

# Market Operations Report

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Rana Mukerji

SENIOR VICE PRESIDENT – MARKET STRUCTURES, NYISO

**Business Issues Committee Meeting**

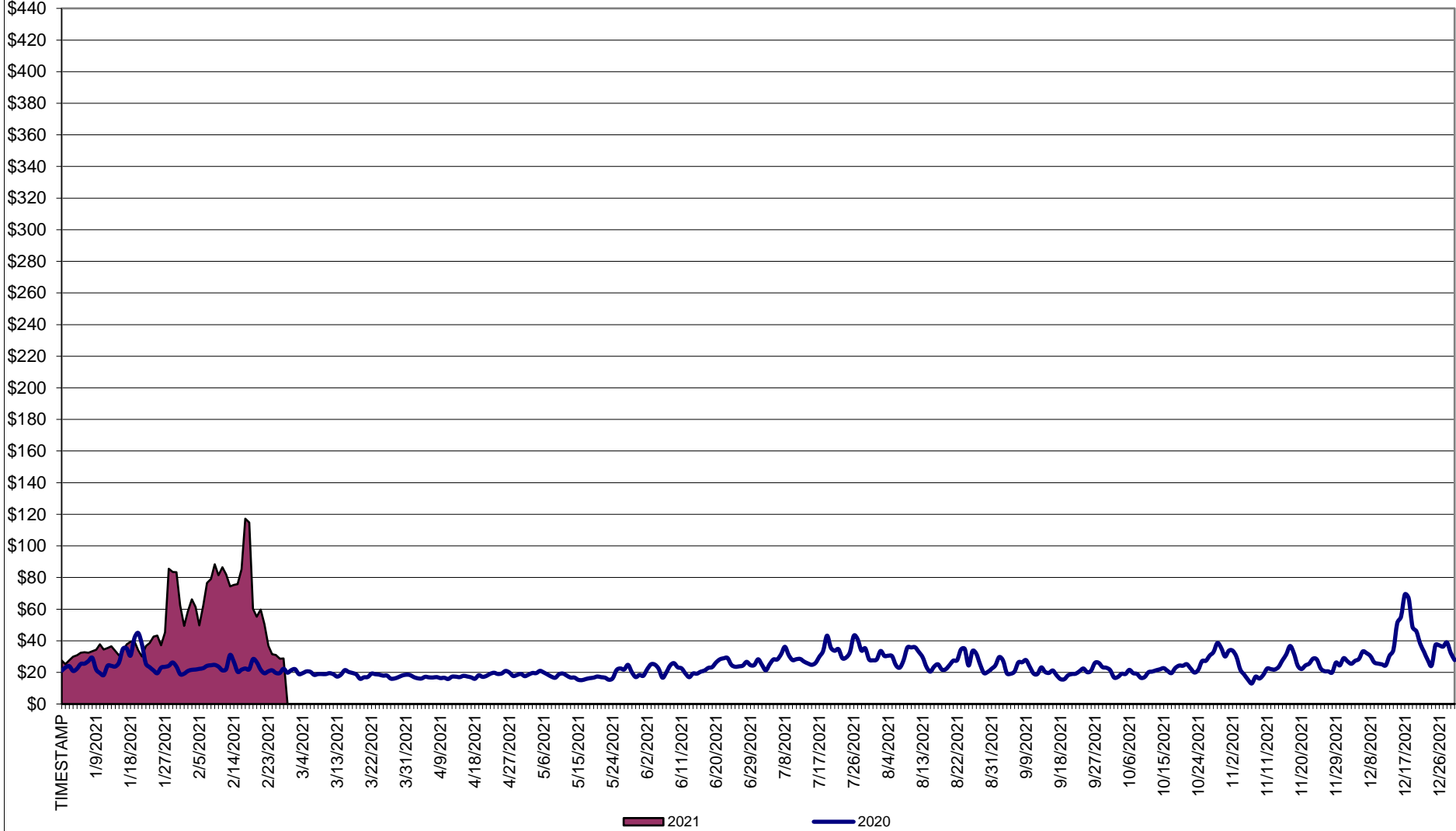
March 17, 2021 Rensselaer, NY

# Market Performance Highlights

## February 2021

- LBMP for February is \$63.70/MWh; higher than \$37.83/MWh in January 2021 and \$21.11/MWh in February 2020.
  - Day Ahead Load Weighted LBMPs and Real Time Load Weighted LBMPs are higher compared to January.
- February 2021 average year-to-date monthly cost of \$52.90/MWh is a 108% increase from \$25.40/MWh in February 2020.
- Average daily sendout is 434 GWh/day in February; higher than 427 GWh/day in January 2021 and 417 GWh/day in February 2020.
- Natural gas prices and distillate prices are higher compared to the previous month.
  - Natural Gas (Transco Z6 NY) was \$5.22/MMBtu, up from \$2.94/MMBtu in January.
  - Natural gas prices are up 179.8% year-over-year.
  - Jet Kerosene Gulf Coast was \$11.79/MMBtu, up from \$10.45/MMBtu in January.
  - Ultra Low Sulfur No.2 Diesel NY Harbor was \$12.71/MMBtu, up from \$11.17/MMBtu in January.
  - Distillate prices are up 6.2% year-over-year.
- Uplift per MWh is higher compared to the previous month.
  - Uplift (not including NYISO cost of operations) is (\$0.15)/MWh; higher than (\$0.31)/MWh in January.
    - Local Reliability Share is \$0.15/MWh, higher than \$0.09/MWh in January.
    - Statewide Share is (\$0.30)/MWh, higher than (\$0.40)/MWh in January.
  - TSA \$ per NYC MWh is \$0.00/MWh.
  - Total uplift costs (Schedule 1 components including NYISO Cost of Operations) are higher than January.

**Daily NYISO Average Cost/MWh (Energy & Ancillary Services)\***  
**2020 Annual Average \$25.62/MWh**  
**February 2020 YTD Average \$25.03/MWh**  
**February 2021 YTD Average \$52.99/MWh**



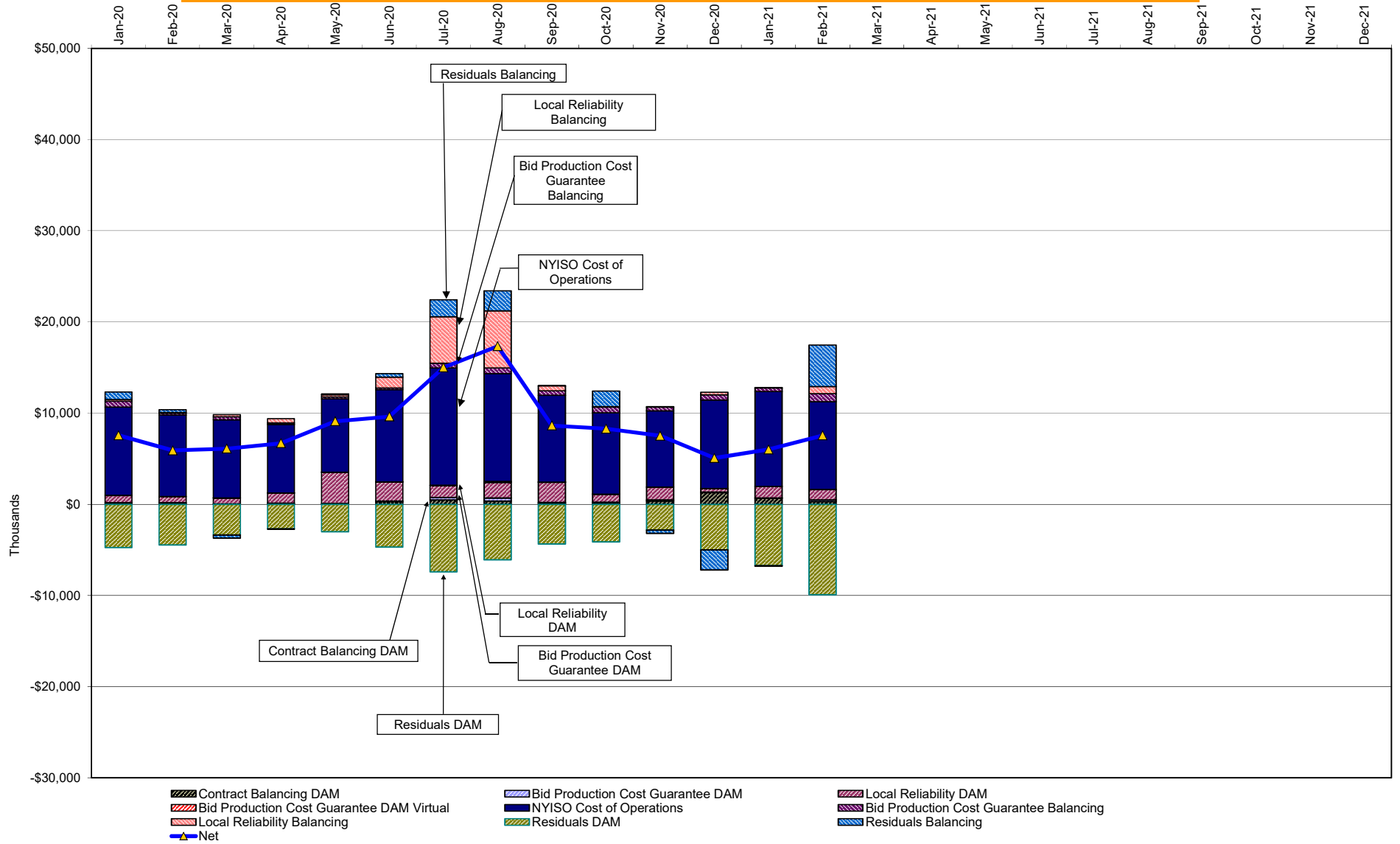
\* Excludes ICAP payments.

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

<b>2021</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	37.83	63.70										
NTAC	1.35	1.20										
Reserve	0.49	0.81										
Regulation	0.07	0.13										
NYISO Cost of Operations	0.74	0.74										
FERC Fee Recovery	0.08	0.09										
Uplift	(0.31)	(0.15)										
Uplift: Local Reliability Share	0.09	0.15										
Uplift: Statewide Share	(0.40)	(0.30)										
Voltage Support and Black Start	0.43	0.43										
<b>Avg Monthly Cost</b>	<b>40.61</b>	<b>66.87</b>										
Avg YTD Cost	40.61	52.90										
TSA \$ per NYC MWh	0.00	0.00										
<b>2020</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	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
<b>Avg Monthly Cost</b>	<b>27.29</b>	<b>23.32</b>	<b>19.55</b>	<b>18.38</b>	<b>19.16</b>	<b>24.09</b>	<b>31.91</b>	<b>29.07</b>	<b>23.03</b>	<b>23.70</b>	<b>25.40</b>	<b>36.52</b>
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: 3/8/2021 12:27 PM

## NYISO Dollar Flows - Uplift - OATT Schedule 1 components - Data through February 28, 2021



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

<b>2021</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 MWh</b>	14,108,848	13,325,329										
DAM LSE Internal LBMP Energy Sales	60%	59%										
DAM External TC LBMP Energy Sales	5%	4%										
DAM Bilateral - Internal Bilaterals	31%	30%										
DAM Bilateral - Import/Non-LBMP Market Bilaterals	1%	4%										
DAM Bilateral - Export/Non-LBMP Market Bilaterals	2%	2%										
DAM Bilateral - Wheel Through Bilaterals	2%	2%										
<b>Balancing Energy Market MWh</b>	29,179	-308,157										
Balancing Energy LSE Internal LBMP Energy Sales	-215%	-151%										
Balancing Energy External TC LBMP Energy Sales	374%	59%										
Balancing Energy Bilateral - Internal Bilaterals	49%	4%										
Balancing Energy Bilateral - Import/Non-LBMP Market Bilaterals	0%	0%										
Balancing Energy Bilateral - Export/Non-LBMP Market Bilaterals	50%	5%										
Balancing Energy Bilateral - Wheel Through Bilaterals	-158%	-17%										
<b>Transactions Summary</b>												
LBMP	65%	62%										
Internal Bilaterals	31%	31%										
Import Bilaterals	1%	4%										
Export Bilaterals	2%	2%										
Wheels Through	2%	2%										
<b>Market Share of Total Load</b>												
Day Ahead Market	99.8%	102.4%										
Balancing Energy +	0.2%	-2.4%										
Total MWh	14,138,027	13,017,172										
Average Daily Energy Sendout/Month GWh	427	434										

<b>2020</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 MWh</b>	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%
<b>Balancing Energy Market MWh</b>	-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%
<b>Transactions Summary</b>												
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%
<b>Market Share of Total Load</b>												
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>
<b><u>DAY AHEAD LBMP</u></b>												
Price *	\$34.37	\$57.30										
Standard Deviation	\$14.58	\$24.48										
Load Weighted Price **	\$35.31	\$58.67										
<b><u>RTC LBMP</u></b>												
Price *	\$34.32	\$49.25										
Standard Deviation	\$20.93	\$23.34										
Load Weighted Price **	\$35.40	\$50.48										
<b><u>REAL TIME LBMP</u></b>												
Price *	\$34.59	\$48.22										
Standard Deviation	\$29.47	\$26.46										
Load Weighted Price **	\$35.89	\$49.57										
Average Daily Energy Sendout/Month GWh	427	434										

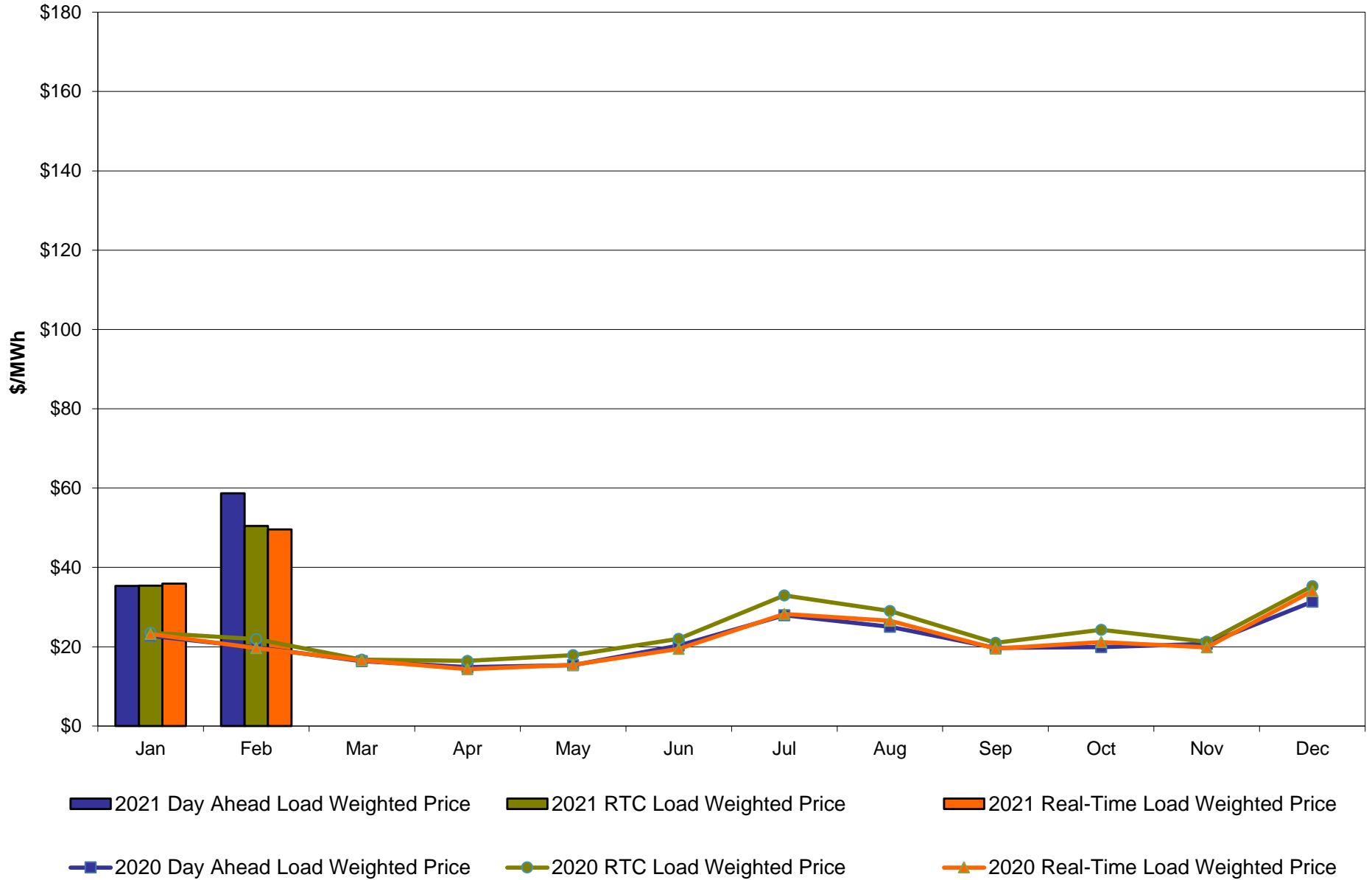
### NYISO Markets 2020 Energy Statistics

	<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>
<b><u>DAY AHEAD LBMP</u></b>												
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
<b><u>RTC LBMP</u></b>												
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
<b><u>REAL TIME LBMP</u></b>												
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



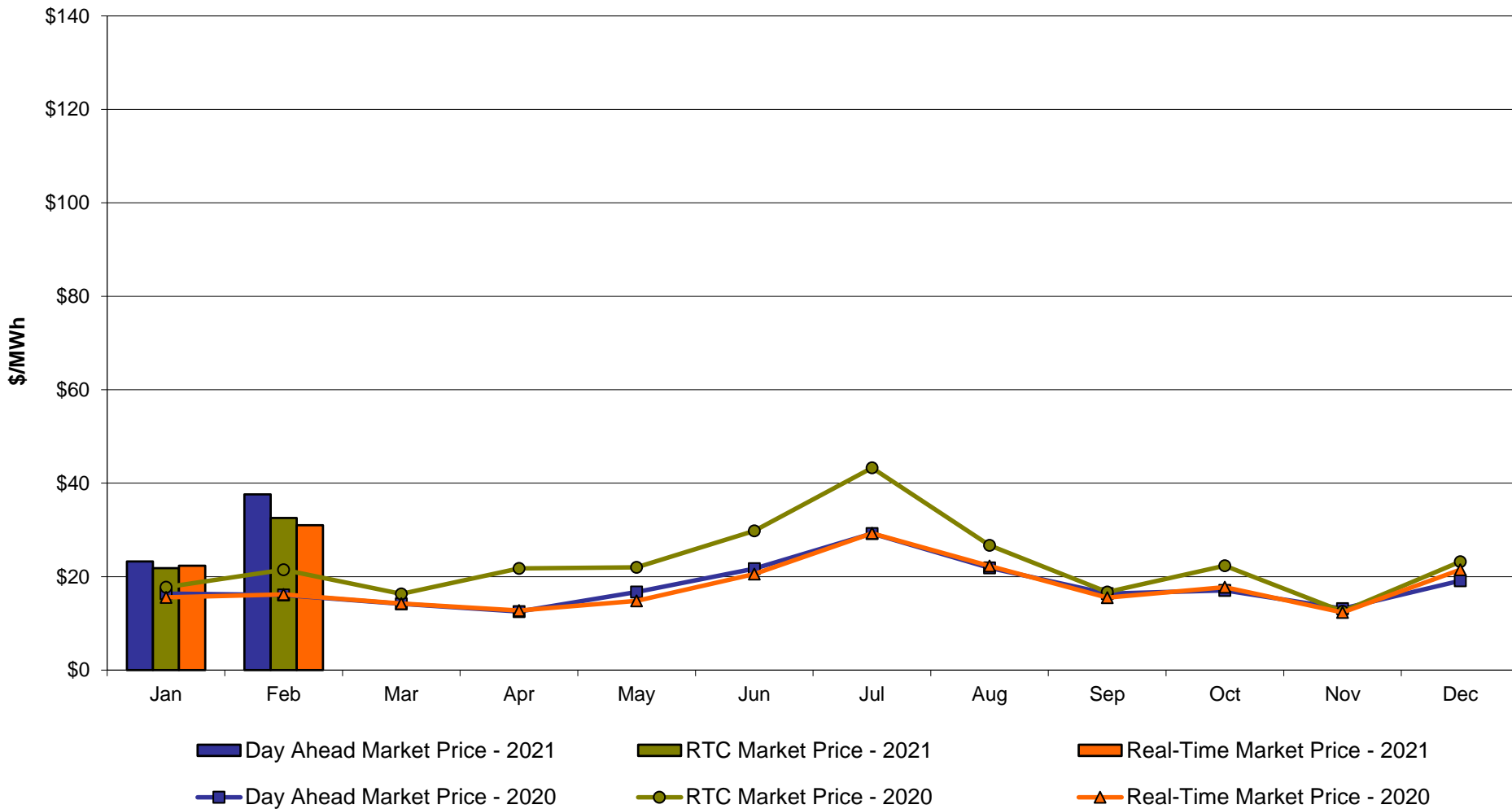


**February 2021 Zonal LBMP Statistics for NYISO (\$/MWh)**

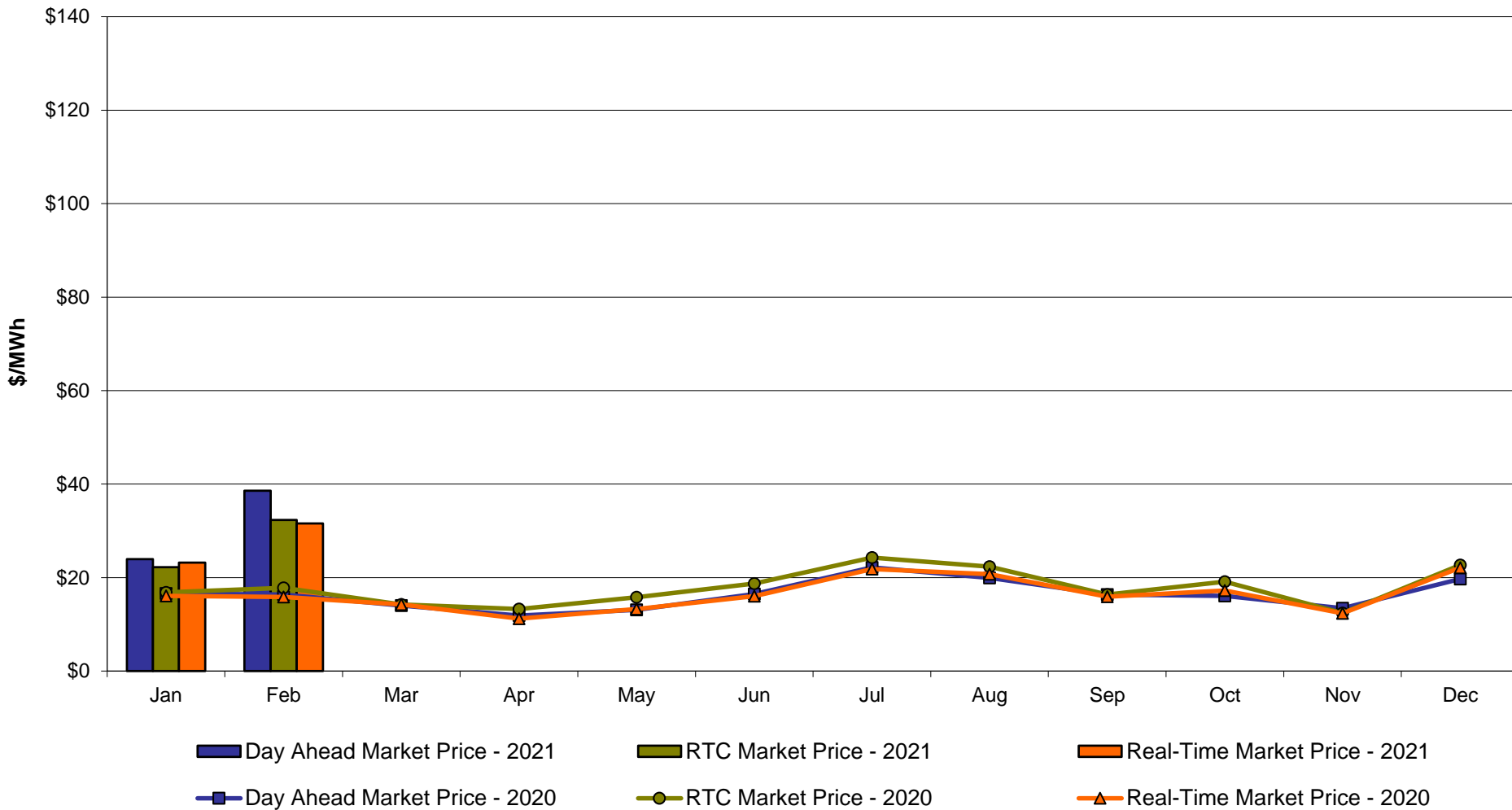
	<u>WEST Zone A</u>	<u>GENESEE Zone B</u>	<u>NORTH Zone D</u>	<u>CENTRAL Zone C</u>	<u>MOHAWK VALLEY Zone E</u>	<u>CAPITAL Zone F</u>	<u>HUDSON VALLEY Zone G</u>	<u>MILLWOOD Zone H</u>	<u>DUNWOODIE Zone I</u>	<u>NEW YORK CITY Zone J</u>	<u>LONG ISLAND Zone K</u>
<b><u>DAY AHEAD LBMP</u></b>											
Unweighted Price *	37.61	36.66	33.28	38.58	40.09	69.97	61.05	62.22	62.10	64.78	81.92
Standard Deviation	23.49	23.77	25.34	24.17	25.05	25.34	23.81	24.94	24.91	26.71	30.43
<b><u>RTC LBMP</u></b>											
Unweighted Price *	32.54	30.56	28.35	32.32	34.02	62.96	50.83	51.59	51.48	52.63	78.62
Standard Deviation	25.19	23.40	26.02	23.77	24.80	31.93	22.00	22.24	22.28	23.95	67.98
<b><u>REAL TIME LBMP</u></b>											
Unweighted Price *	31.01	29.94	27.13	31.56	32.89	62.24	51.31	52.11	52.01	53.34	73.20
Standard Deviation	35.46	35.99	40.09	35.41	36.15	42.55	26.49	26.86	26.85	28.46	45.62
	<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>
<b><u>DAY AHEAD LBMP</u></b>											
Unweighted Price *	35.83	33.11	33.11	35.83	71.01	49.79	81.92	76.46	32.68	62.82	81.46
Standard Deviation	22.72	25.15	25.15	22.72	26.57	22.31	30.41	29.39	24.84	25.76	30.17
<b><u>RTC LBMP</u></b>											
Unweighted Price *	28.66	24.20	24.20	28.66	69.42	41.66	78.53	77.77	28.09	51.98	78.28
Standard Deviation	21.13	26.44	26.44	21.13	32.85	20.71	68.08	67.71	25.60	23.81	67.87
<b><u>REAL TIME LBMP</u></b>											
Unweighted Price *	28.79	23.90	23.90	28.79	64.40	41.58	73.18	69.16	22.62	52.93	72.87
Standard Deviation	34.54	39.38	39.38	34.54	38.23	25.89	45.68	49.90	36.75	28.56	45.44

\* Straight LBMP averages

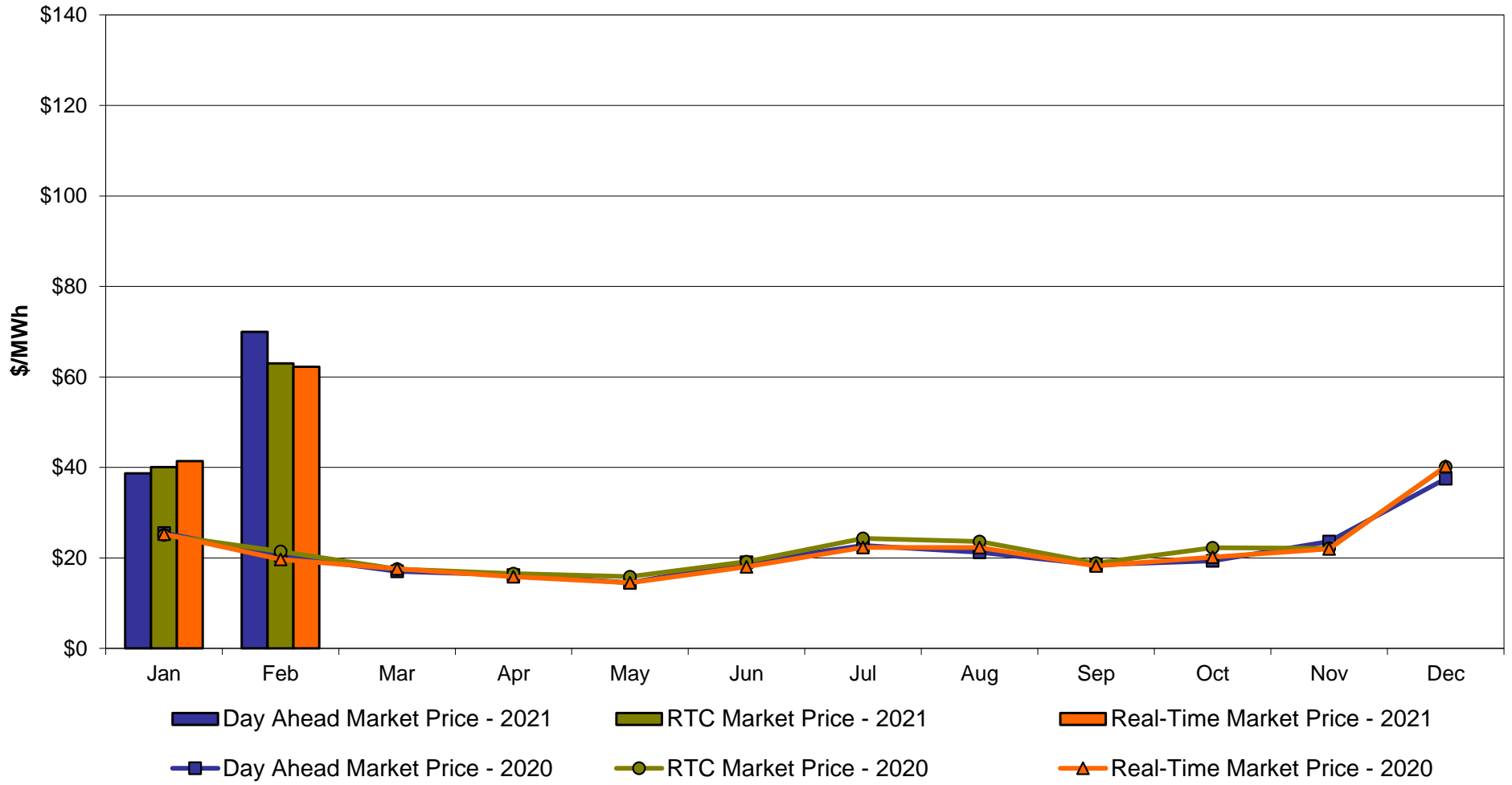
**West Zone A**  
**Monthly Average LBMP Prices 2020 - 2021**



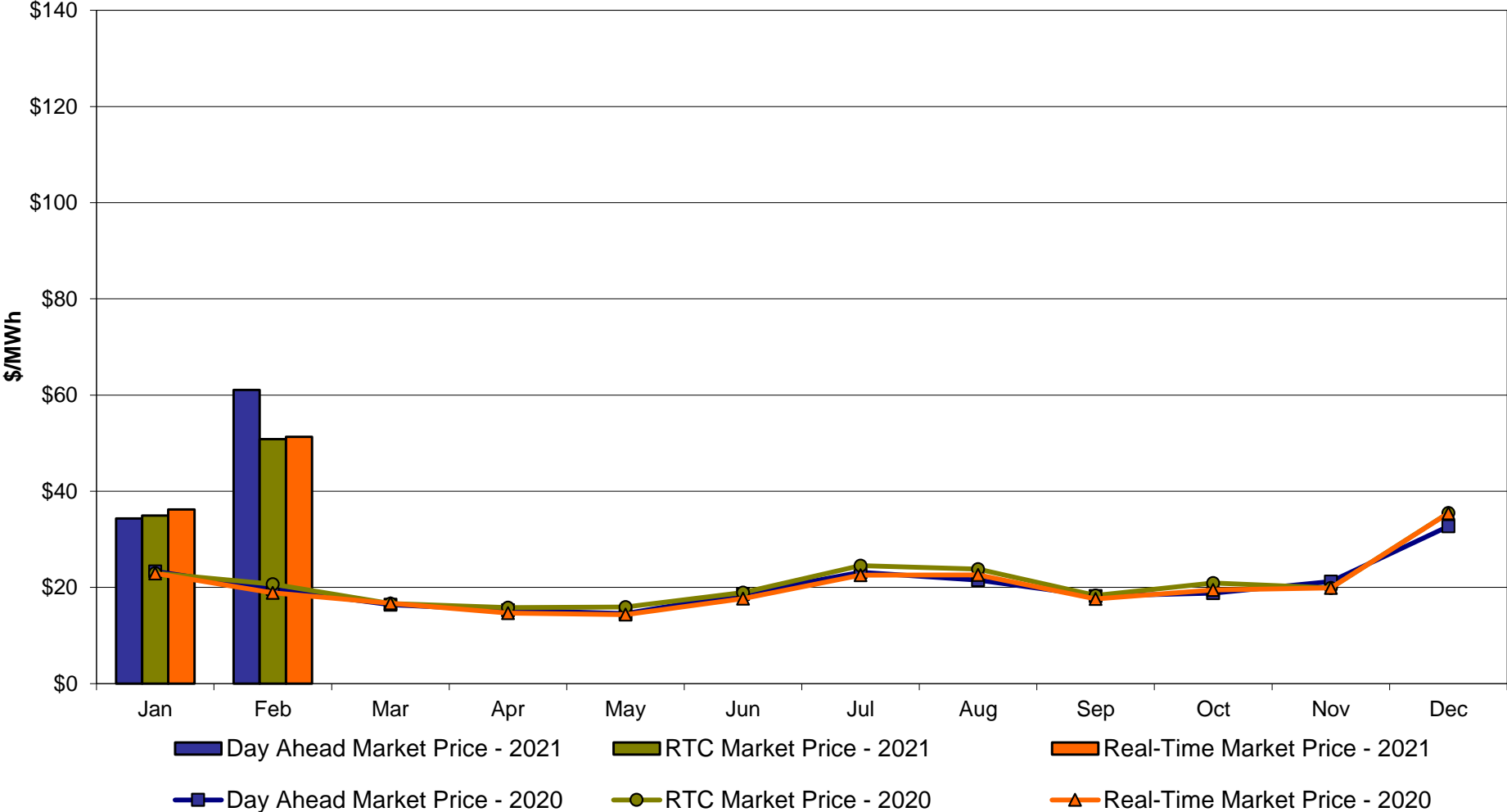
**Central Zone C  
Monthly Average LBMP Prices 2019 - 2020**



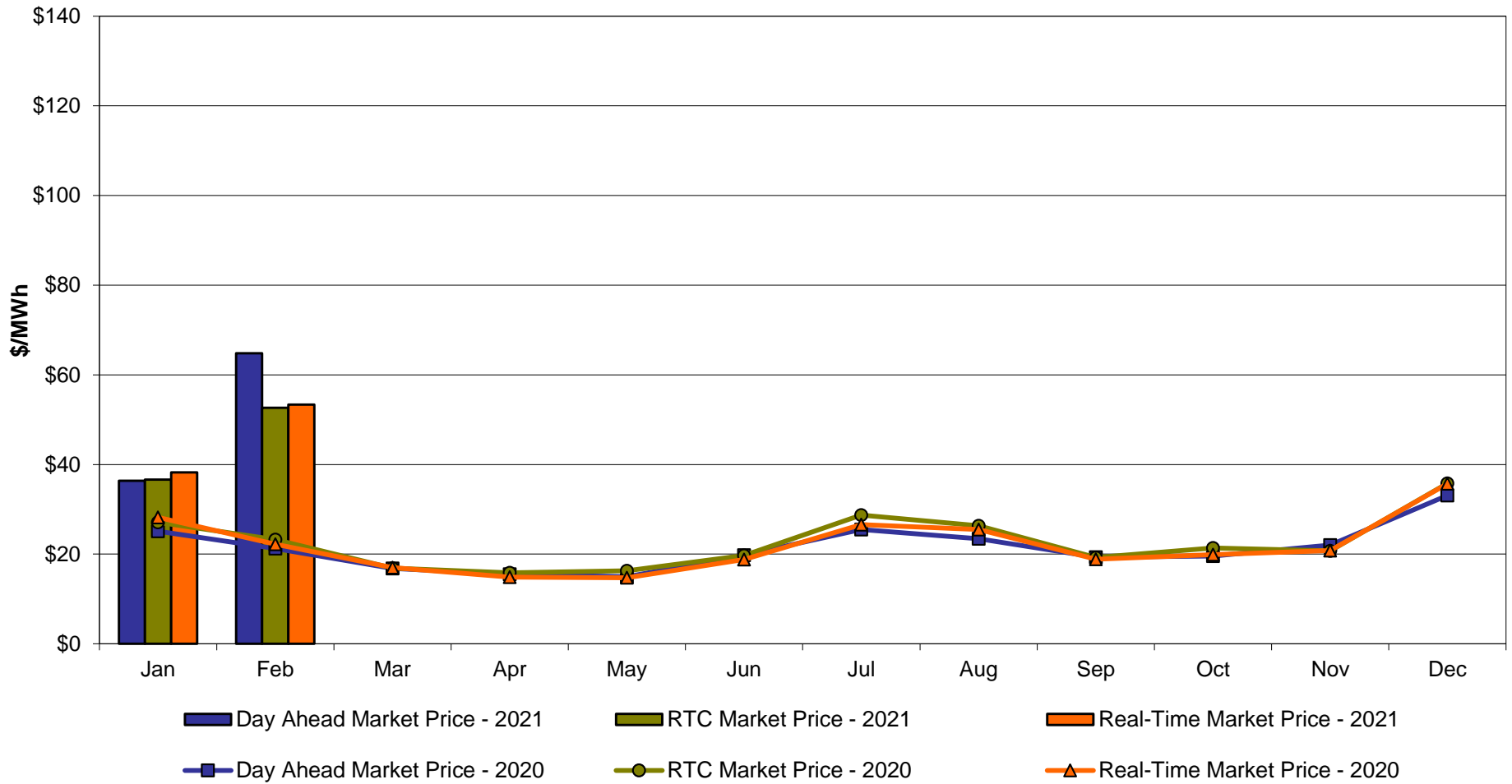
**Capital Zone F  
Monthly Average LBMP Prices 2020 - 2021**



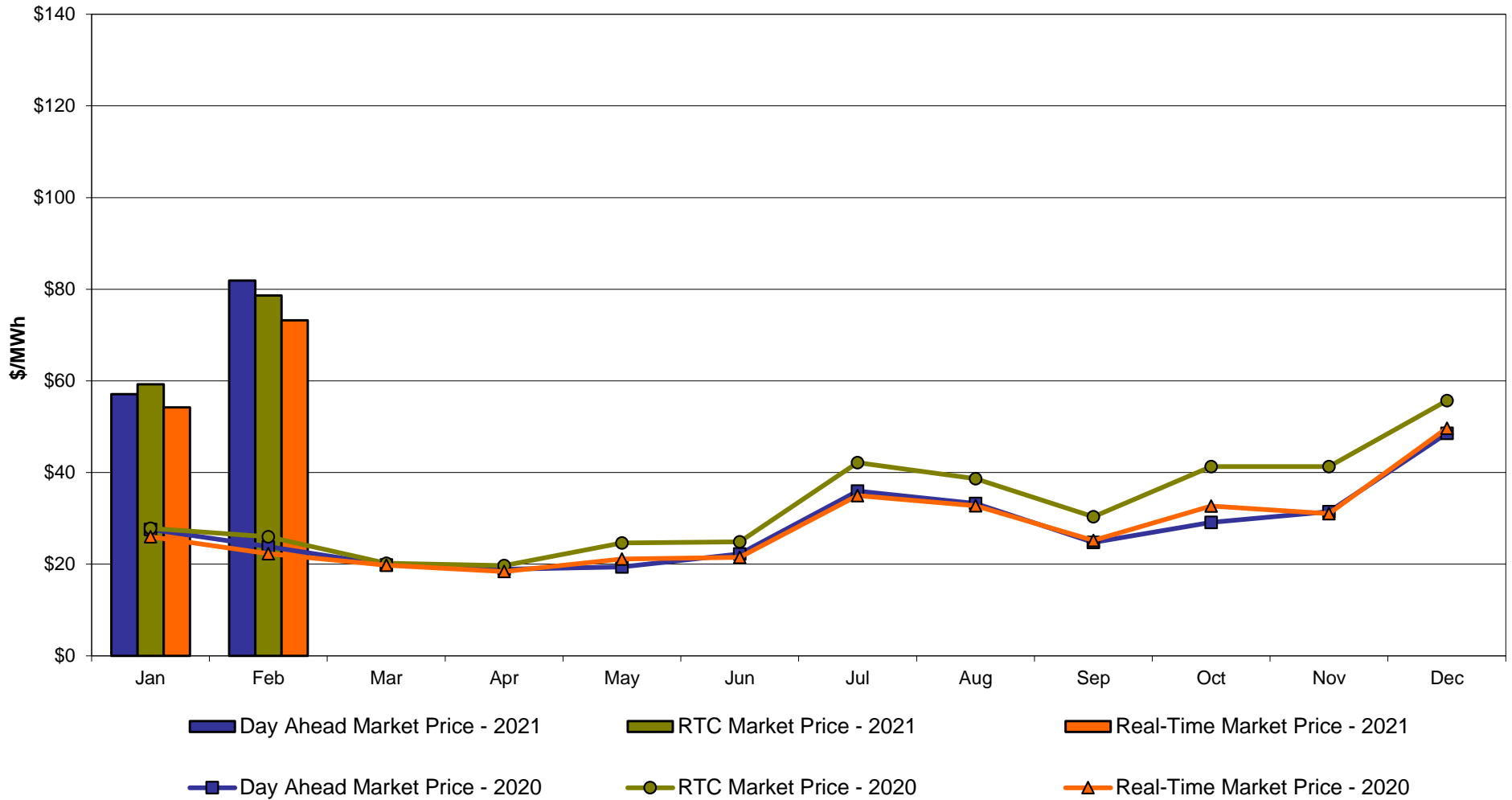
### Hudson Valley Zone G Monthly Average LBMP Prices 2019 - 2020



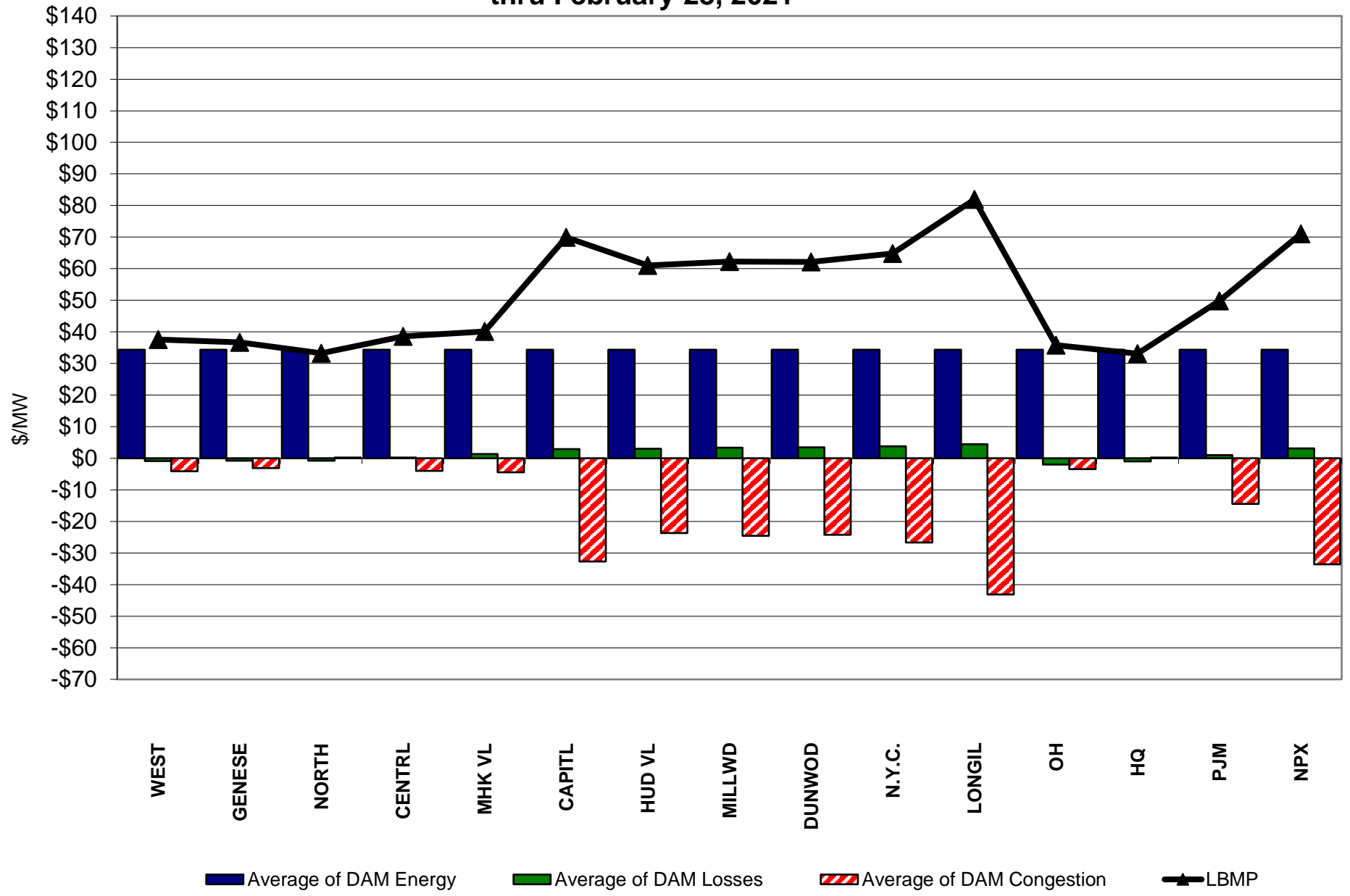
## NYC Zone J Monthly Average LBMP Prices 2020 - 2021



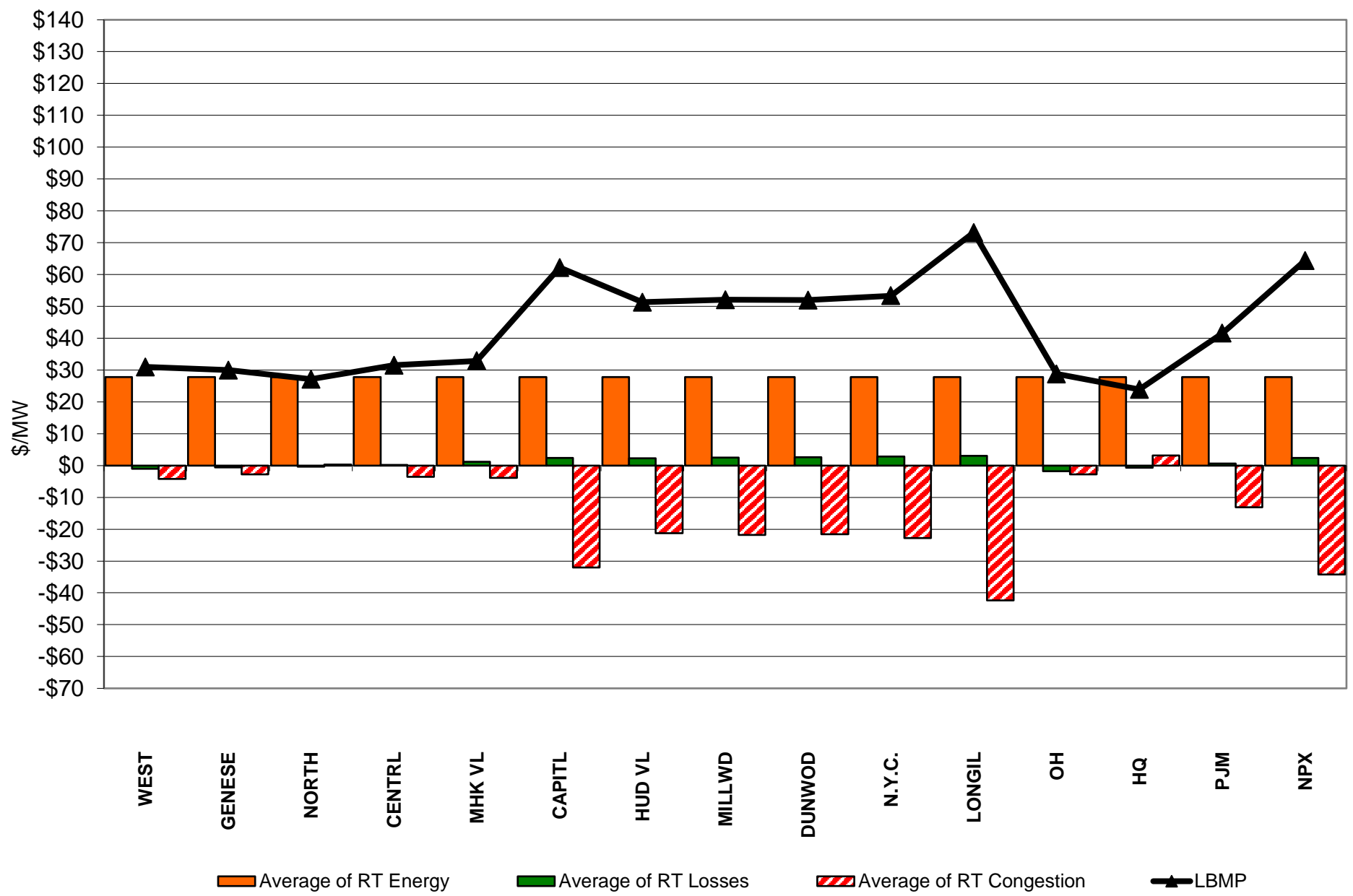
## Long Island Zone K Monthly Average LBMP Prices 2019 - 2020



**DAM Zonal Unweighted Monthly Average LBMP Components  
thru February 28, 2021**



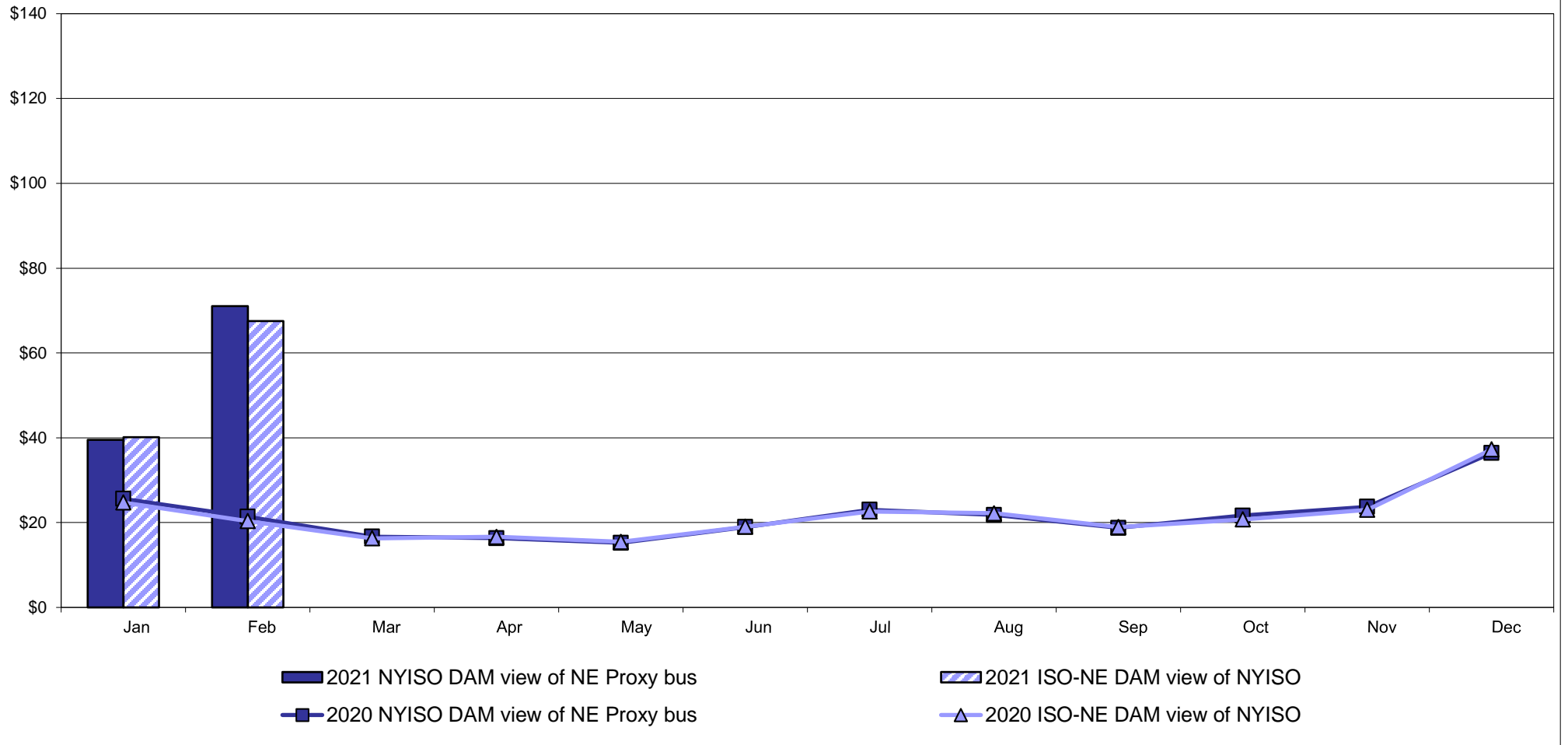
**RT Zonal Unweighted Monthly Average LBMP Components  
thru February 28, 2021**



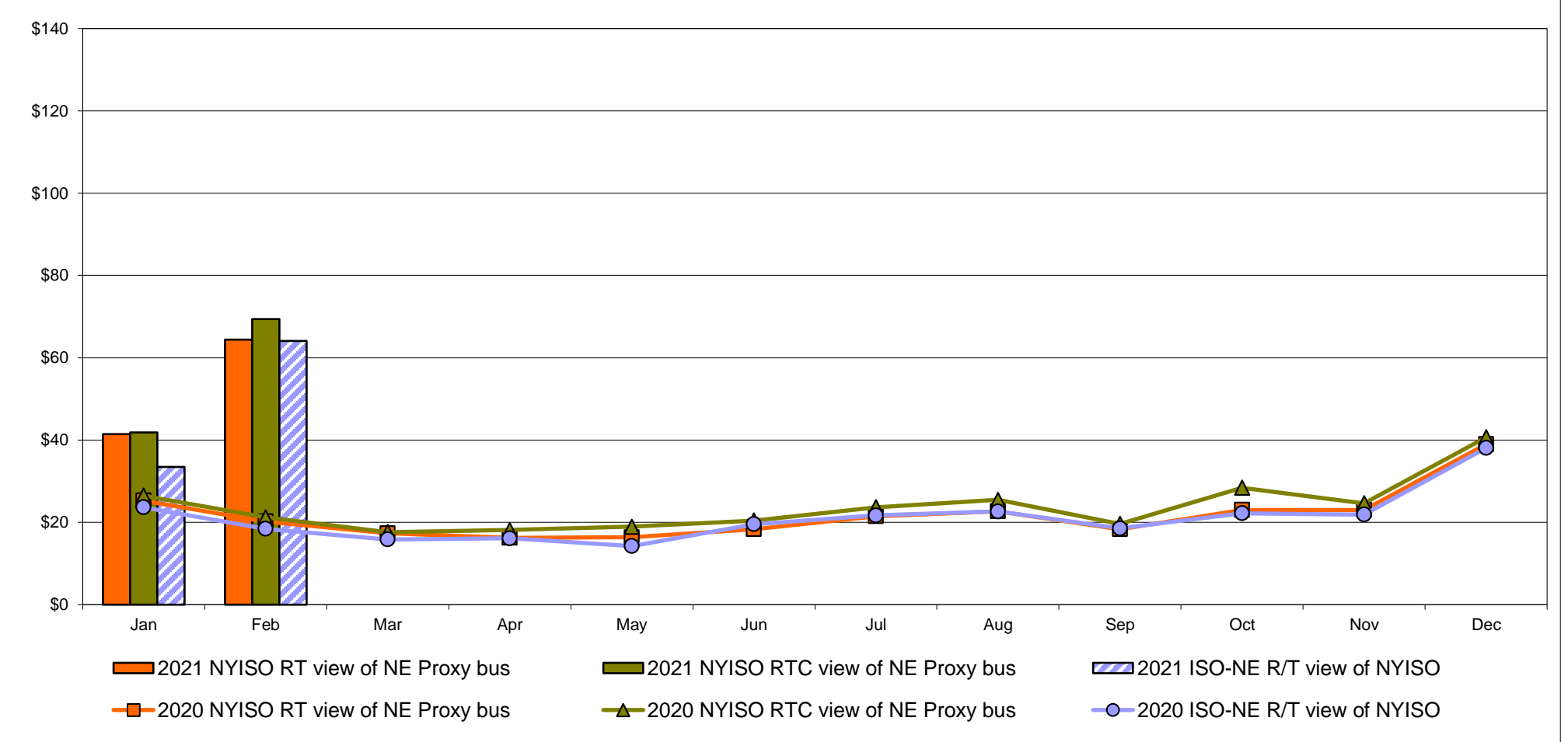


# External Comparison ISO-New England

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

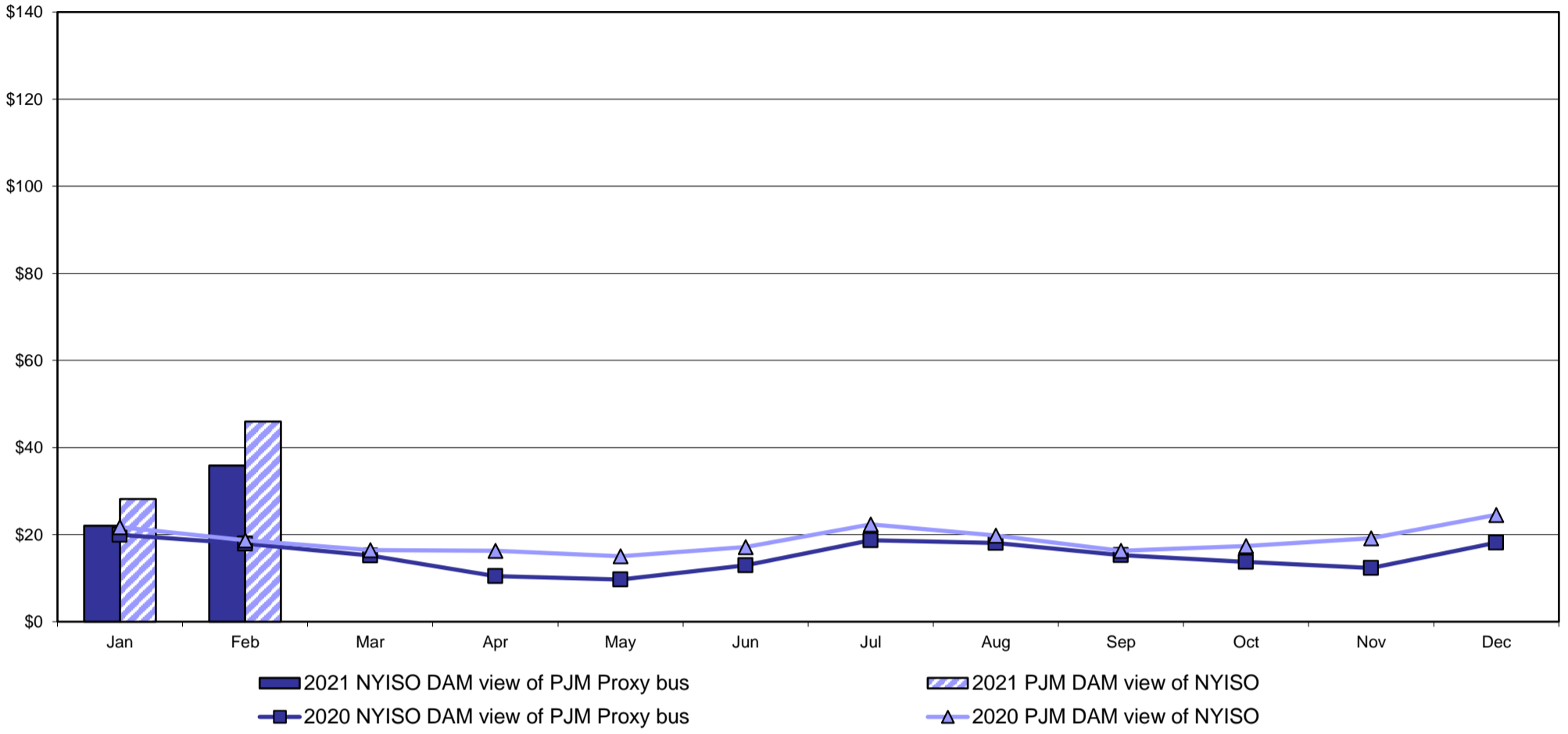


### Real Time Market External Zone Comparison: ISO-NE (\$/MWh)

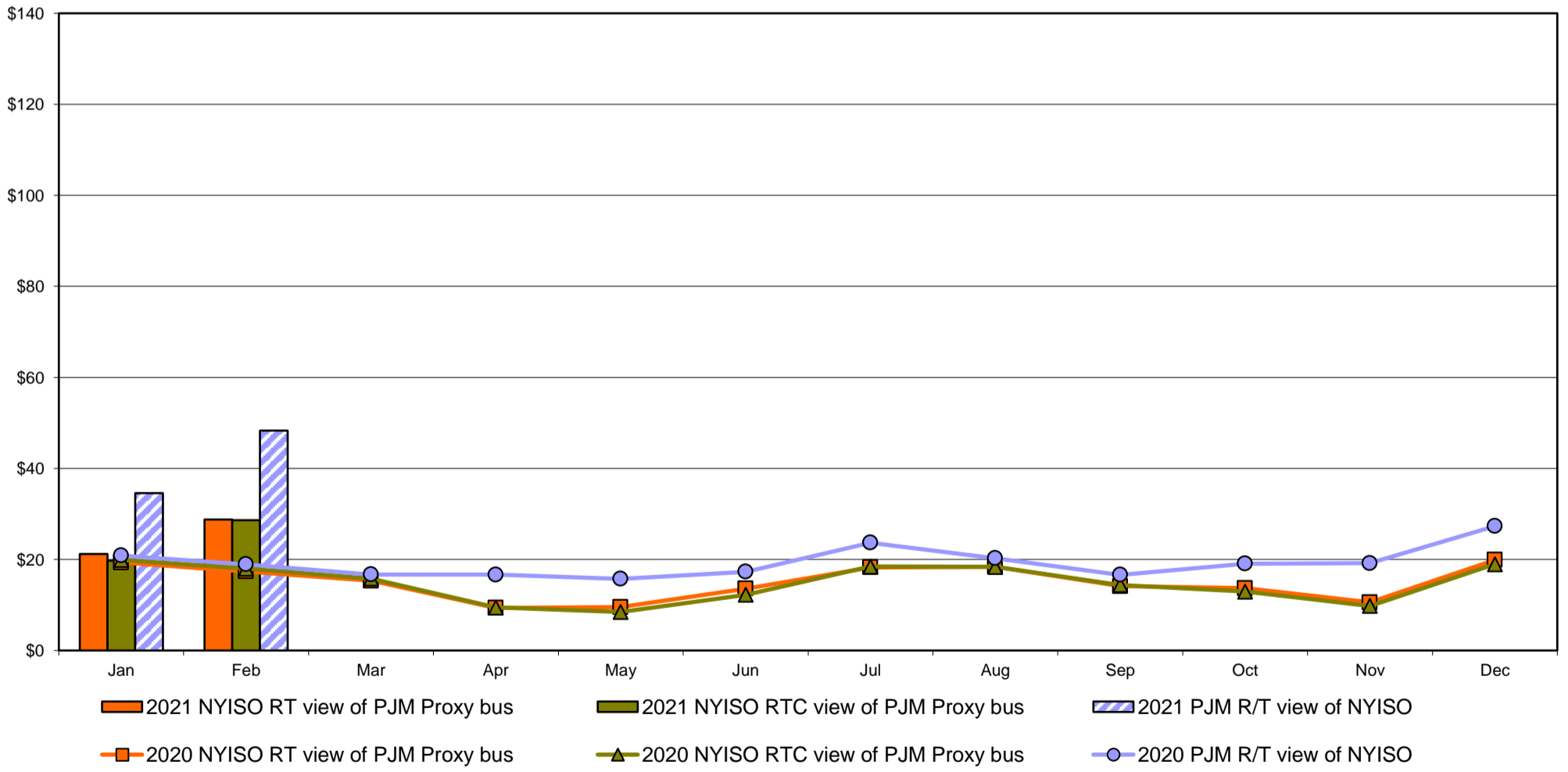


# External Comparison PJM

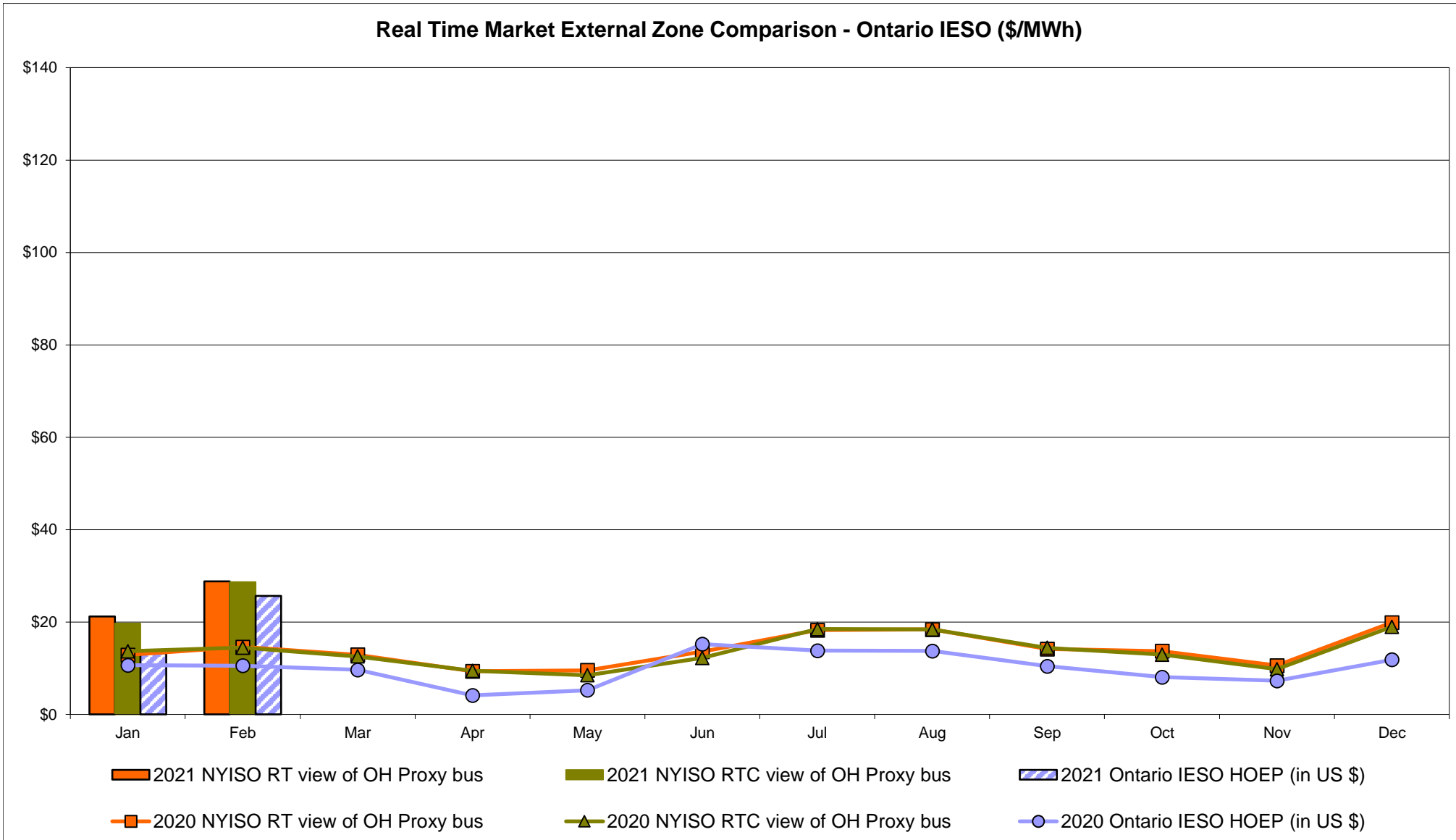
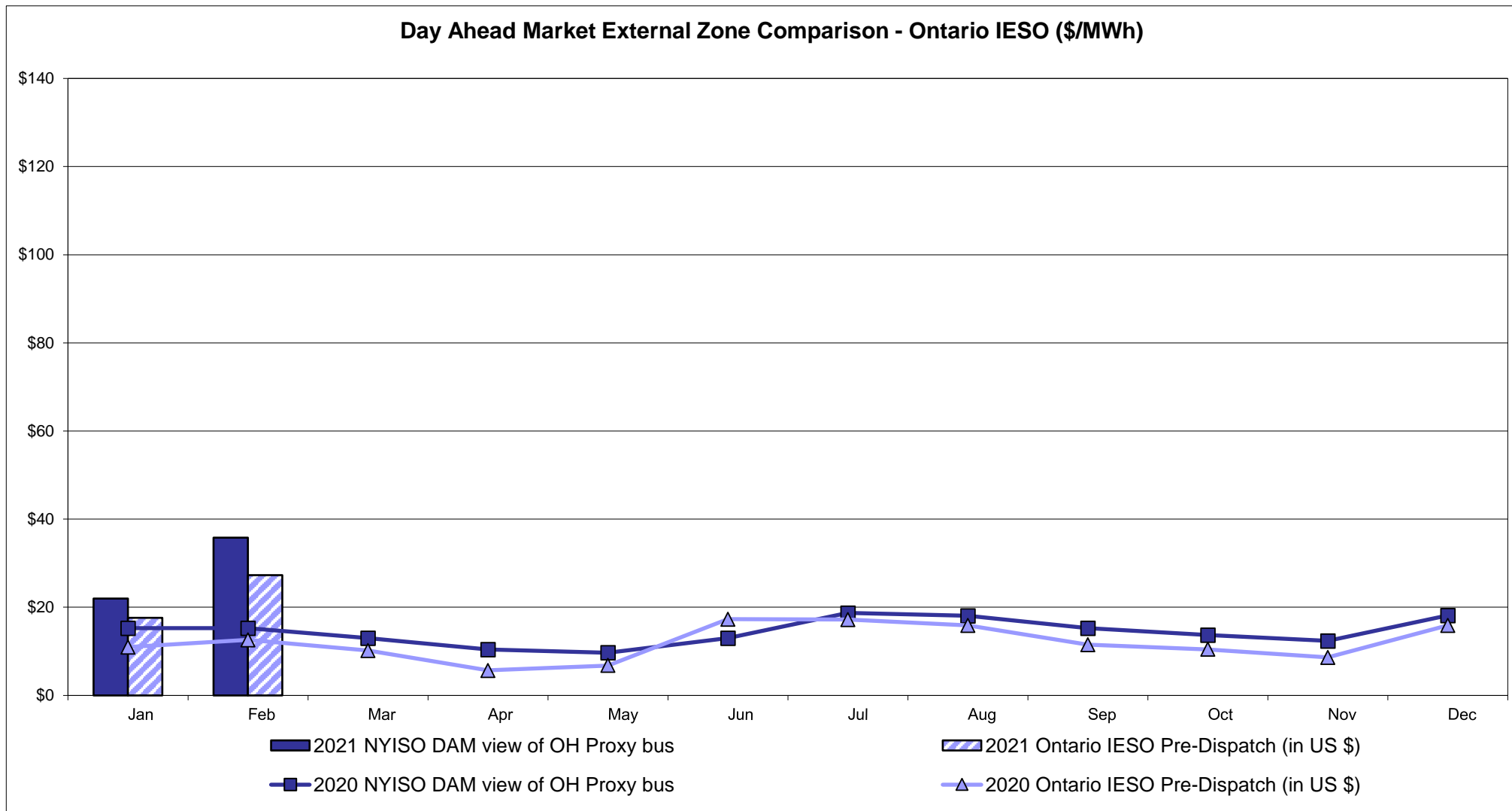
## Day Ahead Market External Zone Comparison - PJM (\$/MWh)



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

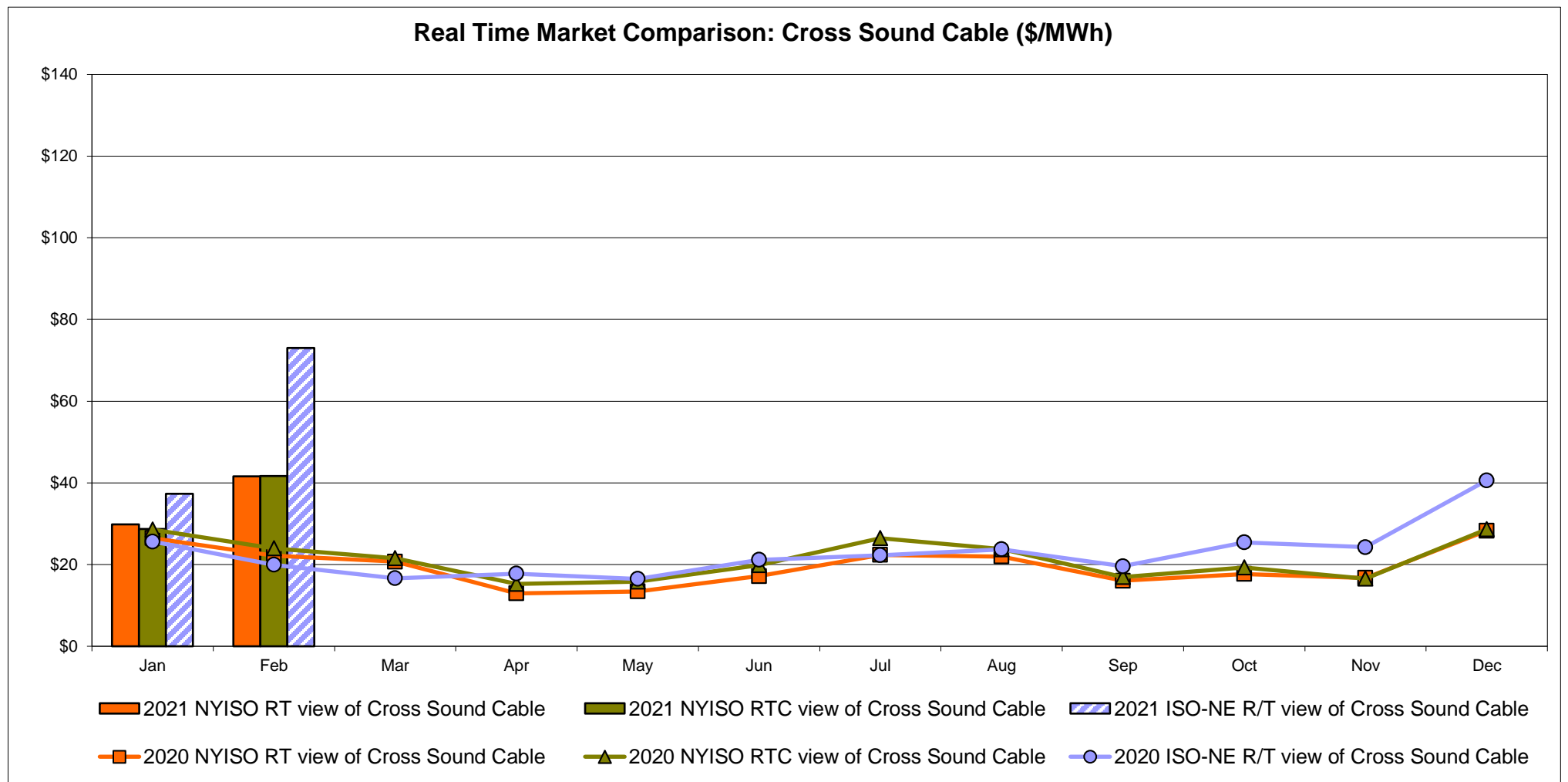
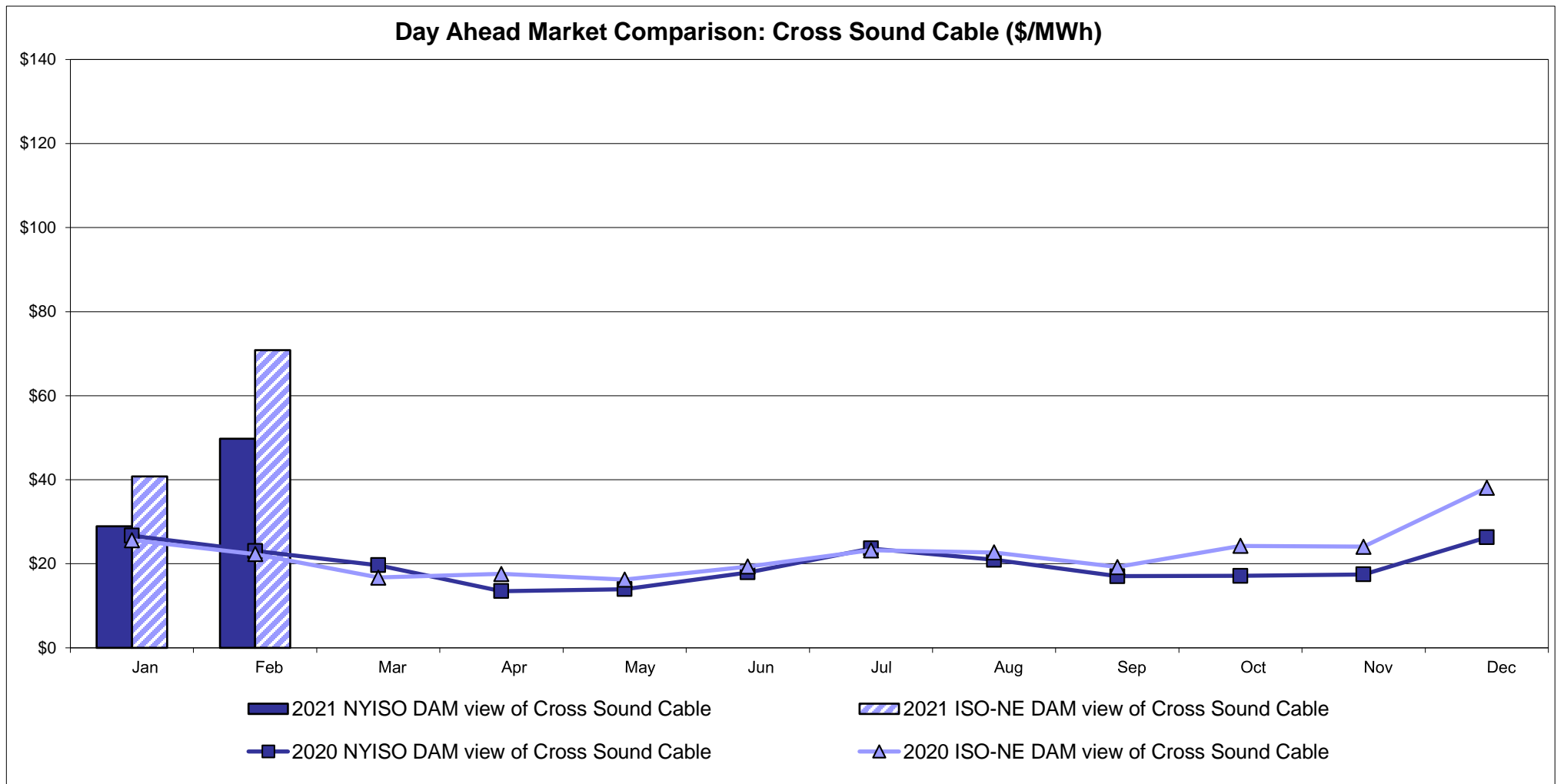


# External Comparison Ontario IESO



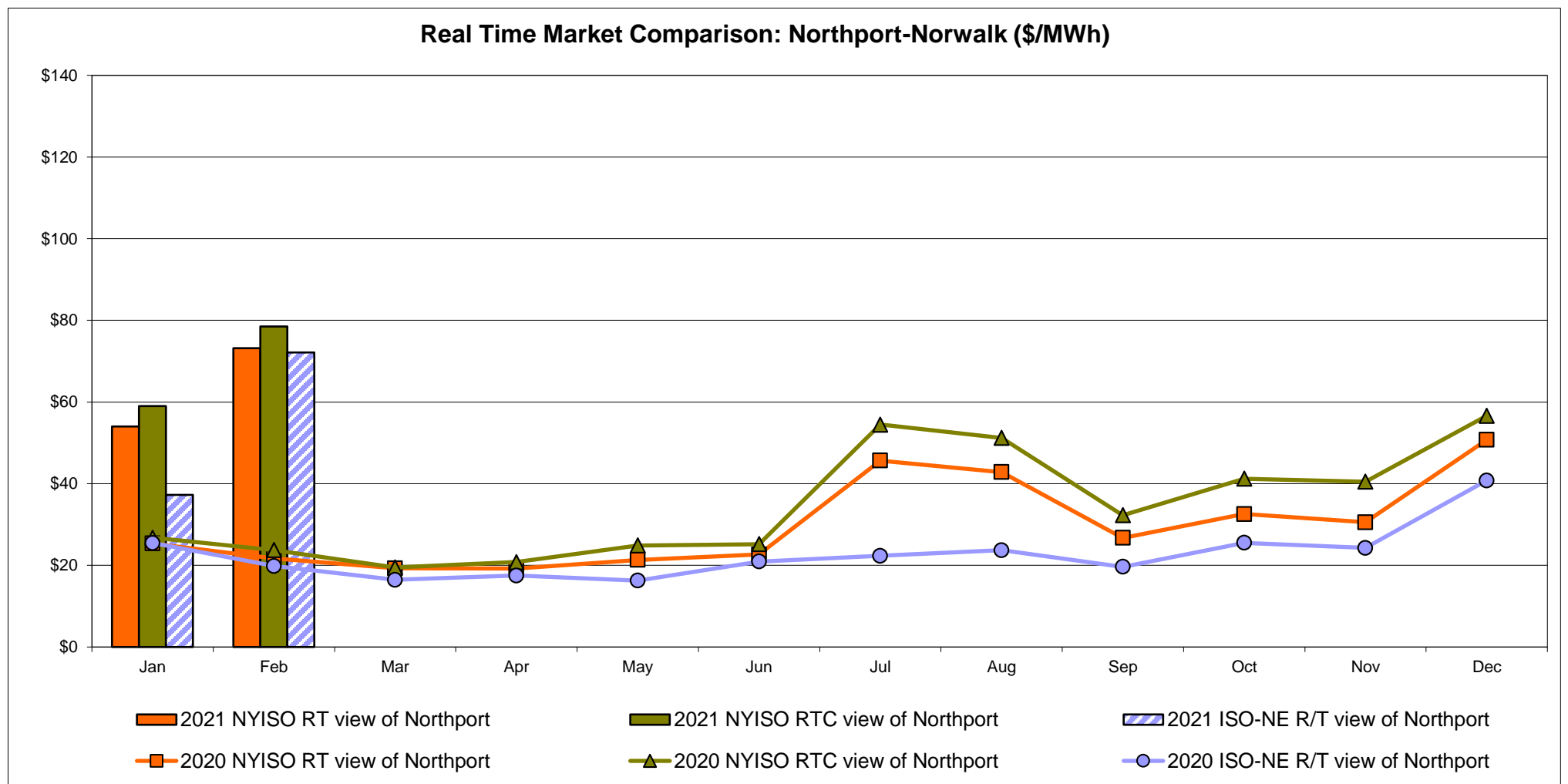
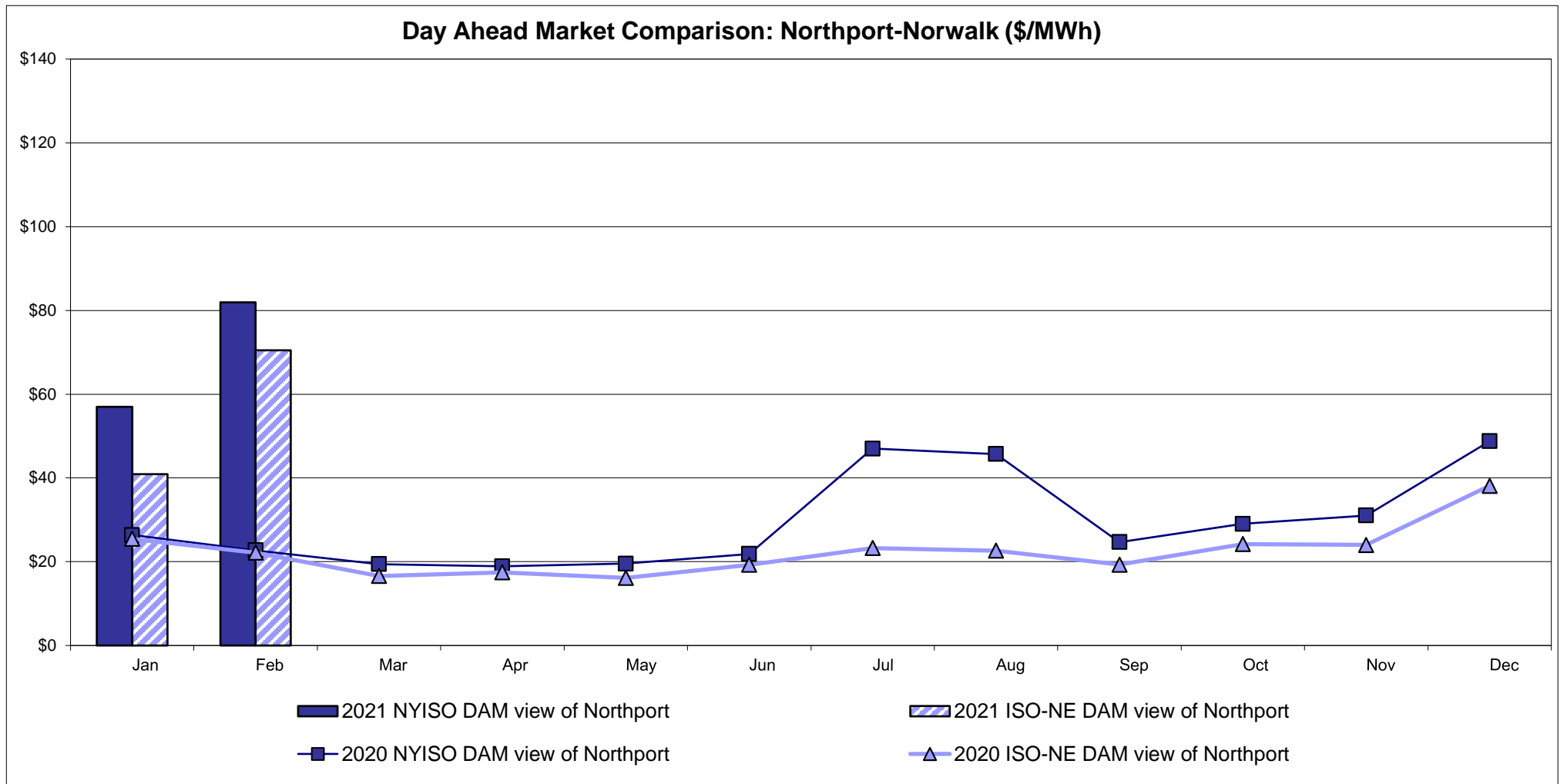
Notes: Exchange factor used for February 2021 was 0.787649653434152 to US  
 HOEP: Hourly Ontario Energy Price  
 Pre-Dispatch: Projected Energy Price

# 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.

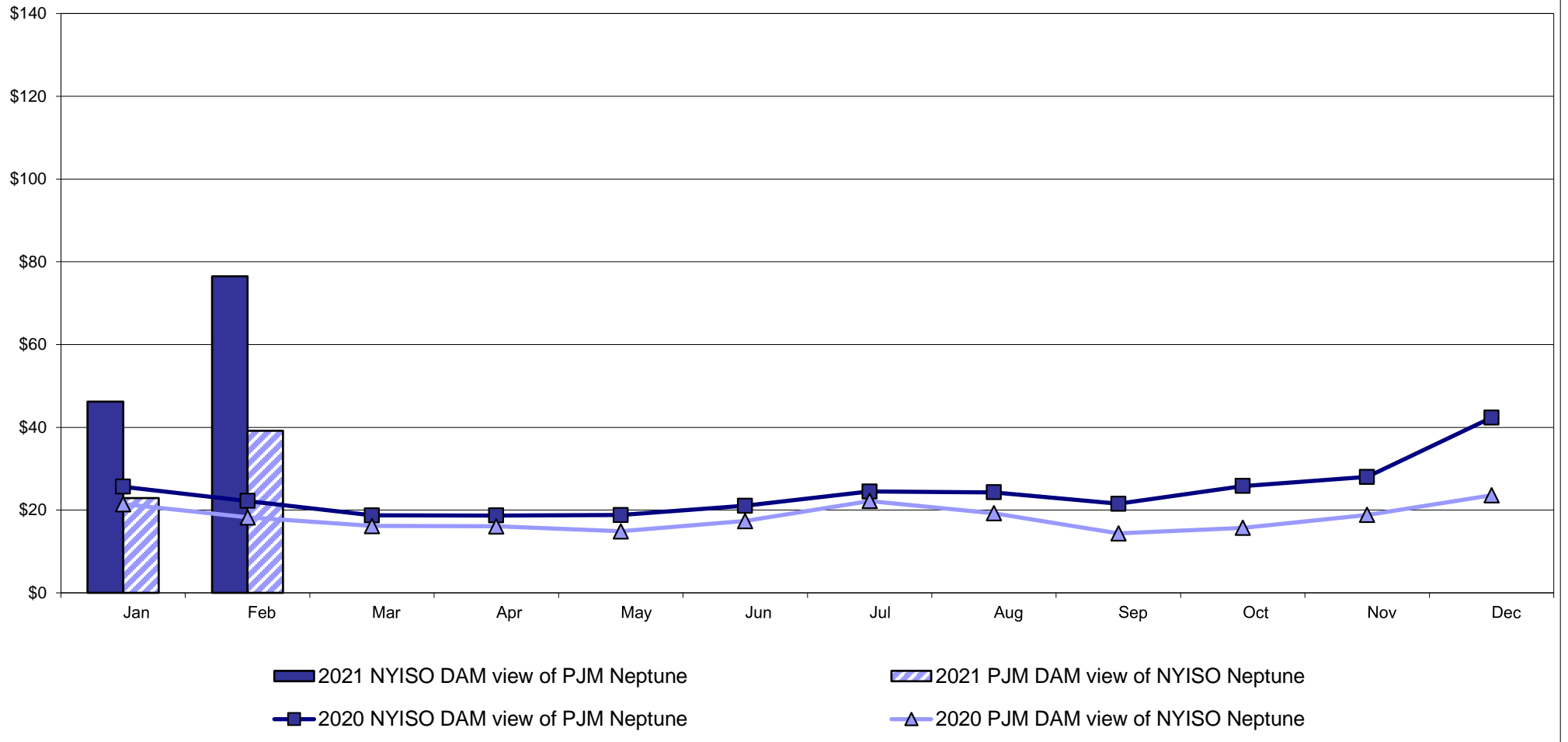
# External Controllable Line: Northport - Norwalk (New England)



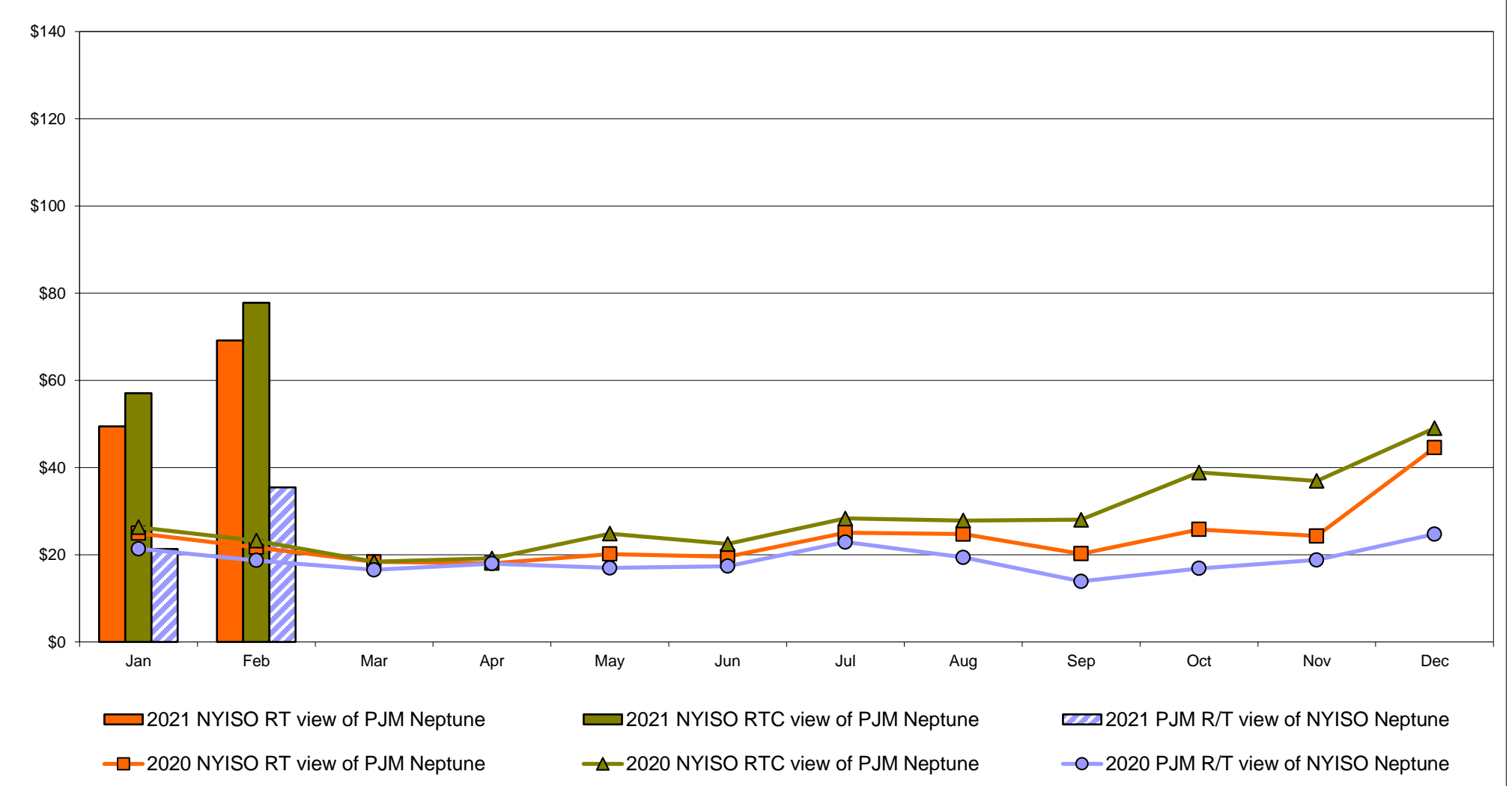
Note:  
 ISO-NE Forecast is an advisory posting @ 18:00 day before.  
 The DAM and R/T prices at the Northport 138 interface are used for ISO-NE.  
 The DAM and R/T prices at the 1385 interface are used for NYISO.

# External Controllable Line: Neptune (PJM)

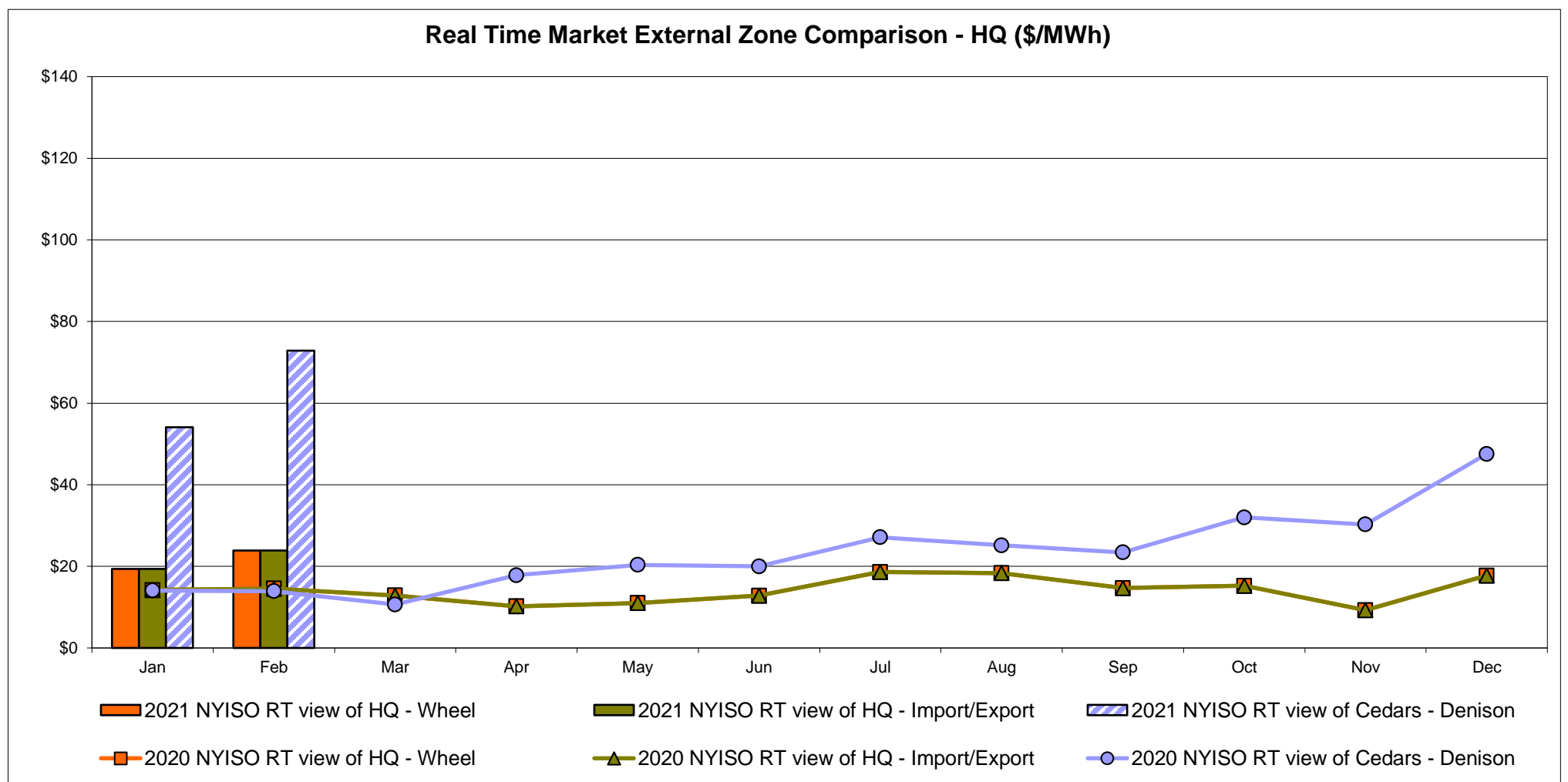
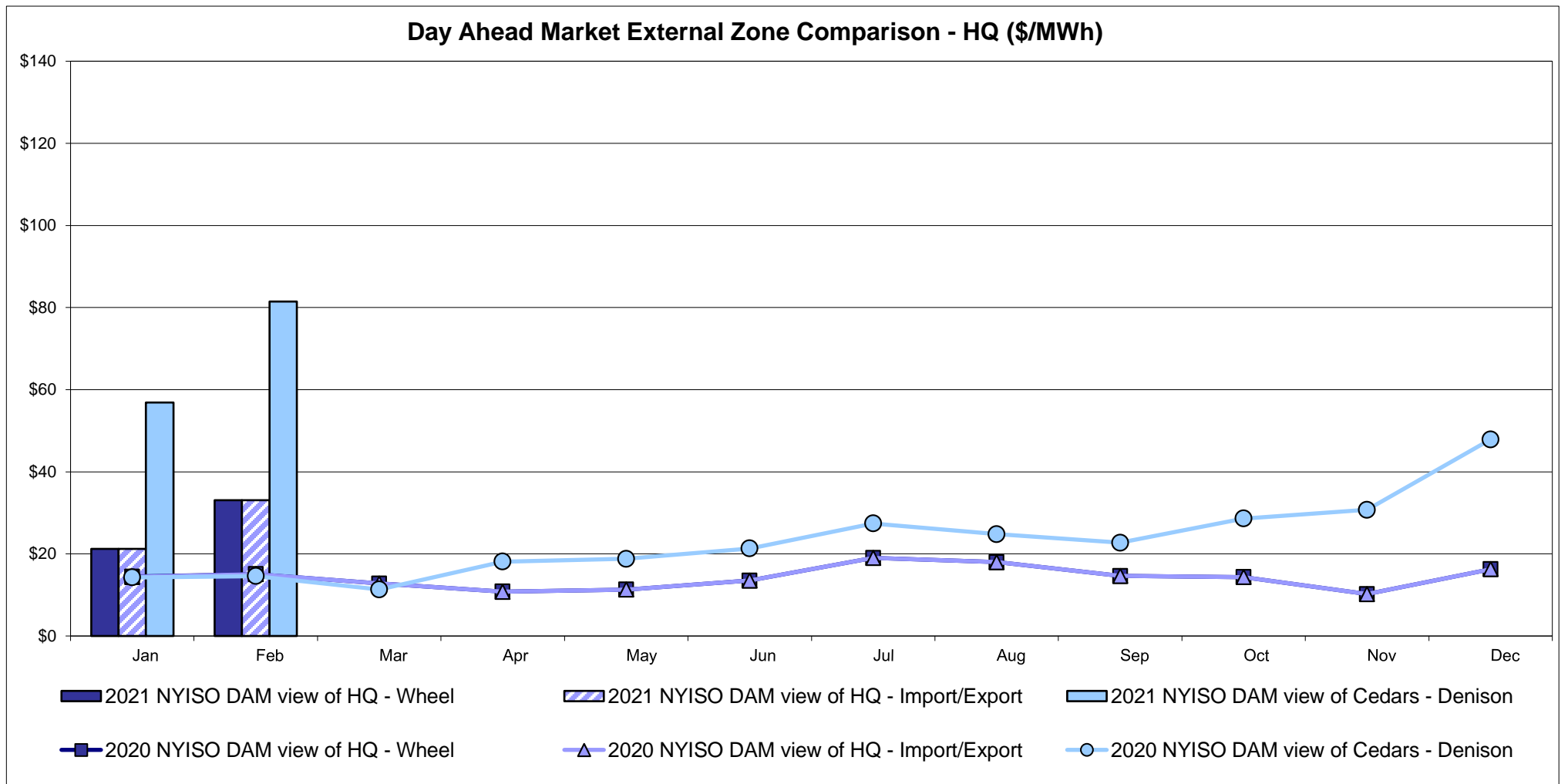
### Day Ahead Market Comparison: Neptune (\$/MWh)



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

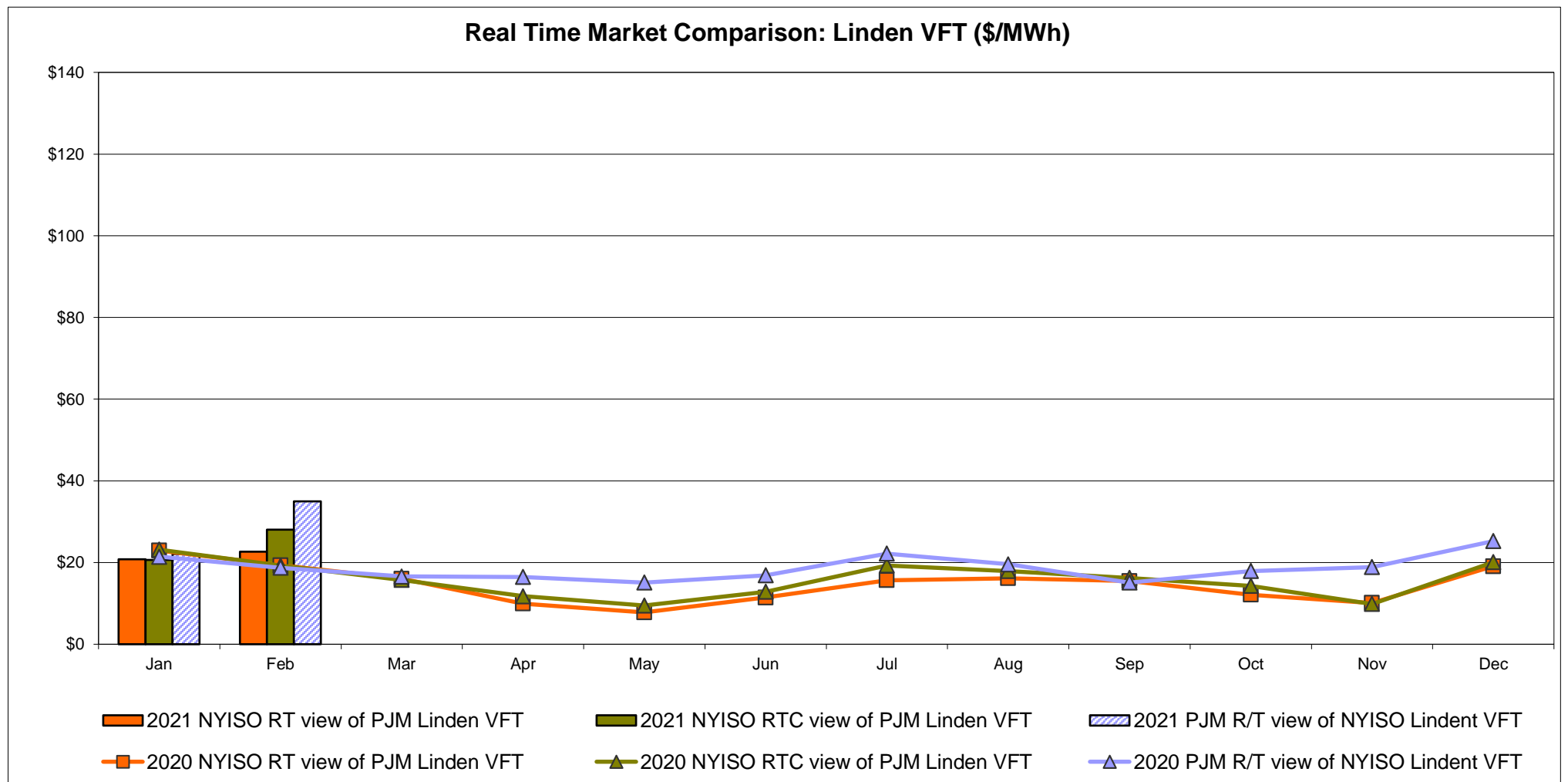
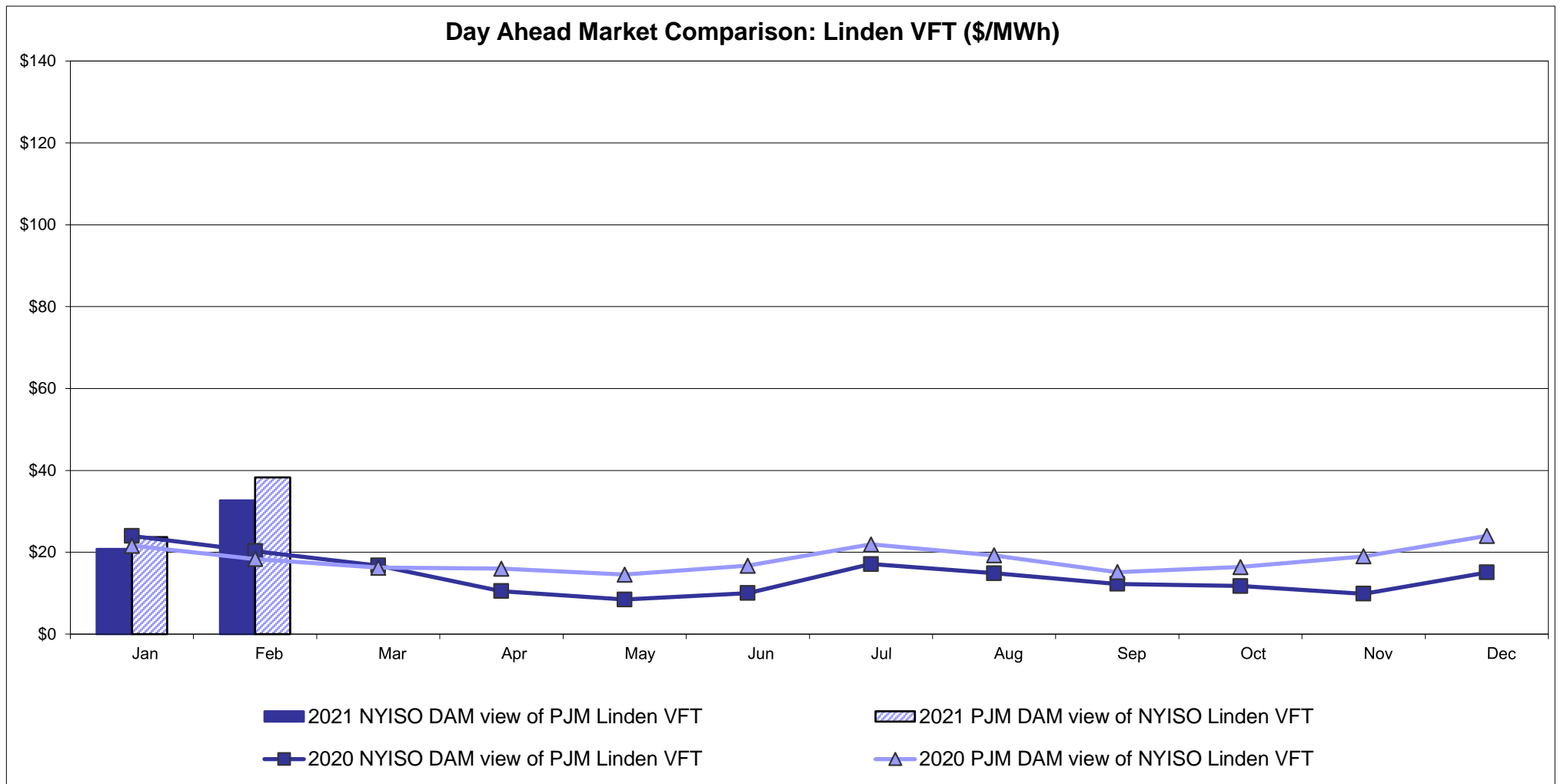


# External Comparison Hydro-Quebec



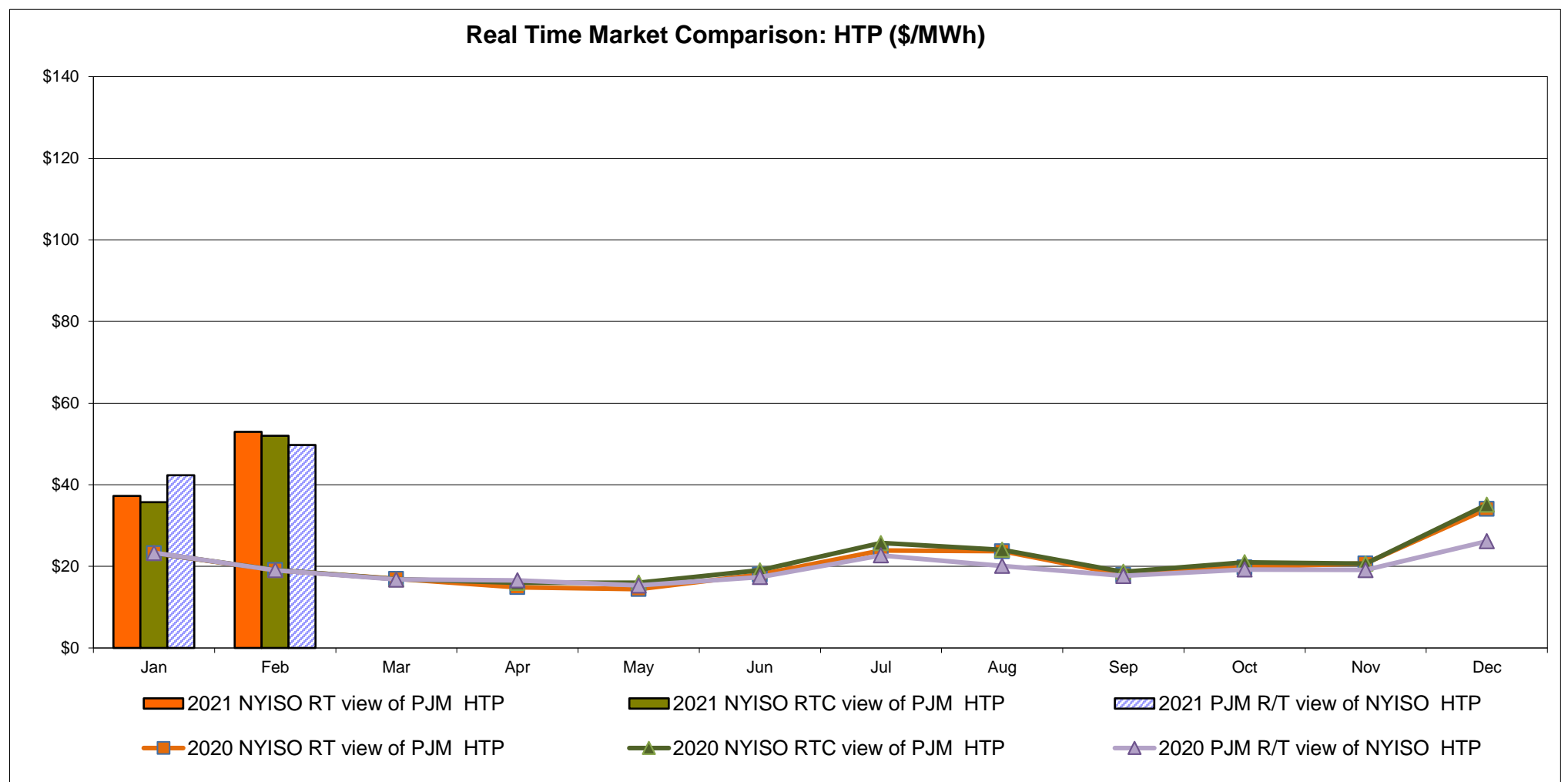
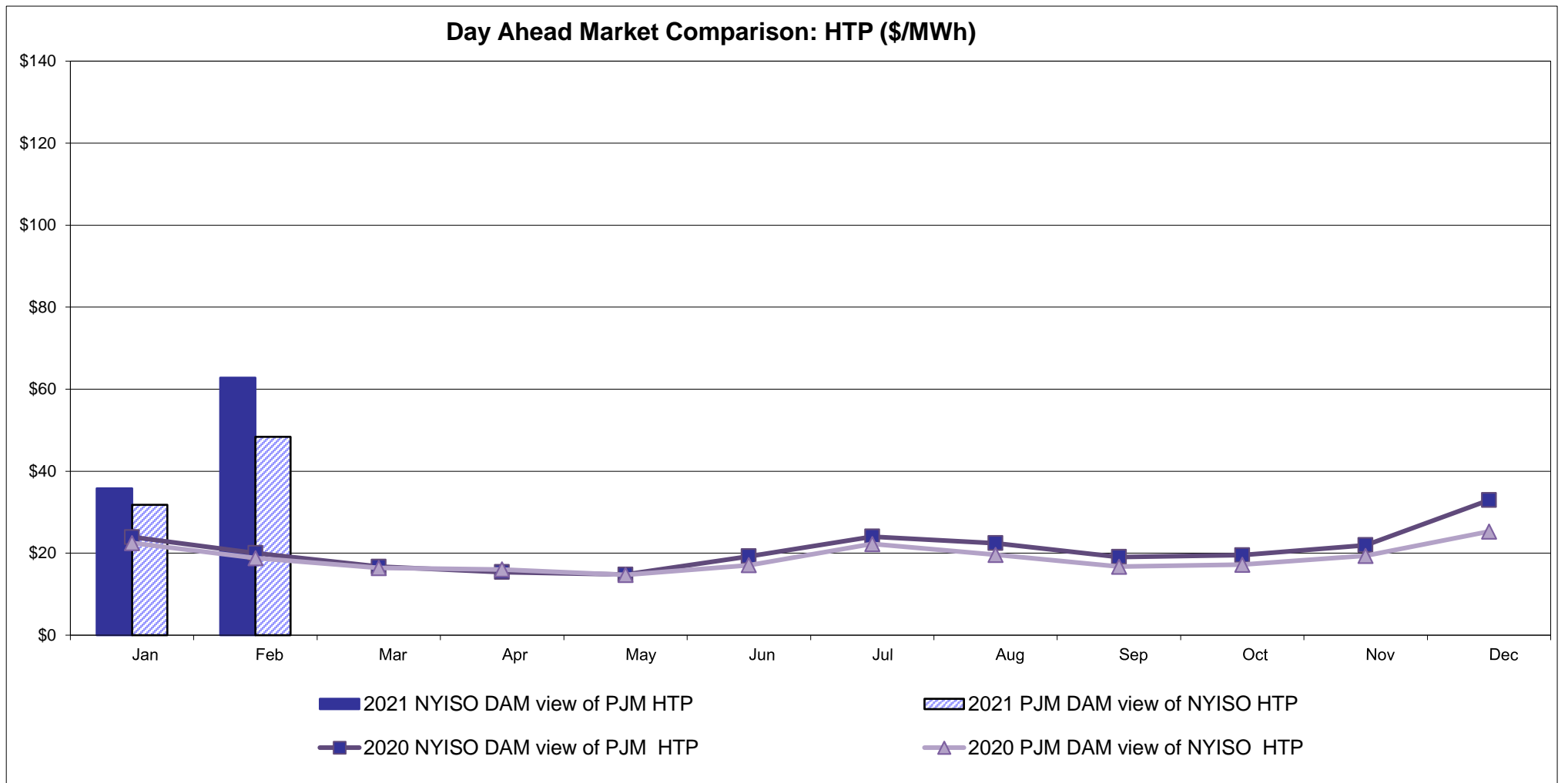
Note:  
Hydro-Quebec Prices are unavailable.

# External Controllable Line: Linden VFT (PJM)





## External Controllable Line: Hudson (PJM)

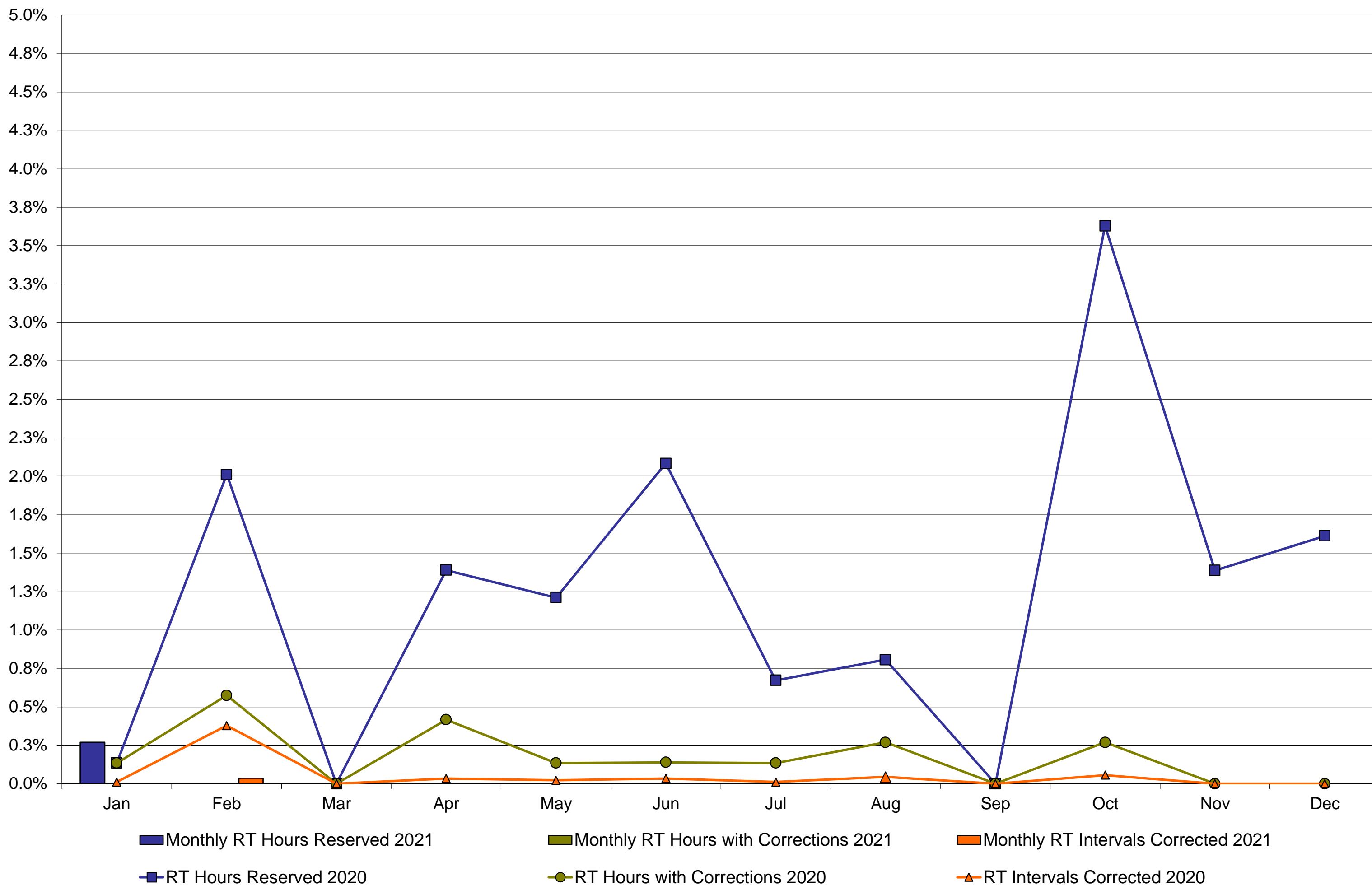


**NYISO Real Time Price Correction Statistics**

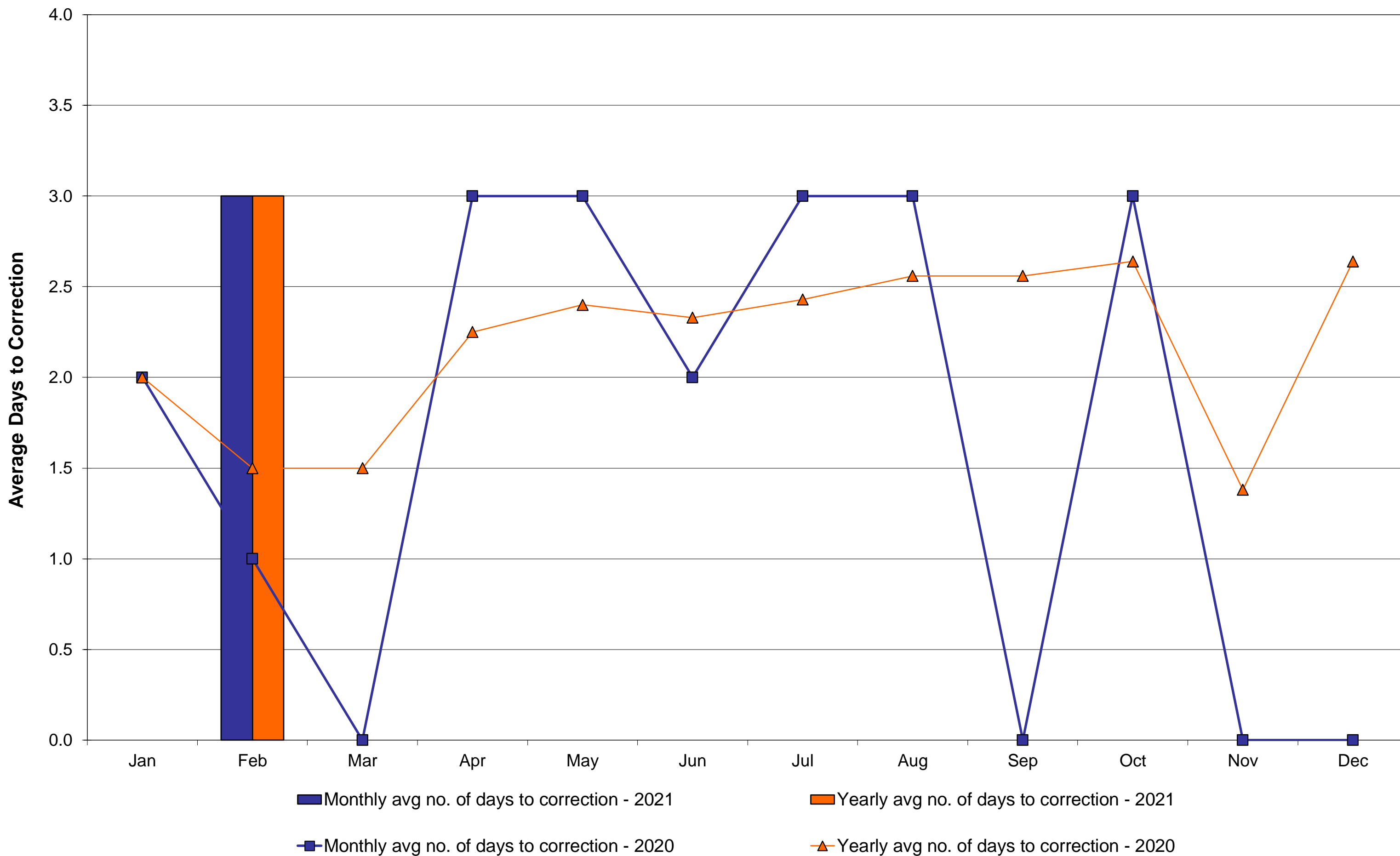
<b>2021</b>		<u>January</u>	<u>February</u>	<u>March</u>	<u>April</u>	<u>May</u>	<u>June</u>	<u>July</u>	<u>August</u>	<u>September</u>	<u>October</u>	<u>November</u>	<u>December</u>
<b>Hour Corrections</b>													
Number of hours with corrections	in the month	0	1										
Number of hours	in the month	744	672										
% of hours with corrections	in the month	0.00%	0.15%										
% of hours with corrections	year-to-date	0.00%	0.07%										
<b>Interval Corrections</b>													
Number of intervals corrected	in the month	0	3										
Number of intervals	in the month	9,095	8,236										
% of intervals corrected	in the month	0.00%	0.04%										
% of intervals corrected	year-to-date	0.00%	0.02%										
<b>Hours Reserved</b>													
Number of hours reserved	in the month	2	12										
Number of hours	in the month	744	672										
% of hours reserved	in the month	0.27%	1.79%										
% of hours reserved	year-to-date	0.27%	0.99%										
<b>Days to Correction *</b>													
Avg. number of days to correction	in the month	0.00	3.00										
Avg. number of days to correction	year-to-date	0.00	3.00										
<b>Days Without Corrections</b>													
Days without corrections	in the month	31	27										
Days without corrections	year-to-date	31	58										
<b>2020</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	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%
<b>Interval Corrections</b>													
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%
<b>Hours Reserved</b>													
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%
<b>Days to Correction *</b>													
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
<b>Days Without Corrections</b>													
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

### Percentage of Real-Time Corrections

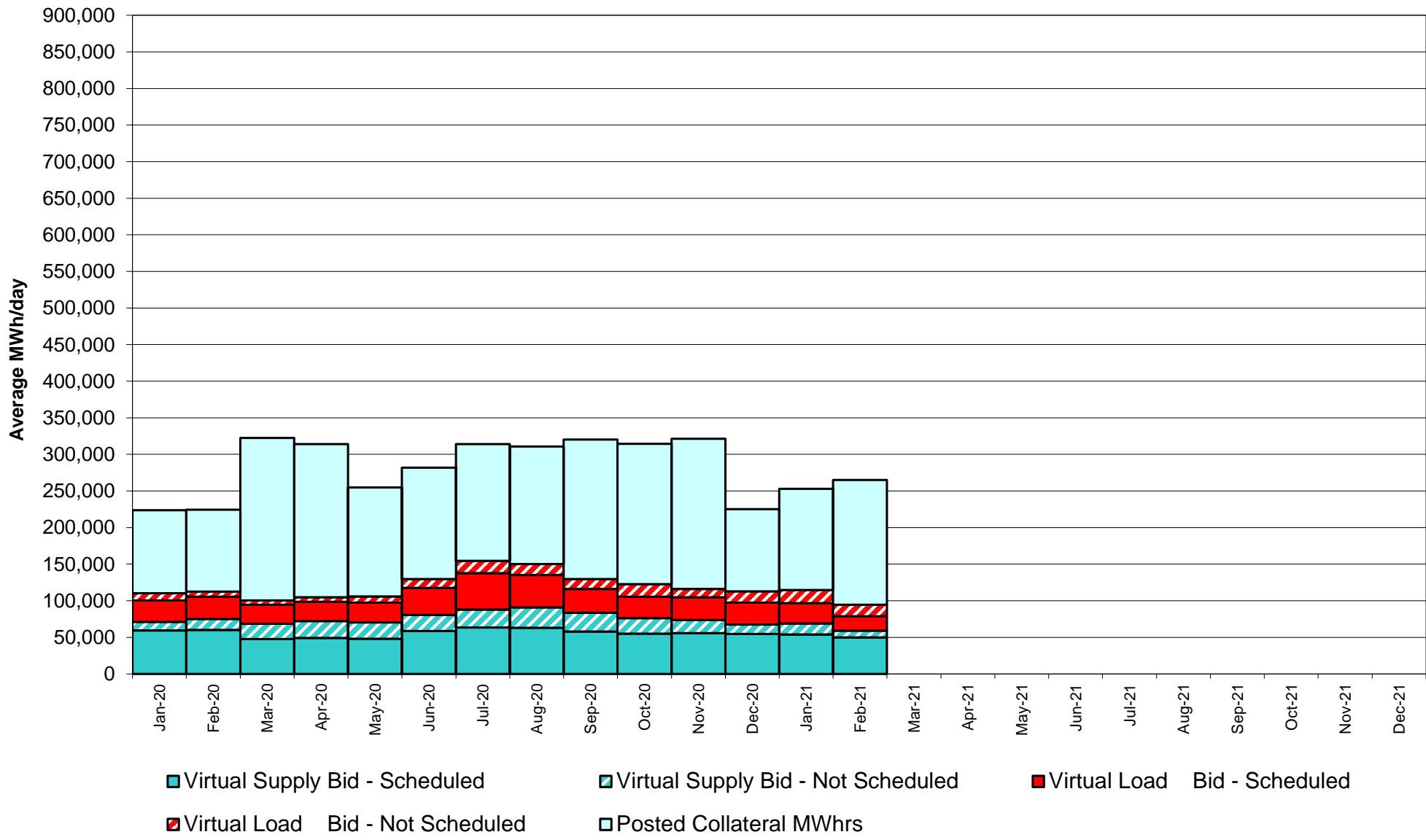


### Annual average time period for making Price Corrections (from reservation date) \*

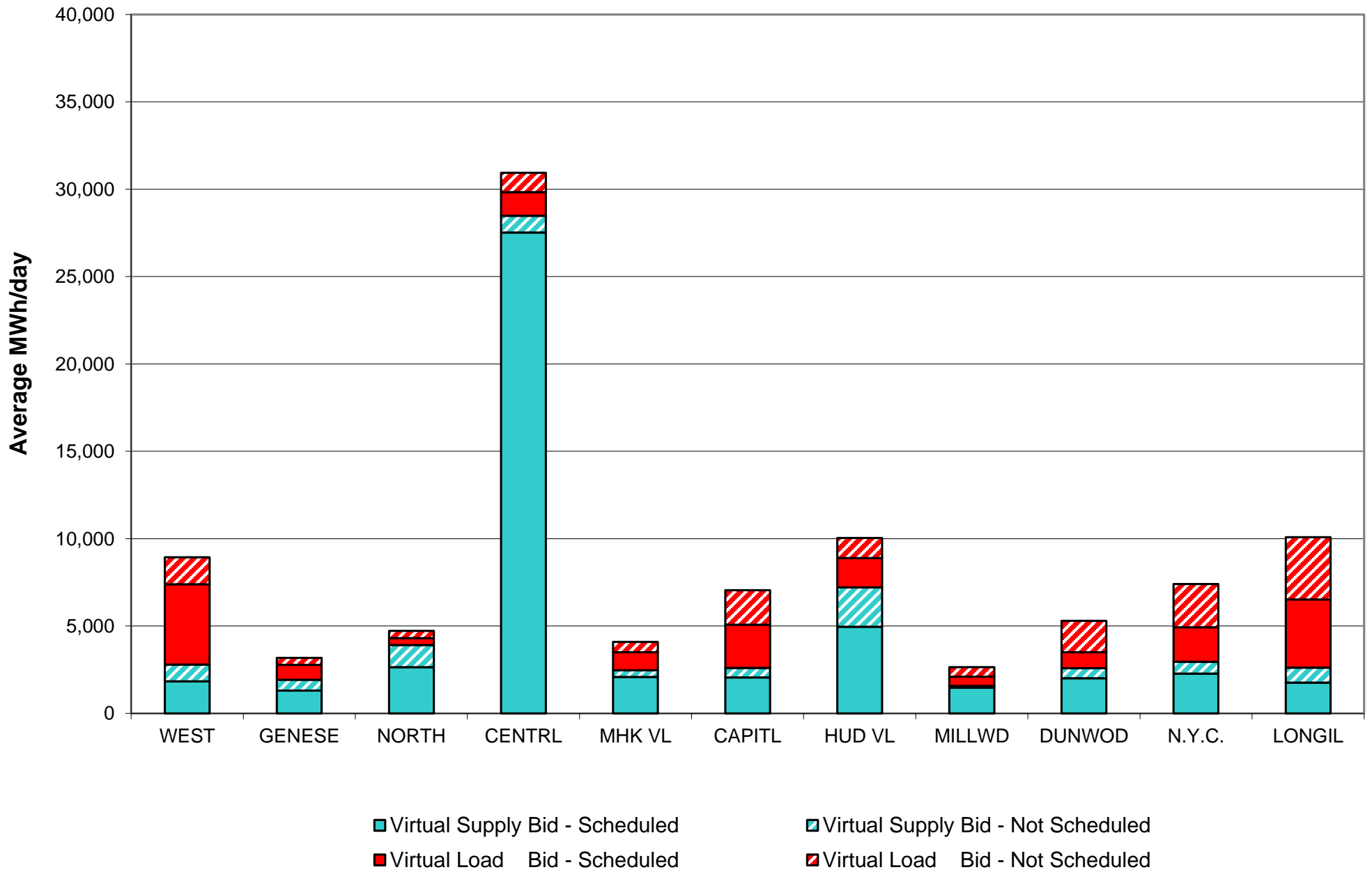


\*Calendar days from reservation date; for June 2018 forward, business days from market date

## NYISO Virtual Trading Average MWh per day



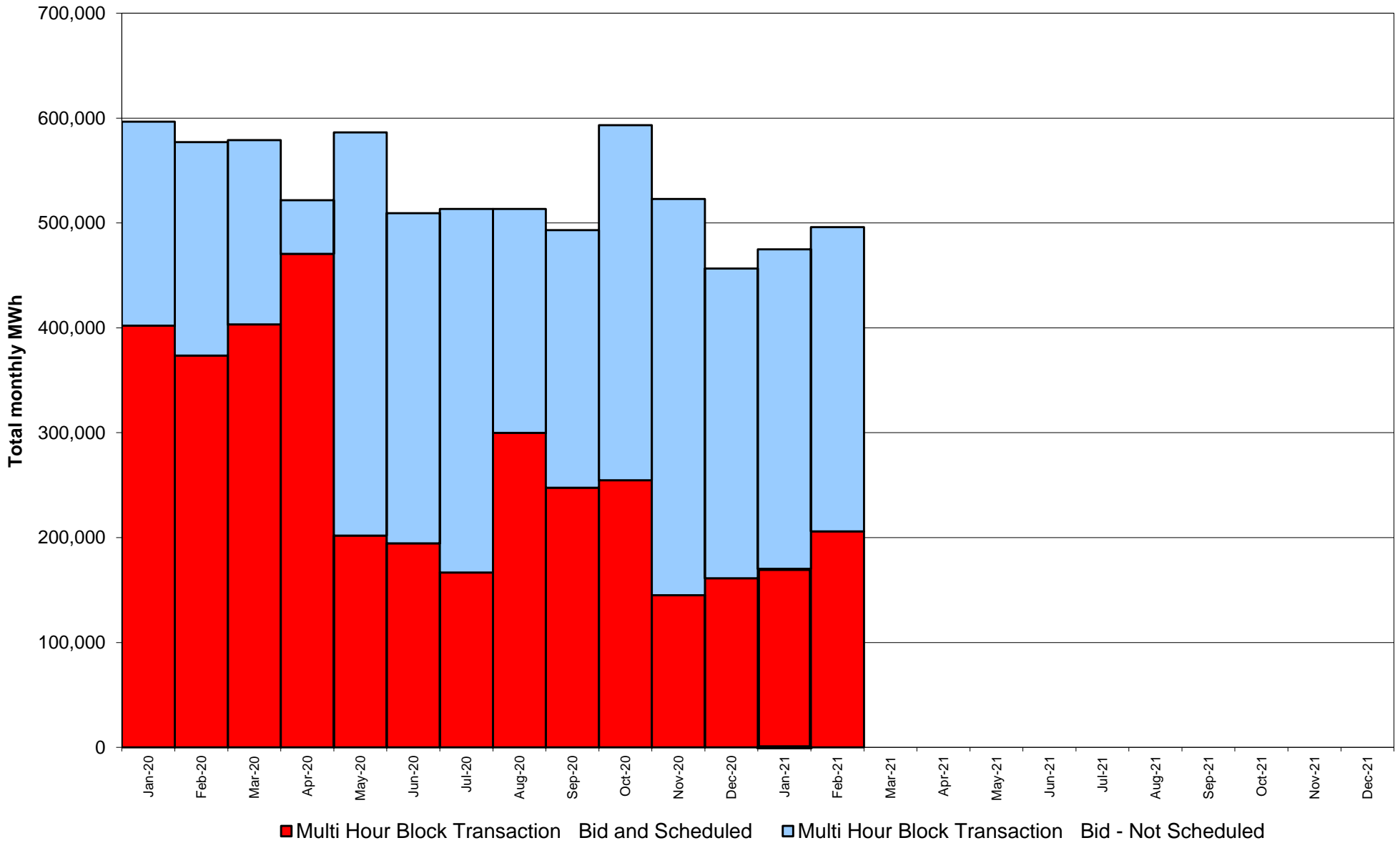
## Virtual Load and Supply Zonal Statistics through February 28, 2021



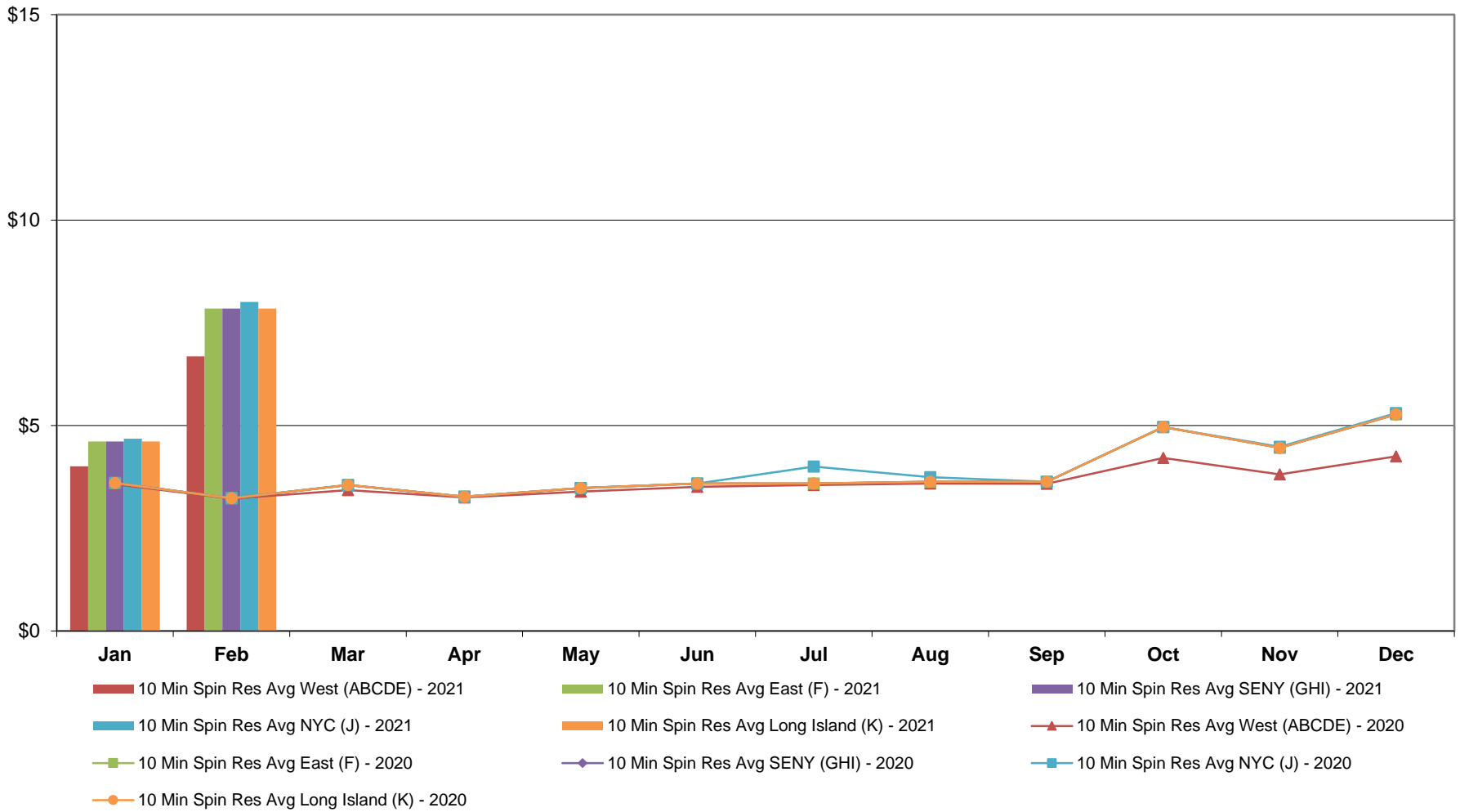
**Virtual Load and Supply Zonal Statistics (Average MWh/day) - 2021**

		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	Scheduled	Not Scheduled	
<b>WEST</b>	Jan-21	6,262	1,726	2,018	1,076	<b>MHK VL</b>	Jan-21	1,537	548	1,967	531	<b>DUNWOD</b>	Jan-21	1,881	2,339	2,000	475	
	Feb-21	4,588	1,544	1,842	959		Feb-21	1,031	584	2,081	392		Feb-21	912	1,806	2,015	568	
	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					
<b>GENESE</b>	Jan-21	1,117	329	1,085	853	<b>CAPITL</b>	Jan-21	3,046	1,995	2,207	792	<b>N.Y.C.</b>	Jan-21	3,486	2,580	2,503	679	
	Feb-21	857	390	1,310	617		Feb-21	2,483	1,967	2,065	535		Feb-21	1,983	2,475	2,275	678	
	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					
<b>NORTH</b>	Jan-21	830	498	3,280	1,220	<b>HUD VL</b>	Jan-21	1,666	1,215	5,917	7,429	<b>LONGIL</b>	Jan-21	4,341	4,976	3,261	686	
	Feb-21	405	410	2,654	1,258		Feb-21	1,685	1,148	4,967	2,247		Feb-21	3,899	3,560	1,758	862	
	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					
<b>CENTRL</b>	Jan-21	2,124	938	28,034	1,094	<b>MILLWD</b>	Jan-21	1,368	672	1,820	139	<b>NYISO</b>	Jan-21	27,659	17,816	54,093	14,973	
	Feb-21	1,357	1,102	27,531	954		Feb-21	530	541	1,463	115		Feb-21	19,732	15,526	49,963	9,186	
	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

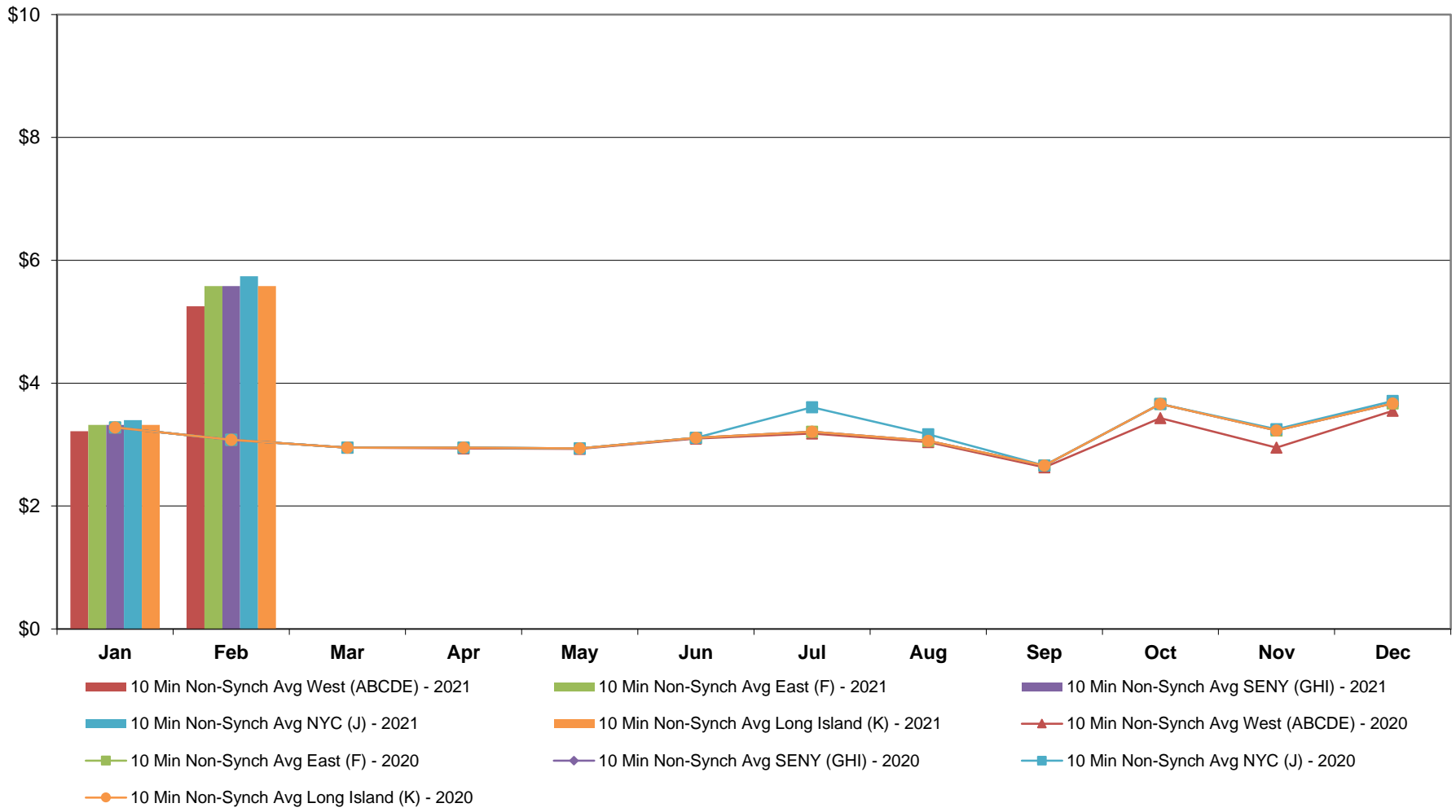


**NYISO Monthly Average Ancillary Service Prices  
Day Ahead Market - 10 Min Spin 2020 - 2021**

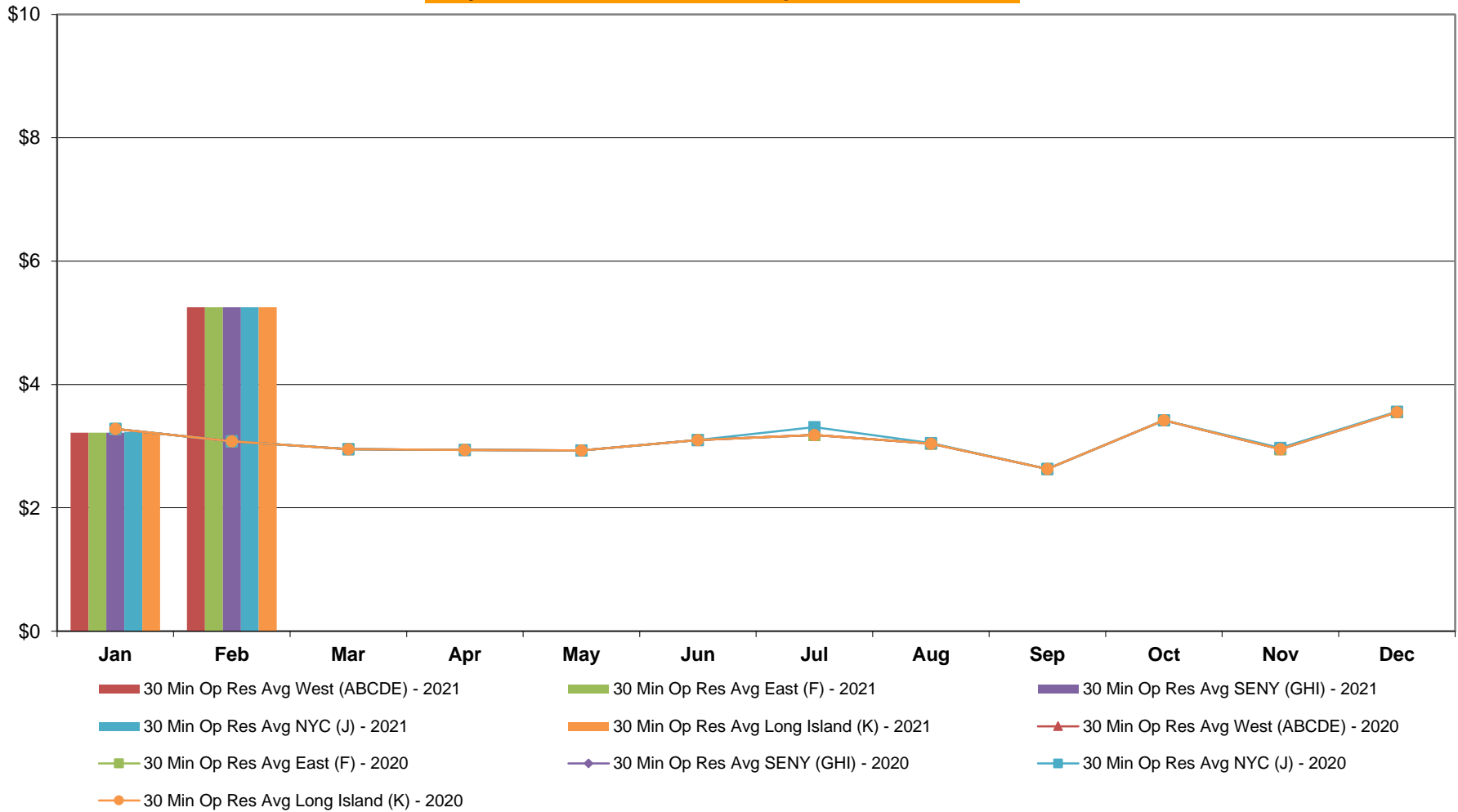




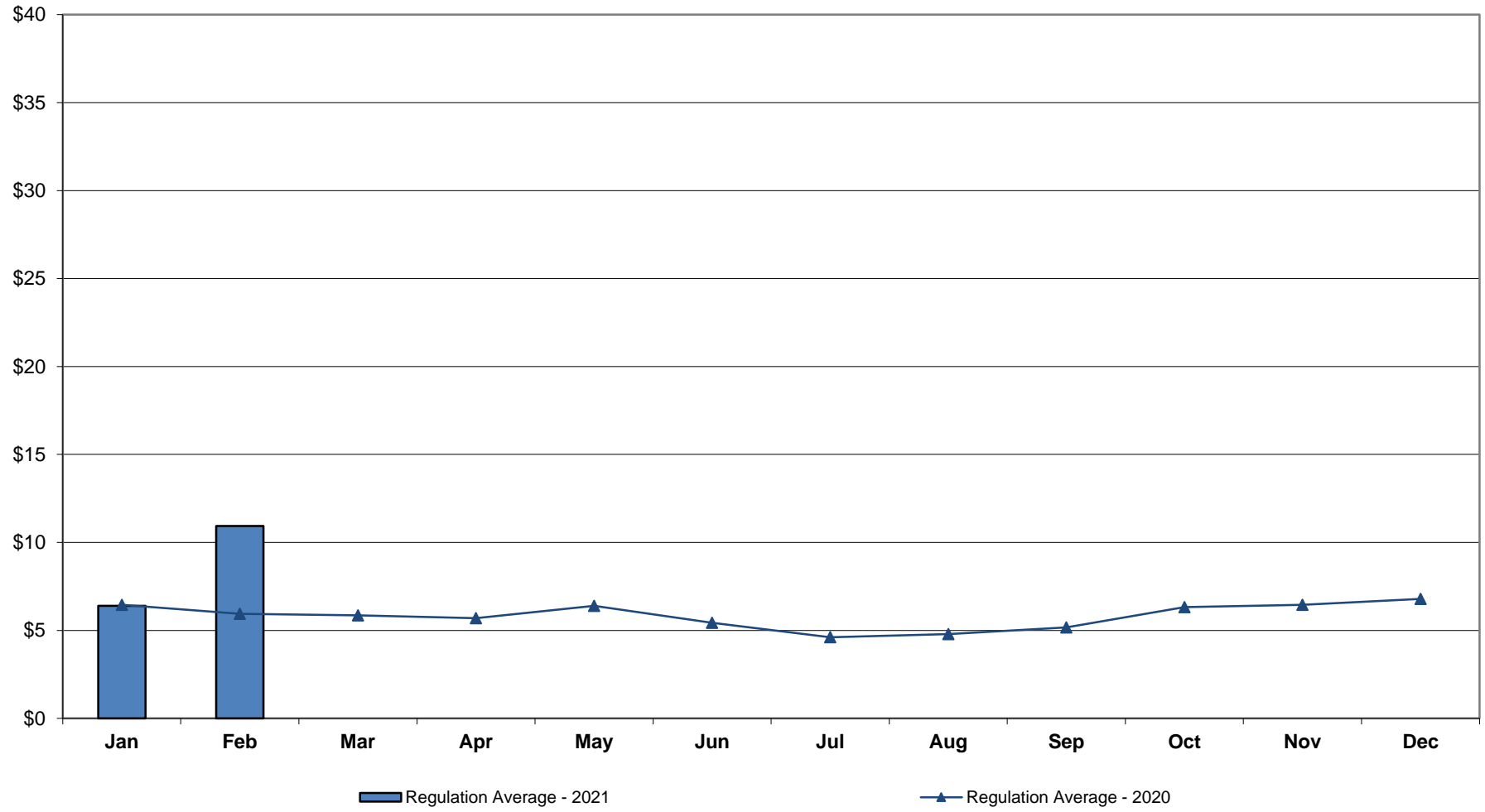
**NYISO Monthly Average Ancillary Service Prices  
Day Ahead Market - 10 Min Non-Synch 2020 - 2021**



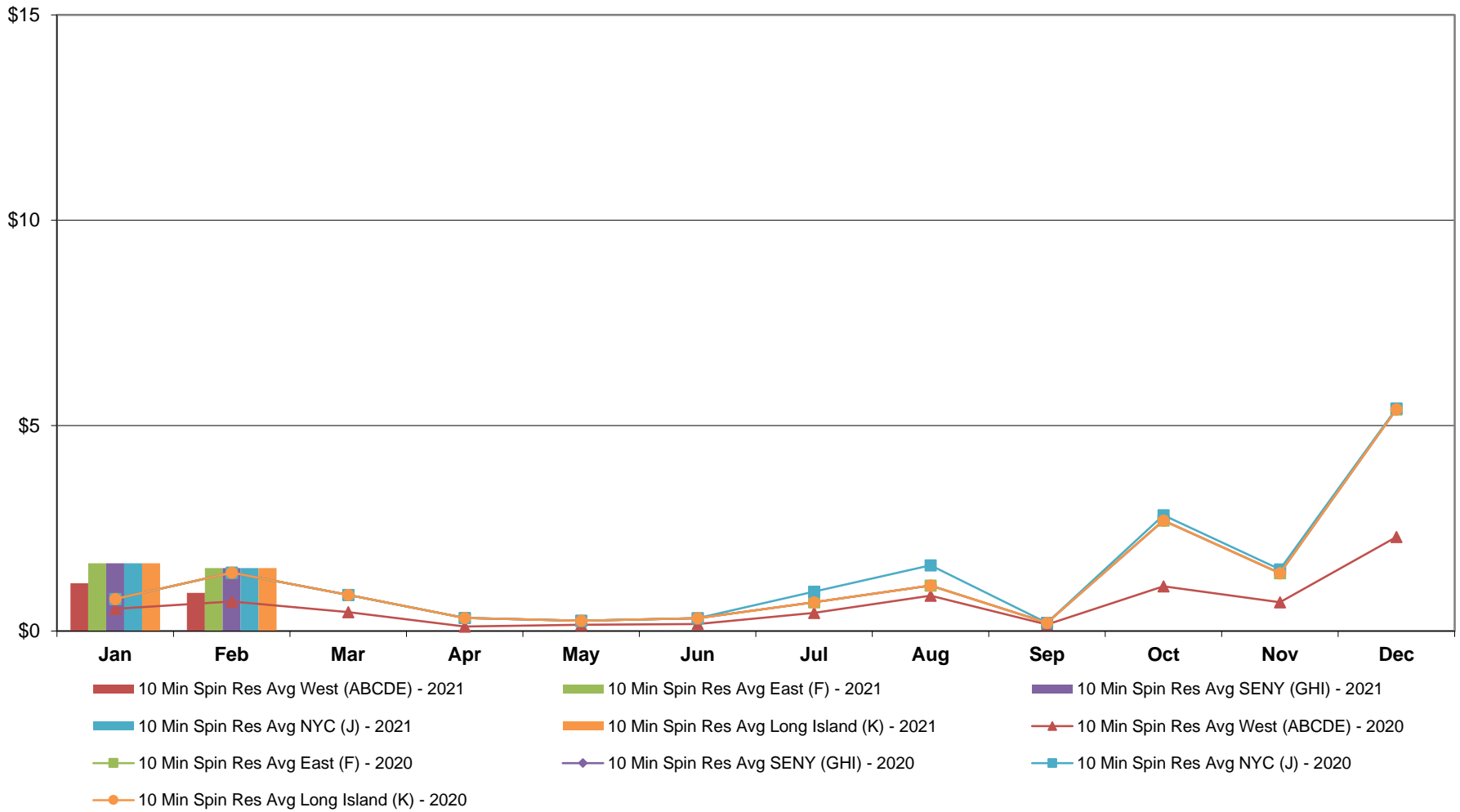
**NYISO Monthly Average Ancillary Service Prices  
Day Ahead Market - 30 Min Op Res 2020 - 2021**



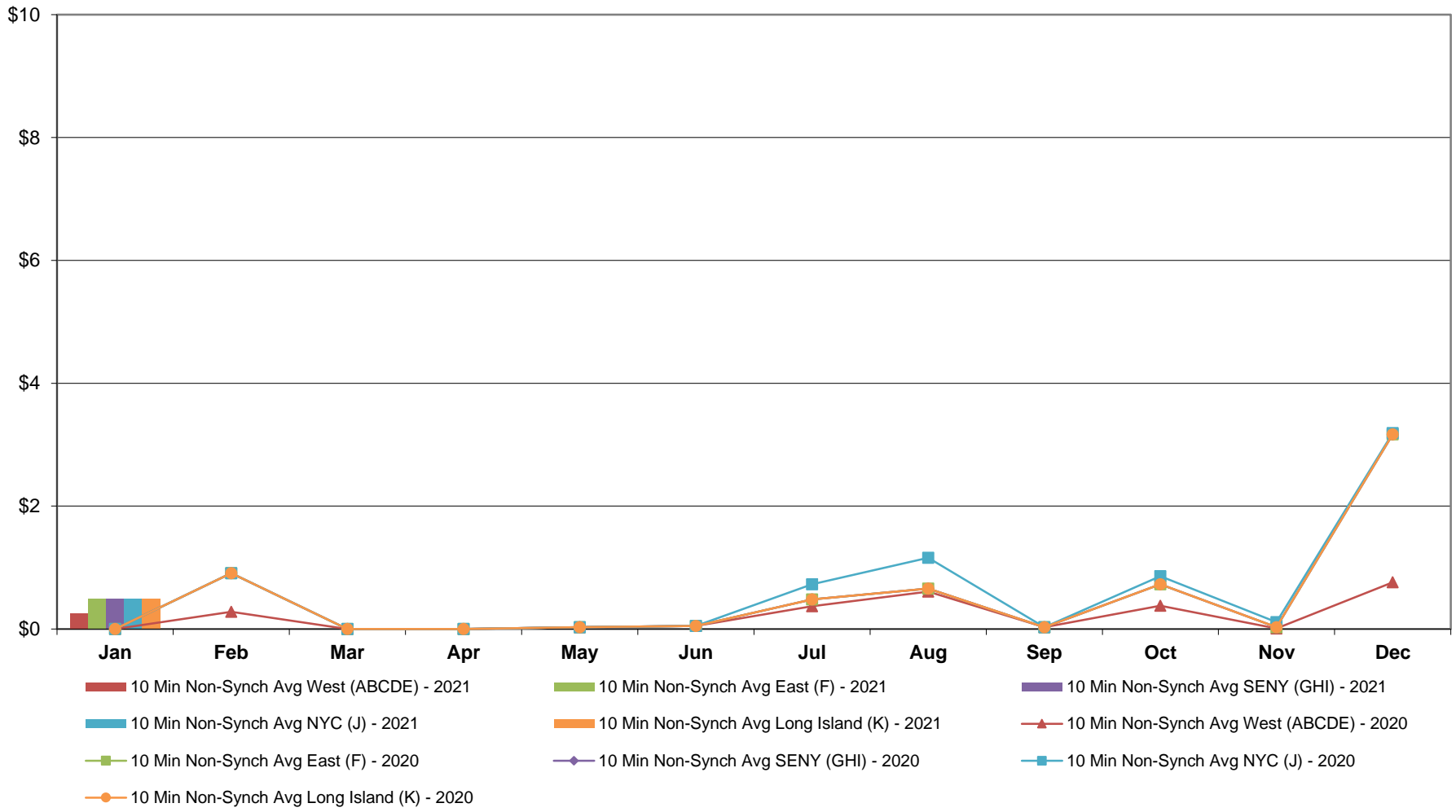
**NYISO Monthly Average Ancillary Service Prices  
Day Ahead Market - Regulation 2020 - 2021**



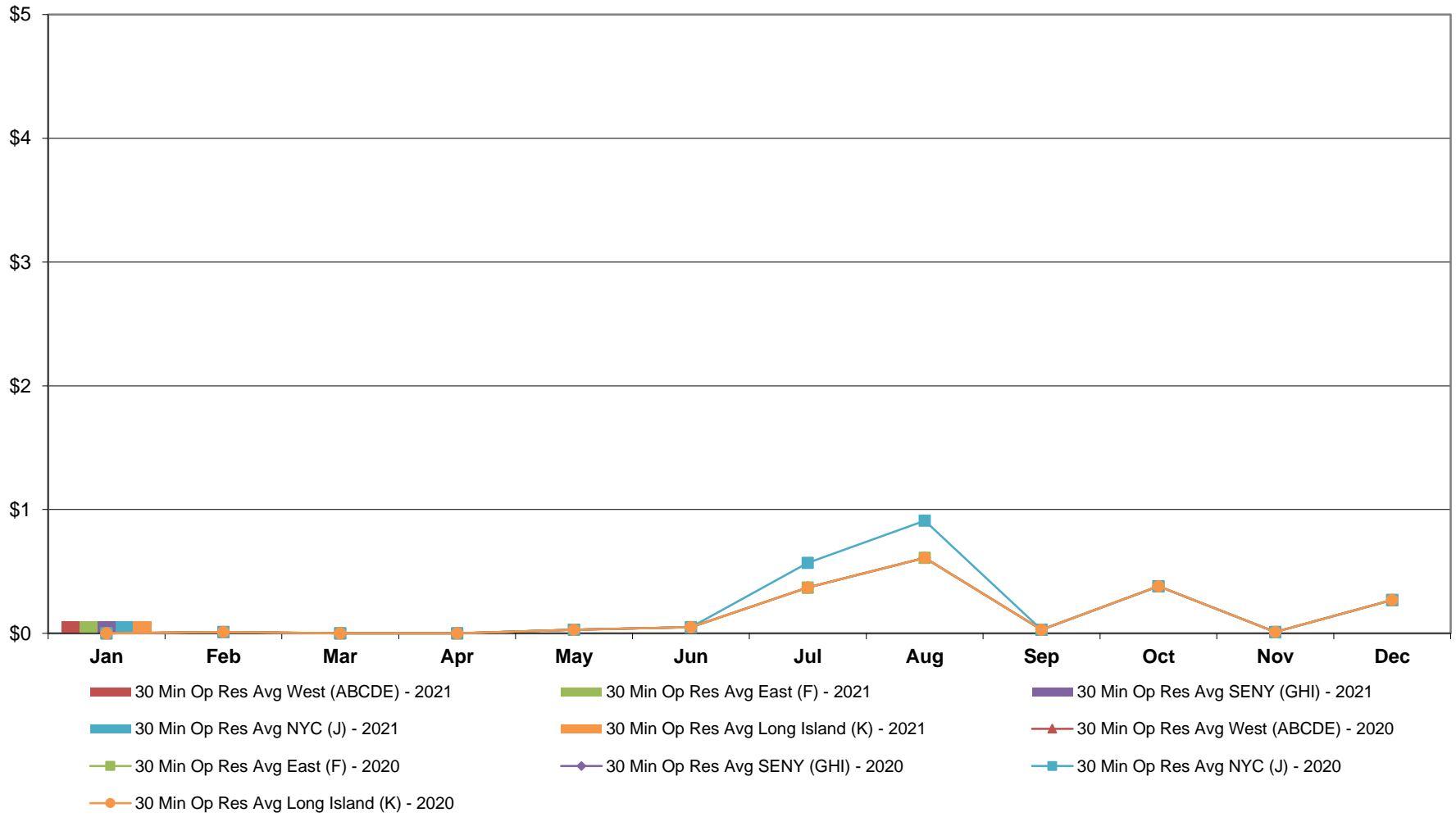
### NYISO Monthly Average Ancillary Service Prices RTC Market - 10 Min Spin 2020 - 2021



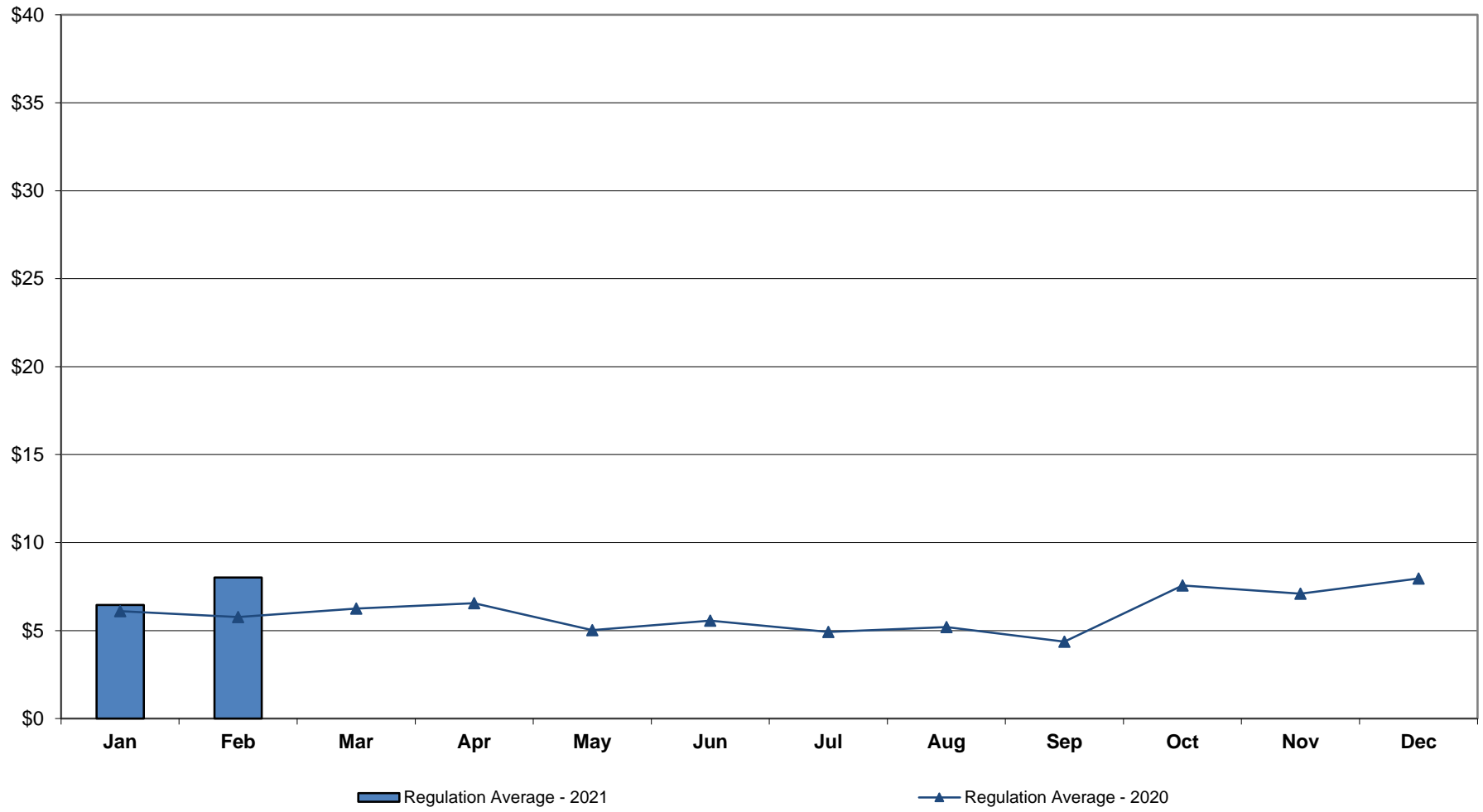
**NYISO Monthly Average Ancillary Service Prices  
RTC Market - 10 Min Non-Synch 2020 - 2021**



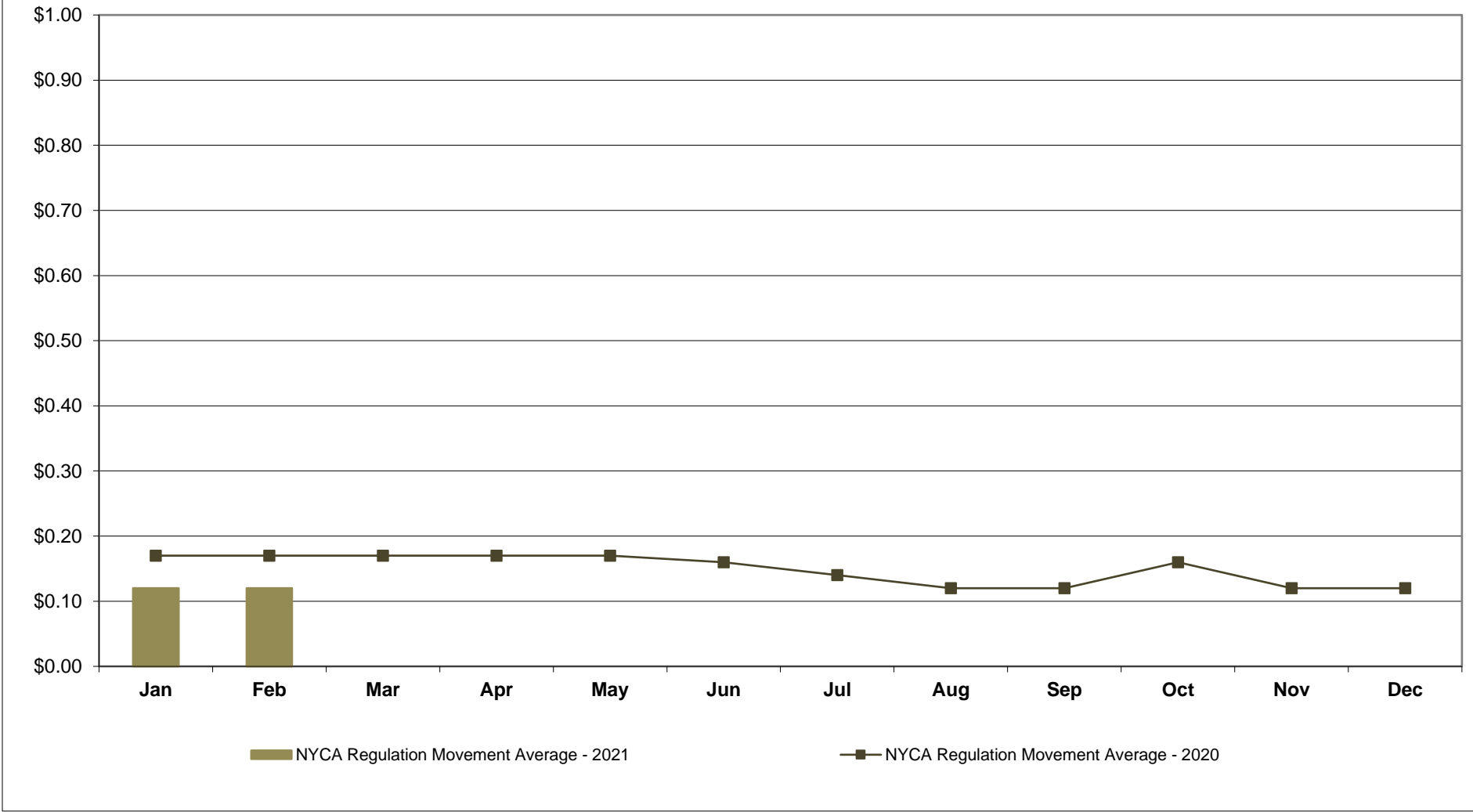
**NYISO Monthly Average Ancillary Service Prices  
RTC Market - 30 Min Op Res 2020 - 2021**



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

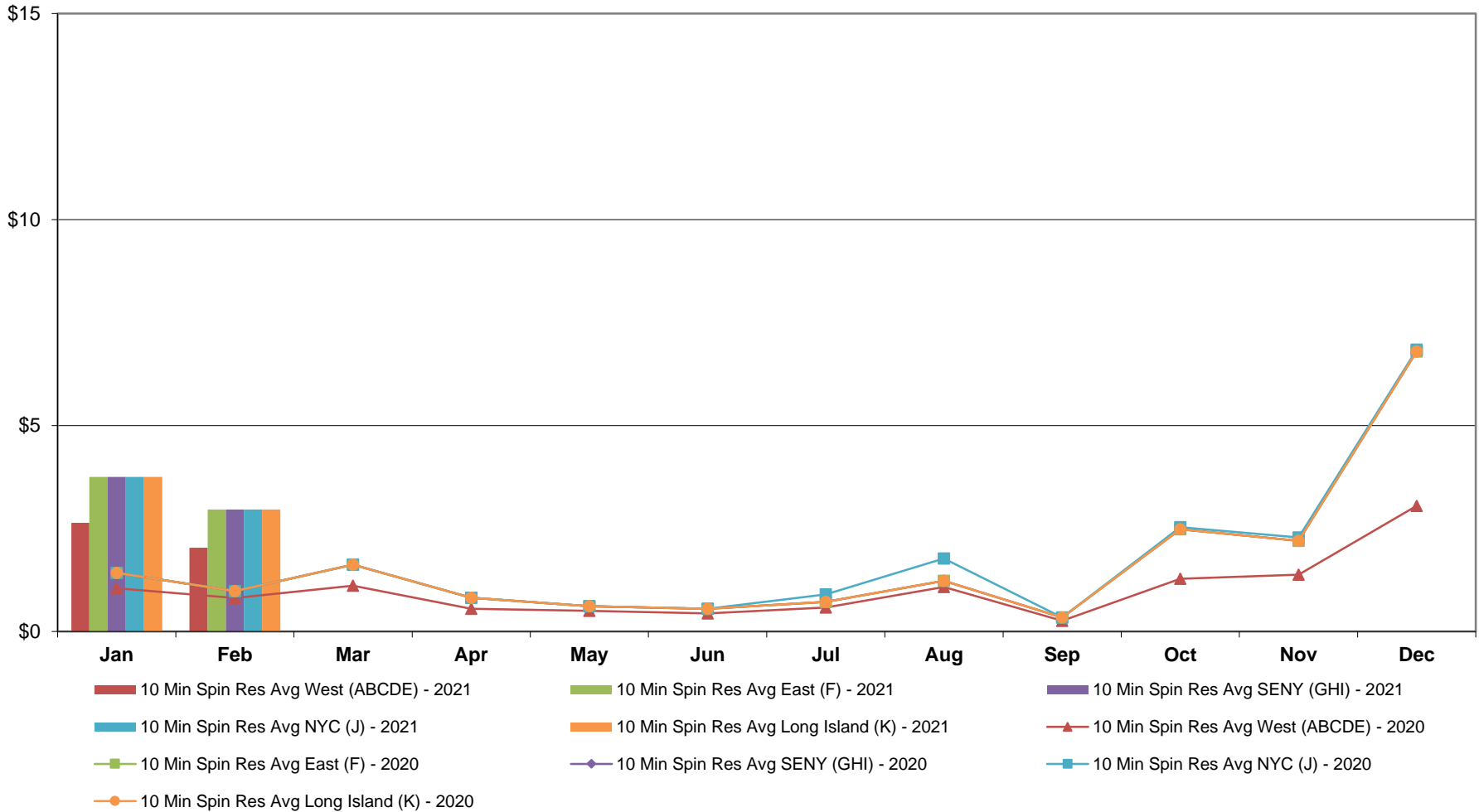


**NYISO Monthly Average Ancillary Service Prices  
RTC Market - Regulation Movement 2020 - 2021**

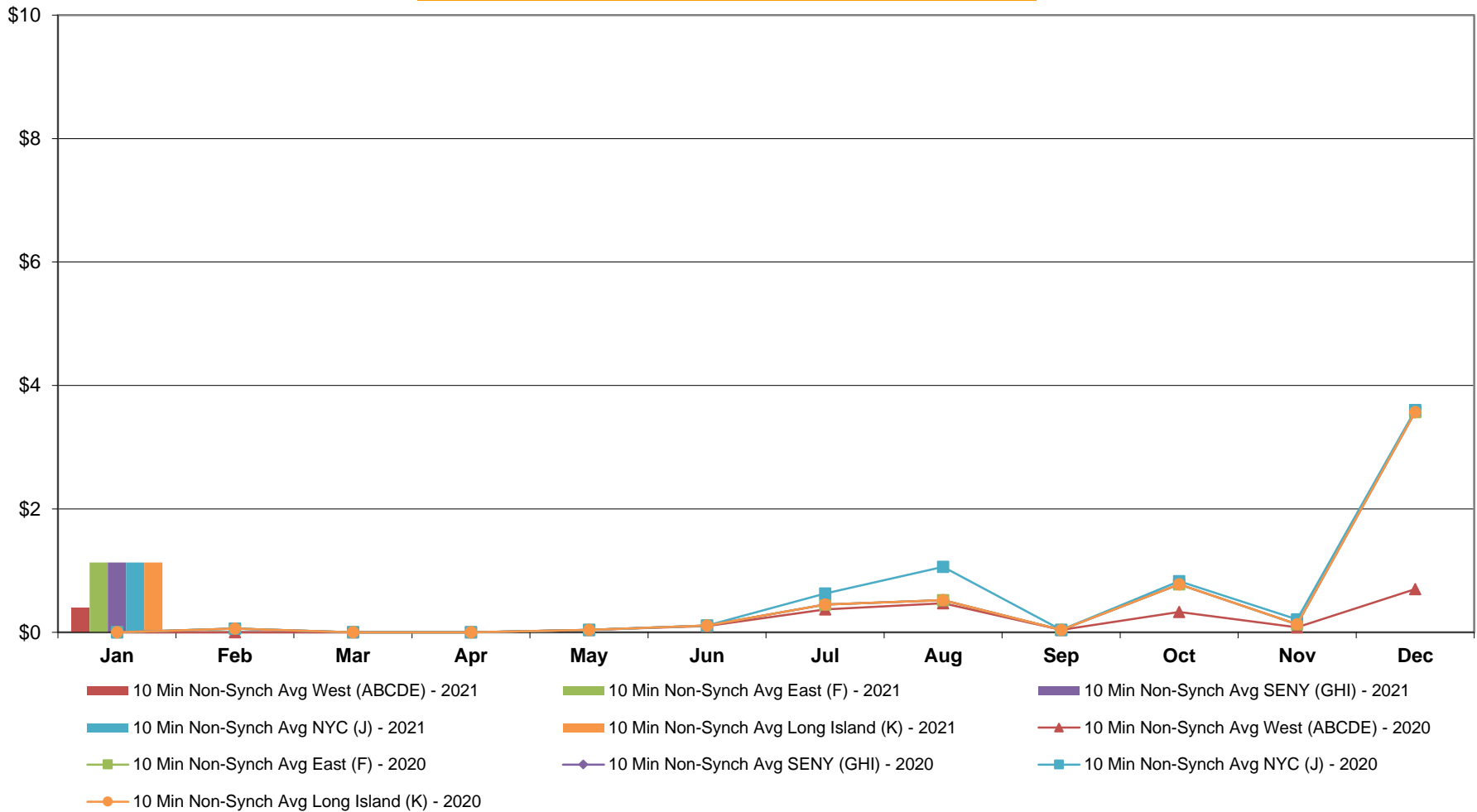




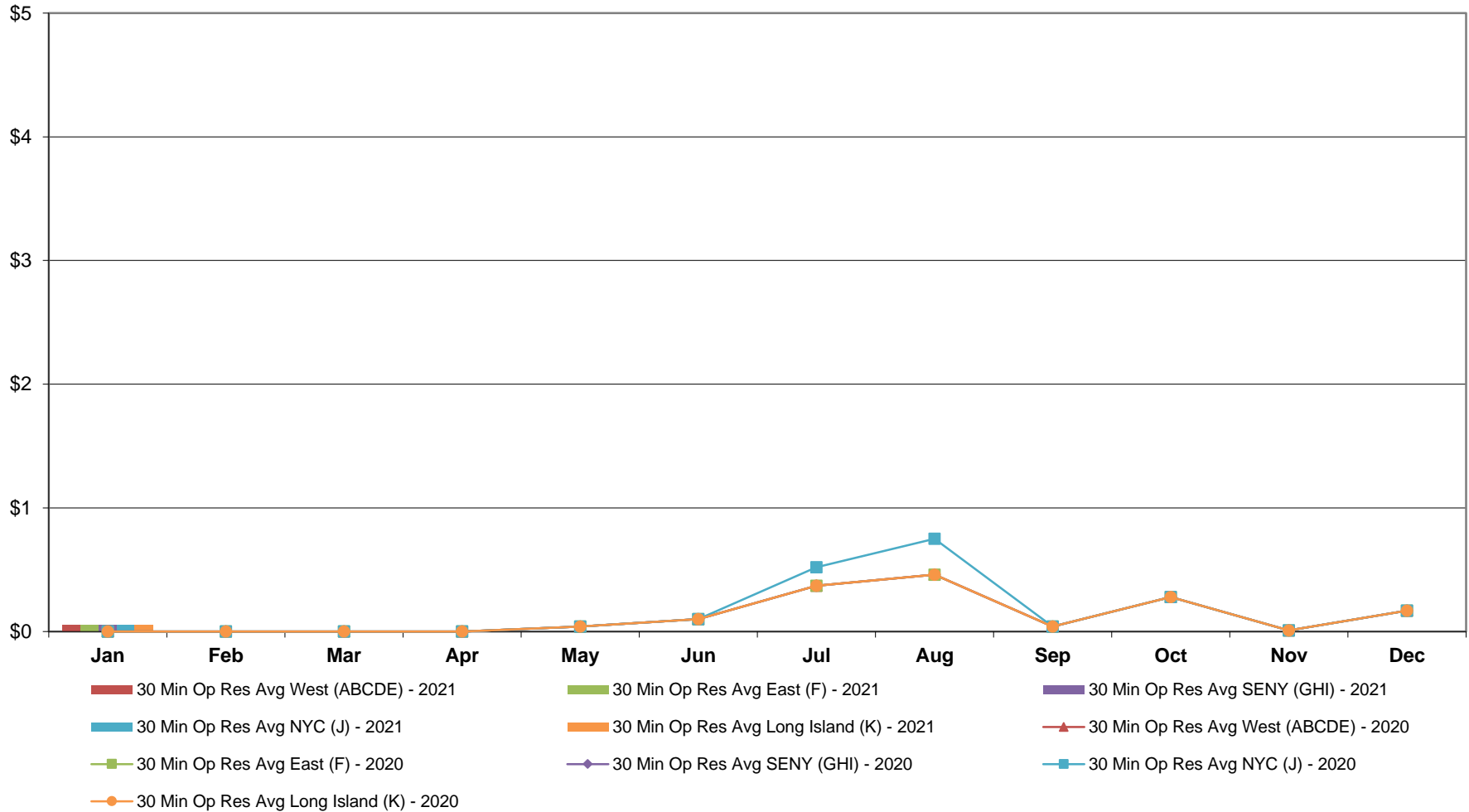
**NYISO Monthly Average Ancillary Service Prices  
Real Time Market - 10 Min Spin 2020 - 2021**



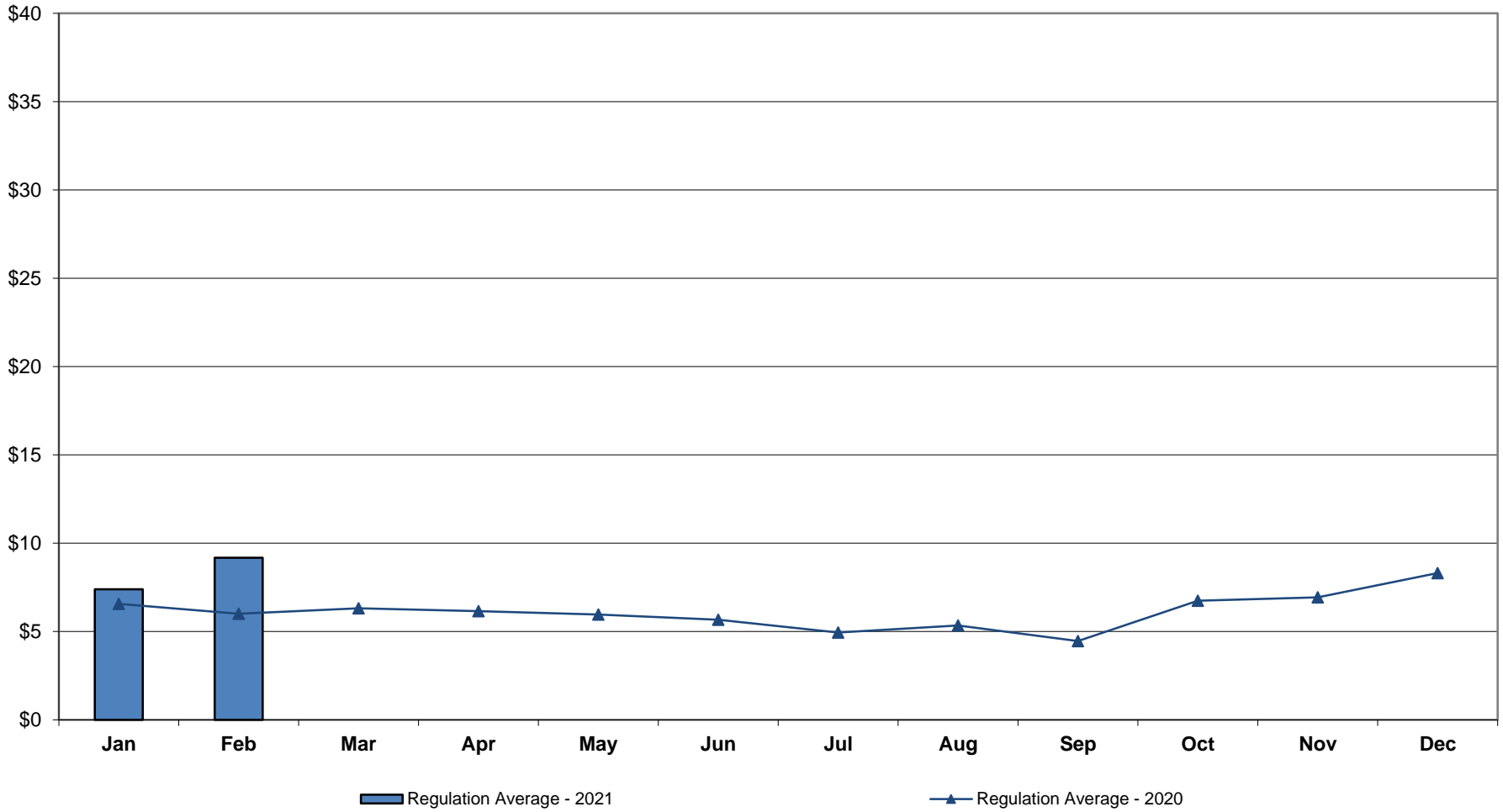
**NYISO Monthly Average Ancillary Service Prices  
Real Time Market - 10 Min Non-Synch 2020 - 2021**



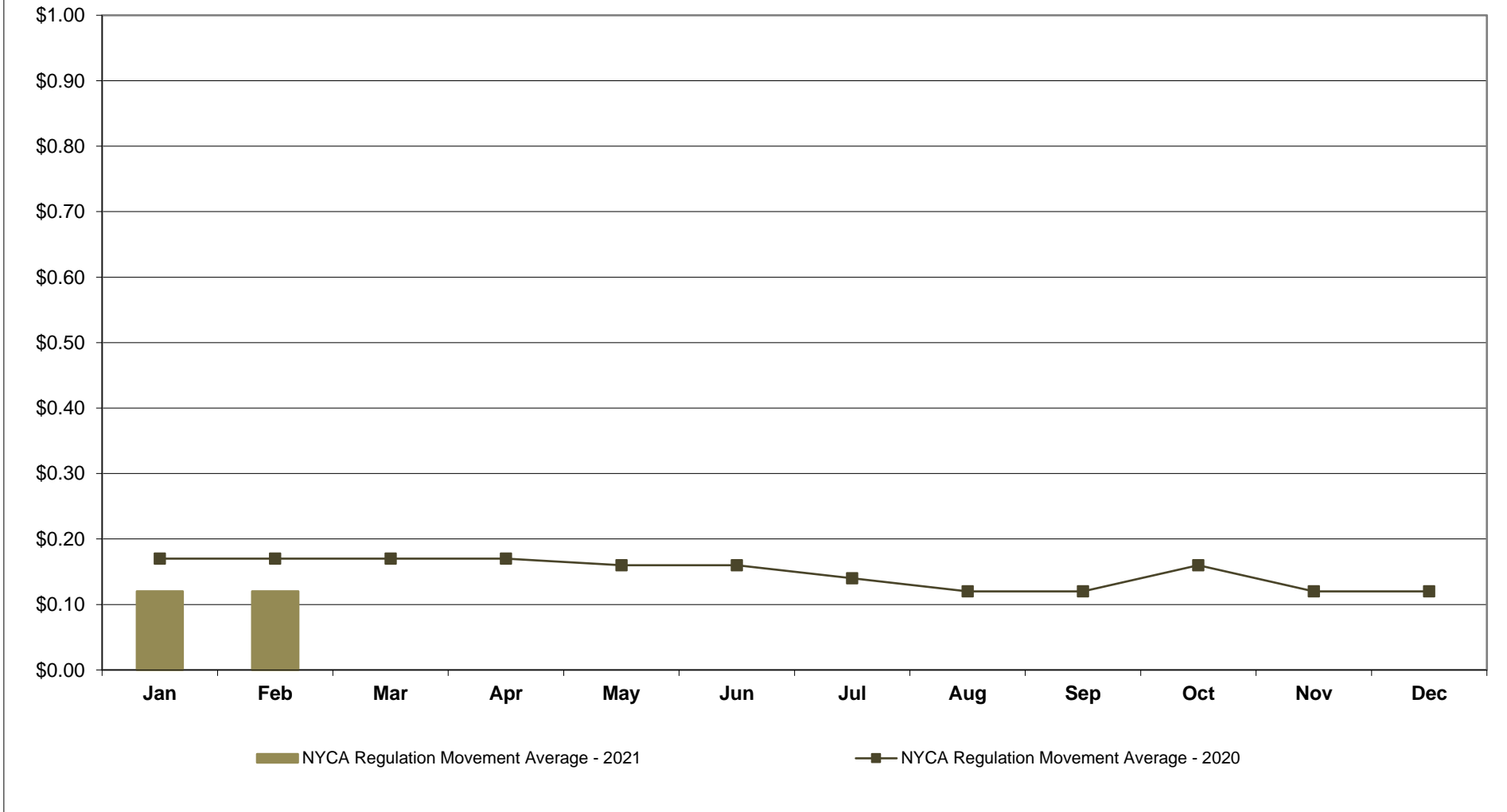
**NYISO Monthly Average Ancillary Service Prices  
Real Time Market - 30 Min Op Res 2020 - 2021**



**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>
<b><u>Day Ahead Market</u></b>												
10 Min Spin Long Island (K)	4.61	7.85										
10 Min Spin NYC (J)	4.68	8.01										
10 Min Spin SENY (GHI)	4.61	7.85										
10 Min Spin East (F)	4.61	7.85										
10 Min Spin West (ABCDE)	4.01	6.68										
10 Min Non Synch Long Island (K)	3.32	5.58										
10 Min Non Synch NYC (J)	3.40	5.74										
10 Min Non Synch SENY (GHI)	3.32	5.58										
10 Min Non Synch East (F)	3.32	5.58										
10 Min Non Synch West (ABCDE)	3.22	5.25										
30 Min Long Island (K)	3.22	5.25										
30 Min NYC (J)	3.23	5.25										
30 Min SENY (GHI)	3.22	5.25										
30 Min East (F)	3.22	5.25										
30 Min West (ABCDE)	3.22	5.25										
Regulation	6.40	10.93										
<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>
<b><u>Day Ahead Market</u></b>												
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

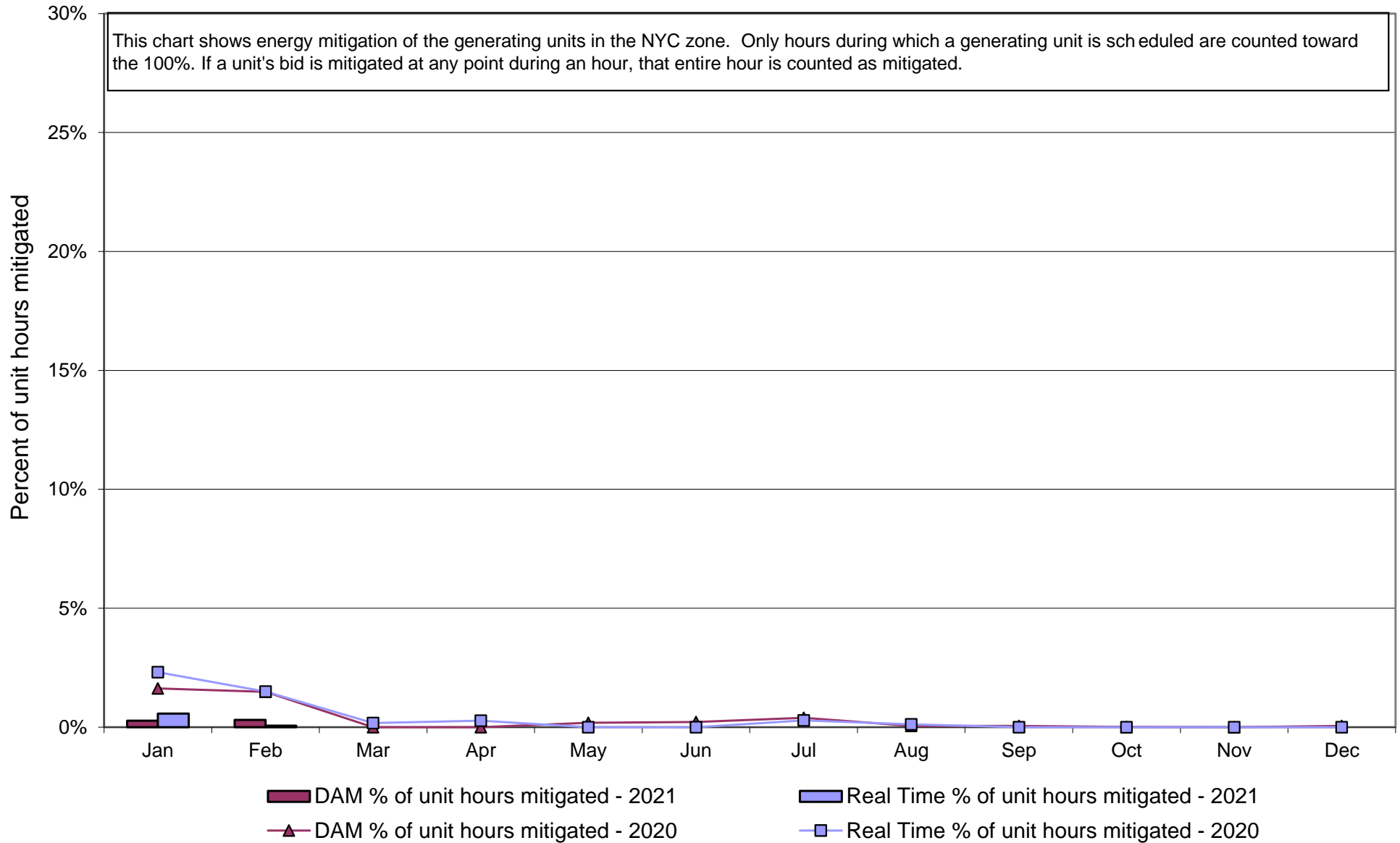
<u>2021</u>	<u>January</u>	<u>February</u>	<u>March</u>	<u>April</u>	<u>May</u>	<u>June</u>	<u>July</u>	<u>August</u>	<u>September</u>	<u>October</u>	<u>November</u>	<u>December</u>
<b>RTC Market</b>												
10 Min Spin Long Island (K)	1.65	1.53										
10 Min Spin NYC (J)	1.65	1.53										
10 Min Spin SENY (GHI)	1.65	1.53										
10 Min Spin East (F)	1.65	1.53										
10 Min Spin West (ABCDE)	1.16	0.93										
10 Min Non Synch Long Island (K)	0.49	0.00										
10 Min Non Synch NYC (J)	0.49	0.00										
10 Min Non Synch SENY (GHI)	0.49	0.00										
10 Min Non Synch East (F)	0.49	0.00										
10 Min Non Synch West (ABCDE)	0.26	0.00										
30 Min Long Island (K)	0.10	0.00										
30 Min NYC (J)	0.10	0.00										
30 Min SENY (GHI)	0.10	0.00										
30 Min East (F)	0.10	0.00										
30 Min West (ABCDE)	0.10	0.00										
Regulation	6.46	8.02										
NYCA Regulation Movement	0.12	0.12										
<b>2020</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>RTC Market</b>												
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

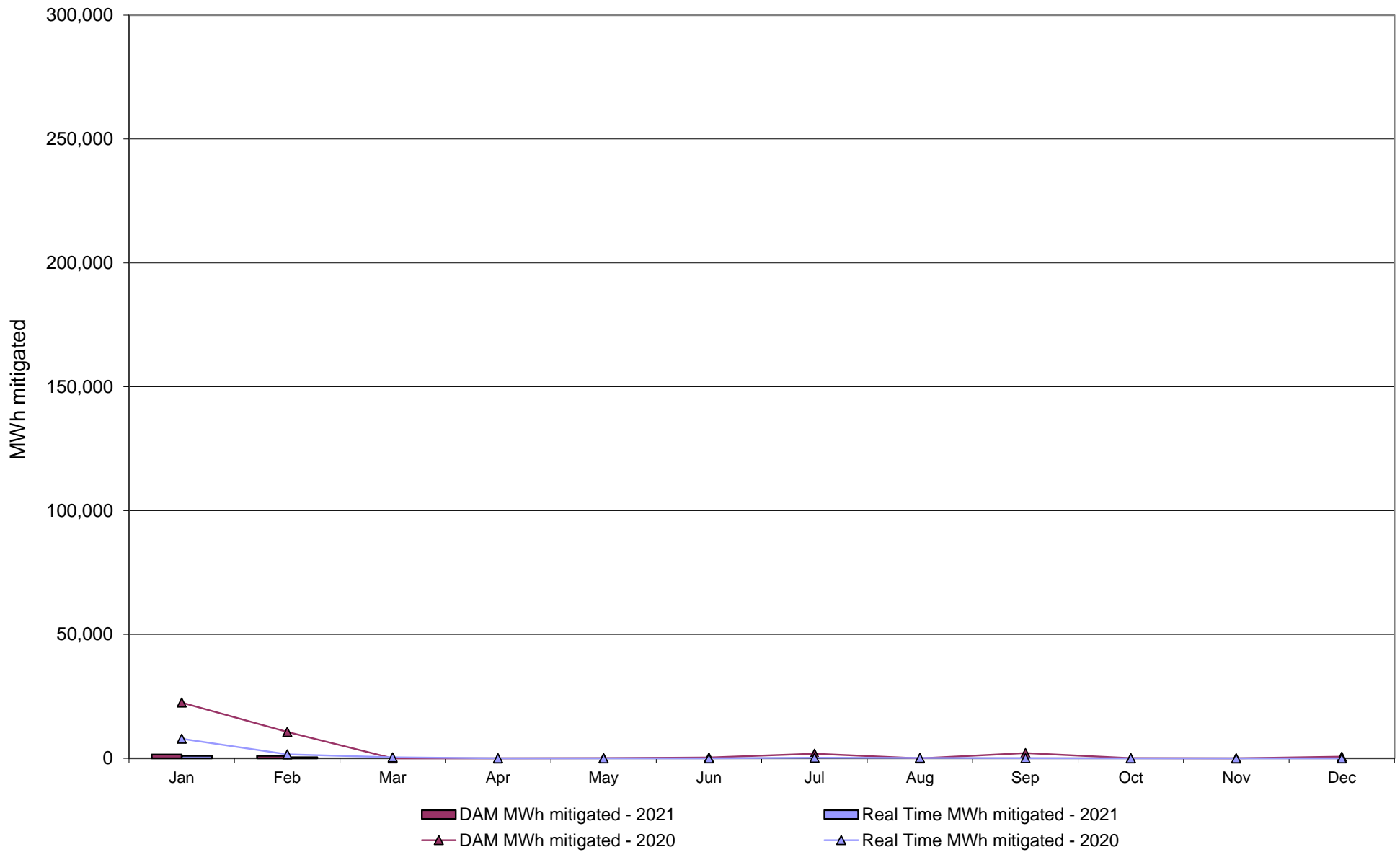
<u>2021</u>	<u>January</u>	<u>February</u>	<u>March</u>	<u>April</u>	<u>May</u>	<u>June</u>	<u>July</u>	<u>August</u>	<u>September</u>	<u>October</u>	<u>November</u>	<u>December</u>
<b>Real Time Market</b>												
10 Min Spin Long Island (K)	3.75	2.96										
10 Min Spin NYC (J)	3.75	2.96										
10 Min Spin SENY (GHI)	3.75	2.96										
10 Min Spin East (F)	3.75	2.96										
10 Min Spin West (ABCDE)	2.64	2.03										
10 Min Non Synch Long Island (K)	1.13	0.02										
10 Min Non Synch NYC (J)	1.13	0.02										
10 Min Non Synch SENY (GHI)	1.13	0.02										
10 Min Non Synch East (F)	1.13	0.02										
10 Min Non Synch West (ABCDE)	0.40	0.00										
30 Min Long Island (K)	0.05	0.00										
30 Min NYC (J)	0.05	0.00										
30 Min SENY (GHI)	0.05	0.00										
30 Min East (F)	0.05	0.00										
30 Min West (ABCDE)	0.05	0.00										
Regulation	7.39	9.17										
NYCA Regulation Movement	0.12	0.12										
<b>2020</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>Real Time Market</b>												
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



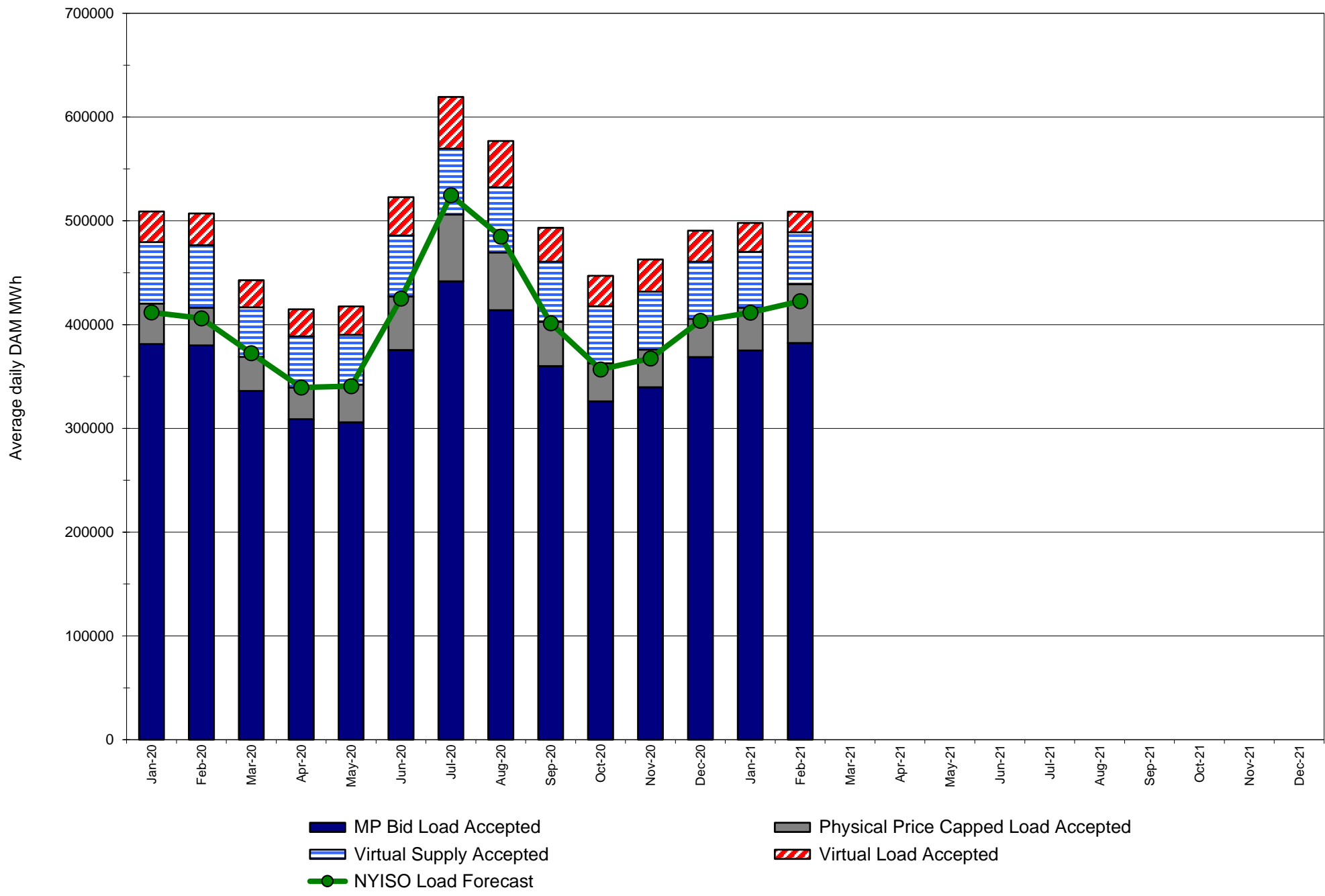
## NYISO In City Energy Mitigation - AMP (NYC Zone) 2020 - 2021 Percentage of committed unit-hours mitigated



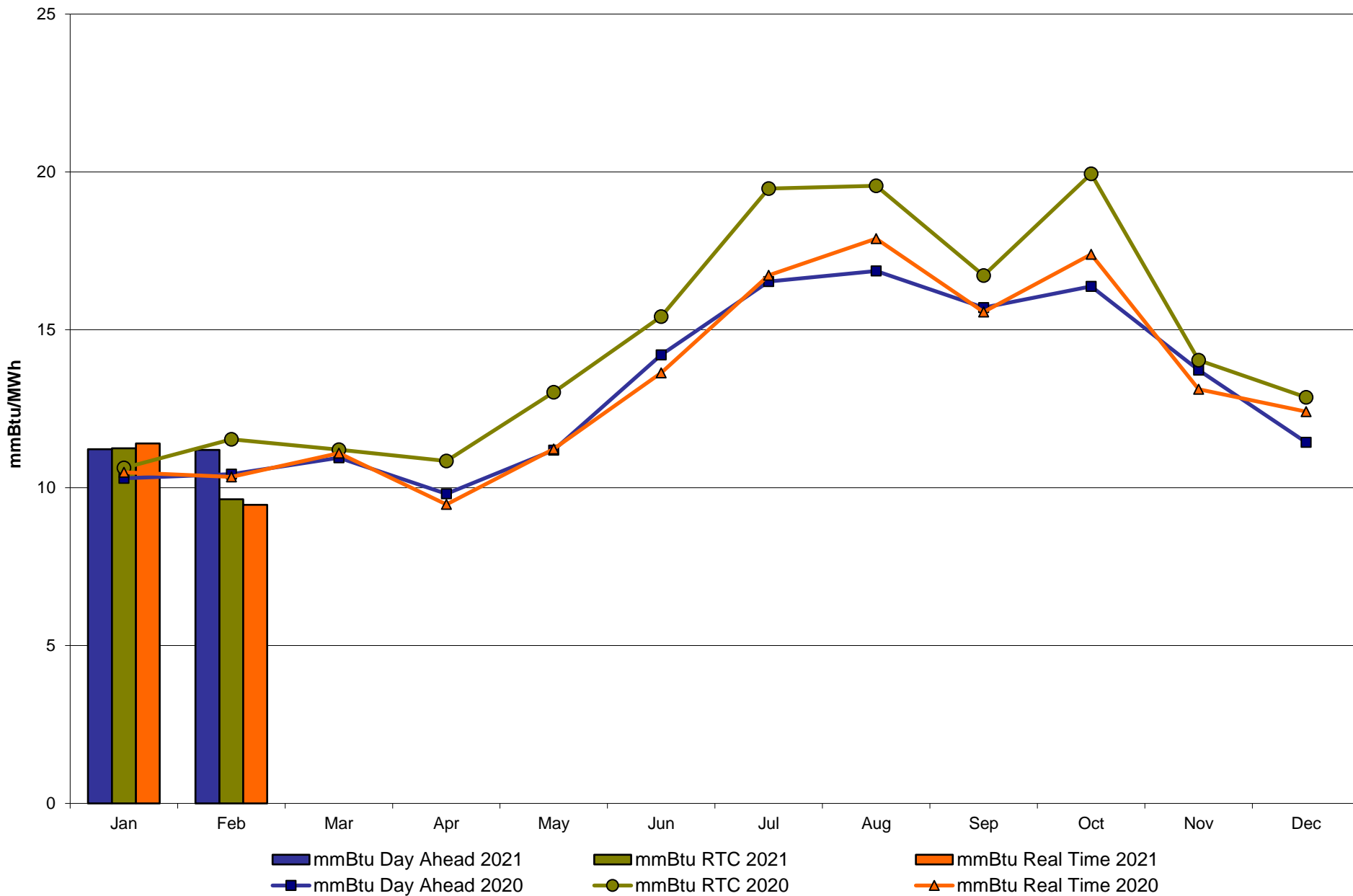
**NYISO In City Energy Mitigation (NYC Zone) 2020 - 2021**  
**Monthly megawatt hours mitigated**



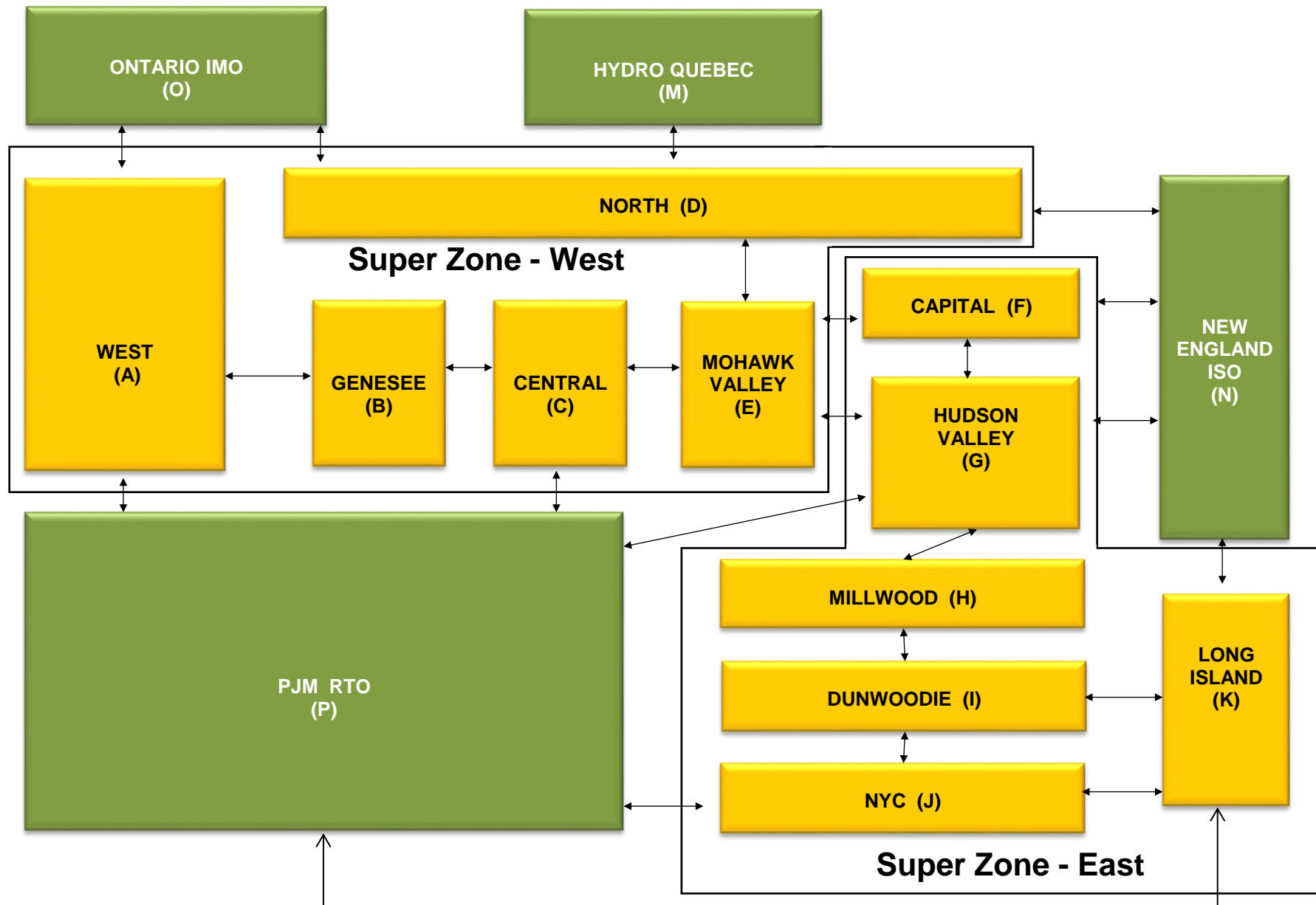
# NYISO Average Daily DAM Load Bid Summary



# Monthly Implied Heat Rate 2020-2021



# NYISO LBMP ZONES



**Billing Codes for Chart C**

<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

# 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

