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February 14, 2020

The Honorable Kimberly D. Bose
Secretary
Federal Energy Regulatory Commission
888 First Street, N.E. Room 1A
Washington, D.C. 20426

*Re: PJM Interconnection L.L.C., Docket No. ER20-1009-000
Enhancements to PJM's Financial Transmission Rights Auction Process*

Dear Secretary Bose,

Pursuant to Section 205 of the Federal Power Act (“FPA”),¹ and Part 35 of the Federal Energy Regulatory Commission’s (“FERC” or the “Commission”) regulations,² PJM Interconnection, L.L.C. (“PJM”) hereby submits for filing proposed revisions to the PJM Open Access Transmission Tariff (“Tariff”), Attachment K-Appendix, sections 7.1, 7.1A, and 7.2, and to the identical corresponding provisions in the Amended and Restated Operating Agreement of PJM Interconnection, L.L.C. (“Operating Agreement”), Schedule 1, sections 7.1, 7.1A, and 7.2.³

As discussed herein, the proposed revisions to the Tariff and Operating Agreement enhance PJM’s Financial Transmission Rights (“FTRs”) auction process in a manner that reduces financial risk to PJM and its Members, thereby implementing several key recommendations of the Report of the Independent Consultants on the GreenHat Default (the “GreenHat Report”).⁴

¹ 16 U.S.C. § 824d (2018).

² 18 C.F.R. Part 35 (2020).

³ The Tariff and Operating Agreement are currently located under PJM’s “Intra-PJM Tariffs” eTariff title, available here: <https://etariff.ferc.gov/TariffBrowser.aspx?tid=1731>. Terms not otherwise defined herein shall have the same meaning as set forth in the Tariff, Operating Agreement, and the Reliability Assurance Agreement Among Load-Serving Entities in the PJM Region (“RAA”).

⁴ The GreenHat Report was commissioned by a Special Committee of the PJM Board of Managers in response to the

PJM respectfully requests that the Commission accept the enclosed revisions to the Tariff and Operating Agreement with an effective date of April 15, 2020.⁵

I. BACKGROUND

A. PJM's FTR Auctions.

In PJM, FTRs are financially-settled instruments that entitle the holder to a stream of revenues based on the hourly congestion price differences in the Day-ahead Energy Market across a specific transmission path.⁶ FTRs were created in organized wholesale electricity markets to allow firm transmission customers a reasonable opportunity to hedge against the costs of transmission congestion.⁷

Participants in PJM's markets can acquire FTRs through (i) long-term, (ii) annual, and (iii) monthly FTR auctions. As relevant here, during the long-term FTR auction, PJM administers the purchase and sale of FTRs through a multi-round process for three consecutive Planning Periods⁸ immediately subsequent to the Planning Period during which the long-term FTR auction is conducted. The capacity offered for sale in long-term FTR auctions is the residual capability of the PJM Transmission System after the assumption that all Auction Revenue Rights ("ARRs")⁹

default of GreenHat Energy, LLC on June 21, 2018. The GreenHat Report is available here: <https://www.pjm.com/-/media/library/reports-notice/special-reports/2019/report-of-the-independent-consultants-on-the-greenhat-default.ashx?la=en>

⁵ 16 U.S.C. § 824d(d); 18 C.F.R. § 35.3(a)(1).

⁶ *PJM Interconnection, L.L.C.*, 102 FERC ¶ 61,276 at P 3 (2003) ("FTRs are financial rights that entitle the holders to receive transmission congestion credits [that] can be used to hedge or offset transmission congestion charges in PJM's day-ahead market during periods in which transmission capacity is constrained.").

⁷ See e.g., *Pennsylvania-New Jersey-Maryland Interconnection*, 81 FERC ¶ 61,257 at p. 14 (1997) ("As a means of protecting against the incurrence of congestion costs, Supporting Companies propose that all firm transmission customers be awarded [FTRs] for their specific receipt and delivery point reservations.").

⁸ The PJM Tariff and Operating Agreement define "Planning Period" as "the 12 months beginning June 1 and extending through May 31 of the following year, or such other period approved by the Members Committee."

⁹ ARR are entitlements allocated annually to Firm Transmission Service customers that entitle the holder to receive

allocated in the immediately prior annual ARR allocation process are self-scheduled into FTRs, which are then modeled as fixed injections and withdrawals in the long-term FTR auction. The long-term FTR auction consists of three distinct rounds each Planning Period, and in each round one-third (33.33%) of the total available residual capability of the PJM Transmission System is offered for sale.

Monthly FTR auctions are single-round auctions that provide an avenue for auctioning the residual FTR capability that remains on the PJM Transmission System *after* the long-term and annual FTR auctions are conducted. In the monthly FTR auctions, Market Participants may bid to buy or offer to sell FTRs that have terms of: (i) one month for any of the next three months remaining in the Planning Period; or (ii) three months for any of the full quarters remaining in the Planning Period that do not overlap three available month periods.¹⁰ For this reason, monthly FTR auctions are also known in PJM as Balance of Planning Period (“BOPP”) auctions.¹¹

B. The GreenHat Report.

The GreenHat Report was commissioned by a Special Committee of the PJM Board of Managers in response to the default of GreenHat Energy, LLC on June 21, 2018. The GreenHat Report provided, among other things, several recommendations regarding how risk could be better mitigated in PJM’s FTR market. As relevant here, among these recommendations were the following:

an allocation of the revenues from the annual FTR auction.

¹⁰ In this context, Planning Period Quarter 1 covers June, July and August; Planning Period Quarter 2 covers September, October and November; Planning Period Quarter 3 covers December, January and February; and Planning Period Quarter 4 covers March, April and May.

¹¹ A BOPP FTR is a product covering a multi-month period equal to the remainder of the Planning Period, starting at the beginning of the calendar month following a monthly FTR auction running through to May 31. Note that the defined term under the Tariff and Operating Agreement is “Planning Period Balance.”

F1) Include Long Term FTRs in monthly or at least bi-monthly auctions.

F2) Convene a committee of FTR traders with PJM Credit & Operations to explore new approaches to make more frequent long-term auctions both more efficient to run and as liquid as possible.

F3) With expert help, conduct a general review of the FTR market and other PJM markets, to evaluate the risks and rewards of potential structural reforms.¹²

C. The FRMSTF

In April 2019, the PJM Markets and Reliability Committee (“MRC”) approved the creation of the Financial Risk Mitigation Senior Task Force (“FRMSTF”), and charged it with evaluating and effectuating the recommendations from the GreenHat Report.¹³ After several months of work, the FRMSTF developed and endorsed the Tariff and Operating Agreement revisions proposed herein in September 2019, and forwarded them to the MRC and the PJM Members Committee (“MC”) for approval. The proposed changes to PJM’s FTR auction process described herein represent just one of several work streams that the FRMSTF is currently considering, and additional Tariff and Operating Agreement revisions may be filed with the Commission in the future.¹⁴

II. DESCRIPTION OF PROPOSED REVISIONS

The proposed revisions to the Tariff and Operating Agreement are designed to implement the following three structural changes to PJM’s FTR market. First, the revisions increase the frequency of PJM’s long-term FTR auctions from three times per Planning Period (June,

¹² See GreenHat Report at Appendix, p. 5.

¹³The FRMSTF charter may be found here:
<https://www.pjm.com/-/media/committees-groups/task-forces/frmstf/postings/frmstf-charter.ashx?la=en>

¹⁴ See FRMSTF Recommendations Dashboard:
<https://www.pjm.com/committees-and-groups/task-forces/frmstf/recommendations-dashboard.aspx>

September, and December) to five times per Planning Period (June, August, October, December, and March). Second, the revisions reduce the amount of Transmission System capability offered during each long-term FTR auction round from one-third (33.33%) to one-fifth (20%). Third, the revisions modify the available periods for monthly FTR BOPP auctions from any three individual months and any fully remaining quarter in the Planning Period, to any remaining individual month in the Planning Period. Each of these proposed changes is described in seriatim in the following subsections A, B, and C.

A. Increase the frequency of PJM’s long-term FTR auctions from three times per Planning Period to five times per Planning Period.

In 2019, PJM implemented “mark-to-auction” (“MTA”) credit requirements for use in its FTR market, which can increase the collateral requirements of open FTR positions as a result of a market-signalized portfolio determination.¹⁵ Under these new requirements, the purchase prices of FTRs in a Market Participant’s portfolio are compared against the most recent auction prices for those same FTRs, to assess whether the portfolio is gaining or losing value. This MTA valuation mechanism serves as an important safeguard, because it allows PJM to require a Market Participant to post additional collateral if the Market Participant’s FTR portfolio is declining in value, and to prohibit that Market Participant from acquiring additional FTR positions until it posts the requisite collateral.

One way to optimize the utilization of this newly-approved MTA ability is to conduct PJM long-term FTR auctions more frequently. Specifically, by increasing the number of long-term FTR auction rounds each Planning Period, PJM will conduct MTA more frequently which in turn

¹⁵ *PJM Interconnection, L.L.C.*, 167 FERC ¶ 61,002 (2019), *order on reh’g*, 169 FERC ¶ 61,029. *See generally* Docket No. ER19-945-000.

will provide an increased level of protection from a potential default by not allowing positions to grow or deteriorate over time without the posting of additional collateral. Greater periodicity will also provide a more accurate valuation of a Market Participant's long-term FTR portfolio through more recent pricing information, thereby enhancing PJM's ability to assess the risk of a potential default.¹⁶

Accordingly, PJM proposes to increase the frequency of its long-term FTR auctions from three rounds per Planning Period (June, September, and December) to five rounds per Planning Period (June, August, October, December, and March). After consultation with PJM stakeholders in the FRMSTF, PJM believes that five long-term FTR auction rounds per Planning Period strikes the correct balance between achieving the risk-mitigation objectives identified in the GreenHat Report and ensuring sufficient participation and liquidity in each individual auction. PJM believes that holding more than five long-term rounds per Planning Period (for example, one long-term round each month) would create an unnecessary risk of insufficient market activity/liquidity due to limited changes in expected market conditions (e.g. future Transmission System topology), as well as increased administrative costs to PJM and its stakeholders.

To effectuate this change, PJM proposes to amend Tariff, Attachment K-Appendix, section 7.1A.2, and OA, Schedule 1, section 7.1A.2 in the following manner.

The long-term Financial Transmission Rights auction process shall consist of ~~three~~ five rounds. The first round shall be conducted by the Office of the Interconnection approximately 11 months prior to the start of the three Planning Period term covered by the relevant long-term Financial Transmission Rights auction. The second round shall be conducted approximately ~~3~~ 2 months after the first round; ~~and~~ the third round shall be conducted approximately ~~3~~ 2 months after the second round. The fourth round shall be conducted

¹⁶ See Greenhat Report at p. 27.

approximately 2 months after the third round, and the fifth round shall be conducted approximately 3 months after the fourth round.

B. Reduce the amount of transmission system capability offered during each long-term FTR auction round from one-third (33.33%) to one-fifth (20%).

As referenced above, long-term FTR auctions in PJM currently consist of three rounds, and in each round, one-third (33.33%) of total residual Transmission System capability available in the long-term FTR auction is offered for sale, for a total of 100% of system capability throughout the Planning Period. This incremental format is designed to enhance price discovery for all Market Participants, and prevent single-round initial windfall bids from capturing a significant level of FTRs for an inappropriately low price.

As an accompaniment to PJM's proposal to transition from three long-term FTR auction rounds per Planning Period to five, PJM proposes correspondingly to offer one-fifth (20%) of total residual Transmission System capability in each round, thereby retaining the existing incremental framework and benefits of the current one-third (33.33%) structure.

Accordingly, PJM proposes to reduce the amount of Transmission System capability offered during each long-term FTR auction round from one-third (33.33%) to one-fifth (20%). To effectuate this change, PJM proposes to revise Tariff, Attachment K-Appendix, section 7.1A.2, and OA, Schedule 1, section 7.1A.2 in the following manner.

In each round ~~1/3~~ 20 percent of total capacity available in the long-term Financial Transmission Rights auction shall be offered for sale.

C. Modify the available periods for monthly FTR BOPP auctions from any three individual months and any fully remaining quarter in the Planning Period, to any remaining individual month in the Planning Period.

In the monthly FTR auctions, Market Participants may bid to buy or offer to sell FTRs that have terms of: (i) one month for any of the next three months remaining in the Planning Period; or

(ii) three months for any of the full quarters remaining in the Planning Period that do not overlap three available month periods. For this reason, monthly FTR auctions are also known in PJM as Balance of Planning Period or “BOPP” auctions. BOPP auctions serve an important function in that they allow Market Participants to intermittently reconfigure their risk and portfolio allocation, and create a market for the unsold residual capability of the PJM Transmission System after the long-term and annual FTR auctions are conducted.

Modifying the available periods for PJM’s monthly BOPP auctions will reduce risk to PJM and PJM Market Participants in three important ways. First, modifying the available periods will correspondingly require PJM to utilize more granular (i.e. individual month) modeling of the PJM Transmission System, thereby enhancing the quality of the pricing information available to Market Participants, and, by extension, better informing their decision-making. Second, modifying the available periods will provide additional opportunities for Market Participants to reconfigure their FTR portfolios to adjust to risks that may be emerging in the market. Third, it can currently take PJM’s auction market system applications (power flow and contingency analysis) multiple days to solve for an entire quarter. By contrast, these applications can solve for an individual month in a matter of hours. This significant increase in performance time will allow PJM to devote more resources to evaluating the BOPP auction results, including necessary surveillance activities, and assessing any potential risks to the market.

Accordingly, PJM proposes to modify the available periods for monthly BOPP auctions from any three individual months and any fully remaining quarter in the Planning Period, to any remaining individual month in the Planning Period. To effectuate this change, PJM proposes to revise Tariff, Attachment K-Appendix, section 7.1.1 and Operating Agreement, Schedule 1, section 7.1.1 in the following manner:

(a) The periods covered by auctions shall be: (1) the one-year period beginning the month after the final round of an annual auction; and (2) any single calendar month period remaining in the Planning Period, ~~that is within the three, or less, month period immediately following the month that the monthly auction is conducted;~~ (3) ~~any Planning Period Quarter remaining in the Planning Period following the month that the monthly auction is conducted that does not overlap three available month periods;~~ and (4) ~~the Planning Period Balance. In addition to the period defined in (2) of this subsection, only one of the periods defined in (3) or (4) of this subsection will be included in the monthly auction clearing until the Office of the Interconnection determines that both of the periods defined in (3) and (4) can be solved simultaneously in the same monthly auction process within the timeframe specified in Operating Agreement, Schedule 1, section 7.3.7.~~

PJM also proposes to revise Tariff, Attachment K-Appendix, section 7.2.2 and Operating Agreement, Schedule 1, section 7.2.2 in the following manner:

Auction bids for Financial Transmission Rights submitted in the monthly auctions may specify as receipt and delivery points any combination of available hubs, Zones, aggregates, generators, and Interface Pricing Points for bids that cover any month beyond the next month, ~~including bids that cover Planning Period Quarters or the Planning Period Balance.~~

III. STAKEHOLDER ENDORSEMENT

On December 19, 2019, the PJM MRC endorsed the Tariff and Operating Agreement revisions submitted herein by acclamation with seven objections and no abstentions. On January 23, 2020, the PJM MC similarly endorsed the same Tariff and Operating Agreement revisions by acclamation via the consent agenda with eight objections and no abstentions.

IV. REQUESTED EFFECTIVE DATE

PJM respectfully requests that the Commission accept the enclosed revisions to the Tariff

and Operating Agreement with an effective date of April 15, 2020.¹⁷

V. COMMUNICATIONS

PJM requests that all communications regarding this filing be directed to the following persons:

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VI. DOCUMENTS INCLUDED WITH THIS FILING

In accordance with the requirements of Order No. 714¹⁸ and the Commission's eTariff regulations, PJM hereby submits an eTariff XML filing package consisting of the following materials:

1. This transmittal letter;
2. Attachment A – Revisions to the Tariff and Operating Agreement, in redlined format; and
3. Attachment B – Revisions to the Tariff and Operating Agreement, in clean format.

¹⁷ 16 U.S.C. § 824d(d); 18 C.F.R. § 35.3(a)(1).

¹⁸ *Electronic Tariff Filings*, 124 FERC ¶ 61,270 (2008).

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,¹⁹ 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.aspx> with a specific link to the newly-filed document, and will send an e-mail on the same date as this filing to all PJM Members and all state utility regulatory commissions in the PJM Region²⁰ alerting them that this filing has been made by PJM today and is available by following such link. If the document is not immediately available by using the referenced link, the document will be available through the referenced link within 24 hours of the filing. Also, a copy of this filing will be available on 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.

¹⁹ See 18 C.F.R §§ 35.2(e) and 385.2010(f)(3).

²⁰ PJM already maintains, updates, and regularly uses e-mail lists for all PJM members and affected commissions.

VIII. CONCLUSION

In accordance with the foregoing, PJM respectfully requests that the Commission accept the proposed revisions to the Tariff and the Operating Agreement, effective April 15, 2020, as discussed herein.

Respectfully submitted,

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On behalf of
PJM Interconnection, L.L.C.

Attachment A

Revisions to the PJM Open Access Transmission Tariff and PJM Operating Agreement

(Marked / Redline Format)

Section(s) of the
PJM Open Access Transmission Tariff
(Marked / Redline Format)

7.1 Auctions of Financial Transmission Rights.

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

7.1.1 Auction Period and Scope of Auctions.

(a) The periods covered by auctions shall be: (1) the one-year period beginning the month after the final round of an annual auction; and (2) any single calendar month period remaining in the Planning Period ~~that is within the three, or less, month period immediately following the month that the monthly auction is conducted;~~ (3) ~~any Planning Period Quarter remaining in the Planning Period following the month that the monthly auction is conducted that does not overlap three available month periods;~~ and (4) ~~the Planning Period Balance. In addition to the period defined in (2) of this subsection, only one of the periods defined in (3) or (4) of this subsection will be included in the monthly auction clearing until the Office of the Interconnection determines that both of the periods defined in (3) and (4) can be solved simultaneously in the same monthly auction process within the timeframe specified in Operating Agreement, Schedule 1, section 7.3.7.~~ With the exception of FTRs allocated pursuant to Operating Agreement, Schedule 1, section 5.2.2 (e) and the Financial Transmission Rights awarded as a result of the exercise of the conversion option pursuant to Operating Agreement, Schedule 1, section 7.1.1(b), in the annual auction, the Office of the Interconnection, on behalf of PJMSettlement, shall offer for sale the entire Financial Transmission Rights capability for the year in four rounds with 25 percent of the capability offered in each round. In the monthly auction, the Office of the Interconnection, on behalf of PJMSettlement, shall offer for sale in the auction any remaining Financial Transmission Rights capability for the months remaining in the Planning Period after taking into account all of the Financial Transmission Rights already outstanding at the time of the auction. In addition, any holder of a Financial Transmission Right for the period covered by an auction may offer such Financial Transmission Right for sale in such auction. On-peak, off-peak and 24-hour FTRs will be offered in the annual and monthly auctions. FTRs will be offered as Financial Transmission Right Obligations and Financial Transmission Right Options, provided that such Financial Transmission Right Obligations and Financial Transmission Right Options shall be awarded based only on the residual system capability that remains after the allocation of Financial Transmission Rights pursuant to Operating Agreement, Schedule 1, section 5.2.2(e) and the award of Financial Transmission Rights pursuant to Operating Agreement, Schedule 1, section 7.1.1(b). Market Participants may bid for and acquire any number of Financial Transmission Rights, provided that all Financial Transmission Rights awarded are simultaneously feasible with each other and with all Financial Transmission Rights outstanding at the time of the auction and not sold into the auction. An ARR holder may self-schedule an FTR on the same path in the Annual FTR auction according to the rules described in the PJM Manuals.

(b) An Auction Revenue Rights holder may convert Auction Revenue Rights to Financial Transmission Rights, and such conversion shall not be considered a purchase or sale of Financial Transmission Rights in the auction. Such Financial Transmission Rights must (i) have the same source and sink points as the Auction Revenue Rights; (ii) be a 24-hour product; and (iii) be Financial Transmission Right Obligations. The Auction Revenue Rights holder must inform the Office of the Interconnection in accordance with the procedures established by the Office of the Interconnection that it intends to exercise the conversion option prior to close of round one of the annual Financial Transmission Rights auction. Once the conversion option is exercised, it will remain in effect for the entire Financial Transmission Rights auction. The Office of the Interconnection will designate twenty-five percent of the megawatt amount of the Auction Revenue Rights to be converted as price-taker bids in each of the four rounds of the Financial Transmission Rights auction. An Auction Revenue Rights holder that converts its Auction Revenue Rights may not designate a price bid for its converted Financial Transmission Rights and will receive a price equal to the clearing price set by other bids in the annual Financial Transmission Right auction. To the extent a market participant seeks to obtain FTRs in the annual auction through such conversion, the FTRs sought will not be included in the calculation of such market participant's credit requirement for such annual FTR auction.

7.1.2 Frequency and Time of Auctions.

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

7.1.3 Duration of Financial Transmission Rights.

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

7.1A Long-Term Financial Transmission Rights Auctions.

7.1A.1 Auctions.

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

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

7.1A.2 Frequency and Timing.

The long-term Financial Transmission Rights auction process shall consist of ~~three~~five rounds. The first round shall be conducted by the Office of the Interconnection approximately 11 months prior to the start of the three Planning Period term covered by the relevant long-term Financial Transmission Rights auction. The second round shall be conducted approximately ~~3~~2 months

after the first round, ~~and. T~~the third round shall be conducted approximately ~~32~~ months after the second round. The fourth round shall be conducted approximately 2 months after the third round, and the fifth round shall be conducted approximately 3 months after the fourth round. In each round ~~1/3~~20 percent of total capacity available in the long-term Financial Transmission Rights auction shall be offered for sale. Eligible entities may submit bids to purchase and offers to sell Financial Transmission Rights at the start of the bidding period in each round. The bidding period shall be three Business Days ending at 5:00 p.m. on the last day. PJM performs the Financial Transmission Rights auction clearing analysis for each round and posts the auction results on the market user interface within five Business Days after the close of the bidding period for each round unless circumstances beyond PJM's control prevent PJM from meeting the applicable deadline. Under such circumstances, PJM will post the auction results at the earliest possible opportunity. If the Office of the Interconnection discovers an error in the results posted for a long-term 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 immediately following the initial publication of the results for that auction. After this initial notification, if the Office of the Interconnection determines it is necessary to post modified auction results, it shall provide notification of its intent to do so, together with all available supporting documentation, by no later than 5:00 p.m. of the second Business Day following the initial publication of prices for that auction. Thereafter, the Office of the Interconnection must post the corrected prices by no later than 5:00 p.m. of the fourth calendar day following the initial publication of prices in the auction. Should any of the above deadlines pass without the associated action on the part of the Office of the Interconnection, the originally posted results will be considered final. Notwithstanding the foregoing, the deadlines set forth above shall not apply if the referenced auction results are under publicly noticed review by the FERC.

7.1A.3 Products.

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

(ii) On-peak, off-peak and 24-hour Financial Transmission Right Obligations, shall be offered in long-term Financial Transmission Rights auctions; Financial Transmission Rights options shall not be offered.

7.1A.4 Participation Eligibility.

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

7.1A.5 Specified Receipt and Delivery Points.

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

7.2 Financial Transmission Rights Characteristics.

7.2.1 Reconfiguration of Financial Transmission Rights.

Through an appropriate linear programming model, the Office of the Interconnection shall reconfigure the Financial Transmission Rights offered or otherwise available for sale in any auction to maximize the value to the bidders of the Financial Transmission Rights sold, provided that any Financial Transmission Rights acquired at auction shall be simultaneously feasible in combination with those Financial Transmission Rights outstanding at the time of the auction and not sold in the auction. The linear programming model shall, while respecting transmission constraints and the maximum MW quantities of the bids and offers, select 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.

7.2.2 Specified Receipt and Delivery Points.

The Office of the Interconnection will post the list of available receipt and delivery points for each Financial Transmission Rights Auction before the start of the bidding window. Auction bids for annual Financial Transmission Rights Obligations may specify as receipt and delivery points any combination of available hubs, Zones, aggregates, generators, and Interface Pricing Points. Auction bids for annual Financial Transmission Rights Options may specify as receipt and delivery points such combination of available hubs, Zones, aggregates, generators, and Interface Pricing Points as the Office of the Interconnection shall allow from time to time as set forth in PJM Manual 06: Financial Transmission Rights. Auction bids for Financial Transmission Rights submitted in the monthly auctions may specify as receipt and delivery points any combination of available hubs, Zones, aggregates, generators, and Interface Pricing Points for bids that cover any month beyond the next month, ~~including bids that cover Planning Period Quarters or the Planning Period Balance.~~ Auction bids for Financial Transmission Rights submitted in the monthly auctions that cover the single calendar month period immediately following the month in which the monthly auction is conducted may specify any combination of available receipt and delivery buses represented in the State Estimator model for which the Office of the Interconnection calculates and posts Locational Marginal Prices. Auction bids may specify available receipt and delivery points from locations outside of the PJM Region to locations inside such region, from locations within the PJM Region to locations outside such region, or to and from locations within the PJM Region.

7.2.3 Transmission Congestion Charges.

Financial Transmission Rights shall entitle holders thereof to credits only for Day-ahead Energy Market Transmission Congestion Charges, and shall not confer a right to credits for payments arising from or relating to transmission congestion made to any entity other than PJM Settlement.

Section(s) of the
PJM Operating Agreement
(Marked / Redline Format)

7.1 Auctions of Financial Transmission Rights.

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

7.1.1 Auction Period and Scope of Auctions.

(a) The periods covered by auctions shall be: (1) the one-year period beginning the month after the final round of an annual auction; and (2) any single calendar month period remaining in the Planning Period ~~that is within the three, or less, month period immediately following the month that the monthly auction is conducted;~~ (3) ~~any Planning Period Quarter remaining in the Planning Period following the month that the monthly auction is conducted that does not overlap three available month periods;~~ and (4) ~~the Planning Period Balance. In addition to the period defined in (2) of this subsection, only one of the periods defined in (3) or (4) of this subsection will be included in the monthly auction clearing until the Office of the Interconnection determines that both of the periods defined in (3) and (4) can be solved simultaneously in the same monthly auction process within the timeframe specified in Operating Agreement, Schedule 1, section 7.3.7.~~ With the exception of FTRs allocated pursuant to Operating Agreement, Schedule 1, section 5.2.2 (e) and the Financial Transmission Rights awarded as a result of the exercise of the conversion option pursuant to Operating Agreement, Schedule 1, section 7.1.1(b), in the annual auction, the Office of the Interconnection, on behalf of PJMSettlement, shall offer for sale the entire Financial Transmission Rights capability for the year in four rounds with 25 percent of the capability offered in each round. In the monthly auction, the Office of the Interconnection, on behalf of PJMSettlement, shall offer for sale in the auction any remaining Financial Transmission Rights capability for the months remaining in the Planning Period after taking into account all of the Financial Transmission Rights already outstanding at the time of the auction. In addition, any holder of a Financial Transmission Right for the period covered by an auction may offer such Financial Transmission Right for sale in such auction. On-peak, off-peak and 24-hour FTRs will be offered in the annual and monthly auctions. FTRs will be offered as Financial Transmission Right Obligations and Financial Transmission Right Options, provided that such Financial Transmission Right Obligations and Financial Transmission Right Options shall be awarded based only on the residual system capability that remains after the allocation of Financial Transmission Rights pursuant to Operating Agreement, Schedule 1, section 5.2.2(e) and the award of Financial Transmission Rights pursuant to Operating Agreement, Schedule 1, section 7.1.1(b). Market Participants may bid for and acquire any number of Financial Transmission Rights, provided that all Financial Transmission Rights awarded are simultaneously feasible with each other and with all Financial Transmission Rights outstanding at the time of the auction and not sold into the auction. An ARR holder may self-schedule an FTR on the same path in the Annual FTR auction according to the rules described in the PJM Manuals.

(b) An Auction Revenue Rights holder may convert Auction Revenue Rights to Financial Transmission Rights, and such conversion shall not be considered a purchase or sale of Financial Transmission Rights in the auction. Such Financial Transmission Rights must (i) have the same source and sink points as the Auction Revenue Rights; (ii) be a 24-hour product; and (iii) be Financial Transmission Right Obligations. The Auction Revenue Rights holder must inform the Office of the Interconnection in accordance with the procedures established by the Office of the Interconnection that it intends to exercise the conversion option prior to close of round one of the annual Financial Transmission Rights auction. Once the conversion option is exercised, it will remain in effect for the entire Financial Transmission Rights auction. The Office of the Interconnection will designate twenty-five percent of the megawatt amount of the Auction Revenue Rights to be converted as price-taker bids in each of the four rounds of the Financial Transmission Rights auction. An Auction Revenue Rights holder that converts its Auction Revenue Rights may not designate a price bid for its converted Financial Transmission Rights and will receive a price equal to the clearing price set by other bids in the annual Financial Transmission Right auction. To the extent a market participant seeks to obtain FTRs in the annual auction through such conversion, the FTRs sought will not be included in the calculation of such market participant's credit requirement for such annual FTR auction.

7.1.2 Frequency and Time of Auctions.

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

7.1.3 Duration of Financial Transmission Rights.

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

7.1A Long-Term Financial Transmission Rights Auctions.

7.1A.1 Auctions.

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

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

7.1A.2 Frequency and Timing.

The long-term Financial Transmission Rights auction process shall consist of ~~three~~five rounds. The first round shall be conducted by the Office of the Interconnection approximately 11 months prior to the start of the three Planning Period term covered by the relevant long-term Financial Transmission Rights auction. The second round shall be conducted approximately ~~3~~2 months

after the first round, ~~and, the~~ The third round shall be conducted approximately 32 months after the second round. The fourth round shall be conducted approximately 2 months after the third round, and the fifth round shall be conducted approximately 3 months after the fourth round. In each round ~~1/3~~ 20 percent of total capacity available in the long-term Financial Transmission Rights auction shall be offered for sale. Eligible entities may submit bids to purchase and offers to sell Financial Transmission Rights at the start of the bidding period in each round. The bidding period shall be three Business Days ending at 5:00 p.m. on the last day. PJM performs the Financial Transmission Rights auction clearing analysis for each round and posts the auction results on the market user interface within five Business Days after the close of the bidding period for each round unless circumstances beyond PJM's control prevent PJM from meeting the applicable deadline. Under such circumstances, PJM will post the auction results at the earliest possible opportunity. If the Office of the Interconnection discovers an error in the results posted for a long-term 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 immediately following the initial publication of the results for that auction. After this initial notification, if the Office of the Interconnection determines it is necessary to post modified auction results, it shall provide notification of its intent to do so, together with all available supporting documentation, by no later than 5:00 p.m. of the second Business Day following the initial publication of prices for that auction. Thereafter, the Office of the Interconnection must post the corrected prices by no later than 5:00 p.m. of the fourth calendar day following the initial publication of prices in the auction. Should any of the above deadlines pass without the associated action on the part of the Office of the Interconnection, the originally posted results will be considered final. Notwithstanding the foregoing, the deadlines set forth above shall not apply if the referenced auction results are under publicly noticed review by the FERC.

7.1A.3 Products.

- (i) The periods covered by long-term Financial Transmission Rights auctions shall be any single Planning Period within the three Planning Period term covered by the relevant auction.
- (ii) On-peak, off-peak and 24-hour Financial Transmission Right Obligations, shall be offered in long-term Financial Transmission Rights auctions; Financial Transmission Rights options shall not be offered.

7.1A.4 Participation Eligibility.

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

7.1A.5 Specified Receipt and Delivery Points.

The Office of the Interconnection will post a list of available receipt and delivery points for each long-term Financial Transmission Rights auction. Eligible receipt and delivery points in long-

term Financial Transmission Rights auctions shall be limited to the posted available hubs, Zones, aggregates, generators, and Interface Pricing Points.

7.2 Financial Transmission Rights Characteristics.

7.2.1 Reconfiguration of Financial Transmission Rights.

Through an appropriate linear programming model, the Office of the Interconnection shall reconfigure the Financial Transmission Rights offered or otherwise available for sale in any auction to maximize the value to the bidders of the Financial Transmission Rights sold, provided that any Financial Transmission Rights acquired at auction shall be simultaneously feasible in combination with those Financial Transmission Rights outstanding at the time of the auction and not sold in the auction. The linear programming model shall, while respecting transmission constraints and the maximum MW quantities of the bids and offers, select 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.

7.2.2 Specified Receipt and Delivery Points.

The Office of the Interconnection will post the list of available receipt and delivery points for each Financial Transmission Rights Auction before the start of the bidding window. Auction bids for annual Financial Transmission Rights Obligations may specify as receipt and delivery points any combination of available hubs, Zones, aggregates, generators, and Interface Pricing Points. Auction bids for annual Financial Transmission Rights Options may specify as receipt and delivery points such combination of available hubs, Zones, aggregates, generators, and Interface Pricing Points as the Office of the Interconnection shall allow from time to time as set forth in PJM Manual 06: Financial Transmission Rights. Auction bids for Financial Transmission Rights submitted in the monthly auctions may specify as receipt and delivery points any combination of available hubs, Zones, aggregates, generators, and Interface Pricing Points for bids that cover any month beyond the next month, ~~including bids that cover Planning Period Quarters or the Planning Period Balance.~~ Auction bids for Financial Transmission Rights submitted in the monthly auctions that cover the single calendar month period immediately following the month in which the monthly auction is conducted may specify any combination of available receipt and delivery buses represented in the State Estimator model for which the Office of the Interconnection calculates and posts Locational Marginal Prices. Auction bids may specify available receipt and delivery points from locations outside of the PJM Region to locations inside such region, from locations within the PJM Region to locations outside such region, or to and from locations within the PJM Region.

7.2.3 Transmission Congestion Charges.

Financial Transmission Rights shall entitle holders thereof to credits only for Day-ahead Energy Market Transmission Congestion Charges, and shall not confer a right to credits for payments arising from or relating to transmission congestion made to any entity other than PJMSettlement.

Attachment B

PJM Open Access Transmission Tariff and PJM Operating Agreement

(Clean Format)

Section(s) of the
PJM Open Access Transmission Tariff
(Clean Format)

7.1 Auctions of Financial Transmission Rights.

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

7.1.1 Auction Period and Scope of Auctions.

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

(b) An Auction Revenue Rights holder may convert Auction Revenue Rights to Financial Transmission Rights, and such conversion shall not be considered a purchase or sale of Financial Transmission Rights in the auction. Such Financial Transmission Rights must (i) have the same source and sink points as the Auction Revenue Rights; (ii) be a 24-hour product; and (iii) be Financial Transmission Right Obligations. The Auction Revenue Rights holder must inform the Office of the Interconnection in accordance with the procedures established by the Office of the Interconnection that it intends to exercise the conversion option prior to close of round one of the

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

7.1.2 Frequency and Time of Auctions.

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

7.1.3 Duration of Financial Transmission Rights.

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

7.1A Long-Term Financial Transmission Rights Auctions.

7.1A.1 Auctions.

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

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

7.1A.2 Frequency and Timing.

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

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

7.1A.3 Products.

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

(ii) On-peak, off-peak and 24-hour Financial Transmission Right Obligations, shall be offered in long-term Financial Transmission Rights auctions; Financial Transmission Rights options shall not be offered.

7.1A.4 Participation Eligibility.

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

7.1A.5 Specified Receipt and Delivery Points.

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

7.2 Financial Transmission Rights Characteristics.

7.2.1 Reconfiguration of Financial Transmission Rights.

Through an appropriate linear programming model, the Office of the Interconnection shall reconfigure the Financial Transmission Rights offered or otherwise available for sale in any auction to maximize the value to the bidders of the Financial Transmission Rights sold, provided that any Financial Transmission Rights acquired at auction shall be simultaneously feasible in combination with those Financial Transmission Rights outstanding at the time of the auction and not sold in the auction. The linear programming model shall, while respecting transmission constraints and the maximum MW quantities of the bids and offers, select 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.

7.2.2 Specified Receipt and Delivery Points.

The Office of the Interconnection will post the list of available receipt and delivery points for each Financial Transmission Rights Auction before the start of the bidding window. Auction bids for annual Financial Transmission Rights Obligations may specify as receipt and delivery points any combination of available hubs, Zones, aggregates, generators, and Interface Pricing Points. Auction bids for annual Financial Transmission Rights Options may specify as receipt and delivery points such combination of available hubs, Zones, aggregates, generators, and Interface Pricing Points as the Office of the Interconnection shall allow from time to time as set forth in PJM Manual 06: Financial Transmission Rights. Auction bids for Financial Transmission Rights submitted in the monthly auctions may specify as receipt and delivery points any combination of available hubs, Zones, aggregates, generators, and Interface Pricing Points for bids that cover any month beyond the next month. Auction bids for Financial Transmission Rights submitted in the monthly auctions that cover the single calendar month period immediately following the month in which the monthly auction is conducted may specify any combination of available receipt and delivery buses represented in the State Estimator model for which the Office of the Interconnection calculates and posts Locational Marginal Prices. Auction bids may specify available receipt and delivery points from locations outside of the PJM Region to locations inside such region, from locations within the PJM Region to locations outside such region, or to and from locations within the PJM Region.

7.2.3 Transmission Congestion Charges.

Financial Transmission Rights shall entitle holders thereof to credits only for Day-ahead Energy Market Transmission Congestion Charges, and shall not confer a right to credits for payments arising from or relating to transmission congestion made to any entity other than PJMSettlement.

Section(s) of the
PJM Operating Agreement
(Clean Format)

7.1 Auctions of Financial Transmission Rights.

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

7.1.1 Auction Period and Scope of Auctions.

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

(b) An Auction Revenue Rights holder may convert Auction Revenue Rights to Financial Transmission Rights, and such conversion shall not be considered a purchase or sale of Financial Transmission Rights in the auction. Such Financial Transmission Rights must (i) have the same source and sink points as the Auction Revenue Rights; (ii) be a 24-hour product; and (iii) be Financial Transmission Right Obligations. The Auction Revenue Rights holder must inform the Office of the Interconnection in accordance with the procedures established by the Office of the Interconnection that it intends to exercise the conversion option prior to close of round one of the

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

7.1.2 Frequency and Time of Auctions.

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

7.1.3 Duration of Financial Transmission Rights.

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

7.1A Long-Term Financial Transmission Rights Auctions.

7.1A.1 Auctions.

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

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

7.1A.2 Frequency and Timing.

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

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

7.1A.3 Products.

- (i) The periods covered by long-term Financial Transmission Rights auctions shall be any single Planning Period within the three Planning Period term covered by the relevant auction.
- (ii) On-peak, off-peak and 24-hour Financial Transmission Right Obligations, shall be offered in long-term Financial Transmission Rights auctions; Financial Transmission Rights options shall not be offered.

7.1A.4 Participation Eligibility.

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

7.1A.5 Specified Receipt and Delivery Points.

The Office of the Interconnection will post a list of available receipt and delivery points for each long-term Financial Transmission Rights auction. Eligible receipt and delivery points in long-

term Financial Transmission Rights auctions shall be limited to the posted available hubs, Zones, aggregates, generators, and Interface Pricing Points.

7.2 Financial Transmission Rights Characteristics.

7.2.1 Reconfiguration of Financial Transmission Rights.

Through an appropriate linear programming model, the Office of the Interconnection shall reconfigure the Financial Transmission Rights offered or otherwise available for sale in any auction to maximize the value to the bidders of the Financial Transmission Rights sold, provided that any Financial Transmission Rights acquired at auction shall be simultaneously feasible in combination with those Financial Transmission Rights outstanding at the time of the auction and not sold in the auction. The linear programming model shall, while respecting transmission constraints and the maximum MW quantities of the bids and offers, select 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.

7.2.2 Specified Receipt and Delivery Points.

The Office of the Interconnection will post the list of available receipt and delivery points for each Financial Transmission Rights Auction before the start of the bidding window. Auction bids for annual Financial Transmission Rights Obligations may specify as receipt and delivery points any combination of available hubs, Zones, aggregates, generators, and Interface Pricing Points. Auction bids for annual Financial Transmission Rights Options may specify as receipt and delivery points such combination of available hubs, Zones, aggregates, generators, and Interface Pricing Points as the Office of the Interconnection shall allow from time to time as set forth in PJM Manual 06: Financial Transmission Rights. Auction bids for Financial Transmission Rights submitted in the monthly auctions may specify as receipt and delivery points any combination of available hubs, Zones, aggregates, generators, and Interface Pricing Points for bids that cover any month beyond the next month. Auction bids for Financial Transmission Rights submitted in the monthly auctions that cover the single calendar month period immediately following the month in which the monthly auction is conducted may specify any combination of available receipt and delivery buses represented in the State Estimator model for which the Office of the Interconnection calculates and posts Locational Marginal Prices. Auction bids may specify available receipt and delivery points from locations outside of the PJM Region to locations inside such region, from locations within the PJM Region to locations outside such region, or to and from locations within the PJM Region.

7.2.3 Transmission Congestion Charges.

Financial Transmission Rights shall entitle holders thereof to credits only for Day-ahead Energy Market Transmission Congestion Charges, and shall not confer a right to credits for payments arising from or relating to transmission congestion made to any entity other than PJMSettlement.