

# Clarification to Performance Assessment Interval Agreement Language

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- During the settlement calculation of the individual Performance Assessment Intervals for the October 2, 2019 event, PJM staff noted a lack of transparency into the settlement calculations
- Problem Statement/Issue Charge approved at July MIC
- Two education sessions held to provide details of PAI settlement
  - September 23 and October 1
- MIC working sessions to vet revised language to provide needed transparency
  - Plan is to bring a few topics to each MIC special session for discussion

Future  
MIC  
Discussion

- Identification of assessed resources
- Calculation of real-time reserve and regulation assignment
- Calculation of scheduled MW for non-performance and bonus determinations

• Retroactive Replacement Transaction Applicability

For  
Discussion  
Today

- Calculations for a resource with both RPM and FRR commitments
- Allocation of Non-Performance data to Capacity Resources Due to Modeling Differences

**Manual 18, Section 8.4A states** that 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.

- Clarify outages are included in the calculation, if applicable.
- Clarify calculations also used for modeling differences.
- Include details on all calculations that use the same methodology.



Identified by PJM as an area that would benefit from greater *transparency*

## PAI settlement calculations require inputs from various PJM tools.

### Capacity Exchange

CP Commitments and  
Installed Capacity

### Markets Gateway/Power Meter

- Actual Generation
- Regulation
- Synchronized Reserves
- Non-Synchronized Reserve
- Unit parameters

### eDART

Planned, Maintenance  
and Forced Outages

Planned Outage MW	Actual Performance MW	Capacity Market Ownership	Owned MW	Allocated Planned Outage MW	Owned MW Adjusted by Outages	Allocated Actual Performance MW
6	10	<b>Company A</b>	5	1.5	3.5	2.5
		<b>Company B</b>	15	4.5	10.5	7.5
		<b>Total</b>	<b>20</b>	<b>6</b>	<b>14</b>	<b>10</b>

- Single resource owned by two companies
- Single unit modeled in capacity, energy & ancillary service markets

**Allocated Planned Outage MW =**

$$\text{Planned Outage MW} * (\text{Owned MW} / \text{Total Owned MW})$$

**Allocated Actual Performance MW =**

$$\text{Actual Performance MW} * (\text{Owned MW adjusted by outages} / \text{Total Owned MW adjusted by outages})$$

**Calculation methodology applies to:**

- Unit parameters
- Ancillary service market inputs
- Scheduled MW for penalty
- Schedule MW for bonus

Energy and Reserve Markets	Actual Performance MW	Capacity Market	Owned MW*	Allocated Actual Performance MW
<b>CC Unit 1</b>	200	<b>CC Unit 1</b>	100	<b>57</b>
		<b>CT Unit 2</b>	100	<b>57</b>
		<b>CT Unit 3</b>	150	<b>86</b>

*\*Owned MW also adjusted by outages*

- Multiple capacity resources
- Single unit modeled in energy & ancillary service markets

**Allocated Actual Performance MW =**  
 Owned MW / Total Owned MW \* Actual Perf MW

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**Calculation methodology also applies to:**

- Unit parameters
- Ancillary service market inputs
- Scheduled MW for penalty
- Scheduled MW for bonus

- **RAA Schedule 8.1C** is silent on cases when an FRR Entity has both RPM and FRR commitments:

The FRR Entity must elect whether it seeks to be subject to the Non-Performance Charge for Capacity Performance Resources [...] or to physical non-performance assessments [...]

- Clarify that the election is limited to the FRR commitments of an FRR Entity's Capacity Resources.
- Clarify that 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.
- Clarify the method used to allocate the final performance shortfall/bonus MW by commitment type.



Identified by PJM as an area that would benefit from greater *clarification*

## RPM Shortfall/Bonus MW =

$$\text{Final Shortfall/Bonus MW} \times \text{RPM CP Committed MW} \div \text{Total CP Committed MW}$$

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## FRR Shortfall/Bonus MW =

$$\text{Final Shortfall/Bonus MW} \times \text{FRR CP Committed MW} \div \text{Total CP Committed MW}$$

If a resource has both RPM and FRR Commitments, final Shortfall MW or Bonus MW will be allocated pro-rated based on commitments.

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## **Clarification to Performance Assessment Interval Agreement Language**



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