FTR Underfunding Review

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Moving FTRs to an external exchange to manage credit risk raises concerns with underfunding congestion accounting and related market impacts

- **Key Takeaways**
  - There is no guarantee for full ARR/FTR funding, however SFT is designed to ensure revenue adequacy under normal conditions
  - PJM FTRs are settled using a weekly month-to-date settlement process
  - Chronic FTR underfunding can lead to risk premiums in auction bids which can impact ARR value
  - Open questions if potential future underfunding creates unintended consequences with Nodal Exchange proposal

Simultaneous Feasibility Test (SFT)

- Test to ensure that all subscribed transmission entitlements are within the capability of the existing transmission system
- Test to ensure the PJM Energy Market is revenue adequate under normal system conditions
- **NOT** a system reliability test
- **NOT** intended to model actual system conditions

- FTR cost is determined from the comprehensive results of the auctions
  - charges and credits calculated daily, equally over lifetime of FTR
  - auction charges fund daily ARR target credits

- FTR value is determined from the hourly results of the day-ahead market
  - DA congestion revenues used to fund FTR target credits

- More information see Annual Training (slides 108-120):

https://www.pjm.com/-/media/training/core-curriculum/ip-arr-ftr-annual/annual-ftr-arr-training.ashx?la=en

Underfunding Process

Final revenue adequacy is not determined until the end of the planning period

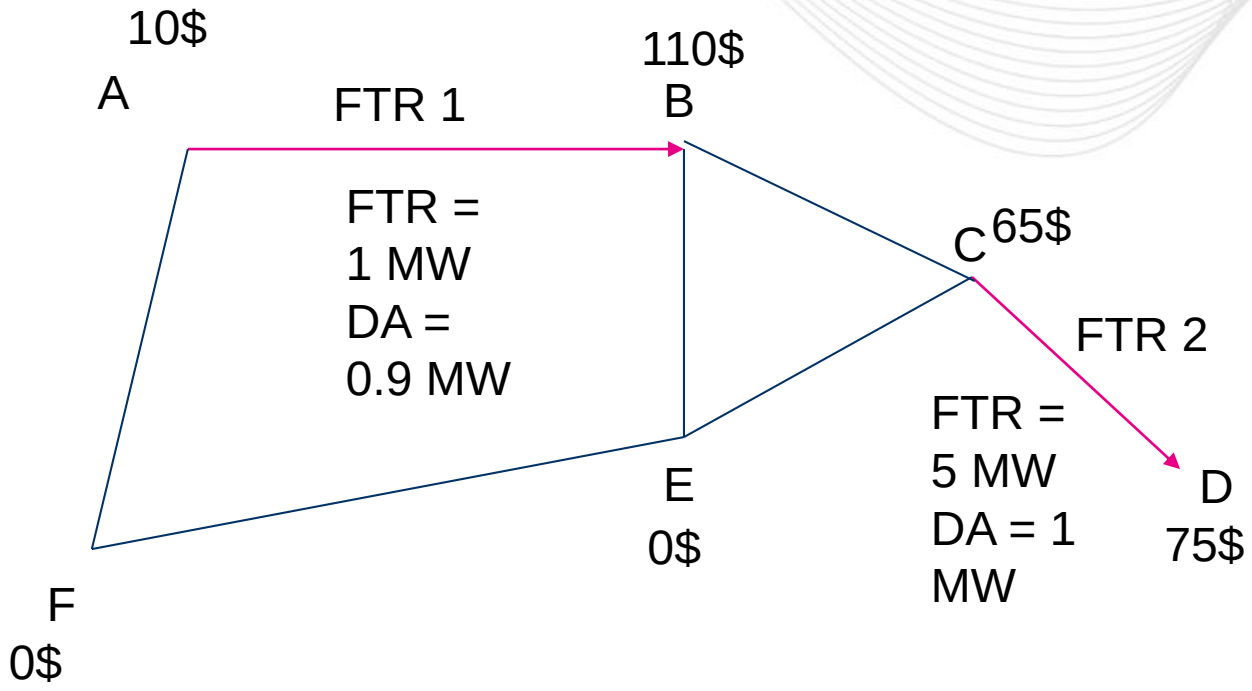
- End-of-month settlement process uses excess collected from planning period to-date to fund any deficient hours or carried forward to the next month within the planning period
  - Books close at the end of each planning period (May billing statements)

- Any surplus funds are returned pro-rata to positive ARR target credits
  - Includes surplus DA congestion, auction revenues, market-to-market congestion

- All positive FTR target credits get a ratio share of underfunding if any exists at the end of the planning period to create a PJM-wide uniform deficiency ratio (uplift charges and credits)
  - Has not happened since May 2014
  - ARR target credits have never been underfunded

Illustrative Example

Assume planning period one hour with two effective FTRs and no surplus auction or m2m revenues



- DA congestion revenue collected = $100
- FTR 1 A – B; TGT CR = $100
- FTR 1 pay out = $90
- FTR 2 C – D; TGT CR = $50
- FTR 2 pay out = $10
- FTR revenue adequacy = 67%

- FTR 1 uplift credit = $100 - $90 = $10
- FTR 2 uplift credit = $50 - $10 = $40
- Total uplift credits = $50
- FTR 1 uplift charge = ($100 / $150)*$50 = $33.34
- FTR 2 uplift charge = ($50 / $150)*$50 = $16.67

If there is interest in pursuing the Nodal Exchange model, congestion accounting would need to be adjusted

- In the previous example, if FTR A-B or C-D is novated to nodal exchange, PJM would not have enough congestion revenues to pay futures positions
  - PJM to tap credit line to cover potential; twice-a-day variation margin payments
  - PJM accounting practices would need to change to account for imbalances
- **Discussion question:**
  - If FTRs novated to Nodal Exchange are **not** subject to underfunding, does that cause rippling effects / unintended consequences in the market?
    - i.e. bid low and novate to avoid underfunding