


Market Operations Report

A faint background graphic shows a map of New York State overlaid with a network diagram. The network consists of various colored nodes (blue, green, red) connected by lines of the same colors, representing a power grid or communication network. The map outline is a simple grey line.

Rana Mukerji

*Senior Vice President, Market Structures
New York Independent System Operator*

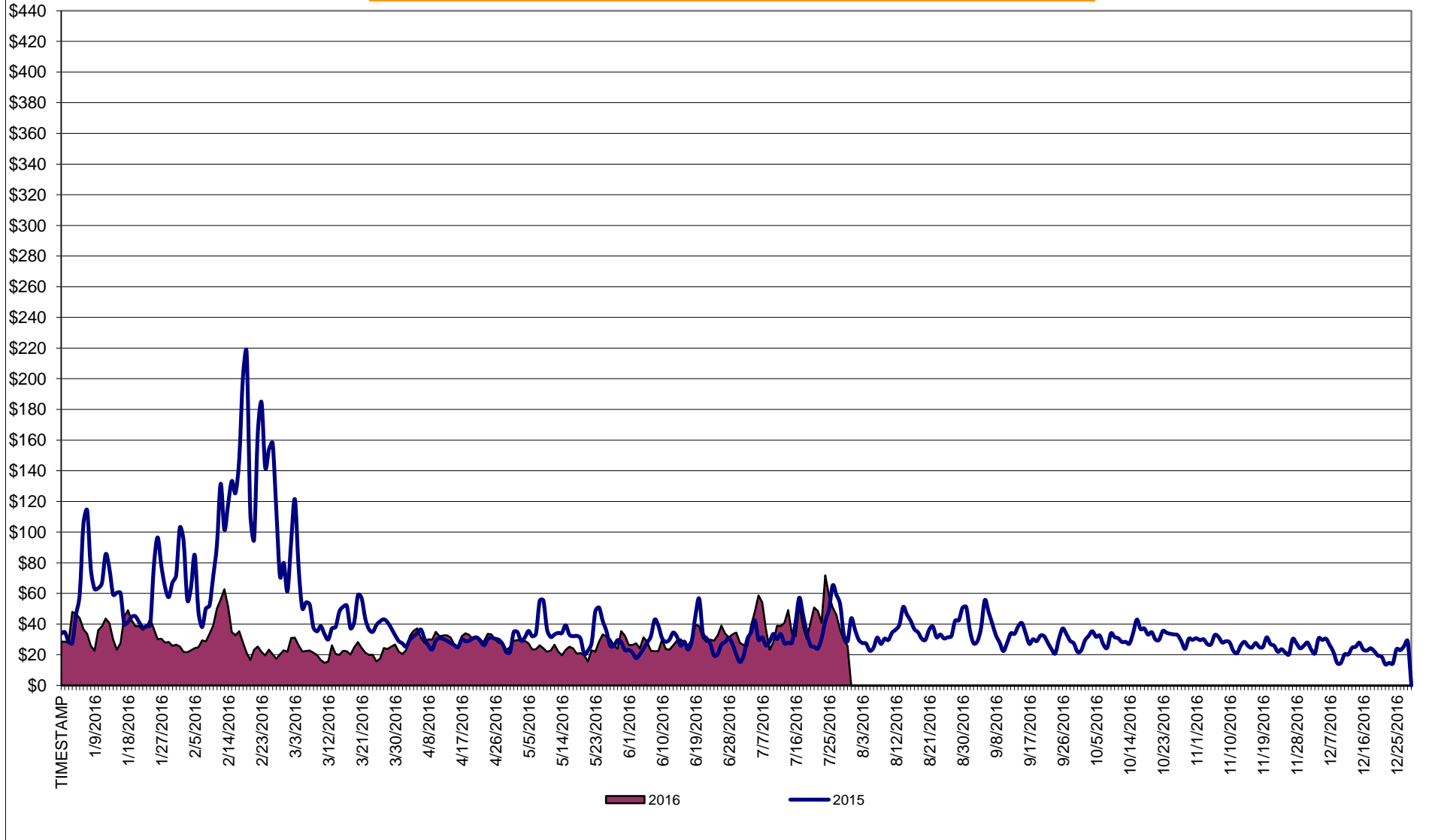
Business Issues Committee Meeting

August 17, 2016

Market Performance Highlights for July 2016

- **LBMP for July is \$40.01/MWh; higher than \$27.35/MWh in June 2016 and higher than \$34.77/MWh in July 2015.**
 - Day Ahead and Real Time Load Weighted LBMPs are higher compared to June.
- **July 2016 average year-to-date monthly cost of \$32.32/MWh is a 39% decrease from \$52.77/MWh in July 2015.**
- **Average daily sendout is 532 GWh/day in July; higher than 456 GWh/day in June 2016 and higher than 512 GWh/day in July 2015.**
- **Natural gas prices and distillate prices were higher compared to the previous month.**
 - Natural Gas (Transco Z6 NY) was \$2.16/MMBtu, up from \$1.84/MMBtu in June.
 - Natural gas prices are up 8.6% year-over-year
 - Jet Kerosene Gulf Coast was \$9.42/MMBtu, down from \$10.21/MMBtu in June.
 - Ultra Low Sulfur No.2 Diesel NY Harbor was \$9.78/MMBtu, down from \$10.64/MMBtu in June.
 - Distillate prices are down 19% year-over-year
- **Uplift per MWh is lower compared to the previous month.**
 - Uplift (not including NYISO cost of operations) is (\$0.26)/MWh; lower than \$0.20/MWh in June.
 - Local Reliability Share is \$0.23/MWh, higher than \$0.21/MWh in June.
 - Statewide Share is (\$0.49)/MWh, lower than (\$0.01)/MWh in June.
 - TSA \$ per NYC MWh is \$0.84/MWh.
 - Total uplift costs (Schedule 1 components including NYISO Cost of Operations) are lower than June.

Daily NYISO Average Cost/MWh (Energy & Ancillary Services)*
2015 Annual Average \$44.10/MWh
July 2015 YTD Average \$52.77/MWh
July 2016 YTD Average \$32.32/MWh



* Excludes ICAP payments.

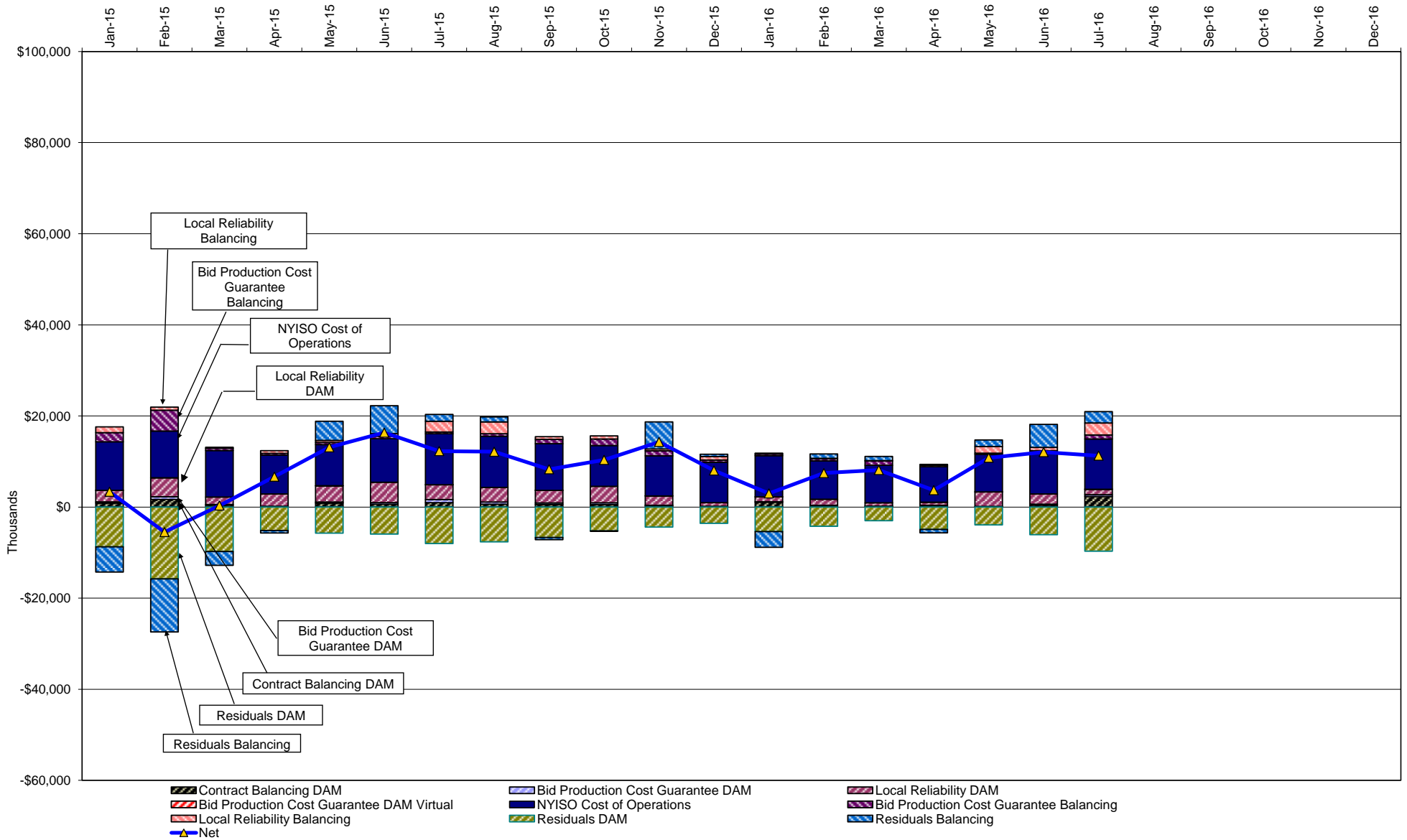
NYISO Average Cost/MWh (Energy and Ancillary Services) *
from the LBMP Customer point of view

2016	<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	34.29	28.71	20.66	27.96	23.31	27.35	40.01					
NTAC	0.59	0.78	0.62	1.14	1.10	0.93	0.78					
Reserve	0.77	0.73	0.73	0.87	0.71	0.59	0.67					
Regulation	0.12	0.12	0.12	0.12	0.11	0.12	0.10					
NYISO Cost of Operations	0.64	0.65	0.65	0.64	0.65	0.66	0.65					
FERC Fee Recovery	0.09	0.10	0.11	0.10	0.09	0.09	0.07					
Uplift	(0.43)	(0.07)	(0.03)	(0.34)	0.19	0.20	(0.26)					
Uplift: Local Reliability Share	0.09	0.11	0.06	0.07	0.35	0.21	0.23					
Uplift: Statewide Share	(0.52)	(0.18)	(0.09)	(0.41)	(0.16)	(0.01)	(0.49)					
Voltage Support and Black Start	<u>0.35</u>	<u>0.36</u>	<u>0.36</u>	<u>0.35</u>	<u>0.36</u>	<u>0.36</u>	<u>0.36</u>					
Avg Monthly Cost	36.42	31.37	23.23	30.84	26.52	30.29	42.40					
Avg YTD Cost	36.42	34.02	30.68	30.71	29.85	29.93	32.32					
TSA \$ per NYC MWh	0.00	0.00	0.05	0.00	0.00	0.02	0.84					
2015	<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	59.61	114.37	52.09	28.36	32.98	28.20	34.77	33.09	34.40	30.05	24.83	20.91
NTAC	0.32	0.35	0.41	0.64	0.56	0.80	0.54	0.60	0.63	0.53	0.68	1.05
Reserve	0.27	0.37	0.56	0.36	0.38	0.24	0.27	0.20	0.28	0.28	0.47	0.60
Regulation	0.10	0.18	0.11	0.12	0.10	0.13	0.12	0.12	0.10	0.12	0.13	0.13
NYISO Cost of Operations	0.70	0.70	0.70	0.70	0.70	0.70	0.70	0.70	0.70	0.69	0.70	0.69
Uplift	(0.48)	(1.08)	(0.68)	(0.15)	0.26	0.33	0.04	0.03	(0.15)	0.10	0.44	(0.07)
Uplift: Local Reliability Share	0.25	0.33	0.13	0.27	0.30	0.37	0.35	0.36	0.22	0.33	0.20	0.12
Uplift: Statewide Share	(0.73)	(1.41)	(0.81)	(0.42)	(0.05)	(0.04)	(0.30)	(0.33)	(0.37)	(0.23)	0.25	(0.18)
Voltage Support and Black Start	<u>0.39</u>	<u>0.39</u>	<u>0.39</u>	<u>0.39</u>	<u>0.39</u>	<u>0.39</u>	<u>0.39</u>	<u>0.39</u>	<u>0.39</u>	<u>0.39</u>	<u>0.39</u>	<u>0.38</u>
Avg Monthly Cost	60.91	115.27	53.58	30.41	35.37	30.79	36.84	35.14	36.35	32.18	27.64	23.71
Avg YTD Cost	60.91	87.74	76.64	66.82	60.96	56.02	52.77	50.20	48.59	47.17	45.66	44.10
TSA \$ per NYC MWh	0.00	0.00	0.00	0.00	0.17	0.50	0.07	0.06	0.01	0.00	0.00	0.00
2014	<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	183.36	123.19	109.58	46.09	40.30	43.39	43.97	34.48	37.63	35.61	42.89	38.08
NTAC	0.56	0.64	0.39	1.18	0.69	0.78	0.43	0.41	0.50	0.57	0.68	0.86
Reserve	0.78	0.49	0.56	0.46	0.28	0.27	0.26	0.26	0.29	0.48	0.37	0.23
Regulation	0.27	0.21	0.22	0.13	0.12	0.12	0.12	0.13	0.11	0.12	0.11	0.08
NYISO Cost of Operations	0.69	0.69	0.69	0.69	0.69	0.69	0.69	0.69	0.69	0.69	0.69	0.69
Uplift	0.22	0.56	0.35	(0.09)	0.07	(0.21)	(0.26)	(0.19)	(0.20)	(0.24)	(0.40)	(0.20)
Uplift: Local Reliability Share	1.43	0.75	0.62	0.15	0.51	0.32	0.29	0.27	0.26	0.26	0.24	0.13
Uplift: Statewide Share	(1.21)	(0.19)	(0.27)	(0.24)	(0.44)	(0.53)	(0.55)	(0.45)	(0.46)	(0.50)	(0.64)	(0.33)
Voltage Support and Black Start	<u>0.36</u>	<u>0.36</u>	<u>0.36</u>	<u>0.36</u>	<u>0.36</u>	<u>0.36</u>	<u>0.36</u>	<u>0.36</u>	<u>0.36</u>	<u>0.36</u>	<u>0.36</u>	<u>0.36</u>
Avg Monthly Cost	186.24	126.14	112.15	48.82	42.51	45.39	45.57	36.14	39.38	37.59	44.71	40.09
Avg YTD Cost	186.24	157.93	142.77	121.97	108.36	97.84	89.46	82.60	78.07	74.63	72.06	69.31
TSA \$ per NYC MWh	0.00	0.00	0.00	0.00	0.00	0.03	0.35	0.00	0.42	0.00	0.00	0.00

* Excludes ICAP payments.
Market Mitigation and Analysis
Prepared: 8/8/2016 11:51 AM

Data reflects true-ups thru December 2015.
As of Jan. 2016, the annual FERC fee is recovered separately from Cost of Ops.

NYISO Dollar Flows - Uplift - OATT Schedule 1 components - Data through July 31, 2016



NYISO Markets Transactions

2016	<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>
Day Ahead Market MWh	14,760,915	13,614,754	13,413,781	12,496,141	12,959,886	14,095,904	16,950,819					
DAM LSE Internal LBMP Energy Sales	54%	55%	55%	57%	58%	60%	64%					
DAM External TC LBMP Energy Sales	4%	2%	1%	5%	2%	1%	1%					
DAM Bilateral - Internal Bilaterals	34%	34%	35%	28%	31%	30%	28%					
DAM Bilateral - Import/Non-LBMP Market Bilaterals	5%	5%	5%	6%	5%	5%	4%					
DAM Bilateral - Export/Non-LBMP Market Bilaterals	2%	1%	2%	2%	2%	2%	1%					
DAM Bilateral - Wheel Through Bilaterals	2%	2%	2%	2%	2%	2%	2%					
Balancing Energy Market MWh	-522,919	-580,900	-741,701	-303,313	-180,848	-143,015	-86,025					
Balancing Energy LSE Internal LBMP Energy Sales	-125%	-114%	-118%	-76%	-147%	-203%	-347%					
Balancing Energy External TC LBMP Energy Sales	12%	13%	19%	-13%	55%	77%	204%					
Balancing Energy Bilateral - Internal Bilaterals	19%	9%	4%	8%	27%	47%	62%					
Balancing Energy Bilateral - Import/Non-LBMP Market Bilaterals	0%	0%	0%	0%	0%	0%	0%					
Balancing Energy Bilateral - Export/Non-LBMP Market Bilaterals	6%	5%	3%	5%	7%	10%	15%					
Balancing Energy Bilateral - Wheel Through Bilaterals	-12%	-12%	-8%	-24%	-42%	-32%	-34%					
Transactions Summary												
LBMP	56%	56%	54%	62%	59%	61%	65%					
Internal Bilaterals	36%	36%	37%	29%	32%	31%	28%					
Import Bilaterals	5%	5%	6%	6%	5%	5%	4%					
Export Bilaterals	2%	2%	2%	2%	2%	2%	1%					
Wheels Through	1%	1%	1%	1%	2%	2%	1%					
Market Share of Total Load												
Day Ahead Market	103.7%	104.5%	105.9%	102.5%	101.4%	101.0%	100.5%					
Balancing Energy +	-3.7%	-4.5%	-5.9%	-2.5%	-1.4%	-1.0%	-0.5%					
Total MWh	14,237,996	13,033,853	12,672,080	12,192,828	12,779,038	13,952,889	16,864,794					
Average Daily Energy Sendout/Month GWh	439	436	397	385	397	456	532					

2015	<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>
Day Ahead Market MWh	15,961,306	14,967,371	15,059,207	12,589,321	13,291,917	14,277,299	16,573,027	16,333,932	14,740,907	13,546,033	13,338,332	13,620,002
DAM LSE Internal LBMP Energy Sales	55%	54%	53%	55%	57%	57%	62%	61%	58%	53%	53%	55%
DAM External TC LBMP Energy Sales	5%	6%	6%	4%	2%	1%	1%	1%	3%	6%	5%	1%
DAM Bilateral - Internal Bilaterals	35%	33%	33%	33%	35%	33%	30%	31%	31%	34%	33%	35%
DAM Bilateral - Import/Non-LBMP Market Bilaterals	3%	5%	5%	6%	4%	5%	4%	4%	5%	5%	5%	5%
DAM Bilateral - Export/Non-LBMP Market Bilaterals	2%	2%	1%	2%	1%	1%	1%	1%	1%	2%	2%	2%
DAM Bilateral - Wheel Through Bilaterals	0%	1%	1%	1%	0%	2%	2%	2%	2%	1%	2%	2%
Balancing Energy Market MWh	-650,944	-296,616	-396,739	-409,205	-331,091	-549,794	-505,637	-228,461	-33,268	-604,600	-718,787	-642,268
Balancing Energy LSE Internal LBMP Energy Sales	-149%	-247%	-192%	-147%	-142%	-106%	-120%	-139%	-345%	-115%	-110%	-115%
Balancing Energy External TC LBMP Energy Sales	30%	113%	64%	36%	35%	16%	25%	50%	110%	12%	12%	17%
Balancing Energy Bilateral - Internal Bilaterals	13%	14%	19%	5%	6%	6%	13%	25%	239%	7%	4%	5%
Balancing Energy Bilateral - Import/Non-LBMP Market Bilaterals	0%	0%	0%	0%	0%	1%	0%	0%	0%	0%	0%	0%
Balancing Energy Bilateral - Export/Non-LBMP Market Bilaterals	6%	8%	12%	12%	10%	4%	3%	8%	46%	5%	5%	6%
Balancing Energy Bilateral - Wheel Through Bilaterals	0%	12%	-4%	-5%	-9%	-22%	-21%	-44%	-149%	-9%	-11%	-13%
Transactions Summary												
LBMP	58%	59%	57%	57%	58%	57%	61%	61%	61%	56%	56%	54%
Internal Bilaterals	37%	34%	35%	35%	36%	35%	32%	32%	32%	36%	35%	37%
Import Bilaterals	3%	5%	5%	6%	4%	5%	5%	5%	5%	5%	6%	6%
Export Bilaterals	2%	2%	2%	2%	2%	1%	1%	1%	1%	2%	2%	2%
Wheels Through	0%	1%	1%	0%	0%	1%	1%	1%	1%	0%	1%	1%
Market Share of Total Load												
Day Ahead Market	104.3%	102.0%	102.7%	103.4%	102.6%	104.0%	103.1%	101.4%	100.2%	104.7%	105.7%	104.9%
Balancing Energy +	-4.3%	-2.0%	-2.7%	-3.4%	-2.6%	-4.0%	-3.1%	-1.4%	-0.2%	-4.7%	-5.7%	-4.9%
Total MWh	15,310,362	14,670,755	14,662,468	12,180,116	12,960,826	13,727,505	16,067,390	16,105,471	14,707,639	12,941,433	12,619,545	12,977,734
Average Daily Energy Sendout/Month GWh	462	481	436	387	409	450	512	511	473	389	396	408

+ 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 2016 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>
<u>DAY AHEAD LBMP</u>												
Price *	\$31.01	\$25.76	\$18.63	\$26.39	\$21.07	\$24.83	\$35.24					
Standard Deviation	\$10.86	\$12.46	\$6.99	\$6.95	\$7.04	\$9.21	\$18.37					
Load Weighted Price **	\$32.13	\$26.75	\$19.37	\$27.14	\$22.12	\$26.30	\$38.29					
<u>RTC LBMP</u>												
Price *	\$26.12	\$24.10	\$16.41	\$23.41	\$19.96	\$24.29	\$36.22					
Standard Deviation	\$16.06	\$17.89	\$11.32	\$9.09	\$11.44	\$16.58	\$38.04					
Load Weighted Price **	\$27.16	\$25.29	\$17.11	\$24.10	\$21.23	\$25.73	\$39.42					
<u>REAL TIME LBMP</u>												
Price *	\$30.15	\$24.28	\$17.84	\$25.71	\$20.67	\$25.87	\$34.40					
Standard Deviation	\$60.09	\$18.19	\$15.06	\$16.59	\$12.84	\$19.27	\$38.56					
Load Weighted Price **	\$31.80	\$25.61	\$18.64	\$26.57	\$21.99	\$27.39	\$38.20					
Average Daily Energy Sendout/Month GWh	439	436	397	385	397	456	532					

NYISO Markets 2015 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>
<u>DAY AHEAD LBMP</u>												
Price *	\$53.35	\$101.48	\$46.59	\$26.07	\$29.21	\$24.30	\$30.27	\$30.01	\$30.18	\$27.11	\$22.18	\$18.94
Standard Deviation	\$24.61	\$48.85	\$21.51	\$6.73	\$13.44	\$11.96	\$17.67	\$12.05	\$13.37	\$7.64	\$7.94	\$8.41
Load Weighted Price **	\$55.40	\$104.52	\$48.01	\$26.84	\$31.08	\$26.12	\$32.94	\$31.81	\$32.46	\$27.95	\$23.12	\$19.97
<u>RTC LBMP</u>												
Price *	\$46.98	\$95.06	\$43.43	\$25.11	\$32.85	\$24.73	\$27.51	\$31.83	\$32.39	\$23.97	\$20.07	\$19.34
Standard Deviation	\$22.84	\$47.55	\$29.42	\$12.31	\$35.40	\$24.71	\$21.84	\$23.25	\$22.99	\$10.56	\$15.66	\$14.23
Load Weighted Price **	\$48.59	\$97.62	\$45.10	\$26.00	\$35.08	\$26.73	\$29.76	\$34.04	\$34.99	\$24.79	\$21.17	\$20.46
<u>REAL TIME LBMP</u>												
Price *	\$48.51	\$98.83	\$44.38	\$25.46	\$30.39	\$23.96	\$27.71	\$31.54	\$34.82	\$25.50	\$21.33	\$20.75
Standard Deviation	\$25.99	\$52.53	\$29.07	\$12.66	\$31.69	\$31.14	\$23.42	\$26.51	\$34.85	\$12.56	\$18.76	\$19.00
Load Weighted Price **	\$50.18	\$101.34	\$46.10	\$26.28	\$32.52	\$26.86	\$30.50	\$34.05	\$38.48	\$26.29	\$22.47	\$21.86
Average Daily Energy Sendout/Month GWh	462	481	436	387	409	450	512	511	473	389	396	408

* Average zonal load weighted prices.

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

NYISO Monthly Average Internal LBMPs 2015- 2016

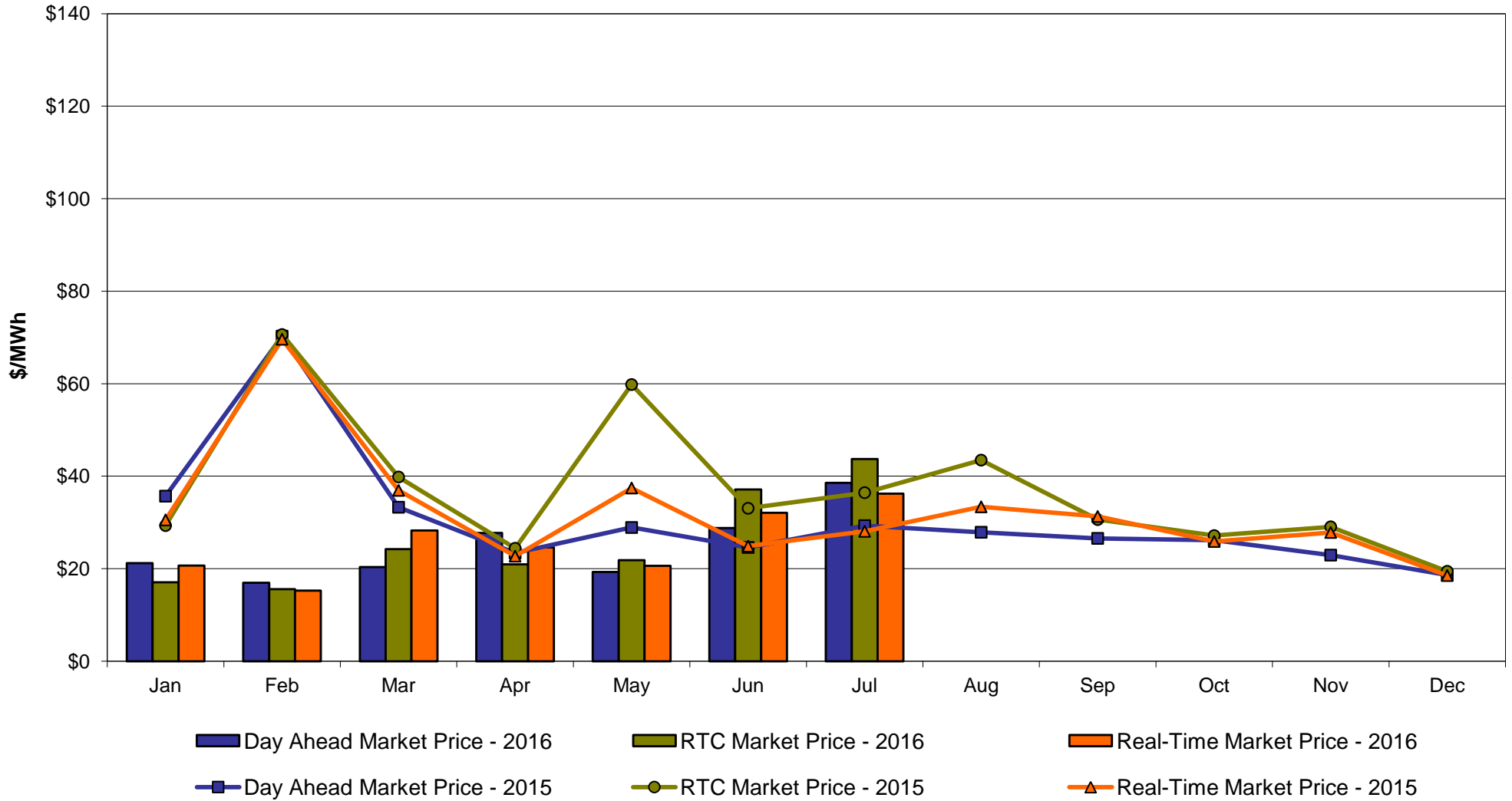


July 2016 Zonal LBMP Statistics for NYISO (\$/MWh)

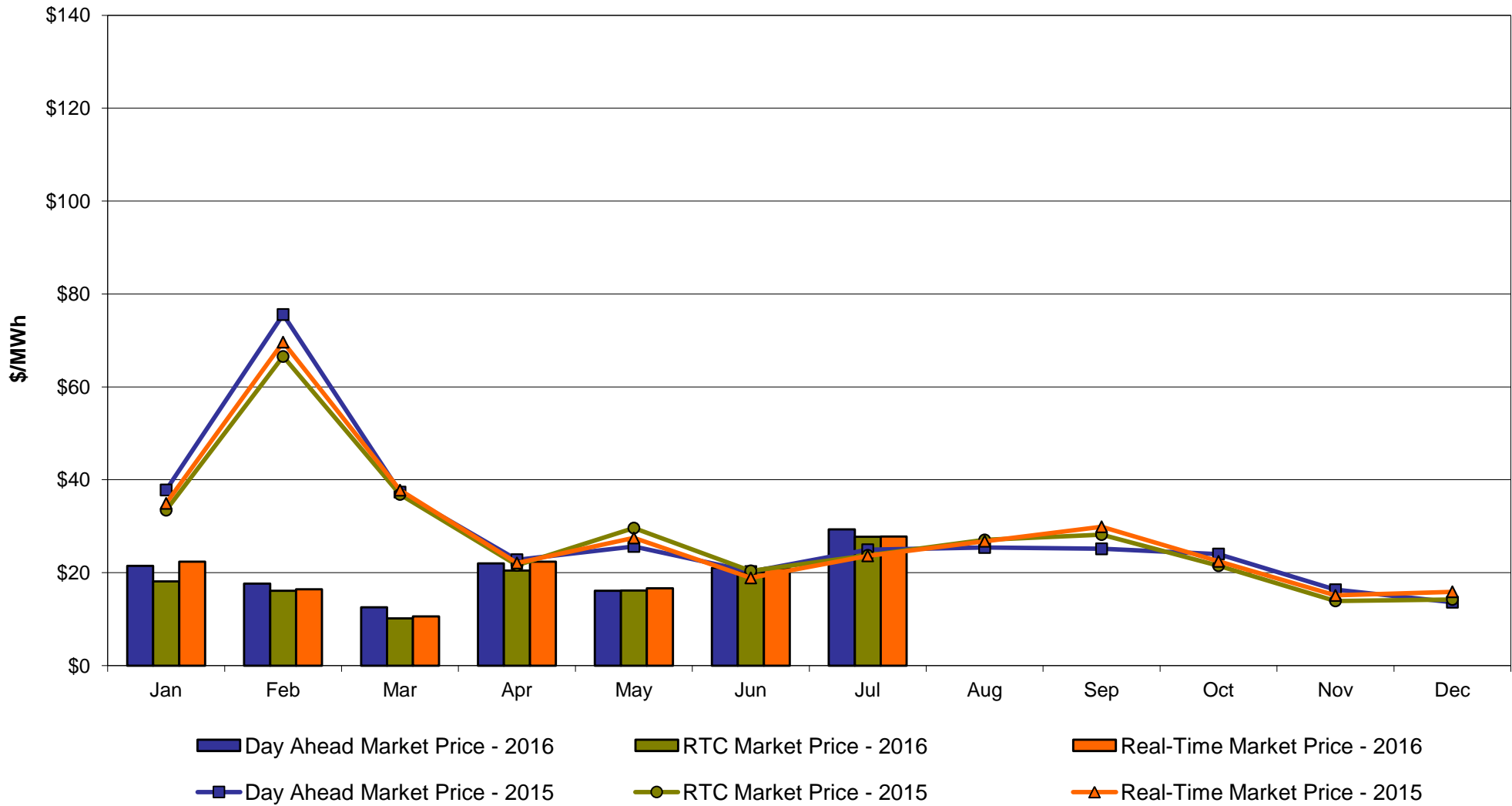
	<u>WEST Zone A</u>	<u>GENESEE Zone B</u>	<u>NORTH Zone D</u>	<u>CENTRAL Zone C</u>	<u>MOHAWK VALLEY Zone E</u>	<u>CAPITAL Zone F</u>	<u>HUDSON VALLEY Zone G</u>	<u>MILLWOOD Zone H</u>	<u>DUNWOODIE Zone I</u>	<u>NEW YORK CITY Zone J</u>	<u>LONG ISLAND Zone K</u>
<u>DAY AHEAD LBMP</u>											
Unweighted Price *	38.59	28.08	26.78	29.31	29.43	30.76	33.32	33.86	33.92	35.43	44.48
Standard Deviation	28.37	11.70	10.57	12.67	12.21	12.33	15.71	16.64	16.67	17.01	32.41
<u>RTC LBMP</u>											
Unweighted Price *	43.74	26.76	25.62	27.75	27.92	28.95	30.79	31.07	31.00	33.80	54.98
Standard Deviation	77.69	20.63	19.54	21.47	21.10	21.56	24.17	24.83	24.77	28.76	163.70
<u>REAL TIME LBMP</u>											
Unweighted Price *	36.22	27.03	26.09	27.80	28.43	29.44	32.14	32.56	32.50	35.75	42.41
Standard Deviation	66.32	26.96	25.85	27.54	27.97	28.61	39.97	42.83	43.02	46.56	63.67
	<u>ONTARIO IESO Zone O</u>	<u>HYDRO QUEBEC (Wheel) Zone M</u>	<u>HYDRO QUEBEC (Import/Export) Zone M</u>	<u>PJM Zone P</u>	<u>NEW ENGLAND Zone N</u>	<u>CROSS SOUND CABLE Controllable Line</u>	<u>NORTHPORT- NORWALK Controllable Line</u>	<u>NEPTUNE Controllable Line</u>	<u>LINDEN VFT Controllable Line</u>	<u>HUDSON Controllable Line</u>	<u>Dennison Controllable Line</u>
<u>DAY AHEAD LBMP</u>											
Unweighted Price *	24.48	26.63	26.63	31.59	31.84	42.87	33.98	40.77	33.08	34.11	26.42
Standard Deviation	8.00	11.27	11.27	15.20	13.88	31.30	14.40	28.83	14.52	16.69	10.46
<u>RTC LBMP</u>											
Unweighted Price *	22.11	24.13	24.13	28.33	28.88	50.79	40.12	45.86	29.35	31.11	25.21
Standard Deviation	22.40	21.05	21.05	20.03	23.77	158.74	143.35	120.85	21.54	24.86	19.55
<u>REAL TIME LBMP</u>											
Unweighted Price *	23.94	25.09	25.09	27.75	30.04	40.15	27.61	38.19	30.59	32.62	25.62
Standard Deviation	25.44	26.55	26.55	28.17	31.43	61.11	76.54	58.48	42.27	43.03	25.28

* Straight LBMP averages

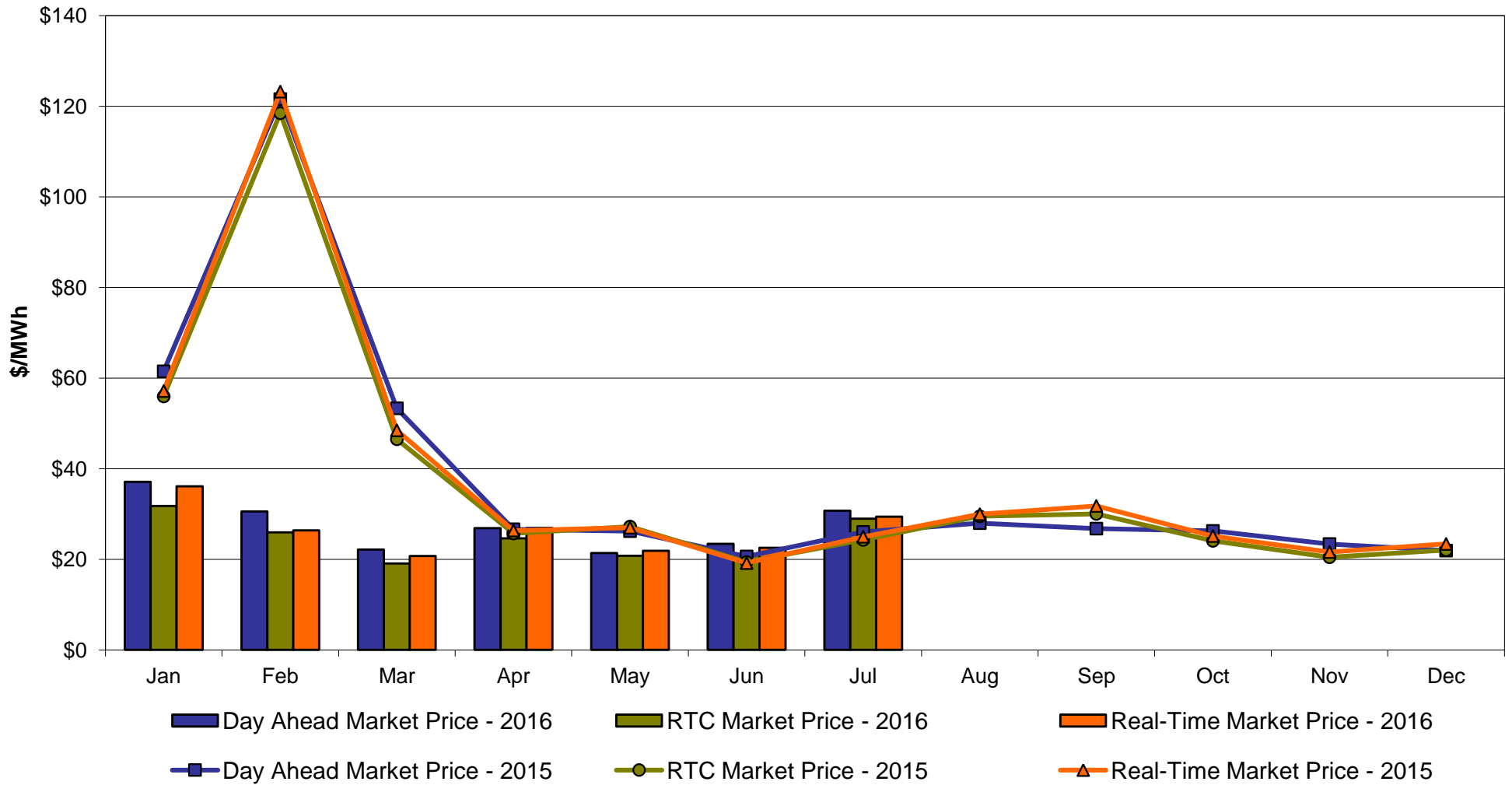
West Zone A Monthly Average LBMP Prices 2015 - 2016



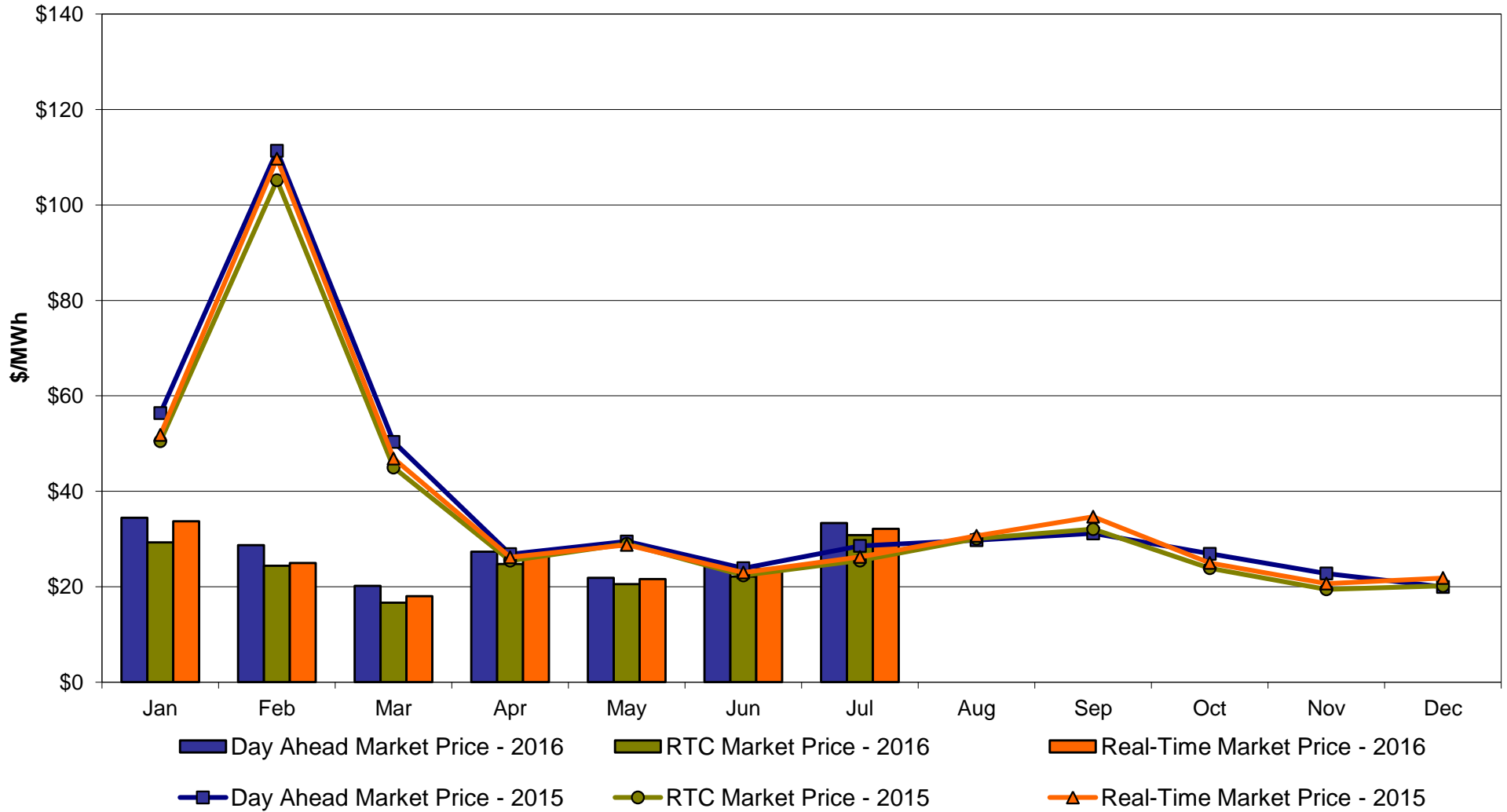
**Central Zone C
Monthly Average LBMP Prices 2015 - 2016**



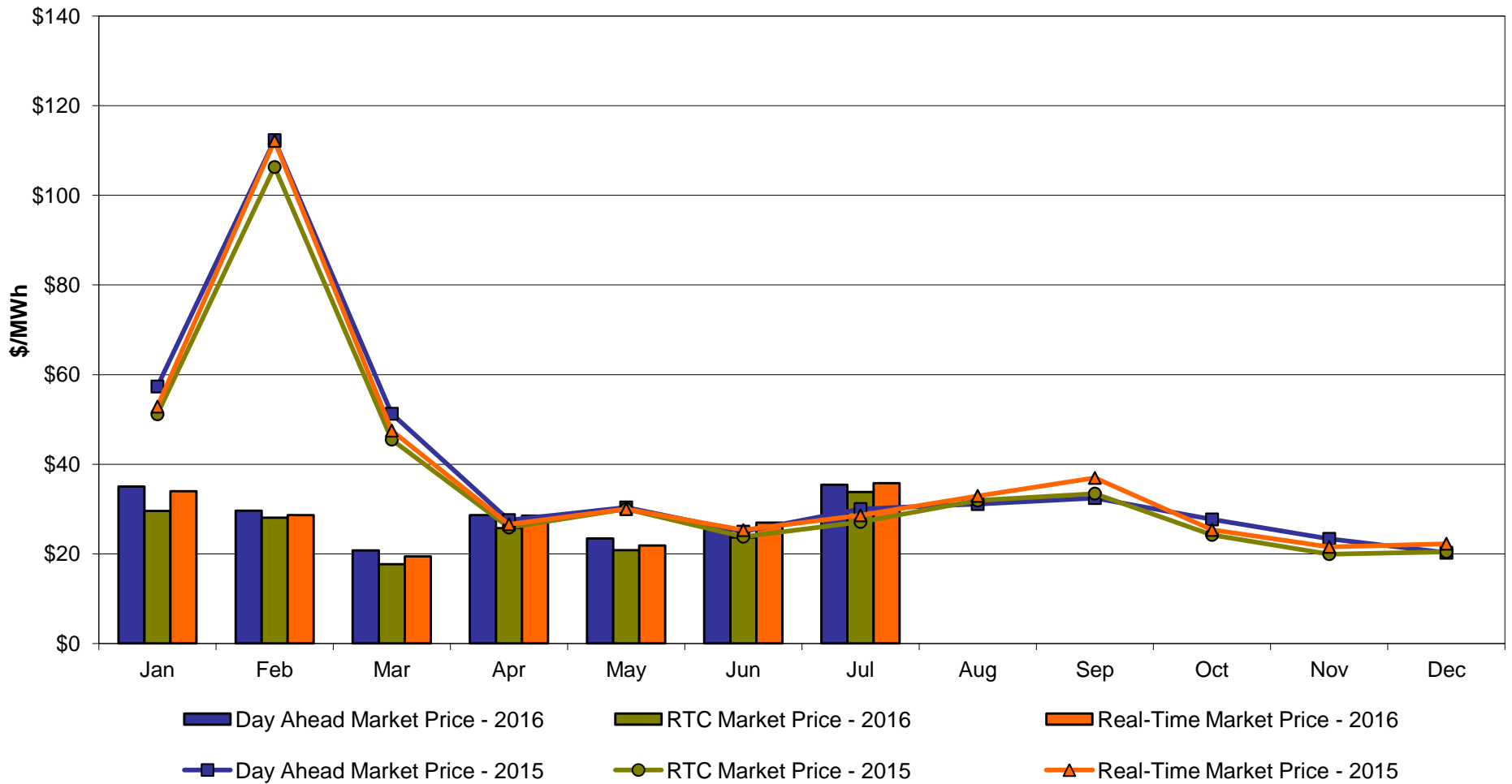
Capital Zone F Monthly Average LBMP Prices 2015 - 2016



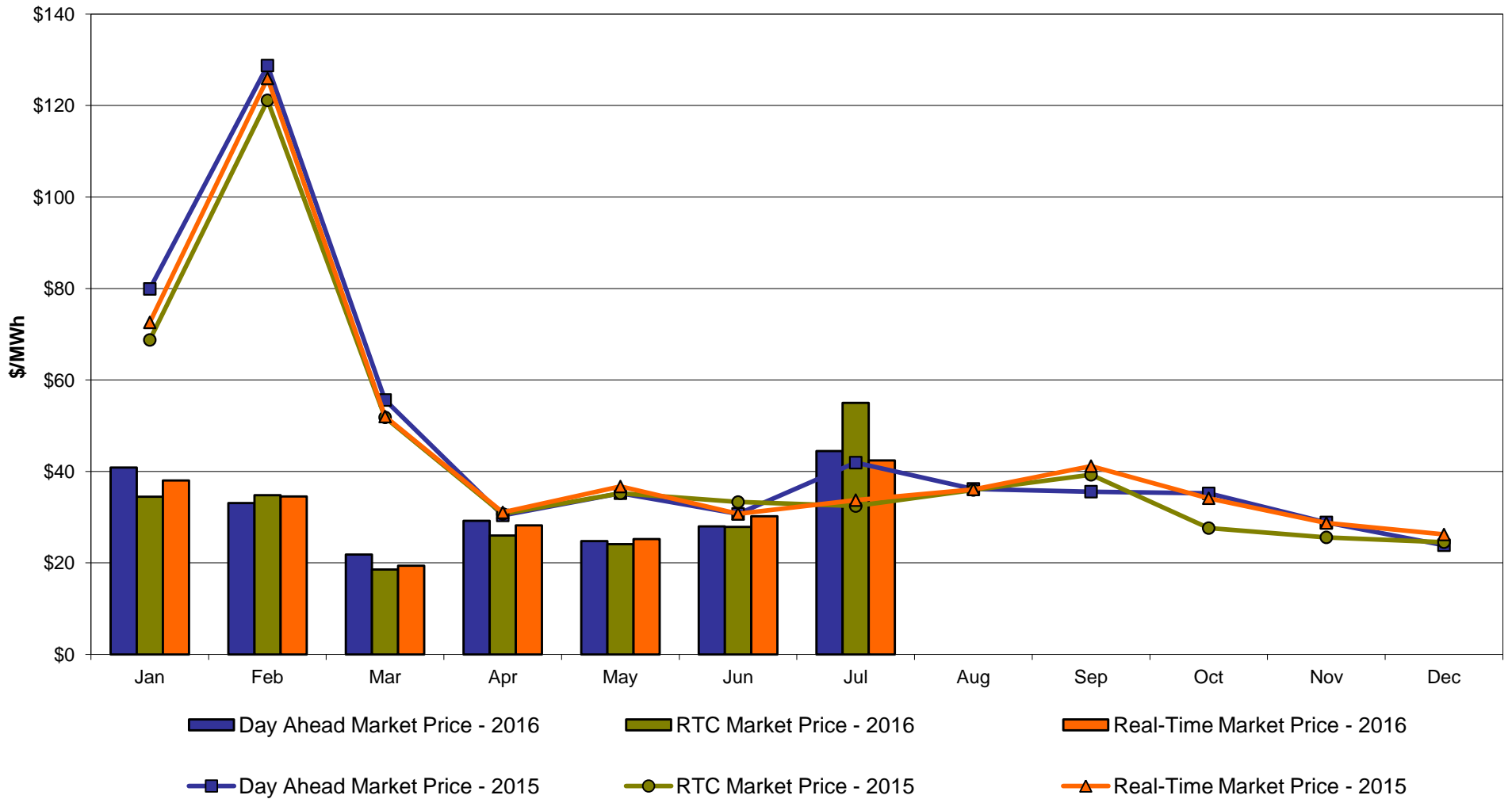
Hudson Valley Zone G Monthly Average LBMP Prices 2015 - 2016



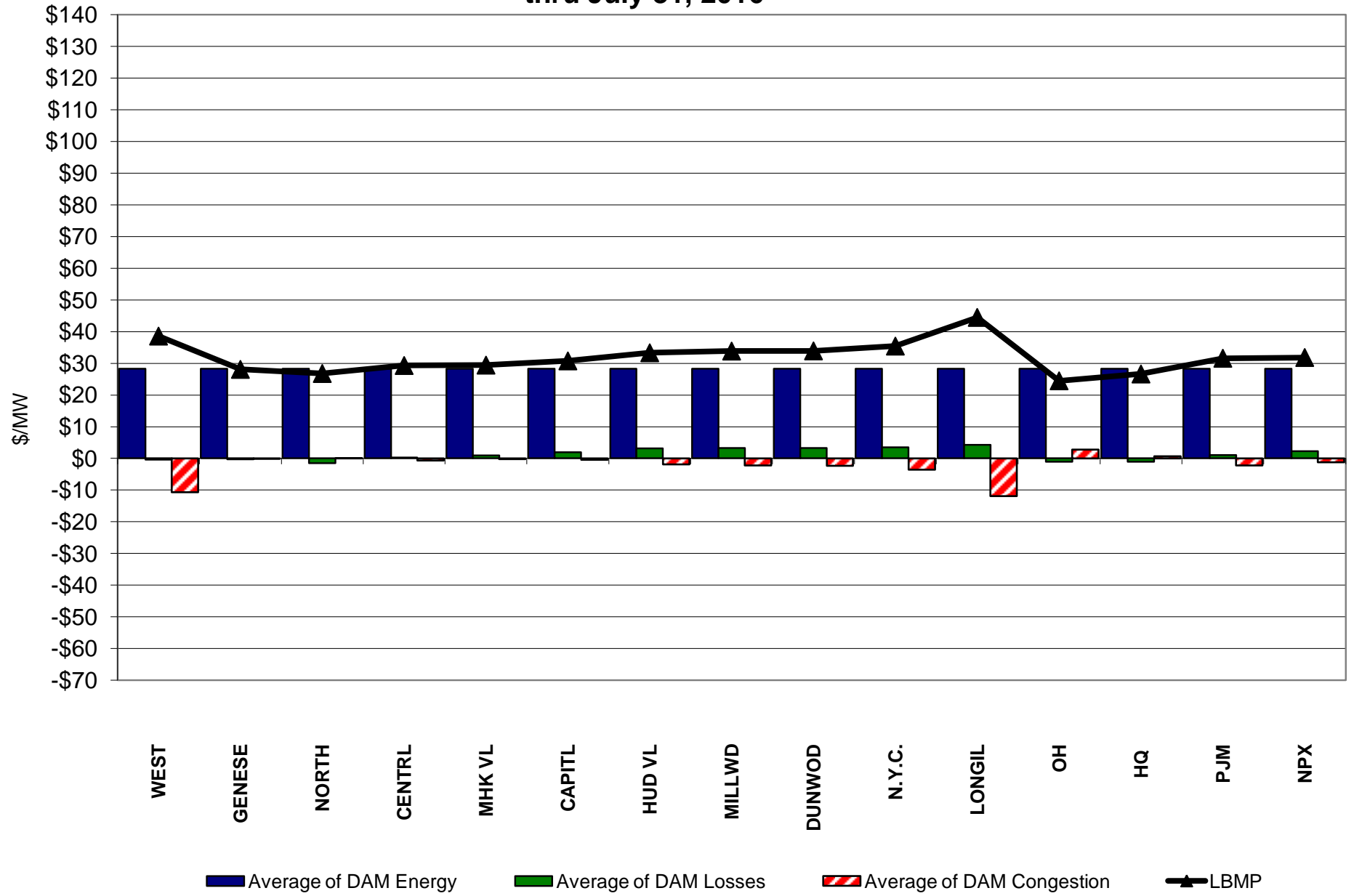
NYC Zone J Monthly Average LBMP Prices 2015 - 2016



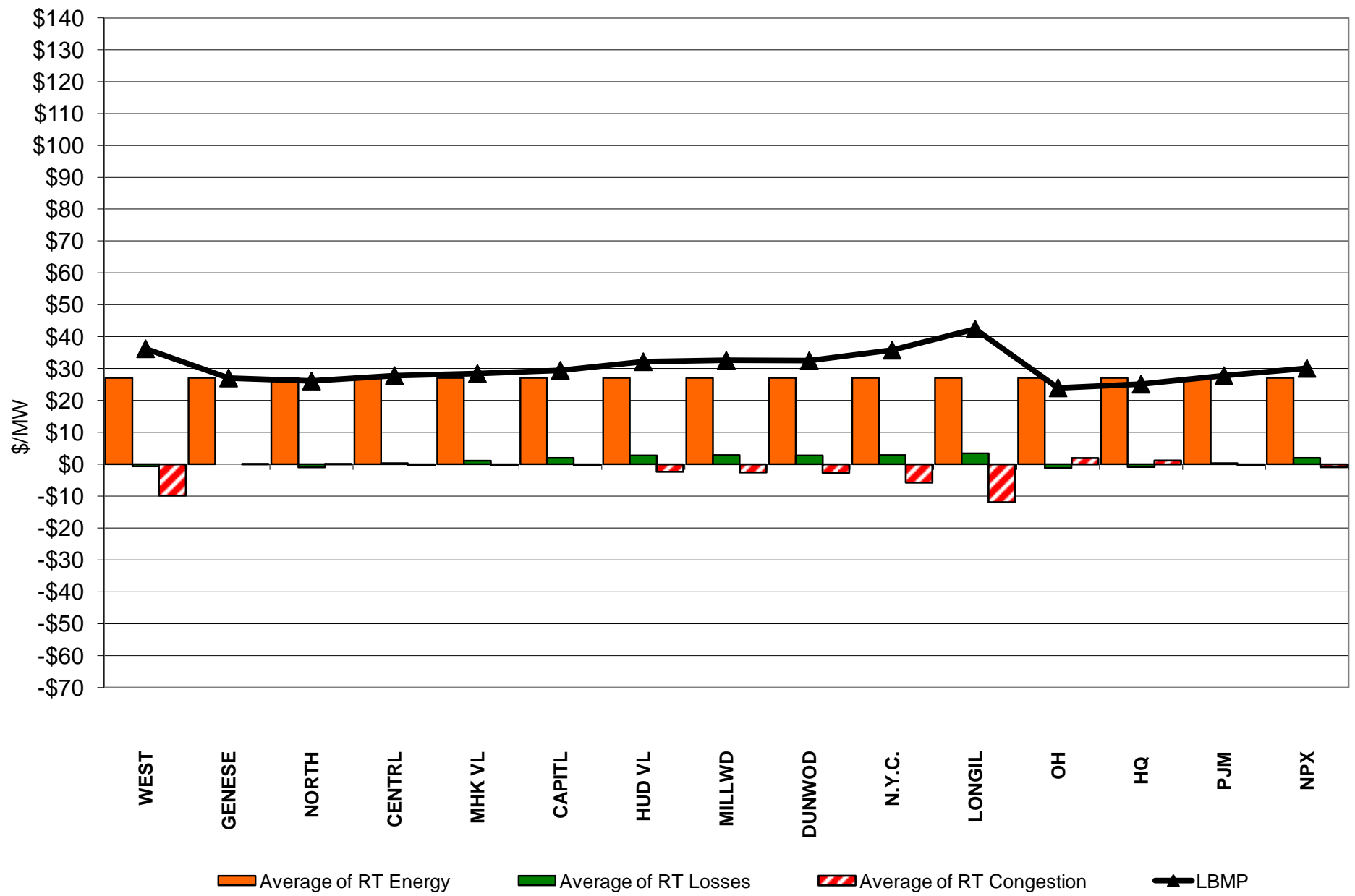
Long Island Zone K Monthly Average LBMP Prices 2015 - 2016



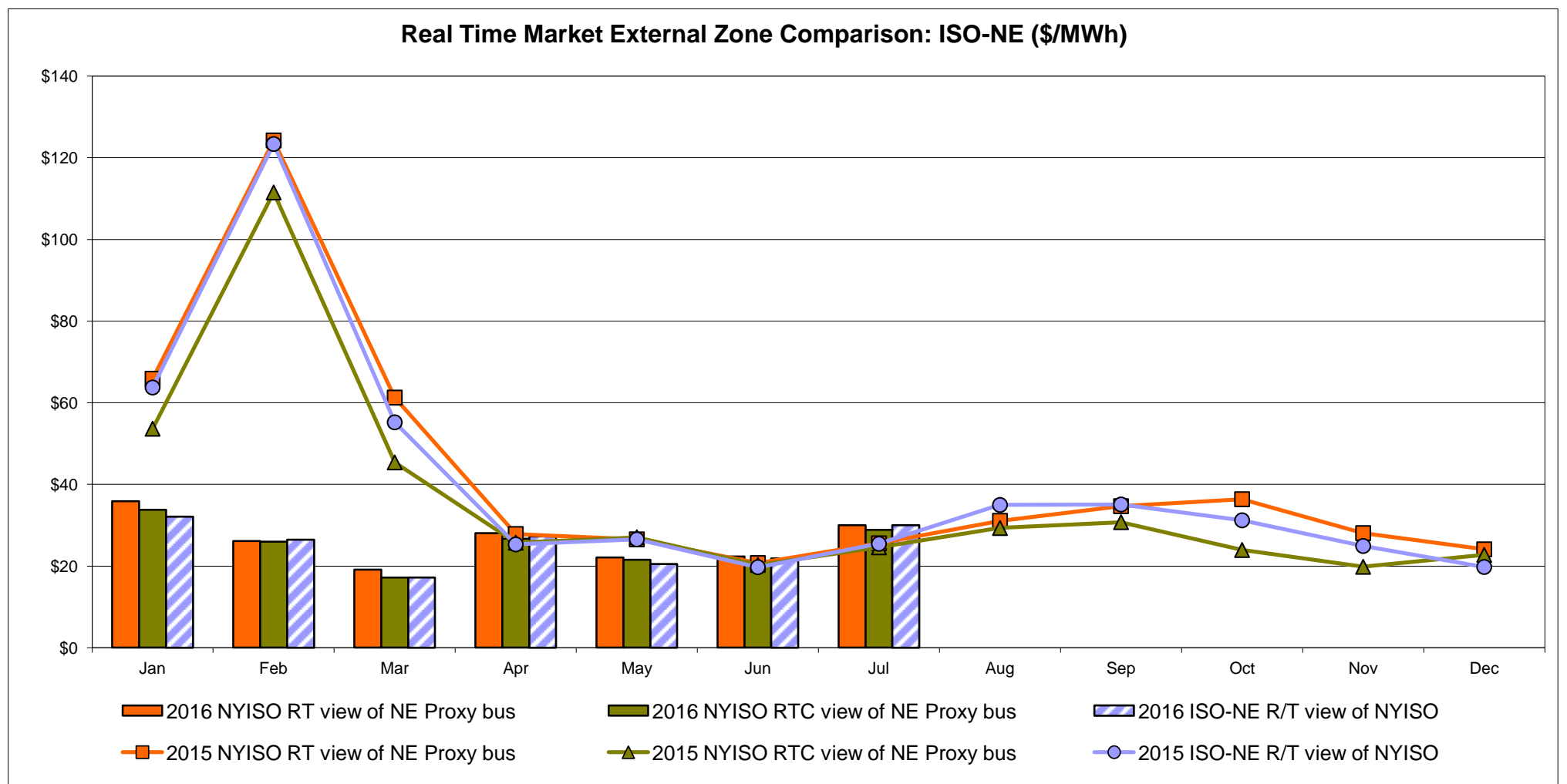
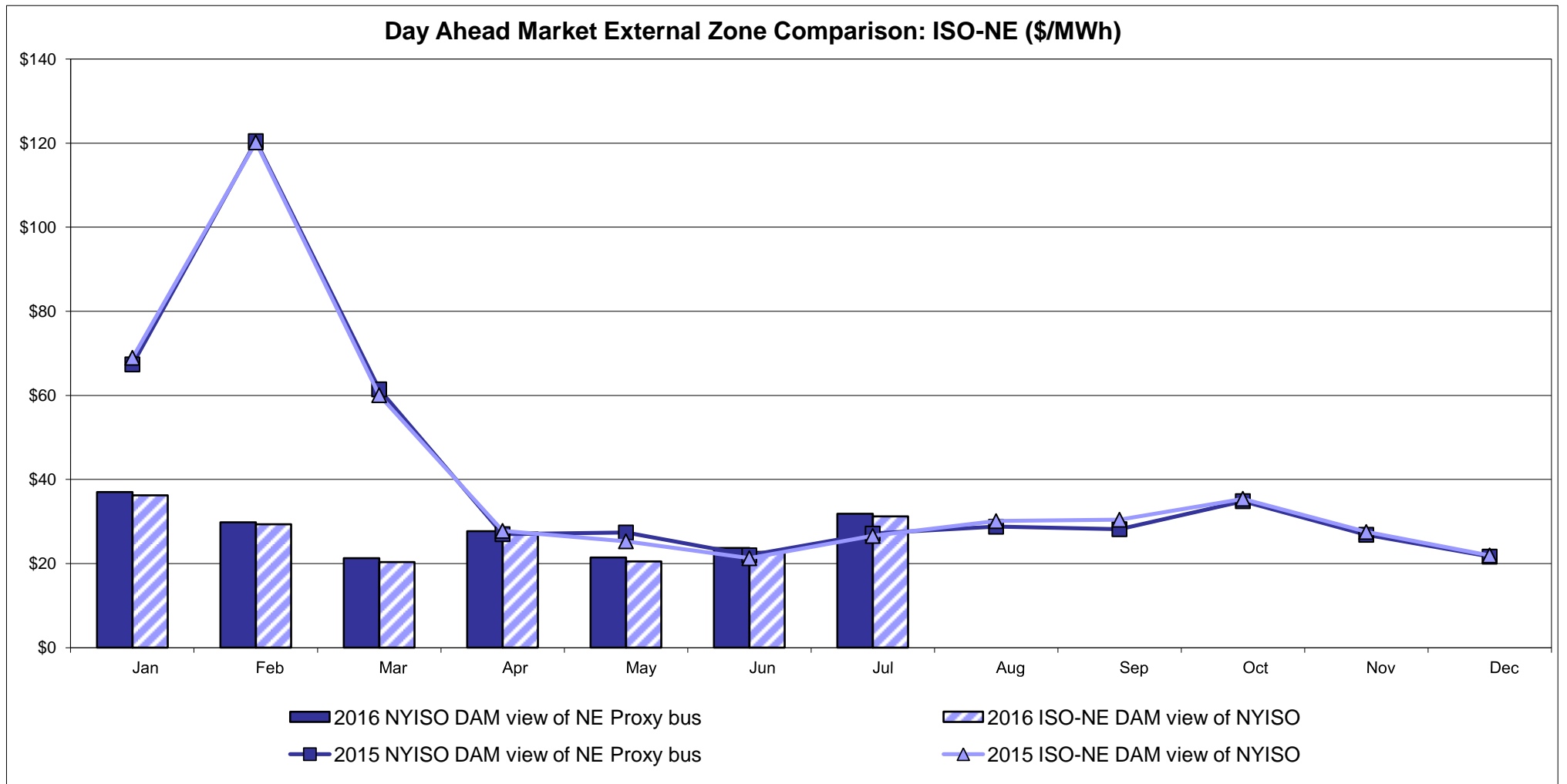
**DAM Zonal Unweighted Monthly Average LBMP Components
thru July 31, 2016**



**RT Zonal Unweighted Monthly Average LBMP Components
thru July 31, 2016**

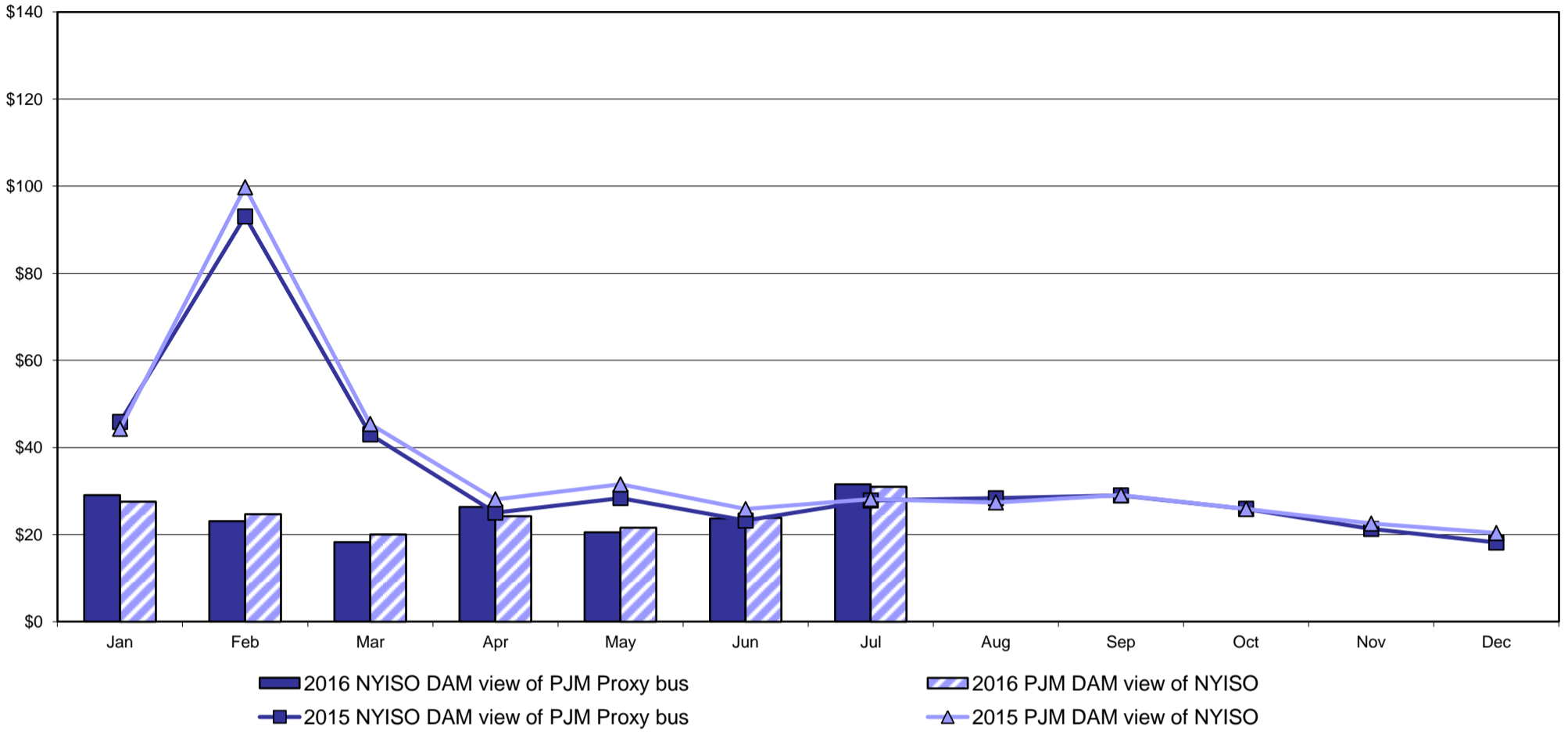


External Comparison ISO-New England

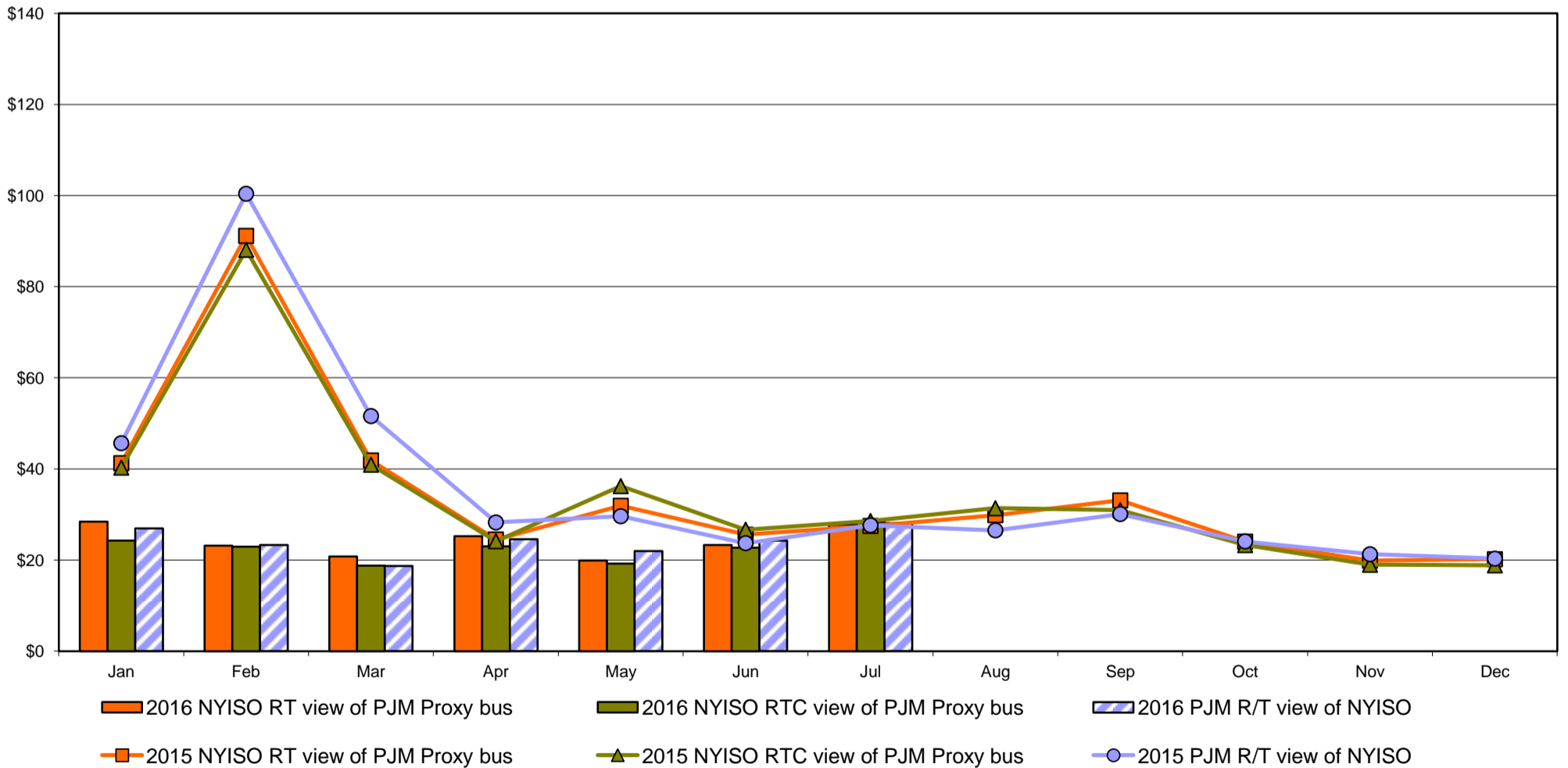


External Comparison PJM

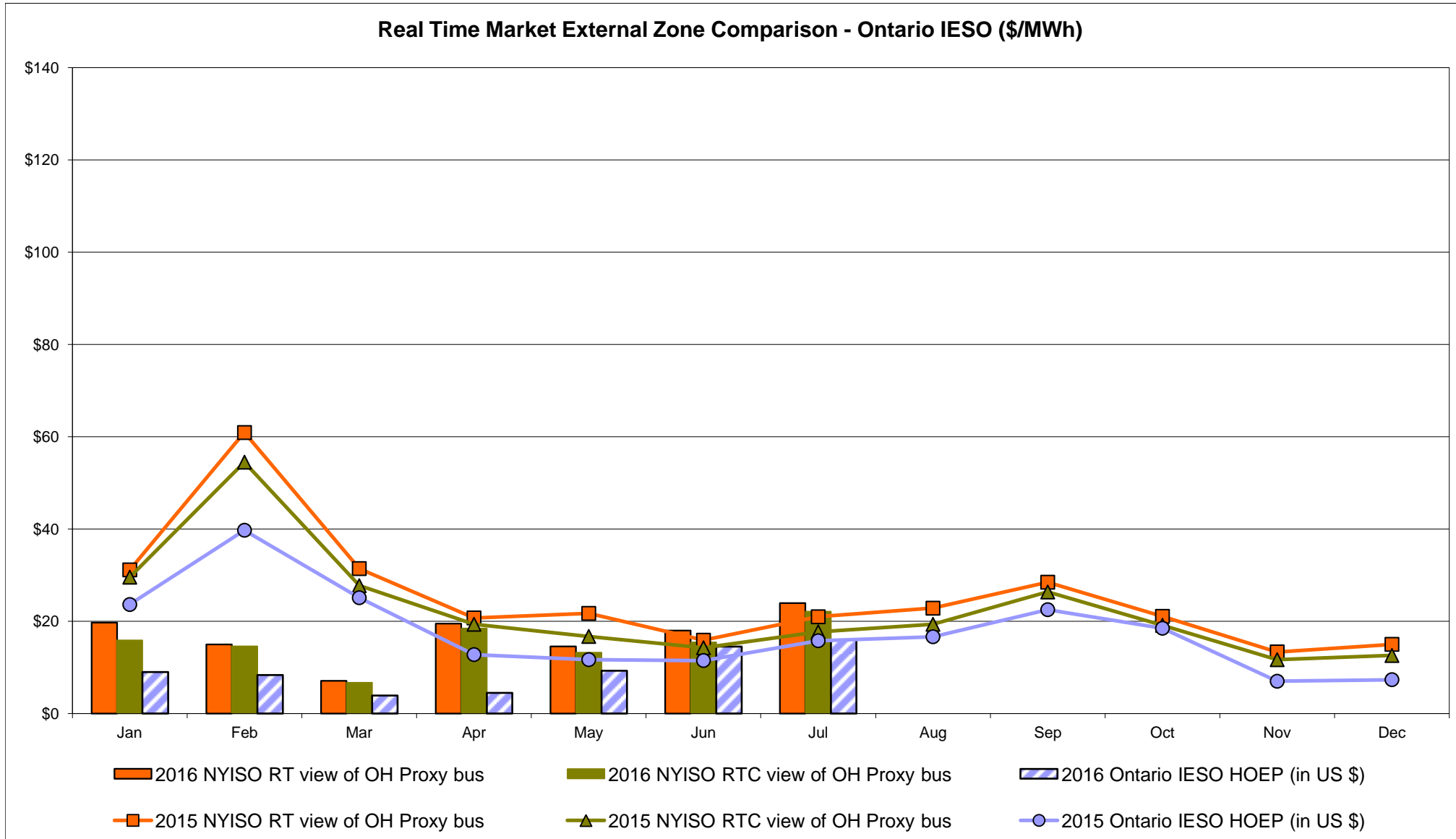
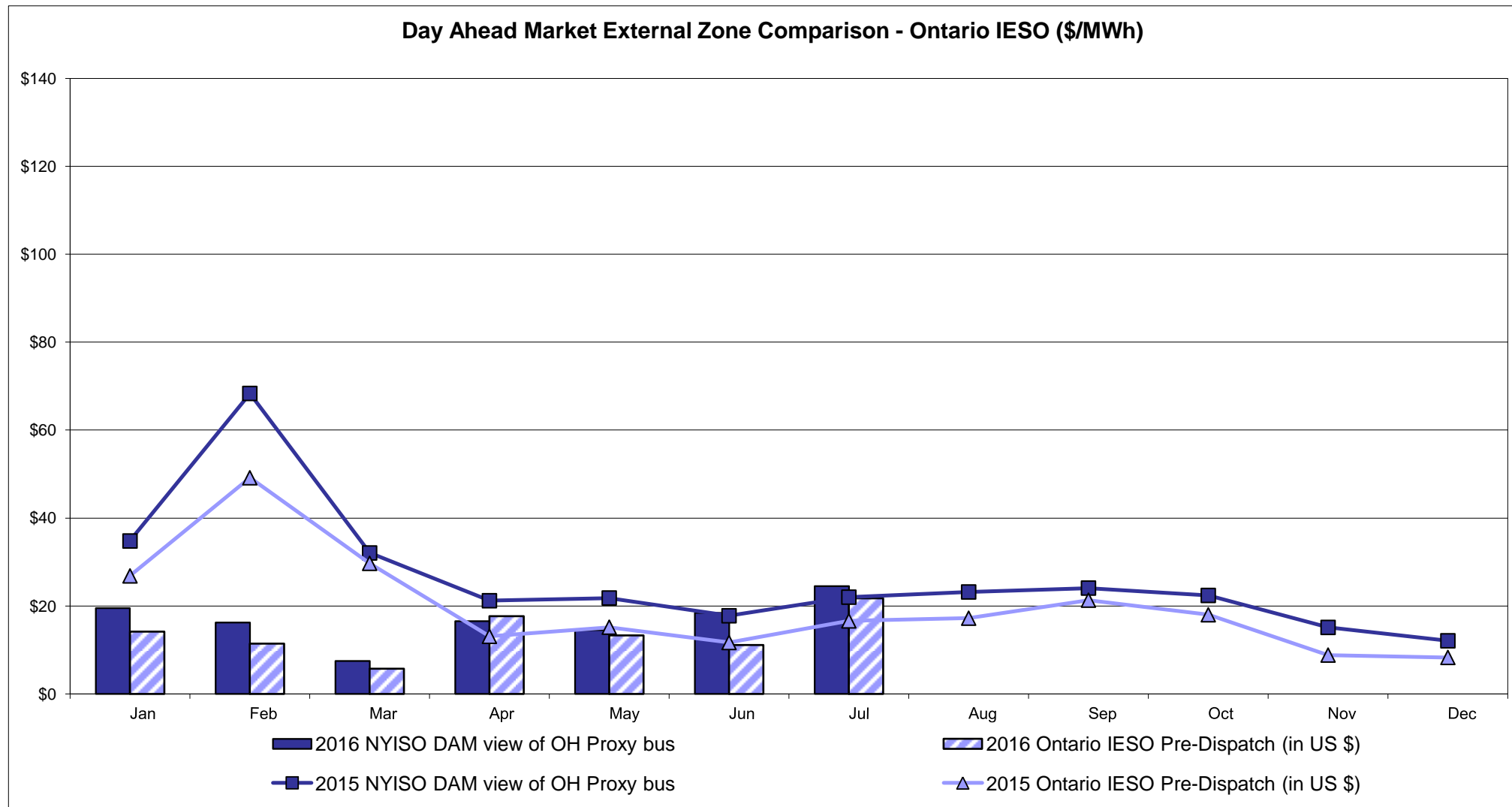
Day Ahead Market External Zone Comparison - PJM (\$/MWh)



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

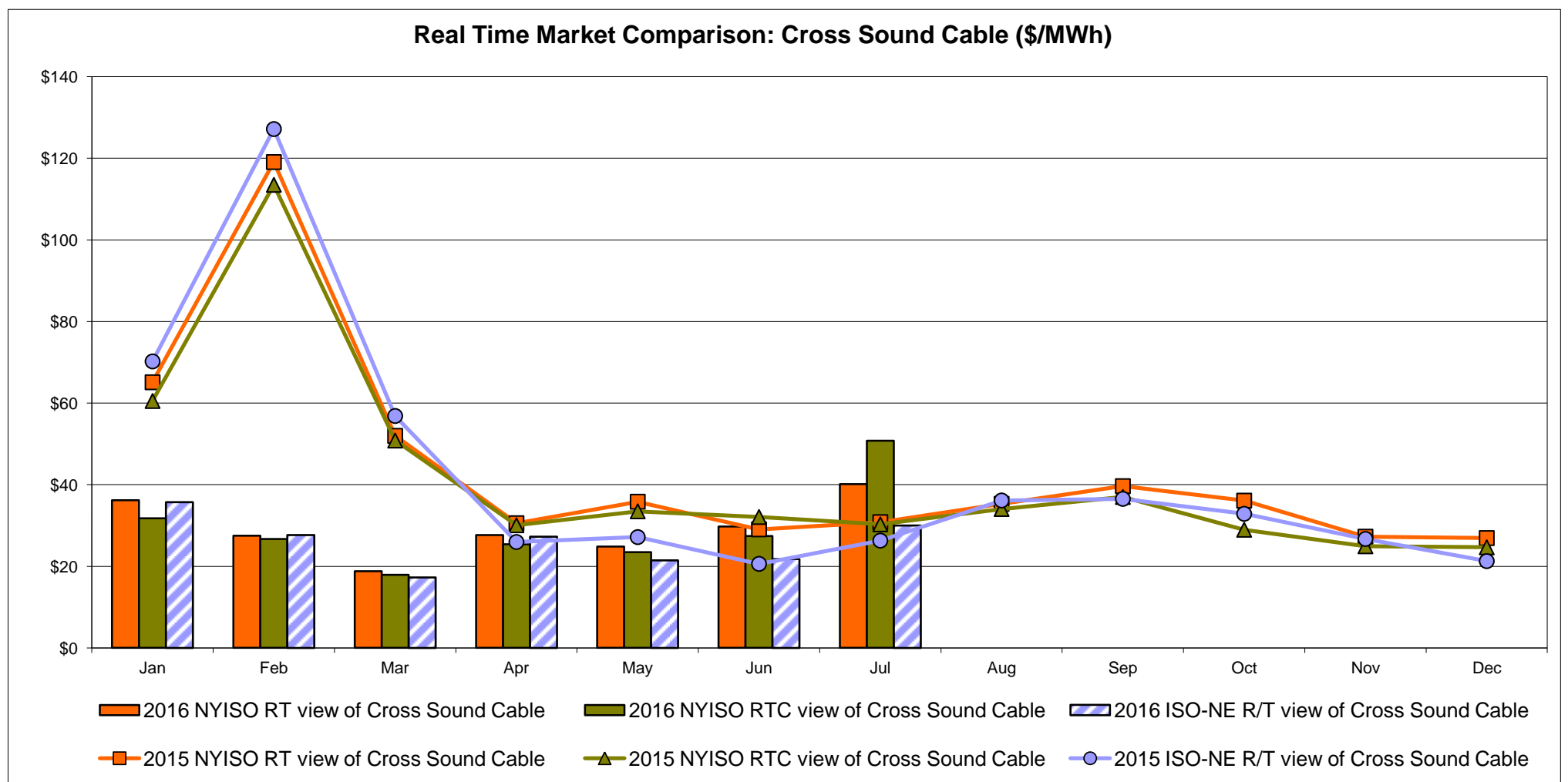
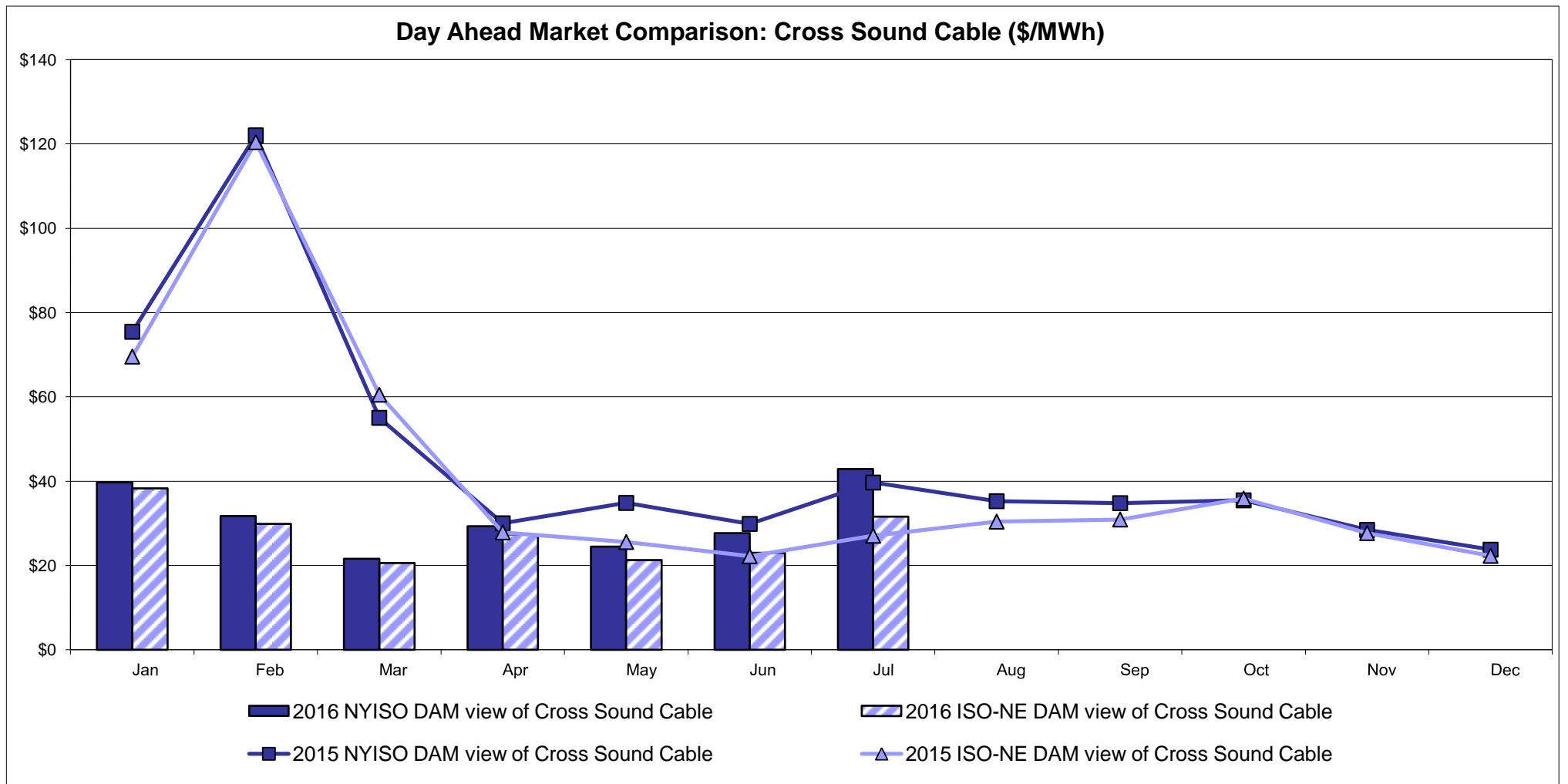


External Comparison Ontario IESO



Notes: Exchange factor used for July 2016 was 0.766166104 to US
 HOEP: Hourly Ontario Energy Price
 Pre-Dispatch: Projected Energy Price

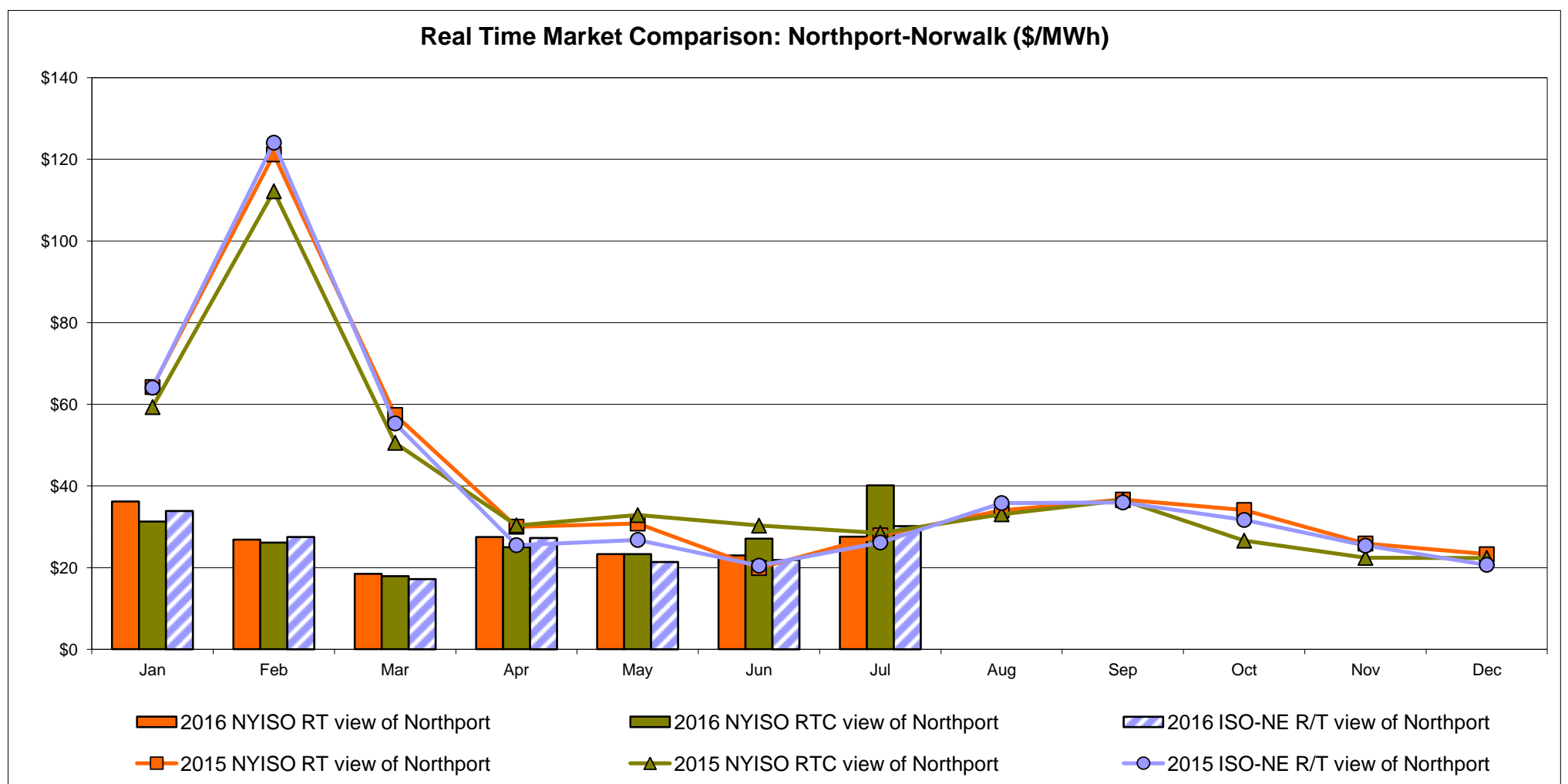
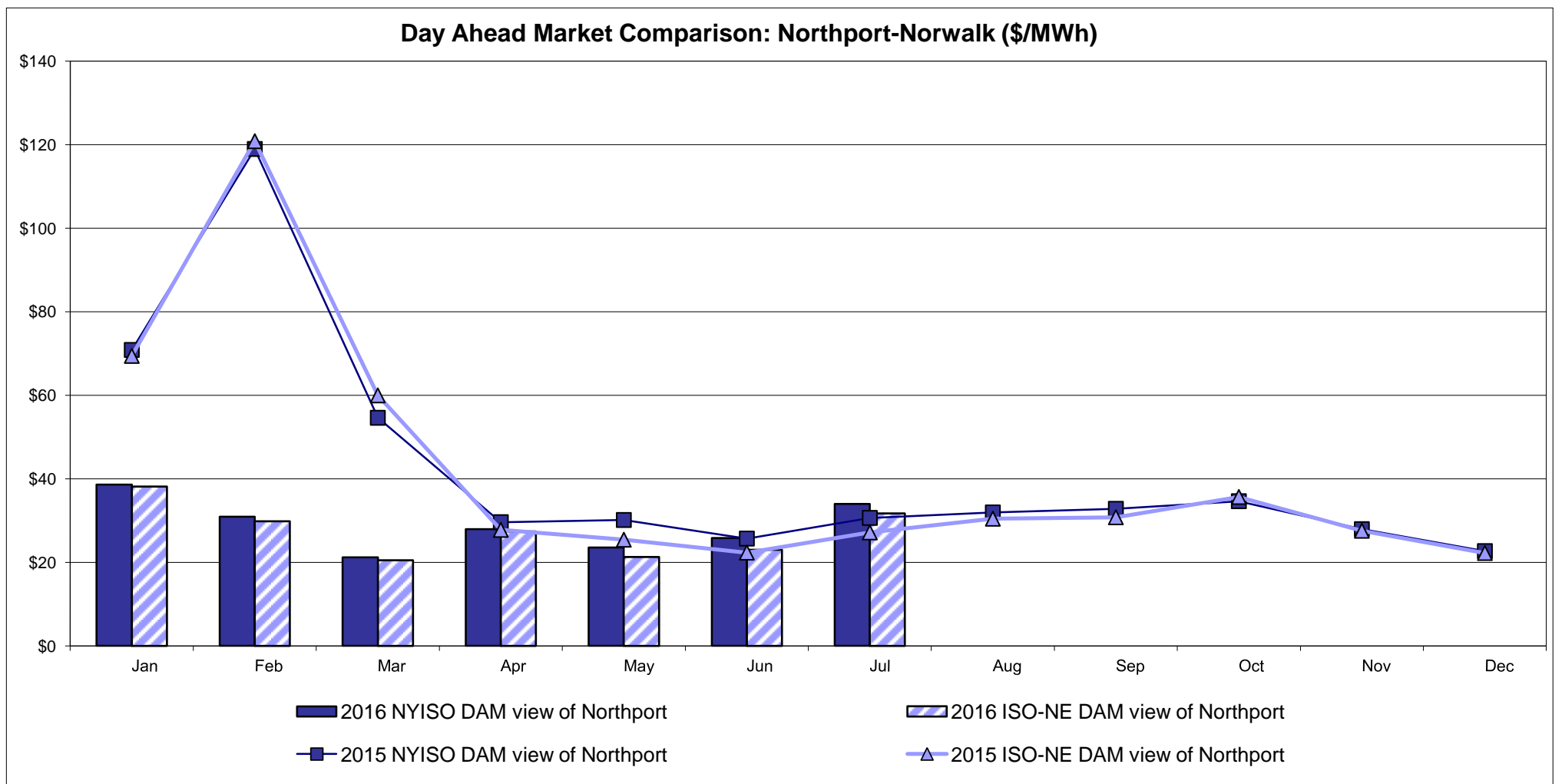
External Controllable Line: Cross Sound Cable (New England)



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.

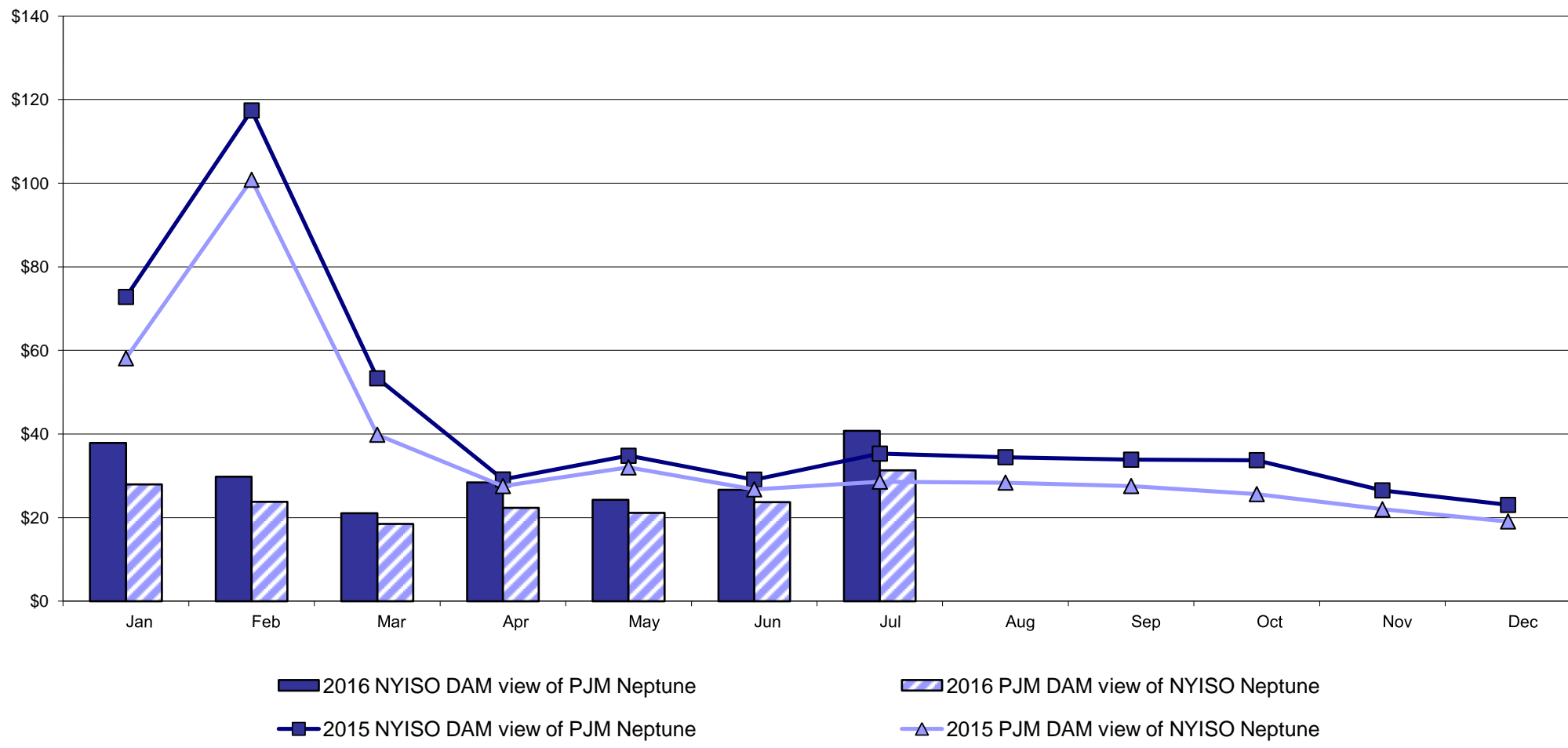
External Controllable Line: Northport - Norwalk (New England)



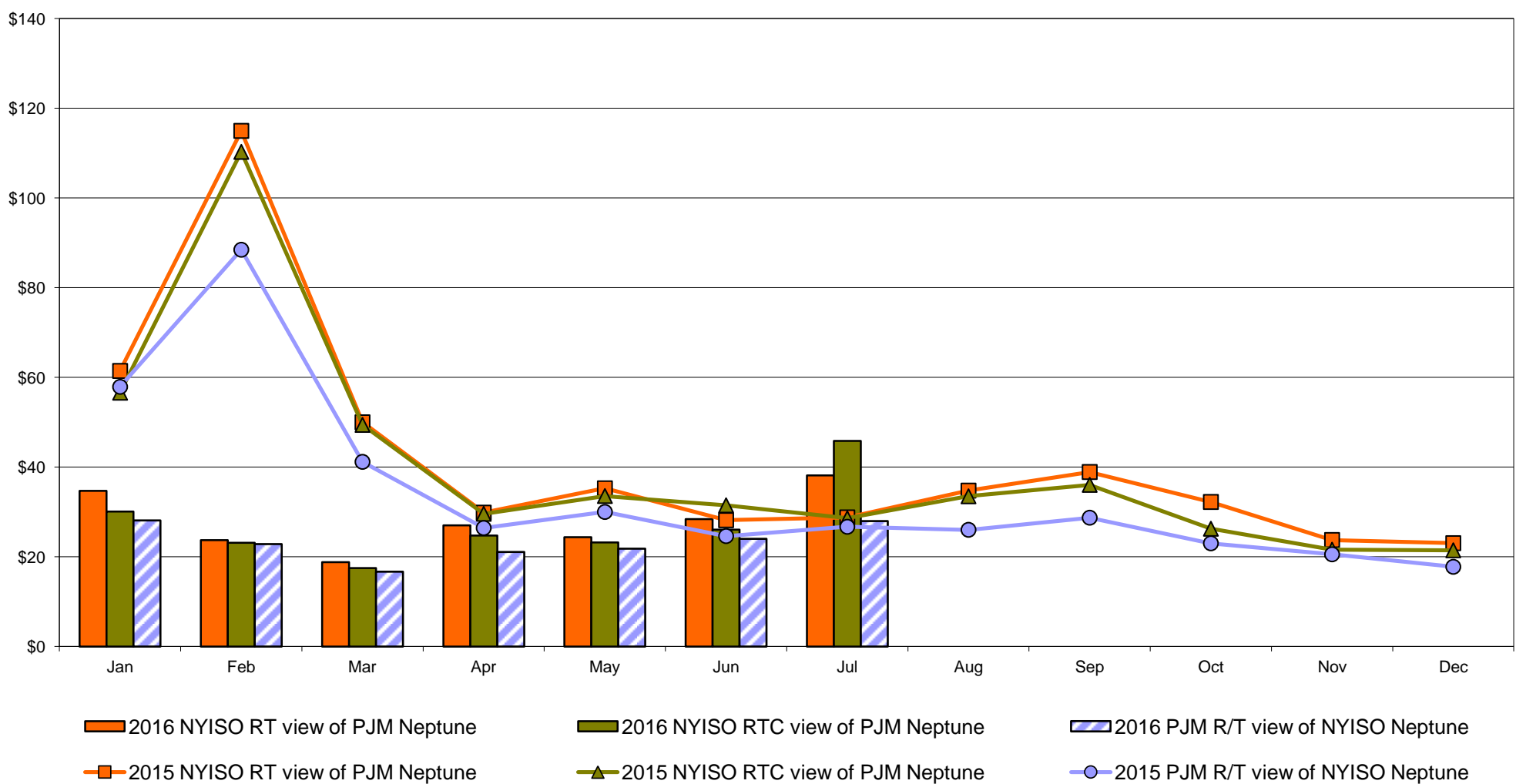
Note:
 ISO-NE Forecast is an advisory posting @ 18:00 day before.
 The DAM and R/T prices at the Northport 138 interface are used for ISO-NE.
 The DAM and R/T prices at the 1385 interface are used for NYISO.

External Controllable Line: Neptune (PJM)

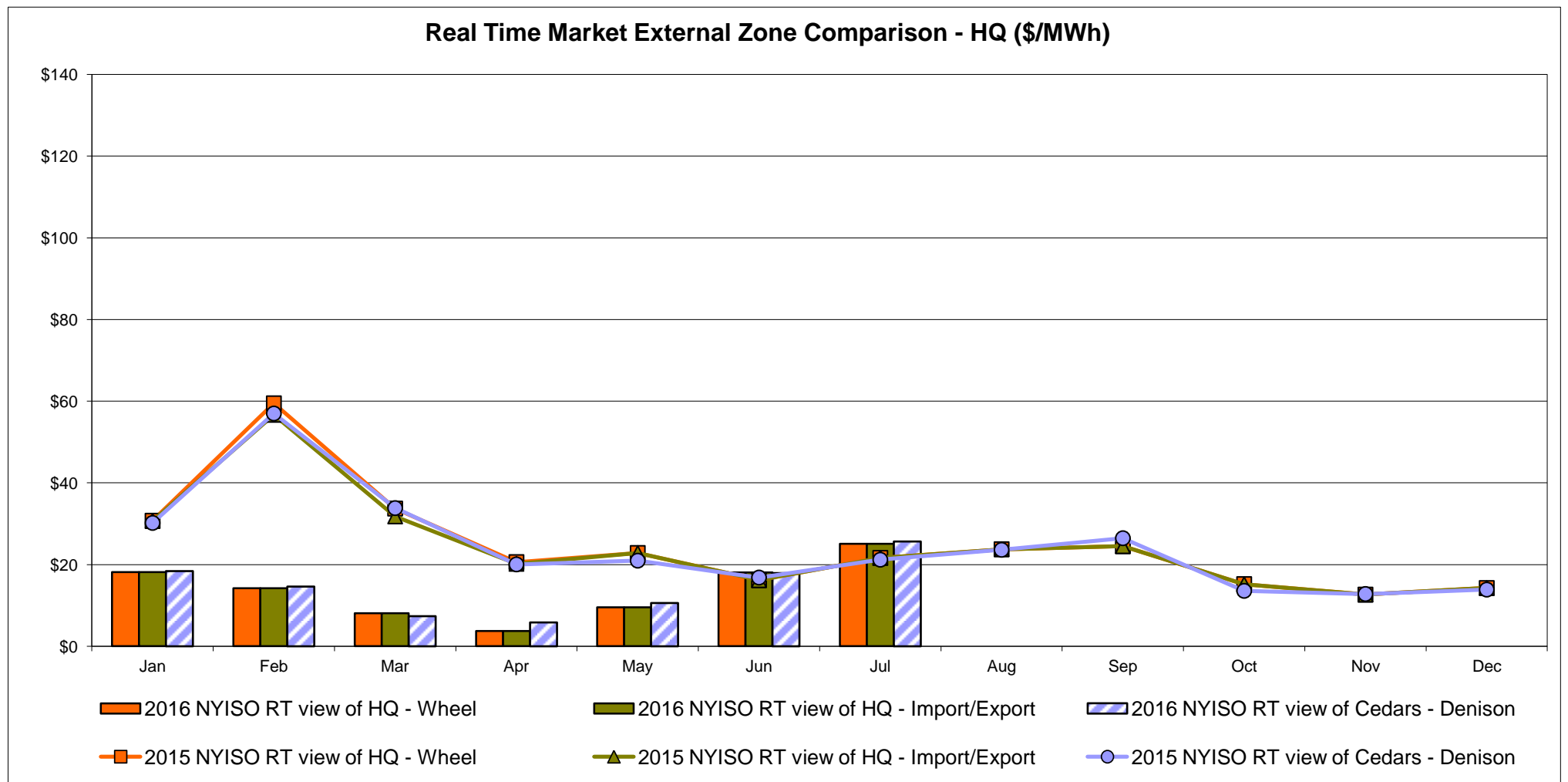
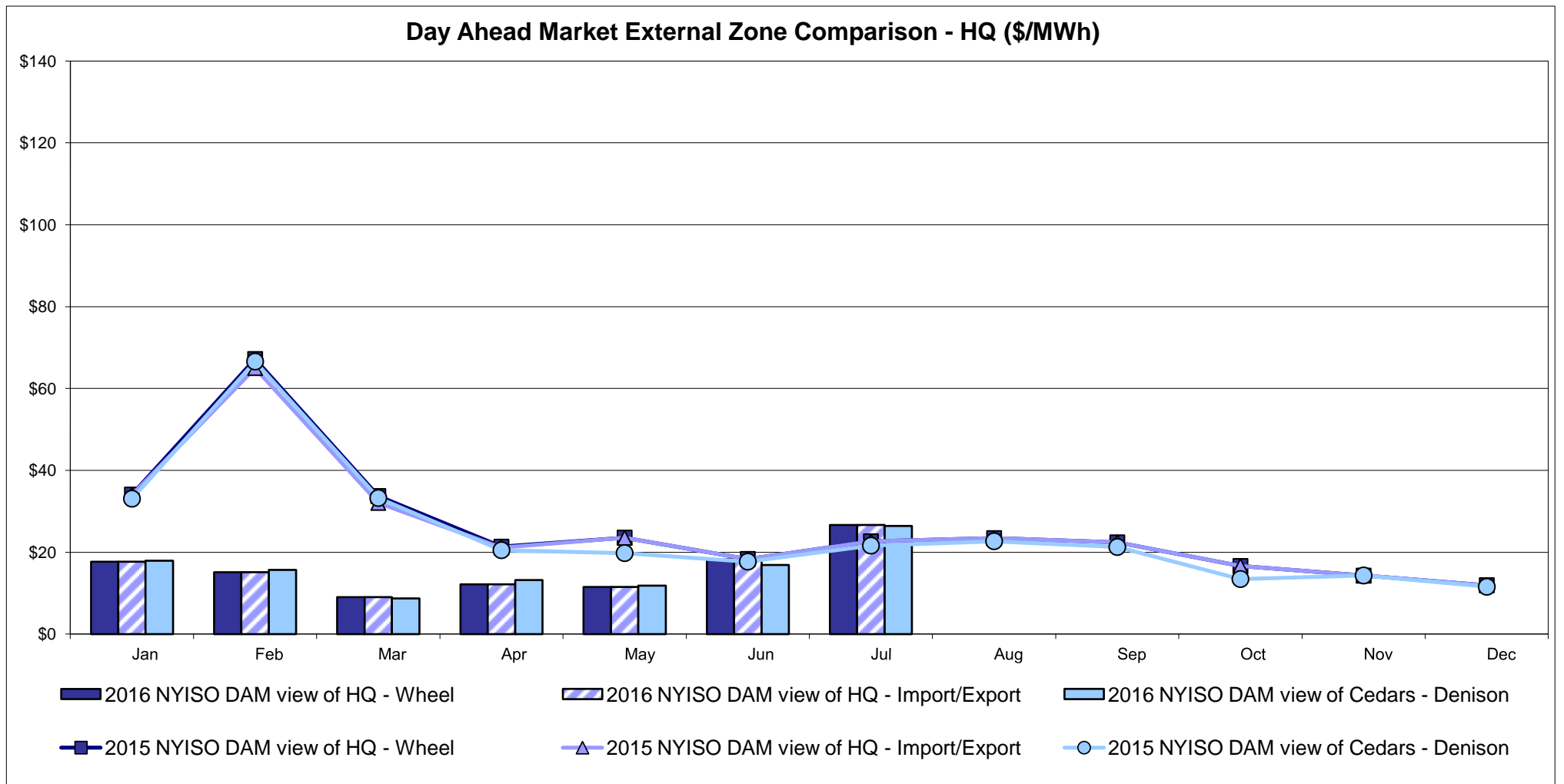
Day Ahead Market Comparison: Neptune (\$/MWh)



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

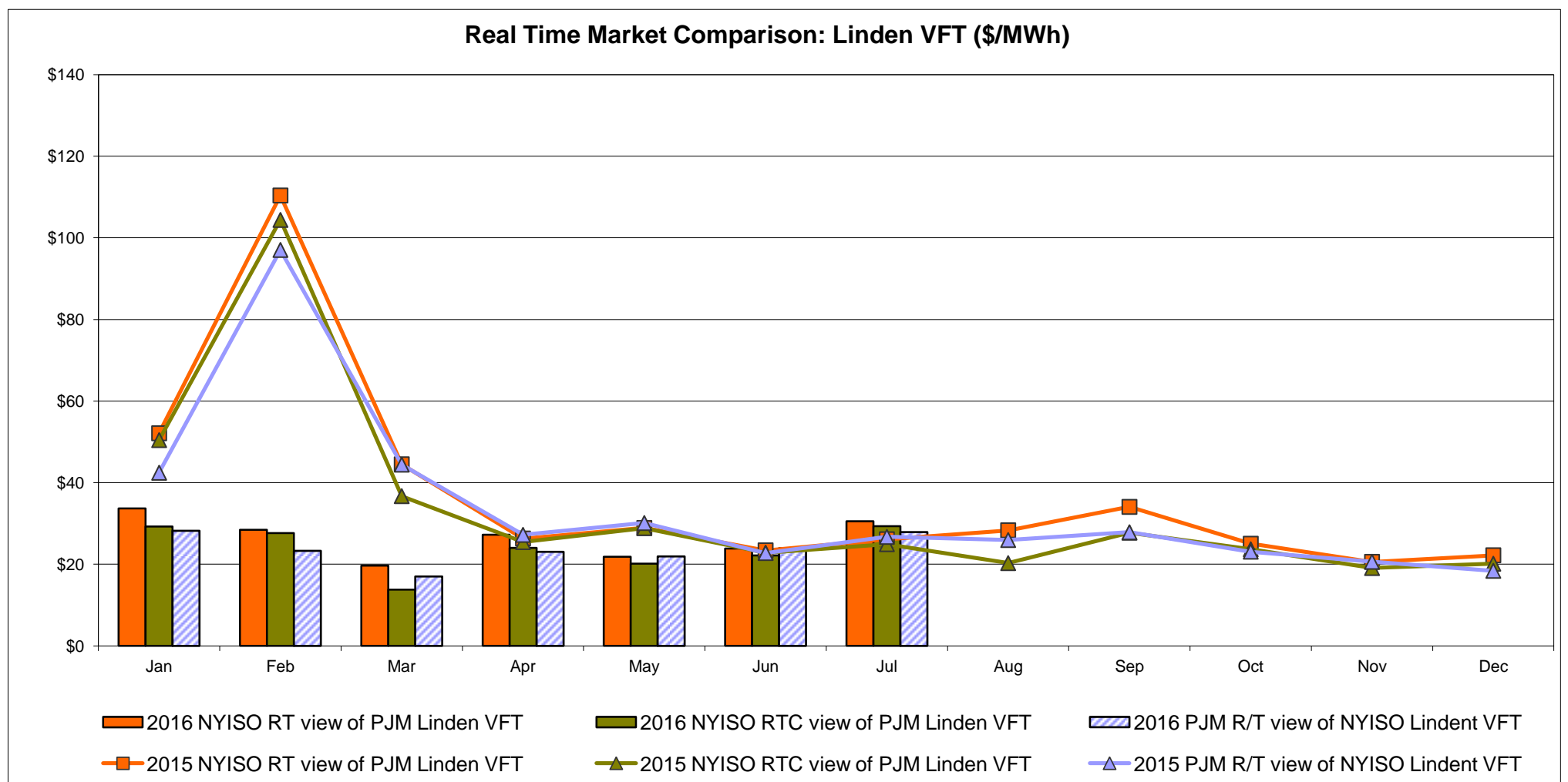
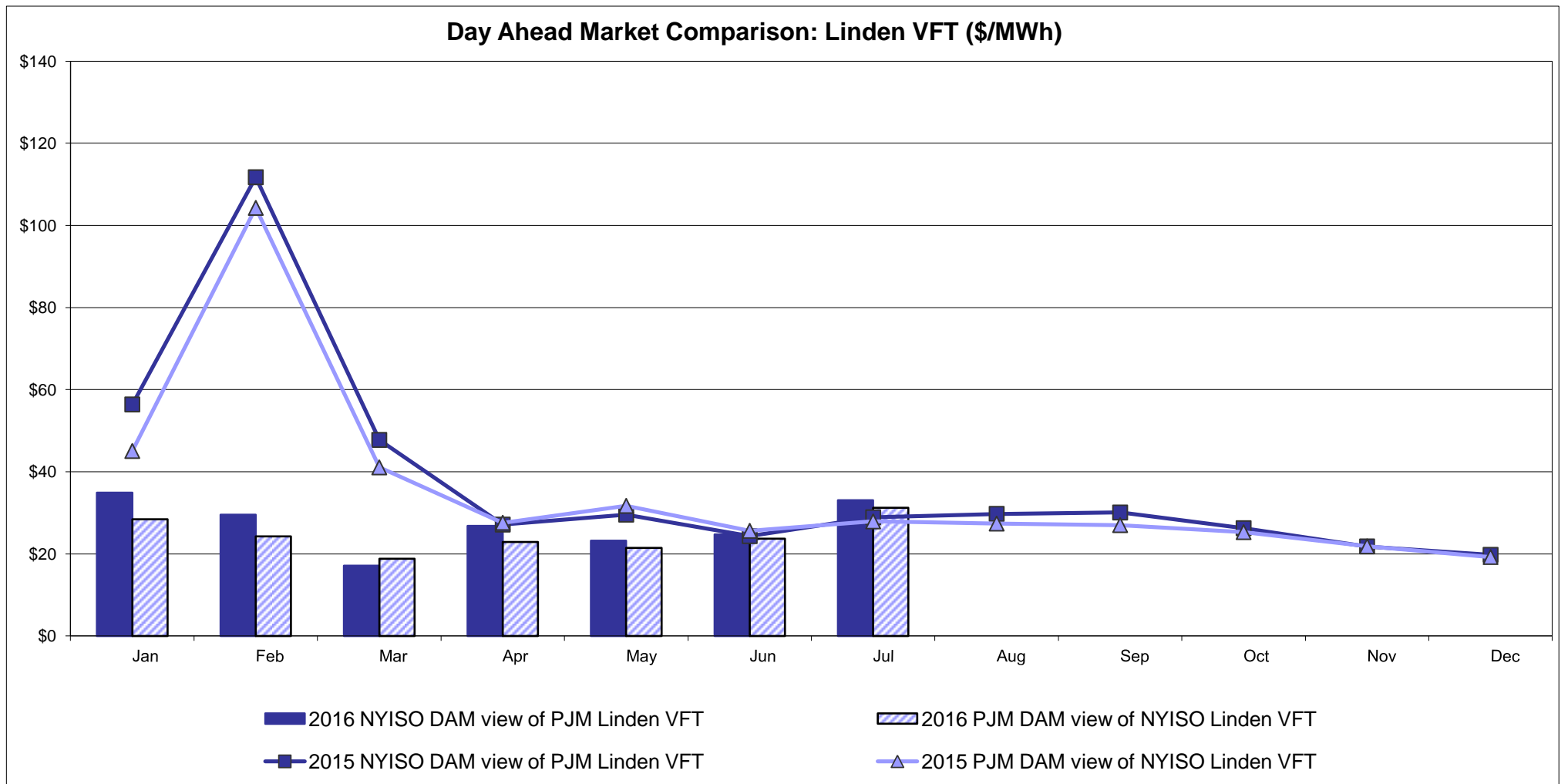


External Comparison Hydro-Quebec

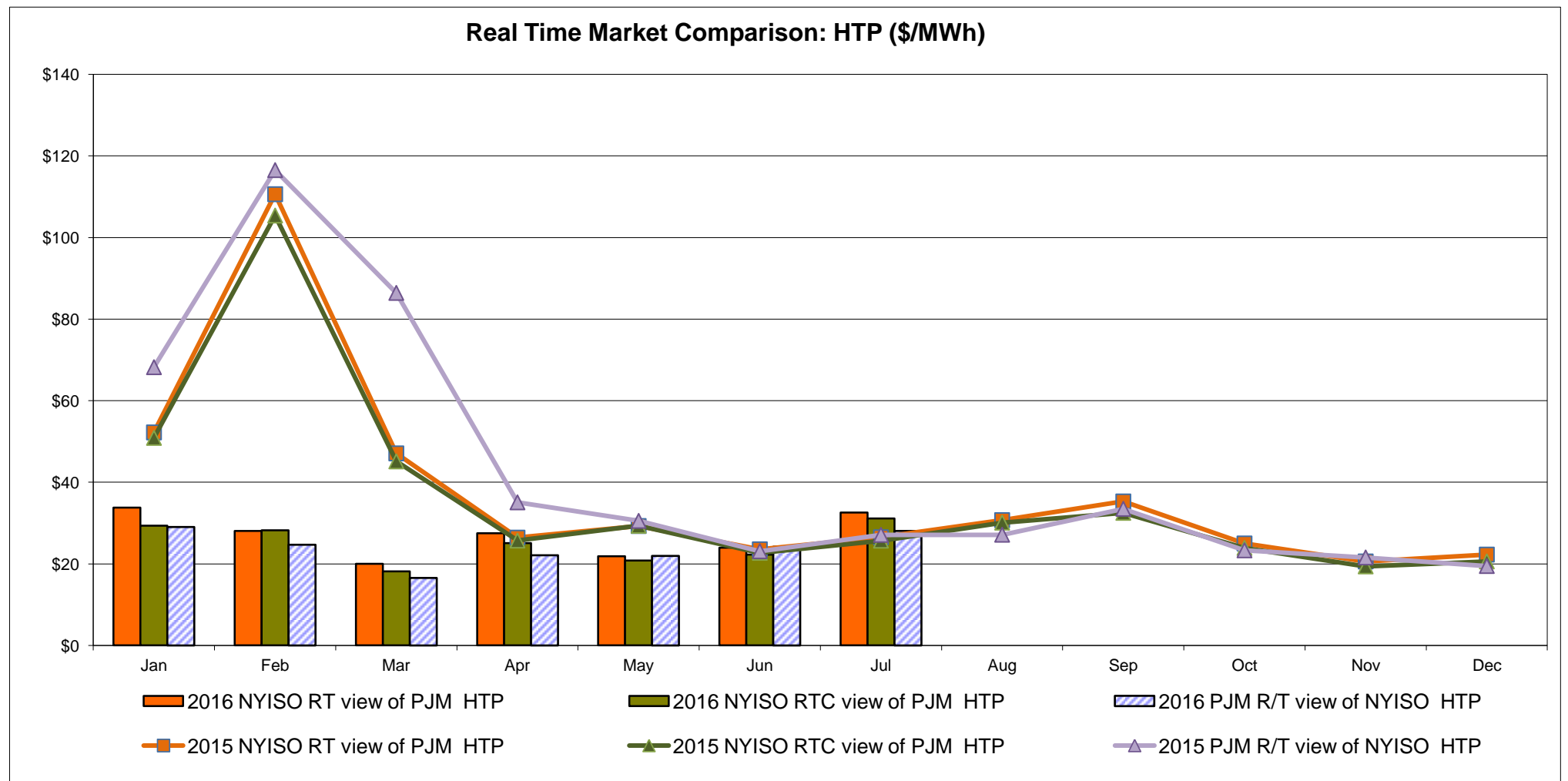
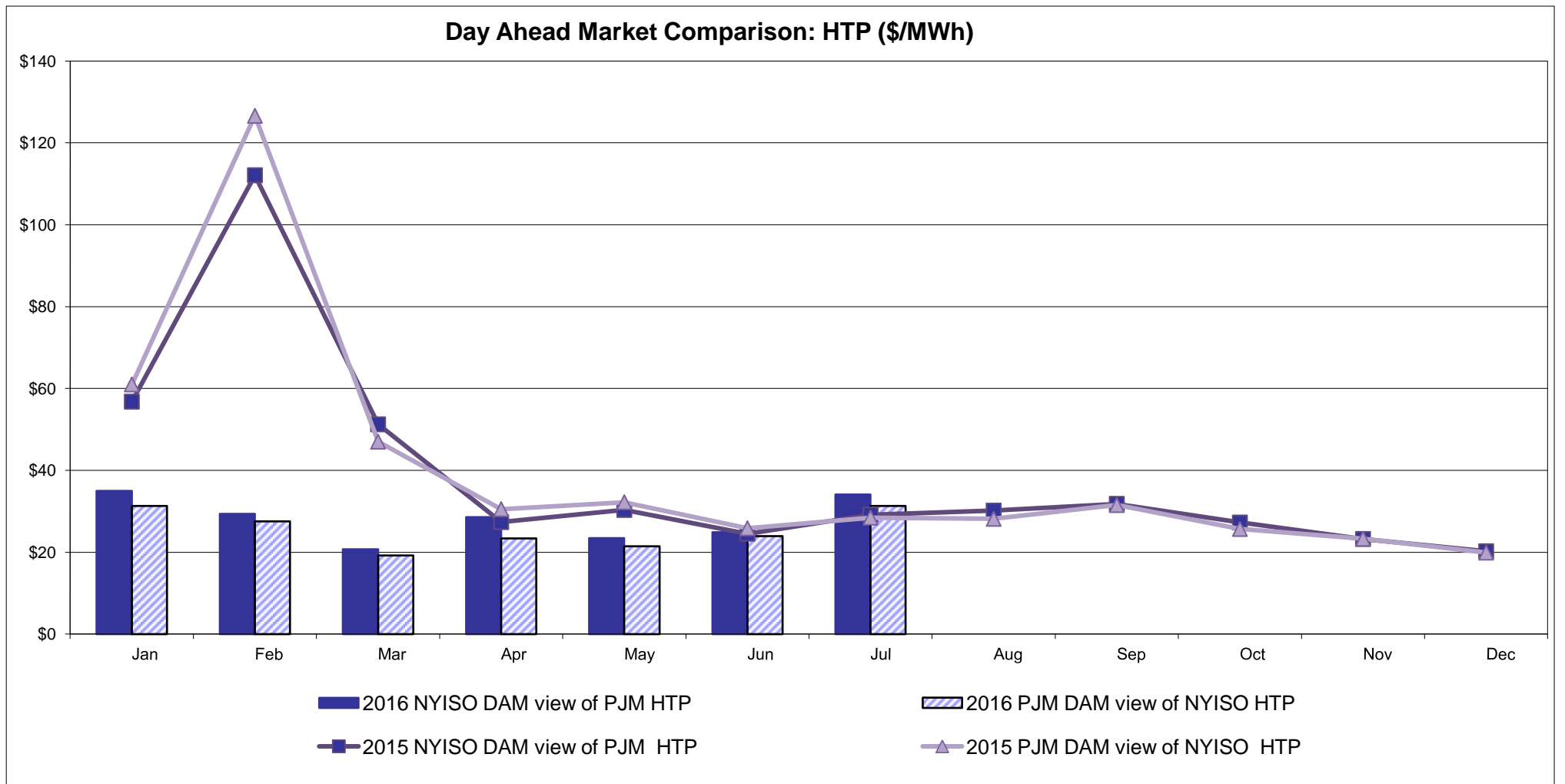


Note:
Hydro-Quebec Prices are unavailable.

External Controllable Line: Linden VFT (PJM)



External Controllable Line: Hudson (PJM)

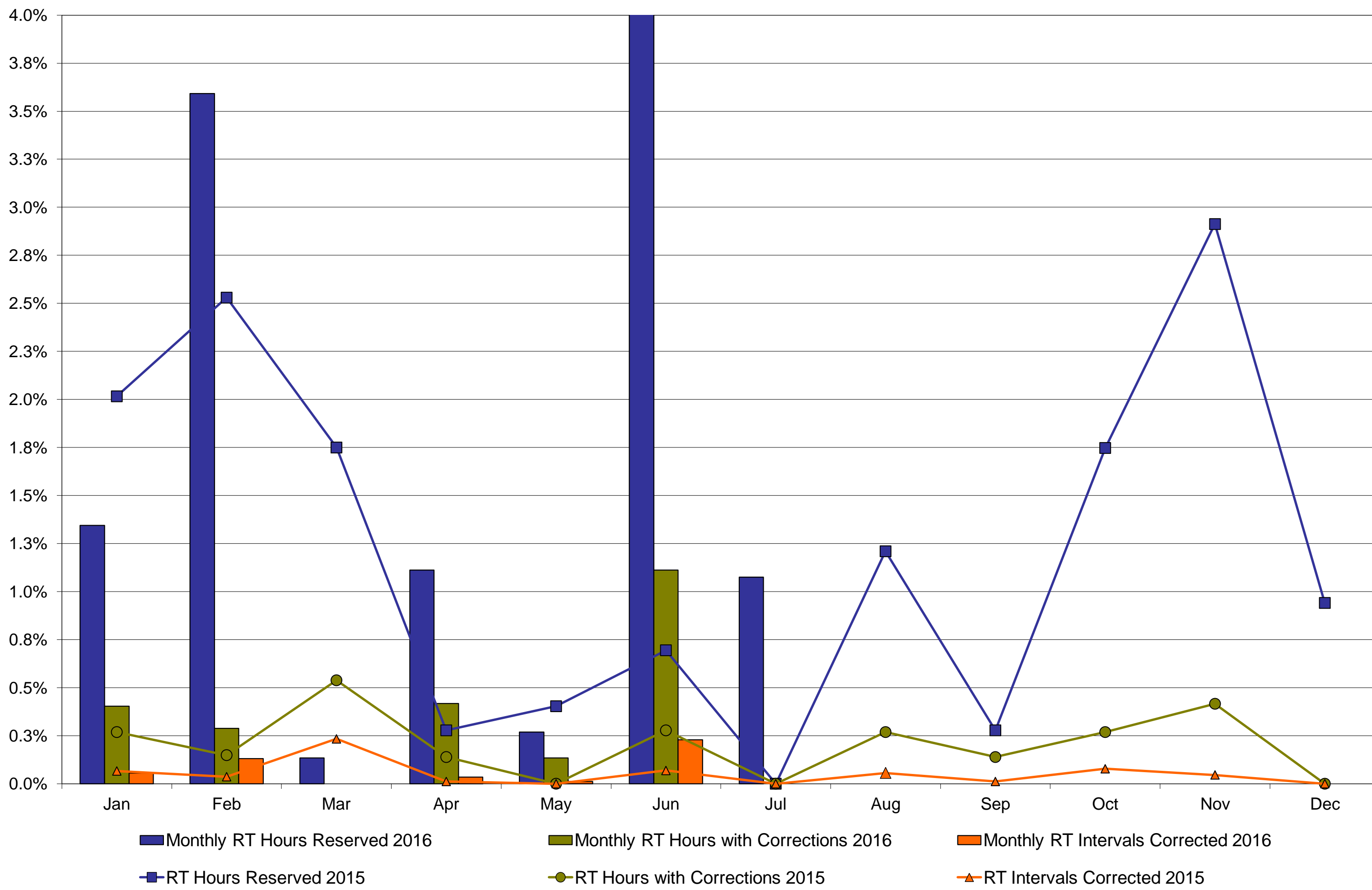


NYISO Real Time Price Correction Statistics

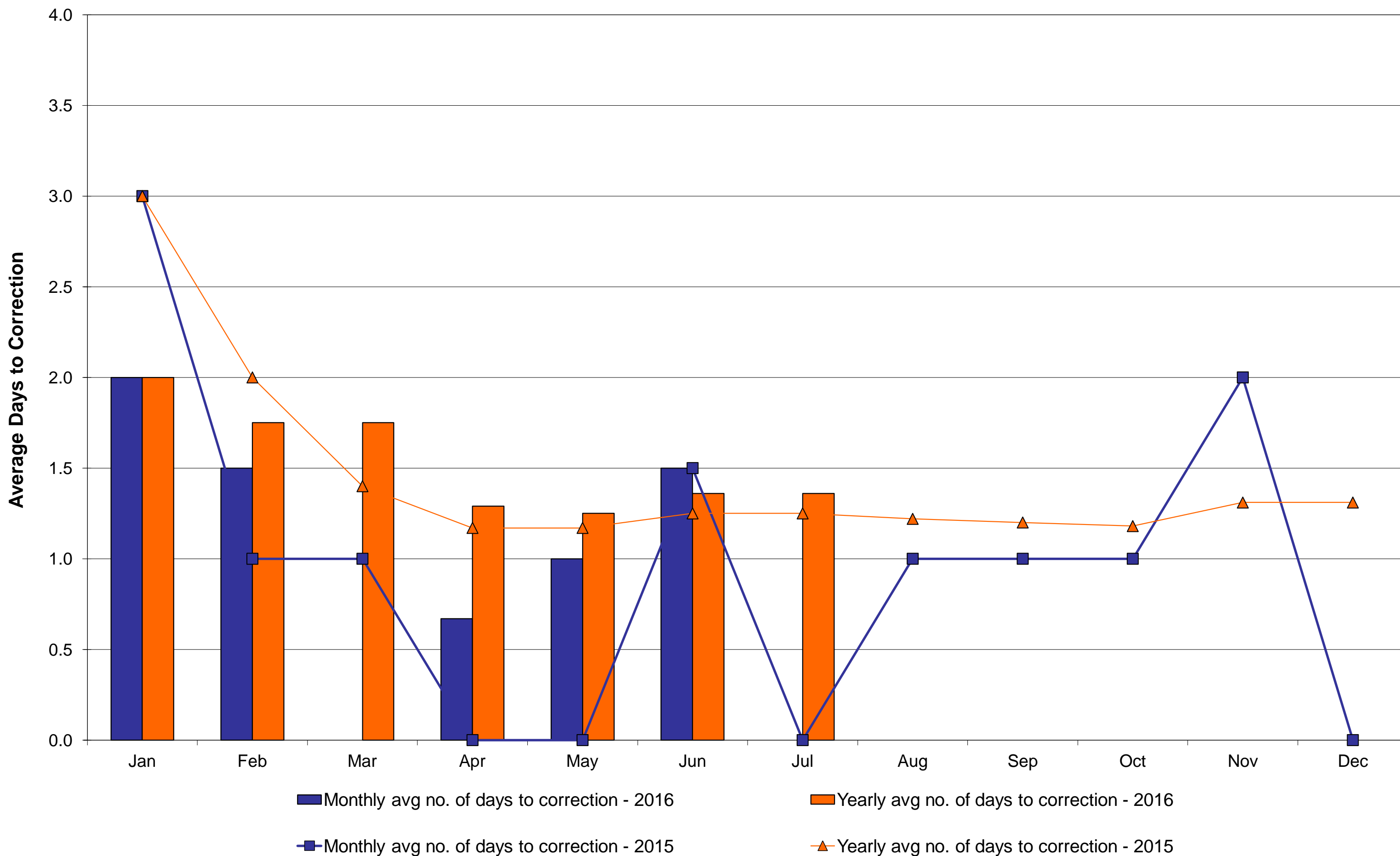
2016		January	February	March	April	May	June	July	August	September	October	November	December
Hour Corrections													
Number of hours with corrections	in the month	3	2	0	3	1	8	0					
Number of hours	in the month	744	696	743	720	744	720	744					
% of hours with corrections	in the month	0.40%	0.29%	0.00%	0.42%	0.13%	1.11%	0.00%					
% of hours with corrections	year-to-date	0.40%	0.35%	0.23%	0.28%	0.25%	0.39%	0.33%					
Interval Corrections													
Number of intervals corrected	in the month	5	11	0	3	1	20	0					
Number of intervals	in the month	9,000	8,440	8,995	8,724	8,987	8,725	9,038					
% of intervals corrected	in the month	0.06%	0.13%	0.00%	0.03%	0.01%	0.23%	0.00%					
% of intervals corrected	year-to-date	0.06%	0.09%	0.06%	0.05%	0.05%	0.08%	0.06%					
Hours Reserved													
Number of hours reserved	in the month	10	25	1	8	2	32	8					
Number of hours	in the month	744	696	743	720	744	720	744					
% of hours reserved	in the month	1.34%	3.59%	0.13%	1.11%	0.27%	4.44%	1.08%					
% of hours reserved	year-to-date	1.34%	2.43%	1.65%	1.52%	1.26%	1.79%	1.68%					
Days to Correction *													
Avg. number of days to correction	in the month	2.00	1.50	0.00	0.67	1.00	1.50	0.00					
Avg. number of days to correction	year-to-date	2.00	1.75	1.75	1.29	1.25	1.36	1.36					
Days Without Corrections													
Days without corrections	in the month	29	27	31	27	30	24	31					
Days without corrections	year-to-date	29	56	87	114	144	168	199					
2015		January	February	March	April	May	June	July	August	September	October	November	December
Hour Corrections													
Number of hours with corrections	in the month	2	1	4	1	0	2	0	2	1	2	3	0
Number of hours	in the month	744	672	743	720	744	720	744	744	720	744	721	744
% of hours with corrections	in the month	0.27%	0.15%	0.54%	0.14%	0.00%	0.28%	0.00%	0.27%	0.14%	0.27%	0.42%	0.00%
% of hours with corrections	year-to-date	0.27%	0.21%	0.32%	0.28%	0.22%	0.23%	0.20%	0.21%	0.20%	0.21%	0.22%	0.21%
Interval Corrections													
Number of intervals corrected	in the month	6	3	21	1	0	6	0	5	1	7	4	0
Number of intervals	in the month	9,066	8,231	9,005	8,696	9,032	8,731	9,025	8,987	8,728	9,008	8,743	8,975
% of intervals corrected	in the month	0.07%	0.04%	0.23%	0.01%	0.00%	0.07%	0.00%	0.06%	0.01%	0.08%	0.05%	0.00%
% of intervals corrected	year-to-date	0.07%	0.05%	0.11%	0.09%	0.07%	0.07%	0.06%	0.06%	0.05%	0.06%	0.06%	0.05%
Hours Reserved													
Number of hours reserved	in the month	15	17	13	2	3	5	0	9	2	13	21	7
Number of hours	in the month	744	672	743	720	744	720	744	744	720	744	721	744
% of hours reserved	in the month	2.02%	2.53%	1.75%	0.28%	0.40%	0.69%	0.00%	1.21%	0.28%	1.75%	2.91%	0.94%
% of hours reserved	year-to-date	2.02%	2.26%	2.08%	1.63%	1.38%	1.27%	1.08%	1.10%	1.01%	1.08%	1.25%	1.22%
Days to Correction *													
Avg. number of days to correction	in the month	3.00	1.00	1.00	0.00	0.00	1.50	0.00	1.00	1.00	1.00	2.00	0.00
Avg. number of days to correction	year-to-date	3.00	2.00	1.40	1.17	1.17	1.25	1.25	1.22	1.20	1.18	1.31	1.31
Days Without Corrections													
Days without corrections	in the month	30	27	28	29	31	28	31	30	29	30	28	31
Days without corrections	year-to-date	30	57	85	114	145	173	204	234	263	293	321	352

* Calendar days from reservation date.

Percentage of Real-Time Corrections

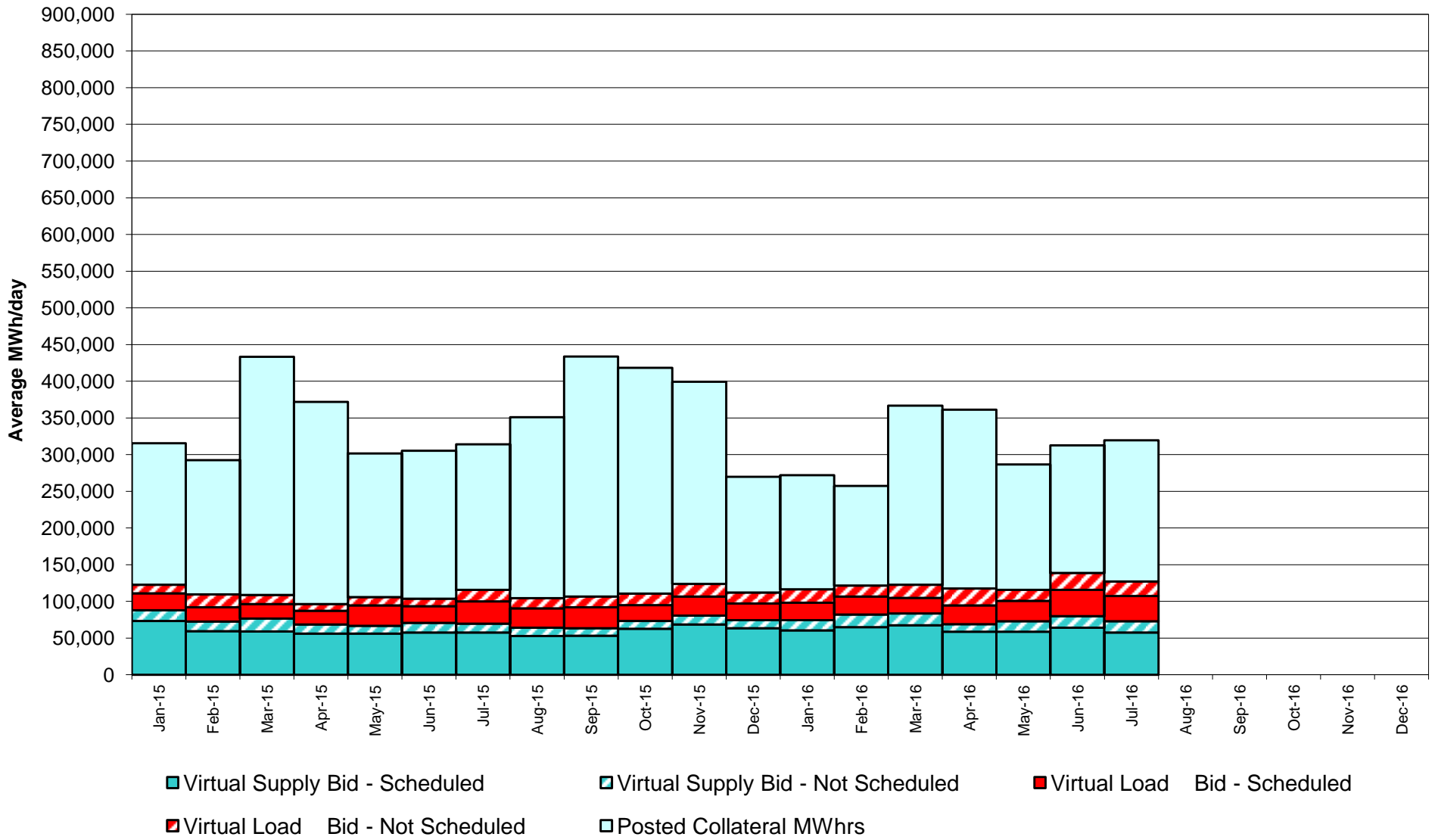


Annual average time period for making Price Corrections (from reservation date) *

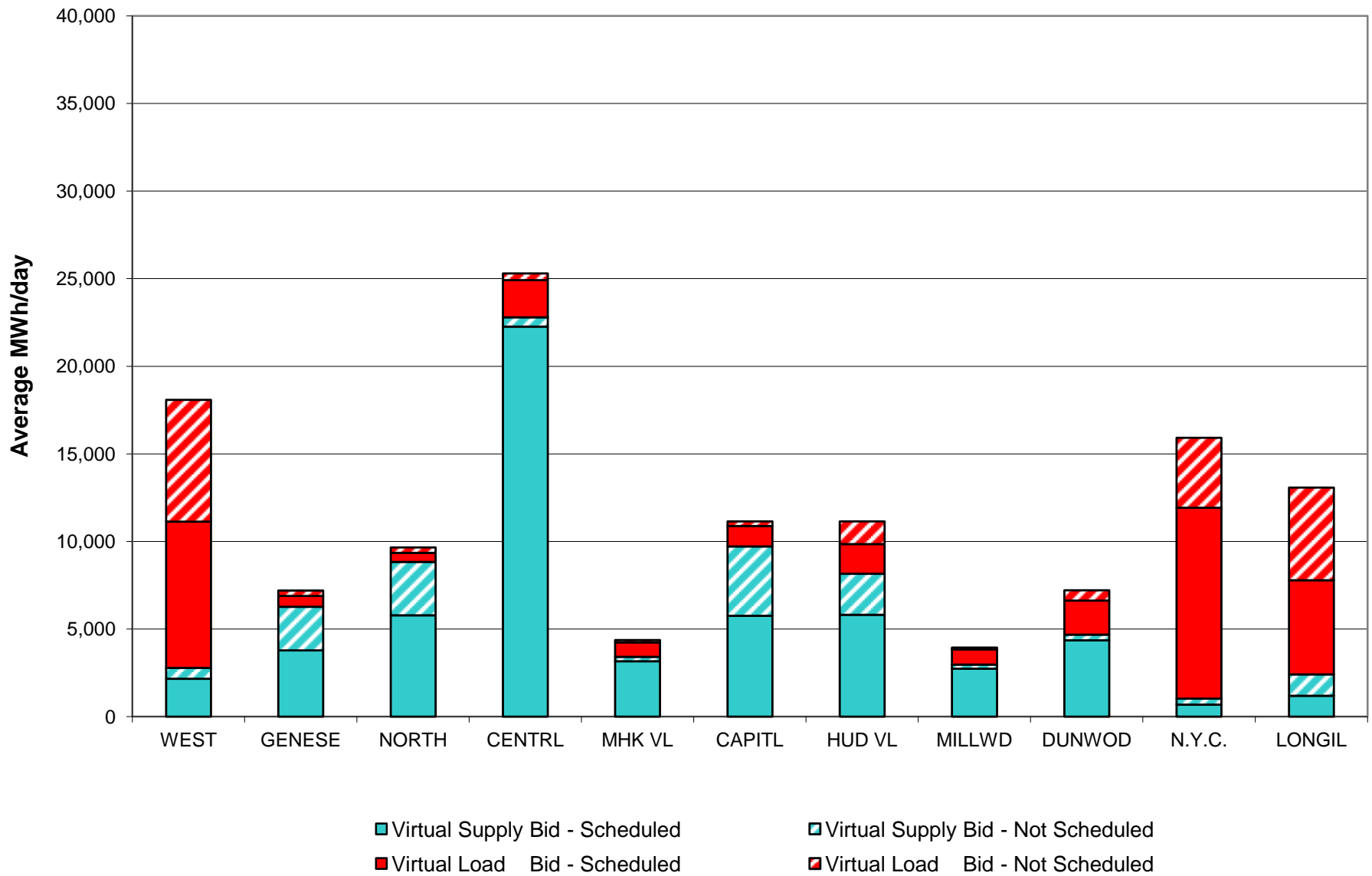


* Calendar days from reservation date.

NYISO Virtual Trading Average MWh per day



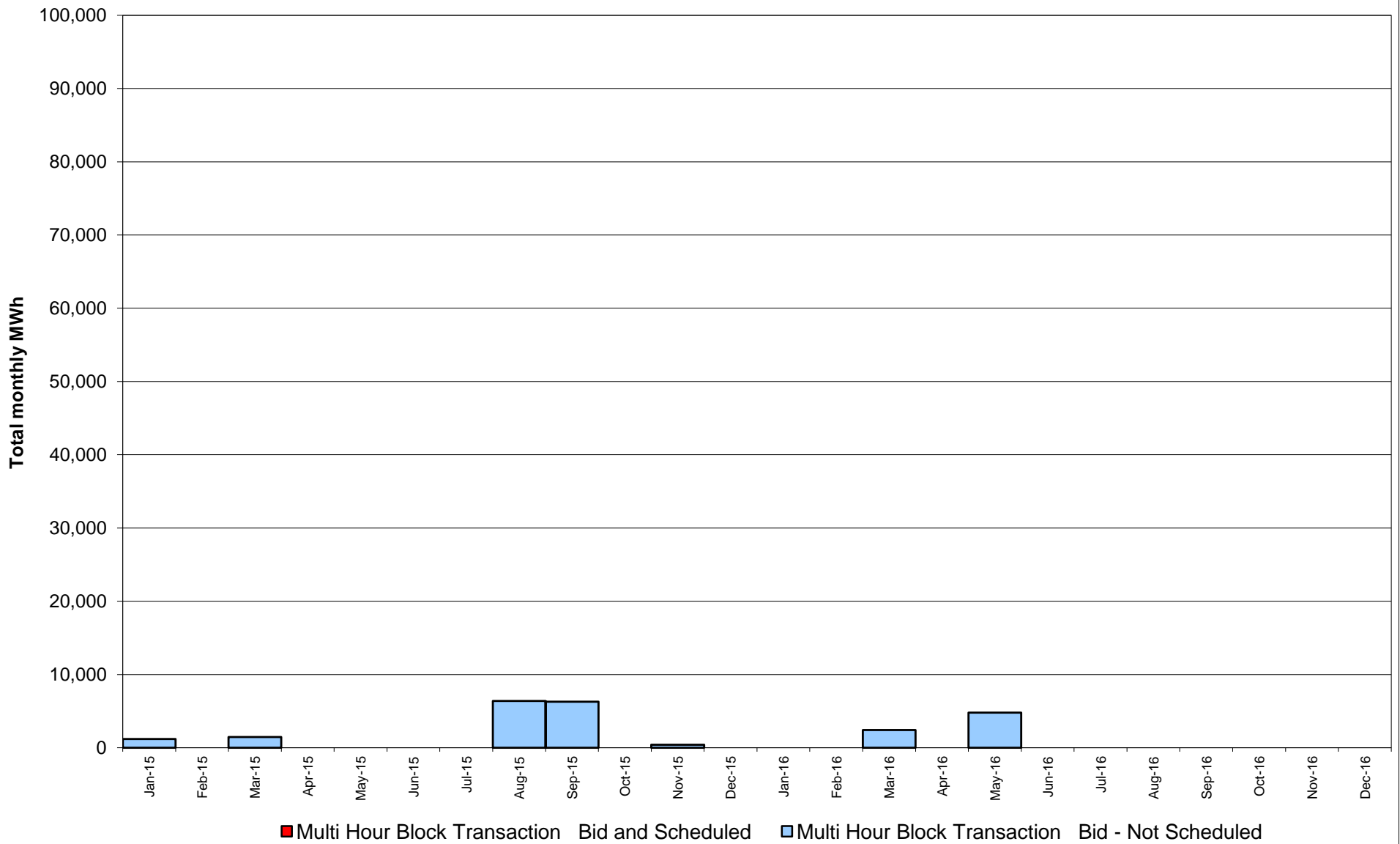
**Virtual Load and Supply Zonal Statistics
through July 31, 2016**



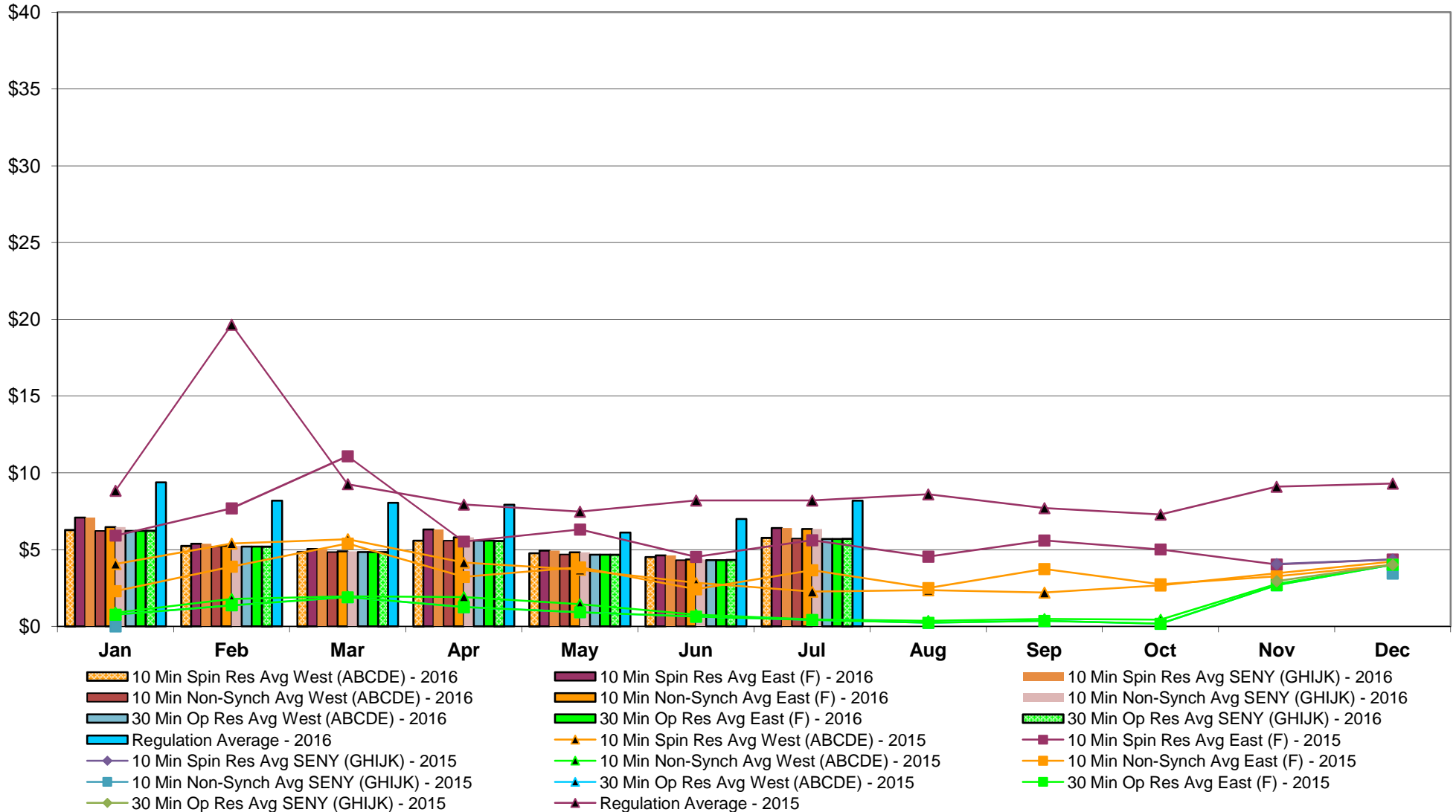
Virtual Load and Supply Zonal Statistics (Average MWh/day) - 2016

		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
WEST	Jan-16	8,416	4,440	2,862	419	MHK VL	Jan-16	463	92	2,024	146	DUNWOD	Jan-16	402	216	3,262	61
	Feb-16	7,967	3,554	2,706	521		Feb-16	544	80	2,329	611		Feb-16	803	185	3,555	269
	Mar-16	7,947	7,233	2,564	720		Mar-16	440	49	2,695	931		Mar-16	460	100	4,207	304
	Apr-16	11,544	10,793	1,645	263		Apr-16	735	55	2,236	317		Apr-16	277	48	4,840	190
	May-16	8,896	4,966	2,511	678		May-16	673	33	2,036	588		May-16	660	435	6,261	431
	Jun-16	13,365	10,864	1,364	609		Jun-16	605	139	2,887	447		Jun-16	996	208	4,433	347
	Jul-16	8,357	6,943	2,167	612		Jul-16	830	123	3,170	244		Jul-16	1,953	578	4,363	313
	Aug-16						Aug-16						Aug-16				
	Sep-16						Sep-16						Sep-16				
	Oct-16						Oct-16						Oct-16				
	Nov-16						Nov-16						Nov-16				
	Dec-16						Dec-16						Dec-16				
GENESE	Jan-16	1,030	638	3,868	2,421	CAPITL	Jan-16	2,195	1,472	4,568	3,470	N.Y.C.	Jan-16	2,862	4,976	2,531	648
	Feb-16	795	923	3,461	3,707		Feb-16	1,593	684	5,140	3,581		Feb-16	3,281	4,752	2,390	403
	Mar-16	824	1,113	5,340	3,764		Mar-16	960	238	5,023	2,071		Mar-16	1,838	4,229	1,239	748
	Apr-16	448	1,398	6,028	1,718		Apr-16	1,410	198	6,433	1,645		Apr-16	3,263	4,302	1,221	336
	May-16	411	125	3,793	2,664		May-16	1,885	251	5,843	2,876		May-16	4,517	3,352	1,425	472
	Jun-16	501	323	4,945	2,340		Jun-16	959	119	6,428	4,625		Jun-16	7,465	3,847	930	245
	Jul-16	615	312	3,785	2,492		Jul-16	1,152	271	5,755	3,969		Jul-16	10,899	3,980	692	341
	Aug-16						Aug-16						Aug-16				
	Sep-16						Sep-16						Sep-16				
	Oct-16						Oct-16						Oct-16				
	Nov-16						Nov-16						Nov-16				
	Dec-16						Dec-16						Dec-16				
NORTH	Jan-16	274	312	7,038	3,010	HUD VL	Jan-16	1,036	1,609	6,763	2,202	LONGIL	Jan-16	6,153	3,761	700	985
	Feb-16	499	215	7,169	3,894		Feb-16	1,008	1,135	9,550	3,078		Feb-16	6,539	3,211	814	869
	Mar-16	338	107	6,127	4,874		Mar-16	964	510	10,835	1,568		Mar-16	6,305	3,906	1,090	411
	Apr-16	666	332	8,237	3,363		Apr-16	821	1,176	9,231	1,566		Apr-16	5,087	4,696	1,511	215
	May-16	556	157	6,029	4,034		May-16	1,488	911	6,686	1,490		May-16	5,837	4,419	1,331	431
	Jun-16	519	445	7,892	4,126		Jun-16	1,392	1,684	7,583	1,398		Jun-16	7,178	4,811	1,377	786
	Jul-16	517	310	5,791	3,043		Jul-16	1,699	1,290	5,809	2,344		Jul-16	5,383	5,288	1,195	1,215
	Aug-16						Aug-16						Aug-16				
	Sep-16						Sep-16						Sep-16				
	Oct-16						Oct-16						Oct-16				
	Nov-16						Nov-16						Nov-16				
	Dec-16						Dec-16						Dec-16				
CENTRL	Jan-16	954	502	25,792	259	MILLWD	Jan-16	304	114	1,211	60	NYISO	Jan-16	24,086	18,132	60,619	13,680
	Feb-16	975	212	26,176	301		Feb-16	403	145	1,477	100		Feb-16	24,407	15,096	64,766	17,335
	Mar-16	1,076	70	26,818	564		Mar-16	182	60	1,462	239		Mar-16	21,332	17,615	67,399	16,195
	Apr-16	1,124	159	15,555	284		Apr-16	186	26	1,913	101		Apr-16	25,563	23,182	58,849	9,998
	May-16	2,369	250	21,046	367		May-16	471	121	1,743	264		May-16	27,763	15,021	58,704	14,296
	Jun-16	2,285	469	23,910	277		Jun-16	489	121	2,582	449		Jun-16	35,754	23,031	64,331	15,648
	Jul-16	2,117	385	22,271	529		Jul-16	868	103	2,732	238		Jul-16	34,388	19,583	57,728	15,341
	Aug-16						Aug-16						Aug-16				
	Sep-16						Sep-16						Sep-16				
	Oct-16						Oct-16						Oct-16				
	Nov-16						Nov-16						Nov-16				
	Dec-16						Dec-16						Dec-16				

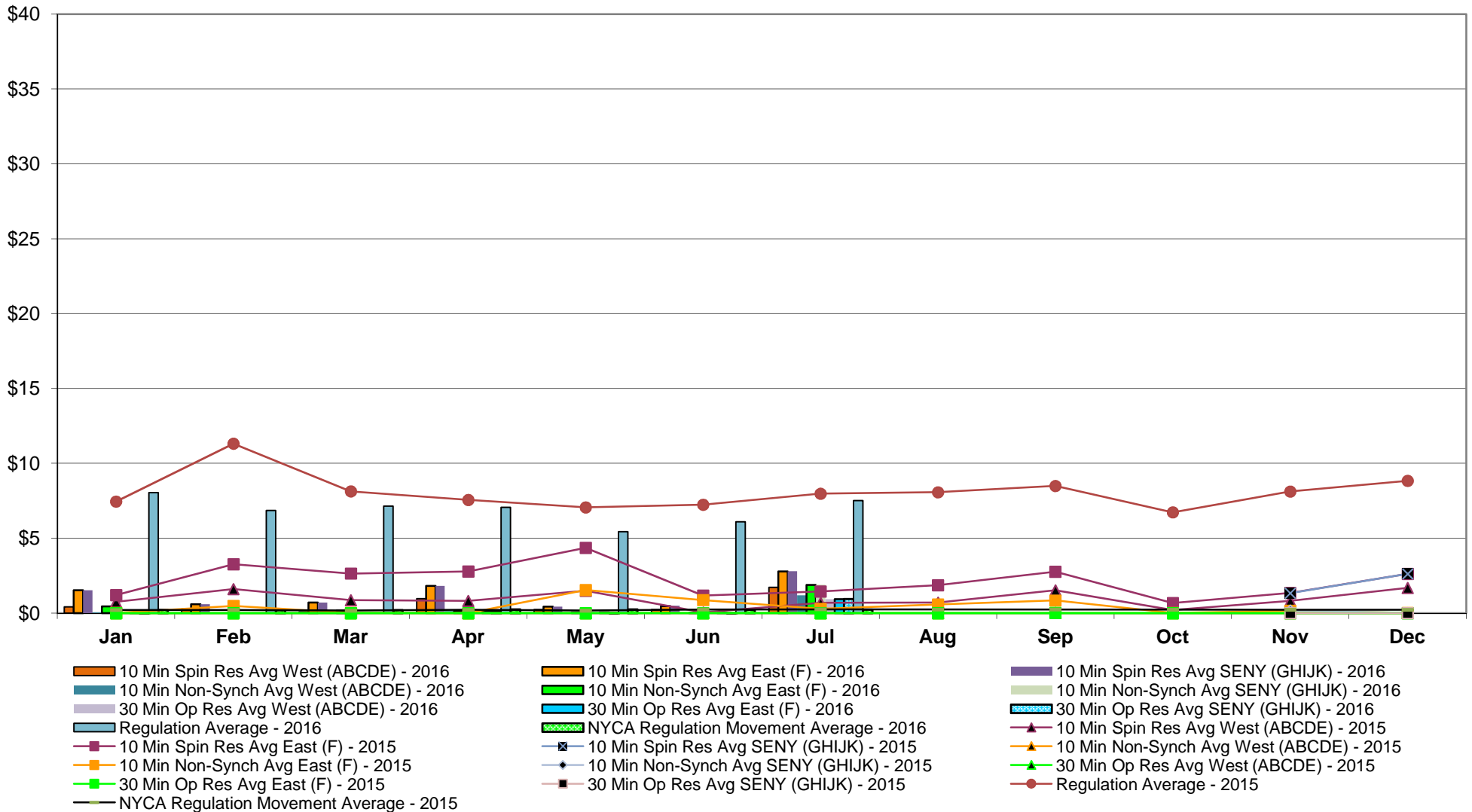
NYISO Multi Hour Block Transactions Monthly Total MWh



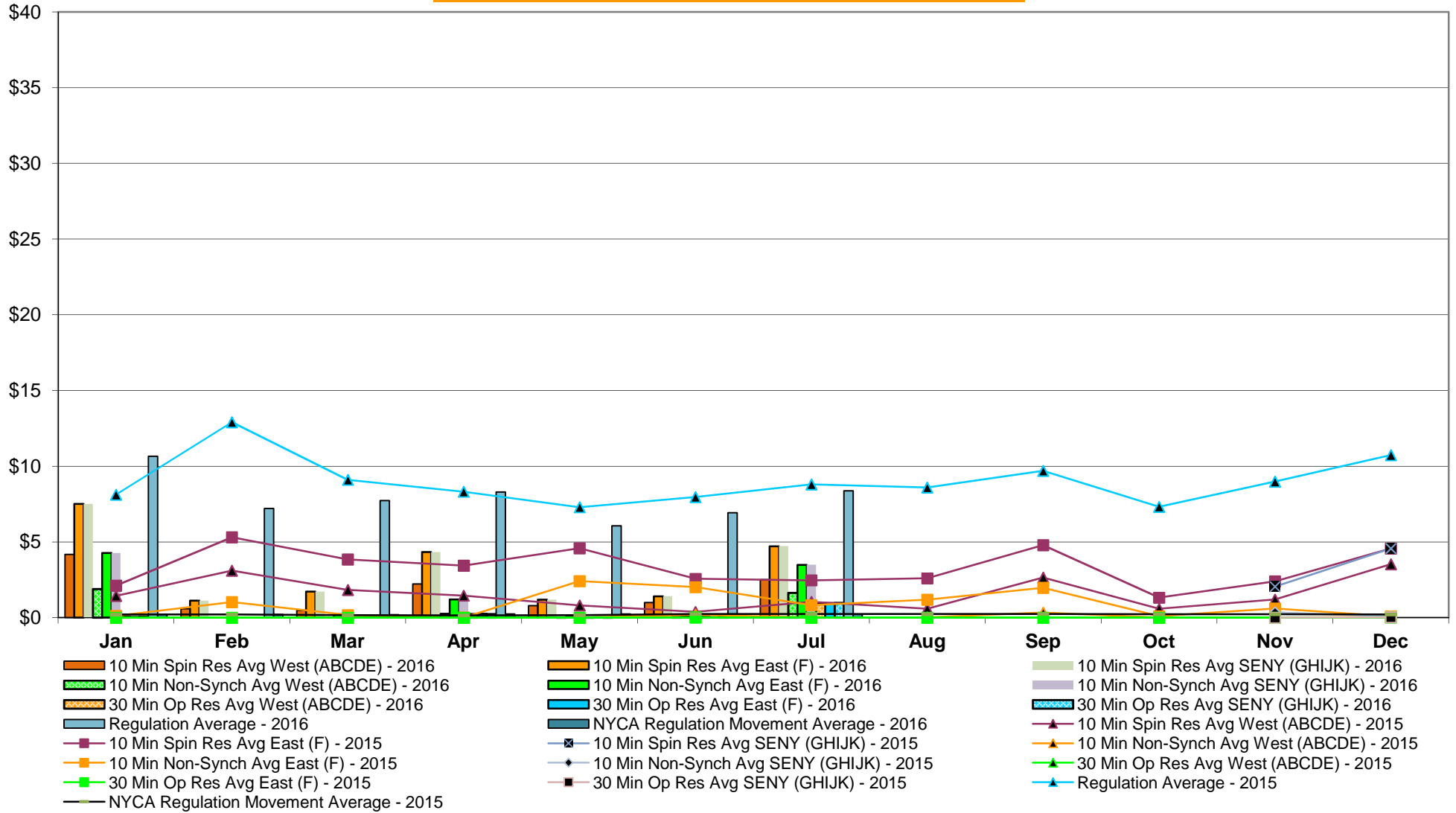
NYISO Monthly Average Ancillary Service Prices Day Ahead Market 2015 - 2016



NYISO Monthly Average Ancillary Service Prices RTC Market 2015 - 2016



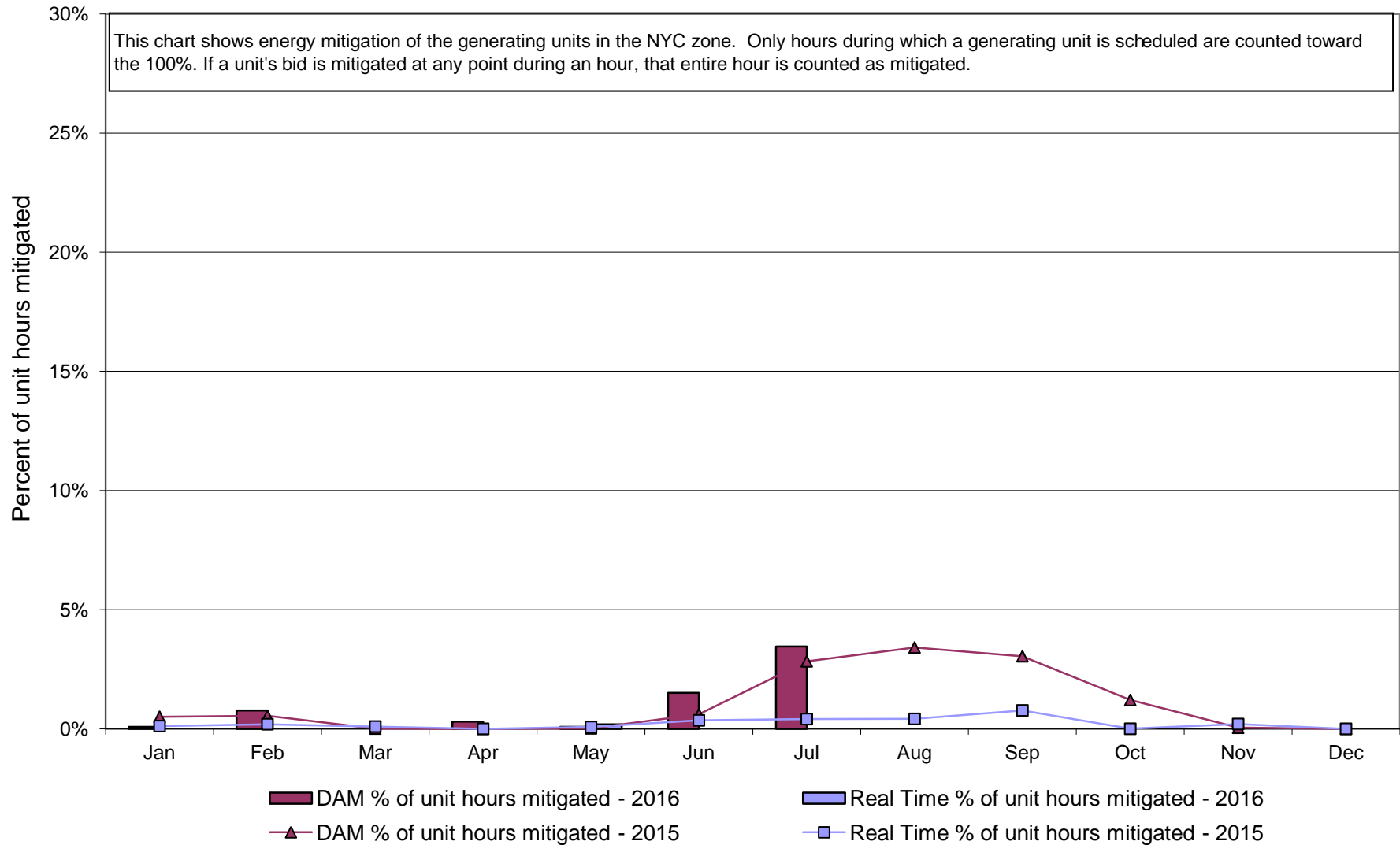
NYISO Monthly Average Ancillary Service Prices Real Time Market 2015 - 2016



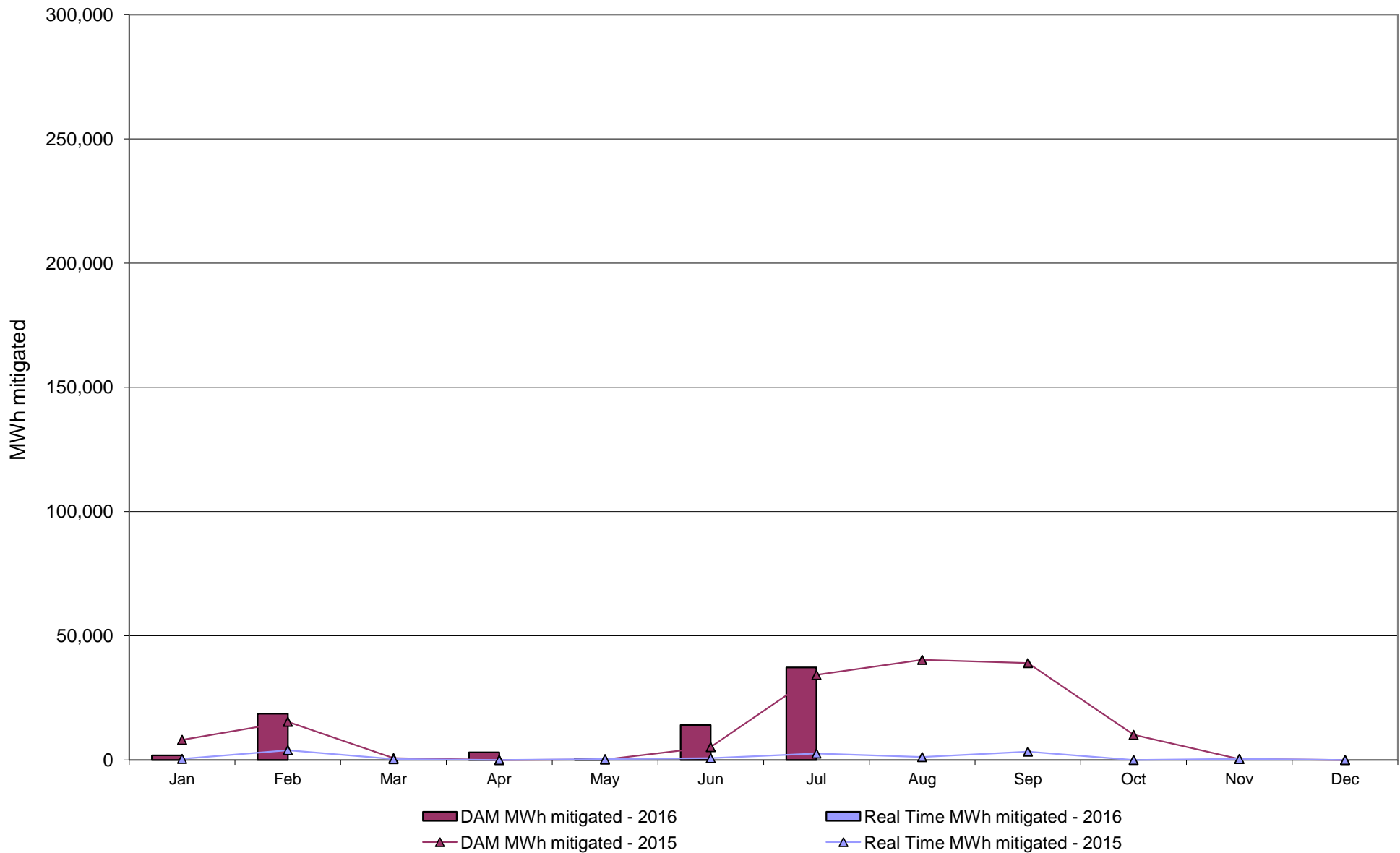
NYISO Markets Ancillary Services Statistics - Unweighted Price (\$/MWH)

2016	January	February	March	April	May	June	July	August	September	October	November	December
Day Ahead Market												
10 Min Spin SENEY (GHIJK)	7.09	5.38	5.04	6.31	4.93	4.62	6.41					
10 Min Spin East (F)	7.09	5.38	5.04	6.31	4.93	4.62	6.41					
10 Min Spin West (ABCDE)	6.28	5.25	4.84	5.60	4.77	4.52	5.78					
10 Min Non Synch SENEY (GHIJK)	6.47	5.25	4.88	5.80	4.83	4.36	6.34					
10 Min Non Synch East (F)	6.47	5.25	4.88	5.80	4.83	4.36	6.34					
10 Min Non Synch West (ABCDE)	6.23	5.20	4.84	5.58	4.68	4.32	5.72					
30 Min SENEY (GHIJK)	6.23	5.20	4.84	5.58	4.67	4.32	5.70					
30 Min East (F)	6.23	5.20	4.84	5.58	4.67	4.32	5.70					
30 Min West (ABCDE)	6.23	5.20	4.84	5.58	4.67	4.32	5.70					
Regulation	9.39	8.19	8.05	7.93	6.11	7.00	8.19					
RTC Market												
10 Min Spin SENEY (GHIJK)	1.53	0.59	0.71	1.81	0.43	0.49	2.79					
10 Min Spin East (F)	1.53	0.59	0.71	1.81	0.43	0.46	2.77					
10 Min Spin West (ABCDE)	0.42	0.26	0.08	0.95	0.23	0.24	1.72					
10 Min Non Synch SENEY (GHIJK)	0.45	0.00	0.17	0.14	0.05	0.05	1.89					
10 Min Non Synch East (F)	0.45	0.00	0.17	0.14	0.05	0.02	1.87					
10 Min Non Synch West (ABCDE)	0.04	0.00	0.00	0.14	0.04	0.02	1.18					
30 Min SENEY (GHIJK)	0.01	0.00	0.00	0.14	0.04	0.04	0.94					
30 Min East (F)	0.01	0.00	0.00	0.14	0.04	0.02	0.93					
30 Min West (ABCDE)	0.01	0.00	0.00	0.14	0.04	0.02	0.93					
Regulation	8.04	6.86	7.15	7.07	5.43	6.09	7.51					
NYCA Regulation Movement	0.23	0.21	0.20	0.25	0.25	0.23	0.23					
Real Time Market												
10 Min Spin SENEY (GHIJK)	7.51	1.12	1.73	4.34	1.19	1.43	4.73					
10 Min Spin East (F)	7.51	1.12	1.73	4.34	1.19	1.40	4.72					
10 Min Spin West (ABCDE)	4.17	0.58	0.48	2.23	0.79	1.00	2.51					
10 Min Non Synch SENEY (GHIJK)	4.26	0.00	0.22	1.20	0.06	0.15	3.49					
10 Min Non Synch East (F)	4.26	0.00	0.22	1.20	0.06	0.11	3.48					
10 Min Non Synch West (ABCDE)	1.89	0.00	0.00	0.26	0.03	0.04	1.65					
30 Min SENEY (GHIJK)	0.06	0.00	0.00	0.25	0.03	0.07	0.98					
30 Min East (F)	0.06	0.00	0.00	0.25	0.03	0.04	0.97					
30 Min West (ABCDE)	0.06	0.00	0.00	0.25	0.03	0.04	0.97					
Regulation	10.66	7.21	7.73	8.30	6.06	6.92	8.37					
NYCA Regulation Movement	0.23	0.22	0.20	0.25	0.25	0.23	0.23					
2015	January	February	March	April	May	June	July	August	September	October	November	December
Day Ahead Market												
10 Min Spin SENEY (GHIJK)	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	4.06	4.36
10 Min Spin East (F)	5.92	7.69	11.09	5.53	6.31	4.53	5.62	4.54	5.60	5.02	4.03	4.36
10 Min Spin West (ABCDE)	4.07	5.40	5.68	4.16	3.69	2.84	2.26	2.36	2.20	2.68	3.47	4.22
10 Min Non Synch SENEY (GHIJK)	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	3.44	4.03
10 Min Non Synch East (F)	2.30	3.89	5.40	3.22	3.84	2.42	3.66	2.51	3.74	2.75	3.27	4.03
10 Min Non Synch West (ABCDE)	0.90	1.79	1.97	1.91	1.45	0.77	0.45	0.36	0.49	0.45	2.77	4.02
30 Min SENEY (GHIJK)	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	2.95	4.02
30 Min East (F)	0.77	1.38	1.91	1.26	0.93	0.64	0.43	0.24	0.37	0.18	2.69	4.02
30 Min West (ABCDE)	0.77	1.38	1.91	1.26	0.93	0.64	0.43	0.24	0.37	0.18	2.69	4.02
Regulation	8.84	19.65	9.27	7.94	7.48	8.20	8.20	8.61	7.71	7.29	9.10	9.30
RTC Market												
10 Min Spin SENEY (GHIJK)	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	1.33	2.62
10 Min Spin East (F)	1.20	3.27	2.64	2.77	4.36	1.18	1.44	1.86	2.76	0.67	1.35	2.62
10 Min Spin West (ABCDE)	0.74	1.61	0.86	0.81	1.48	0.04	0.69	0.70	1.53	0.20	0.81	1.68
10 Min Non Synch SENEY (GHIJK)	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.17	0.01
10 Min Non Synch East (F)	0.01	0.48	0.01	0.00	1.54	0.87	0.28	0.57	0.84	0.01	0.16	0.01
10 Min Non Synch West (ABCDE)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.02	0.00	0.00	0.00
30 Min SENEY (GHIJK)	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.00	0.00
30 Min East (F)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.02	0.00	0.00	0.00
30 Min West (ABCDE)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.02	0.00	0.00	0.00
Regulation	7.45	11.32	8.13	7.56	7.06	7.24	7.97	8.07	8.49	6.73	8.12	8.83
NYCA Regulation Movement	0.21	0.21	0.16	0.22	0.16	0.24	0.25	0.23	0.24	0.23	0.22	0.22
Real Time Market												
10 Min Spin SENEY (GHIJK)	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	2.06	4.57
10 Min Spin East (F)	2.12	5.31	3.84	3.44	4.59	2.56	2.47	2.59	4.79	1.32	2.40	4.57
10 Min Spin West (ABCDE)	1.44	3.11	1.83	1.46	0.81	0.38	1.04	0.59	2.65	0.59	1.20	3.53
10 Min Non Synch SENEY (GHIJK)	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.35	0.09
10 Min Non Synch East (F)	0.12	1.03	0.17	0.01	2.41	2.01	0.83	1.19	1.97	0.09	0.61	0.09
10 Min Non Synch West (ABCDE)	0.00	0.00	0.00	0.00	0.00	0.19	0.00	0.02	0.33	0.00	0.00	0.05
30 Min SENEY (GHIJK)	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.00	0.03
30 Min East (F)	0.00	0.00	0.00	0.00	0.00	0.02	0.00	0.00	0.00	0.00	0.00	0.03
30 Min West (ABCDE)	0.00	0.00	0.00	0.00	0.00	0.02	0.00	0.00	0.00	0.00	0.00	0.03
Regulation	8.12	12.91	9.11	8.32	7.30	7.97	8.80	8.60	9.69	7.32	8.98	10.73
NYCA Regulation Movement	0.20	0.21	0.17	0.15	0.16	0.24	0.24	0.24	0.24	0.23	0.22	0.21

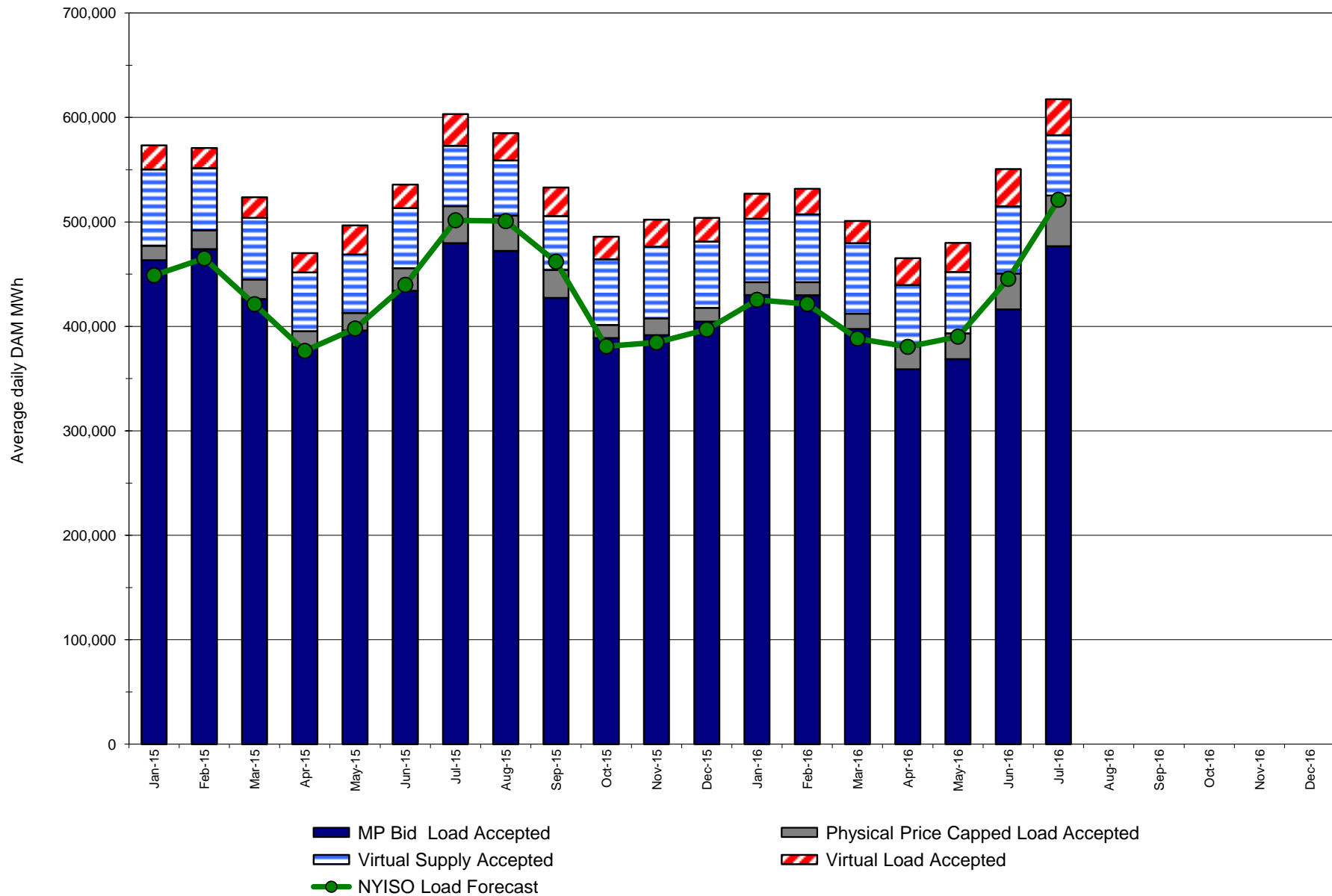
NYISO In City Energy Mitigation - AMP (NYC Zone) 2015 - 2016 Percentage of committed unit-hours mitigated



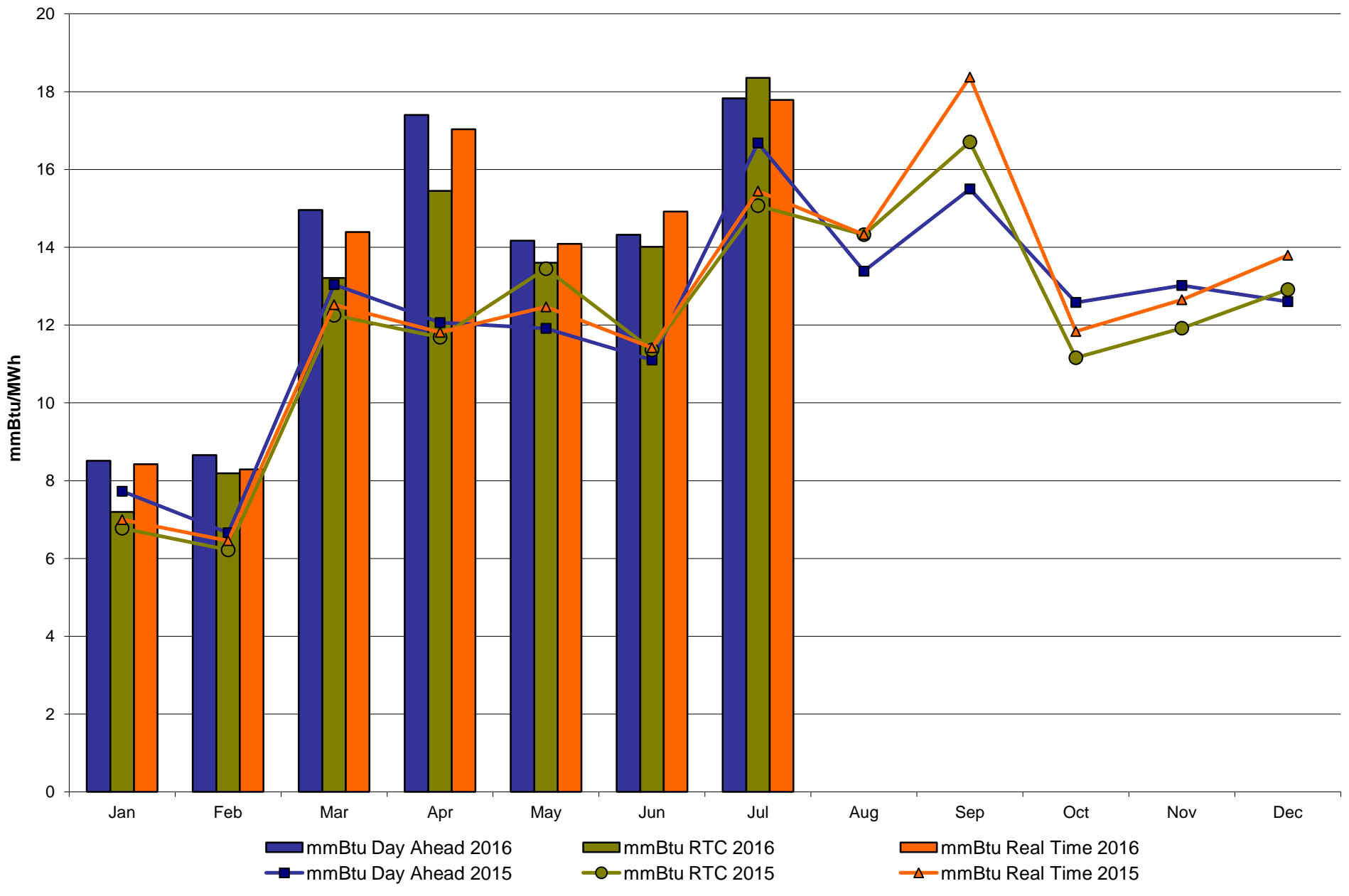
NYISO In City Energy Mitigation (NYC Zone) 2015 - 2016
Monthly megawatt hours mitigated



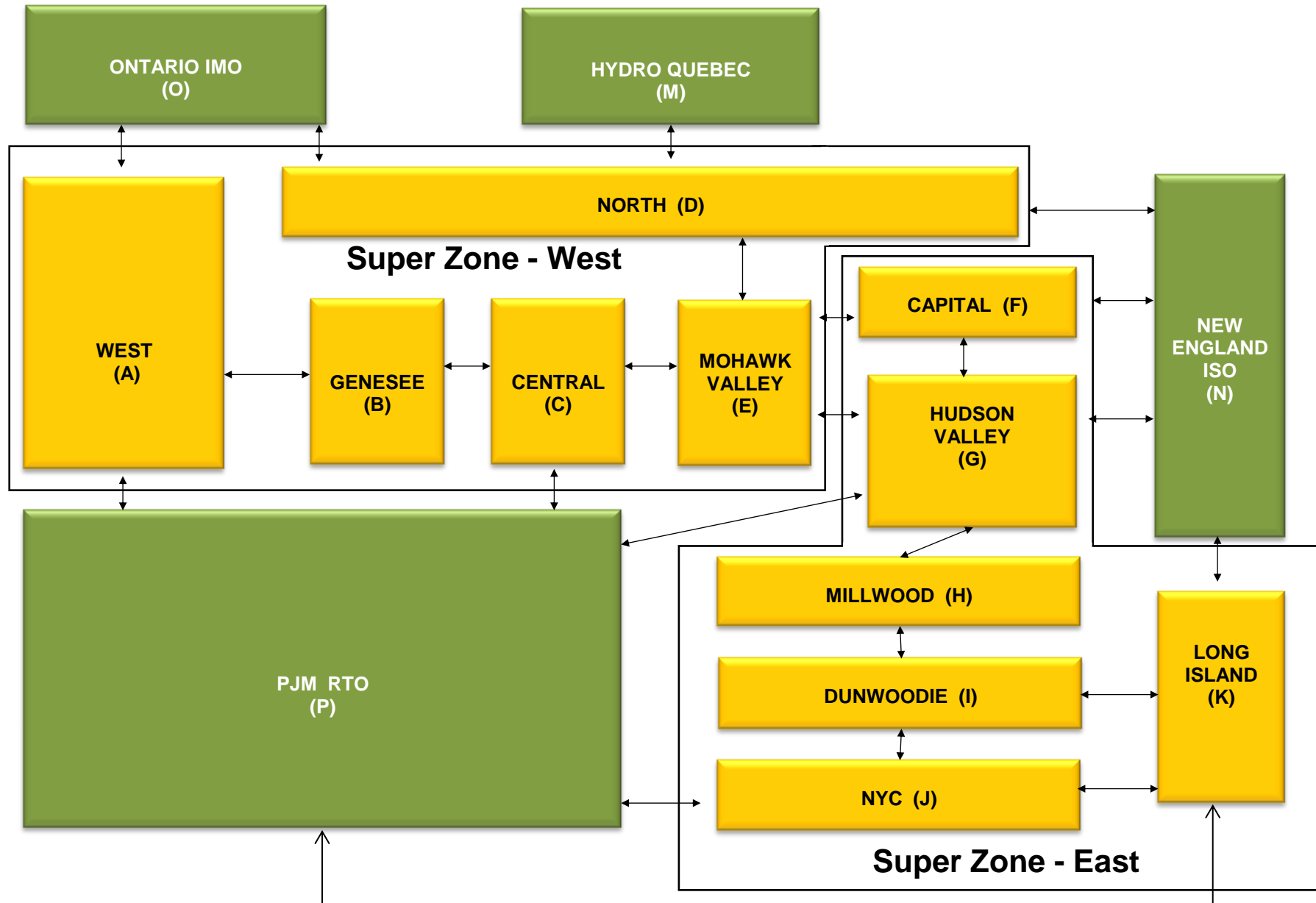
NYISO Average Daily DAM Load Bid Summary



Monthly Implied Heat Rate 2015-2016



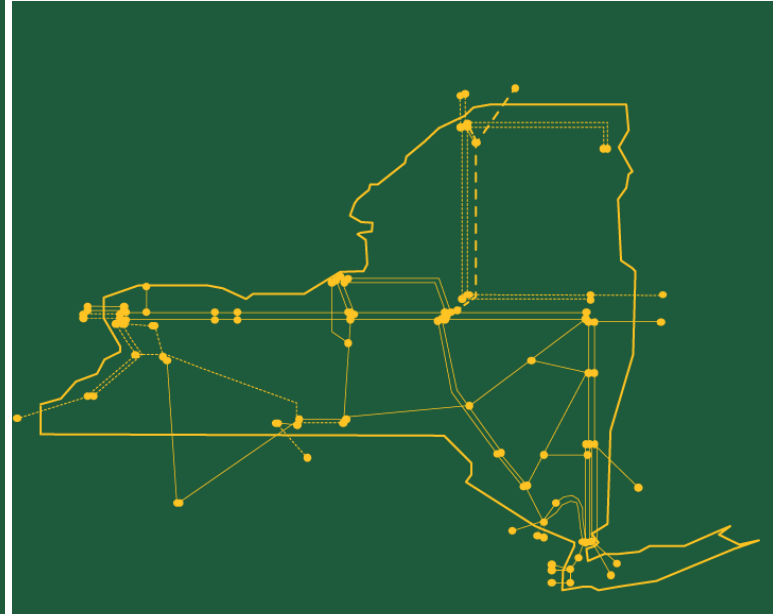
NYISO LBMP ZONES



Billing Codes for Chart C

Chart - C Category Name	Billing Code	Billing Category Name
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.



www.nyiso.com