

# **NYISO Market Operations Report**

*Business Issues Committee Meeting  
July 9, 2003*

*Agenda #4*

# Report Items

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## 1) Reliability Indicators

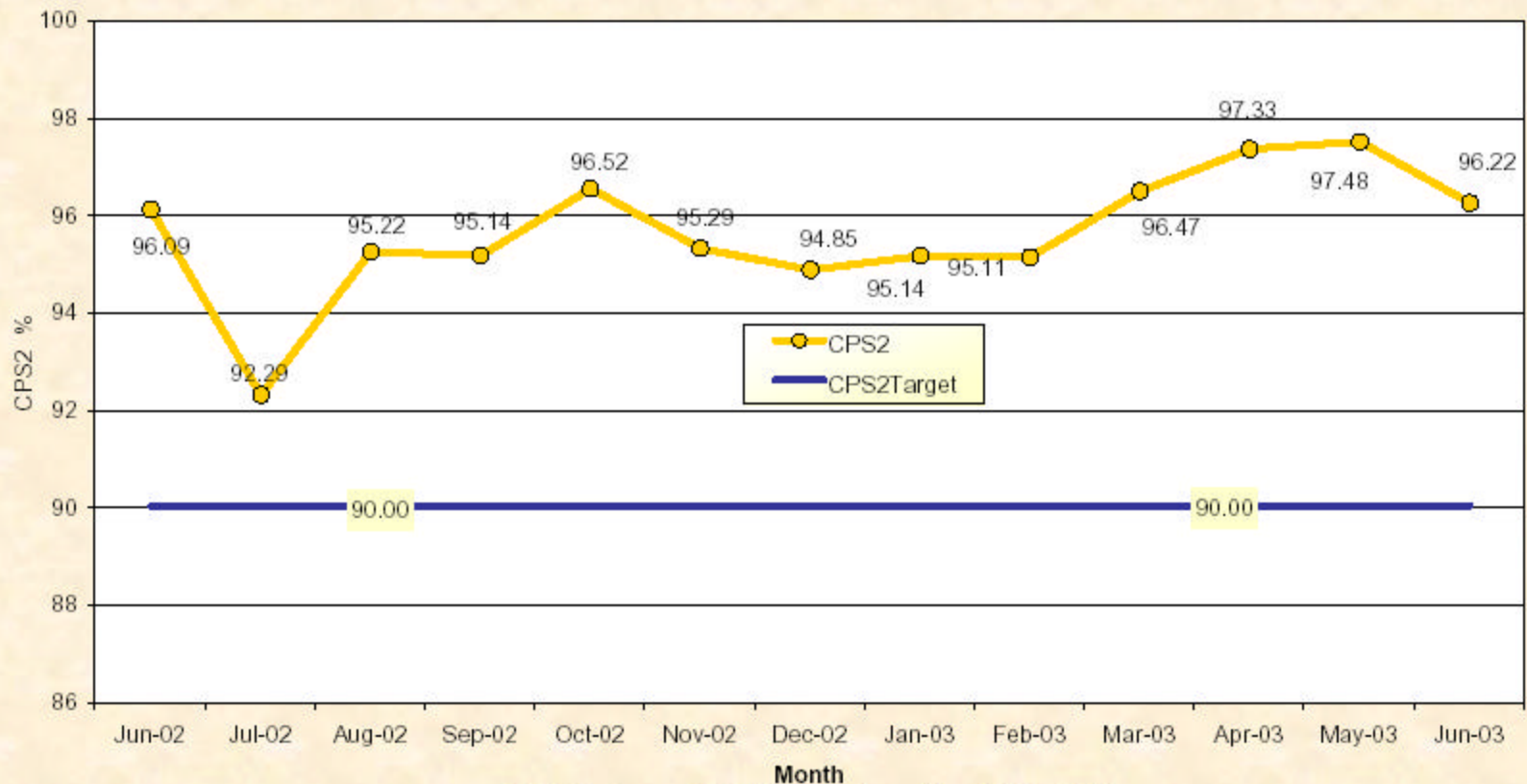
➤ *NERC Criteria (CPS-2 Curve)*

## 2) Market Performance Highlights

## NERC Control Performance Standard

NYISO Compliance

Year 2002/2003



CPS2 for June = 96.22% Compliance Threshold = 90%  
CPS2 measures excessive unscheduled power flow resulting from large  
Area Control Error (ACE)

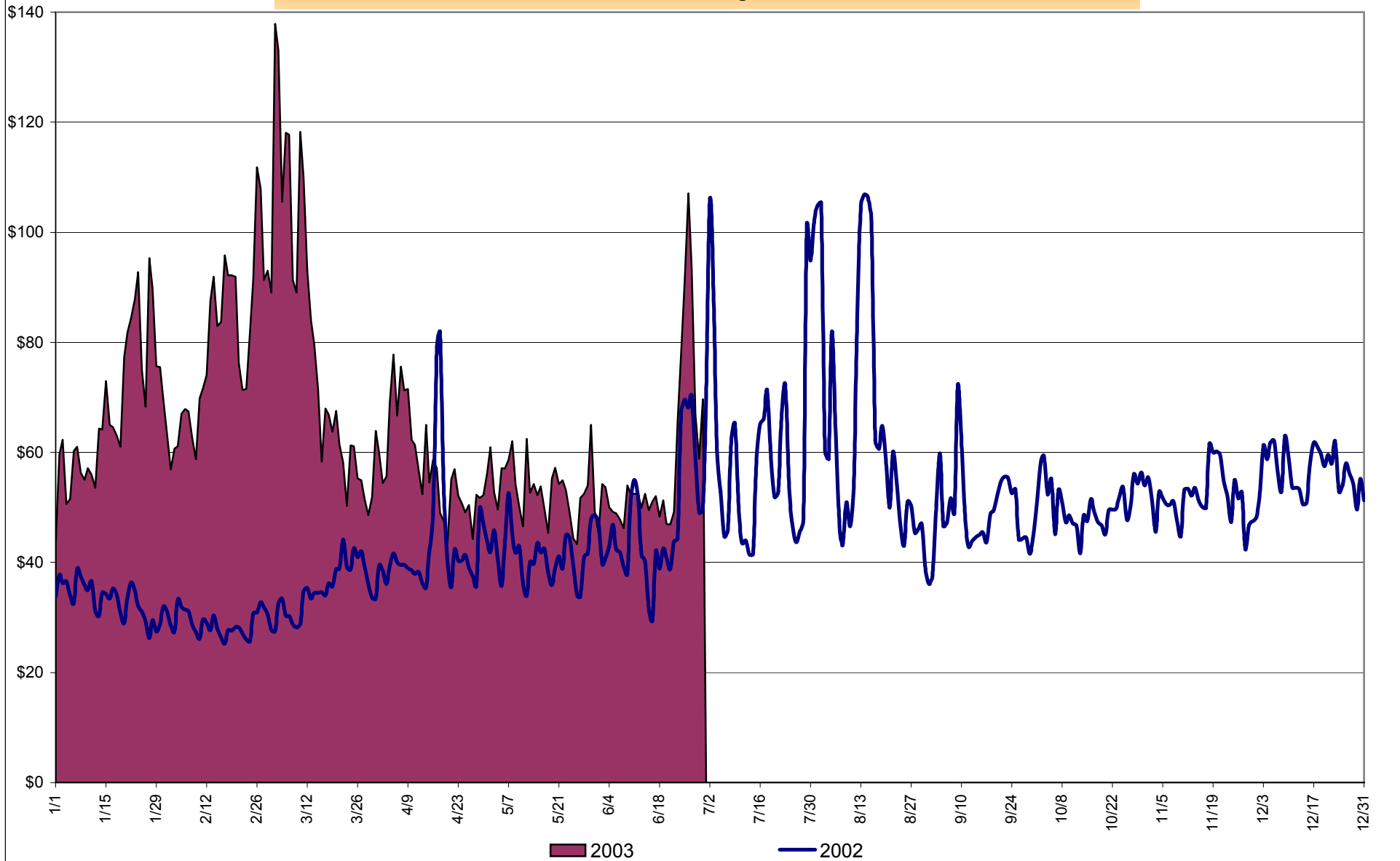
# June 2003

## NYISO Market Performance Highlights

- **NYISO Administered Total Costs rose in June**
  - *Fuel prices remained flat*
  - *Higher energy prices driven by hot weather*
  - *OOM & SRE usage increased*
  - *Uplift increased slightly due to BPCG*
- **Regulation and Reserve prices have dropped substantially**
- **Price reservations have been reduced to historic levels (~ 8%), and SCD interval corrections have been substantially reduced**

# Average Daily NYISO - Administered Total Price (Energy & Ancillary Services)

2002 Annual Average \$49.77/MWH  
June 2002 YTD Average \$39.06/MWH  
June 2003 YTD Average \$67.43/MWH

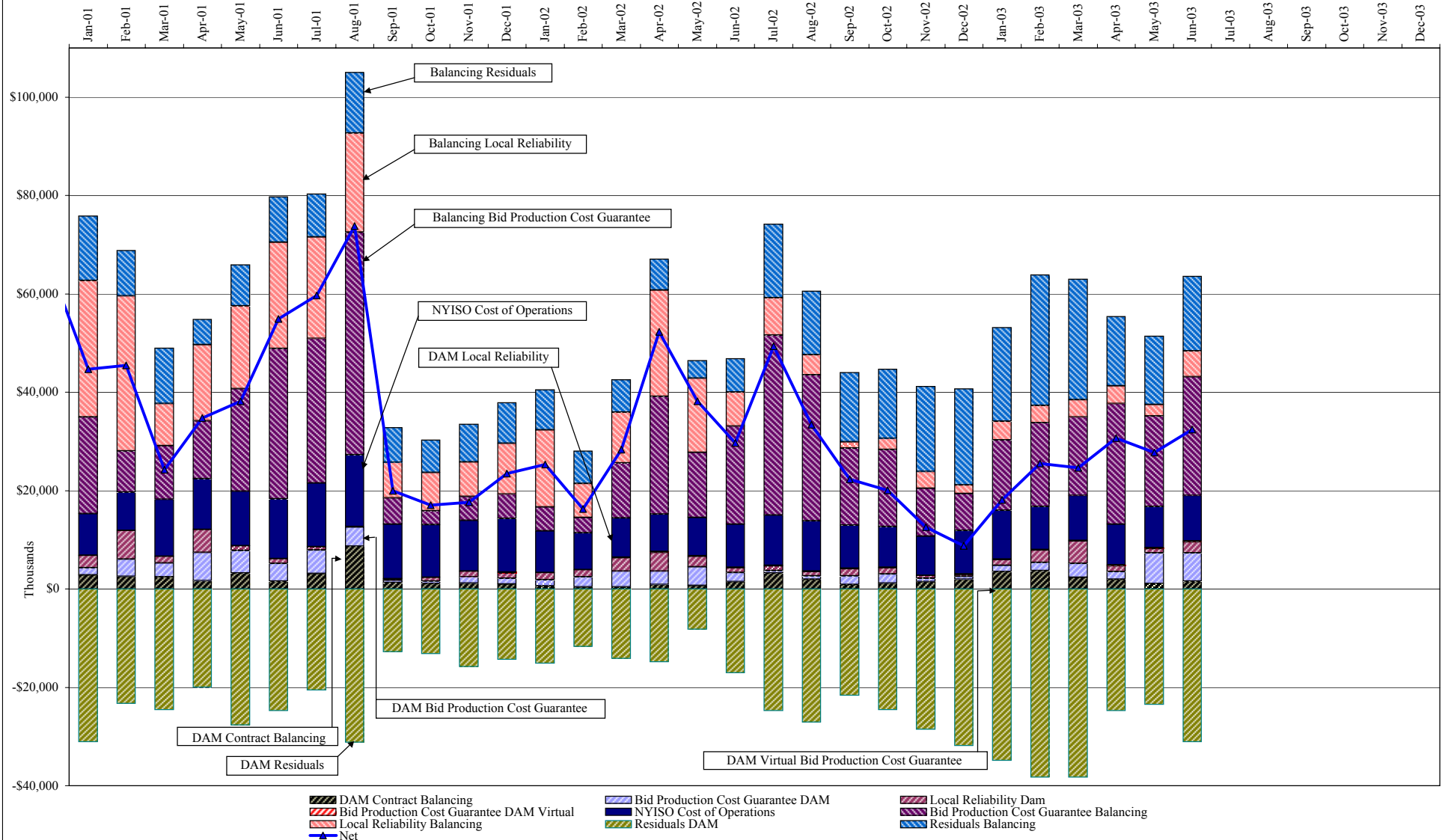


**NYISO Administered Total Price (Energy and Ancillary Services)**

**from the LBMP Customer point of view**

<b>2003</b>	January	February	March	April	May	June	July	August	September	October	November	December
LBMP	66.41	76.66	78.36	54.26	49.79	57.43						
NTAC	0.41	0.35	0.66	0.45	0.44	0.39						
Reserve	0.46	0.35	0.47	0.41	0.47	0.25						
Regulation	0.26	0.27	0.38	0.31	0.65	0.31						
NYISO Cost of Operations	0.68	0.68	0.68	0.68	0.68	0.68						
Uplift	0.33	1.04	0.97	1.72	1.47	1.58						
Voltage Support and Black Start	0.33	0.33	0.33	0.33	0.34	0.33						
<b>Avg Monthly Price</b>	68.90	79.69	81.84	58.16	53.84	60.98						
<b>Avg YTD Price</b>	68.90	74.05	76.61	72.22	68.83	67.43						
<b>2002</b>	January	February	March	April	May	June	July	August	September	October	November	December
LBMP	30.32	26.58	32.02	39.03	37.48	45.59	60.80	65.60	46.88	48.13	50.10	54.76
NTAC	0.53	0.48	0.45	0.43	0.47	0.61	1.04	0.52	0.49	0.63	0.39	0.35
Reserve	0.19	0.19	0.24	0.29	0.21	0.19	0.30	0.33	0.22	0.22	0.31	0.41
Regulation	0.19	0.19	0.17	0.16	0.26	0.24	0.18	0.20	0.27	0.26	0.25	0.25
NYISO Cost of Operations	0.63	0.63	0.63	0.63	0.63	0.63	0.63	0.63	0.63	0.63	0.62	0.63
Uplift	1.19	0.67	1.36	3.70	2.34	1.35	2.28	1.32	0.86	0.79	0.22	(0.14)
Voltage Support and Black Start	0.34	0.33	0.33	0.34	0.34	0.33	0.33	0.33	0.33	0.33	0.33	0.33
<b>Avg Monthly Price</b>	33.39	29.08	35.21	44.58	41.72	48.94	65.56	68.94	49.68	50.99	52.24	56.60
<b>Avg YTD Price</b>	33.39	31.37	32.69	35.71	36.83	39.06	44.35	48.39	48.54	48.78	49.10	49.77
<b>2001</b>	January	February	March	April	May	June	July	August	September	October	November	December
LBMP	61.52	44.29	49.98	48.60	52.84	50.31	46.58	71.97	35.33	31.05	31.53	29.23
NTAC	0.39	0.21	0.59	0.35	0.51	0.41	0.30	0.35	0.38	0.39	0.40	0.61
Reserve	0.47	0.29	0.42	0.43	0.59	0.44	0.55	1.40	0.43	0.25	0.27	0.25
Regulation	0.07	0.07	0.10	0.10	0.13	0.08	0.08	0.06	0.14	0.18	0.15	0.18
NYISO Cost of Operations	0.65	0.59	0.89	0.89	0.88	0.88	0.88	0.88	0.88	0.83	0.88	0.88
Uplift	2.62	2.85	0.88	2.04	2.98	3.12	3.71	4.27	0.67	0.54	0.52	0.94
Voltage Support and Black Start	0.34	0.34	0.34	0.34	0.33	0.33	0.33	0.33	0.33	0.33	0.33	0.33
<b>Avg Monthly Price</b>	66.05	48.64	53.20	52.75	58.27	55.58	52.44	79.28	38.17	33.57	34.10	32.44
<b>Avg YTD Price</b>	66.05	58.08	56.55	55.72	56.21	56.09	55.41	59.68	57.12	54.63	52.99	51.42
<b>2000</b>	January	February	March	April	May	June	July	August	September	October	November	December
LBMP	46.01	41.33	32.62	32.05	50.39	79.35	51.46	63.48	54.29	53.84	52.16	62.85
NTAC	0.47	0.20	0.25	0.65	0.60	0.46	0.39	0.42	0.22	0.32	0.30	0.20
Reserve	1.44	5.64	2.68	0.27	0.68	0.66	0.31	0.49	0.64	0.44	0.33	0.37
Regulation	0.19	0.35	0.42	0.33	0.14	0.01	0.10	0.04	0.07	0.09	0.08	0.07
NYISO Cost of Operations	1.14	(0.46)	(0.61)	0.47	0.76	0.89	0.88	1.81	1.89	0.43	0.48	0.49
Uplift	0.16	0.05	(0.29)	0.27	3.37	3.31	1.13	3.80	2.85	0.96	0.38	3.70
Voltage Support and Black Start	0.38	0.37	0.37	0.37	0.38	0.38	0.38	0.37	0.39	0.40	0.40	0.40
<b>Avg Monthly Price</b>	49.78	47.49	35.45	34.40	56.33	85.06	54.64	70.43	60.36	56.48	54.13	68.07
<b>Avg YTD Price</b>	49.78	48.70	44.05	41.62	45.14	53.74	53.91	56.57	57.09	57.02	56.75	57.90

## 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 Charges).

## NYISO Markets Transactions

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						
DAM LSE Internal LBMP Energy Sales	46%	48%	46%	49%	46%	48%						
DAM External TC LBMP Energy Sales	1%	1%	1%	1%	2%	2%						
DAM Bilateral - Internal Bilaterals	50%	49%	50%	46%	49%	46%						
DAM Bilateral - Import/Non-LBMP Market Bilaterals	1%	1%	1%	1%	0%	0%						
DAM Bilateral - Export/Non-LBMP Market Bilaterals	1%	1%	2%	1%	1%	1%						
DAM Bilateral - Wheel Through Bilaterals	1%	1%	1%	2%	2%	2%						
<b>Balancing Energy Market MWH</b>	347,539	285,381	376,222	235,800	278,939	291,519						
Balancing Energy LSE Internal LBMP Energy Sales	58%	35%	52%	72%	48%	39%						
Balancing Energy External TC LBMP Energy Sales	58%	80%	95%	73%	69%	78%						
Balancing Energy Bilateral - Internal Bilaterals	-6%	-10%	-2%	0%	-5%	5%						
Balancing Energy Bilateral - Import/Non-LBMP Market Bilaterals	4%	1%	1%	1%	1%	0%						
Balancing Energy Bilateral - Export/Non-LBMP Market Bilaterals	0%	0%	-38%	0%	0%	0%						
Balancing Energy Bilateral - Wheel Through Bilaterals	-14%	-7%	-8%	-46%	-14%	-23%						
<b>Transactions Summary 2003</b>												
LBMP	49%	50%	49%	52%	49%	52%						
Internal Bilaterals	48%	47%	48%	45%	48%	46%						
Import Bilaterals	1%	1%	1%	1%	0%	0%						
Export Bilaterals	1%	1%	1%	1%	1%	1%						
Wheels Through	1%	1%	1%	1%	1%	1%						
<b>Market Share of Total Load 2003</b>												
Day Ahead Market	97.6%	97.8%	97.2%	98.1%	97.7%	97.9%						
Balancing Energy +	2.4%	2.2%	2.8%	1.9%	2.3%	2.1%						
Total MWH	14,535,291	12,981,249	13,502,785	12,233,455	12,308,392	13,633,350						
Average Daily Energy Sendout/Month GWh	458	450	418	393	382	432						

Transactions by Market 2002	January	February	March	April	May	June	July	August	September	October	November	December
<b>Day Ahead Market MWH</b>	13,580,547	12,016,720	12,760,385	11,863,525	12,561,505	14,043,673	16,297,012	16,165,944	13,922,494	12,859,329	12,470,189	13,580,220
DAM LSE Internal LBMP Energy Sales	44%	42%	43%	45%	40%	43%	50%	51%	46%	46%	49%	47%
DAM External TC LBMP Energy Sales	0%	1%	1%	1%	1%	2%	3%	1%	2%	1%	1%	2%
DAM Bilateral - Internal Bilaterals	51%	52%	51%	49%	55%	51%	45%	45%	49%	50%	46%	49%
DAM Bilateral - Import/Non-LBMP Market Bilaterals	1%	1%	1%	0%	0%	0%	0%	0%	0%	0%	0%	1%
DAM Bilateral - Export/Non-LBMP Market Bilaterals	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%
DAM Bilateral - Wheel Through Bilaterals	3%	3%	3%	3%	2%	2%	1%	2%	2%	1%	1%	1%
<b>Balancing Energy Market MWH</b>	-214,495	-30,504	32,311	224,671	-98,746	-69,632	88,020	79,918	112,928	350,988	339,372	514,175
Balancing Energy LSE Internal LBMP Energy Sales	-17%	410%	821%	182%	-10%	148%	311%	18%	-77%	61%	52%	59%
Balancing Energy External TC LBMP Energy Sales	5%	39%	-36%	-15%	44%	-95%	-165%	89%	189%	37%	44%	30%
Balancing Energy Bilateral - Internal Bilaterals	1%	-51%	8%	12%	10%	14%	-19%	27%	17%	-2%	3%	3%
Balancing Energy Bilateral - Import/Non-LBMP Market Bilaterals	13%	27%	24%	3%	8%	15%	24%	19%	14%	8%	9%	9%
Balancing Energy Bilateral - Export/Non-LBMP Market Bilaterals	0%	0%	0%	0%	1%	2%	0%	1%	0%	0%	0%	0%
Balancing Energy Bilateral - Wheel Through Bilaterals	-103%	-524%	-717%	-84%	-154%	-183%	-52%	-55%	-42%	-4%	-8%	-2%
<b>Transactions Summary 2002</b>												
LBMP	45%	44%	46%	48%	42%	46%	53%	52%	49%	49%	52%	50%
Internal Bilaterals	52%	52%	51%	49%	55%	51%	45%	45%	48%	48%	45%	47%
Import Bilaterals	1%	1%	1%	0%	0%	0%	0%	0%	0%	1%	1%	1%
Export Bilaterals	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%
Wheels Through	1%	2%	1%	1%	1%	2%	1%	1%	1%	1%	1%	1%
<b>Market Share of Total Load 2002</b>												
Day Ahead Market	101.6%	100.3%	99.7%	98.1%	100.8%	100.5%	99.5%	99.5%	99.2%	97.3%	97.4%	96.4%
Balancing Energy +	-1.6% *	-0.3% *	0.3%	1.9%	-0.8% *	-0.5% *	0.5%	0.5%	0.8%	2.7%	2.6%	3.6%
Total MWH	13,366,052	11,986,216	12,792,696	12,088,196	12,462,759	13,974,041	16,385,032	16,245,862	14,035,422	13,210,317	12,809,561	14,094,395
Average Daily Energy Sendout/Month GWh	427	418	403	397	388	449	513	511	444	412	413	440

+ 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.

Note: Virtual Transactions are not reflected in this chart.

### NYISO Markets 2003 Energy Statistics

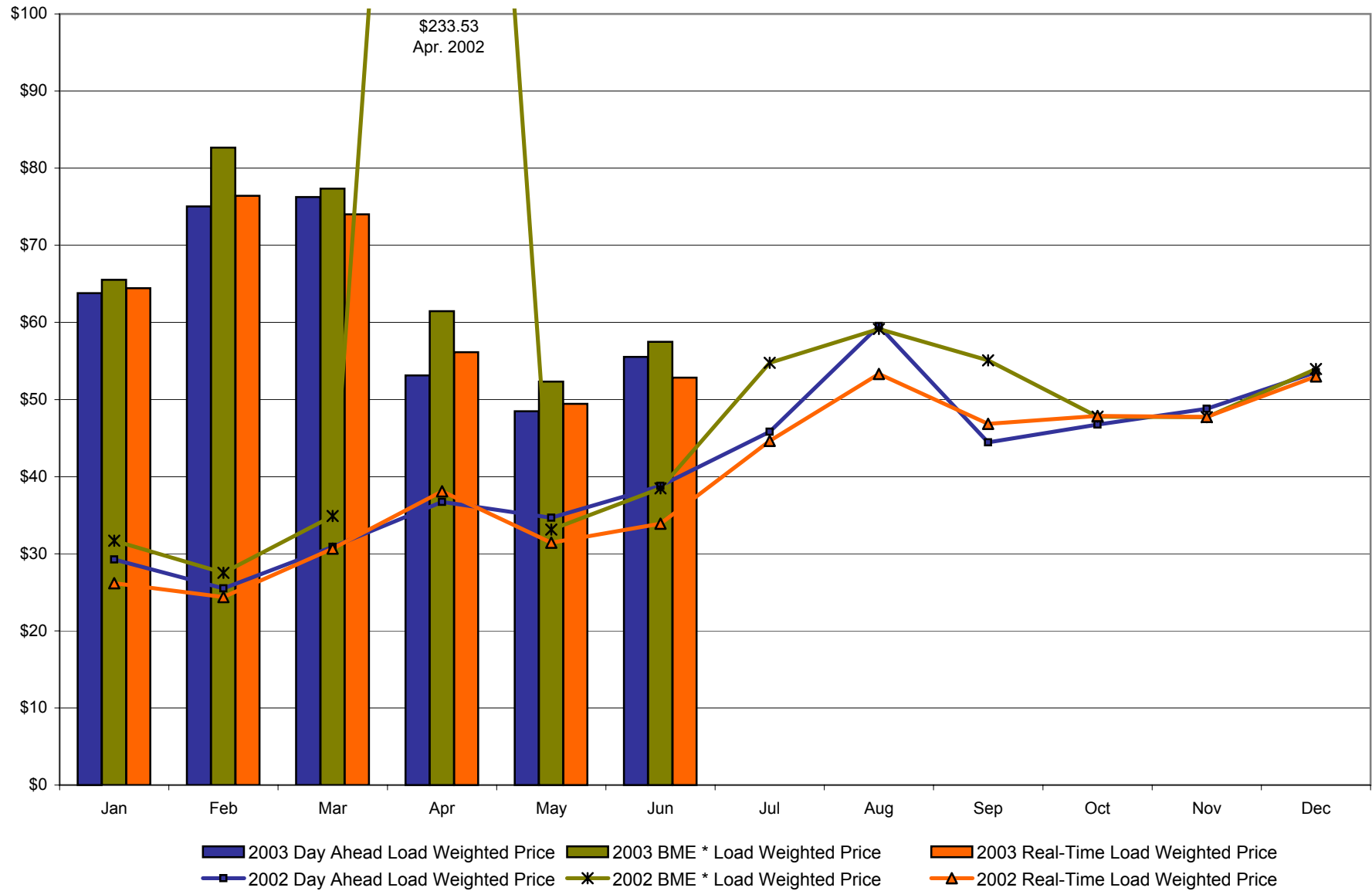
	January	February	March	April	May	June	July	August	September	October	November	December
<b><u>DAY AHEAD LBMP</u></b>												
Unweighted Price	\$61.33	\$72.81	\$73.18	\$51.58	\$46.43	\$51.45						
Standard Deviation	\$20.09	\$21.12	\$29.70	\$12.47	\$14.03	\$21.27						
Load Wtg.Price	\$63.81	\$75.03	\$76.25	\$53.14	\$48.47	\$55.52						
<b><u>BME * LBMP</u></b>												
Unweighted Price	\$63.19	\$80.25	\$74.27	\$59.22	\$50.27	\$53.84						
Standard Deviation	\$25.43	\$41.53	\$32.77	\$25.00	\$16.37	\$22.27						
Load Wtg.Price	\$65.54	\$82.65	\$77.33	\$61.45	\$52.31	\$57.49						
<b><u>REAL TIME LBMP</u></b>												
Unweighted Price	\$61.53	\$74.03	\$70.54	\$53.94	\$46.74	\$48.96						
Standard Deviation	\$30.16	\$37.46	\$37.97	\$28.70	\$23.03	\$21.57						
Load Wtg.Price	\$64.43	\$76.41	\$74.02	\$56.14	\$49.44	\$52.82						
Average Daily Energy Sendout/Month GWh	458	450	418	393	382	432						

### NYISO Markets 2002 Energy Statistics

	January	February	March	April	May	June	July	August	September	October	November	December
<b><u>DAY AHEAD LBMP</u></b>												
Unweighted Price	\$28.39	\$24.93	\$30.07	\$35.25	\$33.36	\$38.96	\$51.07	\$54.86	\$42.58	\$45.16	\$47.30	\$52.01
Standard Deviation	\$7.26	\$4.61	\$7.28	\$11.57	\$8.76	\$15.32	\$23.15	\$29.88	\$11.72	\$11.61	\$11.72	\$12.28
Load Wtg.Price	\$29.25	\$25.50	\$30.88	\$36.72	\$34.66	\$38.81	\$45.81	\$59.54	\$44.43	\$46.76	\$48.79	\$53.54
<b><u>BME * LBMP</u></b>												
Unweighted Price	\$30.66	\$26.84	\$33.53	\$191.03	\$31.43	\$38.57	\$63.19	\$55.27	\$51.96	\$45.90	\$46.53	\$52.44
Standard Deviation	\$11.22	\$7.60	\$13.84	\$1,020.88	\$13.91	\$54.74	\$181.17	\$29.34	\$147.55	\$12.10	\$11.07	\$14.74
Load Wtg.Price	\$31.67	\$27.54	\$34.88	\$233.53	\$33.12	\$38.49	\$54.76	\$59.15	\$55.08	\$47.76	\$47.70	\$53.95
<b><u>REAL TIME LBMP</u></b>												
Unweighted Price	\$25.36	\$23.73	\$29.78	\$35.44	\$29.80	\$33.98	\$53.70	\$49.74	\$44.08	\$46.16	\$46.13	\$51.04
Standard Deviation	\$8.27	\$8.83	\$10.97	\$25.85	\$13.32	\$16.92	\$66.25	\$24.86	\$34.24	\$17.61	\$18.25	\$22.41
Load Wtg.Price	\$26.17	\$24.39	\$30.67	\$38.10	\$31.42	\$33.91	\$44.63	\$53.32	\$46.85	\$47.88	\$47.75	\$53.01
Average Daily Energy Sendout/Month GWh	427	418	403	397	388	449	513	511	444	412	413	440

\* Commonly referred as Hour Ahead Market (HAM)

# **NYISO Monthly Average Internal LBMPs 2002 - 2003**



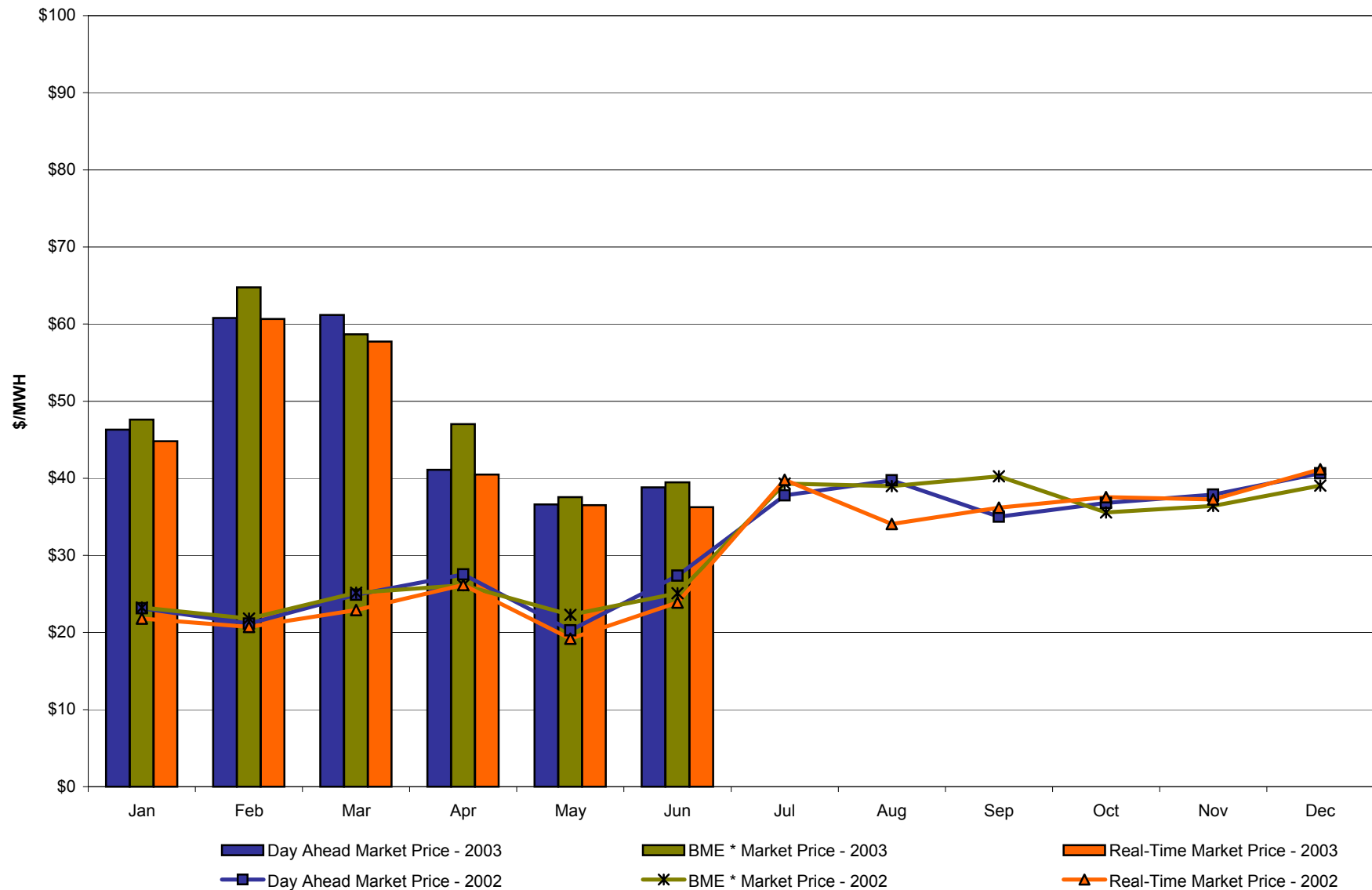
\* Commonly referred to as Hour Ahead Market (HAM)

# **June 2003 Zonal Statistics for NYISO (\$/MWH)**

	WEST Zone A	GENESEE Zone B	NORTH Zone D	CENTRAL Zone C	MOHAWK VALLEY Zone E	CAPITAL Zone F	HUDSON VALLEY Zone G	MILLWOOD Zone H	DUNWOODIE Zone I	NEW YORK CITY Zone J	LONG ISLAND Zone K
DAY AHEAD LBMP											
Unweighted Price	38.83	40.97	42.31	42.01	43.30	46.17	47.82	47.58	48.01	60.10	59.49
Standard Deviation	15.32	15.94	15.37	15.97	16.35	17.81	21.20	22.03	22.44	27.74	22.31
BME * LBMP											
Unweighted Price	39.46	40.63	43.28	42.90	44.33	46.95	47.60	49.26	50.33	64.82	62.60
Standard Deviation	18.08	18.17	17.67	18.23	18.72	19.50	19.77	21.80	22.95	29.12	29.53
REAL TIME LBMP											
Unweighted Price	36.25	38.17	37.92	37.79	38.93	45.91	43.94	47.63	48.51	58.07	57.61
Standard Deviation	17.67	18.51	19.13	18.31	19.43	21.73	20.69	24.55	24.58	28.43	25.97
	ONTARIO HYDRO Zone O	HYDRO QUEBEC Zone M	PJM Zone P	NEW ENGLAND Zone N							
DAY AHEAD LBMP											
Unweighted Price	37.87	42.26	39.43	46.86							
Standard Deviation	14.88	15.19	17.13	19.56							
BME * LBMP											
Unweighted Price	37.90	42.75	37.46	44.28							
Standard Deviation	21.63	17.94	22.61	14.89							
REAL TIME LBMP											
Unweighted Price	33.04	37.86	34.22	42.74							
Standard Deviation	21.10	19.42	20.71	18.69							

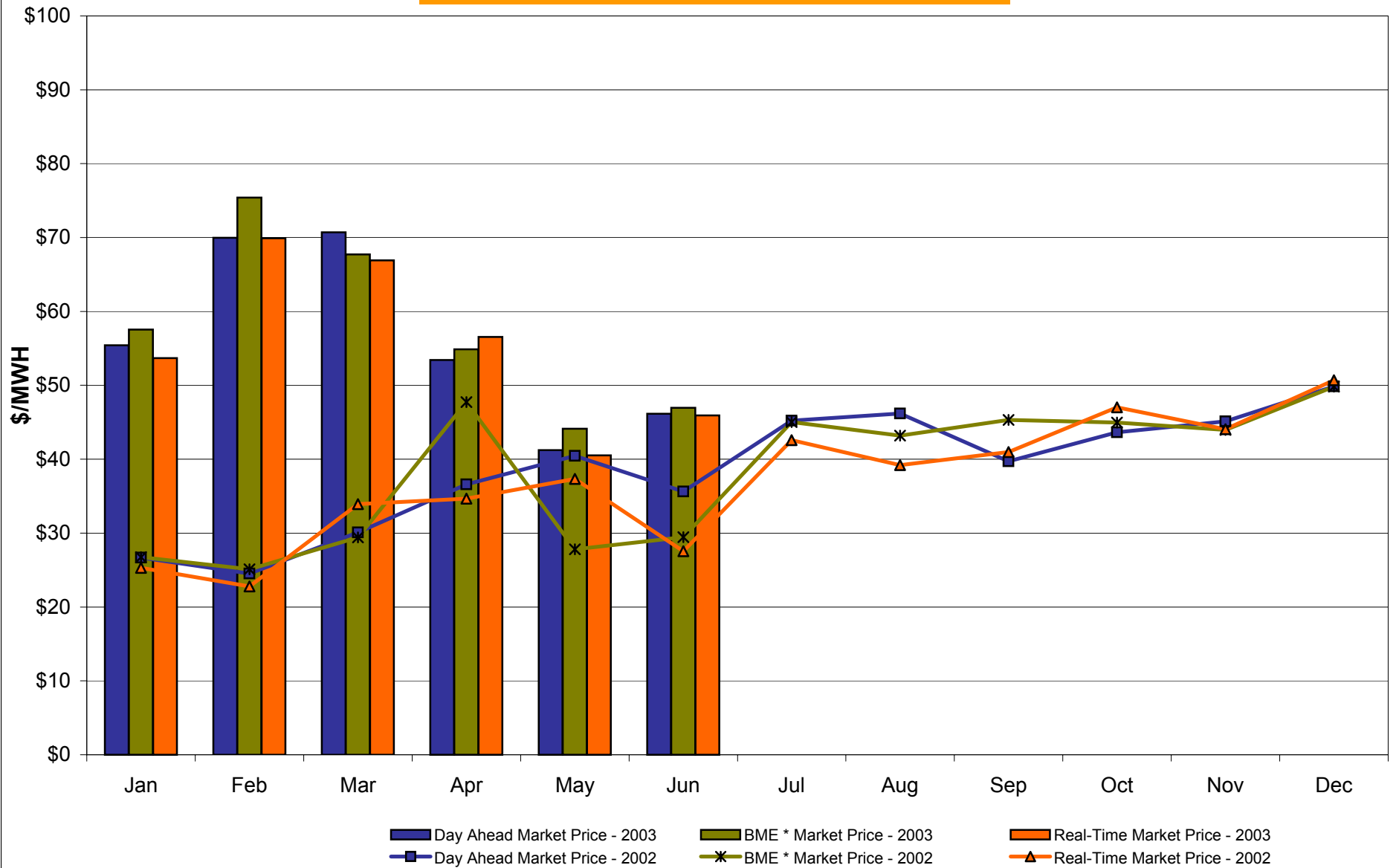
\*Commonly Referred as Hour Ahead Market (HAM)

# West Zone A Monthly Average LBMP Prices 2002 - 2003



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

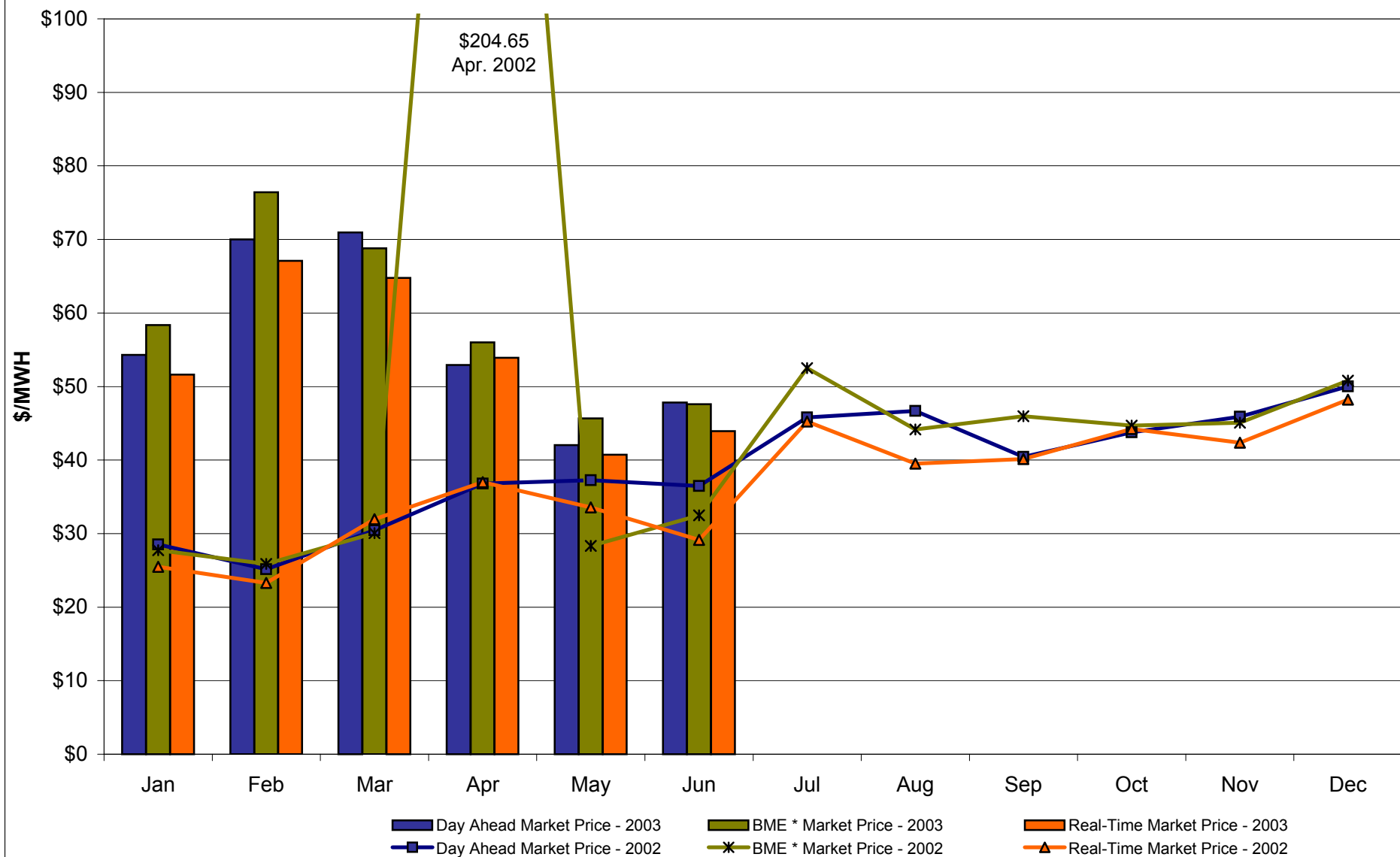
# **Capital Zone F** **Monthly Average LBMP Prices 2002 - 2003**



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

4-1

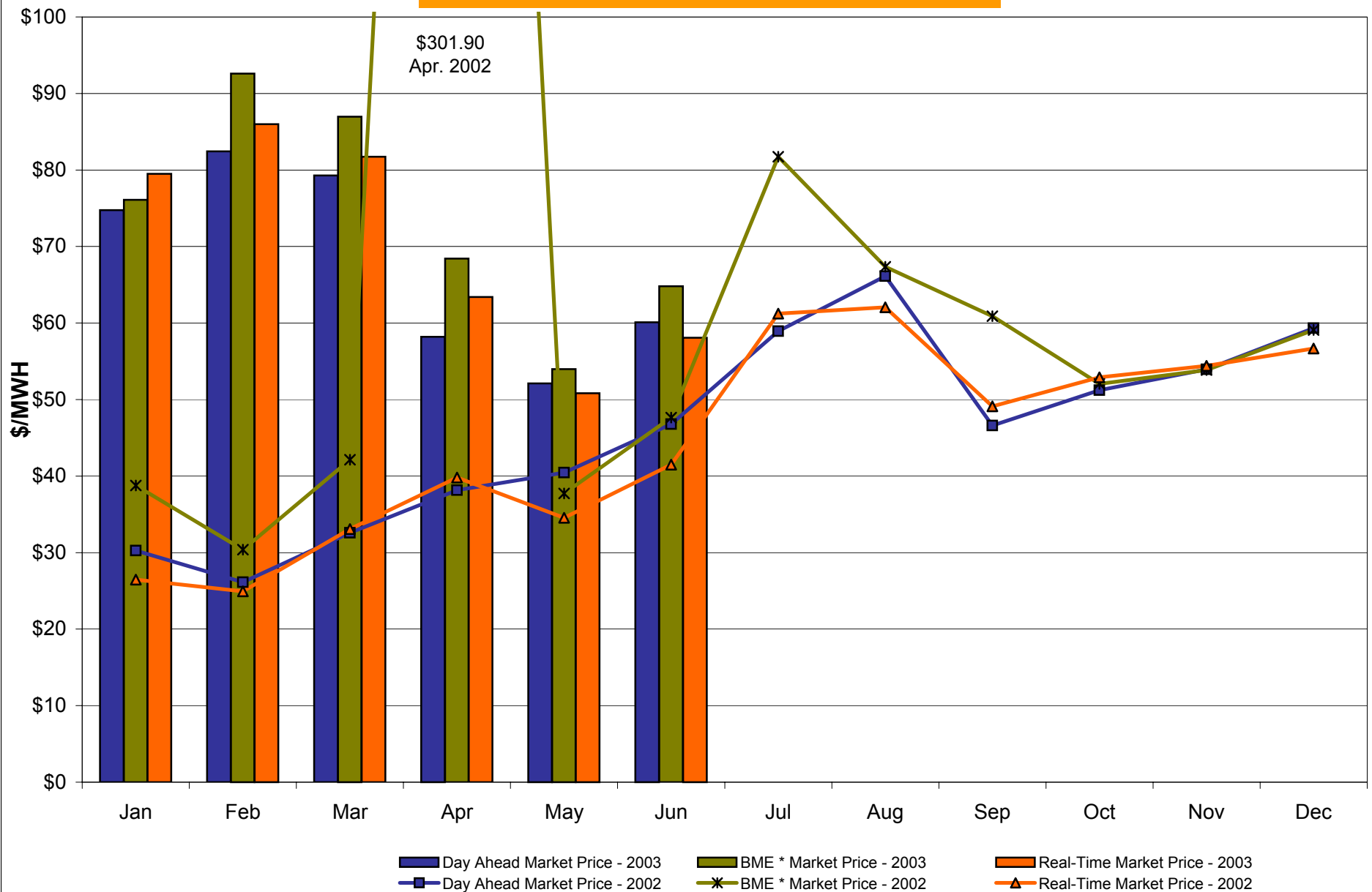
# Hudson Valley Zone G Monthly Average LBMP Prices 2002 - 2003



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

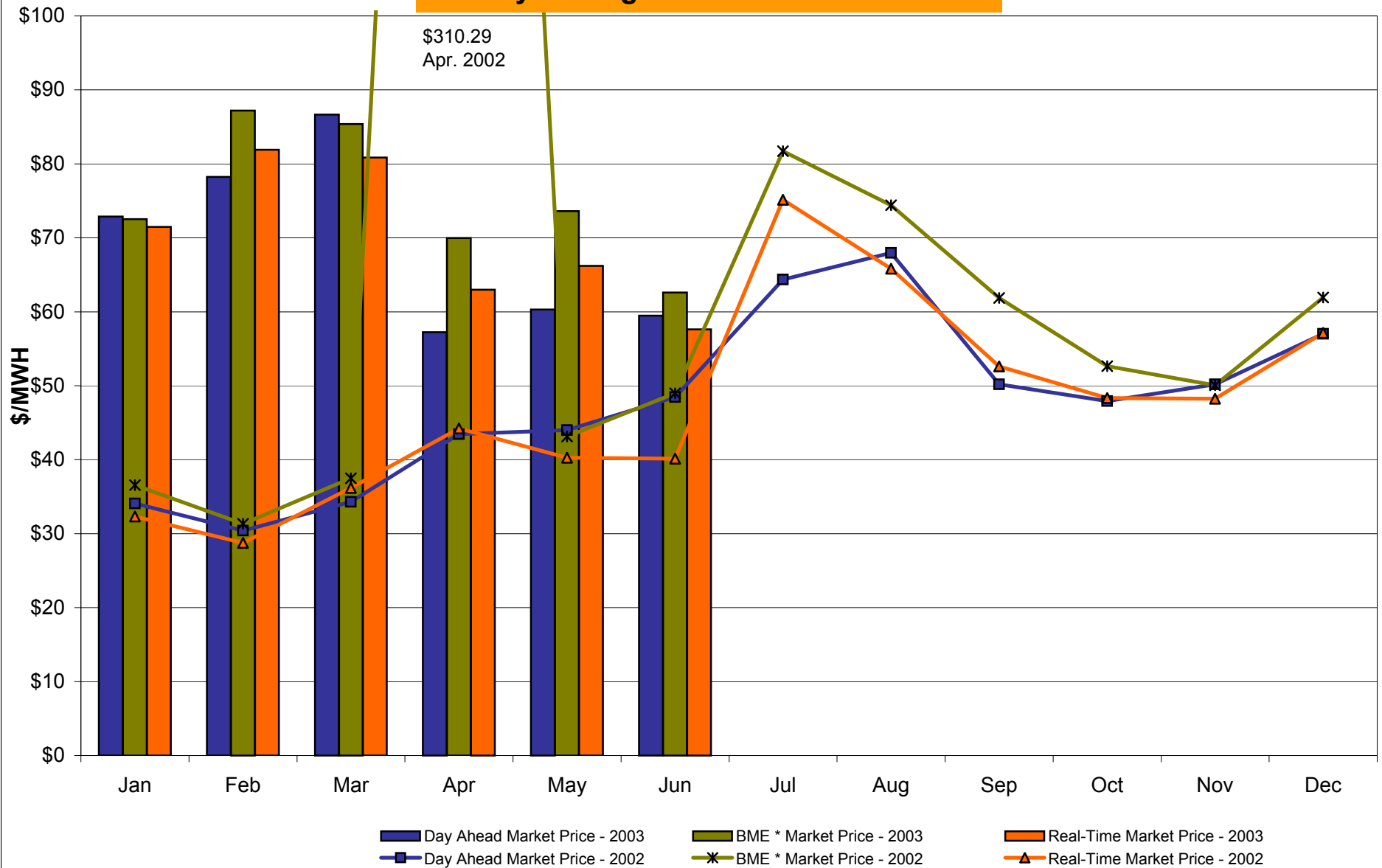
4-J

# **NYC Zone J** **Monthly Average LBMP Prices 2002 - 2003**



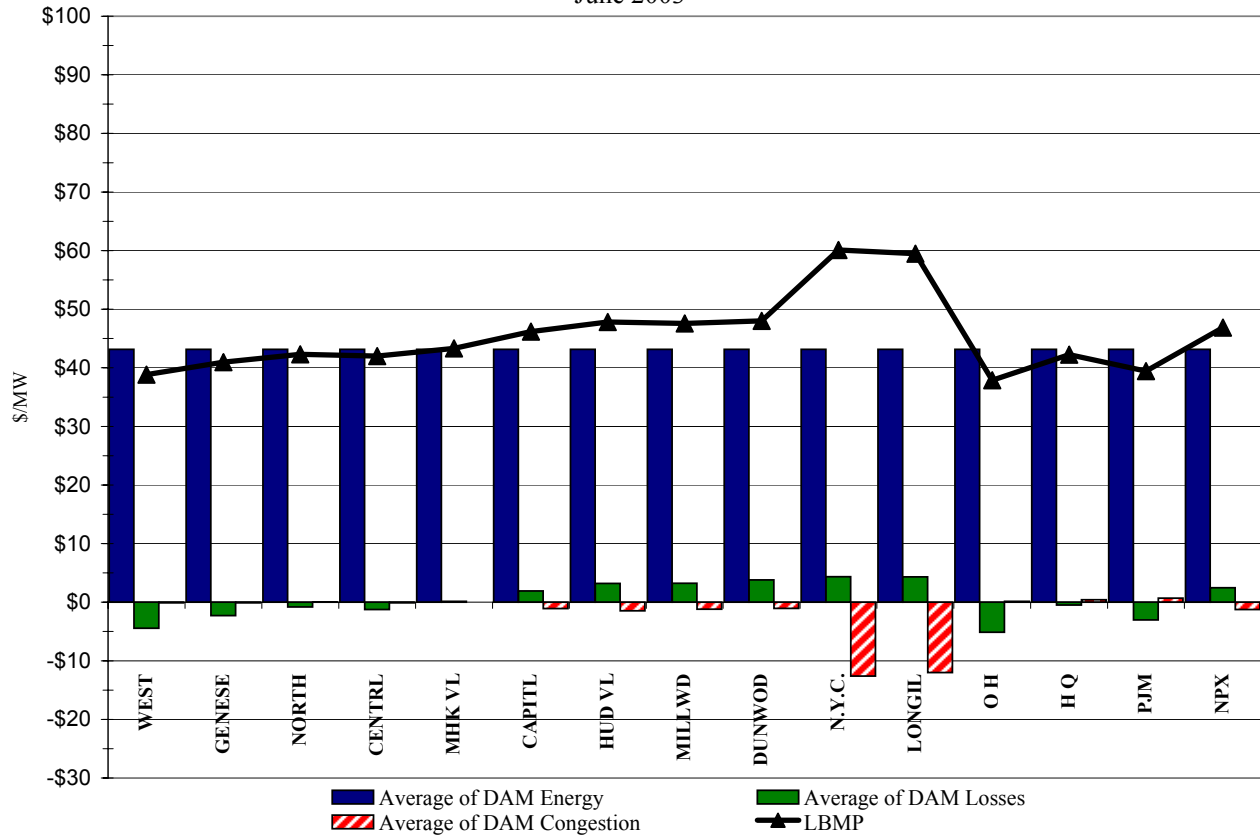
\* Commonly referred to as Hour Ahead Market (HAM)

# Long Island Zone K Monthly Average LBMP Prices 2002 - 2003

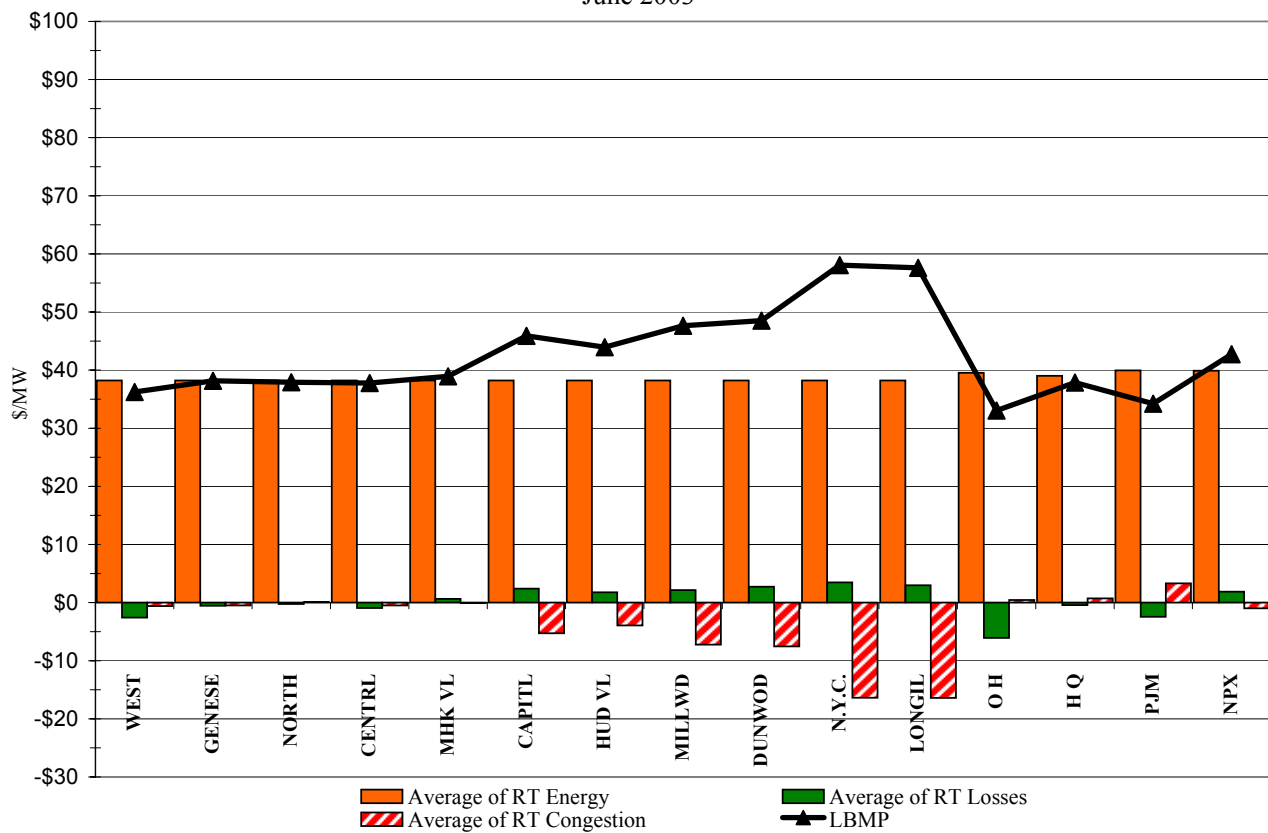


\* Commonly referred to as Hour Ahead Market (HAM)

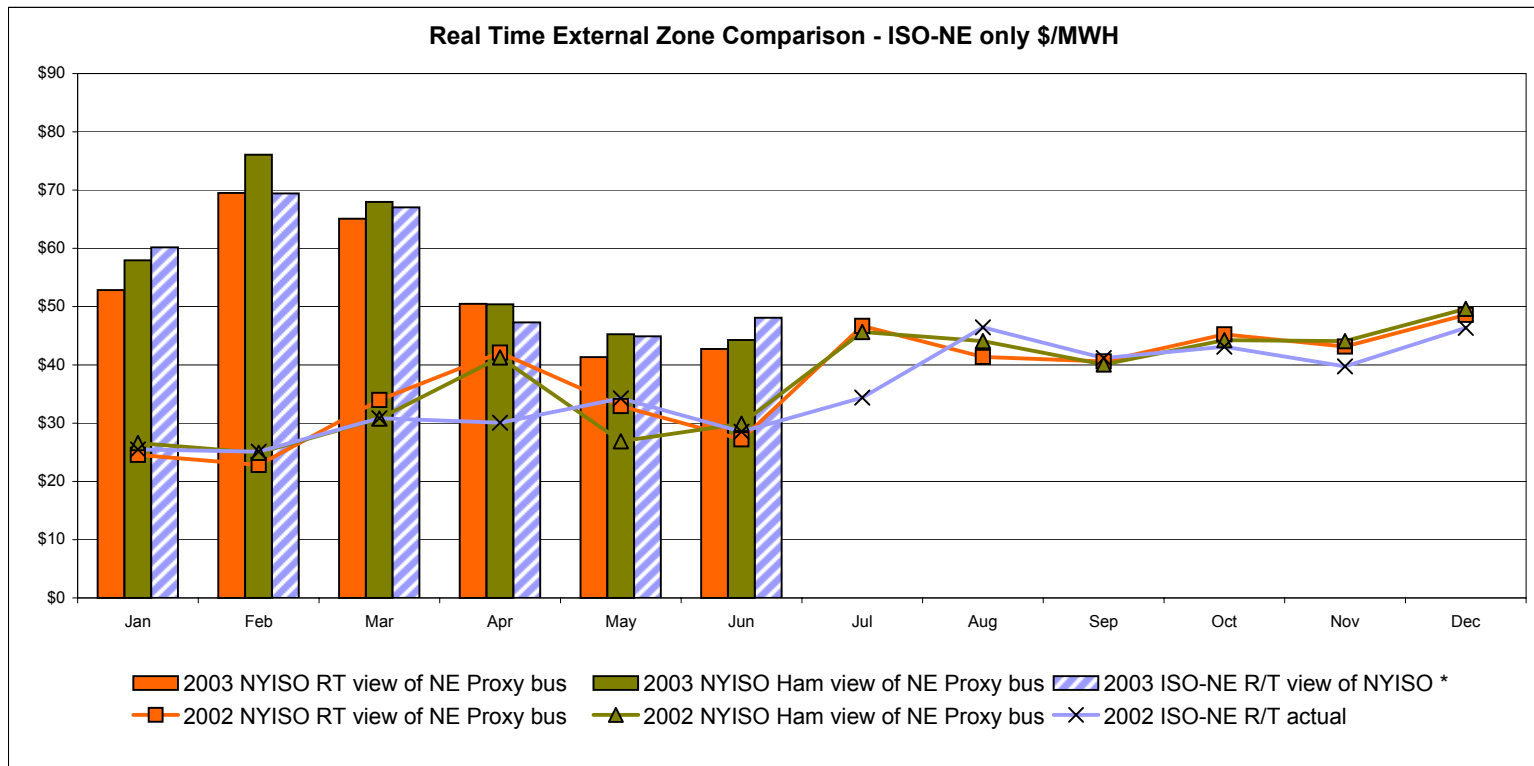
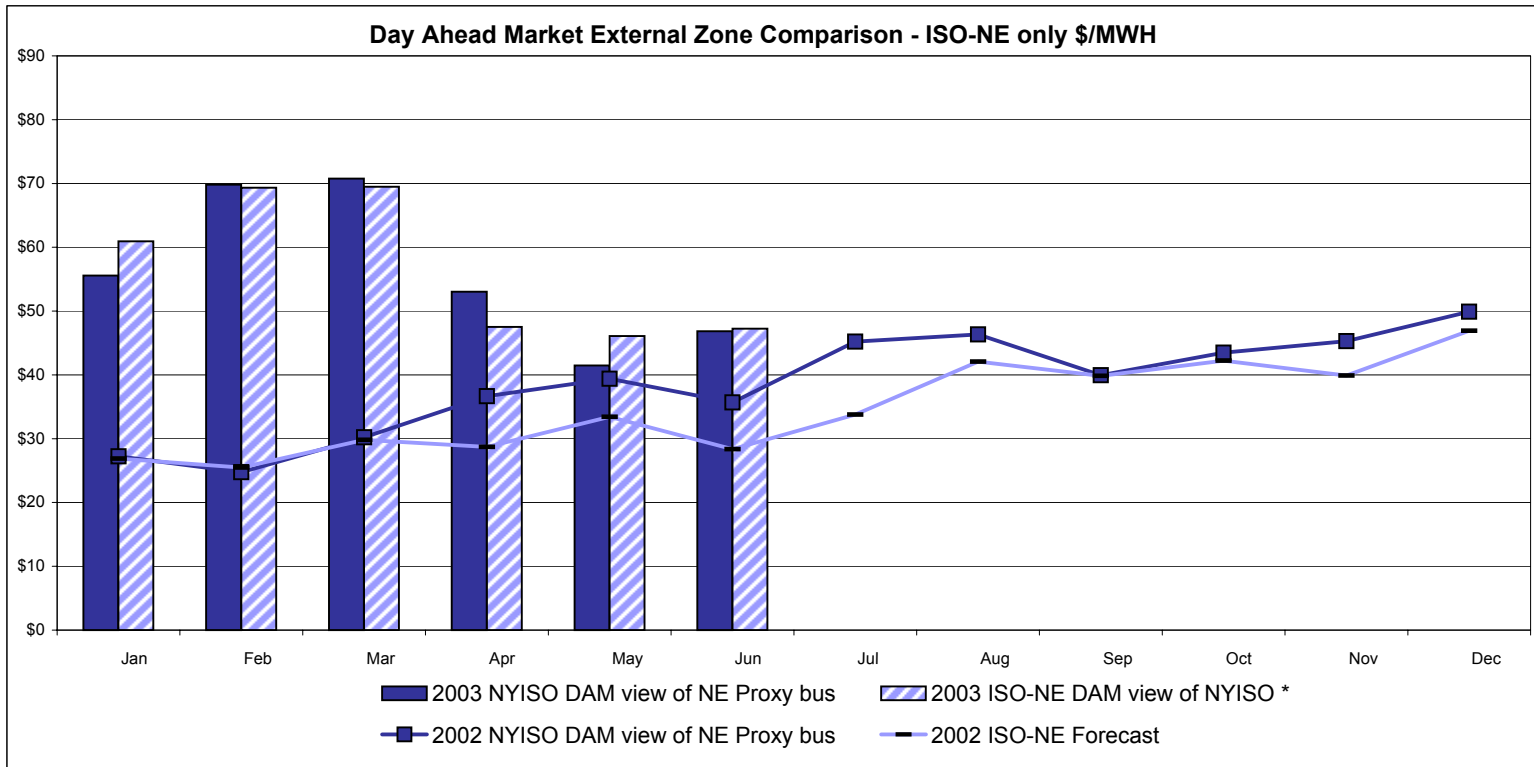
DAM Zonal Unweighted Monthly Average LBMP Components  
June 2003



RT Zonal Unweighted Monthly Average LBMP Components  
June 2003



## External Comparison ISO-NE



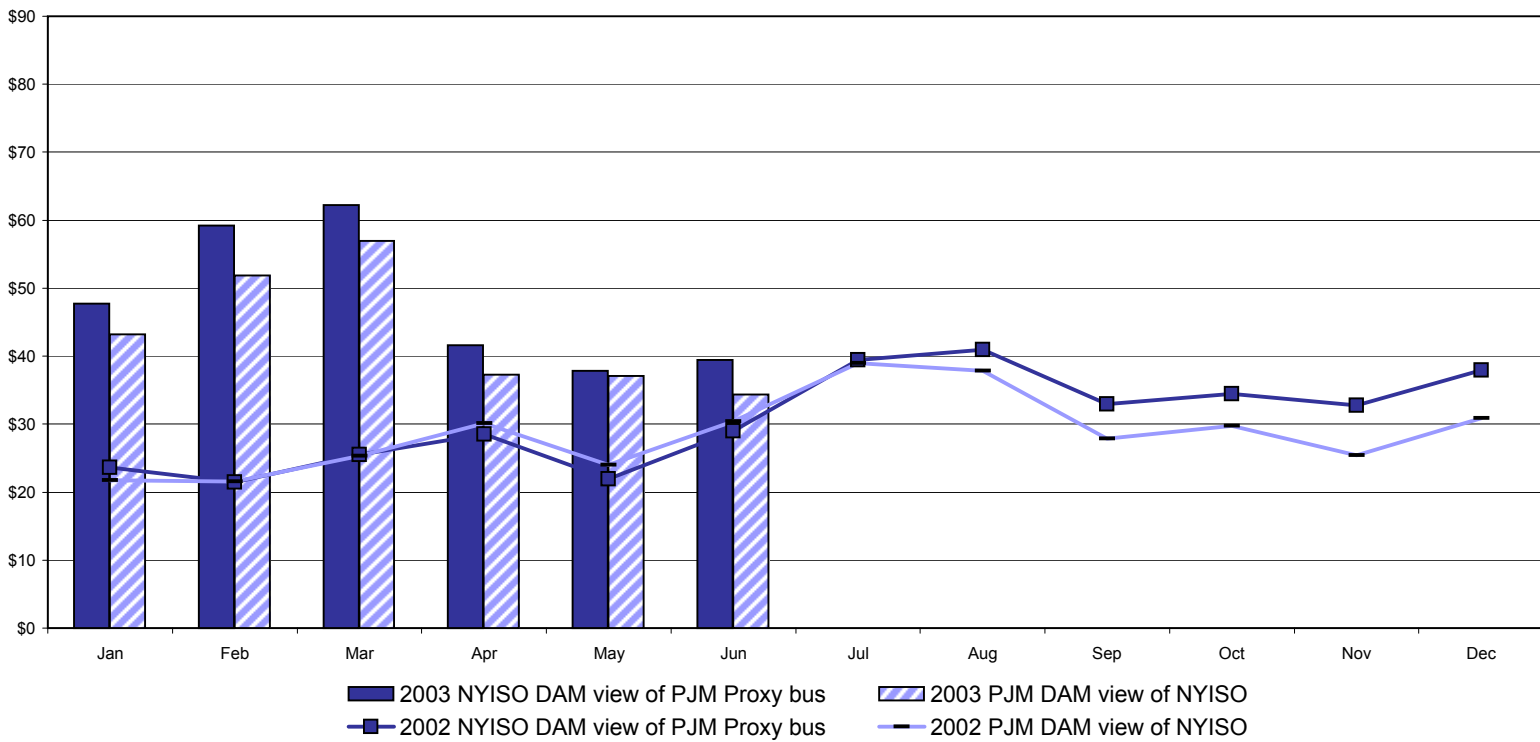
Note:

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

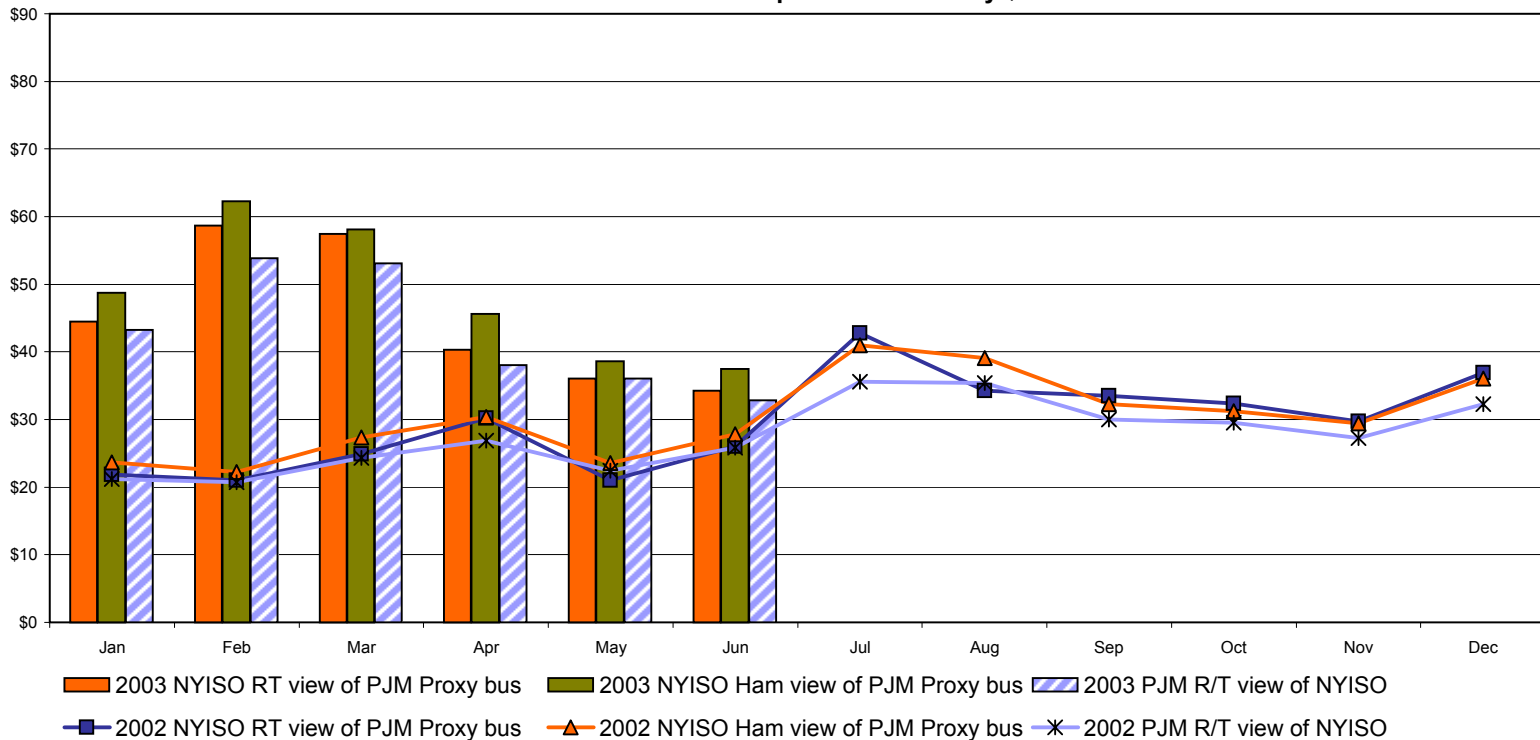
\* Effective 3/1/2003 SMD implemented by ISO-NE. The DAM and R/T prices at the Roseton interface are now used.

## External Comparison PJM

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

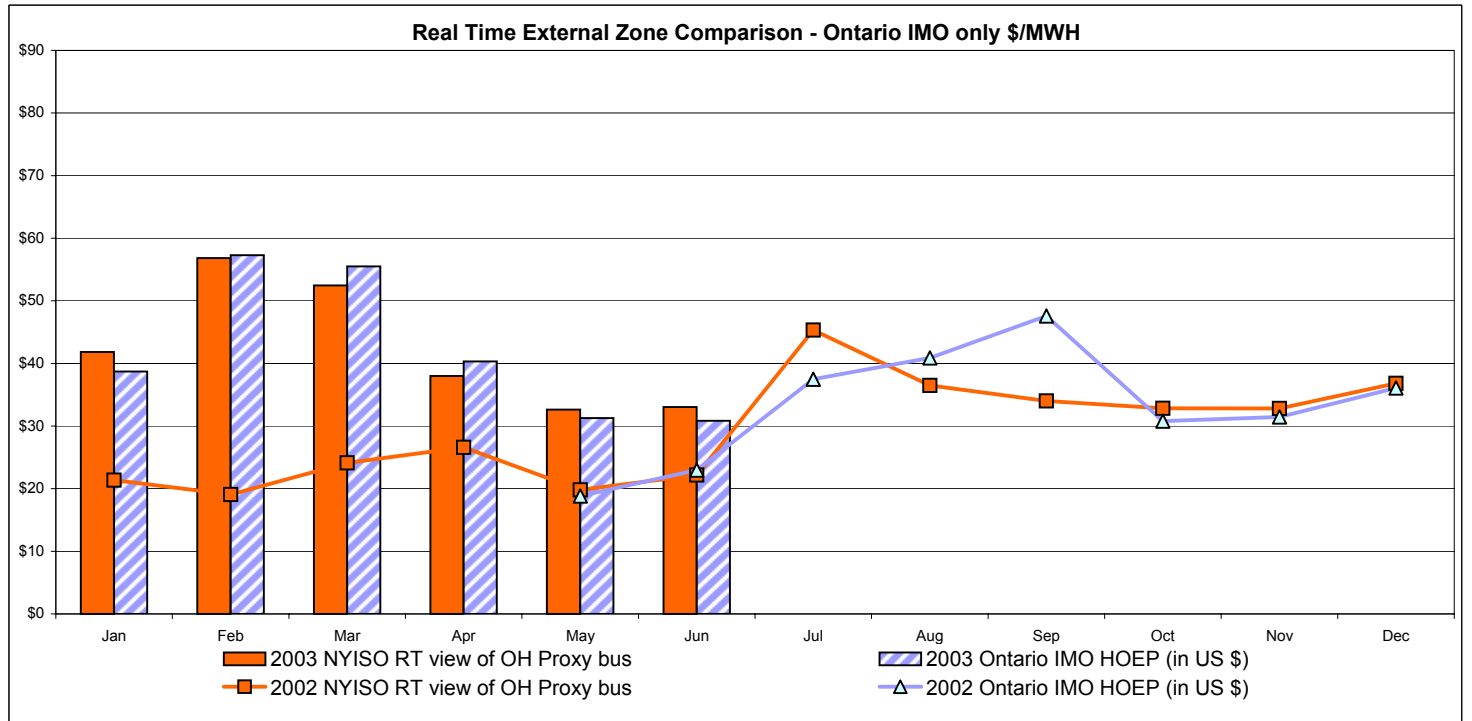
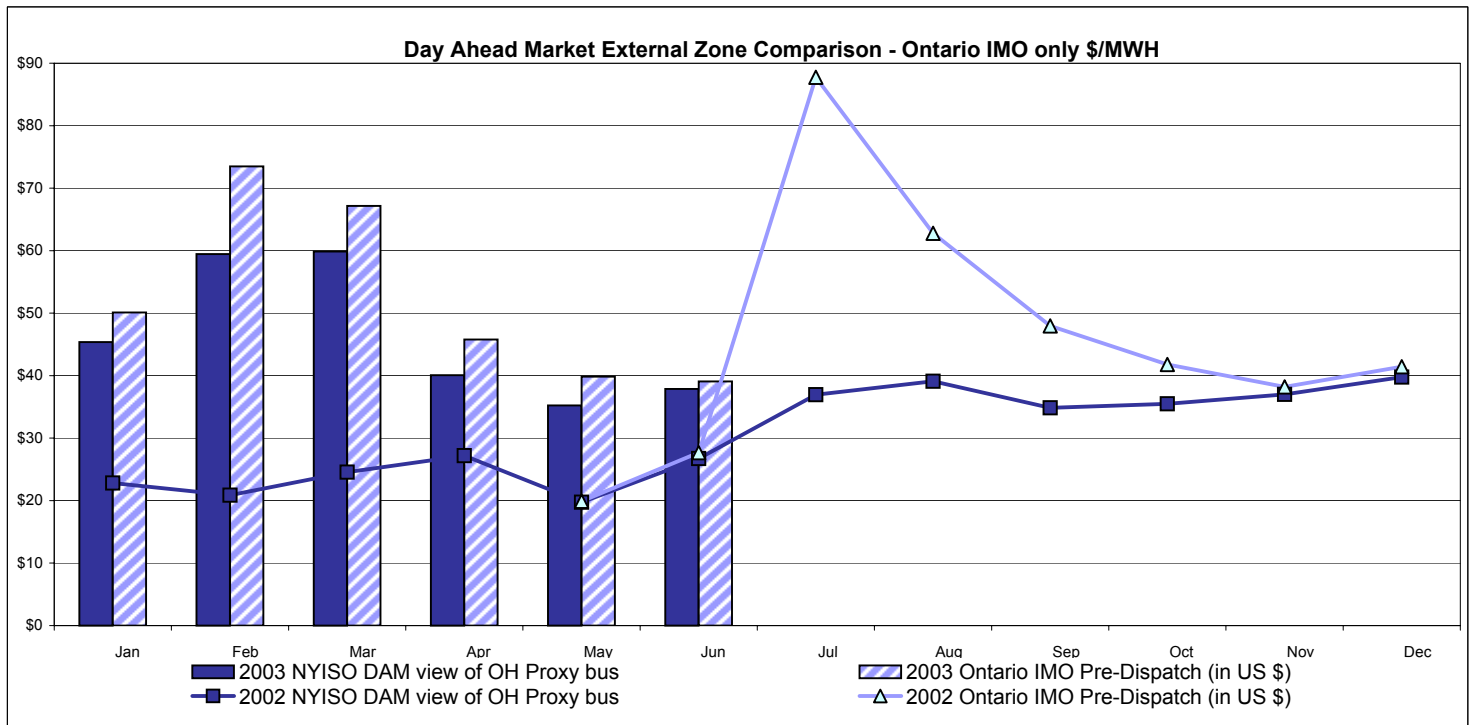


Real Time External Zone Comparison - PJM only \$/MWH



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

## External Comparison Ontario IMO



Notes: Exchange factor used for June 2003 was .74 to US \$  
 HOEP: Hourly Ontario Energy Price  
 Pre-Dispatch: Projected Energy Price

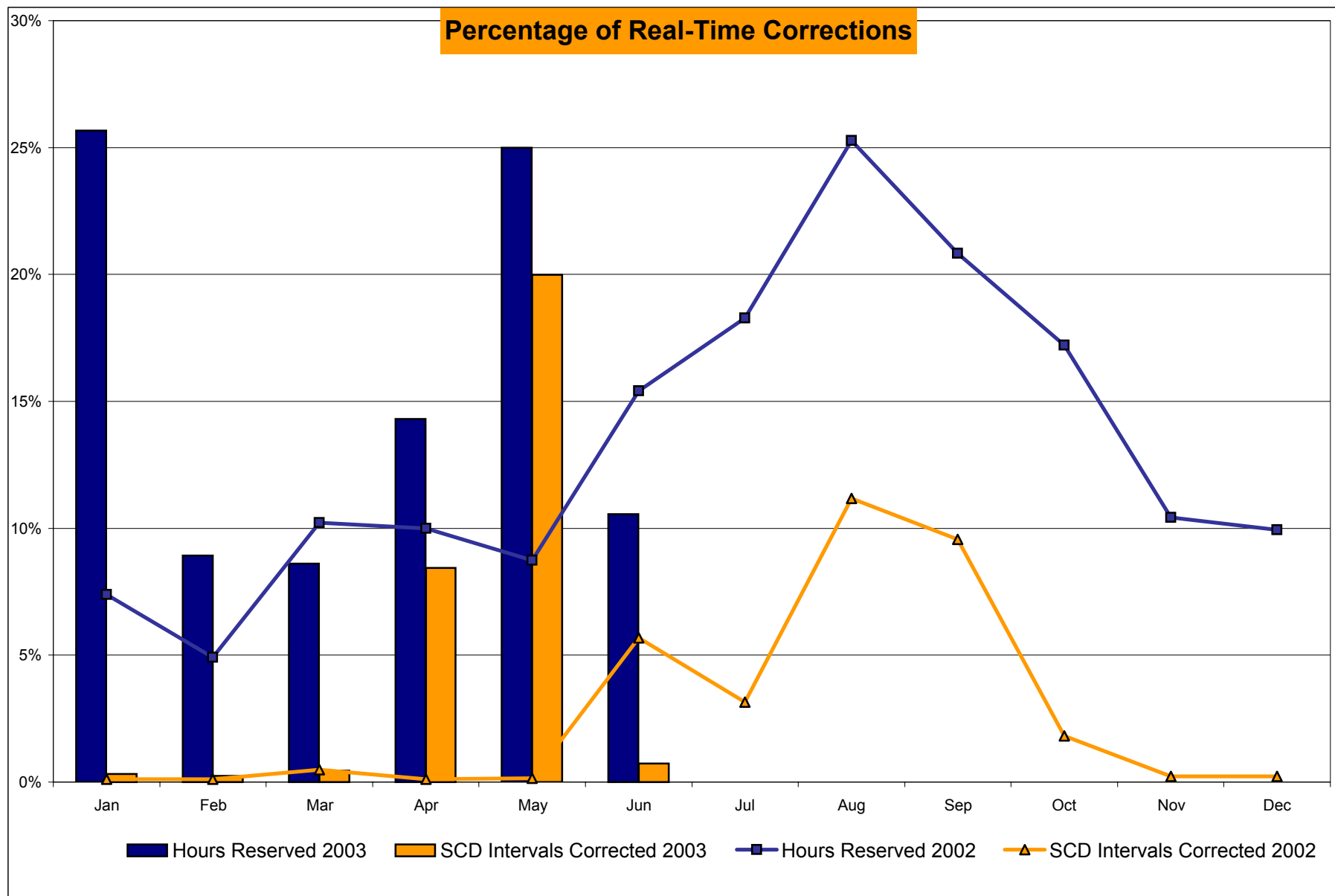
## NYISO Price Correction Statistics

### 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						
Number of Intervals in the month	10,986	10,197	10,918	10,554	11,274	10,729						
Percentage of intervals corrected in the month	0.32%	0.25%	0.45%	8.44%	19.99%	0.74%						
Number of Intervals corrected Year-to-date	36	61	110	1,001	3,255	3,334						
Number of Intervals Year-to-date	10,986	21,183	32,101	42,655	53,929	64,658						
Percentage of intervals corrected Year-to-date	0.32%	0.28%	0.34%	2.35%	6.04%	5.16%						
<u>Hours Reserved</u>												
Number of hours reserved in the month	191	60	64	103	186	76						
Number of hours in the month	744	672	744	720	744	720						
Percentage of hours reserved in the month	25.67%	8.93%	8.60%	14.31%	25.00%	10.56%						
Number of hours reserved Year-to-date	191	251	315	418	604	680						
Number of hours Year-to-date	744	1,416	2,160	2,880	3,624	4,344						
Percentage of hours reserved Year-to-date	25.67%	15.74%	14.58%	14.51%	16.67%	15.65%						
<u>Days Without Corrections</u>												
Days without price corrections in the month	17	15	14	9	8	8						
Days without price corrections Year-to-date	17	32	46	55	63	71						

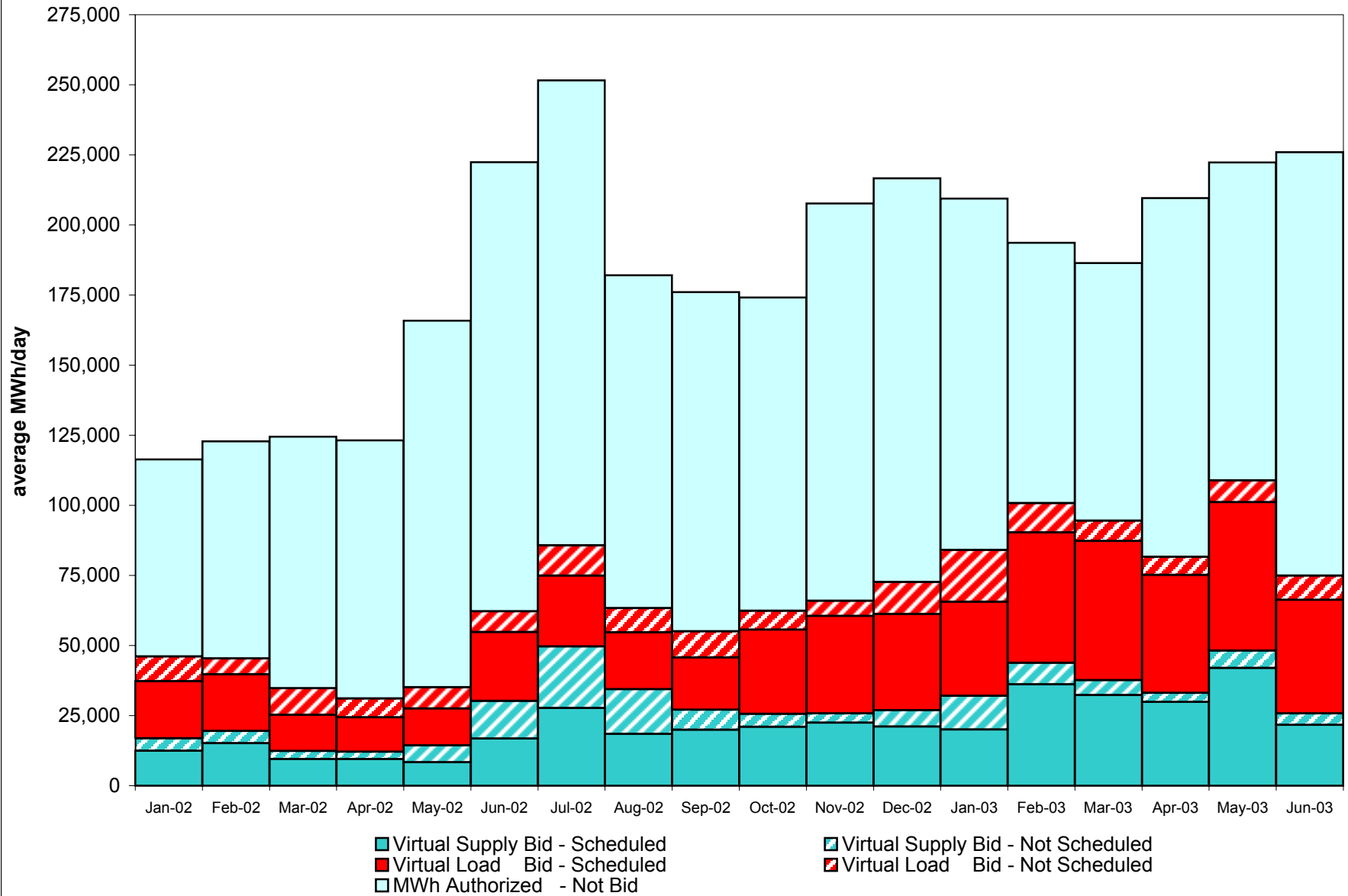
### NYISO Price Corrections 2002

<u>Interval Corrections</u>	January	February	March	April	May	June	July	August	September	October	November	December
Number of Intervals corrected in the month	12	11	55	13	16	616	346	1,261	1,016	201	23	24
Number of Intervals in the month	11,129	10,111	11,231	11,075	11,330	10,845	11,014	11,291	10,632	11,068	10,568	11,043
Percentage of intervals corrected in the month	0.11%	0.11%	0.49%	0.12%	0.14%	5.68%	2.28%	11.17%	9.56%	1.82%	0.22%	0.22%
Number of Intervals corrected Year-to-date	12	23	78	91	107	723	1,069	2,330	3,346	3,547	3,570	3,594
Number of Intervals Year-to-date	11,129	21,240	32,471	43,546	54,876	65,721	76,735	88,026	98,658	109,726	120,294	131,337
Percentage of intervals corrected Year-to-date	0.11%	0.11%	0.24%	0.21%	0.19%	1.10%	1.27%	2.65%	3.39%	3.23%	2.97%	2.74%
<u>Hours Reserved</u>												
Number of hours reserved in the month	55	33	76	72	65	111	136	188	150	128	75	74
Number of hours in the month	744	672	744	720	744	720	744	744	720	744	720	744
Percentage of hours reserved in the month	7.26%	4.91%	10.22%	10.00%	8.74%	15.42%	18.28%	25.27%	20.83%	17.20%	10.42%	9.95%
Number of hours reserved Year-to-date	55	88	164	236	301	412	548	736	886	1,014	1,089	1,163
Number of hours Year-to-date	744	1,416	2,160	2,880	3,624	4,344	5,088	5,832	6,552	7,296	8,016	8,760
Percentage of hours reserved Year-to-date	7.26%	6.14%	7.55%	8.16%	8.31%	9.48%	10.77%	12.62%	13.52%	13.90%	13.59%	13.28%
<u>Days Without Corrections</u>												
Days without price corrections in the month	25	20	27	23	20	12	11	5	10	15	19	17
Days without price corrections Year-to-date	25	45	72	95	115	127	138	143	153	168	187	204

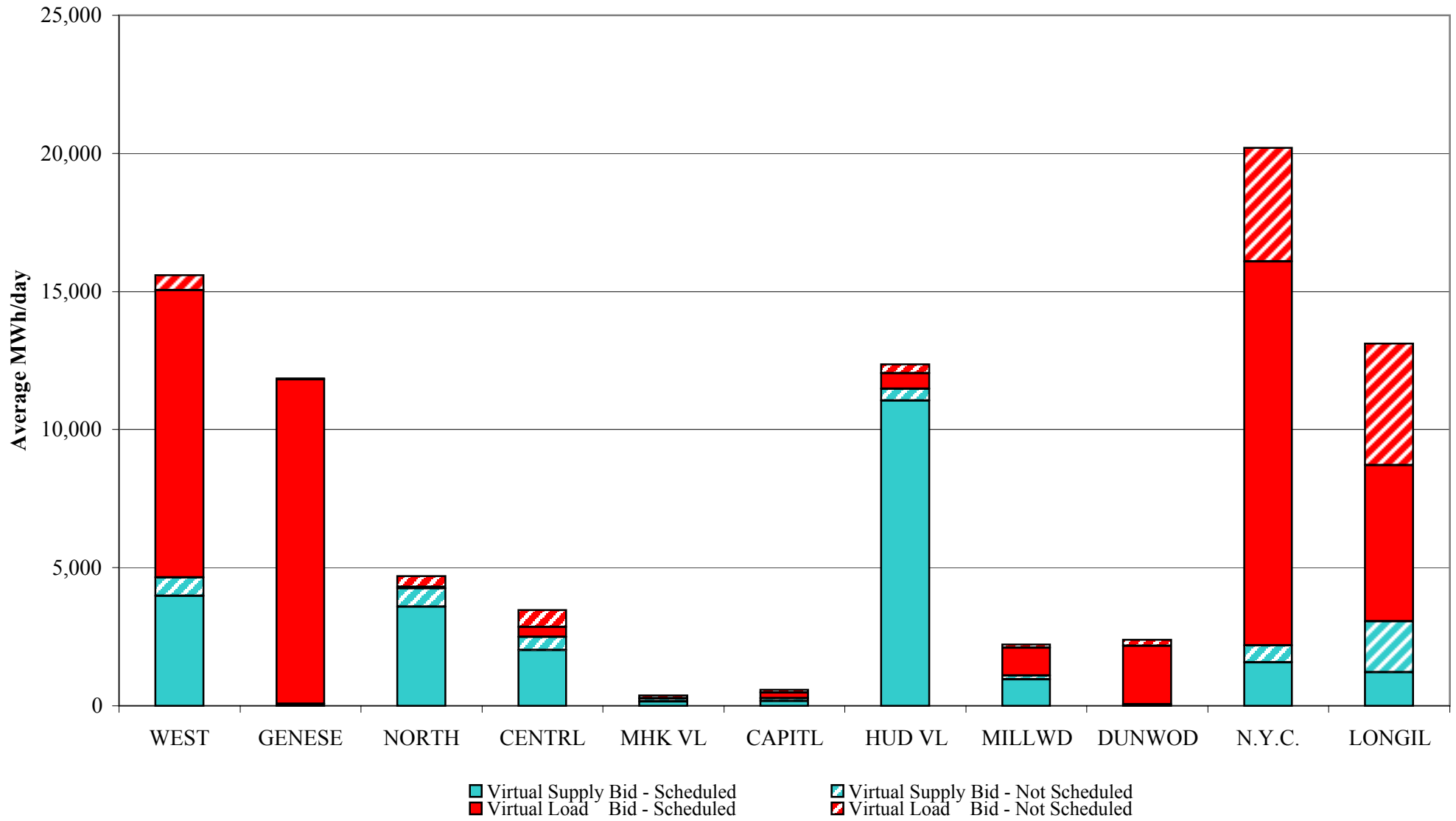


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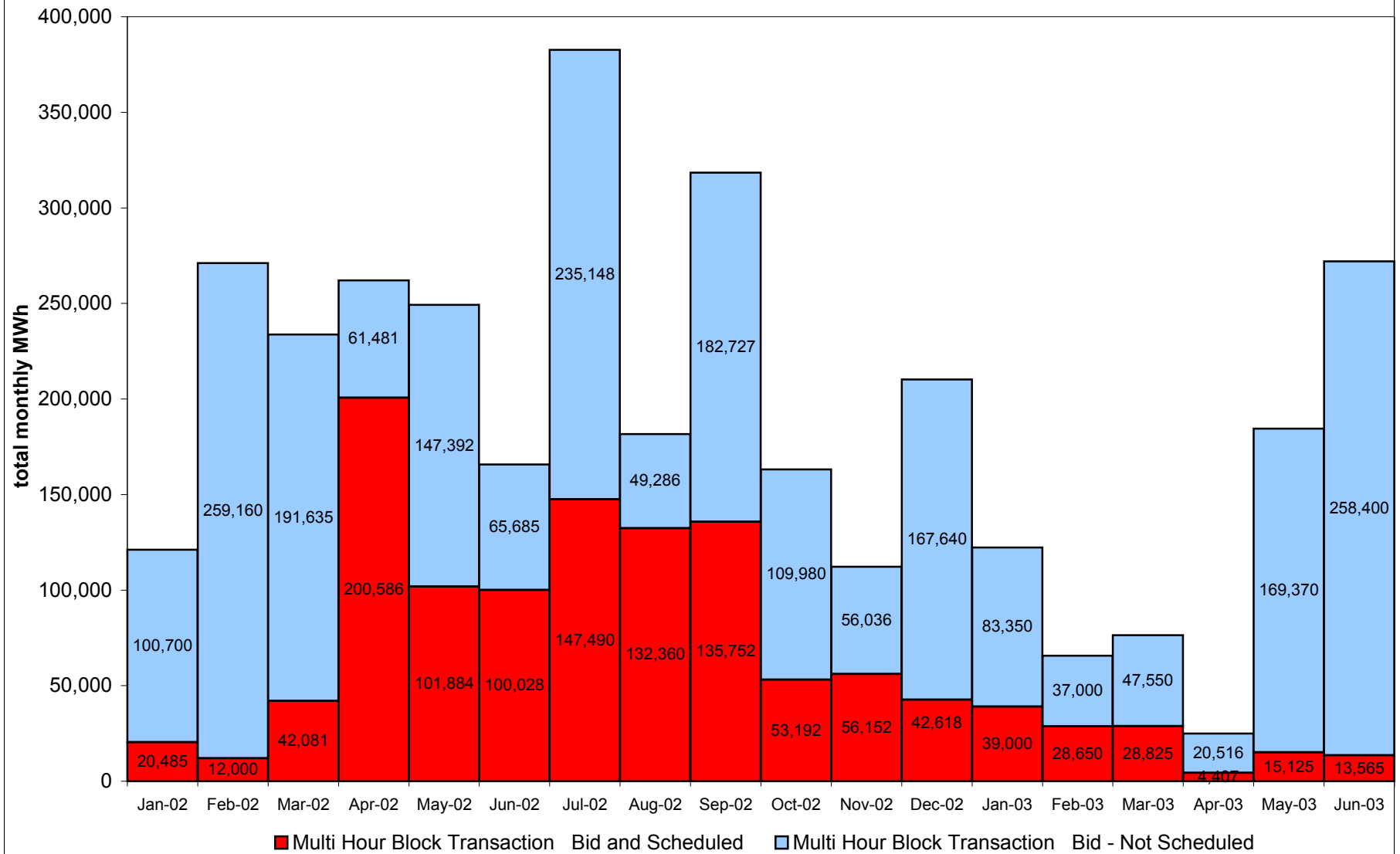
# **NYISO Virtual Trading Average MWh per day**



# **Virtual Load and Supply Zonal Statistics** **June 2003**

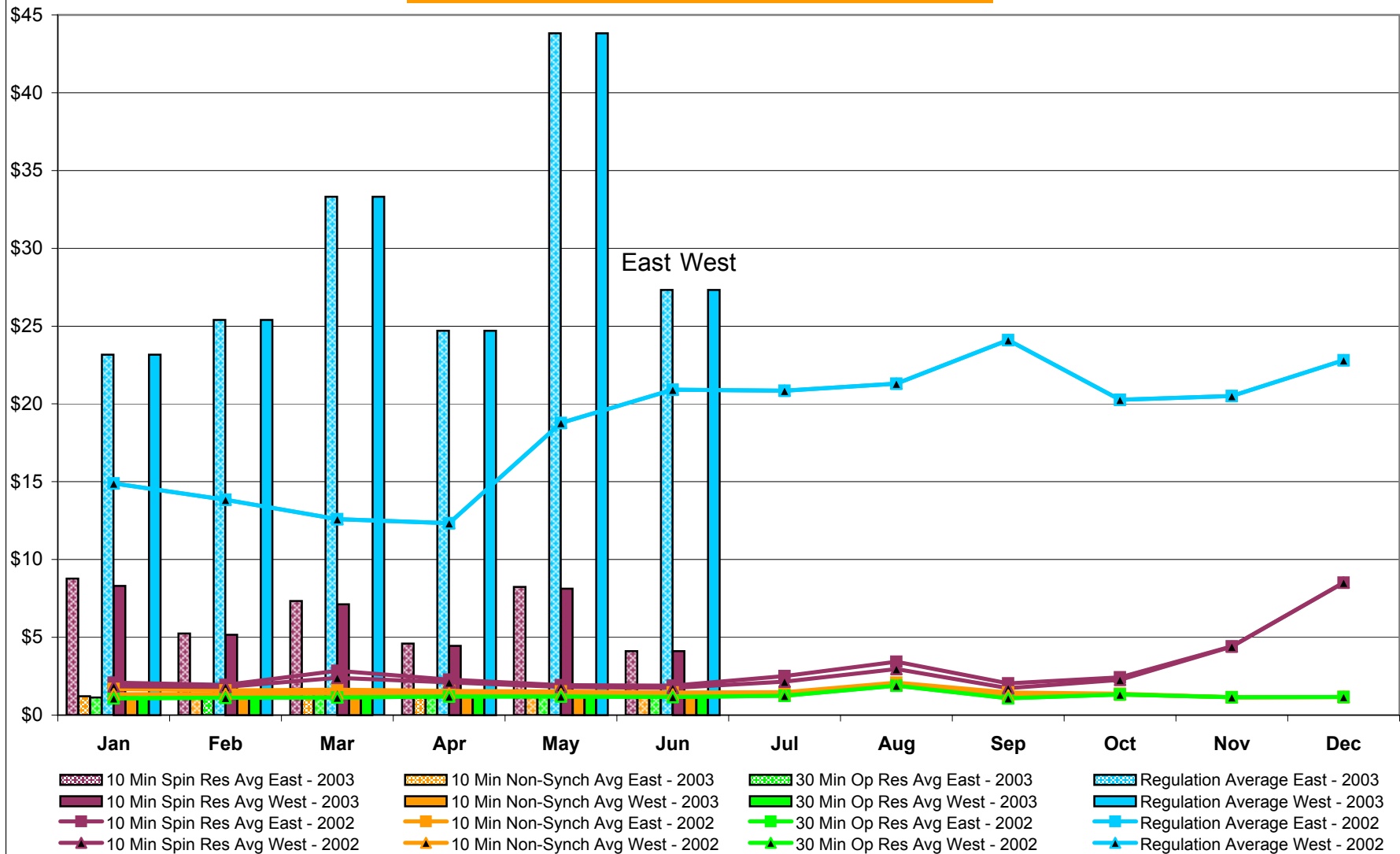


# **NYISO Multi Hour Block Transactions Monthly Total MWh**

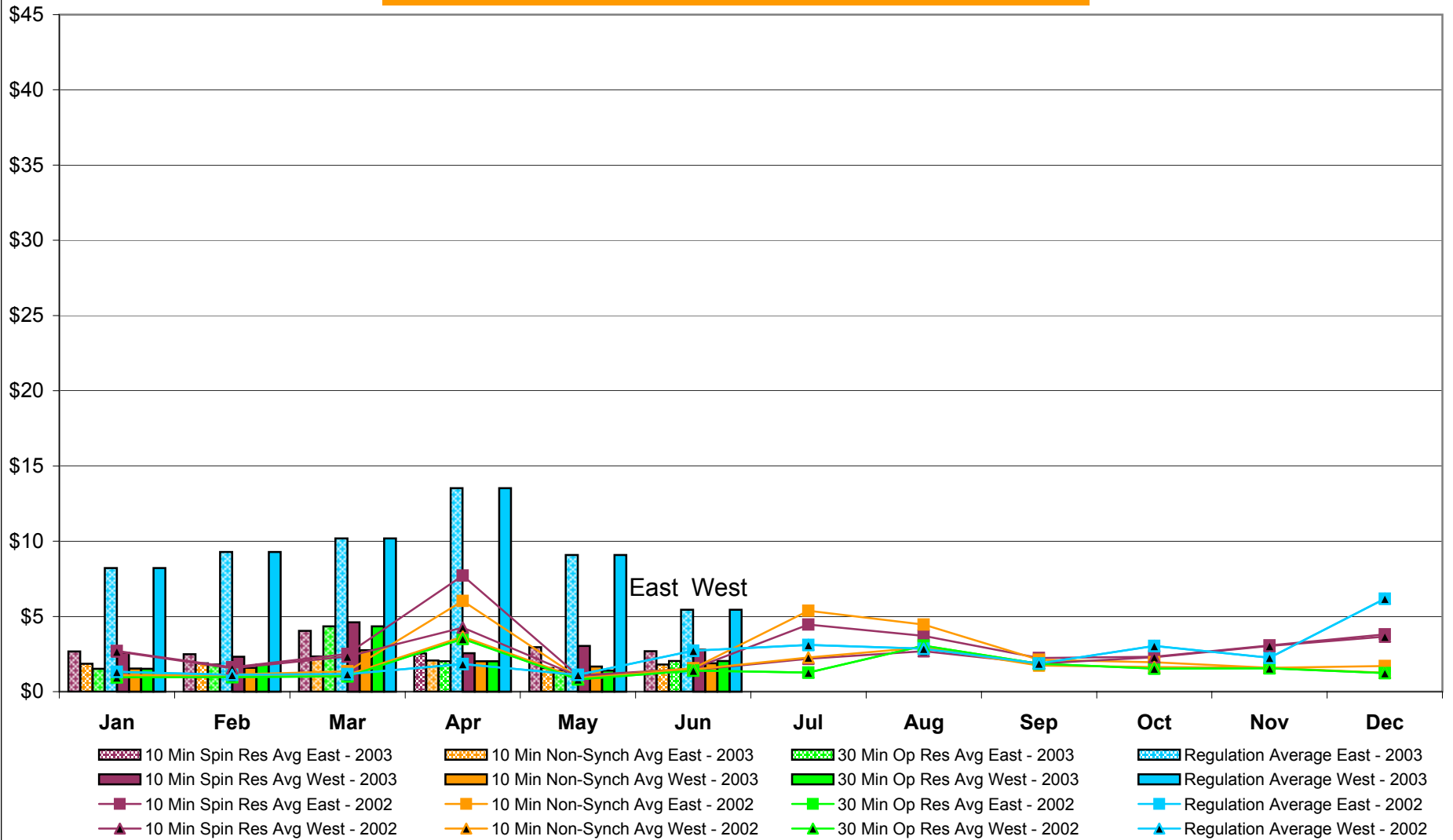


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# **NYISO Monthly Average Ancillary Service Prices Day Ahead Market 2002 - 2003**



## NYISO Monthly Average Ancillary Service Prices BME \* 2002 - 2003



\* 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
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### 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
10 Min Spin West	8.30	5.17	7.12	4.45	8.12	4.11
10 Min Non Synch East	1.22	1.36	1.60	1.61	1.48	1.40
10 Min Non Synch West	1.15	1.32	1.45	1.54	1.45	1.39
30 Min East	1.14	1.30	1.41	1.48	1.42	1.35
30 Min West	1.14	1.30	1.41	1.48	1.42	1.35
Regulation East	23.17	25.39	33.31	24.70	43.82	27.33
Regulation West	23.17	25.39	33.31	24.70	43.82	27.33

#### BME\* Market

10 Min Spin East	2.67	2.50	4.05	2.54	2.95	2.69
10 Min Spin West	2.59	2.32	4.61	2.55	3.04	2.78
10 Min Non Synch East	1.85	1.89	2.34	2.07	1.57	1.80
10 Min Non Synch West	1.53	1.59	2.75	2.02	1.67	1.88
30 Min East	1.52	1.80	4.34	2.02	1.40	2.03
30 Min West	1.52	1.80	4.34	2.02	1.40	2.03
Regulation East	8.21	9.28	10.19	13.52	9.08	5.44
Regulation West	8.21	9.28	10.19	13.52	9.08	5.44

### ANCILLARY SERVICES Unweighted Price (\$/MWH) 2002

#### Day Ahead Market

10 Min Spin East	2.09	1.95	2.85	2.29	1.93	1.90	2.51	3.43	2.04	2.43	4.42	8.52
10 Min Spin West	1.85	1.81	2.40	2.11	1.81	1.75	2.16	2.96	1.74	2.26	4.41	8.52
10 Min Non Synch East	1.68	1.58	1.64	1.55	1.52	1.46	1.47	2.09	1.46	1.37	1.15	1.16
10 Min Non Synch West	1.34	1.36	1.39	1.40	1.34	1.32	1.35	1.96	1.27	1.33	1.15	1.16
30 Min East	1.09	1.11	1.13	1.19	1.20	1.17	1.24	1.90	1.09	1.32	1.15	1.16
30 Min West	1.09	1.11	1.13	1.19	1.20	1.17	1.24	1.90	1.09	1.32	1.15	1.16
Regulation East	14.90	13.83	12.59	12.33	18.78	20.92	20.85	21.31	24.10	20.27	20.51	22.80
Regulation West	14.90	13.83	12.59	12.33	18.78	20.92	20.85	21.31	24.10	20.27	20.51	22.80

#### BME\* Market

10 Min Spin East	2.70	1.62	2.51	7.71	1.06	1.53	4.45	3.71	2.25	2.32	3.07	3.81
10 Min Spin West	2.67	1.55	2.34	4.26	1.03	1.43	2.19	2.69	1.88	2.29	3.04	3.66
10 Min Non Synch East	1.11	1.13	1.35	6.03	0.94	1.56	5.38	4.45	2.12	1.96	1.58	1.70
10 Min Non Synch West	0.99	1.05	1.12	3.65	0.91	1.46	2.27	2.94	1.74	1.63	1.58	1.26
30 Min East	0.95	0.97	1.01	3.54	0.82	1.41	1.28	3.05	1.85	1.54	1.55	1.24
30 Min West	0.95	0.97	1.01	3.51	0.82	1.41	1.28	3.05	1.85	1.54	1.55	1.24
Regulation East	1.32	1.12	1.17	1.84	1.12	2.73	3.11	2.85	1.86	3.03	2.25	6.18
Regulation West	1.32	1.12	1.17	1.84	1.12	2.73	3.11	2.85	1.86	3.03	2.25	6.18

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

# NYISO LBMP ZONES

