

Market Operations Report

Rana Mukerji

SENIOR VICE PRESIDENT – MARKET STRUCTURES, NYISO

Business Issues Committee Meeting

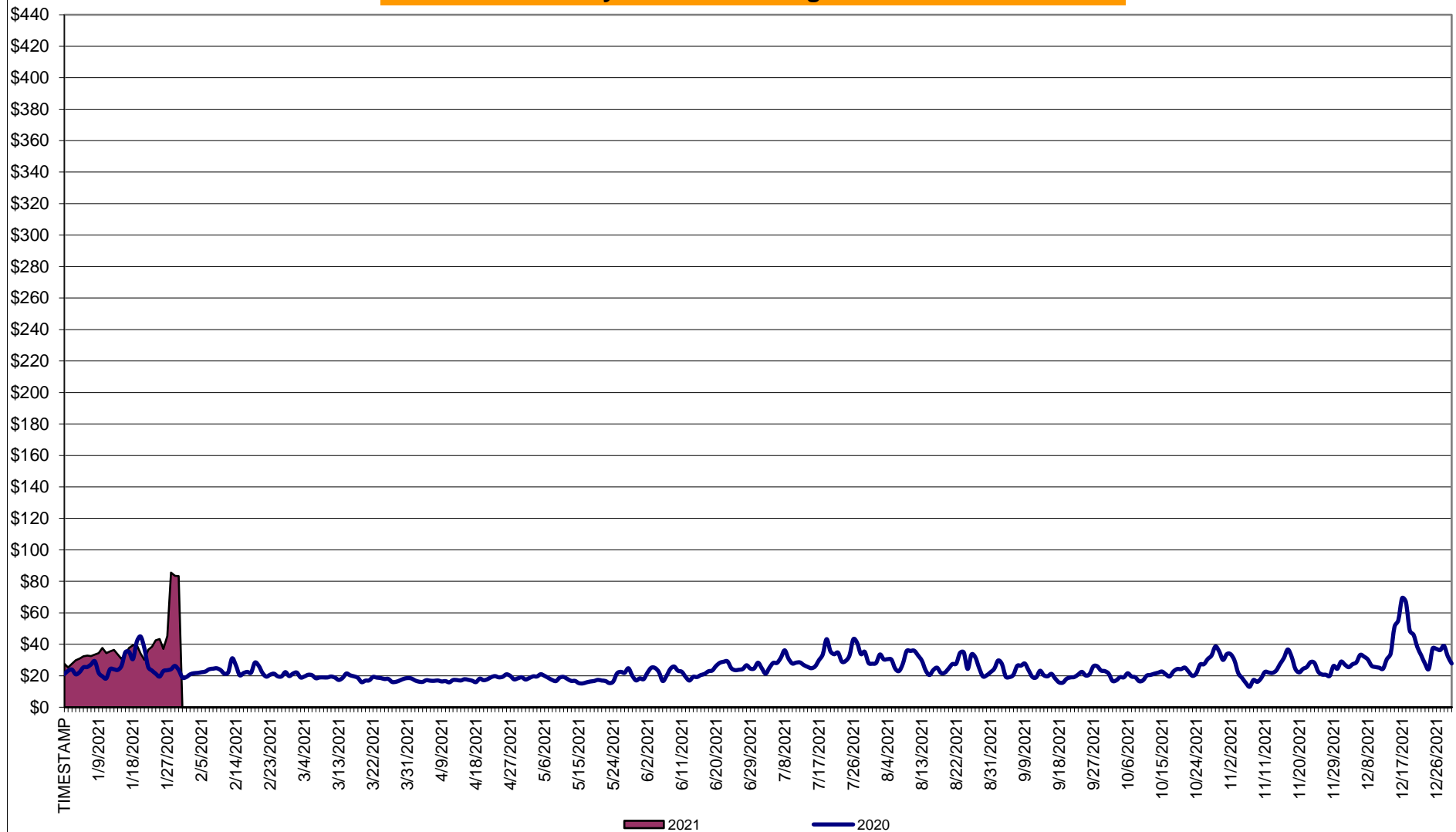
February 10, 2021 Rensselaer, NY

Market Performance Highlights

January 2021

- LBMP for January is \$37.83/MWh; higher than \$33.70/MWh in December 2020 and \$24.77/MWh in January 2020.
 - Day Ahead Load Weighted LBMPs and Real Time Load Weighted LBMPs are higher compared to December.
- January 2021 average year-to-date monthly cost of \$40.61/MWh is a 49% increase from \$27.29/MWh in January 2020.
- Average daily sendout is 427 GWh/day in January; higher than 417 GWh/day in December 2020 and 423 GWh/day in January 2020.
- Natural gas prices and distillate prices are higher compared to the previous month.
 - Natural Gas (Transco Z6 NY) was \$2.94/MMBtu, up from \$2.78/MMBtu in December.
 - Natural gas prices are up 34.1% year-over-year.
 - Jet Kerosene Gulf Coast was \$10.45/MMBtu, up from \$9.81/MMBtu in December.
 - Ultra Low Sulfur No.2 Diesel NY Harbor was \$11.17/MMBtu, up from \$10.33/MMBtu in December.
 - Distillate prices are down 18.6% year-over-year.
- Uplift per MWh is higher compared to the previous month.
 - Uplift (not including NYISO cost of operations) is (\$0.31)/MWh; higher than (\$0.33)/MWh in December.
 - Local Reliability Share is \$0.09/MWh, higher than \$0.05/MWh in December.
 - Statewide Share is (\$0.40)/MWh, lower than (\$0.38)/MWh in December.
 - TSA \$ per NYC MWh is \$0.00/MWh.
 - Total uplift costs (Schedule 1 components including NYISO Cost of Operations) are higher than December.

Daily NYISO Average Cost/MWh (Energy & Ancillary Services)*
2020 Annual Average \$25.62/MWh
January 2020 YTD Average \$27.29/MWh
January 2021 YTD Average \$40.69/MWh

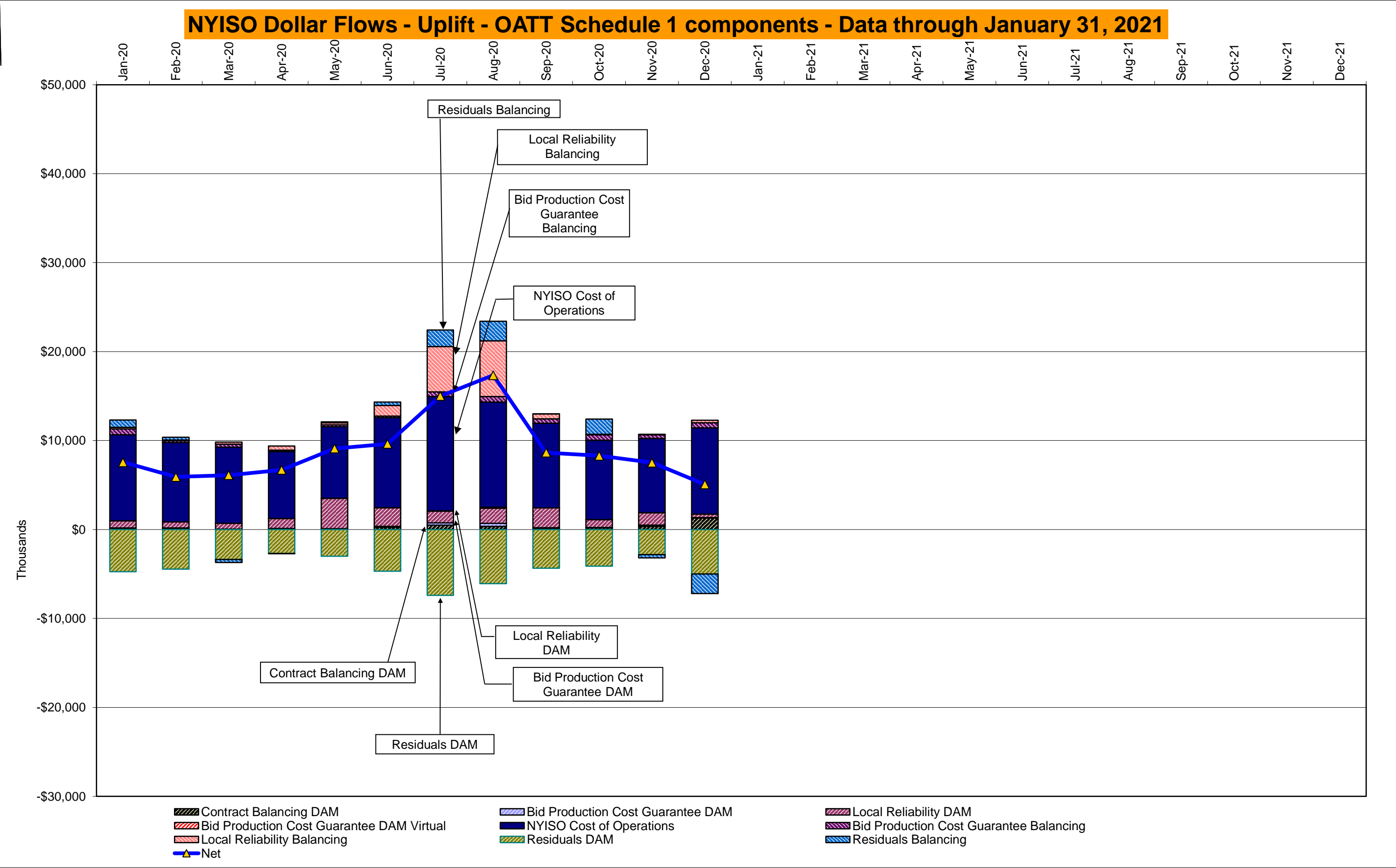


* Excludes ICAP payments.

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

2021	<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	37.83											
NTAC	1.35											
Reserve	0.49											
Regulation	0.07											
NYISO Cost of Operations	0.74											
FERC Fee Recovery	0.08											
Uplift	(0.31)											
Uplift: Local Reliability Share	0.09											
Uplift: Statewide Share	(0.40)											
Voltage Support and Black Start	0.43											
Avg Monthly Cost	40.61											
 Avg YTD Cost	40.61											
 TSA \$ per NYC MWh	0.00											
 2020	<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	24.77	21.11	17.11	15.77	16.14	21.36	28.86	26.13	20.52	20.90	22.57	33.70
NTAC	0.91	0.70	0.86	0.91	1.05	0.95	1.24	1.03	0.78	0.84	1.05	1.35
Reserve	0.46	0.43	0.47	0.50	0.53	0.45	0.39	0.39	0.42	0.61	0.51	0.49
Regulation	0.09	0.08	0.09	0.08	0.10	0.08	0.06	0.07	0.09	0.11	0.09	0.08
NYISO Cost of Operations	0.68	0.69	0.68	0.66	0.71	0.74	0.76	0.75	0.74	0.73	0.69	0.70
FERC Fee Recovery	0.08	0.09	0.09	0.10	0.11	0.09	0.06	0.07	0.09	0.10	0.10	0.08
Uplift	(0.15)	(0.23)	(0.19)	(0.08)	0.09	(0.05)	0.07	0.17	(0.07)	(0.05)	(0.07)	(0.33)
Uplift: Local Reliability Share	0.07	0.06	0.07	0.14	0.32	0.24	0.38	0.50	0.22	0.08	0.12	0.05
Uplift: Statewide Share	(0.22)	(0.29)	(0.26)	(0.21)	(0.23)	(0.29)	(0.31)	(0.33)	(0.28)	(0.13)	(0.19)	(0.38)
Voltage Support and Black Start	0.44	0.44	0.44	0.43	0.45	0.45	0.46	0.46	0.45	0.45	0.44	0.45
Avg Monthly Cost	27.29	23.32	19.55	18.38	19.16	24.09	31.91	29.07	23.03	23.70	25.40	36.52
 Avg YTD Cost	27.29	25.40	23.48	22.38	21.82	22.21	24.11	24.88	24.69	24.62	24.68	25.70
 TSA \$ per NYC MWh	0.00	0.00	0.00	0.00	0.00	0.04	0.18	0.54	0.00	0.00	0.00	0.00

* Excludes ICAP payments.
Market Mitigation and Analysis
Prepared: 2/9/2021 4:37 PM



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.

DAM residuals consist of both energy and loss revenue collections and payments. By design, there is a net over collection of revenues due to the difference between the marginal losses paid to generation and the average losses charged to loads.

NYISO Markets Transactions

<u>2021</u>	<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 Market MWh</u>	14,108,848											
DAM LSE Internal LBMP Energy Sales	60%											
DAM External TC LBMP Energy Sales	5%											
DAM Bilateral - Internal Bilaterals	31%											
DAM Bilateral - Import/Non-LBMP Market Bilaterals	1%											
DAM Bilateral - Export/Non-LBMP Market Bilaterals	2%											
DAM Bilateral - Wheel Through Bilaterals	2%											
<u>Balancing Energy Market MWh</u>	29,179											
Balancing Energy LSE Internal LBMP Energy Sales	-215%											
Balancing Energy External TC LBMP Energy Sales	374%											
Balancing Energy Bilateral - Internal Bilaterals	49%											
Balancing Energy Bilateral - Import/Non-LBMP Market Bilaterals	0%											
Balancing Energy Bilateral - Export/Non-LBMP Market Bilaterals	50%											
Balancing Energy Bilateral - Wheel Through Bilaterals	-158%											
<u>Transactions Summary</u>												
LBMP	65%											
Internal Bilaterals	31%											
Import Bilaterals	1%											
Export Bilaterals	2%											
Wheels Through	2%											
<u>Market Share of Total Load</u>												
Day Ahead Market	99.8%											
Balancing Energy +	0.2%											
Total MWH	14,138,027											
Average Daily Energy Sendout/Month GWh	427											

<u>2020</u>	<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 Market MWh</u>	14,194,609	13,172,669	12,495,999	11,372,390	11,462,320	13,825,178	16,629,337	15,671,629	13,122,542	12,338,638	12,157,281	13,748,181
DAM LSE Internal LBMP Energy Sales	56%	56%	59%	54%	55%	58%	65%	63%	60%	56%	57%	59%
DAM External TC LBMP Energy Sales	6%	5%	5%	7%	4%	3%	2%	4%	4%	5%	5%	5%
DAM Bilateral - Internal Bilaterals	30%	30%	27%	30%	31%	29%	26%	27%	30%	32%	33%	31%
DAM Bilateral - Import/Non-LBMP Market Bilaterals	5%	5%	6%	6%	6%	5%	3%	3%	2%	3%	3%	2%
DAM Bilateral - Export/Non-LBMP Market Bilaterals	2%	2%	2%	2%	2%	2%	1%	2%	2%	2%	2%	2%
DAM Bilateral - Wheel Through Bilaterals	1%	1%	1%	1%	1%	2%	2%	2%	2%	2%	0%	2%
<u>Balancing Energy Market MWh</u>	-26,753	-142,168	144,076	22,599	-137,565	-180,149	403,914	212,307	-173,115	-89,451	-54,598	156,891
Balancing Energy LSE Internal LBMP Energy Sales	-1080%	-221%	-85%	-884%	-187%	-134%	85%	99%	-95%	-220%	-459%	-12%
Balancing Energy External TC LBMP Energy Sales	1156%	181%	240%	1233%	137%	99%	35%	43%	104%	187%	382%	107%
Balancing Energy Bilateral - Internal Bilaterals	62%	5%	12%	55%	12%	7%	2%	1%	0%	4%	3%	7%
Balancing Energy Bilateral - Import/Non-LBMP Market Bilaterals	0%	0%	0%	0%	0%	0%	0%	0%	0%	20%	9%	6%
Balancing Energy Bilateral - Export/Non-LBMP Market Bilaterals	127%	16%	18%	92%	12%	5%	2%	4%	7%	17%	33%	11%
Balancing Energy Bilateral - Wheel Through Bilaterals	-365%	-81%	-85%	-396%	-74%	-77%	-24%	-46%	-116%	-107%	-69%	-19%
<u>Transactions Summary</u>												
LBMP	62%	62%	65%	61%	59%	62%	68%	67%	64%	61%	62%	64%
Internal Bilaterals	31%	31%	27%	30%	32%	30%	26%	27%	31%	32%	33%	31%
Import Bilaterals	5%	5%	6%	6%	6%	5%	3%	3%	2%	3%	3%	2%
Export Bilaterals	2%	2%	2%	2%	2%	2%	1%	2%	2%	2%	2%	2%
Wheels Through	0%	1%	0%	0%	0%	1%	1%	1%	1%	2%	0%	2%
<u>Market Share of Total Load</u>												
Day Ahead Market	100.2%	101.1%	98.9%	99.8%	101.2%	101.3%	97.6%	98.7%	101.3%	100.7%	100.5%	98.9%
Balancing Energy +	-0.2%	-1.1%	1.1%	0.2%	-1.2%	-1.3%	2.4%	1.3%	-1.3%	-0.7%	-0.5%	1.1%
Total MWH	14,167,856	13,030,501	12,640,075	11,394,989	11,324,755	13,645,029	17,033,251	15,883,935	12,949,426	12,249,187	12,102,682	13,905,071
Average Daily Energy Sendout/Month GWh	423	417	375	344	345	430	530	489	408	367	377	417

+ 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 2021 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 *	\$34.37											
Standard Deviation	\$14.58											
Load Weighted Price **	\$35.31											
<u>RTC LBMP</u>												
Price *	\$34.32											
Standard Deviation	\$20.93											
Load Weighted Price **	\$35.40											
<u>REAL TIME LBMP</u>												
Price *	\$34.59											
Standard Deviation	\$29.47											
Load Weighted Price **	\$35.89											
Average Daily Energy Sendout/Month GWh	427											

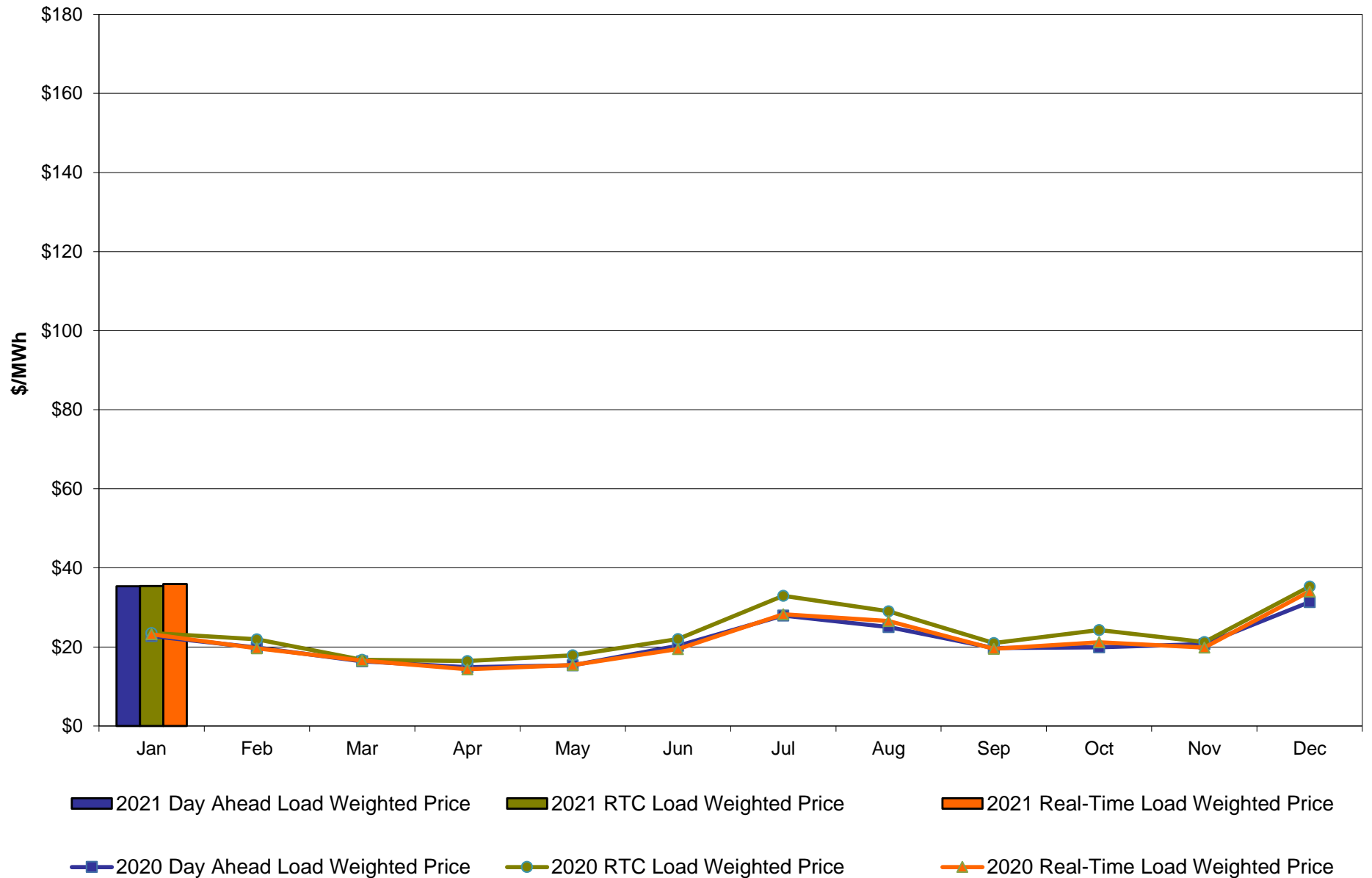
NYISO Markets 2020 Energy Statistics

	<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 *	\$22.11	\$19.48	\$16.07	\$14.67	\$14.97	\$19.15	\$26.30	\$23.61	\$18.88	\$19.40	\$20.07	\$30.45
Standard Deviation	\$7.43	\$4.45	\$3.21	\$2.71	\$3.55	\$6.40	\$10.45	\$8.56	\$5.41	\$6.36	\$7.15	\$12.35
Load Weighted Price **	\$22.77	\$19.84	\$16.36	\$14.86	\$15.37	\$20.28	\$27.94	\$25.01	\$19.72	\$19.91	\$20.75	\$31.36
<u>RTC LBMP</u>												
Price *	\$22.86	\$21.48	\$16.48	\$16.23	\$17.46	\$20.84	\$30.70	\$26.86	\$19.90	\$23.35	\$20.39	\$34.01
Standard Deviation	\$9.33	\$53.30	\$4.84	\$5.17	\$8.61	\$11.26	\$17.92	\$17.17	\$11.37	\$14.44	\$14.19	\$25.41
Load Weighted Price **	\$23.50	\$21.94	\$16.74	\$16.44	\$17.89	\$22.01	\$32.92	\$29.01	\$20.99	\$24.25	\$21.23	\$35.28
<u>REAL TIME LBMP</u>												
Price *	\$22.53	\$19.29	\$16.24	\$14.14	\$14.90	\$18.35	\$26.56	\$24.68	\$18.63	\$20.44	\$18.96	\$32.72
Standard Deviation	\$11.90	\$8.68	\$7.48	\$6.98	\$8.35	\$9.33	\$16.45	\$13.95	\$7.15	\$12.01	\$12.66	\$24.29
Load Weighted Price **	\$23.20	\$19.68	\$16.58	\$14.35	\$15.42	\$19.46	\$28.27	\$26.53	\$19.54	\$21.15	\$19.84	\$34.04
Average Daily Energy Sendout/Month GWh	423	417	375	344	345	430	530	489	408	367	377	417

* Average zonal load weighted prices.

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

NYISO Monthly Average Internal LBMPs 2020 - 2021

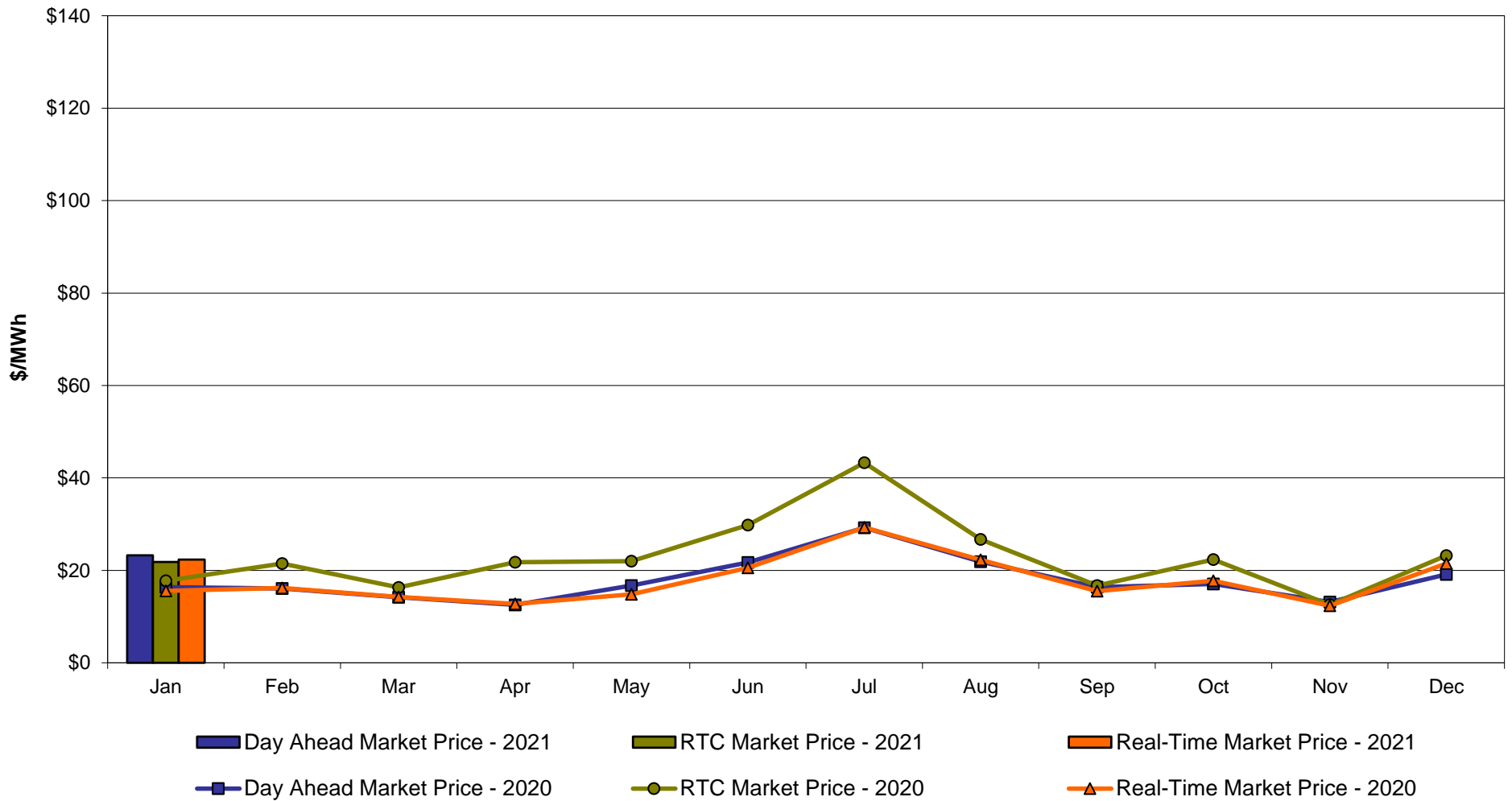


January 2021 Zonal LBMP Statistics for NYISO (\$/MWh)

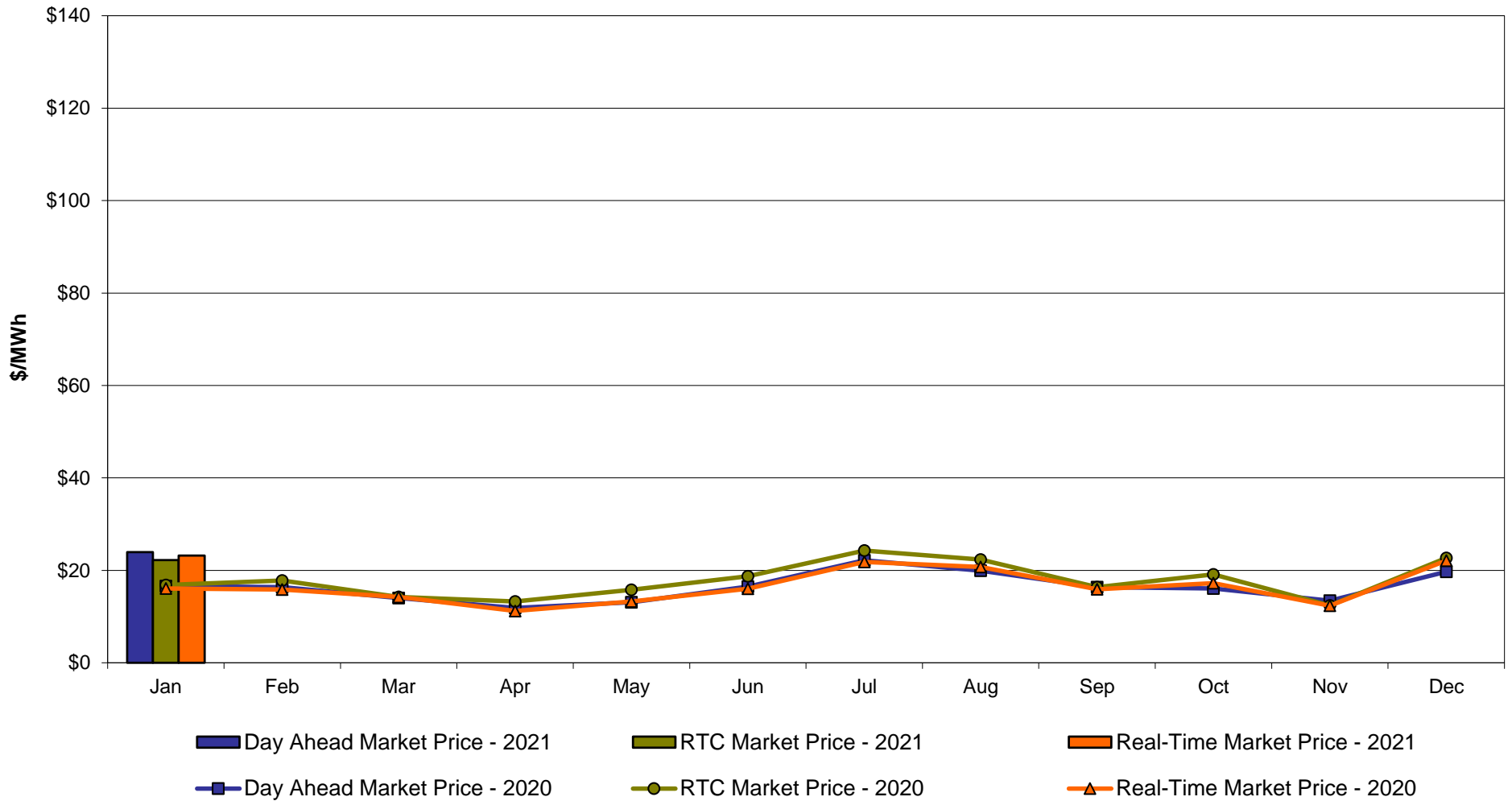
	<u>WEST</u> <u>Zone A</u>	<u>GENESEE</u> <u>Zone B</u>	<u>NORTH</u> <u>Zone D</u>	<u>CENTRAL</u> <u>Zone C</u>	<u>MOHAWK</u> <u>VALLEY</u> <u>Zone E</u>	<u>CAPITAL</u> <u>Zone F</u>	<u>HUDSON</u> <u>VALLEY</u> <u>Zone G</u>	<u>MILLWOOD</u> <u>Zone H</u>	<u>DUNWOODIE</u> <u>Zone I</u>	<u>NEW YORK</u> <u>CITY</u> <u>Zone J</u>	<u>LONG</u> <u>ISLAND</u> <u>Zone K</u>
<u>DAY AHEAD LBMP</u>											
Unweighted Price *	23.23	22.90	21.31	23.96	24.67	38.70	34.33	35.59	35.77	36.35	57.10
Standard Deviation	7.83	7.98	8.16	8.40	8.73	19.47	14.10	16.99	17.63	18.60	24.45
<u>RTC LBMP</u>											
Unweighted Price *	21.82	21.19	19.39	22.25	23.24	40.04	34.92	35.53	35.45	36.60	59.25
Standard Deviation	12.69	13.18	16.71	12.74	16.78	28.67	21.13	21.80	21.67	25.09	61.91
<u>REAL TIME LBMP</u>											
Unweighted Price *	22.36	22.12	20.40	23.22	24.24	41.38	36.22	36.91	36.85	38.20	54.19
Standard Deviation	21.85	23.13	24.43	23.74	25.17	37.46	31.20	31.91	31.89	35.95	44.64
	<u>ONTARIO</u> <u>IESO</u>	<u>HYDRO</u> <u>QUEBEC</u> <u>(Wheel)</u>	<u>HYDRO</u> <u>QUEBEC</u> <u>(Import/Export)</u>	<u>PJM</u>	<u>NEW</u> <u>ENGLAND</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>
	<u>Zone O</u>	<u>Zone M</u>	<u>Zone M</u>	<u>Zone P</u>	<u>Zone N</u>						
<u>DAY AHEAD LBMP</u>											
Unweighted Price *	22.02	21.22	21.22	22.02	39.51	28.95	57.02	46.24	20.83	35.79	56.90
Standard Deviation	6.98	7.99	7.99	6.98	17.67	9.91	24.49	19.05	8.00	17.72	24.43
<u>RTC LBMP</u>											
Unweighted Price *	19.71	18.10	18.10	19.71	41.84	28.75	59.01	57.04	20.67	35.74	59.11
Standard Deviation	10.06	12.80	12.80	10.06	25.50	14.64	61.82	61.15	42.76	23.56	61.87
<u>REAL TIME LBMP</u>											
Unweighted Price *	21.23	19.39	19.39	21.23	41.42	29.82	53.99	49.42	20.81	37.26	54.05
Standard Deviation	21.20	23.98	23.98	21.20	33.87	25.36	44.31	41.01	30.14	34.43	44.58

* Straight LBMP averages

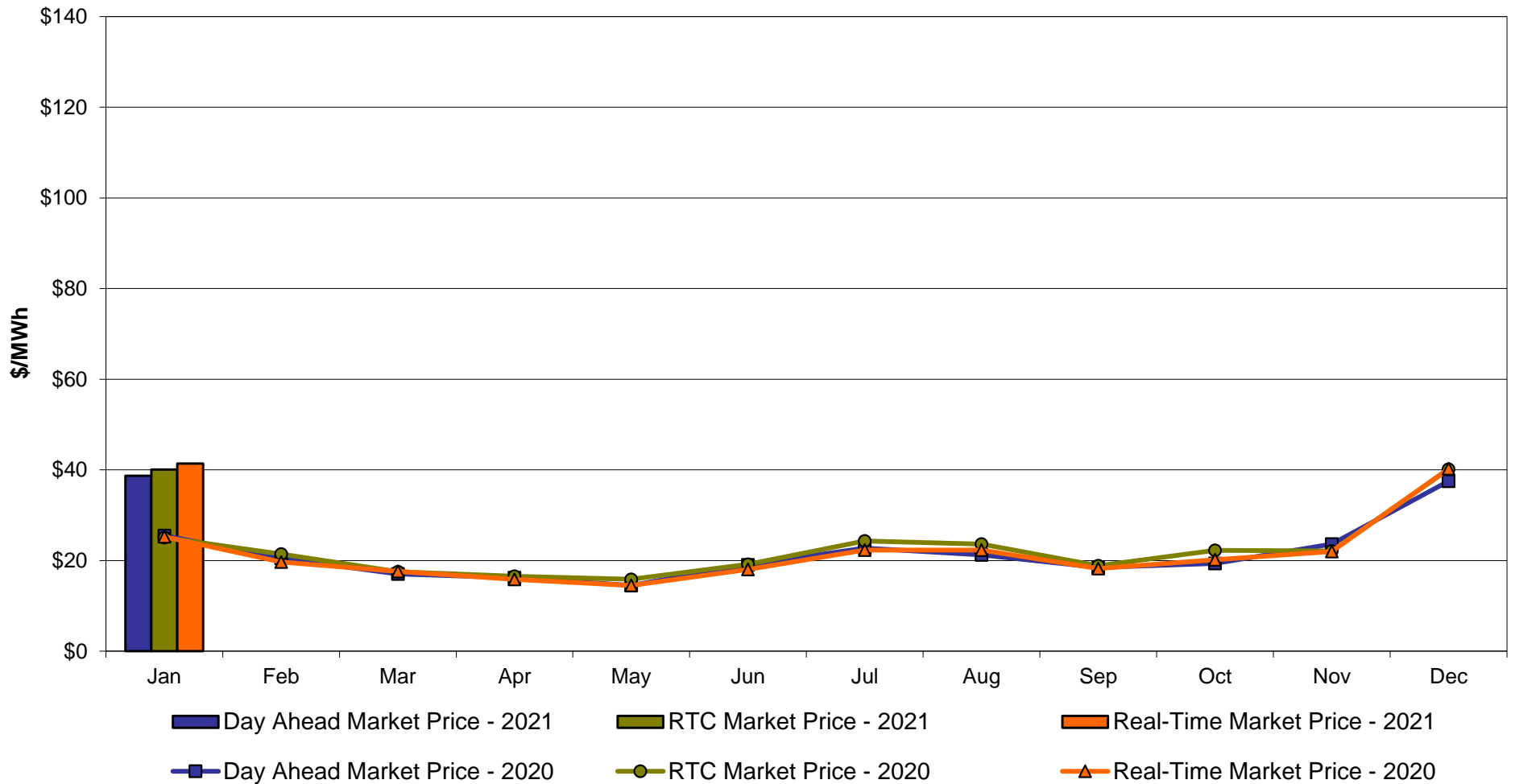
West Zone A **Monthly Average LBMP Prices 2020 - 2021**



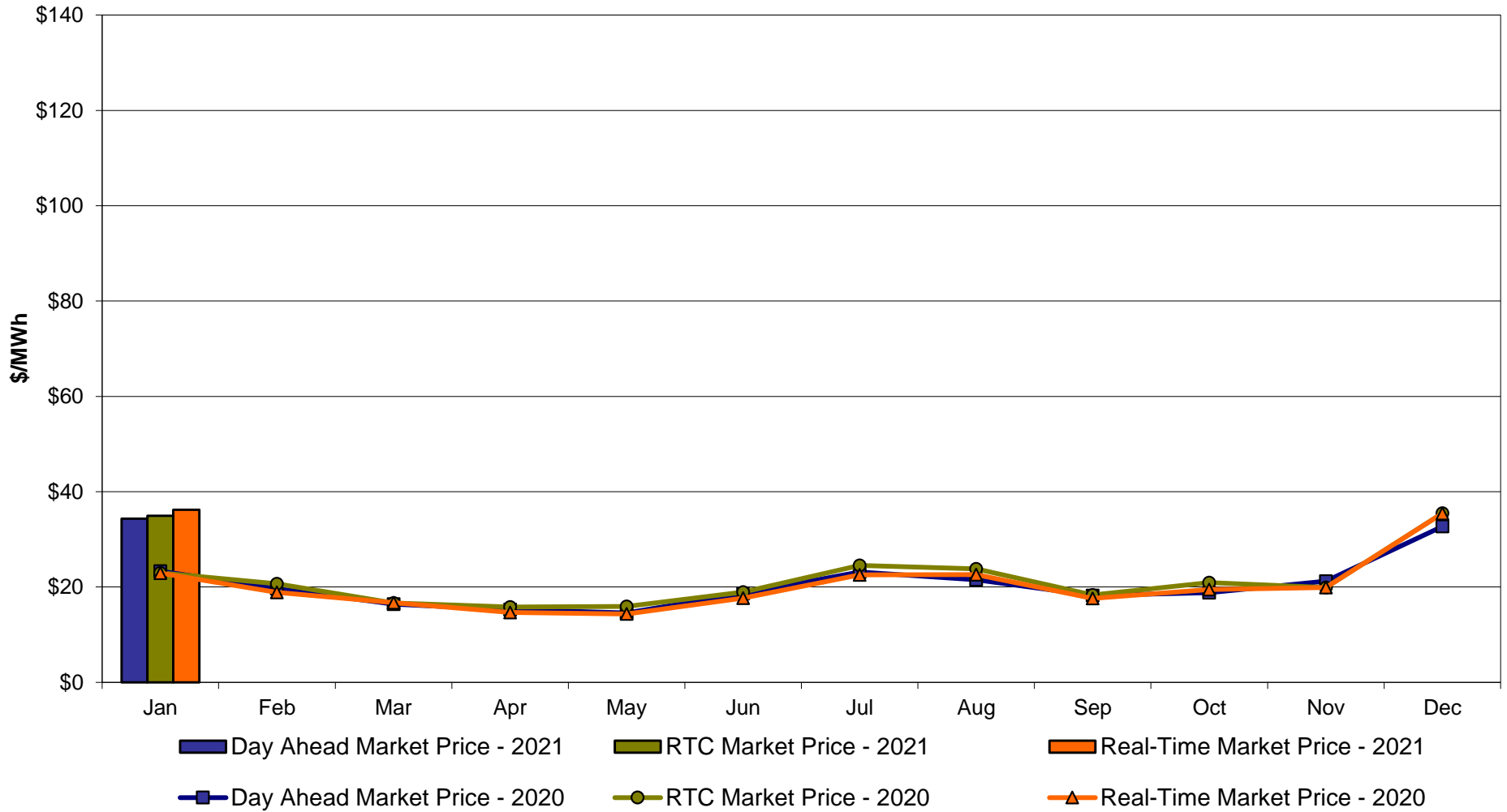
Central Zone C
Monthly Average LBMP Prices 2019 - 2020



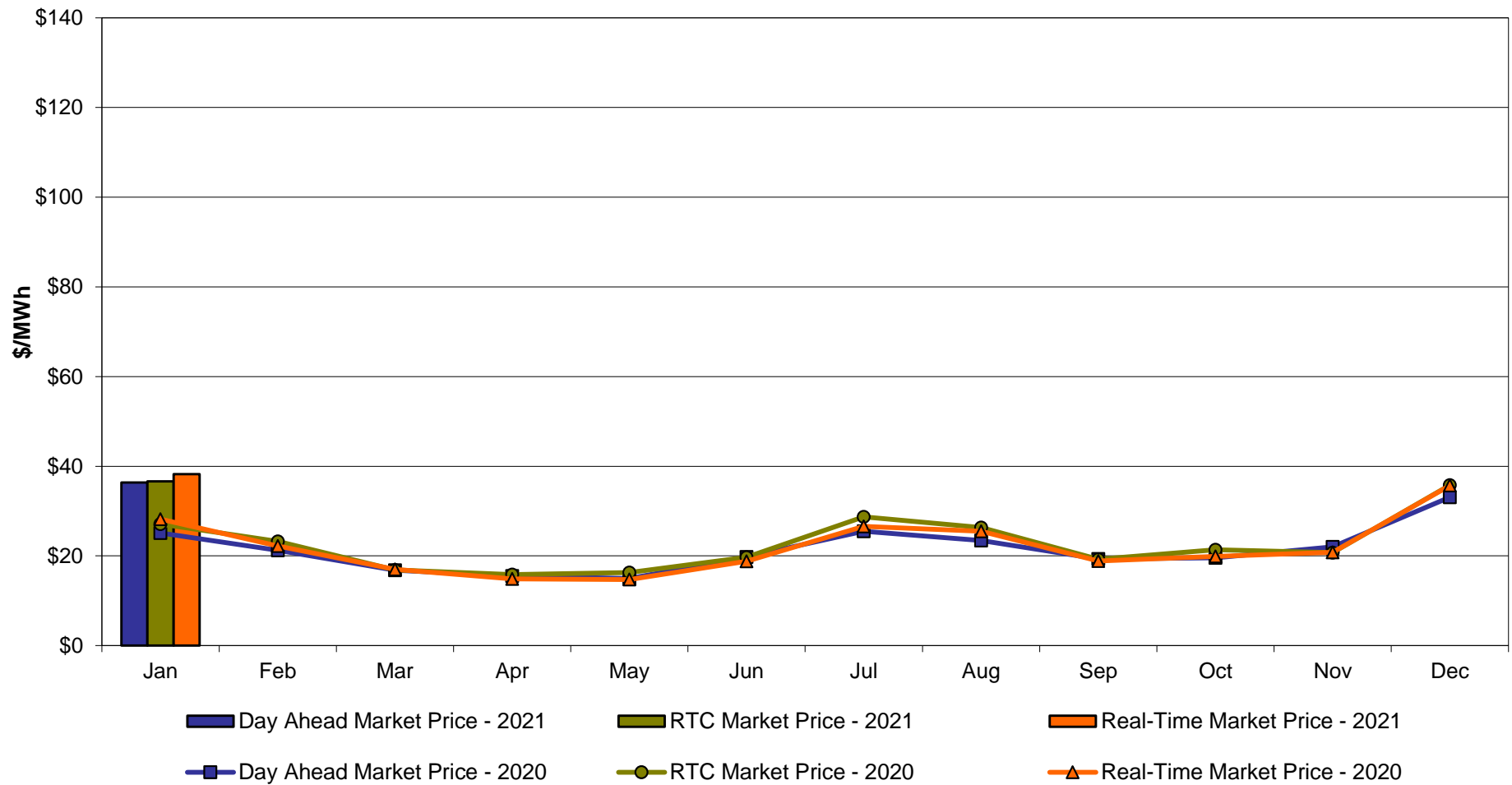
Capital Zone F **Monthly Average LBMP Prices 2020 - 2021**



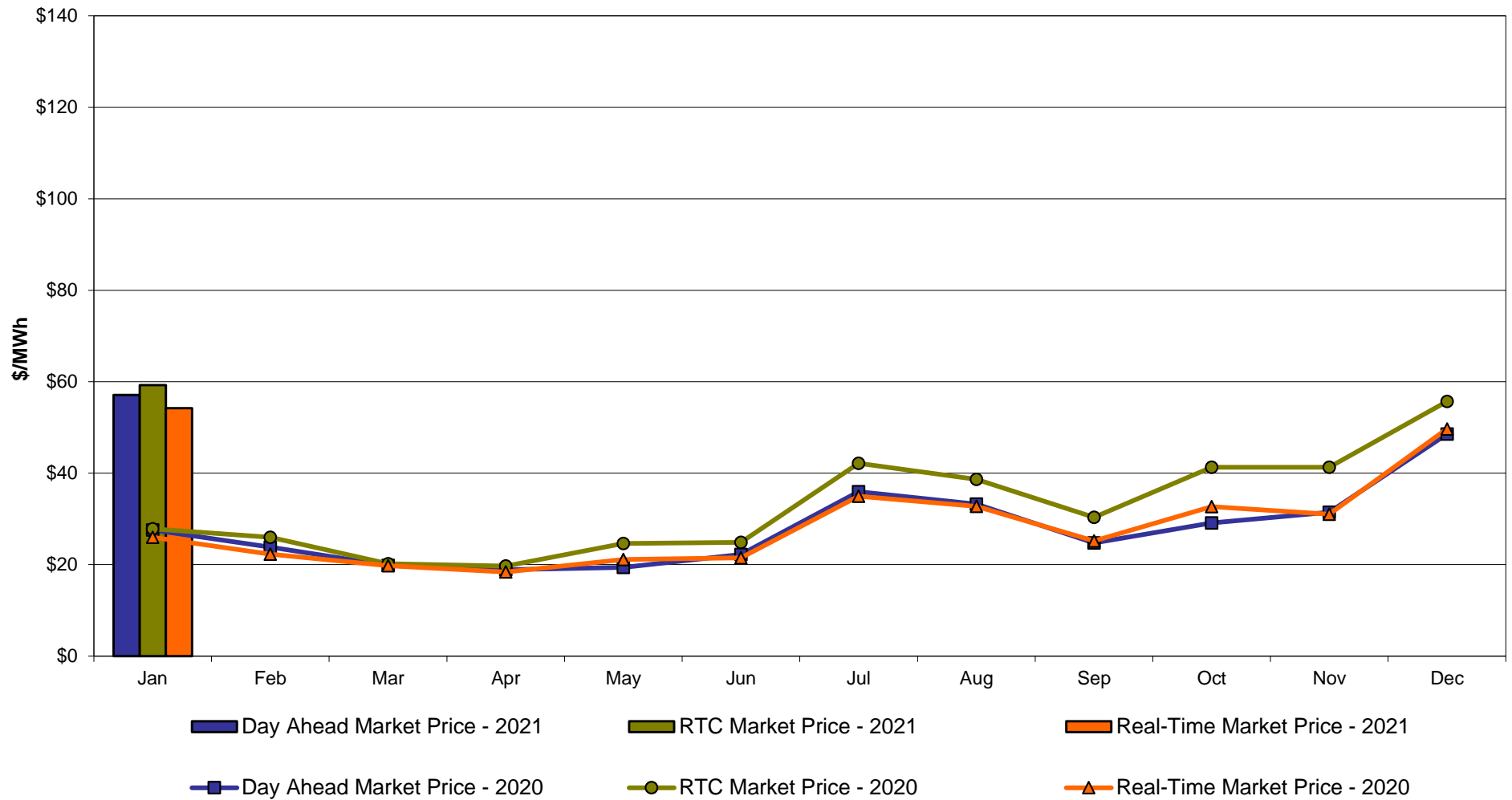
Hudson Valley Zone G Monthly Average LBMP Prices 2019 - 2020



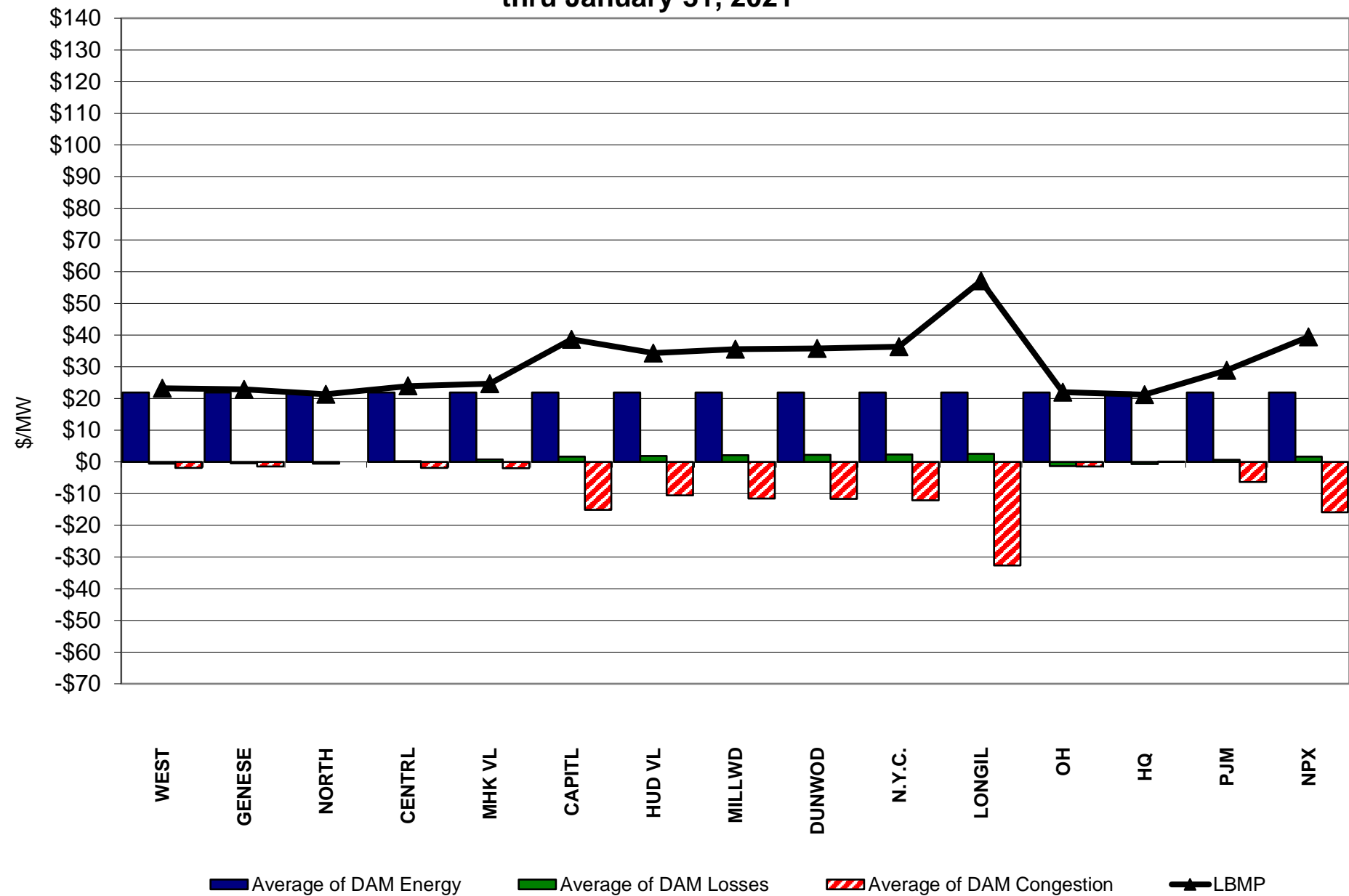
NYC Zone J Monthly Average LBMP Prices 2020 - 2021



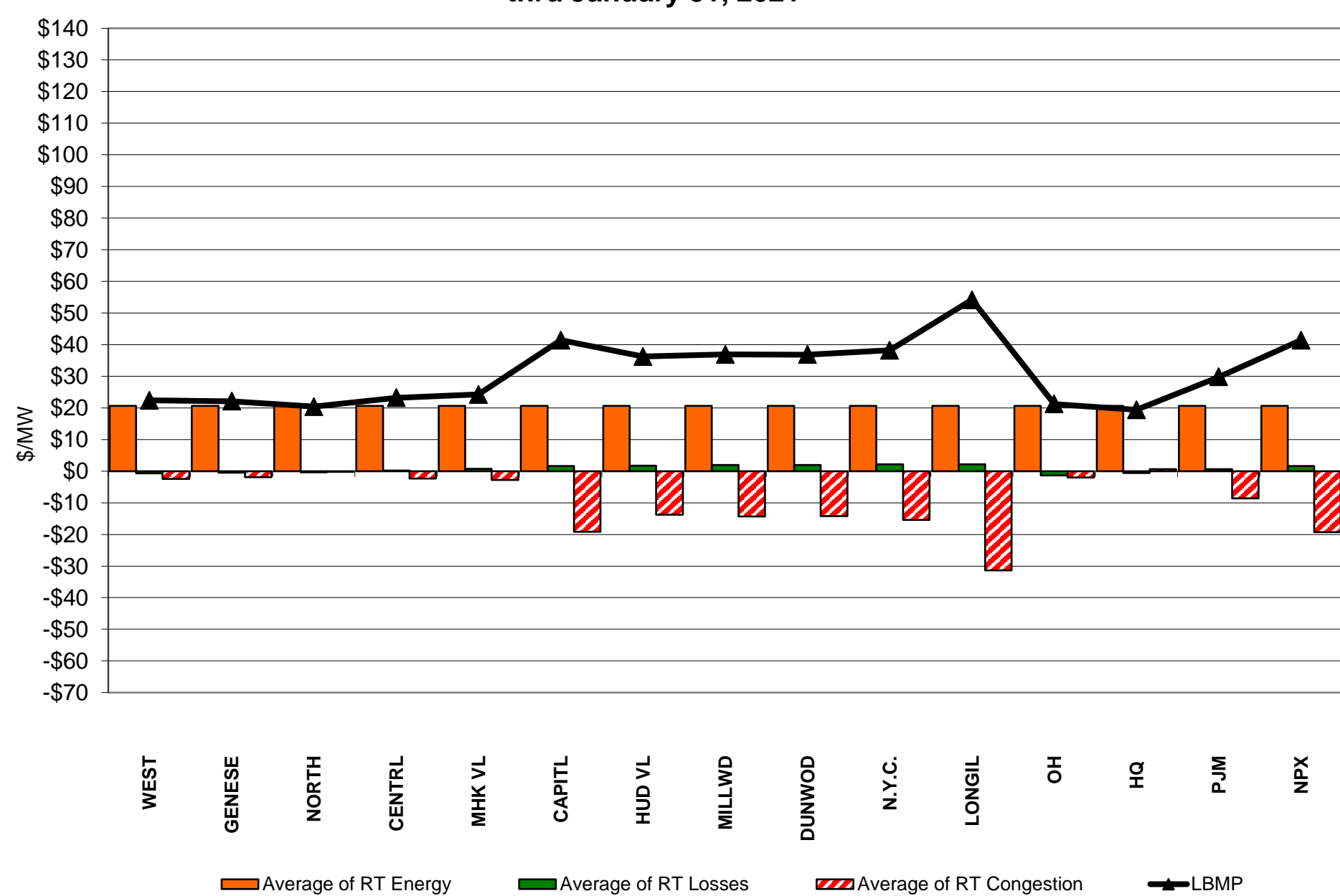
Long Island Zone K Monthly Average LBMP Prices 2019 - 2020



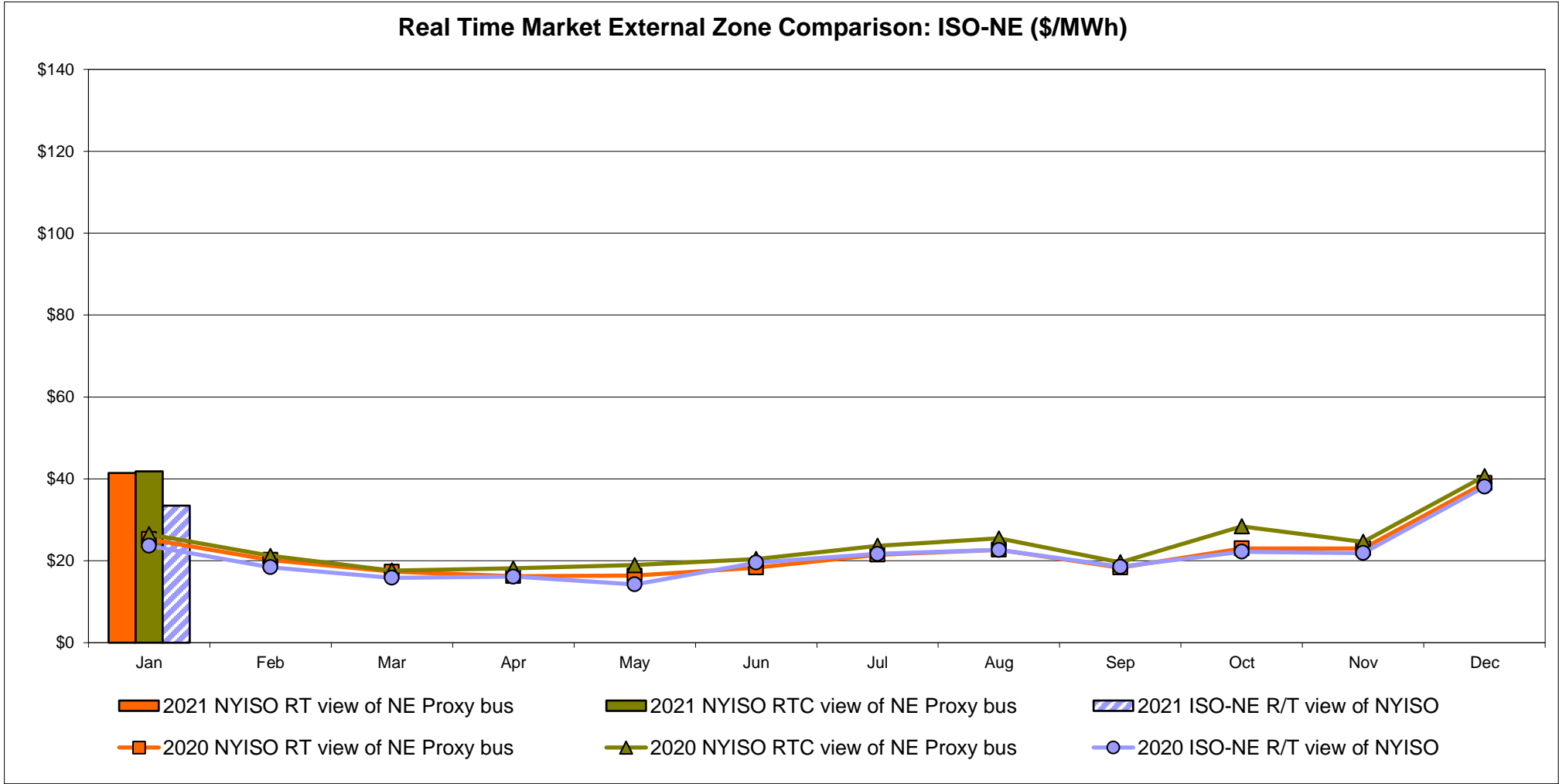
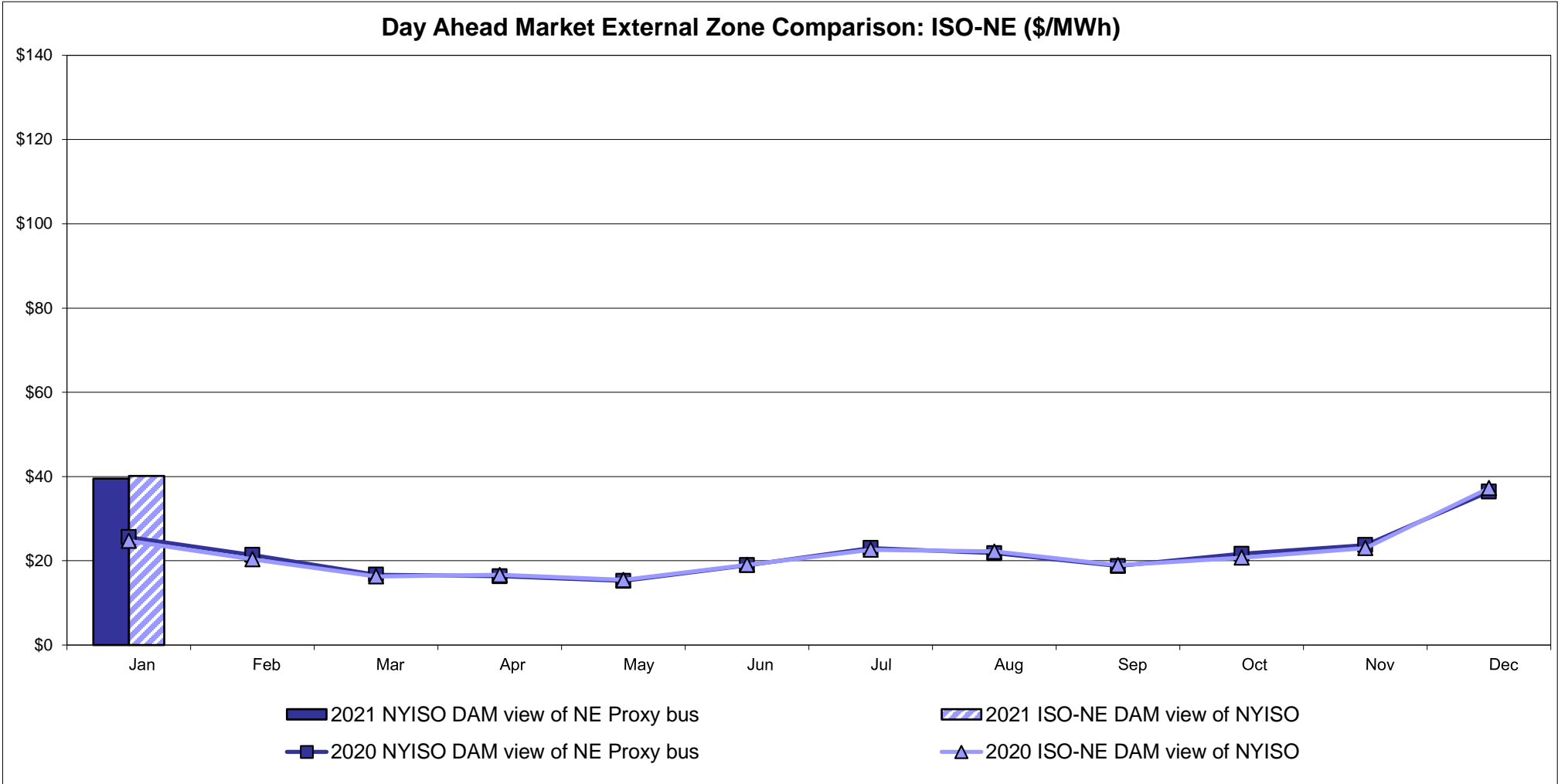
DAM Zonal Unweighted Monthly Average LBMP Components
thru January 31, 2021



RT Zonal Unweighted Monthly Average LBMP Components
thru January 31, 2021

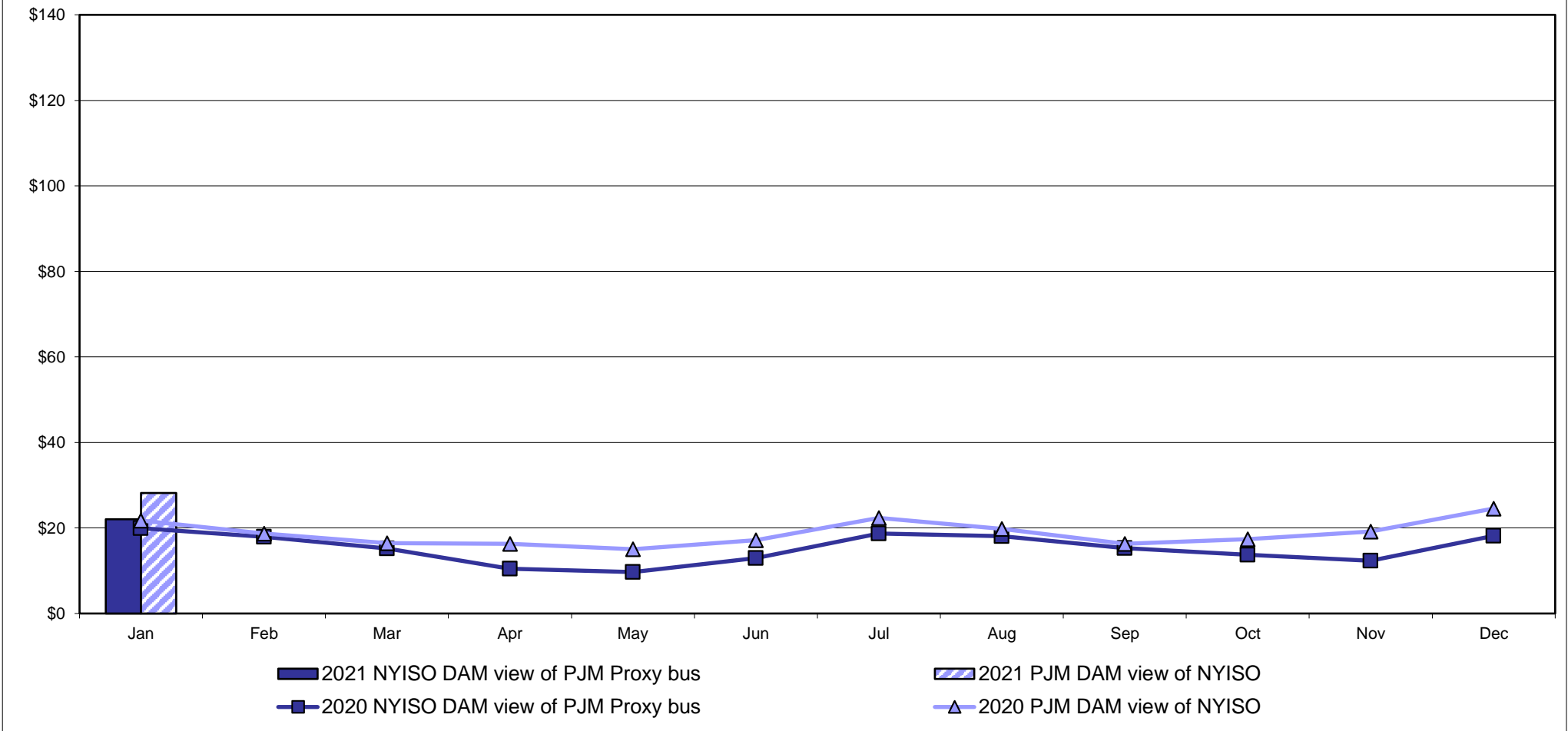


External Comparison ISO-New England

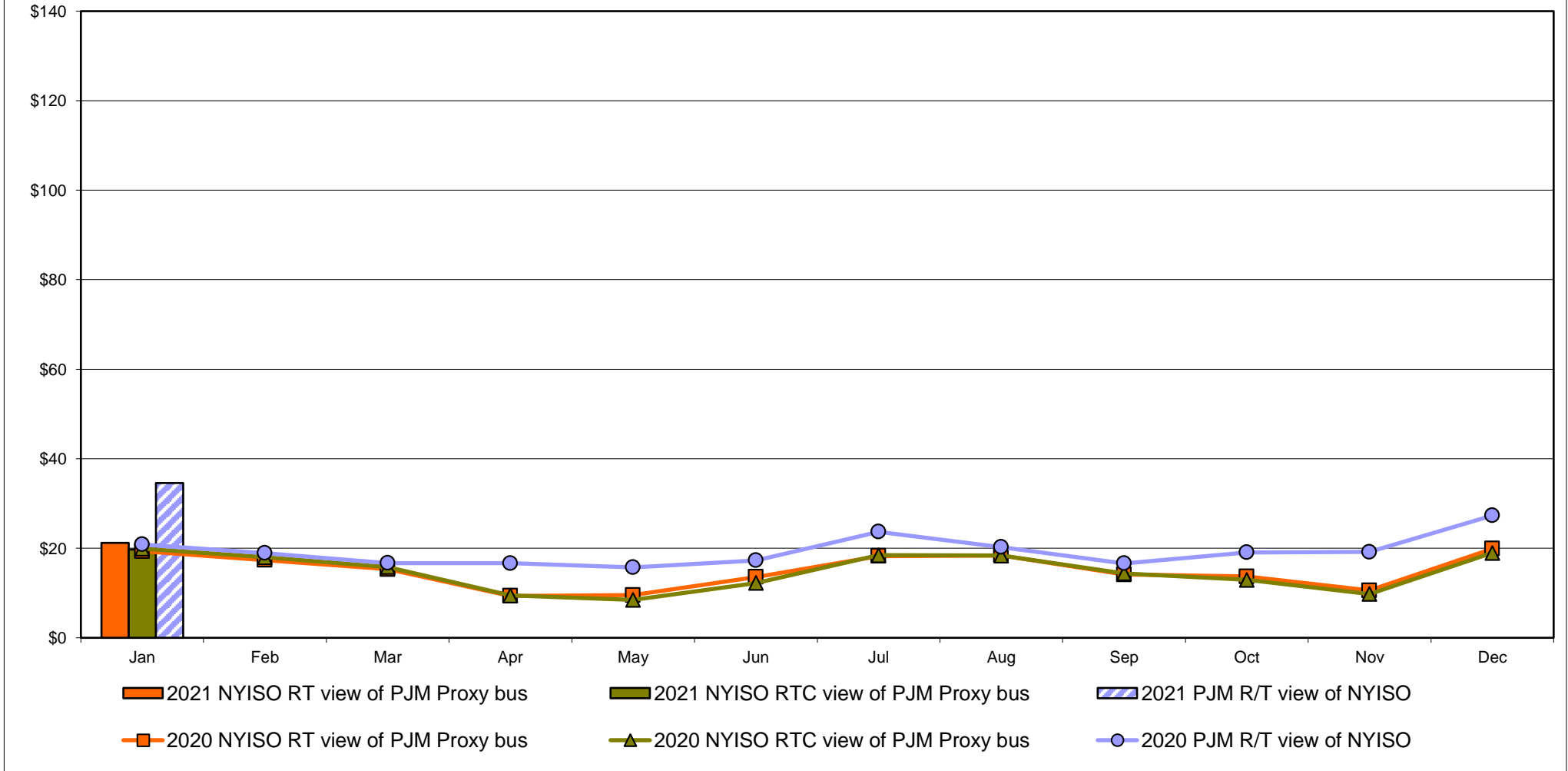


External Comparison PJM

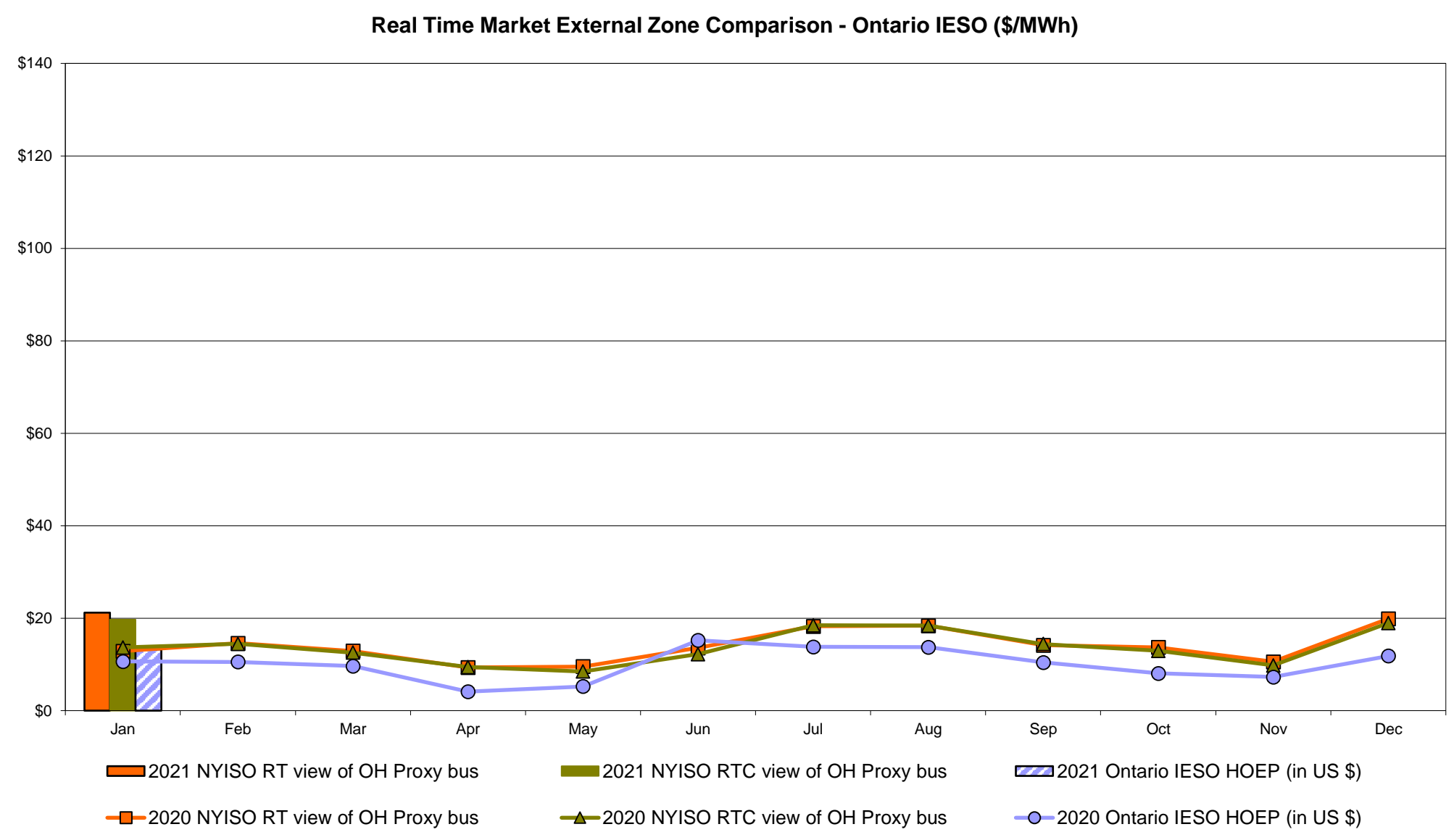
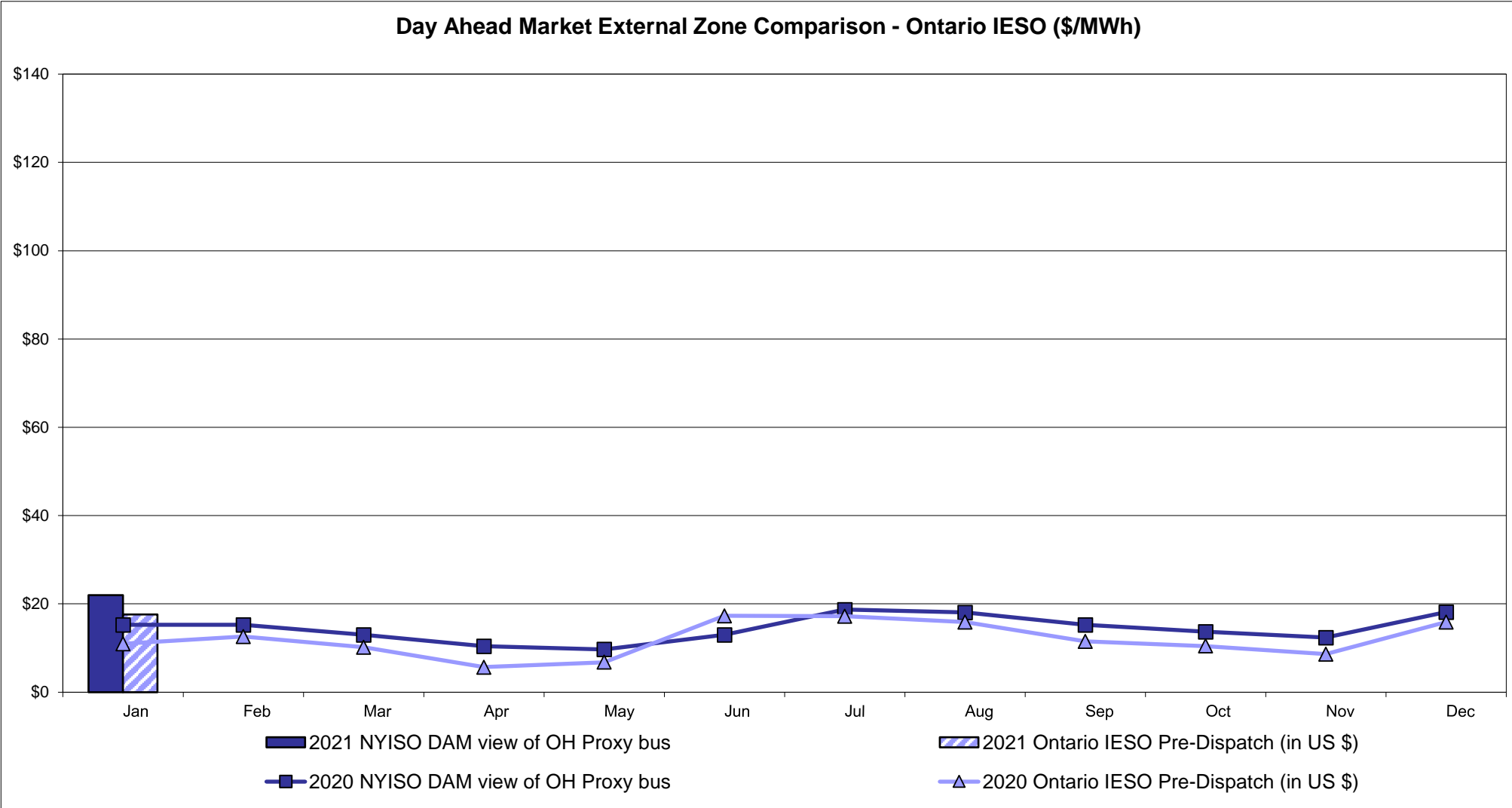
Day Ahead Market External Zone Comparison - PJM (\$/MWh)



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

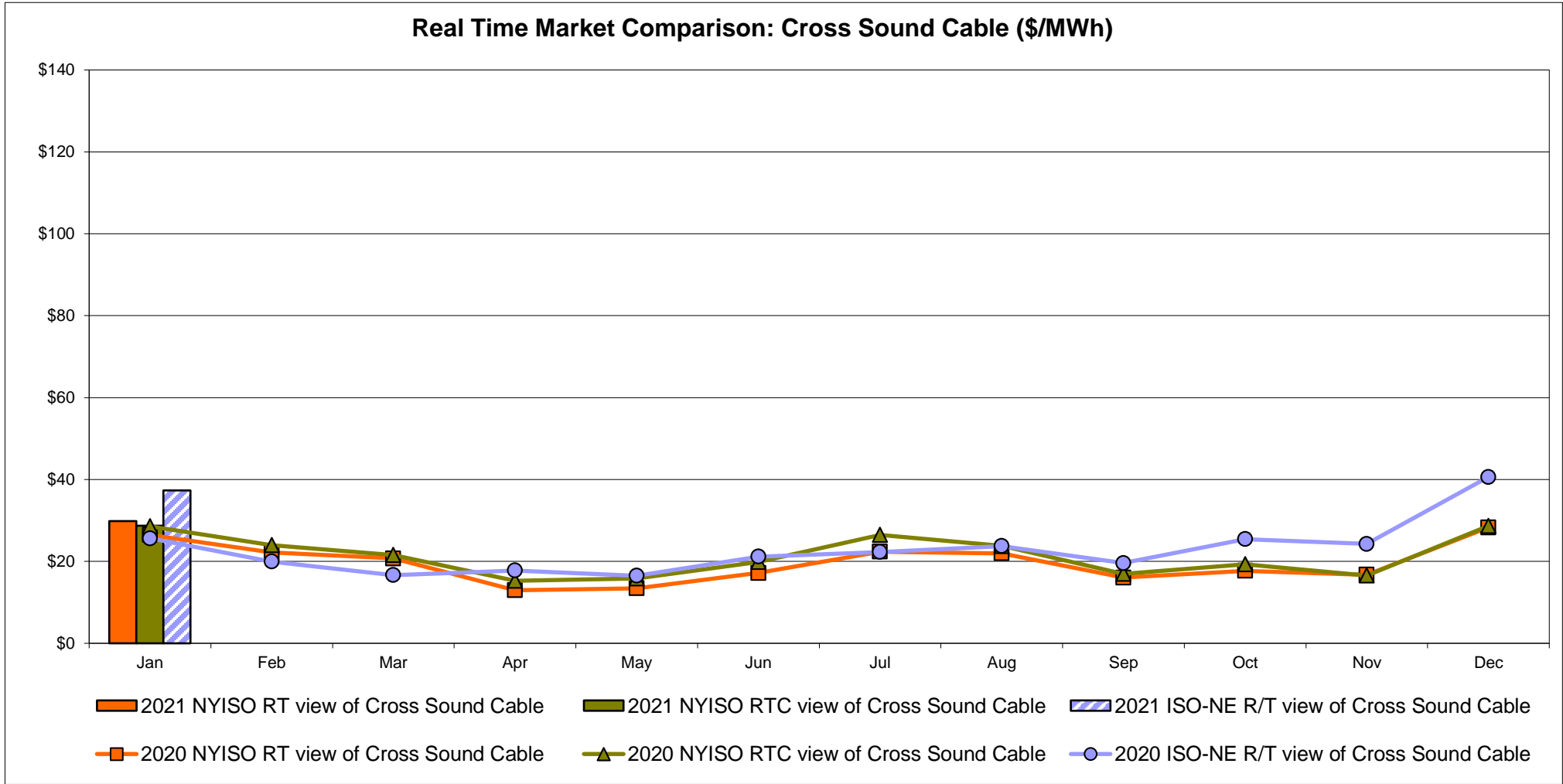
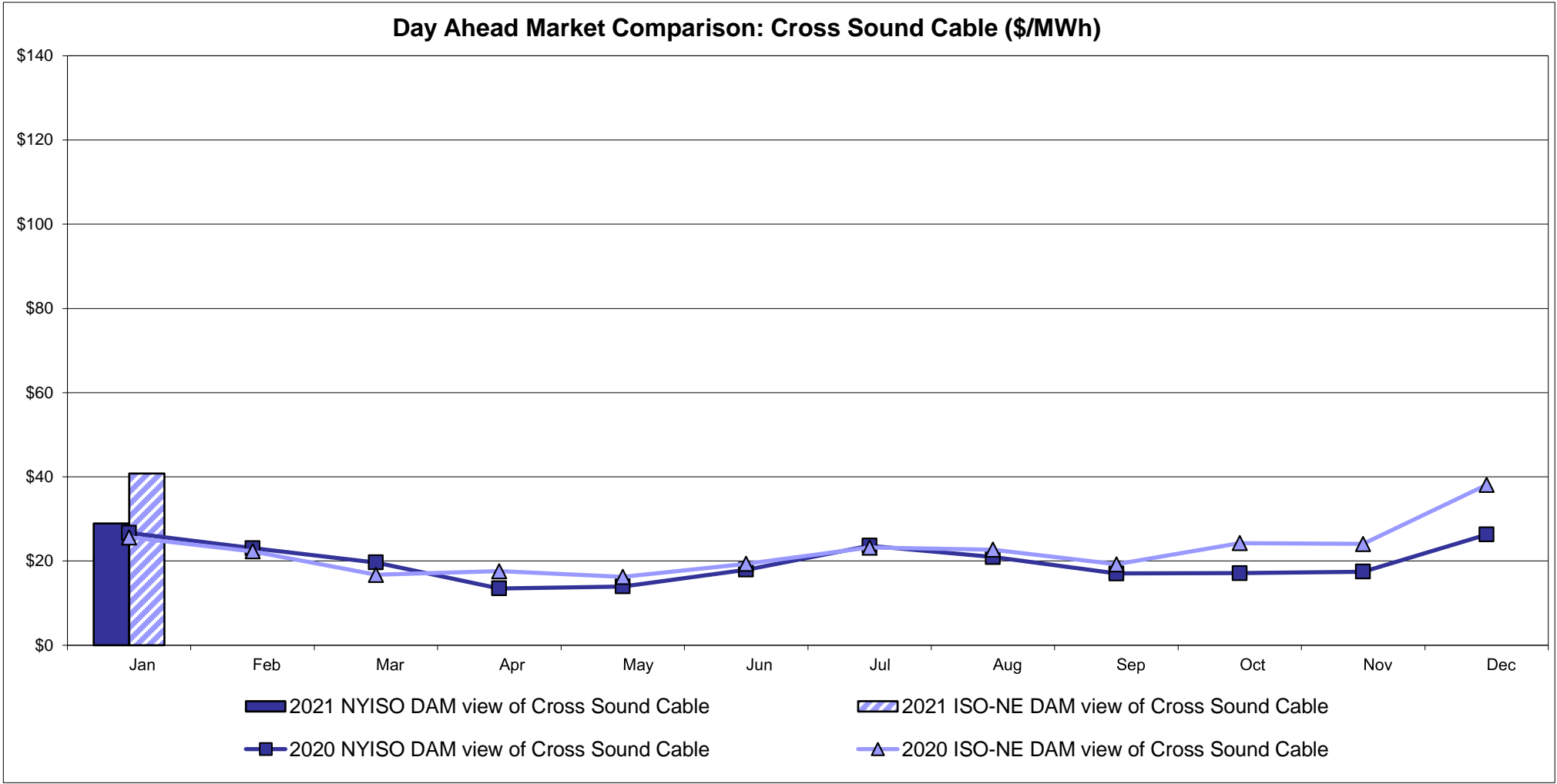


External Comparison Ontario IESO



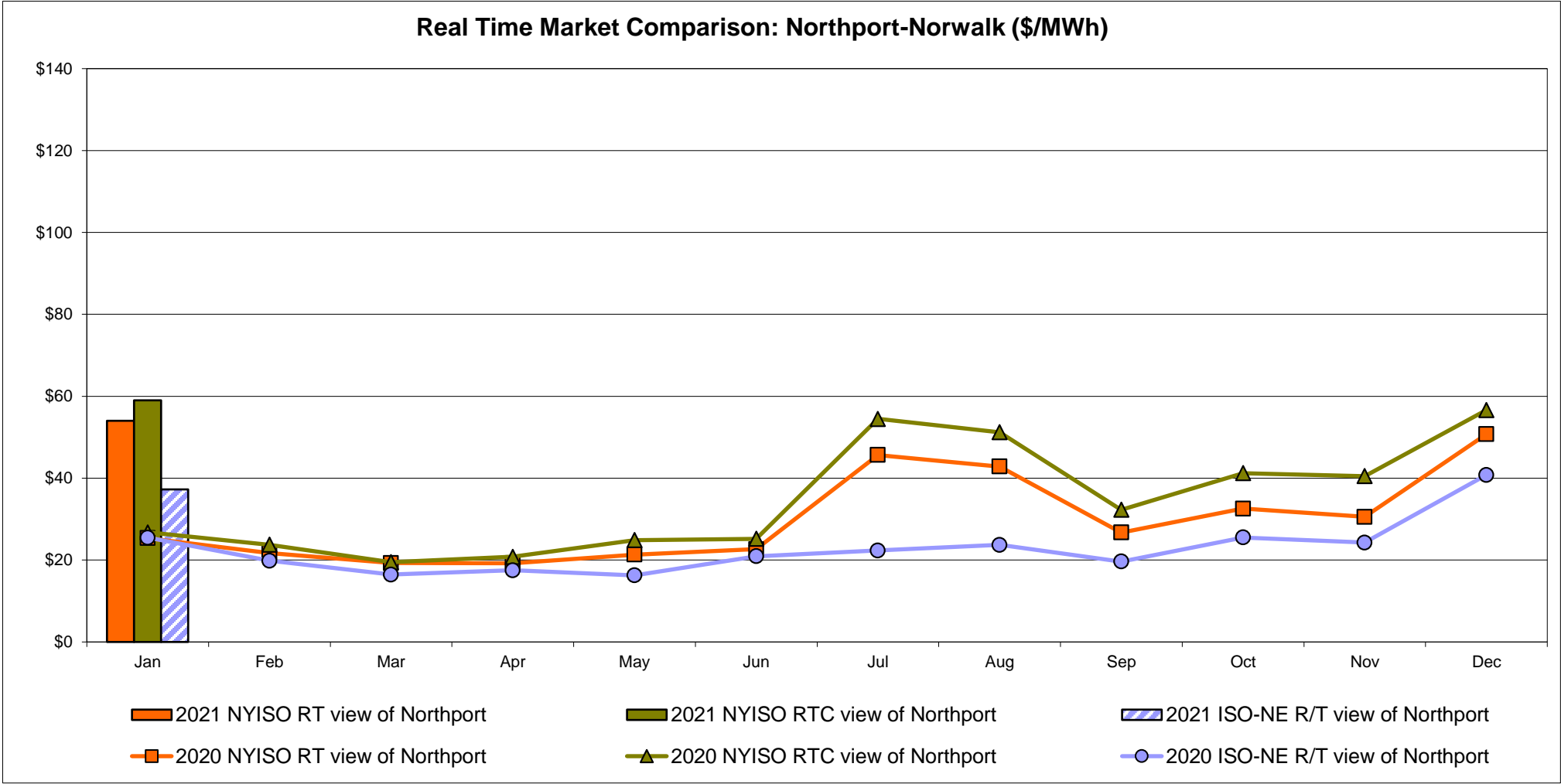
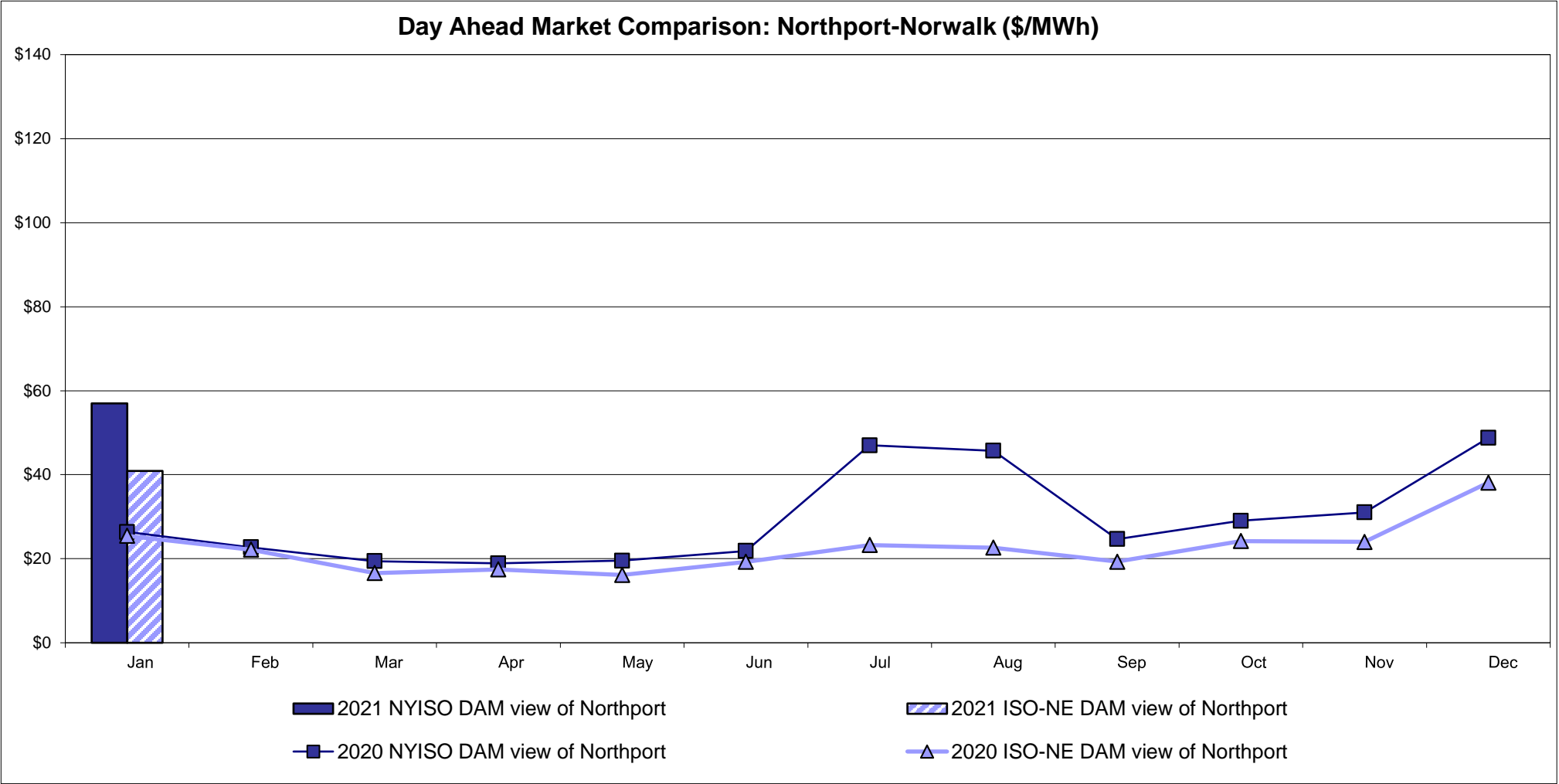
Notes: Exchange factor used for January 2021 was 0.785854616895874 to US
HOEP: Hourly Ontario Energy Price
Pre-Dispatch: Projected Energy Price

External Controllable Line: Cross Sound Cable (New England)



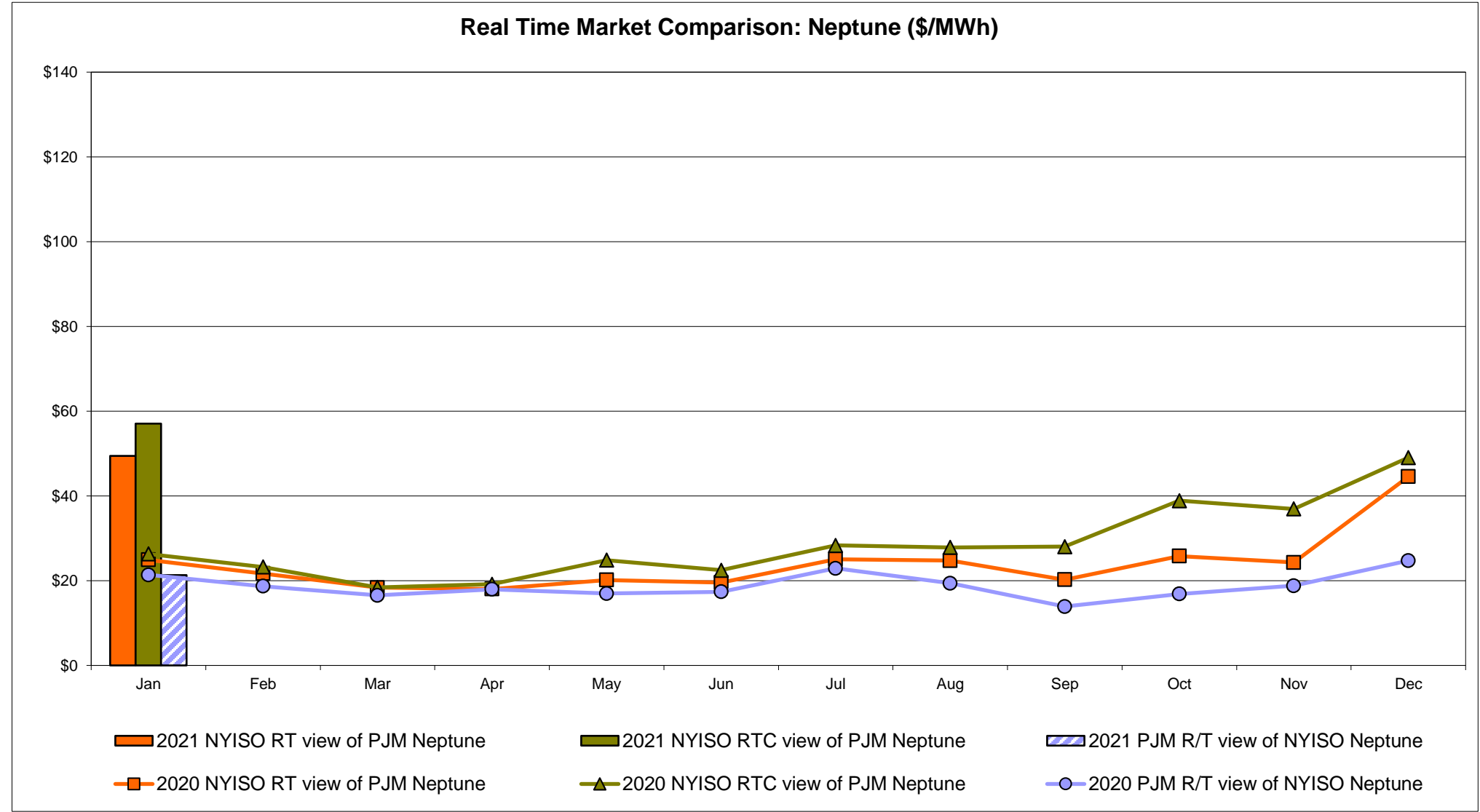
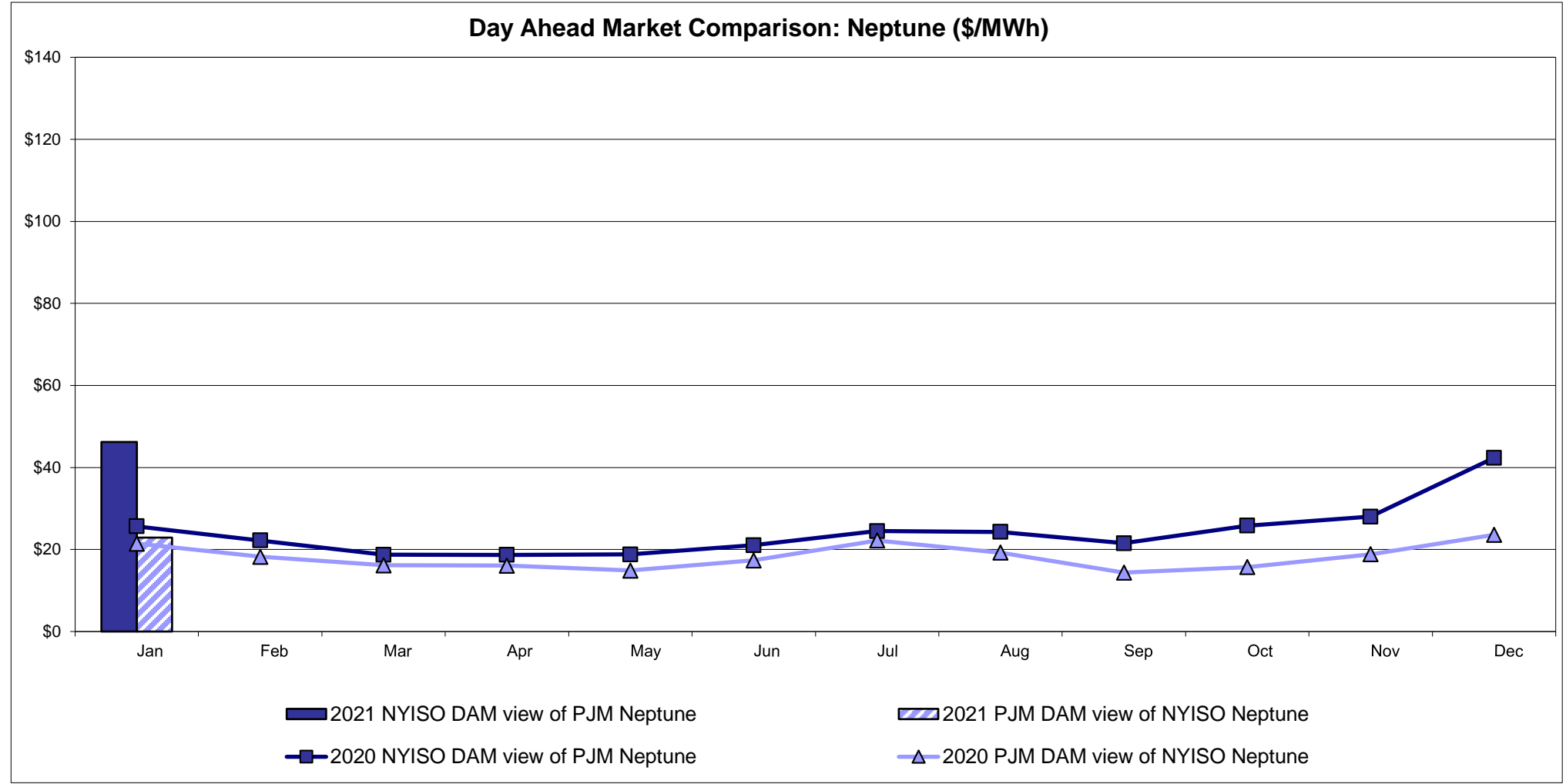
Note:
ISO-NE Forecast is an advisory posting @ 18:00 day before.
The DAM and R/T prices at the Shorham 13899 interface are used for ISO-NE.
The DAM and R/T prices at the CSC interface are used for NYISO.

External Controllable Line: Northport - Norwalk (New England)

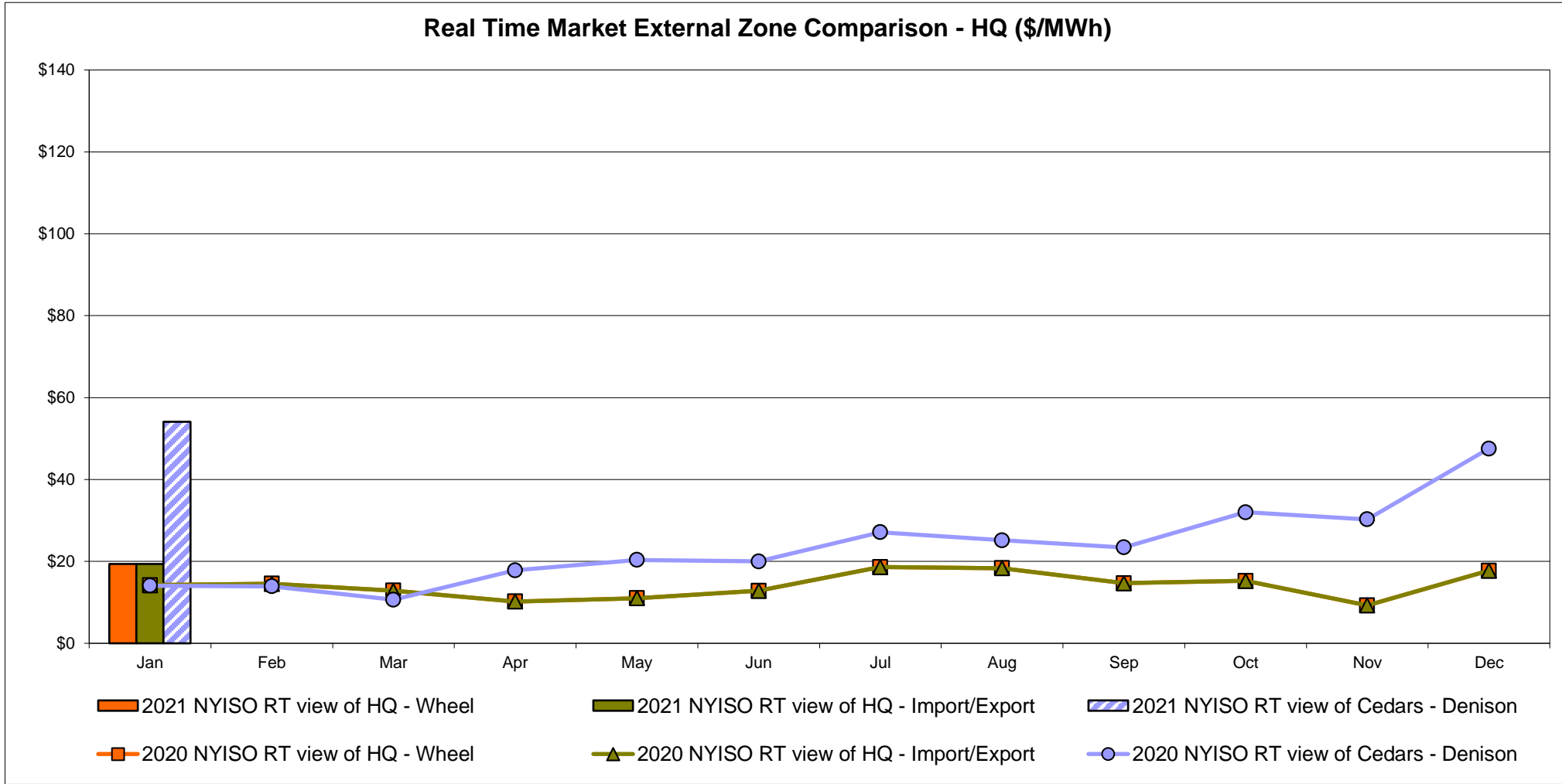
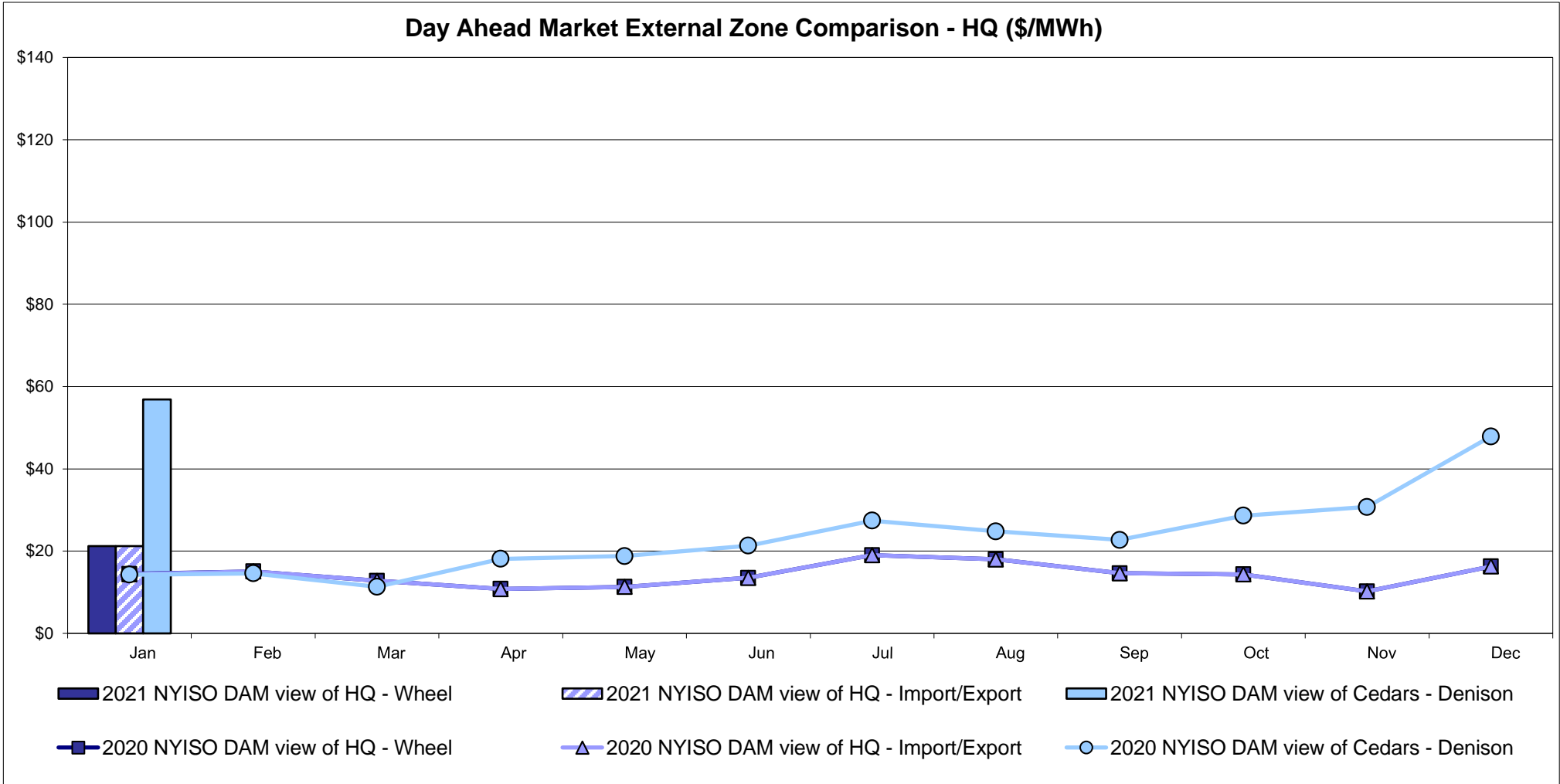


Note:
ISO-NE Forecast is an advisory posting @ 18:00 day before.
The DAM and R/T prices at the Northport 138 interface are used for ISO-NE.
The DAM and R/T prices at the 1385 interface are used for NYISO.

External Controllable Line: Neptune (PJM)

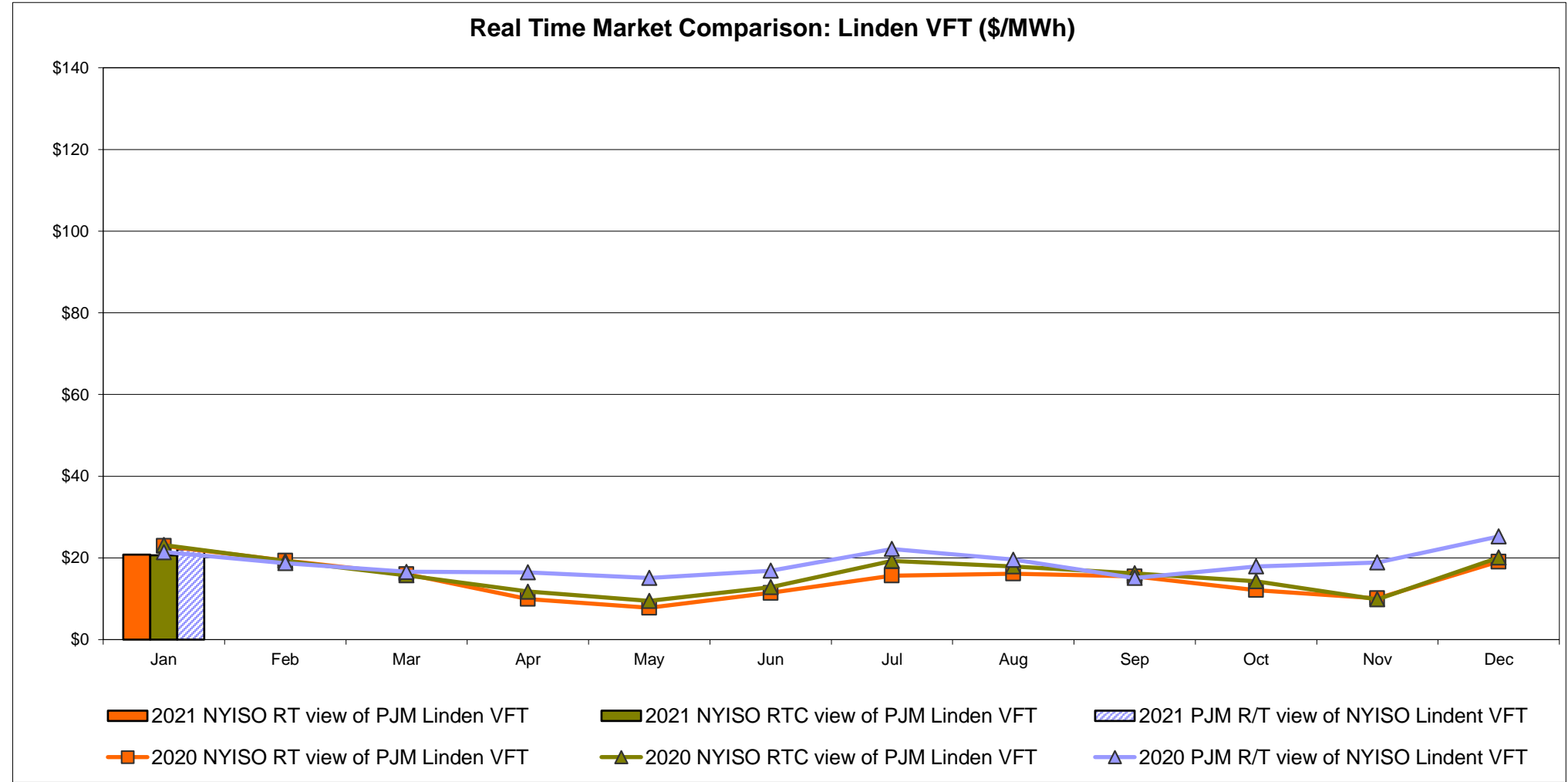
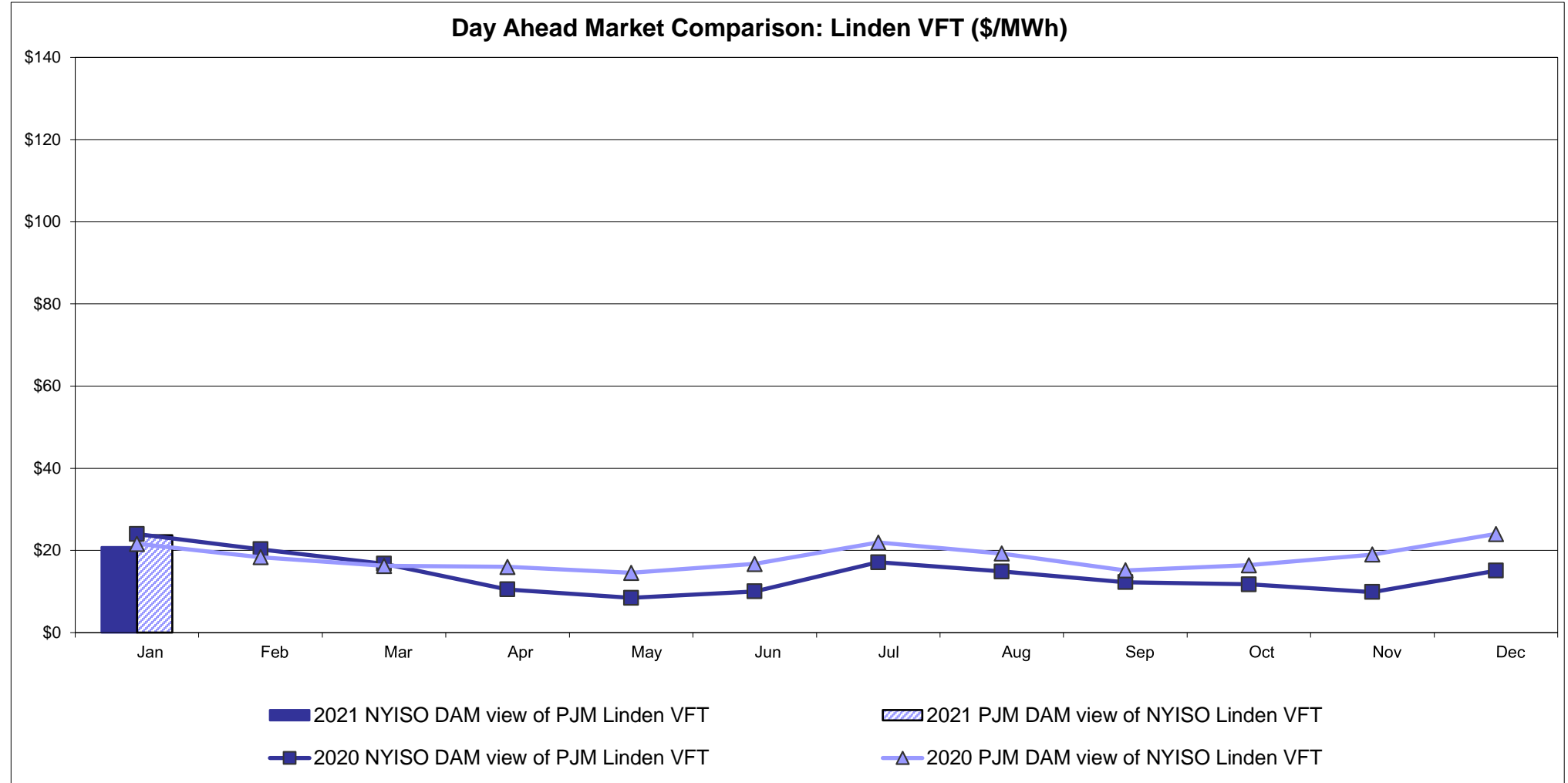


External Comparison Hydro-Quebec

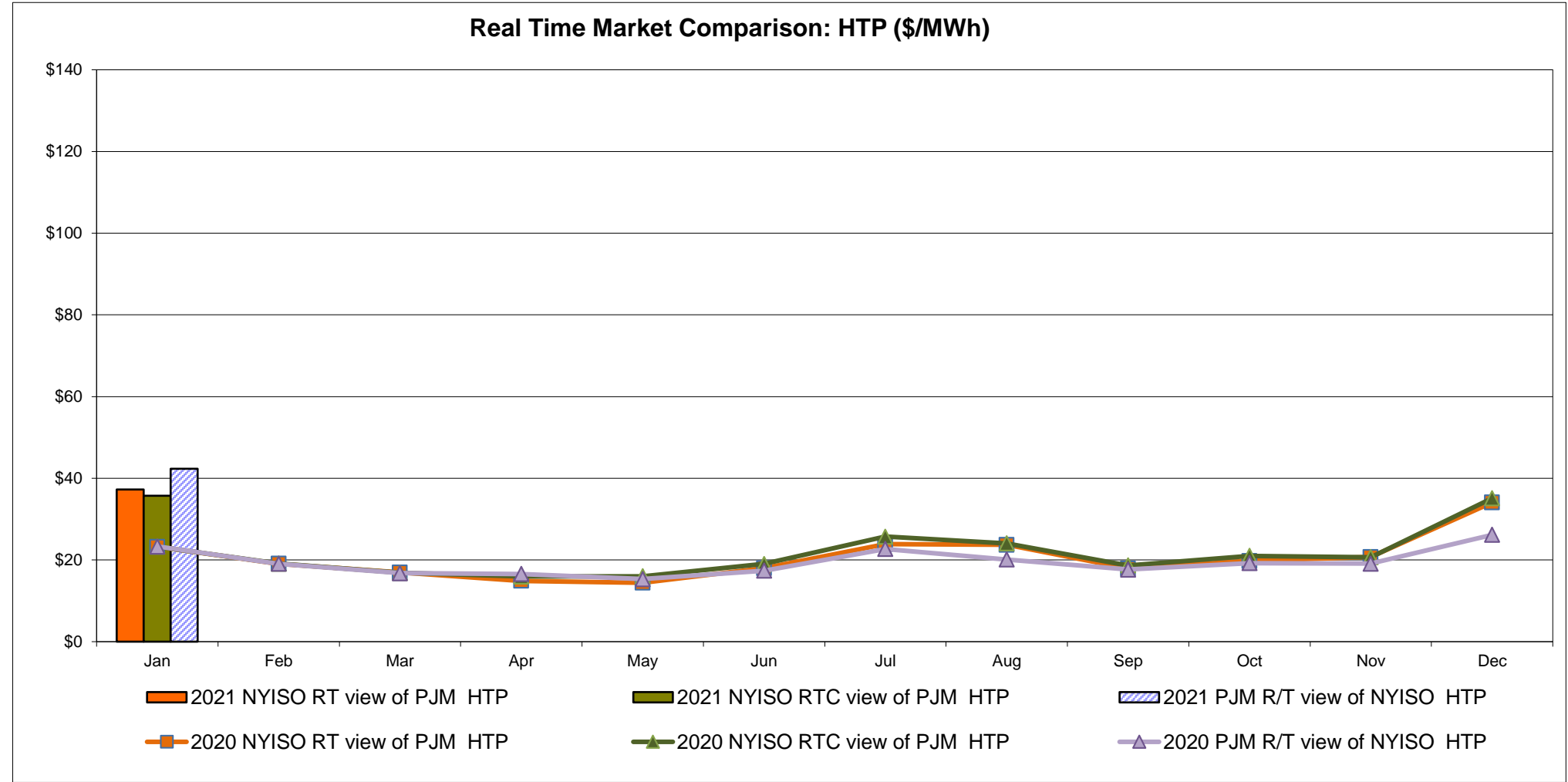
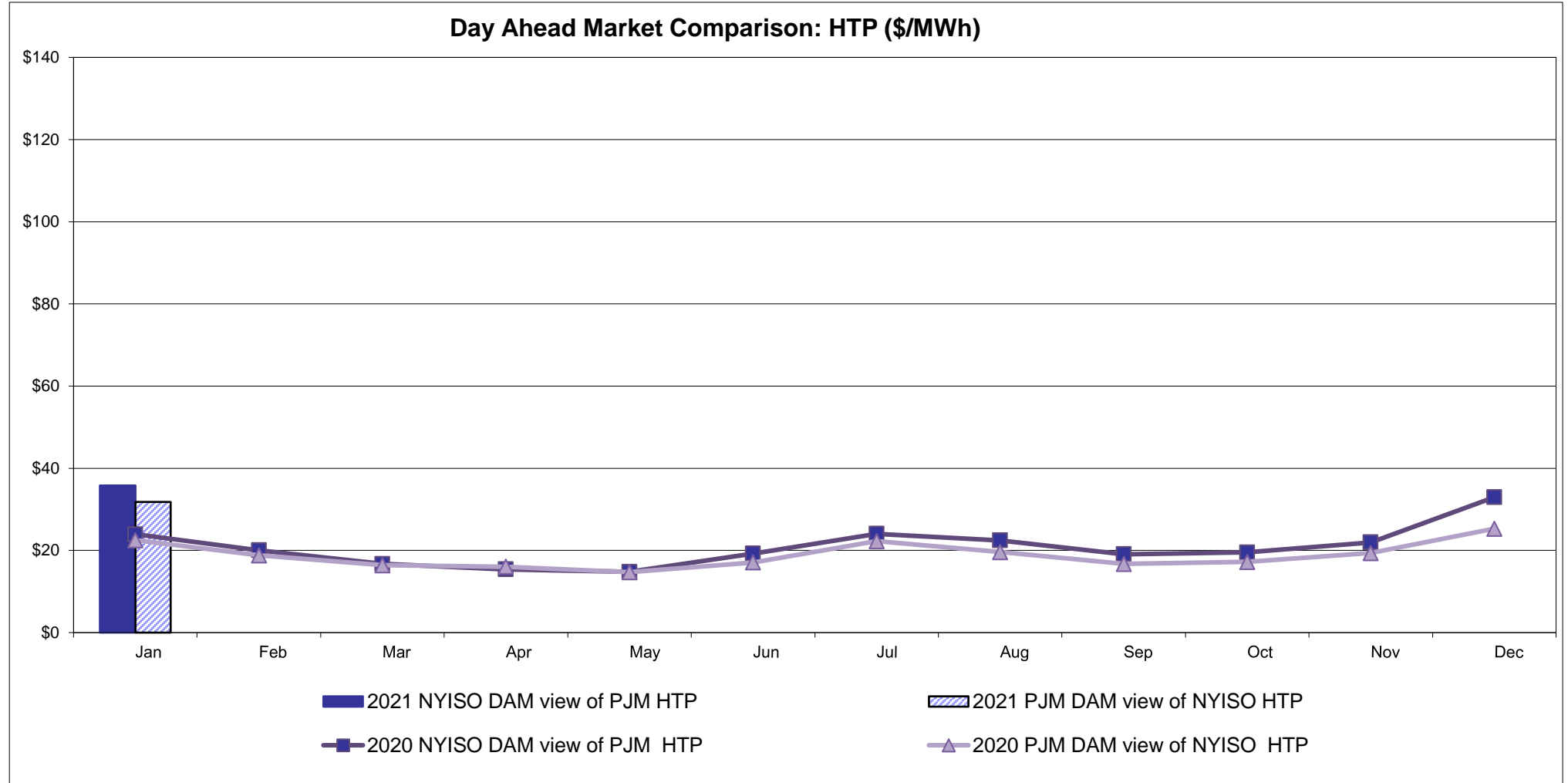


Note:
Hydro-Quebec Prices are unavailable.

External Controllable Line: Linden VFT (PJM)



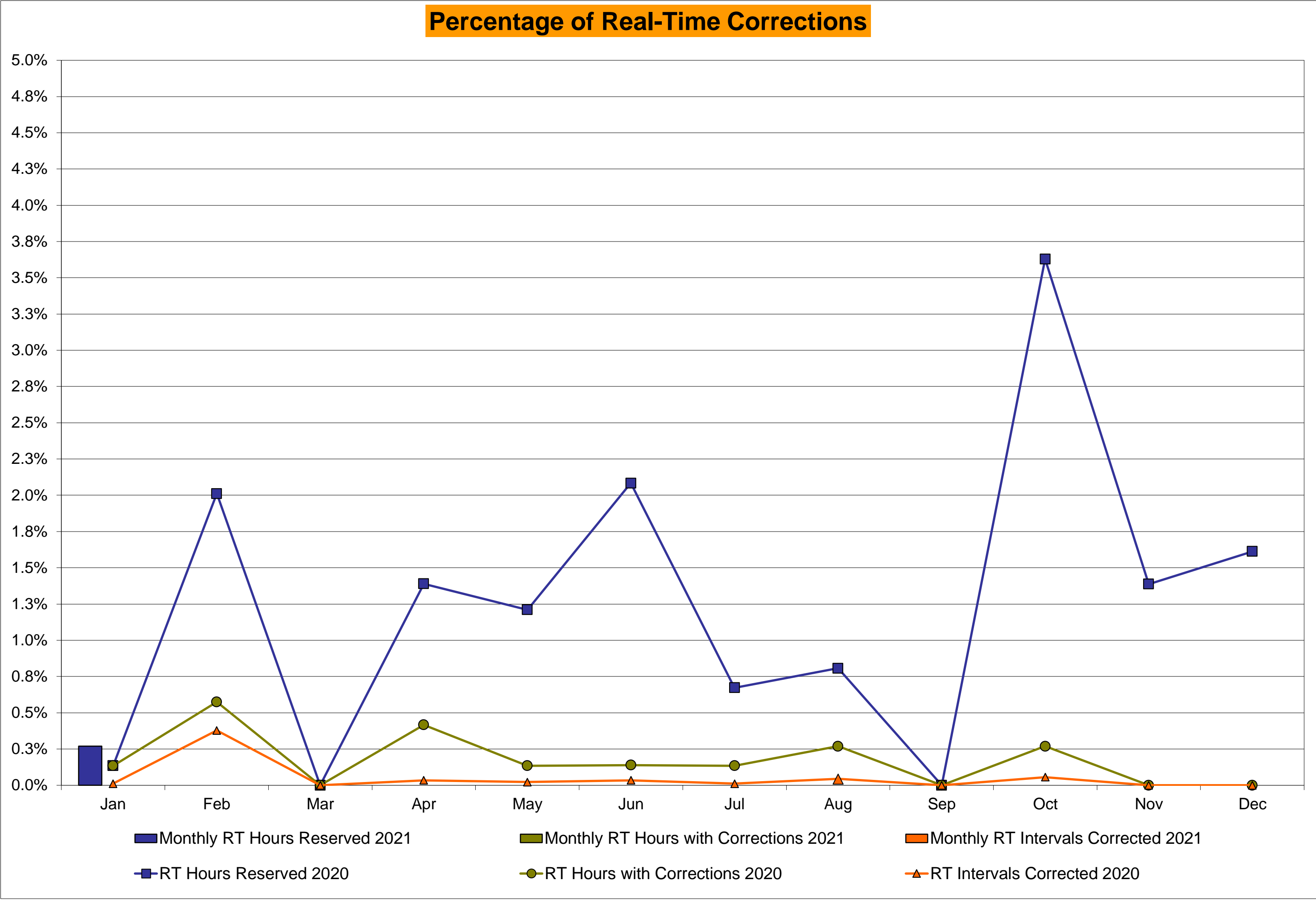
External Controllable Line: Hudson (PJM)



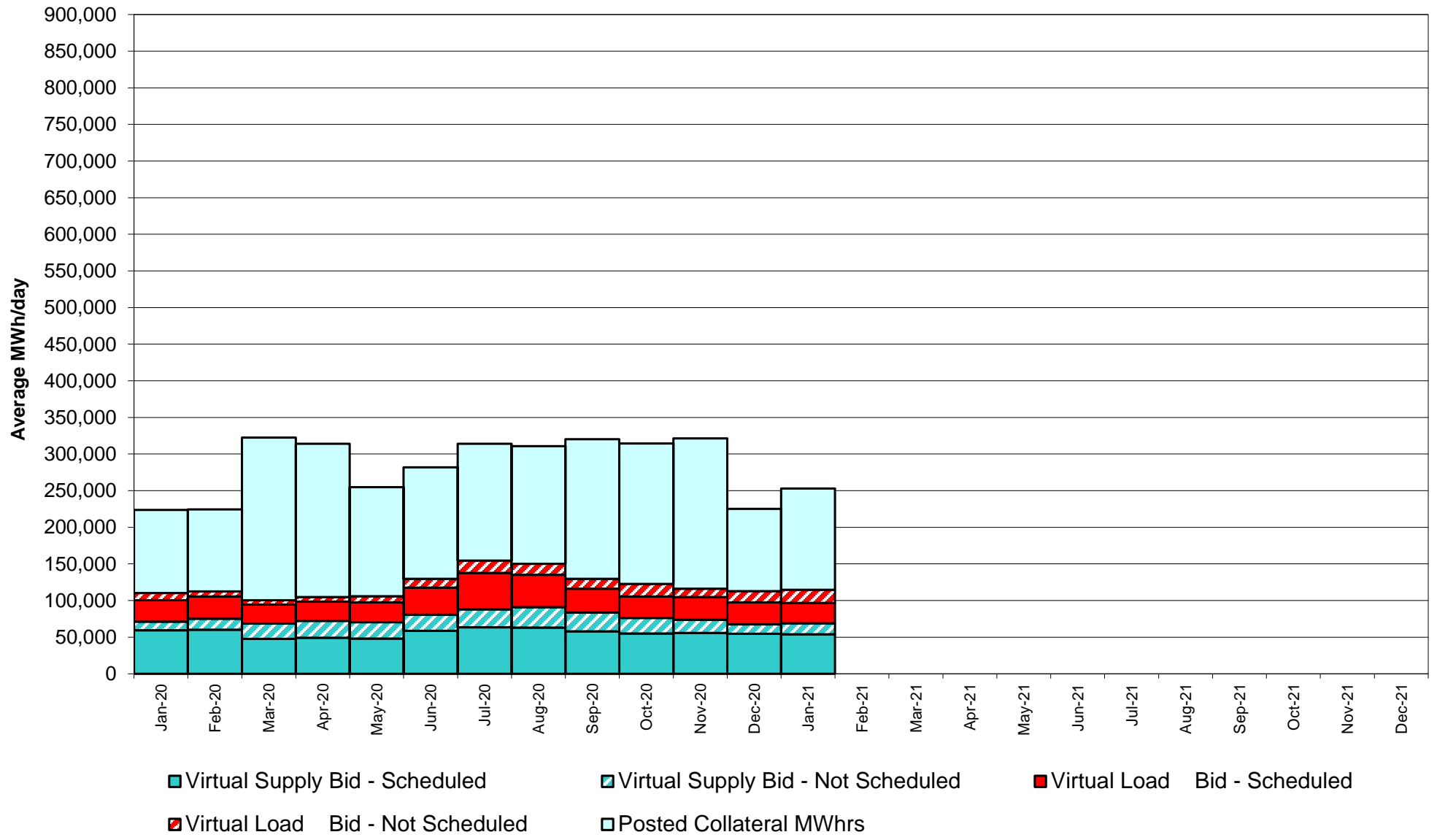
NYISO Real Time Price Correction Statistics

2021		<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>Hour Corrections</u>													
Number of hours with corrections	in the month	0											
Number of hours	in the month	744											
% of hours with corrections	in the month	0.00%											
% of hours with corrections	year-to-date	0.00%											
<u>Interval Corrections</u>													
Number of intervals corrected	in the month	0											
Number of intervals	in the month	9,095											
% of intervals corrected	in the month	0.00%											
% of intervals corrected	year-to-date	0.00%											
<u>Hours Reserved</u>													
Number of hours reserved	in the month	2											
Number of hours	in the month	744											
% of hours reserved	in the month	0.27%											
% of hours reserved	year-to-date	0.27%											
<u>Days to Correction</u> *													
Avg. number of days to correction	in the month	0.00											
Avg. number of days to correction	year-to-date	0.00											
<u>Days Without Corrections</u>													
Days without corrections	in the month	31											
Days without corrections	year-to-date	31											
2020		<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>Hour Corrections</u>													
Number of hours with corrections	in the month	1	4	0	3	1	1	1	2	0	2	0	0
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	0.13%	0.57%	0.00%	0.42%	0.13%	0.14%	0.13%	0.27%	0.00%	0.27%	0.00%	0.00%
% of hours with corrections	year-to-date	0.13%	0.35%	0.23%	0.28%	0.25%	0.23%	0.22%	0.22%	0.20%	0.20%	0.19%	0.17%
<u>Interval Corrections</u>													
Number of intervals corrected	in the month	1	32	0	3	2	3	1	4	0	5	0	0
Number of intervals	in the month	9,088	8,460	9,011	8,776	9,030	8,826	9,128	9,156	8,810	9,048	8,790	9,083
% of intervals corrected	in the month	0.01%	0.38%	0.00%	0.03%	0.02%	0.03%	0.01%	0.04%	0.00%	0.06%	0.00%	0.00%
% of intervals corrected	year-to-date	0.01%	0.19%	0.12%	0.10%	0.09%	0.08%	0.07%	0.06%	0.06%	0.06%	0.05%	0.05%
<u>Hours Reserved</u>													
Number of hours reserved	in the month	1	14	0	10	9	15	5	6	0	27	10	12
Number of hours	in the month	744	696	743	720	744	720	744	744	720	744	721	744
% of hours reserved	in the month	0.13%	2.01%	0.00%	1.39%	1.21%	2.08%	0.67%	0.81%	0.00%	3.63%	1.39%	1.61%
% of hours reserved	year-to-date	0.13%	1.04%	0.69%	0.86%	0.93%	1.12%	1.06%	1.02%	0.91%	1.19%	1.21%	1.24%
<u>Days to Correction</u> *													
Avg. number of days to correction	in the month	2.00	1.00	0.00	3.00	3.00	2.00	3.00	3.00	0.00	3.00	0.00	0.00
Avg. number of days to correction	year-to-date	2.00	1.50	1.50	2.25	2.40	2.33	2.43	2.56	2.56	2.64	1.38	2.64
<u>Days Without Corrections</u>													
Days without corrections	in the month	30	28	31	28	30	29	30	29	30	29	30	31
Days without corrections	year-to-date	30	58	89	117	147	176	206	235	265	294	324	355

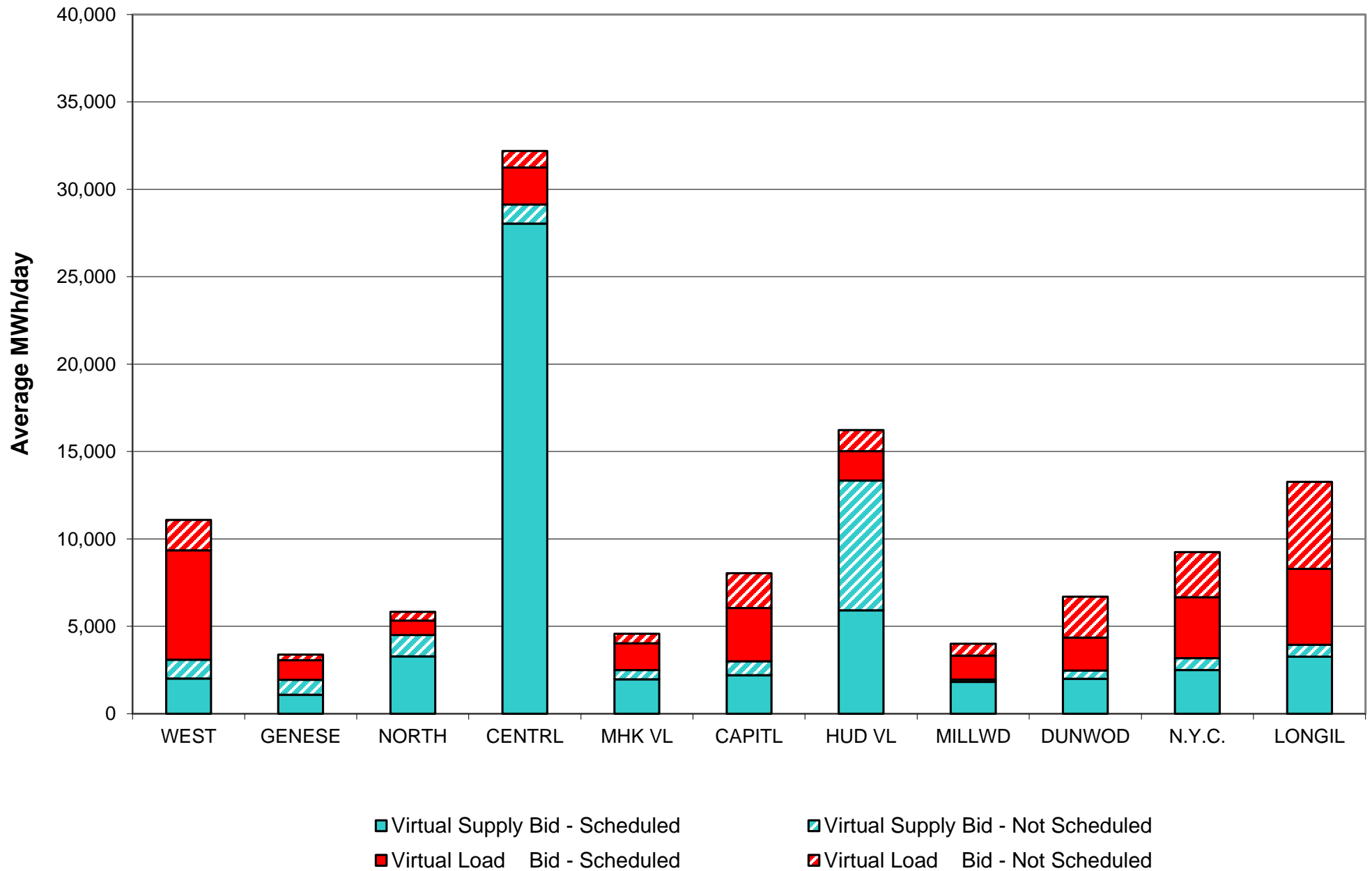
*Calendar days from reservation date; for June 2018 forward, business days from market date



NYISO Virtual Trading Average MWh per day



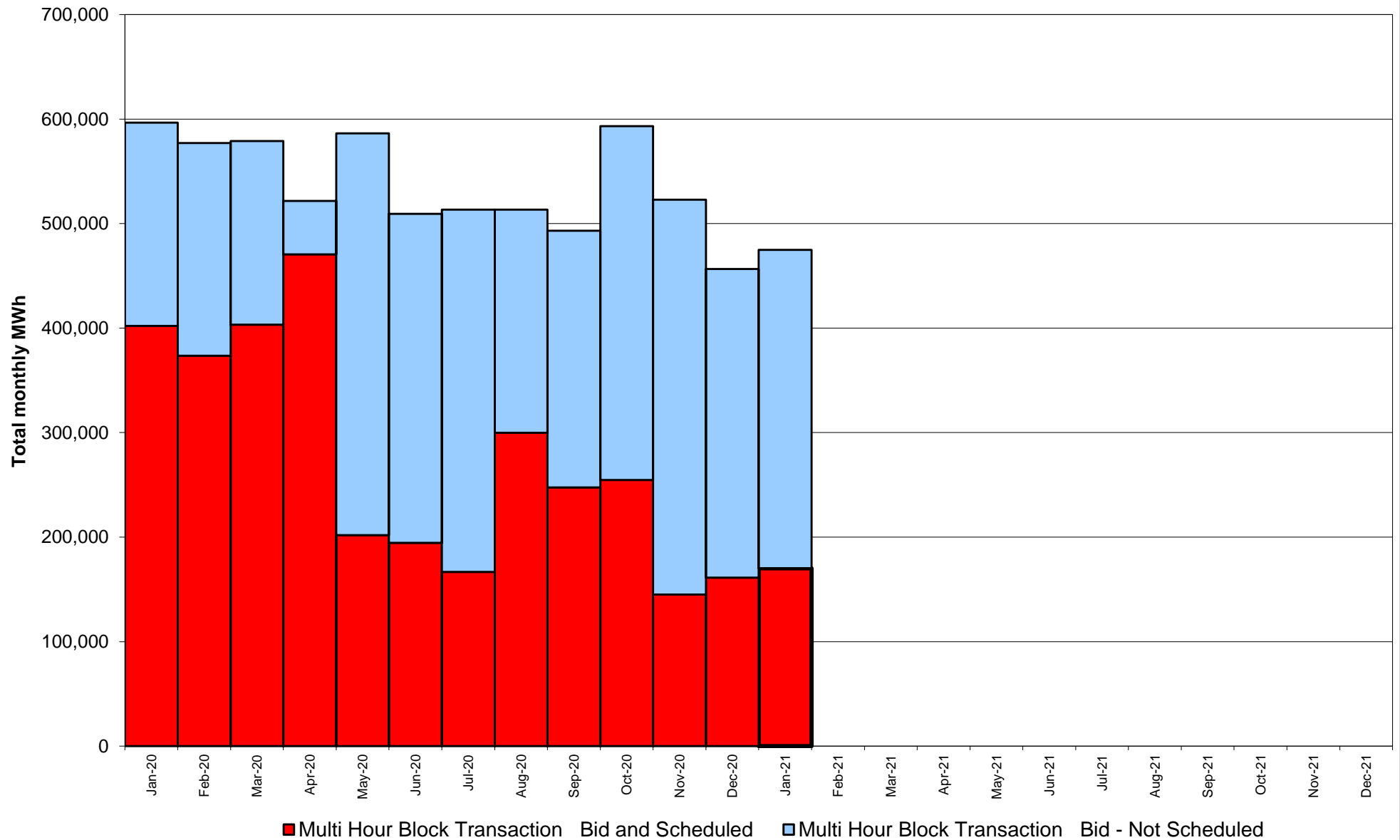
Virtual Load and Supply Zonal Statistics through January 31, 2021



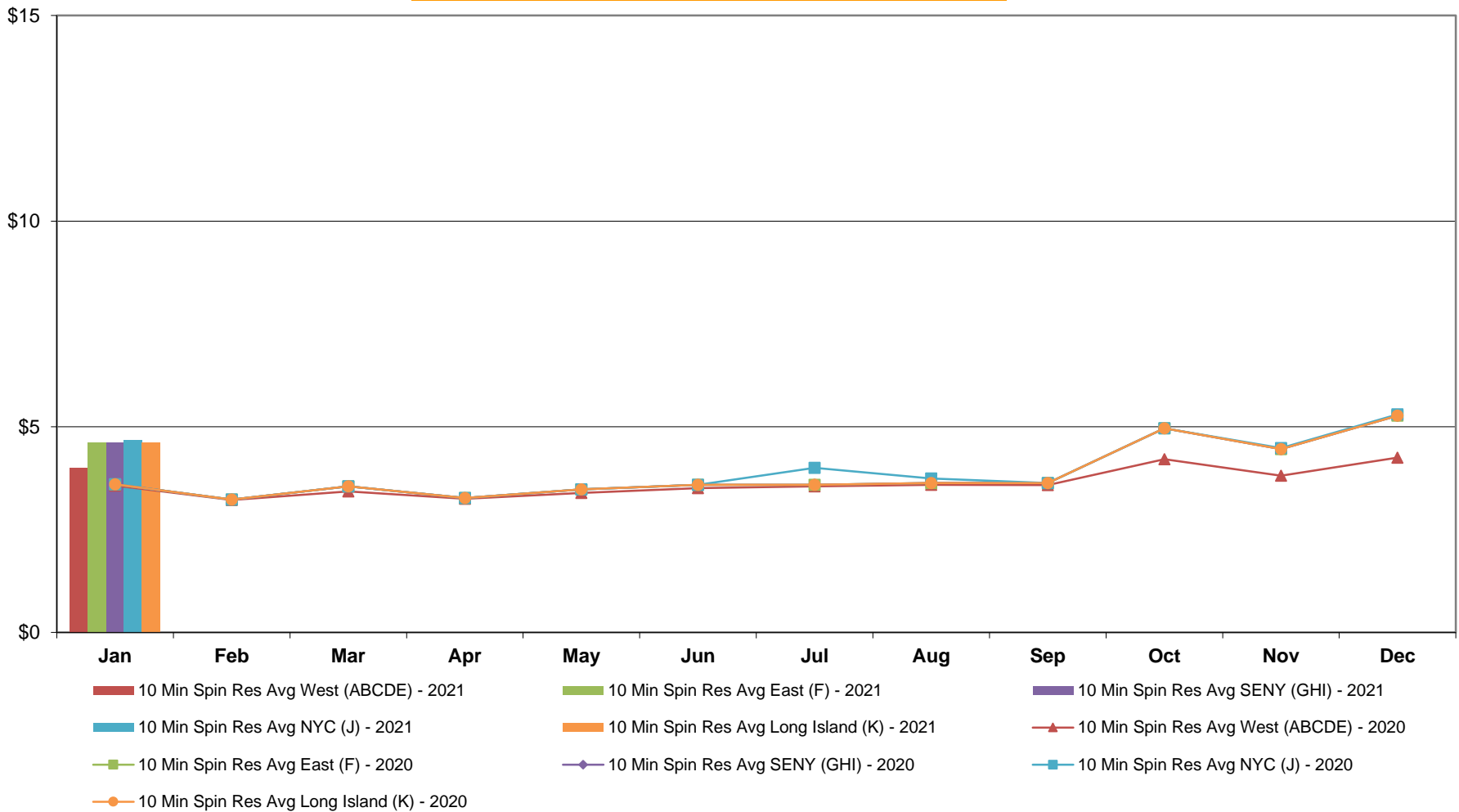
Virtual Load and Supply Zonal Statistics (Average MWh/day) - 2021

		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
WEST	Jan-21	6,262	1,726	2,018	1,076		MHK VL	Jan-21	1,537	548	1,967	531		DUNWOD	Jan-21	1,881	2,339
	Feb-21							Feb-21							Feb-21		
	Mar-21							Mar-21							Mar-21		
	Apr-21							Apr-21							Apr-21		
	May-21							May-21							May-21		
	Jun-21							Jun-21							Jun-21		
	Jul-21							Jul-21							Jul-21		
	Aug-21							Aug-21							Aug-21		
	Sep-21							Sep-21							Sep-21		
	Oct-21							Oct-21							Oct-21		
	Nov-21							Nov-21							Nov-21		
	Dec-21							Dec-21							Dec-21		
GENESE	Jan-21	1,117	329	1,085	853		CAPITL	Jan-21	3,046	1,995	2,207	792		N.Y.C.	Jan-21	3,486	2,580
	Feb-21							Feb-21							Feb-21		
	Mar-21							Mar-21							Mar-21		
	Apr-21							Apr-21							Apr-21		
	May-21							May-21							May-21		
	Jun-21							Jun-21							Jun-21		
	Jul-21							Jul-21							Jul-21		
	Aug-21							Aug-21							Aug-21		
	Sep-21							Sep-21							Sep-21		
	Oct-21							Oct-21							Oct-21		
	Nov-21							Nov-21							Nov-21		
	Dec-21							Dec-21							Dec-21		
NORTH	Jan-21	830	498	3,280	1,220		HUD VL	Jan-21	1,666	1,215	5,917	7,429		LONGIL	Jan-21	4,341	4,976
	Feb-21							Feb-21							Feb-21		
	Mar-21							Mar-21							Mar-21		
	Apr-21							Apr-21							Apr-21		
	May-21							May-21							May-21		
	Jun-21							Jun-21							Jun-21		
	Jul-21							Jul-21							Jul-21		
	Aug-21							Aug-21							Aug-21		
	Sep-21							Sep-21							Sep-21		
	Oct-21							Oct-21							Oct-21		
	Nov-21							Nov-21							Nov-21		
	Dec-21							Dec-21							Dec-21		
CENTRL	Jan-21	2,124	938	28,034	1,094		MILLWD	Jan-21	1,368	672	1,820	139		NYISO	Jan-21	27,659	17,816
	Feb-21							Feb-21							Feb-21		
	Mar-21							Mar-21							Mar-21		
	Apr-21							Apr-21							Apr-21		
	May-21							May-21							May-21		
	Jun-21							Jun-21							Jun-21		
	Jul-21							Jul-21							Jul-21		
	Aug-21							Aug-21							Aug-21		
	Sep-21							Sep-21							Sep-21		
	Oct-21							Oct-21							Oct-21		
	Nov-21							Nov-21							Nov-21		
	Dec-21							Dec-21							Dec-21		

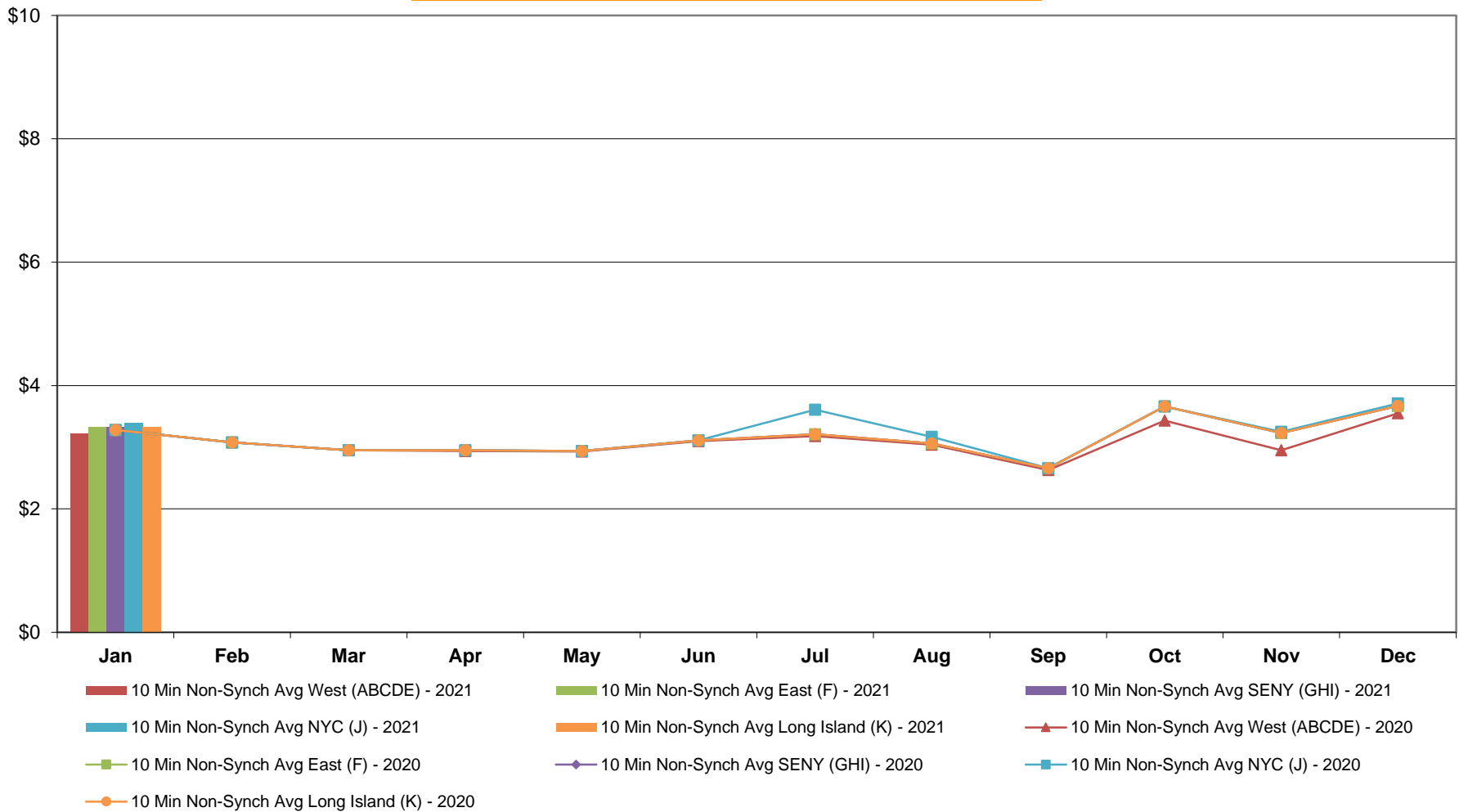
NYISO Multi Hour Block Transactions Monthly Total MWh



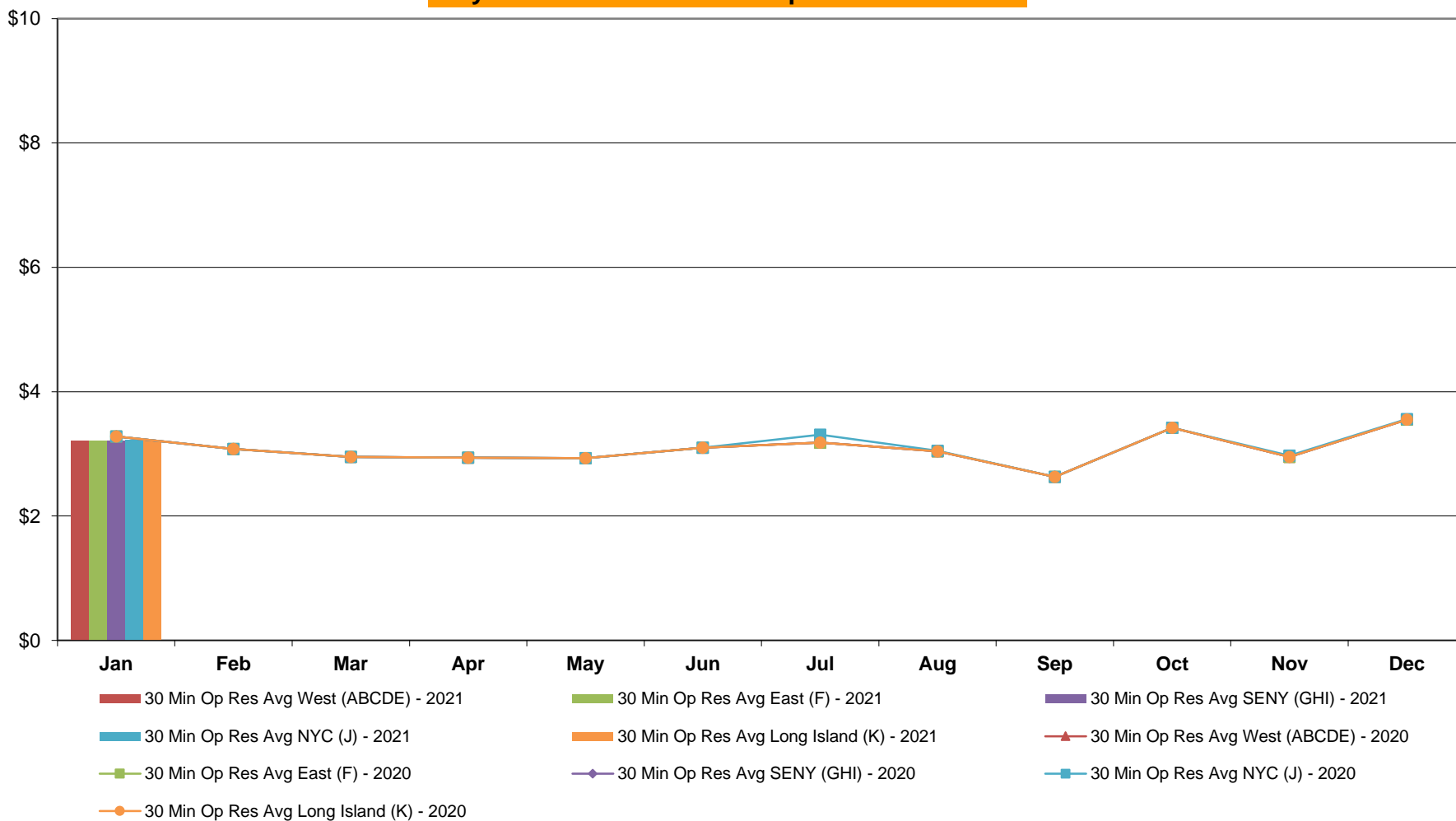
**NYISO Monthly Average Ancillary Service Prices
Day Ahead Market - 10 Min Spin 2020 - 2021**



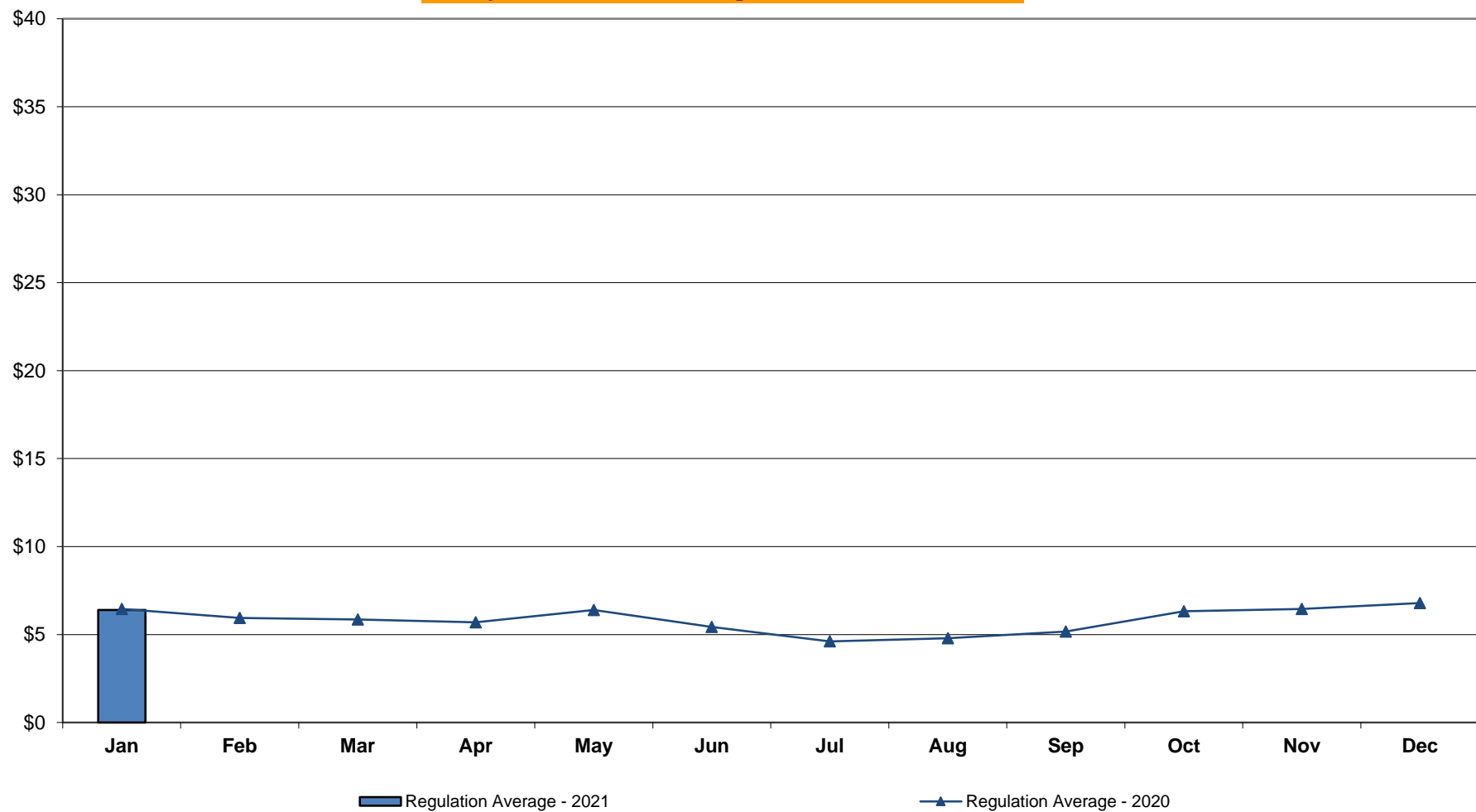
**NYISO Monthly Average Ancillary Service Prices
Day Ahead Market - 10 Min Non-Synch 2020 - 2021**



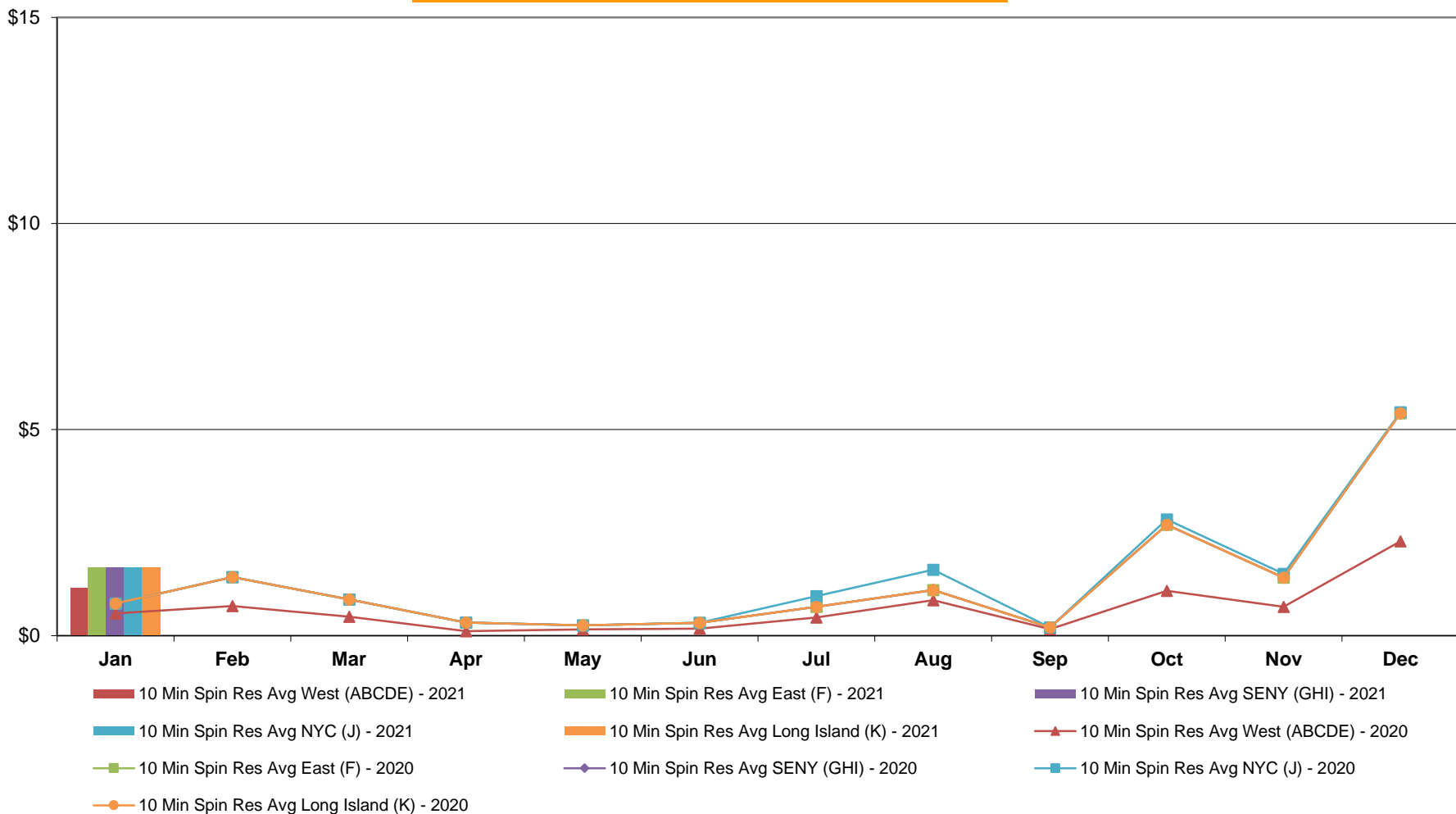
**NYISO Monthly Average Ancillary Service Prices
Day Ahead Market - 30 Min Op Res 2020 - 2021**



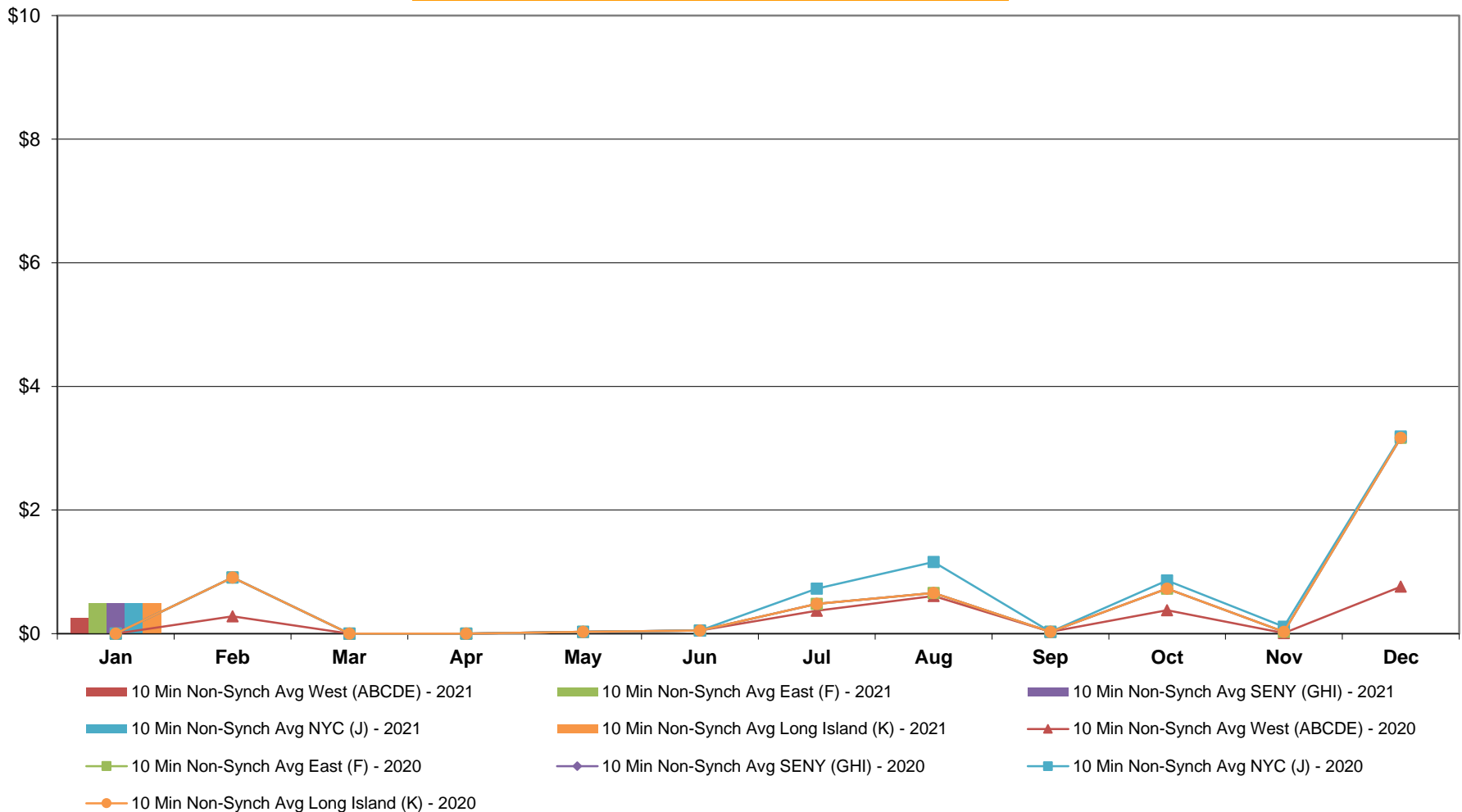
**NYISO Monthly Average Ancillary Service Prices
Day Ahead Market - Regulation 2020 - 2021**



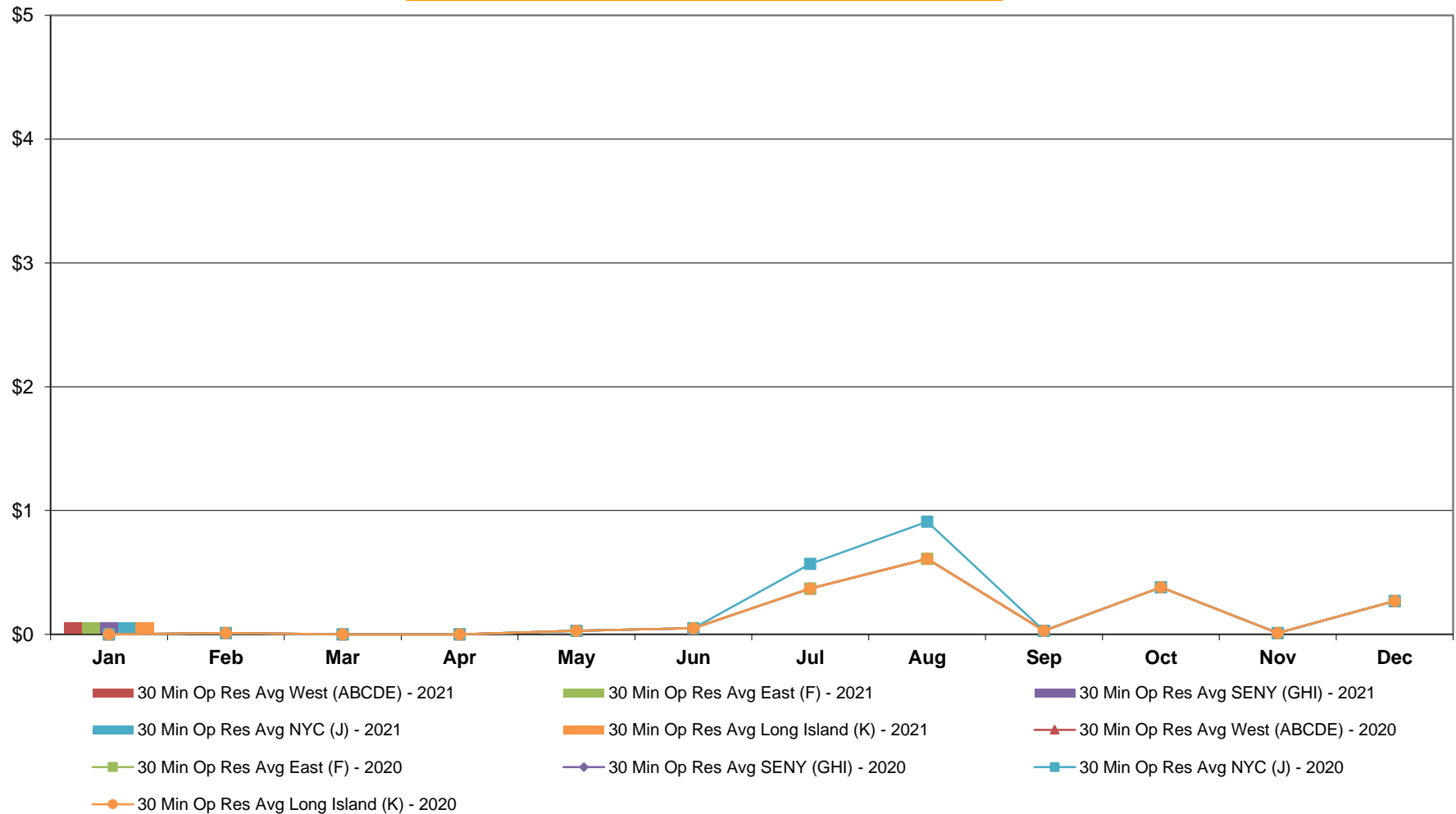
NYISO Monthly Average Ancillary Service Prices RTC Market - 10 Min Spin 2020 - 2021



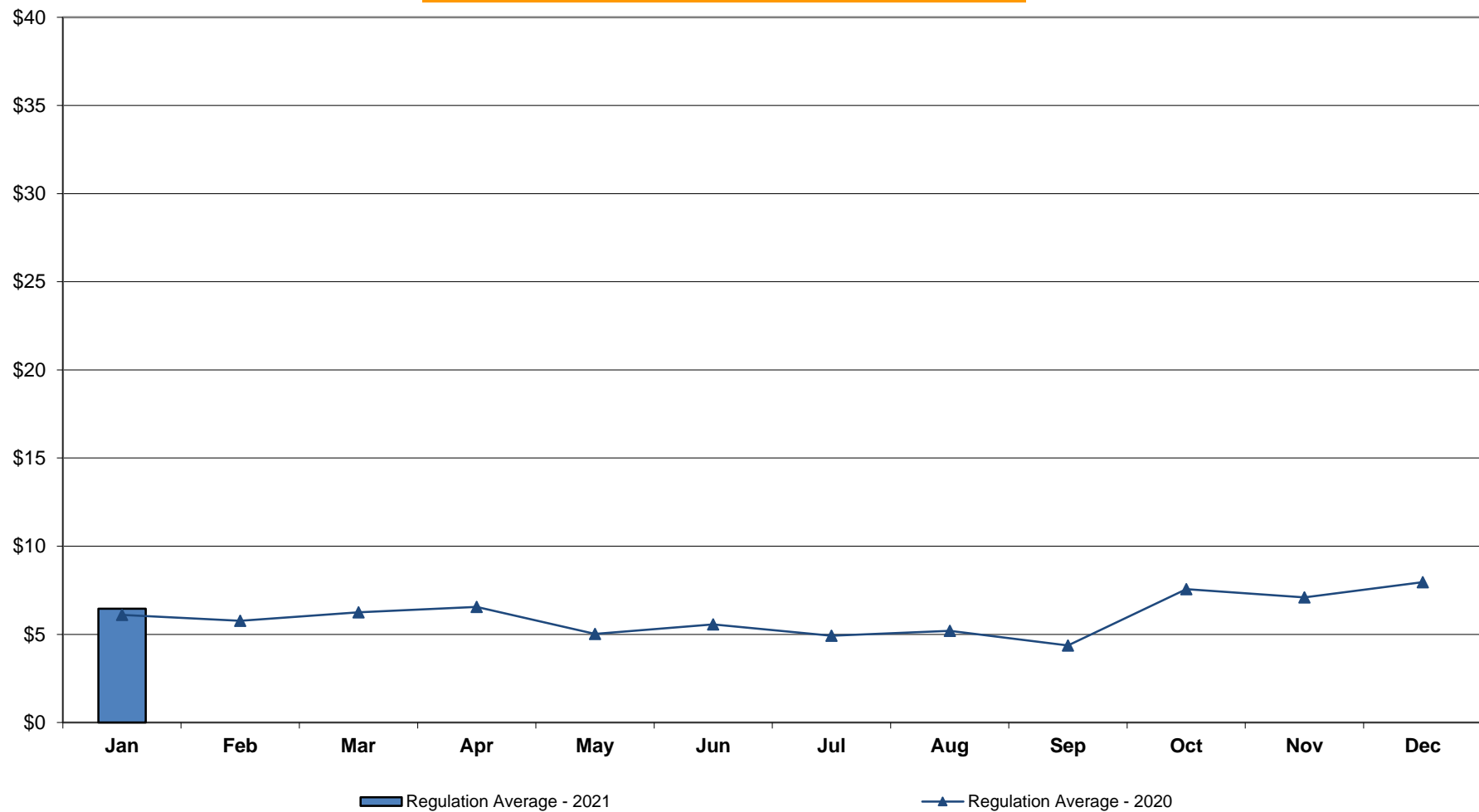
NYISO Monthly Average Ancillary Service Prices RTC Market - 10 Min Non-Synch 2020 - 2021



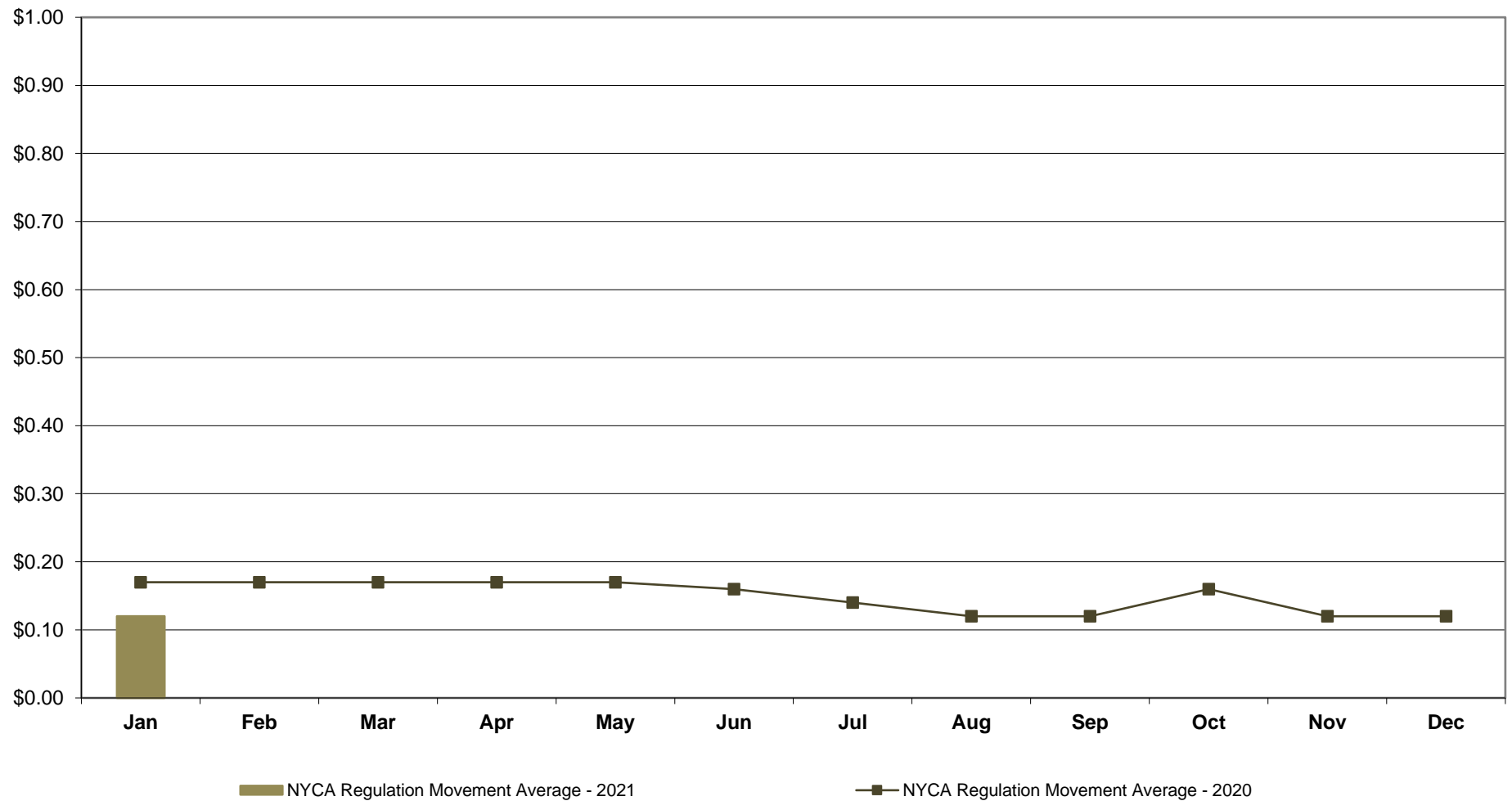
NYISO Monthly Average Ancillary Service Prices RTC Market - 30 Min Op Res 2020 - 2021



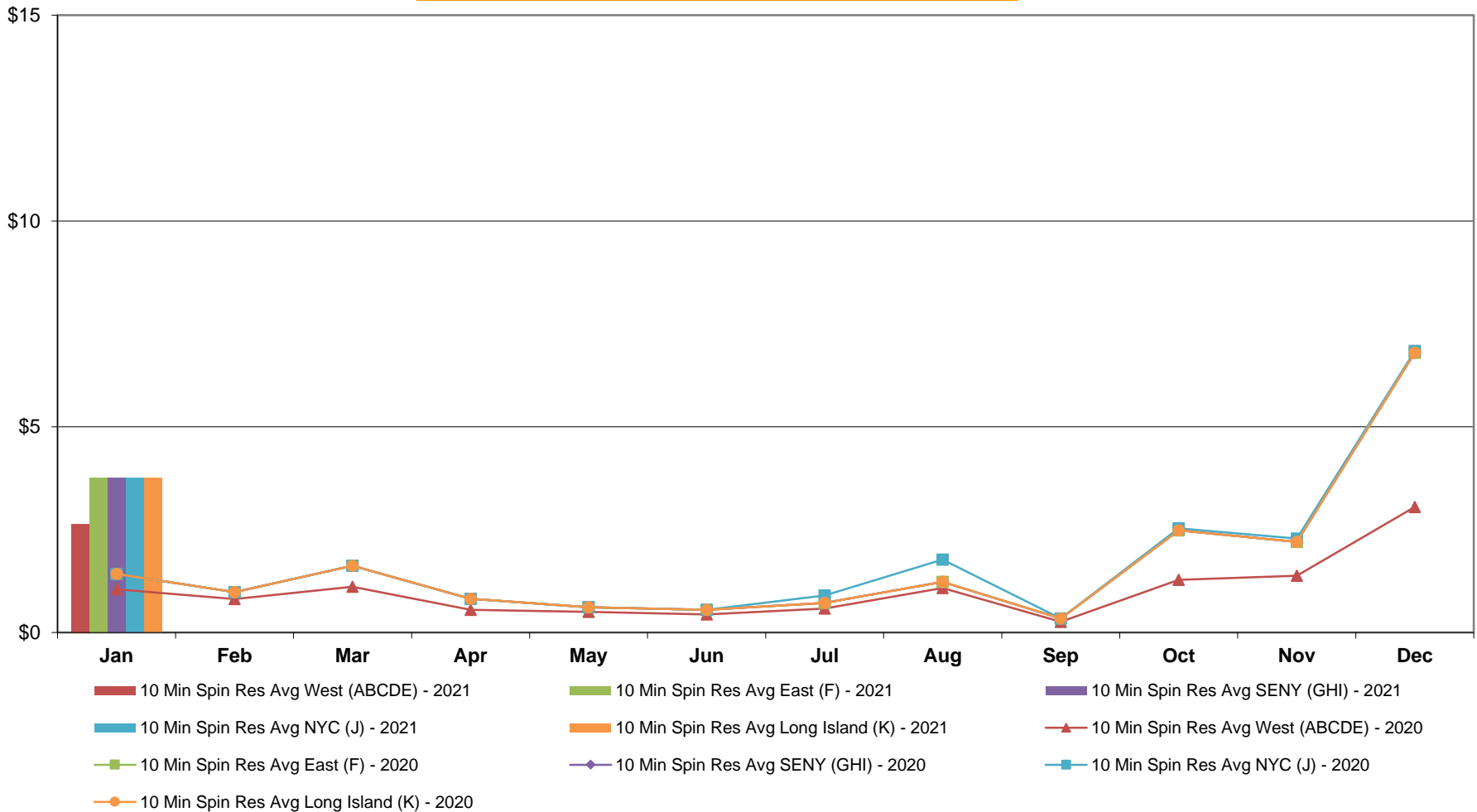
**NYISO Monthly Average Ancillary Service Prices
RTC Market - Regulation 2020 - 2021**



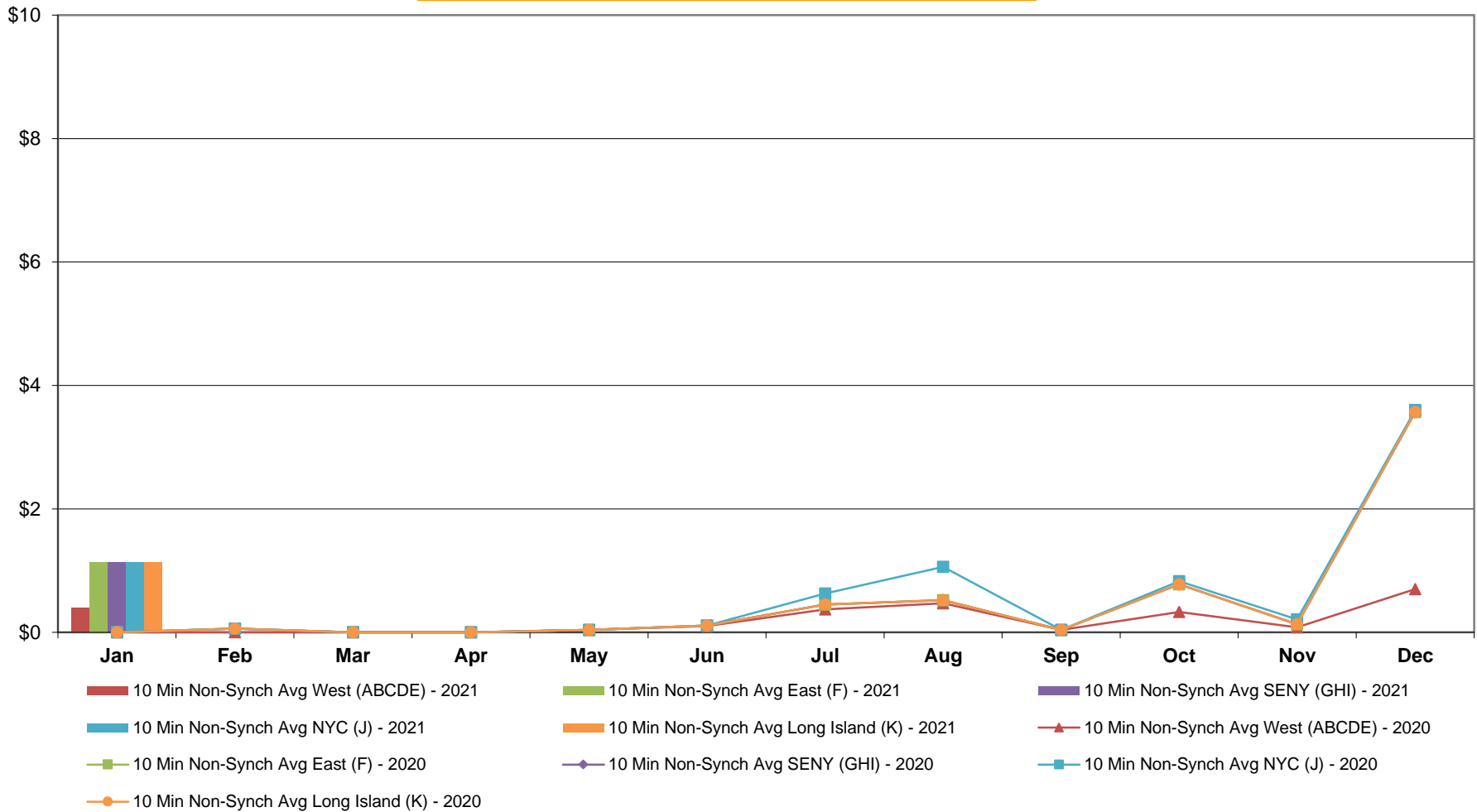
NYISO Monthly Average Ancillary Service Prices RTC Market - Regulation Movement 2020 - 2021



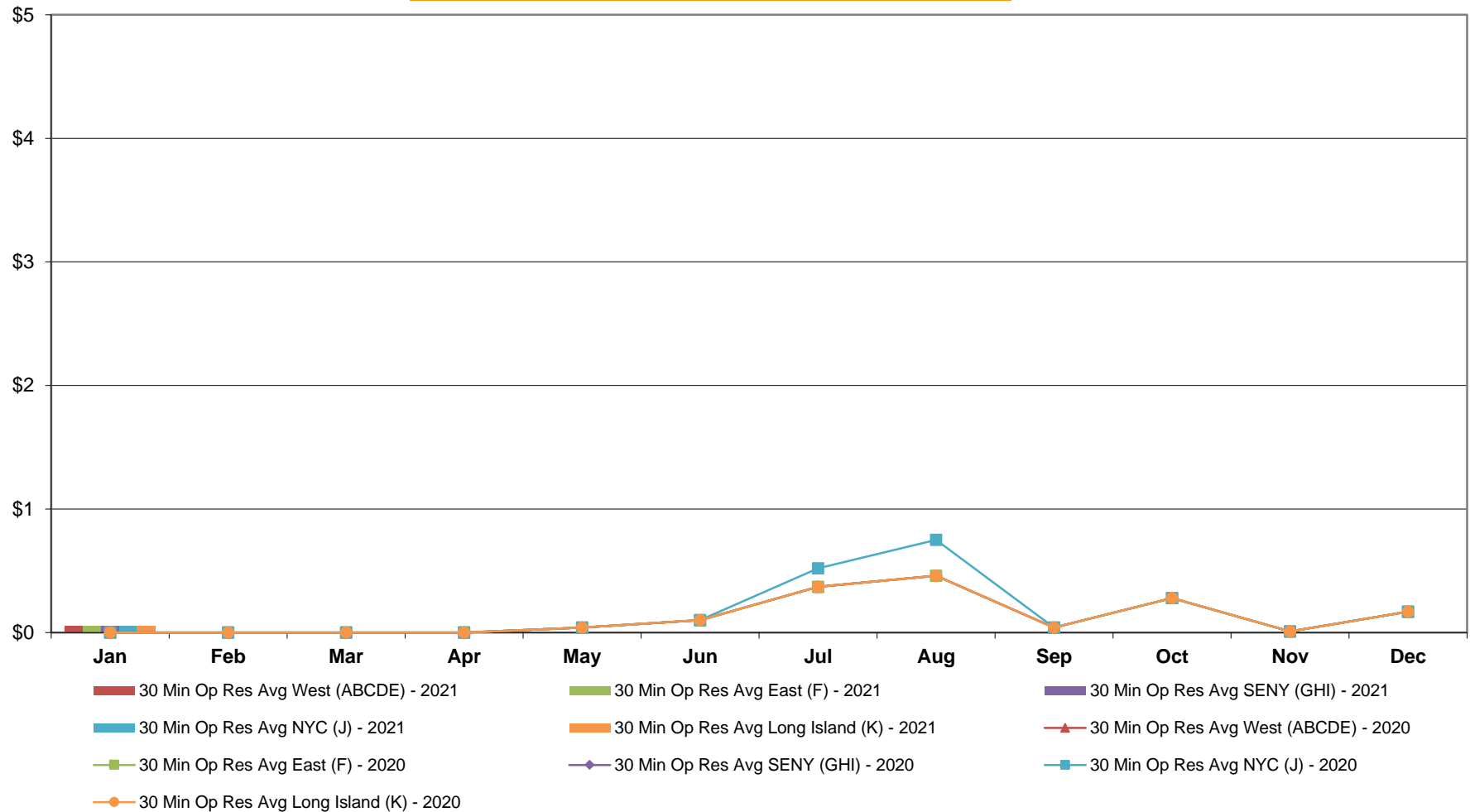
**NYISO Monthly Average Ancillary Service Prices
Real Time Market - 10 Min Spin 2020 - 2021**



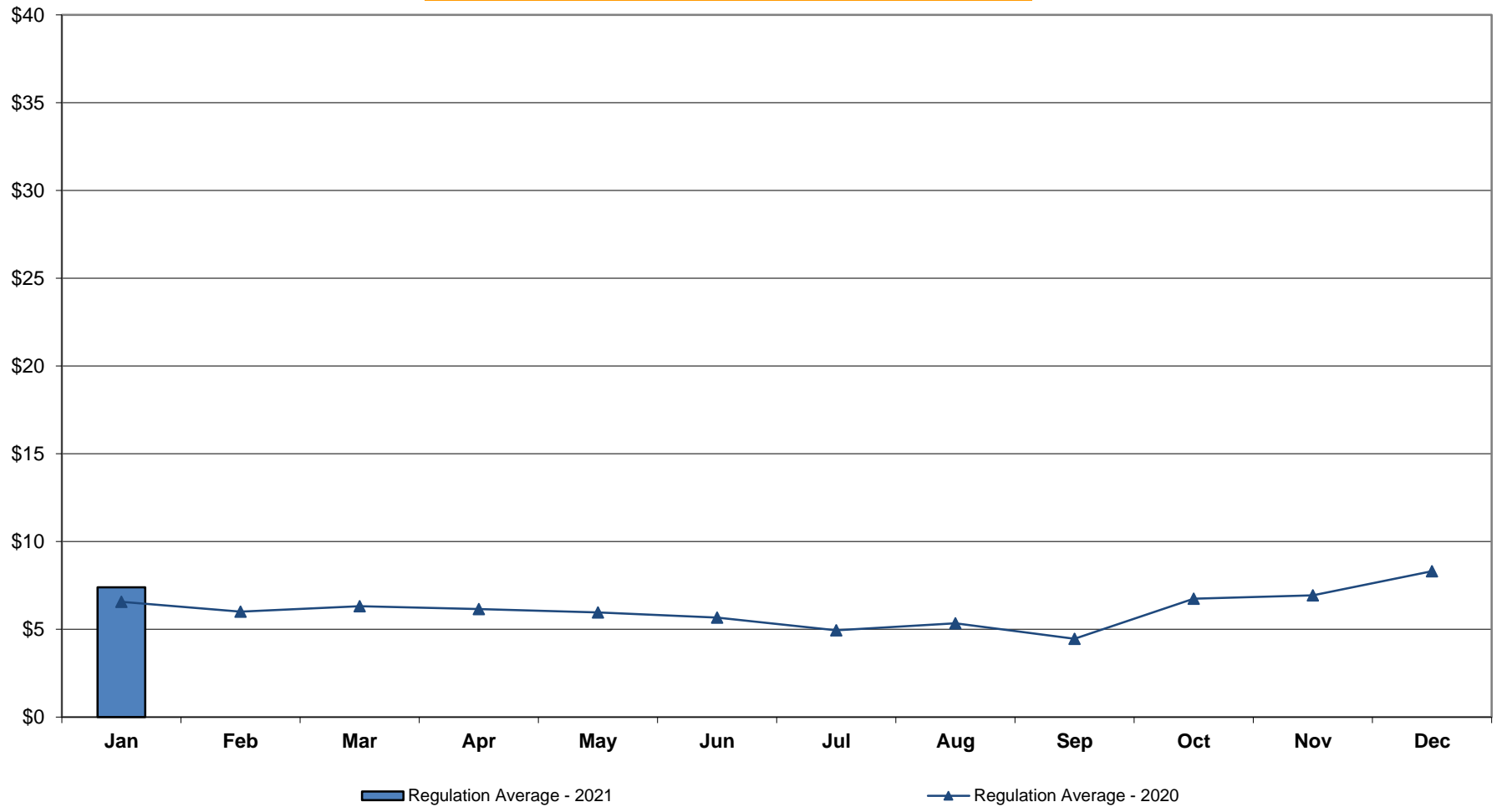
NYISO Monthly Average Ancillary Service Prices Real Time Market - 10 Min Non-Synch 2020 - 2021



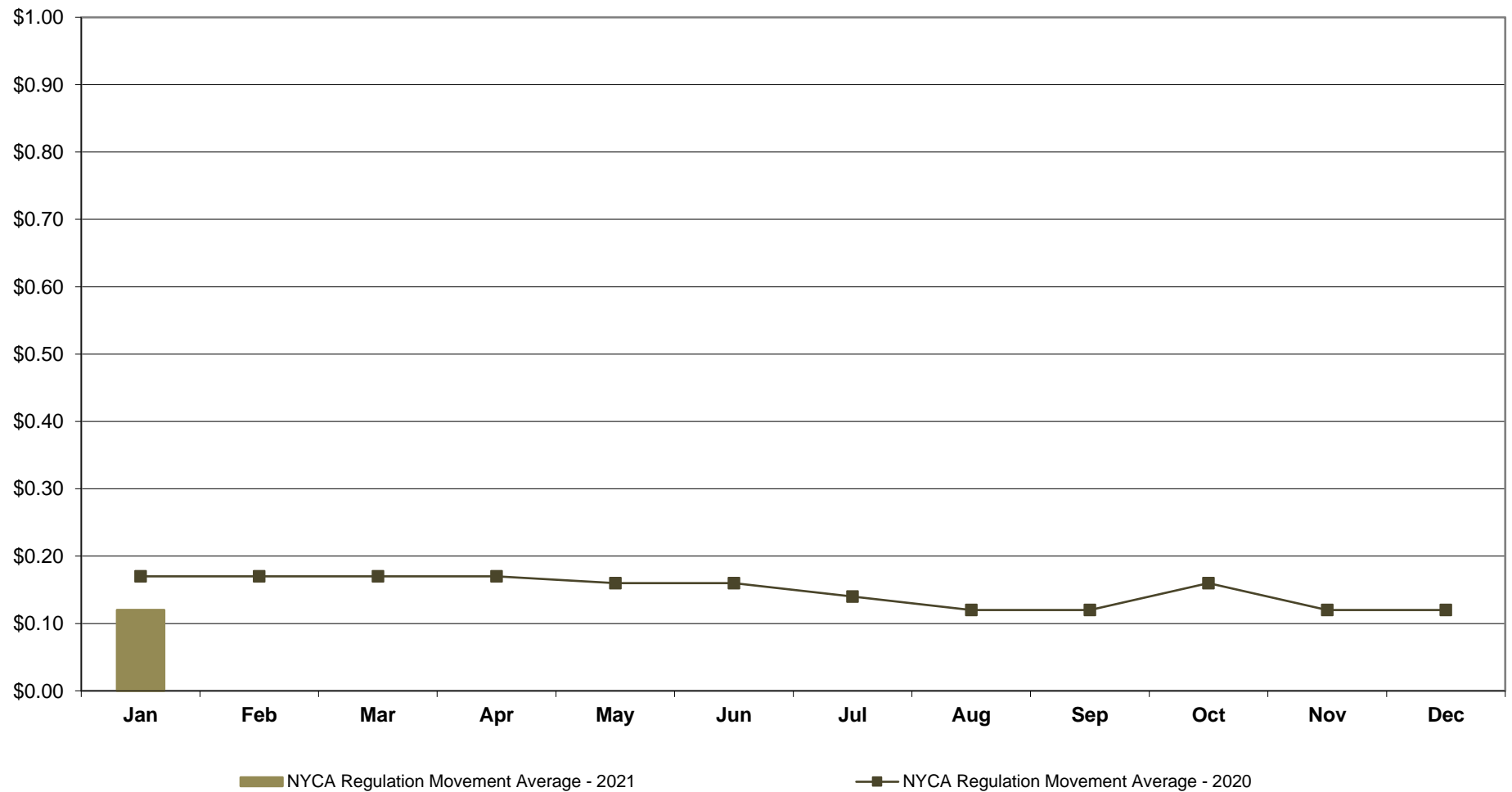
**NYISO Monthly Average Ancillary Service Prices
Real Time Market - 30 Min Op Res 2020 - 2021**



**NYISO Monthly Average Ancillary Service Prices
Real Time Market - Regulation 2020 - 2021**



NYISO Monthly Average Ancillary Service Prices Real Time Market - Regulation Movement 2020 - 2021



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

<u>2021</u>	<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 Market</u>												
10 Min Spin Long Island (K)	4.61											
10 Min Spin NYC (J)	4.68											
10 Min Spin SENY (GHI)	4.61											
10 Min Spin East (F)	4.61											
10 Min Spin West (ABCDE)	4.01											
10 Min Non Synch Long Island (K)	3.32											
10 Min Non Synch NYC (J)	3.40											
10 Min Non Synch SENY (GHI)	3.32											
10 Min Non Synch East (F)	3.32											
10 Min Non Synch West (ABCDE)	3.22											
30 Min Long Island (K)	3.22											
30 Min NYC (J)	3.23											
30 Min SENY (GHI)	3.22											
30 Min East (F)	3.22											
30 Min West (ABCDE)	3.22											
Regulation	6.40											
<u>2020</u>	<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 Market</u>												
10 Min Spin Long Island (K)	3.60	3.23	3.55	3.27	3.48	3.59	3.59	3.63	3.63	4.96	4.46	5.27
10 Min Spin NYC (J)	3.60	3.23	3.55	3.27	3.48	3.64	4.00	3.74	3.63	4.96	4.48	5.30
10 Min Spin SENY (GHI)	3.60	3.23	3.55	3.27	3.48	3.59	3.59	3.63	3.63	4.96	4.46	5.27
10 Min Spin East (F)	3.60	3.23	3.55	3.27	3.48	3.59	3.59	3.63	3.63	4.96	4.46	5.27
10 Min Spin West (ABCDE)	3.57	3.22	3.43	3.25	3.39	3.51	3.55	3.59	3.58	4.21	3.81	4.25
10 Min Non Synch Long Island (K)	3.28	3.08	2.95	2.95	2.94	3.11	3.21	3.06	2.66	3.66	3.23	3.67
10 Min Non Synch NYC (J)	3.28	3.08	2.95	2.95	2.94	3.17	3.61	3.17	2.66	3.66	3.25	3.71
10 Min Non Synch SENY (GHI)	3.28	3.08	2.95	2.95	2.94	3.11	3.21	3.06	2.66	3.66	3.23	3.67
10 Min Non Synch East (F)	3.28	3.08	2.95	2.95	2.94	3.11	3.21	3.06	2.66	3.66	3.23	3.67
10 Min Non Synch West (ABCDE)	3.28	3.08	2.95	2.94	2.93	3.10	3.18	3.04	2.63	3.43	2.95	3.55
30 Min Long Island (K)	3.28	3.08	2.95	2.94	2.93	3.10	3.18	3.04	2.63	3.42	2.95	3.55
30 Min NYC (J)	3.28	3.08	2.95	2.94	2.93	3.10	3.31	3.05	2.63	3.42	2.97	3.56
30 Min SENY (GHI)	3.28	3.08	2.95	2.94	2.93	3.10	3.18	3.04	2.63	3.42	2.95	3.55
30 Min East (F)	3.28	3.08	2.95	2.94	2.93	3.10	3.18	3.04	2.63	3.42	2.95	3.55
30 Min West (ABCDE)	3.28	3.08	2.95	2.94	2.93	3.10	3.18	3.04	2.63	3.42	2.95	3.55
Regulation	6.46	5.94	5.86	5.70	6.40	5.44	4.61	4.79	5.17	6.32	6.45	6.79

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

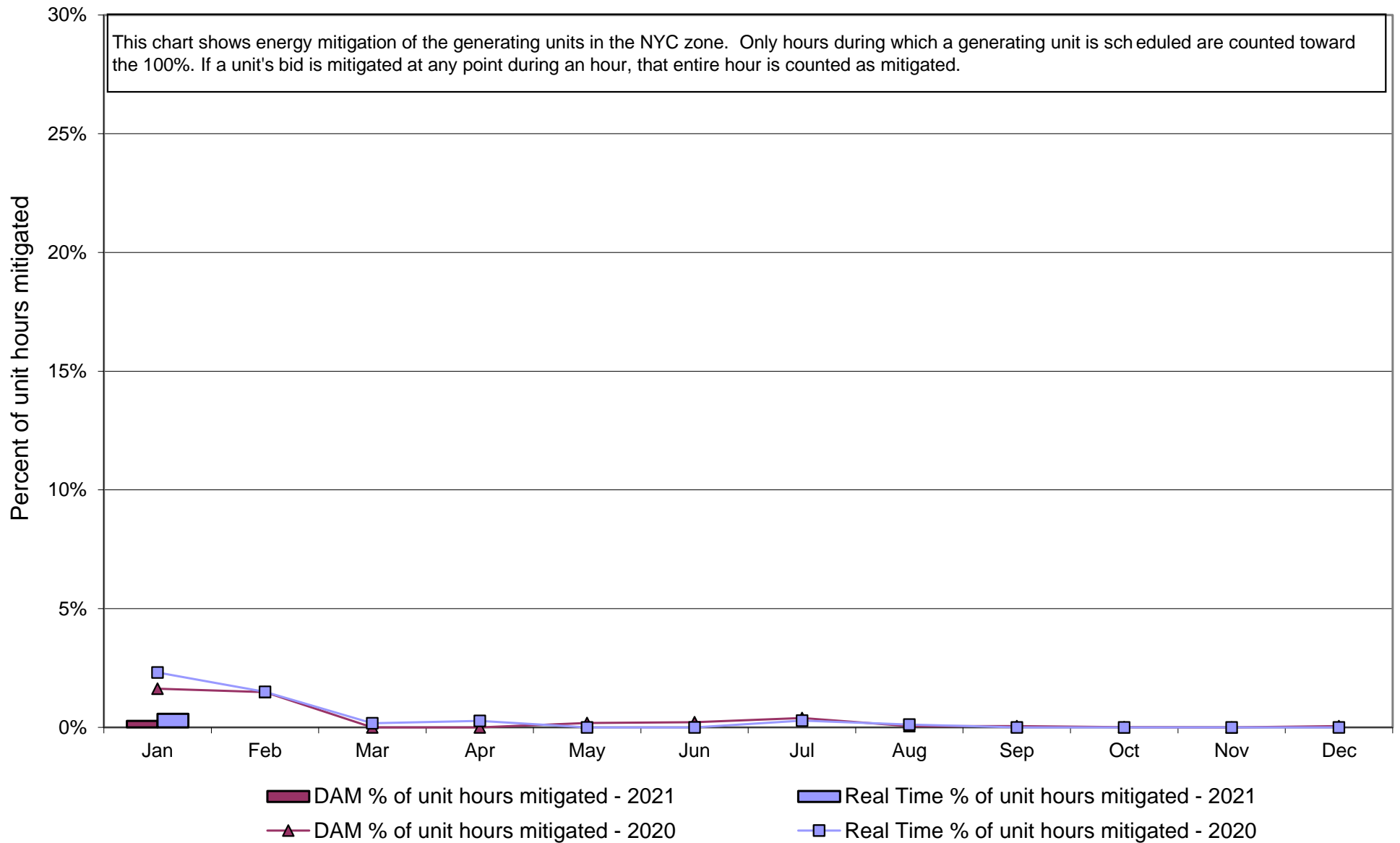
<u>2021</u>	<u>January</u>	<u>February</u>	<u>March</u>	<u>April</u>	<u>May</u>	<u>June</u>	<u>July</u>	<u>August</u>	<u>September</u>	<u>October</u>	<u>November</u>	<u>December</u>
<u>RTC Market</u>												
10 Min Spin Long Island (K)	1.65											
10 Min Spin NYC (J)	1.65											
10 Min Spin SENY (GHI)	1.65											
10 Min Spin East (F)	1.65											
10 Min Spin West (ABCDE)	1.16											
10 Min Non Synch Long Island (K)	0.49											
10 Min Non Synch NYC (J)	0.49											
10 Min Non Synch SENY (GHI)	0.49											
10 Min Non Synch East (F)	0.49											
10 Min Non Synch West (ABCDE)	0.26											
30 Min Long Island (K)	0.10											
30 Min NYC (J)	0.10											
30 Min SENY (GHI)	0.10											
30 Min East (F)	0.10											
30 Min West (ABCDE)	0.10											
Regulation	6.46											
NYCA Regulation Movement	0.12											
<u>2020</u>	<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>RTC Market</u>												
10 Min Spin Long Island (K)	0.78	1.42	0.88	0.32	0.25	0.31	0.70	1.11	0.20	2.69	1.41	5.40
10 Min Spin NYC (J)	0.78	1.46	0.88	0.32	0.26	0.31	0.96	1.60	0.20	2.82	1.50	5.42
10 Min Spin SENY (GHI)	0.78	1.42	0.88	0.32	0.25	0.31	0.70	1.11	0.20	2.69	1.41	5.40
10 Min Spin East (F)	0.78	1.42	0.88	0.32	0.25	0.31	0.70	1.11	0.20	2.69	1.41	5.40
10 Min Spin West (ABCDE)	0.54	0.72	0.46	0.11	0.15	0.17	0.44	0.86	0.16	1.09	0.70	2.29
10 Min Non Synch Long Island (K)	0.00	0.91	0.00	0.00	0.03	0.05	0.48	0.66	0.03	0.73	0.03	3.17
10 Min Non Synch NYC (J)	0.00	0.95	0.00	0.00	0.04	0.06	0.73	1.16	0.03	0.86	0.11	3.19
10 Min Non Synch SENY (GHI)	0.00	0.91	0.00	0.00	0.03	0.05	0.48	0.66	0.03	0.73	0.03	3.17
10 Min Non Synch East (F)	0.00	0.91	0.00	0.00	0.03	0.05	0.48	0.66	0.03	0.73	0.03	3.17
10 Min Non Synch West (ABCDE)	0.00	0.28	0.00	0.00	0.03	0.05	0.37	0.61	0.03	0.38	0.01	0.76
30 Min Long Island (K)	0.00	0.01	0.00	0.00	0.03	0.05	0.37	0.61	0.03	0.38	0.01	0.27
30 Min NYC (J)	0.00	0.01	0.00	0.00	0.03	0.05	0.57	0.91	0.03	0.38	0.01	0.27
30 Min SENY (GHI)	0.00	0.01	0.00	0.00	0.03	0.05	0.37	0.61	0.03	0.38	0.01	0.27
30 Min East (F)	0.00	0.01	0.00	0.00	0.03	0.05	0.37	0.61	0.03	0.38	0.01	0.27
30 Min West (ABCDE)	0.00	0.01	0.00	0.00	0.03	0.05	0.37	0.61	0.03	0.38	0.01	0.27
Regulation	6.11	5.77	6.25	6.56	5.02	5.56	4.92	5.20	4.37	7.57	7.09	7.96
NYCA Regulation Movement	0.17	0.17	0.17	0.17	0.17	0.16	0.14	0.12	0.12	0.16	0.12	0.12

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

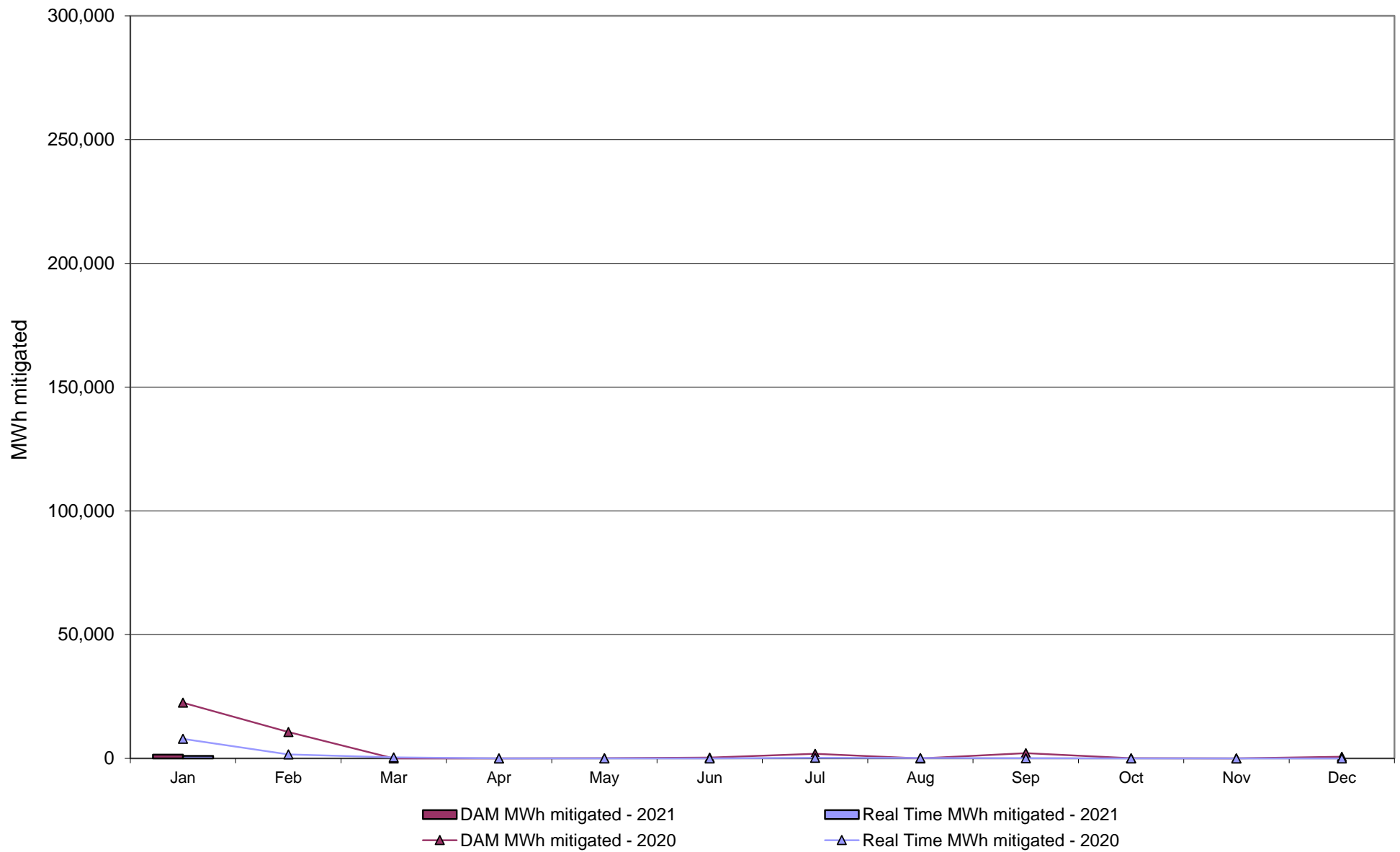
<u>2021</u>	<u>January</u>	<u>February</u>	<u>March</u>	<u>April</u>	<u>May</u>	<u>June</u>	<u>July</u>	<u>August</u>	<u>September</u>	<u>October</u>	<u>November</u>	<u>December</u>
<u>Real Time Market</u>												
10 Min Spin Long Island (K)	3.75											
10 Min Spin NYC (J)	3.75											
10 Min Spin SENY (GHI)	3.75											
10 Min Spin East (F)	3.75											
10 Min Spin West (ABCDE)	2.64											
10 Min Non Synch Long Island (K)	1.13											
10 Min Non Synch NYC (J)	1.13											
10 Min Non Synch SENY (GHI)	1.13											
10 Min Non Synch East (F)	1.13											
10 Min Non Synch West (ABCDE)	0.40											
30 Min Long Island (K)	0.05											
30 Min NYC (J)	0.05											
30 Min SENY (GHI)	0.05											
30 Min East (F)	0.05											
30 Min West (ABCDE)	0.05											
Regulation	7.39											
NYCA Regulation Movement	0.12											
<u>2020</u>	<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>Real Time Market</u>												
10 Min Spin Long Island (K)	1.42	0.98	1.62	0.82	0.61	0.55	0.72	1.23	0.34	2.48	2.20	6.80
10 Min Spin NYC (J)	1.42	0.98	1.62	0.82	0.63	0.56	0.90	1.77	0.34	2.53	2.28	6.84
10 Min Spin SENY (GHI)	1.42	0.98	1.62	0.82	0.61	0.55	0.72	1.23	0.34	2.48	2.20	6.80
10 Min Spin East (F)	1.42	0.98	1.62	0.82	0.61	0.55	0.72	1.23	0.34	2.48	2.20	6.80
10 Min Spin West (ABCDE)	1.05	0.81	1.11	0.55	0.50	0.44	0.58	1.08	0.26	1.28	1.38	3.05
10 Min Non Synch Long Island (K)	0.00	0.06	0.00	0.00	0.04	0.11	0.45	0.52	0.04	0.78	0.13	3.57
10 Min Non Synch NYC (J)	0.00	0.06	0.00	0.00	0.07	0.12	0.63	1.06	0.04	0.83	0.21	3.60
10 Min Non Synch SENY (GHI)	0.00	0.06	0.00	0.00	0.04	0.11	0.45	0.52	0.04	0.78	0.13	3.57
10 Min Non Synch East (F)	0.00	0.06	0.00	0.00	0.04	0.11	0.45	0.52	0.04	0.78	0.13	3.57
10 Min Non Synch West (ABCDE)	0.00	0.00	0.00	0.00	0.04	0.10	0.37	0.47	0.04	0.33	0.08	0.70
30 Min Long Island (K)	0.00	0.00	0.00	0.00	0.04	0.10	0.37	0.46	0.04	0.28	0.01	0.17
30 Min NYC (J)	0.00	0.00	0.00	0.00	0.04	0.10	0.52	0.75	0.04	0.28	0.01	0.17
30 Min SENY (GHI)	0.00	0.00	0.00	0.00	0.04	0.10	0.37	0.46	0.04	0.28	0.01	0.17
30 Min East (F)	0.00	0.00	0.00	0.00	0.04	0.10	0.37	0.46	0.04	0.28	0.01	0.17
30 Min West (ABCDE)	0.00	0.00	0.00	0.00	0.04	0.10	0.37	0.46	0.04	0.28	0.01	0.17
Regulation	6.57	6.00	6.32	6.16	5.96	5.67	4.94	5.34	4.46	6.75	6.93	8.31
NYCA Regulation Movement	0.17	0.17	0.17	0.17	0.16	0.16	0.14	0.12	0.12	0.16	0.12	0.12

NYISO In City Energy Mitigation - AMP (NYC Zone) 2020 - 2021

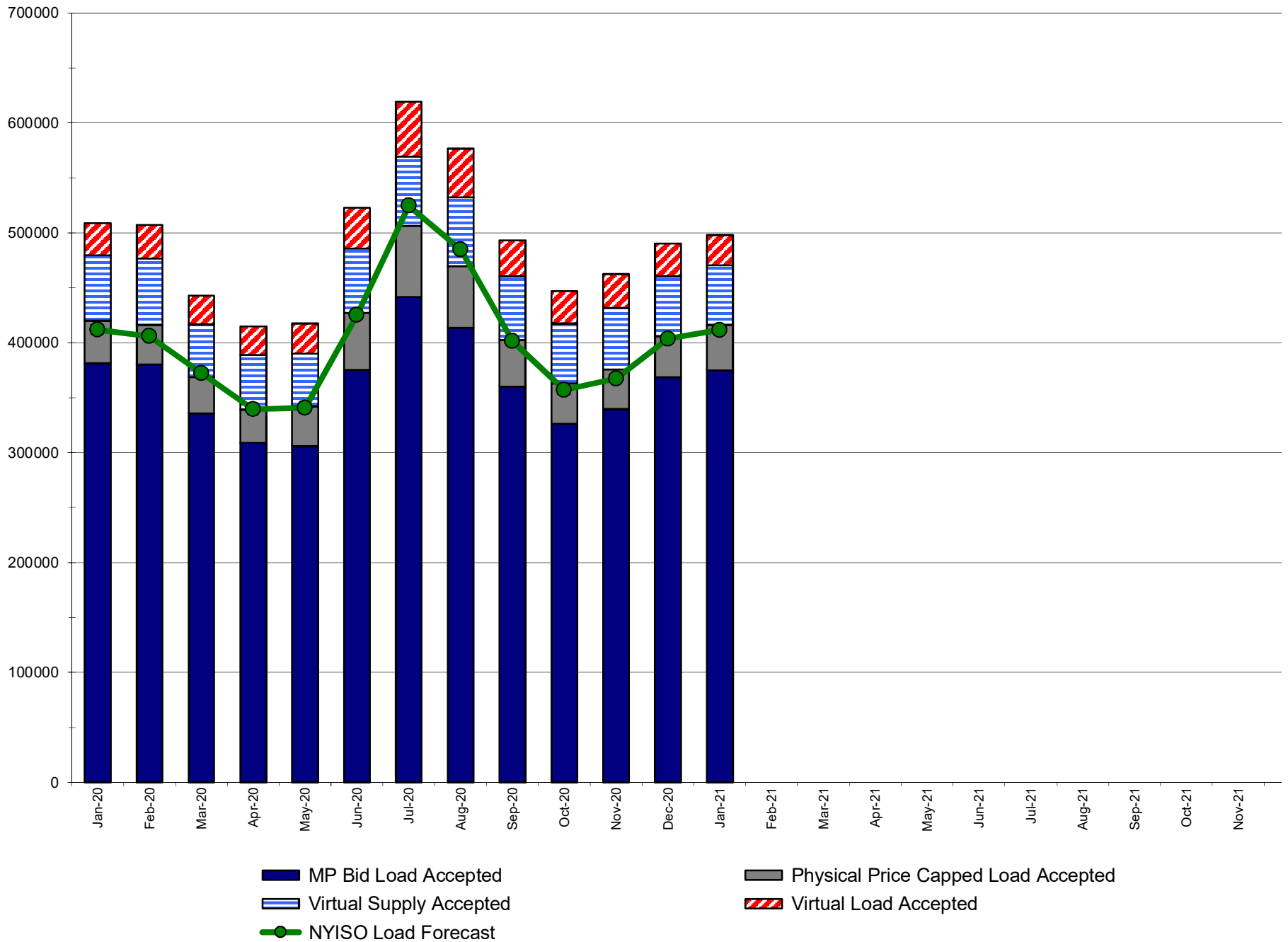
Percentage of committed unit-hours mitigated



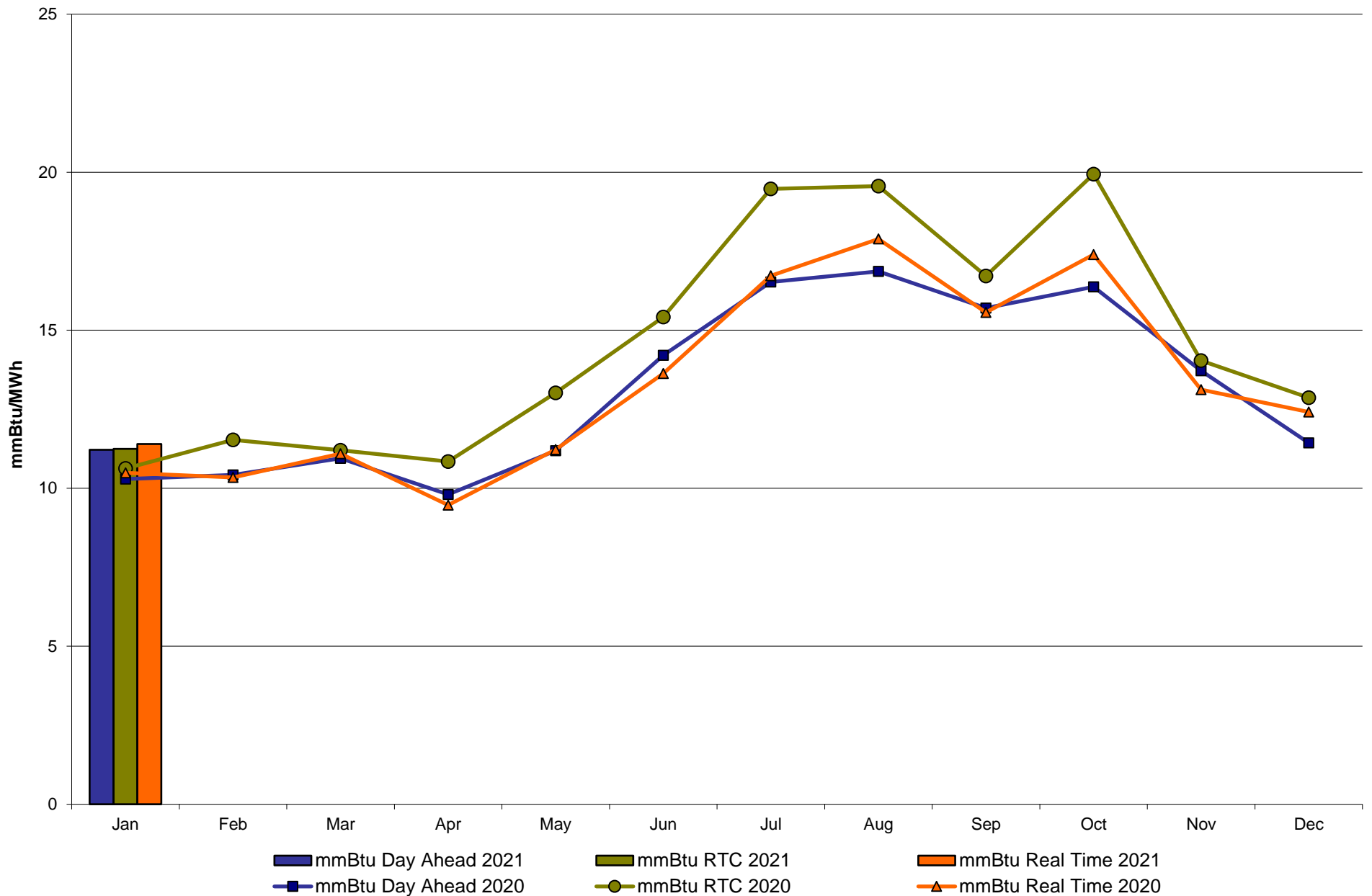
NYISO In City Energy Mitigation (NYC Zone) 2020 - 2021
Monthly megawatt hours mitigated



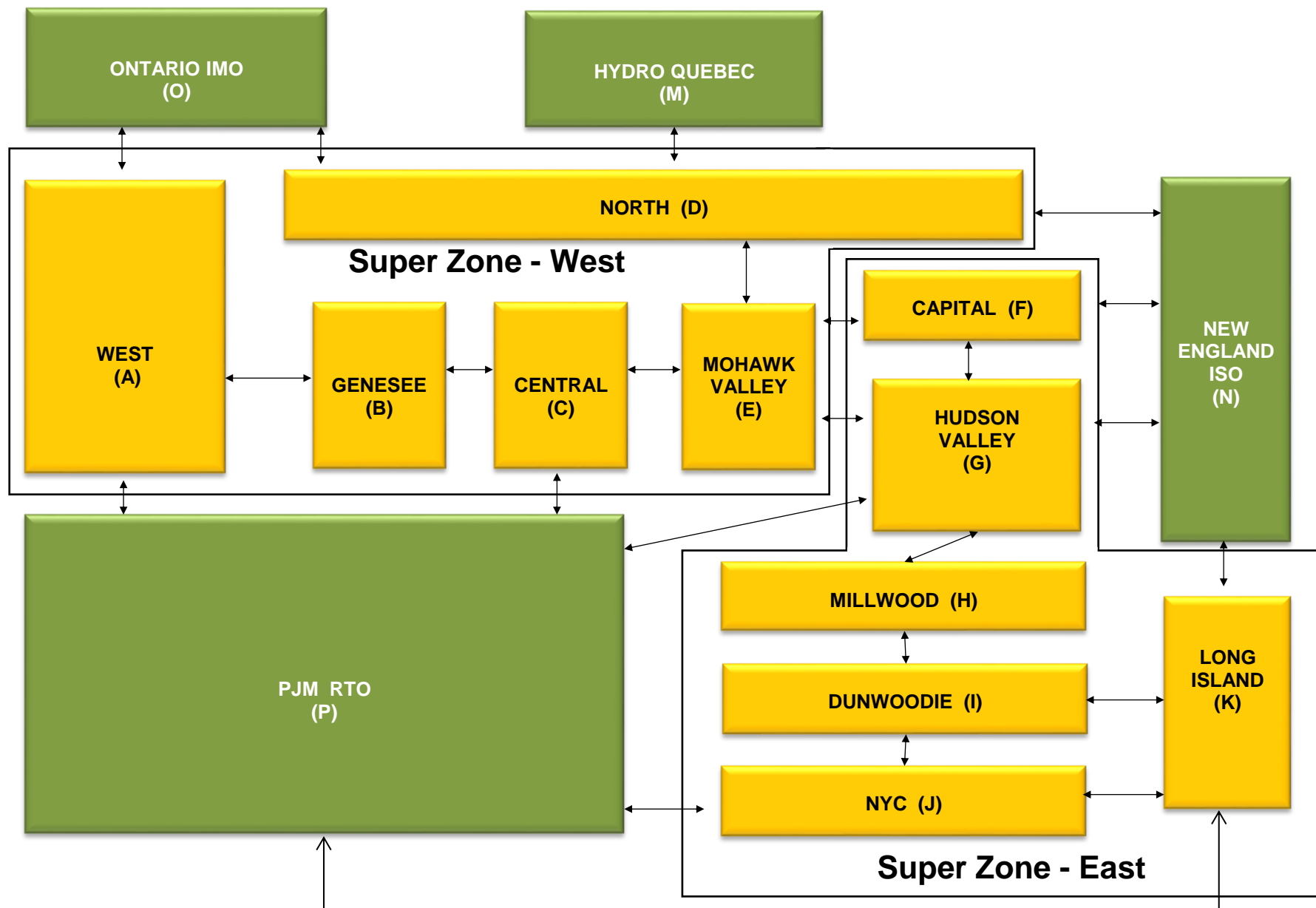
NYISO Average Daily DAM Load Bid Summary



Monthly Implied Heat Rate 2020-2021



NYISO LBMP ZONES



Billing Codes for Chart C

<u>Chart - C Category Name</u>	<u>Billing Code</u>	<u>Billing Category Name</u>
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

Our mission, in collaboration with our stakeholders, is to serve the public interest and provide benefit to consumers by:

- Maintaining and enhancing regional reliability
- Operating open, fair and competitive wholesale electricity markets
- Planning the power system for the future
- Providing factual information to policymakers, stakeholders and investors in the power system

