacity Performance Resources must equal the total cleared quantity of Winter-Period Capacity Performance Resources across the full PJM region, these two quantities need not be equal within each modeled Locational Deliverability Area. However, PJM states that the clearing algorithm will honor the reliability requirement of each Locational Deliverability Area by considering only the equally-matched quantity of cleared opposite-season sell offers located within a Locational Deliverability Area as satisfying that Locational Deliverability Area's reliability requirement.[25] To determine compensation, PJM explains that for each constrained Locational Deliverability Area, starting with the Locational Deliverability Area with the highest clearing price, PJM will determine the quantity of cleared, equally-matched, opposite-season sell offers from Seasonal Capacity Performance Resources located within that Locational Deliverability Area, beginning with the lowest-priced Summer-Period Capacity Performance Resources and lowest-priced Winter-Period Capacity Performance Resources. Those resources will contribute to meeting the reliability requirement of that Locational Deliverability Area and will be compensated at the auction clearing price of that Locational Deliverability Area. Any cleared Seasonal Capacity Performance Resources located within that Locational Deliverability Area that do not have an opposite-season Seasonal Capacity Performance Resource in that same Locational Deliverability Area with which to match (i.e., the highest-priced sell offers of the season in excess) are then evaluated in the same manner for the next "highest-level" Locational Deliverability Area.[26] If, after evaluating all Locational Deliverability Areas, the constraint requiring that the total quantity of Summer-Period Capacity Performance Resources and Winter-Period Capacity Performance Resources be equal binds, the remaining un-matched Seasonal Capacity Performance Resources will not receive a capacity commitment.

23. PJM states that the auction-clearing algorithm will be designed to clear a Seasonal Capacity Performance Resource with an offer price above the applicable auction clearing

[24] PJM Transmittal Letter at 14-15.

[25] *Id.* at 16.

[26] *Id.* at 17.

price if it can be paired with an offsetting opposite-season Seasonal Capacity Performance Resource such that the two resources' average offer price is in-merit.[27] PJM explains that the Seasonal Capacity Performance Resource must therefore receive a make-whole payment equal to the difference between its offer price and the applicable auction clearing price. PJM proposes that these make-whole payment costs be allocated to load because doing so is consistent with the existing methodology applied when an inflexible offer segment is marginal in a Locational Deliverability Area and requires a make-whole payment.[28]

2. Comments and Protests

24. Several commenters express support for PJM's proposed aggregation rule changes. PJM Industrial Customers and Avangrid support the ability for resources to aggregate across Locational Deliverability Areas.[29] Avangrid argues PJM's cross-Locational Deliverability Area aggregation proposal increases opportunities for commercial aggregation and sets reasonable methodologies for determining clearing prices and performance expectations of each individual aggregate resource as well as the aggregated resource overall. The Maryland Commission argues that PJM's filing supports seasonal demand response programs by permitting cross-Locational Deliverability Area aggregation and by creating a clearinghouse for PJM-facilitated aggregation.[30] The Maryland Commission encourages the Commission to adopt PJM's proposal, but states that if opportunities for the aggregation of Seasonal Resources are to be maximized, the proposed revisions will require further improvement in future delivery years.[31]

25. PJM Power Providers Group is generally supportive of the concept of PJM's proposal, but believes that it should be accepted subject to modifications.[32] PJM Power Providers Group argues that the tariff language needs to clearly state how PJM will match Seasonal Resources within market parameters, such as when one of the offers in an aggregate pair is higher than the capacity clearing price. PJM Power Providers Group

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[27] *Id.* at 2.

[28] *Id.* at 18.

[29] PJM Industrial Customers Comments at 7-8; Avangrid Comments at 2.

[30] Maryland Commission Comments at 1.

[31] *Id.* at 2.

[32] PJM Power Providers Group Comments and Limited Protest at 2, 6-8.

believes that it would be better to price the aggregate annual resource at the higher Seasonal Resource's offer and eliminate the need for a make-whole payment. PJM Power Providers Group argues that PJM's proposal to use the average offer price of the constituent Seasonal Resources will discourage low-cost Seasonal Resources from offering at their true avoidable cost and instead encourage them to submit price-taking offers to ensure being paired with a resource and clearing.

26. Several commenters oppose PJM's proposal to permit cross-Locational Deliverability Area aggregation under both the commercial aggregation and new RPM Aggregation options. Joint Consumer Advocates argue that PJM's cross-Locational Deliverability Area aggregation proposal imposes new barriers to participation by offering incentives in the highest common Locational Deliverability Area while applying penalties in the individual resources' Locational Deliverability Area, thus creating a disconnect between capacity payments and non-performance penalty exposure.[33] PJM Utilities Coalition, ODEC, and the Market Monitor assert that PJM has not sufficiently addressed the Commission's previous concerns about cross-Locational Deliverability Area aggregation, and that permitting it could present reliability concerns.[34] ODEC states that permitting cross-Locational Deliverability Area aggregation will lead to over-procurement of resources in constrained areas and price suppression in unconstrained areas.[35]

27. EnerNOC opposes PJM's proposal to split capacity revenues equally between cleared Summer-Period Capacity Performance Resources and Winter-Period Capacity Performance Resources. EnerNOC argues that summer-period resources have greater reliability value to the PJM system and should be compensated in a manner that is commensurate with that value.[36]

28. EnerNOC and AWEA support PJM's proposed cost allocation for make-whole payments associated with clearing Seasonal Capacity Performance Resources under the new RPM Aggregation rules.[37] They assert that allocating these costs to load is

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[33] Joint Consumer Advocates Comments at 6; AEMA Comments at 18.

[34] PJM Utilities Coalition Comments at 2; ODEC Comments at 7-9; Market Monitor Comments at 3-7.

[35] ODEC Comments at 8.

[36] EnerNOC Comments at 3-9.

[37] *Id.* at 5; AWEA Answer to PJM Deficiency Letter Response at 2-3.

consistent with the current allocation of make-whole payment costs that arise in clearing RPM auctions, as well as with the principle of beneficiary pays.

29. PJM Power Providers Group, Exelon, and PSEG oppose allocating these costs to load, arguing that doing so is inconsistent with how capacity revenues would be shared under a commercial aggregation agreement and with cost causation, and will create gaming opportunities.[38] PSEG states that over-supplied (low-bidding) resources should pay the make-whole payments directly to the short-supplied (high-bidding) resource rather than charging load for their marriage. PSEG contends that because these resources are effectively settling the make-whole payments between themselves, the average offer price is appropriate to use in the evaluation and will lead to an appropriate lowest total production cost solution. PSEG argues that both sets of resources have the proper bidding incentives if the extra-marginal payments are recovered from the plentiful resources willing to accept less than the clearing price: both sets of resources are forced to determine the minimum amount they would be willing to accept if they submitted a single aggregated offer.

30. The Market Monitor expresses concern about several aspects of PJM's proposal, including that PJM must update its offer cap rules to properly address Seasonal Capacity Performance Resources now that cross-Locational Deliverability Area aggregation is permitted; that Environmentally-Limited Resources should not be permitted to aggregate because they have annual, rather than seasonal, operating limitations; and that excluding consideration of make-whole costs from the auction-clearing algorithm will not ensure minimization of costs to load.[39]

31. A number of commenters raise issues related to the role of, and rules applicable to, Seasonal Resources in the RPM market and argue that PJM's proposal is insufficient to address their fundamental concern about Seasonal Resource participation. Joint Consumer Advocates and AEMA request that the Commission direct PJM to retain the Base Capacity Resource product until further market rule changes can be implemented to improve the ability of Seasonal Resources to participate.[40] The Delaware Commission states that PJM's proposal will inhibit state demand response programs and that those programs should receive waivers to ensure their value is properly recognized.[41] AWEA

[38] PJM Power Providers Group Comments at 8-9; Exelon Comments at 5-10; PSEG Comments at 8-9.

[39] Market Monitor Comments at 3-7, 12-14.

[40] Joint Consumer Advocates Comments at 8; AWEA Comments at 22-23.

[41] Delaware Commission Comments at 3, 8.

asks the Commission to require PJM to conduct additional analysis of wind resource performance and wind resources' contribution to system loss of load expectation.[42] ODEC requests that the Commission institute a section 206 proceeding under the FPA to address PJM's failure to properly value Seasonal Resources.[43] EnerNOC and AEMA request that the Commission direct PJM to modify the Balancing Ratio applied to Demand Resources during Performance Assessment Hours.[44] ODEC asserts that the current Capacity Performance rules provide accommodations for required maintenance outages for traditional generators but do not provide corresponding accommodations for the operating characteristics of Seasonal Resources.[45]

3. Answers

32. In its Answer, PJM asserts its proposal fairly accounts for, and balances, the two important principles of facilitating greater levels of aggregation and underscoring the fundamental requirement for an annual resource that can perform over twelve months.[46]

33. PJM counters arguments that allowing cross-Locational Deliverability Area aggregation results in distorted price signals and exacerbates price differences between Locational Deliverability Areas by asserting that aggregated resources will provide equal capacity value to a Locational Deliverability Area and will be compensated, if cleared, at the Locational Deliverability Area price.[47] PJM counters charges that it is unfair to calculate Non-Performance Charges based on the smallest Locational Deliverability Area shared amongst the aggregated resources by arguing that Non-Performance Charges are not related to clearing prices and, therefore, it is appropriate to assess those charges where the resource is physically located.[48]

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[42] AWEA Comments at 12-13.

[43] ODEC Comments at 24.

[44] EnerNOC Comments at 12-17; AEMA Answer to Deficiency Letter Response at 2.

[45] ODEC Comments at 14.

[46] PJM Answer at 5.

[47] *Id.* at 10-11.

[48] *Id.* at 11.

34. PJM counters the Market Monitor's assertion that allowing cross-Locational Deliverability Area aggregation makes it impossible to determine an applicable Market Seller Offer Cap by stating that resources wishing to aggregate via the RPM Aggregation do not know if they will be paired in the same or different Locational Deliverability Areas, and as such, they must follow their residing Locational Deliverability Area's offer parameters, including Market Seller Offer Cap.[49] Countering arguments favoring aggregation based on the highest offer of the resources, PJM claims that this approach would require a set of administrative rules that reduce market flexibility and yield inefficient outcomes. PJM also argues this approach would overstate the actual cost of the aggregated resource, guaranteeing higher costs of capacity for load.[50]

35. Exelon states in its response to protests that it opposes delaying full implementation of Capacity Performance. Exelon argues that: (1) the existence of Base Capacity has, and will, slow the aggregation of Seasonal Resources; (2) ISO-New England's capacity markets demonstrate that aggregation can allow Seasonal Resources to participate in an annual market; (3) PJM's proposal expands, and in no way reduces, the ability of Seasonal Resources to aggregate; (4) PJM's proposal addresses the Commission's concerns about aggregation as laid out in the Capacity Performance Order; and (5) requests to extend the Transition Period or modify the Balancing Ratio amount to a collateral attack on the Capacity Performance Order.[51]

36. LS Power requests that the Commission reject the requests to maintain the Base Capacity Resource Product, as it is beyond the scope of PJM's proposal. LS Power explains that in PJM's Capacity Performance design there should only be one capacity product. LS Power further explains that PJM did not propose to move immediately to a single product, but provided a transition plan which would allow the Base Capacity Resource Product to be phased out and provide sufficient time for resources to implement modifications needed to provide capacity on a year-round basis. LS Power argues that the Commission also rejected the notion that the RPM rules must accommodate the limitations of Seasonal Resources, finding that an annual product "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."[52] LS Power argues that the transition period was in no way

[49] *Id.* at 13.

[50] *Id.* at 16.

[51] Exelon Answer at 2-10.

[52] LS Power Answer at 4-5 (citing Capacity Performance Order, 151 FERC ¶ 61,208 at P 245).

dependent on the RPM auctions hitting a desired level of Seasonal Resource participation.[53]

37. LS Power also requests that the Commission reject requests to implement a seasonal capacity construct. LS Power explains that this issue was already addressed in the Capacity Performance Order, where the Commission found that it was reasonable to adopt an annual capacity product and again on rehearing when the Commission determined that "permitting non-year-round resources to continue participating could result in a loss of reliability during the fall, winter and spring when PJM will not have as many resources to respond to emergencies, such as a polar vortex."[54] LS Power explains that seasonal capacity proposals have been addressed and rejected in stakeholder proceedings numerous times as being in conflict with the primary objectives of the Capacity Performance design. LS Power argues that a seasonal capacity design is beyond the scope of PJM's proposal. LS Power states that Capacity Market Sellers have made investments with the understanding that capacity revenues would be provided on an annual basis and to move to a seasonal product would be highly unreasonable and disruptive at this time.[55]

38. PJM Power Providers Group responds to various comments arguing that the various requests to delay or retain the Base Capacity product, including requests for the Commission to institute a Section 206 proceeding, *sua sponte*, should be rejected as unnecessary and recognized as a collateral attack on the Capacity Performance Order. PJM Power Providers Group argues that the Commission should reaffirm PJM's adherence to the established transition to the annual resource requirements for capacity resources. PJM Power Providers Group argues that providing limited or temporary waivers of Capacity Performance obligations to certain classes of resources at this time would undermine the Capacity Performance Order.[56]

39. In response to other protesters regarding loss of demand response programs in various states, PJM Power Providers Group argues that nothing in PJM's proposal prevents a state from continuing a program or starting a new one. PJM Power Providers Group explains that the Capacity Performance Order made several fundamental changes to PJM's capacity market design and increased the performance expectations to a new

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[53] *Id.* at 5.

[54] *Id.* at 6-7 (citing *PJM Interconnection, L.L.C.*,155 FERC ¶ 61,157, at P 59 (2016) (Capacity Performance Rehearing Order)).

[55] *Id.* at 7-8.

[56] PJM Power Providers Group Answer at 4-5.

level. PJM Power Providers Group argues that just like generation, demand response must rise to the new expectation level or discontinue participation in the capacity market as a capacity resource.[57]

40. In response to PJM's answer, PSEG objects to PJM's request that the Commission allow PJM's proposal to go into effect by operation of law.[58] PSEG contends that market participants' only opportunity to raise concerns with PJM's proposal was during the instant Commission proceeding since the content and scope of PJM's proposal was not known until it was submitted to the Commission.[59] Therefore, PSEG states that allowing the proposal to go into effect by operation of law will deny market participants of their only opportunity to raise concerns with the proposal.[60] PSEG argues that PJM's suggestion that immediate Commission action is imperative lacks legal support, noting that because stakeholders never reached an agreement on the proposal, the reasoning of *Laclede Gas Co. v. FERC* applies with particular force to neutralize PJM's claim.[61]

4. Commission Determination

41. We find PJM's proposed revisions to its resource aggregation rules to be just and reasonable and accept them, to become effective January 19, 2017. We agree with PJM and numerous commenters that these revisions represent enhancements to the aggregation offer mechanism that may allow greater participation in the RPM market by Seasonal Resources. A number of protestors assert that aspects of PJM's proposal are flawed or could be improved, but we are unpersuaded that any of these objections render the proposal unjust and unreasonable or unduly discriminatory or preferential. We address the protests in turn below.

a. Cross-Locational Deliverability

42. AEMA, Joint Consumer Advocates, and ODEC argue that permitting cross-Locational Deliverability Area aggregation can create an inappropriate disconnect between an aggregated resource's capacity auction compensation and the capacity market performance mechanisms that apply to it. They state that this can occur when a portion

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[57] PJM Power Providers Group Answer at 7-8.

[58] PSEG Answer at 1 (citing PJM Answer at 4).

[59] *Id.* at 4.

[60] *Id.*

[61] *Id.* (citing *Laclede Gas Co. v. FERC*, 997 F.2d 936, 946 (D.C. Cir. 1993)).

of the aggregated resource clears the auction to meet the reliability requirement of a higher-level Locational Deliverability Area,[62] and is compensated based on the auction clearing price in that Locational Deliverability Area, but will be subject to Non-Performance Charges if a Performance Assessment Hour occurs in the lower-level Locational Deliverability Area in which that portion of the resource is located. These parties argue that this disconnect between compensation and performance obligations could cause Seasonal Resources to be compensated at a lower rate than year-round resources that have an identical performance obligation. They also contend that applying a Non-Performance Charge rate based on the Net CONE value of the Locational Deliverability Area in which the resource is located, rather than that of the Locational Deliverability Area against which the resource cleared in the auction, is inappropriate.

43. We disagree with protestors on both points. Any resource that offers to sell its capacity is stating a minimum price it is willing to accept to provide capacity *at the location where it physically resides*. In calculating this offer price, we expect the resource owner to consider the likelihood of Performance Assessment Hours in the Locational Deliverability Area in which the resource is located, as well as the Non-Performance Charge rate that would apply to the resource based on its physical location. If, based on that offer price, that resource clears a capacity auction and obtains a capacity commitment, the resource is guaranteed to receive capacity auction-based compensation (i.e., capacity market compensation independent of Non-Performance Charges and Performance Bonus Payments) equal to or greater than its offer price. Nothing in PJM's cross-Locational Deliverability Area aggregation proposal undermines this guarantee. To the extent protestors are arguing that a constituent part of an aggregated resource located in a higher-priced Locational Deliverability Area is not receiving the same capacity market compensation as an annual Capacity Performance Resource located in that same Locational Deliverability Area, that is only true if the aggregated resource's other constituent parts are not located in that Locational Deliverability Area. But when that is the case, the aggregated resource is not providing equivalent service to an annual Capacity Performance Resource located entirely in that higher-priced Locational Deliverability Area. Because the aggregated resource and the annual Capacity Performance Resource in this scenario are not similarly situated, we disagree with protestors that the proposed compensation design is unjust and unreasonable or unduly discriminatory or preferential.

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[62] We adopt here PJM's use of the terms "higher-level" and "lower-level" Locational Deliverability Areas when discussing nested Locational Deliverability Areas. For example, if EMAAC and Southwestern Mid-Atlantic Area Council (SWMAAC) are both nested within the larger MAAC Locational Deliverability Area, MAAC is the higher-level Locational Deliverability Area and EMAAC and SWMAAC are lower-level Locational Deliverability Areas.

b. Reliability Concerns

44. ODEC, the Market Monitor, and PJM Utilities Coalition argue that PJM has failed to adequately address the reliability concerns with cross-Locational Deliverability Area aggregation that the Commission articulated in the Capacity Performance Order. We disagree. In the Capacity Performance Order, the Commission expressed two concerns: that PJM had not demonstrated that an aggregated resource with constituent parts located in different Locational Deliverability Areas would necessarily be deliverable to the Locational Deliverability Area against which its capacity was counted for reliability requirement purposes, and that PJM had not adequately supported how it would determine clearing prices, Non-Performance Charges, and Performance Bonus Payment for an aggregated resource across multiple Locational Deliverability Areas.[63] We find that PJM has addressed both concerns in its instant proposal.

45. First, under PJM's proposal an aggregated resource with constituent parts located in different Locational Deliverability Areas will only serve to meet the reliability requirement of the smallest Locational Deliverability Area common to all of those constituent parts. Clearing aggregated resources in this way reasonably ensures that all parts of a single aggregated resource will be deliverable to this "higher-level" Locational Deliverability Area that its capacity serves because all parts of the aggregated resource will be located in that Locational Deliverability Area. This design is analogous to the existing design for clearing capacity. Take for instance an auction-clearing scenario where the RTO-wide Locational Deliverability Area clears at one price and a sub-section of the RTO-wide Locational Deliverability Area, the EMAAC Locational Deliverability Area, clears at a higher price due to modeled transmission constraints into EMAAC. The capacity of a resource located in the RTO-wide Locational Deliverability Area but

[63] Capacity Performance Order, 151 FERC ¶ 61,208 at P 103, ("PJM has not demonstrated why Capacity Emergency Transfer Limits should not be taken into account for purposes of aggregating a Capacity Performance offer. 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…[S]everal 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 Charges, and Performance Bonus Payments across multiple Locational Deliverability Areas.") (internal citations omitted).

outside of EMAAC receives the RTO-wide price and contributes to meeting the RTO-wide reliability requirement. It does not, however, contribute to meeting the local EMAAC reliability requirement because it is not necessarily deliverable to EMAAC at all times during the delivery year, even though EMAAC is part of the RTO-wide Locational Deliverability Area. Under PJM's cross-Locational Deliverability Area proposal, a similar outcome is possible for an aggregated resource. Suppose one part of the aggregated resource is located in RTO-wide and another part is located in EMAAC. The aggregated resource's capacity will contribute to meeting the RTO-wide reliability requirement—and be compensated at the RTO-wide price—but will not contribute to meeting the local EMAAC reliability requirement because the portion of the aggregated resource located outside of EMAAC is not necessarily deliverable to EMAAC during all times in the delivery year. We thus find that PJM's proposed auction-clearing mechanics for aggregated resources are consistent with current practice and do not present the reliability concern that the Commission articulated in the Capacity Performance Order.

46. Second, PJM's proposal, as supplemented by its Deficiency Letter Response, has clarified how it will determine clearing prices, Non-Performance Charges, and Performance Bonus Payments when Seasonal Resources aggregate across Locational Deliverability Areas, whether through use of the commercial aggregation option or the new RPM Aggregation mechanism. We find PJM's proposed determination and application of these capacity market elements is reasonable and consistent with the overall Capacity Performance design. Having thus concluded that PJM has addressed the two issues the Commission identified in the Capacity Performance Order, we are unpersuaded by ODEC's argument that PJM's proposal is inadequately supported on reliability grounds.

c. Price Signals

47. PJM Utilities Coalition similarly argues that PJM's auction-clearing proposal for aggregated resources will not yield price signals sufficient to incentivize new investment when and where needed. For the same reasons explained above, we disagree. Just as PJM's proposed auction-clearing for aggregated resources reflects the deliverability of the aggregated resource as a whole, it also values the reliability contribution of the aggregated resource as a whole. To the extent PJM Utilities Coalition is arguing that the design is flawed because the portion of the aggregated resource located in a higher-priced Locational Deliverability Area is not receiving that Locational Deliverability Area's higher price, we disagree that this represents an improper price signal. The higher price in a constrained Locational Deliverability Area is meant to signal the need for, and value of, the product being sought in that location. Under the existing RPM rules for delivery year 2020-2021 and beyond, capacity is an annual product, and prices should provide signals for resources—whether stand-alone or aggregated—that can provide annual capacity service where it is needed. It is a complete aggregated resource, with its annual performance capability, that provides this service, not a sub-part of the aggregated

resource. PJM's proposal therefore sends a proper price signal to incent participation by any resource capable of providing the annual capacity service that is demanded.

d. Modification of Performance Responsibility

48. The Market Monitor asserts that existing rules, contained in a PJM manual, allow a commercially-aggregated resource owner to modify the assignment of performance responsibility during a Performance Assessment Hour to specific parts within the aggregated resource as late as noon of the day preceding the operating day.[64] The Market Monitor states that permitting such modifications, particularly less than a day prior to a potential Performance Assessment Hour, allows a resource owner to avoid Non-Performance Charges by shifting responsibility away from one or more parts of an aggregated resource located in an area where a Performance Assessment Hour is more likely to occur the next day. The Market Monitor argues that permitting cross-Locational Deliverability Area aggregation will exacerbate this problem because an aggregated resource with constituent parts in multiple Locational Deliverability Areas will more easily be able to shift performance responsibility away from parts of the resource located in areas forecasted to experience tight system conditions. PJM responds that in connection with development of the instant proposal, PJM is revising the manual rule cited by the Market Monitor to allow reassignment of performance responsibility within an aggregated resource no later than the last day of the month before the month when it is to take effect.

49. We acknowledge the Market Monitor's concern and agree that combining cross-Locational Deliverability Area aggregation with the ability for an aggregated resource owner to shift performance responsibility up to a day before the operating day could be problematic. However, we are satisfied with PJM's explanation that it has modified its rules to require that an aggregated resource owner commit by the end of the preceding month to identifying the portions of the resource that will have performance responsibility for the subsequent month. Such a limitation should address the concern about a resource owner avoiding performance responsibility based on updated information related to things like weather, scheduled outages, and load forecasts. Nonetheless, we encourage PJM to monitor this issue to ensure that aggregated resource owners are not seeking to avoid delivering the service for which they are being paid by consumers.

e. Make-Whole Payments

50. Exelon, PJM Power Providers, and PSEG oppose PJM's proposed allocation of make-whole payment costs to load. They argue that allocating these costs to load is

[64] Market Monitor Comments at 6-7.

inconsistent with the purpose of RPM Aggregation, which is to replicate the commercial transaction that would occur through commercial aggregation while overcoming the barriers that Seasonal Resource owners currently face in seeking such arrangements. They also argue that allocating make-whole costs to load will produce incentives for "lower-cost" Seasonal Resources to offer below their true costs in an effort to ensure they clear the auction. Exelon also argues that the proposed cost allocation will discourage commercial aggregation because utilizing the commercial option to aggregate, rather than the PJM-facilitated RPM Aggregation, will mean a resource foregoes its opportunity to have load bear the costs under certain scenarios. Exelon argues that instead, Seasonal Resources should be required to internalize the cost of aggregation through an allocation of make-whole costs based on infra-marginal revenues, as would occur within a commercial aggregation arrangement. All three parties advocate for some version of allocating make-whole payment costs to infra-marginal Seasonal Capacity Performance Resources.

51. In its Deficiency Letter Response, PJM affirms its position that allocating make-whole payment costs to load is just and reasonable but states that it is not the only possible reasonable approach. PJM acknowledges that the origin of the make-whole payments for Seasonal Resources is distinctly different than the existing make-whole payment that arises in the capacity market due to minimum block offers, and that this difference "may require a different approach for allocation."[65] PJM adds that allocating the make-whole costs among the cleared Seasonal Capacity Performance Resources is also arguably consistent with a "beneficiary pays" approach: "While one could argue that load benefits to the extent Seasonal Resources clear at an average cost below the alternative options, and thus should bear the make-whole cost, seasonal offers directly depend on opposite-season offers in order to clear at all. That undeniable benefit, along with considered judgment of which solution best avoids gaming concerns, could warrant requiring the lower-cost Seasonal Resource to bear the cost of the make-whole payment for the higher-cost resource."[66]

52. PJM goes on to state that if the Commission conditions acceptance on a modification to the cost allocation part of its proposal, PJM proposes to implement an alternative allocation among Seasonal Capacity Performance Resources. PJM explains that it would propose to total the make-whole cost for each constrained Locational Deliverability Area and the RTO-wide Locational Deliverability Area and allocate those costs to all infra-marginal Seasonal Capacity Performance Resources of the opposite season that received the same clearing price on a pro-rata share based on the infra-

[65] PJM Deficiency Letter Response at 3-4.

[66] *Id.* at 4.

marginal Seasonal Capacity Performance Resource's profit, represented as the difference between its offer price and clearing price.[67]

53. While PJM and protestors present alternative make-whole cost allocation options, the proposal before us in this section 205 filing is to allocate to load the cost of make-whole payments resulting from clearing Seasonal Capacity Performance Resources under RPM Aggregation. We are unpersuaded that protestors' concerns render PJM's originally-proposed make-whole payment cost allocation unjust and unreasonable. We find concerns about a dampening effect on use of the commercial aggregation option and perverse offer incentives for "lower-cost" resources to be speculative at this time. We also agree with PJM that allocating make-whole costs resulting from Seasonal Resource clearing to load is consistent with the current capacity market practice of allocating to load make-whole costs resulting from clearing a non-rationable marginal resource (i.e., a resource intersected by the demand curve that PJM must clear in its entirety or not at all). Further, we agree with PJM that the potential benefit to load of lower clearing prices resulting from increased Seasonal Resource participation in the capacity market will likely outweigh the additional cost to load of these make-whole payments. This is because if participation of an RPM-aggregated resource yields a lower clearing price, that lower clearing price applies to all cleared resources and could potentially reduce costs to load substantially, while the associated make-whole payment is paid only to the one higher-cost Seasonal Resource in that aggregation.

54. The Market Monitor asserts that failing to reflect in the auction-clearing optimization algorithm any make-whole payment costs that would result from clearing Seasonal Capacity Performance Resources whose offer price is above the applicable auction clearing price could yield a market outcome that deviates from the least-cost solution. The Market Monitor appears to argue that PJM's proposed clearing methodology will evaluate Seasonal Capacity Performance Resource offers based on the average of that resource's offer price and the offer price of the complementary, opposite-season Seasonal Capacity Performance Resource with which it is effectively paired (even though the pairing is not explicit), but that the resulting average offer price does not reflect make-whole payments that the supra-marginal resource would receive. The Market Monitor argues that by ignoring this additional cost, the optimization algorithm may not produce the least-cost solution, and load may pay too much for capacity.

55. PJM responds in its Deficiency Letter Response that the issue the Market Monitor raises is not whether PJM should consider the cost of existing make-whole payments in determining the least-cost solution, but rather concerns the precise steps PJM takes to make that determination. PJM states that the optimization algorithm will fully consider the total cost of a Seasonal Capacity Performance Resource offer in the same way it

[67] *Id.*

considers the cost of an annual resource's offer: each offer segment's total cost (cleared MW times offer price) is considered until the optimization algorithm can identify the lowest cost solution to meet the capacity needs. PJM states that when this process is complete, the result is the lowest bid-based production cost available to meet the capacity needs of the system.[68] PJM argues that including the make-whole costs related to Seasonal Capacity Performance Resources in the optimization algorithm could have a chilling effect on those resources' ability to clear by introducing additional costs above the sell offers they submitted, and that any auction result produced by skipping a set of Seasonal Capacity Performance Resource offers in lieu of some other resource would mean departing from the lowest bid-based production cost, which PJM asserts is a principal goal of virtually all market-clearing engines.

56. We do not find that the Market Monitor's requested modification to the optimization algorithm is necessary to render PJM's proposal just and reasonable. We agree with PJM that lowest bid-based production cost is a primary goal of most market-clearing engines, and that adhering to this principle will continue to yield just and reasonable rates in the RPM market. In choosing between an annual resource and a pair of Seasonal Resources, all of which have the same capacity, choosing the pair of Seasonal Resources will always reduce total bid-based costs whenever the average offer price of the seasonal pair is lower than the offer price of the annual resource. Total bid-based costs will be lower even if the bid-based cost of one of the Seasonal Resources exceeds the market-clearing price, and thus requires a make-whole payment. The effect of choosing the seasonal pair on total bid-based costs is fully accounted for by considering the pair's average offer price. By contrast, considering a make-whole payment made to one of the pair, as the Market Monitor recommends, would double-count a portion of the bid-based costs of the seasonal pair and overstate the bid-based costs of selecting the seasonal pair. We agree with PJM that any time the inclusion of this make-whole payment results in skipping a set of seasonal offers in lieu of some other resource, the solution has departed from the lowest bid-based production cost, which is an appropriate objective of a market clearing engine. Selecting the set of resources with the lowest bid-based costs allows market participants in the aggregate to receive the maximum total economic benefits from the capacity market. Selecting any other set of resources that does not minimize bid-based costs will result in lower aggregate benefits to market participants as a whole.

f. Equal Payment for Summer and Winter Resources

57. EnerNOC asserts that PJM's proposal that Summer-Period Capacity Performance Resources and Winter-Period Capacity Performance Resources clearing in the same Locational Deliverability Area will receive equal payment—i.e., split the auction-based

[68] *Id.* at 5.

capacity revenue 50-50—wrongly overvalues winter resources and under-values summer resources because the latter have a higher reliability value to the system. We do not find that PJM's proposed payment design renders its proposal unjust and unreasonable. The proposal is entirely consistent with the way in which Capacity Performance Resources with capacity commitments are compensated currently—in equal monthly installments throughout the delivery year. A resource does not receive larger payments in summer months than in winter months, or in months with a higher loss-of-load risk than in months with a lower loss-of-load risk. This payment design is also consistent with the purpose in permitting resource aggregation—to allow sub-annual resources to participate in, and add competition to, the RPM market by combining their capabilities to achieve the year-round performance ability of an annual Capacity Performance Resource. It is therefore reasonable that an aggregated resource is compensated in the same manner as any other Capacity Performance Resource.

g. Offer Cap

58. The Market Monitor argues that PJM has failed to propose necessary changes to capacity market mitigation rules to reflect operation of the new RPM Aggregation mechanism. The Market Monitor specifically states that the Market Seller Offer Cap applicable to Seasonal Capacity Performance Resources should be revised to reflect that the Balancing Ratio,[69] which in part determines Capacity Performance Resources' performance responsibility during Performance Assessment Hours, and the expected number of Performance Assessment Hours are expected to be different in the summer months compared to the winter months. The Market Monitor also states that the rules establishing Market Seller Offer Caps for Seasonal Capacity Performance Resources must be clarified to reflect the possibility of cross-Locational Deliverability Area aggregation.[70] To this latter point, PJM responds that there is no basis for this concern, asserting that a resource offering through the RPM Aggregation mechanism cannot

[69] The Balancing Ratio is a parameter in the Capacity Performance construct that determines, based on system conditions, what portion of a Capacity Performance Resource's committed capacity the resource must deliver (in the form of energy or reserves) during a Performance Assessment Hour to avoid Non-Performance Charges. A resource's Expected Performance during a Performance Assessment Hour is equal to its committed capacity multiplied by the Balancing Ratio. Mathematically, the Balancing Ratio is the ratio of: (i) the sum of all actual generation performance, storage resource performance, net energy imports, and demand response bonus performance; to (ii) the sum of all committed generation and storage capacity. PJM OATT at Attachment DD, section 10A(c), 2.0.0.

[70] *See* Market Monitor Comments at 12-14.

predict whether it will be matched with another Seasonal Capacity Performance Resource within or outside the same Locational Deliverability Area, and it must follow the offer parameters for the Locational Deliverability Area in which it is located.[71]

59. We find insufficient evidence to conclude that PJM's proposal is unjust and unreasonable because it lacks the mitigation rule changes for which the Market Monitor advocates. With respect to the argument that the Market Seller Offer Cap should reflect seasonal differences in the Balancing Ratio and expected number of Performance Assessment Hours, even if this disparity occurs, we expect competitive forces to have a disciplining effect on capacity sellers' behavior. A Winter-Period Capacity Performance Resource owner that sees lower risk of Non-Performance Charges and anticipates an over-supply of Summer-Period Capacity Performance Resources will nonetheless risk not clearing the auction if it inflates its offer price above its true risk-adjusted going-forward costs. In this scenario, Summer-Period Capacity Performance Resources would be expected to offer at higher prices, reflective of the additional risk of Non-Performance Charges they will face relative to Winter-Period Capacity Performance Resources. Because PJM effectively averages the offer prices of opposite-season Seasonal Capacity Performance Resources when clearing the market, the owner of a Winter-Period Capacity Performance Resource will know that inflating its offer price risks raising the average offer price of the aggregated resource to a level that is out of merit. In the absence of persuasive evidence to the contrary, we conclude that the risk of not clearing the auction will act as a significant disincentive for Winter-Period Capacity Performance Resources to offer above their risk-adjusted going-forward costs.

60. In addition, we note that Seasonal Resources—which are the only resources that may utilize the aggregation option—do not have a Capacity Performance must-offer requirement under existing rules.[72] Seasonal Resources may remove their capacity from

[71] *See* PJM Answer at 12-13.

[72] *See* PJM OATT at Attachment DD.6 Market Power Mitigation, 13.0.0, section 6.6A. We acknowledge that section 6.6A does not explicitly exempt Environmentally-Limited Resources from the Capacity Performance must-offer requirement, but the Commission accepted PJM's proposal to include Environmentally-Limited Resources among the resource types eligible for aggregation in part because PJM explained that Environmentally-Limited Resources may not be capable of offering as a Capacity Performance Resource absent use of the aggregation option. *See* PJM February 13, 2015 Answer in Docket No. ER15-623 at 27-28 and Capacity Performance Order, 151 FERC ¶ 61,208 at P 101. We therefore refer here to Seasonal Resources inclusive of Environmentally-Limited Resources under the assumption that most, if not all, Environmentally-Limited Resources would qualify for the exception to the Capacity Performance must-offer requirement in section 6.6A(a).

the RPM market for any delivery year if they so choose, even if they are subject to an offer cap. To the extent the Market Monitor is arguing that Winter-Period Seasonal Capacity Performance Resources can exercise seller-side market power, the incremental risk posed by the absence of a season-specific offer cap appears minimal relative to the existing mitigation rules that do not require Seasonal Resources to submit capacity market offers at all. Therefore, based on the evidence before us, we cannot conclude that the absence of a new, season-specific offer cap for Seasonal Resources renders PJM's proposal not just and reasonable.

61. For these reasons, we conclude that specific adjustments to the Market Seller Offer Cap are not warranted at this time. However, we expect the Market Monitor and PJM to closely monitor market participant behavior as these aggregation rule changes go into effect and to propose mitigation revisions as necessary and appropriate.

h. Issues Not Germane to this Filing

62. AEMA, AWEA, the Delaware Commission, EnerNOC, Joint Consumer Advocates, and ODEC argue that PJM's proposed revisions are insufficient to ensure continued robust participation by Seasonal Resources and/or that phasing out the Base Capacity Resource product beginning with delivery year 2020-2021 is not cost-effective. These arguments go beyond the issues raised in this section 205 filing, in which PJM proposes only modifications to the resource aggregation rules. We therefore dismiss these protests as beyond the scope of this proceeding.

63. Several parties put forth additional arguments that do not directly address PJM's proposed revisions in this section 205 filing. AWEA urges the Commission to order PJM to study whether wind resources are impacting PJM's loss of load expectation during winter periods and mandate additional Capacity Performance-related reporting requirements.[73] The Market Monitor states that Environmentally-Limited Resources' operational limits are annual, not seasonal, in nature, and they should therefore not be permitted to utilize the aggregation option.[74] ODEC asserts that the existence of an exemption from Non-Performance Charges for Generation Capacity Resources on planned outages is unduly discriminatory to Demand Resources and Intermittent Resources that do not enjoy an analogous exemption from Non-Performance Charges that fits their unique operating profiles.[75] PJM Utilities Coalition asserts that if the aggregation option is being utilized, PJM should work to address information deficiencies

[73] AWEA Comments at 11-13.

[74] Market Monitor Comments at 11-12.

[75] *See* ODEC Comments at 13-15.

or convene workshops to help resources overcome contract barriers rather than implementing a "matchmaking" mechanism.[76] These protests are beyond the scope of this proceeding and we therefore dismiss them.

64. Because we are accepting PJM's Tariff revisions without condition, PSEG and the PJM Power Providers Group's request for clarification regarding refund authority for the May 2017 Base Residual Auction is hereby moot.

B. Winter-Period Capacity Interconnection Rights

1. PJM's Proposal

65. PJM proposes Tariff revisions to modify how PJM evaluates and grants winter-period Capacity Interconnection Rights to wind resources and Environmentally-Limited Resources. PJM asserts that these changes are intended to increase the number of Seasonal Capacity Performance Resource megawatts that are eligible to aggregate. PJM states that because the PJM region is summer-peaking, PJM studies generator deliverability based on a summer-peak case, and that because wind resources have historic capacity factors during summer peak hours well below their capacity factors during winter periods, they are typically granted Capacity Interconnection Rights equal to only thirteen percent of their nameplate capability. PJM states that this poses a limitation to wind resources' ability to use the aggregation option.[77]

66. PJM proposes to address this inherent limitation by evaluating winter deliverability and winter-period Capacity Interconnection Rights for intermittent resources and environmentally-limited resources. PJM states that it will solicit and evaluate requests for additional winter-period Capacity Interconnection Rights from owners of these resource types for each delivery year using the current criteria for granting Capacity Interconnection Rights. In evaluating such requests, PJM states that it will seek to prevent infringement on available system capabilities of any resource which is already in service, or which has an executed Interconnection Service Agreement, Transmission Service Agreement, Upgrade Construction Service Agreement, or has obtained a queue position in the New Service Queue, and will grant additional Capacity Interconnection Rights to resources to the extent the existing system topology will support doing so. PJM clarifies that no reinforcement to the system will be derived from these studies.[78]

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[76] PJM Utilities Coalition Comments at 12.

[77] PJM Transmittal Letter at 20.

[78] *Id.* at 22.

67. PJM contends that it is just and reasonable to restrict availability of additional Capacity Interconnection Rights to Intermittent Resources and Environmentally-Limited Resources for the same reason that PJM limited aggregation to certain types of resources—to recognize certain resources could not meet the Capacity Performance requirements on an annual basis regardless of the level of investment the owners of those resources were willing to make. PJM adds that among the resource types eligible to utilize the aggregation option, only Intermittent Resources and Environmentally-Limited Resources are exposed to limitations of winter-period Capacity Interconnection Rights compared to their actual ability to perform during the winter under the current methodology for granting Capacity Interconnection Rights.[79]

2. Comments and Protests

68. Some commenters support PJM's proposal. For instance, PJM Industrial Customers states that it supports PJM's proposal to evaluate and expand the number of winter Capacity Interconnection Rights available for winter resources.[80] PSEG states that it supports the provisions as a short-term compromise solution, but emphasizes that PJM's proposal to allow winter Capacity Interconnection Rights for Intermittent Resources and Environmentally-Limited Resources is not a viable long-term solution and should not be approved beyond the next RPM auction.[81] Therefore, PSEG requests that PJM be directed to develop a solution that does not operate "outside" the established interconnection process or create unique Capacity Interconnection Right procurement services for a "special class of customers."[82]

69. The Union of Concerned Scientists argues that the Commission should find PJM's proposal necessary but inadequate, and direct PJM to convene stakeholders to address outstanding issues.[83] The Union of Concerned Scientists argues that PJM's proposed changes do not settle the issues associated with seasonal variations in loads, generation conditions, and transmission capabilities.[84] The Union of Concerned Scientists states PJM has made an untested assumption that "generation that is qualified through summer

[79] *Id.* at 20-21.

[80] PJM Industrial Customers comments at 9-10.

[81] PSEG Protest at 10.

[82] *Id.* at 11.

[83] Union of Concerned Scientists Comments at 1.

[84] *Id.* at 4.

testing of the transmission system for Capacity Interconnection Rights will have adequate transmission capacity in winter conditions" which undercuts the foundation of the Capacity Performance construct.[85] The Union of Concerned Scientists argues that the lack of a winter Capacity Interconnection Rights test for all generators makes it impossible to determine which generators are capable of complying with performance requirements established via summer testing.[86] The Union of Concerned Scientists requests the Commission direct PJM to develop a winter Capacity Interconnection Rights study to examine the quantity of capacity obligations needed during winter to meet peak demand, identify the winter Capacity Interconnection Rights for all generation participating in the RPM market, and form a schedule for a permanent winter Capacity Interconnection Rights allocation method in the RPM market.[87]

70. AEMA contends that unless PJM seeks, and the Commission grants, a waiver of the October 2016 Capacity Interconnection Rights notice deadline, PJM's Capacity Interconnection Right proposal is in violation of its tariff.[88] Furthermore, AEMA states that without winter Capacity Interconnection Rights, wind resources will be unable to offer fully their capacity into the auction, resulting in most, if not all, summer-only resources being precluded from participating in the May 2017 Base Residual Auction.[89]

71. Other commenters argue that PJM's proposal is unduly discriminatory.[90] LS Power argues that the proposal would allow Intermittent Resources and Environmentally-Limited Resources to bypass the interconnection queue process to obtain Capacity Interconnection Rights, which runs contrary to the Commission's earlier rejection that PJM could provide "special treatment for certain resources."[91] The Market Monitor argues that PJM's proposal to give away winter Capacity Interconnection Rights

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[85] *Id.* at 6.

[86] *Id.* at 7.

[87] *Id.* at 9.

[88] AEMA Protest at 19.

[89] *Id.* at 20.

[90] *See* Avangrid Comments at 4; LS Power Protest at 5-6; NRG Limited Protest at 5-6; PJM Power Providers Group Comments and Limited Protest at 10-12.

[91] LS Power Protest at 5-6 (citing Capacity Performance Rehearing Order, 155 FERC ¶ 61,157 at P 59).

that exist because of other resources that paid for necessary network upgrades does not properly compensate the resources that paid for the system capacity.[92]

72. Commenters propose a variety of revisions to PJM's proposal that they argue the Commission should require. Avangrid argues that if PJM's proposal for additional winter Capacity Interconnection Rights is to exist, the additional winter Capacity Interconnection Rights should apply to resources featuring higher winter average expected peak-period output, and that if the Commission accepts PJM's proposal, it should require clarifications from PJM on additional performance tests, increased unforced capacity values, and determinations of maximum offer quantities.[93] Joint Consumer Advocates argue the Commission should require PJM to modify its winter Capacity Interconnection Rights proposal to apply any additional winter Capacity Interconnection Rights to Capacity Performance Resources that have must-offer requirements.[94]

73. LS Power requests that the Commission condition its acceptance of PJM's proposal on making winter Capacity Interconnection Rights available to all Generation Capacity Resources.[95] LS Power requests that the Commission direct PJM to provide additional information on its allocation process for winter Capacity Interconnection Rights. LS Power claims that PJM fails to explain whether resources will be permitted to retain their winter Capacity Interconnection Rights if their Seasonal Capacity Performance Resource offers do not clear an RPM auction, or if winter Capacity Interconnection Rights may be used for other purposes, such as replacement capacity. LS Power also claims that PJM fails to explain whether study requests for winter Capacity Interconnection Rights will be based on the assumption that all other resources will be limited to their summer capability or if it will properly account for the fact that other resources may have higher winter capability.[96] Lastly, LS Power argues that it is necessary for PJM to expand the types of resources that would qualify as Winter-Period Capacity Performance Resources, which would allow capacity sellers to submit offers that reflect the actual operating characteristics of their resources on a seasonal basis.[97]

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[92] Market Monitor Comments at 14-15.

[93] Avangrid Comments at 5-7.

[94] Joint Consumer Advocates Comments at 7.

[95] LS Power Protest at 7.

[96] *Id.* at 8.

[97] *Id.* at 8-10.

74. NRG asserts that PJM's proposal should be upheld for the May 2017 Base Residual Auction but that the Commission should require PJM to update its interconnection process to properly evaluate winter resources' interconnection needs.[98] On the other hand, PJM Power Providers requests that the Commission reject PJM's instant proposal to award incremental winter Capacity Interconnection Rights in the near-term and instead permit PJM to come up with a more comprehensive and integrated process at some point in the future.[99]

3. Answers

75. PJM disputes claims that its winter Capacity Interconnection Rights proposal is unduly discriminatory by stating that its proposal is just and reasonable since winter Capacity Interconnection Rights are not necessary for resources barred from aggregating.[100] PJM contests protestors' comparisons of conventional and wind generators as justification for allowing all resources with higher seasonal outputs to receive additional winter Capacity Interconnection Rights by highlighting the degree to which wind generators can increase seasonal output relative to conventional generators.[101] In response to those arguing the Commission should reject its winter Capacity Interconnection Rights proposal because it is intended to be short-term. PJM maintains its proposal's short-term nature is why the Commission should accept it since it is just and reasonable and provides time to develop a permanent solution and allows for year-to-year flexibility.[102] PJM states that it is committed to a more permanent winter Capacity Interconnection Right review and approval process, and states that, to the extent the Commission desires, it will commit to submit by November 30, 2017, either: (1) Tariff changes integrating, on a long-term basis, winter Capacity Interconnection Rights into the interconnection process; or (2) an informational report updating the Commission on the status of such efforts and any impediments to such a filing.[103]

76. In its answer, PJM Power Providers Group reiterates its call to reject PJM's proposal and allow PJM to return with a more thoroughly vetted proposal. PJM Power

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[98] NRG Limited Protest at 5-6.

[99] PJM Power Providers Group Comments and Limited Protest at 10-12.

[100] PJM Answer at 19.

[101] *Id.* at 20-21.

[102] *Id.* at 22.

[103] *Id.* at 22.

Providers Group supports the Market Monitor's position that Capacity Interconnection Rights should not be given away to certain resources for free, and highlights the disagreement among other commenters about how to allocate Capacity Interconnection Rights as proof that more analysis is required.[104]

77. PSEG argues that PJM glosses over the fact that the aspect of the proposal that would grant winter Capacity Interconnection Rights is a substantial departure from the current just and reasonable interconnection process. Specifically, PSEG contends that these winter Capacity Interconnection Rights would only be granted to a subset of resources and, without explicit Commission action, would be allowed to continue indefinitely since PJM did not include a sunset date for these provisions. PSEG states that the claimed need for immediate implementation of PJM's proposal in PJM's answer must be weighed against PJM's ability to maintain reliability and the opportunity for aggregation afforded by PJM's existing Tariff.[105] PSEG requests that the Commission suspend the matter pending future action rather than thwarting the ability of market participants to have their concerns fully vetted by the Commission.[106]

4. Commission Determination

78. We find PJM's proposal to grant winter Capacity Interconnection Rights to wind resources and Environmentally-Limited Resources just and reasonable and accept it, to become effective January 19, 2017. We agree with PJM that these two resource types are uniquely situated with respect to the disparity between their winter-period and summer-period capabilities, and that this distinction is significant enough to support an accommodation that facilitates their participation in the RPM market. We also conclude that PJM's proposed accommodation is reasonable because PJM will prevent infringement on available system capabilities of other resources and will only grant additional Capacity Interconnection Rights to resources to the extent the existing system topology will support doing so. We accept this proposal without condition and we acknowledge PJM's stated commitment to work with stakeholders to explore whether it can develop a superior long-term approach that integrates winter Capacity Interconnection Rights into the interconnection process. We address protests in turn below.

[104] PJM Power Providers Group Answer at 6-7.

[105] PSEG Answer at 5.

[106] *Id.* at 6.

a. Undue Discrimination

79. LS Power argues that PJM's proposal is unduly discriminatory because it limits access to additional winter Capacity Interconnection Rights to only wind resources and Environmentally-Limited Resources. Avangrid similarly argues that access must be expanded to any resource with higher winter average expected peak-period output. We disagree that this limited access is unduly discriminatory or preferential. The Commission accepted the resource aggregation option for Seasonal Resources on the grounds that these resource types could not, regardless of investment or maintenance decisions, mitigate the non-performance risk associated with serving as a Capacity Performance Resource.[107] PJM now proposes an accommodation to a subset of Seasonal Resources that face an additional challenge based on the highly seasonal nature of their performance profiles. As PJM explains, some wind resources and Environmentally-Limited Resources have a significant disparity—upwards of 25 percent—between their summer-period and winter-period capacity factors and are impacted disproportionately by the existing rules for granting Capacity Interconnection Rights based solely on summer peak periods. While some thermal resources may have marginally higher capacity factors during winter periods, PJM explains that this disparity is markedly different than the large disparity faced by wind resources and Environmentally-Limited Resources. Based on the evidence before us, we agree with PJM that wind resources are not similarly situated to either conventional thermal resources—which, we note, are generally not eligible for resource aggregation anyway—or to other aggregation-eligible resource types in this one respect. We therefore find PJM's proposal a reasonable accommodation based on this distinction.

b. Compensation for Capacity Interconnection Rights

80. The Market Monitor, NRG, and the PJM Power Providers Group argue that PJM's proposal does not properly compensate the resources that paid for system capacity because the winter Capacity Interconnection Rights PJM may grant to wind resources and Environmentally-Limited Resources may be available due to interconnection-driven investments by other resources. However, we agree with PJM's answer that its proposal is consistent with the principle that interconnection customers are only required to pay for upgrades required to accommodate the incremental impact of the proposed project.[108] PJM states clearly that it will grant additional Capacity Interconnection Rights to resources only to the extent the existing system topology will support doing so and that no reinforcement to the system will be derived from these studies it will conduct.[109] We

[107] *See* Capacity Performance Rehearing Order, 155 FERC ¶ 61,157 at P 51.

[108] *See* PJM Answer at 22-23.

[109] PJM Transmittal Letter at 22.

therefore disagree with protestors that PJM's proposal inappropriately provides benefits to some resources at the expense of others.

81. NRG asserts that PJM's proposal should be upheld for the May 2017 Base Residual Auction but that the Commission should require PJM to update its interconnection process to properly evaluate winter resources' interconnection needs. We disagree that such a requirement is necessary for PJM's proposal to be just and reasonable. While NRG may be correct that further revisions to the process of evaluating and granting winter Capacity Interconnection Rights would better meet the needs of resources capable of superior deliverability and performance during winter periods, that possibility does not render PJM's proposal unjust and unreasonable. We encourage PJM and stakeholders to continue discussions on this topic if further revisions may be beneficial.

C. Demand Resource Measurement and Verification

1. Background

82. For purposes of the discussion below, it is helpful to first explain several terms and mechanisms related to Demand Resource participation in the RPM market.

83. First, under PJM's existing rules, Demand Resources have four load-reduction options in PJM's markets. The two options relevant to the discussion below are Firm Service Level and Guaranteed Load Drop. Firm Service Level is load management achieved by an end-use customer reducing its load to a pre-determined level (the Firm Service Level).[110] Guaranteed Load Drop is load management achieved by an end-use customer reducing its load by a pre-determined amount.[111]

84. Second, a wholesale buyer's (e.g., a load-serving entity's) capacity bill is determined by its Peak Load Contribution. In simple terms, a wholesale buyer's Peak Load Contribution is its historical contribution to system load during the five coincident peak-load hours of the delivery year, which typically occur during the summer.

85. Third, PJM's rules establish the quantity of capacity that a Demand Resource may sell as supply into the capacity market. This quantity is known as the resource's Nominated Value.[112]

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[110] PJM RAA at Schedule 6, section G, 11.0.1.

[111] *Id.*

[112] *See* PJM RAA at Schedule 6, section I, 11.0.1.

86. Finally, Demand Resource compliance is the process of assessing whether, and to what extent, a Demand Resource has performed consistent with its load reduction obligation during PJM-initiated Demand Resource events, Curtailment Service Provider-initiated tests, and capacity market Performance Assessment Hours. PJM's existing rules distinguish between events occurring during the months of June through September (summer period) and those occurring during the months of October through May (non-summer period). Summer period compliance compares end-use customers' load reductions to their Peak Load Contributions (or, in the case of Guaranteed Load Drop customers, the lesser of their Peak Load Contributions or a comparison load used to approximate their load absent the event being called).[113] By contrast, winter period compliance compares end-use customers' load reductions to their Customer Baseline Loads, which is an average of their highest recent loads during similar periods. For example, an end-use customer's Customer Baseline Load for weekdays is the average of the highest four out of the five most recent load weekdays in the 45 calendar-day period preceding the relevant load reduction event.[114]

2. PJM's Proposal

87. PJM proposes revisions to modify the methodologies for Demand Resource measurement and verification during non-summer periods. These methodologies determine a Demand Resource's Nominated Value and compliance during PJM-initiated Demand Resource events, Curtailment Service Provider-initiated tests, and capacity market Performance Assessment Hours. PJM states that in its Capacity Performance filing, it explained that the then-current measurement and verification rules, which measured load response solely based on a summer peak, were inadequate to measure Demand Resource performance under the new Capacity Performance rules during the non-summer period, but that because a non-summer equivalent to Peak Load Contribution did not exist, PJM was proposing to use an alternative approach using Customer Baseline Load. However, PJM explains that stakeholders have since argued that Customer Baseline Load approach adopted for the non-summer period does not allow for an accurate measurement of performance in all instances. Specifically, PJM states that stakeholders are concerned that customers with winter load that reduce their load *prior to* PJM dispatch may not be recognized by PJM as having performed consistent with the Capacity Performance rules. PJM states that such an outcome is possible under the current Customer Baseline Load approach because Customer Baseline

[113] *See* PJM RAA at Schedule 6, section K, 11.0.1. Note that, for simplicity, our descriptions ignore loss factors and weather normalizations.

[114] *See* PJM Operating Agreement at Schedule 1, section 3.3A.2(a), 10.0.0.

Load is designed to capture real-time energy load reduction based on PJM dispatch, and not load reduction that occurs in anticipation of PJM dispatch.

88. PJM states that while a non-summer equivalent Peak Load Contribution is not available, it has now determined that a non-summer demand-based metric, which PJM calls Winter Peak Load, can be used to accomplish similar results and address the concern expressed by stakeholders.[115] PJM states that it will ensure that customers with winter load consume electricity at a lower level when dispatched by PJM for an Emergency or Pre-Emergency Load Management event, and that customers without winter load will not receive credit under the Capacity Performance rules for a load reduction just because they do not have load in the winter.[116]

89. To effectuate the measurement and verification modifications, PJM proposes four new defined terms for use beginning with the 2020-2021 delivery year: Summer-Period Demand Resource,[117] Summer-Period Energy Efficiency Resource,[118] Winter Peak Load,[119] and Zonal Winter Weather Adjustment Factor.[120] PJM also proposes to revise

[115] PJM Transmittal Letter at 7-9, 22-23.

[116] *Id.* at 22-23.

[117] Summer-Period Demand Resource is a resource that is placed under the direction of PJM and available June through October and the following May of the delivery year; made available for an unlimited number of interruptions during such months; and capable of maintaining each such interruption between the hours of 10:00 and 22:00 Eastern Prevailing Time (EPT). *See* PJM RAA at Article 1 – Definitions, 20.0.0.

[118] Summer-Period Energy Efficiency Resource is a project designed to achieve a continuous reduction in electric energy consumption that is not reflected in the peak load forecast prepared for the delivery year for which the Summer-Period Energy Efficiency Resource is proposed, and that is fully implemented at all time during such delivery year without any requirement of notice, dispatch, or operator intervention. *See* PJM RAA at Article 1 – Definitions, 20.0.0.

[119] Winter Peak Load is the Demand Resource customer-specific peak load between hour ending 7:00 EPT through 21:00 EPT on the PJM-defined five coincident peak days from December through February two delivery years prior to the delivery year for which the registration is submitted. *See* PJM RAA at Article 1 – Definitions, 20.0.0.

[120] Zonal Winter Weather Adjustment Factor is the PJM zonal winter weather-normalized coincident peak divided by PJM zonal average of five coincident peak load in December through February. *See* PJM RAA at Article 1 – Definitions, 20.0.0.

the definition of "summer period," as it applies to Demand Resource measurement and verification, from June through September to June through October and the following May of the relevant delivery year. This revision complements PJM's proposal, summarized below, to measure Demand Resource performance using a different methodology during the "winter period" months of November through April.

90. PJM states that under its proposal, Curtailment Service Providers will calculate and provide each customer's Winter Peak Load during the registration process, and PJM will use the Zonal Winter Weather Adjustment Factor to weather-normalize the customer's Winter Peak Load. PJM explains that for Annual Demand Resources with Capacity Performance commitments, the Curtailment Service Provider will determine both a summer and winter Firm Service Level amount or a summer and winter Guaranteed Load Drop amount (depending on which of these load reduction measures the resource elects) for the resource on its registration to determine the associated seasonal Nominated Demand Resource Value.[121] PJM states that for all other Demand Resources, including the new proposed Summer-Period Demand Resource, the Nominated Demand Resource Value on the registration, and associated measurement and verification during a test and event, remain the same as under the existing rules.[122]

91. For purposes of assessing Demand Resource performance—including for applying Non-Performance Penalties and Performance Credits—PJM proposes to modify the baseline against which load reductions are measured during the winter period of November through April.[123] Under existing Firm Service Level rules, the metered load of each individual customer within a Demand Resource is subtracted from that customer's Peak Load Contribution during a compliance event, and that difference is compared to the customer's commitment for purposes of assessing compliance.[124] PJM proposes to retain this methodology during the delivery year months of June through October and the following May, but proposes that during the months of November through April, the metered load of each individual customer within a Demand Resource

[121] Nominated Demand Resource Value is the amount of load reduction that a Demand Resource commits to provide either through Direct Load Control, Firm Service Level, or Guaranteed Load Drop programs. *See* PJM OATT at section I.1 Definitions – L-M-N, 11.0.0.

[122] PJM Transmittal Letter at 24.

[123] For simplicity, the summary below ignores the Loss Factor, which is also part of these calculations. *See* PJM RAA at Schedule 6, paragraph K, 12.0.0.

[124] PJM RAA at Schedule 6, paragraph K, 11.0.0.

will instead be subtracted from that customer's weather-normalized Winter Peak Load, and that difference will then be compared to the customer's capacity commitment for purposes of assessing compliance.[125]

3. Comments and Protests

92. Commenters generally support PJM's proposal on Demand Resource measurement and verification during non-summer periods.[126]

93. AEMA notes that PJM's proposal provides benefits to a limited set of Demand Resources, mostly large industrial loads that have the ability to drop their winter demand from this pre-defined winter peak to an agreed upon maximum level, but the proposal provides no benefits to summer-peaking Demand Resources. AEMA argues that PJM's proposed change to include a Winter Peak Load metric fails to allow residential customers or their aggregators to participate in the capacity market, and is therefore arbitrary and unduly discriminatory.[127]

94. The Market Monitor asserts that, consistent with Commission precedent, the Winter Peak Load calculation used for Demand Resources should not be allowed to exceed the amount of capacity load paid for, also known as the Peak Load Contribution.[128]

4. Commission Determination

95. We find that the proposed revisions represent a just and reasonable measure of winter performance for Demand Resources with capacity commitments, and accept the revisions to become effective, as proposed, June 1, 2017.

96. AEMA argues that the use of the proposed Winter Peak Load metric does not adequately allow residential customers or their aggregators to participate in the capacity

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[125] PJM RAA at Schedule 6, paragraph K, 12.0.0.

[126] *See, e.g.*, PJM Industrial Customers Comments at 3-7, EnerNOC Comments at 1-2.

[127] AEMA Protest at 21-22.

[128] Market Monitor Comments at 16-17 citing *PJM Interconnection, L.L.C.*, 138 FERC ¶ 61,138 (2012)).

market. This issue is beyond the scope of this filing as it challenges the concept of a year-round commitment for demand resources.

97. The Market Monitor argues that permitting the Winter Peak Load of a Demand Resource to exceed the Peak Load Contribution of the resource is inconsistent with economic logic and would permit double-counting of capacity.[129] We understand the Market Monitor's argument to be that if a Demand Resource has a Winter Peak Load that is higher than its Peak Load Contribution, it could be deemed to be in compliance with its load reduction obligation during a winter-period event even if it has not reduced load to its Firm Service Level (in the case of a Demand Resource utilizing the Firm Service Level option) or by its Guaranteed Load Drop quantity (in the case of a Demand Resource utilizing the Guaranteed Load Drop option).

98. Based on PJM's OATT and RAA, under PJM's proposed revisions, the compliance of a Demand Resource utilizing the Firm Service Level option during a winter Performance Assessment Hour is calculated by comparing: (i) the difference between the resource's Winter Peak Load and its actual load; to (ii) the resource's committed capacity (i.e., its Nominated Value).[130] Compliance of a Demand Resource utilizing the Guaranteed Load Drop option is calculated by comparing: (i) the difference between the resource's Winter Peak Load and its actual load; to (ii) the resource's winter Guaranteed Load Drop.[131] While the outcomes the Market Monitor highlights do appear possible, they are not inconsistent with current practice. That is, Demand Resource compliance during winter periods is currently determined by comparing the resource's load reduction to its Customer Baseline Load, and, as PJM indicates,[132] the Customer Baseline Load is not capped at the resource's Peak Load Contribution.[133] PJM proposed,

[129] *See* Market Monitor Comments at 16-17.

[130] *See* PJM OATT at Attachment DD, section 10A(c), 2.0.0 and PJM RAA at Schedule 6, section K, 12.0.0.

[131] *See* PJM OATT at Attachment DD, section 10A(c), 2.0.0 and PJM RAA at Schedule 6, section K(i), 12.0.0.

[132] PJM Answer at 24-25 ("To the extent the [Market Monitor] is arguing that [Winter Peak Load] should never be at a level greater than [Peak Load Contribution], regardless of whether the same amount of load reduction is achievable in both summer and winter, the [Market Monitor's] complaint misses the mark and ignores that the current non-summer measurement approach—the Customer Baseline—also is [in] no way related to a resource's [Peak Load Contribution].").

[133] *See* PJM RAA at Schedule 6, section G, 11.0.1.

and the Commission accepted, the use of an uncapped Customer Baseline Load for purposes of assessing Demand Resource compliance during winter-period events in the Capacity Performance proceeding.[134] We are not persuaded by the evidence before us that PJM's instant section 205 proposal to move from an uncapped Customer Baseline Load to an uncapped Winter Peak Load for this same purpose fails to meet the just and reasonable standard. We note that, under PJM's proposal, Demand Resources' Nominated Values and compliance during summer-period events continue to be capped at their Peak Load Contribution.[135]

The Commission orders:

(A) PJM's filing is hereby accepted, as discussed in the body of this order. PJM's revisions to aggregation rules and winter Capacity Interconnection Rights are effective January 19, 2017, as discussed in the body of this order. PJM's revisions to Demand Resource measurement and verification are effective June 1, 2017, as discussed in the body of this order.

(B) PSEG and the PJM Power Providers Group's request for clarification is dismissed as moot, as discussed above.

By the Commission. Chairman McIntyre and Commissioner Powelson are not participating.

(S E A L)

Nathaniel J. Davis, Sr.,
Deputy Secretary.

[134] Capacity Performance Order, 151 FERC ¶ 61,208 at PP 54, 180.

[135] *See* PJM RAA at Schedule 6, sections I and K, 12.0.0. Under PJM's proposed revisions, the Nominated Value of a Demand Resource utilizing the Firm Service Level option is the lesser of (i) the resource's Peak Load Contribution minus its summer Firm Service Level and (ii) the resource's Winter Peak Load minus its winter Firm Service Level. The Nominated Value of a Demand Resource utilizing the Guaranteed Load Drop option is the lesser of the resource's summer and winter Guaranteed Load Drop amounts.

Appendix

List of Intervenors

Advanced Energy Management Alliance (AEMA)
American Electric Power Service Corporation
American Municipal Power, Inc.
American Wind Energy Association (AWEA)
Avangrid Renewables, LLC (Avangrid)
BP Wind Energy North America, Inc.
Buckeye Power, Inc.
Calpine Corporation
Citizens Utility Board
Consumer Advocate Division of West Virginia
CPV Power Holdings, LP
Dayton Power and Light Company
Delaware Division of the Public Advocate
Delaware Public Service Commission (Delaware Commission)
DC Office of the People's Counsel
Dominion Resources Services, Inc.
Duke Energy Corporation
East Kentucky Power Cooperative, Inc.
EDF Renewable Energy, Inc.
EDP Renewables North America LLC
Electric Power Supply Association
EnerNOC, Inc.
Enerwise Global Technologies d/b/a CPower
Environmental Law & Policy Center
Exelon Corporation (Exelon)
E.ON Climate & Renewables North America, LLC
FirstEnergy Service Company
Independent Market Monitor for PJM (Market Monitor)
Indiana Office of Utility Consumer Counselor
Invenergy Wind Development LLC
LS Power Associates, L.P. (LS Power)
Maryland Office of People's Counsel
Maryland Public Service Commission (Maryland Commission)
National Rural Electric Cooperative Association
New Jersey Division of Rate Counsel
NextEra Energy Resources, LLC
North Carolina Electric Membership Corporation
NRG Power Marketing LLC and GenOn Energy Management, LLC (NRG)
Office of the Ohio Consumers Counsel

Old Dominion Electric Cooperative and Direct Energy Business, LLC (ODEC)
Organization of PJM States, Inc.
Pennsylvania Office of Consumer Advocate
Pennsylvania Public Utility Commission
PJM Industrial Customer Coalition
PJM Power Providers Group
PSEG Companies (PSEG)
Public Utilities Commission of Ohio
Rockland Electric Company
Sierra Club
Southern Maryland Electric Cooperative, Inc.
Steel Producers
Sustainable FERC Project
Union of Concerned Scientists