Credit Requirements: External Transactions & Trading Hubs

Credit Policy Task Force
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Objectives

- Eliminate manual credit processes through automation of the Credit Management System (CMS)
- Leverage automation to further stratify credit requirements based on transaction characteristics
- Define credit requirements to appropriately match market and transaction risks

Current Operating Requirement

- The Operating Requirement shall be equal to the sum of
  - (i) the Energy and Ancillary Services Component;
  - (ii) the UCAP Component;
  - (iii) the TCC Component;
  - (iv) the WTSC Component;
  - (v) the Virtual Transaction Component;
  - (vi) the DADRP Component;
  - (vii) the DSASP Component.

Current Energy Market Credit Requirements

- Energy and Ancillary Services Component of the Operating Requirement is the higher of

  - $\frac{\text{Basis Amount for Energy and Ancillary Services}}{\text{Days In Basis Month}} \times 50$

  OR

  - $\frac{\text{Total Charges Incurred for Energy and Ancillary Services for the previous 10 Days}}{10} \times 50$

- Customers on a prepayment agreement have a multiplier of 3.

Energy Market Credit Topics

Proposed New Credit requirements

- External Transactions
  - Proposing no changes to existing Operating Requirement calculations except to pull External Transactions out of the Energy and Ancillary Services component.
  - Create new component for External Transactions
- Trading Hubs

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External Transactions

External Suppliers

- Import suppliers that offer supply in the Day-Ahead Market incur the obligation to cover their Day-Ahead position by scheduling and delivering energy in Real-Time or by financially settling their position at Real-Time prices.

- Day-Ahead import suppliers that do not deliver energy in Real-Time have essentially the same financial risk exposure as virtual suppliers.

Credit Proposal: External Suppliers

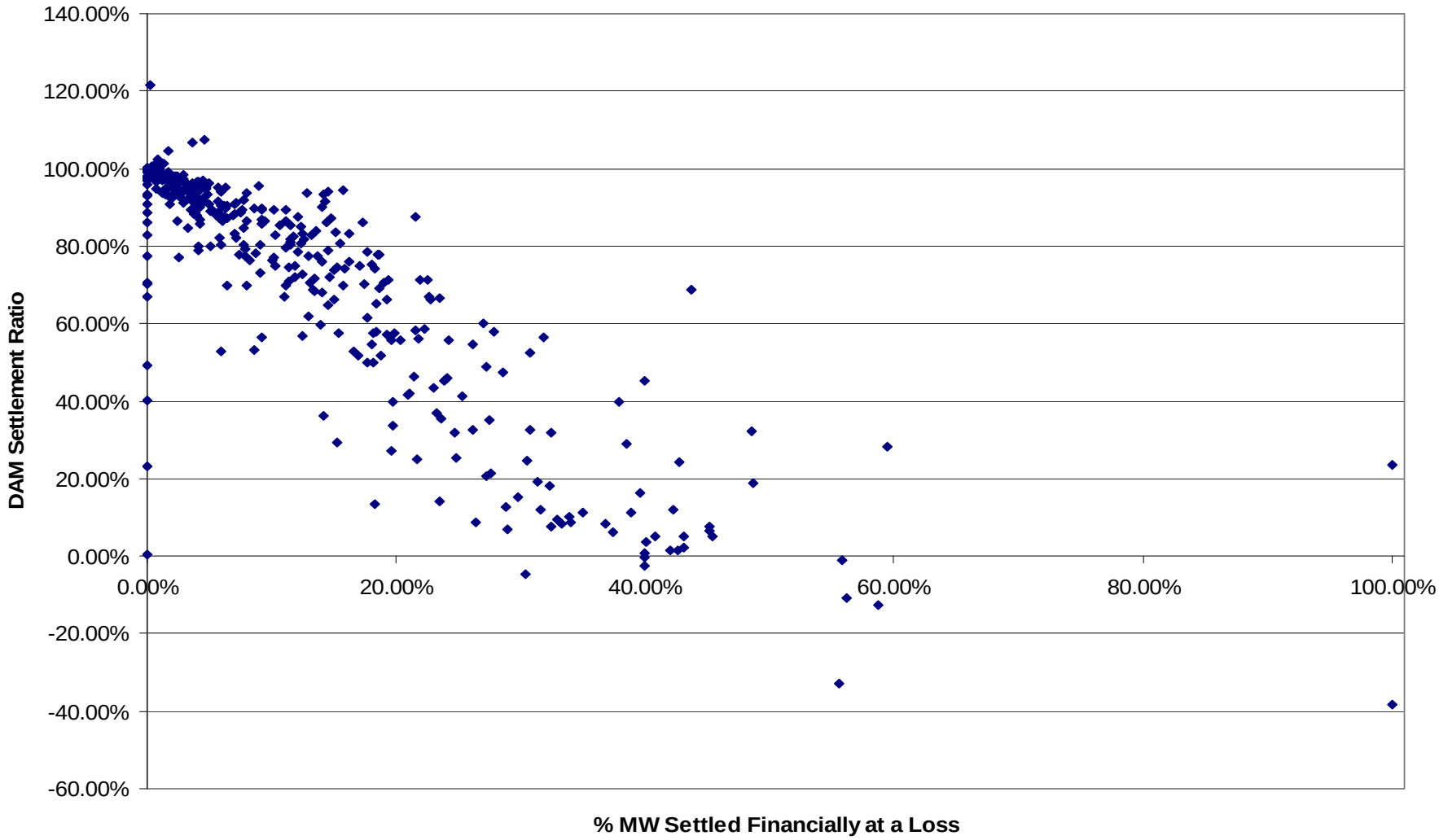
- Impose virtual transaction credit requirements on import suppliers operating like virtual traders.

- Using a historical performance approach, the NYISO can track the delivery performance of each external supplier over time and use this information in conjunction with the virtual supply price differentials to determine credit requirements.

Credit Proposal: External Suppliers

- The NYISO calculated historical performance ratios monthly from Jan 2008 – Feb 2009 by calculating the percent of scheduled DAM import MWhs that a Market Participant financially settled at a loss over the prior 6 months.
- Companies with historical performance ratios above 25% had:
  - 87.9% of their MWh volume in months with a settlement margin less than 20% and;
  - 61.6% of their MWh volume in months with a settlement margin less than 10%.
- Importers with a high proportion of transactions settled financially at a loss are likely to be close to breakeven point, i.e. having little cushion for losses.

DAM Settlement Ratio and % MW Settled Financially at a Loss by Month and Market Participant
January 1, 2008 - February 28, 2009



Credit Proposal: External Suppliers

- Based on the data, the NYISO is proposing to set the historical performance threshold at 25% of DAM imports settled at a loss.
- For the time period studied, only 1.1% of the DAM MWh volume was in the group that would be required to provide credit coverage.
- New external suppliers would be subject to the import supply credit requirements until there is sufficient data to calculate their historical performance.
- All external suppliers that would be subject to import supply credit requirements would be notified in advance by the NYISO.

Example – Historical Performance Calculation

- After the billing data for the 15th of the month is available, the NYISO would calculate each Market Participant's historical performance ratio of DAM imports settled at a loss over the previous six months.

- For example on May 17, 2009, the historical performance ratio would be calculated using data from Nov 15, 2008 – May 15, 2009. Entities with ratios that exceed the 25% threshold would be subject to import credit requirements for June 2009.

Import credit requirement

- The import credit requirement would be calculated by multiplying the import bid MWhs by the proxy bus price differential.

- The proxy bus price differentials would be calculated for all the external proxy buses using the same time period groupings and thresholds as used for the virtual supply credit requirements .

Proposed Groupings

- Time-of-Day
  - HB 7-10
  - HB 11-14
  - HB 15-18
  - HB 19-22
  - Night
  - Weekend/Holiday
- Zone
- Seasons
  - Summer
  - Winter
  - Rest-of-year

Example – Historical Performance Ratio Calculation

Trading Inc. Nov 15,2008 – May 15,2009

- 1000 MWhs of DAM scheduled imports
  - 400 MWhs financially settled in RT at a cost that exceeded DAM revenues
  - Historical Performance Percentage 400 /1000= 40.0%

- Import bid submitted June 1, 2009
  - PJM proxy 100 MWhs for HB 12
  - VSCR for PJM Summer HB 11 – 14 $51.30
  - Credit requirement = 100 * $51.30 = $5,130

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External Buyers

External Buyer

- Market Participants that bid to purchase energy for export in the Day-Ahead Market or Real-Time Market need to have sufficient credit to cover the value of the price capped export bid.

- Day-Ahead export buyers are essentially the same as virtual demand if the transaction does not flow in Real-Time. The buyer has to sell the power back into the NYISO Real-Time Market.

- An export failure could expose the export buyer to losses in excess of the original purchase price if the real-time price is negative.

Credit Proposal: External Buyers

- To bid to buy energy in the Day-Ahead Market, export buyers would be required to have credit coverage equal to the higher of:
  - The bid price for the export or
  - The virtual load credit requirement

- The credit requirement would be calculated using the same time period groupings and thresholds as used for the virtual load credit requirements.

- To bid to buy energy in the Real-Time Market, export buyers would be required to have credit coverage equal to the bid price for the export.

Credit Proposal: External Buyers

- Export bid credit requirements would be evaluated similar to how the current TCC bid requirements for bid sets over the same path are determined.

- If an entity submits multiple export bids in the same hour, for the same location, the NYISO would evaluate all bid scenarios based on potential scheduled MWhs and limit this portion of the requirement at the maximum exposure of that bid set.

Credit Proposal: External Buyers Example

- Company submits 2 bids to export in HB 2 at OH proxy bus.
  - Bid 1 – 100 MWhs at $50
  - Bid 2 - 50 MWhs at $25
  - Assume VLCR = $23
- Proposed credit requirement would be the maximum amount of credit required based on all possible scenarios.
- In this example, the credit requirement would be $5,000.

Scenario 1: Proxy LBMP greater than $50	Scenario 2: Proxy LBMP between $25 & $50	Scenario 3: Proxy LBMP less than $25
No bids clear	100 MW clear 100 * max($50, VLCR)=	150 MW clear 150 * max($25, VLCR)=
$0	$5,000	$3,750

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Wheel Through Transactions

External Transactions

- Wheel Through
  - Wheel Through transactions that bid to move energy through the NYISO need to have sufficient credit to cover the value of the price capped congestion bid.

- Credit Proposal
  - To bid to move energy through the NYISO in the Day-Ahead or Real-Time Markets, Wheel Through bidders would be required to have credit coverage equal to the bid price for the Wheel Through.

External Transactions

- The credit requirements for Imports, Exports and Wheels Through discussed above would apply until the market evaluation has completed.

- After market evaluation the credit requirements would remain for accepted bids.

- After the market day is complete the credit requirements would then be calculated based on payments due to the NYISO.

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Trading Hubs

Overview

- Ensure credit requirements are appropriate for the risk associated with all pending settlements for Trading Hub transactions

- Credit requirements would be based on the risk associated with DAM and RTM transactions

- TUC charges and unbalanced transactions incurring energy charges are treated separately; each charge would have distinct credit requirements reflecting the potential financial exposure for each type of transaction

Trading Hub Credit Requirements

- The proposed approach to defining credit requirements for trading hub transactions entailing net purchases or sales involves the following:
  - Calculating a historical ratio of DAM prices to forward gas prices for each NYISO zone for each month.
    - Calculations would be based on a rolling three years of data and updated annually to reflect changes in the relationship between energy and gas prices in each zone
  - Applying the ratios prospectively to determine the base credit requirement

DAM base price – Ratio Calculation

- The NYISO would calculate the average DAM price (P) for each of the six time periods (p) in the month (m), for each zone (z), and for each of the 3 years (t) [P_{pmzt}] for every month

- The result would be a table of 120 values for each month based on 11 zones plus 9 proxy buses for 6 time periods:
  - HB 7-10
  - HB 11-14
  - HB 15-18
  - HB 19-22
  - Night
  - Weekends & Holidays

- Each of the 120 values represents a numerator value for the historical ratio

DAM base price – Ratio Calculation

- The NYISO would utilize the corresponding prompt month (m) futures price for natural gas (g) at Henry Hub as the denominator of the historical ratio (P_{gmt})

- This historical ratio would be multiplied by the appropriate Henry Hub gas futures price to determine base prices/credit requirement per MWh.

- These historical ratios would be calculated for each prospective month (e.g. January 2009), based on data for that month over the past three years (e.g. January 2008, 2007 and 2006)

DAM base price Example: Zone J Sept 2008

Average Day-Ahead Market Price

Zone J	2005	2006	2007
HB 7-10	137.63	57.97	70.56
HB 11-14	186.84	68.03	84.91
HB 15-18	195.97	66.80	90.39
HB 19-22	156.76	56.44	74.18
Night	94.18	35.28	42.42
Weekends/Holidays	126.06	53.05	66.77

Henry Hub Natural Gas Prices*

Date	Dollars Per Million BTU
08/29/2005	10.847
08/29/2006	6.816
08/29/2007	5.43

Henry Hub Gas Price Ratio

Zone J	2005	2006	2007	Average
HB 7-10	12.69	8.5	12.99	11.40
HB 11-14	17.22	9.98	15.64	14.28
HB 15-18	18.07	9.8	16.65	14.84
HB 19-22	14.45	8.28	13.66	12.13
Night	8.68	5.18	7.81	7.22
Weekends/Holidays	11.62	7.78	12.3	10.57

*Henry Hub gas futures prices come from the Bloomberg closing price of the NG1 contract three business days before the start of September of that year. Natural gas contracts expire three business days prior to the first calendar day of the delivery month.

DAM base price Example: Zone J Sept 2008

- The Henry Hub Ratio would be multiplied by the Henry Hub Gas Futures Price for the relevant month to determine credit requirement
- September 2008 Henry Hub Gas Futures Price published on August 29, 2008 was $8.40
- C = R * H
  - Where C = Credit Requirement, R = Henry Hub Gas Price Ratio, H = Currently published Henry Hub Gas Price

September 2008* - DAM Base Price

	Zone A	Zone B	Zone C	Zone D	Zone E	Zone F	Zone G	Zone H	Zone I	Zone J	Zone K
HB 7-10	72.40	75.40	76.56	77.79	80.02	82.82	86.25	87.20	87.40	95.66	95.60
HB 11-14	82.04	85.25	86.46	86.34	89.91	92.92	100.64	102.65	102.90	119.88	115.33
HB 15-18	81.74	84.68	86.09	85.81	89.46	92.64	103.24	106.09	106.45	124.55	123.75
HB 19-22	74.67	77.24	78.37	79.07	81.51	84.44	88.59	89.64	89.82	101.83	106.14
Night	47.79	49.64	50.69	52.17	52.93	55.24	56.11	56.46	56.63	60.64	67.99
Weekends/ Holidays	65.26	68.69	72.05	73.82	75.39	78.81	82.36	83.17	83.39	88.70	97.72

*Due to rounding conventions, some numbers displayed in the table may not match exactly the actual calculations using numbers on the previous page

Real Time Credit Requirements

- Unbalanced RT Trading Hub transactions can have the same kind of price volatility risk as Virtual Transactions as both settle at real-time prices.

- The Virtual Transaction credit requirements that are a component of the credit requirement for unbalanced RT Trading Hub transactions were approved by the Management Committee on October 29, 2008.

Credit Requirements for TUC Charges

- DAM Transactions
  - For each transaction the credit requirement would be calculated as:
    - MWhs * Max (0, (Sink Zone DAM base price - Source Zone DAM base price)
- RTM Transactions
  - For each transaction the credit requirement would be calculated as:
    - MWhs * Max (0, (Sink Zone DAM base price + Sink Zone Virtual Supply credit requirement) – (Source Zone DAM base price - Source Zone Virtual Load credit requirement))
- Credit requirements for TUC's charges would apply to all bilateral transactions.

Unbalanced Transactions

- Unbalanced transactions at a Trading Hub would have a credit requirement based on the energy imbalance.
- The credit requirement would be calculated using the DAM base price plus a DAM margin.
- DAM margins would be calculated using the previous three years of DAM prices and determining the 97th percentile for each zone and time period grouping.

Example: DAM Margin Sept 2008

	Zone A	Zone B	Zone C	Zone D	Zone E	Zone F	Zone G	Zone H	Zone I	Zone J	Zone K
HB 7-10	22.02	20.99	22.37	22.64	22.71	24.59	24.64	26.75	27.10	51.44	34.46
HB 11-14	23.98	22.89	25.03	21.14	23.75	29.52	38.28	43.95	44.64	105.54	50.97
HB 15-18	23.05	22.72	23.76	20.34	22.30	27.58	46.81	53.83	55.41	113.22	61.90
HB 19-22	22.91	24.99	23.90	24.52	25.52	25.35	29.81	31.28	31.57	70.12	51.37
Night	23.21	24.37	26.08	26.62	26.78	27.83	28.27	29.24	29.31	34.33	30.41
Weekends/ Holiday	23.90	25.42	26.10	26.23	27.76	31.28	31.26	31.50	32.91	40.38	43.72

Unbalanced Transactions

- DAM Transactions
  - For each hour at a Trading Hub that has net purchases to cover unbalanced bilateral transactions, the credit requirement would be calculated as: (DAM base price + DAM margin) x the unbalanced MWhs at the Trading Hub
  - For each hour at a Trading Hub that has net sales from unbalanced bilateral transactions, a credit offset would be calculated as: DAM base price x the unbalanced MWhs at the Trading Hub

Unbalanced Transactions

- Real Time Transactions
  - For each hour at a Trading Hub that has net purchases to cover unbalanced bilateral transactions, the credit requirement would be calculated as: (DAM base price + Virtual Supply credit requirement) x the unbalanced MWhs at the Trading Hub.
  - For each hour at a Trading Hub that has net sales from unbalanced bilateral transactions, a credit offset would be calculated as: (DAM base price - Virtual Demand credit requirement) x the unbalanced MWhs at the Trading Hub.

Processing Trading Hub Credit Requirements

- Any time a bilateral transaction is fully confirmed, updated or deleted, the following process would occur:
  - Determine each Market Participant's net MWh position for each hour for both the DAM and RTM at each of the Trading Hubs.
  - Calculate, for each Trading Hub net MWh position, the credit requirement or credit offset and calculate the TUC credit requirements.
  - The results of the calculations in the previous step are summed together by Market Participant and any credit requirement would be included in the Market Participant's overall energy market credit requirements.

Next Steps

- Complete discussions of proposed credit requirements for External Transactions and Trading Hubs.
  - Market Issues Working Group Meeting May 6
- Business Issues Committee – May 15, 2009
- Management Committee – May 27, 2009
- Board of Directors – June 2009
- FERC Filing – June 2009
- CMS deployment planned for Sept 2009.

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The New York Independent System Operator (NYISO) is a not-for-profit corporation that began operations in 1999. The NYISO operates New York's bulk electricity grid, administers the state's wholesale electricity markets, and provides comprehensive reliability planning for the state's bulk electricity system.

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