



Life After ECA20000907A and ECA20001006B

**A Proposal to Settle External Transaction
Imbalances at BME Prices**

**Presented to the Business Issues
Committee by**

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Desired Outcome: BIC support for changes in the market rules pertaining to external transactions.

- ✦ **These changes represent an end-state for ECA20000907A and ECA20001006B (ECAs A and B)**
- ✦ **The proposed changes expand the provisions of the ECAs to all external transactions.**
- ✦ **The proposed rules will require tariff changes.**
- ✦ **The proposed rules will require modification of the billing code.**

Proposed Rules

- ✦ **Imbalances resulting from Day-Ahead export or import schedules will settle at the BME-determined LBMP at the relevant proxy bus.**
- ✦ **Hour-ahead offers and bids scheduled by BME will settle at the BME-determined LBMP at the relevant proxy bus.**
- ✦ **A BME-originated import transaction that fails checkout will replace its energy at the greater of the BME-determined price or the SCD-determined price.**
- ✦ **A BME-originated export transaction that fails checkout will sell back its energy purchase obligation at the lower of the BME-determined price or the SCD-determined price.**
- ✦ **The \$20,000 adjustment applied to DAM transactions will be removed.**

Issues Leading to the ECAs

- For external transactions BME creates a binding commitment to buy or sell, but the prices are advisory.
- BME recognizes congestion across the ties and secures correctly, but SCD faces only the net impact of BME's optimization.
- Real-time settlement may take place at prices quite different from those used to determine commitments.
- Dispatch, sales, and rescheduling may become uneconomic for reasons beyond Market Participants' control.
- Market Participants do not consistently bear the costs of their impact on the system by failing to show up (ECA A), or by exacerbating congestion (ECA B)

ECA A: Failed Transactions

- ✚ **Failed Transactions cause SCD to face a set of resources inappropriate for the upcoming real-time flows.**
- ✚ **Failed imports leave the dispatch hour generation short, and cause LBMPs to be higher than if the original resources come on line.**
- ✚ **Failed exports cause an excess of generation, a decrease in the LBMP, and likely an increase in uplift to compensate committed but unneeded generation.**
- ✚ **Failed imports pay the difference between the real-time LBMP at the proxy bus and the BME offer price of the transaction.**
- ✚ **Failed exports pay the difference between the BME bid price of the transaction and the real-time LBMP at the proxy bus.**

ECA B: Transactions when Interfaces are Constrained

- **BME manages import congestion by selecting the most economic transactions, often leading to very low clearing prices.**
- **BME manages export congestion by serving those loads most desiring to be served, leading to high clearing prices.**
- **SCD reflects net flows across the interfaces, and real-time prices do not reflect any congestion across the ties.**
- **The prices in SCD can be radically different from those in BME.**
- **There are no incentives either for counterflow or for Market Participants to change their actions.**

ECA B: Transactions when Interfaces are Constrained, cont'd

- **Under ECA B BME prices are an integral part of the financial settlement of the physical commitment.**
- **Imports contributing to congestion settle at the lesser of the SCD- or BME-determined price at the proxy bus.**
- **Exports contributing to congestion pay the higher of the BME- or SCD-determined price.**
- **Counterflow transactions benefit appropriately in either case.**
- **DAM-originated transactions settle imbalances under ECA B.**

Proposed Remedy: New Rules and Consequences

- Replacement of the ECAs requires a redesign of a portion of the market.
- For all external transactions Day-Ahead imbalances and hour-ahead-originated transactions settle at the BME-determined price at the relevant proxy bus.
- Failed transactions settle at the difference between the SCD-determined price and their hour-ahead offers such that they cannot gain from the transaction's failure.
- Both Day-Ahead and hour-ahead transactions are evaluated on their true merits, as the \$20,000 Day-Ahead adjustment is gone.
- The settlement mechanism is to replace the SCD-determined LBMP at the proxy bus with its BME-determined counterpart.

Proposed Remedy, cont'd.

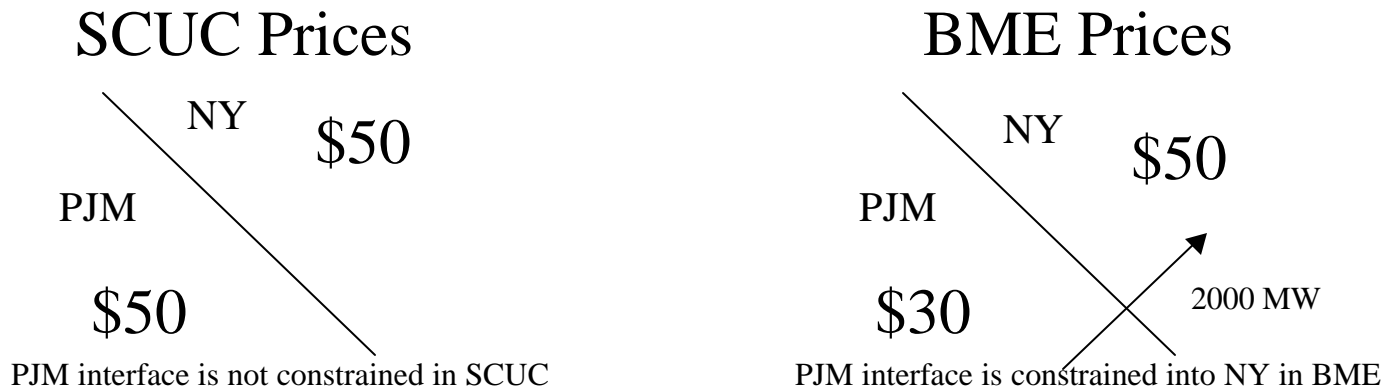
- A Day-Ahead transaction cancelled prior to BME will settle at the BME price at the relevant proxy bus.
- Day-Ahead imports not scheduled in BME buy replacement energy at the BME price.
- Day-Ahead exports not scheduled in BME sell their energy back at the BME price.
- An Import curtailed by the NYISO in the operating hour buys replacement energy at the BME price, but receives a supplement equal to the BME price less the import's BME offer price.
- An export transaction curtailed in the hour has its purchase obligation cancelled and receives a credit based on the BME price for that hour.
- Curtailed ICAP export transactions are paid pursuant to the ICAP tariff.

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- ✦ **The following examples illustrate the settlement impacts on day-ahead and hour-ahead transactions when the second settlement for external transactions is based on hour-ahead prices calculated by BME.**

 - ✦ **The scenarios illustrated include:**
 - *A binding constraint into New York in BME*
 - *A binding constraint out of New York in BME*
 - *A binding constraint into New York affecting wheels*
 - *An external generator scheduled day-ahead protects its schedule by submitting an hour-ahead decremental bid of $-\$1,000/\text{MWh}$*
 - *An external load scheduled day-ahead protects its schedule by submitting an hour-ahead sink price capped load bid of $\$1,000/\text{MWh}$*

 - ✦ **Note that all prices in the examples are calculated by either by SCUC or BME. Losses are excluded for ease of calculation.**

Constraint into New York



Transaction	Settlements Received (Paid) By Market Participant		
	DAM Settlement (\$/MWh)	HAM Settlement (\$/MWh)	Net Settlement (\$/MWh)
DAM Import Scheduled DA and HA	\$50.00	\$0.00	\$50.00
DAM Import Scheduled DA but not HA	\$50.00	(\$30.00)	\$20.00
DAM Export Scheduled DA and HA	(\$50.00)	\$0.00	(\$50.00)
DAM Export Scheduled DA but not HA	(\$50.00)	\$30.00	(\$20.00)
HAM Import	\$0.00	\$30.00	\$30.00
HAM Export	\$0.00	(\$30.00)	(\$30.00)

Constraint into New York

✚ The important observations from this example are:

- *Transactions scheduled day ahead and that flow in real time settle at the day-ahead prices.*
- *Transactions scheduled hour ahead settle at the hour-ahead prices.*
- *Transactions scheduled day ahead but not scheduled to flow hour ahead receive their day-ahead financial commitments and then settle real-time imbalances against their day-ahead schedule at the hour-ahead prices.*
- *No settlements are made at real-time prices.*

Constraint out of New York

SCUC Prices

NY \$50
NE \$50

NE interface is not constrained in SCUC

BME Prices

NY \$50
NE \$70

1200 MW
NE interface is constrained out of NY in BME

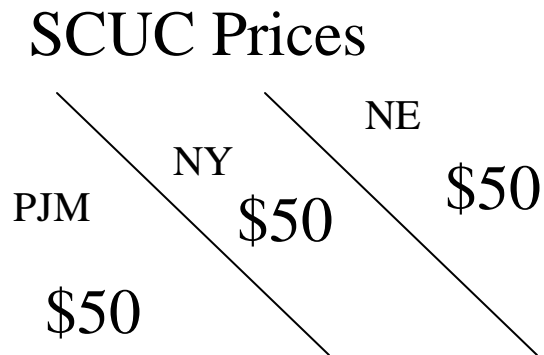
Transaction	Settlements Received (Paid) By Market Participant		
	DAM Settlement (\$/MWh)	HAM Settlement (\$/MWh)	Net Settlement (\$/MWh)
DAM Import Scheduled DA and HA	\$50.00	\$0.00	\$50.00
DAM Import Scheduled DA but not HA	\$50.00	(\$70.00)	(\$20.00)
DAM Export Scheduled DA and HA	(\$50.00)	\$0.00	(\$50.00)
DAM Export Scheduled DA but not HA	(\$50.00)	\$70.00	\$20.00
HAM Import	\$0.00	\$70.00	\$70.00
HAM Export	\$0.00	(\$70.00)	(\$70.00)

Constraint out of New York

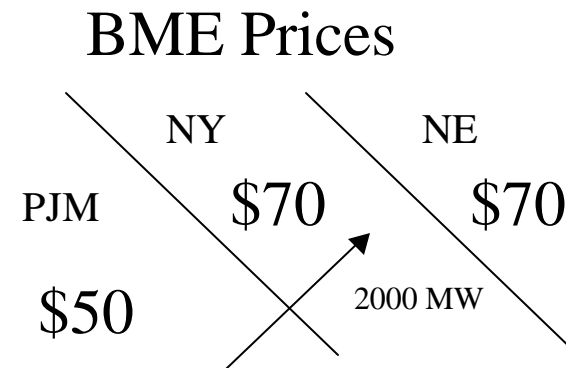
✚ **The important observations from this example are exactly the same as the previous example:**

- *Transactions scheduled day ahead and that flow in real time settle at the day-ahead prices.*
- *Transactions scheduled hour ahead settle at the hour-ahead prices.*
- *Transactions scheduled day ahead but not scheduled to flow hour ahead receive their day-ahead financial commitments and then settle real-time imbalances against their day-ahead schedule at the hour-ahead prices.*
- *No settlements are made at real-time prices.*

Wheels and Constraints into New York



Neither interface is constrained in SCUC



PJM interfaces is constrained into NY in BME

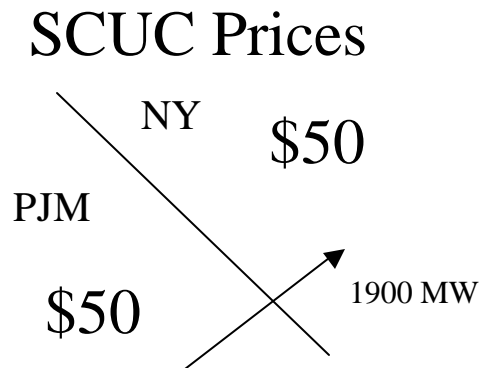
Transaction	Settlements Received (Paid) By Market Participant		
	DAM TUC Settlement (\$/MWh)	HAM TUC Settlement (\$/MWh)	Net Settlement (\$/MWh)
DAM Wheel from PJM to NE Scheduled DA and HA	\$0.00	\$0.00	\$0.00
DAM Wheel from PJM to NE Scheduled DA and not HA	\$0.00	\$20.00	\$20.00
HAM Wheel from PJM to NE	\$0.00	(\$20.00)	(\$20.00)

Wheels and Constraints into New York

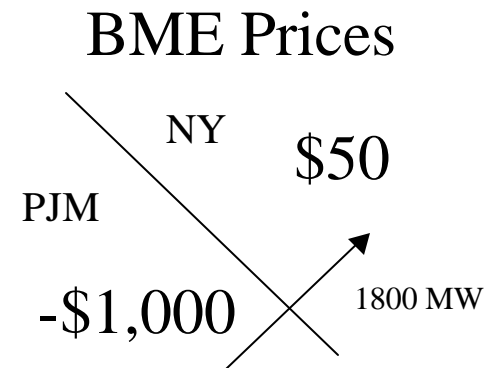
- ✦ **The important observations from this example are exactly the same as the previous two examples:**
 - *Transactions scheduled day ahead and that flow in real time settle at the day-ahead prices.*
 - *Transactions scheduled hour ahead settle at the hour-ahead prices.*
 - *Transactions scheduled day ahead but not scheduled to flow hour ahead receive their day-ahead financial commitments and then settle real-time imbalances against their day-ahead schedule at the hour-ahead prices.*
 - *No settlements are made at real-time prices.*

- ✦ **Examples can be created to illustrate the three other configurations of congestion on the external interfaces that impact wheel transactions. In the interest of brevity they have been omitted.**

All External Generators Scheduled Day-Ahead Bid **-\$1,000**



PJM interface is not constrained in SCUC
Interface capacity was 2000 MW



PJM interface capacity is reduced to 1800 MW in BME
The interface is thus constrained into NY in BME

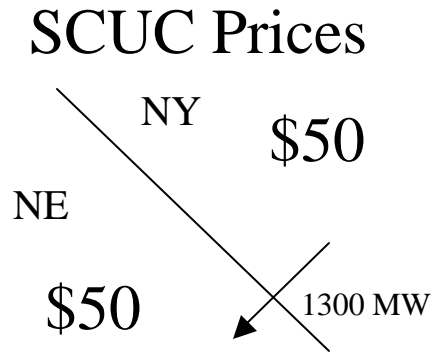
Transaction	Settlements Received (Paid) By Market Participant		
	DAM Settlement (\$/MWh)	HAM Settlement (\$/MWh)	Net Settlement (\$/MWh)
DAM Import Scheduled DA and HA	\$50.00	\$0.00	\$50.00
DAM Import Scheduled DA but not HA	\$50.00	\$1,000.00	\$1,050.00
HAM Import	\$0.00	(\$1,000.00)	(\$1,000.00)
HAM Export	\$0.00	\$1,000.00	\$1,000.00

All External Generators Scheduled Day-Ahead Bid **-\$1,000**

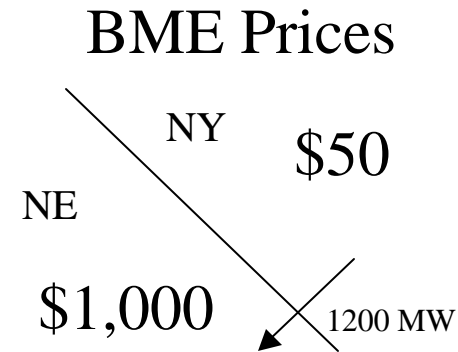
✚ The important observations from this example are:

- *Import transactions scheduled day ahead that flow in real time settle at the day-ahead prices.*
- *Import transactions scheduled day ahead but not scheduled to flow hour ahead receive \$1,050/MWh total settlement. Additionally, they can sell that capacity in real time in PJM.*
- *Import transactions scheduled hour ahead pay \$1,000/MWh for the privilege of providing energy at the PJM proxy bus in real time. These transactions face the consequences of their -\$1,000/MWh bids.*
- *Transactions accepted hour-ahead to provide counterflow from New York to PJM would be paid \$1,000/MWh to receive energy at the PJM proxy bus in real time. This creates incentives for loads to submit standing offers at the external proxy buses at prices they would always be willing to accept energy. Availability of counterflow schedules would reduce the chance that a day ahead import would not be schedule in BME.*

All External Loads Scheduled Day-Ahead bid \$1,000



NE interface is not constrained in SCUC
Interface capacity was 1500 MW



NE interface capacity is reduced to 1200 MW in BME
The interface is thus constrained into NY in BME

Transaction	Settlements Received (Paid) By Market Participant		
	DAM Settlement (\$/MWh)	HAM Settlement (\$/MWh)	Net Settlement (\$/MWh)
DAM Export Scheduled DA and HA	(\$50.00)	\$0.00	(\$50.00)
DAM Export Scheduled DA but not HA	(\$50.00)	\$1,000.00	\$950.00
HAM Import	\$0.00	\$1,000.00	\$1,000.00
HAM Export	\$0.00	(\$1,000.00)	(\$1,000.00)

All External Loads Scheduled Day-Ahead

Bid \$1,000

✚ The important observations from this example are:

- *Export transactions scheduled day ahead that flow in real time settle at the day-ahead prices.*
- *Export transactions scheduled day ahead but not scheduled to flow hour ahead receive \$950/MWh total settlement. The external load would now be served in real time by the New England spot market.*
- *Export transactions scheduled hour ahead pay \$1,000/MWh to receive energy at the NE proxy bus. These transactions face the consequences of their \$1,000/MWh bids.*
- *Transactions accepted hour-ahead to provide counterflow from New England to New York would be paid \$1,000/MWh to deliver energy at the NE proxy bus. Availability of counterflow schedules would reduce the chance that a day ahead export would not be schedule in BME.*