MISO-PJM Joint and Common Market

Update of Interface Pricing at MISO
Background

• MISO is evaluating the efficiency and enhancement opportunity of the interface definitions that are intended to
  ➢ Model interchange transactions in generation commitment and dispatch calculations
  ➢ Determine price that reflects incremental production cost or savings and incents participants to schedule efficient transactions

• Investigating MISO’s current method and few alternative approaches
  • Includes evaluation of PJM’s current method which, if deemed efficient, may help meet stakeholders’ requested alignment
  • Intended to identify a methodology that provides efficiency and meaningful price signals in a good majority of scenarios
Current Interface Definition

- The interface is represented as an aggregate pricing node
  - Comprised of a set of selected network nodes (EPNODEs)
  - LMP on the interface is the weighted average of LMPs at the EPNODEs

- MISO’s external interface definition
  - Includes all EPNODEs at the generator locations in the external balancing area as represented in MISO network model
  - Equally weighted for flow distribution in dispatch calculation and for aggregated price calculation
Investigated expected performance of a revised definition that is derived based on M2M flowgate congestion analysis

- Similar to PJM’s approach for definition of MISO interface
- Identified top 40 congested flowgates in 2012 based on number of binding hours
  - Includes both MISO and PJM managed flowgates
- Determined nature of impact (help or hurt) of MISO-PJM transfer relative to direction of congestion
- Selected a unique set of impactful external generator pnodes
  - Currently consists of 7 Generator nodes in PJM
- Equal weighting
Currently, the MISO PJM interface definition includes the following pricing nodes, all equally weighted:

- U AEP 21WWVSTA 21W2
- U AEP BUCHANA4 BU9
- U AEP ELKHYDRO ELK
- U AEP MOTTVILL MO4
- U AEP SANDERSON SAN3
- U DEOK BECKJORD UN3
- U DEOK MIAMIFOR MI6
Interchange versus Congestion for Common Binding Hours

Impacts on top congested flowgates -
- Are often caused by internal market flows and parallel flows
- Do not always correlate directly with the net interchange
Interface Price versus Interchange for Selected Hours

- Evaluation of interface price efficiency need to consider relative impacts on flowgates where the congestion is not necessarily in the same direction (e.g. West to East)

PJMC: Interface price for PJM as currently calculated by MISO
MISO: Interface price for MISO as currently calculated by PJM
Congestion versus Interface Price for Few Selected Hours

- Observed relatively small changes between two methods
- Further evaluation is needed to determine if the change is in the right direction

PJMC: Interface price for PJM as currently calculated by MISO  
PJMC E7: Interface price for PJM that would be calculated by MISO under new method  
MISO: Interface price for MISO as currently calculated by PJM
Price Comparison and Interchange

• Need to further evaluate consistency of net interchange against price separation
Price Differential and Interchange

On average basis -

• Except for certain peak months, the interface price separation is generally consistent with the interchange on average basis
• Transactions occur in the right direction in off-peak months
Findings with New Methodology

- The monthly average interface price increases compared to that with the present MISO interface pricing
  - The annual average interface price increases by $1 with the new interface pricing
- The share of hourly transactions with PJM in the profitable direction is 49% (new method), slightly improved from 46% (current method)
Next Steps

• Continue evaluation and verification
• Investigate additional alternatives
• Discuss findings and alignment opportunities with PJM
• Develop recommendation
✓ Expected by Q3 of 2013

Contact

Dhiman Chatterjee
dchatterjee@misoenergy.org
Appendix

Next few slides show the current and new interface prices against congestion level on selected flowgates and also the level of interchange during the same hours
• Same set of 5 selected flowgates as discussed earlier in this presentation
Interface Price against Shadow Price during selected hours when the flowgate was binding
Interface Price against Net MISO Import during selected hours when the flowgate was binding
Interface Price against Shadow Price during selected hours when the flowgate was binding
Interface Price against Net MISO Import during selected hours when the flowgate was binding.
Interface Price against Shadow Price during selected hours when the flowgate was binding
Oak_Grove_Galesburg_flo_Nelson_ElectricJct

Interface Price against Net MISO Import during selected hours when the flowgate was binding
Interface Price against Shadow Price during selected hours when the flowgate was binding
Interface Price against Net MISO Import during selected hours when the flowgate was binding
Interface Price against Shadow Price during selected hours when the flowgate was binding
Interface Price against Net MISO Import during selected hours when the flowgate was binding

![Graph showing Interface Price against Net MISO Import with selected hours when the flowgate was binding.](image-url)