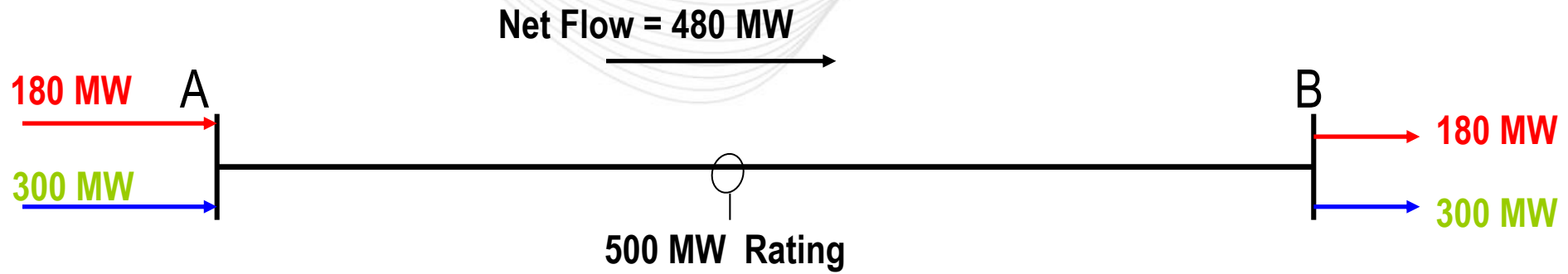


Markets Track Proposal: Concerns with FTR Underfunding

Brian Chmielewski
Manager, Market Simulation
December 9, 2019
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

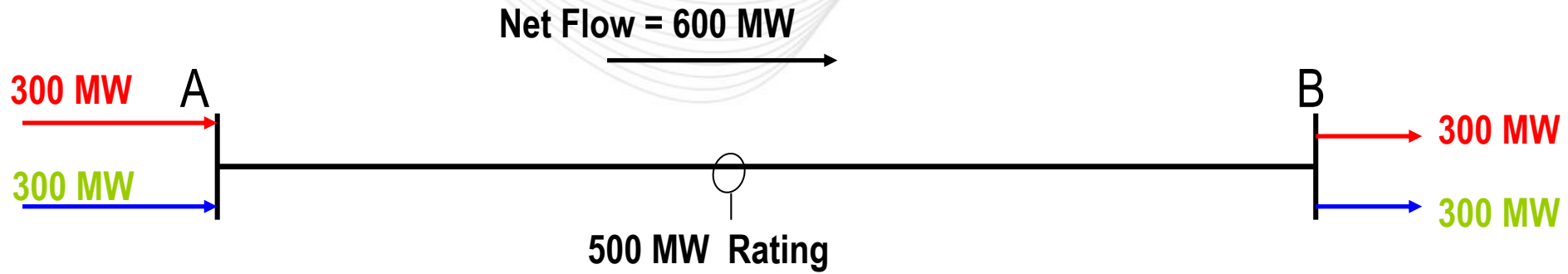


FTR 1 : 300 MW Obligation from A to B

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

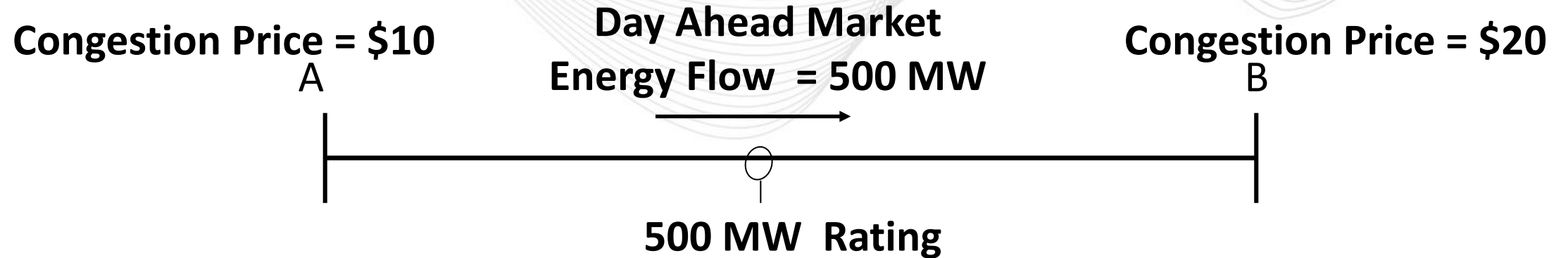


FTR 1 : 300 MW Obligation from A to B

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



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

July and December 2019 Auction Example

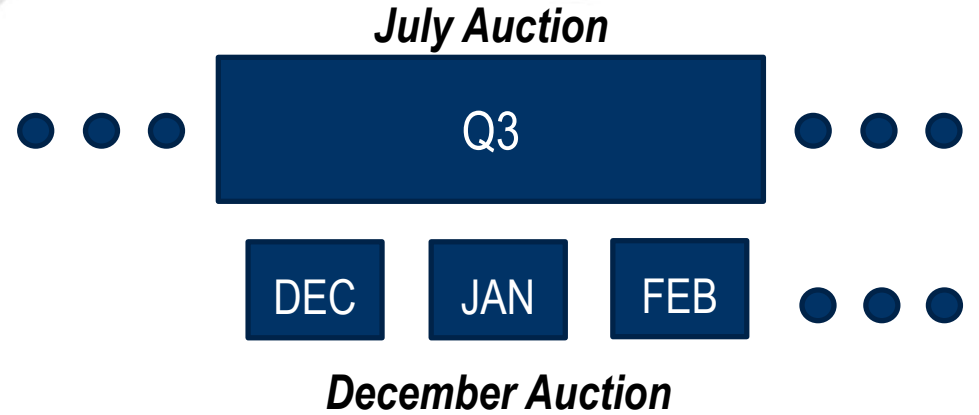
Auctions

July 2019
(JUL, AUG, SEP, Q2, Q3, Q4)

December 2019
(DEC, JAN, FEB, Q4)

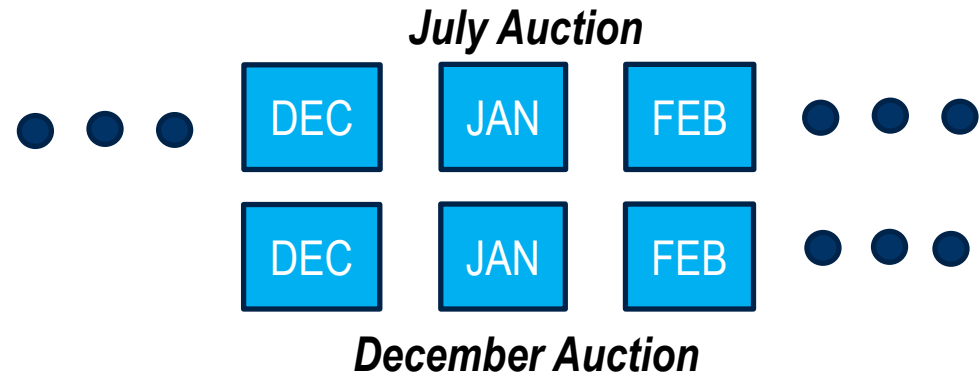


Dec thru Feb FTR Effective Period(s)



July 2019
(JUL, AUG, SEP, OCT, NOV, DEC, JAN, FEB, MAR, APR, MAY)

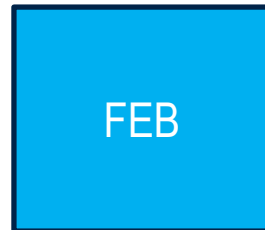
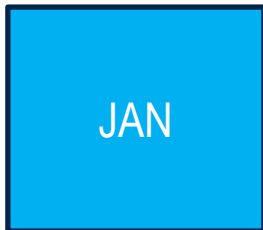
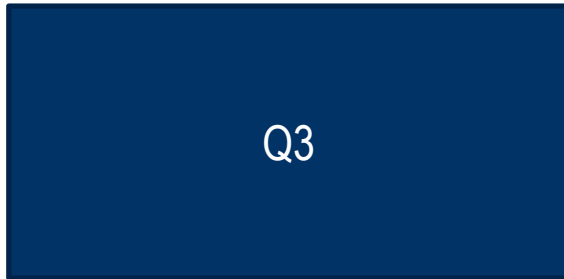
December 2019
(DEC, JAN, FEB, MAR, APR, MAY)



Majority of this transmission system capability is consumed by annual FTRs awarded in May 2019



Outage modeled in this period (all 3 months)

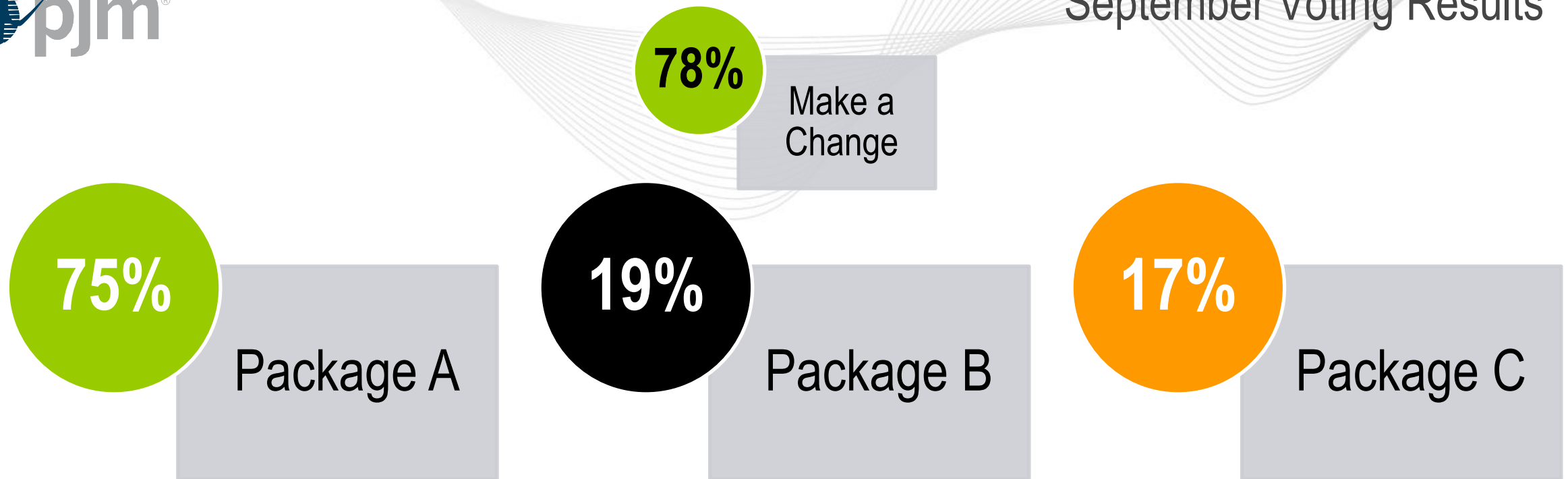


Outage modeled in this period only

- **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

- 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)

Design Component	Status Quo	Modification	Justification
Frequency of long-term auctions	3 times a year; JUN, SEP, DEC	5 times a year; JUN, AUG, OCT, DEC, MAR	Provide increased level of protection from a potential default by not allowing positions to grow or deteriorate over time without posting of additional collateral
Capability offered per long-term auction round	33.33% of residual capability available each round	20% of residual capability available each round	
Available periods for the monthly FTR BOPP auctions	Any 3 individual months in the future, any remaining full quarter in the planning period that does not overlap with first three individual months	Any remaining individual month in the planning period	<ul style="list-style-type: none"> • Maximize pricing information • More granular modeling • Better case performance allows more time to analyze results