

August 23, 2018

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. ER18-____-000
Financial Transmission Rights Liquidation 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 the PJM Open Access Transmission Tariff (“Tariff”), Attachment K-Appendix, section 7.3.9 and identical Amended and Restated Operating Agreement of PJM (“Operating Agreement”), Schedule 1, section 7.3.9.¹

Through this filing and accompanying affidavit, PJM details the significant adverse impact to its Members of applying the existing PJM Operating Agreement Financial Transmission Right (“FTR”)² liquidation provisions, which require the rapid liquidation of FTR positions of Members who are in default. Left unchecked, the present Operating Agreement leads to unreasonable results for PJM Members by increasing, in multiples, the cost to the PJM membership of the present default by GreenHat Energy, LLC (“GreenHat”). PJM is filing this FPA section 205 application to propose an interim solution that would avoid this unreasonable result with the intention, after further consultation with its Membership, of proposing a more comprehensive redesign of the present FTR liquidation provisions.

PJM presented this proposal to its Members at the Markets and Reliability Committee (“MRC”) and Members Committee (“MC”) meeting held on this day, August

¹ All references herein to the Tariff, Attachment K-Appendix, section 7.3.9 also are intended to encompass the identical, parallel provisions in the Operating Agreement, Schedule 1, section 7.3.9. PJM will refer generally to the Tariff throughout this letter to also include the Operating Agreement.

² 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.

23, 2018. Specifically, the MRC endorsed this proposal with a sector-weighted vote of 4.04 out of 5 in favor and the MC endorsed this proposal with a sector-weighted vote of 4.43 out of 5. PJM seeks Federal Energy Regulatory Commission (“Commission”) action on this proposal by October 22, 2018. In addition, consistent with its rights as a public utility, PJM intends to implement this proposal pursuant to FPA section 205 August 24, 2018, subject to final action by the Commission.

Under the proposed revisions to PJM’s Tariff, PJM’s existing process for liquidating FTRs would be suspended during the time period of August 24, 2018, through November 30, 2018, (covering FTRs in September through December). This acts as an interim solution to preserve the ability of the PJM Members to craft an alternative FTR liquidation option for the Commission’s consideration. During this limited period, the defaulting Member’s FTR portfolio would not be liquidated through the auction process. Instead, the defaulting Member’s current period FTR positions would proceed to settlement.

The proposed revisions have five features in particular that make them more desirable than the existing FTR liquidation rules:

- First, the temporary change will prevent a significant disruption to upcoming FTR auctions by avoiding distortion of the FTR market from forced liquidation of a large FTR portfolio when there are not enough willing buyers to rationally absorb the supply.³
- Second, PJM’s revisions will help avoid a proverbial “race to the bottom” that would result from an effectively unconstrained, unlimited mandate to sell (and in most cases pay a Market Participant to take) substantially money-losing FTR positions. Relatedly, the proposal will help circumvent the need to pay potential FTR buyers the type of high risk premium normally associated with liquidating undesirable money-losing positions using a simple solution: not liquidating the positions.⁴
- Third, the revisions will modify the Tariff to allow PJM and its Members additional time to observe the FTR market and consider an appropriate long-term course of action for addressing GreenHat’s defaulted FTR positions without liquidating all of them right away.
- Fourth, administering the new Tariff provisions will be simpler and more efficient than administering a monthly FTR liquidation under the PJM Waiver Request in Docket No. ER18-2068-000⁵ because the revisions will

³ Affidavit of Timothy Horger (Attachment E) ¶ 5 (“Horger Aff.”).

⁴ Horger Aff. ¶¶ 7–8.

⁵ Request of PJM Interconnection, L.L.C. for a Waiver Effective July 27, 2018, Docket No. ER18-2068-000 (July 26, 2018) (“PJM Waiver Request”).

alleviate the need for any liquidation through each FTR auction from August 24, 2018, through November 30, 2018, and will moot in large part the PJM Waiver Request.⁶

- Fifth, and importantly, the proposed revisions reflect an approach chosen by the Members themselves to address GreenHat's default.

I. BACKGROUND

FTRs are a financial product that allows Market Participants to hedge the costs of day-ahead transmission congestion. Thus, they allow Market Participants to offset potential charges related to the price risk of delivering energy to the grid. FTRs are valued based upon the difference between the day-ahead prices at two pricing points on the transmission system.

However, there is no requirement that FTRs be used only to hedge physical power flows. Rather, FTRs are simply financial contracts entitling the FTR holder to a stream of revenues or charges. The 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. The 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.

When a Member default is declared, the Tariff currently requires PJM to close out and liquidate the FTRs of the Member by, among other requirements:

- offering for sale "all" current planning period FTR positions within the defaulting Member's portfolio in the next available monthly balance of planning period FTR auction "at an offer price designed to maximize the likelihood of liquidation of those positions;"⁷
- offering any FTR positions that do not settle until the next or subsequent planning periods into the next available FTR auction where such positions would be expected to clear, and in that auction, offering the entire FTR portfolio of the defaulting Member at an offer price designed to maximize the likelihood of liquidation of those positions;⁸
- where, based on the auction's preliminary solution, any of the closed-out FTR positions would set the market price, offering for sale only one-half of each

⁶ It is still important for the Commission to grant the PJM Waiver Request even if it accepts these Tariff revisions because the waiver will authorize the liquidation of GreenHat's August FTRs at the July 2018 auction, which predates this filing.

⁷ Tariff, Attachment K-Appendix, section 7.3.9(c).

⁸ See Tariff, Attachment K-Appendix, section 7.3.9(d).

FTR position and re-execute the auction, and then offering the FTR positions that were not liquidated in the next auction;⁹ and,

- treating the liquidation of the defaulting Member's FTR portfolio "pursuant to the foregoing procedures" as the "final liquidated settlement amount" that is included in calculating a Default Allocation Assessment.¹⁰

On June 21, 2018, PJM declared GreenHat in payment default of its financial obligations associated with GreenHat's sizable FTR portfolio. As a result of this declaration, PJM initiated procedures to close out and liquidate GreenHat's FTRs in accordance with Tariff, Attachment K-Appendix, section 7.3.9. Specifically, on June 22, 2018, notice of the default pending liquidation was provided to PJM Members. At that time, PJM also posted on its website details of the GreenHat FTR portfolio, consisting of numerous FTRs for the 2018/2019, 2019/2020, and 2020/2021 Planning Periods. Most of the FTRs in the portfolio are currently negatively valued, such that FTR auction participants will assume such FTRs only if paid to do so.

Under the existing rules, the forced liquidation of a large FTR portfolio, such as GreenHat's, would inject more than 54 million megawatt hours of FTRs for each month of the 2018/2019 Planning Period for sale into the market.¹¹ The liquidation of such a large FTR portfolio, in combination with PJM's obligation to offer a price designed to maximize the likelihood of liquidation irrespective of a price ceiling on how much PJM would have to pay Market Participants to liquidate the positions, would cause the prices to significantly diverge from the expected day-ahead price outcomes.¹² For example, for the first sixteen days of August, the cost to liquidate the August 2018 positions was \$12.4 million while the actual net losses on those positions, based on actual congestion for the same sixteen-day period, were only \$2.3 million.

On July 26, 2018, PJM filed for a waiver of its Tariff to only liquidate the prompt month starting with the FTR auction conducted in July for GreenHat's August FTR positions through the FTR auction conducted in October for GreenHat's November FTR

⁹ See Tariff, Attachment K-Appendix, section 7.3.9(e). Under the Tariff, if offering only one-half of each FTR position in the upcoming auction would still set the price, PJM would not offer the defaulted FTRs for liquidation in that month, with the goal being that FTRs being liquidated may not set the price in the FTR auction.

¹⁰ Tariff, Attachment K-Appendix, section 7.3.9(f).

¹¹ For reference, an average monthly prompt position of FTRs for a participant is approximately 0.3 million megawatt hours over the last fifteen months.

¹² See Horger Aff. at ¶ 4.

positions.¹³ The waiver remains pending before the Commission. Acceptance of this FPA section 205 filing and the granting of the waiver of the prior notice requirement together with the requested effective date of August 24, 2018, will effectively make that waiver request only applicable to the auction completed in July (mooting the rest of the requested waiver period).¹⁴

As noted, PJM liquidated GreenHat's August FTR positions and the average cost of those positions based upon the auction value is approximately \$775,000 *per day*, or a total of approximately \$12.4 million for the first sixteen days of August.¹⁵ By contrast, had GreenHat's positions proceeded to settlement instead of being liquidated, actual losses incurred in the first sixteen days of August 2018 would have been approximately \$2.3 million. Thus, the actual losses for the first sixteen days of August 2018 have been consistently less than the auction-determined liquidation value, with some days resulting in \$0 in losses or even slight profits at settlement.¹⁶ If the current trend continues for August, it is likely that PJM will have paid more than five times the settlement value to liquidate the August FTR positions. Extrapolating that trend into the near future, even if the liquidation of GreenHat's FTR portfolio is limited to the prompt-months as set forth

¹³ With the PJM Waiver Request in Docket No. ER18-2068-000, PJM sought a waiver of the FTR liquidation requirements, as necessary, to permit PJM to sell in the monthly FTR auctions conducted in July, August, September, and October (as well as the long-term FTR auction conducted in September 2018) only the prompt-month portion of the defaulting Member's FTR 2018/2019 planning period portfolio.

¹⁴ This waiver request remains pending before the Commission. While the PJM Waiver Request, filed on July 26, 2018, would help mitigate the negative effects on the market that would result from the immediate liquidation of all of GreenHat's FTR positions by liquidating only the prompt-month portion of GreenHat's FTR positions on a month-by-month basis, *see* PJM Waiver Request at 3–9, PJM and its stakeholders have since developed revised Tariff and Operating Agreement language being proposed here, which, if accepted by the Commission, is anticipated to result in lower costs to Members and provide a more efficient mechanism for addressing GreenHat's FTR positions. PJM recommends that the Commission grant the waiver request in Docket No. ER18-2068-000 for the time period from July 27, 2018, through the effective date of the Tariff and Operating Agreement revisions proposed herein. Granting the PJM Waiver Request and accepting these revisions will provide maximum relief to PJM Market Participants while also providing efficiency benefits by avoiding monthly liquidations of GreenHat's FTR positions.

¹⁵ Horger Aff. ¶ 7.

¹⁶ Horger Aff. ¶ 7.

in the waiver, the auction liquidation still results in paying a significant premium over the actual congestion. Allowing GreenHat's positions to settle based on actual congestion costs on the defaulted positions instead of being liquidated is expected to benefit Market Participants as compared to the liquidation requirement under the current Tariff due to the avoidance of the forced sale of FTR positions commanding high risk premiums.¹⁷

II. STAKEHOLDER INPUT

Given the unprecedented liquidation size of the FTR portfolio on which GreenHat defaulted, PJM conducted an expedited stakeholder process with respect to these proposed changes, receiving endorsement of the changes at both MRC and MC meetings held on August 23, 2018.

Although PJM could arguably have filed this relief on its own as an amendment to the Operating Agreement under FPA section 206,¹⁸ the nature of this matter, namely the timing and manner of the FTR liquidation provisions, is one uniquely within the province of the membership to consider given that the Members pay the associated Default Allocation Assessment. As a result, to provide an opportunity for stakeholder deliberation while also time-limiting this application, this FPA section 205 application represents an interim step to resolve this matter. The time-limited nature of the proposed modification of PJM's Tariff and Operating Agreement is designed to provide PJM stakeholders with additional time to consider the challenges of liquidating a large FTR portfolio and possible alternatives that may be filed in a subsequent FPA section 205 filing. If no such filing is made by October 1, 2018, the liquidation procedures currently in PJM's Tariff would again become effective December 1, 2018.

At the August 23, 2018 MRC meeting, PJM's Members also approved a problem statement and issue charge to continue stakeholder discussion of FTR liquidation process alternatives that began at a special MRC meeting on August 10, 2018.¹⁹ That problem

¹⁷ Horger Aff. ¶ 7.

¹⁸ 16 U.S.C. § 824e.

¹⁹ At that special MRC meeting, PJM and its Members initiated discussions on alternative FTR liquidation processes. Some of the alternatives currently under consideration are described in the following presentations:

Markets & Reliability Committee, *Potential FTR Liquidation Process Alternatives*, PJM Interconnection L.L.C. (Aug. 10, 2018), <https://www.pjm.com/-/media/committees-groups/committees/mrc/20180810-special-fty/20180810-potential-financial-transmission-rights-liquidation-process-alternatives-updated.ashx>

Markets & Reliability Committee, *Direct Energy Proposals Re GreenHat Default*, PJM Interconnection, L.L.C. (Aug. 10, 2018), <https://www.pjm.com/->

statement and issue charge targets MRC and MC voting on FTR liquidation alternatives at its September 27, 2018, meeting to support a FPA section 205 filing with the Commission by October 1. Should the Members endorse an alternative to the current FTR liquidation process, PJM plans to request an effective date of December 1, 2018, for such an alternative, taking into account the Commission exercising its 60 day review process of any such FPA section 205 filing.

III. THE PROPOSED TARIFF AND OPERATING AGREEMENT REVISIONS ARE JUST AND REASONABLE

On August 23, 2018, PJM Market Participants endorsed Tariff and Operating Agreement revisions, as an interim solution, to make the mandatory liquidation of defaulted FTR positions inapplicable for the FTR auctions conducted during the time period of August 24, 2018, through November 30, 2018. These revisions, which PJM and a majority of stakeholders support, would specifically add a subsection (g) to Tariff, Attachment K-Appendix, section 7.3.9 and identical Operating Agreement, Schedule 1, section 7.3.9, to provide as follows:

g) For the period of August 24, 2018 through November 30, 2018, the liquidation process of a defaulting Member's Financial Transmission Rights described in Tariff, Attachment K – Appendix, section 7.3.9(c)-(f) and the parallel provisions in Operating Agreement, Schedule 1, section 7.3.9(c)-(f) shall not apply, including, without limitation, that the Office of the Interconnection shall not be required to offer the defaulting Member's Financial Transmission Rights for sale into any auction. During this period, the amount of gain or loss on each of the defaulting Member's Financial Transmission Rights positions shall be realized at the normal time for performance of such Financial Transmission Rights position. The net of such gains and losses for all such positions shall be considered the final monthly settlement amount. Such final monthly settlement amount shall be included in calculating the Default Allocation Assessments as described in Operating Agreement, section 15.1.2A(I). Such assessment shall in no way relieve the defaulting Member of its obligations, including, without limitation, the defaulting Member's obligations arising from or associated with the full value of its default.

The objective of this filing is to suspend the unprecedented liquidation of a large FTR portfolio previously owned by GreenHat, which has recently defaulted. A rapid liquidation of this large portfolio as required under the existing rules would distort FTR

market signals and likely suppress prices, locking in significant loss at a significant risk premium. In place of the existing FTR liquidation process, the proposed modification in this filing will allow any defaulting Member's FTR positions, including GreenHat's, to go to settlement during the specified period. This would effectively subject Market Participants only to the actual costs of congestion as settled against the defaulted FTR positions, rather than the risk premium associated with liquidating GreenHat's entire portfolio. Although this provision is generic in nature, the GreenHat default and the impact to the Members of the existing FTR liquidation provisions demonstrates that continuation of such liquidation process leads to results that require immediate reform.

PJM proposes revising the Tariff as an interim measure to address the above-described concerns. While PJM cannot predict market outcomes, the proposed Tariff revisions are expected to benefit PJM Market Participants by allowing time for Members to discuss and vote on alternatives to the existing FTR liquidation process.²⁰ This will enable PJM's Members to choose the desired course of action for unwinding GreenHat's FTR portfolio.

IV. EFFECTIVE DATE

PJM seeks to implement the proposed revisions to the Tariff and Operating Agreement as soon as possible to provide maximum protection to Market Participants. PJM therefore intends to implement this proposal on August 24, 2018, one day after the date of this filing in order to be applied to the FTR auction being conducted in August, and requests waiver of the Commission's sixty-day notice requirement to allow for this effective date. This effective date is appropriate because it will provide for the desired application of these new provisions to the FTR auction being conducted in August. The proposed revisions are meant to apply to all FTR auctions conducted from August 24, 2018, through November 30, 2018, meaning they will apply to FTR auctions for FTRs settling in September through December of 2018, as well as the FTRs that can be traded in the long-term FTR auction to be conducted in September 2018.

PJM requests waiver of the Commission's sixty-day notice requirement to allow for this effective date. The Commission waives the notice requirement "to protect customers from the adverse effects of market dysfunctions."²¹ The Commission also "believes that waiver of notice will generally be appropriate when the filing has no rate impact or reduces the rate," and will generally grant waiver for "filings that reduce rates and charges."²² In this case, there is good cause to grant waiver of the prior notice requirement and grant the requested effective date because the proposed revisions will

²⁰ Horger Aff. ¶ 8.

²¹ *ISO New England Inc.*, 123 FERC ¶ 61,021, at P 24 (2008).

²² *Cent. Hudson Gas & Elec. Corp.*, 60 FERC ¶ 61,106, at 61,337, 61,338, *order on reh'g*, 61 FERC ¶ 61,089 (1992).

prevent market dysfunction by avoiding disruption that would arise from the liquidation of GreenHat's large FTR portfolio and will ensure that PJM Market Participants' Default Allocation Assessment from GreenHat's default will not exceed the actual net profits or losses on the defaulted positions. Waiver of the notice requirement here is also appropriate because interested parties have been on notice of potential changes to PJM's FTR liquidation procedures as a result of review of the GreenHat default and its implications as part of PJM stakeholder meetings since the GreenHat default. The Commission has provided similar waivers in the past and should do so here.²³

²³ See *ISO New England*, 123 FERC ¶ 61,021, at P 24; see also *Duke Energy Progress, Inc.*, 145 FERC ¶ 61,037, at P 37 (2013) (“[T]he Commission generally grants waiver of the 60-day prior notice requirement when a filing reduces rates or charges. Therefore, we will grant waiver of the prior notice requirement to allow the revised depreciation expenses to be included in the formula rate schedule, effective April 1, 2013 as requested.” (footnote omitted)); *Fla. Power Corp.*, 134 FERC ¶ 61,145, at P 18 n.37 (2011) (“Florida Power argues, and Protestors do not dispute, that the proposed revisions to the depreciation rates will result in a rate decrease. . . . Thus, waiver of the 60-day prior notice requirement is consistent with Commission precedent.” (citation omitted)).

V. CORRESPONDENCE

The following individuals are designated for inclusion on the official service list in this proceeding and for receipt of any communications regarding this filing:²⁴

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VI. DOCUMENTS ENCLOSED

This filing consists of the following:

1. This transmittal letter;
2. Revisions to the Tariff (in redlined and non-redlined format (as Attachments A and B, respectively) and in electronic tariff filing format as required by Order No. 714²⁵);
3. Revisions to the Operating Agreement (in redlined and non-redlined format (as Attachments C and D, respectively) and in electronic tariff filing format as required by Order No. 714); and

²⁴ 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), to permit all of the persons listed to be placed on the official service list for this proceeding.

²⁵ *Electronic Tariff Filings*, Order No. 714, 2008–2013 FERC Stats. & Regs., Regs. Preambles ¶ 31,276 (2008), *final rule*, Order No. 714-A, III FERC Stats. & Regs., Regs. Preambles ¶ 31,356 (2014).

4. Affidavit of Timothy Horger on behalf of PJM (as Attachment E).

VII. 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,²⁶ PJM will post a copy of this filing to the FERC filings section of its internet site, located at the following link: <http://www.pjm.com/documents/ferc-manuals/ferc-filings.aspx> with a specific link to the newly filed document, and will send an email on the same date as this filing to all PJM members and all state utility regulatory commissions in the PJM Region²⁷ 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 twenty-four hours of the filing. Also, a copy of this filing will be available on the 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.

²⁶ See 18 C.F.R. §§ 35.2(e), 385.2010(f)(3).

²⁷ PJM already maintains, updates, and regularly uses email lists for all PJM members and affected state commissions.

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VIII. CONCLUSION

Accordingly, PJM requests that the Commission accept the enclosed Tariff and Operating Agreement revisions effective August 24, 2018.

Respectfully submitted,

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August 23, 2018

Attachment A

Revisions to the PJM Open Access Transmission Tariff

(Marked/Redline Format)

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. 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 herein and in accordance with standards and procedures set forth 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 Rights 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 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 On-Peak, Off-Peak and 24-Hour Periods.

On-peak, off-peak and 24-hour FTRs will be offered in the annual and monthly auction. 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 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, 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 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 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 Section 7.5 of this Schedule 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.

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 Liquidation of Financial Transmission Rights in the Event of Member Default.

In the event a Member fails to meet creditworthiness requirements or make timely payments when due pursuant to the PJM Operating Agreement or PJM Tariff, the Office of the Interconnection shall, as soon as practicable after such default is declared, initiate the following procedures to close out and liquidate the Financial Transmission Rights of a Member:

- a) The Office of the Interconnection shall close out the defaulting Member's positions as of the date of its default, by unilaterally accelerating and terminating all forward Financial Transmission Rights positions.
- b) The Office of the Interconnection shall post on its website all salient information relating to the closed out portfolio of Financial Transmission Rights.
- c) All current planning period Financial Transmission Right positions within the defaulting Members' Financial Transmission Right portfolio will be offered for sale in the next available monthly balance of planning period Financial Transmission Rights auction at an offer price designed to maximize the likelihood of liquidation of those positions.

d) Financial Transmission Rights positions that do not settle until the next or subsequent planning period will be offered into the next available Financial Transmission Rights auction (taking into account timing constraints and the need for an orderly liquidation) where, based on the Office of Interconnection's commercially reasonable expectation, such positions would be expected to clear. In the event that the next scheduled Financial Transmission Rights auction is more than two (2) months subsequent to the date that the Office of the Interconnection declares a Member in default, a specially scheduled Financial Transmission Rights auction may be conducted by the Office of the Interconnection. The entire portfolio of the defaulting Member's Financial Transmission Rights will be offered for sale at an offer price designed to maximize the likelihood of liquidation of those positions.

e) The Financial Transmission Right positions comprising the defaulting Member's portfolio that are liquidated in a Financial Transmission Rights auction should avoid setting the price in the auction at the bid prices with which they were initially submitted. In the event that any of the closed out Financial Transmission Rights would set market based on the auction's preliminary solution, then only one-half of each Financial Transmission Rights position will be offered for sale and the auction will be re-executed. In the event that any Financial Transmission Rights position that has been closed out once again sets price, then all Financial Transmission Rights scheduled to be liquidated will be removed from the affected auction and the auction will be re-executed excluding the closed out Financial Transmission Right positions. Financial Transmission Right positions that are not liquidated will then be offered in the next available auction or specially scheduled auction, as appropriate.

f) The liquidation of the defaulting Members' Financial Transmission Rights portfolio pursuant to the foregoing procedures shall result in a final liquidated settlement amount. The final liquidated settlement amount will be included in calculating a Default Allocation Assessment as described in Section 15.1.2A(I) of the PJM Operating Agreement. If the Office of the Interconnection is unable to close out and liquidate a Financial Transmission Rights position under the foregoing procedures, the close out shall be deemed void and the defaulting Member shall remain liable for the full final value of its default, such full final value being realized at the normal time for performance of the Financial Transmission Rights position.

g) For the period of August 24, 2018 through November 30, 2018, the liquidation process of a defaulting Member's Financial Transmission Rights described in Tariff, Attachment K – Appendix, section 7.3.9(c)-(f) and the parallel provisions in Operating Agreement, Schedule 1, section 7.3.9(c)-(f) shall not apply, including, without limitation, that the Office of the Interconnection shall not be required to offer the defaulting Member's Financial Transmission Rights for sale into any auction. During this period, the amount of gain or loss on each of the defaulting Member's Financial Transmission Rights positions shall be realized at the normal time for performance of such Financial Transmission Rights position. The net of such gains and losses for all such positions shall be considered the final monthly settlement amount. Such final monthly settlement amount shall be included in calculating the Default Allocation Assessments as described in Operating Agreement, section 15.1.2A(I). Such assessment shall in no way relieve the defaulting Member of its obligations, including, without limitation, the defaulting Member's obligations arising from or associated with the full value of its default.

In all other respects, Financial Transmission Rights terminated pursuant to this section shall be liquidated pursuant to the appropriate provisions and procedures set forth in the PJM Manuals.

Attachment B

Revisions to the PJM Open Access Transmission Tariff

(Clean Format)

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. 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 herein and in accordance with standards and procedures set forth 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 Rights 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 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 On-Peak, Off-Peak and 24-Hour Periods.

On-peak, off-peak and 24-hour FTRs will be offered in the annual and monthly auction. 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 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, 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 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 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 Section 7.5 of this Schedule 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.

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 Liquidation of Financial Transmission Rights in the Event of Member Default.

In the event a Member fails to meet creditworthiness requirements or make timely payments when due pursuant to the PJM Operating Agreement or PJM Tariff, the Office of the Interconnection shall, as soon as practicable after such default is declared, initiate the following procedures to close out and liquidate the Financial Transmission Rights of a Member:

- a) The Office of the Interconnection shall close out the defaulting Member's positions as of the date of its default, by unilaterally accelerating and terminating all forward Financial Transmission Rights positions.
- b) The Office of the Interconnection shall post on its website all salient information relating to the closed out portfolio of Financial Transmission Rights.
- c) All current planning period Financial Transmission Right positions within the defaulting Members' Financial Transmission Right portfolio will be offered for sale in the next available monthly balance of planning period Financial Transmission Rights auction at an offer price designed to maximize the likelihood of liquidation of those positions.

d) Financial Transmission Rights positions that do not settle until the next or subsequent planning period will be offered into the next available Financial Transmission Rights auction (taking into account timing constraints and the need for an orderly liquidation) where, based on the Office of Interconnection's commercially reasonable expectation, such positions would be expected to clear. In the event that the next scheduled Financial Transmission Rights auction is more than two (2) months subsequent to the date that the Office of the Interconnection declares a Member in default, a specially scheduled Financial Transmission Rights auction may be conducted by the Office of the Interconnection. The entire portfolio of the defaulting Member's Financial Transmission Rights will be offered for sale at an offer price designed to maximize the likelihood of liquidation of those positions.

e) The Financial Transmission Right positions comprising the defaulting Member's portfolio that are liquidated in a Financial Transmission Rights auction should avoid setting the price in the auction at the bid prices with which they were initially submitted. In the event that any of the closed out Financial Transmission Rights would set market based on the auction's preliminary solution, then only one-half of each Financial Transmission Rights position will be offered for sale and the auction will be re-executed. In the event that any Financial Transmission Rights position that has been closed out once again sets price, then all Financial Transmission Rights scheduled to be liquidated will be removed from the affected auction and the auction will be re-executed excluding the closed out Financial Transmission Right positions. Financial Transmission Right positions that are not liquidated will then be offered in the next available auction or specially scheduled auction, as appropriate.

f) The liquidation of the defaulting Members' Financial Transmission Rights portfolio pursuant to the foregoing procedures shall result in a final liquidated settlement amount. The final liquidated settlement amount will be included in calculating a Default Allocation Assessment as described in Section 15.1.2A(I) of the PJM Operating Agreement. If the Office of the Interconnection is unable to close out and liquidate a Financial Transmission Rights position under the foregoing procedures, the close out shall be deemed void and the defaulting Member shall remain liable for the full final value of its default, such full final value being realized at the normal time for performance of the Financial Transmission Rights position.

g) For the period of August 24, 2018 through November 30, 2018, the liquidation process of a defaulting Member's Financial Transmission Rights described in Tariff, Attachment K – Appendix, section 7.3.9(c)-(f) and the parallel provisions in Operating Agreement, Schedule 1, section 7.3.9(c)-(f) shall not apply, including, without limitation, that the Office of the Interconnection shall not be required to offer the defaulting Member's Financial Transmission Rights for sale into any auction. During this period, the amount of gain or loss on each of the defaulting Member's Financial Transmission Rights positions shall be realized at the normal time for performance of such Financial Transmission Rights position. The net of such gains and losses for all such positions shall be considered the final monthly settlement amount. Such final monthly settlement amount shall be included in calculating the Default Allocation Assessments as described in Operating Agreement, section 15.1.2A(I). Such assessment shall in no way relieve the defaulting Member of its obligations, including, without limitation, the defaulting Member's obligations arising from or associated with the full value of its default.

In all other respects, Financial Transmission Rights terminated pursuant to this section shall be liquidated pursuant to the appropriate provisions and procedures set forth in the PJM Manuals.

Attachment C

Revisions to the PJM Operating Agreement

(Marked/Redline Format)

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. Financial Transmission Rights auctions conducted to liquidate a defaulting Members' Financial Transmission Rights portfolio shall be conducted by the Office of the Interconnection in accordance with the procedures set forth in the Section 7.3.9 herein and with the standards and procedures set forth 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 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 On-Peak, Off-Peak and 24-Hour Periods.

On-peak, off-peak and 24-hour FTRs will be offered in the annual and monthly auction. 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 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, 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 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 offer 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 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 Section 7.5 of this Schedule 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.

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 Liquidation of Financial Transmission Rights in the Event of Member Default.

In the event a Member fails to meet creditworthiness requirements or make timely payments when due pursuant to the PJM Operating Agreement or PJM Tariff, the Office of the Interconnection shall, as soon as practicable after such default is declared, initiate the following procedures to close out and liquidate the Financial Transmission Rights of a Member:

- a) The Office of the Interconnection shall close out the defaulting Member's positions as of the date of its default, by unilaterally accelerating and terminating all forward Financial Transmission Rights positions.
- b) The Office of the Interconnection shall post on its website all salient information relating to the closed out portfolio of Financial Transmission Rights.
- c) All current planning period Financial Transmission Right positions within the defaulting Members' Financial Transmission Right portfolio will be offered for sale in the next available monthly balance of planning period Financial Transmission Rights auction at an offer price designed to maximize the likelihood of liquidation of those positions.

d) Financial Transmission Rights positions that do not settle until the next or subsequent planning period will be offered into the next available Financial Transmission Rights auction (taking into account timing constraints and the need for an orderly liquidation) where, based on the Office of Interconnection's commercially reasonable expectation, such positions would be expected to clear. In the event that the next scheduled Financial Transmission Rights auction is more than two (2) months subsequent to the date that the Office of the Interconnection declares a Member in default, a specially scheduled Financial Transmission Rights auction may be conducted by the Office of the Interconnection. The entire portfolio of the defaulting Member's Financial Transmission Rights will be offered for sale at an offer price designed to maximize the likelihood of liquidation of those positions.

e) The Financial Transmission Right positions comprising the defaulting Member's portfolio that are liquidated in a Financial Transmission Rights auction should avoid setting the price in the auction at the bid prices with which they were initially submitted. In the event that any of the closed out Financial Transmission Rights would set market based on the auction's preliminary solution, then only one-half of each Financial Transmission Rights position will be offered for sale and the auction will be re-executed. In the event that any Financial Transmission Rights position that has been closed out once again sets price, then all Financial Transmission Rights scheduled to be liquidated will be removed from the affected auction and the auction will be re-executed excluding the closed out Financial Transmission Right positions. Financial Transmission Right positions that are not liquidated will then be offered in the next available auction or specially scheduled auction, as appropriate.

f) The liquidation of the defaulting Members' Financial Transmission Rights portfolio pursuant to the foregoing procedures shall result in a final liquidated settlement amount. The final liquidated settlement amount will be included in calculating a Default Allocation Assessment as described in Section 15.1.2A(I) of the PJM Operating Agreement. If the Office of the Interconnection is unable to close out and liquidate a Financial Transmission Rights position under the foregoing procedures, the close out shall be deemed void and the defaulting Member shall remain liable for the full final value of its default, such full final value being realized at the normal time for performance of the Financial Transmission Rights position.

g) For the period of August 24, 2018 through November 30, 2018, the liquidation process of a defaulting Member's Financial Transmission Rights described in Tariff, Attachment K – Appendix, section 7.3.9(c)-(f) and the parallel provisions in Operating Agreement, Schedule 1, section 7.3.9(c)-(f) shall not apply, including, without limitation, that the Office of the Interconnection shall not be required to offer the defaulting Member's Financial Transmission Rights for sale into any auction. During this period, the amount of gain or loss on each of the defaulting Member's Financial Transmission Rights positions shall be realized at the normal time for performance of such Financial Transmission Rights position. The net of such gains and losses for all such positions shall be considered the final monthly settlement amount. Such final monthly settlement amount shall be included in calculating the Default Allocation Assessments as described in Operating Agreement, section 15.1.2A(I). Such assessment shall in no way relieve the defaulting Member of its obligations, including, without limitation, the defaulting Member's obligations arising from or associated with the full value of its default.

In all other respects, Financial Transmission Rights terminated pursuant to this section shall be liquidated pursuant to the appropriate provisions and procedures set forth in the PJM Manuals.

Attachment D

Revisions to the PJM Operating Agreement

(Clean Format)

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. Financial Transmission Rights auctions conducted to liquidate a defaulting Members' Financial Transmission Rights portfolio shall be conducted by the Office of the Interconnection in accordance with the procedures set forth in the Section 7.3.9 herein and with the standards and procedures set forth 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 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 On-Peak, Off-Peak and 24-Hour Periods.

On-peak, off-peak and 24-hour FTRs will be offered in the annual and monthly auction. 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 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, 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 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 offer 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 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 Section 7.5 of this Schedule 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.

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 Liquidation of Financial Transmission Rights in the Event of Member Default.

In the event a Member fails to meet creditworthiness requirements or make timely payments when due pursuant to the PJM Operating Agreement or PJM Tariff, the Office of the Interconnection shall, as soon as practicable after such default is declared, initiate the following procedures to close out and liquidate the Financial Transmission Rights of a Member:

- a) The Office of the Interconnection shall close out the defaulting Member's positions as of the date of its default, by unilaterally accelerating and terminating all forward Financial Transmission Rights positions.
- b) The Office of the Interconnection shall post on its website all salient information relating to the closed out portfolio of Financial Transmission Rights.
- c) All current planning period Financial Transmission Right positions within the defaulting Members' Financial Transmission Right portfolio will be offered for sale in the next available monthly balance of planning period Financial Transmission Rights auction at an offer price designed to maximize the likelihood of liquidation of those positions.

d) Financial Transmission Rights positions that do not settle until the next or subsequent planning period will be offered into the next available Financial Transmission Rights auction (taking into account timing constraints and the need for an orderly liquidation) where, based on the Office of Interconnection's commercially reasonable expectation, such positions would be expected to clear. In the event that the next scheduled Financial Transmission Rights auction is more than two (2) months subsequent to the date that the Office of the Interconnection declares a Member in default, a specially scheduled Financial Transmission Rights auction may be conducted by the Office of the Interconnection. The entire portfolio of the defaulting Member's Financial Transmission Rights will be offered for sale at an offer price designed to maximize the likelihood of liquidation of those positions.

e) The Financial Transmission Right positions comprising the defaulting Member's portfolio that are liquidated in a Financial Transmission Rights auction should avoid setting the price in the auction at the bid prices with which they were initially submitted. In the event that any of the closed out Financial Transmission Rights would set market based on the auction's preliminary solution, then only one-half of each Financial Transmission Rights position will be offered for sale and the auction will be re-executed. In the event that any Financial Transmission Rights position that has been closed out once again sets price, then all Financial Transmission Rights scheduled to be liquidated will be removed from the affected auction and the auction will be re-executed excluding the closed out Financial Transmission Right positions. Financial Transmission Right positions that are not liquidated will then be offered in the next available auction or specially scheduled auction, as appropriate.

f) The liquidation of the defaulting Members' Financial Transmission Rights portfolio pursuant to the foregoing procedures shall result in a final liquidated settlement amount. The final liquidated settlement amount will be included in calculating a Default Allocation Assessment as described in Section 15.1.2A(I) of the PJM Operating Agreement. If the Office of the Interconnection is unable to close out and liquidate a Financial Transmission Rights position under the foregoing procedures, the close out shall be deemed void and the defaulting Member shall remain liable for the full final value of its default, such full final value being realized at the normal time for performance of the Financial Transmission Rights position.

g) For the period of August 24, 2018 through November 30, 2018, the liquidation process of a defaulting Member's Financial Transmission Rights described in Tariff, Attachment K – Appendix, section 7.3.9(c)-(f) and the parallel provisions in Operating Agreement, Schedule 1, section 7.3.9(c)-(f) shall not apply, including, without limitation, that the Office of the Interconnection shall not be required to offer the defaulting Member's Financial Transmission Rights for sale into any auction. During this period, the amount of gain or loss on each of the defaulting Member's Financial Transmission Rights positions shall be realized at the normal time for performance of such Financial Transmission Rights position. The net of such gains and losses for all such positions shall be considered the final monthly settlement amount. Such final monthly settlement amount shall be included in calculating the Default Allocation Assessments as described in Operating Agreement, section 15.1.2A(I). Such assessment shall in no way relieve the defaulting Member of its obligations, including, without limitation, the defaulting Member's obligations arising from or associated with the full value of its default.

In all other respects, Financial Transmission Rights terminated pursuant to this section shall be liquidated pursuant to the appropriate provisions and procedures set forth in the PJM Manuals.

Attachment E

Affidavit of
Timothy Horger

**UNITED STATES OF AMERICA
FEDERAL ENERGY REGULATORY COMMISSION**

PJM Interconnection, L.L.C.,)
Respondent.) Docket No. ER18-___-000

**AFFIDAVIT OF TIMOTHY HORGER
ON BEHALF OF PJM INTERCONNECTION, L.L.C.**

1. My name is Timothy Horger. My business address is 2750 Monroe Blvd., Audubon, Pennsylvania, 19403. I currently serve as the Director, Energy Market Operations, for PJM Interconnection, L.L.C. (“PJM”). I am submitting this affidavit on behalf of PJM in support of the proposed Tariff revisions being filed today by PJM in the captioned proceeding.

2. I joined PJM in 2002. Prior to my current position, I worked at PJM as Manager, Interregional Markets Operations. Prior to my employment at PJM, I worked as a Power Systems and Control Engineer at Laser Technology, Inc.

3. As part of my work at PJM, I am responsible for overseeing the operation of PJM’s Financial Transmission Rights (“FTRs”)¹ market. As relevant here, I specifically reviewed the recent payment default of PJM Market Participant GreenHat Energy, LLC (“GreenHat”) and the potential impacts of the liquidation of GreenHat’s FTR portfolio.

4. When PJM declares a Member default, as it has done with GreenHat, the Tariff and Operating Agreement currently require PJM to close out and liquidate all of the FTRs of the Member in the next available FTR auction, as applicable. However, the forced liquidation of a large FTR portfolio like GreenHat’s would inject a significant amount of FTRs for sale into the market. For periods with less liquidity, such as non-prompt month periods, liquidation of a large portfolio in combination with PJM’s obligation to offer the positions at a price designed to maximize the likelihood of liquidation may cause FTR prices to significantly diverge from expected day-ahead price outcomes. An unbounded liquidation of a large FTR portfolio for periods with less liquidity would likely result in distorted market outcomes.

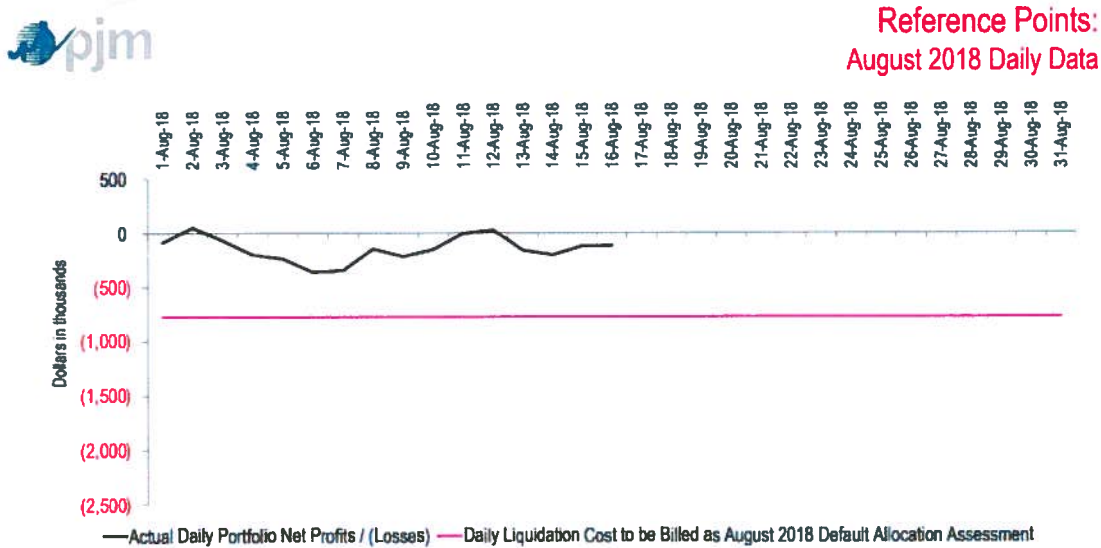
5. Even when the FTR auction is working more efficiently and PJM liquidates only a portion on the portfolio as PJM did in July, liquidating only the prompt-month (i.e., August) FTR positions, if PJM has an unconstrained mandate to sell (pay a Market Participant to take) a money-losing FTR position, a buyer is going to demand a risk premium in excess of the expected value of the FTR position to account for the uncertainty and volatility associated with that expected value. These risk premiums can significantly increase the cost of liquidating FTR positions.

6. Figure 1 below illustrates the difference between the actual daily portfolio net profits and losses from GreenHat’s August FTR positions on each day of settlement from August

¹ 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.

1 through August 16, 2018, as compared to the average daily cost incurred by liquidating the positions in the July auction.

Figure 1



7. As illustrated by Figure 1, the liquidation of GreenHat’s August FTR positions produced losses of approximately \$775,000 per day, or \$12.4 million for the first 16 days of August. By contrast, if PJM had allowed GreenHat’s positions to proceed to settlement, actual losses for those same sixteen days in the month of August 2018 would have been approximately \$2.3 million, consistently less than \$500,000 per day, with some days resulting in \$0 in losses or even modest profits when they settled. In short, for the month of August, it appears based upon the information to date that the default allocation assessment to PJM’s Members based on the liquidation costs could be more than five times the actual cost of the settled FTR positions to liquidate those positions. Extrapolating that trend into the near future, even if the liquidation of GreenHat’s FTR portfolio is limited to the prompt-months as set forth in the waiver PJM requested in Docket No. ER18-2068, the auction liquidation is resulting in PJM paying a significant risk premium over the actual congestion costs.

8. The Tariff and Operating Agreement revisions PJM is proposing in this filing are expected to provide a beneficial outcome for PJM’s Members and Market Participants. Adding new subsection (g) to Attachment K-Appendix, section 7.3.9 of the Tariff and identical Schedule 1, section 7.3.9 of the Operating Agreement will prevent a significant disruption to upcoming FTR auctions and is expected to reduce the estimated default-related liabilities that will be borne by Market Participants through a combination of factors. While PJM cannot predict future auction results for FTRs or future congestion, the proposed Tariff and Operating Agreement revisions allowing the defaulting Member’s FTR positions to be settled out based upon the daily congestion charges during the specified period will:

- Avoid the distortion of the FTR market resulting from the liquidation of a large FTR portfolio with inadequate buyers to absorb the supply in an economically efficient manner;

- Eliminate the obligation of PJM to offer the entire defaulting Member's FTR portfolio at a price designed to maximize the likelihood of liquidation which appears to cause FTR prices to significantly diverge from expected day-ahead price outcomes; the existing liquidation provisions effectively create an unbounded mandate to sell (pay a Market Participant to take) material money-losing FTR positions irrespective of the expected value of the FTR positions;
- Avoid the risk premiums associated with liquidating money-losing positions due to the uncertainty and volatility associated with the positions;
- Provide for a simpler and more transparent process for valuing the loss;
- Implement the process approved by the Members at the August 23, 2018 Members Committee meeting; and
- Provide additional time for the Members to determine the longer-term course of action to wind-down the Defaulting Member's FTR portfolio; specifically, the proposed revisions will modify the Tariff and Operating Agreement only for a defined period, and that period of time will give PJM and its stakeholders more time to consider whether any future revisions to the FTR default and liquidation rules are appropriate.

9. This concludes my Affidavit.

UNITED STATES OF AMERICA
FEDERAL ENERGY REGULATORY COMMISSION

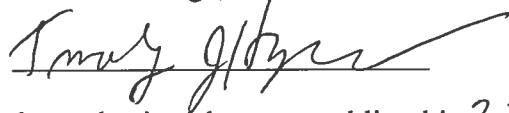
UNITED STATES OF AMERICA
FEDERAL ENERGY REGULATORY COMMISSION

PJM Interconnection, L.L.C.,
Respondent.

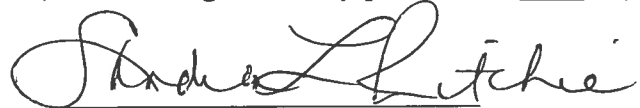
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VERIFICATION

Timothy Horger, being first duly sworn, deposes and states that he is the Timothy Horger referred to in the foregoing document entitled "Affidavit of Timothy Horger," that he has read the same and is familiar with the contents thereof, and that the facts set forth therein are true and correct to the best of his knowledge, information, and belief.



Subscribed and sworn to before me, the undersigned notary public, this 23rd day of August 2018.



Notary Public

My Commission expires: NOV. 3, 2021

Commonwealth of Pennsylvania - Notary Seal
SANDRA L RITCHIE - Notary Public
Montgomery County
My Commission Expires Nov 3, 2021
Commission Number 1049866