MISO-PJM Discussion on Funding, Outages and Flowgates

September 20, 2013
Background

• PJM has hypothesized that MISO short lead scheduled outages are a significant contributor to PJM FTR underfunding
  – i.e., not submitted in time to be represented in PJM monthly FTR auctions
• PJM has proposed JOA redlines that would restrict the use of M2M on a flowgate for short lead time MISO scheduled outage
• MISO requested and analyzed FTR underfunding data provided by PJM and identified the specific drivers for the underfunding
Findings and Takeaways

• Findings
  – For the data analyzed, short lead scheduled outages were not an appreciable driver for PJM FTR underfunding

• Takeaways
  – Restricting M2M to manage FTR funding would introduce risks to reliability, efficiency and equity concerns
  – Instead, changes to market rules, operating timelines, and implementation of best practices can best mitigate FTR funding issues
Market Rules Impact on Funding

(Conceptual)

Market Participant Long-Term Transmission Rights (LTTR) Allocation Flexibility

Full Funding

Grant Infeasible Rights

Leave Rights Unallocated

TO Outage Scheduling Flexibility

PJM

MISO
Short lead scheduled outages are insignificant drivers of FTR underfunding in PJM

MISO Analysis of Drivers for the PJM-Supplied FTR Underfunding Events (~$15M)

- MISO and PJM Forced Outage
- Outage On Time for MISO Monthly Auction, but not PJM Monthly Auction
- Outage On Time for PJM and MISO Monthly Auction
- PJM Outage
- Facility Derate
- Other
- Congestion with No Identified Outage
- Elimination of More Limiting Constraint
- Emergency
- Outages Late for MISO and PJM Monthly Auctions
Analysis Findings: Short lead MISO outages have low impact on PJM’s FTR underfunding

*Actual impact only to the extent LTTRs are not already over-allocated*
M2M Design: Increased efficiencies, Protection against topology changes

- M2M facilitates higher transfer capability and lowest overall production cost to the load
- PJM entitlements on MISO facilities are preserved during the allocation process
  - i.e., short term topology changes, scheduled or forced, do not reduce firm flow entitlement due to “higher of” logic

### Period of 4/30-5/13

- **400 Hours**
  - The number of hours where PJM use was greater than their Firm Flow Entitlement but had NO settlements per the M2M design
- **64 Hours**
  - Hours where there was congestion that resulted in settlements
    - Alternative is physical curtailment, which would also result in underfunding

MISO analyzed a flowgate in PJM data set which resulted in about $5 Million of underfunding
MARKET-TO-MARKET CONGESTION MANAGEMENT: THE MOST EFFICIENT AND LOWEST COST ANSWER FOR CUSTOMERS

CURRENT (M2M)
- RTOs converge constraint marginal costs to minimize combined production costs to the consumers

PJM PROPOSED
- MISO market subsidizes PJM market flows, which are unconstrained
  - Highest overall production cost
  - Highest price divergence at seam
  - Potential reliability issues
  - Impacts MISO market funding and FTR allocations

PHYSICAL CURTAILMENT (TLR)
- Each RTO removes its non-firm flows (TLR3) at its own shadow price
  - Higher overall production cost
  - Increased price divergence at seam
  - Potential for increased impact to PJM funding

MISO Market Flow  PJM Market Flow  Firm
MISO FTR Auctions Include Outages and Impacts
Exact Flowgate Determination is Unnecessary

Rather than relying on identification of flowgates, MISO uses available outage data, advanced collaboration, and enhanced constraint modeling practices in its monthly FTR auctions. These practices are effective at minimizing FTR underfunding exposure even when the exact constraint is uncertain.
Collaboration and Improvement Opportunities Are Available

• **Near-Term**
  – Further coordination of outages and constraints applied in FTR models
  – Explore opportunities to improve constraint modeling

• **Longer-Term**
  – Evaluate LTTR feasibility
  – Consider additional FTR models
  – Review market rules and implement best practices
  – Modify FTR outage criteria
  – Continue MISO discussions with TOs about advanced lead time
Summary

• In an effort to evaluate the need for PJM’s outage coordination proposal, MISO has reviewed the PJM-supplied funding driver events.

• MISO's analysis has determined that short lead scheduled outages are not an appreciable driver for PJM’s under-funding problems.

• Instead, MISO’s counter-proposal is to jointly consider changes to FTR market rules, timelines, and inclusion criteria.
  – MISO believes that these actions, along with improvements in overall coordination, will be effective in addressing the core FTR funding issues identified.