

---

# NYISO Market Operations Report

*Business Issues Committee Meeting  
February 18, 2004*

*Agenda #4*

# Report Items

---

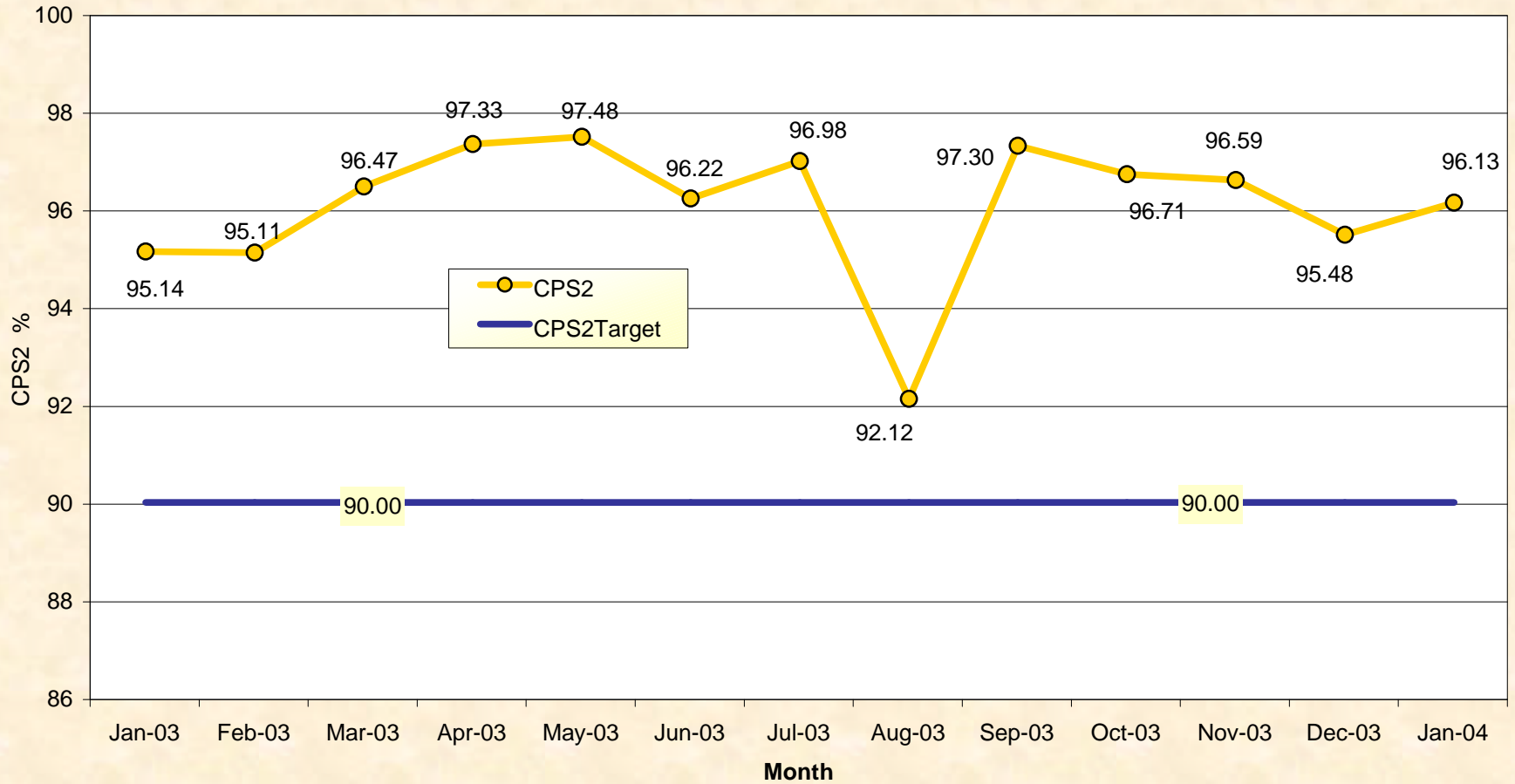
- 1) Reliability Indicators
  - *NERC Criteria (CPS-2 Curve)*
  
- 2) Market Performance Highlights

# Market Performance Highlights for January, 2003

- **Energy prices rose during January due to extreme cold weather experienced mid-month**
  - *New NYCA winter peak loads set*
    - ▶ 24,627 MW on Wed, 14 Jan 2004 HB 17
    - ▶ 25,262 MW on Thurs, 15 Jan 2004 HB 18
  - *Record high fuel prices experienced*
    - ▶ \$45.27 / MMBtu for Transco Zone 6 Gas before taxes and delivery
- **Real-time price corrections rose substantially in January**
  - *Load weighting factors for NYC sub-zones deployed inconsistently between the Dam & RT*
  - *Resulting real-time price changes very small (~\$.01)*
  - *Modeling inconsistency was corrected going forward*

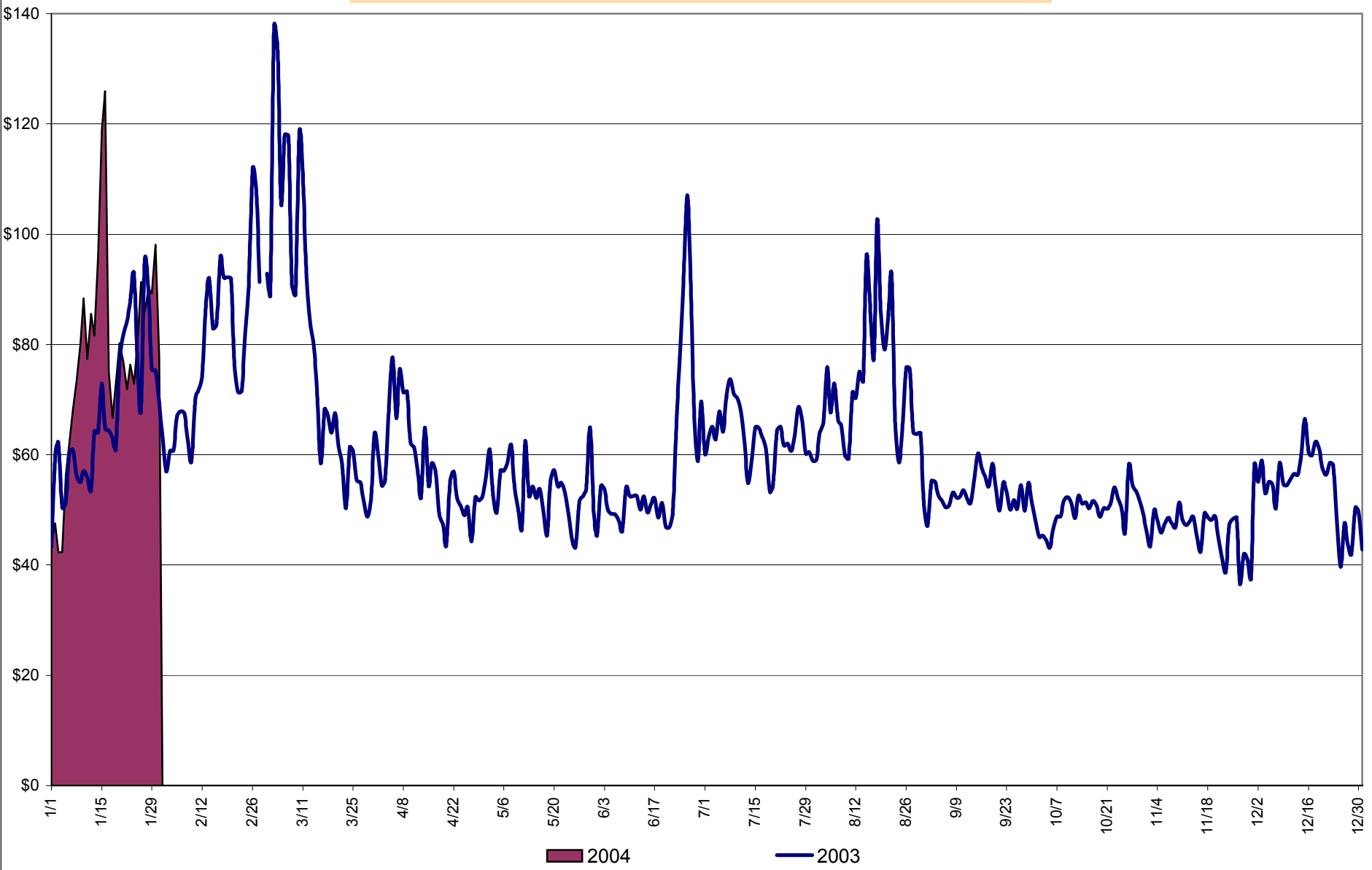
# NERC Control Performance Standard

NYISO Compliance  
Year 2003/2004



**CPS2 for January = 96.13% Compliance Threshold = 90%**  
**CPS2 measures excessive unscheduled power flow resulting from large Area Control Error (ACE)**

**Daily NYISO Average Cost/MWH (Energy & Ancillary Services)\***  
2003 Annual Average \$62.35/MWH  
January 2003 YTD Average \$68.79/MWH  
January 2004 YTD Average \$79.60/MWH

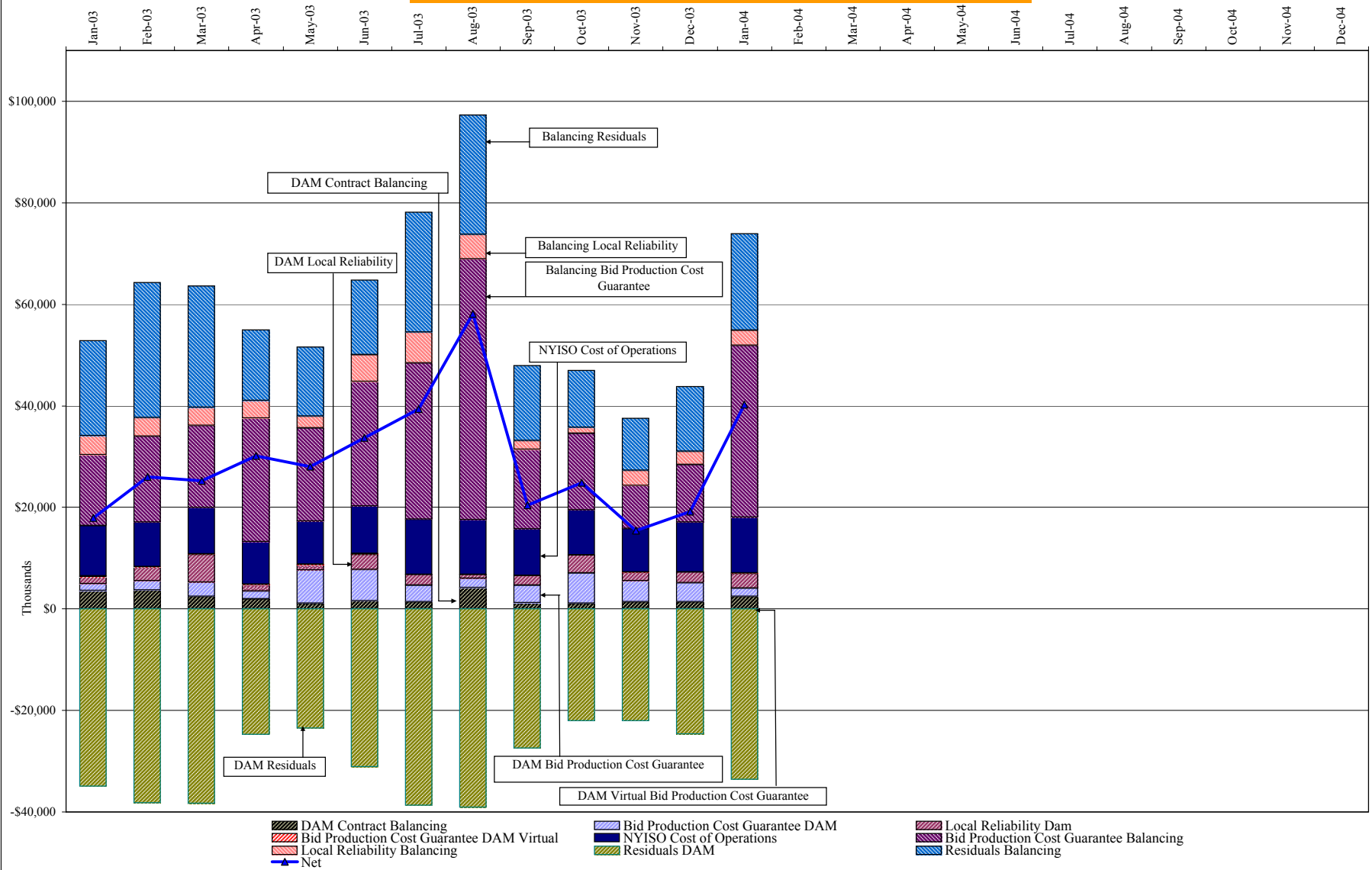


**NYISO Average Cost/MWH (Energy and Ancillary Services)\*  
from the LBMP Customer point of view**

<b>2004</b>		January	February	March	April	May	June	July	August	September	October	November	December
	LBMP	75.70											
	NTAC	0.47											
	Reserve	0.27											
	Regulation	0.18											
	NYISO Cost of Operations	0.73											
	Uplift	1.88											
	Voltage Support and Black Start	<u>0.36</u>											
	<b>Avg Monthly Price</b>	79.60											
	 Avg YTD Price	 79.60											

<b>2003</b>		January	February	March	April	May	June	July	August	September	October	November	December
	LBMP	66.33	76.65	78.37	54.27	49.76	57.37	60.11	68.14	50.83	47.02	43.39	52.41
	NTAC	0.41	0.35	0.66	0.45	0.44	0.39	0.53	0.36	0.24	0.29	0.51	0.36
	Reserve	0.46	0.35	0.45	0.39	0.47	0.24	0.15	0.22	0.13	0.10	0.18	0.16
	Regulation	0.26	0.27	0.38	0.31	0.65	0.31	0.19	0.18	0.32	0.49	0.43	0.25
	NYISO Cost of Operations	0.68	0.68	0.68	0.68	0.68	0.68	0.69	0.69	0.68	0.69	0.68	0.69
	Uplift	0.31	1.08	1.01	1.68	1.48	1.67	1.76	2.69	0.76	1.16	0.42	0.56
	Voltage Support and Black Start	<u>0.33</u>	<u>0.33</u>	<u>0.33</u>	<u>0.33</u>	<u>0.34</u>	<u>0.33</u>	<u>0.34</u>	<u>0.34</u>	<u>0.33</u>	<u>0.34</u>	<u>0.34</u>	<u>0.33</u>
	<b>Avg Monthly Price</b>	68.79	79.71	81.88	58.13	53.82	61.00	63.77	72.61	53.30	50.08	45.95	54.76
	 Avg YTD Price	 68.79	 74.00	 76.58	 72.19	 68.80	 67.41	 66.75	 67.67	 66.14	 64.64	 63.08	 62.35

### NYISO Dollar Flows - Uplift - OATT Schedule 1 components



DAM Contract Balancing amounts are for payments made to generating units to make them whole for being dispatched below their Day-Ahead schedule, as a result of out-of-merit dispatches.

DAM Bid Production Cost Guarantees for Virtual Transactions are included in the chart and are shown from the inception of Virtual Transactions. These values are small and cannot be identified on the chart. The value for April 2003 is \$135,233.

DAM residuals are revenue charged or returned to customers due to the under or over collection of funds. On this chart, negative values represent funds returned to Transmission Customers (through Transmission Owners' Transmission Service Charge).

## NYISO Markets Transactions

Transactions by Market 2004	January	February	March	April	May	June	July	August	September	October	November	December
<b>Day Ahead Market MWH</b>	14,614,304											
DAM LSE Internal LBMP Energy Sales	52%											
DAM External TC LBMP Energy Sales	4%											
DAM Bilateral - Internal Bilaterals	41%											
DAM Bilateral - Import/Non-LBMP Market Bilaterals	1%											
DAM Bilateral - Export/Non-LBMP Market Bilaterals	1%											
DAM Bilateral - Wheel Through Bilaterals	1%											
<b>Balancing Energy Market MWH</b>	367,460											
Balancing Energy LSE Internal LBMP Energy Sales	66%											
Balancing Energy External TC LBMP Energy Sales	57%											
Balancing Energy Bilateral - Internal Bilaterals	-20%											
Balancing Energy Bilateral - Import/Non-LBMP Market Bilaterals	0%											
Balancing Energy Bilateral - Export/Non-LBMP Market Bilaterals	0%											
Balancing Energy Bilateral - Wheel Through Bilaterals	-4%											
<b>Transactions Summary</b>												
LBMP	58%											
Internal Bilaterals	40%											
Import Bilaterals	1%											
Export Bilaterals	1%											
Wheels Through	1%											
<b>Market Share of Total Load</b>												
Day Ahead Market	97.5%											
Balancing Energy †	2.5%											
Total MWH	14,981,764											
Average Daily Energy Sendout/Month GWh	464											

## Transactions by Market 2003

Transactions by Market 2003	January	February	March	April	May	June	July	August	September	October	November	December
<b>Day Ahead Market MWH</b>	14,187,752	12,695,868	13,126,563	11,997,655	12,029,453	13,341,831	15,444,857	15,759,082	13,003,309	12,507,780	12,332,456	13,973,266
DAM LSE Internal LBMP Energy Sales	46%	48%	46%	49%	46%	48%	55%	57%	49%	48%	47%	48%
DAM External TC LBMP Energy Sales	1%	1%	1%	1%	2%	2%	1%	0%	1%	2%	2%	2%
DAM Bilateral - Internal Bilaterals	50%	49%	50%	46%	49%	46%	43%	40%	48%	47%	48%	46%
DAM Bilateral - Import/Non-LBMP Market Bilaterals	1%	1%	1%	1%	0%	0%	0%	0%	0%	0%	0%	0%
DAM Bilateral - Export/Non-LBMP Market Bilaterals	1%	1%	2%	1%	1%	1%	1%	1%	1%	1%	1%	1%
DAM Bilateral - Wheel Through Bilaterals	1%	1%	1%	2%	2%	2%	1%	1%	1%	1%	1%	2%
<b>Balancing Energy Market MWH</b>	347,539	285,381	376,222	235,800	278,939	291,519	208,142	-55,913	394,363	338,562	319,065	385,707
Balancing Energy LSE Internal LBMP Energy Sales	58%	35%	52%	72%	48%	39%	53%	-146%	65%	53%	26%	43%
Balancing Energy External TC LBMP Energy Sales	58%	80%	95%	73%	69%	78%	79%	242%	44%	61%	77%	68%
Balancing Energy Bilateral - Internal Bilaterals	-6%	-10%	-2%	0%	-5%	5%	-2%	-75%	1%	3%	0%	-2%
Balancing Energy Bilateral - Import/Non-LBMP Market Bilaterals	4%	1%	1%	1%	1%	0%	0%	2%	0%	0%	0%	0%
Balancing Energy Bilateral - Export/Non-LBMP Market Bilaterals	0%	0%	-38%	0%	0%	0%	0%	-14%	0%	0%	0%	0%
Balancing Energy Bilateral - Wheel Through Bilaterals	-14%	-7%	-8%	-46%	-14%	-23%	-31%	-109%	-10%	-16%	-3%	-9%
<b>Transactions Summary</b>												
LBMP	49%	50%	49%	52%	49%	52%	56%	58%	51%	52%	51%	52%
Internal Bilaterals	48%	47%	48%	45%	48%	46%	42%	40%	46%	46%	47%	45%
Import Bilaterals	1%	1%	1%	1%	0%	0%	0%	0%	0%	0%	0%	0%
Export Bilaterals	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%
Wheels Through	1%	1%	1%	1%	1%	1%	1%	1%	0%	1%	1%	2%
<b>Market Share of Total Load</b>												
Day Ahead Market	97.6%	97.8%	97.2%	98.1%	97.7%	97.9%	98.7%	100.4%	97.1%	97.4%	97.5%	97.3%
Balancing Energy †	2.4%	2.2%	2.8%	1.9%	2.3%	2.1%	1.3%	-0.4% *	2.9%	2.6%	2.5%	2.7%
Total MWH	14,535,291	12,981,249	13,502,785	12,233,455	12,308,392	13,633,350	15,652,999	15,703,169	13,397,672	12,846,342	12,651,521	14,358,973
Average Daily Energy Sendout/Month GWh	458	450	418	393	382	432	497	498	433	397	402	435

† Balancing Energy: Load(MW) purchased at Real Time LBMP.

\* The signs for the detail section intuitively reflect the direction of power flow eliminating the use of double negatives when Balancing Energy is negative.

Notes: Percent totals may not equal 100% due to rounding.

Virtual Transactions are not reflected in this chart.



### NYISO Markets 2004 Energy Statistics

	January	February	March	April	May	June	July	August	September	October	November	December
<b><u>DAY AHEAD LBMP</u></b>												
Price *	\$72.12											
Standard Deviation	\$25.99											
Load Wtg.Price **	\$75.01											
<b><u>BME *** LBMP</u></b>												
Price *	\$77.51											
Standard Deviation	\$37.54											
Load Wtg.Price **	\$80.51											
<b><u>REAL TIME LBMP</u></b>												
Price *	\$73.72											
Standard Deviation	\$32.61											
Load Wtg.Price **	\$76.85											
Average Daily Energy Sendout/Month GWh	464											

### NYISO Markets 2003 Energy Statistics

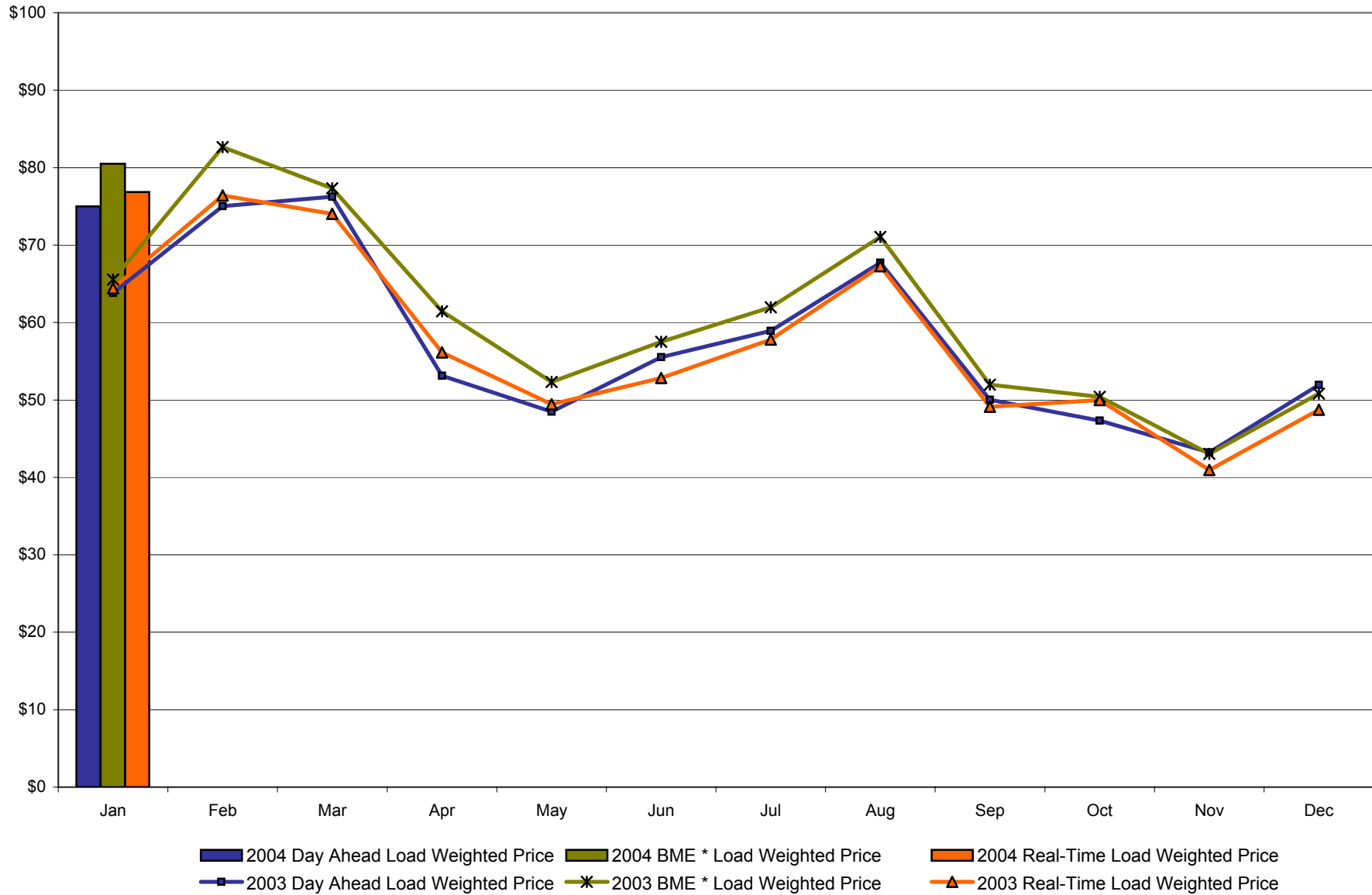
	January	February	March	April	May	June	July	August	September	October	November	December
<b><u>DAY AHEAD LBMP</u></b>												
Price *	\$61.33	\$72.81	\$73.18	\$51.58	\$46.43	\$51.45	\$57.10	\$64.94	\$48.29	\$45.81	\$41.58	\$50.07
Standard Deviation	\$20.09	\$21.12	\$29.70	\$12.47	\$14.03	\$21.27	\$11.88	\$18.06	\$11.04	\$10.91	\$12.06	\$14.92
Load Wtg.Price **	\$63.81	\$75.03	\$76.25	\$53.14	\$48.47	\$55.52	\$58.93	\$67.71	\$50.02	\$47.34	\$43.21	\$51.95
<b><u>BME *** LBMP</u></b>												
Price *	\$63.19	\$80.25	\$74.27	\$59.22	\$50.27	\$53.84	\$59.99	\$67.63	\$50.34	\$48.74	\$41.01	\$48.73
Standard Deviation	\$25.43	\$41.53	\$32.77	\$25.00	\$16.37	\$22.27	\$14.82	\$72.20	\$14.01	\$15.35	\$18.51	\$18.89
Load Wtg.Price **	\$65.54	\$82.65	\$77.33	\$61.45	\$52.31	\$57.49	\$61.94	\$71.07	\$51.96	\$50.39	\$43.05	\$50.81
<b><u>REAL TIME LBMP</u></b>												
Price *	\$61.53	\$74.03	\$70.54	\$53.94	\$46.74	\$48.96	\$55.94	\$64.32	\$47.24	\$48.57	\$38.72	\$46.45
Standard Deviation	\$30.16	\$37.46	\$37.97	\$28.70	\$23.03	\$21.57	\$13.68	\$34.91	\$15.52	\$25.74	\$22.35	\$20.55
Load Wtg.Price **	\$64.43	\$76.41	\$74.02	\$56.14	\$49.44	\$52.82	\$57.79	\$67.27	\$49.12	\$49.98	\$40.96	\$48.73
Average Daily Energy Sendout/Month GWh	458	450	418	393	382	432	497	498	433	397	402	435

\* Average zonal load weighted prices

\*\* Average zonal load weighted prices, load weighted in each hour

\*\*\* Commonly referred to as Hour Ahead Market (HAM)

**NYISO Monthly Average Internal LBMPs  
2003 - 2004**



\* Commonly referred to as Hour Ahead Market (HAM)

4-F

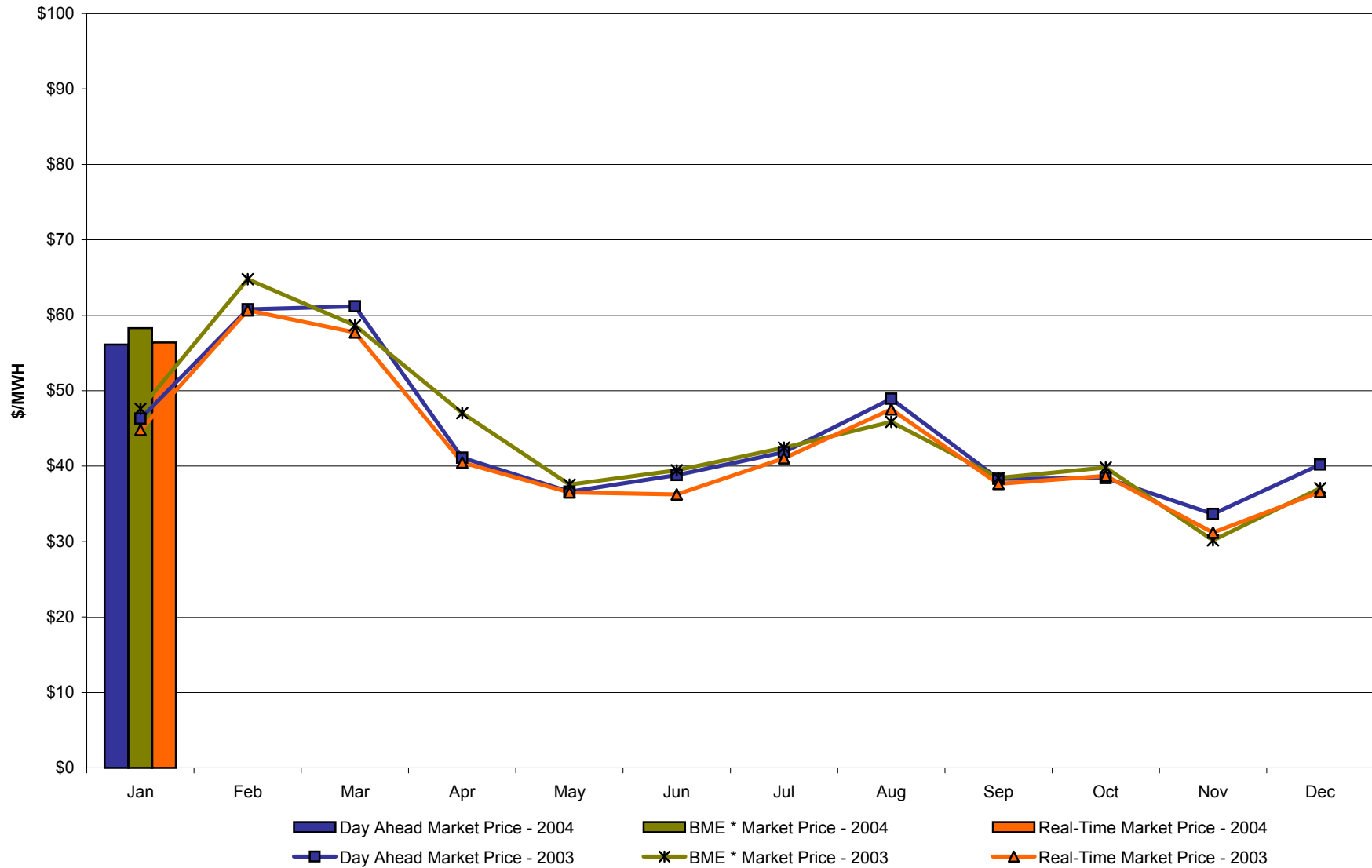
**January 2004 Zonal Statistics for NYISO (\$/MWH)**

	<b>WEST Zone A</b>	<b>GENESEE Zone B</b>	<b>NORTH Zone D</b>	<b>CENTRAL Zone C</b>	<b>MOHAWK VALLEY Zone E</b>	<b>CAPITAL Zone F</b>	<b>HUDSON VALLEY Zone G</b>	<b>MILLWOOD Zone H</b>	<b>DUNWOODIE Zone I</b>	<b>NEW YORK CITY Zone J</b>	<b>LONG ISLAND Zone K</b>
<b><u>DAY AHEAD LBMP</u></b>											
Unweighted Price *	56.13	59.60	61.54	59.53	61.86	63.69	63.72	63.88	64.80	91.77	75.26
Standard Deviation	18.65	19.42	20.07	19.02	20.05	20.54	20.63	20.68	21.01	44.32	23.30
<b><u>BME ** LBMP</u></b>											
Unweighted Price *	58.31	60.89	66.76	64.25	67.03	68.21	69.48	69.23	70.22	93.38	95.83
Standard Deviation	26.88	27.25	30.52	26.86	28.23	29.12	29.74	29.61	30.09	50.83	130.80
<b><u>REAL TIME LBMP</u></b>											
Unweighted Price *	56.39	60.43	61.20	59.09	61.85	64.49	62.32	63.01	64.03	96.08	76.21
Standard Deviation	25.85	27.53	27.61	26.44	27.78	28.95	27.95	28.19	28.66	58.54	31.66
	<b>ONTARIO HYDRO Zone O</b>	<b>HYDRO QUEBEC Zone M</b>	<b>PJM Zone P</b>	<b>NEW ENGLAND Zone N</b>							
<b><u>DAY AHEAD LBMP</u></b>											
Unweighted Price *	55.08	61.28	57.82	66.48							
Standard Deviation	18.17	19.91	19.94	26.01							
<b><u>BME ** LBMP</u></b>											
Unweighted Price *	54.43	85.45	60.79	75.42							
Standard Deviation	62.10	135.03	48.25	46.23							
<b><u>REAL TIME LBMP</u></b>											
Unweighted Price *	53.58	79.40	55.22	68.11							
Standard Deviation	61.29	134.43	45.77	43.88							

\* Straight zonal averages

\*\* Commonly referred to as Hour Ahead Market (HAM)

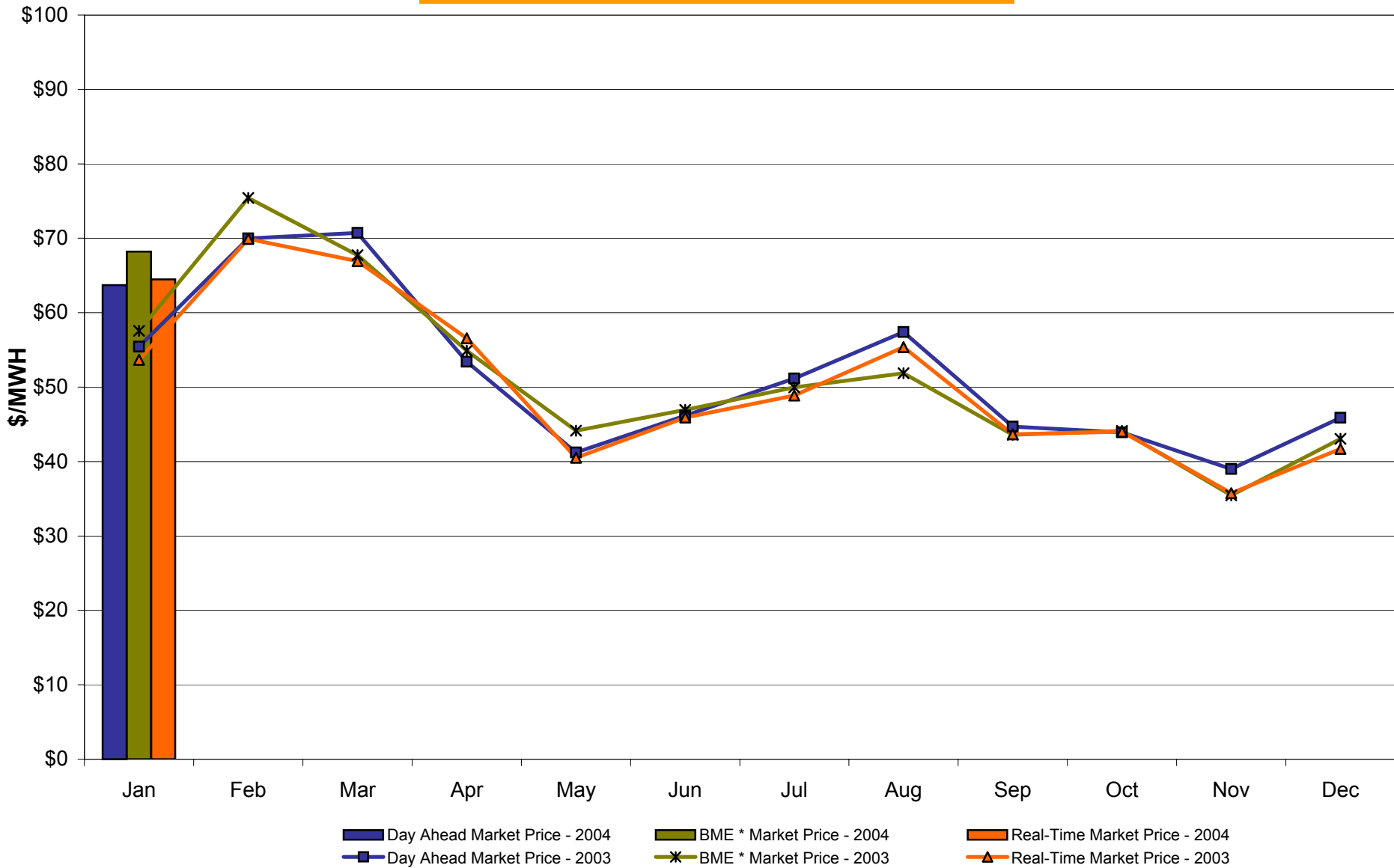
## West Zone A Monthly Average LBMP Prices 2003 - 2004



\* Commonly referred to as Hour Ahead Market (HAM)

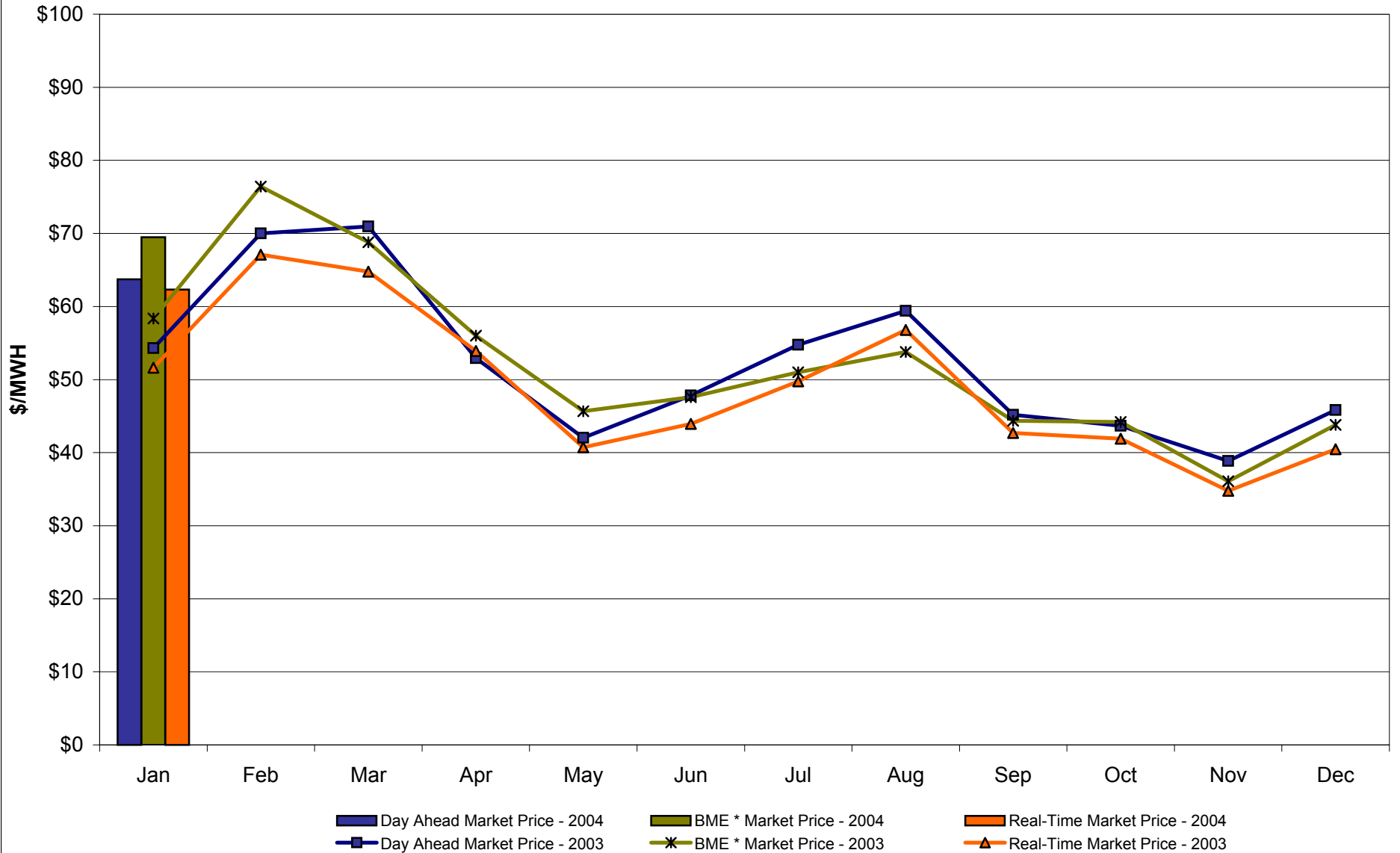
4-H

## Capital Zone F Monthly Average LBMP Prices 2003 - 2004



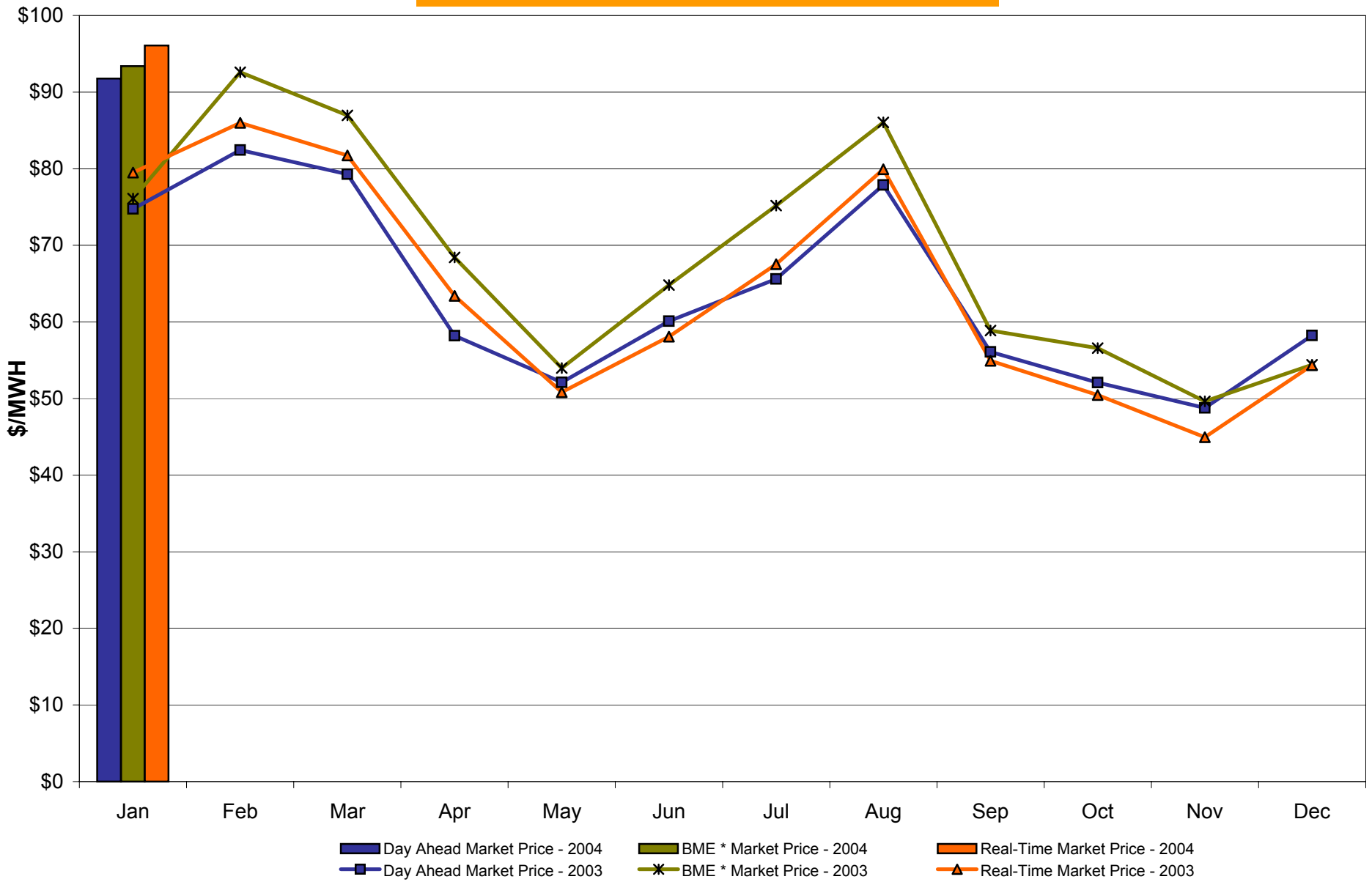
\* Commonly referred to as Hour Ahead Market (HAM)

## Hudson Valley Zone G Monthly Average LBMP Prices 2003 - 2004



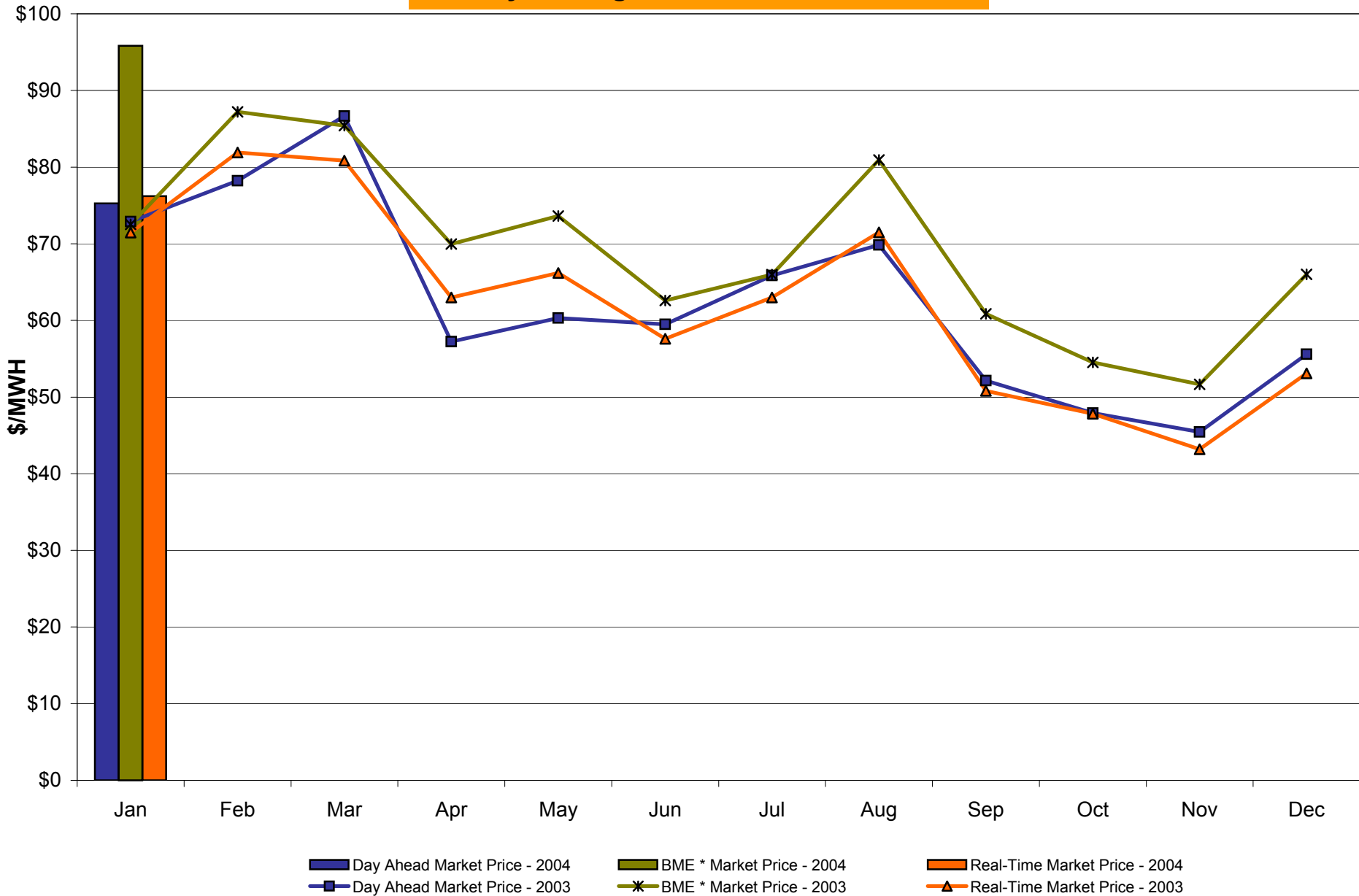
\* Commonly referred to as Hour Ahead Market (HAM)

## NYC Zone J Monthly Average LBMP Prices 2003 - 2004



\* Commonly referred to as Hour Ahead Market (HAM)

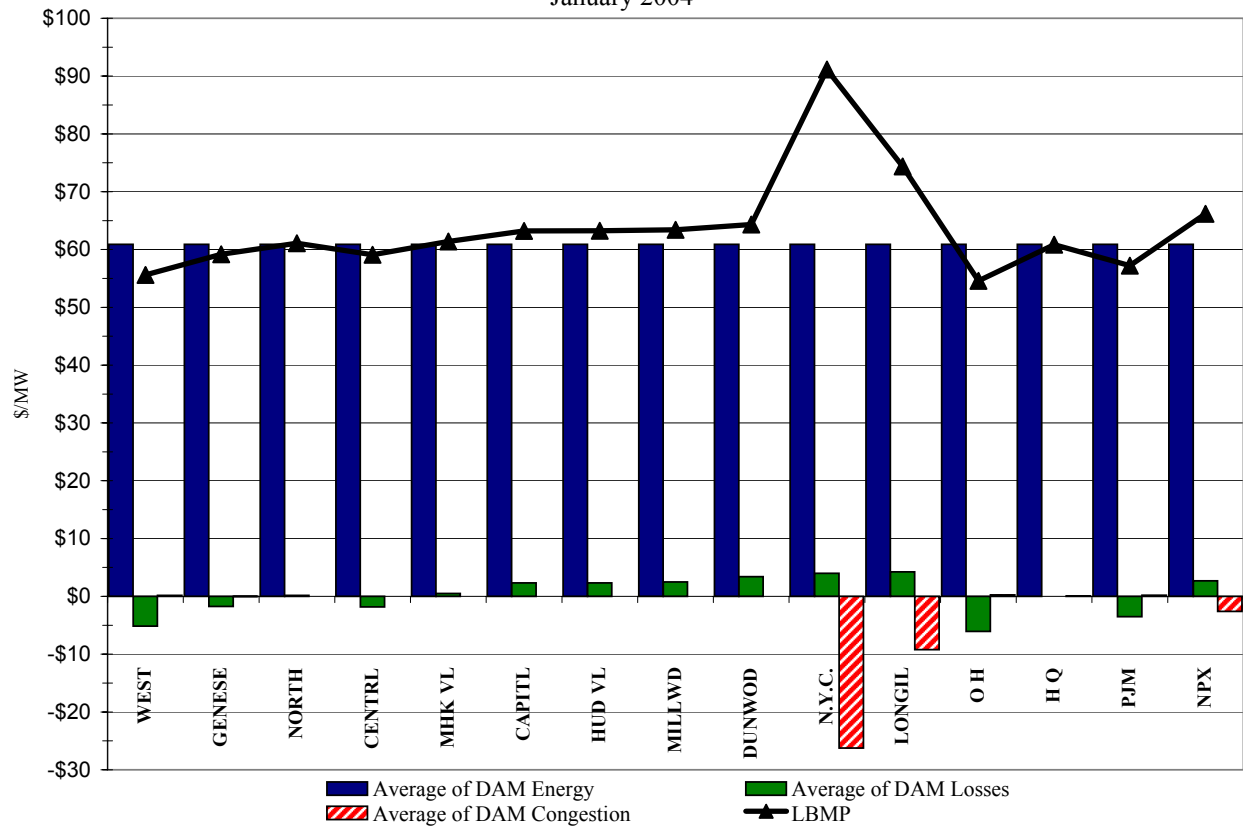
## Long Island Zone K Monthly Average LBMP Prices 2003 - 2004



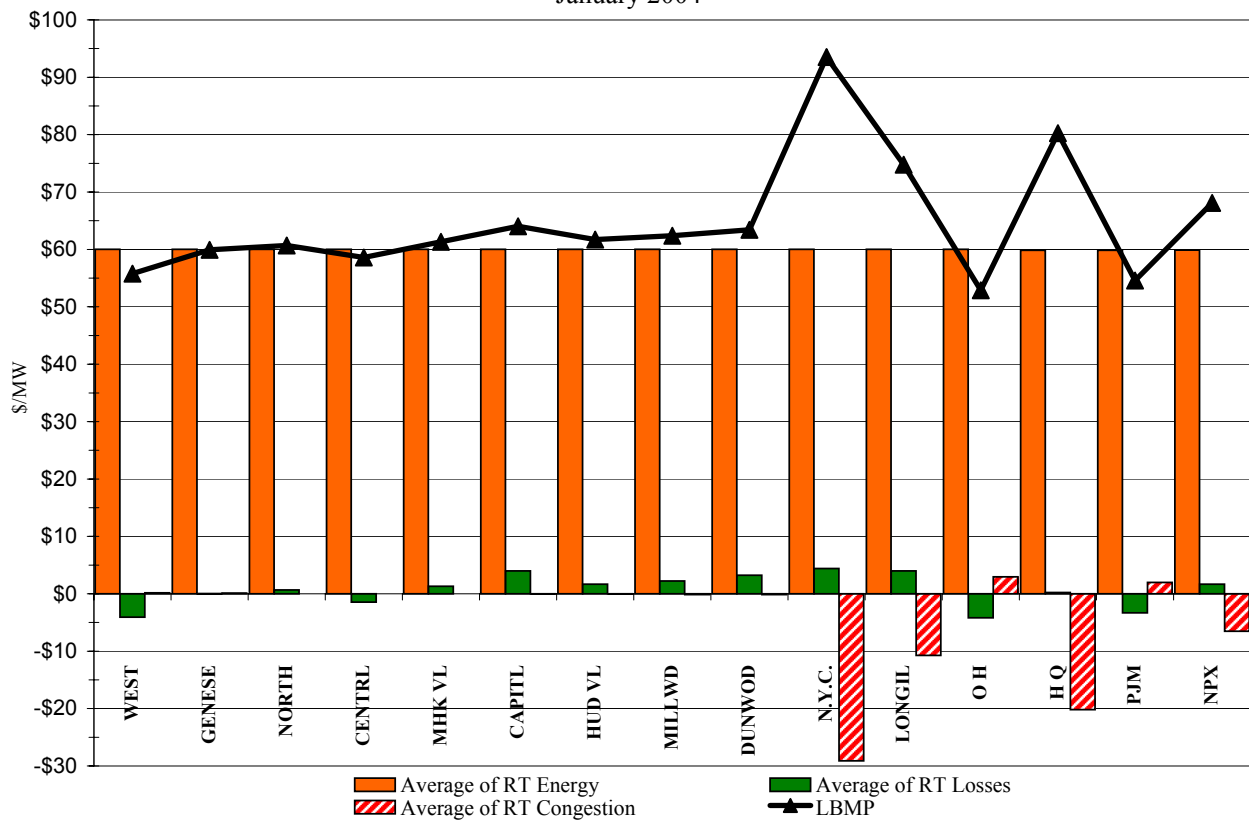
\* Commonly referred to as Hour Ahead Market (HAM)



DAM Zonal Unweighted Monthly Average LBMP Components  
January 2004

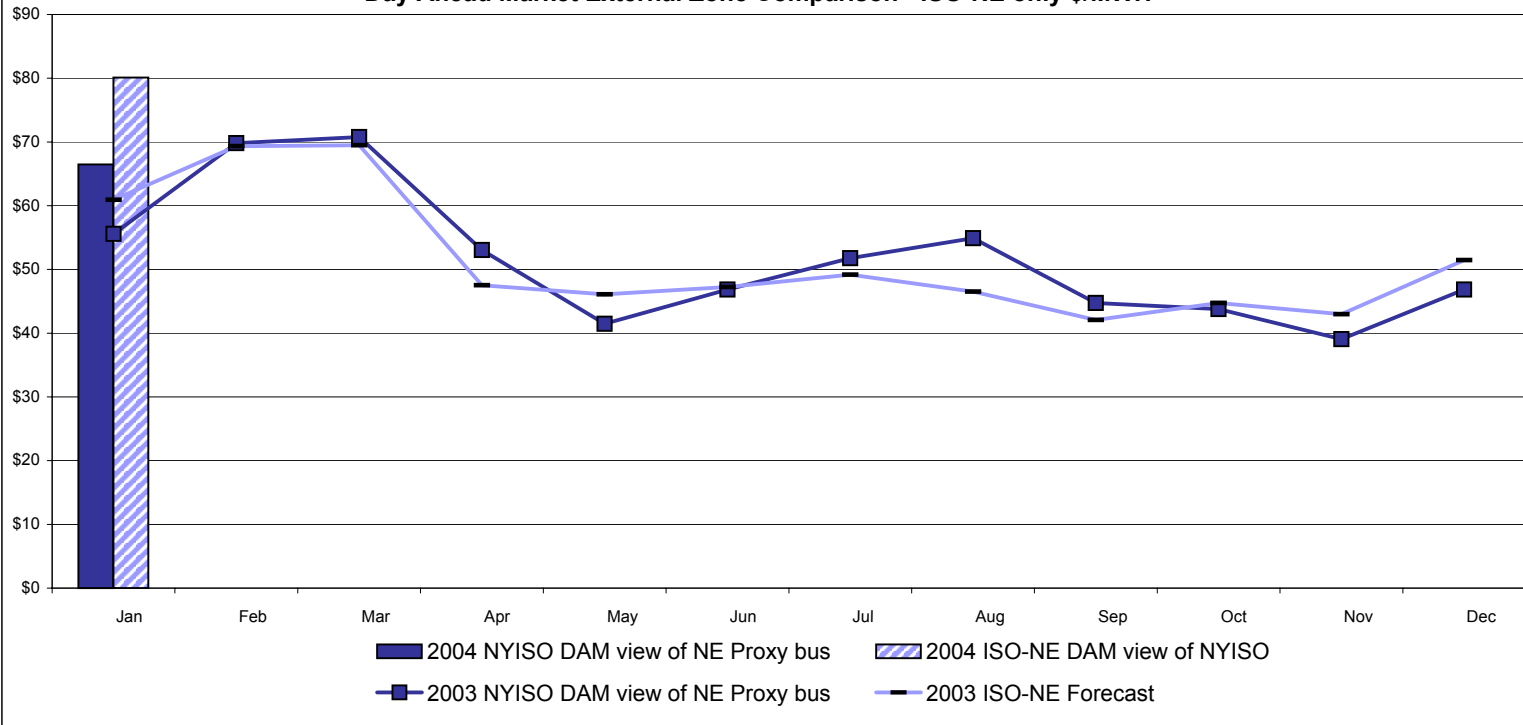


RT Zonal Unweighted Monthly Average LBMP Components  
January 2004

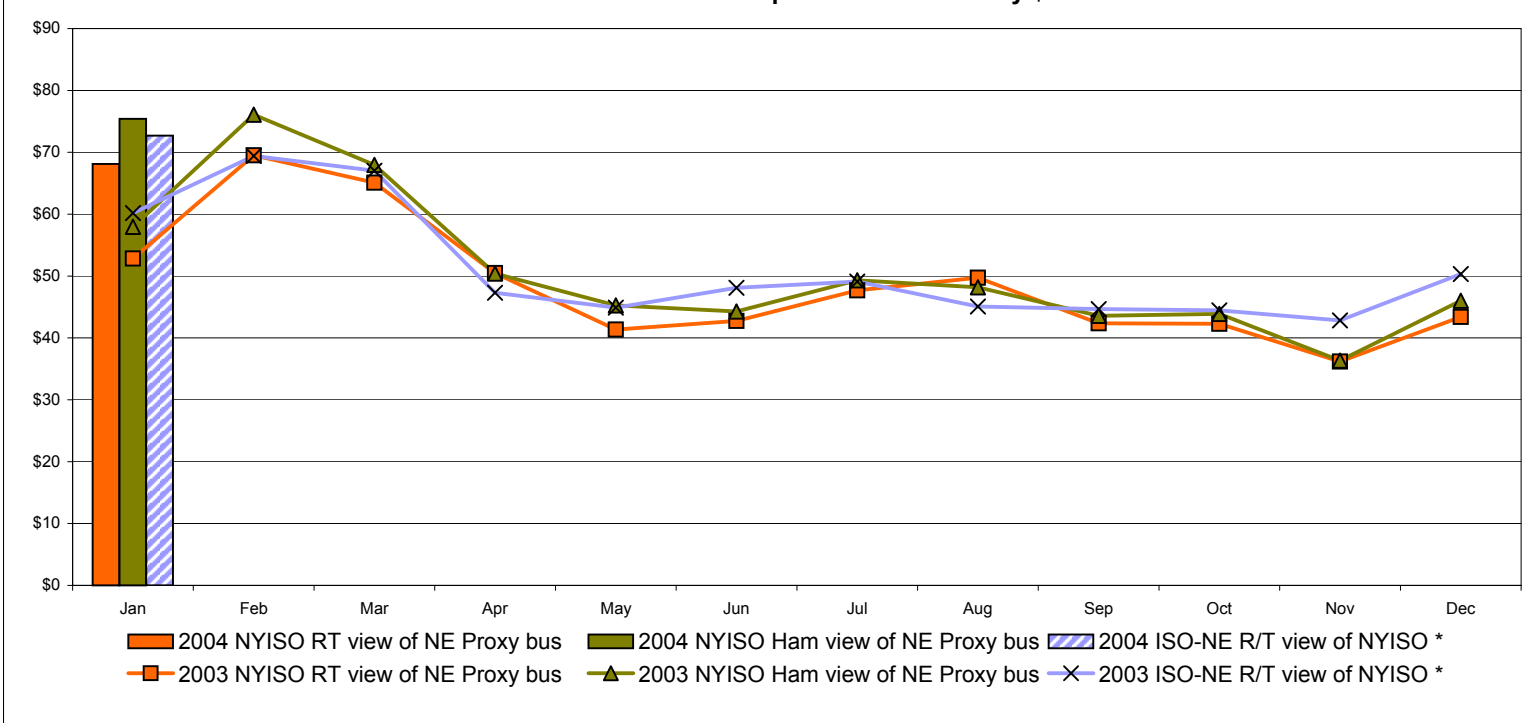


# External Comparison ISO-NE

## Day Ahead Market External Zone Comparison - ISO-NE only \$/MWH



## Real Time External Zone Comparison - ISO-NE only \$/MWH



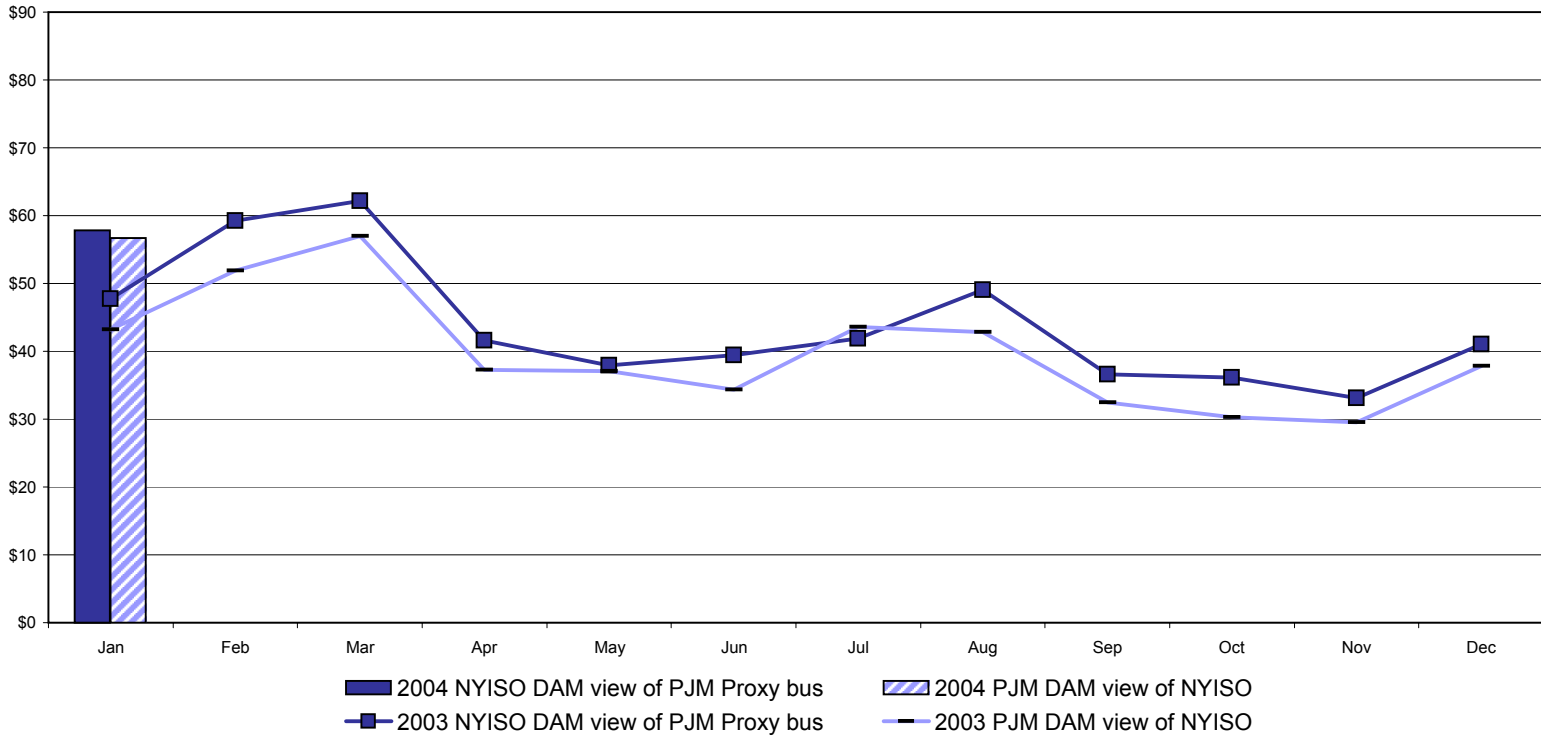
Note:

ISO-NE Forecast is an advisory posting @ 18:00 day before

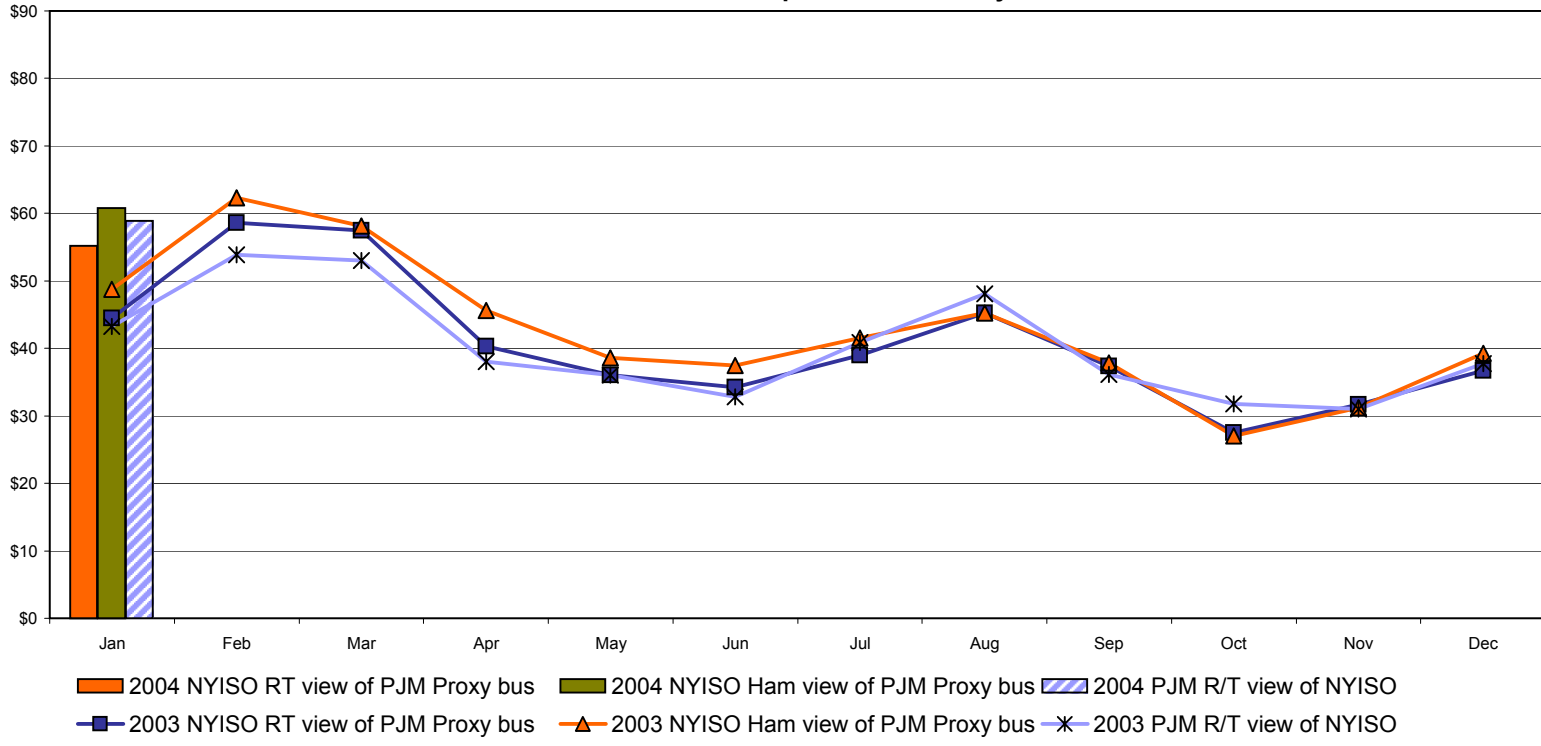
\* Effective 3/1/2003 SMD implemented by ISO-NE. The DAM and R/T prices at the Roseton interface are now used.

# External Comparison PJM

## Day Ahead Market External Zone Comparison - PJM only \$/MWH

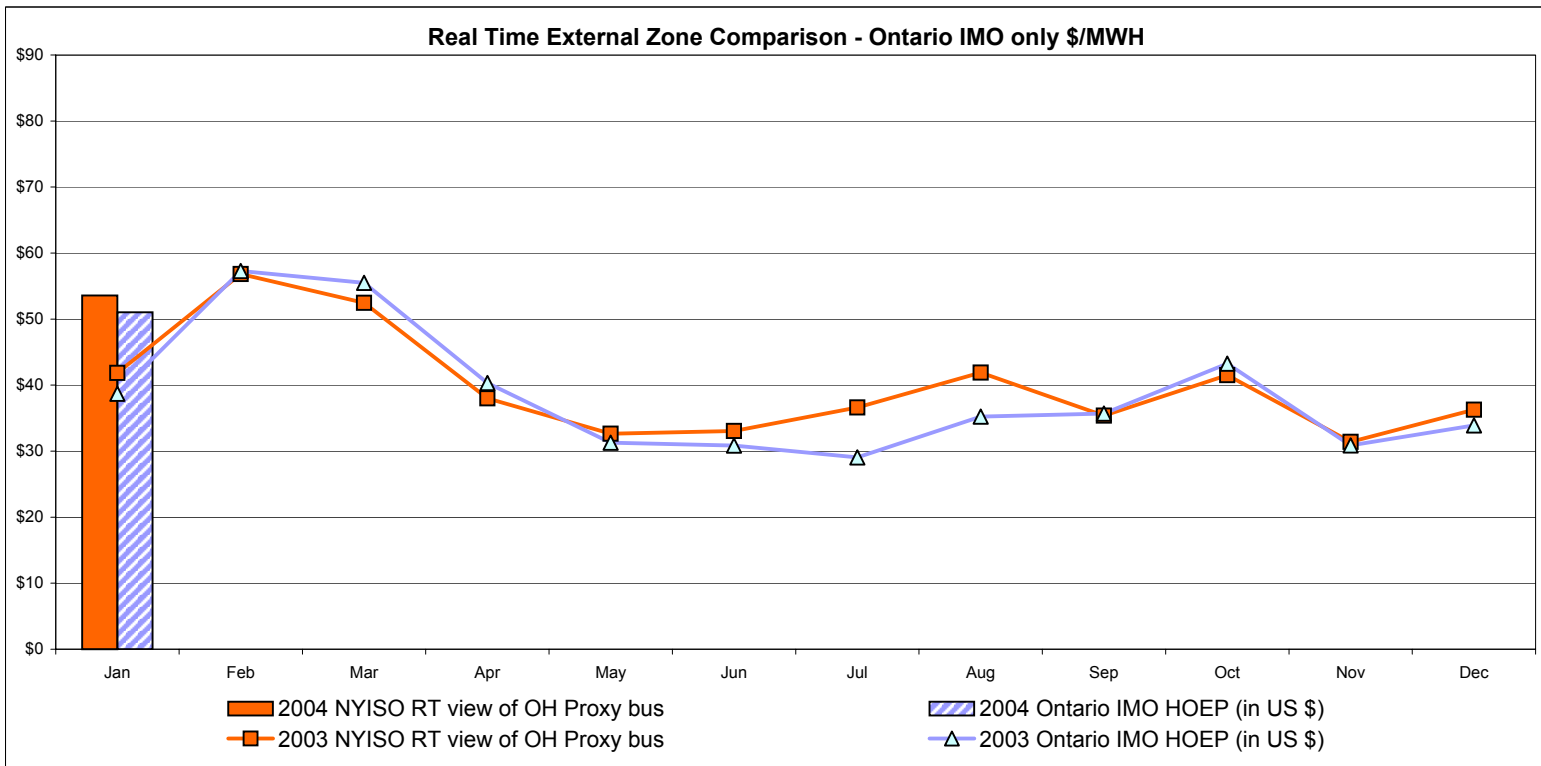
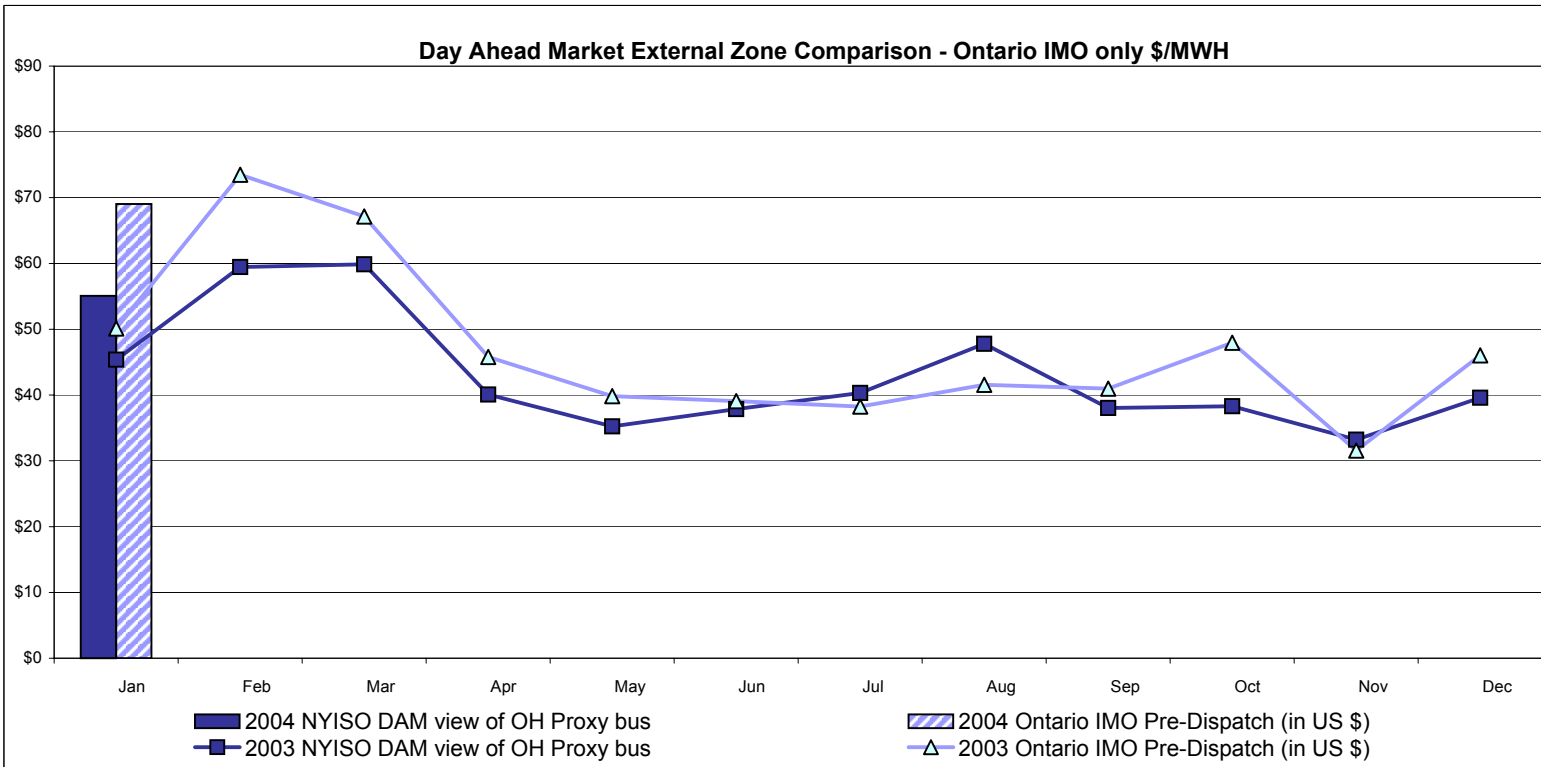


## Real Time External Zone Comparison - PJM only \$/MWH



Note:  
After 5/1/02 PJM lists only one interface as NYIS

# External Comparison Ontario IMO



Notes: Exchange factor used for January 2004 was .77 to US \$  
 HOEP: Hourly Ontario Energy Price  
 Pre-Dispatch: Projected Energy Price  
 Pre-Dispatch data from 8/14/03 Hr 15 thru 8/21/03 not included

## NYISO Price Correction Statistics

### NYISO Price Corrections 2004

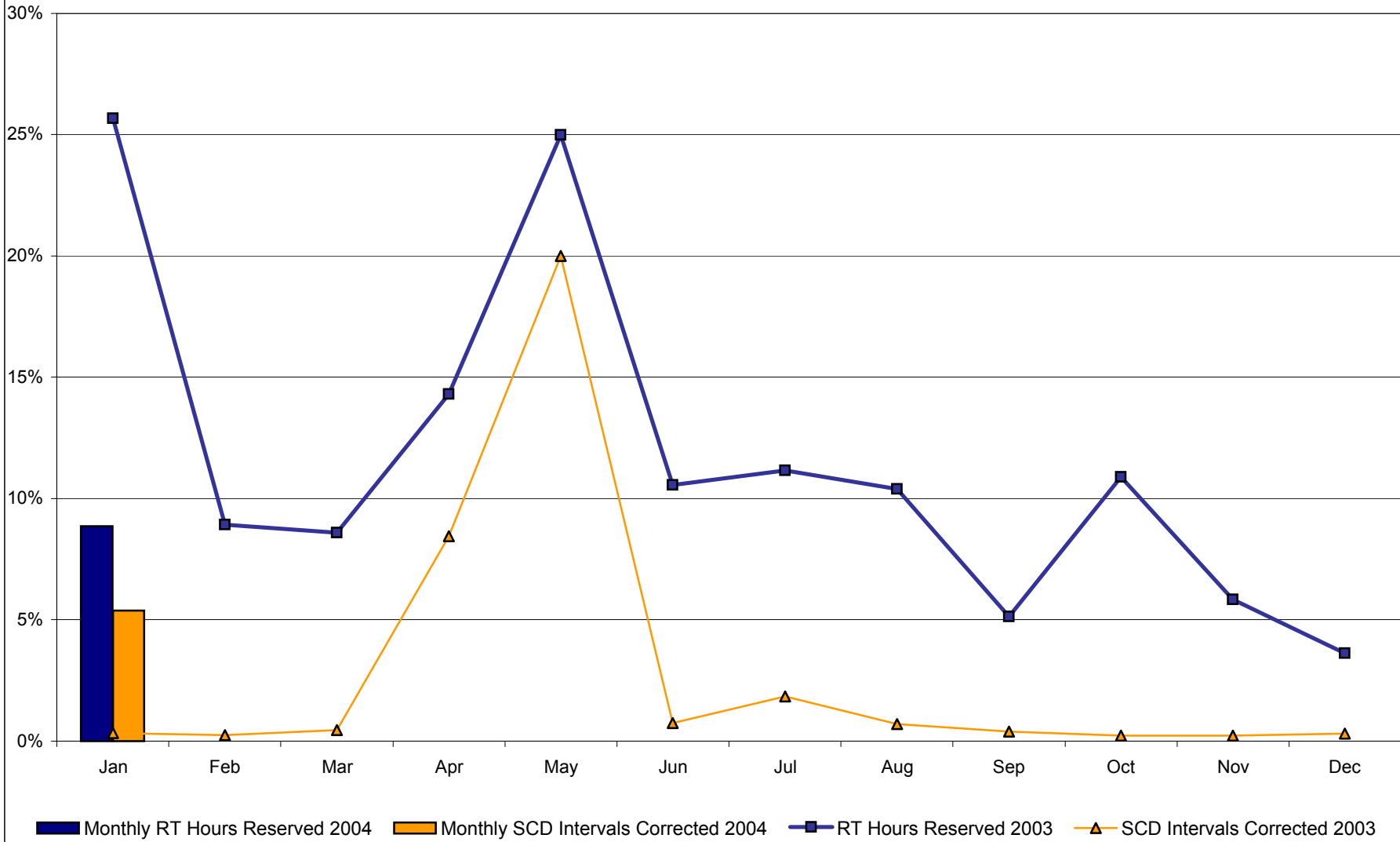
<u>Interval Corrections</u>	January	February	March	April	May	June	July	August	September	October	November	December
Number of Intervals corrected in the month	597											
Number of Intervals in the month	11,089											
Percentage of intervals corrected in the month	5.38%											
Number of Intervals corrected Year-to-date	597											
Number of Intervals Year-to-date	11,089											
Percentage of intervals corrected Year-to-date	5.38%											
<u>Hours Reserved</u>												
Number of hours reserved in the month	66											
Number of hours in the month	744											
Percentage of hours reserved in the month	8.87%											
Number of hours reserved Year-to-date	66											
Number of hours Year-to-date	744											
Percentage of hours reserved Year-to-date	8.87%											
<u>Days Without Corrections</u>												
Days without price corrections in the month	14											
Days without price corrections Year-to-date	14											

### NYISO Price Corrections 2003

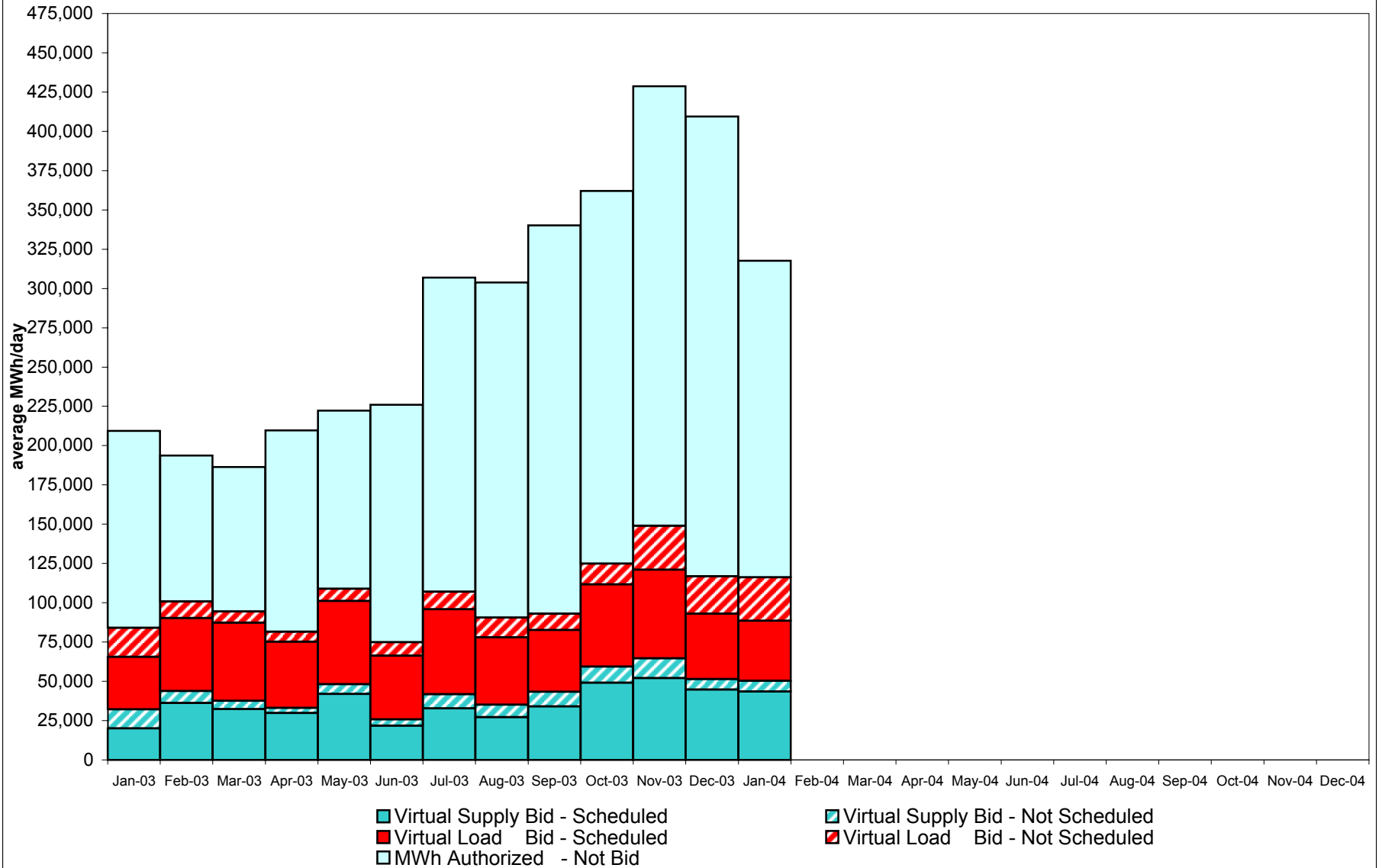
<u>Interval Corrections</u>	January	February	March	April	May	June	July	August	September	October	November	December
Number of Intervals corrected in the month	36	25	49	891	2,254	79	202	71	41	25	25	34
Number of Intervals in the month	10,986	10,197	10,918	10,554	11,274	10,729	10,998	9,973	10,620	11,248	10,629	11,175
Percentage of intervals corrected in the month	0.32%	0.25%	0.45%	8.44%	19.99%	0.74%	1.84%	0.71%	0.39%	0.22%	0.24%	0.30%
Number of Intervals corrected Year-to-date	36	61	110	1,001	3,255	3,334	3,536	3,607	3,648	3,673	3,698	3,732
Number of Intervals Year-to-date	10,986	21,183	32,101	42,655	53,929	64,658	75,656	85,629	96,249	107,497	118,126	129,301
Percentage of intervals corrected Year-to-date	0.32%	0.28%	0.34%	2.35%	6.04%	5.16%	4.67%	4.21%	3.79%	3.42%	3.13%	2.89%
<u>Hours Reserved</u>												
Number of hours reserved in the month	191	60	64	103	186	76	83	69	37	81	42	27
Number of hours in the month	744	672	744	720	744	720	744	664 *	720	744	720	744
Percentage of hours reserved in the month	25.67%	8.93%	8.60%	14.31%	25.00%	10.56%	11.16%	10.39%	5.14%	10.89%	5.83%	3.63%
Number of hours reserved Year-to-date	191	251	315	418	604	680	763	832	869	950	992	1,019
Number of hours Year-to-date	744	1,416	2,160	2,880	3,624	4,344	5,088	5,752	6,472	7,216	7,936	8,680
Percentage of hours reserved Year-to-date	25.67%	17.73%	14.58%	14.51%	16.67%	15.65%	15.00%	14.46%	13.43%	13.17%	12.50%	11.74%
<u>Days Without Corrections</u>												
Days without price corrections in the month	17	15	14	9	8	8	7	5	9	17	15	14
Days without price corrections Year-to-date	17	32	46	55	63	71	78	83	92	109	124	138

\* 80 hours not included due to suspended market during system disruption

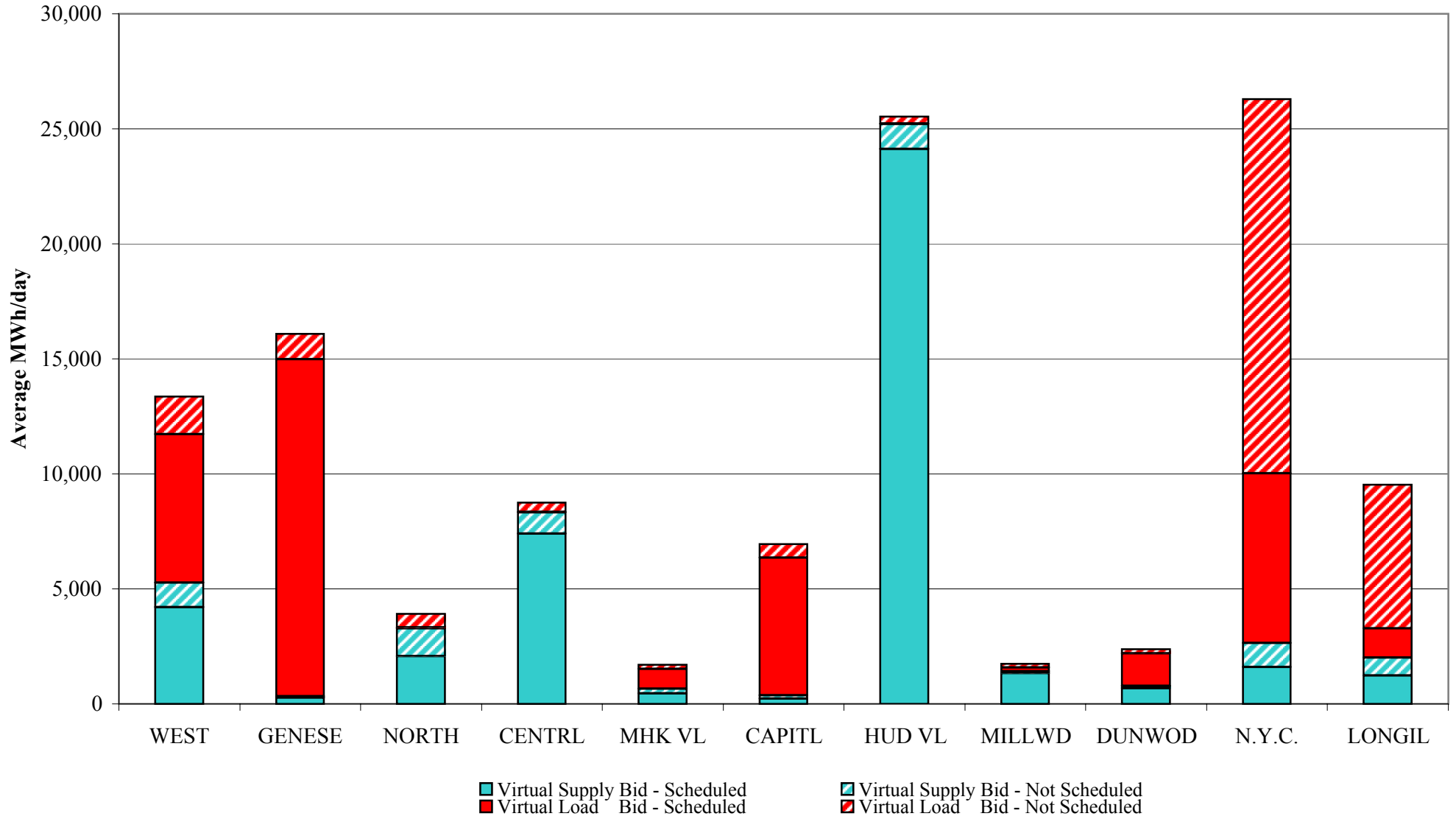
### Percentage of Real-Time Corrections



## NYISO Virtual Trading Average MWh per day

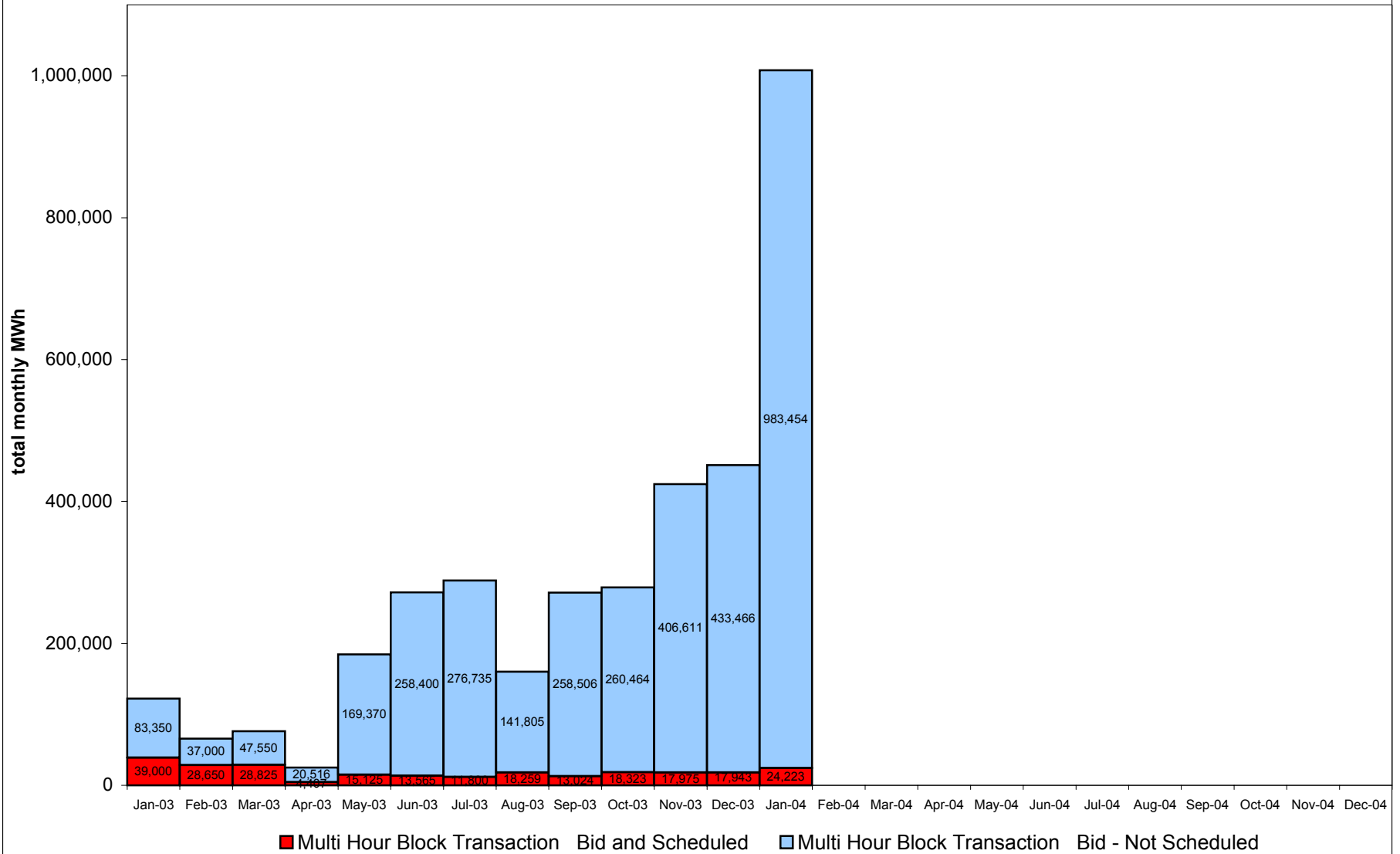


## Virtual Load and Supply Zonal Statistics January 2004

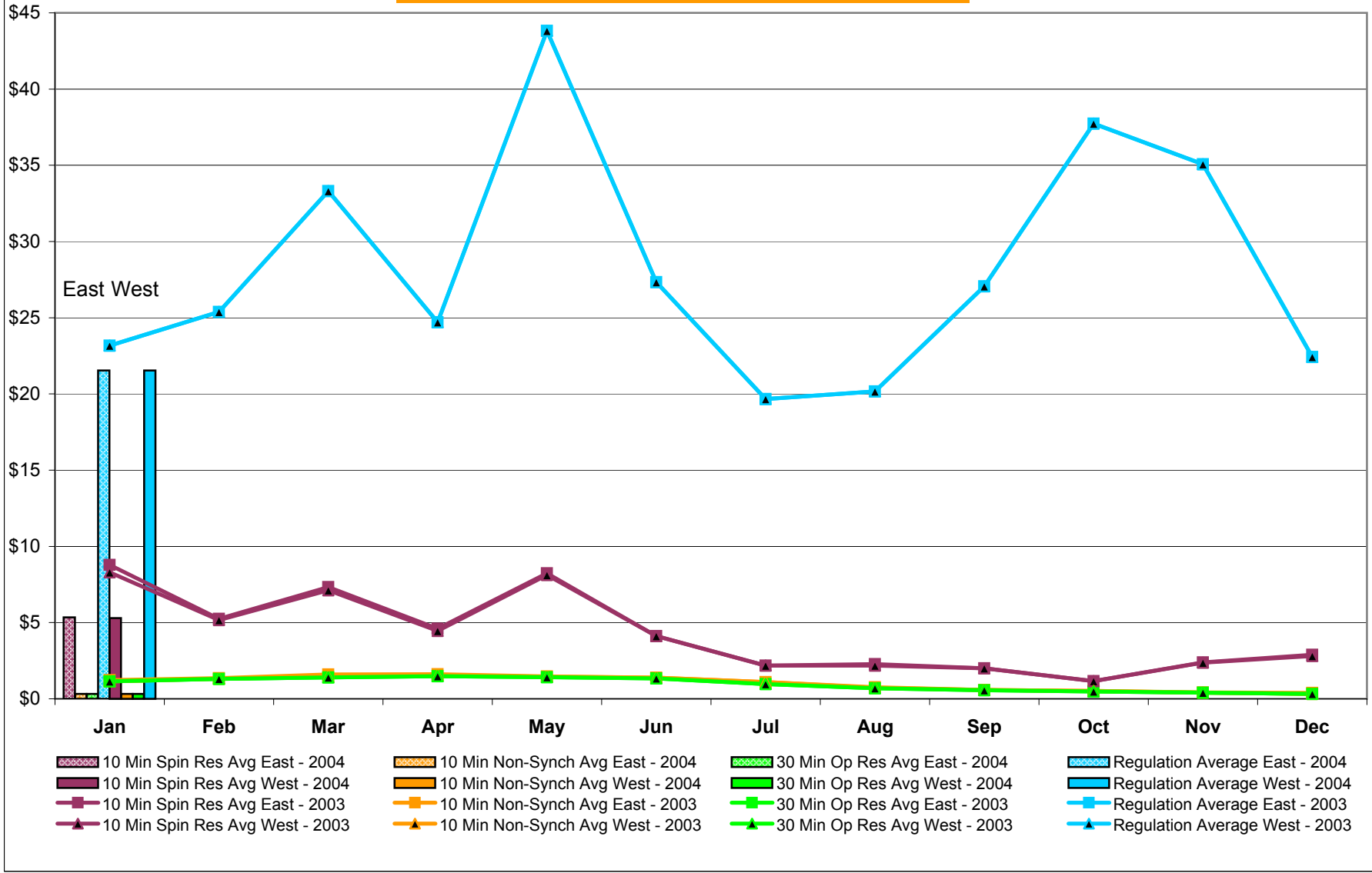




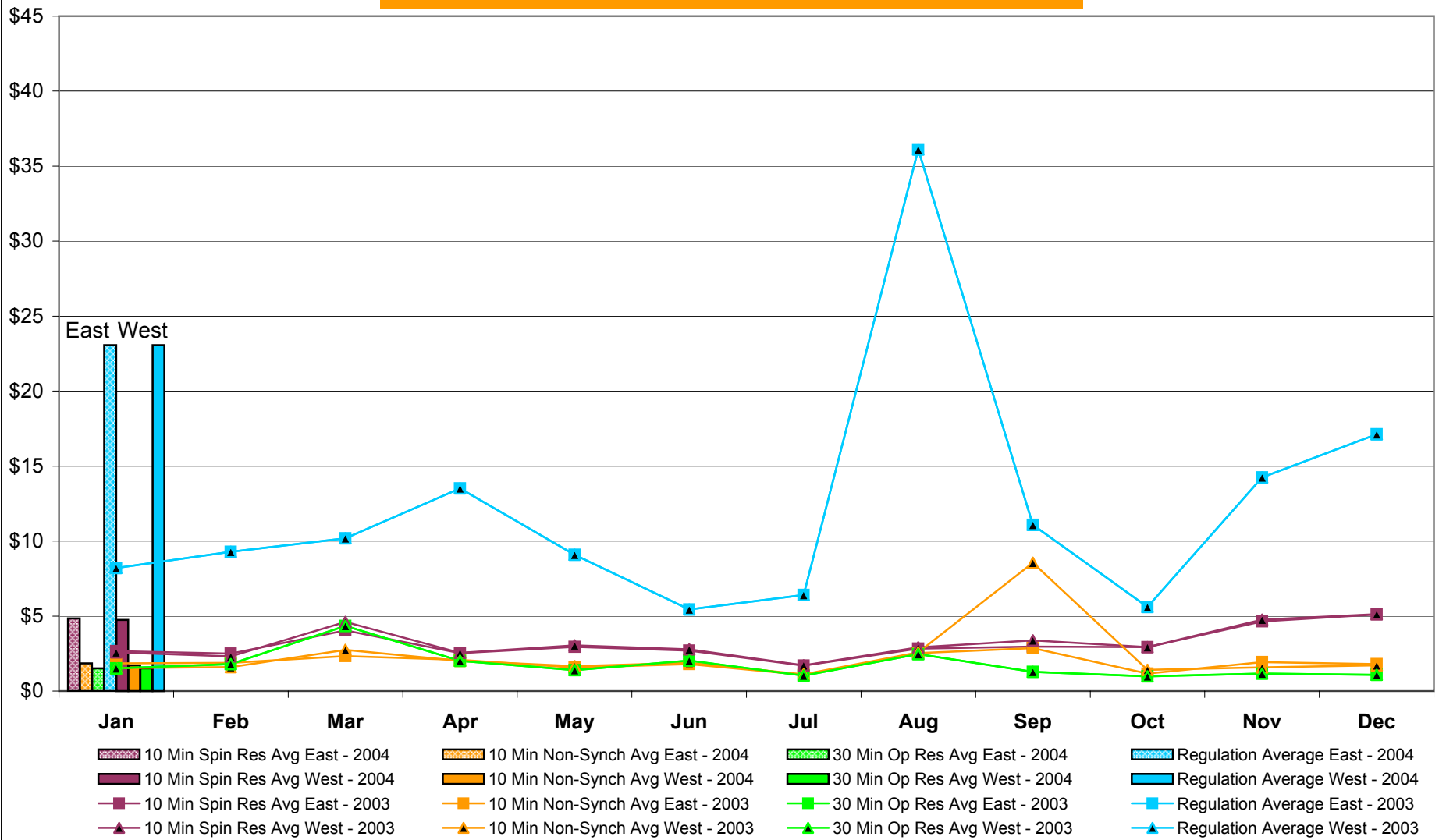
## NYISO Multi Hour Block Transactions Monthly Total MWh



### NYISO Monthly Average Ancillary Service Prices Day Ahead Market 2003 - 2004



## NYISO Monthly Average Ancillary Service Prices BME \* 2003 - 2004



\* Commonly referred to as Hour Ahead Market (HAM)

## NYISO Markets Ancillary Services Statistics

January    February    March    April    May    June    July    August    September    October    November    December

### ANCILLARY SERVICES Unweighted Price (\$/MWH) 2004

#### Day Ahead Market

10 Min Spin East	5.35
10 Min Spin West	5.29
10 Min Non Synch East	0.33
10 Min Non Synch West	0.32
30 Min East	0.32
30 Min West	0.32
Regulation East	21.54
Regulation West	21.54

#### BME\* Market

10 Min Spin East	4.84
10 Min Spin West	4.75
10 Min Non Synch East	1.85
10 Min Non Synch West	1.71
30 Min East	1.51
30 Min West	1.51
Regulation East	23.07
Regulation West	23.07

### ANCILLARY SERVICES Unweighted Price (\$/MWH) 2003

#### Day Ahead Market

10 Min Spin East	8.78	5.24	7.33	4.60	8.24	4.12	2.18	2.28	2.01	1.17	2.39	2.89
10 Min Spin West	8.30	5.17	7.12	4.45	8.12	4.11	2.18	2.18	2.00	1.17	2.37	2.81
10 Min Non Synch East	1.22	1.36	1.60	1.61	1.48	1.40	1.09	0.76	0.58	0.52	0.41	0.38
10 Min Non Synch West	1.15	1.32	1.45	1.54	1.45	1.39	1.09	0.72	0.58	0.52	0.40	0.32
30 Min East	1.14	1.30	1.41	1.48	1.42	1.35	0.97	0.69	0.56	0.48	0.40	0.32
30 Min West	1.14	1.30	1.41	1.48	1.42	1.35	0.97	0.69	0.56	0.48	0.40	0.32
Regulation East	23.17	25.39	33.31	24.70	43.82	27.33	19.67	20.17	27.06	37.74	35.07	22.43
Regulation West	23.17	25.39	33.31	24.70	43.82	27.33	19.67	20.17	27.06	37.74	35.07	22.43

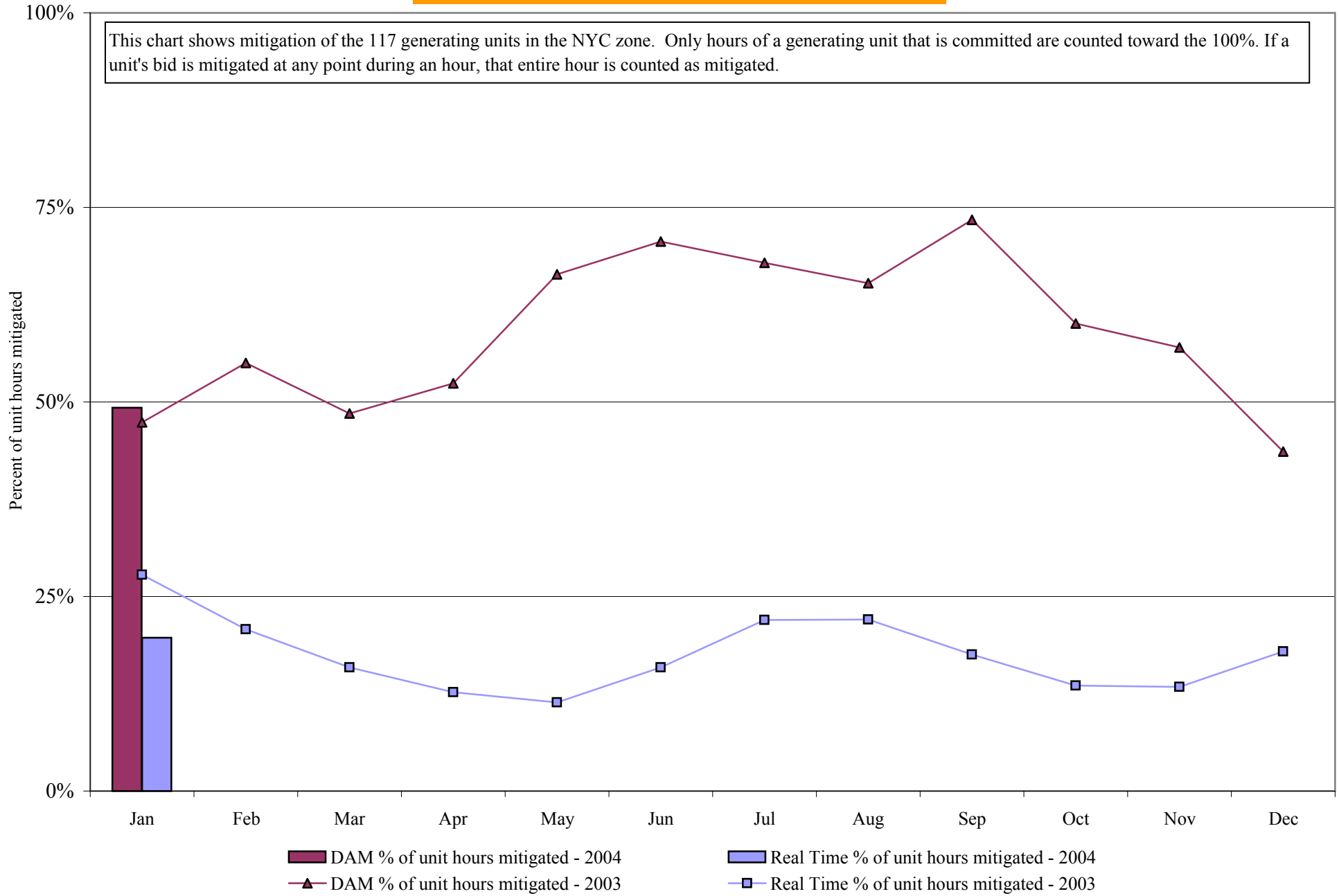
#### BME\* Market

10 Min Spin East	2.67	2.50	4.05	2.54	2.95	2.69	1.69	2.82	2.96	2.92	4.65	5.11
10 Min Spin West	2.59	2.32	4.61	2.55	3.04	2.78	1.72	2.91	3.38	2.94	4.76	5.13
10 Min Non Synch East	1.85	1.89	2.34	2.07	1.57	1.80	1.09	2.53	2.87	1.17	1.92	1.80
10 Min Non Synch West	1.53	1.59	2.75	2.02	1.67	1.88	1.11	2.58	8.55	1.41	1.57	1.71
30 Min East	1.52	1.80	4.34	2.02	1.40	2.03	1.04	2.46	1.28	0.97	1.17	1.07
30 Min West	1.52	1.80	4.34	2.02	1.40	2.03	1.04	2.46	1.28	0.97	1.17	1.07
Regulation East	8.21	9.28	10.19	13.52	9.08	5.44	6.41	36.11	11.09	5.60	14.24	17.12
Regulation West	8.21	9.28	10.19	13.52	9.08	5.44	6.41	36.11	11.09	5.60	14.24	17.12

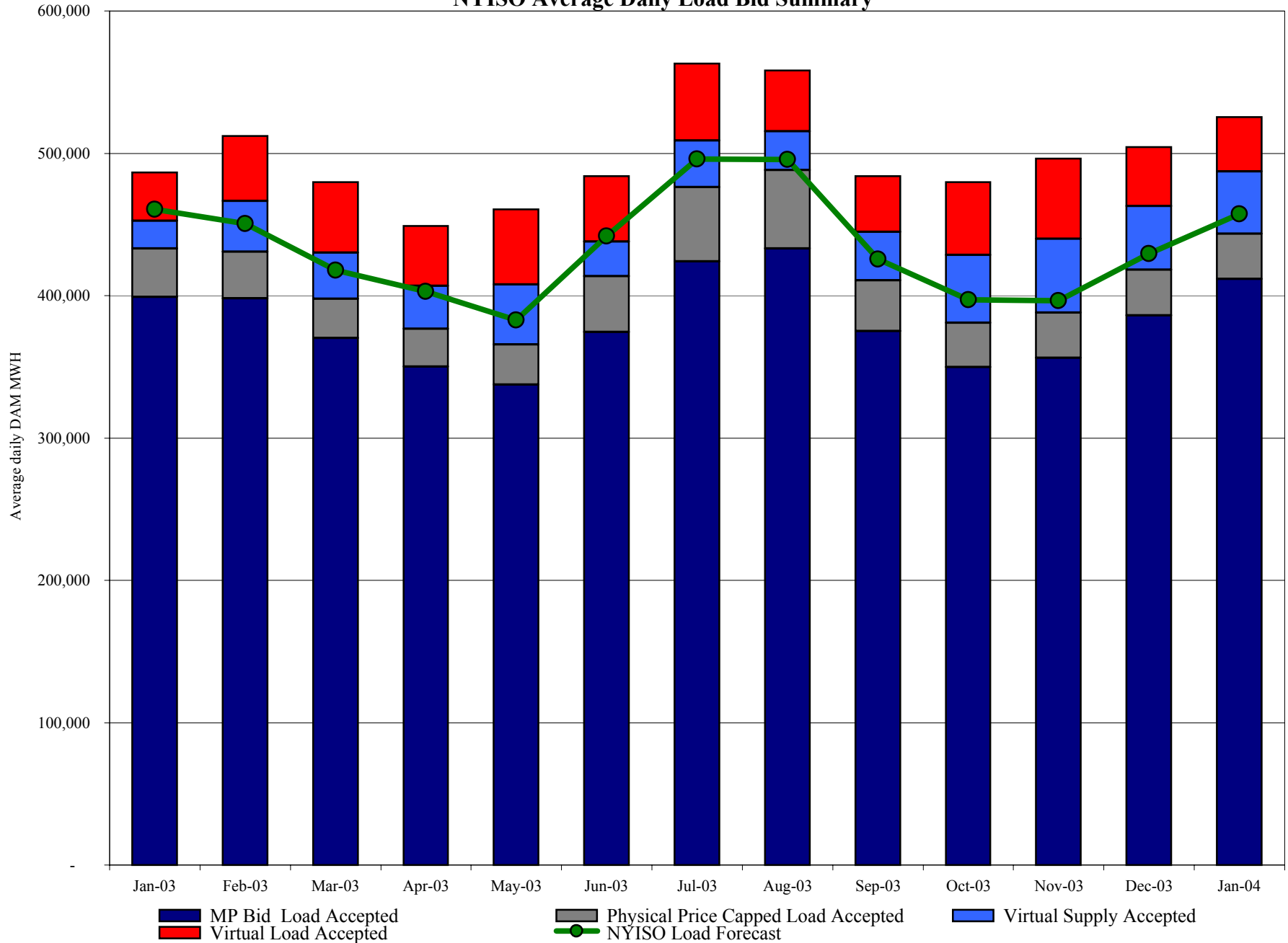
\* Commonly Referred to as Hour Ahead Market (HAM)

## NYISO In City Mitigation (NYC Zone) 2003-2004

### Percentage of committed unit-hours mitigated



### NYISO Average Daily Load Bid Summary



# NYISO LBMP ZONES

