Markets Track Proposal:
Concerns with FTR Underfunding

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FRMSTF
• Some stakeholders have expressed concerns with the “count-down” balance of planning period (BOPP) design component leading to a higher risk of FTR underfunding

• As a result of this concern, vote deferred from 12/5 to 12/19 MRC

• PJM staff does not anticipate any added risk to FTR underfunding as a result of this proposal
  – 75% support at September 2019 FRMSTF vote (see appendix)
FTR underfunding exists when more capability allocated in FTR market than what is available in the Day-Ahead market. Not enough congestion revenue is collected from the Day-ahead market to fully fund all outstanding FTR target credits.

Discrepancies in capability allocated can happen for a number of reasons, including but not limited to:

- Increased limits utilized in FTR model due to Stage 1A ARR infeasibilities.
- Reduced transmission capability in Day-Ahead market due to transmission outages and model.
- Loop flow / uncompensated flow impacts.
FTR 1: 300 MW Obligation from A to B
FTR 2: 180 MW Obligation from A to B

Net Flow on Line A-B = 480 MW

Line A-B Flow = Line A-B Rating therefore both FTRs are simultaneously feasible
SFT Example #2

Net Flow = 600 MW

FTR 1: 300 MW Obligation from A to B
FTR 2: 300 MW Obligation from A to B

Net Flow on Line A-B = 600 MW

Line A-B Flow > Line A-B Rating therefore both FTRs are NOT simultaneously feasible
Revenue Adequacy Using SFT Examples

**Day Ahead Congestion Charge** = 500 MW ($20 - $10) = $5,000

**FTR Target Allocation (using SFT Example 1 FTRs)**

Total FTR Target Allocation = 480 MW ($20 - $10) = $4,800

**FTR Target Allocation (using SFT Example 2 FTRs)**

Total FTR Target Allocation = 600 MW ($20 - $10) = $6,000
Majority of this transmission system capability is consumed by annual FTRs awarded in May 2019
Assume a 5-day 230kV outage is submitted for December 10th-15th.

- **STATUS QUO**: reduced capability due to 5 day outage modeled in all three months
- **PROPOSAL**: reduced capability due to 5 day outage modeled only in one month
- RESULT 1: more accurate model
- RESULT 2: more reflective clearing prices of future settlement period
- RESULT 3: additional capability available in JAN and FEB months
Conclusions

• Proposal does not exacerbate concern over lack of information
  – Criteria for outage modeling does not change
  – Criteria for outage submissions does not change
  – Large outages are required to be submitted to PJM by February 1

• Proposal simply makes monthly models more reflective of projected system conditions
  – This does not mean that FTRs for future months will be over-allocated

• Majority of capability allocated annually, not during BOPP
Appendix: Proposal Details
• Package A received majority support; majority prefer to make a change
• Minor points of contention included:
  • Retaining quarter effective periods for BOPP vs. months only (Package C)
  • Annual long-term products vs. quarter long-term products (Package B)
  • Timing of 5 long-term rounds (resolved in Package A proposal)
<table>
<thead>
<tr>
<th>Design Component</th>
<th>Status Quo</th>
<th>Modification</th>
<th>Justification</th>
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<tbody>
<tr>
<td>Frequency of long-term auctions</td>
<td>3 times a year; JUN, SEP, DEC</td>
<td>5 times a year; JUN, AUG, OCT, DEC, MAR</td>
<td>Provide increased level of protection from a potential default by not allowing</td>
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<td>positions to grow or deteriorate over time without posting of additional collateral</td>
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<td>Capability offered per long-term auction round</td>
<td>33.33% of residual capability available each round</td>
<td>20% of residual capability available each round</td>
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<td>Available periods for the monthly FTR BOPP auctions</td>
<td>Any 3 individual months in the future, any remaining full quarter in the planning period that does not overlap with first three individual months</td>
<td>Any remaining individual month in the planning period</td>
<td>• Maximize pricing information</td>
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<td>• More granular modeling</td>
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<td>• Better case performance allows more time to analyze results</td>
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