

# Market Operations Report

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New York Independent System Operator*

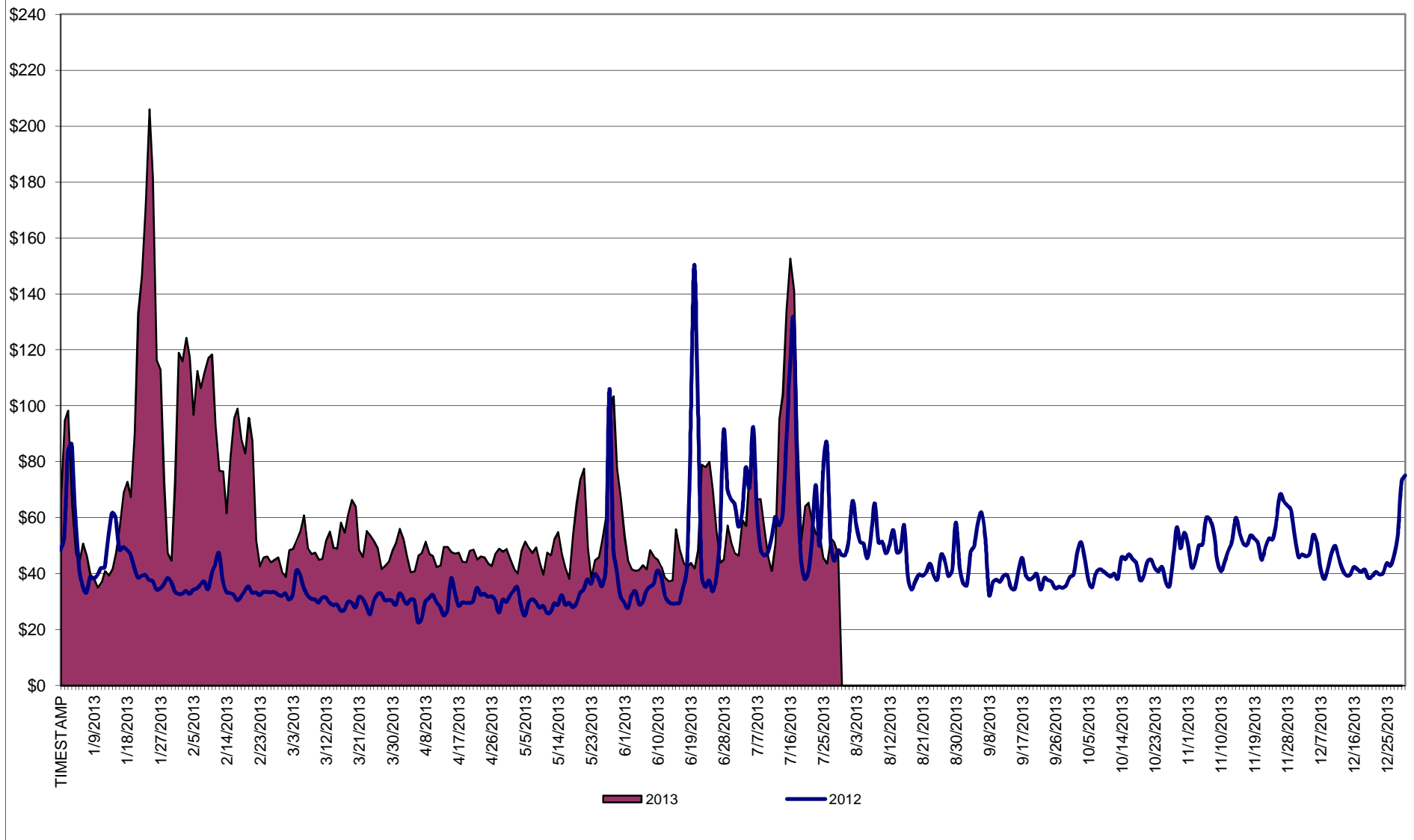
**Business Issues Committee Meeting**

*August 14, 2013*

# Market Performance Highlights for July 2013

- **LBMP for July is \$68.36/MWh, higher than \$50.16/MWh in June, and higher than \$63.80/MWh in July 2012.**
  - Day Ahead and Real Time Load Weighted LBMPs are higher compared to June.
- **July 2013 average year-to-date monthly cost of \$65.01/MWh is an increase from \$44.26/MWh in July 2012.**
- **Average daily sendout is 561 GWh/day in July; higher than 469 in June 2013, and higher than 551 GWh/day in July 2012.**
- **Natural gas and distillate prices were higher compared to the previous month.**
  - Natural Gas (Transco Z6 NY) was \$3.97/MMBtu, up from \$3.91/MMBtu in June.
  - Jet Kerosene Gulf Coast was \$21.44/MMBtu, up from \$20.47/MMBtu in June.
  - Ultra Low Sulfur No.2 Diesel NY Harbor was \$21.57/MMBtu, up from \$20.61/MMBtu in June.
- **Uplift per MWh is higher compared to the previous month.**
  - Uplift (not including NYISO cost of operations) is \$1.55/MWh, higher than \$0.37/MWh in June.
    - The Local Reliability Share is \$1.13/MWh, up from \$0.69 in June.
    - The Statewide Share is \$0.42/MWh, higher than (\$0.32)/MWh in June.
  - TSA \$ per NYC MWh is \$1.52/MWh.
  - Total uplift costs (Schedule 1 components including NYISO Cost of Operations) are higher than June.

**Daily NYISO Average Cost/MWh (Energy & Ancillary Services)\***  
 2012 Annual Average \$45.28/MWh  
 July 2012 YTD Average \$44.26/MWh  
 July 2013 YTD Average \$65.01/MWh



\* Excludes ICAP payments.

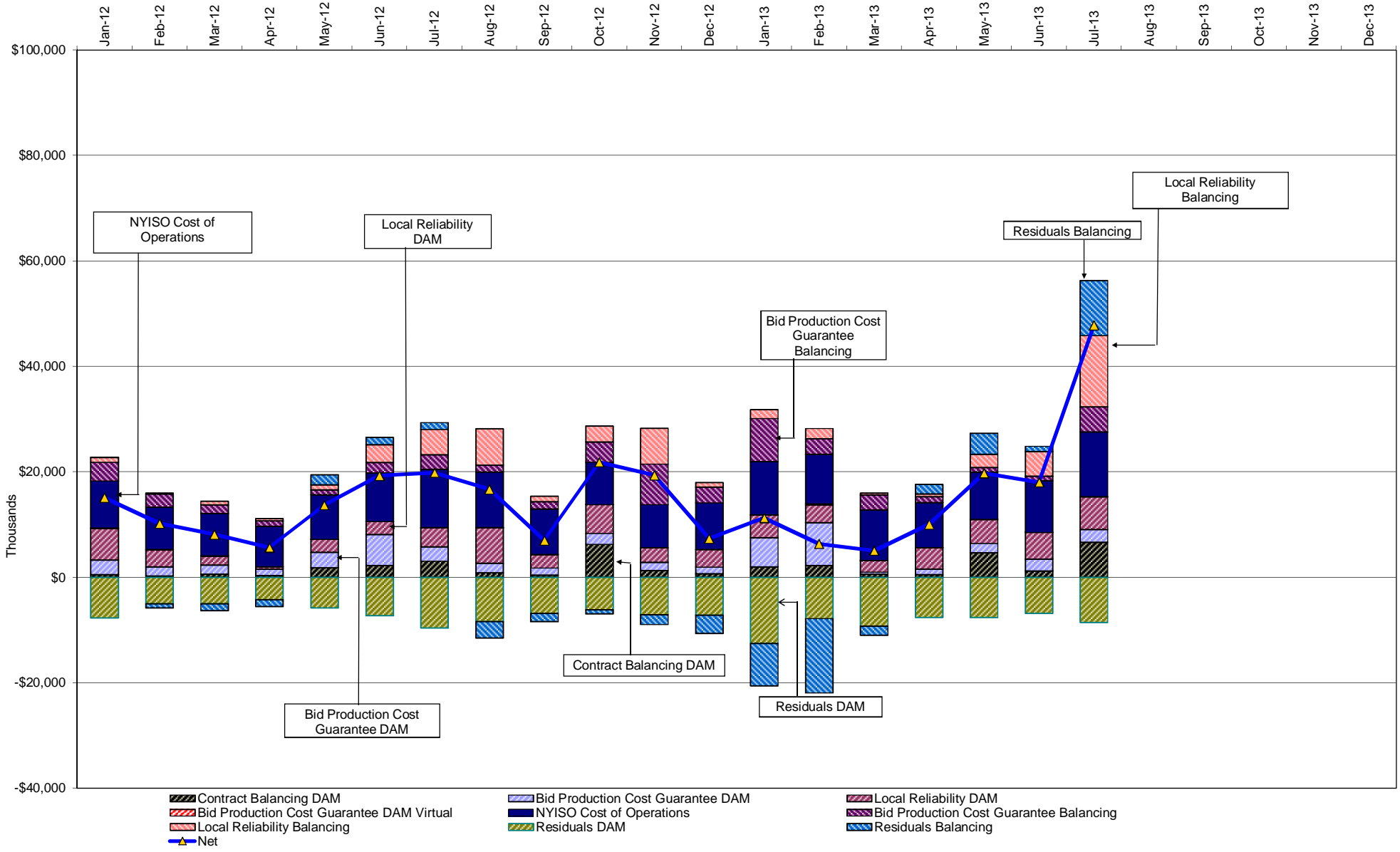
**NYISO Average Cost/MWh (Energy and Ancillary Services) \***  
**from the LBMP Customer point of view**

<b>2013</b>	<u>January</u>	<u>February</u>	<u>March</u>	<u>April</u>	<u>May</u>	<u>June</u>	<u>July</u>	<u>August</u>	<u>September</u>	<u>October</u>	<u>November</u>	<u>December</u>
LBMP	79.73	85.69	48.91	44.46	52.27	50.16	68.36					
NTAC	0.79	0.83	0.77	0.94	0.89	0.90	0.70					
Reserve	0.38	0.44	0.43	0.36	0.49	0.34	0.50					
Regulation	0.13	0.13	0.10	0.11	0.09	0.13	0.11					
NYISO Cost of Operations	0.69	0.69	0.69	0.69	0.69	0.69	0.69					
Uplift	0.08	(0.24)	(0.33)	0.10	0.67	0.37	1.55					
Uplift: Local Reliability Share	0.41	0.40	0.19	0.37	0.56	0.69	1.13					
Uplift: Statewide Share	(0.33)	(0.64)	(0.52)	(0.26)	0.12	(0.32)	0.42					
Voltage Support and Black Start	0.36	0.36	0.36	0.36	0.36	0.36	0.36					
<b>Avg Monthly Cost</b>	<b>82.18</b>	<b>87.91</b>	<b>50.94</b>	<b>47.03</b>	<b>55.47</b>	<b>52.97</b>	<b>72.27</b>					
Avg YTD Cost	82.18	84.93	73.90	67.76	65.52	63.39	65.01					
TSA \$ per NYC MWh	0.00	0.00	0.00	0.04	0.59	0.61	1.52					
<b>2012</b>	<u>January</u>	<u>February</u>	<u>March</u>	<u>April</u>	<u>May</u>	<u>June</u>	<u>July</u>	<u>August</u>	<u>September</u>	<u>October</u>	<u>November</u>	<u>December</u>
LBMP	44.00	32.45	28.98	28.31	34.68	47.37	63.80	46.24	39.59	39.30	50.16	44.67
NTAC	0.85	0.80	0.68	0.71	0.72	0.77	0.58	0.65	0.57	0.70	0.75	0.83
Reserve	0.35	0.25	0.38	0.32	0.13	0.36	0.36	0.22	0.23	0.29	0.40	0.26
Regulation	0.10	0.08	0.13	0.12	0.09	0.15	0.15	0.12	0.09	0.10	0.11	0.09
NYISO Cost of Operations	0.64	0.64	0.64	0.64	0.64	0.64	0.64	0.64	0.64	0.64	0.64	0.64
Uplift	0.44	0.17	0.00	(0.18)	(0.11)	0.61	0.23	0.22	(0.33)	1.04	0.82	(0.11)
Uplift: Local Reliability Share	0.49	0.27	0.19	0.07	0.25	0.42	0.49	0.83	0.26	0.67	0.72	0.30
Uplift: Statewide Share	(0.05)	(0.10)	(0.19)	(0.25)	(0.36)	0.19	(0.26)	(0.61)	(0.59)	0.38	0.11	(0.41)
Voltage Support and Black Start	0.37	0.37	0.37	0.37	0.37	0.37	0.37	0.37	0.37	0.37	0.37	0.37
<b>Avg Monthly Cost</b>	<b>46.75</b>	<b>34.75</b>	<b>31.19</b>	<b>30.29</b>	<b>36.52</b>	<b>50.27</b>	<b>66.14</b>	<b>48.46</b>	<b>41.17</b>	<b>42.44</b>	<b>53.26</b>	<b>46.74</b>
Avg YTD Cost	46.75	41.12	37.96	36.09	36.18	38.89	44.26	44.91	44.51	44.33	45.14	45.28
TSA \$ per NYC MWh	0.00	0.00	0.00	0.00	1.52	0.45	0.85	0.46	0.59	0.00	0.00	0.00
<b>2011</b>	<u>January</u>	<u>February</u>	<u>March</u>	<u>April</u>	<u>May</u>	<u>June</u>	<u>July</u>	<u>August</u>	<u>September</u>	<u>October</u>	<u>November</u>	<u>December</u>
LBMP	74.91	55.60	46.98	46.44	48.49	60.33	75.76	56.04	46.86	42.49	38.97	39.73
NTAC	0.62	0.75	0.86	0.81	1.13	1.22	0.66	0.60	0.43	0.56	0.62	0.69
Reserve	0.44	0.50	0.41	0.43	0.48	0.28	0.28	0.13	0.25	0.41	0.26	0.28
Regulation	0.20	0.18	0.15	0.12	0.10	0.15	0.12	0.09	0.08	0.09	0.08	0.09
NYISO Cost of Operations	0.70	0.70	0.70	0.70	0.70	0.70	0.70	0.70	0.70	0.70	0.70	0.70
Uplift	1.26	0.58	0.45	0.21	(0.02)	0.61	1.42	0.65	0.15	(0.21)	0.11	0.15
Uplift: Local Reliability Share	0.95	0.71	0.33	0.38	0.36	0.82	1.19	0.87	0.45	0.23	0.19	0.19
Uplift: Statewide Share	0.31	(0.12)	0.12	(0.18)	(0.38)	(0.21)	0.24	(0.21)	(0.30)	(0.44)	(0.08)	(0.05)
Voltage Support and Black Start	0.37	0.37	0.37	0.37	0.37	0.37	0.37	0.37	0.37	0.37	0.37	0.37
<b>Avg Monthly Cost</b>	<b>78.50</b>	<b>58.69</b>	<b>49.92</b>	<b>49.07</b>	<b>51.24</b>	<b>63.67</b>	<b>79.30</b>	<b>58.58</b>	<b>48.83</b>	<b>44.40</b>	<b>41.11</b>	<b>42.00</b>
Avg YTD Cost	78.50	68.82	62.36	59.14	57.52	58.70	62.77	62.13	60.66	59.18	57.76	56.47
TSA \$ per NYC MWh	0.00	0.00	0.00	0.13	0.00	1.45	0.38	1.59	0.15	0.00	0.00	0.00

\* Excludes ICAP payments.  
Market Mitigation and Analysis  
Prepared: 8/6/2013 8:46 AM

Data reflects true-ups thru March 2013.

# NYISO Dollar Flows - Uplift- OATT Schedule 1 components - Data through July 31, 2013



## NYISO Markets Transactions

2013	January	February	March	April	May	June	July	August	September	October	November	December
<b>Day Ahead Market MWh</b>	15,140,096	14,116,189	14,250,091	12,963,905	13,451,310	14,872,971	17,974,314					
DAM LSE Internal LBMP Energy Sales	56%	55%	56%	57%	56%	57%	59%					
DAM External TC LBMP Energy Sales	4%	6%	3%	3%	1%	1%	1%					
DAM Bilateral - Internal Bilaterals	38%	37%	38%	37%	37%	36%	33%					
DAM Bilateral - Import/Non-LBMP Market Bilaterals	0%	0%	0%	0%	3%	4%	5%					
DAM Bilateral - Export/Non-LBMP Market Bilaterals	1%	1%	1%	1%	1%	1%	1%					
DAM Bilateral - Wheel Through Bilaterals	1%	1%	1%	1%	1%	1%	1%					
<b>Balancing Energy Market MWh</b>	-462,089	-641,428	-488,071	-548,650	-582,242	-667,588	-296,335					
Balancing Energy LSE Internal LBMP Energy Sales	-131%	-117%	-128%	-122%	-128%	-115%	-188%					
Balancing Energy External TC LBMP Energy Sales	33%	21%	24%	20%	30%	16%	78%					
Balancing Energy Bilateral - Internal Bilaterals	4%	10%	11%	3%	4%	4%	10%					
Balancing Energy Bilateral - Import/Non-LBMP Market Bilaterals	0%	0%	0%	0%	0%	1%	4%					
Balancing Energy Bilateral - Export/Non-LBMP Market Bilaterals	5%	3%	4%	5%	4%	2%	3%					
Balancing Energy Bilateral - Wheel Through Bilaterals	-12%	-16%	-11%	-6%	-10%	-9%	-7%					
<b>Transactions Summary</b>												
LBMP	59%	59%	58%	58%	55%	56%	59%					
Internal Bilaterals	39%	39%	40%	39%	39%	38%	34%					
Import Bilaterals	0%	0%	0%	0%	4%	4%	5%					
Export Bilaterals	1%	1%	2%	2%	2%	1%	1%					
Wheels Through	1%	0%	1%	1%	0%	1%	1%					
<b>Market Share of Total Load</b>												
Day Ahead Market	103.1%	104.8%	103.5%	104.4%	104.5%	104.7%	101.7%					
Balancing Energy +	-3.1%	-4.8%	-3.5%	-4.4%	-4.5%	-4.7%	-1.7%					
Total MWh	14,678,007	13,474,761	13,762,020	12,415,255	12,869,068	14,205,383	17,677,979					
Average Daily Energy Sendout/Month GWh	453	453	429	398	407	469	561					

2012	January	February	March	April	May	June	July	August	September	October	November	December
<b>Day Ahead Market MWh</b>	14,877,279	13,473,786	13,590,456	12,482,692	13,324,441	14,898,725	17,946,019	17,185,445	14,262,425	13,354,729	12,839,137	14,719,983
DAM LSE Internal LBMP Energy Sales	58%	57%	58%	59%	61%	63%	65%	63%	61%	60%	62%	57%
DAM External TC LBMP Energy Sales	1%	1%	0%	1%	1%	1%	1%	1%	0%	1%	3%	3%
DAM Bilateral - Internal Bilaterals	38%	40%	40%	38%	36%	35%	32%	34%	37%	38%	33%	37%
DAM Bilateral - Import/Non-LBMP Market Bilaterals	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
DAM Bilateral - Export/Non-LBMP Market Bilaterals	1%	2%	2%	2%	1%	1%	1%	1%	1%	1%	1%	1%
DAM Bilateral - Wheel Through Bilaterals	1%	0%	1%	1%	1%	1%	1%	1%	0%	0%	1%	1%
<b>Balancing Energy Market MWh</b>	-878,126	-816,828	-896,684	-371,022	-31,455	-528,764	-579,200	-528,885	-695,280	-752,624	13,283	-737,059
Balancing Energy LSE Internal LBMP Energy Sales	-110%	-111%	-110%	-126%	-561%	-129%	-126%	-138%	-121%	-126%	-1421%	-108%
Balancing Energy External TC LBMP Energy Sales	9%	7%	7%	20%	347%	23%	19%	30%	13%	20%	1411%	7%
Balancing Energy Bilateral - Internal Bilaterals	1%	1%	1%	4%	107%	8%	6%	4%	4%	3%	7%	0%
Balancing Energy Bilateral - Import/Non-LBMP Market Bilaterals	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Balancing Energy Bilateral - Export/Non-LBMP Market Bilaterals	4%	3%	3%	7%	54%	3%	2%	2%	3%	3%	135%	3%
Balancing Energy Bilateral - Wheel Through Bilaterals	-3%	0%	-1%	-4%	-46%	-5%	0%	2%	1%	1%	-32%	-2%
<b>Transactions Summary</b>												
LBMP	57%	56%	55%	59%	61%	62%	65%	63%	59%	58%	65%	58%
Internal Bilaterals	41%	42%	43%	39%	36%	36%	33%	35%	39%	40%	33%	39%
Import Bilaterals	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Export Bilaterals	2%	2%	2%	2%	2%	1%	1%	1%	1%	2%	2%	2%
Wheels Through	1%	0%	1%	1%	1%	1%	1%	1%	1%	0%	1%	1%
<b>Market Share of Total Load</b>												
Day Ahead Market	106.3%	106.5%	107.1%	103.1%	100.2%	103.7%	103.3%	103.2%	105.1%	106.0%	99.9%	105.3%
Balancing Energy +	-6.3%	-6.5%	-7.1%	-3.1%	-0.2%	-3.7%	-3.3%	-3.2%	-5.1%	-6.0%	0.1%	-5.3%
Total MWh	13,999,153	12,656,958	12,693,772	12,111,670	13,292,986	14,369,961	17,366,819	16,656,560	13,567,145	12,602,105	12,852,420	13,982,924
Average Daily Energy Sendout/Month GWh	443	431	407	396	420	471	551	529	447	398	410	434

+ 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 2013 Energy Statistics

	<u>January</u>	<u>February</u>	<u>March</u>	<u>April</u>	<u>May</u>	<u>June</u>	<u>July</u>	<u>August</u>	<u>September</u>	<u>October</u>	<u>November</u>	<u>December</u>
<b><u>DAY AHEAD LBMP</u></b>												
Price *	\$69.17	\$75.82	\$45.97	\$42.21	\$45.87	\$42.66	\$56.90					
Standard Deviation	\$47.21	\$29.98	\$9.40	\$7.84	\$18.77	\$17.98	\$37.12					
Load Weighted Price **	\$72.17	\$77.95	\$46.85	\$43.13	\$48.52	\$45.32	\$61.77					
<b><u>RTC LBMP</u></b>												
Price *	\$73.69	\$64.15	\$45.75	\$40.50	\$39.51	\$42.00	\$55.41					
Standard Deviation	\$88.27	\$36.96	\$22.62	\$14.79	\$24.44	\$30.96	\$58.54					
Load Weighted Price **	\$77.52	\$66.07	\$46.79	\$41.52	\$42.14	\$44.70	\$61.64					
<b><u>REAL TIME LBMP</u></b>												
Price *	\$76.47	\$64.87	\$45.01	\$42.74	\$42.32	\$43.93	\$65.57					
Standard Deviation	\$83.80	\$38.96	\$16.27	\$15.96	\$26.99	\$34.72	\$89.92					
Load Weighted Price **	\$81.71	\$66.83	\$45.94	\$43.73	\$45.50	\$47.00	\$76.32					
Average Daily Energy Sendout/Month GWh	453	453	429	398	407	469	561					

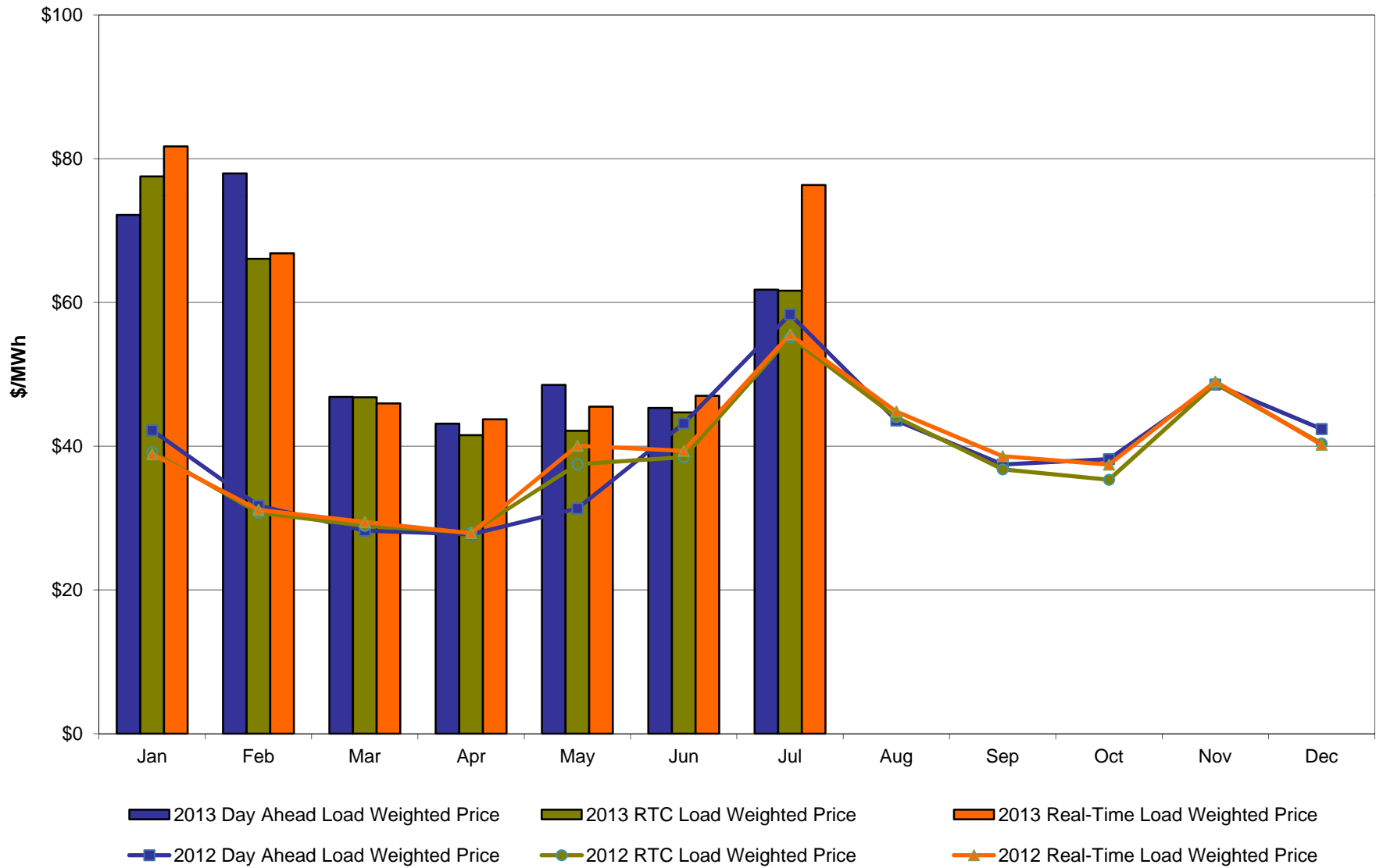
### NYISO Markets 2012 Energy Statistics

	<u>January</u>	<u>February</u>	<u>March</u>	<u>April</u>	<u>May</u>	<u>June</u>	<u>July</u>	<u>August</u>	<u>September</u>	<u>October</u>	<u>November</u>	<u>December</u>
<b><u>DAY AHEAD LBMP</u></b>												
Price *	\$40.91	\$31.15	\$27.44	\$26.88	\$29.79	\$38.71	\$53.95	\$41.17	\$35.74	\$37.10	\$47.31	\$41.47
Standard Deviation	\$15.62	\$6.23	\$7.00	\$7.04	\$10.22	\$31.58	\$32.19	\$15.94	\$11.26	\$8.21	\$11.52	\$10.18
Load Weighted Price **	\$42.20	\$31.73	\$28.25	\$27.72	\$31.33	\$43.17	\$58.33	\$43.57	\$37.44	\$38.19	\$48.58	\$42.38
<b><u>RTC LBMP</u></b>												
Price *	\$37.93	\$30.31	\$28.15	\$27.19	\$34.27	\$34.58	\$51.05	\$41.79	\$34.76	\$34.11	\$46.72	\$39.13
Standard Deviation	\$23.43	\$7.26	\$22.87	\$15.67	\$46.03	\$57.26	\$60.86	\$22.90	\$23.14	\$19.02	\$33.25	\$22.23
Load Weighted Price **	\$39.19	\$30.75	\$28.93	\$27.97	\$37.49	\$38.48	\$55.17	\$44.03	\$36.77	\$35.33	\$48.69	\$40.37
<b><u>REAL TIME LBMP</u></b>												
Price *	\$37.35	\$30.54	\$28.47	\$27.00	\$35.22	\$34.29	\$50.68	\$41.95	\$36.05	\$36.24	\$47.35	\$39.17
Standard Deviation	\$23.75	\$9.77	\$20.94	\$15.14	\$56.38	\$55.53	\$51.60	\$23.86	\$26.89	\$14.43	\$27.30	\$14.67
Load Weighted Price **	\$38.88	\$31.14	\$29.44	\$27.89	\$40.06	\$39.34	\$55.54	\$44.81	\$38.59	\$37.43	\$48.98	\$40.19
Average Daily Energy Sendout/Month GWh	443	431	407	396	420	471	551	529	447	398	410	434

\* Average zonal load weighted prices.

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

### NYISO Monthly Average Internal LBMPs 2012- 2013



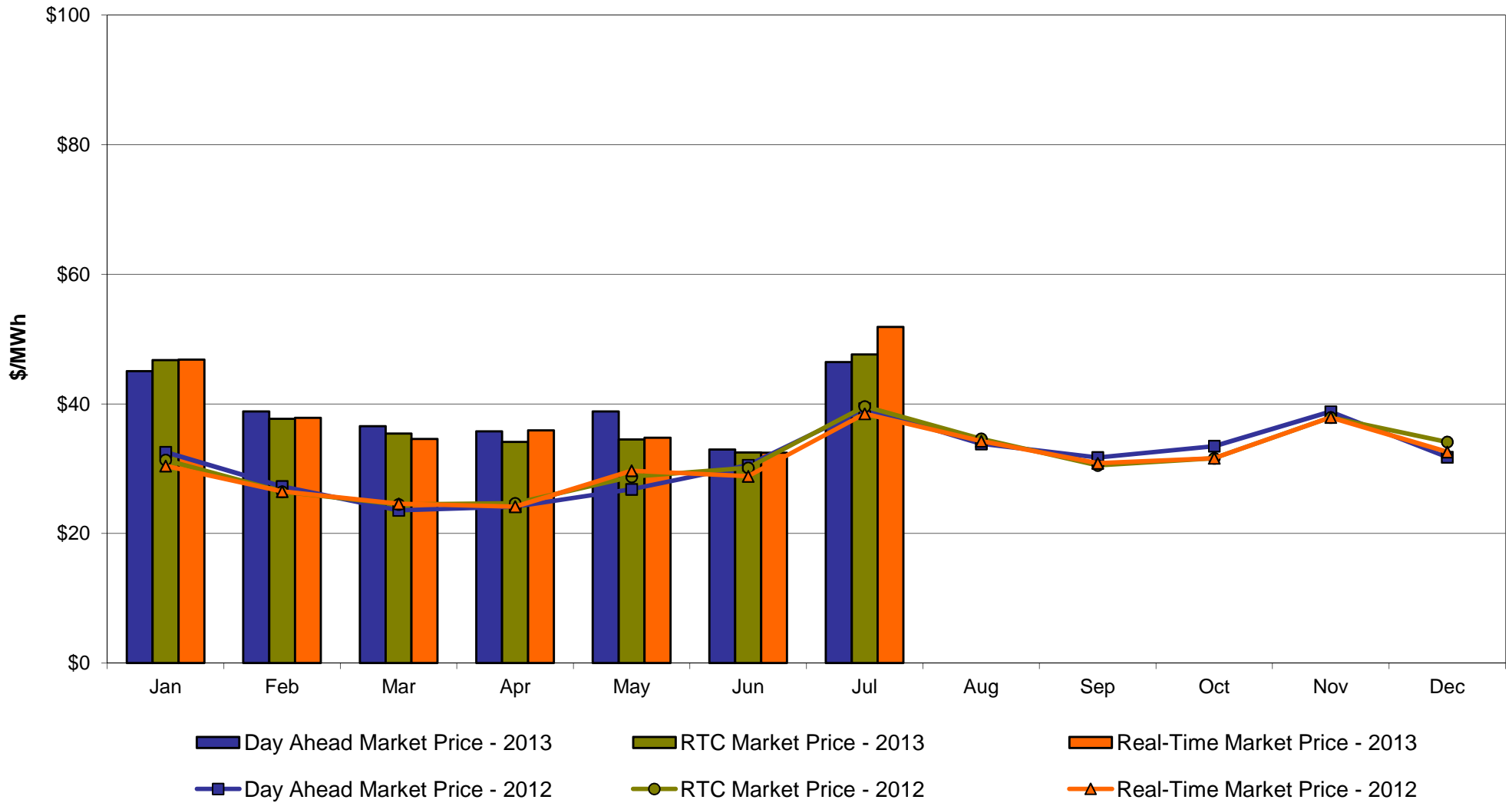


**July 2013 Zonal LBMP Statistics for NYISO (\$/MWh)**

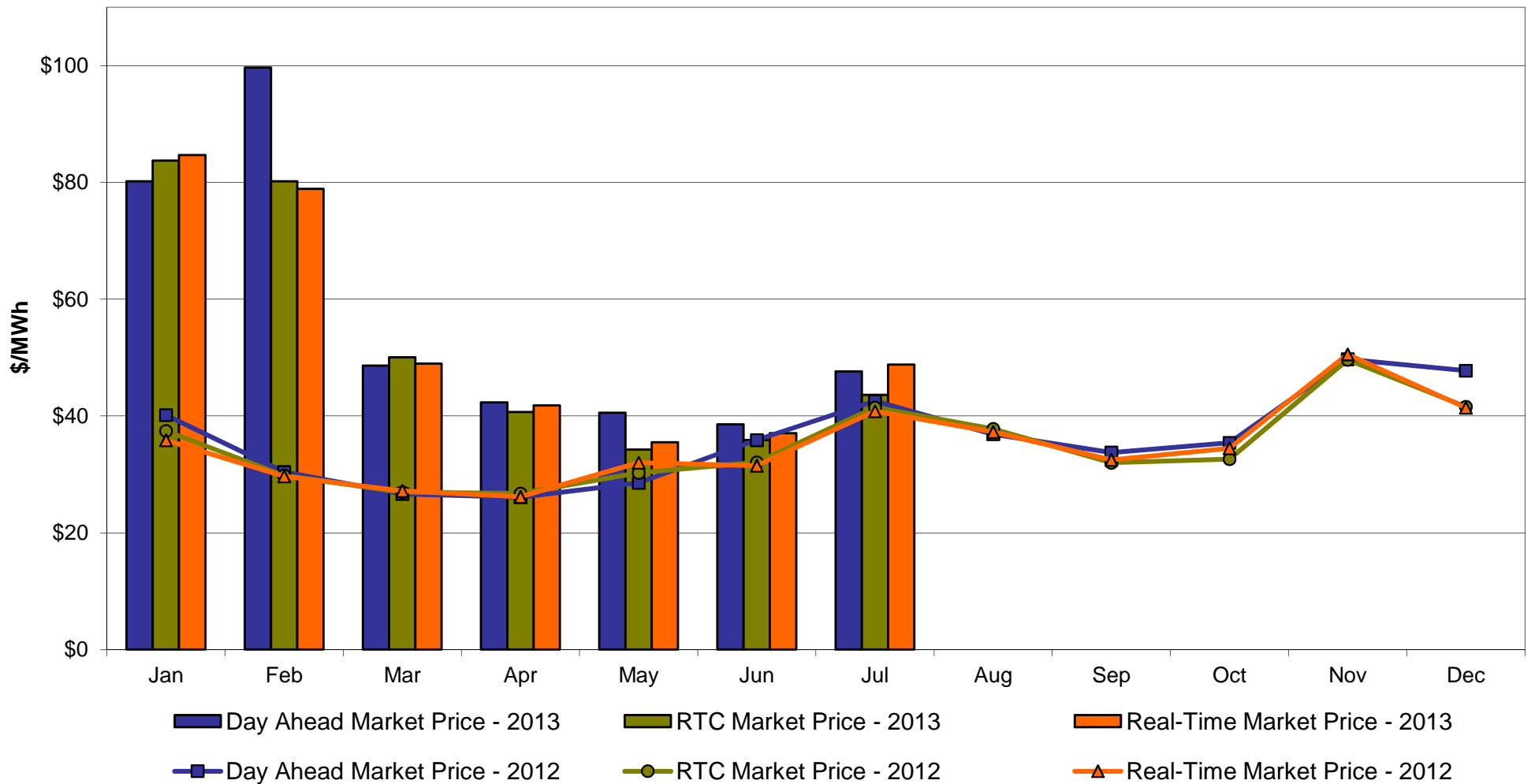
	<u>WEST</u> <u>Zone A</u>	<u>GENESEE</u> <u>Zone B</u>	<u>NORTH</u> <u>Zone D</u>	<u>CENTRAL</u> <u>Zone C</u>	<u>MOHAWK</u> <u>VALLEY</u> <u>Zone E</u>	<u>CAPITAL</u> <u>Zone F</u>	<u>HUDSON</u> <u>VALLEY</u> <u>Zone G</u>	<u>MILLWOOD</u> <u>Zone H</u>	<u>DUNWOODIE</u> <u>Zone I</u>	<u>NEW YORK</u> <u>CITY</u> <u>Zone J</u>	<u>LONG</u> <u>ISLAND</u> <u>Zone K</u>
<b>DAY AHEAD LBMP</b>											
Unweighted Price *	46.46	43.02	41.43	44.94	46.05	47.65	53.72	54.91	54.95	60.14	78.04
Standard Deviation	40.14	22.80	22.28	26.88	26.35	26.79	36.11	38.83	38.97	38.04	61.51
<b>RTC LBMP</b>											
Unweighted Price *	47.63	39.23	36.96	41.09	41.85	43.62	54.58	56.74	56.83	61.64	70.92
Standard Deviation	84.90	38.42	35.00	42.25	39.92	46.84	63.46	69.44	69.94	70.69	77.26
<b>REAL TIME LBMP</b>											
Unweighted Price *	51.88	45.54	43.40	46.96	48.09	48.79	66.79	68.90	68.99	74.37	84.04
Standard Deviation	89.73	62.75	60.55	64.61	63.65	64.97	105.20	111.66	112.27	111.60	117.08
	<u>ONTARIO</u> <u>IESO</u> <u>Zone O</u>	<u>HYDRO</u> <u>QUEBEC</u> <u>(Wheel)</u> <u>Zone M</u>	<u>HYDRO</u> <u>QUEBEC</u> <u>(Import/Export)</u> <u>Zone M</u>	<u>PJM</u> <u>Zone P</u>	<u>NEW</u> <u>ENGLAND</u> <u>Zone N</u>	<u>CROSS</u> <u>SOUND</u> <u>CABLE</u> <u>Controllable</u> <u>Line</u>	<u>NORTHPORT-</u> <u>NORWALK</u> <u>Controllable</u> <u>Line</u>	<u>NEPTUNE</u> <u>Controllable</u> <u>Line</u>	<u>LINDEN VFT</u> <u>Controllable</u> <u>Line</u>	<u>HUDSON</u> <u>Controllable</u> <u>Line</u>	<u>Dennison</u> <u>Controllable</u> <u>Line</u>
<b>DAY AHEAD LBMP</b>											
Unweighted Price *	39.59	41.43	41.34	48.79	50.28	74.94	59.65	73.88	46.46	55.16	40.34
Standard Deviation	17.87	22.52	22.56	34.05	30.78	60.34	34.71	60.44	17.45	39.03	22.06
<b>RTC LBMP</b>											
Unweighted Price *	34.90	32.66	32.54	44.81	45.51	60.50	56.43	57.80	46.97	53.62	35.40
Standard Deviation	41.58	18.88	18.84	33.27	32.34	59.67	46.73	58.97	43.26	48.92	21.07
<b>REAL TIME LBMP</b>											
Unweighted Price *	33.31	33.70	33.60	49.43	49.85	64.31	57.27	61.79	52.13	59.76	36.37
Standard Deviation	45.72	27.92	27.90	53.52	50.69	86.26	73.61	86.30	64.95	82.35	29.87

\* Straight LBMP averages

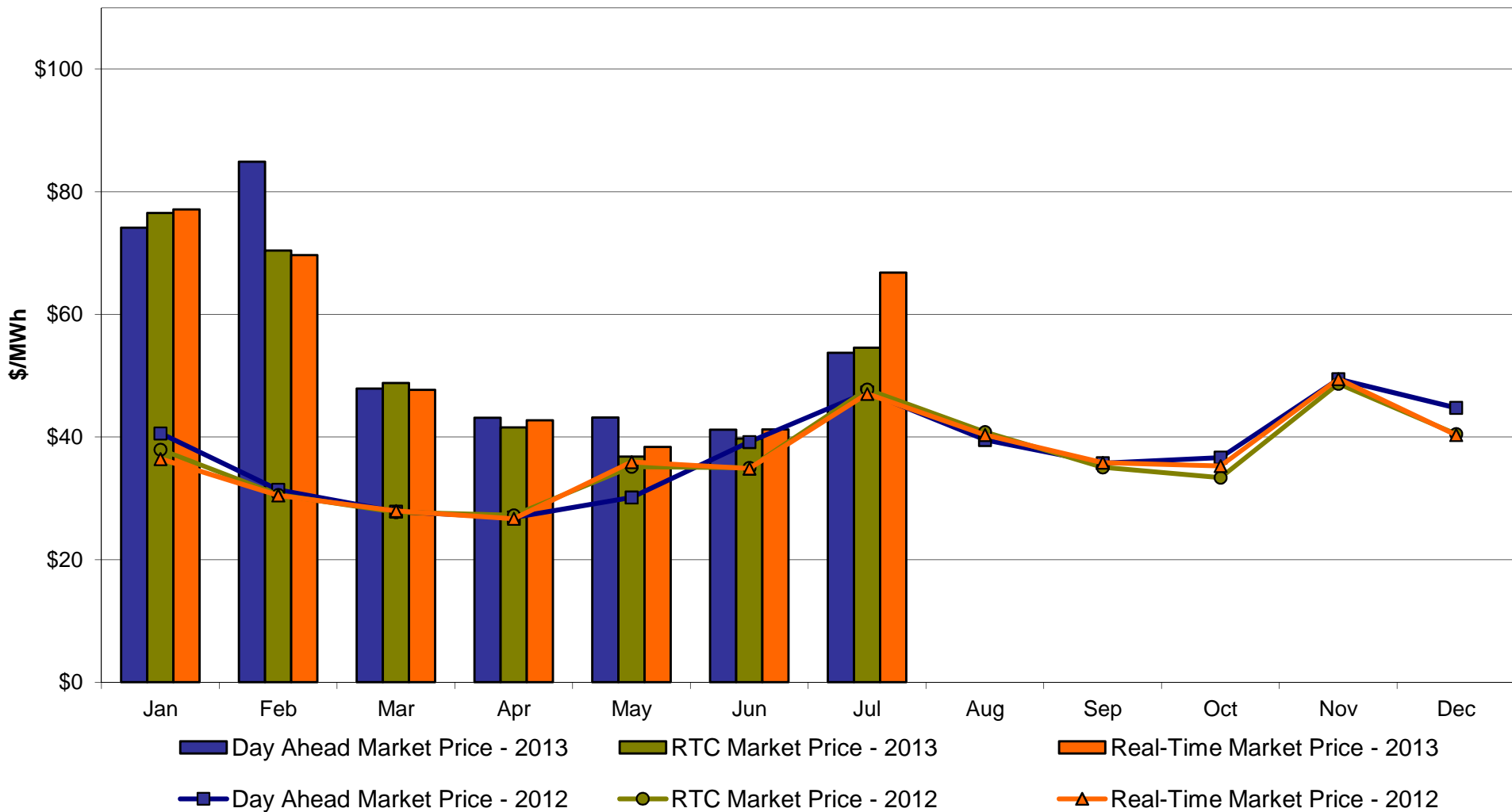
**West Zone A  
Monthly Average LBMP Prices 2012 - 2013**



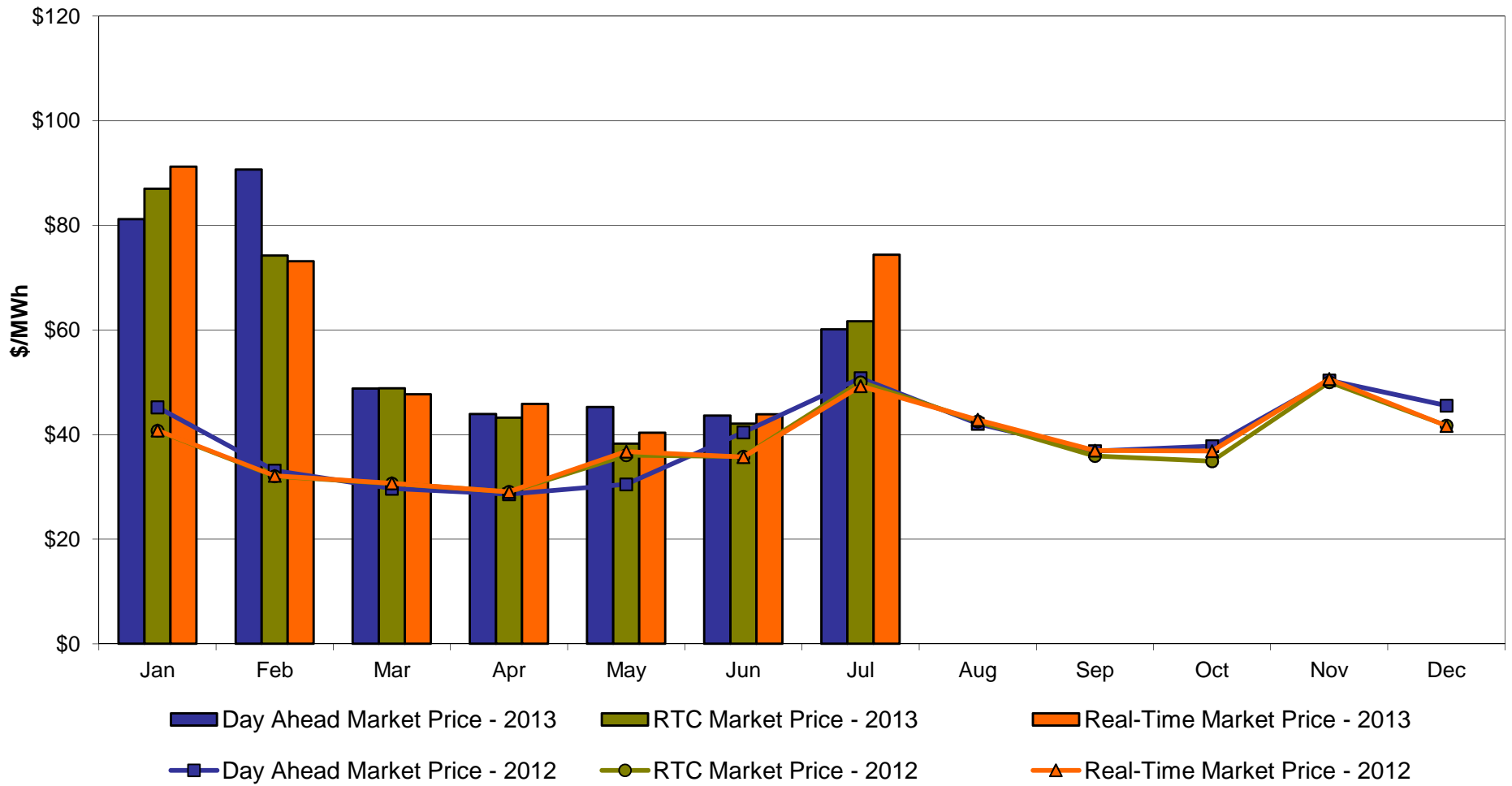
## Capital Zone F Monthly Average LBMP Prices 2012 - 2013



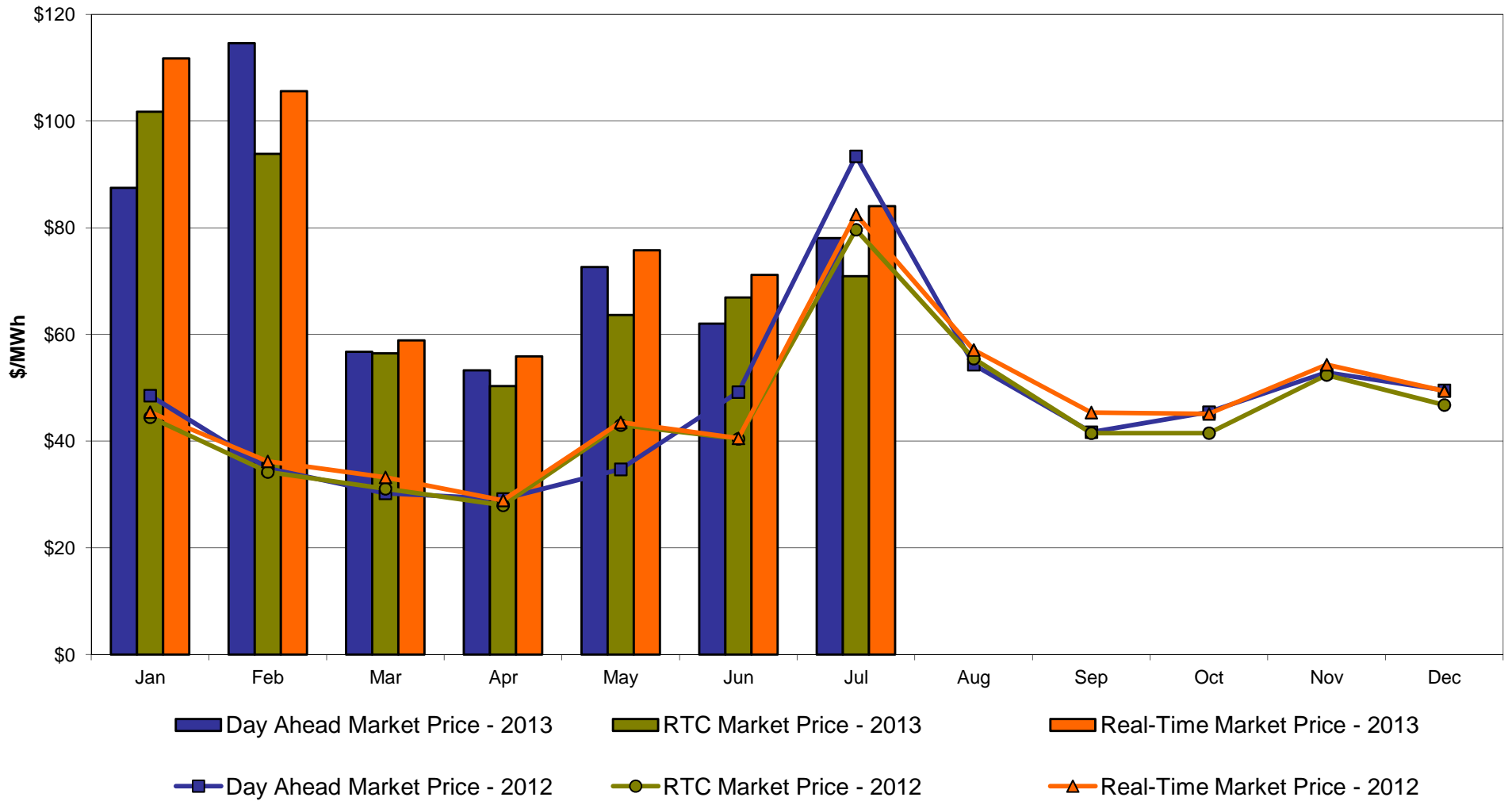
## Hudson Valley Zone G Monthly Average LBMP Prices 2012 - 2013



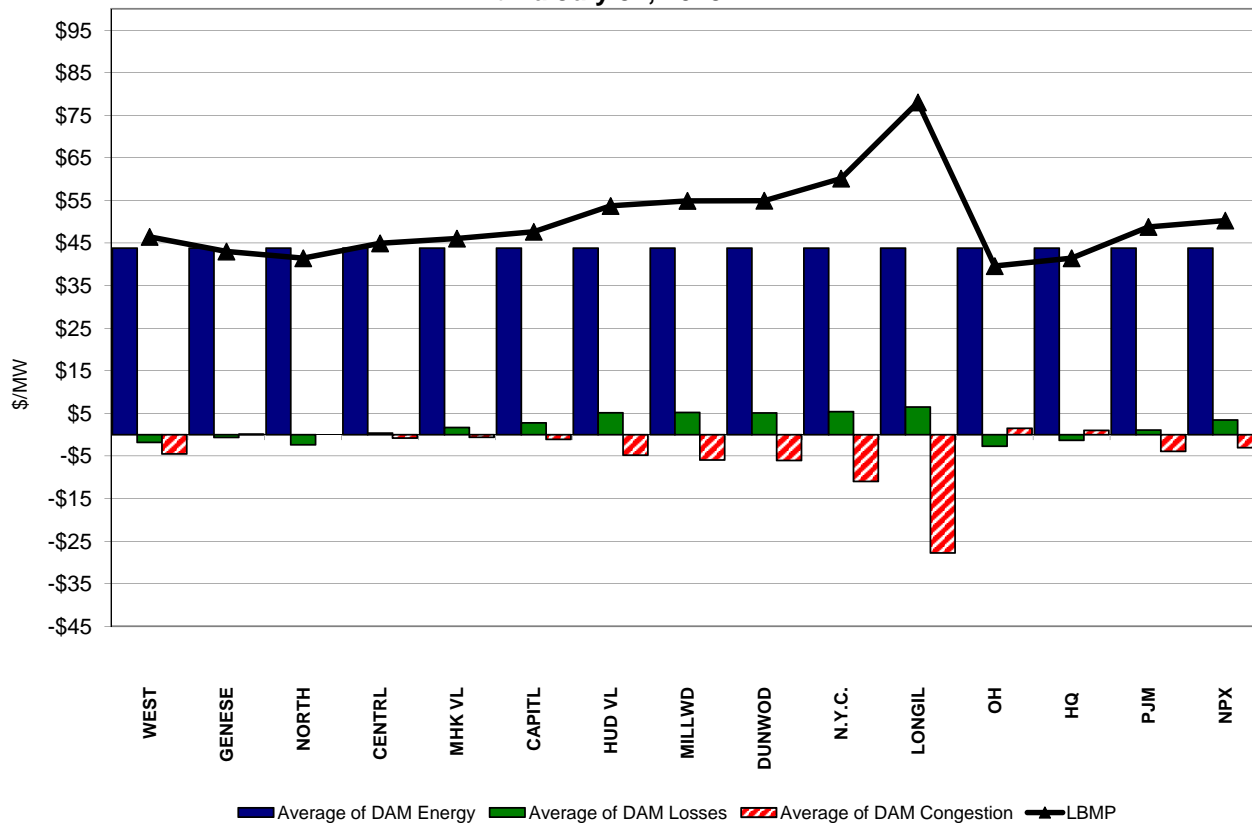
**NYC Zone J  
Monthly Average LBMP Prices 2012 - 2013**



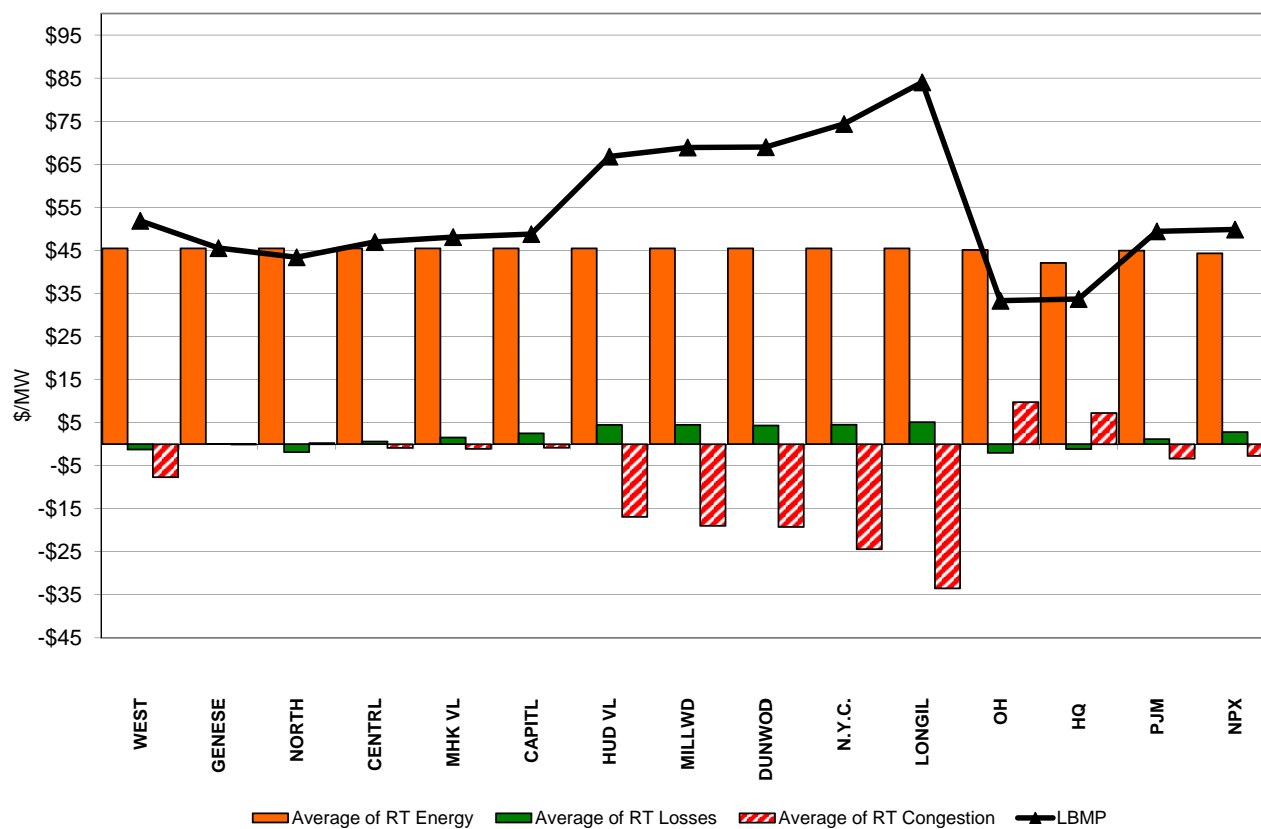
### Long Island Zone K Monthly Average LBMP Prices 2012 - 2013



**DAM Zonal Unweighted Monthly Average LBMP Components  
thru July 31, 2013**

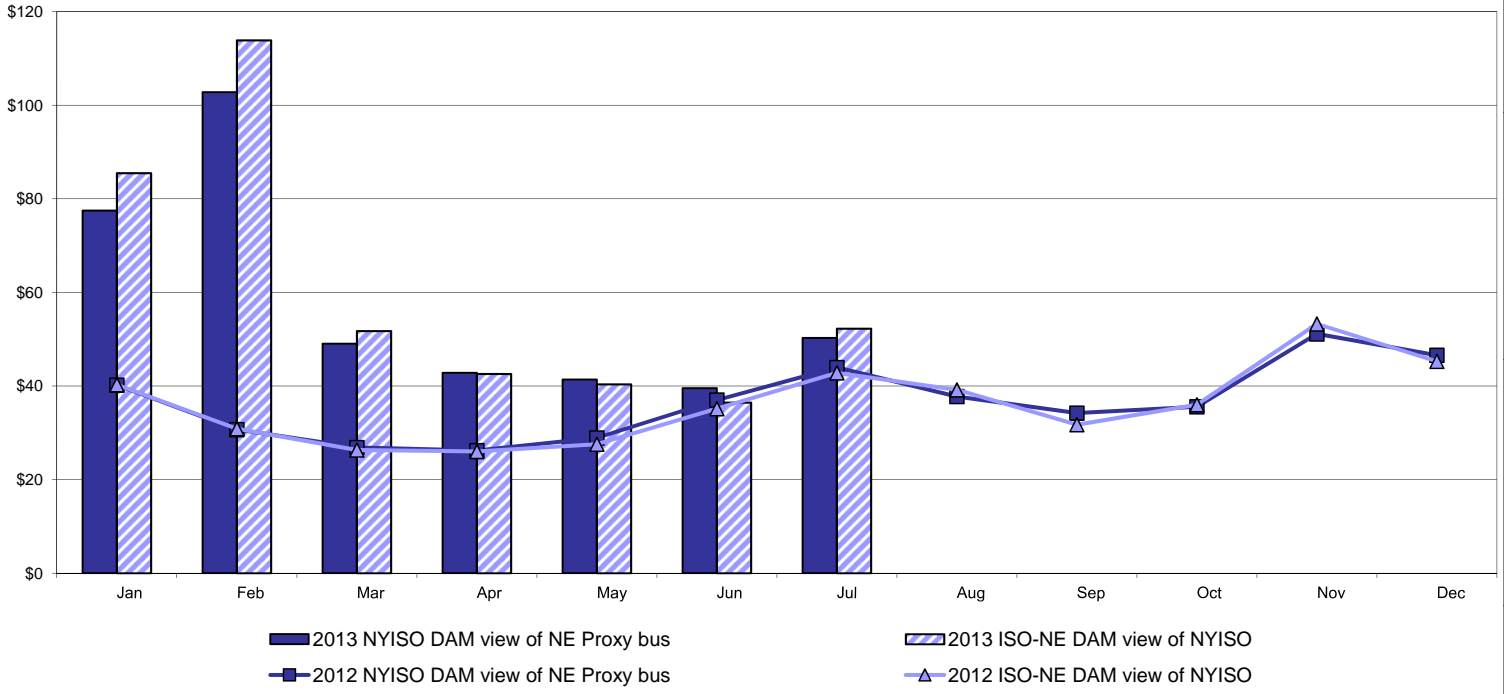


**RT Zonal Unweighted Monthly Average LBMP Components  
thru July 31, 2013**

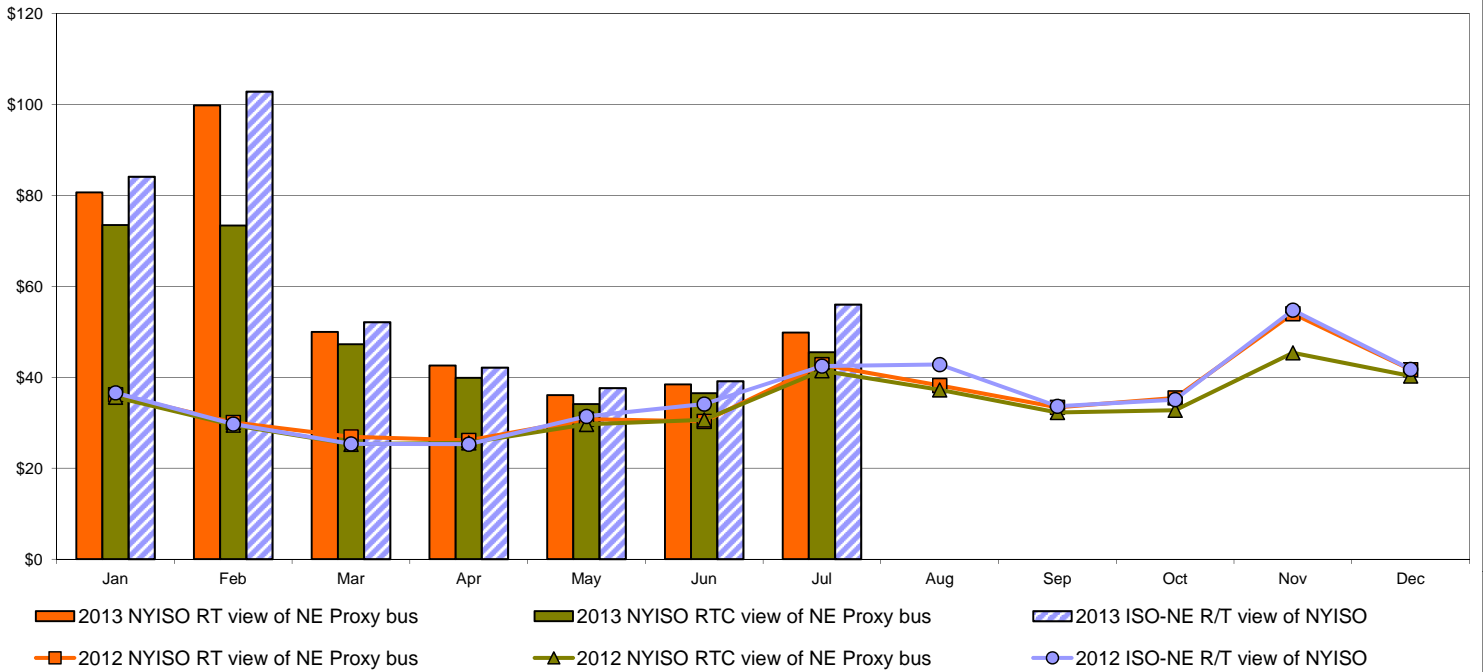


# External Comparison ISO-New England

**Day Ahead Market External Zone Comparison: ISO-NE (\$/MWh)**



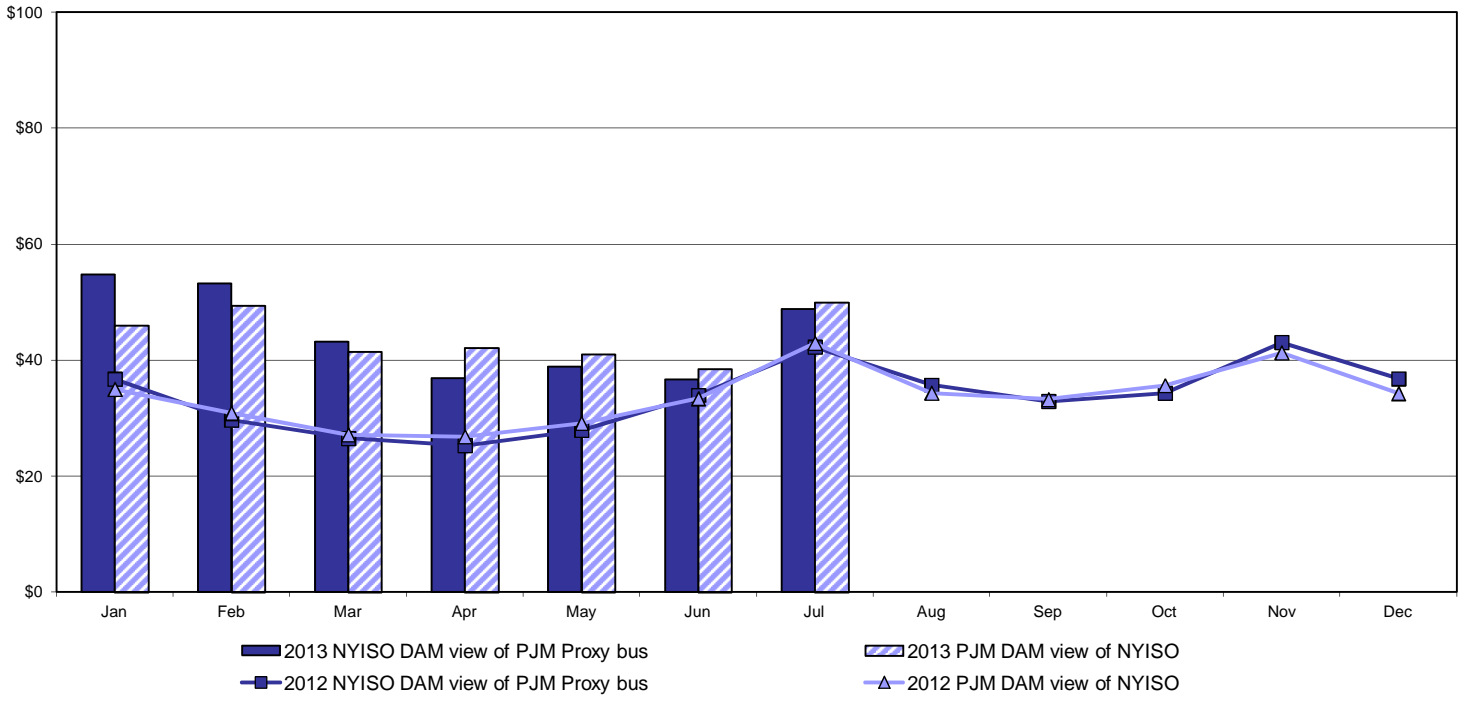
**Real Time Market External Zone Comparison: ISO-NE (\$/MWh)**



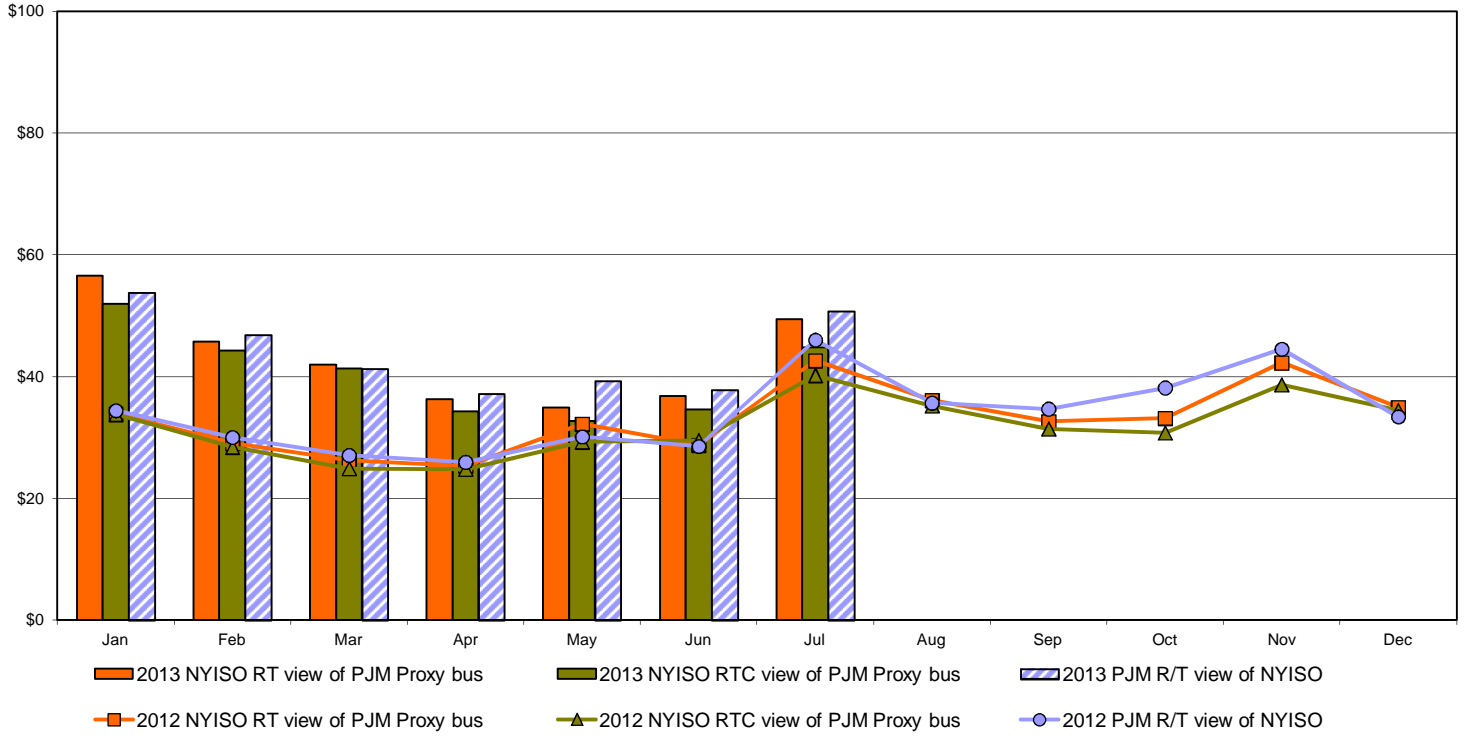


# External Comparison PJM

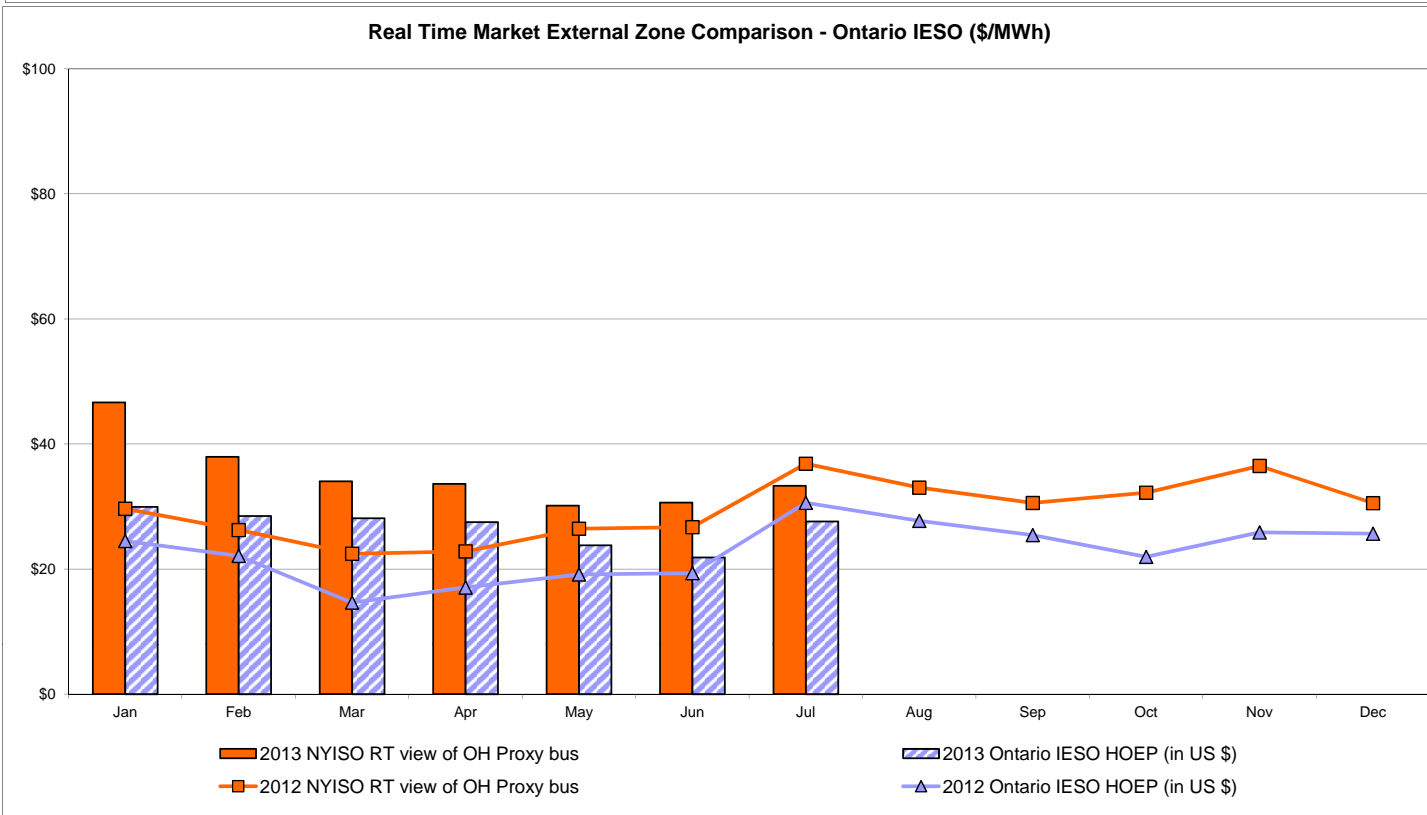
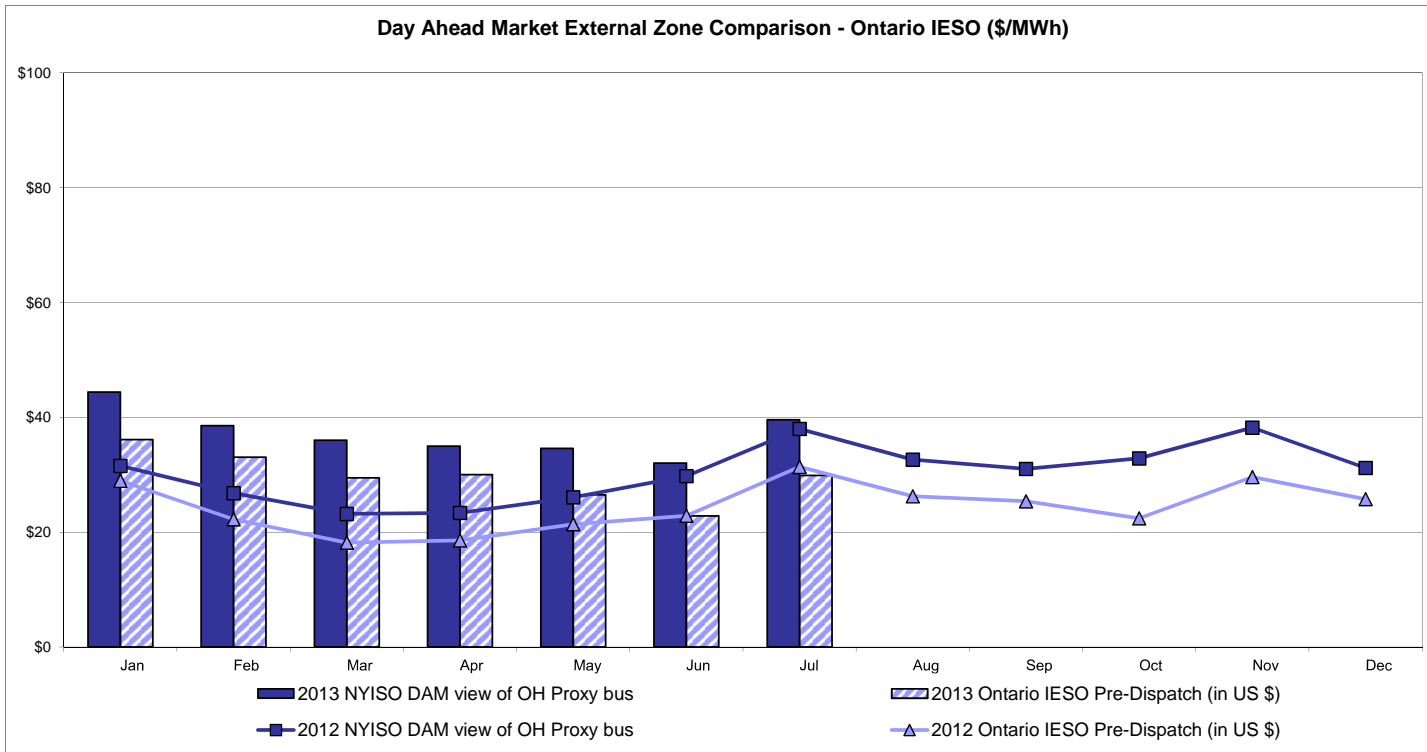
## Day Ahead Market External Zone Comparison - PJM (\$/MWh)



## Real Time Market External Zone Comparison - PJM (\$/MWh)

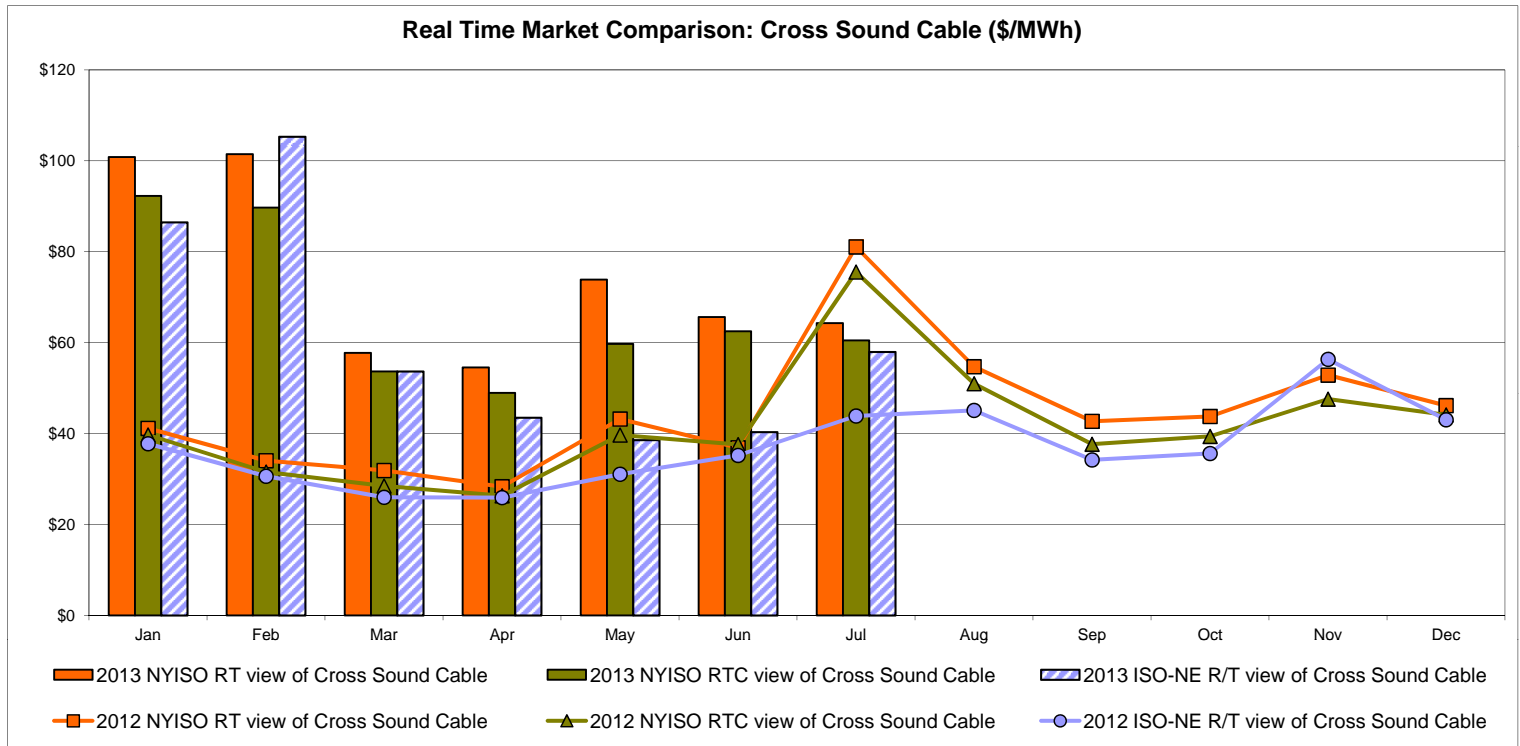
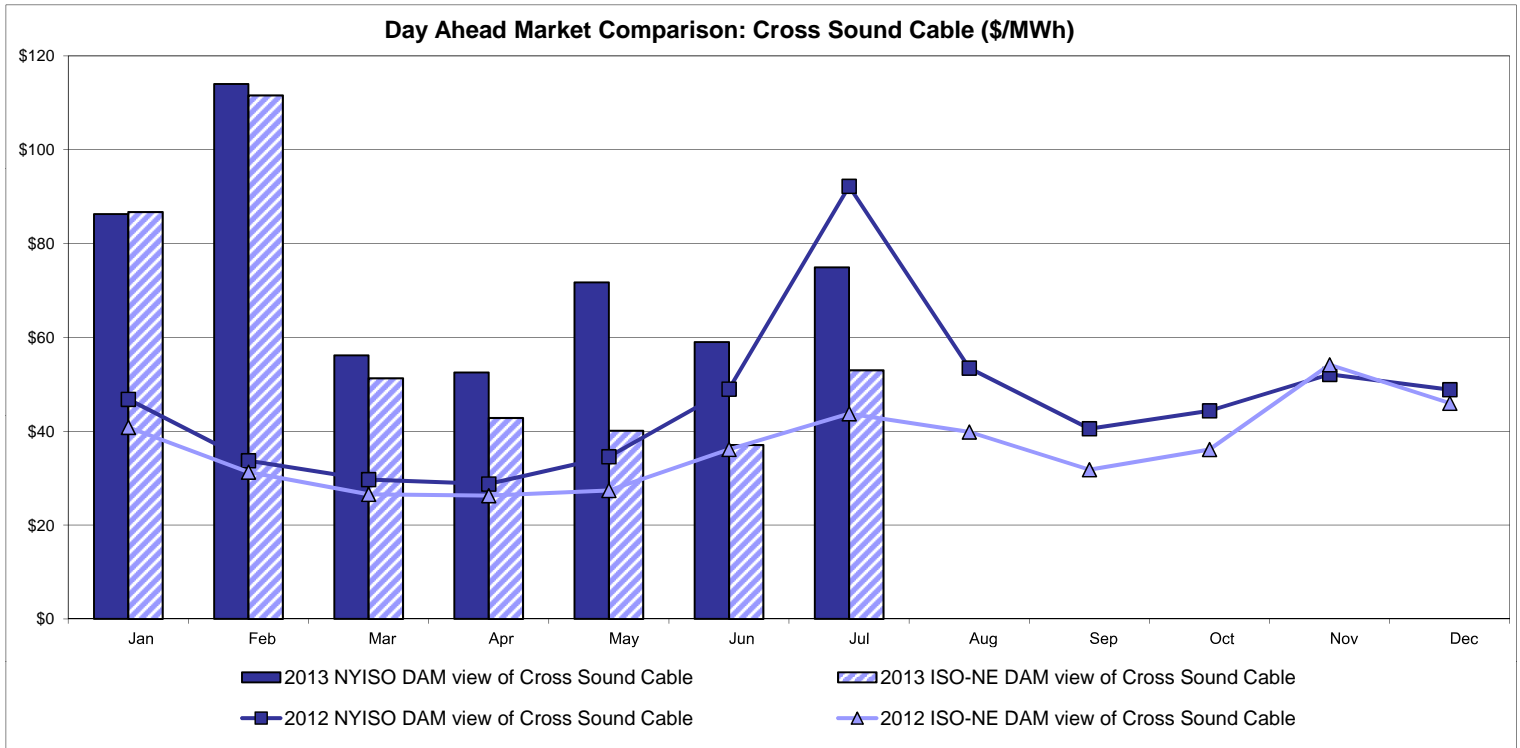


# External Comparison Ontario IESO



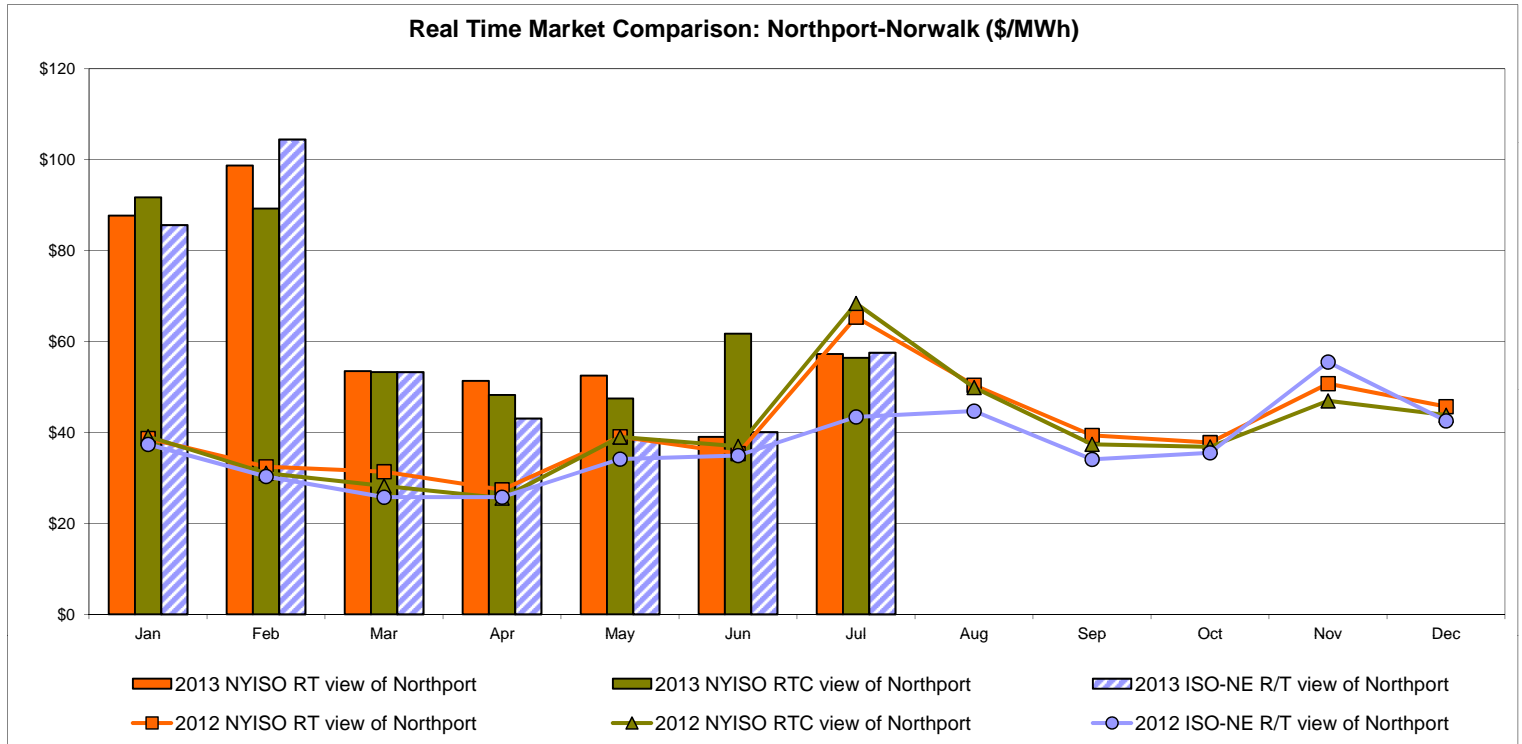
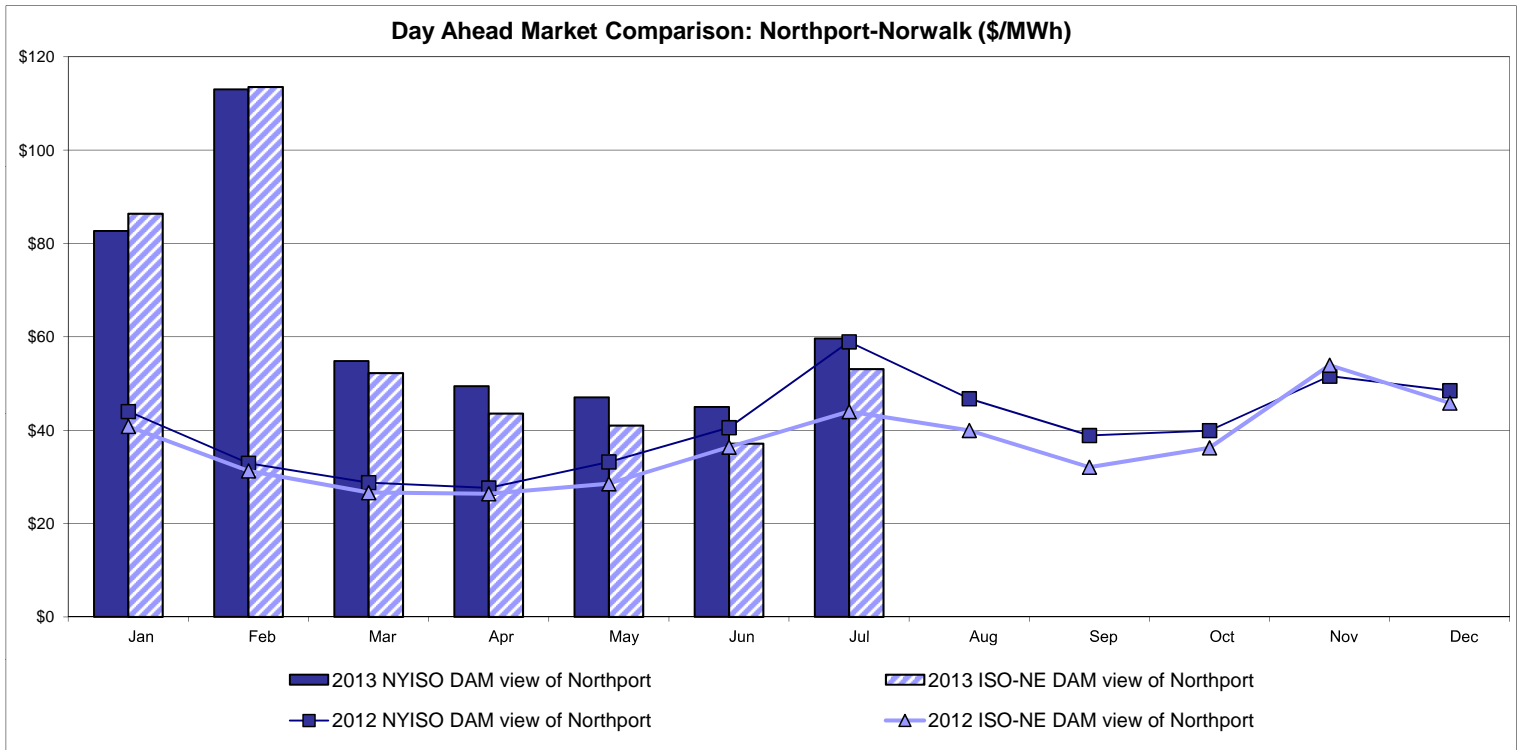
Notes: Exchange factor used for April 2013 was 0.9697 to US \$  
 HOEP: Hourly Ontario Energy Price  
 Pre-Dispatch: Projected Energy Price

# External Controllable Line: Cross Sound Cable (New England)



Note:  
 ISO-NE Forecast is an advisory posting @ 18:00 day before.  
 The DAM and R/T prices at the Shorham 13899 interface are used for ISO-NE.  
 The DAM and R/T prices at the CSC interface are used for NYISO.

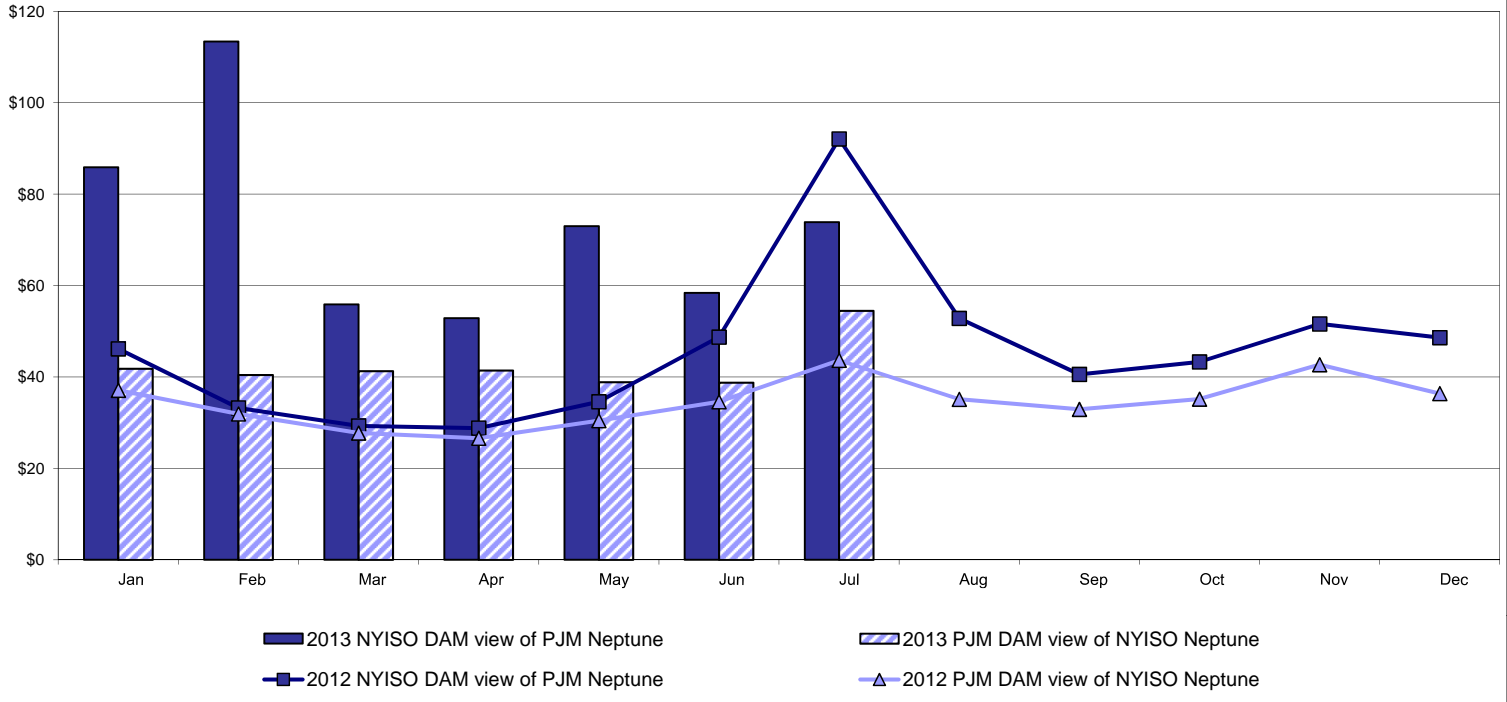
# External Controllable Line: Northport - Norwalk (New England)



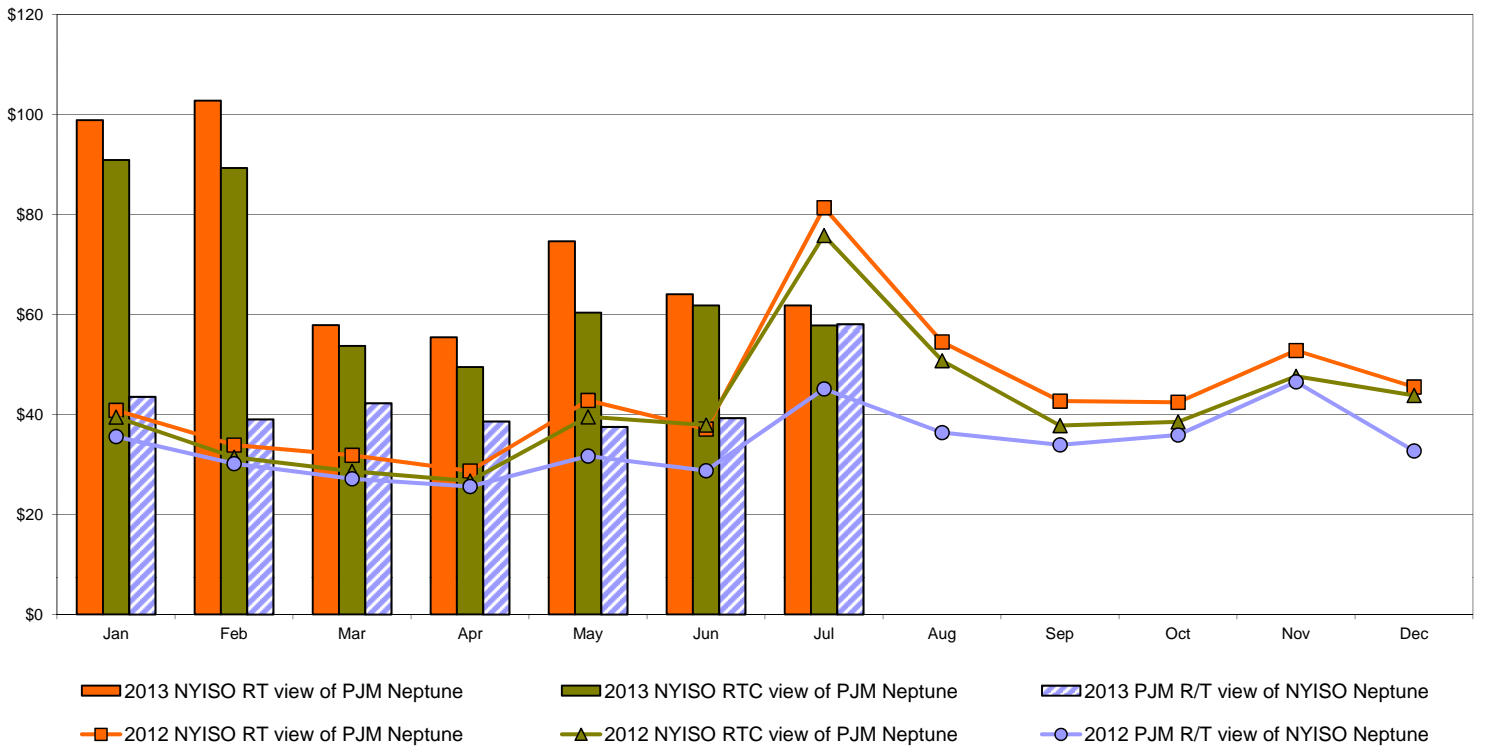
Note:  
 ISO-NE Forecast is an advisory posting @ 18:00 day before.  
 The DAM and R/T prices at the Northport 138 interface are used for ISO-NE.  
 The DAM and R/T prices at the 1385 interface are used for NYISO.

## External Controllable Line: Neptune (PJM)

### Day Ahead Market Comparison: Neptune (\$/MWh)

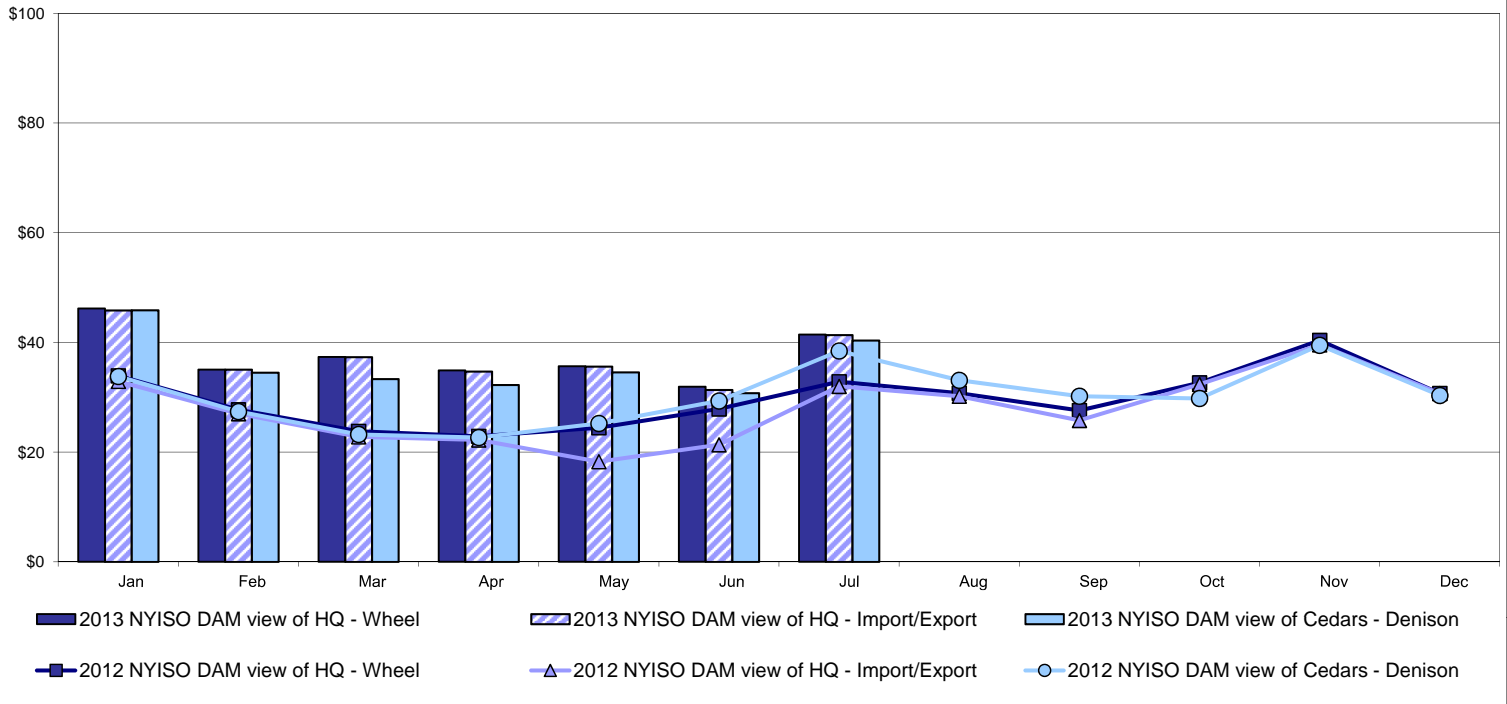


### Real Time Market Comparison: Neptune (\$/MWh)

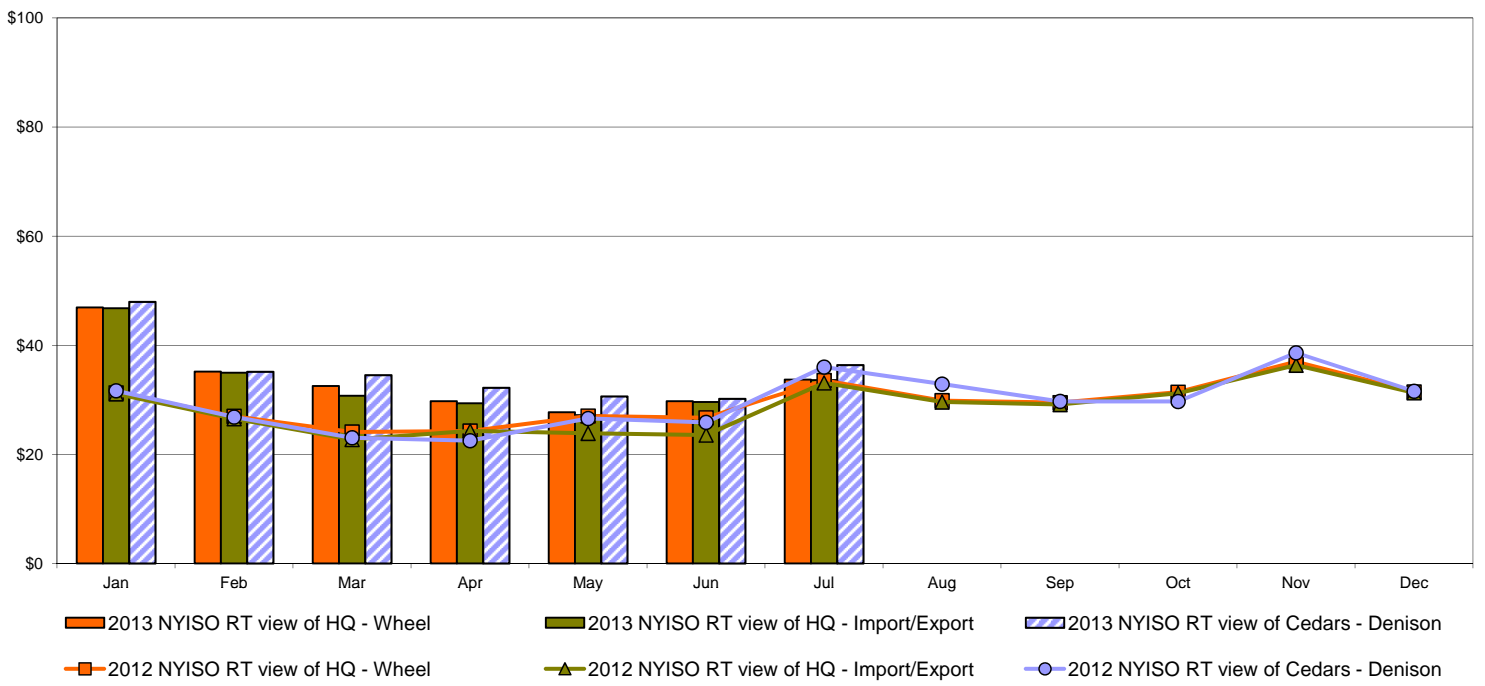


# External Comparison Hydro-Quebec

## Day Ahead Market External Zone Comparison - HQ (\$/MWh)

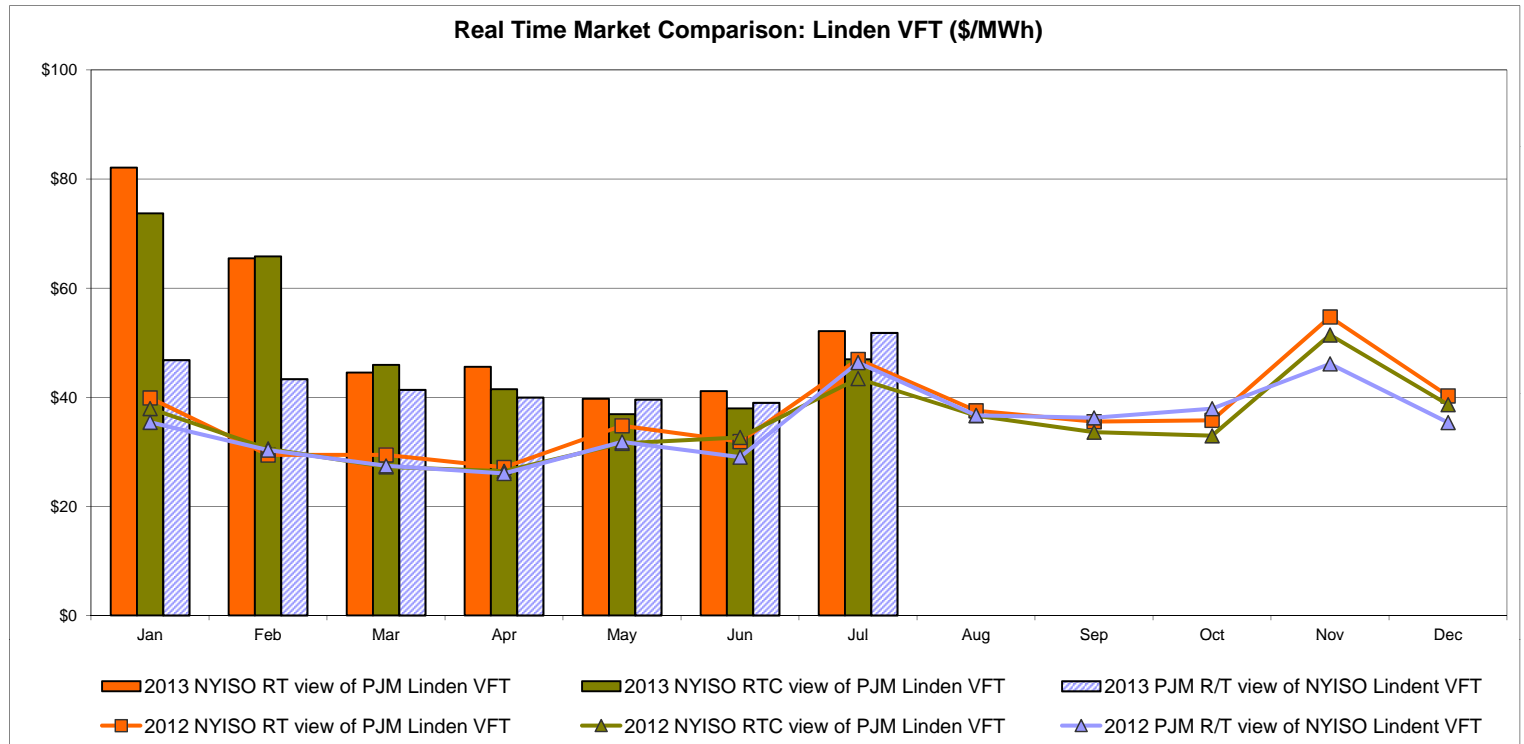
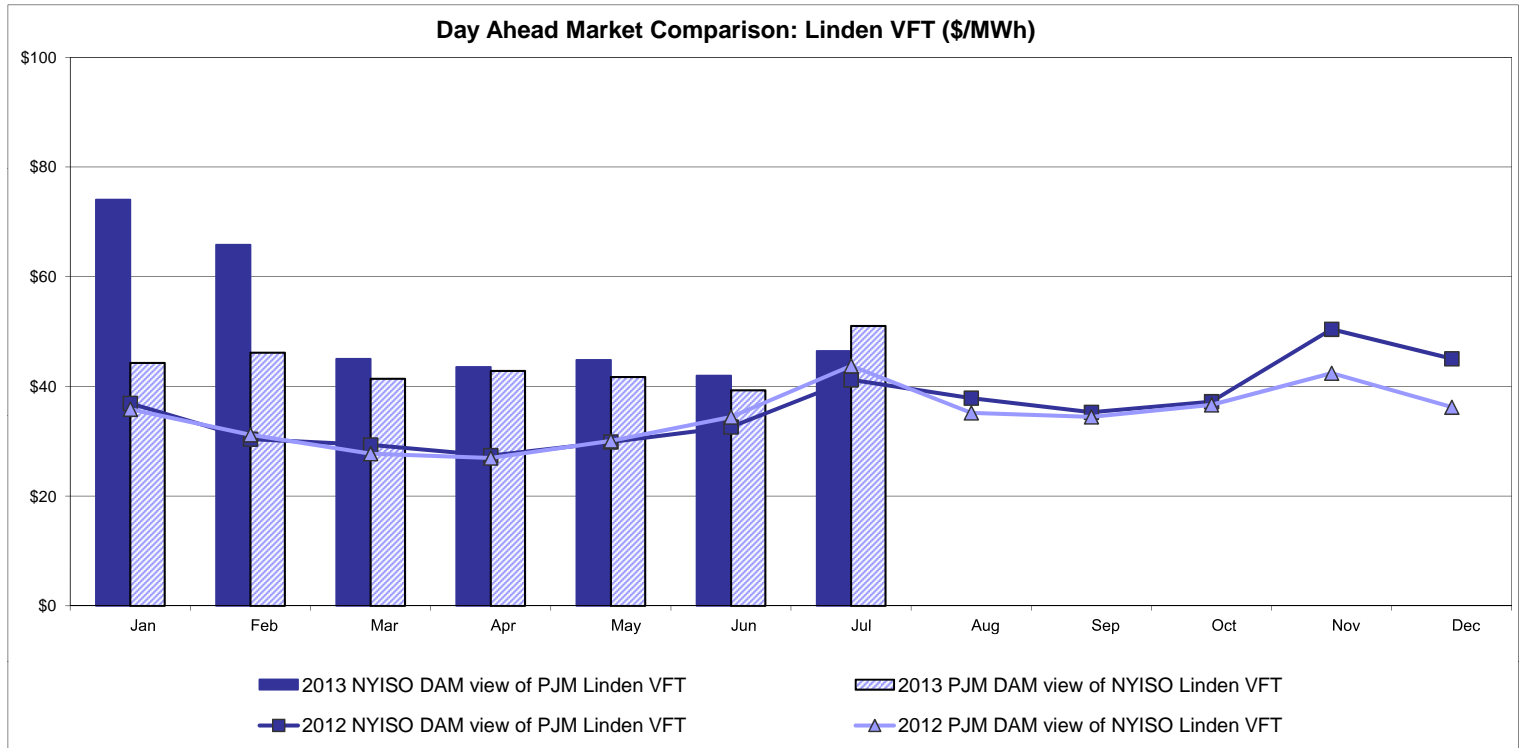


## Real Time Market External Zone Comparison - HQ (\$/MWh)

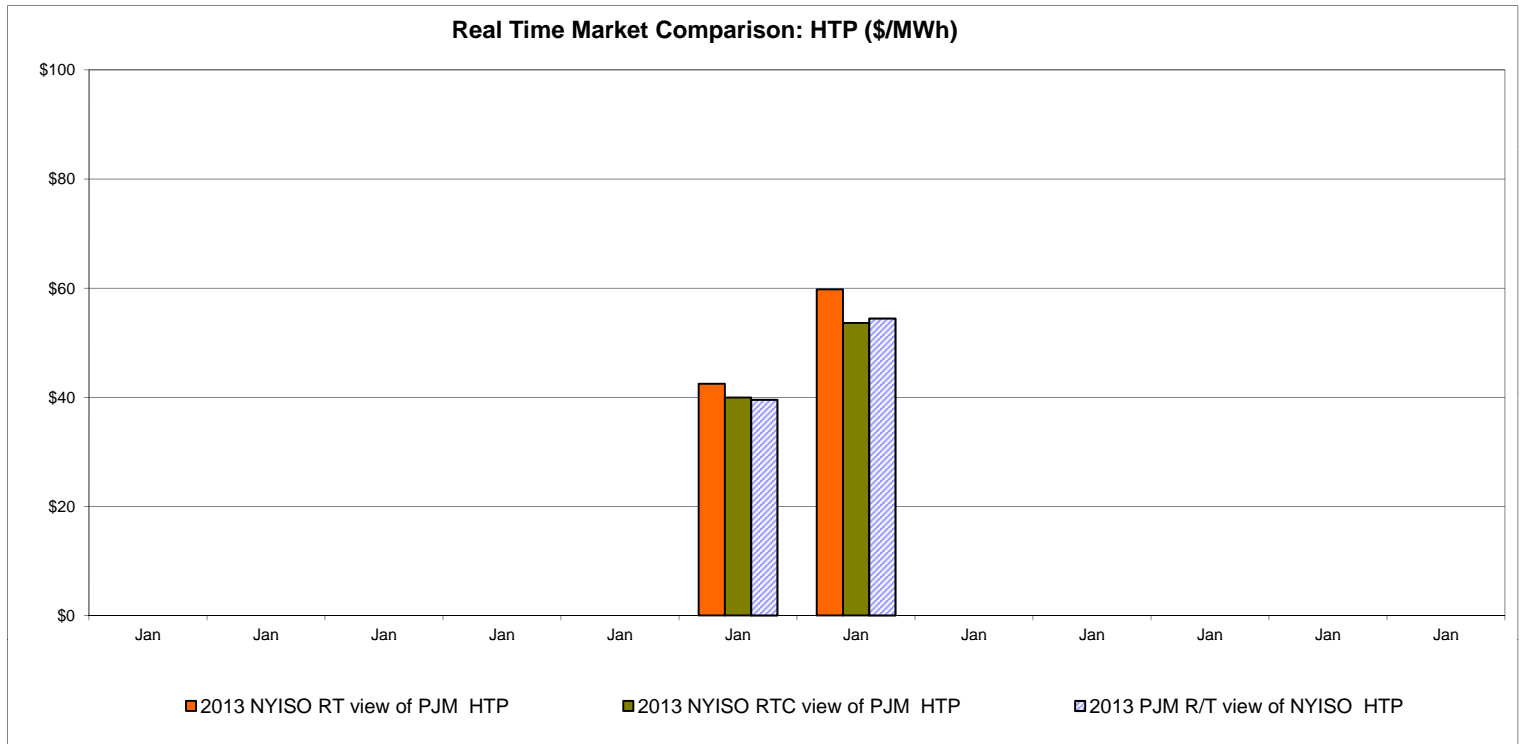
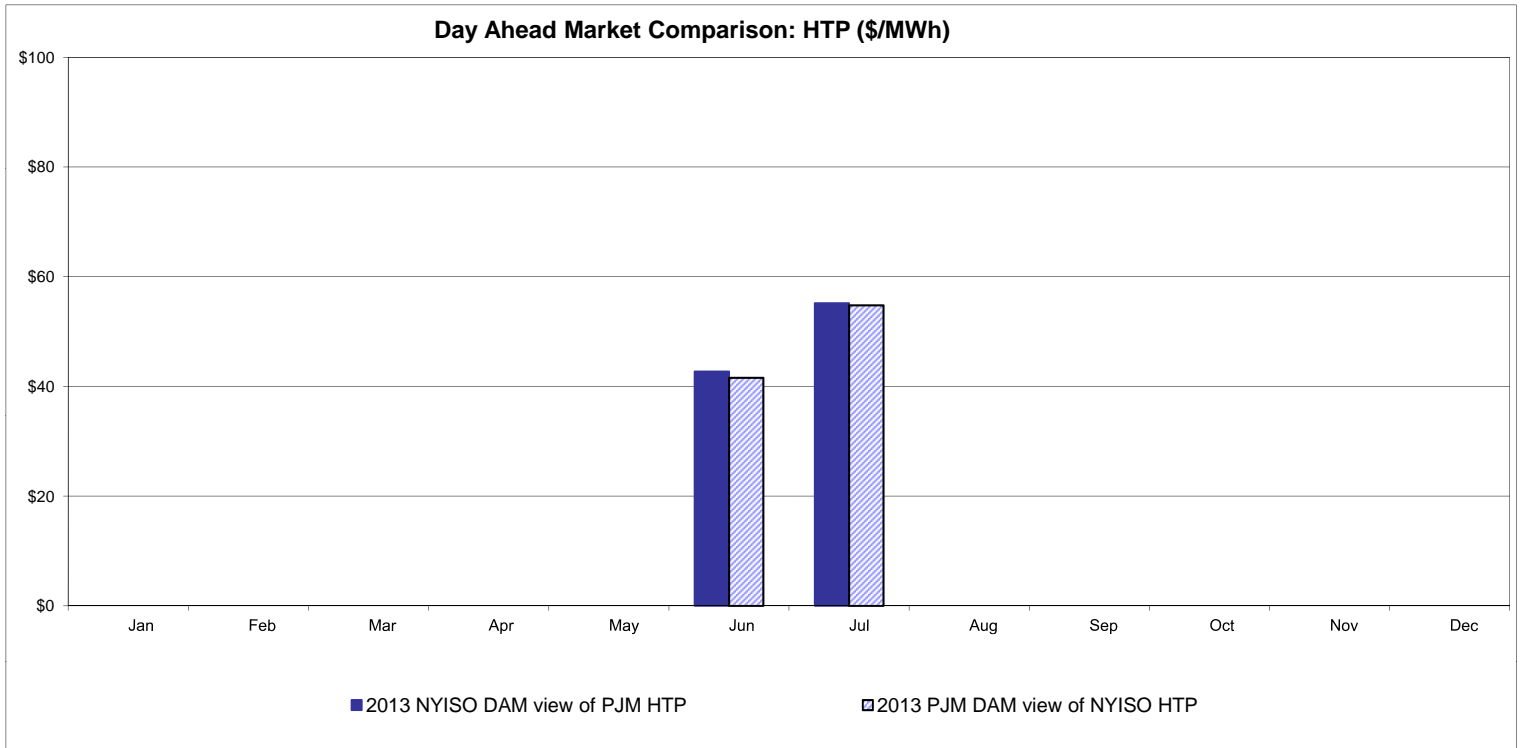


Note:  
Hydro-Quebec Prices are unavailable.

## External Controllable Line: Linden VFT (PJM)



# External Controllable Line: Hudson (PJM)



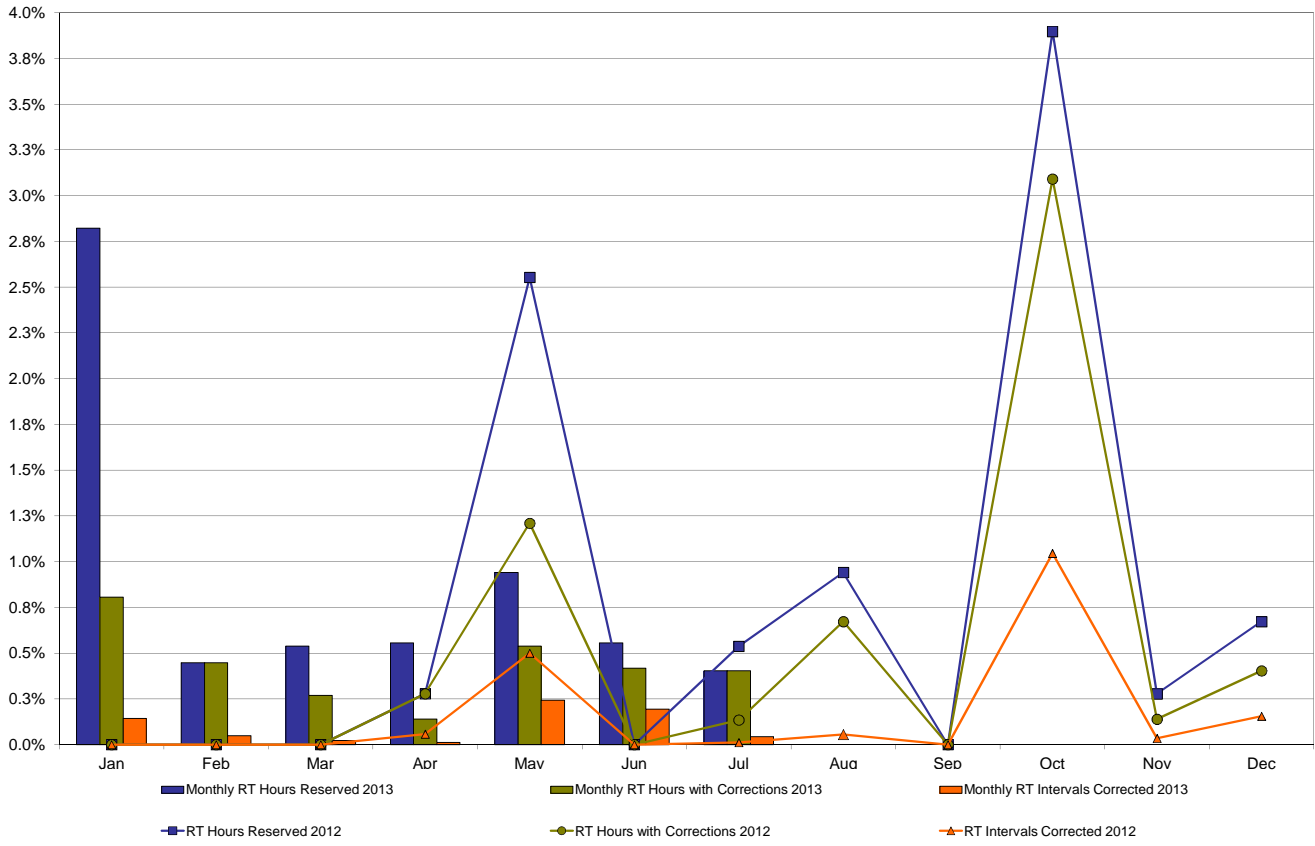


**NYISO Real Time Price Correction Statistics**

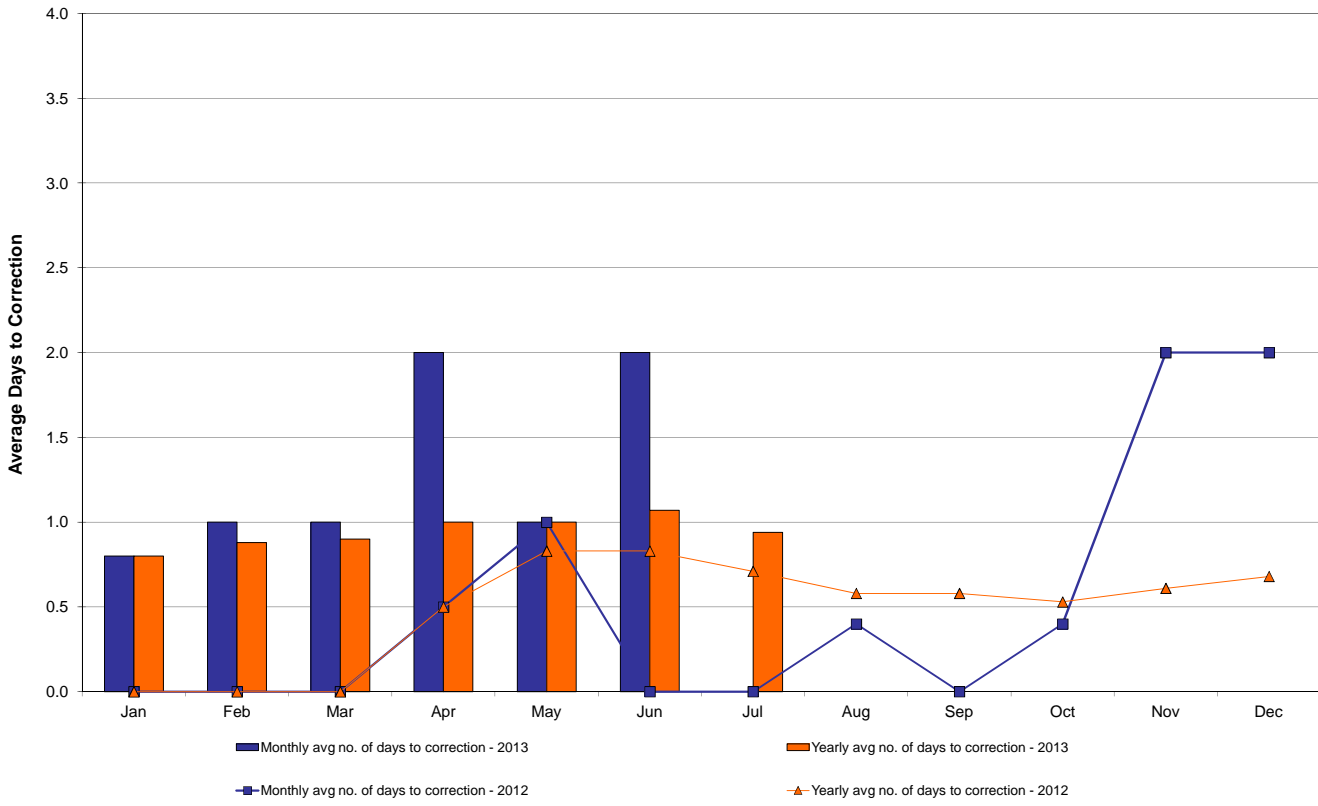
<b>2013</b>		<u>January</u>	<u>February</u>	<u>March</u>	<u>April</u>	<u>May</u>	<u>June</u>	<u>July</u>	<u>August</u>	<u>September</u>	<u>October</u>	<u>November</u>	<u>December</u>
<b>Hour Corrections</b>													
Number of hours with corrections	in the month	6	3	2	1	4	3	3					
Number of hours	in the month	744	672	743	720	744	720	744					
% of hours with corrections	in the month	0.81%	0.45%	0.27%	0.14%	0.54%	0.42%	0.40%					
% of hours with corrections	year-to-date	0.81%	0.64%	0.51%	0.42%	0.44%	0.44%	0.43%					
<b>Interval Corrections</b>													
Number of intervals corrected	in the month	13	4	2	1	22	17	4					
Number of intervals	in the month	9,104	8,230	9,026	8,727	9,083	8,740	9,079					
% of intervals corrected	in the month	0.14%	0.05%	0.02%	0.01%	0.24%	0.19%	0.04%					
% of intervals corrected	year-to-date	0.14%	0.10%	0.07%	0.06%	0.10%	0.11%	0.10%					
<b>Hours Reserved</b>													
Number of hours reserved	in the month	21	3	4	4	7	4	3					
Number of hours	in the month	744	672	743	720	744	720	744					
% of hours reserved	in the month	2.82%	0.45%	0.54%	0.56%	0.94%	0.56%	0.40%					
% of hours reserved	year-to-date	2.82%	1.69%	1.30%	1.11%	1.08%	0.99%	0.90%					
<b>Days to Correction *</b>													
Avg. number of days to correction	in the month	0.80	1.00	1.00	2.00	1.00	2.00	0.00					
Avg. number of days to correction	year-to-date	0.80	0.88	0.90	1.00	1.00	1.07	0.94					
<b>Days Without Corrections</b>													
Days without corrections	in the month	26	25	29	29	28	29	29					
Days without corrections	year-to-date	26	51	80	109	137	166	195					
<b>2012</b>		<u>January</u>	<u>February</u>	<u>March</u>	<u>April</u>	<u>May</u>	<u>June</u>	<u>July</u>	<u>August</u>	<u>September</u>	<u>October</u>	<u>November</u>	<u>December</u>
<b>Hour Corrections</b>													
Number of hours with corrections	in the month	0	0	0	2	9	0	1	5	0	23	1	3
Number of hours	in the month	744	696	743	720	744	720	744	744	720	744	721	744
% of hours with corrections	in the month	0.00%	0.00%	0.00%	0.28%	1.21%	0.00%	0.13%	0.67%	0.00%	3.09%	0.14%	0.40%
% of hours with corrections	year-to-date	0.00%	0.00%	0.00%	0.07%	0.30%	0.25%	0.23%	0.29%	0.26%	0.55%	0.51%	0.50%
<b>Interval Corrections</b>													
Number of intervals corrected	in the month	0	0	0	5	45	0	1	5	0	94	3	14
Number of intervals	in the month	9,025	8,399	8,977	8,716	9,013	8,786	9,100	9,044	8,724	8,987	8,856	9,036
% of intervals corrected	in the month	0.00%	0.00%	0.00%	0.06%	0.50%	0.00%	0.01%	0.06%	0.00%	1.05%	0.03%	0.15%
% of intervals corrected	year-to-date	0.00%	0.00%	0.00%	0.01%	0.11%	0.09%	0.08%	0.08%	0.07%	0.17%	0.16%	0.16%
<b>Hours Reserved</b>													
Number of hours reserved	in the month	0	0	0	2	19	0	4	7	0	29	2	5
Number of hours	in the month	744	696	743	720	744	720	744	744	720	744	721	744
% of hours reserved	in the month	0.00%	0.00%	0.00%	0.28%	2.55%	0.00%	0.54%	0.94%	0.00%	3.90%	0.28%	0.67%
% of hours reserved	year-to-date	0.00%	0.00%	0.00%	0.07%	0.58%	0.48%	0.49%	0.55%	0.49%	0.83%	0.78%	0.77%
<b>Days to Correction *</b>													
Avg. number of days to correction	in the month	0.00	0.00	0.00	0.50	1.00	0.00	0.00	0.40	0.00	0.40	2.00	2.00
Avg. number of days to correction	year-to-date	0.00	0.00	0.00	0.50	0.83	0.83	0.71	0.58	0.58	0.53	0.61	0.68
<b>Days Without Corrections</b>													
Days without corrections	in the month	31	29	31	28	27	30	30	26	30	27	29	30
Days without corrections	year-to-date	31	60	91	119	146	176	206	232	262	289	318	348

\* Calendar days from reservation date.

### Percentage of Real-Time Corrections

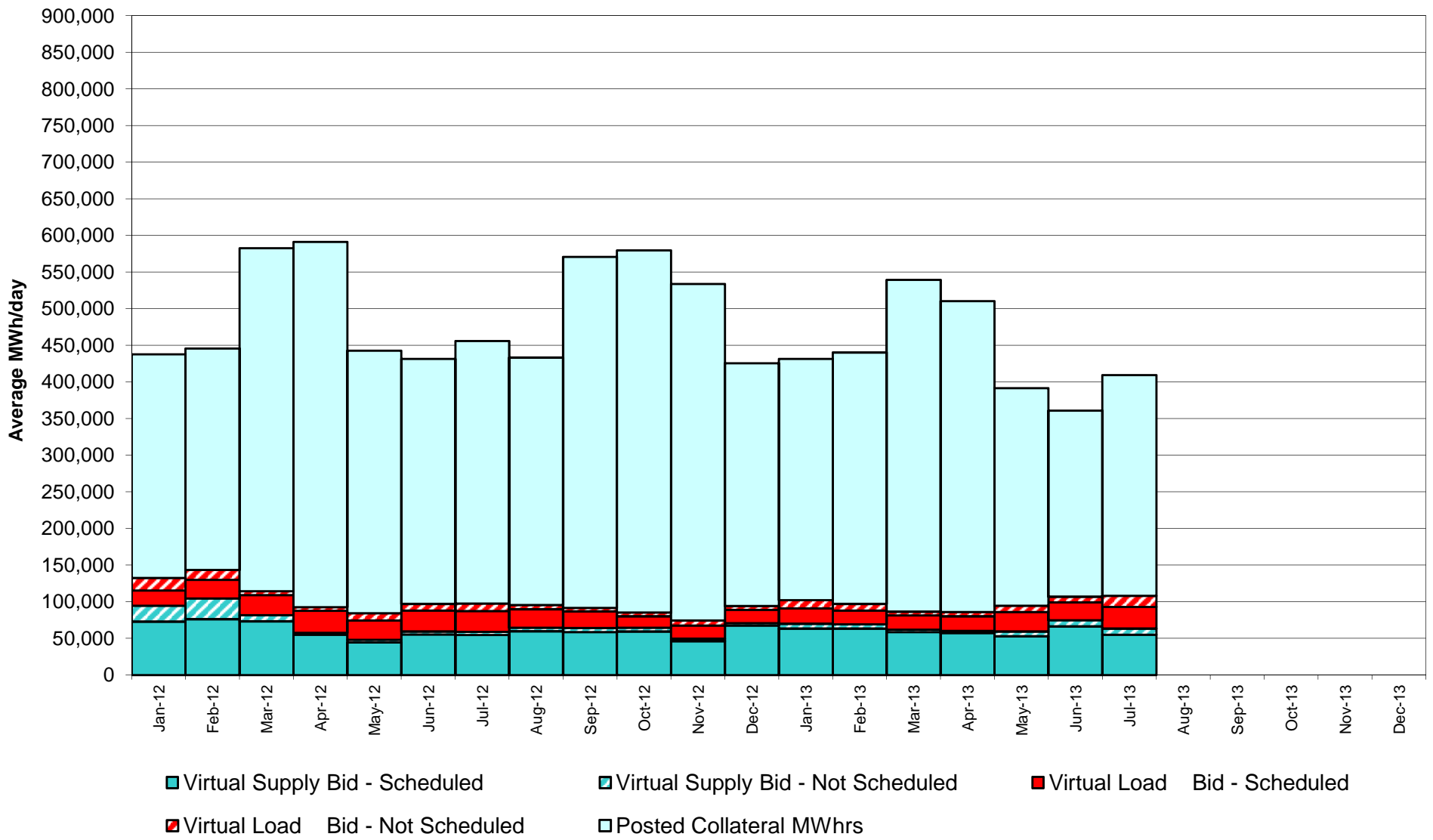


### Annual average time period for making Price Corrections (from reservation date) \*

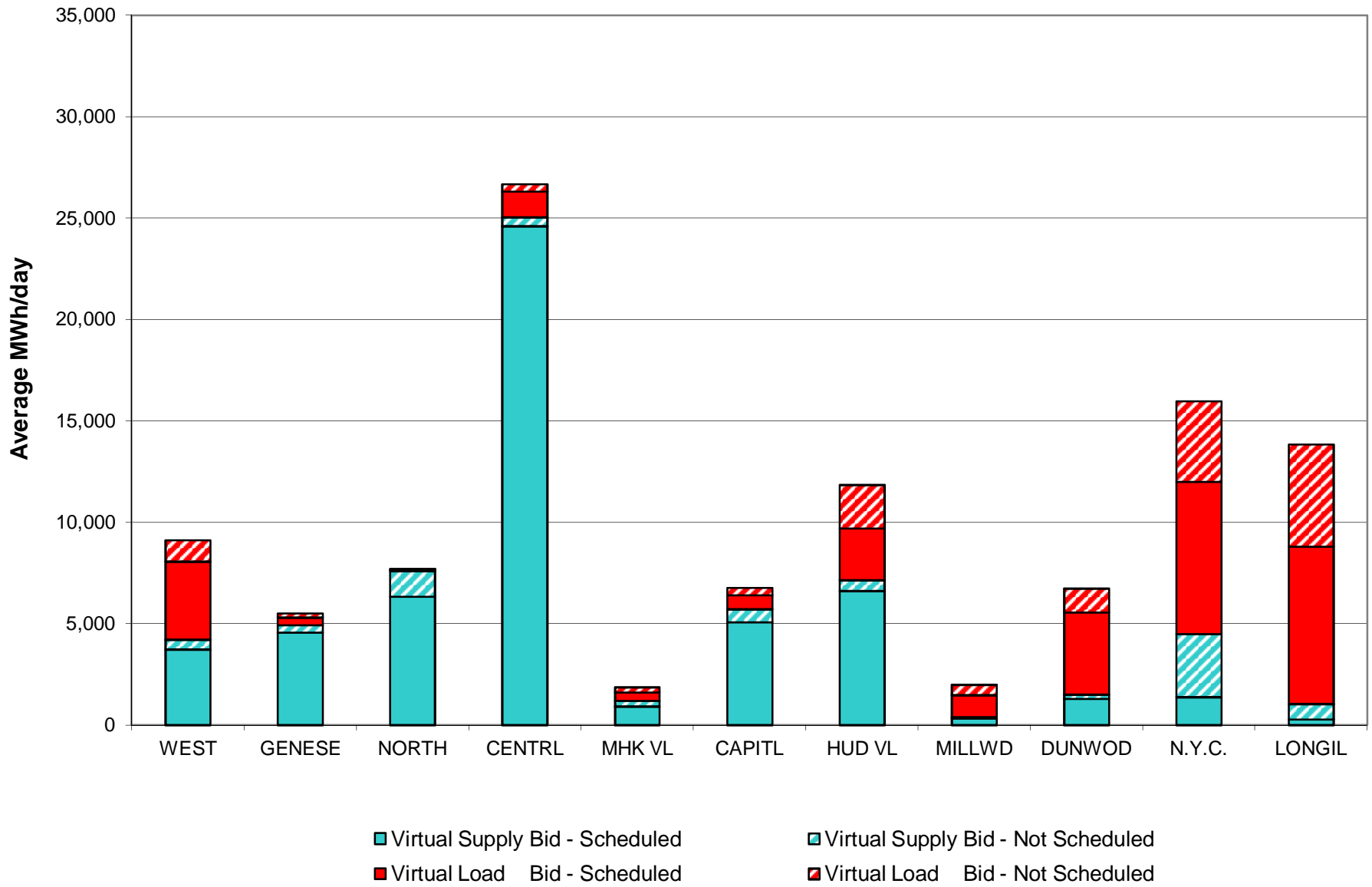


\* Calendar days from reservation date.

## NYISO Virtual Trading Average MWh per day



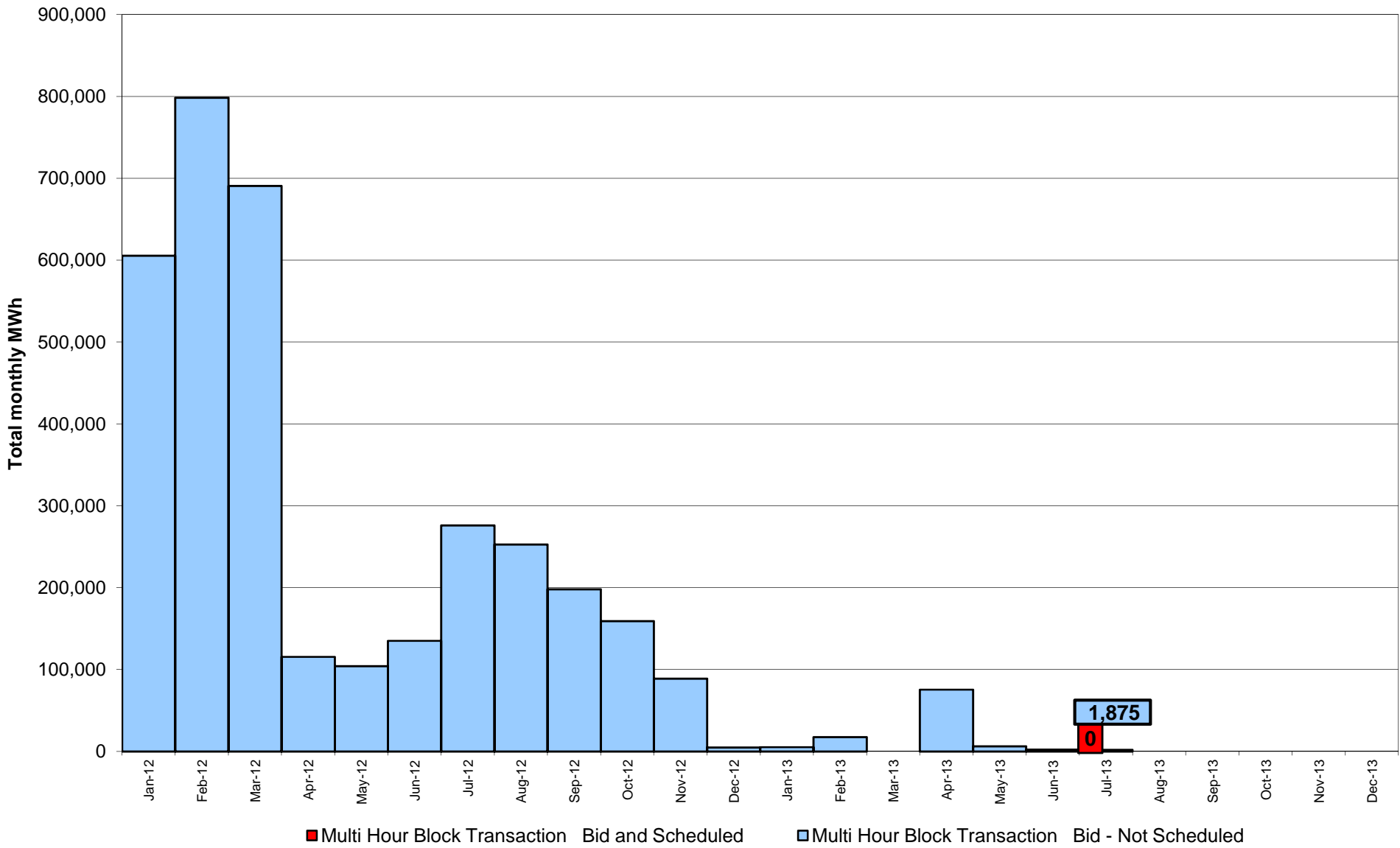
### Virtual Load and Supply Zonal Statistics through July 31, 2013



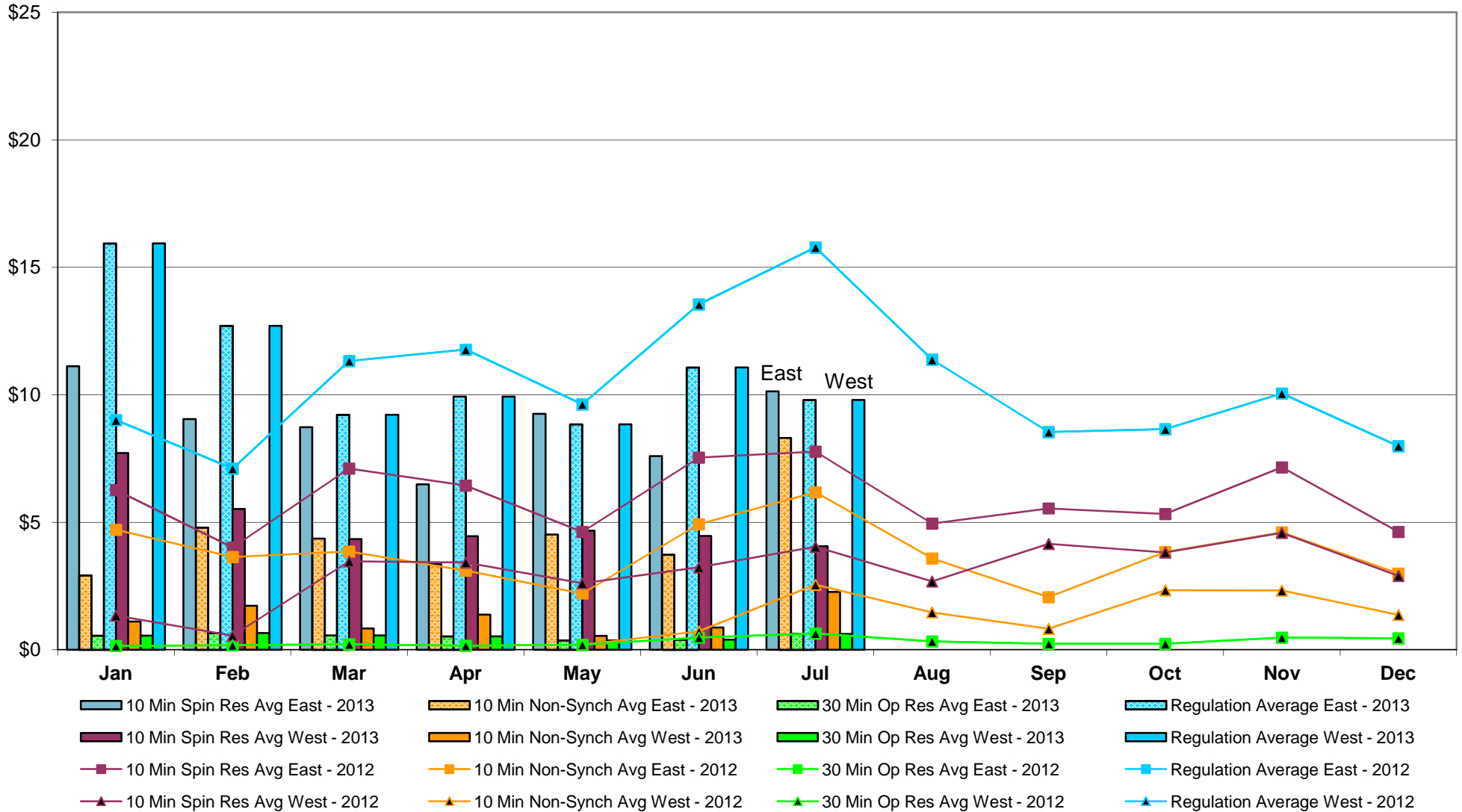
**Virtual Load and Supply Zonal Statistics (Average MWh/day) - 2013**

		Virtual Load Bid		Virtual Supply Bid				Virtual Load Bid		Virtual Supply Bid				Virtual Load Bid		Virtual Supply Bid	
Zone	Date	Scheduled	Not Scheduled	Scheduled	Not Scheduled	Zone	Date	Scheduled	Not Scheduled	Scheduled	Not Scheduled	Zone	Date	Scheduled	Not Scheduled	Scheduled	Not Scheduled
<b>WEST</b>	Jan-13	5,393	880	4,402	409	<b>MHK VL</b>	Jan-13	617	477	695	273	<b>DUNWOD</b>	Jan-13	410	859	1,682	491
	Feb-13	3,366	263	3,940	151		Feb-13	480	324	370	72		Feb-13	448	294	2,570	1,216
	Mar-13	3,221	70	4,824	401		Mar-13	733	72	455	32		Mar-13	698	249	1,630	270
	Apr-13	3,771	549	3,702	236		Apr-13	250	25	740	56		Apr-13	394	621	2,361	242
	May-13	6,533	717	2,963	415		May-13	398	150	1,140	198		May-13	2,255	600	1,359	258
	Jun-13	4,209	425	4,163	1,085		Jun-13	196	193	1,227	523		Jun-13	3,272	336	1,362	354
	Jul-13	3,854	1,048	3,726	489		Jul-13	409	255	930	272		Jul-13	4,064	1,164	1,299	205
	Aug-13						Aug-13						Aug-13				
	Sep-13						Sep-13						Sep-13				
	Oct-13						Oct-13						Oct-13				
	Nov-13						Nov-13						Nov-13				
	Dec-13						Dec-13						Dec-13				
	<b>GENESE</b>	Jan-13	184	207	5,822		492	<b>CAPITL</b>	Jan-13	2,053	1,313		3,977	1,088	<b>N.Y.C.</b>	Jan-13	3,192
Feb-13		238	60	5,305	266	Feb-13	1,175		1,148	5,323	585	Feb-13	3,964	2,187		689	450
Mar-13		636	24	5,867	24	Mar-13	1,945		452	4,418	604	Mar-13	2,474	688		623	45
Apr-13		538	26	6,978	153	Apr-13	1,573		981	3,063	585	Apr-13	5,374	558		545	24
May-13		440	195	7,639	274	May-13	1,254		624	2,254	660	May-13	5,443	753		394	40
Jun-13		89	194	7,213	801	Jun-13	509		602	5,483	638	Jun-13	5,732	1,097		755	999
Jul-13		364	209	4,569	365	Jul-13	706		351	5,081	630	Jul-13	7,490	3,998		1,367	3,129
Aug-13						Aug-13						Aug-13					
Sep-13						Sep-13						Sep-13					
Oct-13						Oct-13						Oct-13					
Nov-13						Nov-13						Nov-13					
Dec-13						Dec-13						Dec-13					
<b>NORTH</b>		Jan-13	206	115	6,458	997	<b>HUD VL</b>		Jan-13	849	1,042	9,608	971	<b>LONGIL</b>		Jan-13	7,420
	Feb-13	376	72	5,234	969	Feb-13		1,353	684	10,729	819	Feb-13	6,410		3,439	442	682
	Mar-13	121	46	6,582	709	Mar-13		835	824	4,831	783	Mar-13	7,422		1,814	579	135
	Apr-13	23	6	7,827	510	Apr-13		1,724	621	7,958	709	Apr-13	5,474		1,674	340	82
	May-13	91	59	8,434	735	May-13		3,226	1,375	7,847	932	May-13	5,758		3,582	257	210
	Jun-13	55	34	6,624	1,688	Jun-13		1,912	777	10,419	1,006	Jun-13	7,152		3,355	227	201
	Jul-13	63	7	6,321	1,293	Jul-13		2,572	2,122	6,603	533	Jul-13	7,750		5,034	280	774
	Aug-13					Aug-13						Aug-13					
	Sep-13					Sep-13						Sep-13					
	Oct-13					Oct-13						Oct-13					
	Nov-13					Nov-13						Nov-13					
	Dec-13					Dec-13						Dec-13					
	<b>CENTRL</b>	Jan-13	436	244	28,385	349		<b>MILLWD</b>	Jan-13	173	162	894	214		<b>NYISO</b>	Jan-13	20,932
Feb-13		794	499	27,674	231	Feb-13	197		250	1,250	184	Feb-13	18,802	9,219		63,526	5,626
Mar-13		1,054	430	27,791	13	Mar-13	543		278	1,028	211	Mar-13	19,682	4,947		58,627	3,227
Apr-13		798	861	22,488	112	Apr-13	233		100	1,147	183	Apr-13	20,151	6,021		57,149	2,892
May-13		516	226	19,878	2,645	May-13	818		290	572	152	May-13	26,733	8,572		52,738	6,520
Jun-13		1,015	229	28,370	554	Jun-13	603		452	715	301	Jun-13	24,743	7,693		66,557	8,150
Jul-13		1,275	361	24,599	431	Jul-13	1,076		503	329	79	Jul-13	29,624	15,052		55,105	8,198
Aug-13						Aug-13						Aug-13					
Sep-13						Sep-13						Sep-13					
Oct-13						Oct-13						Oct-13					
Nov-13						Nov-13						Nov-13					
Dec-13						Dec-13						Dec-13					

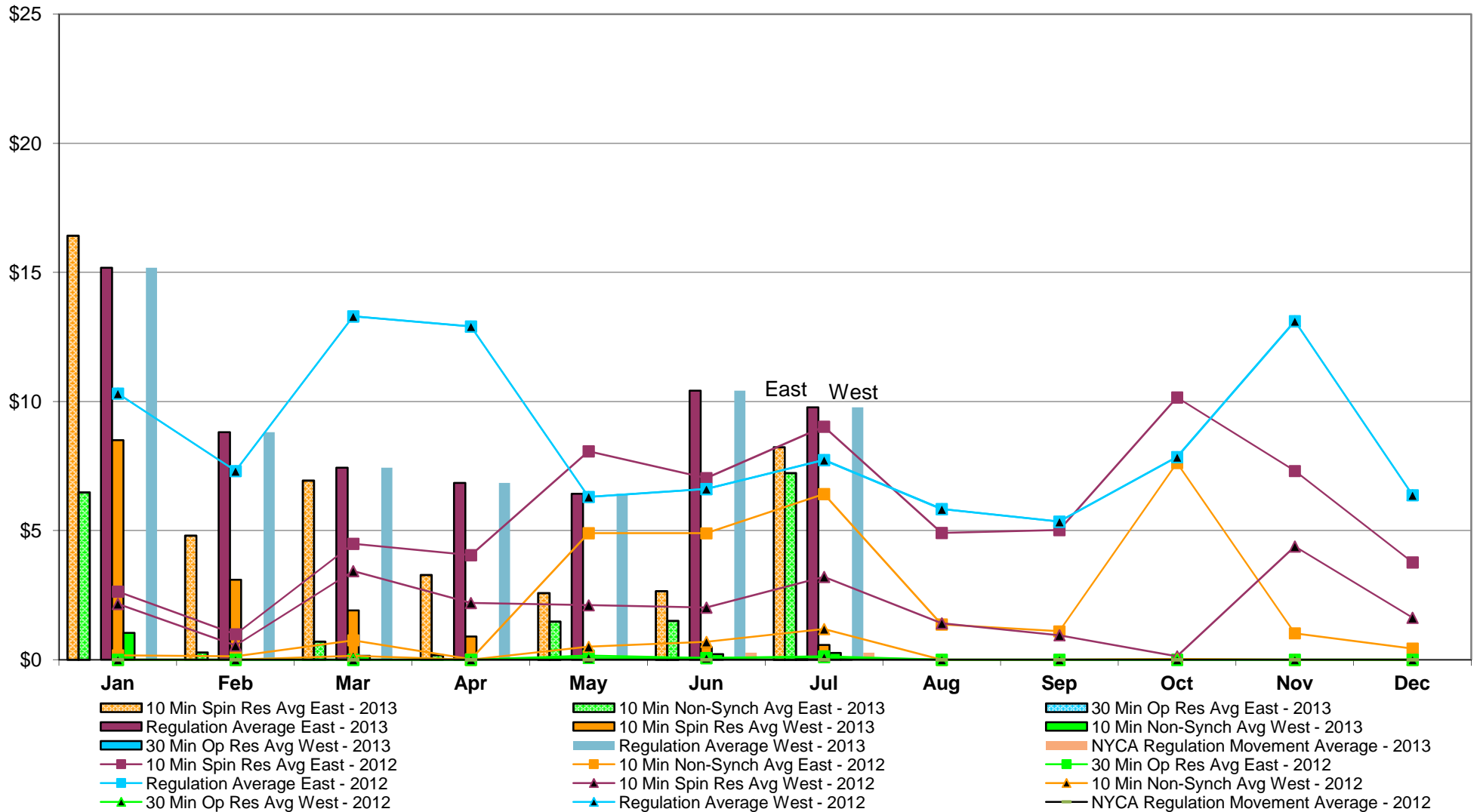
## NYISO Multi Hour Block Transactions Monthly Total MWh



## NYISO Monthly Average Ancillary Service Prices Day Ahead Market 2012 - 2013

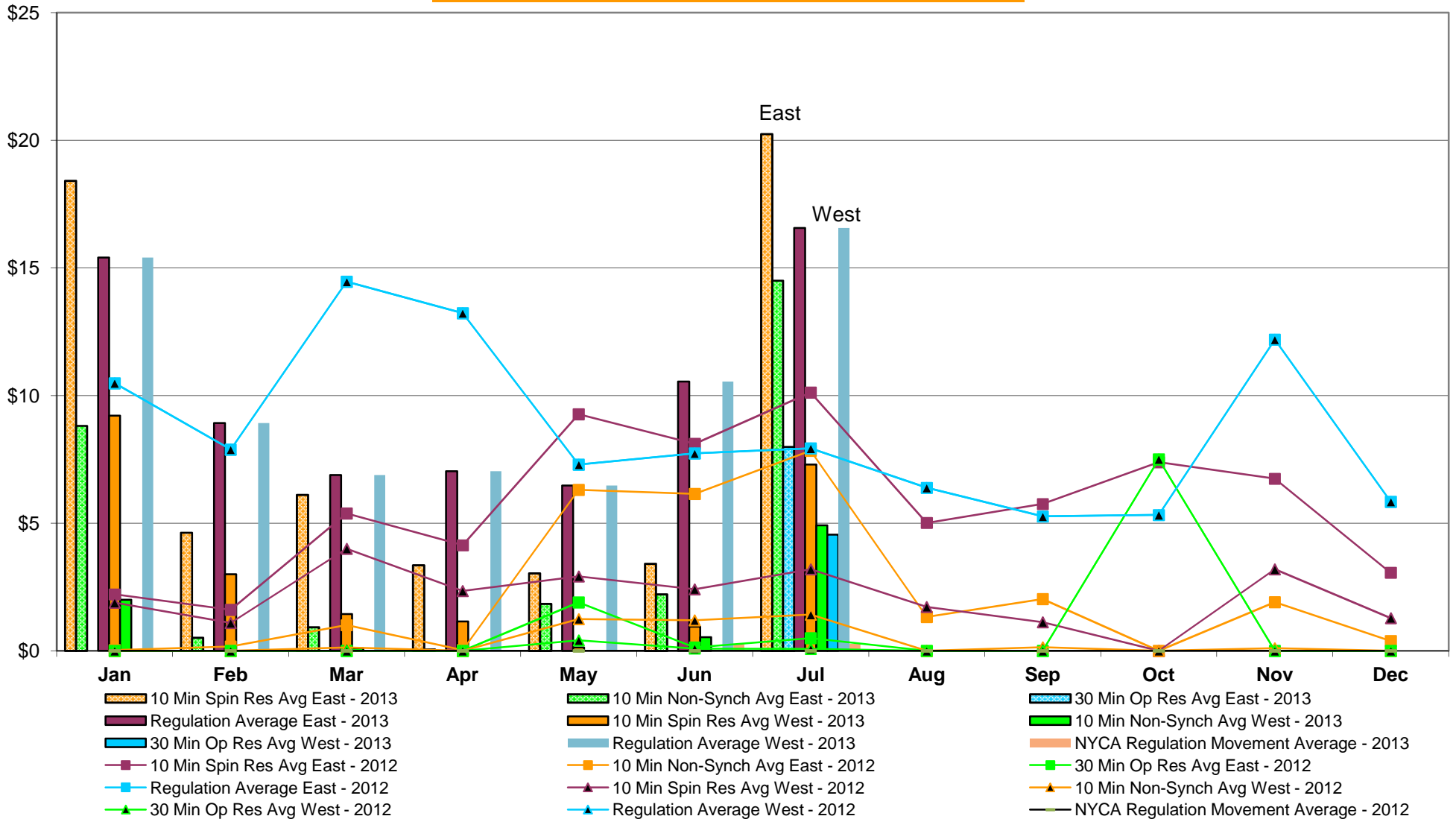


## NYISO Monthly Average Ancillary Service Prices RTC Market 2012 - 2013





## NYISO Monthly Average Ancillary Service Prices Real Time Market 2012 - 2013

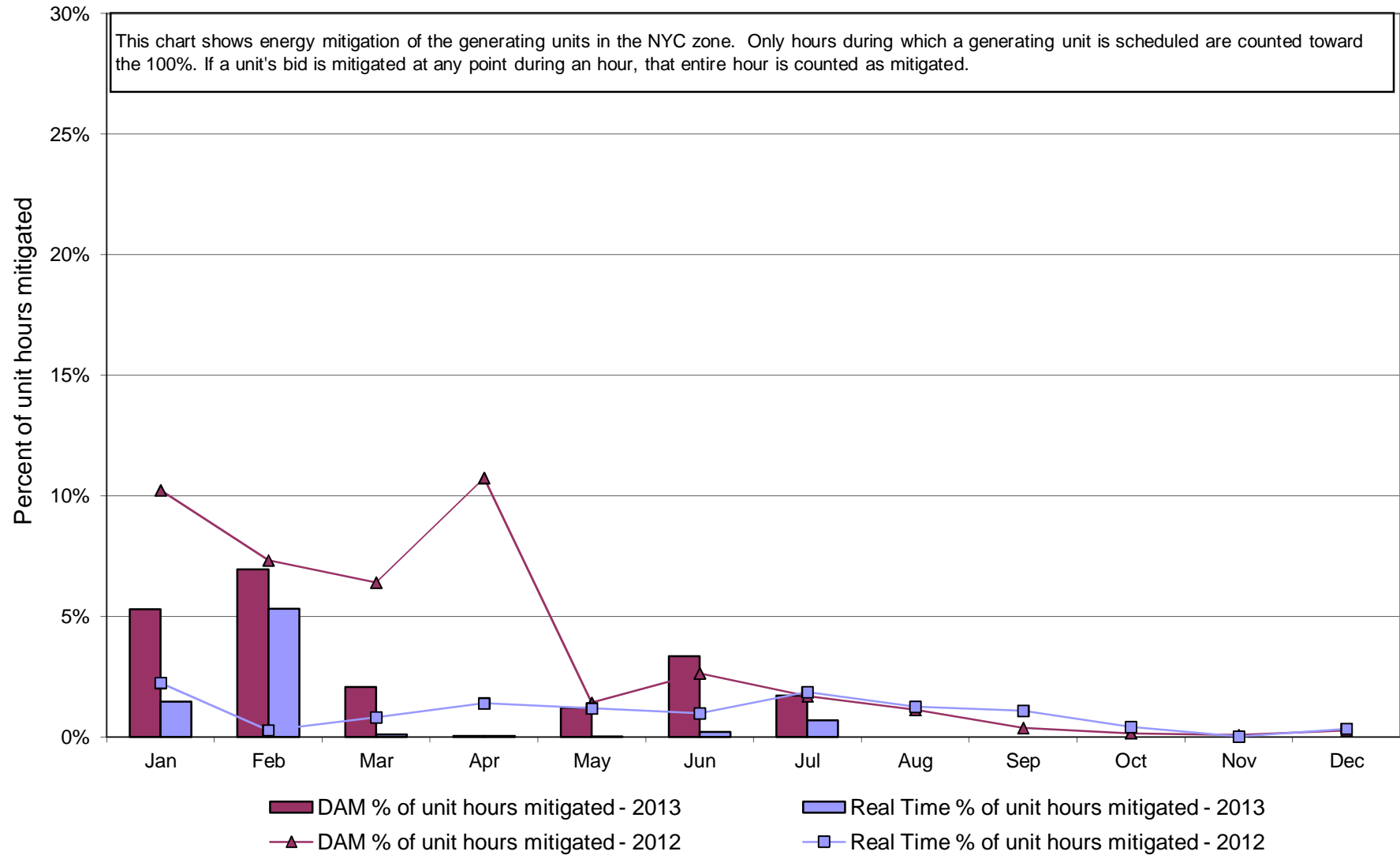


**NYISO Markets Ancillary Services Statistics - Unweighted Price (\$/MWH)**

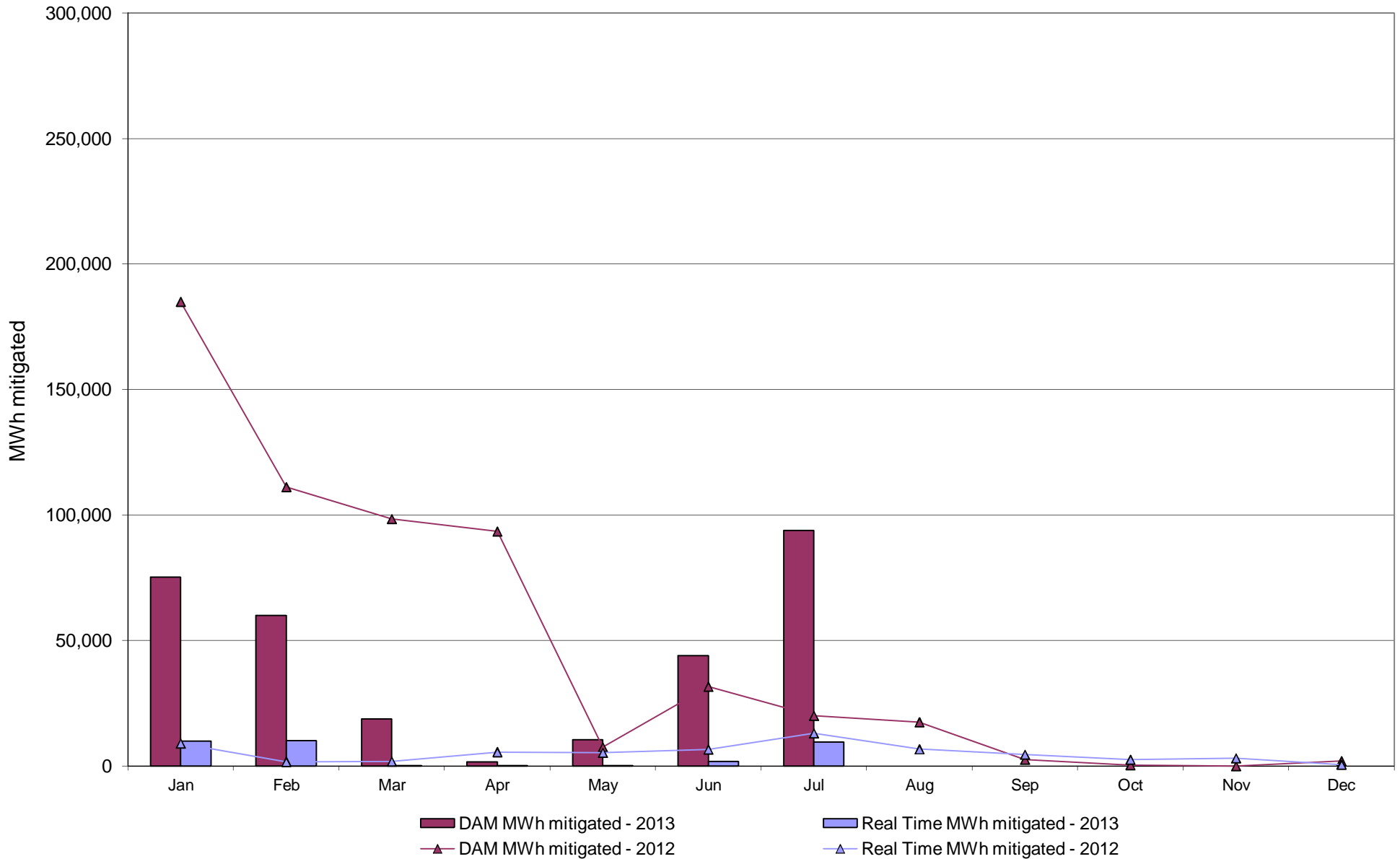
<b>2013</b>	<u>January</u>	<u>February</u>	<u>March</u>	<u>April</u>	<u>May</u>	<u>June</u>	<u>July</u>	<u>August</u>	<u>September</u>	<u>October</u>	<u>November</u>	<u>December</u>
<b>Day Ahead Market</b>												
10 Min Spin East	11.12	9.05	8.73	6.49	9.25	7.59	10.13					
10 Min Spin West	7.72	5.53	4.34	4.46	4.67	4.46	4.06					
10 Min Non Synch East	2.91	4.79	4.36	3.36	4.52	3.73	8.31					
10 Min Non Synch West	1.11	1.73	0.84	1.38	0.55	0.88	2.27					
30 Min East	0.56	0.65	0.56	0.53	0.36	0.40	0.62					
30 Min West	0.56	0.65	0.56	0.53	0.36	0.40	0.62					
Regulation East	15.94	12.70	9.21	9.93	8.84	11.07	9.80					
Regulation West	15.94	12.70	9.21	9.93	8.84	11.07	9.80					
<b>RTC Market</b>												
10 Min Spin East	16.42	4.81	6.94	3.28	2.59	2.65	8.23					
10 Min Spin West	8.50	3.10	1.90	0.90	0.05	0.48	0.57					
10 Min Non Synch East	6.48	0.28	0.70	0.18	1.48	1.50	7.23					
10 Min Non Synch West	1.04	0.00	0.15	0.00	0.00	0.22	0.26					
30 Min East	0.00	0.00	0.00	0.00	0.00	0.00	0.03					
30 Min West	0.00	0.00	0.00	0.00	0.00	0.00	0.03					
Regulation East	15.18	8.81	7.43	6.84	6.42	10.42	9.77					
Regulation West	15.18	8.81	7.43	6.84	6.42	10.42	9.77					
NYCA Regulation Movement	0.00	0.00	0.00	0.00	0.00	0.27	0.28					
<b>Real Time Market</b>												
10 Min Spin East	18.42	4.63	6.12	3.35	3.03	3.41	20.24					
10 Min Spin West	9.22	3.00	1.44	1.15	0.13	0.94	7.29					
10 Min Non Synch East	8.81	0.52	0.93	0.06	1.84	2.22	14.51					
10 Min Non Synch West	2.00	0.00	0.10	0.00	0.00	0.53	4.91					
30 Min East	0.00	0.00	0.00	0.00	0.00	0.00	7.99					
30 Min West	0.00	0.00	0.00	0.00	0.00	0.00	4.55					
Regulation East	15.40	8.92	6.89	7.03	6.48	10.55	16.57					
Regulation West	15.40	8.92	6.89	7.03	6.48	10.55	16.57					
NYCA Regulation Movement	0.00	0.00	0.00	0.00	0.00	0.27	0.27					
<b>2012</b>												
	<u>January</u>	<u>February</u>	<u>March</u>	<u>April</u>	<u>May</u>	<u>June</u>	<u>July</u>	<u>August</u>	<u>September</u>	<u>October</u>	<u>November</u>	<u>December</u>
<b>Day Ahead Market</b>												
10 Min Spin East	6.26	4.01	7.11	6.44	4.62	7.54	7.77	4.95	5.55	5.32	7.15	4.62
10 Min Spin West	1.34	0.56	3.46	3.43	2.61	3.23	4.04	2.68	4.16	3.82	4.58	2.90
10 Min Non Synch East	4.71	3.64	3.85	3.11	2.21	4.92	6.18	3.58	2.07	3.84	4.60	2.99
10 Min Non Synch West	0.15	0.18	0.22	0.16	0.20	0.72	2.55	1.47	0.82	2.34	2.32	1.37
30 Min East	0.15	0.18	0.22	0.16	0.20	0.48	0.64	0.33	0.23	0.23	0.48	0.45
30 Min West	0.15	0.18	0.22	0.16	0.20	0.48	0.64	0.33	0.23	0.23	0.48	0.45
Regulation East	9.01	7.11	11.33	11.77	9.63	13.55	15.78	11.38	8.54	8.65	10.05	7.99
Regulation West	9.01	7.11	11.33	11.77	9.63	13.55	15.78	11.38	8.54	8.65	10.05	7.99
<b>RTC Market</b>												
10 Min Spin East	2.64	0.99	4.49	4.05	8.07	7.03	9.02	4.91	5.02	10.16	7.31	3.77
10 Min Spin West	2.16	0.55	3.43	2.20	2.11	2.02	3.21	1.41	0.95	0.13	4.39	1.63
10 Min Non Synch East	0.17	0.13	0.75	0.02	4.90	4.90	6.42	1.36	1.10	7.62	1.02	0.43
10 Min Non Synch West	0.00	0.00	0.15	0.00	0.50	0.69	1.19	0.00	0.00	0.03	0.00	0.00
30 Min East	0.00	0.00	0.00	0.00	0.16	0.07	0.13	0.00	0.00	0.00	0.00	0.00
30 Min West	0.00	0.00	0.00	0.00	0.07	0.07	0.10	0.00	0.00	0.00	0.00	0.00
Regulation East	10.31	7.31	13.30	12.91	6.31	6.61	7.74	5.83	5.35	7.85	13.11	6.38
Regulation West	10.31	7.31	13.30	12.91	6.31	6.61	7.74	5.83	5.35	7.85	13.11	6.38
NYCA Regulation Movement	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
<b>Real Time Market</b>												
10 Min Spin East	2.21	1.61	5.38	4.14	9.27	8.11	10.12	5.01	5.75	9.93	6.74	3.06
10 Min Spin West	1.89	1.09	4.00	2.34	2.92	2.41	3.20	1.72	1.13	0.28	3.19	1.28
10 Min Non Synch East	0.03	0.17	1.01	0.03	6.31	6.15	7.84	1.33	2.03	7.39	1.91	0.39
10 Min Non Synch West	0.00	0.00	0.13	0.00	1.24	1.20	1.42	0.00	0.14	0.00	0.10	0.00
30 Min East	0.00	0.00	0.00	0.00	1.90	0.13	0.49	0.00	0.00	0.00	0.00	0.00
30 Min West	0.00	0.00	0.00	0.00	0.41	0.09	0.08	0.00	0.00	0.00	0.00	0.00
Regulation East	10.49	7.89	14.46	13.23	7.30	7.74	7.93	6.39	5.27	7.50	12.20	5.84
Regulation West	10.49	7.89	14.46	13.23	7.30	7.74	7.93	6.39	5.27	7.50	12.20	5.84
NYCA Regulation Movement	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

## NYISO In City Energy Mitigation - AMP (NYC Zone) 2012 - 2013

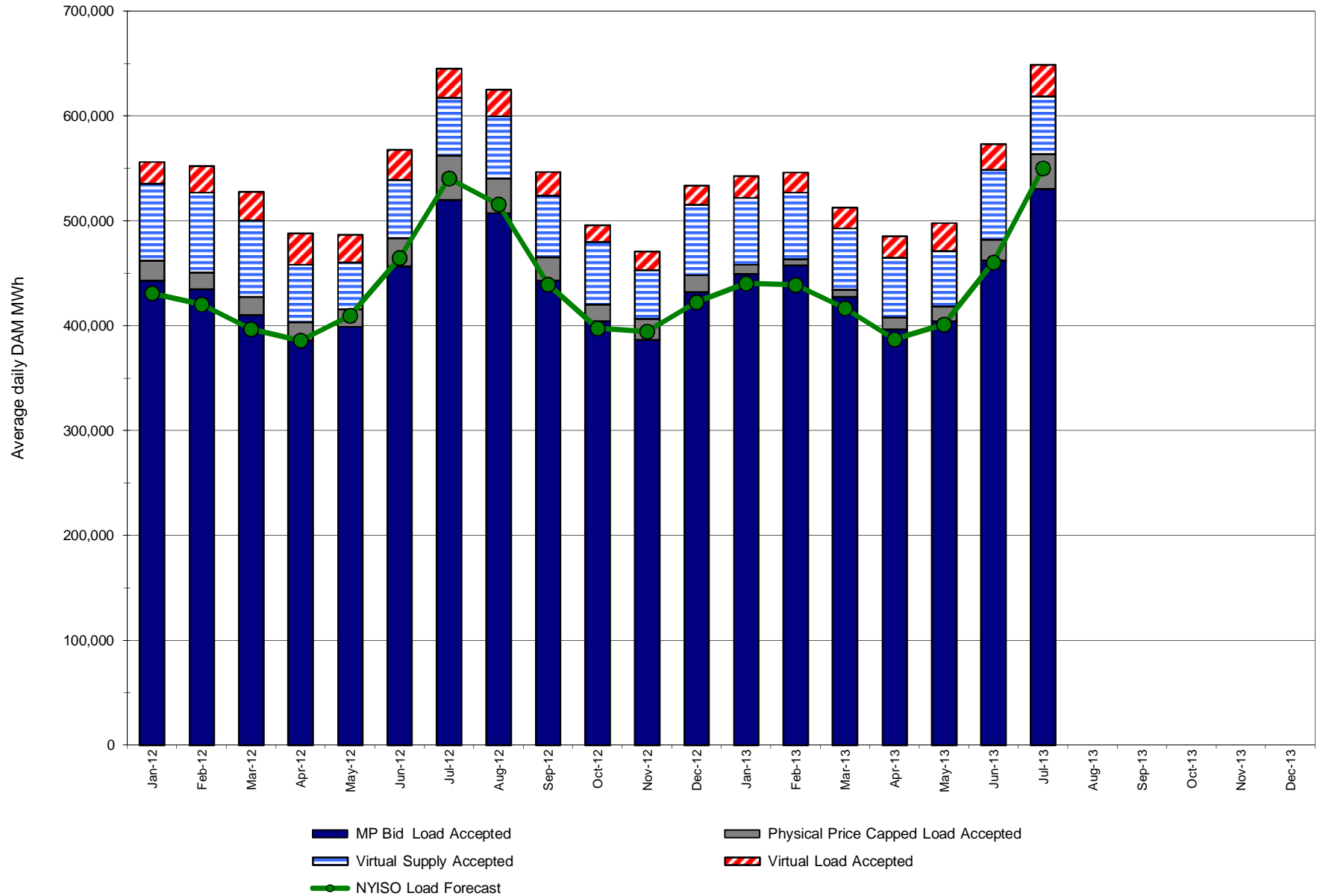
### Percentage of committed unit-hours mitigated



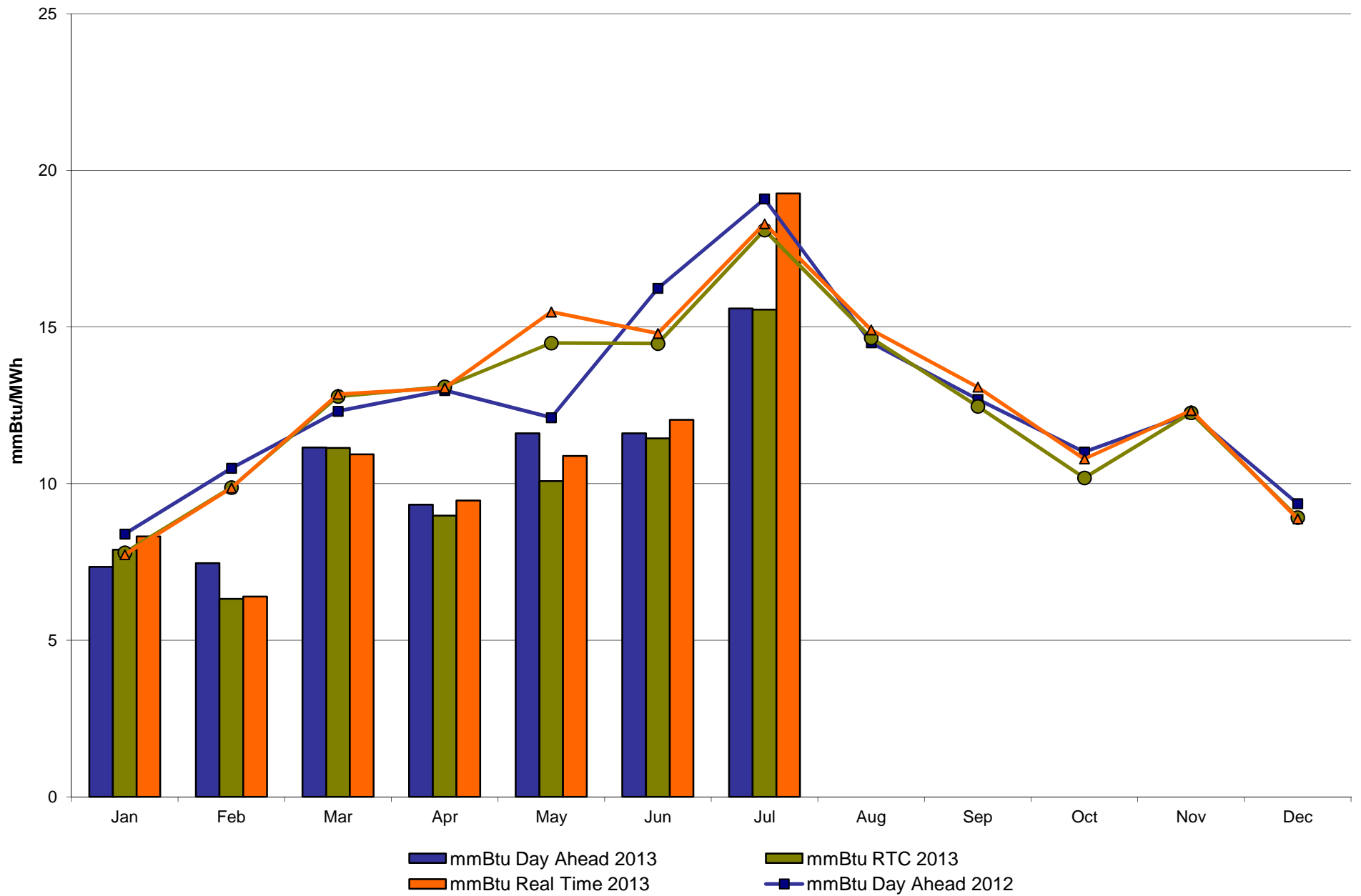
**NYISO In City Energy Mitigation (NYC Zone) 2012 - 2013  
Monthly megawatt hours mitigated**



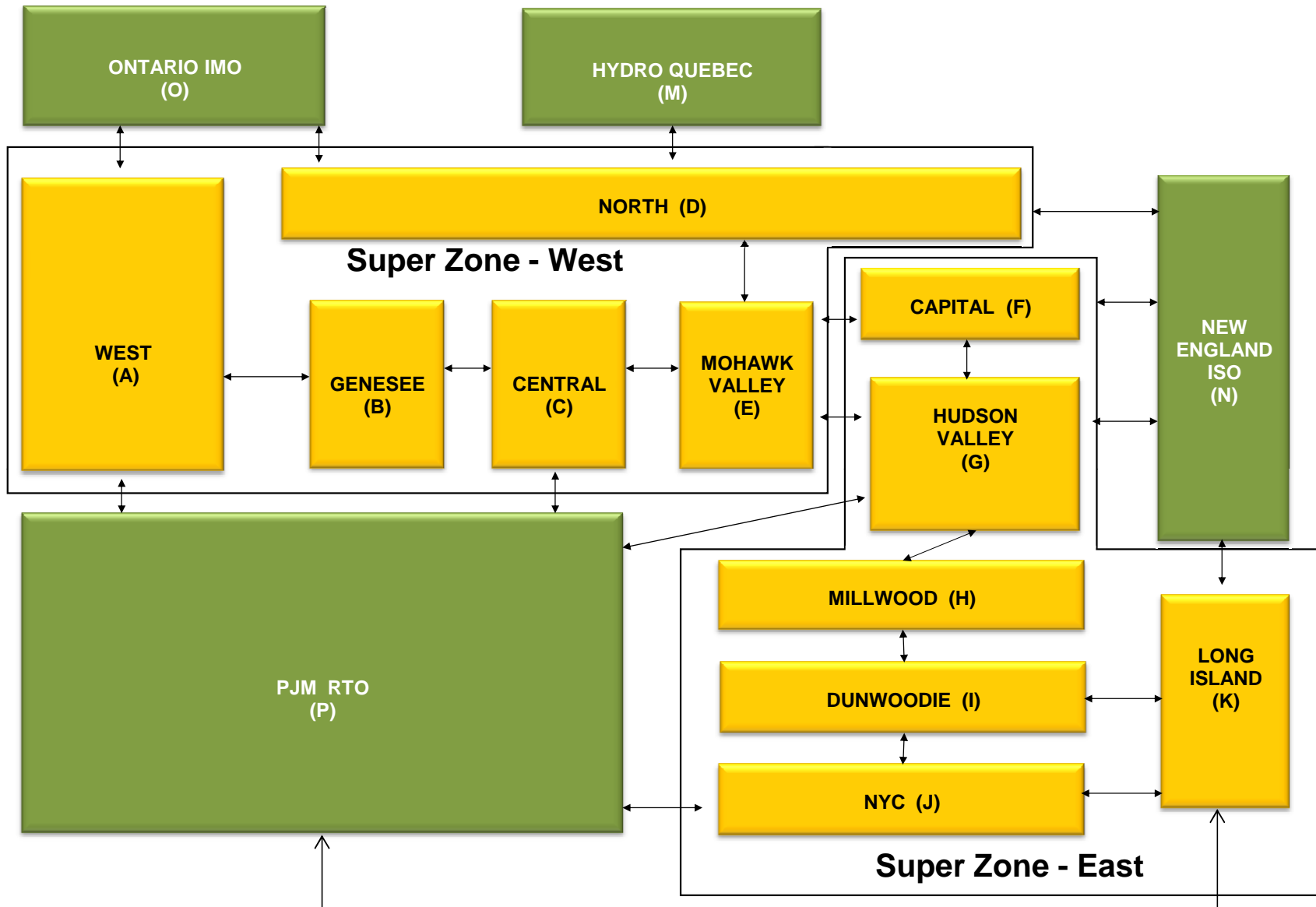
### NYISO Average Daily DAM Load Bid Summary



## Monthly Implied Heat Rate 2012-2013



# NYISO LBMP ZONES

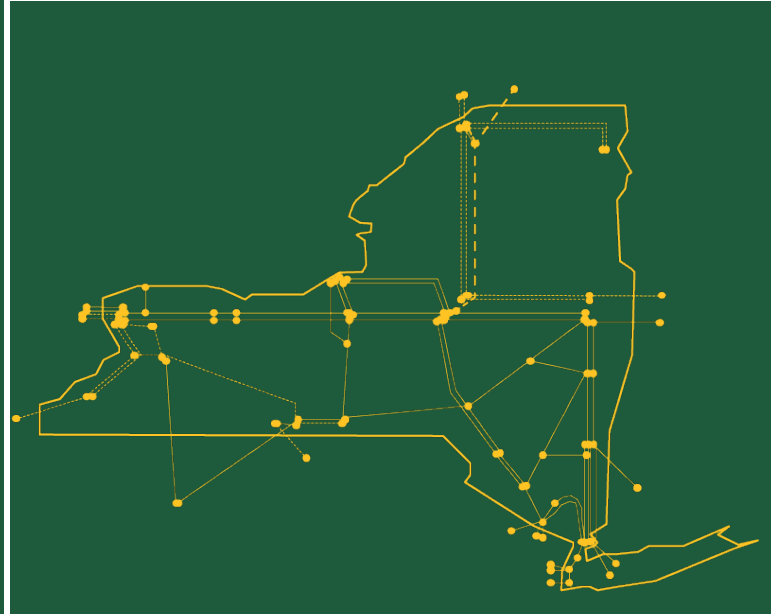


**Billing Codes for Chart 4-C**

<b>Chart - C Category Name</b>	<b>Billing Code</b>	<b>Billing Category Name</b>
Bid Production Cost Guarantee Balancing	81203	Balancing NYISO Bid Production Cost Guarantee - Internal Units
Bid Production Cost Guarantee Balancing	81204	Balancing NYISO Bid Production Cost Guarantee - External Units
Bid Production Cost Guarantee Balancing	81205	Balancing NYISO Bid Production Cost Guarantee Expenditure due to Curtailed Imports
Bid Production Cost Guarantee Balancing	81208	Balancing NYISO Bid Production Cost Guarantee - Internal Units
Bid Production Cost Guarantee Balancing	81209	Balancing NYISO Bid Production Cost Guarantee - External Units
Bid Production Cost Guarantee Balancing	81213	Balancing NYISO Bid Production Cost Guarantee Expenditure due to Curtailed Imports
Bid Production Cost Guarantee DAM	81201	DAM NYISO Bid Production Cost Guarantee - Internal Units
Bid Production Cost Guarantee DAM	84001	EDRP/SCR Demand Response - Local
Bid Production Cost Guarantee DAM	84101	EDRP/SCR Demand Response - NYISO Wide
Bid Production Cost Guarantee DAM	81401	DAM Price Responsive Load Program
Bid Production Cost Guarantee DAM	81202	DAM NYISO Bid Production Cost Guarantee - External Units
Bid Production Cost Guarantee DAM	81206	DAM NYISO Bid Production Cost Guarantee - Internal Units
Bid Production Cost Guarantee DAM	81207	DAM NYISO Bid Production Cost Guarantee - External Units
Bid Production Cost Guarantee DAM Virtual	81501	DAM Virtual Bid Production Cost Guarantee
DAM Contract Balancing	81315	DAM Contract Balancing
DAM Contract Balancing	81317	DAM Contract Balancing
Local Reliability Balancing	81002	Balancing Local Reliability Bid Production Cost Guarantee
Local Reliability Balancing	83901	Margin Restoration (MOB) Revenue
Local Reliability DAM	81001	DAM Local Reliability Bid Production Cost Guarantee
NYISO Cost of Operations	80901	NYISO Cost Of Operations
NYISO Cost of Operations	80902	NYISO Cost Of Operations
NYISO Cost of Operations	83501	NYISO Cost Of Operations
NYISO Cost of Operations	83502	NYISO Cost Of Operations
Residuals Balancing	81302	Balancing Market Energy Residual
Residuals Balancing	81304	Balancing Market Loss Residual
Residuals Balancing	81305	Balancing Market Congestion Balancing
Residuals Balancing	81306	Emergency Energy Purchases
Residuals Balancing	81307	Emergency Energy Sales
Residuals Balancing	81309	Balancing Market Energy Residual
Residuals Balancing	81311	Balancing Market Loss Residual
Residuals Balancing	81312	Balancing Market Congestion Balancing
Residuals Balancing	81313	Emergency Energy Purchases
Residuals Balancing	81314	Emergency Energy Sales
Residuals DAM	81301	Day Ahead Market Energy Residual
Residuals DAM	81303	Day Ahead Market Loss Residual
Residuals DAM	81308	Day Ahead Market Energy Residual
Residuals DAM	81310	Day Ahead Market Loss Residual



The New York Independent System Operator (NYISO) is a not-for-profit corporation responsible for operating the state's bulk electricity grid, administering New York's competitive wholesale electricity markets, conducting comprehensive long-term planning for the state's electric power system, and advancing the technological infrastructure of the electric system serving the Empire State.



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