

Sham Scheduling

MMUAC

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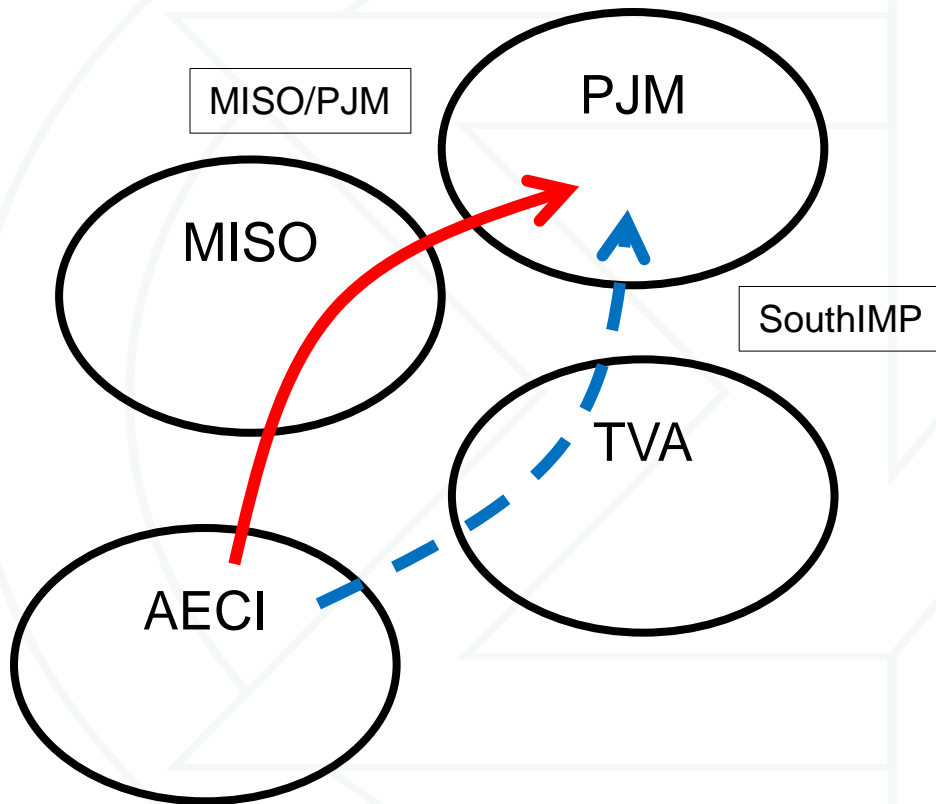


Monitoring Analytics

Sham Scheduling

- **Transactions can be scheduled to an interface based on a contract transmission path.**
- **Pricing points are developed and applied based on the electrical impact of the external power source on PJM tie lines, regardless of contract transmission path.**
- **PJM establishes prices for transactions with external balancing authorities by assigning interface pricing points to individual balancing authorities based on the Generation Control Area (source) and Load Control Area (sink) as specified on the NERC Tag.**

Sham Scheduling



Least Cost Transmission Path:
AECI-MISO-PJM

Scheduled Flows are at the
MISO Interface

Actual Flows are at the
SouthIMP Interface

Import pricing point from
AECI:SouthIMP

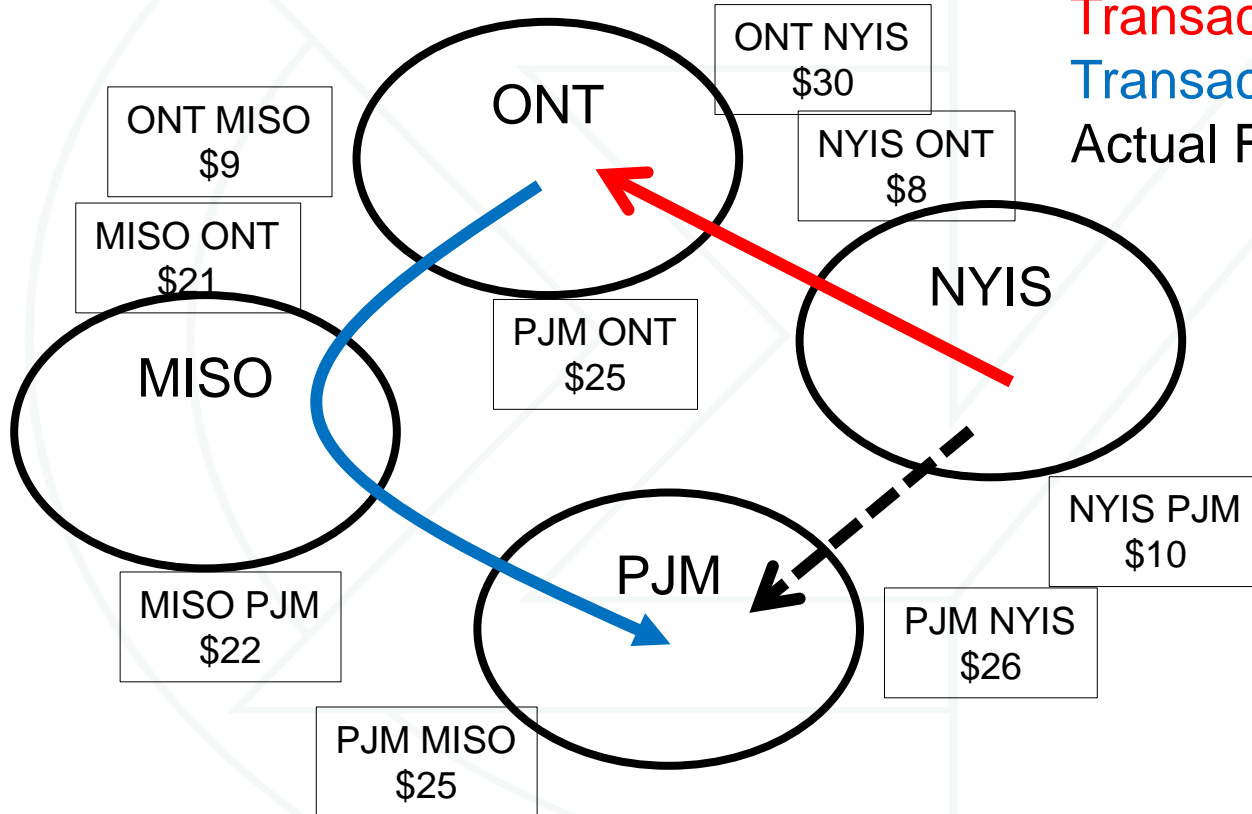
Transaction is paid the
SouthIMP LMP

Sham Scheduling

- **The current approach will correctly identify the interface pricing point only if the market participant provides the complete path in the eTag.**
- **This approach will not correctly identify the interface pricing point if the market participant breaks the transaction into portions, each with a separate eTag (Sham Scheduling). The result of such behavior can be incorrect pricing of transactions, pricing of transactions not consistent with the power flow.**



NYIS-ONT with ONT-PJM



Transaction 1: NYIS-ONT
Transaction 2: ONT-MISO-PJM
Actual Flow: NYIS-PJM

NYIS-ONT with ONT-PJM

Transaction 1:

NYIS: Pay \$8 for export to ONT

ONT: Receive \$30 for import from NYIS

TOTAL: - \$8 + \$30 = \$22

Transaction 2:

ONT: Pay \$9 for export to MISO

MISO: Receive \$21 for import from ONT

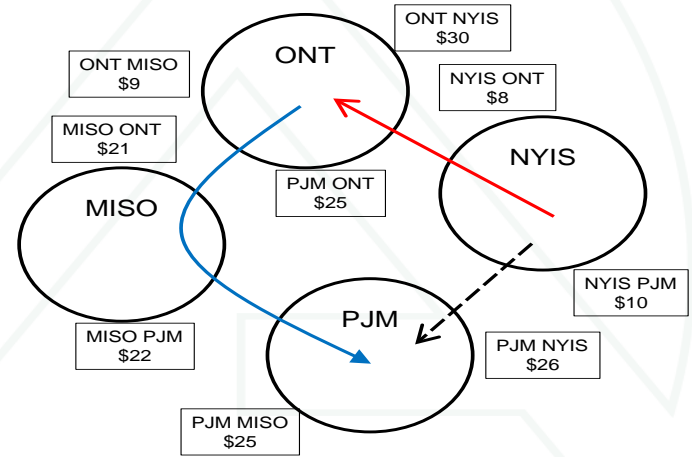
MISO: Pay \$22 for export to PJM

PJM: receive \$25 for import from ONT

TOTAL: - \$9 + \$21 - \$22 + \$25 = \$15

TOTAL for Both Transactions:

\$22 + \$15 = \$37



NYIS-ONT with ONT-PJM

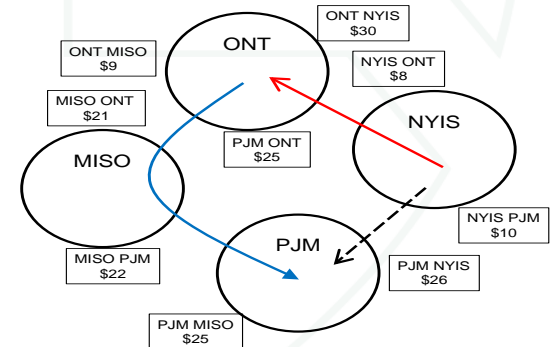
The resulting interchange is an import to PJM from NYIS. Without Sham Scheduling, the settlement would be:

NYIS: Pay \$10 for export to PJM

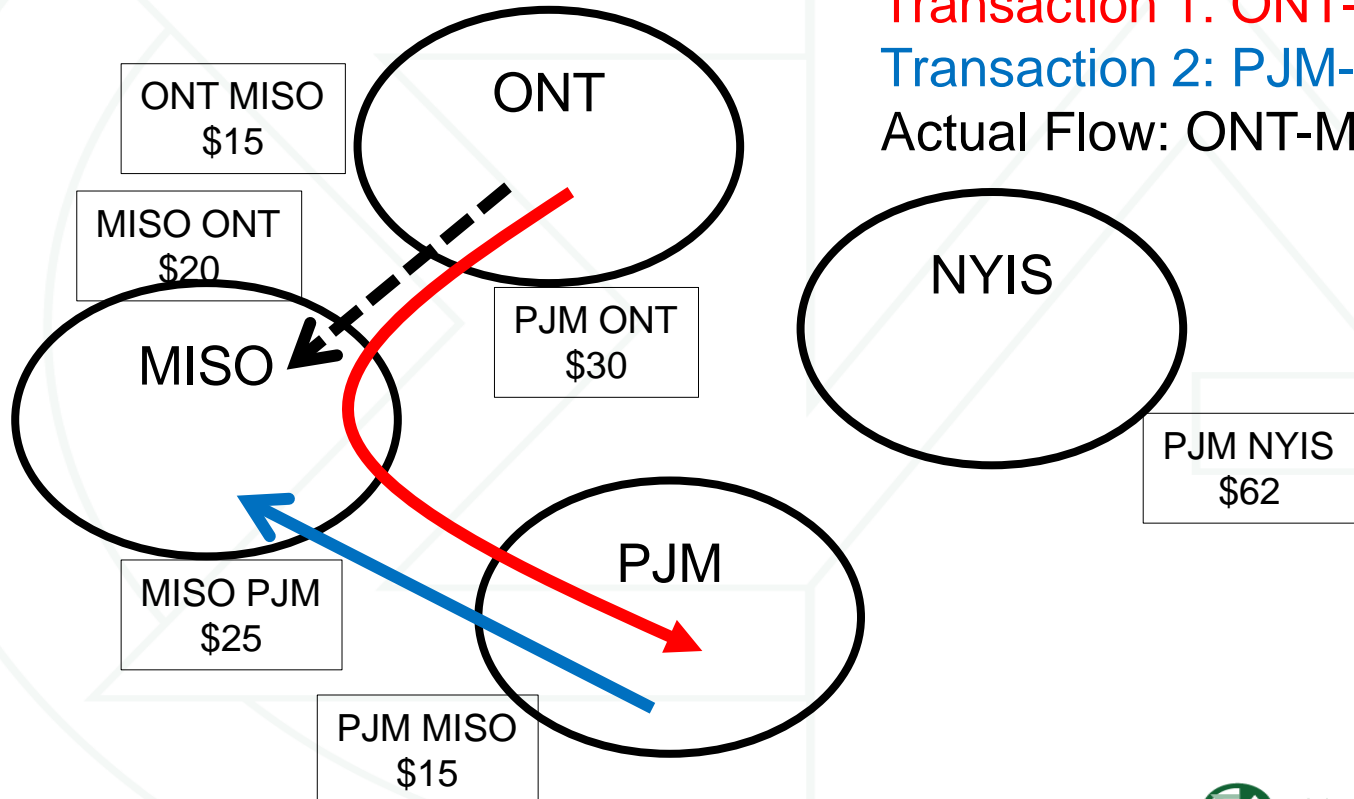
PJM: Receive \$26 for import from NYIS

TOTAL: - \$10 + \$26 = \$16

- Scheduled flows do not match actual flows.
- Same effects on loop flows as those paths banned by the NYISO in 2008.
- Only additional transmission charges in ONT
 - Already pay for the NYIS transmission to ONT
 - No MISO charge: RTOR
 - No PJM charge: SPOT_IN



ONT-MISO-PJM with PJM-MISO



Transaction 1: ONT-MISO-PJM

Transaction 2: PJM-MISO

Actual Flow: ONT-MISO

ONT-MISO-PJM with PJM-MISO

Transaction 1:

ONT: Pay \$15 for export to MISO

MISO: Receive \$20 for import from ONT

MISO: Pay \$25 for export to PJM

PJM: Receive \$30 for import from ONT

TOTAL: $-\$15 + \$20 - \$25 + \$30 = \$10$

Transaction 2:

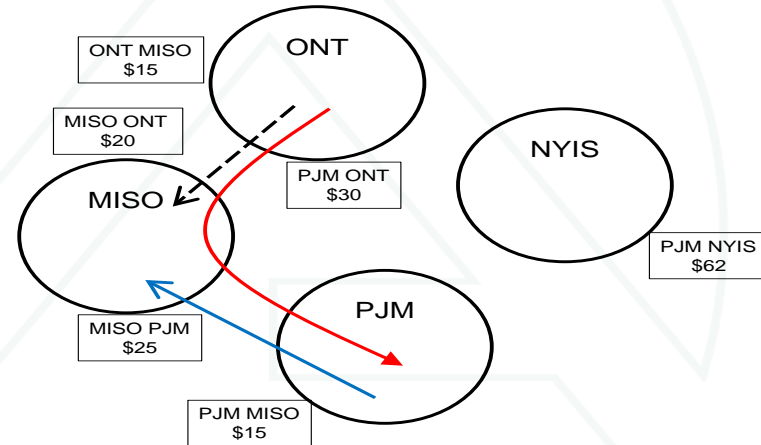
PJM: Pay \$15 for export to MISO

MISO: Receive \$25 for import from PJM

TOTAL: $-\$15 + \$25 = \$10$

TOTAL for Both Transactions:

$\$10 + \$10 = \$20$



ONT-MISO-PJM with PJM-MISO

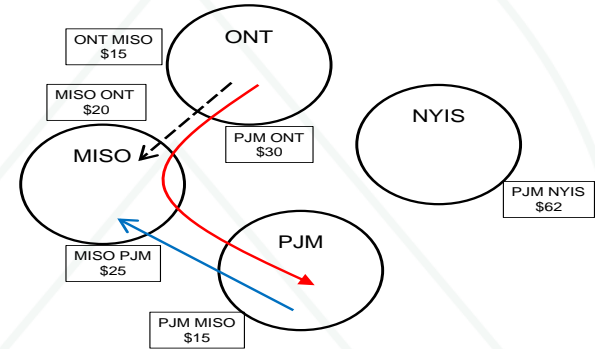
The resulting interchange is an import to MISO from ONT. Without Sham Scheduling, the settlement would be:

ONT: Pay \$15 for export to MISO

MISO: Receive \$20 for import from ONT

TOTAL: $-\$15 + \$20 = \$5$

- **Scheduled flows do not match actual flows**
- **No change in generation in PJM, yet settlements occur**
 - **Similar to Southeast / Southwest interface issue, where market participants took advantage of price differences at interfaces**
- **No additional transmission charges**
 - **Already pay for the ONT-MISO transmission**
 - **No MISO charge either way: SPOT_IN or RTOR**
 - **No PJM charge: RTOR**



ONT-MISO-PJM with PJM-MISO

Price Difference Range	Number of Hours ONT > MISO	One Market Participant, 50 MW Transaction in each hour	One Market Participant, 100 MW Transaction in each hour	Five Market Participants, 50 MW Transaction in each hour
\$0 - \$10	6,582	\$1,202,985.50	\$2,405,971.00	\$6,014,927.50
\$10 - \$20	1,062	\$736,169.50	\$1,472,339.00	\$3,680,847.50
\$20 - \$30	300	\$363,306.50	\$726,613.00	\$1,816,532.50
\$30 - \$40	96	\$165,357.50	\$330,715.00	\$826,787.50
\$40 - \$50	45	\$100,494.50	\$200,989.00	\$502,472.50
\$50 - \$60	27	\$73,428.00	\$146,856.00	\$367,140.00
\$60 - \$70	6	\$18,914.00	\$37,828.00	\$94,570.00
\$70 - \$80	8	\$29,833.00	\$59,666.00	\$149,165.00
\$80 - \$90	2	\$8,420.50	\$16,841.00	\$42,102.50
\$90 - \$100	1	\$4,625.00	\$9,250.00	\$23,125.00
\$100 - \$150	4	\$24,114.50	\$48,229.00	\$120,572.50
\$150 - \$200	1	\$7,624.50	\$15,249.00	\$38,122.50
\$200 - \$250	3	\$31,922.00	\$63,844.00	\$159,610.00
> \$250	0	\$0.00	\$0.00	\$0.00
Total	8,137	\$2,767,195.00	\$5,534,390.00	\$13,835,975.00

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