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January 10, 2022

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

Re: *PJM Interconnection, L.L.C.*, Docket No. ER22-____-000
Auction Revenue Rights and Financial Transmission Rights Tariff and
Operating Agreement Revisions

Dear Ms. Bose:

PJM Interconnection, L.L.C. (“PJM”), pursuant to section 205 of the Federal Power Act (“FPA”), 16 U.S.C. § 824d, hereby submits revisions to PJM Open Access Transmission Tariff (“Tariff”), Definitions W-X-Y-Z; Tariff, Attachment K-Appendix, sections 5.2, 7.1, 7.1A, 7.3, 7.4, 7.5, 7.6, 7.8, and the identical provisions of Amended and Restated Operating Agreement of PJM (“Operating Agreement”), Schedule 1; Tariff, Attachment Q; and Operating Agreement, Definitions U-Z (collectively, the “ARR/FTR Enhancement Revisions”).¹

As described in more detail below, the Operating Agreement and Tariff revisions proposed herein seek to implement several recommendations identified in a recent independently administered comprehensive review of PJM’s Auction Revenue Right (“ARR”) and Financial Transmission Right (“FTR”) market rules by London Economics International LLC (“LEI”)² and make certain complementary revisions to help ensure the ARR/FTR market functions as intended.

The ARR/FTR Enhancement Revisions received a sector-weighted endorsement vote of 3.74 out of five at the Markets and Reliability Committee (“MRC”) and 3.73 out of five at the Members Committee (“MC”), reflecting the stakeholders’ consensus that the proposed revisions will improve the ARR/FTR market as compared to the status quo.³

¹ All references herein to the Operating Agreement, Schedule 1 any subsection thereof also are intended to encompass the identical, parallel provisions in Tariff, Attachment K-Appendix will refer generally to the Operating Agreement throughout this letter to also include the Tariff. All capitalized terms that are not otherwise defined herein shall have the same meaning as they are defined in the Tariff, Operating Agreement, or the Reliability Assurance Agreement Among Load Serving Entities in the PJM Region.

² *Review of PJM’s Auction Revenue Rights and Financial Transmission Rights*, London Economics International LLC (Dec. 16, 2020), <https://www.pjm.com/-/media/committees-groups/task-forces/afmtf/postings/lei-review-of-pjm-arrs-and-ftrs-report.ashx> (“LEI Report”).

³ The proposed edits to Tariff, Attachment Q, have not been specifically considered and endorsed by the MRC and MC, but these edits are simply revisions to conform the types of FTR classes mentioned in

Although various additional reforms were considered during stakeholder meetings, those did not receive the requisite member support nor did PJM find them to be appropriate or consistent with the findings from LEI's comprehensive review. The membership votes for this proposal represent an endorsement of the position that the current rules governing the ARR and FTR market could be improved, and that the proposed ARR/FTR Enhancement Revisions will constitute an improvement from the status quo. Through this filing and with the support of the LEI Report, PJM details the benefits to its Members of revising the Tariff and Operating Agreement to incorporate proposed improvements aimed at enhancing the equity and efficiency of the ARR/FTR market as recommended in the LEI Report.

PJM asks the Federal Energy Regulatory Commission ("Commission" or "FERC") to issue an order accepting its proposal by no later than March 11, 2022, which is sixty days from the date of this filing, with an effective date of September 1, 2022, for the proposed revisions to Tariff, Attachment K-Appendix, sections 7.1, 7.1A, and 7.3 and the identical provisions of the Operating Agreement, Schedule 1, and Tariff, Attachment Q (collectively, the "FTR Enhancement Revisions"); and February 1, 2023, for the proposed revisions to Tariff, Definitions W-X-Y-Z; Tariff, Attachment K-Appendix, sections 5.2, 7.4, 7.5, 7.6, 7.8, and the identical provisions of Operating Agreement, Schedule 1; and Operating Agreement, Definitions U-Z (collectively the "ARR Enhancement Revisions"). As described in more detail below, the proposed revisions are just and reasonable, and should be accepted.

I. BACKGROUND

A. ARRs and FTRs

FTRs are financial products that allow Market Participants to hedge the costs of day-ahead transmission congestion. FTRs allow Market Participants to offset potential charges related to the price risk of delivering energy to specific locations on the grid. FTRs are valued based upon the difference between the Day-ahead Prices at two pricing points—a source and a sink—on the transmission system. As such, an FTR serves as a benefit, or credit, to the holder if it represents a flow of energy in the same direction as the congested flow. An FTR serves as a liability, or charge, to the holder if it represents a flow of energy in the opposite direction as the congested flow.⁴

Attachment Q to the class types that will be listed elsewhere in the Tariff under the instant Operating Agreement and Tariff proposal. PJM notified stakeholders of this discrete set of edits more than seven days prior to making this filing in compliance with Tariff, section 9.2(b) and its requirements for PJM when making Tariff revisions under section 205 of the FPA. PJM also made minor, non-substantive changes to the proposed language approved by the MRC and MC for revisions to Tariff, Attachment K-Appendix, sections 7.1.1, 7.1A.3, and 7.8, simply to conform the cross-references in those sections to refer to Tariff, Attachment K-Appendix provisions rather than their parallels in Operating Agreement, Schedule 1. These revisions are non-substantive and ministerial in nature, and should be accepted with the rest of this filing.

⁴ However, an FTR Option cannot be a liability and has a value of \$0 in the Day-ahead Energy Market when the flow of energy is in the opposite direction.

ARRs are entitlements allocated annually to firm transmission service customers that entitle the holder to receive an allocation of the “revenues” (or charges) from the Annual FTR auction. ARR holders provide a revenue stream to the firm transmission customers, as a result of the FTR auction, to hedge against congestion charges. Essentially, ARR holders entitle the holder to receive the FTR auction revenues associated with the specific path. ARR holders can also convert their ARRs into FTRs by self-scheduling them into an FTR auction.

B. LEI Report and Recommendations

PJM developed this proposal with significant contribution from its membership as part of its work with stakeholders through the ARR/FTR Market Task Force (“AFMTF”). Formed in October of 2019 and reporting to PJM’s Market Implementation Committee, the AFMTF’s purpose was to conduct a comprehensive review of the ARR/FTR market design including allocation of congestion rights, FERC objectives, value proposition, and opportunities for enhancements after the large financial default of GreenHat Energy, LLC (“GreenHat”) in 2018 and following report that recommended PJM “conduct a general review of the FTR market and other PJM markets, to evaluate the risks and rewards of potential structural reforms.”⁵ In August 2020, PJM, with support from PJM members, hired LEI to conduct a third-party holistic review of the ARR/FTR market. LEI undertook a detailed analysis that included an empirical analysis of the market as well as discussions with market participants from all sectors as well as the Independent Market Monitor and the Organization of PJM States, Inc. (“OPSI”). OPSI specifically requested a review of the ARR and FTR markets, and this ask helped LEI define the scope of its review.⁶ The LEI Report concluded that the existing FTR product is fulfilling its intended purposes of serving as a financial equivalent to firm transmission service and ensuring open access to firm transmission service by providing a congestion-hedging function,⁷ and estimated that the cost savings in the PJM market due to the FTR product’s congestion-hedging function alone likely number in the hundreds of millions of dollars.⁸ The LEI Report also included findings that support the existing ARR/FTR market construct while making multiple recommendations for stakeholders to consider, including in particular recommendations that focused on the themes of equity and efficiency. The LEI Report identified that priority

⁵ Robert Anderson & Neal Wolkoff, *Report of the Independent Consultants on the GreenHat Default*, Appendix at 5 (Recommendation F3) (Mar. 26, 2019), <https://www.pjm.com/-/media/library/reports-notices/special-reports/2019/report-of-the-independent-consultants-on-the-greenhat-default.pdf>.

⁶ Julia Frayer, Ma. Cherrylin Trinidad, Javier Maquieyra, & Himanshu Bhardwaj, *Review of Potential Alternatives to Financial Transmission Rights*, London Economics International LLC, 4 (May 24, 2021), <https://pjm.com/-/media/committees-groups/task-forces/afmtf/2021/20210524/20210524-item-03-lei-presentation.ashx>.

⁷ See LEI Report 3, 7–8, 106.

⁸ See *id.* at 16–17.

should be placed on enhancing the existing ARR construct and maintaining the FTR auction structure. This filing addresses this priority.

As relevant to this filing, the LEI Report made the following recommendations for modifications to enhance PJM's ARR/FTR market construct:

- expanding the sources and sinks available to load to nominate during the ARR allocation process to help direct congestion revenues to load;⁹
- increasing up-front capability to load in order to protect zonal native load hedging ability and to help reduce excess congestion and auction revenue allocation equity concerns;¹⁰
- exploring changes to the ARR process that would provide ARR holders more options and flexibility to self-schedule during FTR auctions;¹¹
- retaining the current set of FTR auctions and rules regarding participation and biddable points;¹² and
- enhancing the FTR auction clearing rule to provide a minimum price floor as a prerequisite to clearing.¹³

C. AFMTF Proposal and Stakeholder Endorsement

After a six-month hiatus during which LEI conducted its work and completed its report, the AFMTF reconvened in December 2020 to discuss the resulting LEI Report. The AFMTF used the LEI Report's findings to guide its discussions and efforts throughout 2021. Over nineteen meetings, the AFMTF:

- explored methods to increase the total system capacity and paths available for ARR holders;
- performed a review of the allocation method for excess congestion and auction revenues;
- considered possibilities for designing more granular ARR products and increasing Market Participant flexibility through self-scheduling;

⁹ *See id.* at 110.

¹⁰ *See id.* at 109.

¹¹ *See id.* at 112.

¹² *See id.*

¹³ *See id.* at 113.

- explored the value of more granular FTR products;
- reviewed available option paths and clearing mechanism;
- looked into options for enhancing network model transparency and business practices; and
- considered alternatives to the existing ARR/FTR construct.

These discussions and efforts led PJM and several stakeholders including Exelon, PSEG, Vitol, NextEra, and Calpine to design a joint proposal addressing LEI's recommendations, market monitor concerns, and stakeholder feedback consistent with LEI's conclusion that the existing FTR product is fulfilling its intended purposes. PJM then used that joint proposal as the basis for the ARR/FTR Enhancement Revisions proposed herein.

D. The ARR/FTR Enhancement Revisions

The ARR/FTR Enhancement Revisions that resulted from the joint proposal are constructed around two themes: equity (focused on significant ARR reforms) and efficiency (focused on FTR reforms that enhance rather than transform the FTR market construct).¹⁴

The equity-focused revisions are meant to address the primary concern that the ability for some load to efficiently hedge congestion costs can be adversely affected at times when a misalignment occurs between the allocations of congestion rights (i.e., ARRs) and congestion charges paid by load. The equity-focused principles of this proposal are intended to:

- preserve the existing point-to-point construct;
- strengthen assurance of load's priority rights to congestion revenues;
- enhance alignment of allocated rights with actual congestion costs, advance flexibility for load to claim or sell rights; and
- help ensure value-added processes.

The efficiency-focused revisions contain features intended to advance the efficiencies of the FTR auctions, and include changes to enhance market liquidity and future price discovery, both of which add value and contribute to a robust, competitive market.

The main components of the ARR/FTR Enhancement Revisions are as follows, with the first four points addressing primarily ARR equity issues and the last two points

¹⁴ PJM's stakeholders also endorsed improvements to non-tariff PJM documents to enhance transparency within the ARR and FTR markets.

enhancing FTR efficiency by creating new FTR class types and a floor price for FTR options:

- revising Operating Agreement, Schedule 1, section 7.4.2 and parallel section of Tariff, Attachment K-Appendix to expand the source/sink combinations permitted in the ARR allocation process to help prioritize directing congestion revenues to load and enhance alignment of ARRs to congestion paid through Congestion Locational Marginal Prices billing, and make related revisions to streamline the ARR allocation process while accommodating additional source/sink combinations (“ARR Source/Sink Expansion”);
- modifying Operating Agreement, Schedule 1, sections 5.2.2, 7.4.2, 7.5, and 7.6 and parallel provisions of Tariff, Attachment K-Appendix governing the creation of Stage 1 ARRs to replace the concept of “Zonal Base Load” with a standard of 60% of network service peak load in order to protect zonal native load hedging ability with additional up-front capability (“Stage 1 ARR 60% Load Standard”);¹⁵
- revising Operating Agreement, Schedule 1, section 7.1.1 and parallel section of Tariff, Attachment K-Appendix to provide additional self-scheduling options (“Self-Scheduling Flexibility”);¹⁶
- revising Operating Agreement, Schedule 1, section 7.8 and the parallel section of Tariff, Attachment K-Appendix to ensure source/sink combinations are limited to valid Stage 1 ARR paths for the customer funded Incremental ARR (“IARR”) option in order to help ensure that that new IARRs, which can be administratively burdensome to administer, create value by enhancing market efficiency on valid, useful paths (“ARR Path Validity Requirement”);
- revising Operating Agreement, Schedule 1, sections 7.1.1, 7.1A.3, and 7.3.4 and parallel sections of Tariff, Attachment K-Appendix to create new FTR class types (and modify the existing types as needed) to provide for on-peak weekday, on-peak weekend and holiday, general everyday off-peak, and 24-hour products, which should increase hedging flexibility for all market participants (“Revised FTR Class Types”);¹⁷ and

¹⁵ These revisions also remove the defined term “Zonal Base Load” from the Operating Agreement and Tariff because it is no longer needed.

¹⁶ See *infra* note 17.

¹⁷ Although these revisions are contained within sentences explicitly addressing FTRs, taken alongside existing language in the Operating Agreement and Tariff sections these new class types will also be applicable to self-scheduled ARRs and thus increase load choice flexibility, providing symmetry among the

- adding one sentence to the end of Operating Agreement, Schedule 1, section 7.3.6 and its parallel provision in Tariff, Attachment K-Appendix to create a floor for clearing prices for FTR options, specifically providing that FTR Options with a market-clearing price less than one dollar will not be awarded, which should help ensure that FTR options that are awarded add value to the market (“FTR Option Floor Price”).

II. THE PROPOSED ARR/FTR ENHANCEMENT REVISIONS ARE JUST AND REASONABLE

A. The Operating Agreement and Tariff Revisions Will Produce More Equitable ARR Allocations

The ARR Source/Sink Expansion, Stage 1 ARR 60% Load Standard, Self-Scheduling Flexibility, and ARR Path Validity Requirement, all of which would be implemented by the proposed Operating Agreement and Tariff revisions, will help make the ARR market construct significantly more equitable and valuable. First, expanding the ARR path options for load better ensures priority rights to all available congestion revenues. Second, increasing up-front capability to a flat 60% of Network Service Peak Load zonal share protects native base load hedging value while also mitigating excess or surplus congestion and auction revenues. Third, additional self-scheduling flexibility will help load more precisely hedge congestion costs. Finally, requiring customer funded IARR sources and sinks to be valid Stage 1 ARR sources and sinks ensures value added.

1. Expanding Permitted Source/Sink Combinations for ARR Allocation Will Strengthen Assurance of Load’s Priority Rights to Congestion Revenues and Enhance Alignment of ARRs to Actual Congestion Payments

The ARR Source/Sink Expansion expands available source/sink combinations by revising Operating Agreement, Schedule 1, section 7.4.2 and parallel section of Tariff, Attachment K-Appendix to provide that source buses for ARRs requested during Stage 1B of the ARR allocation process may include valid Zones, hubs, and external Interface Pricing Points in addition to the existing Active Historical Resources and Qualified Replacement Resources.¹⁸ Additionally, in Stage 2 of the ARR allocation process, source and sink buses are expanded to include valid Zones, generators, hubs and external Interface Pricing Points instead of the existing mechanism that only allows source buses to include generators and sink buses at the location of customer load. As the LEI Report explains, expanding the source/sink combinations permitted in the ARR allocation process will help prioritize directing congestion revenues to load by providing load the first rights to the

two related types of products and allowing load expanded options for self-scheduling, including through shorter terms than annual, in line with the LEI Report recommendations. *See* LEI Report at 112.

¹⁸ Proposed Operating Agreement, Schedule 1, section 7.4.2(c) & (d); proposed Tariff, Attachment K-Appendix, section 7.4.2(c) & (d).

transmission system before FTR Holders can purchase such rights, which is desirable given that “one of the main purposes of the ARR/FTR mechanism is to return congestion charges collected by PJM back to load.”¹⁹ This explanation is consistent with the core purpose of ARRs and FTRs as tools for hedging against the costs of day-ahead transmission congestion.

Revisions to Operating Agreement, Schedule 1, section 7.4.2 and parallel section of Tariff, Attachment K-Appendix also streamline Stage 2 of the ARR allocation process by reducing the number of rounds of ARR allocations from three to two.²⁰ PJM proposes this change to offset the increased burden of administering a more flexible source/sink standard by streamlining the allocation process by reducing the number of allocation rounds by one third. This is a reasonable way to increase flexibility while maintaining the practical workability of the ARR allocation process.

2. Replacing the Concept of Zonal Base Load with a Standard 60% of Network Service Peak Load Will Protect Native Base Load Hedging Ability without Significantly Increasing Infeasible Stage 1A ARRs and Help to Reduce Excess Congestion and Auction Revenue Allocation Equity Concerns

The Stage 1 ARR 60% Load Standard will modify Operating Agreement, Schedule 1, sections 5.2.2, 7.4.2, 7.5, and 7.6 and parallel provisions of Tariff, Attachment K-Appendix governing the creation of Stage 1 ARRs to replace the concept of “Zonal Base Load” with a standard of 60% of network service peak load in order to protect zonal native load hedging ability with additional up-front capability. This new Stage 1 ARR 60% Load Standard would address LEI’s recommendation to increase up-front capability to load in order to protect zonal native load hedging ability and to help reduce excess congestion and auction revenue allocation equity concerns²¹ by, as explained in more detail below, modifying the ARR load standard in a way that should provide additional value by increasing Stage 1A megawatt (“MW”) awards for all zones without unduly increasing the risk of increasing Stage 1A violations or producing additional transmission constraints.

At the June 25, 2021 meeting of the AFMTF, PJM staff presented analysis consisting of two studies utilizing ARR data from the previous three years and applying five different percentages of network service peak load as the load standard: 50%, 60%, 70%, 80%, and 90%.²² PJM selected 60% as a reasonable limit at which additional value

¹⁹ LEI Report at 107.

²⁰ Proposed Operating Agreement, Schedule 1, section 7.4.2(d); proposed Tariff, Attachment K-Appendix, section 7.4.2(d).

²¹ LEI Report at 109.

²² See PJM FTR Group, ARR/FTR Market Task Force, *ARR/FTR Solution Options – Follow up*, PJM Interconnection, L.L.C., 4–8 (June 25, 2021), <https://www.pjm.com/-/media/committees-groups/task-forces/afmtf/2021/20210625/20210625-item-03-afmtf-june-25-presentation.ashx>.

could be guaranteed without significantly increasing Stage 1A violations or producing additional transmission constraints based on the results of the two studies, one that reviewed a simulation in which ARR holders sank only at zones where their holder has load, and one that reviewed a simulation in which ARRs were allowed to sink at zones where their holder did not have load.²³ Both studies simulated the results that would occur if PJM applied each of the five different percentages of network service peak load as the standard.²⁴ A 60% standard produced relatively few additional Stage 1A violations and relatively few additional transmission constraints as compared to higher percentage standards and only slightly more of both as compared to a lower 50% standard, all while providing additional value by increasing Stage 1A MW awards for all zones.²⁵ Therefore, one can reasonably conclude that increasing to 60% of network service peak load ratio-share provides an equitable balance between utilizing existing, valuable headroom on the system while not significantly contributing to an over-allocation of ARRs. PJM will also use this 60% threshold in its 10-year feasibility study of Stage 1A ARRs.²⁶

3. Enhancing Self-Scheduling Flexibility Allows All Market Participants to More Effectively Hedge Congestion

PJM also proposes revisions to Operating Agreement, Schedule 1, section 7.1.1 and parallel section of Tariff, Attachment K-Appendix to add Self-Scheduling Flexibility in the form of additional types of FTR products into which ARR holders may self-schedule their ARRs. This change speaks to LEI's recommendation to provide ARR holders additional flexibility in self-scheduling their ARRs in annual FTR auctions²⁷ by allowing for ARRs to be self-scheduled for a specific class type as opposed to the current singular 24-hour product option. Furthermore, by creating additional FTR class types, PJM is providing ARR holders with even more options for how they might self-schedule their ARRs into FTRs, thereby giving them a more diverse and customizable set of tools to hedge against congestion costs. PJM describes the new FTR product types in more detail in Section II.B.1 below.

4. Ensuring Source/Sink Combinations Are Limited to Valid Stage 1 ARR Paths for Customer Funded IARRs Will Ensure Value Added

IARRs are Incremental Auction Rights available to customers who fund or construct physical transmission upgrades that provide incremental transfer capability to the transmission network. Requiring that IARR requests source and sink at valid Stage 1 ARR

²³ See *id.*

²⁴ See *id.*

²⁵ See *id.* at 3, 5-8.

²⁶ See proposed Operating Agreement, Schedule 1, section 7.5(c), (d) & (e); proposed Tariff-Attachment K-Appendix, section 7.5(c), (d) & (e).

²⁷ See LEI Report at 112.

buses helps ensure that requests are only made and granted on paths where meaningful transfer capability would be added to the system and eliminates the potential for “node-to-node” IARRs in which a customer could be awarded an IARR that does not actually provide value through the addition of upgrades that create actual transfer capability on the system. For example, there currently exists opportunities for customers to request IARRs from two buses close in electrical proximity. Such “node-to-node” paths can sometimes result in an IARR award for minimal-to-no-cost that provides minimal-to-no actual transfer capability. These “node-to-node” paths provide a risk especially during abnormal conditions if the transmission configuration between the two nodes temporarily changes because the IARR customer may be provided high revenues without actually funding upgrades to support this condition. This represents a loophole in which a customer could obtain a potentially very valuable IARR path with little to no physical transmission network investment and little-to-no improvement to the transmission system. Relatedly, the ARR Path Validity Requirement revising Operating Agreement, Schedule 1, section 7.8 and the parallel section of Tariff, Attachment K-Appendix will limit ARR source/sink combinations for elective ARR upgrades to valid Stage 1 ARR paths for the customer funded IARR option in order to help ensure that new IARRs, which can be burdensome to administer, create value by enhancing market efficiency on valid, useful paths.²⁸ This revision will help make sure that IARRs (and FTRs that may follow from them) address congestion along paths that are useful for creating transfer capacity and mitigate the potential for Market Participants to use IARR requests to game the system by requesting a potentially valuable IARR path that provides little or no additional transfer capability on the system.

B. The FTR Enhancement Revisions Will Support a More Efficient FTR Market

1. Additional FTR Class Types Will Increase Hedging Flexibility for All Market Participants

PJM’s creation of the Revised FTR Class Types through revision of Operating Agreement, Schedule 1, sections 7.1.1, 7.1A.3, and 7.3.4 and parallel sections of Tariff, Attachment K-Appendix will provide for on-peak weekday, on-peak weekend and holiday, general everyday off-peak, and 24-hour FTR products. This represents an increase in options from the status quo, which currently provides only three products (on-peak, off-peak, and 24-hour). These additional options provide more hedging opportunities for periods to support the evolving industry resource mix, including renewables.

2. FTR Option Floor Pricing Will Ensure Value Added and Eliminate Risk-Free Profit

PJM’s proposal to institute an FTR Option Floor Price by adding one sentence to the end of Operating Agreement, Schedule 1, section 7.3.6 and its parallel provision in

²⁸ Proposed Operating Agreement, Schedule 1, section 7.8; proposed Tariff, Attachment K-Appendix, section 7.8.

Tariff, Attachment K-Appendix to create a floor of one dollar for clearing prices for FTR options will help ensure a more efficient FTR market by helping to ensure all FTR options that clear have, at least at the time they were bid and awarded, actual value. Specifically, PJM's change would provide that FTR Options with a market-clearing price less than one dollar for a specific period and class type will not be awarded. This one dollar per megawatt-period-class type pricing floor represents a compromise with stakeholders after analysis of recent auction results between 2016 and 2020 was presented to the AFMTF that revealed, on average, roughly 4,500 MW of FTR Options per Planning Period cleared at a price of less than one dollar.²⁹ For reference, the average total of FTR Options purchased across all auctions for the same time period was roughly 200,000 MW. This Operating Agreement and Tariff revision implements LEI's recommendation to adopt a clearing floor for FTR Options to prevent the creation of FTR Options that are underpriced, or essentially providing a means for risk free profit.³⁰

C. Revisions to Tariff, Attachment Q Will Ensure PJM's Credit Risk Management Policy Reflects All FTR Class Types

PJM proposes to revise Tariff, Attachment Q, section VI.C.2 to update Tariff, Attachment Q to reflect the new FTR class types that will be created by the proposed Operating Agreement and Tariff revisions described above. These conforming revisions do not create new rights or remedies for PJM but rather ensure that Tariff, Attachment Q reflects the FTR types provided for elsewhere in the Operating Agreement and Tariff.³¹

The above described Operating Agreement and Tariff revisions are just and reasonable and the Commission should accept them, effective as requested below.

III. EFFECTIVE DATE

PJM requests that the Commission issue its order accepting PJM's filing by no later than March 11, 2022, which is sixty days from the date of this filing, with an effective date of September 1, 2022, for the FTR Enhancement Revisions and February 1, 2023, for the ARR Enhancement Revisions. The requested effective dates are more than 120 days from the filing date of this proposal. Accordingly, PJM is requesting a waiver from the notice requirements of section 35.3(a) of the Commission's rules.³² Waiver is appropriate because the requested effective dates will give Market Participants adequate notice and

²⁹ See PJM FTR Group, ARR/FTR Market Task Force, *ARR/FTR Solution Options*, PJM Interconnection, L.L.C., 14 (May 24, 2021), <https://pjm.com/-/media/committees-groups/task-forces/afmtf/2021/20210524/20210524-item-04-may-presentation.ashx>.

³⁰ See LEI Report at 113.

³¹ PJM notes that there may be other proposed revisions to Attachment Q that are accepted by the Commission and may take effect before September 1, 2022, the proposed effective date for this change. To the extent necessary, PJM will make a clean-up filing to ensure Attachment Q contains all language accepted by the Commission on or prior to September 1, 2022.

³² 18 C.F.R. § 35.3(a).

lead time to prepare for the implementation of the FTR Enhancement Revisions on September 1, 2022, and the ARR Enhancement Revisions on February 1, 2023, which are the earliest dates that the respective revisions can be implemented efficiently and effectively in the PJM market construct, including allowing for the completion of technical requirements and implementation testing, and in particular to accommodate the schedules of vendors needed to complete these tasks.

The ARR allocation process is conducted between March and May each year prior to the start of the upcoming PJM planning period, which commences June 1 of each year, and it would be beneficial to have the ARR Enhancement Revisions approved prior to the beginning of the next planning period to give PJM and participants time to prepare for their effectiveness, while having them take effect just before the next allocation period begins. Similarly, making the FTR Enhancement Revisions effective September 1, 2022, will give PJM and Market Participants adequate lead time to prepare for their effectiveness, including PJM's need to administer implementation according to appropriate vendor schedules.

To provide notice to customers and allow PJM a period of time to implement the enclosed Operating Agreement and Tariff revisions, and as noted in the previous paragraph, PJM respectfully requests that the Commission issue its order on this filing on or before March 11, 2022, which is sixty days after the date of this filing. To that end, PJM has assigned an effective date of March 11, 2022, to one eTariff record submitted with this filing, while marking each other record with the effective dates otherwise indicated in this filing.

IV. 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:³³

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V. DOCUMENTS ENCLOSED

This filing consists of the following:

1. This transmittal letter;
2. Revisions to the Tariff (in redlined and clean format (as Attachments A and B, respectively) and in electronic tariff filing format as required by Order No. 714³⁴); and
3. Revisions to the Operating Agreement (in redlined and clean format (as Attachments C and D, respectively) and in electronic tariff filing format as required by Order No. 714).

³³ To the extent necessary, PJM requests waiver of Rule 203(b)(3) of the Commission's Rules of Practice and Procedure, 18 C.F.R. § 385.203(b)(3), to permit all persons listed to be placed on the official service list for this proceeding.

³⁴ *Electronic Tariff Filings*, Order No. 714, 124 FERC ¶ 61,270 (2008), *final rule*, Order No. 714-A, 147 FERC ¶ 61,115 (2014).

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. In accordance with the Commission's regulations,³⁵ PJM will post a copy of this filing to the FERC filings section of its internet site, located at the following link: <https://www.pjm.com/library/filing-order.aspx> with a specific link to the newly filed document, and will send an email on the same date as this filing to all PJM members and all state utility regulatory commissions in the PJM Region³⁶ alerting them that this filing has been made by PJM and is available by following such link. PJM also serves the parties listed on the Commission's official service list for this docket. If the document is not immediately available by using the referenced link, the document will be available through the referenced link within 24 hours of the filing. Also, a copy of this filing will be available on FERC's eLibrary website located at the following link: <http://www.ferc.gov/docs-filing/elibrary.asp> in accordance with the Commission's regulations and Order No. 714.

³⁵ See 18 C.F.R. §§ 35.2(e), 385.2010(f)(3).

³⁶ PJM already maintains, updates, and regularly uses email lists for all PJM members and affected state commissions.

VII. CONCLUSION

Accordingly, PJM requests that the Commission accept the enclosed FTR Enhancement Revisions effective September 1, 2022, and ARR Enhancement Revisions effective February 1, 2023.

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Attachment A

Revisions to the PJM Open Access Transmission Tariff

(Marked/Redline Format)

Definitions – W – X – Y - Z

Wholesale Transaction:

As used in Tariff, Part IV, “Wholesale Transaction” shall mean any transaction involving the transmission or sale for resale of electricity in interstate commerce that utilizes any portion of the Transmission System.

Winter-Period Capacity Performance Resource:

“Winter-Period Capacity Performance Resource” shall have the same meaning specified in Tariff, Attachment DD, section 5.5A.

Working Credit Limit:

“Working Credit Limit” shall mean an amount that is 75% of the Participant’s Unsecured Credit Allowance determined by PJMSettlement and/or 75% of the Collateral provided by the Participant to PJMSettlement. A Participant’s Total Net Obligation should not exceed its Working Credit Limit. The calculation of Working Credit Limit shall take into account applicable reductions for Minimum Participation Requirements, FTR participation (for which there is no Unsecured Credit Allowance available), RPM participation, or other credit requirement determinants as defined in Tariff, Attachment Q.

Working Credit Limit for Virtual Transactions:

The “Working Credit Limit for Virtual Transactions” shall be calculated as 75% of the Market Participant’s Unsecured Credit Allowance and/or 75% of the Collateral provided by the Market Participant to PJMSettlement when the Market Participant is at or below its Peak Market Activity credit requirements as specified in Tariff, Attachment Q, section VII.A. When the Market Participant has available Unsecured Credit Allowance and/or has provided Collateral in excess of its Peak Market Activity credit requirements, such additional Unsecured Credit Allowance and/or Financial Security shall not be discounted by 25% when calculating the Working Credit Limit for Virtual Transactions. The Working Credit Limit for Virtual Transactions is a component in the calculation of Credit Available for Virtual Transactions. The calculation of Working Credit Limit for Virtual Transactions shall take into account applicable reductions for Minimum Participation Requirements, FTR, or other credit requirement determinants as defined in Tariff, Attachment Q.

Zonal Base Load:

~~“Zonal Base Load” shall mean the lowest daily zonal peak load from the twelve month period ending October 21 of the calendar year immediately preceding the calendar year in which an annual Auction Revenue Right allocation is conducted, increased by the projected load growth rate for the relevant Zone, when non-extraordinary conditions exist for the applicable twelve month period, as determined by PJM. If the lowest daily zonal peak load from the applicable twelve month period is abnormally low due to extraordinary conditions, as determined by PJM,~~

~~Zonal Base Load shall mean the next lowest daily zonal peak load that was not affected by extraordinary conditions during the applicable twelve month period, increased by the projected load growth rate for the relevant Zone. For the purposes of this definition, extraordinary conditions shall mean a significant event, or combination of events, that affect the operation of the bulk power system in an atypical manner and results in an abnormal reduction in the consumption of energy within a Zone.~~

Zonal Capacity Price:

“Zonal Capacity Price” shall mean the clearing price required in each Zone to meet the demand for Unforced Capacity and satisfy Locational Deliverability Requirements for the LDA or LDAs associated with such Zone. If the Zone contains multiple LDAs with different Capacity Resource Clearing Prices, the Zonal Capacity Price shall be a weighted average of the Capacity Resource Clearing Prices for such LDAs, weighted by the Unforced Capacity of Capacity Resources cleared in each such LDA.

Zone or Zonal:

“Zone” or “Zonal” shall mean an area within the PJM Region, as set forth in Tariff, Attachment J and RAA, Schedule 15, or as such areas may be (i) combined as a result of mergers or acquisitions or (ii) added as a result of the expansion of the boundaries of the PJM Region. A Zone shall include any Non-Zone Network Load located outside the PJM Region that is served from such Zone under Tariff, Attachment H-A.

Zone Network Load:

“Zone Network Load” shall mean Network Load that is located inside of the area comprised of the PJM Region.

5.2 Transmission Congestion Credit Calculation.

5.2.1 Eligibility.

(a) Except as provided in section 5.2.1(b), each FTR Holder shall receive as a Transmission Congestion Credit a proportional share of the Day-ahead Energy Market Transmission Congestion Charges collected for each constrained hour.

(b) If an Effective FTR Holder between specified delivery and receipt buses acquired the Financial Transmission Right in a Financial Transmission Rights auction (the procedures for which are set forth in *section 7* of this *Attachment K – Appendix*) and had a *Virtual Transaction portfolio which includes Increment Offer(s), Decrement Bid(s), and/or Up-to Congestion Transaction(s)* that was accepted by the Office of the Interconnection for an applicable hour in the Day-ahead Energy Market, *whereby the Effective FTR Holder’s Virtual Transaction portfolio resulted in (i) a difference in Location Marginal Prices in the Day-ahead Energy Market between such delivery and receipt buses which is greater than the difference in Locational Marginal Prices between such delivery and receipt buses in the Real-time Energy Market, and (ii) an increasing the value between such delivery and receipt buses, then the Market Participant shall not receive any Transmission Congestion Credit associated with such Financial Transmission Right in such hour, that is attributable to the absolute value (i.e., the product of the constraint’s shadow price times the distribution factor (dfax) of the difference between the Financial Transmission Right delivery and receipt buses) of the relevant Day-ahead Energy Market binding constraint (as further discussed in section 5.2.1(c) below), but no more than the excess of one divided by the number of hours in the applicable period multiplied by the amount that the Market Participant paid for the Financial Transmission Right in the Financial Transmission Rights auction (i.e., FTR profit). For the purposes of this calculation, every individual Financial Transmission Right of an Effective FTR Holder shall be considered.*

(c) For purposes of section 5.2.1(b), *an Effective FTR Holder’s Virtual Transaction portfolio shall be considered if the absolute value of the attributable net flow across a Day-ahead Energy Market binding constraint relative to the Day-ahead Energy Market load weighted reference bus between the Financial Transmission Right delivery and receipt buses exceeds the physical limit of such binding constraint by the greater of 0.1 MW or ten percent.*

(d) The Market Monitoring Unit shall calculate Transmission Congestion Credits pursuant to this section and Tariff, Attachment M-Appendix, section VI. Nothing in this section shall preclude the Market Monitoring Unit from action to recover inappropriate benefits from the subject activity if the amount forfeited is less than the benefit derived by the Effective FTR Holder. If the Office of the Interconnection agrees with such calculation, then it shall impose the forfeiture of the Transmission Congestion Credit accordingly. If the Office of the Interconnection does not agree with the calculation, then it shall impose a forfeiture of Transmission Congestion Credit consistent with its determination. If the Market Monitoring Unit disagrees with the Office of the Interconnection’s determination, it may exercise its powers to inform the Commission staff of its concerns and may request an adjustment. This provision is duplicated in Tariff, Attachment M-Appendix, section VI. An Effective FTR Holder objecting to

the application of this rule shall have recourse to the Commission for review of the application of the FTR forfeiture rule to its trading activity.

5.2.2 Financial Transmission Rights.

(a) Transmission Congestion Credits will be calculated based upon the Financial Transmission Rights held at the time of the constrained hour. Except as provided in subsection (e) below, Financial Transmission Rights shall be auctioned as set forth in Operating Agreement, Schedule 1, section 7.

(b) The hourly economic value of a Financial Transmission Right Obligation is based on the Financial Transmission Right MW reservation and the difference between the Day-ahead Congestion Price at the point of delivery and the point of receipt of the Financial Transmission Right. The hourly economic value of a Financial Transmission Right Obligation is positive (a benefit to the FTR Holder) when the Day-ahead Congestion Price at the point of delivery is higher than the Day-ahead Congestion Price at the point of receipt. The hourly economic value of a Financial Transmission Right Obligation is negative (a liability to the FTR Holder) when the Day-ahead Congestion Price at the point of receipt is higher than the Day-ahead Congestion Price at the point of delivery.

(c) The hourly economic value of a Financial Transmission Right Option is based on the Financial Transmission Right MW reservation and the difference between the Day-ahead Congestion Price at the point of delivery and the point of receipt of the Financial Transmission Right when that difference is positive. The hourly economic value of a Financial Transmission Right Option is positive (a benefit to the FTR Holder) when the Day-ahead Congestion Price at the point of delivery is higher than the Day-ahead Congestion Price at the point of receipt. The hourly economic value of a Financial Transmission Right Option is zero (neither a benefit nor a liability to the FTR Holder) when the Day-ahead Congestion Price at the point of receipt is higher than the Day-ahead Congestion Price at the point of delivery.

(d) In addition to transactions with PJMSettlement in the Financial Transmission Rights auctions administered by the Office of the Interconnection, a Financial Transmission Right, for its entire tenure or for a specified period, may be sold or otherwise transferred to a third party by bilateral agreement, subject to compliance with such procedures as may be established by the Office of the Interconnection for verification of the rights of the purchaser or transferee.

(i) Market Participants may enter into bilateral agreements to transfer to a third party a Financial Transmission Right, for its entire tenure or for a specified period. Such bilateral transactions shall be reported to the Office of the Interconnection in accordance with this Schedule and pursuant to the LLC's rules related to its FTR reporting tools.

(ii) For purposes of clarity, with respect to all bilateral transactions for the transfer of Financial Transmission Rights, the rights and obligations pertaining to the Financial Transmission Rights that are the subject of such a bilateral transaction shall pass to the buyer under the bilateral contract subject to the provisions of this Schedule. Such bilateral transactions

shall not modify the location or reconfigure the Financial Transmission Rights. In no event shall the purchase and sale of a Financial Transmission Right pursuant to a bilateral transaction constitute a transaction with PJMSettlement or a transaction in any auction under this Schedule.

(iii) Consent of the Office of the Interconnection shall be required for a seller to transfer to a buyer any Financial Transmission Right Obligation. Such consent shall be based upon the Office of the Interconnection's assessment of the buyer's ability to perform the obligations, including meeting applicable creditworthiness requirements, transferred in the bilateral contract. If consent for a transfer is not provided by the Office of the Interconnection, the title to the Financial Transmission Rights shall not transfer to the third party and the FTR Holder shall continue to receive all Transmission Congestion Credits attributable to the Financial Transmission Rights and remain subject to all credit requirements and obligations associated with the Financial Transmission Rights.

(iv) A seller under such a bilateral contract shall guarantee and indemnify the Office of the Interconnection, PJMSettlement, and the Members for the buyer's obligation to pay any charges associated with the transferred Financial Transmission Right and for which payment is not made to PJMSettlement by the buyer under such a bilateral transaction.

(v) All payments and related charges associated with such a bilateral contract shall be arranged between the parties to such bilateral contract and shall not be billed or settled by PJMSettlement or the Office of the Interconnection. The LLC, PJMSettlement, and the Members will not assume financial responsibility for the failure of a party to perform obligations owed to the other party under such a bilateral contract reported to the Office of the Interconnection under this Schedule.

(vi) All claims regarding a default of a buyer to a seller under such a bilateral contract shall be resolved solely between the buyer and the seller.

(e) Network Service Users and Firm Transmission Customers that take service that sinks, sources in, or is transmitted through new PJM zones, at their election, may receive a direct allocation of Financial Transmission Rights instead of an allocation of Auction Revenue Rights. Network Service Users and Firm Transmission Customers may make this election for the succeeding two annual FTR auctions after the integration of the new zone into the PJM Interchange Energy Market. Such election shall be made prior to the commencement of each annual FTR auction. For purposes of this election, the Allegheny Power Zone shall be considered a new zone with respect to the annual Financial Transmission Right auction in 2003 and 2004. Network Service Users and Firm Transmission Customers in new PJM zones that elect not to receive direct allocations of Financial Transmission Rights shall receive allocations of Auction Revenue Rights. During the annual allocation process, the Financial Transmission Right allocation for new PJM zones shall be performed simultaneously with the Auction Revenue Rights allocations in existing and new PJM zones. Prior to the effective date of the initial allocation of FTRs in a new PJM Zone, PJM shall file with FERC, under section 205 of the Federal Power Act, the FTRs and ARR allocations in accordance with sections 5 and 7 of this Schedule 1.

(f) For Network Service Users and Firm Transmission Customers that take service that sinks in, sources in, or is transmitted through new PJM zones, that elect to receive direct allocations of Financial Transmission Rights, Financial Transmission Rights shall be allocated using the same allocation methodology as is specified for the allocation of Auction Revenue Rights in Operating Agreement, Schedule 1, section 7.4.2 and in accordance with the following:

(i) Subject to subsection (ii) of this section, all Financial Transmission Rights must be simultaneously feasible. If all Financial Transmission Right requests made when Financial Transmission Rights are allocated for the new zone are not feasible then Financial Transmission Rights are prorated and allocated in proportion to the MW level requested and in inverse proportion to the effect on the binding constraints.

(ii) If any Financial Transmission Right requests that are equal to or less than sixty percent (60%) of a Network Service User's proportion of peak Zonal Base Load for in the Zone or fifty percent of its transmission responsibility for Non-Zone Network Load, or fifty percent of megawatts of firm service between the receipt and delivery points of Firm Transmission Customers, are not feasible in the annual allocation and auction processes due to system conditions, then PJM shall increase the capability limits of the binding constraints that would have rendered the Financial Transmission Rights infeasible to the extent necessary in order to allocate such Financial Transmission Rights without their being infeasible for all rounds of the annual allocation and auction processes, provided that this subsection (ii) shall not apply if the infeasibility is caused by extraordinary circumstances. Additionally, such increased limits shall be included in subsequent modeling during the Planning Year to support any incremental allocations of Auction Revenue Rights and monthly and balance of the Planning Period Financial Transmission Rights auctions; unless and to the extent those system conditions that contributed to infeasibility in the annual process are not extant for the time period subject to the subsequent modeling, such as would be the case, for example, if transmission facilities are returned to service during the Planning Year. In these cases, any increase in the capability limits taken under this subsection (ii) during the annual process will be removed from subsequent modeling to support any incremental allocations of Auction Revenue Rights and monthly and balance of the Planning Period Financial Transmission Rights auctions. In addition, PJM may remove or lower the increased capability limits, if feasible, during subsequent FTR Auctions if the removal or lowering of the increased capability limits does not impact Auction Revenue Rights funding and net auction revenues are positive.

For the purposes of this subsection (ii), extraordinary circumstances shall mean an event of force majeure that reduces the capability of existing or planned transmission facilities and such reduction in capability is the cause of the infeasibility of such Financial Transmission Rights. Extraordinary circumstances do not include those system conditions and assumptions modeled in simultaneous feasibility analyses conducted pursuant to Operating Agreement, Schedule 1, section 7.5 of Schedule 1 of this Agreement. If PJM allocates Financial Transmission Rights as a result of this subsection (ii) that would not otherwise have been feasible, then PJM shall notify Members and post on its web site (a) the aggregate megawatt quantities, by sources and sinks, of such Financial Transmission Rights and (b) any increases in capability limits used to allocate such Financial Transmission Rights.

(iii) In the event that Network Load changes from one Network Service User to another after an initial or annual allocation of Financial Transmission Rights in a new zone, Financial Transmission Rights will be reassigned on a proportional basis from the Network Service User losing the load to the Network Service User that is gaining the Network Load.

(g) At least one month prior to the integration of a new zone into the PJM Interchange Energy Market, Network Service Users and Firm Transmission Customers that take service that sinks in, sources in, or is transmitted through the new zone, shall receive an initial allocation of Financial Transmission Rights that will be in effect from the date of the integration of the new zone until the next annual allocation of Financial Transmission Rights and Auction Revenue Rights. Such allocation of Financial Transmission Rights shall be made in accordance with Operating Agreement, Schedule 1, section 5.2.2(f) of this Schedule.

(h) Reserved.

5.2.3 Target Allocation of Transmission Congestion Credits.

A Target Allocation of Transmission Congestion Credits for each FTR Holder shall be determined for each Financial Transmission Right. Each Financial Transmission Right shall be multiplied by the Day-ahead Congestion Price differences for the receipt and delivery points associated with the Financial Transmission Right, calculated as the Day-ahead Congestion Price at the delivery point(s) minus the Day-ahead Congestion Price at the receipt point(s). For the purposes of calculating Transmission Congestion Credits, the Day-ahead Congestion Price of a Zone is calculated as the sum of the Day-ahead Congestion Price of each bus that comprises the Zone multiplied by the percent of annual peak load assigned to each node in the Zone. Commencing with the 2015/2016 Planning Period, for the purposes of calculating Transmission Congestion Credits, the Day-ahead Congestion Price of a Residual Metered Load aggregate is calculated as the sum of the Day-ahead Congestion Price of each bus that comprises the Residual Metered Load aggregate multiplied by the percent of the annual peak residual load assigned to each bus that comprises the Residual Metered Load aggregate. When the FTR Target Allocation is positive, the FTR Target Allocation is a credit to the FTR Holder. When the FTR Target Allocation is negative, the FTR Target Allocation is a debit to the FTR Holder if the FTR is a Financial Transmission Right Obligation. When the FTR Target Allocation is negative, the FTR Target Allocation is set to zero if the FTR is a Financial Transmission Right Option. The total Target Allocation for Network Service Users and Transmission Customers for each hour shall be the sum of the Target Allocations associated with all of the Network Service Users' or Transmission Customers' Financial Transmission Rights.

5.2.4 [Reserved.]

5.2.5 Calculation of Transmission Congestion Credits.

(a) The total of all the positive Target Allocations determined as specified above shall be compared to the Day-ahead Energy Market Transmission Congestion Charges in each hour. If the total of the Target Allocations is less than or equal to the total of the Day-ahead Energy Market Transmission Congestion Charges, the Transmission Congestion Credit for each entity

holding an FTR shall be equal to its Target Allocation. All remaining Day-ahead Energy Market Transmission Congestion Charges shall be distributed as described below in Operating Agreement, Schedule 1, section 5.2.6 “Distribution of Excess Congestion Charges.”

(b) If the total of the Target Allocations is greater than the Day-ahead Energy Market Transmission Congestion Charges for the hour, each FTR Holder shall be assigned a share of the Day-ahead Energy Market Transmission Congestion Charges in proportion to its Target Allocations for Financial Transmission Rights which have a positive Target Allocation value. Financial Transmission Rights which have a negative Target Allocation value are assigned the full Target Allocation value as a negative Transmission Congestion Credit.

(c) At the end of a Planning Period if all FTR Holders did not receive Transmission Congestion Credits equal to their Target Allocations, the Office of the Interconnection shall assess a charge equal to the difference between the Transmission Congestion Credit Target Allocations for all revenue deficient FTRs and the actual Transmission Congestion Credits allocated to those FTR Holders. A charge assessed pursuant to this section shall also include any aggregate charge assessed pursuant to Operating Agreement, Schedule 1, section 7.4.4(c) and shall be allocated to all FTR Holders on a pro-rata basis according to the total Target Allocations for all FTRs held at any time during the relevant Planning Period. The charge shall be calculated and allocated in accordance with the following methodology:

1. The Office of the Interconnection shall calculate the total amount of uplift required as $\{[\text{sum of the total monthly deficiencies in FTR Target Allocations for the Planning Period} + \text{the sum of the ARR Target Allocation deficiencies determined pursuant to Operating Agreement, Schedule 1, section 7.4.4(c)}] - [\text{sum of the total monthly excess ARR revenues and excess Day-ahead Energy Market Transmission Congestion Charges for the Planning Period}]\}$.

2. For each Market Participant that held an FTR during the Planning Period, the Office of the Interconnection shall calculate the total Target Allocation associated with all FTRs held by the Market Participant during the Planning Period, provided that, the foregoing notwithstanding, if the total Target Allocation for an individual Market Participant calculated pursuant to this section is negative the Office of Interconnection shall set the value to zero.

3. The Office of the Interconnection shall then allocate an uplift charge to each Market Participant that held an FTR at any time during the Planning Period in accordance with the following formula: $\{[\text{total uplift}] * [\text{total Target Allocation for all FTRs held by the Market Participant at any time during the Planning Period}] / [\text{total Target Allocations for all FTRs held by all PJM Market Participants at any time during the Planning Period}]\}$.

5.2.6 Distribution of Excess Congestion Charges.

(a) Excess Day-ahead Energy Market Transmission Congestion Charges accumulated in a month shall be distributed to each FTR Holder in proportion to, but not more than, any deficiency in the share of Day-ahead Energy Market Transmission Congestion Charges received by the FTR Holder during that month as compared to its total Target Allocations for the month.

(b) After the excess Day-ahead Energy Market Transmission Congestion Charge distribution described in Operating Agreement, Schedule 1, section 5.2.6(a) is performed, any excess Day-ahead Energy Market Transmission Congestion Charges remaining at the end of a month shall be distributed to each FTR Holder in proportion to, but not more than, any deficiency in the share of Day-ahead Energy Market Transmission Congestion Charges received by the FTR Holder during the current Planning Period, including previously distributed excess Day-ahead Energy Market Transmission Congestion Charges, as compared to its total Target Allocation for the Planning Period.

(c) Any excess Day-ahead Energy Market Transmission Congestion Charges remaining at the end of a Planning Period shall be distributed to each holder of Auction Revenue Rights in proportion to, but not more than, any Auction Revenue Right deficiencies for that Planning Period.

(d) Any excess Day-ahead Energy Market Transmission Congestion Charges remaining after a distribution pursuant to subsection (c) of this section shall be distributed to all ARR holders on a pro-rata basis according to the total Target Allocations for all ARRs held at any time during the relevant Planning Period. Any allocation pursuant to this subsection (d) shall be conducted in accordance with the following methodology:

1. For each Market Participant that held an ARR during the Planning Period, the Office of the Interconnection shall calculate the total Target Allocation associated with all ARRs held by the Market Participant during the Planning Period, provided that, the foregoing notwithstanding, if the total Target Allocation for an individual Market Participant calculated pursuant to this section is negative the Office of the Interconnection shall set the value to zero.

2. The Office of the Interconnection shall then allocate an excess Day-ahead Energy Market Transmission Congestion Charge credit to each Market Participant that held an ARR at any time during the Planning Period in accordance with the following formula: {[total excess Day-ahead Energy Market Transmission Congestion Charges remaining after distributions pursuant to subsection (a)-(c) of this section] * [total Target Allocation for all ARRs held by the Market Participant at any time during the Planning Period] / [total Target Allocations for all ARRs held by all PJM Market Participants at any time during the Planning Period]}.

5.2.7 Allocation of Balancing Congestion Charges

At the end of each hour during an Operating Day, the Office of the Interconnection shall allocate the Balancing Congestion Charges to real-time load and exports on a pro-rata basis. Such allocation shall not include purchases of Direct Charging Energy.

7. FINANCIAL TRANSMISSION RIGHTS AUCTIONS

7.1 Auctions of Financial Transmission Rights.

Annual, periodic and long-term auctions to allow Market Participants to acquire or sell Financial Transmission Rights shall be conducted by the Office of the Interconnection in accordance with the provisions of this Section. PJMSettlement shall be the Counterparty to the purchases and sales of Financial Transmission Rights arising from such auctions; provided however, that PJMSettlement shall not be a contracting party to any subsequent bilateral transfer of Financial Transmission Rights between Market Participants. The conversion of an Auction Revenue Right to a Financial Transmission Right pursuant to this section 7 shall not constitute a purchase or sale transaction to which PJMSettlement is a contracting party.

7.1.1 Auction Period and Scope of Auctions.

(a) The periods covered by auctions shall be: (1) the one-year period beginning the month after the final round of an annual auction; and (2) any single calendar month period remaining in the Planning Period. With the exception of FTRs allocated pursuant to Operating Agreement, Schedule 1, section 5.2.2 (e) and the Financial Transmission Rights awarded as a result of the exercise of the conversion option pursuant to Operating Agreement, Schedule 1, section 7.1.1(b), in the annual auction, the Office of the Interconnection, on behalf of PJMSettlement, shall offer for sale the entire Financial Transmission Rights capability for the year in four rounds with 25 percent of the capability offered in each round. In the monthly auction, the Office of the Interconnection, on behalf of PJMSettlement, shall offer for sale in the auction any remaining Financial Transmission Rights capability for the months remaining in the Planning Period after taking into account all of the Financial Transmission Rights already outstanding at the time of the auction. In addition, any holder of a Financial Transmission Right for the period covered by an auction may offer such Financial Transmission Right for sale in such auction. Weekend on-peak, weekday on-peak, off-peak and 24-hour Financial Transmission Rights, as those products are described in Tariff, Attachment K-Appendix, section 7.3.4, FTRs will be offered in the annual and monthly auctions. FTRs will be offered as Financial Transmission Right Obligations and Financial Transmission Right Options, provided that such Financial Transmission Right Obligations and Financial Transmission Right Options shall be awarded based only on the residual system capability that remains after the allocation of Financial Transmission Rights pursuant to Operating Agreement, Schedule 1, section 5.2.2(e) and the award of Financial Transmission Rights pursuant to Operating Agreement, Schedule 1, section 7.1.1(b). Market Participants may bid for and acquire any number of Financial Transmission Rights, provided that all Financial Transmission Rights awarded are simultaneously feasible with each other and with all Financial Transmission Rights outstanding at the time of the auction and not sold into the auction. An ARR holder may self-schedule an FTR on the same path in the Annual FTR auction according to the rules described in the PJM Manuals.

(b) An Auction Revenue Rights holder may convert Auction Revenue Rights to Financial Transmission Rights, and such conversion shall not be considered a purchase or sale of Financial Transmission Rights in the auction. Such Financial Transmission Rights must (i) have the same source and sink points as the Auction Revenue Rights; ~~(ii) be a 24 hour product;~~ and (iii) be Financial Transmission Right Obligations. The Auction Revenue Rights holder must inform the

Office of the Interconnection in accordance with the procedures established by the Office of the Interconnection that it intends to exercise the conversion option prior to close of round one of the annual Financial Transmission Rights auction. Once the conversion option is exercised, it will remain in effect for the entire Financial Transmission Rights auction. The Office of the Interconnection will designate twenty-five percent of the megawatt amount of the Auction Revenue Rights to be converted as price-taker bids in each of the four rounds of the Financial Transmission Rights auction. An Auction Revenue Rights holder that converts its Auction Revenue Rights may not designate a price bid for its converted Financial Transmission Rights and will receive a price equal to the clearing price set by other bids in the annual Financial Transmission Right auction. To the extent a market participant seeks to obtain FTRs in the annual auction through such conversion, the FTRs sought will not be included in the calculation of such market participant's credit requirement for such annual FTR auction.

7.1.2 Frequency and Time of Auctions.

Subject to Operating Agreement, Schedule 1, section 7.1.1, annual Financial Transmission Rights auctions shall offer the entire FTR capability of the PJM system in four rounds with 25 percent of the capability offered in each round. All four rounds of the annual Financial Transmission Rights auction shall occur within the two-month period (April – May) preceding the start of the PJM Planning Period. Each round shall occur over five Business Days and shall be conducted sequentially. Each round shall begin with the bid and offer period. The bid and offer period for annual Financial Transmission Rights auctions shall be open for three consecutive Business Days, opening the first day at 12:00 midnight (Eastern Prevailing Time) and closing the third day at 5:00 p.m. (Eastern Prevailing Time). Monthly Financial Transmission Rights auctions shall be held each month. The bid and offer period for monthly Financial Transmission Rights auctions shall be open for three consecutive Business Days in the month preceding the first month for which Financial Transmission Rights are being auctioned, opening the first day at 12:00 midnight (Eastern Prevailing Time) and closing the third day at 5:00 p.m. (Eastern Prevailing Time).

7.1.3 Duration of Financial Transmission Rights.

Each Financial Transmission Right acquired in a Financial Transmission Rights auction shall entitle the holder to credits of Day-ahead Energy Market Transmission Congestion Charges for the period that was specified in the corresponding auction.

7.1A Long-Term Financial Transmission Rights Auctions.

7.1A.1 Auctions.

(i) Subsequent to each annual Financial Transmission Rights auction conducted pursuant to Operating Agreement, Schedule 1, section 7.1, the Office of the Interconnection shall conduct a long-term Financial Transmission Rights auction for the three consecutive Planning Periods immediately subsequent to the Planning Period during which the long-term Financial Transmission Rights auction is conducted. PJMSettlement shall be the Counterparty to the purchases and sales of Financial Transmission Rights arising from such long-term Financial Transmission Rights auctions, provided however, that PJMSettlement shall not be a contracting party to any subsequent bilateral transfers of Financial Transmission Rights between Market Participants. The conversion of an Auction Revenue Right to a Financial Transmission Right pursuant to this section 7 shall not constitute a purchase or sale transaction to which PJMSettlement is a contracting party.

(ii) The capacity offered for sale in long-term Financial Transmission Rights auctions shall be the residual system capability after the annual Auction Revenue Rights allocations and the annual Financial Transmission Rights auction. In determining the residual capability the Office of the Interconnection shall assume that all Auction Revenue Rights allocated in the immediately prior annual Auction Revenue Rights allocation process, including Auction Revenue Rights made available in which transmission facilities which were modeled out of service in the annual Auction Revenue Rights allocations return to service, are self-scheduled into Financial Transmission Rights, which shall be modeled as fixed injections and withdrawals in the long-term Financial Transmission Rights auction. Additionally, residual annual Auction Revenue Rights that become available through incremental capability created by future transmission upgrades as further described in the PJM Manuals shall be modeled as fixed injections and withdrawals in the long-term Financial Transmission Rights auction. The long-term Financial Transmission Rights auction model shall include all upgrades planned to be placed into service on or before June 30th of the first Planning Period within the three year period covered by the auction. The transmission upgrades to be modeled for this purpose shall only include those upgrades that, individually, or together, have 10% or more impact on the transmission congestion on an individual constraint or constraints with congestion of \$5 million or more affecting a common congestion path. Transmission upgrades modeled for this purpose also will be modeled in the subsequent long-term Financial Transmission Rights auction, as further detailed in the PJM Manuals. Residual Auction Revenue Rights created by an increase in transmission capability due to future transmission upgrades, as specified above, are determined only for modeling purposes and will not be allocated to Market Participants.

7.1A.2 Frequency and Timing.

The long-term Financial Transmission Rights auction process shall consist of five rounds. The first round shall be conducted by the Office of the Interconnection approximately 11 months prior to the start of the three Planning Period term covered by the relevant long-term Financial Transmission Rights auction. The second round shall be conducted approximately 2 months

after the first round. The third round shall be conducted approximately 2 months after the second round. The fourth round shall be conducted approximately 2 months after the third round, and the fifth round shall be conducted approximately 3 months after the fourth round. In each round 20 percent of total capacity available in the long-term Financial Transmission Rights auction shall be offered for sale. Eligible entities may submit bids to purchase and offers to sell Financial Transmission Rights at the start of the bidding period in each round. The bidding period shall be three Business Days ending at 5:00 p.m. on the last day. PJM performs the Financial Transmission Rights auction clearing analysis for each round and posts the auction results on the market user interface within five Business Days after the close of the bidding period for each round unless circumstances beyond PJM's control prevent PJM from meeting the applicable deadline. Under such circumstances, PJM will post the auction results at the earliest possible opportunity. If the Office of the Interconnection discovers a *potential* error in the results posted for a long-term Financial Transmission Rights auction, the Office of the Interconnection shall notify Market Participants as soon as possible after it is found, but in no event later than 5:00 p.m. of the Business Day immediately following the initial publication of the results for that auction. After this initial notification, if the Office of the Interconnection determines it is necessary to post modified auction results, it shall provide notification of its intent to do so, *along with a description detailing the cause and scope of the error*, by no later than 5:00 p.m. of the second Business Day following the initial publication of prices for that auction. *The provided description will not contain information that is market sensitive or confidential.* Thereafter, the Office of the Interconnection must post the corrected prices by no later than 5:00 p.m. of the fourth calendar day following the initial publication of prices in the auction. Should any of the above deadlines pass without the associated action on the part of the Office of the Interconnection, the originally posted results will be considered final. Notwithstanding the foregoing, the deadlines set forth above shall not apply if the referenced auction results are under publicly noticed review by the FERC.

7.1A.3 Products.

(i) The periods covered by long-term Financial Transmission Rights auctions shall be any single Planning Period within the three Planning Period term covered by the relevant auction.

(ii) Weekend on-peak, weekday on-peak, off-peak and 24-hour Financial Transmission Rights~~Obligations~~, as those products are described in Tariff, Attachment K-Appendix, section 7.3.4, shall be offered in long-term Financial Transmission Rights auctions; Financial Transmission Rights options shall not be offered.

7.1A.4 Participation Eligibility.

(i) To participate in long-term Financial Transmission Rights auctions an entity shall be a PJM Member or a PJM Transmission Customer. Eligible entities may submit bids or offers in long-term Financial Transmission Rights auctions, provided they own Financial Transmission Rights offered for sale.

7.1A.5 Specified Receipt and Delivery Points.

The Office of the Interconnection will post a list of available receipt and delivery points for each long-term Financial Transmission Rights auction. Eligible receipt and delivery points in long-term Financial Transmission Rights auctions shall be limited to the posted available hubs, Zones, aggregates, generators, and Interface Pricing Points.

7.3 Auction Procedures.

7.3.1 Role of the Office of the Interconnection.

Financial Transmission Rights auctions shall be conducted by the Office of the Interconnection in accordance with standards and procedures set forth in the PJM Manuals, such standards and procedures to be consistent with the requirements of this Schedule. PJMSettlement shall be the Counterparty to the purchases and sales of Financial Transmission Rights arising from such auctions, provided however, that PJMSettlement shall not be a contracting party to any subsequent bilateral transfers of Financial Transmission Rights between Market Participants. The conversion of an Auction Revenue Right to a Financial Transmission Right pursuant to this section 7 shall not constitute a purchase or sale transaction to which PJMSettlement is a contracting party. Any Financial Transmission Rights auctions conducted to liquidate a defaulting Member's Financial Transmission Rights portfolio shall be conducted by the Office of the Interconnection in accordance with the procedures set forth in section 7.3.9 below, and as may be further described in the PJM Manuals.

7.3.2 Notice of Offer.

A holder of a Financial Transmission Right wishing to offer the Financial Transmission Right for sale shall notify the Office of the Interconnection of any Financial Transmission Rights to be offered. Each Financial Transmission Right sold in an auction shall, at the end of the period for which the Financial Transmission Rights were auctioned, revert to the offering holder or the entity to which the offering holder has transferred such Financial Transmission Right, subject to the term of the Financial Transmission Right itself and to the right of such holder or transferee to offer the Financial Transmission Right in the next or any subsequent auction during the term of the Financial Transmission Right.

7.3.3 Pending Applications for Firm Service.

(a) [Reserved.]

(b) Financial Transmission Rights may be assigned to entities requesting Network Transmission Service or Firm Point-to-Point Transmission Service pursuant to Operating Agreement, Schedule 1, section 5.2.2 (e), and the parallel provisions of Tariff, Attachment K-Appendix, section 5.2.2(e), only if such Financial Transmission Rights are simultaneously feasible with all outstanding Financial Transmission Rights, including Financial Transmission Rights effective for the then-current auction period. If an assignment of Financial Transmission Rights pursuant to a pending application for Network Transmission Service or Firm Point-to-Point Transmission Service cannot be completed prior to an auction, Financial Transmission Rights attributable to such transmission service shall not be assigned for the then-current auction period. If a Financial Transmission Right cannot be assigned for this reason, the applicant may withdraw its application, or request that the Financial Transmission Right be assigned effective with the start of the next auction period.

7.3.4 Weekend On-Peak, Weekday On-Peak, Off-Peak and 24-Hour Periods.

~~Weekend on-peak, weekday on-peak, off-peak and 24-hour Financial Transmission Rights FTRs~~ will be offered in the annual, ~~long-term,~~ and monthly auctions. ~~Weekend on-peak Financial Transmission Rights shall cover the periods from 7:00 a.m. up to the hour ending 11:00 p.m. on Saturdays, Sundays, and holidays as defined in the PJM Manuals. Weekday on-peak~~ ~~Peak~~ Financial Transmission Rights shall cover the periods from 7:00 a.m. up to the hour ending at 11:00 p.m. on Mondays through Fridays, except holidays as defined in the PJM Manuals. Off-Peak Financial Transmission Rights shall cover the periods from 11:00 p.m. up to the hour ending 7:00 a.m. on ~~all days Mondays through Fridays and all hours on Saturdays, Sundays, and holidays as defined in the PJM Manuals.~~ The 24-hour period shall cover the period from hour ending 1:00 a.m. to the hour ending 12:00 midnight on all days. Each bid shall specify whether it is for an ~~on-peak weekend on-peak, weekday on-peak,~~ off-peak, or 24-hour period.

7.3.5 Offers and Bids.

(a) Offers to sell and bids to purchase Financial Transmission Rights shall be submitted during the period set forth in Operating Agreement, Schedule 1, section 7.1.2, and the parallel provisions of Tariff, Attachment K-Appendix, section 7.1.2, and shall be in the form specified by the Office of the Interconnection in accordance with the requirements set forth below.

(b) Offers to sell shall identify the specific Financial Transmission Right, by term, megawatt quantity and receipt and delivery points, offered for sale. An offer to sell a specified megawatt quantity of Financial Transmission Rights shall constitute an offer to sell a quantity of Financial Transmission Rights equal to or less than the specified quantity. An offer to sell may not specify a minimum quantity being offered. Each offer may specify a reservation price, below which the offeror does not wish to sell the Financial Transmission Right. Offers submitted by entities holding rights to Financial Transmission Rights shall be subject to such reasonable standards for the verification of the rights of the offeror as may be established by the Office of the Interconnection. Offers shall be subject to such reasonable standards for the creditworthiness of the offeror or for the posting of security for performance as the Office of the Interconnection shall establish.

(c) Bids to purchase shall specify the term, megawatt quantity, price per megawatt, and receipt and delivery points of the Financial Transmission Right that the bidder wishes to purchase. A bid to purchase a specified megawatt quantity of Financial Transmission Rights shall constitute a bid to purchase a quantity of Financial Transmission Rights equal to or less than the specified quantity. A bid to purchase may not specify a minimum quantity that the bidder wishes to purchase. A bid may specify receipt and delivery points in accordance with Operating Agreement, Schedule 1, section 7.2.2, and the parallel provisions of Tariff, Attachment K-Appendix, section 7.2.2, and may include Financial Transmission Rights for which the associated Transmission Congestion Credits may have negative values. Bids shall be subject to such reasonable standards for the creditworthiness of the bidder or for the posting of security for performance as the Office of the Interconnection shall establish.

(d) Bids and offers shall be specified to the nearest tenth of a megawatt and shall be greater than zero. The Office of the Interconnection may require that a market participant shall not submit in excess of 5000 bids and offers for any single monthly auction, or for any single round of the annual auction, when the Office of the Interconnection determines that such limit is required to avoid or mitigate significant system performance problems related to bid/offer volume. Notice of the need to impose such limit shall be provided prior to the start of the bidding period if possible. Where such notice is provided after the start of the bidding period, market participants shall be required within one day to reduce their bids and offers for such auction below 5000, and the bidding period in such cases shall be extended by one day.

7.3.6 Determination of Winning Bids and Clearing Price.

(a) At the close of each bidding period, the Office of the Interconnection will create a base Financial Transmission Rights power flow model that includes all outstanding Financial Transmission Rights that have been approved and confirmed for any portion of the month for which the auction was conducted and that were not offered for sale in the auction. The base Financial Transmission Rights model also will include estimated uncompensated parallel flows into each interface point of the PJM Region and estimated scheduled transmission outages.

(b) In accordance with the requirements of Operating Agreement, Schedule 1, section 7.5, and the parallel provisions of Tariff, Attachment K-Appendix, section 7.5, and subject to all applicable transmission constraints and reliability requirements, the Office of the Interconnection shall determine the simultaneous feasibility of all outstanding Financial Transmission Rights not offered for sale in the auction and of all Financial Transmission Rights that could be awarded in the auction for which bids were submitted. The winning bids shall be determined from an appropriate linear programming model that, while respecting transmission constraints and the maximum MW quantities of the bids and offers, selects the set of simultaneously feasible Financial Transmission Rights with the highest net total auction value as determined by the bids of buyers and taking into account the reservation prices of the sellers. In the event that there are two or more identical bids for the selected Financial Transmission Rights and there are insufficient Financial Transmission Rights to accommodate all of the identical bids, then each such bidder will receive a pro rata share of the Financial Transmission Rights that can be awarded.

(c) Financial Transmission Rights shall be sold at the market-clearing price for Financial Transmission Rights between specified pairs of receipt and delivery points, as determined by the bid value of the marginal Financial Transmission Right that could not be awarded because it would not be simultaneously feasible. The linear programming model shall determine the clearing prices of all Financial Transmission Rights paths based on the bid value of the marginal Financial Transmission Rights, which are those Financial Transmission Rights with the highest bid values that could not be awarded fully because they were not simultaneously feasible, and based on the flow sensitivities of each Financial Transmission Rights path relative to the marginal Financial Transmission Rights paths flow sensitivities on the binding transmission constraints. Financial Transmission Rights with a zero clearing price will only be awarded if there is a minimum of one binding constraint in the auction period for which the Financial

Transmission Rights path sensitivity is non-zero. Financial Transmission Right Options with a market-clearing price less than one dollar will not be awarded.

7.3.7 Announcement of Winners and Prices.

Within two (2) Business Days after the close of the bid and offer period for an annual Financial Transmission Rights auction round, and within five (5) Business Days after the close of the bid and offer period for a monthly Financial Transmission Rights auction, the Office of the Interconnection shall post the winning bidders, the megawatt quantity, the term and the receipt and delivery points for each Financial Transmission Right awarded in the auction and the price at which each Financial Transmission Right was awarded unless circumstances beyond PJM's control prevent PJM from meeting the applicable deadline. Under such circumstances, PJM will post the auction results at the earliest possible opportunity. The Office of the Interconnection shall not disclose the price specified in any bid to purchase or the reservation price specified in any offer to sell. If the Office of the Interconnection discovers an error in the results posted for a Financial Transmission Rights auction (or a given round of the annual Financial Transmission Rights auction), the Office of the Interconnection shall notify Market Participants of the error as soon as possible after it is found, but in no event later than 5:00 p.m. of the Business Day following the initial publication of the results of the auction or round of the annual auction. After this initial notification, if the Office of the Interconnection determines that it is necessary to post modified results, it shall provide notification of its intent to do so, together with all available supporting documentation, by no later than 5:00 p.m. of the second Business Day following the initial publication of the results of that auction or round of the annual auction. Thereafter, the Office of the Interconnection must post any corrected results by no later than 5:00 p.m. of the fourth calendar day following the initial publication of the results of the auction or round of the annual auction. Should any of the above deadlines pass without the associated action on the part of the Office of the Interconnection, the originally posted results will be considered final. Notwithstanding the foregoing, the deadlines set forth above shall not apply if the referenced auction results are under publicly noticed review by the FERC.

7.3.8 Auction Settlements.

All buyers and sellers of Financial Transmission Rights between the same points of receipt and delivery shall pay PJMSettlement or be paid by PJMSettlement the market-clearing price, as determined in the auction, for such Financial Transmission Rights.

7.3.9 Addressing Defaulting Member's Financial Transmission Rights.

In the event a Member fails to meet creditworthiness requirements or make timely payments when due pursuant to the Operating Agreement or Tariff, the Office of the Interconnection shall, as soon as practicable after declaring the Member to be in default as provided in Operating Agreement, section 15.1.5, use reasonable efforts to initiate within two applicable auctions the following procedures to settle, liquidate or otherwise resolve each Financial Transmission Rights position held by the defaulting Member:

a) The Office of the Interconnection shall unilaterally terminate all of the defaulting Member's rights with respect to forward Financial Transmission Rights positions as of the date of the Member's default.

b) As to each Financial Transmission Rights position held by the defaulting Member immediately prior to the termination of the defaulting Member's rights under subsection (a) above, the Office of the Interconnection shall determine and execute an appropriate course of action for addressing such Financial Transmission Rights position, based on the specific circumstances of the default as determined by the Office of the Interconnection in exercise of its reasonable judgment, such as (1) liquidating the position by offering it for sale in an upcoming applicable Financial Transmission Rights auction, (2) liquidating the position by offering it for sale in an auction called and scheduled for the specific purpose of liquidating one or more positions held by the defaulting Member ("Special Auction"), (3) allowing the position to go to settlement, or (4) another course of action the Office of the Interconnection determines to be appropriate under the circumstances that is designed to minimize potential losses to PJM Members. The Office of the Interconnection will provide reasonable advance notice to PJM Members of the approach or course of action it has determined to be appropriate prior to implementing that approach or course of action. The Office of the Interconnection is not required to apply a single approach to the defaulting Member's entire Financial Transmission Rights portfolio, and may determine that the appropriate course of action for addressing a defaulting Member's portfolio includes a combination of the above approaches as applied to different positions within the defaulting Member's overall Financial Transmission Rights portfolio.

c) The Office of the Interconnection will seek to minimize the losses to PJM Members associated with settling, liquidating or otherwise resolving the defaulting Member's Financial Transmission Rights portfolio and may base its determination in subsection (b) above on several factors, including but not limited to, the following:

- 1) the Office of the Interconnection's assessment of which approach will provide the greatest degree of protection to the financial integrity of the PJM Markets;
- 2) the size of the defaulting Member's Financial Transmission Rights portfolio, both in absolute terms and relative to overall market volume;
- 3) the term of the Financial Transmission Rights positions held by the defaulting Member as considered for a single position or on a portfolio basis;
- 4) whether liquidation is feasible or not, and on what timeline, due to the cessation or curtailment of trading at PJM for all Financial Transmission Rights or a subset of Financial Transmission Rights positions;
- 5) prevailing market conditions, such as but not limited to market liquidity and volatility; and

6) timing of the default and the actions taken to address the default.

d) Special Auctions. The Office of the Interconnection shall administer each Special Auction provided for in subsection (b)(2) above according to the procedures set forth in the Tariff and PJM Manuals for FTR auctions to the extent appropriate in the Office of the Interconnection's sole discretion, and may adopt special rules for each Special Auction to accommodate the unique circumstances underlying the particular default and particular Financial Transmission Rights positions being liquidated, with the terms and conditions of such auction being determined with the goal of facilitating a successful auction in light of the particular positions to be auctioned, the prevailing market conditions for such open positions (including the depth, scope, and nature of participation in such markets), and such other factors as the Office of the Interconnection determines appropriate, including those factors enumerated in subsection (c) above. The Office of the Interconnection shall provide reasonable advance notice to FTR Participants of a Special Auction and the terms and conditions under which it will be conducted.

e) All liquidations made pursuant to subsection (b) above shall be for the account of the defaulting Member (and all amounts owed PJM in respect thereof shall be included in amounts owed by the defaulting Member as part of its default).

f) Notwithstanding subsections 7.3.9(a) and (b) above, the actual net charges or credits resulting from the defaulting Member's Financial Transmission Rights positions for which PJMSettlement acted as counterparty as calculated through the normal settlement processes shall be included in calculating the Default Allocation Assessment charges as described in Operating Agreement, section 15.2.2.

7.4 Allocation of Auction Revenues.

7.4.1 Eligibility.

- (a) Annual auction revenues, net of payments to entities selling Financial Transmission Rights into the auction, shall be allocated among holders of Auction Revenue Rights in proportion to the Target Allocation of Auction Revenue Rights Credits for the holder.
- (b) Auction Revenue Rights Credits will be calculated based upon the clearing price results of the applicable Annual Financial Transmission Rights auction.
- (c) Monthly and Balance of Planning Period FTR auction revenues, net of payments to entities selling Financial Transmission Rights into the auction, shall be allocated according to the following priority schedule:
 - (i) To stage 1 and 2 Auction Revenue Rights holders in accordance with Operating Agreement, Schedule 1, section 7.4.4. If there are excess revenues remaining after a distribution made pursuant to this subsection, such revenues shall be distributed in accordance with subsection (c)(ii) of this section;
 - (ii) To the Residual Auction Revenue Rights holders in proportion to, but not more than their Target Allocation as determined pursuant to Operating Agreement, Schedule 1, section 7.4.3(b). If there are excess revenues remaining after a distribution made pursuant to this subsection, such revenues shall be distributed in accordance with subsection (c)(iii) of this section;
 - (iii) In accordance with Operating Agreement, Schedule 1, section 5.2.6.
- (d) Long-term FTR auction revenues associated with FTRs that cover individual Planning Periods shall be distributed in the Planning Period for which the FTR is effective. Long-term FTR auction revenues associated with FTRs that cover multiple Planning Years shall be distributed equally across each Planning Period in the effective term of the FTR. Long-term FTR auction revenue distributions within a Planning Period shall be in accordance with the following provisions:
 - (i) Long-term FTR Auction revenues shall be distributed to Auction Revenue Rights holders in the effective Planning Period for the FTR. The distribution shall be in proportion to the economic value of the ARRs when compared to the annual FTR auction clearing prices from each round proportionately.
 - (ii) Long-term FTR auction revenues remaining after distributions made pursuant to Operating Agreement, Schedule 1, section 7.4.1(d)(ii) shall be distributed pursuant to Operating Agreement, Schedule 1, section 5.2.6 of Schedule 1 of this Agreement.

7.4.2 Auction Revenue Rights.

(a) Prior to the end of each PJM Planning Period an annual allocation of Auction Revenue Rights for the next PJM Planning Period shall be performed using a two stage allocation process. Stage 1 shall consist of stages 1A and 1B, which shall allocate ten year and annual Auction Revenue Rights, respectively, and stage 2 shall allocate annual Auction Revenue Rights. The Auction Revenue Rights allocation process shall be performed in accordance with Sections 7.4 and 7.5 hereof and the PJM Manuals.

With respect to the allocation of Auction Revenue Rights, if the Office of the Interconnection discovers a *potential* error in the allocation, the Office of the Interconnection shall notify Market Participants as soon as possible after it is found, but in no event later than 5:00 p.m. of the Business Day following the initial publication of allocation results. After this initial notification, if the Office of the Interconnection determines that it is necessary to post modified allocation results, it shall provide notification of its intent to do so, *along with a description detailing the cause and scope of the error*, by no later than 5:00 p.m. of the second Business Day following the publication of the initial allocation. *The provided description will not contain information that is market sensitive or confidential.* Thereafter, the Office of the Interconnection must post any corrected allocation results by no later than 5:00 p.m. of the fourth calendar day following the initial publication. Should any of the above deadlines pass without the associated action on the part of the Office of the Interconnection, the originally posted results will be considered final. Notwithstanding the foregoing, the deadlines set forth above shall not apply if the referenced allocation is under publicly noticed review by the FERC.

(b) In stage 1A of the allocation process, each Network Service User may request Auction Revenue Rights for a term covering ten consecutive PJM Planning Periods beginning with the immediately ensuing PJM Planning Period from a subset of the Active Historical Generation Resources or Qualified Replacement Resources, and each Qualifying Transmission Customer (as defined in subsection (f) of this section) may request Auction Revenue Rights based on the megawatts of firm service provided between the receipt and delivery points as to which the Transmission Customer had Point-to-Point Transmission Service during the historical reference year. Active Historical Generation Resources shall mean those historical resources that were designated to be delivered to load based on the historical reference year, and which have not since been deactivated and, further, only up to the current installed capacity value of such resource as of the annual allocation of ARR for the target PJM Planning Period. Qualified Replacement Resources shall mean those resources the Office of the Interconnection designates for the ensuing Planning Period to replace historical resources that no longer qualify as Active Historical Generation Resources and that maximize the economic value of ARRs while maintaining Simultaneous Feasibility, as further described in the PJM Manuals.

Prior to the stage 1A of the allocation process, the Office of the Interconnection shall determine, for each Zone, the amount of megawatts of ARRs available from Active Historical Generation Resources in that Zone and the amount of megawatts required from Qualified Replacement Resources. The Office of the Interconnection shall designate Qualified Replacement Resources as follows, and as further described in the PJM Manuals. Qualified Replacement Resources shall be either from a (1) capacity resource that has been included in the rate base of a specific Load

Serving Entity in a particular Zone, using criteria for rate-based as specified in sections 7.6 and 7.7 hereof concerning New Stage 1 Resources and Alternative Stage 1 Resources; or (2) from a non-rate-based capacity resource.

Prior to the end of each PJM Planning Period the Office of the Interconnection will determine which Stage 1 Resources are no longer viable for the next PJM Planning Period and then will replace such source points with Qualified Replacement Resources (i.e., Capacity Resources that pass the Simultaneous Feasibility Test and which are economic). The Office of Interconnection will determine the replacement source points as follows. First, the Office of the Interconnection will compile a list of all Capacity Resources that are operational as of the beginning of the next Planning Period, that are not currently designated as source points and will post such list on the PJM website prior to finalizing the Stage 1 eligible resource list for each transmission zone for review by Market Participants. In the first instance, all such resources will be considered to be non-rate-based. Market Participants will be asked to review the posted resource list and provide evidence to the Office of the Interconnection, if any, of the posted resources that shall be classified as rate-based resources. Once the replacement resource list along with the resource status is finalized after any input from Market Participants, the Office of the Interconnection will create two categories of resources for each Stage 1 transmission zone based on economic order: one for rate-based; and a second for non-rate-based resources. When determining economic order, the Office of the Interconnection will utilize historical source and sink Day-ahead Energy Market Congestion Locational Marginal Prices (“CLMPs”). Historical value will be based on the previous three years’ CLMP sink versus CLMP source differences weighted by 50% for the previous calendar year, weighted by 30% for the year prior and weighted by 20% for the year prior. To the extent replacement resources do not have three years’ worth historical data, weighting will be performed either 50/50% in the case of two years or 100% in the case of one year worth of historical data. If a full year of historical data is not available, PJM will utilize the CLMP from the closest electrically equivalent location to compose an entire year of historical data. Once the economic order is established for each Stage 1 zonal rate-based and non-rate-based generator categories, the Office of the Interconnection will begin to replace Stage 1 zonal retirements with the Qualified Replacement Resources by first utilizing rate-based resources in the economic order while respecting transmission limitations. And once the rate-based resource determination is concluded, the Office of the Interconnection will then utilize non-rate-based resources, in economic order, while respecting transmission limitations as described previously.

The historical reference year for all Zones shall be 1998, except that the historical reference year shall be: 2002 for the Allegheny Power and Rockland Electric Zones; 2004 for the AEP East, The Dayton Power & Light Company and Commonwealth Edison Company Zones; 2005 for the Virginia Electric and Power Company and Duquesne Light Company Zones; 2011 for the ATSI Zone; 2012 for the DEOK Zone; 2013 for the EKPC Zone; 2018 for the OVEC Zone; and the Office of the Interconnection shall specify a historical reference year for a new PJM zone corresponding to the year that the zone is integrated into the PJM Interchange Energy Market. For stage 1, the Office of the Interconnection shall determine a set of eligible historical generation resources for each Zone based on the historical reference year and assign a pro rata amount of megawatt capability from each historical generation resource to each Network Service User in the Zone based on its proportion of peak load in the Zone. Auction Revenue Rights shall be allocated to each Network Service User in a Zone from each historical generation resource in

a number of megawatts equal to or less than the amount of the historical generation resource that has been assigned to the Network Service User. Each Auction Revenue Right allocated to a Network Service User shall be to the Energy Settlement Area of such Network Service User as described in Section 31.7 of Part III of the Tariff, unless the Network Service User's Energy Settlement Area represents the Residual Metered Load of an electric distribution company's fully metered franchise area(s) or service territory(ies) and the Network Service User elects to have its Auction Revenue Rights allocated at the aggregate load buses in a Zone. In stage 1A of the allocation process, the sum of each Network Service User's allocated Auction Revenue Rights for a Zone must be equal to or less than sixty percent (60%) of the Network Service User's proportion of peak load in the Zone. ~~Each Network Service User's pro-rata share of the Zonal Base Load for that Zone. Each Network Service User's pro-rata share of the Zonal Base Load shall be based on its proportion of peak load in the Zone.~~ The sum of each Network Service User's Auction Revenue Rights for Non-Zone Network Load must be equal to or less than fifty percent (50%) of the Network Service User's transmission responsibility for Non-Zone Network Load as determined under Section 34.1 of the Tariff. The sum of each Qualifying Transmission Customer's Auction Revenue Rights must be equal to or less than fifty percent (50%) of the megawatts of firm service provided between the receipt and delivery points as to which the Transmission Customer had Point-to-Point Transmission Service during the historical reference year. If stage 1A Auction Revenue Rights are adversely affected by any new or revised statute, regulation or rule issued by an entity with jurisdiction over the Office of the Interconnection, the Office of the Interconnection shall, to the greatest extent practicable, and consistent with any such statute, regulation or rule change, preserve the priority of the stage 1A Auction Revenue Rights for a minimum period covering the ten (10) consecutive PJM Planning Periods ("Stage 1A Transition Period") immediately following the implementation of any such changes, provided that the terms of all stage 1A Auction Revenue Rights in effect at the time the Office of the Interconnection implements the Stage 1A Transition Period shall be reduced by one PJM Planning Period during each annual stage 1A Auction Revenue Rights allocation performed during the Stage 1A Transition Period so that all stage 1A Auction Revenue Rights that were effective at the start of the Stage 1A Transition Period expire at the end of that period.

(c) In stage 1B of the allocation process each Network Service User may request Auction Revenue Rights from the subset of the resources determined pursuant to Section 7.4.2(b) that were not allocated in stage 1A of the allocation process, and each Qualifying Transmission Customer may request Auction Revenue Rights based on the megawatts of firm service determined pursuant to Section 7.4.2(b) that were not allocated in stage 1A of the allocation process. In stage 1B of the allocation process, the sum of each Network Service User's allocation Auction Revenue Rights request for a Zone must be equal to or less than the difference between the Network Service User's peak load for that Zone as determined pursuant to Section 34.1 of the Tariff and the sum of its Auction Revenue Rights Allocation from stage 1A of the allocation process for that Zone. The sum of each Network Service User's Auction Revenue Rights for Non-Zone Network Load must be equal to or less than the difference between one hundred percent (100%) of the Network Service User's transmission responsibility for Non-Zone Network Load as determined pursuant to Section 7.4.2(b) and the sum of its Auction Revenue Rights Allocation from stage 1A of the allocation process for that Zone. The sum of each Qualifying Transmission Customer's Auction Revenue Rights must be equal to or less than the difference between one hundred percent (100%) of the

megawatts of firm service as determined pursuant to Section 7.4.2(b) and the sum of its Auction Revenue Rights Allocation from stage 1A of the allocation process for that Zone. In stage 1B, valid Auction Revenue Right source buses include Active Historical Resources, Qualified Replacement Resources, Zones, hubs and external Interface Pricing Points.

(d) In stage 2 of the allocation process, the Office of the Interconnection shall conduct an iterative allocation process that consists of ~~three-two~~ rounds with up to one ~~third-half~~ of the remaining system Auction Revenue Rights capability allocated in each round. Each round of this allocation process will be conducted sequentially with Network Service Users and Transmission Customers being given the opportunity to view results of each allocation round prior to submission of Auction Revenue Right requests into the subsequent round. In each round, each Network Service User shall designate a subset of buses from which Auction Revenue Rights will ~~be sourced~~source and sink. Valid Auction Revenue Rights source buses include only Zones, generators, hubs and external Interface Pricing Points. Valid Auction Revenue Rights sink buses include only Zones, generators, hubs and external Interface Pricing Points. The Network Service User shall specify the amount of Auction Revenue Rights requested from each source bus to each sink bus. Prior to the 2015/2016 Planning Period, each Auction Revenue Right shall sink to the Energy Settlement Area of the Network Service User as described in Section 31.7 of Part III of the Tariff. Commencing with the 2015/2016 Planning Period, each Auction Revenue Right shall sink to the Energy Settlement Area of the Network Service User as described in Section 31.7 of Part III of the Tariff, unless the Network Service User's Energy Settlement Area represents the Residual Metered Load of an electric distribution company's fully metered franchise area(s) or service territory(ies) and the Network Service User elects to have its Auction Revenue Rights sink at the aggregate load buses in a Zone. The sum of each Network Service User's Auction Revenue Rights requests in each stage 2 allocation round for each Zone must be equal to or less than one ~~third-half~~ of the difference between the Network Service User's peak load for that Zone as determined pursuant to Section 7.4.2(b) and the sum of its Auction Revenue Right Allocation from stages 1A and 1B of the allocation process for that Zone. The stage 2 allocation to Transmission Customers shall be as set forth in subsection (f).

(e) On a daily basis within the annual Financial Transmission Rights auction period, a proportionate share of Network Service User's Auction Revenue Rights for each Zone are reallocated as Network Load changes from one Network Service User to another within that Zone.

(f) A Qualifying Transmission Customer shall be any customer with an agreement for Long-Term Firm Point-to-Point Transmission Service, used to deliver energy from a designated Network Resource located either outside or within the PJM Region to load located either outside or within the PJM Region, and that was confirmed and in effect during the historical reference year for the Zone in which the resource is located. Such an agreement shall allow the Qualifying Transmission Customer to participate in the first stage of the allocation, but only if such agreement has remained in effect continuously following the historical reference year and is to continue in effect for the period addressed by the allocation, either by its term or by renewal or rollover. The megawatts of Auction Revenue Rights the Qualifying Transmission Customer may request in the first stage of the allocation may not exceed the lesser of: (i) the megawatts of firm service between the designated Network Resource and the load delivery point (or applicable

point at the border of the PJM Region for load located outside such region) under contract during the historical reference year; and (ii) the megawatts of firm service presently under contract between such historical reference year receipt and delivery points. A Qualifying Transmission Customer may request Auction Revenue Rights in either or both of stage 1 or 2 of the allocation without regard to whether such customer is subject to a charge for Firm Point-to-Point Transmission Service under Section 1 of Schedule 7 of the PJM Tariff (“Base Transmission Charge”). A Transmission Customer that is not a Qualifying Transmission Customer may request Auction Revenue Rights in stage 2 of the allocation process, but only if it is subject to a Base Transmission Charge. The Auction Revenue Rights that such a Transmission Customer may request in each round of stage 2 of the allocation process must be equal to or less than one ~~third-half~~ of the number of megawatts equal to the megawatts of firm service being provided between the receipt and delivery points as to which the Transmission Customer currently has Firm Point-to-Point Transmission Service. The source point of the Auction Revenue Rights must be the designated source point that is specified in the Transmission Service request and the sink point of the Auction Revenue Rights must be the designated sink point that is specified in the Transmission Service request. A Qualifying Transmission Customer may request Auction Revenue Rights in each round of stage 2 of the allocation process in a number of megawatts equal to or less than one ~~third-half~~ of the difference between the number of megawatts of firm service being provided between the receipt and delivery points as to which the Transmission Customer currently has Firm Point-to-Point Transmission Service and its Auction Revenue Right Allocation from stage 1 of the allocation process.

(g) PJM Transmission Customers that serve load in the Midwest ISO may participate in stage 1 of the allocation to the extent permitted by, and in accordance with, this Section 7.4.2 and other applicable provisions of this Schedule 1. For service from non-historic sources, these customers may participate in stage 2, but in no event can they receive an allocation of ARR/FTRs from PJM greater than their firm service to loads in MISO.

(h) Subject to subsection (i) of this section, all Auction Revenue Rights must be simultaneously feasible. If all Auction Revenue Right requests made during the annual allocation process are not feasible then Auction Revenue Rights are prorated and allocated in proportion to the megawatt level requested and in inverse proportion to the effect on the binding constraints.

(i) If any Auction Revenue Right requests made during stage 1A of the annual allocation process are not feasible due to system conditions, then PJM shall increase the capability limits of the binding constraints that would have rendered the Auction Revenue Rights infeasible to the extent necessary in order to allocate such Auction Revenue Rights without their being infeasible unless such infeasibility is caused by extraordinary circumstances. Such increased limits shall be included in all rounds of the annual allocation and auction processes and in subsequent modeling during the Planning Year to support any incremental allocations of Auction Revenue Rights and monthly and balance of the Planning Period Financial Transmission Rights auctions unless and to the extent those system conditions that contributed to infeasibility in the annual process are not extant for the time period subject to the subsequent modeling, such as would be the case, for example, if transmission facilities are returned to service during the Planning Year. In these cases, any increase in the capability limits taken under this subsection (i) during the annual process will be removed from subsequent modeling to support any incremental allocations of

Auction Revenue Rights and monthly and balance of the Planning Period Financial Transmission Rights auctions. In addition, PJM may remove or lower the increased capability limits, if feasible, during subsequent FTR Auctions if the removal or lowering of the increased capability limits does not impact Auction Revenue Rights funding and net auction revenues are positive.

For the purposes of this subsection (i), extraordinary circumstances shall mean an event of force majeure that reduces the capability of existing or planned transmission facilities and such reduction in capability is the cause of the infeasibility of such Auction Revenue Rights. Extraordinary circumstances do not include those system conditions and assumptions modeled in simultaneous feasibility analyses conducted pursuant to section 7.5 of Schedule 1 of this Agreement. If PJM allocates stage 1A Auction Revenue Rights as a result of this subsection (i) that would not otherwise have been feasible, then PJM shall notify Members and post on its web site (a) the aggregate megawatt quantities, by sources and sinks, of such Auction Revenue Rights and (b) any increases in capability limits used to allocate such Auction Revenue Rights.

(j) Long-Term Firm Point-to-Point Transmission Service customers that are not Qualifying Transmission Customers and Network Service Users serving Non-Zone Network Load may participate in stage 1 of the annual allocation of Auction Revenue Rights pursuant to Section 7.4.2(a)-(c) of Schedule 1 of this Agreement, subject to the following conditions:

- i. The relevant Transmission Service shall be used to deliver energy from a designated Network Resource located either outside or within the PJM Region to load located outside the PJM Region.
- ii. To be eligible to participate in stage 1A of the annual Auction Revenue Rights allocation: 1) the relevant Transmission Service shall remain in effect for the stage 1A period addressed by the allocation; and 2) the control area in which the external load is located has similar rules for load external to the relevant control area.
- iii. Source points for stage 1 requests authorized pursuant to this subsection 7.4.2(j) shall be limited to: 1) generation resources owned by the LSE serving the load located outside the PJM Region; or 2) generation resources subject to a bona fide firm energy and capacity supply contract executed by the LSE to meet its load obligations, provided that such contract remains in force and effect for a minimum term of ten (10) years from the first effective Planning Period that follows the initial stage 1 request.
- iv. For Long-Term Firm Point-to-Point Transmission Service customers requesting stage 1 Auction Revenue Rights pursuant to this subsection 7.4.2(j), the generation resource(s) designated as source points may include any portion of the generating capacity of such resource(s) that is not, at the time of the request, already identified as a Capacity Resource.

- v. For Network Service Users requesting stage 1 Auction Revenue Rights pursuant to this subsection 7.4.2(j), at the time of the request, the generation resource(s) designated as source points must either be committed into PJM's RPM market or be designated as part of the entity's FRR Capacity Plan for the purpose of serving the capacity requirement of the external load.
- vi. All stage 1 source point requests made pursuant to this subsection 7.4.2(j) shall not increase the megawatt flow on facilities binding in the relevant annual Auction Revenue Rights allocation or in future stage 1A allocations and shall not cause megawatt flow to exceed applicable ratings on any other facilities in either set of conditions in the simultaneous feasibility test prescribed in subsection (vii) of this subsection 7.4.2(j).
- vii. To ensure the conditions of subsection (vi) of this subsection 7.4.2(j) are met, a simultaneous feasibility test shall be conducted: 1) based on next allocation year with all existing stage 1 and stage 2 Auction Revenue Rights modeled as fixed injection-withdrawal pairs; and 2) based on 10 year allocation model with all eligible stage 1A Auction Revenue Rights for each year including base load growth for each year.
- viii. Requests for stage 1 Auction Revenue Rights made pursuant to this subsection 7.4.2(j) that are received by PJM by November 1st of a Planning Period shall be processed for the next annual Auction Revenue Rights allocation. Requests received after November 1st shall not be considered for the upcoming annual Auction Revenue Rights allocation. If all requests are not simultaneously feasible then requests will be awarded on a pro-rata basis.
- ix. Requests for new or alternate stage 1 resources made by Network Service Users and external LSEs that are received by November 1st shall be evaluated at the same time. If all requests are not simultaneously feasible then requests will be awarded on a pro-rata basis.
- x. Stage 1 Auction Revenue Rights source points that qualify pursuant to this subsection 7.4.2(j) shall be eligible as stage 1 Auction Revenue Rights source points in subsequent annual Auction Revenue Rights allocations.
- xi. Long-Term Firm Point-to-Point Transmission Service customers requesting stage 1 Auction Revenue Rights pursuant to this subsection 7.4.2(j) may request Auction Revenue Rights megawatts up to the lesser of: 1) the customer's Long-Term Firm Point-to-Point Transmission service contract megawatt amount; or 2) the customer's Firm Transmission Withdrawal Rights.

- xii. Network Service Users requesting stage 1 Auction Revenue Rights pursuant to this subsection 7.4.2(j) may request Auction Revenue Rights megawatts up to the lesser of: 1) the customer's network service peak load; or 2) the customer's Firm Transmission Withdrawal Rights.
- xiii. Stage 1A Auction Revenue Rights requests made pursuant to this subsection 7.4.2(j) shall not exceed 50% of the maximum allowed megawatts authorized by subsections (xi) and (xii) of this subsection 7.4.2(j).
- xiv. Stage 1B Auction Revenue Rights requests made pursuant to this subsection 7.4.2(j) shall not exceed the difference between the maximum allowed megawatts authorized by subsections (xi) and (xii) of this subsection 7.4.2(j) and the Auction Revenue Rights megawatts granted in stage 1A.
- xv. In each round of Stage 2 of an annual allocation of Auction Revenue Rights, megawatt requests made pursuant to this subsection 7.4.2(j) shall be equal to or less than one ~~third~~ half of the difference between the maximum allowed megawatts authorized by paragraphs (xi) and (xii) of this subsection 7.4.2(j) and the Auction Revenue Rights megawatt amount allocated in stage 1.
- xvi. Stage 1 Auction Revenue Rights sources established pursuant to this subsection 7.4.2(j) and the associated Auction Revenue Rights megawatt amount may be replaced with an alternate resource pursuant to the process established in Section 7.7 of Schedule 1 of this Agreement.

(k) PJM Transmission Customers taking firm transmission service for the delivery of Direct Charging Energy to Energy Storage Resources are not eligible for allocation of Auction Revenue Rights.

7.4.2a Bilateral Transfers of Auction Revenue Rights

(a) Market Participants may enter into bilateral agreements to transfer Auction Revenue Rights or the right to receive an allocation of Auction Revenue Rights to a third party. Such bilateral transfers shall be reported to the Office of the Interconnection in accordance with this Schedule and pursuant to the LLC's rules related to its FTR reporting tools.

(b) For purposes of clarity, with respect to all bilateral transfers of Auction Revenue Rights or the right to receive an allocation of Auction Revenue Rights, the rights and obligations to the Auction Revenue Rights or the right to receive an allocation of Auction Revenue Rights that are the subject of such a bilateral transfer shall pass to the buyer under the bilateral contract subject to the provisions of this Schedule. In no event, shall the purchase and sale of an Auction Revenue Right or the right to receive an allocation of Auction Revenue Rights pursuant to a

bilateral transfer constitute a transaction with PJMSettlement or a transaction in any auction under this Schedule.

(c) Consent of the Office of the Interconnection shall be required for a seller to transfer to a buyer any obligations associated with the Auction Revenue Rights or the right to receive an allocation of Auction Revenue Rights. Such consent shall be based upon the Office of the Interconnection's assessment of the buyer's ability to perform the obligations transferred in the bilateral contract. If consent for a transfer is not provided by the Office of the Interconnection, the title to the Auction Revenue Rights or the right to receive an allocation of Auction Revenue Rights shall not transfer to the third party and the holder of the Auction Revenue Rights or the right to receive an allocation of Auction Revenue Rights shall continue to receive all rights attributable to the Auction Revenue Rights or the right to receive an allocation of Auction Revenue Rights and remain subject to all credit requirements and obligations associated with the Auction Revenue Rights or the right to receive an allocation of Auction Revenue Rights.

(d) A seller under such a bilateral contract shall guarantee and indemnify the Office of the Interconnection, PJMSettlement, and the Members for the buyer's obligation to pay any charges associated with the Auction Revenue Right and for which payment is not made to PJMSettlement by the buyer under such a bilateral transfer.

(e) All payments and related charges associated with such a bilateral contract shall be arranged between the parties to such bilateral contract and shall not be billed or settled by PJMSettlement or the Office of the Interconnection. The LLC, PJMSettlement, and the Members will not assume financial responsibility for the failure of a party to perform obligations owed to the other party under such a bilateral contract reported to the Office of the Interconnection under this Schedule.

(f) All claims regarding a default of a buyer to a seller under such a bilateral contract shall be resolved solely between the buyer and the seller.

7.4.3 Target Allocation of Auction Revenue Right Credits.

(a) A Target Allocation of Auction Revenue Right Credits for each entity holding an Auction Revenue Right shall be determined for each Auction Revenue Right. After each round of the annual Financial Transmission Right auction, each Auction Revenue Right shall be divided by four and multiplied by the price differences for the receipt and delivery points associated with the Auction Revenue Right, calculated as the Locational Marginal Price at the delivery points(s) minus the Locational Marginal Price at the receipt point(s), where the price for the receipt and delivery point is determined by the clearing prices of each round of the annual Financial Transmission Right auction. The daily total Target Allocation for an entity holding the Auction Revenue Rights shall be the sum of the daily Target Allocations associated with all of the entity's Auction Revenue Rights.

(b) A Target Allocation of residual Auction Revenue Rights Credits for each entity allocated Residual Auction Revenue Rights pursuant to section 7.9 of Schedule 1 of this Agreement shall be determined on a monthly basis for each month in a Planning Period beginning with the month

the Residual Auction Revenue Right(s) becomes effective through the end of the relevant Planning Period. The Target Allocation for Residual Auction Revenue Rights Credits shall be equal to megawatt amount of the Residual Auction Revenue Rights multiplied by the LMP differential between the source and sink nodes of the corresponding FTR obligation in each prompt-month FTR auction that occurs from the effective date of the Residual Auction Revenue Rights through the end of the relevant Planning Period.

7.4.4 Calculation of Auction Revenue Right Credits.

(a) Each day, the total of all the daily Target Allocations determined as specified above in Section 7.4.3 plus any additional Auction Revenue Rights Target Allocations applicable for that day shall be compared to the total revenues of all applicable monthly Financial Transmission Rights auction(s) (divided by the number of days in the month) plus the total revenues of the annual Financial Transmission Rights auction (divided by the number of days in the Planning Period). If the total of the Target Allocations is less than the total auction revenues, the Auction Revenue Right Credit for each entity holding an Auction Revenue Right shall be equal to its Target Allocation. All remaining funds shall be distributed as Excess Congestion Charges pursuant to Section 5.2.6.

(b) If the total of the Target Allocations is greater than the total auction revenues, each holder of Auction Revenue Rights shall be assigned a share of the total auction revenues in proportion to its Auction Revenue Rights Target Allocations for Auction Revenue Rights which have a positive Target Allocation value. Auction Revenue Rights which have a negative Target Allocation value are assigned the full Target Allocation value as a negative Auction Revenue Right Credit.

(c) At the end of a Planning Period, if all Auction Revenue Right holders did not receive Auction Revenue Right Credits equal to their Target Allocations, PJMSettlement shall assess a charge equal to the difference between the Auction Revenue Right Credit Target Allocations for all revenue deficient Auction Revenue Rights and the actual Auction Revenue Right Credits allocated to those Auction Revenue Right holders. The aggregate charge for a Planning Period assessed pursuant to this section, if any, shall be added to the aggregate charge for a Planning Period assessed pursuant to section 5.2.5(c) of Schedule 1 of this Agreement and collected pursuant to section 5.2.5(c) of Schedule 1 of this Agreement and distributed to the Auction Revenue Right holders that did not receive Auction Revenue Right Credits equal to their Target Allocation.

7.5 Simultaneous Feasibility.

(a) The Office of the Interconnection shall make the simultaneous feasibility determinations specified herein using appropriate powerflow models of contingency-constrained dispatch. Simultaneous feasibility determinations shall take into account outages of both individual generation units and transmission facilities and shall be based on reasonable assumptions about the configuration and availability of transmission capability during the period covered by the auction that are not inconsistent with the determination of the deliverability of Generation Capacity Resources under the Reliability Assurance Agreement. The goal of the simultaneous feasibility determination shall be to ensure that there are sufficient revenues from Day-ahead Energy Market Transmission Congestion Charges to satisfy all Financial Transmission Rights Obligations for the auction period under expected conditions and to ensure that there are sufficient revenues from the annual Financial Transmission Right Auction to satisfy all Auction Revenue Rights Obligations. To ensure revenue sufficiency, the powerflow model used for simultaneous feasibility determinations is a markets model that uses flows caused by sources and sinks of requested Auction Revenue Rights (including Incremental Auction Revenue Rights) or Financial Transmission Rights, as well as market limits (as described in section (b) below) to determine the capability available to accommodate financial rights that are simultaneously feasible. The markets model differs from both an operations model, which uses physical generators or load, and a planning model, which uses expected physical generators or load.

(b) Simultaneous feasibility determinations pursuant to this section utilize applicable market limits. Market limits may differ from physical facility ratings to reflect expected market capability and to align expected Financial Transmission Rights total target allocations with expected congestion, and to ensure sufficient revenues are collected from the Day-ahead Energy Market Transmission Congestion Charges to satisfy all Financial Transmission Rights obligations. To account for historical market impacts, market limits may reflect (without limitation) such factors as requested and awarded Auction Revenue Rights, Incremental Auction Revenue Rights and Financial Transmission Rights, uncompensated powerflow, external flowgate entitlements or limits, transfer limits of the type appropriate for reactive interfaces, operational considerations, voltage limitations and/or closed loop interfaces. Market limits also are based on reasonable assumptions about the configuration and availability of transmission capability during the study period, including (without limitation) scheduled or expected transmission outages. The market limits are applied to facilities modeled in an Auction Revenue Rights allocation, Financial Transmission Rights auction or Incremental Auction Revenue Rights study and may result in operative constraints that establish different limits than physical (e.g., thermal or voltage) ratings. As used here, an operative constraint results when a market limit binds in the powerflow model and constrains the grant of Auction Revenue Rights, Incremental Auction Revenue Rights or Financial Transmission Rights.

(c) On an annual basis the Office of the Interconnection shall conduct a simultaneous feasibility test for stage 1A Auction Revenue Rights, which shall assess the simultaneous feasibility for each year remaining in the term of the right(s). This test shall be based on the Auction Revenue Rights required to meet sixty percent (60%) of peak load in each Zone Zonal Base Load requirements. The Office of the Interconnection shall apply a zonal load growth rate

to the simultaneous feasibility test for the ten year term of the stage 1A Auction Revenue Rights to reflect load growth as estimated by the Office of the Interconnection.

(d) Simultaneous feasibility tests for new stage 1 resource requests made pursuant to Section 7.6 of Schedule 1 of this Agreement shall ensure that the request for a new base resource does not increase the megawatt flow on facilities binding in the current Auction Revenue Rights allocation or in future stage 1A allocations and does not cause megawatt flow to exceed applicable ratings on any other facilities in either set of conditions. The most limiting set of conditions will be used as the limiting condition in these evaluations. A simultaneous feasibility test conducted pursuant to this section by the Office of the Interconnection shall assess the simultaneous feasibility under the following conditions:

- (i) Based on next allocation year with all existing stage 1 and stage 2 Auction Revenue Rights modeled as fixed injection-withdrawal pairs.
- (ii) Based on 10 year allocation model with all eligible stage 1A Auction Revenue Rights for each year including base load growth for each year.

(e) Simultaneous feasibility tests for Incremental Auction Revenue Rights requested pursuant to Operating Agreement, Schedule 1, section 7.8 and Tariff, Part VI, Subpart C, section 231 shall ensure that the request for the Incremental Auction Revenue Rights does not increase the megawatt flow on facilities binding in the current Auction Revenue Rights allocation or in future stage 1A allocations and does not cause megawatt flow to exceed applicable ratings on any other facilities in either set of conditions. The most limiting set of conditions will be used as the limiting conditions in these evaluations. A simultaneous feasibility test conducted pursuant to this section by the Office of the Interconnection shall assess the simultaneous feasibility using the following models derived from the markets model:

- (i) An Incremental Auction Revenue Rights model that is based on the existing allocation year with transmission outages removed (i.e., the transmission assumed out of service in the base markets model is assumed to be in service). All existing stage 1 and stage 2 Auction Revenue Rights are modeled as fixed injection withdrawal pairs.
- (ii) A 10 year allocation model with all eligible stage 1A Auction Revenue Rights for each year including base load growth for each year.

(f) Simultaneous feasibility tests pursuant to section (e) above utilize a transfer analysis to determine the flow impacts. The transfer analysis is performed by injecting at the source and withdrawing at the sink and measuring the impacts on the facilities. Additional details are provided in the PJM Manuals and related explanatory materials posted on the PJM website such as the PJM Whitepaper entitled “PJM Incremental Auction Revenue Rights Model Development and Analysis.”

7.6 New Stage 1 Resources.

A Network Service User may request the addition of new stage 1 resources to the stage 1 resource list if the capacity of the Stage 1 generation resources for a Zone determined pursuant to Section 7.4.2(b) is less than sixty percent (60%) of the of peak load in the Zone~~the Zonal Base Load~~. Requests made pursuant to this section shall be subject to Section 7.5(c) of Schedule 1 of this Agreement and shall be limited to generation resources either owned by the requesting party or those subject to a bona fide firm energy and capacity supply contracts where such contract is executed by the requesting party to meet load obligations for which it is eligible to receive stage 1 Auction Revenue Rights and remains in force and effect for a minimum term of ten (10) years.

7.8 Elective Upgrade Auction Revenue Rights.

(a) In addition to any Incremental Auction Revenue Rights established under the PJM Tariff, any party may elect to fully fund Network Upgrades to obtain Incremental Auction Revenue Rights pursuant to this section, provided that Incremental Auction Revenue Rights granted pursuant to this section shall be simultaneously feasible with outstanding Auction Revenue Rights, which shall include stage 1 and stage 2 Auction Revenue Rights, and against stage 1A Auction Revenue Right capability for the future 10 year period as determined by the Office of the Interconnection pursuant to Section 7.8(b) of Schedule 1 of this Agreement. A request made pursuant to this section shall specify a source, sink and megawatt amount, where the source and sink each meet the criteria described for stage 1 in Tariff, Attachment K-Appendix, sections 7.4.2(b) and 7.4.2(c).

(b) The Office of the Interconnection shall assess the simultaneous feasibility of the requested Incremental Auction Revenue Rights and the outstanding Auction Revenue Rights against the existing base system Auction Revenue Right capability and stage 1A Auction Revenue Right capability for the future 10 year period pursuant to Operating Agreement, Schedule 1, section 7.5. This preliminary assessment will determine the incremental flow impact necessary on facilities.

(c) The incremental flow impact represents the incremental capability required on a facility to ensure the requested Incremental Auction Revenue Rights can be made feasible. This required capability is used to determine the upgrades required to accommodate the requested Incremental Auction Revenue Rights and ensure all outstanding Auction Revenue Rights are simultaneously feasible. Additional details are provided in the PJM Manuals and related explanatory materials posted on the PJM website such as the PJM Whitepaper entitled “PJM Incremental Auction Revenue Rights Model Development and Analysis.”

- (i) For Incremental Auction Revenue Rights requests, the Office of the Interconnection shall use an Incremental Auction Revenue Rights model to perform the simultaneous feasibility test detailed in Operating Agreement, Schedule 1, section 7.5. The Incremental Auction Revenue Rights model shall consist of an Incremental Auction Revenue Rights model and the 10 year stage 1A Auction Revenue Rights model. An Incremental Auction Revenue Rights model uses the same transmission system model used in the annual Auction Revenue Rights process, except any modeled transmission outages included in the Auction Revenue Rights process are removed (i.e., the transmission assumed out of service in the base markets model is assumed to be in service). Auction Revenue Rights requests that were denied or pro-rated in the annual Auction Revenue Rights allocation as a result of assumed transmission outages also are restored in the Incremental Auction Revenue Rights model because the transmission is assumed to be in service for purposes of this model.

- (ii) If the incremental market flows created by the Incremental Auction Revenue Rights request cause facilities to be limited or increase the market flow on already limited facilities in either the Incremental Auction Revenue Rights model or the 10 year stage 1A Auction Revenue Rights model, increased system capability will be required in order for the Office of the Interconnection to grant the Incremental Auction Revenue Rights request. This required incremental capability is used to determine the upgrades required to accommodate the requested Incremental Auction Revenue Rights and ensure all outstanding Auction Revenue Rights (including any pro-rated but restored Auction Revenue Rights requests) are simultaneously feasible. Additional details are provided in the PJM Manuals and related explanatory materials posted on the PJM website such as the PJM Whitepaper entitled “PJM Incremental Auction Revenue Rights Model Development and Analysis.”
- (iii) In addition to the Incremental Auction Revenue Rights model, the Office of the Interconnection uses a planning model that consists of the Regional Transmission Expansion Plan model used by the Office of the Interconnection to study system needs and proposed projects five years forward combined with modeled in-service and planned generation and forecasted load. The planning model includes transmission system upgrades that are ahead of the proposed Incremental Auction Revenue Rights request in the New Services Queue. The upgrades required for the Incremental Auction Revenue Rights request must achieve additional incremental capability over and above any planned baseline or Supplemental Project upgrades, including upgrades related to a Supplemental Project with a projected in-service date later than the applicable planning case year.

(d) If a party elects to fund upgrades to obtain Incremental Auction Revenue Rights pursuant to this section, no less than forty-five (45) days prior to the in-service date of the relevant upgrades, as determined by the Office of the Interconnection, the Office of the Interconnection shall notify the party of the actual amount of Incremental Auction Revenue Rights that will be granted to the party based on the allocation process established pursuant to Section 231.1 of Part VI of the Tariff.

(e) Incremental Auction Revenue Rights established pursuant to this section shall be effective for the lesser of thirty (30) years, or the life of the project, from the in-service date of the Network Upgrade(s). At any time during this thirty-year period (or the life of the Network Upgrade, whichever is less), in lieu of continuing this thirty-year Auction Revenue Right, the owner of the right shall have a one-time choice to switch to an optional mechanism, whereby, on an annual basis, it will have the choice to request an Auction Revenue Right during the annual Auction Revenue Rights allocation process between the same source and sink, provided the Auction Revenue Right is simultaneously feasible. A party that is granted Incremental Auction Revenue Rights pursuant to this section may return such rights at any time, provided that the Office of the Interconnection determines that it can simultaneously accommodate all remaining

outstanding Auction Revenue Rights following the return of such Auction Revenue Rights. In the event a party returns Incremental Auction Revenue Rights, it shall retain no further rights regarding such Incremental Auction Revenue Rights.

(f) No Incremental Auction Revenue Rights shall be granted pursuant to this section if the costs associated with funding the associated Network Upgrades are included in the rate base of a public utility and on which a regulated return is earned.

ATTACHMENT Q

CREDIT RISK MANAGEMENT POLICY

I. INTRODUCTION

It is the policy of PJM that prior to an entity participating in any PJM Markets or in order to take Transmission Service, the entity must demonstrate its ability to meet the requirements in this Attachment Q. This Attachment Q also sets forth PJM's authority to deny, reject, or terminate a Participant's right to participate in any PJM Markets in order to protect the PJM Markets and PJM Members from unreasonable credit risk from any Participant's activities. Given the interconnectedness and overlapping of their responsibilities, PJM Interconnection, L.L.C. and PJM Settlement, Inc. are referred to both individually and collectively herein as "PJM."

PURPOSE

PJM Settlement is the counterparty to transactions in the PJM Markets. As a consequence, if a Participant defaults on its obligations under this Attachment Q, or PJM determines a Participant represents unreasonable credit risk to the PJM Markets, and the Participant does not post Collateral, additional Collateral or Restricted Collateral in response to a Collateral Call, the result is that the Participant represents unsecured credit risk to the PJM Markets. For this reason, PJM must have the authority to monitor and manage credit risk on an ongoing basis, and to act promptly to mitigate or reduce any unsecured credit risk, in order to protect the PJM Markets and PJM Members from losses.

This Attachment Q describes requirements for: (1) eligibility to be a Market Participant, (2) establishment and maintenance of credit by Market Participants, and (3) collateral requirements and forms of credit support that will be deemed as acceptable to mitigate risk to any PJM Markets.

This Attachment Q also sets forth (1) PJM's authority to monitor and manage credit risk that a Participant may represent to the PJM Markets and/or PJM membership in general, (2) the basis for establishing limits that will be imposed on a Market Participant in order to minimize risk, and (3) various obligations and requirements the violation of which will result in an Event of Default pursuant to this Attachment Q and the Agreements.

Attachment Q describes the types of data and information PJM will review in order to determine whether an Applicant or Market Participant presents an unreasonable risk to any PJM Markets and/or PJM membership in general, and the steps PJM may take in order to address that risk.

APPLICABILITY

This Attachment Q applies to all Applicants and Market Participants who take Transmission Service under this Tariff, or participate in any PJM Markets or market activities under the Agreements. Notwithstanding anything to the contrary in this Attachment Q, simply taking

transmission service or procuring Ancillary Services via market-based rates does not imply market participation for purposes of applicability of this Attachment Q.

II. RISK EVALUATION PROCESS

PJM will conduct a risk evaluation to determine eligibility to become and/or remain a Market Participant or Guarantor that: (1) assesses the entity's financial strength, risk profile, creditworthiness, and other relevant factors; (2) determines an Unsecured Credit Allowance, if appropriate; (3) determines appropriate levels of Collateral; and (4) evaluates any Credit Support, including Guaranties or Letters of Credit.

A. Initial Risk Evaluation

PJM will perform an initial risk evaluation of each Applicant and/or its Guarantor. As part of the initial risk evaluation, PJM will consider certain Minimum Participation Requirements, assign an Internal Risk Score, establish an Unsecured Credit Allowance if appropriate, and make a determination regarding required levels of Collateral, creditworthiness, credit support, Restricted Collateral and other assurances for participation in certain PJM Markets.

Each Applicant and/or its Guarantor must provide the information set forth below at the time of its initial application pursuant to this Attachment Q and on an ongoing basis in order to remain eligible to participate in any PJM Markets. The same quantitative and qualitative factors will be used to evaluate Participants whether or not they have rated debt.

1. Rating Agency Reports

PJM will review Rating Agency reports from Standard & Poor's, Moody's Investors Service, Fitch Ratings, or other Nationally Recognized Statistical Rating Organization for each Applicant and/or Guarantor. The review will focus on the Applicant's or its Guarantor's senior unsecured debt ratings. If senior unsecured debt ratings are not available, PJM may consider other ratings, including issuer ratings, corporate ratings and/or an implied rating based on an internally derived Internal Credit Score pursuant to section II.A.3 below.

2. Financial Statements and Related Information

Each Applicant and/or its Guarantor must submit, or cause to be submitted, audited financial statements, except as otherwise indicated below, prepared in accordance with United States Generally Accepted Accounting Principles ("US GAAP") or any other format acceptable to PJM for the three (3) fiscal years most recently ended, or the period of existence of the Applicant and/or its Guarantor, if shorter. Applicants and/or their Guarantors must submit, or cause to be submitted, financial statements, which may be unaudited, for each completed fiscal quarter of the current fiscal year. All audited financial statements provided by the Applicant and/or its Guarantor must be audited by an Independent Auditor.

The information should include, but not be limited to, the following:

- (a) If the Applicant and/or its Guarantor has publicly traded securities:
- (i) Annual reports on Form 10-K, together with any amendments thereto;
 - (ii) Quarterly reports on Form 10-Q, together with any amendments thereto;
 - (iii) Form 8-K reports, if any, that have been filed since the most recent Form 10-K;
 - (iv) A summary provided by the Principal responsible, or to be responsible, for PJM Market activity of: (1) the Participant's primary purpose(s) of activity or anticipated activity in the PJM Markets (investment, trading or "hedging or mitigating commercial risks," as such phrase has meaning in the CFTC's regulations regarding the end-user exception to clearing); (2) the experience of the Participant (and its Principals) in managing risks in similar markets, including other organized RTO/ISO markets or on regulated commodity exchanges; and (3) a high level overview of the Participant's intended participation in the PJM Markets.
 - (v) All audited financial statements provided by an Applicant with publicly traded securities and/or its Guarantor with publicly traded securities must be audited by an Independent Auditor that satisfies the requirements set forth in the Sarbanes-Oxley Act of 2002.
- (b) If the Applicant and/or its Guarantor does not have publicly-traded securities:
- (i) Annual Audited Financial Statements or equivalent independently audited financials, and quarterly financial statements, generally found on:
 - Balance Sheets
 - Income Statements
 - Statements of Cash Flows
 - Statements of Stockholder's or Member's Equity or Net Worth;
 - (ii) Notes to Annual Audited Financial Statements, and notes to quarterly financial statements if any, including disclosures of any material changes from the last report;
 - (iii) Disclosure equivalent to a Management's Discussion & Analysis, including an executive overview of operating results and outlook, and compliance with debt covenants and indentures, and off balance sheet arrangements, if any;
 - (iv) Auditor's Report with an unqualified opinion or written letter from auditor containing the opinion whether the annual audited financial statements comply with the US GAAP or any other format acceptable to PJM; and

- (v) A summary provided by the Principal responsible or to be responsible for PJM Market activity of: (1) the Participant’s primary purpose(s) of activity or anticipated activity in the PJM Markets (investment, trading or “hedging or mitigating commercial risks,” as such phrase has meaning in the CFTC’s regulations regarding the end-user exception to clearing); (2) the experience of the Participant (and its Principals) in managing risks in similar markets, including other organized RTO/ISO markets or on regulated commodity exchanges; and (3) a high level overview of the Participant’s intended participation in the PJM Markets.
- (c) If Applicant and/or Guarantor is newly formed, does not yet have three (3) years of audited financials, or does not routinely prepare audited financial statements, PJM may specify other information to allow it to assess the entity’s creditworthiness, including but not limited to:
 - (i) Equivalent financial information traditionally found in:
 - Balance Sheets
 - Income Statements
 - Statements of Cash Flows
 - (ii) Disclosure equivalent to a Management’s Discussion & Analysis, including an executive overview of operating results and outlook, and compliance with debt covenants and indentures, and off balance sheet arrangements, if any; and
 - (iii) A summary provided by the Principal responsible or to be responsible for PJM Market activity of: (1) the Participant’s primary purpose(s) of activity or anticipated activity in the PJM Markets (investment, trading or “hedging or mitigating commercial risks,” as such phrase has meaning in the CFTC’s regulations regarding the end-user exception to clearing); (2) the experience of the Participant (and its Principals) in managing risks in similar markets, including other organized RTO/ISO markets or on regulated commodity exchanges; and (3) a high level overview of the Participant’s intended participation in the PJM Markets.
- (d) During a two year transition period from June 1, 2020 to May 31, 2022, the Applicant or Guarantor may provide a combination of audited financial statements and/or equivalent financial information.

If any of the above information in this section II.A.2 is available on the internet, the Applicant and/or its Guarantor may provide a letter stating where such statements can be located and retrieved by PJM. If an Applicant and/or its Guarantor files Form 10-K, Form 10-Q, or Form 8-K with the SEC, then the Applicant and/or its Guarantor will be deemed to have satisfied the requirement by indicating to PJM where the information in this section II.A.2 can be located on the internet.

If the Applicant and/or its Guarantor fails, for any reason, to provide the information required above in this section II.A.2, PJM has the right to (1) request Collateral and/or Restricted Collateral to cover the amount of risk reasonably associated with the Applicant and/or its Guarantor's expected activity in any PJM Markets, and/or (2) restrict the Applicant from participating in certain PJM Markets, including but not limited to restricting the positions the Applicant (once it becomes a Market Participant) takes in the market.

For certain Applicants and/or their Guarantors, some of the above submittals may not be applicable and alternate requirements for compliant submittals may be specified by PJM. In the credit evaluation of Municipalities and Cooperatives, PJM may also request additional information as part of the initial and ongoing review process and will consider other qualitative factors in determining financial strength and creditworthiness.

3. Credit Rating and Internal Credit Score

PJM will use credit risk scoring methodologies as a tool in determining an Unsecured Credit Allowance for each Applicant and/or its Guarantor. As its source for calculating the Unsecured Credit Allowance, PJM will rely on the ratings from a Rating Agency, if any, on the Applicant's or Guarantor's senior unsecured debt or their issuer ratings or corporate ratings if senior unsecured debt ratings are not available. If there is a split rating between the Rating Agencies, the lower of the ratings shall apply. If no external credit rating is available PJM will utilize its Internal Credit Score in order to calculate the Unsecured Credit Allowance.

The model used to develop the Internal Credit Score will be quantitative, based on financial data found in the income statement, balance sheet, and cash flow statement, and it will be qualitative based on relevant factors that may be internal or external to a particular Applicant and/or its Guarantor.

PJM will employ a framework, as outlined in Tables 1-5 below, based on metrics internal to the Applicant and/or its Guarantor, including capital and leverage, cash flow coverage of fixed obligations, liquidity, profitability, and other qualitative factors. The particular metrics and scoring rules differ according to the Applicant's or Guarantor's line of business and the PJM Markets in which it anticipates participating, in order to account for varying sources and degrees of risk to the PJM Markets and PJM members.

The formulation of each metric will be consistently applied to all Applicants and Guarantors across industries with slight variations based on identifiable differences in entity type, anticipated market activity, and risks to the PJM Markets and PJM members. In instances where the external credit rating is used to calculate the unsecured credit allowance, PJM may also use the Internal Credit Score as an input into determining the overall risk profile of an Applicant and/or its Guarantor.

| Table 1. Quantitative Metrics by Line of Business: Leverage and Capital Structure | Investor-Owned Utilities | Municipal Utilities | Co-Operative Utilities | Power Transmission | Merchant Power | Project Developers | Exploration & Production | Financial Institutions | Commodity Trading | Private Equity |
|--|---------------------------------|----------------------------|-------------------------------|---------------------------|-----------------------|---------------------------|-------------------------------------|-------------------------------|--------------------------|-----------------------|
| Debt / Total Capitalization (%) | | | | | | | | | | |
| FFO / Debt (%) | | | | | | | | | | |
| Debt / EBITDA (x) | | | | | | | | | | |
| Debt / Property, Plant & Equipment (%) | | | | | | | | | | |
| Retained Earnings / Total Assets (%) | | | | | | | | | | |
| Debt / Avg Daily Production or Kwh (\$) | | | | | | | | | | |
| Tangible Net Worth (\$) | | | | | | | | | | |
| Core Capital / Total Assets (%) | | | | | | | | | | |
| Risk-Based Capital / RWA (%) | | | | | | | | | | |
| Tier 1 Capital / RWA (%) | | | | | | | | | | |
| Equity / Investments (%) | | | | | | | | | | |
| Debt / Investments (%) | | | | | | | | | | |

primary metric **secondary metric** FFO = Funds From Operations RWA = Risk-Weighted Assets

| Table 2. Quantitative Metrics by Line of Business: Fixed Charge Coverage and Funding | Investor-Owned Utilities | Municipal Utilities | Co-Operative Utilities | Power Transmission | Merchant Power | Project Developers | Exploration & Production | Financial Institutions | Commodity Trading | Private Equity |
|---|---------------------------------|----------------------------|-------------------------------|---------------------------|-----------------------|---------------------------|-------------------------------------|-------------------------------|--------------------------|-----------------------|
| EBIT / Interest Expense (x) | | | | | | | | | | |
| EBITDA / Interest Expense (x) | | | | | | | | | | |
| EBITDA / [Interest Exp + CPLTD] (x) | | | | | | | | | | |
| [FFO + Interest Exp] / Interest Exp (x) | | | | | | | | | | |
| Loans / Total Deposits (%) | | | | | | | | | | |
| NPL / Gross Loans (%) | | | | | | | | | | |
| NPL / [Net Worth + LLR] (%) | | | | | | | | | | |
| Market Funding / Tangible Bank Assets (%) | | | | | | | | | | |

primary metric **secondary metric** CPLTD = Current Portion of Long-Term Debt EBIT = Earnings Before Interest and Taxes EBITDA = Earnings Before Interest, Taxes, Depreciation and Amortization LLR = Loan Loss Reserves NPL = Non-Performing Loans

| | | | | | | | | | | | |
|--|--|----------|----------|----------|-----------|-----------|-----------|-----------|------------|------------|------------|
| Need for PJM Markets to Achieve Business Goals | Rating Agency criteria or other industry analysis | High | High | High | High | Med | Low | Med | Low | Low | N/A |
| Ability to Grow/Enter Markets other than PJM | Rating Agency criteria or other industry analysis | Very Low | Very Low | Very Low | Very Low | High | High | Med | Med | High | N/A |
| Other Participants' Ability to Serve Customers | Rating Agency criteria or other industry analysis | Low | Low | Low | Low | Low | Med | Low | Low | High | N/A |
| Regulation of Participant's Business | RRA regulatory climate scores, S&P BICRA | PUCS | Govt | N/A | FERC PUCS | N/A | N/A | N/A | N/A | N/A | N/A |
| Primary Purpose of PJM Activity | Investment ("Inv.)/ Trading ("Trade")/ Hedging or Mitigating Commercial Risk of Operations ("CRH") | CRH | CRH | CRH | CRH/Trade | CRH/Trade | CRH/Trade | CRH/Trade | Inv./Trade | Inv./Trade | Inv./Trade |

RRA = Regulatory Research Associates, a division of S&P Global, Inc. BICRA = Bank Industry Country Risk Assessment

The scores developed will range from 1-6, with the following mappings:

- 1 = Very Low Risk (S&P/Fitch: AAA to AA-; Moody's: Aaa to Aa3)
- 2 = Low Risk (S&P/Fitch: A+ to BBB+; Moody's: A1 to Baa1)
- 3 = Low to Medium Risk (S&P/Fitch: BBB; Moody's: Baa2)
- 4 = Medium Risk (S&P/Fitch: BBB-; Moody's: Baa3)
- 5 = Medium to High Risk (S&P/Fitch: BB+ to BB; Moody's Ba1 to Ba2)
- 6 = High Risk (S&P/Fitch: BB- and below; Moody's: Ba3 and below)

4. Trade References

If deemed necessary by PJM, whether because the Applicant is newly or recently formed or for any other reason, each Applicant and/or its Guarantor shall provide at least one (1) bank reference and three (3) Trade References to provide PJM with evidence of Applicant's understanding of the markets in which the Applicant is seeking to participate and the Applicant's experience and ability to manage risk. PJM may contact the bank references and Trade References provided by the Applicant to verify their business experience with the Applicant.

5. Litigation and Contingencies

Unless prohibited by law, each Applicant and Guarantor is also required to disclose and provide information as to the occurrence of, within the five (5) years prior to the submission of the information to PJM (i) any litigation, arbitration, investigation (formal inquiry initiated by a governmental or regulatory entity), or proceeding, pending or, to the knowledge of the involving, Applicant or its Guarantor or any of their Principals that would likely have a material adverse impact on its financial condition and/or would likely materially affect the risk of non-payment by the Applicant or Guarantor, or (ii) any finding of material defalcation, market manipulation or fraud by or involving the Applicant, Guarantor, or any of their Principals, predecessors, subsidiaries, or Credit Affiliates that participate in any United States power markets based upon a final adjudication of regulatory and/or legal proceedings, (iii) any bankruptcy declarations or petitions by or against an Applicant and/or Guarantor, or (iv) any violation by any of the foregoing of any federal or state regulations or laws regarding energy commodities, U.S. Commodity Futures Trading Commission ("CFTC") or FERC requirements, the rules of any exchange monitored by the National Futures Association, any self-regulatory organization or any other governing, regulatory, or standards body responsible for regulating activity in North American markets for electricity, natural gas or electricity-related commodity products. Each Applicant and Guarantor shall take reasonable measures to obtain permission to disclose information related to a non-public investigation. These disclosures shall be made by Applicant and Guarantor upon application, and within ten (10) Business Days of any material change with respect to any of the above matters.

6. History of Defaults in Energy Projects

Each Applicant and Guarantor shall disclose their current default status and default history for any energy related generation or transmission project (e.g. generation, solar, development), and within any wholesale or retail energy market, including but not limited to within PJM, any Independent System Operator or Regional Transmission Organization, and exchange that has not been cured within the past five (5) years. Defaults of a non-recourse project financed entity may not be included in the default history.

7. Other Disclosures and Additional Information

Each Applicant and Guarantor is required to disclose any Credit Affiliates that are currently Members of PJM, applying for membership with PJM, Transmission Customers, Participants, applying to become Market Participants, or that participate directly or indirectly in any PJM Markets or any other North American markets for electricity, natural gas or electricity-related commodity products. Each Applicant and Guarantor shall also provide a copy of its limited

liability company agreement or equivalent agreement, certification of formation, articles of incorporation or other similar organization document, offering memo or equivalent, the names of its five (5) most senior Principals, and information pertaining to any non-compliance with debt covenants and indentures.

Applicants shall provide PJM the credit application referenced in section III.A and any other information or documentation reasonably required for PJM to perform the initial risk evaluation of Applicant's or Guarantor's creditworthiness and ability to comply with the requirements contained in the Agreements related to settlements, billing, credit requirements, and other financial matters.

B. Supplemental Risk Evaluation Process

As described in section VI below, PJM will conduct a supplemental risk evaluation process for Applicants, Participants, and Guarantors applying to conduct virtual and export transactions or participate in any PJM Markets.

C. Unsecured Credit Allowance

A Market Participant may request that PJM consider it for an Unsecured Credit Allowance pursuant to the provisions herein. Notwithstanding the foregoing, an FTR Participant shall not be considered for an Unsecured Credit Allowance for participation in the FTR markets.

1. Unsecured Credit Allowance Evaluation

PJM will perform a credit evaluation on each Participant that has requested an Unsecured Credit Allowance, both initially and at least annually thereafter. PJM shall determine the amount of Unsecured Credit Allowance, if any, that can be provided to the Market Participant in accordance with the creditworthiness and other requirements set forth in this Attachment Q. In completing the credit evaluation, PJM will consider:

(a) Rating Agency Reports

PJM will review Rating Agency reports as for each Market Participant on the same basis as described in section II.A.1 above and section II.E.1 below.

(b) Financial Statements and Related Information

All financial statements and related information considered for an Unsecured Credit Allowance must satisfy all of the same requirements described in section II.A.2 above and section II.E.2 below.

2. Material Adverse Changes

Each Market Participant is responsible for informing PJM, in writing, of any Material Adverse Change in its financial condition (or the financial condition of its Guarantor) since the date of the Market Participant or Guarantor's most recent annual financial statements provided to PJM, pursuant to the requirements reflected in section II.A.2 above and section II.E.3 below.

In the event that PJM determines that a Material Adverse Change in the financial condition of a Market Participant warrants a requirement to provide Collateral, additional Collateral or Restricted Collateral, PJM shall comply with the process and requirements described in section II.A above and section II.E below.

3. Other Disclosures

Each Market Participant desiring an Unsecured Credit Allowance is required to make the disclosures and upon the same requirements reflected in section II.A.7 above and section II.E.7 below.

D. Determination of Unreasonable Credit Risk

Unreasonable credit risk shall be determined by the likelihood that an Applicant will default on a financial obligation arising from its participation in any PJM Markets. Indicators of potentially unreasonable credit risk include, but are not limited to, a history of market manipulation based upon a final adjudication of regulatory and/or legal proceedings, a history of financial defaults, a history of bankruptcy or insolvency within the past five (5) years, or a combination of current market and financial risk factors such as low capitalization, a reasonably likely future material financial liability, a low Internal Credit Score (derived pursuant to section II.A.3 above) and/or a low externally derived credit score. PJM's determination will be based on, but not limited to, information and material provided to PJM during its initial risk evaluation process, information and material provided to PJM in the Officer's Certification, and/or information gleaned by PJM from public and non-public sources.

If PJM determines that an Applicant poses an unreasonable credit risk to the PJM Markets, PJM may require Collateral, additional Collateral, or Restricted Collateral commensurate with the Applicant's risk of financial default, reject an application, and/or limit or deny Applicant's participation in the PJM Markets, to the extent and for the time period it determines is necessary to mitigate the unreasonable credit risk to the PJM Markets. PJM will reject an application if it determines that Collateral, additional Collateral, or Restricted Collateral cannot address the risk.

PJM will communicate its concerns regarding whether the Applicant presents an unreasonable credit risk, if any, in writing to the Applicant and attempt to better understand the circumstances surrounding that Applicant's financial and credit position before making its determination. In the event PJM determines that an Applicant presents an unreasonable credit risk that warrants a requirement to provide Collateral of any type, or some action to mitigate risk, PJM shall provide the Applicant with a written explanation of why such determination was made.

E. Ongoing Risk Evaluation

In addition to the initial risk evaluation set forth in sections II.A through II.D above and the annual certification requirements set forth in section III.A below, each Market Participant and/or its Guarantor has an ongoing obligation to provide PJM with the information required in section IV.A described in more detail below. PJM may also review public information regarding a

Market Participant and/or its Guarantor as part of its ongoing risk evaluation. If appropriate, PJM will revise the Market Participant's Unsecured Credit Allowance and/or change its determination of creditworthiness, credit support, Restricted Collateral, required Collateral or other assurances pursuant to PJM's ongoing risk evaluation process.

Each Market Participant and/or its Guarantor must provide the information set forth below on an ongoing basis in order to remain eligible to participate in any PJM Markets. The same quantitative and qualitative factors will be used to evaluate Market Participants whether or not they have rated debt.

1. Rating Agency Reports

PJM will review Rating Agency reports for each Market Participant and/or Guarantor on the same basis as described in section II.A.1 above.

2. Financial Statements and Related Information

On an ongoing basis, Market Participants and/or their Guarantors shall provide the information they are required to provide as described in section II.A.2 above, pursuant to the schedule reflected below, with one exception. With regard to the summary that is required to be provided by the Principal responsible for PJM Market activity, with respect to experience of the Participant or its Principals in managing risks in similar markets, the Principal only needs to provide that information for a new Principal that was not serving in the position when the prior summary was provided. PJM will review financial statements and related information for each Market Participant and/or Guarantor on the same basis as described in section II.A.2 above.

Each Market Participant and/or its Guarantor must submit, or cause to be submitted, annual audited financial statements, except as otherwise indicated below, prepared in accordance with US GAAP or any other format acceptable to PJM for the fiscal year most recently ended within ten (10) calendar days of the financial statements becoming available and no later than one hundred twenty (120) calendar days after its fiscal year end. Market Participants and/or their Guarantors must submit, or cause to be submitted, financial statements, which may be unaudited, for each completed fiscal quarter of the current fiscal year, promptly upon their issuance, but no later than sixty (60) calendar days after the end of each fiscal quarter. All audited financial statements provided by the Market Participant and/or its Guarantor must be audited by an Independent Auditor.

Notwithstanding the foregoing, PJM may upon request, grant a Market Participant or Guarantor an extension of time, if the financials are not available within the time frame stated above.

3. Material Adverse Changes

Each Market Participant and each Guarantor is responsible for informing PJM, in writing, of any Material Adverse Change in its or its Guarantor's financial condition within five (5) Business Days of any Principal becoming aware of the occurrence of a Material Adverse Change since the date of the Market Participant or Guarantor's most recent annual financial statements provided to

PJM. However, PJM may also independently establish from available information that a Participant and/or its Guarantor has experienced a Material Adverse Change in its financial condition without regard to whether such Market Participant or Guarantor has informed PJM of the same.

For the purposes of this Attachment Q, a Material Adverse Change in financial condition may include, but is not be limited to, any of the following:

- (a) a bankruptcy filing;
- (b) insolvency;
- (c) a significant decrease in market capitalization;
- (d) restatement of prior financial statements unless required due to regulatory changes;
- (e) the resignation or removal of a Principal unless there is a new Principal appointed or expected to be appointed, a transition plan in place pending the appointment of a new Principal, or a planned restructuring of such roles;
- (f) the filing of a lawsuit or initiation of an arbitration, investigation, or other proceeding that would likely have a material adverse effect on any current or future financial results or financial condition or increase the likelihood of non-payment;
- (g) a material financial default in any other organized energy, ancillary service, financial transmission rights and/or capacity markets including but not limited to those of another Regional Transmission Organization or Independent System Operator, or on any commodity exchange, futures exchange or clearing house, that has not been cured or remedied after any required notice has been given and any cure period has elapsed;
- (h) a revocation of a license or other authority by any Federal or State regulatory agency; where such license or authority is necessary or important to the Participant's continued business, for example, FERC market-based rate authority, or State license to serve retail load;
- (i) a significant change in credit default swap spreads, market capitalization, or other market-based risk measurement criteria, such as a recent increase in Moody's KMV Expected Default Frequency (EDFtm) that is materially greater than the increase in its peers' EDFtm rates, or a collateral default swap (CDS) premium normally associated with an entity rated lower than investment grade;
- (j) a confirmed, undisputed material financial default in a bilateral arrangement with another Participant or counterparty that has not been cured or remedied after any required notice has been given and any cure period has elapsed;
- (k) the sale by a Participant of all or substantially all of its bilateral position(s) in the PJM Markets;
- (l) any adverse changes in financial condition which, individually, or in the aggregate, are material; and,
- (m) any adverse changes, events or occurrences which, individually or in the aggregate, could affect the ability of the entity to pay its debts as they become due or could reasonably be expected to have a material adverse effect on any current or future financial results or financial condition.

Upon identification of a Material Adverse Change, PJM shall evaluate the financial strength and risk profile of the Market Participant and/or its Guarantor at that time and may do so on a more frequent basis going forward. If the result of such evaluation identifies unreasonable credit risk to any PJM Market as further described in section II.E.8 below, PJM will take steps to mitigate the financial exposure to the PJM Markets. These steps include, but are not limited to requiring the Market Participant and/or each Guarantor to provide Collateral, additional Collateral or additional Restricted Collateral that is commensurate with the amount of risk in which the Market Participant wants to engage, and/or limiting the Market Participant's ability to participate in any PJM Market to the extent, and for the time-period necessary to mitigate the unreasonable credit risk. In the event PJM determines that a Material Adverse Change in the financial condition or risk profile of a Market Participant and/or Guarantor, warrants a requirement to provide Collateral of any type, or some action to mitigate risk, PJM shall provide the Market Participant and/or Guarantor, a written explanation of why such determination was made. Conversely, in the event PJM determines there has been an improvement in the financial condition or risk profile of a Market Participant and/or Guarantor such that the amount of Collateral needed for that Market Participant and/or Guarantor can be reduced, PJM shall provide a written explanation why such determination was made, including the amount of the Collateral reduction and indicating when and how the reduction will be made.

4. Litigation and Contingencies

Each Market Participant and/or Guarantor is required to disclose and provide information regarding litigation and contingencies as outlined in section II.A.5 above.

5. History of Defaults in Energy Projects

Each Market Participant and/or Guarantor is required to disclose current default status and default history as outlined in section II.A.6 above.

6. Internal Credit Score

As part of its ongoing risk evaluation, PJM will use credit risk scoring methodologies as a tool in determining an Internal Credit Score for each Market Participant and/or Guarantor, utilizing the same model and framework outlined in section II.A.3 above.

7. Other Disclosures and Additional Information

Each Market Participant and/or Guarantor is required to make other disclosures and provide additional information outlined in section II.A.7 above.

PJM will monitor each Market Participant's use of services and associated financial obligations on a regular basis to determine their total potential financial exposure and for credit monitoring purposes, and may require the Market Participant and/or Guarantor to provide additional information, pursuant to the terms and provisions described herein.

Market Participants shall provide PJM, upon request, any information or documentation reasonably required for PJM to monitor and evaluate a Market Participant's creditworthiness and compliance with the Agreements related to settlements, billing, credit requirements, and other financial matters.

8. Unreasonable Credit Risk

If PJM has reasonable grounds to believe that a Market Participant and/or its Guarantor poses an unreasonable credit risk to any PJM Markets, PJM may immediately notify the Market Participant of such unreasonable credit risk and (1) issue a Collateral Call to demand Collateral, additional Collateral, or Restricted Collateral or other assurances commensurate with the Market Participant's and/or its Guarantor's risk of financial default or other risk posed by the Market Participant's or Guarantor's financial condition or risk profile to the PJM Markets and PJM members, or (2) limit or suspend the Market Participant's participation in any PJM Markets, to the extent and for such time period PJM determines is necessary to mitigate the unreasonable credit risk to any PJM Markets. PJM will only limit or suspend a Market Participant's market participation if Collateral, additional Collateral or Restricted Collateral cannot address the unreasonable credit risk.

PJM's determination will be based on, but not limited to, information and material provided to PJM during its ongoing risk evaluation process or in the Officer's Certification, and/or information gleaned by PJM from public and non-public sources. PJM will communicate its concerns, if any, in writing to the Market Participant and attempt to better understand the circumstances surrounding the Market Participant's financial and credit position before making its determination. At PJM's request or upon its own initiative, the Market Participant or its Guarantor may provide supplemental information to PJM that would allow PJM to consider reducing the additional Collateral requested or reducing the severity of limitations or other restrictions designed to mitigate the Market Participant's credit risk. Such information shall include, but not be limited to: (i) the Market Participant's estimated exposure, (ii) explanations for any recent change in the Market Participant's market activity, (iii) any relevant new load or unit outage information; or (iv) any default or supply contract expiration, termination or suspension.

The Market Participant shall have five (5) Business Days to respond to PJM's request for supplemental information. If the requested information is provided in full to PJM's satisfaction during said period, the additional Collateral requirement shall reflect the Market Participant's anticipated exposure based on the information provided. Notwithstanding the foregoing, any additional Collateral requested by PJM in a Collateral Call must be provided by the Market Participant within the applicable cure period.

In the event PJM determines that an Market Participant and/or its Guarantor presents an unreasonable credit risk, as described above, that warrants a requirement to provide Collateral of any type, or some action to mitigate risk, PJM shall provide the Market Participant with a written explanation of why such final determination was made.

PJM has the right at any time to modify any Unsecured Credit Allowance and/or require additional Collateral as may be deemed reasonably necessary to support current or anticipated market activity as set forth in Tariff, Attachment Q, sections II.A.2 and II.C.1.b. Failure to remit the required amount of additional Collateral within the applicable cure period shall constitute an Event of Default.

F. Collateral and Credit Restrictions

PJM may establish certain restrictions on available credit by requiring that some amounts of credit, i.e. Restricted Collateral, may not be available to satisfy credit requirements. Such designations shall be construed to be applicable to the calculation of credit requirements only, and shall not restrict PJM's ability to apply such designated credit to any obligation(s) in case of a default. Any such Restricted Collateral will be held by PJM, as applicable. Such Restricted Collateral will not be returned to the Participant until PJM has determined that the risk for which such Restricted Collateral is being held has subsided or been resolved.

PJM may post on PJM's web site, and may reference on OASIS, a supplementary document which contains additional business practices (such as algorithms for credit scoring) that are not included in this Attachment Q. Changes to the supplementary document will be subject to stakeholder review and comment prior to implementation. PJM may specify a required compliance date, not less than fifteen (15) calendar days from notification, by which time all Participants and their Guarantors must comply with provisions that have been revised in the supplementary document.

PJM will regularly post each Participant's and/or its Guarantor's credit requirements and credit provisions on the PJM web site in a secure, password-protected location. Each Participant and/or its Guarantor is responsible for monitoring such information, and maintaining sufficient credit to satisfy the credit requirements described herein. Failure to maintain credit sufficient to satisfy the credit requirements of the Attachment Q shall constitute a Credit Breach, and the Participant will be subject to the remedies established herein and in any of the Agreements.

G. Unsecured Credit Allowance Calculation

The external rating from a Rating Agency will be used as the source for calculating the Unsecured Credit Allowance, unless no external credit rating is available in which case PJM will utilize its Internal Credit Score for such purposes. If there is a split rating between the Rating Agencies, the lower of the ratings shall apply.

Where two or more entities, including Participants, are considered Credit Affiliates, Unsecured Credit Allowances will be established for each individual Participant, subject to an aggregate maximum amount for all Credit Affiliates as provided for in Attachment Q, section II.G.3.

In its credit evaluation of Municipalities and Cooperatives, PJM may request additional information as part of the ongoing risk evaluation process and will also consider qualitative factors in determining financial strength and creditworthiness.

1. Credit Rating and Internal Credit Score

As previously described in section II.A.3 above, PJM will determine the Internal Credit Score for an Applicant, Market Participant and/or its Guarantor using the credit risk scoring methodologies contained therein. Internal Credit Scores, ranging from 1-6, for each Applicant, Market Participant and/or its Guarantor, will be determined with the following mappings:

- 1 = Very Low Risk (S&P/Fitch: AAA to AA-; Moody's: Aaa to Aa3)
- 2 = Low Risk (S&P/Fitch: A+ to BBB+; Moody's: A1 to Baa1)
- 3 = Low to Medium Risk (S&P/Fitch: BBB; Moody's: Baa2)
- 4 = Medium Risk (S&P/Fitch: BBB-; Moody's: Baa3)
- 5 = Medium to High Risk (S&P/Fitch: BB+ to BB; Moody's Ba1 to Ba2)
- 6 = High Risk (S&P/Fitch: BB- and below; Moody's: Ba3 and below)

In instances where the external credit rating is used to calculate the unsecured credit allowance, PJM may also use the Internal Credit Score as an input into its determination of the overall risk profile of an Applicant and/or its Guarantor

2. Unsecured Credit Allowance

PJM will determine a Participant's Unsecured Credit Allowance based on its external rating or its Internal Credit Score, as applicable, and the parameters in the table below. The maximum Unsecured Credit Allowance is the lower of:

- (a) A percentage of the Participant's Tangible Net Worth, as stated in the table below, with the percentage based on the Participant's external rating or Internal Credit Score, as applicable; and
- (b) A dollar cap based on the external rating or Internal Credit Score, as applicable, as stated in the table below:

| Internal Credit Score | Risk Ranking | Tangible Net Worth Factor | Maximum Unsecured Credit Allowance (\$ Million) |
|------------------------------|--------------------------------|----------------------------------|--|
| 1.00 – 1.99 | 1 – Very Low (AAA to AA-) | Up to 10.00% | \$50 |
| 2.00 – 2.99 | 2 – Low (A+ to BBB+) | Up to 8.00% | \$42 |
| 3.00 – 3.49 | 3 – Low to Medium (BBB) | Up to 6.00% | \$33 |
| 3.50 – 4.49 | 4 – Medium (BBB-) | Up to 5.00% | \$7 |
| 4.50 – 5.49 | 5 – Medium to High (BB+ to BB) | 0% | \$0 |
| > 5.49 | 6 – High (BB- and below) | 0% | \$0 |

If a Corporate Guaranty is utilized to establish an Unsecured Credit Allowance for a Participant, the value of a Corporate Guaranty will be the lesser of:

- (a) The limit imposed in the Corporate Guaranty;
- (b) The Unsecured Credit Allowance calculated for the Guarantor; and
- (c) A portion of the Unsecured Credit Allowance calculated for the Guarantor in the case of Credit Affiliates.

PJM has the right at any time to modify any Unsecured Credit Allowance and/or require additional Collateral as may be deemed reasonably necessary to support current market activity. Failure to remit the required amount of additional Collateral within the applicable cure period shall be deemed an Event of Default.

PJM will maintain a posting of each Participant's Unsecured Credit Allowance, along with certain other credit related parameters, on the PJM website in a secure, password-protected location. Each Participant will be responsible for monitoring such information and recognizing changes that may occur.

3. Unsecured Credit Limits For Credit Affiliates

If two or more Participants are Credit Affiliates and have requested an Unsecured Credit Allowance, PJM will consider the overall creditworthiness of the Credit Affiliates when determining the Unsecured Credit Allowances in order not to establish more Unsecured Credit for the Credit Affiliates collectively than the overall corporate family could support.

Example: Participants A and B each have a \$10.0 million Corporate Guaranty from their common parent, a holding company with an Unsecured Credit Allowance calculation of \$12.0 million. PJM may limit the Unsecured Credit Allowance for each Participant to \$6.0 million, so the total Unsecured Credit Allowance does not exceed the corporate family total of \$12.0 million.

PJM will work with the Credit Affiliates to allocate the total Unsecured Credit Allowance among the Credit Affiliates while assuring that no individual Participant, nor common guarantor, exceeds the Unsecured Credit Allowance appropriate for its credit strength. The aggregate Unsecured Credit for a Participant, including Unsecured Credit Allowance granted based on its own creditworthiness and risk profile, and any Unsecured Credit Allowance conveyed through a Guaranty shall not exceed \$50 million. The aggregate Unsecured Credit for a Credit Affiliates corporate family shall not exceed \$50 million. A Credit Affiliate corporate family subject to this cap shall request PJM to allocate the maximum Unsecured Credit amongst the corporate family, assuring that no individual Participant or common guarantor, shall exceed the Unsecured Credit level appropriate for its credit strength and activity.

H. Contesting an Unsecured Credit Evaluation

PJM will provide to a Participant, upon request, a written explanation for any determination of or change in Unsecured Credit or credit requirement within ten (10) Business Days of receiving such request.

If a Participant believes that either its level of Unsecured Credit or its credit requirement has been incorrectly determined, according to this Attachment Q, then the Participant may send a request for reconsideration in writing to PJM. Such a request should include:

- (1) A citation to the applicable section(s) of this Attachment Q along with an explanation of how the respective provisions of this Attachment Q were not carried out in the determination as made; and
- (2) A calculation of what the Participant believes should be the appropriate Unsecured Credit or Collateral requirement, according to terms of this Attachment Q.

PJM will provide a written response as promptly as practical, but no more than ten (10) Business Days after receipt of the request. If the Participant still feels that the determination is incorrect, then the Participant may contest that determination. Such contest should be in written form, addressed to PJM, and should contain:

- (1) A complete copy of the Participant's earlier request for reconsideration, including citations and calculations;
- (2) A copy of PJM's written response to its request for reconsideration; and
- (3) An explanation of why it believes that the determination still does not comply with this Attachment Q.

PJM will investigate and will respond to the Participant with a final determination on the matter as promptly as practical, but no more than twenty (20) Business Days after receipt of the request.

Neither requesting reconsideration nor contesting the determination following such request shall relieve or delay Participant's responsibility to comply with all provisions of this Attachment Q, including without limitation posting Collateral, additional Collateral or Restricted Collateral in response to a Collateral Call.

If a Corporate Guaranty is being utilized to establish credit for a Participant, the Guarantor will be evaluated and the Unsecured Credit Allowance granted, if any, based on the financial strength and creditworthiness, and risk profile of the Guarantor. Any utilization of a Corporate Guaranty will only be applicable to non-FTR credit requirements, and will not be applicable to cover FTR credit requirements.

PJM will identify any necessary Collateral requirements and establish a Working Credit Limit for each Participant. Any Unsecured Credit Allowance will only be applicable to non-FTR credit requirements, for positions in PJM Markets other than the FTR market, because all FTR credit requirements must be satisfied by posting Collateral.

III. MINIMUM PARTICIPATION REQUIREMENTS

A Participant seeking to participate in any PJM Markets shall submit to PJM any information or documentation reasonably required for PJM to evaluate its experience and resources. If PJM determines, based on its review of the relevant information and after consultation with the Participant, that the Participant's participation in any PJM Markets presents an unreasonable credit risk, PJM may reject the Participant's application to become a Market Participant, notwithstanding applicant's ability to meet other minimum participation criteria, registration requirements and creditworthiness requirements.

A. Annual Certification

Before they are eligible to transact in any PJM Market, all Applicants shall provide to PJM (i) an executed copy of a credit application and (ii) a copy of the annual certification set forth in Attachment Q, Appendix 1. As a condition to continued eligibility to transact in any PJM Market, Market Participants shall provide to PJM the annual certification set forth in Attachment Q, Appendix 1.

After the initial submission, the annual certification must be submitted each calendar year by all Market Participants between January 1 and April 30. PJM will accept such certifications as a matter of course and the Market Participants will not need further notice from PJM before commencing or maintaining their eligibility to participate in any PJM Markets.

A Market Participant that fails to provide its annual certification by April 30 shall be ineligible to transact in any PJM Markets and PJM will disable the Market Participant's access to any PJM Markets until such time as PJM receives the certification. In addition, failure to provide an executed annual certification in a form acceptable to PJM and by the specified deadlines may result in a default under the Tariff.

Market Participants acknowledge and understand that the annual certification constitutes a representation upon which PJM will rely. Such representation is additionally made under the Tariff, filed with and accepted by FERC, and any false, misleading or incomplete statement knowingly made by the Market Participant and that is material to the Market Participant's ability to perform may be considered a violation of the Tariff and subject the Market Participant to action by FERC. Failure to comply with any of the criteria or requirements listed herein or in the certification may result in suspension or limitation of a Market Participant's transaction rights in any PJM Markets.

Applicants and Market Participants shall submit to PJM, upon request, any information or documentation reasonably and/or legally required to confirm Applicant's or Market Participant's compliance with the Agreements and the annual certification.

B. PJM Market Participation Eligibility Requirements

PJM may conduct periodic verification to confirm that Applicants and Market Participants can demonstrate that they meet the definition of “appropriate person” to further ensure minimum criteria are in place. Such demonstration will consist of the submission of evidence and an executed Annual Officer Certification form as set forth in Attachment Q, Appendix 1 in a form acceptable to PJM. If an Applicant or Market Participant does not provide sufficient evidence for verification to PJM within five (5) Business Days of written request, then such Applicant or Market Participant may result in a default under this Tariff. Demonstration of “appropriate person” status and support of other certifications on the annual certification is one part of the Minimum Participation Requirements for any PJM Markets and does not obviate the need to meet the other Minimum Participation Requirements such as those for minimum capitalization and risk profile as set forth in this Attachment Q.

To be eligible to transact in any PJM Markets, an Applicant or Participant must demonstrate in accordance with the Risk Management and Verification processes set forth below that it qualifies in one of the following ways:

1. an “appropriate person,” as that term is defined under Commodity Exchange Act, section 4(c)(3), or successor provision, or;
2. an “eligible contract participant,” as that term is defined in Commodity Exchange Act, section 1a(18), or successor provision, or;
3. a business entity or person who is in the business of: (1) generating, transmitting, or distributing electric energy, or (2) providing electric energy services that are necessary to support the reliable operation of the transmission system, or;
4. an Applicant or Market Participant seeking eligibility as an “appropriate person” providing an unlimited Corporate Guaranty in a form acceptable to PJM as described in section V below from a Guarantor that has demonstrated it is an “appropriate person,” and has at least \$1 million of total net worth or \$5 million of total assets per Applicant and Market Participant for which the Guarantor has issued an unlimited Corporate Guaranty, or;
5. an Applicant or Market Participant providing a Letter of Credit of at least \$5 million to PJM in a form acceptable to PJM as described in section V below, that the Applicant or Market Participant acknowledges is separate from, and cannot be applied to meet, its credit requirements to PJM, or;
6. an Applicant or Market Participant providing a surety bond of at least \$5 million to PJM in a form acceptable to PJM as described in section V below, that the Applicant or Market Participant acknowledges is separate from, and cannot be applied to meet, its credit requirements to PJM.

If, at any time, a Market Participant cannot meet the eligibility requirements set forth above, it shall immediately notify PJM and immediately cease conducting transactions in any PJM Markets. PJM may terminate a Market Participant’s transaction rights in any PJM Markets if, at

any time, it becomes aware that the Market Participant does not meet the minimum eligibility requirements set forth above.

In the event that a Market Participant is no longer able to demonstrate it meets the minimum eligibility requirements set forth above, and possesses, obtains or has rights to possess or obtain, any open or forward positions in any PJM Markets, PJM may take any such action it deems necessary with respect to such open or forward positions, including, but not limited to, liquidation, transfer, assignment or sale; provided, however, that the Market Participant will, notwithstanding its ineligibility to participate in any PJM Markets, be entitled to any positive market value of those positions, net of any obligations due and owing to PJM.

C. Risk Management and Verification

All Market Participants must maintain current written risk management policies, procedures, or controls to address how market and credit risk is managed, and are required to submit to PJM (at the time they make their annual certification) a copy of their current governing risk control policies, procedures and controls applicable to their market activities. PJM will review such documentation to verify that it appears generally to conform to prudent risk management practices for entities participating in any PJM Markets.

All Market Participants subject to this provision shall make a one-time payment of \$1,500.00 to PJM to cover administrative costs. Thereafter, if such Participant's risk policies, procedures and controls applicable to its market activities change substantively, it shall submit such modified documentation, with applicable administrative charge determined by PJM, to PJM for review and verification at the time it makes its annual certification. All Market Participant's continued eligibility to participate in any PJM Markets is conditioned on PJM notifying a Participant that its annual certification, including the submission of its risk policies, procedures and controls, has been accepted by PJM. PJM may retain outside expertise to perform the review and verification function described in this section, however, in all circumstances, PJM and any third-party it may retain will treat as confidential the documentation provided by a Participant under this section, consistent with the applicable provisions of the Operating Agreement.

Participants must demonstrate that they have implemented prudent risk management policies and procedures in order to be eligible to participate in any PJM Markets. Participants must demonstrate on at least an annual basis that they have implemented and maintained prudent risk management policies and procedures in order to continue to participate in any PJM Markets. Upon written request, the Participant will have fourteen (14) calendar days to provide to PJM current governing risk management policies, procedures, or controls applicable to Participant's activities in any PJM Markets.

D. Capitalization

In advance of certification, Applicants shall meet the minimum capitalization requirements below. In addition to the annual certification requirements in Attachment Q, Appendix 1, a Market Participant shall satisfy the minimum capitalization requirements on an annual basis thereafter. A Participant must demonstrate that it meets the minimum financial requirements

appropriate for the PJM Markets in which it transacts by satisfying either the minimum capitalization or the provision of Collateral requirements listed below:

1. Minimum Capitalization

Minimum capitalization may be met by demonstrating minimum levels of Tangible Net Worth or tangible assets. FTR Participants must demonstrate a Tangible Net Worth in excess of \$1 million or tangible assets in excess of \$10 million. Other Market Participants must demonstrate a Tangible Net Worth in excess of \$500,000 or tangible assets in excess of \$5 million.

(a) Consideration of tangible assets and Tangible Net Worth shall exclude assets which PJM reasonably believes to be restricted, highly risky, or potentially unavailable to settle a claim in the event of default. Examples include, but are not limited to, restricted assets, derivative assets, goodwill, and other intangible assets.

(b) Demonstration of “tangible” assets and Tangible Net Worth may be satisfied through presentation of an acceptable Corporate Guaranty, provided that both:

- (i) the Guarantor is a Credit Affiliate company that satisfies the Tangible Net Worth or tangible assets requirements herein, and;
- (ii) the Corporate Guaranty is either unlimited or at least \$500,000.

If the Corporate Guaranty presented by the Participant to satisfy these capitalization requirements is limited in value, then the Participant’s resulting Unsecured Credit Allowance shall be the lesser of:

- (1) the applicable Unsecured Credit Allowance available to the Participant by the Corporate Guaranty pursuant to the creditworthiness provisions of this Attachment Q, or,
- (2) the face value of the Corporate Guaranty, reduced by \$500,000 and further reduced by 10%. (For example, a \$10.5 million Corporate Guaranty would be reduced first by \$500,000 to \$10 million and then further reduced 10% more to \$9 million. The resulting \$9 million would be the Participant’s Unsecured Credit Allowance available through the Corporate Guaranty).

In the event that a Participant provides Collateral in addition to a limited Corporate Guaranty to increase its available credit, the value of such Collateral shall be reduced by 10%. This reduced value shall be considered the amount available to satisfy requirements of this Attachment Q.

(c) Demonstrations of minimum capitalization (minimum Tangible Net Worth or tangible assets) must be presented in the form of audited financial statements for the Participant's most recent fiscal year during the initial risk evaluation process and ongoing risk evaluation process.

2. Provision of Collateral

If a Participant does not demonstrate compliance with its applicable minimum capitalization requirements above, it may still qualify to participate in any PJM Markets by posting Collateral, additional Collateral, and/or Restricted Collateral, subject to the terms and conditions set forth herein.

Any Collateral provided by a Participant unable to satisfy the minimum capitalization requirements above will also be restricted in the following manner:

- (a) Collateral provided by Market Participants that engage in FTR transactions shall be reduced by an amount of the current risk plus any future risk to any PJM Markets and PJM membership in general, and may coincide with limitations on market participation. The amount of this Restricted Collateral shall not be available to cover any credit requirements from market activity. The remaining value shall be considered the amount available to satisfy requirements of this Attachment Q.
- (b) Collateral provided by other Participants that engage in Virtual Transactions or Export Transactions shall be reduced by \$200,000 and then further reduced by 10%. The amount of this Restricted Collateral shall not be available to cover any credit requirements from market activity. The remaining value shall be considered the amount available to satisfy requirements of this Attachment Q.
- (c) Collateral provided by other Participants that do not engage in Virtual Transactions or Export Transactions shall be reduced by 10%. The amount of this Restricted Collateral shall not be available to cover any credit requirements from market activity. The remaining value shall be considered the amount available to satisfy requirements of this Attachment Q.

In the event a Participant that satisfies the minimum capital requirement through provision of Collateral also provides a Corporate Guaranty to increase its available credit, then the Participant's resulting Unsecured Credit Allowance conveyed through such Corporate Guaranty shall be the lesser of:

- (a) the applicable Unsecured Credit Allowance available to the Participant by the Corporate Guaranty pursuant to the creditworthiness provisions of this Attachment Q; or
- (b) the face value of the Corporate Guaranty, reduced commensurate with the amount of the current risk plus any anticipated future risk to any PJM Markets and PJM membership in general, and may coincide with limitations on market participation.

IV. ONGOING COVENANTS

A. Ongoing Obligation to Provide Information to PJM

So long as a Participant is eligible to participate, or participates or holds positions, in any PJM Markets, it shall deliver to PJM, in form and detail satisfactory to PJM:

- (1) All financial statements and other financial disclosures as required by section II.E.2 by the deadline set forth therein;
- (2) Notice, within five (5) Business Days, of any Principal becoming aware that the Participant does not meet the Minimum Participation Requirements set forth in section III;
- (3) Notice when any Principal becomes aware of any matter that has resulted or would reasonably be expected to result in a Material Adverse Change in the financial condition of the Participant or its Guarantor, if any, a description of such Material Adverse Change in detail reasonable to allow PJM to determine its potential effect on, or any change in, the Participant's risk profile as a participant in any PJM Markets, by the deadline set forth in section II.E.3 above;
- (4) Notice, within the deadline set forth therein, of any Principal becoming aware of a litigation or contingency event described in section II.E.4, or of a Material Adverse Change in any such litigation or contingency event previously disclosed to PJM, information in detail reasonable to allow PJM to determine its potential effect on, or any change in, the Market Participant's risk profile as a participant in any PJM Markets by the deadline set forth therein;
- (5) Notice, within two (2) Business Days after any Principal becomes aware of a Credit Breach, Financial Default, or Credit Support Default, that includes a description of such default or event and the Participant's proposals for addressing the default or event;
- (6) As soon as available but not later than April 30th of any calendar year, the annual Certification described in section III.A in a form set forth in Attachment Q, Appendix 1;
- (7) Concurrently with submission of the annual certification, demonstration that the Participant meets the minimum capitalization requirements set forth in section III.D;
- (8) Concurrently with submission of the annual certification and within the applicable deadline of any substantive change, or within the applicable deadline of a request from PJM, a copy of the Participant's written risk management policies, procedures or controls addressing how the Participant manages market and credit risk in the PJM Markets in which it participates, as well as a high level summary by the chief risk officer or other Principal regarding any material violations, breaches, or compliance or disciplinary actions related to the risk management policies, by the Participant under the policies, procedures or controls within the prior 12 months, as set forth in section IV.B below;
- (9) Within five (5) Business Days of request by PJM, evidence demonstrating the Participant meets the definition of "appropriate person" or "eligible contract participant," as those terms are defined in the Commodity Exchange Act and the CFTC regulations promulgated thereunder, or of any other certification in the annual Certification; or

- (10) Within a reasonable time after PJM requests, any other information or documentation reasonably and/or legally required by PJM to confirm Participant's compliance with the Tariff and its eligibility to participate in any PJM Markets.

Participants acknowledge and understand that the deliveries constitute representations upon which PJM will rely in allowing the Participant to continue to participate in its markets, with the Internal Credit Score and Unsecured Credit Allowance, if any, previously determined by PJM.

B. Risk Management Review

PJM shall also conduct a periodic compliance verification process to review and verify, as applicable, Participants' risk management policies, practices, and procedures pertaining to the Participant's activities in any PJM Markets. PJM shall review such documentation to verify that it appears generally to conform to prudent risk management practices for entities trading in any PJM Markets. Participant shall also provide a high level summary by the chief risk officer or other Principal regarding any material violations, breaches, or compliance or disciplinary actions in connection with such risk management policies, practices and procedures within the prior twelve (12) months.

If a third-party industry association publishes or modifies principles or best practices relating to risk management in North American markets for electricity, natural gas or electricity-related commodity products, PJM may, following stakeholder discussion and with no less than six (6) months prior notice to stakeholders, consider such principles or best practices in evaluating the Participant's risk controls.

PJM will prioritize the verification of risk management policies based on a number of criteria, including but not limited to how long the entity has been in business, the Participant's and its Principals' history of participation in any PJM Markets, and any other information obtained in determining the risk profile of the Participant.

Each Participant's continued eligibility to participate in any PJM Markets is conditioned upon PJM notifying the Participant of successful completion of PJM's verification of the Participant's risk management policies, practices and procedures, as discussed herein. However, if PJM notifies the Participant in writing that it could not successfully complete the verification process, PJM shall allow such Participant fourteen (14) calendar days to provide sufficient evidence for verification prior to declaring the Participant as ineligible to continue to participate in any PJM Markets, which declaration shall be in writing with an explanation of why PJM could not complete the verification. If the Participant does not provide sufficient evidence for verification to PJM within the required cure period, such Participant will be considered in default under this Tariff. PJM may retain outside expertise to perform the review and verification function described in this paragraph. PJM and any third party it may retain will treat as confidential the documentation provided by a Participant under this paragraph, consistent with the applicable provisions of the Agreements. If PJM retains such outside expertise, a Participant may direct in writing that PJM perform the risk management review and verification for such Participant instead of utilizing a third party, provided however, that employees and contract employees of PJM and PJM shall not be considered to be such outside expertise or third parties.

Participants are solely responsible for the positions they take and the obligations they assume in any PJM Markets. PJM hereby disclaims any and all responsibility to any Participant or PJM

Member associated with Participant's submitting or failure to submit its annual certification or PJM's review and verification of a Participant's risk policies, procedures and controls. Such review and verification is limited to demonstrating basic compliance by a Participant showing the existence of written policies, procedures and controls to limit its risk in any PJM Markets and does not constitute an endorsement of the efficacy of such policies, procedures or controls.

V. FORMS OF CREDIT SUPPORT

In order to satisfy their PJM credit requirements Participants may provide credit support in a PJM-approved form and amount pursuant to the guidelines herein, provided that, notwithstanding anything to the contrary in this section, a Market Participant in PJM's FTR markets shall meet its credit support requirements related to those FTR markets with either cash or Letters of Credit.

Unless otherwise restricted by PJM, credit support provided may be used by PJM to secure the payment of Participant's financial obligations under the Agreements.

Collateral which may no longer be required to be maintained under provisions of the Agreements, shall be returned at the request of a Participant, no later than two (2) Business Days following determination by PJM within a commercially reasonable period of time that such Collateral is not required.

Except when an Event of Default has occurred, a Participant may substitute an approved PJM form of Collateral for another PJM approved form of Collateral of equal value.

A. Cash Deposit

Cash provided by a Participant as Collateral will be held in a depository account by PJM. Interest shall accrue to the benefit of the Participant, provided that PJM may require Participants to provide appropriate tax and other information in order to accrue such interest credits.

PJM may establish an array of investment options among which a Participant may choose to invest its cash deposited as Collateral. The depository account shall be held in PJM's name in a banking or financial institution acceptable to PJM. Where practicable, PJM may establish a means for the Participant to communicate directly with the bank or financial institution to permit the Participant to direct certain activity in the PJM account in which its Collateral is held. PJM will establish and publish procedural rules, identifying the investment options and respective discounts in Collateral value that will be taken to reflect any liquidation, market and/or credit risk presented by such investments.

Cash Collateral may not be pledged or in any way encumbered or restricted from full and timely use by PJM in accordance with terms of the Agreements.

PJM has the right to liquidate all or a portion of the Collateral account balance at its discretion to satisfy a Participant's Total Net Obligation to PJM in the Event of Default under this Attachment Q or one or more of the Agreements.

B. Letter of Credit

An unconditional, irrevocable standby Letter of Credit can be utilized to meet the Collateral requirement. As stated below, the form, substance, and provider of the Letter of Credit must all be acceptable to PJM.

- (1) The Letter of Credit will only be accepted from U.S.-based financial institutions or U.S. branches of foreign financial institutions (“financial institutions”) that have a minimum corporate debt rating of “A” by Standard & Poor’s or Fitch Ratings, or “A2” from Moody’s Investors Service, or an equivalent short term rating from one of these agencies. PJM will consider the lowest applicable rating to be the rating of the financial institution. If the rating of a financial institution providing a Letter of Credit is lowered below A/A2 by any Rating Agency, then PJM may require the Participant to provide a Letter of Credit from another financial institution that is rated A/A2 or better, or to provide a cash deposit. If a Letter of Credit is provided from a U.S. branch of a foreign institution, the U.S. branch must itself comply with the terms of this Attachment Q, including having its own acceptable credit rating.
- (2) The Letter of Credit shall state that it shall renew automatically for successive one-year periods, until terminated upon at least ninety (90) calendar days prior written notice from the issuing financial institution. If PJM or PJM receives notice from the issuing financial institution that the current Letter of Credit is being cancelled or expiring, the Participant will be required to provide evidence, acceptable to PJM, that such Letter of Credit will be replaced with appropriate Collateral, effective as of the cancellation date of the Letter of Credit, no later than thirty (30) calendar days before the cancellation date of the Letter of Credit, and no later than ninety (90) calendar days after the notice of cancellation. Failure to do so will constitute a default under this Attachment Q and one or more of the Agreements.
- (3) PJM will post on its web site an acceptable standard form of a Letter of Credit that should be utilized by a Participant choosing to submit a Letter of Credit to establish credit at PJM. If the Letter of Credit varies in any way from the standard format, it must first be reviewed and approved by PJM. All costs associated with obtaining and maintaining a Letter of Credit and meeting the Attachment Q provisions are the responsibility of the Participant.
- (4) PJM may accept a Letter of Credit from a financial institution that does not meet the credit standards of this Attachment Q provided that the Letter of Credit has third-party support, in a form acceptable to PJM, from a financial institution that does meet the credit standards of this Attachment Q.

C. Corporate Guaranty

An irrevocable and unconditional Corporate Guaranty may be utilized to establish an Unsecured Credit Allowance for a Participant. Such credit will be considered a transfer of Unsecured Credit from the Guarantor to the Participant, and will not be considered a form of Collateral.

PJM will post on its web site an acceptable form that should be utilized by a Participant choosing to establish its credit with a Corporate Guaranty. If the Corporate Guaranty varies in any way from the PJM format, it must first be reviewed and approved by PJM before it may be applied to satisfy the Participant's credit requirements.

The Corporate Guaranty must be signed by an officer of the Guarantor, and must demonstrate that it is duly authorized in a manner acceptable to PJM. Such demonstration may include either a corporate seal on the Corporate Guaranty itself, or an accompanying executed and sealed secretary's certificate from the Guarantor's corporate secretary noting that the Guarantor was duly authorized to provide such Corporate Guaranty and that the person signing the Corporate Guaranty is duly authorized, or other manner acceptable to PJM.

PJM will evaluate the creditworthiness of a Guarantor and will establish any Unsecured Credit granted through a Corporate Guaranty using the methodology and requirements established for Participants requesting an Unsecured Credit Allowance as described herein. Foreign Guaranties and Canadian Guaranties shall be subject to additional requirements as established herein. If PJM determines at any time that a Material Adverse Change in the financial condition of the Guarantor has occurred, or if the Corporate Guaranty comes within thirty (30) calendar days of expiring without renewal, PJM may reduce or eliminate any Unsecured Credit afforded to the Participant through the guaranty. Such reduction or elimination may require the Participant to provide Collateral within the applicable cure period. If the Participant fails to provide the required Collateral, the Participant shall be in default under this Attachment Q.

All costs associated with obtaining and maintaining a Corporate Guaranty and meeting the Attachment Q provisions are the responsibility of the Participant.

1. Foreign Guaranties

A Foreign Guaranty is a Corporate Guaranty that is provided by a Credit Affiliate entity that is domiciled in a country other than the United States or Canada. The entity providing a Foreign Guaranty on behalf of a Participant is a Foreign Guarantor. A Participant may provide a Foreign Guaranty in satisfaction of part of its credit obligations or voluntary credit provision at PJM provided that all of the following conditions are met:

PJM reserves the right to deny, reject, or terminate acceptance of any Foreign Guaranty at any time, including for material adverse circumstances or occurrences.

- (a) A Foreign Guaranty:
 - (i) Must contain provisions equivalent to those contained in PJM's standard form of Foreign Guaranty with any modifications subject to review and approval by PJM counsel.
 - (ii) Must be denominated in US currency.
 - (iii) Must be written and executed solely in English, including any duplicate originals.
 - (iv) Will not be accepted towards a Participant's Unsecured Credit Allowance for more than the following limits, depending on the Foreign Guarantor's credit rating:

| Rating of Foreign Guarantor | Maximum Accepted Guaranty if Country Rating is AAA | Maximum Accepted Guaranty if Country Rating is AA+ |
|-----------------------------|--|--|
| A- and above | USD50,000,000 | USD30,000,000 |
| BBB+ | USD30,000,000 | USD20,000,000 |
| BBB | USD10,000,000 | USD10,000,000 |
| BBB- or below | USD 0 | USD 0 |

- (v) May not exceed 50% of the Participant's total credit, if the Foreign Grantor is rated less than BBB+.
- (b) A Foreign Guarantor:
- (i) Must satisfy all provisions of this Attachment Q applicable to domestic Guarantors.
 - (ii) Must be a Credit Affiliate of the Participant.
 - (iii) Must maintain an agent for acceptance of service of process in the United States; such agent shall be situated in the Commonwealth of Pennsylvania, absent legal constraint.
 - (iv) Must be rated by at least one Rating Agency acceptable to PJM; the credit strength of a Foreign Guarantor may not be determined based on an evaluation of its audited financial statements without an actual credit rating as well.
 - (v) Must have a senior unsecured (or equivalent, in PJM's sole discretion) rating of BBB (one notch above BBB-) or greater by any and all agencies that provide rating coverage of the entity.
 - (vi) Must provide audited financial statements, in US GAAP format or any other format acceptable to PJM, with clear representation of net worth, intangible assets, and any other information PJM may require in order to determine the entity's Unsecured Credit Allowance.
 - (vii) Must provide a Secretary's Certificate from the Participant's corporate secretary certifying the adoption of Corporate Resolutions:
 1. Authorizing and approving the Guaranty; and
 2. Authorizing the Officers to execute and deliver the Guaranty on behalf of the Guarantor.
 - (viii) Must be domiciled in a country with a minimum long-term sovereign (or equivalent) rating of AA+/Aa1, with the following conditions:
 1. Sovereign ratings must be available from at least two rating agencies acceptable to PJM (e.g. S&P, Moody's, Fitch, DBRS).
 2. Each agency's sovereign rating for the domicile will be considered to be the lowest of: country ceiling, senior unsecured government debt, long-term foreign currency sovereign rating, long-term local currency sovereign rating, or other equivalent measures, at PJM's sole discretion.
 3. Whether ratings are available from two or three agencies, the lowest of the two or three will be used.
 - (ix) Must be domiciled in a country that recognizes and enforces judgments of US courts.

- (x) Must demonstrate financial commitment to activity in the United States as evidenced by one of the following:
 - 1. American Depository Receipts (ADR) are traded on the New York Stock Exchange, American Stock Exchange, or NASDAQ.
 - 2. Equity ownership worth over USD 100,000,000 in the wholly-owned or majority owned subsidiaries in the United States.
- (xi) Must satisfy all other applicable provisions of the PJM Tariff and/or Operating Agreement, including this Attachment Q.
- (xii) Must pay for all expenses incurred by PJM related to reviewing and accepting a foreign guaranty beyond nominal in-house credit and legal review.
- (xiii) Must, at its own cost, provide PJM with independent legal opinion from an attorney/solicitor of PJM's choosing and licensed to practice law in the United States and/or Guarantor's domicile, in form and substance acceptable to PJM in its sole discretion, confirming the enforceability of the Foreign Guaranty, the Guarantor's legal authorization to grant the Guaranty, the conformance of the Guaranty, Guarantor, and Guarantor's domicile to all of these requirements, and such other matters as PJM may require in its sole discretion.

2. Canadian Guaranties

The entity providing a Canadian Guaranty on behalf of a Participant is a Canadian Guarantor. A Participant may provide a Canadian Guaranty in satisfaction of part of its credit obligations or voluntary credit provision at PJM provided that all of the following conditions are met.

PJM reserves the right to deny, reject, or terminate acceptance of any Canadian Guaranty at any time for reasonable cause, including material adverse circumstances or occurrences.

- (a) A Canadian Guaranty:
 - (i) Must contain provisions equivalent to those contained in PJM's standard form of Foreign Guaranty with any modifications subject to review and approval by PJM counsel.
 - (ii) Must be denominated in US currency.
 - (iii) Must be written and executed solely in English, including any duplicate originals.
- (b) A Canadian Guarantor:
 - (i) Must be a Credit Affiliate of the Participant.
 - (ii) Must satisfy all provisions of this Attachment Q applicable to domestic Guarantors.
 - (iii) Must maintain an agent for acceptance of service of process in the United States; such agent shall be situated in the Commonwealth of Pennsylvania, absent legal constraint.
 - (iv) Must be rated by at least one Rating Agency acceptable to PJM; the credit strength of a Canadian Guarantor may not be determined based on an evaluation of its audited financial statements without an actual credit rating as well.
 - (v) Must provide audited financial statements, in US GAAP format or any other format acceptable to PJM with clear representation of net worth, intangible assets,

and any other information PJM may require in order to determine the entity's Unsecured Credit Allowance.

- (vi) Must satisfy all other applicable provisions of the PJM Tariff and/or Operating Agreement, including this Attachment Q.

D. Surety Bond

An unconditional, irrevocable surety bond can be utilized to meet the Collateral requirement for Participants. As stated below, the form, substance, and provider of the surety bond must all be acceptable to PJM.

- (i) An acceptable surety bond must be payable immediately upon demand without prior demonstration of the validity of the demand. The surety bond will only be accepted from a U.S. Treasury-listed approved surety that has either (i) a minimum corporate debt rating of “A” by Standard & Poor’s or Fitch Ratings, or “A2” from Moody’s Investors Service, or an equivalent short term rating from one of these agencies, or (ii) a minimum insurer rating of “A” by A.M. Best. PJMSettlement will consider the lowest applicable rating to be the rating of the surety. If the rating of a surety providing a surety bond is lowered below A/A2 by any rating agency, then PJMSettlement may require the Participant to provide a surety bond from another surety that is rated A/A2 or better, or to provide another form of Collateral.
- (ii) The surety bond shall have an initial period of at least one year, and shall state that it shall renew automatically for successive one-year periods, until terminated upon at least ninety (90) days prior written notice from the issuing surety. If PJM receives notice from the issuing surety that the current surety bond is being cancelled, the Participant will be required to provide evidence, acceptable to PJM, that such surety bond will be replaced with appropriate Collateral, effective as of the cancellation date of the surety bond, no later than thirty (30) days before the cancellation date of the surety bond, and no later than ninety (90) days after the notice of cancellation. Failure to do so will constitute a default under this Attachment Q and one of more of the Agreements enabling PJM to immediately demand payment of the full value of the surety bond.
- (iii) PJM will post on its web site an acceptable standard form of a surety bond that should be utilized by a Participant choosing to submit a surety bond to establish credit at PJM. The acceptable standard form of surety bond will include non-negotiable provisions, including but not be limited to, a payment on demand feature, requirement that the bond be construed pursuant to Pennsylvania law, making the surety’s obligation to pay out on the bond absolute and unconditional irrespective of the principal’s (Market Participant’s) bankruptcy, terms of any other agreements, investigation of the Market Participant by any entity or governmental authority, or PJM first attempting to collect payment from the Market Participant, and will require, among other things, that (a) the surety waive *all* rights that would be available to a principal or surety under the law, including

but not limited to any right to investigate or verify any matter related to a demand for payment, rights to set-off amounts due by PJM to the Market Participant, and all counterclaims, (b) the surety expressly waive *all* of its and the principal's defenses, including illegality, fraud in the inducement, reliance on statements or representations of PJM and every other typically available defense; (c) the language of the bond that is determinative of the surety's obligation, and not the underlying agreement or arrangement between the principal and the obligee; (d) the bond shall not be conditioned on PJM first resorting to any other means of security or collateral, or pursuing any other remedies it may have; and (e) the surety acknowledge the continuing nature of its obligations in the event of termination or nonrenewal of the surety bond to make clear the surety remains liable for any obligations that arose before the effective date of its notice of cancellation of the surety bond. If the surety bond varies in any way from the standard format, it must first be reviewed and approved by PJM. PJM shall not accept any surety bond that varies in any material way from the standard format.

- (iv) All costs associated with obtaining and maintaining a surety bond and meeting the Attachment Q provisions are the responsibility of the Participant.
- (v) PJM shall not accept surety bonds with an aggregate value greater than \$10 million dollars (\$10,000,000) issued by any individual surety on behalf of any individual Participant.
- (vi) PJM shall not accept surety bonds with an aggregate value greater than \$50 million dollars (\$50,000,000) issued by any individual surety.

E. PJM Administrative Charges

Collateral or credit support held by PJM shall also secure obligations to PJM for PJM administrative charges, and may be liquidated to satisfy all such obligations in an Event of Default.

F. Collateral and Credit Support Held by PJM

Collateral or credit support submitted by Participants and held by PJM shall be held by PJM for the benefit of PJM.

VI. SUPPLEMENTAL CREDIT REQUIREMENTS FOR SCREENED TRANSACTIONS

A. Virtual and Export Transaction Screening

1. Credit for Virtual and Export Transactions

Export Transactions and Virtual Transactions both utilize Credit Available for Virtual Transactions to support their credit requirements.

PJM does not require a Market Participant to establish separate or additional credit for submitting Virtual or Export Transactions; however, once transactions are submitted and accepted by PJM, PJM may require credit supporting those transactions to be held until the transactions are completed and their financial impact incorporated into the Market Participant's Obligations. If a Market Participant chooses to establish additional Collateral and/or Unsecured Credit Allowance in order to increase its Credit Available for Virtual Transactions, the Market Participant's Working Credit Limit for Virtual Transactions shall be increased in accordance with the definition thereof. The Collateral and/or Unsecured Credit Allowance available to increase a Market Participant's Credit Available for Virtual Transactions shall be the amount of Collateral and/or Unsecured Credit Allowance available after subtracting any credit required for Minimum Participation Requirements, FTR, RPM or other credit requirement determinants defined in this Attachment Q, as applicable.

If a Market Participant chooses to provide additional Collateral in order to increase its Credit Available for Virtual Transactions PJM may establish a reasonable timeframe, not to exceed three months, for which such Collateral must be maintained. PJM will not impose such restriction on a deposit unless a Market Participant is notified prior to making the deposit. Such restriction, if applied, shall be applied to all future deposits by all Market Participants engaging in Virtual Transactions.

A Market Participant may increase its Credit Available for Virtual Transactions by providing additional Collateral to PJM. PJM will make a good faith effort to make new Collateral available as Credit Available for Virtual Transactions as soon as practicable after confirmation of receipt. In any event, however, Collateral received and confirmed by noon on a Business Day will be applied (as provided under this Attachment Q) to Credit Available for Virtual Transactions no later than 10:00 am on the following Business Day. Receipt and acceptance of wired funds for cash deposit shall mean actual receipt by PJM's bank, deposit into PJM's customer deposit account, confirmation by PJM that such wire has been received and deposited, and entry into PJM's credit system. Receipt and acceptance of letters of credit or surety bonds shall mean receipt of the original Letter of Credit or surety bond, or amendment thereto, confirmation from PJM's credit and legal staffs that such Letter of Credit or surety bond, or amendment thereto conforms to PJM's requirements, which confirmation shall be made in a reasonable and practicable timeframe, and entry into PJM's credit system. To facilitate this process, bidders submitting additional Collateral for the purpose of increasing their Credit Available for Virtual Transactions are advised to submit such Collateral well in advance of the desired time, and to specifically notify PJM of such submission.

A Market Participant wishing to submit Virtual or Export Transactions must allocate within PJM's credit system the appropriate amount of Credit Available for Virtual Transactions to the virtual and export allocation sections within each customer account in which it wishes to submit such transactions.

2. Virtual Transaction Screening

All Virtual Transactions submitted to PJM shall be subject to a credit screen prior to acceptance in the Day-ahead Energy Market. The credit screen is applied separately for each of a Market Participant's customer accounts. The credit screen process will automatically reject Virtual Transactions submitted by the Market Participant in a customer account if the Market Participant's Credit Available for Virtual Transactions, allocated on a customer account basis, is exceeded by the Virtual Credit Exposure that is calculated based on the Market Participant's Virtual Transactions submitted, as described below.

A Market Participant's Virtual Credit Exposure will be calculated separately for each customer account on a daily basis for all Virtual Transactions submitted by the Market Participant for the next Operating Day using the following equation:

Virtual Credit Exposure = INC and DEC Exposure + Up-to Congestion Exposure
Where:

(a) INC and DEC Exposure for each customer account is calculated as:

(i) ((the total MWh bid or offered, whichever is greater, hourly at each node) x the Nodal Reference Price x 1 day) summed over all nodes and all hours; plus (ii) ((the difference between the total bid MWh cleared and total offered MWh cleared hourly at each node) x Nodal Reference Price) summed over all nodes and all hours for the previous cleared Day-ahead Energy Market.

(b) Up-to Congestion Exposure for each customer account is calculated as:

(i) Total MWh bid hourly for each Up-to Congestion Transaction x (price bid – Up-to Congestion Reference Price) summed over all Up-to Congestion Transactions and all hours; plus (ii) Total MWh cleared hourly for each Up-to Congestion Transaction x (cleared price – Up-to Congestion Reference Price) summed over all Up-to Congestion Transactions and all hours for the previous cleared Day-ahead Energy Market, provided that hours for which the calculation for an Up-to Congestion Transaction is negative, it shall be deemed to have a zero contribution to the sum.

3. Export Transaction Screening

Export Transactions in the Real-time Energy Market shall be subject to Export Transaction Screening. Export Transaction Screening may be performed either for the duration of the entire Export Transaction, or separately for each time interval comprising an Export Transaction. PJM will deny or curtail all or a portion (based on the relevant time interval) of an Export Transaction if that Export Transaction, or portion thereof, would otherwise cause the Market Participant's Export Credit Exposure to exceed its Credit Available for Export Transactions. Export Transaction Screening shall be applied separately for each Operating Day and shall also be applied to each Export Transaction one or more times prior to the market clearing process for each relevant time interval. Export Transaction Screening shall not apply to transactions established directly by and between PJM and a neighboring Balancing Authority for the purpose of maintaining reliability.

A Market Participant's credit exposure for an individual Export Transaction shall be the MWh volume of the Export Transaction for each relevant time interval multiplied by each relevant Export Transaction Price Factor and summed over all relevant time intervals of the Export Transaction.

B. RPM Auction and Price Responsive Demand Credit Requirements

Settlement during any Delivery Year of cleared positions resulting or expected to result from any RPM Auction shall be included as appropriate in Peak Market Activity, and the provisions of this Attachment Q shall apply to any such activity and obligations arising therefrom. In addition, the provisions of this section shall apply to any entity seeking to participate in any RPM Auction, to address credit risks unique to such auctions. The provisions of this section also shall apply under certain circumstances to PRD Providers that seek to commit Price Responsive Demand pursuant to the provisions of the Reliability Assurance Agreement.

Credit requirements described herein for RPM Auctions and RPM bilateral transactions are applied separately for each customer account of a Market Participant. Market Participants wishing to participate in an RPM Auction or enter into RPM bilateral transactions must designate the appropriate amount of credit to each account in which their offers are submitted.

1. Applicability

A Market Participant seeking to submit a Sell Offer in any RPM Auction based on any Capacity Resource for which there is a materially increased risk of nonperformance must satisfy the credit requirement specified herein before submitting such Sell Offer. A PRD Provider seeking to commit Price Responsive Demand for which there is a materially increased risk of non-performance must satisfy the credit requirement specified herein before it may commit the Price Responsive Demand. Credit must be maintained until such risk of non-performance is substantially eliminated, but may be reduced commensurate with the reduction in such risk, as set forth in section IV.B.3 below.

For purposes of this provision, a resource for which there is a materially increased risk of nonperformance shall mean: (i) a Planned Generation Capacity Resource; (ii) a Planned Demand Resource or an Energy Efficiency Resource; (iii) a Qualifying Transmission Upgrade; (iv) an existing or Planned Generation Capacity Resource located outside the PJM Region that at the time it is submitted in a Sell Offer has not secured firm transmission service to the border of the PJM Region sufficient to satisfy the deliverability requirements of the Reliability Assurance Agreement; or (v) Price Responsive Demand to the extent the responsible PRD Provider has not registered PRD-eligible load at a PRD Substation level to satisfy its Nominal PRD Value commitment, in accordance with Reliability Assurance Agreement, Schedule 6.1.

2. Reliability Pricing Model Auction and Price Responsive Demand Credit Requirement

Except as provided for Credit-Limited Offers below, for any resource specified in section IV.B.1 above, other than Price Responsive Demand, the credit requirement shall be the RPM Auction Credit Rate, as provided in section IV.B.4 below, times the megawatts to be offered for sale from such resource in an RPM Auction. For Qualified Transmission Upgrades, the credit requirements shall be based on the Locational Deliverability Area in which such upgrade was to increase the Capacity Emergency Transfer Limit. However, the credit requirement for Planned Financed Generation Capacity Resources and Planned External Financed Generation Capacity Resources shall be one half of the product of the RPM Auction Credit Rate, as provided in section IV.B.4 below, times the megawatts to be offered for sale from such resource in a Reliability Pricing Model Auction. The RPM Auction Credit Requirement for each Market Participant shall be determined on a customer account basis, separately for each customer account of a Market Participant, and shall be the sum of the credit requirements for all such resources to be offered by such Market Participant in the auction or, as applicable, cleared by such Market Participant in the relevant auctions. For Price Responsive Demand, the credit requirement shall be based on the Nominal PRD Value (stated in Unforced Capacity terms) times the Price Responsive Demand Credit Rate as set forth in section IV.B.5 below. Except for Credit-Limited Offers, the RPM Auction Credit requirement for a Market Participant will be reduced for any Delivery Year to the extent less than all of such Market Participant's offers clear in the Base Residual Auction or any Incremental Auction for such Delivery Year. Such reduction shall be proportional to the quantity, in megawatts, that failed to clear in such Delivery Year.

A Sell Offer based on a Planned Generation Capacity Resource, Planned Demand Resource, or Energy Efficiency Resource may be submitted as a Credit-Limited Offer. A Market Participant electing this option shall specify a maximum amount of Unforced Capacity, in megawatts, and a maximum credit requirement, in dollars, applicable to the Sell Offer. A Credit-Limited Offer shall clear the RPM Auction in which it is submitted (to the extent it otherwise would clear based on the other offer parameters and the system's need for the offered capacity) only to the extent of the lesser of: (i) the quantity of Unforced Capacity that is the quotient of the division of the specified maximum credit requirement by the Auction Credit Rate resulting from section IV.B.4.b. below; and (ii) the maximum amount of Unforced Capacity specified in the Sell Offer. For a Market Participant electing this alternative, the RPM Auction Credit requirement applicable prior to the posting of results of the auction shall be the maximum credit requirement specified in its Credit-Limited Offer, and the RPM Auction Credit requirement subsequent to posting of the results will be the Auction Credit Rate, as provided in section IV.B.4.b, c. or d. of this Attachment Q, as applicable, times the amount of Unforced Capacity from such Sell Offer that cleared in the auction. The availability and operational details of Credit-Limited Offers shall be as described in the PJM Manuals.

As set forth in section IV.B.4 below, a Market Participant's Auction Credit requirement shall be determined separately for each Delivery Year.

3. Reduction in Credit Requirement

As specified below, the RPM Auction Credit Rate may be reduced under certain circumstances after the auction has closed.

The Price Responsive Demand credit requirement shall be reduced as and to the extent the PRD Provider registers PRD-eligible load at a PRD Substation level to satisfy its Nominal PRD Value commitment, in accordance with Reliability Assurance Agreement, Schedule 6.1.

In addition, the RPM Auction Credit requirement for a Market Participant for any given Delivery Year shall be reduced periodically, after the Market Participant has provided PJM a written request for each reduction, accompanied by documentation sufficient for PJM to verify attainment of required milestones or satisfaction of other requirements, and PJM has verified that the Market Participant has successfully met progress milestones for its Capacity Resource that reduce the risk of non-performance, as follows:

(a) For Planned Demand Resources and Energy Efficiency Resources, the RPM Auction Credit requirement will be reduced in direct proportion to the megawatts of such Demand Resource that the Resource Provider qualifies as a Capacity Resource, in accordance with the procedures established under the Reliability Assurance Agreement.

(b) For Existing Generation Capacity Resources located outside the PJM Region that have not secured sufficient firm transmission to the border of the PJM Region prior to the auction in which such resource is first offered, the RPM Auction Credit requirement shall be reduced in direct proportion to the megawatts of firm transmission service secured by the Market Participant

that qualify such resource under the deliverability requirements of the Reliability Assurance Agreement.

(c) For Planned Generation Capacity Resources located in the PJM Region, the RPM Auction Credit requirement shall be reduced as the Capacity Resource attains the milestones stated in the following table and as further described in the PJM Manuals.

| Milestones | Increment of reduction from initial RPM Auction Credit requirement |
|--|---|
| Effective Date of Interconnection Service Agreement | 50% |
| Financial Close | 15% |
| Full Notice to Proceed and Commencement of Construction (e.g., footers poured) | 5% |
| Main Power Generating Equipment Delivered | 5% |
| Commencement of Interconnection Service | 25% |

For externally financed projects, the Market Participant must submit with its request for reduction a sworn, notarized certification of a duly authorized independent engineer for the Financial Close, Full Notice to Proceed and Commencement of Construction, and Main Power Generating Equipment Delivered milestones.

For internally financed projects, the Market Participant must submit with its request for reduction a sworn, notarized certification of a duly authorized officer of the Market Participant for the Financial Close milestone and either a duly authorized independent engineer or Professional Engineer for the Full Notice to Proceed and Commencement of Construction and the Main Power Generating Equipment Delivered milestones.

The required certifications must be in a form acceptable to PJM, certifying that the engineer or officer, as applicable, has personal knowledge, or has engaged in a diligent inquiry to determine, that the milestone has been achieved and that, based on its review of the relevant project information, the engineer or officer, as applicable, is not aware of any information that could reasonably cause it to believe that the Capacity Resource will not be in-service by the beginning of the applicable Delivery Year. The Market Participant shall, if requested by PJM, supply to PJM on a confidential basis all records and documents relating to the engineer's and/or officer's certifications.

(d) For Planned External Generation Capacity Resources, the RPM Auction Credit requirement shall be reduced as the Capacity Resource attains the milestones stated in the following table and as further described in the PJM Manuals; provided, however, that the total percentage reduction in the RPM Auction Credit requirement shall be no greater than the quotient of (i) the MWs of firm transmission service that the Market Participant has secured for the complete transmission path divided by (ii) the MWs of firm transmission service required to

qualify such resource under the deliverability requirements of the Reliability Assurance Agreement.

| Credit Reduction Milestones for Planned External Generation Capacity Resources | |
|---|---|
| Milestones | Increment of reduction from initial RPM Auction Credit requirement |
| Effective Date of the equivalent of an Interconnection Service Agreement | 50% |
| Financial Close | 15% |
| Full Notice to Proceed and Commencement of Construction (e.g., footers poured) | 5% |
| Main Power Generating Equipment Delivered | 5% |
| Commencement of Interconnection Service | 25% |

To obtain a reduction in its RPM Auction Credit requirement, the Market Participant must demonstrate satisfaction of the applicable milestone in the same manner as set forth for Planned Generation Capacity Resources in subsection (c) above.

(e) For Planned Financed Generation Capacity Resources located in the PJM Region, the RPM Auction Credit requirement shall be reduced as the Capacity Resource attains the milestones stated in the following table and as further described in the PJM Manuals.

| Credit Reduction Milestones for Planned Financed Generation Capacity Resources | |
|---|---|
| Milestones | Increment of reduction from initial RPM Auction Credit requirement |
| Full Notice to Proceed | 50% |
| Commencement of Construction (e.g., footers poured) | 15% |
| Main Power Generating Equipment Delivered | 10% |
| Commencement of Interconnection Service | 25% |

To obtain a reduction in its RPM Auction Credit requirement, the Market Participant must demonstrate satisfaction of the applicable milestone in the same manner as set forth for Planned Generation Capacity Resources in subsection (c) above.

(f) For Planned External Financed Generation Capacity Resources, the RPM Auction Credit Requirement shall be reduced as the Capacity Resource attains the milestones stated in the following table and as further described in the PJM Manuals; provided, however, that the total percentage reduction in the RPM Auction Credit requirement, including the initial 50% reduction for being a Planned External Financed Generation Capacity Resources, shall be no greater than the quotient of (i) the MWs of firm transmission service that the Market Participant has secured for the complete transmission path divided by (ii) the MWs of firm transmission service required

to qualify such resource under the deliverability requirements of the Reliability Assurance Agreement.

| Credit Reduction Milestones for Planned External Financed Generation Capacity | |
|--|---|
| Milestones | Increment of reduction from initial RPM Auction Credit requirement |
| Full Notice to Proceed | 50% |
| Commencement of Construction (e.g., footers poured) | 15% |
| Main Power Generating Equipment Delivered | 10% |
| Commencement of Interconnection Service | 25% |

To obtain a reduction in its RPM Auction Credit requirement, the Market Participant must demonstrate satisfaction of the applicable milestone in the same manner as set forth for Planned Generation Capacity Resources in subsection (c) above.

(g) For Qualifying Transmission Upgrades, the RPM Auction Credit requirement shall be reduced to 50% of the amount calculated under section IV.B.2 above beginning as of the effective date of the latest associated Interconnection Service Agreement (or, when a project will have no such agreement, an Upgrade Construction Service Agreement), and shall be reduced to zero on the date the Qualifying Transmission Upgrade is placed in service.

4. RPM Auction Credit Rate

As set forth in the PJM Manuals, a separate Auction Credit Rate shall be calculated for each Delivery Year prior to each RPM Auction for such Delivery Year, as follows:

- (a) Prior to the posting of the results of a Base Residual Auction for a Delivery Year, the Auction Credit Rate shall be:
- (i) For all Capacity Resources other than Capacity Performance Resources, (the greater of (A) 0.3 times the Net Cost of New Entry for the PJM Region for such Delivery Year, in MW-day or (B) \$20 per MW-day) times the number of calendar days in such Delivery Year; and
 - (ii) For Capacity Performance Resources, the greater of ((A) 0.5 times the Net Cost of New Entry for the PJM Region for such Delivery Year or for the Relevant LDA, in MW-day or (B) \$20 per MW-day) times the number of calendar days in such Delivery Year.
 - (iii) For Seasonal Capacity Performance Resources, the same as the Auction Credit Rate for Capacity Performance Resources, but reduced to be proportional to the number of calendar days in the relevant season.

(b) Subsequent to the posting of the results from a Base Residual Auction, the Auction Credit Rate used for ongoing credit requirements for supply committed in such auction shall be:

- (i) For all Capacity Resources other than Capacity Performance Resources, (the greater of (A) \$20/MW-day or (B) 0.2 times the Capacity Resource Clearing Price in such auction for the Locational Deliverability Area within which the resource is located) times the number of calendar days in such Delivery Year; and
- (ii) For Capacity Performance Resources, the (greater of [(A) \$20/MW-day or (B) 0.2 times the Capacity Resource Clearing Price in such auction for the Locational Deliverability Area within which the resource is located) or (C) the lesser of (1) 0.5 times the Net Cost of New Entry for the PJM Region for such Delivery Year or for the Relevant LDA, in \$/MW-day or (2) 1.5 times the Net Cost of New Entry (stated on an installed capacity basis) for the PJM Region for such Delivery year or for the Relevant LDA, in \$/MW-day minus (the Capacity Resource Clearing Price in such auction for the Locational Deliverability Area within which the resource is located)] times the number of calendar days in such Delivery Year).
- (iii) For Seasonal Capacity Performance Resources, the same as the Auction Credit Rate for Capacity Performance Resources, but reduced to be proportional to the number of calendar days in the relevant season.

(c) For any resource not previously committed for a Delivery Year that seeks to participate in an Incremental Auction, the Auction Credit Rate shall be:

(i) For all Capacity Resources other than Capacity Performance Resources, (the greater of (A) 0.3 times the Net Cost of New Entry for the PJM Region for such Delivery Year, in MW-day or (B) 0.24 times the Capacity Resource Clearing Price in the Base Residual Auction for such Delivery Year for the Locational Deliverability Area within which the resource is located or (C) \$20 per MW-day) times the number of calendar days in such Delivery Year; and

(ii) For Capacity Performance Resources, the (greater of (A) 0.5 times Net Cost of New Entry for the PJM Region for such Delivery Year or for the Relevant LDA or (B) \$20/MW-day) times the number of calendar days in such Delivery Year.

(d) Subsequent to the posting of the results of an Incremental Auction, the Auction Credit Rate used for ongoing credit requirements for supply committed in such auction shall be:

- (i) For Base Capacity Resources: (the greater of (A) \$20/MW-day or (B) 0.2 times the Capacity Resource Clearing Price in such auction for the Locational Deliverability Area within which the resource is located) times the number of calendar days in such Delivery Year, but no greater than the Auction Credit Rate previously established for such resource's participation in such Incremental Auction pursuant to subsection (c) above) times the number of calendar days in such Delivery Year;

- (ii) For Capacity Performance Resources, the greater of [(A) \$20/MW-day or (B) 0.2 times the Capacity Resource Clearing Price in such auction for the Locational Deliverability Area within which the resource is located or (C) the lesser of (1) 0.5 times the Net Cost of New Entry for the PJM Region for such Delivery Year or for the Relevant LDA, in \$/MW-day or (2) 1.5 times the Net Cost of New Entry (stated on an installed capacity basis) for the PJM Region for such Delivery Year or for the Relevant LDA, in \$/MW-day minus (the Capacity Resource Clearing Price in such auction for the Locational Deliverability Area within which the resource is located)] times the number of calendar days in such Delivery Year); and
- (iii) For Seasonal Capacity Performance Resources, the same as the Auction Credit Rate for Capacity Performance Resources, but reduced to be proportional to the number of calendar days in the relevant season.

(e) For the purposes of this section IV.B.4 and section IV.B.5 below, “Relevant LDA” means the Locational Deliverability Area in which the Capacity Performance Resource is located if a separate Variable Resource Requirement Curve has been established for that Locational Deliverability Area for the Base Residual Auction for such Delivery Year.

5. Price Responsive Demand Credit Rate

- (a) For the 2018/2019 through 2022/2023 Delivery Years:
 - (i) Prior to the posting of the results of a Base Residual Auction for a Delivery Year, the Price Responsive Demand Credit Rate shall be (the greater of (A) 0.3 times the Net Cost of New Entry for the PJM Region for such Delivery Year, in MW-day or (B) \$20 per MW-day) times the number of calendar days in such Delivery Year;
 - (ii) Subsequent to the posting of the results from a Base Residual Auction, the Price Responsive Demand Credit Rate used for ongoing credit requirements for Price Responsive Demand committed in such auction shall be (the greater of (A) \$20/MW-day or (B) 0.2 times the Capacity Resource Clearing Price in such auction for the Locational Deliverability Area within which the Price Responsive Demand load is located, in \$/MW-day) times the number of calendar days in such Delivery Year times a final price uncertainty factor of 1.05;
 - (iii) For any additional Price Responsive Demand that seeks to commit in a Third Incremental Auction in response to a qualifying change in the final LDA load forecast, the Price Responsive Demand Credit Rate shall be the same as the rate for Price Responsive Demand that had cleared in the Base Residual Auction; and
 - (iv) Subsequent to the posting of the results of the Third Incremental Auction, the Price Responsive Demand Credit Rate used for ongoing credit requirements for

all Price Responsive Demand, shall be (the greater of (i) \$20/MW-day or (ii) 0.2 times the Final Zonal Capacity Price for the Locational Deliverability Area within which the Price Responsive Demand is located) times the number of calendar days in such Delivery Year, but no greater than the Price Responsive Demand Credit Rate previously established under subsections (a)(i), (a)(ii), or (a)(iii) of this section for such Delivery Year.

- (b) For the 2022/2023 Delivery Year and Subsequent Delivery Years:
- (i) Prior to the posting of the results of a Base Residual Auction for a Delivery Year, the Price Responsive Demand Credit Rate shall be (the greater of (A) 0.5 times the Net Cost of New Entry for the PJM Region for such Delivery Year or for the Relevant LDA, in \$/MW-day or (B) \$20 per MW-day) times the number of calendar days in such Delivery Year;
 - (ii) Subsequent to the posting of the results from a Base Residual Auction, the Price Responsive Demand Credit Rate used for ongoing credit requirements for Price Responsive Demand committed in such auction shall be (the greater of [(A) \$20/MW-day or (B) 0.2 times the Capacity Resource Clearing Price in such auction for the Locational Deliverability Area within which the Price Responsive Demand is located, in \$/MW-day or (C) the lesser of (1) 0.5 times the Net Cost of New Entry for the PJM Region for such Delivery Year or for the Relevant LDA, in \$/MW-day or (2) 1.5 times the Net Cost of New Entry (stated on an installed capacity basis) for the PJM Region for such Delivery year or for the Relevant LDA, in \$/MW-day minus (the Capacity Resource Clearing Price in such auction for the Locational Deliverability Area within which the Price Responsive Demand is located)] times the number of calendar days in such Delivery Year;
 - (iii) For any additional Price Responsive Demand that seeks to commit in a Third Incremental Auction in response to a qualifying change in the final LDA load forecast, the Price Responsive Demand Credit Rate shall be (the greater of (A) 0.5 times Net Cost of New Entry for the PJM Region for such Delivery Year or for the Relevant LDA, in \$/MW-day or (B) \$20/MW-day) times the number of calendar days in such Delivery Year; and
 - (iv) Subsequent to the posting of the results of the Third Incremental Auction, the Price Responsive Demand Credit Rate used for ongoing credit requirements for all Price Responsive Demand committed in such auction shall be the greater of [(A) \$20/MW-day or (B) 0.2 times the Capacity Resource Clearing Price in such auction for the Locational Deliverability Area within which the Price Responsive Demand is located or (C) the lesser of (1) 0.5 times the Net Cost of New Entry for the PJM Region for such Delivery Year or for the Relevant LDA, in \$/MW-day or (2) 1.5 times the Net Cost of New Entry (stated on an installed capacity basis) for the PJM Region for such Delivery Year or for the Relevant LDA, in \$/MW-day minus (the Capacity Performance Resource Clearing Price in such Incremental Auction for the Locational Deliverability Areas within which the Price

Responsive Demand is located)] times the number of calendar days in such Delivery Year.

6. RPM Seller Credit - Additional Form of Unsecured Credit for RPM

In addition to the forms of credit specified elsewhere in this Attachment Q, RPM Seller Credit shall be available to Market Participants, but solely for purposes of satisfying RPM Auction Credit requirements. If a supplier has a history of being a net seller into PJM Markets, on average, over the past 12 months, then PJM will count as available Unsecured Credit twice the average of that Market Participant's total net monthly PJM bills over the past 12 months. This RPM Seller Credit shall be subject to the cap on available Unsecured Credit as established in section II.G.3 above.

RPM Seller Credit is calculated as a single value for each Market Participant, not separately by account, and must be designated to specific customer accounts in order to be available to satisfy RPM Auction Credit requirements that are calculated in each such customer account.

7. Credit Responsibility for Traded Planned RPM Capacity Resources

PJM may require that credit and financial responsibility for planned Capacity Resources that are traded remain with the original party (which for these purposes, means the party bearing credit responsibility for the planned Capacity Resource immediately prior to trade) unless the receiving party independently establishes consistent with this Attachment Q, that it has sufficient credit with PJM and agrees by providing written notice to PJM that it will fully assume the credit responsibility associated with the traded planned Capacity Resource.

C. Financial Transmission Right Auctions

Credit requirements described herein for FTR activity are applied separately for each customer account of a Market Participant, unless specified otherwise in this section C. FTR Participants must designate the appropriate amount of credit to each separate customer account in which any activity occurs or will occur.

1. FTR Credit Limit.

Participants must maintain their FTR Credit Limit at a level equal to or greater than their FTR Credit Requirement for each applicable account. FTR Credit Limits will be established only by a Participant providing Collateral and designating the available credit to specific accounts.

2. FTR Credit Requirement.

For each Market Participant with FTR activity, PJM shall calculate an FTR Credit Requirement. The FTR Credit Requirement shall be *calculated on a portfolio basis for each Market Participant based on (a) initial margin, (b) Auction Revenue Right Credits, (c) Mark-to-Auction Value, (d) application of a 10¢ per MWh minimum value adjustment, and (e) realized gains and/or losses, as set forth in subsections (a)-(e) of this subsection, employing the formula:*

$\text{Max} \{ \text{Max} (\text{IM} - \text{ARR} - \text{MTA}, \text{Ten Cent per Mwh Minimum}) - \text{Realized Gains and/or Losses}, 0 \}$

Where *IM* is the initial margin, *ARR* is Auction Revenue Rights Credits and *MTA* is the Mark-to-Auction Value. The FTR Credit Requirement may be increased to reflect any change in the value of a Market Participant's portfolio requiring an increase in Collateral as further described below.

(a) *Initial Margin*

Initial margin shall be calculated in accordance with the following formula:

$$\text{IM} = \text{FTR Obligations IM} + \text{FTR Options IM}$$

The model will employ a confidence interval of 97 percent.

(i) *FTR Obligations IM*

Initial margin values for Financial Transmission Right Obligations shall be determined utilizing a historical simulation value-at-risk methodology that calculates the size and value at risk of the applicable FTR portfolio based on a defined confidence interval and subject to a weighted aggregation method that is represented by a straight sum for long term positions and a combination of straight sum (20%) and weighted root sum of squares (80%) for balance of planning period positions.

(ii) *FTR Options IM*

The initial margin for Financial Transmission Right Options shall be calculated as the FTR cost minus the FTR Historical Values. FTR Historical Values shall be calculated separately for weekend on-peak, weekday on-peak, off-peak, and 24-hour FTRs for each month of the year. FTR Historical Values shall be adjusted by plus or minus ten percent for cleared counter flow or prevailing flow FTRs, respectively, in order to mitigate exposure due to uncertainty and fluctuations in actual FTR value. Historical values used in the calculation of FTR Historical Values shall be adjusted when the network simulation model utilized in PJM's economic planning process indicates that transmission congestion will decrease due to certain transmission upgrades that are in effect or planned to go into effect for the following Planning Period. The transmission upgrades to be modeled for this purpose shall only include those upgrades that, individually, or together, have 10% or more impact on the transmission congestion on an individual constraint or constraints with congestion of \$5 million or more affecting a common congestion path. The adjustments to historical values shall be the dollar amount of the adjustment shown in the network simulation model.

(b) *Auction Revenue Rights Credits*

For a given month for which initial margin is calculated, the prorated value of any Auction Revenue Rights Credits held by a Market Participant with Financial Transmission Right Obligations shall be subtracted from the initial margin for that month. In accordance with subsection 3 below, PJM may recalculate Auction Revenue Rights Credits at any time, but shall do so no less frequently than subsequent to each annual FTR auction. If a reduction in such ARR credits at any time increases an FTR Participant's FTR Credit Requirements beyond its credit available for FTR activity, the FTR Participant must increase its Collateral or the FTR Credit Limit.

(c) Mark-to-Auction Value

A Mark-to-Auction Value shall be calculated for each Market Participant in accordance with subsection 7 below.

(d) Ten Cent (10¢) per MWh Minimum Value Adjustment

If the FTR Credit Requirement as calculated pursuant to subsections (a)-(c) above, results in a value that is less than ten cents (10¢) per MWh, the FTR Credit Requirement shall be increased to ten cents (10¢) per MWh. When calculating the portfolio MWh for this comparison, for cleared "Sell" FTRs, the MWh shall be subtracted from the portfolio total; prior to clearing, the MWh for "Sell" FTRs shall not be included in the portfolio total.

(e) Realized Gains and/or Losses

Any realized gains and/or losses resulting from the sale of Financial Transmission Right Obligations will be subtracted from the FTR Credit Requirement. A realized gain will decrease the FTR Credit Requirement (but not below \$0.00), whereas a realized loss will increase the FTR Credit Requirement.

3. Rejection of FTR Bids.

Bids submitted into an auction will be rejected if the Market Participant's FTR Credit Requirement including such submitted bids would exceed the Market Participant's FTR Credit Limit, or if the Market Participant fails to provide additional Collateral as required pursuant to provisions related to mark-to-auction.

4. FTR Credit Collateral Returns.

A Market Participant may request from PJM the return of any Collateral no longer required for the FTR markets. PJM is permitted to limit the frequency of such requested Collateral returns, provided that Collateral returns shall be made by PJM at least once per calendar quarter, if requested by a Market Participant.

5. Credit Responsibility for Bilateral Transfers of FTRs.

PJM may require that credit responsibility associated with an FTR bilaterally transferred to a new Market Participant remain with the original party (which for these purposes, means the party bearing credit responsibility for the FTR immediately prior to bilateral transfer) unless and until the receiving party independently establishes, consistent with this Attachment Q, sufficient credit with PJM and agrees through confirmation of the bilateral transfer in PJM's FTR reporting tool that it will meet in full the credit requirements associated with the transferred FTR.

6. FTR Administrative Charge Credit Requirement

In addition to any other credit requirements, PJM may apply a credit requirement to cover the maximum administrative fees that may be charged to a Market Participant for its bids and offers.

7. Mark-to-Auction

A Mark-to-Auction Value shall be calculated separately for each customer account of a Market Participant. For each such customer account, the Mark-to-Auction Value shall be a single number equal to the sum, over all months remaining in the applicable FTR period and for all cleared FTRs in the customer account, of the most recently available cleared auction price applicable to the FTR minus the original transaction price of the FTR, multiplied by the transacted quantity.

The FTR Credit Requirement, as otherwise described above, shall be increased when the Mark-to-Auction Value is negative *and decreased when the Mark-to-Auction Value is positive*. The increase shall equal the absolute value of the negative Mark-to-Auction Value less the value of ARR credits that are held in the customer account and have not been used to reduce the FTR Credit Requirement prior to application of the Mark-to-Auction Value. PJM shall recalculate ARR credits held by each Market Participant after each annual FTR auction and may also recalculate such ARR credits at any other additional time intervals it deems appropriate. Application of the Mark-to-Auction Value, including the effect from ARR application, shall not decrease the FTR Credit Requirement *below the Ten Cent (10¢) per MWh Minimum*.

For Market Participant customer accounts for which FTR bids have been submitted into the current FTR auction, if the Market Participant's FTR Credit Requirement exceeds its credit available for the Market Participant's portfolio of FTRs in the tentative cleared solution for an FTR auction (or auction round), PJM shall issue a Collateral Call to the Market Participant, and the Market Participant must fulfill such demand before 4:00 p.m. *Eastern Prevailing Time* on the following Business Day. If a Market Participant does not timely satisfy such Collateral Call,

PJM shall, in coordination with PJM, cause the removal of all of that Market Participant's bids in that FTR auction (or auction round), submitted from such Market Participant's customer account, and a new cleared solution shall be calculated for the FTR auction (or auction round).

If necessary, PJM shall repeat the auction clearing calculation. PJM shall repeat these mark-to-auction calculations subsequent to any secondary clearing calculation, and PJM shall require affected Market Participants to establish additional credit.

Subsequent to final clearing of an FTR auction or an annual FTR auction round, PJM shall recalculate the FTR Credit Requirement for all FTR portfolios, and, as applicable, issue to each Market Participant *a request for Collateral* for the total amount by which the FTR Credit Requirement exceeds the credit allocated in any of the Market Participant's accounts. *The Market Participant must fulfill such demand by 4:00 p.m. Eastern Prevailing Time on the following Business Day.*

If the *request for Collateral* is not satisfied within the applicable cure period referenced in Operating Agreement, section 15, then such Market Participant shall be restricted in all of its credit-screened transactions. Specifically, such Market Participant may not engage in any Virtual Transactions or Export Transactions, or participate in RPM Auctions or other RPM activity. Such Market Participant may engage only in the selling of open FTR positions, either in FTR auctions or bilaterally, provided such sales would reduce the Market Participant's FTR Credit Requirements. PJM shall not return any Collateral to such Market Participant, and no payment shall be due or payable to such Market Participant, until its credit shortfall is remedied. Market Participant shall allocate any excess or unallocated Collateral to any of its account in which there is a credit shortfall. Market Participants may remedy their credit shortfall at any time through provision of sufficient Collateral.

If a Market Participant fails to satisfy *a request for Collateral* for two consecutive auctions of overlapping periods, e.g. two balance of Planning Period auctions, an annual FTR auction and a balance of Planning Period auction, or two long term FTR auctions, (for this purpose the four rounds of an annual FTR auction shall be considered a single auction), the Market Participant shall be declared in default of this Attachment Q.

VII. PEAK MARKET ACTIVITY AND WORKING CREDIT LIMIT

A. Peak Market Activity Credit Requirement

PJM shall calculate a Peak Market Activity credit requirement for each Participant. Each Participant must maintain sufficient Unsecured Credit Allowance and/or Collateral, as applicable, and subject to the provisions herein, to satisfy its Peak Market Activity credit requirement.

Peak Market Activity for Participants will be determined semi-annually, utilizing an initial Peak Market Activity, as explained below, calculated after the first complete billing week in the months of April and October. Peak Market Activity shall be the greater of the initial Peak Market Activity, or the greatest amount invoiced for the Participant's transaction activity for all

PJM Markets and services in any rolling one, two, or three week period, ending within a respective semi-annual period. However, Peak Market Activity shall not exceed the greatest amount invoiced for the Participant's transaction activity for all PJM Markets and services in any rolling one, two or three week period in the prior 52 weeks.

Peak Market Activity shall exclude FTR Net Activity, Virtual Transactions Net Activity, and Export Transactions Net Activity.

When calculating Peak Market Activity, PJM may attribute credits for Regulation service to the days on which they were accrued, rather than including them in the month-end invoice.

The initial Peak Market Activity for Applicants will be determined by PJM based on a review of an estimate of their transactional activity for all PJM Markets and services over the next 52 weeks, which the Applicant shall provide to PJM.

The initial Peak Market Activity for Market Participants and Transmission Customers, calculated at the beginning of each semi-annual period, shall be the three-week average of all non-zero invoice totals over the previous 52 weeks. This calculation shall be performed and applied within three (3) Business Days following the day the invoice is issued for the first full billing week in the current semi-annual period.

Prepayments shall not affect Peak Market Activity unless otherwise agreed to in writing pursuant to this Attachment Q.

Peak Market Activity calculations shall take into account reductions of invoice values effectuated by early payments which are applied to reduce a Participant's Peak Market Activity as contemplated by other terms of this Attachment Q; provided that the initial Peak Market Activity shall not be less than the average value calculated using the weeks for which no early payment was made.

A Participant may reduce its Collateral requirement by agreeing in writing (in a form acceptable to PJM) to make additional payments, including prepayments, as and when necessary to ensure that such Participant's Total Net Obligation at no time exceeds such reduced Collateral requirement.

PJM may, at its discretion, adjust a Participant's Peak Market Activity requirement if PJM determines that the Peak Market Activity is not representative of such Participant's expected activity, as a consequence of known, measurable, and sustained changes. Such changes may include, but shall not be limited to when a Participant makes PJM aware of federal, state or local law that could affect the allocation of charges or credits from a Participant to another party, the loss (without replacement) of short-term load contracts, when such contracts had terms of three months or more and were acquired through state-sponsored retail load programs, but shall not include short-term buying and selling activities.

PJM may waive the credit requirements for a Participant that has no outstanding transactions and agrees in writing that it shall not, after the date of such agreement, incur obligations under any of

the Agreements. Such entity's access to all electronic transaction systems administered by PJM shall be terminated.

A Participant receiving unsecured credit may make early payments up to ten times in a rolling 52-week period in order to reduce its Peak Market Activity for credit requirement purposes. Imputed Peak Market Activity reductions for credit purposes will be applied to the billing period for which the payment was received. Payments used as the basis for such reductions must be received prior to issuance or posting of the invoice for the relevant billing period. The imputed Peak Market Activity reduction attributed to any payment may not exceed the amount of Unsecured Credit for which the Participant is eligible.

B. Working Credit Limit

PJM will establish a Working Credit Limit for each Participant against which its Total Net Obligation will be monitored.

If a Participant's Total Net Obligation approaches its Working Credit Limit, PJM may require the Participant to make an advance payment or increase its Collateral in order to maintain its Total Net Obligation below its Working Credit Limit. Except as explicitly provided herein, advance payments shall not serve to reduce the Participant's Peak Market Activity for the purpose of calculating credit requirements.

Example: After ten (10) calendar days, and with five (5) calendar days remaining before the bill is due to be paid, a Participant approaches its \$4.0 million Working Credit Limit. PJM may require a prepayment of \$2.0 million in order that the Total Net Obligation will not exceed the Working Credit Limit.

If a Participant exceeds its Working Credit Limit or is required to make advance payments more than ten times during a 52-week period, PJM may require Collateral in an amount as may be deemed reasonably necessary to support its Total Net Obligation.

When calculating Total Net Obligation, PJM may attribute credits for Regulation service to the days on which they were accrued, rather than including them in the month-end invoice.

VIII. SUSPENSION OR LIMITATION ON MARKET PARTICIPATION

If PJM determines that a Participant presents an unreasonable credit risk as determined pursuant to initial or ongoing risk evaluations, as described in section II above, or in the case of any other event which, after notice, lapse of time, or both, would result in an Event of Default, PJM will take steps to mitigate the exposure of any PJM Markets, which may include, but is not limited to, requiring Collateral, additional Collateral or Restricted Collateral or suspending or limiting the Market Participant's ability to participate in the PJM Markets commensurate to the risk to any PJM Markets.

If a Participant fails to reduce or eliminate any unreasonable credit risks to PJM's satisfaction within the applicable cure period including without limitation by posting Collateral, additional Collateral or Restricted Collateral, PJM may treat such failure as an Event of Default.

Notwithstanding the foregoing, a Participant that transacts in FTRs will be eligible to request that PJM exempt or exclude FTR transactions of such Participant from the effect of any such limitations on market activity established by PJM, and PJM may but shall not be required to so exempt or exclude, any FTR transactions that the Participant reasonably demonstrates to PJM it has entered into to “hedge or mitigate commercial risk” arising from its transactions in the PJM Interchange Energy Market that are intended to result in the actual flow of physical energy or ancillary services in the PJM Region, as the phrase “hedge or mitigate commercial risks” is defined under the CFTC’s regulations defining the end-user exception to clearing set forth in 17 C.F.R. §50.50(c).

IX. REMEDIES FOR CREDIT BREACH, FINANCIAL DEFAULT OR CREDIT SUPPORT DEFAULT; REMEDIES FOR EVENTS OF DEFAULT

If PJM determines that a Market Participant is in Credit Breach, or that a Financial Default or Credit Support Default exists, PJM may issue to the Market Participant a breach notice and/or a Collateral Call or demand for additional documentation or assurances. At such time, PJM may also suspend payments of any amounts due to the Participant and limit, restrict or rescind the Market Participant’s privileges to participate in any or all PJM Markets under the Agreements during any such cure period. Failure to remedy the Credit Breach, Financial Default or to satisfy a Collateral Call or demand for additional documentation or assurances within the applicable cure period described in Operating Agreement, section 15.1.5, shall constitute an Event of Default. If a Participant fails to meet the requirements of this Attachment Q, but then remedies the Credit Breach, Financial Default or Credit Support Default, or satisfies a Collateral Call or demand for additional documentation or assurances within the applicable cure period, then the Participant shall be deemed to again be in compliance with this Attachment Q, so long as no other Credit Breach, Financial Default, Credit Support Default or Collateral Call or demand for additional documentation or assurances has occurred and is continuing.

Only one cure period shall apply to a single event giving rise to a Credit Breach, Financial Default or Credit Support Default. Application of Collateral towards a Financial Default, Credit Breach or Credit Support Breach shall not be considered a cure of such Credit Breach, Financial Default or Credit Support Default unless the Participant is determined by PJM to be in full compliance with all requirements of this Attachment Q after such application.

When an Event of Default under this Attachment Q or one or more of the Agreements has occurred and is continuing, PJM may take such actions as may be required or permitted under the Agreements to protect the PJM Markets and the PJM Members, including but not limited to (a) suspension and/or termination of the Participant’s ongoing Transmission Service, (b) limitation, suspension and/or termination of participation in any PJM Markets, (c) close out and liquidation of the Market Participant’s market portfolio, exercising judgment in the manner in which this is achieved in any PJM Markets. When an Event of Default under this Attachment Q or one or more of the Agreements has occurred and is continuing, PJM also has the immediate right to liquidate all or a portion of a Participant’s Collateral at its discretion to satisfy Total Net Obligations to PJM under this Attachment Q or one or more of the Agreements. No remedy for an Event of Default is or shall be deemed to be exclusive of any other available remedy or remedies by contract or under applicable laws and regulations. Each such remedy shall be

distinct, separate and cumulative, shall not be deemed inconsistent with or in exclusion of any other available remedy, and shall be in addition to and separate and distinct from every other remedy.

When an Event of Default under this Attachment Q or one or more of the Agreements has occurred and is continuing, PJM may continue to retain all payments due to a Participant as a cash security for all such Participant's obligations under the Agreements (regardless of any restrictions placed on such Participant's use of Collateral for any account, market activity or capitalization purpose); provided, however, that an Event of Default will not be deemed cured or no longer continuing because PJM is retaining amounts due the Participant, or because PJM has not yet applied Collateral or credit support to any amounts due PJM, unless PJM determines that the Participant has again satisfied all the Collateral requirements and application requirements as a new Applicant for participation in the PJM Markets, and consistent with the requirements and limitations of Operating Agreement, section 15.

In Event of Default by a Participant, PJM may exercise any remedy or action allowed or prescribed by this Attachment Q immediately or following investigation and determination of an orderly exercise of such remedy or action. Delay in exercising any allowed remedy or action shall not preclude PJM from exercising such remedy or action at a later time.

PJM may hold a defaulting Participant's Collateral for as long as such party's positions exist and consistent with this Attachment Q, in order to protect the PJM Markets and PJM's membership, and minimize or mitigate the impacts or potential impacts or risks associated with such Event of Default when an Event of Default under this Attachment Q or one or more of the Agreements has occurred and is continuing.

PJM may apply towards an ongoing Event of Default any amounts that are held or later become available or due to the defaulting Participant through PJM's markets and systems.

In order to cover the Participant's Obligations, PJM may hold a Participant's Collateral indefinitely and specifically through the end of the billing period which includes the 90th day following the last day a Participant had activity, open positions, or accruing obligations (other than reconciliations and true-ups), until such Participant has satisfactorily paid any obligations invoiced through such period and until PJM determines that the Participant's positions represent no risk exposure to the PJM Markets or the PJM Members. Obligations incurred or accrued through such period shall survive any withdrawal from PJM. When an Event of Default under this Attachment Q or one or more of the Agreements has occurred and is continuing, PJM may apply any Collateral to such Participant's Obligations, even if Participant had previously announced and effected its withdrawal from PJM.

X. FTRS UNDER THE COMMODITY EXCHANGE ACT AND THE BANKRUPTCY CODE

Under the terms of the Tariff, PJM Settlement is the counterparty to all transactions in PJM Markets, including but not limited to all FTR transactions, other than (i) any bilateral transactions between Participants, or (ii) with respect to self-supplied or self-scheduled

transactions reported to the Office of the Interconnection. Pursuant to the “Final Order in Response to a Petition From Certain Independent System Operators and Regional Transmission Organizations To Exempt Specified Transactions Authorized by a Tariff or Protocol Approved by the Federal Energy Regulatory Commission or the Public Utility Commission of Texas From Certain Provisions of the Commodity Exchange Act Pursuant to the Authority Provided in the Act” 78 Fed. Reg. 19880 (April 2, 2013) (the “CFTC RTO/ISO Order”), the Commodity Futures Trading Commission (the “CFTC”) exempts transactions offered or entered into in a market administered by PJM pursuant to the Tariff, including but not limited to FTR transactions, from the provisions of the Commodity Exchange Act and the CFTC’s rules applicable to “swaps,” with the exception of the CFTC’s general anti-fraud and anti-manipulation authority and scienter-based prohibitions.

Notwithstanding the CFTC RTO/ISO Order, for purposes of the United States Bankruptcy Code (“Bankruptcy Code”), all FTR transactions constitute “swap agreements” and/or “forward contracts,” and PJM and each FTR Participant is a “forward contract merchant” and/or a “swap participant” within the meaning of the Bankruptcy Code for purposes of FTR transactions.

Pursuant to this Attachment Q and other provisions of the Agreements, PJM already has, and shall continue to have, the following rights (among other rights) with respect to a Market Participant’s Event of Default: (a) the right to terminate and/or liquidate any FTR transaction held by that Market Participant; (b) the right to immediately proceed against any Collateral provided by the Market Participant; (c) the right to set-off any obligations due or owing to that Market Participant pursuant to any forward contract, swap agreement, or similar agreement against any amounts due and owing by that Market Participant pursuant to any forward contract, swap agreement, or similar agreement, such arrangement to constitute a “master netting agreement” within the meaning of the Bankruptcy Code; and (d) the right to suspend or limit that Market Participant from entering into further FTR transactions.

For the avoidance of doubt, upon the commencement of a voluntary or involuntary proceeding for a Participant under the Bankruptcy Code, and without limiting any other rights of PJM or obligations of any Participant under the Agreements, PJM may exercise any of its rights against such Participant, including, without limitation (1) the right to terminate and/or liquidate any FTR transaction held by that Participant, (2) the right to immediately proceed against any Collateral provided by that Participant, (3) the right to set off any obligations due and owing to that Participant pursuant to any forward contract, swap agreement and/or master netting agreement against any amounts due and owing by that Participant with respect to an FTR transaction including as a result of the actions taken by PJM pursuant to (a) above, and 4) the right to suspend or limit that Participant from entering into future FTR transactions.

For purposes of the Bankruptcy Code, all transactions, including but not limited to FTR transactions, between PJM, on the one hand, and a Market Participant, on the other hand, are intended to be part of a single integrated agreement, and together with the Agreements constitute a “master netting agreement.”

Attachment Q
Appendix 1

PJM MINIMUM PARTICIPATION CRITERIA
ANNUAL OFFICER CERTIFICATION FORM

| |
|---|
| Participant Name: _____ ("Participant") |
|---|

I, _____, a duly authorized officer of Participant, understanding that PJM Interconnection, L.L.C. and PJMSettlement, Inc. ("PJMSettlement") are relying on this certification as evidence that Participant meets the minimum requirements set forth in the PJM Open Access Transmission Tariff ("PJM Tariff"), Attachment Q hereby certify that I have full authority to represent on behalf of Participant and further represent as follows, as evidenced by my initialing each representation in the space provided below:

1. All employees or agents transacting in markets or services provided pursuant to the PJM Tariff or PJM Amended and Restated Operating Agreement ("PJM Operating Agreement") on behalf of the Participant have received appropriate training and are authorized to transact on behalf of Participant. As used in this representation, the term "appropriate" as used with respect to training means training that is (i) comparable to generally accepted practices in the energy trading industry, and (ii) commensurate and proportional in sophistication, scope and frequency to the volume of transactions and the nature and extent of the risk taken by the participant. _____

2. Participant has written risk management policies, procedures, and controls, approved by Participant's independent risk management function and applicable to transactions in any PJM Markets in which it participates and for which employees or agents transacting in markets or services provided pursuant to the PJM Tariff or PJM Operating Agreement have been trained, that provide an appropriate, comprehensive risk management framework that, at a minimum, clearly identifies and documents the range of risks to which Participant is exposed, including, but not limited to credit risks, liquidity risks and market risks. As used in this representation, a Participant's "independent risk management function" can include appropriate corporate persons or bodies that are independent of the Participant's trading functions, such as a risk management committee, a risk officer, a Participant's board or board committee, or a board or committee of the Participant's parent company.
 - a. Participant is providing to PJM or PJMSettlement, in accordance with Tariff, Attachment Q, section III, with this Annual Officer Certification Form, a copy of its current governing risk management policies, procedures and controls applicable to its activities in any PJM Markets pursuant to Attachment Q or because there have been substantive changes made to such policies, procedures and controls applicable to its market activities since they were last provided to PJM. _____

 - b. If the risk management policies, procedures and controls applicable to Participant's market activities submitted to PJM or PJMSettlement were submitted prior to the current certification, Participant certifies that no substantive changes have

been made to such policies, procedures and controls applicable to its market activities since such submission. _____

3. An FTR Participant must make either the following 3.a. or 3.b. additional representations, evidenced by the undersigned officer initialing either the one 3.a. representation or the four 3.b. representations in the spaces provided below:

- a. Participant transacts in PJM's FTR markets with the sole intent to hedge congestion risk in connection with either obligations Participant has to serve load or rights Participant has to generate electricity in the PJM Region ("physical transactions") and monitors all of the Participant's FTR market activity to endeavor to ensure that its FTR positions, considering both the size and pathways of the positions, are either generally proportionate to or generally do not exceed the Participant's physical transactions, and remain generally consistent with the Participant's intention to hedge its physical transactions. _____

- b. On no less than a weekly basis, Participant values its FTR positions and engages in a probabilistic assessment of the hypothetical risk of such positions using analytically based methodologies, predicated on the use of industry accepted valuation methodologies. _____

Such valuation and risk assessment functions are performed either by persons within Participant's organization independent from those trading in PJM's FTR markets or by an outside firm qualified and with expertise in this area of risk management. _____

Having valued its FTR positions and quantified their hypothetical risks, Participant applies its written policies, procedures and controls to limit its risks using industry recognized practices, such as value-at-risk limitations, concentration limits, or other controls designed to prevent Participant from purposefully or unintentionally taking on risk that is not commensurate or proportional to Participant's financial capability to manage such risk. _____

Exceptions to Participant's written risk policies, procedures and controls applicable to Participant's FTR positions are documented and explain a reasoned basis for the granting of any exception. _____

4. Participant has appropriate personnel resources, operating procedures and technical abilities to promptly and effectively respond to all PJM and PJMSettlement communications and directions. _____
5. Participant has demonstrated compliance with the Minimum Capitalization criteria set forth in Tariff, Attachment Q that are applicable to any PJM Markets in which Participant transacts, and is not aware of any change having occurred or being imminent that would invalidate such compliance. _____

6. All Participants must certify and initial in at least one of the four sections below:

- a. I certify that Participant qualifies as an “appropriate person” as that term is defined under section 4(c)(3), or successor provision, of the Commodity Exchange Act or an “eligible contract participant” as that term is defined under section 1a(18), or successor provision, of the Commodity Exchange Act. I certify that Participant will cease transacting in any PJM Markets and notify PJM and PJMSettlement immediately if Participant no longer qualifies as an “appropriate person” or “eligible contract participant.” _____

If providing audited financial statements, which shall be in US GAAP format or any other format acceptable to PJM, to support Participant’s certification of qualification as an “appropriate person:”

I certify, to the best of my knowledge and belief, that the audited financial statements provided to PJM and/or PJMSettlement present fairly, pursuant to such disclosures in such audited financial statements, the financial position of Participant as of the date of those audited financial statements. Further, I certify that Participant continues to maintain the minimum \$1 million total net worth and/or \$5 million total asset levels reflected in these audited financial statements as of the date of this certification. I acknowledge that both PJM and PJMSettlement are relying upon my certification to maintain compliance with federal regulatory requirements. _____

If not providing audited financial statements to support Participant’s certification of qualification as an “appropriate person,” Participant certifies that they qualify as an “appropriate person” under one of the entities defined in section 4(c)(3)(A)-(J) of the Commodities Exchange Act. _____

If providing audited financial statements, which shall be in US GAAP format or any other format acceptable to PJM, to support Participant’s certification of qualification as an “eligible contract participant:”

I certify, to the best of my knowledge and belief, that the audited financial statements provided to PJM and/or PJMSettlement present fairly, pursuant to such disclosures in such audited financial statements, the financial position of Participant as of the date of those audited financial statements. Further, I certify that Participant continues to maintain the minimum \$1 million total net worth and/or \$10 million total asset levels reflected in these audited financial statements as of the date of this certification. I acknowledge that both PJM and PJMSettlement are relying upon my certification to maintain compliance with federal regulatory requirements. _____

If not providing audited financial statements to support Participant’s certification of qualification as an “eligible contract participant,” Participant certifies that they

qualify as an “eligible contract participant” under one of the entities defined in section 1a(18)(A) of the Commodities Exchange Act. _____

- b. I certify that Participant has provided an unlimited Corporate Guaranty in a form acceptable to PJM as described in Tariff, Attachment Q, section III.D from an issuer that has at least \$1 million of total net worth or \$5 million of total assets per Participant for which the issuer has issued an unlimited Corporate Guaranty. I also certify, to the best of my knowledge and belief, that the audited financial statements provided to PJM and/or PJMSettlement present fairly, pursuant to such disclosures in such audited financial statements, the financial position of the issuer as of the date of those audited financial statements. Further, I certify that Participant will cease transacting PJM’s Markets and notify PJM and PJMSettlement immediately if issuer of the unlimited Corporate Guaranty for Participant no longer has at least \$1 million of total net worth or \$5 million of total assets per Participant for which the issuer has issued an unlimited Corporate Guaranty. _____

I certify that the issuer of the unlimited Corporate Guaranty to Participant continues to have at least \$1 million of total net worth or \$5 million of total assets per Participant for which the issuer has issued an unlimited Corporate Guaranty. I acknowledge that PJM and PJMSettlement are relying upon my certifications to maintain compliance with federal regulatory requirements. _____

- c. I certify that Participant fulfills the eligibility requirements of the Commodity Futures Trading Commission exemption order (78 F.R. 19880 – April 2, 2013) by being in the business of at least one of the following in the PJM Region as indicated below (initial those applicable):

1. Generating electric energy, including Participants that resell physical energy acquired from an entity generating electric energy: _____
2. Transmitting electric energy: _____
3. Distributing electric energy delivered under Point-to-Point or Network Integration Transmission Service, including scheduled import, export and wheel through transactions: _____
4. Other electric energy services that are necessary to support the reliable operation of the transmission system: _____

Description only if c(4) is initialed:

Further, I certify that Participant will cease transacting in any PJM Markets and notify PJM and PJMSettlement immediately if Participant no longer performs at least one of the functions noted above in the PJM Region. I acknowledge that PJM and

PJMSettlement are relying on my certification to maintain compliance with federal energy regulatory requirements. _____

- d. I certify that Participant has provided a Letter of Credit of \$5 million or more to PJM or PJMSettlement in a form acceptable to PJM and/or PJMSettlement as described in Tariff, Attachment Q, section V.B that the Participant acknowledges cannot be utilized to meet its credit requirements to PJM and PJMSettlement. I acknowledge that PJM and PJMSettlement are relying on the provision of this letter of credit and my certification to maintain compliance with federal regulatory requirements. _____
 - e. I certify that Participant has provided a surety bond of \$5 million or more to PJM or PJMSettlement in a form acceptable to PJM and/or PJMSettlement as described in Tariff, Attachment Q, section V.D. that the Participant acknowledges cannot be utilized to meet its credit requirements to PJM and PJMSettlement. I acknowledge that PJM and PJMSettlement are relying on the provision of this surety bond and my certification to maintain compliance with federal regulatory requirements. _____
7. I acknowledge that I have read and understood the provisions of Tariff, Attachment Q applicable to Participant's business in any PJM Markets, including those provisions describing PJM's Minimum Participation Requirements and the enforcement actions available to PJM and PJMSettlement of a Participant not satisfying those requirements. I acknowledge that the information provided herein is true and accurate to the best of my belief and knowledge after due investigation. In addition, by signing this certification, I acknowledge the potential consequences of making incomplete or false statements in this Certification. _____

Date: _____

Participant (Signature)

Print Name: _____

Title: _____

Attachment B

Revisions to the
PJM Open Access Transmission Tariff

(Clean Format)

Definitions – W – X – Y - Z

Wholesale Transaction:

As used in Tariff, Part IV, “Wholesale Transaction” shall mean any transaction involving the transmission or sale for resale of electricity in interstate commerce that utilizes any portion of the Transmission System.

Winter-Period Capacity Performance Resource:

“Winter-Period Capacity Performance Resource” shall have the same meaning specified in Tariff, Attachment DD, section 5.5A.

Working Credit Limit:

“Working Credit Limit” shall mean an amount that is 75% of the Participant’s Unsecured Credit Allowance determined by PJMSettlement and/or 75% of the Collateral provided by the Participant to PJMSettlement. A Participant’s Total Net Obligation should not exceed its Working Credit Limit. The calculation of Working Credit Limit shall take into account applicable reductions for Minimum Participation Requirements, FTR participation (for which there is no Unsecured Credit Allowance available), RPM participation, or other credit requirement determinants as defined in Tariff, Attachment Q.

Working Credit Limit for Virtual Transactions:

The “Working Credit Limit for Virtual Transactions” shall be calculated as 75% of the Market Participant’s Unsecured Credit Allowance and/or 75% of the Collateral provided by the Market Participant to PJMSettlement when the Market Participant is at or below its Peak Market Activity credit requirements as specified in Tariff, Attachment Q, section VII.A. When the Market Participant has available Unsecured Credit Allowance and/or has provided Collateral in excess of its Peak Market Activity credit requirements, such additional Unsecured Credit Allowance and/or Financial Security shall not be discounted by 25% when calculating the Working Credit Limit for Virtual Transactions. The Working Credit Limit for Virtual Transactions is a component in the calculation of Credit Available for Virtual Transactions. The calculation of Working Credit Limit for Virtual Transactions shall take into account applicable reductions for Minimum Participation Requirements, FTR, or other credit requirement determinants as defined in Tariff, Attachment Q.

Zonal Capacity Price:

“Zonal Capacity Price” shall mean the clearing price required in each Zone to meet the demand for Unforced Capacity and satisfy Locational Deliverability Requirements for the LDA or LDAs associated with such Zone. If the Zone contains multiple LDAs with different Capacity Resource Clearing Prices, the Zonal Capacity Price shall be a weighted average of the Capacity Resource Clearing Prices for such LDAs, weighted by the Unforced Capacity of Capacity Resources cleared in each such LDA.

Zone or Zonal:

“Zone” or “Zonal” shall mean an area within the PJM Region, as set forth in Tariff, Attachment J and RAA, Schedule 15, or as such areas may be (i) combined as a result of mergers or acquisitions or (ii) added as a result of the expansion of the boundaries of the PJM Region. A Zone shall include any Non-Zone Network Load located outside the PJM Region that is served from such Zone under Tariff, Attachment H-A.

Zone Network Load:

“Zone Network Load” shall mean Network Load that is located inside of the area comprised of the PJM Region.

5.2 Transmission Congestion Credit Calculation.

5.2.1 Eligibility.

(a) Except as provided in section 5.2.1(b), each FTR Holder shall receive as a Transmission Congestion Credit a proportional share of the Day-ahead Energy Market Transmission Congestion Charges collected for each constrained hour.

(b) If an Effective FTR Holder between specified delivery and receipt buses acquired the Financial Transmission Right in a Financial Transmission Rights auction (the procedures for which are set forth in *section 7* of this *Attachment K – Appendix*) and had a *Virtual Transaction portfolio which includes Increment Offer(s), Decrement Bid(s), and/or Up-to Congestion Transaction(s)* that was accepted by the Office of the Interconnection for an applicable hour in the Day-ahead Energy Market, *whereby the Effective FTR Holder’s Virtual Transaction portfolio resulted in (i) a difference in Location Marginal Prices in the Day-ahead Energy Market between such delivery and receipt buses which is greater than the difference in Locational Marginal Prices between such delivery and receipt buses in the Real-time Energy Market, and (ii) an increasing the value between such delivery and receipt buses, then the Market Participant shall not receive any Transmission Congestion Credit associated with such Financial Transmission Right in such hour, that is attributable to the absolute value (i.e., the product of the constraint’s shadow price times the distribution factor (dfax) of the difference between the Financial Transmission Right delivery and receipt buses) of the relevant Day-ahead Energy Market binding constraint (as further discussed in section 5.2.1(c) below), but no more than the excess of one divided by the number of hours in the applicable period multiplied by the amount that the Market Participant paid for the Financial Transmission Right in the Financial Transmission Rights auction (i.e., FTR profit). For the purposes of this calculation, every individual Financial Transmission Right of an Effective FTR Holder shall be considered.*

(c) For purposes of section 5.2.1(b), *an Effective FTR Holder’s Virtual Transaction portfolio shall be considered if the absolute value of the attributable net flow across a Day-ahead Energy Market binding constraint relative to the Day-ahead Energy Market load weighted reference bus between the Financial Transmission Right delivery and receipt buses exceeds the physical limit of such binding constraint by the greater of 0.1 MW or ten percent.*

(d) The Market Monitoring Unit shall calculate Transmission Congestion Credits pursuant to this section and Tariff, Attachment M-Appendix, section VI. Nothing in this section shall preclude the Market Monitoring Unit from action to recover inappropriate benefits from the subject activity if the amount forfeited is less than the benefit derived by the Effective FTR Holder. If the Office of the Interconnection agrees with such calculation, then it shall impose the forfeiture of the Transmission Congestion Credit accordingly. If the Office of the Interconnection does not agree with the calculation, then it shall impose a forfeiture of Transmission Congestion Credit consistent with its determination. If the Market Monitoring Unit disagrees with the Office of the Interconnection’s determination, it may exercise its powers to inform the Commission staff of its concerns and may request an adjustment. This provision is duplicated in Tariff, Attachment M-Appendix, section VI. An Effective FTR Holder objecting to

the application of this rule shall have recourse to the Commission for review of the application of the FTR forfeiture rule to its trading activity.

5.2.2 Financial Transmission Rights.

(a) Transmission Congestion Credits will be calculated based upon the Financial Transmission Rights held at the time of the constrained hour. Except as provided in subsection (e) below, Financial Transmission Rights shall be auctioned as set forth in Operating Agreement, Schedule 1, section 7.

(b) The hourly economic value of a Financial Transmission Right Obligation is based on the Financial Transmission Right MW reservation and the difference between the Day-ahead Congestion Price at the point of delivery and the point of receipt of the Financial Transmission Right. The hourly economic value of a Financial Transmission Right Obligation is positive (a benefit to the FTR Holder) when the Day-ahead Congestion Price at the point of delivery is higher than the Day-ahead Congestion Price at the point of receipt. The hourly economic value of a Financial Transmission Right Obligation is negative (a liability to the FTR Holder) when the Day-ahead Congestion Price at the point of receipt is higher than the Day-ahead Congestion Price at the point of delivery.

(c) The hourly economic value of a Financial Transmission Right Option is based on the Financial Transmission Right MW reservation and the difference between the Day-ahead Congestion Price at the point of delivery and the point of receipt of the Financial Transmission Right when that difference is positive. The hourly economic value of a Financial Transmission Right Option is positive (a benefit to the FTR Holder) when the Day-ahead Congestion Price at the point of delivery is higher than the Day-ahead Congestion Price at the point of receipt. The hourly economic value of a Financial Transmission Right Option is zero (neither a benefit nor a liability to the FTR Holder) when the Day-ahead Congestion Price at the point of receipt is higher than the Day-ahead Congestion Price at the point of delivery.

(d) In addition to transactions with PJMSettlement in the Financial Transmission Rights auctions administered by the Office of the Interconnection, a Financial Transmission Right, for its entire tenure or for a specified period, may be sold or otherwise transferred to a third party by bilateral agreement, subject to compliance with such procedures as may be established by the Office of the Interconnection for verification of the rights of the purchaser or transferee.

(i) Market Participants may enter into bilateral agreements to transfer to a third party a Financial Transmission Right, for its entire tenure or for a specified period. Such bilateral transactions shall be reported to the Office of the Interconnection in accordance with this Schedule and pursuant to the LLC's rules related to its FTR reporting tools.

(ii) For purposes of clarity, with respect to all bilateral transactions for the transfer of Financial Transmission Rights, the rights and obligations pertaining to the Financial Transmission Rights that are the subject of such a bilateral transaction shall pass to the buyer under the bilateral contract subject to the provisions of this Schedule. Such bilateral transactions

shall not modify the location or reconfigure the Financial Transmission Rights. In no event shall the purchase and sale of a Financial Transmission Right pursuant to a bilateral transaction constitute a transaction with PJMSettlement or a transaction in any auction under this Schedule.

(iii) Consent of the Office of the Interconnection shall be required for a seller to transfer to a buyer any Financial Transmission Right Obligation. Such consent shall be based upon the Office of the Interconnection's assessment of the buyer's ability to perform the obligations, including meeting applicable creditworthiness requirements, transferred in the bilateral contract. If consent for a transfer is not provided by the Office of the Interconnection, the title to the Financial Transmission Rights shall not transfer to the third party and the FTR Holder shall continue to receive all Transmission Congestion Credits attributable to the Financial Transmission Rights and remain subject to all credit requirements and obligations associated with the Financial Transmission Rights.

(iv) A seller under such a bilateral contract shall guarantee and indemnify the Office of the Interconnection, PJMSettlement, and the Members for the buyer's obligation to pay any charges associated with the transferred Financial Transmission Right and for which payment is not made to PJMSettlement by the buyer under such a bilateral transaction.

(v) All payments and related charges associated with such a bilateral contract shall be arranged between the parties to such bilateral contract and shall not be billed or settled by PJMSettlement or the Office of the Interconnection. The LLC, PJMSettlement, and the Members will not assume financial responsibility for the failure of a party to perform obligations owed to the other party under such a bilateral contract reported to the Office of the Interconnection under this Schedule.

(vi) All claims regarding a default of a buyer to a seller under such a bilateral contract shall be resolved solely between the buyer and the seller.

(e) Network Service Users and Firm Transmission Customers that take service that sinks, sources in, or is transmitted through new PJM zones, at their election, may receive a direct allocation of Financial Transmission Rights instead of an allocation of Auction Revenue Rights. Network Service Users and Firm Transmission Customers may make this election for the succeeding two annual FTR auctions after the integration of the new zone into the PJM Interchange Energy Market. Such election shall be made prior to the commencement of each annual FTR auction. For purposes of this election, the Allegheny Power Zone shall be considered a new zone with respect to the annual Financial Transmission Right auction in 2003 and 2004. Network Service Users and Firm Transmission Customers in new PJM zones that elect not to receive direct allocations of Financial Transmission Rights shall receive allocations of Auction Revenue Rights. During the annual allocation process, the Financial Transmission Right allocation for new PJM zones shall be performed simultaneously with the Auction Revenue Rights allocations in existing and new PJM zones. Prior to the effective date of the initial allocation of FTRs in a new PJM Zone, PJM shall file with FERC, under section 205 of the Federal Power Act, the FTRs and ARR allocations in accordance with sections 5 and 7 of this Schedule 1.

(f) For Network Service Users and Firm Transmission Customers that take service that sinks in, sources in, or is transmitted through new PJM zones, that elect to receive direct allocations of Financial Transmission Rights, Financial Transmission Rights shall be allocated using the same allocation methodology as is specified for the allocation of Auction Revenue Rights in Operating Agreement, Schedule 1, section 7.4.2 and in accordance with the following:

(i) Subject to subsection (ii) of this section, all Financial Transmission Rights must be simultaneously feasible. If all Financial Transmission Right requests made when Financial Transmission Rights are allocated for the new zone are not feasible then Financial Transmission Rights are prorated and allocated in proportion to the MW level requested and in inverse proportion to the effect on the binding constraints.

(ii) If any Financial Transmission Right requests that are equal to or less than sixty percent (60%) of a Network Service User's proportion of peak load in the Zone or fifty percent of its transmission responsibility for Non-Zone Network Load, or fifty percent of megawatts of firm service between the receipt and delivery points of Firm Transmission Customers, are not feasible in the annual allocation and auction processes due to system conditions, then PJM shall increase the capability limits of the binding constraints that would have rendered the Financial Transmission Rights infeasible to the extent necessary in order to allocate such Financial Transmission Rights without their being infeasible for all rounds of the annual allocation and auction processes, provided that this subsection (ii) shall not apply if the infeasibility is caused by extraordinary circumstances. Additionally, such increased limits shall be included in subsequent modeling during the Planning Year to support any incremental allocations of Auction Revenue Rights and monthly and balance of the Planning Period Financial Transmission Rights auctions; unless and to the extent those system conditions that contributed to infeasibility in the annual process are not extant for the time period subject to the subsequent modeling, such as would be the case, for example, if transmission facilities are returned to service during the Planning Year. In these cases, any increase in the capability limits taken under this subsection (ii) during the annual process will be removed from subsequent modeling to support any incremental allocations of Auction Revenue Rights and monthly and balance of the Planning Period Financial Transmission Rights auctions. In addition, PJM may remove or lower the increased capability limits, if feasible, during subsequent FTR Auctions if the removal or lowering of the increased capability limits does not impact Auction Revenue Rights funding and net auction revenues are positive.

For the purposes of this subsection (ii), extraordinary circumstances shall mean an event of force majeure that reduces the capability of existing or planned transmission facilities and such reduction in capability is the cause of the infeasibility of such Financial Transmission Rights. Extraordinary circumstances do not include those system conditions and assumptions modeled in simultaneous feasibility analyses conducted pursuant to Operating Agreement, Schedule 1, section 7.5 of Schedule 1 of this Agreement. If PJM allocates Financial Transmission Rights as a result of this subsection (ii) that would not otherwise have been feasible, then PJM shall notify Members and post on its web site (a) the aggregate megawatt quantities, by sources and sinks, of such Financial Transmission Rights and (b) any increases in capability limits used to allocate such Financial Transmission Rights.

(iii) In the event that Network Load changes from one Network Service User to another after an initial or annual allocation of Financial Transmission Rights in a new zone, Financial Transmission Rights will be reassigned on a proportional basis from the Network Service User losing the load to the Network Service User that is gaining the Network Load.

(g) At least one month prior to the integration of a new zone into the PJM Interchange Energy Market, Network Service Users and Firm Transmission Customers that take service that sinks in, sources in, or is transmitted through the new zone, shall receive an initial allocation of Financial Transmission Rights that will be in effect from the date of the integration of the new zone until the next annual allocation of Financial Transmission Rights and Auction Revenue Rights. Such allocation of Financial Transmission Rights shall be made in accordance with Operating Agreement, Schedule 1, section 5.2.2(f) of this Schedule.

(h) Reserved.

5.2.3 Target Allocation of Transmission Congestion Credits.

A Target Allocation of Transmission Congestion Credits for each FTR Holder shall be determined for each Financial Transmission Right. Each Financial Transmission Right shall be multiplied by the Day-ahead Congestion Price differences for the receipt and delivery points associated with the Financial Transmission Right, calculated as the Day-ahead Congestion Price at the delivery point(s) minus the Day-ahead Congestion Price at the receipt point(s). For the purposes of calculating Transmission Congestion Credits, the Day-ahead Congestion Price of a Zone is calculated as the sum of the Day-ahead Congestion Price of each bus that comprises the Zone multiplied by the percent of annual peak load assigned to each node in the Zone. Commencing with the 2015/2016 Planning Period, for the purposes of calculating Transmission Congestion Credits, the Day-ahead Congestion Price of a Residual Metered Load aggregate is calculated as the sum of the Day-ahead Congestion Price of each bus that comprises the Residual Metered Load aggregate multiplied by the percent of the annual peak residual load assigned to each bus that comprises the Residual Metered Load aggregate. When the FTR Target Allocation is positive, the FTR Target Allocation is a credit to the FTR Holder. When the FTR Target Allocation is negative, the FTR Target Allocation is a debit to the FTR Holder if the FTR is a Financial Transmission Right Obligation. When the FTR Target Allocation is negative, the FTR Target Allocation is set to zero if the FTR is a Financial Transmission Right Option. The total Target Allocation for Network Service Users and Transmission Customers for each hour shall be the sum of the Target Allocations associated with all of the Network Service Users' or Transmission Customers' Financial Transmission Rights.

5.2.4 [Reserved.]

5.2.5 Calculation of Transmission Congestion Credits.

(a) The total of all the positive Target Allocations determined as specified above shall be compared to the Day-ahead Energy Market Transmission Congestion Charges in each hour. If the total of the Target Allocations is less than or equal to the total of the Day-ahead Energy Market Transmission Congestion Charges, the Transmission Congestion Credit for each entity

holding an FTR shall be equal to its Target Allocation. All remaining Day-ahead Energy Market Transmission Congestion Charges shall be distributed as described below in Operating Agreement, Schedule 1, section 5.2.6 “Distribution of Excess Congestion Charges.”

(b) If the total of the Target Allocations is greater than the Day-ahead Energy Market Transmission Congestion Charges for the hour, each FTR Holder shall be assigned a share of the Day-ahead Energy Market Transmission Congestion Charges in proportion to its Target Allocations for Financial Transmission Rights which have a positive Target Allocation value. Financial Transmission Rights which have a negative Target Allocation value are assigned the full Target Allocation value as a negative Transmission Congestion Credit.

(c) At the end of a Planning Period if all FTR Holders did not receive Transmission Congestion Credits equal to their Target Allocations, the Office of the Interconnection shall assess a charge equal to the difference between the Transmission Congestion Credit Target Allocations for all revenue deficient FTRs and the actual Transmission Congestion Credits allocated to those FTR Holders. A charge assessed pursuant to this section shall also include any aggregate charge assessed pursuant to Operating Agreement, Schedule 1, section 7.4.4(c) and shall be allocated to all FTR Holders on a pro-rata basis according to the total Target Allocations for all FTRs held at any time during the relevant Planning Period. The charge shall be calculated and allocated in accordance with the following methodology:

1. The Office of the Interconnection shall calculate the total amount of uplift required as $\{[\text{sum of the total monthly deficiencies in FTR Target Allocations for the Planning Period} + \text{the sum of the ARR Target Allocation deficiencies determined pursuant to Operating Agreement, Schedule 1, section 7.4.4(c)}] - [\text{sum of the total monthly excess ARR revenues and excess Day-ahead Energy Market Transmission Congestion Charges for the Planning Period}]\}$.

2. For each Market Participant that held an FTR during the Planning Period, the Office of the Interconnection shall calculate the total Target Allocation associated with all FTRs held by the Market Participant during the Planning Period, provided that, the foregoing notwithstanding, if the total Target Allocation for an individual Market Participant calculated pursuant to this section is negative the Office of Interconnection shall set the value to zero.

3. The Office of the Interconnection shall then allocate an uplift charge to each Market Participant that held an FTR at any time during the Planning Period in accordance with the following formula: $\{[\text{total uplift}] * [\text{total Target Allocation for all FTRs held by the Market Participant at any time during the Planning Period}] / [\text{total Target Allocations for all FTRs held by all PJM Market Participants at any time during the Planning Period}]\}$.

5.2.6 Distribution of Excess Congestion Charges.

(a) Excess Day-ahead Energy Market Transmission Congestion Charges accumulated in a month shall be distributed to each FTR Holder in proportion to, but not more than, any deficiency in the share of Day-ahead Energy Market Transmission Congestion Charges received by the FTR Holder during that month as compared to its total Target Allocations for the month.

(b) After the excess Day-ahead Energy Market Transmission Congestion Charge distribution described in Operating Agreement, Schedule 1, section 5.2.6(a) is performed, any excess Day-ahead Energy Market Transmission Congestion Charges remaining at the end of a month shall be distributed to each FTR Holder in proportion to, but not more than, any deficiency in the share of Day-ahead Energy Market Transmission Congestion Charges received by the FTR Holder during the current Planning Period, including previously distributed excess Day-ahead Energy Market Transmission Congestion Charges, as compared to its total Target Allocation for the Planning Period.

(c) Any excess Day-ahead Energy Market Transmission Congestion Charges remaining at the end of a Planning Period shall be distributed to each holder of Auction Revenue Rights in proportion to, but not more than, any Auction Revenue Right deficiencies for that Planning Period.

(d) Any excess Day-ahead Energy Market Transmission Congestion Charges remaining after a distribution pursuant to subsection (c) of this section shall be distributed to all ARR holders on a pro-rata basis according to the total Target Allocations for all ARRs held at any time during the relevant Planning Period. Any allocation pursuant to this subsection (d) shall be conducted in accordance with the following methodology:

1. For each Market Participant that held an ARR during the Planning Period, the Office of the Interconnection shall calculate the total Target Allocation associated with all ARRs held by the Market Participant during the Planning Period, provided that, the foregoing notwithstanding, if the total Target Allocation for an individual Market Participant calculated pursuant to this section is negative the Office of the Interconnection shall set the value to zero.

2. The Office of the Interconnection shall then allocate an excess Day-ahead Energy Market Transmission Congestion Charge credit to each Market Participant that held an ARR at any time during the Planning Period in accordance with the following formula: {[total excess Day-ahead Energy Market Transmission Congestion Charges remaining after distributions pursuant to subsection (a)-(c) of this section] * [total Target Allocation for all ARRs held by the Market Participant at any time during the Planning Period] / [total Target Allocations for all ARRs held by all PJM Market Participants at any time during the Planning Period]}.

5.2.7 Allocation of Balancing Congestion Charges

At the end of each hour during an Operating Day, the Office of the Interconnection shall allocate the Balancing Congestion Charges to real-time load and exports on a pro-rata basis. Such allocation shall not include purchases of Direct Charging Energy.

7. FINANCIAL TRANSMISSION RIGHTS AUCTIONS

7.1 Auctions of Financial Transmission Rights.

Annual, periodic and long-term auctions to allow Market Participants to acquire or sell Financial Transmission Rights shall be conducted by the Office of the Interconnection in accordance with the provisions of this Section. PJMSettlement shall be the Counterparty to the purchases and sales of Financial Transmission Rights arising from such auctions; provided however, that PJMSettlement shall not be a contracting party to any subsequent bilateral transfer of Financial Transmission Rights between Market Participants. The conversion of an Auction Revenue Right to a Financial Transmission Right pursuant to this section 7 shall not constitute a purchase or sale transaction to which PJMSettlement is a contracting party.

7.1.1 Auction Period and Scope of Auctions.

(a) The periods covered by auctions shall be: (1) the one-year period beginning the month after the final round of an annual auction; and (2) any single calendar month period remaining in the Planning Period. With the exception of FTRs allocated pursuant to Operating Agreement, Schedule 1, section 5.2.2 (e) and the Financial Transmission Rights awarded as a result of the exercise of the conversion option pursuant to Operating Agreement, Schedule 1, section 7.1.1(b), in the annual auction, the Office of the Interconnection, on behalf of PJMSettlement, shall offer for sale the entire Financial Transmission Rights capability for the year in four rounds with 25 percent of the capability offered in each round. In the monthly auction, the Office of the Interconnection, on behalf of PJMSettlement, shall offer for sale in the auction any remaining Financial Transmission Rights capability for the months remaining in the Planning Period after taking into account all of the Financial Transmission Rights already outstanding at the time of the auction. In addition, any holder of a Financial Transmission Right for the period covered by an auction may offer such Financial Transmission Right for sale in such auction. Weekend on-peak, weekday on-peak, off-peak and 24-hour Financial Transmission Rights, as those products are described in Tariff, Attachment K-Appendix, section 7.3.4, will be offered in the annual and monthly auctions. FTRs will be offered as Financial Transmission Right Obligations and Financial Transmission Right Options, provided that such Financial Transmission Right Obligations and Financial Transmission Right Options shall be awarded based only on the residual system capability that remains after the allocation of Financial Transmission Rights pursuant to Operating Agreement, Schedule 1, section 5.2.2(e) and the award of Financial Transmission Rights pursuant to Operating Agreement, Schedule 1, section 7.1.1(b). Market Participants may bid for and acquire any number of Financial Transmission Rights, provided that all Financial Transmission Rights awarded are simultaneously feasible with each other and with all Financial Transmission Rights outstanding at the time of the auction and not sold into the auction. An ARR holder may self-schedule an FTR on the same path in the Annual FTR auction according to the rules described in the PJM Manuals.

(b) An Auction Revenue Rights holder may convert Auction Revenue Rights to Financial Transmission Rights, and such conversion shall not be considered a purchase or sale of Financial Transmission Rights in the auction. Such Financial Transmission Rights must (i) have the same source and sink points as the Auction Revenue Rights; and (ii) be Financial Transmission Right Obligations. The Auction Revenue Rights holder must inform the Office of the Interconnection

in accordance with the procedures established by the Office of the Interconnection that it intends to exercise the conversion option prior to close of round one of the annual Financial Transmission Rights auction. Once the conversion option is exercised, it will remain in effect for the entire Financial Transmission Rights auction. The Office of the Interconnection will designate twenty-five percent of the megawatt amount of the Auction Revenue Rights to be converted as price-taker bids in each of the four rounds of the Financial Transmission Rights auction. An Auction Revenue Rights holder that converts its Auction Revenue Rights may not designate a price bid for its converted Financial Transmission Rights and will receive a price equal to the clearing price set by other bids in the annual Financial Transmission Right auction. To the extent a market participant seeks to obtain FTRs in the annual auction through such conversion, the FTRs sought will not be included in the calculation of such market participant's credit requirement for such annual FTR auction.

7.1.2 Frequency and Time of Auctions.

Subject to Operating Agreement, Schedule 1, section 7.1.1, annual Financial Transmission Rights auctions shall offer the entire FTR capability of the PJM system in four rounds with 25 percent of the capability offered in each round. All four rounds of the annual Financial Transmission Rights auction shall occur within the two-month period (April – May) preceding the start of the PJM Planning Period. Each round shall occur over five Business Days and shall be conducted sequentially. Each round shall begin with the bid and offer period. The bid and offer period for annual Financial Transmission Rights auctions shall be open for three consecutive Business Days, opening the first day at 12:00 midnight (Eastern Prevailing Time) and closing the third day at 5:00 p.m. (Eastern Prevailing Time). Monthly Financial Transmission Rights auctions shall be held each month. The bid and offer period for monthly Financial Transmission Rights auctions shall be open for three consecutive Business Days in the month preceding the first month for which Financial Transmission Rights are being auctioned, opening the first day at 12:00 midnight (Eastern Prevailing Time) and closing the third day at 5:00 p.m. (Eastern Prevailing Time).

7.1.3 Duration of Financial Transmission Rights.

Each Financial Transmission Right acquired in a Financial Transmission Rights auction shall entitle the holder to credits of Day-ahead Energy Market Transmission Congestion Charges for the period that was specified in the corresponding auction.

7.1A Long-Term Financial Transmission Rights Auctions.

7.1A.1 Auctions.

(i) Subsequent to each annual Financial Transmission Rights auction conducted pursuant to Operating Agreement, Schedule 1, section 7.1, the Office of the Interconnection shall conduct a long-term Financial Transmission Rights auction for the three consecutive Planning Periods immediately subsequent to the Planning Period during which the long-term Financial Transmission Rights auction is conducted. PJMSettlement shall be the Counterparty to the purchases and sales of Financial Transmission Rights arising from such long-term Financial Transmission Rights auctions, provided however, that PJMSettlement shall not be a contracting party to any subsequent bilateral transfers of Financial Transmission Rights between Market Participants. The conversion of an Auction Revenue Right to a Financial Transmission Right pursuant to this section 7 shall not constitute a purchase or sale transaction to which PJMSettlement is a contracting party.

(ii) The capacity offered for sale in long-term Financial Transmission Rights auctions shall be the residual system capability after the annual Auction Revenue Rights allocations and the annual Financial Transmission Rights auction. In determining the residual capability the Office of the Interconnection shall assume that all Auction Revenue Rights allocated in the immediately prior annual Auction Revenue Rights allocation process, including Auction Revenue Rights made available in which transmission facilities which were modeled out of service in the annual Auction Revenue Rights allocations return to service, are self-scheduled into Financial Transmission Rights, which shall be modeled as fixed injections and withdrawals in the long-term Financial Transmission Rights auction. Additionally, residual annual Auction Revenue Rights that become available through incremental capability created by future transmission upgrades as further described in the PJM Manuals shall be modeled as fixed injections and withdrawals in the long-term Financial Transmission Rights auction. The long-term Financial Transmission Rights auction model shall include all upgrades planned to be placed into service on or before June 30th of the first Planning Period within the three year period covered by the auction. The transmission upgrades to be modeled for this purpose shall only include those upgrades that, individually, or together, have 10% or more impact on the transmission congestion on an individual constraint or constraints with congestion of \$5 million or more affecting a common congestion path. Transmission upgrades modeled for this purpose also will be modeled in the subsequent long-term Financial Transmission Rights auction, as further detailed in the PJM Manuals. Residual Auction Revenue Rights created by an increase in transmission capability due to future transmission upgrades, as specified above, are determined only for modeling purposes and will not be allocated to Market Participants.

7.1A.2 Frequency and Timing.

The long-term Financial Transmission Rights auction process shall consist of five rounds. The first round shall be conducted by the Office of the Interconnection approximately 11 months prior to the start of the three Planning Period term covered by the relevant long-term Financial Transmission Rights auction. The second round shall be conducted approximately 2 months

after the first round. The third round shall be conducted approximately 2 months after the second round. The fourth round shall be conducted approximately 2 months after the third round, and the fifth round shall be conducted approximately 3 months after the fourth round. In each round 20 percent of total capacity available in the long-term Financial Transmission Rights auction shall be offered for sale. Eligible entities may submit bids to purchase and offers to sell Financial Transmission Rights at the start of the bidding period in each round. The bidding period shall be three Business Days ending at 5:00 p.m. on the last day. PJM performs the Financial Transmission Rights auction clearing analysis for each round and posts the auction results on the market user interface within five Business Days after the close of the bidding period for each round unless circumstances beyond PJM's control prevent PJM from meeting the applicable deadline. Under such circumstances, PJM will post the auction results at the earliest possible opportunity. If the Office of the Interconnection discovers a *potential* error in the results posted for a long-term Financial Transmission Rights auction, the Office of the Interconnection shall notify Market Participants as soon as possible after it is found, but in no event later than 5:00 p.m. of the Business Day immediately following the initial publication of the results for that auction. After this initial notification, if the Office of the Interconnection determines it is necessary to post modified auction results, it shall provide notification of its intent to do so, *along with a description detailing the cause and scope of the error*, by no later than 5:00 p.m. of the second Business Day following the initial publication of prices for that auction. *The provided description will not contain information that is market sensitive or confidential.* Thereafter, the Office of the Interconnection must post the corrected prices by no later than 5:00 p.m. of the fourth calendar day following the initial publication of prices in the auction. Should any of the above deadlines pass without the associated action on the part of the Office of the Interconnection, the originally posted results will be considered final. Notwithstanding the foregoing, the deadlines set forth above shall not apply if the referenced auction results are under publicly noticed review by the FERC.

7.1A.3 Products.

(i) The periods covered by long-term Financial Transmission Rights auctions shall be any single Planning Period within the three Planning Period term covered by the relevant auction.

(ii) Weekend on-peak, weekday on-peak, off-peak and 24-hour Financial Transmission Rights, as those products are described in Tariff, Attachment K-Appendix, section 7.3.4, shall be offered in long-term Financial Transmission Rights auctions; Financial Transmission Rights options shall not be offered.

7.1A.4 Participation Eligibility.

(i) To participate in long-term Financial Transmission Rights auctions an entity shall be a PJM Member or a PJM Transmission Customer. Eligible entities may submit bids or offers in long-term Financial Transmission Rights auctions, provided they own Financial Transmission Rights offered for sale.

7.1A.5 Specified Receipt and Delivery Points.

The Office of the Interconnection will post a list of available receipt and delivery points for each long-term Financial Transmission Rights auction. Eligible receipt and delivery points in long-term Financial Transmission Rights auctions shall be limited to the posted available hubs, Zones, aggregates, generators, and Interface Pricing Points.

7.3 Auction Procedures.

7.3.1 Role of the Office of the Interconnection.

Financial Transmission Rights auctions shall be conducted by the Office of the Interconnection in accordance with standards and procedures set forth in the PJM Manuals, such standards and procedures to be consistent with the requirements of this Schedule. PJMSettlement shall be the Counterparty to the purchases and sales of Financial Transmission Rights arising from such auctions, provided however, that PJMSettlement shall not be a contracting party to any subsequent bilateral transfers of Financial Transmission Rights between Market Participants. The conversion of an Auction Revenue Right to a Financial Transmission Right pursuant to this section 7 shall not constitute a purchase or sale transaction to which PJMSettlement is a contracting party. Any Financial Transmission Rights auctions conducted to liquidate a defaulting Member's Financial Transmission Rights portfolio shall be conducted by the Office of the Interconnection in accordance with the procedures set forth in section 7.3.9 below, and as may be further described in the PJM Manuals.

7.3.2 Notice of Offer.

A holder of a Financial Transmission Right wishing to offer the Financial Transmission Right for sale shall notify the Office of the Interconnection of any Financial Transmission Rights to be offered. Each Financial Transmission Right sold in an auction shall, at the end of the period for which the Financial Transmission Rights were auctioned, revert to the offering holder or the entity to which the offering holder has transferred such Financial Transmission Right, subject to the term of the Financial Transmission Right itself and to the right of such holder or transferee to offer the Financial Transmission Right in the next or any subsequent auction during the term of the Financial Transmission Right.

7.3.3 Pending Applications for Firm Service.

(a) [Reserved.]

(b) Financial Transmission Rights may be assigned to entities requesting Network Transmission Service or Firm Point-to-Point Transmission Service pursuant to Operating Agreement, Schedule 1, section 5.2.2 (e), and the parallel provisions of Tariff, Attachment K-Appendix, section 5.2.2(e), only if such Financial Transmission Rights are simultaneously feasible with all outstanding Financial Transmission Rights, including Financial Transmission Rights effective for the then-current auction period. If an assignment of Financial Transmission Rights pursuant to a pending application for Network Transmission Service or Firm Point-to-Point Transmission Service cannot be completed prior to an auction, Financial Transmission Rights attributable to such transmission service shall not be assigned for the then-current auction period. If a Financial Transmission Right cannot be assigned for this reason, the applicant may withdraw its application, or request that the Financial Transmission Right be assigned effective with the start of the next auction period.

7.3.4 Weekend On-Peak, Weekday On-Peak, Off-Peak and 24-Hour Periods.

Weekend on-peak, weekday on-peak, off-peak and 24-hour Financial Transmission Rights will be offered in the annual, long-term, and monthly auctions. Weekend on-peak Financial Transmission Rights shall cover the periods from 7:00 a.m. up to the hour ending 11:00 p.m. on Saturdays, Sundays, and holidays as defined in the PJM Manuals. Weekday on-peak Financial Transmission Rights shall cover the periods from 7:00 a.m. up to the hour ending at 11:00 p.m. on Mondays through Fridays, except holidays as defined in the PJM Manuals. Off-Peak Financial Transmission Rights shall cover the periods from 11:00 p.m. up to the hour ending 7:00 a.m. on all days. The 24-hour period shall cover the period from hour ending 1:00 a.m. to the hour ending 12:00 midnight on all days. Each bid shall specify whether it is for a weekend on-peak, weekday on-peak, off-peak, or 24-hour period.

7.3.5 Offers and Bids.

(a) Offers to sell and bids to purchase Financial Transmission Rights shall be submitted during the period set forth in Operating Agreement, Schedule 1, section 7.1.2, and the parallel provisions of Tariff, Attachment K-Appendix, section 7.1.2, and shall be in the form specified by the Office of the Interconnection in accordance with the requirements set forth below.

(b) Offers to sell shall identify the specific Financial Transmission Right, by term, megawatt quantity and receipt and delivery points, offered for sale. An offer to sell a specified megawatt quantity of Financial Transmission Rights shall constitute an offer to sell a quantity of Financial Transmission Rights equal to or less than the specified quantity. An offer to sell may not specify a minimum quantity being offered. Each offer may specify a reservation price, below which the offeror does not wish to sell the Financial Transmission Right. Offers submitted by entities holding rights to Financial Transmission Rights shall be subject to such reasonable standards for the verification of the rights of the offeror as may be established by the Office of the Interconnection. Offers shall be subject to such reasonable standards for the creditworthiness of the offeror or for the posting of security for performance as the Office of the Interconnection shall establish.

(c) Bids to purchase shall specify the term, megawatt quantity, price per megawatt, and receipt and delivery points of the Financial Transmission Right that the bidder wishes to purchase. A bid to purchase a specified megawatt quantity of Financial Transmission Rights shall constitute a bid to purchase a quantity of Financial Transmission Rights equal to or less than the specified quantity. A bid to purchase may not specify a minimum quantity that the bidder wishes to purchase. A bid may specify receipt and delivery points in accordance with Operating Agreement, Schedule 1, section 7.2.2, and the parallel provisions of Tariff, Attachment K-Appendix, section 7.2.2, and may include Financial Transmission Rights for which the associated Transmission Congestion Credits may have negative values. Bids shall be subject to such reasonable standards for the creditworthiness of the bidder or for the posting of security for performance as the Office of the Interconnection shall establish.

(d) Bids and offers shall be specified to the nearest tenth of a megawatt and shall be greater than zero. The Office of the Interconnection may require that a market participant shall not submit in excess of 5000 bids and offers for any single monthly auction, or for any single round

of the annual auction, when the Office of the Interconnection determines that such limit is required to avoid or mitigate significant system performance problems related to bid/offer volume. Notice of the need to impose such limit shall be provided prior to the start of the bidding period if possible. Where such notice is provided after the start of the bidding period, market participants shall be required within one day to reduce their bids and offers for such auction below 5000, and the bidding period in such cases shall be extended by one day.

7.3.6 Determination of Winning Bids and Clearing Price.

(a) At the close of each bidding period, the Office of the Interconnection will create a base Financial Transmission Rights power flow model that includes all outstanding Financial Transmission Rights that have been approved and confirmed for any portion of the month for which the auction was conducted and that were not offered for sale in the auction. The base Financial Transmission Rights model also will include estimated uncompensated parallel flows into each interface point of the PJM Region and estimated scheduled transmission outages.

(b) In accordance with the requirements of Operating Agreement, Schedule 1, section 7.5, and the parallel provisions of Tariff, Attachment K-Appendix, section 7.5, and subject to all applicable transmission constraints and reliability requirements, the Office of the Interconnection shall determine the simultaneous feasibility of all outstanding Financial Transmission Rights not offered for sale in the auction and of all Financial Transmission Rights that could be awarded in the auction for which bids were submitted. The winning bids shall be determined from an appropriate linear programming model that, while respecting transmission constraints and the maximum MW quantities of the bids and offers, selects the set of simultaneously feasible Financial Transmission Rights with the highest net total auction value as determined by the bids of buyers and taking into account the reservation prices of the sellers. In the event that there are two or more identical bids for the selected Financial Transmission Rights and there are insufficient Financial Transmission Rights to accommodate all of the identical bids, then each such bidder will receive a pro rata share of the Financial Transmission Rights that can be awarded.

(c) Financial Transmission Rights shall be sold at the market-clearing price for Financial Transmission Rights between specified pairs of receipt and delivery points, as determined by the bid value of the marginal Financial Transmission Right that could not be awarded because it would not be simultaneously feasible. The linear programming model shall determine the clearing prices of all Financial Transmission Rights paths based on the bid value of the marginal Financial Transmission Rights, which are those Financial Transmission Rights with the highest bid values that could not be awarded fully because they were not simultaneously feasible, and based on the flow sensitivities of each Financial Transmission Rights path relative to the marginal Financial Transmission Rights paths flow sensitivities on the binding transmission constraints. Financial Transmission Rights with a zero clearing price will only be awarded if there is a minimum of one binding constraint in the auction period for which the Financial Transmission Rights path sensitivity is non-zero. Financial Transmission Right Options with a market-clearing price less than one dollar will not be awarded.

7.3.7 Announcement of Winners and Prices.

Within two (2) Business Days after the close of the bid and offer period for an annual Financial Transmission Rights auction round, and within five (5) Business Days after the close of the bid and offer period for a monthly Financial Transmission Rights auction, the Office of the Interconnection shall post the winning bidders, the megawatt quantity, the term and the receipt and delivery points for each Financial Transmission Right awarded in the auction and the price at which each Financial Transmission Right was awarded unless circumstances beyond PJM's control prevent PJM from meeting the applicable deadline. Under such circumstances, PJM will post the auction results at the earliest possible opportunity. The Office of the Interconnection shall not disclose the price specified in any bid to purchase or the reservation price specified in any offer to sell. If the Office of the Interconnection discovers an error in the results posted for a Financial Transmission Rights auction (or a given round of the annual Financial Transmission Rights auction), the Office of the Interconnection shall notify Market Participants of the error as soon as possible after it is found, but in no event later than 5:00 p.m. of the Business Day following the initial publication of the results of the auction or round of the annual auction. After this initial notification, if the Office of the Interconnection determines that it is necessary to post modified results, it shall provide notification of its intent to do so, together with all available supporting documentation, by no later than 5:00 p.m. of the second Business Day following the initial publication of the results of that auction or round of the annual auction. Thereafter, the Office of the Interconnection must post any corrected results by no later than 5:00 p.m. of the fourth calendar day following the initial publication of the results of the auction or round of the annual auction. Should any of the above deadlines pass without the associated action on the part of the Office of the Interconnection, the originally posted results will be considered final. Notwithstanding the foregoing, the deadlines set forth above shall not apply if the referenced auction results are under publicly noticed review by the FERC.

7.3.8 Auction Settlements.

All buyers and sellers of Financial Transmission Rights between the same points of receipt and delivery shall pay PJM Settlement or be paid by PJM Settlement the market-clearing price, as determined in the auction, for such Financial Transmission Rights.

7.3.9 Addressing Defaulting Member's Financial Transmission Rights.

In the event a Member fails to meet creditworthiness requirements or make timely payments when due pursuant to the Operating Agreement or Tariff, the Office of the Interconnection shall, as soon as practicable after declaring the Member to be in default as provided in Operating Agreement, section 15.1.5, use reasonable efforts to initiate within two applicable auctions the following procedures to settle, liquidate or otherwise resolve each Financial Transmission Rights position held by the defaulting Member:

- a) The Office of the Interconnection shall unilaterally terminate all of the defaulting Member's rights with respect to forward Financial Transmission Rights positions as of the date of the Member's default.

b) As to each Financial Transmission Rights position held by the defaulting Member immediately prior to the termination of the defaulting Member's rights under subsection (a) above, the Office of the Interconnection shall determine and execute an appropriate course of action for addressing such Financial Transmission Rights position, based on the specific circumstances of the default as determined by the Office of the Interconnection in exercise of its reasonable judgment, such as (1) liquidating the position by offering it for sale in an upcoming applicable Financial Transmission Rights auction, (2) liquidating the position by offering it for sale in an auction called and scheduled for the specific purpose of liquidating one or more positions held by the defaulting Member ("Special Auction"), (3) allowing the position to go to settlement, or (4) another course of action the Office of the Interconnection determines to be appropriate under the circumstances that is designed to minimize potential losses to PJM Members. The Office of the Interconnection will provide reasonable advance notice to PJM Members of the approach or course of action it has determined to be appropriate prior to implementing that approach or course of action. The Office of the Interconnection is not required to apply a single approach to the defaulting Member's entire Financial Transmission Rights portfolio, and may determine that the appropriate course of action for addressing a defaulting Member's portfolio includes a combination of the above approaches as applied to different positions within the defaulting Member's overall Financial Transmission Rights portfolio.

c) The Office of the Interconnection will seek to minimize the losses to PJM Members associated with settling, liquidating or otherwise resolving the defaulting Member's Financial Transmission Rights portfolio and may base its determination in subsection (b) above on several factors, including but not limited to, the following:

- 1) the Office of the Interconnection's assessment of which approach will provide the greatest degree of protection to the financial integrity of the PJM Markets;
- 2) the size of the defaulting Member's Financial Transmission Rights portfolio, both in absolute terms and relative to overall market volume;
- 3) the term of the Financial Transmission Rights positions held by the defaulting Member as considered for a single position or on a portfolio basis;
- 4) whether liquidation is feasible or not, and on what timeline, due to the cessation or curtailment of trading at PJM for all Financial Transmission Rights or a subset of Financial Transmission Rights positions;
- 5) prevailing market conditions, such as but not limited to market liquidity and volatility; and
- 6) timing of the default and the actions taken to address the default.

d) Special Auctions. The Office of the Interconnection shall administer each Special Auction provided for in subsection (b)(2) above according to the procedures set forth in the

Tariff and PJM Manuals for FTR auctions to the extent appropriate in the Office of the Interconnection's sole discretion, and may adopt special rules for each Special Auction to accommodate the unique circumstances underlying the particular default and particular Financial Transmission Rights positions being liquidated, with the terms and conditions of such auction being determined with the goal of facilitating a successful auction in light of the particular positions to be auctioned, the prevailing market conditions for such open positions (including the depth, scope, and nature of participation in such markets), and such other factors as the Office of the Interconnection determines appropriate, including those factors enumerated in subsection (c) above. The Office of the Interconnection shall provide reasonable advance notice to FTR Participants of a Special Auction and the terms and conditions under which it will be conducted.

e) All liquidations made pursuant to subsection (b) above shall be for the account of the defaulting Member (and all amounts owed PJM in respect thereof shall be included in amounts owed by the defaulting Member as part of its default).

f) Notwithstanding subsections 7.3.9(a) and (b) above, the actual net charges or credits resulting from the defaulting Member's Financial Transmission Rights positions for which PJM Settlement acted as counterparty as calculated through the normal settlement processes shall be included in calculating the Default Allocation Assessment charges as described in Operating Agreement, section 15.2.2.

7.4 Allocation of Auction Revenues.

7.4.1 Eligibility.

- (a) Annual auction revenues, net of payments to entities selling Financial Transmission Rights into the auction, shall be allocated among holders of Auction Revenue Rights in proportion to the Target Allocation of Auction Revenue Rights Credits for the holder.
- (b) Auction Revenue Rights Credits will be calculated based upon the clearing price results of the applicable Annual Financial Transmission Rights auction.
- (c) Monthly and Balance of Planning Period FTR auction revenues, net of payments to entities selling Financial Transmission Rights into the auction, shall be allocated according to the following priority schedule:
 - (i) To stage 1 and 2 Auction Revenue Rights holders in accordance with Operating Agreement, Schedule 1, section 7.4.4. If there are excess revenues remaining after a distribution made pursuant to this subsection, such revenues shall be distributed in accordance with subsection (c)(ii) of this section;
 - (ii) To the Residual Auction Revenue Rights holders in proportion to, but not more than their Target Allocation as determined pursuant to Operating Agreement, Schedule 1, section 7.4.3(b). If there are excess revenues remaining after a distribution made pursuant to this subsection, such revenues shall be distributed in accordance with subsection (c)(iii) of this section;
 - (iii) In accordance with Operating Agreement, Schedule 1, section 5.2.6.
- (d) Long-term FTR auction revenues associated with FTRs that cover individual Planning Periods shall be distributed in the Planning Period for which the FTR is effective. Long-term FTR auction revenues associated with FTRs that cover multiple Planning Years shall be distributed equally across each Planning Period in the effective term of the FTR. Long-term FTR auction revenue distributions within a Planning Period shall be in accordance with the following provisions:
 - (i) Long-term FTR Auction revenues shall be distributed to Auction Revenue Rights holders in the effective Planning Period for the FTR. The distribution shall be in proportion to the economic value of the ARRs when compared to the annual FTR auction clearing prices from each round proportionately.
 - (ii) Long-term FTR auction revenues remaining after distributions made pursuant to Operating Agreement, Schedule 1, section 7.4.1(d)(ii) shall be distributed pursuant to Operating Agreement, Schedule 1, section 5.2.6 of Schedule 1 of this Agreement.

7.4.2 Auction Revenue Rights.

(a) Prior to the end of each PJM Planning Period an annual allocation of Auction Revenue Rights for the next PJM Planning Period shall be performed using a two stage allocation process. Stage 1 shall consist of stages 1A and 1B, which shall allocate ten year and annual Auction Revenue Rights, respectively, and stage 2 shall allocate annual Auction Revenue Rights. The Auction Revenue Rights allocation process shall be performed in accordance with Sections 7.4 and 7.5 hereof and the PJM Manuals.

With respect to the allocation of Auction Revenue Rights, if the Office of the Interconnection discovers a *potential* error in the allocation, the Office of the Interconnection shall notify Market Participants as soon as possible after it is found, but in no event later than 5:00 p.m. of the Business Day following the initial publication of allocation results. After this initial notification, if the Office of the Interconnection determines that it is necessary to post modified allocation results, it shall provide notification of its intent to do so, *along with a description detailing the cause and scope of the error*, by no later than 5:00 p.m. of the second Business Day following the publication of the initial allocation. *The provided description will not contain information that is market sensitive or confidential.* Thereafter, the Office of the Interconnection must post any corrected allocation results by no later than 5:00 p.m. of the fourth calendar day following the initial publication. Should any of the above deadlines pass without the associated action on the part of the Office of the Interconnection, the originally posted results will be considered final. Notwithstanding the foregoing, the deadlines set forth above shall not apply if the referenced allocation is under publicly noticed review by the FERC.

(b) In stage 1A of the allocation process, each Network Service User may request Auction Revenue Rights for a term covering ten consecutive PJM Planning Periods beginning with the immediately ensuing PJM Planning Period from a subset of the Active Historical Generation Resources or Qualified Replacement Resources, and each Qualifying Transmission Customer (as defined in subsection (f) of this section) may request Auction Revenue Rights based on the megawatts of firm service provided between the receipt and delivery points as to which the Transmission Customer had Point-to-Point Transmission Service during the historical reference year. Active Historical Generation Resources shall mean those historical resources that were designated to be delivered to load based on the historical reference year, and which have not since been deactivated and, further, only up to the current installed capacity value of such resource as of the annual allocation of ARR for the target PJM Planning Period. Qualified Replacement Resources shall mean those resources the Office of the Interconnection designates for the ensuing Planning Period to replace historical resources that no longer qualify as Active Historical Generation Resources and that maximize the economic value of ARR while maintaining Simultaneous Feasibility, as further described in the PJM Manuals.

Prior to the stage 1A of the allocation process, the Office of the Interconnection shall determine, for each Zone, the amount of megawatts of ARR available from Active Historical Generation Resources in that Zone and the amount of megawatts required from Qualified Replacement Resources. The Office of the Interconnection shall designate Qualified Replacement Resources as follows, and as further described in the PJM Manuals. Qualified Replacement Resources shall be either from a (1) capacity resource that has been included in the rate base of a specific Load

Serving Entity in a particular Zone, using criteria for rate-based as specified in sections 7.6 and 7.7 hereof concerning New Stage 1 Resources and Alternative Stage 1 Resources; or (2) from a non-rate-based capacity resource.

Prior to the end of each PJM Planning Period the Office of the Interconnection will determine which Stage 1 Resources are no longer viable for the next PJM Planning Period and then will replace such source points with Qualified Replacement Resources (i.e., Capacity Resources that pass the Simultaneous Feasibility Test and which are economic). The Office of Interconnection will determine the replacement source points as follows. First, the Office of the Interconnection will compile a list of all Capacity Resources that are operational as of the beginning of the next Planning Period, that are not currently designated as source points and will post such list on the PJM website prior to finalizing the Stage 1 eligible resource list for each transmission zone for review by Market Participants. In the first instance, all such resources will be considered to be non-rate-based. Market Participants will be asked to review the posted resource list and provide evidence to the Office of the Interconnection, if any, of the posted resources that shall be classified as rate-based resources. Once the replacement resource list along with the resource status is finalized after any input from Market Participants, the Office of the Interconnection will create two categories of resources for each Stage 1 transmission zone based on economic order: one for rate-based; and a second for non-rate-based resources. When determining economic order, the Office of the Interconnection will utilize historical source and sink Day-ahead Energy Market Congestion Locational Marginal Prices (“CLMPs”). Historical value will be based on the previous three years’ CLMP sink versus CLMP source differences weighted by 50% for the previous calendar year, weighted by 30% for the year prior and weighted by 20% for the year prior. To the extent replacement resources do not have three years’ worth historical data, weighting will be performed either 50/50% in the case of two years or 100% in the case of one year worth of historical data. If a full year of historical data is not available, PJM will utilize the CLMP from the closest electrically equivalent location to compose an entire year of historical data. Once the economic order is established for each Stage 1 zonal rate-based and non-rate-based generator categories, the Office of the Interconnection will begin to replace Stage 1 zonal retirements with the Qualified Replacement Resources by first utilizing rate-based resources in the economic order while respecting transmission limitations. And once the rate-based resource determination is concluded, the Office of the Interconnection will then utilize non-rate-based resources, in economic order, while respecting transmission limitations as described previously.

The historical reference year for all Zones shall be 1998, except that the historical reference year shall be: 2002 for the Allegheny Power and Rockland Electric Zones; 2004 for the AEP East, The Dayton Power & Light Company and Commonwealth Edison Company Zones; 2005 for the Virginia Electric and Power Company and Duquesne Light Company Zones; 2011 for the ATSI Zone; 2012 for the DEOK Zone; 2013 for the EKPC Zone; 2018 for the OVEC Zone; and the Office of the Interconnection shall specify a historical reference year for a new PJM zone corresponding to the year that the zone is integrated into the PJM Interchange Energy Market. For stage 1, the Office of the Interconnection shall determine a set of eligible historical generation resources for each Zone based on the historical reference year and assign a pro rata amount of megawatt capability from each historical generation resource to each Network Service User in the Zone based on its proportion of peak load in the Zone. Auction Revenue Rights shall be allocated to each Network Service User in a Zone from each historical generation resource in

a number of megawatts equal to or less than the amount of the historical generation resource that has been assigned to the Network Service User. Each Auction Revenue Right allocated to a Network Service User shall be to the Energy Settlement Area of such Network Service User as described in Section 31.7 of Part III of the Tariff, unless the Network Service User's Energy Settlement Area represents the Residual Metered Load of an electric distribution company's fully metered franchise area(s) or service territory(ies) and the Network Service User elects to have its Auction Revenue Rights allocated at the aggregate load buses in a Zone. In stage 1A of the allocation process, the sum of each Network Service User's allocated Auction Revenue Rights for a Zone must be equal to or less than sixty percent (60%) of the Network Service User's proportion of peak load in the Zone. The sum of each Network Service User's Auction Revenue Rights for Non-Zone Network Load must be equal to or less than fifty percent (50%) of the Network Service User's transmission responsibility for Non-Zone Network Load as determined under Section 34.1 of the Tariff. The sum of each Qualifying Transmission Customer's Auction Revenue Rights must be equal to or less than fifty percent (50%) of the megawatts of firm service provided between the receipt and delivery points as to which the Transmission Customer had Point-to-Point Transmission Service during the historical reference year. If stage 1A Auction Revenue Rights are adversely affected by any new or revised statute, regulation or rule issued by an entity with jurisdiction over the Office of the Interconnection, the Office of the Interconnection shall, to the greatest extent practicable, and consistent with any such statute, regulation or rule change, preserve the priority of the stage 1A Auction Revenue Rights for a minimum period covering the ten (10) consecutive PJM Planning Periods ("Stage 1A Transition Period") immediately following the implementation of any such changes, provided that the terms of all stage 1A Auction Revenue Rights in effect at the time the Office of the Interconnection implements the Stage 1A Transition Period shall be reduced by one PJM Planning Period during each annual stage 1A Auction Revenue Rights allocation performed during the Stage 1A Transition Period so that all stage 1A Auction Revenue Rights that were effective at the start of the Stage 1A Transition Period expire at the end of that period.

(c) In stage 1B of the allocation process each Network Service User may request Auction Revenue Rights from the subset of the resources determined pursuant to Section 7.4.2(b) that were not allocated in stage 1A of the allocation process, and each Qualifying Transmission Customer may request Auction Revenue Rights based on the megawatts of firm service determined pursuant to Section 7.4.2(b) that were not allocated in stage 1A of the allocation process. In stage 1B of the allocation process, the sum of each Network Service User's allocation Auction Revenue Rights request for a Zone must be equal to or less than the difference between the Network Service User's peak load for that Zone as determined pursuant to Section 34.1 of the Tariff and the sum of its Auction Revenue Rights Allocation from stage 1A of the allocation process for that Zone. The sum of each Network Service User's Auction Revenue Rights for Non-Zone Network Load must be equal to or less than the difference between one hundred percent (100%) of the Network Service User's transmission responsibility for Non-Zone Network Load as determined pursuant to Section 7.4.2(b) and the sum of its Auction Revenue Rights Allocation from stage 1A of the allocation process for that Zone. The sum of each Qualifying Transmission Customer's Auction Revenue Rights must be equal to or less than the difference between one hundred percent (100%) of the megawatts of firm service as determined pursuant to Section 7.4.2(b) and the sum of its Auction Revenue Rights Allocation from stage 1A of the allocation process for that Zone. In stage 1B, valid Auction Revenue Right source

buses include Active Historical Resources, Qualified Replacement Resources, Zones, hubs and external Interface Pricing Points.

(d) In stage 2 of the allocation process, the Office of the Interconnection shall conduct an iterative allocation process that consists of two rounds with up to one half of the remaining system Auction Revenue Rights capability allocated in each round. Each round of this allocation process will be conducted sequentially with Network Service Users and Transmission Customers being given the opportunity to view results of each allocation round prior to submission of Auction Revenue Right requests into the subsequent round. In each round, each Network Service User shall designate a subset of buses from which Auction Revenue Rights will source and sink. Valid Auction Revenue Rights source buses include only Zones, generators, hubs and external Interface Pricing Points. Valid Auction Revenue Rights sink buses include only Zones, generators, hubs and external Interface Pricing Points. The Network Service User shall specify the amount of Auction Revenue Rights requested from each source bus to each sink bus. Prior to the 2015/2016 Planning Period, each Auction Revenue Right shall sink to the Energy Settlement Area of the Network Service User as described in Section 31.7 of Part III of the Tariff. Commencing with the 2015/2016 Planning Period, each Auction Revenue Right shall sink to the Energy Settlement Area of the Network Service User as described in Section 31.7 of Part III of the Tariff, unless the Network Service User's Energy Settlement Area represents the Residual Metered Load of an electric distribution company's fully metered franchise area(s) or service territory(ies) and the Network Service User elects to have its Auction Revenue Rights sink at the aggregate load buses in a Zone. The sum of each Network Service User's Auction Revenue Rights requests in each stage 2 allocation round for each Zone must be equal to or less than one half of the difference between the Network Service User's peak load for that Zone as determined pursuant to Section 7.4.2(b) and the sum of its Auction Revenue Right Allocation from stages 1A and 1B of the allocation process for that Zone. The stage 2 allocation to Transmission Customers shall be as set forth in subsection (f).

(e) On a daily basis within the annual Financial Transmission Rights auction period, a proportionate share of Network Service User's Auction Revenue Rights for each Zone are reallocated as Network Load changes from one Network Service User to another within that Zone.

(f) A Qualifying Transmission Customer shall be any customer with an agreement for Long-Term Firm Point-to-Point Transmission Service, used to deliver energy from a designated Network Resource located either outside or within the PJM Region to load located either outside or within the PJM Region, and that was confirmed and in effect during the historical reference year for the Zone in which the resource is located. Such an agreement shall allow the Qualifying Transmission Customer to participate in the first stage of the allocation, but only if such agreement has remained in effect continuously following the historical reference year and is to continue in effect for the period addressed by the allocation, either by its term or by renewal or rollover. The megawatts of Auction Revenue Rights the Qualifying Transmission Customer may request in the first stage of the allocation may not exceed the lesser of: (i) the megawatts of firm service between the designated Network Resource and the load delivery point (or applicable point at the border of the PJM Region for load located outside such region) under contract during the historical reference year; and (ii) the megawatts of firm service presently under contract

between such historical reference year receipt and delivery points. A Qualifying Transmission Customer may request Auction Revenue Rights in either or both of stage 1 or 2 of the allocation without regard to whether such customer is subject to a charge for Firm Point-to-Point Transmission Service under Section 1 of Schedule 7 of the PJM Tariff (“Base Transmission Charge”). A Transmission Customer that is not a Qualifying Transmission Customer may request Auction Revenue Rights in stage 2 of the allocation process, but only if it is subject to a Base Transmission Charge. The Auction Revenue Rights that such a Transmission Customer may request in each round of stage 2 of the allocation process must be equal to or less than one half of the number of megawatts equal to the megawatts of firm service being provided between the receipt and delivery points as to which the Transmission Customer currently has Firm Point-to-Point Transmission Service. The source point of the Auction Revenue Rights must be the designated source point that is specified in the Transmission Service request and the sink point of the Auction Revenue Rights must be the designated sink point that is specified in the Transmission Service request. A Qualifying Transmission Customer may request Auction Revenue Rights in each round of stage 2 of the allocation process in a number of megawatts equal to or less than one half of the difference between the number of megawatts of firm service being provided between the receipt and delivery points as to which the Transmission Customer currently has Firm Point-to-Point Transmission Service and its Auction Revenue Right Allocation from stage 1 of the allocation process.

(g) PJM Transmission Customers that serve load in the Midwest ISO may participate in stage 1 of the allocation to the extent permitted by, and in accordance with, this Section 7.4.2 and other applicable provisions of this Schedule 1. For service from non-historic sources, these customers may participate in stage 2, but in no event can they receive an allocation of ARR/FTRs from PJM greater than their firm service to loads in MISO.

(h) Subject to subsection (i) of this section, all Auction Revenue Rights must be simultaneously feasible. If all Auction Revenue Right requests made during the annual allocation process are not feasible then Auction Revenue Rights are prorated and allocated in proportion to the megawatt level requested and in inverse proportion to the effect on the binding constraints.

(i) If any Auction Revenue Right requests made during stage 1A of the annual allocation process are not feasible due to system conditions, then PJM shall increase the capability limits of the binding constraints that would have rendered the Auction Revenue Rights infeasible to the extent necessary in order to allocate such Auction Revenue Rights without their being infeasible unless such infeasibility is caused by extraordinary circumstances. Such increased limits shall be included in all rounds of the annual allocation and auction processes and in subsequent modeling during the Planning Year to support any incremental allocations of Auction Revenue Rights and monthly and balance of the Planning Period Financial Transmission Rights auctions unless and to the extent those system conditions that contributed to infeasibility in the annual process are not extant for the time period subject to the subsequent modeling, such as would be the case, for example, if transmission facilities are returned to service during the Planning Year. In these cases, any increase in the capability limits taken under this subsection (i) during the annual process will be removed from subsequent modeling to support any incremental allocations of Auction Revenue Rights and monthly and balance of the Planning Period Financial Transmission Rights auctions. In addition, PJM may remove or lower the increased capability limits, if

feasible, during subsequent FTR Auctions if the removal or lowering of the increased capability limits does not impact Auction Revenue Rights funding and net auction revenues are positive.

For the purposes of this subsection (i), extraordinary circumstances shall mean an event of force majeure that reduces the capability of existing or planned transmission facilities and such reduction in capability is the cause of the infeasibility of such Auction Revenue Rights. Extraordinary circumstances do not include those system conditions and assumptions modeled in simultaneous feasibility analyses conducted pursuant to section 7.5 of Schedule 1 of this Agreement. If PJM allocates stage 1A Auction Revenue Rights as a result of this subsection (i) that would not otherwise have been feasible, then PJM shall notify Members and post on its web site (a) the aggregate megawatt quantities, by sources and sinks, of such Auction Revenue Rights and (b) any increases in capability limits used to allocate such Auction Revenue Rights.

(j) Long-Term Firm Point-to-Point Transmission Service customers that are not Qualifying Transmission Customers and Network Service Users serving Non-Zone Network Load may participate in stage 1 of the annual allocation of Auction Revenue Rights pursuant to Section 7.4.2(a)-(c) of Schedule 1 of this Agreement, subject to the following conditions:

- i. The relevant Transmission Service shall be used to deliver energy from a designated Network Resource located either outside or within the PJM Region to load located outside the PJM Region.
- ii. To be eligible to participate in stage 1A of the annual Auction Revenue Rights allocation: 1) the relevant Transmission Service shall remain in effect for the stage 1A period addressed by the allocation; and 2) the control area in which the external load is located has similar rules for load external to the relevant control area.
- iii. Source points for stage 1 requests authorized pursuant to this subsection 7.4.2(j) shall be limited to: 1) generation resources owned by the LSE serving the load located outside the PJM Region; or 2) generation resources subject to a bona fide firm energy and capacity supply contract executed by the LSE to meet its load obligations, provided that such contract remains in force and effect for a minimum term of ten (10) years from the first effective Planning Period that follows the initial stage 1 request.
- iv. For Long-Term Firm Point-to-Point Transmission Service customers requesting stage 1 Auction Revenue Rights pursuant to this subsection 7.4.2(j) , the generation resource(s) designated as source points may include any portion of the generating capacity of such resource(s) that is not, at the time of the request, already identified as a Capacity Resource.
- v. For Network Service Users requesting stage 1 Auction Revenue Rights pursuant to this subsection 7.4.2(j), at the time of the request, the generation resource(s) designated as source points must either be

committed into PJM's RPM market or be designated as part of the entity's FRR Capacity Plan for the purpose of serving the capacity requirement of the external load.

- vi. All stage 1 source point requests made pursuant to this subsection 7.4.2(j) shall not increase the megawatt flow on facilities binding in the relevant annual Auction Revenue Rights allocation or in future stage 1A allocations and shall not cause megawatt flow to exceed applicable ratings on any other facilities in either set of conditions in the simultaneous feasibility test prescribed in subsection (vii) of this subsection 7.4.2(j).
- vii. To ensure the conditions of subsection (vi) of this subsection 7.4.2(j) are met, a simultaneous feasibility test shall be conducted: 1) based on next allocation year with all existing stage 1 and stage 2 Auction Revenue Rights modeled as fixed injection-withdrawal pairs; and 2) based on 10 year allocation model with all eligible stage 1A Auction Revenue Rights for each year including base load growth for each year.
- viii. Requests for stage 1 Auction Revenue Rights made pursuant to this subsection 7.4.2(j) that are received by PJM by November 1st of a Planning Period shall be processed for the next annual Auction Revenue Rights allocation. Requests received after November 1st shall not be considered for the upcoming annual Auction Revenue Rights allocation. If all requests are not simultaneously feasible then requests will be awarded on a pro-rata basis.
- ix. Requests for new or alternate stage 1 resources made by Network Service Users and external LSEs that are received by November 1st shall be evaluated at the same time. If all requests are not simultaneously feasible then requests will be awarded on a pro-rata basis.
- x. Stage 1 Auction Revenue Rights source points that qualify pursuant to this subsection 7.4.2(j) shall be eligible as stage 1 Auction Revenue Rights source points in subsequent annual Auction Revenue Rights allocations.
- xi. Long-Term Firm Point-to-Point Transmission Service customers requesting stage 1 Auction Revenue Rights pursuant to this subsection 7.4.2(j) may request Auction Revenue Rights megawatts up to the lesser of: 1) the customer's Long-Term Firm Point-to-Point Transmission service contract megawatt amount; or 2) the customer's Firm Transmission Withdrawal Rights.
- xii. Network Service Users requesting stage 1 Auction Revenue Rights pursuant to this subsection 7.4.2(j) may request Auction Revenue Rights megawatts up to the lesser of: 1) the customer's network service peak load; or 2) the customer's Firm Transmission Withdrawal Rights.

- xiii. Stage 1A Auction Revenue Rights requests made pursuant to this subsection 7.4.2(j) shall not exceed 50% of the maximum allowed megawatts authorized by subsections (xi) and (xii) of this subsection 7.4.2(j).
- xiv. Stage 1B Auction Revenue Rights requests made pursuant to this subsection 7.4.2(j) shall not exceed the difference between the maximum allowed megawatts authorized by subsections (xi) and (xii) of this subsection 7.4.2(j) and the Auction Revenue Rights megawatts granted in stage 1A.
- xv. In each round of Stage 2 of an annual allocation of Auction Revenue Rights, megawatt requests made pursuant to this subsection 7.4.2(j) shall be equal to or less than one half of the difference between the maximum allowed megawatts authorized by paragraphs (xi) and (xii) of this subsection 7.4.2(j) and the Auction Revenue Rights megawatt amount allocated in stage 1.
- xvi. Stage 1 Auction Revenue Rights sources established pursuant to this subsection 7.4.2(j) and the associated Auction Revenue Rights megawatt amount may be replaced with an alternate resource pursuant to the process established in Section 7.7 of Schedule 1 of this Agreement.

(k) PJM Transmission Customers taking firm transmission service for the delivery of Direct Charging Energy to Energy Storage Resources are not eligible for allocation of Auction Revenue Rights.

7.4.2a Bilateral Transfers of Auction Revenue Rights

(a) Market Participants may enter into bilateral agreements to transfer Auction Revenue Rights or the right to receive an allocation of Auction Revenue Rights to a third party. Such bilateral transfers shall be reported to the Office of the Interconnection in accordance with this Schedule and pursuant to the LLC's rules related to its FTR reporting tools.

(b) For purposes of clarity, with respect to all bilateral transfers of Auction Revenue Rights or the right to receive an allocation of Auction Revenue Rights, the rights and obligations to the Auction Revenue Rights or the right to receive an allocation of Auction Revenue Rights that are the subject of such a bilateral transfer shall pass to the buyer under the bilateral contract subject to the provisions of this Schedule. In no event, shall the purchase and sale of an Auction Revenue Right or the right to receive an allocation of Auction Revenue Rights pursuant to a bilateral transfer constitute a transaction with PJMSettlement or a transaction in any auction under this Schedule.

(c) Consent of the Office of the Interconnection shall be required for a seller to transfer to a buyer any obligations associated with the Auction Revenue Rights or the right to receive an allocation of Auction Revenue Rights. Such consent shall be based upon the Office of the Interconnection's assessment of the buyer's ability to perform the obligations transferred in the bilateral contract. If consent for a transfer is not provided by the Office of the Interconnection, the title to the Auction Revenue Rights or the right to receive an allocation of Auction Revenue Rights shall not transfer to the third party and the holder of the Auction Revenue Rights or the right to receive an allocation of Auction Revenue Rights shall continue to receive all rights attributable to the Auction Revenue Rights or the right to receive an allocation of Auction Revenue Rights and remain subject to all credit requirements and obligations associated with the Auction Revenue Rights or the right to receive an allocation of Auction Revenue Rights.

(d) A seller under such a bilateral contract shall guarantee and indemnify the Office of the Interconnection, PJMSettlement, and the Members for the buyer's obligation to pay any charges associated with the Auction Revenue Right and for which payment is not made to PJMSettlement by the buyer under such a bilateral transfer.

(e) All payments and related charges associated with such a bilateral contract shall be arranged between the parties to such bilateral contract and shall not be billed or settled by PJMSettlement or the Office of the Interconnection. The LLC, PJMSettlement, and the Members will not assume financial responsibility for the failure of a party to perform obligations owed to the other party under such a bilateral contract reported to the Office of the Interconnection under this Schedule.

(f) All claims regarding a default of a buyer to a seller under such a bilateral contract shall be resolved solely between the buyer and the seller.

7.4.3 Target Allocation of Auction Revenue Right Credits.

(a) A Target Allocation of Auction Revenue Right Credits for each entity holding an Auction Revenue Right shall be determined for each Auction Revenue Right. After each round of the annual Financial Transmission Right auction, each Auction Revenue Right shall be divided by four and multiplied by the price differences for the receipt and delivery points associated with the Auction Revenue Right, calculated as the Locational Marginal Price at the delivery points(s) minus the Locational Marginal Price at the receipt point(s), where the price for the receipt and delivery point is determined by the clearing prices of each round of the annual Financial Transmission Right auction. The daily total Target Allocation for an entity holding the Auction Revenue Rights shall be the sum of the daily Target Allocations associated with all of the entity's Auction Revenue Rights.

(b) A Target Allocation of residual Auction Revenue Rights Credits for each entity allocated Residual Auction Revenue Rights pursuant to section 7.9 of Schedule 1 of this Agreement shall be determined on a monthly basis for each month in a Planning Period beginning with the month the Residual Auction Revenue Right(s) becomes effective through the end of the relevant Planning Period. The Target Allocation for Residual Auction Revenue Rights Credits shall be equal to megawatt amount of the Residual Auction Revenue Rights multiplied by the LMP

differential between the source and sink nodes of the corresponding FTR obligation in each prompt-month FTR auction that occurs from the effective date of the Residual Auction Revenue Rights through the end of the relevant Planning Period.

7.4.4 Calculation of Auction Revenue Right Credits.

(a) Each day, the total of all the daily Target Allocations determined as specified above in Section 7.4.3 plus any additional Auction Revenue Rights Target Allocations applicable for that day shall be compared to the total revenues of all applicable monthly Financial Transmission Rights auction(s) (divided by the number of days in the month) plus the total revenues of the annual Financial Transmission Rights auction (divided by the number of days in the Planning Period). If the total of the Target Allocations is less than the total auction revenues, the Auction Revenue Right Credit for each entity holding an Auction Revenue Right shall be equal to its Target Allocation. All remaining funds shall be distributed as Excess Congestion Charges pursuant to Section 5.2.6.

(b) If the total of the Target Allocations is greater than the total auction revenues, each holder of Auction Revenue Rights shall be assigned a share of the total auction revenues in proportion to its Auction Revenue Rights Target Allocations for Auction Revenue Rights which have a positive Target Allocation value. Auction Revenue Rights which have a negative Target Allocation value are assigned the full Target Allocation value as a negative Auction Revenue Right Credit.

(c) At the end of a Planning Period, if all Auction Revenue Right holders did not receive Auction Revenue Right Credits equal to their Target Allocations, PJMSettlement shall assess a charge equal to the difference between the Auction Revenue Right Credit Target Allocations for all revenue deficient Auction Revenue Rights and the actual Auction Revenue Right Credits allocated to those Auction Revenue Right holders. The aggregate charge for a Planning Period assessed pursuant to this section, if any, shall be added to the aggregate charge for a Planning Period assessed pursuant to section 5.2.5(c) of Schedule 1 of this Agreement and collected pursuant to section 5.2.5(c) of Schedule 1 of this Agreement and distributed to the Auction Revenue Right holders that did not receive Auction Revenue Right Credits equal to their Target Allocation.

7.5 Simultaneous Feasibility.

(a) The Office of the Interconnection shall make the simultaneous feasibility determinations specified herein using appropriate powerflow models of contingency-constrained dispatch. Simultaneous feasibility determinations shall take into account outages of both individual generation units and transmission facilities and shall be based on reasonable assumptions about the configuration and availability of transmission capability during the period covered by the auction that are not inconsistent with the determination of the deliverability of Generation Capacity Resources under the Reliability Assurance Agreement. The goal of the simultaneous feasibility determination shall be to ensure that there are sufficient revenues from Day-ahead Energy Market Transmission Congestion Charges to satisfy all Financial Transmission Rights Obligations for the auction period under expected conditions and to ensure that there are sufficient revenues from the annual Financial Transmission Right Auction to satisfy all Auction Revenue Rights Obligations. To ensure revenue sufficiency, the powerflow model used for simultaneous feasibility determinations is a markets model that uses flows caused by sources and sinks of requested Auction Revenue Rights (including Incremental Auction Revenue Rights) or Financial Transmission Rights, as well as market limits (as described in section (b) below) to determine the capability available to accommodate financial rights that are simultaneously feasible. The markets model differs from both an operations model, which uses physical generators or load, and a planning model, which uses expected physical generators or load.

(b) Simultaneous feasibility determinations pursuant to this section utilize applicable market limits. Market limits may differ from physical facility ratings to reflect expected market capability and to align expected Financial Transmission Rights total target allocations with expected congestion, and to ensure sufficient revenues are collected from the Day-ahead Energy Market Transmission Congestion Charges to satisfy all Financial Transmission Rights obligations. To account for historical market impacts, market limits may reflect (without limitation) such factors as requested and awarded Auction Revenue Rights, Incremental Auction Revenue Rights and Financial Transmission Rights, uncompensated powerflow, external flowgate entitlements or limits, transfer limits of the type appropriate for reactive interfaces, operational considerations, voltage limitations and/or closed loop interfaces. Market limits also are based on reasonable assumptions about the configuration and availability of transmission capability during the study period, including (without limitation) scheduled or expected transmission outages. The market limits are applied to facilities modeled in an Auction Revenue Rights allocation, Financial Transmission Rights auction or Incremental Auction Revenue Rights study and may result in operative constraints that establish different limits than physical (e.g., thermal or voltage) ratings. As used here, an operative constraint results when a market limit binds in the powerflow model and constrains the grant of Auction Revenue Rights, Incremental Auction Revenue Rights or Financial Transmission Rights.

(c) On an annual basis the Office of the Interconnection shall conduct a simultaneous feasibility test for stage 1A Auction Revenue Rights, which shall assess the simultaneous feasibility for each year remaining in the term of the right(s). This test shall be based on the Auction Revenue Rights required to meet sixty percent (60%) of peak load in each Zone requirements. The Office of the Interconnection shall apply a zonal load growth rate to the

simultaneous feasibility test for the ten year term of the stage 1A Auction Revenue Rights to reflect load growth as estimated by the Office of the Interconnection.

(d) Simultaneous feasibility tests for new stage 1 resource requests made pursuant to Section 7.6 of Schedule 1 of this Agreement shall ensure that the request for a new base resource does not increase the megawatt flow on facilities binding in the current Auction Revenue Rights allocation or in future stage 1A allocations and does not cause megawatt flow to exceed applicable ratings on any other facilities in either set of conditions. The most limiting set of conditions will be used as the limiting condition in these evaluations. A simultaneous feasibility test conducted pursuant to this section by the Office of the Interconnection shall assess the simultaneous feasibility under the following conditions:

- (i) Based on next allocation year with all existing stage 1 and stage 2 Auction Revenue Rights modeled as fixed injection-withdrawal pairs.
- (ii) Based on 10 year allocation model with all eligible stage 1A Auction Revenue Rights for each year including base load growth for each year.

(e) Simultaneous feasibility tests for Incremental Auction Revenue Rights requested pursuant to Operating Agreement, Schedule 1, section 7.8 and Tariff, Part VI, Subpart C, section 231 shall ensure that the request for the Incremental Auction Revenue Rights does not increase the megawatt flow on facilities binding in the current Auction Revenue Rights allocation or in future stage 1A allocations and does not cause megawatt flow to exceed applicable ratings on any other facilities in either set of conditions. The most limiting set of conditions will be used as the limiting conditions in these evaluations. A simultaneous feasibility test conducted pursuant to this section by the Office of the Interconnection shall assess the simultaneous feasibility using the following models derived from the markets model:

- (i) An Incremental Auction Revenue Rights model that is based on the existing allocation year with transmission outages removed (i.e., the transmission assumed out of service in the base markets model is assumed to be in service). All existing stage 1 and stage 2 Auction Revenue Rights are modeled as fixed injection withdrawal pairs.
- (ii) A 10 year allocation model with all eligible stage 1A Auction Revenue Rights for each year including base load growth for each year.

(f) Simultaneous feasibility tests pursuant to section (e) above utilize a transfer analysis to determine the flow impacts. The transfer analysis is performed by injecting at the source and withdrawing at the sink and measuring the impacts on the facilities. Additional details are provided in the PJM Manuals and related explanatory materials posted on the PJM website such as the PJM Whitepaper entitled “PJM Incremental Auction Revenue Rights Model Development and Analysis.”

7.6 New Stage 1 Resources.

A Network Service User may request the addition of new stage 1 resources to the stage 1 resource list if the capacity of the Stage 1 generation resources for a Zone determined pursuant to Section 7.4.2(b) is less than sixty percent (60%) of the of peak load in the Zone. Requests made pursuant to this section shall be subject to Section 7.5(c) of Schedule 1 of this Agreement and shall be limited to generation resources either owned by the requesting party or those subject to a bona fide firm energy and capacity supply contracts where such contract is executed by the requesting party to meet load obligations for which it is eligible to receive stage 1 Auction Revenue Rights and remains in force and effect for a minimum term of ten (10) years.

7.8 Elective Upgrade Auction Revenue Rights.

(a) In addition to any Incremental Auction Revenue Rights established under the PJM Tariff, any party may elect to fully fund Network Upgrades to obtain Incremental Auction Revenue Rights pursuant to this section, provided that Incremental Auction Revenue Rights granted pursuant to this section shall be simultaneously feasible with outstanding Auction Revenue Rights, which shall include stage 1 and stage 2 Auction Revenue Rights, and against stage 1A Auction Revenue Right capability for the future 10 year period as determined by the Office of the Interconnection pursuant to Section 7.8(b) of Schedule 1 of this Agreement. A request made pursuant to this section shall specify a source, sink and megawatt amount, where the source and sink each meet the criteria described for stage 1 in Tariff, Attachment K-Appendix, sections 7.4.2(b) and 7.4.2(c).

(b) The Office of the Interconnection shall assess the simultaneous feasibility of the requested Incremental Auction Revenue Rights and the outstanding Auction Revenue Rights against the existing base system Auction Revenue Right capability and stage 1A Auction Revenue Right capability for the future 10 year period pursuant to Operating Agreement, Schedule 1, section 7.5. This preliminary assessment will determine the incremental flow impact necessary on facilities.

(c) The incremental flow impact represents the incremental capability required on a facility to ensure the requested Incremental Auction Revenue Rights can be made feasible. This required capability is used to determine the upgrades required to accommodate the requested Incremental Auction Revenue Rights and ensure all outstanding Auction Revenue Rights are simultaneously feasible. Additional details are provided in the PJM Manuals and related explanatory materials posted on the PJM website such as the PJM Whitepaper entitled "PJM Incremental Auction Revenue Rights Model Development and Analysis."

- (i) For Incremental Auction Revenue Rights requests, the Office of the Interconnection shall use an Incremental Auction Revenue Rights model to perform the simultaneous feasibility test detailed in Operating Agreement, Schedule 1, section 7.5. The Incremental Auction Revenue Rights model shall consist of an Incremental Auction Revenue Rights model and the 10 year stage 1A Auction Revenue Rights model. An Incremental Auction Revenue Rights model uses the same transmission system model used in the annual Auction Revenue Rights process, except any modeled transmission outages included in the Auction Revenue Rights process are removed (i.e., the transmission assumed out of service in the base markets model is assumed to be in service). Auction Revenue Rights requests that were denied or pro-rated in the annual Auction Revenue Rights allocation as a result of assumed transmission outages also are restored in the Incremental Auction Revenue Rights model because the transmission is assumed to be in service for purposes of this model.

- (ii) If the incremental market flows created by the Incremental Auction Revenue Rights request cause facilities to be limited or increase the market flow on already limited facilities in either the Incremental Auction Revenue Rights model or the 10 year stage 1A Auction Revenue Rights model, increased system capability will be required in order for the Office of the Interconnection to grant the Incremental Auction Revenue Rights request. This required incremental capability is used to determine the upgrades required to accommodate the requested Incremental Auction Revenue Rights and ensure all outstanding Auction Revenue Rights (including any pro-rated but restored Auction Revenue Rights requests) are simultaneously feasible. Additional details are provided in the PJM Manuals and related explanatory materials posted on the PJM website such as the PJM Whitepaper entitled “PJM Incremental Auction Revenue Rights Model Development and Analysis.”
- (iii) In addition to the Incremental Auction Revenue Rights model, the Office of the Interconnection uses a planning model that consists of the Regional Transmission Expansion Plan model used by the Office of the Interconnection to study system needs and proposed projects five years forward combined with modeled in-service and planned generation and forecasted load. The planning model includes transmission system upgrades that are ahead of the proposed Incremental Auction Revenue Rights request in the New Services Queue. The upgrades required for the Incremental Auction Revenue Rights request must achieve additional incremental capability over and above any planned baseline or Supplemental Project upgrades, including upgrades related to a Supplemental Project with a projected in-service date later than the applicable planning case year.

(d) If a party elects to fund upgrades to obtain Incremental Auction Revenue Rights pursuant to this section, no less than forty-five (45) days prior to the in-service date of the relevant upgrades, as determined by the Office of the Interconnection, the Office of the Interconnection shall notify the party of the actual amount of Incremental Auction Revenue Rights that will be granted to the party based on the allocation process established pursuant to Section 231.1 of Part VI of the Tariff.

(e) Incremental Auction Revenue Rights established pursuant to this section shall be effective for the lesser of thirty (30) years, or the life of the project, from the in-service date of the Network Upgrade(s). At any time during this thirty-year period (or the life of the Network Upgrade, whichever is less), in lieu of continuing this thirty-year Auction Revenue Right, the owner of the right shall have a one-time choice to switch to an optional mechanism, whereby, on an annual basis, it will have the choice to request an Auction Revenue Right during the annual Auction Revenue Rights allocation process between the same source and sink, provided the Auction Revenue Right is simultaneously feasible. A party that is granted Incremental Auction Revenue Rights pursuant to this section may return such rights at any time, provided that the Office of the Interconnection determines that it can simultaneously accommodate all remaining

outstanding Auction Revenue Rights following the return of such Auction Revenue Rights. In the event a party returns Incremental Auction Revenue Rights, it shall retain no further rights regarding such Incremental Auction Revenue Rights.

(f) No Incremental Auction Revenue Rights shall be granted pursuant to this section if the costs associated with funding the associated Network Upgrades are included in the rate base of a public utility and on which a regulated return is earned.

ATTACHMENT Q

CREDIT RISK MANAGEMENT POLICY

I. INTRODUCTION

It is the policy of PJM that prior to an entity participating in any PJM Markets or in order to take Transmission Service, the entity must demonstrate its ability to meet the requirements in this Attachment Q. This Attachment Q also sets forth PJM's authority to deny, reject, or terminate a Participant's right to participate in any PJM Markets in order to protect the PJM Markets and PJM Members from unreasonable credit risk from any Participant's activities. Given the interconnectedness and overlapping of their responsibilities, PJM Interconnection, L.L.C. and PJM Settlement, Inc. are referred to both individually and collectively herein as "PJM."

PURPOSE

PJMSettlement is the counterparty to transactions in the PJM Markets. As a consequence, if a Participant defaults on its obligations under this Attachment Q, or PJM determines a Participant represents unreasonable credit risk to the PJM Markets, and the Participant does not post Collateral, additional Collateral or Restricted Collateral in response to a Collateral Call, the result is that the Participant represents unsecured credit risk to the PJM Markets. For this reason, PJM must have the authority to monitor and manage credit risk on an ongoing basis, and to act promptly to mitigate or reduce any unsecured credit risk, in order to protect the PJM Markets and PJM Members from losses.

This Attachment Q describes requirements for: (1) eligibility to be a Market Participant, (2) establishment and maintenance of credit by Market Participants, and (3) collateral requirements and forms of credit support that will be deemed as acceptable to mitigate risk to any PJM Markets.

This Attachment Q also sets forth (1) PJM's authority to monitor and manage credit risk that a Participant may represent to the PJM Markets and/or PJM membership in general, (2) the basis for establishing limits that will be imposed on a Market Participant in order to minimize risk, and (3) various obligations and requirements the violation of which will result in an Event of Default pursuant to this Attachment Q and the Agreements.

Attachment Q describes the types of data and information PJM will review in order to determine whether an Applicant or Market Participant presents an unreasonable risk to any PJM Markets and/or PJM membership in general, and the steps PJM may take in order to address that risk.

APPLICABILITY

This Attachment Q applies to all Applicants and Market Participants who take Transmission Service under this Tariff, or participate in any PJM Markets or market activities under the Agreements. Notwithstanding anything to the contrary in this Attachment Q, simply taking

transmission service or procuring Ancillary Services via market-based rates does not imply market participation for purposes of applicability of this Attachment Q.

II. RISK EVALUATION PROCESS

PJM will conduct a risk evaluation to determine eligibility to become and/or remain a Market Participant or Guarantor that: (1) assesses the entity's financial strength, risk profile, creditworthiness, and other relevant factors; (2) determines an Unsecured Credit Allowance, if appropriate; (3) determines appropriate levels of Collateral; and (4) evaluates any Credit Support, including Guaranties or Letters of Credit.

A. Initial Risk Evaluation

PJM will perform an initial risk evaluation of each Applicant and/or its Guarantor. As part of the initial risk evaluation, PJM will consider certain Minimum Participation Requirements, assign an Internal Risk Score, establish an Unsecured Credit Allowance if appropriate, and make a determination regarding required levels of Collateral, creditworthiness, credit support, Restricted Collateral and other assurances for participation in certain PJM Markets.

Each Applicant and/or its Guarantor must provide the information set forth below at the time of its initial application pursuant to this Attachment Q and on an ongoing basis in order to remain eligible to participate in any PJM Markets. The same quantitative and qualitative factors will be used to evaluate Participants whether or not they have rated debt.

1. Rating Agency Reports

PJM will review Rating Agency reports from Standard & Poor's, Moody's Investors Service, Fitch Ratings, or other Nationally Recognized Statistical Rating Organization for each Applicant and/or Guarantor. The review will focus on the Applicant's or its Guarantor's senior unsecured debt ratings. If senior unsecured debt ratings are not available, PJM may consider other ratings, including issuer ratings, corporate ratings and/or an implied rating based on an internally derived Internal Credit Score pursuant to section II.A.3 below.

2. Financial Statements and Related Information

Each Applicant and/or its Guarantor must submit, or cause to be submitted, audited financial statements, except as otherwise indicated below, prepared in accordance with United States Generally Accepted Accounting Principles ("US GAAP") or any other format acceptable to PJM for the three (3) fiscal years most recently ended, or the period of existence of the Applicant and/or its Guarantor, if shorter. Applicants and/or their Guarantors must submit, or cause to be submitted, financial statements, which may be unaudited, for each completed fiscal quarter of the current fiscal year. All audited financial statements provided by the Applicant and/or its Guarantor must be audited by an Independent Auditor.

The information should include, but not be limited to, the following:

- (a) If the Applicant and/or its Guarantor has publicly traded securities:
- (i) Annual reports on Form 10-K, together with any amendments thereto;
 - (ii) Quarterly reports on Form 10-Q, together with any amendments thereto;
 - (iii) Form 8-K reports, if any, that have been filed since the most recent Form 10-K;
 - (iv) A summary provided by the Principal responsible, or to be responsible, for PJM Market activity of: (1) the Participant's primary purpose(s) of activity or anticipated activity in the PJM Markets (investment, trading or "hedging or mitigating commercial risks," as such phrase has meaning in the CFTC's regulations regarding the end-user exception to clearing); (2) the experience of the Participant (and its Principals) in managing risks in similar markets, including other organized RTO/ISO markets or on regulated commodity exchanges; and (3) a high level overview of the Participant's intended participation in the PJM Markets.
 - (v) All audited financial statements provided by an Applicant with publicly traded securities and/or its Guarantor with publicly traded securities must be audited by an Independent Auditor that satisfies the requirements set forth in the Sarbanes-Oxley Act of 2002.
- (b) If the Applicant and/or its Guarantor does not have publicly-traded securities:
- (i) Annual Audited Financial Statements or equivalent independently audited financials, and quarterly financial statements, generally found on:
 - Balance Sheets
 - Income Statements
 - Statements of Cash Flows
 - Statements of Stockholder's or Member's Equity or Net Worth;
 - (ii) Notes to Annual Audited Financial Statements, and notes to quarterly financial statements if any, including disclosures of any material changes from the last report;
 - (iii) Disclosure equivalent to a Management's Discussion & Analysis, including an executive overview of operating results and outlook, and compliance with debt covenants and indentures, and off balance sheet arrangements, if any;
 - (iv) Auditor's Report with an unqualified opinion or written letter from auditor containing the opinion whether the annual audited financial statements comply with the US GAAP or any other format acceptable to PJM; and

- (v) A summary provided by the Principal responsible or to be responsible for PJM Market activity of: (1) the Participant's primary purpose(s) of activity or anticipated activity in the PJM Markets (investment, trading or "hedging or mitigating commercial risks," as such phrase has meaning in the CFTC's regulations regarding the end-user exception to clearing); (2) the experience of the Participant (and its Principals) in managing risks in similar markets, including other organized RTO/ISO markets or on regulated commodity exchanges; and (3) a high level overview of the Participant's intended participation in the PJM Markets.
- (c) If Applicant and/or Guarantor is newly formed, does not yet have three (3) years of audited financials, or does not routinely prepare audited financial statements, PJM may specify other information to allow it to assess the entity's creditworthiness, including but not limited to:
 - (i) Equivalent financial information traditionally found in:
 - Balance Sheets
 - Income Statements
 - Statements of Cash Flows
 - (ii) Disclosure equivalent to a Management's Discussion & Analysis, including an executive overview of operating results and outlook, and compliance with debt covenants and indentures, and off balance sheet arrangements, if any; and
 - (iii) A summary provided by the Principal responsible or to be responsible for PJM Market activity of: (1) the Participant's primary purpose(s) of activity or anticipated activity in the PJM Markets (investment, trading or "hedging or mitigating commercial risks," as such phrase has meaning in the CFTC's regulations regarding the end-user exception to clearing); (2) the experience of the Participant (and its Principals) in managing risks in similar markets, including other organized RTO/ISO markets or on regulated commodity exchanges; and (3) a high level overview of the Participant's intended participation in the PJM Markets.
- (d) During a two year transition period from June 1, 2020 to May 31, 2022, the Applicant or Guarantor may provide a combination of audited financial statements and/or equivalent financial information.

If any of the above information in this section II.A.2 is available on the internet, the Applicant and/or its Guarantor may provide a letter stating where such statements can be located and retrieved by PJM. If an Applicant and/or its Guarantor files Form 10-K, Form 10-Q, or Form 8-K with the SEC, then the Applicant and/or its Guarantor will be deemed to have satisfied the requirement by indicating to PJM where the information in this section II.A.2 can be located on the internet.

If the Applicant and/or its Guarantor fails, for any reason, to provide the information required above in this section II.A.2, PJM has the right to (1) request Collateral and/or Restricted Collateral to cover the amount of risk reasonably associated with the Applicant and/or its Guarantor's expected activity in any PJM Markets, and/or (2) restrict the Applicant from participating in certain PJM Markets, including but not limited to restricting the positions the Applicant (once it becomes a Market Participant) takes in the market.

For certain Applicants and/or their Guarantors, some of the above submittals may not be applicable and alternate requirements for compliant submittals may be specified by PJM. In the credit evaluation of Municipalities and Cooperatives, PJM may also request additional information as part of the initial and ongoing review process and will consider other qualitative factors in determining financial strength and creditworthiness.

3. Credit Rating and Internal Credit Score

PJM will use credit risk scoring methodologies as a tool in determining an Unsecured Credit Allowance for each Applicant and/or its Guarantor. As its source for calculating the Unsecured Credit Allowance, PJM will rely on the ratings from a Rating Agency, if any, on the Applicant's or Guarantor's senior unsecured debt or their issuer ratings or corporate ratings if senior unsecured debt ratings are not available. If there is a split rating between the Rating Agencies, the lower of the ratings shall apply. If no external credit rating is available PJM will utilize its Internal Credit Score in order to calculate the Unsecured Credit Allowance.

The model used to develop the Internal Credit Score will be quantitative, based on financial data found in the income statement, balance sheet, and cash flow statement, and it will be qualitative based on relevant factors that may be internal or external to a particular Applicant and/or its Guarantor.

PJM will employ a framework, as outlined in Tables 1-5 below, based on metrics internal to the Applicant and/or its Guarantor, including capital and leverage, cash flow coverage of fixed obligations, liquidity, profitability, and other qualitative factors. The particular metrics and scoring rules differ according to the Applicant's or Guarantor's line of business and the PJM Markets in which it anticipates participating, in order to account for varying sources and degrees of risk to the PJM Markets and PJM members.

The formulation of each metric will be consistently applied to all Applicants and Guarantors across industries with slight variations based on identifiable differences in entity type, anticipated market activity, and risks to the PJM Markets and PJM members. In instances where the external credit rating is used to calculate the unsecured credit allowance, PJM may also use the Internal Credit Score as an input into determining the overall risk profile of an Applicant and/or its Guarantor.

| Table 1. Quantitative Metrics by Line of Business: Leverage and Capital Structure | Investor-Owned Utilities | Municipal Utilities | Co-Operative Utilities | Power Transmission | Merchant Power | Project Developers | Exploration & Production | Financial Institutions | Commodity Trading | Private Equity |
|--|---------------------------------|----------------------------|-------------------------------|---------------------------|-----------------------|---------------------------|-------------------------------------|-------------------------------|--------------------------|-----------------------|
| Debt / Total Capitalization (%) | | | | | | | | | | |
| FFO / Debt (%) | | | | | | | | | | |
| Debt / EBITDA (x) | | | | | | | | | | |
| Debt / Property, Plant & Equipment (%) | | | | | | | | | | |
| Retained Earnings / Total Assets (%) | | | | | | | | | | |
| Debt / Avg Daily Production or Kwh (\$) | | | | | | | | | | |
| Tangible Net Worth (\$) | | | | | | | | | | |
| Core Capital / Total Assets (%) | | | | | | | | | | |
| Risk-Based Capital / RWA (%) | | | | | | | | | | |
| Tier 1 Capital / RWA (%) | | | | | | | | | | |
| Equity / Investments (%) | | | | | | | | | | |
| Debt / Investments (%) | | | | | | | | | | |

primary metric **secondary metric** FFO = Funds From Operations RWA = Risk-Weighted Assets

| Table 2. Quantitative Metrics by Line of Business: Fixed Charge Coverage and Funding | Investor-Owned Utilities | Municipal Utilities | Co-Operative Utilities | Power Transmission | Merchant Power | Project Developers | Exploration & Production | Financial Institutions | Commodity Trading | Private Equity |
|---|---------------------------------|----------------------------|-------------------------------|---------------------------|-----------------------|---------------------------|-------------------------------------|-------------------------------|--------------------------|-----------------------|
| EBIT / Interest Expense (x) | | | | | | | | | | |
| EBITDA / Interest Expense (x) | | | | | | | | | | |
| EBITDA / [Interest Exp + CPLTD] (x) | | | | | | | | | | |
| [FFO + Interest Exp] / Interest Exp (x) | | | | | | | | | | |
| Loans / Total Deposits (%) | | | | | | | | | | |
| NPL / Gross Loans (%) | | | | | | | | | | |
| NPL / [Net Worth + LLR] (%) | | | | | | | | | | |
| Market Funding / Tangible Bank Assets (%) | | | | | | | | | | |

primary metric **secondary metric** CPLTD = Current Portion of Long-Term Debt EBIT = Earnings Before Interest and Taxes EBITDA = Earnings Before Interest, Taxes, Depreciation and Amortization LLR = Loan Loss Reserves NPL = Non-Performing Loans

| | | | | | | | | | | | |
|--|--|----------|----------|----------|-----------|-----------|-----------|-----------|------------|------------|------------|
| Need for PJM Markets to Achieve Business Goals | Rating Agency criteria or other industry analysis | High | High | High | High | Med | Low | Med | Low | Low | N/A |
| Ability to Grow/Enter Markets other than PJM | Rating Agency criteria or other industry analysis | Very Low | Very Low | Very Low | Very Low | High | High | Med | Med | High | N/A |
| Other Participants' Ability to Serve Customers | Rating Agency criteria or other industry analysis | Low | Low | Low | Low | Low | Med | Low | Low | High | N/A |
| Regulation of Participant's Business | RRA regulatory climate scores, S&P BICRA | PUCS | Govt | N/A | FERC PUCS | N/A | N/A | N/A | N/A | N/A | N/A |
| Primary Purpose of PJM Activity | Investment ("Inv.)/ Trading ("Trade")/ Hedging or Mitigating Commercial Risk of Operations ("CRH") | CRH | CRH | CRH | CRH/Trade | CRH/Trade | CRH/Trade | CRH/Trade | Inv./Trade | Inv./Trade | Inv./Trade |

RRA = Regulatory Research Associates, a division of S&P Global, Inc. BICRA = Bank Industry Country Risk Assessment

The scores developed will range from 1-6, with the following mappings:

- 1 = Very Low Risk (S&P/Fitch: AAA to AA-; Moody's: Aaa to Aa3)
- 2 = Low Risk (S&P/Fitch: A+ to BBB+; Moody's: A1 to Baa1)
- 3 = Low to Medium Risk (S&P/Fitch: BBB; Moody's: Baa2)
- 4 = Medium Risk (S&P/Fitch: BBB-; Moody's: Baa3)
- 5 = Medium to High Risk (S&P/Fitch: BB+ to BB; Moody's Ba1 to Ba2)
- 6 = High Risk (S&P/Fitch: BB- and below; Moody's: Ba3 and below)

4. Trade References

If deemed necessary by PJM, whether because the Applicant is newly or recently formed or for any other reason, each Applicant and/or its Guarantor shall provide at least one (1) bank reference and three (3) Trade References to provide PJM with evidence of Applicant's understanding of the markets in which the Applicant is seeking to participate and the Applicant's experience and ability to manage risk. PJM may contact the bank references and Trade References provided by the Applicant to verify their business experience with the Applicant.

5. Litigation and Contingencies

Unless prohibited by law, each Applicant and Guarantor is also required to disclose and provide information as to the occurrence of, within the five (5) years prior to the submission of the information to PJM (i) any litigation, arbitration, investigation (formal inquiry initiated by a governmental or regulatory entity), or proceeding, pending or, to the knowledge of the involving, Applicant or its Guarantor or any of their Principals that would likely have a material adverse impact on its financial condition and/or would likely materially affect the risk of non-payment by the Applicant or Guarantor, or (ii) any finding of material defalcation, market manipulation or fraud by or involving the Applicant, Guarantor, or any of their Principals, predecessors, subsidiaries, or Credit Affiliates that participate in any United States power markets based upon a final adjudication of regulatory and/or legal proceedings, (iii) any bankruptcy declarations or petitions by or against an Applicant and/or Guarantor, or (iv) any violation by any of the foregoing of any federal or state regulations or laws regarding energy commodities, U.S. Commodity Futures Trading Commission ("CFTC") or FERC requirements, the rules of any exchange monitored by the National Futures Association, any self-regulatory organization or any other governing, regulatory, or standards body responsible for regulating activity in North American markets for electricity, natural gas or electricity-related commodity products. Each Applicant and Guarantor shall take reasonable measures to obtain permission to disclose information related to a non-public investigation. These disclosures shall be made by Applicant and Guarantor upon application, and within ten (10) Business Days of any material change with respect to any of the above matters.

6. History of Defaults in Energy Projects

Each Applicant and Guarantor shall disclose their current default status and default history for any energy related generation or transmission project (e.g. generation, solar, development), and within any wholesale or retail energy market, including but not limited to within PJM, any Independent System Operator or Regional Transmission Organization, and exchange that has not been cured within the past five (5) years. Defaults of a non-recourse project financed entity may not be included in the default history.

7. Other Disclosures and Additional Information

Each Applicant and Guarantor is required to disclose any Credit Affiliates that are currently Members of PJM, applying for membership with PJM, Transmission Customers, Participants, applying to become Market Participants, or that participate directly or indirectly in any PJM Markets or any other North American markets for electricity, natural gas or electricity-related commodity products. Each Applicant and Guarantor shall also provide a copy of its limited

liability company agreement or equivalent agreement, certification of formation, articles of incorporation or other similar organization document, offering memo or equivalent, the names of its five (5) most senior Principals, and information pertaining to any non-compliance with debt covenants and indentures.

Applicants shall provide PJM the credit application referenced in section III.A and any other information or documentation reasonably required for PJM to perform the initial risk evaluation of Applicant's or Guarantor's creditworthiness and ability to comply with the requirements contained in the Agreements related to settlements, billing, credit requirements, and other financial matters.

B. Supplemental Risk Evaluation Process

As described in section VI below, PJM will conduct a supplemental risk evaluation process for Applicants, Participants, and Guarantors applying to conduct virtual and export transactions or participate in any PJM Markets.

C. Unsecured Credit Allowance

A Market Participant may request that PJM consider it for an Unsecured Credit Allowance pursuant to the provisions herein. Notwithstanding the foregoing, an FTR Participant shall not be considered for an Unsecured Credit Allowance for participation in the FTR markets.

1. Unsecured Credit Allowance Evaluation

PJM will perform a credit evaluation on each Participant that has requested an Unsecured Credit Allowance, both initially and at least annually thereafter. PJM shall determine the amount of Unsecured Credit Allowance, if any, that can be provided to the Market Participant in accordance with the creditworthiness and other requirements set forth in this Attachment Q. In completing the credit evaluation, PJM will consider:

(a) Rating Agency Reports

PJM will review Rating Agency reports as for each Market Participant on the same basis as described in section II.A.1 above and section II.E.1 below.

(b) Financial Statements and Related Information

All financial statements and related information considered for an Unsecured Credit Allowance must satisfy all of the same requirements described in section II.A.2 above and section II.E.2 below.

2. Material Adverse Changes

Each Market Participant is responsible for informing PJM, in writing, of any Material Adverse Change in its financial condition (or the financial condition of its Guarantor) since the date of the Market Participant or Guarantor's most recent annual financial statements provided to PJM, pursuant to the requirements reflected in section II.A.2 above and section II.E.3 below.

In the event that PJM determines that a Material Adverse Change in the financial condition of a Market Participant warrants a requirement to provide Collateral, additional Collateral or Restricted Collateral, PJM shall comply with the process and requirements described in section II.A above and section II.E below.

3. Other Disclosures

Each Market Participant desiring an Unsecured Credit Allowance is required to make the disclosures and upon the same requirements reflected in section II.A.7 above and section II.E.7 below.

D. Determination of Unreasonable Credit Risk

Unreasonable credit risk shall be determined by the likelihood that an Applicant will default on a financial obligation arising from its participation in any PJM Markets. Indicators of potentially unreasonable credit risk include, but are not limited to, a history of market manipulation based upon a final adjudication of regulatory and/or legal proceedings, a history of financial defaults, a history of bankruptcy or insolvency within the past five (5) years, or a combination of current market and financial risk factors such as low capitalization, a reasonably likely future material financial liability, a low Internal Credit Score (derived pursuant to section II.A.3 above) and/or a low externally derived credit score. PJM's determination will be based on, but not limited to, information and material provided to PJM during its initial risk evaluation process, information and material provided to PJM in the Officer's Certification, and/or information gleaned by PJM from public and non-public sources.

If PJM determines that an Applicant poses an unreasonable credit risk to the PJM Markets, PJM may require Collateral, additional Collateral, or Restricted Collateral commensurate with the Applicant's risk of financial default, reject an application, and/or limit or deny Applicant's participation in the PJM Markets, to the extent and for the time period it determines is necessary to mitigate the unreasonable credit risk to the PJM Markets. PJM will reject an application if it determines that Collateral, additional Collateral, or Restricted Collateral cannot address the risk.

PJM will communicate its concerns regarding whether the Applicant presents an unreasonable credit risk, if any, in writing to the Applicant and attempt to better understand the circumstances surrounding that Applicant's financial and credit position before making its determination. In the event PJM determines that an Applicant presents an unreasonable credit risk that warrants a requirement to provide Collateral of any type, or some action to mitigate risk, PJM shall provide the Applicant with a written explanation of why such determination was made.

E. Ongoing Risk Evaluation

In addition to the initial risk evaluation set forth in sections II.A through II.D above and the annual certification requirements set forth in section III.A below, each Market Participant and/or its Guarantor has an ongoing obligation to provide PJM with the information required in section IV.A described in more detail below. PJM may also review public information regarding a

Market Participant and/or its Guarantor as part of its ongoing risk evaluation. If appropriate, PJM will revise the Market Participant's Unsecured Credit Allowance and/or change its determination of creditworthiness, credit support, Restricted Collateral, required Collateral or other assurances pursuant to PJM's ongoing risk evaluation process.

Each Market Participant and/or its Guarantor must provide the information set forth below on an ongoing basis in order to remain eligible to participate in any PJM Markets. The same quantitative and qualitative factors will be used to evaluate Market Participants whether or not they have rated debt.

1. Rating Agency Reports

PJM will review Rating Agency reports for each Market Participant and/or Guarantor on the same basis as described in section II.A.1 above.

2. Financial Statements and Related Information

On an ongoing basis, Market Participants and/or their Guarantors shall provide the information they are required to provide as described in section II.A.2 above, pursuant to the schedule reflected below, with one exception. With regard to the summary that is required to be provided by the Principal responsible for PJM Market activity, with respect to experience of the Participant or its Principals in managing risks in similar markets, the Principal only needs to provide that information for a new Principal that was not serving in the position when the prior summary was provided. PJM will review financial statements and related information for each Market Participant and/or Guarantor on the same basis as described in section II.A.2 above.

Each Market Participant and/or its Guarantor must submit, or cause to be submitted, annual audited financial statements, except as otherwise indicated below, prepared in accordance with US GAAP or any other format acceptable to PJM for the fiscal year most recently ended within ten (10) calendar days of the financial statements becoming available and no later than one hundred twenty (120) calendar days after its fiscal year end. Market Participants and/or their Guarantors must submit, or cause to be submitted, financial statements, which may be unaudited, for each completed fiscal quarter of the current fiscal year, promptly upon their issuance, but no later than sixty (60) calendar days after the end of each fiscal quarter. All audited financial statements provided by the Market Participant and/or its Guarantor must be audited by an Independent Auditor.

Notwithstanding the foregoing, PJM may upon request, grant a Market Participant or Guarantor an extension of time, if the financials are not available within the time frame stated above.

3. Material Adverse Changes

Each Market Participant and each Guarantor is responsible for informing PJM, in writing, of any Material Adverse Change in its or its Guarantor's financial condition within five (5) Business Days of any Principal becoming aware of the occurrence of a Material Adverse Change since the date of the Market Participant or Guarantor's most recent annual financial statements provided to

PJM. However, PJM may also independently establish from available information that a Participant and/or its Guarantor has experienced a Material Adverse Change in its financial condition without regard to whether such Market Participant or Guarantor has informed PJM of the same.

For the purposes of this Attachment Q, a Material Adverse Change in financial condition may include, but is not be limited to, any of the following:

- (a) a bankruptcy filing;
- (b) insolvency;
- (c) a significant decrease in market capitalization;
- (d) restatement of prior financial statements unless required due to regulatory changes;
- (e) the resignation or removal of a Principal unless there is a new Principal appointed or expected to be appointed, a transition plan in place pending the appointment of a new Principal, or a planned restructuring of such roles;
- (f) the filing of a lawsuit or initiation of an arbitration, investigation, or other proceeding that would likely have a material adverse effect on any current or future financial results or financial condition or increase the likelihood of non-payment;
- (g) a material financial default in any other organized energy, ancillary service, financial transmission rights and/or capacity markets including but not limited to those of another Regional Transmission Organization or Independent System Operator, or on any commodity exchange, futures exchange or clearing house, that has not been cured or remedied after any required notice has been given and any cure period has elapsed;
- (h) a revocation of a license or other authority by any Federal or State regulatory agency; where such license or authority is necessary or important to the Participant's continued business, for example, FERC market-based rate authority, or State license to serve retail load;
- (i) a significant change in credit default swap spreads, market capitalization, or other market-based risk measurement criteria, such as a recent increase in Moody's KMV Expected Default Frequency (EDFtm) that is materially greater than the increase in its peers' EDFtm rates, or a collateral default swap (CDS) premium normally associated with an entity rated lower than investment grade;
- (j) a confirmed, undisputed material financial default in a bilateral arrangement with another Participant or counterparty that has not been cured or remedied after any required notice has been given and any cure period has elapsed;
- (k) the sale by a Participant of all or substantially all of its bilateral position(s) in the PJM Markets;
- (l) any adverse changes in financial condition which, individually, or in the aggregate, are material; and,
- (m) any adverse changes, events or occurrences which, individually or in the aggregate, could affect the ability of the entity to pay its debts as they become due or could reasonably be expected to have a material adverse effect on any current or future financial results or financial condition.

Upon identification of a Material Adverse Change, PJM shall evaluate the financial strength and risk profile of the Market Participant and/or its Guarantor at that time and may do so on a more frequent basis going forward. If the result of such evaluation identifies unreasonable credit risk to any PJM Market as further described in section II.E.8 below, PJM will take steps to mitigate the financial exposure to the PJM Markets. These steps include, but are not limited to requiring the Market Participant and/or each Guarantor to provide Collateral, additional Collateral or additional Restricted Collateral that is commensurate with the amount of risk in which the Market Participant wants to engage, and/or limiting the Market Participant's ability to participate in any PJM Market to the extent, and for the time-period necessary to mitigate the unreasonable credit risk. In the event PJM determines that a Material Adverse Change in the financial condition or risk profile of a Market Participant and/or Guarantor, warrants a requirement to provide Collateral of any type, or some action to mitigate risk, PJM shall provide the Market Participant and/or Guarantor, a written explanation of why such determination was made. Conversely, in the event PJM determines there has been an improvement in the financial condition or risk profile of a Market Participant and/or Guarantor such that the amount of Collateral needed for that Market Participant and/or Guarantor can be reduced, PJM shall provide a written explanation why such determination was made, including the amount of the Collateral reduction and indicating when and how the reduction will be made.

4. Litigation and Contingencies

Each Market Participant and/or Guarantor is required to disclose and provide information regarding litigation and contingencies as outlined in section II.A.5 above.

5. History of Defaults in Energy Projects

Each Market Participant and/or Guarantor is required to disclose current default status and default history as outlined in section II.A.6 above.

6. Internal Credit Score

As part of its ongoing risk evaluation, PJM will use credit risk scoring methodologies as a tool in determining an Internal Credit Score for each Market Participant and/or Guarantor, utilizing the same model and framework outlined in section II.A.3 above.

7. Other Disclosures and Additional Information

Each Market Participant and/or Guarantor is required to make other disclosures and provide additional information outlined in section II.A.7 above.

PJM will monitor each Market Participant's use of services and associated financial obligations on a regular basis to determine their total potential financial exposure and for credit monitoring purposes, and may require the Market Participant and/or Guarantor to provide additional information, pursuant to the terms and provisions described herein.

Market Participants shall provide PJM, upon request, any information or documentation reasonably required for PJM to monitor and evaluate a Market Participant's creditworthiness and compliance with the Agreements related to settlements, billing, credit requirements, and other financial matters.

8. Unreasonable Credit Risk

If PJM has reasonable grounds to believe that a Market Participant and/or its Guarantor poses an unreasonable credit risk to any PJM Markets, PJM may immediately notify the Market Participant of such unreasonable credit risk and (1) issue a Collateral Call to demand Collateral, additional Collateral, or Restricted Collateral or other assurances commensurate with the Market Participant's and/or its Guarantor's risk of financial default or other risk posed by the Market Participant's or Guarantor's financial condition or risk profile to the PJM Markets and PJM members, or (2) limit or suspend the Market Participant's participation in any PJM Markets, to the extent and for such time period PJM determines is necessary to mitigate the unreasonable credit risk to any PJM Markets. PJM will only limit or suspend a Market Participant's market participation if Collateral, additional Collateral or Restricted Collateral cannot address the unreasonable credit risk.

PJM's determination will be based on, but not limited to, information and material provided to PJM during its ongoing risk evaluation process or in the Officer's Certification, and/or information gleaned by PJM from public and non-public sources. PJM will communicate its concerns, if any, in writing to the Market Participant and attempt to better understand the circumstances surrounding the Market Participant's financial and credit position before making its determination. At PJM's request or upon its own initiative, the Market Participant or its Guarantor may provide supplemental information to PJM that would allow PJM to consider reducing the additional Collateral requested or reducing the severity of limitations or other restrictions designed to mitigate the Market Participant's credit risk. Such information shall include, but not be limited to: (i) the Market Participant's estimated exposure, (ii) explanations for any recent change in the Market Participant's market activity, (iii) any relevant new load or unit outage information; or (iv) any default or supply contract expiration, termination or suspension.

The Market Participant shall have five (5) Business Days to respond to PJM's request for supplemental information. If the requested information is provided in full to PJM's satisfaction during said period, the additional Collateral requirement shall reflect the Market Participant's anticipated exposure based on the information provided. Notwithstanding the foregoing, any additional Collateral requested by PJM in a Collateral Call must be provided by the Market Participant within the applicable cure period.

In the event PJM determines that an Market Participant and/or its Guarantor presents an unreasonable credit risk, as described above, that warrants a requirement to provide Collateral of any type, or some action to mitigate risk, PJM shall provide the Market Participant with a written explanation of why such final determination was made.

PJM has the right at any time to modify any Unsecured Credit Allowance and/or require additional Collateral as may be deemed reasonably necessary to support current or anticipated market activity as set forth in Tariff, Attachment Q, sections II.A.2 and II.C.1.b. Failure to remit the required amount of additional Collateral within the applicable cure period shall constitute an Event of Default.

F. Collateral and Credit Restrictions

PJM may establish certain restrictions on available credit by requiring that some amounts of credit, i.e. Restricted Collateral, may not be available to satisfy credit requirements. Such designations shall be construed to be applicable to the calculation of credit requirements only, and shall not restrict PJM's ability to apply such designated credit to any obligation(s) in case of a default. Any such Restricted Collateral will be held by PJM, as applicable. Such Restricted Collateral will not be returned to the Participant until PJM has determined that the risk for which such Restricted Collateral is being held has subsided or been resolved.

PJM may post on PJM's web site, and may reference on OASIS, a supplementary document which contains additional business practices (such as algorithms for credit scoring) that are not included in this Attachment Q. Changes to the supplementary document will be subject to stakeholder review and comment prior to implementation. PJM may specify a required compliance date, not less than fifteen (15) calendar days from notification, by which time all Participants and their Guarantors must comply with provisions that have been revised in the supplementary document.

PJM will regularly post each Participant's and/or its Guarantor's credit requirements and credit provisions on the PJM web site in a secure, password-protected location. Each Participant and/or its Guarantor is responsible for monitoring such information, and maintaining sufficient credit to satisfy the credit requirements described herein. Failure to maintain credit sufficient to satisfy the credit requirements of the Attachment Q shall constitute a Credit Breach, and the Participant will be subject to the remedies established herein and in any of the Agreements.

G. Unsecured Credit Allowance Calculation

The external rating from a Rating Agency will be used as the source for calculating the Unsecured Credit Allowance, unless no external credit rating is available in which case PJM will utilize its Internal Credit Score for such purposes. If there is a split rating between the Rating Agencies, the lower of the ratings shall apply.

Where two or more entities, including Participants, are considered Credit Affiliates, Unsecured Credit Allowances will be established for each individual Participant, subject to an aggregate maximum amount for all Credit Affiliates as provided for in Attachment Q, section II.G.3.

In its credit evaluation of Municipalities and Cooperatives, PJM may request additional information as part of the ongoing risk evaluation process and will also consider qualitative factors in determining financial strength and creditworthiness.

1. Credit Rating and Internal Credit Score

As previously described in section II.A.3 above, PJM will determine the Internal Credit Score for an Applicant, Market Participant and/or its Guarantor using the credit risk scoring methodologies contained therein. Internal Credit Scores, ranging from 1-6, for each Applicant, Market Participant and/or its Guarantor, will be determined with the following mappings:

- 1 = Very Low Risk (S&P/Fitch: AAA to AA-; Moody's: Aaa to Aa3)
- 2 = Low Risk (S&P/Fitch: A+ to BBB+; Moody's: A1 to Baa1)
- 3 = Low to Medium Risk (S&P/Fitch: BBB; Moody's: Baa2)
- 4 = Medium Risk (S&P/Fitch: BBB-; Moody's: Baa3)
- 5 = Medium to High Risk (S&P/Fitch: BB+ to BB; Moody's Ba1 to Ba2)
- 6 = High Risk (S&P/Fitch: BB- and below; Moody's: Ba3 and below)

In instances where the external credit rating is used to calculate the unsecured credit allowance, PJM may also use the Internal Credit Score as an input into its determination of the overall risk profile of an Applicant and/or its Guarantor

2. Unsecured Credit Allowance

PJM will determine a Participant's Unsecured Credit Allowance based on its external rating or its Internal Credit Score, as applicable, and the parameters in the table below. The maximum Unsecured Credit Allowance is the lower of:

- (a) A percentage of the Participant's Tangible Net Worth, as stated in the table below, with the percentage based on the Participant's external rating or Internal Credit Score, as applicable; and
- (b) A dollar cap based on the external rating or Internal Credit Score, as applicable, as stated in the table below:

| Internal Credit Score | Risk Ranking | Tangible Net Worth Factor | Maximum Unsecured Credit Allowance (\$ Million) |
|------------------------------|--------------------------------|----------------------------------|--|
| 1.00 – 1.99 | 1 – Very Low (AAA to AA-) | Up to 10.00% | \$50 |
| 2.00 – 2.99 | 2 – Low (A+ to BBB+) | Up to 8.00% | \$42 |
| 3.00 – 3.49 | 3 – Low to Medium (BBB) | Up to 6.00% | \$33 |
| 3.50 – 4.49 | 4 – Medium (BBB-) | Up to 5.00% | \$7 |
| 4.50 – 5.49 | 5 – Medium to High (BB+ to BB) | 0% | \$0 |
| > 5.49 | 6 – High (BB- and below) | 0% | \$0 |

If a Corporate Guaranty is utilized to establish an Unsecured Credit Allowance for a Participant, the value of a Corporate Guaranty will be the lesser of:

- (a) The limit imposed in the Corporate Guaranty;
- (b) The Unsecured Credit Allowance calculated for the Guarantor; and
- (c) A portion of the Unsecured Credit Allowance calculated for the Guarantor in the case of Credit Affiliates.

PJM has the right at any time to modify any Unsecured Credit Allowance and/or require additional Collateral as may be deemed reasonably necessary to support current market activity. Failure to remit the required amount of additional Collateral within the applicable cure period shall be deemed an Event of Default.

PJM will maintain a posting of each Participant's Unsecured Credit Allowance, along with certain other credit related parameters, on the PJM website in a secure, password-protected location. Each Participant will be responsible for monitoring such information and recognizing changes that may occur.

3. Unsecured Credit Limits For Credit Affiliates

If two or more Participants are Credit Affiliates and have requested an Unsecured Credit Allowance, PJM will consider the overall creditworthiness of the Credit Affiliates when determining the Unsecured Credit Allowances in order not to establish more Unsecured Credit for the Credit Affiliates collectively than the overall corporate family could support.

Example: Participants A and B each have a \$10.0 million Corporate Guaranty from their common parent, a holding company with an Unsecured Credit Allowance calculation of \$12.0 million. PJM may limit the Unsecured Credit Allowance for each Participant to \$6.0 million, so the total Unsecured Credit Allowance does not exceed the corporate family total of \$12.0 million.

PJM will work with the Credit Affiliates to allocate the total Unsecured Credit Allowance among the Credit Affiliates while assuring that no individual Participant, nor common guarantor, exceeds the Unsecured Credit Allowance appropriate for its credit strength. The aggregate Unsecured Credit for a Participant, including Unsecured Credit Allowance granted based on its own creditworthiness and risk profile, and any Unsecured Credit Allowance conveyed through a Guaranty shall not exceed \$50 million. The aggregate Unsecured Credit for a Credit Affiliates corporate family shall not exceed \$50 million. A Credit Affiliate corporate family subject to this cap shall request PJM to allocate the maximum Unsecured Credit amongst the corporate family, assuring that no individual Participant or common guarantor, shall exceed the Unsecured Credit level appropriate for its credit strength and activity.

H. Contesting an Unsecured Credit Evaluation

PJM will provide to a Participant, upon request, a written explanation for any determination of or change in Unsecured Credit or credit requirement within ten (10) Business Days of receiving such request.

If a Participant believes that either its level of Unsecured Credit or its credit requirement has been incorrectly determined, according to this Attachment Q, then the Participant may send a request for reconsideration in writing to PJM. Such a request should include:

- (1) A citation to the applicable section(s) of this Attachment Q along with an explanation of how the respective provisions of this Attachment Q were not carried out in the determination as made; and
- (2) A calculation of what the Participant believes should be the appropriate Unsecured Credit or Collateral requirement, according to terms of this Attachment Q.

PJM will provide a written response as promptly as practical, but no more than ten (10) Business Days after receipt of the request. If the Participant still feels that the determination is incorrect, then the Participant may contest that determination. Such contest should be in written form, addressed to PJM, and should contain:

- (1) A complete copy of the Participant's earlier request for reconsideration, including citations and calculations;
- (2) A copy of PJM's written response to its request for reconsideration; and
- (3) An explanation of why it believes that the determination still does not comply with this Attachment Q.

PJM will investigate and will respond to the Participant with a final determination on the matter as promptly as practical, but no more than twenty (20) Business Days after receipt of the request.

Neither requesting reconsideration nor contesting the determination following such request shall relieve or delay Participant's responsibility to comply with all provisions of this Attachment Q, including without limitation posting Collateral, additional Collateral or Restricted Collateral in response to a Collateral Call.

If a Corporate Guaranty is being utilized to establish credit for a Participant, the Guarantor will be evaluated and the Unsecured Credit Allowance granted, if any, based on the financial strength and creditworthiness, and risk profile of the Guarantor. Any utilization of a Corporate Guaranty will only be applicable to non-FTR credit requirements, and will not be applicable to cover FTR credit requirements.

PJM will identify any necessary Collateral requirements and establish a Working Credit Limit for each Participant. Any Unsecured Credit Allowance will only be applicable to non-FTR credit requirements, for positions in PJM Markets other than the FTR market, because all FTR credit requirements must be satisfied by posting Collateral.

III. MINIMUM PARTICIPATION REQUIREMENTS

A Participant seeking to participate in any PJM Markets shall submit to PJM any information or documentation reasonably required for PJM to evaluate its experience and resources. If PJM determines, based on its review of the relevant information and after consultation with the Participant, that the Participant's participation in any PJM Markets presents an unreasonable credit risk, PJM may reject the Participant's application to become a Market Participant, notwithstanding applicant's ability to meet other minimum participation criteria, registration requirements and creditworthiness requirements.

A. Annual Certification

Before they are eligible to transact in any PJM Market, all Applicants shall provide to PJM (i) an executed copy of a credit application and (ii) a copy of the annual certification set forth in Attachment Q, Appendix 1. As a condition to continued eligibility to transact in any PJM Market, Market Participants shall provide to PJM the annual certification set forth in Attachment Q, Appendix 1.

After the initial submission, the annual certification must be submitted each calendar year by all Market Participants between January 1 and April 30. PJM will accept such certifications as a matter of course and the Market Participants will not need further notice from PJM before commencing or maintaining their eligibility to participate in any PJM Markets.

A Market Participant that fails to provide its annual certification by April 30 shall be ineligible to transact in any PJM Markets and PJM will disable the Market Participant's access to any PJM Markets until such time as PJM receives the certification. In addition, failure to provide an executed annual certification in a form acceptable to PJM and by the specified deadlines may result in a default under the Tariff.

Market Participants acknowledge and understand that the annual certification constitutes a representation upon which PJM will rely. Such representation is additionally made under the Tariff, filed with and accepted by FERC, and any false, misleading or incomplete statement knowingly made by the Market Participant and that is material to the Market Participant's ability to perform may be considered a violation of the Tariff and subject the Market Participant to action by FERC. Failure to comply with any of the criteria or requirements listed herein or in the certification may result in suspension or limitation of a Market Participant's transaction rights in any PJM Markets.

Applicants and Market Participants shall submit to PJM, upon request, any information or documentation reasonably and/or legally required to confirm Applicant's or Market Participant's compliance with the Agreements and the annual certification.

B. PJM Market Participation Eligibility Requirements

PJM may conduct periodic verification to confirm that Applicants and Market Participants can demonstrate that they meet the definition of “appropriate person” to further ensure minimum criteria are in place. Such demonstration will consist of the submission of evidence and an executed Annual Officer Certification form as set forth in Attachment Q, Appendix 1 in a form acceptable to PJM. If an Applicant or Market Participant does not provide sufficient evidence for verification to PJM within five (5) Business Days of written request, then such Applicant or Market Participant may result in a default under this Tariff. Demonstration of “appropriate person” status and support of other certifications on the annual certification is one part of the Minimum Participation Requirements for any PJM Markets and does not obviate the need to meet the other Minimum Participation Requirements such as those for minimum capitalization and risk profile as set forth in this Attachment Q.

To be eligible to transact in any PJM Markets, an Applicant or Participant must demonstrate in accordance with the Risk Management and Verification processes set forth below that it qualifies in one of the following ways:

1. an “appropriate person,” as that term is defined under Commodity Exchange Act, section 4(c)(3), or successor provision, or;
2. an “eligible contract participant,” as that term is defined in Commodity Exchange Act, section 1a(18), or successor provision, or;
3. a business entity or person who is in the business of: (1) generating, transmitting, or distributing electric energy, or (2) providing electric energy services that are necessary to support the reliable operation of the transmission system, or;
4. an Applicant or Market Participant seeking eligibility as an “appropriate person” providing an unlimited Corporate Guaranty in a form acceptable to PJM as described in section V below from a Guarantor that has demonstrated it is an “appropriate person,” and has at least \$1 million of total net worth or \$5 million of total assets per Applicant and Market Participant for which the Guarantor has issued an unlimited Corporate Guaranty, or;
5. an Applicant or Market Participant providing a Letter of Credit of at least \$5 million to PJM in a form acceptable to PJM as described in section V below, that the Applicant or Market Participant acknowledges is separate from, and cannot be applied to meet, its credit requirements to PJM, or;
6. an Applicant or Market Participant providing a surety bond of at least \$5 million to PJM in a form acceptable to PJM as described in section V below, that the Applicant or Market Participant acknowledges is separate from, and cannot be applied to meet, its credit requirements to PJM.

If, at any time, a Market Participant cannot meet the eligibility requirements set forth above, it shall immediately notify PJM and immediately cease conducting transactions in any PJM Markets. PJM may terminate a Market Participant’s transaction rights in any PJM Markets if, at

any time, it becomes aware that the Market Participant does not meet the minimum eligibility requirements set forth above.

In the event that a Market Participant is no longer able to demonstrate it meets the minimum eligibility requirements set forth above, and possesses, obtains or has rights to possess or obtain, any open or forward positions in any PJM Markets, PJM may take any such action it deems necessary with respect to such open or forward positions, including, but not limited to, liquidation, transfer, assignment or sale; provided, however, that the Market Participant will, notwithstanding its ineligibility to participate in any PJM Markets, be entitled to any positive market value of those positions, net of any obligations due and owing to PJM.

C. Risk Management and Verification

All Market Participants must maintain current written risk management policies, procedures, or controls to address how market and credit risk is managed, and are required to submit to PJM (at the time they make their annual certification) a copy of their current governing risk control policies, procedures and controls applicable to their market activities. PJM will review such documentation to verify that it appears generally to conform to prudent risk management practices for entities participating in any PJM Markets.

All Market Participants subject to this provision shall make a one-time payment of \$1,500.00 to PJM to cover administrative costs. Thereafter, if such Participant's risk policies, procedures and controls applicable to its market activities change substantively, it shall submit such modified documentation, with applicable administrative charge determined by PJM, to PJM for review and verification at the time it makes its annual certification. All Market Participant's continued eligibility to participate in any PJM Markets is conditioned on PJM notifying a Participant that its annual certification, including the submission of its risk policies, procedures and controls, has been accepted by PJM. PJM may retain outside expertise to perform the review and verification function described in this section, however, in all circumstances, PJM and any third-party it may retain will treat as confidential the documentation provided by a Participant under this section, consistent with the applicable provisions of the Operating Agreement.

Participants must demonstrate that they have implemented prudent risk management policies and procedures in order to be eligible to participate in any PJM Markets. Participants must demonstrate on at least an annual basis that they have implemented and maintained prudent risk management policies and procedures in order to continue to participate in any PJM Markets. Upon written request, the Participant will have fourteen (14) calendar days to provide to PJM current governing risk management policies, procedures, or controls applicable to Participant's activities in any PJM Markets.

D. Capitalization

In advance of certification, Applicants shall meet the minimum capitalization requirements below. In addition to the annual certification requirements in Attachment Q, Appendix 1, a Market Participant shall satisfy the minimum capitalization requirements on an annual basis thereafter. A Participant must demonstrate that it meets the minimum financial requirements

appropriate for the PJM Markets in which it transacts by satisfying either the minimum capitalization or the provision of Collateral requirements listed below:

1. Minimum Capitalization

Minimum capitalization may be met by demonstrating minimum levels of Tangible Net Worth or tangible assets. FTR Participants must demonstrate a Tangible Net Worth in excess of \$1 million or tangible assets in excess of \$10 million. Other Market Participants must demonstrate a Tangible Net Worth in excess of \$500,000 or tangible assets in excess of \$5 million.

(a) Consideration of tangible assets and Tangible Net Worth shall exclude assets which PJM reasonably believes to be restricted, highly risky, or potentially unavailable to settle a claim in the event of default. Examples include, but are not limited to, restricted assets, derivative assets, goodwill, and other intangible assets.

(b) Demonstration of “tangible” assets and Tangible Net Worth may be satisfied through presentation of an acceptable Corporate Guaranty, provided that both:

- (i) the Guarantor is a Credit Affiliate company that satisfies the Tangible Net Worth or tangible assets requirements herein, and;
- (ii) the Corporate Guaranty is either unlimited or at least \$500,000.

If the Corporate Guaranty presented by the Participant to satisfy these capitalization requirements is limited in value, then the Participant’s resulting Unsecured Credit Allowance shall be the lesser of:

- (1) the applicable Unsecured Credit Allowance available to the Participant by the Corporate Guaranty pursuant to the creditworthiness provisions of this Attachment Q, or,
- (2) the face value of the Corporate Guaranty, reduced by \$500,000 and further reduced by 10%. (For example, a \$10.5 million Corporate Guaranty would be reduced first by \$500,000 to \$10 million and then further reduced 10% more to \$9 million. The resulting \$9 million would be the Participant’s Unsecured Credit Allowance available through the Corporate Guaranty).

In the event that a Participant provides Collateral in addition to a limited Corporate Guaranty to increase its available credit, the value of such Collateral shall be reduced by 10%. This reduced value shall be considered the amount available to satisfy requirements of this Attachment Q.

(c) Demonstrations of minimum capitalization (minimum Tangible Net Worth or tangible assets) must be presented in the form of audited financial statements for the Participant's most recent fiscal year during the initial risk evaluation process and ongoing risk evaluation process.

2. Provision of Collateral

If a Participant does not demonstrate compliance with its applicable minimum capitalization requirements above, it may still qualify to participate in any PJM Markets by posting Collateral, additional Collateral, and/or Restricted Collateral, subject to the terms and conditions set forth herein.

Any Collateral provided by a Participant unable to satisfy the minimum capitalization requirements above will also be restricted in the following manner:

- (a) Collateral provided by Market Participants that engage in FTR transactions shall be reduced by an amount of the current risk plus any future risk to any PJM Markets and PJM membership in general, and may coincide with limitations on market participation. The amount of this Restricted Collateral shall not be available to cover any credit requirements from market activity. The remaining value shall be considered the amount available to satisfy requirements of this Attachment Q.
- (b) Collateral provided by other Participants that engage in Virtual Transactions or Export Transactions shall be reduced by \$200,000 and then further reduced by 10%. The amount of this Restricted Collateral shall not be available to cover any credit requirements from market activity. The remaining value shall be considered the amount available to satisfy requirements of this Attachment Q.
- (c) Collateral provided by other Participants that do not engage in Virtual Transactions or Export Transactions shall be reduced by 10%. The amount of this Restricted Collateral shall not be available to cover any credit requirements from market activity. The remaining value shall be considered the amount available to satisfy requirements of this Attachment Q.

In the event a Participant that satisfies the minimum capital requirement through provision of Collateral also provides a Corporate Guaranty to increase its available credit, then the Participant's resulting Unsecured Credit Allowance conveyed through such Corporate Guaranty shall be the lesser of:

- (a) the applicable Unsecured Credit Allowance available to the Participant by the Corporate Guaranty pursuant to the creditworthiness provisions of this Attachment Q; or
- (b) the face value of the Corporate Guaranty, reduced commensurate with the amount of the current risk plus any anticipated future risk to any PJM Markets and PJM membership in general, and may coincide with limitations on market participation.

IV. ONGOING COVENANTS

A. Ongoing Obligation to Provide Information to PJM

So long as a Participant is eligible to participate, or participates or holds positions, in any PJM Markets, it shall deliver to PJM, in form and detail satisfactory to PJM:

- (1) All financial statements and other financial disclosures as required by section II.E.2 by the deadline set forth therein;
- (2) Notice, within five (5) Business Days, of any Principal becoming aware that the Participant does not meet the Minimum Participation Requirements set forth in section III;
- (3) Notice when any Principal becomes aware of any matter that has resulted or would reasonably be expected to result in a Material Adverse Change in the financial condition of the Participant or its Guarantor, if any, a description of such Material Adverse Change in detail reasonable to allow PJM to determine its potential effect on, or any change in, the Participant's risk profile as a participant in any PJM Markets, by the deadline set forth in section II.E.3 above;
- (4) Notice, within the deadline set forth therein, of any Principal becoming aware of a litigation or contingency event described in section II.E.4, or of a Material Adverse Change in any such litigation or contingency event previously disclosed to PJM, information in detail reasonable to allow PJM to determine its potential effect on, or any change in, the Market Participant's risk profile as a participant in any PJM Markets by the deadline set forth therein;
- (5) Notice, within two (2) Business Days after any Principal becomes aware of a Credit Breach, Financial Default, or Credit Support Default, that includes a description of such default or event and the Participant's proposals for addressing the default or event;
- (6) As soon as available but not later than April 30th of any calendar year, the annual Certification described in section III.A in a form set forth in Attachment Q, Appendix 1;
- (7) Concurrently with submission of the annual certification, demonstration that the Participant meets the minimum capitalization requirements set forth in section III.D;
- (8) Concurrently with submission of the annual certification and within the applicable deadline of any substantive change, or within the applicable deadline of a request from PJM, a copy of the Participant's written risk management policies, procedures or controls addressing how the Participant manages market and credit risk in the PJM Markets in which it participates, as well as a high level summary by the chief risk officer or other Principal regarding any material violations, breaches, or compliance or disciplinary actions related to the risk management policies, by the Participant under the policies, procedures or controls within the prior 12 months, as set forth in section IV.B below;
- (9) Within five (5) Business Days of request by PJM, evidence demonstrating the Participant meets the definition of "appropriate person" or "eligible contract participant," as those terms are defined in the Commodity Exchange Act and the CFTC regulations promulgated thereunder, or of any other certification in the annual Certification; or

- (10) Within a reasonable time after PJM requests, any other information or documentation reasonably and/or legally required by PJM to confirm Participant's compliance with the Tariff and its eligibility to participate in any PJM Markets.

Participants acknowledge and understand that the deliveries constitute representations upon which PJM will rely in allowing the Participant to continue to participate in its markets, with the Internal Credit Score and Unsecured Credit Allowance, if any, previously determined by PJM.

B. Risk Management Review

PJM shall also conduct a periodic compliance verification process to review and verify, as applicable, Participants' risk management policies, practices, and procedures pertaining to the Participant's activities in any PJM Markets. PJM shall review such documentation to verify that it appears generally to conform to prudent risk management practices for entities trading in any PJM Markets. Participant shall also provide a high level summary by the chief risk officer or other Principal regarding any material violations, breaches, or compliance or disciplinary actions in connection with such risk management policies, practices and procedures within the prior twelve (12) months.

If a third-party industry association publishes or modifies principles or best practices relating to risk management in North American markets for electricity, natural gas or electricity-related commodity products, PJM may, following stakeholder discussion and with no less than six (6) months prior notice to stakeholders, consider such principles or best practices in evaluating the Participant's risk controls.

PJM will prioritize the verification of risk management policies based on a number of criteria, including but not limited to how long the entity has been in business, the Participant's and its Principals' history of participation in any PJM Markets, and any other information obtained in determining the risk profile of the Participant.

Each Participant's continued eligibility to participate in any PJM Markets is conditioned upon PJM notifying the Participant of successful completion of PJM's verification of the Participant's risk management policies, practices and procedures, as discussed herein. However, if PJM notifies the Participant in writing that it could not successfully complete the verification process, PJM shall allow such Participant fourteen (14) calendar days to provide sufficient evidence for verification prior to declaring the Participant as ineligible to continue to participate in any PJM Markets, which declaration shall be in writing with an explanation of why PJM could not complete the verification. If the Participant does not provide sufficient evidence for verification to PJM within the required cure period, such Participant will be considered in default under this Tariff. PJM may retain outside expertise to perform the review and verification function described in this paragraph. PJM and any third party it may retain will treat as confidential the documentation provided by a Participant under this paragraph, consistent with the applicable provisions of the Agreements. If PJM retains such outside expertise, a Participant may direct in writing that PJM perform the risk management review and verification for such Participant instead of utilizing a third party, provided however, that employees and contract employees of PJM and PJM shall not be considered to be such outside expertise or third parties.

Participants are solely responsible for the positions they take and the obligations they assume in any PJM Markets. PJM hereby disclaims any and all responsibility to any Participant or PJM

Member associated with Participant's submitting or failure to submit its annual certification or PJM's review and verification of a Participant's risk policies, procedures and controls. Such review and verification is limited to demonstrating basic compliance by a Participant showing the existence of written policies, procedures and controls to limit its risk in any PJM Markets and does not constitute an endorsement of the efficacy of such policies, procedures or controls.

V. FORMS OF CREDIT SUPPORT

In order to satisfy their PJM credit requirements Participants may provide credit support in a PJM-approved form and amount pursuant to the guidelines herein, provided that, notwithstanding anything to the contrary in this section, a Market Participant in PJM's FTR markets shall meet its credit support requirements related to those FTR markets with either cash or Letters of Credit.

Unless otherwise restricted by PJM, credit support provided may be used by PJM to secure the payment of Participant's financial obligations under the Agreements.

Collateral which may no longer be required to be maintained under provisions of the Agreements, shall be returned at the request of a Participant, no later than two (2) Business Days following determination by PJM within a commercially reasonable period of time that such Collateral is not required.

Except when an Event of Default has occurred, a Participant may substitute an approved PJM form of Collateral for another PJM approved form of Collateral of equal value.

A. Cash Deposit

Cash provided by a Participant as Collateral will be held in a depository account by PJM. Interest shall accrue to the benefit of the Participant, provided that PJM may require Participants to provide appropriate tax and other information in order to accrue such interest credits.

PJM may establish an array of investment options among which a Participant may choose to invest its cash deposited as Collateral. The depository account shall be held in PJM's name in a banking or financial institution acceptable to PJM. Where practicable, PJM may establish a means for the Participant to communicate directly with the bank or financial institution to permit the Participant to direct certain activity in the PJM account in which its Collateral is held. PJM will establish and publish procedural rules, identifying the investment options and respective discounts in Collateral value that will be taken to reflect any liquidation, market and/or credit risk presented by such investments.

Cash Collateral may not be pledged or in any way encumbered or restricted from full and timely use by PJM in accordance with terms of the Agreements.

PJM has the right to liquidate all or a portion of the Collateral account balance at its discretion to satisfy a Participant's Total Net Obligation to PJM in the Event of Default under this Attachment Q or one or more of the Agreements.

B. Letter of Credit

An unconditional, irrevocable standby Letter of Credit can be utilized to meet the Collateral requirement. As stated below, the form, substance, and provider of the Letter of Credit must all be acceptable to PJM.

- (1) The Letter of Credit will only be accepted from U.S.-based financial institutions or U.S. branches of foreign financial institutions (“financial institutions”) that have a minimum corporate debt rating of “A” by Standard & Poor’s or Fitch Ratings, or “A2” from Moody’s Investors Service, or an equivalent short term rating from one of these agencies. PJM will consider the lowest applicable rating to be the rating of the financial institution. If the rating of a financial institution providing a Letter of Credit is lowered below A/A2 by any Rating Agency, then PJM may require the Participant to provide a Letter of Credit from another financial institution that is rated A/A2 or better, or to provide a cash deposit. If a Letter of Credit is provided from a U.S. branch of a foreign institution, the U.S. branch must itself comply with the terms of this Attachment Q, including having its own acceptable credit rating.
- (2) The Letter of Credit shall state that it shall renew automatically for successive one-year periods, until terminated upon at least ninety (90) calendar days prior written notice from the issuing financial institution. If PJM or PJM receives notice from the issuing financial institution that the current Letter of Credit is being cancelled or expiring, the Participant will be required to provide evidence, acceptable to PJM, that such Letter of Credit will be replaced with appropriate Collateral, effective as of the cancellation date of the Letter of Credit, no later than thirty (30) calendar days before the cancellation date of the Letter of Credit, and no later than ninety (90) calendar days after the notice of cancellation. Failure to do so will constitute a default under this Attachment Q and one or more of the Agreements.
- (3) PJM will post on its web site an acceptable standard form of a Letter of Credit that should be utilized by a Participant choosing to submit a Letter of Credit to establish credit at PJM. If the Letter of Credit varies in any way from the standard format, it must first be reviewed and approved by PJM. All costs associated with obtaining and maintaining a Letter of Credit and meeting the Attachment Q provisions are the responsibility of the Participant.
- (4) PJM may accept a Letter of Credit from a financial institution that does not meet the credit standards of this Attachment Q provided that the Letter of Credit has third-party support, in a form acceptable to PJM, from a financial institution that does meet the credit standards of this Attachment Q.

C. Corporate Guaranty

An irrevocable and unconditional Corporate Guaranty may be utilized to establish an Unsecured Credit Allowance for a Participant. Such credit will be considered a transfer of Unsecured Credit from the Guarantor to the Participant, and will not be considered a form of Collateral.

PJM will post on its web site an acceptable form that should be utilized by a Participant choosing to establish its credit with a Corporate Guaranty. If the Corporate Guaranty varies in any way from the PJM format, it must first be reviewed and approved by PJM before it may be applied to satisfy the Participant's credit requirements.

The Corporate Guaranty must be signed by an officer of the Guarantor, and must demonstrate that it is duly authorized in a manner acceptable to PJM. Such demonstration may include either a corporate seal on the Corporate Guaranty itself, or an accompanying executed and sealed secretary's certificate from the Guarantor's corporate secretary noting that the Guarantor was duly authorized to provide such Corporate Guaranty and that the person signing the Corporate Guaranty is duly authorized, or other manner acceptable to PJM.

PJM will evaluate the creditworthiness of a Guarantor and will establish any Unsecured Credit granted through a Corporate Guaranty using the methodology and requirements established for Participants requesting an Unsecured Credit Allowance as described herein. Foreign Guaranties and Canadian Guaranties shall be subject to additional requirements as established herein. If PJM determines at any time that a Material Adverse Change in the financial condition of the Guarantor has occurred, or if the Corporate Guaranty comes within thirty (30) calendar days of expiring without renewal, PJM may reduce or eliminate any Unsecured Credit afforded to the Participant through the guaranty. Such reduction or elimination may require the Participant to provide Collateral within the applicable cure period. If the Participant fails to provide the required Collateral, the Participant shall be in default under this Attachment Q.

All costs associated with obtaining and maintaining a Corporate Guaranty and meeting the Attachment Q provisions are the responsibility of the Participant.

1. Foreign Guaranties

A Foreign Guaranty is a Corporate Guaranty that is provided by a Credit Affiliate entity that is domiciled in a country other than the United States or Canada. The entity providing a Foreign Guaranty on behalf of a Participant is a Foreign Guarantor. A Participant may provide a Foreign Guaranty in satisfaction of part of its credit obligations or voluntary credit provision at PJM provided that all of the following conditions are met:

PJM reserves the right to deny, reject, or terminate acceptance of any Foreign Guaranty at any time, including for material adverse circumstances or occurrences.

- (a) A Foreign Guaranty:
 - (i) Must contain provisions equivalent to those contained in PJM's standard form of Foreign Guaranty with any modifications subject to review and approval by PJM counsel.
 - (ii) Must be denominated in US currency.
 - (iii) Must be written and executed solely in English, including any duplicate originals.
 - (iv) Will not be accepted towards a Participant's Unsecured Credit Allowance for more than the following limits, depending on the Foreign Guarantor's credit rating:

| Rating of Foreign Guarantor | Maximum Accepted Guaranty if Country Rating is AAA | Maximum Accepted Guaranty if Country Rating is AA+ |
|-----------------------------|--|--|
| A- and above | USD50,000,000 | USD30,000,000 |
| BBB+ | USD30,000,000 | USD20,000,000 |
| BBB | USD10,000,000 | USD10,000,000 |
| BBB- or below | USD 0 | USD 0 |

- (v) May not exceed 50% of the Participant's total credit, if the Foreign Grantor is rated less than BBB+.
- (b) A Foreign Guarantor:
- (i) Must satisfy all provisions of this Attachment Q applicable to domestic Guarantors.
 - (ii) Must be a Credit Affiliate of the Participant.
 - (iii) Must maintain an agent for acceptance of service of process in the United States; such agent shall be situated in the Commonwealth of Pennsylvania, absent legal constraint.
 - (iv) Must be rated by at least one Rating Agency acceptable to PJM; the credit strength of a Foreign Guarantor may not be determined based on an evaluation of its audited financial statements without an actual credit rating as well.
 - (v) Must have a senior unsecured (or equivalent, in PJM's sole discretion) rating of BBB (one notch above BBB-) or greater by any and all agencies that provide rating coverage of the entity.
 - (vi) Must provide audited financial statements, in US GAAP format or any other format acceptable to PJM, with clear representation of net worth, intangible assets, and any other information PJM may require in order to determine the entity's Unsecured Credit Allowance.
 - (vii) Must provide a Secretary's Certificate from the Participant's corporate secretary certifying the adoption of Corporate Resolutions:
 1. Authorizing and approving the Guaranty; and
 2. Authorizing the Officers to execute and deliver the Guaranty on behalf of the Guarantor.
 - (viii) Must be domiciled in a country with a minimum long-term sovereign (or equivalent) rating of AA+/Aa1, with the following conditions:
 1. Sovereign ratings must be available from at least two rating agencies acceptable to PJM (e.g. S&P, Moody's, Fitch, DBRS).
 2. Each agency's sovereign rating for the domicile will be considered to be the lowest of: country ceiling, senior unsecured government debt, long-term foreign currency sovereign rating, long-term local currency sovereign rating, or other equivalent measures, at PJM's sole discretion.
 3. Whether ratings are available from two or three agencies, the lowest of the two or three will be used.
 - (ix) Must be domiciled in a country that recognizes and enforces judgments of US courts.

- (x) Must demonstrate financial commitment to activity in the United States as evidenced by one of the following:
 - 1. American Depository Receipts (ADR) are traded on the New York Stock Exchange, American Stock Exchange, or NASDAQ.
 - 2. Equity ownership worth over USD 100,000,000 in the wholly-owned or majority owned subsidiaries in the United States.
- (xi) Must satisfy all other applicable provisions of the PJM Tariff and/or Operating Agreement, including this Attachment Q.
- (xii) Must pay for all expenses incurred by PJM related to reviewing and accepting a foreign guaranty beyond nominal in-house credit and legal review.
- (xiii) Must, at its own cost, provide PJM with independent legal opinion from an attorney/solicitor of PJM's choosing and licensed to practice law in the United States and/or Guarantor's domicile, in form and substance acceptable to PJM in its sole discretion, confirming the enforceability of the Foreign Guaranty, the Guarantor's legal authorization to grant the Guaranty, the conformance of the Guaranty, Guarantor, and Guarantor's domicile to all of these requirements, and such other matters as PJM may require in its sole discretion.

2. Canadian Guaranties

The entity providing a Canadian Guaranty on behalf of a Participant is a Canadian Guarantor. A Participant may provide a Canadian Guaranty in satisfaction of part of its credit obligations or voluntary credit provision at PJM provided that all of the following conditions are met.

PJM reserves the right to deny, reject, or terminate acceptance of any Canadian Guaranty at any time for reasonable cause, including material adverse circumstances or occurrences.

- (a) A Canadian Guaranty:
 - (i) Must contain provisions equivalent to those contained in PJM's standard form of Foreign Guaranty with any modifications subject to review and approval by PJM counsel.
 - (ii) Must be denominated in US currency.
 - (iii) Must be written and executed solely in English, including any duplicate originals.
- (b) A Canadian Guarantor:
 - (i) Must be a Credit Affiliate of the Participant.
 - (ii) Must satisfy all provisions of this Attachment Q applicable to domestic Guarantors.
 - (iii) Must maintain an agent for acceptance of service of process in the United States; such agent shall be situated in the Commonwealth of Pennsylvania, absent legal constraint.
 - (iv) Must be rated by at least one Rating Agency acceptable to PJM; the credit strength of a Canadian Guarantor may not be determined based on an evaluation of its audited financial statements without an actual credit rating as well.
 - (v) Must provide audited financial statements, in US GAAP format or any other format acceptable to PJM with clear representation of net worth, intangible assets,

and any other information PJM may require in order to determine the entity's Unsecured Credit Allowance.

- (vi) Must satisfy all other applicable provisions of the PJM Tariff and/or Operating Agreement, including this Attachment Q.

D. Surety Bond

An unconditional, irrevocable surety bond can be utilized to meet the Collateral requirement for Participants. As stated below, the form, substance, and provider of the surety bond must all be acceptable to PJM.

- (i) An acceptable surety bond must be payable immediately upon demand without prior demonstration of the validity of the demand. The surety bond will only be accepted from a U.S. Treasury-listed approved surety that has either (i) a minimum corporate debt rating of “A” by Standard & Poor’s or Fitch Ratings, or “A2” from Moody’s Investors Service, or an equivalent short term rating from one of these agencies, or (ii) a minimum insurer rating of “A” by A.M. Best. PJMSettlement will consider the lowest applicable rating to be the rating of the surety. If the rating of a surety providing a surety bond is lowered below A/A2 by any rating agency, then PJMSettlement may require the Participant to provide a surety bond from another surety that is rated A/A2 or better, or to provide another form of Collateral.
- (ii) The surety bond shall have an initial period of at least one year, and shall state that it shall renew automatically for successive one-year periods, until terminated upon at least ninety (90) days prior written notice from the issuing surety. If PJM receives notice from the issuing surety that the current surety bond is being cancelled, the Participant will be required to provide evidence, acceptable to PJM, that such surety bond will be replaced with appropriate Collateral, effective as of the cancellation date of the surety bond, no later than thirty (30) days before the cancellation date of the surety bond, and no later than ninety (90) days after the notice of cancellation. Failure to do so will constitute a default under this Attachment Q and one of more of the Agreements enabling PJM to immediately demand payment of the full value of the surety bond.
- (iii) PJM will post on its web site an acceptable standard form of a surety bond that should be utilized by a Participant choosing to submit a surety bond to establish credit at PJM. The acceptable standard form of surety bond will include non-negotiable provisions, including but not be limited to, a payment on demand feature, requirement that the bond be construed pursuant to Pennsylvania law, making the surety’s obligation to pay out on the bond absolute and unconditional irrespective of the principal’s (Market Participant’s) bankruptcy, terms of any other agreements, investigation of the Market Participant by any entity or governmental authority, or PJM first attempting to collect payment from the Market Participant, and will require, among other things, that (a) the surety waive *all* rights that would be available to a principal or surety under the law, including

but not limited to any right to investigate or verify any matter related to a demand for payment, rights to set-off amounts due by PJM to the Market Participant, and all counterclaims, (b) the surety expressly waive *all* of its and the principal's defenses, including illegality, fraud in the inducement, reliance on statements or representations of PJM and every other typically available defense; (c) the language of the bond that is determinative of the surety's obligation, and not the underlying agreement or arrangement between the principal and the obligee; (d) the bond shall not be conditioned on PJM first resorting to any other means of security or collateral, or pursuing any other remedies it may have; and (e) the surety acknowledge the continuing nature of its obligations in the event of termination or nonrenewal of the surety bond to make clear the surety remains liable for any obligations that arose before the effective date of its notice of cancellation of the surety bond. If the surety bond varies in any way from the standard format, it must first be reviewed and approved by PJM. PJM shall not accept any surety bond that varies in any material way from the standard format.

- (iv) All costs associated with obtaining and maintaining a surety bond and meeting the Attachment Q provisions are the responsibility of the Participant.
- (v) PJM shall not accept surety bonds with an aggregate value greater than \$10 million dollars (\$10,000,000) issued by any individual surety on behalf of any individual Participant.
- (vi) PJM shall not accept surety bonds with an aggregate value greater than \$50 million dollars (\$50,000,000) issued by any individual surety.

E. PJM Administrative Charges

Collateral or credit support held by PJM shall also secure obligations to PJM for PJM administrative charges, and may be liquidated to satisfy all such obligations in an Event of Default.

F. Collateral and Credit Support Held by PJM

Collateral or credit support submitted by Participants and held by PJM shall be held by PJM for the benefit of PJM.

VI. SUPPLEMENTAL CREDIT REQUIREMENTS FOR SCREENED TRANSACTIONS

A. Virtual and Export Transaction Screening

1. Credit for Virtual and Export Transactions

Export Transactions and Virtual Transactions both utilize Credit Available for Virtual Transactions to support their credit requirements.

PJM does not require a Market Participant to establish separate or additional credit for submitting Virtual or Export Transactions; however, once transactions are submitted and accepted by PJM, PJM may require credit supporting those transactions to be held until the transactions are completed and their financial impact incorporated into the Market Participant's Obligations. If a Market Participant chooses to establish additional Collateral and/or Unsecured Credit Allowance in order to increase its Credit Available for Virtual Transactions, the Market Participant's Working Credit Limit for Virtual Transactions shall be increased in accordance with the definition thereof. The Collateral and/or Unsecured Credit Allowance available to increase a Market Participant's Credit Available for Virtual Transactions shall be the amount of Collateral and/or Unsecured Credit Allowance available after subtracting any credit required for Minimum Participation Requirements, FTR, RPM or other credit requirement determinants defined in this Attachment Q, as applicable.

If a Market Participant chooses to provide additional Collateral in order to increase its Credit Available for Virtual Transactions PJM may establish a reasonable timeframe, not to exceed three months, for which such Collateral must be maintained. PJM will not impose such restriction on a deposit unless a Market Participant is notified prior to making the deposit. Such restriction, if applied, shall be applied to all future deposits by all Market Participants engaging in Virtual Transactions.

A Market Participant may increase its Credit Available for Virtual Transactions by providing additional Collateral to PJM. PJM will make a good faith effort to make new Collateral available as Credit Available for Virtual Transactions as soon as practicable after confirmation of receipt. In any event, however, Collateral received and confirmed by noon on a Business Day will be applied (as provided under this Attachment Q) to Credit Available for Virtual Transactions no later than 10:00 am on the following Business Day. Receipt and acceptance of wired funds for cash deposit shall mean actual receipt by PJM's bank, deposit into PJM's customer deposit account, confirmation by PJM that such wire has been received and deposited, and entry into PJM's credit system. Receipt and acceptance of letters of credit or surety bonds shall mean receipt of the original Letter of Credit or surety bond, or amendment thereto, confirmation from PJM's credit and legal staffs that such Letter of Credit or surety bond, or amendment thereto conforms to PJM's requirements, which confirmation shall be made in a reasonable and practicable timeframe, and entry into PJM's credit system. To facilitate this process, bidders submitting additional Collateral for the purpose of increasing their Credit Available for Virtual Transactions are advised to submit such Collateral well in advance of the desired time, and to specifically notify PJM of such submission.

A Market Participant wishing to submit Virtual or Export Transactions must allocate within PJM's credit system the appropriate amount of Credit Available for Virtual Transactions to the virtual and export allocation sections within each customer account in which it wishes to submit such transactions.

2. Virtual Transaction Screening

All Virtual Transactions submitted to PJM shall be subject to a credit screen prior to acceptance in the Day-ahead Energy Market. The credit screen is applied separately for each of a Market Participant's customer accounts. The credit screen process will automatically reject Virtual Transactions submitted by the Market Participant in a customer account if the Market Participant's Credit Available for Virtual Transactions, allocated on a customer account basis, is exceeded by the Virtual Credit Exposure that is calculated based on the Market Participant's Virtual Transactions submitted, as described below.

A Market Participant's Virtual Credit Exposure will be calculated separately for each customer account on a daily basis for all Virtual Transactions submitted by the Market Participant for the next Operating Day using the following equation:

Virtual Credit Exposure = INC and DEC Exposure + Up-to Congestion Exposure
Where:

(a) INC and DEC Exposure for each customer account is calculated as:

(i) ((the total MWh bid or offered, whichever is greater, hourly at each node) x the Nodal Reference Price x 1 day) summed over all nodes and all hours; plus (ii) ((the difference between the total bid MWh cleared and total offered MWh cleared hourly at each node) x Nodal Reference Price) summed over all nodes and all hours for the previous cleared Day-ahead Energy Market.

(b) Up-to Congestion Exposure for each customer account is calculated as:

(i) Total MWh bid hourly for each Up-to Congestion Transaction x (price bid – Up-to Congestion Reference Price) summed over all Up-to Congestion Transactions and all hours; plus (ii) Total MWh cleared hourly for each Up-to Congestion Transaction x (cleared price – Up-to Congestion Reference Price) summed over all Up-to Congestion Transactions and all hours for the previous cleared Day-ahead Energy Market, provided that hours for which the calculation for an Up-to Congestion Transaction is negative, it shall be deemed to have a zero contribution to the sum.

3. Export Transaction Screening

Export Transactions in the Real-time Energy Market shall be subject to Export Transaction Screening. Export Transaction Screening may be performed either for the duration of the entire Export Transaction, or separately for each time interval comprising an Export Transaction. PJM will deny or curtail all or a portion (based on the relevant time interval) of an Export Transaction if that Export Transaction, or portion thereof, would otherwise cause the Market Participant's Export Credit Exposure to exceed its Credit Available for Export Transactions. Export Transaction Screening shall be applied separately for each Operating Day and shall also be applied to each Export Transaction one or more times prior to the market clearing process for each relevant time interval. Export Transaction Screening shall not apply to transactions established directly by and between PJM and a neighboring Balancing Authority for the purpose of maintaining reliability.

A Market Participant's credit exposure for an individual Export Transaction shall be the MWh volume of the Export Transaction for each relevant time interval multiplied by each relevant Export Transaction Price Factor and summed over all relevant time intervals of the Export Transaction.

B. RPM Auction and Price Responsive Demand Credit Requirements

Settlement during any Delivery Year of cleared positions resulting or expected to result from any RPM Auction shall be included as appropriate in Peak Market Activity, and the provisions of this Attachment Q shall apply to any such activity and obligations arising therefrom. In addition, the provisions of this section shall apply to any entity seeking to participate in any RPM Auction, to address credit risks unique to such auctions. The provisions of this section also shall apply under certain circumstances to PRD Providers that seek to commit Price Responsive Demand pursuant to the provisions of the Reliability Assurance Agreement.

Credit requirements described herein for RPM Auctions and RPM bilateral transactions are applied separately for each customer account of a Market Participant. Market Participants wishing to participate in an RPM Auction or enter into RPM bilateral transactions must designate the appropriate amount of credit to each account in which their offers are submitted.

1. Applicability

A Market Participant seeking to submit a Sell Offer in any RPM Auction based on any Capacity Resource for which there is a materially increased risk of nonperformance must satisfy the credit requirement specified herein before submitting such Sell Offer. A PRD Provider seeking to commit Price Responsive Demand for which there is a materially increased risk of non-performance must satisfy the credit requirement specified herein before it may commit the Price Responsive Demand. Credit must be maintained until such risk of non-performance is substantially eliminated, but may be reduced commensurate with the reduction in such risk, as set forth in section IV.B.3 below.

For purposes of this provision, a resource for which there is a materially increased risk of nonperformance shall mean: (i) a Planned Generation Capacity Resource; (ii) a Planned Demand Resource or an Energy Efficiency Resource; (iii) a Qualifying Transmission Upgrade; (iv) an existing or Planned Generation Capacity Resource located outside the PJM Region that at the time it is submitted in a Sell Offer has not secured firm transmission service to the border of the PJM Region sufficient to satisfy the deliverability requirements of the Reliability Assurance Agreement; or (v) Price Responsive Demand to the extent the responsible PRD Provider has not registered PRD-eligible load at a PRD Substation level to satisfy its Nominal PRD Value commitment, in accordance with Reliability Assurance Agreement, Schedule 6.1.

2. Reliability Pricing Model Auction and Price Responsive Demand Credit Requirement

Except as provided for Credit-Limited Offers below, for any resource specified in section IV.B.1 above, other than Price Responsive Demand, the credit requirement shall be the RPM Auction Credit Rate, as provided in section IV.B.4 below, times the megawatts to be offered for sale from such resource in an RPM Auction. For Qualified Transmission Upgrades, the credit requirements shall be based on the Locational Deliverability Area in which such upgrade was to increase the Capacity Emergency Transfer Limit. However, the credit requirement for Planned Financed Generation Capacity Resources and Planned External Financed Generation Capacity Resources shall be one half of the product of the RPM Auction Credit Rate, as provided in section IV.B.4 below, times the megawatts to be offered for sale from such resource in a Reliability Pricing Model Auction. The RPM Auction Credit Requirement for each Market Participant shall be determined on a customer account basis, separately for each customer account of a Market Participant, and shall be the sum of the credit requirements for all such resources to be offered by such Market Participant in the auction or, as applicable, cleared by such Market Participant in the relevant auctions. For Price Responsive Demand, the credit requirement shall be based on the Nominal PRD Value (stated in Unforced Capacity terms) times the Price Responsive Demand Credit Rate as set forth in section IV.B.5 below. Except for Credit-Limited Offers, the RPM Auction Credit requirement for a Market Participant will be reduced for any Delivery Year to the extent less than all of such Market Participant's offers clear in the Base Residual Auction or any Incremental Auction for such Delivery Year. Such reduction shall be proportional to the quantity, in megawatts, that failed to clear in such Delivery Year.

A Sell Offer based on a Planned Generation Capacity Resource, Planned Demand Resource, or Energy Efficiency Resource may be submitted as a Credit-Limited Offer. A Market Participant electing this option shall specify a maximum amount of Unforced Capacity, in megawatts, and a maximum credit requirement, in dollars, applicable to the Sell Offer. A Credit-Limited Offer shall clear the RPM Auction in which it is submitted (to the extent it otherwise would clear based on the other offer parameters and the system's need for the offered capacity) only to the extent of the lesser of: (i) the quantity of Unforced Capacity that is the quotient of the division of the specified maximum credit requirement by the Auction Credit Rate resulting from section IV.B.4.b. below; and (ii) the maximum amount of Unforced Capacity specified in the Sell Offer. For a Market Participant electing this alternative, the RPM Auction Credit requirement applicable prior to the posting of results of the auction shall be the maximum credit requirement specified in its Credit-Limited Offer, and the RPM Auction Credit requirement subsequent to posting of the results will be the Auction Credit Rate, as provided in section IV.B.4.b, c. or d. of this Attachment Q, as applicable, times the amount of Unforced Capacity from such Sell Offer that cleared in the auction. The availability and operational details of Credit-Limited Offers shall be as described in the PJM Manuals.

As set forth in section IV.B.4 below, a Market Participant's Auction Credit requirement shall be determined separately for each Delivery Year.

3. Reduction in Credit Requirement

As specified below, the RPM Auction Credit Rate may be reduced under certain circumstances after the auction has closed.

The Price Responsive Demand credit requirement shall be reduced as and to the extent the PRD Provider registers PRD-eligible load at a PRD Substation level to satisfy its Nominal PRD Value commitment, in accordance with Reliability Assurance Agreement, Schedule 6.1.

In addition, the RPM Auction Credit requirement for a Market Participant for any given Delivery Year shall be reduced periodically, after the Market Participant has provided PJM a written request for each reduction, accompanied by documentation sufficient for PJM to verify attainment of required milestones or satisfaction of other requirements, and PJM has verified that the Market Participant has successfully met progress milestones for its Capacity Resource that reduce the risk of non-performance, as follows:

(a) For Planned Demand Resources and Energy Efficiency Resources, the RPM Auction Credit requirement will be reduced in direct proportion to the megawatts of such Demand Resource that the Resource Provider qualifies as a Capacity Resource, in accordance with the procedures established under the Reliability Assurance Agreement.

(b) For Existing Generation Capacity Resources located outside the PJM Region that have not secured sufficient firm transmission to the border of the PJM Region prior to the auction in which such resource is first offered, the RPM Auction Credit requirement shall be reduced in direct proportion to the megawatts of firm transmission service secured by the Market Participant

that qualify such resource under the deliverability requirements of the Reliability Assurance Agreement.

(c) For Planned Generation Capacity Resources located in the PJM Region, the RPM Auction Credit requirement shall be reduced as the Capacity Resource attains the milestones stated in the following table and as further described in the PJM Manuals.

| Milestones | Increment of reduction from initial RPM Auction Credit requirement |
|--|--|
| Effective Date of Interconnection Service Agreement | 50% |
| Financial Close | 15% |
| Full Notice to Proceed and Commencement of Construction (e.g., footers poured) | 5% |
| Main Power Generating Equipment Delivered | 5% |
| Commencement of Interconnection Service | 25% |

For externally financed projects, the Market Participant must submit with its request for reduction a sworn, notarized certification of a duly authorized independent engineer for the Financial Close, Full Notice to Proceed and Commencement of Construction, and Main Power Generating Equipment Delivered milestones.

For internally financed projects, the Market Participant must submit with its request for reduction a sworn, notarized certification of a duly authorized officer of the Market Participant for the Financial Close milestone and either a duly authorized independent engineer or Professional Engineer for the Full Notice to Proceed and Commencement of Construction and the Main Power Generating Equipment Delivered milestones.

The required certifications must be in a form acceptable to PJM, certifying that the engineer or officer, as applicable, has personal knowledge, or has engaged in a diligent inquiry to determine, that the milestone has been achieved and that, based on its review of the relevant project information, the engineer or officer, as applicable, is not aware of any information that could reasonably cause it to believe that the Capacity Resource will not be in-service by the beginning of the applicable Delivery Year. The Market Participant shall, if requested by PJM, supply to PJM on a confidential basis all records and documents relating to the engineer's and/or officer's certifications.

(d) For Planned External Generation Capacity Resources, the RPM Auction Credit requirement shall be reduced as the Capacity Resource attains the milestones stated in the following table and as further described in the PJM Manuals; provided, however, that the total percentage reduction in the RPM Auction Credit requirement shall be no greater than the quotient of (i) the MWs of firm transmission service that the Market Participant has secured for the complete transmission path divided by (ii) the MWs of firm transmission service required to

qualify such resource under the deliverability requirements of the Reliability Assurance Agreement.

| Credit Reduction Milestones for Planned External Generation Capacity Resources | |
|---|---|
| Milestones | Increment of reduction from initial RPM Auction Credit requirement |
| Effective Date of the equivalent of an Interconnection Service Agreement | 50% |
| Financial Close | 15% |
| Full Notice to Proceed and Commencement of Construction (e.g., footers poured) | 5% |
| Main Power Generating Equipment Delivered | 5% |
| Commencement of Interconnection Service | 25% |

To obtain a reduction in its RPM Auction Credit requirement, the Market Participant must demonstrate satisfaction of the applicable milestone in the same manner as set forth for Planned Generation Capacity Resources in subsection (c) above.

(e) For Planned Financed Generation Capacity Resources located in the PJM Region, the RPM Auction Credit requirement shall be reduced as the Capacity Resource attains the milestones stated in the following table and as further described in the PJM Manuals.

| Credit Reduction Milestones for Planned Financed Generation Capacity Resources | |
|---|---|
| Milestones | Increment of reduction from initial RPM Auction Credit requirement |
| Full Notice to Proceed | 50% |
| Commencement of Construction (e.g., footers poured) | 15% |
| Main Power Generating Equipment Delivered | 10% |
| Commencement of Interconnection Service | 25% |

To obtain a reduction in its RPM Auction Credit requirement, the Market Participant must demonstrate satisfaction of the applicable milestone in the same manner as set forth for Planned Generation Capacity Resources in subsection (c) above.

(f) For Planned External Financed Generation Capacity Resources, the RPM Auction Credit Requirement shall be reduced as the Capacity Resource attains the milestones stated in the following table and as further described in the PJM Manuals; provided, however, that the total percentage reduction in the RPM Auction Credit requirement, including the initial 50% reduction for being a Planned External Financed Generation Capacity Resources, shall be no greater than the quotient of (i) the MWs of firm transmission service that the Market Participant has secured for the complete transmission path divided by (ii) the MWs of firm transmission service required

to qualify such resource under the deliverability requirements of the Reliability Assurance Agreement.

| Credit Reduction Milestones for Planned External Financed Generation Capacity | |
|--|---|
| Milestones | Increment of reduction from initial RPM Auction Credit requirement |
| Full Notice to Proceed | 50% |
| Commencement of Construction (e.g., footers poured) | 15% |
| Main Power Generating Equipment Delivered | 10% |
| Commencement of Interconnection Service | 25% |

To obtain a reduction in its RPM Auction Credit requirement, the Market Participant must demonstrate satisfaction of the applicable milestone in the same manner as set forth for Planned Generation Capacity Resources in subsection (c) above.

(g) For Qualifying Transmission Upgrades, the RPM Auction Credit requirement shall be reduced to 50% of the amount calculated under section IV.B.2 above beginning as of the effective date of the latest associated Interconnection Service Agreement (or, when a project will have no such agreement, an Upgrade Construction Service Agreement), and shall be reduced to zero on the date the Qualifying Transmission Upgrade is placed in service.

4. RPM Auction Credit Rate

As set forth in the PJM Manuals, a separate Auction Credit Rate shall be calculated for each Delivery Year prior to each RPM Auction for such Delivery Year, as follows:

- (a) Prior to the posting of the results of a Base Residual Auction for a Delivery Year, the Auction Credit Rate shall be:
- (i) For all Capacity Resources other than Capacity Performance Resources, (the greater of (A) 0.3 times the Net Cost of New Entry for the PJM Region for such Delivery Year, in MW-day or (B) \$20 per MW-day) times the number of calendar days in such Delivery Year; and
 - (ii) For Capacity Performance Resources, the greater of ((A) 0.5 times the Net Cost of New Entry for the PJM Region for such Delivery Year or for the Relevant LDA, in MW-day or (B) \$20 per MW-day) times the number of calendar days in such Delivery Year.
 - (iii) For Seasonal Capacity Performance Resources, the same as the Auction Credit Rate for Capacity Performance Resources, but reduced to be proportional to the number of calendar days in the relevant season.

(b) Subsequent to the posting of the results from a Base Residual Auction, the Auction Credit Rate used for ongoing credit requirements for supply committed in such auction shall be:

- (i) For all Capacity Resources other than Capacity Performance Resources, (the greater of (A) \$20/MW-day or (B) 0.2 times the Capacity Resource Clearing Price in such auction for the Locational Deliverability Area within which the resource is located) times the number of calendar days in such Delivery Year; and
- (ii) For Capacity Performance Resources, the (greater of [(A) \$20/MW-day or (B) 0.2 times the Capacity Resource Clearing Price in such auction for the Locational Deliverability Area within which the resource is located) or (C) the lesser of (1) 0.5 times the Net Cost of New Entry for the PJM Region for such Delivery Year or for the Relevant LDA, in \$/MW-day or (2) 1.5 times the Net Cost of New Entry (stated on an installed capacity basis) for the PJM Region for such Delivery year or for the Relevant LDA, in \$/MW-day minus (the Capacity Resource Clearing Price in such auction for the Locational Deliverability Area within which the resource is located)] times the number of calendar days in such Delivery Year).
- (iii) For Seasonal Capacity Performance Resources, the same as the Auction Credit Rate for Capacity Performance Resources, but reduced to be proportional to the number of calendar days in the relevant season.

(c) For any resource not previously committed for a Delivery Year that seeks to participate in an Incremental Auction, the Auction Credit Rate shall be:

(i) For all Capacity Resources other than Capacity Performance Resources, (the greater of (A) 0.3 times the Net Cost of New Entry for the PJM Region for such Delivery Year, in MW-day or (B) 0.24 times the Capacity Resource Clearing Price in the Base Residual Auction for such Delivery Year for the Locational Deliverability Area within which the resource is located or (C) \$20 per MW-day) times the number of calendar days in such Delivery Year; and

(ii) For Capacity Performance Resources, the (greater of (A) 0.5 times Net Cost of New Entry for the PJM Region for such Delivery Year or for the Relevant LDA or (B) \$20/MW-day) times the number of calendar days in such Delivery Year.

(d) Subsequent to the posting of the results of an Incremental Auction, the Auction Credit Rate used for ongoing credit requirements for supply committed in such auction shall be:

- (i) For Base Capacity Resources: (the greater of (A) \$20/MW-day or (B) 0.2 times the Capacity Resource Clearing Price in such auction for the Locational Deliverability Area within which the resource is located) times the number of calendar days in such Delivery Year, but no greater than the Auction Credit Rate previously established for such resource's participation in such Incremental Auction pursuant to subsection (c) above) times the number of calendar days in such Delivery Year;

- (ii) For Capacity Performance Resources, the greater of [(A) \$20/MW-day or (B) 0.2 times the Capacity Resource Clearing Price in such auction for the Locational Deliverability Area within which the resource is located or (C) the lesser of (1) 0.5 times the Net Cost of New Entry for the PJM Region for such Delivery Year or for the Relevant LDA, in \$/MW-day or (2) 1.5 times the Net Cost of New Entry (stated on an installed capacity basis) for the PJM Region for such Delivery Year or for the Relevant LDA, in \$/MW-day minus (the Capacity Resource Clearing Price in such auction for the Locational Deliverability Area within which the resource is located)] times the number of calendar days in such Delivery Year); and
 - (iii) For Seasonal Capacity Performance Resources, the same as the Auction Credit Rate for Capacity Performance Resources, but reduced to be proportional to the number of calendar days in the relevant season.
- (e) For the purposes of this section IV.B.4 and section IV.B.5 below, “Relevant LDA” means the Locational Deliverability Area in which the Capacity Performance Resource is located if a separate Variable Resource Requirement Curve has been established for that Locational Deliverability Area for the Base Residual Auction for such Delivery Year.

5. Price Responsive Demand Credit Rate

- (a) For the 2018/2019 through 2022/2023 Delivery Years:
 - (i) Prior to the posting of the results of a Base Residual Auction for a Delivery Year, the Price Responsive Demand Credit Rate shall be (the greater of (A) 0.3 times the Net Cost of New Entry for the PJM Region for such Delivery Year, in MW-day or (B) \$20 per MW-day) times the number of calendar days in such Delivery Year;
 - (ii) Subsequent to the posting of the results from a Base Residual Auction, the Price Responsive Demand Credit Rate used for ongoing credit requirements for Price Responsive Demand committed in such auction shall be (the greater of (A) \$20/MW-day or (B) 0.2 times the Capacity Resource Clearing Price in such auction for the Locational Deliverability Area within which the Price Responsive Demand load is located, in \$/MW-day) times the number of calendar days in such Delivery Year times a final price uncertainty factor of 1.05;
 - (iii) For any additional Price Responsive Demand that seeks to commit in a Third Incremental Auction in response to a qualifying change in the final LDA load forecast, the Price Responsive Demand Credit Rate shall be the same as the rate for Price Responsive Demand that had cleared in the Base Residual Auction; and
 - (iv) Subsequent to the posting of the results of the Third Incremental Auction, the Price Responsive Demand Credit Rate used for ongoing credit requirements for

all Price Responsive Demand, shall be (the greater of (i) \$20/MW-day or (ii) 0.2 times the Final Zonal Capacity Price for the Locational Deliverability Area within which the Price Responsive Demand is located) times the number of calendar days in such Delivery Year, but no greater than the Price Responsive Demand Credit Rate previously established under subsections (a)(i), (a)(ii), or (a)(iii) of this section for such Delivery Year.

- (b) For the 2022/2023 Delivery Year and Subsequent Delivery Years:
- (i) Prior to the posting of the results of a Base Residual Auction for a Delivery Year, the Price Responsive Demand Credit Rate shall be (the greater of (A) 0.5 times the Net Cost of New Entry for the PJM Region for such Delivery Year or for the Relevant LDA, in \$/MW-day or (B) \$20 per MW-day) times the number of calendar days in such Delivery Year;
 - (ii) Subsequent to the posting of the results from a Base Residual Auction, the Price Responsive Demand Credit Rate used for ongoing credit requirements for Price Responsive Demand committed in such auction shall be (the greater of [(A) \$20/MW-day or (B) 0.2 times the Capacity Resource Clearing Price in such auction for the Locational Deliverability Area within which the Price Responsive Demand is located, in \$/MW-day or (C) the lesser of (1) 0.5 times the Net Cost of New Entry for the PJM Region for such Delivery Year or for the Relevant LDA, in \$/MW-day or (2) 1.5 times the Net Cost of New Entry (stated on an installed capacity basis) for the PJM Region for such Delivery year or for the Relevant LDA, in \$/MW-day minus (the Capacity Resource Clearing Price in such auction for the Locational Deliverability Area within which the Price Responsive Demand is located)] times the number of calendar days in such Delivery Year;
 - (iii) For any additional Price Responsive Demand that seeks to commit in a Third Incremental Auction in response to a qualifying change in the final LDA load forecast, the Price Responsive Demand Credit Rate shall be (the greater of (A) 0.5 times Net Cost of New Entry for the PJM Region for such Delivery Year or for the Relevant LDA, in \$/MW-day or (B) \$20/MW-day) times the number of calendar days in such Delivery Year; and
 - (iv) Subsequent to the posting of the results of the Third Incremental Auction, the Price Responsive Demand Credit Rate used for ongoing credit requirements for all Price Responsive Demand committed in such auction shall be the greater of [(A) \$20/MW-day or (B) 0.2 times the Capacity Resource Clearing Price in such auction for the Locational Deliverability Area within which the Price Responsive Demand is located or (C) the lesser of (1) 0.5 times the Net Cost of New Entry for the PJM Region for such Delivery Year or for the Relevant LDA, in \$/MW-day or (2) 1.5 times the Net Cost of New Entry (stated on an installed capacity basis) for the PJM Region for such Delivery Year or for the Relevant LDA, in \$/MW-day minus (the Capacity Performance Resource Clearing Price in such Incremental Auction for the Locational Deliverability Areas within which the Price

Responsive Demand is located)] times the number of calendar days in such Delivery Year.

6. RPM Seller Credit - Additional Form of Unsecured Credit for RPM

In addition to the forms of credit specified elsewhere in this Attachment Q, RPM Seller Credit shall be available to Market Participants, but solely for purposes of satisfying RPM Auction Credit requirements. If a supplier has a history of being a net seller into PJM Markets, on average, over the past 12 months, then PJM will count as available Unsecured Credit twice the average of that Market Participant's total net monthly PJM bills over the past 12 months. This RPM Seller Credit shall be subject to the cap on available Unsecured Credit as established in section II.G.3 above.

RPM Seller Credit is calculated as a single value for each Market Participant, not separately by account, and must be designated to specific customer accounts in order to be available to satisfy RPM Auction Credit requirements that are calculated in each such customer account.

7. Credit Responsibility for Traded Planned RPM Capacity Resources

PJM may require that credit and financial responsibility for planned Capacity Resources that are traded remain with the original party (which for these purposes, means the party bearing credit responsibility for the planned Capacity Resource immediately prior to trade) unless the receiving party independently establishes consistent with this Attachment Q, that it has sufficient credit with PJM and agrees by providing written notice to PJM that it will fully assume the credit responsibility associated with the traded planned Capacity Resource.

C. Financial Transmission Right Auctions

Credit requirements described herein for FTR activity are applied separately for each customer account of a Market Participant, unless specified otherwise in this section C. FTR Participants must designate the appropriate amount of credit to each separate customer account in which any activity occurs or will occur.

1. FTR Credit Limit.

Participants must maintain their FTR Credit Limit at a level equal to or greater than their FTR Credit Requirement for each applicable account. FTR Credit Limits will be established only by a Participant providing Collateral and designating the available credit to specific accounts.

2. FTR Credit Requirement.

For each Market Participant with FTR activity, PJM shall calculate an FTR Credit Requirement. The FTR Credit Requirement shall be *calculated on a portfolio basis for each Market Participant based on (a) initial margin, (b) Auction Revenue Right Credits, (c) Mark-to-Auction Value, (d) application of a 10¢ per MWh minimum value adjustment, and (e) realized gains and/or losses, as set forth in subsections (a)-(e) of this subsection, employing the formula:*

$\text{Max} \{ \text{Max} (\text{IM} - \text{ARR} - \text{MTA}, \text{Ten Cent per Mwh Minimum}) - \text{Realized Gains and/or Losses}, 0 \}$

Where *IM* is the initial margin, *ARR* is Auction Revenue Rights Credits and *MTA* is the Mark-to-Auction Value. The FTR Credit Requirement may be increased to reflect any change in the value of a Market Participant's portfolio requiring an increase in Collateral as further described below.

(a) *Initial Margin*

Initial margin shall be calculated in accordance with the following formula:

$$\text{IM} = \text{FTR Obligations IM} + \text{FTR Options IM}$$

The model will employ a confidence interval of 97 percent.

(i) *FTR Obligations IM*

Initial margin values for Financial Transmission Right Obligations shall be determined utilizing a historical simulation value-at-risk methodology that calculates the size and value at risk of the applicable FTR portfolio based on a defined confidence interval and subject to a weighted aggregation method that is represented by a straight sum for long term positions and a combination of straight sum (20%) and weighted root sum of squares (80%) for balance of planning period positions.

(ii) *FTR Options IM*

The initial margin for Financial Transmission Right Options shall be calculated as the FTR cost minus the FTR Historical Values. FTR Historical Values shall be calculated separately for weekend on-peak, weekday on-peak, off-peak, and 24-hour FTRs for each month of the year. FTR Historical Values shall be adjusted by plus or minus ten percent for cleared counter flow or prevailing flow FTRs, respectively, in order to mitigate exposure due to uncertainty and fluctuations in actual FTR value. Historical values used in the calculation of FTR Historical Values shall be adjusted when the network simulation model utilized in PJM's economic planning process indicates that transmission congestion will decrease due to certain transmission upgrades that are in effect or planned to go into effect for the following Planning Period. The transmission upgrades to be modeled for this purpose shall only include those upgrades that, individually, or together, have 10% or more impact on the transmission congestion on an individual constraint or constraints with congestion of \$5 million or more affecting a common congestion path. The adjustments to historical values shall be the dollar amount of the adjustment shown in the network simulation model.

(b) *Auction Revenue Rights Credits*

For a given month for which initial margin is calculated, the prorated value of any Auction Revenue Rights Credits held by a Market Participant with Financial Transmission Right Obligations shall be subtracted from the initial margin for that month. In accordance with subsection 3 below, PJM may recalculate Auction Revenue Rights Credits at any time, but shall do so no less frequently than subsequent to each annual FTR auction. If a reduction in such ARR credits at any time increases an FTR Participant's FTR Credit Requirements beyond its credit available for FTR activity, the FTR Participant must increase its Collateral or the FTR Credit Limit.

(c) Mark-to-Auction Value

A Mark-to-Auction Value shall be calculated for each Market Participant in accordance with subsection 7 below.

(d) Ten Cent (10¢) per MWh Minimum Value Adjustment

If the FTR Credit Requirement as calculated pursuant to subsections (a)-(c) above, results in a value that is less than ten cents (10¢) per MWh, the FTR Credit Requirement shall be increased to ten cents (10¢) per MWh. When calculating the portfolio MWh for this comparison, for cleared "Sell" FTRs, the MWh shall be subtracted from the portfolio total; prior to clearing, the MWh for "Sell" FTRs shall not be included in the portfolio total.

(e) Realized Gains and/or Losses

Any realized gains and/or losses resulting from the sale of Financial Transmission Right Obligations will be subtracted from the FTR Credit Requirement. A realized gain will decrease the FTR Credit Requirement (but not below \$0.00), whereas a realized loss will increase the FTR Credit Requirement.

3. Rejection of FTR Bids.

Bids submitted into an auction will be rejected if the Market Participant's FTR Credit Requirement including such submitted bids would exceed the Market Participant's FTR Credit Limit, or if the Market Participant fails to provide additional Collateral as required pursuant to provisions related to mark-to-auction.

4. FTR Credit Collateral Returns.

A Market Participant may request from PJM the return of any Collateral no longer required for the FTR markets. PJM is permitted to limit the frequency of such requested Collateral returns, provided that Collateral returns shall be made by PJM at least once per calendar quarter, if requested by a Market Participant.

5. Credit Responsibility for Bilateral Transfers of FTRs.

PJM may require that credit responsibility associated with an FTR bilaterally transferred to a new Market Participant remain with the original party (which for these purposes, means the party bearing credit responsibility for the FTR immediately prior to bilateral transfer) unless and until the receiving party independently establishes, consistent with this Attachment Q, sufficient credit with PJM and agrees through confirmation of the bilateral transfer in PJM's FTR reporting tool that it will meet in full the credit requirements associated with the transferred FTR.

6. FTR Administrative Charge Credit Requirement

In addition to any other credit requirements, PJM may apply a credit requirement to cover the maximum administrative fees that may be charged to a Market Participant for its bids and offers.

7. Mark-to-Auction

A Mark-to-Auction Value shall be calculated separately for each customer account of a Market Participant. For each such customer account, the Mark-to-Auction Value shall be a single number equal to the sum, over all months remaining in the applicable FTR period and for all cleared FTRs in the customer account, of the most recently available cleared auction price applicable to the FTR minus the original transaction price of the FTR, multiplied by the transacted quantity.

The FTR Credit Requirement, as otherwise described above, shall be increased when the Mark-to-Auction Value is negative *and decreased when the Mark-to-Auction Value is positive*. The increase shall equal the absolute value of the negative Mark-to-Auction Value less the value of ARR credits that are held in the customer account and have not been used to reduce the FTR Credit Requirement prior to application of the Mark-to-Auction Value. PJM shall recalculate ARR credits held by each Market Participant after each annual FTR auction and may also recalculate such ARR credits at any other additional time intervals it deems appropriate. Application of the Mark-to-Auction Value, including the effect from ARR application, shall not decrease the FTR Credit Requirement *below the Ten Cent (10¢) per MWh Minimum*.

For Market Participant customer accounts for which FTR bids have been submitted into the current FTR auction, if the Market Participant's FTR Credit Requirement exceeds its credit available for the Market Participant's portfolio of FTRs in the tentative cleared solution for an FTR auction (or auction round), PJM shall issue a Collateral Call to the Market Participant, and the Market Participant must fulfill such demand before 4:00 p.m. *Eastern Prevailing Time* on the following Business Day. If a Market Participant does not timely satisfy such Collateral Call,

PJM shall, in coordination with PJM, cause the removal of all of that Market Participant's bids in that FTR auction (or auction round), submitted from such Market Participant's customer account, and a new cleared solution shall be calculated for the FTR auction (or auction round).

If necessary, PJM shall repeat the auction clearing calculation. PJM shall repeat these mark-to-auction calculations subsequent to any secondary clearing calculation, and PJM shall require affected Market Participants to establish additional credit.

Subsequent to final clearing of an FTR auction or an annual FTR auction round, PJM shall recalculate the FTR Credit Requirement for all FTR portfolios, and, as applicable, issue to each Market Participant *a request for Collateral* for the total amount by which the FTR Credit Requirement exceeds the credit allocated in any of the Market Participant's accounts. *The Market Participant must fulfill such demand by 4:00 p.m. Eastern Prevailing Time on the following Business Day.*

If the *request for Collateral* is not satisfied within the applicable cure period referenced in Operating Agreement, section 15, then such Market Participant shall be restricted in all of its credit-screened transactions. Specifically, such Market Participant may not engage in any Virtual Transactions or Export Transactions, or participate in RPM Auctions or other RPM activity. Such Market Participant may engage only in the selling of open FTR positions, either in FTR auctions or bilaterally, provided such sales would reduce the Market Participant's FTR Credit Requirements. PJM shall not return any Collateral to such Market Participant, and no payment shall be due or payable to such Market Participant, until its credit shortfall is remedied. Market Participant shall allocate any excess or unallocated Collateral to any of its account in which there is a credit shortfall. Market Participants may remedy their credit shortfall at any time through provision of sufficient Collateral.

If a Market Participant fails to satisfy *a request for Collateral* for two consecutive auctions of overlapping periods, e.g. two balance of Planning Period auctions, an annual FTR auction and a balance of Planning Period auction, or two long term FTR auctions, (for this purpose the four rounds of an annual FTR auction shall be considered a single auction), the Market Participant shall be declared in default of this Attachment Q.

VII. PEAK MARKET ACTIVITY AND WORKING CREDIT LIMIT

A. Peak Market Activity Credit Requirement

PJM shall calculate a Peak Market Activity credit requirement for each Participant. Each Participant must maintain sufficient Unsecured Credit Allowance and/or Collateral, as applicable, and subject to the provisions herein, to satisfy its Peak Market Activity credit requirement.

Peak Market Activity for Participants will be determined semi-annually, utilizing an initial Peak Market Activity, as explained below, calculated after the first complete billing week in the months of April and October. Peak Market Activity shall be the greater of the initial Peak Market Activity, or the greatest amount invoiced for the Participant's transaction activity for all

PJM Markets and services in any rolling one, two, or three week period, ending within a respective semi-annual period. However, Peak Market Activity shall not exceed the greatest amount invoiced for the Participant's transaction activity for all PJM Markets and services in any rolling one, two or three week period in the prior 52 weeks.

Peak Market Activity shall exclude FTR Net Activity, Virtual Transactions Net Activity, and Export Transactions Net Activity.

When calculating Peak Market Activity, PJM may attribute credits for Regulation service to the days on which they were accrued, rather than including them in the month-end invoice.

The initial Peak Market Activity for Applicants will be determined by PJM based on a review of an estimate of their transactional activity for all PJM Markets and services over the next 52 weeks, which the Applicant shall provide to PJM.

The initial Peak Market Activity for Market Participants and Transmission Customers, calculated at the beginning of each semi-annual period, shall be the three-week average of all non-zero invoice totals over the previous 52 weeks. This calculation shall be performed and applied within three (3) Business Days following the day the invoice is issued for the first full billing week in the current semi-annual period.

Prepayments shall not affect Peak Market Activity unless otherwise agreed to in writing pursuant to this Attachment Q.

Peak Market Activity calculations shall take into account reductions of invoice values effectuated by early payments which are applied to reduce a Participant's Peak Market Activity as contemplated by other terms of this Attachment Q; provided that the initial Peak Market Activity shall not be less than the average value calculated using the weeks for which no early payment was made.

A Participant may reduce its Collateral requirement by agreeing in writing (in a form acceptable to PJM) to make additional payments, including prepayments, as and when necessary to ensure that such Participant's Total Net Obligation at no time exceeds such reduced Collateral requirement.

PJM may, at its discretion, adjust a Participant's Peak Market Activity requirement if PJM determines that the Peak Market Activity is not representative of such Participant's expected activity, as a consequence of known, measurable, and sustained changes. Such changes may include, but shall not be limited to when a Participant makes PJM aware of federal, state or local law that could affect the allocation of charges or credits from a Participant to another party, the loss (without replacement) of short-term load contracts, when such contracts had terms of three months or more and were acquired through state-sponsored retail load programs, but shall not include short-term buying and selling activities.

PJM may waive the credit requirements for a Participant that has no outstanding transactions and agrees in writing that it shall not, after the date of such agreement, incur obligations under any of

the Agreements. Such entity's access to all electronic transaction systems administered by PJM shall be terminated.

A Participant receiving unsecured credit may make early payments up to ten times in a rolling 52-week period in order to reduce its Peak Market Activity for credit requirement purposes. Imputed Peak Market Activity reductions for credit purposes will be applied to the billing period for which the payment was received. Payments used as the basis for such reductions must be received prior to issuance or posting of the invoice for the relevant billing period. The imputed Peak Market Activity reduction attributed to any payment may not exceed the amount of Unsecured Credit for which the Participant is eligible.

B. Working Credit Limit

PJM will establish a Working Credit Limit for each Participant against which its Total Net Obligation will be monitored.

If a Participant's Total Net Obligation approaches its Working Credit Limit, PJM may require the Participant to make an advance payment or increase its Collateral in order to maintain its Total Net Obligation below its Working Credit Limit. Except as explicitly provided herein, advance payments shall not serve to reduce the Participant's Peak Market Activity for the purpose of calculating credit requirements.

Example: After ten (10) calendar days, and with five (5) calendar days remaining before the bill is due to be paid, a Participant approaches its \$4.0 million Working Credit Limit. PJM may require a prepayment of \$2.0 million in order that the Total Net Obligation will not exceed the Working Credit Limit.

If a Participant exceeds its Working Credit Limit or is required to make advance payments more than ten times during a 52-week period, PJM may require Collateral in an amount as may be deemed reasonably necessary to support its Total Net Obligation.

When calculating Total Net Obligation, PJM may attribute credits for Regulation service to the days on which they were accrued, rather than including them in the month-end invoice.

VIII. SUSPENSION OR LIMITATION ON MARKET PARTICIPATION

If PJM determines that a Participant presents an unreasonable credit risk as determined pursuant to initial or ongoing risk evaluations, as described in section II above, or in the case of any other event which, after notice, lapse of time, or both, would result in an Event of Default, PJM will take steps to mitigate the exposure of any PJM Markets, which may include, but is not limited to, requiring Collateral, additional Collateral or Restricted Collateral or suspending or limiting the Market Participant's ability to participate in the PJM Markets commensurate to the risk to any PJM Markets.

If a Participant fails to reduce or eliminate any unreasonable credit risks to PJM's satisfaction within the applicable cure period including without limitation by posting Collateral, additional Collateral or Restricted Collateral, PJM may treat such failure as an Event of Default.

Notwithstanding the foregoing, a Participant that transacts in FTRs will be eligible to request that PJM exempt or exclude FTR transactions of such Participant from the effect of any such limitations on market activity established by PJM, and PJM may but shall not be required to so exempt or exclude, any FTR transactions that the Participant reasonably demonstrates to PJM it has entered into to “hedge or mitigate commercial risk” arising from its transactions in the PJM Interchange Energy Market that are intended to result in the actual flow of physical energy or ancillary services in the PJM Region, as the phrase “hedge or mitigate commercial risks” is defined under the CFTC’s regulations defining the end-user exception to clearing set forth in 17 C.F.R. §50.50(c).

IX. REMEDIES FOR CREDIT BREACH, FINANCIAL DEFAULT OR CREDIT SUPPORT DEFAULT; REMEDIES FOR EVENTS OF DEFAULT

If PJM determines that a Market Participant is in Credit Breach, or that a Financial Default or Credit Support Default exists, PJM may issue to the Market Participant a breach notice and/or a Collateral Call or demand for additional documentation or assurances. At such time, PJM may also suspend payments of any amounts due to the Participant and limit, restrict or rescind the Market Participant’s privileges to participate in any or all PJM Markets under the Agreements during any such cure period. Failure to remedy the Credit Breach, Financial Default or to satisfy a Collateral Call or demand for additional documentation or assurances within the applicable cure period described in Operating Agreement, section 15.1.5, shall constitute an Event of Default. If a Participant fails to meet the requirements of this Attachment Q, but then remedies the Credit Breach, Financial Default or Credit Support Default, or satisfies a Collateral Call or demand for additional documentation or assurances within the applicable cure period, then the Participant shall be deemed to again be in compliance with this Attachment Q, so long as no other Credit Breach, Financial Default, Credit Support Default or Collateral Call or demand for additional documentation or assurances has occurred and is continuing.

Only one cure period shall apply to a single event giving rise to a Credit Breach, Financial Default or Credit Support Default. Application of Collateral towards a Financial Default, Credit Breach or Credit Support Breach shall not be considered a cure of such Credit Breach, Financial Default or Credit Support Default unless the Participant is determined by PJM to be in full compliance with all requirements of this Attachment Q after such application.

When an Event of Default under this Attachment Q or one or more of the Agreements has occurred and is continuing, PJM may take such actions as may be required or permitted under the Agreements to protect the PJM Markets and the PJM Members, including but not limited to (a) suspension and/or termination of the Participant’s ongoing Transmission Service, (b) limitation, suspension and/or termination of participation in any PJM Markets, (c) close out and liquidation of the Market Participant’s market portfolio, exercising judgment in the manner in which this is achieved in any PJM Markets. When an Event of Default under this Attachment Q or one or more of the Agreements has occurred and is continuing, PJM also has the immediate right to liquidate all or a portion of a Participant’s Collateral at its discretion to satisfy Total Net Obligations to PJM under this Attachment Q or one or more of the Agreements. No remedy for an Event of Default is or shall be deemed to be exclusive of any other available remedy or remedies by contract or under applicable laws and regulations. Each such remedy shall be

distinct, separate and cumulative, shall not be deemed inconsistent with or in exclusion of any other available remedy, and shall be in addition to and separate and distinct from every other remedy.

When an Event of Default under this Attachment Q or one or more of the Agreements has occurred and is continuing, PJM may continue to retain all payments due to a Participant as a cash security for all such Participant's obligations under the Agreements (regardless of any restrictions placed on such Participant's use of Collateral for any account, market activity or capitalization purpose); provided, however, that an Event of Default will not be deemed cured or no longer continuing because PJM is retaining amounts due the Participant, or because PJM has not yet applied Collateral or credit support to any amounts due PJM, unless PJM determines that the Participant has again satisfied all the Collateral requirements and application requirements as a new Applicant for participation in the PJM Markets, and consistent with the requirements and limitations of Operating Agreement, section 15.

In Event of Default by a Participant, PJM may exercise any remedy or action allowed or prescribed by this Attachment Q immediately or following investigation and determination of an orderly exercise of such remedy or action. Delay in exercising any allowed remedy or action shall not preclude PJM from exercising such remedy or action at a later time.

PJM may hold a defaulting Participant's Collateral for as long as such party's positions exist and consistent with this Attachment Q, in order to protect the PJM Markets and PJM's membership, and minimize or mitigate the impacts or potential impacts or risks associated with such Event of Default when an Event of Default under this Attachment Q or one or more of the Agreements has occurred and is continuing.

PJM may apply towards an ongoing Event of Default any amounts that are held or later become available or due to the defaulting Participant through PJM's markets and systems.

In order to cover the Participant's Obligations, PJM may hold a Participant's Collateral indefinitely and specifically through the end of the billing period which includes the 90th day following the last day a Participant had activity, open positions, or accruing obligations (other than reconciliations and true-ups), until such Participant has satisfactorily paid any obligations invoiced through such period and until PJM determines that the Participant's positions represent no risk exposure to the PJM Markets or the PJM Members. Obligations incurred or accrued through such period shall survive any withdrawal from PJM. When an Event of Default under this Attachment Q or one or more of the Agreements has occurred and is continuing, PJM may apply any Collateral to such Participant's Obligations, even if Participant had previously announced and effected its withdrawal from PJM.

X. FTRS UNDER THE COMMODITY EXCHANGE ACT AND THE BANKRUPTCY CODE

Under the terms of the Tariff, PJM Settlement is the counterparty to all transactions in PJM Markets, including but not limited to all FTR transactions, other than (i) any bilateral transactions between Participants, or (ii) with respect to self-supplied or self-scheduled

transactions reported to the Office of the Interconnection. Pursuant to the “Final Order in Response to a Petition From Certain Independent System Operators and Regional Transmission Organizations To Exempt Specified Transactions Authorized by a Tariff or Protocol Approved by the Federal Energy Regulatory Commission or the Public Utility Commission of Texas From Certain Provisions of the Commodity Exchange Act Pursuant to the Authority Provided in the Act” 78 Fed. Reg. 19880 (April 2, 2013) (the “CFTC RTO/ISO Order”), the Commodity Futures Trading Commission (the “CFTC”) exempts transactions offered or entered into in a market administered by PJM pursuant to the Tariff, including but not limited to FTR transactions, from the provisions of the Commodity Exchange Act and the CFTC’s rules applicable to “swaps,” with the exception of the CFTC’s general anti-fraud and anti-manipulation authority and scienter-based prohibitions.

Notwithstanding the CFTC RTO/ISO Order, for purposes of the United States Bankruptcy Code (“Bankruptcy Code”), all FTR transactions constitute “swap agreements” and/or “forward contracts,” and PJM and each FTR Participant is a “forward contract merchant” and/or a “swap participant” within the meaning of the Bankruptcy Code for purposes of FTR transactions.

Pursuant to this Attachment Q and other provisions of the Agreements, PJM already has, and shall continue to have, the following rights (among other rights) with respect to a Market Participant’s Event of Default: (a) the right to terminate and/or liquidate any FTR transaction held by that Market Participant; (b) the right to immediately proceed against any Collateral provided by the Market Participant; (c) the right to set-off any obligations due or owing to that Market Participant pursuant to any forward contract, swap agreement, or similar agreement against any amounts due and owing by that Market Participant pursuant to any forward contract, swap agreement, or similar agreement, such arrangement to constitute a “master netting agreement” within the meaning of the Bankruptcy Code; and (d) the right to suspend or limit that Market Participant from entering into further FTR transactions.

For the avoidance of doubt, upon the commencement of a voluntary or involuntary proceeding for a Participant under the Bankruptcy Code, and without limiting any other rights of PJM or obligations of any Participant under the Agreements, PJM may exercise any of its rights against such Participant, including, without limitation (1) the right to terminate and/or liquidate any FTR transaction held by that Participant, (2) the right to immediately proceed against any Collateral provided by that Participant, (3) the right to set off any obligations due and owing to that Participant pursuant to any forward contract, swap agreement and/or master netting agreement against any amounts due and owing by that Participant with respect to an FTR transaction including as a result of the actions taken by PJM pursuant to (a) above, and 4) the right to suspend or limit that Participant from entering into future FTR transactions.

For purposes of the Bankruptcy Code, all transactions, including but not limited to FTR transactions, between PJM, on the one hand, and a Market Participant, on the other hand, are intended to be part of a single integrated agreement, and together with the Agreements constitute a “master netting agreement.”

Attachment Q
Appendix 1

PJM MINIMUM PARTICIPATION CRITERIA
ANNUAL OFFICER CERTIFICATION FORM

| |
|---|
| Participant Name: _____ ("Participant") |
|---|

I, _____, a duly authorized officer of Participant, understanding that PJM Interconnection, L.L.C. and PJMSettlement, Inc. ("PJMSettlement") are relying on this certification as evidence that Participant meets the minimum requirements set forth in the PJM Open Access Transmission Tariff ("PJM Tariff"), Attachment Q hereby certify that I have full authority to represent on behalf of Participant and further represent as follows, as evidenced by my initialing each representation in the space provided below:

1. All employees or agents transacting in markets or services provided pursuant to the PJM Tariff or PJM Amended and Restated Operating Agreement ("PJM Operating Agreement") on behalf of the Participant have received appropriate training and are authorized to transact on behalf of Participant. As used in this representation, the term "appropriate" as used with respect to training means training that is (i) comparable to generally accepted practices in the energy trading industry, and (ii) commensurate and proportional in sophistication, scope and frequency to the volume of transactions and the nature and extent of the risk taken by the participant. _____

2. Participant has written risk management policies, procedures, and controls, approved by Participant's independent risk management function and applicable to transactions in any PJM Markets in which it participates and for which employees or agents transacting in markets or services provided pursuant to the PJM Tariff or PJM Operating Agreement have been trained, that provide an appropriate, comprehensive risk management framework that, at a minimum, clearly identifies and documents the range of risks to which Participant is exposed, including, but not limited to credit risks, liquidity risks and market risks. As used in this representation, a Participant's "independent risk management function" can include appropriate corporate persons or bodies that are independent of the Participant's trading functions, such as a risk management committee, a risk officer, a Participant's board or board committee, or a board or committee of the Participant's parent company.
 - a. Participant is providing to PJM or PJMSettlement, in accordance with Tariff, Attachment Q, section III, with this Annual Officer Certification Form, a copy of its current governing risk management policies, procedures and controls applicable to its activities in any PJM Markets pursuant to Attachment Q or because there have been substantive changes made to such policies, procedures and controls applicable to its market activities since they were last provided to PJM. _____

 - b. If the risk management policies, procedures and controls applicable to Participant's market activities submitted to PJM or PJMSettlement were submitted prior to the current certification, Participant certifies that no substantive changes have

been made to such policies, procedures and controls applicable to its market activities since such submission. _____

3. An FTR Participant must make either the following 3.a. or 3.b. additional representations, evidenced by the undersigned officer initialing either the one 3.a. representation or the four 3.b. representations in the spaces provided below:

- a. Participant transacts in PJM's FTR markets with the sole intent to hedge congestion risk in connection with either obligations Participant has to serve load or rights Participant has to generate electricity in the PJM Region ("physical transactions") and monitors all of the Participant's FTR market activity to endeavor to ensure that its FTR positions, considering both the size and pathways of the positions, are either generally proportionate to or generally do not exceed the Participant's physical transactions, and remain generally consistent with the Participant's intention to hedge its physical transactions. _____

- b. On no less than a weekly basis, Participant values its FTR positions and engages in a probabilistic assessment of the hypothetical risk of such positions using analytically based methodologies, predicated on the use of industry accepted valuation methodologies. _____

Such valuation and risk assessment functions are performed either by persons within Participant's organization independent from those trading in PJM's FTR markets or by an outside firm qualified and with expertise in this area of risk management. _____

Having valued its FTR positions and quantified their hypothetical risks, Participant applies its written policies, procedures and controls to limit its risks using industry recognized practices, such as value-at-risk limitations, concentration limits, or other controls designed to prevent Participant from purposefully or unintentionally taking on risk that is not commensurate or proportional to Participant's financial capability to manage such risk. _____

Exceptions to Participant's written risk policies, procedures and controls applicable to Participant's FTR positions are documented and explain a reasoned basis for the granting of any exception. _____

4. Participant has appropriate personnel resources, operating procedures and technical abilities to promptly and effectively respond to all PJM and PJMSettlement communications and directions. _____
5. Participant has demonstrated compliance with the Minimum Capitalization criteria set forth in Tariff, Attachment Q that are applicable to any PJM Markets in which Participant transacts, and is not aware of any change having occurred or being imminent that would invalidate such compliance. _____

6. All Participants must certify and initial in at least one of the four sections below:

- a. I certify that Participant qualifies as an “appropriate person” as that term is defined under section 4(c)(3), or successor provision, of the Commodity Exchange Act or an “eligible contract participant” as that term is defined under section 1a(18), or successor provision, of the Commodity Exchange Act. I certify that Participant will cease transacting in any PJM Markets and notify PJM and PJMSettlement immediately if Participant no longer qualifies as an “appropriate person” or “eligible contract participant.” _____

If providing audited financial statements, which shall be in US GAAP format or any other format acceptable to PJM, to support Participant’s certification of qualification as an “appropriate person:”

I certify, to the best of my knowledge and belief, that the audited financial statements provided to PJM and/or PJMSettlement present fairly, pursuant to such disclosures in such audited financial statements, the financial position of Participant as of the date of those audited financial statements. Further, I certify that Participant continues to maintain the minimum \$1 million total net worth and/or \$5 million total asset levels reflected in these audited financial statements as of the date of this certification. I acknowledge that both PJM and PJMSettlement are relying upon my certification to maintain compliance with federal regulatory requirements. _____

If not providing audited financial statements to support Participant’s certification of qualification as an “appropriate person,” Participant certifies that they qualify as an “appropriate person” under one of the entities defined in section 4(c)(3)(A)-(J) of the Commodities Exchange Act. _____

If providing audited financial statements, which shall be in US GAAP format or any other format acceptable to PJM, to support Participant’s certification of qualification as an “eligible contract participant:”

I certify, to the best of my knowledge and belief, that the audited financial statements provided to PJM and/or PJMSettlement present fairly, pursuant to such disclosures in such audited financial statements, the financial position of Participant as of the date of those audited financial statements. Further, I certify that Participant continues to maintain the minimum \$1 million total net worth and/or \$10 million total asset levels reflected in these audited financial statements as of the date of this certification. I acknowledge that both PJM and PJMSettlement are relying upon my certification to maintain compliance with federal regulatory requirements. _____

If not providing audited financial statements to support Participant’s certification of qualification as an “eligible contract participant,” Participant certifies that they

qualify as an “eligible contract participant” under one of the entities defined in section 1a(18)(A) of the Commodities Exchange Act. _____

- b. I certify that Participant has provided an unlimited Corporate Guaranty in a form acceptable to PJM as described in Tariff, Attachment Q, section III.D from an issuer that has at least \$1 million of total net worth or \$5 million of total assets per Participant for which the issuer has issued an unlimited Corporate Guaranty. I also certify, to the best of my knowledge and belief, that the audited financial statements provided to PJM and/or PJMSettlement present fairly, pursuant to such disclosures in such audited financial statements, the financial position of the issuer as of the date of those audited financial statements. Further, I certify that Participant will cease transacting PJM’s Markets and notify PJM and PJMSettlement immediately if issuer of the unlimited Corporate Guaranty for Participant no longer has at least \$1 million of total net worth or \$5 million of total assets per Participant for which the issuer has issued an unlimited Corporate Guaranty. _____

I certify that the issuer of the unlimited Corporate Guaranty to Participant continues to have at least \$1 million of total net worth or \$5 million of total assets per Participant for which the issuer has issued an unlimited Corporate Guaranty. I acknowledge that PJM and PJMSettlement are relying upon my certifications to maintain compliance with federal regulatory requirements. _____

- c. I certify that Participant fulfills the eligibility requirements of the Commodity Futures Trading Commission exemption order (78 F.R. 19880 – April 2, 2013) by being in the business of at least one of the following in the PJM Region as indicated below (initial those applicable):

1. Generating electric energy, including Participants that resell physical energy acquired from an entity generating electric energy: _____
2. Transmitting electric energy: _____
3. Distributing electric energy delivered under Point-to-Point or Network Integration Transmission Service, including scheduled import, export and wheel through transactions: _____
4. Other electric energy services that are necessary to support the reliable operation of the transmission system: _____

Description only if c(4) is initialed:

Further, I certify that Participant will cease transacting in any PJM Markets and notify PJM and PJMSettlement immediately if Participant no longer performs at least one of the functions noted above in the PJM Region. I acknowledge that PJM and

PJMSettlement are relying on my certification to maintain compliance with federal energy regulatory requirements. _____

d. I certify that Participant has provided a Letter of Credit of \$5 million or more to PJM or PJMSettlement in a form acceptable to PJM and/or PJMSettlement as described in Tariff, Attachment Q, section V.B that the Participant acknowledges cannot be utilized to meet its credit requirements to PJM and PJMSettlement. I acknowledge that PJM and PJMSettlement are relying on the provision of this letter of credit and my certification to maintain compliance with federal regulatory requirements. _____

e. I certify that Participant has provided a surety bond of \$5 million or more to PJM or PJMSettlement in a form acceptable to PJM and/or PJMSettlement as described in Tariff, Attachment Q, section V.D. that the Participant acknowledges cannot be utilized to meet its credit requirements to PJM and PJMSettlement. I acknowledge that PJM and PJMSettlement are relying on the provision of this surety bond and my certification to maintain compliance with federal regulatory requirements. _____

7. I acknowledge that I have read and understood the provisions of Tariff, Attachment Q applicable to Participant's business in any PJM Markets, including those provisions describing PJM's Minimum Participation Requirements and the enforcement actions available to PJM and PJMSettlement of a Participant not satisfying those requirements. I acknowledge that the information provided herein is true and accurate to the best of my belief and knowledge after due investigation. In addition, by signing this certification, I acknowledge the potential consequences of making incomplete or false statements in this Certification. _____

Date: _____

Participant (Signature)

Print Name: _____

Title: _____

Attachment C

Revisions to the Operating Agreement

(Marked/Redline Format)

Definitions U - Z

Up-to Congestion Transaction:

“Up-to Congestion Transaction” shall have the meaning specified in Operating Agreement, Schedule 1, section 1.10.1A, and the parallel provisions of Tariff, Attachment K-Appendix, section 1.10.1A.

User Group:

“User Group” shall mean a group formed pursuant to Operating Agreement, section 8.7.

VACAR:

“VACAR” shall mean the group of five companies, consisting of Duke Energy Carolinas, LLC; Duke Energy Progress, Inc.; South Carolina Public Service Authority; South Carolina Electric and Gas Company; and Virginia Electric and Power Company.

Variable Loads:

“Variable Loads” shall have the meaning specified in Operating Agreement, Schedule 1, section 1.5A.6, and the parallel provisions of Tariff, Attachment K-Appendix, section 1.5A.6.

Virtual Transaction:

“Virtual Transaction” shall mean a Decrement Bid, Increment Offer and/or Up-to Congestion Transaction.

Voting Member:

“Voting Member” shall mean (i) a Member as to which no other Member is an Affiliate or Related Party, or (ii) a Member together with any other Members as to which it is an Affiliate or Related Party.

Weighted Interest:

“Weighted Interest” shall be equal to $(0.1(1/N) + 0.5(B/C) + 0.2(D/E) + 0.2(F/G))$, where:

- N = the total number of Members excluding ex officio Members and State Consumer Advocates (which, for purposes of Operating Agreement, section 15.2 shall be calculated as of five o'clock p.m. Eastern Time on the date PJM declares a Member in default)
- B = the Member's internal peak demand for the previous calendar year (which, for Load Serving Entities under the Reliability Assurance Agreement, shall be that used to calculate Accounted For Obligation as determined by the Office of the

Interconnection pursuant to RAA, Schedule 7 averaged over the previous calendar year)

C = the sum of factor B for all Members

D = the Member's generating capability from Generation Capacity Resources located in the PJM Region as of January 1 of the current calendar year, determined by the Office of the Interconnection pursuant to RAA, Schedule 9

E = the sum of factor D for all Members

F = the sum of the Member's circuit miles of transmission facilities multiplied by the respective operating voltage for facilities 100 kV and above as of January 1 of the current calendar year

G = the sum of factor F for all Members

Zonal Base Load:

~~“Zonal Base Load” shall mean the lowest daily zonal peak load from the twelve month period ending October 21 of the calendar year immediately preceding the calendar year in which an annual Auction Revenue Right allocation is conducted, increased by the projected load growth rate for the relevant Zone, when non-extraordinary conditions exist for the applicable twelve month period, as determined by PJM. If the lowest daily zonal peak load from the applicable twelve month period is abnormally low due to extraordinary conditions, as determined by PJM, Zonal Base Load shall mean the next lowest daily zonal peak load that was not affected by extraordinary conditions during the applicable twelve month period, increased by the projected load growth rate for the relevant Zone. For the purposes of this definition, extraordinary conditions shall mean a significant event, or combination of events, that affect the operation of the bulk power system in an atypical manner and results in an abnormal reduction in the consumption of energy within a Zone.~~

Zone or Zonal:

“Zone” or “Zonal” shall mean an area within the PJM Region, as set forth in Tariff, Attachment J and RAA, Schedule 15, or as such areas may be (i) combined as a result of mergers or acquisitions or (ii) added as a result of the expansion of the boundaries of the PJM Region. A Zone shall include any Non-Zone Network Load located outside the PJM Region that is served from such Zone under Tariff, Attachment H-A.

5.2 Transmission Congestion Credit Calculation.

5.2.1 Eligibility.

(a) Except as provided in section 5.2.1(b), each FTR Holder shall receive as a Transmission Congestion Credit a proportional share of the Day-ahead Energy Market Transmission Congestion Charges collected for each constrained hour.

(b) If an Effective FTR Holder between specified delivery and receipt buses acquired the Financial Transmission Right in a Financial Transmission Rights auction (the procedures for which are set forth in *section 7* of this Schedule 1) and had a *Virtual Transaction portfolio which includes Increment Offer(s), Decrement Bid(s), and/or Up-to Congestion Transaction(s)* that was accepted by the Office of the Interconnection for an applicable hour in the Day-ahead Energy Market, *whereby the Effective FTR Holder's Virtual Transaction portfolio resulted in (i) a difference in Location Marginal Prices in the Day-ahead Energy Market between such delivery and receipt buses which is greater than the difference in Locational Marginal Prices between such delivery and receipt buses in the Real-time Energy Market, and (ii) an increasing the value between such delivery and receipt buses, then the Market Participant shall not receive any Transmission Congestion Credit associated with such Financial Transmission Right in such hour, that is attributable to the absolute value (i.e., the product of the constraint's shadow price times the distribution factor (dfax) of the difference between the Financial Transmission Right delivery and receipt buses) of the relevant Day-ahead Energy Market binding constraint (as further discussed in section 5.2.1(c) below), but no more than the excess of one divided by the number of hours in the applicable period multiplied by the amount that the Market Participant paid for the Financial Transmission Right in the Financial Transmission Rights auction (i.e., FTR profit). For the purposes of this calculation, every individual Financial Transmission Right of an Effective FTR Holder shall be considered.*

(c) For purposes of section 5.2.1(b), *an Effective FTR Holder's Virtual Transaction portfolio shall be considered if the absolute value of the attributable net flow across a Day-ahead Energy Market binding constraint relative to the Day-ahead Energy Market load weighted reference bus between the Financial Transmission Right delivery and receipt buses exceeds the physical limit of such binding constraint by the greater of 0.1 MW or ten percent.*

(d) The Market Monitoring Unit shall calculate Transmission Congestion Credits pursuant to this section and Tariff, Attachment M-Appendix, section VI. Nothing in this section shall preclude the Market Monitoring Unit from action to recover inappropriate benefits from the subject activity if the amount forfeited is less than the benefit derived by the Effective FTR Holder. If the Office of the Interconnection agrees with such calculation, then it shall impose the forfeiture of the Transmission Congestion Credit accordingly. If the Office of the Interconnection does not agree with the calculation, then it shall impose a forfeiture of Transmission Congestion Credit consistent with its determination. If the Market Monitoring Unit disagrees with the Office of the Interconnection's determination, it may exercise its powers to inform the Commission staff of its concerns and may request an adjustment. This provision is duplicated in Tariff, Attachment M-Appendix, section VI. An Effective FTR Holder objecting to

the application of this rule shall have recourse to the Commission for review of the application of the FTR forfeiture rule to its trading activity.

5.2.2 Financial Transmission Rights.

(a) Transmission Congestion Credits will be calculated based upon the Financial Transmission Rights held at the time of the constrained hour. Except as provided in subsection (e) below, Financial Transmission Rights shall be auctioned as set forth in Operating Agreement, Schedule 1, section 7.

(b) The hourly economic value of a Financial Transmission Right Obligation is based on the Financial Transmission Right MW reservation and the difference between the Day-ahead Congestion Price at the point of delivery and the point of receipt of the Financial Transmission Right. The hourly economic value of a Financial Transmission Right Obligation is positive (a benefit to the FTR Holder) when the Day-ahead Congestion Price at the point of delivery is higher than the Day-ahead Congestion Price at the point of receipt. The hourly economic value of a Financial Transmission Right Obligation is negative (a liability to the FTR Holder) when the Day-ahead Congestion Price at the point of receipt is higher than the Day-ahead Congestion Price at the point of delivery.

(c) The hourly economic value of a Financial Transmission Right Option is based on the Financial Transmission Right MW reservation and the difference between the Day-ahead Congestion Price at the point of delivery and the point of receipt of the Financial Transmission Right when that difference is positive. The hourly economic value of a Financial Transmission Right Option is positive (a benefit to the FTR Holder) when the Day-ahead Congestion Price at the point of delivery is higher than the Day-ahead Congestion Price at the point of receipt. The hourly economic value of a Financial Transmission Right Option is zero (neither a benefit nor a liability to the FTR Holder) when the Day-ahead Congestion Price at the point of receipt is higher than the Day-ahead Congestion Price at the point of delivery.

(d) In addition to transactions with PJMSettlement in the Financial Transmission Rights auctions administered by the Office of the Interconnection, a Financial Transmission Right, for its entire tenure or for a specified period, may be sold or otherwise transferred to a third party by bilateral agreement, subject to compliance with such procedures as may be established by the Office of the Interconnection for verification of the rights of the purchaser or transferee.

- (i) Market Participants may enter into bilateral agreements to transfer to a third party a Financial Transmission Right, for its entire tenure or for a specified period. Such bilateral transactions shall be reported to the Office of the Interconnection in accordance with this Schedule and pursuant to the LLC's rules related to its FTR reporting tools.
- (ii) For purposes of clarity, with respect to all bilateral transactions for the transfer of Financial Transmission Rights, the rights and obligations pertaining to the Financial Transmission Rights that are the subject of such a bilateral transaction shall pass to the buyer under the bilateral contract subject to the provisions of this

Schedule. Such bilateral transactions shall not modify the location or reconfigure the Financial Transmission Rights. In no event shall the purchase and sale of a Financial Transmission Right pursuant to a bilateral transaction constitute a transaction with PJMSettlement or a transaction in any auction under this Schedule.

- (iii) Consent of the Office of the Interconnection shall be required for a seller to transfer to a buyer any Financial Transmission Right Obligation. Such consent shall be based upon the Office of the Interconnection's assessment of the buyer's ability to perform the obligations, including meeting applicable creditworthiness requirements, transferred in the bilateral contract. If consent for a transfer is not provided by the Office of the Interconnection, the title to the Financial Transmission Rights shall not transfer to the third party and the FTR Holder shall continue to receive all Transmission Congestion Credits attributable to the Financial Transmission Rights and remain subject to all credit requirements and obligations associated with the Financial Transmission Rights.
 - (iv) A seller under such a bilateral contract shall guarantee and indemnify the Office of the Interconnection, PJMSettlement, and the Members for the buyer's obligation to pay any charges associated with the transferred Financial Transmission Right and for which payment is not made to PJMSettlement by the buyer under such a bilateral transaction.
 - (v) All payments and related charges associated with such a bilateral contract shall be arranged between the parties to such bilateral contract and shall not be billed or settled by PJMSettlement or the Office of the Interconnection. The LLC, PJMSettlement, and the Members will not assume financial responsibility for the failure of a party to perform obligations owed to the other party under such a bilateral contract reported to the Office of the Interconnection under this Schedule.
 - (vi) All claims regarding a default of a buyer to a seller under such a bilateral contract shall be resolved solely between the buyer and the seller.
- (e) Network Service Users and Firm Transmission Customers that take service that sinks, sources in, or is transmitted through new PJM zones, at their election, may receive a direct allocation of Financial Transmission Rights instead of an allocation of Auction Revenue Rights. Network Service Users and Firm Transmission Customers may make this election for the succeeding two annual FTR auctions after the integration of the new zone into the PJM Interchange Energy Market. Such election shall be made prior to the commencement of each annual FTR auction. For purposes of this election, the Allegheny Power Zone shall be considered a new zone with respect to the annual Financial Transmission Right auction in 2003 and 2004. Network Service Users and Firm Transmission Customers in new PJM zones that elect not to receive direct allocations of Financial Transmission Rights shall receive allocations of Auction Revenue Rights. During the annual allocation process, the Financial Transmission Right allocation for new PJM zones shall be performed simultaneously with the Auction

Revenue Rights allocations in existing and new PJM zones. Prior to the effective date of the initial allocation of FTRs in a new PJM Zone, PJM shall file with FERC, under section 205 of the Federal Power Act, the FTRs and ARR allocations in accordance with sections 5 and 7 of this Schedule 1.

(f) For Network Service Users and Firm Transmission Customers that take service that sinks in, sources in, or is transmitted through new PJM zones, that elect to receive direct allocations of Financial Transmission Rights, Financial Transmission Rights shall be allocated using the same allocation methodology as is specified for the allocation of Auction Revenue Rights in Operating Agreement, Schedule 1, section 7.4.2 and in accordance with the following:

- (i) Subject to subsection (ii) of this section, all Financial Transmission Rights must be simultaneously feasible. If all Financial Transmission Right requests made when Financial Transmission Rights are allocated for the new zone are not feasible then Financial Transmission Rights are prorated and allocated in proportion to the MW level requested and in inverse proportion to the effect on the binding constraints.
- (ii) If any Financial Transmission Right requests that are equal to or less than sixty percent (60%) of a Network Service User's proportion of peak Zonal Base Load ~~for in~~ the Zone or fifty percent of its transmission responsibility for Non-Zone Network Load, or fifty percent of megawatts of firm service between the receipt and delivery points of Firm Transmission Customers, are not feasible in the annual allocation and auction processes due to system conditions, then PJM shall increase the capability limits of the binding constraints that would have rendered the Financial Transmission Rights infeasible to the extent necessary in order to allocate such Financial Transmission Rights without their being infeasible for all rounds of the annual allocation and auction processes, provided that this subsection (ii) shall not apply if the infeasibility is caused by extraordinary circumstances. Additionally, such increased limits shall be included in subsequent modeling during the Planning Year to support any incremental allocations of Auction Revenue Rights and monthly and balance of the Planning Period Financial Transmission Rights auctions; unless and to the extent those system conditions that contributed to infeasibility in the annual process are not extant for the time period subject to the subsequent modeling, such as would be the case, for example, if transmission facilities are returned to service during the Planning Year. In these cases, any increase in the capability limits taken under this subsection (ii) during the annual process will be removed from subsequent modeling to support any incremental allocations of Auction Revenue Rights and monthly and balance of the Planning Period Financial Transmission Rights auctions. In addition, PJM may remove or lower the increased capability limits, if feasible, during subsequent FTR Auctions if the removal or lowering of the increased capability limits does not impact Auction Revenue Rights funding and net auction revenues are positive.

For the purposes of this subsection (ii), extraordinary circumstances shall mean an event of force majeure that reduces the capability of existing or planned transmission facilities and such reduction in capability is the cause of the infeasibility of such Financial Transmission Rights. Extraordinary circumstances do not include those system conditions and assumptions modeled in simultaneous feasibility analyses conducted pursuant to Operating Agreement, Schedule 1, section 7.5 of Schedule 1 of this Agreement. If PJM allocates Financial Transmission Rights as a result of this subsection (ii) that would not otherwise have been feasible, then PJM shall notify Members and post on its web site (a) the aggregate megawatt quantities, by sources and sinks, of such Financial Transmission Rights and (b) any increases in capability limits used to allocate such Financial Transmission Rights.

- (iii) In the event that Network Load changes from one Network Service User to another after an initial or annual allocation of Financial Transmission Rights in a new zone, Financial Transmission Rights will be reassigned on a proportional basis from the Network Service User losing the load to the Network Service User that is gaining the Network Load.

(g) At least one month prior to the integration of a new zone into the PJM Interchange Energy Market, Network Service Users and Firm Transmission Customers that take service that sinks in, sources in, or is transmitted through the new zone, shall receive an initial allocation of Financial Transmission Rights that will be in effect from the date of the integration of the new zone until the next annual allocation of Financial Transmission Rights and Auction Revenue Rights. Such allocation of Financial Transmission Rights shall be made in accordance with Operating Agreement, Schedule 1, section 5.2.2(f) of this Schedule.

(h) Reserved.

5.2.3 Target Allocation of Transmission Congestion Credits.

A Target Allocation of Transmission Congestion Credits for each FTR Holder shall be determined for each Financial Transmission Right. Each Financial Transmission Right shall be multiplied by the Day-ahead Congestion Price differences for the receipt and delivery points associated with the Financial Transmission Right, calculated as the Day-ahead Congestion Price at the delivery point(s) minus the Day-ahead Congestion Price at the receipt point(s). For the purposes of calculating Transmission Congestion Credits, the Day-ahead Congestion Price of a Zone is calculated as the sum of the Day-ahead Congestion Price of each bus that comprises the Zone multiplied by the percent of annual peak load assigned to each node in the Zone. Commencing with the 2015/2016 Planning Period, for the purposes of calculating Transmission Congestion Credits, the Day-ahead Congestion Price of a Residual Metered Load aggregate is calculated as the sum of the Day-ahead Congestion Price of each bus that comprises the Residual Metered Load aggregate multiplied by the percent of the annual peak residual load assigned to each bus that comprises the Residual Metered Load aggregate. When the FTR Target Allocation is positive, the FTR Target Allocation is a credit to the FTR Holder. When the FTR Target Allocation is negative, the FTR Target Allocation is a debit to the FTR Holder if the FTR is a

Financial Transmission Right Obligation. When the FTR Target Allocation is negative, the FTR Target Allocation is set to zero if the FTR is a Financial Transmission Right Option. The total Target Allocation for Network Service Users and Transmission Customers for each hour shall be the sum of the Target Allocations associated with all of the Network Service Users' or Transmission Customers' Financial Transmission Rights.

5.2.4 [Reserved.]

5.2.5 Calculation of Transmission Congestion Credits.

(a) The total of all the positive Target Allocations determined as specified above shall be compared to the Day-ahead Energy Market Transmission Congestion Charges in each hour. If the total of the Target Allocations is less than or equal to the total of the Day-ahead Energy Market Transmission Congestion Charges, the Transmission Congestion Credit for each entity holding an FTR shall be equal to its Target Allocation. All remaining Day-ahead Energy Market Transmission Congestion Charges shall be distributed as described below in Operating Agreement, Schedule 1, section 5.2.6 "Distribution of Excess Congestion Charges."

(b) If the total of the Target Allocations is greater than the Day-ahead Energy Market Transmission Congestion Charges for the hour, each FTR Holder shall be assigned a share of the Day-ahead Energy Market Transmission Congestion Charges in proportion to its Target Allocations for Financial Transmission Rights which have a positive Target Allocation value. Financial Transmission Rights which have a negative Target Allocation value are assigned the full Target Allocation value as a negative Transmission Congestion Credit.

(c) At the end of a Planning Period if all FTR Holders did not receive Transmission Congestion Credits equal to their Target Allocations, the Office of the Interconnection shall assess a charge equal to the difference between the Transmission Congestion Credit Target Allocations for all revenue deficient FTRs and the actual Transmission Congestion Credits allocated to those FTR Holders. A charge assessed pursuant to this section shall also include any aggregate charge assessed pursuant to Operating Agreement, Schedule 1, section 7.4.4(c) and shall be allocated to all FTR Holders on a pro-rata basis according to the total Target Allocations for all FTRs held at any time during the relevant Planning Period. The charge shall be calculated and allocated in accordance with the following methodology:

1. The Office of the Interconnection shall calculate the total amount of uplift required as {[sum of the total monthly deficiencies in FTR Target Allocations for the Planning Period + the sum of the ARR Target Allocation deficiencies determined pursuant to Operating Agreement, Schedule 1, section 7.4.4(c)] – [sum of the total monthly excess ARR revenues and excess Day-ahead Energy Market Transmission Congestion Charges for the Planning Period]}.
2. For each Market Participant that held an FTR during the Planning Period, the Office of the Interconnection shall calculate the total Target Allocation associated with all FTRs held by the Market Participant during the Planning Period, provided that, the foregoing notwithstanding, if the total Target Allocation for an individual

Market Participant calculated pursuant to this section is negative the Office of Interconnection shall set the value to zero.

3. The Office of the Interconnection shall then allocate an uplift charge to each Market Participant that held an FTR at any time during the Planning Period in accordance with the following formula: $\{[\text{total uplift}] * [\text{total Target Allocation for all FTRs held by the Market Participant at any time during the Planning Period}] / [\text{total Target Allocations for all FTRs held by all PJM Market Participants at any time during the Planning Period}]\}$.

5.2.6 Distribution of Excess Congestion Charges.

(a) Excess Day-ahead Energy Market Transmission Congestion Charges accumulated in a month shall be distributed to each FTR Holder in proportion to, but not more than, any deficiency in the share of Day-ahead Energy Market Transmission Congestion Charges received by the FTR Holder during that month as compared to its total Target Allocations for the month.

(b) After the excess Day-ahead Energy Market Transmission Congestion Charge distribution described in Operating Agreement, Schedule 1, section 5.2.6(a) is performed, any excess Day-ahead Energy Market Transmission Congestion Charges remaining at the end of a month shall be distributed to each FTR Holder in proportion to, but not more than, any deficiency in the share of Day-ahead Energy Market Transmission Congestion Charges received by the FTR Holder during the current Planning Period, including previously distributed excess Day-ahead Energy Market Transmission Congestion Charges, as compared to its total Target Allocation for the Planning Period.

(c) Any excess Day-ahead Energy Market Transmission Congestion Charges remaining at the end of a Planning Period shall be distributed to each holder of Auction Revenue Rights in proportion to, but not more than, any Auction Revenue Right deficiencies for that Planning Period.

(d) Any excess Day-ahead Energy Market Transmission Congestion Charges remaining after a distribution pursuant to subsection (c) of this section shall be distributed to all ARR holders on a pro-rata basis according to the total Target Allocations for all ARRs held at any time during the relevant Planning Period. Any allocation pursuant to this subsection (d) shall be conducted in accordance with the following methodology:

1. For each Market Participant that held an ARR during the Planning Period, the Office of the Interconnection shall calculate the total Target Allocation associated with all ARRs held by the Market Participant during the Planning Period, provided that, the foregoing notwithstanding, if the total Target Allocation for an individual Market Participant calculated pursuant to this section is negative the Office of the Interconnection shall set the value to zero.
2. The Office of the Interconnection shall then allocate an excess Day-ahead Energy Market Transmission Congestion Charge credit to each Market Participant that

held an ARR at any time during the Planning Period in accordance with the following formula: {[total excess Day-ahead Energy Market Transmission Congestion Charges remaining after distributions pursuant to subsection (a)-(c) of this section] * [total Target Allocation for all ARRs held by the Market Participant at any time during the Planning Period] / [total Target Allocations for all ARRs held by all PJM Market Participants at any time during the Planning Period]}.

5.2.7 Allocation of Balancing Congestion Charges

At the end of each hour during an Operating Day, the Office of the Interconnection shall allocate the Balancing Congestion Charges to real-time load and exports on a pro-rata basis. Such allocation shall not include purchases of Direct Charging Energy.

7.1 Auctions of Financial Transmission Rights.

Annual, periodic and long-term auctions to allow Market Participants to acquire or sell Financial Transmission Rights shall be conducted by the Office of the Interconnection in accordance with the provisions of this Section. PJMSettlement shall be the Counterparty to the purchases and sales of Financial Transmission Rights arising from such auctions; provided however, that PJMSettlement shall not be a contracting party to any subsequent bilateral transfer of Financial Transmission Rights between Market Participants. The conversion of an Auction Revenue Right to a Financial Transmission Right pursuant to this section 7 shall not constitute a purchase or sale transaction to which PJMSettlement is a contracting party.

7.1.1 Auction Period and Scope of Auctions.

(a) The periods covered by auctions shall be: (1) the one-year period beginning the month after the final round of an annual auction; and (2) any single calendar month period remaining in the Planning Period. With the exception of FTRs allocated pursuant to Operating Agreement, Schedule 1, section 5.2.2 (e) and the Financial Transmission Rights awarded as a result of the exercise of the conversion option pursuant to Operating Agreement, Schedule 1, section 7.1.1(b), in the annual auction, the Office of the Interconnection, on behalf of PJMSettlement, shall offer for sale the entire Financial Transmission Rights capability for the year in four rounds with 25 percent of the capability offered in each round. In the monthly auction, the Office of the Interconnection, on behalf of PJMSettlement, shall offer for sale in the auction any remaining Financial Transmission Rights capability for the months remaining in the Planning Period after taking into account all of the Financial Transmission Rights already outstanding at the time of the auction. In addition, any holder of a Financial Transmission Right for the period covered by an auction may offer such Financial Transmission Right for sale in such auction. Weekend on-peak, weekday on-peak, off-peak and 24-hour Financial Transmission Rights, as those products are described in Operating Agreement, Schedule 1, section 7.3.4, FTRs will be offered in the annual and monthly auctions. FTRs will be offered as Financial Transmission Right Obligations and Financial Transmission Right Options, provided that such Financial Transmission Right Obligations and Financial Transmission Right Options shall be awarded based only on the residual system capability that remains after the allocation of Financial Transmission Rights pursuant to Operating Agreement, Schedule 1, section 5.2.2(e) and the award of Financial Transmission Rights pursuant to Operating Agreement, Schedule 1, section 7.1.1(b). Market Participants may bid for and acquire any number of Financial Transmission Rights, provided that all Financial Transmission Rights awarded are simultaneously feasible with each other and with all Financial Transmission Rights outstanding at the time of the auction and not sold into the auction. An ARR holder may self-schedule an FTR on the same path in the Annual FTR auction according to the rules described in the PJM Manuals.

(b) An Auction Revenue Rights holder may convert Auction Revenue Rights to Financial Transmission Rights, and such conversion shall not be considered a purchase or sale of Financial Transmission Rights in the auction. Such Financial Transmission Rights must (i) have the same source and sink points as the Auction Revenue Rights; ~~(ii) be a 24 hour product;~~ and (iii) be Financial Transmission Right Obligations. The Auction Revenue Rights holder must inform the

Office of the Interconnection in accordance with the procedures established by the Office of the Interconnection that it intends to exercise the conversion option prior to close of round one of the annual Financial Transmission Rights auction. Once the conversion option is exercised, it will remain in effect for the entire Financial Transmission Rights auction. The Office of the Interconnection will designate twenty-five percent of the megawatt amount of the Auction Revenue Rights to be converted as price-taker bids in each of the four rounds of the Financial Transmission Rights auction. An Auction Revenue Rights holder that converts its Auction Revenue Rights may not designate a price bid for its converted Financial Transmission Rights and will receive a price equal to the clearing price set by other bids in the annual Financial Transmission Right auction. To the extent a market participant seeks to obtain FTRs in the annual auction through such conversion, the FTRs sought will not be included in the calculation of such market participant's credit requirement for such annual FTR auction.

7.1.2 Frequency and Time of Auctions.

Subject to Operating Agreement, Schedule 1, section 7.1.1, annual Financial Transmission Rights auctions shall offer the entire FTR capability of the PJM system in four rounds with 25 percent of the capability offered in each round. All four rounds of the annual Financial Transmission Rights auction shall occur within the two-month period (April – May) preceding the start of the PJM Planning Period. Each round shall occur over five Business Days and shall be conducted sequentially. Each round shall begin with the bid and offer period. The bid and offer period for annual Financial Transmission Rights auctions shall be open for three consecutive Business Days, opening the first day at 12:00 midnight (Eastern Prevailing Time) and closing the third day at 5:00 p.m. (Eastern Prevailing Time). Monthly Financial Transmission Rights auctions shall be held each month. The bid and offer period for monthly Financial Transmission Rights auctions shall be open for three consecutive Business Days in the month preceding the first month for which Financial Transmission Rights are being auctioned, opening the first day at 12:00 midnight (Eastern Prevailing Time) and closing the third day at 5:00 p.m. (Eastern Prevailing Time).

7.1.3 Duration of Financial Transmission Rights.

Each Financial Transmission Right acquired in a Financial Transmission Rights auction shall entitle the holder to credits of Day-ahead Energy Market Transmission Congestion Charges for the period that was specified in the corresponding auction.

7.1A Long-Term Financial Transmission Rights Auctions.

7.1A.1 Auctions.

(i) Subsequent to each annual Financial Transmission Rights auction conducted pursuant to Operating Agreement, Schedule 1, section 7.1, the Office of the Interconnection shall conduct a long-term Financial Transmission Rights auction for the three consecutive Planning Periods immediately subsequent to the Planning Period during which the long-term Financial Transmission Rights auction is conducted. PJMSettlement shall be the Counterparty to the purchases and sales of Financial Transmission Rights arising from such long-term Financial Transmission Rights auctions, provided however, that PJMSettlement shall not be a contracting party to any subsequent bilateral transfers of Financial Transmission Rights between Market Participants. The conversion of an Auction Revenue Right to a Financial Transmission Right pursuant to this section 7 shall not constitute a purchase or sale transaction to which PJMSettlement is a contracting party.

(ii) The capacity offered for sale in long-term Financial Transmission Rights auctions shall be the residual system capability after the annual Auction Revenue Rights allocations and the annual Financial Transmission Rights auction. In determining the residual capability the Office of the Interconnection shall assume that all Auction Revenue Rights allocated in the immediately prior annual Auction Revenue Rights allocation process, including Auction Revenue Rights made available in which transmission facilities which were modeled out of service in the annual Auction Revenue Rights allocations return to service, are self-scheduled into Financial Transmission Rights, which shall be modeled as fixed injections and withdrawals in the long-term Financial Transmission Rights auction. Additionally, residual annual Auction Revenue Rights that become available through incremental capability created by future transmission upgrades as further described in the PJM Manuals shall be modeled as fixed injections and withdrawals in the long-term Financial Transmission Rights auction. The long-term Financial Transmission Rights auction model shall include all upgrades planned to be placed into service on or before June 30th of the first Planning Period within the three year period covered by the auction. The transmission upgrades to be modeled for this purpose shall only include those upgrades that, individually, or together, have 10% or more impact on the transmission congestion on an individual constraint or constraints with congestion of \$5 million or more affecting a common congestion path. Transmission upgrades modeled for this purpose also will be modeled in the subsequent long-term Financial Transmission Rights auction, as further detailed in the PJM Manuals. Residual Auction Revenue Rights created by an increase in transmission capability due to future transmission upgrades, as specified above, are determined only for modeling purposes and will not be allocated to Market Participants.

7.1A.2 Frequency and Timing.

The long-term Financial Transmission Rights auction process shall consist of five rounds. The first round shall be conducted by the Office of the Interconnection approximately 11 months prior to the start of the three Planning Period term covered by the relevant long-term Financial Transmission Rights auction. The second round shall be conducted approximately 2 months

after the first round. The third round shall be conducted approximately 2 months after the second round. The fourth round shall be conducted approximately 2 months after the third round, and the fifth round shall be conducted approximately 3 months after the fourth round. In each round 20 percent of total capacity available in the long-term Financial Transmission Rights auction shall be offered for sale. Eligible entities may submit bids to purchase and offers to sell Financial Transmission Rights at the start of the bidding period in each round. The bidding period shall be three Business Days ending at 5:00 p.m. on the last day. PJM performs the Financial Transmission Rights auction clearing analysis for each round and posts the auction results on the market user interface within five Business Days after the close of the bidding period for each round unless circumstances beyond PJM's control prevent PJM from meeting the applicable deadline. Under such circumstances, PJM will post the auction results at the earliest possible opportunity. If the Office of the Interconnection discovers a *potential* error in the results posted for a long-term Financial Transmission Rights auction, the Office of the Interconnection shall notify Market Participants as soon as possible after it is found, but in no event later than 5:00 p.m. of the Business Day immediately following the initial publication of the results for that auction. After this initial notification, if the Office of the Interconnection determines it is necessary to post modified auction results, it shall provide notification of its intent to do so, *along with a description detailing the cause and scope of the error*, by no later than 5:00 p.m. of the second Business Day following the initial publication of prices for that auction. *The provided description will not contain information that is market sensitive or confidential.* Thereafter, the Office of the Interconnection must post the corrected prices by no later than 5:00 p.m. of the fourth calendar day following the initial publication of prices in the auction. Should any of the above deadlines pass without the associated action on the part of the Office of the Interconnection, the originally posted results will be considered final. Notwithstanding the foregoing, the deadlines set forth above shall not apply if the referenced auction results are under publicly noticed review by the FERC.

7.1A.3 Products.

- (i) The periods covered by long-term Financial Transmission Rights auctions shall be any single Planning Period within the three Planning Period term covered by the relevant auction.
- (ii) Weekend on-peak, weekday on-peak, off-peak and 24-hour Financial Transmission Rights Obligations, as those products are described in Operating Agreement, Schedule 1, section 7.3.4, shall be offered in long-term Financial Transmission Rights auctions; Financial Transmission Rights options shall not be offered.

7.1A.4 Participation Eligibility.

- (i) To participate in long-term Financial Transmission Rights auctions an entity shall be a PJM Member or a PJM Transmission Customer. Eligible entities may submit bids or offers in long-term Financial Transmission Rights auctions, provided they own Financial Transmission Rights offered for sale.

7.1A.5 Specified Receipt and Delivery Points.

The Office of the Interconnection will post a list of available receipt and delivery points for each long-term Financial Transmission Rights auction. Eligible receipt and delivery points in long-term Financial Transmission Rights auctions shall be limited to the posted available hubs, Zones, aggregates, generators, and Interface Pricing Points.

7.3 Auction Procedures.

7.3.1 Role of the Office of the Interconnection.

Financial Transmission Rights auctions shall be conducted by the Office of the Interconnection in accordance with standards and procedures set forth in the PJM Manuals, such standards and procedures to be consistent with the requirements of this Schedule. PJMSettlement shall be the Counterparty to the purchases and sales of Financial Transmission Rights arising from such auctions, provided however, that PJMSettlement shall not be a contracting party to any subsequent bilateral transfers of Financial Transmission Rights between Market Participants. The conversion of an Auction Revenue Right to a Financial Transmission Right pursuant to this section 7 shall not constitute a purchase or sale transaction to which PJMSettlement is a contracting party. Any Financial Transmission Rights auctions conducted to liquidate a defaulting Member's Financial Transmission Rights portfolio shall be conducted by the Office of the Interconnection in accordance with the procedures set forth in section 7.3.9 below, and as may be further described in the PJM Manuals.

7.3.2 Notice of Offer.

A holder of a Financial Transmission Right wishing to offer the Financial Transmission Right for sale shall notify the Office of the Interconnection of any Financial Transmission Rights to be offered. Each Financial Transmission Right sold in an auction shall, at the end of the period for which the Financial Transmission Rights were auctioned, revert to the offering holder or the entity to which the offering holder has transferred such Financial Transmission Right, subject to the term of the Financial Transmission Right itself and to the right of such holder or transferee to offer the Financial Transmission Right in the next or any subsequent auction during the term of the Financial Transmission Right.

7.3.3 Pending Applications for Firm Service.

(a) [Reserved.]

(b) Financial Transmission Rights may be assigned to entities requesting Network Transmission Service or Firm Point-to-Point Transmission Service pursuant to Operating Agreement, Schedule 1, section 5.2.2 (e), and the parallel provisions of Tariff, Attachment K-Appendix, section 5.2.2(e), only if such Financial Transmission Rights are simultaneously feasible with all outstanding Financial Transmission Rights, including Financial Transmission Rights effective for the then-current auction period. If an assignment of Financial Transmission Rights pursuant to a pending application for Network Transmission Service or Firm Point-to-Point Transmission Service cannot be completed prior to an auction, Financial Transmission Rights attributable to such transmission service shall not be assigned for the then-current auction period. If a Financial Transmission Right cannot be assigned for this reason, the applicant may withdraw its application, or request that the Financial Transmission Right be assigned effective with the start of the next auction period.

7.3.4 Weekend On-Peak, Weekday On-Peak, Off-Peak and 24-Hour Periods.

~~Weekend on-peak, weekday on-peak, off-peak and 24-hour Financial Transmission Rights FTRs~~ will be offered in the annual, long-term, and monthly auctions. Weekend on-peak Financial Transmission Rights shall cover the periods from 7:00 a.m. up to the hour ending 11:00 p.m. on Saturdays, Sundays, and holidays as defined in the PJM Manuals. Weekday on-peak Financial Transmission Rights shall cover the periods from 7:00 a.m. up to the hour ending at 11:00 p.m. on Mondays through Fridays, except holidays as defined in the PJM Manuals. Off-Peak Financial Transmission Rights shall cover the periods from 11:00 p.m. up to the hour ending 7:00 a.m. on ~~all days Mondays through Fridays and all hours on Saturdays, Sundays, and holidays as defined in the PJM Manuals~~. The 24-hour period shall cover the period from hour ending 1:00 a.m. to the hour ending 12:00 midnight on all days. Each bid shall specify whether it is for an ~~on-peak weekend on-peak, weekday on-peak~~, off-peak, or 24-hour period.

7.3.5 Offers and Bids.

(a) Offers to sell and bids to purchase Financial Transmission Rights shall be submitted during the period set forth in Operating Agreement, Schedule 1, section 7.1.2, and the parallel provisions of Tariff, Attachment K-Appendix, section 7.1.2, and shall be in the form specified by the Office of the Interconnection in accordance with the requirements set forth below.

(b) Offers to sell shall identify the specific Financial Transmission Right, by term, megawatt quantity and receipt and delivery points, offered for sale. An offer to sell a specified megawatt quantity of Financial Transmission Rights shall constitute an offer to sell a quantity of Financial Transmission Rights equal to or less than the specified quantity. An offer to sell may not specify a minimum quantity being offered. Each offer may specify a reservation price, below which the offeror does not wish to sell the Financial Transmission Right. Offers submitted by entities holding rights to Financial Transmission Rights shall be subject to such reasonable standards for the verification of the rights of the offeror as may be established by the Office of the Interconnection. Offers shall be subject to such reasonable standards for the creditworthiness of the offeror or for the posting of security for performance as the Office of the Interconnection shall establish.

(c) Bids to purchase shall specify the term, megawatt quantity, price per megawatt, and receipt and delivery points of the Financial Transmission Right that the bidder wishes to purchase. A bid to purchase a specified megawatt quantity of Financial Transmission Rights shall constitute a bid to purchase a quantity of Financial Transmission Rights equal to or less than the specified quantity. A bid to purchase may not specify a minimum quantity that the bidder wishes to purchase. A bid may specify receipt and delivery points in accordance with Operating Agreement, Schedule 1, section 7.2.2, and the parallel provisions of Tariff, Attachment K-Appendix, section 7.2.2, and may include Financial Transmission Rights for which the associated Transmission Congestion Credits may have negative values. Bids shall be subject to such reasonable standards for the creditworthiness of the bidder or for the posting of security for performance as the Office of the Interconnection shall establish.

(d) Bids and offers shall be specified to the nearest tenth of a megawatt and shall be greater than zero. The Office of the Interconnection may require that a market participant shall not submit in excess of 5000 bids and offers for any single monthly auction, or for any single round of the annual auction, when the Office of the Interconnection determines that such limit is required to avoid or mitigate significant system performance problems related to bid/offer volume. Notice of the need to impose such limit shall be provided prior to the start of the bidding period if possible. Where such notice is provided after the start of the bidding period, market participants shall be required within one day to reduce their bids and offers for such auction below 5000, and the bidding period in such cases shall be extended by one day.

7.3.6 Determination of Winning Bids and Clearing Price.

(a) At the close of each bidding period, the Office of the Interconnection will create a base Financial Transmission Rights power flow model that includes all outstanding Financial Transmission Rights that have been approved and confirmed for any portion of the month for which the auction was conducted and that were not offered for sale in the auction. The base Financial Transmission Rights model also will include estimated uncompensated parallel flows into each interface point of the PJM Region and estimated scheduled transmission outages.

(b) In accordance with the requirements of Operating Agreement, Schedule 1, section 7.5, and the parallel provisions of Tariff, Attachment K-Appendix, section 7.5, and subject to all applicable transmission constraints and reliability requirements, the Office of the Interconnection shall determine the simultaneous feasibility of all outstanding Financial Transmission Rights not offered for sale in the auction and of all Financial Transmission Rights that could be awarded in the auction for which bids were submitted. The winning bids shall be determined from an appropriate linear programming model that, while respecting transmission constraints and the maximum MW quantities of the bids and offers, selects the set of simultaneously feasible Financial Transmission Rights with the highest net total auction value as determined by the bids of buyers and taking into account the reservation prices of the sellers. In the event that there are two or more identical bids for the selected Financial Transmission Rights and there are insufficient Financial Transmission Rights to accommodate all of the identical bids, then each such bidder will receive a pro rata share of the Financial Transmission Rights that can be awarded.

(c) Financial Transmission Rights shall be sold at the market-clearing price for Financial Transmission Rights between specified pairs of receipt and delivery points, as determined by the bid value of the marginal Financial Transmission Right that could not be awarded because it would not be simultaneously feasible. The linear programming model shall determine the clearing prices of all Financial Transmission Rights paths based on the bid value of the marginal Financial Transmission Rights, which are those Financial Transmission Rights with the highest bid values that could not be awarded fully because they were not simultaneously feasible, and based on the flow sensitivities of each Financial Transmission Rights path relative to the marginal Financial Transmission Rights paths flow sensitivities on the binding transmission constraints. Financial Transmission Rights with a zero clearing price will only be awarded if there is a minimum of one binding constraint in the auction period for which the

Financial Transmission Rights path sensitivity is non-zero. Financial Transmission Right Options with a market-clearing price less than one dollar will not be awarded.

7.3.7 Announcement of Winners and Prices.

Within two (2) Business Days after the close of the bid and offer period for an annual Financial Transmission Rights auction round, and within five (5) Business Days after the close of the bid and offer period for a monthly Financial Transmission Rights auction, the Office of the Interconnection shall post the winning bidders, the megawatt quantity, the term and the receipt and delivery points for each Financial Transmission Right awarded in the auction and the price at which each Financial Transmission Right was awarded unless circumstances beyond PJM's control prevent PJM from meeting the applicable deadline. Under such circumstances, PJM will post the auction results at the earliest possible opportunity. The Office of the Interconnection shall not disclose the price specified in any bid to purchase or the reservation price specified in any offer to sell. If the Office of the Interconnection discovers an error in the results posted for a Financial Transmission Rights auction (or a given round of the annual Financial Transmission Rights auction), the Office of the Interconnection shall notify Market Participants of the error as soon as possible after it is found, but in no event later than 5:00 p.m. of the Business Day following the initial publication of the results of the auction or round of the annual auction. After this initial notification, if the Office of the Interconnection determines that it is necessary to post modified results, it shall provide notification of its intent to do so, together with all available supporting documentation, by no later than 5:00 p.m. of the second Business Day following the initial publication of the results of that auction or round of the annual auction. Thereafter, the Office of the Interconnection must post any corrected results by no later than 5:00 p.m. of the fourth calendar day following the initial publication of the results of the auction or round of the annual auction. Should any of the above deadlines pass without the associated action on the part of the Office of the Interconnection, the originally posted results will be considered final. Notwithstanding the foregoing, the deadlines set forth above shall not apply if the referenced auction results are under publicly noticed review by the FERC.

7.3.8 Auction Settlements.

All buyers and sellers of Financial Transmission Rights between the same points of receipt and delivery shall pay PJMSettlement or be paid by PJMSettlement the market-clearing price, as determined in the auction, for such Financial Transmission Rights.

7.3.9 Addressing Defaulting Member's Financial Transmission Rights.

In the event a Member fails to meet creditworthiness requirements or make timely payments when due pursuant to the Operating Agreement or Tariff, the Office of the Interconnection shall, as soon as practicable after declaring the Member to be in default as provided in Operating Agreement, section 15.1.5, use reasonable efforts to initiate within two applicable auctions the following procedures to settle, liquidate or otherwise resolve each Financial Transmission Rights position held by the defaulting Member:

a) The Office of the Interconnection shall unilaterally terminate all of the defaulting Member's rights with respect to forward Financial Transmission Rights positions as of the date of the Member's default.

b) As to each Financial Transmission Rights position held by the defaulting Member immediately prior to the termination of the defaulting Member's rights under subsection (a) above, the Office of the Interconnection shall determine and execute an appropriate course of action for addressing such Financial Transmission Rights position, based on the specific circumstances of the default as determined by the Office of the Interconnection in exercise of its reasonable judgment, such as (1) liquidating the position by offering it for sale in an upcoming applicable Financial Transmission Rights auction, (2) liquidating the position by offering it for sale in an auction called and scheduled for the specific purpose of liquidating one or more positions held by the defaulting Member ("Special Auction"), (3) allowing the position to go to settlement, or (4) another course of action the Office of the Interconnection determines to be appropriate under the circumstances that is designed to minimize potential losses to PJM Members. The Office of the Interconnection will provide reasonable advance notice to PJM Members of the approach or course of action it has determined to be appropriate prior to implementing that approach or course of action. The Office of the Interconnection is not required to apply a single approach to the defaulting Member's entire Financial Transmission Rights portfolio, and may determine that the appropriate course of action for addressing a defaulting Member's portfolio includes a combination of the above approaches as applied to different positions within the defaulting Member's overall Financial Transmission Rights portfolio.

c) The Office of the Interconnection will seek to minimize the losses to PJM Members associated with settling, liquidating or otherwise resolving the defaulting Member's Financial Transmission Rights portfolio and may base its determination in subsection (b) above on several factors, including but not limited to, the following:

- 1) the Office of the Interconnection's assessment of which approach will provide the greatest degree of protection to the financial integrity of the PJM Markets;
- 2) the size of the defaulting Member's Financial Transmission Rights portfolio, both in absolute terms and relative to overall market volume;
- 3) the term of the Financial Transmission Rights positions held by the defaulting Member as considered for a single position or on a portfolio basis;
- 4) whether liquidation is feasible or not, and on what timeline, due to the cessation or curtailment of trading at PJM for all Financial Transmission Rights or a subset of Financial Transmission Rights positions;
- 5) prevailing market conditions, such as but not limited to market liquidity and volatility; and

6) timing of the default and the actions taken to address the default.

d) Special Auctions. The Office of the Interconnection shall administer each Special Auction provided for in subsection (b)(2) above according to the procedures set forth in the Tariff and PJM Manuals for FTR auctions to the extent appropriate in the Office of the Interconnection's sole discretion, and may adopt special rules for each Special Auction to accommodate the unique circumstances underlying the particular default and particular Financial Transmission Rights positions being liquidated, with the terms and conditions of such auction being determined with the goal of facilitating a successful auction in light of the particular positions to be auctioned, the prevailing market conditions for such open positions (including the depth, scope, and nature of participation in such markets), and such other factors as the Office of the Interconnection determines appropriate, including those factors enumerated in subsection (c) above. The Office of the Interconnection shall provide reasonable advance notice to FTR Participants of a Special Auction and the terms and conditions under which it will be conducted.

e) All liquidations made pursuant to subsection (b) above shall be for the account of the defaulting Member (and all amounts owed PJM in respect thereof shall be included in amounts owed by the defaulting Member as part of its default).

f) Notwithstanding subsections 7.3.9(a) and (b) above, the actual net charges or credits resulting from the defaulting Member's Financial Transmission Rights positions for which PJMSettlement acted as counterparty as calculated through the normal settlement processes shall be included in calculating the Default Allocation Assessment charges as described in Operating Agreement, section 15.2.2.

7.4 Allocation of Auction Revenues.

7.4.1 Eligibility.

- (a) Annual auction revenues, net of payments to entities selling Financial Transmission Rights into the auction, shall be allocated among holders of Auction Revenue Rights in proportion to the Target Allocation of Auction Revenue Rights Credits for the holder.
- (b) Auction Revenue Rights Credits will be calculated based upon the clearing price results of the applicable Annual Financial Transmission Rights auction.
- (c) Monthly and Balance of Planning Period FTR auction revenues, net of payments to entities selling Financial Transmission Rights into the auction, shall be allocated according to the following priority schedule:
 - (i) To stage 1 and 2 Auction Revenue Rights holders in accordance with Operating Agreement, Schedule 1, section 7.4.4. If there are excess revenues remaining after a distribution made pursuant to this subsection, such revenues shall be distributed in accordance with subsection (c)(ii) of this section;
 - (ii) To the Residual Auction Revenue Rights holders in proportion to, but not more than their Target Allocation as determined pursuant to Operating Agreement, Schedule 1, section 7.4.3(b). If there are excess revenues remaining after a distribution made pursuant to this subsection, such revenues shall be distributed in accordance with subsection (c)(iii) of this section;
 - (iii) In accordance with Operating Agreement, Schedule 1, section 5.2.6.
- (d) Long-term FTR auction revenues associated with FTRs that cover individual Planning Periods shall be distributed in the Planning Period for which the FTR is effective. Long-term FTR auction revenues associated with FTRs that cover multiple Planning Years shall be distributed equally across each Planning Period in the effective term of the FTR. Long-term FTR auction revenue distributions within a Planning Period shall be in accordance with the following provisions:
 - (i) Long-term FTR Auction revenues shall be distributed to Auction Revenue Rights holders in the effective Planning Period for the FTR. The distribution shall be in proportion to the economic value of the ARRs when compared to the annual FTR auction clearing prices from each round proportionately.
 - (ii) Long-term FTR auction revenues remaining after distributions made pursuant to Operating Agreement, Schedule 1, section 7.4.1(d)(ii) shall be distributed pursuant to Operating Agreement, Schedule 1, section 5.2.6 of Schedule 1 of this Agreement.

7.4.2 Auction Revenue Rights.

(a) Prior to the end of each PJM Planning Period an annual allocation of Auction Revenue Rights for the next PJM Planning Period shall be performed using a two stage allocation process. Stage 1 shall consist of stages 1A and 1B, which shall allocate ten year and annual Auction Revenue Rights, respectively, and stage 2 shall allocate annual Auction Revenue Rights. The Auction Revenue Rights allocation process shall be performed in accordance with Sections 7.4 and 7.5 hereof and the PJM Manuals.

With respect to the allocation of Auction Revenue Rights, if the Office of the Interconnection discovers a *potential* error in the allocation, the Office of the Interconnection shall notify Market Participants as soon as possible after it is found, but in no event later than 5:00 p.m. of the Business Day following the initial publication of allocation results. After this initial notification, if the Office of the Interconnection determines that it is necessary to post modified allocation results, it shall provide notification of its intent to do so, *along with a description detailing the cause and scope of the error*, by no later than 5:00 p.m. of the second Business Day following the publication of the initial allocation. *The provided description will not contain information that is market sensitive or confidential.* Thereafter, the Office of the Interconnection must post any corrected allocation results by no later than 5:00 p.m. of the fourth calendar day following the initial publication. Should any of the above deadlines pass without the associated action on the part of the Office of the Interconnection, the originally posted results will be considered final. Notwithstanding the foregoing, the deadlines set forth above shall not apply if the referenced allocation is under publicly noticed review by the FERC.

(b) In stage 1A of the allocation process, each Network Service User may request Auction Revenue Rights for a term covering ten consecutive PJM Planning Periods beginning with the immediately ensuing PJM Planning Period from a subset of the Active Historical Generation Resources or Qualified Replacement Resources, and each Qualifying Transmission Customer (as defined in subsection (f) of this section) may request Auction Revenue Rights based on the megawatts of firm service provided between the receipt and delivery points as to which the Transmission Customer had Point-to-Point Transmission Service during the historical reference year. Active Historical Generation Resources shall mean those historical resources that were designated to be delivered to load based on the historical reference year, and which have not since been deactivated and, further, only up to the current installed capacity value of such resource as of the annual allocation of ARR for the target PJM Planning Period. Qualified Replacement Resources shall mean those resources the Office of the Interconnection designates for the ensuing Planning Period to replace historical resources that no longer qualify as Active Historical Generation Resources and that maximize the economic value of ARR while maintaining Simultaneous Feasibility, as further described in the PJM Manuals.

Prior to the stage 1A of the allocation process, the Office of the Interconnection shall determine, for each Zone, the amount of megawatts of ARR available from Active Historical Generation Resources in that Zone and the amount of megawatts required from Qualified Replacement Resources. The Office of the Interconnection shall designate Qualified Replacement Resources as follows, and as further described in the PJM Manuals. Qualified Replacement Resources shall be either from a (1) capacity resource that has been included in the rate base of a specific Load

Serving Entity in a particular Zone, using criteria for rate-based as specified in sections 7.6 and 7.7 hereof concerning New Stage 1 Resources and Alternative Stage 1 Resources; or (2) from a non-rate-based capacity resource.

Prior to the end of each PJM Planning Period the Office of the Interconnection will determine which Stage 1 Resources are no longer viable for the next PJM Planning Period and then will replace such source points with Qualified Replacement Resources (i.e., Capacity Resources that pass the Simultaneous Feasibility Test and which are economic). The Office of Interconnection will determine the replacement source points as follows. First, the Office of the Interconnection will compile a list of all Capacity Resources that are operational as of the beginning of the next Planning Period, that are not currently designated as source points and will post such list on the PJM website prior to finalizing the Stage 1 eligible resource list for each transmission zone for review by Market Participants. In the first instance, all such resources will be considered to be non-rate-based. Market Participants will be asked to review the posted resource list and provide evidence to the Office of the Interconnection, if any, of the posted resources that shall be classified as rate-based resources. Once the replacement resource list along with the resource status is finalized after any input from Market Participants, the Office of the Interconnection will create two categories of resources for each Stage 1 transmission zone based on economic order: one for rate-based; and a second for non-rate-based resources. When determining economic order, the Office of the Interconnection will utilize historical source and sink Day-ahead Energy Market Congestion Locational Marginal Prices (“CLMPs”). Historical value will be based on the previous three years’ CLMP sink versus CLMP source differences weighted by 50% for the previous calendar year, weighted by 30% for the year prior and weighted by 20% for the year prior. To the extent replacement resources do not have three years’ worth historical data, weighting will be performed either 50/50% in the case of two years or 100% in the case of one year worth of historical data. If a full year of historical data is not available, PJM will utilize the CLMP from the closest electrically equivalent location to compose an entire year of historical data. Once the economic order is established for each Stage 1 zonal rate-based and non-rate-based generator categories, the Office of the Interconnection will begin to replace Stage 1 zonal retirements with the Qualified Replacement Resources by first utilizing rate-based resources in the economic order while respecting transmission limitations. And once the rate-based resource determination is concluded, the Office of the Interconnection will then utilize non-rate-based resources, in economic order, while respecting transmission limitations as described previously.

The historical reference year for all Zones shall be 1998, except that the historical reference year shall be: 2002 for the Allegheny Power and Rockland Electric Zones; 2004 for the AEP East, The Dayton Power & Light Company and Commonwealth Edison Company Zones; 2005 for the Virginia Electric and Power Company and Duquesne Light Company Zones; 2011 for the ATSI Zone; 2012 for the DEOK Zone; 2013 for the EKPC Zone; 2018 for the OVEC Zone; and the Office of the Interconnection shall specify a historical reference year for a new PJM zone corresponding to the year that the zone is integrated into the PJM Interchange Energy Market. For stage 1, the Office of the Interconnection shall determine a set of eligible historical generation resources for each Zone based on the historical reference year and assign a pro rata amount of megawatt capability from each historical generation resource to each Network Service User in the Zone based on its proportion of peak load in the Zone. Auction Revenue Rights shall be allocated to each Network Service User in a Zone from each historical generation resource in

a number of megawatts equal to or less than the amount of the historical generation resource that has been assigned to the Network Service User. Each Auction Revenue Right allocated to a Network Service User shall be to the Energy Settlement Area of such Network Service User as described in Section 31.7 of Part III of the Tariff, unless the Network Service User's Energy Settlement Area represents the Residual Metered Load of an electric distribution company's fully metered franchise area(s) or service territory(ies) and the Network Service User elects to have its Auction Revenue Rights allocated at the aggregate load buses in a Zone. In stage 1A of the allocation process, the sum of each Network Service User's allocated Auction Revenue Rights for a Zone must be equal to or less than sixty percent (60%) of the Network Service User's proportion of peak load in the~~pro-rata share of the Zonal Base Load for that~~ Zone. ~~Each Network Service User's pro-rata share of the Zonal Base Load shall be based on its proportion of peak load in the Zone.~~ The sum of each Network Service User's Auction Revenue Rights for Non-Zone Network Load must be equal to or less than fifty percent (50%) of the Network Service User's transmission responsibility for Non-Zone Network Load as determined under Section 34.1 of the Tariff. The sum of each Qualifying Transmission Customer's Auction Revenue Rights must be equal to or less than fifty percent (50%) of the megawatts of firm service provided between the receipt and delivery points as to which the Transmission Customer had Point-to-Point Transmission Service during the historical reference year. If stage 1A Auction Revenue Rights are adversely affected by any new or revised statute, regulation or rule issued by an entity with jurisdiction over the Office of the Interconnection, the Office of the Interconnection shall, to the greatest extent practicable, and consistent with any such statute, regulation or rule change, preserve the priority of the stage 1A Auction Revenue Rights for a minimum period covering the ten (10) consecutive PJM Planning Periods ("Stage 1A Transition Period") immediately following the implementation of any such changes, provided that the terms of all stage 1A Auction Revenue Rights in effect at the time the Office of the Interconnection implements the Stage 1A Transition Period shall be reduced by one PJM Planning Period during each annual stage 1A Auction Revenue Rights allocation performed during the Stage 1A Transition Period so that all stage 1A Auction Revenue Rights that were effective at the start of the Stage 1A Transition Period expire at the end of that period.

(c) In stage 1B of the allocation process each Network Service User may request Auction Revenue Rights from the subset of the resources determined pursuant to Section 7.4.2(b) that were not allocated in stage 1A of the allocation process, and each Qualifying Transmission Customer may request Auction Revenue Rights based on the megawatts of firm service determined pursuant to Section 7.4.2(b) that were not allocated in stage 1A of the allocation process. In stage 1B of the allocation process, the sum of each Network Service User's allocation Auction Revenue Rights request for a Zone must be equal to or less than the difference between the Network Service User's peak load for that Zone as determined pursuant to Section 34.1 of the Tariff and the sum of its Auction Revenue Rights Allocation from stage 1A of the allocation process for that Zone. The sum of each Network Service User's Auction Revenue Rights for Non-Zone Network Load must be equal to or less than the difference between one hundred percent (100%) of the Network Service User's transmission responsibility for Non-Zone Network Load as determined pursuant to Section 7.4.2(b) and the sum of its Auction Revenue Rights Allocation from stage 1A of the allocation process for that Zone. The sum of each Qualifying Transmission Customer's Auction Revenue Rights must be equal to or less than the difference between one hundred percent (100%) of the

megawatts of firm service as determined pursuant to Section 7.4.2(b) and the sum of its Auction Revenue Rights Allocation from stage 1A of the allocation process for that Zone. In stage 1B, valid Auction Revenue Right source buses include Active Historical Resources, Qualified Replacement Resources, Zones, hubs and external Interface Pricing Points.

(d) In stage 2 of the allocation process, the Office of the Interconnection shall conduct an iterative allocation process that consists of ~~three-two~~ rounds with up to one ~~third-half~~ of the remaining system Auction Revenue Rights capability allocated in each round. Each round of this allocation process will be conducted sequentially with Network Service Users and Transmission Customers being given the opportunity to view results of each allocation round prior to submission of Auction Revenue Right requests into the subsequent round. In each round, each Network Service User shall designate a subset of buses from which Auction Revenue Rights will ~~be sourced~~source and sink. Valid Auction Revenue Rights source buses include only Zones, generators, hubs and external Interface Pricing Points. Valid Auction Revenue Rights sink buses include only Zones, generators, hubs and external Interface Pricing Points. The Network Service User shall specify the amount of Auction Revenue Rights requested from each source bus to each sink bus. Prior to the 2015/2016 Planning Period, each Auction Revenue Right shall sink to the Energy Settlement Area of the Network Service User as described in Section 31.7 of Part III of the Tariff. Commencing with the 2015/2016 Planning Period, each Auction Revenue Right shall sink to the Energy Settlement Area of the Network Service User as described in Section 31.7 of Part III of the Tariff, unless the Network Service User's Energy Settlement Area represents the Residual Metered Load of an electric distribution company's fully metered franchise area(s) or service territory(ies) and the Network Service User elects to have its Auction Revenue Rights sink at the aggregate load buses in a Zone. The sum of each Network Service User's Auction Revenue Rights requests in each stage 2 allocation round for each Zone must be equal to or less than one ~~third-half~~ of the difference between the Network Service User's peak load for that Zone as determined pursuant to Section 7.4.2(b) and the sum of its Auction Revenue Right Allocation from stages 1A and 1B of the allocation process for that Zone. The stage 2 allocation to Transmission Customers shall be as set forth in subsection (f).

(e) On a daily basis within the annual Financial Transmission Rights auction period, a proportionate share of Network Service User's Auction Revenue Rights for each Zone are reallocated as Network Load changes from one Network Service User to another within that Zone.

(f) A Qualifying Transmission Customer shall be any customer with an agreement for Long-Term Firm Point-to-Point Transmission Service, used to deliver energy from a designated Network Resource located either outside or within the PJM Region to load located either outside or within the PJM Region, and that was confirmed and in effect during the historical reference year for the Zone in which the resource is located. Such an agreement shall allow the Qualifying Transmission Customer to participate in the first stage of the allocation, but only if such agreement has remained in effect continuously following the historical reference year and is to continue in effect for the period addressed by the allocation, either by its term or by renewal or rollover. The megawatts of Auction Revenue Rights the Qualifying Transmission Customer may request in the first stage of the allocation may not exceed the lesser of: (i) the megawatts of firm service between the designated Network Resource and the load delivery point (or applicable

point at the border of the PJM Region for load located outside such region) under contract during the historical reference year; and (ii) the megawatts of firm service presently under contract between such historical reference year receipt and delivery points. A Qualifying Transmission Customer may request Auction Revenue Rights in either or both of stage 1 or 2 of the allocation without regard to whether such customer is subject to a charge for Firm Point-to-Point Transmission Service under Section 1 of Schedule 7 of the PJM Tariff (“Base Transmission Charge”). A Transmission Customer that is not a Qualifying Transmission Customer may request Auction Revenue Rights in stage 2 of the allocation process, but only if it is subject to a Base Transmission Charge. The Auction Revenue Rights that such a Transmission Customer may request in each round of stage 2 of the allocation process must be equal to or less than one ~~third~~ half of the number of megawatts equal to the megawatts of firm service being provided between the receipt and delivery points as to which the Transmission Customer currently has Firm Point-to-Point Transmission Service. The source point of the Auction Revenue Rights must be the designated source point that is specified in the Transmission Service request and the sink point of the Auction Revenue Rights must be the designated sink point that is specified in the Transmission Service request. A Qualifying Transmission Customer may request Auction Revenue Rights in each round of stage 2 of the allocation process in a number of megawatts equal to or less than one ~~third~~ half of the difference between the number of megawatts of firm service being provided between the receipt and delivery points as to which the Transmission Customer currently has Firm Point-to-Point Transmission Service and its Auction Revenue Right Allocation from stage 1 of the allocation process.

(g) PJM Transmission Customers that serve load in the Midwest ISO may participate in stage 1 of the allocation to the extent permitted by, and in accordance with, this Section 7.4.2 and other applicable provisions of this Schedule 1. For service from non-historic sources, these customers may participate in stage 2, but in no event can they receive an allocation of ARR/FTRs from PJM greater than their firm service to loads in MISO.

(h) Subject to subsection (i) of this section, all Auction Revenue Rights must be simultaneously feasible. If all Auction Revenue Right requests made during the annual allocation process are not feasible then Auction Revenue Rights are prorated and allocated in proportion to the megawatt level requested and in inverse proportion to the effect on the binding constraints.

(i) If any Auction Revenue Right requests made during stage 1A of the annual allocation process are not feasible due to system conditions, then PJM shall increase the capability limits of the binding constraints that would have rendered the Auction Revenue Rights infeasible to the extent necessary in order to allocate such Auction Revenue Rights without their being infeasible unless such infeasibility is caused by extraordinary circumstances. Such increased limits shall be included in all rounds of the annual allocation and auction processes and in subsequent modeling during the Planning Year to support any incremental allocations of Auction Revenue Rights and monthly and balance of the Planning Period Financial Transmission Rights auctions unless and to the extent those system conditions that contributed to infeasibility in the annual process are not extant for the time period subject to the subsequent modeling, such as would be the case, for example, if transmission facilities are returned to service during the Planning Year. In these cases, any increase in the capability limits taken under this subsection (i) during the annual process will be removed from subsequent modeling to support any incremental allocations of

Auction Revenue Rights and monthly and balance of the Planning Period Financial Transmission Rights auctions. In addition, PJM may remove or lower the increased capability limits, if feasible, during subsequent FTR Auctions if the removal or lowering of the increased capability limits does not impact Auction Revenue Rights funding and net auction revenues are positive.

For the purposes of this subsection (i), extraordinary circumstances shall mean an event of force majeure that reduces the capability of existing or planned transmission facilities and such reduction in capability is the cause of the infeasibility of such Auction Revenue Rights. Extraordinary circumstances do not include those system conditions and assumptions modeled in simultaneous feasibility analyses conducted pursuant to section 7.5 of Schedule 1 of this Agreement. If PJM allocates stage 1A Auction Revenue Rights as a result of this subsection (i) that would not otherwise have been feasible, then PJM shall notify Members and post on its web site (a) the aggregate megawatt quantities, by sources and sinks, of such Auction Revenue Rights and (b) any increases in capability limits used to allocate such Auction Revenue Rights.

(j) Long-Term Firm Point-to-Point Transmission Service customers that are not Qualifying Transmission Customers and Network Service Users serving Non-Zone Network Load may participate in stage 1 of the annual allocation of Auction Revenue Rights pursuant to Section 7.4.2(a)-(c) of Schedule 1 of this Agreement, subject to the following conditions:

- i. The relevant Transmission Service shall be used to deliver energy from a designated Network Resource located either outside or within the PJM Region to load located outside the PJM Region.
- ii. To be eligible to participate in stage 1A of the annual Auction Revenue Rights allocation: 1) the relevant Transmission Service shall remain in effect for the stage 1A period addressed by the allocation; and 2) the control area in which the external load is located has similar rules for load external to the relevant control area.
- iii. Source points for stage 1 requests authorized pursuant to this subsection 7.4.2(j) shall be limited to: 1) generation resources owned by the LSE serving the load located outside the PJM Region; or 2) generation resources subject to a bona fide firm energy and capacity supply contract executed by the LSE to meet its load obligations, provided that such contract remains in force and effect for a minimum term of ten (10) years from the first effective Planning Period that follows the initial stage 1 request.
- iv. For Long-Term Firm Point-to-Point Transmission Service customers requesting stage 1 Auction Revenue Rights pursuant to this subsection 7.4.2(j) , the generation resource(s) designated as source points may include any portion of the generating capacity of such resource(s) that is not, at the time of the request, already identified as a Capacity Resource.

- v. For Network Service Users requesting stage 1 Auction Revenue Rights pursuant to this subsection 7.4.2(j), at the time of the request, the generation resource(s) designated as source points must either be committed into PJM's RPM market or be designated as part of the entity's FRR Capacity Plan for the purpose of serving the capacity requirement of the external load.
- vi. All stage 1 source point requests made pursuant to this subsection 7.4.2(j) shall not increase the megawatt flow on facilities binding in the relevant annual Auction Revenue Rights allocation or in future stage 1A allocations and shall not cause megawatt flow to exceed applicable ratings on any other facilities in either set of conditions in the simultaneous feasibility test prescribed in subsection (vii) of this subsection 7.4.2(j).
- vii. To ensure the conditions of subsection (vi) of this subsection 7.4.2(j) are met, a simultaneous feasibility test shall be conducted: 1) based on next allocation year with all existing stage 1 and stage 2 Auction Revenue Rights modeled as fixed injection-withdrawal pairs; and 2) based on 10 year allocation model with all eligible stage 1A Auction Revenue Rights for each year including base load growth for each year.
- viii. Requests for stage 1 Auction Revenue Rights made pursuant to this subsection 7.4.2(j) that are received by PJM by November 1st of a Planning Period shall be processed for the next annual Auction Revenue Rights allocation. Requests received after November 1st shall not be considered for the upcoming annual Auction Revenue Rights allocation. If all requests are not simultaneously feasible then requests will be awarded on a pro-rata basis.
- ix. Requests for new or alternate stage 1 resources made by Network Service Users and external LSEs that are received by November 1st shall be evaluated at the same time. If all requests are not simultaneously feasible then requests will be awarded on a pro-rata basis.
- x. Stage 1 Auction Revenue Rights source points that qualify pursuant to this subsection 7.4.2(j) shall be eligible as stage 1 Auction Revenue Rights source points in subsequent annual Auction Revenue Rights allocations.
- xi. Long-Term Firm Point-to-Point Transmission Service customers requesting stage 1 Auction Revenue Rights pursuant to this subsection 7.4.2(j) may request Auction Revenue Rights megawatts up to the lesser of: 1) the customer's Long-Term Firm Point-to-Point Transmission service contract megawatt amount; or 2) the customer's Firm Transmission Withdrawal Rights.

- xii. Network Service Users requesting stage 1 Auction Revenue Rights pursuant to this subsection 7.4.2(j) may request Auction Revenue Rights megawatts up to the lesser of: 1) the customer's network service peak load; or 2) the customer's Firm Transmission Withdrawal Rights.
- xiii. Stage 1A Auction Revenue Rights requests made pursuant to this subsection 7.4.2(j) shall not exceed 50% of the maximum allowed megawatts authorized by subsections (xi) and (xii) of this subsection 7.4.2(j).
- xiv. Stage 1B Auction Revenue Rights requests made pursuant to this subsection 7.4.2(j) shall not exceed the difference between the maximum allowed megawatts authorized by subsections (xi) and (xii) of this subsection 7.4.2(j) and the Auction Revenue Rights megawatts granted in stage 1A.
- xv. In each round of Stage 2 of an annual allocation of Auction Revenue Rights, megawatt requests made pursuant to this subsection 7.4.2(j) shall be equal to or less than one ~~third~~-half of the difference between the maximum allowed megawatts authorized by paragraphs (xi) and (xii) of this subsection 7.4.2(j) and the Auction Revenue Rights megawatt amount allocated in stage 1.
- xvi. Stage 1 Auction Revenue Rights sources established pursuant to this subsection 7.4.2(j) and the associated Auction Revenue Rights megawatt amount may be replaced with an alternate resource pursuant to the process established in Section 7.7 of Schedule 1 of this Agreement.

(k) PJM Transmission Customers taking firm transmission service for the delivery of Direct Charging Energy to Energy Storage Resources are not eligible for allocation of Auction Revenue Rights.

7.4.2a Bilateral Transfers of Auction Revenue Rights

(a) Market Participants may enter into bilateral agreements to transfer Auction Revenue Rights or the right to receive an allocation of Auction Revenue Rights to a third party. Such bilateral transfers shall be reported to the Office of the Interconnection in accordance with this Schedule and pursuant to the LLC's rules related to its FTR reporting tools.

(b) For purposes of clarity, with respect to all bilateral transfers of Auction Revenue Rights or the right to receive an allocation of Auction Revenue Rights, the rights and obligations to the Auction Revenue Rights or the right to receive an allocation of Auction Revenue Rights that are the subject of such a bilateral transfer shall pass to the buyer under the bilateral contract subject to the provisions of this Schedule. In no event, shall the purchase and sale of an Auction Revenue Right or the right to receive an allocation of Auction Revenue Rights pursuant to a

bilateral transfer constitute a transaction with PJMSettlement or a transaction in any auction under this Schedule.

(c) Consent of the Office of the Interconnection shall be required for a seller to transfer to a buyer any obligations associated with the Auction Revenue Rights or the right to receive an allocation of Auction Revenue Rights. Such consent shall be based upon the Office of the Interconnection's assessment of the buyer's ability to perform the obligations transferred in the bilateral contract. If consent for a transfer is not provided by the Office of the Interconnection, the title to the Auction Revenue Rights or the right to receive an allocation of Auction Revenue Rights shall not transfer to the third party and the holder of the Auction Revenue Rights or the right to receive an allocation of Auction Revenue Rights shall continue to receive all rights attributable to the Auction Revenue Rights or the right to receive an allocation of Auction Revenue Rights and remain subject to all credit requirements and obligations associated with the Auction Revenue Rights or the right to receive an allocation of Auction Revenue Rights.

(d) A seller under such a bilateral contract shall guarantee and indemnify the Office of the Interconnection, PJMSettlement, and the Members for the buyer's obligation to pay any charges associated with the Auction Revenue Right and for which payment is not made to PJMSettlement by the buyer under such a bilateral transfer.

(e) All payments and related charges associated with such a bilateral contract shall be arranged between the parties to such bilateral contract and shall not be billed or settled by PJMSettlement or the Office of the Interconnection. The LLC, PJMSettlement, and the Members will not assume financial responsibility for the failure of a party to perform obligations owed to the other party under such a bilateral contract reported to the Office of the Interconnection under this Schedule.

(f) All claims regarding a default of a buyer to a seller under such a bilateral contract shall be resolved solely between the buyer and the seller.

7.4.3 Target Allocation of Auction Revenue Right Credits.

(a) A Target Allocation of Auction Revenue Right Credits for each entity holding an Auction Revenue Right shall be determined for each Auction Revenue Right. After each round of the annual Financial Transmission Right auction, each Auction Revenue Right shall be divided by four and multiplied by the price differences for the receipt and delivery points associated with the Auction Revenue Right, calculated as the Locational Marginal Price at the delivery points(s) minus the Locational Marginal Price at the receipt point(s), where the price for the receipt and delivery point is determined by the clearing prices of each round of the annual Financial Transmission Right auction. The daily total Target Allocation for an entity holding the Auction Revenue Rights shall be the sum of the daily Target Allocations associated with all of the entity's Auction Revenue Rights.

(b) A Target Allocation of residual Auction Revenue Rights Credits for each entity allocated Residual Auction Revenue Rights pursuant to section 7.9 of Schedule 1 of this Agreement shall be determined on a monthly basis for each month in a Planning Period beginning with the month

the Residual Auction Revenue Right(s) becomes effective through the end of the relevant Planning Period. The Target Allocation for Residual Auction Revenue Rights Credits shall be equal to megawatt amount of the Residual Auction Revenue Rights multiplied by the LMP differential between the source and sink nodes of the corresponding FTR obligation in each prompt-month FTR auction that occurs from the effective date of the Residual Auction Revenue Rights through the end of the relevant Planning Period.

7.4.4 Calculation of Auction Revenue Right Credits.

(a) Each day, the total of all the daily Target Allocations determined as specified above in Section 7.4.3 plus any additional Auction Revenue Rights Target Allocations applicable for that day shall be compared to the total revenues of all applicable monthly Financial Transmission Rights auction(s) (divided by the number of days in the month) plus the total revenues of the annual Financial Transmission Rights auction (divided by the number of days in the Planning Period). If the total of the Target Allocations is less than the total auction revenues, the Auction Revenue Right Credit for each entity holding an Auction Revenue Right shall be equal to its Target Allocation. All remaining funds shall be distributed as Excess Congestion Charges pursuant to Section 5.2.6.

(b) If the total of the Target Allocations is greater than the total auction revenues, each holder of Auction Revenue Rights shall be assigned a share of the total auction revenues in proportion to its Auction Revenue Rights Target Allocations for Auction Revenue Rights which have a positive Target Allocation value. Auction Revenue Rights which have a negative Target Allocation value are assigned the full Target Allocation value as a negative Auction Revenue Right Credit.

(c) At the end of a Planning Period, if all Auction Revenue Right holders did not receive Auction Revenue Right Credits equal to their Target Allocations, PJMSettlement shall assess a charge equal to the difference between the Auction Revenue Right Credit Target Allocations for all revenue deficient Auction Revenue Rights and the actual Auction Revenue Right Credits allocated to those Auction Revenue Right holders. The aggregate charge for a Planning Period assessed pursuant to this section, if any, shall be added to the aggregate charge for a Planning Period assessed pursuant to section 5.2.5(c) of Schedule 1 of this Agreement and collected pursuant to section 5.2.5(c) of Schedule 1 of this Agreement and distributed to the Auction Revenue Right holders that did not receive Auction Revenue Right Credits equal to their Target Allocation.

7.5 Simultaneous Feasibility.

(a) The Office of the Interconnection shall make the simultaneous feasibility determinations specified herein using appropriate powerflow models of contingency-constrained dispatch. Simultaneous feasibility determinations shall take into account outages of both individual generation units and transmission facilities and shall be based on reasonable assumptions about the configuration and availability of transmission capability during the period covered by the auction that are not inconsistent with the determination of the deliverability of Generation Capacity Resources under the Reliability Assurance Agreement. The goal of the simultaneous feasibility determination shall be to ensure that there are sufficient revenues from Day-ahead Energy Market Transmission Congestion Charges to satisfy all Financial Transmission Rights Obligations for the auction period under expected conditions and to ensure that there are sufficient revenues from the annual Financial Transmission Right Auction to satisfy all Auction Revenue Rights Obligations. To ensure revenue sufficiency, the powerflow model used for simultaneous feasibility determinations is a markets model that uses flows caused by sources and sinks of requested Auction Revenue Rights (including Incremental Auction Revenue Rights) or Financial Transmission Rights, as well as market limits (as described in section (b) below) to determine the capability available to accommodate financial rights that are simultaneously feasible. The markets model differs from both an operations model, which uses physical generators or load, and a planning model, which uses expected physical generators or load.

(b) Simultaneous feasibility determinations pursuant to this section utilize applicable market limits. Market limits may differ from physical facility ratings to reflect expected market capability and to align expected Financial Transmission Rights total target allocations with expected congestion, and to ensure sufficient revenues are collected from the Day-ahead Energy Market Transmission Congestion Charges to satisfy all Financial Transmission Rights obligations. To account for historical market impacts, market limits may reflect (without limitation) such factors as requested and awarded Auction Revenue Rights, Incremental Auction Revenue Rights and Financial Transmission Rights, uncompensated powerflow, external flowgate entitlements or limits, transfer limits of the type appropriate for reactive interfaces, operational considerations, voltage limitations and/or closed loop interfaces. Market limits also are based on reasonable assumptions about the configuration and availability of transmission capability during the study period, including (without limitation) scheduled or expected transmission outages. The market limits are applied to facilities modeled in an Auction Revenue Rights allocation, Financial Transmission Rights auction or Incremental Auction Revenue Rights study and may result in operative constraints that establish different limits than physical (e.g., thermal or voltage) ratings. As used here, an operative constraint results when a market limit binds in the powerflow model and constrains the grant of Auction Revenue Rights, Incremental Auction Revenue Rights or Financial Transmission Rights.

(c) On an annual basis the Office of the Interconnection shall conduct a simultaneous feasibility test for stage 1A Auction Revenue Rights, which shall assess the simultaneous feasibility for each year remaining in the term of the right(s). This test shall be based on the Auction Revenue Rights required to meet sixty percent (60%) of peak load in each Zone Zonal Base Load requirements. The Office of the Interconnection shall apply a zonal load growth rate to the simultaneous feasibility test for the ten year term of the stage 1A Auction Revenue Rights

to reflect load growth as estimated by the Office of the Interconnection.

(d) Simultaneous feasibility tests for new stage 1 resource requests made pursuant to Section 7.6 of Schedule 1 of this Agreement shall ensure that the request for a new base resource does not increase the megawatt flow on facilities binding in the current Auction Revenue Rights allocation or in future stage 1A allocations and does not cause megawatt flow to exceed applicable ratings on any other facilities in either set of conditions. The most limiting set of conditions will be used as the limiting condition in these evaluations. A simultaneous feasibility test conducted pursuant to this section by the Office of the Interconnection shall assess the simultaneous feasibility under the following conditions:

- (i) Based on next allocation year with all existing stage 1 and stage 2 Auction Revenue Rights modeled as fixed injection-withdrawal pairs.
- (ii) Based on 10 year allocation model with all eligible stage 1A Auction Revenue Rights for each year including base load growth for each year.

(e) Simultaneous feasibility tests for Incremental Auction Revenue Rights requested pursuant to Operating Agreement, Schedule 1, section 7.8 and Tariff, Part VI, Subpart C, section 231 shall ensure that the request for the Incremental Auction Revenue Rights does not increase the megawatt flow on facilities binding in the current Auction Revenue Rights allocation or in future stage 1A allocations and does not cause megawatt flow to exceed applicable ratings on any other facilities in either set of conditions. The most limiting set of conditions will be used as the limiting conditions in these evaluations. A simultaneous feasibility test conducted pursuant to this section by the Office of the Interconnection shall assess the simultaneous feasibility using the following models derived from the markets model:

- (i) An Incremental Auction Revenue Rights model that is based on the existing allocation year with transmission outages removed (i.e., the transmission assumed out of service in the base markets model is assumed to be in service). All existing stage 1 and stage 2 Auction Revenue Rights are modeled as fixed injection withdrawal pairs.
- (ii) A 10 year allocation model with all eligible stage 1A Auction Revenue Rights for each year including base load growth for each year.

(f) Simultaneous feasibility tests pursuant to section (e) above utilize a transfer analysis to determine the flow impacts. The transfer analysis is performed by injecting at the source and withdrawing at the sink and measuring the impacts on the facilities. Additional details are provided in the PJM Manuals and related explanatory materials posted on the PJM website such as the PJM Whitepaper entitled “PJM Incremental Auction Revenue Rights Model Development and Analysis.”

7.6 New Stage 1 Resources.

A Network Service User may request the addition of new stage 1 resources to the stage 1 resource list if the capacity of the Stage 1 generation resources for a Zone determined pursuant to Section 7.4.2(b) is less than sixty percent (60%) of the of peak load in the Zone~~the Zonal Base Load~~. Requests made pursuant to this section shall be subject to Section 7.5(c) of Schedule 1 of this Agreement and shall be limited to generation resources either owned by the requesting party or those subject to a bona fide firm energy and capacity supply contracts where such contract is executed by the requesting party to meet load obligations for which it is eligible to receive stage 1 Auction Revenue Rights and remains in force and effect for a minimum term of ten (10) years.

7.8 Elective Upgrade Auction Revenue Rights.

(a) In addition to any Incremental Auction Revenue Rights established under the PJM Tariff, any party may elect to fully fund Network Upgrades to obtain Incremental Auction Revenue Rights pursuant to this section, provided that Incremental Auction Revenue Rights granted pursuant to this section shall be simultaneously feasible with outstanding Auction Revenue Rights, which shall include stage 1 and stage 2 Auction Revenue Rights, and against stage 1A Auction Revenue Right capability for the future 10 year period, as determined by the Office of the Interconnection pursuant to Section 7.8(b) of Schedule 1 of this Agreement. A request made pursuant to this section shall specify a source, sink and megawatt amount, where the source and sink each meet the criteria described for stage 1 in Operating Agreement, Schedule 1, sections 7.4.2(b) and 7.4.2(c).

(b) The Office of the Interconnection shall assess the simultaneous feasibility of the requested Incremental Auction Revenue Rights and the outstanding Auction Revenue Rights against the existing base system Auction Revenue Right capability and stage 1A Auction Revenue Right capability for the future 10 year period pursuant to Operating Agreement, Schedule 1, section 7.5. This preliminary assessment will determine the incremental flow impact necessary on facilities.

(c) The incremental flow impact represents the incremental capability required on a facility to ensure the requested Incremental Auction Revenue Rights can be made feasible. This required capability is used to determine the upgrades required to accommodate the requested Incremental Auction Revenue Rights and ensure all outstanding Auction Revenue Rights are simultaneously feasible. Additional details are provided in the PJM Manuals and related explanatory materials posted on the PJM website such as the PJM Whitepaper entitled “PJM Incremental Auction Revenue Rights Model Development and Analysis.”

- (i) For Incremental Auction Revenue Rights requests, the Office of the Interconnection shall use an Incremental Auction Revenue Rights model to perform the simultaneous feasibility test detailed in Operating Agreement, Schedule 1, section 7.5. The Incremental Auction Revenue Rights model shall consist of an Incremental Auction Revenue Rights model and the 10 year stage 1A Auction Revenue Rights model. An Incremental Auction Revenue Rights model uses the same transmission system model used in the annual Auction Revenue Rights process, except any modeled transmission outages included in the Auction Revenue Rights process are removed (i.e., the transmission assumed out of service in the base markets model is assumed to be in service). Auction Revenue Rights requests that were denied or pro-rated in the annual Auction Revenue Rights allocation as a result of assumed transmission outages also are restored in the Incremental Auction Revenue Rights model because the transmission is assumed to be in service for purposes of this model.
- (ii) If the incremental market flows created by the Incremental Auction Revenue Rights request cause facilities to be limited or increase the market flow on already limited facilities in either the Incremental Auction Revenue Rights model or the

10 year stage 1A Auction Revenue Rights model, increased system capability will be required in order for the Office of the Interconnection to grant the Incremental Auction Revenue Rights request. This required incremental capability is used to determine the upgrades required to accommodate the requested Incremental Auction Revenue Rights and ensure all outstanding Auction Revenue Rights (including any pro-rated but restored Auction Revenue Rights requests) are simultaneously feasible. Additional details are provided in the PJM Manuals and related explanatory materials posted on the PJM website such as the PJM Whitepaper entitled “PJM Incremental Auction Revenue Rights Model Development and Analysis.”

- (iii) In addition to the Incremental Auction Revenue Rights model, the Office of the Interconnection uses a planning model that consists of the Regional Transmission Expansion Plan model used by the Office of the Interconnection to study system needs and proposed projects five years forward combined with modeled in-service and planned generation and forecasted load. The planning model includes transmission system upgrades that are ahead of the proposed Incremental Auction Revenue Rights request in the New Services Queue. The upgrades required for the Incremental Auction Revenue Rights request must achieve additional incremental capability over and above any planned baseline or Supplemental Project upgrades, including upgrades related to a Supplemental Project with a projected in-service date later than the applicable planning case year.

(d) If a party elects to fund upgrades to obtain Incremental Auction Revenue Rights pursuant to this section, no less than forty-five (45) days prior to the in-service date of the relevant upgrades, as determined by the Office of the Interconnection, the Office of the Interconnection shall notify the party of the actual amount of Incremental Auction Revenue Rights that will be granted to the party based on the allocation process established pursuant to Section 231 of Part VI of the Tariff.

(e) Incremental Auction Revenue Rights established pursuant to this section shall be effective for the lesser of thirty (30) years, or the life of the project, from the in-service date of the Network Upgrade(s). At any time during this thirty-year period (or the life of the Network Upgrade whichever is less), in lieu of continuing this thirty-year Auction Revenue Right, the owner of the right shall have a one-time choice to switch to an optional mechanism, whereby, on an annual basis, it will have the choice to request an Auction Revenue Right during the annual Auction Revenue Rights allocation process between the same source and sink, provided the Auction Revenue Right is simultaneously feasible. A party that is granted Incremental Auction Revenue Rights pursuant to this section may return such rights at any time, provided that the Office of the Interconnection determines that it can simultaneously accommodate all remaining outstanding Auction Revenue Rights following the return of such Auction Revenue Rights. In the event a party returns Incremental Auction Revenue Rights, it shall retain no further rights regarding such Incremental Auction Revenue Rights.

(f) No Incremental Auction Revenue Rights shall be granted pursuant to this section if the costs associated with funding the associated Network Upgrades are included in the rate base of a

public utility and on which a regulated return is earned.

Attachment D

Revisions to the Operating Agreement

(Clean Format)

Definitions U - Z

Up-to Congestion Transaction:

“Up-to Congestion Transaction” shall have the meaning specified in Operating Agreement, Schedule 1, section 1.10.1A, and the parallel provisions of Tariff, Attachment K-Appendix, section 1.10.1A.

User Group:

“User Group” shall mean a group formed pursuant to Operating Agreement, section 8.7.

VACAR:

“VACAR” shall mean the group of five companies, consisting of Duke Energy Carolinas, LLC; Duke Energy Progress, Inc.; South Carolina Public Service Authority; South Carolina Electric and Gas Company; and Virginia Electric and Power Company.

Variable Loads:

“Variable Loads” shall have the meaning specified in Operating Agreement, Schedule 1, section 1.5A.6, and the parallel provisions of Tariff, Attachment K-Appendix, section 1.5A.6.

Virtual Transaction:

“Virtual Transaction” shall mean a Decrement Bid, Increment Offer and/or Up-to Congestion Transaction.

Voting Member:

“Voting Member” shall mean (i) a Member as to which no other Member is an Affiliate or Related Party, or (ii) a Member together with any other Members as to which it is an Affiliate or Related Party.

Weighted Interest:

“Weighted Interest” shall be equal to $(0.1(1/N) + 0.5(B/C) + 0.2(D/E) + 0.2(F/G))$, where:

- N = the total number of Members excluding ex officio Members and State Consumer Advocates (which, for purposes of Operating Agreement, section 15.2 shall be calculated as of five o'clock p.m. Eastern Time on the date PJM declares a Member in default)
- B = the Member's internal peak demand for the previous calendar year (which, for Load Serving Entities under the Reliability Assurance Agreement, shall be that used to calculate Accounted For Obligation as determined by the Office of the

Interconnection pursuant to RAA, Schedule 7 averaged over the previous calendar year)

C = the sum of factor B for all Members

D = the Member's generating capability from Generation Capacity Resources located in the PJM Region as of January 1 of the current calendar year, determined by the Office of the Interconnection pursuant to RAA, Schedule 9

E = the sum of factor D for all Members

F = the sum of the Member's circuit miles of transmission facilities multiplied by the respective operating voltage for facilities 100 kV and above as of January 1 of the current calendar year

G = the sum of factor F for all Members

Zone or Zonal:

“Zone” or “Zonal” shall mean an area within the PJM Region, as set forth in Tariff, Attachment J and RAA, Schedule 15, or as such areas may be (i) combined as a result of mergers or acquisitions or (ii) added as a result of the expansion of the boundaries of the PJM Region. A Zone shall include any Non-Zone Network Load located outside the PJM Region that is served from such Zone under Tariff, Attachment H-A.

5.2 Transmission Congestion Credit Calculation.

5.2.1 Eligibility.

(a) Except as provided in section 5.2.1(b), each FTR Holder shall receive as a Transmission Congestion Credit a proportional share of the Day-ahead Energy Market Transmission Congestion Charges collected for each constrained hour.

(b) If an Effective FTR Holder between specified delivery and receipt buses acquired the Financial Transmission Right in a Financial Transmission Rights auction (the procedures for which are set forth in *section 7* of this Schedule 1) and had a *Virtual Transaction portfolio which includes Increment Offer(s), Decrement Bid(s), and/or Up-to Congestion Transaction(s)* that was accepted by the Office of the Interconnection for an applicable hour in the Day-ahead Energy Market, *whereby the Effective FTR Holder's Virtual Transaction portfolio resulted in (i) a difference in Location Marginal Prices in the Day-ahead Energy Market between such delivery and receipt buses which is greater than the difference in Locational Marginal Prices between such delivery and receipt buses in the Real-time Energy Market, and (ii) an increasing the value between such delivery and receipt buses, then the Market Participant shall not receive any Transmission Congestion Credit associated with such Financial Transmission Right in such hour, that is attributable to the absolute value (i.e., the product of the constraint's shadow price times the distribution factor (dfax) of the difference between the Financial Transmission Right delivery and receipt buses) of the relevant Day-ahead Energy Market binding constraint (as further discussed in section 5.2.1(c) below), but no more than the excess of one divided by the number of hours in the applicable period multiplied by the amount that the Market Participant paid for the Financial Transmission Right in the Financial Transmission Rights auction (i.e., FTR profit). For the purposes of this calculation, every individual Financial Transmission Right of an Effective FTR Holder shall be considered.*

(c) For purposes of section 5.2.1(b), *an Effective FTR Holder's Virtual Transaction portfolio shall be considered if the absolute value of the attributable net flow across a Day-ahead Energy Market binding constraint relative to the Day-ahead Energy Market load weighted reference bus between the Financial Transmission Right delivery and receipt buses exceeds the physical limit of such binding constraint by the greater of 0.1 MW or ten percent.*

(d) The Market Monitoring Unit shall calculate Transmission Congestion Credits pursuant to this section and Tariff, Attachment M-Appendix, section VI. Nothing in this section shall preclude the Market Monitoring Unit from action to recover inappropriate benefits from the subject activity if the amount forfeited is less than the benefit derived by the Effective FTR Holder. If the Office of the Interconnection agrees with such calculation, then it shall impose the forfeiture of the Transmission Congestion Credit accordingly. If the Office of the Interconnection does not agree with the calculation, then it shall impose a forfeiture of Transmission Congestion Credit consistent with its determination. If the Market Monitoring Unit disagrees with the Office of the Interconnection's determination, it may exercise its powers to inform the Commission staff of its concerns and may request an adjustment. This provision is duplicated in Tariff, Attachment M-Appendix, section VI. An Effective FTR Holder objecting to

the application of this rule shall have recourse to the Commission for review of the application of the FTR forfeiture rule to its trading activity.

5.2.2 Financial Transmission Rights.

(a) Transmission Congestion Credits will be calculated based upon the Financial Transmission Rights held at the time of the constrained hour. Except as provided in subsection (e) below, Financial Transmission Rights shall be auctioned as set forth in Operating Agreement, Schedule 1, section 7.

(b) The hourly economic value of a Financial Transmission Right Obligation is based on the Financial Transmission Right MW reservation and the difference between the Day-ahead Congestion Price at the point of delivery and the point of receipt of the Financial Transmission Right. The hourly economic value of a Financial Transmission Right Obligation is positive (a benefit to the FTR Holder) when the Day-ahead Congestion Price at the point of delivery is higher than the Day-ahead Congestion Price at the point of receipt. The hourly economic value of a Financial Transmission Right Obligation is negative (a liability to the FTR Holder) when the Day-ahead Congestion Price at the point of receipt is higher than the Day-ahead Congestion Price at the point of delivery.

(c) The hourly economic value of a Financial Transmission Right Option is based on the Financial Transmission Right MW reservation and the difference between the Day-ahead Congestion Price at the point of delivery and the point of receipt of the Financial Transmission Right when that difference is positive. The hourly economic value of a Financial Transmission Right Option is positive (a benefit to the FTR Holder) when the Day-ahead Congestion Price at the point of delivery is higher than the Day-ahead Congestion Price at the point of receipt. The hourly economic value of a Financial Transmission Right Option is zero (neither a benefit nor a liability to the FTR Holder) when the Day-ahead Congestion Price at the point of receipt is higher than the Day-ahead Congestion Price at the point of delivery.

(d) In addition to transactions with PJMSettlement in the Financial Transmission Rights auctions administered by the Office of the Interconnection, a Financial Transmission Right, for its entire tenure or for a specified period, may be sold or otherwise transferred to a third party by bilateral agreement, subject to compliance with such procedures as may be established by the Office of the Interconnection for verification of the rights of the purchaser or transferee.

- (i) Market Participants may enter into bilateral agreements to transfer to a third party a Financial Transmission Right, for its entire tenure or for a specified period. Such bilateral transactions shall be reported to the Office of the Interconnection in accordance with this Schedule and pursuant to the LLC's rules related to its FTR reporting tools.
- (ii) For purposes of clarity, with respect to all bilateral transactions for the transfer of Financial Transmission Rights, the rights and obligations pertaining to the Financial Transmission Rights that are the subject of such a bilateral transaction shall pass to the buyer under the bilateral contract subject to the provisions of this

Schedule. Such bilateral transactions shall not modify the location or reconfigure the Financial Transmission Rights. In no event shall the purchase and sale of a Financial Transmission Right pursuant to a bilateral transaction constitute a transaction with PJMSettlement or a transaction in any auction under this Schedule.

- (iii) Consent of the Office of the Interconnection shall be required for a seller to transfer to a buyer any Financial Transmission Right Obligation. Such consent shall be based upon the Office of the Interconnection's assessment of the buyer's ability to perform the obligations, including meeting applicable creditworthiness requirements, transferred in the bilateral contract. If consent for a transfer is not provided by the Office of the Interconnection, the title to the Financial Transmission Rights shall not transfer to the third party and the FTR Holder shall continue to receive all Transmission Congestion Credits attributable to the Financial Transmission Rights and remain subject to all credit requirements and obligations associated with the Financial Transmission Rights.
 - (iv) A seller under such a bilateral contract shall guarantee and indemnify the Office of the Interconnection, PJMSettlement, and the Members for the buyer's obligation to pay any charges associated with the transferred Financial Transmission Right and for which payment is not made to PJMSettlement by the buyer under such a bilateral transaction.
 - (v) All payments and related charges associated with such a bilateral contract shall be arranged between the parties to such bilateral contract and shall not be billed or settled by PJMSettlement or the Office of the Interconnection. The LLC, PJMSettlement, and the Members will not assume financial responsibility for the failure of a party to perform obligations owed to the other party under such a bilateral contract reported to the Office of the Interconnection under this Schedule.
 - (vi) All claims regarding a default of a buyer to a seller under such a bilateral contract shall be resolved solely between the buyer and the seller.
- (e) Network Service Users and Firm Transmission Customers that take service that sinks, sources in, or is transmitted through new PJM zones, at their election, may receive a direct allocation of Financial Transmission Rights instead of an allocation of Auction Revenue Rights. Network Service Users and Firm Transmission Customers may make this election for the succeeding two annual FTR auctions after the integration of the new zone into the PJM Interchange Energy Market. Such election shall be made prior to the commencement of each annual FTR auction. For purposes of this election, the Allegheny Power Zone shall be considered a new zone with respect to the annual Financial Transmission Right auction in 2003 and 2004. Network Service Users and Firm Transmission Customers in new PJM zones that elect not to receive direct allocations of Financial Transmission Rights shall receive allocations of Auction Revenue Rights. During the annual allocation process, the Financial Transmission Right allocation for new PJM zones shall be performed simultaneously with the Auction

Revenue Rights allocations in existing and new PJM zones. Prior to the effective date of the initial allocation of FTRs in a new PJM Zone, PJM shall file with FERC, under section 205 of the Federal Power Act, the FTRs and ARR allocations in accordance with sections 5 and 7 of this Schedule 1.

(f) For Network Service Users and Firm Transmission Customers that take service that sinks in, sources in, or is transmitted through new PJM zones, that elect to receive direct allocations of Financial Transmission Rights, Financial Transmission Rights shall be allocated using the same allocation methodology as is specified for the allocation of Auction Revenue Rights in Operating Agreement, Schedule 1, section 7.4.2 and in accordance with the following:

- (i) Subject to subsection (ii) of this section, all Financial Transmission Rights must be simultaneously feasible. If all Financial Transmission Right requests made when Financial Transmission Rights are allocated for the new zone are not feasible then Financial Transmission Rights are prorated and allocated in proportion to the MW level requested and in inverse proportion to the effect on the binding constraints.
- (ii) If any Financial Transmission Right requests that are equal to or less than sixty percent (60%) of a Network Service User's proportion of peak load in the Zone or fifty percent of its transmission responsibility for Non-Zone Network Load, or fifty percent of megawatts of firm service between the receipt and delivery points of Firm Transmission Customers, are not feasible in the annual allocation and auction processes due to system conditions, then PJM shall increase the capability limits of the binding constraints that would have rendered the Financial Transmission Rights infeasible to the extent necessary in order to allocate such Financial Transmission Rights without their being infeasible for all rounds of the annual allocation and auction processes, provided that this subsection (ii) shall not apply if the infeasibility is caused by extraordinary circumstances. Additionally, such increased limits shall be included in subsequent modeling during the Planning Year to support any incremental allocations of Auction Revenue Rights and monthly and balance of the Planning Period Financial Transmission Rights auctions; unless and to the extent those system conditions that contributed to infeasibility in the annual process are not extant for the time period subject to the subsequent modeling, such as would be the case, for example, if transmission facilities are returned to service during the Planning Year. In these cases, any increase in the capability limits taken under this subsection (ii) during the annual process will be removed from subsequent modeling to support any incremental allocations of Auction Revenue Rights and monthly and balance of the Planning Period Financial Transmission Rights auctions. In addition, PJM may remove or lower the increased capability limits, if feasible, during subsequent FTR Auctions if the removal or lowering of the increased capability limits does not impact Auction Revenue Rights funding and net auction revenues are positive.

For the purposes of this subsection (ii), extraordinary circumstances shall mean an event of force majeure that reduces the capability of existing or planned

transmission facilities and such reduction in capability is the cause of the infeasibility of such Financial Transmission Rights. Extraordinary circumstances do not include those system conditions and assumptions modeled in simultaneous feasibility analyses conducted pursuant to Operating Agreement, Schedule 1, section 7.5 of Schedule 1 of this Agreement. If PJM allocates Financial Transmission Rights as a result of this subsection (ii) that would not otherwise have been feasible, then PJM shall notify Members and post on its web site (a) the aggregate megawatt quantities, by sources and sinks, of such Financial Transmission Rights and (b) any increases in capability limits used to allocate such Financial Transmission Rights.

- (iii) In the event that Network Load changes from one Network Service User to another after an initial or annual allocation of Financial Transmission Rights in a new zone, Financial Transmission Rights will be reassigned on a proportional basis from the Network Service User losing the load to the Network Service User that is gaining the Network Load.

(g) At least one month prior to the integration of a new zone into the PJM Interchange Energy Market, Network Service Users and Firm Transmission Customers that take service that sinks in, sources in, or is transmitted through the new zone, shall receive an initial allocation of Financial Transmission Rights that will be in effect from the date of the integration of the new zone until the next annual allocation of Financial Transmission Rights and Auction Revenue Rights. Such allocation of Financial Transmission Rights shall be made in accordance with Operating Agreement, Schedule 1, section 5.2.2(f) of this Schedule.

(h) Reserved.

5.2.3 Target Allocation of Transmission Congestion Credits.

A Target Allocation of Transmission Congestion Credits for each FTR Holder shall be determined for each Financial Transmission Right. Each Financial Transmission Right shall be multiplied by the Day-ahead Congestion Price differences for the receipt and delivery points associated with the Financial Transmission Right, calculated as the Day-ahead Congestion Price at the delivery point(s) minus the Day-ahead Congestion Price at the receipt point(s). For the purposes of calculating Transmission Congestion Credits, the Day-ahead Congestion Price of a Zone is calculated as the sum of the Day-ahead Congestion Price of each bus that comprises the Zone multiplied by the percent of annual peak load assigned to each node in the Zone. Commencing with the 2015/2016 Planning Period, for the purposes of calculating Transmission Congestion Credits, the Day-ahead Congestion Price of a Residual Metered Load aggregate is calculated as the sum of the Day-ahead Congestion Price of each bus that comprises the Residual Metered Load aggregate multiplied by the percent of the annual peak residual load assigned to each bus that comprises the Residual Metered Load aggregate. When the FTR Target Allocation is positive, the FTR Target Allocation is a credit to the FTR Holder. When the FTR Target Allocation is negative, the FTR Target Allocation is a debit to the FTR Holder if the FTR is a Financial Transmission Right Obligation. When the FTR Target Allocation is negative, the FTR Target Allocation is set to zero if the FTR is a Financial Transmission Right Option. The total

Target Allocation for Network Service Users and Transmission Customers for each hour shall be the sum of the Target Allocations associated with all of the Network Service Users' or Transmission Customers' Financial Transmission Rights.

5.2.4 [Reserved.]

5.2.5 Calculation of Transmission Congestion Credits.

(a) The total of all the positive Target Allocations determined as specified above shall be compared to the Day-ahead Energy Market Transmission Congestion Charges in each hour. If the total of the Target Allocations is less than or equal to the total of the Day-ahead Energy Market Transmission Congestion Charges, the Transmission Congestion Credit for each entity holding an FTR shall be equal to its Target Allocation. All remaining Day-ahead Energy Market Transmission Congestion Charges shall be distributed as described below in Operating Agreement, Schedule 1, section 5.2.6 "Distribution of Excess Congestion Charges."

(b) If the total of the Target Allocations is greater than the Day-ahead Energy Market Transmission Congestion Charges for the hour, each FTR Holder shall be assigned a share of the Day-ahead Energy Market Transmission Congestion Charges in proportion to its Target Allocations for Financial Transmission Rights which have a positive Target Allocation value. Financial Transmission Rights which have a negative Target Allocation value are assigned the full Target Allocation value as a negative Transmission Congestion Credit.

(c) At the end of a Planning Period if all FTR Holders did not receive Transmission Congestion Credits equal to their Target Allocations, the Office of the Interconnection shall assess a charge equal to the difference between the Transmission Congestion Credit Target Allocations for all revenue deficient FTRs and the actual Transmission Congestion Credits allocated to those FTR Holders. A charge assessed pursuant to this section shall also include any aggregate charge assessed pursuant to Operating Agreement, Schedule 1, section 7.4.4(c) and shall be allocated to all FTR Holders on a pro-rata basis according to the total Target Allocations for all FTRs held at any time during the relevant Planning Period. The charge shall be calculated and allocated in accordance with the following methodology:

1. The Office of the Interconnection shall calculate the total amount of uplift required as $\{[\text{sum of the total monthly deficiencies in FTR Target Allocations for the Planning Period} + \text{the sum of the ARR Target Allocation deficiencies determined pursuant to Operating Agreement, Schedule 1, section 7.4.4(c)}] - [\text{sum of the total monthly excess ARR revenues and excess Day-ahead Energy Market Transmission Congestion Charges for the Planning Period}]\}$.
2. For each Market Participant that held an FTR during the Planning Period, the Office of the Interconnection shall calculate the total Target Allocation associated with all FTRs held by the Market Participant during the Planning Period, provided that, the foregoing notwithstanding, if the total Target Allocation for an individual Market Participant calculated pursuant to this section is negative the Office of Interconnection shall set the value to zero.

3. The Office of the Interconnection shall then allocate an uplift charge to each Market Participant that held an FTR at any time during the Planning Period in accordance with the following formula: $\{[\text{total uplift}] * [\text{total Target Allocation for all FTRs held by the Market Participant at any time during the Planning Period}] / [\text{total Target Allocations for all FTRs held by all PJM Market Participants at any time during the Planning Period}]\}$.

5.2.6 Distribution of Excess Congestion Charges.

- (a) Excess Day-ahead Energy Market Transmission Congestion Charges accumulated in a month shall be distributed to each FTR Holder in proportion to, but not more than, any deficiency in the share of Day-ahead Energy Market Transmission Congestion Charges received by the FTR Holder during that month as compared to its total Target Allocations for the month.
- (b) After the excess Day-ahead Energy Market Transmission Congestion Charge distribution described in Operating Agreement, Schedule 1, section 5.2.6(a) is performed, any excess Day-ahead Energy Market Transmission Congestion Charges remaining at the end of a month shall be distributed to each FTR Holder in proportion to, but not more than, any deficiency in the share of Day-ahead Energy Market Transmission Congestion Charges received by the FTR Holder during the current Planning Period, including previously distributed excess Day-ahead Energy Market Transmission Congestion Charges, as compared to its total Target Allocation for the Planning Period.
- (c) Any excess Day-ahead Energy Market Transmission Congestion Charges remaining at the end of a Planning Period shall be distributed to each holder of Auction Revenue Rights in proportion to, but not more than, any Auction Revenue Right deficiencies for that Planning Period.
- (d) Any excess Day-ahead Energy Market Transmission Congestion Charges remaining after a distribution pursuant to subsection (c) of this section shall be distributed to all ARR holders on a pro-rata basis according to the total Target Allocations for all ARRs held at any time during the relevant Planning Period. Any allocation pursuant to this subsection (d) shall be conducted in accordance with the following methodology:
 1. For each Market Participant that held an ARR during the Planning Period, the Office of the Interconnection shall calculate the total Target Allocation associated with all ARRs held by the Market Participant during the Planning Period, provided that, the foregoing notwithstanding, if the total Target Allocation for an individual Market Participant calculated pursuant to this section is negative the Office of the Interconnection shall set the value to zero.
 2. The Office of the Interconnection shall then allocate an excess Day-ahead Energy Market Transmission Congestion Charge credit to each Market Participant that held an ARR at any time during the Planning Period in accordance with the following formula: $\{[\text{total excess Day-ahead Energy Market Transmission}$

Congestion Charges remaining after distributions pursuant to subsection (a)-(c) of this section] * [total Target Allocation for all ARR holders held by the Market Participant at any time during the Planning Period] / [total Target Allocations for all ARR holders held by all PJM Market Participants at any time during the Planning Period]}.

5.2.7 Allocation of Balancing Congestion Charges

At the end of each hour during an Operating Day, the Office of the Interconnection shall allocate the Balancing Congestion Charges to real-time load and exports on a pro-rata basis. Such allocation shall not include purchases of Direct Charging Energy.

7.1 Auctions of Financial Transmission Rights.

Annual, periodic and long-term auctions to allow Market Participants to acquire or sell Financial Transmission Rights shall be conducted by the Office of the Interconnection in accordance with the provisions of this Section. PJMSettlement shall be the Counterparty to the purchases and sales of Financial Transmission Rights arising from such auctions; provided however, that PJMSettlement shall not be a contracting party to any subsequent bilateral transfer of Financial Transmission Rights between Market Participants. The conversion of an Auction Revenue Right to a Financial Transmission Right pursuant to this section 7 shall not constitute a purchase or sale transaction to which PJMSettlement is a contracting party.

7.1.1 Auction Period and Scope of Auctions.

(a) The periods covered by auctions shall be: (1) the one-year period beginning the month after the final round of an annual auction; and (2) any single calendar month period remaining in the Planning Period. With the exception of FTRs allocated pursuant to Operating Agreement, Schedule 1, section 5.2.2 (e) and the Financial Transmission Rights awarded as a result of the exercise of the conversion option pursuant to Operating Agreement, Schedule 1, section 7.1.1(b), in the annual auction, the Office of the Interconnection, on behalf of PJMSettlement, shall offer for sale the entire Financial Transmission Rights capability for the year in four rounds with 25 percent of the capability offered in each round. In the monthly auction, the Office of the Interconnection, on behalf of PJMSettlement, shall offer for sale in the auction any remaining Financial Transmission Rights capability for the months remaining in the Planning Period after taking into account all of the Financial Transmission Rights already outstanding at the time of the auction. In addition, any holder of a Financial Transmission Right for the period covered by an auction may offer such Financial Transmission Right for sale in such auction. Weekend on-peak, weekday on-peak, off-peak and 24-hour Financial Transmission Rights, as those products are described in Operating Agreement, Schedule 1, section 7.3.4, will be offered in the annual and monthly auctions. FTRs will be offered as Financial Transmission Right Obligations and Financial Transmission Right Options, provided that such Financial Transmission Right Obligations and Financial Transmission Right Options shall be awarded based only on the residual system capability that remains after the allocation of Financial Transmission Rights pursuant to Operating Agreement, Schedule 1, section 5.2.2(e) and the award of Financial Transmission Rights pursuant to Operating Agreement, Schedule 1, section 7.1.1(b). Market Participants may bid for and acquire any number of Financial Transmission Rights, provided that all Financial Transmission Rights awarded are simultaneously feasible with each other and with all Financial Transmission Rights outstanding at the time of the auction and not sold into the auction. An ARR holder may self-schedule an FTR on the same path in the Annual FTR auction according to the rules described in the PJM Manuals.

(b) An Auction Revenue Rights holder may convert Auction Revenue Rights to Financial Transmission Rights, and such conversion shall not be considered a purchase or sale of Financial Transmission Rights in the auction. Such Financial Transmission Rights must (i) have the same source and sink points as the Auction Revenue Rights; and (ii) be Financial Transmission Right Obligations. The Auction Revenue Rights holder must inform the Office of the Interconnection

in accordance with the procedures established by the Office of the Interconnection that it intends to exercise the conversion option prior to close of round one of the annual Financial Transmission Rights auction. Once the conversion option is exercised, it will remain in effect for the entire Financial Transmission Rights auction. The Office of the Interconnection will designate twenty-five percent of the megawatt amount of the Auction Revenue Rights to be converted as price-taker bids in each of the four rounds of the Financial Transmission Rights auction. An Auction Revenue Rights holder that converts its Auction Revenue Rights may not designate a price bid for its converted Financial Transmission Rights and will receive a price equal to the clearing price set by other bids in the annual Financial Transmission Right auction. To the extent a market participant seeks to obtain FTRs in the annual auction through such conversion, the FTRs sought will not be included in the calculation of such market participant's credit requirement for such annual FTR auction.

7.1.2 Frequency and Time of Auctions.

Subject to Operating Agreement, Schedule 1, section 7.1.1, annual Financial Transmission Rights auctions shall offer the entire FTR capability of the PJM system in four rounds with 25 percent of the capability offered in each round. All four rounds of the annual Financial Transmission Rights auction shall occur within the two-month period (April – May) preceding the start of the PJM Planning Period. Each round shall occur over five Business Days and shall be conducted sequentially. Each round shall begin with the bid and offer period. The bid and offer period for annual Financial Transmission Rights auctions shall be open for three consecutive Business Days, opening the first day at 12:00 midnight (Eastern Prevailing Time) and closing the third day at 5:00 p.m. (Eastern Prevailing Time). Monthly Financial Transmission Rights auctions shall be held each month. The bid and offer period for monthly Financial Transmission Rights auctions shall be open for three consecutive Business Days in the month preceding the first month for which Financial Transmission Rights are being auctioned, opening the first day at 12:00 midnight (Eastern Prevailing Time) and closing the third day at 5:00 p.m. (Eastern Prevailing Time).

7.1.3 Duration of Financial Transmission Rights.

Each Financial Transmission Right acquired in a Financial Transmission Rights auction shall entitle the holder to credits of Day-ahead Energy Market Transmission Congestion Charges for the period that was specified in the corresponding auction.

7.1A Long-Term Financial Transmission Rights Auctions.

7.1A.1 Auctions.

(i) Subsequent to each annual Financial Transmission Rights auction conducted pursuant to Operating Agreement, Schedule 1, section 7.1, the Office of the Interconnection shall conduct a long-term Financial Transmission Rights auction for the three consecutive Planning Periods immediately subsequent to the Planning Period during which the long-term Financial Transmission Rights auction is conducted. PJMSettlement shall be the Counterparty to the purchases and sales of Financial Transmission Rights arising from such long-term Financial Transmission Rights auctions, provided however, that PJMSettlement shall not be a contracting party to any subsequent bilateral transfers of Financial Transmission Rights between Market Participants. The conversion of an Auction Revenue Right to a Financial Transmission Right pursuant to this section 7 shall not constitute a purchase or sale transaction to which PJMSettlement is a contracting party.

(ii) The capacity offered for sale in long-term Financial Transmission Rights auctions shall be the residual system capability after the annual Auction Revenue Rights allocations and the annual Financial Transmission Rights auction. In determining the residual capability the Office of the Interconnection shall assume that all Auction Revenue Rights allocated in the immediately prior annual Auction Revenue Rights allocation process, including Auction Revenue Rights made available in which transmission facilities which were modeled out of service in the annual Auction Revenue Rights allocations return to service, are self-scheduled into Financial Transmission Rights, which shall be modeled as fixed injections and withdrawals in the long-term Financial Transmission Rights auction. Additionally, residual annual Auction Revenue Rights that become available through incremental capability created by future transmission upgrades as further described in the PJM Manuals shall be modeled as fixed injections and withdrawals in the long-term Financial Transmission Rights auction. The long-term Financial Transmission Rights auction model shall include all upgrades planned to be placed into service on or before June 30th of the first Planning Period within the three year period covered by the auction. The transmission upgrades to be modeled for this purpose shall only include those upgrades that, individually, or together, have 10% or more impact on the transmission congestion on an individual constraint or constraints with congestion of \$5 million or more affecting a common congestion path. Transmission upgrades modeled for this purpose also will be modeled in the subsequent long-term Financial Transmission Rights auction, as further detailed in the PJM Manuals. Residual Auction Revenue Rights created by an increase in transmission capability due to future transmission upgrades, as specified above, are determined only for modeling purposes and will not be allocated to Market Participants.

7.1A.2 Frequency and Timing.

The long-term Financial Transmission Rights auction process shall consist of five rounds. The first round shall be conducted by the Office of the Interconnection approximately 11 months prior to the start of the three Planning Period term covered by the relevant long-term Financial Transmission Rights auction. The second round shall be conducted approximately 2 months

after the first round. The third round shall be conducted approximately 2 months after the second round. The fourth round shall be conducted approximately 2 months after the third round, and the fifth round shall be conducted approximately 3 months after the fourth round. In each round 20 percent of total capacity available in the long-term Financial Transmission Rights auction shall be offered for sale. Eligible entities may submit bids to purchase and offers to sell Financial Transmission Rights at the start of the bidding period in each round. The bidding period shall be three Business Days ending at 5:00 p.m. on the last day. PJM performs the Financial Transmission Rights auction clearing analysis for each round and posts the auction results on the market user interface within five Business Days after the close of the bidding period for each round unless circumstances beyond PJM's control prevent PJM from meeting the applicable deadline. Under such circumstances, PJM will post the auction results at the earliest possible opportunity. If the Office of the Interconnection discovers a *potential* error in the results posted for a long-term Financial Transmission Rights auction, the Office of the Interconnection shall notify Market Participants as soon as possible after it is found, but in no event later than 5:00 p.m. of the Business Day immediately following the initial publication of the results for that auction. After this initial notification, if the Office of the Interconnection determines it is necessary to post modified auction results, it shall provide notification of its intent to do so, *along with a description detailing the cause and scope of the error*, by no later than 5:00 p.m. of the second Business Day following the initial publication of prices for that auction. *The provided description will not contain information that is market sensitive or confidential.* Thereafter, the Office of the Interconnection must post the corrected prices by no later than 5:00 p.m. of the fourth calendar day following the initial publication of prices in the auction. Should any of the above deadlines pass without the associated action on the part of the Office of the Interconnection, the originally posted results will be considered final. Notwithstanding the foregoing, the deadlines set forth above shall not apply if the referenced auction results are under publicly noticed review by the FERC.

7.1A.3 Products.

- (i) The periods covered by long-term Financial Transmission Rights auctions shall be any single Planning Period within the three Planning Period term covered by the relevant auction.
- (ii) Weekend on-peak, weekday on-peak, off-peak and 24-hour Financial Transmission Rights, as those products are described in Operating Agreement, Schedule 1, section 7.3.4, shall be offered in long-term Financial Transmission Rights auctions; Financial Transmission Rights options shall not be offered.

7.1A.4 Participation Eligibility.

- (i) To participate in long-term Financial Transmission Rights auctions an entity shall be a PJM Member or a PJM Transmission Customer. Eligible entities may submit bids or offers in long-term Financial Transmission Rights auctions, provided they own Financial Transmission Rights offered for sale.

7.1A.5 Specified Receipt and Delivery Points.

The Office of the Interconnection will post a list of available receipt and delivery points for each long-term Financial Transmission Rights auction. Eligible receipt and delivery points in long-term Financial Transmission Rights auctions shall be limited to the posted available hubs, Zones, aggregates, generators, and Interface Pricing Points.

7.3 Auction Procedures.

7.3.1 Role of the Office of the Interconnection.

Financial Transmission Rights auctions shall be conducted by the Office of the Interconnection in accordance with standards and procedures set forth in the PJM Manuals, such standards and procedures to be consistent with the requirements of this Schedule. PJMSettlement shall be the Counterparty to the purchases and sales of Financial Transmission Rights arising from such auctions, provided however, that PJMSettlement shall not be a contracting party to any subsequent bilateral transfers of Financial Transmission Rights between Market Participants. The conversion of an Auction Revenue Right to a Financial Transmission Right pursuant to this section 7 shall not constitute a purchase or sale transaction to which PJMSettlement is a contracting party. Any Financial Transmission Rights auctions conducted to liquidate a defaulting Member's Financial Transmission Rights portfolio shall be conducted by the Office of the Interconnection in accordance with the procedures set forth in section 7.3.9 below, and as may be further described in the PJM Manuals.

7.3.2 Notice of Offer.

A holder of a Financial Transmission Right wishing to offer the Financial Transmission Right for sale shall notify the Office of the Interconnection of any Financial Transmission Rights to be offered. Each Financial Transmission Right sold in an auction shall, at the end of the period for which the Financial Transmission Rights were auctioned, revert to the offering holder or the entity to which the offering holder has transferred such Financial Transmission Right, subject to the term of the Financial Transmission Right itself and to the right of such holder or transferee to offer the Financial Transmission Right in the next or any subsequent auction during the term of the Financial Transmission Right.

7.3.3 Pending Applications for Firm Service.

(a) [Reserved.]

(b) Financial Transmission Rights may be assigned to entities requesting Network Transmission Service or Firm Point-to-Point Transmission Service pursuant to Operating Agreement, Schedule 1, section 5.2.2 (e), and the parallel provisions of Tariff, Attachment K-Appendix, section 5.2.2(e), only if such Financial Transmission Rights are simultaneously feasible with all outstanding Financial Transmission Rights, including Financial Transmission Rights effective for the then-current auction period. If an assignment of Financial Transmission Rights pursuant to a pending application for Network Transmission Service or Firm Point-to-Point Transmission Service cannot be completed prior to an auction, Financial Transmission Rights attributable to such transmission service shall not be assigned for the then-current auction period. If a Financial Transmission Right cannot be assigned for this reason, the applicant may withdraw its application, or request that the Financial Transmission Right be assigned effective with the start of the next auction period.

7.3.4 Weekend On-Peak, Weekday On-Peak, Off-Peak and 24-Hour Periods.

Weekend on-peak, weekday on-peak, off-peak and 24-hour Financial Transmission Rights will be offered in the annual, long-term, and monthly auctions. Weekend on-peak Financial Transmission Rights shall cover the periods from 7:00 a.m. up to the hour ending 11:00 p.m. on Saturdays, Sundays, and holidays as defined in the PJM Manuals. Weekday on-peak Financial Transmission Rights shall cover the periods from 7:00 a.m. up to the hour ending at 11:00 p.m. on Mondays through Fridays, except holidays as defined in the PJM Manuals. Off-Peak Financial Transmission Rights shall cover the periods from 11:00 p.m. up to the hour ending 7:00 a.m. on all days. The 24-hour period shall cover the period from hour ending 1:00 a.m. to the hour ending 12:00 midnight on all days. Each bid shall specify whether it is for a weekend on-peak, weekday on-peak, off-peak, or 24-hour period.

7.3.5 Offers and Bids.

(a) Offers to sell and bids to purchase Financial Transmission Rights shall be submitted during the period set forth in Operating Agreement, Schedule 1, section 7.1.2, and the parallel provisions of Tariff, Attachment K-Appendix, section 7.1.2, and shall be in the form specified by the Office of the Interconnection in accordance with the requirements set forth below.

(b) Offers to sell shall identify the specific Financial Transmission Right, by term, megawatt quantity and receipt and delivery points, offered for sale. An offer to sell a specified megawatt quantity of Financial Transmission Rights shall constitute an offer to sell a quantity of Financial Transmission Rights equal to or less than the specified quantity. An offer to sell may not specify a minimum quantity being offered. Each offer may specify a reservation price, below which the offeror does not wish to sell the Financial Transmission Right. Offers submitted by entities holding rights to Financial Transmission Rights shall be subject to such reasonable standards for the verification of the rights of the offeror as may be established by the Office of the Interconnection. Offers shall be subject to such reasonable standards for the creditworthiness of the offeror or for the posting of security for performance as the Office of the Interconnection shall establish.

(c) Bids to purchase shall specify the term, megawatt quantity, price per megawatt, and receipt and delivery points of the Financial Transmission Right that the bidder wishes to purchase. A bid to purchase a specified megawatt quantity of Financial Transmission Rights shall constitute a bid to purchase a quantity of Financial Transmission Rights equal to or less than the specified quantity. A bid to purchase may not specify a minimum quantity that the bidder wishes to purchase. A bid may specify receipt and delivery points in accordance with Operating Agreement, Schedule 1, section 7.2.2, and the parallel provisions of Tariff, Attachment K-Appendix, section 7.2.2, and may include Financial Transmission Rights for which the associated Transmission Congestion Credits may have negative values. Bids shall be subject to such reasonable standards for the creditworthiness of the bidder or for the posting of security for performance as the Office of the Interconnection shall establish.

(d) Bids and offers shall be specified to the nearest tenth of a megawatt and shall be greater than zero. The Office of the Interconnection may require that a market participant shall

not submit in excess of 5000 bids and offers for any single monthly auction, or for any single round of the annual auction, when the Office of the Interconnection determines that such limit is required to avoid or mitigate significant system performance problems related to bid/offer volume. Notice of the need to impose such limit shall be provided prior to the start of the bidding period if possible. Where such notice is provided after the start of the bidding period, market participants shall be required within one day to reduce their bids and offers for such auction below 5000, and the bidding period in such cases shall be extended by one day.

7.3.6 Determination of Winning Bids and Clearing Price.

(a) At the close of each bidding period, the Office of the Interconnection will create a base Financial Transmission Rights power flow model that includes all outstanding Financial Transmission Rights that have been approved and confirmed for any portion of the month for which the auction was conducted and that were not offered for sale in the auction. The base Financial Transmission Rights model also will include estimated uncompensated parallel flows into each interface point of the PJM Region and estimated scheduled transmission outages.

(b) In accordance with the requirements of Operating Agreement, Schedule 1, section 7.5, and the parallel provisions of Tariff, Attachment K-Appendix, section 7.5, and subject to all applicable transmission constraints and reliability requirements, the Office of the Interconnection shall determine the simultaneous feasibility of all outstanding Financial Transmission Rights not offered for sale in the auction and of all Financial Transmission Rights that could be awarded in the auction for which bids were submitted. The winning bids shall be determined from an appropriate linear programming model that, while respecting transmission constraints and the maximum MW quantities of the bids and offers, selects the set of simultaneously feasible Financial Transmission Rights with the highest net total auction value as determined by the bids of buyers and taking into account the reservation prices of the sellers. In the event that there are two or more identical bids for the selected Financial Transmission Rights and there are insufficient Financial Transmission Rights to accommodate all of the identical bids, then each such bidder will receive a pro rata share of the Financial Transmission Rights that can be awarded.

(c) Financial Transmission Rights shall be sold at the market-clearing price for Financial Transmission Rights between specified pairs of receipt and delivery points, as determined by the bid value of the marginal Financial Transmission Right that could not be awarded because it would not be simultaneously feasible. The linear programming model shall determine the clearing prices of all Financial Transmission Rights paths based on the bid value of the marginal Financial Transmission Rights, which are those Financial Transmission Rights with the highest bid values that could not be awarded fully because they were not simultaneously feasible, and based on the flow sensitivities of each Financial Transmission Rights path relative to the marginal Financial Transmission Rights paths flow sensitivities on the binding transmission constraints. Financial Transmission Rights with a zero clearing price will only be awarded if there is a minimum of one binding constraint in the auction period for which the Financial Transmission Rights path sensitivity is non-zero. Financial Transmission Right Options with a market-clearing price less than one dollar will not be awarded.

7.3.7 Announcement of Winners and Prices.

Within two (2) Business Days after the close of the bid and offer period for an annual Financial Transmission Rights auction round, and within five (5) Business Days after the close of the bid and offer period for a monthly Financial Transmission Rights auction, the Office of the Interconnection shall post the winning bidders, the megawatt quantity, the term and the receipt and delivery points for each Financial Transmission Right awarded in the auction and the price at which each Financial Transmission Right was awarded unless circumstances beyond PJM's control prevent PJM from meeting the applicable deadline. Under such circumstances, PJM will post the auction results at the earliest possible opportunity. The Office of the Interconnection shall not disclose the price specified in any bid to purchase or the reservation price specified in any offer to sell. If the Office of the Interconnection discovers an error in the results posted for a Financial Transmission Rights auction (or a given round of the annual Financial Transmission Rights auction), the Office of the Interconnection shall notify Market Participants of the error as soon as possible after it is found, but in no event later than 5:00 p.m. of the Business Day following the initial publication of the results of the auction or round of the annual auction. After this initial notification, if the Office of the Interconnection determines that it is necessary to post modified results, it shall provide notification of its intent to do so, together with all available supporting documentation, by no later than 5:00 p.m. of the second Business Day following the initial publication of the results of that auction or round of the annual auction. Thereafter, the Office of the Interconnection must post any corrected results by no later than 5:00 p.m. of the fourth calendar day following the initial publication of the results of the auction or round of the annual auction. Should any of the above deadlines pass without the associated action on the part of the Office of the Interconnection, the originally posted results will be considered final. Notwithstanding the foregoing, the deadlines set forth above shall not apply if the referenced auction results are under publicly noticed review by the FERC.

7.3.8 Auction Settlements.

All buyers and sellers of Financial Transmission Rights between the same points of receipt and delivery shall pay PJMSettlement or be paid by PJMSettlement the market-clearing price, as determined in the auction, for such Financial Transmission Rights.

7.3.9 Addressing Defaulting Member's Financial Transmission Rights.

In the event a Member fails to meet creditworthiness requirements or make timely payments when due pursuant to the Operating Agreement or Tariff, the Office of the Interconnection shall, as soon as practicable after declaring the Member to be in default as provided in Operating Agreement, section 15.1.5, use reasonable efforts to initiate within two applicable auctions the following procedures to settle, liquidate or otherwise resolve each Financial Transmission Rights position held by the defaulting Member:

a) The Office of the Interconnection shall unilaterally terminate all of the defaulting Member's rights with respect to forward Financial Transmission Rights positions as of the date of the Member's default.

b) As to each Financial Transmission Rights position held by the defaulting Member immediately prior to the termination of the defaulting Member's rights under subsection (a) above, the Office of the Interconnection shall determine and execute an appropriate course of action for addressing such Financial Transmission Rights position, based on the specific circumstances of the default as determined by the Office of the Interconnection in exercise of its reasonable judgment, such as (1) liquidating the position by offering it for sale in an upcoming applicable Financial Transmission Rights auction, (2) liquidating the position by offering it for sale in an auction called and scheduled for the specific purpose of liquidating one or more positions held by the defaulting Member ("Special Auction"), (3) allowing the position to go to settlement, or (4) another course of action the Office of the Interconnection determines to be appropriate under the circumstances that is designed to minimize potential losses to PJM Members. The Office of the Interconnection will provide reasonable advance notice to PJM Members of the approach or course of action it has determined to be appropriate prior to implementing that approach or course of action. The Office of the Interconnection is not required to apply a single approach to the defaulting Member's entire Financial Transmission Rights portfolio, and may determine that the appropriate course of action for addressing a defaulting Member's portfolio includes a combination of the above approaches as applied to different positions within the defaulting Member's overall Financial Transmission Rights portfolio.

c) The Office of the Interconnection will seek to minimize the losses to PJM Members associated with settling, liquidating or otherwise resolving the defaulting Member's Financial Transmission Rights portfolio and may base its determination in subsection (b) above on several factors, including but not limited to, the following:

- 1) the Office of the Interconnection's assessment of which approach will provide the greatest degree of protection to the financial integrity of the PJM Markets;
- 2) the size of the defaulting Member's Financial Transmission Rights portfolio, both in absolute terms and relative to overall market volume;
- 3) the term of the Financial Transmission Rights positions held by the defaulting Member as considered for a single position or on a portfolio basis;
- 4) whether liquidation is feasible or not, and on what timeline, due to the cessation or curtailment of trading at PJM for all Financial Transmission Rights or a subset of Financial Transmission Rights positions;
- 5) prevailing market conditions, such as but not limited to market liquidity and volatility; and
- 6) timing of the default and the actions taken to address the default.

d) Special Auctions. The Office of the Interconnection shall administer each Special Auction provided for in subsection (b)(2) above according to the procedures set forth in the

Tariff and PJM Manuals for FTR auctions to the extent appropriate in the Office of the Interconnection's sole discretion, and may adopt special rules for each Special Auction to accommodate the unique circumstances underlying the particular default and particular Financial Transmission Rights positions being liquidated, with the terms and conditions of such auction being determined with the goal of facilitating a successful auction in light of the particular positions to be auctioned, the prevailing market conditions for such open positions (including the depth, scope, and nature of participation in such markets), and such other factors as the Office of the Interconnection determines appropriate, including those factors enumerated in subsection (c) above. The Office of the Interconnection shall provide reasonable advance notice to FTR Participants of a Special Auction and the terms and conditions under which it will be conducted.

e) All liquidations made pursuant to subsection (b) above shall be for the account of the defaulting Member (and all amounts owed PJM in respect thereof shall be included in amounts owed by the defaulting Member as part of its default).

f) Notwithstanding subsections 7.3.9(a) and (b) above, the actual net charges or credits resulting from the defaulting Member's Financial Transmission Rights positions for which PJM Settlement acted as counterparty as calculated through the normal settlement processes shall be included in calculating the Default Allocation Assessment charges as described in Operating Agreement, section 15.2.2.

7.4 Allocation of Auction Revenues.

7.4.1 Eligibility.

- (a) Annual auction revenues, net of payments to entities selling Financial Transmission Rights into the auction, shall be allocated among holders of Auction Revenue Rights in proportion to the Target Allocation of Auction Revenue Rights Credits for the holder.
- (b) Auction Revenue Rights Credits will be calculated based upon the clearing price results of the applicable Annual Financial Transmission Rights auction.
- (c) Monthly and Balance of Planning Period FTR auction revenues, net of payments to entities selling Financial Transmission Rights into the auction, shall be allocated according to the following priority schedule:
 - (i) To stage 1 and 2 Auction Revenue Rights holders in accordance with Operating Agreement, Schedule 1, section 7.4.4. If there are excess revenues remaining after a distribution made pursuant to this subsection, such revenues shall be distributed in accordance with subsection (c)(ii) of this section;
 - (ii) To the Residual Auction Revenue Rights holders in proportion to, but not more than their Target Allocation as determined pursuant to Operating Agreement, Schedule 1, section 7.4.3(b). If there are excess revenues remaining after a distribution made pursuant to this subsection, such revenues shall be distributed in accordance with subsection (c)(iii) of this section;
 - (iii) In accordance with Operating Agreement, Schedule 1, section 5.2.6.
- (d) Long-term FTR auction revenues associated with FTRs that cover individual Planning Periods shall be distributed in the Planning Period for which the FTR is effective. Long-term FTR auction revenues associated with FTRs that cover multiple Planning Years shall be distributed equally across each Planning Period in the effective term of the FTR. Long-term FTR auction revenue distributions within a Planning Period shall be in accordance with the following provisions:
 - (i) Long-term FTR Auction revenues shall be distributed to Auction Revenue Rights holders in the effective Planning Period for the FTR. The distribution shall be in proportion to the economic value of the ARRs when compared to the annual FTR auction clearing prices from each round proportionately.
 - (ii) Long-term FTR auction revenues remaining after distributions made pursuant to Operating Agreement, Schedule 1, section 7.4.1(d)(ii) shall be distributed pursuant to Operating Agreement, Schedule 1, section 5.2.6 of Schedule 1 of this Agreement.

7.4.2 Auction Revenue Rights.

(a) Prior to the end of each PJM Planning Period an annual allocation of Auction Revenue Rights for the next PJM Planning Period shall be performed using a two stage allocation process. Stage 1 shall consist of stages 1A and 1B, which shall allocate ten year and annual Auction Revenue Rights, respectively, and stage 2 shall allocate annual Auction Revenue Rights. The Auction Revenue Rights allocation process shall be performed in accordance with Sections 7.4 and 7.5 hereof and the PJM Manuals.

With respect to the allocation of Auction Revenue Rights, if the Office of the Interconnection discovers a *potential* error in the allocation, the Office of the Interconnection shall notify Market Participants as soon as possible after it is found, but in no event later than 5:00 p.m. of the Business Day following the initial publication of allocation results. After this initial notification, if the Office of the Interconnection determines that it is necessary to post modified allocation results, it shall provide notification of its intent to do so, *along with a description detailing the cause and scope of the error*, by no later than 5:00 p.m. of the second Business Day following the publication of the initial allocation. *The provided description will not contain information that is market sensitive or confidential.* Thereafter, the Office of the Interconnection must post any corrected allocation results by no later than 5:00 p.m. of the fourth calendar day following the initial publication. Should any of the above deadlines pass without the associated action on the part of the Office of the Interconnection, the originally posted results will be considered final. Notwithstanding the foregoing, the deadlines set forth above shall not apply if the referenced allocation is under publicly noticed review by the FERC.

(b) In stage 1A of the allocation process, each Network Service User may request Auction Revenue Rights for a term covering ten consecutive PJM Planning Periods beginning with the immediately ensuing PJM Planning Period from a subset of the Active Historical Generation Resources or Qualified Replacement Resources, and each Qualifying Transmission Customer (as defined in subsection (f) of this section) may request Auction Revenue Rights based on the megawatts of firm service provided between the receipt and delivery points as to which the Transmission Customer had Point-to-Point Transmission Service during the historical reference year. Active Historical Generation Resources shall mean those historical resources that were designated to be delivered to load based on the historical reference year, and which have not since been deactivated and, further, only up to the current installed capacity value of such resource as of the annual allocation of ARR for the target PJM Planning Period. Qualified Replacement Resources shall mean those resources the Office of the Interconnection designates for the ensuing Planning Period to replace historical resources that no longer qualify as Active Historical Generation Resources and that maximize the economic value of ARR while maintaining Simultaneous Feasibility, as further described in the PJM Manuals.

Prior to the stage 1A of the allocation process, the Office of the Interconnection shall determine, for each Zone, the amount of megawatts of ARR available from Active Historical Generation Resources in that Zone and the amount of megawatts required from Qualified Replacement Resources. The Office of the Interconnection shall designate Qualified Replacement Resources as follows, and as further described in the PJM Manuals. Qualified Replacement Resources shall be either from a (1) capacity resource that has been included in the rate base of a specific Load

Serving Entity in a particular Zone, using criteria for rate-based as specified in sections 7.6 and 7.7 hereof concerning New Stage 1 Resources and Alternative Stage 1 Resources; or (2) from a non-rate-based capacity resource.

Prior to the end of each PJM Planning Period the Office of the Interconnection will determine which Stage 1 Resources are no longer viable for the next PJM Planning Period and then will replace such source points with Qualified Replacement Resources (i.e., Capacity Resources that pass the Simultaneous Feasibility Test and which are economic). The Office of Interconnection will determine the replacement source points as follows. First, the Office of the Interconnection will compile a list of all Capacity Resources that are operational as of the beginning of the next Planning Period, that are not currently designated as source points and will post such list on the PJM website prior to finalizing the Stage 1 eligible resource list for each transmission zone for review by Market Participants. In the first instance, all such resources will be considered to be non-rate-based. Market Participants will be asked to review the posted resource list and provide evidence to the Office of the Interconnection, if any, of the posted resources that shall be classified as rate-based resources. Once the replacement resource list along with the resource status is finalized after any input from Market Participants, the Office of the Interconnection will create two categories of resources for each Stage 1 transmission zone based on economic order: one for rate-based; and a second for non-rate-based resources. When determining economic order, the Office of the Interconnection will utilize historical source and sink Day-ahead Energy Market Congestion Locational Marginal Prices (“CLMPs”). Historical value will be based on the previous three years’ CLMP sink versus CLMP source differences weighted by 50% for the previous calendar year, weighted by 30% for the year prior and weighted by 20% for the year prior. To the extent replacement resources do not have three years’ worth historical data, weighting will be performed either 50/50% in the case of two years or 100% in the case of one year worth of historical data. If a full year of historical data is not available, PJM will utilize the CLMP from the closest electrically equivalent location to compose an entire year of historical data. Once the economic order is established for each Stage 1 zonal rate-based and non-rate-based generator categories, the Office of the Interconnection will begin to replace Stage 1 zonal retirements with the Qualified Replacement Resources by first utilizing rate-based resources in the economic order while respecting transmission limitations. And once the rate-based resource determination is concluded, the Office of the Interconnection will then utilize non-rate-based resources, in economic order, while respecting transmission limitations as described previously.

The historical reference year for all Zones shall be 1998, except that the historical reference year shall be: 2002 for the Allegheny Power and Rockland Electric Zones; 2004 for the AEP East, The Dayton Power & Light Company and Commonwealth Edison Company Zones; 2005 for the Virginia Electric and Power Company and Duquesne Light Company Zones; 2011 for the ATSI Zone; 2012 for the DEOK Zone; 2013 for the EKPC Zone; 2018 for the OVEC Zone; and the Office of the Interconnection shall specify a historical reference year for a new PJM zone corresponding to the year that the zone is integrated into the PJM Interchange Energy Market. For stage 1, the Office of the Interconnection shall determine a set of eligible historical generation resources for each Zone based on the historical reference year and assign a pro rata amount of megawatt capability from each historical generation resource to each Network Service User in the Zone based on its proportion of peak load in the Zone. Auction Revenue Rights shall be allocated to each Network Service User in a Zone from each historical generation resource in

a number of megawatts equal to or less than the amount of the historical generation resource that has been assigned to the Network Service User. Each Auction Revenue Right allocated to a Network Service User shall be to the Energy Settlement Area of such Network Service User as described in Section 31.7 of Part III of the Tariff, unless the Network Service User's Energy Settlement Area represents the Residual Metered Load of an electric distribution company's fully metered franchise area(s) or service territory(ies) and the Network Service User elects to have its Auction Revenue Rights allocated at the aggregate load buses in a Zone. In stage 1A of the allocation process, the sum of each Network Service User's allocated Auction Revenue Rights for a Zone must be equal to or less than sixty percent (60%) of the Network Service User's proportion of peak load in the Zone. The sum of each Network Service User's Auction Revenue Rights for Non-Zone Network Load must be equal to or less than fifty percent (50%) of the Network Service User's transmission responsibility for Non-Zone Network Load as determined under Section 34.1 of the Tariff. The sum of each Qualifying Transmission Customer's Auction Revenue Rights must be equal to or less than fifty percent (50%) of the megawatts of firm service provided between the receipt and delivery points as to which the Transmission Customer had Point-to-Point Transmission Service during the historical reference year. If stage 1A Auction Revenue Rights are adversely affected by any new or revised statute, regulation or rule issued by an entity with jurisdiction over the Office of the Interconnection, the Office of the Interconnection shall, to the greatest extent practicable, and consistent with any such statute, regulation or rule change, preserve the priority of the stage 1A Auction Revenue Rights for a minimum period covering the ten (10) consecutive PJM Planning Periods ("Stage 1A Transition Period") immediately following the implementation of any such changes, provided that the terms of all stage 1A Auction Revenue Rights in effect at the time the Office of the Interconnection implements the Stage 1A Transition Period shall be reduced by one PJM Planning Period during each annual stage 1A Auction Revenue Rights allocation performed during the Stage 1A Transition Period so that all stage 1A Auction Revenue Rights that were effective at the start of the Stage 1A Transition Period expire at the end of that period.

(c) In stage 1B of the allocation process each Network Service User may request Auction Revenue Rights from the subset of the resources determined pursuant to Section 7.4.2(b) that were not allocated in stage 1A of the allocation process, and each Qualifying Transmission Customer may request Auction Revenue Rights based on the megawatts of firm service determined pursuant to Section 7.4.2(b) that were not allocated in stage 1A of the allocation process. In stage 1B of the allocation process, the sum of each Network Service User's allocation Auction Revenue Rights request for a Zone must be equal to or less than the difference between the Network Service User's peak load for that Zone as determined pursuant to Section 34.1 of the Tariff and the sum of its Auction Revenue Rights Allocation from stage 1A of the allocation process for that Zone. The sum of each Network Service User's Auction Revenue Rights for Non-Zone Network Load must be equal to or less than the difference between one hundred percent (100%) of the Network Service User's transmission responsibility for Non-Zone Network Load as determined pursuant to Section 7.4.2(b) and the sum of its Auction Revenue Rights Allocation from stage 1A of the allocation process for that Zone. The sum of each Qualifying Transmission Customer's Auction Revenue Rights must be equal to or less than the difference between one hundred percent (100%) of the megawatts of firm service as determined pursuant to Section 7.4.2(b) and the sum of its Auction Revenue Rights Allocation from stage 1A of the allocation process for that Zone. In stage 1B,

valid Auction Revenue Right source buses include Active Historical Resources, Qualified Replacement Resources, Zones, hubs and external Interface Pricing Points.

(d) In stage 2 of the allocation process, the Office of the Interconnection shall conduct an iterative allocation process that consists of two rounds with up to one half of the remaining system Auction Revenue Rights capability allocated in each round. Each round of this allocation process will be conducted sequentially with Network Service Users and Transmission Customers being given the opportunity to view results of each allocation round prior to submission of Auction Revenue Right requests into the subsequent round. In each round, each Network Service User shall designate a subset of buses from which Auction Revenue Rights will source and sink. Valid Auction Revenue Rights source buses include only Zones, generators, hubs and external Interface Pricing Points. Valid Auction Revenue Rights sink buses include only Zones, generators, hubs and external Interface Pricing Points. The Network Service User shall specify the amount of Auction Revenue Rights requested from each source bus to each sink bus. Prior to the 2015/2016 Planning Period, each Auction Revenue Right shall sink to the Energy Settlement Area of the Network Service User as described in Section 31.7 of Part III of the Tariff. Commencing with the 2015/2016 Planning Period, each Auction Revenue Right shall sink to the Energy Settlement Area of the Network Service User as described in Section 31.7 of Part III of the Tariff, unless the Network Service User's Energy Settlement Area represents the Residual Metered Load of an electric distribution company's fully metered franchise area(s) or service territory(ies) and the Network Service User elects to have its Auction Revenue Rights sink at the aggregate load buses in a Zone. The sum of each Network Service User's Auction Revenue Rights requests in each stage 2 allocation round for each Zone must be equal to or less than one half of the difference between the Network Service User's peak load for that Zone as determined pursuant to Section 7.4.2(b) and the sum of its Auction Revenue Right Allocation from stages 1A and 1B of the allocation process for that Zone. The stage 2 allocation to Transmission Customers shall be as set forth in subsection (f).

(e) On a daily basis within the annual Financial Transmission Rights auction period, a proportionate share of Network Service User's Auction Revenue Rights for each Zone are reallocated as Network Load changes from one Network Service User to another within that Zone.

(f) A Qualifying Transmission Customer shall be any customer with an agreement for Long-Term Firm Point-to-Point Transmission Service, used to deliver energy from a designated Network Resource located either outside or within the PJM Region to load located either outside or within the PJM Region, and that was confirmed and in effect during the historical reference year for the Zone in which the resource is located. Such an agreement shall allow the Qualifying Transmission Customer to participate in the first stage of the allocation, but only if such agreement has remained in effect continuously following the historical reference year and is to continue in effect for the period addressed by the allocation, either by its term or by renewal or rollover. The megawatts of Auction Revenue Rights the Qualifying Transmission Customer may request in the first stage of the allocation may not exceed the lesser of: (i) the megawatts of firm service between the designated Network Resource and the load delivery point (or applicable point at the border of the PJM Region for load located outside such region) under contract during the historical reference year; and (ii) the megawatts of firm service presently under contract

between such historical reference year receipt and delivery points. A Qualifying Transmission Customer may request Auction Revenue Rights in either or both of stage 1 or 2 of the allocation without regard to whether such customer is subject to a charge for Firm Point-to-Point Transmission Service under Section 1 of Schedule 7 of the PJM Tariff (“Base Transmission Charge”). A Transmission Customer that is not a Qualifying Transmission Customer may request Auction Revenue Rights in stage 2 of the allocation process, but only if it is subject to a Base Transmission Charge. The Auction Revenue Rights that such a Transmission Customer may request in each round of stage 2 of the allocation process must be equal to or less than one half of the number of megawatts equal to the megawatts of firm service being provided between the receipt and delivery points as to which the Transmission Customer currently has Firm Point-to-Point Transmission Service. The source point of the Auction Revenue Rights must be the designated source point that is specified in the Transmission Service request and the sink point of the Auction Revenue Rights must be the designated sink point that is specified in the Transmission Service request. A Qualifying Transmission Customer may request Auction Revenue Rights in each round of stage 2 of the allocation process in a number of megawatts equal to or less than one half of the difference between the number of megawatts of firm service being provided between the receipt and delivery points as to which the Transmission Customer currently has Firm Point-to-Point Transmission Service and its Auction Revenue Right Allocation from stage 1 of the allocation process.

(g) PJM Transmission Customers that serve load in the Midwest ISO may participate in stage 1 of the allocation to the extent permitted by, and in accordance with, this Section 7.4.2 and other applicable provisions of this Schedule 1. For service from non-historic sources, these customers may participate in stage 2, but in no event can they receive an allocation of ARR/FTRs from PJM greater than their firm service to loads in MISO.

(h) Subject to subsection (i) of this section, all Auction Revenue Rights must be simultaneously feasible. If all Auction Revenue Right requests made during the annual allocation process are not feasible then Auction Revenue Rights are prorated and allocated in proportion to the megawatt level requested and in inverse proportion to the effect on the binding constraints.

(i) If any Auction Revenue Right requests made during stage 1A of the annual allocation process are not feasible due to system conditions, then PJM shall increase the capability limits of the binding constraints that would have rendered the Auction Revenue Rights infeasible to the extent necessary in order to allocate such Auction Revenue Rights without their being infeasible unless such infeasibility is caused by extraordinary circumstances. Such increased limits shall be included in all rounds of the annual allocation and auction processes and in subsequent modeling during the Planning Year to support any incremental allocations of Auction Revenue Rights and monthly and balance of the Planning Period Financial Transmission Rights auctions unless and to the extent those system conditions that contributed to infeasibility in the annual process are not extant for the time period subject to the subsequent modeling, such as would be the case, for example, if transmission facilities are returned to service during the Planning Year. In these cases, any increase in the capability limits taken under this subsection (i) during the annual process will be removed from subsequent modeling to support any incremental allocations of Auction Revenue Rights and monthly and balance of the Planning Period Financial Transmission Rights auctions. In addition, PJM may remove or lower the increased capability limits, if

feasible, during subsequent FTR Auctions if the removal or lowering of the increased capability limits does not impact Auction Revenue Rights funding and net auction revenues are positive.

For the purposes of this subsection (i), extraordinary circumstances shall mean an event of force majeure that reduces the capability of existing or planned transmission facilities and such reduction in capability is the cause of the infeasibility of such Auction Revenue Rights. Extraordinary circumstances do not include those system conditions and assumptions modeled in simultaneous feasibility analyses conducted pursuant to section 7.5 of Schedule 1 of this Agreement. If PJM allocates stage 1A Auction Revenue Rights as a result of this subsection (i) that would not otherwise have been feasible, then PJM shall notify Members and post on its web site (a) the aggregate megawatt quantities, by sources and sinks, of such Auction Revenue Rights and (b) any increases in capability limits used to allocate such Auction Revenue Rights.

(j) Long-Term Firm Point-to-Point Transmission Service customers that are not Qualifying Transmission Customers and Network Service Users serving Non-Zone Network Load may participate in stage 1 of the annual allocation of Auction Revenue Rights pursuant to Section 7.4.2(a)-(c) of Schedule 1 of this Agreement, subject to the following conditions:

- i. The relevant Transmission Service shall be used to deliver energy from a designated Network Resource located either outside or within the PJM Region to load located outside the PJM Region.
- ii. To be eligible to participate in stage 1A of the annual Auction Revenue Rights allocation: 1) the relevant Transmission Service shall remain in effect for the stage 1A period addressed by the allocation; and 2) the control area in which the external load is located has similar rules for load external to the relevant control area.
- iii. Source points for stage 1 requests authorized pursuant to this subsection 7.4.2(j) shall be limited to: 1) generation resources owned by the LSE serving the load located outside the PJM Region; or 2) generation resources subject to a bona fide firm energy and capacity supply contract executed by the LSE to meet its load obligations, provided that such contract remains in force and effect for a minimum term of ten (10) years from the first effective Planning Period that follows the initial stage 1 request.
- iv. For Long-Term Firm Point-to-Point Transmission Service customers requesting stage 1 Auction Revenue Rights pursuant to this subsection 7.4.2(j), the generation resource(s) designated as source points may include any portion of the generating capacity of such resource(s) that is not, at the time of the request, already identified as a Capacity Resource.
- v. For Network Service Users requesting stage 1 Auction Revenue Rights pursuant to this subsection 7.4.2(j), at the time of the request, the generation resource(s) designated as source points must either be

committed into PJM's RPM market or be designated as part of the entity's FRR Capacity Plan for the purpose of serving the capacity requirement of the external load.

- vi. All stage 1 source point requests made pursuant to this subsection 7.4.2(j) shall not increase the megawatt flow on facilities binding in the relevant annual Auction Revenue Rights allocation or in future stage 1A allocations and shall not cause megawatt flow to exceed applicable ratings on any other facilities in either set of conditions in the simultaneous feasibility test prescribed in subsection (vii) of this subsection 7.4.2(j).
- vii. To ensure the conditions of subsection (vi) of this subsection 7.4.2(j) are met, a simultaneous feasibility test shall be conducted: 1) based on next allocation year with all existing stage 1 and stage 2 Auction Revenue Rights modeled as fixed injection-withdrawal pairs; and 2) based on 10 year allocation model with all eligible stage 1A Auction Revenue Rights for each year including base load growth for each year.
- viii. Requests for stage 1 Auction Revenue Rights made pursuant to this subsection 7.4.2(j) that are received by PJM by November 1st of a Planning Period shall be processed for the next annual Auction Revenue Rights allocation. Requests received after November 1st shall not be considered for the upcoming annual Auction Revenue Rights allocation. If all requests are not simultaneously feasible then requests will be awarded on a pro-rata basis.
- ix. Requests for new or alternate stage 1 resources made by Network Service Users and external LSEs that are received by November 1st shall be evaluated at the same time. If all requests are not simultaneously feasible then requests will be awarded on a pro-rata basis.
- x. Stage 1 Auction Revenue Rights source points that qualify pursuant to this subsection 7.4.2(j) shall be eligible as stage 1 Auction Revenue Rights source points in subsequent annual Auction Revenue Rights allocations.
- xi. Long-Term Firm Point-to-Point Transmission Service customers requesting stage 1 Auction Revenue Rights pursuant to this subsection 7.4.2(j) may request Auction Revenue Rights megawatts up to the lesser of: 1) the customer's Long-Term Firm Point-to-Point Transmission service contract megawatt amount; or 2) the customer's Firm Transmission Withdrawal Rights.
- xii. Network Service Users requesting stage 1 Auction Revenue Rights pursuant to this subsection 7.4.2(j) may request Auction Revenue Rights megawatts up to the lesser of: 1) the customer's network service peak load; or 2) the customer's Firm Transmission Withdrawal Rights.

- xiii. Stage 1A Auction Revenue Rights requests made pursuant to this subsection 7.4.2(j) shall not exceed 50% of the maximum allowed megawatts authorized by subsections (xi) and (xii) of this subsection 7.4.2(j).
- xiv. Stage 1B Auction Revenue Rights requests made pursuant to this subsection 7.4.2(j) shall not exceed the difference between the maximum allowed megawatts authorized by subsections (xi) and (xii) of this subsection 7.4.2(j) and the Auction Revenue Rights megawatts granted in stage 1A.
- xv. In each round of Stage 2 of an annual allocation of Auction Revenue Rights, megawatt requests made pursuant to this subsection 7.4.2(j) shall be equal to or less than one half of the difference between the maximum allowed megawatts authorized by paragraphs (xi) and (xii) of this subsection 7.4.2(j) and the Auction Revenue Rights megawatt amount allocated in stage 1.
- xvi. Stage 1 Auction Revenue Rights sources established pursuant to this subsection 7.4.2(j) and the associated Auction Revenue Rights megawatt amount may be replaced with an alternate resource pursuant to the process established in Section 7.7 of Schedule 1 of this Agreement.

(k) PJM Transmission Customers taking firm transmission service for the delivery of Direct Charging Energy to Energy Storage Resources are not eligible for allocation of Auction Revenue Rights.

7.4.2a Bilateral Transfers of Auction Revenue Rights

(a) Market Participants may enter into bilateral agreements to transfer Auction Revenue Rights or the right to receive an allocation of Auction Revenue Rights to a third party. Such bilateral transfers shall be reported to the Office of the Interconnection in accordance with this Schedule and pursuant to the LLC's rules related to its FTR reporting tools.

(b) For purposes of clarity, with respect to all bilateral transfers of Auction Revenue Rights or the right to receive an allocation of Auction Revenue Rights, the rights and obligations to the Auction Revenue Rights or the right to receive an allocation of Auction Revenue Rights that are the subject of such a bilateral transfer shall pass to the buyer under the bilateral contract subject to the provisions of this Schedule. In no event, shall the purchase and sale of an Auction Revenue Right or the right to receive an allocation of Auction Revenue Rights pursuant to a bilateral transfer constitute a transaction with PJMSettlement or a transaction in any auction under this Schedule.

(c) Consent of the Office of the Interconnection shall be required for a seller to transfer to a buyer any obligations associated with the Auction Revenue Rights or the right to receive an

allocation of Auction Revenue Rights. Such consent shall be based upon the Office of the Interconnection's assessment of the buyer's ability to perform the obligations transferred in the bilateral contract. If consent for a transfer is not provided by the Office of the Interconnection, the title to the Auction Revenue Rights or the right to receive an allocation of Auction Revenue Rights shall not transfer to the third party and the holder of the Auction Revenue Rights or the right to receive an allocation of Auction Revenue Rights shall continue to receive all rights attributable to the Auction Revenue Rights or the right to receive an allocation of Auction Revenue Rights and remain subject to all credit requirements and obligations associated with the Auction Revenue Rights or the right to receive an allocation of Auction Revenue Rights.

(d) A seller under such a bilateral contract shall guarantee and indemnify the Office of the Interconnection, PJMSettlement, and the Members for the buyer's obligation to pay any charges associated with the Auction Revenue Right and for which payment is not made to PJMSettlement by the buyer under such a bilateral transfer.

(e) All payments and related charges associated with such a bilateral contract shall be arranged between the parties to such bilateral contract and shall not be billed or settled by PJMSettlement or the Office of the Interconnection. The LLC, PJMSettlement, and the Members will not assume financial responsibility for the failure of a party to perform obligations owed to the other party under such a bilateral contract reported to the Office of the Interconnection under this Schedule.

(f) All claims regarding a default of a buyer to a seller under such a bilateral contract shall be resolved solely between the buyer and the seller.

7.4.3 Target Allocation of Auction Revenue Right Credits.

(a) A Target Allocation of Auction Revenue Right Credits for each entity holding an Auction Revenue Right shall be determined for each Auction Revenue Right. After each round of the annual Financial Transmission Right auction, each Auction Revenue Right shall be divided by four and multiplied by the price differences for the receipt and delivery points associated with the Auction Revenue Right, calculated as the Locational Marginal Price at the delivery points(s) minus the Locational Marginal Price at the receipt point(s), where the price for the receipt and delivery point is determined by the clearing prices of each round of the annual Financial Transmission Right auction. The daily total Target Allocation for an entity holding the Auction Revenue Rights shall be the sum of the daily Target Allocations associated with all of the entity's Auction Revenue Rights.

(b) A Target Allocation of residual Auction Revenue Rights Credits for each entity allocated Residual Auction Revenue Rights pursuant to section 7.9 of Schedule 1 of this Agreement shall be determined on a monthly basis for each month in a Planning Period beginning with the month the Residual Auction Revenue Right(s) becomes effective through the end of the relevant Planning Period. The Target Allocation for Residual Auction Revenue Rights Credits shall be equal to megawatt amount of the Residual Auction Revenue Rights multiplied by the LMP differential between the source and sink nodes of the corresponding FTR obligation in each

prompt-month FTR auction that occurs from the effective date of the Residual Auction Revenue Rights through the end of the relevant Planning Period.

7.4.4 Calculation of Auction Revenue Right Credits.

(a) Each day, the total of all the daily Target Allocations determined as specified above in Section 7.4.3 plus any additional Auction Revenue Rights Target Allocations applicable for that day shall be compared to the total revenues of all applicable monthly Financial Transmission Rights auction(s) (divided by the number of days in the month) plus the total revenues of the annual Financial Transmission Rights auction (divided by the number of days in the Planning Period). If the total of the Target Allocations is less than the total auction revenues, the Auction Revenue Right Credit for each entity holding an Auction Revenue Right shall be equal to its Target Allocation. All remaining funds shall be distributed as Excess Congestion Charges pursuant to Section 5.2.6.

(b) If the total of the Target Allocations is greater than the total auction revenues, each holder of Auction Revenue Rights shall be assigned a share of the total auction revenues in proportion to its Auction Revenue Rights Target Allocations for Auction Revenue Rights which have a positive Target Allocation value. Auction Revenue Rights which have a negative Target Allocation value are assigned the full Target Allocation value as a negative Auction Revenue Right Credit.

(c) At the end of a Planning Period, if all Auction Revenue Right holders did not receive Auction Revenue Right Credits equal to their Target Allocations, PJMSettlement shall assess a charge equal to the difference between the Auction Revenue Right Credit Target Allocations for all revenue deficient Auction Revenue Rights and the actual Auction Revenue Right Credits allocated to those Auction Revenue Right holders. The aggregate charge for a Planning Period assessed pursuant to this section, if any, shall be added to the aggregate charge for a Planning Period assessed pursuant to section 5.2.5(c) of Schedule 1 of this Agreement and collected pursuant to section 5.2.5(c) of Schedule 1 of this Agreement and distributed to the Auction Revenue Right holders that did not receive Auction Revenue Right Credits equal to their Target Allocation.

7.5 Simultaneous Feasibility.

(a) The Office of the Interconnection shall make the simultaneous feasibility determinations specified herein using appropriate powerflow models of contingency-constrained dispatch. Simultaneous feasibility determinations shall take into account outages of both individual generation units and transmission facilities and shall be based on reasonable assumptions about the configuration and availability of transmission capability during the period covered by the auction that are not inconsistent with the determination of the deliverability of Generation Capacity Resources under the Reliability Assurance Agreement. The goal of the simultaneous feasibility determination shall be to ensure that there are sufficient revenues from Day-ahead Energy Market Transmission Congestion Charges to satisfy all Financial Transmission Rights Obligations for the auction period under expected conditions and to ensure that there are sufficient revenues from the annual Financial Transmission Right Auction to satisfy all Auction Revenue Rights Obligations. To ensure revenue sufficiency, the powerflow model used for simultaneous feasibility determinations is a markets model that uses flows caused by sources and sinks of requested Auction Revenue Rights (including Incremental Auction Revenue Rights) or Financial Transmission Rights, as well as market limits (as described in section (b) below) to determine the capability available to accommodate financial rights that are simultaneously feasible. The markets model differs from both an operations model, which uses physical generators or load, and a planning model, which uses expected physical generators or load.

(b) Simultaneous feasibility determinations pursuant to this section utilize applicable market limits. Market limits may differ from physical facility ratings to reflect expected market capability and to align expected Financial Transmission Rights total target allocations with expected congestion, and to ensure sufficient revenues are collected from the Day-ahead Energy Market Transmission Congestion Charges to satisfy all Financial Transmission Rights obligations. To account for historical market impacts, market limits may reflect (without limitation) such factors as requested and awarded Auction Revenue Rights, Incremental Auction Revenue Rights and Financial Transmission Rights, uncompensated powerflow, external flowgate entitlements or limits, transfer limits of the type appropriate for reactive interfaces, operational considerations, voltage limitations and/or closed loop interfaces. Market limits also are based on reasonable assumptions about the configuration and availability of transmission capability during the study period, including (without limitation) scheduled or expected transmission outages. The market limits are applied to facilities modeled in an Auction Revenue Rights allocation, Financial Transmission Rights auction or Incremental Auction Revenue Rights study and may result in operative constraints that establish different limits than physical (e.g., thermal or voltage) ratings. As used here, an operative constraint results when a market limit binds in the powerflow model and constrains the grant of Auction Revenue Rights, Incremental Auction Revenue Rights or Financial Transmission Rights.

(c) On an annual basis the Office of the Interconnection shall conduct a simultaneous feasibility test for stage 1A Auction Revenue Rights, which shall assess the simultaneous feasibility for each year remaining in the term of the right(s). This test shall be based on the Auction Revenue Rights required to meet sixty percent (60%) of peak load in each Zone requirements. The Office of the Interconnection shall apply a zonal load growth rate to the simultaneous feasibility test for the ten year term of the stage 1A Auction Revenue Rights to

reflect load growth as estimated by the Office of the Interconnection.

(d) Simultaneous feasibility tests for new stage 1 resource requests made pursuant to Section 7.6 of Schedule 1 of this Agreement shall ensure that the request for a new base resource does not increase the megawatt flow on facilities binding in the current Auction Revenue Rights allocation or in future stage 1A allocations and does not cause megawatt flow to exceed applicable ratings on any other facilities in either set of conditions. The most limiting set of conditions will be used as the limiting condition in these evaluations. A simultaneous feasibility test conducted pursuant to this section by the Office of the Interconnection shall assess the simultaneous feasibility under the following conditions:

- (i) Based on next allocation year with all existing stage 1 and stage 2 Auction Revenue Rights modeled as fixed injection-withdrawal pairs.
- (ii) Based on 10 year allocation model with all eligible stage 1A Auction Revenue Rights for each year including base load growth for each year.

(e) Simultaneous feasibility tests for Incremental Auction Revenue Rights requested pursuant to Operating Agreement, Schedule 1, section 7.8 and Tariff, Part VI, Subpart C, section 231 shall ensure that the request for the Incremental Auction Revenue Rights does not increase the megawatt flow on facilities binding in the current Auction Revenue Rights allocation or in future stage 1A allocations and does not cause megawatt flow to exceed applicable ratings on any other facilities in either set of conditions. The most limiting set of conditions will be used as the limiting conditions in these evaluations. A simultaneous feasibility test conducted pursuant to this section by the Office of the Interconnection shall assess the simultaneous feasibility using the following models derived from the markets model:

- (i) An Incremental Auction Revenue Rights model that is based on the existing allocation year with transmission outages removed (i.e., the transmission assumed out of service in the base markets model is assumed to be in service). All existing stage 1 and stage 2 Auction Revenue Rights are modeled as fixed injection withdrawal pairs.
- (ii) A 10 year allocation model with all eligible stage 1A Auction Revenue Rights for each year including base load growth for each year.

(f) Simultaneous feasibility tests pursuant to section (e) above utilize a transfer analysis to determine the flow impacts. The transfer analysis is performed by injecting at the source and withdrawing at the sink and measuring the impacts on the facilities. Additional details are provided in the PJM Manuals and related explanatory materials posted on the PJM website such as the PJM Whitepaper entitled “PJM Incremental Auction Revenue Rights Model Development and Analysis.”

7.6 New Stage 1 Resources.

A Network Service User may request the addition of new stage 1 resources to the stage 1 resource list if the capacity of the Stage 1 generation resources for a Zone determined pursuant to Section 7.4.2(b) is less than sixty percent (60%) of the of peak load in the Zone. Requests made pursuant to this section shall be subject to Section 7.5(c) of Schedule 1 of this Agreement and shall be limited to generation resources either owned by the requesting party or those subject to a bona fide firm energy and capacity supply contracts where such contract is executed by the requesting party to meet load obligations for which it is eligible to receive stage 1 Auction Revenue Rights and remains in force and effect for a minimum term of ten (10) years.

7.8 Elective Upgrade Auction Revenue Rights.

(a) In addition to any Incremental Auction Revenue Rights established under the PJM Tariff, any party may elect to fully fund Network Upgrades to obtain Incremental Auction Revenue Rights pursuant to this section, provided that Incremental Auction Revenue Rights granted pursuant to this section shall be simultaneously feasible with outstanding Auction Revenue Rights, which shall include stage 1 and stage 2 Auction Revenue Rights, and against stage 1A Auction Revenue Right capability for the future 10 year period, as determined by the Office of the Interconnection pursuant to Section 7.8(b) of Schedule 1 of this Agreement. A request made pursuant to this section shall specify a source, sink and megawatt amount, where the source and sink each meet the criteria described for stage 1 in Operating Agreement, Schedule 1, sections 7.4.2(b) and 7.4.2(c).

(b) The Office of the Interconnection shall assess the simultaneous feasibility of the requested Incremental Auction Revenue Rights and the outstanding Auction Revenue Rights against the existing base system Auction Revenue Right capability and stage 1A Auction Revenue Right capability for the future 10 year period pursuant to Operating Agreement, Schedule 1, section 7.5. This preliminary assessment will determine the incremental flow impact necessary on facilities.

(c) The incremental flow impact represents the incremental capability required on a facility to ensure the requested Incremental Auction Revenue Rights can be made feasible. This required capability is used to determine the upgrades required to accommodate the requested Incremental Auction Revenue Rights and ensure all outstanding Auction Revenue Rights are simultaneously feasible. Additional details are provided in the PJM Manuals and related explanatory materials posted on the PJM website such as the PJM Whitepaper entitled "PJM Incremental Auction Revenue Rights Model Development and Analysis."

- (i) For Incremental Auction Revenue Rights requests, the Office of the Interconnection shall use an Incremental Auction Revenue Rights model to perform the simultaneous feasibility test detailed in Operating Agreement, Schedule 1, section 7.5. The Incremental Auction Revenue Rights model shall consist of an Incremental Auction Revenue Rights model and the 10 year stage 1A Auction Revenue Rights model. An Incremental Auction Revenue Rights model uses the same transmission system model used in the annual Auction Revenue Rights process, except any modeled transmission outages included in the Auction Revenue Rights process are removed (i.e., the transmission assumed out of service in the base markets model is assumed to be in service). Auction Revenue Rights requests that were denied or pro-rated in the annual Auction Revenue Rights allocation as a result of assumed transmission outages also are restored in the Incremental Auction Revenue Rights model because the transmission is assumed to be in service for purposes of this model.
- (ii) If the incremental market flows created by the Incremental Auction Revenue Rights request cause facilities to be limited or increase the market flow on already limited facilities in either the Incremental Auction Revenue Rights model or the

10 year stage 1A Auction Revenue Rights model, increased system capability will be required in order for the Office of the Interconnection to grant the Incremental Auction Revenue Rights request. This required incremental capability is used to determine the upgrades required to accommodate the requested Incremental Auction Revenue Rights and ensure all outstanding Auction Revenue Rights (including any pro-rated but restored Auction Revenue Rights requests) are simultaneously feasible. Additional details are provided in the PJM Manuals and related explanatory materials posted on the PJM website such as the PJM Whitepaper entitled “PJM Incremental Auction Revenue Rights Model Development and Analysis.”

- (iii) In addition to the Incremental Auction Revenue Rights model, the Office of the Interconnection uses a planning model that consists of the Regional Transmission Expansion Plan model used by the Office of the Interconnection to study system needs and proposed projects five years forward combined with modeled in-service and planned generation and forecasted load. The planning model includes transmission system upgrades that are ahead of the proposed Incremental Auction Revenue Rights request in the New Services Queue. The upgrades required for the Incremental Auction Revenue Rights request must achieve additional incremental capability over and above any planned baseline or Supplemental Project upgrades, including upgrades related to a Supplemental Project with a projected in-service date later than the applicable planning case year.

(d) If a party elects to fund upgrades to obtain Incremental Auction Revenue Rights pursuant to this section, no less than forty-five (45) days prior to the in-service date of the relevant upgrades, as determined by the Office of the Interconnection, the Office of the Interconnection shall notify the party of the actual amount of Incremental Auction Revenue Rights that will be granted to the party based on the allocation process established pursuant to Section 231 of Part VI of the Tariff.

(e) Incremental Auction Revenue Rights established pursuant to this section shall be effective for the lesser of thirty (30) years, or the life of the project, from the in-service date of the Network Upgrade(s). At any time during this thirty-year period (or the life of the Network Upgrade whichever is less), in lieu of continuing this thirty-year Auction Revenue Right, the owner of the right shall have a one-time choice to switch to an optional mechanism, whereby, on an annual basis, it will have the choice to request an Auction Revenue Right during the annual Auction Revenue Rights allocation process between the same source and sink, provided the Auction Revenue Right is simultaneously feasible. A party that is granted Incremental Auction Revenue Rights pursuant to this section may return such rights at any time, provided that the Office of the Interconnection determines that it can simultaneously accommodate all remaining outstanding Auction Revenue Rights following the return of such Auction Revenue Rights. In the event a party returns Incremental Auction Revenue Rights, it shall retain no further rights regarding such Incremental Auction Revenue Rights.

(f) No Incremental Auction Revenue Rights shall be granted pursuant to this section if the costs associated with funding the associated Network Upgrades are included in the rate base of a

public utility and on which a regulated return is earned.