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Honorable Kimberly D. Bose, Secretary
Federal Energy Regulatory Commission
888 First Street, N.E.
Washington, D.C. 20426-0001

Re: PJM Interconnection, L.L.C., Docket No. ER11-12-000

Dear Secretary Bose:

PJM Interconnection, L.L.C. ("PJM") hereby submits for filing revisions to Section 1.2A.2 of Schedule 1 of the Amended and Restated Operating Agreement of PJM Interconnection, L.L.C. ("Operating Agreement") and the parallel provision of the Attachment K – Appendix of the PJM Open Access Transmission Tariff ("Tariff"),¹ Part I, Section 3F.2 of the Tariff and Section 14A.2 of the Operating Agreement, to incorporate the definitions of PJM Markets Facilities, PJM Reliability Facilities and Reliability Monitored Facilities into the Tariff and Operating Agreement. The purpose of the revisions is to eliminate from the PJM loss calculation model all lower voltage facilities that PJM does not control or operate for congestion or reliability, as well as generator step-up transformers ("GSU") that are metered on the "high side" that the Market Seller has requested be removed from the loss calculation. PJM proposes an effective date of June 1, 2012 for the enclosed proposed revisions for the reasons described herein, and

¹ The referenced provisions are found in Schedule 1 of the Operating Agreement and the Attachment K – Appendix of the Tariff. All further references in this transmittal letter to referenced sections in Schedule 1 shall only be made to the Operating Agreement provisions, without reference to the parallel Tariff provisions. Capitalized terms used and not otherwise defined herein have the meaning set forth in the Operating Agreement and Tariff.

requests that the Commission issue its order accepting the enclosed revisions by no later than December 1, 2010.

I. Procedural Background and Stakeholder Process

While the concept of marginal losses (also known as transmission losses) was set forth in the PJM Operating Agreement when PJM was first approved as an Independent System Operator and Regional Transmission Organization (“RTO”) by the Commission in 1997,² the actual implementation of marginal losses did not occur until 2006 – after the filing of a complaint with the Commission by several stakeholders and the issuance of the Commission’s Order on Complaint Requiring Compliance with Existing Tariff Provisions and Related Filings on May 1, 2006 (“May 2006 Order”) in Docket No. EL06-55-000.³

In the May 2006 Order, the Commission explained how taking marginal losses into account allows for a more efficient allocation of resources and reduces the cost of meeting load requirements.⁴ As the Commission explained:

Billing on the basis of marginal costs ensures that each customer pays the proper marginal cost price for the power it is purchasing. It therefore complements and reinforces PJM’s use of LMP to price electricity. Moreover, by changing to the marginal losses method, PJM would change the way that it dispatches generators by considering the effects of losses. As a result and as explained earlier, the total cost of meeting load would be reduced. PHI states that PJM estimates that this cost reduction would be about \$100 million per year. Implementation of marginal losses, therefore, would produce a more efficient allocation of resources.⁵

² When PJM filed the Operating Agreement on June 2, 1997, Schedule 1, Sections 3.2.5(a) and 3.4.2(a) thereof specifically stated: “Whenever the Office of the Interconnection has in place appropriate computer hardware, software, and other necessary resources to account for marginal losses in the dispatch of energy and the calculation of Locational Marginal Prices, loss accounting shall be determined on that basis, and the provisions of this Section shall be revised accordingly. Until such time, the following accounting provisions for [average] losses shall apply.”

³ *Atlantic City Electric Company, et al. v. PJM Interconnection, L.L.C.*, 115 FERC ¶ 61,132.

⁴ *Id.* at P 22.

⁵ *Id.* at P 11.

Therefore, the Commission ordered PJM to revise its Operating Agreement to implement a marginal loss method by no later than October 2, 2006.⁶

On August 3, 2006, PJM filed its marginal loss methodology in a compliance filing, requesting an effective date of June 1, 2007, despite the fact that the revisions did not receive the two-thirds supermajority stakeholder approval as required by the Operating Agreement. The Commission accepted PJM's filing on November 6, 2006.⁷ The methodology provides, among other things, that PJM must calculate and assess "Transmission Loss Charges for every Network Service User, the PJM Interchange Energy Market, and each Transmission Customer."⁸ The basis for these charges is "the differences in the Locational Marginal Prices, defined as the Loss Price at a bus, between points of delivery and points of receipt."⁹ Network Service Users are "charged for the increased cost of transmission losses to deliver the output of its firm Capacity Resources."¹⁰ Market Buyers are "charged for transmission losses resulting from all load . . . scheduled to be served from the . . . Day-ahead Energy Market at the Day-ahead Loss Price applicable to each relevant load bus."¹¹ Additionally, Generating Market Buyers are "reimbursed for transmission losses resulting from all energy scheduled to be delivered . . . in the Day-ahead Energy Market at the Day-ahead Loss

⁶ *Id.* at P 27.

⁷ *Atlantic City Electric Company, et al. v. PJM Interconnection, L.L.C.*, 117 FERC ¶61,169.

⁸ Section 5.4.1 of Schedule 1 of the Operating Agreement, and the parallel provisions of Attachment K-Appendix of the Tariff.

⁹ Section 5.4.2 of Schedule 1 of the Operating Agreement, and the parallel provisions of Attachment K-Appendix of the Tariff.

¹⁰ Section 5.4.3(a) of Schedule 1 of the Operating Agreement, and the parallel provisions of Attachment K-Appendix of the Tariff.

¹¹ Section 5.4.3(b) of Schedule 1 of the Operating Agreement, and the parallel provisions of Attachment K-Appendix of the Tariff.

Price applicable to each relevant generation bus.”¹² Market Sellers are “reimbursed for transmission losses resulting from all energy scheduled to be delivered in the Day-ahead Energy Market at the Day-ahead Loss Prices applicable to each relevant generation bus.”¹³ The revenue that PJM receives from these Transmission Loss Charges is referred to as marginal loss revenue.

Transmission losses are described in Section 3F of Part I of the Tariff and Section 14A of the Operating Agreement wherein it states:

Transmission losses refer to the loss of energy in the transmission of electricity from generation resources to load, which is dissipated as heat through transformers, transmission lines, and other transmission facilities.¹⁴

...

Whenever in this Tariff transmission losses are included in the determination of a charge, credit, load (including deviations), or demand reduction, it is explicitly so stated and such included losses shall be those losses incurred on facilities included in the PJM network model and determined by, and reflected in, the PJM State Estimator.¹⁵

Further, PJM Manual 28 discusses how Transmission Loss Charges are calculated for each PJM Member and allocated as Transmission Loss Credits.¹⁶

Notwithstanding the foregoing, while the Operating Agreement has included the same method of calculating marginal losses in PJM since 2007, the debate regarding

¹² Section 5.4.3(c) of Schedule 1 of the Operating Agreement, and the parallel provisions of Attachment K-Appendix of the Tariff.

¹³ Section 5.4.3(d) of Schedule 1 of the Operating Agreement, and the parallel provisions of Attachment K-Appendix of the Tariff.

¹⁴ Section 3F.1 of the Tariff; Section 14A.1 of the Operating Agreement. See also PJM Manual 28, Revision 45, Effective Date June 23, 2010 at 46, a copy of which is located on PJM's Web site at <http://www.pjm.com/~media/documents/manuals/m28.ashx>.

¹⁵ Section 3F.2 of the Tariff; Section 14A.2 of the Operating Agreement. See also PJM Manual 28, Revision 45, Effective Date June 23, 2010 at 46, a copy of which is located on PJM's Web site at <http://www.pjm.com/~media/documents/manuals/m28.ashx>.

¹⁶ PJM Manual 28, Revision 45, Effective Date June 23, 2010 at 46, a copy of which is located on PJM's Web site at <http://www.pjm.com/~media/documents/manuals/m28.ashx> at 46-51.

the appropriate method of calculating marginal losses has not subsided. Hence, PJM and its stakeholders have been in discussions about making improvements to the calculation of marginal losses since the method was implemented on June 1, 2007. After conducting a series of preliminary discussions at various stakeholder meetings, the PJM Markets and Reliability Committee (“MRC”) formed the Marginal Losses Working Group (“MLWG”) on November 14, 2007 “to review the history of marginal losses implementation and evaluate and recommend potential enhancements.”¹⁷ The charter of the MLWG required that it report to the MRC on its review of the marginal loss dispatch and settlement provisions of the Operating Agreement and make recommendations for any rule or procedure changes by June 1, 2008.¹⁸

The MLWG reported at the April 24, 2008 meeting of the MRC, among other things, that the MLWG “is satisfied with the PJM marginal loss implementation process.”¹⁹ The MLWG further reported that: “Under the average loss construct, 100% of the price difference between two points was hedgeable; under the marginal loss construct, a portion is no longer hedgeable.”²⁰ Thereafter, the MRC directed the MLWG to focus its discussion on the “development of potential hedging methods” and extended the sunset date for the MLWG and the deadline to submit its report to the MRC until December 31, 2008.²¹ The MRC voted to disband the MLWG at its June 18, 2008 meeting after being advised that there was little interest among the majority of the

¹⁷ See Minutes of MRC Meeting of November 14, 2007 at 19-7.

¹⁸ See MLWG Charter on PJM’s Web site at <http://www.pjm.com/committees-and-groups/closed-groups/~media/committees-groups/working-groups/mlwg/postings/mlwg-charter.ashx>.

¹⁹ See Minutes of MRC Meeting of April 24, 2008 on PJM’s Web site at <http://www.pjm.com/~media/committees-groups/committees/mrc/20080618/20080618-item-01a-mrc-draft-minutes-04-24-2008.ashx>.

²⁰ See Minutes of MRC Meeting of April 24, 2008 on PJM’s Web site at <http://www.pjm.com/~media/committees-groups/committees/mrc/20080618/20080618-item-01a-mrc-draft-minutes-04-24-2008.ashx>.

²¹ *Id.*

members of the MLWG in creating such a loss hedging product, and that the small group of MLWG members that were interested in implementing such a product sought to form a User Group to address the issue.²² The PJM Members Committee (“MC”) was advised of the formation of the Marginal Losses User Group (“MLUG”) on June 26, 2008.²³

The mission of the MLUG was to examine whether a marginal loss hedging product should be developed to enhance and improve the ability to hedge marginal losses within the PJM Energy Market and whether the principles applicable to other market hedging tools such as Financial Transmission Rights should be applied to marginal losses.²⁴ Upon completing its analysis and presenting any proposed modifications to the calculation of marginal losses, the MLUG was directed to report the results to the MC to seek its endorsement for the implementation of any proposed changes.²⁵ The MLUG’s charter further provided that if stakeholder consensus could not be reached at the MC, then the MLUG must “provide a thorough report and recommendation to the PJM Board of Directors requesting unilateral approval of the documented process.”²⁶

As part of its charge, the MLUG reviewed the analysis conducted by PJM staff regarding the price and dispatch impacts resulting from the inclusion of loss impacts in the PJM Locational Marginal Prices (“LMP”). Review of this analysis revealed a

²² See Minutes of MRC Meeting of June 18, 2008 on PJM’s Web site at <http://www.pjm.com/~media/committees-groups/committees/mrc/20080806/20080806-item-01-mrc-minutes.ashx>.

²³ See Minutes of MC Meeting of June 26, 2008 on PJM’s Web site at <http://www.pjm.com/~media/committees-groups/committees/mc/20080626/20080626-minutes.ashx>.

²⁴ See MLUG Charter on PJM’s Web site at <http://www.pjm.com/committees-and-groups/user-groups/~media/committees-groups/user-groups/mlug/postings/mlug-charter.ashx>.

²⁵ *Id.*

²⁶ *Id.*

significant disparity in the impacts of marginal loss calculations across the various transmission zones. The MLUG concluded that the cause of this disparity was the fact that varying levels of lower voltage level transmission and distribution facilities are included in the PJM network model in different zones. The MLUG discussed the significant impact of underlying facilities on loss prices, the fact that the different voltage levels modeled across the PJM transmission zones result in a lack of common requirements for inclusion in the system model, and the potential inequity in loss price results for generators due to PJM calculating the applicable LMP at generator terminals on the “low side” of GSUs while many of the generators measure their output on the “high side” of GSUs for purposes of revenue metering.²⁷

The MLUG reported its findings to the MIC on November 12, 2009 and to the MC on November 19, 2009, advising that it was unable to develop a hedging mechanism for the marginal loss component of LMP. The MLUG further recommended that PJM remove underlying facilities from the PJM network model for the purposes of marginal loss calculations in order to achieve consistency in the marginal loss calculations across the PJM region, and recommended a cutoff of 100kV for the voltage level below which facilities should be removed from the calculation. PJM staff refined the recommendation by suggesting that the marginal losses sensitivity calculations be performed on facilities monitored for reliability because doing so is less arbitrary than limiting the marginal loss calculation to facilities that have output of more than 100kV (as the MLUG originally

²⁷ See MLUG Presentation at MC Meeting of November 19, 2009 on PJM's Web site at <http://www.pjm.com/~media/committees-groups/committees/mc/20091119/20091119-item-13-mlug-presentation.ashx> (“MLUG Presentation”); see also MLUG Letter to PJM Board dated April 23, 2010 at 2, a copy of which may be found on PJM's Web site at <http://www.pjm.com/~media/about-pjm/who-we-are/public-disclosures/20100423-mlug-letter-to-pjm-board-of-managers.ashx> (“MLUG Letter”).

recommended) and for consistency with respect to the facilities that PJM uses to calculate the congestion component of LMP.²⁸

The initial proposals urged by the MLUG²⁹ and PJM³⁰ were rejected by PJM stakeholders, who then directed the MLUG to continue its evaluation of the various proposals.³¹ The MLUG continued to discuss the issue with the MIC, and PJM conducted further analyses of PJM Monitored Facilities and report back to the MIC on the same.³² However, the proposals were defeated at the MIC and the MRC.³³

After failing to achieve stakeholder consensus on its proposal, the MLUG and several PJM Members sent letters to the PJM Board of Managers (“Board”) expressing their desires that the Board approve a change to the transmission loss system model that is used to calculate marginal losses to effectuate a reduction of the marginal loss revenue surplus.³⁴ Some Members requested an effective date for the changes of June 1, 2011,³⁵ while others requested an effective date of June 1, 2012.³⁶

²⁸ See MLUG Presentation.

²⁹ See Minutes of Markets and Implementation Committee (“MIC”) Meeting of November 12, 2009, on PJM’s Web site at <http://www.pjm.com/~media/committees-groups/committees/mic/20091112/20091112-minutes.ashx> (“eliminating generator pricing inconsistency by setting the LMP point for each generator on the same side of the [generator step up transformer] as used for output measurement to PJM, and eliminating the inconsistency in the marginal loss model detail among zones by standardizing the marginal loss model to include only facilities that are greater than 100kV.”)

³⁰ See *Id.* (“PJM alternate proposal to address the marginal loss model inconsistency across PJM transmission zones . . . is to include “Reliability Monitored Facilities” in the marginal loss calculation to promote stability and consistency with respect to the transmission facilities included in the loss model.”)

³¹ See Minutes of MC Meeting of November 19, 2009 on PJM’s Web site at <http://www.pjm.com/~media/committees-groups/committees/mc/20100128/20100128-item-02a-draft-minutes-20091119.ashx>.

³² See Minutes of MIC Meeting of January 12, 2010 on PJM’s Web site at <http://www.pjm.com/~media/committees-groups/committees/mic/20100112/20100112-minutes.ashx>.

³³ See Minutes of MIC Meeting of March 25, 2010 on PJM’s Web site at <http://www.pjm.com/~media/committees-groups/committees/mc/20100506/20100506-item-05-draft-minutes-mc-20100325.ashx>.

³⁴ See Letter from Constellation Energy to PJM Board of Managers dated May 14, 2010, a copy of which may be found on PJM’s Web site at <http://www.pjm.com/~media/about-pjm/who-we-are/public-disclosures/20100517-constellation-letter-board%20regarding-marginal-losses-user-group.ashx> (“Constellation Letter”).

³⁵ MLUG Letter at 1.

The proposal of the MLUG requested a June 1, 2011 effective date and asked the Board “to direct PJM staff to implement needed changes to the PJM System Model to reflect physical generator step transformer metering points and to standardize zonal transmission voltages consistent with transmission facilities monitored for markets and reliability effective June 1, 2011.”³⁷ The MLUG sought the approval of the Board because the MC failed “to reach a consensus to implement the proposed system model changes.”³⁸ In its letter to the Board, the MLUG argued in support of its proposal that: “The MLUG uncovered errors and inconsistencies in the transmission system model used by PJM to calculate the marginal loss component of LMP.”³⁹ Therefore, they stated that:

The concept of marginal loss dispatch is to recognize the financial impact of the varying amounts of energy that are lost on the transmission system during delivery from various parts of the PJM region to load. The objective is to make dispatch more efficient by decreasing transmission system energy losses.⁴⁰

On the other hand, Members requesting an effective date of June 1, 2012 for the proposed loss modeling change argued that this delayed implementation:

will achieve an equitable balance between preserving the original economic bargain of existing supply contracts versus implementing a modeling change that will support a public policy goal Prospective modification of the loss modeling will limit adverse impacts on the pricing of supply contracts that have already been negotiated in reliance upon the current loss pricing structure. . . . No reliability or market efficiency goal will be achieved by implementation prior to 2012 that would offset the inequity of

³⁶ Constellation Letter at 1, 2.

³⁷ MLUG Letter at 1.

³⁸ *Id.* PJM notes that it disagrees with the characterization of the inclusion of underlying facilities in the loss calculations as an “error” but rather would characterize such inclusion as a market design decision. PJM agrees with the benefits espoused by the MLUG regarding removal of underlying facilities from the loss calculations.

³⁹ MLUG Letter at 1.

⁴⁰ *Id.*

upsetting existing contracts. Since no reliability or market operations need is at stake, it is reasonable for the Board to honor the forward obligations established by market participants who have entered into tens of billions of dollars worth of forward energy contracts.⁴¹

After further stakeholder discussions of the issues, PJM proposed the within revisions to the method of calculating marginal losses to the MRC at its meeting on August 5, 2010⁴² and to the MC at its meeting on August 12, 2010. The MC approved the proposed revisions to the Operating Agreement and endorsed the revisions to the Tariff with a sector-weighted vote of 4.24/5.00 in favor of the proposal.⁴³

II. Proposed Revisions

Currently, the identical provisions of Section 3F.2 of Part I of the PJM Tariff, Section 14A.4 of the Operating Agreement and Section 1.2A.2 of Schedule 1 of the Operating Agreement, provide that transmission losses shall only be losses incurred on “facilities included in the PJM network model and determined by, and reflected in, the PJM State Estimator.” PJM proposes to modify the calculation of marginal losses by eliminating from the loss model all lower voltage facilities that PJM does not control or operate for congestion or reliability, as well as GSUs that are measured on the “high side” which the Market Seller owning or controlling that GSU has requested be removed from the loss calculation.

⁴¹ Constellation Letter at 1.

⁴² See Minutes of MRC Meeting of August 5, 2010 on PJM’s Web site at <http://www.pjm.com/~media/committees-groups/committees/mrc/20100915/20100915-draft-minutes-mrc-20100805.ashx>.

⁴³ See Minutes of MC Meeting of August 12, 2010 on PJM’s Web site at <http://www.pjm.com/~media/committees-groups/committees/mc/20100923/20100923-draft-minutes-mc-20100812.ashx>.

A. Elimination of Lower Voltage Facilities from Calculation of Marginal Losses.

As discussed above, there have been discussions ongoing since 2007 regarding the calculation of marginal losses in PJM. Stakeholders requested the proposed change in the calculation on the basis that there are more facilities included therein than are necessary because all of the facilities that are in the State Estimator which runs the entire network model need not be used in the calculation. This, say the stakeholders urging the change, results in a larger total amount of marginal loss revenue, thereby increasing the amount of the surplus which must be allocated back to PJM Members with no discernable benefit in system dispatch efficiency.

In its analysis of the data gathered in consideration of the issue, PJM found that loss price separation and the magnitude of the marginal loss revenue surplus have increased over time due to the addition of underlying facilities to the loss model. The facilities included in the model have increased both as PJM adds additional detail to its existing model to, for example, meet the proposed, revised NERC definition of Bulk Electric System mandated by the Commission,⁴⁴ and also as new Members joined PJM, all with varying levels of facilities that they have turned over to PJM to operate and control as their Transmission Provider. Understanding the reasons for the increase in marginal loss revenue, PJM determined that the mathematical calculation of marginal losses delineated in PJM Manual 28 remains appropriate and should not change. On the other hand, PJM concluded that reducing the number of facilities that are utilized in the calculation would result in a significant decrease in the amount of surplus marginal

⁴⁴ On March 18, 2010, the Commission issued *Revision to Electric Reliability Organization Definition of Bulk Electric System*, "Notice of Proposed Rulemaking," 130 FERC ¶ 61,204 ("NOPR"), directing the North American Electric Reliability Council ("NERC") to revise its definition of the term bulk electric system to include all electric transmission facilities with a rating of 100 kV or above. The Commission has not yet issued a final rule with respect to this NOPR.

loss revenue collected and allocated back to Members, and thereby would achieve the result that stakeholders sought.

In an effort to determine which facilities should be included in the calculation of marginal losses, PJM and its stakeholders discussed utilizing a voltage cut off of 100kV for facilities included in the State Estimator to be consistent with the Commission's proposed definition of Bulk Electric System, no matter what type of facility, and changing the types of facilities that are incorporated into the State Estimator regardless of their voltage limitations. There were arguments on both sides of the issue with some stakeholders favoring the 100kV cut off while others preferred a limitation of the specific types of facilities that are utilized in the calculation.

The purpose of the assessment of Transmission Loss Charges is to compensate entities "for moving energy injections to energy withdrawals across the system"⁴⁵ and "for moving energy across the Transmission System."⁴⁶ The Transmission System is defined in Section 1.49 of Part I of the Tariff as: "The facilities controlled or operated by the Transmission Provider within the PJM Region that are used to provide transmission service under Part II and Part III of the Tariff." It follows then that the calculation of such Transmission Loss Charges should not include losses that occur on lower voltage facilities that PJM does not control or operate.

Moreover, in PJM there is no specific, defined voltage level above which PJM operates facilities on behalf of its Members as their Transmission Provider. In fact, the voltage level of the underlying facilities in the State Estimator varies across the PJM Transmission Zones. Consequently, after considerable discussion and debate, PJM

⁴⁵ PJM Manual 28 at 47.

⁴⁶ *Id.* at 48.

concluded that an arbitrary voltage cut off of 100kV would be inappropriate due to the variation in voltage levels of the facilities controlled and operated by PJM on behalf of its Members.

The better alternative in PJM's view is to limit the number of facilities that are incorporated into the calculation of marginal losses to the subset of facilities in the State Estimator that are controlled or operated by PJM, at whatever voltage levels they may be. Accordingly, PJM proposes to modify Section 3F.2 of Part I of the Tariff, Section 14A.4 of the Operating Agreement and Section 1.2A.2 of Schedule 1 of the Operating Agreement as follows:

Whenever in this Tariff transmission losses are included in the determination of a charge, credit, load (including deviations), or demand reduction, it is explicitly so stated and such included losses shall be those losses incurred on (a) Reliability Monitored Facilities and (b) any generator step-up transformers that the Market Seller has not elected to remove from the loss calculation, which are included in the PJM network model and determined by, and reflected in, the PJM State Estimator. Absent such explicit statement, such losses are not included in the determination.

As reflected above, PJM first proposes to specify the two types of facilities that are included in the marginal loss calculation. Currently, the Tariff and Operating Agreement incorporate into the calculation losses incurred on "facilities included in the PJM network model and determined by, and reflected in, the PJM State Estimator."⁴⁷ PJM first proposes herein to limit the facilities to Reliability Monitored Facilities which are to be defined in Section 1.38B of Part I of the Tariff as the combined set of "PJM Markets Facilities and PJM Reliability Facilities that are under PJM's control for

⁴⁷ Section 3F.2 of Part I of the Tariff; Section 14A.4 of the Operating Agreement; Section 1.2A.2 of Schedule 1 of the Operating Agreement.

coordinating regional and interregional operations.” PJM Markets Facilities will be defined as:

1.32D.01 PJM Markets Facilities: Those facilities which are both monitored in the PJM Energy Management System and included in the Locational Marginal Price calculations for congestion management.⁴⁸

PJM Reliability Facilities will be defined as:

1.32E.01 PJM Reliability Facilities: Those facilities which are monitored as part of the NERC bulk electric system set of facilities but are not included in the Locational Marginal Price calculations for congestion management.⁴⁹

The proposed revisions to incorporate definitions of Reliability Monitored Facilities, PJM Markets Facilities and PJM Reliability Facilities into the Operating Agreement and Tariff is intended to provide consistent treatment of facilities that PJM operates for congestion management and reliability and facilities that it prices for transmission losses,⁵⁰ reflects a subset of the elements identified as transmission

⁴⁸ The term “PJM Markets Facilities” is currently only defined in PJM Manual 35 as: “Those facilities above 100kV which are both monitored in the PJM EMS and included in the LMP calculations for congestion management.” See <http://www.pjm.com/~media/documents/manuals/m35.ashx> at 59. The only difference between the definition provided in Manual 35 and the definition proposed for the Operating Agreement is that the words “above 100kV” have been eliminated from the definition, for the reasons specified above. The Manual 35 definition will be revised or deleted when and if the Commission approves the within filing.

⁴⁹ The term “PJM Reliability Facilities” is currently only defined in PJM Manual 35 as: “Those facilities above 100kV which are monitored as part of the NERC BES set of facilities but are not included in the LMP calculations for congestion management.” See <http://www.pjm.com/~media/documents/manuals/m35.ashx> at 59. The only difference between the definition provided in Manual 35 and the definition proposed for the Operating Agreement is that the words “above 100kV” have been eliminated from the definition, for the reasons specified above. The Manual 35 definition will be revised or deleted when and if the Commission approves the within filing.

⁵⁰ PJM Manual 3, Revision 37, Dated June 18, 2010, at 22, 24. PJM Manual 3 makes reference to “PJM Transmission Facilities” wherein it provides that: “PJM Transmission Facilities are those facilities used in the transmission of electrical energy that: Are included in the PJM tariff; have demonstrated to the satisfaction of PJM to be integrated with the PJM RTO Transmission System, and integrated into the planning and operation of the PJM RTO to serve all of the power and transmission customers within the PJM RTO; Transmission facilities that meet all other requirements including having sufficient telemetry to be deemed ‘observable’ by the PJM State Estimator, PJM Network Applications, or the PJM Real-Time Reliability Model can be considered for inclusion as monitored for real-time and contingency analysis for the purpose of identifying transmission constraints.; The Transmission Owner of a facility that meets all requirements, including observability for the Real-Time Model, (see “Monitored Transmission Facilities”) must specifically request that a facility be “Monitored” by PJM using the process and timeline identified at the end of this section.(see “Process to Change the PJM Congestion Management Facilities List).; Each Transmission Owner must specifically identify any tariff facility that is not under the operational control of PJM.; Include NERC BES facilities.” Manual 3 further provides that “Monitored Transmission Facilities” are: “Monitored for Markets and Reliability Facilities are accepted for congestion control.: Monitored for Reliability Facilities does not

facilities by Transmission Owners in FERC Form 1 submissions and transmission revenue requirements, and relies on the established process documented in PJM Manual 3A for the inclusion of transmission elements as monitored facilities.⁵¹

The proposed revision to limit the marginal loss calculation in the first instance to Reliability Monitored Facilities is based on PJM determination that the magnitude of the marginal loss revenue surplus increased over time due to the addition of underlying facilities to the loss model as new Members joined PJM. PJM's analysis has indicated that the removal of low voltage facilities, which are largely radial to the transmission system and therefore not networked with the higher voltage transmission facilities, from the calculation of marginal losses would have a negligible effect on optimal generation dispatch because the vast majority of generation in PJM is connected to the higher voltage transmission system. This is reflected in the analyses posted on PJM's Web site, which indicate that the maximum hourly average additional MW dispatched in any

permit congestion to set LMP.; Both are monitored and controlled for limit violations using PJM's Security Analysis programs."

⁵¹ PJM Manual 3A, Revision 5, Dated May 3, 2010 at 4, 44, 46-47, a copy of which may be found on PJM's Web site at <http://www.pjm.com/~media/documents/manuals/m03a.ashx>. (emphasis added) "BES" means Bulk Electric System, which is another name for the Transmission System. Manual 3A specifically provides that: "In addition to facilities defined by the RFC and SERC definition of the Bulk Electric System, PJM also includes all electric facilities defined as part of PJM's Congestion Management (aka Reliability & Markets) program, as well as, other facilities as required to ensure reliable and economic operation. This comprehensive set of equipment is defined as the PJM Bulk Electric System ..." The list of facilities modeled by PJM and set forth in Manual 3A are those that are: "0 – Modeled but not monitored; 1 – *Equipment participating in Markets & Reliability**; 2 – *Reliability - BES facilities not in Markets & Reliability***; 3 – Modeled and monitored for Status only; 4 – External facilities modeled and monitored; 5 – External facilities modeled and monitored for Status only; 6 – Reliability - Non-BES facilities modeled and monitored at TO request; 7 – *Generator Step Up transformers****; * *Although the majority of these facilities are also classified as BES, this category of equipment also includes some Non-BES facilities less than 100 kV.* ** *Includes facilities PJM monitors as NERC Reliability Coordinator.* ****Generator step-up (GSU) transformers, initially sized to support maximum output of the generators they connect, are analyzed as part of PJM's off-line, Generator Deliverability studies and are not considered to be BES elements themselves. Expected GSU loading is reviewed again whenever unit or plant modifications are planned. For on-line studies, PJM explicitly models the GSU when it is used to connect a BES generator to the network. If the GSU does not connect a BES generator to the network or if the unit is external to PJM the GSU may be implicitly modeled. . . . PJM's analysis of the electric system is not limited to equipment identified as part of the BES.* In addition to fully integrating, qualifying BES electric system components into all analyses, PJM also models and monitors additional system components. These components may be required for operation of the PJM Reliability & Market or for security analysis of non-BES and/or non-PJM Market facilities. That is, BES elements are a subset of all the components are modeled and monitored as members of the PJM Monitored Facilities list."

of the executed study cases is 17 MW, a negligible amount on a system the size of PJM.⁵² At the same time, however, the removal of these facilities from the marginal loss calculation will result in an approximate savings of 20% to PJM Members on the amount of Transmission Loss Charges that they are assessed,⁵³ which translates to approximately \$200 million dollars per year.

Furthermore, PJM has determined that while allowing the additional facilities to remain in the calculation of marginal losses doesn't present a *current* reliability concern,⁵⁴ the continuing addition of more facilities over future years *could impact* the reliability of the Transmission System if on one of the hottest days of the year PJM's dispatch software gets overwhelmed trying to determine the optimal dispatch from of a much larger number of facilities, causing the software to take longer to find a dispatch solution, which in turn could impede PJM's ability to resolve a reliability constraint. Anticipating this potential future reliability concern, PJM supports the effort to implement the proposed revision to reduce the number of facilities that are incorporated into the calculation of marginal losses before we get to that point in time.

B. Limitation of Generator Step-Up Transformers Utilized in Loss Calculation.

The second aspect of PJM's proposed revisions to limit the generator step-up transformers that are included in the calculation of marginal losses. Currently, PJM's

⁵² See Presentations and analyses posted for MRC Meeting of March 17, 2010 on PJM's Web site at <http://www.pjm.com/~media/committees-groups/committees/mrc/20100317/20100317-item-03-marginal-losses-high-level-worksheet.ashx>, <http://www.pjm.com/~media/committees-groups/committees/mrc/20100317/20100317-item-03-revised-marginal-losses-zonal-summary.ashx>, <http://www.pjm.com/~media/committees-groups/committees/mrc/20100317/20100317-item-03-revised-marginal-losses-analysis.ashx> and <http://www.pjm.com/~media/committees-groups/committees/mrc/20100224/20100224-item-07-ml-analysis.ashx>.

⁵³ See PJM Presentation at MRC Meeting of March 17, 2010 on PJM's Web site at <http://www.pjm.com/~media/committees-groups/committees/mrc/20100317/20100317-item-03-revised-marginal-losses-analysis.ashx> (The range of the reduction in savings found in PJM's analysis was from 12.3% to 25%).

⁵⁴ Further, stakeholders agreed to an effective date of June 1, 2012 as a reasonable compromise given that there are no immediate reliability concerns.

default is to calculate LMP on the “low side” of the GSU unless a generator contacts PJM to request that LMP be measured on the “high side.” Some stakeholders believe that this inconsistency in the measurement of output may result in an inequity in loss prices in circumstances in which a Market Seller measures the output at its generator terminals on the “high side” of GSUs for purposes of revenue metering⁵⁵ but has not requested that PJM calculate LMP on the “high side.”

To address this concern, PJM proposes to give Market Sellers the option to determine whether their GSU should be included in the loss model or whether to physically self-provide for losses. PJM will assume that a Market Seller wants its GSU to be included in the loss model, unless the Market Seller contacts PJM to advise that it wants to self-provide for its losses. In such case, the Market Seller must request that PJM (a) calculate LMP for its GSU on the “high side,” and (b) remove the GSU from the marginal loss calculation. After receipt of the Market Seller’s request, PJM will remove the GSU from the marginal loss calculation to avoid a situation in which a generator is self-providing for losses and also being assessed marginal losses by PJM as well.⁵⁶

PJM believes that giving generators the option to cover their energy losses associated with the transmission of energy on the PJM Transmission System either by self-providing for the losses or paying for them financially through the marginal loss assessment allows them the flexibility to determine for themselves the best alternative to compensate PJM, as the Transmission Provider, for the transmission losses and could also decrease the costs to the PJM Member for the provision of the transmission losses. PJM’s proposal is also consistent with prior Commission precedent in that it

⁵⁵ See MLUG Presentation; MLUG Letter at 2.

⁵⁶ The GSU will not, however, be removed from the PJM network model or State Estimator.

gives the users of the PJM Transmission System the flexibility to self-supply their transmission losses by removing their GSUs from the calculation of marginal losses or to financially settle their losses by keeping the GSUs in that calculation.

Specifically, the Commission recognized in Order No. 888 the appropriateness of allowing entities to have the ability to choose how they want to cover transmission losses among the variety of available options, including self-providing for losses. The Commission stated:

Many parties . . . comment that there are a number of ways to compensate the transmission provider for the losses that occur in providing transmission service. They indicate that real power loss service can be obtained from a variety of sources, such as the power supplier, the customer, a third-party, the transmission provider, or another control area. . . . As noted in the comments, customers have several options to cover losses that occur when electricity moves across transmission facilities. The availability of open access permits the customer to obtain energy losses from many regional suppliers.⁵⁷

Consistent with Order No. 888, the Commission has also approved other marginal loss methods that allow entities to self-supply and/or financially settle their transmission losses.⁵⁸

Based on the foregoing, PJM proposes to revise the Operating Agreement and Tariff as follows:

Whenever in this Tariff transmission losses are included in the determination of a charge, credit, load (including deviations), or

⁵⁷ *Promoting Wholesale Competition Through Open Access Non-Discriminatory Transmission Services by Public Utilities; Recovery of Stranded Costs by Public Utilities and Transmitting Utilities*, Order No. 888, FERC Stats. & Regs. ¶ 31,036, at 31,709 (1996), *order on reh'g*, Order No. 888-A, FERC Stats. & Regs. ¶ 31,048 (1997), *order on reh'g*, Order No. 888-B, 81 FERC ¶ 61,248, *order on reh'g*, Order No. 888-C, 82 FERC ¶ 61,046 (1998), *aff'd in relevant part sub nom. Transmission Access Policy Study Group v. FERC*, 225 F.3d 667 (D.C. Cir. 2000), *aff'd sub nom., New York v. FERC*, 535 U.S. 1 (2002).

⁵⁸ *California Independent System Operator Corporation*, 119 FERC ¶ 61,076, at P 47 (2007), *order on reh'g, California Independent System Operator Corporation*, 120 F.E.R.C. ¶ 61,271 (2007), *reh'g denied sub nom., Sacramento Mun. Util. Dist. v. FERC*, 2010 US. App. Lexis 15179 (D.C. Cir. 2010); *Southwest Power Pool*, 118 FERC ¶ 61,058, at P 20 (2007).

demand reduction, it is explicitly so stated and such included losses shall be those losses incurred on . . . (b) any generator step-up transformers that the Market Seller has not elected to remove from the loss calculation, which are included in the PJM network model and determined by, and reflected in, the PJM State Estimator. Absent such explicit statement, such losses are not included in the determination.

C. Impact on Distribution Losses.

Furthermore, the proposed revisions will have no impact on the interaction between transmission and distribution losses at the wholesale level given the manner in which PJM has implemented its loss accounting mechanism. In settlements, PJM currently removes all losses calculated in its State Estimator out of the physical load that is paid for at wholesale by Load Serving Entities (“LSEs”) because all facilities in the State Estimator model are included in the loss price calculations and all losses are therefore paid for financially by the LSEs through the loss component of the LMP. With the proposed revisions, PJM will continue to remove loss MW from the physical load that is paid for at wholesale by LSEs, but will no longer remove the physical losses associated with the underlying facilities being eliminated from the loss price calculation. Therefore, the losses on these underlying facilities will be included in and paid for as physical load by the LSEs rather than financially through the loss component of the LMP.

For these reasons, PJM requests that the Commission accept the proposed revisions.

III. Effective Date and Request for Waiver

In addition to their discussions regarding the substance of the proposed revisions that are the subject of the within filing, the effective date of the revisions was debated by PJM stakeholders as well.

PJM stakeholders who believed that “[i]mmminent implementation of the proposed modeling changes will result in substantial disruption to the existing contracts between loads and load servers”⁵⁹ requested an effective date for the proposed marginal loss modeling changes of June 1, 2012. They argued that wholesale suppliers and retail suppliers that have already committed themselves to procure energy to serve some or all of their load through June 1, 2012 via bilateral agreements or mandatory state auctions, and by extension their customers, will be harmed by implementing the proposed changes prior to June 1, 2012. The harm would result because the suppliers had no reason to anticipate that the marginal loss methodology would change when they entered into their bilateral arrangements. Therefore, they did not take into account the effect of the reduction in the marginal loss surplus that will result from the proposed changes when they negotiated their bilateral contracts and submitted their bids into the state auctions.⁶⁰ In further support for their requested June 1, 2012 effective date, they stated that the proposed revisions are not necessary to maintain system reliability or market operations.⁶¹ Therefore, they opine that the benefits of utilizing a June 1, 2012 effective date “must be weighed against the lack of notice and the substantial disruption to forward load contracts”⁶² to “achieve an equitable balance between preserving the original economic bargain of existing supply contracts versus implementing a modeling change that will support a public policy goal.”⁶³

⁵⁹ Coalition Letter at 2; see also Constellation Letter at 1-2.

⁶⁰ *Id.*

⁶¹ *Id.*

⁶² Coalition Letter at 3.

⁶³ Constellation Letter at 1.

Other stakeholders, however, requested that the proposed changes to the PJM System Model be implemented and effective as of June 1, 2011.⁶⁴ They don't believe that there should be any delay in the implementation of the proposed revisions because they "are necessary to bring more consistency and accuracy to the marginal loss calculations across the PJM footprint."⁶⁵ With respect to the request of the market participants to delaying implementation to June 1, 2012 to lessen the financial impact on Members who have executed forward contracts to supply energy or serve load, the MLUG argued that because "a certain percentage of market participants have forward positions at any given time (some for ten years or more) . . . PJM would not be able to make any market fixes or improvements if PJM had to wait for the forward bilateral positions of all market participants to cease."⁶⁶

After considerable discussion of this issue, the MC voted to request a June 1, 2012 effective date. PJM is generally neutral with respect to the date on which the proposed revisions should become effective. However, the acceptance of the proposed revisions that are the subject of this filing will require that PJM make changes to its modeling software before the new marginal loss methodology can be implemented. This new software must be able to interact with PJM's new dispatch software for its Advanced Control Center ("AC²") project,⁶⁷ which PJM anticipates will be completed and

⁶⁴ MLUG Letter at 1.

⁶⁵ *Id.* at 4.

⁶⁶ MLUG Letter at 3.

⁶⁷ The AC² project involves the design and development of new information technologies and the construction of a second data and control center for operating the PJM grid and markets. The program is designed to improve the security and resiliency of PJM's business functions and to enhance the quality and availability of services to PJM's members. Central to the AC² program is the development of a new and secure open architecture to share information between business systems and applications. In addition, the program includes the redesign and replacement of legacy technologies, including PJM's Energy Management System (EMS), and the upgrading of major components of the Market Management System (MMS). This approach will improve EMS and MMS interoperability

implemented in early 2011 based on the timing of vendor software deliveries and the associated testing thereof.

Given that the completion of the AC² project is a priority for PJM for business continuity and software improvements, PJM believes it is prudent to refrain from making any major changes to its other software programs until the new AC² software applications have been developed, tested and implemented, including a parallel operations period with PJM's current software systems, and PJM dispatch operators have been trained on the use of that software before introducing any other new software programs that must interact with the new AC² dispatch software. PJM's next priority after the implementation of the AC² software systems is the implementation of the system changes that will be necessary to implement its proposed new shortage pricing mechanism by May 1, 2011 should that proposal be approved by the Commission.

The consequence of the need to prioritize system changes is that PJM will be unable to develop and implement the software tools needed for the loss modeling change prior to the implementation of the AC² software systems and the shortage pricing mechanism. In stakeholder discussions of this issue earlier this year, PJM advised that it might be possible to implement the loss modeling system changes by June 1, 2011. However, since that time the "go live" date for full implementation of the AC² software systems has been delayed by several months. The delay in the implementation of the AC² software systems in turn caused all other major system changes in PJM to be delayed due to the prioritization of system changes discussed earlier herein. Consequently, PJM is no longer able to implement the loss modeling

and provide for more efficient dispatch. See <http://www.pjm.com/~media/about-pjm/newsroom/2007-annual-report.ashx> at p. 15.

change by June 1, 2011. Based on the foregoing, PJM supports the requested effective date of June 1, 2012 for the proposed Operating Agreement revisions submitted herewith.

Pursuant to Section 35.11 of the Commission's rules and regulations,⁶⁸ therefore, PJM requests a waiver of the Commission's 120-day maximum prior notice requirement set forth in section 35.3(a).⁶⁹ PJM is requesting this waiver so that it can obtain an order from the Commission well in advance of the effective date, to give stakeholders as much advance notice as possible of the modeling change so as not to adversely impact the pricing of supply contracts negotiated in reliance upon the loss pricing structure and to give PJM sufficient time by which to make changes to its software and systems to enable it to implement the new marginal loss methodology.

PJM requests that the Commission issue an order on this filing by December 1, 2010, so as to provide PJM Members with sufficient advance notice of the loss pricing structure for supply contracts that they negotiate and enter into months and years in advance. A December 1, 2010 approval date also will provide PJM time to implement any changes it may need to make to accommodate this change in the pricing structure.

IV. Description of Submittal

PJM encloses with this transmittal letter electronic versions of the revisions to the Operating Agreement and Tariff in both marked (showing the changes) and clean forms.

V. Correspondence

The following individuals are designated for inclusion on the official service list in this proceeding and for receipt of any communications regarding this filing:

⁶⁸ 18 C.F.R. § 35.11.

⁶⁹ 18 C.F.R. § 35.3(a).

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VI. Service

PJM has served a copy of this filing on all PJM Members and on all state utility regulatory commissions in the PJM Region by posting this filing electronically. Electronic service is permitted as of November 3, 2008, under the Commission's regulations⁷⁰ pursuant to Order No. 714⁷¹ and the Commission's Notice of Effectiveness of Regulations issued on October 28, 2008, in Docket No. RM01-5-000. In compliance with these regulations, PJM will post a copy of this filing to the FERC filings section of its internet site, located at the following link: <http://www.pjm.com/documents/ferc-manuals/ferc-filings.aspx> with a specific link to the newly-filed document, and will send an e-mail on the same date as this filing to all PJM Members and all state utility regulatory commissions in the PJM Region⁷² alerting them that this filing has been made by PJM today and is available by following such link. PJM is also serving

⁷⁰ See 18 CFR §§ 35.2, 154.2, 154.208 and 341.2.

⁷¹ Federal Energy Regulatory Commission, Order No. 714, 124 FERC ¶ 61,270.

⁷² PJM already maintains, updates and regularly uses e-mail lists for all PJM members and affected commissions.

electronic copies of this filing on all persons listed on the Commission's official service list for these proceedings.

VII. Conclusion

The Commission should accept the enclosed Tariff revisions to PJM's marginal loss methodology for the reasons set forth herein.

Respectfully submitted,

/s/ Jacquelyn B. Hugee

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Definitions – O – P - Q

1.27C Office of the Interconnection:

The Office of the Interconnection, as supervised by the Board of Managers of the PJM Interconnection, L.L.C, acting pursuant to the Operating Agreement.

1.28 Open Access Same-Time Information System (OASIS):

The information system and standards of conduct contained in Part 37 and Part 38 of the Commission's regulations and all additional requirements implemented by subsequent Commission orders dealing with OASIS.

1.28A Operating Agreement of the PJM Interconnection, L.L.C. or Operating Agreement:

That agreement dated as of April 1, 1997 and as amended and restated as of June 2, 1997 and as amended from time to time thereafter, among the members of the PJM Interconnection, L.L.C.

1.28A.01 Option to Build:

The option of the New Service Customer to build certain Customer-Funded Upgrades, as set forth in, and subject to the terms of, the Construction Service Agreement.

1.28B Optional Interconnection Study:

A sensitivity analysis of an Interconnection Request based on assumptions specified by the Interconnection Customer in the Optional Interconnection Study Agreement.

1.28C Optional Interconnection Study Agreement:

The form of agreement for preparation of an Optional Interconnection Study, as set forth in Attachment N-3 of the Tariff.

1.29 Part I:

Tariff Definitions and Common Service Provisions contained in Sections 2 through 12.

1.30 Part II:

Tariff Sections 13 through 27 pertaining to Point-To-Point Transmission Service in conjunction with the applicable Common Service Provisions of Part I and appropriate Schedules and Attachments.

1.31 Part III:

Tariff Sections 28 through 35 pertaining to Network Integration Transmission Service in conjunction with the applicable Common Service Provisions of Part I and appropriate Schedules and Attachments.

1.31A Part IV:

Tariff Sections 36 through 112 pertaining to generation or merchant transmission interconnection to the Transmission System in conjunction with the applicable Common Service Provisions of Part I and appropriate Schedules and Attachments.

1.31B Part V:

Tariff Sections 113 through 122 pertaining to the deactivation of generating units in conjunction with the applicable Common Service Provisions of Part I and appropriate Schedules and Attachments.

1.31C Part VI:

Tariff Sections 200 through 237 pertaining to the queuing, study, and agreements relating to New Service Requests, and the rights associated with Customer-Funded Upgrades in conjunction with the applicable Common Service Provisions of Part I and appropriate Schedules and Attachments.

1.32 Parties:

The Transmission Provider and the Transmission Customer receiving service under the Tariff.

1.32A PJM Administrative Service:

The services provided by PJM pursuant to Schedule 9 of this Tariff.

1.32B PJM Control Area:

The Control Area that is recognized by NERC as the PJM Control Area.

1.32C PJM Interchange Energy Market:

The regional competitive market administered by the Transmission Provider for the purchase and sale of spot electric energy at wholesale interstate commerce and related services, as more fully set forth in Attachment K – Appendix to the Tariff and Schedule 1 to the Operating Agreement.

1.32D PJM Manuals:

The instructions, rules, procedures and guidelines established by the Transmission Provider for the operation, planning, and accounting requirements of the PJM Region and the PJM Interchange Energy Market.

1.32D.01 PJM Markets Facilities:

Those facilities which are both monitored in the PJM Energy Management System and included in the Locational Marginal Price calculations for congestion management.

1.32E PJM Region:

Shall mean the aggregate of the PJM West Region, the VACAR Control Zone, and the MAAC Control Zone.

1.32E.01 PJM Reliability Facilities:

Those facilities which are monitored as part of the NERC bulk electric system set of facilities but are not included in the Locational Marginal Price calculations for congestion management.

1.32F PJM South Region:

The VACAR Control Zone.

1.32G PJM West Region:

The PJM West Region shall include the Zones of Allegheny Power; Commonwealth Edison Company (including Commonwealth Edison Co. of Indiana); AEP East Operating Companies; The Dayton Power and Light Company; and the Duquesne Light Company.

1.33 Point(s) of Delivery:

Point(s) on the Transmission Provider's Transmission System where capacity and energy transmitted by the Transmission Provider will be made available to the Receiving Party under Part II of the Tariff. The Point(s) of Delivery shall be specified in the Service Agreement for Long-Term Firm Point-To-Point Transmission Service.

1.33A Point of Interconnection:

The point or points, shown in the appropriate appendix to the Interconnection Service Agreement and the Interconnection Construction Service Agreement, where the Customer Interconnection Facilities interconnect with the Transmission Owner Interconnection Facilities or the Transmission System.

1.34 Point(s) of Receipt:

Point(s) of interconnection on the Transmission Provider's Transmission System where capacity and energy will be made available to the Transmission Provider by the Delivering Party under Part II of the Tariff. The Point(s) of Receipt shall be specified in the Service Agreement for Long-Term Firm Point-To-Point Transmission Service.

1.35 Point-To-Point Transmission Service:

The reservation and transmission of capacity and energy on either a firm or non-firm basis from the Point(s) of Receipt to the Point(s) of Delivery under Part II of the Tariff.

1.36 Power Purchaser:

The entity that is purchasing the capacity and energy to be transmitted under the Tariff.

1.36.01 Pre-Confirmed Application:

An Application that commits the Eligible Customer to execute a Service Agreement upon receipt of notification that the Transmission Provider can provide the requested Transmission Service.

1.36A Pre-Expansion PJM Zones:

Zones included in this Tariff, along with applicable Schedules and Attachments, for certain Transmission Owners – Atlantic City Electric Company, Baltimore Gas and Electric Company, Delmarva Power and Light Company, Jersey Central Power and Light Company, Metropolitan Edison Company, PECO Energy Company, Pennsylvania Electric Company, Pennsylvania Power & Light Group, Potomac Electric Power Company, Public Service Electric and Gas Company, Allegheny Power, and Rockland Electric Company.

1.36A.01 Project Financing:

Shall mean: (a) one or more loans, leases, equity and/or debt financings, together with all modifications, renewals, supplements, substitutions and replacements thereof, the proceeds of which are used to finance or refinance the costs of the Customer Facility, any alteration, expansion or improvement to the Customer Facility, the purchase and sale of the Customer Facility or the operation of the Customer Facility; (b) a power purchase agreement pursuant to which Interconnection Customer's obligations are secured by a mortgage or other lien on the Customer Facility; or (c) loans and/or debt issues secured by the Customer Facility.

1.36A.02 Project Finance Entity:

Shall mean: (a) a holder, trustee or agent for holders, of any component of Project Financing; or (b) any purchaser of capacity and/or energy produced by the Customer Facility to which Interconnection Customer has granted a mortgage or other lien as security for some or all of Interconnection Customer's obligations under the corresponding power purchase agreement.

1.36B Queue Position:

The priority assigned to an Interconnection Request, a Completed Application, or an Upgrade Request pursuant to applicable provisions of Part VI.

Definitions – R - S

1.36C Reasonable Efforts:

With respect to any action required to be made, attempted, or taken by an Interconnection Party or by a Construction Party under Part IV or Part VI of the Tariff, an Interconnection Service Agreement, or a Construction Service Agreement, such efforts as are timely and consistent with Good Utility Practice and with efforts that such party would undertake for the protection of its own interests.

1.37 Receiving Party:

The entity receiving the capacity and energy transmitted by the Transmission Provider to Point(s) of Delivery.

1.37A Regional Transmission Expansion Plan:

The plan prepared by the Office of the Interconnection pursuant to Schedule 6 of the Operating Agreement for the enhancement and expansion of the Transmission System in order to meet the demands for firm transmission service in the PJM Region.

1.38 Regional Transmission Group (RTG):

A voluntary organization of transmission owners, transmission users and other entities approved by the Commission to efficiently coordinate transmission planning (and expansion), operation and use on a regional (and interregional) basis.

1.38.01 Regulation Zone:

Any of those one or more geographic areas, each consisting of a combination of one or more Control Zone(s) as designated by the Office of the Interconnection in the PJM Manuals, relevant to provision of, and requirements for, regulation service.

1.38.01A Relevant Electric Retail Regulatory Authority:

An entity that has jurisdiction over and establishes prices and policies for competition for providers of retail electric service to end-customers, such as the city council for a municipal utility, the governing board of a cooperative utility, the state public utility commission or any other such entity.

1.38A Reliability Assurance Agreement:

The Reliability Assurance Agreement Among Load Serving Entities in the PJM Region, Rate Schedule No. 44, dated as of May 28, 2009, and as amended from time to time thereafter.

1.38B ~~RESERVED~~ Reliability Monitored Facilities:

PJM Markets Facilities and PJM Reliability Facilities that are under PJM's control for coordinating regional and interregional operations.

1.38C Required Transmission Enhancements:

Enhancements and expansions of the Transmission System that (1) a Regional Transmission Expansion Plan developed pursuant to Schedule 6 of the Operating Agreement or (2) the Coordinated System Plan periodically developed pursuant to the Joint Operating Agreement Between the Midwest Independent Transmission System Operator, Inc. and PJM Interconnection, L.L.C. designates one or more of the Transmission Owner(s) or the transmission owners within the Midwest Independent System Operator to construct and own or finance.

1.39 Reserved Capacity:

The maximum amount of capacity and energy that the Transmission Provider agrees to transmit for the Transmission Customer over the Transmission Provider's Transmission System between the Point(s) of Receipt and the Point(s) of Delivery under Part II of the Tariff. Reserved Capacity shall be expressed in terms of whole megawatts on a sixty (60) minute interval (commencing on the clock hour) basis.

1.39A Schedule of Work:

Shall mean that schedule attached to the Interconnection Construction Service Agreement setting forth the timing of work to be performed by the Constructing Entity pursuant to the Interconnection Construction Service Agreement, based upon the Facilities Study and subject to modification, as required, in accordance with Transmission Provider's scope change process for interconnection projects set forth in the PJM Manuals.

1.39B Scope of Work:

Shall mean that scope of the work attached as a schedule to the Interconnection Construction Service Agreement and to be performed by the Constructing Entity(ies) pursuant to the Interconnection Construction Service Agreement, provided that such Scope of Work may be modified, as required, in accordance with Transmission Provider's scope change process for interconnection projects set forth in the PJM Manuals.

1.39C Secondary Systems:

Control or power circuits that operate below 600 volts, AC or DC, including, but not limited to, any hardware, control or protective devices, cables, conductors, electric raceways, secondary equipment panels, transducers, batteries, chargers, and voltage and current transformers.

1.39D Security:

The security provided by the New Service Customer pursuant to Section 212.4 or Section 213.4 of the Tariff to secure the New Service Customer's responsibility for Costs under the Interconnection Service Agreement or Upgrade Construction Service Agreement and Section 217 of the Tariff.

1.40 Service Agreement:

The initial agreement and any amendments or supplements thereto entered into by the Transmission Customer and the Transmission Provider for service under the Tariff.

1.41 Service Commencement Date:

The date the Transmission Provider begins to provide service pursuant to the terms of an executed Service Agreement, or the date the Transmission Provider begins to provide service in accordance with Section 15.3 or Section 29.1 under the Tariff.

1.42 Short-Term Firm Point-To-Point Transmission Service:

Firm Point-To-Point Transmission Service under Part II of the Tariff with a term of less than one year.

1.42a Site:

All of the real property, including but not limited to any leased real property and easements, on which the Customer Facility is situated and/or on which the Customer Interconnection Facilities are to be located.

1.42.01 Small Inverter Facility:

An Energy Resource that is a certified small inverter-based facility no larger than 10 kW.

1.42.02 Small Inverter ISA:

An agreement among Transmission Provider, Interconnection Customer, and Interconnected Transmission Owner regarding interconnection of a Small Inverter Facility under section 112B of Part IV of the Tariff.

1.42A [RESERVED]

1.42B [RESERVED]

1.42C [RESERVED]

1.42D State:

The term “state” shall mean a state of the United States or the District of Columbia.

1.42D.01 Switching and Tagging Rules:

The switching and tagging procedures of Interconnected Transmission Owners and Interconnection Customer as they may be amended from time to time.

1.42E Synchronized Reserve Zone:

Any of those geographic areas consisting of a combination of one or more of the Control Zone(s) as designated by the Office of the Interconnection in the PJM Manuals, relevant to provision of, and requirements for, Synchronized Reserve service.

1.42F System Condition:

A specified condition on the Transmission Provider’s system or on a neighboring system, such as a constrained transmission element or flowgate, that may trigger Curtailment of Long-Term Firm Point-to-Point Transmission Service using the curtailment priority pursuant to Section 13.6. Such conditions must be identified in the Transmission Customer’s Service Agreement.

1.43 System Impact Study:

An assessment by the Transmission Provider of (i) the adequacy of the Transmission System to accommodate a Completed Application, an Interconnection Request or an Upgrade Request, (ii) whether any additional costs may be incurred in order to provide such transmission service or to accommodate an Interconnection Request, and (iii) with respect to an Interconnection Request, an estimated date that an Interconnection Customer’s Customer Facility can be interconnected with the Transmission System and an estimate of the Interconnection Customer’s cost responsibility for the interconnection; and (iv) with respect to an Upgrade Request, the estimated cost of the requested system upgrades or expansion, or of the cost of the system upgrades or expansion, necessary to provide the requested incremental rights.

1.43.01 System Protection Facilities:

The equipment required to protect (i) the Transmission System, other delivery systems and/or other generating systems connected to the Transmission System from faults or other electrical disturbance occurring at or on the Customer Facility, and (ii) the Customer Facility from faults or other electrical system disturbance occurring on the Transmission System or on other delivery systems and/or other generating systems to which the Transmission System is directly or indirectly connected. System Protection Facilities shall include such protective and regulating devices as are identified in the Applicable Technical Requirements and Standards or that are required by Applicable Laws and Regulations or other Applicable Standards, or as are otherwise necessary to protect personnel and equipment and to minimize deleterious effects to the Transmission System arising from the Customer Facility.

3F Transmission Losses

3F.1 Description of Transmission Losses.

Transmission losses refer to the loss of energy in the transmission of electricity from generation resources to load, which is dissipated as heat through transformers, transmission lines and other transmission facilities.

3F.2 Inclusion of State Estimator Transmission Losses.

Whenever in this Tariff transmission losses are included in the determination of a charge, credit, load (including deviations), or demand reduction, it is explicitly so stated and such included losses shall be those losses incurred on (a) Reliability Monitored Facilities and (b) any generator step-up transformers that the Market Seller has not elected to remove from the loss calculation, which are included in the PJM network model and determined by, and reflected in, the PJM State Estimator. Absent such explicit statement, such losses are not included in the determination.

3F.3 Other Losses.

Losses incurred on facilities not included in the PJM network model and therefore not reflected in the PJM State Estimator may be included in the determination of charges, credits, load (including real-time deviations), or demand reductions, as determined by electric distribution companies, unless this Tariff explicitly excludes such losses.

1.2A Transmission Losses.

1.2A.1 Description of Transmission Losses.

Transmission losses refer to the loss of energy in the transmission of electricity from generation resources to load, which is dissipated as heat through transformers, transmission lines and other transmission facilities.

1.2A.2 Inclusion of State Estimator Transmission Losses.

Whenever in this Schedule 1, transmission losses are included in the determination of a charge, credit, load (including deviations), or demand reduction, it is explicitly so stated and such included losses shall be those losses incurred on (a) Reliability Monitored facilities and (b) any generator step-up transformers that the Market Seller has not elected to remove from the loss calculation, which are included in the PJM network model and determined by, and reflected in, the PJM State Estimator. Absent such explicit statement, such losses are not included in the determination.

1.2A.3 Other Losses.

Losses incurred on facilities not included in the PJM network model and therefore not reflected in the PJM State Estimator may be included in the determination of charges, credits, load (including real-time deviations) or demand reductions, as determined by electric distribution companies, unless this Schedule explicitly excludes such losses.

Definitions O - P

1.27 Office of the Interconnection.

“Office of the Interconnection” shall mean the employees and agents of the LLC engaged in implementation of this Agreement and administration of the PJM Tariff, subject to the supervision and oversight of the PJM Board acting pursuant to this Agreement.

1.28 Operating Reserve.

“Operating Reserve” shall mean the amount of generating capacity scheduled to be available for a specified period of an Operating Day to ensure the reliable operation of a Control Zone, as specified in the PJM Manuals.

1.29 Original PJM Agreement.

“Original PJM Agreement” shall mean that certain agreement between certain of the Members, originally dated September 26, 1956, and as amended and supplemented up to and including December 31, 1996, relating to the coordinated operation of their electric supply systems and the interchange of electric capacity and energy among their systems.

1.30 Other Supplier.

“Other Supplier” shall mean a Member that: (i) is engaged in buying, selling or transmitting electric energy, capacity, ancillary services, financial transmission rights or other services available under PJM’s governing documents in or through the Interconnection or has a good faith intent to do so, and; (ii) does not qualify for the Generation Owner, Electric Distributor, Transmission Owner or End-Use Customer sectors.

1.31 PJM Board.

“PJM Board” shall mean the Board of Managers of the LLC, acting pursuant to this Agreement.

1.31A [Reserved].

1.32 PJM Control Area.

“PJM Control Area” shall mean the Control Area recognized by NERC as the PJM Control Area.

1.33 PJM Dispute Resolution Procedures.

“PJM Dispute Resolution Procedures” shall mean the procedures for the resolution of disputes set forth in Schedule 5 of this Agreement.

1.34 PJM Interchange Energy Market.

“PJM Interchange Energy Market” shall mean the regional competitive market administered by the Office of the Interconnection for the purchase and sale of spot electric energy at wholesale in interstate commerce and related services established pursuant to Schedule 1 to this Agreement.

1.35 PJM Manuals.

“PJM Manuals” shall mean the instructions, rules, procedures and guidelines established by the Office of the Interconnection for the operation, planning, and accounting requirements of the PJM Region and the PJM Interchange Energy Market.

1.35.01 PJM Market Monitor.

“PJM Market Monitor” shall mean the Market Monitoring Unit established under Attachment M to the PJM Tariff.

1.35.02 PJM Markets Facilities.

Those facilities which are both monitored in the PJM Energy Management System and included in the Locational Marginal Price calculations for congestion management.

1.35A PJM Region.

“PJM Region” shall mean the aggregate of the MAAC Control Zone, the PJM West Region, and VACAR Control Zone.

1.35A.01 PJM Reliability Facilities.

Those facilities which are monitored as part of the NERC bulk electric system set of facilities but are not included in the Locational Marginal Price calculations for congestion management.

1.35B PJM South Region.

“PJM South Region” shall mean the VACAR Control Zone.

1.36 PJM Tariff.

“PJM Tariff” shall mean the PJM Open Access Transmission Tariff providing transmission service within the PJM Region, including any schedules, appendices, or exhibits attached thereto, as in effect from time to time.

1.36A [Reserved.]

1.36B PJM West Region.

“PJM West Region” shall mean the aggregate of the ECAR Control Zone(s) and MAIN Control Zone(s).

1.37 Planning Period.

“Planning Period” shall initially mean the 12 months beginning June 1 and extending through May 31 of the following year, or such other period established under the procedures of, as applicable, the Reliability Assurance Agreement.

1.38 President.

“President” shall have the meaning specified in Section 9.2.

Definitions Q - R

1.38.01 Regional RTEP Project.

“Regional RTEP Project” shall mean a transmission expansion or enhancement rated at 230 kV or above which is required for compliance with the following PJM criteria: system reliability, operational performance or economic criteria, pursuant to a determination by the Office of the Interconnection.

1.38.01A Relevant Electric Retail Regulatory Authority:

An entity that has jurisdiction over and establishes prices and policies for competition for providers of retail electric service to end-customers, such as the city council for a municipal utility, the governing board of a cooperative utility, the state public utility commission or any other such entity.

1.38A Regulation Zone.

“Regulation Zone” shall mean any of those one or more geographic areas, each consisting of a combination of one or more Control Zone(s) as designated by the Office of the Interconnection in the PJM Manuals, relevant to provision of, and requirements for, regulation service.

1.39 Related Parties.

“Related Parties” shall mean, solely for purposes of the governance provisions of this Agreement: (i) any generation and transmission cooperative and one of its distribution cooperative members; and (ii) any joint municipal agency and one of its members. For purposes of this Agreement, representatives of state or federal government agencies shall not be deemed Related Parties with respect to each other, and a public body's regulatory authority, if any, over a Member shall not be deemed to make it a Related Party with respect to that Member.

1.40 Reliability Assurance Agreement.

“Reliability Assurance Agreement” shall mean that certain Reliability Assurance Agreement Among Load-Serving Entities in the PJM Region, on file with FERC as PJM Interconnection, L.L.C. Rate Schedule FERC. No .42, establishing obligations, standards and procedures for maintaining the reliable operation of the PJM Region.

1.40A ~~[Reserved]~~ Reliability Monitored Facilities.

“Reliability Monitored Facilities” shall mean PJM Markets Facilities and PJM Reliability Facilities that are under PJM's control for coordinating regional and interregional operations.

1.40B [Reserved].

1.2A Transmission Losses.

1.2A.1 Description of Transmission Losses.

Transmission losses refer to the loss of energy in the transmission of electricity from generation resources to load, which is dissipated as heat through transformers, transmission lines and other transmission facilities.

1.2A.2 Inclusion of State Estimator Transmission Losses.

Whenever in this Schedule 1, transmission losses are included in the determination of a charge, credit, load (including deviations), or demand reduction, it is explicitly so stated and such included losses shall be those losses incurred on (a) Reliability Monitored Facilities and (b) any generator step-up transformers that the Market Seller has not elected to remove from the loss calculation, which are included in the PJM network model and determined by, and reflected in, the PJM State Estimator. Absent such explicit statement, such losses are not included in the determination.

1.2A.3 Other Losses.

Losses incurred on facilities not included in the PJM network model and therefore not reflected in the PJM State Estimator may be included in the determination of charges, credits, load (including real-time deviations) or demand reductions, as determined by electric distribution companies, unless this Schedule explicitly excludes such losses.

14A.2 Inclusion of State Estimator Transmission Losses.

Whenever in this Agreement, transmission losses are included in the determination of a charge, credit, load (including deviations), or demand reduction, it is explicitly so stated and such included losses shall be those losses incurred on (a) Reliability Monitored Facilities and (b) any generator step-up transformers that the Market Seller has not elected to remove from the loss calculation, which are included in the PJM network model and determined by, and reflected in, the PJM State Estimator. Absent such explicit statement, such losses are not included in the determination.

Definitions – O – P - Q

1.27C Office of the Interconnection:

The Office of the Interconnection, as supervised by the Board of Managers of the PJM Interconnection, L.L.C, acting pursuant to the Operating Agreement.

1.28 Open Access Same-Time Information System (OASIS):

The information system and standards of conduct contained in Part 37 and Part 38 of the Commission's regulations and all additional requirements implemented by subsequent Commission orders dealing with OASIS.

1.28A Operating Agreement of the PJM Interconnection, L.L.C. or Operating Agreement:

That agreement dated as of April 1, 1997 and as amended and restated as of June 2, 1997 and as amended from time to time thereafter, among the members of the PJM Interconnection, L.L.C.

1.28A.01 Option to Build:

The option of the New Service Customer to build certain Customer-Funded Upgrades, as set forth in, and subject to the terms of, the Construction Service Agreement.

1.28B Optional Interconnection Study:

A sensitivity analysis of an Interconnection Request based on assumptions specified by the Interconnection Customer in the Optional Interconnection Study Agreement.

1.28C Optional Interconnection Study Agreement:

The form of agreement for preparation of an Optional Interconnection Study, as set forth in Attachment N-3 of the Tariff.

1.29 Part I:

Tariff Definitions and Common Service Provisions contained in Sections 2 through 12.

1.30 Part II:

Tariff Sections 13 through 27 pertaining to Point-To-Point Transmission Service in conjunction with the applicable Common Service Provisions of Part I and appropriate Schedules and Attachments.

1.31 Part III:

Tariff Sections 28 through 35 pertaining to Network Integration Transmission Service in conjunction with the applicable Common Service Provisions of Part I and appropriate Schedules and Attachments.

1.31A Part IV:

Tariff Sections 36 through 112 pertaining to generation or merchant transmission interconnection to the Transmission System in conjunction with the applicable Common Service Provisions of Part I and appropriate Schedules and Attachments.

1.31B Part V:

Tariff Sections 113 through 122 pertaining to the deactivation of generating units in conjunction with the applicable Common Service Provisions of Part I and appropriate Schedules and Attachments.

1.31C Part VI:

Tariff Sections 200 through 237 pertaining to the queuing, study, and agreements relating to New Service Requests, and the rights associated with Customer-Funded Upgrades in conjunction with the applicable Common Service Provisions of Part I and appropriate Schedules and Attachments.

1.32 Parties:

The Transmission Provider and the Transmission Customer receiving service under the Tariff.

1.32A PJM Administrative Service:

The services provided by PJM pursuant to Schedule 9 of this Tariff.

1.32B PJM Control Area:

The Control Area that is recognized by NERC as the PJM Control Area.

1.32C PJM Interchange Energy Market:

The regional competitive market administered by the Transmission Provider for the purchase and sale of spot electric energy at wholesale interstate commerce and related services, as more fully set forth in Attachment K – Appendix to the Tariff and Schedule 1 to the Operating Agreement.

1.32D PJM Manuals:

The instructions, rules, procedures and guidelines established by the Transmission Provider for the operation, planning, and accounting requirements of the PJM Region and the PJM Interchange Energy Market.

1.32D.01 PJM Markets Facilities:

Those facilities which are both monitored in the PJM Energy Management System and included in the Locational Marginal Price calculations for congestion management.

1.32E PJM Region:

Shall mean the aggregate of the PJM West Region, the VACAR Control Zone, and the MAAC Control Zone.

1.32E.01 PJM Reliability Facilities:

Those facilities which are monitored as part of the NERC bulk electric system set of facilities but are not included in the Locational Marginal Price calculations for congestion management.

1.32F PJM South Region:

The VACAR Control Zone.

1.32G PJM West Region:

The PJM West Region shall include the Zones of Allegheny Power; Commonwealth Edison Company (including Commonwealth Edison Co. of Indiana); AEP East Operating Companies; The Dayton Power and Light Company; and the Duquesne Light Company.

1.33 Point(s) of Delivery:

Point(s) on the Transmission Provider's Transmission System where capacity and energy transmitted by the Transmission Provider will be made available to the Receiving Party under Part II of the Tariff. The Point(s) of Delivery shall be specified in the Service Agreement for Long-Term Firm Point-To-Point Transmission Service.

1.33A Point of Interconnection:

The point or points, shown in the appropriate appendix to the Interconnection Service Agreement and the Interconnection Construction Service Agreement, where the Customer Interconnection Facilities interconnect with the Transmission Owner Interconnection Facilities or the Transmission System.

1.34 Point(s) of Receipt:

Point(s) of interconnection on the Transmission Provider's Transmission System where capacity and energy will be made available to the Transmission Provider by the Delivering Party under Part II of the Tariff. The Point(s) of Receipt shall be specified in the Service Agreement for Long-Term Firm Point-To-Point Transmission Service.

1.35 Point-To-Point Transmission Service:

The reservation and transmission of capacity and energy on either a firm or non-firm basis from the Point(s) of Receipt to the Point(s) of Delivery under Part II of the Tariff.

1.36 Power Purchaser:

The entity that is purchasing the capacity and energy to be transmitted under the Tariff.

1.36.01 Pre-Confirmed Application:

An Application that commits the Eligible Customer to execute a Service Agreement upon receipt of notification that the Transmission Provider can provide the requested Transmission Service.

1.36A Pre-Expansion PJM Zones:

Zones included in this Tariff, along with applicable Schedules and Attachments, for certain Transmission Owners – Atlantic City Electric Company, Baltimore Gas and Electric Company, Delmarva Power and Light Company, Jersey Central Power and Light Company, Metropolitan Edison Company, PECO Energy Company, Pennsylvania Electric Company, Pennsylvania Power & Light Group, Potomac Electric Power Company, Public Service Electric and Gas Company, Allegheny Power, and Rockland Electric Company.

1.36A.01 Project Financing:

Shall mean: (a) one or more loans, leases, equity and/or debt financings, together with all modifications, renewals, supplements, substitutions and replacements thereof, the proceeds of which are used to finance or refinance the costs of the Customer Facility, any alteration, expansion or improvement to the Customer Facility, the purchase and sale of the Customer Facility or the operation of the Customer Facility; (b) a power purchase agreement pursuant to which Interconnection Customer's obligations are secured by a mortgage or other lien on the Customer Facility; or (c) loans and/or debt issues secured by the Customer Facility.

1.36A.02 Project Finance Entity:

Shall mean: (a) a holder, trustee or agent for holders, of any component of Project Financing; or (b) any purchaser of capacity and/or energy produced by the Customer Facility to which Interconnection Customer has granted a mortgage or other lien as security for some or all of Interconnection Customer's obligations under the corresponding power purchase agreement.

1.36B Queue Position:

The priority assigned to an Interconnection Request, a Completed Application, or an Upgrade Request pursuant to applicable provisions of Part VI.

Definitions – R - S

1.36C Reasonable Efforts:

With respect to any action required to be made, attempted, or taken by an Interconnection Party or by a Construction Party under Part IV or Part VI of the Tariff, an Interconnection Service Agreement, or a Construction Service Agreement, such efforts as are timely and consistent with Good Utility Practice and with efforts that such party would undertake for the protection of its own interests.

1.37 Receiving Party:

The entity receiving the capacity and energy transmitted by the Transmission Provider to Point(s) of Delivery.

1.37A Regional Transmission Expansion Plan:

The plan prepared by the Office of the Interconnection pursuant to Schedule 6 of the Operating Agreement for the enhancement and expansion of the Transmission System in order to meet the demands for firm transmission service in the PJM Region.

1.38 Regional Transmission Group (RTG):

A voluntary organization of transmission owners, transmission users and other entities approved by the Commission to efficiently coordinate transmission planning (and expansion), operation and use on a regional (and interregional) basis.

1.38.01 Regulation Zone:

Any of those one or more geographic areas, each consisting of a combination of one or more Control Zone(s) as designated by the Office of the Interconnection in the PJM Manuals, relevant to provision of, and requirements for, regulation service.

1.38.01A Relevant Electric Retail Regulatory Authority:

An entity that has jurisdiction over and establishes prices and policies for competition for providers of retail electric service to end-customers, such as the city council for a municipal utility, the governing board of a cooperative utility, the state public utility commission or any other such entity.

1.38A Reliability Assurance Agreement:

The Reliability Assurance Agreement Among Load Serving Entities in the PJM Region, Rate Schedule No. 44, dated as of May 28, 2009, and as amended from time to time thereafter.

1.38B Reliability Monitored Facilities:

PJM Markets Facilities and PJM Reliability Facilities that are under PJM's control for coordinating regional and interregional operations.

1.38C Required Transmission Enhancements:

Enhancements and expansions of the Transmission System that (1) a Regional Transmission Expansion Plan developed pursuant to Schedule 6 of the Operating Agreement or (2) the Coordinated System Plan periodically developed pursuant to the Joint Operating Agreement Between the Midwest Independent Transmission System Operator, Inc. and PJM Interconnection, L.L.C. designates one or more of the Transmission Owner(s) or the transmission owners within the Midwest Independent System Operator to construct and own or finance.

1.39 Reserved Capacity:

The maximum amount of capacity and energy that the Transmission Provider agrees to transmit for the Transmission Customer over the Transmission Provider's Transmission System between the Point(s) of Receipt and the Point(s) of Delivery under Part II of the Tariff. Reserved Capacity shall be expressed in terms of whole megawatts on a sixty (60) minute interval (commencing on the clock hour) basis.

1.39A Schedule of Work:

Shall mean that schedule attached to the Interconnection Construction Service Agreement setting forth the timing of work to be performed by the Constructing Entity pursuant to the Interconnection Construction Service Agreement, based upon the Facilities Study and subject to modification, as required, in accordance with Transmission Provider's scope change process for interconnection projects set forth in the PJM Manuals.

1.39B Scope of Work:

Shall mean that scope of the work attached as a schedule to the Interconnection Construction Service Agreement and to be performed by the Constructing Entity(ies) pursuant to the Interconnection Construction Service Agreement, provided that such Scope of Work may be modified, as required, in accordance with Transmission Provider's scope change process for interconnection projects set forth in the PJM Manuals.

1.39C Secondary Systems:

Control or power circuits that operate below 600 volts, AC or DC, including, but not limited to, any hardware, control or protective devices, cables, conductors, electric raceways, secondary equipment panels, transducers, batteries, chargers, and voltage and current transformers.

1.39D Security:

The security provided by the New Service Customer pursuant to Section 212.4 or Section 213.4 of the Tariff to secure the New Service Customer's responsibility for Costs under the Interconnection Service Agreement or Upgrade Construction Service Agreement and Section 217 of the Tariff.

1.40 Service Agreement:

The initial agreement and any amendments or supplements thereto entered into by the Transmission Customer and the Transmission Provider for service under the Tariff.

1.41 Service Commencement Date:

The date the Transmission Provider begins to provide service pursuant to the terms of an executed Service Agreement, or the date the Transmission Provider begins to provide service in accordance with Section 15.3 or Section 29.1 under the Tariff.

1.42 Short-Term Firm Point-To-Point Transmission Service:

Firm Point-To-Point Transmission Service under Part II of the Tariff with a term of less than one year.

1.42a Site:

All of the real property, including but not limited to any leased real property and easements, on which the Customer Facility is situated and/or on which the Customer Interconnection Facilities are to be located.

1.42.01 Small Inverter Facility:

An Energy Resource that is a certified small inverter-based facility no larger than 10 kW.

1.42.02 Small Inverter ISA:

An agreement among Transmission Provider, Interconnection Customer, and Interconnected Transmission Owner regarding interconnection of a Small Inverter Facility under section 112B of Part IV of the Tariff.

1.42A [RESERVED]

1.42B [RESERVED]

1.42C [RESERVED]

1.42D State:

The term “state” shall mean a state of the United States or the District of Columbia.

1.42D.01 Switching and Tagging Rules:

The switching and tagging procedures of Interconnected Transmission Owners and Interconnection Customer as they may be amended from time to time.

1.42E Synchronized Reserve Zone:

Any of those geographic areas consisting of a combination of one or more of the Control Zone(s) as designated by the Office of the Interconnection in the PJM Manuals, relevant to provision of, and requirements for, Synchronized Reserve service.

1.42F System Condition:

A specified condition on the Transmission Provider’s system or on a neighboring system, such as a constrained transmission element or flowgate, that may trigger Curtailment of Long-Term Firm Point-to-Point Transmission Service using the curtailment priority pursuant to Section 13.6. Such conditions must be identified in the Transmission Customer’s Service Agreement.

1.43 System Impact Study:

An assessment by the Transmission Provider of (i) the adequacy of the Transmission System to accommodate a Completed Application, an Interconnection Request or an Upgrade Request, (ii) whether any additional costs may be incurred in order to provide such transmission service or to accommodate an Interconnection Request, and (iii) with respect to an Interconnection Request, an estimated date that an Interconnection Customer’s Customer Facility can be interconnected with the Transmission System and an estimate of the Interconnection Customer’s cost responsibility for the interconnection; and (iv) with respect to an Upgrade Request, the estimated cost of the requested system upgrades or expansion, or of the cost of the system upgrades or expansion, necessary to provide the requested incremental rights.

1.43.01 System Protection Facilities:

The equipment required to protect (i) the Transmission System, other delivery systems and/or other generating systems connected to the Transmission System from faults or other electrical disturbance occurring at or on the Customer Facility, and (ii) the Customer Facility from faults or other electrical system disturbance occurring on the Transmission System or on other delivery systems and/or other generating systems to which the Transmission System is directly or indirectly connected. System Protection Facilities shall include such protective and regulating devices as are identified in the Applicable Technical Requirements and Standards or that are required by Applicable Laws and Regulations or other Applicable Standards, or as are otherwise necessary to protect personnel and equipment and to minimize deleterious effects to the Transmission System arising from the Customer Facility.

3F Transmission Losses

3F.1 Description of Transmission Losses.

Transmission losses refer to the loss of energy in the transmission of electricity from generation resources to load, which is dissipated as heat through transformers, transmission lines and other transmission facilities.

3F.2 Inclusion of State Estimator Transmission Losses.

Whenever in this Tariff transmission losses are included in the determination of a charge, credit, load (including deviations), or demand reduction, it is explicitly so stated and such included losses shall be those losses incurred on (a) Reliability Monitored Facilities and (b) any generator step-up transformers that the Market Seller has not elected to remove from the loss calculation, which are included in the PJM network model and determined by, and reflected in, the PJM State Estimator. Absent such explicit statement, such losses are not included in the determination.

3F.3 Other Losses.

Losses incurred on facilities not included in the PJM network model and therefore not reflected in the PJM State Estimator may be included in the determination of charges, credits, load (including real-time deviations), or demand reductions, as determined by electric distribution companies, unless this Tariff explicitly excludes such losses.

1.2A Transmission Losses.

1.2A.1 Description of Transmission Losses.

Transmission losses refer to the loss of energy in the transmission of electricity from generation resources to load, which is dissipated as heat through transformers, transmission lines and other transmission facilities.

1.2A.2 Inclusion of State Estimator Transmission Losses.

Whenever in this Schedule 1, transmission losses are included in the determination of a charge, credit, load (including deviations), or demand reduction, it is explicitly so stated and such included losses shall be those losses incurred on (a) Reliability Monitored Facilities and (b) any generator step-up transformers that the Market Seller has not elected to remove from the loss calculation, which are included in the PJM network model and determined by, and reflected in, the PJM State Estimator. Absent such explicit statement, such losses are not included in the determination.

1.2A.3 Other Losses.

Losses incurred on facilities not included in the PJM network model and therefore not reflected in the PJM State Estimator may be included in the determination of charges, credits, load (including real-time deviations) or demand reductions, as determined by electric distribution companies, unless this Schedule explicitly excludes such losses.

Definitions O - P

1.27 Office of the Interconnection.

“Office of the Interconnection” shall mean the employees and agents of the LLC engaged in implementation of this Agreement and administration of the PJM Tariff, subject to the supervision and oversight of the PJM Board acting pursuant to this Agreement.

1.28 Operating Reserve.

“Operating Reserve” shall mean the amount of generating capacity scheduled to be available for a specified period of an Operating Day to ensure the reliable operation of a Control Zone, as specified in the PJM Manuals.

1.29 Original PJM Agreement.

“Original PJM Agreement” shall mean that certain agreement between certain of the Members, originally dated September 26, 1956, and as amended and supplemented up to and including December 31, 1996, relating to the coordinated operation of their electric supply systems and the interchange of electric capacity and energy among their systems.

1.30 Other Supplier.

“Other Supplier” shall mean a Member that: (i) is engaged in buying, selling or transmitting electric energy, capacity, ancillary services, financial transmission rights or other services available under PJM’s governing documents in or through the Interconnection or has a good faith intent to do so, and; (ii) does not qualify for the Generation Owner, Electric Distributor, Transmission Owner or End-Use Customer sectors.

1.31 PJM Board.

“PJM Board” shall mean the Board of Managers of the LLC, acting pursuant to this Agreement.

1.31A [Reserved].

1.32 PJM Control Area.

“PJM Control Area” shall mean the Control Area recognized by NERC as the PJM Control Area.

1.33 PJM Dispute Resolution Procedures.

“PJM Dispute Resolution Procedures” shall mean the procedures for the resolution of disputes set forth in Schedule 5 of this Agreement.

1.34 PJM Interchange Energy Market.

“PJM Interchange Energy Market” shall mean the regional competitive market administered by the Office of the Interconnection for the purchase and sale of spot electric energy at wholesale in interstate commerce and related services established pursuant to Schedule 1 to this Agreement.

1.35 PJM Manuals.

“PJM Manuals” shall mean the instructions, rules, procedures and guidelines established by the Office of the Interconnection for the operation, planning, and accounting requirements of the PJM Region and the PJM Interchange Energy Market.

1.35.01 PJM Market Monitor.

“PJM Market Monitor” shall mean the Market Monitoring Unit established under Attachment M to the PJM Tariff.

1.35.02 PJM Markets Facilities.

Those facilities which are both monitored in the PJM Energy Management System and included in the Locational Marginal Price calculations for congestion management.

1.35A PJM Region.

“PJM Region” shall mean the aggregate of the MAAC Control Zone, the PJM West Region, and VACAR Control Zone.

1.35A.01 PJM Reliability Facilities.

Those facilities which are monitored as part of the NERC bulk electric system set of facilities but are not included in the Locational Marginal Price calculations for congestion management.

1.35B PJM South Region.

“PJM South Region” shall mean the VACAR Control Zone.

1.36 PJM Tariff.

“PJM Tariff” shall mean the PJM Open Access Transmission Tariff providing transmission service within the PJM Region, including any schedules, appendices, or exhibits attached thereto, as in effect from time to time.

1.36A [Reserved.]

1.36B PJM West Region.

“PJM West Region” shall mean the aggregate of the ECAR Control Zone(s) and MAIN Control Zone(s).

1.37 Planning Period.

“Planning Period” shall initially mean the 12 months beginning June 1 and extending through May 31 of the following year, or such other period established under the procedures of, as applicable, the Reliability Assurance Agreement.

1.38 President.

“President” shall have the meaning specified in Section 9.2.

Definitions Q - R

1.38.01 Regional RTEP Project.

“Regional RTEP Project” shall mean a transmission expansion or enhancement rated at 230 kV or above which is required for compliance with the following PJM criteria: system reliability, operational performance or economic criteria, pursuant to a determination by the Office of the Interconnection.

1.38.01A Relevant Electric Retail Regulatory Authority:

An entity that has jurisdiction over and establishes prices and policies for competition for providers of retail electric service to end-customers, such as the city council for a municipal utility, the governing board of a cooperative utility, the state public utility commission or any other such entity.

1.38A Regulation Zone.

“Regulation Zone” shall mean any of those one or more geographic areas, each consisting of a combination of one or more Control Zone(s) as designated by the Office of the Interconnection in the PJM Manuals, relevant to provision of, and requirements for, regulation service.

1.39 Related Parties.

“Related Parties” shall mean, solely for purposes of the governance provisions of this Agreement: (i) any generation and transmission cooperative and one of its distribution cooperative members; and (ii) any joint municipal agency and one of its members. For purposes of this Agreement, representatives of state or federal government agencies shall not be deemed Related Parties with respect to each other, and a public body's regulatory authority, if any, over a Member shall not be deemed to make it a Related Party with respect to that Member.

1.40 Reliability Assurance Agreement.

“Reliability Assurance Agreement” shall mean that certain Reliability Assurance Agreement Among Load-Serving Entities in the PJM Region, on file with FERC as PJM Interconnection, L.L.C. Rate Schedule FERC. No .42, establishing obligations, standards and procedures for maintaining the reliable operation of the PJM Region.

1.40A Reliability Monitored Facilities.

“Reliability Monitored Facilities” shall mean PJM Markets Facilities and PJM Reliability Facilities that are under PJM's control for coordinating regional and interregional operations.

1.40B [Reserved].

1.2A Transmission Losses.

1.2A.1 Description of Transmission Losses.

Transmission losses refer to the loss of energy in the transmission of electricity from generation resources to load, which is dissipated as heat through transformers, transmission lines and other transmission facilities.

1.2A.2 Inclusion of State Estimator Transmission Losses.

Whenever in this Schedule 1, transmission losses are included in the determination of a charge, credit, load (including deviations), or demand reduction, it is explicitly so stated and such included losses shall be those losses incurred on (a) Reliability Monitored Facilities and (b) any generator step-up transformers that the Market Seller has not elected to remove from the loss calculation, which are included in the PJM network model and determined by, and reflected in, the PJM State Estimator. Absent such explicit statement, such losses are not included in the determination.

1.2A.3 Other Losses.

Losses incurred on facilities not included in the PJM network model and therefore not reflected in the PJM State Estimator may be included in the determination of charges, credits, load (including real-time deviations) or demand reductions, as determined by electric distribution companies, unless this Schedule explicitly excludes such losses.

14A.2 Inclusion of State Estimator Transmission Losses.

Whenever in this Agreement, transmission losses are included in the determination of a charge, credit, load (including deviations), or demand reduction, it is explicitly so stated and such included losses shall be those losses incurred on (a) Reliability Monitored Facilities and (b) any generator step-up transformers that the Market Seller has not elected to remove from the loss calculation, which are included in the PJM network model and determined by, and reflected in, the PJM State Estimator. Absent such explicit statement, such losses are not included in the determination.