Topic	Existing Language	Gap Analysis	PJM Proposed Language	PAI Education Slide Reference
Assessed Resources	**OATT, Attachment DD, Section 10A (c):** "Such calculation shall encompass all resources and Price Responsive Demand located in the area defined by the Emergency Action." **Manual 18, Section 8A: "**The Non-Performance Assessment will encompass all resources located in the area defined by the Emergency Action."	*Identified Gap: Need to address events where a defined subzone does not exist.* Approach for Prior PAIs: If the sub-zonal event is a result of a transmission-related emergency, PJM determines the list of units to be assessed based on their ability to help the constraint. Generation located in the Zone where the event was called that would relieve the constraint if output was increased are included in the assessment (i.e. raise help dFax).	Proposed language to be brought to future MIC	6-8
Retroactive Replacement Transaction Applicability	**RAA, Schedule 8.1.G-Capacity Resource Performance**: "An FRR Entity shall have the same opportunities to cure deficiencies and avoid or reduce associated charges during the Delivery Year that a Market Seller has under Tariff, Attachment DD, section 7, Tariff, Attachment DD, section 9, Tariff, Attachment DD, section 10, Tariff, Attachment DD, section 10A, Tariff, Attachment DD, section 11, and Tariff, Attachment DD, section 11A. An FRR Entity may cure deficiencies and avoid or reduce associated charges prior to the Delivery Year by procuring replacement Unforced Capacity outside of any RPM Auction and committing such capacity in its FRR Capacity Plan." **Manual 18, Section 8.8**: "Replacement capacity for generation resources, Demand Resources, Energy Efficiency Resources, or Qualifying Transmission Upgrades committed to RPM may be specified via the Capacity Exchange system by entering a "Replacement Capacity" transaction before the start of the Delivery Day. However, upon a request to PJM made no later than three business days after a Delivery Day containing a Performance Assessment Interval, Replacement Capacity Transactions may be permitted retroactively effective with the Delivery Day provided such transaction meets the following criteria: (1) the replacement resource must have already been in the same sub-account as the resource being replaced on the Delivery Day, (2) the replacement resource must have been included in the same Performance Assessment Intervals as the resource being replaced, (3) the replacement resource must have the same or better temporal availability characteristics as the resource being replaced, (4) the replacement resource must be located in the same LDA (or a more constrained child LDA) as the resource being replaced, and (5) the resulting total	*Identified Gap: M-18 does not provide FRR Entities a comparable opportunity (as prescribed by the RAA language) to cure Non-Performance Assessment deficiencies similar to RPM Market Sellers.* FRR Plans are not updated via the "Replacement Capacity" transaction in Capacity Exchange, rather via a direct update to the FRR Entity's FRR Plan. Manual language does not specify if FRR Entities may retroactively adjust FRR commitments in their FRR Capacity Plan in a manner comparable to RPM retroactive replacement transactions.	See proposed red lines in Manual 18, Section 8.8	16

Topic	Existing Language	Gap Analysis	PJM Proposed Language	PAI Education Slide Reference
	Daily Resource Commitments (RPM and FRR) (in UCAP terms) on a generation resource used as a replacement resource cannot exceed such replacement resource's Actual Performance during the Performance Assessment Intervals."			
Calculation of Actual MW	**OATT, Attachment DD, Section 10A (c):** "Actual Performance = for each generation resource the metered output of energy delivered to PJM by such resource plus the resource's real-time reserve or regulation assignment, if any, during the PAI"	*Identified Gap: Tariff and M-18 do not provide transparency into how the Regulation or Reserve adjustments are determined.* Approach for Prior PAIs: The regulation adjustment accounts for the regulation signal sent to resources in real-time operations and any additional movement off the economic basepoint to provide regulation. ▪ The real-time operations signal (regulation bias factor) is used as a multiplier to the resource's assignment. ▪ The adjustments take into account the regulation parameters (regulation high and low limits) to move the resource into the regulation band. ▪ The calculation does not provide "extra" adjustment if the resource is operating above where they should be for regulation. The reserve adjustment accounts for the Tier 2 reserve MW or Non-Synchronized Reserve MW being held by the resource and any additional headroom off the economic set point to account for the spin max of the resource ▪ Calculation adjusts for moving resource off economic basepoint to reserve MW for reserves ▪ Calculation takes into account unit's spin max capability ▪ Calculation does not provide "extra" adjustment if the unit is operating above the reserve set point (and not holding enough reserves for Tier 2 assignment) ▪ Tier 1 reserve MW are not adjusted, due to those units being dispatched economically and not being moved to provide reserves.	Proposed language to be brought to future MIC	19-24

Topic	Existing Language	Gap Analysis	PJM Proposed Language	PAI Education Slide Reference
Calculation of Excused MW *	**Manual 18, Section 8.4A:** "For generation resources with a positive initial 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."	*Identified Gap: M-18 does not provide transparency into how Excused MW are determined.* Approach for Prior PAIs: • Outage information pulled from eDART • Planned Outage MW allocated using pro-rata shares of ICAP in the event of modeling differences • In cases where PJM operators manually dispatched a unit uneconomically to a lower operating level, PJM uses override values to adjust a unit's scheduled MW to the requested dispatch value.	Proposed language to be brought to future MIC	29-31
Determination of Scheduled MW for Penalty Purposes	**OATT, Attachment DD, Section 10A (d): "**A Capacity Resource or Locational UCAP of a Capacity Market Seller or Locational UCAP Seller shall not be considered in the calculation of a Performance Shortfall for a Performance Assessment Interval to the extent such Capacity Resource or Locational UCAP was unavailable during such Performance Assessment Interval solely because the resource on which such Capacity Resource or Locational UCAP is based was on a Generator Planned Outage or Generator Maintenance Outage approved by the Office of the Interconnection, or was not scheduled to operate by the Office of the Interconnection, or was online but was scheduled down, by the Office of the Interconnection, based on a determination by the Office of the Interconnection that such scheduling action was appropriate to the security-constrained economic dispatch of the PJM Region. Such a resource shall be considered in the calculation of a Performance Shortfall if it otherwise was needed and would have been scheduled by the Office of the Interconnection to perform, but was not scheduled to operate, or was scheduled down, solely due to: (i) any operating parameter limitations submitted in the resource's offer, or (ii) the seller's submission of a market-based offer higher than its cost-based." **Manual 18, Section 8.4A**: "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:. […] • MWs for which the resource was on-line but was	*Identified Gap: Tariff and M-18 do not provide transparency into how the scheduled MW value is determined.* Approach for Prior PAIs: To ensure MW that were not scheduled or were scheduled down due to operating parameter limitations are not excused, PJM calculates an after-the-fact scheduled MW. ▪ To calculate the Scheduled MW for the Penalty calculation, the five-minute LMP applicable to the PAI interval is used to determine the scheduled MW for each available schedule, adjusted for the unit's bid in economic and emergency limits. ▪ Then, to ensure MW that were not scheduled or were scheduled down due to having a market-based offer greater than the cost-based offer are not excused, PJM uses the maximum scheduled MW value from all available schedules, except if the unit was dispatched on its cost offer in which case the scheduled MW from the dispatched cost offer is used.	Proposed language to be brought to future MIC	32-37

Topic	Existing Language	Gap Analysis	PJM Proposed Language	PAI Education Slide Reference
	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 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. "			
Allocation of Non-Performance data to Capacity Resources Due to Modeling Differences	**Manual 18, Section 8.4A:** "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."	*Identified Gap: M-18 does not specify that other inputs in the calculation of Performance may need to be adjusted due to ownership or modeling differences.* Approach for Prior PAIs: Outages, unit parameters, ancillary service inputs and scheduled MW values are also allocated pro-rata in the event of joint ownership or modeling differences across PJM systems.	Deleted footnote 30 "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." See proposed redlines in new sub-section 8.4A.7 Allocation of Data Inputs Due to Joint Ownership and Modeling Differences.	39-43
Determination of Scheduled MW for Bonus Purposes	**Manual 18, Section 8.4A**: "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."	*Identified Gap: M-18 does not provide transparency into how the scheduled MW value used for Bonus is determined.* Approach for Prior PAIs: Similar to the calculation of Scheduled MW for Penalty, PJM calculates an after-the-fact scheduled MW. ▪ Only the offer curve the unit was dispatched on is used in the calculation. There is not a comparison of all submitted schedules. ▪ The unit's bid in economic limits are used to cap or floor the scheduled MW unless PJM issued an Emergency Procedure that allows for dispatch in the Emergency range.	Proposed language to be brought to future MIC	46

Topic	Existing Language	Gap Analysis	PJM Proposed Language	PAI Education Slide Reference
Non-Performance Assessment when an FRR Entity has a resource with both RPM and FRR commitments	**Manual 18, Section 11.3 Capacity Plan** "Prior to the start of each Delivery Year, the FRR entity must elect whether it seeks to be subject to the Non-Performance Charge or to physical non-performance assessments for such Delivery Year. An FRR Entity may not elect the physical non-performance assessment option if such FRR Entity will not be an FRR Entity for the following Delivery Year and will be serving load their under the RPM. If such FRR Entity opted to be subject to physical nonperformance assessments, the FRR Entity will be required to update their FRR Capacity Plan for the following Delivery Year with additional MW of Capacity Performance Resources for each MW of FRR net Performance Shortfall for each Performance Assessment Interval in accordance with Section 11.8. Such FRR Entity shall not be eligible for, or subject to, Bonus Performance Credits"	*Identified Gap: M-18 does not provide transparency regarding how to handle FRR Entities that have both RPM and FRR commitments. The election of physical non-performance is limited to the FRR commitments of an FRR Entity's Capacity Resources. Any RPM commitments are subject to the Non-Performance Charge and may not be included in the physical non-performance assessment for the FRR Entity's FRR commitments.* Approach for Prior PAIs: Each resource's final performance shortfall/bonus MW is allocated pro-rata by commitment type.	See proposed redlines in Sections 11.3 Capacity Plan, 11.8.6 Non-Performance Charge/Bonus Performance Credit (Effective with 2019/2020 Delivery Year), and 11.8.7 Physical Non-Performance Assessment	55-56

*Added for November MIC Discussion