

Attachment A: Glossary of Terms

Projected Performance Assessment Intervals – the estimated number of Performance Assessment Intervals expected to be in effect for a Delivery Year, where this value shall be assumed to be 360 intervals (30 hours) prior to the 2022/2023 Delivery Year; and effective with the 2022/2023 Delivery Year, calculated by taking the average number of Performance Assessment Intervals declared for the entire PJM Region in the three Delivery Years immediately preceding the Base Residual Auction for such Delivery Year. For purposes of calculating the default Market Seller Offer Cap, as described in section 6.4 of Attachment DD of the PJM Tariff, the Projected Performance Assessment Hours shall be no less than 60 intervals (5 hours), and for purposes of calculating the Non-Performance Charge Rate for Capacity Performance Resources, shall be no less than 180 intervals (15 hours).

5.4 Sell Offers in RPM

5.4.1 Resource-Specific Sell Offer Requirements

Sell Offers for the Base Residual and Incremental Auctions must be submitted in PJM's eRPM system. Sell offers are only accepted during a fixed bidding window which is open for at least five (5) business days. The bidding window for a Base Residual Auction and Incremental Auctions will be posted on the PJM website. Sell offers may not be changed or withdrawn after the bidding window for a Base Residual Auction or Incremental Auction is closed.

The following are business rules that apply to Resource-Specific Sell Offers:

- The smallest increment that may be offered into any auction is 0.1 MW
- A resource-specific sell offer will specify, as appropriate:
 - Specific Generating Unit, Demand Resource, Energy Efficiency Resource, or Aggregate Resource
 - For the 2014/2015 through the 2017/2018 Delivery Year, a demand resource with the potential to qualify as two or more product types may submit separate but coupled Sell Offers for each product type for which it qualifies at different sell offer prices and the auction clearing algorithm will select the Sell Offer that yields the least-cost solution. Separate resources will be modeled in the eRPM system for each product type. For coupled Sell Offers, the offer price of the Annual Demand Resource offer must be at least \$.01/MW-day greater than the offer price of the coupled Extended Summer Demand Resource offer and the offer price of an Extended Summer Demand Resource must be at least \$.01/MW-day greater than the offer price of the coupled Limited Demand Resource offer.
 - For the 2018/2019 and 2019/2020 Delivery Year, a generation, demand resource, or energy efficiency resource with the potential to qualify as Base or Capacity

Performance product type may submit separate, but coupled Base and Capacity Performance sell offer segments and the auction clearing algorithm will select the sell offer segment that yields the least-cost solution. The submission of a coupled sell offer segments shall be mandatory for any Capacity Performance Resource submitting a cost-justified sell offer price greater than the product of the historical balancing ratio times the Net Cost of New Entry in the zonal LDA where the resource resides. For such coupled sell offer segments, the sell offer price of a Capacity Performance sell offer segment must be at least \$.01 per MW-day greater than the sell offer price of a coupled Base sell offer segment.

- With the exception of Intermittent Resources and Capacity Storage Resources, each Generation Capacity Resource with available capacity that is capable or can reasonably become capable of qualifying as a Capacity Performance Resource must submit a Capacity Performance sell offer segment.
 - Intermittent Resources are generation capacity resources with output that can vary as a function of its energy source, such as wind, solar, landfill gas, run of river hydroelectric power and other renewable resources. An acceptable method for determining the quantity of unforced capacity MWs that may offer as Capacity Performance for an intermittent resource is based on calculating the average of the hourly output (MWh) of the intermittent resource during the expected performance hours in the summer and winter. The expected performance hours in the summer are hours ending 15:00 through 20:00 EPT in the months of June, July, and August. The expected performance hours in the winter are hours ending 6:00 through 9:00 EPT and 18:00 through 21:00 EPT in the months of January and February. Notwithstanding the above, PJM may review and accept alternative proposed methods for determining the quantity of unforced capacity MWs that may be offered as Capacity Performance for an Intermittent resource.
 - Capacity Storage Resources shall mean any hydroelectric power plant, flywheel, battery storage, or other such facility solely used for short term storage and injection of energy at a later time. An acceptable method for determining the quantity of unforced capacity MWs that may offer as Capacity Performance for a Capacity Storage Resource is based on calculating the average of the hourly output (MWh) of the intermittent resource during the expected performance hours in the summer and winter. The expected performance hours in the summer are hours ending 15:00 through 20:00 EPT in the months of June, July, and August. The expected performance hours in the winter are hours ending 6:00 through 9:00 EPT and 18:00 through 21:00 EPT in the months of January and February.
- Exceptions to the capacity performance must-offer requirement will be permitted for a generation capacity resource which the Capacity Market Seller demonstrates is reasonably expected to be physically incapable of satisfying the requirements

for a Capacity Performance Generation Resource. The Seller must submit a request for an exception (with all supporting information) no later than 120 days before the offer window opens for the relevant RPM Auction.

- A generation resource that can qualify as Capacity Performance product type, but requires substantial investment to do so, is not excused from the capacity performance must-offer requirement, but may submit coupled Base and Capacity Performance offer segments.
 - Intermittent Resources, Capacity Storage Resources, Demand Resources, Energy Efficiency Resources are not required to submit a Capacity Performance sell offer segment.
 - Minimum and maximum amount of installed capacity offered in MWs for the resource by Offer Segment (Base or Capacity Performance offer segment effective for 2018/2019 and 2019/2020 Delivery Years)
 - Minimum and maximum amount of installed capacity offered in MWs for the resource by Capacity Performance (annual) Offer Segment and Maximum amount of installed capacity offered in a Seasonal (summer or winter) Capacity Performance Offer Segment. The Seasonal Capacity Performance Offer Segment is considered a flexible offer segment with a minimum MW quantity set to zero MW. (Effective with the 2020/2021 Delivery Year)
 - Offer Segment price willing to receive in \$/MW-day (in UCAP terms)
 - Regular Schedule, Self-Schedule or Flexible Self-Schedule flag
 - EFORd to apply to the offered MWs (only applicable in the Base Residual Auction, First Incremental Auction, and Second Incremental Auction) for generation resources
 - New Unit Pricing participation flag for Planned Generation Capacity Resources requesting New Unit Pricing Adjustment.
- The ICAP MW quantity specified in the Offer Segment will be converted into an UCAP MW quantity by the sell offer EFORd for use in the auction clearing. The sell offer price specified in the Offer Segment is in UCAP terms and will not be converted for use in the auction clearing.
 - A Base, Capacity Performance, or Seasonal Capacity Performance Offer Segment may be offered as either a single price quantity for the capacity of the resource or divided into up to ten offer blocks with varying price-quantity pairs that represent various segments of capacity from the resource. The Offer Segment will consist of block segments at the specified price-quantity pairs.
 - The seller specifies the EFORd to apply if participating in a Base Residual Auction, First Incremental Auction, or Second Incremental Auction.
 - The EFORd cannot exceed the greater of the EFORd calculated based on outage data for 12 months ending September 30th prior to the Base Residual Auction, the 5 Year Average EFORd based on outage data for 12 months ending September 30th prior to the Base

Residual Auction, or the EFORd submitted by the market participant in their Base Residual Auction Sell Offer.¹

- The EFORd applied to the Third Incremental Auction will be determined by PJM using the forced outage data for the 12 months ending on September 30 prior to the relevant Delivery Year. The seller is willing to accept the clearing of any amount equal to or greater than the minimum MW amount offered and equal to or less than the maximum MW offered.
- If the self-scheduled flag is enabled in the Base or Capacity Performance Offer segment, the sell offer price must be set to zero and the minimum and maximum amounts specified in the sell offer must be equal.
- The acceptance of the sell offer is based on the party's Maximum Available ICAP Position for the Delivery Year at the opening of the auction's bidding window. Effective with the 2020/2021 Delivery Year, the acceptance of the sell offer is based on the party's Maximum Available ICAP Position for the entire Delivery Year (annual position) if Capacity Performance Resource, Maximum Available ICAP Position for summer period (summer position) if Summer-Period Capacity Performance Resource, Maximum Available ICAP Position for winter period (winter position) if Winter-Period Capacity Performance Resource.
- If a participant has a positive Maximum Available ICAP Position for the Delivery Year, PJM only accepts a sell offer up to the Maximum Available ICAP Position for the Delivery Year. (Prior to 2020/2021 Delivery Year)
- Effective with the 2020/2021 Delivery Year, the total MWs offered across all Capacity Performance offer segments may not exceed the Maximum Available ICAP Position for the Delivery Year (i.e., the annual position). The total MWs offered across the Capacity Performance offer segments and the Seasonal Capacity Performance-Summer offer segments may not exceed the Maximum Available ICAP Position for summer period (i.e., the summer position). The total MWs offered across the Capacity Performance offer segments and the Seasonal Capacity Performance-Winter offer segments may not exceed the Maximum Available ICAP Position for winter period (i.e., the winter position).
- If a participant has a zero or negative Maximum Available ICAP Position, PJM will reject the sell offer.
- A sell offer in an RPM Auction that violates any "Conditions on Sales by FRR Entities" as presented in the FRR Business Rules will be rejected.
- For Planned Resources and external resources without firm transmission, sell offers for which the RPM Credit Requirement exceeds the credit available will be rejected.
- Prior to the 2022/2023 Delivery Year, aA generation resource's default sell offer cap for any capacity performance offer segment shall be the product of the [average](#) historical balancing ratios, [as provided in Section 6.4\(a\) of Attachment DD of the PJM Tariff](#), times the Net CONE of the zonal LDA in which the resource resides. [Effective with the 2022/2023 Delivery Year, a generation resource's default sell offer cap for any capacity](#)

¹Prior to March 27, 2009, the EFORd could not exceed the EFORd calculated based on outage data for 12 months ending September 30th prior to the auction.

performance offer segment shall be the product of the applicable CP Non-Performance Charge Rate times the Projected Performance Assessment Intervals times the average historical balancing ratios, as provided in Section 6.4(a) of Attachment DD of the PJM Tariff. Market Sellers may qualify to submit a sell offer price above the default offer cap for a capacity performance offer segment by submitting Avoidable Cost Rate data to IMM and PJM 120 days prior to the RPM Auction.

- All sell offers for a supplier that fails the Three-Pivotal Supplier Test will be capped within the mitigated LDA
- Prior to the 2020/2021 Delivery Year, cleared sell offers and offers receiving Make-Whole payments are binding commitments to provide capacity for the entire Delivery Year.
- Effective with the 2020/2021 Delivery Year, cleared MWs and make-whole MWs for Capacity Performance Offer Segments are binding commitments to provide capacity for the entire Delivery Year. Cleared MWs for Seasonal Capacity Performance-Summer Offer Segments are binding commitments to provide capacity for the summer period of June through October and May of the Delivery Year. Cleared MWs for Seasonal Capacity Performance-Winter Offer Segments are binding commitments to provide capacity for the winter period of November through April of the Delivery Year.

8.4A Non-Performance Assessment

Effective with the 2018/2019 Delivery Year², a new Non-Performance Assessment³ will assess performance of resources during emergency conditions. Non-Performance Assessment applies to both Base Capacity Resource and Capacity Performance Resource commitments. Base Capacity Resource commitments are exposed to Non-Performance Charges only for under-performance during Emergency Actions in summer months of June through September. Capacity Performance Resource commitments are exposed to Non-Performance Charges for under-performance during Emergency Actions throughout the entire Delivery Year. Resources that fail to perform are subject to Non-Performance Charge and resources that over-perform may be eligible for Bonus Performance Credit.

Implementation of the Non-Performance Assessment will eliminate Peak Season Maintenance Compliance and Peak-Hour Period Availability Assessment for generation resources and Load Management Event Compliance for Demand Resources.

The Non-Performance Assessment will compare each Capacity Resource's Expected Performance against its Actual Performance for each Performance Assessment Interval. Performance Assessment Interval shall mean each Real-time Settlement Interval for which an Emergency Action has been declared by PJM. Performance Assessment Intervals are delineated by PJM's

²Resources with Capacity Performance Commitments in 2016/2017 Transitional Incremental Auction or 2017/2018 Transitional Incremental Auction will be the only resources subject to the Non-Performance Assessment in such transition Delivery Years.

³OATT, Attachment DD, Section 10A

declaration of Emergency Actions. Emergency Actions shall mean any emergency action for locational or system-wide capacity shortages that either utilizes pre-emergency mandatory load management reductions or other emergency capacity, or initiates a more severe action, including but not limited to, a Voltage Reduction Warning, Voltage Reduction Action, Manual Load Dump Warning, or Manual Load Dump Actions. Performance is assessed for each interval that PJM declares the following actions:

- Pre-Emergency Load Management Reduction Action
- Emergency Load Management Reduction Action
- Primary Reserve Warning
- Maximum Generation Emergency Action
- Emergency Voluntary Energy Only Demand Response Reductions
- Voltage Reduction Warning and Reduction of Non-Critical Plant Load
- Curtailment of Non-Essential Business Load
- Deploy All Resources Action
- Manual Load Dump Warning
- Voltage Reduction Action
- Manual Load Dump Action
- Load Shed Directive

The Non-Performance Assessment will encompass all resources located in the area defined by the Emergency Action. If the Emergency Action area is PJM-wide then External Generation Capacity Resources (prior to the 2020/2021 Delivery Year only) and Net Energy Imports are included in this assessment. Effective with the 2021/2022 Delivery Year, External Generation Capacity Resources are included in the assessment if such external resource would have helped resolve the declared Emergency Action that was the subject of the assessment. At the start of the Delivery Year, PJM will inform the Capacity Market Seller of an external resource as to which Locational Deliverability Area it has been assigned for Non-Performance Assessment purposes. QTUs will be deemed to be located in the LDA into which such upgrade increased the CETL and the QTU will be included in the Non-Performance Assessment only if, and to the extent that, the declared Emergency Action encompasses only the LDA into which the upgrade increased the CETL.

For each Performance Assessment Interval, the Actual Performance and the Expected Performance is used to calculate a Performance Shortfall that determines both the Non-Performance Charge and Bonus Performance Credit applicability.

For each Performance Assessment Interval, the Actual Performance is equal to:

- for each generation resource (including External Generation Capacity Resources when applicable), the metered output of delivered energy plus the resource's real-time reserve or regulation assignment⁴, if any; however, the resulting MW quantity is floored at 0 MW;

⁴The metered output of jointly owned generation resources is allocated to each owner pro-rata with each owner's share of the total Installed Capacity of the resource.

- for each Demand Resource, the demand response provided plus the resource's real-time reserve or regulation assignment, if any;
- for each Energy Efficiency Resource, the load reduction quantity approved by PJM subsequent to the pre-delivery year submittal of a post-installation M&V Report⁵;
- for each entity providing Net Energy Imports during a PJM-wide event, the Net Energy Import quantity excluding any energy delivered from External Generation Capacity Resources ; and,
- for each Qualified Transmission Upgrade, the cleared MW quantity of the QTU if it is in-service prior to the start of the day of the Performance Assessment Interval, and zero if it is not in-service prior to the start of such day.

For each Performance Assessment Interval, the Expected Performance is equal to:

- for each generation resource (including External Generation Capacity Resources when applicable), the resource's committed Unforced Capacity times the ratio⁶ of [(total amount of Actual Performance for all generation resources, plus net energy imports⁷, plus total Demand Response Bonus Performance for that interval) / (total amount of committed Unforced Capacity of all Generation Capacity Resources)]; and,
- for each Demand Resource and Energy Efficiency Resource, the resources' committed capacity without making any adjustment for the Forecast Pool Requirement (i.e., the actual load reduction quantity the resource committed to provide); and,
- for each Qualified Transmission Upgrade, the committed MW quantity.

The Performance Shortfall for a resource is calculated as Expected Performance minus the Actual Performance. If the Performance Shortfall for such resource is a positive number, the under-performing resource is subject to a Non-Performance Charge. If the Performance Shortfall is a negative number, the over-performing resource may be eligible for Bonus Performance Credit.

For generation resources with a positive Performance Shortfall amount, the Performance Shortfall may be adjusted downward due to exempt MWs. Exempt MWs consist of the following:

- Unavailable MWs associated with a generator's approved planned or maintenance outage during the Performance Assessment Interval;
- MWs for which the resource was not scheduled to operate by PJM; or
- MWs for which the resource was on-line but was scheduled down by PJM based on the determination by PJM that such scheduling action was appropriate to the security constrained economic dispatch of the PJM Region.
- If such resource was needed by PJM and would otherwise have been scheduled by PJM to perform, but was not scheduled to operate, or was scheduled down solely due to (1) any operating parameter limitations submitted in the resource's offer or (2) submission of a

⁵Base Capacity Energy Efficiency Resources are not included in the assessment of Performance Assessment Intervals that occur outside of the summer months of June through September, inclusive.

⁶This ratio will be capped at 1.

⁷Net Energy Imports are only included in this formula for PJM-wide emergency events.

market-based offer higher than its cost-based offer, then these MWs will not be considered exempted and will not result in a downward adjustment to the Performance Shortfall.

- For purposes of the Non-Performance Assessment for demand resources, compliance will be measured in accordance with Section 8.7A of this manual.
- During the Performance Shortfall calculation and the exempt MW determination, PJM will ensure that each energy offer complies with Manual 11, Section 2.3.7 and has the required associated information. If this information is not included, then no MWs will be exempt.

For Non-Performance Assessment purposes, the Actual Performance of any resource that has both Base Capacity Commitments and Capacity Performance Commitments will first be assigned to meet the resource's Expected Performance as a Capacity Performance Resource with any remaining Actual Performance next assigned to meet the resource's Expected Performance as a Base Capacity Resource.

For Non-Performance Assessment purposes during the 2016/2017 and 2017/2018 transition years, the Actual Performance of any generation resource that has both an Annual Resource commitment and a Capacity Performance commitment will first be assigned to meet the resource's Expected Performance as a Capacity Performance Resource. Actual Performance above the resource's Expected Performance will then be assigned to meet the resource's Annual commitment with any remaining Actual Performance used for purposes of determining Bonus Performance.

For Performance Assessment Intervals occurring outside of the summer period (June-September), Generation Capacity Resources that have a Base Capacity commitment, and Base Capacity Demand Resources, are not evaluated for non-performance, but are eligible for Bonus Performance Credit. For Base Capacity Generation Resources, the Bonus Performance quantity is equal to the resource's Actual Performance minus the resource's Expected Performance. For Base Capacity Demand Resources, the Bonus Performance quantity is equal to the resource's Actual Performance.

For purposes of calculating Bonus Performance quantity, the Actual Performance for a dispatchable resource shall not exceed the MW level at which such resource was scheduled and dispatched by PJM during the Performance Assessment Interval. During the Bonus Performance quantity calculation, PJM will ensure that each energy offer complies with Manual 11, Section 2.3.7 and has the required associated information associated. If this information is not included, then the Bonus Performance quantity will be zero. For self-scheduled generation resources not dispatchable by PJM, the Actual Performance will not exceed the LMP Desired MW value as calculated by PJM based upon the higher of the cost or price schedules submitted for the resource, and will be zero if the LMP Desired MW is less than the lowest point on the higher of the cost or price schedules submitted for the resource.

The interval Non-Performance Charge is calculated as Performance Shortfall multiplied by the Non-Performance Charge Rate. The Non-Performance Charge Rate for Capacity Performance

commitments is equal to ~~{~~the modeled LDA Net CONE (\$/MW-day in installed capacity terms) for which the resource resides times 365 days] divided by ~~30~~the Projected Performance Assessment Intervals} ~~divided by the number of Real-Time Settlement Intervals in an hour~~. The modeled LDAs and their respective Net CONE are provided in the Delivery Year BRA Planning Parameters posted on the PJM website.

The interval Non-Performance Charge Rate for Base Capacity commitments is equal to [(Weighted Average Resource Clearing Price (\$/MW-day) for such resource times 365 days) divided by 30] divided by the number of Real-Time Settlement Intervals in an hour. ~~The number 30 is intended to represent the number of hours during a year that Emergency Actions could reasonably be expected to be in effect~~. Stop-loss provisions limit the total Non-Performance Charge that can be assessed on each Capacity Resource.

For Capacity Performance Resources, the maximum yearly Non-Performance Charge is 1.5 times the modeled LDA Net CONE (\$/MW-day in installed capacity terms) times 365 days times the maximum daily unforced capacity committed by the resource during June 1 of the Delivery Year through the end of the month for which the Non-Performance Charge was assessed. For Seasonal Capacity Performance Resources, the maximum yearly Non-Performance Charge is based the number of days of the applicable season and the maximum daily unforced capacity committed by the resource for such season. The modeled LDAs and their respective Net CONE are provided in the Delivery Year BRA Planning Parameters posted on the PJM website.

For Base Capacity Resources, there is an annual limit on total Non-Performance Charges, equal to the total capacity revenues due to the resource for the Delivery Year.

Revenue collected from payment of Non-Performance Charges will be distributed to resources (of any type, even if they are not Capacity Resources) that perform above expectations. A resource with Actual Performance above its Expected Performance is considered to have provided Bonus Performance, and will be assigned a share of the collected Non-Performance Charge revenues in the form of a Bonus Performance Credit. This credit is based on the ratio of its Bonus Performance quantity to the total Bonus Performance quantity (from all resources) for the same Performance Assessment Interval.

The Non-Performance Assessment will apply to resources with Capacity Performance commitments for the 2016/2017 or 2017/2018 Delivery Year; however the Non-Performance Charge for the 2016/2017 Delivery Year is based on 50 percent of the Non-Performance Charge Rate and the Non-Performance Charge for the 2017/2018 Delivery Year is based on 60 percent of the Non-Performance Charge Rate. The maximum Non-Performance Charge exposure in the stop-loss calculation is correspondingly reduced such that for 2016/2017, the maximum yearly Non-Performance Charge is 0.75 times Net CONE times the maximum daily unforced capacity committed by the resource during June 1 of the Delivery Year through the end of the month for which the Non-Performance Charge was assessed. For the 2017/2018 Delivery Year, the maximum yearly Non-Performance Assessment Charge is 0.9 times Net CONE times the maximum daily unforced capacity committed by the resource during June 1 of the Delivery Year through the end of the month for which the Non-Performance Charge was assessed. Total revenues collected

from Non-Performance Charges for a Performance Assessment Interval during the 2016/2017 or 2017/2018 Delivery Year will be allocated only to over-performing capacity resources with a Capacity Performance commitment.

The billing of any Non-Performance Charges incurred in any given month will be done within three calendar months after the calendar month that included such Performance Assessment Intervals and such billing of charges will be spread over the remaining months in the Delivery Year. Bonus Performance Credits will follow the same billing methodology as Non- Performance Charges.

9.1 Deficiency and Penalty Charges

9.1.11 Non-Performance Charge/Bonus Performance Credit

Non-Performance Charge will be assessed to a resource provider that had a Performance Shortfall for a Performance Assessment Interval.

Non-Performance Charge is equal to the Performance Assessment Interval Performance Shortfall (MW) times Non-Performance Charge Rate (\$/MWh)

The Non-Performance Charge Rate to be applied to shortfalls associated with Capacity Performance commitments is equal to $\left\{ \left[\frac{\text{the modeled LDA Net CONE for which the resource resides (\$/MW-day in installed capacity terms)} \times 365}{\text{the Projected Performance Assessment Intervals}} \right] \right\}$ divided by the number of Real-Time Settlement Intervals in an hour.

The Non-Performance Charge Rate to be applied to shortfalls associated with Base Capacity commitments is equal to $\left[\frac{\text{Weighted Average Resource Clearing Price (\$/MW-day)} \text{ for such resource} \times 365}{30} \right]$ divided by the number of Real-Time Settlement Intervals in an hour.

Stop-loss provisions limit the total Non-Performance Charge that can be assessed on each Capacity Resource. For Capacity Performance Resources, the maximum yearly Non-Performance Charge is 1.5 times modeled Net CONE for which the resource resides (\$/MW-day in installed capacity terms) times 365 times the maximum daily unforced capacity committed by the resource during June 1 of the Delivery Year through the end of the month for which the Non-Performance Charge was assessed. For Seasonal Capacity Performance Resources, the maximum yearly Non-Performance Charge is based the number of days of the applicable season and the maximum daily unforced capacity committed by the resource for such season. For Base Capacity Resources, there is an annual limit on total Non-Performance Charges, equal to the total capacity revenues due to the resource for the Delivery Year.

Revenue collected from payment of Non-Performance Charges will be distributed to resources (of any type, even if they are not Capacity Resources) that perform above expectations. A resource with Actual Performance above its Expected Performance is considered to have provided Bonus Performance, and will be assigned a share of the collected Non-Performance Charge revenues in the form of a Bonus Performance Credit. This credit is based on the ratio of its Bonus Performance

quantity to the total Bonus Performance quantity (from all resources) for the same Performance Assessment Interval.

The Non-Performance Assessment will apply to resources with Capacity Performance commitments for the 2016/2017 or 2017/2018 Delivery Year; however the Non-Performance Charge for the 2016/2017 Delivery Year is based on 50 percent of the Non-Performance Charge Rate and the Non-Performance Charge for the 2017/2018 Delivery Year is based on 60 percent of the Non-Performance Charge Rate. The maximum Non-Performance Charge exposure in the stop-loss calculation is correspondingly reduced such that for 2016/2017, the maximum yearly Non-Performance Charge is 0.75 times Net CONE times the maximum daily unforced capacity committed by the resource during June 1 of the Delivery Year through the end of the month for which the Non-Performance Charge was assessed. For the 2017/2018 Delivery Year, the maximum yearly Non-Performance Charge is 0.9 times Net CONE times the maximum daily unforced capacity committed by the resource during June 1 of the Delivery Year through the end of the month for which the Non-Performance Charge was assessed. Total revenues collected from Non-Performance Charges for a Performance Assessment Interval during the 2016/2017 or 2017/2018 Delivery Year will be allocated only to over-performing capacity resources with a Capacity Performance commitment.

The billing of any Non-Performance Charges incurred in any given month will be done within three calendar months after the calendar month that included such Performance Assessment Intervals and such billing of charges will be spread over the remaining months in the Delivery Year. Bonus Performance Credits will follow the same billing methodology as Non- Performance Charges.

11.8 Deficiency Charges & Penalties

11.8.9 Physical Non-Performance Assessment

An FRR Entity that elected to be subject to physical non-performance assessment for resources committed to the Delivery Year FRR Capacity Plan as opposed to financial non-performance assessment for such resources will be required to update the subsequent Delivery Year's FRR Capacity Plan and commit additional Capacity Performance Resources or Seasonal Capacity Performance Resources beyond the amount of Capacity Performance Resources required for the subsequent Delivery Year as a penalty for those resources committed to the FRR Capacity Plan that experienced Performance Shortfalls for Performance Assessment Interval during the relevant Delivery Year.

For each Performance Assessment Interval, the Actual Performance and Expected Performance of each resource contained in an FRR Entity' Capacity Plan will be determined according to the rules and formulas described in the Non-Performance Assessment section 8.4A, and for such hour, a net Performance Shortfall shall be determined separately for Capacity Performance Resources and for Base Capacity Resources. If the combined Actual Performance of all Capacity Performance Resources committed to the FRR Entity's Capacity Plan exceeds the Expected Performance of such resources, then such over-performance may be applied to any positive Performance shortfall

experienced by such FRR Entity's Base Capacity Resources during the Performance Assessment Interval. If the combined Actual Performance of all Base Capacity Resources committed to the FRR Entity's Capacity Plan exceeds the Expected Performance of such resources, then such over-performance may be applied to any positive Performance Shortfall experienced by such FRR Entity's Capacity Performance Resources during the Performance Assessment Interval. Effective with the 2020/2021 Delivery Year, the net Performance Shortfall for Capacity Performance Resources shall include the performance of Seasonal Capacity Performance Resources included in the FRR Capacity Plan.

The FRR Entity's net Performance Shortfall among Capacity Performance Resources, if any, for each Performance Assessment Interval shall be multiplied by a rate of ~~0.00139 MWs/Performance Assessment Interval [i.e., 0.5 MWs/30 PAHs]~~ ~~the Projected Performance Assessment Intervals/12 intervals-per-hour~~ to establish the additional MW of Capacity Performance Resources that such FRR Entity must add to its FRR Capacity Plan for the following Delivery Year. The maximum additional MW required by the FRR Entity as a result of non-performance from the FRR Entity's Capacity Performance Resources during a Delivery Year shall not exceed 50% of the MW quantity of the Capacity Performance Resources committed in the FRR Capacity Plan for such Delivery Year.

The FRR Entity's net Performance Shortfall among Base Capacity Resources, if any, for each Performance Assessment Interval shall be multiplied by a rate of $[(0.00139 \text{ MWs/Performance Assessment Interval}) \times (\text{the Base Capacity Resource clearing prices across all RPM Auctions for the Delivery Year for the LDA encompassing the zone of the FRR Entity, weighted by the quantities cleared in the RPM Auctions divided by the Net CONE established for such LDA for the Delivery Year})]$ to establish the additional MW of Capacity Performance Resources that such FRR Entity must add to its FRR Capacity Plan for the following Delivery Year. The maximum additional MW required by the FRR Entity as a result of non-performance from the FRR Entity's Base Capacity Resources during a Delivery Year shall not exceed a MW quantity equal to $[(0.5 \times (\text{the MW quantity of the Base Capacity Resources committed in the FRR Capacity Plan for such Delivery Year}) \times (\text{the Base Capacity Resource clearing prices across all RPM Auctions for the Delivery Year for the LDA encompassing the zone of the FRR Entity, weighted by the quantities cleared in the RPM Auctions divided by the Net CONE established for such LDA for the Delivery Year}))]$

The additional MWs of Capacity Performance Resources required for Performance Assessment Intervals (PAIs) that occur during February through May of the Delivery Year shall be committed to the FRR Entity's FRR Capacity Plan for the remainder of the following Delivery Year by established deadlines below.

- February PAIs: by July 1 of the following Delivery Year
- March PAIs: by August 1 of the following Delivery Year
- April PAIs: by September 1 of the following Delivery Year

May PAIs: by October 1 of the following Delivery Year