Performance Score

Regulation Market Issues Senior Task Force
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• Evaluated units and associated MWs that provided regulation in the last six months
  – Bucketed resources in frequency of regulation service provided
    • Frequent – provided regulation for > 50% of hours
    • Semi-Frequent – provided regulation for 25-50% of hours
    • Infrequent – provided regulation for 5-25% of hours
    • Very Infrequent – provided regulation for <5% of hours
• 75% of units and 83% of MWs providing regulation in the last 6 months have an average performance score > 75%
Current Performance Score Distribution

- 75% of units providing regulation in the last 6 months have an average performance score > 75%
Current Performance Score Distribution

• ~83% of MWs in the regulation market have an average performance score > 75%
Performance Score

- **Regulation Participation Threshold**
  - Participation in regulation needs to be held to a higher standard than the current 40% threshold
  - Participation thresholds should be in line with the qualification threshold (TBD)
    - 75% 100-hour rolling average score to participate in regulation market
    - PJM supports a transition period for the increase in participation threshold to allow evaluation of resource performance with new performance calculation and new control signals
  - Compensation threshold to stay status quo
    - Compensation received when hourly score > 25%
Appendix
Performance Score Calculation: Re-evaluated the calculation of accuracy, delay and precision, and the inclusion of all three components

- Using all components in performance scoring captures resource performance effectively when resources are following the signal fairly well, but does not do a good job during periods of poor performance
- Value in keeping status quo equation to be able to capture signal correlation, timeliness and absolute error
- Proposing an initial threshold evaluation on precision before scoring resources to better capture periods of poor performance
  - If precision score > 75%, score interval status quo (1/3A + 1/3D + 1/3P)
  - If precision score < 75%, score interval as precision only (1/3*0 + 1/3*0 + 1/3P)
### Performance Score Analysis

<table>
<thead>
<tr>
<th>Performance Calculation</th>
<th>Current</th>
<th>75% threshold</th>
<th>75% threshold, no precision</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>$\frac{1}{3} A + \frac{1}{3} D + \frac{1}{3} P$</td>
<td>If $P &lt; 75%$ $0 + 0 + \frac{1}{3} P$</td>
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Scoring equations are used on a 10-second interval basis, each component is then averaged for the hour for overall performance score.

A = Accuracy  
D = Delay  
P = Precision
Performance Score

• Regulation Qualification Testing
  – Qualification testing requirements to stay status quo
    • 3 passing tests for new regulation resources (75%)
    • 1 passing test for ownership/signal path changes (75%)
    • 1 passing test for unit up-rates (75%)
  – Up-rate tests will be limited to once per quarter
  – Performance scoring of qualification test will be in line with new proposed calculation
    • Threshold check on precision
      – If precision score > 75%, score interval status quo (1/3A + 1/3D + 1/3P)
      – If precision score < 75%, score interval as precision only (1/3*0 + 1/3* 0 + 1/3P)