

$$\text{Provider's Daily ICAP Shortfall}_{\text{RPM Resource Commitments}} = \frac{\text{Provider's Daily Unit ICAP Shortfall} \times \text{Provider's Average Daily RPM ICAP Commitment}}{\text{Provider's Share of Total Unit ICAP Commitment}}$$

A Resource Provider's Daily ICAP Shortfall for FRR Capacity Plan Commitments is equal to the Provider's Daily ICAP Shortfall times the Provider's Average Daily FRR ICAP Commitment Amount divided by the Provider's Share of the Total Unit ICAP Commitment Amount.

$$\text{Provider's Daily ICAP Shortfall}_{\text{for FRR Capacity Plan Commitments}} = \frac{\text{Provider's Daily Unit ICAP Shortfall} \times \text{Provider's Average Daily FRR ICAP Commitment}}{\text{Provider's Share of Total Unit ICAP Commitment}}$$

A Resource Provider with a positive Daily ICAP Shortfall will be assessed The Generation Resource Rating Test Failure Charge.

8.4A Non-Performance Assessment

Effective with the 2018/2019 Delivery Year¹², a new Non-Performance Assessment will assess performance of resources during emergency conditions. Non-Performance Assessment applies to both Base Capacity and Capacity Performance commitments. Base Capacity commitments are exposed to Non-Performance Charges only for performance during emergency actions in summer months of June through September. 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 Hour. Performance Assessment Hours are delineated by PJM's 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 hour (or partial hour) that PJM declares the following actions:

- Pre-Emergency Load Management Reduction Action
- Emergency Load Management Reduction Action
- Primary Reserve Warning
- Maximum Emergency Generation

¹² Resources 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.

- Maximum Emergency Generation Action Transmission
- Emergency Voluntary Energy Only Demand Response
- Voltage Reduction Warning
- Voltage Reduction Action
- Manual Load Dump Warning
- Manual Load Dump Action

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 and Net Energy Imports are included in this assessment. 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 Hour, the Actual Performance is equal to:

- for each generation resource (including External Generation Capacity Resources for PJM-wide events), the metered output of delivered energy plus the resource's real-time reserve or regulation assignment¹³, if any;
- 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 Report¹⁴;
- 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 Hour, and zero if it is not in-service prior to the start of such day.

For each Performance Assessment Hour, the Expected Performance for purposes of determining both Non-Performance Charges and Bonus Performance Credits is equal to:

- for each generation resource (including External Generation Capacity Resources for PJM-wide events), the resource's committed Unforced Capacity times the ratio¹⁵ of [(total amount of Actual Performance for all generation resources, plus net energy imports¹⁶, plus total Demand Response Bonus Performance for that

¹³ The 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.

¹⁴ Base Capacity Energy Efficiency Resources are not included in the assessment of Performance Assessment Hours that occur outside of the summer months of June through September, inclusive.

¹⁵ This ratio will be capped at 1.

¹⁶ Net Energy Imports are only included in this formula for PJM-wide emergency events.

hour) / (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 Assessment Charge. If the Performance Shortfall is a negative number, the over-performing resource is 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 Hour;
- MWs for which the generator was not scheduled to operate by PJM or MWs for which the generator was scheduled down by PJM, for reasons other than (1) any operating parameter limitations submitted in the resource's offer or (2) submission of a market-based offer higher than its cost-based offer but would have been scheduled if its market-based offer had been equal to its cost-based offer,

For purposes of the Non-Performance Assessment for demand resources, compliance will be measured in a similar manner as load management event compliance in Section 8.5 with the following adjustments:

- compliance will be measured for each Performance Assessment Hour, as opposed to being averaged across all hours of the Load Management event;
- compliance will be measured and summed for all registrations dispatched by PJM within the area defined by the Emergency Action, as opposed to the Compliance Aggregation Area;
- for each registration, the amount of actual non-summer load reduction provided is to be measured using the same Customer Baseline Load (CBL) methodology currently employed for measuring load reductions in the energy market as described in Manual 11. Each registration will use the 3 day type with symmetric additive adjustment defined in the tariff to determine the non-summer capacity compliance load reductions unless an alternative CBL is approved as outlined in Manual 11. An alternative CBL must be established before October 1 of the Delivery Year unless otherwise approved by PJM. If the location on the Emergency/Pre-Emergency registration has an economic registration the CBL on the economic registration will be used to measure non-summer capacity compliance unless the economic CBL is the maximum baseload, in which case the 3 day type with symmetric additive adjustment CBL will be used. -The amount of actual load reduction during a summer (June-September) Performance

Assessment Hour is to be measured using the current methodology as described in Manual 19.

For 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 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 Hours 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. 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, 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 Hour. 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 hourly Non-Performance Charge is based on either annual Net CONE (in installed capacity terms) for the modeled LDA for which the resource resides and for Delivery Year (for Capacity Performance Resources) or the annual RPM revenues (for Base Capacity Resources), divided by 30, which 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 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 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 based on the ratio of its Bonus Performance

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

The Non-Performance Assessment will apply to generation 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 Hour during the 2016/2017 or 2017/2018 Delivery Year will be allocated only to over-performing generation 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 Hours and such billing of charges will be spread over the remaining months in the Delivery Year.

8.4.7 Peak Season Maintenance (PSM) Compliance (Prior to 2018/2019 Delivery Year)

To preserve and maintain the reliability of the PJM Region and to recognize the impact of planned outages and maintenance outages during the Peak Season, PJM will perform a Peak Season Maintenance (PSM) Compliance assessment on generation resources committed to the RPM or FRR Alternative. A Resource Provider will be assessed a Peak Season Maintenance (PSM) Compliance Penalty Charge in accordance with **Attachment DD of the Open Access Transmission Tariff**, if the provider committed a generation resource to the RPM or FRR Alternative and such resource was not available due to a planned or maintenance outage that occurred during the Peak Season without the approval of PJM. Hydro resources and intermittent resources are exempt from peak-season maintenance compliance assessment and will not be assessed any PSM Compliance Charges.

The Peak Season is defined as the weeks containing the 24th through 36th Wednesdays of the calendar year. All weeks start on a Monday and end on Sunday, except the week with the 36th Wednesday, which ends on a Friday.

If the Summer Net Dependable Rating of the unit on the peak season day minus the amount of capacity that was out-of-service on a planned or maintenance outage on a peak season day without the approval of PJM is less than the Total Unit ICAP Commitment Amount, a PSM Compliance Penalty Charge will be assessed to those parties that have RPM Resource Commitments or FRR Capacity Plan Commitments for such unit.