Joint and Common Market

6. INTERFACE PRICING AT MISO

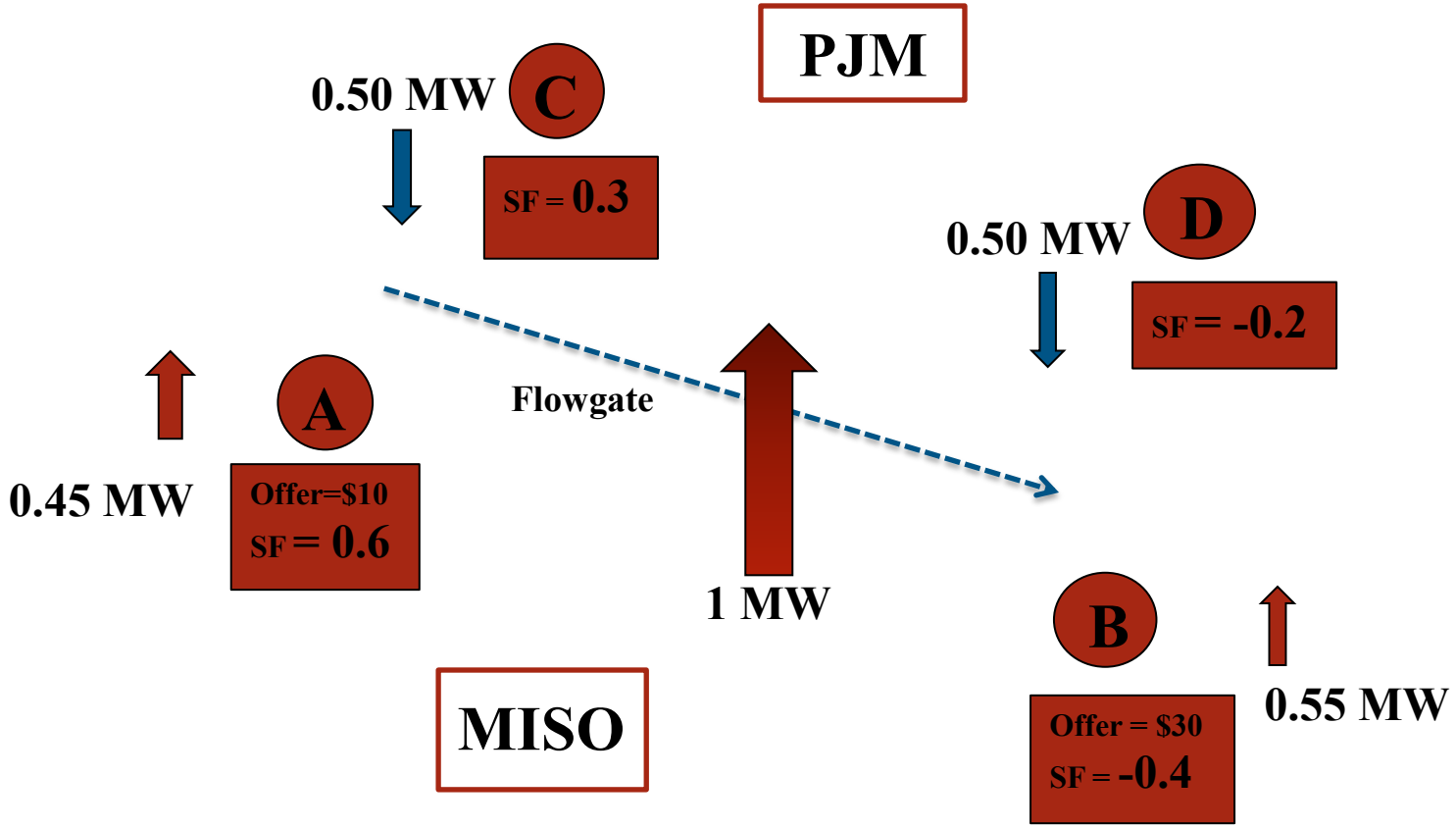
Background

- Interchange transactions between two RTOs are settled with each RTO on its corresponding interface
- Stakeholders requested MISO and PJM to align interface pricing
- MISO agreed to re-evaluate its pricing methodology at the interface with PJM

Interface Definition

- The interface is represented as an aggregate pricing node comprising of a set of selected network nodes (Elemental Pricing Nodes or EPNODEs), and the LMP on the interface is the weighted average of the LMPs at the EPNODEs
- MISO's external interface definition includes all EPNODEs at the generator locations in the external balancing area that are represented in the MISO network model and they are equally weighted

MISO's Interface Price



Assume flow on Flowgate K is at its limit

Withdrawal_at_C * Shift_Factor_at C +
Withdrawal_at_D * Shift_Factor_at D
= - 0.05 MW
- 0.5MW * 0.3 + - 0.5MW * - 0.2 = - 0.05MW

ReDispatch_at_C * Shift_Factor_at_C +
ReDispatch_at_D * Shift_Factor_at_D
= - 0.05 MW

0.45MW * 0.6 + 0.55MW * - 0.4 = 0.05MW

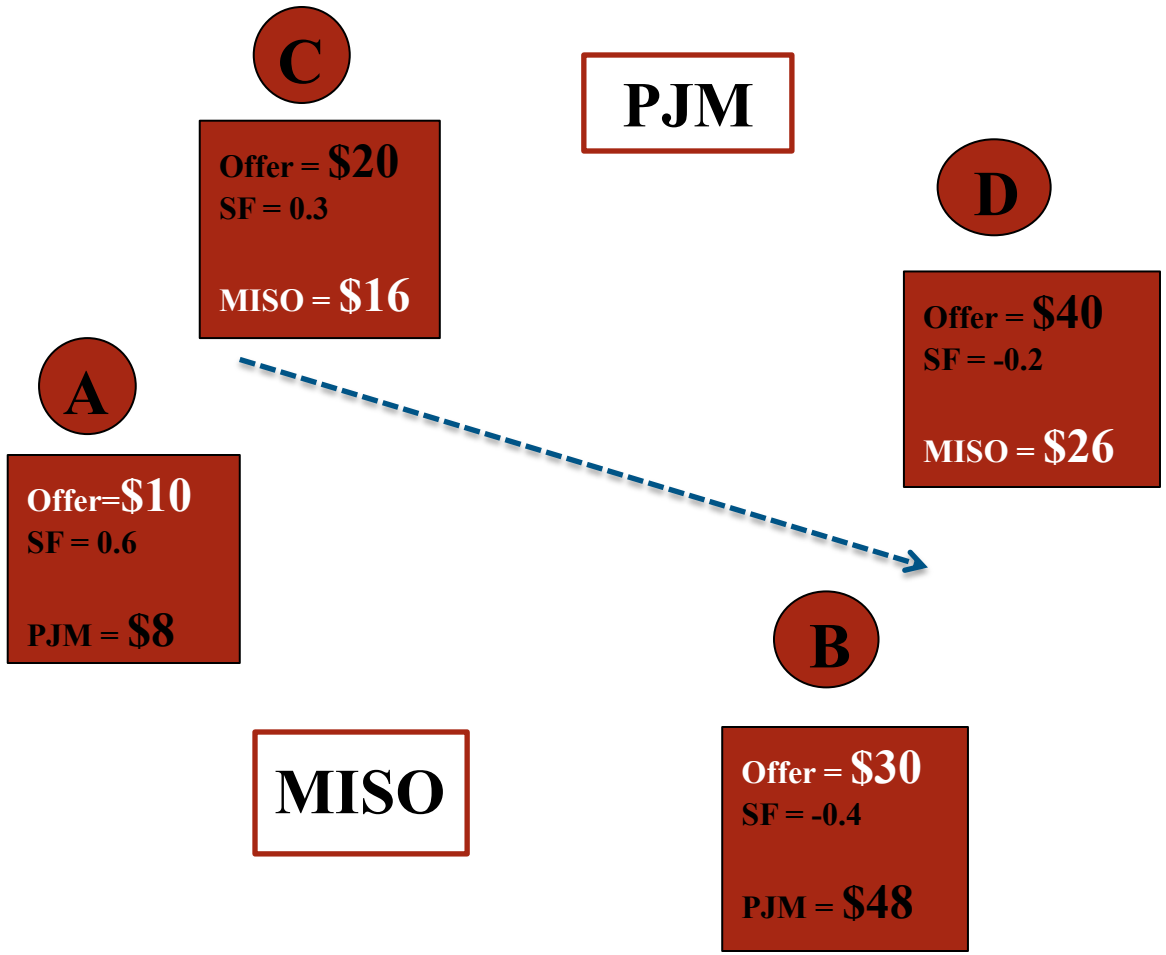
Interface LMP =
Incr_Offer_at_A * ReDispatch_at_A +
Incr_Offer_at_B * ReDispatch_at_B

Interface LMP = $10 x 0.45 + $30 x 0.55 = $21

What is the right price signal?

- The interface price is used to settle interchange transactions and provides a market signal to participants
- The LMP at the interface represents the incremental production cost increase to provide export at the interface, or the incremental production cost savings from import at the interface
- MISO's interface price represents MISO's dispatch cost
  - MISO scale up/down all external generators to model interchange at dispatch
  - MISO's dispatch might not be the most economic when evaluated with respect to PJM's dispatch
    - MISO does not know PJM's generator offers
- Is there a way to signal the most economic dispatch?

Economic Transfer



Most economic transfer is from MISO to PJM with a reduction of dispatch at D

Savings
= PJM's icremental offer cost at D –
MISO's marginal cost at D
= $40 - $26 = $14

Comparison of Interface Definition

Method	MISO's PJMC price	PJM's MISO price	Price Difference
1	**$21**	**$28**	**($7)**
2	**$16**	**$8**	**$8**
3	**$22**	**$32**	**($10)**
4	**$13**	**$14**	**($1)**
5	**$20.50**	**$29**	**($9)**

Method:
1: All generators in the other RTO
2: Selected nodes in the other RTO (A or C)
3: Marginal Energy Cost (MEC)
4: Common set of nodes (A + C)
5: All generators in both RTO

Summary

- There may not exist a methodology that provides correct or better signals in all situations
  - Cannot expect to solve all issues
- No alternative method seems to be obviously superior to the current interface definition
- MISO will further evaluate alternatives
  - There might be one solution that works better in most cases
  - It is challenging to establish a good benchmark or select right criteria
  - Performance evaluated against historical data may not always indicate good performance in the future

Questions

Interface Pricing Contacts
MISO: Dhiman Chatterjee (dchatterjee@misoenergy.org)