

155 FERC ¶ 61,089
UNITED STATES OF AMERICA
FEDERAL ENERGY REGULATORY COMMISSION

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

Linden VFT, LLC v. PJM Interconnection, L.L.C. Docket Nos. EL15-67-000

ORDER DENYING COMPLAINT

(Issued April 22, 2016)

1. On May 22, 2015 (as amended on July 10, 2015),¹ Linden VFT, LLC (Linden), filed a complaint (Linden Complaint) in Docket No. EL15-67-000, pursuant to section 206 of the Federal Power Act (FPA),² regarding the assignment of costs for transmission projects that were approved through the PJM Interconnection, L.L.C. (PJM) Regional Transmission Expansion Planning (RTEP) process. PJM calculated the cost assignments at issue pursuant to its regional cost allocation method, which the Commission accepted as compliant with Order No. 1000.³ In this order, we deny the Linden Complaint.

¹ References to the Linden Complaint are to the amended complaint, unless otherwise specified.

² 16 U.S.C. § 824e (2012).

³ See *Transmission Planning and Cost Allocation by Transmission Owning and Operating Public Utilities*, Order No. 1000, FERC Stats. & Regs. ¶ 31,323 (2011), *order on reh'g*, Order No. 1000-A, 139 FERC ¶ 61,132, *order on reh'g and clarification*, Order No. 1000-B, 141 FERC ¶ 61,044 (2012), *aff'd sub nom. S.C. Pub. Serv. Auth. v. FERC*, 762 F.3d 41 (D.C. Cir. 2014). The Commission accepted the regional cost allocation method as part of PJM's Order No. 1000 compliance filings. See, *PJM Interconnection, L.L.C.*, 142 FERC ¶ 61,214 (2013), *order on reh'g and compliance*, 147 FERC ¶ 61,128 (2014), *order on reh'g and compliance*, 150 FERC ¶ 61,038, and *order on reh'g and compliance*, 151 FERC ¶ 61,250 (2015).

I. Background

A. PJM RTEP Cost Allocation Tariff Provisions

2. PJM files cost responsibility assignments for Required Transmission Enhancements that the PJM Board of Directors (PJM Board) approves as part of PJM's RTEP, in accordance with Schedule 12 of the Open Access Transmission Tariff (Tariff) and Schedule 6 of the Operating Agreement.⁴ The RTEP provides for the construction of expansions and upgrades to PJM's transmission system in order to comply with reliability criteria and to maintain and enhance the economic and operational efficiency of PJM's wholesale electricity markets. Types of reliability projects selected in the RTEP for purposes of cost allocation include Regional Facilities,⁵ which as a general matter are Alternating Current (AC) facilities that are single-circuit 500 kV or double-circuit 345 kV and above, Necessary Lower Voltage Facilities,⁶ and Lower Voltage Facilities.⁷

⁴ The PJM Tariff defines Required Transmission Enhancements as “[e]nhancements and expansions of the Transmission System that (1) a Regional Transmission Expansion Plan developed pursuant to Schedule 6 of the Operating Agreement or (2) any joint planning or coordination agreement between PJM and another region or transmission planning authority set forth in Schedule 12-Appendix B (“Appendix B Agreement”) designates one or more of the Transmission Owner(s) to construct and own or finance. Required Transmission Enhancements shall also include enhancements and expansions of facilities in another region or planning authority that meet the definition of transmission facilities pursuant to FERC’s Uniform System of Accounts or have been classified as transmission facilities in a ruling by FERC addressing such facilities constructed pursuant to an Appendix B Agreement cost responsibility for which has been assigned at least in part to PJM pursuant to such Appendix B Agreement.” *See* PJM, Intra-PJM Tariffs, OATT, § 1.38C (R - S, OATT Definitions – R - S, 6.0.0)

⁵ Regional Facilities are defined as Required Transmission Enhancements included in the RTEP that are transmission facilities that (a) are AC facilities that operate at or above 500 kV; (b) are double-circuit AC facilities that operate at or above 345 kV; (c) are AC or DC shunt reactive resources connected to a facility from (a) or (b); or (d) are DC facilities that meet the necessary criteria as described in section (b)(i)(D). PJM, Intra-PJM Tariffs, OATT, Schedule 12, § (b)(i) (Regional Facilities and Necessary Lower Voltage Facilities) (6.1.0).

⁶ Necessary Lower Voltage Facilities are defined as Required Transmission Enhancements included in the RTEP that are lower voltage facilities that must be constructed or reinforced to support new Regional Facilities. PJM, Intra-PJM Tariffs,

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3. The cost allocation method for transmission projects selected in the RTEP for purposes of cost allocation is set forth in Schedule 12 of the PJM Tariff. For Regional Facilities and Necessary Lower Voltage Facilities, 50 percent of the facility's costs is allocated on a region-wide, postage stamp basis and the other 50 percent is allocated pursuant to the solution-based distribution factor (DFAX) method described in Schedule 12(b)(iii) of the Tariff.⁸ For Lower Voltage Facilities, 100 percent of the facility's costs is allocated pursuant to the solution-based DFAX method.⁹

B. RTEP Cost Allocation Applicable to Linden

4. Linden owns and operates a merchant transmission facility that connects PJM and the New York Independent System Operator, Inc. (NYISO) transmission systems, with

OATT, Schedule 12, § (b)(i) (Regional Facilities and Necessary Lower Voltage Facilities) (6.1.0).

⁷ Lower Voltage Facilities are defined as Required Transmission Enhancements that (a) are not Regional Facilities and (b) are not "Necessary Lower Voltage Facilities." PJM, Intra-PJM Tariffs, OATT, Schedule 12, § (b)(ii) (Lower Voltage Facilities) (6.1.0).

⁸ Prior to using the solution-based DFAX method, PJM used a violation-based DFAX method. The violation-based DFAX method calculated the contributions of load and merchant facilities to flows on the constrained facility that would violate reliability criteria. The solution-based DFAX method evaluates the projected relative use of a new reliability project by load in each zone and withdrawals by merchant transmission facilities, and through this power flow analysis, identifies projected benefits for individual entities in relation to power flows. See *PJM Interconnection, L.L.C.*, 142 FERC ¶ 61,214 at P 416.

⁹ One hundred percent of the costs for Required Transmission Enhancements that are included in the RTEP solely to address individual transmission owner Form 715 local planning criteria are allocated to the zones of the individual transmission owners whose Form 715 local planning criteria underlie each project. See *PJM Interconnection, L.L.C.*, 154 FERC ¶ 61,096 (2016) (Planning Criteria Order) (granting rehearing of proposal to assign cost responsibility of projects that are included in the RTEP solely to address transmission owner Form 715 local planning criteria, and are not selected in the RTEP for purposes of cost allocation to the zone of the individual transmission owner whose Form 715 local planning criteria underlies the project See also, *PJM Interconnection, L.L.C.*, 151 FERC ¶ 61,172 (2015) (rejecting proposed Tariff changes).

330 megawatt (MW) of firm transmission withdrawal rights,¹⁰ and was awarded 315 MW of unforced capacity deliverability rights into NYISO. In the 2009 Merchant Transmission Order,¹¹ the Commission found that merchant transmission facilities with Firm Transmission Withdrawal Rights are like loads in that they remove energy from PJM, thus requiring PJM to study deliverability of energy from the PJM system to the point of interconnection. The Commission stated that “[a]s the system changes for a variety of reasons (e.g., retirements and load growth), it may be necessary to construct additional facilities in order to be able to provide the level of Firm Transmission Withdrawal Rights to which the customers subscribed.”¹² Additionally, the Commission found that “PJM must plan its system to meet peak load on its system, including the full amount of the [Firm Transmission Withdrawal Rights] allocated to merchant transmission facilities. Thus, these facilities legitimately can be charged their proportionate share of the upgrade costs needed to ensure such deliveries.”¹³ The Commission also agreed with parties that the DFAX method will account for a merchant transmission facility’s lack of load growth by decreasing its RTEP costs over time as compared to a zone with load growth.¹⁴

5. Since commencement of operations in 2009, PJM has designated Linden as a responsible customer with respect to the allocation of costs for certain RTEP projects.

C. Underlying Cost Allocation Reports and Related Proceedings

6. In Docket No. ER14-972-000, the Commission accepted the cost responsibility assignments for, among other projects, the Bergen-Linden Corridor Project.¹⁵ The

¹⁰ Firm Transmission Withdrawal Rights are defined in section 1.13A of the PJM OATT as the rights to schedule energy and capacity withdrawals from a Point of Interconnection of a Merchant Transmission Facility with the Transmission System. PJM Intra-tariff OATT Definitions, 1.13A, E-F, 5.0.1.

¹¹ *PJM Interconnection, L.L.C.*, Opinion No. 503, 129 FERC ¶ 61,161 at P 3 (2009) (Merchant Transmission Order).

¹² *Id.* at 110.

¹³ *Id.* at 73 (citing *PJM Interconnection, L.L.C.*, 124 FERC ¶ 63,022, at P 66 (2008) (Initial decision)).

¹⁴ *Id.*

¹⁵ *PJM Interconnection, L.L.C.*, 147 FERC ¶ 61,028 (2014) (accepting proposed tariff sheets to become effective on April 10, 2014, subject to a compliance filing.) In

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Bergen-Linden Corridor Project upgrades the facilities over which PJM delivers power to Con Edison in New York City through a wheeling arrangement.¹⁶ The estimated cost of the Bergen-Linden Corridor Project is approximately \$1.2 billion. Under the solution-based DFAX method component of the PJM regional cost allocation method,¹⁷ Con Edison was allocated approximately \$629 million of the costs, Linden was allocated approximately \$13 million, Hudson Transmission Partners (Hudson) was allocated approximately \$69 million, and PSEG was allocated approximately \$52 million. Linden, among others, protested.

7. In Docket No. ER14-1485-000, the Commission accepted amendments to the cost responsibility assignments for the Sewaren Project, which was approved through the RTEP process for projects to address reliability issues in New Jersey.¹⁸ Linden protested

Docket No. ER15-2562-000, PJM filed revisions to the Tariff sheets due to reconfiguration of the Bergen-Linden Corridor Project. *See PJM Interconnection, L.L.C.*, 155 FERC ¶ 61,091 (2016) (accepting revisions to the Tariff sheets due to reconfiguration of the Bergen-Linden Corridor Project).

¹⁶ The wheeling arrangement consists of a settlement agreement (Settlement Agreement), two transmission service agreements (Service Agreements), and a Joint Operating Agreement Protocol (Operating Protocol) that enables Con Edison to continue to wheel 1,000 MW of power from Con Edison through Public Service Electric and Gas Company's (PSEG) facilities in northern New Jersey for delivery back to Con Edison in New York City (one for 600 MW and another for 400 MW). *See PJM Interconnection, L.L.C.*, 132 FERC ¶ 61,221 (2010) (approving the Settlement Agreement continuing the wheeling arrangement, and the related Service Agreements and Operating Protocol).

¹⁷ As previously noted, as accepted in orders addressing PJM's Order No. 1000 regional compliance filing, PJM's regional cost allocation method allocates 50 percent of the cost of Regional Facilities on a load-ratio share basis and the other 50 percent using the solution-based DFAX method. The Bergen-Linden Corridor Project includes 26 subprojects. Fifteen subprojects are Regional Facilities, and costs are assigned pursuant to PJM's regional cost allocation method. The cost of one subproject is assigned to the PSEG zone, and the costs of the remaining 10 subprojects that are Lower Voltage Facilities are assigned in accordance with the solution-based DFAX method. The Complaint addresses the solution-based DFAX method component of the PJM regional cost allocation method.

¹⁸ *See PJM Interconnection, L.L.C.*, 152 FERC ¶ 61,187 (Sewaren Order) (accepting modeling revisions to the Sewaren Project cost allocation). The Commission originally approved the cost responsibility assignment for the Sewaren Project in Docket

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the cost responsibility assignments for the Sewaren Project, as well as those for the Edison Rebuild Project.¹⁹

8. In Docket No. EL15-18-000, Con Edison filed a complaint (Con Edison Complaint) regarding the cost allocation for the Bergen-Linden Corridor Project and the Sewaren Project. On June 18, 2015, the Commission issued an order denying the Con Edison Complaint.²⁰

II. Linden Complaint

9. The Linden Complaint addresses the cost allocation for certain projects, included in the RTEP,²¹ as support that the solution-based DFAX method is unjust and unreasonable.²² The projects and their subprojects at issue are the Edison Rebuild Project, Sewaren Project, and Bergen-Linden Corridor Projects (collectively, the Projects).²³ The total estimated cost for the Projects is approximately \$1.3 billion.

No. ER14-274-000. *See PJM Interconnection, L.L.C.*, Docket No. ER14-274-000 (Jan. 15, 2014) (delegated letter order).

¹⁹ The Commission also accepted the cost responsibility assignment for the Edison Rebuild Project in Docket No. ER14-274-000. *See PJM Interconnection, L.L.C.*, Docket No. ER14-274-000 (Jan. 15, 2014) (delegated letter order). Because the Sewaren Project and the Edison Rebuild Project are Lower Voltage Facilities, 100 percent of the project costs are allocated through the solution-based DFAX method. The estimated cost of the Sewaren Project is approximately \$101 million, and the estimated cost of the Edison Rebuild Project is \$46 million.

²⁰ *See Consolidated Edison Company of New York, Inc. v. PJM Interconnection, L.L.C.*, 151 FERC ¶ 61,227 (2015) (Con Edison Order). In addition, the Commission denied rehearing and accepted PJM's compliance filing in Docket No. ER14-972-000. *See also, Consolidated Edison Company of New York, Inc. v. PJM Interconnection, L.L.C.*, 155 FERC ¶ 61,088 (2016) (Con Edison Rehearing Order) (denying rehearing of Con Edison Order).

²¹ The Linden Complaint generally addresses the specific projects included in the Con Edison Complaint.

²² With its Complaint, Linden included the affidavit of John Marczewski (Marczewski Affidavit).

²³ The Edison Rebuild, Bergen-Linden Corridor Project, and Sewaren Projects were not selected through PJM's Order No. 1000 regional transmission planning process,

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Linden states that approximately \$900 million are allocated pursuant to the solution-based DFAX method, approximately \$92 million of which PJM proposes to allocate to Linden. The remaining \$400 million are allocated pursuant to load ratio share or directly to the local load zone.

10. Linden argues that the solution-based DFAX method does not allocate costs in a manner that is roughly commensurate with benefits, or that avoids free ridership. Linden also argues that there are numerous deficiencies in PJM's implementation of the solution-based DFAX method for the Projects that produces unjust, unreasonable and unduly discriminatory and preferential results, including the *de minimis* threshold,²⁴ modeling assumptions that determine DFAX values based on peak load conditions, and netting.²⁵ Linden further argues that PJM has not correctly implemented its Tariff. Linden's arguments are detailed below.

which became effective on January 1, 2014. The Commission accepted PJM's proposal that, for purposes of compliance with Order No. 1000, transmission solutions for reliability violations and economic constraints identified prior to January 1, 2014 will be evaluated under PJM's pre-Order No. 1000 regional transmission planning process. *PJM Interconnection, L.L.C.*, 147 FERC ¶ 61,128 at PP 25, 29-30. However, costs of the Projects were allocated using the regional cost allocation method effective under the Tariff, which was found to be compliant with Order No. 1000.

²⁴ Under the *de minimis* threshold, no cost responsibility shall be assigned to a Responsible Zone unless the magnitude of the distribution factor is greater than or equal to one percent. See PJM, Intra-PJM Tariffs, OATT, Schedule 12, § (b)(iii) (DFAX Analysis for Reliability Projects) (6.1.0). The threshold was initially set at 0.1 percent, but was modified in 2012 to one percent to address concerns related anomalous allocations to non-adjacent zones. See *PSEG Services. Corp.*, Docket No. ER12-2412-000 (Sept. 19, 2012) (delegated letter order) .

²⁵ Under netting, PJM models the transfer of the net of energy flow in the positive and negative directions from generation to all load within an individual transmission zone, and the transfer to the transmission zone. The effect of modeling the transfer to the transmission zone as a whole is to net the positive energy flows through the circuit associated with an individual transmission zone with counter-flows associated with the same transmission zone. For point to point transactions, such as those over DC merchant transmission lines, however, flows are unidirectional and will not be reduced by opposing flows. See PJM, Intra-PJM Tariffs, OATT, Schedule 12, § (b)(iii) (DFAX Analysis for Reliability Projects) (6.1.0)

A. Solution-Based DFAX Method Does Not Allocate Cost to Beneficiaries

11. Linden contends that the solution-based DFAX method is ill-equipped to measure benefits for the Projects, and even if the solution-based DFAX method accurately determined benefits, the assignment of cost for the projects is unjust, unreasonable and unduly discriminatory and preferential. According to Linden, the primary issues that the Projects address are local reliability problems, resolving short circuit issues, and replacements of facilities due to storm hardening, rather than resolving existing or even near-term thermal-based or voltage-based constraints.²⁶ For example, Linden contends that the Sewaren Project was included in the RTEP planning process as a result of PSEG's transmission owner local planning criteria on the basis of localized requirements such as "condition of equipment," and "preventing future storm damage" which are neither caused, nor could be avoided, by Linden. Linden contends that the primary beneficiaries of the Projects received little to no cost responsibility assignments and that Linden, which received significant cost responsibility assignments, receives little to no benefit from these upgrades.

12. Linden explains that PJM previously evaluated the contributions of Linden's merchant transmission facility to short circuit problems during its interconnection process. Linden states it has not modified or upgraded its facility since it was interconnected to PJM and therefore it cannot have caused the short circuit issues that the Bergen-Linden Corridor Project is meant to address. In fact, Linden contends that the Bergen-Linden Corridor Project will shift short circuit current from the Newark area to the Bergen-Linden Corridor Project area, thereby creating short circuit issues for Linden and its facility that did not exist prior to those projects.²⁷

13. Linden argues that the economic impact of perpetuating a discriminatory cost allocation method may result in merchant transmission facilities foregoing efficient transmission investment opportunities in PJM because of the uncertainty that they could be allocated an unreasonable share of the costs of later projects. Linden argues that such a regime will ultimately harm the PJM market and lead to decreased competition as independent investors will refuse to invest in otherwise beneficial projects. Moreover,

²⁶ According to Linden, the primary issues that the Projects address are local reliability problems, resolving short circuit issues, and replacements of facilities due to storm hardening, rather than resolving existing or even near-term thermal-based or voltage-based constraints. *See* Linden Amended Complaint, Marczewski Affidavit at P 22.

²⁷ Linden Amended Complaint at 46-47.

Linden contends that if PJM's current cost allocation regime persists, the merchant transmission business model as it exists today will not be viable.²⁸

B. De minimis Threshold

14. DFAX analysis values measure the percentage flows over a line of a particular transmission customer relative to its own load. PJM applies a *de minimis* threshold to modeled DFAX values so that no costs are allocated to zones with a DFAX value less than one percent (i.e., where the customer's MW usage of the transmission facility in question is less than one percent of the customer's total load). Linden asserts that the effect of the *de minimis* threshold is that the trigger for allocating costs to a zone varies dramatically depending on the size of each zone and cannot be directly compared to determine relative use of a transmission facility.²⁹ Therefore, Linden maintains that zones with smaller loads are much more likely to receive cost responsibility assignments than larger zones. Linden states that the impact of the *de minimis* threshold is compounded by assigning the costs that would have been borne by zones eliminated from cost allocation because of the *de minimis* threshold to all remaining zones that have a DFAX value above the threshold (i.e., grossing up).³⁰

15. Linden asserts that it provides substantial evidence that the solution-based DFAX method, including the *de minimis* threshold, is unjust, unreasonable, and unduly discriminatory and preferential. Linden argues, for example, that cost responsibility assignments for Bergen-Linden Corridor subprojects demonstrate that PJM's allocation of costs is not roughly commensurate with PJM's calculation of benefits. Linden contends that for one subproject, PJM determined that Linden receives less than one percent of the benefits (measured as MW usage) and PSEG 16 percent of the benefits, yet Linden was allocated \$400,000 of upgrade costs while PSEG was allocated no upgrade costs. Linden further contends that for another subproject, PJM determined that Linden receives 0.03 percent of the benefits, and PSEG received 30 percent of the benefits, yet Linden was allocated \$250,000 of upgrade costs and PSEG was allocated no upgrade costs.

16. With respect to cost responsibility assignments for the Edison Rebuild Project, Linden explains that PJM determined that Linden and Hudson receive approximately 12 percent of the benefits associated with the project. Nonetheless, Linden contends that

²⁸ *Id.* at 62.

²⁹ *Id.* at 32-33.

³⁰ *Id.* at 34-35.

PJM assigned 100 percent of the \$46 million in costs for the Edison Rebuild Project to Hudson and Linden, but assigned no costs to any of the zones that receive approximately 88 percent of the benefits (including PSEG, which alone receives 60 percent of the PJM-calculated benefits).

C. Peak Load Condition Assumption

17. Linden also states that determining DFAX values based on peak load conditions, which are deemed by PJM to serve as a proxy for all hours in a study year, severely disadvantages Linden relative to other responsible customers.³¹ Linden notes that because the transmission system must function at full load, PJM has chosen to determine benefits through application of the solution-based DFAX method, assuming maximum Linden Firm Transmission Withdrawal Rights of 330 MW, at precisely the time Linden is least likely to utilize the full amount of its Firm Transmission Withdrawal Rights. Linden explains that during the 10 peak days reported by PJM over the last five years, Linden overwhelmingly flowed electricity from NYISO into PJM during peak hours, rather than from PJM to NYISO, providing a benefit to the PJM grid.

18. Linden argues that not accounting for the fact that it can also flow power into the PJM system (unlike native zonal loads) overstates Linden's use of the system and causes it to receive cost responsibility assignments further out of line with the benefits it receives with no credit for the benefits it provides. Furthermore, Linden argues that, in general terms, the additional network connectivity created by merchant transmission facilities like Linden provides benefits to the overall interconnected transmission network that native zonal loads, by their nature, cannot provide.³²

D. Netting

19. Linden asserts that PJM's calculated MW usage should reflect each zone's gross usage of the facility, rather than selectively allowing some users to reduce their MW usage by calculating net flows. Linden contends that no entity should receive the benefit of netting, because according to Linden, netting does not accurately represent any zone's actual usage or benefits of the facility at issue.³³ For example, Linden explains that it is connected to PJM solely through a single line that connects with PSEG. In other words, any electricity transmitted to Linden flows through PSEG's service territory and over

³¹ *Id.* at 38.

³² *Id.*, Marzewski Affidavit at P 3.

³³ *Id.* at 37.

PSEG's transmission system. Thus, Linden asserts that, if it is deemed to benefit because of flows over the facilities, it makes no sense to find that PSEG would not benefit. However, for the Sewaren Project, which is in the middle of PSEG's territory, Linden asserts that the solution-based DFAX method assigned Linden and Con Edison 100 percent of the costs, while PSEG was not allocated any costs. Linden argues that a cost allocation regime that purposefully nets out flows for the local load zone is unjust, unreasonable, unduly discriminatory and preferential.³⁴

E. PJM has Not Correctly Implemented its Tariff

20. Linden argues that Schedule 12 of the PJM Tariff provides PJM the ability to modify DFAX-based cost allocations that are objectively unreasonable.³⁵ Linden argues that Schedule 12 of the PJM Tariff requires that PJM determine the "use" by each zone of a proposed transmission upgrade. Linden argues that Schedule 12 also gives PJM the discretion to adjust the results of any DFAX-based calculation that are "objectively unreasonable."³⁶ Linden contends that despite this alleged authority to make exceptions where the application of the solution-based DFAX analysis would produce objectively unreasonable results, PJM insists that Schedule 12 provides an inflexible formula. Linden contends that PJM's position ignores the plain language of Schedule 12 of the PJM Tariff, which Linden states explicitly provides PJM precisely the discretion to use a proxy other than the power flow-based solution-based DFAX method to avoid objectively unreasonable cost responsibility assignments.³⁷

F. Transparency

21. Linden argues that even though it is, in certain respects, treated like a zone for cost allocation purposes, Linden is not treated like other transmission owners with respect to RTEP cost allocation issues in the PJM stakeholder process (*e.g.*, it has no access to confidential transmission information and no right to participate in determining the cost allocation method). As a result, Linden argues that it has no means of obtaining the relevant information through the stakeholder process (much less a say in evaluating RTEP projects or their costs). Linden contends that the Commission is creating a regime whereby for every project that is considered in RTEP, Linden (or another stakeholder)

³⁴ *Id.* at 37-38.

³⁵ *Id.* at 53 citing PJM Tariff, Schedule 12, section (b)(iii)(G).

³⁶ *Id.* at 53.

³⁷ *Id.* at 54.

will be forced to request that PJM analyze cost responsibility assignments. Linden further contends that PJM and the Transmission Owners have already expressed their unwillingness to do so, stating that cost allocation should not be considered when selecting or evaluating a project. Moreover, given its second-tier status, Linden argues that it has no way of effectively acquiring the cost allocation information if PJM and the Transmission Owners refuse. Thus, Linden argues that merchant transmission facilities, including Linden, are often not aware of the significant costs they are allocated until PJM submits its cost allocation filing at the Commission.³⁸

G. Relief Requested

22. Linden requests that the Commission direct PJM to re-allocate the costs of the Projects such that none of the costs of the Projects are allocated to Linden. Linden requests that such costs could legitimately be allocated to the local load zone, to the extent that the Commission determines such allocation to be reasonable. Linden also requests that the Commission direct PJM to modify its Tariff to address the unjust and unreasonable allocations. Alternatively, Linden requests that the Commission establish hearing and settlement judge procedures.³⁹

III. Notice, Intervention, Answers and Responsive Pleading

23. Notice of the Linden Complaint was published in the *Federal Register*, 80 Fed. Reg. 42,797 (2015), with answers, interventions and comments due on or before July 30, 2015.⁴⁰ At the request of PJM Transmission Owners,⁴¹ this date was extended to and including August 20, 2015.

24. Notices of intervention were filed by the Delaware Public Service Commission (Delaware Commission), New Jersey Board of Public Utilities (New Jersey Board), Illinois Commerce Commission, Maryland Public Service Commission (Maryland Commission), and the New York State Public Service Commission. Motions to intervene were filed by the Governor of the State of Delaware, American Electric Power Service

³⁸ *Id.* at 66.

³⁹ *Id.* at 74.

⁴⁰ Notice of the initial Linden Complaint was published in the *Federal Register*, 80 Fed. Reg. 32,100 (2015).

⁴¹ PJM Transmission Owners, acting through the PJM Consolidated Transmission Owners Agreement.

Corporation, Con Edison, Potomac Electric Power Company,⁴² Exelon Corporation, Monitoring Analytics, LLC,⁴³ Dayton Power and Light Company (Dayton), First Energy Service Company,⁴⁴ New Jersey Division of Rate Counsel (New Jersey Rate Counsel), Public Power Association of New Jersey, PPL Electric Utilities Corporation, Public Service Electric and Gas Company,⁴⁵ New York Independent System Operator, New York Power Authority (NYPA), LSP Transmission Holdings, LLC, Duke Energy Business, LLC,⁴⁶ Hudson, ITC Lake Erie Connector LLC, Midcontinent MCN, LLC, PJM Interconnection, L.L.C., and Old Dominion Electric Cooperative (ODEC). Astoria Generating Company, L.P. (Astoria) filed an untimely motion to intervene.

25. The PSEG Companies filed a motion to reject the Complaint, or in the alternative an answer and protest.⁴⁷ PJM and PJM Transmission Owners filed answers to the Complaint, and Hudson, Delaware's Governor, Con Edison, and NYPA filed comments. PJM Transmission Owners and Linden filed responsive pleadings. PJM Transmission Owners, Delaware's Governor, Linden, and Hudson filed further responsive pleadings.

A. Answers

26. Con Edison, Hudson, and NYPA filed comments in support of Linden's amended complaint. Con Edison, ODEC, and Delaware's Governor raise concerns about the application of the solution-based DFAX method regarding cost allocations. Additionally,

⁴² With Delmarva Power & Light Company and Atlantic City Electric Company (together, Pepco Holdings, Inc. or PHI Companies).

⁴³ As the Independent Market Monitor for PJM.

⁴⁴ On behalf of its affiliates American Transmission Systems, Incorporated, Jersey Central Power & Light Company, Metropolitan Edison Company, Pennsylvania Electric Company, West Penn Power Company, The Potomac Edison Company, Monongahela Power Company, and Trans-Allegheny Interstate Line Company (collectively, FirstEnergy Companies).

⁴⁵ Including PSEG Power LLC and PSEG Energy Resources & Trade LLC (PSEG Companies).

⁴⁶ On behalf of Duke Energy Ohio, Inc., Duke Energy Kentucky, Inc., Duke Energy Carolinas, LLC and Duke Energy Progress, Inc. (Duke).

⁴⁷ The PSEG Companies filed an answer to the Linden Amended Complaint adopting its earlier answer to the original complaint.

Con Edison, Hudson, and NYPA argue that PJM's solution-based DFAX method fails to properly account for short circuit beneficiaries.⁴⁸

27. PJM Transmission Owners answer that the inability of merchant transmission facilities to net power flows in the solution-based DFAX method is not discriminatory or unreasonable, but a reflection of reality.⁴⁹ PJM asserts that with a single point of withdrawal, a merchant transmission facility does not flow power over the new facility in different directions to support its withdrawals.⁵⁰ PJM Transmission Owners contend that Linden points to nothing unjust or unreasonable about the use of a 0.1 percent *de minimis* threshold in the solution-based DFAX method.⁵¹

28. PJM Transmission Owners argue that Linden's contention that it is disadvantaged by the fact that PJM determines DFAX values based on peak load conditions and allocated costs to Linden based on Linden's maximum use of 330 MW even though it does not consistently utilize its 330 MW of Firm Transmission Withdrawal Rights at the time of system peak is unfounded.⁵²

29. PJM Transmission Owners argue that though Linden complains at length that it is assigned too large a portion of the Projects' costs, it fails to mention that it has received, and will continue to receive, significant benefits from other aspects of the PJM's Tariff's approach to cost allocation. PJM Transmission Owners assert that the Commission originally accepted a settlement that resolved the details of the DFAX cost allocation method for facilities needed for reliability and planned to operate below 500 kV,⁵³ as well as treatment of merchant transmission facilities on a stand-alone basis for cost allocation purposes.⁵⁴

⁴⁸ Linden Answer at 20-23; Con Edison Comments at 18-20; Hudson Comments 13-14; and NYPA Comments at 12.

⁴⁹ PJM Transmission Owners Answer at 13.

⁵⁰ *Id.* at 14.

⁵¹ PJM Transmission Owners Answer at 12-13.

⁵² *Id.* at 16.

⁵³ *PJM Interconnection, L.L.C.*, 124 FERC ¶ 61,112 (2008) (Order Accepting Contested Offer of Settlement).

⁵⁴ PJM Transmission Owners Answer at 21-23.

30. PJM and PSEG contend that PJM correctly applied its Tariff provision with respect to the use of a substitute proxy. PJM argues that Schedule 12 of the PJM Tariff does not authorize it to disregard the cost allocation applicable to the Projects. PJM contends that Section (b)(iii)(G) of Schedule 12 does not concern whether cost allocations are objectively unreasonable. Rather, PJM argues that it concerns whether the results of the DFAX analysis (i.e., measurements of electrical flows) are objectively unreasonable.⁵⁵

B. Responsive Pleadings

31. In responsive pleadings, PJM Transmission Owners contend that based on PJM's hourly flow data from 2014 for Linden, the Linden peak hourly withdrawal for 2014 was 315 MW, over 95 percent of Linden's 330 MW Firm Transmission Withdrawal Rights. PJM Transmission Owners argue that its information demonstrates that Linden withdrew at the 315 MW level in ten of the twelve months during 2014, including each of the summer peaking months of June, July, and August.⁵⁶

32. Linden argues that PJM and PJM Transmission Owners have ignored the actual cost responsibility assignments, and have presented inaccurate and misleading analyses. Linden contends that it and Mr. Marczewski have set forth in detail the benefits that PJM determined each zone and merchant transmission facility receives from the Projects and has compared those benefits to the costs that PJM allocated. In doing so, Linden contends that it and Mr. Marczewski have demonstrated that the cost responsibility assignments for the Projects are not roughly commensurate to the benefits received, even when assuming that PJM has properly identified all benefits and beneficiaries. Linden further contends that neither PJM nor PJM Transmission Owners point to any error in Mr. Marczewski's analyses or calculations. In fact, Linden argues PJM and PJM Transmission Owners remain unwilling to examine the actual cost responsibility assignments and benefits, much less explain whether and how they might be roughly commensurate with one another.⁵⁷

33. Delaware's Governor argues in addition to finding that the cost allocation results for the Projects are unjust and unreasonable, Linden's Complaint specifically requests that the Commission find, more generally, that the solution-based DFAX method is

⁵⁵ PJM Answer at 4-9 and PJM Transmission Owners Answer at 27-32.

⁵⁶ PJM Transmission Owners Answer at 4-6.

⁵⁷ Linden Answer at 2-3.

unjust, unreasonable, unduly discriminatory and inconsistent with Commission and court precedent.

IV. Order Establishing a Technical Conference

34. By order issued November 24, 2015, the Commission found that the assignment of cost allocation for the proposed Tariff amendments for the revisions to the Bergen-Linden Corridor Project and for the Artificial Island Project had not been shown to be just and reasonable and may be unjust, unreasonable, or unduly discriminatory or preferential.⁵⁸ Accordingly, the Commission accepted the proposed Tariff revisions in those proceedings for filing, suspended them for five months, to become effective on April 25, 2016, or an earlier date set forth in a subsequent order, subject to refund, and the outcome of a technical conference.

35. The Commission directed staff to establish a technical conference to explore both whether there is a definable category of reliability projects within PJM for which the solution-based DFAX cost allocation method may not be just and reasonable, such as projects addressing reliability violations that are not related to flow on the planned transmission facility, and whether an alternative just and reasonable *ex ante* cost allocation method could be established for any such category of projects.⁵⁹

36. Linden filed a request for clarification, or in the alternative rehearing of the November 2015 Order. Linden states that it presented evidence in its complaint proceeding that the solution-based DFAX method is unjust and unreasonable that the November 2015 Order did not address. Linden seeks clarification that the Commission intends to address Linden's arguments. We address Linden's arguments in this order.

⁵⁸ *PJM Interconnection, L.L.C.*, 153 FERC ¶ 61,245 (2015) (November 2015 Order). Linden filed a request for clarification, or in the alternative, rehearing of the November 2015 Order. In Docket No. ER15-2563-000, PJM filed Tariff revisions for projects included in the RTEP to improve operational performance on bulk electric system facilities in Southern New Jersey. These projects are referred to as the Artificial Island Project.

⁵⁹ *Id.* Ordering Paragraph (B).

A. Comments

37. Pre-Technical Conference comments were filed by PJM, PJM Transmission Owners, Delaware and Maryland State Agencies,⁶⁰ New Jersey State Agencies,⁶¹ Easton, the New York Power Authority (NYPA), Con Edison, Linden, Hudson, and Old Dominion Electric Cooperative (ODEC). Post-Technical Conference comments were filed by PJM, PJM Transmission Owners, Easton, the Delaware Commission, PSEG, Hudson and Neptune Regional Transmission Systems, Inc. (Neptune), NYPA, Dayton, Con Edison, ODEC, Linden, and ITC Mid-Atlantic Development.

38. PJM Transmission Owners, Hudson filed motions to answer the Post Technical Conference comments, and Con Edison filed motions to answer in response.

1. Comments Supporting Use of Solution-Based DFAX

39. In order to provide a framework for discussion at the technical conference, PJM provided a matrix outlining the reliability-based drivers of projects included in PJM's RTEP process since its inception in the year 2000, as well as the number of projects within each category. The categories PJM identified include thermal, voltage/reactive, stability, and short-circuit violations to address reliability planning standards. In addition, PJM identified a category of real-time operation concerns to address operational performance violations.⁶² Finally, PJM identified storm hardening and end of life/aging infrastructure as other categories that address individual transmission owner planning criteria.⁶³

⁶⁰ The Delaware and Maryland State Agencies include the Delaware Commission, the Maryland Commission, and the Delaware Division of Public Advocate and the Maryland Office of Peoples Counsel.

⁶¹ The New Jersey State Agencies include the New Jersey Board and the New Jersey Rate Counsel.

⁶² This category of reliability concerns include thermal, voltage/reactive or stability operational violations that occur frequently enough to be operationally unacceptable, but do not rise to the level of reliability criteria violation in the planning analysis.

⁶³ PJM identified 1268 RTEP projects including 900 projects driven by thermal violations, 300 projects driven by voltage/reactive violations, 50 projects driven by operational performance criteria, 15 projects driven by end of life/aging infrastructure, and 1 project each driven by stability, short-circuit, and storm hardening.

40. PJM states that while the initial nature of a reliability problem may not be related or entirely related to power flows over a planned transmission facility project, over time the solution-based DFAX cost allocation method captures the evolving use of the facility.⁶⁴ PJM further recognizes the difficulty of pointing to a single causal element to address short circuit reliability violations and stability concerns.⁶⁵ Instead, PJM states that these concerns are a result of an accumulation of changes over time to the transmission system.⁶⁶ PJM comments that for short-circuit and stability concerns, over some period of time the original problem is not all that important.⁶⁷ PJM maintains that the solution-based DFAX method is a good indicator over a long period of time and that one of the benefits of solution based DFAX, method is the users of a facility change over time, and that the solution-based DFAX method is readily calculated year after year so you can measure those benefits as they change.⁶⁸

41. PJM explains this ability to reflect changing system conditions and use over time is one of the primary benefits of the solution-based DFAX method, along with eliminating the necessity of analyzing each violation and driver of a project separately. Specifically, PJM comments that because the solution-based DFAX identifies beneficiaries through use of the facility, the cost allocation does not need to be replicated for solutions that address multiple problems over changing system conditions. PJM further comments that analysis of the solution rather than cost allocation of the individual violations is a significant advantage of the solution-based DFAX method.⁶⁹

42. PJM Transmission Owners argue that the solution-based DFAX method is an objective, neutral, and non-discriminatory cost allocation method. PJM Transmission Owners argue that the matrix PJM submitted has considerable overlap for the descriptions of the violations and that many of the projects were built to address multiple reliability concerns. PJM and PJM Transmission Owners state that the solution-based DFAX cost allocation method avoids the need to parse out the different causes, drivers, or categories of particular transmission enhancements. PJM and PJM Transmission

⁶⁴ Second Revised Transcript at 10.

⁶⁵ *Id.*

⁶⁶ *Id.* at 10, 79.

⁶⁷ *Id.* at 137-38.

⁶⁸ *Id.* at 90.

⁶⁹ *Id.* at 139-40.

Owners explain that while the cause of a project may sometimes be relevant to the need for the upgrade at the time of construction, it becomes less relevant over the life of the project, especially since load can shift over time.

43. PJM and PJM Transmission Owners assert that a single project may have many drivers and that allocating costs based on use allows for more flexibility as time passes and enhances PJM's ability to solve multiple problems with one project. PJM Transmission Owners also explain that parties contributing to a short circuit violation can be identified through the facilities with which the circuit breaker is associated. However, PJM Transmission Owners assert, such an approach to identify beneficiaries reverts back to a violation-based DFAX method, which is a one-time calculation that is not based on a repeatable measurement of benefits; rather it is a snap shot of facilities that does not objectively measure benefits across time, and across all types of reliability projects.⁷⁰ PJM Transmission Owners argue that the solution-based DFAX method is repeatable and provides for updates annually. PJM Transmission Owners argue that the violation-based DFAX method would result in the loss of the benefits of updating cost responsibility assignments to reflect the use of the facility over time.

44. Similarly, PSEG argues that the solution-based DFAX method is superior to the previous violation-based DFAX approach. PSEG contends the violation-based DFAX method is not suited for analysis of voltage or other issues such as short circuit or stability because those violations would require use of a power flow baseline, which requires proxies or surrogates to analyze. PSEG asserts that selection of proxies would require exercises of engineering judgment. PSEG further contends that solutions to power flow violations can cause non-flow based violations. PSEG asserts that much of the transmission built is regional transmission, which makes the short circuit more than just a local issue. Thus, PSEG argues that the costs of projects to address short circuit violations should be allocated no differently than the costs of projects addressing voltage or thermal violations.

45. PJM Transmission Owners state the solution-based DFAX method is both an *ex ante* cost allocation method and a method that can be applied in a just and reasonable manner to all reliability projects in PJM over the entire useful life of the project. PJM Transmission Owners state that opponents of the solution-based DFAX method propose to define benefits and proposed categories of transmission projects based exclusively on what or who caused the need for the project.⁷¹

⁷⁰ *Id.* at 13.

⁷¹ PJM Transmission Owners Post Tech Comments at 4-6.

2. Comments Opposing Use of Solution-Based DFAX

46. Con Edison comments that short circuits are not related to energy flows, which are the result of customer demand. Con Edison states that for certain types of projects, like non-flow based projects, neither solution-based nor violation-based DFAX method is appropriate because both are predicated on identifying beneficiaries by measuring flows on lines. Instead, Con Edison comments that cost should be allocated based on the purpose of the upgrade. Con Edison, Linden, and Hudson all argue that the solution-based DFAX method should not apply to projects that address short-circuit violations. NYPA states solution-based DFAX method is not just and reasonable when applied to reliability projects that resolve short circuit violations because flow on the new transmission element bears no relation to the reliability violations that are resolved. Instead, NYPA states, allocating the cost of all short circuit projects to the local load zone where the violation occurs is a just and reasonable *ex ante* cost allocation for short circuit projects.⁷² Hudson and Neptune state that the solution-based DFAX method does not take into consideration cost causation.⁷³ Con Edison points to PJM Technical Conference comments as evidence that the solution-based DFAX method is limited to identifying benefits after some unspecified passage of time, and that this violates cost causation principles.

47. Hudson and Neptune state that the Merchant Transmission Order⁷⁴ found that merchant transmission facilities are responsible for a just and reasonable allocation of costs for new transmission projects.⁷⁵ Hudson and Neptune, and NYPA argue that merchant transmission facilities represent static load and it is unduly discriminatory to allocate costs to merchant transmission facilities, because they paid for “but for” upgrades during the interconnection process and do not experience load growth. Additionally, NYPA states merchant transmission facilities are prohibited from increasing their withdrawals from the PJM system without first paying for the “but for” costs of transmission upgrades associated with such withdrawals. Hudson and Neptune state that the solution-based DFAX method requires merchant transmission facilities such as Hudson to pay significant costs, despite the fact that the benefits Hudson and other merchant transmission facilities receive from the facilities are trivial at best.⁷⁶ NYPA

⁷² NYPA Post Tech Comments at 1-3.

⁷³ Hudson and Neptune Post Tech Comments at 7-8.

⁷⁴ Merchant Transmission Order, 129 FERC ¶ 61,161.

⁷⁵ *Id.* at 4-6.

⁷⁶ NYPA Post Tech Comments at 7.

states that the solution-based DFAX method discriminates against merchant transmission facilities because the solution-based DFAX method analyzes flows during peak periods to determine flow benefits, and thus cost responsibility assignments, but Hudson and Neptune do not typically operate on the PJM system during periods of peak usage.⁷⁷

48. Several parties, including Delaware and Maryland State Agencies, NYPA, Easton, Hudson and Neptune, Linden, and Con Edison, support allocating 100 percent of the costs of short-circuit projects to the local transmission zone because they state that (i) the projects are meant for local reliability issues, and (ii) solution-based DFAX method does not allocate costs in a manner roughly commensurate with the benefits since the projects are not flow-based.

49. While opposing the solution-based DFAX method for non-flow based projects such as short-circuit and stability violations, some comments support its use for flow-based projects such as thermal or voltage violations. For example, ODEC states that solution-based DFAX produces reasonable cost responsibility assignments for the overwhelming majority of PJM RTEP projects, with a few exceptions, as PJM outlined in its subcategory matrix.⁷⁸ ODEC asserts that the Artificial Island Project falls within this subcategory.⁷⁹ ODEC states that the PJM matrix itself is evidence that PJM can readily break out RTEP projects by reliability planning drivers. ODEC further states that it is not reasonable to rely on solution-based DFAX method for RTEP projects to address stability violations, short circuit violations, or storm hardening.⁸⁰ With respect to projects to address operational performance issues, ODEC asserts that if such projects are driven by a non-flow based criterion, such as stability concerns, their costs should be allocated through an alternate cost allocation method. ODEC contends that an alternative cost allocation method can be developed.⁸¹

⁷⁷ *Id.* at 8-9.

⁷⁸ Second Revised Transcript at 55.

⁷⁹ *Id.* at 56.

⁸⁰ *Id.* at 58-59.

⁸¹ *Id.* at 59.

V. Commission Discussion**A. Procedural Matters**

50. Pursuant to Rule 214 of the Commission's Rules of Practice and Procedure, 18 C.F.R. § 385.214 (2015), the notices of intervention and timely, unopposed motions to intervene serve to make the entities that filed them parties to this proceeding. We grant the unopposed out-of-time motions to intervene submitted by Astoria, given its interest in this proceeding, the early stage of this proceeding and the absence of undue prejudice or delay.

51. 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 and or answer unless otherwise ordered by the decisional authority. We will accept the answers and responsive pleadings because they have provided information that assisted us in our decision-making process.

52. We will deny the motions to answer the Post Technical Conference comments and responsive pleading because they reargue pleading already filed, or present arguments outside the scope of this proceeding.

B. Determination

53. We deny the Linden Complaint.

54. We find that Linden has failed to satisfy its burden under FPA section 206 to demonstrate that the solution-based DFAX method is unjust, unreasonable, unduly discriminatory or preferential. We note that the Commission accepted the solution-based DFAX method as part of PJM's Order No. 1000 compliance filing as a just and reasonable method of identifying projected benefits for individual entities, including withdrawals by merchant transmission facilities.⁸² The Commission found that under the solution-based DFAX method, entities benefit from a transmission project in proportion to their use of the project. The Court of Appeals for the District of Columbia Circuit affirmed the Commission's adoption of a beneficiary-based cost allocation method.⁸³ In

⁸² *PJM Interconnection, L.L.C.*, 142 FERC ¶ 61,214 at P 416, *order on reh'g and compliance*, 147 FERC ¶ 61,128 at PP 335 & 342.

⁸³ *See S.C. Pub. Serv. Auth. v. FERC*, 762 F.3d 41 (D.C. Cir. 2014). ("the Commission's adoption of a beneficiary-based cost allocation method is a logical extension of the cost causation principle"). *See also, FirstEnergy Service Company v. FERC*, 758 F.3d 346, at 355 (D. C. Cir. 2014) (citing, *American Transmission Systems*,

(continued ...)

the underlying cost allocation proceedings, the Commission has found that PJM has correctly applied its Tariff.⁸⁴ As discussed below, we find that the solution-based DFAX method has not been shown to be unjust and unreasonable. PJM has correctly applied its Tariff, the cost assignments for the Bergen-Linden Corridor Project and Sewaren Project are just and reasonable.⁸⁵

55. Linden, in its Complaint, joined by Con Edison, Hudson, and NYPA contend in their Technical Conference comments argue that a flow-based analysis is not appropriate for non-flow related reliability violations. We disagree. The solution-based DFAX method focuses on the benefits of the facility as measured through use of the facility over time rather than the immediate reliability violation that drove the need for the project. Users of the facilities benefit from the project on an ongoing basis because the presence of the facility ensures reliable delivery of power and alleviates future reliability concerns and reliability violations that could have otherwise caused operational issues. We find convincing PJM's argument that the solution-based DFAX method identifies benefits associated with the use of transmission facilities over time. Specifically, as PJM comments, the initial nature of the problem may not necessarily be related or entirely related to flows, but over time, the evolving use of the facility is well represented by the solution-based DFAX method.⁸⁶ We are further persuaded by PJM comments that because the solution-based DFAX identifies beneficiaries through use of the facility, the solution-based DFAX method does not need to be replicated for solutions that address multiple problems over changing system conditions. We agree with PJM that analysis of the solution rather than cost allocation of the individual violations is a significant advantage of the solution-based DFAX method.⁸⁷

56. Linden further argues that it does not contribute to the need for the Projects. Similarly, Con Edison comments that the cost allocation for planned transmission project

Inc. v. PJM Interconnection, L.L.C., 140 FERC ¶ 61,226, at P 26 (2012) (“Even if a new member is not using the system when a particular project was planned or authorized, the new member may nevertheless use and benefit from the new facility in the future”).

⁸⁴ *PJM Interconnection, L.L.C.*, 155 FERC ¶ 61,091.

⁸⁵ Sewaren Project is included to address transmission owner Form 715 local planning criteria, and 100 percent of the costs are allocated to the local zone. See Con Edison Rehearing Order, 155 FERC ¶ 61,088.

⁸⁶ Second Revised Transcript at 9-10.

⁸⁷ *Id.* at 139-40.

assigned should be based the initial nature of the reliability violation. The Commission has recognized the flaws in a violation-based analysis.⁸⁸ Specifically, the Commission has recognized that a violation-based analysis cannot identify the causes of multiple constraints and changes in usage and flow direction over time.⁸⁹ PJM comments from the Technical Conference, which recount these deficiencies, further note that a violation-based analysis only captures the driver for a project when the project is first identified, does not objectively measure benefits across time, and across all types of reliability projects. These arguments miss the point of the solution-based DFAX method analysis. As discussed, it is not the initial nature of the reliability problem, but the identification of beneficiaries through the solution-based DFAX method based on use of the planned transmission facility project that addresses the reliability violation. Because we agree with the Technical Conference comments that support identification of beneficiaries through the solution-based DFAX method, we do not agree with Linden's comments.

57. We recognize that RTEP projects may have several drivers.⁹⁰ In Technical Conference comments, PJM noted the difficulty of pointing to a single causal element for stability and short-circuit types of reliability violations.⁹¹ We find it reasonable that, in PJM, whether a short-circuit or stability violation is the primary driver of a transmission project or the project addresses multiple reliability violations, the solution-based DFAX method allocates costs of a transmission facility that address the reliability violations based on use of the facilities. The ability to reflect changing system conditions and use over time, and thus the changing beneficiaries of a transmission facility, is one of the primary benefits of the solution-based DFAX method, along with the elimination of the necessity of analyzing each violation and driver of a project separately.

58. Linden argues that the solution-based DFAX method does not result in cost responsibility assignments for the Bergen-Linden Corridor Project and the Edison Rebuild Project that are roughly commensurate with the benefits received. We disagree. The record shows that both Con Edison and Linden benefit from the Bergen-Linden Corridor Project and the Edison Rebuild Project. For example, the record, undisputed, includes the Con Edison wheeling arrangement for 1,000 MW of firm transmission. The record, also undisputed, supports a significant use of the facilities by Linden.

⁸⁸ *PJM Interconnection, L.L.C.*, 142 FERC ¶ 61,214 at P 427 (citing *PJM Interconnection, L.L.C.*, 138 FERC ¶ 61,230 (2012)).

⁸⁹ *Id.*

⁹⁰ Second Revised Transcript at 132.

⁹¹ *Id.* at 10.

Specifically, Linden maintains contractual Firm Transmission Withdrawal Rights of 330 MW. We are not persuaded by Con Edison's and Linden's attempt to minimize their respective contractual entitlements. Moreover, Con Edison acknowledges that there are general reliability benefits of using the Bergen-Linden Corridor Project by virtue of PSEG having a more robust system. We agree, and, as discussed below, find the same for Linden. A reliable transmission system is necessary to support the availability of PJM region-wide resources contemplated by the contract entitlements.

59. We further note that Linden relies on *Wisconsin PSC v. MISO* to support their position.⁹² In *Wisconsin PSC v. MISO*, the Commission addressed a *pro rata* allocation of costs that is not related to the identification of specific beneficiaries. *Wisconsin PSC v. MISO* is distinguished from the allocation of costs through the solution-based DFAX method in this proceeding, which identifies specific beneficiaries based on ongoing usage of the facilities. As previously discussed, the solution-based DFAX method allocates the costs of the project based on an analysis of use of the facility. The solution-based DFAX method creates an allocation of costs that is therefore directly related to benefits received. Moreover, the courts have recognized that no cost allocation method can perfectly assign costs to the beneficiaries of a transmission project, particularly in the case of a transmission grid.⁹³ The Commission has found that where a cost allocation method is accurate in a very high percentage of circumstances to which it applies, then that is a strong indicator that the cost allocation method is just and reasonable.⁹⁴ Comments from the Technical Conference broadly support use of the solution-based DFAX method for identifying the beneficiaries of a variety of projects. In fact, comments opposing the solution-based DFAX method can only point to two projects out of over 1,200 identified by PJM as raising concerns. As discussed, we deny the Linden Complaint, and in a

⁹² *Pub. Serv. Comm'n of Wisconsin v. Midcontinent Indep. Sys. Operator, Inc.*, 148 FERC ¶ 61,071 (2014), *order on reh'g*, 150 FERC ¶ 61,104 (2105) (*Wisconsin PSC v. MISO*).

⁹³ *See Illinois Commerce Commission*, 576 F.3d 470 at 476-77 (Seventh Cir. 2008) (“[w]e do not suggest that the Commission has to calculate benefits to the last penny, or for that matter to the last million or ten million or perhaps hundred million dollars”). *See also Midwest ISO Transmission Owners v. FERC*, 373 F.3d 1361 at 1369 (D.C. Cir. 2004) (“we have never required a ratemaking agency to allocate costs with exacting precision”).

⁹⁴ *See PJM Interconnection, L.L.C.*, 154 FERC ¶ 61,096.

concurrent order deny a complaint by the Delaware Commission and Maryland Commission related to those projects.⁹⁵

60. Linden argues that components of the solution-based DFAX method have the effect of allocating excessive costs to merchant transmission facilities. Linden contends that (1) the *de minimis* DFAX value threshold and grossing up practice allows a larger zone with greater MW usage of a certain facility to be allocated no costs because the zone has not met its respective one percent *de minimis* threshold, while a smaller entity would be allocated costs because it has exceeded the one percent *de minimis* threshold; (2) modeling assumptions based on the use of a merchant transmission facility's full Firm Transmission Withdrawal Rights at annual peak do not reflect their usage of a new transmission facility; and (3) application of the netting rules for certain zones but not for other entities results in the relative understatement of the DFAX value for some entities (with netting) and the overstatement of the DFAX value for other entities (without netting). Similarly, Linden argues that the *de minimis* provision results in an unjust and unreasonable cost allocation because zones with a small load are more likely to receive cost responsibility assignments than larger zones. As discussed below, we disagree.

61. The *de minimis* threshold is applied to the distribution factor that is calculated for each entity after performing the solution-based DFAX analysis, and is based on each zone's percentage flow over the solution facility relative to its load. While the *de minimis* threshold exempts zones with a DFAX value of less than one percent from cost responsibility, we do not find that operation of the *de minimis* threshold to exempt entities whose use of the facility is *de minimis* makes the solution-based DFAX method unjust and unreasonable. Instead, we find the *de minimis* threshold is an efficient and nondiscriminatory mechanism for identifying entities that have relatively little use of the facility relative to their load.

62. With regard to the netting provision, we find unpersuasive Linden's argument that its inability to net power flows in solution-based DFAX results in a netting mechanism being unreasonable and unduly discriminatory. Linden's inability to use a netting

⁹⁵ See *Delaware Public Service Commission and Maryland Public Service Commission v. PJM Interconnection, L.L.C.*, 155 FERC ¶ 61,090 (2016). See also Con Edison Rehearing Order, 155 FERC ¶ 61,088 .

mechanism is simply a result of PJM's treatment of each merchant transmission facility as a separate zone with a single point of withdrawal, rather than as part of a host zone.⁹⁶ In contrast, zones can reduce their calculated flows over a new facility through netting because they have multiple points of withdrawal to offset flows. The only change in the netting of flows made by the establishment of the solution-based DFAX method is that flows over the planned transmission facility, rather than the constrained element, are netted.⁹⁷ We note that the netting of flows was also used to calculate distribution factors under the violation-based DFAX method;⁹⁸ however, the netting of flows is made by the solution-based DFAX method by analyzing flows over the solution transmission facility, rather than the constrained element. As noted above, Linden's inability to net power flows because it is a merchant transmission facility with a single point of withdrawal is not unduly discriminatory or unreasonable and realistically reflects how energy flows on an integrated transmission system. We also recognize as valid PSEG's argument stating that accounting for counterflow in zonal netting is an important factor in considering a load's contribution to a particular constraint because it reduces the need for expanding that constraint. We agree with PSEG that the customers without counterflows are actually using the line capability.⁹⁹

⁹⁶ The treatment of each merchant transmission facility as a separate zone was addressed in a 2008 Initial Decision. Initial Decision 124 FERC ¶ 63,022 at PP 197-197. No party objected to the treatment of merchant transmission facilities as separate zones. See Merchant Transmission Order, 129 FERC ¶ 61,161 at n. 112.

⁹⁷ Schedule 12 (b)(iii)(C)(3) of the PJM Tariff stated, in September 14, 2007, Offer of Settlement: "In the DFAX analysis, when Transmission Provider models a transfer from generation to all load within an individual Zone, Transmission Provider shall model the transfer to the Zone as a whole (not on a bus-by-bus basis)."

PJM Intra-tariff Schedule 12 OATT, 6.1.0 12 (b)(iii)(A)(4) states: "In the DFAX analysis, when Transmission Provider models a transfer from generation to all load within an individual Zone, Transmission Provider shall model the transfer to the Zone as a whole (not on a bus-by-bus basis)."

⁹⁸ Prior to using the solution-based DFAX method, PJM used a violation-based DFAX method. The solution-based DFAX method evaluates the projected relative use on the new facility by the load of each transmission zone or merchant transmission facility and allocates costs based on such usage. The violation-based DFAX method focused on the contributions that load made to the violation rather than use.

⁹⁹ PSEG Answer at 20 dated July 13, 2015.

63. We further recognize that netting appropriately accounts for actual flow contribution from a zone using PJM generation to serve its own load, which is consistent with the zonal nature of cost allocation. We thus do not find it unjust and unreasonable to allow PJM to model its transfers from generation to all loads within a zone. Therefore, consistent with our finding in the Con Edison Order, we find that energy flows in one direction for the Linden facility, and therefore, there are no offsetting flows to be allocated.

64. In addition, we find unpersuasive Linden's argument that application of the solution-based DFAX method using Linden's 330 MW of Firm Transmission Withdrawal Rights, which represents their maximum use of a new transmission facility, severely disadvantages Linden, because it does not consistently utilize its Firm Transmission Withdrawal Rights at the time of system peak.¹⁰⁰ As we found previously, where similar concerns were raised asserting that merchant transmission facilities' withdrawals may be less firm than those of zonal customers, PJM must plan its system to meet peak load on its system, including the full amount of the Firm Transmission Withdrawal Rights allocated to merchant transmission facilities. Thus, we affirm here that merchant transmission facilities legitimately can be charged their proportionate share of the upgrade costs needed to ensure such deliveries.¹⁰¹

65. Linden contends that the solution-based DFAX cost allocation method and the implementation of the solution-based DFAX method is unjust, unreasonable, unduly discriminatory, and preferential. Specifically, Linden cites Schedule 12, section (b)(iii)(G), which provides:

If Transmission Provider determines in its reasonable engineering judgement that, as a result of applying the provisions of this Section (b)(iii), the DFAX analysis cannot be performed or that the results of such DFAX analysis are objectively unreasonable, the Transmission Provider may use an appropriate substitute proxy for the Required Transmission Enhancement in conducting the DFAX analysis.

66. Linden contends that PJM has the discretion to adjust the results of any DFAX-based calculation that are "objectively unreasonable."¹⁰² We disagree. As the Commission found in the Con Edison Order,¹⁰³ the provision limits the discretion in

¹⁰⁰ Linden Amended Complaint at 38-39.

¹⁰¹ Merchant Transmission Order, 129 FERC ¶ 61,161 at P 73.

¹⁰² Linden Complaint at 53-54.

¹⁰³ Con Edison Order, 151 FERC ¶ 61,227 at P 52.

reviewing the results of the solution-based DFAX method analysis to PJM's engineering judgment of the flows over the subject facility. The Commission went on to identify the two instances when PJM may use a substitute proxy in conducting the solution-based DFAX analysis. First, the Commission identified that a substitute proxy would be appropriate when the solution-based DFAX analysis cannot be performed for the facility in question. Second, the Commission identified that a substitute proxy would be appropriate when the resulting flows are not consistent with the normal expected flow results that an engineer would expect to see, i.e., when the results are "objectively unreasonable." The Commission went on to state that the Tariff did not permit discretion to use a substitute proxy whenever PJM believes that the cost allocation resulting from the solution-based DFAX method analysis is unreasonable.¹⁰⁴ Since flows could be measured on the new facility via the solution-based DFAX method, a substitute proxy was neither appropriate nor required. Furthermore, as we found in the Con Edison Order, altering the results of an approved cost allocation method would reduce certainty that the method provides and thus eviscerate the primary benefit of having an *ex ante* cost allocation method. Undertaking such a case-by-case basis approach would create the same uncertainty that *ex ante* cost allocation is intended to avoid.¹⁰⁵

67. Hudson and Linden argue that their investment and use of the merchant transmission facilities will be adversely impacted by application of the solution-based DFAX method.¹⁰⁶ As we found previously, the reason for allocating cost for Required

¹⁰⁴ In addition, the Commission noted that such an interpretation would require PJM to ignore the cost allocation procedures of its Tariff and examine every cost allocation to determine whether it is objectively unreasonable. The Commission found such an interpretation would provide PJM with too much discretion and is at odds with the requirement in Order No. 1000 for public utility transmission providers to participate in regional transmission planning processes with an *ex ante* regional cost allocation method for the cost of new transmission facilities selected in a regional transmission plan for purposes of cost allocation Con Edison Order, 151 FERC ¶ 61,227 at P 53.

¹⁰⁵ Con Edison Order, 151 FERC ¶ 61,227 at P 54-55.

¹⁰⁶ Linden argues that the likely result of applying the solution-based DFAX method will be that the parties who receive cost allocation will be forced to relinquish their Firm Transmission Withdrawal Rights. If, however, the customer obtained Non-Firm Transmission Withdrawal Rights, PJM would not need to incur the upgrades since it has no obligation to plan for Non-Firm Transmission Withdrawal Rights in the RTEP process. Under Schedule 16-A of the PJM Tariff, Linden has the option of allocating its withdrawal rights on a non-firm basis and charging negotiated rates (i.e., rates established pursuant to market mechanisms as recognized for merchant

(continued ...)

Transmission Enhancements to merchant transmission facilities is that PJM is required to provide reliable service up to the Firm Transmission Withdrawal Rights held by Linden, Hudson, Neptune and others. While Hudson and Linden can assess the level of service required, we do not find that allocating the RTEP costs based on the projected use of a facility through application of the solution-based DFAX method amounts to undue discrimination or preference.

68. As to Linden and Hudson's assertion that their firm rights are static and they have no projected load growth, we find that while a merchant transmission facility's Firm Transmission Withdrawal Rights are static, the PJM system overall is not static. The system topology may change over time for various reasons, such as generation retirements or load growth. As a result, it may be necessary to develop Required Transmission Enhancements to ensure firm service. Therefore, in these circumstances, we find it just and reasonable and not unduly discriminatory or preferential for PJM to assign the costs of Required Transmission Enhancements to the merchant transmission facilities for the costs of assuring their service based on the solution-based DFAX method. Linden, Hudson and others have offered no basis for treating merchant transmission facilities differently than load. Moreover, the extent to which merchant transmission facilities pay for "but for" upgrades during the interconnection process does not determine their cost responsibility for future Required Transmission Enhancements which under the solution-based DFAX method is based on a zone's or a merchant transmission facilities' projected usage and reliance on the Required Transmission Enhancements.

69. Linden contends that contrary to principles in Order No. 1000 that require PJM to provide information regarding benefits and identifying beneficiaries, PJM has not identified in its cost allocation filings, and failed to provide adequate documentation in such filings to allow stakeholders to determine how they were applied to a proposed transmission facility.¹⁰⁷ As the Commission found in the Con Edison Order, where a similar issue was raised, PJM conducted numerous Transmission Expansion Advisory Committee (TEAC) meetings during 2013 at which the Bergen-Linden Corridor Project and the Edison Rebuild Project were presented for review and discussion. PJM TEAC meetings are open meetings and stakeholders can raise any issue regarding proposed projects, including cost allocation.¹⁰⁸ As to Linden's argument that it is not treated like

transmission projects and not included in Transmission Provider's Tariff rates) for the use of transmission capability over the Linden facility

¹⁰⁷ Linden Amended Complaint at P 63.

¹⁰⁸ Con Edison Order, 151 FERC ¶ 61,227 at P 73.

other transmission owners with regard to cost allocation issues in the stakeholder process, as stated above, PJM's stakeholder process is open and merchant transmission customers may participate.¹⁰⁹ Linden has provided no support for its contentions that its participation is limited.

The Commission orders:

The Linden Complaint is denied, as discussed in the body of this order.

By the Commission. Commissioner LaFleur is dissenting in part with a separate statement attached.

(S E A L)

Nathaniel J. Davis, Sr.,
Deputy Secretary.

¹⁰⁹ *E.g.*, PJM Interconnection, L.L.C., PJM Planning Committee Meeting Minutes (July 2015) at: <http://www.pjm.com/~media/committees-groups/committees/pc/20150212/20150212-item-01b-draft-minutes.ashx>. PJM's Planning Committee and TEAC meetings typically occur on the same day and at the same location.

UNITED STATES OF AMERICA
FEDERAL ENERGY REGULATORY COMMISSION

Linden VFT, LLC v. PJM Interconnection, L.L.C.

Docket Nos. EL15-67-000

(Issued April 22, 2016)

LaFLEUR, Commissioner *dissenting in part*:

In companion orders issued today, the Commission denies relief sought in a series of complaints challenging the application of the solution-based distribution factor (DFAX) cost allocation methodology to a limited number of transmission projects approved through the PJM Interconnection, L.L.C. (PJM) Regional Transmission Expansion Plan (RTEP) process.¹ Complainants allege, among other things, that the solution-based DFAX methodology does not result in a just and reasonable cost allocation for these projects because they address reliability violations that are not related to flow on the planned projects, and therefore it is inappropriate to allocate the projects' costs using a flow-based allocation methodology like solution-based DFAX.

I acknowledge that these cases present difficult questions regarding *ex ante* cost allocation methodologies, and I understand the reasoning and considerations that led the Commission to reject the complaints. Determining an appropriate cost allocation methodology for large transmission projects has been among the most complicated issues presented during my time on the Commission.

Nonetheless, I do not agree with the orders' denial of the complaints. Based on the record, particularly as developed through the technical conference, I am persuaded that the complainants have met their burden to establish that the use of solution-based DFAX to allocate the costs of the Bergen-Linden Corridor Project and the Artificial Island Project is unjust and unreasonable.²

¹ *Consolidated Edison of New York, Inc. v. PJM Interconnection, L.L.C.*, 155 FERC ¶ 61,088 (2016); *Delaware Pub. Serv. Comm'n v. PJM Interconnection, L.L.C.*, 155 FERC ¶ 61,090 (2016).

² Both the Bergen-Linden Corridor and Artificial Island Projects include high-voltage (i.e., 500 kilovolt (kV) or double-circuit 345 kV and above) and lower-voltage components. Pursuant to PJM's existing cost allocation method, 50 percent of the projects' high-voltage costs are allocated through the solution-based DFAX methodology, with the remaining 50 percent allocated on a postage stamp basis. The

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I strongly support *ex ante* cost allocation in general and PJM's solution-based DFAX cost allocation methodology in particular, as I believe it results in just and reasonable cost allocations in most instances. However, the record in this case clearly establishes that there is a discrete and identifiable set of transmission projects as to which that methodology produces an anomalous result and does not allocate costs in a manner roughly commensurate with benefits. This set of projects includes those developed to address short circuit violations, like the Bergen-Linden Corridor Project, and stability violations, like the Artificial Island Project. These two categories of projects are readily definable,³ are historically limited in number (and therefore unlikely to impact use of the solution-based DFAX for the vast majority of projects going forward),⁴ and address violations unrelated to flows across the planned facility that, in my view, are properly addressed through a more tailored cost allocation methodology.

For these projects, a flow-based methodology alone is insufficient to properly align benefits and costs. Because the solution-based DFAX methodology relies solely on the use of the facilities to identify beneficiaries and allocate costs, it fails to adequately identify those entities that benefit from resolution of the very specific underlying reliability issues that triggered the development and selection of these projects, and therefore fails to allocate those entities a corresponding share of the projects' costs. As a result, entities that use the lines may grossly overpay, while entities that benefit from resolution of the underlying violation underpay. I believe the record supports granting the complaints to remedy this flaw.

Had it determined that solution-based DFAX is not just and reasonable in these limited instances, the Commission would be required to establish an alternative cost allocation method to apply to these and other similar projects. In my view, the

projects' lower-voltage portions are allocated 100 percent through the solution-based DFAX methodology. Consistent with the PJM tariff and my prior recognition of the regional benefits of high-voltage transmission projects, I would only grant relief for the portion of the projects' costs allocated through the solution-based DFAX methodology.

³ PJM provided a matrix in preparation for the technical conference that outlines that reliability-based drivers of projects included in its RTEP process since 2000, as well as the number of projects within each category.

⁴ As PJM's matrix notes, of the 1,268 RTEP projects approved since 2000, the Bergen-Linden Corridor and Artificial Island Projects are the only projects that address, respectively, short circuit and stability violations. The record shows that short circuit violations are typically addressed through targeted, inexpensive circuit breaker fixes that are allocated to the local zone, and that stability violations are similarly addressed through the generator interconnection process, rather than the RTEP.

Commission should direct PJM to include in its tariff a new *ex ante* cost allocation methodology to address stability and short circuit projects like those in dispute here.

The records in these cases largely debate a binary choice between full solution-based DFAX or some other method, such as local zone allocation.⁵ However, I do not believe the choice is necessarily that stark. Rather, in my view, a just and reasonable cost allocation methodology should recognize two types of benefits – (1) benefits accruing from resolution of the specific underlying short circuit or stability issue, and (2) benefits accruing from use of the facility over time – and allocate a portion of a project’s costs to entities that benefit under each approach. Similar to PJM’s existing hybrid methodology for high voltage projects, which recognizes the broad, long-term regional benefits of high voltage transmission as well as the near-term benefits accruing through use of the line, this hybrid methodology would reflect a fairer identification of benefits and allocation of costs.

Therefore, to establish the new hybrid methodology, I believe it would be appropriate to initiate a paper hearing to develop a more complete record regarding (1) what methodology should be used to identify “non-flow based beneficiaries” in short circuit or stability cases, and (2) how to apportion the costs and benefits between that methodology and the solution-based DFAX methodology that identifies beneficiaries based upon their use of the line over time. Upon receipt of that information, the Commission would be able to set the just and reasonable methodology and direct PJM to include the methodology in its tariff to allocate the costs of these and any similar projects going forward.

It is a cliché to observe that hard cases make bad law, but unfortunately I believe that is the result of today’s orders. In my view, the orders err by rigidly adhering to the solution-based DFAX methodology in the face of strong record evidence demonstrating its poor fit for the types of projects at issue in these proceedings. Apprehension over the “slippery slope” that will jeopardize *ex ante* cost allocation may invite a “stay the course” approach in the form of solution-based DFAX. However, because the instant cases are discrete and identifiable and have significant rate impacts that are not roughly commensurate with benefits, a failure to grant these complaints may actually undermine a cost allocation methodology that is just and reasonable in the vast majority of instances. I would grant the complaints and develop an expanded record to identify a just and reasonable alternative that better aligns the benefits and costs of the Bergen-Linden Corridor Project, Artificial Island Project, and other similar projects that may arise in the future.

⁵ The relief sought by Consolidated Edison of New York, Inc. in its complaint in Docket No. EL15-18 is a notable exception, and is, at the highest level of generality, conceptually similar to the relief I discuss here.

Accordingly, I respectfully dissent in part.

Cheryl A. LaFleur
Commissioner