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April 22, 2024

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., ER24-1803-000
Implementation of Capacity Market Rules Applicable to DER Capacity Aggregation
Resources Under Order No. 2222*

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 proposed re-dated eTariff records of the PJM Open Access Transmission Tariff (“Tariff”), the Amended and Restated Operating Agreement of PJM Interconnection, L.L.C. (“Operating Agreement”), and the Reliability Assurance Agreement Among Load-Serving Entities in the PJM Region (“RAA”)³ applicable to the capacity market components of PJM’s Order No. 2222⁴ compliance filing in Docket No. ER22-962. Specifically, PJM proposes to re-date these eTariff records from their current effective dates July 1, 2023 and

¹ 16 U.S.C. § 824d.

² 18 C.F.R. part 35.

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

⁴ *Participation of Distributed Energy Resource Aggregations in Markets Operated by Regional Transmission Organizations and Independent System Operators*, 172 FERC ¶ 61,247 (2020) (“Order No. 2222”); 174 FERC ¶ 61,197 (2021) (“Order No. 2222-A”); 175 FERC ¶ 61,227 (2021) (“Order No. 2222-B”).

July 1, 2024, to a new effective date of July 1, 2025.⁵ PJM also proposes to modify a single textual reference in the definition of “DER Capacity Aggregation Resource” to align with this proposed change in effective date to July 1, 2025.

As explained below, in light of the fact that major components of PJM’s Order No. 2222 participation model are still pending before the Commission in Docket No. ER22-962, PJM no longer believes that it is possible to permit Planned DER Capacity Aggregation Resources to participate in the 2026/2027 Base Residual Auction (“BRA”), currently scheduled for December 2024. Accordingly, through this filing, PJM is proposing to permit Planned DER Capacity Aggregation Resources to participate in the 2028/2029 BRA, currently scheduled for December 2025.

I. BACKGROUND

On February 1, 2022, PJM submitted proposed revisions to the Tariff, Operating Agreement, and RAA,⁶ in compliance with Order No. 2222 and associated orders.⁷ As relevant

⁵ PJM has assigned an effective date of June 22, 2024, to one eTariff record (Tariff, Attachment K-Appendix, section 1) submitted with this filing (in metadata only) in order to effectuate Commission action by this date.

⁶ *PJM Interconnection, L.L.C.*, Order No. 2222 Compliance Filing of PJM Interconnection, L.L.C., Docket No. ER22-962-000 (Feb. 1, 2022) (“February 1, 2022 Compliance Filing”).

⁷ See *Participation of Distributed Energy Resource Aggregations in Markets Operated by Regional Transmission Organizations and Independent System*, Order No. 2222, 172 FERC ¶ 61,247, at P 360 (“[A]fter consideration of the comments submitted, we will require each RTO/ISO to file the Tariff changes needed to implement the requirements of this final rule within 270 days of the publication date of this final rule in the Federal Register.”), *order on reh’g*, Order No. 2222-A, 174 FERC ¶ 61,197 (2021), *order on reh’g*. Order No. 2222-B, 175 FERC ¶ 61,227 (2021); see also *Participation of Distributed Energy Resource Aggregations in Markets Operated by Regional Transmission Organizations and Independent System Operators*, Notice of Correction in Federal Register of Compliance Deadline, Docket No. RM18-9-000 (Oct. 29, 2020) (“Notice is hereby given that the deadline to submit filings to comply with Order No. 2222 has been corrected and is July 19, 2021.”); *Participation of Distributed Energy Resource Aggregations in Markets Operated by Regional Transmission Organizations and Independent System Operators*, 175 FERC ¶ 61,013, at P 5 (2021) (“We grant MISO’s, SPP’s, and PJM’s requests for extension, until April 18, 2022, April 28, 2022, and February 1, 2022, respectively, to submit their filings in compliance with the requirements of Order No. 2222.”).

here, PJM requested an effective date of July 1, 2023 for the revisions specific to a DER Aggregator offering a Planned DER Capacity Aggregation Resource into PJM’s capacity market starting with the 2026/2027 Delivery Year.⁸ On March 1, 2023, the Commission accepted, effective July 1, 2023, and subject to a further compliance filing, PJM’s revisions to allow DER Capacity Aggregation Resources to participate in PJM’s capacity market.⁹

In a subsequent compliance order issued November 13, 2023,¹⁰ the Commission directed PJM to “revise the tariff to make the capacity market mitigation rules in Tariff, Attachment K-Appendix, section 1.4B(k) and Operating Agreement, Schedule 1, section 1.4B(k) applicable to DER Capacity Aggregation Resources effective in time for the commencement of pre-auction activities for, and prior to, the 2026/2027 Delivery Year BRA.”¹¹ As part of this compliance filing, the Commission also directed PJM to: (i) “ensure that all other relevant tariff provisions necessary for DER Capacity Aggregation Resources’ participation in the 2026/2027 Delivery Year BRA are included in the tariff and effective in time for the commencement of pre-auction activities for, and prior to, the 2026/2027 Delivery Year BRA”;¹² and (ii) “include definitions in the tariff provisions for terms embedded in several newly defined terms in the RAA and any others needed to close the definitional gap that the Commission identified in the Second Compliance Order.”¹³

⁸ See February 1, 2022 Compliance Filing at 90.

⁹ *PJM Interconnection, L.L.C.*, 182 FERC ¶ 61,143 (2023) (“March 1, 2023 Order”), *order on reh’g*, 184 FERC ¶ 61,019 (2023).

¹⁰ *PJM Interconnection, L.L.C.*, 185 FERC ¶ 61,112 (2023) (“November 13, 2023 Order”).

¹¹ *Id.* at P 30.

¹² *Id.*

¹³ *Id.* at P 31.

In compliance with the November 13, 2023 Order, PJM submitted a compliance filing on December 13, 2023 that included several eTariff records applicable to DER Capacity Aggregation Resources with proposed effective dates of July 1, 2024.¹⁴ PJM explained that “[b]ecause the 2025/2026 Delivery Year BRA is anticipated to be conducted in June 2024, a July 1, 2024 effective date will ensure that these provisions are in place for pre-auction activities related to the 2026/2027 Delivery Year BRA.”¹⁵ PJM also noted that “all other capacity market provisions applicable to the DER Aggregator Participation Model are effective July 1, 2023, and by extension will be in effect prior to the 2026/2027 Delivery Year BRA.” PJM’s December 13, 2023 Compliance Filing—and the proposed effective date of July 1, 2024—was accepted via delegated letter order on March 4, 2024.¹⁶

II. PROPOSAL TO REDATE ETARIFF RECORDS AND REVISE DEFINITION

As a result of these filings and orders described above in Section I, the eTariff records containing the capacity-market provisions of PJM’s Order No. 2222 compliance proposal are currently designated with the effective dates described in the table below. Through this filing, PJM proposes to modify the effective dates of these eTariff records to July 1, 2025.¹⁷

¹⁴ *PJM Interconnection, L.L.C.*, Compliance Filing of PJM Interconnection, L.L.C., Docket No. ER22-962-006 (Dec. 13, 2023) (the “December 13, 2023 Compliance Filing”).

¹⁵ *Id.* at 3.

¹⁶ *PJM Interconnection, L.L.C.*, Delegated Letter Order, Docket No. ER22-962-006 (Mar. 4, 2024).

¹⁷ To implement this effective date change to July 1, 2025, the versions of sections included in this filing effective July 1, 2023 or July 1, 2024 are being replaced by versions of the Tariff/Operating Agreement/RAA in effect as of those respective dates without the Order No. 2222 compliance language included. Since PJM has simply reverted to language that was in effect for each section before Order No. 2222 compliance language was added, redlines are only being provided for the July 1, 2025 effective versions except for RAA, Schedule 6.2, which was newly proposed in the Order No. 2222 compliance proceeding and has not been filed upon otherwise.

eTariff Record	Version	Current Effective Date	Proposed Effective Date
Reliability Assurance Agreement, Schedule 6.2	0.0.0	July 1, 2023	July 1, 2025
Reliability Assurance Agreement, Article 1, Definitions	37.0.0	July 1, 2023	July 1, 2025
Tariff, Attachment Q	48.0.0	July 1, 2023	July 1, 2025
Tariff, Attachment K-Appendix, section 1.4B	1.0.1	July 1, 2024	July 1, 2025
Operating Agreement, Schedule 1, section 1.4B	1.0.1	July 1, 2024	July 1, 2025
Tariff, Definitions, C-D	31.0.1	July 1, 2024	July 1, 2025
Tariff, Attachment DD, Section 5.14	33.0.1	July 1, 2024	July 1, 2025

PJM also proposes to textually modify the definition of “DER Capacity Aggregation Resource” to align a single reference to the “2026/2027 Delivery Year” with the new proposed date, in the following manner.

“DER Capacity Aggregation Resource” shall mean one or more DER Aggregation Resource that participates in the Reliability Pricing Model, capable of satisfying a minimum capacity market offer of 100 kW, or is otherwise treated as capacity in PJM’s markets, such as through a Fixed Resource Requirement Capacity Plan, for the 202~~68~~/202~~79~~ Delivery Year and all subsequent Delivery Years.

Transferring the effective date of these provisions applicable to DER Capacity Aggregation Resources to July 1, 2025 is just and reasonable. In light of the fact that major components of PJM's Order No. 2222 participation model are still pending before the Commission in Docket No. ER22-962, PJM no longer believes that it is possible to permit Planned DER Capacity Aggregation Resources to participate in the 2026/2027 BRA. This is for two specific reasons.

First, given the current regulatory uncertainty surrounding significant components of PJM's Order No. 2222 participation model currently pending in Docket No. ER22-962, it is extremely unlikely that Planned DER Capacity Aggregation Resources will be willing to bid into the 2026/2027 BRA to utilize a participation model for which the basic framework and rules have not yet been settled and approved by the Commission.

Second, even assuming a Planned DER Capacity Aggregation Resource were theoretically willing to subject itself to capacity commitments under a participation model with unsettled rules, PJM is still unable to provide market participants with adequate documentation and training regarding what the participation model will ultimately look like "on the ground," and how the to-be-finalized rules for Order No. 2222 might interact with PJM's capacity market bidding software and procedures, because these rules are not yet known. This is particularly salient now in April 2024, as pre-auction activities for 2026/2027 BRA will commence in July 2024.¹⁸ Accordingly, an effective date of July 1, 2025 will allow DER Capacity Aggregation Resources to participate in the 2028/2029 BRA scheduled for December of 2025,¹⁹ and allow

¹⁸ PJM notes that, even if the Commission were to issue an order in the coming weeks, the immediacy of pre-auction activities for the 2026/2027 BRA would preclude PJM from assembling and deploying the necessary documentation and training to permit participation.

¹⁹Additional information may be found here: <https://www.pjm.com/-/media/markets-ops/rpm/rpm-auction-info/rpm-auction-schedule.ashx>

time for PJM to provide clear market participation documentation and training in light of the DER Participation Model framework, and the updated capacity market rules.²⁰

Finally, PJM notes that in its March 31, 2023 Informational Update Regarding Effective Date Implementation,²¹ PJM described at length the work it anticipated to be necessary to effectuate the February 2, 2026 implementation date of its Order No. 2222 participation model, and described certain conditions that PJM believed would be necessary to realize that specific “go-live” date. Specifically, PJM stated:

Based on PJM’s internal assessment, in order to successfully implement these changes by February 2, 2026, two primary conditions would be required. First, PJM would need an order from the Commission approving the majority of PJM’s major outstanding compliance directives, as specified by the March 1, 2023 Order, by the end of 2023. This would allow twenty-four months for development, testing, implementation, and meeting PJM’s compliance obligations under Order No. 760. Second, PJM’s final compliance order would not require radically divergent market design elements than what PJM had originally contemplated in its February 1, 2022 Compliance Filing, such as a multi-nodal framework for energy market participation and the development of associated distribution factors. These new elements would require additional time to implement than what had been originally contemplated on February 1, 2022.

While PJM is not seeking to extend the current February 2, 2026 effective date of the Order No. 2222 participation model in this FPA section 205 filing, it may do so in a future submission.

²⁰ See generally Docket No. ER24-99.

²¹ *PJM Interconnection, L.L.C.*, Informational Update Regarding Effective Date Implementation if PJM Interconnection, L.L.C., Docket No. ER22-962-001 (Mar. 31, 2023) (the “March 31, 2023 Informational Update Regarding Effective Date Implementation”).

III. DOCUMENTS INCLUDED WITH THIS FILING

In accordance with the requirements of Order No. 714²² 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 – Versions of the Tariff, Operating Agreement, and RAA effective July 1, 2023 or July 1, 2024 reinstating accepted language without Order No. 2222 compliance;
3. Attachment B – Revisions to the Tariff, Operating Agreement, and RAA effective July 1, 2025, in redline format; and
4. Attachment C – Revisions to the Tariff, Operating Agreement, and RAA effective July 1, 2025, in clean format.

IV. CORRESPONDENCE

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

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V. 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,²³ PJM will post a copy of this filing to the FERC filings section of its

²² *Electronic Tariff Filings*, Order No. 714, 124 FERC ¶ 61,270 (2008), *final rule*, Order No. 714-A, 147 FERC ¶ 61,115 (2014).

²³ See 18 C.F.R §§ 35.2(e) and 385.2010(f)(3).

internet site, located at the following link: <https://www.pjm.com/library/filing-order> 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 Region²⁴ alerting them that this filing has been made by PJM 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.

VI. CONCLUSION

In accordance with the foregoing, PJM respectfully requests that the Commission accept these proposed revisions and grant an effective date of July 1, 2025.

Respectfully submitted,

/s/ Thomas DeVita

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

²⁴ PJM already maintains, updates and regularly uses e-mail lists for all PJM Members and affected state commissions.

Attachment A

Sections of the PJM Open Access Transmission Tariff, Operating Agreement, and Reliability Assurance Agreement

Effective July 1, 2023 or July 1, 2024 re-instating
accepted language without Order No. 2222 compliance
(Identified by additional cover pages)

Section of the
PJM Open Access Transmission Tariff

Effective July 1, 2023

ATTACHMENT Q

CREDIT RISK MANAGEMENT POLICY

I. INTRODUCTION

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

PURPOSE

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

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

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

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

APPLICABILITY

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

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

II. RISK EVALUATION PROCESS

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

A. Initial Risk Evaluation

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

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

1. Rating Agency Reports

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

2. Financial Statements and Related Information

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

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

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

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

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

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

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

3. Credit Rating and Internal Credit Score

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

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

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

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

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

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

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

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

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

RRA = Regulatory Research Associates, a division of S&P Global, Inc.

BICRA = Bank Industry Country Risk Assessment

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

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

6 = High Risk (S&P/Fitch: BB- and below; Moody's: Ba3 and below)

4. Trade References

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

5. Litigation and Contingencies

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

6. History of Defaults in Energy Projects

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

7. Other Disclosures and Additional Information

Each Applicant and Guarantor is required to disclose any Credit Affiliates that are currently Members of PJM, applying for membership with PJM, Transmission Customers, Participants, applying to become Market Participants, or that participate directly or indirectly in any PJM Markets or any other North American markets for electricity, natural gas or electricity-related commodity products. Each Applicant and Guarantor shall also provide a copy of its limited liability company agreement or equivalent agreement, certification of formation, articles of incorporation or other similar organization document, offering memo or equivalent, the names of its five (5) most senior Principals, and information pertaining to any non-compliance with debt covenants and indentures.

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

B. Supplemental Risk Evaluation Process

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

C. Unsecured Credit Allowance

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

1. Unsecured Credit Allowance Evaluation

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

(a) Rating Agency Reports

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

(b) Financial Statements and Related Information

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

2. Material Adverse Changes

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

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

3. Other Disclosures

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

D. Determination of Unreasonable Credit Risk

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

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

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

E. Ongoing Risk Evaluation

In addition to the initial risk evaluation set forth in sections II.A through II.D above and the annual certification requirements set forth in section III.A below, each Market Participant and/or its Guarantor has an ongoing obligation to provide PJM with the information required in section IV.A described in more detail below. PJM may also review public information regarding a Market Participant and/or its Guarantor as part of its ongoing risk evaluation. If appropriate, PJM will revise the Market Participant's Unsecured Credit Allowance and/or change its determination of creditworthiness, credit support, Restricted Collateral, required Collateral or other assurances pursuant to PJM's ongoing risk evaluation process.

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

1. Rating Agency Reports

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

2. Financial Statements and Related Information

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

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

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

3. Material Adverse Changes

Each Market Participant and each Guarantor is responsible for informing PJM, in writing, of any Material Adverse Change in its or its Guarantor's financial condition within five (5) Business Days of any Principal becoming aware of the occurrence of a Material Adverse Change since the date of the Market Participant or Guarantor's most recent annual financial statements provided to PJM. However, PJM may also independently establish from available information that a Participant and/or its Guarantor has experienced a Material Adverse Change in its financial condition without regard to whether such Market Participant or Guarantor has informed PJM of the same.

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

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

- (l) any adverse changes in financial condition which, individually, or in the aggregate, are material; and,
- (m) any adverse changes, events or occurrences which, individually or in the aggregate, could affect the ability of the entity to pay its debts as they become due or could reasonably be expected to have a material adverse effect on any current or future financial results or financial condition.

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

4. Litigation and Contingencies

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

5. History of Defaults in Energy Projects

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

6. Internal Credit Score

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

7. Other Disclosures and Additional Information

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

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

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

8. Unreasonable Credit Risk

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

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

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

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

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

F. Collateral and Credit Restrictions

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

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

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

G. Unsecured Credit Allowance Calculation

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

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

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

1. Credit Rating and Internal Credit Score

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

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

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

2. Unsecured Credit Allowance

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

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

Internal Credit Score	Risk Ranking	Tangible Net Worth Factor	Maximum Unsecured Credit Allowance (\$ Million)
1.00 – 1.99	1 – Very Low (AAA to AA-)	Up to 10.00%	\$50
2.00 – 2.99	2 – Low (A+ to BBB+)	Up to 8.00%	\$42
3.00 – 3.49	3 – Low to Medium (BBB)	Up to 6.00%	\$33

3.50 – 4.49	4 – Medium (BBB-)	Up to 5.00%	\$7
4.50 – 5.49	5 – Medium to High (BB+ to BB)	0%	\$0
> 5.49	6 – High (BB- and below)	0%	\$0

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

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

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

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

3. Unsecured Credit Limits For Credit Affiliates

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

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

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

cap shall request PJM to allocate the maximum Unsecured Credit amongst the corporate family, assuring that no individual Participant or common guarantor, shall exceed the Unsecured Credit level appropriate for its credit strength and activity.

H. Contesting an Unsecured Credit Evaluation

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

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

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

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

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

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

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

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

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

III. MINIMUM PARTICIPATION REQUIREMENTS

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

A. Annual Certification

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

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

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

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

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

B. PJM Market Participation Eligibility Requirements

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

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

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

or Market Participant acknowledges is separate from, and cannot be applied to meet, its credit requirements to PJM.

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

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

C. Risk Management and Verification

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

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

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

D. Capitalization

In advance of certification, Applicants shall meet the minimum capitalization requirements below. In addition to the annual certification requirements in Attachment Q, Appendix 1, a Market Participant shall satisfy the minimum capitalization requirements on an annual basis thereafter. A Participant must demonstrate that it meets the minimum financial requirements appropriate for the PJM Markets in which it transacts by satisfying either the minimum capitalization or the provision of Collateral requirements listed below:

1. Minimum Capitalization

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

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

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

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

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

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

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

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

2. Provision of Collateral

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

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

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

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

- (a) the applicable Unsecured Credit Allowance available to the Participant by the Corporate Guaranty pursuant to the creditworthiness provisions of this Attachment Q; or

(b) the face value of the Corporate Guaranty, reduced commensurate with the amount of the current risk plus any anticipated future risk to any PJM Markets and PJM membership in general, and may coincide with limitations on market participation.

IV. ONGOING COVENANTS

A. Ongoing Obligation to Provide Information to PJM

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

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

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

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

B. Risk Management Review

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

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

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

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

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

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

V. FORMS OF CREDIT SUPPORT

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

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

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

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

A. Cash Deposit

A Participant's delivery of a cash deposit to PJM as Collateral shall constitute the grant of a first-priority security interest in the cash in favor of PJM and PJM shall be authorized by such delivery to hold the cash as security and to apply it to the Participant's financial obligations under the Tariff or other Agreements. Cash provided by a Participant as Collateral will be held in a depository account by PJM. Interest on a cash deposit shall accrue to the benefit of the Participant, provided that PJM may require Participants to provide appropriate tax and other information in order to accrue such interest credits. A Participant who delivers cash to PJM hereunder agrees that the Tariff and any other agreements incorporating the terms of the Tariff shall for all purposes constitute a security agreement.

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

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

B. Letter of Credit

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

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

C. Corporate Guaranty

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

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

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

PJM will evaluate the creditworthiness of a Guarantor and will establish any Unsecured Credit granted through a Corporate Guaranty using the methodology and requirements established for Participants requesting an Unsecured Credit Allowance as described herein. Foreign Guaranties and Canadian Guaranties shall be subject to additional requirements as established herein.

If PJM determines at any time that a Material Adverse Change in the financial condition of the Guarantor has occurred, or if the Corporate Guaranty comes within thirty (30) calendar days of expiring without renewal, PJM may reduce or eliminate any Unsecured Credit afforded to the Participant through the guaranty. Such reduction or elimination may require the Participant to provide Collateral within the applicable cure period. If the Participant fails to provide the required Collateral, the Participant shall be in default under this Attachment Q.

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

1. Foreign Guaranties

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

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

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

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

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

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

2. Canadian Guaranties

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

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

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

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

D. Surety Bond

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

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

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

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

E. PJM Administrative Charges

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

F. Collateral and Credit Support Held by PJM

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

VI. SUPPLEMENTAL CREDIT REQUIREMENTS FOR SCREENED TRANSACTIONS

A. Virtual and Export Transaction Screening

1. Credit for Virtual and Export Transactions

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

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

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

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

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

2. Virtual Transaction Screening

All Virtual Transactions submitted to PJM shall be subject to a credit screen prior to acceptance in the Day-ahead Energy Market. The credit screen is applied separately for each of a Market

Participant's customer accounts. The credit screen process will automatically reject Virtual Transactions submitted by the Market Participant in a customer account if the Market Participant's Credit Available for Virtual Transactions, allocated on a customer account basis, is exceeded by the Virtual Credit Exposure that is calculated based on the Market Participant's Virtual Transactions submitted, as described below.

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

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

Where:

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

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

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

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

3. Export Transaction Screening

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

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

B. RPM Auction and Price Responsive Demand Credit Requirements

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

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

1. Applicability

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

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

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

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

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

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

3. Reduction in Credit Requirement

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

4. RPM Auction Credit Rate

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

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

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

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

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

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

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

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

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

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

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

5. Price Responsive Demand Credit Rate

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

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

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

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

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

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

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

7. Credit Responsibility for Traded Planned RPM Capacity Resources

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

C. Financial Transmission Right Auctions

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

1. FTR Credit Limit.

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

2. FTR Credit Requirement.

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

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

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

(a) Initial Margin

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

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

The model will employ a confidence interval of 97 percent.

(i) FTR Obligations IM

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

(ii) FTR Options IM

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

(b) Auction Revenue Rights Credits

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

(c) Mark-to-Auction Value

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

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

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

(e) Realized Gains and/or Losses

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

3. Rejection of FTR Bids.

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

4. FTR Credit Collateral Returns.

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

5. Credit Responsibility for Bilateral Transfers of FTRs.

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

6. FTR Administrative Charge Credit Requirement

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

7. Mark-to-Auction

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

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

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

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

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

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

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

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

VII. PEAK MARKET ACTIVITY AND WORKING CREDIT LIMIT

A. Peak Market Activity Credit Requirement

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

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

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

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

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

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

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

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

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

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

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

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

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

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

B. Working Credit Limit

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

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

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

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

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

VIII. SUSPENSION OR LIMITATION ON MARKET PARTICIPATION

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

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

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

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

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

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

When an Event of Default under this Attachment Q or one or more of the Agreements has occurred and is continuing, PJM may take such actions as may be required or permitted under the Agreements to protect the PJM Markets and the PJM Members, including but not limited to (a) suspension and/or termination of the Participant’s ongoing Transmission Service, (b) limitation, suspension and/or termination of participation in any PJM Markets, (c) taking all necessary steps to address the Market Participant’s market portfolio in accordance with the provisions of the Operating Agreement and PJM Tariff, including, but not limited to, allowing such portfolio’s positions to go to settlement, liquidating or otherwise resolving such portfolio positions, exercising judgment in the manner in which this is achieved in any PJM Markets. PJM may permit a defaulting Market Participant to continue to participate in PJM Markets: (a) in support of grid reliability, (b) when such Market Participant is a net market seller, (c) when such

Market Participant has the ability to post collateral, or (d) to enable certain customers to continue to receive service prior to PJM receiving regulatory or legal approval to terminate.

When an Event of Default under this Attachment Q or one or more of the Agreements has occurred and is continuing, PJM also has the immediate right to liquidate all or a portion of a Participant's Collateral at its discretion to satisfy Total Net Obligations to PJM under this Attachment Q or one or more of the Agreements. No remedy for an Event of Default is or shall be deemed to be exclusive of any other available remedy or remedies by contract or under applicable laws and regulations. Each such remedy shall be distinct, separate and cumulative, shall not be deemed inconsistent with or in exclusion of any other available remedy, and shall be in addition to and separate and distinct from every other remedy.

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

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

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

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

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

apply any Collateral to such Participant's Obligations, even if Participant had previously announced and effected its withdrawal from PJM.

To protect PJM Members and PJM Markets from loss and harm due to uncertainty and delay which may be created upon a Participant's bankruptcy, in the event a Participant becomes a debtor under the United States Bankruptcy Code, 11 U.S.C. §§ 101-1532 (the "Bankruptcy Code"), whether voluntarily or involuntarily, the Participant should upon the commencement of the bankruptcy case immediately seek through a "first day" motion or motions, to the extent appropriate under the circumstances to provide PJM with prompt clarity as to its rights and treatment, the entry of an order of the bankruptcy court: (i) authorizing and directing the Participant to (a) make prompt and full payment of all pre-petition Obligations to PJM; and (b) fulfill all obligations under the Tariff and other Agreements in the ordinary course of business, including but not limited to deposit of additional Collateral post-petition; (ii) authorizing PJM to (x) require, hold and apply Collateral in accordance with this Attachment Q and (y) exercise setoff and recoupment to the fullest extent provided under the Tariff and other Agreements, and applicable nonbankruptcy law; and (iii) confirming the status of Agreements as a "forward contract", "swap agreement", or "master netting agreement" under the Bankruptcy Code, as applicable.

In the event that a debtor Participant fails to file such a "first day" motion within one (1) Business Day of the commencement of the bankruptcy case, or the bankruptcy court does not enter an order granting the relief requested in such "first day" motion within seven (7) days thereof, PJM may file a motion for relief from the automatic stay under section 362(d) of the Bankruptcy Code, citing the lack of prompt clarity as "cause" thereunder, to the extent necessary to permit PJM to exercise any rights and remedies under the Tariff and other Agreements.

X. FTR TRANSACTIONS AS FORWARD CONTRACTS AND/OR SWAP AGREEMENTS UNDER THE BANKRUPTCY CODE

Under the terms of the Tariff, PJM Settlement is the counterparty to all transactions in PJM Markets, including but not limited to all FTR transactions, other than (i) any bilateral transactions between Participants, or (ii) with respect to self-supplied or self-scheduled transactions reported to the Office of the Interconnection. Pursuant to the "Final Order in Response to a Petition From Certain Independent System Operators and Regional Transmission Organizations To Exempt Specified Transactions Authorized by a Tariff or Protocol Approved by the Federal Energy Regulatory Commission or the Public Utility Commission of Texas From Certain Provisions of the Commodity Exchange Act Pursuant to the Authority Provided in the Act" 78 Fed. Reg. 19880 (April 2, 2013) (the "CFTC RTO/ISO Order"), the Commodity Futures Trading Commission (the "CFTC") exempts transactions offered or entered into in a market administered by PJM pursuant to the Tariff, including but not limited to FTR transactions, from the provisions of the Commodity Exchange Act and the CFTC's rules applicable to "swaps," with the exception of the CFTC's general anti-fraud and anti-manipulation authority and scienter-based prohibitions.

Notwithstanding the CFTC RTO/ISO Order, all FTR transactions constitute "forward contracts" and/or "swap agreements" within the meaning of the Bankruptcy Code, and PJM shall be

deemed to be a “forward contract merchant” and/or a “swap participant” within the meaning of the Bankruptcy Code for purposes of FTR transactions.

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

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

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

Attachment Q
Appendix 1

PJM MINIMUM PARTICIPATION CRITERIA
ANNUAL OFFICER CERTIFICATION FORM

Participant Name: _____ ("Participant")

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

Description only if c(4) is initialed:

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

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

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

Date: _____

Participant (Signature)

Print Name: _____

Title: _____

Sections of the
PJM Open Access Transmission Tariff

Effective July 1, 2024

Definitions – C - D

Canadian Guaranty:

“Canadian Guaranty” shall mean a Corporate Guaranty provided by an Affiliate of a Participant that is domiciled in Canada, and meets all of the provisions of Tariff, Attachment Q.

Cancellation Costs:

“Cancellation Costs” shall mean costs and liabilities incurred in connection with: (a) cancellation of supplier and contractor written orders and agreements entered into to design, construct and install Attachment Facilities, Direct Assignment Facilities and/or Customer-Funded Upgrades, and/or (b) completion of some or all of the required Attachment Facilities, Direct Assignment Facilities and/or Customer-Funded Upgrades, or specific unfinished portions and/or removal of any or all of such facilities which have been installed, to the extent required for the Transmission Provider and/or Transmission Owner(s) to perform their respective obligations under Tariff, Part IV and/or Tariff, Part VI.

Capacity:

“Capacity” shall mean the installed capacity requirement of the Reliability Assurance Agreement or similar such requirements as may be established.

Capacity Emergency Transfer Limit:

“Capacity Emergency Transfer Limit” or “CETL” shall have the meaning provided in the Reliability Assurance Agreement.

Capacity Emergency Transfer Objective:

“Capacity Emergency Transfer Objective” or “CETO” shall have the meaning provided in the Reliability Assurance Agreement.

Capacity Export Transmission Customer:

“Capacity Export Transmission Customer” shall mean a customer taking point to point transmission service under Tariff, Part II to export capacity from a generation resource located in the PJM Region that has qualified for an exception to the RPM must-offer requirement as described in Tariff, Attachment DD, section 6.6(g).

Capacity Import Limit:

“Capacity Import Limit” shall have the meaning provided in the Reliability Assurance Agreement.

Capacity Interconnection Rights:

“Capacity Interconnection Rights” shall mean the rights to input generation as a Generation Capacity Resource into the Transmission System at the Point of Interconnection where the generating facilities connect to the Transmission System.

Capacity Market Buyer:

“Capacity Market Buyer” shall mean a Member that submits bids to buy Capacity Resources in any Incremental Auction.

Capacity Market Seller:

“Capacity Market Seller” shall mean a Member that owns, or has the contractual authority to control the output or load reduction capability of, a Capacity Resource, that has not transferred such authority to another entity, and that offers such resource in the Base Residual Auction or an Incremental Auction.

Capacity Performance Resource:

“Capacity Performance Resource” shall mean a Capacity Resource as described in Tariff, Attachment DD, section 5.5A(a).

Capacity Performance Transition Incremental Auction:

“Capacity Performance Transition Incremental Auction” shall have the meaning specified in Tariff, Attachment DD, section 5.14D.

Capacity Resource:

“Capacity Resource” shall have the meaning provided in the Reliability Assurance Agreement.

Capacity Resource with State Subsidy:

“Capacity Resource with State Subsidy” shall mean (1) a Capacity Resource that is offered into an RPM Auction or otherwise assumes an RPM commitment for which the Capacity Market Seller receives or is entitled to receive one or more State Subsidies for the applicable Delivery Year; (2) a Capacity Resource that has not cleared an RPM Auction for the Delivery Year for which the Capacity Market Seller last received a State Subsidy (or any subsequent Delivery Year) shall still be considered a Capacity Resource with State Subsidy upon the expiration of such State Subsidy until the resource clears an RPM Auction; (3) a Capacity Resource that is the subject of a bilateral transaction (including but not limited to those reported pursuant to Tariff, Attachment DD, section 4.6) shall be deemed a Capacity Resource with State Subsidy to the extent an owner of the facility supporting the Capacity Resource is entitled to a State Subsidy associated with such facility even if the Capacity Market Seller is not entitled to a State Subsidy; and (4) any Jointly Owned Cross-Subsidized Capacity Resource.

Capacity Resource Clearing Price:

“Capacity Resource Clearing Price” shall mean the price calculated for a Capacity Resource that offered and cleared in a Base Residual Auction or Incremental Auction, in accordance with Tariff, Attachment DD, section 5.

Capacity Storage Resource:

“Capacity Storage Resource” shall mean any Energy Storage Resource that participates in the Reliability Pricing Model or is otherwise treated as capacity in PJM’s markets such as through a Fixed Resource Requirement Capacity Plan.

Capacity Transfer Right:

“Capacity Transfer Right” shall mean a right, allocated to LSEs serving load in a Locational Deliverability Area, to receive payments, based on the transmission import capability into such Locational Deliverability Area, that offset, in whole or in part, the charges attributable to the Locational Price Adder, if any, included in the Zonal Capacity Price calculated for a Locational Delivery Area.

Capacity Transmission Injection Rights:

“Capacity Transmission Injection Rights” shall mean the rights to schedule energy and capacity deliveries at a Point of Interconnection of a Merchant Transmission Facility with the Transmission System. Capacity Transmission Injection Rights may be awarded only to a Merchant D.C. Transmission Facility and/or Controllable A.C. Merchant Transmission Facilities that connects the Transmission System to another control area. Deliveries scheduled using Capacity Transmission Injection Rights have rights similar to those under Firm Point-to-Point Transmission Service or, if coupled with a generating unit external to the PJM Region that satisfies all applicable criteria specified in the PJM Manuals, similar to Capacity Interconnection Rights.

Charge Economic Maximum Megawatts:

“Charge Economic Maximum Megawatts” shall mean the greatest magnitude of megawatt power consumption available for charging in economic dispatch by an Energy Storage Resource Model Participant or solar-storage Open-Loop Hybrid Resource in Continuous Mode or in Charge Mode. Charge Economic Maximum Megawatts shall be the Economic Minimum for an Energy Storage Resource or solar-storage Open-Loop Hybrid Resource in Charge Mode or in Continuous Mode.

Charge Economic Minimum Megawatts:

“Charge Economic Minimum Megawatts” shall mean the smallest magnitude of megawatt power consumption available for charging in economic dispatch by an Energy Storage Resource Model Participant or solar-storage Open-Loop Hybrid Resource in Charge Mode. Charge Economic

Minimum Megawatts shall be the Economic Maximum for an Energy Storage Resource or solar-storage Open-Loop Hybrid Resource in Charge Mode.

Charge Mode:

“Charge Mode” shall mean the mode of operation of an Energy Storage Resource Model Participant or solar-storage Open-Loop Hybrid Resource that only includes negative megawatt quantities (i.e., the Energy Storage Resource Model Participant or solar-storage Open-Loop Hybrid Resource is only withdrawing megawatts from the grid).

Charge Ramp Rate:

“Charge Ramp Rate” shall mean the Ramping Capability of an Energy Storage Resource Model Participant or solar-storage Open-Loop Hybrid Resource in Charge Mode.

Cleared Capacity Resource with State Subsidy:

“Cleared Capacity Resource with State Subsidy” shall mean a Capacity Resource with State Subsidy that has cleared in an RPM Auction for a Delivery Year that is prior to the 2022/2023 Delivery Year or, starting with 2022/2023 Delivery Year, the MWs (in installed capacity) comprising a Capacity Resource with State Subsidy that have cleared an RPM Auction pursuant to its Sell Offer at or above its resource-specific MOPR Floor Offer Price or the applicable default New Entry MOPR Floor Offer Price and since then, any of those MWs (in installed capacity) comprising a Capacity Resource with State Subsidy have been, the subject of a Sell Offer into the Base Residual Auction or included in an FRR Capacity Plan at the time of the Base Residual Auction for the relevant Delivery Year.

Closed-Loop Hybrid Resource:

“Closed-Loop Hybrid Resource” shall mean a Hybrid Resource that is physically or contractually incapable of charging from the grid.

Cold/Warm/Hot Notification Time:

“Cold/Warm/Hot Notification Time” shall mean the time interval between PJM notification and the beginning of the start sequence for a generating unit that is currently in its cold/warm/hot temperature state. The start sequence may include steps such as any valve operation, starting feed water pumps, startup of auxiliary equipment, etc.

Cold/Warm/Hot Start-up Time:

For all generating units that are not combined cycle units, “Cold/Warm/Hot Start-up Time” shall mean the time interval, measured in hours, from the beginning of the start sequence to the point after generator breaker closure, which is typically indicated by telemetered or aggregated State Estimator megawatts greater than zero for a generating unit in its cold/warm/hot temperature state. For combined cycle units, “Cold/Warm/Hot Start-up Time” shall mean the time interval

from the beginning of the start sequence to the point after first combustion turbine generator breaker closure in its cold/warm/hot temperature state, which is typically indicated by telemetered or aggregated State Estimator megawatts greater than zero. For all generating units, the start sequence may include steps such as any valve operation, starting feed water pumps, startup of auxiliary equipment, etc. Other more detailed actions that could signal the beginning of the start sequence could include, but are not limited to, the operation of pumps, condensers, fans, water chemistry evaluations, checklists, valves, fuel systems, combustion turbines, starting engines or systems, maintaining stable fuel/air ratios, and other auxiliary equipment necessary for startup.

Cold Weather Alert:

“Cold Weather Alert” shall mean the notice that PJM provides to PJM Members, Transmission Owners, resource owners and operators, customers, and regulators to prepare personnel and facilities for expected extreme cold weather conditions.

Collateral:

“Collateral” shall be a cash deposit, including any interest thereon, or a Letter of Credit issued for the benefit of PJM or PJMSettlement, in an amount and form determined by and acceptable to PJM or PJMSettlement, provided by a Participant to PJM or PJMSettlement as credit support in order to participate in the PJM Markets or take Transmission Service. “Collateral” shall also include surety bonds, except for the purpose of satisfying the FTR Credit Requirement, in which case only a cash deposit or Letter of Credit will be acceptable.

Collateral Call:

“Collateral Call” shall mean a notice to a Participant that additional Collateral, or possibly early payment, is required in order to remain in, or to regain, compliance with Tariff, Attachment Q.

Co-Located Resource:

“Co-Located Resource” shall mean a component of a Mixed Technology Facility that operates in the capacity, energy, and/or ancillary services market(s) as a separate resource from the other components of such facility.

Commencement Date:

“Commencement Date” shall mean the date on which Interconnection Service commences in accordance with an Interconnection Service Agreement.

Committed Offer:

The “Committed Offer” shall mean 1) for pool-scheduled resources, an offer on which a resource was scheduled by the Office of the Interconnection for a particular clock hour for an Operating Day, and 2) for self-scheduled resources, either the offer on which the Market Seller has elected

to schedule the resource or the applicable offer for the resource determined pursuant to Operating Agreement, Schedule 1, section 6.4, and the parallel provisions of Tariff, Attachment K-Appendix, section 6.4, or Operating Agreement, Schedule 1, section 6.6, and the parallel provisions of Tariff, Attachment K-Appendix, section 6.6, for a particular clock hour for an Operating Day.

Completed Application:

“Completed Application” shall mean an application that satisfies all of the information and other requirements of the Tariff, including any required deposit.

Compliance Aggregation Area (CAA):

“Compliance Aggregation Area” or “CAA” shall mean a geographic area of Zones or sub-Zones that are electrically-contiguous and experience for the relevant Delivery Year, based on Resource Clearing Prices of, for Delivery Years through May 31, 2018, Annual Resources and for the 2018/2019 Delivery Year and subsequent Delivery Years, Capacity Performance Resources, the same locational price separation in the Base Residual Auction, the same locational price separation in the First Incremental Auction, the same locational price separation in the Second Incremental Auction, the same locational price separation in the Third Incremental Auction.

Composite Energy Offer:

“Composite Energy Offer” for generation resources shall mean the sum (in \$/MWh) of the Incremental Energy Offer and amortized Start-Up Costs and amortized No-load Costs, and for Economic Load Response Participant resources the sum (in \$/MWh) of the Incremental Energy Offer and amortized shutdown costs, as determined in accordance with Tariff, Attachment K-Appendix, section 2.4 and Tariff, Attachment K-Appendix, section 2.4A and the PJM Manuals.

Conditional Incremental Auction:

“Conditional Incremental Auction” shall mean an Incremental Auction conducted for a Delivery Year if and when necessary to secure commitments of additional capacity to address reliability criteria violations arising from the delay in a Backbone Transmission upgrade that was modeled in the Base Residual Auction for such Delivery Year.

Conditioned State Support:

“Conditioned State Support” shall mean any financial benefit required or incentivized by a state, or political subdivision of a state acting in its sovereign capacity, that is provided outside of PJM Markets and in exchange for the sale of a FERC-jurisdictional product conditioned on clearing in any RPM Auction, where “conditioned on clearing in any RPM Auction” refers to specific directives as to the level of the offer that must be entered for the relevant Generation Capacity Resource in the RPM Auction or directives that the Generation Capacity Resource is required to clear in any RPM Auction. Conditioned State Support shall not include any Legacy Policy.

CONE Area:

“CONE Area” shall mean the areas listed in Tariff, Attachment DD, section 5.10(a)(iv)(A) and any LDAs established as CONE Areas pursuant to Tariff, Attachment DD, section 5.10(a)(iv)(B).

Confidential Information:

“Confidential Information” shall mean any confidential, proprietary, or trade secret information of a plan, specification, pattern, procedure, design, device, list, concept, policy, or compilation relating to the present or planned business of a New Service Customer, Transmission Owner, or other Interconnection Party or Construction Party, which is designated as confidential by the party supplying the information, whether conveyed verbally, electronically, in writing, through inspection, or otherwise, and shall include, without limitation, all information relating to the producing party’s technology, research and development, business affairs and pricing, and any information supplied by any New Service Customer, Transmission Owner, or other Interconnection Party or Construction Party to another such party prior to the execution of an Interconnection Service Agreement or a Construction Service Agreement.

Congestion Price:

“Congestion Price” shall mean the congestion component of the Locational Marginal Price, which is the effect on transmission congestion costs (whether positive or negative) associated with increasing the output of a generation resource or decreasing the consumption by a Demand Resource, based on the effect of increased generation from or consumption by the resource on transmission line loadings, calculated as specified in Operating Agreement, Schedule 1, section 2, and the parallel provisions of Tariff, Attachment K-Appendix, section 2.

Consolidated Transmission Owners Agreement, PJM Transmission Owners Agreement or Transmission Owners Agreement:

“Consolidated Transmission Owners Agreement,” “PJM Transmission Owners Agreement” or “Transmission Owners Agreement” shall mean the certain Consolidated Transmission Owners Agreement dated as of December 15, 2005, by and among the Transmission Owners and by and between the Transmission Owners and PJM Interconnection, L.L.C. on file with the Commission, as amended from time to time.

Constraint Relaxation Logic:

“Constraint Relaxation Logic” shall mean the logic applied in the market clearing software where the transmission limit is increased to prevent the Transmission Constraint Penalty Factor from setting the Marginal Value of a transmission constraint.

Constructing Entity:

“Constructing Entity” shall mean either the Transmission Owner or the New Services Customer, depending on which entity has the construction responsibility pursuant to Tariff, Part VI and the applicable Construction Service Agreement; this term shall also be used to refer to an Interconnection Customer with respect to the construction of the Customer Interconnection Facilities.

Construction Party:

“Construction Party” shall mean a party to a Construction Service Agreement. “Construction Parties” shall mean all of the Parties to a Construction Service Agreement.

Construction Service Agreement:

“Construction Service Agreement” shall mean either an Interconnection Construction Service Agreement or an Upgrade Construction Service Agreement.

Contingent Facilities:

“Contingent Facilities” shall mean those unbuilt Interconnection Facilities and Network Upgrades upon which the Interconnection Request’s costs, timing, and study findings are dependent and, if delayed or not built, could cause a need for restudies of the Interconnection Request or a reassessment of the Interconnection Facilities and/or Network Upgrades and/or costs and timing.

Continuous Mode:

“Continuous Mode” shall mean the mode of operation of an Energy Storage Resource Model Participant or solar-storage Open-Loop Hybrid Resource that includes both negative and positive megawatt quantities (i.e., the Energy Storage Resource Model Participant or solar-storage Open-Loop Hybrid Resource is capable of continually and immediately transitioning from withdrawing megawatt quantities from the grid to injecting megawatt quantities onto the grid or injecting megawatts to withdrawing megawatts). Energy Storage Resource Model Participants or solar-storage Open-Loop Hybrid Resource operating in Continuous Mode are considered to have an unlimited ramp rate. Continuous Mode requires Discharge Economic Maximum Megawatts to be zero or correspond to an injection, and Charge Economic Maximum Megawatts to be zero or correspond to a withdrawal.

Control Area:

“Control Area” shall mean an electric power system or combination of electric power systems bounded by interconnection metering and telemetry to which a common automatic generation control scheme is applied in order to:

- (1) match the power output of the generators within the electric power system(s) and energy purchased from entities outside the electric power system(s), with the load within the electric power system(s);

(2) maintain scheduled interchange with other Control Areas, within the limits of Good Utility Practice;

(3) maintain the frequency of the electric power system(s) within reasonable limits in accordance with Good Utility Practice; and

(4) provide sufficient generating capacity to maintain operating reserves in accordance with Good Utility Practice.

Control Zone:

“Control Zone” shall have the meaning given in the Operating Agreement.

Controllable A.C. Merchant Transmission Facilities:

“Controllable A.C. Merchant Transmission Facilities” shall mean transmission facilities that (1) employ technology which Transmission Provider reviews and verifies will permit control of the amount and/or direction of power flow on such facilities to such extent as to effectively enable the controllable facilities to be operated as if they were direct current transmission facilities, and (2) that are interconnected with the Transmission System pursuant to Tariff, Part IV and Tariff, Part VI.

Coordinated External Transaction:

“Coordinated External Transaction” shall mean a transaction to simultaneously purchase and sell energy on either side of a CTS Enabled Interface in accordance with the procedures of Operating Agreement, Schedule 1, section 1.13, and the parallel provisions of Tariff, Attachment K-Appendix, section 1.13.

Coordinated Transaction Scheduling:

“Coordinated Transaction Scheduling” or “CTS” shall mean the scheduling of Coordinated External Transactions at a CTS Enabled Interface in accordance with the procedures of Operating Agreement, Schedule 1, section 1.13, and the parallel provisions of Tariff, Attachment K-Appendix, section 1.13.

Corporate Guaranty:

“Corporate Guaranty” shall mean a legal document, in a form acceptable to PJM and/or PJMSettlement, used by a Credit Affiliate of an entity to guaranty the obligations of another entity.

Cost of New Entry:

“Cost of New Entry” or “CONE” shall mean the nominal levelized cost of a Reference Resource, as determined in accordance with Tariff, Attachment DD, section 5.

Costs:

As used in Tariff, Part IV, Tariff, Part VI and related attachments, “Costs” shall mean costs and expenses, as estimated or calculated, as applicable, including, but not limited to, capital expenditures, if applicable, and overhead, return, and the costs of financing and taxes and any Incidental Expenses.

Counterparty:

“Counterparty” shall mean PJMSettlement as the contracting party, in its name and own right and not as an agent, to an agreement or transaction with a Market Participant or other entities, including the agreements and transactions with customers regarding transmission service and other transactions under the PJM Tariff and the Operating Agreement. PJMSettlement shall not be a counterparty to (i) any bilateral transactions between Members, or (ii) any Member’s self-supply of energy to serve its load, or (iii) any Member’s self-schedule of energy reported to the Office of the Interconnection to the extent that energy serves that Member’s own load.

Credit Affiliate:

“Credit Affiliate” shall mean Principals, corporations, partnerships, firms, joint ventures, associations, joint stock companies, trusts, unincorporated organizations or entities, one of which directly or indirectly controls the other or that are both under common Control. “Control,” as that term is used in this definition, shall mean the possession, directly or indirectly, of the power to direct the management or policies of a person or an entity.

Credit Available for Export Transactions:

“Credit Available for Export Transactions” shall mean a designation of credit to be used for Export Transactions that is allocated by each Market Participant from its Credit Available for Virtual Transactions, and which reduces the Market Participant’s Credit Available for Virtual Transactions accordingly.

Credit Available for Virtual Transactions:

“Credit Available for Virtual Transactions” shall mean the Market Participant’s Working Credit Limit for Virtual Transactions calculated on its credit provided in compliance with its Peak Market Activity requirement plus available credit submitted above that amount, less any unpaid billed and unbilled amounts owed to PJMSettlement, plus any unpaid unbilled amounts owed by PJMSettlement to the Market Participant, less any applicable credit required for Minimum Participation Requirements, FTRs, RPM activity, or other credit requirement determinants as defined in Tariff, Attachment Q.

Credit Breach:

“Credit Breach” shall mean (a) the failure of a Participant to perform, observe, meet or comply with any requirements of Tariff, Attachment Q or other provisions of the Agreements, other than a Financial Default, or (b) a determination by PJM and notice to the Participant that a Participant represents an unreasonable credit risk to the PJM Markets; that, in either event, has not been cured or remedied after any required notice has been given and any cure period has elapsed.

Credit-Limited Offer:

“Credit-Limited Offer” shall mean a Sell Offer that is submitted by a Market Participant in an RPM Auction subject to a maximum credit requirement specified by such Market Participant.

Credit Support Default:

“Credit Support Default,” shall mean (a) the failure of any Guarantor of a Market Participant to make any payment, or to perform, observe, meet or comply with any provisions of the applicable Guaranty or Credit Support Document that has not been cured or remedied, after any required notice has been given and an opportunity to cure (if any) has elapsed, (b) a representation made or deemed made by a Guarantor in any Credit Support Document that proves to be false, incorrect or misleading in any material respect when made or deemed made, (c) the failure of a Guaranty or other Credit Support Document to be in full force and effect prior to the satisfaction of all obligations of such Participant to PJM, without PJM’s consent, or (d) a Guarantor repudiating, disaffirming, disclaiming or rejecting, in whole or in part, its obligations under the Guaranty or challenging the validity of the Guaranty.

Credit Support Document:

“Credit Support Document” shall mean any agreement or instrument in any way guaranteeing or securing any or all of a Participant’s obligations under the Agreements (including, without limitation, the provisions of Tariff, Attachment Q), any agreement entered into under, pursuant to, or in connection with the Agreements or any agreement entered into under, pursuant to, or in connection with the Agreements and/or any other agreement to which PJM, PJMSettlement and the Participant are parties, including, without limitation, any Corporate Guaranty, Letter of Credit, or agreement granting PJM and PJMSettlement a security interest.

Critical Natural Gas Infrastructure:

“Critical Natural Gas Infrastructure” shall mean locations with electrical loads that are involved in natural gas production, processing, intrastate and interstate transmission and distribution pipeline facility as defined by NERC/FERC standard(s); and until such NERC/FERC standard(s) is developed, is defined as electric loads that are involved in natural gas production, processing, intrastate and interstate transmission and distribution pipeline facility, which if curtailed, will impact the delivery of natural gas to bulk-power system natural gas-fired generation.

Cross-Border:

When used to describe Network Integration Transmission Service, Network External Designated Transmission Service or Point-to-Point Transmission Service, “Cross-Border” shall mean transmission service where the capacity and/or energy is delivered from a resource that is not part of the PJM Transmission System and/or to load that is not part of the PJM Transmission System.

CTS Enabled Interface:

“CTS Enabled Interface” shall mean an interface between the PJM Control Area and an adjacent Control Area at which the Office of the Interconnection has authorized the use of Coordinated Transaction Scheduling (“CTS”). The CTS Enabled Interfaces between the PJM Control Area and the New York Independent System Operator, Inc. Control Area shall be designated in the Joint Operating Agreement Among and Between New York Independent System Operator Inc. and PJM Interconnection, L.L.C., Schedule A (PJM Rate Schedule FERC No. 45). The CTS Enabled Interfaces between the PJM Control Area and the Midcontinent Independent System Operator, Inc. shall be designated consistent with Attachment 3, section 2 of the Joint Operating Agreement between Midcontinent Independent System Operator, Inc. and PJM Interconnection, L.L.C.

CTS Interface Bid:

“CTS Interface Bid” shall mean a unified real-time bid to simultaneously purchase and sell energy on either side of a CTS Enabled Interface in accordance with the procedures of Operating Agreement, Schedule 1, section 1.13, and the parallel provisions of Tariff, Attachment K-Appendix, section 1.13.

Curtailement:

“Curtailement” shall mean a reduction in firm or non-firm transmission service in response to a transfer capability shortage as a result of system reliability conditions.

Curtailement Service Provider:

“Curtailement Service Provider” or “CSP” shall mean a Member or a Special Member, which action on behalf of itself or one or more other Members or non-Members, participates in the PJM Interchange Energy Market, Ancillary Services markets, and/or Reliability Pricing Model by causing a reduction in demand.

Customer Facility:

“Customer Facility” shall mean Generation Facilities or Merchant Transmission Facilities interconnected with or added to the Transmission System pursuant to an Interconnection Request under Tariff, Part IV.

Customer-Funded Upgrade:

“Customer-Funded Upgrade” shall mean any Network Upgrade, Local Upgrade, or Merchant Network Upgrade for which cost responsibility (i) is imposed on an Interconnection Customer or an Eligible Customer pursuant to Tariff, Part VI, section 217, or (ii) is voluntarily undertaken by a New Service Customer in fulfillment of an Upgrade Request. No Network Upgrade, Local Upgrade or Merchant Network Upgrade or other transmission expansion or enhancement shall be a Customer-Funded Upgrade if and to the extent that the costs thereof are included in the rate base of a public utility on which a regulated return is earned.

Customer Interconnection Facilities:

“Customer Interconnection Facilities” shall mean all facilities and equipment owned and/or controlled, operated and maintained by Interconnection Customer on Interconnection Customer’s side of the Point of Interconnection identified in the appropriate appendices to the Interconnection Service Agreement and to the Interconnection Construction Service Agreement, including any modifications, additions, or upgrades made to such facilities and equipment, that are necessary to physically and electrically interconnect the Customer Facility with the Transmission System.

Daily Deficiency Rate:

“Daily Deficiency Rate” shall mean the rate employed to assess certain deficiency charges under Tariff, Attachment DD, section 7, Tariff, Attachment DD, section 8, Tariff, Attachment DD, section 9, or Tariff, Attachment DD, section 13.

Daily Unforced Capacity Obligation:

“Daily Unforced Capacity Obligation” shall mean the capacity obligation of a Load Serving Entity during the Delivery Year, determined in accordance with Reliability Assurance Agreement, Schedule 8, or, as to an FRR entity, in Reliability Assurance Agreement, Schedule 8.1.

Day-ahead Congestion Price:

“Day-ahead Congestion Price” shall mean the Congestion Price resulting from the Day-ahead Energy Market.

Day-ahead Energy Market:

“Day-ahead Energy Market” shall mean the schedule of commitments for the purchase or sale of energy and payment of Transmission Congestion Charges developed by the Office of the Interconnection as a result of the offers and specifications submitted in accordance with Operating Agreement, Schedule 1, section 1.10 and the parallel provisions of Tariff, Attachment K-Appendix, section 1.10.

Day-ahead Energy Market Injection Congestion Credits:

“Day-ahead Energy Market Injection Congestion Credits” shall mean those congestion credits paid to Market Participants for supply transactions in the Day-ahead Energy Market including generation schedules, Increment Offers, Up-to Congestion Transactions, import transactions, and Day-Ahead Pseudo-Tie Transactions.

Day-ahead Energy Market Transmission Congestion Charges:

“Day-ahead Energy Market Transmission Congestion Charges” shall be equal to the sum of Day-ahead Energy Market Withdrawal Congestion Charges minus [the sum of Day-ahead Energy Market Injection Congestion Credits plus any congestion charges calculated pursuant to the Joint Operating Agreement between the Midcontinent Independent Transmission System Operator, Inc. and PJM Interconnection, L.L.C. (PJM Rate Schedule FERC No. 38), plus any congestion charges calculated pursuant to the Joint Operating Agreement Among and Between New York Independent System Operator Inc. and PJM Interconnection, L.L.C. (PJM Rate Schedule FERC No. 45), plus any congestion charges calculated pursuant to agreements between the Office of the Interconnection and other entities, as applicable)].

Day-ahead Energy Market Withdrawal Congestion Charges:

“Day-ahead Energy Market Withdrawal Congestion Charges” shall mean those congestion charges collected from Market Participants for withdrawal transactions in the Day-ahead Energy Market from transactions including Demand Bids, Decrement Bids, Up-to Congestion Transactions, Export Transactions, and Day-Ahead Pseudo-Tie Transactions.

Day-ahead Loss Price:

“Day-ahead Loss Price” shall mean the Loss Price resulting from the Day-ahead Energy Market.

Day-ahead Prices:

“Day-ahead Prices” shall mean the Locational Marginal Prices resulting from the Day-ahead Energy Market.

Day-Ahead Pseudo-Tie Transaction:

“Day-Ahead Pseudo-Tie Transaction” shall mean a transaction scheduled in the Day-ahead Energy Market to the PJM-MISO interface from a generator within the PJM balancing authority area that Pseudo-Ties into the MISO balancing authority area.

Day-ahead Settlement Interval:

“Day-ahead Settlement Interval” shall mean the interval used by settlements, which shall be every one clock hour.

Day-ahead System Energy Price:

“Day-ahead System Energy Price” shall mean the System Energy Price resulting from the Day-ahead Energy Market.

Deactivation:

“Deactivation” shall mean the retirement or mothballing of a generating unit governed by Tariff, Part V.

Deactivation Avoidable Cost Credit:

“Deactivation Avoidable Cost Credit” shall mean the credit paid to Generation Owners pursuant to Tariff, Part V, section 114.

Deactivation Avoidable Cost Rate:

“Deactivation Avoidable Cost Rate” shall mean the formula rate established pursuant to Tariff, Part V, section 115.

Deactivation Date:

“Deactivation Date” shall mean the date a generating unit within the PJM Region is either retired or mothballed and ceases to operate.

Decrement Bid:

“Decrement Bid” shall mean a type of Virtual Transaction that is a bid to purchase energy at a specified location in the Day-ahead Energy Market. A cleared Decrement Bid results in scheduled load at the specified location in the Day-ahead Energy Market.

Default:

As used in the Interconnection Service Agreement and Construction Service Agreement, “Default” shall mean the failure of a Breaching Party to cure its Breach in accordance with the applicable provisions of an Interconnection Service Agreement or Construction Service Agreement.

Delivering Party:

“Delivering Party” shall mean the entity supplying capacity and energy to be transmitted at Point(s) of Receipt.

Delivery Year:

“Delivery Year” shall mean the Planning Period for which a Capacity Resource is committed pursuant to the auction procedures specified in Tariff, Attachment DD, or pursuant to an FRR Capacity Plan under Reliability Assurance Agreement, Schedule 8.1.

Demand Bid:

“Demand Bid” shall mean a bid, submitted by a Load Serving Entity in the Day-ahead Energy Market, to purchase energy at its contracted load location, for a specified timeframe and megawatt quantity, that if cleared will result in energy being scheduled at the specified location in the Day-ahead Energy Market and in the physical transfer of energy during the relevant Operating Day.

Demand Bid Limit:

“Demand Bid Limit” shall mean the largest MW volume of Demand Bids that may be submitted by a Load Serving Entity for any hour of an Operating Day, as determined pursuant to Operating Agreement, Schedule 1, section 1.10.1B, and the parallel provisions of Tariff, Attachment K-Appendix, section 1.10.1B.

Demand Bid Screening:

“Demand Bid Screening” shall mean the process by which Demand Bids are reviewed against the applicable Demand Bid Limit, and rejected if they would exceed that limit, as determined pursuant to Operating Agreement, Schedule 1, section 1.10.1B, and the parallel provisions of Tariff, Attachment K-Appendix, section 1.10.1B.

Demand Resource:

“Demand Resource” shall mean a resource with the capability to provide a reduction in demand.

Demand Resource Factor or DR Factor:

“Demand Resource Factor” or (“DR Factor”) shall have the meaning specified in the Reliability Assurance Agreement.

Designated Agent:

“Designated Agent” shall mean any entity that performs actions or functions on behalf of the Transmission Provider, a Transmission Owner, an Eligible Customer, or the Transmission Customer required under the Tariff.

Designated Entity:

“Designated Entity” shall have the same meaning provided in the Operating Agreement.

Direct Assignment Facilities:

“Direct Assignment Facilities” shall mean facilities or portions of facilities that are constructed for the sole use/benefit of a particular Transmission Customer requesting service under the

Tariff. Direct Assignment Facilities shall be specified in the Service Agreement that governs service to the Transmission Customer and shall be subject to Commission approval.

Direct Charging Energy:

“Direct Charging Energy” shall mean the energy that an Energy Storage Resource or Open-Loop Hybrid Resource purchases from the PJM Interchange Energy Market and (i) later resells to the PJM Interchange Energy Market; or (ii) is lost to conversion inefficiencies, provided that such inefficiencies are an unavoidable component of the conversion, storage, and discharge process that is used to resell energy back to the PJM Interchange Energy Market.

Direct Load Control:

“Direct Load Control” shall mean load reduction that is controlled directly by the Curtailment Service Provider’s market operations center or its agent, in response to PJM instructions.

Discharge Economic Maximum Megawatts:

“Discharge Economic Maximum Megawatts” shall mean the maximum megawatt power output available for discharge in economic dispatch by an Energy Storage Resource Model Participant or solar-storage Open-Loop Hybrid Resource in Continuous Mode or in Discharge Mode. Discharge Economic Maximum Megawatts shall be the Economic Maximum for an Energy Storage Resource or solar-storage Open-Loop Hybrid Resource in Discharge Mode or in Continuous Mode.

Discharge Economic Minimum Megawatts:

“Discharge Economic Minimum Megawatts” shall mean the minimum megawatt power output available for discharge in economic dispatch by an Energy Storage Resource Model Participant or solar-storage Open-Loop Hybrid Resource in Discharge Mode. Discharge Economic Minimum Megawatts shall be the Economic Minimum for an Energy Storage Resource or solar-storage Open-Loop Hybrid Resource in Discharge Mode.

Discharge Mode:

“Discharge Mode” shall mean the mode of operation of an Energy Storage Resource Model Participant or solar-storage Open-Loop Hybrid Resource that only includes positive megawatt quantities (i.e., the Energy Storage Resource Model Participant or solar-storage Open-Loop Hybrid Resource is only injecting megawatts onto the grid).

Discharge Ramp Rate:

“Discharge Ramp Rate” shall mean the Ramping Capability of an Energy Storage Resource Model Participant or solar-storage Open-Loop Hybrid Resource in Discharge Mode.

Dispatch Rate:

“Dispatch Rate” shall mean the control signal, expressed in dollars per megawatt-hour, calculated and transmitted continuously and dynamically to direct the output level of all generation resources dispatched by the Office of the Interconnection in accordance with the Offer Data.

Dispatched Charging Energy:

“Dispatched Charging Energy” shall mean Direct Charging Energy that an Energy Storage Resource Model Participant or Open-Loop Hybrid Resource receives from the electric grid pursuant to PJM dispatch while providing one of the following services in the PJM markets: Energy Imbalance Service pursuant to Tariff, Schedule 4; Regulation; Tier 2 Synchronized Reserves; or Reactive Service. Energy Storage Resource Model Participants and Open-Loop Hybrid Resource shall be considered to be providing Energy Imbalance Service when they are dispatchable by PJM in real-time.

Dynamic Schedule:

“Dynamic Schedule” shall have the same meaning provided in the Operating Agreement.

Dynamic Transfer:

“Dynamic Transfer” shall have the same meaning provided in the Operating Agreement.

1.4B [Reserved.]

5.14 Clearing Prices and Charges

a) Capacity Resource Clearing Prices

For each Base Residual Auction and Incremental Auction, the Office of the Interconnection shall calculate a clearing price to be paid for each megawatt-day of Unforced Capacity that clears in such auction. The Capacity Resource Clearing Price for each LDA will be the marginal value of system capacity for the PJM Region, without considering locational constraints, adjusted as necessary by any applicable Locational Price Adders, Annual Resource Price Adders, Extended Summer Resource Price Adders, Limited Resource Price Decrements, Sub-Annual Resource Price Decrements, Base Capacity Demand Resource Price Decrements, and Base Capacity Resource Price Decrements, all as determined by the Office of the Interconnection based on the optimization algorithm. If a Capacity Resource is located in more than one Locational Deliverability Area, it shall be paid the highest Locational Price Adder in any applicable LDA in which the Sell Offer for such Capacity Resource cleared. The Annual Resource Price Adder is applicable for Annual Resources only. The Extended Summer Resource Price Adder is applicable for Annual Resources and Extended Summer Demand Resources.

The Locational Price Adder applicable to each cleared Seasonal Capacity Performance Resource is determined during the post-processing of the RPM Auction results consistent with the manner in which the auction clearing algorithm recognizes the contribution of Seasonal Capacity Performance Resource Sell Offers in satisfying an LDA's reliability requirement. For each LDA with a positive Locational Price Adder with respect to the immediate higher level LDA, starting with the lowest level constrained LDAs and moving up, PJM determines the quantity of equally matched Summer-Period Capacity Performance Resources and Winter-Period Capacity Performance Resources located and cleared within that LDA. Up to this quantity, the cleared Summer-Period Capacity Performance Resources and Winter-Period Capacity Performance Resources with the lowest Sell Offer prices will be compensated using the highest Locational Price Adder applicable to such LDA; and any remaining Seasonal Capacity Performance Resources cleared within the LDA are effectively moved to the next higher level constrained LDA, where they are considered in a similar manner for compensation.

b) Resource Make-Whole Payments

If a Sell Offer specifies a minimum block, and only a portion of such block is needed to clear the market in a Base Residual or Incremental Auction, the MW portion of such Sell Offer needed to clear the market shall clear, and such Sell Offer shall set the marginal value of system capacity. In addition, the Capacity Market Seller shall receive a Resource Make-Whole Payment equal to the Capacity Resource Clearing Price in such auction times the difference between the Sell Offer's minimum block MW quantity and the Sell Offer's cleared MW quantity. If the Sell Offer price of a cleared Seasonal Capacity Performance Resource exceeds the applicable Capacity Resource Clearing Price, the Capacity Market Seller shall receive a Resource Make-Whole Payment equal to the difference between the Sell Offer price and Capacity Resource Clearing Price in such RPM Auction. The cost for any such Resource Make-Whole Payments required in a Base Residual Auction or Incremental Auction for adjustment of prior capacity commitments shall be collected pro rata from all LSEs in the LDA in which such payments were made, based on their Daily Unforced Capacity Obligations. The cost for any such Resource Make-Whole

Payments required in an Incremental Auction for capacity replacement shall be collected from all Capacity Market Buyers in the LDA in which such payments were made, on a pro-rata basis based on the MWs purchased in such auction.

c) New Entry Price Adjustment

A Capacity Market Seller that submits a Sell Offer based on a Planned Generation Capacity Resource that clears in the BRA for a Delivery Year may, at its election, submit Sell Offers with a New Entry Price Adjustment in the BRAs for the two immediately succeeding Delivery Years if:

1. Such Capacity Market Seller provides notice of such election at the time it submits its Sell Offer for such resource in the BRA for the first Delivery Year for which such resource is eligible to be considered a Planned Generation Capacity Resource. When the Capacity Market Seller provides notice of such election, it must specify whether its Sell Offer is contingent upon qualifying for the New Entry Price Adjustment. The Office of the Interconnection shall not clear such contingent Sell Offer if it does not qualify for the New Entry Price Adjustment.

2. All or any part of a Sell Offer from the Planned Generation Capacity Resource submitted in accordance with section 5.14(c)(1) is the marginal Sell Offer that sets the Capacity Resource Clearing Price for the LDA.

3. Acceptance of all or any part of a Sell Offer that meets the conditions in section 5.14(c)(1)-(2) in the BRA increases the total Unforced Capacity committed in the BRA (including any minimum block quantity) for the LDA in which such Resource will be located from a megawatt quantity below the LDA Reliability Requirement, minus the Short Term Resource Procurement Target, to a megawatt quantity at or above a megawatt quantity at the price-quantity point on the VRR Curve at which the price is 0.40 times the applicable Net CONE divided by (one minus the pool-wide average EFORd) through the 2024/2025 Delivery Year, and beginning with the 2025/2026 Delivery Year, divided by the applicable ELCC Class Rating for the Reference Resource.

4. Such Capacity Market Seller submits Sell Offers in the BRA for the two immediately succeeding Delivery Years for the entire Unforced Capacity of such Generation Capacity Resource committed in the first BRA under section 5.14(c)(1)-(2) equal to the lesser of: A) the price in such seller's Sell Offer for the BRA in which such resource qualified as a Planned Generation Capacity Resource that satisfies the conditions in section 5.14(c)(1)-(3); or B) 0.90 times the Net CONE applicable in the first BRA in which such Planned Generation Capacity Resource meeting the conditions in section 5.14(c)(1)-(3) cleared, on an Unforced Capacity basis, for such LDA.

5. If the Sell Offer is submitted consistent with section 5.14(c)(1)-(4) the foregoing conditions, then:

- (i) in the first Delivery Year, the Resource sets the Capacity Resource Clearing Price for the LDA and all cleared resources in the LDA receive

the Capacity Resource Clearing Price set by the Sell Offer as the marginal offer, in accordance with Tariff, Attachment DD, section 5.12(a) and section 5.14(a) above.

- (ii) in either of the subsequent two BRAs, if any part of the Sell Offer from the Resource clears, it shall receive the Capacity Resource Clearing Price for such LDA for its cleared capacity and for any additional minimum block quantity pursuant to section 5.14(b) above; or
- (iii) if the Resource does not clear, it shall be deemed resubmitted at the highest price per MW-day at which the megawatt quantity of Unforced Capacity of such Resource that cleared the first-year BRA will clear the subsequent-year BRA pursuant to the optimization algorithm described in Tariff, Attachment DD, section 5.12(a), and
- (iv) the resource with its Sell Offer submitted shall clear and shall be committed to the PJM Region in the amount cleared, plus any additional minimum-block quantity from its Sell Offer for such Delivery Year, but such additional amount shall be no greater than the portion of a minimum-block quantity, if any, from its first-year Sell Offer satisfying section 5.14(c)(1)-(3) above that is entitled to compensation pursuant to section 5.14(b) above; and
- (v) the Capacity Resource Clearing Price, and the resources cleared, shall be re-determined to reflect the resubmitted Sell Offer. In such case, the Resource for which the Sell Offer is submitted pursuant to section 5.14(c)(1)-(4) above shall be paid for the entire committed quantity at the Sell Offer price that it initially submitted in such subsequent BRA. The difference between such Sell Offer price and the Capacity Resource Clearing Price (as well as any difference between the cleared quantity and the committed quantity), will be treated as a Resource Make-Whole Payment in accordance with section 5.14(b) above. Other capacity resources that clear the BRA in such LDA receive the Capacity Resource Clearing Price as determined in section 5.14(a) above.

6. The failure to submit a Sell Offer consistent with section 5.14(c)(i)-(iii) above in the BRA for Delivery Year 3 shall not retroactively revoke the New Entry Price Adjustment for Delivery Year 2. However, the failure to submit a Sell Offer consistent with section 5.14(c)(4) above in the BRA for Delivery Year 2 shall make the resource ineligible for the New Entry Pricing Adjustment for Delivery Years 2 and 3.

7. For each Delivery Year that the foregoing conditions are satisfied, the Office of the Interconnection shall maintain and employ in the auction clearing for such LDA a separate VRR Curve, notwithstanding the outcome of the test referenced in Tariff, Attachment DD, section 5.10(a)(ii).

8. On or before August 1, 2012, PJM shall file with FERC under FPA section 205, as determined necessary by PJM following a stakeholder process, tariff changes to establish a long-term auction process as a not unduly discriminatory means to provide adequate long-term revenue assurances to support new entry, as a supplement to or replacement of this New Entry Price Adjustment.

d) Qualifying Transmission Upgrade Payments

A Capacity Market Seller that submitted a Sell Offer based on a Qualifying Transmission Upgrade that clears in the Base Residual Auction shall receive a payment equal to the Capacity Resource Clearing Price, including any Locational Price Adder, of the LDA into which the Qualifying Transmission Upgrade is to increase Capacity Emergency Transfer Limit, less the Capacity Resource Clearing Price, including any Locational Price Adder, of the LDA from which the upgrade was to provide such increased CETL, multiplied by the megawatt quantity of increased CETL cleared from such Sell Offer. Such payments shall be reflected in the Locational Price Adder determined as part of the Final Zonal Capacity Price for the Zone associated with such LDAs, and shall be funded through a reduction in the Capacity Transfer Rights allocated to Load-Serving Entities under Tariff, Attachment DD, section 5.15, as set forth in that section. PJMSettlement shall be the Counterparty to any cleared capacity transaction resulting from a Sell Offer based on a Qualifying Transmission Upgrade.

e) Locational Reliability Charge

In accordance with the Reliability Assurance Agreement, each LSE shall incur a Locational Reliability Charge (subject to certain offsets and other adjustments as described in Tariff, Attachment DD, section 5.14B, Tariff, Attachment DD, section 5.14C, Tariff, Attachment DD, section 5.14D, Tariff, Attachment DD, section 5.14E and Tariff, Attachment DD, section 5.15) equal to such LSE's Daily Unforced Capacity Obligation in a Zone during such Delivery Year multiplied by the applicable Final Zonal Capacity Price in such Zone. PJMSettlement shall be the Counterparty to the LSEs' obligations to pay, and payments of, Locational Reliability Charges.

f) The Office of the Interconnection shall determine Zonal Capacity Prices in accordance with the following, based on the optimization algorithm:

i) The Office of the Interconnection shall calculate and post the Preliminary Zonal Capacity Prices for each Delivery Year following the Base Residual Auction for such Delivery Year. The Preliminary Zonal Capacity Price for each Zone shall be the sum of: 1) the marginal value of system capacity for the PJM Region, without considering locational constraints; 2) the Locational Price Adder, if any, for the LDA in which such Zone is located; provided however, that if the Zone contains multiple LDAs with different Capacity Resource Clearing Prices, the Zonal Capacity Price shall be a weighted average of the Capacity Resource Clearing Prices for such LDAs, weighted by the Unforced Capacity of Capacity Resources cleared in each such LDA; 3) an adjustment, if required, to account for adders paid to Annual Resources and Extended Summer Demand Resources in the LDA for which the zone is located; 4) an adjustment, if required, to account for Resource Make-Whole Payments; and (5) an adjustment, if required to provide sufficient revenue for payment of any PRD Credits, all as

determined in accordance with the optimization algorithm.

ii) The Office of the Interconnection shall calculate and post the Adjusted Zonal Capacity Price following each Incremental Auction. The Adjusted Zonal Capacity Price for each Zone shall equal the sum of: (1) the average marginal value of system capacity weighted by the Unforced Capacity cleared in all auctions previously conducted for such Delivery Year (excluding any Unforced Capacity cleared as replacement capacity); (2) the average Locational Price Adder weighted by the Unforced Capacity cleared in all auctions previously conducted for such Delivery Year (excluding any Unforced Capacity cleared as replacement capacity); (3) an adjustment, if required, to account for adders paid to Annual Resources and Extended Summer Demand Resources for all auctions previously conducted for such Delivery Year (excluding any Unforced Capacity cleared as replacement capacity); (4) an adjustment, if required, to account for Resource Make-Whole Payments for all actions previously conducted (excluding any Resource Make-Whole Payments to be charged to the buyers of replacement capacity); and (5) an adjustment, if required to provide sufficient revenue for payment of any PRD Credits. The Adjusted Zonal Capacity Price may decrease if Unforced Capacity is decommitted or the Resource Clearing Price decreases in an Incremental Auction.

iii) The Office of the Interconnection shall calculate and post the Final Zonal Capacity Price for each Delivery Year after the final auction is held for such Delivery Year, as set forth above. The Final Zonal Capacity Price for each Zone shall equal the Adjusted Zonal Capacity Price, as further adjusted to reflect any decreases in the Nominated Demand Resource Value of any existing Demand Resource cleared in the Base Residual Auction and Second Incremental Auction.

g) Resource Substitution Charge

Each Capacity Market Buyer in an Incremental Auction securing replacement capacity shall pay a Resource Substitution Charge equal to the Capacity Resource Clearing Price resulting from such auction multiplied by the megawatt quantity of Unforced Capacity purchased by such Market Buyer in such auction.

h) Minimum Offer Price Rule for Certain New Generation Capacity Resources that are not Capacity Resources with State Subsidy for up to the 2022/2023 Delivery Year.

(1) The provisions of this section 5.14(h) shall not be effective after the 2022/2023 Delivery Year. For purposes of this section, the Net Asset Class Costs of New Entry shall be asset-class estimates of competitive, cost-based nominal levelized Cost of New Entry, net of energy and ancillary service revenues. Determination of the gross Cost of New Entry component of the Net Asset Class Cost of New Entry shall be consistent with the methodology used to determine the Cost of New Entry set forth in Tariff, Attachment DD, section 5.10(a)(iv)(A) of this Attachment. This section only applies to new Generation Capacity Resources that do not receive or are not entitled to receive a State Subsidy, meaning that such resources are not Capacity Resources with State Subsidy. To the extent a new Generation Capacity Resource is a Capacity Resource with State Subsidy, then the provisions in Tariff, Attachment DD, section 5.14(h-1) apply.

The gross Cost of New Entry component of Net Asset Class Cost of New Entry shall be, for purposes of the 2018/2019 Delivery Year and subsequent Delivery Years, the values indicated in the table below for each CONE Area for a combustion turbine generator (“CT”), and a combined cycle generator (“CC”) respectively, and shall be adjusted for subsequent Delivery Years in accordance with subsection (h)(2) below. For purposes of Incremental Auctions for the 2015/2016, 2016/2017 and 2017/2018 Delivery Years, the MOPR Floor Offer Price shall be the same as that used in the Base Residual Auction for such Delivery Year. The estimated energy and ancillary service revenues for each type of plant shall be determined as described in subsection (h)(3) below. Notwithstanding the foregoing, the Net Asset Class Cost of New Entry shall be zero for: (i) Sell Offers based on nuclear, coal or Integrated Gasification Combined Cycle facilities; or (ii) Sell Offers based on hydroelectric, wind, or solar facilities.

	CONE Area 1	CONE Area 2	CONE Area 3	CONE Area 4
CT \$/MW-yr	132,200	130,300	128,990	130,300
CC \$/MW-yr	185,700	176,000	172,600	179,400

(2) The gross Cost of New Entry component of the Net Asset Class Cost of New Entry shall be adjusted to reflect changes in generating plant construction costs in the same manner as set forth for the cost of new entry in Tariff, Attachment DD, section 5.10(a)(iv)(B), provided, however, that the Applicable BLS Composite Index used for CC plants shall be calculated from the three indices referenced in that section but weighted 25% for the wages index, 60% for the construction materials index, and 15% for the turbines index, and provided further that nothing herein shall preclude the Office of the Interconnection from filing to change the Net Asset Class Cost of New Entry for any Delivery Year pursuant to appropriate filings with FERC under the Federal Power Act.

(3) For the 2022/2023 Delivery Year, for purposes of this provision, the net energy and ancillary services revenue estimate for a combustion turbine generator shall be that determined by Tariff, Attachment DD, section 5.10(a)(v-1)(A), provided that the energy and ancillary services revenue estimate for each CONE Area shall be based on the Zone within such CONE Area that has the highest energy revenue estimate calculated under the methodology in that subsection. The net energy and ancillary services revenue estimate for a combined cycle generator shall be determined in the same manner as that prescribed for a combustion turbine generator in the previous sentence, except that the heat rate assumed for the combined cycle resource shall be 6.501 MMBtu/MWh, the variable operations and maintenance expenses for such resource shall be \$2.11 per MWh, a 10% adder will not be included in the energy offer, and the reactive service revenues shall be \$3,350 per MW-year.

(4) Any Sell Offer that is based on either (i) or (ii), and (iii):

i) a Generation Capacity Resource located in the PJM Region that is submitted in an RPM Auction for a Delivery Year unless a Sell Offer based on that resource has cleared an RPM Auction for that or any prior Delivery Year, or until a Sell Offer based on that resource clears an RPM auction for that or any subsequent Delivery Year; or

ii) a Generation Capacity Resource located outside the PJM Region (where such Sell Offer is based solely on such resource) that requires sufficient transmission investment for delivery to the PJM Region to indicate a long-term commitment to providing capacity to the PJM Region, unless a Sell Offer based on that resource has cleared an RPM Auction for that or any prior Delivery Year, or until a Sell Offer based on that resource clears an RPM Auction for that or any subsequent Delivery Year;

iii) in any LDA for which a separate VRR Curve is established for use in the Base Residual Auction for the Delivery Year relevant to the RPM Auction in which such offer is submitted, and that is less than 90 percent of the applicable Net Asset Class Cost of New Entry or, if there is no applicable Net Asset Class Cost of New Entry, less than 70 percent of the Net Asset Class Cost of New Entry for a combustion turbine generator as provided in subsection (h)(1) above shall be set to equal 90 percent of the applicable Net Asset Class Cost of New Entry (or set equal to 70 percent of such cost for a combustion turbine, where there is no otherwise applicable net asset class figure), unless the Capacity Market Seller obtains the prior determination from the Office of the Interconnection described in subsection (5) hereof. This provision applies to Sell Offers submitted in Incremental Auctions conducted after December 19, 2011, provided that the Net Asset Class Cost of New Entry values for any such Incremental Auctions for the 2012-13 or 2013-14 Delivery Years shall be the Net Asset Class Cost of New Entry values posted by the Office of the Interconnection for the Base Residual Auction for the 2014-15 Delivery Year.

(5) Unit-Specific Exception. A Sell Offer meeting the criteria in subsection (4) shall be permitted and shall not be re-set to the price level specified in that subsection if the Capacity Market Seller obtains a determination from the Office of the Interconnection or the Commission, prior to the RPM Auction in which it seeks to submit the Sell Offer, that such Sell Offer is permissible because it is consistent with the competitive, cost-based, fixed, net cost of new entry were the resource to rely solely on revenues from PJM-administered markets. The following process and requirements shall apply to requests for such determinations:

i) The Capacity Market Seller may request such a determination by no later than one hundred twenty (120) days prior to the commencement of the offer period for the RPM Auction in which it seeks to submit its Sell Offer, by submitting simultaneously to the Office of the Interconnection and the Market Monitoring Unit a written request with all of the required documentation as described below and in the PJM Manuals. For such purpose, the Office of the Interconnection shall post, by no later than one hundred fifty (150) days prior to the commencement of the offer period for the relevant RPM Auction, a preliminary estimate for the relevant Delivery Year of the minimum offer level expected to be established under subsection (4). If the minimum offer level subsequently established for the relevant Delivery Year is less than the Sell Offer, the Sell Offer shall be permitted and no exception shall be required.

ii) As more fully set forth in the PJM Manuals, the Capacity Market Seller must include in its request for an exception under this subsection documentation to support the fixed development, construction, operation, and maintenance costs of the planned generation resource, as well as estimates of offsetting net revenues, or, sufficient data for the Office of the Interconnection and the Market Monitoring Unit to produce such an estimate. Estimates of costs

or revenues shall be supported at a level of detail comparable to the cost and revenue estimates used to support the Net Asset Class Cost of New Entry established under this section 5.14(h). As more fully set forth in the PJM Manuals, supporting documentation for project costs may include, as applicable and available, a complete project description; environmental permits; vendor quotes for plant or equipment; evidence of actual costs of recent comparable projects; bases for electric and gas interconnection costs and any cost contingencies; bases and support for property taxes, insurance, operations and maintenance (“O&M”) contractor costs, and other fixed O&M and administrative or general costs; financing documents for construction–period and permanent financing or evidence of recent debt costs of the seller for comparable investments; and the bases and support for the claimed capitalization ratio, rate of return, cost-recovery period, inflation rate, or other parameters used in financial modeling. Such documentation also shall identify and support any sunk costs that the Capacity Market Seller has reflected as a reduction to its Sell Offer. The request shall include a certification, signed by an officer of the Capacity Market Seller, that the claimed costs accurately reflect, in all material respects, the seller’s reasonably expected costs of new entry and that the request satisfies all standards for an exception hereunder.

The request also shall identify all revenue sources relied upon in the Sell Offer to offset the claimed fixed costs, including, without limitation, long-term power supply contracts, tolling agreements, or tariffs on file with state regulatory agencies, and shall demonstrate that such offsetting revenues are consistent, over a reasonable time period identified by the Capacity Market Seller, with the standard prescribed above.

For the 2022/2023 Delivery Year, in making such demonstration, the Capacity Market Seller may rely upon revenues projected by well defined, forward-looking dispatch models, designed to generally follow the rules and processes of PJM’s energy and ancillary services markets. Such models must utilize publicly available forward prices for electricity and fuel in the PJM Region. Any modifications made to the forward electricity and fuel prices must similarly use publicly available data. Alternative forward prices for fuel may be used if accompanied by contractual evidence showing the applicability of the alternative fuel price. Where forward fuel markets are not available, publicly available estimates of future fuel prices may be used. The model shall also contain estimates of variable operation and maintenance costs, which may include Maintenance Adders, and emissions allowance prices. Documentation for net revenues also must include, as available and applicable, plant performance and capability information, including heat rate, start-up times and costs, forced outage rates, planned outage schedules, maintenance cycle, fuel costs and other variable operations and maintenance expenses, capacity factors and ancillary service capabilities.

In the alternative, the Capacity Market Seller may request that the Market Monitoring Unit, subject to acceptance by the Office of Interconnection, produce a resource-specific Energy & Ancillary Services Offset value for such resource using the Forward Hourly LMPs, Forward Hourly Ancillary Service Prices, and either Forward Daily Natural Gas Prices for combustion turbines and combined cycle resources, or forecasted fuel prices for other resource types, and plant parameters and capability information specific to the dispatch of the resource, as outlined above. In addition to the documentation identified herein and in the PJM Manuals, the Capacity Market Seller shall provide any additional supporting information reasonably requested by the Office of the Interconnection or the Market Monitoring Unit to

evaluate the Sell Offer. Requests for additional documentation will not extend the deadline by which the Office of the Interconnection or the Market Monitoring Unit must provide their determinations of the Minimum Offer Price Rule exception request.

iii) A Sell Offer evaluated hereunder shall be permitted if the information provided reasonably demonstrates that the Sell Offer's competitive, cost-based, fixed, net cost of new entry is below the minimum offer level prescribed by subsection (4), based on competitive cost advantages relative to the costs estimated for subsection (4), including, without limitation, competitive cost advantages resulting from the Capacity Market Seller's business model, financial condition, tax status, access to capital or other similar conditions affecting the applicant's costs, or based on net revenues that are reasonably demonstrated hereunder to be higher than estimated for subsection (4). Capacity Market Sellers shall be asked to demonstrate that claimed cost advantages or sources of net revenue that are irregular or anomalous, that do not reflect arm's-length transactions, or that are not in the ordinary course of the Capacity Market Seller's business are consistent with the standards of this subsection. Failure to adequately support such costs or revenues so as to enable the Office of the Interconnection to make the determination required in this section will result in denial of an exception hereunder by the Office of the Interconnection.

iv) The Market Monitoring Unit shall review the information and documentation in support of the request and shall provide its findings whether the proposed Sell Offer is acceptable, in accordance with the standards and criteria hereunder, in writing, to the Capacity Market Seller and the Office of the Interconnection by no later than ninety (90) days prior to the commencement of the offer period for such auction. The Office of the Interconnection shall also review all exception requests and documentation and shall provide in writing to the Capacity Market Seller, and the Market Monitoring Unit, its determination whether the requested Sell Offer is acceptable and if not it shall calculate and provide to such Capacity Market Seller, a minimum Sell Offer based on the data and documentation received, by no later than sixty-five (65) days prior to the commencement of the offer period for the relevant RPM Auction. If the Office of the Interconnection determines that the requested Sell Offer is acceptable, the Capacity Market Seller shall notify the Market Monitoring Unit and the Office of the Interconnection, in writing, of the minimum level of Sell Offer to which it agrees to commit by no later than sixty (60) days prior to the commencement of the offer period for the relevant RPM Auction.

h-1) Minimum Offer Price Rule for Capacity Resources with State Subsidy for the 2022/2023 Delivery Year.

(1) **General Rule.** The provisions of this section 5.14(h-1) shall not be effective after the 2022/2023 Delivery Year. For the 2022/2023 Delivery Year, any Sell Offer based on either a New Entry Capacity Resource with State Subsidy or a Cleared Capacity Resource with a State Subsidy submitted in any RPM Auction shall have an offer price no lower than the applicable MOPR Floor Offer Price, unless the Capacity Market Seller qualifies for an exemption with respect to such Capacity Resource with a State Subsidy prior to the submission of such offer.

(A) Effect of Exemption. To the extent a Sell Offer in any RPM Auction is based on a Capacity Resource with State Subsidy that qualifies for any of the exemptions defined in Tariff, Attachment DD, sections 5.14(h-1)(4)-(8), the Sell Offer for such resource shall not be limited by the MOPR Floor Offer Price, unless otherwise specified.

(B) Effect of Exception. To the extent a Sell Offer in any RPM Auction for any Delivery Year is based on a Capacity Resource with State Subsidy for which the Capacity Market Seller obtains, prior to the submission of such offer, a resource-specific exception, such offer may include an offer price below the default MOPR Floor Offer Price applicable to such resource type, but no lower than the resource-specific MOPR Floor Offer Price determined in such exception process.

(C) Process for Establishing a Capacity Resource with a State Subsidy.

(i) By no later than one hundred and twenty (120) days prior to the commencement of the offer period of any RPM Auction conducted for the 2022/2023 Delivery Year, each Capacity Market Seller must certify to the Office of Interconnection, in accordance with the PJM Manuals, whether or not each Capacity Resource (other than Demand Resource and Energy Efficiency Resource) that the Capacity Market Seller intends to offer into the RPM Auction qualifies as a Capacity Resource with a State Subsidy (including by way of Jointly Owned Cross-Subsidized Capacity Resource) and identify (with specificity) any State Subsidy. Capacity Market Sellers that intend to offer a Demand Resource or an Energy Efficiency Resource into the RPM Auction shall certify to the Office of Interconnection, in accordance with the PJM Manuals, whether or not such Demand Resource or Energy Efficiency Resource qualifies as a Capacity Resource with a State Subsidy no later than thirty (30) days prior to the commencement of the offer period of any RPM Auction conducted for the 2022/2023 Delivery Year. All Capacity Market Sellers shall be responsible for each certification irrespective of any guidance developed by the Office of the Interconnection and the Market Monitoring Unit. A Capacity Resource shall be deemed a Capacity Resource with State Subsidy if the Capacity Market Seller fails to timely certify whether or not a Capacity Resource is entitled to a State Subsidy, unless the Capacity Market Seller receives a waiver from the Commission. Notwithstanding, if a Capacity Market Seller submits a timely resource-specific exception pursuant to Tariff, Attachment DD, section 5.14(h-1)(3) for the relevant Delivery Year, and PJM approves the resource-specific MOPR Floor Offer Price, then the Capacity Market Seller may use such floor price regardless of whether it timely certified whether or not the resource is a Capacity Resource with State Subsidy.

(ii) The requirements in subsection (i) above do not apply to Capacity Resources for which the Market Seller designated whether or not it is subject to a State Subsidy and the associated subsidies to which the Capacity Resource is entitled in a prior Delivery Year, unless there has been a change in the set of those State Subsidy(ies), or for those which are eligible for the Demand Resource or Energy Efficiency exemption, Capacity Storage Resource exemption, Self-Supply Entity exemption, or the Renewable Portfolio Standard exemption.

(iii) Once a Capacity Market Seller has certified a Capacity Resource as a Capacity Resource with a State Subsidy, the status of such Capacity Resource will

remain unchanged unless and until the Capacity Market Seller (or a subsequent Capacity Market Seller) that owns or controls such Capacity Resource provides a certification of a change in such status, the Office of the Interconnection removes such status, or by FERC order. All Capacity Market Sellers shall have an ongoing obligation to certify to the Office of Interconnection and the Market Monitoring Unit a Capacity Resource’s material change in status as a Capacity Resource with State Subsidy within 30 days of such material change, unless such material change occurs within 30 days of the commencement of the offer period of any RPM Auction for the 2022/2023 Delivery Year, in which case the Market Seller must notify PJM no later than 5 days prior to the commencement of the offer period of any RPM Auction for the 2022/2023 Delivery Year. Nothing in this provision shall supersede the requirement for all Capacity Market Sellers to certify to the Office of Interconnection whether its resource meets the criteria of a Capacity Resource with State Subsidy pursuant to Tariff, Attachment DD, section 5.14(h-1)(1)(C)(i).

(2) **Minimum Offer Price Rule.** Any Sell Offer for a New Entry Capacity Resource with State Subsidy or a Cleared Capacity Resource with State Subsidy that does not qualify for any of the exemptions, as defined in Tariff, Attachment DD, sections 5.14(h-1)(4)-(8), shall have an offer price no lower than the applicable MOPR Floor Offer Price, unless the applicable MOPR Floor Offer Price is higher than the applicable Market Seller Offer Cap, in which circumstance the Capacity Resource with State Subsidy must seek a resource-specific value determined in accordance with the resource-specific MOPR Floor Offer Price process to participate in an RPM Auction.

(A) **New Entry MOPR Floor Offer Price.** For a New Entry Capacity Resource with State Subsidy the applicable MOPR Floor Offer Price, based on the net cost of new entry for each resource type, shall be, at the election of the Capacity Market Seller, (i) the resource-specific value determined in accordance with the resource-specific MOPR Floor Offer Price process in Tariff, Attachment DD, section 5.14(h-1)(3) below or (ii) if applicable, the default New Entry MOPR Floor Offer Price for the applicable resource based on the gross cost of new entry values shown in the table below, net of estimated net energy and ancillary service revenues for the resource type and Zone in which the resource is located.

Resource Type	Gross Cost of New Entry (2022/2023 \$/ MW-day) (Nameplate)
Nuclear	\$2,000
Coal	\$1,068
Combined Cycle	\$320
Combustion Turbine	\$294
Fixed Solar PV	\$271
Tracking Solar PV	\$290
Onshore Wind	\$420
Offshore Wind	\$1,155
Battery Energy Storage	\$532
Diesel Backed Demand Resource	\$254

The gross cost of new entry values in the table above are expressed in dollars per MW-day in terms of nameplate megawatts. For purposes of submitting a Sell Offer, the gross cost of new entry values must be converted to a net cost of new entry by subtracting the estimated net energy and ancillary service revenues, as determined below, from the gross cost of new entry. However, the resultant net cost of new entry of the battery energy storage resource type in the table above must be multiplied by 2.5. The net cost of new entry based on nameplate capacity is then converted to Unforced Capacity (“UCAP”) MW-day. For Delivery Years through the 2022/2023 Delivery Year, to determine the applicable UCAP MW-day value, the net cost of new entry is adjusted as follows: for thermal generation resource types and battery energy storage resource types, the applicable class average EFORD; for wind and solar generation resource types, the applicable class average capacity value factor; or for Demand Resources and Energy Efficiency Resources, the Forecast Pool Requirement, as applicable to the relevant RPM Auction. For the 2023/2024 Delivery Year and subsequent Delivery Years, to determine the applicable UCAP MW-day value, the net cost of new entry is adjusted as follows: for thermal generation resource types, the applicable class average EFORD; for battery storage, wind, and solar resource types, the applicable ELCC Class Rating; or for Demand Resources and Energy Efficiency Resources, the Forecast Pool Requirement, as applicable to the relevant RPM Auction. The resulting default New Entry MOPR Floor Offer price in UCAP/MW-day terms shall be applied to each MW offered for the Capacity Resource regardless of the actual Sell Offer quantity and regardless of whether the Sell Offer is for a Seasonal Capacity Performance Resource.

The default New Entry MOPR Floor Offer Price for load-backed Demand Resources (i.e., the MW portion of Demand Resources that is not supported by generation) shall be separately determined for each Locational Deliverability Area as the MW-weighted average offer price of load-backed Demand Resources from the most recent three Base Residual Auctions, where the MW weighting shall be determined based on the portion of each Sell Offer for a load-backed portion of the Demand Resource that is supported by end-use customer locations on the registrations used in the pre-registration process for such Base Residual Auctions, as described in the PJM Manuals.

For generation-backed Demand Resources that are not powered by diesel generators, the default New Entry MOPR Floor Offer Price shall be the default New Entry MOPR Floor Offer Price applicable to their technology type. Generation-backed Demand Resources using a technology type for which there is no default MOPR Floor Offer Price provided in accordance with this section must seek a resource-specific value determined in accordance with the resource-specific MOPR Floor Offer Price process in Tariff, Attachment DD, section 5.14(h-1)(3) below to participate in an RPM Auction.

The default gross cost of new entry for Energy Efficiency Resources shall be \$644/ICAP MW-Day, which shall be offset by projected wholesale energy savings, as well as transmission and distribution savings of \$95/ICAP MW-Day, to determine the default New Entry MOPR Floor Offer Price (Net Cost of New Entry), where the projected wholesale energy savings are determined utilizing the cost and performance data of relevant programs offered by representative energy efficiency programs with sufficiently detailed publicly available data. The wholesale energy savings, in \$/ICAP MW-day, shall be calculated prior to each RPM Auction

and be equal to the average annual energy savings of 6,221 MWh/ICAP MW times the weighted average of the annual real-time Forward Hourly LMPs of the Zones of the representative energy efficiency programs, where the weighting is developed from the annual energy savings in the relevant Zones, divided by 365.

To determine the adjusted applicable default New Entry MOPR Floor Offer Prices for all resource types except for load-backed Demand Resources and Energy Efficiency Resources, the Office of the Interconnection shall adjust the gross costs of new entry utilizing, for combustion turbine and combined cycle resource types, the same Applicable BLS Composite Index applied for such Delivery Year to adjust the CONE value used to determine the Variable Resource Requirement Curve, in accordance with Tariff, Attachment DD, section 5.10(a)(iv), and for all other resource types, the “BLS Producer Price Index Turbines and Turbine Generator Sets” component of the Applicable BLS Composite Index used to determine the Variable Resource Requirement Curve shall be replaced with the “BLS Producer Price Index Final Demand, Goods Less Food & Energy, Private Capital Equipment” when adjusting the gross costs of new entry. The resultant value shall then be then adjusted further by a factor of 1.022 for nuclear, coal, combustion turbine, combine cycle, and generation-backed Demand Resource types or 1.01 for solar, wind, and storage resource types to reflect the annual decline in bonus depreciation scheduled under federal corporate tax law. Updated estimates of the net energy and ancillary service revenues for each default resource type and applicable Zone, which shall include, but are not limited to, consideration of Fuel Costs, Maintenance Adders and Operating Costs, as applicable, pursuant to Operating Agreement, Schedule 2 shall then be subtracted from the adjusted gross costs of new entry to determine the adjusted New Entry MOPR Floor Offer Price. The net energy and ancillary services revenue shall be the average of the net energy and ancillary services revenues that the resource is projected to receive from the PJM energy and ancillary service markets for the applicable Delivery Year from three separate simulations, with each such simulation using forward prices shaped using historical data from one of each of the three consecutive calendar years preceding the time of the determination for the RPM Auction to take account of year-to-year variability in such hourly shapes. Each net energy and ancillary services revenue simulation shall be conducted in accordance with the following and the PJM Manuals:

(i) for nuclear resource type, the net energy and ancillary services revenue estimate for each Zone shall be determined by the gross energy market revenue determined by the product of [average annual day-ahead Forward Hourly LMPs for such Zone, times 8,760 hours times the annual average equivalent availability factor of all PJM nuclear resources] minus the total annual cost to produce energy determined by the product of [8,760 hours times the annual average equivalent availability factor of all PJM nuclear resources times \$9.02/MWh for a single unit plant or \$7.66/MWh for a multi-unit plant] where these hourly cost rates include fuel costs and variable operation and maintenance expenses, inclusive of Maintenance Adder costs, plus reactive services revenue of \$3,350/MW-year;

(ii) for coal resource type, the net energy and ancillary services revenue estimate for each Zone shall be determined by the Projected EAS Dispatch of a 650 MW coal unit (with heat rate of 8,638 BTU/kWh and variable operations and maintenance variable operation and maintenance expenses, inclusive of Maintenance Adder costs, of \$9.50/MWh) using day-ahead and real-time Forward Hourly LMPs for such Zone and Forward Hourly Ancillary Service Prices, and daily forecasted coal prices, as set forth in the PJM Manuals, plus reactive services revenue of \$3,350/MW-year;

(iii) for combustion turbine resource type, the net energy and ancillary services revenue estimate for each Zone shall be determined in a manner consistent with the methodology described in Tariff, Attachment DD, section 5.10(a)(v-1)(B) for the Reference Resource combustion turbine.

(iv) for combined cycle resource type, the net energy and ancillary services revenue estimate for each Zone shall be determined in the same manner as that prescribed for a combustion turbine resource type, except that the heat rate assumed for the combined cycle resource shall be 6,501 BTU/kwh, the variable operations and maintenance expenses for such resource, inclusive of Maintenance Adder costs, shall be \$2.11/MWh, plus reactive services revenue of \$3,350/MW-year.

(v) for solar PV resource type, the net energy and ancillary services revenue estimate for each Zone shall be determined using a solar resource model that provides the average MW output level, expressed as a percentage of nameplate rating, by hour of day (for each of the 24-hours of a day) and by calendar month (for each of the twelve months of a year). The annual net energy market revenues are determined by multiplying the solar output level of each hour by the real-time Forward Hourly LMP for such Zone and applicable to such hour with this product summed across all of the hours of an annual period, plus reactive services revenue of \$3,350/MW-year. Two separate solar resource models are used, one model for a fixed panel resource and a second model for a tracking panel resource;

(vi) for onshore wind resource type, the net energy and ancillary services revenue estimate for each Zone shall be determined using a wind resource model that provides the average MW output level, expressed as a percentage of nameplate rating, by hour of day (for each of the 24-hours of a day) and by calendar month (for each of the twelve months of a year). The annual energy market revenues are determined by multiplying the wind output level of each hour by the real-time Forward Hourly LMP for such Zone applicable to such hour with this product summed across all of the hours of an annual period, plus reactive services revenue of \$3,350/MW-year;

(vii) for offshore wind resource type, the net energy and ancillary services revenue estimate for each Zone shall be determined by the gross energy market revenue equal to the product of [the average annual real-time Forward Hourly LMP for such Zone times 8,760 hours times an assumed annual capacity factor of 45%], plus reactive services revenue of \$3,350/MW-year;

(viii) for Capacity Storage Resource, the net energy and ancillary services revenue estimate shall be estimated by the Projected EAS Dispatch of a 1 MW, 4MWh resource, with an 85% roundtrip efficiency, and assumed to be dispatched between 95% and 5% state of charge against day-ahead and real-time Forward Hourly LMPs for such Zone and Forward Hourly Ancillary Service Prices, plus reactive services revenue of \$3,350/MW-year; and

(ix) for generation-backed Demand Resource, the net energy and ancillary services revenue estimate shall be zero dollars.

New Entry Capacity Resource with State Subsidy for which there is no default MOPR Floor Offer Price provided in accordance with this section, including hybrid resources, must seek a resource-specific value determined in accordance with the resource-specific MOPR Floor Offer Price process below to participate in an RPM Auction. Failure to obtain a resource-specific MOPR Floor Offer Price will result in the Office of the Interconnection rejecting any Sell Offer based on such resource for the relevant RPM Auction.

(B) Cleared MOPR Floor Offer Prices.

(i) For a Cleared Capacity Resource with State Subsidy, the applicable Cleared MOPR Floor Offer Price shall be, at the election of the Capacity Market Seller, (a) based on the resource-specific MOPR Floor Offer Price, as determined in accordance with Tariff, Attachment DD, section 5.14(h-1)(3) below, or (b) if available, the default Avoidable Cost Rate for the applicable resource type shown in the table below, net of projected PJM market revenues equal to the resource's net energy and ancillary service revenues for the resource type, as determined in accordance with subsection (ii) below.

Existing Resource Type	Default Gross ACR (2022/2023) (\$/MW-day) (Nameplate)
Nuclear - single	\$697
Nuclear - dual	\$445
Coal	\$80
Combined Cycle	\$56
Combustion Turbine	\$50
Solar PV (fixed and tracking)	\$40
Wind Onshore	\$83
Diesel-backed Demand Response	\$3
Load-backed Demand Response	\$0
Energy Efficiency	\$0

The default gross Avoidable Cost Rate values in the table above are expressed in dollars per MW-day in terms of nameplate megawatts. For purposes of submitting a Sell Offer, the default Avoidable Cost Rate values must be net of estimated net energy and ancillary service revenues, and then the difference is ultimately converted to Unforced Capacity ("UCAP") MW-day, where the UCAP MW-day value will be determined based on: for Delivery Years through the 2022/2023 Delivery Year, the resource-specific EFORD for thermal generation resource types, resource-specific capacity value factor for solar and wind generation resource types (based on the ratio of Capacity Interconnection Rights to nameplate capacity, appropriately time-weighted for any winter Capacity Interconnection Rights), or the Forecast Pool Requirement for Demand Resources and Energy Efficiency Resources, as applicable to the relevant RPM Auction, and for the 2023/2024 Delivery Year and subsequent Delivery Years, the resource-specific EFORD for thermal generation resource types and on the resource-specific Accredited UCAP value for solar and wind resource types (with appropriate time-weighting for any winter Capacity Interconnection Rights), or the Forecast Pool Requirement for Demand Resources and Energy Efficiency Resources, as applicable to the relevant RPM Auction. The resulting default Cleared MOPR Floor Offer price in UCAP/MW-day terms shall be applied to each MW offered for the Capacity Resource regardless of actual Sell Offer quantity and regardless of whether the Sell Offer is for a Seasonal Capacity Performance Resource.

Beginning with the Delivery Year that commences June 1, 2022, and continuing no later than for every fourth Delivery Year thereafter, the Office of the Interconnection shall review the default Avoidable Cost Rates for Capacity Resources with State Subsidies that have cleared in an RPM Auction for any prior Delivery Year. Such review may include, without limitation, analyses of the avoidable costs of such resource types. Based on the results of such review, PJM shall propose either to modify or retain the default Avoidable Cost Rate values stated in the table above. The Office of the Interconnection shall post publicly and solicit stakeholder comment regarding the proposal. If, as a result of this process, changes to the default Avoidable Cost Rate values are proposed, the Office of the Interconnection shall file such proposed modifications with the FERC by October 1, prior to the conduct of the Base Residual Auction for the first Delivery Year in which the new values would be applied.

For generation-backed Demand Resources that are not powered by diesel generators, the default Cleared MOPR Floor Offer Price shall be the default Cleared MOPR Floor Offer Price applicable to their technology type. Generation-backed Demand Resources using a technology type for which there is no default MOPR Floor Offer Price provided in accordance with this section must seek a resource-specific value determined in accordance with the resource-specific MOPR Floor Offer Price process in Tariff, Attachment DD, section 5.14(h-1)(3) below to participate in an RPM Auction.

Cleared Capacity Resources with State Subsidy for which there is no default MOPR Floor Offer Price provided in accordance with this section, including hybrid resources, must seek a resource-specific value determined in accordance with the resource-specific MOPR Floor Offer Price process below to participate in an RPM Auction. Failure to obtain a resource-specific MOPR Floor Offer Price will result in the Office of the Interconnection rejecting any Sell Offer based on such resource.

(ii) The net energy and ancillary services revenue is equal to forecasted net revenues which shall be determined in accordance with the applicable resource type net energy and ancillary services revenue determination methodology set forth in Tariff, Attachment DD, section 5.14(h-1)(2)(A)(i) through (ix) and using the subject resource's operating parameters as determined in accordance with the PJM Manuals based on (a) offers submitted in the Day-ahead Energy Market and Real-time Energy Market over the calendar year preceding the time of the determination for the RPM Auction; (b) the resource-specific operating parameters approved, as applicable, in accordance with Operating Agreement, Schedule 1, section 6.6(b) and Operating Agreement, Schedule 2 (including any Fuel Costs, emissions costs, Maintenance Adders, and Operating Costs); (c) the resource's EFORd; (d) Forward Hourly LMPs at the generation bus as determined in accordance with Tariff, Attachment DD, section 5.10(a)(v-1)(C)(6); and (e) the resource's stated annual revenue requirement for reactive services; plus any unit-specific bilateral contract. In addition, the following resource type-specific parameters shall be considered; (f) for combustion turbine, combined cycle, and coal resource types: the installed capacity rating, ramp rate (which shall be equal to the maximum ramp rate included in the resource's energy offers over the most recent previous calendar year preceding the determination for the RPM Auction), and the heat rate as determined as the resource's average heat rate at full load as submitted to the Market Monitoring Unit and the Office of the Interconnection, where for combined cycle resources heat rates will be determined at base load and at peak load (e.g.,

without duct burners and with duct burners), as applicable; (g) for nuclear resource type: an average equivalent availability factor of all PJM nuclear resources to account for refueling outages; (h) for solar and wind resource types: the resource's output profiles for the most recent three calendar years, as available; and (i) for battery storage resource type: the nameplate capacity rating (on a MW / MWh basis).

To the extent the resource has not achieved commercial operation, the operating parameters used in the simulation of the net energy and ancillary service revenues will be based on the manufacturer's specifications and/or from parameters used for other existing, comparable resources, as developed by the Market Monitoring Unit and the Capacity Market Seller, and accepted by the Office of the Interconnection.

A Capacity Market Seller intending to submit a Sell Offer in any RPM Auction for a Cleared Capacity Resource with State Subsidy based on a net energy and ancillary services revenue determination that does not use the foregoing methodology or parameter inputs stated for that resource type shall, at its election, submit a request for a resource-specific MOPR Floor Offer Price for such Capacity Resource pursuant to Tariff, Attachment DD, section 5.14(h-1)(3) below.

(3) Resource-Specific Exception. A Capacity Market Seller intending to submit a Sell Offer in any RPM Auction for a New Entry Capacity Resource with State Subsidy or a Cleared Capacity Resource with State Subsidy below the applicable default MOPR Floor Offer Price may, at its election, submit a request for a resource-specific exception for such Capacity Resource. A Sell Offer below the default MOPR Floor Offer Price, but no lower than the resource-specific MOPR Floor Offer Price, shall be permitted if the Capacity Market Seller obtains approval from the Office of the Interconnection or the Commission, prior to the RPM Auction in which it seeks to submit the Sell Offer. The resource-specific MOPR Floor Offer Price determined under this provision shall be based on the resource-specific EFORD for thermal generation resource types, on the resource-specific Accredited UCAP value for ELCC Resources (where for solar and wind generation resource types the Accredited UCAP shall be appropriately time-weighted for any winter Capacity Interconnection Rights), or the Forecast Pool Requirement for Demand Resources and Energy Efficiency Resources, as applicable to the relevant RPM Auction and shall be applied to each MW offered by the resource regardless of actual Sell Offer quantity and regardless of whether the Sell Offer is for a Seasonal Capacity Performance Resource. Such Sell Offer is permissible because it is consistent with the competitive, cost-based, fixed, net cost were the resource to rely solely on revenues exclusive of any State Subsidy. All supporting data must be provided for all requests. The following requirements shall apply to requests for such determinations:

(A) The Capacity Market Seller shall submit a written request with all of the required documentation as described below and in the PJM Manuals. For such purpose, the Capacity Market Seller shall submit the resource-specific exception request to the Office of the Interconnection and the Market Monitoring Unit no later than one hundred twenty (120) days prior to the commencement of the offer period for the RPM Auction in which it seeks to submit its Sell Offer. For such purpose, the Office of the Interconnection shall post, by no later than one hundred fifty (150) days prior to the commencement of the offer period for the relevant RPM Auction, a preliminary estimate for the relevant Delivery Year of the default Minimum Floor Offer Prices, determined pursuant to Tariff, Attachment DD, sections 5.14(h-1)(2)(A) and (B). If

the final applicable default Minimum Floor Offer Price subsequently established for the relevant Delivery Year is less than the Sell Offer, the Sell Offer shall be permitted and no exception shall be required.

(B) For a resource-specific exception for a New Entry Capacity Resource with State Subsidy, the Capacity Market Seller must include in its request for an exception under this subsection documentation to support the fixed development, construction, operation, and maintenance costs of the Capacity Resource, as well as estimates of offsetting net revenues.

The financial modeling assumptions for calculating Cost of New Entry for Generation Capacity Resources and generation-backed Demand Resources shall be: (i) nominal levelization of gross costs, (ii) asset life of twenty years, (iii) no residual value, (iv) all project costs included with no sunk costs excluded, (v) use first year revenues (which may include revenues from the sale of renewable energy credits for purposes other than state-mandated or state-sponsored programs), and (vi) weighted average cost of capital based on the actual cost of capital for the entity proposing to build the Capacity Resource. Notwithstanding the foregoing, a Capacity Market Seller that seeks to utilize an asset life other than twenty years (but no greater than 35 years) shall provide evidence to support the use of a different asset life, including but not limited to, the asset life term for such resource as utilized in the Capacity Market Seller's financial accounting (e.g., independently audited financial statements), or project financing documents for the resource or evidence of actual costs or financing assumptions of recent comparable projects to the extent the seller has not executed project financing for the resource (e.g., independent project engineer opinion or manufacturer's performance guarantee), or opinions of third-party experts regarding the reasonableness of the financing assumptions used for the project itself or in comparable projects. Capacity Market Sellers may also rely on evidence presented in federal filings, such as its FERC Form No. 1 or an SEC Form 10-K, to demonstrate an asset life other than 20 years of similar asset projects.

Supporting documentation for project costs may include, as applicable and available, a complete project description; environmental permits; vendor quotes for plant or equipment; evidence of actual costs of recent comparable projects; bases for electric and gas interconnection costs and any cost contingencies; bases and support for property taxes, insurance, operations and maintenance ("O&M") contractor costs, and other fixed O&M and administrative or general costs; financing documents for construction-period and permanent financing or evidence of recent debt costs of the seller for comparable investments; and the bases and support for the claimed capitalization ratio, rate of return, cost-recovery period, inflation rate, or other parameters used in financial modeling. In addition to the certification, signed by an officer of the Capacity Market Seller, the request must include a certification that the claimed costs accurately reflect, in all material respects, the seller's reasonably expected costs of new entry and that the request satisfies all standards for a resource-specific exception hereunder. The request also shall identify all revenue sources (exclusive of any State Subsidies) relied upon in the Sell Offer to offset the claimed fixed costs, including, without limitation, long-term power supply contracts, tolling agreements, or tariffs on file with state regulatory agencies, and shall demonstrate that such offsetting revenues are consistent, over a reasonable time period identified by the Capacity Market Seller, with the standard prescribed above. In making such demonstration, the Capacity Market Seller may rely upon revenues projected by well-defined, forward-looking dispatch

models designed to generally follow the rules and processes of PJM's energy and ancillary services market. Such models must utilize publicly available forward prices for electricity and fuel in the PJM Region. Any modifications made to the forward electricity and fuel prices must similarly use publicly available data. Alternative forward prices for fuel may be used if accompanied by contractual evidence showing the applicability of the alternative fuel price. Where forward fuel markets are not available, publicly available estimates of future fuel prices may be used. The model shall also contain estimates of variable operation and maintenance expenses, which may include Maintenance Adders, and emissions allowance prices. Documentation for net revenues also must include, as available and applicable, plant performance and capability information, including heat rate, start-up times and costs, forced outage rates, planned outage schedules, maintenance cycle, fuel costs and other variable operations and maintenance expenses, capacity factors, and ancillary service capabilities. Any evaluation of net revenues should be consistent with Operating Agreement, Schedule 2, including, but not limited to, consideration of Fuel Costs, Maintenance Adders and Operating Costs, as applicable.

In the alternative, the Capacity Market Seller may request that the Market Monitoring Unit, subject to acceptance by the Office of Interconnection, produce a resource-specific Energy & Ancillary Services Offset value for such resource using the Forward Hourly LMPs, Forward Hourly Ancillary Service Prices and either Forward Daily Natural Gas Prices for combustion turbines and combined cycle resources, or forecasted fuel prices for other resource types, plus plant parameters and capability information specific to the dispatch of the resource, as outlined above. In addition to the documentation identified herein and in the PJM Manuals, the Capacity Market Seller shall provide any additional supporting information reasonably requested by the Office of the Interconnection or the Market Monitoring Unit to evaluate the Sell Offer. Requests for additional documentation will not extend the deadline by which the Office of the Interconnection or the Market Monitoring Unit must provide their determinations of the Minimum Offer Price Rule exception request.

The default assumptions for calculating resource-specific Cost of New Entry for Energy Efficiency Resources shall be based on, as supported by documentation provided by the Capacity Market Seller: the nominal-levelized annual cost to implement the Energy Efficiency program or to install the Energy Efficiency measure reflective of the useful life of the implemented Energy Efficiency equipment, and the offsetting savings associated with avoided wholesale energy costs and other claimed savings provided by implementing the Energy Efficiency program or installing the Energy Efficiency measure.

The default assumptions for calculating resource-specific Cost of New Entry for load-backed Demand Resources shall be based on, as supported by documentation provided by the Capacity Market Seller, program costs required for the resource to meet the capacity obligations of a Demand Resource, including all fixed operating and maintenance cost and weighted average cost of capital based on the actual cost of capital for the entity proposing to develop the Demand Resource.

For generation-backed Demand Resources, the determination of a resource-specific MOPR Floor Offer Price shall consider all costs associated with the generation unit supporting the Demand Resource, and demand charge management benefits at the retail level (as supported by

documentation at the end-use customer level) may also be considered as an additional offset to such costs. Supporting documentation (at the end-use customer level) may include, but is not limited to, historic end-use customer bills and associated analysis that identifies the annual retail avoided cost from the operation of such generation unit.

(C) For a Resource-Specific Exception for a Cleared Capacity Resource with State Subsidy that is a generation resource, the Capacity Market Seller shall submit a Sell Offer consistent with the unit-specific Market Seller Offer Cap process pursuant to Tariff, Attachment DD, section 6.8; except that the 10% uncertainty adder may not be included in the “Adjustment Factor.” In addition and notwithstanding the requirements of Tariff, Attachment DD, section 6.8, the Capacity Market Seller shall, at its election, include in its request for an exception under this subsection documentation to support projected energy and ancillary services markets revenues. Such a request shall identify all revenue sources (exclusive of any State Subsidies) relied upon in the Sell Offer to offset the claimed fixed costs, including, without limitation, long-term power supply contracts, tolling agreements, or tariffs on file with state regulatory agencies, and shall demonstrate that such offsetting revenues are consistent, over a reasonable time period identified by the Capacity Market Seller, with the standard prescribed above. In making such demonstration, the Capacity Market Seller may rely upon revenues projected by well-defined, forward-looking dispatch models designed to generally follow the rules and processes of PJM’s energy and ancillary services market. Such models must utilize publicly available forward prices for electricity and fuel in the PJM Region. Any modifications made to the forward electricity and fuel prices must similarly use publicly available data. Alternative forward prices for fuel may be used if accompanied by contractual evidence showing the applicability of the alternative fuel price. Where forward fuel markets are not available, publicly available estimates of future fuel sources may be used. The model shall also contain estimates of variable operation and maintenance expenses, which may include Maintenance Adders, and emissions allowance prices. Documentation for net revenues also must include, as available and applicable, plant performance and capability information, including heat rate, start-up times and costs, forced outage rates, planned outage schedules, maintenance cycle, fuel costs and other variable operations and maintenance expenses, capacity factors, and ancillary service capabilities. Any evaluation of revenues should include, but would not be not limited to, consideration of Fuel Costs, Maintenance Adders and Operating Costs, as applicable, pursuant to Operating Agreement, Schedule 2.

In the alternative, the Capacity Market Seller may request that the Market Monitoring Unit, subject to acceptance by the Office of Interconnection, produce a resource-specific Energy & Ancillary Services Offset value for such resource using the Forward Hourly LMPs, Forward Hourly Ancillary Service Prices and either Forward Daily Natural Gas Prices for combustion turbines and combined cycle resources, or forecasted fuel prices for other resource types, plus plant parameters and capability information specific to the dispatch of the resource, as outlined above. In addition to the documentation identified herein and in the PJM Manuals, the Capacity Market Seller shall provide any additional supporting information reasonably requested by the Office of the Interconnection or the Market Monitoring Unit to evaluate the Sell Offer. Requests for additional documentation will not extend the deadline by which the Office of the Interconnection or the Market Monitoring Unit must provide their determinations of the Minimum Offer Price Rule exception request.

The resource-specific MOPR Floor Offer Price for a Cleared Capacity Resource with State Subsidy that is a generation-backed Demand Resource will be determined based on all costs associated with the generation unit supporting the Demand Resource, and demand charge management benefits at the retail level (as supported by documentation at the end-use customer level) may also be considered as an additional offset to such costs. Supporting documentation (at the end-use customer level) may include but is not limited to, historic end-use customer bills and associated analysis that identifies the annual retail avoided cost from the operation of such generation unit.

(D) A Sell Offer evaluated at the resource-specific exception shall be permitted if the information provided reasonably demonstrates that the Sell Offer's competitive, cost-based, fixed, net cost of new entry is below the default MOPR Floor Offer Price, based on competitive cost advantages relative to the costs estimated by the default MOPR Floor Offer Price, including, without limitation, competitive cost advantages resulting from the Capacity Market Seller's business model, financial condition, tax status, access to capital or other similar conditions affecting the applicant's costs, or based on net revenues that are reasonably demonstrated hereunder to be higher than those estimated by the default MOPR Floor Offer Price. Capacity Market Sellers shall demonstrate that claimed cost advantages or sources of net revenue that are irregular or anomalous, that do not reflect arm's-length transactions, or that are not in the ordinary course of the Capacity Market Seller's business are consistent with the standards of this subsection. Failure to adequately support such costs or revenues so as to enable the Office of the Interconnection to make the determination required in this section will result in denial of a resource-specific exception by the Office of the Interconnection.

(E) The Capacity Market Seller must submit a sworn, notarized certification of a duly authorized officer, certifying that the officer has personal knowledge of the resource-specific exception request and that to the best of his/her knowledge and belief: (1) the information supplied to the Market Monitoring Unit and the Office of Interconnection to support its request for an exception is true and correct; (2) the Capacity Market Seller has disclosed all material facts relevant to the request for the exception; and (3) the request satisfies the criteria for the exception.

(F) The Market Monitoring Unit shall review, in an open and transparent manner with the Capacity Market Seller and the Office of the Interconnection, the information and documentation in support of the request and shall provide its findings whether the proposed Sell Offer is acceptable, in accordance with the standards and criteria hereunder, in writing, to the Capacity Market Seller and the Office of the Interconnection by no later than ninety (90) days prior to the commencement of the offer period for such auction. The Office of the Interconnection shall also review, in an open and transparent manner, all exception requests and documentation and shall provide in writing to the Capacity Market Seller, and the Market Monitoring Unit, its determination whether the requested Sell Offer is acceptable and if not it shall calculate and provide to such Capacity Market Seller, a minimum Sell Offer based on the data and documentation received, by no later than sixty-five (65) days prior to the commencement of the offer period for the relevant RPM Auction. After the Office of the Interconnection determines with the advice and input of Market Monitor, the acceptable minimum Sell Offer, the Capacity Market Seller shall notify the Market Monitoring Unit and the Office of the Interconnection, in writing, of the minimum level of Sell Offer to which it agrees to

commit by no later than sixty (60) days prior to the commencement of the offer period for the relevant RPM Auction, and in making such determination, the Capacity Market Seller may consider the applicable default MOPR Floor Offer Price and may select such default value if it is lower than the resource-specific determination. A Capacity Market Seller that is dissatisfied with any determination hereunder may seek any remedies available to it from FERC; provided, however, that the Office of the Interconnection will proceed with administration of the Tariff and market rules based on the lower of the applicable default MOPR Floor Offer Price and the resource-specific determination unless and until ordered to do otherwise by FERC.

(4) Competitive Exemption.

(A) A Capacity Resource with State Subsidy may be exempt from the Minimum Offer Price Rule under this subsection 5.14(h-1) in any RPM Auction if the Capacity Market Seller certifies to the Office of Interconnection, in accordance with the PJM Manuals, that the Capacity Market Seller of such Capacity Resource elects to forego receiving any State Subsidy for the applicable Delivery Year no later than thirty (30) days prior to the commencement of the offer period for the relevant RPM Auction. Notwithstanding the foregoing, the competitive exemption is not available to Capacity Resources with State Subsidy that (A) are owned or offered by Self-Supply Entities unless the Self-Supply Entity certifies, subject to PJM and Market Monitor review, that the Capacity Resource will not accept a State Subsidy, including any financial benefit that is the result of being owned by a regulated utility, such that retail ratepayers are held harmless, (B) are no longer entitled to receive a State Subsidy but are still considered a Capacity Resource with State Subsidy solely because they have not cleared an RPM Auction since last receiving a State Subsidy, or (C) are Jointly Owned Cross-Subsidized Capacity Resources or is the subject of a bilateral transaction (including but not limited to those reported pursuant to Tariff, Attachment DD, section 4.6) and not all Capacity Market Sellers of the supporting facility unanimously elect the competitive exemption and certify that no State Subsidy will be received associated with supporting the resource (unless the underlying Capacity Resource that is the subject of a bilateral transaction has not received, is not receiving, and is not entitled to receive any State Subsidy except those that are assigned (i.e., renewable energy credits) to the off-takers of a bilateral transaction and the Capacity Market Seller of such Capacity Resource can demonstrate and certify that the Capacity Market Seller's rights and obligations of its share of the capacity, energy, and assignable State Subsidy associated with the underlying Capacity Resource are in pro rata shares). A new Generation Capacity Resource that is a Capacity Resource with State Subsidy may elect the competitive exemption; however, in such instance, the applicable MOPR Floor Offer Price will be determined in accordance with the minimum offer price rules for certain new Generation Capacity Resources as provided in Tariff, Attachment DD, section 5.14(h), which apply the minimum offer price rule to the new Generation Capacity Resources located in an LDA where a separate VRR Curve is established as provided in Tariff, Attachment DD, section 5.14(h)(4).

(B) The Capacity Market Seller shall not receive a State Subsidy for any part of the relevant Delivery Year in which it elects a competitive exemption or certifies that it is not a Capacity Resource with State Subsidy.

(5) Self-Supply Entity exemption. A Capacity Resource that was owned, or bilaterally contracted, by a Self-Supply Entity on December 19, 2019, shall be exempt from the

Minimum Offer Price Rule if such Capacity Resource remains owned or bilaterally contracted by such Self-Supply Entity and satisfies at least one of the criteria specified below:

(A) has successfully cleared an RPM Auction prior to December 19, 2019;

(B) is the subject of an interconnection construction service agreement, interim interconnection service agreement, interconnection service agreement or wholesale market participation agreement executed by the interconnection customer on or before December 19, 2019; or

(C) is the subject of an unexecuted interconnection construction service agreement, interim interconnection service agreement, interconnection service agreement or wholesale market participation agreement filed by PJM with the Commission on or before December 19, 2019.

(6) Renewable Portfolio Standard Exemption. A Capacity Resource with State Subsidy shall be exempt from the Minimum Offer Price Rule if such Capacity Resource (1) receives or is entitled to receive State Subsidies through renewable energy credits or equivalent credits associated with a state-mandated or state-sponsored renewable portfolio standard (“RPS”) program or equivalent program as of December 19, 2019 and (2) satisfies at least one of the following criteria:

(A) has successfully cleared an RPM Auction prior to December 19, 2019;

(B) is the subject of an interconnection construction service agreement, interim interconnection service agreement, interconnection service agreement or wholesale market participation agreement executed by the interconnection customer on or before December 19, 2019; or

(C) is the subject of an unexecuted interconnection construction service agreement, interim interconnection service agreement, interconnection service agreement or wholesale market participation agreement filed by PJM with the Commission on or before December 19, 2019.

(7) Demand Resource and Energy Efficiency Resource Exemption.

(A) A Capacity Resource with State Subsidy that is Demand Resource or an Energy Efficiency Resource shall be exempt from the Minimum Offer Price Rule if such Capacity Resource satisfies at least one of the following criteria:

(i) has successfully cleared an RPM Auction prior to December 19, 2019. For purposes of this subsection (A), individual customer location registrations that participated as Demand Resource and cleared in an RPM Auction prior to December 19, 2019, and were submitted to PJM no later than 45 days prior to the BRA for the

2022/2023 Delivery Year shall be deemed eligible for the Demand Resource and Energy Efficiency Resource Exemption; or

(ii) has completed registration on or before December 19, 2019; or

(iii) is supported by a post-installation measurement and verification report for Energy Efficiency Resources approved by PJM on or before December 19, 2019 (calculated for each installation period, Zone and Sub-Zone by using the greater of the latest approved post-installation measurement and verification report prior to December 19, 2019 or the maximum MW cleared for a Delivery Year across all auctions conducted prior to December 19, 2019).

(B) All registered locations that qualify for the Demand Resource and Energy Efficiency Resource exemption shall continue to remain exempt even if the MW of nominated capacity increases between RPM Auctions unless any MW increase in the nominated capacity is due to an investment made for the sole purpose of increasing the curtailment capability of the location in the capacity market. In such case, the MW of increased capability will not be qualified for the Demand Resource and Energy Efficiency Resource exemption.

(8) Capacity Storage Resource Exemption. A Capacity Resource with State Subsidy that is a Capacity Storage Resource shall be exempt from the Minimum Offer Price Rule if such Capacity Storage Resource satisfies at least one of the following criteria:

(A) has successfully cleared an RPM Auction prior to December 19, 2019;

(B) is the subject of an interconnection construction service agreement, interim interconnection service agreement, interconnection service agreement or wholesale market participation agreement executed by the interconnection customer on or before December 19, 2019; or

(C) is the subject of an unexecuted interconnection construction service agreement, interim interconnection service agreement, interconnection service agreement or wholesale market participation agreement filed by PJM with the Commission on or before December 19, 2019.

(9) Procedures and Remedies in Cases of Suspected Fraud or Material Misrepresentation or Omissions in Connection with a Capacity Resource with State Subsidy. In the event the Office of the Interconnection, with advice and input from the Market Monitoring Unit, reasonably believes that a certification of a Capacity Resource's status contains fraudulent or material misrepresentations or omissions such that the Capacity Market Seller's Capacity Resource is a Capacity Resource with a State Subsidy (including whether the Capacity Resource is a Jointly Owned Cross-Subsidized Capacity Resource) or does not qualify for a competitive exemption or contains information that is inconsistent with the resource-specific exception, then:

(A) A Capacity Market Seller shall, within five (5) business days upon receipt of the request for additional information, provide any supporting information reasonably requested by the Office of the Interconnection or the Market Monitoring Unit to evaluate whether such Capacity Resource is a Capacity Resource with State Subsidy or whether the Capacity Market Seller is eligible for the competitive exemption. If the Office of the Interconnection determines that the Capacity Resource's status as a Capacity Resource with State Subsidy is different from that specified by the Capacity Market Seller or is not eligible for a competitive exemption pursuant to subsection (4) above, the Office of the Interconnection shall notify, in writing, the Capacity Market Seller of such determination by no later than sixty-five (65) days prior to the commencement of the offer period for the relevant RPM Auction. A Capacity Market Seller that is dissatisfied with any determination hereunder may seek any remedies available to it from FERC; provided, however, if the Office of Interconnection determines that the subject resource is a Capacity Resource with State Subsidy or is not eligible for a competitive exemption pursuant to subsection (4) above, such Capacity Resource shall be subject to the Minimum Offer Price Rule, unless and until ordered to do otherwise by FERC.

(B) if the Office of the Interconnection does not provide written notice of suspected fraudulent or material misrepresentation or omission at least sixty-five (65) days before the start of the relevant RPM Auction, then the Office of the Interconnection may file the certification that contains any alleged fraudulent or material misrepresentation or omission with FERC. In such event, if the Office of Interconnection determines that a resource is a Capacity Resource with State Subsidy that is subject to the Minimum Offer Price Rule, the Office of the Interconnection will proceed with administration of the Tariff and market rules on that basis unless and until ordered to do otherwise by FERC. The Office of the Interconnection shall implement any remedies ordered by FERC; and

(C) prior to applying the Minimum Offer Price Rule, the Office of the Interconnection, with advice and input of the Market Monitoring Unit, shall notify the affected Capacity Market Seller and, to the extent practicable, provide the Capacity Market Seller an opportunity to explain the alleged fraudulent or material misrepresentation or omission. Any filing to FERC under this provision shall seek fast track treatment and neither the name nor any identifying characteristics of the Capacity Market Seller or the resource shall be publicly revealed, but otherwise the filing shall be public. The Capacity Market Seller may submit a revised certification for that Capacity Resource for subsequent RPM Auctions, including RPM Auctions held during the pendency of the FERC proceeding. In the event that the Capacity Market Seller is cleared by FERC from such allegations of fraudulent or material misrepresentations or omissions then the certification shall be restored to the extent and in the manner permitted by FERC. The remedies required by this subsection to be requested in any filing to FERC shall not be exclusive of any other remedies or penalties that may be pursued against the Capacity Market Seller.

h-2) Minimum Offer Price Rule Effective with the 2023/2024 Delivery Year

(1) **Certification Requirement.**

(A) By no later than one hundred and fifty (150) days prior to the commencement of the offer period of any RPM Auction conducted for the 2024/2025 Delivery

Year and all subsequent Delivery Years, and by the date posted on the PJM website for the 2023/2024 Delivery Year, each Capacity Market Seller must certify to the Office of Interconnection for each Generation Capacity Resource the Capacity Market Seller intends to offer into the RPM Auction, in accordance with the PJM Manuals:

(i) whether or not the Generation Capacity Resource is receiving or expected to receive Conditioned State Support under any legislative or other governmental policy or program that has been enacted or effective at the time of the certification; and

(ii) whether or not the Capacity Market Seller acknowledges and understands that the Exercise of Buyer-Side Market Power is not permitted in RPM Auctions, and does not intend to submit a Sell Offer for their Generation Capacity Resource as an Exercise of Buyer-Side Market Power.

(B) All Capacity Market Sellers shall be responsible for the accuracy of each certification and its conformance with the Tariff irrespective of any guidance developed by the Office of the Interconnection and the Market Monitoring Unit.

(C) Once a Capacity Market Seller has certified whether or not a Generation Capacity Resource is receiving or expected to receive Conditioned State Support, the certification requirements in subsection (A)(i) above do not apply and the status of such Generation Capacity Resource will remain unchanged unless and until the Capacity Market Seller (or a subsequent Capacity Market Seller of the underlying resource) that owns or controls such Generation Capacity Resource provides a certification of a change in such status, the Office of the Interconnection removes such status, or by FERC order. All Capacity Market Sellers shall have an ongoing obligation to certify to the Office of Interconnection and the Market Monitoring Unit a Generation Capacity Resource's material change in status regarding whether such resource is receiving or expected to receive Conditioned State Support within 30 days of such material change. Nothing in this provision shall supersede the requirement for all Capacity Market Sellers to certify to the Office of Interconnection pursuant to Tariff, Attachment DD, section 5.14(h-2)(1)(A)(ii).

(2) **Determining Generation Capacity Resources Subject to the Minimum Offer Price Rule.**

(A) Conditioned State Support.

(i) If the Office of the Interconnection reasonably believes a government policy or program would provide Conditioned State Support or a Capacity Market Seller certifies that it is receiving or is expected to receive Conditioned State Support associated with a given Generation Capacity Resource, the Office of Interconnection shall submit, pursuant to section 205 of the Federal Power Act, 16 U.S.C. § 824d, a filing at FERC indicating the Office of the Interconnection's intent to classify the government policy or program from which that support is derived as Conditioned State Support (and adding such policy or program to the list in Tariff, Attachment DD-3) and apply the Minimum Offer Price Rule to each Generation Capacity Resource reasonably expected to receive such Conditioned State Support. If FERC has already ruled on whether a specific government program or policy constitutes Conditioned State Support

and such policy or program is listed in Tariff, Attachment DD-3, the Office of the Interconnection shall not be required to submit the filing described in the preceding sentence.

(ii) Government policies or programs that do not provide payments or other financial benefit outside of PJM markets and do not provide payment or other financial benefit in exchange for the sale of a FERC-jurisdictional product conditioned on clearing in any RPM Auction do not constitute Conditioned State Support. Examples of such government policies that do not constitute Conditioned State Support may include, but are not limited to: policies designed to procure, incent, or require environmental attributes, whether bundled or unbundled (e.g., Renewable Energy Credits, Zero Emission Credits; Regional Greenhouse Gas Initiative); economic development programs and policies; tax incentives; state retail default service auctions; policies or programs that provide incentives related to fuel supplies; any contract, legally enforceable obligation, or rate pursuant to the Public Utility Regulatory Policies Act or any other state-administered federal regulatory program (e.g., Cross-State Air Pollution Rule). In addition, Conditioned State Support shall not be determined solely based on the business model of the Capacity Market Seller, such that the fact that a Self-Supply Entity is the Capacity Market Seller, for example, is not a basis for determining Conditioned State Support.

(iii) Upon FERC acceptance (whether by order or operation of law) that a government policy or program or contract with a state entity constitutes Conditioned State Support, a Generation Capacity Resource for which a Capacity Market Seller certifies pursuant to Tariff, Attachment DD, section 5.14(h-2)(1)(A)(i) that it is receiving Conditioned State Support or is reasonably expected to receive such Conditioned State Support, as identified by the Office of the Interconnection, with the advice and input of the Market Monitoring Unit, will be subject to the provisions of the Minimum Offer Price Rule.

(B) Exercise of Buyer-Side Market Power

(i) If a Capacity Market Seller does not certify that it acknowledges the prohibition of the Exercise of Buyer Side Market Power and the Capacity Market Seller intends to exercise Buyer-Side Market Power for this Generation Capacity Resource, then the underlying Capacity Resource shall be subject to the MOPR pursuant to Tariff, Attachment DD, section 5.14(h-2)(1)(A)(i). If the Office of the Interconnection and/or the Market Monitoring Unit reasonably suspects that a certification submitted under Tariff, Attachment DD, section 5.14(h-2)(1)(A)(ii) contains fraudulent or material misrepresentations such that the Capacity Market Seller's Generation Capacity Resource may be the subject of a Sell Offer that would be an Exercise of Buyer-Side Market Power or otherwise reasonably suspects that a Generation Capacity Resource may be the subject of a Sell Offer that would be an Exercise of Buyer-Side Market Power, the Office of the Interconnection and/or the Market Monitoring Unit shall initiate a fact-specific review into the facts and circumstances regarding the Generation Capacity Resource and whether the Capacity Market Seller has the ability and incentive to exercise Buyer-Side Market Power with respect to such Generation Capacity Resource. During such fact-specific review, the Capacity Market Seller will have the opportunity to explain and justify why a Sell Offer for the Generation Capacity Resource would not be an Exercise of Buyer-Side Market Power. The Office of the Interconnection and/or the Market Monitoring Unit shall notify the Capacity Market Seller of the bases for inquiry and initiation of review at least 135 days in advance of the RPM Auction conducted for the

2024/2025 Delivery Year and all subsequent Delivery Years, and by the date posted on the PJM website for the 2023/2024 Delivery Year.

In initiating a review, the Office of the Interconnection and/or the Market Monitoring Unit shall provide the affected Capacity Market Seller, in writing, the basis for its inquiry, including, but not limited to, the Generation Capacity Resource(s), and the purported beneficiary of any price suppression. The Office of the Interconnection and/or the Market Monitoring Unit may request from the Capacity Market Seller additional information and documentation that is reasonably related to the basis for its inquiry, provided that, the Office of the Interconnection and the Market Monitoring Unit shall confer with the Capacity Market Seller in advance of any such requests. The Capacity Market Seller shall provide any additional supporting information and documentation requested by the Office of the Interconnection and/or the Market Monitoring Unit, and any other information and documentation the Capacity Market Seller believes may justify the conduct or action in question as not representing an Exercise of Buyer-Side Market Power, within 15 days or other such timeline as agreed to in writing by the Office of the Interconnection, Market Monitoring Unit and Capacity Market Seller.

The fact-specific review will determine, as necessary, whether a Capacity Market Seller has the ability and incentive to submit a Sell Offer for the Generation Capacity Resource that could be an Exercise of Buyer-Side Market Power, as follows:

(a) To determine whether a Capacity Market Seller may have Buyer Side Market Power associated with the Generation Capacity Resource for the applicable RPM Auction, the Office of the Interconnection and/or the Market Monitoring Unit will perform ex-ante testing to determine the extent to which a shift in the supply curve by a number of megawatts equal to the size of the Generation Capacity Resource would affect RPM Auction clearing prices, where such analysis would reflect expected supply and demand conditions in the region of the market clearing prices and quantities in recent RPM Auctions, would reflect whether the relevant LDAs have been constrained in recent RPM Auctions, and would reflect reasonably expected material changes in an LDA including the modeling of the LDA and expected changes in supply and demand for the applicable Delivery Year. To the extent the foregoing analyses show that the Generation Capacity Resource would have a material effect on RPM Auction clearing prices, the Capacity Market Seller shall be deemed to have the ability to exercise Buyer Side Market Power.

(b) To determine whether the Capacity Market Seller's submission of a Sell Offer at any given price level for such Generation Capacity Resource may constitute an Exercise of Buyer-Side Market Power, the Office of the Interconnection and/or the Market Monitoring Unit shall perform ex-ante testing to determine whether, given the ability to suppress prices identified in the relevant LDAs and the PJM Region, such price suppression would be economically beneficial to the Capacity Market Seller by comparing its expected cost with its economic benefit, and where the expected cost shall reflect the excess economic costs of the resource above expected market revenues, and the expected benefit shall reflect the expected cost savings to the expected net short position (based on estimated capacity obligations and owned and contracted capacity measured on a three-year average basis for the three years starting with the first day of the Delivery Year associated with the RPM Auction in which the Generation Capacity Resource is being offered) in the relevant LDAs and RTO multiplied by the

price change resulting from offering the resource uneconomically. In this analysis, the Office of Interconnection and/or the Market Monitoring Unit shall consider whether any capacity obligations in which the capacity costs based on RPM Auction clearing prices are directly passed through to load and consider whether the price of any contracted capacity passes through RPM Auction clearing prices. If the expected benefit outweighs the expected cost, the Capacity Market Seller shall be deemed to have the incentive to exercise Buyer Side Market Power. If a resource offer can be justified, economically or otherwise, without consideration of the benefit to the Capacity Market Seller of the suppressed prices, the Capacity Market Seller shall be deemed not to have the incentive to exercise Buyer Side Market Power with respect to that resource. Out-of-market compensation (such as from renewable energy credits and zero emission credits) that are not tied to either Conditioned State Support or a bilateral contract that directs the submission of an offer to lower market clearing prices may be used to support the economics of the resource under review.

(ii) The following nonexhaustive list of circumstances would preclude an inquiry into or determination regarding an Exercise of Buyer-Side Market Power in the course of a review initiated pursuant to subsection (i) above: (a) the Generation Capacity Resource is a merchant generation supply resources that is not contracted to an entity with a Load Interest; (b) the Generation Capacity Resource is acquired by or under the contractual control of the Capacity Market Seller through a competitive and non-discriminatory procurement process open to new and existing resources; or (c) the Generation Capacity Resource is owned by or bilaterally contracted to a Self-Supply Seller and such resource is demonstrated as consistent with or included in the Self-Supply Seller's long-range resource plan (e.g., a long-range hedging plan) that is approved or otherwise reviewed and accepted by the RERRA, provided that any such plan approval or contracts do not direct the submission of an uneconomic offer to deliberately lower market clearing prices or for the Capacity Market Seller to otherwise perform an Exercise of Buyer-Side Market Power. In addition, to the extent a Generation Capacity Resource may receive compensation in support of characteristics aligned with well-demonstrated customer preferences, such compensation shall not, in and of itself, be a basis for the determination of Buyer-Side Market Power.

(iii) Based on the foregoing tests and fact-specific review, including the facts and circumstances of the Generation Capacity Resource, the Office of the Interconnection, with the advice and input of the Market Monitoring Unit, shall determine whether a Generation Capacity Resource may be the subject of a Sell Offer that would be an Exercise of Buyer-Side Market Power. If the Office of the Interconnection, with the advice and input of the Market Monitoring Unit, determines that a Generation Capacity Resource may be the subject of a Sell Offer that would be an Exercise of Buyer-Side Market Power or the Capacity Market Seller certifies that it intends to exercise Buyer-Side Market Power, then such resource will be subject to the provisions of the Minimum Offer Price Rule. If the resource will be subject to the provisions of the Minimum Offer Price Rule, the Office of the Interconnection shall include in the notice a written explanation for such determination. A Capacity Market Seller that is dissatisfied with the Office of the Interconnection's determination of whether a given Generation Capacity Resource is subject to the Minimum Offer Price Rule may seek any remedies available to it from FERC; provided, however, that the Office of the Interconnection will proceed with administration of the Tariff and market rules based on its determination hereunder unless FERC by order directs otherwise.

(C) Failure to timely submit a certification. Any Generation Capacity Resource for which a Capacity Market Seller has not timely submitted the certifications required under Tariff, Attachment DD, section 5.14(h-2)(1) shall be subject to the provisions of the Minimum Offer Price Rule. Notwithstanding the foregoing, if a Capacity Market Seller submits a timely unit-specific exception pursuant to Tariff, Attachment DD, section 5.14(h-2)(4) for the relevant Delivery Year, and PJM approves the unit-specific MOPR Floor Offer Price, then the Capacity Market Seller may use such floor price regardless of whether it timely submitted the foregoing certifications.

(3) **Minimum Offer Price Rule.** Any Sell Offer for a Generation Capacity Resource that is subject to the provisions of the Minimum Offer Price Rule pursuant to Tariff, Attachment DD, section 5.14(h-2)(2) shall have an offer price no lower than the applicable MOPR Floor Offer Price, unless the applicable MOPR Floor Offer Price is higher than the applicable Market Seller Offer Cap, in which circumstance the Capacity Market Seller, to participate in an RPM Auction, must request a unit-specific value determined in accordance with the unit-specific MOPR Floor Offer Price process, and the unit-specific MOPR Floor Offer Price shall establish the offer level for such resource.

(A) **New Entry MOPR Floor Offer Price.** For a Generation Capacity Resource that is subject to the provisions of the Minimum Offer Price Rule pursuant to Tariff, Attachment DD, section 5.14(h-2)(2) and for which a Sell Offer based on that resource, or any uprate of such Generation Capacity Resource participating in the generation interconnection process under Tariff, Part IV, Subpart A, that has not cleared an RPM Auction for any Delivery Year, the applicable MOPR Floor Offer Price, based on the net cost of new entry for the resource type, shall be, at the election of the Capacity Market Seller, (i) the unit-specific value determined in accordance with the unit-specific MOPR Floor Offer Price process in Tariff, Attachment DD, section 5.14(h-2)(4) below or (ii) if applicable, the default New Entry MOPR Floor Offer Price for the applicable resource based on the gross cost of new entry values shown in the table below, as adjusted for Delivery Years subsequent to the 2022/2023 or 2026/2027 Delivery Year, as applicable, net of estimated net energy and ancillary service revenues for the resource type and Zone in which the resource is located.

Resource Type	Through the 2025/2026 Delivery Years: Gross Cost of New Entry (2022/2023 \$/ MW-day) (Nameplate)	For the 2026/2027 Delivery Year and Subsequent Delivery Years: Gross Cost of New Entry (2026/2027 \$/ MW-day) (Nameplate)
Nuclear	\$2,000	\$2,568
Coal	\$1,068	\$1,480
Combined Cycle	\$320	\$540
Combustion Turbine	\$294	\$427
Fixed Solar PV	\$271	\$298
Tracking Solar PV	\$290	\$321
Onshore Wind	\$420	\$438

Offshore Wind	\$1,155	\$1,351
Battery Energy Storage	\$532	\$502

The gross cost of new entry values in the table above are expressed in dollars per MW-day in terms of nameplate megawatts. For purposes of submitting a Sell Offer, the gross cost of new entry values must be converted to a net cost of new entry by subtracting the estimated net energy and ancillary service revenues, as determined below, from the gross cost of new entry. However, the resultant net cost of new entry of the battery energy storage resource type in the table above must be multiplied by 2.5. The net cost of new entry based on nameplate capacity is then converted to Unforced Capacity (“UCAP”) MW-day. For the 2023/2024 and 2024/2025 Delivery Years, the net cost of new entry is adjusted using: for battery storage, wind, and solar resource types, the applicable ELCC Class Rating; or for all other generation resource types, the applicable class average EFORD. For the 2025/2026 Delivery Year and subsequent Delivery Years, the net cost of new entry is adjusted by the applicable class average Accredited UCAP Factor. The resulting default New Entry MOPR Floor Offer price in UCAP/MW-day terms shall be applied to each MW offered for the Capacity Resource regardless of the actual Sell Offer quantity and regardless of whether the Sell Offer is for a Seasonal Capacity Performance Resource.

Commencing with the Base Residual Auction for the 2023/2024 Delivery Year, the Office of the Interconnection shall adjust the default gross costs of new entry in the table above and post the preliminary estimates of the adjusted applicable default New Entry MOPR Floor Offer Prices on its website, by no later than one hundred fifty (150) days prior to the commencement of the offer period for each Base Residual Auction. To determine the adjusted applicable default New Entry MOPR Floor Offer Prices for all resource types, the Office of the Interconnection shall adjust the gross costs of new entry utilizing, for combustion turbine and combined cycle resource types, the same Applicable BLS Composite Index applied for such Delivery Year to adjust the CONE value used to determine the Variable Resource Requirement Curve, in accordance with Tariff, Attachment DD, section 5.10(a)(iv), and for all other resource types, the “BLS Producer Price Index Turbines and Turbine Generator Sets” component of the Applicable BLS Composite Index used to determine the Variable Resource Requirement Curve shall be replaced with the “BLS Producer Price Index Final Demand, Goods Less Food & Energy, Private Capital Equipment” when adjusting the gross costs of new entry. The resultant value shall then be then adjusted further by a factor of 1.022 for nuclear, coal, combustion turbine, and combine cycle resource types or 1.01 for solar, wind, and storage resource types to reflect the annual decline in bonus depreciation scheduled under federal corporate tax law. Updated estimates of the net energy and ancillary service revenues for each default resource type and applicable Zone, which shall include, but are not limited to, consideration of Fuel Costs, Maintenance Adders and Operating Costs, as applicable, pursuant to Operating Agreement, Schedule 2 shall then be subtracted from the adjusted gross costs of new entry to determine the adjusted New Entry MOPR Floor Offer Price. The net energy and ancillary services revenue is equal to the average of the annual net revenues of the three most recent calendar years preceding the Base Residual Auction, where such annual net revenues shall be determined in accordance with the following and the PJM Manuals:

(i) for nuclear resource type, the net energy and ancillary services revenue estimate shall be determined by the gross energy market revenue determined by the

product of [average annual zonal day-ahead LMP, times 8,760 hours times the annual average equivalent availability factor of all PJM nuclear resources] minus the total annual cost to produce energy determined by the product of [8,760 hours times the annual average equivalent availability factor of all PJM nuclear resources times \$9.02/MWh for a single unit plant or \$7.66/MWh for a multi-unit plant] where these hourly cost rates include fuel costs and variable operation and maintenance expenses, inclusive of Maintenance Adder costs, plus an ancillary services revenue of \$3,350/MW-year;

(ii) for coal resource type, the net energy and ancillary services revenue estimate shall be determined by a simulated dispatch of a 650 MW coal unit (with heat rate of 8,638 BTU/kWh and variable operations and maintenance variable operation and maintenance expenses, inclusive of Maintenance Adder costs, of \$9.50/MWh) using applicable coal prices, as set forth in the PJM Manuals, plus reactive services revenue of \$3,350/MW-year. The unit is committed day-ahead in profitable blocks of at least eight hours, and then committed in real-time for profitable hours if not already committed day ahead;

(iii) for combustion turbine resource type, the net energy and ancillary services revenue estimate shall be determined in a manner consistent with the methodology described in Tariff, Attachment DD, section 5.10(a)(v)(B) for the Reference Resource combustion turbine.

(iv) for combined cycle resource type, the net energy and ancillary services revenue estimate shall be determined in the same manner as that prescribed for a combustion turbine resource type, except that the heat rate assumed for the combined cycle resource shall be 6,553 BTU/kwh, the variable operations and maintenance expenses for such resource, inclusive of Maintenance Adder costs, shall be \$2.11/MWh, the Peak-Hour Dispatch scenario for both the Day-Ahead and Real-Time Energy Markets shall be modified to dispatch the CC resource continuously during the full peak-hour period, as described in Peak-Hour Dispatch, for each such period that the resource is economic (using the test set forth in such section), rather than only during the four-hour blocks within such period that such resource is economic, and the ancillary services revenue shall be \$3,350/MW-year.

(v) for solar PV resource type, the net energy and ancillary services revenue estimate shall be determined using a solar resource model that provides the average MW output level, expressed as a percentage of nameplate rating, by hour of day (for each of the 24-hours of a day) and by calendar month (for each of the twelve months of a year). The annual net energy market revenues are determined by multiplying the solar output level of each hour by the real-time zonal LMP applicable to such hour with this product summed across all of the hours of an annual period, plus an ancillary services revenue of \$3,350/MW-year. Two separate solar resource models are used, one model for a fixed panel resource and a second model for a tracking panel resource;

(vi) for onshore wind resource type, the net energy and ancillary services revenue estimate shall be determined using a wind resource model that provides the average MW output level, expressed as a percentage of nameplate rating, by hour of day (for each of the 24-hours of a day) and by calendar month (for each of the twelve months of a year). The annual energy market revenues are determined by multiplying the wind output level of each

hour by the real-time zonal LMP applicable to such hour with this product summed across all of the hours of an annual period, plus an ancillary services revenue of \$3,350/MW-year;

(vii) for offshore wind resource type, the net energy and ancillary services revenue estimate shall be the product of [the average annual zonal real-time LMP times 8,760 hours times an assumed annual capacity factor of 45%], plus an ancillary services revenue of \$3,350/MW-year; and

(viii) for Capacity Storage Resource, the net energy and ancillary services revenue estimate shall be estimated by a simulated dispatch against historical real-time zonal LMPs where the resource is assumed to be dispatched for the four hours of highest LMP of a daily twenty-four hour period if the average LMP of these four hours exceeds 120% of the average LMP of the four lowest LMP hours of the same twenty-four hour period. The net energy market revenues will be determined by the product of [hourly output of 1 MW times the hourly LMP for each hour of assumed discharging] minus the product of [hourly consumption of 1.2 MW times the hourly LMP for each hour of assumed charging] with this net value summed across all of the hours of an annual period, plus an ancillary services revenue of \$3,350/MW-year. An 83.3% efficiency of the battery energy storage resource is reflected by assuming each 1.0 MW of discharge requires 1.2 MW of charge.

Beginning with the Delivery Year that commences June 1, 2022, and continuing no later than for every fourth Delivery Year thereafter, the Office of the Interconnection shall review the default gross cost of new entry values. Such review may include, without limitation, analyses of the fixed development, construction, operation, and maintenance costs for such resource types. Based on the results of such review, PJM shall propose either to modify or retain the default gross cost of new entry values stated in the table above. The Office of the Interconnection shall post publicly and solicit stakeholder comment regarding the proposal. If, as a result of this process, changes to the default gross cost of new entry values are proposed, the Office of the Interconnection shall file such proposed modifications with the FERC by October 1, prior to the conduct of the Base Residual Auction for the first Delivery Year in which the new values would be applied.

Any Generation Capacity Resource that is subject to the provisions of the Minimum Offer Price Rule pursuant to Tariff, Attachment DD, section 5.14(h-2)(2) and that has not previously cleared an RPM Auction for that or any prior Delivery Year and for which there is no default MOPR Floor Offer Price provided in accordance with this section, including hybrid resources, must seek a unit-specific value determined in accordance with the unit-specific MOPR Floor Offer Price process below to participate in an RPM Auction. Failure to obtain a unit-specific MOPR Floor Offer Price will result in the Office of the Interconnection rejecting any Sell Offer based on such resource for the relevant RPM Auction.

(B) Cleared MOPR Floor Offer Prices.

For a Generation Capacity Resource that is subject to the provisions of the Minimum Offer Price Rule pursuant to Tariff, Attachment DD, section 5.14(h-2)(2) and for which a Sell Offer based on that resource has previously cleared an RPM Auction for any Delivery Year, the applicable Cleared MOPR Floor Offer Price shall be, at the election of

the Capacity Market Seller, (a) based on the unit-specific MOPR Floor Offer Price, as determined in accordance with Tariff, Attachment DD, section 5.14(h-2)(4) below, or (b) if available, the default Avoidable Cost Rate for the applicable resource type shown in the table below, as adjusted for Delivery Years subsequent for the 2022/2023 or 2026/2027 Delivery Year, as applicable, to reflect changes in avoidable costs, net of projected PJM market revenues equal to the resource’s historical net energy and ancillary service revenues consistent with Tariff, Attachment DD, section 6.8(d).

Existing Resource Type	Through the 2025/2026 Delivery Years: Default Gross ACR (2022/2023) (\$/MW-day) (Nameplate)	For the 2026/2027 Delivery Year and Subsequent Delivery Years: Default Gross ACR (2026/2027) (\$/ MW-day) Nameplate
Nuclear - single	\$697	\$591
Nuclear - dual	\$445	\$537
Coal	\$80	\$94
Combined Cycle	\$56	\$113
Combustion Turbine	\$50	\$52
Steam Oil & Gas	NA	\$64
Solar PV (fixed and tracking)	\$40	\$70
Wind Onshore	\$83	\$147

The default gross Avoidable Cost Rate values in the table above are expressed in dollars per MW-day in terms of nameplate megawatts. Through the 2024/2025 Delivery Year, for purposes of submitting a Sell Offer, the default Avoidable Cost Rate values must be net of estimated net energy and ancillary service revenues, and then the difference is ultimately converted to Unforced Capacity (“UCAP”) MW-day, where the UCAP MW-day value will be determined based on the resource-specific Accredited UCAP value for solar and wind resource types (with appropriate time-weighting for any winter Capacity Interconnection Rights) or the resource-specific EFORd for all other generation resource types. Effective for the 2025/2026 Delivery Year and subsequent Delivery Years, for purposes of submitting a Sell Offer, the default Avoidable Cost Rate values must be net of estimated net energy and ancillary service revenues, and then the difference is ultimately converted to Unforced Capacity (“UCAP”) MW-day, based on the resource’s Accredited UCAP Factor. The resulting default Cleared MOPR Floor Offer price in UCAP/MW-day terms shall be applied to each MW offered for the Capacity Resource regardless of actual Sell Offer quantity and regardless of whether the Sell Offer is for a Seasonal Capacity Performance Resource.

Commencing with the Base Residual Auction for the 2023/2024 Delivery Year, the Office of the Interconnection shall adjust the default Avoidable Cost Rates in the table above, and post the adjusted values on its website, by no later than one hundred fifty (150) days prior to the commencement of the offer period for each Base Residual Auction. To determine the adjusted Avoidable Cost Rates, the Office of the Interconnection shall utilize the 10-year average Handy-

Whitman Index in order to adjust the Gross ACR values to account for expected inflation. Updated estimates of the net energy and ancillary service revenues shall be determined on a resource-specific basis in accordance with Tariff, Attachment DD, section 6.8(d) and the PJM Manuals.

Beginning with the Delivery Year that commences June 1, 2022, and continuing no later than for every fourth Delivery Year thereafter, the Office of the Interconnection shall review the default Avoidable Cost Rates for Capacity Resource that is subject to the provisions of the Minimum Offer Price Rule pursuant to Tariff, Attachment DD, section 5.14(h-2)(2) that have cleared in an RPM Auction for any Delivery Year. Such review may include, without limitation, analyses of the avoidable costs of such resource types. Based on the results of such review, PJM shall propose either to modify or retain the default Avoidable Cost Rate values stated in the table above. The Office of the Interconnection shall post publicly and solicit stakeholder comment regarding the proposal. If, as a result of this process, changes to the default Avoidable Cost Rate values are proposed, the Office of the Interconnection shall file such proposed modifications with the FERC by October 1, prior to the conduct of the Base Residual Auction for the first Delivery Year in which the new values would be applied.

Any Generation Capacity Resource that is subject to the provisions of the Minimum Offer Price Rule pursuant to Tariff, Attachment DD, section 5.14(h-2)(2) and that has previously cleared an RPM Auction for any Delivery Year and for which there is no default MOPR Floor Offer Price provided in accordance with this section, including hybrid resources, must seek a unit-specific value determined in accordance with the unit-specific MOPR Floor Offer Price process below to participate in an RPM Auction. Failure to obtain a unit-specific MOPR Floor Offer Price will result in the Office of the Interconnection rejecting any Sell Offer based on such resource.

(4) **Unit-Specific Exception.** A Capacity Market Seller intending to submit a Sell Offer in any RPM Auction for a Generation Capacity Resource that is subject to the provisions of the Minimum Offer Price Rule below the applicable default MOPR Floor Offer Price may, at its election, submit a request for a unit-specific exception for such Capacity Resource. A Capacity Market Seller intending to submit a Sell Offer in any RPM Auction for a Generation Capacity Resource that is under a fact-specific review for Buyer-Side Market Power pursuant to Tariff, Attachment DD, section 5.14(h-2)(2)(B)(ii), and where the offer is below the applicable default MOPR Floor Offer Price may, at its election, submit a request for a unit-specific exception for such Generation Capacity Resource. A Sell Offer below the default MOPR Floor Offer Price, but no lower than the unit-specific MOPR Floor Offer Price, shall be permitted if the Capacity Market Seller obtains approval from the Office of the Interconnection or the Commission, prior to the RPM Auction in which it seeks to submit the Sell Offer. The unit-specific MOPR Floor Offer Price determined under this provision shall be based on the unit-specific Accredited UCAP value for battery energy storage resource types and for solar and wind generation resource types (appropriately time-weighted for any winter Capacity Interconnection Rights) or on the unit-specific EFORd for all other generation resource types, and shall be applied to each MW offered by the resource regardless of actual Sell Offer quantity and regardless of whether the Sell Offer is for a Seasonal Capacity Performance Resource. Such Sell Offer is permissible because it is consistent with the competitive, cost-based, fixed, net cost of the resource. All supporting data must be provided for all requests. The following requirements shall apply to requests for such determinations:

(A) The Capacity Market Seller shall submit a written request with all of the required documentation as described below and in the PJM Manuals. For such purpose, the Capacity Market Seller shall submit the unit-specific exception request to the Office of the Interconnection and the Market Monitoring Unit no later than one hundred twenty (120) days prior to the commencement of the offer period for the RPM Auction in which it seeks to submit its Sell Offer. For such purpose, the Office of the Interconnection shall post, by no later than one hundred fifty (150) days prior to the commencement of the offer period for the relevant RPM Auction, a preliminary estimate for the relevant Delivery Year of the default Minimum Floor Offer Prices, determined pursuant to Tariff, Attachment DD, sections 5.14(h-2)(3)(A) and (B). If the final applicable default Minimum Floor Offer Price subsequently established for the relevant Delivery Year is less than the Sell Offer, the Sell Offer shall be permitted and no exception shall be required.

(B) For a unit-specific exception for a Generation Capacity Resource that is subject to the provisions of the Minimum Offer Price Rule pursuant to Tariff, Attachment DD, section 5.14(h-2)(2) and that has never cleared an RPM Auction, the Capacity Market Seller must include in its request for an exception under this subsection documentation to support the fixed development, construction, operation, and maintenance costs of the Capacity Resource, as well as estimates of offsetting net revenues.

The financial modeling assumptions for calculating Cost of New Entry for Generation Capacity Resources shall be: (i) nominal levelization of gross costs, (ii) asset life of twenty years, (iii) no residual value, (iv) all project costs included with no sunk costs excluded, (v) use first year revenues (which may include revenues from the sale of renewable energy credits or any other revenues outside of PJM markets that do not constitute Conditioned State Support), and (vi) weighted average cost of capital based on the actual cost of capital for the entity proposing to build the Capacity Resource. Notwithstanding the foregoing, a Capacity Market Seller that seeks to utilize an asset life other than twenty years (but no greater than 35 years) shall provide evidence to support the use of a different asset life, including but not limited to, the asset life term for such resource as utilized in the Capacity Market Seller's financial accounting (e.g., independently audited financial statements), or project financing documents for the resource or evidence of actual costs or financing assumptions of recent comparable projects to the extent the seller has not executed project financing for the resource (e.g., independent project engineer opinion or manufacturer's performance guarantee), or opinions of third-party experts regarding the reasonableness of the financing assumptions used for the project itself or in comparable projects. Capacity Market Sellers may also rely on evidence presented in federal filings, such as its FERC Form No. 1 or an SEC Form 10-K, to demonstrate an asset life other than 20 years of similar asset projects.

Supporting documentation for project costs may include, as applicable and available, a complete project description; environmental permits; vendor quotes for plant or equipment; evidence of actual costs of recent comparable projects; bases for electric and gas interconnection costs and any cost contingencies; bases and support for property taxes, insurance, operations and maintenance ("O&M") contractor costs, and other fixed O&M and administrative or general costs; financing documents for construction-period and permanent financing or evidence of recent debt costs of the seller for comparable investments; and the bases and support for the

claimed capitalization ratio, rate of return, cost-recovery period, inflation rate, or other parameters used in financial modeling. In addition to the certification, signed by an officer of the Capacity Market Seller, the request must include a certification that the claimed costs accurately reflect, in all material respects, the seller's reasonably expected costs of new entry and that the request satisfies all standards for a unit-specific exception hereunder. The request also shall identify all revenue sources (exclusive of any Conditioned State Support or bilateral contracts that direct submission of an offer to lower RPM Auction clearing prices) relied upon in the Sell Offer to offset the claimed fixed costs, including, without limitation, long-term power supply contracts, tolling agreements, evidence of compensation outside the PJM market not tied to Conditioned State Support or a bilateral contract that directs submission of an offer to lower RPM Auction clearing prices, or tariffs on file with state regulatory agencies, and shall demonstrate that such offsetting revenues are consistent, over a reasonable time period identified by the Capacity Market Seller, with the standard prescribed above. In making such demonstration, the Capacity Market Seller may rely upon forecasts of competitive electricity prices in the PJM Region based on well-defined models that include fully documented estimates of future fuel prices, variable operation and maintenance expenses, which may include Maintenance Adders, energy demand, emissions allowance prices, and expected environmental or energy policies that affect the seller's forecast of electricity prices in such region, employing input data from sources readily available to the public. Documentation for net revenues also may include, as available and applicable, plant performance and capability information, including heat rate, start-up times and costs, forced outage rates, planned outage schedules, maintenance cycle, fuel costs and other variable operations and maintenance expenses, and ancillary service capabilities. Any evaluation of net revenues should be consistent with Operating Agreement, Schedule 2, including, but not limited to, consideration of Fuel Costs, Maintenance Adders and Operating Costs, as applicable.

(C) For a Unit-Specific Exception for a Generation Capacity Resource that is subject to the provisions of the Minimum Offer Price Rule pursuant to Tariff, Attachment DD, section 5.14(h-2)(2) and that has previously cleared an RPM Auction, the Capacity Market Seller shall submit a Sell Offer consistent with the unit-specific Market Seller Offer Cap process pursuant to Tariff, Attachment DD, section 6.8; except that the 10% uncertainty adder may not be included in the "Adjustment Factor." In addition and notwithstanding the requirements of Tariff, Attachment DD, section 6.8, the Capacity Market Seller may, at its election, include in its request for an exception under this subsection documentation to support projected energy and ancillary services markets revenues. Such a request shall identify all revenue sources (exclusive of any Conditioned State Support or bilateral contracts that direct submission of an offer to lower RPM Auction clearing prices) relied upon in the Sell Offer to offset the claimed fixed costs, including, without limitation, long-term power supply contracts, tolling agreements, evidence of compensation outside of PJM markets not tied to Conditioned State Support or a bilateral contract that directs submission of an offer to lower RPM Auction clearing prices, or tariffs on file with state regulatory agencies, and shall demonstrate that such offsetting revenues are consistent, over a reasonable time period identified by the Capacity Market Seller, with the standard prescribed above. In making such demonstration, the Capacity Market Seller may rely upon forecasts of competitive electricity prices in the PJM Region based on well-defined models that include fully documented estimates of future fuel prices, variable operation and maintenance expenses, energy demand, which may include Maintenance Adders, and emissions allowance prices, and expected environmental or energy policies that affect the seller's forecast of

electricity prices in such region, employing input data from sources readily available to the public. Documentation for net revenues also may include, as available and applicable, plant performance and capability information, including heat rate, start-up times and costs, forced outage rates, planned outage schedules, maintenance cycle, fuel costs and other variable operations and maintenance expenses, and ancillary service capabilities. Any evaluation of revenues should include, but would not be not limited to, consideration of Fuel Costs, Maintenance Adders and Operating Costs, as applicable, pursuant to Operating Agreement, Schedule 2.

(D) A Sell Offer evaluated at the unit-specific exception shall be permitted if the information provided reasonably demonstrates that the Sell Offer's competitive, fixed, cost-based offer level is below the default MOPR Floor Offer Price, based on competitive cost advantages relative to the costs estimated by the default MOPR Floor Offer Price, including, without limitation, competitive cost advantages resulting from the Capacity Market Seller's business model, financial condition, tax status, access to capital or other similar conditions affecting the applicant's costs, or based on net revenues that are reasonably demonstrated hereunder to be higher than those estimated by the default MOPR Floor Offer Price. Capacity Market Sellers shall demonstrate that claimed cost advantages or sources of net revenue that are irregular or anomalous, that do not reflect arm's-length transactions, or that are not in the ordinary course of the Capacity Market Seller's business are consistent with the standards of this subsection, and that out-of-market compensation is not tied to Conditioned State Support or a bilateral contract that directs submission of an offer to lower RPM Auction clearing prices. Failure to adequately support such claimed cost advantages or revenues so as to enable the Office of the Interconnection to make the determination required in this section will result in the elimination of consideration of the unsupported element(s) of a unit-specific exception by the Office of the Interconnection.

(E) The Capacity Market Seller must submit a sworn, notarized certification of a duly authorized officer, certifying that the officer has personal knowledge of the unit-specific exception request and that to the best of his/her knowledge and belief: (1) the information supplied to the Market Monitoring Unit and the Office of Interconnection to support its request for an exception is true and correct; (2) the Capacity Market Seller has disclosed all material facts relevant to the request for the exception; and (3) the request satisfies the criteria for the exception.

(F) The Market Monitoring Unit shall review, in an open and transparent manner with the Capacity Market Seller and the Office of the Interconnection, the information and documentation in support of the request and shall provide its findings whether the proposed Sell Offer is acceptable, in accordance with the standards and criteria hereunder, in writing, to the Capacity Market Seller and the Office of the Interconnection by no later than ninety (90) days prior to the commencement of the offer period for such auction. The Office of the Interconnection shall also review, in an open and transparent manner, all exception requests and documentation and shall provide in writing to the Capacity Market Seller, and the Market Monitoring Unit, its determination whether the requested Sell Offer is acceptable and if not it shall calculate and provide to such Capacity Market Seller, a minimum Sell Offer based on the data and documentation received, by no later than sixty-five (65) days prior to the

commencement of the offer period for the relevant RPM Auction. After the Office of the Interconnection determines with the advice and input of Market Monitor, the acceptable minimum Sell Offer, the Capacity Market Seller shall notify the Market Monitoring Unit and the Office of the Interconnection, in writing, of the minimum level of Sell Offer to which it agrees to commit by no later than sixty (60) days prior to the commencement of the offer period for the relevant RPM Auction, and in making such determination, the Capacity Market Seller may consider the applicable default MOPR Floor Offer Price and may select such default value if it is lower than the unit-specific determination. A Capacity Market Seller that is dissatisfied with any determination hereunder may seek any remedies available to it from FERC; provided, however, that the Office of the Interconnection will proceed with administration of the Tariff and market rules based on the lower of the applicable default MOPR Floor Offer Price and the unit-specific determination unless and until ordered to do otherwise by FERC.

i) Capacity Export Charges and Credits

(1) Charge

Each Capacity Export Transmission Customer shall incur for each day of each Delivery Year a Capacity Export Charge equal to the Reserved Capacity of Long-Term Firm Transmission Service used for such export (“Export Reserved Capacity”) multiplied by (the Final Zonal Capacity Price for such Delivery Year for the Zone encompassing the interface with the Control Area to which such capacity is exported minus the Final Zonal Capacity Price for such Delivery Year for the Zone in which the resources designated for export are located, but not less than zero). If more than one Zone forms the interface with such Control Area, then the amount of Reserved Capacity described above shall be apportioned among such Zones for purposes of the above calculation in proportion to the flows from such resource through each such Zone directly to such interface under CETO/CETL analysis conditions, as determined by the Office of the Interconnection using procedures set forth in the PJM Manuals. The amount of the Reserved Capacity that is associated with a fully controllable facility that crosses such interface shall be completely apportioned to the Zone within which such facility terminates.

(2) Credit

To recognize the value of firm Transmission Service held by any such Capacity Export Transmission Customer, such customer assessed a charge under section 5.14(i)(1) above also shall receive a credit, comparable to the Capacity Transfer Rights provided to Load-Serving Entities under Tariff, Attachment DD, section 5.15. Such credit shall be equal to the locational capacity price difference specified in section 5.14(i)(1) above times the Export Customer's Allocated Share determined as follows:

Export Customer's Allocated Share equals

$(\text{Export Path Import} * \text{Export Reserved Capacity}) /$

$(\text{Export Reserved Capacity} + \text{Daily Unforced Capacity Obligations of all LSEs in such Zone}).$

Where:

“Export Path Import” means the megawatts of Unforced Capacity imported into the export interface Zone from the Zone in which the resource designated for export is located.

If more than one Zone forms the interface with such Control Area, then the amount of Export Reserved Capacity shall be apportioned among such Zones for purposes of the above calculation in the same manner as set forth in subsection (i)(1) above.

(3) Distribution of Revenues

Any revenues collected from the Capacity Export Charge with respect to any capacity export for a Delivery Year, less the credit provided in subsection (i)(2) for such Delivery Year, shall be distributed to the Load Serving Entities in the export-interface Zone that were assessed a

Locational Reliability Charge for such Delivery Year, pro rata based on the Daily Unforced Capacity Obligations of such Load-serving Entities in such Zone during such Delivery Year. If more than one Zone forms the interface with such Control Area, then the revenues shall be apportioned among such Zones for purposes of the above calculation in the same manner as set forth in subsection (i)(1) above.

Section of the
PJM Operating Agreement

Effective July 1, 2024

1.4B [Reserved.]

Sections of the
PJM Reliability Assurance Agreement

Effective July 1, 2023

ARTICLE 1 – DEFINITIONS

Unless the context otherwise specifies or requires, capitalized terms used herein shall have the respective meanings assigned herein or in the Schedules hereto, or in the PJM Tariff or PJM Operating Agreement if not otherwise defined in this Agreement, for all purposes of this Agreement (such definitions to be equally applicable to both the singular and the plural forms of the terms defined). Unless otherwise specified, all references herein to Articles, Sections or Schedules, are to Articles, Sections or Schedules of this Agreement. As used in this Agreement:

Accredited UCAP:

“Accredited UCAP” shall mean the quantity of Unforced Capacity, as denominated in Effective UCAP, that an ELCC Resource is capable of providing in a given Delivery Year.

Agreement:

“Agreement” shall mean this Reliability Assurance Agreement, together with all Schedules hereto, as amended from time to time.

Annual Demand Resource:

“Annual Demand Resource” shall mean a resource that is placed under the direction of the Office of the Interconnection during the Delivery Year, and will be available for an unlimited number of interruptions during such Delivery Year by the Office of the Interconnection, and will be capable of maintaining each such interruption between the hours of 10:00AM to 10:00PM Eastern Prevailing Time for the months of June through October and the following May, and 6:00AM through 9:00PM Eastern Prevailing Time for the months of November through April unless there is an Office of the Interconnection approved maintenance outage during October through April. The Annual Demand Resource must be available in the corresponding Delivery year to be offered for sale or Self-Supplied in an RPM Auction, or included as an Annual Demand Resource in an FRR Capacity Plan for the corresponding Delivery Year.

Annual Energy Efficiency Resource:

“Annual Energy Efficiency Resource” shall mean a project, including installation of more efficient devices or equipment or implementation of more efficient processes or systems, meeting the requirements of Reliability Assurance Agreement, Schedule 6 and exceeding then-current building codes, appliance standards, or other relevant standards, designed to achieve a continuous (during the summer and winter periods described in such Schedule 6 and the PJM Manuals) reduction in electric energy consumption that is not reflected in the peak load forecast prepared for the Delivery Year for which the Energy Efficiency Resource is proposed, and that is fully implemented at all times during such Delivery Year, without any requirement of notice, dispatch, or operator intervention.

Applicable Regional Entity:

“Applicable Regional Entity” shall have the same meaning as in the PJM Tariff.

Base Capacity Demand Resource:

“Base Capacity Demand Resource” shall mean, for the 2018/2019 and 2019/2020 Delivery Years, a resource that is placed under the direction of the Office of the Interconnection and that will be available June through September of a Delivery Year, and will be available to the Office of the Interconnection for an unlimited number of interruptions during such months, and will be capable of maintaining each such interruption for at least a 10-hour duration between the hours of 10:00AM to 10:00PM Eastern Prevailing Time. The Base Capacity Demand Resource must be available June through September in the corresponding Delivery Year to be offered for sale or self-supplied in an RPM Auction, or included as a Base Capacity Demand Resource in an FRR Capacity Plan for the corresponding Delivery Year.

Base Capacity Energy Efficiency Resource:

“Base Capacity Energy Efficiency Resource” shall mean, for the 2018/2019 and 2019/2020 Delivery Years, a project, including installation of more efficient devices or equipment or implementation of more efficient processes or systems, meeting the requirements of RAA, Schedule 6 and exceeding then-current building codes, appliance standards, or other relevant standards, designed to achieve a continuous (during the summer peak periods as described in Reliability Assurance Agreement, Schedule 6 and the PJM Manuals) reduction in electric energy consumption that is not reflected in the peak load forecast prepared for the Delivery Year for which the Base Capacity Energy Efficiency Resource is proposed, and that is fully implemented at all times during such Delivery Year, without any requirement of notice, dispatch, or operator intervention.

Base Capacity Resource:

“Base Capacity Resource” shall have the same meaning as in Tariff, Attachment DD.

Base Residual Auction:

“Base Residual Auction” shall have the same meaning as in Tariff, Attachment DD.

Behind The Meter Generation:

“Behind The Meter Generation” shall refer to a generating unit that delivers energy to load without using the Transmission System or any distribution facilities (unless the entity that owns or leases the distribution facilities consented to such use of the distribution facilities and such consent has been demonstrated to the satisfaction of the Office of the Interconnection; provided, however, that Behind The Meter Generation does not include (i) at any time, any portion of such generating unit’s capacity that is designated as a Capacity Resource or (ii) in any hour, any portion of the output of such generating unit that is sold to another entity for consumption at another electrical location or into the PJM Interchange Energy Market.

Black Start Capability:

“Black Start Capability” shall mean the ability of a generating unit or station to go from a shutdown condition to an operating condition and start delivering power without assistance from the power system.

Capacity Emergency Transfer Objective (CETO):

“Capacity Emergency Transfer Objective” or “CETO” shall mean the amount of electric energy that a given area must be able to import in order to remain within a loss of load expectation of one event in 25 years when the area is experiencing a localized capacity emergency, as determined in accordance with the PJM Manuals. Without limiting the foregoing, CETO shall be calculated based in part on EFORD determined in accordance with Reliability Assurance Agreement, Schedule 5, Paragraph C.

Capacity Emergency Transfer Limit (CETL):

Capacity Emergency Transfer Limit” or “CETL” shall mean the capability of the transmission system to support deliveries of electric energy to a given area experiencing a localized capacity emergency as determined in accordance with the PJM Manuals.

Capacity Import Limit:

For any Delivery Year up to and including the 2019/2020 Delivery Year, “Capacity Import Limit” shall mean, (a) for the PJM Region, (1) the maximum megawatt quantity of external Generation Capacity Resources that PJM determines for each Delivery Year, through appropriate modeling and the application of engineering judgment, the transmission system can receive, in aggregate at the interface of the PJM Region with all external balancing authority areas and deliver to load in the PJM Region under capacity emergency conditions without violating applicable reliability criteria on any bulk electric system facility of 100kV or greater, internal or external to the PJM Region, that has an electrically significant response to transfers on such interface, minus (2) the then-applicable Capacity Benefit Margin; and (b) for certain source zones identified in the PJM manuals as groupings of one or more balancing authority areas, (1) the maximum megawatt quantity of external Generation Capacity Resources that PJM determines the transmission system can receive at the interface of the PJM Region with each such source zone and deliver to load in the PJM Region under capacity emergency conditions without violating applicable reliability criteria on any bulk electric system facility of 100kV or greater, internal or external to the PJM Region, that has an electrically significant response to transfers on such interface, minus the then-applicable Capacity Benefit Margin times (2) the ratio of the maximum import quantity from each such source zone divided by the PJM total maximum import quantity. As more fully set forth in the PJM Manuals, PJM shall make such determination based on the latest peak load forecast for the studied period, the same computer simulation model of loads, generation and transmission topography employed in the determination of Capacity Emergency Transfer Limit for such Delivery Year, including external facilities from an industry standard model of the loads, generation, and transmission topography of the Eastern Interconnection under peak conditions. PJM shall specify in the PJM Manuals the

areas and minimum distribution factors for identifying monitored bulk electric system facilities that have an electrically significant response to such transfers on the PJM interface. Employing such tools, PJM shall model increased power transfers from external areas into PJM to determine the transfer level at which one or more reliability criteria is violated on any monitored bulk electric system facilities that have an electrically significant response to such transfers. For the PJM Region Capacity Import Limit, PJM shall optimize transfers from other source areas not experiencing any reliability criteria violations as appropriate to increase the Capacity Import Limit. The aggregate megawatt quantity of transfers into PJM at the point where any increase in transfers on the interface would violate reliability criteria will establish the Capacity Import Limit. Notwithstanding the foregoing, a Capacity Resource located outside the PJM Region shall not be subject to the Capacity Import Limit if the Capacity Market Seller seeks an exception thereto by demonstrating to PJM, by no later than five (5) business days prior to the commencement of the offer period for the relevant RPM Auction, that such resource meets all of the following requirements:

(i) it has, at the time such exception is requested, met all applicable requirements to be pseudo-tied into the PJM Region, or the Capacity Market Seller has committed in writing that it will meet such requirements, unless prevented from doing so by circumstances beyond the control of the Capacity Market Seller, prior to the relevant Delivery Year;

(ii) at the time such exception is requested, it has long-term firm transmission service confirmed on the complete transmission path from such resource into PJM; and

(iii) it is, by written commitment of the Capacity Market Seller, subject to the same obligations imposed on Generation Capacity Resources located in the PJM Region by Tariff, Attachment DD, section 6.6 to offer their capacity into RPM Auctions; provided, however, that (a) the total megawatt quantity of all exceptions granted hereunder for a Delivery Year, plus the Capacity Import Limit for the applicable interface determined for such Delivery Year, may not exceed the total megawatt quantity of Network External Designated Transmission Service on such interface that PJM has confirmed for such Delivery Year; and (b) if granting a qualified exception would result in a violation of the rule in clause (a), PJM shall grant the requested exception but reduce the Capacity Import Limit by the quantity necessary to ensure that the total quantity of Network External Designated Transmission Service is not exceeded.

Capacity Only Option:

“Capacity Only Option” shall mean participation in Emergency Load Response Program or Pre-Emergency Program which allows, pursuant to Tariff, Attachment DD and as applicable, a capacity payment for the ability to reduce load during a pre-emergency or emergency event.

Capacity Performance Resource:

“Capacity Performance Resource” shall have the same meaning as in Tariff, Attachment DD.

Capacity Resources:

“Capacity Resources” shall mean megawatts of (i) net capacity from Existing Generation Capacity Resources or Planned Generation Capacity Resources meeting the requirements of the Reliability Assurance Agreement, Schedules 9 and Reliability Assurance Agreement, Schedule 10 that are or will be owned by or contracted to a Party and that are or will be committed to satisfy that Party's obligations under the Reliability Assurance Agreement, or to satisfy the reliability requirements of the PJM Region, for a Delivery Year; (ii) net capacity from Existing Generation Capacity Resources or Planned Generation Capacity Resources not owned or contracted for by a Party which are accredited to the PJM Region pursuant to the procedures set forth in such Schedules 9 and 10; or (iii) load reduction capability provided by Demand Resources or Energy Efficiency Resources that are accredited to the PJM Region pursuant to the procedures set forth in the Reliability Assurance Agreement, Schedule 6.

Capacity Storage Resource Class:

“Capacity Storage Resource Class” shall mean the ELCC Classes specified in Schedule 9.1, section B of this Agreement, each of which is composed of Capacity Storage Resources with the same specified characteristic duration of 4, 6, 8, and 10 hours. The characteristic duration of an Energy Storage Resource Class is the ratio of the modeled MWh energy storage capability of members of the class to the modeled MW power capability of members of the class.

Capacity Transfer Right:

“Capacity Transfer Right” shall have the meaning specified in Tariff, Attachment DD.

Combination Resource:

“Combination Resource” shall mean a Generation Capacity Resource that has a component that has the characteristics of a Limited Duration Resource combined with (i) a component that has the characteristics of an Unlimited Resource or (ii) a component that has the characteristics of a Variable Resource.

Compliance Aggregation Area (CAA):

“Compliance Aggregation Area” or “CAA” shall have the same meaning as in the Tariff.

Complex Hybrid Class:

“Complex Hybrid Class” shall mean an ELCC Class composed of Combination Resources that combine three or more components, whereby one component is a class of Limited Duration Resource, and the other components are different Variable Resource classes, and such Combination Resources cannot be included in any other Combination Resource class. A resource that is a member of a Complex Hybrid Class has a single Point Of Interconnection, unless the resource is controlled in an integrated fashion, is at a single site, and is approved by PJM to be considered a single resource in accordance with the PJM Manuals.

Consolidated Transmission Owners Agreement, PJM Transmission Owners Agreement or Transmission Owners Agreement:

“Consolidated Transmission Owners Agreement,” “PJM Transmission Owners Agreement” or “Transmission Owners Agreement” shall mean that certain Consolidated Transmission Owners Agreement, dated as of December 15, 2005, by and among the Transmission Owners and by and between the Transmission Owners and PJM Interconnection, L.L.C. on file with the Commission, as amended from time to time.

Control Area:

“Control Area” shall mean an electric power system or combination of electric power systems bounded by interconnection metering and telemetry to which a common generation control scheme is applied in order to:

(a) match the power output of the generators within the electric power system(s) and energy purchased from entities outside the electric power system(s), with the load within the electric power system(s);

(b) maintain scheduled interchange with other Control Areas, within the limits of Good Utility Practice;

(c) maintain the frequency of the electric power system(s) within reasonable limits in accordance with Good Utility Practice and the criteria of NERC and each Applicable Regional Entity;

(d) maintain power flows on transmission facilities within appropriate limits to preserve reliability; and

(e) provide sufficient generating capacity to maintain operating reserves in accordance with Good Utility Practice.

Daily Unforced Capacity Obligation:

“Daily Unforced Capacity Obligation” shall mean the capacity obligation of a Load Serving Entity during the Delivery Year, determined in accordance with the Reliability Assurance Agreement, Schedule 8 or, as to an FRR Entity, in the Reliability Assurance Agreement, Schedule 8.1.

Delivery Year:

“Delivery Year” shall mean a Planning Period for which a Capacity Resource is committed pursuant to the auction procedures specified in Tariff, Attachment DD or pursuant to an FRR Capacity Plan under RAA, Schedule 8.1.

Demand Resource (DR):

“Demand Resource” or “DR” shall mean a Limited Demand Resource, Extended Summer Demand Resource, Annual Demand Resource, Base Capacity Demand Resource or Summer-Period Demand Resource with a demonstrated capability to provide a reduction in demand or otherwise control load in accordance with the requirements of RAA, Schedule 6 that offers and that clears load reduction capability in a Base Residual Auction or Incremental Auction or that is committed through an FRR Capacity Plan.

Demand Resource Factor or DR Factor:

“Demand Resource Factor” or “DR Factor” shall mean, for Delivery Years through May 31, 2018, that factor approved from time to time by the PJM Board used to determine the unforced capacity value of a Demand Resource in accordance with Reliability Assurance Agreement, Schedule 6

Demand Resource Officer Certification Form:

“Demand Resource Officer Certification Form” shall mean a certification as to an intended Demand Resource Sell Offer, in accordance with Reliability Assurance Agreement, Schedule 6 and Reliability Assurance Agreement, Schedule 8.1 and the PJM Manuals.

Demand Resource Registration:

“Demand Resource Registration” shall mean a registration in the Full Program Option or Capacity Only Option of the Emergency or Pre-Emergency Load Resource Program in accordance with Tariff, Attachment K-Appendix, section 8.

Demand Resource Sell Offer Plan:

“Demand Resource Sell Offer Plan” shall mean the plan required by Reliability Assurance Agreement, Schedule 6 and Reliability Assurance Agreement, Schedule 8.1 in support of an intended offer of Demand Resources in an RPM Auction, or an intended inclusion of Demand Resources in an FRR Capacity Plan.

Effective Nameplate Capacity:

“Effective Nameplate Capacity” shall mean (i) for each Variable Resource and Combination Resource, the resource’s Maximum Facility Output; (ii) for each Limited Duration Resource, the sustained level of output that the unit can provide and maintain over a continuous period, whereby the duration of that continuous period matches the characteristic duration of the corresponding ELCC Class, with consideration given to ambient conditions expected to exist at the time of PJM system peak load, to the extent that such conditions impact such resource’s capability.

Effective UCAP:

“Effective UCAP” shall mean a unit of measure that represents the capacity product transacted in the Reliability Pricing Model and included in FRR Capacity Plans. One megawatt of Effective UCAP has the same capacity value of one megawatt of Unforced Capacity.

ELCC Class:

“ELCC Class” shall mean a defined group of ELCC Resources that share a common set of operational characteristics and for which effective load carrying capability analysis, as set forth in RAA, Schedule 9.1, will establish a unique ELCC Class UCAP and corresponding ELCC Class Rating(s). ELCC Classes shall be defined in the Schedule 9.1, section B of this Agreement. Members of an ELCC Class shall share a common method of calculating the ELCC Resource Performance Adjustment, provided that the individual ELCC Resource Performance Adjustment values will generally differ among ELCC Resources.

ELCC Class Rating:

“ELCC Class Rating” shall mean the rating factor, based on effective load carrying capability analysis, that applies to ELCC Resources that are members of an ELCC Class as part of the calculation of their Accredited UCAP.

ELCC Class UCAP:

“ELCC Class UCAP” shall mean the aggregate Effective UCAP all modeled ELCC Resources in a given ELCC Class are capable of providing in a given Delivery Year.

ELCC Portfolio UCAP:

“ELCC Portfolio UCAP” shall mean the aggregate Effective UCAP that all modeled ELCC Resources are capable of providing in a given Delivery Year.

ELCC Resource:

“ELCC Resource” shall mean a Generation Capacity Resource that is a Variable Resource, a Limited Duration Resource, or a Combination Resource.

ELCC Resource Performance Adjustment:

“ELCC Resource Performance Adjustment” shall mean the performance of a specific ELCC Resource relative to the aggregate performance of the ELCC Class to which it belongs as further described in RAA, Schedule 9.1, section F.

Electric Cooperative:

“Electric Cooperative” shall mean an entity owned in cooperative form by its customers that is engaged in the generation, transmission, and/or distribution of electric energy.

Electric Distributor:

“Electric Distributor” shall mean a Member that 1) owns or leases with rights equivalent to ownership of electric distribution facilities that are used to provide electric distribution service to electric load within the PJM Region; or 2) is a generation and transmission cooperative or a joint municipal agency that has a member that owns electric distribution facilities used to provide electric distribution service to electric load within the PJM Region.

Emergency:

“Emergency” shall mean (i) an abnormal system condition requiring manual or automatic action to maintain system frequency, or to prevent loss of firm load, equipment damage, or tripping of system elements that could adversely affect the reliability of an electric system or the safety of persons or property; or (ii) a fuel shortage requiring departure from normal operating procedures in order to minimize the use of such scarce fuel; or (iii) a condition that requires implementation of emergency procedures as defined in the PJM Manuals.

End-Use Customer:

“End-Use Customer” shall mean a Member that is a retail end-user of electricity within the PJM Region. For purposes of Members Committee sector classification, a Member that is a retail end-user that owns generation may qualify as an End-Use customer if: (1) the average physical unforced capacity owned by the Member and its affiliates in the PJM region over the five Planning Periods immediately preceding the relevant Planning Period does not exceed the average PJM capacity obligation for the Member and its affiliates over the same time period; or (2) the average energy produced by the Member and its affiliates within the PJM region over the five Planning Periods immediately preceding the relevant Planning Period does not exceed the average energy consumed by that Member and its affiliates within the PJM region over the same time period. The foregoing notwithstanding, taking retail service may not be sufficient to qualify a Member as an End-Use Customer.

Energy Efficiency Resource:

“Energy Efficiency Resource” shall mean a project, including installation of more efficient devices or equipment or implementation of more efficient processes or systems, meeting the requirements of RAA, Schedule 6 and exceeding then-current building codes, appliance standards, or other relevant standards, designed to achieve a continuous (during the periods described in Reliability Assurance Agreement, Schedule 6 and the PJM Manuals) reduction in electric energy consumption that is not reflected in the peak load forecast prepared for the Delivery Year for which the Energy Efficiency Resource is proposed, and that is fully implemented at all times during such Delivery Year, without any requirement of notice, dispatch, or operator intervention. Annual Energy Efficiency Resources, Base Capacity Energy Efficiency Resources and Summer-Period Energy Efficiency Resources are types of Energy Efficiency Resources.

Exigent Water Storage:

“Exigent Water Storage” shall mean water stored in the pondage or reservoir of a hydropower resource which is not typically available during normal operating conditions (as those conditions are described in the relevant FERC hydropower license), but which can be drawn upon during emergency conditions (as described in the FERC hydropower license), including in order to avoid a load shed. In an effective load carrying capability analysis, exigent storage capability from an upstream hydro facility can be considered relative to a downstream hydro facility by assessing cascading storage and flows.

Existing Demand Resource:

“Existing Demand Resource” shall mean a Demand Resource for which the Demand Resource Provider has identified existing end-use customer sites that are registered for the current Delivery Year with PJM (even if not registered by such Demand Resource Provider) and that the Demand Resource Provider reasonably expects to have under a contract to reduce load based on PJM dispatch instructions by the start of the Delivery Year for which such resource is offered.

Existing Generation Capacity Resource:

“Existing Generation Capacity Resource” shall mean, for purposes of the must-offer requirement and mitigation of offers for any RPM Auction for a Delivery Year, a Generation Capacity Resource that, as of the date on which bidding commences for such auction: (a) is in service; or (b) is not yet in service, but has cleared any RPM Auction for any prior Delivery Year. A Generation Capacity Resource shall be deemed to be in service if interconnection service has ever commenced (for resources located in the PJM Region), or if it is physically and electrically interconnected to an external Control Area and is in full commercial operation (for resources not located in the PJM Region). The additional megawatts of a Generation Capacity Resource that is being, or has been, modified to increase the number of megawatts of available installed capacity thereof shall not be deemed to be an Existing Generation Capacity Resource until such time as those megawatts (a) are in service; or (b) are not yet in service, but have cleared any RPM Auction for any prior Delivery Year.

Extended Summer Demand Resource:

“Extended Summer Demand Resource” shall mean, for Delivery Years through May 31, 2018, and for FRR Capacity Plans Delivery Years through May 31, 2019, a resource that is placed under the direction of the Office of the Interconnection and that will be available June through October and the following May, and will be available for an unlimited number of interruptions during such months by the Office of the Interconnection, and will be capable of maintaining each such interruption for at least a 10-hour duration between the hours of 10:00AM to 10:00PM Eastern Prevailing Time. The Extended Summer Demand Resource must be available June through October and the following May in the corresponding Delivery Year to be offered for sale or Self-Supplied in an RPM Auction, or included as an Extended Summer Demand Resource in an FRR Capacity Plan for the corresponding Delivery Year.

Facilities Study Agreement:

“Facilities Study Agreement” shall have the same meaning as in Tariff, Part VI, section 206.

FERC or Commission:

“FERC” or “Commission” shall mean the Federal Energy Regulatory Commission or any successor federal agency, commission or department exercising jurisdiction over the Tariff, Operating Agreement and Reliability Assurance Agreement.

Firm Point-To-Point Transmission Service:

“Firm Point-To-Point Transmission Service” shall have the meaning specified in the Tariff.

Firm Service Level:

“Firm Service Level” or “FSL” of Price Responsive Demand for the 2022/2023 Delivery Year and subsequent Delivery Years shall mean the level, determined at a PRD Substation level, to which Price Responsive Demand shall be reduced during the Delivery Year when an Emergency Action that triggers a Performance Assessment Interval is declared and the Locational Marginal Price exceeds the price associated with such Price Responsive Demand identified by the PRD Provider in its PRD Plan. “Firm Service Level” or “FSL” of Demand Resource shall mean the pre-determined level for which an end-use customer’s load shall be reduced, upon notification from the Curtailment Service Provider’s market operations center or its agent.

Firm Transmission Service:

“Firm Transmission Service” shall mean transmission service that is intended to be available at all times to the maximum extent practicable, subject to an Emergency, an unanticipated failure of a facility, or other event beyond the control of the owner or operator of the facility or the Office of the Interconnection.

Fixed Resource Requirement Alternative or FRR Alternative:

“Fixed Resource Requirement Alternative” or “FRR Alternative” shall mean an alternative method for a Party to satisfy its obligation to provide Unforced Capacity hereunder, as set forth in the Reliability Assurance Agreement, Schedule 8.1.

Fixed-Tilt Solar Class:

“Fixed-Tilt Solar Class” shall mean an ELCC Class consisting of Variable Resources that produce electrical energy with solar panels that are primarily mounted in a fixed orientation.

Forecast Pool Requirement:

“Forecast Pool Requirement” or “FPR” shall mean the amount equal to one plus the unforced reserve margin (stated as a decimal number) for the PJM Region required pursuant to this Reliability Assurance Agreement, as approved by the PJM Board pursuant to Reliability Assurance Agreement, Schedule 4.1.

FRR Capacity Plan or FRR Plan:

“FRR Capacity Plan” or “FRR Plan” shall mean a long-term plan for the commitment of Capacity Resources and Price Responsive Demand to satisfy the capacity obligations of a Party that has elected the FRR Alternative, as more fully set forth in the Reliability Assurance Agreement, Schedule 8.1.

FRR Entity:

“FRR Entity” shall mean, for the duration of such election, a Party that has elected the FRR Alternative hereunder.

FRR Service Area:

“FRR Service Area” shall mean (a) the service territory of an IOU as recognized by state law, rule or order; (b) the service area of a Public Power Entity or Electric Cooperative as recognized by franchise or other state law, rule, or order; or (c) a separately identifiable geographic area that is: (i) bounded by wholesale metering, or similar appropriate multi-site aggregate metering, that is visible to, and regularly reported to, the Office of the Interconnection, or that is visible to, and regularly reported to an Electric Distributor and such Electric Distributor agrees to aggregate the load data from such meters for such FRR Service Area and regularly report such aggregated information, by FRR Service Area, to the Office of the Interconnection; and (ii) for which the FRR Entity has or assumes the obligation to provide capacity for all load (including load growth) within such area. In the event that the service obligations of an Electric Cooperative or Public Power Entity are not defined by geographic boundaries but by physical connections to a defined set of customers, the FRR Service Area in such circumstances shall be defined as all customers physically connected to transmission or distribution facilities of such Electric Cooperative or Public Power Entity within an area bounded by appropriate wholesale aggregate metering as described above.

Full Program Option:

“Full Program Option” shall mean participation in Emergency Load Response Program or Pre-Emergency Program which allows, pursuant to Tariff, Attachment DD and as applicable, (i) an energy payment for load reductions during a pre-emergency or emergency event, and (ii) a capacity payment for the ability to reduce load during a pre-emergency or emergency event.

Full Requirements Service:

“Full Requirements Service” shall mean wholesale service to supply all of the power needs of a Load Serving Entity to serve end-users within the PJM Region that are not satisfied by its own generating facilities.

Generation Capacity Resource:

“Generation Capacity Resource” shall mean a Generating Facility, or the contractual right to capacity from a specified Generating Facility, that meets the requirements of RAA, Schedule 9 and RAA, Schedule 10, and, for Generating Facilities that are committed to an FRR Capacity Plan, that meets the requirements of RAA, Schedule 8.1. A Generation Capacity Resource may be an Existing Generation Capacity Resource or a Planned Generation Capacity Resource.

Generation Capacity Resource Provider:

“Generation Capacity Resource Provider” shall mean a Member that owns, or has the contractual authority to control the output of, a Generation Capacity Resource, that has not transferred such authority to another entity.

Generation Owner:

“Generation Owner” shall mean a Member that owns or leases with rights equivalent to ownership, or otherwise controls and operates one or more operating generation resources located in the PJM Region. The foregoing notwithstanding, for a planned generation resource to qualify a Member as a Generation Owner, such resource shall have cleared an RPM auction, and for Energy Resources, the resource shall have a FERC-jurisdictional interconnection agreement or wholesale market participation agreement within PJM. Purchasing all or a portion of the output of a generation resource shall not be sufficient to qualify a Member as a Generation Owner. For purposes of Members Committee sector classification, a Member that is primarily a retail end-user of electricity that owns generation may qualify as a Generation Owner if: (1) the generation resource is the subject of a FERC-jurisdictional interconnection agreement or wholesale market participation agreement within PJM; (2) the average physical unforced capacity owned by the Member and its affiliates over the five Planning Periods immediately preceding the relevant Planning Period exceeds the average PJM capacity obligation of the Member and its affiliates over the same time period; and (3) the average energy produced by the Member and its affiliates within PJM over the five Planning Periods immediately preceding the relevant Planning Period exceeds the average energy consumed by the Member and its affiliates within PJM over the same time period.

Generator Forced Outage:

“Generator Forced Outage” shall mean an immediate reduction in output or capacity or removal from service, in whole or in part, of a generating unit by reason of an Emergency or threatened Emergency, unanticipated failure, or other cause beyond the control of the owner or operator of the facility, as specified in the relevant portions of the PJM Manuals. A reduction in output or removal from service of a generating unit in response to changes in market conditions shall not constitute a Generator Forced Outage.

Generator Maintenance Outage:

“Generator Maintenance Outage” shall mean the scheduled removal from service, in whole or in part, of a generating unit in order to perform repairs on specific components of the facility, if removal of the facility qualifies as a maintenance outage pursuant to the PJM Manuals.

Generator Planned Outage:

“Generator Planned Outage” shall mean the scheduled removal from service, in whole or in part, of a generating unit for inspection, maintenance or repair with the approval of the Office of the Interconnection in accordance with the PJM Manuals.

Good Utility Practice:

“Good Utility Practice” shall mean any of the practices, methods and acts engaged in or approved by a significant portion of the electric utility industry during the relevant time period, or any of the practices, methods and acts which, in the exercise of reasonable judgment in light of the facts known at the time the decision was made, could have been expected to accomplish the desired result at a reasonable cost consistent with good business practices, reliability, safety and expedition. Good Utility Practice is not intended to be limited to the optimum practice, method, or act to the exclusion of all others, but rather is intended to include acceptable practices, methods, or acts generally accepted in the region; including those practices required by Federal Power Act Section 215(a)(4).

Hybrid Resource Class:

“Hybrid Resource Class” shall mean the ELCC Classes specified in RAA Schedule 9.1 Section B. Each Hybrid Resource Class has a specified combination of two components, whereby, absent being part of a Combination Resource, one component would be in a Capacity Storage Resource Class, and the other component would be in a Variable Resource Class or would be an Unlimited Resource. A resource that is a member of a Hybrid Resource Class has a single Point Of Interconnection, unless the resource is controlled in an integrated fashion, is at a single site, and is approved by PJM to be considered a single resource in accordance with the PJM Manuals.

Hydropower With Non-Pumped Storage:

“Hydropower With Non-Pumped Storage” shall mean a hydropower facility that can capture and store incoming stream flow, without use of pumps, in pondage or a reservoir, and the Generation Owner has the ability, within the constraints available in the applicable operating license, to exert material control over the quantity of stored water and output of the facility throughout an Operating Day.

Hydropower With Non-Pumped Storage Class:

“Hydropower With Non-Pumped Storage Class” shall mean an ELCC Class consisting of Combination Resources that are Hydropower With Non-Pumped Storage resources.

Incremental Auction:

“Incremental Auction” shall mean any of several auctions conducted for a Delivery Year after the Base Residual Auction for such Delivery Year and before the first day of such Delivery Year, including the First Incremental Auction, Second Incremental Auction, Third Incremental Auction, or Conditional Incremental Auction. Incremental Auctions (other than the Conditional Incremental Auction), shall be held for the purposes of:

- (i) allowing Market Sellers that committed Capacity Resources in the Base Residual Auction for a Delivery Year, which subsequently are determined to be unavailable to deliver the committed Unforced Capacity in such Delivery Year (due to resource retirement, resource cancellation or construction delay, resource derating, EFORd increase, a decrease in the Nominated Demand Resource Value of a Planned Demand Resource, delay or cancellation of a Qualifying Transmission Upgrade, or similar occurrences) to submit Buy Bids for replacement Capacity Resources; and

- (ii) allowing the Office of the Interconnection to reduce or increase the amount of committed capacity secured in prior auctions for such Delivery Year if, as a result of changed circumstances or expectations since the prior auction(s), there is, respectively, a significant excess or significant deficit of committed capacity for such Delivery Year, for the PJM Region or for an LDA.

Intermittent Hydropower Class:

“Intermittent Hydropower Class” shall mean an ELCC Class consisting of Variable Resources that are run-of-river hydropower generators that must generally pass incoming water and therefore cannot appreciably store water to later increase the output of the facility. Resources in the Intermittent Hydropower Class are not Hydropower with Non-Pumped Storage resources.

IOU:

“IOU” shall mean an investor-owned utility with substantial business interest in owning and/or operating electric facilities in any two or more of the following three asset categories: generation, transmission, distribution.

Landfill Gas Class:

“Landfill Gas Class” shall mean an ELCC Class consisting of Variable Resources fueled by landfill gas that, because of fuel availability patterns, cannot run consistently at installed capacity levels for 24 or more hours.

Limited Demand Resource:

“Limited Demand Resource” shall mean, for Delivery Years through May 31, 2018, and for FRR Capacity Plans Delivery Years through May 31, 2019, a resource that is placed under the direction of the Office of the Interconnection and that will, at a minimum, be available for interruption for at least 10 Load Management Events during the summer period of June through September in the Delivery Year, and will be capable of maintaining each such interruption for at least a 6-hour duration. At a minimum, the Limited Demand Resource shall be available for such interruptions on weekdays, other than NERC holidays, from 12:00PM (noon) to 8:00PM Eastern Prevailing Time. The Limited Demand Resource must be available during the summer period of June through September in the corresponding Delivery Year to be offered for sale or Self-Supplied in an RPM Auction, or included as a Limited Demand Resource in an FRR Capacity Plan for the corresponding Delivery Year.

Limited Duration Resource:

“Limited Duration Resource” shall mean a Generation Capacity Resource that is not a Variable Resource, that is not a Combination Resource, and that is not capable of running continuously at Maximum Facility Output for 24 hours or longer. A Capacity Storage Resource is a Limited Duration Resource.

Load Serving Entity or LSE:

“Load Serving Entity” or “LSE” shall mean any entity (or the duly designated agent of such an entity), including a load aggregator or power marketer, (i) serving end-users within the PJM Region, and (ii) that has been granted the authority or has an obligation pursuant to state or local law, regulation or franchise to sell electric energy to end-users located within the PJM Region. Load Serving Entity shall include any end-use customer that qualifies under state rules or a utility retail tariff to manage directly its own supply of electric power and energy and use of transmission and ancillary services.

Locational Reliability Charge:

“Locational Reliability Charge” shall mean the charge determined pursuant to Operating Agreement, Schedule 8.

Markets and Reliability Committee:

“Markets and Reliability Committee” shall mean the committee established pursuant to the Operating Agreement as a Standing Committee of the Members Committee.

Maximum Emergency Service Level:

“Maximum Emergency Service Level” or “MESL” of Price Responsive Demand for the 2017/2018 through the 2021/2022 Delivery Years shall mean the level, determined at a PRD Substation level, to which Price Responsive Demand shall be reduced during the Delivery Year when a Maximum Generation Emergency is declared and the Locational Marginal Price exceeds

the price associated with such Price Responsive Demand identified by the PRD Provider in its PRD Plan.

Member:

“Member” shall have the meaning provided in the Operating Agreement.

Members Committee:

“Members Committee” shall mean the committee specified in Operating Agreement, section 8 composed of the representatives of all the Members.

NERC:

“NERC” shall mean the North American Electric Reliability Corporation or any successor thereto.

Network External Designated Transmission Service:

“Network External Designated Transmission Service” shall mean the quantity of network transmission service confirmed by PJM for use by a market participant to import power and energy from an identified Generation Capacity Resource located outside the PJM Region, upon demonstration by such market participant that it owns such Generation Capacity Resource, has an executed contract to purchase power and energy from such Generation Capacity Resource, or has a contract to purchase power and energy from such Generation Capacity Resource contingent upon securing firm transmission service from such resource.

Network Resources:

“Network Resources” shall have the meaning set forth in the PJM Tariff.

Network Transmission Service:

“Network Transmission Service” shall mean transmission service provided pursuant to the rates, terms and conditions set forth in Tariff, Part III or transmission service comparable to such service that is provided to a Load Serving Entity that is also a Transmission Owner.

Nominal PRD Value:

“Nominal PRD Value” shall mean, as to any PRD Provider, an adjustment, determined in accordance with Reliability Assurance Agreement, Schedule 6.1, to the peak-load forecast used to determine the quantity of capacity sought through an RPM Auction, reflecting the aggregate effect of Price Responsive Demand on peak load resulting from the Price Responsive Demand to be provided by such PRD Provider.

Nominated Demand Resource Value:

“Nominated Demand Resource Value” shall have the meaning specified in Tariff, Attachment DD.

Non-Retail Behind the Meter Generation:

“Non-Retail Behind the Meter Generation” shall mean Behind the Meter Generation that is used by municipal electric systems, electric cooperatives, and electric distribution companies to serve load.

Obligation Peak Load:

“Obligation Peak Load” shall have the meaning specified in Reliability Assurance Agreement, Schedule 8.

Office of the Interconnection:

“Office of the Interconnection” shall mean the employees and agents of PJM Interconnection, L.L.C., subject to the supervision and oversight of the PJM Board, acting pursuant to the Operating Agreement.

Offshore Wind Class:

“Offshore Wind Class” shall mean an ELCC Class consisting of Variable Resources that produce electrical energy with offshore wind turbines located in the ocean.

Onshore Wind Class:

“Onshore Wind Class” shall mean an ELCC Class consisting of Variable Resources that produce electrical energy using wind turbines and that are not in the Offshore Wind Class.

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

“Operating Agreement of the PJM Interconnection, L.L.C.,” “Operating Agreement” or “PJM Operating Agreement” shall mean that agreement, dated as of April 1, 1997 and as amended and restated as of June 2, 1997, including all Schedules, Exhibits, Appendices, addenda or supplements hereto, as amended from time to time thereafter, among the Members of the PJM Interconnection, L.L.C, on file with the Commission.

Operating Day:

“Operating Day” shall have the same meaning as provided in the Operating Agreement.

Operating Reserve:

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

Ordinary Water Storage:

“Ordinary Water Storage” shall mean water stored in the pondage or reservoir of a hydropower resource which is typically available during normal operating conditions pursuant to the FERC license governing the operation of the hydropower resource.

Other Limited Duration Class:

“Other Limited Duration Class” shall mean the ELCC Classes specified in RAA Schedule 9.1 section B of this Agreement, each of which has a specified characteristic duration and consists of Limited Duration Resources that are not Capacity Storage Resources. The characteristic duration of an Other Limited Duration Class is the maximum period of time represented in the ELCC model that the resources of the class can run at a stated capability.

Other Limited Duration Combination Class:

“Other Limited Duration Combination Class” shall mean the ELCC Classes specified in RAA Schedule 9.1 section B. Each Other Limited Duration Class has a specified combination of two components, whereby, absent being part of a Combination Resource, one component would be in an Other Limited Duration Class, and the other component would be in a Variable Resource Class or would be an Unlimited Resource. A resource that is a member of an Other Limited Duration Combination Class has a single Point Of Interconnection, unless the resource is controlled in an integrated fashion, is at a single site, and is approved by PJM to be considered a single resource in accordance with the PJM Manuals.

Other Supplier:

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

Other Variable Resource Class:

“Other Variable Resource Class” shall mean an ELCC Class consisting of Variable Resources that are not in any other Variable Resource class, including Variable Resources that are composed of multiple components, each of which would be a Variable Resource. A resource composed of both fixed-tilt solar panels and tracking solar panels is not in this class. A resource that is a member of a Other Variable Resource Class has a single Point Of Interconnection, unless the resource is controlled in an integrated fashion, is at a single site, and is approved by PJM to be considered a single resource in accordance with the PJM Manuals.

Partial Requirements Service:

“Partial Requirements Service” shall mean wholesale service to supply a specified portion, but not all, of the power needs of a Load Serving Entity to serve end-users within the PJM Region that are not satisfied by its own generating facilities.

Party:

“Party” shall mean an entity bound by the terms of the Operating Agreement.

Peak Shaving Adjustment:

“Peak Shaving Adjustment” shall mean a load forecast mechanism that allows load reductions by end-use customers to result in a downward adjustment of the summer load forecast for the associated Zone. Any End-Use Customer identified in an approved peak shaving plan shall not also participate in PJM Markets as Price Responsive Demand, Demand Resource, Base Capacity Demand Resource, Capacity Performance Demand Resource, or Economic Load Response Participant.

Percentage Internal Resources Required:

“Percentage Internal Resources Required” shall mean, for purposes of an FRR Capacity Plan, the percentage of the LDA Reliability Requirement for an LDA that must be satisfied with Capacity Resources located in such LDA.

Performance Assessment Interval:

“Performance Assessment Interval” shall have the meaning specified in Tariff, Attachment DD.

PJM:

“PJM” shall mean PJM Interconnection, L.L.C., including the Office of the Interconnection as referenced in the PJM Operating Agreement. When such term is being used in the RAA it shall also include the PJM Board.

PJM Board:

“PJM Board” shall mean the Board of Managers of the LLC, acting pursuant to the Operating Agreement, except when such term is being used in Tariff, Attachment M, in which case PJM Board shall mean the Board of Managers of PJM or its designated representative, exclusive of any members of PJM Management.

PJM Manuals:

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

PJM Region:

“PJM Region” shall have the same meaning as provided in the Operating Agreement.

PJM Region Installed Reserve Margin:

“PJM Region Installed Reserve Margin” shall mean the percent installed reserve margin for the PJM Region required pursuant to Reliability Assurance Agreement, Schedule 4.1, as approved by the PJM Board.

PJM Tariff, Tariff, O.A.T.T., OATT or PJM Open Access Transmission Tariff:

“PJM Tariff,” “Tariff,” “O.A.T.T.,” “OATT” or “PJM Open Access Transmission Tariff” shall mean that certain PJM Open Access Transmission Tariff, including any schedules, appendices, or exhibits attached thereto, on file with FERC and as amended from time to time thereafter.

Planned Demand Resource:

“Planned Demand Resource” shall mean any Demand Resource that does not currently have the capability to provide a reduction in demand or to otherwise control load, but that is scheduled to be capable of providing such reduction or control on or before the start of the Delivery Year for which such resource is to be committed, as determined in accordance with the requirements of Reliability Assurance Agreement, Schedule 6. As set forth in Reliability Assurance Agreement, Schedule 6 and Reliability Assurance Agreement, Schedule 8.1, a Demand Resource Provider submitting a DR Sell Offer Plan shall identify as Planned Demand Resources in such plan all Demand Resources in excess of those that qualify as Existing Demand Resources.

Planned External Generation Capacity Resource:

“Planned External Generation Capacity Resource” shall mean a proposed Generation Capacity Resource, or a proposed increase in the capability of a Generation Capacity Resource, that (a) is to be located outside the PJM Region, (b) participates in the generation interconnection process of a Control Area external to PJM, (c) is scheduled to be physically and electrically interconnected to the transmission facilities of such Control Area on or before the first day of the Delivery Year for which such resource is to be committed to satisfy the reliability requirements of the PJM Region, and (d) is in full commercial operation prior to the first day of such Delivery Year, such that it is sufficient to provide the Installed Capacity set forth in the Sell Offer forming the basis of such resource’s commitment to the PJM Region. Prior to participation in any Base Residual Auction for such Delivery Year, the Capacity Market Seller must demonstrate that it has a fully executed system impact study agreement (or other documentation which is functionally equivalent to a System Impact Study Agreement under the PJM Tariff) or, for resources which are greater than 20MWs participating in a Base Residual Auction for the

2019/2020 Delivery Year and subsequent Delivery Years, an agreement or other documentation which is functionally equivalent to a Facilities Study Agreement under the PJM Tariff), with the transmission owner to whose transmission facilities or distribution facilities the resource is being directly connected, and, as applicable, the transmission provider. Prior to participating in any Incremental Auction for such Delivery Year, the Capacity Market Seller must demonstrate it has entered into an interconnection agreement, or such other documentation that is functionally equivalent to an Interconnection Service Agreement under the PJM Tariff, with the transmission owner to whose transmission facilities or distribution facilities the resource is being directly connected, and, as applicable, the transmission provider. A Planned External Generation Capacity Resource must provide evidence to PJM that it has been studied as a Network Resource, or such other similar interconnection product in such external Control Area, must provide contractual evidence that it has applied for or purchased transmission service to be deliverable to the PJM border, and must provide contractual evidence that it has applied for transmission service to be deliverable to the bus at which energy is to be delivered, the agreements for which must have been executed prior to participation in any Reliability Pricing Model Auction for such Delivery Year. Any such resource shall cease to be considered a Planned External Generation Capacity Resource as of the earlier of (i) the date that interconnection service commences as to such resource; or (ii) the resource has cleared an RPM Auction, in which case it shall become an Existing Generation Capacity Resource for purposes of the mitigation of offers for any RPM Auction for all subsequent Delivery Years.

Planned Generation Capacity Resource:

“Planned Generation Capacity Resource” shall mean a Generation Capacity Resource, or additional megawatts to increase the size of a Generation Capacity Resource that is being or has been modified to increase the number of megawatts of available installed capacity thereof, participating in the generation interconnection process under Tariff, Part IV, Subpart A, as applicable, for which: (i) Interconnection Service is scheduled to commence on or before the first day of the Delivery Year for which such resource is to be committed to RPM or to an FRR Capacity Plan; (ii) for any such resource seeking to offer into a Base Residual Auction, or for any such resource of 20 MWs or less seeking to offer into a Base Residual Auction, a System Impact Study Agreement (or, for resources for which a System Impact Study Agreement is not required, has such other agreement or documentation that is functionally equivalent to a System Impact Study Agreement) has been executed prior to the Base Residual Auction for such Delivery Year; (iii) for any such resource of more than 20 MWs seeking to offer into a Base Residual Auction for the 2019/2020 Delivery Year and subsequent Delivery Years, a Facilities Study Agreement (or, for resources for which a Facilities Study Agreement is not required, has such other agreement or documentation that is functionally equivalent to a Facility Studies Agreement) has been executed prior to the Base Residual Auction for such Delivery Year; and (iv) an Interconnection Service Agreement has been executed prior to any Incremental Auction for such Delivery Year in which such resource plans to participate. For purposes of the must-offer requirement and mitigation of offers for any RPM Auction for a Delivery Year, a Generation Capacity Resource shall cease to be considered a Planned Generation Capacity Resource as of the earlier of (i) the date that Interconnection Service commences as to such resource; or (ii) the resource has cleared an RPM Auction for any Delivery Year, in which case it

shall become an Existing Generation Capacity Resource for any RPM Auction for all subsequent Delivery Years.

Planning Period:

“Planning Period” shall mean the 12 months beginning June 1 and extending through May 31 of the following year, or such other period approved by the Members Committee.

PRD Curve:

“PRD Curve” shall mean a price-consumption curve at a PRD Substation level, if available, and otherwise at a Zonal (or sub-Zonal LDA, if applicable) level, that details the base consumption level of Price Responsive Demand and the decreasing consumption levels at increasing prices.

PRD Provider:

“PRD Provider” shall mean a PJM Member that has entered contractual arrangements with end-use customers that satisfy the eligibility criteria for and provides Price Responsive Demand.

PRD Provider’s Zonal Expected Peak Load Value of PRD:

“PRD Provider’s Zonal Expected Peak Load Value of PRD” shall mean the expected contribution to Delivery Year peak load of a PRD Provider’s Price Responsive Demand, were such demand not to be reduced in response to price, based on the contribution of the end-use customers comprising such Price Responsive Demand to the most recent prior Delivery Year’s peak demand, escalated to the Delivery Year in question, as determined in a manner consistent with the Office of the Interconnection’s load forecasts used for purposes of the RPM Auctions.

PRD Reservation Price:

“PRD Reservation Price” shall mean an RPM Auction clearing price identified in a PRD Plan for Price Responsive Demand load below which the PRD Provider desires not to commit the identified load as Price Responsive Demand.

PRD Substation:

“PRD Substation” shall mean an electrical substation that is located in the same Zone or in the same sub-Zonal LDA as the end-use customers identified in a PRD Plan or PRD registration and that, in terms of the electrical topography of the Transmission Facilities comprising the PJM Region, is as close as practicable to such loads.

Price Responsive Demand:

“Price Responsive Demand” or “PRD” shall mean end-use customer load registered by a PRD Provider pursuant to Reliability Assurance Agreement, Schedule 6.1 that have, as set forth in more detail in the PJM Manuals, the metering capability to record electricity consumption at an

interval of one hour or less, Supervisory Control capable of curtailing such load (consistent with applicable RERRA requirements) at each PRD Substation identified in the relevant PRD Plan or PRD registration in response to a Maximum Generation Emergency declared by the Office of the Interconnection (prior to 2022/2023 Delivery Year) or a Performance Assessment Interval that triggers a PRD performance assessment (effective with 2022/2023 Delivery Year), and a retail rate structure, or equivalent contractual arrangement, capable of changing retail rates as frequently as an hourly basis, that is linked to or based upon changes in real-time Locational Marginal Prices at a PRD Substation level and that results in a predictable automated response to varying wholesale electricity prices.

Price Responsive Demand Credit:

“Price Responsive Demand Credit” shall mean a credit, based on committed Price Responsive Demand, as determined under Reliability Assurance Agreement, Schedule 6.1.

Price Responsive Demand Plan or PRD Plan:

“Price Responsive Demand Plan” or “PRD Plan” shall mean a plan, submitted by a PRD Provider and received by the Office of the Interconnection in accordance with Reliability Assurance Agreement, Schedule 6.1 and procedures specified in the PJM Manuals, claiming a peak demand limitation due to Price Responsive Demand to support the determination of such PRD Provider’s Nominal PRD Value.

Public Power Entity:

“Public Power Entity” shall mean any agency, authority, or instrumentality of a state or of a political subdivision of a state, or any corporation wholly owned by any one or more of the foregoing, that is engaged in the generation, transmission, and/or distribution of electric energy.

Qualifying Transmission Upgrades:

“Qualifying Transmission Upgrades” shall have the meaning specified in Tariff, Attachment DD.

Relevant Electric Retail Regulatory Authority:

“Relevant Electric Retail Regulatory Authority” or “RERRA” shall have the meaning specified in the PJM Operating Agreement.

Reliability Principles and Standards:

“Reliability Principles and Standards” shall mean the principles and standards established by NERC or an Applicable Regional Entity to define, among other things, an acceptable probability of loss of load due to inadequate generation or transmission capability, as amended from time to time.

Required Approvals:

“Required Approvals” shall mean all of the approvals required for the Operating Agreement to be modified or to be terminated, in whole or in part, including the acceptance for filing by FERC and every other regulatory authority with jurisdiction over all or any part of the Operating Agreement.

Self-Supply:

“Self-Supply” shall have the meaning provided in Tariff, Attachment DD.

Small Commercial Customer:

“Small Commercial Customer” shall have the same meaning as in the PJM Tariff.

State Consumer Advocate:

“State Consumer Advocate” shall mean a legislatively created office from any State, all or any part of the territory of which is within the PJM Region, and the District of Columbia established, inter alia, for the purpose of representing the interests of energy consumers before the utility regulatory commissions of such states and the District of Columbia and the FERC.

State Regulatory Structural Change:

“State Regulatory Structural Change” shall mean as to any Party, a state law, rule, or order that, after September 30, 2006, initiates a program that allows retail electric consumers served by such Party to choose from among alternative suppliers on a competitive basis, terminates such a program, expands such a program to include classes of customers or localities served by such Party that were not previously permitted to participate in such a program, or that modifies retail electric market structure or market design rules in a manner that materially increases the likelihood that a substantial proportion of the customers of such Party that are eligible for retail choice under such a program (a) that have not exercised such choice will exercise such choice; or (b) that have exercised such choice will no longer exercise such choice, including for example, without limitation, mandating divestiture of utility-owned generation or structural changes to such Party’s default service rules that materially affect whether retail choice is economically viable.

Summer-Period Demand Resource:

Summer-Period Demand Resource shall mean, for the 2020/2021 Delivery Year and subsequent Delivery Years, a resource that is placed under the direction of the Office of the Interconnection, and will be available June through October and the following May of the Delivery Year, and will be available for an unlimited number of interruptions during such months by the Office of the Interconnection, and will be capable of maintaining each such interruption between the hours of 10:00AM to 10:00PM Eastern Prevailing Time. The Summer-Period Demand Resource must be available June through October and the following May in the corresponding Delivery Year to be

offered for sale in an RPM Auction, or included as a Summer-Period Demand Resource in an FRR Capacity Plan for the corresponding Delivery Year.

Summer-Period Energy Efficiency Resource:

Summer-Period Energy Efficiency Resource shall mean, for the 2020/2021 Delivery Year and subsequent Delivery Years, a project, including installation of more efficient devices or equipment or implementation of more efficient processes or systems, meeting the requirements of Reliability Assurance Agreement, Schedule 6 and exceeding then-current building codes, appliance standards, or other relevant standards, designed to achieve a continuous (during the summer peak periods as described in Reliability Assurance Agreement, Schedule 6 and the PJM Manuals) reduction in electric energy consumption that is not reflected in the peak load forecast prepared for the Delivery Year for which the Summer-Period Energy Efficiency Resource is proposed, and that is fully implemented at all times during such Delivery Year, without any requirement of notice, dispatch, or operator intervention.

Supervisory Control:

“Supervisory Control” shall mean the capability to curtail, in accordance with applicable RERRA requirements, load registered as Price Responsive Demand at each PRD Substation identified in the relevant PRD Plan or PRD registration in response to a Maximum Generation Emergency declared by the Office of the Interconnection. Except to the extent automation is not required by the provisions of the Operating Agreement, the curtailment shall be automated, meaning that load shall be reduced automatically in response to control signals sent by the PRD Provider or its designated agent directly to the control equipment where the load is located without the requirement for any action by the end-use customer.

Threshold Quantity:

“Threshold Quantity” shall mean, as to any FRR Entity for any Delivery Year, the sum of (a) the Unforced Capacity equivalent (determined using the Pool-Wide Average EFORD) of the Installed Reserve Margin for such Delivery Year multiplied by the Preliminary Forecast Peak Load for which such FRR Entity is responsible under its FRR Capacity Plan for such Delivery Year, plus (b) the lesser of (i) 3% of the Unforced Capacity amount determined in (a) above or (ii) 450 MW. If the FRR Entity is not responsible for all load within a Zone, the Preliminary Forecast Peak Load for such entity shall be the FRR Entity’s Obligation Peak Load last determined prior to the Base Residual Auction for such Delivery Year, times the Base FRR Scaling Factor (as determined in accordance with Reliability Assurance Agreement, Schedule 8.1).

Tracking Solar Class:

“Tracking Solar Class” shall mean an ELCC Class consisting of Variable Resources that produce electrical energy with solar panels that are primarily mounted on trackers that align the panels with incoming sunlight over the course of the day.

Transmission Facilities:

“Transmission Facilities” shall mean facilities that: (i) are within the PJM Region; (ii) meet the definition of transmission facilities pursuant to FERC’s Uniform System of Accounts or have been classified as transmission facilities in a ruling by FERC addressing such facilities; and (iii) have been demonstrated to the satisfaction of the Office of the Interconnection to be integrated with the PJM Region transmission system and integrated into the planning and operation of the PJM Region to serve all of the power and transmission customers within the PJM Region.

Transmission Owner:

“Transmission Owner” shall mean a Member that owns or leases with rights equivalent to ownership Transmission Facilities and is a signatory to the PJM Transmission Owners Agreement. Taking transmission service shall not be sufficient to qualify a Member as a Transmission Owner.

Unforced Capacity:

“Unforced Capacity” shall mean installed capacity rated at summer conditions that is not on average experiencing a forced outage or forced derating, calculated for each Capacity Resource on the 12-month period from October to September without regard to the ownership of or the contractual rights to the capacity of the unit.

Unlimited Resource:

“Unlimited Resource” shall mean a generating unit having the ability to maintain output at a stated capability continuously on a daily basis without interruption. An Unlimited Resource is a Generation Capacity Resource that is not an ELCC Resource.

Variable Resource:

“Variable Resource” shall mean a Generation Capacity Resource with output that can vary as a function of its energy source, such as wind, solar, run of river hydroelectric power without storage, and landfill gas units without an alternate fuel source. All Intermittent Resources are Variable Resources, with the exception of Hydropower with Non-Pumped Storage.

Winter Peak Load (or WPL):

“Winter Peak Load” or “WPL” shall mean the average of the Demand Resource customer’s specific peak hourly load between hours ending 7:00 EPT through 21:00 EPT on the PJM defined 5 coincident peak days from December through February two Delivery Years prior the Delivery Year for which the registration is submitted. Notwithstanding, if the average use between hours ending 7:00 EPT through 21:00 EPT on a winter 5 coincident peak day is below 35% of the average hours ending 7:00 EPT through 21:00 EPT over all five of such peak days, then up to two such days and corresponding peak demand values may be excluded from the calculation. Upon approval by the Office of the Interconnection, a Curtailment Service Provider

may provide alternative data to calculate Winter Peak Load, as outlined in the PJM Manuals, when there is insufficient hourly load data for the two Delivery Years prior to the relevant Delivery Year or if more than two days meet the exclusion criteria described above.

Zonal Capacity Price:

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

Zone or Zonal:

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

Zonal Winter Weather Adjustment Factor (ZWWAF):

“Zonal Winter Weather Adjustment Factor” or “ZWWAF” shall mean the PJM zonal winter weather normalized coincident peak divided by PJM zonal average of 5 coincident peak loads in December through February.

Schedule 6.2 of the
PJM Reliability Assurance Agreement
(Marked/Redline Format)
Effective July 1, 2023

SCHEDULE 6.2

Reserved for Future Use

~~DER Capacity Aggregation Resources qualifying under the criteria set forth below may be offered for sale in an RPM auction, or included in an FRR Capacity Plan, for any Delivery Year for which such resource qualifies.~~

~~DER Aggregators intending to offer for sale or designate for self supply, a DER Capacity Aggregation Resource in any RPM Auction, or intending to include a DER Capacity Aggregation Resource in any FRR Capacity Plan must demonstrate, to PJM's satisfaction, that such resource shall have the capability to provide generation or reduction in demand, on or before the start of the Delivery Year for which such resource is committed. As part of such demonstration, each such DER Aggregator shall submit a DER Capacity Aggregation Resource Sell Offer Plan in accordance with the standards and procedures set forth in RAA, Schedule 6.2, and the PJM Manuals, no later than 30 days prior to, as applicable, the RPM Auction in which such resource is to be offered, or the deadline for submission of the FRR Capacity Plan in which such resource is to be included.~~

~~PJM may verify the DER Aggregator's adherence to the DER Capacity Aggregation Resource Sell Offer Plan at any time. A DER Aggregator with a PJM-approved DER Capacity Aggregation Resource Sell Offer Plan will be permitted to offer up to the approved megawatt quantity into the subject RPM Auction or include such resource in its FRR Capacity Plan.~~

~~A DER Capacity Aggregation Resource Sell Offer Plan shall consist of a completed template document in the form posted on the PJM website, requiring the information set forth below and in the PJM Manuals, and a DER Aggregator Officer Certification Form signed by an officer of the DER Aggregator that is duly authorized to provide such a certification. The DER Capacity Aggregation Resource Sell Offer Plan must provide information that supports the DER Aggregator's intended DER Capacity Aggregation Resource Sell Offers and demonstrate that the DER Capacity Aggregation Resources are being offered with the intention that the megawatt quantity that clears the auction is reasonably expected to be physically delivered through DER Capacity Aggregation Resource registration for the relevant Delivery Year. The DER Capacity Aggregation Resource Sell Offer Plan shall include all Existing DER Capacity Aggregation Resources and all Planned DER Capacity Aggregation Resources that the DER Aggregator intends to offer into an RPM Auction or include in an FRR Capacity Plan.~~

~~The DER Aggregator shall provide the details of, and key assumptions for underlying Component DER for the Planned DER Capacity Aggregation Resource contained in the Sell Offer Plan, including but not limited to:~~

- ~~(i) Nominated megawatt quantities and method(s) of achieving generation or load reductions to meet megawatt quantities~~
- ~~(ii) equipment and technology to be installed or controlled~~
- ~~(iii) plan and ability to acquire generating resources or load reductions at customer site(s) and assumptions regarding regulatory approval of program(s), if applicable~~
- ~~(iv) A measurement and verification plan developed in accordance with PJM Manuals, if applicable~~

~~(v) Zone and LDA information~~

~~(vi) A schedule of an approximate timeline for procuring Component DER~~

~~DER Aggregator Officer Certification Form.~~

~~Each DER Capacity Aggregation Resource Sell Offer Plan must include a DER Aggregator Officer Certification, signed by an officer of the DER Aggregator that is duly authorized to provide such a certification, in the form shown in the PJM Manuals, which form shall include the following certifications:~~

~~(a) that the signing officer has reviewed the DER Capacity Aggregation Resource Sell Offer Plan and the information supplied to PJM in support of the Plan is true and correct as of the date of the certification; and~~

~~(b) that the DER Aggregator is submitting the Plan with the reasonable expectation, based upon its analyses as of the date of the certification, to physically deliver all megawatts that clear the RPM Auction through the DER Capacity Aggregation Resource registrations by the specified Delivery Year.~~

~~As set forth in the form provided in the PJM Manuals, the certification shall specify that it does not in any way abridge, expand, or otherwise modify the current provisions of the PJM Tariff, Operating Agreement, and/or RAA.~~

~~The Unforced Capacity value of a DER Capacity Aggregation Resource will be determined as the sum of the Unforced Capacity value of the Component DER within a DER Aggregation Resource registered and linked to the DER Capacity Aggregation Resource, accounting for any co-located load that is not Station Power, in accordance with the provisions of the PJM Manuals.~~

~~The DER Aggregator shall provide Component DER within a DER Aggregation Resource registered and linked to a DER Capacity Aggregation Resource located within the same Zone and LDA as specified in its cleared sell offer, and may be subject to deficiency charges under Tariff, Attachment DD to the extent it fails to provide Component DER within a DER Aggregation Resource registered and linked to the applicable DER Capacity Aggregation Resource in such location and quantity consistent with its cleared offer.~~

~~A DER Aggregator offering a Planned DER Capacity Aggregation Resource must comply with all applicable credit requirements, as set forth in Tariff, Attachment Q.~~

Schedule 6.2 of the
PJM Reliability Assurance Agreement
(Clean Format)
Effective July 1, 2023

SCHEDULE 6.2

Reserved for Future Use

Attachment B

Revisions to the
PJM Open Access Transmission Tariff,
Operating Agreement, and
Reliability Assurance Agreement

Effective July 1, 2025

(Identified by Additional Cover Pages)

(Marked/Redline Format)

Sections of the
PJM Open Access Transmission Tariff

Effective July 1, 2025

(Marked/Redline Format)

Definitions – C - D

Canadian Guaranty:

“Canadian Guaranty” shall mean a Corporate Guaranty provided by an Affiliate of a Participant that is domiciled in Canada, and meets all of the provisions of Tariff, Attachment Q.

Cancellation Costs:

“Cancellation Costs” shall mean costs and liabilities incurred in connection with: (a) cancellation of supplier and contractor written orders and agreements entered into to design, construct and install Attachment Facilities, Direct Assignment Facilities and/or Customer-Funded Upgrades, and/or (b) completion of some or all of the required Attachment Facilities, Direct Assignment Facilities and/or Customer-Funded Upgrades, or specific unfinished portions and/or removal of any or all of such facilities which have been installed, to the extent required for the Transmission Provider and/or Transmission Owner(s) to perform their respective obligations under Tariff, Part IV and/or Tariff, Part VI.

Capacity:

“Capacity” shall mean the installed capacity requirement of the Reliability Assurance Agreement or similar such requirements as may be established.

Capacity Emergency Transfer Limit:

“Capacity Emergency Transfer Limit” or “CETL” shall have the meaning provided in the Reliability Assurance Agreement.

Capacity Emergency Transfer Objective:

“Capacity Emergency Transfer Objective” or “CETO” shall have the meaning provided in the Reliability Assurance Agreement.

Capacity Export Transmission Customer:

“Capacity Export Transmission Customer” shall mean a customer taking point to point transmission service under Tariff, Part II to export capacity from a generation resource located in the PJM Region that has qualified for an exception to the RPM must-offer requirement as described in Tariff, Attachment DD, section 6.6(g).

Capacity Import Limit:

“Capacity Import Limit” shall have the meaning provided in the Reliability Assurance Agreement.

Capacity Interconnection Rights:

“Capacity Interconnection Rights” shall mean the rights to input generation as a Generation Capacity Resource into the Transmission System at the Point of Interconnection where the generating facilities connect to the Transmission System.

Capacity Market Buyer:

“Capacity Market Buyer” shall mean a Member that submits bids to buy Capacity Resources in any Incremental Auction.

Capacity Market Seller:

“Capacity Market Seller” shall mean a Member that owns, or has the contractual authority to control the output or load reduction capability of, a Capacity Resource, that has not transferred such authority to another entity, and that offers such resource in the Base Residual Auction or an Incremental Auction.

Capacity Performance Resource:

“Capacity Performance Resource” shall mean a Capacity Resource as described in Tariff, Attachment DD, section 5.5A(a).

Capacity Performance Transition Incremental Auction:

“Capacity Performance Transition Incremental Auction” shall have the meaning specified in Tariff, Attachment DD, section 5.14D.

Capacity Resource:

“Capacity Resource” shall have the meaning provided in the Reliability Assurance Agreement.

Capacity Resource with State Subsidy:

“Capacity Resource with State Subsidy” shall mean (1) a Capacity Resource that is offered into an RPM Auction or otherwise assumes an RPM commitment for which the Capacity Market Seller receives or is entitled to receive one or more State Subsidies for the applicable Delivery Year; (2) a Capacity Resource that has not cleared an RPM Auction for the Delivery Year for which the Capacity Market Seller last received a State Subsidy (or any subsequent Delivery Year) shall still be considered a Capacity Resource with State Subsidy upon the expiration of such State Subsidy until the resource clears an RPM Auction; (3) a Capacity Resource that is the subject of a bilateral transaction (including but not limited to those reported pursuant to Tariff, Attachment DD, section 4.6) shall be deemed a Capacity Resource with State Subsidy to the extent an owner of the facility supporting the Capacity Resource is entitled to a State Subsidy associated with such facility even if the Capacity Market Seller is not entitled to a State Subsidy; and (4) any Jointly Owned Cross-Subsidized Capacity Resource.

Capacity Resource Clearing Price:

“Capacity Resource Clearing Price” shall mean the price calculated for a Capacity Resource that offered and cleared in a Base Residual Auction or Incremental Auction, in accordance with Tariff, Attachment DD, section 5.

Capacity Storage Resource:

“Capacity Storage Resource” shall mean any Energy Storage Resource that participates in the Reliability Pricing Model or is otherwise treated as capacity in PJM’s markets such as through a Fixed Resource Requirement Capacity Plan.

Capacity Transfer Right:

“Capacity Transfer Right” shall mean a right, allocated to LSEs serving load in a Locational Deliverability Area, to receive payments, based on the transmission import capability into such Locational Deliverability Area, that offset, in whole or in part, the charges attributable to the Locational Price Adder, if any, included in the Zonal Capacity Price calculated for a Locational Delivery Area.

Capacity Transmission Injection Rights:

“Capacity Transmission Injection Rights” shall mean the rights to schedule energy and capacity deliveries at a Point of Interconnection of a Merchant Transmission Facility with the Transmission System. Capacity Transmission Injection Rights may be awarded only to a Merchant D.C. Transmission Facility and/or Controllable A.C. Merchant Transmission Facilities that connects the Transmission System to another control area. Deliveries scheduled using Capacity Transmission Injection Rights have rights similar to those under Firm Point-to-Point Transmission Service or, if coupled with a generating unit external to the PJM Region that satisfies all applicable criteria specified in the PJM Manuals, similar to Capacity Interconnection Rights.

Charge Economic Maximum Megawatts:

“Charge Economic Maximum Megawatts” shall mean the greatest magnitude of megawatt power consumption available for charging in economic dispatch by an Energy Storage Resource Model Participant or solar-storage Open-Loop Hybrid Resource in Continuous Mode or in Charge Mode. Charge Economic Maximum Megawatts shall be the Economic Minimum for an Energy Storage Resource or solar-storage Open-Loop Hybrid Resource in Charge Mode or in Continuous Mode.

Charge Economic Minimum Megawatts:

“Charge Economic Minimum Megawatts” shall mean the smallest magnitude of megawatt power consumption available for charging in economic dispatch by an Energy Storage Resource Model Participant or solar-storage Open-Loop Hybrid Resource in Charge Mode. Charge Economic

Minimum Megawatts shall be the Economic Maximum for an Energy Storage Resource or solar-storage Open-Loop Hybrid Resource in Charge Mode.

Charge Mode:

“Charge Mode” shall mean the mode of operation of an Energy Storage Resource Model Participant or solar-storage Open-Loop Hybrid Resource that only includes negative megawatt quantities (i.e., the Energy Storage Resource Model Participant or solar-storage Open-Loop Hybrid Resource is only withdrawing megawatts from the grid).

Charge Ramp Rate:

“Charge Ramp Rate” shall mean the Ramping Capability of an Energy Storage Resource Model Participant or solar-storage Open-Loop Hybrid Resource in Charge Mode.

Cleared Capacity Resource with State Subsidy:

“Cleared Capacity Resource with State Subsidy” shall mean a Capacity Resource with State Subsidy that has cleared in an RPM Auction for a Delivery Year that is prior to the 2022/2023 Delivery Year or, starting with 2022/2023 Delivery Year, the MWs (in installed capacity) comprising a Capacity Resource with State Subsidy that have cleared an RPM Auction pursuant to its Sell Offer at or above its resource-specific MOPR Floor Offer Price or the applicable default New Entry MOPR Floor Offer Price and since then, any of those MWs (in installed capacity) comprising a Capacity Resource with State Subsidy have been, the subject of a Sell Offer into the Base Residual Auction or included in an FRR Capacity Plan at the time of the Base Residual Auction for the relevant Delivery Year.

Closed-Loop Hybrid Resource:

“Closed-Loop Hybrid Resource” shall mean a Hybrid Resource that is physically or contractually incapable of charging from the grid.

Cold/Warm/Hot Notification Time:

“Cold/Warm/Hot Notification Time” shall mean the time interval between PJM notification and the beginning of the start sequence for a generating unit that is currently in its cold/warm/hot temperature state. The start sequence may include steps such as any valve operation, starting feed water pumps, startup of auxiliary equipment, etc.

Cold/Warm/Hot Start-up Time:

For all generating units that are not combined cycle units, “Cold/Warm/Hot Start-up Time” shall mean the time interval, measured in hours, from the beginning of the start sequence to the point after generator breaker closure, which is typically indicated by telemetered or aggregated State Estimator megawatts greater than zero for a generating unit in its cold/warm/hot temperature state. For combined cycle units, “Cold/Warm/Hot Start-up Time” shall mean the time interval

from the beginning of the start sequence to the point after first combustion turbine generator breaker closure in its cold/warm/hot temperature state, which is typically indicated by telemetered or aggregated State Estimator megawatts greater than zero. For all generating units, the start sequence may include steps such as any valve operation, starting feed water pumps, startup of auxiliary equipment, etc. Other more detailed actions that could signal the beginning of the start sequence could include, but are not limited to, the operation of pumps, condensers, fans, water chemistry evaluations, checklists, valves, fuel systems, combustion turbines, starting engines or systems, maintaining stable fuel/air ratios, and other auxiliary equipment necessary for startup.

Cold Weather Alert:

“Cold Weather Alert” shall mean the notice that PJM provides to PJM Members, Transmission Owners, resource owners and operators, customers, and regulators to prepare personnel and facilities for expected extreme cold weather conditions.

Collateral:

“Collateral” shall be a cash deposit, including any interest thereon, or a Letter of Credit issued for the benefit of PJM or PJMSettlement, in an amount and form determined by and acceptable to PJM or PJMSettlement, provided by a Participant to PJM or PJMSettlement as credit support in order to participate in the PJM Markets or take Transmission Service. “Collateral” shall also include surety bonds, except for the purpose of satisfying the FTR Credit Requirement, in which case only a cash deposit or Letter of Credit will be acceptable.

Collateral Call:

“Collateral Call” shall mean a notice to a Participant that additional Collateral, or possibly early payment, is required in order to remain in, or to regain, compliance with Tariff, Attachment Q.

Co-Located Resource:

“Co-Located Resource” shall mean a component of a Mixed Technology Facility that operates in the capacity, energy, and/or ancillary services market(s) as a separate resource from the other components of such facility.

Commencement Date:

“Commencement Date” shall mean the date on which Interconnection Service commences in accordance with an Interconnection Service Agreement.

Committed Offer:

The “Committed Offer” shall mean 1) for pool-scheduled resources, an offer on which a resource was scheduled by the Office of the Interconnection for a particular clock hour for an Operating Day, and 2) for self-scheduled resources, either the offer on which the Market Seller has elected

to schedule the resource or the applicable offer for the resource determined pursuant to Operating Agreement, Schedule 1, section 6.4, and the parallel provisions of Tariff, Attachment K-Appendix, section 6.4, or Operating Agreement, Schedule 1, section 6.6, and the parallel provisions of Tariff, Attachment K-Appendix, section 6.6, for a particular clock hour for an Operating Day.

Completed Application:

“Completed Application” shall mean an application that satisfies all of the information and other requirements of the Tariff, including any required deposit.

Compliance Aggregation Area (CAA):

“Compliance Aggregation Area” or “CAA” shall mean a geographic area of Zones or sub-Zones that are electrically-contiguous and experience for the relevant Delivery Year, based on Resource Clearing Prices of, for Delivery Years through May 31, 2018, Annual Resources and for the 2018/2019 Delivery Year and subsequent Delivery Years, Capacity Performance Resources, the same locational price separation in the Base Residual Auction, the same locational price separation in the First Incremental Auction, the same locational price separation in the Second Incremental Auction, the same locational price separation in the Third Incremental Auction.

Component DER:

“Component DER” shall mean any resource, within the PJM Region, that is located on a distribution system, any subsystem thereof, or behind a customer meter, and is used in a DER Aggregation Resource by a DER Aggregator to participate in the energy, capacity, and/or ancillary services markets of PJM through the DER Aggregator Participation Model. A Component DER may not exceed 5 MW.

Composite Energy Offer:

“Composite Energy Offer” for generation resources shall mean the sum (in \$/MWh) of the Incremental Energy Offer and amortized Start-Up Costs and amortized No-load Costs, and for Economic Load Response Participant resources the sum (in \$/MWh) of the Incremental Energy Offer and amortized shutdown costs, as determined in accordance with Tariff, Attachment K-Appendix, section 2.4 and Tariff, Attachment K-Appendix, section 2.4A and the PJM Manuals.

Conditional Incremental Auction:

“Conditional Incremental Auction” shall mean an Incremental Auction conducted for a Delivery Year if and when necessary to secure commitments of additional capacity to address reliability criteria violations arising from the delay in a Backbone Transmission upgrade that was modeled in the Base Residual Auction for such Delivery Year.

Conditioned State Support:

“Conditioned State Support” shall mean any financial benefit required or incentivized by a state, or political subdivision of a state acting in its sovereign capacity, that is provided outside of PJM Markets and in exchange for the sale of a FERC-jurisdictional product conditioned on clearing in any RPM Auction, where “conditioned on clearing in any RPM Auction” refers to specific directives as to the level of the offer that must be entered for the relevant Generation Capacity Resource in the RPM Auction or directives that the Generation Capacity Resource is required to clear in any RPM Auction. Conditioned State Support shall not include any Legacy Policy.

CONE Area:

“CONE Area” shall mean the areas listed in Tariff, Attachment DD, section 5.10(a)(iv)(A) and any LDAs established as CONE Areas pursuant to Tariff, Attachment DD, section 5.10(a)(iv)(B).

Confidential Information:

“Confidential Information” shall mean any confidential, proprietary, or trade secret information of a plan, specification, pattern, procedure, design, device, list, concept, policy, or compilation relating to the present or planned business of a New Service Customer, Transmission Owner, or other Interconnection Party or Construction Party, which is designated as confidential by the party supplying the information, whether conveyed verbally, electronically, in writing, through inspection, or otherwise, and shall include, without limitation, all information relating to the producing party’s technology, research and development, business affairs and pricing, and any information supplied by any New Service Customer, Transmission Owner, or other Interconnection Party or Construction Party to another such party prior to the execution of an Interconnection Service Agreement or a Construction Service Agreement.

Congestion Price:

“Congestion Price” shall mean the congestion component of the Locational Marginal Price, which is the effect on transmission congestion costs (whether positive or negative) associated with increasing the output of a generation resource or decreasing the consumption by a Demand Resource, based on the effect of increased generation from or consumption by the resource on transmission line loadings, calculated as specified in Operating Agreement, Schedule 1, section 2, and the parallel provisions of Tariff, Attachment K-Appendix, section 2.

Consolidated Transmission Owners Agreement, PJM Transmission Owners Agreement or Transmission Owners Agreement:

“Consolidated Transmission Owners Agreement,” “PJM Transmission Owners Agreement” or “Transmission Owners Agreement” shall mean the certain Consolidated Transmission Owners Agreement dated as of December 15, 2005, by and among the Transmission Owners and by and between the Transmission Owners and PJM Interconnection, L.L.C. on file with the Commission, as amended from time to time.

Constraint Relaxation Logic:

“Constraint Relaxation Logic” shall mean the logic applied in the market clearing software where the transmission limit is increased to prevent the Transmission Constraint Penalty Factor from setting the Marginal Value of a transmission constraint.

Constructing Entity:

“Constructing Entity” shall mean either the Transmission Owner or the New Services Customer, depending on which entity has the construction responsibility pursuant to Tariff, Part VI and the applicable Construction Service Agreement; this term shall also be used to refer to an Interconnection Customer with respect to the construction of the Customer Interconnection Facilities.

Construction Party:

“Construction Party” shall mean a party to a Construction Service Agreement. “Construction Parties” shall mean all of the Parties to a Construction Service Agreement.

Construction Service Agreement:

“Construction Service Agreement” shall mean either an Interconnection Construction Service Agreement or an Upgrade Construction Service Agreement.

Contingent Facilities:

“Contingent Facilities” shall mean those unbuilt Interconnection Facilities and Network Upgrades upon which the Interconnection Request’s costs, timing, and study findings are dependent and, if delayed or not built, could cause a need for restudies of the Interconnection Request or a reassessment of the Interconnection Facilities and/or Network Upgrades and/or costs and timing.

Continuous Mode:

“Continuous Mode” shall mean the mode of operation of an Energy Storage Resource Model Participant or solar-storage Open-Loop Hybrid Resource that includes both negative and positive megawatt quantities (i.e., the Energy Storage Resource Model Participant or solar-storage Open-Loop Hybrid Resource is capable of continually and immediately transitioning from withdrawing megawatt quantities from the grid to injecting megawatt quantities onto the grid or injecting megawatts to withdrawing megawatts). Energy Storage Resource Model Participants or solar-storage Open-Loop Hybrid Resource operating in Continuous Mode are considered to have an unlimited ramp rate. Continuous Mode requires Discharge Economic Maximum Megawatts to be zero or correspond to an injection, and Charge Economic Maximum Megawatts to be zero or correspond to a withdrawal.

Control Area:

“Control Area” shall mean an electric power system or combination of electric power systems bounded by interconnection metering and telemetry to which a common automatic generation control scheme is applied in order to:

(1) match the power output of the generators within the electric power system(s) and energy purchased from entities outside the electric power system(s), with the load within the electric power system(s);

(2) maintain scheduled interchange with other Control Areas, within the limits of Good Utility Practice;

(3) maintain the frequency of the electric power system(s) within reasonable limits in accordance with Good Utility Practice; and

(4) provide sufficient generating capacity to maintain operating reserves in accordance with Good Utility Practice.

Control Zone:

“Control Zone” shall have the meaning given in the Operating Agreement.

Controllable A.C. Merchant Transmission Facilities:

“Controllable A.C. Merchant Transmission Facilities” shall mean transmission facilities that (1) employ technology which Transmission Provider reviews and verifies will permit control of the amount and/or direction of power flow on such facilities to such extent as to effectively enable the controllable facilities to be operated as if they were direct current transmission facilities, and (2) that are interconnected with the Transmission System pursuant to Tariff, Part IV and Tariff, Part VI.

Coordinated External Transaction:

“Coordinated External Transaction” shall mean a transaction to simultaneously purchase and sell energy on either side of a CTS Enabled Interface in accordance with the procedures of Operating Agreement, Schedule 1, section 1.13, and the parallel provisions of Tariff, Attachment K-Appendix, section 1.13.

Coordinated Transaction Scheduling:

“Coordinated Transaction Scheduling” or “CTS” shall mean the scheduling of Coordinated External Transactions at a CTS Enabled Interface in accordance with the procedures of Operating Agreement, Schedule 1, section 1.13, and the parallel provisions of Tariff, Attachment K-Appendix, section 1.13.

Corporate Guaranty:

“Corporate Guaranty” shall mean a legal document, in a form acceptable to PJM and/or PJMSettlement, used by a Credit Affiliate of an entity to guaranty the obligations of another entity.

Cost of New Entry:

“Cost of New Entry” or “CONE” shall mean the nominal levelized cost of a Reference Resource, as determined in accordance with Tariff, Attachment DD, section 5.

Costs:

As used in Tariff, Part IV, Tariff, Part VI and related attachments, “Costs” shall mean costs and expenses, as estimated or calculated, as applicable, including, but not limited to, capital expenditures, if applicable, and overhead, return, and the costs of financing and taxes and any Incidental Expenses.

Counterparty:

“Counterparty” shall mean PJMSettlement as the contracting party, in its name and own right and not as an agent, to an agreement or transaction with a Market Participant or other entities, including the agreements and transactions with customers regarding transmission service and other transactions under the PJM Tariff and the Operating Agreement. PJMSettlement shall not be a counterparty to (i) any bilateral transactions between Members, or (ii) any Member’s self-supply of energy to serve its load, or (iii) any Member’s self-schedule of energy reported to the Office of the Interconnection to the extent that energy serves that Member’s own load.

Credit Affiliate:

“Credit Affiliate” shall mean Principals, corporations, partnerships, firms, joint ventures, associations, joint stock companies, trusts, unincorporated organizations or entities, one of which directly or indirectly controls the other or that are both under common Control. “Control,” as that term is used in this definition, shall mean the possession, directly or indirectly, of the power to direct the management or policies of a person or an entity.

Credit Available for Export Transactions:

“Credit Available for Export Transactions” shall mean a designation of credit to be used for Export Transactions that is allocated by each Market Participant from its Credit Available for Virtual Transactions, and which reduces the Market Participant’s Credit Available for Virtual Transactions accordingly.

Credit Available for Virtual Transactions:

“Credit Available for Virtual Transactions” shall mean the Market Participant’s Working Credit Limit for Virtual Transactions calculated on its credit provided in compliance with its Peak Market Activity requirement plus available credit submitted above that amount, less any unpaid

billed and unbilled amounts owed to PJMSettlement, plus any unpaid unbilled amounts owed by PJMSettlement to the Market Participant, less any applicable credit required for Minimum Participation Requirements, FTRs, RPM activity, or other credit requirement determinants as defined in Tariff, Attachment Q.

Credit Breach:

“Credit Breach” shall mean (a) the failure of a Participant to perform, observe, meet or comply with any requirements of Tariff, Attachment Q or other provisions of the Agreements, other than a Financial Default, or (b) a determination by PJM and notice to the Participant that a Participant represents an unreasonable credit risk to the PJM Markets; that, in either event, has not been cured or remedied after any required notice has been given and any cure period has elapsed.

Credit-Limited Offer:

“Credit-Limited Offer” shall mean a Sell Offer that is submitted by a Market Participant in an RPM Auction subject to a maximum credit requirement specified by such Market Participant.

Credit Support Default:

“Credit Support Default,” shall mean (a) the failure of any Guarantor of a Market Participant to make any payment, or to perform, observe, meet or comply with any provisions of the applicable Guaranty or Credit Support Document that has not been cured or remedied, after any required notice has been given and an opportunity to cure (if any) has elapsed, (b) a representation made or deemed made by a Guarantor in any Credit Support Document that proves to be false, incorrect or misleading in any material respect when made or deemed made, (c) the failure of a Guaranty or other Credit Support Document to be in full force and effect prior to the satisfaction of all obligations of such Participant to PJM, without PJM’s consent, or (d) a Guarantor repudiating, disaffirming, disclaiming or rejecting, in whole or in part, its obligations under the Guaranty or challenging the validity of the Guaranty.

Credit Support Document:

“Credit Support Document” shall mean any agreement or instrument in any way guaranteeing or securing any or all of a Participant’s obligations under the Agreements (including, without limitation, the provisions of Tariff, Attachment Q), any agreement entered into under, pursuant to, or in connection with the Agreements or any agreement entered into under, pursuant to, or in connection with the Agreements and/or any other agreement to which PJM, PJMSettlement and the Participant are parties, including, without limitation, any Corporate Guaranty, Letter of Credit, or agreement granting PJM and PJMSettlement a security interest.

Critical Natural Gas Infrastructure:

“Critical Natural Gas Infrastructure” shall mean locations with electrical loads that are involved in natural gas production, processing, intrastate and interstate transmission and distribution pipeline facility as defined by NERC/FERC standard(s); and until such NERC/FERC standard(s)

is developed, is defined as electric loads that are involved in natural gas production, processing, intrastate and interstate transmission and distribution pipeline facility, which if curtailed, will impact the delivery of natural gas to bulk-power system natural gas-fired generation.

Cross-Border:

When used to describe Network Integration Transmission Service, Network External Designated Transmission Service or Point-to-Point Transmission Service, “Cross-Border” shall mean transmission service where the capacity and/or energy is delivered from a resource that is not part of the PJM Transmission System and/or to load that is not part of the PJM Transmission System.

CTS Enabled Interface:

“CTS Enabled Interface” shall mean an interface between the PJM Control Area and an adjacent Control Area at which the Office of the Interconnection has authorized the use of Coordinated Transaction Scheduling (“CTS”). The CTS Enabled Interfaces between the PJM Control Area and the New York Independent System Operator, Inc. Control Area shall be designated in the Joint Operating Agreement Among and Between New York Independent System Operator Inc. and PJM Interconnection, L.L.C., Schedule A (PJM Rate Schedule FERC No. 45). The CTS Enabled Interfaces between the PJM Control Area and the Midcontinent Independent System Operator, Inc. shall be designated consistent with Attachment 3, section 2 of the Joint Operating Agreement between Midcontinent Independent System Operator, Inc. and PJM Interconnection, L.L.C.

CTS Interface Bid:

“CTS Interface Bid” shall mean a unified real-time bid to simultaneously purchase and sell energy on either side of a CTS Enabled Interface in accordance with the procedures of Operating Agreement, Schedule 1, section 1.13, and the parallel provisions of Tariff, Attachment K-Appendix, section 1.13.

Curtailement:

“Curtailement” shall mean a reduction in firm or non-firm transmission service in response to a transfer capability shortage as a result of system reliability conditions.

Curtailement Service Provider:

“Curtailement Service Provider” or “CSP” shall mean a Member or a Special Member, which action on behalf of itself or one or more other Members or non-Members, participates in the PJM Interchange Energy Market, Ancillary Services markets, and/or Reliability Pricing Model by causing a reduction in demand.

Customer Facility:

“Customer Facility” shall mean Generation Facilities or Merchant Transmission Facilities interconnected with or added to the Transmission System pursuant to an Interconnection Request under Tariff, Part IV.

Customer-Funded Upgrade:

“Customer-Funded Upgrade” shall mean any Network Upgrade, Local Upgrade, or Merchant Network Upgrade for which cost responsibility (i) is imposed on an Interconnection Customer or an Eligible Customer pursuant to Tariff, Part VI, section 217, or (ii) is voluntarily undertaken by a New Service Customer in fulfillment of an Upgrade Request. No Network Upgrade, Local Upgrade or Merchant Network Upgrade or other transmission expansion or enhancement shall be a Customer-Funded Upgrade if and to the extent that the costs thereof are included in the rate base of a public utility on which a regulated return is earned.

Customer Interconnection Facilities:

“Customer Interconnection Facilities” shall mean all facilities and equipment owned and/or controlled, operated and maintained by Interconnection Customer on Interconnection Customer’s side of the Point of Interconnection identified in the appropriate appendices to the Interconnection Service Agreement and to the Interconnection Construction Service Agreement, including any modifications, additions, or upgrades made to such facilities and equipment, that are necessary to physically and electrically interconnect the Customer Facility with the Transmission System.

Daily Deficiency Rate:

“Daily Deficiency Rate” shall mean the rate employed to assess certain deficiency charges under Tariff, Attachment DD, section 7, Tariff, Attachment DD, section 8, Tariff, Attachment DD, section 9, or Tariff, Attachment DD, section 13.

Daily Unforced Capacity Obligation:

“Daily Unforced Capacity Obligation” shall mean the capacity obligation of a Load Serving Entity during the Delivery Year, determined in accordance with Reliability Assurance Agreement, Schedule 8, or, as to an FRR entity, in Reliability Assurance Agreement, Schedule 8.1.

Day-ahead Congestion Price:

“Day-ahead Congestion Price” shall mean the Congestion Price resulting from the Day-ahead Energy Market.

Day-ahead Energy Market:

“Day-ahead Energy Market” shall mean the schedule of commitments for the purchase or sale of energy and payment of Transmission Congestion Charges developed by the Office of the

Interconnection as a result of the offers and specifications submitted in accordance with Operating Agreement, Schedule 1, section 1.10 and the parallel provisions of Tariff, Attachment K-Appendix, section 1.10.

Day-ahead Energy Market Injection Congestion Credits:

“Day-ahead Energy Market Injection Congestion Credits” shall mean those congestion credits paid to Market Participants for supply transactions in the Day-ahead Energy Market including generation schedules, Increment Offers, Up-to Congestion Transactions, import transactions, and Day-Ahead Pseudo-Tie Transactions.

Day-ahead Energy Market Transmission Congestion Charges:

“Day-ahead Energy Market Transmission Congestion Charges” shall be equal to the sum of Day-ahead Energy Market Withdrawal Congestion Charges minus [the sum of Day-ahead Energy Market Injection Congestion Credits plus any congestion charges calculated pursuant to the Joint Operating Agreement between the Midcontinent Independent Transmission System Operator, Inc. and PJM Interconnection, L.L.C. (PJM Rate Schedule FERC No. 38), plus any congestion charges calculated pursuant to the Joint Operating Agreement Among and Between New York Independent System Operator Inc. and PJM Interconnection, L.L.C. (PJM Rate Schedule FERC No. 45), plus any congestion charges calculated pursuant to agreements between the Office of the Interconnection and other entities, as applicable)].

Day-ahead Energy Market Withdrawal Congestion Charges:

“Day-ahead Energy Market Withdrawal Congestion Charges” shall mean those congestion charges collected from Market Participants for withdrawal transactions in the Day-ahead Energy Market from transactions including Demand Bids, Decrement Bids, Up-to Congestion Transactions, Export Transactions, and Day-Ahead Pseudo-Tie Transactions.

Day-ahead Loss Price:

“Day-ahead Loss Price” shall mean the Loss Price resulting from the Day-ahead Energy Market.

Day-ahead Prices:

“Day-ahead Prices” shall mean the Locational Marginal Prices resulting from the Day-ahead Energy Market.

Day-Ahead Pseudo-Tie Transaction:

“Day-Ahead Pseudo-Tie Transaction” shall mean a transaction scheduled in the Day-ahead Energy Market to the PJM-MISO interface from a generator within the PJM balancing authority area that Pseudo-Ties into the MISO balancing authority area.

Day-ahead Settlement Interval:

“Day-ahead Settlement Interval” shall mean the interval used by settlements, which shall be every one clock hour.

Day-ahead System Energy Price:

“Day-ahead System Energy Price” shall mean the System Energy Price resulting from the Day-ahead Energy Market.

Deactivation:

“Deactivation” shall mean the retirement or mothballing of a generating unit governed by Tariff, Part V.

Deactivation Avoidable Cost Credit:

“Deactivation Avoidable Cost Credit” shall mean the credit paid to Generation Owners pursuant to Tariff, Part V, section 114.

Deactivation Avoidable Cost Rate:

“Deactivation Avoidable Cost Rate” shall mean the formula rate established pursuant to Tariff, Part V, section 115.

Deactivation Date:

“Deactivation Date” shall mean the date a generating unit within the PJM Region is either retired or mothballed and ceases to operate.

Decrement Bid:

“Decrement Bid” shall mean a type of Virtual Transaction that is a bid to purchase energy at a specified location in the Day-ahead Energy Market. A cleared Decrement Bid results in scheduled load at the specified location in the Day-ahead Energy Market.

Default:

As used in the Interconnection Service Agreement and Construction Service Agreement, “Default” shall mean the failure of a Breaching Party to cure its Breach in accordance with the applicable provisions of an Interconnection Service Agreement or Construction Service Agreement.

Delivering Party:

“Delivering Party” shall mean the entity supplying capacity and energy to be transmitted at Point(s) of Receipt.

Delivery Year:

“Delivery Year” shall mean the Planning Period for which a Capacity Resource is committed pursuant to the auction procedures specified in Tariff, Attachment DD, or pursuant to an FRR Capacity Plan under Reliability Assurance Agreement, Schedule 8.1.

Demand Bid:

“Demand Bid” shall mean a bid, submitted by a Load Serving Entity in the Day-ahead Energy Market, to purchase energy at its contracted load location, for a specified timeframe and megawatt quantity, that if cleared will result in energy being scheduled at the specified location in the Day-ahead Energy Market and in the physical transfer of energy during the relevant Operating Day.

Demand Bid Limit:

“Demand Bid Limit” shall mean the largest MW volume of Demand Bids that may be submitted by a Load Serving Entity for any hour of an Operating Day, as determined pursuant to Operating Agreement, Schedule 1, section 1.10.1B, and the parallel provisions of Tariff, Attachment K-Appendix, section 1.10.1B.

Demand Bid Screening:

“Demand Bid Screening” shall mean the process by which Demand Bids are reviewed against the applicable Demand Bid Limit, and rejected if they would exceed that limit, as determined pursuant to Operating Agreement, Schedule 1, section 1.10.1B, and the parallel provisions of Tariff, Attachment K-Appendix, section 1.10.1B.

Demand Resource:

“Demand Resource” shall mean a resource with the capability to provide a reduction in demand.

Demand Resource Factor or DR Factor:

“Demand Resource Factor” or (“DR Factor”) shall have the meaning specified in the Reliability Assurance Agreement.

DER Aggregation Resource:

“DER Aggregation Resource” shall be comprised of one or more Component DER. A DER Aggregation Resource is used by a DER Aggregator to participate in the energy, capacity, and/or ancillary services markets of PJM through the DER Aggregator Participation Model. A DER Aggregation Resource is capable of satisfying a minimum energy and/or ancillary services market offer of 100 kW. The market participation eligibility of a DER Aggregation Resource

shall be determined in accordance with the physical and operational characteristics of the underlying Component DER that comprise the DER Aggregation Resource.

DER Aggregator:

“DER Aggregator” shall mean an entity that is a Market Participant that: (i) uses one or more DER Aggregation Resources to participate in the energy, capacity, and/or ancillary services markets of PJM through the DER Aggregator Participation Model; and (ii) has a fully-executed DER Aggregator Participation Service Agreement.

DER Aggregator Participation Model:

“DER Aggregator Participation Model” shall mean the participation model described in Tariff, Attachment K-Appendix, section 1.4B.

DER Capacity Aggregation Resource:

“DER Capacity Aggregation Resource” shall mean one or more DER Aggregation Resource that participates in the Reliability Pricing Model, capable of satisfying a minimum capacity market offer of 100 kW, or is otherwise treated as capacity in PJM’s markets, such as through a Fixed Resource Requirement Capacity Plan, for the 2028/2029 Delivery Year and all subsequent Delivery Years.

Designated Agent:

“Designated Agent” shall mean any entity that performs actions or functions on behalf of the Transmission Provider, a Transmission Owner, an Eligible Customer, or the Transmission Customer required under the Tariff.

Designated Entity:

“Designated Entity” shall have the same meaning provided in the Operating Agreement.

Direct Assignment Facilities:

“Direct Assignment Facilities” shall mean facilities or portions of facilities that are constructed for the sole use/benefit of a particular Transmission Customer requesting service under the Tariff. Direct Assignment Facilities shall be specified in the Service Agreement that governs service to the Transmission Customer and shall be subject to Commission approval.

Direct Charging Energy:

“Direct Charging Energy” shall mean the energy that an Energy Storage Resource or Open-Loop Hybrid Resource purchases from the PJM Interchange Energy Market and (i) later resells to the PJM Interchange Energy Market; or (ii) is lost to conversion inefficiencies, provided that such

inefficiencies are an unavoidable component of the conversion, storage, and discharge process that is used to resell energy back to the PJM Interchange Energy Market.

Direct Load Control:

“Direct Load Control” shall mean load reduction that is controlled directly by the Curtailment Service Provider’s market operations center or its agent, in response to PJM instructions.

Discharge Economic Maximum Megawatts:

“Discharge Economic Maximum Megawatts” shall mean the maximum megawatt power output available for discharge in economic dispatch by an Energy Storage Resource Model Participant or solar-storage Open-Loop Hybrid Resource in Continuous Mode or in Discharge Mode. Discharge Economic Maximum Megawatts shall be the Economic Maximum for an Energy Storage Resource or solar-storage Open-Loop Hybrid Resource in Discharge Mode or in Continuous Mode.

Discharge Economic Minimum Megawatts:

“Discharge Economic Minimum Megawatts” shall mean the minimum megawatt power output available for discharge in economic dispatch by an Energy Storage Resource Model Participant or solar-storage Open-Loop Hybrid Resource in Discharge Mode. Discharge Economic Minimum Megawatts shall be the Economic Minimum for an Energy Storage Resource or solar-storage Open-Loop Hybrid Resource in Discharge Mode.

Discharge Mode:

“Discharge Mode” shall mean the mode of operation of an Energy Storage Resource Model Participant or solar-storage Open-Loop Hybrid Resource that only includes positive megawatt quantities (i.e., the Energy Storage Resource Model Participant or solar-storage Open-Loop Hybrid Resource is only injecting megawatts onto the grid).

Discharge Ramp Rate:

“Discharge Ramp Rate” shall mean the Ramping Capability of an Energy Storage Resource Model Participant or solar-storage Open-Loop Hybrid Resource in Discharge Mode.

Dispatch Rate:

“Dispatch Rate” shall mean the control signal, expressed in dollars per megawatt-hour, calculated and transmitted continuously and dynamically to direct the output level of all generation resources dispatched by the Office of the Interconnection in accordance with the Offer Data.

Dispatched Charging Energy:

“Dispatched Charging Energy” shall mean Direct Charging Energy that an Energy Storage Resource Model Participant or Open-Loop Hybrid Resource receives from the electric grid pursuant to PJM dispatch while providing one of the following services in the PJM markets: Energy Imbalance Service pursuant to Tariff, Schedule 4; Regulation; Tier 2 Synchronized Reserves; or Reactive Service. Energy Storage Resource Model Participants and Open-Loop Hybrid Resource shall be considered to be providing Energy Imbalance Service when they are dispatchable by PJM in real-time.

Dynamic Schedule:

“Dynamic Schedule” shall have the same meaning provided in the Operating Agreement.

Dynamic Transfer:

“Dynamic Transfer” shall have the same meaning provided in the Operating Agreement.

~~1.4B~~ [Reserved.] **1.4B DER Aggregator Participation Model**

(a) DER Aggregators providing capacity using a DER Capacity Aggregation Resource shall be subject to the Day-ahead Energy Market must-offer requirement described in Tariff, Attachment K-Appendix, section 1.10.1A(d) and Operating Agreement, Schedule 1, section 1.10.1A(d), based on the technology of the Component DER within the DER Aggregation Resource linked to the DER Capacity Aggregation Resource, in accordance with the PJM Manuals.

(b) DER Aggregation Resources are subject to offer price cap and associated three pivotal supplier test provisions of Operating Agreement, Schedule 1, section 6.4.

(c) A DER Capacity Aggregation Resource shall be subject to a MOPR Floor Offer Price in accordance with the provisions applicable to MOPR Floor Offer Price for Generation Capacity Resources, as described in Tariff, Attachment DD, section 5.14(h-2), and Market Seller Offer Cap for Generation Capacity Resources in a manner consistent with the provisions applicable to Market Seller Offer Cap for Generation Capacity Resources, as described in Tariff, Attachment DD, section 6.4 and Tariff, Attachment M-Appendix, section II.E, based on the underlying technology of the Component DER.

A DER Capacity Aggregation Resource may segment offers for the Component DER subject to mitigation, based on the underlying technology of the Component DER in the DER Capacity Aggregation Resource, and further described in the PJM Manuals.

If a DER Capacity Aggregation Resource is subject to the Minimum Floor Offer Price pursuant to Tariff, Attachment DD, sections 5.14(h-2), the Capacity Market Seller that owns or controls such resources may submit a Sell Offer with a Minimum Floor Offer Price of no lower than the MW-weighted average of the applicable MOPR Floor Offer Prices (zero if not applicable) of the aggregated resources in such Sell Offer.

(d) Projected PJM Market Revenues for DER Capacity Aggregation Resources subject to the Minimum Floor Offer Price or Market Seller Offer Cap shall be determined in accordance with Tariff, Attachment DD, section 6.8(d-1). The determination of PJM Market Revenues by the Market Monitoring Unit or the Office of the Interconnection shall utilize either the hourly output profiles, or the Projected EAS Dispatch, as appropriate.

ATTACHMENT Q

CREDIT RISK MANAGEMENT POLICY

I. INTRODUCTION

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

PURPOSE

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

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

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

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

APPLICABILITY

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

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

II. RISK EVALUATION PROCESS

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

A. Initial Risk Evaluation

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

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

1. Rating Agency Reports

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

2. Financial Statements and Related Information

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

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

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

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

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

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

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

3. Credit Rating and Internal Credit Score

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

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

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

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

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

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

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

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

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

RRA = Regulatory Research Associates, a division of S&P Global, Inc.

BICRA = Bank Industry Country Risk Assessment

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

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

6 = High Risk (S&P/Fitch: BB- and below; Moody's: Ba3 and below)

4. Trade References

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

5. Litigation and Contingencies

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

6. History of Defaults in Energy Projects

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

7. Other Disclosures and Additional Information

Each Applicant and Guarantor is required to disclose any Credit Affiliates that are currently Members of PJM, applying for membership with PJM, Transmission Customers, Participants, applying to become Market Participants, or that participate directly or indirectly in any PJM Markets or any other North American markets for electricity, natural gas or electricity-related commodity products. Each Applicant and Guarantor shall also provide a copy of its limited liability company agreement or equivalent agreement, certification of formation, articles of incorporation or other similar organization document, offering memo or equivalent, the names of its five (5) most senior Principals, and information pertaining to any non-compliance with debt covenants and indentures.

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

B. Supplemental Risk Evaluation Process

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

C. Unsecured Credit Allowance

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

1. Unsecured Credit Allowance Evaluation

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

(a) Rating Agency Reports

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

(b) Financial Statements and Related Information

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

2. Material Adverse Changes

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

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

3. Other Disclosures

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

D. Determination of Unreasonable Credit Risk

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

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

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

E. Ongoing Risk Evaluation

In addition to the initial risk evaluation set forth in sections II.A through II.D above and the annual certification requirements set forth in section III.A below, each Market Participant and/or its Guarantor has an ongoing obligation to provide PJM with the information required in section IV.A described in more detail below. PJM may also review public information regarding a Market Participant and/or its Guarantor as part of its ongoing risk evaluation. If appropriate, PJM will revise the Market Participant's Unsecured Credit Allowance and/or change its determination of creditworthiness, credit support, Restricted Collateral, required Collateral or other assurances pursuant to PJM's ongoing risk evaluation process.

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

1. Rating Agency Reports

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

2. Financial Statements and Related Information

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

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

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

3. Material Adverse Changes

Each Market Participant and each Guarantor is responsible for informing PJM, in writing, of any Material Adverse Change in its or its Guarantor's financial condition within five (5) Business Days of any Principal becoming aware of the occurrence of a Material Adverse Change since the date of the Market Participant or Guarantor's most recent annual financial statements provided to PJM. However, PJM may also independently establish from available information that a Participant and/or its Guarantor has experienced a Material Adverse Change in its financial condition without regard to whether such Market Participant or Guarantor has informed PJM of the same.

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

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

- (l) any adverse changes in financial condition which, individually, or in the aggregate, are material; and,
- (m) any adverse changes, events or occurrences which, individually or in the aggregate, could affect the ability of the entity to pay its debts as they become due or could reasonably be expected to have a material adverse effect on any current or future financial results or financial condition.

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

4. Litigation and Contingencies

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

5. History of Defaults in Energy Projects

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

6. Internal Credit Score

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

7. Other Disclosures and Additional Information

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

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

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

8. Unreasonable Credit Risk

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

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

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

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

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

F. Collateral and Credit Restrictions

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

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

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

G. Unsecured Credit Allowance Calculation

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

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

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

1. Credit Rating and Internal Credit Score

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

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

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

2. Unsecured Credit Allowance

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

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

Internal Credit Score	Risk Ranking	Tangible Net Worth Factor	Maximum Unsecured Credit Allowance (\$ Million)
1.00 – 1.99	1 – Very Low (AAA to AA-)	Up to 10.00%	\$50
2.00 – 2.99	2 – Low (A+ to BBB+)	Up to 8.00%	\$42
3.00 – 3.49	3 – Low to Medium (BBB)	Up to 6.00%	\$33

3.50 – 4.49	4 – Medium (BBB-)	Up to 5.00%	\$7
4.50 – 5.49	5 – Medium to High (BB+ to BB)	0%	\$0
> 5.49	6 – High (BB- and below)	0%	\$0

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

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

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

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

3. Unsecured Credit Limits For Credit Affiliates

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

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

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

corporate family shall not exceed \$50 million. A Credit Affiliate corporate family subject to this cap shall request PJM to allocate the maximum Unsecured Credit amongst the corporate family, assuring that no individual Participant or common guarantor, shall exceed the Unsecured Credit level appropriate for its credit strength and activity.

H. Contesting an Unsecured Credit Evaluation

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

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

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

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

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

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

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

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

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

III. MINIMUM PARTICIPATION REQUIREMENTS

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

A. Annual Certification

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

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

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

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

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

B. PJM Market Participation Eligibility Requirements

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

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

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

or Market Participant acknowledges is separate from, and cannot be applied to meet, its credit requirements to PJM.

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

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

C. Risk Management and Verification

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

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

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

D. Capitalization

In advance of certification, Applicants shall meet the minimum capitalization requirements below. In addition to the annual certification requirements in Attachment Q, Appendix 1, a Market Participant shall satisfy the minimum capitalization requirements on an annual basis thereafter. A Participant must demonstrate that it meets the minimum financial requirements appropriate for the PJM Markets in which it transacts by satisfying either the minimum capitalization or the provision of Collateral requirements listed below:

1. Minimum Capitalization

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

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

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

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

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

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

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

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

2. Provision of Collateral

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

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

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

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

- (a) the applicable Unsecured Credit Allowance available to the Participant by the Corporate Guaranty pursuant to the creditworthiness provisions of this Attachment Q; or

(b) the face value of the Corporate Guaranty, reduced commensurate with the amount of the current risk plus any anticipated future risk to any PJM Markets and PJM membership in general, and may coincide with limitations on market participation.

IV. ONGOING COVENANTS

A. Ongoing Obligation to Provide Information to PJM

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

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

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

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

B. Risk Management Review

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

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

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

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

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

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

V. FORMS OF CREDIT SUPPORT

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

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

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

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

A. Cash Deposit

A Participant's delivery of a cash deposit to PJM as Collateral shall constitute the grant of a first-priority security interest in the cash in favor of PJM and PJM shall be authorized by such delivery to hold the cash as security and to apply it to the Participant's financial obligations under the Tariff or other Agreements. Cash provided by a Participant as Collateral will be held in a depository account by PJM. Interest on a cash deposit shall accrue to the benefit of the Participant, provided that PJM may require Participants to provide appropriate tax and other information in order to accrue such interest credits. A Participant who delivers cash to PJM hereunder agrees that the Tariff and any other agreements incorporating the terms of the Tariff shall for all purposes constitute a security agreement.

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

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

B. Letter of Credit

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

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

C. Corporate Guaranty

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

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

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

PJM will evaluate the creditworthiness of a Guarantor and will establish any Unsecured Credit granted through a Corporate Guaranty using the methodology and requirements established for Participants requesting an Unsecured Credit Allowance as described herein. Foreign Guaranties and Canadian Guaranties shall be subject to additional requirements as established herein.

If PJM determines at any time that a Material Adverse Change in the financial condition of the Guarantor has occurred, or if the Corporate Guaranty comes within thirty (30) calendar days of expiring without renewal, PJM may reduce or eliminate any Unsecured Credit afforded to the Participant through the guaranty. Such reduction or elimination may require the Participant to provide Collateral within the applicable cure period. If the Participant fails to provide the required Collateral, the Participant shall be in default under this Attachment Q.

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

1. Foreign Guaranties

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

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

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

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

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

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

2. Canadian Guaranties

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

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

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

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

D. Surety Bond

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

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

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

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

E. PJM Administrative Charges

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

F. Collateral and Credit Support Held by PJM

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

VI. SUPPLEMENTAL CREDIT REQUIREMENTS FOR SCREENED TRANSACTIONS

A. Virtual and Export Transaction Screening

1. Credit for Virtual and Export Transactions

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

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

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

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

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

2. Virtual Transaction Screening

All Virtual Transactions submitted to PJM shall be subject to a credit screen prior to acceptance in the Day-ahead Energy Market. The credit screen is applied separately for each of a Market

Participant's customer accounts. The credit screen process will automatically reject Virtual Transactions submitted by the Market Participant in a customer account if the Market Participant's Credit Available for Virtual Transactions, allocated on a customer account basis, is exceeded by the Virtual Credit Exposure that is calculated based on the Market Participant's Virtual Transactions submitted, as described below.

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

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

Where:

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

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

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

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

3. Export Transaction Screening

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

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

B. RPM Auction and Price Responsive Demand Credit Requirements

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

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

1. Applicability

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

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

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

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

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

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

3. Reduction in Credit Requirement

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

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

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

- (a) For Planned Demand Resources and Energy Efficiency Resources, the RPM Auction Credit requirement will be reduced in direct proportion to the megawatts of such Demand Resource that the Resource Provider qualifies as a Capacity Resource, in accordance with the procedures established under the Reliability Assurance Agreement.
- (b) For Existing Generation Capacity Resources located outside the PJM Region that have not secured sufficient firm transmission to the border of the PJM Region prior to the auction in which such resource is first offered, the RPM Auction Credit requirement shall be reduced in direct proportion to the megawatts of firm transmission service secured by the Market Participant

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

4. RPM Auction Credit Rate

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

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

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

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

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

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

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

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

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

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

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

5. Price Responsive Demand Credit Rate

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

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

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

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

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

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

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

7. Credit Responsibility for Traded Planned RPM Capacity Resources

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

C. Financial Transmission Right Auctions

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

1. FTR Credit Limit.

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

2. FTR Credit Requirement.

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

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

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

(a) Initial Margin

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

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

The model will employ a confidence interval of 99 percent.

(i) FTR Obligations IM

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

(ii) FTR Options IM

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

(b) Auction Revenue Rights Credits

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

(c) Mark-to-Auction Value

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

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

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

(e) Realized Gains and/or Losses

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

3. Rejection of FTR Bids.

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

4. FTR Credit Collateral Returns.

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

5. Credit Responsibility for Bilateral Transfers of FTRs.

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

6. FTR Administrative Charge Credit Requirement

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

7. Mark-to-Auction

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

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

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

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

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

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

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

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

VII. PEAK MARKET ACTIVITY AND WORKING CREDIT LIMIT

A. Peak Market Activity Credit Requirement

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

Peak Market Activity for Participants will be determined weekly, utilizing an initial Peak Market Activity, as explained in this section VII.A below. Peak Market Activity shall be the greater of the initial Peak Market Activity, or the greatest amount invoiced for the Participant's transaction activity for all PJM Markets and services in the rolling past one, two, three or four-week period.

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

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

Peak Market Activity = min [max [initial Peak Market Activity, max [greatest amount invoiced for transaction activity for the rolling past one, two, three, or four-week period]], max [greatest amount invoiced for transaction activity for any rolling one, two or three-week period in the prior 52 weeks]

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

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

The initial Peak Market Activity for Market Participants and Transmission Customers, calculated weekly upon issuance of the weekly invoice, shall be the three-week average of all non-zero invoice totals over the previous 52 weeks.

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

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

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

In the event that the Peak Market Activity Shortfall exceeds or equals the Minimum Exposure, the prior week's Peak Market Activity credit requirement will be increased by an amount equal to $n * \text{the Minimum Transfer Amount}$, with n being the integer that will cause the current week's Peak Market Activity credit requirement to be greater than or equal to the Participant's current Peak Market Activity but less than the Participant's current Peak Market Activity plus the Minimum Transfer Amount. For the avoidance of doubt, if the Peak Market Activity Shortfall is less than the Minimum Exposure, the current week's Peak Market Activity credit requirement will remain the same as the prior week's Peak Market Activity credit requirement.

In the event that the Peak Market Activity Surplus exceeds or equals the Minimum Transfer Amount, the prior week's Peak Market Activity credit requirement will be decreased by an amount equal to $n * \text{the Minimum Transfer Amount}$, with n being the integer that will cause the current week's Peak Market Activity credit requirement to be greater than or equal to the Participant's current Peak Market Activity but less than the Participant's current Peak Market Activity plus the Minimum Transfer Amount. For the avoidance of doubt, if the Peak Market Activity Surplus is less than the Minimum Transfer Amount, the current week's Peak Market Activity credit requirement will remain the same as the prior week's Peak Market Activity credit requirement.

In the event that there is neither a Peak Market Activity Shortfall nor a Peak Market Activity Surplus, then the current week's Peak Market Activity credit requirement is the same as the prior week's Peak Market Activity credit requirement.

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

PJM may waive the credit requirements for a Participant that has no outstanding transactions and agrees in writing that it shall not, after the date of such agreement, incur obligations under any of the Agreements. Such entity's access to all electronic transaction systems administered by PJM shall be terminated.

A Participant receiving unsecured credit may make early payments up to thirteen (13) times in a rolling 52-week period in order to reduce its Peak Market Activity for credit requirement purposes. Imputed Peak Market Activity reductions for credit purposes will be applied to the billing period for which the payment was received. Payments used as the basis for such reductions must be received prior to issuance or posting of the invoice for the relevant billing period. The imputed Peak Market Activity reduction attributed to any payment may not exceed the amount of Unsecured Credit for which the Participant is eligible.

B. Working Credit Limit

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

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

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

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

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

VIII. SUSPENSION OR LIMITATION ON MARKET PARTICIPATION

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

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

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

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

If PJM determines that a Market Participant is in Credit Breach, or that a Financial Default or Credit Support Default exists, PJM may issue to the Market Participant a breach notice and/or a Collateral Call or demand for additional documentation or assurances. At such time, PJM may also suspend payments of any amounts due to the Participant and limit, restrict or rescind the Market Participant's privileges to participate in any or all PJM Markets under the Agreements during any such cure period. Failure to remedy the Credit Breach, Financial Default or to satisfy a Collateral Call or demand for additional documentation or assurances within the applicable cure period described in Operating Agreement, section 15.1.5, shall constitute an Event of

Default. If a Participant fails to meet the requirements of this Attachment Q, but then remedies the Credit Breach, Financial Default or Credit Support Default, or satisfies a Collateral Call or demand for additional documentation or assurances within the applicable cure period, then the Participant shall be deemed to again be in compliance with this Attachment Q, so long as no other Credit Breach, Financial Default, Credit Support Default or Collateral Call or demand for additional documentation or assurances has occurred and is continuing.

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

When an Event of Default under this Attachment Q or one or more of the Agreements has occurred and is continuing, PJM may take such actions as may be required or permitted under the Agreements to protect the PJM Markets and the PJM Members, including but not limited to (a) suspension and/or termination of the Participant's ongoing Transmission Service, (b) limitation, suspension and/or termination of participation in any PJM Markets, (c) taking all necessary steps to address the Market Participant's market portfolio in accordance with the provisions of the Operating Agreement and PJM Tariff, including, but not limited to, allowing such portfolio's positions to go to settlement, liquidating or otherwise resolving such portfolio positions, exercising judgment in the manner in which this is achieved in any PJM Markets. PJM may permit a defaulting Market Participant to continue to participate in PJM Markets: (a) in support of grid reliability, (b) when such Market Participant is a net market seller, (c) when such Market Participant has the ability to post collateral, or (d) to enable certain customers to continue to receive service prior to PJM receiving regulatory or legal approval to terminate.

When an Event of Default under this Attachment Q or one or more of the Agreements has occurred and is continuing, PJM also has the immediate right to liquidate all or a portion of a Participant's Collateral at its discretion to satisfy Total Net Obligations to PJM under this Attachment Q or one or more of the Agreements. No remedy for an Event of Default is or shall be deemed to be exclusive of any other available remedy or remedies by contract or under applicable laws and regulations. Each such remedy shall be distinct, separate and cumulative, shall not be deemed inconsistent with or in exclusion of any other available remedy, and shall be in addition to and separate and distinct from every other remedy.

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

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

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

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

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

To protect PJM Members and PJM Markets from loss and harm due to uncertainty and delay which may be created upon a Participant's bankruptcy, in the event a Participant becomes a debtor under the United States Bankruptcy Code, 11 U.S.C. §§ 101-1532 (the "Bankruptcy Code"), whether voluntarily or involuntarily, the Participant should upon the commencement of the bankruptcy case immediately seek through a "first day" motion or motions, to the extent appropriate under the circumstances to provide PJM with prompt clarity as to its rights and treatment, the entry of an order of the bankruptcy court: (i) authorizing and directing the Participant to (a) make prompt and full payment of all pre-petition Obligations to PJM; and (b) fulfill all obligations under the Tariff and other Agreements in the ordinary course of business, including but not limited to deposit of additional Collateral post-petition; (ii) authorizing PJM to (x) require, hold and apply Collateral in accordance with this Attachment Q and (y) exercise setoff and recoupment to the fullest extent provided under the Tariff and other Agreements, and applicable nonbankruptcy law; and (iii) confirming the status of Agreements as a "forward contract", "swap agreement", or "master netting agreement" under the Bankruptcy Code, as applicable.

In the event that a debtor Participant fails to file such a "first day" motion within one (1) Business Day of the commencement of the bankruptcy case, or the bankruptcy court does not enter an order granting the relief requested in such "first day" motion within seven (7) days thereof, PJM may file a motion for relief from the automatic stay under section 362(d) of the

Bankruptcy Code, citing the lack of prompt clarity as “cause” thereunder, to the extent necessary to permit PJM to exercise any rights and remedies under the Tariff and other Agreements.

X. FTR TRANSACTIONS AS FORWARD CONTRACTS AND/OR SWAP AGREEMENTS UNDER THE BANKRUPTCY CODE

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

Notwithstanding the CFTC RTO/ISO Order, all FTR transactions constitute “forward contracts” and/or “swap agreements” within the meaning of the Bankruptcy Code, and PJM shall be deemed to be a “forward contract merchant” and/or a “swap participant” within the meaning of the Bankruptcy Code for purposes of FTR transactions.

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

For the avoidance of doubt, upon the commencement of a voluntary or involuntary proceeding for a Market Participant under the Bankruptcy Code, and without limiting any other rights of PJM or obligations of any Market Participant under the Tariff (including this Attachment Q) or other Agreements, PJM may exercise any of its rights against such Market Participant, including, without limitation (1) the right to terminate, liquidate or otherwise resolve any FTR transaction or position held by that Market Participant, including by allowing such position to go to settlement, (2) the right to immediately proceed against any Collateral and additional financial

assurance provided by that Market Participant, (3) the right to set off or recoup any obligations due and owing to that Market Participant pursuant to any forward contract, swap agreement and/or master netting agreement against any amounts due and owing by that Market Participant with respect to an FTR transaction including as a result of the actions taken by PJM pursuant to (1) above, and (4) the right to suspend or limit that Market Participant from entering into future FTR transactions.

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

Attachment Q
Appendix 1

PJM MINIMUM PARTICIPATION CRITERIA
ANNUAL OFFICER CERTIFICATION FORM

Participant Name: _____ (**"Participant"**)

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

1. All employees or agents transacting in markets or services provided pursuant to the PJM Tariff or PJM Amended and Restated Operating Agreement ("PJM Operating Agreement") on behalf of the Participant have received appropriate training and are authorized to transact on behalf of Participant. As used in this representation, the term "appropriate" as used with respect to training means training that is (i) comparable to generally accepted practices in the energy trading industry, and (ii) commensurate and proportional in sophistication, scope and frequency to the volume of transactions and the nature and extent of the risk taken by the participant. _____
2. Participant has written risk management policies, procedures, and controls, approved by Participant's independent risk management function and applicable to transactions in any PJM Markets in which it participates and for which employees or agents transacting in markets or services provided pursuant to the PJM Tariff or PJM Operating Agreement have been trained, that provide an appropriate, comprehensive risk management framework that, at a minimum, clearly identifies and documents the range of risks to which Participant is exposed, including, but not limited to credit risks, liquidity risks and market risks. As used in this representation, a Participant's "independent risk management function" can include appropriate corporate persons or bodies that are independent of the Participant's trading functions, such as a risk management committee, a risk officer, a Participant's board or board committee, or a board or committee of the Participant's parent company.
 - a. Participant is providing to PJM or PJMSettlement, in accordance with Tariff, Attachment Q, section III, with this Annual Officer Certification Form, a copy of its current governing risk management policies, procedures and controls applicable to its activities in any PJM Markets pursuant to Attachment Q or because there have been substantive changes made to such policies, procedures and controls applicable to its market activities since they were last provided to PJM. _____
 - b. If the risk management policies, procedures and controls applicable to Participant's market activities submitted to PJM or PJMSettlement were submitted prior to the current certification, Participant certifies that no substantive changes have

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

Description only if c(4) is initialed:

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

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

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

Date: _____

Participant (Signature)

Print Name: _____

Title: _____

5.14 Clearing Prices and Charges

a) Capacity Resource Clearing Prices

For each Base Residual Auction and Incremental Auction, the Office of the Interconnection shall calculate a clearing price to be paid for each megawatt-day of Unforced Capacity that clears in such auction. The Capacity Resource Clearing Price for each LDA will be the marginal value of system capacity for the PJM Region, without considering locational constraints, adjusted as necessary by any applicable Locational Price Adders, Annual Resource Price Adders, Extended Summer Resource Price Adders, Limited Resource Price Decrements, Sub-Annual Resource Price Decrements, Base Capacity Demand Resource Price Decrements, and Base Capacity Resource Price Decrements, all as determined by the Office of the Interconnection based on the optimization algorithm. If a Capacity Resource is located in more than one Locational Deliverability Area, it shall be paid the highest Locational Price Adder in any applicable LDA in which the Sell Offer for such Capacity Resource cleared. The Annual Resource Price Adder is applicable for Annual Resources only. The Extended Summer Resource Price Adder is applicable for Annual Resources and Extended Summer Demand Resources.

The Locational Price Adder applicable to each cleared Seasonal Capacity Performance Resource is determined during the post-processing of the RPM Auction results consistent with the manner in which the auction clearing algorithm recognizes the contribution of Seasonal Capacity Performance Resource Sell Offers in satisfying an LDA's reliability requirement. For each LDA with a positive Locational Price Adder with respect to the immediate higher level LDA, starting with the lowest level constrained LDAs and moving up, PJM determines the quantity of equally matched Summer-Period Capacity Performance Resources and Winter-Period Capacity Performance Resources located and cleared within that LDA. Up to this quantity, the cleared Summer-Period Capacity Performance Resources and Winter-Period Capacity Performance Resources with the lowest Sell Offer prices will be compensated using the highest Locational Price Adder applicable to such LDA; and any remaining Seasonal Capacity Performance Resources cleared within the LDA are effectively moved to the next higher level constrained LDA, where they are considered in a similar manner for compensation.

b) Resource Make-Whole Payments

If a Sell Offer specifies a minimum block, and only a portion of such block is needed to clear the market in a Base Residual or Incremental Auction, the MW portion of such Sell Offer needed to clear the market shall clear, and such Sell Offer shall set the marginal value of system capacity. In addition, the Capacity Market Seller shall receive a Resource Make-Whole Payment equal to the Capacity Resource Clearing Price in such auction times the difference between the Sell Offer's minimum block MW quantity and the Sell Offer's cleared MW quantity. If the Sell Offer price of a cleared Seasonal Capacity Performance Resource exceeds the applicable Capacity Resource Clearing Price, the Capacity Market Seller shall receive a Resource Make-Whole Payment equal to the difference between the Sell Offer price and Capacity Resource Clearing Price in such RPM Auction. The cost for any such Resource Make-Whole Payments required in a Base Residual Auction or Incremental Auction for adjustment of prior capacity commitments shall be collected pro rata from all LSEs in the LDA in which such payments were made, based on their Daily Unforced Capacity Obligations. The cost for any such Resource Make-Whole

Payments required in an Incremental Auction for capacity replacement shall be collected from all Capacity Market Buyers in the LDA in which such payments were made, on a pro-rata basis based on the MWs purchased in such auction.

c) New Entry Price Adjustment

A Capacity Market Seller that submits a Sell Offer based on a Planned Generation Capacity Resource that clears in the BRA for a Delivery Year may, at its election, submit Sell Offers with a New Entry Price Adjustment in the BRAs for the two immediately succeeding Delivery Years if:

1. Such Capacity Market Seller provides notice of such election at the time it submits its Sell Offer for such resource in the BRA for the first Delivery Year for which such resource is eligible to be considered a Planned Generation Capacity Resource. When the Capacity Market Seller provides notice of such election, it must specify whether its Sell Offer is contingent upon qualifying for the New Entry Price Adjustment. The Office of the Interconnection shall not clear such contingent Sell Offer if it does not qualify for the New Entry Price Adjustment.

2. All or any part of a Sell Offer from the Planned Generation Capacity Resource submitted in accordance with section 5.14(c)(1) is the marginal Sell Offer that sets the Capacity Resource Clearing Price for the LDA.

3. Acceptance of all or any part of a Sell Offer that meets the conditions in section 5.14(c)(1)-(2) in the BRA increases the total Unforced Capacity committed in the BRA (including any minimum block quantity) for the LDA in which such Resource will be located from a megawatt quantity below the LDA Reliability Requirement, minus the Short Term Resource Procurement Target, to a megawatt quantity at or above a megawatt quantity at the price-quantity point on the VRR Curve at which the price is 0.40 times the applicable Net CONE divided by (one minus the pool-wide average EFORd) through the 2024/2025 Delivery Year, and beginning with the 2025/2026 Delivery Year, divided by the applicable ELCC Class Rating for the Reference Resource.

4. Such Capacity Market Seller submits Sell Offers in the BRA for the two immediately succeeding Delivery Years for the entire Unforced Capacity of such Generation Capacity Resource committed in the first BRA under section 5.14(c)(1)-(2) equal to the lesser of: A) the price in such seller's Sell Offer for the BRA in which such resource qualified as a Planned Generation Capacity Resource that satisfies the conditions in section 5.14(c)(1)-(3); or B) 0.90 times the Net CONE applicable in the first BRA in which such Planned Generation Capacity Resource meeting the conditions in section 5.14(c)(1)-(3) cleared, on an Unforced Capacity basis, for such LDA.

5. If the Sell Offer is submitted consistent with section 5.14(c)(1)-(4) the foregoing conditions, then:

- (i) in the first Delivery Year, the Resource sets the Capacity Resource Clearing Price for the LDA and all cleared resources in the LDA receive

the Capacity Resource Clearing Price set by the Sell Offer as the marginal offer, in accordance with Tariff, Attachment DD, section 5.12(a) and section 5.14(a) above.

- (ii) in either of the subsequent two BRAs, if any part of the Sell Offer from the Resource clears, it shall receive the Capacity Resource Clearing Price for such LDA for its cleared capacity and for any additional minimum block quantity pursuant to section 5.14(b) above; or
- (iii) if the Resource does not clear, it shall be deemed resubmitted at the highest price per MW-day at which the megawatt quantity of Unforced Capacity of such Resource that cleared the first-year BRA will clear the subsequent-year BRA pursuant to the optimization algorithm described in Tariff, Attachment DD, section 5.12(a), and
- (iv) the resource with its Sell Offer submitted shall clear and shall be committed to the PJM Region in the amount cleared, plus any additional minimum-block quantity from its Sell Offer for such Delivery Year, but such additional amount shall be no greater than the portion of a minimum-block quantity, if any, from its first-year Sell Offer satisfying section 5.14(c)(1)-(3) above that is entitled to compensation pursuant to section 5.14(b) above; and
- (v) the Capacity Resource Clearing Price, and the resources cleared, shall be re-determined to reflect the resubmitted Sell Offer. In such case, the Resource for which the Sell Offer is submitted pursuant to section 5.14(c)(1)-(4) above shall be paid for the entire committed quantity at the Sell Offer price that it initially submitted in such subsequent BRA. The difference between such Sell Offer price and the Capacity Resource Clearing Price (as well as any difference between the cleared quantity and the committed quantity), will be treated as a Resource Make-Whole Payment in accordance with section 5.14(b) above. Other capacity resources that clear the BRA in such LDA receive the Capacity Resource Clearing Price as determined in section 5.14(a) above.

6. The failure to submit a Sell Offer consistent with section 5.14(c)(i)-(iii) above in the BRA for Delivery Year 3 shall not retroactively revoke the New Entry Price Adjustment for Delivery Year 2. However, the failure to submit a Sell Offer consistent with section 5.14(c)(4) above in the BRA for Delivery Year 2 shall make the resource ineligible for the New Entry Pricing Adjustment for Delivery Years 2 and 3.

7. For each Delivery Year that the foregoing conditions are satisfied, the Office of the Interconnection shall maintain and employ in the auction clearing for such LDA a separate VRR Curve, notwithstanding the outcome of the test referenced in Tariff, Attachment DD, section 5.10(a)(ii).

8. On or before August 1, 2012, PJM shall file with FERC under FPA section 205, as determined necessary by PJM following a stakeholder process, tariff changes to establish a long-term auction process as a not unduly discriminatory means to provide adequate long-term revenue assurances to support new entry, as a supplement to or replacement of this New Entry Price Adjustment.

d) Qualifying Transmission Upgrade Payments

A Capacity Market Seller that submitted a Sell Offer based on a Qualifying Transmission Upgrade that clears in the Base Residual Auction shall receive a payment equal to the Capacity Resource Clearing Price, including any Locational Price Adder, of the LDA into which the Qualifying Transmission Upgrade is to increase Capacity Emergency Transfer Limit, less the Capacity Resource Clearing Price, including any Locational Price Adder, of the LDA from which the upgrade was to provide such increased CETL, multiplied by the megawatt quantity of increased CETL cleared from such Sell Offer. Such payments shall be reflected in the Locational Price Adder determined as part of the Final Zonal Capacity Price for the Zone associated with such LDAs, and shall be funded through a reduction in the Capacity Transfer Rights allocated to Load-Serving Entities under Tariff, Attachment DD, section 5.15, as set forth in that section. PJMSettlement shall be the Counterparty to any cleared capacity transaction resulting from a Sell Offer based on a Qualifying Transmission Upgrade.

e) Locational Reliability Charge

In accordance with the Reliability Assurance Agreement, each LSE shall incur a Locational Reliability Charge (subject to certain offsets and other adjustments as described in Tariff, Attachment DD, section 5.14B, Tariff, Attachment DD, section 5.14C, Tariff, Attachment DD, section 5.14D, Tariff, Attachment DD, section 5.14E and Tariff, Attachment DD, section 5.15) equal to such LSE's Daily Unforced Capacity Obligation in a Zone during such Delivery Year multiplied by the applicable Final Zonal Capacity Price in such Zone. PJMSettlement shall be the Counterparty to the LSEs' obligations to pay, and payments of, Locational Reliability Charges.

f) The Office of the Interconnection shall determine Zonal Capacity Prices in accordance with the following, based on the optimization algorithm:

i) The Office of the Interconnection shall calculate and post the Preliminary Zonal Capacity Prices for each Delivery Year following the Base Residual Auction for such Delivery Year. The Preliminary Zonal Capacity Price for each Zone shall be the sum of: 1) the marginal value of system capacity for the PJM Region, without considering locational constraints; 2) the Locational Price Adder, if any, for the LDA in which such Zone is located; provided however, that if the Zone contains multiple LDAs with different Capacity Resource Clearing Prices, the Zonal Capacity Price shall be a weighted average of the Capacity Resource Clearing Prices for such LDAs, weighted by the Unforced Capacity of Capacity Resources cleared in each such LDA; 3) an adjustment, if required, to account for adders paid to Annual Resources and Extended Summer Demand Resources in the LDA for which the zone is located; 4) an adjustment, if required, to account for Resource Make-Whole Payments; and (5) an adjustment, if required to provide sufficient revenue for payment of any PRD Credits, all as

determined in accordance with the optimization algorithm.

ii) The Office of the Interconnection shall calculate and post the Adjusted Zonal Capacity Price following each Incremental Auction. The Adjusted Zonal Capacity Price for each Zone shall equal the sum of: (1) the average marginal value of system capacity weighted by the Unforced Capacity cleared in all auctions previously conducted for such Delivery Year (excluding any Unforced Capacity cleared as replacement capacity); (2) the average Locational Price Adder weighted by the Unforced Capacity cleared in all auctions previously conducted for such Delivery Year (excluding any Unforced Capacity cleared as replacement capacity); (3) an adjustment, if required, to account for adders paid to Annual Resources and Extended Summer Demand Resources for all auctions previously conducted for such Delivery Year (excluding any Unforced Capacity cleared as replacement capacity); (4) an adjustment, if required, to account for Resource Make-Whole Payments for all actions previously conducted (excluding any Resource Make-Whole Payments to be charged to the buyers of replacement capacity); and (5) an adjustment, if required to provide sufficient revenue for payment of any PRD Credits. The Adjusted Zonal Capacity Price may decrease if Unforced Capacity is decommitted or the Resource Clearing Price decreases in an Incremental Auction.

iii) The Office of the Interconnection shall calculate and post the Final Zonal Capacity Price for each Delivery Year after the final auction is held for such Delivery Year, as set forth above. The Final Zonal Capacity Price for each Zone shall equal the Adjusted Zonal Capacity Price, as further adjusted to reflect any decreases in the Nominated Demand Resource Value of any existing Demand Resource cleared in the Base Residual Auction and Second Incremental Auction.

g) Resource Substitution Charge

Each Capacity Market Buyer in an Incremental Auction securing replacement capacity shall pay a Resource Substitution Charge equal to the Capacity Resource Clearing Price resulting from such auction multiplied by the megawatt quantity of Unforced Capacity purchased by such Market Buyer in such auction.

h) Minimum Offer Price Rule for Certain New Generation Capacity Resources that are not Capacity Resources with State Subsidy for up to the 2022/2023 Delivery Year.

(1) The provisions of this section 5.14(h) shall not be effective after the 2022/2023 Delivery Year. For purposes of this section, the Net Asset Class Costs of New Entry shall be asset-class estimates of competitive, cost-based nominal levelized Cost of New Entry, net of energy and ancillary service revenues. Determination of the gross Cost of New Entry component of the Net Asset Class Cost of New Entry shall be consistent with the methodology used to determine the Cost of New Entry set forth in Tariff, Attachment DD, section 5.10(a)(iv)(A) of this Attachment. This section only applies to new Generation Capacity Resources that do not receive or are not entitled to receive a State Subsidy, meaning that such resources are not Capacity Resources with State Subsidy. To the extent a new Generation Capacity Resource is a Capacity Resource with State Subsidy, then the provisions in Tariff, Attachment DD, section 5.14(h-1) apply.

The gross Cost of New Entry component of Net Asset Class Cost of New Entry shall be, for purposes of the 2018/2019 Delivery Year and subsequent Delivery Years, the values indicated in the table below for each CONE Area for a combustion turbine generator (“CT”), and a combined cycle generator (“CC”) respectively, and shall be adjusted for subsequent Delivery Years in accordance with subsection (h)(2) below. For purposes of Incremental Auctions for the 2015/2016, 2016/2017 and 2017/2018 Delivery Years, the MOPR Floor Offer Price shall be the same as that used in the Base Residual Auction for such Delivery Year. The estimated energy and ancillary service revenues for each type of plant shall be determined as described in subsection (h)(3) below. Notwithstanding the foregoing, the Net Asset Class Cost of New Entry shall be zero for: (i) Sell Offers based on nuclear, coal or Integrated Gasification Combined Cycle facilities; or (ii) Sell Offers based on hydroelectric, wind, or solar facilities.

	CONE Area 1	CONE Area 2	CONE Area 3	CONE Area 4
CT \$/MW-yr	132,200	130,300	128,990	130,300
CC \$/MW-yr	185,700	176,000	172,600	179,400

(2) The gross Cost of New Entry component of the Net Asset Class Cost of New Entry shall be adjusted to reflect changes in generating plant construction costs in the same manner as set forth for the cost of new entry in Tariff, Attachment DD, section 5.10(a)(iv)(B), provided, however, that the Applicable BLS Composite Index used for CC plants shall be calculated from the three indices referenced in that section but weighted 25% for the wages index, 60% for the construction materials index, and 15% for the turbines index, and provided further that nothing herein shall preclude the Office of the Interconnection from filing to change the Net Asset Class Cost of New Entry for any Delivery Year pursuant to appropriate filings with FERC under the Federal Power Act.

(3) For the 2022/2023 Delivery Year, for purposes of this provision, the net energy and ancillary services revenue estimate for a combustion turbine generator shall be that determined by Tariff, Attachment DD, section 5.10(a)(v-1)(A), provided that the energy and ancillary services revenue estimate for each CONE Area shall be based on the Zone within such CONE Area that has the highest energy revenue estimate calculated under the methodology in that subsection. The net energy and ancillary services revenue estimate for a combined cycle generator shall be determined in the same manner as that prescribed for a combustion turbine generator in the previous sentence, except that the heat rate assumed for the combined cycle resource shall be 6.501 MMBtu/MWh, the variable operations and maintenance expenses for such resource shall be \$2.11 per MWh, a 10% adder will not be included in the energy offer, and the reactive service revenues shall be \$3,350 per MW-year.

(4) Any Sell Offer that is based on either (i) or (ii), and (iii):

i) a Generation Capacity Resource located in the PJM Region that is submitted in an RPM Auction for a Delivery Year unless a Sell Offer based on that resource has cleared an RPM Auction for that or any prior Delivery Year, or until a Sell Offer based on that resource clears an RPM auction for that or any subsequent Delivery Year; or

ii) a Generation Capacity Resource located outside the PJM Region (where such Sell Offer is based solely on such resource) that requires sufficient transmission investment for delivery to the PJM Region to indicate a long-term commitment to providing capacity to the PJM Region, unless a Sell Offer based on that resource has cleared an RPM Auction for that or any prior Delivery Year, or until a Sell Offer based on that resource clears an RPM Auction for that or any subsequent Delivery Year;

iii) in any LDA for which a separate VRR Curve is established for use in the Base Residual Auction for the Delivery Year relevant to the RPM Auction in which such offer is submitted, and that is less than 90 percent of the applicable Net Asset Class Cost of New Entry or, if there is no applicable Net Asset Class Cost of New Entry, less than 70 percent of the Net Asset Class Cost of New Entry for a combustion turbine generator as provided in subsection (h)(1) above shall be set to equal 90 percent of the applicable Net Asset Class Cost of New Entry (or set equal to 70 percent of such cost for a combustion turbine, where there is no otherwise applicable net asset class figure), unless the Capacity Market Seller obtains the prior determination from the Office of the Interconnection described in subsection (5) hereof. This provision applies to Sell Offers submitted in Incremental Auctions conducted after December 19, 2011, provided that the Net Asset Class Cost of New Entry values for any such Incremental Auctions for the 2012-13 or 2013-14 Delivery Years shall be the Net Asset Class Cost of New Entry values posted by the Office of the Interconnection for the Base Residual Auction for the 2014-15 Delivery Year.

(5) Unit-Specific Exception. A Sell Offer meeting the criteria in subsection (4) shall be permitted and shall not be re-set to the price level specified in that subsection if the Capacity Market Seller obtains a determination from the Office of the Interconnection or the Commission, prior to the RPM Auction in which it seeks to submit the Sell Offer, that such Sell Offer is permissible because it is consistent with the competitive, cost-based, fixed, net cost of new entry were the resource to rely solely on revenues from PJM-administered markets. The following process and requirements shall apply to requests for such determinations:

i) The Capacity Market Seller may request such a determination by no later than one hundred twenty (120) days prior to the commencement of the offer period for the RPM Auction in which it seeks to submit its Sell Offer, by submitting simultaneously to the Office of the Interconnection and the Market Monitoring Unit a written request with all of the required documentation as described below and in the PJM Manuals. For such purpose, the Office of the Interconnection shall post, by no later than one hundred fifty (150) days prior to the commencement of the offer period for the relevant RPM Auction, a preliminary estimate for the relevant Delivery Year of the minimum offer level expected to be established under subsection (4). If the minimum offer level subsequently established for the relevant Delivery Year is less than the Sell Offer, the Sell Offer shall be permitted and no exception shall be required.

ii) As more fully set forth in the PJM Manuals, the Capacity Market Seller must include in its request for an exception under this subsection documentation to support the fixed development, construction, operation, and maintenance costs of the planned generation resource, as well as estimates of offsetting net revenues, or, sufficient data for the Office of the Interconnection and the Market Monitoring Unit to produce such an estimate. Estimates of costs

or revenues shall be supported at a level of detail comparable to the cost and revenue estimates used to support the Net Asset Class Cost of New Entry established under this section 5.14(h). As more fully set forth in the PJM Manuals, supporting documentation for project costs may include, as applicable and available, a complete project description; environmental permits; vendor quotes for plant or equipment; evidence of actual costs of recent comparable projects; bases for electric and gas interconnection costs and any cost contingencies; bases and support for property taxes, insurance, operations and maintenance (“O&M”) contractor costs, and other fixed O&M and administrative or general costs; financing documents for construction–period and permanent financing or evidence of recent debt costs of the seller for comparable investments; and the bases and support for the claimed capitalization ratio, rate of return, cost-recovery period, inflation rate, or other parameters used in financial modeling. Such documentation also shall identify and support any sunk costs that the Capacity Market Seller has reflected as a reduction to its Sell Offer. The request shall include a certification, signed by an officer of the Capacity Market Seller, that the claimed costs accurately reflect, in all material respects, the seller’s reasonably expected costs of new entry and that the request satisfies all standards for an exception hereunder.

The request also shall identify all revenue sources relied upon in the Sell Offer to offset the claimed fixed costs, including, without limitation, long-term power supply contracts, tolling agreements, or tariffs on file with state regulatory agencies, and shall demonstrate that such offsetting revenues are consistent, over a reasonable time period identified by the Capacity Market Seller, with the standard prescribed above.

For the 2022/2023 Delivery Year, in making such demonstration, the Capacity Market Seller may rely upon revenues projected by well defined, forward-looking dispatch models, designed to generally follow the rules and processes of PJM’s energy and ancillary services markets. Such models must utilize publicly available forward prices for electricity and fuel in the PJM Region. Any modifications made to the forward electricity and fuel prices must similarly use publicly available data. Alternative forward prices for fuel may be used if accompanied by contractual evidence showing the applicability of the alternative fuel price. Where forward fuel markets are not available, publicly available estimates of future fuel prices may be used. The model shall also contain estimates of variable operation and maintenance costs, which may include Maintenance Adders, and emissions allowance prices. Documentation for net revenues also must include, as available and applicable, plant performance and capability information, including heat rate, start-up times and costs, forced outage rates, planned outage schedules, maintenance cycle, fuel costs and other variable operations and maintenance expenses, capacity factors and ancillary service capabilities.

In the alternative, the Capacity Market Seller may request that the Market Monitoring Unit, subject to acceptance by the Office of Interconnection, produce a resource-specific Energy & Ancillary Services Offset value for such resource using the Forward Hourly LMPs, Forward Hourly Ancillary Service Prices, and either Forward Daily Natural Gas Prices for combustion turbines and combined cycle resources, or forecasted fuel prices for other resource types, and plant parameters and capability information specific to the dispatch of the resource, as outlined above. In addition to the documentation identified herein and in the PJM Manuals, the Capacity Market Seller shall provide any additional supporting information reasonably requested by the Office of the Interconnection or the Market Monitoring Unit to

evaluate the Sell Offer. Requests for additional documentation will not extend the deadline by which the Office of the Interconnection or the Market Monitoring Unit must provide their determinations of the Minimum Offer Price Rule exception request.

iii) A Sell Offer evaluated hereunder shall be permitted if the information provided reasonably demonstrates that the Sell Offer's competitive, cost-based, fixed, net cost of new entry is below the minimum offer level prescribed by subsection (4), based on competitive cost advantages relative to the costs estimated for subsection (4), including, without limitation, competitive cost advantages resulting from the Capacity Market Seller's business model, financial condition, tax status, access to capital or other similar conditions affecting the applicant's costs, or based on net revenues that are reasonably demonstrated hereunder to be higher than estimated for subsection (4). Capacity Market Sellers shall be asked to demonstrate that claimed cost advantages or sources of net revenue that are irregular or anomalous, that do not reflect arm's-length transactions, or that are not in the ordinary course of the Capacity Market Seller's business are consistent with the standards of this subsection. Failure to adequately support such costs or revenues so as to enable the Office of the Interconnection to make the determination required in this section will result in denial of an exception hereunder by the Office of the Interconnection.

iv) The Market Monitoring Unit shall review the information and documentation in support of the request and shall provide its findings whether the proposed Sell Offer is acceptable, in accordance with the standards and criteria hereunder, in writing, to the Capacity Market Seller and the Office of the Interconnection by no later than ninety (90) days prior to the commencement of the offer period for such auction. The Office of the Interconnection shall also review all exception requests and documentation and shall provide in writing to the Capacity Market Seller, and the Market Monitoring Unit, its determination whether the requested Sell Offer is acceptable and if not it shall calculate and provide to such Capacity Market Seller, a minimum Sell Offer based on the data and documentation received, by no later than sixty-five (65) days prior to the commencement of the offer period for the relevant RPM Auction. If the Office of the Interconnection determines that the requested Sell Offer is acceptable, the Capacity Market Seller shall notify the Market Monitoring Unit and the Office of the Interconnection, in writing, of the minimum level of Sell Offer to which it agrees to commit by no later than sixty (60) days prior to the commencement of the offer period for the relevant RPM Auction.

h-1) Minimum Offer Price Rule for Capacity Resources with State Subsidy for the 2022/2023 Delivery Year.

(1) **General Rule.** The provisions of this section 5.14(h-1) shall not be effective after the 2022/2023 Delivery Year. For the 2022/2023 Delivery Year, any Sell Offer based on either a New Entry Capacity Resource with State Subsidy or a Cleared Capacity Resource with a State Subsidy submitted in any RPM Auction shall have an offer price no lower than the applicable MOPR Floor Offer Price, unless the Capacity Market Seller qualifies for an exemption with respect to such Capacity Resource with a State Subsidy prior to the submission of such offer.

(A) Effect of Exemption. To the extent a Sell Offer in any RPM Auction is based on a Capacity Resource with State Subsidy that qualifies for any of the exemptions defined in Tariff, Attachment DD, sections 5.14(h-1)(4)-(8), the Sell Offer for such resource shall not be limited by the MOPR Floor Offer Price, unless otherwise specified.

(B) Effect of Exception. To the extent a Sell Offer in any RPM Auction for any Delivery Year is based on a Capacity Resource with State Subsidy for which the Capacity Market Seller obtains, prior to the submission of such offer, a resource-specific exception, such offer may include an offer price below the default MOPR Floor Offer Price applicable to such resource type, but no lower than the resource-specific MOPR Floor Offer Price determined in such exception process.

(C) Process for Establishing a Capacity Resource with a State Subsidy.

(i) By no later than one hundred and twenty (120) days prior to the commencement of the offer period of any RPM Auction conducted for the 2022/2023 Delivery Year, each Capacity Market Seller must certify to the Office of Interconnection, in accordance with the PJM Manuals, whether or not each Capacity Resource (other than Demand Resource and Energy Efficiency Resource) that the Capacity Market Seller intends to offer into the RPM Auction qualifies as a Capacity Resource with a State Subsidy (including by way of Jointly Owned Cross-Subsidized Capacity Resource) and identify (with specificity) any State Subsidy. Capacity Market Sellers that intend to offer a Demand Resource or an Energy Efficiency Resource into the RPM Auction shall certify to the Office of Interconnection, in accordance with the PJM Manuals, whether or not such Demand Resource or Energy Efficiency Resource qualifies as a Capacity Resource with a State Subsidy no later than thirty (30) days prior to the commencement of the offer period of any RPM Auction conducted for the 2022/2023 Delivery Year. All Capacity Market Sellers shall be responsible for each certification irrespective of any guidance developed by the Office of the Interconnection and the Market Monitoring Unit. A Capacity Resource shall be deemed a Capacity Resource with State Subsidy if the Capacity Market Seller fails to timely certify whether or not a Capacity Resource is entitled to a State Subsidy, unless the Capacity Market Seller receives a waiver from the Commission. Notwithstanding, if a Capacity Market Seller submits a timely resource-specific exception pursuant to Tariff, Attachment DD, section 5.14(h-1)(3) for the relevant Delivery Year, and PJM approves the resource-specific MOPR Floor Offer Price, then the Capacity Market Seller may use such floor price regardless of whether it timely certified whether or not the resource is a Capacity Resource with State Subsidy.

(ii) The requirements in subsection (i) above do not apply to Capacity Resources for which the Market Seller designated whether or not it is subject to a State Subsidy and the associated subsidies to which the Capacity Resource is entitled in a prior Delivery Year, unless there has been a change in the set of those State Subsidy(ies), or for those which are eligible for the Demand Resource or Energy Efficiency exemption, Capacity Storage Resource exemption, Self-Supply Entity exemption, or the Renewable Portfolio Standard exemption.

(iii) Once a Capacity Market Seller has certified a Capacity Resource as a Capacity Resource with a State Subsidy, the status of such Capacity Resource will

remain unchanged unless and until the Capacity Market Seller (or a subsequent Capacity Market Seller) that owns or controls such Capacity Resource provides a certification of a change in such status, the Office of the Interconnection removes such status, or by FERC order. All Capacity Market Sellers shall have an ongoing obligation to certify to the Office of Interconnection and the Market Monitoring Unit a Capacity Resource’s material change in status as a Capacity Resource with State Subsidy within 30 days of such material change, unless such material change occurs within 30 days of the commencement of the offer period of any RPM Auction for the 2022/2023 Delivery Year, in which case the Market Seller must notify PJM no later than 5 days prior to the commencement of the offer period of any RPM Auction for the 2022/2023 Delivery Year. Nothing in this provision shall supersede the requirement for all Capacity Market Sellers to certify to the Office of Interconnection whether its resource meets the criteria of a Capacity Resource with State Subsidy pursuant to Tariff, Attachment DD, section 5.14(h-1)(1)(C)(i).

(2) **Minimum Offer Price Rule.** Any Sell Offer for a New Entry Capacity Resource with State Subsidy or a Cleared Capacity Resource with State Subsidy that does not qualify for any of the exemptions, as defined in Tariff, Attachment DD, sections 5.14(h-1)(4)-(8), shall have an offer price no lower than the applicable MOPR Floor Offer Price, unless the applicable MOPR Floor Offer Price is higher than the applicable Market Seller Offer Cap, in which circumstance the Capacity Resource with State Subsidy must seek a resource-specific value determined in accordance with the resource-specific MOPR Floor Offer Price process to participate in an RPM Auction.

(A) **New Entry MOPR Floor Offer Price.** For a New Entry Capacity Resource with State Subsidy the applicable MOPR Floor Offer Price, based on the net cost of new entry for each resource type, shall be, at the election of the Capacity Market Seller, (i) the resource-specific value determined in accordance with the resource-specific MOPR Floor Offer Price process in Tariff, Attachment DD, section 5.14(h-1)(3) below or (ii) if applicable, the default New Entry MOPR Floor Offer Price for the applicable resource based on the gross cost of new entry values shown in the table below, net of estimated net energy and ancillary service revenues for the resource type and Zone in which the resource is located.

Resource Type	Gross Cost of New Entry (2022/2023 \$/ MW-day) (Nameplate)
Nuclear	\$2,000
Coal	\$1,068
Combined Cycle	\$320
Combustion Turbine	\$294
Fixed Solar PV	\$271
Tracking Solar PV	\$290
Onshore Wind	\$420
Offshore Wind	\$1,155
Battery Energy Storage	\$532
Diesel Backed Demand Resource	\$254

The gross cost of new entry values in the table above are expressed in dollars per MW-day in terms of nameplate megawatts. For purposes of submitting a Sell Offer, the gross cost of new entry values must be converted to a net cost of new entry by subtracting the estimated net energy and ancillary service revenues, as determined below, from the gross cost of new entry. However, the resultant net cost of new entry of the battery energy storage resource type in the table above must be multiplied by 2.5. The net cost of new entry based on nameplate capacity is then converted to Unforced Capacity (“UCAP”) MW-day. For Delivery Years through the 2022/2023 Delivery Year, to determine the applicable UCAP MW-day value, the net cost of new entry is adjusted as follows: for thermal generation resource types and battery energy storage resource types, the applicable class average EFORD; for wind and solar generation resource types, the applicable class average capacity value factor; or for Demand Resources and Energy Efficiency Resources, the Forecast Pool Requirement, as applicable to the relevant RPM Auction. For the 2023/2024 Delivery Year and subsequent Delivery Years, to determine the applicable UCAP MW-day value, the net cost of new entry is adjusted as follows: for thermal generation resource types, the applicable class average EFORD; for battery storage, wind, and solar resource types, the applicable ELCC Class Rating; or for Demand Resources and Energy Efficiency Resources, the Forecast Pool Requirement, as applicable to the relevant RPM Auction. The resulting default New Entry MOPR Floor Offer price in UCAP/MW-day terms shall be applied to each MW offered for the Capacity Resource regardless of the actual Sell Offer quantity and regardless of whether the Sell Offer is for a Seasonal Capacity Performance Resource.

The default New Entry MOPR Floor Offer Price for load-backed Demand Resources (i.e., the MW portion of Demand Resources that is not supported by generation) shall be separately determined for each Locational Deliverability Area as the MW-weighted average offer price of load-backed Demand Resources from the most recent three Base Residual Auctions, where the MW weighting shall be determined based on the portion of each Sell Offer for a load-backed portion of the Demand Resource that is supported by end-use customer locations on the registrations used in the pre-registration process for such Base Residual Auctions, as described in the PJM Manuals.

For generation-backed Demand Resources that are not powered by diesel generators, the default New Entry MOPR Floor Offer Price shall be the default New Entry MOPR Floor Offer Price applicable to their technology type. Generation-backed Demand Resources using a technology type for which there is no default MOPR Floor Offer Price provided in accordance with this section must seek a resource-specific value determined in accordance with the resource-specific MOPR Floor Offer Price process in Tariff, Attachment DD, section 5.14(h-1)(3) below to participate in an RPM Auction.

The default gross cost of new entry for Energy Efficiency Resources shall be \$644/ICAP MW-Day, which shall be offset by projected wholesale energy savings, as well as transmission and distribution savings of \$95/ICAP MW-Day, to determine the default New Entry MOPR Floor Offer Price (Net Cost of New Entry), where the projected wholesale energy savings are determined utilizing the cost and performance data of relevant programs offered by representative energy efficiency programs with sufficiently detailed publicly available data. The wholesale energy savings, in \$/ICAP MW-day, shall be calculated prior to each RPM Auction

and be equal to the average annual energy savings of 6,221 MWh/ICAP MW times the weighted average of the annual real-time Forward Hourly LMPs of the Zones of the representative energy efficiency programs, where the weighting is developed from the annual energy savings in the relevant Zones, divided by 365.

To determine the adjusted applicable default New Entry MOPR Floor Offer Prices for all resource types except for load-backed Demand Resources and Energy Efficiency Resources, the Office of the Interconnection shall adjust the gross costs of new entry utilizing, for combustion turbine and combined cycle resource types, the same Applicable BLS Composite Index applied for such Delivery Year to adjust the CONE value used to determine the Variable Resource Requirement Curve, in accordance with Tariff, Attachment DD, section 5.10(a)(iv), and for all other resource types, the “BLS Producer Price Index Turbines and Turbine Generator Sets” component of the Applicable BLS Composite Index used to determine the Variable Resource Requirement Curve shall be replaced with the “BLS Producer Price Index Final Demand, Goods Less Food & Energy, Private Capital Equipment” when adjusting the gross costs of new entry. The resultant value shall then be then adjusted further by a factor of 1.022 for nuclear, coal, combustion turbine, combine cycle, and generation-backed Demand Resource types or 1.01 for solar, wind, and storage resource types to reflect the annual decline in bonus depreciation scheduled under federal corporate tax law. Updated estimates of the net energy and ancillary service revenues for each default resource type and applicable Zone, which shall include, but are not limited to, consideration of Fuel Costs, Maintenance Adders and Operating Costs, as applicable, pursuant to Operating Agreement, Schedule 2 shall then be subtracted from the adjusted gross costs of new entry to determine the adjusted New Entry MOPR Floor Offer Price. The net energy and ancillary services revenue shall be the average of the net energy and ancillary services revenues that the resource is projected to receive from the PJM energy and ancillary service markets for the applicable Delivery Year from three separate simulations, with each such simulation using forward prices shaped using historical data from one of each of the three consecutive calendar years preceding the time of the determination for the RPM Auction to take account of year-to-year variability in such hourly shapes. Each net energy and ancillary services revenue simulation shall be conducted in accordance with the following and the PJM Manuals:

(i) for nuclear resource type, the net energy and ancillary services revenue estimate for each Zone shall be determined by the gross energy market revenue determined by the product of [average annual day-ahead Forward Hourly LMPs for such Zone, times 8,760 hours times the annual average equivalent availability factor of all PJM nuclear resources] minus the total annual cost to produce energy determined by the product of [8,760 hours times the annual average equivalent availability factor of all PJM nuclear resources times \$9.02/MWh for a single unit plant or \$7.66/MWh for a multi-unit plant] where these hourly cost rates include fuel costs and variable operation and maintenance expenses, inclusive of Maintenance Adder costs, plus reactive services revenue of \$3,350/MW-year;

(ii) for coal resource type, the net energy and ancillary services revenue estimate for each Zone shall be determined by the Projected EAS Dispatch of a 650 MW coal unit (with heat rate of 8,638 BTU/kWh and variable operations and maintenance variable operation and maintenance expenses, inclusive of Maintenance Adder costs, of \$9.50/MWh) using day-ahead and real-time Forward Hourly LMPs for such Zone and Forward Hourly Ancillary Service Prices, and daily forecasted coal prices, as set forth in the PJM Manuals, plus reactive services revenue of \$3,350/MW-year;

(iii) for combustion turbine resource type, the net energy and ancillary services revenue estimate for each Zone shall be determined in a manner consistent with the methodology described in Tariff, Attachment DD, section 5.10(a)(v-1)(B) for the Reference Resource combustion turbine.

(iv) for combined cycle resource type, the net energy and ancillary services revenue estimate for each Zone shall be determined in the same manner as that prescribed for a combustion turbine resource type, except that the heat rate assumed for the combined cycle resource shall be 6,501 BTU/kwh, the variable operations and maintenance expenses for such resource, inclusive of Maintenance Adder costs, shall be \$2.11/MWh, plus reactive services revenue of \$3,350/MW-year.

(v) for solar PV resource type, the net energy and ancillary services revenue estimate for each Zone shall be determined using a solar resource model that provides the average MW output level, expressed as a percentage of nameplate rating, by hour of day (for each of the 24-hours of a day) and by calendar month (for each of the twelve months of a year). The annual net energy market revenues are determined by multiplying the solar output level of each hour by the real-time Forward Hourly LMP for such Zone and applicable to such hour with this product summed across all of the hours of an annual period, plus reactive services revenue of \$3,350/MW-year. Two separate solar resource models are used, one model for a fixed panel resource and a second model for a tracking panel resource;

(vi) for onshore wind resource type, the net energy and ancillary services revenue estimate for each Zone shall be determined using a wind resource model that provides the average MW output level, expressed as a percentage of nameplate rating, by hour of day (for each of the 24-hours of a day) and by calendar month (for each of the twelve months of a year). The annual energy market revenues are determined by multiplying the wind output level of each hour by the real-time Forward Hourly LMP for such Zone applicable to such hour with this product summed across all of the hours of an annual period, plus reactive services revenue of \$3,350/MW-year;

(vii) for offshore wind resource type, the net energy and ancillary services revenue estimate for each Zone shall be determined by the gross energy market revenue equal to the product of [the average annual real-time Forward Hourly LMP for such Zone times 8,760 hours times an assumed annual capacity factor of 45%], plus reactive services revenue of \$3,350/MW-year;

(viii) for Capacity Storage Resource, the net energy and ancillary services revenue estimate shall be estimated by the Projected EAS Dispatch of a 1 MW, 4MWh resource, with an 85% roundtrip efficiency, and assumed to be dispatched between 95% and 5% state of charge against day-ahead and real-time Forward Hourly LMPs for such Zone and Forward Hourly Ancillary Service Prices, plus reactive services revenue of \$3,350/MW-year; and

(ix) for generation-backed Demand Resource, the net energy and ancillary services revenue estimate shall be zero dollars.

New Entry Capacity Resource with State Subsidy for which there is no default MOPR Floor Offer Price provided in accordance with this section, including hybrid resources, must seek a resource-specific value determined in accordance with the resource-specific MOPR Floor Offer Price process below to participate in an RPM Auction. Failure to obtain a resource-specific MOPR Floor Offer Price will result in the Office of the Interconnection rejecting any Sell Offer based on such resource for the relevant RPM Auction.

(B) Cleared MOPR Floor Offer Prices.

(i) For a Cleared Capacity Resource with State Subsidy, the applicable Cleared MOPR Floor Offer Price shall be, at the election of the Capacity Market Seller, (a) based on the resource-specific MOPR Floor Offer Price, as determined in accordance with Tariff, Attachment DD, section 5.14(h-1)(3) below, or (b) if available, the default Avoidable Cost Rate for the applicable resource type shown in the table below, net of projected PJM market revenues equal to the resource's net energy and ancillary service revenues for the resource type, as determined in accordance with subsection (ii) below.

Existing Resource Type	Default Gross ACR (2022/2023) (\$/MW-day) (Nameplate)
Nuclear - single	\$697
Nuclear - dual	\$445
Coal	\$80
Combined Cycle	\$56
Combustion Turbine	\$50
Solar PV (fixed and tracking)	\$40
Wind Onshore	\$83
Diesel-backed Demand Response	\$3
Load-backed Demand Response	\$0
Energy Efficiency	\$0

The default gross Avoidable Cost Rate values in the table above are expressed in dollars per MW-day in terms of nameplate megawatts. For purposes of submitting a Sell Offer, the default Avoidable Cost Rate values must be net of estimated net energy and ancillary service revenues, and then the difference is ultimately converted to Unforced Capacity ("UCAP") MW-day, where the UCAP MW-day value will be determined based on: for Delivery Years through the 2022/2023 Delivery Year, the resource-specific EFORD for thermal generation resource types, resource-specific capacity value factor for solar and wind generation resource types (based on the ratio of Capacity Interconnection Rights to nameplate capacity, appropriately time-weighted for any winter Capacity Interconnection Rights), or the Forecast Pool Requirement for Demand Resources and Energy Efficiency Resources, as applicable to the relevant RPM Auction, and for the 2023/2024 Delivery Year and subsequent Delivery Years, the resource-specific EFORD for thermal generation resource types and on the resource-specific Accredited UCAP value for solar and wind resource types (with appropriate time-weighting for any winter Capacity Interconnection Rights), or the Forecast Pool Requirement for Demand Resources and Energy Efficiency Resources, as applicable to the relevant RPM Auction. The resulting default Cleared MOPR Floor Offer price in UCAP/MW-day terms shall be applied to each MW offered for the Capacity Resource regardless of actual Sell Offer quantity and regardless of whether the Sell Offer is for a Seasonal Capacity Performance Resource.

Beginning with the Delivery Year that commences June 1, 2022, and continuing no later than for every fourth Delivery Year thereafter, the Office of the Interconnection shall review the default Avoidable Cost Rates for Capacity Resources with State Subsidies that have cleared in an RPM Auction for any prior Delivery Year. Such review may include, without limitation, analyses of the avoidable costs of such resource types. Based on the results of such review, PJM shall propose either to modify or retain the default Avoidable Cost Rate values stated in the table above. The Office of the Interconnection shall post publicly and solicit stakeholder comment regarding the proposal. If, as a result of this process, changes to the default Avoidable Cost Rate values are proposed, the Office of the Interconnection shall file such proposed modifications with the FERC by October 1, prior to the conduct of the Base Residual Auction for the first Delivery Year in which the new values would be applied.

For generation-backed Demand Resources that are not powered by diesel generators, the default Cleared MOPR Floor Offer Price shall be the default Cleared MOPR Floor Offer Price applicable to their technology type. Generation-backed Demand Resources using a technology type for which there is no default MOPR Floor Offer Price provided in accordance with this section must seek a resource-specific value determined in accordance with the resource-specific MOPR Floor Offer Price process in Tariff, Attachment DD, section 5.14(h-1)(3) below to participate in an RPM Auction.

Cleared Capacity Resources with State Subsidy for which there is no default MOPR Floor Offer Price provided in accordance with this section, including hybrid resources, must seek a resource-specific value determined in accordance with the resource-specific MOPR Floor Offer Price process below to participate in an RPM Auction. Failure to obtain a resource-specific MOPR Floor Offer Price will result in the Office of the Interconnection rejecting any Sell Offer based on such resource.

(ii) The net energy and ancillary services revenue is equal to forecasted net revenues which shall be determined in accordance with the applicable resource type net energy and ancillary services revenue determination methodology set forth in Tariff, Attachment DD, section 5.14(h-1)(2)(A)(i) through (ix) and using the subject resource's operating parameters as determined in accordance with the PJM Manuals based on (a) offers submitted in the Day-ahead Energy Market and Real-time Energy Market over the calendar year preceding the time of the determination for the RPM Auction; (b) the resource-specific operating parameters approved, as applicable, in accordance with Operating Agreement, Schedule 1, section 6.6(b) and Operating Agreement, Schedule 2 (including any Fuel Costs, emissions costs, Maintenance Adders, and Operating Costs); (c) the resource's EFORd; (d) Forward Hourly LMPs at the generation bus as determined in accordance with Tariff, Attachment DD, section 5.10(a)(v-1)(C)(6); and (e) the resource's stated annual revenue requirement for reactive services; plus any unit-specific bilateral contract. In addition, the following resource type-specific parameters shall be considered; (f) for combustion turbine, combined cycle, and coal resource types: the installed capacity rating, ramp rate (which shall be equal to the maximum ramp rate included in the resource's energy offers over the most recent previous calendar year preceding the determination for the RPM Auction), and the heat rate as determined as the resource's average heat rate at full load as submitted to the Market Monitoring Unit and the Office of the Interconnection, where for combined cycle resources heat rates will be determined at base load and at peak load (e.g.,

without duct burners and with duct burners), as applicable; (g) for nuclear resource type: an average equivalent availability factor of all PJM nuclear resources to account for refueling outages; (h) for solar and wind resource types: the resource's output profiles for the most recent three calendar years, as available; and (i) for battery storage resource type: the nameplate capacity rating (on a MW / MWh basis).

To the extent the resource has not achieved commercial operation, the operating parameters used in the simulation of the net energy and ancillary service revenues will be based on the manufacturer's specifications and/or from parameters used for other existing, comparable resources, as developed by the Market Monitoring Unit and the Capacity Market Seller, and accepted by the Office of the Interconnection.

A Capacity Market Seller intending to submit a Sell Offer in any RPM Auction for a Cleared Capacity Resource with State Subsidy based on a net energy and ancillary services revenue determination that does not use the foregoing methodology or parameter inputs stated for that resource type shall, at its election, submit a request for a resource-specific MOPR Floor Offer Price for such Capacity Resource pursuant to Tariff, Attachment DD, section 5.14(h-1)(3) below.

(3) Resource-Specific Exception. A Capacity Market Seller intending to submit a Sell Offer in any RPM Auction for a New Entry Capacity Resource with State Subsidy or a Cleared Capacity Resource with State Subsidy below the applicable default MOPR Floor Offer Price may, at its election, submit a request for a resource-specific exception for such Capacity Resource. A Sell Offer below the default MOPR Floor Offer Price, but no lower than the resource-specific MOPR Floor Offer Price, shall be permitted if the Capacity Market Seller obtains approval from the Office of the Interconnection or the Commission, prior to the RPM Auction in which it seeks to submit the Sell Offer. The resource-specific MOPR Floor Offer Price determined under this provision shall be based on the resource-specific EFORD for thermal generation resource types, on the resource-specific Accredited UCAP value for ELCC Resources (where for solar and wind generation resource types the Accredited UCAP shall be appropriately time-weighted for any winter Capacity Interconnection Rights), or the Forecast Pool Requirement for Demand Resources and Energy Efficiency Resources, as applicable to the relevant RPM Auction and shall be applied to each MW offered by the resource regardless of actual Sell Offer quantity and regardless of whether the Sell Offer is for a Seasonal Capacity Performance Resource. Such Sell Offer is permissible because it is consistent with the competitive, cost-based, fixed, net cost were the resource to rely solely on revenues exclusive of any State Subsidy. All supporting data must be provided for all requests. The following requirements shall apply to requests for such determinations:

(A) The Capacity Market Seller shall submit a written request with all of the required documentation as described below and in the PJM Manuals. For such purpose, the Capacity Market Seller shall submit the resource-specific exception request to the Office of the Interconnection and the Market Monitoring Unit no later than one hundred twenty (120) days prior to the commencement of the offer period for the RPM Auction in which it seeks to submit its Sell Offer. For such purpose, the Office of the Interconnection shall post, by no later than one hundred fifty (150) days prior to the commencement of the offer period for the relevant RPM Auction, a preliminary estimate for the relevant Delivery Year of the default Minimum Floor Offer Prices, determined pursuant to Tariff, Attachment DD, sections 5.14(h-1)(2)(A) and (B). If

the final applicable default Minimum Floor Offer Price subsequently established for the relevant Delivery Year is less than the Sell Offer, the Sell Offer shall be permitted and no exception shall be required.

(B) For a resource-specific exception for a New Entry Capacity Resource with State Subsidy, the Capacity Market Seller must include in its request for an exception under this subsection documentation to support the fixed development, construction, operation, and maintenance costs of the Capacity Resource, as well as estimates of offsetting net revenues.

The financial modeling assumptions for calculating Cost of New Entry for Generation Capacity Resources and generation-backed Demand Resources shall be: (i) nominal levelization of gross costs, (ii) asset life of twenty years, (iii) no residual value, (iv) all project costs included with no sunk costs excluded, (v) use first year revenues (which may include revenues from the sale of renewable energy credits for purposes other than state-mandated or state-sponsored programs), and (vi) weighted average cost of capital based on the actual cost of capital for the entity proposing to build the Capacity Resource. Notwithstanding the foregoing, a Capacity Market Seller that seeks to utilize an asset life other than twenty years (but no greater than 35 years) shall provide evidence to support the use of a different asset life, including but not limited to, the asset life term for such resource as utilized in the Capacity Market Seller's financial accounting (e.g., independently audited financial statements), or project financing documents for the resource or evidence of actual costs or financing assumptions of recent comparable projects to the extent the seller has not executed project financing for the resource (e.g., independent project engineer opinion or manufacturer's performance guarantee), or opinions of third-party experts regarding the reasonableness of the financing assumptions used for the project itself or in comparable projects. Capacity Market Sellers may also rely on evidence presented in federal filings, such as its FERC Form No. 1 or an SEC Form 10-K, to demonstrate an asset life other than 20 years of similar asset projects.

Supporting documentation for project costs may include, as applicable and available, a complete project description; environmental permits; vendor quotes for plant or equipment; evidence of actual costs of recent comparable projects; bases for electric and gas interconnection costs and any cost contingencies; bases and support for property taxes, insurance, operations and maintenance ("O&M") contractor costs, and other fixed O&M and administrative or general costs; financing documents for construction-period and permanent financing or evidence of recent debt costs of the seller for comparable investments; and the bases and support for the claimed capitalization ratio, rate of return, cost-recovery period, inflation rate, or other parameters used in financial modeling. In addition to the certification, signed by an officer of the Capacity Market Seller, the request must include a certification that the claimed costs accurately reflect, in all material respects, the seller's reasonably expected costs of new entry and that the request satisfies all standards for a resource-specific exception hereunder. The request also shall identify all revenue sources (exclusive of any State Subsidies) relied upon in the Sell Offer to offset the claimed fixed costs, including, without limitation, long-term power supply contracts, tolling agreements, or tariffs on file with state regulatory agencies, and shall demonstrate that such offsetting revenues are consistent, over a reasonable time period identified by the Capacity Market Seller, with the standard prescribed above. In making such demonstration, the Capacity Market Seller may rely upon revenues projected by well-defined, forward-looking dispatch

models designed to generally follow the rules and processes of PJM's energy and ancillary services market. Such models must utilize publicly available forward prices for electricity and fuel in the PJM Region. Any modifications made to the forward electricity and fuel prices must similarly use publicly available data. Alternative forward prices for fuel may be used if accompanied by contractual evidence showing the applicability of the alternative fuel price. Where forward fuel markets are not available, publicly available estimates of future fuel prices may be used. The model shall also contain estimates of variable operation and maintenance expenses, which may include Maintenance Adders, and emissions allowance prices. Documentation for net revenues also must include, as available and applicable, plant performance and capability information, including heat rate, start-up times and costs, forced outage rates, planned outage schedules, maintenance cycle, fuel costs and other variable operations and maintenance expenses, capacity factors, and ancillary service capabilities. Any evaluation of net revenues should be consistent with Operating Agreement, Schedule 2, including, but not limited to, consideration of Fuel Costs, Maintenance Adders and Operating Costs, as applicable.

In the alternative, the Capacity Market Seller may request that the Market Monitoring Unit, subject to acceptance by the Office of Interconnection, produce a resource-specific Energy & Ancillary Services Offset value for such resource using the Forward Hourly LMPs, Forward Hourly Ancillary Service Prices and either Forward Daily Natural Gas Prices for combustion turbines and combined cycle resources, or forecasted fuel prices for other resource types, plus plant parameters and capability information specific to the dispatch of the resource, as outlined above. In addition to the documentation identified herein and in the PJM Manuals, the Capacity Market Seller shall provide any additional supporting information reasonably requested by the Office of the Interconnection or the Market Monitoring Unit to evaluate the Sell Offer. Requests for additional documentation will not extend the deadline by which the Office of the Interconnection or the Market Monitoring Unit must provide their determinations of the Minimum Offer Price Rule exception request.

The default assumptions for calculating resource-specific Cost of New Entry for Energy Efficiency Resources shall be based on, as supported by documentation provided by the Capacity Market Seller: the nominal-levelized annual cost to implement the Energy Efficiency program or to install the Energy Efficiency measure reflective of the useful life of the implemented Energy Efficiency equipment, and the offsetting savings associated with avoided wholesale energy costs and other claimed savings provided by implementing the Energy Efficiency program or installing the Energy Efficiency measure.

The default assumptions for calculating resource-specific Cost of New Entry for load-backed Demand Resources shall be based on, as supported by documentation provided by the Capacity Market Seller, program costs required for the resource to meet the capacity obligations of a Demand Resource, including all fixed operating and maintenance cost and weighted average cost of capital based on the actual cost of capital for the entity proposing to develop the Demand Resource.

For generation-backed Demand Resources, the determination of a resource-specific MOPR Floor Offer Price shall consider all costs associated with the generation unit supporting the Demand Resource, and demand charge management benefits at the retail level (as supported by

documentation at the end-use customer level) may also be considered as an additional offset to such costs. Supporting documentation (at the end-use customer level) may include, but is not limited to, historic end-use customer bills and associated analysis that identifies the annual retail avoided cost from the operation of such generation unit.

(C) For a Resource-Specific Exception for a Cleared Capacity Resource with State Subsidy that is a generation resource, the Capacity Market Seller shall submit a Sell Offer consistent with the unit-specific Market Seller Offer Cap process pursuant to Tariff, Attachment DD, section 6.8; except that the 10% uncertainty adder may not be included in the “Adjustment Factor.” In addition and notwithstanding the requirements of Tariff, Attachment DD, section 6.8, the Capacity Market Seller shall, at its election, include in its request for an exception under this subsection documentation to support projected energy and ancillary services markets revenues. Such a request shall identify all revenue sources (exclusive of any State Subsidies) relied upon in the Sell Offer to offset the claimed fixed costs, including, without limitation, long-term power supply contracts, tolling agreements, or tariffs on file with state regulatory agencies, and shall demonstrate that such offsetting revenues are consistent, over a reasonable time period identified by the Capacity Market Seller, with the standard prescribed above. In making such demonstration, the Capacity Market Seller may rely upon revenues projected by well-defined, forward-looking dispatch models designed to generally follow the rules and processes of PJM’s energy and ancillary services market. Such models must utilize publicly available forward prices for electricity and fuel in the PJM Region. Any modifications made to the forward electricity and fuel prices must similarly use publicly available data. Alternative forward prices for fuel may be used if accompanied by contractual evidence showing the applicability of the alternative fuel price. Where forward fuel markets are not available, publicly available estimates of future fuel sources may be used. The model shall also contain estimates of variable operation and maintenance expenses, which may include Maintenance Adders, and emissions allowance prices. Documentation for net revenues also must include, as available and applicable, plant performance and capability information, including heat rate, start-up times and costs, forced outage rates, planned outage schedules, maintenance cycle, fuel costs and other variable operations and maintenance expenses, capacity factors, and ancillary service capabilities. Any evaluation of revenues should include, but would not be not limited to, consideration of Fuel Costs, Maintenance Adders and Operating Costs, as applicable, pursuant to Operating Agreement, Schedule 2.

In the alternative, the Capacity Market Seller may request that the Market Monitoring Unit, subject to acceptance by the Office of Interconnection, produce a resource-specific Energy & Ancillary Services Offset value for such resource using the Forward Hourly LMPs, Forward Hourly Ancillary Service Prices and either Forward Daily Natural Gas Prices for combustion turbines and combined cycle resources, or forecasted fuel prices for other resource types, plus plant parameters and capability information specific to the dispatch of the resource, as outlined above. In addition to the documentation identified herein and in the PJM Manuals, the Capacity Market Seller shall provide any additional supporting information reasonably requested by the Office of the Interconnection or the Market Monitoring Unit to evaluate the Sell Offer. Requests for additional documentation will not extend the deadline by which the Office of the Interconnection or the Market Monitoring Unit must provide their determinations of the Minimum Offer Price Rule exception request.

The resource-specific MOPR Floor Offer Price for a Cleared Capacity Resource with State Subsidy that is a generation-backed Demand Resource will be determined based on all costs associated with the generation unit supporting the Demand Resource, and demand charge management benefits at the retail level (as supported by documentation at the end-use customer level) may also be considered as an additional offset to such costs. Supporting documentation (at the end-use customer level) may include but is not limited to, historic end-use customer bills and associated analysis that identifies the annual retail avoided cost from the operation of such generation unit.

(D) A Sell Offer evaluated at the resource-specific exception shall be permitted if the information provided reasonably demonstrates that the Sell Offer's competitive, cost-based, fixed, net cost of new entry is below the default MOPR Floor Offer Price, based on competitive cost advantages relative to the costs estimated by the default MOPR Floor Offer Price, including, without limitation, competitive cost advantages resulting from the Capacity Market Seller's business model, financial condition, tax status, access to capital or other similar conditions affecting the applicant's costs, or based on net revenues that are reasonably demonstrated hereunder to be higher than those estimated by the default MOPR Floor Offer Price. Capacity Market Sellers shall demonstrate that claimed cost advantages or sources of net revenue that are irregular or anomalous, that do not reflect arm's-length transactions, or that are not in the ordinary course of the Capacity Market Seller's business are consistent with the standards of this subsection. Failure to adequately support such costs or revenues so as to enable the Office of the Interconnection to make the determination required in this section will result in denial of a resource-specific exception by the Office of the Interconnection.

(E) The Capacity Market Seller must submit a sworn, notarized certification of a duly authorized officer, certifying that the officer has personal knowledge of the resource-specific exception request and that to the best of his/her knowledge and belief: (1) the information supplied to the Market Monitoring Unit and the Office of Interconnection to support its request for an exception is true and correct; (2) the Capacity Market Seller has disclosed all material facts relevant to the request for the exception; and (3) the request satisfies the criteria for the exception.

(F) The Market Monitoring Unit shall review, in an open and transparent manner with the Capacity Market Seller and the Office of the Interconnection, the information and documentation in support of the request and shall provide its findings whether the proposed Sell Offer is acceptable, in accordance with the standards and criteria hereunder, in writing, to the Capacity Market Seller and the Office of the Interconnection by no later than ninety (90) days prior to the commencement of the offer period for such auction. The Office of the Interconnection shall also review, in an open and transparent manner, all exception requests and documentation and shall provide in writing to the Capacity Market Seller, and the Market Monitoring Unit, its determination whether the requested Sell Offer is acceptable and if not it shall calculate and provide to such Capacity Market Seller, a minimum Sell Offer based on the data and documentation received, by no later than sixty-five (65) days prior to the commencement of the offer period for the relevant RPM Auction. After the Office of the Interconnection determines with the advice and input of Market Monitor, the acceptable minimum Sell Offer, the Capacity Market Seller shall notify the Market Monitoring Unit and the Office of the Interconnection, in writing, of the minimum level of Sell Offer to which it agrees to

commit by no later than sixty (60) days prior to the commencement of the offer period for the relevant RPM Auction, and in making such determination, the Capacity Market Seller may consider the applicable default MOPR Floor Offer Price and may select such default value if it is lower than the resource-specific determination. A Capacity Market Seller that is dissatisfied with any determination hereunder may seek any remedies available to it from FERC; provided, however, that the Office of the Interconnection will proceed with administration of the Tariff and market rules based on the lower of the applicable default MOPR Floor Offer Price and the resource-specific determination unless and until ordered to do otherwise by FERC.

(4) Competitive Exemption.

(A) A Capacity Resource with State Subsidy may be exempt from the Minimum Offer Price Rule under this subsection 5.14(h-1) in any RPM Auction if the Capacity Market Seller certifies to the Office of Interconnection, in accordance with the PJM Manuals, that the Capacity Market Seller of such Capacity Resource elects to forego receiving any State Subsidy for the applicable Delivery Year no later than thirty (30) days prior to the commencement of the offer period for the relevant RPM Auction. Notwithstanding the foregoing, the competitive exemption is not available to Capacity Resources with State Subsidy that (A) are owned or offered by Self-Supply Entities unless the Self-Supply Entity certifies, subject to PJM and Market Monitor review, that the Capacity Resource will not accept a State Subsidy, including any financial benefit that is the result of being owned by a regulated utility, such that retail ratepayers are held harmless, (B) are no longer entitled to receive a State Subsidy but are still considered a Capacity Resource with State Subsidy solely because they have not cleared an RPM Auction since last receiving a State Subsidy, or (C) are Jointly Owned Cross-Subsidized Capacity Resources or is the subject of a bilateral transaction (including but not limited to those reported pursuant to Tariff, Attachment DD, section 4.6) and not all Capacity Market Sellers of the supporting facility unanimously elect the competitive exemption and certify that no State Subsidy will be received associated with supporting the resource (unless the underlying Capacity Resource that is the subject of a bilateral transaction has not received, is not receiving, and is not entitled to receive any State Subsidy except those that are assigned (i.e., renewable energy credits) to the off-takers of a bilateral transaction and the Capacity Market Seller of such Capacity Resource can demonstrate and certify that the Capacity Market Seller's rights and obligations of its share of the capacity, energy, and assignable State Subsidy associated with the underlying Capacity Resource are in pro rata shares). A new Generation Capacity Resource that is a Capacity Resource with State Subsidy may elect the competitive exemption; however, in such instance, the applicable MOPR Floor Offer Price will be determined in accordance with the minimum offer price rules for certain new Generation Capacity Resources as provided in Tariff, Attachment DD, section 5.14(h), which apply the minimum offer price rule to the new Generation Capacity Resources located in an LDA where a separate VRR Curve is established as provided in Tariff, Attachment DD, section 5.14(h)(4).

(B) The Capacity Market Seller shall not receive a State Subsidy for any part of the relevant Delivery Year in which it elects a competitive exemption or certifies that it is not a Capacity Resource with State Subsidy.

(5) Self-Supply Entity exemption. A Capacity Resource that was owned, or bilaterally contracted, by a Self-Supply Entity on December 19, 2019, shall be exempt from the

Minimum Offer Price Rule if such Capacity Resource remains owned or bilaterally contracted by such Self-Supply Entity and satisfies at least one of the criteria specified below:

(A) has successfully cleared an RPM Auction prior to December 19, 2019;

(B) is the subject of an interconnection construction service agreement, interim interconnection service agreement, interconnection service agreement or wholesale market participation agreement executed by the interconnection customer on or before December 19, 2019; or

(C) is the subject of an unexecuted interconnection construction service agreement, interim interconnection service agreement, interconnection service agreement or wholesale market participation agreement filed by PJM with the Commission on or before December 19, 2019.

(6) Renewable Portfolio Standard Exemption. A Capacity Resource with State Subsidy shall be exempt from the Minimum Offer Price Rule if such Capacity Resource (1) receives or is entitled to receive State Subsidies through renewable energy credits or equivalent credits associated with a state-mandated or state-sponsored renewable portfolio standard (“RPS”) program or equivalent program as of December 19, 2019 and (2) satisfies at least one of the following criteria:

(A) has successfully cleared an RPM Auction prior to December 19, 2019;

(B) is the subject of an interconnection construction service agreement, interim interconnection service agreement, interconnection service agreement or wholesale market participation agreement executed by the interconnection customer on or before December 19, 2019; or

(C) is the subject of an unexecuted interconnection construction service agreement, interim interconnection service agreement, interconnection service agreement or wholesale market participation agreement filed by PJM with the Commission on or before December 19, 2019.

(7) Demand Resource and Energy Efficiency Resource Exemption.

(A) A Capacity Resource with State Subsidy that is Demand Resource or an Energy Efficiency Resource shall be exempt from the Minimum Offer Price Rule if such Capacity Resource satisfies at least one of the following criteria:

(i) has successfully cleared an RPM Auction prior to December 19, 2019. For purposes of this subsection (A), individual customer location registrations that participated as Demand Resource and cleared in an RPM Auction prior to December 19, 2019, and were submitted to PJM no later than 45 days prior to the BRA for the

2022/2023 Delivery Year shall be deemed eligible for the Demand Resource and Energy Efficiency Resource Exemption; or

(ii) has completed registration on or before December 19, 2019; or

(iii) is supported by a post-installation measurement and verification report for Energy Efficiency Resources approved by PJM on or before December 19, 2019 (calculated for each installation period, Zone and Sub-Zone by using the greater of the latest approved post-installation measurement and verification report prior to December 19, 2019 or the maximum MW cleared for a Delivery Year across all auctions conducted prior to December 19, 2019).

(B) All registered locations that qualify for the Demand Resource and Energy Efficiency Resource exemption shall continue to remain exempt even if the MW of nominated capacity increases between RPM Auctions unless any MW increase in the nominated capacity is due to an investment made for the sole purpose of increasing the curtailment capability of the location in the capacity market. In such case, the MW of increased capability will not be qualified for the Demand Resource and Energy Efficiency Resource exemption.

(8) Capacity Storage Resource Exemption. A Capacity Resource with State Subsidy that is a Capacity Storage Resource shall be exempt from the Minimum Offer Price Rule if such Capacity Storage Resource satisfies at least one of the following criteria:

(A) has successfully cleared an RPM Auction prior to December 19, 2019;

(B) is the subject of an interconnection construction service agreement, interim interconnection service agreement, interconnection service agreement or wholesale market participation agreement executed by the interconnection customer on or before December 19, 2019; or

(C) is the subject of an unexecuted interconnection construction service agreement, interim interconnection service agreement, interconnection service agreement or wholesale market participation agreement filed by PJM with the Commission on or before December 19, 2019.

(9) Procedures and Remedies in Cases of Suspected Fraud or Material Misrepresentation or Omissions in Connection with a Capacity Resource with State Subsidy. In the event the Office of the Interconnection, with advice and input from the Market Monitoring Unit, reasonably believes that a certification of a Capacity Resource's status contains fraudulent or material misrepresentations or omissions such that the Capacity Market Seller's Capacity Resource is a Capacity Resource with a State Subsidy (including whether the Capacity Resource is a Jointly Owned Cross-Subsidized Capacity Resource) or does not qualify for a competitive exemption or contains information that is inconsistent with the resource-specific exception, then:

(A) A Capacity Market Seller shall, within five (5) business days upon receipt of the request for additional information, provide any supporting information reasonably requested by the Office of the Interconnection or the Market Monitoring Unit to evaluate whether such Capacity Resource is a Capacity Resource with State Subsidy or whether the Capacity Market Seller is eligible for the competitive exemption. If the Office of the Interconnection determines that the Capacity Resource's status as a Capacity Resource with State Subsidy is different from that specified by the Capacity Market Seller or is not eligible for a competitive exemption pursuant to subsection (4) above, the Office of the Interconnection shall notify, in writing, the Capacity Market Seller of such determination by no later than sixty-five (65) days prior to the commencement of the offer period for the relevant RPM Auction. A Capacity Market Seller that is dissatisfied with any determination hereunder may seek any remedies available to it from FERC; provided, however, if the Office of Interconnection determines that the subject resource is a Capacity Resource with State Subsidy or is not eligible for a competitive exemption pursuant to subsection (4) above, such Capacity Resource shall be subject to the Minimum Offer Price Rule, unless and until ordered to do otherwise by FERC.

(B) if the Office of the Interconnection does not provide written notice of suspected fraudulent or material misrepresentation or omission at least sixty-five (65) days before the start of the relevant RPM Auction, then the Office of the Interconnection may file the certification that contains any alleged fraudulent or material misrepresentation or omission with FERC. In such event, if the Office of Interconnection determines that a resource is a Capacity Resource with State Subsidy that is subject to the Minimum Offer Price Rule, the Office of the Interconnection will proceed with administration of the Tariff and market rules on that basis unless and until ordered to do otherwise by FERC. The Office of the Interconnection shall implement any remedies ordered by FERC; and

(C) prior to applying the Minimum Offer Price Rule, the Office of the Interconnection, with advice and input of the Market Monitoring Unit, shall notify the affected Capacity Market Seller and, to the extent practicable, provide the Capacity Market Seller an opportunity to explain the alleged fraudulent or material misrepresentation or omission. Any filing to FERC under this provision shall seek fast track treatment and neither the name nor any identifying characteristics of the Capacity Market Seller or the resource shall be publicly revealed, but otherwise the filing shall be public. The Capacity Market Seller may submit a revised certification for that Capacity Resource for subsequent RPM Auctions, including RPM Auctions held during the pendency of the FERC proceeding. In the event that the Capacity Market Seller is cleared by FERC from such allegations of fraudulent or material misrepresentations or omissions then the certification shall be restored to the extent and in the manner permitted by FERC. The remedies required by this subsection to be requested in any filing to FERC shall not be exclusive of any other remedies or penalties that may be pursued against the Capacity Market Seller.

h-2) Minimum Offer Price Rule Effective with the 2023/2024 Delivery Year

(1) **Certification Requirement.**

(A) By no later than one hundred and fifty (150) days prior to the commencement of the offer period of any RPM Auction conducted for the 2024/2025 Delivery

Year and all subsequent Delivery Years, and by the date posted on the PJM website for the 2023/2024 Delivery Year, each Capacity Market Seller must certify to the Office of Interconnection for each Generation Capacity Resource and each applicable DER Capacity Aggregation Resource the Capacity Market Seller intends to offer into the RPM Auction, in accordance with the PJM Manuals:

(i) whether or not the Generation Capacity Resource is receiving or expected to receive Conditioned State Support under any legislative or other governmental policy or program that has been enacted or effective at the time of the certification; and

(ii) whether or not the Capacity Market Seller acknowledges and understands that the Exercise of Buyer-Side Market Power is not permitted in RPM Auctions, and does not intend to submit a Sell Offer for their Generation Capacity Resource as an Exercise of Buyer-Side Market Power.

(B) All Capacity Market Sellers shall be responsible for the accuracy of each certification and its conformance with the Tariff irrespective of any guidance developed by the Office of the Interconnection and the Market Monitoring Unit.

(C) Once a Capacity Market Seller has certified whether or not a Generation Capacity Resource is receiving or expected to receive Conditioned State Support, the certification requirements in subsection (A)(i) above do not apply and the status of such Generation Capacity Resource will remain unchanged unless and until the Capacity Market Seller (or a subsequent Capacity Market Seller of the underlying resource) that owns or controls such Generation Capacity Resource provides a certification of a change in such status, the Office of the Interconnection removes such status, or by FERC order. All Capacity Market Sellers shall have an ongoing obligation to certify to the Office of Interconnection and the Market Monitoring Unit a Generation Capacity Resource's material change in status regarding whether such resource is receiving or expected to receive Conditioned State Support within 30 days of such material change. Nothing in this provision shall supersede the requirement for all Capacity Market Sellers to certify to the Office of Interconnection pursuant to Tariff, Attachment DD, section 5.14(h-2)(1)(A)(ii).

(2) **Determining Generation Capacity Resources Subject to the Minimum Offer Price Rule.**

(A) Conditioned State Support.

(i) If the Office of the Interconnection reasonably believes a government policy or program would provide Conditioned State Support or a Capacity Market Seller certifies that it is receiving or is expected to receive Conditioned State Support associated with a given Generation Capacity Resource, the Office of Interconnection shall submit, pursuant to section 205 of the Federal Power Act, 16 U.S.C. § 824d, a filing at FERC indicating the Office of the Interconnection's intent to classify the government policy or program from which that support is derived as Conditioned State Support (and adding such policy or program to the list in Tariff, Attachment DD-3) and apply the Minimum Offer Price Rule to each Generation Capacity Resource reasonably expected to receive such Conditioned State Support. If FERC has already

ruled on whether a specific government program or policy constitutes Conditioned State Support and such policy or program is listed in Tariff, Attachment DD-3, the Office of the Interconnection shall not be required to submit the filing described in the preceding sentence.

(ii) Government policies or programs that do not provide payments or other financial benefit outside of PJM markets and do not provide payment or other financial benefit in exchange for the sale of a FERC-jurisdictional product conditioned on clearing in any RPM Auction do not constitute Conditioned State Support. Examples of such government policies that do not constitute Conditioned State Support may include, but are not limited to: policies designed to procure, incent, or require environmental attributes, whether bundled or unbundled (e.g., Renewable Energy Credits, Zero Emission Credits; Regional Greenhouse Gas Initiative); economic development programs and policies; tax incentives; state retail default service auctions; policies or programs that provide incentives related to fuel supplies; any contract, legally enforceable obligation, or rate pursuant to the Public Utility Regulatory Policies Act or any other state-administered federal regulatory program (e.g., Cross-State Air Pollution Rule). In addition, Conditioned State Support shall not be determined solely based on the business model of the Capacity Market Seller, such that the fact that a Self-Supply Entity is the Capacity Market Seller, for example, is not a basis for determining Conditioned State Support.

(iii) Upon FERC acceptance (whether by order or operation of law) that a government policy or program or contract with a state entity constitutes Conditioned State Support, a Generation Capacity Resource for which a Capacity Market Seller certifies pursuant to Tariff, Attachment DD, section 5.14(h-2)(1)(A)(i) that it is receiving Conditioned State Support or is reasonably expected to receive such Conditioned State Support, as identified by the Office of the Interconnection, with the advice and input of the Market Monitoring Unit, will be subject to the provisions of the Minimum Offer Price Rule.

(B) Exercise of Buyer-Side Market Power

(i) If a Capacity Market Seller does not certify that it acknowledges the prohibition of the Exercise of Buyer Side Market Power and the Capacity Market Seller intends to exercise Buyer-Side Market Power for this Generation Capacity Resource, then the underlying Capacity Resource shall be subject to the MOPR pursuant to Tariff, Attachment DD, section 5.14(h-2)(1)(A)(i). If the Office of the Interconnection and/or the Market Monitoring Unit reasonably suspects that a certification submitted under Tariff, Attachment DD, section 5.14(h-2)(1)(A)(ii) contains fraudulent or material misrepresentations such that the Capacity Market Seller's Generation Capacity Resource may be the subject of a Sell Offer that would be an Exercise of Buyer-Side Market Power or otherwise reasonably suspects that a Generation Capacity Resource may be the subject of a Sell Offer that would be an Exercise of Buyer-Side Market Power, the Office of the Interconnection and/or the Market Monitoring Unit shall initiate a fact-specific review into the facts and circumstances regarding the Generation Capacity Resource and whether the Capacity Market Seller has the ability and incentive to exercise Buyer-Side Market Power with respect to such Generation Capacity Resource. During such fact-specific review, the Capacity Market Seller will have the opportunity to explain and justify why a Sell Offer for the Generation Capacity Resource would not be an Exercise of Buyer-Side Market Power. The Office of the Interconnection and/or the Market Monitoring Unit shall notify the Capacity Market Seller of the bases for inquiry and

initiation of review at least 135 days in advance of the RPM Auction conducted for the 2024/2025 Delivery Year and all subsequent Delivery Years, and by the date posted on the PJM website for the 2023/2024 Delivery Year.

In initiating a review, the Office of the Interconnection and/or the Market Monitoring Unit shall provide the affected Capacity Market Seller, in writing, the basis for its inquiry, including, but not limited to, the Generation Capacity Resource(s), and the purported beneficiary of any price suppression. The Office of the Interconnection and/or the Market Monitoring Unit may request from the Capacity Market Seller additional information and documentation that is reasonably related to the basis for its inquiry, provided that, the Office of the Interconnection and the Market Monitoring Unit shall confer with the Capacity Market Seller in advance of any such requests. The Capacity Market Seller shall provide any additional supporting information and documentation requested by the Office of the Interconnection and/or the Market Monitoring Unit, and any other information and documentation the Capacity Market Seller believes may justify the conduct or action in question as not representing an Exercise of Buyer-Side Market Power, within 15 days or other such timeline as agreed to in writing by the Office of the Interconnection, Market Monitoring Unit and Capacity Market Seller.

The fact-specific review will determine, as necessary, whether a Capacity Market Seller has the ability and incentive to submit a Sell Offer for the Generation Capacity Resource that could be an Exercise of Buyer-Side Market Power, as follows:

(a) To determine whether a Capacity Market Seller may have Buyer Side Market Power associated with the Generation Capacity Resource for the applicable RPM Auction, the Office of the Interconnection and/or the Market Monitoring Unit will perform ex-ante testing to determine the extent to which a shift in the supply curve by a number of megawatts equal to the size of the Generation Capacity Resource would affect RPM Auction clearing prices, where such analysis would reflect expected supply and demand conditions in the region of the market clearing prices and quantities in recent RPM Auctions, would reflect whether the relevant LDAs have been constrained in recent RPM Auctions, and would reflect reasonably expected material changes in an LDA including the modeling of the LDA and expected changes in supply and demand for the applicable Delivery Year. To the extent the foregoing analyses show that the Generation Capacity Resource would have a material effect on RPM Auction clearing prices, the Capacity Market Seller shall be deemed to have the ability to exercise Buyer Side Market Power.

(b) To determine whether the Capacity Market Seller's submission of a Sell Offer at any given price level for such Generation Capacity Resource may constitute an Exercise of Buyer-Side Market Power, the Office of the Interconnection and/or the Market Monitoring Unit shall perform ex-ante testing to determine whether, given the ability to suppress prices identified in the relevant LDAs and the PJM Region, such price suppression would be economically beneficial to the Capacity Market Seller by comparing its expected cost with its economic benefit, and where the expected cost shall reflect the excess economic costs of the resource above expected market revenues, and the expected benefit shall reflect the expected cost savings to the expected net short position (based on estimated capacity obligations and owned and contracted capacity measured on a three-year average basis for the three years starting with the first day of the Delivery Year associated with the RPM Auction in which the

Generation Capacity Resource is being offered) in the relevant LDAs and RTO multiplied by the price change resulting from offering the resource uneconomically. In this analysis, the Office of Interconnection and/or the Market Monitoring Unit shall consider whether any capacity obligations in which the capacity costs based on RPM Auction clearing prices are directly passed through to load and consider whether the price of any contracted capacity passes through RPM Auction clearing prices. If the expected benefit outweighs the expected cost, the Capacity Market Seller shall be deemed to have the incentive to exercise Buyer Side Market Power. If a resource offer can be justified, economically or otherwise, without consideration of the benefit to the Capacity Market Seller of the suppressed prices, the Capacity Market Seller shall be deemed not to have the incentive to exercise Buyer Side Market Power with respect to that resource. Out-of-market compensation (such as from renewable energy credits and zero emission credits) that are not tied to either Conditioned State Support or a bilateral contract that directs the submission of an offer to lower market clearing prices may be used to support the economics of the resource under review.

(ii) The following nonexhaustive list of circumstances would preclude an inquiry into or determination regarding an Exercise of Buyer-Side Market Power in the course of a review initiated pursuant to subsection (i) above: (a) the Generation Capacity Resource is a merchant generation supply resources that is not contracted to an entity with a Load Interest; (b) the Generation Capacity Resource is acquired by or under the contractual control of the Capacity Market Seller through a competitive and non-discriminatory procurement process open to new and existing resources; or (c) the Generation Capacity Resource is owned by or bilaterally contracted to a Self-Supply Seller and such resource is demonstrated as consistent with or included in the Self-Supply Seller's long-range resource plan (e.g., a long-range hedging plan) that is approved or otherwise reviewed and accepted by the RERRA, provided that any such plan approval or contracts do not direct the submission of an uneconomic offer to deliberately lower market clearing prices or for the Capacity Market Seller to otherwise perform an Exercise of Buyer-Side Market Power. In addition, to the extent a Generation Capacity Resource may receive compensation in support of characteristics aligned with well-demonstrated customer preferences, such compensation shall not, in and of itself, be a basis for the determination of Buyer-Side Market Power.

(iii) Based on the foregoing tests and fact-specific review, including the facts and circumstances of the Generation Capacity Resource, the Office of the Interconnection, with the advice and input of the Market Monitoring Unit, shall determine whether a Generation Capacity Resource may be the subject of a Sell Offer that would be an Exercise of Buyer-Side Market Power. If the Office of the Interconnection, with the advice and input of the Market Monitoring Unit, determines that a Generation Capacity Resource may be the subject of a Sell Offer that would be an Exercise of Buyer-Side Market Power or the Capacity Market Seller certifies that it intends to exercise Buyer-Side Market Power, then such resource will be subject to the provisions of the Minimum Offer Price Rule. If the resource will be subject to the provisions of the Minimum Offer Price Rule, the Office of the Interconnection shall include in the notice a written explanation for such determination. A Capacity Market Seller that is dissatisfied with the Office of the Interconnection's determination of whether a given Generation Capacity Resource is subject to the Minimum Offer Price Rule may seek any remedies available to it from FERC; provided, however, that the Office of the Interconnection

will proceed with administration of the Tariff and market rules based on its determination hereunder unless FERC by order directs otherwise.

(C) Failure to timely submit a certification. Any Generation Capacity Resource for which a Capacity Market Seller has not timely submitted the certifications required under Tariff, Attachment DD, section 5.14(h-2)(1) shall be subject to the provisions of the Minimum Offer Price Rule. Notwithstanding the foregoing, if a Capacity Market Seller submits a timely unit-specific exception pursuant to Tariff, Attachment DD, section 5.14(h-2)(4) for the relevant Delivery Year, and PJM approves the unit-specific MOPR Floor Offer Price, then the Capacity Market Seller may use such floor price regardless of whether it timely submitted the foregoing certifications.

(3) **Minimum Offer Price Rule.** Any Sell Offer for a Generation Capacity Resource that is subject to the provisions of the Minimum Offer Price Rule pursuant to Tariff, Attachment DD, section 5.14(h-2)(2) shall have an offer price no lower than the applicable MOPR Floor Offer Price, unless the applicable MOPR Floor Offer Price is higher than the applicable Market Seller Offer Cap, in which circumstance the Capacity Market Seller, to participate in an RPM Auction, must request a unit-specific value determined in accordance with the unit-specific MOPR Floor Offer Price process, and the unit-specific MOPR Floor Offer Price shall establish the offer level for such resource.

(A) **New Entry MOPR Floor Offer Price.** For a Generation Capacity Resource that is subject to the provisions of the Minimum Offer Price Rule pursuant to Tariff, Attachment DD, section 5.14(h-2)(2) and for which a Sell Offer based on that resource, or any uprate of such Generation Capacity Resource participating in the generation interconnection process under Tariff, Part IV, Subpart A, that has not cleared an RPM Auction for any Delivery Year, the applicable MOPR Floor Offer Price, based on the net cost of new entry for the resource type, shall be, at the election of the Capacity Market Seller, (i) the unit-specific value determined in accordance with the unit-specific MOPR Floor Offer Price process in Tariff, Attachment DD, section 5.14(h-2)(4) below or (ii) if applicable, the default New Entry MOPR Floor Offer Price for the applicable resource based on the gross cost of new entry values shown in the table below, as adjusted for Delivery Years subsequent to the 2022/2023 or 2026/2027 Delivery Year, as applicable, net of estimated net energy and ancillary service revenues for the resource type and Zone in which the resource is located.

Resource Type	Through the 2025/2026 Delivery Years: Gross Cost of New Entry (2022/2023 \$/ MW-day) (Nameplate)	For the 2026/2027 Delivery Year and Subsequent Delivery Years: Gross Cost of New Entry (2026/2027 \$/ MW-day) (Nameplate)
Nuclear	\$2,000	\$2,568
Coal	\$1,068	\$1,480
Combined Cycle	\$320	\$540
Combustion Turbine	\$294	\$427
Fixed Solar PV	\$271	\$298

Tracking Solar PV	\$290	\$321
Onshore Wind	\$420	\$438
Offshore Wind	\$1,155	\$1,351
Battery Energy Storage	\$532	\$502

The gross cost of new entry values in the table above are expressed in dollars per MW-day in terms of nameplate megawatts. For purposes of submitting a Sell Offer, the gross cost of new entry values must be converted to a net cost of new entry by subtracting the estimated net energy and ancillary service revenues, as determined below, from the gross cost of new entry. However, the resultant net cost of new entry of the battery energy storage resource type in the table above must be multiplied by 2.5. The net cost of new entry based on nameplate capacity is then converted to Unforced Capacity (“UCAP”) MW-day. For the 2023/2024 and 2024/2025 Delivery Years, the net cost of new entry is adjusted using: for battery storage, wind, and solar resource types, the applicable ELCC Class Rating; or for all other generation resource types, the applicable class average EFORD. For the 2025/2026 Delivery Year and subsequent Delivery Years, the net cost of new entry is adjusted by the applicable class average Accredited UCAP Factor. The resulting default New Entry MOPR Floor Offer price in UCAP/MW-day terms shall be applied to each MW offered for the Capacity Resource regardless of the actual Sell Offer quantity and regardless of whether the Sell Offer is for a Seasonal Capacity Performance Resource.

Commencing with the Base Residual Auction for the 2023/2024 Delivery Year, the Office of the Interconnection shall adjust the default gross costs of new entry in the table above and post the preliminary estimates of the adjusted applicable default New Entry MOPR Floor Offer Prices on its website, by no later than one hundred fifty (150) days prior to the commencement of the offer period for each Base Residual Auction. To determine the adjusted applicable default New Entry MOPR Floor Offer Prices for all resource types, the Office of the Interconnection shall adjust the gross costs of new entry utilizing, for combustion turbine and combined cycle resource types, the same Applicable BLS Composite Index applied for such Delivery Year to adjust the CONE value used to determine the Variable Resource Requirement Curve, in accordance with Tariff, Attachment DD, section 5.10(a)(iv), and for all other resource types, the “BLS Producer Price Index Turbines and Turbine Generator Sets” component of the Applicable BLS Composite Index used to determine the Variable Resource Requirement Curve shall be replaced with the “BLS Producer Price Index Final Demand, Goods Less Food & Energy, Private Capital Equipment” when adjusting the gross costs of new entry. The resultant value shall then be then adjusted further by a factor of 1.022 for nuclear, coal, combustion turbine, and combine cycle resource types or 1.01 for solar, wind, and storage resource types to reflect the annual decline in bonus depreciation scheduled under federal corporate tax law. Updated estimates of the net energy and ancillary service revenues for each default resource type and applicable Zone, which shall include, but are not limited to, consideration of Fuel Costs, Maintenance Adders and Operating Costs, as applicable, pursuant to Operating Agreement, Schedule 2 shall then be subtracted from the adjusted gross costs of new entry to determine the adjusted New Entry MOPR Floor Offer Price. The net energy and ancillary services revenue is equal to the average of the annual net revenues of the three most recent calendar years preceding the Base Residual Auction, where such annual net revenues shall be determined in accordance with the following and the PJM Manuals:

(i) for nuclear resource type, the net energy and ancillary services revenue estimate shall be determined by the gross energy market revenue determined by the product of [average annual zonal day-ahead LMP, times 8,760 hours times the annual average equivalent availability factor of all PJM nuclear resources] minus the total annual cost to produce energy determined by the product of [8,760 hours times the annual average equivalent availability factor of all PJM nuclear resources times \$9.02/MWh for a single unit plant or \$7.66/MWh for a multi-unit plant] where these hourly cost rates include fuel costs and variable operation and maintenance expenses, inclusive of Maintenance Adder costs, plus an ancillary services revenue of \$3,350/MW-year;

(ii) for coal resource type, the net energy and ancillary services revenue estimate shall be determined by a simulated dispatch of a 650 MW coal unit (with heat rate of 8,638 BTU/kWh and variable operations and maintenance variable operation and maintenance expenses, inclusive of Maintenance Adder costs, of \$9.50/MWh) using applicable coal prices, as set forth in the PJM Manuals, plus reactive services revenue of \$3,350/MW-year. The unit is committed day-ahead in profitable blocks of at least eight hours, and then committed in real-time for profitable hours if not already committed day ahead;

(iii) for combustion turbine resource type, the net energy and ancillary services revenue estimate shall be determined in a manner consistent with the methodology described in Tariff, Attachment DD, section 5.10(a)(v)(B) for the Reference Resource combustion turbine.

(iv) for combined cycle resource type, the net energy and ancillary services revenue estimate shall be determined in the same manner as that prescribed for a combustion turbine resource type, except that the heat rate assumed for the combined cycle resource shall be 6,553 BTU/kwh, the variable operations and maintenance expenses for such resource, inclusive of Maintenance Adder costs, shall be \$2.11/MWh, the Peak-Hour Dispatch scenario for both the Day-Ahead and Real-Time Energy Markets shall be modified to dispatch the CC resource continuously during the full peak-hour period, as described in Peak-Hour Dispatch, for each such period that the resource is economic (using the test set forth in such section), rather than only during the four-hour blocks within such period that such resource is economic, and the ancillary services revenue shall be \$3,350/MW-year.

(v) for solar PV resource type, the net energy and ancillary services revenue estimate shall be determined using a solar resource model that provides the average MW output level, expressed as a percentage of nameplate rating, by hour of day (for each of the 24-hours of a day) and by calendar month (for each of the twelve months of a year). The annual net energy market revenues are determined by multiplying the solar output level of each hour by the real-time zonal LMP applicable to such hour with this product summed across all of the hours of an annual period, plus an ancillary services revenue of \$3,350/MW-year. Two separate solar resource models are used, one model for a fixed panel resource and a second model for a tracking panel resource;

(vi) for onshore wind resource type, the net energy and ancillary services revenue estimate shall be determined using a wind resource model that provides the

average MW output level, expressed as a percentage of nameplate rating, by hour of day (for each of the 24-hours of a day) and by calendar month (for each of the twelve months of a year). The annual energy market revenues are determined by multiplying the wind output level of each hour by the real-time zonal LMP applicable to such hour with this product summed across all of the hours of an annual period, plus an ancillary services revenue of \$3,350/MW-year;

(vii) for offshore wind resource type, the net energy and ancillary services revenue estimate shall be the product of [the average annual zonal real-time LMP times 8,760 hours times an assumed annual capacity factor of 45%], plus an ancillary services revenue of \$3,350/MW-year; and

(viii) for Capacity Storage Resource, the net energy and ancillary services revenue estimate shall be estimated by a simulated dispatch against historical real-time zonal LMPs where the resource is assumed to be dispatched for the four hours of highest LMP of a daily twenty-four hour period if the average LMP of these four hours exceeds 120% of the average LMP of the four lowest LMP hours of the same twenty-four hour period. The net energy market revenues will be determined by the product of [hourly output of 1 MW times the hourly LMP for each hour of assumed discharging] minus the product of [hourly consumption of 1.2 MW times the hourly LMP for each hour of assumed charging] with this net value summed across all of the hours of an annual period, plus an ancillary services revenue of \$3,350/MW-year. An 83.3% efficiency of the battery energy storage resource is reflected by assuming each 1.0 MW of discharge requires 1.2 MW of charge.

Beginning with the Delivery Year that commences June 1, 2022, and continuing no later than for every fourth Delivery Year thereafter, the Office of the Interconnection shall review the default gross cost of new entry values. Such review may include, without limitation, analyses of the fixed development, construction, operation, and maintenance costs for such resource types. Based on the results of such review, PJM shall propose either to modify or retain the default gross cost of new entry values stated in the table above. The Office of the Interconnection shall post publicly and solicit stakeholder comment regarding the proposal. If, as a result of this process, changes to the default gross cost of new entry values are proposed, the Office of the Interconnection shall file such proposed modifications with the FERC by October 1, prior to the conduct of the Base Residual Auction for the first Delivery Year in which the new values would be applied.

Any Generation Capacity Resource that is subject to the provisions of the Minimum Offer Price Rule pursuant to Tariff, Attachment DD, section 5.14(h-2)(2) and that has not previously cleared an RPM Auction for that or any prior Delivery Year and for which there is no default MOPR Floor Offer Price provided in accordance with this section, including hybrid resources, must seek a unit-specific value determined in accordance with the unit-specific MOPR Floor Offer Price process below to participate in an RPM Auction. Failure to obtain a unit-specific MOPR Floor Offer Price will result in the Office of the Interconnection rejecting any Sell Offer based on such resource for the relevant RPM Auction.

(B) Cleared MOPR Floor Offer Prices.

For a Generation Capacity Resource that is subject to the provisions of the Minimum Offer Price Rule pursuant to Tariff, Attachment DD, section 5.14(h-2)(2) and for which a Sell Offer based on that resource has previously cleared an RPM Auction for any Delivery Year, the applicable Cleared MOPR Floor Offer Price shall be, at the election of the Capacity Market Seller, (a) based on the unit-specific MOPR Floor Offer Price, as determined in accordance with Tariff, Attachment DD, section 5.14(h-2)(4) below, or (b) if available, the default Avoidable Cost Rate for the applicable resource type shown in the table below, as adjusted for Delivery Years subsequent for the 2022/2023 or 2026/2027 Delivery Year, as applicable, to reflect changes in avoidable costs, net of projected PJM market revenues equal to the resource’s historical net energy and ancillary service revenues consistent with Tariff, Attachment DD, section 6.8(d).

Existing Resource Type	Through the 2025/2026 Delivery Years: Default Gross ACR (2022/2023) (\$/MW-day) (Nameplate)	For the 2026/2027 Delivery Year and Subsequent Delivery Years: Default Gross ACR (2026/2027) (\$/ MW-day) Nameplate
Nuclear - single	\$697	\$591
Nuclear - dual	\$445	\$537
Coal	\$80	\$94
Combined Cycle	\$56	\$113
Combustion Turbine	\$50	\$52
Steam Oil & Gas	NA	\$64
Solar PV (fixed and tracking)	\$40	\$70
Wind Onshore	\$83	\$147

The default gross Avoidable Cost Rate values in the table above are expressed in dollars per MW-day in terms of nameplate megawatts. Through the 2024/2025 Delivery Year, for purposes of submitting a Sell Offer, the default Avoidable Cost Rate values must be net of estimated net energy and ancillary service revenues, and then the difference is ultimately converted to Unforced Capacity (“UCAP”) MW-day, where the UCAP MW-day value will be determined based on the resource-specific Accredited UCAP value for solar and wind resource types (with appropriate time-weighting for any winter Capacity Interconnection Rights) or the resource-specific EFORd for all other generation resource types. Effective for the 2025/2026 Delivery Year and subsequent Delivery Years, for purposes of submitting a Sell Offer, the default Avoidable Cost Rate values must be net of estimated net energy and ancillary service revenues, and then the difference is ultimately converted to Unforced Capacity (“UCAP”) MW-day, based on the resource’s Accredited UCAP Factor. The resulting default Cleared MOPR Floor Offer price in UCAP/MW-day terms shall be applied to each MW offered for the Capacity Resource regardless of actual Sell Offer quantity and regardless of whether the Sell Offer is for a Seasonal Capacity Performance Resource.

Commencing with the Base Residual Auction for the 2023/2024 Delivery Year, the Office of the Interconnection shall adjust the default Avoidable Cost Rates in the table above, and post the adjusted values on its website, by no later than one hundred fifty (150) days prior to the commencement of the offer period for each Base Residual Auction. To determine the adjusted Avoidable Cost Rates, the Office of the Interconnection shall utilize the 10-year average Handy-Whitman Index in order to adjust the Gross ACR values to account for expected inflation. Updated estimates of the net energy and ancillary service revenues shall be determined on a resource-specific basis in accordance with Tariff, Attachment DD, section 6.8(d) and the PJM Manuals.

Beginning with the Delivery Year that commences June 1, 2022, and continuing no later than for every fourth Delivery Year thereafter, the Office of the Interconnection shall review the default Avoidable Cost Rates for Capacity Resource that is subject to the provisions of the Minimum Offer Price Rule pursuant to Tariff, Attachment DD, section 5.14(h-2)(2) that have cleared in an RPM Auction for any Delivery Year. Such review may include, without limitation, analyses of the avoidable costs of such resource types. Based on the results of such review, PJM shall propose either to modify or retain the default Avoidable Cost Rate values stated in the table above. The Office of the Interconnection shall post publicly and solicit stakeholder comment regarding the proposal. If, as a result of this process, changes to the default Avoidable Cost Rate values are proposed, the Office of the Interconnection shall file such proposed modifications with the FERC by October 1, prior to the conduct of the Base Residual Auction for the first Delivery Year in which the new values would be applied.

Any Generation Capacity Resource that is subject to the provisions of the Minimum Offer Price Rule pursuant to Tariff, Attachment DD, section 5.14(h-2)(2) and that has previously cleared an RPM Auction for any Delivery Year and for which there is no default MOPR Floor Offer Price provided in accordance with this section, including hybrid resources, must seek a unit-specific value determined in accordance with the unit-specific MOPR Floor Offer Price process below to participate in an RPM Auction. Failure to obtain a unit-specific MOPR Floor Offer Price will result in the Office of the Interconnection rejecting any Sell Offer based on such resource.

(4) **Unit-Specific Exception.** A Capacity Market Seller intending to submit a Sell Offer in any RPM Auction for a Generation Capacity Resource that is subject to the provisions of the Minimum Offer Price Rule below the applicable default MOPR Floor Offer Price may, at its election, submit a request for a unit-specific exception for such Capacity Resource. A Capacity Market Seller intending to submit a Sell Offer in any RPM Auction for a Generation Capacity Resource that is under a fact-specific review for Buyer-Side Market Power pursuant to Tariff, Attachment DD, section 5.14(h-2)(2)(B)(ii), and where the offer is below the applicable default MOPR Floor Offer Price may, at its election, submit a request for a unit-specific exception for such Generation Capacity Resource. A Sell Offer below the default MOPR Floor Offer Price, but no lower than the unit-specific MOPR Floor Offer Price, shall be permitted if the Capacity Market Seller obtains approval from the Office of the Interconnection or the Commission, prior to the RPM Auction in which it seeks to submit the Sell Offer. The unit-specific MOPR Floor Offer Price determined under this provision shall be based on the unit-specific Accredited UCAP value for battery energy storage resource types and for solar and wind generation resource types (appropriately time-weighted for any winter Capacity Interconnection Rights) or on the unit-specific EFORd for all other generation resource types, and shall be

applied to each MW offered by the resource regardless of actual Sell Offer quantity and regardless of whether the Sell Offer is for a Seasonal Capacity Performance Resource. Such Sell Offer is permissible because it is consistent with the competitive, cost-based, fixed, net cost of the resource. All supporting data must be provided for all requests. The following requirements shall apply to requests for such determinations:

(A) The Capacity Market Seller shall submit a written request with all of the required documentation as described below and in the PJM Manuals. For such purpose, the Capacity Market Seller shall submit the unit-specific exception request to the Office of the Interconnection and the Market Monitoring Unit no later than one hundred twenty (120) days prior to the commencement of the offer period for the RPM Auction in which it seeks to submit its Sell Offer. For such purpose, the Office of the Interconnection shall post, by no later than one hundred fifty (150) days prior to the commencement of the offer period for the relevant RPM Auction, a preliminary estimate for the relevant Delivery Year of the default Minimum Floor Offer Prices, determined pursuant to Tariff, Attachment DD, sections 5.14(h-2)(3)(A) and (B). If the final applicable default Minimum Floor Offer Price subsequently established for the relevant Delivery Year is less than the Sell Offer, the Sell Offer shall be permitted and no exception shall be required.

(B) For a unit-specific exception for a Generation Capacity Resource that is subject to the provisions of the Minimum Offer Price Rule pursuant to Tariff, Attachment DD, section 5.14(h-2)(2) and that has never cleared an RPM Auction, the Capacity Market Seller must include in its request for an exception under this subsection documentation to support the fixed development, construction, operation, and maintenance costs of the Capacity Resource, as well as estimates of offsetting net revenues.

The financial modeling assumptions for calculating Cost of New Entry for Generation Capacity Resources shall be: (i) nominal levelization of gross costs, (ii) asset life of twenty years, (iii) no residual value, (iv) all project costs included with no sunk costs excluded, (v) use first year revenues (which may include revenues from the sale of renewable energy credits or any other revenues outside of PJM markets that do not constitute Conditioned State Support), and (vi) weighted average cost of capital based on the actual cost of capital for the entity proposing to build the Capacity Resource. Notwithstanding the foregoing, a Capacity Market Seller that seeks to utilize an asset life other than twenty years (but no greater than 35 years) shall provide evidence to support the use of a different asset life, including but not limited to, the asset life term for such resource as utilized in the Capacity Market Seller's financial accounting (e.g., independently audited financial statements), or project financing documents for the resource or evidence of actual costs or financing assumptions of recent comparable projects to the extent the seller has not executed project financing for the resource (e.g., independent project engineer opinion or manufacturer's performance guarantee), or opinions of third-party experts regarding the reasonableness of the financing assumptions used for the project itself or in comparable projects. Capacity Market Sellers may also rely on evidence presented in federal filings, such as its FERC Form No. 1 or an SEC Form 10-K, to demonstrate an asset life other than 20 years of similar asset projects.

Supporting documentation for project costs may include, as applicable and available, a complete project description; environmental permits; vendor quotes for plant or equipment; evidence of

actual costs of recent comparable projects; bases for electric and gas interconnection costs and any cost contingencies; bases and support for property taxes, insurance, operations and maintenance (“O&M”) contractor costs, and other fixed O&M and administrative or general costs; financing documents for construction-period and permanent financing or evidence of recent debt costs of the seller for comparable investments; and the bases and support for the claimed capitalization ratio, rate of return, cost-recovery period, inflation rate, or other parameters used in financial modeling. In addition to the certification, signed by an officer of the Capacity Market Seller, the request must include a certification that the claimed costs accurately reflect, in all material respects, the seller’s reasonably expected costs of new entry and that the request satisfies all standards for a unit-specific exception hereunder. The request also shall identify all revenue sources (exclusive of any Conditioned State Support or bilateral contracts that direct submission of an offer to lower RPM Auction clearing prices) relied upon in the Sell Offer to offset the claimed fixed costs, including, without limitation, long-term power supply contracts, tolling agreements, evidence of compensation outside the PJM market not tied to Conditioned State Support or a bilateral contract that directs submission of an offer to lower RPM Auction clearing prices, or tariffs on file with state regulatory agencies, and shall demonstrate that such offsetting revenues are consistent, over a reasonable time period identified by the Capacity Market Seller, with the standard prescribed above. In making such demonstration, the Capacity Market Seller may rely upon forecasts of competitive electricity prices in the PJM Region based on well-defined models that include fully documented estimates of future fuel prices, variable operation and maintenance expenses, which may include Maintenance Adders, energy demand, emissions allowance prices, and expected environmental or energy policies that affect the seller’s forecast of electricity prices in such region, employing input data from sources readily available to the public. Documentation for net revenues also may include, as available and applicable, plant performance and capability information, including heat rate, start-up times and costs, forced outage rates, planned outage schedules, maintenance cycle, fuel costs and other variable operations and maintenance expenses, and ancillary service capabilities. Any evaluation of net revenues should be consistent with Operating Agreement, Schedule 2, including, but not limited to, consideration of Fuel Costs, Maintenance Adders and Operating Costs, as applicable.

(C) For a Unit-Specific Exception for a Generation Capacity Resource that is subject to the provisions of the Minimum Offer Price Rule pursuant to Tariff, Attachment DD, section 5.14(h-2)(2) and that has previously cleared an RPM Auction, the Capacity Market Seller shall submit a Sell Offer consistent with the unit-specific Market Seller Offer Cap process pursuant to Tariff, Attachment DD, section 6.8; except that the 10% uncertainty adder may not be included in the “Adjustment Factor.” In addition and notwithstanding the requirements of Tariff, Attachment DD, section 6.8, the Capacity Market Seller may, at its election, include in its request for an exception under this subsection documentation to support projected energy and ancillary services markets revenues. Such a request shall identify all revenue sources (exclusive of any Conditioned State Support or bilateral contracts that direct submission of an offer to lower RPM Auction clearing prices) relied upon in the Sell Offer to offset the claimed fixed costs, including, without limitation, long-term power supply contracts, tolling agreements, evidence of compensation outside of PJM markets not tied to Conditioned State Support or a bilateral contract that directs submission of an offer to lower RPM Auction clearing prices, or tariffs on file with state regulatory agencies, and shall demonstrate that such offsetting revenues are consistent, over a reasonable time period identified by the Capacity Market Seller, with the

standard prescribed above. In making such demonstration, the Capacity Market Seller may rely upon forecasts of competitive electricity prices in the PJM Region based on well-defined models that include fully documented estimates of future fuel prices, variable operation and maintenance expenses, energy demand, which may include Maintenance Adders, and emissions allowance prices, and expected environmental or energy policies that affect the seller's forecast of electricity prices in such region, employing input data from sources readily available to the public. Documentation for net revenues also may include, as available and applicable, plant performance and capability information, including heat rate, start-up times and costs, forced outage rates, planned outage schedules, maintenance cycle, fuel costs and other variable operations and maintenance expenses, and ancillary service capabilities. Any evaluation of revenues should include, but would not be not limited to, consideration of Fuel Costs, Maintenance Adders and Operating Costs, as applicable, pursuant to Operating Agreement, Schedule 2.

(D) A Sell Offer evaluated at the unit-specific exception shall be permitted if the information provided reasonably demonstrates that the Sell Offer's competitive, fixed, cost-based offer level is below the default MOPR Floor Offer Price, based on competitive cost advantages relative to the costs estimated by the default MOPR Floor Offer Price, including, without limitation, competitive cost advantages resulting from the Capacity Market Seller's business model, financial condition, tax status, access to capital or other similar conditions affecting the applicant's costs, or based on net revenues that are reasonably demonstrated hereunder to be higher than those estimated by the default MOPR Floor Offer Price. Capacity Market Sellers shall demonstrate that claimed cost advantages or sources of net revenue that are irregular or anomalous, that do not reflect arm's-length transactions, or that are not in the ordinary course of the Capacity Market Seller's business are consistent with the standards of this subsection, and that out-of-market compensation is not tied to Conditioned State Support or a bilateral contract that directs submission of an offer to lower RPM Auction clearing prices. Failure to adequately support such claimed cost advantages or revenues so as to enable the Office of the Interconnection to make the determination required in this section will result in the elimination of consideration of the unsupported element(s) of a unit-specific exception by the Office of the Interconnection.

(E) The Capacity Market Seller must submit a sworn, notarized certification of a duly authorized officer, certifying that the officer has personal knowledge of the unit-specific exception request and that to the best of his/her knowledge and belief: (1) the information supplied to the Market Monitoring Unit and the Office of Interconnection to support its request for an exception is true and correct; (2) the Capacity Market Seller has disclosed all material facts relevant to the request for the exception; and (3) the request satisfies the criteria for the exception.

(F) The Market Monitoring Unit shall review, in an open and transparent manner with the Capacity Market Seller and the Office of the Interconnection, the information and documentation in support of the request and shall provide its findings whether the proposed Sell Offer is acceptable, in accordance with the standards and criteria hereunder, in writing, to the Capacity Market Seller and the Office of the Interconnection by no later than ninety (90) days prior to the commencement of the offer period for such auction. The Office of

the Interconnection shall also review, in an open and transparent manner, all exception requests and documentation and shall provide in writing to the Capacity Market Seller, and the Market Monitoring Unit, its determination whether the requested Sell Offer is acceptable and if not it shall calculate and provide to such Capacity Market Seller, a minimum Sell Offer based on the data and documentation received, by no later than sixty-five (65) days prior to the commencement of the offer period for the relevant RPM Auction. After the Office of the Interconnection determines with the advice and input of Market Monitor, the acceptable minimum Sell Offer, the Capacity Market Seller shall notify the Market Monitoring Unit and the Office of the Interconnection, in writing, of the minimum level of Sell Offer to which it agrees to commit by no later than sixty (60) days prior to the commencement of the offer period for the relevant RPM Auction, and in making such determination, the Capacity Market Seller may consider the applicable default MOPR Floor Offer Price and may select such default value if it is lower than the unit-specific determination. A Capacity Market Seller that is dissatisfied with any determination hereunder may seek any remedies available to it from FERC; provided, however, that the Office of the Interconnection will proceed with administration of the Tariff and market rules based on the lower of the applicable default MOPR Floor Offer Price and the unit-specific determination unless and until ordered to do otherwise by FERC.

i) Capacity Export Charges and Credits

(1) Charge

Each Capacity Export Transmission Customer shall incur for each day of each Delivery Year a Capacity Export Charge equal to the Reserved Capacity of Long-Term Firm Transmission Service used for such export (“Export Reserved Capacity”) multiplied by (the Final Zonal Capacity Price for such Delivery Year for the Zone encompassing the interface with the Control Area to which such capacity is exported minus the Final Zonal Capacity Price for such Delivery Year for the Zone in which the resources designated for export are located, but not less than zero). If more than one Zone forms the interface with such Control Area, then the amount of Reserved Capacity described above shall be apportioned among such Zones for purposes of the above calculation in proportion to the flows from such resource through each such Zone directly to such interface under CETO/CETL analysis conditions, as determined by the Office of the Interconnection using procedures set forth in the PJM Manuals. The amount of the Reserved Capacity that is associated with a fully controllable facility that crosses such interface shall be completely apportioned to the Zone within which such facility terminates.

(2) Credit

To recognize the value of firm Transmission Service held by any such Capacity Export Transmission Customer, such customer assessed a charge under section 5.14(i)(1) above also shall receive a credit, comparable to the Capacity Transfer Rights provided to Load-Serving Entities under Tariff, Attachment DD, section 5.15. Such credit shall be equal to the locational capacity price difference specified in section 5.14(i)(1) above times the Export Customer's Allocated Share determined as follows:

Export Customer's Allocated Share equals

(Export Path Import * Export Reserved Capacity) /

(Export Reserved Capacity + Daily Unforced Capacity Obligations of all LSEs in such Zone).

Where:

“Export Path Import” means the megawatts of Unforced Capacity imported into the export interface Zone from the Zone in which the resource designated for export is located.

If more than one Zone forms the interface with such Control Area, then the amount of Export Reserved Capacity shall be apportioned among such Zones for purposes of the above calculation in the same manner as set forth in subsection (i)(1) above.

(3) Distribution of Revenues

Any revenues collected from the Capacity Export Charge with respect to any capacity export for a Delivery Year, less the credit provided in subsection (i)(2) for such Delivery Year, shall be distributed to the Load Serving Entities in the export-interface Zone that were assessed a

Locational Reliability Charge for such Delivery Year, pro rata based on the Daily Unforced Capacity Obligations of such Load-serving Entities in such Zone during such Delivery Year. If more than one Zone forms the interface with such Control Area, then the revenues shall be apportioned among such Zones for purposes of the above calculation in the same manner as set forth in subsection (i)(1) above.

Section of the
PJM Operating Agreement

Effective July 1, 2025

(Marked/Redline Format)

~~1.4B~~ [Reserved.] **1.4B DER Aggregator Participation Model**

(a) DER Aggregators providing capacity using a DER Capacity Aggregation Resource shall be subject to the Day-ahead Energy Market must-offer requirement described in Tariff, Attachment K-Appendix, section 1.10.1A(d) and Operating Agreement, Schedule 1, section 1.10.1A(d), based on the technology of the Component DER within the DER Aggregation Resource linked to the DER Capacity Aggregation Resource, in accordance with the PJM Manuals.

(b) DER Aggregation Resources are subject to offer price cap and associated three pivotal supplier test provisions of Operating Agreement, Schedule 1, section 6.4.

(c) A DER Capacity Aggregation Resource shall be subject to a MOPR Floor Offer Price in accordance with the provisions applicable to MOPR Floor Offer Price for Generation Capacity Resources, as described in Tariff, Attachment DD, section 5.14(h-2), and Market Seller Offer Cap for Generation Capacity Resources in a manner consistent with the provisions applicable to Market Seller Offer Cap for Generation Capacity Resources, as described in Tariff, Attachment DD, section 6.4 and Tariff, Attachment M-Appendix, section II.E, based on the underlying technology of the Component DER.

A DER Capacity Aggregation Resource may segment offers for the Component DER subject to mitigation, based on the underlying technology of the Component DER in the DER Capacity Aggregation Resource, and further described in the PJM Manuals.

If a DER Capacity Aggregation Resource is subject to the Minimum Floor Offer Price pursuant to Tariff, Attachment DD, sections 5.14(h-2), the Capacity Market Seller that owns or controls such resources may submit a Sell Offer with a Minimum Floor Offer Price of no lower than the MW-weighted average of the applicable MOPR Floor Offer Prices (zero if not applicable) of the aggregated resources in such Sell Offer.

(d) Projected PJM Market Revenues for DER Capacity Aggregation Resources subject to the Minimum Floor Offer Price or Market Seller Offer Cap shall be determined in accordance with Tariff, Attachment DD, section 6.8(d-1). The determination of PJM Market Revenues by the Market Monitoring Unit or the Office of the Interconnection shall utilize either the hourly output profiles, or the Projected EAS Dispatch, as appropriate.

Sections of the
PJM Reliability Assurance Agreement

Effective July 1, 2025

(Marked/Redline Format)

ARTICLE 1 – DEFINITIONS

Unless the context otherwise specifies or requires, capitalized terms used herein shall have the respective meanings assigned herein or in the Schedules hereto, or in the PJM Tariff or PJM Operating Agreement if not otherwise defined in this Agreement, for all purposes of this Agreement (such definitions to be equally applicable to both the singular and the plural forms of the terms defined). Unless otherwise specified, all references herein to Articles, Sections or Schedules, are to Articles, Sections or Schedules of this Agreement. As used in this Agreement:

Accredited UCAP:

“Accredited UCAP” shall mean the quantity of Unforced Capacity, as denominated in Effective UCAP, that an ELCC Resource is capable of providing in a given Delivery Year.

Accredited UCAP Factor:

“Accredited UCAP Factor” shall mean, through the 2024/2025 Delivery Year, one minus EFORd, and for 2025/2026 Delivery Year and subsequent Delivery Years, the ratio of the Capacity Resource’s Accredited UCAP to the Capacity Resource’s installed capacity.

Agreement:

“Agreement” shall mean this Reliability Assurance Agreement, together with all Schedules hereto, as amended from time to time.

Annual Demand Resource:

“Annual Demand Resource” shall mean a resource that is placed under the direction of the Office of the Interconnection during the Delivery Year, and will be available for an unlimited number of interruptions during such Delivery Year by the Office of the Interconnection, and will be capable of maintaining each such interruption between the hours of 10:00AM to 10:00PM Eastern Prevailing Time for the months of June through October and the following May, and 6:00AM through 9:00PM Eastern Prevailing Time for the months of November through April unless there is an Office of the Interconnection approved maintenance outage during October through April. The Annual Demand Resource must be available in the corresponding Delivery year to be offered for sale or Self-Supplied in an RPM Auction, or included as an Annual Demand Resource in an FRR Capacity Plan for the corresponding Delivery Year.

Annual Energy Efficiency Resource:

“Annual Energy Efficiency Resource” shall mean a project, including installation of more efficient devices or equipment or implementation of more efficient processes or systems, meeting the requirements of Reliability Assurance Agreement, Schedule 6 and exceeding then-current building codes, appliance standards, or other relevant standards, designed to achieve a continuous (during the summer and winter periods described in such Schedule 6 and the PJM Manuals) reduction in electric energy consumption that is not reflected in the peak load forecast

prepared for the Delivery Year for which the Energy Efficiency Resource is proposed, and that is fully implemented at all times during such Delivery Year, without any requirement of notice, dispatch, or operator intervention.

Applicable Regional Entity:

“Applicable Regional Entity” shall have the same meaning as in the PJM Tariff.

Base Capacity Demand Resource:

“Base Capacity Demand Resource” shall mean, for the 2018/2019 and 2019/2020 Delivery Years, a resource that is placed under the direction of the Office of the Interconnection and that will be available June through September of a Delivery Year, and will be available to the Office of the Interconnection for an unlimited number of interruptions during such months, and will be capable of maintaining each such interruption for at least a 10-hour duration between the hours of 10:00AM to 10:00PM Eastern Prevailing Time. The Base Capacity Demand Resource must be available June through September in the corresponding Delivery Year to be offered for sale or self-supplied in an RPM Auction, or included as a Base Capacity Demand Resource in an FRR Capacity Plan for the corresponding Delivery Year.

Base Capacity Energy Efficiency Resource:

“Base Capacity Energy Efficiency Resource” shall mean, for the 2018/2019 and 2019/2020 Delivery Years, a project, including installation of more efficient devices or equipment or implementation of more efficient processes or systems, meeting the requirements of RAA, Schedule 6 and exceeding then-current building codes, appliance standards, or other relevant standards, designed to achieve a continuous (during the summer peak periods as described in Reliability Assurance Agreement, Schedule 6 and the PJM Manuals) reduction in electric energy consumption that is not reflected in the peak load forecast prepared for the Delivery Year for which the Base Capacity Energy Efficiency Resource is proposed, and that is fully implemented at all times during such Delivery Year, without any requirement of notice, dispatch, or operator intervention.

Base Capacity Resource:

“Base Capacity Resource” shall have the same meaning as in Tariff, Attachment DD.

Base Residual Auction:

“Base Residual Auction” shall have the same meaning as in Tariff, Attachment DD.

Behind The Meter Generation:

“Behind The Meter Generation” shall refer to a generating unit that delivers energy to load without using the Transmission System or any distribution facilities (unless the entity that owns or leases the distribution facilities consented to such use of the distribution facilities and such

consent has been demonstrated to the satisfaction of the Office of the Interconnection; provided, however, that Behind The Meter Generation does not include (i) at any time, any portion of such generating unit's capacity that is designated as a Capacity Resource or (ii) in any hour, any portion of the output of such generating unit that is sold to another entity for consumption at another electrical location or into the PJM Interchange Energy Market.

Black Start Capability:

“Black Start Capability” shall mean the ability of a generating unit or station to go from a shutdown condition to an operating condition and start delivering power without assistance from the power system.

Capacity Emergency Transfer Objective (CETO):

“Capacity Emergency Transfer Objective” or “CETO” shall mean, through the 2024/2025 Delivery Year, the amount of electric energy that a given area must be able to import in order to remain within a loss of load expectation of one event in 25 years when the area is experiencing a localized capacity emergency, as determined in accordance with the PJM Manuals. Without limiting the foregoing, CETO shall be, for Delivery Years through 2024/2025, calculated based in part on EFORD determined in accordance with Reliability Assurance Agreement, Schedule 5, Paragraph C. Beginning with the 2025/2026 Delivery Year, CETO shall mean the amount of electric energy that a given area must be able to import in order to satisfy a normalized expected unserved energy for the area that is equal to forty percent of the normalized expected unserved energy for the RTO when at the annual reliability criteria, where normalized expected unserved energy is the expected unserved energy (for the area or RTO, as appropriate) divided by the forecasted annual energy (for the area or RTO, as appropriate), when the area is experiencing a localized capacity emergency, as determined in accordance with the PJM Manuals.

Capacity Emergency Transfer Limit (CETL):

Capacity Emergency Transfer Limit” or “CETL” shall mean the capability of the transmission system to support deliveries of electric energy to a given area experiencing a localized capacity emergency as determined in accordance with the PJM Manuals.

Capacity Import Limit:

For any Delivery Year up to and including the 2019/2020 Delivery Year, “Capacity Import Limit” shall mean, (a) for the PJM Region, (1) the maximum megawatt quantity of external Generation Capacity Resources that PJM determines for each Delivery Year, through appropriate modeling and the application of engineering judgment, the transmission system can receive, in aggregate at the interface of the PJM Region with all external balancing authority areas and deliver to load in the PJM Region under capacity emergency conditions without violating applicable reliability criteria on any bulk electric system facility of 100kV or greater, internal or external to the PJM Region, that has an electrically significant response to transfers on such interface, minus (2) the then-applicable Capacity Benefit Margin; and (b) for certain source zones identified in the PJM manuals as groupings of one or more balancing authority areas, (1)

the maximum megawatt quantity of external Generation Capacity Resources that PJM determines the transmission system can receive at the interface of the PJM Region with each such source zone and deliver to load in the PJM Region under capacity emergency conditions without violating applicable reliability criteria on any bulk electric system facility of 100kV or greater, internal or external to the PJM Region, that has an electrically significant response to transfers on such interface, minus the then-applicable Capacity Benefit Margin times (2) the ratio of the maximum import quantity from each such source zone divided by the PJM total maximum import quantity. As more fully set forth in the PJM Manuals, PJM shall make such determination based on the latest peak load forecast for the studied period, the same computer simulation model of loads, generation and transmission topography employed in the determination of Capacity Emergency Transfer Limit for such Delivery Year, including external facilities from an industry standard model of the loads, generation, and transmission topography of the Eastern Interconnection under peak conditions. PJM shall specify in the PJM Manuals the areas and minimum distribution factors for identifying monitored bulk electric system facilities that have an electrically significant response to such transfers on the PJM interface. Employing such tools, PJM shall model increased power transfers from external areas into PJM to determine the transfer level at which one or more reliability criteria is violated on any monitored bulk electric system facilities that have an electrically significant response to such transfers. For the PJM Region Capacity Import Limit, PJM shall optimize transfers from other source areas not experiencing any reliability criteria violations as appropriate to increase the Capacity Import Limit. The aggregate megawatt quantity of transfers into PJM at the point where any increase in transfers on the interface would violate reliability criteria will establish the Capacity Import Limit. Notwithstanding the foregoing, a Capacity Resource located outside the PJM Region shall not be subject to the Capacity Import Limit if the Capacity Market Seller seeks an exception thereto by demonstrating to PJM, by no later than five (5) business days prior to the commencement of the offer period for the relevant RPM Auction, that such resource meets all of the following requirements:

(i) it has, at the time such exception is requested, met all applicable requirements to be pseudo-tied into the PJM Region, or the Capacity Market Seller has committed in writing that it will meet such requirements, unless prevented from doing so by circumstances beyond the control of the Capacity Market Seller, prior to the relevant Delivery Year;

(ii) at the time such exception is requested, it has long-term firm transmission service confirmed on the complete transmission path from such resource into PJM; and

(iii) it is, by written commitment of the Capacity Market Seller, subject to the same obligations imposed on Generation Capacity Resources located in the PJM Region by Tariff, Attachment DD, section 6.6 to offer their capacity into RPM Auctions; provided, however, that (a) the total megawatt quantity of all exceptions granted hereunder for a Delivery Year, plus the Capacity Import Limit for the applicable interface determined for such Delivery Year, may not exceed the total megawatt quantity of Network External Designated Transmission Service on such interface that PJM has confirmed for such Delivery Year; and (b) if granting a qualified exception would result in a violation of the rule in clause (a), PJM shall grant the requested exception but reduce the Capacity Import Limit by the quantity necessary to ensure that the total quantity of Network External Designated Transmission Service is not exceeded.

Capacity Only Option:

“Capacity Only Option” shall mean participation in Emergency Load Response Program or Pre-Emergency Program which allows, pursuant to Tariff, Attachment DD and as applicable, a capacity payment for the ability to reduce load during a pre-emergency or emergency event.

Capacity Performance Resource:

“Capacity Performance Resource” shall have the same meaning as in Tariff, Attachment DD.

Capacity Resources:

“Capacity Resources” shall mean megawatts of (i) net capacity from Existing Generation Capacity Resources or Planned Generation Capacity Resources meeting the requirements of the Reliability Assurance Agreement, Schedules 9 and Reliability Assurance Agreement, Schedule 10 that are or will be owned by or contracted to a Party and that are or will be committed to satisfy that Party's obligations under the Reliability Assurance Agreement, or to satisfy the reliability requirements of the PJM Region, for a Delivery Year; (ii) net capacity from Existing Generation Capacity Resources or Planned Generation Capacity Resources not owned or contracted for by a Party which are accredited to the PJM Region pursuant to the procedures set forth in such Schedules 9 and 10; or (iii) load reduction capability provided by Demand Resources or Energy Efficiency Resources that are accredited to the PJM Region pursuant to the procedures set forth in the Reliability Assurance Agreement, Schedule 6; or (iv) generation and load reduction capability provided by a DER Capacity Aggregation Resource, pursuant to the procedures set forth in the Reliability Assurance Agreement, Schedule 6.2 and the PJM Manuals.

Capacity Storage Resource Class:

“Capacity Storage Resource Class” shall mean the ELCC Classes specified in Schedules 9.1 and 9.2, section B of this Agreement, each of which is composed of Capacity Storage Resources with the same specified characteristic duration of 4, 6, 8, and 10 hours. The characteristic duration of an Energy Storage Resource Class is the ratio of the modeled MWh energy storage capability of members of the class to the modeled MW power capability of members of the class.

Capacity Transfer Right:

“Capacity Transfer Right” shall have the meaning specified in Tariff, Attachment DD.

Coal Class:

“Coal Class” shall mean an ELCC Class consisting of Unlimited Resources primarily fueled by coal.

Combination Resource:

“Combination Resource” shall mean a Generation Capacity Resource that has a component that has the characteristics of a Limited Duration Resource combined with (i) a component that has the characteristics of an Unlimited Resource or (ii) a component that has the characteristics of a Variable Resource.

Compliance Aggregation Area (CAA):

“Compliance Aggregation Area” or “CAA” shall have the same meaning as in the Tariff.

Complex Hybrid Class:

“Complex Hybrid Class” shall mean an ELCC Class composed of Combination Resources that combine three or more components, whereby one component is a class of Limited Duration Resource, and the other components are different Variable Resource classes, and such Combination Resources cannot be included in any other Combination Resource class. A resource that is a member of a Complex Hybrid Class has a single Point Of Interconnection, unless the resource is controlled in an integrated fashion, is at a single site, and is approved by PJM to be considered a single resource in accordance with the PJM Manuals.

Consolidated Transmission Owners Agreement, PJM Transmission Owners Agreement or Transmission Owners Agreement:

“Consolidated Transmission Owners Agreement,” “PJM Transmission Owners Agreement” or “Transmission Owners Agreement” shall mean that certain Consolidated Transmission Owners Agreement, dated as of December 15, 2005, by and among the Transmission Owners and by and between the Transmission Owners and PJM Interconnection, L.L.C. on file with the Commission, as amended from time to time.

Control Area:

“Control Area” shall mean an electric power system or combination of electric power systems bounded by interconnection metering and telemetry to which a common generation control scheme is applied in order to:

(a) match the power output of the generators within the electric power system(s) and energy purchased from entities outside the electric power system(s), with the load within the electric power system(s);

(b) maintain scheduled interchange with other Control Areas, within the limits of Good Utility Practice;

(c) maintain the frequency of the electric power system(s) within reasonable limits in accordance with Good Utility Practice and the criteria of NERC and each Applicable Regional Entity;

(d) maintain power flows on transmission facilities within appropriate limits to preserve reliability; and

(e) provide sufficient generating capacity to maintain operating reserves in accordance with Good Utility Practice.

Daily Unforced Capacity Obligation:

“Daily Unforced Capacity Obligation” shall mean the capacity obligation of a Load Serving Entity during the Delivery Year, determined in accordance with the Reliability Assurance Agreement, Schedule 8 or, as to an FRR Entity, in the Reliability Assurance Agreement, Schedule 8.1.

Delivery Year:

“Delivery Year” shall mean a Planning Period for which a Capacity Resource is committed pursuant to the auction procedures specified in Tariff, Attachment DD or pursuant to an FRR Capacity Plan under RAA, Schedule 8.1.

Demand Resource (DR):

“Demand Resource” or “DR” shall mean a Limited Demand Resource, Extended Summer Demand Resource, Annual Demand Resource, Base Capacity Demand Resource or Summer-Period Demand Resource with a demonstrated capability to provide a reduction in demand or otherwise control load in accordance with the requirements of RAA, Schedule 6 that offers and that clears load reduction capability in a Base Residual Auction or Incremental Auction or that is committed through an FRR Capacity Plan.

Demand Resource Factor or DR Factor:

“Demand Resource Factor” or “DR Factor” shall mean, for Delivery Years through May 31, 2018, that factor approved from time to time by the PJM Board used to determine the unforced capacity value of a Demand Resource in accordance with Reliability Assurance Agreement, Schedule 6

Demand Resource Officer Certification Form:

“Demand Resource Officer Certification Form” shall mean a certification as to an intended Demand Resource Sell Offer, in accordance with Reliability Assurance Agreement, Schedule 6 and Reliability Assurance Agreement, Schedule 8.1 and the PJM Manuals.

Demand Resource Registration:

“Demand Resource Registration” shall mean a registration in the Full Program Option or Capacity Only Option of the Emergency or Pre-Emergency Load Resource Program in accordance with Tariff, Attachment K-Appendix, section 8.

Demand Resource Sell Offer Plan:

“Demand Resource Sell Offer Plan” shall mean the plan required by Reliability Assurance Agreement, Schedule 6 and Reliability Assurance Agreement, Schedule 8.1 in support of an intended offer of Demand Resources in an RPM Auction, or an intended inclusion of Demand Resources in an FRR Capacity Plan.

Diesel Utility Class:

"Diesel Utility Class" shall mean an ELCC Class consisting of Unlimited Resources of the diesel technology type that is not primarily fueled by landfill gas.

DER Aggregator Officer Certification Form:

“DER Aggregator Officer Certification Form” shall mean a DER Aggregator’s certification as to an intended DER Capacity Aggregation Resource Sell Offer, in accordance with Reliability Assurance Agreement, Schedule 6.2 and Reliability Assurance Agreement, Schedule 8.1 and the PJM Manuals.

DER Capacity Aggregation Resource Sell Offer Plan:

“DER Capacity Aggregation Resource Sell Offer Plan” shall mean the plan required by Reliability Assurance Agreement, Schedule 6.2 and Reliability Assurance Agreement, Schedule 8.1 in support of an intended offer of a DER Capacity Aggregation Resource in an RPM Auction, or an intended inclusion of a DER Capacity Aggregation Resource in an FRR Capacity Plan.

Effective Nameplate Capacity:

“Effective Nameplate Capacity” shall mean (i) for each Variable Resource and Combination Resource, the resource’s Maximum Facility Output (or, for a Co-Located Resource, the applicable share of the Mixed Technology Facility’s Maximum Facility Output); (ii) for each Limited Duration Resource, the sustained level of output that the unit can provide and maintain over a continuous period, whereby the duration of that continuous period matches the characteristic duration of the corresponding ELCC Class, with consideration given to ambient conditions expected to exist at the time of PJM system peak load, to the extent that such conditions impact such resource’s capability, not to exceed the Maximum Facility Output (or, for a Co-Located Resource, the applicable share of the Mixed Technology Facility’s Maximum Facility Output). For the 2025/2026 Delivery Year and subsequent Delivery Years, the Effective Nameplate Capacity of each Limited Duration Resource shall not exceed the greater of the Capacity Interconnection Rights of such Limited Duration Resource, or the transitional system capability as limited by the transitional resource MW ceiling as defined in the PJM Manuals, awarded for the applicable Delivery Year.

Effective UCAP:

“Effective UCAP” shall mean a unit of measure that represents the capacity product transacted in the Reliability Pricing Model and included in FRR Capacity Plans. One megawatt of Effective UCAP has the same capacity value of one megawatt of Unforced Capacity.

ELCC Class:

“ELCC Class” shall mean a defined group of ELCC Resources that share a common set of operational characteristics and for which effective load carrying capability analysis, as set forth in RAA, Schedules 9.1 and 9.2, will establish a unique ELCC Class UCAP and corresponding ELCC Class Rating(s). ELCC Classes shall be defined in the Schedules 9.1 and 9.2, section B of this Agreement. Members of an ELCC Class shall share a common method of calculating the ELCC Resource Performance Adjustment, provided that the individual ELCC Resource Performance Adjustment values will generally differ among ELCC Resources.

ELCC Class Rating:

“ELCC Class Rating” shall mean the rating factor, based on effective load carrying capability analysis, that applies to ELCC Resources that are members of an ELCC Class as part of the calculation of their Accredited UCAP.

ELCC Class UCAP:

“ELCC Class UCAP” shall mean the aggregate Effective UCAP all modeled ELCC Resources in a given ELCC Class are capable of providing in a given Delivery Year.

ELCC Portfolio UCAP:

“ELCC Portfolio UCAP” shall mean the aggregate Effective UCAP that all modeled ELCC Resources are capable of providing in a given Delivery Year.

ELCC Resource:

“ELCC Resource” shall mean, through the 2024/2025 Delivery Year, a Generation Capacity Resource that is a Variable Resource, a Limited Duration Resource, or a Combination Resource, and beginning with the 2025/2026 Delivery Year, a Generation Capacity Resource or a Demand Resource.

ELCC Resource Performance Adjustment:

“ELCC Resource Performance Adjustment” shall mean the performance of a specific ELCC Resource relative to the aggregate performance of the ELCC Class to which it belongs as further described in RAA, Schedule 9.1, section F and RAA, Schedule 9.2, section D.

Electric Cooperative:

“Electric Cooperative” shall mean an entity owned in cooperative form by its customers that is engaged in the generation, transmission, and/or distribution of electric energy.

Electric Distributor:

“Electric Distributor” shall mean a Member that 1) owns or leases with rights equivalent to ownership of electric distribution facilities that are used to provide electric distribution service to electric load within the PJM Region; or 2) is a generation and transmission cooperative or a joint municipal agency that has a member that owns electric distribution facilities used to provide electric distribution service to electric load within the PJM Region.

Emergency:

“Emergency” shall mean (i) an abnormal system condition requiring manual or automatic action to maintain system frequency, or to prevent loss of firm load, equipment damage, or tripping of system elements that could adversely affect the reliability of an electric system or the safety of persons or property; or (ii) a fuel shortage requiring departure from normal operating procedures in order to minimize the use of such scarce fuel; or (iii) a condition that requires implementation of emergency procedures as defined in the PJM Manuals.

End-Use Customer:

“End-Use Customer” shall mean a Member that is a retail end-user of electricity within the PJM Region. For purposes of Members Committee sector classification, a Member that is a retail end-user that owns generation may qualify as an End-Use customer if: (1) the average physical unforced capacity owned by the Member and its affiliates in the PJM region over the five Planning Periods immediately preceding the relevant Planning Period does not exceed the average PJM capacity obligation for the Member and its affiliates over the same time period; or (2) the average energy produced by the Member and its affiliates within the PJM region over the five Planning Periods immediately preceding the relevant Planning Period does not exceed the average energy consumed by that Member and its affiliates within the PJM region over the same time period. The foregoing notwithstanding, taking retail service may not be sufficient to qualify a Member as an End-Use Customer.

Energy Efficiency Resource:

“Energy Efficiency Resource” shall mean a project, including installation of more efficient devices or equipment or implementation of more efficient processes or systems, meeting the requirements of RAA, Schedule 6 and exceeding then-current building codes, appliance standards, or other relevant standards, designed to achieve a continuous (during the periods described in Reliability Assurance Agreement, Schedule 6 and the PJM Manuals) reduction in electric energy consumption that is not reflected in the peak load forecast prepared for the Delivery Year for which the Energy Efficiency Resource is proposed, and that is fully implemented at all times during such Delivery Year, without any requirement of notice, dispatch, or operator intervention. Annual Energy Efficiency Resources, Base Capacity Energy Efficiency

Resources and Summer-Period Energy Efficiency Resources are types of Energy Efficiency Resources.

Exigent Water Storage:

“Exigent Water Storage” shall mean water stored in the pondage or reservoir of a hydropower resource which is not typically available during normal operating conditions (as those conditions are described in the relevant FERC hydropower license), but which can be drawn upon during emergency conditions (as described in the FERC hydropower license), including in order to avoid a load shed. In an effective load carrying capability analysis, exigent storage capability from an upstream hydro facility can be considered relative to a downstream hydro facility by assessing cascading storage and flows.

Existing Demand Resource:

“Existing Demand Resource” shall mean a Demand Resource for which the Demand Resource Provider has identified existing end-use customer sites that are registered for the current Delivery Year with PJM (even if not registered by such Demand Resource Provider) and that the Demand Resource Provider reasonably expects to have under a contract to reduce load based on PJM dispatch instructions by the start of the Delivery Year for which such resource is offered.

Existing DER Capacity Aggregation Resource:

“Existing DER Capacity Aggregation Resource” shall mean a DER Capacity Aggregation Resource for which the DER Aggregator has identified existing Component DER that are registered in a DER Capacity Aggregation Resource for the current Delivery Year with PJM (even if not registered by such DER Aggregator) and that the DER Aggregator reasonably expects to have under a contract to generate or reduce load based on PJM dispatch instructions by the start of the Delivery Year for which such DER Capacity Aggregation Resource is offered.

Existing Generation Capacity Resource:

“Existing Generation Capacity Resource” shall mean, for purposes of the must-offer requirement and mitigation of offers for any RPM Auction for a Delivery Year, a Generation Capacity Resource that, as of the date on which bidding commences for such auction: (a) is in service; or (b) is not yet in service, but has cleared any RPM Auction for any prior Delivery Year. A Generation Capacity Resource shall be deemed to be in service if interconnection service has ever commenced (for resources located in the PJM Region), or if it is physically and electrically interconnected to an external Control Area and is in full commercial operation (for resources not located in the PJM Region). The additional megawatts of a Generation Capacity Resource that is being, or has been, modified to increase the number of megawatts of available installed capacity thereof shall not be deemed to be an Existing Generation Capacity Resource until such time as those megawatts (a) are in service; or (b) are not yet in service, but have cleared any RPM Auction for any prior Delivery Year.

Extended Summer Demand Resource:

“Extended Summer Demand Resource” shall mean, for Delivery Years through May 31, 2018, and for FRR Capacity Plans Delivery Years through May 31, 2019, a resource that is placed under the direction of the Office of the Interconnection and that will be available June through October and the following May, and will be available for an unlimited number of interruptions during such months by the Office of the Interconnection, and will be capable of maintaining each such interruption for at least a 10-hour duration between the hours of 10:00AM to 10:00PM Eastern Prevailing Time. The Extended Summer Demand Resource must be available June through October and the following May in the corresponding Delivery Year to be offered for sale or Self-Supplied in an RPM Auction, or included as an Extended Summer Demand Resource in an FRR Capacity Plan for the corresponding Delivery Year.

Facilities Study Agreement:

“Facilities Study Agreement” shall have the same meaning as in Tariff, Part VI, section 206.

FERC or Commission:

“FERC” or “Commission” shall mean the Federal Energy Regulatory Commission or any successor federal agency, commission or department exercising jurisdiction over the Tariff, Operating Agreement and Reliability Assurance Agreement.

Firm Point-To-Point Transmission Service:

“Firm Point-To-Point Transmission Service” shall have the meaning specified in the Tariff.

Firm Service Level:

“Firm Service Level” or “FSL” of Price Responsive Demand for the 2022/2023 Delivery Year and subsequent Delivery Years shall mean the level, determined at a PRD Substation level, to which Price Responsive Demand shall be reduced during the Delivery Year when an Emergency Action that triggers a Performance Assessment Interval is declared and the Locational Marginal Price exceeds the price associated with such Price Responsive Demand identified by the PRD Provider in its PRD Plan. “Firm Service Level” or “FSL” of Demand Resource shall mean the pre-determined level for which an end-use customer’s load shall be reduced, upon notification from the Curtailment Service Provider’s market operations center or its agent.

Firm Transmission Service:

“Firm Transmission Service” shall mean transmission service that is intended to be available at all times to the maximum extent practicable, subject to an Emergency, an unanticipated failure of a facility, or other event beyond the control of the owner or operator of the facility or the Office of the Interconnection.

Fixed Resource Requirement Alternative or FRR Alternative:

“Fixed Resource Requirement Alternative” or “FRR Alternative” shall mean an alternative method for a Party to satisfy its obligation to provide Unforced Capacity hereunder, as set forth in the Reliability Assurance Agreement, Schedule 8.1.

Fixed-Tilt Solar Class:

“Fixed-Tilt Solar Class” shall mean an ELCC Class consisting of Variable Resources that produce electrical energy with solar panels that are primarily mounted in a fixed orientation.

Forecast Pool Requirement:

“Forecast Pool Requirement” or “FPR” shall mean the amount equal to one plus the unforced reserve margin (stated as a decimal number) for the PJM Region required pursuant to this Reliability Assurance Agreement, as approved by the PJM Board pursuant to Reliability Assurance Agreement, Schedule 4.1.

FRR Capacity Plan or FRR Plan:

“FRR Capacity Plan” or “FRR Plan” shall mean a long-term plan for the commitment of Capacity Resources and Price Responsive Demand to satisfy the capacity obligations of a Party that has elected the FRR Alternative, as more fully set forth in the Reliability Assurance Agreement, Schedule 8.1.

FRR Entity:

“FRR Entity” shall mean, for the duration of such election, a Party that has elected the FRR Alternative hereunder.

FRR Service Area:

“FRR Service Area” shall mean (a) the service territory of an IOU as recognized by state law, rule or order; (b) the service area of a Public Power Entity or Electric Cooperative as recognized by franchise or other state law, rule, or order; or (c) a separately identifiable geographic area that is: (i) bounded by wholesale metering, or similar appropriate multi-site aggregate metering, that is visible to, and regularly reported to, the Office of the Interconnection, or that is visible to, and regularly reported to an Electric Distributor and such Electric Distributor agrees to aggregate the load data from such meters for such FRR Service Area and regularly report such aggregated information, by FRR Service Area, to the Office of the Interconnection; and (ii) for which the FRR Entity has or assumes the obligation to provide capacity for all load (including load growth) within such area. In the event that the service obligations of an Electric Cooperative or Public Power Entity are not defined by geographic boundaries but by physical connections to a defined set of customers, the FRR Service Area in such circumstances shall be defined as all customers physically connected to transmission or distribution facilities of such Electric Cooperative or Public Power Entity within an area bounded by appropriate wholesale aggregate metering as described above.

Full Program Option:

“Full Program Option” shall mean participation in Emergency Load Response Program or Pre-Emergency Program which allows, pursuant to Tariff, Attachment DD and as applicable, (i) an energy payment for load reductions during a pre-emergency or emergency event, and (ii) a capacity payment for the ability to reduce load during a pre-emergency or emergency event.

Full Requirements Service:

“Full Requirements Service” shall mean wholesale service to supply all of the power needs of a Load Serving Entity to serve end-users within the PJM Region that are not satisfied by its own generating facilities.

Gas Combined Cycle Class:

“Gas Combined Cycle Class” shall mean an ELCC Class consisting of Unlimited Resources of the combined cycle technology type that is primarily fueled by natural gas, but does not meet the requirements to be included in the Gas Combined Cycle Dual Fuel Class.

Gas Combined Cycle Dual Fuel Class:

“Gas Combined Cycle Dual Fuel Class” shall mean an ELCC Class consisting of Unlimited Resources of the combined cycle technology type that is primarily fueled by natural gas, and that attests that it has the capability to start and operate independently on an alternate, onsite fuel source up to its maximum capacity level during the winter season of the applicable Delivery Year in which it is providing capacity, and capable of operating on the alternate fuel for two 16-hour periods over two consecutive days at its maximum capacity level.

Gas Combustion Turbine Class:

“Gas Combustion Turbine Class” shall mean an ELCC Class consisting of Unlimited Resources of the combustion turbine technology type that is primarily fueled by natural gas, but does not meet the requirements to be included in the Gas Combustion Turbine Dual Fuel Class.

Gas Combustion Turbine Dual Fuel Class:

“Gas Combustion Turbine Dual Fuel Class” shall mean an ELCC Class consisting of Unlimited Resources of the combustion turbine technology type that is primarily fueled by natural gas, and attests that it has the capability to start and operate independently on an alternate, onsite fuel source up to its maximum capacity level during the winter season of the applicable Delivery Year in which it is providing capacity, and capable of operating on the alternate fuel for two 16-hour periods over two consecutive days at its maximum capacity level.

Generation Capacity Resource:

“Generation Capacity Resource” shall mean a Generating Facility, or the contractual right to capacity from a specified Generating Facility, that meets the requirements of RAA, Schedule 9 and RAA, Schedule 10, and, for Generating Facilities that are committed to an FRR Capacity Plan, that meets the requirements of RAA, Schedule 8.1. A Generation Capacity Resource may be an Existing Generation Capacity Resource or a Planned Generation Capacity Resource.

Generation Capacity Resource Provider:

“Generation Capacity Resource Provider” shall mean a Member that owns, or has the contractual authority to control the output of, a Generation Capacity Resource, that has not transferred such authority to another entity.

Generation Owner:

“Generation Owner” shall mean a Member that owns or leases with rights equivalent to ownership, or otherwise controls and operates one or more operating generation resources located in the PJM Region. The foregoing notwithstanding, for a planned generation resource to qualify a Member as a Generation Owner, such resource shall have cleared an RPM auction, and for Energy Resources, the resource shall have a FERC-jurisdictional interconnection agreement or wholesale market participation agreement within PJM. Purchasing all or a portion of the output of a generation resource shall not be sufficient to qualify a Member as a Generation Owner. For purposes of Members Committee sector classification, a Member that is primarily a retail end-user of electricity that owns generation may qualify as a Generation Owner if: (1) the generation resource is the subject of a FERC-jurisdictional interconnection agreement or wholesale market participation agreement within PJM; (2) the average physical unforced capacity owned by the Member and its affiliates over the five Planning Periods immediately preceding the relevant Planning Period exceeds the average PJM capacity obligation of the Member and its affiliates over the same time period; and (3) the average energy produced by the Member and its affiliates within PJM over the five Planning Periods immediately preceding the relevant Planning Period exceeds the average energy consumed by the Member and its affiliates within PJM over the same time period.

Generator Forced Outage:

“Generator Forced Outage” shall mean an immediate reduction in output or capacity or removal from service, in whole or in part, of a generating unit by reason of an Emergency or threatened Emergency, unanticipated failure, or other cause beyond the control of the owner or operator of the facility, as specified in the relevant portions of the PJM Manuals. A reduction in output or removal from service of a generating unit in response to changes in market conditions shall not constitute a Generator Forced Outage.

Generator Maintenance Outage:

“Generator Maintenance Outage” shall mean the scheduled removal from service, in whole or in part, of a generating unit in order to perform repairs on specific components of the facility, if removal of the facility qualifies as a maintenance outage pursuant to the PJM Manuals.

Generator Planned Outage:

“Generator Planned Outage” shall mean the scheduled removal from service, in whole or in part, of a generating unit for inspection, maintenance or repair with the approval of the Office of the Interconnection in accordance with the PJM Manuals.

Good Utility Practice:

“Good Utility Practice” shall mean any of the practices, methods and acts engaged in or approved by a significant portion of the electric utility industry during the relevant time period, or any of the practices, methods and acts which, in the exercise of reasonable judgment in light of the facts known at the time the decision was made, could have been expected to accomplish the desired result at a reasonable cost consistent with good business practices, reliability, safety and expedition. Good Utility Practice is not intended to be limited to the optimum practice, method, or act to the exclusion of all others, but rather is intended to include acceptable practices, methods, or acts generally accepted in the region; including those practices required by Federal Power Act Section 215(a)(4).

Hybrid Resource Class:

“Hybrid Resource Class” shall mean the ELCC Classes specified in RAA Schedules 9.1 and 9.2 Section B. Each Hybrid Resource Class has a specified combination of two components, whereby, absent being part of a Combination Resource, one component would be in a Capacity Storage Resource Class, and the other component would be in a Variable Resource Class or would be an Unlimited Resource. A resource that is a member of a Hybrid Resource Class has a single Point Of Interconnection, unless the resource is controlled in an integrated fashion, is at a single site, and is approved by PJM to be considered a single resource in accordance with the PJM Manuals.

Hydropower With Non-Pumped Storage:

“Hydropower With Non-Pumped Storage” shall mean a hydropower facility that can capture and store incoming stream flow, without use of pumps, in pondage or a reservoir, and the Generation Owner has the ability, within the constraints available in the applicable operating license, to exert material control over the quantity of stored water and output of the facility throughout an Operating Day.

Hydropower With Non-Pumped Storage Class:

“Hydropower With Non-Pumped Storage Class” shall mean an ELCC Class consisting of Combination Resources that are Hydropower With Non-Pumped Storage resources.

Incremental Auction:

“Incremental Auction” shall mean any of several auctions conducted for a Delivery Year after the Base Residual Auction for such Delivery Year and before the first day of such Delivery Year, including the First Incremental Auction, Second Incremental Auction, Third Incremental Auction, or Conditional Incremental Auction. Incremental Auctions (other than the Conditional Incremental Auction), shall be held for the purposes of:

- (i) allowing Market Sellers that committed Capacity Resources in the Base Residual Auction for a Delivery Year, which subsequently are determined to be unavailable to deliver the committed Unforced Capacity in such Delivery Year (due to resource retirement, resource cancellation or construction delay, resource derating, EFORd increase, Accredited UCAP Factor decrease, a decrease in the Nominated Demand Resource Value of a Planned Demand Resource, delay or cancellation of a Qualifying Transmission Upgrade, or similar occurrences) to submit Buy Bids for replacement Capacity Resources; and
- (ii) allowing the Office of the Interconnection to reduce or increase the amount of committed capacity secured in prior auctions for such Delivery Year if, as a result of changed circumstances or expectations since the prior auction(s), there is, respectively, a significant excess or significant deficit of committed capacity for such Delivery Year, for the PJM Region or for an LDA.

Intermittent Hydropower Class:

“Intermittent Hydropower Class” shall mean an ELCC Class consisting of Variable Resources that are run-of-river hydropower generators that must generally pass incoming water and therefore cannot appreciably store water to later increase the output of the facility. Resources in the Intermittent Hydropower Class are not Hydropower with Non-Pumped Storage resources.

IOU:

“IOU” shall mean an investor-owned utility with substantial business interest in owning and/or operating electric facilities in any two or more of the following three asset categories: generation, transmission, distribution.

Intermittent Landfill Gas Class:

“Intermittent Landfill Gas Class” shall mean an ELCC Class consisting of Variable Resources fueled by landfill gas that, because of fuel availability patterns, cannot run consistently at installed capacity levels for 24 or more hours.

Limited Demand Resource:

“Limited Demand Resource” shall mean, for Delivery Years through May 31, 2018, and for FRR Capacity Plans Delivery Years through May 31, 2019, a resource that is placed under the direction of the Office of the Interconnection and that will, at a minimum, be available for interruption for at least 10 Load Management Events during the summer period of June through

September in the Delivery Year, and will be capable of maintaining each such interruption for at least a 6-hour duration. At a minimum, the Limited Demand Resource shall be available for such interruptions on weekdays, other than NERC holidays, from 12:00PM (noon) to 8:00PM Eastern Prevailing Time. The Limited Demand Resource must be available during the summer period of June through September in the corresponding Delivery Year to be offered for sale or Self-Supplied in an RPM Auction, or included as a Limited Demand Resource in an FRR Capacity Plan for the corresponding Delivery Year.

Limited Duration Resource:

“Limited Duration Resource” shall mean a Generation Capacity Resource that is not a Variable Resource, that is not a Combination Resource, and that is not capable of running continuously at Maximum Facility Output for 24 hours or longer. A Capacity Storage Resource is a Limited Duration Resource.

Load Serving Entity or LSE:

“Load Serving Entity” or “LSE” shall mean any entity (or the duly designated agent of such an entity), including a load aggregator or power marketer, (i) serving end-users within the PJM Region, and (ii) that has been granted the authority or has an obligation pursuant to state or local law, regulation or franchise to sell electric energy to end-users located within the PJM Region. Load Serving Entity shall include any end-use customer that qualifies under state rules or a utility retail tariff to manage directly its own supply of electric power and energy and use of transmission and ancillary services.

Locational Reliability Charge:

“Locational Reliability Charge” shall mean the charge determined pursuant to RAA, Article 7, section 2.

Markets and Reliability Committee:

“Markets and Reliability Committee” shall mean the committee established pursuant to the Operating Agreement as a Standing Committee of the Members Committee.

Maximum Emergency Service Level:

“Maximum Emergency Service Level” or “MESL” of Price Responsive Demand for the 2017/2018 through the 2021/2022 Delivery Years shall mean the level, determined at a PRD Substation level, to which Price Responsive Demand shall be reduced during the Delivery Year when a Maximum Generation Emergency is declared and the Locational Marginal Price exceeds the price associated with such Price Responsive Demand identified by the PRD Provider in its PRD Plan.

Member:

“Member” shall have the meaning provided in the Operating Agreement.

Members Committee:

“Members Committee” shall mean the committee specified in Operating Agreement, section 8 composed of the representatives of all the Members.

NERC:

“NERC” shall mean the North American Electric Reliability Corporation or any successor thereto.

Network External Designated Transmission Service:

“Network External Designated Transmission Service” shall mean the quantity of network transmission service confirmed by PJM for use by a market participant to import power and energy from an identified Generation Capacity Resource located outside the PJM Region, upon demonstration by such market participant that it owns such Generation Capacity Resource, has an executed contract to purchase power and energy from such Generation Capacity Resource, or has a contract to purchase power and energy from such Generation Capacity Resource contingent upon securing firm transmission service from such resource.

Network Resources:

“Network Resources” shall have the meaning set forth in the PJM Tariff.

Network Transmission Service:

“Network Transmission Service” shall mean transmission service provided pursuant to the rates, terms and conditions set forth in Tariff, Part III or transmission service comparable to such service that is provided to a Load Serving Entity that is also a Transmission Owner.

Nominal PRD Value:

“Nominal PRD Value” shall mean, as to any PRD Provider, an adjustment, determined in accordance with Reliability Assurance Agreement, Schedule 6.1, to the peak-load forecast used to determine the quantity of capacity sought through an RPM Auction, reflecting the aggregate effect of Price Responsive Demand on peak load resulting from the Price Responsive Demand to be provided by such PRD Provider.

Nominated Demand Resource Value:

“Nominated Demand Resource Value” shall have the meaning specified in Tariff, Attachment DD.

Non-Retail Behind the Meter Generation:

“Non-Retail Behind the Meter Generation” shall mean Behind the Meter Generation that is used by municipal electric systems, electric cooperatives, and electric distribution companies to serve load.

Nuclear Class:

“Nuclear Class” shall mean an ELCC Class consisting of Unlimited Resources primarily fueled by nuclear fuel.

Obligation Peak Load:

“Obligation Peak Load” shall have the meaning specified in Reliability Assurance Agreement, Schedule 8.

Office of the Interconnection:

“Office of the Interconnection” shall mean the employees and agents of PJM Interconnection, L.L.C., subject to the supervision and oversight of the PJM Board, acting pursuant to the Operating Agreement.

Offshore Wind Class:

“Offshore Wind Class” shall mean an ELCC Class consisting of Variable Resources that produce electrical energy with offshore wind turbines located in the ocean.

Onshore Wind Class:

“Onshore Wind Class” shall mean an ELCC Class consisting of Variable Resources that produce electrical energy using wind turbines and that are not in the Offshore Wind Class.

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

“Operating Agreement of the PJM Interconnection, L.L.C.,” “Operating Agreement” or “PJM Operating Agreement” shall mean that agreement, dated as of April 1, 1997 and as amended and restated as of June 2, 1997, including all Schedules, Exhibits, Appendices, addenda or supplements hereto, as amended from time to time thereafter, among the Members of the PJM Interconnection, L.L.C, on file with the Commission.

Operating Day:

“Operating Day” shall have the same meaning as provided in the Operating Agreement.

Operating Reserve:

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

Ordinary Water Storage:

“Ordinary Water Storage” shall mean water stored in the pondage or reservoir of a hydropower resource which is typically available during normal operating conditions pursuant to the FERC license governing the operation of the hydropower resource.

Other Limited Duration Class:

“Other Limited Duration Class” shall mean the ELCC Classes specified in RAA Schedules 9.1 and 9.2 section B of this Agreement, each of which has a specified characteristic duration and consists of Limited Duration Resources that are not Capacity Storage Resources. The characteristic duration of an Other Limited Duration Class is the maximum period of time represented in the ELCC model that the resources of the class can run at a stated capability.

Other Limited Duration Combination Class:

“Other Limited Duration Combination Class” shall mean the ELCC Classes specified in RAA Schedules 9.1 and 9.2 section B. Each Other Limited Duration Class has a specified combination of two components, whereby, absent being part of a Combination Resource, one component would be in an Other Limited Duration Class, and the other component would be in a Variable Resource Class or would be an Unlimited Resource. A resource that is a member of an Other Limited Duration Combination Class has a single Point Of Interconnection, unless the resource is controlled in an integrated fashion, is at a single site, and is approved by PJM to be considered a single resource in accordance with the PJM Manuals.

Other Supplier:

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

Other Unlimited Resource Class:

“Other Unlimited Resource Class” shall mean an ELCC Class consisting of Unlimited Resources that do not qualify for any other ELCC Class specified in RAA Schedule 9.2, section D.

Other Variable Resource Class:

“Other Variable Resource Class” shall mean an ELCC Class consisting of Variable Resources that are not in any other Variable Resource class, including Variable Resources that are

composed of multiple components, each of which would be a Variable Resource. A resource composed of both fixed-tilt solar panels and tracking solar panels is not in this class. A resource that is a member of a Other Variable Resource Class has a single Point Of Interconnection, unless the resource is controlled in an integrated fashion, is at a single site, and is approved by PJM to be considered a single resource in accordance with the PJM Manuals.

Partial Requirements Service:

“Partial Requirements Service” shall mean wholesale service to supply a specified portion, but not all, of the power needs of a Load Serving Entity to serve end-users within the PJM Region that are not satisfied by its own generating facilities.

Party:

“Party” shall mean an entity bound by the terms of the Operating Agreement.

Peak Shaving Adjustment:

“Peak Shaving Adjustment” shall mean a load forecast mechanism that allows load reductions by end-use customers to result in a downward adjustment of the summer load forecast for the associated Zone. Any End-Use Customer identified in an approved peak shaving plan shall not also participate in PJM Markets as Price Responsive Demand, Demand Resource, Base Capacity Demand Resource, Capacity Performance Demand Resource, or Economic Load Response Participant.

Percentage Internal Resources Required:

“Percentage Internal Resources Required” shall mean, for purposes of an FRR Capacity Plan, the percentage of the LDA Reliability Requirement for an LDA that must be satisfied with Capacity Resources located in such LDA.

Performance Assessment Interval:

“Performance Assessment Interval” shall have the meaning specified in Tariff, Attachment DD.

PJM:

“PJM” shall mean PJM Interconnection, L.L.C., including the Office of the Interconnection as referenced in the PJM Operating Agreement. When such term is being used in the RAA it shall also include the PJM Board.

PJM Board:

“PJM Board” shall mean the Board of Managers of the LLC, acting pursuant to the Operating Agreement, except when such term is being used in Tariff, Attachment M, in which case PJM

Board shall mean the Board of Managers of PJM or its designated representative, exclusive of any members of PJM Management.

PJM Manuals:

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

PJM Region:

“PJM Region” shall have the same meaning as provided in the Operating Agreement.

PJM Region Installed Reserve Margin:

“PJM Region Installed Reserve Margin” shall mean the percent installed reserve margin for the PJM Region required pursuant to Reliability Assurance Agreement, Schedule 4.1, as approved by the PJM Board.

PJM Tariff, Tariff, O.A.T.T., OATT or PJM Open Access Transmission Tariff:

“PJM Tariff,” “Tariff,” “O.A.T.T.,” “OATT” or “PJM Open Access Transmission Tariff” shall mean that certain PJM Open Access Transmission Tariff, including any schedules, appendices, or exhibits attached thereto, on file with FERC and as amended from time to time thereafter.

Planned Demand Resource:

“Planned Demand Resource” shall mean any Demand Resource that does not currently have the capability to provide a reduction in demand or to otherwise control load, but that is scheduled to be capable of providing such reduction or control on or before the start of the Delivery Year for which such resource is to be committed, as determined in accordance with the requirements of Reliability Assurance Agreement, Schedule 6. As set forth in Reliability Assurance Agreement, Schedule 6 and Reliability Assurance Agreement, Schedule 8.1, a Demand Resource Provider submitting a DR Sell Offer Plan shall identify as Planned Demand Resources in such plan all Demand Resources in excess of those that qualify as Existing Demand Resources.

Planned DER Capacity Aggregation Resource:

A “Planned DER Capacity Aggregation Resource” shall mean any DER Capacity Aggregation Resource that does not currently have the capability to provide generation or reduction in demand, but that is scheduled to be capable of providing such generation or reduction in demand on or before the start of the Delivery Year for which such resource is to be committed, as determined in accordance with the requirements of Reliability Assurance Agreement, Schedule 6.2. As set forth in Reliability Assurance Agreement, Schedule 6.2 and Reliability Assurance Agreement, Schedule 8.1, a DER Aggregator submitting a DER Capacity Aggregation Resource Sell Offer Plan shall identify in such plan all DER Capacity Aggregation Resources in excess of

those that qualify as Existing DER Capacity Aggregation Resources. A Planned DER Capacity Aggregation Resource must comply with all provisions of the DER Aggregator Participation Model described in Tariff, Attachment K-Appendix, section 1.4B and Operating Agreement, Schedule 1, section 1.4B, prior to the applicable Delivery Year.

Planned External Generation Capacity Resource:

“Planned External Generation Capacity Resource” shall mean a proposed Generation Capacity Resource, or a proposed increase in the capability of a Generation Capacity Resource, that (a) is to be located outside the PJM Region, (b) participates in the generation interconnection process of a Control Area external to PJM, (c) is scheduled to be physically and electrically interconnected to the transmission facilities of such Control Area on or before the first day of the Delivery Year for which such resource is to be committed to satisfy the reliability requirements of the PJM Region, and (d) is in full commercial operation prior to the first day of such Delivery Year, such that it is sufficient to provide the Installed Capacity set forth in the Sell Offer forming the basis of such resource’s commitment to the PJM Region. Prior to participation in any Base Residual Auction for such Delivery Year, the Capacity Market Seller must demonstrate that it has a fully executed system impact study agreement (or other documentation which is functionally equivalent to a System Impact Study Agreement under the PJM Tariff) or, for resources which are greater than 20MWs participating in a Base Residual Auction for the 2019/2020 Delivery Year and subsequent Delivery Years, an agreement or other documentation which is functionally equivalent to a Facilities Study Agreement under the PJM Tariff), with the transmission owner to whose transmission facilities or distribution facilities the resource is being directly connected, and, as applicable, the transmission provider. Prior to participating in any Incremental Auction for such Delivery Year, the Capacity Market Seller must demonstrate it has entered into an interconnection agreement, or such other documentation that is functionally equivalent to an Interconnection Service Agreement under the PJM Tariff, with the transmission owner to whose transmission facilities or distribution facilities the resource is being directly connected, and, as applicable, the transmission provider. A Planned External Generation Capacity Resource must provide evidence to PJM that it has been studied as a Network Resource, or such other similar interconnection product in such external Control Area, must provide contractual evidence that it has applied for or purchased transmission service to be deliverable to the PJM border, and must provide contractual evidence that it has applied for transmission service to be deliverable to the bus at which energy is to be delivered, the agreements for which must have been executed prior to participation in any Reliability Pricing Model Auction for such Delivery Year. Any such resource shall cease to be considered a Planned External Generation Capacity Resource as of the earlier of (i) the date that interconnection service commences as to such resource; or (ii) the resource has cleared an RPM Auction, in which case it shall become an Existing Generation Capacity Resource for purposes of the mitigation of offers for any RPM Auction for all subsequent Delivery Years.

Planned Generation Capacity Resource:

“Planned Generation Capacity Resource” shall mean a Generation Capacity Resource, or additional megawatts to increase the size of a Generation Capacity Resource that is being or has been modified to increase the number of megawatts of available installed capacity thereof,

participating in the generation interconnection process under Tariff, Part IV, Subpart A, as applicable, for which: (i) Interconnection Service is scheduled to commence on or before the first day of the Delivery Year for which such resource is to be committed to RPM or to an FRR Capacity Plan; (ii) for any such resource seeking to offer into a Base Residual Auction, or for any such resource of 20 MWs or less seeking to offer into a Base Residual Auction, a System Impact Study Agreement (or, for resources for which a System Impact Study Agreement is not required, has such other agreement or documentation that is functionally equivalent to a System Impact Study Agreement) has been executed prior to the Base Residual Auction for such Delivery Year; (iii) for any such resource of more than 20 MWs seeking to offer into a Base Residual Auction for the 2019/2020 Delivery Year and subsequent Delivery Years, a Facilities Study Agreement (or, for resources for which a Facilities Study Agreement is not required, has such other agreement or documentation that is functionally equivalent to a Facility Studies Agreement) has been executed prior to the Base Residual Auction for such Delivery Year; and (iv) an Interconnection Service Agreement has been executed prior to any Incremental Auction for such Delivery Year in which such resource plans to participate. For purposes of the must-offer requirement and mitigation of offers for any RPM Auction for a Delivery Year, a Generation Capacity Resource shall cease to be considered a Planned Generation Capacity Resource as of the earlier of (i) the date that Interconnection Service commences as to such resource; or (ii) the resource has cleared an RPM Auction for any Delivery Year, in which case it shall become an Existing Generation Capacity Resource for any RPM Auction for all subsequent Delivery Years.

Planning Period:

“Planning Period” shall mean the 12 months beginning June 1 and extending through May 31 of the following year, or such other period approved by the Members Committee.

Portfolio Expected Unserved Energy:

“Portfolio Expected Unserved Energy” shall mean the annual amount of expected unserved energy, in MWh, that is expected for the RTO when at the annual reliability criteria that provides an acceptable level of reliability consistent with the Reliability Principles and Standards.

PRD Curve:

“PRD Curve” shall mean a price-consumption curve at a PRD Substation level, if available, and otherwise at a Zonal (or sub-Zonal LDA, if applicable) level, that details the base consumption level of Price Responsive Demand and the decreasing consumption levels at increasing prices.

PRD Provider:

“PRD Provider” shall mean a PJM Member that has entered contractual arrangements with end-use customers that satisfy the eligibility criteria for and provides Price Responsive Demand.

PRD Provider’s Zonal Expected Peak Load Value of PRD:

“PRD Provider’s Zonal Expected Peak Load Value of PRD” shall mean the expected contribution to Delivery Year peak load of a PRD Provider’s Price Responsive Demand, were such demand not to be reduced in response to price, based on the contribution of the end-use customers comprising such Price Responsive Demand to the most recent prior Delivery Year’s peak demand, escalated to the Delivery Year in question, as determined in a manner consistent with the Office of the Interconnection’s load forecasts used for purposes of the RPM Auctions.

PRD Reservation Price:

“PRD Reservation Price” shall mean an RPM Auction clearing price identified in a PRD Plan for Price Responsive Demand load below which the PRD Provider desires not to commit the identified load as Price Responsive Demand.

PRD Substation:

“PRD Substation” shall mean an electrical substation that is located in the same Zone or in the same sub-Zonal LDA as the end-use customers identified in a PRD Plan or PRD registration and that, in terms of the electrical topography of the Transmission Facilities comprising the PJM Region, is as close as practicable to such loads.

Price Responsive Demand:

“Price Responsive Demand” or “PRD” shall mean end-use customer load registered by a PRD Provider pursuant to Reliability Assurance Agreement, Schedule 6.1 that have, as set forth in more detail in the PJM Manuals, the metering capability to record electricity consumption at an interval of one hour or less, Supervisory Control capable of curtailing such load (consistent with applicable RERRA requirements) at each PRD Substation identified in the relevant PRD Plan or PRD registration in response to a Maximum Generation Emergency declared by the Office of the Interconnection (prior to 2022/2023 Delivery Year) or a Performance Assessment Interval that triggers a PRD performance assessment (effective with 2022/2023 Delivery Year), and a retail rate structure, or equivalent contractual arrangement, capable of changing retail rates as frequently as an hourly basis, that is linked to or based upon changes in real-time Locational Marginal Prices at a PRD Substation level and that results in a predictable automated response to varying wholesale electricity prices.

Price Responsive Demand Credit:

“Price Responsive Demand Credit” shall mean a credit, based on committed Price Responsive Demand, as determined under Reliability Assurance Agreement, Schedule 6.1.

Price Responsive Demand Plan or PRD Plan:

“Price Responsive Demand Plan” or “PRD Plan” shall mean a plan, submitted by a PRD Provider and received by the Office of the Interconnection in accordance with Reliability Assurance Agreement, Schedule 6.1 and procedures specified in the PJM Manuals, claiming a

peak demand limitation due to Price Responsive Demand to support the determination of such PRD Provider's Nominal PRD Value.

Public Power Entity:

“Public Power Entity” shall mean any agency, authority, or instrumentality of a state or of a political subdivision of a state, or any corporation wholly owned by any one or more of the foregoing, that is engaged in the generation, transmission, and/or distribution of electric energy.

Qualifying Transmission Upgrades:

“Qualifying Transmission Upgrades” shall have the meaning specified in Tariff, Attachment DD.

Relevant Electric Retail Regulatory Authority:

“Relevant Electric Retail Regulatory Authority” or “RERRA” shall have the meaning specified in the PJM Operating Agreement.

Reliability Principles and Standards:

“Reliability Principles and Standards” shall mean the principles and standards established by the Office of the Interconnection that define, among other things, an acceptable probabilistic of loss of load criteria due to inadequate generation or transmission capability, as amended from time to time.

Required Approvals:

“Required Approvals” shall mean all of the approvals required for the Operating Agreement to be modified or to be terminated, in whole or in part, including the acceptance for filing by FERC and every other regulatory authority with jurisdiction over all or any part of the Operating Agreement.

Self-Supply:

“Self-Supply” shall have the meaning provided in Tariff, Attachment DD.

Small Commercial Customer:

“Small Commercial Customer” shall have the same meaning as in the PJM Tariff.

State Consumer Advocate:

“State Consumer Advocate” shall mean a legislatively created office from any State, all or any part of the territory of which is within the PJM Region, and the District of Columbia established, inter alia, for the purpose of representing the interests of energy consumers before the utility regulatory commissions of such states and the District of Columbia and the FERC.

State Regulatory Structural Change:

“State Regulatory Structural Change” shall mean as to any Party, a state law, rule, or order that, after September 30, 2006, initiates a program that allows retail electric consumers served by such Party to choose from among alternative suppliers on a competitive basis, terminates such a program, expands such a program to include classes of customers or localities served by such Party that were not previously permitted to participate in such a program, or that modifies retail electric market structure or market design rules in a manner that materially increases the likelihood that a substantial proportion of the customers of such Party that are eligible for retail choice under such a program (a) that have not exercised such choice will exercise such choice; or (b) that have exercised such choice will no longer exercise such choice, including for example, without limitation, mandating divestiture of utility-owned generation or structural changes to such Party’s default service rules that materially affect whether retail choice is economically viable.

Steam Class:

“Steam Class” shall mean an ELCC Class consisting of Unlimited Resources of the steam technology type and the primary fuel is not coal or nuclear.

Summer-Period Demand Resource:

Summer-Period Demand Resource shall mean, for the 2020/2021 Delivery Year and subsequent Delivery Years, a resource that is placed under the direction of the Office of the Interconnection, and will be available June through October and the following May of the Delivery Year, and will be available for an unlimited number of interruptions during such months by the Office of the Interconnection, and will be capable of maintaining each such interruption between the hours of 10:00AM to 10:00PM Eastern Prevailing Time. The Summer-Period Demand Resource must be available June through October and the following May in the corresponding Delivery Year to be offered for sale in an RPM Auction, or included as a Summer-Period Demand Resource in an FRR Capacity Plan for the corresponding Delivery Year.

Summer-Period Energy Efficiency Resource:

Summer-Period Energy Efficiency Resource shall mean, for the 2020/2021 Delivery Year and subsequent Delivery Years, a project, including installation of more efficient devices or equipment or implementation of more efficient processes or systems, meeting the requirements of Reliability Assurance Agreement, Schedule 6 and exceeding then-current building codes, appliance standards, or other relevant standards, designed to achieve a continuous (during the summer peak periods as described in Reliability Assurance Agreement, Schedule 6 and the PJM Manuals) reduction in electric energy consumption that is not reflected in the peak load forecast prepared for the Delivery Year for which the Summer-Period Energy Efficiency Resource is proposed, and that is fully implemented at all times during such Delivery Year, without any requirement of notice, dispatch, or operator intervention.

Supervisory Control:

“Supervisory Control” shall mean the capability to curtail, in accordance with applicable RERRA requirements, load registered as Price Responsive Demand at each PRD Substation identified in the relevant PRD Plan or PRD registration in response to a Maximum Generation Emergency declared by the Office of the Interconnection. Except to the extent automation is not required by the provisions of the Operating Agreement, the curtailment shall be automated, meaning that load shall be reduced automatically in response to control signals sent by the PRD Provider or its designated agent directly to the control equipment where the load is located without the requirement for any action by the end-use customer.

Threshold Quantity:

“Threshold Quantity” shall mean, as to any FRR Entity for any Delivery Year, the sum of (a) the Unforced Capacity equivalent (determined using the Pool-Wide Average EFORD through the 2024/2025 Delivery Year, or pool-wide average Accredited UCAP Factor effective with the 2025/2026 Delivery Year) of the Installed Reserve Margin for such Delivery Year multiplied by the Preliminary Forecast Peak Load for which such FRR Entity is responsible under its FRR Capacity Plan for such Delivery Year, plus (b) the lesser of (i) 3% of the Unforced Capacity amount determined in (a) above or (ii) 450 MW. If the FRR Entity is not responsible for all load within a Zone, the Preliminary Forecast Peak Load for such entity shall be the FRR Entity’s Obligation Peak Load last determined prior to the Base Residual Auction for such Delivery Year, times the Base FRR Scaling Factor (as determined in accordance with Reliability Assurance Agreement, Schedule 8.1).

Tracking Solar Class:

“Tracking Solar Class” shall mean an ELCC Class consisting of Variable Resources that produce electrical energy with solar panels that are primarily mounted on trackers that align the panels with incoming sunlight over the course of the day.

Transmission Facilities:

“Transmission Facilities” shall mean facilities that: (i) are within the PJM Region; (ii) meet the definition of transmission facilities pursuant to FERC’s Uniform System of Accounts or have been classified as transmission facilities in a ruling by FERC addressing such facilities; and (iii) have been demonstrated to the satisfaction of the Office of the Interconnection to be integrated with the PJM Region transmission system and integrated into the planning and operation of the PJM Region to serve all of the power and transmission customers within the PJM Region.

Transmission Owner:

“Transmission Owner” shall mean a Member that owns or leases with rights equivalent to ownership Transmission Facilities and is a signatory to the PJM Transmission Owners Agreement. Taking transmission service shall not be sufficient to qualify a Member as a Transmission Owner.

Unforced Capacity:

“Unforced Capacity” shall mean installed capacity rated at summer conditions that is not on average experiencing a forced outage or forced derating, calculated for each Capacity Resource on the 12-month period from October to September without regard to the ownership of or the contractual rights to the capacity of the unit.

Unlimited Resource:

“Unlimited Resource” shall mean a generating unit having the ability to maintain output at a stated capability continuously on a daily basis without interruption. Through the 2024/2025 Delivery Year, an Unlimited Resource is a Generation Capacity Resource that is not an ELCC Resource.

Variable Resource:

“Variable Resource” shall mean a Generation Capacity Resource with output that can vary as a function of its energy source, such as wind, solar, run of river hydroelectric power without storage, and landfill gas units without an alternate fuel source. All Intermittent Resources are Variable Resources, with the exception of Hydropower with Non-Pumped Storage.

Winter Peak Load (or WPL):

“Winter Peak Load” or “WPL” shall mean the average of the Demand Resource customer’s specific peak hourly load between hours ending 7:00 EPT through 21:00 EPT on the PJM defined 5 coincident peak days from December through February two Delivery Years prior the Delivery Year for which the registration is submitted. Notwithstanding, if the average use between hours ending 7:00 EPT through 21:00 EPT on a winter 5 coincident peak day is below 35% of the average hours ending 7:00 EPT through 21:00 EPT over all five of such peak days, then up to two such days and corresponding peak demand values may be excluded from the calculation. Upon approval by the Office of the Interconnection, a Curtailment Service Provider may provide alternative data to calculate Winter Peak Load, as outlined in the PJM Manuals, when there is insufficient hourly load data for the two Delivery Years prior to the relevant Delivery Year or if more than two days meet the exclusion criteria described above.

Zonal Capacity Price:

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

Zone or Zonal:

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

Zonal Winter Weather Adjustment Factor (ZWWAF):

“Zonal Winter Weather Adjustment Factor” or “ZWWAF” shall mean the PJM zonal winter weather normalized coincident peak divided by PJM zonal average of 5 coincident peak loads in December through February.

SCHEDULE 6.2

DER Capacity Aggregation Resources qualifying under the criteria set forth below may be offered for sale in an RPM auction, or included in an FRR Capacity Plan, for any Delivery Year for which such resource qualifies.

DER Aggregators intending to offer for sale or designate for self-supply, a DER Capacity Aggregation Resource in any RPM Auction, or intending to include a DER Capacity Aggregation Resource in any FRR Capacity Plan must demonstrate, to PJM's satisfaction, that such resource shall have the capability to provide generation or reduction in demand, on or before the start of the Delivery Year for which such resource is committed. As part of such demonstration, each such DER Aggregator shall submit a DER Capacity Aggregation Resource Sell Offer Plan in accordance with the standards and procedures set forth in RAA, Schedule 6.2, and the PJM Manuals, no later than 30 days prior to, as applicable, the RPM Auction in which such resource is to be offered, or the deadline for submission of the FRR Capacity Plan in which such resource is to be included.

PJM may verify the DER Aggregator's adherence to the DER Capacity Aggregation Resource Sell Offer Plan at any time. A DER Aggregator with a PJM-approved DER Capacity Aggregation Resource Sell Offer Plan will be permitted to offer up to the approved megawatt quantity into the subject RPM Auction or include such resource in its FRR Capacity Plan.

A DER Capacity Aggregation Resource Sell Offer Plan shall consist of a completed template document in the form posted on the PJM website, requiring the information set forth below and in the PJM Manuals, and a DER Aggregator Officer Certification Form signed by an officer of the DER Aggregator that is duly authorized to provide such a certification. The DER Capacity Aggregation Resource Sell Offer Plan must provide information that supports the DER Aggregator's intended DER Capacity Aggregation Resource Sell Offers and demonstrate that the DER Capacity Aggregation Resources are being offered with the intention that the megawatt quantity that clears the auction is reasonably expected to be physically delivered through DER Capacity Aggregation Resource registration for the relevant Delivery Year. The DER Capacity Aggregation Resource Sell Offer Plan shall include all Existing DER Capacity Aggregation Resources and all Planned DER Capacity Aggregation Resources that the DER Aggregator intends to offer into an RPM Auction or include in an FRR Capacity Plan.

The DER Aggregator shall provide the details of, and key assumptions for underlying Component DER for the Planned DER Capacity Aggregation Resource contained in the Sell Offer Plan, including but not limited to:

- (i) Nominated megawatt quantities and method(s) of achieving generation or load reductions to meet megawatt quantities
- (ii) equipment and technology to be installed or controlled
- (iii) plan and ability to acquire generating resources or load reductions at customer site(s) and assumptions regarding regulatory approval of program(s), if applicable
- (iv) A measurement and verification plan developed in accordance with PJM Manuals, if applicable
- (v) Zone and LDA information

(vi) A schedule of an approximate timeline for procuring Component DER

DER Aggregator Officer Certification Form.

Each DER Capacity Aggregation Resource Sell Offer Plan must include a DER Aggregator Officer Certification, signed by an officer of the DER Aggregator that is duly authorized to provide such a certification, in the form shown in the PJM Manuals, which form shall include the following certifications:

(a) that the signing officer has reviewed the DER Capacity Aggregation Resource Sell Offer Plan and the information supplied to PJM in support of the Plan is true and correct as of the date of the certification; and

(b) that the DER Aggregator is submitting the Plan with the reasonable expectation, based upon its analyses as of the date of the certification, to physically deliver all megawatts that clear the RPM Auction through the DER Capacity Aggregation Resource registrations by the specified Delivery Year.

As set forth in the form provided in the PJM Manuals, the certification shall specify that it does not in any way abridge, expand, or otherwise modify the current provisions of the PJM Tariff, Operating Agreement, and/or RAA.

The Unforced Capacity value of a DER Capacity Aggregation Resource will be determined as the sum of the Unforced Capacity value of the Component DER within a DER Aggregation Resource registered and linked to the DER Capacity Aggregation Resource, accounting for any co-located load that is not Station Power, in accordance with the provisions of the PJM Manuals.

The DER Aggregator shall provide Component DER within a DER Aggregation Resource registered and linked to a DER Capacity Aggregation Resource located within the same Zone and LDA as specified in its cleared sell offer, and may be subject to deficiency charges under Tariff, Attachment DD to the extent it fails to provide Component DER within a DER Aggregation Resource registered and linked to the applicable DER Capacity Aggregation Resource in such location and quantity consistent with its cleared offer.

A DER Aggregator offering a Planned DER Capacity Aggregation Resource must comply with all applicable credit requirements, as set forth in Tariff, Attachment Q.

~~Reserved for Future Use~~

Attachment C

Revisions to the
PJM Open Access Transmission Tariff,
Operating Agreement, and
Reliability Assurance Agreement

Effective July 1, 2025

(Identified by Additional Cover Pages)

(Clean Format)

Sections of the
PJM Open Access Transmission Tariff

Effective July 1, 2025

(Clean Format)

Definitions – C - D

Canadian Guaranty:

“Canadian Guaranty” shall mean a Corporate Guaranty provided by an Affiliate of a Participant that is domiciled in Canada, and meets all of the provisions of Tariff, Attachment Q.

Cancellation Costs:

“Cancellation Costs” shall mean costs and liabilities incurred in connection with: (a) cancellation of supplier and contractor written orders and agreements entered into to design, construct and install Attachment Facilities, Direct Assignment Facilities and/or Customer-Funded Upgrades, and/or (b) completion of some or all of the required Attachment Facilities, Direct Assignment Facilities and/or Customer-Funded Upgrades, or specific unfinished portions and/or removal of any or all of such facilities which have been installed, to the extent required for the Transmission Provider and/or Transmission Owner(s) to perform their respective obligations under Tariff, Part IV and/or Tariff, Part VI.

Capacity:

“Capacity” shall mean the installed capacity requirement of the Reliability Assurance Agreement or similar such requirements as may be established.

Capacity Emergency Transfer Limit:

“Capacity Emergency Transfer Limit” or “CETL” shall have the meaning provided in the Reliability Assurance Agreement.

Capacity Emergency Transfer Objective:

“Capacity Emergency Transfer Objective” or “CETO” shall have the meaning provided in the Reliability Assurance Agreement.

Capacity Export Transmission Customer:

“Capacity Export Transmission Customer” shall mean a customer taking point to point transmission service under Tariff, Part II to export capacity from a generation resource located in the PJM Region that has qualified for an exception to the RPM must-offer requirement as described in Tariff, Attachment DD, section 6.6(g).

Capacity Import Limit:

“Capacity Import Limit” shall have the meaning provided in the Reliability Assurance Agreement.

Capacity Interconnection Rights:

“Capacity Interconnection Rights” shall mean the rights to input generation as a Generation Capacity Resource into the Transmission System at the Point of Interconnection where the generating facilities connect to the Transmission System.

Capacity Market Buyer:

“Capacity Market Buyer” shall mean a Member that submits bids to buy Capacity Resources in any Incremental Auction.

Capacity Market Seller:

“Capacity Market Seller” shall mean a Member that owns, or has the contractual authority to control the output or load reduction capability of, a Capacity Resource, that has not transferred such authority to another entity, and that offers such resource in the Base Residual Auction or an Incremental Auction.

Capacity Performance Resource:

“Capacity Performance Resource” shall mean a Capacity Resource as described in Tariff, Attachment DD, section 5.5A(a).

Capacity Performance Transition Incremental Auction:

“Capacity Performance Transition Incremental Auction” shall have the meaning specified in Tariff, Attachment DD, section 5.14D.

Capacity Resource:

“Capacity Resource” shall have the meaning provided in the Reliability Assurance Agreement.

Capacity Resource with State Subsidy:

“Capacity Resource with State Subsidy” shall mean (1) a Capacity Resource that is offered into an RPM Auction or otherwise assumes an RPM commitment for which the Capacity Market Seller receives or is entitled to receive one or more State Subsidies for the applicable Delivery Year; (2) a Capacity Resource that has not cleared an RPM Auction for the Delivery Year for which the Capacity Market Seller last received a State Subsidy (or any subsequent Delivery Year) shall still be considered a Capacity Resource with State Subsidy upon the expiration of such State Subsidy until the resource clears an RPM Auction; (3) a Capacity Resource that is the subject of a bilateral transaction (including but not limited to those reported pursuant to Tariff, Attachment DD, section 4.6) shall be deemed a Capacity Resource with State Subsidy to the extent an owner of the facility supporting the Capacity Resource is entitled to a State Subsidy associated with such facility even if the Capacity Market Seller is not entitled to a State Subsidy; and (4) any Jointly Owned Cross-Subsidized Capacity Resource.

Capacity Resource Clearing Price:

“Capacity Resource Clearing Price” shall mean the price calculated for a Capacity Resource that offered and cleared in a Base Residual Auction or Incremental Auction, in accordance with Tariff, Attachment DD, section 5.

Capacity Storage Resource:

“Capacity Storage Resource” shall mean any Energy Storage Resource that participates in the Reliability Pricing Model or is otherwise treated as capacity in PJM’s markets such as through a Fixed Resource Requirement Capacity Plan.

Capacity Transfer Right:

“Capacity Transfer Right” shall mean a right, allocated to LSEs serving load in a Locational Deliverability Area, to receive payments, based on the transmission import capability into such Locational Deliverability Area, that offset, in whole or in part, the charges attributable to the Locational Price Adder, if any, included in the Zonal Capacity Price calculated for a Locational Delivery Area.

Capacity Transmission Injection Rights:

“Capacity Transmission Injection Rights” shall mean the rights to schedule energy and capacity deliveries at a Point of Interconnection of a Merchant Transmission Facility with the Transmission System. Capacity Transmission Injection Rights may be awarded only to a Merchant D.C. Transmission Facility and/or Controllable A.C. Merchant Transmission Facilities that connects the Transmission System to another control area. Deliveries scheduled using Capacity Transmission Injection Rights have rights similar to those under Firm Point-to-Point Transmission Service or, if coupled with a generating unit external to the PJM Region that satisfies all applicable criteria specified in the PJM Manuals, similar to Capacity Interconnection Rights.

Charge Economic Maximum Megawatts:

“Charge Economic Maximum Megawatts” shall mean the greatest magnitude of megawatt power consumption available for charging in economic dispatch by an Energy Storage Resource Model Participant or solar-storage Open-Loop Hybrid Resource in Continuous Mode or in Charge Mode. Charge Economic Maximum Megawatts shall be the Economic Minimum for an Energy Storage Resource or solar-storage Open-Loop Hybrid Resource in Charge Mode or in Continuous Mode.

Charge Economic Minimum Megawatts:

“Charge Economic Minimum Megawatts” shall mean the smallest magnitude of megawatt power consumption available for charging in economic dispatch by an Energy Storage Resource Model Participant or solar-storage Open-Loop Hybrid Resource in Charge Mode. Charge Economic

Minimum Megawatts shall be the Economic Maximum for an Energy Storage Resource or solar-storage Open-Loop Hybrid Resource in Charge Mode.

Charge Mode:

“Charge Mode” shall mean the mode of operation of an Energy Storage Resource Model Participant or solar-storage Open-Loop Hybrid Resource that only includes negative megawatt quantities (i.e., the Energy Storage Resource Model Participant or solar-storage Open-Loop Hybrid Resource is only withdrawing megawatts from the grid).

Charge Ramp Rate:

“Charge Ramp Rate” shall mean the Ramping Capability of an Energy Storage Resource Model Participant or solar-storage Open-Loop Hybrid Resource in Charge Mode.

Cleared Capacity Resource with State Subsidy:

“Cleared Capacity Resource with State Subsidy” shall mean a Capacity Resource with State Subsidy that has cleared in an RPM Auction for a Delivery Year that is prior to the 2022/2023 Delivery Year or, starting with 2022/2023 Delivery Year, the MWs (in installed capacity) comprising a Capacity Resource with State Subsidy that have cleared an RPM Auction pursuant to its Sell Offer at or above its resource-specific MOPR Floor Offer Price or the applicable default New Entry MOPR Floor Offer Price and since then, any of those MWs (in installed capacity) comprising a Capacity Resource with State Subsidy have been, the subject of a Sell Offer into the Base Residual Auction or included in an FRR Capacity Plan at the time of the Base Residual Auction for the relevant Delivery Year.

Closed-Loop Hybrid Resource:

“Closed-Loop Hybrid Resource” shall mean a Hybrid Resource that is physically or contractually incapable of charging from the grid.

Cold/Warm/Hot Notification Time:

“Cold/Warm/Hot Notification Time” shall mean the time interval between PJM notification and the beginning of the start sequence for a generating unit that is currently in its cold/warm/hot temperature state. The start sequence may include steps such as any valve operation, starting feed water pumps, startup of auxiliary equipment, etc.

Cold/Warm/Hot Start-up Time:

For all generating units that are not combined cycle units, “Cold/Warm/Hot Start-up Time” shall mean the time interval, measured in hours, from the beginning of the start sequence to the point after generator breaker closure, which is typically indicated by telemetered or aggregated State Estimator megawatts greater than zero for a generating unit in its cold/warm/hot temperature state. For combined cycle units, “Cold/Warm/Hot Start-up Time” shall mean the time interval

from the beginning of the start sequence to the point after first combustion turbine generator breaker closure in its cold/warm/hot temperature state, which is typically indicated by telemetered or aggregated State Estimator megawatts greater than zero. For all generating units, the start sequence may include steps such as any valve operation, starting feed water pumps, startup of auxiliary equipment, etc. Other more detailed actions that could signal the beginning of the start sequence could include, but are not limited to, the operation of pumps, condensers, fans, water chemistry evaluations, checklists, valves, fuel systems, combustion turbines, starting engines or systems, maintaining stable fuel/air ratios, and other auxiliary equipment necessary for startup.

Cold Weather Alert:

“Cold Weather Alert” shall mean the notice that PJM provides to PJM Members, Transmission Owners, resource owners and operators, customers, and regulators to prepare personnel and facilities for expected extreme cold weather conditions.

Collateral:

“Collateral” shall be a cash deposit, including any interest thereon, or a Letter of Credit issued for the benefit of PJM or PJMSettlement, in an amount and form determined by and acceptable to PJM or PJMSettlement, provided by a Participant to PJM or PJMSettlement as credit support in order to participate in the PJM Markets or take Transmission Service. “Collateral” shall also include surety bonds, except for the purpose of satisfying the FTR Credit Requirement, in which case only a cash deposit or Letter of Credit will be acceptable.

Collateral Call:

“Collateral Call” shall mean a notice to a Participant that additional Collateral, or possibly early payment, is required in order to remain in, or to regain, compliance with Tariff, Attachment Q.

Co-Located Resource:

“Co-Located Resource” shall mean a component of a Mixed Technology Facility that operates in the capacity, energy, and/or ancillary services market(s) as a separate resource from the other components of such facility.

Commencement Date:

“Commencement Date” shall mean the date on which Interconnection Service commences in accordance with an Interconnection Service Agreement.

Committed Offer:

The “Committed Offer” shall mean 1) for pool-scheduled resources, an offer on which a resource was scheduled by the Office of the Interconnection for a particular clock hour for an Operating Day, and 2) for self-scheduled resources, either the offer on which the Market Seller has elected

to schedule the resource or the applicable offer for the resource determined pursuant to Operating Agreement, Schedule 1, section 6.4, and the parallel provisions of Tariff, Attachment K-Appendix, section 6.4, or Operating Agreement, Schedule 1, section 6.6, and the parallel provisions of Tariff, Attachment K-Appendix, section 6.6, for a particular clock hour for an Operating Day.

Completed Application:

“Completed Application” shall mean an application that satisfies all of the information and other requirements of the Tariff, including any required deposit.

Compliance Aggregation Area (CAA):

“Compliance Aggregation Area” or “CAA” shall mean a geographic area of Zones or sub-Zones that are electrically-contiguous and experience for the relevant Delivery Year, based on Resource Clearing Prices of, for Delivery Years through May 31, 2018, Annual Resources and for the 2018/2019 Delivery Year and subsequent Delivery Years, Capacity Performance Resources, the same locational price separation in the Base Residual Auction, the same locational price separation in the First Incremental Auction, the same locational price separation in the Second Incremental Auction, the same locational price separation in the Third Incremental Auction.

Component DER:

“Component DER” shall mean any resource, within the PJM Region, that is located on a distribution system, any subsystem thereof, or behind a customer meter, and is used in a DER Aggregation Resource by a DER Aggregator to participate in the energy, capacity, and/or ancillary services markets of PJM through the DER Aggregator Participation Model. A Component DER may not exceed 5 MW.

Composite Energy Offer:

“Composite Energy Offer” for generation resources shall mean the sum (in \$/MWh) of the Incremental Energy Offer and amortized Start-Up Costs and amortized No-load Costs, and for Economic Load Response Participant resources the sum (in \$/MWh) of the Incremental Energy Offer and amortized shutdown costs, as determined in accordance with Tariff, Attachment K-Appendix, section 2.4 and Tariff, Attachment K-Appendix, section 2.4A and the PJM Manuals.

Conditional Incremental Auction:

“Conditional Incremental Auction” shall mean an Incremental Auction conducted for a Delivery Year if and when necessary to secure commitments of additional capacity to address reliability criteria violations arising from the delay in a Backbone Transmission upgrade that was modeled in the Base Residual Auction for such Delivery Year.

Conditioned State Support:

“Conditioned State Support” shall mean any financial benefit required or incentivized by a state, or political subdivision of a state acting in its sovereign capacity, that is provided outside of PJM Markets and in exchange for the sale of a FERC-jurisdictional product conditioned on clearing in any RPM Auction, where “conditioned on clearing in any RPM Auction” refers to specific directives as to the level of the offer that must be entered for the relevant Generation Capacity Resource in the RPM Auction or directives that the Generation Capacity Resource is required to clear in any RPM Auction. Conditioned State Support shall not include any Legacy Policy.

CONE Area:

“CONE Area” shall mean the areas listed in Tariff, Attachment DD, section 5.10(a)(iv)(A) and any LDAs established as CONE Areas pursuant to Tariff, Attachment DD, section 5.10(a)(iv)(B).

Confidential Information:

“Confidential Information” shall mean any confidential, proprietary, or trade secret information of a plan, specification, pattern, procedure, design, device, list, concept, policy, or compilation relating to the present or planned business of a New Service Customer, Transmission Owner, or other Interconnection Party or Construction Party, which is designated as confidential by the party supplying the information, whether conveyed verbally, electronically, in writing, through inspection, or otherwise, and shall include, without limitation, all information relating to the producing party’s technology, research and development, business affairs and pricing, and any information supplied by any New Service Customer, Transmission Owner, or other Interconnection Party or Construction Party to another such party prior to the execution of an Interconnection Service Agreement or a Construction Service Agreement.

Congestion Price:

“Congestion Price” shall mean the congestion component of the Locational Marginal Price, which is the effect on transmission congestion costs (whether positive or negative) associated with increasing the output of a generation resource or decreasing the consumption by a Demand Resource, based on the effect of increased generation from or consumption by the resource on transmission line loadings, calculated as specified in Operating Agreement, Schedule 1, section 2, and the parallel provisions of Tariff, Attachment K-Appendix, section 2.

Consolidated Transmission Owners Agreement, PJM Transmission Owners Agreement or Transmission Owners Agreement:

“Consolidated Transmission Owners Agreement,” “PJM Transmission Owners Agreement” or “Transmission Owners Agreement” shall mean the certain Consolidated Transmission Owners Agreement dated as of December 15, 2005, by and among the Transmission Owners and by and between the Transmission Owners and PJM Interconnection, L.L.C. on file with the Commission, as amended from time to time.

Constraint Relaxation Logic:

“Constraint Relaxation Logic” shall mean the logic applied in the market clearing software where the transmission limit is increased to prevent the Transmission Constraint Penalty Factor from setting the Marginal Value of a transmission constraint.

Constructing Entity:

“Constructing Entity” shall mean either the Transmission Owner or the New Services Customer, depending on which entity has the construction responsibility pursuant to Tariff, Part VI and the applicable Construction Service Agreement; this term shall also be used to refer to an Interconnection Customer with respect to the construction of the Customer Interconnection Facilities.

Construction Party:

“Construction Party” shall mean a party to a Construction Service Agreement. “Construction Parties” shall mean all of the Parties to a Construction Service Agreement.

Construction Service Agreement:

“Construction Service Agreement” shall mean either an Interconnection Construction Service Agreement or an Upgrade Construction Service Agreement.

Contingent Facilities:

“Contingent Facilities” shall mean those unbuilt Interconnection Facilities and Network Upgrades upon which the Interconnection Request’s costs, timing, and study findings are dependent and, if delayed or not built, could cause a need for restudies of the Interconnection Request or a reassessment of the Interconnection Facilities and/or Network Upgrades and/or costs and timing.

Continuous Mode:

“Continuous Mode” shall mean the mode of operation of an Energy Storage Resource Model Participant or solar-storage Open-Loop Hybrid Resource that includes both negative and positive megawatt quantities (i.e., the Energy Storage Resource Model Participant or solar-storage Open-Loop Hybrid Resource is capable of continually and immediately transitioning from withdrawing megawatt quantities from the grid to injecting megawatt quantities onto the grid or injecting megawatts to withdrawing megawatts). Energy Storage Resource Model Participants or solar-storage Open-Loop Hybrid Resource operating in Continuous Mode are considered to have an unlimited ramp rate. Continuous Mode requires Discharge Economic Maximum Megawatts to be zero or correspond to an injection, and Charge Economic Maximum Megawatts to be zero or correspond to a withdrawal.

Control Area:

“Control Area” shall mean an electric power system or combination of electric power systems bounded by interconnection metering and telemetry to which a common automatic generation control scheme is applied in order to:

(1) match the power output of the generators within the electric power system(s) and energy purchased from entities outside the electric power system(s), with the load within the electric power system(s);

(2) maintain scheduled interchange with other Control Areas, within the limits of Good Utility Practice;

(3) maintain the frequency of the electric power system(s) within reasonable limits in accordance with Good Utility Practice; and

(4) provide sufficient generating capacity to maintain operating reserves in accordance with Good Utility Practice.

Control Zone:

“Control Zone” shall have the meaning given in the Operating Agreement.

Controllable A.C. Merchant Transmission Facilities:

“Controllable A.C. Merchant Transmission Facilities” shall mean transmission facilities that (1) employ technology which Transmission Provider reviews and verifies will permit control of the amount and/or direction of power flow on such facilities to such extent as to effectively enable the controllable facilities to be operated as if they were direct current transmission facilities, and (2) that are interconnected with the Transmission System pursuant to Tariff, Part IV and Tariff, Part VI.

Coordinated External Transaction:

“Coordinated External Transaction” shall mean a transaction to simultaneously purchase and sell energy on either side of a CTS Enabled Interface in accordance with the procedures of Operating Agreement, Schedule 1, section 1.13, and the parallel provisions of Tariff, Attachment K-Appendix, section 1.13.

Coordinated Transaction Scheduling:

“Coordinated Transaction Scheduling” or “CTS” shall mean the scheduling of Coordinated External Transactions at a CTS Enabled Interface in accordance with the procedures of Operating Agreement, Schedule 1, section 1.13, and the parallel provisions of Tariff, Attachment K-Appendix, section 1.13.

Corporate Guaranty:

“Corporate Guaranty” shall mean a legal document, in a form acceptable to PJM and/or PJMSettlement, used by a Credit Affiliate of an entity to guaranty the obligations of another entity.

Cost of New Entry:

“Cost of New Entry” or “CONE” shall mean the nominal levelized cost of a Reference Resource, as determined in accordance with Tariff, Attachment DD, section 5.

Costs:

As used in Tariff, Part IV, Tariff, Part VI and related attachments, “Costs” shall mean costs and expenses, as estimated or calculated, as applicable, including, but not limited to, capital expenditures, if applicable, and overhead, return, and the costs of financing and taxes and any Incidental Expenses.

Counterparty:

“Counterparty” shall mean PJMSettlement as the contracting party, in its name and own right and not as an agent, to an agreement or transaction with a Market Participant or other entities, including the agreements and transactions with customers regarding transmission service and other transactions under the PJM Tariff and the Operating Agreement. PJMSettlement shall not be a counterparty to (i) any bilateral transactions between Members, or (ii) any Member’s self-supply of energy to serve its load, or (iii) any Member’s self-schedule of energy reported to the Office of the Interconnection to the extent that energy serves that Member’s own load.

Credit Affiliate:

“Credit Affiliate” shall mean Principals, corporations, partnerships, firms, joint ventures, associations, joint stock companies, trusts, unincorporated organizations or entities, one of which directly or indirectly controls the other or that are both under common Control. “Control,” as that term is used in this definition, shall mean the possession, directly or indirectly, of the power to direct the management or policies of a person or an entity.

Credit Available for Export Transactions:

“Credit Available for Export Transactions” shall mean a designation of credit to be used for Export Transactions that is allocated by each Market Participant from its Credit Available for Virtual Transactions, and which reduces the Market Participant’s Credit Available for Virtual Transactions accordingly.

Credit Available for Virtual Transactions:

“Credit Available for Virtual Transactions” shall mean the Market Participant’s Working Credit Limit for Virtual Transactions calculated on its credit provided in compliance with its Peak Market Activity requirement plus available credit submitted above that amount, less any unpaid

billed and unbilled amounts owed to PJMSettlement, plus any unpaid unbilled amounts owed by PJMSettlement to the Market Participant, less any applicable credit required for Minimum Participation Requirements, FTRs, RPM activity, or other credit requirement determinants as defined in Tariff, Attachment Q.

Credit Breach:

“Credit Breach” shall mean (a) the failure of a Participant to perform, observe, meet or comply with any requirements of Tariff, Attachment Q or other provisions of the Agreements, other than a Financial Default, or (b) a determination by PJM and notice to the Participant that a Participant represents an unreasonable credit risk to the PJM Markets; that, in either event, has not been cured or remedied after any required notice has been given and any cure period has elapsed.

Credit-Limited Offer:

“Credit-Limited Offer” shall mean a Sell Offer that is submitted by a Market Participant in an RPM Auction subject to a maximum credit requirement specified by such Market Participant.

Credit Support Default:

“Credit Support Default,” shall mean (a) the failure of any Guarantor of a Market Participant to make any payment, or to perform, observe, meet or comply with any provisions of the applicable Guaranty or Credit Support Document that has not been cured or remedied, after any required notice has been given and an opportunity to cure (if any) has elapsed, (b) a representation made or deemed made by a Guarantor in any Credit Support Document that proves to be false, incorrect or misleading in any material respect when made or deemed made, (c) the failure of a Guaranty or other Credit Support Document to be in full force and effect prior to the satisfaction of all obligations of such Participant to PJM, without PJM’s consent, or (d) a Guarantor repudiating, disaffirming, disclaiming or rejecting, in whole or in part, its obligations under the Guaranty or challenging the validity of the Guaranty.

Credit Support Document:

“Credit Support Document” shall mean any agreement or instrument in any way guaranteeing or securing any or all of a Participant’s obligations under the Agreements (including, without limitation, the provisions of Tariff, Attachment Q), any agreement entered into under, pursuant to, or in connection with the Agreements or any agreement entered into under, pursuant to, or in connection with the Agreements and/or any other agreement to which PJM, PJMSettlement and the Participant are parties, including, without limitation, any Corporate Guaranty, Letter of Credit, or agreement granting PJM and PJMSettlement a security interest.

Critical Natural Gas Infrastructure:

“Critical Natural Gas Infrastructure” shall mean locations with electrical loads that are involved in natural gas production, processing, intrastate and interstate transmission and distribution pipeline facility as defined by NERC/FERC standard(s); and until such NERC/FERC standard(s)

is developed, is defined as electric loads that are involved in natural gas production, processing, intrastate and interstate transmission and distribution pipeline facility, which if curtailed, will impact the delivery of natural gas to bulk-power system natural gas-fired generation.

Cross-Border:

When used to describe Network Integration Transmission Service, Network External Designated Transmission Service or Point-to-Point Transmission Service, “Cross-Border” shall mean transmission service where the capacity and/or energy is delivered from a resource that is not part of the PJM Transmission System and/or to load that is not part of the PJM Transmission System.

CTS Enabled Interface:

“CTS Enabled Interface” shall mean an interface between the PJM Control Area and an adjacent Control Area at which the Office of the Interconnection has authorized the use of Coordinated Transaction Scheduling (“CTS”). The CTS Enabled Interfaces between the PJM Control Area and the New York Independent System Operator, Inc. Control Area shall be designated in the Joint Operating Agreement Among and Between New York Independent System Operator Inc. and PJM Interconnection, L.L.C., Schedule A (PJM Rate Schedule FERC No. 45). The CTS Enabled Interfaces between the PJM Control Area and the Midcontinent Independent System Operator, Inc. shall be designated consistent with Attachment 3, section 2 of the Joint Operating Agreement between Midcontinent Independent System Operator, Inc. and PJM Interconnection, L.L.C.

CTS Interface Bid:

“CTS Interface Bid” shall mean a unified real-time bid to simultaneously purchase and sell energy on either side of a CTS Enabled Interface in accordance with the procedures of Operating Agreement, Schedule 1, section 1.13, and the parallel provisions of Tariff, Attachment K-Appendix, section 1.13.

Curtailement:

“Curtailement” shall mean a reduction in firm or non-firm transmission service in response to a transfer capability shortage as a result of system reliability conditions.

Curtailement Service Provider:

“Curtailement Service Provider” or “CSP” shall mean a Member or a Special Member, which action on behalf of itself or one or more other Members or non-Members, participates in the PJM Interchange Energy Market, Ancillary Services markets, and/or Reliability Pricing Model by causing a reduction in demand.

Customer Facility:

“Customer Facility” shall mean Generation Facilities or Merchant Transmission Facilities interconnected with or added to the Transmission System pursuant to an Interconnection Request under Tariff, Part IV.

Customer-Funded Upgrade:

“Customer-Funded Upgrade” shall mean any Network Upgrade, Local Upgrade, or Merchant Network Upgrade for which cost responsibility (i) is imposed on an Interconnection Customer or an Eligible Customer pursuant to Tariff, Part VI, section 217, or (ii) is voluntarily undertaken by a New Service Customer in fulfillment of an Upgrade Request. No Network Upgrade, Local Upgrade or Merchant Network Upgrade or other transmission expansion or enhancement shall be a Customer-Funded Upgrade if and to the extent that the costs thereof are included in the rate base of a public utility on which a regulated return is earned.

Customer Interconnection Facilities:

“Customer Interconnection Facilities” shall mean all facilities and equipment owned and/or controlled, operated and maintained by Interconnection Customer on Interconnection Customer’s side of the Point of Interconnection identified in the appropriate appendices to the Interconnection Service Agreement and to the Interconnection Construction Service Agreement, including any modifications, additions, or upgrades made to such facilities and equipment, that are necessary to physically and electrically interconnect the Customer Facility with the Transmission System.

Daily Deficiency Rate:

“Daily Deficiency Rate” shall mean the rate employed to assess certain deficiency charges under Tariff, Attachment DD, section 7, Tariff, Attachment DD, section 8, Tariff, Attachment DD, section 9, or Tariff, Attachment DD, section 13.

Daily Unforced Capacity Obligation:

“Daily Unforced Capacity Obligation” shall mean the capacity obligation of a Load Serving Entity during the Delivery Year, determined in accordance with Reliability Assurance Agreement, Schedule 8, or, as to an FRR entity, in Reliability Assurance Agreement, Schedule 8.1.

Day-ahead Congestion Price:

“Day-ahead Congestion Price” shall mean the Congestion Price resulting from the Day-ahead Energy Market.

Day-ahead Energy Market:

“Day-ahead Energy Market” shall mean the schedule of commitments for the purchase or sale of energy and payment of Transmission Congestion Charges developed by the Office of the

Interconnection as a result of the offers and specifications submitted in accordance with Operating Agreement, Schedule 1, section 1.10 and the parallel provisions of Tariff, Attachment K-Appendix, section 1.10.

Day-ahead Energy Market Injection Congestion Credits:

“Day-ahead Energy Market Injection Congestion Credits” shall mean those congestion credits paid to Market Participants for supply transactions in the Day-ahead Energy Market including generation schedules, Increment Offers, Up-to Congestion Transactions, import transactions, and Day-Ahead Pseudo-Tie Transactions.

Day-ahead Energy Market Transmission Congestion Charges:

“Day-ahead Energy Market Transmission Congestion Charges” shall be equal to the sum of Day-ahead Energy Market Withdrawal Congestion Charges minus [the sum of Day-ahead Energy Market Injection Congestion Credits plus any congestion charges calculated pursuant to the Joint Operating Agreement between the Midcontinent Independent Transmission System Operator, Inc. and PJM Interconnection, L.L.C. (PJM Rate Schedule FERC No. 38), plus any congestion charges calculated pursuant to the Joint Operating Agreement Among and Between New York Independent System Operator Inc. and PJM Interconnection, L.L.C. (PJM Rate Schedule FERC No. 45), plus any congestion charges calculated pursuant to agreements between the Office of the Interconnection and other entities, as applicable)].

Day-ahead Energy Market Withdrawal Congestion Charges:

“Day-ahead Energy Market Withdrawal Congestion Charges” shall mean those congestion charges collected from Market Participants for withdrawal transactions in the Day-ahead Energy Market from transactions including Demand Bids, Decrement Bids, Up-to Congestion Transactions, Export Transactions, and Day-Ahead Pseudo-Tie Transactions.

Day-ahead Loss Price:

“Day-ahead Loss Price” shall mean the Loss Price resulting from the Day-ahead Energy Market.

Day-ahead Prices:

“Day-ahead Prices” shall mean the Locational Marginal Prices resulting from the Day-ahead Energy Market.

Day-Ahead Pseudo-Tie Transaction:

“Day-Ahead Pseudo-Tie Transaction” shall mean a transaction scheduled in the Day-ahead Energy Market to the PJM-MISO interface from a generator within the PJM balancing authority area that Pseudo-Ties into the MISO balancing authority area.

Day-ahead Settlement Interval:

“Day-ahead Settlement Interval” shall mean the interval used by settlements, which shall be every one clock hour.

Day-ahead System Energy Price:

“Day-ahead System Energy Price” shall mean the System Energy Price resulting from the Day-ahead Energy Market.

Deactivation:

“Deactivation” shall mean the retirement or mothballing of a generating unit governed by Tariff, Part V.

Deactivation Avoidable Cost Credit:

“Deactivation Avoidable Cost Credit” shall mean the credit paid to Generation Owners pursuant to Tariff, Part V, section 114.

Deactivation Avoidable Cost Rate:

“Deactivation Avoidable Cost Rate” shall mean the formula rate established pursuant to Tariff, Part V, section 115.

Deactivation Date:

“Deactivation Date” shall mean the date a generating unit within the PJM Region is either retired or mothballed and ceases to operate.

Decrement Bid:

“Decrement Bid” shall mean a type of Virtual Transaction that is a bid to purchase energy at a specified location in the Day-ahead Energy Market. A cleared Decrement Bid results in scheduled load at the specified location in the Day-ahead Energy Market.

Default:

As used in the Interconnection Service Agreement and Construction Service Agreement, “Default” shall mean the failure of a Breaching Party to cure its Breach in accordance with the applicable provisions of an Interconnection Service Agreement or Construction Service Agreement.

Delivering Party:

“Delivering Party” shall mean the entity supplying capacity and energy to be transmitted at Point(s) of Receipt.

Delivery Year:

“Delivery Year” shall mean the Planning Period for which a Capacity Resource is committed pursuant to the auction procedures specified in Tariff, Attachment DD, or pursuant to an FRR Capacity Plan under Reliability Assurance Agreement, Schedule 8.1.

Demand Bid:

“Demand Bid” shall mean a bid, submitted by a Load Serving Entity in the Day-ahead Energy Market, to purchase energy at its contracted load location, for a specified timeframe and megawatt quantity, that if cleared will result in energy being scheduled at the specified location in the Day-ahead Energy Market and in the physical transfer of energy during the relevant Operating Day.

Demand Bid Limit:

“Demand Bid Limit” shall mean the largest MW volume of Demand Bids that may be submitted by a Load Serving Entity for any hour of an Operating Day, as determined pursuant to Operating Agreement, Schedule 1, section 1.10.1B, and the parallel provisions of Tariff, Attachment K-Appendix, section 1.10.1B.

Demand Bid Screening:

“Demand Bid Screening” shall mean the process by which Demand Bids are reviewed against the applicable Demand Bid Limit, and rejected if they would exceed that limit, as determined pursuant to Operating Agreement, Schedule 1, section 1.10.1B, and the parallel provisions of Tariff, Attachment K-Appendix, section 1.10.1B.

Demand Resource:

“Demand Resource” shall mean a resource with the capability to provide a reduction in demand.

Demand Resource Factor or DR Factor:

“Demand Resource Factor” or (“DR Factor”) shall have the meaning specified in the Reliability Assurance Agreement.

DER Aggregation Resource:

“DER Aggregation Resource” shall be comprised of one or more Component DER. A DER Aggregation Resource is used by a DER Aggregator to participate in the energy, capacity, and/or ancillary services markets of PJM through the DER Aggregator Participation Model. A DER Aggregation Resource is capable of satisfying a minimum energy and/or ancillary services market offer of 100 kW. The market participation eligibility of a DER Aggregation Resource

shall be determined in accordance with the physical and operational characteristics of the underlying Component DER that comprise the DER Aggregation Resource.

DER Aggregator:

“DER Aggregator” shall mean an entity that is a Market Participant that: (i) uses one or more DER Aggregation Resources to participate in the energy, capacity, and/or ancillary services markets of PJM through the DER Aggregator Participation Model; and (ii) has a fully-executed DER Aggregator Participation Service Agreement.

DER Aggregator Participation Model:

“DER Aggregator Participation Model” shall mean the participation model described in Tariff, Attachment K-Appendix, section 1.4B.

DER Capacity Aggregation Resource:

“DER Capacity Aggregation Resource” shall mean one or more DER Aggregation Resource that participates in the Reliability Pricing Model, capable of satisfying a minimum capacity market offer of 100 kW, or is otherwise treated as capacity in PJM’s markets, such as through a Fixed Resource Requirement Capacity Plan, for the 2028/2029 Delivery Year and all subsequent Delivery Years.

Designated Agent:

“Designated Agent” shall mean any entity that performs actions or functions on behalf of the Transmission Provider, a Transmission Owner, an Eligible Customer, or the Transmission Customer required under the Tariff.

Designated Entity:

“Designated Entity” shall have the same meaning provided in the Operating Agreement.

Direct Assignment Facilities:

“Direct Assignment Facilities” shall mean facilities or portions of facilities that are constructed for the sole use/benefit of a particular Transmission Customer requesting service under the Tariff. Direct Assignment Facilities shall be specified in the Service Agreement that governs service to the Transmission Customer and shall be subject to Commission approval.

Direct Charging Energy:

“Direct Charging Energy” shall mean the energy that an Energy Storage Resource or Open-Loop Hybrid Resource purchases from the PJM Interchange Energy Market and (i) later resells to the PJM Interchange Energy Market; or (ii) is lost to conversion inefficiencies, provided that such

inefficiencies are an unavoidable component of the conversion, storage, and discharge process that is used to resell energy back to the PJM Interchange Energy Market.

Direct Load Control:

“Direct Load Control” shall mean load reduction that is controlled directly by the Curtailment Service Provider’s market operations center or its agent, in response to PJM instructions.

Discharge Economic Maximum Megawatts:

“Discharge Economic Maximum Megawatts” shall mean the maximum megawatt power output available for discharge in economic dispatch by an Energy Storage Resource Model Participant or solar-storage Open-Loop Hybrid Resource in Continuous Mode or in Discharge Mode. Discharge Economic Maximum Megawatts shall be the Economic Maximum for an Energy Storage Resource or solar-storage Open-Loop Hybrid Resource in Discharge Mode or in Continuous Mode.

Discharge Economic Minimum Megawatts:

“Discharge Economic Minimum Megawatts” shall mean the minimum megawatt power output available for discharge in economic dispatch by an Energy Storage Resource Model Participant or solar-storage Open-Loop Hybrid Resource in Discharge Mode. Discharge Economic Minimum Megawatts shall be the Economic Minimum for an Energy Storage Resource or solar-storage Open-Loop Hybrid Resource in Discharge Mode.

Discharge Mode:

“Discharge Mode” shall mean the mode of operation of an Energy Storage Resource Model Participant or solar-storage Open-Loop Hybrid Resource that only includes positive megawatt quantities (i.e., the Energy Storage Resource Model Participant or solar-storage Open-Loop Hybrid Resource is only injecting megawatts onto the grid).

Discharge Ramp Rate:

“Discharge Ramp Rate” shall mean the Ramping Capability of an Energy Storage Resource Model Participant or solar-storage Open-Loop Hybrid Resource in Discharge Mode.

Dispatch Rate:

“Dispatch Rate” shall mean the control signal, expressed in dollars per megawatt-hour, calculated and transmitted continuously and dynamically to direct the output level of all generation resources dispatched by the Office of the Interconnection in accordance with the Offer Data.

Dispatched Charging Energy:

“Dispatched Charging Energy” shall mean Direct Charging Energy that an Energy Storage Resource Model Participant or Open-Loop Hybrid Resource receives from the electric grid pursuant to PJM dispatch while providing one of the following services in the PJM markets: Energy Imbalance Service pursuant to Tariff, Schedule 4; Regulation; Tier 2 Synchronized Reserves; or Reactive Service. Energy Storage Resource Model Participants and Open-Loop Hybrid Resource shall be considered to be providing Energy Imbalance Service when they are dispatchable by PJM in real-time.

Dynamic Schedule:

“Dynamic Schedule” shall have the same meaning provided in the Operating Agreement.

Dynamic Transfer:

“Dynamic Transfer” shall have the same meaning provided in the Operating Agreement.

1.4B DER Aggregator Participation Model

(a) DER Aggregators providing capacity using a DER Capacity Aggregation Resource shall be subject to the Day-ahead Energy Market must-offer requirement described in Tariff, Attachment K-Appendix, section 1.10.1A(d) and Operating Agreement, Schedule 1, section 1.10.1A(d), based on the technology of the Component DER within the DER Aggregation Resource linked to the DER Capacity Aggregation Resource, in accordance with the PJM Manuals.

(b) DER Aggregation Resources are subject to offer price cap and associated three pivotal supplier test provisions of Operating Agreement, Schedule 1, section 6.4.

(c) A DER Capacity Aggregation Resource shall be subject to a MOPR Floor Offer Price in accordance with the provisions applicable to MOPR Floor Offer Price for Generation Capacity Resources, as described in Tariff, Attachment DD, section 5.14(h-2), and Market Seller Offer Cap for Generation Capacity Resources in a manner consistent with the provisions applicable to Market Seller Offer Cap for Generation Capacity Resources, as described in Tariff, Attachment DD, section 6.4 and Tariff, Attachment M-Appendix, section IIE, based on the underlying technology of the Component DER.

A DER Capacity Aggregation Resource may segment offers for the Component DER subject to mitigation, based on the underlying technology of the Component DER in the DER Capacity Aggregation Resource, and further described in the PJM Manuals.

If a DER Capacity Aggregation Resource is subject to the Minimum Floor Offer Price pursuant to Tariff, Attachment DD, sections 5.14(h-2), the Capacity Market Seller that owns or controls such resources may submit a Sell Offer with a Minimum Floor Offer Price of no lower than the MW-weighted average of the applicable MOPR Floor Offer Prices (zero if not applicable) of the aggregated resources in such Sell Offer.

(d) Projected PJM Market Revenues for DER Capacity Aggregation Resources subject to the Minimum Floor Offer Price or Market Seller Offer Cap shall be determined in accordance with Tariff, Attachment DD, section 6.8(d-1). The determination of PJM Market Revenues by the Market Monitoring Unit or the Office of the Interconnection shall utilize either the hourly output profiles, or the Projected EAS Dispatch, as appropriate.

ATTACHMENT Q

CREDIT RISK MANAGEMENT POLICY

I. INTRODUCTION

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

PURPOSE

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

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

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

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

APPLICABILITY

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

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

II. RISK EVALUATION PROCESS

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

A. Initial Risk Evaluation

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

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

1. Rating Agency Reports

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

2. Financial Statements and Related Information

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

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

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

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

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

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

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

3. Credit Rating and Internal Credit Score

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

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

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

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

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

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

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

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

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

RRA = Regulatory Research Associates, a division of S&P Global, Inc.

BICRA = Bank Industry Country Risk Assessment

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

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

6 = High Risk (S&P/Fitch: BB- and below; Moody's: Ba3 and below)

4. Trade References

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

5. Litigation and Contingencies

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

6. History of Defaults in Energy Projects

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

7. Other Disclosures and Additional Information

Each Applicant and Guarantor is required to disclose any Credit Affiliates that are currently Members of PJM, applying for membership with PJM, Transmission Customers, Participants, applying to become Market Participants, or that participate directly or indirectly in any PJM Markets or any other North American markets for electricity, natural gas or electricity-related commodity products. Each Applicant and Guarantor shall also provide a copy of its limited liability company agreement or equivalent agreement, certification of formation, articles of incorporation or other similar organization document, offering memo or equivalent, the names of its five (5) most senior Principals, and information pertaining to any non-compliance with debt covenants and indentures.

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

B. Supplemental Risk Evaluation Process

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

C. Unsecured Credit Allowance

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

1. Unsecured Credit Allowance Evaluation

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

(a) Rating Agency Reports

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

(b) Financial Statements and Related Information

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

2. Material Adverse Changes

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

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

3. Other Disclosures

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

D. Determination of Unreasonable Credit Risk

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

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

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

E. Ongoing Risk Evaluation

In addition to the initial risk evaluation set forth in sections II.A through II.D above and the annual certification requirements set forth in section III.A below, each Market Participant and/or its Guarantor has an ongoing obligation to provide PJM with the information required in section IV.A described in more detail below. PJM may also review public information regarding a Market Participant and/or its Guarantor as part of its ongoing risk evaluation. If appropriate, PJM will revise the Market Participant's Unsecured Credit Allowance and/or change its determination of creditworthiness, credit support, Restricted Collateral, required Collateral or other assurances pursuant to PJM's ongoing risk evaluation process.

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

1. Rating Agency Reports

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

2. Financial Statements and Related Information

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

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

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

3. Material Adverse Changes

Each Market Participant and each Guarantor is responsible for informing PJM, in writing, of any Material Adverse Change in its or its Guarantor's financial condition within five (5) Business Days of any Principal becoming aware of the occurrence of a Material Adverse Change since the date of the Market Participant or Guarantor's most recent annual financial statements provided to PJM. However, PJM may also independently establish from available information that a Participant and/or its Guarantor has experienced a Material Adverse Change in its financial condition without regard to whether such Market Participant or Guarantor has informed PJM of the same.

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

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

- (l) any adverse changes in financial condition which, individually, or in the aggregate, are material; and,
- (m) any adverse changes, events or occurrences which, individually or in the aggregate, could affect the ability of the entity to pay its debts as they become due or could reasonably be expected to have a material adverse effect on any current or future financial results or financial condition.

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

4. Litigation and Contingencies

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

5. History of Defaults in Energy Projects

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

6. Internal Credit Score

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

7. Other Disclosures and Additional Information

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

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

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

8. Unreasonable Credit Risk

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

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

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

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

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

F. Collateral and Credit Restrictions

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

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

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

G. Unsecured Credit Allowance Calculation

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

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

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

1. Credit Rating and Internal Credit Score

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

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

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

2. Unsecured Credit Allowance

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

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

Internal Credit Score	Risk Ranking	Tangible Net Worth Factor	Maximum Unsecured Credit Allowance (\$ Million)
1.00 – 1.99	1 – Very Low (AAA to AA-)	Up to 10.00%	\$50
2.00 – 2.99	2 – Low (A+ to BBB+)	Up to 8.00%	\$42
3.00 – 3.49	3 – Low to Medium (BBB)	Up to 6.00%	\$33

3.50 – 4.49	4 – Medium (BBB-)	Up to 5.00%	\$7
4.50 – 5.49	5 – Medium to High (BB+ to BB)	0%	\$0
> 5.49	6 – High (BB- and below)	0%	\$0

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

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

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

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

3. Unsecured Credit Limits For Credit Affiliates

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

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

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

corporate family shall not exceed \$50 million. A Credit Affiliate corporate family subject to this cap shall request PJM to allocate the maximum Unsecured Credit amongst the corporate family, assuring that no individual Participant or common guarantor, shall exceed the Unsecured Credit level appropriate for its credit strength and activity.

H. Contesting an Unsecured Credit Evaluation

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

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

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

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

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

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

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

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

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

III. MINIMUM PARTICIPATION REQUIREMENTS

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

A. Annual Certification

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

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

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

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

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

B. PJM Market Participation Eligibility Requirements

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

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

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

or Market Participant acknowledges is separate from, and cannot be applied to meet, its credit requirements to PJM.

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

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

C. Risk Management and Verification

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

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

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

D. Capitalization

In advance of certification, Applicants shall meet the minimum capitalization requirements below. In addition to the annual certification requirements in Attachment Q, Appendix 1, a Market Participant shall satisfy the minimum capitalization requirements on an annual basis thereafter. A Participant must demonstrate that it meets the minimum financial requirements appropriate for the PJM Markets in which it transacts by satisfying either the minimum capitalization or the provision of Collateral requirements listed below:

1. Minimum Capitalization

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

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

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

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

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

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

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

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

2. Provision of Collateral

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

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

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

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

- (a) the applicable Unsecured Credit Allowance available to the Participant by the Corporate Guaranty pursuant to the creditworthiness provisions of this Attachment Q; or

(b) the face value of the Corporate Guaranty, reduced commensurate with the amount of the current risk plus any anticipated future risk to any PJM Markets and PJM membership in general, and may coincide with limitations on market participation.

IV. ONGOING COVENANTS

A. Ongoing Obligation to Provide Information to PJM

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

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

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

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

B. Risk Management Review

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

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

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

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

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

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

V. FORMS OF CREDIT SUPPORT

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

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

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

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

A. Cash Deposit

A Participant's delivery of a cash deposit to PJM as Collateral shall constitute the grant of a first-priority security interest in the cash in favor of PJM and PJM shall be authorized by such delivery to hold the cash as security and to apply it to the Participant's financial obligations under the Tariff or other Agreements. Cash provided by a Participant as Collateral will be held in a depository account by PJM. Interest on a cash deposit shall accrue to the benefit of the Participant, provided that PJM may require Participants to provide appropriate tax and other information in order to accrue such interest credits. A Participant who delivers cash to PJM hereunder agrees that the Tariff and any other agreements incorporating the terms of the Tariff shall for all purposes constitute a security agreement.

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

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

B. Letter of Credit

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

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

C. Corporate Guaranty

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

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

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

PJM will evaluate the creditworthiness of a Guarantor and will establish any Unsecured Credit granted through a Corporate Guaranty using the methodology and requirements established for Participants requesting an Unsecured Credit Allowance as described herein. Foreign Guaranties and Canadian Guaranties shall be subject to additional requirements as established herein.

If PJM determines at any time that a Material Adverse Change in the financial condition of the Guarantor has occurred, or if the Corporate Guaranty comes within thirty (30) calendar days of expiring without renewal, PJM may reduce or eliminate any Unsecured Credit afforded to the Participant through the guaranty. Such reduction or elimination may require the Participant to provide Collateral within the applicable cure period. If the Participant fails to provide the required Collateral, the Participant shall be in default under this Attachment Q.

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

1. Foreign Guaranties

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

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

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

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

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

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

2. Canadian Guaranties

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

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

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

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

D. Surety Bond

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

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

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

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

E. PJM Administrative Charges

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

F. Collateral and Credit Support Held by PJM

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

VI. SUPPLEMENTAL CREDIT REQUIREMENTS FOR SCREENED TRANSACTIONS

A. Virtual and Export Transaction Screening

1. Credit for Virtual and Export Transactions

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

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

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

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

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

2. Virtual Transaction Screening

All Virtual Transactions submitted to PJM shall be subject to a credit screen prior to acceptance in the Day-ahead Energy Market. The credit screen is applied separately for each of a Market

Participant's customer accounts. The credit screen process will automatically reject Virtual Transactions submitted by the Market Participant in a customer account if the Market Participant's Credit Available for Virtual Transactions, allocated on a customer account basis, is exceeded by the Virtual Credit Exposure that is calculated based on the Market Participant's Virtual Transactions submitted, as described below.

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

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

Where:

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

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

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

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

3. Export Transaction Screening

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

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

B. RPM Auction and Price Responsive Demand Credit Requirements

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

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

1. Applicability

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

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

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

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

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

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

3. Reduction in Credit Requirement

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

(e) For Planned Financed Generation Capacity Resources located in the PJM Region, the RPM Auction Credit requirement shall be reduced as the Capacity Resource attains the milestones stated in the following table and as further described in the PJM Manuals.

Credit Reduction Milestones for Planned Financed Generation Capacity Resources	
Milestones	Increment of reduction from initial RPM Auction Credit requirement
Full Notice to Proceed	50%
Commencement of Construction (e.g., footers poured)	15%
Main Power Generating Equipment Delivered	10%
Commencement of Interconnection Service	25%

To obtain a reduction in its RPM Auction Credit requirement, the Market Participant must demonstrate satisfaction of the applicable milestone in the same manner as set forth for Planned Generation Capacity Resources in subsection (c) above.

(f) For Planned External Financed Generation Capacity Resources, the RPM Auction Credit Requirement shall be reduced as the Capacity Resource attains the milestones stated in the following table and as further described in the PJM Manuals; provided, however, that the total percentage reduction in the RPM Auction Credit requirement, including the initial 50% reduction for being a Planned External Financed Generation Capacity Resources, shall be no greater than the quotient of (i) the MWs of firm transmission service that the Market Participant has secured for the complete transmission path divided by (ii) the MWs of firm transmission service required

to qualify such resource under the deliverability requirements of the Reliability Assurance Agreement.

Credit Reduction Milestones for Planned External Financed Generation Capacity	
Milestones	Increment of reduction from initial RPM Auction Credit requirement
Full Notice to Proceed	50%
Commencement of Construction (e.g., footers poured)	15%
Main Power Generating Equipment Delivered	10%
Commencement of Interconnection Service	25%

To obtain a reduction in its RPM Auction Credit requirement, the Market Participant must demonstrate satisfaction of the applicable milestone in the same manner as set forth for Planned Generation Capacity Resources in subsection (c) above.

(g) For Qualifying Transmission Upgrades, the RPM Auction Credit requirement shall be reduced to 50% of the amount calculated under section VI.B.2 above beginning as of the effective date of the latest associated Interconnection Service Agreement (or, when a project will have no such agreement, an Upgrade Construction Service Agreement), and shall be reduced to zero on the date the Qualifying Transmission Upgrade is placed in service.

4. RPM Auction Credit Rate

As set forth in the PJM Manuals, a separate Auction Credit Rate shall be calculated for each Delivery Year prior to each RPM Auction for such Delivery Year, as follows:

- (a) Prior to the posting of the results of a Base Residual Auction for a Delivery Year, the Auction Credit Rate shall be:
- (i) For all Capacity Resources other than Capacity Performance Resources, (the greater of (A) 0.3 times the Net Cost of New Entry for the PJM Region for such Delivery Year, in MW-day or (B) \$20 per MW-day) times the number of calendar days in such Delivery Year; and
 - (ii) For Capacity Performance Resources, the greater of ((A) 0.5 times the Net Cost of New Entry for the PJM Region for such Delivery Year or for the Relevant LDA, in MW-day or (B) \$20 per MW-day) times the number of calendar days in such Delivery Year.
 - (iii) For Seasonal Capacity Performance Resources, the same as the Auction Credit Rate for Capacity Performance Resources, but reduced to be proportional to the number of calendar days in the relevant season.

(b) Subsequent to the posting of the results from a Base Residual Auction, the Auction Credit Rate used for ongoing credit requirements for supply committed in such auction shall be:

- (i) For all Capacity Resources other than Capacity Performance Resources, (the greater of (A) \$20/MW-day or (B) 0.2 times the Capacity Resource Clearing Price in such auction for the Locational Deliverability Area within which the resource is located) times the number of calendar days in such Delivery Year; and
- (ii) For Capacity Performance Resources, the (greater of [(A) \$20/MW-day or (B) 0.2 times the Capacity Resource Clearing Price in such auction for the Locational Deliverability Area within which the resource is located) or (C) the lesser of (1) 0.5 times the Net Cost of New Entry for the PJM Region for such Delivery Year or for the Relevant LDA, in \$/MW-day or (2) 1.5 times the Net Cost of New Entry (stated on an installed capacity basis) for the PJM Region for such Delivery year or for the Relevant LDA, in \$/MW-day minus (the Capacity Resource Clearing Price in such auction for the Locational Deliverability Area within which the resource is located)] times the number of calendar days in such Delivery Year).
- (iii) For Seasonal Capacity Performance Resources, the same as the Auction Credit Rate for Capacity Performance Resources, but reduced to be proportional to the number of calendar days in the relevant season.

(c) For any resource not previously committed for a Delivery Year that seeks to participate in an Incremental Auction, the Auction Credit Rate shall be:

(i) For all Capacity Resources other than Capacity Performance Resources, (the greater of (A) 0.3 times the Net Cost of New Entry for the PJM Region for such Delivery Year, in MW-day or (B) 0.24 times the Capacity Resource Clearing Price in the Base Residual Auction for such Delivery Year for the Locational Deliverability Area within which the resource is located or (C) \$20 per MW-day) times the number of calendar days in such Delivery Year; and

(ii) For Capacity Performance Resources, the (greater of (A) 0.5 times Net Cost of New Entry for the PJM Region for such Delivery Year or for the Relevant LDA or (B) \$20/MW-day) times the number of calendar days in such Delivery Year.

(d) Subsequent to the posting of the results of an Incremental Auction, the Auction Credit Rate used for ongoing credit requirements for supply committed in such auction shall be:

- (i) For Base Capacity Resources: (the greater of (A) \$20/MW-day or (B) 0.2 times the Capacity Resource Clearing Price in such auction for the Locational Deliverability Area within which the resource is located) times the number of calendar days in such Delivery Year, but no greater than the Auction Credit Rate previously established for such resource's participation in such Incremental Auction pursuant to subsection (c) above) times the number of calendar days in such Delivery Year;

- (ii) For Capacity Performance Resources, the greater of [(A) \$20/MW-day or (B) 0.2 times the Capacity Resource Clearing Price in such auction for the Locational Deliverability Area within which the resource is located or (C) the lesser of (1) 0.5 times the Net Cost of New Entry for the PJM Region for such Delivery Year or for the Relevant LDA, in \$/MW-day or (2) 1.5 times the Net Cost of New Entry (stated on an installed capacity basis) for the PJM Region for such Delivery Year or for the Relevant LDA, in \$/MW-day minus (the Capacity Resource Clearing Price in such auction for the Locational Deliverability Area within which the resource is located)] times the number of calendar days in such Delivery Year); and
 - (iii) For Seasonal Capacity Performance Resources, the same as the Auction Credit Rate for Capacity Performance Resources, but reduced to be proportional to the number of calendar days in the relevant season.
- (e) For the purposes of this section VI.B.4 and section VI.B.5 below, “Relevant LDA” means the Locational Deliverability Area in which the Capacity Performance Resource is located if a separate Variable Resource Requirement Curve has been established for that Locational Deliverability Area for the Base Residual Auction for such Delivery Year.

5. Price Responsive Demand Credit Rate

- (a) For the 2018/2019 through 2022/2023 Delivery Years:
 - (i) Prior to the posting of the results of a Base Residual Auction for a Delivery Year, the Price Responsive Demand Credit Rate shall be (the greater of (A) 0.3 times the Net Cost of New Entry for the PJM Region for such Delivery Year, in MW-day or (B) \$20 per MW-day) times the number of calendar days in such Delivery Year;
 - (ii) Subsequent to the posting of the results from a Base Residual Auction, the Price Responsive Demand Credit Rate used for ongoing credit requirements for Price Responsive Demand committed in such auction shall be (the greater of (A) \$20/MW-day or (B) 0.2 times the Capacity Resource Clearing Price in such auction for the Locational Deliverability Area within which the Price Responsive Demand load is located, in \$/MW-day) times the number of calendar days in such Delivery Year times a final price uncertainty factor of 1.05;
 - (iii) For any additional Price Responsive Demand that seeks to commit in a Third Incremental Auction in response to a qualifying change in the final LDA load forecast, the Price Responsive Demand Credit Rate shall be the same as the rate for Price Responsive Demand that had cleared in the Base Residual Auction; and
 - (iv) Subsequent to the posting of the results of the Third Incremental Auction, the Price Responsive Demand Credit Rate used for ongoing credit requirements for

all Price Responsive Demand, shall be (the greater of (i) \$20/MW-day or (ii) 0.2 times the Final Zonal Capacity Price for the Locational Deliverability Area within which the Price Responsive Demand is located) times the number of calendar days in such Delivery Year, but no greater than the Price Responsive Demand Credit Rate previously established under subsections (a)(i), (a)(ii), or (a)(iii) of this section for such Delivery Year.

- (b) For the 2022/2023 Delivery Year and Subsequent Delivery Years:
- (i) Prior to the posting of the results of a Base Residual Auction for a Delivery Year, the Price Responsive Demand Credit Rate shall be (the greater of (A) 0.5 times the Net Cost of New Entry for the PJM Region for such Delivery Year or for the Relevant LDA, in \$/MW-day or (B) \$20 per MW-day) times the number of calendar days in such Delivery Year;
 - (ii) Subsequent to the posting of the results from a Base Residual Auction, the Price Responsive Demand Credit Rate used for ongoing credit requirements for Price Responsive Demand committed in such auction shall be (the greater of [(A) \$20/MW-day or (B) 0.2 times the Capacity Resource Clearing Price in such auction for the Locational Deliverability Area within which the Price Responsive Demand is located, in \$/MW-day or (C) the lesser of (1) 0.5 times the Net Cost of New Entry for the PJM Region for such Delivery Year or for the Relevant LDA, in \$/MW-day or (2) 1.5 times the Net Cost of New Entry (stated on an installed capacity basis) for the PJM Region for such Delivery year or for the Relevant LDA, in \$/MW-day minus (the Capacity Resource Clearing Price in such auction for the Locational Deliverability Area within which the Price Responsive Demand is located)] times the number of calendar days in such Delivery Year;
 - (iii) For any additional Price Responsive Demand that seeks to commit in a Third Incremental Auction in response to a qualifying change in the final LDA load forecast, the Price Responsive Demand Credit Rate shall be (the greater of (A) 0.5 times Net Cost of New Entry for the PJM Region for such Delivery Year or for the Relevant LDA, in \$/MW-day or (B) \$20/MW-day) times the number of calendar days in such Delivery Year; and
 - (iv) Subsequent to the posting of the results of the Third Incremental Auction, the Price Responsive Demand Credit Rate used for ongoing credit requirements for all Price Responsive Demand committed in such auction shall be the greater of [(A) \$20/MW-day or (B) 0.2 times the Capacity Resource Clearing Price in such auction for the Locational Deliverability Area within which the Price Responsive Demand is located or (C) the lesser of (1) 0.5 times the Net Cost of New Entry for the PJM Region for such Delivery Year or for the Relevant LDA, in \$/MW-day or (2) 1.5 times the Net Cost of New Entry (stated on an installed capacity basis) for the PJM Region for such Delivery Year or for the Relevant LDA, in \$/MW-day minus (the Capacity Performance Resource Clearing Price in such Incremental Auction for the Locational Deliverability Areas within which the Price

Responsive Demand is located)] times the number of calendar days in such Delivery Year.

6. RPM Seller Credit - Additional Form of Unsecured Credit for RPM

In addition to the forms of credit specified elsewhere in this Attachment Q, RPM Seller Credit shall be available to Market Participants, but solely for purposes of satisfying RPM Auction Credit requirements. If a supplier has a history of being a net seller into PJM Markets, on average, over the past 12 months, then PJM will count as available Unsecured Credit twice the average of that Market Participant's total net monthly PJM bills over the past 12 months. This RPM Seller Credit shall be subject to the cap on available Unsecured Credit as established in section II.G.3 above.

RPM Seller Credit is calculated as a single value for each Market Participant, not separately by account, and must be designated to specific customer accounts in order to be available to satisfy RPM Auction Credit requirements that are calculated in each such customer account.

7. Credit Responsibility for Traded Planned RPM Capacity Resources

PJM may require that credit and financial responsibility for planned Capacity Resources that are traded remain with the original party (which for these purposes, means the party bearing credit responsibility for the planned Capacity Resource immediately prior to trade) unless the receiving party independently establishes consistent with this Attachment Q, that it has sufficient credit with PJM and agrees by providing written notice to PJM that it will fully assume the credit responsibility associated with the traded planned Capacity Resource.

C. Financial Transmission Right Auctions

Credit requirements described herein for FTR activity are applied separately for each customer account of a Market Participant, unless specified otherwise in this section C. FTR Participants must designate the appropriate amount of credit to each separate customer account in which any activity occurs or will occur.

1. FTR Credit Limit.

Participants must maintain their FTR Credit Limit at a level equal to or greater than their FTR Credit Requirement for each applicable account. FTR Credit Limits will be established only by a Participant providing Collateral and designating the available credit to specific accounts.

2. FTR Credit Requirement.

For each Market Participant with FTR activity, PJM shall calculate an FTR Credit Requirement. The FTR Credit Requirement shall be calculated on a portfolio basis for each Market Participant based on (a) initial margin, (b) Auction Revenue Right Credits, (c) Mark-to-Auction Value, (d) application of a 10¢ per MWh minimum value adjustment, and (e) realized gains and/or losses, as set forth in subsections (a)-(e) of this subsection, employing the formula:

Max { Max (IM – ARR – MTA, Ten Cent per Mwh Minimum) – Realized Gains and/or Losses, 0 }

Where IM is the initial margin, ARR is Auction Revenue Rights Credits and MTA is the Mark-to-Auction Value. The FTR Credit Requirement may be increased to reflect any change in the value of a Market Participant's portfolio requiring an increase in Collateral as further described below.

(a) Initial Margin

Initial margin shall be calculated in accordance with the following formula:

$$\text{IM} = \text{FTR Obligations IM} + \text{FTR Options IM}$$

The model will employ a confidence interval of 99 percent.

(i) FTR Obligations IM

Initial margin values for Financial Transmission Right Obligations shall be determined utilizing a historical simulation value-at-risk methodology that calculates the size and value at risk of the applicable FTR portfolio based on a defined confidence interval and subject to a weighted aggregation method that is represented by a straight sum for long term positions and a combination of straight sum (20%) and weighted root sum of squares (80%) for balance of planning period positions.

(ii) FTR Options IM

The initial margin for Financial Transmission Right Options shall be calculated as the FTR cost minus the FTR Historical Values. FTR Historical Values shall be calculated separately for weekend on-peak, weekday on-peak, off-peak, and 24-hour FTRs for each month of the year. FTR Historical Values shall be adjusted by plus or minus ten percent for cleared counter flow or prevailing flow FTRs, respectively, in order to mitigate exposure due to uncertainty and fluctuations in actual FTR value. Historical values used in the calculation of FTR Historical Values shall be adjusted when the network simulation model utilized in PJM's economic planning process indicates that transmission congestion will decrease due to certain transmission upgrades that are in effect or planned to go into effect for the following Planning Period. The transmission upgrades to be modeled for this purpose shall only include those upgrades that, individually, or together, have 10% or more impact on the transmission congestion on an individual constraint or constraints with congestion of \$5 million or more affecting a common congestion path. The adjustments to historical values shall be the dollar amount of the adjustment shown in the network simulation model.

(b) Auction Revenue Rights Credits

For a given month for which initial margin is calculated, the prorated value of any Auction Revenue Rights Credits held by a Market Participant with Financial Transmission Right Obligations shall be subtracted from the initial margin for that month. In accordance with subsection 3 below, PJM may recalculate Auction Revenue Rights Credits at any time, but shall do so no less frequently than subsequent to each annual FTR auction. If a reduction in such ARR credits at any time increases an FTR Participant's FTR Credit Requirements beyond its credit available for FTR activity, the FTR Participant must increase its Collateral or the FTR Credit Limit.

(c) Mark-to-Auction Value

A Mark-to-Auction Value shall be calculated for each Market Participant in accordance with subsection 7 below.

(d) Ten Cent (10¢) per MWh Minimum Value Adjustment

If the FTR Credit Requirement as calculated pursuant to subsections (a)-(c) above, results in a value that is less than ten cents (10¢) per MWh, the FTR Credit Requirement shall be increased to ten cents (10¢) per MWh. When calculating the portfolio MWh for this comparison, for cleared "Sell" FTRs, the MWh shall be subtracted from the portfolio total; prior to clearing, the MWh for "Sell" FTRs shall not be included in the portfolio total.

(e) Realized Gains and/or Losses

Any realized gains and/or losses resulting from the settlement of Financial Transmission Right Obligations that have not been paid out will be subtracted from the FTR Credit Requirement. A realized gain will decrease the FTR Credit Requirement (but not below \$0.00), whereas a realized loss will increase the FTR Credit Requirement.

3. Rejection of FTR Bids.

Bids submitted into an auction will be rejected if the Market Participant's FTR Credit Requirement including such submitted bids would exceed the Market Participant's FTR Credit Limit, or if the Market Participant fails to provide additional Collateral as required pursuant to provisions related to mark-to-auction.

4. FTR Credit Collateral Returns.

A Market Participant may request from PJM the return of any Collateral no longer required for the FTR markets. PJM is permitted to limit the frequency of such requested Collateral returns, provided that Collateral returns shall be made by PJM at least once per calendar quarter, if requested by a Market Participant.

5. Credit Responsibility for Bilateral Transfers of FTRs.

PJM may require that credit responsibility associated with an FTR bilaterally transferred to a new Market Participant remain with the original party (which for these purposes, means the party bearing credit responsibility for the FTR immediately prior to bilateral transfer) unless and until the receiving party independently establishes, consistent with this Attachment Q, sufficient credit with PJM and agrees through confirmation of the bilateral transfer in PJM's FTR reporting tool that it will meet in full the credit requirements associated with the transferred FTR.

6. FTR Administrative Charge Credit Requirement

In addition to any other credit requirements, PJM may apply a credit requirement to cover the maximum administrative fees that may be charged to a Market Participant for its bids and offers.

7. Mark-to-Auction

A Mark-to-Auction Value shall be calculated separately for each customer account of a Market Participant. For each such customer account, the Mark-to-Auction Value shall be a single number equal to the sum, over all months remaining in the applicable FTR period and for all cleared FTRs in the customer account, of the most recently available cleared auction price applicable to the FTR minus the original transaction price of the FTR, multiplied by the transacted quantity.

The FTR Credit Requirement, as otherwise described above, shall be increased when the Mark-to-Auction Value is negative and decreased when the Mark-to-Auction Value is positive. The increase shall equal the absolute value of the negative Mark-to-Auction Value less the value of ARR credits that are held in the customer account and have not been used to reduce the FTR Credit Requirement prior to application of the Mark-to-Auction Value. PJM shall recalculate ARR credits held by each Market Participant after each annual FTR auction and may also recalculate such ARR credits at any other additional time intervals it deems appropriate. Application of the Mark-to-Auction Value, including the effect from ARR application, shall not decrease the FTR Credit Requirement below the Ten Cent (10¢) per MWh Minimum.

For Market Participant customer accounts for which FTR bids have been submitted into the current FTR auction, if the Market Participant's FTR Credit Requirement exceeds its credit available for the Market Participant's portfolio of FTRs in the tentative cleared solution for an FTR auction (or auction round), PJM shall issue a Collateral Call to the Market Participant, and the Market Participant must fulfill such demand before 4:00 p.m. Eastern Prevailing Time on the following Business Day. If a Market Participant does not timely satisfy such Collateral Call,

PJM shall, in coordination with PJM, cause the removal of all of that Market Participant's bids in that FTR auction (or auction round), submitted from such Market Participant's customer account, and a new cleared solution shall be calculated for the FTR auction (or auction round).

If necessary, PJM shall repeat the auction clearing calculation. PJM shall repeat these mark-to-auction calculations subsequent to any secondary clearing calculation, and PJM shall require affected Market Participants to establish additional credit.

Subsequent to final clearing of an FTR auction or an annual FTR auction round, PJM shall recalculate the FTR Credit Requirement for all FTR portfolios, and, as applicable, issue to each Market Participant a request for Collateral for the total amount by which the FTR Credit Requirement exceeds the credit allocated in any of the Market Participant's accounts. The Market Participant must fulfill such demand by 4:00 p.m. Eastern Prevailing Time on the following Business Day.

If the request for Collateral is not satisfied within the applicable cure period referenced in Operating Agreement, section 15, then such Market Participant shall be restricted in all of its credit-screened transactions. Specifically, such Market Participant may not engage in any Virtual Transactions or Export Transactions, or participate in RPM Auctions or other RPM activity. Such Market Participant may engage only in the selling of open FTR positions, either in FTR auctions or bilaterally, provided such sales would reduce the Market Participant's FTR Credit Requirements. PJM shall not return any Collateral to such Market Participant, and no payment shall be due or payable to such Market Participant, until its credit shortfall is remedied. Market Participant shall allocate any excess or unallocated Collateral to any of its account in which there is a credit shortfall. Market Participants may remedy their credit shortfall at any time through provision of sufficient Collateral.

If a Market Participant fails to satisfy a request for Collateral for two consecutive auctions of overlapping periods, e.g. two balance of Planning Period auctions, an annual FTR auction and a balance of Planning Period auction, or two long term FTR auctions, (for this purpose the four rounds of an annual FTR auction shall be considered a single auction), the Market Participant shall be declared in default of this Attachment Q.

VII. PEAK MARKET ACTIVITY AND WORKING CREDIT LIMIT

A. Peak Market Activity Credit Requirement

PJM shall calculate a Peak Market Activity credit requirement for each Participant. Each Participant must maintain sufficient Unsecured Credit Allowance and/or Collateral, as applicable, and subject to the provisions herein, to satisfy its Peak Market Activity credit requirement.

Peak Market Activity for Participants will be determined weekly, utilizing an initial Peak Market Activity, as explained in this section VII.A below. Peak Market Activity shall be the greater of the initial Peak Market Activity, or the greatest amount invoiced for the Participant's transaction activity for all PJM Markets and services in the rolling past one, two, three or four-week period.

However, Peak Market Activity shall not exceed the greatest amount invoiced for the Participant's transaction activity for all PJM Markets and services in any rolling one, two or three-week period in the prior 52 weeks.

Peak Market Activity shall exclude FTR Net Activity, Virtual Transactions Net Activity, and Export Transactions Net Activity.

Peak Market Activity = min [max [initial Peak Market Activity, max [greatest amount invoiced for transaction activity for the rolling past one, two, three, or four-week period]], max [greatest amount invoiced for transaction activity for any rolling one, two or three-week period in the prior 52 weeks]

When calculating Peak Market Activity, PJM may attribute credits for Regulation service to the days on which they were accrued, rather than including them in the month-end invoice.

The initial Peak Market Activity for Applicants will be determined by PJM based on a review of an estimate of their transactional activity for all PJM Markets and services over the next 52 weeks, which the Applicant shall provide to PJM.

The initial Peak Market Activity for Market Participants and Transmission Customers, calculated weekly upon issuance of the weekly invoice, shall be the three-week average of all non-zero invoice totals over the previous 52 weeks.

Prepayments shall not affect Peak Market Activity unless otherwise agreed to in writing pursuant to this Attachment Q.

Peak Market Activity calculations shall take into account reductions of invoice values effectuated by early payments which are applied to reduce a Participant's Peak Market Activity as contemplated by other terms of this Attachment Q; provided that the initial Peak Market Activity shall not be less than the average value calculated using the weeks for which no early payment was made.

A Participant may reduce its Collateral requirement by agreeing in writing (in a form acceptable to PJM) to make additional payments, including prepayments, as and when necessary to ensure that such Participant's Total Net Obligation at no time exceeds such reduced Collateral requirement.

In the event that the Peak Market Activity Shortfall exceeds or equals the Minimum Exposure, the prior week's Peak Market Activity credit requirement will be increased by an amount equal to $n * \text{the Minimum Transfer Amount}$, with n being the integer that will cause the current week's Peak Market Activity credit requirement to be greater than or equal to the Participant's current Peak Market Activity but less than the Participant's current Peak Market Activity plus the Minimum Transfer Amount. For the avoidance of doubt, if the Peak Market Activity Shortfall is less than the Minimum Exposure, the current week's Peak Market Activity credit requirement will remain the same as the prior week's Peak Market Activity credit requirement.

In the event that the Peak Market Activity Surplus exceeds or equals the Minimum Transfer Amount, the prior week's Peak Market Activity credit requirement will be decreased by an amount equal to $n * \text{the Minimum Transfer Amount}$, with n being the integer that will cause the current week's Peak Market Activity credit requirement to be greater than or equal to the Participant's current Peak Market Activity but less than the Participant's current Peak Market Activity plus the Minimum Transfer Amount. For the avoidance of doubt, if the Peak Market Activity Surplus is less than the Minimum Transfer Amount, the current week's Peak Market Activity credit requirement will remain the same as the prior week's Peak Market Activity credit requirement.

In the event that there is neither a Peak Market Activity Shortfall nor a Peak Market Activity Surplus, then the current week's Peak Market Activity credit requirement is the same as the prior week's Peak Market Activity credit requirement.

PJM may, at its discretion, adjust a Participant's Peak Market Activity credit requirement if PJM determines that the Peak Market Activity is not representative of such Participant's expected activity, as a consequence of known, measurable, and sustained changes. Such changes may include, but shall not be limited to when a Participant makes PJM aware of federal, state or local law that could affect the allocation of charges or credits from a Participant to another party, the loss (without replacement) of short-term load contracts, when such contracts had terms of three months or more and were acquired through state-sponsored retail load programs, but shall not include short-term buying and selling activities.

PJM may waive the credit requirements for a Participant that has no outstanding transactions and agrees in writing that it shall not, after the date of such agreement, incur obligations under any of the Agreements. Such entity's access to all electronic transaction systems administered by PJM shall be terminated.

A Participant receiving unsecured credit may make early payments up to thirteen (13) times in a rolling 52-week period in order to reduce its Peak Market Activity for credit requirement purposes. Imputed Peak Market Activity reductions for credit purposes will be applied to the billing period for which the payment was received. Payments used as the basis for such reductions must be received prior to issuance or posting of the invoice for the relevant billing period. The imputed Peak Market Activity reduction attributed to any payment may not exceed the amount of Unsecured Credit for which the Participant is eligible.

B. Working Credit Limit

PJM will establish a Working Credit Limit for each Participant against which its Total Net Obligation will be monitored.

If a Participant's Total Net Obligation approaches its Working Credit Limit, PJM may require the Participant to make an advance payment or increase its Collateral in order to maintain its Total Net Obligation below its Working Credit Limit. Except as explicitly provided herein, advance payments shall not serve to reduce the Participant's Peak Market Activity for the purpose of calculating credit requirements.

Example: After ten (10) calendar days, and with five (5) calendar days remaining before the bill is due to be paid, a Participant approaches its \$4.0 million Working Credit Limit. PJM may require a prepayment of \$2.0 million in order that the Total Net Obligation will not exceed the Working Credit Limit.

If a Participant exceeds its Working Credit Limit or is required to make advance payments more than ten times during a 52-week period, PJM may require Collateral in an amount as may be deemed reasonably necessary to support its Total Net Obligation.

When calculating Total Net Obligation, PJM may attribute credits for Regulation service to the days on which they were accrued, rather than including them in the month-end invoice.

VIII. SUSPENSION OR LIMITATION ON MARKET PARTICIPATION

If PJM determines that a Participant presents an unreasonable credit risk as determined pursuant to initial or ongoing risk evaluations, as described in section II above, or in the case of any other event which, after notice, lapse of time, or both, would result in an Event of Default, PJM will take steps to mitigate the exposure of any PJM Markets, which may include, but is not limited to, requiring Collateral, additional Collateral or Restricted Collateral or suspending or limiting the Market Participant's ability to participate in the PJM Markets commensurate to the risk to any PJM Markets.

If a Participant fails to reduce or eliminate any unreasonable credit risks to PJM's satisfaction within the applicable cure period including without limitation by posting Collateral, additional Collateral or Restricted Collateral, PJM may treat such failure as an Event of Default.

Notwithstanding the foregoing, a Participant that transacts in FTRs will be eligible to request that PJM exempt or exclude FTR transactions of such Participant from the effect of any such limitations on market activity established by PJM, and PJM may but shall not be required to so exempt or exclude, any FTR transactions that the Participant reasonably demonstrates to PJM it has entered into to "hedge or mitigate commercial risk" arising from its transactions in the PJM Interchange Energy Market that are intended to result in the actual flow of physical energy or ancillary services in the PJM Region, as the phrase "hedge or mitigate commercial risks" is defined under the CFTC's regulations defining the end-user exception to clearing set forth in 17 C.F.R. §50.50(c).

IX. REMEDIES FOR CREDIT BREACH, FINANCIAL DEFAULT OR CREDIT SUPPORT DEFAULT; REMEDIES FOR EVENTS OF DEFAULT; GENERAL BANKRUPTCY PROVISIONS

If PJM determines that a Market Participant is in Credit Breach, or that a Financial Default or Credit Support Default exists, PJM may issue to the Market Participant a breach notice and/or a Collateral Call or demand for additional documentation or assurances. At such time, PJM may also suspend payments of any amounts due to the Participant and limit, restrict or rescind the Market Participant's privileges to participate in any or all PJM Markets under the Agreements during any such cure period. Failure to remedy the Credit Breach, Financial Default or to satisfy a Collateral Call or demand for additional documentation or assurances within the applicable cure period described in Operating Agreement, section 15.1.5, shall constitute an Event of

Default. If a Participant fails to meet the requirements of this Attachment Q, but then remedies the Credit Breach, Financial Default or Credit Support Default, or satisfies a Collateral Call or demand for additional documentation or assurances within the applicable cure period, then the Participant shall be deemed to again be in compliance with this Attachment Q, so long as no other Credit Breach, Financial Default, Credit Support Default or Collateral Call or demand for additional documentation or assurances has occurred and is continuing.

Only one cure period shall apply to a single event giving rise to a Credit Breach, Financial Default or Credit Support Default. Application of Collateral towards a Financial Default, Credit Breach or Credit Support Breach shall not be considered a cure of such Credit Breach, Financial Default or Credit Support Default unless the Participant is determined by PJM to be in full compliance with all requirements of this Attachment Q after such application.

When an Event of Default under this Attachment Q or one or more of the Agreements has occurred and is continuing, PJM may take such actions as may be required or permitted under the Agreements to protect the PJM Markets and the PJM Members, including but not limited to (a) suspension and/or termination of the Participant's ongoing Transmission Service, (b) limitation, suspension and/or termination of participation in any PJM Markets, (c) taking all necessary steps to address the Market Participant's market portfolio in accordance with the provisions of the Operating Agreement and PJM Tariff, including, but not limited to, allowing such portfolio's positions to go to settlement, liquidating or otherwise resolving such portfolio positions, exercising judgment in the manner in which this is achieved in any PJM Markets. PJM may permit a defaulting Market Participant to continue to participate in PJM Markets: (a) in support of grid reliability, (b) when such Market Participant is a net market seller, (c) when such Market Participant has the ability to post collateral, or (d) to enable certain customers to continue to receive service prior to PJM receiving regulatory or legal approval to terminate.

When an Event of Default under this Attachment Q or one or more of the Agreements has occurred and is continuing, PJM also has the immediate right to liquidate all or a portion of a Participant's Collateral at its discretion to satisfy Total Net Obligations to PJM under this Attachment Q or one or more of the Agreements. No remedy for an Event of Default is or shall be deemed to be exclusive of any other available remedy or remedies by contract or under applicable laws and regulations. Each such remedy shall be distinct, separate and cumulative, shall not be deemed inconsistent with or in exclusion of any other available remedy, and shall be in addition to and separate and distinct from every other remedy.

When an Event of Default under this Attachment Q or one or more of the Agreements has occurred and is continuing, PJM may continue to retain all payments due to a Participant as a cash security for all such Participant's obligations under the Agreements (regardless of any restrictions placed on such Participant's use of Collateral for any account, market activity or capitalization purpose); provided, however, that an Event of Default will not be deemed cured or no longer continuing because PJM is retaining amounts due the Participant, or because PJM has not yet applied Collateral or credit support to any amounts due PJM, unless PJM determines that the Participant has again satisfied all the Collateral requirements and application requirements as a new Applicant for participation in the PJM Markets, and consistent with the requirements and limitations of Operating Agreement, section 15.

In Event of Default by a Participant, PJM may exercise any remedy or action allowed or prescribed by this Attachment Q immediately or following investigation and determination of an orderly exercise of such remedy or action. Delay in exercising any allowed remedy or action shall not preclude PJM from exercising such remedy or action at a later time.

PJM may hold a defaulting Participant's Collateral for as long as such party's positions exist and consistent with this Attachment Q, in order to protect the PJM Markets and PJM's membership, and minimize or mitigate the impacts or potential impacts or risks associated with such Event of Default when an Event of Default under this Attachment Q or one or more of the Agreements has occurred and is continuing.

PJM may apply towards an ongoing Event of Default any amounts that are held or later become available or due to the defaulting Participant through PJM's markets and systems.

In order to cover the Participant's Obligations, PJM may hold a Participant's Collateral indefinitely and specifically through the end of the billing period which includes the 90th day following the last day a Participant had activity, open positions, or accruing obligations (other than reconciliations and true-ups), until such Participant has satisfactorily paid any obligations invoiced through such period and until PJM determines that the Participant's positions represent no risk exposure to the PJM Markets or the PJM Members. Obligations incurred or accrued through such period shall survive any withdrawal from PJM. When an Event of Default under this Attachment Q or one or more of the Agreements has occurred and is continuing, PJM may apply any Collateral to such Participant's Obligations, even if Participant had previously announced and effected its withdrawal from PJM.

To protect PJM Members and PJM Markets from loss and harm due to uncertainty and delay which may be created upon a Participant's bankruptcy, in the event a Participant becomes a debtor under the United States Bankruptcy Code, 11 U.S.C. §§ 101-1532 (the "Bankruptcy Code"), whether voluntarily or involuntarily, the Participant should upon the commencement of the bankruptcy case immediately seek through a "first day" motion or motions, to the extent appropriate under the circumstances to provide PJM with prompt clarity as to its rights and treatment, the entry of an order of the bankruptcy court: (i) authorizing and directing the Participant to (a) make prompt and full payment of all pre-petition Obligations to PJM; and (b) fulfill all obligations under the Tariff and other Agreements in the ordinary course of business, including but not limited to deposit of additional Collateral post-petition; (ii) authorizing PJM to (x) require, hold and apply Collateral in accordance with this Attachment Q and (y) exercise setoff and recoupment to the fullest extent provided under the Tariff and other Agreements, and applicable nonbankruptcy law; and (iii) confirming the status of Agreements as a "forward contract", "swap agreement", or "master netting agreement" under the Bankruptcy Code, as applicable.

In the event that a debtor Participant fails to file such a "first day" motion within one (1) Business Day of the commencement of the bankruptcy case, or the bankruptcy court does not enter an order granting the relief requested in such "first day" motion within seven (7) days thereof, PJM may file a motion for relief from the automatic stay under section 362(d) of the

Bankruptcy Code, citing the lack of prompt clarity as “cause” thereunder, to the extent necessary to permit PJM to exercise any rights and remedies under the Tariff and other Agreements.

X. FTR TRANSACTIONS AS FORWARD CONTRACTS AND/OR SWAP AGREEMENTS UNDER THE BANKRUPTCY CODE

Under the terms of the Tariff, PJM Settlement is the counterparty to all transactions in PJM Markets, including but not limited to all FTR transactions, other than (i) any bilateral transactions between Participants, or (ii) with respect to self-supplied or self-scheduled transactions reported to the Office of the Interconnection. Pursuant to the “Final Order in Response to a Petition From Certain Independent System Operators and Regional Transmission Organizations To Exempt Specified Transactions Authorized by a Tariff or Protocol Approved by the Federal Energy Regulatory Commission or the Public Utility Commission of Texas From Certain Provisions of the Commodity Exchange Act Pursuant to the Authority Provided in the Act” 78 Fed. Reg. 19880 (April 2, 2013) (the “CFTC RTO/ISO Order”), the Commodity Futures Trading Commission (the “CFTC”) exempts transactions offered or entered into in a market administered by PJM pursuant to the Tariff, including but not limited to FTR transactions, from the provisions of the Commodity Exchange Act and the CFTC’s rules applicable to “swaps,” with the exception of the CFTC’s general anti-fraud and anti-manipulation authority and scienter-based prohibitions.

Notwithstanding the CFTC RTO/ISO Order, all FTR transactions constitute “forward contracts” and/or “swap agreements” within the meaning of the Bankruptcy Code, and PJM shall be deemed to be a “forward contract merchant” and/or a “swap participant” within the meaning of the Bankruptcy Code for purposes of FTR transactions.

Pursuant to this Attachment Q and other provisions of the Agreements, PJM already has, and shall continue to have, the following rights (among other rights) with respect to a Market Participant’s Event of Default under those documents: (a) the right to terminate, liquidate or otherwise resolve any FTR transaction or position held by that Market Participant, including by allowing such position to go to settlement; (b) the right to immediately proceed against any Collateral and additional financial assurance provided by that Market Participant; (c) the right to set off or recoup any obligations due and owing to that Market Participant pursuant to any forward contract, swap agreement, or similar agreement against any amounts due and owing by that Market Participant pursuant to any forward contract, swap agreement, or similar agreement, such arrangement to constitute a “master netting agreement” within the meaning of the Bankruptcy Code; and (d) the right to suspend or limit that Market Participant from entering into further FTR transactions.

For the avoidance of doubt, upon the commencement of a voluntary or involuntary proceeding for a Market Participant under the Bankruptcy Code, and without limiting any other rights of PJM or obligations of any Market Participant under the Tariff (including this Attachment Q) or other Agreements, PJM may exercise any of its rights against such Market Participant, including, without limitation (1) the right to terminate, liquidate or otherwise resolve any FTR transaction or position held by that Market Participant, including by allowing such position to go to settlement, (2) the right to immediately proceed against any Collateral and additional financial

assurance provided by that Market Participant, (3) the right to set off or recoup any obligations due and owing to that Market Participant pursuant to any forward contract, swap agreement and/or master netting agreement against any amounts due and owing by that Market Participant with respect to an FTR transaction including as a result of the actions taken by PJM pursuant to (1) above, and (4) the right to suspend or limit that Market Participant from entering into future FTR transactions.

For purposes of the Bankruptcy Code, all transactions, including but not limited to FTR transactions, between PJM, on the one hand, and a Market Participant, on the other hand, are intended to be, and are, part of a single integrated agreement, and together with the Agreements constitute a “master netting agreement.”

Attachment Q
Appendix 1

PJM MINIMUM PARTICIPATION CRITERIA
ANNUAL OFFICER CERTIFICATION FORM

Participant Name: _____ ("Participant")

I, _____, a duly authorized officer of Participant, understanding that PJM Interconnection, L.L.C. and PJMSettlement, Inc. ("PJMSettlement") are relying on this certification as evidence that Participant meets the minimum requirements set forth in the PJM Open Access Transmission Tariff ("PJM Tariff"), Attachment Q hereby certify that I have full authority to represent on behalf of Participant and further represent as follows, as evidenced by my initialing each representation in the space provided below:

1. All employees or agents transacting in markets or services provided pursuant to the PJM Tariff or PJM Amended and Restated Operating Agreement ("PJM Operating Agreement") on behalf of the Participant have received appropriate training and are authorized to transact on behalf of Participant. As used in this representation, the term "appropriate" as used with respect to training means training that is (i) comparable to generally accepted practices in the energy trading industry, and (ii) commensurate and proportional in sophistication, scope and frequency to the volume of transactions and the nature and extent of the risk taken by the participant. _____

2. Participant has written risk management policies, procedures, and controls, approved by Participant's independent risk management function and applicable to transactions in any PJM Markets in which it participates and for which employees or agents transacting in markets or services provided pursuant to the PJM Tariff or PJM Operating Agreement have been trained, that provide an appropriate, comprehensive risk management framework that, at a minimum, clearly identifies and documents the range of risks to which Participant is exposed, including, but not limited to credit risks, liquidity risks and market risks. As used in this representation, a Participant's "independent risk management function" can include appropriate corporate persons or bodies that are independent of the Participant's trading functions, such as a risk management committee, a risk officer, a Participant's board or board committee, or a board or committee of the Participant's parent company.
 - a. Participant is providing to PJM or PJMSettlement, in accordance with Tariff, Attachment Q, section III, with this Annual Officer Certification Form, a copy of its current governing risk management policies, procedures and controls applicable to its activities in any PJM Markets pursuant to Attachment Q or because there have been substantive changes made to such policies, procedures and controls applicable to its market activities since they were last provided to PJM. _____

 - b. If the risk management policies, procedures and controls applicable to Participant's market activities submitted to PJM or PJMSettlement were submitted prior to the current certification, Participant certifies that no substantive changes have

been made to such policies, procedures and controls applicable to its market activities since such submission. _____

3. An FTR Participant must make either the following 3.a. or 3.b. additional representations, evidenced by the undersigned officer initialing either the one 3.a. representation or the four 3.b. representations in the spaces provided below:

- a. Participant transacts in PJM's FTR markets with the sole intent to hedge congestion risk in connection with either obligations Participant has to serve load or rights Participant has to generate electricity in the PJM Region ("physical transactions") and monitors all of the Participant's FTR market activity to endeavor to ensure that its FTR positions, considering both the size and pathways of the positions, are either generally proportionate to or generally do not exceed the Participant's physical transactions, and remain generally consistent with the Participant's intention to hedge its physical transactions. _____

- b. On no less than a weekly basis, Participant values its FTR positions and engages in a probabilistic assessment of the hypothetical risk of such positions using analytically based methodologies, predicated on the use of industry accepted valuation methodologies. _____

Such valuation and risk assessment functions are performed either by persons within Participant's organization independent from those trading in PJM's FTR markets or by an outside firm qualified and with expertise in this area of risk management. _____

Having valued its FTR positions and quantified their hypothetical risks, Participant applies its written policies, procedures and controls to limit its risks using industry recognized practices, such as value-at-risk limitations, concentration limits, or other controls designed to prevent Participant from purposefully or unintentionally taking on risk that is not commensurate or proportional to Participant's financial capability to manage such risk. _____

Exceptions to Participant's written risk policies, procedures and controls applicable to Participant's FTR positions are documented and explain a reasoned basis for the granting of any exception. _____

4. Participant has appropriate personnel resources, operating procedures and technical abilities to promptly and effectively respond to all PJM and PJMSettlement communications and directions. _____
5. Participant has demonstrated compliance with the Minimum Capitalization criteria set forth in Tariff, Attachment Q that are applicable to any PJM Markets in which Participant transacts, and is not aware of any change having occurred or being imminent that would invalidate such compliance. _____

6. All Participants must certify and initial in at least one of the five sections below:
- a. I certify that Participant qualifies as an “appropriate person” as that term is defined under section 4(c)(3), or successor provision, of the Commodity Exchange Act or an “eligible contract participant” as that term is defined under section 1a(18), or successor provision, of the Commodity Exchange Act. I certify that Participant will cease transacting in any PJM Markets and notify PJM and PJMSettlement immediately if Participant no longer qualifies as an “appropriate person” or “eligible contract participant.” _____

If providing audited financial statements, which shall be in US GAAP format or any other format acceptable to PJM, to support Participant’s certification of qualification as an “appropriate person:”

I certify, to the best of my knowledge and belief, that the audited financial statements provided to PJM and/or PJMSettlement present fairly, pursuant to such disclosures in such audited financial statements, the financial position of Participant as of the date of those audited financial statements. Further, I certify that Participant continues to maintain the minimum \$1 million total net worth and/or \$5 million total asset levels reflected in these audited financial statements as of the date of this certification. I acknowledge that both PJM and PJMSettlement are relying upon my certification to maintain compliance with federal regulatory requirements. _____

If not providing audited financial statements to support Participant’s certification of qualification as an “appropriate person,” Participant certifies that they qualify as an “appropriate person” under one of the entities defined in section 4(c)(3)(A)-(J) of the Commodities Exchange Act. _____

If providing audited financial statements, which shall be in US GAAP format or any other format acceptable to PJM, to support Participant’s certification of qualification as an “eligible contract participant:”

I certify, to the best of my knowledge and belief, that the audited financial statements provided to PJM and/or PJMSettlement present fairly, pursuant to such disclosures in such audited financial statements, the financial position of Participant as of the date of those audited financial statements. Further, I certify that Participant continues to maintain the minimum \$1 million total net worth and/or \$10 million total asset levels reflected in these audited financial statements as of the date of this certification. I acknowledge that both PJM and PJMSettlement are relying upon my certification to maintain compliance with federal regulatory requirements. _____

If not providing audited financial statements to support Participant’s certification of qualification as an “eligible contract participant,” Participant certifies that they

qualify as an “eligible contract participant” under one of the entities defined in section 1a(18)(A) of the Commodities Exchange Act. _____

- b. I certify that Participant has provided an unlimited Corporate Guaranty in a form acceptable to PJM as described in Tariff, Attachment Q, section III.D from an issuer that has at least \$1 million of total net worth or \$5 million of total assets per Participant for which the issuer has issued an unlimited Corporate Guaranty. I also certify, to the best of my knowledge and belief, that the audited financial statements provided to PJM and/or PJMSettlement present fairly, pursuant to such disclosures in such audited financial statements, the financial position of the issuer as of the date of those audited financial statements. Further, I certify that Participant will cease transacting PJM’s Markets and notify PJM and PJMSettlement immediately if issuer of the unlimited Corporate Guaranty for Participant no longer has at least \$1 million of total net worth or \$5 million of total assets per Participant for which the issuer has issued an unlimited Corporate Guaranty. _____

I certify that the issuer of the unlimited Corporate Guaranty to Participant continues to have at least \$1 million of total net worth or \$5 million of total assets per Participant for which the issuer has issued an unlimited Corporate Guaranty. I acknowledge that PJM and PJMSettlement are relying upon my certifications to maintain compliance with federal regulatory requirements. _____

- c. I certify that Participant fulfills the eligibility requirements of the Commodity Futures Trading Commission exemption order (78 F.R. 19880 – April 2, 2013) by being in the business of at least one of the following in the PJM Region as indicated below (initial those applicable):

1. Generating electric energy, including Participants that resell physical energy acquired from an entity generating electric energy: _____
2. Transmitting electric energy: _____
3. Distributing electric energy delivered under Point-to-Point or Network Integration Transmission Service, including scheduled import, export and wheel through transactions: _____
4. Other electric energy services that are necessary to support the reliable operation of the transmission system: _____

Description only if c(4) is initialed:

Further, I certify that Participant will cease transacting in any PJM Markets and notify PJM and PJMSettlement immediately if Participant no longer performs at least one of the functions noted above in the PJM Region. I acknowledge that PJM and

PJMSettlement are relying on my certification to maintain compliance with federal energy regulatory requirements. _____

d. I certify that Participant has provided a Letter of Credit of \$5 million or more to PJM or PJMSettlement in a form acceptable to PJM and/or PJMSettlement as described in Tariff, Attachment Q, section V.B that the Participant acknowledges cannot be utilized to meet its credit requirements to PJM and PJMSettlement. I acknowledge that PJM and PJMSettlement are relying on the provision of this letter of credit and my certification to maintain compliance with federal regulatory requirements. _____

e. I certify that Participant has provided a surety bond of \$5 million or more to PJM or PJMSettlement in a form acceptable to PJM and/or PJMSettlement as described in Tariff, Attachment Q, section V.D. that the Participant acknowledges cannot be utilized to meet its credit requirements to PJM and PJMSettlement. I acknowledge that PJM and PJMSettlement are relying on the provision of this surety bond and my certification to maintain compliance with federal regulatory requirements. _____

7. I acknowledge that I have read and understood the provisions of Tariff, Attachment Q applicable to Participant's business in any PJM Markets, including those provisions describing PJM's Minimum Participation Requirements and the enforcement actions available to PJM and PJMSettlement of a Participant not satisfying those requirements. I acknowledge that the information provided herein is true and accurate to the best of my belief and knowledge after due investigation. In addition, by signing this certification, I acknowledge the potential consequences of making incomplete or false statements in this Certification. _____

Date: _____

Participant (Signature)

Print Name: _____

Title: _____

5.14 Clearing Prices and Charges

a) Capacity Resource Clearing Prices

For each Base Residual Auction and Incremental Auction, the Office of the Interconnection shall calculate a clearing price to be paid for each megawatt-day of Unforced Capacity that clears in such auction. The Capacity Resource Clearing Price for each LDA will be the marginal value of system capacity for the PJM Region, without considering locational constraints, adjusted as necessary by any applicable Locational Price Adders, Annual Resource Price Adders, Extended Summer Resource Price Adders, Limited Resource Price Decrements, Sub-Annual Resource Price Decrements, Base Capacity Demand Resource Price Decrements, and Base Capacity Resource Price Decrements, all as determined by the Office of the Interconnection based on the optimization algorithm. If a Capacity Resource is located in more than one Locational Deliverability Area, it shall be paid the highest Locational Price Adder in any applicable LDA in which the Sell Offer for such Capacity Resource cleared. The Annual Resource Price Adder is applicable for Annual Resources only. The Extended Summer Resource Price Adder is applicable for Annual Resources and Extended Summer Demand Resources.

The Locational Price Adder applicable to each cleared Seasonal Capacity Performance Resource is determined during the post-processing of the RPM Auction results consistent with the manner in which the auction clearing algorithm recognizes the contribution of Seasonal Capacity Performance Resource Sell Offers in satisfying an LDA's reliability requirement. For each LDA with a positive Locational Price Adder with respect to the immediate higher level LDA, starting with the lowest level constrained LDAs and moving up, PJM determines the quantity of equally matched Summer-Period Capacity Performance Resources and Winter-Period Capacity Performance Resources located and cleared within that LDA. Up to this quantity, the cleared Summer-Period Capacity Performance Resources and Winter-Period Capacity Performance Resources with the lowest Sell Offer prices will be compensated using the highest Locational Price Adder applicable to such LDA; and any remaining Seasonal Capacity Performance Resources cleared within the LDA are effectively moved to the next higher level constrained LDA, where they are considered in a similar manner for compensation.

b) Resource Make-Whole Payments

If a Sell Offer specifies a minimum block, and only a portion of such block is needed to clear the market in a Base Residual or Incremental Auction, the MW portion of such Sell Offer needed to clear the market shall clear, and such Sell Offer shall set the marginal value of system capacity. In addition, the Capacity Market Seller shall receive a Resource Make-Whole Payment equal to the Capacity Resource Clearing Price in such auction times the difference between the Sell Offer's minimum block MW quantity and the Sell Offer's cleared MW quantity. If the Sell Offer price of a cleared Seasonal Capacity Performance Resource exceeds the applicable Capacity Resource Clearing Price, the Capacity Market Seller shall receive a Resource Make-Whole Payment equal to the difference between the Sell Offer price and Capacity Resource Clearing Price in such RPM Auction. The cost for any such Resource Make-Whole Payments required in a Base Residual Auction or Incremental Auction for adjustment of prior capacity commitments shall be collected pro rata from all LSEs in the LDA in which such payments were made, based on their Daily Unforced Capacity Obligations. The cost for any such Resource Make-Whole

Payments required in an Incremental Auction for capacity replacement shall be collected from all Capacity Market Buyers in the LDA in which such payments were made, on a pro-rata basis based on the MWs purchased in such auction.

c) New Entry Price Adjustment

A Capacity Market Seller that submits a Sell Offer based on a Planned Generation Capacity Resource that clears in the BRA for a Delivery Year may, at its election, submit Sell Offers with a New Entry Price Adjustment in the BRAs for the two immediately succeeding Delivery Years if:

1. Such Capacity Market Seller provides notice of such election at the time it submits its Sell Offer for such resource in the BRA for the first Delivery Year for which such resource is eligible to be considered a Planned Generation Capacity Resource. When the Capacity Market Seller provides notice of such election, it must specify whether its Sell Offer is contingent upon qualifying for the New Entry Price Adjustment. The Office of the Interconnection shall not clear such contingent Sell Offer if it does not qualify for the New Entry Price Adjustment.

2. All or any part of a Sell Offer from the Planned Generation Capacity Resource submitted in accordance with section 5.14(c)(1) is the marginal Sell Offer that sets the Capacity Resource Clearing Price for the LDA.

3. Acceptance of all or any part of a Sell Offer that meets the conditions in section 5.14(c)(1)-(2) in the BRA increases the total Unforced Capacity committed in the BRA (including any minimum block quantity) for the LDA in which such Resource will be located from a megawatt quantity below the LDA Reliability Requirement, minus the Short Term Resource Procurement Target, to a megawatt quantity at or above a megawatt quantity at the price-quantity point on the VRR Curve at which the price is 0.40 times the applicable Net CONE divided by (one minus the pool-wide average EFORd) through the 2024/2025 Delivery Year, and beginning with the 2025/2026 Delivery Year, divided by the applicable ELCC Class Rating for the Reference Resource.

4. Such Capacity Market Seller submits Sell Offers in the BRA for the two immediately succeeding Delivery Years for the entire Unforced Capacity of such Generation Capacity Resource committed in the first BRA under section 5.14(c)(1)-(2) equal to the lesser of: A) the price in such seller's Sell Offer for the BRA in which such resource qualified as a Planned Generation Capacity Resource that satisfies the conditions in section 5.14(c)(1)-(3); or B) 0.90 times the Net CONE applicable in the first BRA in which such Planned Generation Capacity Resource meeting the conditions in section 5.14(c)(1)-(3) cleared, on an Unforced Capacity basis, for such LDA.

5. If the Sell Offer is submitted consistent with section 5.14(c)(1)-(4) the foregoing conditions, then:

- (i) in the first Delivery Year, the Resource sets the Capacity Resource Clearing Price for the LDA and all cleared resources in the LDA receive

the Capacity Resource Clearing Price set by the Sell Offer as the marginal offer, in accordance with Tariff, Attachment DD, section 5.12(a) and section 5.14(a) above.

- (ii) in either of the subsequent two BRAs, if any part of the Sell Offer from the Resource clears, it shall receive the Capacity Resource Clearing Price for such LDA for its cleared capacity and for any additional minimum block quantity pursuant to section 5.14(b) above; or
- (iii) if the Resource does not clear, it shall be deemed resubmitted at the highest price per MW-day at which the megawatt quantity of Unforced Capacity of such Resource that cleared the first-year BRA will clear the subsequent-year BRA pursuant to the optimization algorithm described in Tariff, Attachment DD, section 5.12(a), and
- (iv) the resource with its Sell Offer submitted shall clear and shall be committed to the PJM Region in the amount cleared, plus any additional minimum-block quantity from its Sell Offer for such Delivery Year, but such additional amount shall be no greater than the portion of a minimum-block quantity, if any, from its first-year Sell Offer satisfying section 5.14(c)(1)-(3) above that is entitled to compensation pursuant to section 5.14(b) above; and
- (v) the Capacity Resource Clearing Price, and the resources cleared, shall be re-determined to reflect the resubmitted Sell Offer. In such case, the Resource for which the Sell Offer is submitted pursuant to section 5.14(c)(1)-(4) above shall be paid for the entire committed quantity at the Sell Offer price that it initially submitted in such subsequent BRA. The difference between such Sell Offer price and the Capacity Resource Clearing Price (as well as any difference between the cleared quantity and the committed quantity), will be treated as a Resource Make-Whole Payment in accordance with section 5.14(b) above. Other capacity resources that clear the BRA in such LDA receive the Capacity Resource Clearing Price as determined in section 5.14(a) above.

6. The failure to submit a Sell Offer consistent with section 5.14(c)(i)-(iii) above in the BRA for Delivery Year 3 shall not retroactively revoke the New Entry Price Adjustment for Delivery Year 2. However, the failure to submit a Sell Offer consistent with section 5.14(c)(4) above in the BRA for Delivery Year 2 shall make the resource ineligible for the New Entry Pricing Adjustment for Delivery Years 2 and 3.

7. For each Delivery Year that the foregoing conditions are satisfied, the Office of the Interconnection shall maintain and employ in the auction clearing for such LDA a separate VRR Curve, notwithstanding the outcome of the test referenced in Tariff, Attachment DD, section 5.10(a)(ii).

8. On or before August 1, 2012, PJM shall file with FERC under FPA section 205, as determined necessary by PJM following a stakeholder process, tariff changes to establish a long-term auction process as a not unduly discriminatory means to provide adequate long-term revenue assurances to support new entry, as a supplement to or replacement of this New Entry Price Adjustment.

d) Qualifying Transmission Upgrade Payments

A Capacity Market Seller that submitted a Sell Offer based on a Qualifying Transmission Upgrade that clears in the Base Residual Auction shall receive a payment equal to the Capacity Resource Clearing Price, including any Locational Price Adder, of the LDA into which the Qualifying Transmission Upgrade is to increase Capacity Emergency Transfer Limit, less the Capacity Resource Clearing Price, including any Locational Price Adder, of the LDA from which the upgrade was to provide such increased CETL, multiplied by the megawatt quantity of increased CETL cleared from such Sell Offer. Such payments shall be reflected in the Locational Price Adder determined as part of the Final Zonal Capacity Price for the Zone associated with such LDAs, and shall be funded through a reduction in the Capacity Transfer Rights allocated to Load-Serving Entities under Tariff, Attachment DD, section 5.15, as set forth in that section. PJMSettlement shall be the Counterparty to any cleared capacity transaction resulting from a Sell Offer based on a Qualifying Transmission Upgrade.

e) Locational Reliability Charge

In accordance with the Reliability Assurance Agreement, each LSE shall incur a Locational Reliability Charge (subject to certain offsets and other adjustments as described in Tariff, Attachment DD, section 5.14B, Tariff, Attachment DD, section 5.14C, Tariff, Attachment DD, section 5.14D, Tariff, Attachment DD, section 5.14E and Tariff, Attachment DD, section 5.15) equal to such LSE's Daily Unforced Capacity Obligation in a Zone during such Delivery Year multiplied by the applicable Final Zonal Capacity Price in such Zone. PJMSettlement shall be the Counterparty to the LSEs' obligations to pay, and payments of, Locational Reliability Charges.

f) The Office of the Interconnection shall determine Zonal Capacity Prices in accordance with the following, based on the optimization algorithm:

i) The Office of the Interconnection shall calculate and post the Preliminary Zonal Capacity Prices for each Delivery Year following the Base Residual Auction for such Delivery Year. The Preliminary Zonal Capacity Price for each Zone shall be the sum of: 1) the marginal value of system capacity for the PJM Region, without considering locational constraints; 2) the Locational Price Adder, if any, for the LDA in which such Zone is located; provided however, that if the Zone contains multiple LDAs with different Capacity Resource Clearing Prices, the Zonal Capacity Price shall be a weighted average of the Capacity Resource Clearing Prices for such LDAs, weighted by the Unforced Capacity of Capacity Resources cleared in each such LDA; 3) an adjustment, if required, to account for adders paid to Annual Resources and Extended Summer Demand Resources in the LDA for which the zone is located; 4) an adjustment, if required, to account for Resource Make-Whole Payments; and (5) an adjustment, if required to provide sufficient revenue for payment of any PRD Credits, all as

determined in accordance with the optimization algorithm.

ii) The Office of the Interconnection shall calculate and post the Adjusted Zonal Capacity Price following each Incremental Auction. The Adjusted Zonal Capacity Price for each Zone shall equal the sum of: (1) the average marginal value of system capacity weighted by the Unforced Capacity cleared in all auctions previously conducted for such Delivery Year (excluding any Unforced Capacity cleared as replacement capacity); (2) the average Locational Price Adder weighted by the Unforced Capacity cleared in all auctions previously conducted for such Delivery Year (excluding any Unforced Capacity cleared as replacement capacity); (3) an adjustment, if required, to account for adders paid to Annual Resources and Extended Summer Demand Resources for all auctions previously conducted for such Delivery Year (excluding any Unforced Capacity cleared as replacement capacity); (4) an adjustment, if required, to account for Resource Make-Whole Payments for all actions previously conducted (excluding any Resource Make-Whole Payments to be charged to the buyers of replacement capacity); and (5) an adjustment, if required to provide sufficient revenue for payment of any PRD Credits. The Adjusted Zonal Capacity Price may decrease if Unforced Capacity is decommitted or the Resource Clearing Price decreases in an Incremental Auction.

iii) The Office of the Interconnection shall calculate and post the Final Zonal Capacity Price for each Delivery Year after the final auction is held for such Delivery Year, as set forth above. The Final Zonal Capacity Price for each Zone shall equal the Adjusted Zonal Capacity Price, as further adjusted to reflect any decreases in the Nominated Demand Resource Value of any existing Demand Resource cleared in the Base Residual Auction and Second Incremental Auction.

g) Resource Substitution Charge

Each Capacity Market Buyer in an Incremental Auction securing replacement capacity shall pay a Resource Substitution Charge equal to the Capacity Resource Clearing Price resulting from such auction multiplied by the megawatt quantity of Unforced Capacity purchased by such Market Buyer in such auction.

h) Minimum Offer Price Rule for Certain New Generation Capacity Resources that are not Capacity Resources with State Subsidy for up to the 2022/2023 Delivery Year.

(1) The provisions of this section 5.14(h) shall not be effective after the 2022/2023 Delivery Year. For purposes of this section, the Net Asset Class Costs of New Entry shall be asset-class estimates of competitive, cost-based nominal levelized Cost of New Entry, net of energy and ancillary service revenues. Determination of the gross Cost of New Entry component of the Net Asset Class Cost of New Entry shall be consistent with the methodology used to determine the Cost of New Entry set forth in Tariff, Attachment DD, section 5.10(a)(iv)(A) of this Attachment. This section only applies to new Generation Capacity Resources that do not receive or are not entitled to receive a State Subsidy, meaning that such resources are not Capacity Resources with State Subsidy. To the extent a new Generation Capacity Resource is a Capacity Resource with State Subsidy, then the provisions in Tariff, Attachment DD, section 5.14(h-1) apply.

The gross Cost of New Entry component of Net Asset Class Cost of New Entry shall be, for purposes of the 2018/2019 Delivery Year and subsequent Delivery Years, the values indicated in the table below for each CONE Area for a combustion turbine generator (“CT”), and a combined cycle generator (“CC”) respectively, and shall be adjusted for subsequent Delivery Years in accordance with subsection (h)(2) below. For purposes of Incremental Auctions for the 2015/2016, 2016/2017 and 2017/2018 Delivery Years, the MOPR Floor Offer Price shall be the same as that used in the Base Residual Auction for such Delivery Year. The estimated energy and ancillary service revenues for each type of plant shall be determined as described in subsection (h)(3) below. Notwithstanding the foregoing, the Net Asset Class Cost of New Entry shall be zero for: (i) Sell Offers based on nuclear, coal or Integrated Gasification Combined Cycle facilities; or (ii) Sell Offers based on hydroelectric, wind, or solar facilities.

	CONE Area 1	CONE Area 2	CONE Area 3	CONE Area 4
CT \$/MW-yr	132,200	130,300	128,990	130,300
CC \$/MW-yr	185,700	176,000	172,600	179,400

(2) The gross Cost of New Entry component of the Net Asset Class Cost of New Entry shall be adjusted to reflect changes in generating plant construction costs in the same manner as set forth for the cost of new entry in Tariff, Attachment DD, section 5.10(a)(iv)(B), provided, however, that the Applicable BLS Composite Index used for CC plants shall be calculated from the three indices referenced in that section but weighted 25% for the wages index, 60% for the construction materials index, and 15% for the turbines index, and provided further that nothing herein shall preclude the Office of the Interconnection from filing to change the Net Asset Class Cost of New Entry for any Delivery Year pursuant to appropriate filings with FERC under the Federal Power Act.

(3) For the 2022/2023 Delivery Year, for purposes of this provision, the net energy and ancillary services revenue estimate for a combustion turbine generator shall be that determined by Tariff, Attachment DD, section 5.10(a)(v-1)(A), provided that the energy and ancillary services revenue estimate for each CONE Area shall be based on the Zone within such CONE Area that has the highest energy revenue estimate calculated under the methodology in that subsection. The net energy and ancillary services revenue estimate for a combined cycle generator shall be determined in the same manner as that prescribed for a combustion turbine generator in the previous sentence, except that the heat rate assumed for the combined cycle resource shall be 6.501 MMBtu/MWh, the variable operations and maintenance expenses for such resource shall be \$2.11 per MWh, a 10% adder will not be included in the energy offer, and the reactive service revenues shall be \$3,350 per MW-year.

(4) Any Sell Offer that is based on either (i) or (ii), and (iii):

i) a Generation Capacity Resource located in the PJM Region that is submitted in an RPM Auction for a Delivery Year unless a Sell Offer based on that resource has cleared an RPM Auction for that or any prior Delivery Year, or until a Sell Offer based on that resource clears an RPM auction for that or any subsequent Delivery Year; or

ii) a Generation Capacity Resource located outside the PJM Region (where such Sell Offer is based solely on such resource) that requires sufficient transmission investment for delivery to the PJM Region to indicate a long-term commitment to providing capacity to the PJM Region, unless a Sell Offer based on that resource has cleared an RPM Auction for that or any prior Delivery Year, or until a Sell Offer based on that resource clears an RPM Auction for that or any subsequent Delivery Year;

iii) in any LDA for which a separate VRR Curve is established for use in the Base Residual Auction for the Delivery Year relevant to the RPM Auction in which such offer is submitted, and that is less than 90 percent of the applicable Net Asset Class Cost of New Entry or, if there is no applicable Net Asset Class Cost of New Entry, less than 70 percent of the Net Asset Class Cost of New Entry for a combustion turbine generator as provided in subsection (h)(1) above shall be set to equal 90 percent of the applicable Net Asset Class Cost of New Entry (or set equal to 70 percent of such cost for a combustion turbine, where there is no otherwise applicable net asset class figure), unless the Capacity Market Seller obtains the prior determination from the Office of the Interconnection described in subsection (5) hereof. This provision applies to Sell Offers submitted in Incremental Auctions conducted after December 19, 2011, provided that the Net Asset Class Cost of New Entry values for any such Incremental Auctions for the 2012-13 or 2013-14 Delivery Years shall be the Net Asset Class Cost of New Entry values posted by the Office of the Interconnection for the Base Residual Auction for the 2014-15 Delivery Year.

(5) Unit-Specific Exception. A Sell Offer meeting the criteria in subsection (4) shall be permitted and shall not be re-set to the price level specified in that subsection if the Capacity Market Seller obtains a determination from the Office of the Interconnection or the Commission, prior to the RPM Auction in which it seeks to submit the Sell Offer, that such Sell Offer is permissible because it is consistent with the competitive, cost-based, fixed, net cost of new entry were the resource to rely solely on revenues from PJM-administered markets. The following process and requirements shall apply to requests for such determinations:

i) The Capacity Market Seller may request such a determination by no later than one hundred twenty (120) days prior to the commencement of the offer period for the RPM Auction in which it seeks to submit its Sell Offer, by submitting simultaneously to the Office of the Interconnection and the Market Monitoring Unit a written request with all of the required documentation as described below and in the PJM Manuals. For such purpose, the Office of the Interconnection shall post, by no later than one hundred fifty (150) days prior to the commencement of the offer period for the relevant RPM Auction, a preliminary estimate for the relevant Delivery Year of the minimum offer level expected to be established under subsection (4). If the minimum offer level subsequently established for the relevant Delivery Year is less than the Sell Offer, the Sell Offer shall be permitted and no exception shall be required.

ii) As more fully set forth in the PJM Manuals, the Capacity Market Seller must include in its request for an exception under this subsection documentation to support the fixed development, construction, operation, and maintenance costs of the planned generation resource, as well as estimates of offsetting net revenues, or, sufficient data for the Office of the Interconnection and the Market Monitoring Unit to produce such an estimate. Estimates of costs

or revenues shall be supported at a level of detail comparable to the cost and revenue estimates used to support the Net Asset Class Cost of New Entry established under this section 5.14(h). As more fully set forth in the PJM Manuals, supporting documentation for project costs may include, as applicable and available, a complete project description; environmental permits; vendor quotes for plant or equipment; evidence of actual costs of recent comparable projects; bases for electric and gas interconnection costs and any cost contingencies; bases and support for property taxes, insurance, operations and maintenance (“O&M”) contractor costs, and other fixed O&M and administrative or general costs; financing documents for construction–period and permanent financing or evidence of recent debt costs of the seller for comparable investments; and the bases and support for the claimed capitalization ratio, rate of return, cost-recovery period, inflation rate, or other parameters used in financial modeling. Such documentation also shall identify and support any sunk costs that the Capacity Market Seller has reflected as a reduction to its Sell Offer. The request shall include a certification, signed by an officer of the Capacity Market Seller, that the claimed costs accurately reflect, in all material respects, the seller’s reasonably expected costs of new entry and that the request satisfies all standards for an exception hereunder.

The request also shall identify all revenue sources relied upon in the Sell Offer to offset the claimed fixed costs, including, without limitation, long-term power supply contracts, tolling agreements, or tariffs on file with state regulatory agencies, and shall demonstrate that such offsetting revenues are consistent, over a reasonable time period identified by the Capacity Market Seller, with the standard prescribed above.

For the 2022/2023 Delivery Year, in making such demonstration, the Capacity Market Seller may rely upon revenues projected by well defined, forward-looking dispatch models, designed to generally follow the rules and processes of PJM’s energy and ancillary services markets. Such models must utilize publicly available forward prices for electricity and fuel in the PJM Region. Any modifications made to the forward electricity and fuel prices must similarly use publicly available data. Alternative forward prices for fuel may be used if accompanied by contractual evidence showing the applicability of the alternative fuel price. Where forward fuel markets are not available, publicly available estimates of future fuel prices may be used. The model shall also contain estimates of variable operation and maintenance costs, which may include Maintenance Adders, and emissions allowance prices. Documentation for net revenues also must include, as available and applicable, plant performance and capability information, including heat rate, start-up times and costs, forced outage rates, planned outage schedules, maintenance cycle, fuel costs and other variable operations and maintenance expenses, capacity factors and ancillary service capabilities.

In the alternative, the Capacity Market Seller may request that the Market Monitoring Unit, subject to acceptance by the Office of Interconnection, produce a resource-specific Energy & Ancillary Services Offset value for such resource using the Forward Hourly LMPs, Forward Hourly Ancillary Service Prices, and either Forward Daily Natural Gas Prices for combustion turbines and combined cycle resources, or forecasted fuel prices for other resource types, and plant parameters and capability information specific to the dispatch of the resource, as outlined above. In addition to the documentation identified herein and in the PJM Manuals, the Capacity Market Seller shall provide any additional supporting information reasonably requested by the Office of the Interconnection or the Market Monitoring Unit to

evaluate the Sell Offer. Requests for additional documentation will not extend the deadline by which the Office of the Interconnection or the Market Monitoring Unit must provide their determinations of the Minimum Offer Price Rule exception request.

iii) A Sell Offer evaluated hereunder shall be permitted if the information provided reasonably demonstrates that the Sell Offer's competitive, cost-based, fixed, net cost of new entry is below the minimum offer level prescribed by subsection (4), based on competitive cost advantages relative to the costs estimated for subsection (4), including, without limitation, competitive cost advantages resulting from the Capacity Market Seller's business model, financial condition, tax status, access to capital or other similar conditions affecting the applicant's costs, or based on net revenues that are reasonably demonstrated hereunder to be higher than estimated for subsection (4). Capacity Market Sellers shall be asked to demonstrate that claimed cost advantages or sources of net revenue that are irregular or anomalous, that do not reflect arm's-length transactions, or that are not in the ordinary course of the Capacity Market Seller's business are consistent with the standards of this subsection. Failure to adequately support such costs or revenues so as to enable the Office of the Interconnection to make the determination required in this section will result in denial of an exception hereunder by the Office of the Interconnection.

iv) The Market Monitoring Unit shall review the information and documentation in support of the request and shall provide its findings whether the proposed Sell Offer is acceptable, in accordance with the standards and criteria hereunder, in writing, to the Capacity Market Seller and the Office of the Interconnection by no later than ninety (90) days prior to the commencement of the offer period for such auction. The Office of the Interconnection shall also review all exception requests and documentation and shall provide in writing to the Capacity Market Seller, and the Market Monitoring Unit, its determination whether the requested Sell Offer is acceptable and if not it shall calculate and provide to such Capacity Market Seller, a minimum Sell Offer based on the data and documentation received, by no later than sixty-five (65) days prior to the commencement of the offer period for the relevant RPM Auction. If the Office of the Interconnection determines that the requested Sell Offer is acceptable, the Capacity Market Seller shall notify the Market Monitoring Unit and the Office of the Interconnection, in writing, of the minimum level of Sell Offer to which it agrees to commit by no later than sixty (60) days prior to the commencement of the offer period for the relevant RPM Auction.

h-1) Minimum Offer Price Rule for Capacity Resources with State Subsidy for the 2022/2023 Delivery Year.

(1) **General Rule.** The provisions of this section 5.14(h-1) shall not be effective after the 2022/2023 Delivery Year. For the 2022/2023 Delivery Year, any Sell Offer based on either a New Entry Capacity Resource with State Subsidy or a Cleared Capacity Resource with a State Subsidy submitted in any RPM Auction shall have an offer price no lower than the applicable MOPR Floor Offer Price, unless the Capacity Market Seller qualifies for an exemption with respect to such Capacity Resource with a State Subsidy prior to the submission of such offer.

(A) Effect of Exemption. To the extent a Sell Offer in any RPM Auction is based on a Capacity Resource with State Subsidy that qualifies for any of the exemptions defined in Tariff, Attachment DD, sections 5.14(h-1)(4)-(8), the Sell Offer for such resource shall not be limited by the MOPR Floor Offer Price, unless otherwise specified.

(B) Effect of Exception. To the extent a Sell Offer in any RPM Auction for any Delivery Year is based on a Capacity Resource with State Subsidy for which the Capacity Market Seller obtains, prior to the submission of such offer, a resource-specific exception, such offer may include an offer price below the default MOPR Floor Offer Price applicable to such resource type, but no lower than the resource-specific MOPR Floor Offer Price determined in such exception process.

(C) Process for Establishing a Capacity Resource with a State Subsidy.

(i) By no later than one hundred and twenty (120) days prior to the commencement of the offer period of any RPM Auction conducted for the 2022/2023 Delivery Year, each Capacity Market Seller must certify to the Office of Interconnection, in accordance with the PJM Manuals, whether or not each Capacity Resource (other than Demand Resource and Energy Efficiency Resource) that the Capacity Market Seller intends to offer into the RPM Auction qualifies as a Capacity Resource with a State Subsidy (including by way of Jointly Owned Cross-Subsidized Capacity Resource) and identify (with specificity) any State Subsidy. Capacity Market Sellers that intend to offer a Demand Resource or an Energy Efficiency Resource into the RPM Auction shall certify to the Office of Interconnection, in accordance with the PJM Manuals, whether or not such Demand Resource or Energy Efficiency Resource qualifies as a Capacity Resource with a State Subsidy no later than thirty (30) days prior to the commencement of the offer period of any RPM Auction conducted for the 2022/2023 Delivery Year. All Capacity Market Sellers shall be responsible for each certification irrespective of any guidance developed by the Office of the Interconnection and the Market Monitoring Unit. A Capacity Resource shall be deemed a Capacity Resource with State Subsidy if the Capacity Market Seller fails to timely certify whether or not a Capacity Resource is entitled to a State Subsidy, unless the Capacity Market Seller receives a waiver from the Commission. Notwithstanding, if a Capacity Market Seller submits a timely resource-specific exception pursuant to Tariff, Attachment DD, section 5.14(h-1)(3) for the relevant Delivery Year, and PJM approves the resource-specific MOPR Floor Offer Price, then the Capacity Market Seller may use such floor price regardless of whether it timely certified whether or not the resource is a Capacity Resource with State Subsidy.

(ii) The requirements in subsection (i) above do not apply to Capacity Resources for which the Market Seller designated whether or not it is subject to a State Subsidy and the associated subsidies to which the Capacity Resource is entitled in a prior Delivery Year, unless there has been a change in the set of those State Subsidy(ies), or for those which are eligible for the Demand Resource or Energy Efficiency exemption, Capacity Storage Resource exemption, Self-Supply Entity exemption, or the Renewable Portfolio Standard exemption.

(iii) Once a Capacity Market Seller has certified a Capacity Resource as a Capacity Resource with a State Subsidy, the status of such Capacity Resource will

remain unchanged unless and until the Capacity Market Seller (or a subsequent Capacity Market Seller) that owns or controls such Capacity Resource provides a certification of a change in such status, the Office of the Interconnection removes such status, or by FERC order. All Capacity Market Sellers shall have an ongoing obligation to certify to the Office of Interconnection and the Market Monitoring Unit a Capacity Resource’s material change in status as a Capacity Resource with State Subsidy within 30 days of such material change, unless such material change occurs within 30 days of the commencement of the offer period of any RPM Auction for the 2022/2023 Delivery Year, in which case the Market Seller must notify PJM no later than 5 days prior to the commencement of the offer period of any RPM Auction for the 2022/2023 Delivery Year. Nothing in this provision shall supersede the requirement for all Capacity Market Sellers to certify to the Office of Interconnection whether its resource meets the criteria of a Capacity Resource with State Subsidy pursuant to Tariff, Attachment DD, section 5.14(h-1)(1)(C)(i).

(2) **Minimum Offer Price Rule.** Any Sell Offer for a New Entry Capacity Resource with State Subsidy or a Cleared Capacity Resource with State Subsidy that does not qualify for any of the exemptions, as defined in Tariff, Attachment DD, sections 5.14(h-1)(4)-(8), shall have an offer price no lower than the applicable MOPR Floor Offer Price, unless the applicable MOPR Floor Offer Price is higher than the applicable Market Seller Offer Cap, in which circumstance the Capacity Resource with State Subsidy must seek a resource-specific value determined in accordance with the resource-specific MOPR Floor Offer Price process to participate in an RPM Auction.

(A) **New Entry MOPR Floor Offer Price.** For a New Entry Capacity Resource with State Subsidy the applicable MOPR Floor Offer Price, based on the net cost of new entry for each resource type, shall be, at the election of the Capacity Market Seller, (i) the resource-specific value determined in accordance with the resource-specific MOPR Floor Offer Price process in Tariff, Attachment DD, section 5.14(h-1)(3) below or (ii) if applicable, the default New Entry MOPR Floor Offer Price for the applicable resource based on the gross cost of new entry values shown in the table below, net of estimated net energy and ancillary service revenues for the resource type and Zone in which the resource is located.

Resource Type	Gross Cost of New Entry (2022/2023 \$/ MW-day) (Nameplate)
Nuclear	\$2,000
Coal	\$1,068
Combined Cycle	\$320
Combustion Turbine	\$294
Fixed Solar PV	\$271
Tracking Solar PV	\$290
Onshore Wind	\$420
Offshore Wind	\$1,155
Battery Energy Storage	\$532
Diesel Backed Demand Resource	\$254

The gross cost of new entry values in the table above are expressed in dollars per MW-day in terms of nameplate megawatts. For purposes of submitting a Sell Offer, the gross cost of new entry values must be converted to a net cost of new entry by subtracting the estimated net energy and ancillary service revenues, as determined below, from the gross cost of new entry. However, the resultant net cost of new entry of the battery energy storage resource type in the table above must be multiplied by 2.5. The net cost of new entry based on nameplate capacity is then converted to Unforced Capacity (“UCAP”) MW-day. For Delivery Years through the 2022/2023 Delivery Year, to determine the applicable UCAP MW-day value, the net cost of new entry is adjusted as follows: for thermal generation resource types and battery energy storage resource types, the applicable class average EFORD; for wind and solar generation resource types, the applicable class average capacity value factor; or for Demand Resources and Energy Efficiency Resources, the Forecast Pool Requirement, as applicable to the relevant RPM Auction. For the 2023/2024 Delivery Year and subsequent Delivery Years, to determine the applicable UCAP MW-day value, the net cost of new entry is adjusted as follows: for thermal generation resource types, the applicable class average EFORD; for battery storage, wind, and solar resource types, the applicable ELCC Class Rating; or for Demand Resources and Energy Efficiency Resources, the Forecast Pool Requirement, as applicable to the relevant RPM Auction. The resulting default New Entry MOPR Floor Offer price in UCAP/MW-day terms shall be applied to each MW offered for the Capacity Resource regardless of the actual Sell Offer quantity and regardless of whether the Sell Offer is for a Seasonal Capacity Performance Resource.

The default New Entry MOPR Floor Offer Price for load-backed Demand Resources (i.e., the MW portion of Demand Resources that is not supported by generation) shall be separately determined for each Locational Deliverability Area as the MW-weighted average offer price of load-backed Demand Resources from the most recent three Base Residual Auctions, where the MW weighting shall be determined based on the portion of each Sell Offer for a load-backed portion of the Demand Resource that is supported by end-use customer locations on the registrations used in the pre-registration process for such Base Residual Auctions, as described in the PJM Manuals.

For generation-backed Demand Resources that are not powered by diesel generators, the default New Entry MOPR Floor Offer Price shall be the default New Entry MOPR Floor Offer Price applicable to their technology type. Generation-backed Demand Resources using a technology type for which there is no default MOPR Floor Offer Price provided in accordance with this section must seek a resource-specific value determined in accordance with the resource-specific MOPR Floor Offer Price process in Tariff, Attachment DD, section 5.14(h-1)(3) below to participate in an RPM Auction.

The default gross cost of new entry for Energy Efficiency Resources shall be \$644/ICAP MW-Day, which shall be offset by projected wholesale energy savings, as well as transmission and distribution savings of \$95/ICAP MW-Day, to determine the default New Entry MOPR Floor Offer Price (Net Cost of New Entry), where the projected wholesale energy savings are determined utilizing the cost and performance data of relevant programs offered by representative energy efficiency programs with sufficiently detailed publicly available data. The wholesale energy savings, in \$/ICAP MW-day, shall be calculated prior to each RPM Auction

and be equal to the average annual energy savings of 6,221 MWh/ICAP MW times the weighted average of the annual real-time Forward Hourly LMPs of the Zones of the representative energy efficiency programs, where the weighting is developed from the annual energy savings in the relevant Zones, divided by 365.

To determine the adjusted applicable default New Entry MOPR Floor Offer Prices for all resource types except for load-backed Demand Resources and Energy Efficiency Resources, the Office of the Interconnection shall adjust the gross costs of new entry utilizing, for combustion turbine and combined cycle resource types, the same Applicable BLS Composite Index applied for such Delivery Year to adjust the CONE value used to determine the Variable Resource Requirement Curve, in accordance with Tariff, Attachment DD, section 5.10(a)(iv), and for all other resource types, the “BLS Producer Price Index Turbines and Turbine Generator Sets” component of the Applicable BLS Composite Index used to determine the Variable Resource Requirement Curve shall be replaced with the “BLS Producer Price Index Final Demand, Goods Less Food & Energy, Private Capital Equipment” when adjusting the gross costs of new entry. The resultant value shall then be then adjusted further by a factor of 1.022 for nuclear, coal, combustion turbine, combine cycle, and generation-backed Demand Resource types or 1.01 for solar, wind, and storage resource types to reflect the annual decline in bonus depreciation scheduled under federal corporate tax law. Updated estimates of the net energy and ancillary service revenues for each default resource type and applicable Zone, which shall include, but are not limited to, consideration of Fuel Costs, Maintenance Adders and Operating Costs, as applicable, pursuant to Operating Agreement, Schedule 2 shall then be subtracted from the adjusted gross costs of new entry to determine the adjusted New Entry MOPR Floor Offer Price. The net energy and ancillary services revenue shall be the average of the net energy and ancillary services revenues that the resource is projected to receive from the PJM energy and ancillary service markets for the applicable Delivery Year from three separate simulations, with each such simulation using forward prices shaped using historical data from one of each of the three consecutive calendar years preceding the time of the determination for the RPM Auction to take account of year-to-year variability in such hourly shapes. Each net energy and ancillary services revenue simulation shall be conducted in accordance with the following and the PJM Manuals:

(i) for nuclear resource type, the net energy and ancillary services revenue estimate for each Zone shall be determined by the gross energy market revenue determined by the product of [average annual day-ahead Forward Hourly LMPs for such Zone, times 8,760 hours times the annual average equivalent availability factor of all PJM nuclear resources] minus the total annual cost to produce energy determined by the product of [8,760 hours times the annual average equivalent availability factor of all PJM nuclear resources times \$9.02/MWh for a single unit plant or \$7.66/MWh for a multi-unit plant] where these hourly cost rates include fuel costs and variable operation and maintenance expenses, inclusive of Maintenance Adder costs, plus reactive services revenue of \$3,350/MW-year;

(ii) for coal resource type, the net energy and ancillary services revenue estimate for each Zone shall be determined by the Projected EAS Dispatch of a 650 MW coal unit (with heat rate of 8,638 BTU/kWh and variable operations and maintenance variable operation and maintenance expenses, inclusive of Maintenance Adder costs, of \$9.50/MWh) using day-ahead and real-time Forward Hourly LMPs for such Zone and Forward Hourly Ancillary Service Prices, and daily forecasted coal prices, as set forth in the PJM Manuals, plus reactive services revenue of \$3,350/MW-year;

(iii) for combustion turbine resource type, the net energy and ancillary services revenue estimate for each Zone shall be determined in a manner consistent with the methodology described in Tariff, Attachment DD, section 5.10(a)(v-1)(B) for the Reference Resource combustion turbine.

(iv) for combined cycle resource type, the net energy and ancillary services revenue estimate for each Zone shall be determined in the same manner as that prescribed for a combustion turbine resource type, except that the heat rate assumed for the combined cycle resource shall be 6,501 BTU/kwh, the variable operations and maintenance expenses for such resource, inclusive of Maintenance Adder costs, shall be \$2.11/MWh, plus reactive services revenue of \$3,350/MW-year.

(v) for solar PV resource type, the net energy and ancillary services revenue estimate for each Zone shall be determined using a solar resource model that provides the average MW output level, expressed as a percentage of nameplate rating, by hour of day (for each of the 24-hours of a day) and by calendar month (for each of the twelve months of a year). The annual net energy market revenues are determined by multiplying the solar output level of each hour by the real-time Forward Hourly LMP for such Zone and applicable to such hour with this product summed across all of the hours of an annual period, plus reactive services revenue of \$3,350/MW-year. Two separate solar resource models are used, one model for a fixed panel resource and a second model for a tracking panel resource;

(vi) for onshore wind resource type, the net energy and ancillary services revenue estimate for each Zone shall be determined using a wind resource model that provides the average MW output level, expressed as a percentage of nameplate rating, by hour of day (for each of the 24-hours of a day) and by calendar month (for each of the twelve months of a year). The annual energy market revenues are determined by multiplying the wind output level of each hour by the real-time Forward Hourly LMP for such Zone applicable to such hour with this product summed across all of the hours of an annual period, plus reactive services revenue of \$3,350/MW-year;

(vii) for offshore wind resource type, the net energy and ancillary services revenue estimate for each Zone shall be determined by the gross energy market revenue equal to the product of [the average annual real-time Forward Hourly LMP for such Zone times 8,760 hours times an assumed annual capacity factor of 45%], plus reactive services revenue of \$3,350/MW-year;

(viii) for Capacity Storage Resource, the net energy and ancillary services revenue estimate shall be estimated by the Projected EAS Dispatch of a 1 MW, 4MWh resource, with an 85% roundtrip efficiency, and assumed to be dispatched between 95% and 5% state of charge against day-ahead and real-time Forward Hourly LMPs for such Zone and Forward Hourly Ancillary Service Prices, plus reactive services revenue of \$3,350/MW-year; and

(ix) for generation-backed Demand Resource, the net energy and ancillary services revenue estimate shall be zero dollars.

New Entry Capacity Resource with State Subsidy for which there is no default MOPR Floor Offer Price provided in accordance with this section, including hybrid resources, must seek a resource-specific value determined in accordance with the resource-specific MOPR Floor Offer Price process below to participate in an RPM Auction. Failure to obtain a resource-specific MOPR Floor Offer Price will result in the Office of the Interconnection rejecting any Sell Offer based on such resource for the relevant RPM Auction.

(B) Cleared MOPR Floor Offer Prices.

(i) For a Cleared Capacity Resource with State Subsidy, the applicable Cleared MOPR Floor Offer Price shall be, at the election of the Capacity Market Seller, (a) based on the resource-specific MOPR Floor Offer Price, as determined in accordance with Tariff, Attachment DD, section 5.14(h-1)(3) below, or (b) if available, the default Avoidable Cost Rate for the applicable resource type shown in the table below, net of projected PJM market revenues equal to the resource's net energy and ancillary service revenues for the resource type, as determined in accordance with subsection (ii) below.

Existing Resource Type	Default Gross ACR (2022/2023) (\$/MW-day) (Nameplate)
Nuclear - single	\$697
Nuclear - dual	\$445
Coal	\$80
Combined Cycle	\$56
Combustion Turbine	\$50
Solar PV (fixed and tracking)	\$40
Wind Onshore	\$83
Diesel-backed Demand Response	\$3
Load-backed Demand Response	\$0
Energy Efficiency	\$0

The default gross Avoidable Cost Rate values in the table above are expressed in dollars per MW-day in terms of nameplate megawatts. For purposes of submitting a Sell Offer, the default Avoidable Cost Rate values must be net of estimated net energy and ancillary service revenues, and then the difference is ultimately converted to Unforced Capacity ("UCAP") MW-day, where the UCAP MW-day value will be determined based on: for Delivery Years through the 2022/2023 Delivery Year, the resource-specific EFORD for thermal generation resource types, resource-specific capacity value factor for solar and wind generation resource types (based on the ratio of Capacity Interconnection Rights to nameplate capacity, appropriately time-weighted for any winter Capacity Interconnection Rights), or the Forecast Pool Requirement for Demand Resources and Energy Efficiency Resources, as applicable to the relevant RPM Auction, and for the 2023/2024 Delivery Year and subsequent Delivery Years, the resource-specific EFORD for thermal generation resource types and on the resource-specific Accredited UCAP value for solar and wind resource types (with appropriate time-weighting for any winter Capacity Interconnection Rights), or the Forecast Pool Requirement for Demand Resources and Energy Efficiency Resources, as applicable to the relevant RPM Auction. The resulting default Cleared MOPR Floor Offer price in UCAP/MW-day terms shall be applied to each MW offered for the Capacity Resource regardless of actual Sell Offer quantity and regardless of whether the Sell Offer is for a Seasonal Capacity Performance Resource.

Beginning with the Delivery Year that commences June 1, 2022, and continuing no later than for every fourth Delivery Year thereafter, the Office of the Interconnection shall review the default Avoidable Cost Rates for Capacity Resources with State Subsidies that have cleared in an RPM Auction for any prior Delivery Year. Such review may include, without limitation, analyses of the avoidable costs of such resource types. Based on the results of such review, PJM shall propose either to modify or retain the default Avoidable Cost Rate values stated in the table above. The Office of the Interconnection shall post publicly and solicit stakeholder comment regarding the proposal. If, as a result of this process, changes to the default Avoidable Cost Rate values are proposed, the Office of the Interconnection shall file such proposed modifications with the FERC by October 1, prior to the conduct of the Base Residual Auction for the first Delivery Year in which the new values would be applied.

For generation-backed Demand Resources that are not powered by diesel generators, the default Cleared MOPR Floor Offer Price shall be the default Cleared MOPR Floor Offer Price applicable to their technology type. Generation-backed Demand Resources using a technology type for which there is no default MOPR Floor Offer Price provided in accordance with this section must seek a resource-specific value determined in accordance with the resource-specific MOPR Floor Offer Price process in Tariff, Attachment DD, section 5.14(h-1)(3) below to participate in an RPM Auction.

Cleared Capacity Resources with State Subsidy for which there is no default MOPR Floor Offer Price provided in accordance with this section, including hybrid resources, must seek a resource-specific value determined in accordance with the resource-specific MOPR Floor Offer Price process below to participate in an RPM Auction. Failure to obtain a resource-specific MOPR Floor Offer Price will result in the Office of the Interconnection rejecting any Sell Offer based on such resource.

(ii) The net energy and ancillary services revenue is equal to forecasted net revenues which shall be determined in accordance with the applicable resource type net energy and ancillary services revenue determination methodology set forth in Tariff, Attachment DD, section 5.14(h-1)(2)(A)(i) through (ix) and using the subject resource's operating parameters as determined in accordance with the PJM Manuals based on (a) offers submitted in the Day-ahead Energy Market and Real-time Energy Market over the calendar year preceding the time of the determination for the RPM Auction; (b) the resource-specific operating parameters approved, as applicable, in accordance with Operating Agreement, Schedule 1, section 6.6(b) and Operating Agreement, Schedule 2 (including any Fuel Costs, emissions costs, Maintenance Adders, and Operating Costs); (c) the resource's EFORd; (d) Forward Hourly LMPs at the generation bus as determined in accordance with Tariff, Attachment DD, section 5.10(a)(v-1)(C)(6); and (e) the resource's stated annual revenue requirement for reactive services; plus any unit-specific bilateral contract. In addition, the following resource type-specific parameters shall be considered; (f) for combustion turbine, combined cycle, and coal resource types: the installed capacity rating, ramp rate (which shall be equal to the maximum ramp rate included in the resource's energy offers over the most recent previous calendar year preceding the determination for the RPM Auction), and the heat rate as determined as the resource's average heat rate at full load as submitted to the Market Monitoring Unit and the Office of the Interconnection, where for combined cycle resources heat rates will be determined at base load and at peak load (e.g.,

without duct burners and with duct burners), as applicable; (g) for nuclear resource type: an average equivalent availability factor of all PJM nuclear resources to account for refueling outages; (h) for solar and wind resource types: the resource's output profiles for the most recent three calendar years, as available; and (i) for battery storage resource type: the nameplate capacity rating (on a MW / MWh basis).

To the extent the resource has not achieved commercial operation, the operating parameters used in the simulation of the net energy and ancillary service revenues will be based on the manufacturer's specifications and/or from parameters used for other existing, comparable resources, as developed by the Market Monitoring Unit and the Capacity Market Seller, and accepted by the Office of the Interconnection.

A Capacity Market Seller intending to submit a Sell Offer in any RPM Auction for a Cleared Capacity Resource with State Subsidy based on a net energy and ancillary services revenue determination that does not use the foregoing methodology or parameter inputs stated for that resource type shall, at its election, submit a request for a resource-specific MOPR Floor Offer Price for such Capacity Resource pursuant to Tariff, Attachment DD, section 5.14(h-1)(3) below.

(3) Resource-Specific Exception. A Capacity Market Seller intending to submit a Sell Offer in any RPM Auction for a New Entry Capacity Resource with State Subsidy or a Cleared Capacity Resource with State Subsidy below the applicable default MOPR Floor Offer Price may, at its election, submit a request for a resource-specific exception for such Capacity Resource. A Sell Offer below the default MOPR Floor Offer Price, but no lower than the resource-specific MOPR Floor Offer Price, shall be permitted if the Capacity Market Seller obtains approval from the Office of the Interconnection or the Commission, prior to the RPM Auction in which it seeks to submit the Sell Offer. The resource-specific MOPR Floor Offer Price determined under this provision shall be based on the resource-specific EFORD for thermal generation resource types, on the resource-specific Accredited UCAP value for ELCC Resources (where for solar and wind generation resource types the Accredited UCAP shall be appropriately time-weighted for any winter Capacity Interconnection Rights), or the Forecast Pool Requirement for Demand Resources and Energy Efficiency Resources, as applicable to the relevant RPM Auction and shall be applied to each MW offered by the resource regardless of actual Sell Offer quantity and regardless of whether the Sell Offer is for a Seasonal Capacity Performance Resource. Such Sell Offer is permissible because it is consistent with the competitive, cost-based, fixed, net cost were the resource to rely solely on revenues exclusive of any State Subsidy. All supporting data must be provided for all requests. The following requirements shall apply to requests for such determinations:

(A) The Capacity Market Seller shall submit a written request with all of the required documentation as described below and in the PJM Manuals. For such purpose, the Capacity Market Seller shall submit the resource-specific exception request to the Office of the Interconnection and the Market Monitoring Unit no later than one hundred twenty (120) days prior to the commencement of the offer period for the RPM Auction in which it seeks to submit its Sell Offer. For such purpose, the Office of the Interconnection shall post, by no later than one hundred fifty (150) days prior to the commencement of the offer period for the relevant RPM Auction, a preliminary estimate for the relevant Delivery Year of the default Minimum Floor Offer Prices, determined pursuant to Tariff, Attachment DD, sections 5.14(h-1)(2)(A) and (B). If

the final applicable default Minimum Floor Offer Price subsequently established for the relevant Delivery Year is less than the Sell Offer, the Sell Offer shall be permitted and no exception shall be required.

(B) For a resource-specific exception for a New Entry Capacity Resource with State Subsidy, the Capacity Market Seller must include in its request for an exception under this subsection documentation to support the fixed development, construction, operation, and maintenance costs of the Capacity Resource, as well as estimates of offsetting net revenues.

The financial modeling assumptions for calculating Cost of New Entry for Generation Capacity Resources and generation-backed Demand Resources shall be: (i) nominal levelization of gross costs, (ii) asset life of twenty years, (iii) no residual value, (iv) all project costs included with no sunk costs excluded, (v) use first year revenues (which may include revenues from the sale of renewable energy credits for purposes other than state-mandated or state-sponsored programs), and (vi) weighted average cost of capital based on the actual cost of capital for the entity proposing to build the Capacity Resource. Notwithstanding the foregoing, a Capacity Market Seller that seeks to utilize an asset life other than twenty years (but no greater than 35 years) shall provide evidence to support the use of a different asset life, including but not limited to, the asset life term for such resource as utilized in the Capacity Market Seller's financial accounting (e.g., independently audited financial statements), or project financing documents for the resource or evidence of actual costs or financing assumptions of recent comparable projects to the extent the seller has not executed project financing for the resource (e.g., independent project engineer opinion or manufacturer's performance guarantee), or opinions of third-party experts regarding the reasonableness of the financing assumptions used for the project itself or in comparable projects. Capacity Market Sellers may also rely on evidence presented in federal filings, such as its FERC Form No. 1 or an SEC Form 10-K, to demonstrate an asset life other than 20 years of similar asset projects.

Supporting documentation for project costs may include, as applicable and available, a complete project description; environmental permits; vendor quotes for plant or equipment; evidence of actual costs of recent comparable projects; bases for electric and gas interconnection costs and any cost contingencies; bases and support for property taxes, insurance, operations and maintenance ("O&M") contractor costs, and other fixed O&M and administrative or general costs; financing documents for construction-period and permanent financing or evidence of recent debt costs of the seller for comparable investments; and the bases and support for the claimed capitalization ratio, rate of return, cost-recovery period, inflation rate, or other parameters used in financial modeling. In addition to the certification, signed by an officer of the Capacity Market Seller, the request must include a certification that the claimed costs accurately reflect, in all material respects, the seller's reasonably expected costs of new entry and that the request satisfies all standards for a resource-specific exception hereunder. The request also shall identify all revenue sources (exclusive of any State Subsidies) relied upon in the Sell Offer to offset the claimed fixed costs, including, without limitation, long-term power supply contracts, tolling agreements, or tariffs on file with state regulatory agencies, and shall demonstrate that such offsetting revenues are consistent, over a reasonable time period identified by the Capacity Market Seller, with the standard prescribed above. In making such demonstration, the Capacity Market Seller may rely upon revenues projected by well-defined, forward-looking dispatch

models designed to generally follow the rules and processes of PJM's energy and ancillary services market. Such models must utilize publicly available forward prices for electricity and fuel in the PJM Region. Any modifications made to the forward electricity and fuel prices must similarly use publicly available data. Alternative forward prices for fuel may be used if accompanied by contractual evidence showing the applicability of the alternative fuel price. Where forward fuel markets are not available, publicly available estimates of future fuel prices may be used. The model shall also contain estimates of variable operation and maintenance expenses, which may include Maintenance Adders, and emissions allowance prices. Documentation for net revenues also must include, as available and applicable, plant performance and capability information, including heat rate, start-up times and costs, forced outage rates, planned outage schedules, maintenance cycle, fuel costs and other variable operations and maintenance expenses, capacity factors, and ancillary service capabilities. Any evaluation of net revenues should be consistent with Operating Agreement, Schedule 2, including, but not limited to, consideration of Fuel Costs, Maintenance Adders and Operating Costs, as applicable.

In the alternative, the Capacity Market Seller may request that the Market Monitoring Unit, subject to acceptance by the Office of Interconnection, produce a resource-specific Energy & Ancillary Services Offset value for such resource using the Forward Hourly LMPs, Forward Hourly Ancillary Service Prices and either Forward Daily Natural Gas Prices for combustion turbines and combined cycle resources, or forecasted fuel prices for other resource types, plus plant parameters and capability information specific to the dispatch of the resource, as outlined above. In addition to the documentation identified herein and in the PJM Manuals, the Capacity Market Seller shall provide any additional supporting information reasonably requested by the Office of the Interconnection or the Market Monitoring Unit to evaluate the Sell Offer. Requests for additional documentation will not extend the deadline by which the Office of the Interconnection or the Market Monitoring Unit must provide their determinations of the Minimum Offer Price Rule exception request.

The default assumptions for calculating resource-specific Cost of New Entry for Energy Efficiency Resources shall be based on, as supported by documentation provided by the Capacity Market Seller: the nominal-levelized annual cost to implement the Energy Efficiency program or to install the Energy Efficiency measure reflective of the useful life of the implemented Energy Efficiency equipment, and the offsetting savings associated with avoided wholesale energy costs and other claimed savings provided by implementing the Energy Efficiency program or installing the Energy Efficiency measure.

The default assumptions for calculating resource-specific Cost of New Entry for load-backed Demand Resources shall be based on, as supported by documentation provided by the Capacity Market Seller, program costs required for the resource to meet the capacity obligations of a Demand Resource, including all fixed operating and maintenance cost and weighted average cost of capital based on the actual cost of capital for the entity proposing to develop the Demand Resource.

For generation-backed Demand Resources, the determination of a resource-specific MOPR Floor Offer Price shall consider all costs associated with the generation unit supporting the Demand Resource, and demand charge management benefits at the retail level (as supported by

documentation at the end-use customer level) may also be considered as an additional offset to such costs. Supporting documentation (at the end-use customer level) may include, but is not limited to, historic end-use customer bills and associated analysis that identifies the annual retail avoided cost from the operation of such generation unit.

(C) For a Resource-Specific Exception for a Cleared Capacity Resource with State Subsidy that is a generation resource, the Capacity Market Seller shall submit a Sell Offer consistent with the unit-specific Market Seller Offer Cap process pursuant to Tariff, Attachment DD, section 6.8; except that the 10% uncertainty adder may not be included in the “Adjustment Factor.” In addition and notwithstanding the requirements of Tariff, Attachment DD, section 6.8, the Capacity Market Seller shall, at its election, include in its request for an exception under this subsection documentation to support projected energy and ancillary services markets revenues. Such a request shall identify all revenue sources (exclusive of any State Subsidies) relied upon in the Sell Offer to offset the claimed fixed costs, including, without limitation, long-term power supply contracts, tolling agreements, or tariffs on file with state regulatory agencies, and shall demonstrate that such offsetting revenues are consistent, over a reasonable time period identified by the Capacity Market Seller, with the standard prescribed above. In making such demonstration, the Capacity Market Seller may rely upon revenues projected by well-defined, forward-looking dispatch models designed to generally follow the rules and processes of PJM’s energy and ancillary services market. Such models must utilize publicly available forward prices for electricity and fuel in the PJM Region. Any modifications made to the forward electricity and fuel prices must similarly use publicly available data. Alternative forward prices for fuel may be used if accompanied by contractual evidence showing the applicability of the alternative fuel price. Where forward fuel markets are not available, publicly available estimates of future fuel sources may be used. The model shall also contain estimates of variable operation and maintenance expenses, which may include Maintenance Adders, and emissions allowance prices. Documentation for net revenues also must include, as available and applicable, plant performance and capability information, including heat rate, start-up times and costs, forced outage rates, planned outage schedules, maintenance cycle, fuel costs and other variable operations and maintenance expenses, capacity factors, and ancillary service capabilities. Any evaluation of revenues should include, but would not be not limited to, consideration of Fuel Costs, Maintenance Adders and Operating Costs, as applicable, pursuant to Operating Agreement, Schedule 2.

In the alternative, the Capacity Market Seller may request that the Market Monitoring Unit, subject to acceptance by the Office of Interconnection, produce a resource-specific Energy & Ancillary Services Offset value for such resource using the Forward Hourly LMPs, Forward Hourly Ancillary Service Prices and either Forward Daily Natural Gas Prices for combustion turbines and combined cycle resources, or forecasted fuel prices for other resource types, plus plant parameters and capability information specific to the dispatch of the resource, as outlined above. In addition to the documentation identified herein and in the PJM Manuals, the Capacity Market Seller shall provide any additional supporting information reasonably requested by the Office of the Interconnection or the Market Monitoring Unit to evaluate the Sell Offer. Requests for additional documentation will not extend the deadline by which the Office of the Interconnection or the Market Monitoring Unit must provide their determinations of the Minimum Offer Price Rule exception request.

The resource-specific MOPR Floor Offer Price for a Cleared Capacity Resource with State Subsidy that is a generation-backed Demand Resource will be determined based on all costs associated with the generation unit supporting the Demand Resource, and demand charge management benefits at the retail level (as supported by documentation at the end-use customer level) may also be considered as an additional offset to such costs. Supporting documentation (at the end-use customer level) may include but is not limited to, historic end-use customer bills and associated analysis that identifies the annual retail avoided cost from the operation of such generation unit.

(D) A Sell Offer evaluated at the resource-specific exception shall be permitted if the information provided reasonably demonstrates that the Sell Offer's competitive, cost-based, fixed, net cost of new entry is below the default MOPR Floor Offer Price, based on competitive cost advantages relative to the costs estimated by the default MOPR Floor Offer Price, including, without limitation, competitive cost advantages resulting from the Capacity Market Seller's business model, financial condition, tax status, access to capital or other similar conditions affecting the applicant's costs, or based on net revenues that are reasonably demonstrated hereunder to be higher than those estimated by the default MOPR Floor Offer Price. Capacity Market Sellers shall demonstrate that claimed cost advantages or sources of net revenue that are irregular or anomalous, that do not reflect arm's-length transactions, or that are not in the ordinary course of the Capacity Market Seller's business are consistent with the standards of this subsection. Failure to adequately support such costs or revenues so as to enable the Office of the Interconnection to make the determination required in this section will result in denial of a resource-specific exception by the Office of the Interconnection.

(E) The Capacity Market Seller must submit a sworn, notarized certification of a duly authorized officer, certifying that the officer has personal knowledge of the resource-specific exception request and that to the best of his/her knowledge and belief: (1) the information supplied to the Market Monitoring Unit and the Office of Interconnection to support its request for an exception is true and correct; (2) the Capacity Market Seller has disclosed all material facts relevant to the request for the exception; and (3) the request satisfies the criteria for the exception.

(F) The Market Monitoring Unit shall review, in an open and transparent manner with the Capacity Market Seller and the Office of the Interconnection, the information and documentation in support of the request and shall provide its findings whether the proposed Sell Offer is acceptable, in accordance with the standards and criteria hereunder, in writing, to the Capacity Market Seller and the Office of the Interconnection by no later than ninety (90) days prior to the commencement of the offer period for such auction. The Office of the Interconnection shall also review, in an open and transparent manner, all exception requests and documentation and shall provide in writing to the Capacity Market Seller, and the Market Monitoring Unit, its determination whether the requested Sell Offer is acceptable and if not it shall calculate and provide to such Capacity Market Seller, a minimum Sell Offer based on the data and documentation received, by no later than sixty-five (65) days prior to the commencement of the offer period for the relevant RPM Auction. After the Office of the Interconnection determines with the advice and input of Market Monitor, the acceptable minimum Sell Offer, the Capacity Market Seller shall notify the Market Monitoring Unit and the Office of the Interconnection, in writing, of the minimum level of Sell Offer to which it agrees to

commit by no later than sixty (60) days prior to the commencement of the offer period for the relevant RPM Auction, and in making such determination, the Capacity Market Seller may consider the applicable default MOPR Floor Offer Price and may select such default value if it is lower than the resource-specific determination. A Capacity Market Seller that is dissatisfied with any determination hereunder may seek any remedies available to it from FERC; provided, however, that the Office of the Interconnection will proceed with administration of the Tariff and market rules based on the lower of the applicable default MOPR Floor Offer Price and the resource-specific determination unless and until ordered to do otherwise by FERC.

(4) Competitive Exemption.

(A) A Capacity Resource with State Subsidy may be exempt from the Minimum Offer Price Rule under this subsection 5.14(h-1) in any RPM Auction if the Capacity Market Seller certifies to the Office of Interconnection, in accordance with the PJM Manuals, that the Capacity Market Seller of such Capacity Resource elects to forego receiving any State Subsidy for the applicable Delivery Year no later than thirty (30) days prior to the commencement of the offer period for the relevant RPM Auction. Notwithstanding the foregoing, the competitive exemption is not available to Capacity Resources with State Subsidy that (A) are owned or offered by Self-Supply Entities unless the Self-Supply Entity certifies, subject to PJM and Market Monitor review, that the Capacity Resource will not accept a State Subsidy, including any financial benefit that is the result of being owned by a regulated utility, such that retail ratepayers are held harmless, (B) are no longer entitled to receive a State Subsidy but are still considered a Capacity Resource with State Subsidy solely because they have not cleared an RPM Auction since last receiving a State Subsidy, or (C) are Jointly Owned Cross-Subsidized Capacity Resources or is the subject of a bilateral transaction (including but not limited to those reported pursuant to Tariff, Attachment DD, section 4.6) and not all Capacity Market Sellers of the supporting facility unanimously elect the competitive exemption and certify that no State Subsidy will be received associated with supporting the resource (unless the underlying Capacity Resource that is the subject of a bilateral transaction has not received, is not receiving, and is not entitled to receive any State Subsidy except those that are assigned (i.e., renewable energy credits) to the off-takers of a bilateral transaction and the Capacity Market Seller of such Capacity Resource can demonstrate and certify that the Capacity Market Seller's rights and obligations of its share of the capacity, energy, and assignable State Subsidy associated with the underlying Capacity Resource are in pro rata shares). A new Generation Capacity Resource that is a Capacity Resource with State Subsidy may elect the competitive exemption; however, in such instance, the applicable MOPR Floor Offer Price will be determined in accordance with the minimum offer price rules for certain new Generation Capacity Resources as provided in Tariff, Attachment DD, section 5.14(h), which apply the minimum offer price rule to the new Generation Capacity Resources located in an LDA where a separate VRR Curve is established as provided in Tariff, Attachment DD, section 5.14(h)(4).

(B) The Capacity Market Seller shall not receive a State Subsidy for any part of the relevant Delivery Year in which it elects a competitive exemption or certifies that it is not a Capacity Resource with State Subsidy.

(5) Self-Supply Entity exemption. A Capacity Resource that was owned, or bilaterally contracted, by a Self-Supply Entity on December 19, 2019, shall be exempt from the

Minimum Offer Price Rule if such Capacity Resource remains owned or bilaterally contracted by such Self-Supply Entity and satisfies at least one of the criteria specified below:

(A) has successfully cleared an RPM Auction prior to December 19, 2019;

(B) is the subject of an interconnection construction service agreement, interim interconnection service agreement, interconnection service agreement or wholesale market participation agreement executed by the interconnection customer on or before December 19, 2019; or

(C) is the subject of an unexecuted interconnection construction service agreement, interim interconnection service agreement, interconnection service agreement or wholesale market participation agreement filed by PJM with the Commission on or before December 19, 2019.

(6) Renewable Portfolio Standard Exemption. A Capacity Resource with State Subsidy shall be exempt from the Minimum Offer Price Rule if such Capacity Resource (1) receives or is entitled to receive State Subsidies through renewable energy credits or equivalent credits associated with a state-mandated or state-sponsored renewable portfolio standard (“RPS”) program or equivalent program as of December 19, 2019 and (2) satisfies at least one of the following criteria:

(A) has successfully cleared an RPM Auction prior to December 19, 2019;

(B) is the subject of an interconnection construction service agreement, interim interconnection service agreement, interconnection service agreement or wholesale market participation agreement executed by the interconnection customer on or before December 19, 2019; or

(C) is the subject of an unexecuted interconnection construction service agreement, interim interconnection service agreement, interconnection service agreement or wholesale market participation agreement filed by PJM with the Commission on or before December 19, 2019.

(7) Demand Resource and Energy Efficiency Resource Exemption.

(A) A Capacity Resource with State Subsidy that is Demand Resource or an Energy Efficiency Resource shall be exempt from the Minimum Offer Price Rule if such Capacity Resource satisfies at least one of the following criteria:

(i) has successfully cleared an RPM Auction prior to December 19, 2019. For purposes of this subsection (A), individual customer location registrations that participated as Demand Resource and cleared in an RPM Auction prior to December 19, 2019, and were submitted to PJM no later than 45 days prior to the BRA for the

2022/2023 Delivery Year shall be deemed eligible for the Demand Resource and Energy Efficiency Resource Exemption; or

(ii) has completed registration on or before December 19, 2019; or

(iii) is supported by a post-installation measurement and verification report for Energy Efficiency Resources approved by PJM on or before December 19, 2019 (calculated for each installation period, Zone and Sub-Zone by using the greater of the latest approved post-installation measurement and verification report prior to December 19, 2019 or the maximum MW cleared for a Delivery Year across all auctions conducted prior to December 19, 2019).

(B) All registered locations that qualify for the Demand Resource and Energy Efficiency Resource exemption shall continue to remain exempt even if the MW of nominated capacity increases between RPM Auctions unless any MW increase in the nominated capacity is due to an investment made for the sole purpose of increasing the curtailment capability of the location in the capacity market. In such case, the MW of increased capability will not be qualified for the Demand Resource and Energy Efficiency Resource exemption.

(8) Capacity Storage Resource Exemption. A Capacity Resource with State Subsidy that is a Capacity Storage Resource shall be exempt from the Minimum Offer Price Rule if such Capacity Storage Resource satisfies at least one of the following criteria:

(A) has successfully cleared an RPM Auction prior to December 19, 2019;

(B) is the subject of an interconnection construction service agreement, interim interconnection service agreement, interconnection service agreement or wholesale market participation agreement executed by the interconnection customer on or before December 19, 2019; or

(C) is the subject of an unexecuted interconnection construction service agreement, interim interconnection service agreement, interconnection service agreement or wholesale market participation agreement filed by PJM with the Commission on or before December 19, 2019.

(9) Procedures and Remedies in Cases of Suspected Fraud or Material Misrepresentation or Omissions in Connection with a Capacity Resource with State Subsidy. In the event the Office of the Interconnection, with advice and input from the Market Monitoring Unit, reasonably believes that a certification of a Capacity Resource's status contains fraudulent or material misrepresentations or omissions such that the Capacity Market Seller's Capacity Resource is a Capacity Resource with a State Subsidy (including whether the Capacity Resource is a Jointly Owned Cross-Subsidized Capacity Resource) or does not qualify for a competitive exemption or contains information that is inconsistent with the resource-specific exception, then:

(A) A Capacity Market Seller shall, within five (5) business days upon receipt of the request for additional information, provide any supporting information reasonably requested by the Office of the Interconnection or the Market Monitoring Unit to evaluate whether such Capacity Resource is a Capacity Resource with State Subsidy or whether the Capacity Market Seller is eligible for the competitive exemption. If the Office of the Interconnection determines that the Capacity Resource's status as a Capacity Resource with State Subsidy is different from that specified by the Capacity Market Seller or is not eligible for a competitive exemption pursuant to subsection (4) above, the Office of the Interconnection shall notify, in writing, the Capacity Market Seller of such determination by no later than sixty-five (65) days prior to the commencement of the offer period for the relevant RPM Auction. A Capacity Market Seller that is dissatisfied with any determination hereunder may seek any remedies available to it from FERC; provided, however, if the Office of Interconnection determines that the subject resource is a Capacity Resource with State Subsidy or is not eligible for a competitive exemption pursuant to subsection (4) above, such Capacity Resource shall be subject to the Minimum Offer Price Rule, unless and until ordered to do otherwise by FERC.

(B) if the Office of the Interconnection does not provide written notice of suspected fraudulent or material misrepresentation or omission at least sixty-five (65) days before the start of the relevant RPM Auction, then the Office of the Interconnection may file the certification that contains any alleged fraudulent or material misrepresentation or omission with FERC. In such event, if the Office of Interconnection determines that a resource is a Capacity Resource with State Subsidy that is subject to the Minimum Offer Price Rule, the Office of the Interconnection will proceed with administration of the Tariff and market rules on that basis unless and until ordered to do otherwise by FERC. The Office of the Interconnection shall implement any remedies ordered by FERC; and

(C) prior to applying the Minimum Offer Price Rule, the Office of the Interconnection, with advice and input of the Market Monitoring Unit, shall notify the affected Capacity Market Seller and, to the extent practicable, provide the Capacity Market Seller an opportunity to explain the alleged fraudulent or material misrepresentation or omission. Any filing to FERC under this provision shall seek fast track treatment and neither the name nor any identifying characteristics of the Capacity Market Seller or the resource shall be publicly revealed, but otherwise the filing shall be public. The Capacity Market Seller may submit a revised certification for that Capacity Resource for subsequent RPM Auctions, including RPM Auctions held during the pendency of the FERC proceeding. In the event that the Capacity Market Seller is cleared by FERC from such allegations of fraudulent or material misrepresentations or omissions then the certification shall be restored to the extent and in the manner permitted by FERC. The remedies required by this subsection to be requested in any filing to FERC shall not be exclusive of any other remedies or penalties that may be pursued against the Capacity Market Seller.

h-2) Minimum Offer Price Rule Effective with the 2023/2024 Delivery Year

(1) **Certification Requirement.**

(A) By no later than one hundred and fifty (150) days prior to the commencement of the offer period of any RPM Auction conducted for the 2024/2025 Delivery

Year and all subsequent Delivery Years, and by the date posted on the PJM website for the 2023/2024 Delivery Year, each Capacity Market Seller must certify to the Office of Interconnection for each Generation Capacity Resource and each applicable DER Capacity Aggregation Resource the Capacity Market Seller intends to offer into the RPM Auction, in accordance with the PJM Manuals:

(i) whether or not the Generation Capacity Resource is receiving or expected to receive Conditioned State Support under any legislative or other governmental policy or program that has been enacted or effective at the time of the certification; and

(ii) whether or not the Capacity Market Seller acknowledges and understands that the Exercise of Buyer-Side Market Power is not permitted in RPM Auctions, and does not intend to submit a Sell Offer for their Generation Capacity Resource as an Exercise of Buyer-Side Market Power.

(B) All Capacity Market Sellers shall be responsible for the accuracy of each certification and its conformance with the Tariff irrespective of any guidance developed by the Office of the Interconnection and the Market Monitoring Unit.

(C) Once a Capacity Market Seller has certified whether or not a Generation Capacity Resource is receiving or expected to receive Conditioned State Support, the certification requirements in subsection (A)(i) above do not apply and the status of such Generation Capacity Resource will remain unchanged unless and until the Capacity Market Seller (or a subsequent Capacity Market Seller of the underlying resource) that owns or controls such Generation Capacity Resource provides a certification of a change in such status, the Office of the Interconnection removes such status, or by FERC order. All Capacity Market Sellers shall have an ongoing obligation to certify to the Office of Interconnection and the Market Monitoring Unit a Generation Capacity Resource's material change in status regarding whether such resource is receiving or expected to receive Conditioned State Support within 30 days of such material change. Nothing in this provision shall supersede the requirement for all Capacity Market Sellers to certify to the Office of Interconnection pursuant to Tariff, Attachment DD, section 5.14(h-2)(1)(A)(ii).

(2) **Determining Generation Capacity Resources Subject to the Minimum Offer Price Rule.**

(A) Conditioned State Support.

(i) If the Office of the Interconnection reasonably believes a government policy or program would provide Conditioned State Support or a Capacity Market Seller certifies that it is receiving or is expected to receive Conditioned State Support associated with a given Generation Capacity Resource, the Office of Interconnection shall submit, pursuant to section 205 of the Federal Power Act, 16 U.S.C. § 824d, a filing at FERC indicating the Office of the Interconnection's intent to classify the government policy or program from which that support is derived as Conditioned State Support (and adding such policy or program to the list in Tariff, Attachment DD-3) and apply the Minimum Offer Price Rule to each Generation Capacity Resource reasonably expected to receive such Conditioned State Support. If FERC has already

ruled on whether a specific government program or policy constitutes Conditioned State Support and such policy or program is listed in Tariff, Attachment DD-3, the Office of the Interconnection shall not be required to submit the filing described in the preceding sentence.

(ii) Government policies or programs that do not provide payments or other financial benefit outside of PJM markets and do not provide payment or other financial benefit in exchange for the sale of a FERC-jurisdictional product conditioned on clearing in any RPM Auction do not constitute Conditioned State Support. Examples of such government policies that do not constitute Conditioned State Support may include, but are not limited to: policies designed to procure, incent, or require environmental attributes, whether bundled or unbundled (e.g., Renewable Energy Credits, Zero Emission Credits; Regional Greenhouse Gas Initiative); economic development programs and policies; tax incentives; state retail default service auctions; policies or programs that provide incentives related to fuel supplies; any contract, legally enforceable obligation, or rate pursuant to the Public Utility Regulatory Policies Act or any other state-administered federal regulatory program (e.g., Cross-State Air Pollution Rule). In addition, Conditioned State Support shall not be determined solely based on the business model of the Capacity Market Seller, such that the fact that a Self-Supply Entity is the Capacity Market Seller, for example, is not a basis for determining Conditioned State Support.

(iii) Upon FERC acceptance (whether by order or operation of law) that a government policy or program or contract with a state entity constitutes Conditioned State Support, a Generation Capacity Resource for which a Capacity Market Seller certifies pursuant to Tariff, Attachment DD, section 5.14(h-2)(1)(A)(i) that it is receiving Conditioned State Support or is reasonably expected to receive such Conditioned State Support, as identified by the Office of the Interconnection, with the advice and input of the Market Monitoring Unit, will be subject to the provisions of the Minimum Offer Price Rule.

(B) Exercise of Buyer-Side Market Power

(i) If a Capacity Market Seller does not certify that it acknowledges the prohibition of the Exercise of Buyer Side Market Power and the Capacity Market Seller intends to exercise Buyer-Side Market Power for this Generation Capacity Resource, then the underlying Capacity Resource shall be subject to the MOPR pursuant to Tariff, Attachment DD, section 5.14(h-2)(1)(A)(i). If the Office of the Interconnection and/or the Market Monitoring Unit reasonably suspects that a certification submitted under Tariff, Attachment DD, section 5.14(h-2)(1)(A)(ii) contains fraudulent or material misrepresentations such that the Capacity Market Seller's Generation Capacity Resource may be the subject of a Sell Offer that would be an Exercise of Buyer-Side Market Power or otherwise reasonably suspects that a Generation Capacity Resource may be the subject of a Sell Offer that would be an Exercise of Buyer-Side Market Power, the Office of the Interconnection and/or the Market Monitoring Unit shall initiate a fact-specific review into the facts and circumstances regarding the Generation Capacity Resource and whether the Capacity Market Seller has the ability and incentive to exercise Buyer-Side Market Power with respect to such Generation Capacity Resource. During such fact-specific review, the Capacity Market Seller will have the opportunity to explain and justify why a Sell Offer for the Generation Capacity Resource would not be an Exercise of Buyer-Side Market Power. The Office of the Interconnection and/or the Market Monitoring Unit shall notify the Capacity Market Seller of the bases for inquiry and

initiation of review at least 135 days in advance of the RPM Auction conducted for the 2024/2025 Delivery Year and all subsequent Delivery Years, and by the date posted on the PJM website for the 2023/2024 Delivery Year.

In initiating a review, the Office of the Interconnection and/or the Market Monitoring Unit shall provide the affected Capacity Market Seller, in writing, the basis for its inquiry, including, but not limited to, the Generation Capacity Resource(s), and the purported beneficiary of any price suppression. The Office of the Interconnection and/or the Market Monitoring Unit may request from the Capacity Market Seller additional information and documentation that is reasonably related to the basis for its inquiry, provided that, the Office of the Interconnection and the Market Monitoring Unit shall confer with the Capacity Market Seller in advance of any such requests. The Capacity Market Seller shall provide any additional supporting information and documentation requested by the Office of the Interconnection and/or the Market Monitoring Unit, and any other information and documentation the Capacity Market Seller believes may justify the conduct or action in question as not representing an Exercise of Buyer-Side Market Power, within 15 days or other such timeline as agreed to in writing by the Office of the Interconnection, Market Monitoring Unit and Capacity Market Seller.

The fact-specific review will determine, as necessary, whether a Capacity Market Seller has the ability and incentive to submit a Sell Offer for the Generation Capacity Resource that could be an Exercise of Buyer-Side Market Power, as follows:

(a) To determine whether a Capacity Market Seller may have Buyer Side Market Power associated with the Generation Capacity Resource for the applicable RPM Auction, the Office of the Interconnection and/or the Market Monitoring Unit will perform ex-ante testing to determine the extent to which a shift in the supply curve by a number of megawatts equal to the size of the Generation Capacity Resource would affect RPM Auction clearing prices, where such analysis would reflect expected supply and demand conditions in the region of the market clearing prices and quantities in recent RPM Auctions, would reflect whether the relevant LDAs have been constrained in recent RPM Auctions, and would reflect reasonably expected material changes in an LDA including the modeling of the LDA and expected changes in supply and demand for the applicable Delivery Year. To the extent the foregoing analyses show that the Generation Capacity Resource would have a material effect on RPM Auction clearing prices, the Capacity Market Seller shall be deemed to have the ability to exercise Buyer Side Market Power.

(b) To determine whether the Capacity Market Seller's submission of a Sell Offer at any given price level for such Generation Capacity Resource may constitute an Exercise of Buyer-Side Market Power, the Office of the Interconnection and/or the Market Monitoring Unit shall perform ex-ante testing to determine whether, given the ability to suppress prices identified in the relevant LDAs and the PJM Region, such price suppression would be economically beneficial to the Capacity Market Seller by comparing its expected cost with its economic benefit, and where the expected cost shall reflect the excess economic costs of the resource above expected market revenues, and the expected benefit shall reflect the expected cost savings to the expected net short position (based on estimated capacity obligations and owned and contracted capacity measured on a three-year average basis for the three years starting with the first day of the Delivery Year associated with the RPM Auction in which the

Generation Capacity Resource is being offered) in the relevant LDAs and RTO multiplied by the price change resulting from offering the resource uneconomically. In this analysis, the Office of Interconnection and/or the Market Monitoring Unit shall consider whether any capacity obligations in which the capacity costs based on RPM Auction clearing prices are directly passed through to load and consider whether the price of any contracted capacity passes through RPM Auction clearing prices. If the expected benefit outweighs the expected cost, the Capacity Market Seller shall be deemed to have the incentive to exercise Buyer Side Market Power. If a resource offer can be justified, economically or otherwise, without consideration of the benefit to the Capacity Market Seller of the suppressed prices, the Capacity Market Seller shall be deemed not to have the incentive to exercise Buyer Side Market Power with respect to that resource. Out-of-market compensation (such as from renewable energy credits and zero emission credits) that are not tied to either Conditioned State Support or a bilateral contract that directs the submission of an offer to lower market clearing prices may be used to support the economics of the resource under review.

(ii) The following nonexhaustive list of circumstances would preclude an inquiry into or determination regarding an Exercise of Buyer-Side Market Power in the course of a review initiated pursuant to subsection (i) above: (a) the Generation Capacity Resource is a merchant generation supply resources that is not contracted to an entity with a Load Interest; (b) the Generation Capacity Resource is acquired by or under the contractual control of the Capacity Market Seller through a competitive and non-discriminatory procurement process open to new and existing resources; or (c) the Generation Capacity Resource is owned by or bilaterally contracted to a Self-Supply Seller and such resource is demonstrated as consistent with or included in the Self-Supply Seller's long-range resource plan (e.g., a long-range hedging plan) that is approved or otherwise reviewed and accepted by the RERRA, provided that any such plan approval or contracts do not direct the submission of an uneconomic offer to deliberately lower market clearing prices or for the Capacity Market Seller to otherwise perform an Exercise of Buyer-Side Market Power. In addition, to the extent a Generation Capacity Resource may receive compensation in support of characteristics aligned with well-demonstrated customer preferences, such compensation shall not, in and of itself, be a basis for the determination of Buyer-Side Market Power.

(iii) Based on the foregoing tests and fact-specific review, including the facts and circumstances of the Generation Capacity Resource, the Office of the Interconnection, with the advice and input of the Market Monitoring Unit, shall determine whether a Generation Capacity Resource may be the subject of a Sell Offer that would be an Exercise of Buyer-Side Market Power. If the Office of the Interconnection, with the advice and input of the Market Monitoring Unit, determines that a Generation Capacity Resource may be the subject of a Sell Offer that would be an Exercise of Buyer-Side Market Power or the Capacity Market Seller certifies that it intends to exercise Buyer-Side Market Power, then such resource will be subject to the provisions of the Minimum Offer Price Rule. If the resource will be subject to the provisions of the Minimum Offer Price Rule, the Office of the Interconnection shall include in the notice a written explanation for such determination. A Capacity Market Seller that is dissatisfied with the Office of the Interconnection's determination of whether a given Generation Capacity Resource is subject to the Minimum Offer Price Rule may seek any remedies available to it from FERC; provided, however, that the Office of the Interconnection

will proceed with administration of the Tariff and market rules based on its determination hereunder unless FERC by order directs otherwise.

(C) Failure to timely submit a certification. Any Generation Capacity Resource for which a Capacity Market Seller has not timely submitted the certifications required under Tariff, Attachment DD, section 5.14(h-2)(1) shall be subject to the provisions of the Minimum Offer Price Rule. Notwithstanding the foregoing, if a Capacity Market Seller submits a timely unit-specific exception pursuant to Tariff, Attachment DD, section 5.14(h-2)(4) for the relevant Delivery Year, and PJM approves the unit-specific MOPR Floor Offer Price, then the Capacity Market Seller may use such floor price regardless of whether it timely submitted the foregoing certifications.

(3) **Minimum Offer Price Rule.** Any Sell Offer for a Generation Capacity Resource that is subject to the provisions of the Minimum Offer Price Rule pursuant to Tariff, Attachment DD, section 5.14(h-2)(2) shall have an offer price no lower than the applicable MOPR Floor Offer Price, unless the applicable MOPR Floor Offer Price is higher than the applicable Market Seller Offer Cap, in which circumstance the Capacity Market Seller, to participate in an RPM Auction, must request a unit-specific value determined in accordance with the unit-specific MOPR Floor Offer Price process, and the unit-specific MOPR Floor Offer Price shall establish the offer level for such resource.

(A) **New Entry MOPR Floor Offer Price.** For a Generation Capacity Resource that is subject to the provisions of the Minimum Offer Price Rule pursuant to Tariff, Attachment DD, section 5.14(h-2)(2) and for which a Sell Offer based on that resource, or any uprate of such Generation Capacity Resource participating in the generation interconnection process under Tariff, Part IV, Subpart A, that has not cleared an RPM Auction for any Delivery Year, the applicable MOPR Floor Offer Price, based on the net cost of new entry for the resource type, shall be, at the election of the Capacity Market Seller, (i) the unit-specific value determined in accordance with the unit-specific MOPR Floor Offer Price process in Tariff, Attachment DD, section 5.14(h-2)(4) below or (ii) if applicable, the default New Entry MOPR Floor Offer Price for the applicable resource based on the gross cost of new entry values shown in the table below, as adjusted for Delivery Years subsequent to the 2022/2023 or 2026/2027 Delivery Year, as applicable, net of estimated net energy and ancillary service revenues for the resource type and Zone in which the resource is located.

Resource Type	Through the 2025/2026 Delivery Years: Gross Cost of New Entry (2022/2023 \$/ MW-day) (Nameplate)	For the 2026/2027 Delivery Year and Subsequent Delivery Years: Gross Cost of New Entry (2026/2027 \$/ MW-day) (Nameplate)
Nuclear	\$2,000	\$2,568
Coal	\$1,068	\$1,480
Combined Cycle	\$320	\$540
Combustion Turbine	\$294	\$427
Fixed Solar PV	\$271	\$298

Tracking Solar PV	\$290	\$321
Onshore Wind	\$420	\$438
Offshore Wind	\$1,155	\$1,351
Battery Energy Storage	\$532	\$502

The gross cost of new entry values in the table above are expressed in dollars per MW-day in terms of nameplate megawatts. For purposes of submitting a Sell Offer, the gross cost of new entry values must be converted to a net cost of new entry by subtracting the estimated net energy and ancillary service revenues, as determined below, from the gross cost of new entry. However, the resultant net cost of new entry of the battery energy storage resource type in the table above must be multiplied by 2.5. The net cost of new entry based on nameplate capacity is then converted to Unforced Capacity (“UCAP”) MW-day. For the 2023/2024 and 2024/2025 Delivery Years, the net cost of new entry is adjusted using: for battery storage, wind, and solar resource types, the applicable ELCC Class Rating; or for all other generation resource types, the applicable class average EFORD. For the 2025/2026 Delivery Year and subsequent Delivery Years, the net cost of new entry is adjusted by the applicable class average Accredited UCAP Factor. The resulting default New Entry MOPR Floor Offer price in UCAP/MW-day terms shall be applied to each MW offered for the Capacity Resource regardless of the actual Sell Offer quantity and regardless of whether the Sell Offer is for a Seasonal Capacity Performance Resource.

Commencing with the Base Residual Auction for the 2023/2024 Delivery Year, the Office of the Interconnection shall adjust the default gross costs of new entry in the table above and post the preliminary estimates of the adjusted applicable default New Entry MOPR Floor Offer Prices on its website, by no later than one hundred fifty (150) days prior to the commencement of the offer period for each Base Residual Auction. To determine the adjusted applicable default New Entry MOPR Floor Offer Prices for all resource types, the Office of the Interconnection shall adjust the gross costs of new entry utilizing, for combustion turbine and combined cycle resource types, the same Applicable BLS Composite Index applied for such Delivery Year to adjust the CONE value used to determine the Variable Resource Requirement Curve, in accordance with Tariff, Attachment DD, section 5.10(a)(iv), and for all other resource types, the “BLS Producer Price Index Turbines and Turbine Generator Sets” component of the Applicable BLS Composite Index used to determine the Variable Resource Requirement Curve shall be replaced with the “BLS Producer Price Index Final Demand, Goods Less Food & Energy, Private Capital Equipment” when adjusting the gross costs of new entry. The resultant value shall then be then adjusted further by a factor of 1.022 for nuclear, coal, combustion turbine, and combine cycle resource types or 1.01 for solar, wind, and storage resource types to reflect the annual decline in bonus depreciation scheduled under federal corporate tax law. Updated estimates of the net energy and ancillary service revenues for each default resource type and applicable Zone, which shall include, but are not limited to, consideration of Fuel Costs, Maintenance Adders and Operating Costs, as applicable, pursuant to Operating Agreement, Schedule 2 shall then be subtracted from the adjusted gross costs of new entry to determine the adjusted New Entry MOPR Floor Offer Price. The net energy and ancillary services revenue is equal to the average of the annual net revenues of the three most recent calendar years preceding the Base Residual Auction, where such annual net revenues shall be determined in accordance with the following and the PJM Manuals:

(i) for nuclear resource type, the net energy and ancillary services revenue estimate shall be determined by the gross energy market revenue determined by the product of [average annual zonal day-ahead LMP, times 8,760 hours times the annual average equivalent availability factor of all PJM nuclear resources] minus the total annual cost to produce energy determined by the product of [8,760 hours times the annual average equivalent availability factor of all PJM nuclear resources times \$9.02/MWh for a single unit plant or \$7.66/MWh for a multi-unit plant] where these hourly cost rates include fuel costs and variable operation and maintenance expenses, inclusive of Maintenance Adder costs, plus an ancillary services revenue of \$3,350/MW-year;

(ii) for coal resource type, the net energy and ancillary services revenue estimate shall be determined by a simulated dispatch of a 650 MW coal unit (with heat rate of 8,638 BTU/kWh and variable operations and maintenance variable operation and maintenance expenses, inclusive of Maintenance Adder costs, of \$9.50/MWh) using applicable coal prices, as set forth in the PJM Manuals, plus reactive services revenue of \$3,350/MW-year. The unit is committed day-ahead in profitable blocks of at least eight hours, and then committed in real-time for profitable hours if not already committed day ahead;

(iii) for combustion turbine resource type, the net energy and ancillary services revenue estimate shall be determined in a manner consistent with the methodology described in Tariff, Attachment DD, section 5.10(a)(v)(B) for the Reference Resource combustion turbine.

(iv) for combined cycle resource type, the net energy and ancillary services revenue estimate shall be determined in the same manner as that prescribed for a combustion turbine resource type, except that the heat rate assumed for the combined cycle resource shall be 6,553 BTU/kwh, the variable operations and maintenance expenses for such resource, inclusive of Maintenance Adder costs, shall be \$2.11/MWh, the Peak-Hour Dispatch scenario for both the Day-Ahead and Real-Time Energy Markets shall be modified to dispatch the CC resource continuously during the full peak-hour period, as described in Peak-Hour Dispatch, for each such period that the resource is economic (using the test set forth in such section), rather than only during the four-hour blocks within such period that such resource is economic, and the ancillary services revenue shall be \$3,350/MW-year.

(v) for solar PV resource type, the net energy and ancillary services revenue estimate shall be determined using a solar resource model that provides the average MW output level, expressed as a percentage of nameplate rating, by hour of day (for each of the 24-hours of a day) and by calendar month (for each of the twelve months of a year). The annual net energy market revenues are determined by multiplying the solar output level of each hour by the real-time zonal LMP applicable to such hour with this product summed across all of the hours of an annual period, plus an ancillary services revenue of \$3,350/MW-year. Two separate solar resource models are used, one model for a fixed panel resource and a second model for a tracking panel resource;

(vi) for onshore wind resource type, the net energy and ancillary services revenue estimate shall be determined using a wind resource model that provides the

average MW output level, expressed as a percentage of nameplate rating, by hour of day (for each of the 24-hours of a day) and by calendar month (for each of the twelve months of a year). The annual energy market revenues are determined by multiplying the wind output level of each hour by the real-time zonal LMP applicable to such hour with this product summed across all of the hours of an annual period, plus an ancillary services revenue of \$3,350/MW-year;

(vii) for offshore wind resource type, the net energy and ancillary services revenue estimate shall be the product of [the average annual zonal real-time LMP times 8,760 hours times an assumed annual capacity factor of 45%], plus an ancillary services revenue of \$3,350/MW-year; and

(viii) for Capacity Storage Resource, the net energy and ancillary services revenue estimate shall be estimated by a simulated dispatch against historical real-time zonal LMPs where the resource is assumed to be dispatched for the four hours of highest LMP of a daily twenty-four hour period if the average LMP of these four hours exceeds 120% of the average LMP of the four lowest LMP hours of the same twenty-four hour period. The net energy market revenues will be determined by the product of [hourly output of 1 MW times the hourly LMP for each hour of assumed discharging] minus the product of [hourly consumption of 1.2 MW times the hourly LMP for each hour of assumed charging] with this net value summed across all of the hours of an annual period, plus an ancillary services revenue of \$3,350/MW-year. An 83.3% efficiency of the battery energy storage resource is reflected by assuming each 1.0 MW of discharge requires 1.2 MW of charge.

Beginning with the Delivery Year that commences June 1, 2022, and continuing no later than for every fourth Delivery Year thereafter, the Office of the Interconnection shall review the default gross cost of new entry values. Such review may include, without limitation, analyses of the fixed development, construction, operation, and maintenance costs for such resource types. Based on the results of such review, PJM shall propose either to modify or retain the default gross cost of new entry values stated in the table above. The Office of the Interconnection shall post publicly and solicit stakeholder comment regarding the proposal. If, as a result of this process, changes to the default gross cost of new entry values are proposed, the Office of the Interconnection shall file such proposed modifications with the FERC by October 1, prior to the conduct of the Base Residual Auction for the first Delivery Year in which the new values would be applied.

Any Generation Capacity Resource that is subject to the provisions of the Minimum Offer Price Rule pursuant to Tariff, Attachment DD, section 5.14(h-2)(2) and that has not previously cleared an RPM Auction for that or any prior Delivery Year and for which there is no default MOPR Floor Offer Price provided in accordance with this section, including hybrid resources, must seek a unit-specific value determined in accordance with the unit-specific MOPR Floor Offer Price process below to participate in an RPM Auction. Failure to obtain a unit-specific MOPR Floor Offer Price will result in the Office of the Interconnection rejecting any Sell Offer based on such resource for the relevant RPM Auction.

(B) Cleared MOPR Floor Offer Prices.

For a Generation Capacity Resource that is subject to the provisions of the Minimum Offer Price Rule pursuant to Tariff, Attachment DD, section 5.14(h-2)(2) and for which a Sell Offer based on that resource has previously cleared an RPM Auction for any Delivery Year, the applicable Cleared MOPR Floor Offer Price shall be, at the election of the Capacity Market Seller, (a) based on the unit-specific MOPR Floor Offer Price, as determined in accordance with Tariff, Attachment DD, section 5.14(h-2)(4) below, or (b) if available, the default Avoidable Cost Rate for the applicable resource type shown in the table below, as adjusted for Delivery Years subsequent for the 2022/2023 or 2026/2027 Delivery Year, as applicable, to reflect changes in avoidable costs, net of projected PJM market revenues equal to the resource’s historical net energy and ancillary service revenues consistent with Tariff, Attachment DD, section 6.8(d).

Existing Resource Type	Through the 2025/2026 Delivery Years: Default Gross ACR (2022/2023) (\$/MW-day) (Nameplate)	For the 2026/2027 Delivery Year and Subsequent Delivery Years: Default Gross ACR (2026/2027) (\$/ MW-day) Nameplate
Nuclear - single	\$697	\$591
Nuclear - dual	\$445	\$537
Coal	\$80	\$94
Combined Cycle	\$56	\$113
Combustion Turbine	\$50	\$52
Steam Oil & Gas	NA	\$64
Solar PV (fixed and tracking)	\$40	\$70
Wind Onshore	\$83	\$147

The default gross Avoidable Cost Rate values in the table above are expressed in dollars per MW-day in terms of nameplate megawatts. Through the 2024/2025 Delivery Year, for purposes of submitting a Sell Offer, the default Avoidable Cost Rate values must be net of estimated net energy and ancillary service revenues, and then the difference is ultimately converted to Unforced Capacity (“UCAP”) MW-day, where the UCAP MW-day value will be determined based on the resource-specific Accredited UCAP value for solar and wind resource types (with appropriate time-weighting for any winter Capacity Interconnection Rights) or the resource-specific EFORd for all other generation resource types. Effective for the 2025/2026 Delivery Year and subsequent Delivery Years, for purposes of submitting a Sell Offer, the default Avoidable Cost Rate values must be net of estimated net energy and ancillary service revenues, and then the difference is ultimately converted to Unforced Capacity (“UCAP”) MW-day, based on the resource’s Accredited UCAP Factor. The resulting default Cleared MOPR Floor Offer price in UCAP/MW-day terms shall be applied to each MW offered for the Capacity Resource regardless of actual Sell Offer quantity and regardless of whether the Sell Offer is for a Seasonal Capacity Performance Resource.

Commencing with the Base Residual Auction for the 2023/2024 Delivery Year, the Office of the Interconnection shall adjust the default Avoidable Cost Rates in the table above, and post the adjusted values on its website, by no later than one hundred fifty (150) days prior to the commencement of the offer period for each Base Residual Auction. To determine the adjusted Avoidable Cost Rates, the Office of the Interconnection shall utilize the 10-year average Handy-Whitman Index in order to adjust the Gross ACR values to account for expected inflation. Updated estimates of the net energy and ancillary service revenues shall be determined on a resource-specific basis in accordance with Tariff, Attachment DD, section 6.8(d) and the PJM Manuals.

Beginning with the Delivery Year that commences June 1, 2022, and continuing no later than for every fourth Delivery Year thereafter, the Office of the Interconnection shall review the default Avoidable Cost Rates for Capacity Resource that is subject to the provisions of the Minimum Offer Price Rule pursuant to Tariff, Attachment DD, section 5.14(h-2)(2) that have cleared in an RPM Auction for any Delivery Year. Such review may include, without limitation, analyses of the avoidable costs of such resource types. Based on the results of such review, PJM shall propose either to modify or retain the default Avoidable Cost Rate values stated in the table above. The Office of the Interconnection shall post publicly and solicit stakeholder comment regarding the proposal. If, as a result of this process, changes to the default Avoidable Cost Rate values are proposed, the Office of the Interconnection shall file such proposed modifications with the FERC by October 1, prior to the conduct of the Base Residual Auction for the first Delivery Year in which the new values would be applied.

Any Generation Capacity Resource that is subject to the provisions of the Minimum Offer Price Rule pursuant to Tariff, Attachment DD, section 5.14(h-2)(2) and that has previously cleared an RPM Auction for any Delivery Year and for which there is no default MOPR Floor Offer Price provided in accordance with this section, including hybrid resources, must seek a unit-specific value determined in accordance with the unit-specific MOPR Floor Offer Price process below to participate in an RPM Auction. Failure to obtain a unit-specific MOPR Floor Offer Price will result in the Office of the Interconnection rejecting any Sell Offer based on such resource.

(4) **Unit-Specific Exception.** A Capacity Market Seller intending to submit a Sell Offer in any RPM Auction for a Generation Capacity Resource that is subject to the provisions of the Minimum Offer Price Rule below the applicable default MOPR Floor Offer Price may, at its election, submit a request for a unit-specific exception for such Capacity Resource. A Capacity Market Seller intending to submit a Sell Offer in any RPM Auction for a Generation Capacity Resource that is under a fact-specific review for Buyer-Side Market Power pursuant to Tariff, Attachment DD, section 5.14(h-2)(2)(B)(ii), and where the offer is below the applicable default MOPR Floor Offer Price may, at its election, submit a request for a unit-specific exception for such Generation Capacity Resource. A Sell Offer below the default MOPR Floor Offer Price, but no lower than the unit-specific MOPR Floor Offer Price, shall be permitted if the Capacity Market Seller obtains approval from the Office of the Interconnection or the Commission, prior to the RPM Auction in which it seeks to submit the Sell Offer. The unit-specific MOPR Floor Offer Price determined under this provision shall be based on the unit-specific Accredited UCAP value for battery energy storage resource types and for solar and wind generation resource types (appropriately time-weighted for any winter Capacity Interconnection Rights) or on the unit-specific EFORd for all other generation resource types, and shall be

applied to each MW offered by the resource regardless of actual Sell Offer quantity and regardless of whether the Sell Offer is for a Seasonal Capacity Performance Resource. Such Sell Offer is permissible because it is consistent with the competitive, cost-based, fixed, net cost of the resource. All supporting data must be provided for all requests. The following requirements shall apply to requests for such determinations:

(A) The Capacity Market Seller shall submit a written request with all of the required documentation as described below and in the PJM Manuals. For such purpose, the Capacity Market Seller shall submit the unit-specific exception request to the Office of the Interconnection and the Market Monitoring Unit no later than one hundred twenty (120) days prior to the commencement of the offer period for the RPM Auction in which it seeks to submit its Sell Offer. For such purpose, the Office of the Interconnection shall post, by no later than one hundred fifty (150) days prior to the commencement of the offer period for the relevant RPM Auction, a preliminary estimate for the relevant Delivery Year of the default Minimum Floor Offer Prices, determined pursuant to Tariff, Attachment DD, sections 5.14(h-2)(3)(A) and (B). If the final applicable default Minimum Floor Offer Price subsequently established for the relevant Delivery Year is less than the Sell Offer, the Sell Offer shall be permitted and no exception shall be required.

(B) For a unit-specific exception for a Generation Capacity Resource that is subject to the provisions of the Minimum Offer Price Rule pursuant to Tariff, Attachment DD, section 5.14(h-2)(2) and that has never cleared an RPM Auction, the Capacity Market Seller must include in its request for an exception under this subsection documentation to support the fixed development, construction, operation, and maintenance costs of the Capacity Resource, as well as estimates of offsetting net revenues.

The financial modeling assumptions for calculating Cost of New Entry for Generation Capacity Resources shall be: (i) nominal levelization of gross costs, (ii) asset life of twenty years, (iii) no residual value, (iv) all project costs included with no sunk costs excluded, (v) use first year revenues (which may include revenues from the sale of renewable energy credits or any other revenues outside of PJM markets that do not constitute Conditioned State Support), and (vi) weighted average cost of capital based on the actual cost of capital for the entity proposing to build the Capacity Resource. Notwithstanding the foregoing, a Capacity Market Seller that seeks to utilize an asset life other than twenty years (but no greater than 35 years) shall provide evidence to support the use of a different asset life, including but not limited to, the asset life term for such resource as utilized in the Capacity Market Seller's financial accounting (e.g., independently audited financial statements), or project financing documents for the resource or evidence of actual costs or financing assumptions of recent comparable projects to the extent the seller has not executed project financing for the resource (e.g., independent project engineer opinion or manufacturer's performance guarantee), or opinions of third-party experts regarding the reasonableness of the financing assumptions used for the project itself or in comparable projects. Capacity Market Sellers may also rely on evidence presented in federal filings, such as its FERC Form No. 1 or an SEC Form 10-K, to demonstrate an asset life other than 20 years of similar asset projects.

Supporting documentation for project costs may include, as applicable and available, a complete project description; environmental permits; vendor quotes for plant or equipment; evidence of

actual costs of recent comparable projects; bases for electric and gas interconnection costs and any cost contingencies; bases and support for property taxes, insurance, operations and maintenance (“O&M”) contractor costs, and other fixed O&M and administrative or general costs; financing documents for construction-period and permanent financing or evidence of recent debt costs of the seller for comparable investments; and the bases and support for the claimed capitalization ratio, rate of return, cost-recovery period, inflation rate, or other parameters used in financial modeling. In addition to the certification, signed by an officer of the Capacity Market Seller, the request must include a certification that the claimed costs accurately reflect, in all material respects, the seller’s reasonably expected costs of new entry and that the request satisfies all standards for a unit-specific exception hereunder. The request also shall identify all revenue sources (exclusive of any Conditioned State Support or bilateral contracts that direct submission of an offer to lower RPM Auction clearing prices) relied upon in the Sell Offer to offset the claimed fixed costs, including, without limitation, long-term power supply contracts, tolling agreements, evidence of compensation outside the PJM market not tied to Conditioned State Support or a bilateral contract that directs submission of an offer to lower RPM Auction clearing prices, or tariffs on file with state regulatory agencies, and shall demonstrate that such offsetting revenues are consistent, over a reasonable time period identified by the Capacity Market Seller, with the standard prescribed above. In making such demonstration, the Capacity Market Seller may rely upon forecasts of competitive electricity prices in the PJM Region based on well-defined models that include fully documented estimates of future fuel prices, variable operation and maintenance expenses, which may include Maintenance Adders, energy demand, emissions allowance prices, and expected environmental or energy policies that affect the seller’s forecast of electricity prices in such region, employing input data from sources readily available to the public. Documentation for net revenues also may include, as available and applicable, plant performance and capability information, including heat rate, start-up times and costs, forced outage rates, planned outage schedules, maintenance cycle, fuel costs and other variable operations and maintenance expenses, and ancillary service capabilities. Any evaluation of net revenues should be consistent with Operating Agreement, Schedule 2, including, but not limited to, consideration of Fuel Costs, Maintenance Adders and Operating Costs, as applicable.

(C) For a Unit-Specific Exception for a Generation Capacity Resource that is subject to the provisions of the Minimum Offer Price Rule pursuant to Tariff, Attachment DD, section 5.14(h-2)(2) and that has previously cleared an RPM Auction, the Capacity Market Seller shall submit a Sell Offer consistent with the unit-specific Market Seller Offer Cap process pursuant to Tariff, Attachment DD, section 6.8; except that the 10% uncertainty adder may not be included in the “Adjustment Factor.” In addition and notwithstanding the requirements of Tariff, Attachment DD, section 6.8, the Capacity Market Seller may, at its election, include in its request for an exception under this subsection documentation to support projected energy and ancillary services markets revenues. Such a request shall identify all revenue sources (exclusive of any Conditioned State Support or bilateral contracts that direct submission of an offer to lower RPM Auction clearing prices) relied upon in the Sell Offer to offset the claimed fixed costs, including, without limitation, long-term power supply contracts, tolling agreements, evidence of compensation outside of PJM markets not tied to Conditioned State Support or a bilateral contract that directs submission of an offer to lower RPM Auction clearing prices, or tariffs on file with state regulatory agencies, and shall demonstrate that such offsetting revenues are consistent, over a reasonable time period identified by the Capacity Market Seller, with the

standard prescribed above. In making such demonstration, the Capacity Market Seller may rely upon forecasts of competitive electricity prices in the PJM Region based on well-defined models that include fully documented estimates of future fuel prices, variable operation and maintenance expenses, energy demand, which may include Maintenance Adders, and emissions allowance prices, and expected environmental or energy policies that affect the seller's forecast of electricity prices in such region, employing input data from sources readily available to the public. Documentation for net revenues also may include, as available and applicable, plant performance and capability information, including heat rate, start-up times and costs, forced outage rates, planned outage schedules, maintenance cycle, fuel costs and other variable operations and maintenance expenses, and ancillary service capabilities. Any evaluation of revenues should include, but would not be not limited to, consideration of Fuel Costs, Maintenance Adders and Operating Costs, as applicable, pursuant to Operating Agreement, Schedule 2.

(D) A Sell Offer evaluated at the unit-specific exception shall be permitted if the information provided reasonably demonstrates that the Sell Offer's competitive, fixed, cost-based offer level is below the default MOPR Floor Offer Price, based on competitive cost advantages relative to the costs estimated by the default MOPR Floor Offer Price, including, without limitation, competitive cost advantages resulting from the Capacity Market Seller's business model, financial condition, tax status, access to capital or other similar conditions affecting the applicant's costs, or based on net revenues that are reasonably demonstrated hereunder to be higher than those estimated by the default MOPR Floor Offer Price. Capacity Market Sellers shall demonstrate that claimed cost advantages or sources of net revenue that are irregular or anomalous, that do not reflect arm's-length transactions, or that are not in the ordinary course of the Capacity Market Seller's business are consistent with the standards of this subsection, and that out-of-market compensation is not tied to Conditioned State Support or a bilateral contract that directs submission of an offer to lower RPM Auction clearing prices. Failure to adequately support such claimed cost advantages or revenues so as to enable the Office of the Interconnection to make the determination required in this section will result in the elimination of consideration of the unsupported element(s) of a unit-specific exception by the Office of the Interconnection.

(E) The Capacity Market Seller must submit a sworn, notarized certification of a duly authorized officer, certifying that the officer has personal knowledge of the unit-specific exception request and that to the best of his/her knowledge and belief: (1) the information supplied to the Market Monitoring Unit and the Office of Interconnection to support its request for an exception is true and correct; (2) the Capacity Market Seller has disclosed all material facts relevant to the request for the exception; and (3) the request satisfies the criteria for the exception.

(F) The Market Monitoring Unit shall review, in an open and transparent manner with the Capacity Market Seller and the Office of the Interconnection, the information and documentation in support of the request and shall provide its findings whether the proposed Sell Offer is acceptable, in accordance with the standards and criteria hereunder, in writing, to the Capacity Market Seller and the Office of the Interconnection by no later than ninety (90) days prior to the commencement of the offer period for such auction. The Office of

the Interconnection shall also review, in an open and transparent manner, all exception requests and documentation and shall provide in writing to the Capacity Market Seller, and the Market Monitoring Unit, its determination whether the requested Sell Offer is acceptable and if not it shall calculate and provide to such Capacity Market Seller, a minimum Sell Offer based on the data and documentation received, by no later than sixty-five (65) days prior to the commencement of the offer period for the relevant RPM Auction. After the Office of the Interconnection determines with the advice and input of Market Monitor, the acceptable minimum Sell Offer, the Capacity Market Seller shall notify the Market Monitoring Unit and the Office of the Interconnection, in writing, of the minimum level of Sell Offer to which it agrees to commit by no later than sixty (60) days prior to the commencement of the offer period for the relevant RPM Auction, and in making such determination, the Capacity Market Seller may consider the applicable default MOPR Floor Offer Price and may select such default value if it is lower than the unit-specific determination. A Capacity Market Seller that is dissatisfied with any determination hereunder may seek any remedies available to it from FERC; provided, however, that the Office of the Interconnection will proceed with administration of the Tariff and market rules based on the lower of the applicable default MOPR Floor Offer Price and the unit-specific determination unless and until ordered to do otherwise by FERC.

i) Capacity Export Charges and Credits

(1) Charge

Each Capacity Export Transmission Customer shall incur for each day of each Delivery Year a Capacity Export Charge equal to the Reserved Capacity of Long-Term Firm Transmission Service used for such export (“Export Reserved Capacity”) multiplied by (the Final Zonal Capacity Price for such Delivery Year for the Zone encompassing the interface with the Control Area to which such capacity is exported minus the Final Zonal Capacity Price for such Delivery Year for the Zone in which the resources designated for export are located, but not less than zero). If more than one Zone forms the interface with such Control Area, then the amount of Reserved Capacity described above shall be apportioned among such Zones for purposes of the above calculation in proportion to the flows from such resource through each such Zone directly to such interface under CETO/CETL analysis conditions, as determined by the Office of the Interconnection using procedures set forth in the PJM Manuals. The amount of the Reserved Capacity that is associated with a fully controllable facility that crosses such interface shall be completely apportioned to the Zone within which such facility terminates.

(2) Credit

To recognize the value of firm Transmission Service held by any such Capacity Export Transmission Customer, such customer assessed a charge under section 5.14(i)(1) above also shall receive a credit, comparable to the Capacity Transfer Rights provided to Load-Serving Entities under Tariff, Attachment DD, section 5.15. Such credit shall be equal to the locational capacity price difference specified in section 5.14(i)(1) above times the Export Customer's Allocated Share determined as follows:

Export Customer's Allocated Share equals

(Export Path Import * Export Reserved Capacity) /

(Export Reserved Capacity + Daily Unforced Capacity Obligations of all LSEs in such Zone).

Where:

“Export Path Import” means the megawatts of Unforced Capacity imported into the export interface Zone from the Zone in which the resource designated for export is located.

If more than one Zone forms the interface with such Control Area, then the amount of Export Reserved Capacity shall be apportioned among such Zones for purposes of the above calculation in the same manner as set forth in subsection (i)(1) above.

(3) Distribution of Revenues

Any revenues collected from the Capacity Export Charge with respect to any capacity export for a Delivery Year, less the credit provided in subsection (i)(2) for such Delivery Year, shall be distributed to the Load Serving Entities in the export-interface Zone that were assessed a

Locational Reliability Charge for such Delivery Year, pro rata based on the Daily Unforced Capacity Obligations of such Load-serving Entities in such Zone during such Delivery Year. If more than one Zone forms the interface with such Control Area, then the revenues shall be apportioned among such Zones for purposes of the above calculation in the same manner as set forth in subsection (i)(1) above.

Section of the
PJM Operating Agreement

Effective July 1, 2025

(Clean Format)

1.4B DER Aggregator Participation Model

(a) DER Aggregators providing capacity using a DER Capacity Aggregation Resource shall be subject to the Day-ahead Energy Market must-offer requirement described in Tariff, Attachment K-Appendix, section 1.10.1A(d) and Operating Agreement, Schedule 1, section 1.10.1A(d), based on the technology of the Component DER within the DER Aggregation Resource linked to the DER Capacity Aggregation Resource, in accordance with the PJM Manuals.

(b) DER Aggregation Resources are subject to offer price cap and associated three pivotal supplier test provisions of Operating Agreement, Schedule 1, section 6.4.

(c) A DER Capacity Aggregation Resource shall be subject to a MOPR Floor Offer Price in accordance with the provisions applicable to MOPR Floor Offer Price for Generation Capacity Resources, as described in Tariff, Attachment DD, section 5.14(h-2), and Market Seller Offer Cap for Generation Capacity Resources in a manner consistent with the provisions applicable to Market Seller Offer Cap for Generation Capacity Resources, as described in Tariff, Attachment DD, section 6.4 and Tariff, Attachment M-Appendix, section IIE, based on the underlying technology of the Component DER.

A DER Capacity Aggregation Resource may segment offers for the Component DER subject to mitigation, based on the underlying technology of the Component DER in the DER Capacity Aggregation Resource, and further described in the PJM Manuals.

If a DER Capacity Aggregation Resource is subject to the Minimum Floor Offer Price pursuant to Tariff, Attachment DD, sections 5.14(h-2), the Capacity Market Seller that owns or controls such resources may submit a Sell Offer with a Minimum Floor Offer Price of no lower than the MW-weighted average of the applicable MOPR Floor Offer Prices (zero if not applicable) of the aggregated resources in such Sell Offer.

(d) Projected PJM Market Revenues for DER Capacity Aggregation Resources subject to the Minimum Floor Offer Price or Market Seller Offer Cap shall be determined in accordance with Tariff, Attachment DD, section 6.8(d-1). The determination of PJM Market Revenues by the Market Monitoring Unit or the Office of the Interconnection shall utilize either the hourly output profiles, or the Projected EAS Dispatch, as appropriate.

Sections of the
PJM Reliability Assurance Agreement

Effective July 1, 2025

(Clean Format)

ARTICLE 1 – DEFINITIONS

Unless the context otherwise specifies or requires, capitalized terms used herein shall have the respective meanings assigned herein or in the Schedules hereto, or in the PJM Tariff or PJM Operating Agreement if not otherwise defined in this Agreement, for all purposes of this Agreement (such definitions to be equally applicable to both the singular and the plural forms of the terms defined). Unless otherwise specified, all references herein to Articles, Sections or Schedules, are to Articles, Sections or Schedules of this Agreement. As used in this Agreement:

Accredited UCAP:

“Accredited UCAP” shall mean the quantity of Unforced Capacity, as denominated in Effective UCAP, that an ELCC Resource is capable of providing in a given Delivery Year.

Accredited UCAP Factor:

“Accredited UCAP Factor” shall mean, through the 2024/2025 Delivery Year, one minus EFORd, and for 2025/2026 Delivery Year and subsequent Delivery Years, the ratio of the Capacity Resource’s Accredited UCAP to the Capacity Resource’s installed capacity.

Agreement:

“Agreement” shall mean this Reliability Assurance Agreement, together with all Schedules hereto, as amended from time to time.

Annual Demand Resource:

“Annual Demand Resource” shall mean a resource that is placed under the direction of the Office of the Interconnection during the Delivery Year, and will be available for an unlimited number of interruptions during such Delivery Year by the Office of the Interconnection, and will be capable of maintaining each such interruption between the hours of 10:00AM to 10:00PM Eastern Prevailing Time for the months of June through October and the following May, and 6:00AM through 9:00PM Eastern Prevailing Time for the months of November through April unless there is an Office of the Interconnection approved maintenance outage during October through April. The Annual Demand Resource must be available in the corresponding Delivery year to be offered for sale or Self-Supplied in an RPM Auction, or included as an Annual Demand Resource in an FRR Capacity Plan for the corresponding Delivery Year.

Annual Energy Efficiency Resource:

“Annual Energy Efficiency Resource” shall mean a project, including installation of more efficient devices or equipment or implementation of more efficient processes or systems, meeting the requirements of Reliability Assurance Agreement, Schedule 6 and exceeding then-current building codes, appliance standards, or other relevant standards, designed to achieve a continuous (during the summer and winter periods described in such Schedule 6 and the PJM Manuals) reduction in electric energy consumption that is not reflected in the peak load forecast

prepared for the Delivery Year for which the Energy Efficiency Resource is proposed, and that is fully implemented at all times during such Delivery Year, without any requirement of notice, dispatch, or operator intervention.

Applicable Regional Entity:

“Applicable Regional Entity” shall have the same meaning as in the PJM Tariff.

Base Capacity Demand Resource:

“Base Capacity Demand Resource” shall mean, for the 2018/2019 and 2019/2020 Delivery Years, a resource that is placed under the direction of the Office of the Interconnection and that will be available June through September of a Delivery Year, and will be available to the Office of the Interconnection for an unlimited number of interruptions during such months, and will be capable of maintaining each such interruption for at least a 10-hour duration between the hours of 10:00AM to 10:00PM Eastern Prevailing Time. The Base Capacity Demand Resource must be available June through September in the corresponding Delivery Year to be offered for sale or self-supplied in an RPM Auction, or included as a Base Capacity Demand Resource in an FRR Capacity Plan for the corresponding Delivery Year.

Base Capacity Energy Efficiency Resource:

“Base Capacity Energy Efficiency Resource” shall mean, for the 2018/2019 and 2019/2020 Delivery Years, a project, including installation of more efficient devices or equipment or implementation of more efficient processes or systems, meeting the requirements of RAA, Schedule 6 and exceeding then-current building codes, appliance standards, or other relevant standards, designed to achieve a continuous (during the summer peak periods as described in Reliability Assurance Agreement, Schedule 6 and the PJM Manuals) reduction in electric energy consumption that is not reflected in the peak load forecast prepared for the Delivery Year for which the Base Capacity Energy Efficiency Resource is proposed, and that is fully implemented at all times during such Delivery Year, without any requirement of notice, dispatch, or operator intervention.

Base Capacity Resource:

“Base Capacity Resource” shall have the same meaning as in Tariff, Attachment DD.

Base Residual Auction:

“Base Residual Auction” shall have the same meaning as in Tariff, Attachment DD.

Behind The Meter Generation:

“Behind The Meter Generation” shall refer to a generating unit that delivers energy to load without using the Transmission System or any distribution facilities (unless the entity that owns or leases the distribution facilities consented to such use of the distribution facilities and such

consent has been demonstrated to the satisfaction of the Office of the Interconnection; provided, however, that Behind The Meter Generation does not include (i) at any time, any portion of such generating unit's capacity that is designated as a Capacity Resource or (ii) in any hour, any portion of the output of such generating unit that is sold to another entity for consumption at another electrical location or into the PJM Interchange Energy Market.

Black Start Capability:

“Black Start Capability” shall mean the ability of a generating unit or station to go from a shutdown condition to an operating condition and start delivering power without assistance from the power system.

Capacity Emergency Transfer Objective (CETO):

“Capacity Emergency Transfer Objective” or “CETO” shall mean, through the 2024/2025 Delivery Year, the amount of electric energy that a given area must be able to import in order to remain within a loss of load expectation of one event in 25 years when the area is experiencing a localized capacity emergency, as determined in accordance with the PJM Manuals. Without limiting the foregoing, CETO shall be, for Delivery Years through 2024/2025, calculated based in part on EFORD determined in accordance with Reliability Assurance Agreement, Schedule 5, Paragraph C. Beginning with the 2025/2026 Delivery Year, CETO shall mean the amount of electric energy that a given area must be able to import in order to satisfy a normalized expected unserved energy for the area that is equal to forty percent of the normalized expected unserved energy for the RTO when at the annual reliability criteria, where normalized expected unserved energy is the expected unserved energy (for the area or RTO, as appropriate) divided by the forecasted annual energy (for the area or RTO, as appropriate), when the area is experiencing a localized capacity emergency, as determined in accordance with the PJM Manuals.

Capacity Emergency Transfer Limit (CETL):

Capacity Emergency Transfer Limit” or “CETL” shall mean the capability of the transmission system to support deliveries of electric energy to a given area experiencing a localized capacity emergency as determined in accordance with the PJM Manuals.

Capacity Import Limit:

For any Delivery Year up to and including the 2019/2020 Delivery Year, “Capacity Import Limit” shall mean, (a) for the PJM Region, (1) the maximum megawatt quantity of external Generation Capacity Resources that PJM determines for each Delivery Year, through appropriate modeling and the application of engineering judgment, the transmission system can receive, in aggregate at the interface of the PJM Region with all external balancing authority areas and deliver to load in the PJM Region under capacity emergency conditions without violating applicable reliability criteria on any bulk electric system facility of 100kV or greater, internal or external to the PJM Region, that has an electrically significant response to transfers on such interface, minus (2) the then-applicable Capacity Benefit Margin; and (b) for certain source zones identified in the PJM manuals as groupings of one or more balancing authority areas, (1)

the maximum megawatt quantity of external Generation Capacity Resources that PJM determines the transmission system can receive at the interface of the PJM Region with each such source zone and deliver to load in the PJM Region under capacity emergency conditions without violating applicable reliability criteria on any bulk electric system facility of 100kV or greater, internal or external to the PJM Region, that has an electrically significant response to transfers on such interface, minus the then-applicable Capacity Benefit Margin times (2) the ratio of the maximum import quantity from each such source zone divided by the PJM total maximum import quantity. As more fully set forth in the PJM Manuals, PJM shall make such determination based on the latest peak load forecast for the studied period, the same computer simulation model of loads, generation and transmission topography employed in the determination of Capacity Emergency Transfer Limit for such Delivery Year, including external facilities from an industry standard model of the loads, generation, and transmission topography of the Eastern Interconnection under peak conditions. PJM shall specify in the PJM Manuals the areas and minimum distribution factors for identifying monitored bulk electric system facilities that have an electrically significant response to such transfers on the PJM interface. Employing such tools, PJM shall model increased power transfers from external areas into PJM to determine the transfer level at which one or more reliability criteria is violated on any monitored bulk electric system facilities that have an electrically significant response to such transfers. For the PJM Region Capacity Import Limit, PJM shall optimize transfers from other source areas not experiencing any reliability criteria violations as appropriate to increase the Capacity Import Limit. The aggregate megawatt quantity of transfers into PJM at the point where any increase in transfers on the interface would violate reliability criteria will establish the Capacity Import Limit. Notwithstanding the foregoing, a Capacity Resource located outside the PJM Region shall not be subject to the Capacity Import Limit if the Capacity Market Seller seeks an exception thereto by demonstrating to PJM, by no later than five (5) business days prior to the commencement of the offer period for the relevant RPM Auction, that such resource meets all of the following requirements:

(i) it has, at the time such exception is requested, met all applicable requirements to be pseudo-tied into the PJM Region, or the Capacity Market Seller has committed in writing that it will meet such requirements, unless prevented from doing so by circumstances beyond the control of the Capacity Market Seller, prior to the relevant Delivery Year;

(ii) at the time such exception is requested, it has long-term firm transmission service confirmed on the complete transmission path from such resource into PJM; and

(iii) it is, by written commitment of the Capacity Market Seller, subject to the same obligations imposed on Generation Capacity Resources located in the PJM Region by Tariff, Attachment DD, section 6.6 to offer their capacity into RPM Auctions; provided, however, that (a) the total megawatt quantity of all exceptions granted hereunder for a Delivery Year, plus the Capacity Import Limit for the applicable interface determined for such Delivery Year, may not exceed the total megawatt quantity of Network External Designated Transmission Service on such interface that PJM has confirmed for such Delivery Year; and (b) if granting a qualified exception would result in a violation of the rule in clause (a), PJM shall grant the requested exception but reduce the Capacity Import Limit by the quantity necessary to ensure that the total quantity of Network External Designated Transmission Service is not exceeded.

Capacity Only Option:

“Capacity Only Option” shall mean participation in Emergency Load Response Program or Pre-Emergency Program which allows, pursuant to Tariff, Attachment DD and as applicable, a capacity payment for the ability to reduce load during a pre-emergency or emergency event.

Capacity Performance Resource:

“Capacity Performance Resource” shall have the same meaning as in Tariff, Attachment DD.

Capacity Resources:

“Capacity Resources” shall mean megawatts of (i) net capacity from Existing Generation Capacity Resources or Planned Generation Capacity Resources meeting the requirements of the Reliability Assurance Agreement, Schedules 9 and Reliability Assurance Agreement, Schedule 10 that are or will be owned by or contracted to a Party and that are or will be committed to satisfy that Party's obligations under the Reliability Assurance Agreement, or to satisfy the reliability requirements of the PJM Region, for a Delivery Year; (ii) net capacity from Existing Generation Capacity Resources or Planned Generation Capacity Resources not owned or contracted for by a Party which are accredited to the PJM Region pursuant to the procedures set forth in such Schedules 9 and 10; or (iii) load reduction capability provided by Demand Resources or Energy Efficiency Resources that are accredited to the PJM Region pursuant to the procedures set forth in the Reliability Assurance Agreement, Schedule 6; or (iv) generation and load reduction capability provided by a DER Capacity Aggregation Resource, pursuant to the procedures set forth in the Reliability Assurance Agreement, Schedule 6.2 and the PJM Manuals.

Capacity Storage Resource Class:

“Capacity Storage Resource Class” shall mean the ELCC Classes specified in Schedules 9.1 and 9.2, section B of this Agreement, each of which is composed of Capacity Storage Resources with the same specified characteristic duration of 4, 6, 8, and 10 hours. The characteristic duration of an Energy Storage Resource Class is the ratio of the modeled MWh energy storage capability of members of the class to the modeled MW power capability of members of the class.

Capacity Transfer Right:

“Capacity Transfer Right” shall have the meaning specified in Tariff, Attachment DD.

Coal Class:

“Coal Class” shall mean an ELCC Class consisting of Unlimited Resources primarily fueled by coal.

Combination Resource:

“Combination Resource” shall mean a Generation Capacity Resource that has a component that has the characteristics of a Limited Duration Resource combined with (i) a component that has the characteristics of an Unlimited Resource or (ii) a component that has the characteristics of a Variable Resource.

Compliance Aggregation Area (CAA):

“Compliance Aggregation Area” or “CAA” shall have the same meaning as in the Tariff.

Complex Hybrid Class:

“Complex Hybrid Class” shall mean an ELCC Class composed of Combination Resources that combine three or more components, whereby one component is a class of Limited Duration Resource, and the other components are different Variable Resource classes, and such Combination Resources cannot be included in any other Combination Resource class. A resource that is a member of a Complex Hybrid Class has a single Point Of Interconnection, unless the resource is controlled in an integrated fashion, is at a single site, and is approved by PJM to be considered a single resource in accordance with the PJM Manuals.

Consolidated Transmission Owners Agreement, PJM Transmission Owners Agreement or Transmission Owners Agreement:

“Consolidated Transmission Owners Agreement,” “PJM Transmission Owners Agreement” or “Transmission Owners Agreement” shall mean that certain Consolidated Transmission Owners Agreement, dated as of December 15, 2005, by and among the Transmission Owners and by and between the Transmission Owners and PJM Interconnection, L.L.C. on file with the Commission, as amended from time to time.

Control Area:

“Control Area” shall mean an electric power system or combination of electric power systems bounded by interconnection metering and telemetry to which a common generation control scheme is applied in order to:

(a) match the power output of the generators within the electric power system(s) and energy purchased from entities outside the electric power system(s), with the load within the electric power system(s);

(b) maintain scheduled interchange with other Control Areas, within the limits of Good Utility Practice;

(c) maintain the frequency of the electric power system(s) within reasonable limits in accordance with Good Utility Practice and the criteria of NERC and each Applicable Regional Entity;

(d) maintain power flows on transmission facilities within appropriate limits to preserve reliability; and

(e) provide sufficient generating capacity to maintain operating reserves in accordance with Good Utility Practice.

Daily Unforced Capacity Obligation:

“Daily Unforced Capacity Obligation” shall mean the capacity obligation of a Load Serving Entity during the Delivery Year, determined in accordance with the Reliability Assurance Agreement, Schedule 8 or, as to an FRR Entity, in the Reliability Assurance Agreement, Schedule 8.1.

Delivery Year:

“Delivery Year” shall mean a Planning Period for which a Capacity Resource is committed pursuant to the auction procedures specified in Tariff, Attachment DD or pursuant to an FRR Capacity Plan under RAA, Schedule 8.1.

Demand Resource (DR):

“Demand Resource” or “DR” shall mean a Limited Demand Resource, Extended Summer Demand Resource, Annual Demand Resource, Base Capacity Demand Resource or Summer-Period Demand Resource with a demonstrated capability to provide a reduction in demand or otherwise control load in accordance with the requirements of RAA, Schedule 6 that offers and that clears load reduction capability in a Base Residual Auction or Incremental Auction or that is committed through an FRR Capacity Plan.

Demand Resource Factor or DR Factor:

“Demand Resource Factor” or “DR Factor” shall mean, for Delivery Years through May 31, 2018, that factor approved from time to time by the PJM Board used to determine the unforced capacity value of a Demand Resource in accordance with Reliability Assurance Agreement, Schedule 6

Demand Resource Officer Certification Form:

“Demand Resource Officer Certification Form” shall mean a certification as to an intended Demand Resource Sell Offer, in accordance with Reliability Assurance Agreement, Schedule 6 and Reliability Assurance Agreement, Schedule 8.1 and the PJM Manuals.

Demand Resource Registration:

“Demand Resource Registration” shall mean a registration in the Full Program Option or Capacity Only Option of the Emergency or Pre-Emergency Load Resource Program in accordance with Tariff, Attachment K-Appendix, section 8.

Demand Resource Sell Offer Plan:

“Demand Resource Sell Offer Plan” shall mean the plan required by Reliability Assurance Agreement, Schedule 6 and Reliability Assurance Agreement, Schedule 8.1 in support of an intended offer of Demand Resources in an RPM Auction, or an intended inclusion of Demand Resources in an FRR Capacity Plan.

Diesel Utility Class:

"Diesel Utility Class" shall mean an ELCC Class consisting of Unlimited Resources of the diesel technology type that is not primarily fueled by landfill gas.

DER Aggregator Officer Certification Form:

“DER Aggregator Officer Certification Form” shall mean a DER Aggregator’s certification as to an intended DER Capacity Aggregation Resource Sell Offer, in accordance with Reliability Assurance Agreement, Schedule 6.2 and Reliability Assurance Agreement, Schedule 8.1 and the PJM Manuals.

DER Capacity Aggregation Resource Sell Offer Plan:

“DER Capacity Aggregation Resource Sell Offer Plan” shall mean the plan required by Reliability Assurance Agreement, Schedule 6.2 and Reliability Assurance Agreement, Schedule 8.1 in support of an intended offer of a DER Capacity Aggregation Resource in an RPM Auction, or an intended inclusion of a DER Capacity Aggregation Resource in an FRR Capacity Plan.

Effective Nameplate Capacity:

“Effective Nameplate Capacity” shall mean (i) for each Variable Resource and Combination Resource, the resource’s Maximum Facility Output (or, for a Co-Located Resource, the applicable share of the Mixed Technology Facility’s Maximum Facility Output); (ii) for each Limited Duration Resource, the sustained level of output that the unit can provide and maintain over a continuous period, whereby the duration of that continuous period matches the characteristic duration of the corresponding ELCC Class, with consideration given to ambient conditions expected to exist at the time of PJM system peak load, to the extent that such conditions impact such resource’s capability, not to exceed the Maximum Facility Output (or, for a Co-Located Resource, the applicable share of the Mixed Technology Facility’s Maximum Facility Output). For the 2025/2026 Delivery Year and subsequent Delivery Years, the Effective Nameplate Capacity of each Limited Duration Resource shall not exceed the greater of the Capacity Interconnection Rights of such Limited Duration Resource, or the transitional system capability as limited by the transitional resource MW ceiling as defined in the PJM Manuals, awarded for the applicable Delivery Year.

Effective UCAP:

“Effective UCAP” shall mean a unit of measure that represents the capacity product transacted in the Reliability Pricing Model and included in FRR Capacity Plans. One megawatt of Effective UCAP has the same capacity value of one megawatt of Unforced Capacity.

ELCC Class:

“ELCC Class” shall mean a defined group of ELCC Resources that share a common set of operational characteristics and for which effective load carrying capability analysis, as set forth in RAA, Schedules 9.1 and 9.2, will establish a unique ELCC Class UCAP and corresponding ELCC Class Rating(s). ELCC Classes shall be defined in the Schedules 9.1 and 9.2, section B of this Agreement. Members of an ELCC Class shall share a common method of calculating the ELCC Resource Performance Adjustment, provided that the individual ELCC Resource Performance Adjustment values will generally differ among ELCC Resources.

ELCC Class Rating:

“ELCC Class Rating” shall mean the rating factor, based on effective load carrying capability analysis, that applies to ELCC Resources that are members of an ELCC Class as part of the calculation of their Accredited UCAP.

ELCC Class UCAP:

“ELCC Class UCAP” shall mean the aggregate Effective UCAP all modeled ELCC Resources in a given ELCC Class are capable of providing in a given Delivery Year.

ELCC Portfolio UCAP:

“ELCC Portfolio UCAP” shall mean the aggregate Effective UCAP that all modeled ELCC Resources are capable of providing in a given Delivery Year.

ELCC Resource:

“ELCC Resource” shall mean, through the 2024/2025 Delivery Year, a Generation Capacity Resource that is a Variable Resource, a Limited Duration Resource, or a Combination Resource, and beginning with the 2025/2026 Delivery Year, a Generation Capacity Resource or a Demand Resource.

ELCC Resource Performance Adjustment:

“ELCC Resource Performance Adjustment” shall mean the performance of a specific ELCC Resource relative to the aggregate performance of the ELCC Class to which it belongs as further described in RAA, Schedule 9.1, section F and RAA, Schedule 9.2, section D.

Electric Cooperative:

“Electric Cooperative” shall mean an entity owned in cooperative form by its customers that is engaged in the generation, transmission, and/or distribution of electric energy.

Electric Distributor:

“Electric Distributor” shall mean a Member that 1) owns or leases with rights equivalent to ownership of electric distribution facilities that are used to provide electric distribution service to electric load within the PJM Region; or 2) is a generation and transmission cooperative or a joint municipal agency that has a member that owns electric distribution facilities used to provide electric distribution service to electric load within the PJM Region.

Emergency:

“Emergency” shall mean (i) an abnormal system condition requiring manual or automatic action to maintain system frequency, or to prevent loss of firm load, equipment damage, or tripping of system elements that could adversely affect the reliability of an electric system or the safety of persons or property; or (ii) a fuel shortage requiring departure from normal operating procedures in order to minimize the use of such scarce fuel; or (iii) a condition that requires implementation of emergency procedures as defined in the PJM Manuals.

End-Use Customer:

“End-Use Customer” shall mean a Member that is a retail end-user of electricity within the PJM Region. For purposes of Members Committee sector classification, a Member that is a retail end-user that owns generation may qualify as an End-Use customer if: (1) the average physical unforced capacity owned by the Member and its affiliates in the PJM region over the five Planning Periods immediately preceding the relevant Planning Period does not exceed the average PJM capacity obligation for the Member and its affiliates over the same time period; or (2) the average energy produced by the Member and its affiliates within the PJM region over the five Planning Periods immediately preceding the relevant Planning Period does not exceed the average energy consumed by that Member and its affiliates within the PJM region over the same time period. The foregoing notwithstanding, taking retail service may not be sufficient to qualify a Member as an End-Use Customer.

Energy Efficiency Resource:

“Energy Efficiency Resource” shall mean a project, including installation of more efficient devices or equipment or implementation of more efficient processes or systems, meeting the requirements of RAA, Schedule 6 and exceeding then-current building codes, appliance standards, or other relevant standards, designed to achieve a continuous (during the periods described in Reliability Assurance Agreement, Schedule 6 and the PJM Manuals) reduction in electric energy consumption that is not reflected in the peak load forecast prepared for the Delivery Year for which the Energy Efficiency Resource is proposed, and that is fully implemented at all times during such Delivery Year, without any requirement of notice, dispatch, or operator intervention. Annual Energy Efficiency Resources, Base Capacity Energy Efficiency

Resources and Summer-Period Energy Efficiency Resources are types of Energy Efficiency Resources.

Exigent Water Storage:

“Exigent Water Storage” shall mean water stored in the pondage or reservoir of a hydropower resource which is not typically available during normal operating conditions (as those conditions are described in the relevant FERC hydropower license), but which can be drawn upon during emergency conditions (as described in the FERC hydropower license), including in order to avoid a load shed. In an effective load carrying capability analysis, exigent storage capability from an upstream hydro facility can be considered relative to a downstream hydro facility by assessing cascading storage and flows.

Existing Demand Resource:

“Existing Demand Resource” shall mean a Demand Resource for which the Demand Resource Provider has identified existing end-use customer sites that are registered for the current Delivery Year with PJM (even if not registered by such Demand Resource Provider) and that the Demand Resource Provider reasonably expects to have under a contract to reduce load based on PJM dispatch instructions by the start of the Delivery Year for which such resource is offered.

Existing DER Capacity Aggregation Resource:

“Existing DER Capacity Aggregation Resource” shall mean a DER Capacity Aggregation Resource for which the DER Aggregator has identified existing Component DER that are registered in a DER Capacity Aggregation Resource for the current Delivery Year with PJM (even if not registered by such DER Aggregator) and that the DER Aggregator reasonably expects to have under a contract to generate or reduce load based on PJM dispatch instructions by the start of the Delivery Year for which such DER Capacity Aggregation Resource is offered.

Existing Generation Capacity Resource:

“Existing Generation Capacity Resource” shall mean, for purposes of the must-offer requirement and mitigation of offers for any RPM Auction for a Delivery Year, a Generation Capacity Resource that, as of the date on which bidding commences for such auction: (a) is in service; or (b) is not yet in service, but has cleared any RPM Auction for any prior Delivery Year. A Generation Capacity Resource shall be deemed to be in service if interconnection service has ever commenced (for resources located in the PJM Region), or if it is physically and electrically interconnected to an external Control Area and is in full commercial operation (for resources not located in the PJM Region). The additional megawatts of a Generation Capacity Resource that is being, or has been, modified to increase the number of megawatts of available installed capacity thereof shall not be deemed to be an Existing Generation Capacity Resource until such time as those megawatts (a) are in service; or (b) are not yet in service, but have cleared any RPM Auction for any prior Delivery Year.

Extended Summer Demand Resource:

“Extended Summer Demand Resource” shall mean, for Delivery Years through May 31, 2018, and for FRR Capacity Plans Delivery Years through May 31, 2019, a resource that is placed under the direction of the Office of the Interconnection and that will be available June through October and the following May, and will be available for an unlimited number of interruptions during such months by the Office of the Interconnection, and will be capable of maintaining each such interruption for at least a 10-hour duration between the hours of 10:00AM to 10:00PM Eastern Prevailing Time. The Extended Summer Demand Resource must be available June through October and the following May in the corresponding Delivery Year to be offered for sale or Self-Supplied in an RPM Auction, or included as an Extended Summer Demand Resource in an FRR Capacity Plan for the corresponding Delivery Year.

Facilities Study Agreement:

“Facilities Study Agreement” shall have the same meaning as in Tariff, Part VI, section 206.

FERC or Commission:

“FERC” or “Commission” shall mean the Federal Energy Regulatory Commission or any successor federal agency, commission or department exercising jurisdiction over the Tariff, Operating Agreement and Reliability Assurance Agreement.

Firm Point-To-Point Transmission Service:

“Firm Point-To-Point Transmission Service” shall have the meaning specified in the Tariff.

Firm Service Level:

“Firm Service Level” or “FSL” of Price Responsive Demand for the 2022/2023 Delivery Year and subsequent Delivery Years shall mean the level, determined at a PRD Substation level, to which Price Responsive Demand shall be reduced during the Delivery Year when an Emergency Action that triggers a Performance Assessment Interval is declared and the Locational Marginal Price exceeds the price associated with such Price Responsive Demand identified by the PRD Provider in its PRD Plan. “Firm Service Level” or “FSL” of Demand Resource shall mean the pre-determined level for which an end-use customer’s load shall be reduced, upon notification from the Curtailment Service Provider’s market operations center or its agent.

Firm Transmission Service:

“Firm Transmission Service” shall mean transmission service that is intended to be available at all times to the maximum extent practicable, subject to an Emergency, an unanticipated failure of a facility, or other event beyond the control of the owner or operator of the facility or the Office of the Interconnection.

Fixed Resource Requirement Alternative or FRR Alternative:

“Fixed Resource Requirement Alternative” or “FRR Alternative” shall mean an alternative method for a Party to satisfy its obligation to provide Unforced Capacity hereunder, as set forth in the Reliability Assurance Agreement, Schedule 8.1.

Fixed-Tilt Solar Class:

“Fixed-Tilt Solar Class” shall mean an ELCC Class consisting of Variable Resources that produce electrical energy with solar panels that are primarily mounted in a fixed orientation.

Forecast Pool Requirement:

“Forecast Pool Requirement” or “FPR” shall mean the amount equal to one plus the unforced reserve margin (stated as a decimal number) for the PJM Region required pursuant to this Reliability Assurance Agreement, as approved by the PJM Board pursuant to Reliability Assurance Agreement, Schedule 4.1.

FRR Capacity Plan or FRR Plan:

“FRR Capacity Plan” or “FRR Plan” shall mean a long-term plan for the commitment of Capacity Resources and Price Responsive Demand to satisfy the capacity obligations of a Party that has elected the FRR Alternative, as more fully set forth in the Reliability Assurance Agreement, Schedule 8.1.

FRR Entity:

“FRR Entity” shall mean, for the duration of such election, a Party that has elected the FRR Alternative hereunder.

FRR Service Area:

“FRR Service Area” shall mean (a) the service territory of an IOU as recognized by state law, rule or order; (b) the service area of a Public Power Entity or Electric Cooperative as recognized by franchise or other state law, rule, or order; or (c) a separately identifiable geographic area that is: (i) bounded by wholesale metering, or similar appropriate multi-site aggregate metering, that is visible to, and regularly reported to, the Office of the Interconnection, or that is visible to, and regularly reported to an Electric Distributor and such Electric Distributor agrees to aggregate the load data from such meters for such FRR Service Area and regularly report such aggregated information, by FRR Service Area, to the Office of the Interconnection; and (ii) for which the FRR Entity has or assumes the obligation to provide capacity for all load (including load growth) within such area. In the event that the service obligations of an Electric Cooperative or Public Power Entity are not defined by geographic boundaries but by physical connections to a defined set of customers, the FRR Service Area in such circumstances shall be defined as all customers physically connected to transmission or distribution facilities of such Electric Cooperative or Public Power Entity within an area bounded by appropriate wholesale aggregate metering as described above.

Full Program Option:

“Full Program Option” shall mean participation in Emergency Load Response Program or Pre-Emergency Program which allows, pursuant to Tariff, Attachment DD and as applicable, (i) an energy payment for load reductions during a pre-emergency or emergency event, and (ii) a capacity payment for the ability to reduce load during a pre-emergency or emergency event.

Full Requirements Service:

“Full Requirements Service” shall mean wholesale service to supply all of the power needs of a Load Serving Entity to serve end-users within the PJM Region that are not satisfied by its own generating facilities.

Gas Combined Cycle Class:

“Gas Combined Cycle Class” shall mean an ELCC Class consisting of Unlimited Resources of the combined cycle technology type that is primarily fueled by natural gas, but does not meet the requirements to be included in the Gas Combined Cycle Dual Fuel Class.

Gas Combined Cycle Dual Fuel Class:

“Gas Combined Cycle Dual Fuel Class” shall mean an ELCC Class consisting of Unlimited Resources of the combined cycle technology type that is primarily fueled by natural gas, and that attests that it has the capability to start and operate independently on an alternate, onsite fuel source up to its maximum capacity level during the winter season of the applicable Delivery Year in which it is providing capacity, and capable of operating on the alternate fuel for two 16-hour periods over two consecutive days at its maximum capacity level.

Gas Combustion Turbine Class:

“Gas Combustion Turbine Class” shall mean an ELCC Class consisting of Unlimited Resources of the combustion turbine technology type that is primarily fueled by natural gas, but does not meet the requirements to be included in the Gas Combustion Turbine Dual Fuel Class.

Gas Combustion Turbine Dual Fuel Class:

“Gas Combustion Turbine Dual Fuel Class” shall mean an ELCC Class consisting of Unlimited Resources of the combustion turbine technology type that is primarily fueled by natural gas, and attests that it has the capability to start and operate independently on an alternate, onsite fuel source up to its maximum capacity level during the winter season of the applicable Delivery Year in which it is providing capacity, and capable of operating on the alternate fuel for two 16-hour periods over two consecutive days at its maximum capacity level.

Generation Capacity Resource:

“Generation Capacity Resource” shall mean a Generating Facility, or the contractual right to capacity from a specified Generating Facility, that meets the requirements of RAA, Schedule 9 and RAA, Schedule 10, and, for Generating Facilities that are committed to an FRR Capacity Plan, that meets the requirements of RAA, Schedule 8.1. A Generation Capacity Resource may be an Existing Generation Capacity Resource or a Planned Generation Capacity Resource.

Generation Capacity Resource Provider:

“Generation Capacity Resource Provider” shall mean a Member that owns, or has the contractual authority to control the output of, a Generation Capacity Resource, that has not transferred such authority to another entity.

Generation Owner:

“Generation Owner” shall mean a Member that owns or leases with rights equivalent to ownership, or otherwise controls and operates one or more operating generation resources located in the PJM Region. The foregoing notwithstanding, for a planned generation resource to qualify a Member as a Generation Owner, such resource shall have cleared an RPM auction, and for Energy Resources, the resource shall have a FERC-jurisdictional interconnection agreement or wholesale market participation agreement within PJM. Purchasing all or a portion of the output of a generation resource shall not be sufficient to qualify a Member as a Generation Owner. For purposes of Members Committee sector classification, a Member that is primarily a retail end-user of electricity that owns generation may qualify as a Generation Owner if: (1) the generation resource is the subject of a FERC-jurisdictional interconnection agreement or wholesale market participation agreement within PJM; (2) the average physical unforced capacity owned by the Member and its affiliates over the five Planning Periods immediately preceding the relevant Planning Period exceeds the average PJM capacity obligation of the Member and its affiliates over the same time period; and (3) the average energy produced by the Member and its affiliates within PJM over the five Planning Periods immediately preceding the relevant Planning Period exceeds the average energy consumed by the Member and its affiliates within PJM over the same time period.

Generator Forced Outage:

“Generator Forced Outage” shall mean an immediate reduction in output or capacity or removal from service, in whole or in part, of a generating unit by reason of an Emergency or threatened Emergency, unanticipated failure, or other cause beyond the control of the owner or operator of the facility, as specified in the relevant portions of the PJM Manuals. A reduction in output or removal from service of a generating unit in response to changes in market conditions shall not constitute a Generator Forced Outage.

Generator Maintenance Outage:

“Generator Maintenance Outage” shall mean the scheduled removal from service, in whole or in part, of a generating unit in order to perform repairs on specific components of the facility, if removal of the facility qualifies as a maintenance outage pursuant to the PJM Manuals.

Generator Planned Outage:

“Generator Planned Outage” shall mean the scheduled removal from service, in whole or in part, of a generating unit for inspection, maintenance or repair with the approval of the Office of the Interconnection in accordance with the PJM Manuals.

Good Utility Practice:

“Good Utility Practice” shall mean any of the practices, methods and acts engaged in or approved by a significant portion of the electric utility industry during the relevant time period, or any of the practices, methods and acts which, in the exercise of reasonable judgment in light of the facts known at the time the decision was made, could have been expected to accomplish the desired result at a reasonable cost consistent with good business practices, reliability, safety and expedition. Good Utility Practice is not intended to be limited to the optimum practice, method, or act to the exclusion of all others, but rather is intended to include acceptable practices, methods, or acts generally accepted in the region; including those practices required by Federal Power Act Section 215(a)(4).

Hybrid Resource Class:

“Hybrid Resource Class” shall mean the ELCC Classes specified in RAA Schedules 9.1 and 9.2 Section B. Each Hybrid Resource Class has a specified combination of two components, whereby, absent being part of a Combination Resource, one component would be in a Capacity Storage Resource Class, and the other component would be in a Variable Resource Class or would be an Unlimited Resource. A resource that is a member of a Hybrid Resource Class has a single Point Of Interconnection, unless the resource is controlled in an integrated fashion, is at a single site, and is approved by PJM to be considered a single resource in accordance with the PJM Manuals.

Hydropower With Non-Pumped Storage:

“Hydropower With Non-Pumped Storage” shall mean a hydropower facility that can capture and store incoming stream flow, without use of pumps, in pondage or a reservoir, and the Generation Owner has the ability, within the constraints available in the applicable operating license, to exert material control over the quantity of stored water and output of the facility throughout an Operating Day.

Hydropower With Non-Pumped Storage Class:

“Hydropower With Non-Pumped Storage Class” shall mean an ELCC Class consisting of Combination Resources that are Hydropower With Non-Pumped Storage resources.

Incremental Auction:

“Incremental Auction” shall mean any of several auctions conducted for a Delivery Year after the Base Residual Auction for such Delivery Year and before the first day of such Delivery Year, including the First Incremental Auction, Second Incremental Auction, Third Incremental Auction, or Conditional Incremental Auction. Incremental Auctions (other than the Conditional Incremental Auction), shall be held for the purposes of:

- (i) allowing Market Sellers that committed Capacity Resources in the Base Residual Auction for a Delivery Year, which subsequently are determined to be unavailable to deliver the committed Unforced Capacity in such Delivery Year (due to resource retirement, resource cancellation or construction delay, resource derating, EFORd increase, Accredited UCAP Factor decrease, a decrease in the Nominated Demand Resource Value of a Planned Demand Resource, delay or cancellation of a Qualifying Transmission Upgrade, or similar occurrences) to submit Buy Bids for replacement Capacity Resources; and
- (ii) allowing the Office of the Interconnection to reduce or increase the amount of committed capacity secured in prior auctions for such Delivery Year if, as a result of changed circumstances or expectations since the prior auction(s), there is, respectively, a significant excess or significant deficit of committed capacity for such Delivery Year, for the PJM Region or for an LDA.

Intermittent Hydropower Class:

“Intermittent Hydropower Class” shall mean an ELCC Class consisting of Variable Resources that are run-of-river hydropower generators that must generally pass incoming water and therefore cannot appreciably store water to later increase the output of the facility. Resources in the Intermittent Hydropower Class are not Hydropower with Non-Pumped Storage resources.

IOU:

“IOU” shall mean an investor-owned utility with substantial business interest in owning and/or operating electric facilities in any two or more of the following three asset categories: generation, transmission, distribution.

Intermittent Landfill Gas Class:

“Intermittent Landfill Gas Class” shall mean an ELCC Class consisting of Variable Resources fueled by landfill gas that, because of fuel availability patterns, cannot run consistently at installed capacity levels for 24 or more hours.

Limited Demand Resource:

“Limited Demand Resource” shall mean, for Delivery Years through May 31, 2018, and for FRR Capacity Plans Delivery Years through May 31, 2019, a resource that is placed under the direction of the Office of the Interconnection and that will, at a minimum, be available for interruption for at least 10 Load Management Events during the summer period of June through

September in the Delivery Year, and will be capable of maintaining each such interruption for at least a 6-hour duration. At a minimum, the Limited Demand Resource shall be available for such interruptions on weekdays, other than NERC holidays, from 12:00PM (noon) to 8:00PM Eastern Prevailing Time. The Limited Demand Resource must be available during the summer period of June through September in the corresponding Delivery Year to be offered for sale or Self-Supplied in an RPM Auction, or included as a Limited Demand Resource in an FRR Capacity Plan for the corresponding Delivery Year.

Limited Duration Resource:

“Limited Duration Resource” shall mean a Generation Capacity Resource that is not a Variable Resource, that is not a Combination Resource, and that is not capable of running continuously at Maximum Facility Output for 24 hours or longer. A Capacity Storage Resource is a Limited Duration Resource.

Load Serving Entity or LSE:

“Load Serving Entity” or “LSE” shall mean any entity (or the duly designated agent of such an entity), including a load aggregator or power marketer, (i) serving end-users within the PJM Region, and (ii) that has been granted the authority or has an obligation pursuant to state or local law, regulation or franchise to sell electric energy to end-users located within the PJM Region. Load Serving Entity shall include any end-use customer that qualifies under state rules or a utility retail tariff to manage directly its own supply of electric power and energy and use of transmission and ancillary services.

Locational Reliability Charge:

“Locational Reliability Charge” shall mean the charge determined pursuant to RAA, Article 7, section 2.

Markets and Reliability Committee:

“Markets and Reliability Committee” shall mean the committee established pursuant to the Operating Agreement as a Standing Committee of the Members Committee.

Maximum Emergency Service Level:

“Maximum Emergency Service Level” or “MESL” of Price Responsive Demand for the 2017/2018 through the 2021/2022 Delivery Years shall mean the level, determined at a PRD Substation level, to which Price Responsive Demand shall be reduced during the Delivery Year when a Maximum Generation Emergency is declared and the Locational Marginal Price exceeds the price associated with such Price Responsive Demand identified by the PRD Provider in its PRD Plan.

Member:

“Member” shall have the meaning provided in the Operating Agreement.

Members Committee:

“Members Committee” shall mean the committee specified in Operating Agreement, section 8 composed of the representatives of all the Members.

NERC:

“NERC” shall mean the North American Electric Reliability Corporation or any successor thereto.

Network External Designated Transmission Service:

“Network External Designated Transmission Service” shall mean the quantity of network transmission service confirmed by PJM for use by a market participant to import power and energy from an identified Generation Capacity Resource located outside the PJM Region, upon demonstration by such market participant that it owns such Generation Capacity Resource, has an executed contract to purchase power and energy from such Generation Capacity Resource, or has a contract to purchase power and energy from such Generation Capacity Resource contingent upon securing firm transmission service from such resource.

Network Resources:

“Network Resources” shall have the meaning set forth in the PJM Tariff.

Network Transmission Service:

“Network Transmission Service” shall mean transmission service provided pursuant to the rates, terms and conditions set forth in Tariff, Part III or transmission service comparable to such service that is provided to a Load Serving Entity that is also a Transmission Owner.

Nominal PRD Value:

“Nominal PRD Value” shall mean, as to any PRD Provider, an adjustment, determined in accordance with Reliability Assurance Agreement, Schedule 6.1, to the peak-load forecast used to determine the quantity of capacity sought through an RPM Auction, reflecting the aggregate effect of Price Responsive Demand on peak load resulting from the Price Responsive Demand to be provided by such PRD Provider.

Nominated Demand Resource Value:

“Nominated Demand Resource Value” shall have the meaning specified in Tariff, Attachment DD.

Non-Retail Behind the Meter Generation:

“Non-Retail Behind the Meter Generation” shall mean Behind the Meter Generation that is used by municipal electric systems, electric cooperatives, and electric distribution companies to serve load.

Nuclear Class:

“Nuclear Class” shall mean an ELCC Class consisting of Unlimited Resources primarily fueled by nuclear fuel.

Obligation Peak Load:

“Obligation Peak Load” shall have the meaning specified in Reliability Assurance Agreement, Schedule 8.

Office of the Interconnection:

“Office of the Interconnection” shall mean the employees and agents of PJM Interconnection, L.L.C., subject to the supervision and oversight of the PJM Board, acting pursuant to the Operating Agreement.

Offshore Wind Class:

“Offshore Wind Class” shall mean an ELCC Class consisting of Variable Resources that produce electrical energy with offshore wind turbines located in the ocean.

Onshore Wind Class:

“Onshore Wind Class” shall mean an ELCC Class consisting of Variable Resources that produce electrical energy using wind turbines and that are not in the Offshore Wind Class.

Operating Agreement of the PJM Interconnection, L.L.C., Operating Agreement or PJM Operating Agreement:

“Operating Agreement of the PJM Interconnection, L.L.C.,” “Operating Agreement” or “PJM Operating Agreement” shall mean that agreement, dated as of April 1, 1997 and as amended and restated as of June 2, 1997, including all Schedules, Exhibits, Appendices, addenda or supplements hereto, as amended from time to time thereafter, among the Members of the PJM Interconnection, L.L.C, on file with the Commission.

Operating Day:

“Operating Day” shall have the same meaning as provided in the Operating Agreement.

Operating Reserve:

“Operating Reserve” shall mean the amount of generating capacity scheduled to be available for a specified period of an Operating Day to ensure the reliable operation of the PJM Region, as specified in the PJM Manuals.

Ordinary Water Storage:

“Ordinary Water Storage” shall mean water stored in the pondage or reservoir of a hydropower resource which is typically available during normal operating conditions pursuant to the FERC license governing the operation of the hydropower resource.

Other Limited Duration Class:

“Other Limited Duration Class” shall mean the ELCC Classes specified in RAA Schedules 9.1 and 9.2 section B of this Agreement, each of which has a specified characteristic duration and consists of Limited Duration Resources that are not Capacity Storage Resources. The characteristic duration of an Other Limited Duration Class is the maximum period of time represented in the ELCC model that the resources of the class can run at a stated capability.

Other Limited Duration Combination Class:

“Other Limited Duration Combination Class” shall mean the ELCC Classes specified in RAA Schedules 9.1 and 9.2 section B. Each Other Limited Duration Class has a specified combination of two components, whereby, absent being part of a Combination Resource, one component would be in an Other Limited Duration Class, and the other component would be in a Variable Resource Class or would be an Unlimited Resource. A resource that is a member of an Other Limited Duration Combination Class has a single Point Of Interconnection, unless the resource is controlled in an integrated fashion, is at a single site, and is approved by PJM to be considered a single resource in accordance with the PJM Manuals.

Other Supplier:

“Other Supplier” shall mean a Member that: (i) is engaged in buying, selling or transmitting electric energy, capacity, ancillary services, Financial Transmission Rights or other services available under PJM’s governing documents in or through the Interconnection or has a good faith intent to do so, and (ii) is not a Generation Owner, Electric Distributor, Transmission Owner or End-Use Customer.

Other Unlimited Resource Class:

“Other Unlimited Resource Class” shall mean an ELCC Class consisting of Unlimited Resources that do not qualify for any other ELCC Class specified in RAA Schedule 9.2, section D.

Other Variable Resource Class:

“Other Variable Resource Class” shall mean an ELCC Class consisting of Variable Resources that are not in any other Variable Resource class, including Variable Resources that are

composed of multiple components, each of which would be a Variable Resource. A resource composed of both fixed-tilt solar panels and tracking solar panels is not in this class. A resource that is a member of a Other Variable Resource Class has a single Point Of Interconnection, unless the resource is controlled in an integrated fashion, is at a single site, and is approved by PJM to be considered a single resource in accordance with the PJM Manuals.

Partial Requirements Service:

“Partial Requirements Service” shall mean wholesale service to supply a specified portion, but not all, of the power needs of a Load Serving Entity to serve end-users within the PJM Region that are not satisfied by its own generating facilities.

Party:

“Party” shall mean an entity bound by the terms of the Operating Agreement.

Peak Shaving Adjustment:

“Peak Shaving Adjustment” shall mean a load forecast mechanism that allows load reductions by end-use customers to result in a downward adjustment of the summer load forecast for the associated Zone. Any End-Use Customer identified in an approved peak shaving plan shall not also participate in PJM Markets as Price Responsive Demand, Demand Resource, Base Capacity Demand Resource, Capacity Performance Demand Resource, or Economic Load Response Participant.

Percentage Internal Resources Required:

“Percentage Internal Resources Required” shall mean, for purposes of an FRR Capacity Plan, the percentage of the LDA Reliability Requirement for an LDA that must be satisfied with Capacity Resources located in such LDA.

Performance Assessment Interval:

“Performance Assessment Interval” shall have the meaning specified in Tariff, Attachment DD.

PJM:

“PJM” shall mean PJM Interconnection, L.L.C., including the Office of the Interconnection as referenced in the PJM Operating Agreement. When such term is being used in the RAA it shall also include the PJM Board.

PJM Board:

“PJM Board” shall mean the Board of Managers of the LLC, acting pursuant to the Operating Agreement, except when such term is being used in Tariff, Attachment M, in which case PJM

Board shall mean the Board of Managers of PJM or its designated representative, exclusive of any members of PJM Management.

PJM Manuals:

“PJM Manuals” shall mean the instructions, rules, procedures and guidelines established by the Office of the Interconnection for the operation, planning and accounting requirements of the PJM Region.

PJM Region:

“PJM Region” shall have the same meaning as provided in the Operating Agreement.

PJM Region Installed Reserve Margin:

“PJM Region Installed Reserve Margin” shall mean the percent installed reserve margin for the PJM Region required pursuant to Reliability Assurance Agreement, Schedule 4.1, as approved by the PJM Board.

PJM Tariff, Tariff, O.A.T.T., OATT or PJM Open Access Transmission Tariff:

“PJM Tariff,” “Tariff,” “O.A.T.T.,” “OATT” or “PJM Open Access Transmission Tariff” shall mean that certain PJM Open Access Transmission Tariff, including any schedules, appendices, or exhibits attached thereto, on file with FERC and as amended from time to time thereafter.

Planned Demand Resource:

“Planned Demand Resource” shall mean any Demand Resource that does not currently have the capability to provide a reduction in demand or to otherwise control load, but that is scheduled to be capable of providing such reduction or control on or before the start of the Delivery Year for which such resource is to be committed, as determined in accordance with the requirements of Reliability Assurance Agreement, Schedule 6. As set forth in Reliability Assurance Agreement, Schedule 6 and Reliability Assurance Agreement, Schedule 8.1, a Demand Resource Provider submitting a DR Sell Offer Plan shall identify as Planned Demand Resources in such plan all Demand Resources in excess of those that qualify as Existing Demand Resources.

Planned DER Capacity Aggregation Resource:

A “Planned DER Capacity Aggregation Resource” shall mean any DER Capacity Aggregation Resource that does not currently have the capability to provide generation or reduction in demand, but that is scheduled to be capable of providing such generation or reduction in demand on or before the start of the Delivery Year for which such resource is to be committed, as determined in accordance with the requirements of Reliability Assurance Agreement, Schedule 6.2. As set forth in Reliability Assurance Agreement, Schedule 6.2 and Reliability Assurance Agreement, Schedule 8.1, a DER Aggregator submitting a DER Capacity Aggregation Resource Sell Offer Plan shall identify in such plan all DER Capacity Aggregation Resources in excess of

those that qualify as Existing DER Capacity Aggregation Resources. A Planned DER Capacity Aggregation Resource must comply with all provisions of the DER Aggregator Participation Model described in Tariff, Attachment K-Appendix, section 1.4B and Operating Agreement, Schedule 1, section 1.4B, prior to the applicable Delivery Year.

Planned External Generation Capacity Resource:

“Planned External Generation Capacity Resource” shall mean a proposed Generation Capacity Resource, or a proposed increase in the capability of a Generation Capacity Resource, that (a) is to be located outside the PJM Region, (b) participates in the generation interconnection process of a Control Area external to PJM, (c) is scheduled to be physically and electrically interconnected to the transmission facilities of such Control Area on or before the first day of the Delivery Year for which such resource is to be committed to satisfy the reliability requirements of the PJM Region, and (d) is in full commercial operation prior to the first day of such Delivery Year, such that it is sufficient to provide the Installed Capacity set forth in the Sell Offer forming the basis of such resource’s commitment to the PJM Region. Prior to participation in any Base Residual Auction for such Delivery Year, the Capacity Market Seller must demonstrate that it has a fully executed system impact study agreement (or other documentation which is functionally equivalent to a System Impact Study Agreement under the PJM Tariff) or, for resources which are greater than 20MWs participating in a Base Residual Auction for the 2019/2020 Delivery Year and subsequent Delivery Years, an agreement or other documentation which is functionally equivalent to a Facilities Study Agreement under the PJM Tariff), with the transmission owner to whose transmission facilities or distribution facilities the resource is being directly connected, and, as applicable, the transmission provider. Prior to participating in any Incremental Auction for such Delivery Year, the Capacity Market Seller must demonstrate it has entered into an interconnection agreement, or such other documentation that is functionally equivalent to an Interconnection Service Agreement under the PJM Tariff, with the transmission owner to whose transmission facilities or distribution facilities the resource is being directly connected, and, as applicable, the transmission provider. A Planned External Generation Capacity Resource must provide evidence to PJM that it has been studied as a Network Resource, or such other similar interconnection product in such external Control Area, must provide contractual evidence that it has applied for or purchased transmission service to be deliverable to the PJM border, and must provide contractual evidence that it has applied for transmission service to be deliverable to the bus at which energy is to be delivered, the agreements for which must have been executed prior to participation in any Reliability Pricing Model Auction for such Delivery Year. Any such resource shall cease to be considered a Planned External Generation Capacity Resource as of the earlier of (i) the date that interconnection service commences as to such resource; or (ii) the resource has cleared an RPM Auction, in which case it shall become an Existing Generation Capacity Resource for purposes of the mitigation of offers for any RPM Auction for all subsequent Delivery Years.

Planned Generation Capacity Resource:

“Planned Generation Capacity Resource” shall mean a Generation Capacity Resource, or additional megawatts to increase the size of a Generation Capacity Resource that is being or has been modified to increase the number of megawatts of available installed capacity thereof,

participating in the generation interconnection process under Tariff, Part IV, Subpart A, as applicable, for which: (i) Interconnection Service is scheduled to commence on or before the first day of the Delivery Year for which such resource is to be committed to RPM or to an FRR Capacity Plan; (ii) for any such resource seeking to offer into a Base Residual Auction, or for any such resource of 20 MWs or less seeking to offer into a Base Residual Auction, a System Impact Study Agreement (or, for resources for which a System Impact Study Agreement is not required, has such other agreement or documentation that is functionally equivalent to a System Impact Study Agreement) has been executed prior to the Base Residual Auction for such Delivery Year; (iii) for any such resource of more than 20 MWs seeking to offer into a Base Residual Auction for the 2019/2020 Delivery Year and subsequent Delivery Years, a Facilities Study Agreement (or, for resources for which a Facilities Study Agreement is not required, has such other agreement or documentation that is functionally equivalent to a Facility Studies Agreement) has been executed prior to the Base Residual Auction for such Delivery Year; and (iv) an Interconnection Service Agreement has been executed prior to any Incremental Auction for such Delivery Year in which such resource plans to participate. For purposes of the must-offer requirement and mitigation of offers for any RPM Auction for a Delivery Year, a Generation Capacity Resource shall cease to be considered a Planned Generation Capacity Resource as of the earlier of (i) the date that Interconnection Service commences as to such resource; or (ii) the resource has cleared an RPM Auction for any Delivery Year, in which case it shall become an Existing Generation Capacity Resource for any RPM Auction for all subsequent Delivery Years.

Planning Period:

“Planning Period” shall mean the 12 months beginning June 1 and extending through May 31 of the following year, or such other period approved by the Members Committee.

Portfolio Expected Unserved Energy:

“Portfolio Expected Unserved Energy” shall mean the annual amount of expected unserved energy, in MWh, that is expected for the RTO when at the annual reliability criteria that provides an acceptable level of reliability consistent with the Reliability Principles and Standards.

PRD Curve:

“PRD Curve” shall mean a price-consumption curve at a PRD Substation level, if available, and otherwise at a Zonal (or sub-Zonal LDA, if applicable) level, that details the base consumption level of Price Responsive Demand and the decreasing consumption levels at increasing prices.

PRD Provider:

“PRD Provider” shall mean a PJM Member that has entered contractual arrangements with end-use customers that satisfy the eligibility criteria for and provides Price Responsive Demand.

PRD Provider’s Zonal Expected Peak Load Value of PRD:

“PRD Provider’s Zonal Expected Peak Load Value of PRD” shall mean the expected contribution to Delivery Year peak load of a PRD Provider’s Price Responsive Demand, were such demand not to be reduced in response to price, based on the contribution of the end-use customers comprising such Price Responsive Demand to the most recent prior Delivery Year’s peak demand, escalated to the Delivery Year in question, as determined in a manner consistent with the Office of the Interconnection’s load forecasts used for purposes of the RPM Auctions.

PRD Reservation Price:

“PRD Reservation Price” shall mean an RPM Auction clearing price identified in a PRD Plan for Price Responsive Demand load below which the PRD Provider desires not to commit the identified load as Price Responsive Demand.

PRD Substation:

“PRD Substation” shall mean an electrical substation that is located in the same Zone or in the same sub-Zonal LDA as the end-use customers identified in a PRD Plan or PRD registration and that, in terms of the electrical topography of the Transmission Facilities comprising the PJM Region, is as close as practicable to such loads.

Price Responsive Demand:

“Price Responsive Demand” or “PRD” shall mean end-use customer load registered by a PRD Provider pursuant to Reliability Assurance Agreement, Schedule 6.1 that have, as set forth in more detail in the PJM Manuals, the metering capability to record electricity consumption at an interval of one hour or less, Supervisory Control capable of curtailing such load (consistent with applicable RERRA requirements) at each PRD Substation identified in the relevant PRD Plan or PRD registration in response to a Maximum Generation Emergency declared by the Office of the Interconnection (prior to 2022/2023 Delivery Year) or a Performance Assessment Interval that triggers a PRD performance assessment (effective with 2022/2023 Delivery Year), and a retail rate structure, or equivalent contractual arrangement, capable of changing retail rates as frequently as an hourly basis, that is linked to or based upon changes in real-time Locational Marginal Prices at a PRD Substation level and that results in a predictable automated response to varying wholesale electricity prices.

Price Responsive Demand Credit:

“Price Responsive Demand Credit” shall mean a credit, based on committed Price Responsive Demand, as determined under Reliability Assurance Agreement, Schedule 6.1.

Price Responsive Demand Plan or PRD Plan:

“Price Responsive Demand Plan” or “PRD Plan” shall mean a plan, submitted by a PRD Provider and received by the Office of the Interconnection in accordance with Reliability Assurance Agreement, Schedule 6.1 and procedures specified in the PJM Manuals, claiming a

peak demand limitation due to Price Responsive Demand to support the determination of such PRD Provider's Nominal PRD Value.

Public Power Entity:

“Public Power Entity” shall mean any agency, authority, or instrumentality of a state or of a political subdivision of a state, or any corporation wholly owned by any one or more of the foregoing, that is engaged in the generation, transmission, and/or distribution of electric energy.

Qualifying Transmission Upgrades:

“Qualifying Transmission Upgrades” shall have the meaning specified in Tariff, Attachment DD.

Relevant Electric Retail Regulatory Authority:

“Relevant Electric Retail Regulatory Authority” or “RERRA” shall have the meaning specified in the PJM Operating Agreement.

Reliability Principles and Standards:

“Reliability Principles and Standards” shall mean the principles and standards established by the Office of the Interconnection that define, among other things, an acceptable probabilistic of loss of load criteria due to inadequate generation or transmission capability, as amended from time to time.

Required Approvals:

“Required Approvals” shall mean all of the approvals required for the Operating Agreement to be modified or to be terminated, in whole or in part, including the acceptance for filing by FERC and every other regulatory authority with jurisdiction over all or any part of the Operating Agreement.

Self-Supply:

“Self-Supply” shall have the meaning provided in Tariff, Attachment DD.

Small Commercial Customer:

“Small Commercial Customer” shall have the same meaning as in the PJM Tariff.

State Consumer Advocate:

“State Consumer Advocate” shall mean a legislatively created office from any State, all or any part of the territory of which is within the PJM Region, and the District of Columbia established, inter alia, for the purpose of representing the interests of energy consumers before the utility regulatory commissions of such states and the District of Columbia and the FERC.

State Regulatory Structural Change:

“State Regulatory Structural Change” shall mean as to any Party, a state law, rule, or order that, after September 30, 2006, initiates a program that allows retail electric consumers served by such Party to choose from among alternative suppliers on a competitive basis, terminates such a program, expands such a program to include classes of customers or localities served by such Party that were not previously permitted to participate in such a program, or that modifies retail electric market structure or market design rules in a manner that materially increases the likelihood that a substantial proportion of the customers of such Party that are eligible for retail choice under such a program (a) that have not exercised such choice will exercise such choice; or (b) that have exercised such choice will no longer exercise such choice, including for example, without limitation, mandating divestiture of utility-owned generation or structural changes to such Party’s default service rules that materially affect whether retail choice is economically viable.

Steam Class:

“Steam Class” shall mean an ELCC Class consisting of Unlimited Resources of the steam technology type and the primary fuel is not coal or nuclear.

Summer-Period Demand Resource:

Summer-Period Demand Resource shall mean, for the 2020/2021 Delivery Year and subsequent Delivery Years, a resource that is placed under the direction of the Office of the Interconnection, and will be available June through October and the following May of the Delivery Year, and will be available for an unlimited number of interruptions during such months by the Office of the Interconnection, and will be capable of maintaining each such interruption between the hours of 10:00AM to 10:00PM Eastern Prevailing Time. The Summer-Period Demand Resource must be available June through October and the following May in the corresponding Delivery Year to be offered for sale in an RPM Auction, or included as a Summer-Period Demand Resource in an FRR Capacity Plan for the corresponding Delivery Year.

Summer-Period Energy Efficiency Resource:

Summer-Period Energy Efficiency Resource shall mean, for the 2020/2021 Delivery Year and subsequent Delivery Years, a project, including installation of more efficient devices or equipment or implementation of more efficient processes or systems, meeting the requirements of Reliability Assurance Agreement, Schedule 6 and exceeding then-current building codes, appliance standards, or other relevant standards, designed to achieve a continuous (during the summer peak periods as described in Reliability Assurance Agreement, Schedule 6 and the PJM Manuals) reduction in electric energy consumption that is not reflected in the peak load forecast prepared for the Delivery Year for which the Summer-Period Energy Efficiency Resource is proposed, and that is fully implemented at all times during such Delivery Year, without any requirement of notice, dispatch, or operator intervention.

Supervisory Control:

“Supervisory Control” shall mean the capability to curtail, in accordance with applicable RERRA requirements, load registered as Price Responsive Demand at each PRD Substation identified in the relevant PRD Plan or PRD registration in response to a Maximum Generation Emergency declared by the Office of the Interconnection. Except to the extent automation is not required by the provisions of the Operating Agreement, the curtailment shall be automated, meaning that load shall be reduced automatically in response to control signals sent by the PRD Provider or its designated agent directly to the control equipment where the load is located without the requirement for any action by the end-use customer.

Threshold Quantity:

“Threshold Quantity” shall mean, as to any FRR Entity for any Delivery Year, the sum of (a) the Unforced Capacity equivalent (determined using the Pool-Wide Average EFORD through the 2024/2025 Delivery Year, or pool-wide average Accredited UCAP Factor effective with the 2025/2026 Delivery Year) of the Installed Reserve Margin for such Delivery Year multiplied by the Preliminary Forecast Peak Load for which such FRR Entity is responsible under its FRR Capacity Plan for such Delivery Year, plus (b) the lesser of (i) 3% of the Unforced Capacity amount determined in (a) above or (ii) 450 MW. If the FRR Entity is not responsible for all load within a Zone, the Preliminary Forecast Peak Load for such entity shall be the FRR Entity’s Obligation Peak Load last determined prior to the Base Residual Auction for such Delivery Year, times the Base FRR Scaling Factor (as determined in accordance with Reliability Assurance Agreement, Schedule 8.1).

Tracking Solar Class:

“Tracking Solar Class” shall mean an ELCC Class consisting of Variable Resources that produce electrical energy with solar panels that are primarily mounted on trackers that align the panels with incoming sunlight over the course of the day.

Transmission Facilities:

“Transmission Facilities” shall mean facilities that: (i) are within the PJM Region; (ii) meet the definition of transmission facilities pursuant to FERC’s Uniform System of Accounts or have been classified as transmission facilities in a ruling by FERC addressing such facilities; and (iii) have been demonstrated to the satisfaction of the Office of the Interconnection to be integrated with the PJM Region transmission system and integrated into the planning and operation of the PJM Region to serve all of the power and transmission customers within the PJM Region.

Transmission Owner:

“Transmission Owner” shall mean a Member that owns or leases with rights equivalent to ownership Transmission Facilities and is a signatory to the PJM Transmission Owners Agreement. Taking transmission service shall not be sufficient to qualify a Member as a Transmission Owner.

Unforced Capacity:

“Unforced Capacity” shall mean installed capacity rated at summer conditions that is not on average experiencing a forced outage or forced derating, calculated for each Capacity Resource on the 12-month period from October to September without regard to the ownership of or the contractual rights to the capacity of the unit.

Unlimited Resource:

“Unlimited Resource” shall mean a generating unit having the ability to maintain output at a stated capability continuously on a daily basis without interruption. Through the 2024/2025 Delivery Year, an Unlimited Resource is a Generation Capacity Resource that is not an ELCC Resource.

Variable Resource:

“Variable Resource” shall mean a Generation Capacity Resource with output that can vary as a function of its energy source, such as wind, solar, run of river hydroelectric power without storage, and landfill gas units without an alternate fuel source. All Intermittent Resources are Variable Resources, with the exception of Hydropower with Non-Pumped Storage.

Winter Peak Load (or WPL):

“Winter Peak Load” or “WPL” shall mean the average of the Demand Resource customer’s specific peak hourly load between hours ending 7:00 EPT through 21:00 EPT on the PJM defined 5 coincident peak days from December through February two Delivery Years prior the Delivery Year for which the registration is submitted. Notwithstanding, if the average use between hours ending 7:00 EPT through 21:00 EPT on a winter 5 coincident peak day is below 35% of the average hours ending 7:00 EPT through 21:00 EPT over all five of such peak days, then up to two such days and corresponding peak demand values may be excluded from the calculation. Upon approval by the Office of the Interconnection, a Curtailment Service Provider may provide alternative data to calculate Winter Peak Load, as outlined in the PJM Manuals, when there is insufficient hourly load data for the two Delivery Years prior to the relevant Delivery Year or if more than two days meet the exclusion criteria described above.

Zonal Capacity Price:

“Zonal Capacity Price” shall mean the clearing price required in each Zone to meet the demand for Unforced Capacity and satisfy Locational Deliverability Requirements for the LDA or LDAs associated with such Zone. If the Zone contains multiple LDAs with different Capacity Resource Clearing Prices, the Zonal Capacity Price shall be a weighted average of the Capacity Resource Clearing Prices for such LDAs, weighted by the Unforced Capacity of Capacity Resources cleared in each such LDA.

Zone or Zonal:

“Zone” or “Zonal” shall refer to an area within the PJM Region, as set forth in Tariff, Attachment J and RAA, Schedule 15, or as such areas may be (i) combined as a result of mergers or acquisitions or (ii) added as a result of the expansion of the boundaries of the PJM Region. A Zone shall include any Non-Zone Network Load located outside the PJM Region that is served from such Zone under Tariff, Attachment H-A.

Zonal Winter Weather Adjustment Factor (ZWWAF):

“Zonal Winter Weather Adjustment Factor” or “ZWWAF” shall mean the PJM zonal winter weather normalized coincident peak divided by PJM zonal average of 5 coincident peak loads in December through February.

SCHEDULE 6.2

DER Capacity Aggregation Resources qualifying under the criteria set forth below may be offered for sale in an RPM auction, or included in an FRR Capacity Plan, for any Delivery Year for which such resource qualifies.

DER Aggregators intending to offer for sale or designate for self-supply, a DER Capacity Aggregation Resource in any RPM Auction, or intending to include a DER Capacity Aggregation Resource in any FRR Capacity Plan must demonstrate, to PJM's satisfaction, that such resource shall have the capability to provide generation or reduction in demand, on or before the start of the Delivery Year for which such resource is committed. As part of such demonstration, each such DER Aggregator shall submit a DER Capacity Aggregation Resource Sell Offer Plan in accordance with the standards and procedures set forth in RAA, Schedule 6.2, and the PJM Manuals, no later than 30 days prior to, as applicable, the RPM Auction in which such resource is to be offered, or the deadline for submission of the FRR Capacity Plan in which such resource is to be included.

PJM may verify the DER Aggregator's adherence to the DER Capacity Aggregation Resource Sell Offer Plan at any time. A DER Aggregator with a PJM-approved DER Capacity Aggregation Resource Sell Offer Plan will be permitted to offer up to the approved megawatt quantity into the subject RPM Auction or include such resource in its FRR Capacity Plan.

A DER Capacity Aggregation Resource Sell Offer Plan shall consist of a completed template document in the form posted on the PJM website, requiring the information set forth below and in the PJM Manuals, and a DER Aggregator Officer Certification Form signed by an officer of the DER Aggregator that is duly authorized to provide such a certification. The DER Capacity Aggregation Resource Sell Offer Plan must provide information that supports the DER Aggregator's intended DER Capacity Aggregation Resource Sell Offers and demonstrate that the DER Capacity Aggregation Resources are being offered with the intention that the megawatt quantity that clears the auction is reasonably expected to be physically delivered through DER Capacity Aggregation Resource registration for the relevant Delivery Year. The DER Capacity Aggregation Resource Sell Offer Plan shall include all Existing DER Capacity Aggregation Resources and all Planned DER Capacity Aggregation Resources that the DER Aggregator intends to offer into an RPM Auction or include in an FRR Capacity Plan.

The DER Aggregator shall provide the details of, and key assumptions for underlying Component DER for the Planned DER Capacity Aggregation Resource contained in the Sell Offer Plan, including but not limited to:

- (i) Nominated megawatt quantities and method(s) of achieving generation or load reductions to meet megawatt quantities
- (ii) equipment and technology to be installed or controlled
- (iii) plan and ability to acquire generating resources or load reductions at customer site(s) and assumptions regarding regulatory approval of program(s), if applicable
- (iv) A measurement and verification plan developed in accordance with PJM Manuals, if applicable
- (v) Zone and LDA information

- (vi) A schedule of an approximate timeline for procuring Component DER

DER Aggregator Officer Certification Form.

Each DER Capacity Aggregation Resource Sell Offer Plan must include a DER Aggregator Officer Certification, signed by an officer of the DER Aggregator that is duly authorized to provide such a certification, in the form shown in the PJM Manuals, which form shall include the following certifications:

- (a) that the signing officer has reviewed the DER Capacity Aggregation Resource Sell Offer Plan and the information supplied to PJM in support of the Plan is true and correct as of the date of the certification; and

- (b) that the DER Aggregator is submitting the Plan with the reasonable expectation, based upon its analyses as of the date of the certification, to physically deliver all megawatts that clear the RPM Auction through the DER Capacity Aggregation Resource registrations by the specified Delivery Year.

As set forth in the form provided in the PJM Manuals, the certification shall specify that it does not in any way abridge, expand, or otherwise modify the current provisions of the PJM Tariff, Operating Agreement, and/or RAA.

The Unforced Capacity value of a DER Capacity Aggregation Resource will be determined as the sum of the Unforced Capacity value of the Component DER within a DER Aggregation Resource registered and linked to the DER Capacity Aggregation Resource, accounting for any co-located load that is not Station Power, in accordance with the provisions of the PJM Manuals.

The DER Aggregator shall provide Component DER within a DER Aggregation Resource registered and linked to a DER Capacity Aggregation Resource located within the same Zone and LDA as specified in its cleared sell offer, and may be subject to deficiency charges under Tariff, Attachment DD to the extent it fails to provide Component DER within a DER Aggregation Resource registered and linked to the applicable DER Capacity Aggregation Resource in such location and quantity consistent with its cleared offer.

A DER Aggregator offering a Planned DER Capacity Aggregation Resource must comply with all applicable credit requirements, as set forth in Tariff, Attachment Q.