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fAugust 31, 2026

The Honorable Debbie-Anne A. Reese
Secretary
Federal Energy Regulatory Commission
888 First Street, N.E., Room 1A
Washington, D.C. 20426

Re: *PJM Interconnection, L.L.C.*, Docket No. ER26-3661-000
Proposal to Update the Timelines for PJM to Post Final ELCC Values and
Reliability Requirements

Dear Secretary Reese:

Pursuant to section 205 of the Federal Power Act (“FPA”),¹ PJM Interconnection, L.L.C. (“PJM”) hereby submits amendments to PJM’s Reliability Assurance Agreement Among Load Serving Entities (“RAA”), Schedule 9.2 and Open Access Transmission Tariff (“Tariff”), Attachment DD, section 5.10 to update the deadlines for PJM to (1) post the final Effective Load Carrying Capability (“ELCC”) values to four months prior to the relevant Delivery Year and (2) post the PJM Region Reliability Requirement and the Locational Deliverability Area Reliability Requirement by March 1 prior to each Base Residual Auction. These updated deadlines will help to better align PJM’s posting deadlines with the return to a three-year forward auction schedule beginning with the 2030/2031 Base Residual Auction (“BRA”). Additionally, recent rule changes such as the requirement to submit a binding notice of intent to offer into the RPM Auctions and the utilization of the latest load forecast data in developing the final ELCC values necessitate a one-month adjustment to the current posting deadlines to allow for sufficient time to

¹ 16 U.S.C. § 824d.

incorporate these critical inputs into the final ELCC values, PJM Region Reliability Requirement and the Locational Deliverability Area Reliability Requirement.²

I. PROPOSAL

A. The Proposed RAA and Tariff Revisions Are Just and Reasonable

As further detailed below, this filing proposes timeline modifications that are limited in scope and are designed solely to harmonize the various timelines used for developing the necessary inputs used in determining the final ELCC values and the reliability requirements. To be clear, this proposal does not alter the established methodology for calculating the final ELCC values or the reliability requirements. Rather, this filing proposes to merely adjust the temporal window to better accommodate the data-intensive calculations necessary to develop the final ELCC values and the reliability requirements.

1. PJM Proposes to Extend the Deadline to Provide Final ELCC Values by One Month.

Under the existing rules, PJM is required to post the final ELCC values “no later than five months prior to the start of the target Delivery Year.” Since each Delivery Year starts on June 1, this deadline effectively requires PJM to post the final ELCC values by January 1 of each calendar year. However, PJM does not always have the annual load forecast finalized by the time the final ELCC values have to be posted. That is, inputs to the annual load forecast such as load adjustments that are reported by Electric Distributors are not available until late fall of each year. That is one reason why PJM is not required to publish the preliminary PJM Region Peak Load Forecast and updated PJM Region Peak

² See *PJM Interconnection, L.L.C.*, 186 FERC ¶ 61,080 (2024).

Load Forecast until February 1 of each year as the inputs to the load forecast are not available until late November when PJM can begin the process of developing the updated load forecast.³

This effectively means that PJM is currently required to finalize the ELCC values before the annual load forecast needs to be posted. Thus, in recent years, PJM has had to develop the final ELCC values while concurrently finalizing the annual load forecast. This has resulted in an extremely compressed timeframe for PJM to finalize the ELCC values to use the latest annual load forecast. Beyond the interaction with the timing of the annual load forecast, the deadline for Capacity Market Sellers to submit a binding notice of intent to offer a Planned Generation Capacity Resource into the Base Residual Auction is December 1 prior to such auction or 90 days prior to the commencement of the offer period for an Incremental Auction.⁴ As a result, PJM does not have all of the inputs, including the expected resource mix, necessary to begin the process of calculating final ELCC until the deadline for submitting binding notices of intent in advance of the Third Incremental Auction. This effectively results in approximately one month for PJM to establish the final ELCC values from the time all binding notices of intent to offer are submitted while concurrently completing the updated load forecast, which is also a necessary input to the final ELCC values.

To alleviate this timing constraint, PJM proposes RAA, Schedule 9.2(J) to extend the current deadline to post the final ELCC values by one month to provide the necessary additional time for PJM to incorporate the inputs from the binding notice of intent to offer

³ See Tariff, Attachment DD, section 5.10(d) and (e).

⁴ See Tariff, Attachment DD, section 5.5

and using the latest load forecast data in calculating the final ELCC values. This modest one-month increase, from five months prior to the start of the Delivery Year to four months prior to the start of the Delivery Year,⁵ will allow more time to sufficiently validate and finalize the ELCC values based on the updated load forecast that is published each year and updated information regarding the resource portfolio for the applicable Delivery Year.

2. PJM Proposes to Extend the Deadline to Provide PJM Region Reliability Requirement and Locational Deliverability Area Reliability Requirement to March 1 prior to each Base Residual Auction.

Currently, PJM is required to post the PJM Region Reliability Requirement and the Locational Deliverability Area Reliability Requirement “on or before February 1, prior to the conduct of the Base Residual Auction.”⁶ The PJM Region Reliability Requirement is equal to “the Forecast Pool Requirement multiplied by the Preliminary PJM Region Peak Load Forecast.”⁷ The Locational Deliverability Area Reliability Requirement is equal to “the projected internal capacity in the Locational Deliverability Area plus the Capacity Emergency Transfer Objective.”⁸ Thus, the inputs in both of these reliability requirements are dependent on the ELCC values. More particularly, the Forecast Pool Requirement that is needed to calculate the PJM Region Reliability Requirement is dependent on the ELCC values for the relevant Delivery Year.⁹ Likewise, the Capacity Emergency Transfer Objective cannot be determined until PJM calculates the Forecast Pool Requirement and

⁵ See Proposed RAA, Schedule 9.2(J).

⁶ Tariff, Attachment DD, section 5.10(a)(vi)(B).

⁷ Tariff, Definitions O-P-Q – PJM Region Reliability Requirement.

⁸ Tariff, Definitions L-M-N – Locational Deliverability Area Reliability Requirement.

⁹ Specifically, the Fixed Pool Requirement is a function of the pool-wide average Accredited UCAP Factor.

the installed reserve margin.¹⁰ However, as explained above, because the final ELCC values cannot be completed without an updated load forecast and after Capacity Market Sellers submit binding notices of intent to offer Planned Generation Capacity Resources in the relevant RPM Auction, PJM is proposing to extend the deadline to post the final ELCC values from five months in advance of the Delivery Year (i.e., January 1) to four months in advance of the Delivery Year (i.e., February 1). Since the deadline for establishing final ELCC values are proposed to be extended by one month, it is also appropriate to also extend the deadline for PJM to post the PJM Region Reliability Requirement and Locational Deliverability Area Reliability Requirement by one month (i.e., from February 1 to March 1 prior to the conduct of the relevant Base Residual Auction).¹¹

Extending this timeline will provide sufficient time for PJM to calculate the necessary inputs needed for the PJM Region Reliability Requirement and Locational Deliverability Area Reliability Requirements, including the Forecast Pool Requirement and the Capacity Emergency Transfer Objective. In short, this modest one-month addition to calculate the PJM Region Reliability Requirement and Locational Deliverability Area Reliability Requirements will allow for the sequential determination and validation of various inputs following the finalization of ELCC values.

While rules pertaining to the notice of intent to offer and determination of ELCC values have been adopted since 2024, the compressed auction schedule mitigated the

¹⁰ The Capacity Emergency Transfer Objective is calculated using a resource adequacy criteria that is dependent on the PJM Region's expected unserved energy when the RTO has reserves that meet the Forecast Pool Requirement and the installed reserve margin.

¹¹ Proposed Tariff, Attachment DD, section 5.10(a)(vi)(B). As part of this effort, PJM will also be updating PJM Manual 18 so that the deadlines to post the reliability requirements in advance of the Incremental Auctions will also be extended by a month for the same reasons set forth in this filing. Those deadlines for the Incremental Auctions are not specified in the Tariff or RAA so no proposed changes in relation to the Incremental Auction timing are requested in this filing.

timing constraints because the Base Residual Auctions that were conducted since the adoption of these rules were not held in May. However, the Base Residual Auction associated with the 2030/2031 Delivery Year is scheduled to return to the normal three year forward auction schedule, which will result in the auction commencing in May 2027. Thus, this will be the first Base Residual Auction that will be conducted under the rules adopted in Docket No. ER24-99, and a May auction date will exacerbate the timing concerns described above.

Finally, shifting the timelines for posting the reliability requirements and final ELCC values will not have any adverse impacts to the conduct of the Base Residual Auction as these values will still be posted sufficiently in advance of the relevant auction to give Market Participants ample time to prepare for and complete any relevant pre-auction activities before the conduct of the auction.

B. Stakeholder Support

The instant proposal received overwhelming stakeholder support. Specifically, the revisions were endorsed by the Markets and Reliability Committee by acclamation with no objections and one abstention on August 19, 2026. Thereafter, this proposal was approved by acclamation with no objections and three abstentions at the August 19, 2026 Members Committee meeting. Finally, as required by RAA, section 16.4, the PJM Board authorized the proposed amendments to the RAA on August 25, 2026.

II. EFFECTIVE DATE

PJM requests an effective date of October 31, 2026 for the proposed revisions discussed herein. To be clear, while the proposed revisions will be effective on October 31, 2026, prior to the 2029/2030 Base Residual Auction scheduled this December, the

revisions in this filing do not impact the timeline for that auction since the reliability requirements have already been posted for the 2029/2030 BRA, which was the subject of a separate waiver for posting the planning parameters.¹²

III. 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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IV. DOCUMENTS ENCLOSED

This filing consists of the following:

1. This transmittal letter; and
2. Revisions to the RAA and Tariff (in redline and clean format (as Attachments A and B, respectively) and in electronic tariff filing format as required by Order No. 714).¹³

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,¹⁴ PJM will post a copy of this filing to the FERC filings section of its internet site, located at the following link:

¹² *PJM Interconnection, L.L.C.*, 189 FERC ¶ 61,105 (2024).

¹³ *Electronic Tariff Filings*, Order No. 714, 2008–2013 FERC Stats. & Regs., Regs. Preambles ¶ 31,276 (2008), *final rule*, Order No. 714-A, III FERC Stats. & Regs., Regs. Preambles ¶ 31,356 (2014).

¹⁴ See 18 C.F.R. §§ 35.2(e), 385.2010(f)(3).

<http://www.pjm.com/documents/ferc-manuals/ferc-filings.aspx> with a specific link to the newly filed document, and will send an email on the same date as this filing to all PJM members and all state utility regulatory commissions in the PJM Region¹⁵ alerting them that this filing has been made by PJM and is available by following such link. PJM also serves the parties listed on the Commission's official service list for this docket. If the document is not immediately available by using the referenced link, the document will be available through the referenced link within 24 hours of the filing. Also, a copy of this filing will be available on FERC's eLibrary website located at the following link: <http://www.ferc.gov/docs-filing/elibrary.asp> in accordance with the Commission's regulations and Order No. 714.

VI. CONCLUSION

For the reasons set forth herein, PJM requests that the Commission accept the proposed Tariff revisions described in this filing effective October 31, 2026.

Respectfully submitted,

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August 31, 2026

¹⁵ PJM already maintains, updates, and regularly uses email lists for all PJM members and affected state commissions.

Attachment A

Revisions to the PJM Open Access Transmission Tariff and Reliability Assurance Agreement

(Marked Format)

(Identified by Additional Cover Pages)

Revisions to the
PJM Open Access Transmission Tariff

(Marked Format)

5.10 Auction Clearing Requirements

The Office of the Interconnection shall clear each Base Residual Auction and Incremental Auction for a Delivery Year in accordance with the following:

a) Variable Resource Requirement Curve

The Office of the Interconnection shall determine Variable Resource Requirement Curves for the PJM Region and for such Locational Deliverability Areas as determined appropriate in accordance with subsection (a)(iii) for such Delivery Year to establish the level of Capacity Resources that will provide an acceptable level of reliability consistent with the Reliability Principles and Standards. It is recognized that the variable resource requirement reflected in the Variable Resource Requirement Curve can result in an optimized auction clearing in which the level of Capacity Resources committed for a Delivery Year exceeds the PJM Region Reliability Requirement or Locational Deliverability Area Reliability Requirement for such Delivery Year. For any auction, the Updated Forecast Peak Load applicable to such auction, shall be used, and Price Responsive Demand from any applicable approved PRD Plan, including any associated PRD Reservation Prices, shall be reflected in the derivation of the Variable Resource Requirement Curves, in accordance with the methodology specified in the PJM Manuals.

i) Methodology to Establish the Variable Resource Requirement Curve

Prior to the Base Residual Auction, in accordance with the schedule in the PJM Manuals, the Office of the Interconnection shall establish the Variable Resource Requirement Curve for the PJM Region as follows:

- Each Variable Resource Requirement Curve shall be plotted on a graph on which Unforced Capacity is on the x-axis and price is on the y-axis.
- For the 2025/2026 Delivery Year, the Variable Resource Requirement curve for the PJM Region shall be plotted by combining (i) a horizontal line from the y-axis to point (1), (ii) a straight line connecting points (1) and (2), and (iii) a straight line connecting points (2) and (3), where:
 - For point (1), price equals: {the greater of [the Cost of New Entry] or [1.5 times (the Cost of New Entry minus the Net Energy and Ancillary Service Revenue Offset)]} divided by (the applicable ELCC Class Rating of the Reference Resource) and Unforced Capacity equals: [the PJM Region Reliability Requirement multiplied by 98.9%];
 - For point (2), price equals: [0.75 times (the Cost of New Entry minus the Net Energy and Ancillary Service Revenue Offset)] divided by (the applicable ELCC Class Rating of the Reference Resource) and Unforced Capacity equals: [the PJM Region Reliability Requirement multiplied by 101.6%]; and

- For point (3), price equals zero and Unforced Capacity equals: [the PJM Region Reliability Requirement multiplied by 106.8%].
- For the 2026/2027 Delivery Year and 2027/2028 Delivery Years, the Variable Resource Requirement Curve for the PJM Region shall be plotted by a horizontal line from the y-axis equal to $\$256.75/\text{MW-day ICAP}$ divided by the applicable ELCC Class Rating for the Reference Resource until such line intersects the curve that is based on the following: (i) a straight line connecting points (1) and (2), and (ii) a straight line connecting points (2) and (3), where:
 - For point (1), price equals: {the greater of [the Cost of New Entry] or [1.75 times (the Cost of New Entry minus the Net Energy and Ancillary Service Revenue Offset)]} divided by (the applicable ELCC Class Rating of the Reference Resource) and Unforced Capacity equals: [the PJM Region Reliability Requirement multiplied by 99%];
 - For point (2), price equals: [0.75 times (the Cost of New Entry minus the Net Energy and Ancillary Service Revenue Offset)] divided by (the applicable ELCC Class Rating of the Reference Resource) and Unforced Capacity equals: [the PJM Region Reliability Requirement multiplied by 101.5%]; and
 - For point (3), price equals zero and Unforced Capacity equals: [the PJM Region Reliability Requirement multiplied by 104.5%].
- Once the horizontal line intersects the above curve, the Variable Resource Requirement Curve shall follow the lines that are based on the above points until the price reaches $\$138.25/\text{MW-day ICAP}$ divided by the applicable ELCC Class Rating of the Reference Resource, at which point it shall be extended as a horizontal line at $\$138.25/\text{MW-day ICAP}$ divided by the applicable ELCC Class Rating of the Reference Resource for the remainder of the curve.
- For the 2028/2029 and 2029/2030 Delivery Years, the Variable Resource Requirement curve for the PJM Region shall be plotted by a horizontal line from the y-axis equal to the lesser of $\$256.75/\text{MW-day ICAP}$ divided by the applicable ELCC Class Rating for the Reference Resource or the value of point 1, until such line intersects the curve that is based on the following: (i) a straight line connecting points (1) and (2), and (ii) a straight line connecting points (2) and (3), where:
 - For point (1), price equals: {the greater of [1.15 times Cost of New Entry minus 0.75 times the Net Energy and Ancillary Service Revenue Offset] or [0.2 times Cost of New Entry]} divided by (the

applicable ELCC Class Rating of the Reference Resource) and Unforced Capacity equals: [the PJM Region Reliability Requirement multiplied by 99%];

- For point (2), price equals: [0.5 times the price calculated for point 1] divided by (the applicable ELCC Class Rating of the Reference Resource) and Unforced Capacity equals: [the PJM Region Reliability Requirement multiplied by 101.5%]; and
 - For point (3), price equals zero and Unforced Capacity equals: [the PJM Region Reliability Requirement multiplied by 106.0%].
- Once the horizontal line intersects the above curve, the Variable Resource Requirement Curve shall follow the lines that are based on the above points until the price reaches \$138.25/MW-day ICAP divided by the applicable ELCC Class Rating of the Reference Resource, at which point it shall be extended as a horizontal line at \$138.25/MW-day ICAP divided by the applicable ELCC Class Rating of the Reference Resource for the remainder of the curve.
 - For the 2030/2031 Delivery Year and for subsequent Delivery Years, the Variable Resource Requirement curve for the PJM Region shall be plotted by combining (i) a horizontal line from the y-axis to point (1), (ii) a straight line connecting points (1) and (2), and (iii) a straight line connecting points (2) and (3), where:
 - For point (1), price equals: {the greater of [1.15 times Cost of New Entry minus 0.75 times the Net Energy and Ancillary Service Revenue Offset] or [0.2 times Cost of New Entry]} divided by (the applicable ELCC Class Rating of the Reference Resource) and Unforced Capacity equals: [the PJM Region Reliability Requirement multiplied by 99%];
 - For point (2), price equals: [0.5 times the price calculated for point 1] divided by (the applicable ELCC Class Rating of the Reference Resource) and Unforced Capacity equals: [the PJM Region Reliability Requirement multiplied by 101.5%]; and
 - For point (3), price equals zero and Unforced Capacity equals: [the PJM Region Reliability Requirement multiplied by 106.0%].
- ii) For any Delivery Year, the Office of the Interconnection shall establish a separate Variable Resource Requirement Curve for each LDA for which:
- A. the Capacity Emergency Transfer Limit is less than 1.15 times the Capacity Emergency Transfer Objective, as determined by the Office of the

Interconnection in accordance with NERC and Applicable Regional Entity guidelines; or

- B. such LDA had a Locational Price Adder in any one or more of the three immediately preceding Base Residual Auctions; or
- C. such LDA is determined in a preliminary analysis by the Office of the Interconnection to be likely to have a Locational Price Adder, based on historic offer price levels; provided however that for the Base Residual Auction conducted for the Delivery Year, the Eastern Mid-Atlantic Region (“EMAR”), Southwest Mid-Atlantic Region (“SWMAR”), and Mid-Atlantic Region (“MAR”) LDAs shall employ separate Variable Resource Requirement Curves regardless of the outcome of the above three tests; and provided further that the Office of the Interconnection may establish a separate Variable Resource Requirement Curve for an LDA not otherwise qualifying under the above three tests if it finds that such is required to achieve an acceptable level of reliability consistent with the Reliability Principles and Standards, in which case the Office of the Interconnection shall post such finding, such LDA, and such Variable Resource Requirement Curve on its internet site no later than the March 31 last preceding the Base Residual Auction for such Delivery Year. The same process as set forth in subsection (a)(i) shall be used to establish the Variable Resource Requirement Curve for any such LDA, except that the Locational Deliverability Area Reliability Requirement for such LDA shall be substituted for the PJM Region Reliability Requirement. For purposes of calculating the Capacity Emergency Transfer Limit under this section, all generation resources located in the PJM Region that are, or that qualify to become, Capacity Resources, shall be modeled at their full capacity rating, regardless of the amount of capacity cleared from such resource for the immediately preceding Delivery Year.

For Delivery Years up to and including the 2027/2028 Delivery Year for each such LDA, the Office of the Interconnection shall (a) determine the Net Cost of New Entry for each Zone in such LDA, with such Net Cost of New Entry equal to the applicable Cost of New Entry value for such Zone minus the Net Energy and Ancillary Services Revenue Offset value for such Zone, and (b) compute the average of the Net Cost of New Entry values of all such Zones to determine the Net Cost of New Entry for such LDA.

For the 2028/2029 Delivery Year and for subsequent Delivery Years for each such LDA, the Office of the Interconnection shall determine the applicable Cost of New Entry and Net Energy and Ancillary Services Revenue Offset value for each LDA, with such Cost of New Entry equal to the average of all five Cost of New Entry areas for RTO and the average of the Cost of New Entry for all zones in an LDA, and the Net Energy and Ancillary Services Revenue Offset value equal to the 67th

percentile of the Net Energy and Ancillary Services Revenue Offset for all zones in such LDA.

iii) Procedure for ongoing review of Variable Resource Requirement Curve shape.

Beginning with the Delivery Year that commences June 1, 2018, and continuing no later than for every fourth Delivery Year thereafter, the Office of the Interconnection shall perform a review of the shape of the Variable Resource Requirement Curve, as established by the requirements of the foregoing subsection. Such analysis shall be based on simulation of market conditions to quantify the ability of the market to invest in new Capacity Resources and to meet the applicable reliability requirements on a probabilistic basis. Based on the results of such review, PJM shall prepare a recommendation to either modify or retain the existing Variable Resource Requirement Curve shape. The Office of the Interconnection shall post the recommendation and shall review the recommendation through the stakeholder process to solicit stakeholder input. If a modification of the Variable Resource Requirement Curve shape is recommended, the following process shall be followed:

- A) If the Office of the Interconnection determines that the Variable Resource Requirement Curve shape should be modified, Staff of the Office of the Interconnection shall propose a new Variable Resource Requirement Curve shape on or before May 15, prior to the conduct of the Base Residual Auction for the first Delivery Year in which the new values would be applied.
- B) The PJM Members shall review the proposed modification to the Variable Resource Requirement Curve shape.
- C) The PJM Members shall either vote to (i) endorse the proposed modification, (ii) propose alternate modifications or (iii) recommend no modification, by August 31, prior to the conduct of the Base Residual Auction for the first Delivery Year in which the new values would be applied.
- D) The PJM Board of Managers shall consider a proposed modification to the Variable Resource Requirement Curve shape, and the Office of the Interconnection shall file any approved modified Variable Resource Requirement Curve shape 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.

iv) Cost of New Entry

- A) For the Incremental Auctions, the Cost of New Entry for the PJM Region and for each LDA shall be the respective value used in the Base Residual Auction for each corresponding Delivery Year and

LDA. For the Delivery Year commencing on June 1, 2022 through and including the Delivery Year commencing on June 1, 2025, the Cost of New Entry for the PJM Region shall be the average of the Cost of New Entry for each CONE Area listed in this section as adjusted pursuant to subsection (a)(iv)(B).

Geographic Location Within the PJM Region Encompassing These Zones	Cost of New Entry in \$/MW-Year
PS, JCP&L, AE, PECO, DPL, RECO (“CONE Area 1”)	108,000
BGE, PEPCO (“CONE Area 2”)	109,700
AEP, Dayton, ComEd, APS, DQL, ATSI, DEOK, EKPC, Dominion, OVEC (“CONE Area 3”)	105,500
PPL, MetEd, Penelec (“CONE Area 4”)	105,500

A-1) Cost of New Entry for 2025/2026 Delivery Year

A new CONE Area 5 encompassing only the ComEd Zone shall be established and the ComEd Zone will be removed from CONE Area 3. For the 2025/2026 Delivery Year, the Cost of New Entry for CONE Area 5 will be equal to the product of the Cost of New Entry determined for CONE Area 3 for the 2025/2026 Delivery Year multiplied by an asset life factor of 1.0069. For the 2025/2026 Delivery Year, the Cost of New Entry for the PJM Region shall be the average of the Cost of New Entry for all CONE Areas.

B) Beginning with the 2023/2024 Delivery Year through and including the 2025/2026 Delivery Year, the CONE for each CONE Area (except for CONE Area 5) shall be adjusted to reflect changes in generating plant construction costs based on changes in the Applicable United States Bureau of Labor Statistics (“BLS”) Composite Index, and then adjusted further by a factor of 1.022 to reflect the annual decline in bonus depreciation scheduled under federal corporate tax law, in accordance with the following:

- (1) The Applicable BLS Composite Index for any Delivery Year and CONE Area shall be the most recently published twelve-month change, at the time CONE values are required to be posted for the Base Residual Auction for such Delivery Year, in a composite of the BLS Quarterly Census of

Employment and Wages for Utility System Construction (weighted 20%), the BLS Producer Price Index for Construction Materials and Components (weighted 55%), and the BLS Producer Price Index Turbines and Turbine Generator Sets (weighted 25%), as each such index is further specified for each CONE Area in the PJM Manuals.

- (2) The CONE in a CONE Area shall be adjusted prior to the Base Residual Auction for each Delivery Year by applying the Applicable BLS Composite Index for such CONE Area to the Benchmark CONE for such CONE Area, and then multiplying the result by 1.022.
 - (3) The Benchmark CONE for a CONE Area shall be the CONE used for such CONE Area in the Base Residual Auction for the prior Delivery Year (provided, however that the Gross CONE values stated in subsection (a)(iv)(A) above shall be the Benchmark CONE values for the 2022/2023 Delivery Year to which the Applicable BLS Composite Index shall be applied to determine the CONE for subsequent Delivery Years), and then multiplying the result by 1.022.
 - (4) Notwithstanding the foregoing, CONE values for any CONE Area for any Delivery Year shall be subject to amendment pursuant to appropriate filings with FERC under the Federal Power Act, including, without limitation, any filings resulting from the process described in section 5.10(a)(vi)(C) or any filing to establish new or revised CONE Areas.
- C) For the 2026/2027 Delivery Year and 2027/2028 Delivery Year, the Cost of New Entry for the PJM Region shall be the average of the Cost of New Entry for each CONE Area listed in this section as adjusted pursuant to subsection (a)(iv)(C)(1).

Geographic Location Within the PJM Region Encompassing These Zones	Cost of New Entry in \$/MW-Year (ICAP)
PS, JCP&L, AE, PECO, DPL, RECO ("CONE Area 1")	136,000

BGE, PEPSCO (“CONE Area 2”)	142,000
AEP, Dayton, APS, DQL, ATSI, DEOK, EKPC, Dominion, OVEC (“CONE Area 3”)	147,600
PPL, MetEd, Penelec (“CONE Area 4”)	143,500
ComEd (“CONE Area 5”)	150,800

- (1) For the 2027/2028 Delivery Year, the CONE for each CONE Area shall be adjusted to reflect changes in generating plant construction costs based on changes in the Applicable United States Bureau of Labor Statistics (“BLS”) Composite Index, in accordance with the following:
 - (a) The Applicable BLS Composite Index for any Delivery Year and CONE Area shall be the most recently published twelve-month change, at the time CONE values are required to be posted for the Base Residual Auction for such Delivery Year, in a composite of the BLS Quarterly Census of Employment and Wages for Utility System Construction (weighted 40%), the BLS Producer Price Index for Construction Materials and Components (weighted 45%), and the BLS Producer Price Index Turbines and Turbine Generator Sets (weighted 15%), as each such index is further specified for each CONE Area in the PJM Manuals.
 - (b) For CONE Areas 1 through 4, the Benchmark CONE for each CONE Area shall be the CONE used for such CONE Area in the Base Residual Auction for the prior Delivery Year (provided, however that the Gross CONE values stated in subsection (a)(iv)(C) above shall be the Benchmark CONE values for the 2026/2027 Delivery Year to which the Applicable BLS Composite Index shall be applied to determine the CONE for subsequent Delivery Years).
 - (c) For the 2027/2028 Delivery Year, the CONE for CONE Area 5 for a given

Delivery Year shall be set equal to the product of the CONE of CONE Area 3 as determined for the relevant Delivery Year in accordance with (a) and (b) above, multiplied by the asset life factor applicable to that Delivery Year where such asset life factors is 1.0376 for the 2027/2028 Delivery Year.

- (d) Notwithstanding the foregoing, CONE values for any CONE Area for any Delivery Year shall be subject to amendment pursuant to appropriate filings with FERC under the Federal Power Act, including, without limitation, any filings resulting from the process described in section 5.10(a)(vi)(C) or any filing to establish new or revised CONE Areas.

- D) For the 2028/2029 Delivery Year and for subsequent Delivery Years, the Cost of New Entry for the PJM Region shall be the average of the Cost of New Entry for each CONE Area listed in this section.

Geographic Location Within the PJM Region Encompassing These Zones	Cost of New Entry in \$/MW-Year (ICAP)
PS, JCP&L, AE, PECO, DPL, RECO (“CONE Area 1”)	218,000
BGE, PEPSCO (“CONE Area 2”)	222,000
AEP, Dayton, APS, DQL, ATSI, DEOK, EKPC, Dominion, OVEC (“CONE Area 3”)	215,000
PPL, MetEd, Penelec (“CONE Area 4”)	216,000
ComEd (“CONE Area 5”)	248,000

- (1) Beginning with the 2029/2030 Delivery Year, the Cost of New Entry for each CONE Area shall be adjusted to reflect changes in generating plant construction costs based on changes in the Applicable United States Bureau of Labor Statistics (“BLS”) Composite Index, in accordance with the following:

- (a) The Applicable BLS Composite Index for any Delivery Year and CONE Area shall be the most recently published twelve-month change, at the time Cost of New Entry values are required to be posted for the Base Residual Auction for such Delivery Year, in a composite of the Quarterly Census of Employment and Wages, which shall use NAICS 2371 Utility System Construction, Private, All Establishment Sizes (weighted 15%), BLS Producer Price Index for Commodities, Not Seasonally Adjusted, Intermediate Demand by Commodity Type, Materials and Components for Construction (weighted 10%), BLS Producer Price Index for Commodities, Not Seasonally Adjusted, Machinery and Equipment, Turbines and Turbine Generator Sets (weighted 46%), and the Bureau of Economic Analysis: Gross Domestic Product Implicit Price Deflator, Index 2017=100, Seasonally Adjusted (weighted 29%), as each such index is further specified for each CONE Area in the PJM Manuals.
- (b) For CONE Areas 1 through 5, the Benchmark CONE for each CONE Area shall be the Cost of New Entry used for such CONE Area in the Base Residual Auction for the prior Delivery Year (provided, however that the Cost of New Entry values stated in subsection (a)(iv)(C) above shall be the Benchmark CONE values for the 2028/2029 Delivery Year to which the Applicable BLS Composite Index shall be applied to determine the Cost of New Entry for subsequent Delivery Years).
- (c) For the 2029/2030 Delivery Year through and including the 2031/2032 Delivery Year, the Cost of New Entry for CONE Area 5 for a given Delivery Year shall be multiplied by the asset life factor applicable to that Delivery Year where such asset life factors are 1.025 for the 2029/2030 Delivery Year, 1.054 for the 2030/2031 Delivery Year, and 1.088 for the 2031/2032 Delivery Year.
- v) Net Energy and Ancillary Services Revenue Offset for 2023/2024 Delivery Year through and including the 2025/2026 Delivery Years (except that the calculation of the MOPR Floor Price pursuant to Tariff, Attachment DD, section 5.14(h-2) for combustion turbine resources shall remain applicable beyond the 2025/2026 Delivery Year):

- A) The Office of the Interconnection shall determine the Net Energy and Ancillary Services Revenue Offset each year for the PJM Region as (A) the annual average of the revenues that would have been received by the Reference Resource from the PJM energy markets during a period of three consecutive calendar years preceding the time of the determination, based on (1) the heat rate and other characteristics of such Reference Resource; (2) fuel prices reported during such period at an appropriate pricing point for the PJM Region with a fuel transmission adder appropriate for such region, as set forth in the PJM Manuals, assumed variable operation and maintenance expenses for such resource of \$6.93 per MWh, and actual PJM hourly average Locational Marginal Prices recorded in the PJM Region during such period; and (3) an assumption that the Reference Resource would be dispatched for both the Day-Ahead and Real-Time Energy Markets on a Peak-Hour Dispatch basis; plus (B) ancillary service revenues of \$2,199 per MW-year to be included through the 2025/2026 Delivery Year.
- B) The Office of the Interconnection also shall determine a Net Energy and Ancillary Service Revenue Offset each year for each Zone, using the same procedures and methods as set forth in the previous subsection; provided, however, that: (1) the average hourly LMPs for such Zone shall be used in place of the PJM Region average hourly LMPs; (2) if such Zone was not integrated into the PJM Region for the entire applicable period, then the offset shall be calculated using only those whole calendar years during which the Zone was integrated; and (3) a posted fuel pricing point in such Zone, if available, and (if such pricing point is not available in such Zone) a fuel transmission adder appropriate to such Zone from an appropriate PJM Region pricing point shall be used for each such Zone.

v-1) Net Energy and Ancillary Services Revenue Offset for the 2026/2027 Delivery Year and subsequent Delivery Years:

- A) For the 2026/2027 and the 2027/2028 Delivery Years, the Office of the Interconnection shall determine the Net Energy and Ancillary Services Revenue Offset each year for the PJM Region as the average of the net energy and ancillary services revenues that the Reference 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 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 is based on (a) the heat rate and other

characteristics of such Reference Resource such as assumed variable operation and maintenance expenses of \$1.19 per MWh and \$21,170 per start-up, and emissions costs; (b) Forward Hourly LMPs for the PJM Region; (c) Forward Hourly Ancillary Services Prices, (d) Forward Daily Natural Gas Prices at an appropriate pricing point for the PJM Region with a fuel transmission adder appropriate for such region, as set forth in the PJM Manuals; and (e) an assumption that the Reference Resource would be dispatched on a Projected EAS Dispatch basis.

- A-1) For the 2028/2029 and subsequent Delivery Years, the Office of the Interconnection shall determine the Net Energy and Ancillary Services Revenue Offset each year for the PJM Region as the 67th percentile of all of the calculated zonal Net Energy and Ancillary Services Revenues Offsets that the Reference 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 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 Service Revenue Offset simulation is based on (a) the heat rate and other characteristics of such Reference Resource such as assumed variable operation and maintenance expenses of \$2.65 per MWh, and emissions costs; (b) Forward Hourly LMPs for the PJM Region; (c) Forward Hourly Ancillary Services Prices, (d) Forward Daily Natural Gas Prices at an appropriate pricing point for the PJM Region with a fuel transmission adder appropriate for such region, as set forth in the PJM Manuals; and (e) an assumption that the Reference Resource would be dispatched on a Projected EAS Dispatch basis.
- B) The Office of the Interconnection also shall determine a Net Energy and Ancillary Service Revenue Offset each year for each Zone, using the same procedures and methods as set forth in the previous subsection; provided, however, that: (1) the Forward Hourly LMPs for such Zone shall be used in place of the Forward Hourly LMP for the PJM Region; (2) if such Zone was not integrated into the PJM Region for the entire three calendar years preceding the time of the determination for the RPM Auction, then simulations shall rely on only those whole calendar years during which the Zone was integrated; and (3) Forward Daily Natural Gas Prices for the fuel pricing point mapped to such Zone.
- C) “Forward Hourly LMPs” shall be determined as follows:

- (1) Identify the liquid hub to which each Zone is mapped, as specified in the PJM Manuals.
- (2) For each liquid hub, calculate the average day-ahead on-peak and day-ahead off-peak energy prices for each month during the Delivery Year over the most recent thirty trading days as of 180 days prior to the Base Residual Auction. For each of the remaining steps, the historical prices used herein shall be taken from the most recent three calendar years preceding the time of the determination for the RPM Auction:
- (3) Determine and add monthly basis differentials between the hub and each of its mapped Zones to the forward monthly day-ahead on-peak and off-peak energy prices for the hub. This differential is developed using the prices for the Planning Period closest in time to the Delivery Year from the most recent long-term Financial Transmission Rights auction conducted prior to the Base Residual Auction. The difference between the annual long-term Financial Transmission Rights auction prices for the Zone and the hub are converted to monthly values by adding, for each month of the year, the difference between (a) the historical monthly average day-ahead congestion price differentials between the Zone and relevant hub and (b) the historical annual average day-ahead congestion price differentials between the Zone and hub. This step is only used when developing forward prices for locations other than the liquid hubs;
- (4) Determine and add marginal loss differentials to the forward monthly day-ahead on-peak and off-peak energy prices for the hub. For each month of the year, calculate the marginal loss differential, which is the average of the difference between the loss components of the historical on peak or off peak day-ahead LMPs for the Zone and relevant hub in that month across the three year period scaled by the ratio of (a) the forward monthly average on-peak or off-peak day-ahead LMP at such hub to (b) the average of the historical on-peak or off-peak day-ahead LMPs for such hub in that month across the three year period. This step is only used when developing forward prices for locations other than the liquid hubs;
- (5) Shape the forward monthly day-ahead on-peak and off-peak prices to (a) forward hourly day-ahead LMPs using historic hourly day-ahead LMP shapes for the Zone and (b)

forward hourly real-time LMPs using historic hourly real-time LMP shapes for the Zone. The historic hourly shapes are based on the ratio of the historic day-ahead or real-time LMP for the Zone for each given hour in a monthly on-peak or off-peak period to the average of the historic day-ahead or real-time LMP for the Zone for all hours in such monthly on-peak or off-peak period. The historical prices used in this step shall be taken from one of each of the most recent three calendar years preceding the time of the determination for the RPM Auction;

- (6) For unit-specific energy and ancillary service offset calculations, determine and apply basis differentials from the Zone to the generation bus to the forward day-ahead and real-time hourly LMPs for the Zone. The differential for each hour of the year is developed using the difference between the historical DA or RT LMP for the generation bus and the historical DA or RT LMP for the Zone in which the generation bus is located for that same hour; and
- (7) Develop the Forward Hourly LMPs for the PJM Region pricing point. Calculate the load-weighted average of the monthly on-peak and off-peak Zonal LMPs developed in step (4) above, using the historical average load within each monthly on-peak or off-peak period. The load-weighted average monthly on-peak or off-peak Zonal LMPs are then shaped to forward hourly day-ahead and real-time LMPs using the same procedure as defined in step (5) above, except using historical LMPs for the PJM Region pricing point.

D) Forward Hourly Ancillary Services Prices shall include prices for Synchronized Reserve, Non-Synchronized Reserve and Secondary Reserve and shall be determined as follows. The historical prices used herein shall be taken from one of each of the most recent three calendar years preceding the time of the determination for the RPM Auction:

- (1) For Synchronized Reserve, the forward real-time Synchronized Reserve market clearing price shall be calculated by multiplying the historical RTO real-time hourly Synchronized Reserve market clearing price for each hour of the Delivery Year by the ratio of the real-time Forward Hourly LMP at an appropriate pricing point, as defined in the PJM manuals, to the historic hourly real-time LMP at such pricing point for the corresponding hour of the year;

- (2) For Non-Synchronized Reserve, the forward real-time Non-Synchronized Reserve market clearing price shall be calculated by multiplying the historical RTO real-time hourly Non-Synchronized Reserve market clearing price for each hour of the Delivery Year by the ratio of the real-time Forward Hourly LMP at an appropriate pricing point, as defined in the PJM manuals, to the historic hourly real-time LMP at such pricing point for the corresponding hour of the year; and
- (3) For Secondary Reserve, the forward day-ahead and real-time Secondary Reserve market clearing price shall be \$0.00/MWh for all hours.

E) Forward Daily Natural Gas Prices shall be determined as follows:

- (1) Map each Zone to the appropriate natural gas hub in the PJM Region, as listed in the PJM Manuals;
- (2) Map each natural gas hub lacking sufficient liquidity to the liquid hub to which it has the highest historic price correlation;
- (3) For each sufficiently liquid natural gas hub, calculate the simple average natural gas monthly settlement prices over the most recent thirty trading days as of 180 days prior to the Base Residual Auction;
- (4) Calculate the forward monthly prices for each illiquid hub by scaling the forward monthly price of the mapped liquid hub by the average ratio of historical monthly prices at the insufficiently liquid hub to the historical monthly prices at the sufficiently liquid over the most recent three calendar years preceding the time of determination for the RPM Auction;
- (5) Shape the forward monthly prices for each hub to Forward Daily Natural Gas Prices using historic daily natural gas price shapes for the hub. The historic daily shapes are based on the ratio of the historic price for the hub for each given day in a month to the average of the historic prices for the hub for all days in such month. The daily prices are then assigned to each hour starting 10am Eastern Prevailing Time each day. The historical prices used in this step shall be taken from one of each of the most recent three calendar

years preceding the time of the determination for the RPM Auction.

Curve vi) Process for Establishing Parameters of Variable Resource Requirement

- A) The parameters of the Variable Resource Requirement Curve will be established prior to the conduct of the Base Residual Auction for a Delivery Year and will be used for such Base Residual Auction.
- B) The Office of the Interconnection shall determine the PJM Region Reliability Requirement and the Locational Deliverability Area Reliability Requirement for each Locational Deliverability Area for which a Variable Resource Requirement Curve has been established for such Base Residual Auction on or before ~~February~~ March 1, prior to the conduct of the Base Residual Auction for the first Delivery Year in which the new values will be applied, in accordance with the Reliability Assurance Agreement.
- C) Beginning with the Delivery Year that commences June 1, 2018, and continuing no later than for every fourth Delivery Year thereafter, the Office of the Interconnection shall review the calculation of the Cost of New Entry for each CONE Area.
 - 1) If the Office of the Interconnection determines that the Cost of New Entry values should be modified, the Staff of the Office of the Interconnection shall propose new Cost of New Entry values on or before May 15, prior to the conduct of the Base Residual Auction for the first Delivery Year in which the new values would be applied.
 - 2) The PJM Members shall review the proposed values.
 - 3) The PJM Members shall either vote to (i) endorse the proposed values, (ii) propose alternate values or (iii) recommend no modification, by August 31, prior to the conduct of the Base Residual Auction for the first Delivery Year in which the new values would be applied.
 - 4) The PJM Board of Managers shall consider Cost of New Entry values, and the Office of the Interconnection shall file any approved modified Cost of New Entry values 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.

- D) Beginning with the Delivery Year that commences June 1, 2018, and continuing no later than for every fourth Delivery Year thereafter, the Office of the Interconnection shall review the methodology set forth in this Attachment for determining the Net Energy and Ancillary Services Revenue Offset for the PJM Region and for each Zone.
- 1) If the Office of the Interconnection determines that the Net Energy and Ancillary Services Revenue Offset methodology should be modified, Staff of the Office of the Interconnection shall propose a new Net Energy and Ancillary Services Revenue Offset methodology on or before May 15, prior to the conduct of the Base Residual Auction for the first Delivery Year in which the new methodology would be applied.
 - 2) The PJM Members shall review the proposed methodology.
 - 3) The PJM Members shall either vote to (i) endorse the proposed methodology, (ii) propose an alternate methodology or (iii) recommend no modification, by August 31, prior to the conduct of the Base Residual Auction for the first Delivery Year in which the new methodology would be applied.
 - 4) The PJM Board of Managers shall consider the Net Revenue Offset methodology, and the Office of the Interconnection shall file any approved modified Net Energy and Ancillary Services Revenue Offset values 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.

b) Locational Requirements

The Office of Interconnection shall establish locational requirements prior to the Base Residual Auction to quantify the amount of Unforced Capacity that must be committed in each Locational Deliverability Area, in accordance with the Reliability Assurance Agreement.

c) [Reserved]

d) Preliminary PJM Region Peak Load Forecast for the Delivery Year

The Office of the Interconnection shall establish the Preliminary PJM Region Load Forecast for the Delivery Year in accordance with the PJM Manuals by February 1, prior to the conduct of the Base Residual Auction for such Delivery Year.

e) Updated PJM Region Peak Load Forecasts for Incremental Auctions

The Office of the Interconnection shall establish the updated PJM Region Peak Load Forecast for a Delivery Year in accordance with the PJM Manuals by February 1, prior to the conduct of the First, Second, and Third Incremental Auction for such Delivery Year.

Revisions to the
Reliability Assurance Agreement

(Marked Format)

SCHEDULE 9.2:

EFFECTIVE LOAD CARRYING CAPABILITY ANALYSIS FOR THE 2025/2026 DELIVERY YEAR AND SUBSEQUENT DELIVERY YEARS

A. Overview of Effective Load Carrying Capability Analysis

The inputs of the effective load carrying capability analysis shall consider similar data and forecasts as that used in development of the FPR, as described in Schedule 4.C, and will include:

- Historical weather and load data;
- Historical output of existing Variable Resources;
- Estimates of putative historical output for planned Variable Resources;
- Forced outage patterns for Unlimited Resources, including consideration of correlated outage risks;
- Resource deployment forecast; and
- Modeling parameters for Limited Duration Resources, Combination Resources, and Demand Resources.

The outputs of the effective load carrying capability analysis include:

- ELCC Class Rating values, in percent.

B. ELCC Classes

(1) (a) The following are the ELCC Classes for Variable Resources:

- Tracking Solar Class
- Fixed-Tilt Solar Class
- Onshore Wind Class
- Offshore Wind Class
- Intermittent Landfill Gas Class
- Intermittent Hydropower Class
- Other Variable Resource Class

(b) The following are the types of ELCC Classes for Limited Duration Resources:

- The type of Capacity Storage Resource Classes
- The type of Other Limited Duration Resource Classes

Within those types, the following are the specific ELCC Classes for Limited Duration Resources:

- Capacity Storage Resource Class (4-Hour Duration)
- Capacity Storage Resource Class (6-Hour Duration)
- Capacity Storage Resource Class (8-Hour Duration)
- Capacity Storage Resource Class (10-Hour Duration)

- Other Limited Duration Class (4-Hour Duration)
- Other Limited Duration Class (6-Hour Duration)
- Other Limited Duration Class (8-Hour Duration)
- Other Limited Duration Class (10-Hour Duration)

(c) The following are the ELCC Classes for Combination Resources:

- The types of Hybrid Resource Classes, as further specified in subpart (2) below
- Hydropower With Non-Pumped Storage Class
- Complex Hybrid Class
- The types of Other Limited Duration Combination Classes, as further specified in subpart (3).

(d) The following are the ELCC Classes for Unlimited Resources

- Nuclear Class
- Coal Class
- Gas Combined Cycle Class
- Gas Combustion Turbine Class
- Gas Combined Cycle Dual Fuel Class
- Oil Fired Combustion Turbine Class (effective with the 2027/2028 Delivery Year)
- Gas Combustion Turbine Dual Fuel Class
- Diesel Utility Class
- Other Steam Class
- Waste to Energy Steam Class (effective with the 2027/2028 Delivery Year)
- Other Unlimited Resource Class

(e) The following are the ELCC Classes for Demand Resources

- Demand Resource Class

(2) PJM shall establish Hybrid Resource Classes for all “open-loop” combinations of each Capacity Storage Resource class and each Variable Resource class or Unlimited Resource class, as well as all “closed-loop” combinations of each Capacity Storage Resource class and each Variable Resource class or Unlimited Resource class. An “open-loop” resource operates by charging the storage component from the grid, while a “closed-loop” resource does not.

(3) PJM shall establish “Other Limited Duration Combination Classes” for all combinations of each Variable Resource Class and each Other Limited Duration Resource Class, and for combinations of an Unlimited Resource with each Other Limited Duration Resource Class.

(4) For a given Delivery Year, ELCC Class Ratings will not be calculated for any ELCC Class to the extent that no member of the class is expected to provide, or offer to provide capacity, in the applicable Delivery Year. PJM will determine the ELCC Class Ratings for an ELCC Class when any one of the following criteria are met:

- (a) An Existing Generation Capacity Resource or a Component DER as part of an Existing DER Capacity Aggregation Resource is in such class; or

- (b) A Planned Generation Capacity Resource or a Component DER as part of a Planned DER Capacity Aggregation Resource has submitted timely and valid data through the ELCC data submission process and is in such class; or
- (c) The resource deployment forecast contains a resource in such class.

(5) (a) For each ELCC Resource, except an ELCC Resource that is a Capacity Storage Resource or includes a Capacity Storage Resource component, PJM shall determine the ELCC Class of which such resource is a member by matching the physical characteristics of such resource with the definition of the ELCC Class.

(b) For each ELCC Resource that is a Capacity Storage Resource or includes a Capacity Storage Resource component, PJM shall determine, by matching the physical characteristics of such resource with the definition of the ELCC Class, the type of ELCC Class of which such resource is a member; provided however, the Capacity Resource Provider shall choose the specific ELCC Class within the type ELCC Class identified by PJM that corresponds to the chosen characteristic duration.

If the Capacity Resource Provider fails to choose, PJM will choose a specific ELCC Class to assign to such resource. The election of the specific ELCC Class corresponding to the chosen characteristic duration shall be for a term of five consecutive Delivery Years. After such five Delivery Year period, a Capacity Resource Provider may request a change in the ELCC Class, based on choosing a different characteristic duration, by submitting to the Office of the Interconnection a written request to switch ELCC Classes and provide documentation supporting such change. A Capacity Resource Provider must submit such a request, and supporting documentation, by August 1 prior to the calendar year for the RPM Auction in which the ELCC Resource intends to submit a Sell Offer or otherwise commit to provide capacity, except for 2025/2026 Delivery Year such required information must be provided to the Office of the Interconnection in accordance with the PJM Manuals. The Office of the Interconnection shall provide no later than following November 15 written notification to the Capacity Resource Provider of its determination. If the request is granted, the ELCC Resource shall be considered in the new ELCC Class starting with the next Delivery Year for which no RPM Auction has been conducted and for subsequent Delivery Years. If the request is denied, the Office of the Interconnection shall include in the notice a written explanation for the denial.

(6) Mixed-technology resources are composed of components with different generation technologies, at least one of which would be an ELCC Resource, behind a single Point of Interconnection. For a mixed-technology resource composed of components that do not have significant interaction, the components are eligible to participate as separate resources. A mixed-technology resource composed of components that have significant interaction must participate as a single Combination Resource (or, if the components would all be Variable Resources, then as a single Variable Resource).

The Capacity Resource Provider of a mixed-technology resource eligible to participate as either a single ELCC Resource or as multiple stand-alone resources shall elect, for a term of five consecutive Delivery Years, whether PJM is to model it as a single ELCC Resource or as multiple stand-alone resources. After such five Delivery Year period, a Capacity Resource

Provider may request a change in such modelling approach by submitting to the Office of the Interconnection a written request to change the modelling approach and provide documentation supporting such change. A Capacity Resource Provider must submit such a request, and supporting documentation, by August 1 prior to the calendar year for the RPM Auction in which the ELCC Resource(s) intend(s) to submit a Sell Offer or otherwise commit to provide capacity, except for 2025/2026 Delivery Year such required information must be provided to the Office of the Interconnection in accordance with the PJM Manuals. The Office of the Interconnection shall provide no later than following November 15 written notification to the Capacity Resource Provider of its determination. If the request is granted, the ELCC Resource(s) shall be modelled as requested starting with the next Delivery Year for which no RPM Auction has been conducted and for subsequent Delivery Years. If the request is denied, the Office of the Interconnection shall include in the notice a written explanation for the denial.

C. Calculation of ELCC Class Rating

ELCC Class Ratings for a Delivery Year are calculated by adding to the forecasted resource portfolio incremental quantities of resources belonging to the subject ELCC Class, depending on the resource type:

- (1) The ELCC Class Rating of Variable Resources, Limited Duration Resources, Unlimited Resources (except Other Unlimited Resources), and Demand Resources shall be the ratio of the expected unserved energy improvement resulting from adding an incremental quantity of the subject ELCC Class to the expected unserved energy improvement resulting from adding an incremental quantity of an Unlimited Resource with no outages, where expected unserved energy improvement is calculated relative to the Portfolio EUE for the Delivery Year.
- (2) No ELCC Class Rating is determined for Combination Resources and ELCC Resources in the Hydropower with Non-Pumped Storage Class, in the Complex Hybrid Class, in the Other Unlimited Resource Class, and in any ELCC Class whose members are so distinct from one another that a single ELCC Class Rating would fail to capture their physical characteristics.

D. Calculation of Accredited UCAP and ELCC Resource Performance Adjustment

- (1) (a) For Variable Resources and Limited Duration Resources, Accredited UCAP values shall be equal to the lesser of the resource's Capacity Interconnection Right or the product of:
 - (i) the Effective Nameplate Capacity;
 - (ii) the applicable ELCC Class Rating; and
 - (iii) the ELCC Resource Performance Adjustment.
- (b) For any resource in an ELCC Class for which no Class Rating has been calculated pursuant to C(2), the Accredited UCAP shall be based on a resource-specific effective load carrying capability analysis based on the resource's unique parameters.
- (c) For Unlimited Resources that have an ELCC Class Rating determined pursuant to C(1), Accredited UCAP values shall be equal to the product of:
 - (i) the installed capacity;

- (ii) the applicable ELCC Class Rating; and
- (iii) the ELCC Resource Performance Adjustment.

(d) For Demand Resources, Accredited UCAP values shall be equal to the product of:

- (i) the Nominated Value of the Demand Resource; and
- (ii) the applicable ELCC Class Rating.

(2) The ELCC Resource Performance Adjustment shall be calculated according to the following methods, as further detailed in the PJM Manuals:

(a) For a Variable Resource, a Limited Duration Resource, and an Unlimited Resource: based on a metric consisting of the weighted average expected hourly output of the resource in the ELCC model during hours of loss of load risk where: (i) the weights correspond to the modeled probability of losing load in such hour and (ii) the expected hourly output is based on the resource's modeled output during the same hour on days since June 1st, 2012 identified as having similar weather from an RTO-perspective. For a given resource or component, the Performance Adjustment shall equal the ratio of such metric to the average (weighted by the Effective Nameplate Capacity) of such metrics for all units in the applicable Variable Resource ELCC Class or applicable Unlimited Resource ELCC Class.

In determining the ELCC Resource Performance Adjustment, the actual output of a Variable Resource shall be adjusted to reflect historical curtailments, and output in any hour shall be capped at: (i) the greater of the Variable Resource's Capacity Interconnection Rights, 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, for hours in the months of June through October and the following May of the Delivery Year, and (ii) the Variable Resource's assessed deliverability, as defined in the PJM Manuals, for hours in the months of November through April of the Delivery Year. The output of an Unlimited Resource in any hour shall be capped at the greater of the resource's Capacity Interconnection Rights, 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..

E. Calculation of Accredited UCAP Factor

For Generation Capacity Resources, PJM shall determine an Accredited UCAP Factor, which is the ratio of the resource's Accredited UCAP to the resource's installed capacity.

G. Installed Capacity of ELCC Resources

Rules and procedures for technically determining and demonstrating the installed capacity of ELCC Resources shall be developed by the Office of the Interconnection and maintained in the PJM Manuals. The installed capacity of a Limited Duration Resource is based on the sustained level of output that the unit can provide and maintain over a continuous period, whereby the duration of that 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, as described in the PJM Manuals. The installed capacity of a Combination Resource (other

than Hydropower With Non-Pumped Storage) is based on the lesser of the Maximum Facility Output or the sum of the equivalent Effective Nameplate Capacity values of the resource's constituent components considered on a stand-alone basis. The installed capacity of an Unlimited Resource and Variable Resource shall be determined in accordance with the PJM Manuals. The installed capacity of Demand Resources, for purposes of the ELCC analysis, is based on the forecasted deployment level in the PJM Load Forecast.

H. Details of the Effective Load Carrying Capability Methodology

The effective load carrying capability analysis shall compare expected hourly load levels (based on historical weather) with the expected hourly output of the expected future resource mix in order to identify the relative marginal resource adequacy value of each individual ELCC Class compared to an Unlimited Resource with no outages. In performing this analysis, the model inputs shall be scaled to meet the annual reliability criteria of the Office of the Interconnection. The effective load carrying capability analysis shall compare hourly values for: (i) expected load based on historical weather; (ii) expected Variable Resource output; (iii) expected output of Limited Duration Resources and of Combination Resources as described below; (iv) expected Unlimited Resource output; and (v) expected Demand Resource output. These expected quantities are based on forecasted load and actual and putative values for Variable Resource output (standalone or as a component of Combination Resources) and Unlimited Resource output after June 1, 2012 (inclusive) through the most recent Delivery Year for which complete data exist. For resources that have not existed each year since June 1, 2012, putative output is an estimate of the hourly output that resource would have produced in a historical hour if that resource had existed in that hour. For Variable Resources, this putative output estimate is developed based on historical weather data consistent with the particular site conditions for each such resource in accordance with the PJM Manuals; for Unlimited Resources, the putative output is developed based on actual performance of similar units in accordance with the PJM Manuals.

Variable Resource actual output shall be adjusted in the ELCC analysis to reflect historical curtailments, and output shall be capped in any hour at: (i) the greater of the Variable Resource's Capacity Interconnection Rights, 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, during the months of June through October and the following May of the Delivery Year, and (ii) the Variable Resource's assessed deliverability, as defined in the PJM Manuals, during the months of November through April of the Delivery Year. The output of Unlimited Resources shall not exceed the greater of the Unlimited Resource's Capacity Interconnection Rights, 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.

The effective load carrying capability analysis shall simulate performance of Demand Resources, and shall simulate the output of Limited Duration Resources and Combination Resources based on their Office of the Interconnection-validated parameters, including the putative output of the Variable Resource component of Combination Resources, as described above.

The quantity of deployed resources studied in the analysis shall be based on resource deployment forecasts and, where applicable, on available information based on Sell Offers submitted in RPM Auctions or Fixed Resource Requirement plans for the applicable Delivery Year, and, where

applicable, information provided to the Office of the Interconnection regarding intent to offer in an RPM Auction, pursuant to the requirements in the Tariff, Attachment DD, section 5.5.

The model inputs, specifically the load scenarios, shall be scaled to meet the annual reliability criteria of the Office of the Interconnection. The resulting expected unserved energy constitutes the Portfolio EUE for the Delivery Year. Energy Resources are not included in the effective load carrying capability analysis. Generating units that are expected to only offer or otherwise provide a portion of their Accredited UCAP for that Delivery Year are represented in the analysis in proportion to the expected quantity offered or delivered divided by the Accredited UCAP.

I. Methodology to Simulate Output of Certain Resources in the Effective Load Carrying Capability Model

The effective load carrying capability analysis shall simulate the output of Limited Duration Resources and Combination Resources based on their physical parameters, including limited storage capability, and shall simulate the deployment of Demand Resources. The analysis shall simulate output from the subject Limited Duration Resources, Combination Resources, and Demand Resources in hours in which all output from Unlimited Resources and available output from Variable Resources is insufficient to meet load. The analysis shall first simulate the output of Demand Resources. If the simulated output of Demand Resources is insufficient to meet load, then the output of the subject Limited Duration Resources and Combination Resources shall be simulated on an hour-by-hour basis based on their relative duration, starting from longer duration resources to shorter duration resources. The output of Combination Resources shall be capped in any hour at: (i) the greater of the Combination Resource's Capacity Interconnection Rights, 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, during the months of June through October and the following May of the Delivery Year, and (ii) the Combination Resource's assessed deliverability, as defined in the PJM Manuals, during the months of November through April of the Delivery Year. Energy Storage Resource charging is during hours with sufficient margin, including between daily peaks if necessary.

J. Administration of Effective Load Carrying Capability Analysis

The Office of the Interconnection shall post final ELCC Class Rating values at least once per year in a report that also includes appropriate details regarding methodology and inputs. The Office of the Interconnection shall post this report and shall communicate ELCC Resource Performance Adjustment values to applicable Capacity Resource Providers no later than ~~five~~ four months prior to the start of the target Delivery Year, as described in the PJM Manuals. Accredited UCAP values for the applicable Delivery Year shall establish the maximum Unforced Capacity that an ELCC Resource can physically provide or offer to provide in the applicable Delivery Year.

The Office of the Interconnection shall also post preliminary ELCC Class Rating values for nine subsequent Delivery Years. For any Delivery Year for which a final ELCC Class Rating has not been posted and a preliminary ELCC Class Rating has been posted, the Accredited UCAP of an ELCC Resource for such Delivery Year shall be based on the most recent preliminary ELCC

Class Rating value for that Delivery Year, together with the most recently calculated ELCC Resource Performance Adjustment value for that ELCC Resource. Except to the extent specified above or otherwise specified, the preliminary ELCC Class Rating values for future years are non-binding and are only for indicative purposes. A Capacity Resource Provider can offer or provide capacity from an ELCC Resource that is not subject to a capacity market must offer obligation (as specified in Tariff, Attachment DD, Section 6.6) at a level less than the Accredited UCAP for such resource.

In order to facilitate the effective load carrying capability analysis, the Capacity Resource Provider of each ELCC Resource must submit to the Office of the Interconnection the required information as specified in the PJM Manuals by no later than August 1 prior to the calendar year for the RPM Auction in which the ELCC Resource intends to submit a Sell Offer or otherwise commit to provide capacity, except for 2025/2026 Delivery Years such required information must be provided to the Office of the Interconnection in accordance with the PJM Manuals. The required information may include relevant physical parameters, relevant historical data such as weather data and actual or estimated historical energy output, and documentation supporting such parameters and historical data. The relevant physical parameters are those that are incorporated into the effective load carrying capability analysis. The parameters required for Hydropower With Non-Pumped Storage shall include Ordinary Water Storage and any applicable Exigent Water Storage. Submitted parameters must indicate the expected duration for which any submitted physical parameters are valid.

The Office of the Interconnection shall evaluate, validate, and approve the foregoing information in accordance with the process set forth in the PJM Manuals. In evaluating the validity of submitted information, the Office of the Interconnection may assess the consistency of such information with observed conditions. If the Office of the Interconnection observes that the information provided by the Capacity Resource Provider of the ELCC Resource is inconsistent with observed conditions, the Office of the Interconnection will coordinate with the Capacity Resource Provider of the ELCC Resource to understand the information and observed conditions before making a determination regarding the validity of the applicable parameters. The Office of the Interconnection may engage the services of a consultant with technical expertise to evaluate the foregoing information.

After the Office of the Interconnection has completed its evaluation of the foregoing information, the Office of the Interconnection shall notify the Capacity Resource Provider in writing whether the submitted information is considered invalid by no later than September 1 following the submission of the information. The Office of the Interconnection's determination on the validity of the foregoing information shall continue for the applicable Delivery Year and, if requested, for such longer period as the Office of the Interconnection may determine is supported by the data.

In the event that the Office of the Interconnection is unable to validate any of the required information, physical parameters, supporting documentation, or other related information submitted by the Capacity Resource Provider of an ELCC Resource, then the Office of the Interconnection shall calculate Accredited UCAP values for that ELCC Resource based only on the validated information. Such ELCC Resource shall not be permitted to offer or otherwise provide capacity above such Accredited UCAP values until the Office of the Interconnection determines new Accredited UCAP values for such resource.

Capacity Resource Providers of ELCC Resources that are hydropower plants with water storage must provide documentation to support the physical parameters provided for expected load carrying capability analysis modeling, as specified in the PJM Manuals. This documentation must: (a) support the plant's physical capabilities; (b) demonstrate that the parameters do not violate any federal, state, river basin, or other applicable authority operating limitations of the plant; and (c) demonstrate full authorization from FERC, any river basin commissions, and any other applicable authorities to meet those capabilities.

Attachment B

Revisions to the PJM Open Access Transmission Tariff and Reliability Assurance Agreement

(Clean Format)

(Identified by Additional Cover Pages)

Revisions to the
PJM Open Access Transmission Tariff

(Clean Format)

5.10 Auction Clearing Requirements

The Office of the Interconnection shall clear each Base Residual Auction and Incremental Auction for a Delivery Year in accordance with the following:

a) Variable Resource Requirement Curve

The Office of the Interconnection shall determine Variable Resource Requirement Curves for the PJM Region and for such Locational Deliverability Areas as determined appropriate in accordance with subsection (a)(iii) for such Delivery Year to establish the level of Capacity Resources that will provide an acceptable level of reliability consistent with the Reliability Principles and Standards. It is recognized that the variable resource requirement reflected in the Variable Resource Requirement Curve can result in an optimized auction clearing in which the level of Capacity Resources committed for a Delivery Year exceeds the PJM Region Reliability Requirement or Locational Deliverability Area Reliability Requirement for such Delivery Year. For any auction, the Updated Forecast Peak Load applicable to such auction, shall be used, and Price Responsive Demand from any applicable approved PRD Plan, including any associated PRD Reservation Prices, shall be reflected in the derivation of the Variable Resource Requirement Curves, in accordance with the methodology specified in the PJM Manuals.

i) Methodology to Establish the Variable Resource Requirement Curve

Prior to the Base Residual Auction, in accordance with the schedule in the PJM Manuals, the Office of the Interconnection shall establish the Variable Resource Requirement Curve for the PJM Region as follows:

- Each Variable Resource Requirement Curve shall be plotted on a graph on which Unforced Capacity is on the x-axis and price is on the y-axis.
- For the 2025/2026 Delivery Year, the Variable Resource Requirement curve for the PJM Region shall be plotted by combining (i) a horizontal line from the y-axis to point (1), (ii) a straight line connecting points (1) and (2), and (iii) a straight line connecting points (2) and (3), where:
 - For point (1), price equals: {the greater of [the Cost of New Entry] or [1.5 times (the Cost of New Entry minus the Net Energy and Ancillary Service Revenue Offset)]} divided by (the applicable ELCC Class Rating of the Reference Resource) and Unforced Capacity equals: [the PJM Region Reliability Requirement multiplied by 98.9%];
 - For point (2), price equals: [0.75 times (the Cost of New Entry minus the Net Energy and Ancillary Service Revenue Offset)] divided by (the applicable ELCC Class Rating of the Reference Resource) and Unforced Capacity equals: [the PJM Region Reliability Requirement multiplied by 101.6%]; and

- For point (3), price equals zero and Unforced Capacity equals: [the PJM Region Reliability Requirement multiplied by 106.8%].
- For the 2026/2027 Delivery Year and 2027/2028 Delivery Years, the Variable Resource Requirement Curve for the PJM Region shall be plotted by a horizontal line from the y-axis equal to $\$256.75/\text{MW-day ICAP}$ divided by the applicable ELCC Class Rating for the Reference Resource until such line intersects the curve that is based on the following: (i) a straight line connecting points (1) and (2), and (ii) a straight line connecting points (2) and (3), where:
 - For point (1), price equals: {the greater of [the Cost of New Entry] or [1.75 times (the Cost of New Entry minus the Net Energy and Ancillary Service Revenue Offset)]} divided by (the applicable ELCC Class Rating of the Reference Resource) and Unforced Capacity equals: [the PJM Region Reliability Requirement multiplied by 99%];
 - For point (2), price equals: [0.75 times (the Cost of New Entry minus the Net Energy and Ancillary Service Revenue Offset)] divided by (the applicable ELCC Class Rating of the Reference Resource) and Unforced Capacity equals: [the PJM Region Reliability Requirement multiplied by 101.5%]; and
 - For point (3), price equals zero and Unforced Capacity equals: [the PJM Region Reliability Requirement multiplied by 104.5%].
- Once the horizontal line intersects the above curve, the Variable Resource Requirement Curve shall follow the lines that are based on the above points until the price reaches $\$138.25/\text{MW-day ICAP}$ divided by the applicable ELCC Class Rating of the Reference Resource, at which point it shall be extended as a horizontal line at $\$138.25/\text{MW-day ICAP}$ divided by the applicable ELCC Class Rating of the Reference Resource for the remainder of the curve.
- For the 2028/2029 and 2029/2030 Delivery Years, the Variable Resource Requirement curve for the PJM Region shall be plotted by a horizontal line from the y-axis equal to the lesser of $\$256.75/\text{MW-day ICAP}$ divided by the applicable ELCC Class Rating for the Reference Resource or the value of point 1, until such line intersects the curve that is based on the following: (i) a straight line connecting points (1) and (2), and (ii) a straight line connecting points (2) and (3), where:
 - For point (1), price equals: {the greater of [1.15 times Cost of New Entry minus 0.75 times the Net Energy and Ancillary Service Revenue Offset] or [0.2 times Cost of New Entry]} divided by (the

applicable ELCC Class Rating of the Reference Resource) and Unforced Capacity equals: [the PJM Region Reliability Requirement multiplied by 99%];

- For point (2), price equals: [0.5 times the price calculated for point 1] divided by (the applicable ELCC Class Rating of the Reference Resource) and Unforced Capacity equals: [the PJM Region Reliability Requirement multiplied by 101.5%]; and
 - For point (3), price equals zero and Unforced Capacity equals: [the PJM Region Reliability Requirement multiplied by 106.0%].
- Once the horizontal line intersects the above curve, the Variable Resource Requirement Curve shall follow the lines that are based on the above points until the price reaches \$138.25/MW-day ICAP divided by the applicable ELCC Class Rating of the Reference Resource, at which point it shall be extended as a horizontal line at \$138.25/MW-day ICAP divided by the applicable ELCC Class Rating of the Reference Resource for the remainder of the curve.
 - For the 2030/2031 Delivery Year and for subsequent Delivery Years, the Variable Resource Requirement curve for the PJM Region shall be plotted by combining (i) a horizontal line from the y-axis to point (1), (ii) a straight line connecting points (1) and (2), and (iii) a straight line connecting points (2) and (3), where:
 - For point (1), price equals: {the greater of [1.15 times Cost of New Entry minus 0.75 times the Net Energy and Ancillary Service Revenue Offset] or [0.2 times Cost of New Entry]} divided by (the applicable ELCC Class Rating of the Reference Resource) and Unforced Capacity equals: [the PJM Region Reliability Requirement multiplied by 99%];
 - For point (2), price equals: [0.5 times the price calculated for point 1] divided by (the applicable ELCC Class Rating of the Reference Resource) and Unforced Capacity equals: [the PJM Region Reliability Requirement multiplied by 101.5%]; and
 - For point (3), price equals zero and Unforced Capacity equals: [the PJM Region Reliability Requirement multiplied by 106.0%].
- ii) For any Delivery Year, the Office of the Interconnection shall establish a separate Variable Resource Requirement Curve for each LDA for which:
- A. the Capacity Emergency Transfer Limit is less than 1.15 times the Capacity Emergency Transfer Objective, as determined by the Office of the

Interconnection in accordance with NERC and Applicable Regional Entity guidelines; or

- B. such LDA had a Locational Price Adder in any one or more of the three immediately preceding Base Residual Auctions; or
- C. such LDA is determined in a preliminary analysis by the Office of the Interconnection to be likely to have a Locational Price Adder, based on historic offer price levels; provided however that for the Base Residual Auction conducted for the Delivery Year, the Eastern Mid-Atlantic Region (“EMAR”), Southwest Mid-Atlantic Region (“SWMAR”), and Mid-Atlantic Region (“MAR”) LDAs shall employ separate Variable Resource Requirement Curves regardless of the outcome of the above three tests; and provided further that the Office of the Interconnection may establish a separate Variable Resource Requirement Curve for an LDA not otherwise qualifying under the above three tests if it finds that such is required to achieve an acceptable level of reliability consistent with the Reliability Principles and Standards, in which case the Office of the Interconnection shall post such finding, such LDA, and such Variable Resource Requirement Curve on its internet site no later than the March 31 last preceding the Base Residual Auction for such Delivery Year. The same process as set forth in subsection (a)(i) shall be used to establish the Variable Resource Requirement Curve for any such LDA, except that the Locational Deliverability Area Reliability Requirement for such LDA shall be substituted for the PJM Region Reliability Requirement. For purposes of calculating the Capacity Emergency Transfer Limit under this section, all generation resources located in the PJM Region that are, or that qualify to become, Capacity Resources, shall be modeled at their full capacity rating, regardless of the amount of capacity cleared from such resource for the immediately preceding Delivery Year.

For Delivery Years up to and including the 2027/2028 Delivery Year for each such LDA, the Office of the Interconnection shall (a) determine the Net Cost of New Entry for each Zone in such LDA, with such Net Cost of New Entry equal to the applicable Cost of New Entry value for such Zone minus the Net Energy and Ancillary Services Revenue Offset value for such Zone, and (b) compute the average of the Net Cost of New Entry values of all such Zones to determine the Net Cost of New Entry for such LDA.

For the 2028/2029 Delivery Year and for subsequent Delivery Years for each such LDA, the Office of the Interconnection shall determine the applicable Cost of New Entry and Net Energy and Ancillary Services Revenue Offset value for each LDA, with such Cost of New Entry equal to the average of all five Cost of New Entry areas for RTO and the average of the Cost of New Entry for all zones in an LDA, and the Net Energy and Ancillary Services Revenue Offset value equal to the 67th

percentile of the Net Energy and Ancillary Services Revenue Offset for all zones in such LDA.

iii) Procedure for ongoing review of Variable Resource Requirement Curve shape.

Beginning with the Delivery Year that commences June 1, 2018, and continuing no later than for every fourth Delivery Year thereafter, the Office of the Interconnection shall perform a review of the shape of the Variable Resource Requirement Curve, as established by the requirements of the foregoing subsection. Such analysis shall be based on simulation of market conditions to quantify the ability of the market to invest in new Capacity Resources and to meet the applicable reliability requirements on a probabilistic basis. Based on the results of such review, PJM shall prepare a recommendation to either modify or retain the existing Variable Resource Requirement Curve shape. The Office of the Interconnection shall post the recommendation and shall review the recommendation through the stakeholder process to solicit stakeholder input. If a modification of the Variable Resource Requirement Curve shape is recommended, the following process shall be followed:

- A) If the Office of the Interconnection determines that the Variable Resource Requirement Curve shape should be modified, Staff of the Office of the Interconnection shall propose a new Variable Resource Requirement Curve shape on or before May 15, prior to the conduct of the Base Residual Auction for the first Delivery Year in which the new values would be applied.
- B) The PJM Members shall review the proposed modification to the Variable Resource Requirement Curve shape.
- C) The PJM Members shall either vote to (i) endorse the proposed modification, (ii) propose alternate modifications or (iii) recommend no modification, by August 31, prior to the conduct of the Base Residual Auction for the first Delivery Year in which the new values would be applied.
- D) The PJM Board of Managers shall consider a proposed modification to the Variable Resource Requirement Curve shape, and the Office of the Interconnection shall file any approved modified Variable Resource Requirement Curve shape 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.

iv) Cost of New Entry

- A) For the Incremental Auctions, the Cost of New Entry for the PJM Region and for each LDA shall be the respective value used in the Base Residual Auction for each corresponding Delivery Year and

LDA. For the Delivery Year commencing on June 1, 2022 through and including the Delivery Year commencing on June 1, 2025, the Cost of New Entry for the PJM Region shall be the average of the Cost of New Entry for each CONE Area listed in this section as adjusted pursuant to subsection (a)(iv)(B).

Geographic Location Within the PJM Region Encompassing These Zones	Cost of New Entry in \$/MW-Year
PS, JCP&L, AE, PECO, DPL, RECO (“CONE Area 1”)	108,000
BGE, PEPCO (“CONE Area 2”)	109,700
AEP, Dayton, ComEd, APS, DQL, ATSI, DEOK, EKPC, Dominion, OVEC (“CONE Area 3”)	105,500
PPL, MetEd, Penelec (“CONE Area 4”)	105,500

A-1) Cost of New Entry for 2025/2026 Delivery Year

A new CONE Area 5 encompassing only the ComEd Zone shall be established and the ComEd Zone will be removed from CONE Area 3. For the 2025/2026 Delivery Year, the Cost of New Entry for CONE Area 5 will be equal to the product of the Cost of New Entry determined for CONE Area 3 for the 2025/2026 Delivery Year multiplied by an asset life factor of 1.0069. For the 2025/2026 Delivery Year, the Cost of New Entry for the PJM Region shall be the average of the Cost of New Entry for all CONE Areas.

B) Beginning with the 2023/2024 Delivery Year through and including the 2025/2026 Delivery Year, the CONE for each CONE Area (except for CONE Area 5) shall be adjusted to reflect changes in generating plant construction costs based on changes in the Applicable United States Bureau of Labor Statistics (“BLS”) Composite Index, and then adjusted further by a factor of 1.022 to reflect the annual decline in bonus depreciation scheduled under federal corporate tax law, in accordance with the following:

- (1) The Applicable BLS Composite Index for any Delivery Year and CONE Area shall be the most recently published twelve-month change, at the time CONE values are required to be posted for the Base Residual Auction for such Delivery Year, in a composite of the BLS Quarterly Census of

Employment and Wages for Utility System Construction (weighted 20%), the BLS Producer Price Index for Construction Materials and Components (weighted 55%), and the BLS Producer Price Index Turbines and Turbine Generator Sets (weighted 25%), as each such index is further specified for each CONE Area in the PJM Manuals.

- (2) The CONE in a CONE Area shall be adjusted prior to the Base Residual Auction for each Delivery Year by applying the Applicable BLS Composite Index for such CONE Area to the Benchmark CONE for such CONE Area, and then multiplying the result by 1.022.
 - (3) The Benchmark CONE for a CONE Area shall be the CONE used for such CONE Area in the Base Residual Auction for the prior Delivery Year (provided, however that the Gross CONE values stated in subsection (a)(iv)(A) above shall be the Benchmark CONE values for the 2022/2023 Delivery Year to which the Applicable BLS Composite Index shall be applied to determine the CONE for subsequent Delivery Years), and then multiplying the result by 1.022.
 - (4) Notwithstanding the foregoing, CONE values for any CONE Area for any Delivery Year shall be subject to amendment pursuant to appropriate filings with FERC under the Federal Power Act, including, without limitation, any filings resulting from the process described in section 5.10(a)(vi)(C) or any filing to establish new or revised CONE Areas.
- C) For the 2026/2027 Delivery Year and 2027/2028 Delivery Year, the Cost of New Entry for the PJM Region shall be the average of the Cost of New Entry for each CONE Area listed in this section as adjusted pursuant to subsection (a)(iv)(C)(1).

Geographic Location Within the PJM Region Encompassing These Zones	Cost of New Entry in \$/MW-Year (ICAP)
PS, JCP&L, AE, PECO, DPL, RECO ("CONE Area 1")	136,000

BGE, PEPSCO ("CONE Area 2")	142,000
AEP, Dayton, APS, DQL, ATSI, DEOK, EKPC, Dominion, OVEC ("CONE Area 3")	147,600
PPL, MetEd, Penelec ("CONE Area 4")	143,500
ComEd ("CONE Area 5")	150,800

- (1) For the 2027/2028 Delivery Year, the CONE for each CONE Area shall be adjusted to reflect changes in generating plant construction costs based on changes in the Applicable United States Bureau of Labor Statistics ("BLS") Composite Index, in accordance with the following:
 - (a) The Applicable BLS Composite Index for any Delivery Year and CONE Area shall be the most recently published twelve-month change, at the time CONE values are required to be posted for the Base Residual Auction for such Delivery Year, in a composite of the BLS Quarterly Census of Employment and Wages for Utility System Construction (weighted 40%), the BLS Producer Price Index for Construction Materials and Components (weighted 45%), and the BLS Producer Price Index Turbines and Turbine Generator Sets (weighted 15%), as each such index is further specified for each CONE Area in the PJM Manuals.
 - (b) For CONE Areas 1 through 4, the Benchmark CONE for each CONE Area shall be the CONE used for such CONE Area in the Base Residual Auction for the prior Delivery Year (provided, however that the Gross CONE values stated in subsection (a)(iv)(C) above shall be the Benchmark CONE values for the 2026/2027 Delivery Year to which the Applicable BLS Composite Index shall be applied to determine the CONE for subsequent Delivery Years).
 - (c) For the 2027/2028 Delivery Year, the CONE for CONE Area 5 for a given

Delivery Year shall be set equal to the product of the CONE of CONE Area 3 as determined for the relevant Delivery Year in accordance with (a) and (b) above, multiplied by the asset life factor applicable to that Delivery Year where such asset life factors is 1.0376 for the 2027/2028 Delivery Year.

- (d) Notwithstanding the foregoing, CONE values for any CONE Area for any Delivery Year shall be subject to amendment pursuant to appropriate filings with FERC under the Federal Power Act, including, without limitation, any filings resulting from the process described in section 5.10(a)(vi)(C) or any filing to establish new or revised CONE Areas.

- D) For the 2028/2029 Delivery Year and for subsequent Delivery Years, the Cost of New Entry for the PJM Region shall be the average of the Cost of New Entry for each CONE Area listed in this section.

Geographic Location Within the PJM Region Encompassing These Zones	Cost of New Entry in \$/MW-Year (ICAP)
PS, JCP&L, AE, PECO, DPL, RECO (“CONE Area 1”)	218,000
BGE, PEPSCO (“CONE Area 2”)	222,000
AEP, Dayton, APS, DQL, ATSI, DEOK, EKPC, Dominion, OVEC (“CONE Area 3”)	215,000
PPL, MetEd, Penelec (“CONE Area 4”)	216,000
ComEd (“CONE Area 5”)	248,000

- (1) Beginning with the 2029/2030 Delivery Year, the Cost of New Entry for each CONE Area shall be adjusted to reflect changes in generating plant construction costs based on changes in the Applicable United States Bureau of Labor Statistics (“BLS”) Composite Index, in accordance with the following:

- (a) The Applicable BLS Composite Index for any Delivery Year and CONE Area shall be the most recently published twelve-month change, at the time Cost of New Entry values are required to be posted for the Base Residual Auction for such Delivery Year, in a composite of the Quarterly Census of Employment and Wages, which shall use NAICS 2371 Utility System Construction, Private, All Establishment Sizes (weighted 15%), BLS Producer Price Index for Commodities, Not Seasonally Adjusted, Intermediate Demand by Commodity Type, Materials and Components for Construction (weighted 10%), BLS Producer Price Index for Commodities, Not Seasonally Adjusted, Machinery and Equipment, Turbines and Turbine Generator Sets (weighted 46%), and the Bureau of Economic Analysis: Gross Domestic Product Implicit Price Deflator, Index 2017=100, Seasonally Adjusted (weighted 29%), as each such index is further specified for each CONE Area in the PJM Manuals.
- (b) For CONE Areas 1 through 5, the Benchmark CONE for each CONE Area shall be the Cost of New Entry used for such CONE Area in the Base Residual Auction for the prior Delivery Year (provided, however that the Cost of New Entry values stated in subsection (a)(iv)(C) above shall be the Benchmark CONE values for the 2028/2029 Delivery Year to which the Applicable BLS Composite Index shall be applied to determine the Cost of New Entry for subsequent Delivery Years).
- (c) For the 2029/2030 Delivery Year through and including the 2031/2032 Delivery Year, the Cost of New Entry for CONE Area 5 for a given Delivery Year shall be multiplied by the asset life factor applicable to that Delivery Year where such asset life factors are 1.025 for the 2029/2030 Delivery Year, 1.054 for the 2030/2031 Delivery Year, and 1.088 for the 2031/2032 Delivery Year.
- v) Net Energy and Ancillary Services Revenue Offset for 2023/2024 Delivery Year through and including the 2025/2026 Delivery Years (except that the calculation of the MOPR Floor Price pursuant to Tariff, Attachment DD, section 5.14(h-2) for combustion turbine resources shall remain applicable beyond the 2025/2026 Delivery Year):

- A) The Office of the Interconnection shall determine the Net Energy and Ancillary Services Revenue Offset each year for the PJM Region as (A) the annual average of the revenues that would have been received by the Reference Resource from the PJM energy markets during a period of three consecutive calendar years preceding the time of the determination, based on (1) the heat rate and other characteristics of such Reference Resource; (2) fuel prices reported during such period at an appropriate pricing point for the PJM Region with a fuel transmission adder appropriate for such region, as set forth in the PJM Manuals, assumed variable operation and maintenance expenses for such resource of \$6.93 per MWh, and actual PJM hourly average Locational Marginal Prices recorded in the PJM Region during such period; and (3) an assumption that the Reference Resource would be dispatched for both the Day-Ahead and Real-Time Energy Markets on a Peak-Hour Dispatch basis; plus (B) ancillary service revenues of \$2,199 per MW-year to be included through the 2025/2026 Delivery Year.
- B) The Office of the Interconnection also shall determine a Net Energy and Ancillary Service Revenue Offset each year for each Zone, using the same procedures and methods as set forth in the previous subsection; provided, however, that: (1) the average hourly LMPs for such Zone shall be used in place of the PJM Region average hourly LMPs; (2) if such Zone was not integrated into the PJM Region for the entire applicable period, then the offset shall be calculated using only those whole calendar years during which the Zone was integrated; and (3) a posted fuel pricing point in such Zone, if available, and (if such pricing point is not available in such Zone) a fuel transmission adder appropriate to such Zone from an appropriate PJM Region pricing point shall be used for each such Zone.

v-1) Net Energy and Ancillary Services Revenue Offset for the 2026/2027 Delivery Year and subsequent Delivery Years:

- A) For the 2026/2027 and the 2027/2028 Delivery Years, the Office of the Interconnection shall determine the Net Energy and Ancillary Services Revenue Offset each year for the PJM Region as the average of the net energy and ancillary services revenues that the Reference 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 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 is based on (a) the heat rate and other

characteristics of such Reference Resource such as assumed variable operation and maintenance expenses of \$1.19 per MWh and \$21,170 per start-up, and emissions costs; (b) Forward Hourly LMPs for the PJM Region; (c) Forward Hourly Ancillary Services Prices, (d) Forward Daily Natural Gas Prices at an appropriate pricing point for the PJM Region with a fuel transmission adder appropriate for such region, as set forth in the PJM Manuals; and (e) an assumption that the Reference Resource would be dispatched on a Projected EAS Dispatch basis.

- A-1) For the 2028/2029 and subsequent Delivery Years, the Office of the Interconnection shall determine the Net Energy and Ancillary Services Revenue Offset each year for the PJM Region as the 67th percentile of all of the calculated zonal Net Energy and Ancillary Services Revenues Offsets that the Reference 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 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 Service Revenue Offset simulation is based on (a) the heat rate and other characteristics of such Reference Resource such as assumed variable operation and maintenance expenses of \$2.65 per MWh, and emissions costs; (b) Forward Hourly LMPs for the PJM Region; (c) Forward Hourly Ancillary Services Prices, (d) Forward Daily Natural Gas Prices at an appropriate pricing point for the PJM Region with a fuel transmission adder appropriate for such region, as set forth in the PJM Manuals; and (e) an assumption that the Reference Resource would be dispatched on a Projected EAS Dispatch basis.
- B) The Office of the Interconnection also shall determine a Net Energy and Ancillary Service Revenue Offset each year for each Zone, using the same procedures and methods as set forth in the previous subsection; provided, however, that: (1) the Forward Hourly LMPs for such Zone shall be used in place of the Forward Hourly LMP for the PJM Region; (2) if such Zone was not integrated into the PJM Region for the entire three calendar years preceding the time of the determination for the RPM Auction, then simulations shall rely on only those whole calendar years during which the Zone was integrated; and (3) Forward Daily Natural Gas Prices for the fuel pricing point mapped to such Zone.
- C) “Forward Hourly LMPs” shall be determined as follows:

- (1) Identify the liquid hub to which each Zone is mapped, as specified in the PJM Manuals.
- (2) For each liquid hub, calculate the average day-ahead on-peak and day-ahead off-peak energy prices for each month during the Delivery Year over the most recent thirty trading days as of 180 days prior to the Base Residual Auction. For each of the remaining steps, the historical prices used herein shall be taken from the most recent three calendar years preceding the time of the determination for the RPM Auction:
- (3) Determine and add monthly basis differentials between the hub and each of its mapped Zones to the forward monthly day-ahead on-peak and off-peak energy prices for the hub. This differential is developed using the prices for the Planning Period closest in time to the Delivery Year from the most recent long-term Financial Transmission Rights auction conducted prior to the Base Residual Auction. The difference between the annual long-term Financial Transmission Rights auction prices for the Zone and the hub are converted to monthly values by adding, for each month of the year, the difference between (a) the historical monthly average day-ahead congestion price differentials between the Zone and relevant hub and (b) the historical annual average day-ahead congestion price differentials between the Zone and hub. This step is only used when developing forward prices for locations other than the liquid hubs;
- (4) Determine and add marginal loss differentials to the forward monthly day-ahead on-peak and off-peak energy prices for the hub. For each month of the year, calculate the marginal loss differential, which is the average of the difference between the loss components of the historical on peak or off peak day-ahead LMPs for the Zone and relevant hub in that month across the three year period scaled by the ratio of (a) the forward monthly average on-peak or off-peak day-ahead LMP at such hub to (b) the average of the historical on-peak or off-peak day-ahead LMPs for such hub in that month across the three year period. This step is only used when developing forward prices for locations other than the liquid hubs;
- (5) Shape the forward monthly day-ahead on-peak and off-peak prices to (a) forward hourly day-ahead LMPs using historic hourly day-ahead LMP shapes for the Zone and (b)

forward hourly real-time LMPs using historic hourly real-time LMP shapes for the Zone. The historic hourly shapes are based on the ratio of the historic day-ahead or real-time LMP for the Zone for each given hour in a monthly on-peak or off-peak period to the average of the historic day-ahead or real-time LMP for the Zone for all hours in such monthly on-peak or off-peak period. The historical prices used in this step shall be taken from one of each of the most recent three calendar years preceding the time of the determination for the RPM Auction;

- (6) For unit-specific energy and ancillary service offset calculations, determine and apply basis differentials from the Zone to the generation bus to the forward day-ahead and real-time hourly LMPs for the Zone. The differential for each hour of the year is developed using the difference between the historical DA or RT LMP for the generation bus and the historical DA or RT LMP for the Zone in which the generation bus is located for that same hour; and
- (7) Develop the Forward Hourly LMPs for the PJM Region pricing point. Calculate the load-weighted average of the monthly on-peak and off-peak Zonal LMPs developed in step (4) above, using the historical average load within each monthly on-peak or off-peak period. The load-weighted average monthly on-peak or off-peak Zonal LMPs are then shaped to forward hourly day-ahead and real-time LMPs using the same procedure as defined in step (5) above, except using historical LMPs for the PJM Region pricing point.

D) Forward Hourly Ancillary Services Prices shall include prices for Synchronized Reserve, Non-Synchronized Reserve and Secondary Reserve and shall be determined as follows. The historical prices used herein shall be taken from one of each of the most recent three calendar years preceding the time of the determination for the RPM Auction:

- (1) For Synchronized Reserve, the forward real-time Synchronized Reserve market clearing price shall be calculated by multiplying the historical RTO real-time hourly Synchronized Reserve market clearing price for each hour of the Delivery Year by the ratio of the real-time Forward Hourly LMP at an appropriate pricing point, as defined in the PJM manuals, to the historic hourly real-time LMP at such pricing point for the corresponding hour of the year;

- (2) For Non-Synchronized Reserve, the forward real-time Non-Synchronized Reserve market clearing price shall be calculated by multiplying the historical RTO real-time hourly Non-Synchronized Reserve market clearing price for each hour of the Delivery Year by the ratio of the real-time Forward Hourly LMP at an appropriate pricing point, as defined in the PJM manuals, to the historic hourly real-time LMP at such pricing point for the corresponding hour of the year; and
- (3) For Secondary Reserve, the forward day-ahead and real-time Secondary Reserve market clearing price shall be \$0.00/MWh for all hours.

E) Forward Daily Natural Gas Prices shall be determined as follows:

- (1) Map each Zone to the appropriate natural gas hub in the PJM Region, as listed in the PJM Manuals;
- (2) Map each natural gas hub lacking sufficient liquidity to the liquid hub to which it has the highest historic price correlation;
- (3) For each sufficiently liquid natural gas hub, calculate the simple average natural gas monthly settlement prices over the most recent thirty trading days as of 180 days prior to the Base Residual Auction;
- (4) Calculate the forward monthly prices for each illiquid hub by scaling the forward monthly price of the mapped liquid hub by the average ratio of historical monthly prices at the insufficiently liquid hub to the historical monthly prices at the sufficiently liquid over the most recent three calendar years preceding the time of determination for the RPM Auction;
- (5) Shape the forward monthly prices for each hub to Forward Daily Natural Gas Prices using historic daily natural gas price shapes for the hub. The historic daily shapes are based on the ratio of the historic price for the hub for each given day in a month to the average of the historic prices for the hub for all days in such month. The daily prices are then assigned to each hour starting 10am Eastern Prevailing Time each day. The historical prices used in this step shall be taken from one of each of the most recent three calendar

years preceding the time of the determination for the RPM Auction.

Curve vi) Process for Establishing Parameters of Variable Resource Requirement

- A) The parameters of the Variable Resource Requirement Curve will be established prior to the conduct of the Base Residual Auction for a Delivery Year and will be used for such Base Residual Auction.
- B) The Office of the Interconnection shall determine the PJM Region Reliability Requirement and the Locational Deliverability Area Reliability Requirement for each Locational Deliverability Area for which a Variable Resource Requirement Curve has been established for such Base Residual Auction on or before March 1, prior to the conduct of the Base Residual Auction for the first Delivery Year in which the new values will be applied, in accordance with the Reliability Assurance Agreement.
- C) Beginning with the Delivery Year that commences June 1, 2018, and continuing no later than for every fourth Delivery Year thereafter, the Office of the Interconnection shall review the calculation of the Cost of New Entry for each CONE Area.
 - 1) If the Office of the Interconnection determines that the Cost of New Entry values should be modified, the Staff of the Office of the Interconnection shall propose new Cost of New Entry values on or before May 15, prior to the conduct of the Base Residual Auction for the first Delivery Year in which the new values would be applied.
 - 2) The PJM Members shall review the proposed values.
 - 3) The PJM Members shall either vote to (i) endorse the proposed values, (ii) propose alternate values or (iii) recommend no modification, by August 31, prior to the conduct of the Base Residual Auction for the first Delivery Year in which the new values would be applied.
 - 4) The PJM Board of Managers shall consider Cost of New Entry values, and the Office of the Interconnection shall file any approved modified Cost of New Entry values 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.

- D) Beginning with the Delivery Year that commences June 1, 2018, and continuing no later than for every fourth Delivery Year thereafter, the Office of the Interconnection shall review the methodology set forth in this Attachment for determining the Net Energy and Ancillary Services Revenue Offset for the PJM Region and for each Zone.
- 1) If the Office of the Interconnection determines that the Net Energy and Ancillary Services Revenue Offset methodology should be modified, Staff of the Office of the Interconnection shall propose a new Net Energy and Ancillary Services Revenue Offset methodology on or before May 15, prior to the conduct of the Base Residual Auction for the first Delivery Year in which the new methodology would be applied.
 - 2) The PJM Members shall review the proposed methodology.
 - 3) The PJM Members shall either vote to (i) endorse the proposed methodology, (ii) propose an alternate methodology or (iii) recommend no modification, by August 31, prior to the conduct of the Base Residual Auction for the first Delivery Year in which the new methodology would be applied.
 - 4) The PJM Board of Managers shall consider the Net Revenue Offset methodology, and the Office of the Interconnection shall file any approved modified Net Energy and Ancillary Services Revenue Offset values 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.

b) Locational Requirements

The Office of Interconnection shall establish locational requirements prior to the Base Residual Auction to quantify the amount of Unforced Capacity that must be committed in each Locational Deliverability Area, in accordance with the Reliability Assurance Agreement.

c) [Reserved]

d) Preliminary PJM Region Peak Load Forecast for the Delivery Year

The Office of the Interconnection shall establish the Preliminary PJM Region Load Forecast for the Delivery Year in accordance with the PJM Manuals by February 1, prior to the conduct of the Base Residual Auction for such Delivery Year.

e) Updated PJM Region Peak Load Forecasts for Incremental Auctions

The Office of the Interconnection shall establish the updated PJM Region Peak Load Forecast for a Delivery Year in accordance with the PJM Manuals by February 1, prior to the conduct of the First, Second, and Third Incremental Auction for such Delivery Year.

Revisions to the
Reliability Assurance Agreement

(Clean Format)

SCHEDULE 9.2:

EFFECTIVE LOAD CARRYING CAPABILITY ANALYSIS FOR THE 2025/2026 DELIVERY YEAR AND SUBSEQUENT DELIVERY YEARS

A. Overview of Effective Load Carrying Capability Analysis

The inputs of the effective load carrying capability analysis shall consider similar data and forecasts as that used in development of the FPR, as described in Schedule 4.C, and will include:

- Historical weather and load data;
- Historical output of existing Variable Resources;
- Estimates of putative historical output for planned Variable Resources;
- Forced outage patterns for Unlimited Resources, including consideration of correlated outage risks;
- Resource deployment forecast; and
- Modeling parameters for Limited Duration Resources, Combination Resources, and Demand Resources.

The outputs of the effective load carrying capability analysis include:

- ELCC Class Rating values, in percent.

B. ELCC Classes

(1) (a) The following are the ELCC Classes for Variable Resources:

- Tracking Solar Class
- Fixed-Tilt Solar Class
- Onshore Wind Class
- Offshore Wind Class
- Intermittent Landfill Gas Class
- Intermittent Hydropower Class
- Other Variable Resource Class

(b) The following are the types of ELCC Classes for Limited Duration Resources:

- The type of Capacity Storage Resource Classes
- The type of Other Limited Duration Resource Classes

Within those types, the following are the specific ELCC Classes for Limited Duration Resources:

- Capacity Storage Resource Class (4-Hour Duration)
- Capacity Storage Resource Class (6-Hour Duration)
- Capacity Storage Resource Class (8-Hour Duration)
- Capacity Storage Resource Class (10-Hour Duration)

- Other Limited Duration Class (4-Hour Duration)
- Other Limited Duration Class (6-Hour Duration)
- Other Limited Duration Class (8-Hour Duration)
- Other Limited Duration Class (10-Hour Duration)

(c) The following are the ELCC Classes for Combination Resources:

- The types of Hybrid Resource Classes, as further specified in subpart (2) below
- Hydropower With Non-Pumped Storage Class
- Complex Hybrid Class
- The types of Other Limited Duration Combination Classes, as further specified in subpart (3).

(d) The following are the ELCC Classes for Unlimited Resources

- Nuclear Class
- Coal Class
- Gas Combined Cycle Class
- Gas Combustion Turbine Class
- Gas Combined Cycle Dual Fuel Class
- Oil Fired Combustion Turbine Class (effective with the 2027/2028 Delivery Year)
- Gas Combustion Turbine Dual Fuel Class
- Diesel Utility Class
- Other Steam Class
- Waste to Energy Steam Class (effective with the 2027/2028 Delivery Year)
- Other Unlimited Resource Class

(e) The following are the ELCC Classes for Demand Resources

- Demand Resource Class

(2) PJM shall establish Hybrid Resource Classes for all “open-loop” combinations of each Capacity Storage Resource class and each Variable Resource class or Unlimited Resource class, as well as all “closed-loop” combinations of each Capacity Storage Resource class and each Variable Resource class or Unlimited Resource class. An “open-loop” resource operates by charging the storage component from the grid, while a “closed-loop” resource does not.

(3) PJM shall establish “Other Limited Duration Combination Classes” for all combinations of each Variable Resource Class and each Other Limited Duration Resource Class, and for combinations of an Unlimited Resource with each Other Limited Duration Resource Class.

(4) For a given Delivery Year, ELCC Class Ratings will not be calculated for any ELCC Class to the extent that no member of the class is expected to provide, or offer to provide capacity, in the applicable Delivery Year. PJM will determine the ELCC Class Ratings for an ELCC Class when any one of the following criteria are met:

- (a) An Existing Generation Capacity Resource or a Component DER as part of an Existing DER Capacity Aggregation Resource is in such class; or

- (b) A Planned Generation Capacity Resource or a Component DER as part of a Planned DER Capacity Aggregation Resource has submitted timely and valid data through the ELCC data submission process and is in such class; or
- (c) The resource deployment forecast contains a resource in such class.

(5) (a) For each ELCC Resource, except an ELCC Resource that is a Capacity Storage Resource or includes a Capacity Storage Resource component, PJM shall determine the ELCC Class of which such resource is a member by matching the physical characteristics of such resource with the definition of the ELCC Class.

(b) For each ELCC Resource that is a Capacity Storage Resource or includes a Capacity Storage Resource component, PJM shall determine, by matching the physical characteristics of such resource with the definition of the ELCC Class, the type of ELCC Class of which such resource is a member; provided however, the Capacity Resource Provider shall choose the specific ELCC Class within the type ELCC Class identified by PJM that corresponds to the chosen characteristic duration.

If the Capacity Resource Provider fails to choose, PJM will choose a specific ELCC Class to assign to such resource. The election of the specific ELCC Class corresponding to the chosen characteristic duration shall be for a term of five consecutive Delivery Years. After such five Delivery Year period, a Capacity Resource Provider may request a change in the ELCC Class, based on choosing a different characteristic duration, by submitting to the Office of the Interconnection a written request to switch ELCC Classes and provide documentation supporting such change. A Capacity Resource Provider must submit such a request, and supporting documentation, by August 1 prior to the calendar year for the RPM Auction in which the ELCC Resource intends to submit a Sell Offer or otherwise commit to provide capacity, except for 2025/2026 Delivery Year such required information must be provided to the Office of the Interconnection in accordance with the PJM Manuals. The Office of the Interconnection shall provide no later than following November 15 written notification to the Capacity Resource Provider of its determination. If the request is granted, the ELCC Resource shall be considered in the new ELCC Class starting with the next Delivery Year for which no RPM Auction has been conducted and for subsequent Delivery Years. If the request is denied, the Office of the Interconnection shall include in the notice a written explanation for the denial.

(6) Mixed-technology resources are composed of components with different generation technologies, at least one of which would be an ELCC Resource, behind a single Point of Interconnection. For a mixed-technology resource composed of components that do not have significant interaction, the components are eligible to participate as separate resources. A mixed-technology resource composed of components that have significant interaction must participate as a single Combination Resource (or, if the components would all be Variable Resources, then as a single Variable Resource).

The Capacity Resource Provider of a mixed-technology resource eligible to participate as either a single ELCC Resource or as multiple stand-alone resources shall elect, for a term of five consecutive Delivery Years, whether PJM is to model it as a single ELCC Resource or as multiple stand-alone resources. After such five Delivery Year period, a Capacity Resource

Provider may request a change in such modelling approach by submitting to the Office of the Interconnection a written request to change the modelling approach and provide documentation supporting such change. A Capacity Resource Provider must submit such a request, and supporting documentation, by August 1 prior to the calendar year for the RPM Auction in which the ELCC Resource(s) intend(s) to submit a Sell Offer or otherwise commit to provide capacity, except for 2025/2026 Delivery Year such required information must be provided to the Office of the Interconnection in accordance with the PJM Manuals. The Office of the Interconnection shall provide no later than following November 15 written notification to the Capacity Resource Provider of its determination. If the request is granted, the ELCC Resource(s) shall be modelled as requested starting with the next Delivery Year for which no RPM Auction has been conducted and for subsequent Delivery Years. If the request is denied, the Office of the Interconnection shall include in the notice a written explanation for the denial.

C. Calculation of ELCC Class Rating

ELCC Class Ratings for a Delivery Year are calculated by adding to the forecasted resource portfolio incremental quantities of resources belonging to the subject ELCC Class, depending on the resource type:

- (1) The ELCC Class Rating of Variable Resources, Limited Duration Resources, Unlimited Resources (except Other Unlimited Resources), and Demand Resources shall be the ratio of the expected unserved energy improvement resulting from adding an incremental quantity of the subject ELCC Class to the expected unserved energy improvement resulting from adding an incremental quantity of an Unlimited Resource with no outages, where expected unserved energy improvement is calculated relative to the Portfolio EUE for the Delivery Year.
- (2) No ELCC Class Rating is determined for Combination Resources and ELCC Resources in the Hydropower with Non-Pumped Storage Class, in the Complex Hybrid Class, in the Other Unlimited Resource Class, and in any ELCC Class whose members are so distinct from one another that a single ELCC Class Rating would fail to capture their physical characteristics.

D. Calculation of Accredited UCAP and ELCC Resource Performance Adjustment

- (1) (a) For Variable Resources and Limited Duration Resources, Accredited UCAP values shall be equal to the lesser of the resource's Capacity Interconnection Right or the product of:
 - (i) the Effective Nameplate Capacity;
 - (ii) the applicable ELCC Class Rating; and
 - (iii) the ELCC Resource Performance Adjustment.
- (b) For any resource in an ELCC Class for which no Class Rating has been calculated pursuant to C(2), the Accredited UCAP shall be based on a resource-specific effective load carrying capability analysis based on the resource's unique parameters.
- (c) For Unlimited Resources that have an ELCC Class Rating determined pursuant to C(1), Accredited UCAP values shall be equal to the product of:
 - (i) the installed capacity;

- (ii) the applicable ELCC Class Rating; and
- (iii) the ELCC Resource Performance Adjustment.

(d) For Demand Resources, Accredited UCAP values shall be equal to the product of:

- (i) the Nominated Value of the Demand Resource; and
- (ii) the applicable ELCC Class Rating.

(2) The ELCC Resource Performance Adjustment shall be calculated according to the following methods, as further detailed in the PJM Manuals:

(a) For a Variable Resource, a Limited Duration Resource, and an Unlimited Resource: based on a metric consisting of the weighted average expected hourly output of the resource in the ELCC model during hours of loss of load risk where: (i) the weights correspond to the modeled probability of losing load in such hour and (ii) the expected hourly output is based on the resource's modeled output during the same hour on days since June 1st, 2012 identified as having similar weather from an RTO-perspective. For a given resource or component, the Performance Adjustment shall equal the ratio of such metric to the average (weighted by the Effective Nameplate Capacity) of such metrics for all units in the applicable Variable Resource ELCC Class or applicable Unlimited Resource ELCC Class.

In determining the ELCC Resource Performance Adjustment, the actual output of a Variable Resource shall be adjusted to reflect historical curtailments, and output in any hour shall be capped at: (i) the greater of the Variable Resource's Capacity Interconnection Rights, 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, for hours in the months of June through October and the following May of the Delivery Year, and (ii) the Variable Resource's assessed deliverability, as defined in the PJM Manuals, for hours in the months of November through April of the Delivery Year. The output of an Unlimited Resource in any hour shall be capped at the greater of the resource's Capacity Interconnection Rights, 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..

E. Calculation of Accredited UCAP Factor

For Generation Capacity Resources, PJM shall determine an Accredited UCAP Factor, which is the ratio of the resource's Accredited UCAP to the resource's installed capacity.

G. Installed Capacity of ELCC Resources

Rules and procedures for technically determining and demonstrating the installed capacity of ELCC Resources shall be developed by the Office of the Interconnection and maintained in the PJM Manuals. The installed capacity of a Limited Duration Resource is based on the sustained level of output that the unit can provide and maintain over a continuous period, whereby the duration of that 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, as described in the PJM Manuals. The installed capacity of a Combination Resource (other

than Hydropower With Non-Pumped Storage) is based on the lesser of the Maximum Facility Output or the sum of the equivalent Effective Nameplate Capacity values of the resource's constituent components considered on a stand-alone basis. The installed capacity of an Unlimited Resource and Variable Resource shall be determined in accordance with the PJM Manuals. The installed capacity of Demand Resources, for purposes of the ELCC analysis, is based on the forecasted deployment level in the PJM Load Forecast.

H. Details of the Effective Load Carrying Capability Methodology

The effective load carrying capability analysis shall compare expected hourly load levels (based on historical weather) with the expected hourly output of the expected future resource mix in order to identify the relative marginal resource adequacy value of each individual ELCC Class compared to an Unlimited Resource with no outages. In performing this analysis, the model inputs shall be scaled to meet the annual reliability criteria of the Office of the Interconnection. The effective load carrying capability analysis shall compare hourly values for: (i) expected load based on historical weather; (ii) expected Variable Resource output; (iii) expected output of Limited Duration Resources and of Combination Resources as described below; (iv) expected Unlimited Resource output; and (v) expected Demand Resource output. These expected quantities are based on forecasted load and actual and putative values for Variable Resource output (standalone or as a component of Combination Resources) and Unlimited Resource output after June 1, 2012 (inclusive) through the most recent Delivery Year for which complete data exist. For resources that have not existed each year since June 1, 2012, putative output is an estimate of the hourly output that resource would have produced in a historical hour if that resource had existed in that hour. For Variable Resources, this putative output estimate is developed based on historical weather data consistent with the particular site conditions for each such resource in accordance with the PJM Manuals; for Unlimited Resources, the putative output is developed based on actual performance of similar units in accordance with the PJM Manuals.

Variable Resource actual output shall be adjusted in the ELCC analysis to reflect historical curtailments, and output shall be capped in any hour at: (i) the greater of the Variable Resource's Capacity Interconnection Rights, 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, during the months of June through October and the following May of the Delivery Year, and (ii) the Variable Resource's assessed deliverability, as defined in the PJM Manuals, during the months of November through April of the Delivery Year. The output of Unlimited Resources shall not exceed the greater of the Unlimited Resource's Capacity Interconnection Rights, 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.

The effective load carrying capability analysis shall simulate performance of Demand Resources, and shall simulate the output of Limited Duration Resources and Combination Resources based on their Office of the Interconnection-validated parameters, including the putative output of the Variable Resource component of Combination Resources, as described above.

The quantity of deployed resources studied in the analysis shall be based on resource deployment forecasts and, where applicable, on available information based on Sell Offers submitted in RPM Auctions or Fixed Resource Requirement plans for the applicable Delivery Year, and, where

applicable, information provided to the Office of the Interconnection regarding intent to offer in an RPM Auction, pursuant to the requirements in the Tariff, Attachment DD, section 5.5.

The model inputs, specifically the load scenarios, shall be scaled to meet the annual reliability criteria of the Office of the Interconnection. The resulting expected unserved energy constitutes the Portfolio EUE for the Delivery Year. Energy Resources are not included in the effective load carrying capability analysis. Generating units that are expected to only offer or otherwise provide a portion of their Accredited UCAP for that Delivery Year are represented in the analysis in proportion to the expected quantity offered or delivered divided by the Accredited UCAP.

I. Methodology to Simulate Output of Certain Resources in the Effective Load Carrying Capability Model

The effective load carrying capability analysis shall simulate the output of Limited Duration Resources and Combination Resources based on their physical parameters, including limited storage capability, and shall simulate the deployment of Demand Resources. The analysis shall simulate output from the subject Limited Duration Resources, Combination Resources, and Demand Resources in hours in which all output from Unlimited Resources and available output from Variable Resources is insufficient to meet load. The analysis shall first simulate the output of Demand Resources. If the simulated output of Demand Resources is insufficient to meet load, then the output of the subject Limited Duration Resources and Combination Resources shall be simulated on an hour-by-hour basis based on their relative duration, starting from longer duration resources to shorter duration resources. The output of Combination Resources shall be capped in any hour at: (i) the greater of the Combination Resource's Capacity Interconnection Rights, 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, during the months of June through October and the following May of the Delivery Year, and (ii) the Combination Resource's assessed deliverability, as defined in the PJM Manuals, during the months of November through April of the Delivery Year. Energy Storage Resource charging is during hours with sufficient margin, including between daily peaks if necessary.

J. Administration of Effective Load Carrying Capability Analysis

The Office of the Interconnection shall post final ELCC Class Rating values at least once per year in a report that also includes appropriate details regarding methodology and inputs. The Office of the Interconnection shall post this report and shall communicate ELCC Resource Performance Adjustment values to applicable Capacity Resource Providers no later than four months prior to the start of the target Delivery Year, as described in the PJM Manuals. Accredited UCAP values for the applicable Delivery Year shall establish the maximum Unforced Capacity that an ELCC Resource can physically provide or offer to provide in the applicable Delivery Year.

The Office of the Interconnection shall also post preliminary ELCC Class Rating values for nine subsequent Delivery Years. For any Delivery Year for which a final ELCC Class Rating has not been posted and a preliminary ELCC Class Rating has been posted, the Accredited UCAP of an ELCC Resource for such Delivery Year shall be based on the most recent preliminary ELCC

Class Rating value for that Delivery Year, together with the most recently calculated ELCC Resource Performance Adjustment value for that ELCC Resource. Except to the extent specified above or otherwise specified, the preliminary ELCC Class Rating values for future years are non-binding and are only for indicative purposes. A Capacity Resource Provider can offer or provide capacity from an ELCC Resource that is not subject to a capacity market must offer obligation (as specified in Tariff, Attachment DD, Section 6.6) at a level less than the Accredited UCAP for such resource.

In order to facilitate the effective load carrying capability analysis, the Capacity Resource Provider of each ELCC Resource must submit to the Office of the Interconnection the required information as specified in the PJM Manuals by no later than August 1 prior to the calendar year for the RPM Auction in which the ELCC Resource intends to submit a Sell Offer or otherwise commit to provide capacity, except for 2025/2026 Delivery Years such required information must be provided to the Office of the Interconnection in accordance with the PJM Manuals. The required information may include relevant physical parameters, relevant historical data such as weather data and actual or estimated historical energy output, and documentation supporting such parameters and historical data. The relevant physical parameters are those that are incorporated into the effective load carrying capability analysis. The parameters required for Hydropower With Non-Pumped Storage shall include Ordinary Water Storage and any applicable Exigent Water Storage. Submitted parameters must indicate the expected duration for which any submitted physical parameters are valid.

The Office of the Interconnection shall evaluate, validate, and approve the foregoing information in accordance with the process set forth in the PJM Manuals. In evaluating the validity of submitted information, the Office of the Interconnection may assess the consistency of such information with observed conditions. If the Office of the Interconnection observes that the information provided by the Capacity Resource Provider of the ELCC Resource is inconsistent with observed conditions, the Office of the Interconnection will coordinate with the Capacity Resource Provider of the ELCC Resource to understand the information and observed conditions before making a determination regarding the validity of the applicable parameters. The Office of the Interconnection may engage the services of a consultant with technical expertise to evaluate the foregoing information.

After the Office of the Interconnection has completed its evaluation of the foregoing information, the Office of the Interconnection shall notify the Capacity Resource Provider in writing whether the submitted information is considered invalid by no later than September 1 following the submission of the information. The Office of the Interconnection's determination on the validity of the foregoing information shall continue for the applicable Delivery Year and, if requested, for such longer period as the Office of the Interconnection may determine is supported by the data.

In the event that the Office of the Interconnection is unable to validate any of the required information, physical parameters, supporting documentation, or other related information submitted by the Capacity Resource Provider of an ELCC Resource, then the Office of the Interconnection shall calculate Accredited UCAP values for that ELCC Resource based only on the validated information. Such ELCC Resource shall not be permitted to offer or otherwise provide capacity above such Accredited UCAP values until the Office of the Interconnection determines new Accredited UCAP values for such resource.

Capacity Resource Providers of ELCC Resources that are hydropower plants with water storage must provide documentation to support the physical parameters provided for expected load carrying capability analysis modeling, as specified in the PJM Manuals. This documentation must: (a) support the plant's physical capabilities; (b) demonstrate that the parameters do not violate any federal, state, river basin, or other applicable authority operating limitations of the plant; and (c) demonstrate full authorization from FERC, any river basin commissions, and any other applicable authorities to meet those capabilities.