152 FERC ¶ 61,165
UNITED STATES OF AMERICA
FEDERAL ENERGY REGULATORY COMMISSION

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

PJM Interconnection, L.L.C. Docket No. ER15-1966-000

ORDER ON TARIFF REVISIONS

(Issued August 31, 2015)

1. On June 23, 2015, PJM Interconnection, L.L.C. (PJM) filed revisions to Attachment K-Appendix of the PJM Open Access Transmission Tariff (Tariff) and the parallel provisions of the Amended and Restated Operating Agreement (Operating Agreement) pursuant to section 205 of the Federal Power Act (FPA).[1] PJM proposes to revise the methodologies used to credit market sellers of certain types of generating units for lost opportunity costs (LOCs) in PJM's day-ahead energy market and real-time energy market.[2]

2. We accept PJM's proposed tariff revisions to become effective September 1, 2015, as requested, as discussed in the body of this order.

I. Background

3. As PJM explains, the purpose of LOC payments is to ensure that generating units are incentivized to follow PJM's dispatch instructions by compensating market sellers for any lost revenues resulting from following PJM's dispatch instructions. PJM further explains that LOC payments occur under several types of scenarios, including when a generation unit has been scheduled in the day-ahead market and: (1) the generation unit's output is reduced or suspended by PJM in real-time, below the unit's economic output

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[1] 16 U.S.C. § 824d (2012).

[2] PJM Interconnection, L.L.C., Intra-PJM Tariffs, OATT ATT K Appx Sec 3.2, OATT Attachment K Appendix Sec 3.2 - Market Buyers, 29.0.0 and OA Schedule 1 Sec 3.2, OA Schedule 1 Sec 3.2 - Market Buyers, 29.0.0.

level; or (2) when a generation unit is scheduled in the day-ahead market but is not committed in real-time.[3]

4. PJM explains that the goal of the LOC payment in the scenario where a unit is scheduled day-ahead but does not operate in real-time is to ensure that the Market Seller realizes the same amount of revenues regardless of whether the unit actually runs in real-time based on its day-ahead commitment. PJM further explains that accomplishing this outcome leaves the Market Seller indifferent as to whether the unit runs in real-time, and assures the unit does not have an economic incentive to disregard PJM's instructions.[4]

5. PJM explains that LOC payments are not calculated consistently across PJM's various markets, due to the markets evolving over time. Since individual LOC calculations were developed as part of larger initiatives in each applicable market, LOC calculations were often used as a means to reach compromise in stakeholder discussions. PJM explains that this has resulted in market sellers being overcompensated in some situations and undercompensated in others. PJM argues that these discrepancies in compensation can, at times, undermine core market signals and incentivize inappropriate market behavior.[5]

II. PJM's Filing

6. PJM proposes revisions to better align the way LOC payments are calculated for generating units providing energy and reactive services. First, PJM proposes to revise its method for computing LOC payments for steam-electric generating units and certain combined cycle generating units, which PJM states will make the methodology more accurate and ensure the calculations are consistent across all of PJM's markets. PJM currently calculates LOC payments for certain units based on a single point on a unit's offer curve. PJM proposes to calculate LOC payments based on the unit's entire incremental offer curve. PJM explains that this revision will ensure that generating units receive LOC payments covering potential lost profits. For example, in certain instances, basing calculations on the entire incremental offer curve will remove un-incurred production costs from the LOC payment calculation.[6]

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[3] PJM Transmittal at 2.

[4] *Id.* at 9.

[5] *Id.* at 2-3.

[6] *Id.* at 6-7. Although the example provided above, which PJM presented in Figure 1 to its Transmittal, demonstrates how PJM's proposed revisions address

(continued ...)

7. Second, PJM proposes that, for pool-scheduled resources, the reference offer used in the LOC calculation will be the applicable offer curve that a generation unit was committed on in the day-ahead market. PJM currently uses the offer curve that a generation unit was committed on in the day-ahead market, unless the generation unit's cost-based offer was above its price-based offer, in which case PJM would use the 'higher of' offer curve to calculate LOC payments. PJM states that this 'higher of' methodology reduces LOC payments but does not accurately reflect the actual amount of lost profit a unit would incur if its output was reduced by PJM based on the offer curve that it had been committed on. Therefore, PJM proposes to eliminate the higher-of rule for pool-scheduled units.[7] PJM proposes to change four different subsections of the Tariff and Operating Agreement, with each revised subsection corresponding to a different unit type.[8] However, PJM will retain the 'higher of' methodology for self-scheduled generation units. PJM explains that such units decide the offer being used to determine LOC payments, which may incent them to submit offers that do not reasonably reflect the unit's operational costs, and that continued use of the "higher of" methodology for self-scheduled units is appropriate to discourage potentially manipulative behavior.

8. Finally, PJM proposes to include start-up and no-load costs in the calculation of LOC payments for combustion turbine (CT) units that have been scheduled day-ahead but do not operate in real-time.[9] PJM explains that the goal of this revision is to make a market seller indifferent as to whether the unit runs in real-time, since the current rules result in CT units scheduled in the day-ahead market being paid more by not operating in real-time than if they do operate in real-time. Currently, for these CTs, the LOC calculation does not include the unit's start-up and no-load costs; thus, the LOC calculation does not consider these items costs that a market seller would incur if the unit were to actually operate in real-time. By omitting such costs, the resulting LOC

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overcompensation, PJM's proposal will also address situations in which utilizing a single point on the offer curve results in under compensation.

[7] *Id.* at 8-9.

[8] Specifically, provisions for steam electric units and combined cycle units operating in combined cycle mode are revised in parallel provisions of the Tariff and Operating Agreement, subsection(s) 3.2.3(f); provisions for wind generating units, CTs, and units providing reactive services are revised in sections 3.2.3 (f-4), 3.2.3(f-1) (ii), and 3.2.3B(c), respectively.

[9] PJM Transmittal at 9-10, 15. PJM states that if a generation unit does actually run, start-up costs will still be excluded from the LOC payment calculation.

calculation yields an inflated payment for CTs, which is effectively overstated by an amount equal to the start-up and no-load costs. [10]

III. Notice and Pleadings

9. Notice of PJM's June 23, 2015 filing was published in the *Federal Register*, 80 Fed. Reg. 36,983, with interventions and protests due on or before July 14, 2015.

10. American Electric Power Service Corporation, the Maryland Public Service Commission, Talen PJM Companies,[11] NextEra Energy Resources, LLC, American Municipal Power, Inc., North Carolina Electric Membership Corporation, Old Dominion Electric Cooperative, and the NRG Companies filed timely motions to intervene. Exelon Corporation filed an out-of-time motion to intervene. Dominion Resources Services, Inc. (Dominion) filed a timely motion to intervene and a protest. The PJM Industrial Customer Coalition (PJM ICC) filed a timely motion to intervene and comments. The Independent Market Monitor for PJM (IMM) filed a timely motion to intervene and out-of-time comments.

11. On July 28, 2015, Dominion filed a motion for leave to answer and an answer to the IMM's comments (Dominion Answer). On July 29, 2015, PJM filed a motion for leave to answer and an answer to both Dominion and the IMM's comments (PJM Answer). On July 31, 2015, the IMM filed a motion for leave to answer and answer to Dominion's protest (IMM First Answer). On August 3, 2015, the IMM filed a motion for leave to answer and answer to Dominion's Answer (IMM Second Answer). On August 17, 2015, PJM filed a letter of clarification to its July 29, 2015 answer.

A. Responsive Pleadings

12. PJM ICC filed comments supporting the filing in its entirety and requests that the Commission accept the filing without modification.[12] The IMM also supports PJM's proposal and requests that the Commission accept the tariff revisions submitted by PJM in order to correctly calculate LOC payments, as well as to align LOC calculations across

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[10] PJM Transmittal at 15.

[11] The Talen PJM Companies are: Talen Energy Marketing, LLC, Brunner Island, LLC, Holtwood, LLC, Talen Ironwood, LLC, Martins Creek, LLC, Montour, LLC, Susquehanna Nuclear, LLC, Lower Mount Bethel Energy, LLC, Talen New Jersey Solar, LLC, Talen New Jersey Biogas, LLC, and Talen Renewable Energy, LLC.

[12] PJM ICC Comments at 3.

PJM markets.[13] The IMM comments that the current omission of start-up and no-load costs from the LOC payment calculation, resulting in LOC payments greater than what a unit would have earned from actually operating, creates an incentive for gaming by participants by offering units in the day-ahead market at a price-based offer lower than their cost-based offer, if such units are not likely to be committed in real-time. The IMM also made further recommendations for additional reforms to LOC compensation.[14] The IMM's recommendations include basing LOC calculations on the achievable output of the units, accounting for intra hour commitments, performing LOC calculations by segments of multiple hours and not hourly, basing LOC compensation on a unit's technical parameters and not the type of units, and defining LOC rules for all markets and services.

13. In its protest, Dominion argues that market sellers of CT units incur additional costs beyond start-up and no-load and that PJM's current LOC calculation mitigates these costs and should not be changed. As Dominion explains, when a CT unit owner anticipates being committed in the day-ahead energy market, it often procures natural gas, as well as transportation rights on natural gas pipelines to ensure that the fuel needed to run in real-time is available. Dominion argues that, under the status quo, the LOC payment structure offsets these additional costs and encourages some suppliers to offer short-term flexibility at a price.[15] Dominion also emphasizes the uncertain nature of pipeline imbalance costs charged by pipelines when CTs commit in the day-ahead market.[16]

14. Dominion is concerned over the impact that PJM's proposal will have on short-notice CTs that commit to PJM's day-ahead energy market, but then are not called upon in real time.[17] Dominion states that if accepted, PJM's revisions will reduce LOC payments and eliminate the incentives that compensate generators for incurring certain risks and costs of offering units into the day-ahead energy market with reduced

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[13] IMM Comments at 1, 14.

[14] *Id.* at 17-23.

[15] Dominion identifies these costs as fuel and transportation costs that enable more flexible offers and gas pipeline imbalance costs. *See* Dominion Protest at 6-9.

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

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

notification times.[18] Dominion posits that PJM's proposal would remove a much needed incentive for CT generators to provide short-notice service.[19]

15. Dominion argues that intra-hour LOCs are another example of additional costs incurred by CTs and states that they create a disincentive for CT owners to follow PJM dispatch directions. Dominion explains that in situations where a generation unit is called upon by PJM intra-hour, the unit does not receive LOC payments, but is instead compensated through the Balancing Operating Reserves Make Whole payments which result in no payment 90 percent of the time. According to Dominion, all these costs incurred by short-notice CTs are real, tangible, and calculable and should not be dismissed by PJM.[20]

16. Dominion requests that the Commission either reject PJM's proposal or defer ruling on it until after an appropriate adjustment is made to PJM's offer rules that will provide flexibility for CT units to adjust offers in the real-time energy market to mitigate some of the gas fuel, transportation, and other additional costs incurred when a unit commits in day-ahead energy market but is not called upon the real-time energy market.[21] Alternatively, Dominion requests that this compliance filing implement a replacement product definition for flexible units, inclusive of a revised set of operating rules and additional compensation for short-notice suppliers.[22]

B. Answers

17. Dominion and PJM assert that the recommendations proposed by the IMM be rejected as outside the scope of the filing, since they have not been fully vetted through the stakeholder process.[23]

18. Dominion disagrees with the IMM's assertion that LOC calculations are inconsistent across markets without justification, stating that the IMM fails to recognize that the current LOC calculations are a reflection of the evolution of PJM markets and the

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[18] *Id.* at 2, 7-8.

[19] *Id.* at 9.

[20] *Id.* at 8-9.

[21] *Id.* at 12.

[22] *Id.* at 10.

[23] Dominion Answer 4-6; PJM Answer at 4-5.

balancing of the varied interests of market participants.[24] Dominion states that the IMM fails to attribute value to unit flexibility for its alternative recommendations.[25]

19. PJM asserts that the additional fuel transportation costs Dominion seeks recovery for should be sought in the capacity market. PJM states that the LOC market rules at issue are not designed to make generators whole for the kinds of fuel and transportation costs that Dominion seeks. Additionally, PJM states that Dominion should address the recovery of uncertain costs, such as gas pipeline imbalances, and intra-hour LOC costs through the stakeholder process.[26] PJM notes that Dominion failed to avail itself of the opportunity to address its concerns through the stakeholder process. PJM asserts that Dominion voted in favor of the current revisions and recognized in its protest that the current overcompensation that arises from the error embedded in the current LOC calculation for CTs does not fully compensate short-notice CTs for the costs noted by Dominion. PJM reasons that perpetuating a flawed, inaccurate market design solely to allow for recovery of costs that have yet to be accurately quantified is patently unjust and unreasonable.[27]

20. The IMM argues that Dominion's claim that the current LOC compensation was the result of the stakeholder process is unsupported. The IMM instead argues that the current compensation structure included an algebraic error and was an oversight during the development of the LOC rules.[28]

21. The IMM states that Dominion has failed to show any relationship between start-up and no-load costs and the other costs Dominion identifies as potentially incurred by owners of CTs scheduled in the day-ahead market and not committed in real-time. The IMM further explains that start-up and no-load costs are calculated based on the defined components of short run marginal cost including fuel costs, short run marginal operation

[24] Dominion Answer at 3.

[25] *Id.* at 9-11.

[26] On August 17 PJM filed a letter of clarification to clarify that Dominion did participate in the stakeholder discussions of the various proposals and offered an amendment to the proposal.

[27] PJM Answer at 3.

[28] IMM First Answer at 3, IMM Second Answer at 1-4. In its Second Answer, the IMM explained the development of proposed LOC compensation revisions dating back to 2012.

and maintenance costs, and emission costs. The IMM states that start-up costs are incurred every time a unit starts, while no-load costs are incurred every hour a unit runs. The IMM argues that although the cost of no notice gas service and natural gas imbalance penalties are real costs, they are not marginal costs of energy production and therefore not included in competitive energy offers. The IMM also argues that the objective of LOC compensation is to make whole resources that follow PJM's directions, not to cover costs that are not recoverable through energy offers.[29]

22. Finally, the IMM argues that Dominion has no credible basis for its claim that the proposed rules would incent generation owners to significantly increase start-up times, making other operating parameters less flexible and increase offer prices to provide greater revenue certainty. The IMM posits that the goal of a competitive market design is not to provide revenue certainty and that it is unlikely that a generation owner in a competitive market will increase its offers and make them less flexible when such changes will make the units less competitive. Consistent with this approach, the IMM argues that there is no merit to a new product that addresses short term flexibility and states that the PJM Capacity Performance capacity market redesign addresses the incentives and costs associated with flexibility.[30] The IMM states that there is no reason why large, fast-starting CTs must run for at least four hours before coming offline after reaching their base output, since the minimum run times are entirely an economic decision.[31]

IV. Procedural Matters

23. Pursuant to Rule 214 of the Commission's Rules of Practice and Procedure, 18 C.F.R. § 385.214 (2015), the timely, unopposed motions to intervene serve to make the entities that filed them parties to this proceeding.

24. Pursuant to Rule 214(d) of the Commission's Rules of Practice and Procedure, 18 C.F.R. § 385.214(d) (2015), the Commission will grant Exelon's late-filed motion to intervene given its interest in the proceeding, the early stage of the proceeding, and the absence of undue prejudice or delay.

25. Rule 213(a)(2) of the Commission's Rules of Practice and Procedure, 18 C.F.R. § 385.213(a)(2) (2015), prohibits an answer to a protest or an answer unless otherwise

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[29] IMM First Answer at 2-3.

[30] *Id.* at 3-4.

[31] IMM Second Answer at 4-5.

ordered by the decisional authority. We will accept the Answers of Dominion, PJM, and the IMM because they have provided information that assisted us in our decision making process.

V. <u>Substantive Matters</u>

26. For the reasons discussed below, we accept PJM's proposed tariff revisions, to become effective September 1, 2015, as requested. We agree with PJM that its proposal will better align the methodologies used to calculate LOC payments across its various markets, support dispatch instructions, and deter inappropriate market behavior. Specifically, we find that PJM's proposal to calculate LOC payments based on a unit's entire incremental offer curve and its elimination of the higher of rule for pool-scheduled units will result in a more accurate calculation of LOC. We agree that incorporating no-load and start-up costs in the LOC payment calculation for units that do not operate in real time will prevent overcompensation. We also agree with PJM that continued use of the higher of price or cost-based offer methodology for LOC payment calculation is appropriate for self-scheduled units to discourage potential manipulative behavior, since such units may have an incentive to submit offer curves that do not reasonably reflect the generation units' operational costs. While we agree that the inclusion of start-up and no-load costs in the LOC payment calculation is likely to reduce incentives for such behavior by pool-scheduled CT units, we expect that the IMM will continue to monitor for any potentially manipulative behavior.

27. As to Dominion's argument that PJM's proposal should account for certain costs (i.e., gas fuel and transportation costs) incurred by CT generators and combined cycle generators operating in CT mode that commit in PJM's day-ahead market but are not called upon in real-time, we disagree. As PJM explains, the purpose of LOC payments is to ensure that generating units are incentivized to follow PJM's dispatch instructions by compensating their market sellers for any lost revenues resulting from following PJM's dispatch instructions. PJM further states that LOC payments were not designed to make market sellers whole for these types of fuel and transportation costs. We agree with PJM and the IMM that LOC payments are not meant to cover such additional costs and therefore reject Dominion's arguments on this issue.

28. Dominion also argues that PJM's revisions, if accepted, will eliminate the incentive to compensate generators that have the capability to produce energy on a short notice of two hours or less. Dominion argues that such overcompensation is warranted because it has been widely considered *de facto* compensation for other risks associated with the provision of energy incurred by short-notice CTs. Dominion further argues that the proposal should only be accepted upon a compliance filing implementing a replacement product definition, inclusive of a revised set of operating rules and additional

compensation for short-term suppliers.[32] We reject these arguments. We find that PJM's proposal aims to correct inconsistencies across the various methodologies used to calculate certain LOC payments. In the proposed revisions, PJM did not make any changes with regard to notification times. Moreover, we find that LOC payments are not meant to recover anything other than what generation units would earn if PJM had not reduced or curtailed their dispatch.

29. Dominion also suggests that a decision on the proposal should be deferred until after an appropriate adjustment is made to PJM's offer rules that will provide adequate flexibility for CT units to adjust offers in the real-time energy market to mitigate some of the gas fuel, transportation, and other costs incurred when a unit commits in the day-ahead market but is not called upon in real-time. We disagree. We note that the Commission has already required PJM to file changes to allow for more flexibility in offers in Docket No. EL15-73-000.[33] We also note the on-going stakeholder discussions with PJM's Offer Generator Flexibility Senior Task Force, which are addressing these types of issues and encourage Dominion to raise its flexible offer concerns in this forum.[34] Further, as noted above, the purpose of LOC payments is to ensure that generating units are incentivized to follow PJM's dispatch instructions by compensating their market sellers for any potential lost profit resulting from following PJM's dispatch instructions, not to recover additional transportation fuel costs. We find that PJM's proposal is just and reasonable without the modification to more flexible generation offers and therefore reject Dominion's request to defer this proposal.[35]

30. Finally, we reject as beyond the scope of this section 205 proceeding Dominion's argument that intra-hour LOCs are another example of costs incurred and create a

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[32] Dominion Protest at 5-9.

[33] *PJM Interconnection, L.L.C.*, 151 FERC ¶ 61,206 at PP 71-74 (The Commission finds that the current PJM Tariff and Operating Agreement "do not appear to allow market participants to submit day-ahead offers that vary by hour and do not appear to allow market participants to update their offers in real time, including during emergency situations. Accordingly, we institute a proceeding, in Docket No. EL15-73-000, pursuant to section 206 of the FPA to address this failing.").

[34] *See* PJM's Offer Generator Flexibility Senior Task Force at http://www.pjm.com/committees-and-groups/task-forces/gofstf.aspx

[35] We further note that the proposed tariff revisions were submitted under section 205 of the FPA, requiring Commission action within 60 days of the filing.

disincentive for CT owners to follow PJM directions,[36] and the IMM's additional suggested revisions for calculating LOC payments. We encourage stakeholders to utilize the stakeholder process to address these and other concerns and to develop any tariff revisions as necessary.

The Commission orders:

PJM's proposed tariff revisions are hereby accepted, to become effective September 1, 2015, as requested, as discussed in the body of this order.

By the Commission. Commissioner Moeller dissenting with a separate statement to be issued at a later date.

(S E A L)

Nathaniel J. Davis, Sr.,
Deputy Secretary.

[36] Dominion explains that in situations where a generation unit is called upon by PJM intra-hour, the unit receives compensation through Balancing Operating Reserves Make Whole payments which result in no payment 90 percent of the time.