



Market Operations Report

Rana Mukerji

SENIOR VICE PRESIDENT – MARKET STRUCTURES, NYISO

Business Issues Committee Meeting

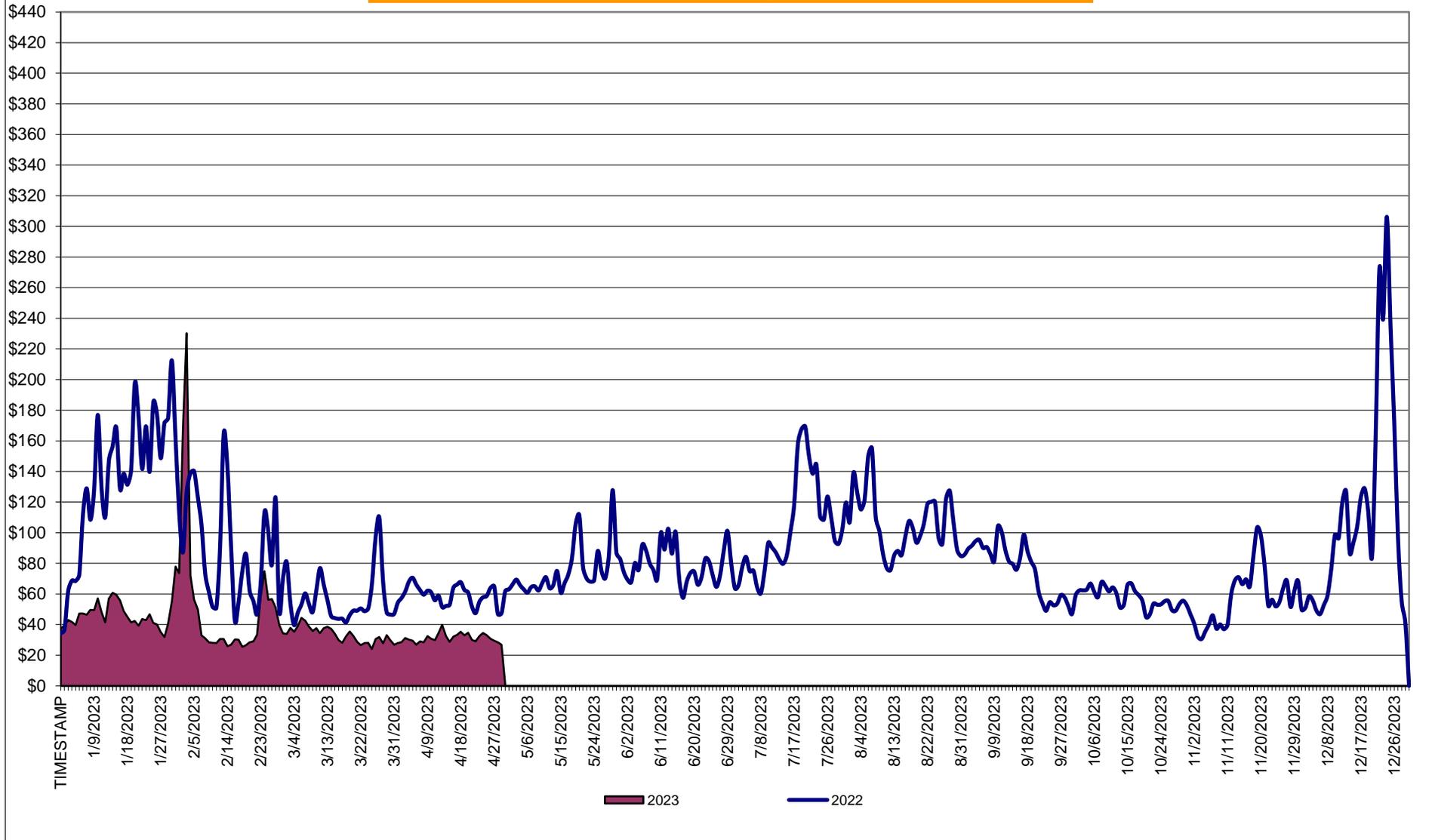
May 24, 2023 Rensselaer, NY

Market Performance Highlights

April 2023

- LBMP for April is \$28.07/MWh; lower than \$31.11/MWh in March 2023 and \$56.46/MWh in April 2022.
 - Day Ahead Load Weighted LBMPs and Real Time Load Weighted LBMPs are lower compared to March.
- April 2023 average year-to-date monthly cost of \$43.45/MWh is a 53% decrease from \$91.92/MWh in April 2022.
- Average daily sendout is 349 GWh/day in April lower than 387 GWh/day in March 2023 and 359 GWh/day in April 2022.
- Natural gas prices and distillate prices are lower compared to the previous month.
 - Natural Gas (Transco Z6 NY) was \$1.73/MMBtu, down from \$2.26/MMBtu in March.
 - Natural gas prices (Transco Z6 NY) are down 254% year-over-year.
 - Jet Kerosene Gulf Coast was \$17.72/MMBtu, down from \$19.98/MMBtu in March.
 - Ultra Low Sulfur No.2 Diesel NY Harbor was \$18.54/MMBtu, down from \$19.72/MMBtu in March.
 - Distillate prices are down 52.4% year-over-year.
- Uplift per MWh is lower compared to the previous month.
 - Uplift (not including NYISO cost of operations) is (\$0.34)/MWh; lower than (\$0.00)/MWh in March.
 - Local Reliability Share is \$0.04/MWh, lower than \$0.09/MWh in March.
 - Statewide Share is (\$0.38)/MWh, lower than (\$0.10)/MWh in March.
 - TSA \$ per NYC MWh is \$0.00/MWh.
 - Total uplift costs (Schedule 1 components including NYISO Cost of Operations) are lower than March.

Daily NYISO Average Cost/MWh (Energy & Ancillary Services)*
2022 Annual Average \$89.23/MWh
April 2022 YTD Average \$91.92/MWh
April 2023 YTD Average \$43.45/MWh



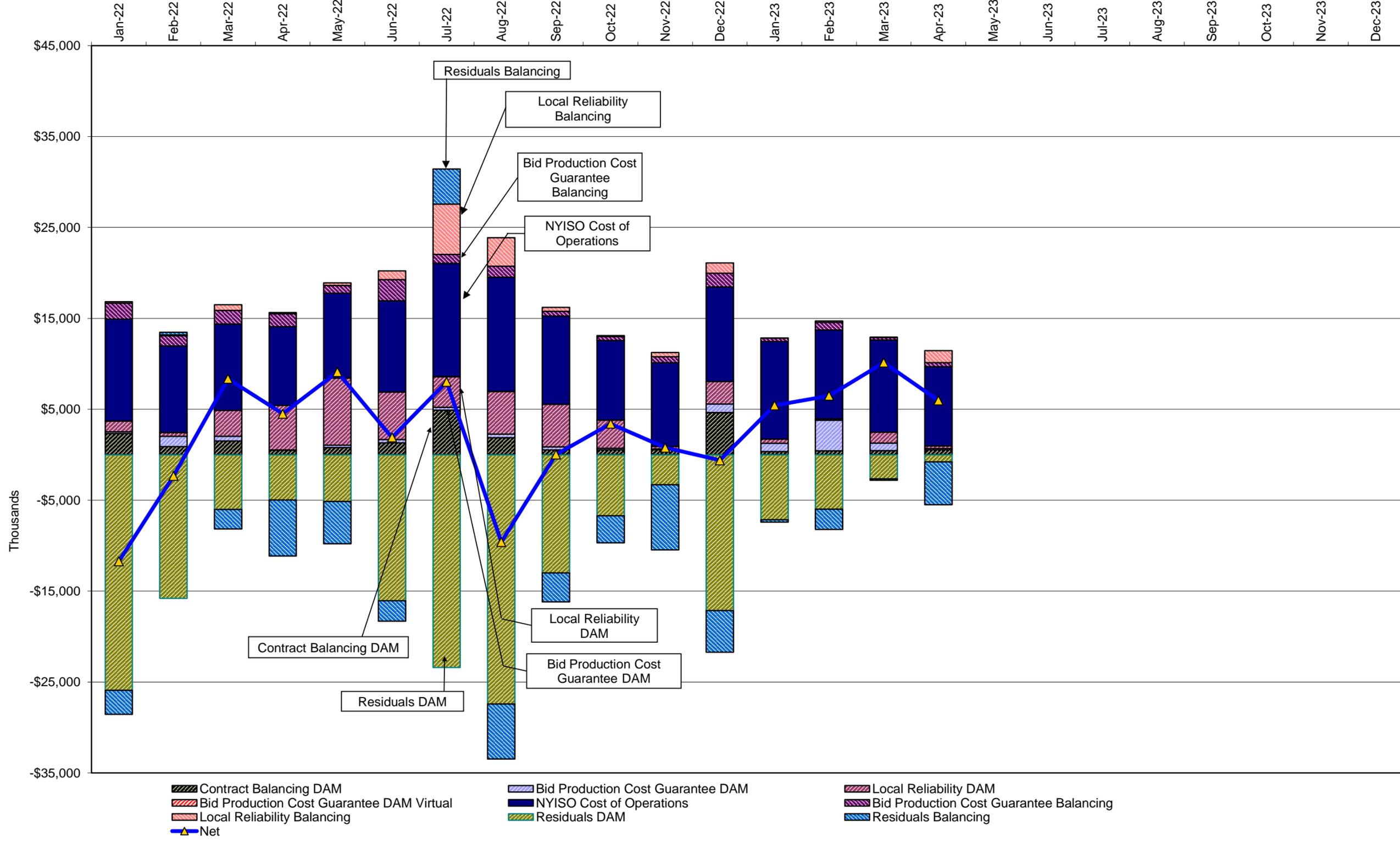
* Excludes ICAP payments.

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

2023	<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	42.10	55.47	31.11	28.07								
NTAC	2.82	1.15	1.39	1.72								
Reserve	0.72	0.90	0.73	0.85								
Regulation	0.09	0.13	0.13	0.15								
NYISO Cost of Operations	0.77	0.77	0.77	0.78								
FERC Fee Recovery	0.08	0.09	0.09	0.10								
Uplift	(0.38)	(0.27)	(0.00)	(0.34)								
Uplift: Local Reliability Share	0.03	0.03	0.09	0.04								
Uplift: Statewide Share	(0.41)	(0.30)	(0.10)	(0.38)								
Voltage Support and Black Start	0.42	0.42	0.43	0.43								
Avg Monthly Cost	46.56	58.58	34.58	31.67								
Avg YTD Cost	46.64	52.36	46.65	43.45								
TSA \$ per NYC MWh	0.00	0.00	0.00	0.00								
2022	<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	134.79	94.06	56.78	56.46	70.60	76.72	99.47	108.85	78.91	53.11	52.47	110.17
NTAC	1.43	0.95	1.48	1.17	2.46	2.07	3.65	1.69	1.44	3.21	3.91	2.23
Reserve	1.26	1.21	0.83	0.81	0.74	0.66	0.87	0.65	0.86	1.02	0.89	0.49
Regulation	0.27	0.19	0.17	0.12	0.13	0.15	0.12	0.13	0.18	0.18	0.15	0.12
NYISO Cost of Operations	0.73	0.72	0.74	0.74	0.74	0.75	0.76	0.76	0.76	0.73	0.74	0.73
FERC Fee Recovery	0.07	0.08	0.09	0.10	0.09	0.08	0.06	0.06	0.09	0.10	0.09	0.08
Uplift	(1.50)	(1.73)	(0.09)	(0.36)	(0.05)	(0.61)	(1.58)	(1.91)	(0.78)	(0.45)	(0.68)	(0.77)
Uplift: Local Reliability Share	0.09	0.04	0.27	0.43	0.60	0.46	0.54	0.47	0.39	0.27	0.06	0.25
Uplift: Statewide Share	(1.59)	(1.77)	(0.36)	(0.79)	(0.65)	(1.07)	(2.12)	(2.38)	(1.18)	(0.72)	(0.74)	(1.02)
Voltage Support and Black Start	0.42	0.41	0.43	0.43	0.43	0.43	0.43	0.43	0.44	0.42	0.42	0.42
Avg Monthly Cost	137.41	95.82	60.34	59.38	75.07	80.17	103.73	110.61	81.81	58.26	57.91	113.40
Avg YTD Cost	137.49	118.36	100.65	91.92	88.82	87.37	90.31	93.42	92.27	89.47	86.97	89.23
TSA \$ per NYC MWh	0.00	2.98	0.00	0.00	0.11	0.00	3.98	1.70	0.06	0.00	0.00	0.01

* Excludes ICAP payments.
Market Mitigation and Analysis
Prepared: 5/11/2023 2:40 PM

NYISO Dollar Flows - Uplift - OATT Schedule 1 components - Data through April 30, 2023



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

2023	<u>January</u>	<u>February</u>	<u>March</u>	<u>April</u>	<u>May</u>	<u>June</u>	<u>July</u>	<u>August</u>	<u>September</u>	<u>October</u>	<u>November</u>	<u>December</u>
Day Ahead Market MWh	13,662,137	12,355,489	12,651,083	11,058,870								
DAM LSE Internal LBMP Energy Sales	55%	55%	56%	55%								
DAM External TC LBMP Energy Sales	7%	7%	4%	4%								
DAM Bilateral - Internal Bilaterals	28%	29%	30%	30%								
DAM Bilateral - Import/Non-LBMP Market Bilaterals	5%	5%	6%	6%								
DAM Bilateral - Export/Non-LBMP Market Bilaterals	2%	2%	2%	2%								
DAM Bilateral - Wheel Through Bilaterals	3%	2%	2%	2%								
Balancing Energy Market MWh	328,840	397,488	420,170	303,381								
Balancing Energy LSE Internal LBMP Energy Sales	65%	38%	53%	43%								
Balancing Energy External TC LBMP Energy Sales	68%	68%	58%	69%								
Balancing Energy Bilateral - Internal Bilaterals	2%	1%	2%	-1%								
Balancing Energy Bilateral - Import/Non-LBMP Market Bilaterals	0%	0%	0%	0%								
Balancing Energy Bilateral - Export/Non-LBMP Market Bilaterals	7%	6%	6%	5%								
Balancing Energy Bilateral - Wheel Through Bilaterals	-43%	-13%	-18%	-16%								
Transactions Summary												
LBMP	63%	63%	62%	61%								
Internal Bilaterals	28%	28%	29%	29%								
Import Bilaterals	5%	5%	6%	6%								
Export Bilaterals	2%	2%	2%	3%								
Wheels Through	2%	1%	1%	2%								
Market Share of Total Load												
Day Ahead Market	97.6%	96.9%	96.8%	97.3%								
Balancing Energy +	2.4%	3.1%	3.2%	2.7%								
Total MWh	13,990,977	12,752,977	13,071,253	11,362,252								
Average Daily Energy Sendout/Month GWh	410	408	387	349								

2022	<u>January</u>	<u>February</u>	<u>March</u>	<u>April</u>	<u>May</u>	<u>June</u>	<u>July</u>	<u>August</u>	<u>September</u>	<u>October</u>	<u>November</u>	<u>December</u>
Day Ahead Market MWh	14,327,101	12,477,485	12,137,757	10,992,578	12,176,102	12,945,740	15,905,937	15,770,210	12,467,212	11,527,745	11,952,855	13,768,799
DAM LSE Internal LBMP Energy Sales	57%	56%	59%	56%	55%	60%	64%	63%	62%	58%	56%	56%
DAM External TC LBMP Energy Sales	7%	8%	3%	5%	6%	3%	3%	3%	2%	3%	4%	6%
DAM Bilateral - Internal Bilaterals	28%	28%	29%	31%	31%	29%	26%	26%	27%	30%	31%	29%
DAM Bilateral - Import/Non-LBMP Market Bilaterals	4%	4%	4%	5%	4%	4%	4%	5%	6%	5%	5%	5%
DAM Bilateral - Export/Non-LBMP Market Bilaterals	2%	2%	2%	2%	2%	2%	1%	1%	2%	2%	2%	2%
DAM Bilateral - Wheel Through Bilaterals	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%
Balancing Energy Market MWh	942,823	742,449	758,386	772,666	378,503	464,231	567,602	785,464	361,883	379,932	519,117	528,939
Balancing Energy LSE Internal LBMP Energy Sales	88%	83%	76%	60%	65%	66%	72%	86%	66%	45%	38%	45%
Balancing Energy External TC LBMP Energy Sales	16%	19%	24%	33%	32%	36%	23%	14%	34%	55%	58%	56%
Balancing Energy Bilateral - Internal Bilaterals	1%	2%	2%	0%	5%	2%	1%	0%	1%	0%	2%	2%
Balancing Energy Bilateral - Import/Non-LBMP Market Bilaterals	0%	0%	0%	0%	2%	2%	2%	0%	0%	0%	0%	0%
Balancing Energy Bilateral - Export/Non-LBMP Market Bilaterals	4%	9%	8%	7%	9%	8%	6%	3%	5%	7%	7%	5%
Balancing Energy Bilateral - Wheel Through Bilaterals	-9%	-13%	-10%	-1%	-12%	-14%	-4%	-3%	-5%	-7%	-5%	-8%
Transactions Summary												
LBMP	67%	66%	65%	62%	63%	64%	68%	68%	65%	62%	62%	64%
Internal Bilaterals	26%	27%	27%	29%	30%	28%	25%	25%	27%	29%	29%	28%
Import Bilaterals	3%	4%	4%	4%	4%	4%	3%	4%	6%	5%	5%	5%
Export Bilaterals	2%	2%	2%	2%	2%	2%	2%	1%	2%	2%	2%	2%
Wheels Through	1%	1%	2%	2%	2%	2%	1%	1%	2%	1%	2%	2%
Market Share of Total Load												
Day Ahead Market	93.8%	94.4%	94.1%	93.4%	97.0%	96.5%	96.6%	95.3%	97.2%	96.8%	95.8%	96.3%
Balancing Energy +	6.2%	5.6%	5.9%	6.6%	3.0%	3.5%	3.4%	4.7%	2.8%	3.2%	4.2%	3.7%
Total MWh	15,269,924	13,219,933	12,896,143	11,765,244	12,554,605	13,409,971	16,473,538	16,555,674	12,829,095	11,907,677	12,471,972	14,297,738
Average Daily Energy Sendout/Month GWh	451	429	390	359	372	422	509	514	411	359	382	421

+ 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 2022 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 *	\$40.60	\$47.82	\$29.84	\$26.91								
Standard Deviation	\$10.32	\$47.20	\$7.42	\$6.50								
Load Weighted Price **	\$41.37	\$50.55	\$30.37	\$27.38								
<u>RTC LBMP</u>												
Price *	\$38.28	\$42.67	\$28.02	\$26.93								
Standard Deviation	\$31.37	\$39.75	\$11.53	\$9.23								
Load Weighted Price **	\$39.04	\$44.80	\$28.49	\$27.39								
<u>REAL TIME LBMP</u>												
Price *	\$38.76	\$43.99	\$28.15	\$27.41								
Standard Deviation	\$45.06	\$43.54	\$15.02	\$13.08								
Load Weighted Price **	\$39.68	\$46.75	\$28.72	\$27.97								
Average Daily Energy Sendout/Month GWh	410	408	387	349								

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 *	\$124.39	\$85.98	\$52.41	\$55.23	\$66.11	\$72.43	\$90.42	\$100.71	\$74.23	\$51.77	\$49.08	\$98.20
Standard Deviation	\$51.94	\$39.56	\$18.64	\$11.05	\$21.60	\$19.84	\$40.00	\$33.52	\$22.13	\$11.85	\$20.31	\$64.21
Load Weighted Price **	\$128.16	\$88.17	\$53.69	\$55.96	\$69.05	\$75.15	\$96.74	\$105.93	\$77.41	\$52.79	\$50.77	\$101.90
<u>RTC LBMP</u>												
Price *	\$127.16	\$85.48	\$57.58	\$57.33	\$68.27	\$78.66	\$92.25	\$104.69	\$70.59	\$48.87	\$45.91	\$109.15
Standard Deviation	\$77.62	\$55.20	\$38.62	\$21.09	\$42.87	\$49.85	\$49.28	\$51.96	\$28.06	\$13.16	\$24.06	\$190.04
Load Weighted Price **	\$130.45	\$88.33	\$59.03	\$58.49	\$72.67	\$82.33	\$98.61	\$111.42	\$73.81	\$49.76	\$47.58	\$115.16
<u>REAL TIME LBMP</u>												
Price *	\$130.43	\$83.85	\$57.00	\$54.45	\$65.07	\$74.01	\$90.23	\$105.61	\$71.11	\$49.26	\$48.62	\$114.54
Standard Deviation	\$93.35	\$57.99	\$44.52	\$20.46	\$33.01	\$41.27	\$54.20	\$69.83	\$30.72	\$17.89	\$37.20	\$216.43
Load Weighted Price **	\$133.98	\$86.99	\$58.64	\$55.57	\$68.60	\$77.40	\$96.79	\$113.16	\$74.57	\$50.30	\$50.78	\$122.49
Average Daily Energy Sendout/Month GWh	451	429	390	359	372	422	509	514	411	359	382	421

* Average zonal load weighted prices.

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

NYISO Monthly Average Internal LBMPs 2022 - 2023

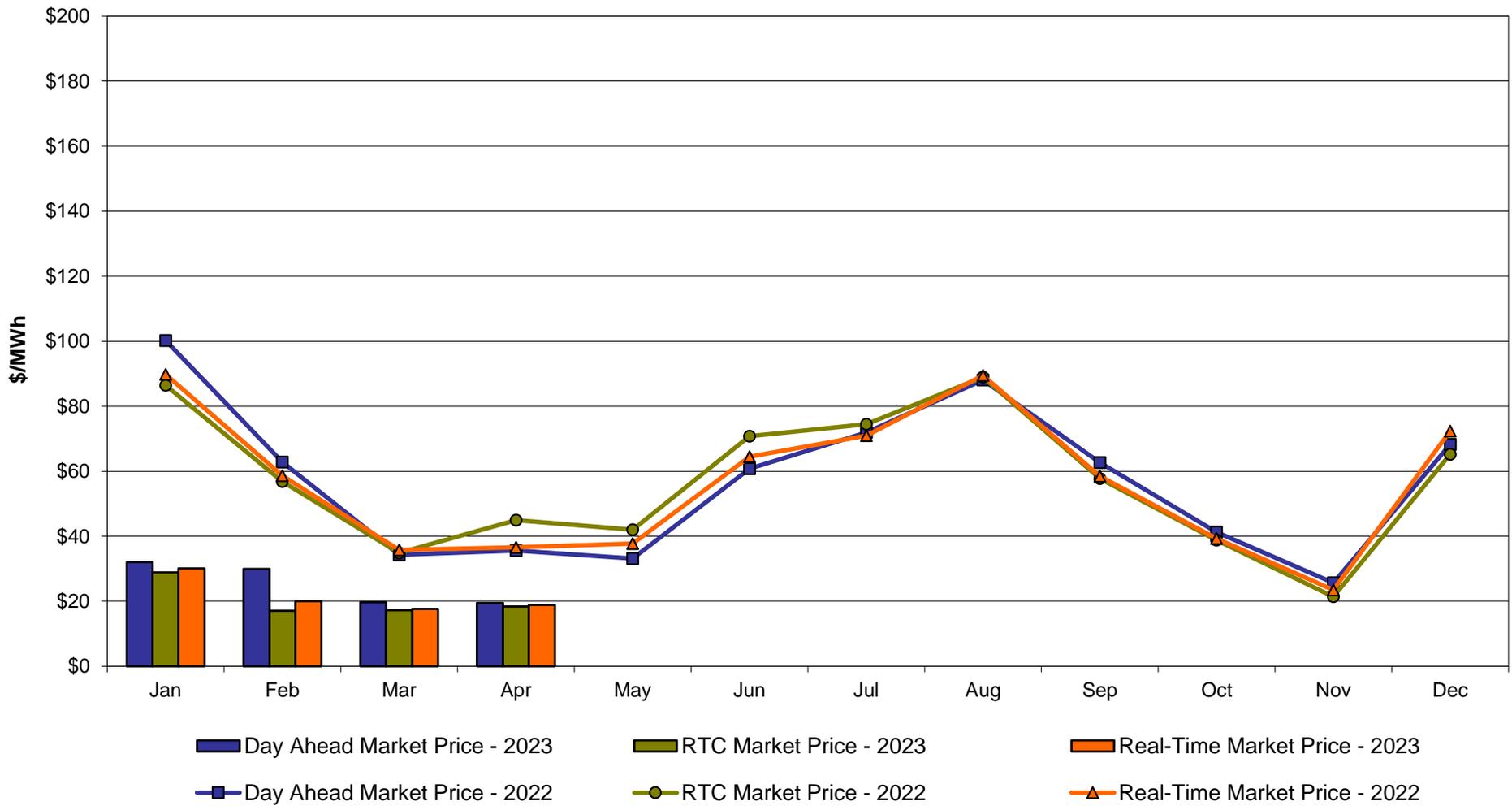


April 2023 Zonal LBMP Statistics for NYISO (\$/MWh)

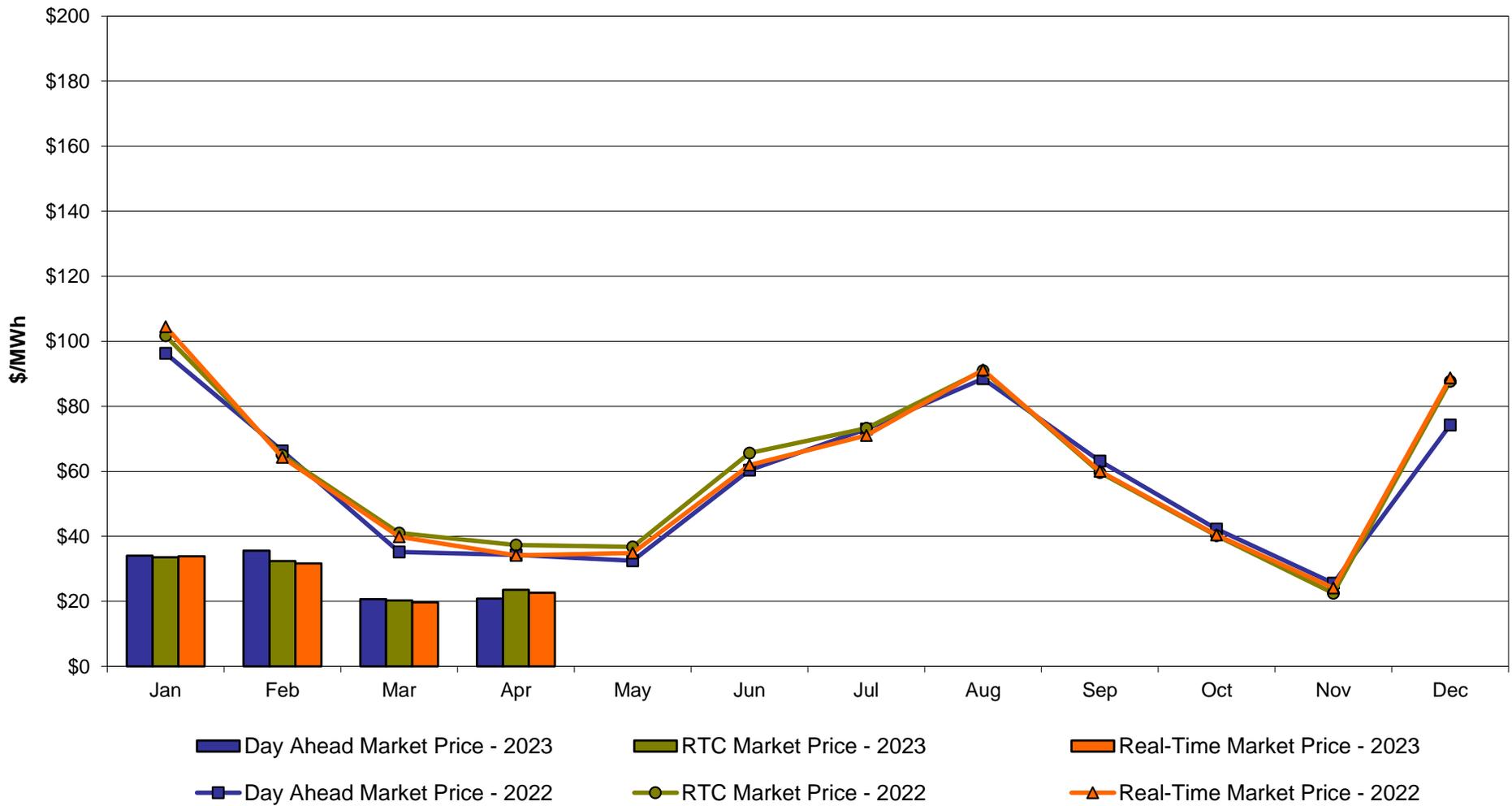
	<u>WEST Zone A</u>	<u>GENESEE Zone B</u>	<u>NORTH Zone D</u>	<u>CENTRAL Zone C</u>	<u>MOHAWK VALLEY Zone E</u>	<u>CAPITAL Zone F</u>	<u>HUDSON VALLEY Zone G</u>	<u>MILLWOOD Zone H</u>	<u>DUNWOODIE Zone I</u>	<u>NEW YORK CITY Zone J</u>	<u>LONG ISLAND Zone K</u>
<u>DAY AHEAD LBMP</u>											
Unweighted Price *	19.41	20.06	16.94	20.82	20.95	33.04	29.79	30.16	30.23	30.30	31.20
Standard Deviation	6.16	6.65	7.38	6.60	6.60	10.15	7.47	7.61	7.61	7.59	7.96
<u>RTC LBMP</u>											
Unweighted Price *	18.37	21.65	17.25	23.55	22.42	32.23	29.52	29.67	29.69	29.78	30.77
Standard Deviation	8.86	9.72	13.29	10.54	9.57	15.48	11.25	11.26	11.22	11.18	22.18
<u>REAL TIME LBMP</u>											
Unweighted Price *	18.87	21.14	16.51	22.62	21.93	34.03	30.49	30.65	30.66	30.75	30.63
Standard Deviation	10.74	11.36	14.67	11.68	11.33	25.11	16.83	16.89	16.83	16.80	17.96
	<u>ONTARIO IESO Zone O</u>	<u>HYDRO QUEBEC (Wheel) Zone M</u>	<u>HYDRO QUEBEC (Import/Export) Zone M</u>	<u>PJM Zone P</u>	<u>NEW ENGLAND Zone N</u>	<u>CROSS SOUND CABLE Controllable Line</u>	<u>NORTHPORT- NORWALK Controllable Line</u>	<u>NEPTUNE Controllable Line</u>	<u>LINDEN VFT Controllable Line</u>	<u>HUDSON Controllable Line</u>	<u>Dennison Controllable Line</u>
<u>DAY AHEAD LBMP</u>											
Unweighted Price *	19.06	17.37	17.37	25.47	29.86	30.92	30.15	30.57	30.16	30.22	16.95
Standard Deviation	6.03	6.89	6.89	6.05	7.34	7.93	7.16	7.59	7.57	7.58	7.15
<u>RTC LBMP</u>											
Unweighted Price *	18.22	18.03	18.03	25.54	28.26	30.03	29.91	29.08	29.46	29.50	14.59
Standard Deviation	8.42	11.63	11.63	8.59	11.24	22.13	22.10	13.98	10.98	11.09	60.62
<u>REAL TIME LBMP</u>											
Unweighted Price *	19.24	17.24	17.24	25.96	30.37	29.84	28.64	29.04	30.48	30.62	15.57
Standard Deviation	11.29	14.06	14.06	11.92	20.16	17.86	21.38	15.02	16.71	16.78	25.99

* Straight LBMP averages

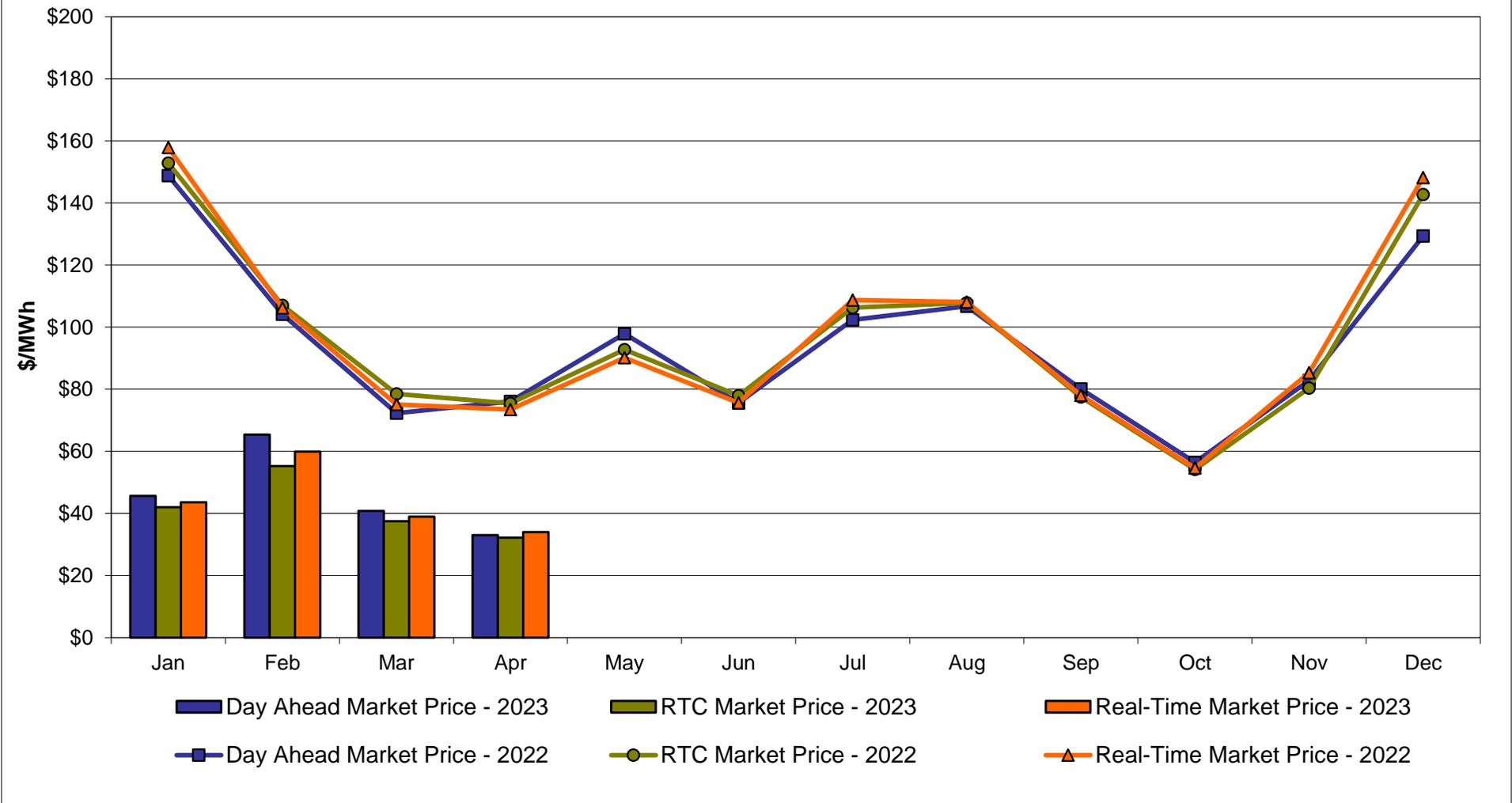
**West Zone A
Monthly Average LBMP Prices 2022 - 2023**



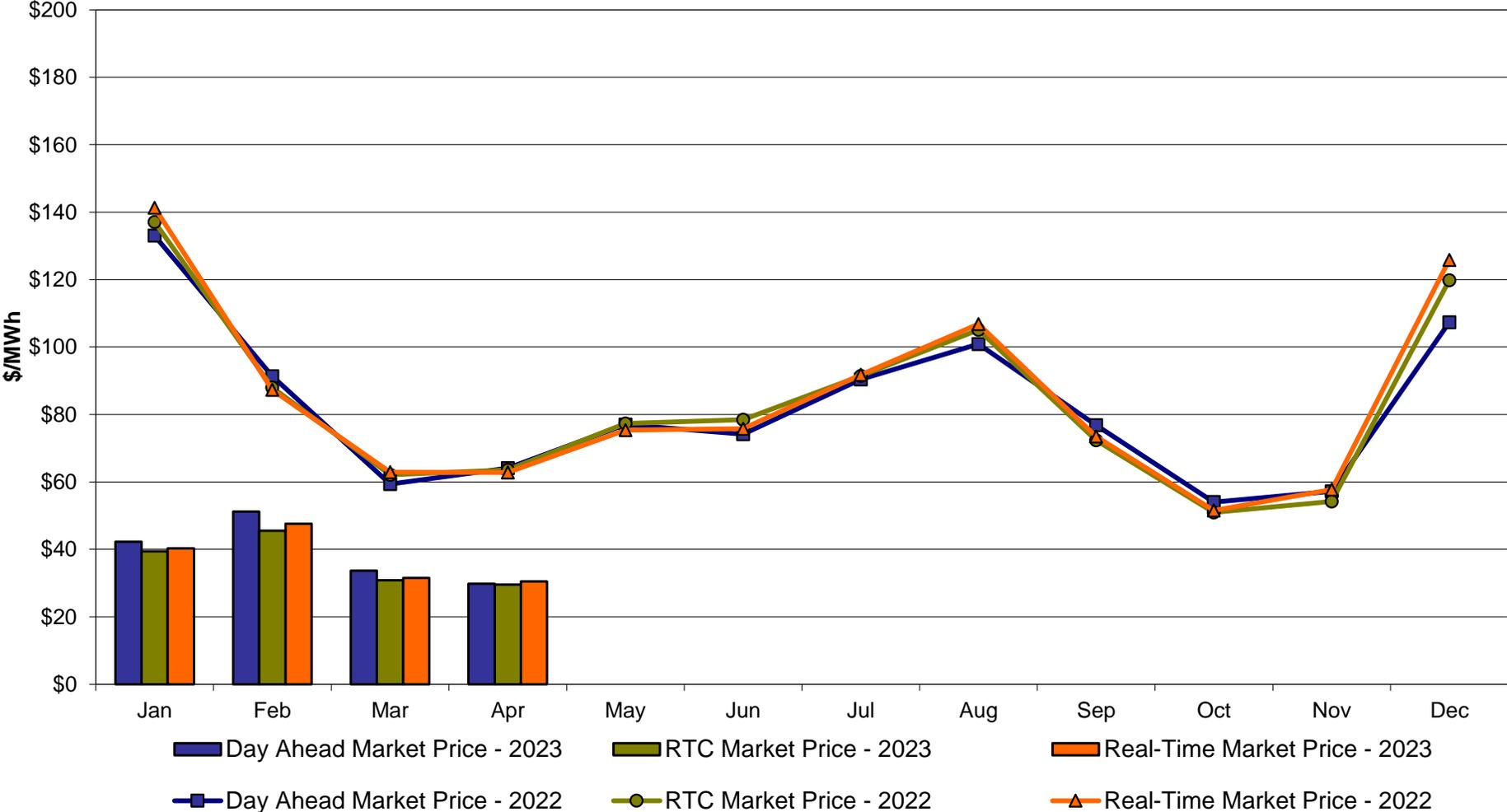
**Central Zone C
Monthly Average LBMP Prices 2022 - 2023**



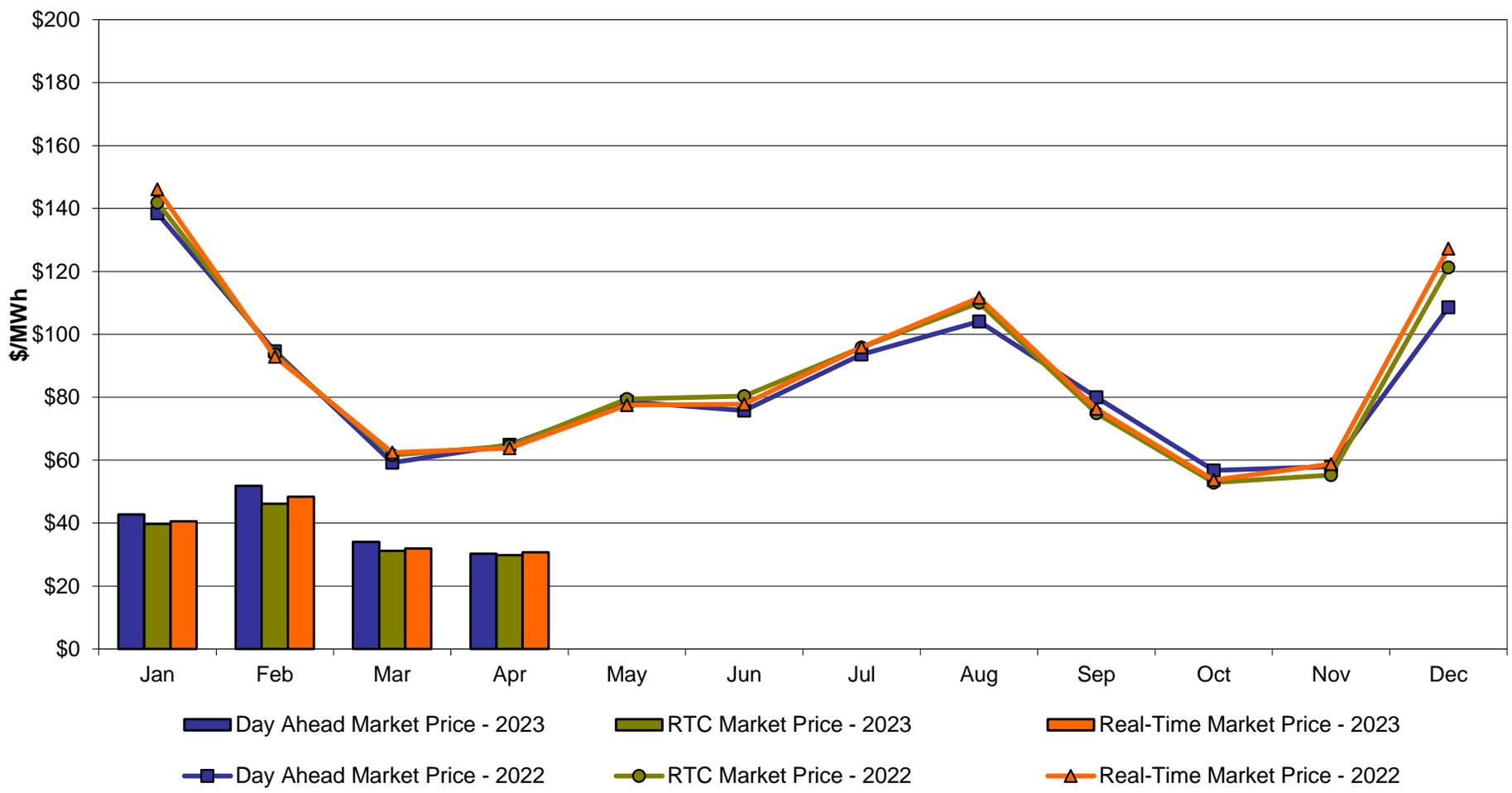
Capital Zone F Monthly Average LBMP Prices 2022 - 2023



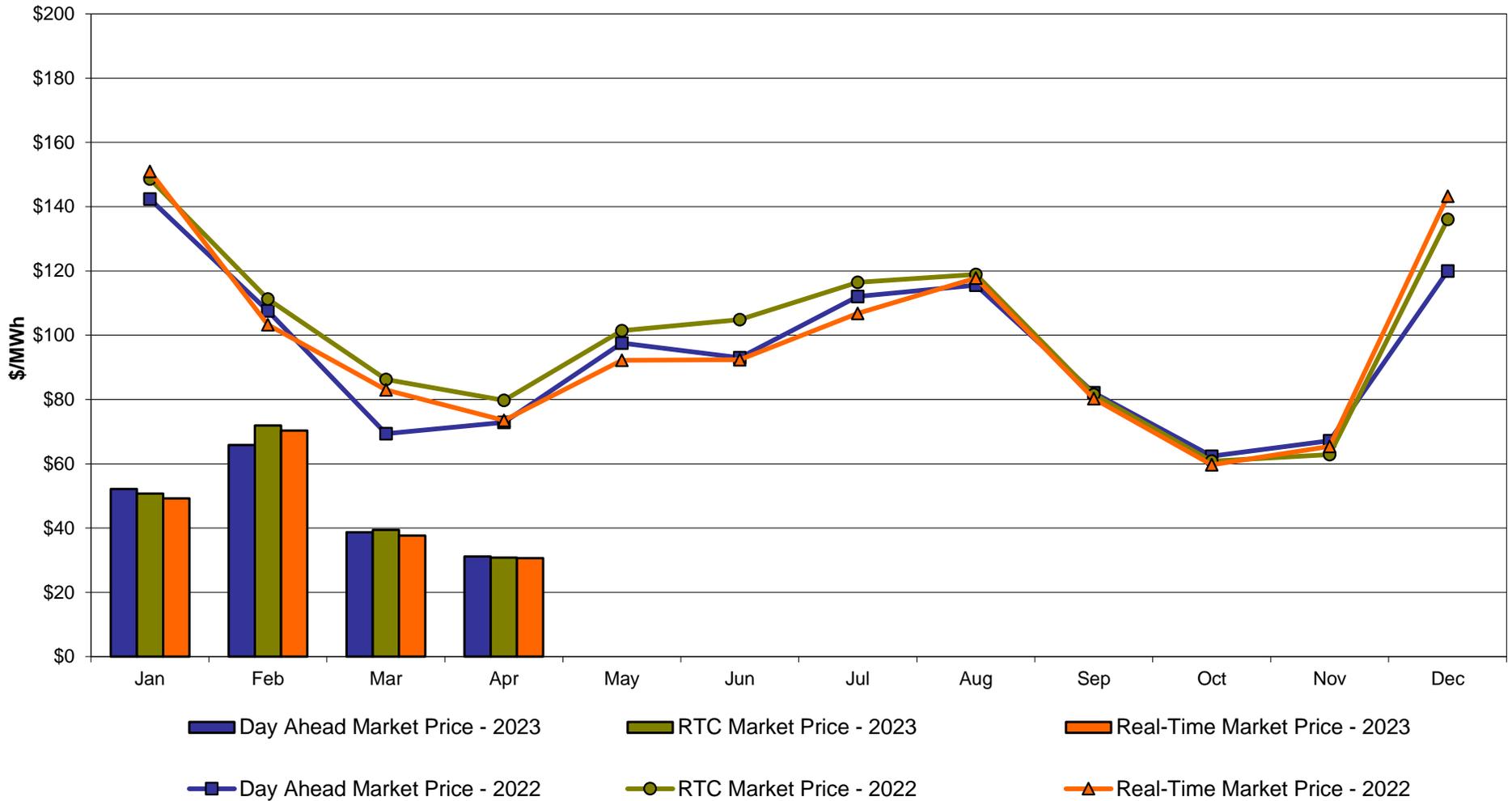
Hudson Valley Zone G Monthly Average LBMP Prices 2022 - 2023



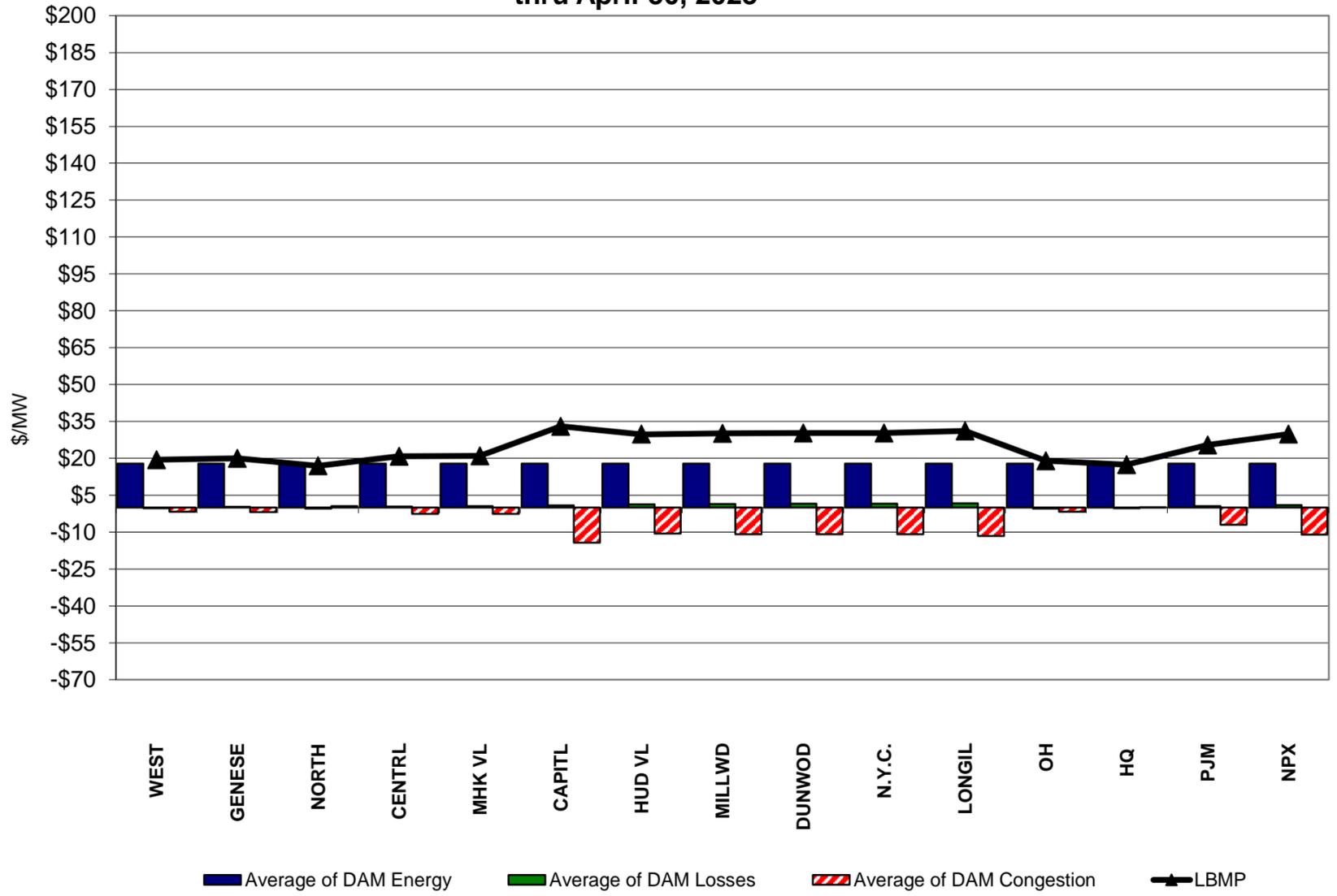
NYC Zone J Monthly Average LBMP Prices 2022 - 2023



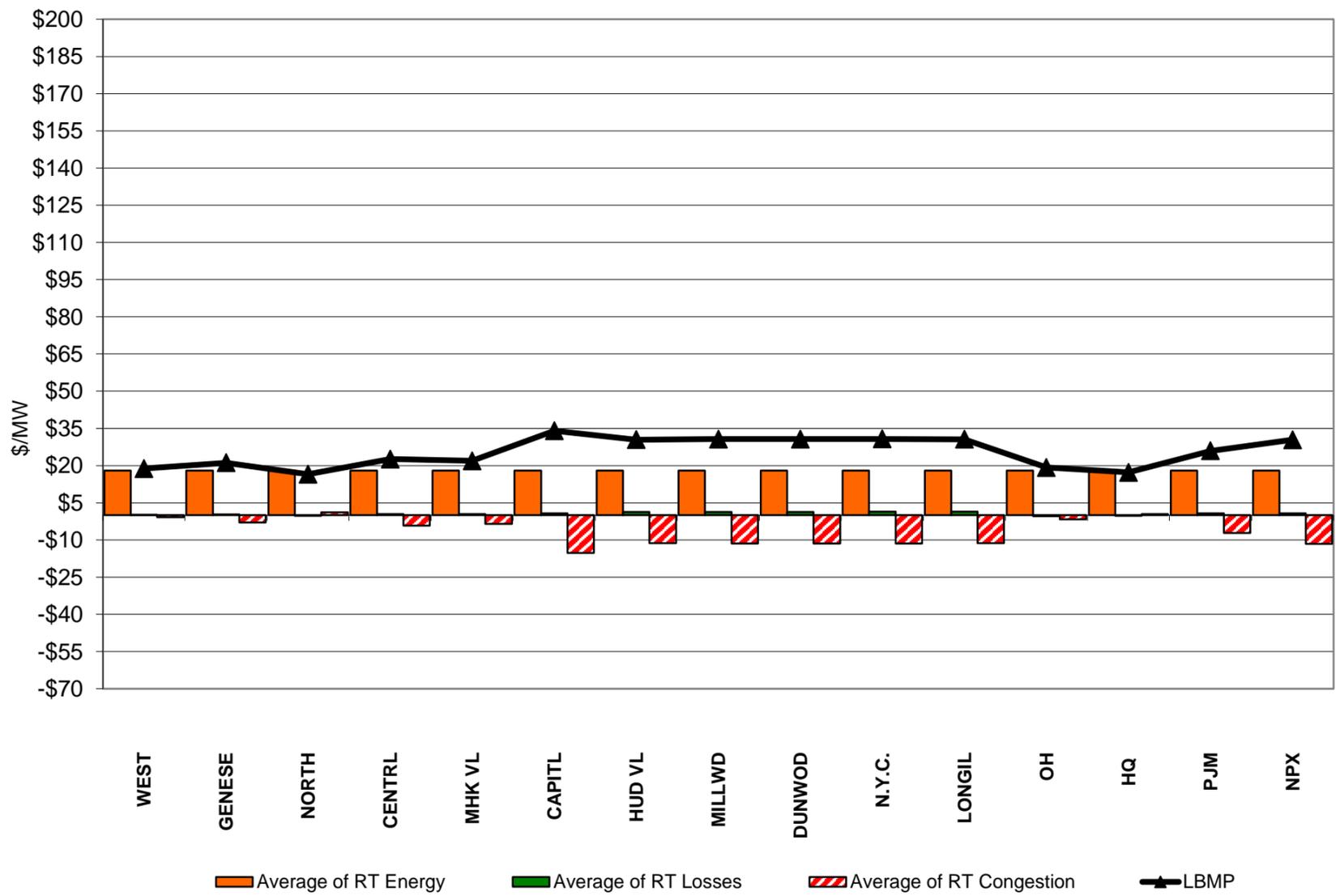
Long Island Zone K Monthly Average LBMP Prices 2022 - 2023



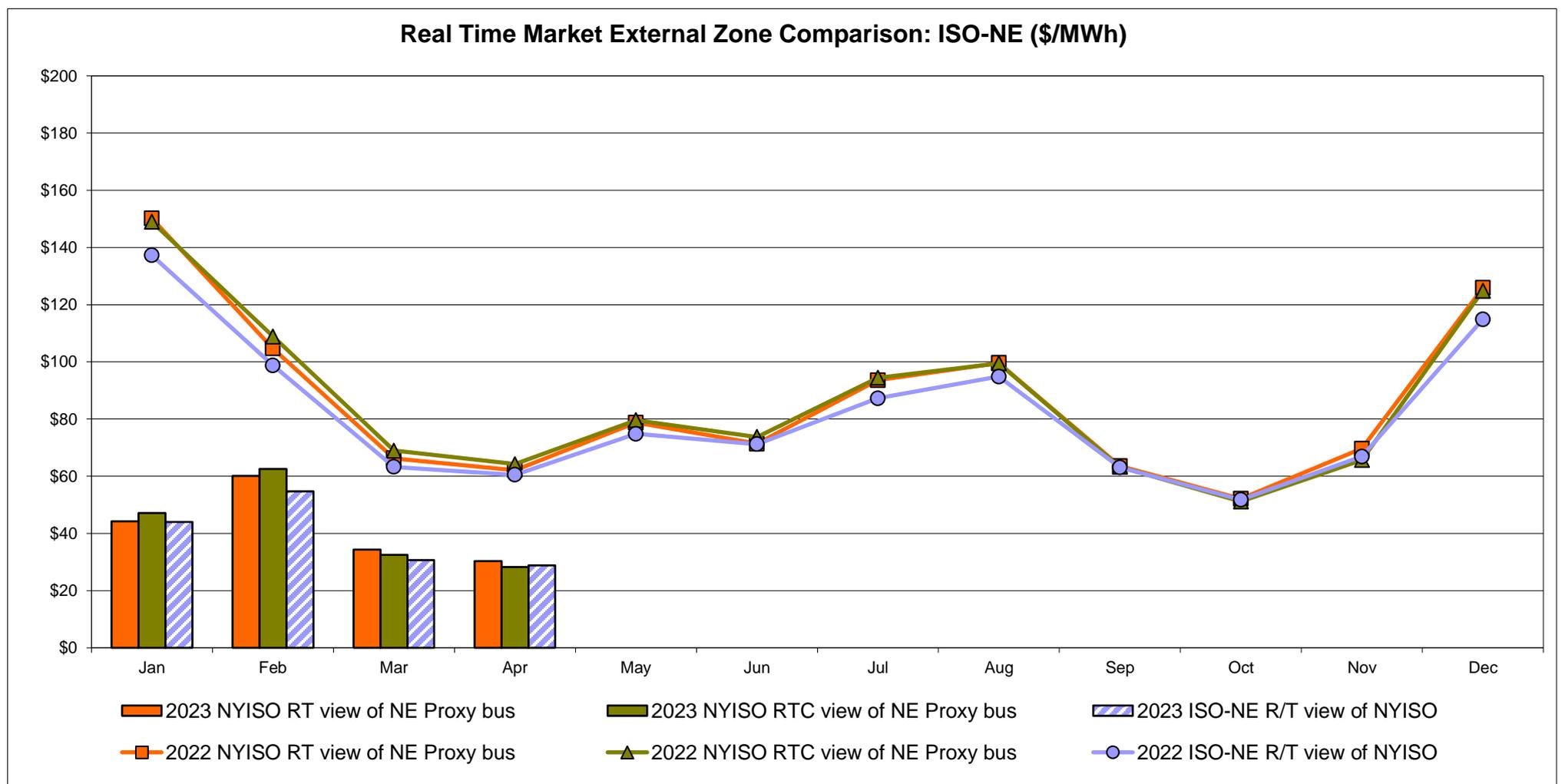
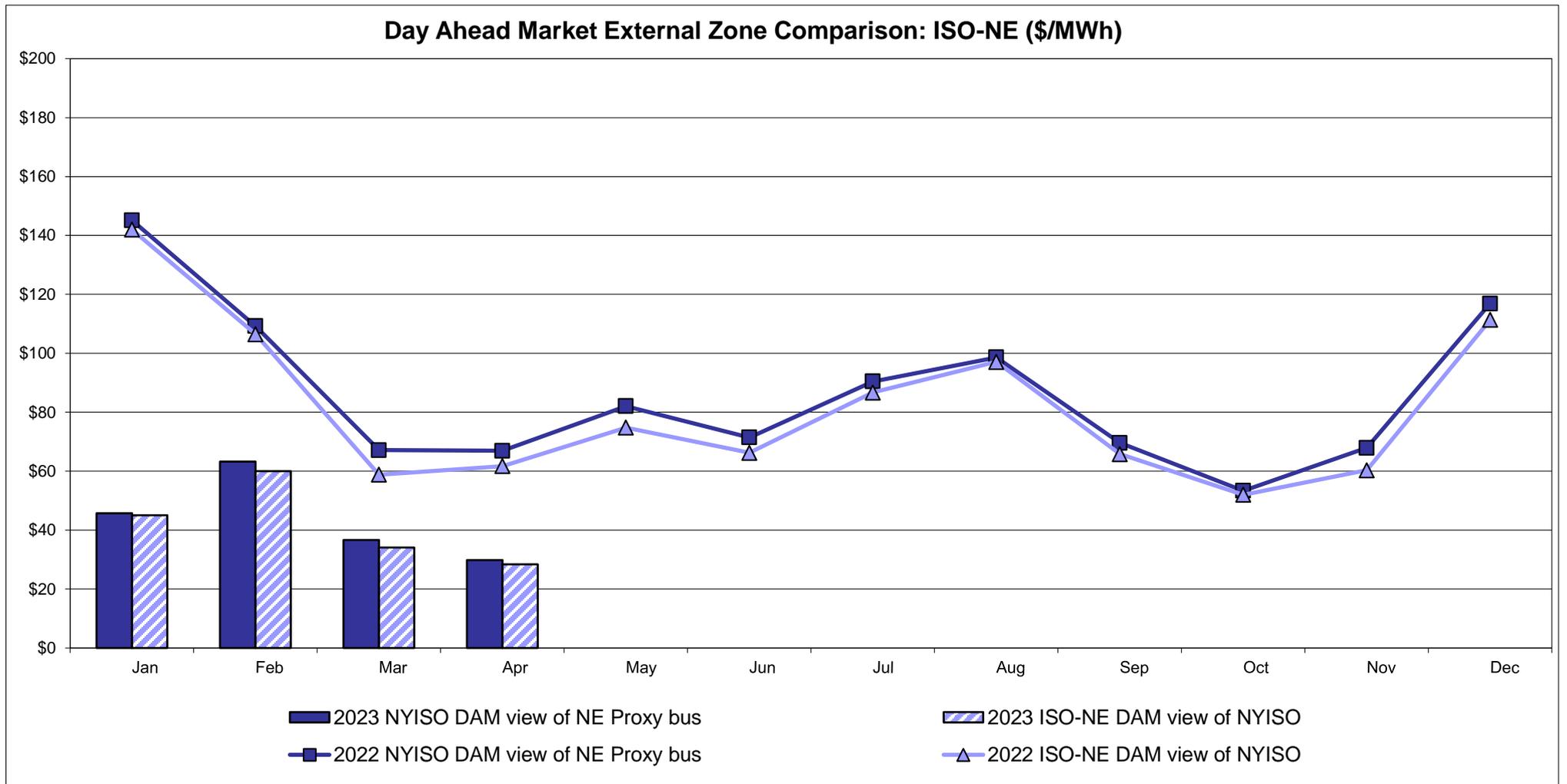
**DAM Zonal Unweighted Monthly Average LBMP Components
thru April 30, 2023**



**RT Zonal Unweighted Monthly Average LBMP Components
thru April 30, 2023**

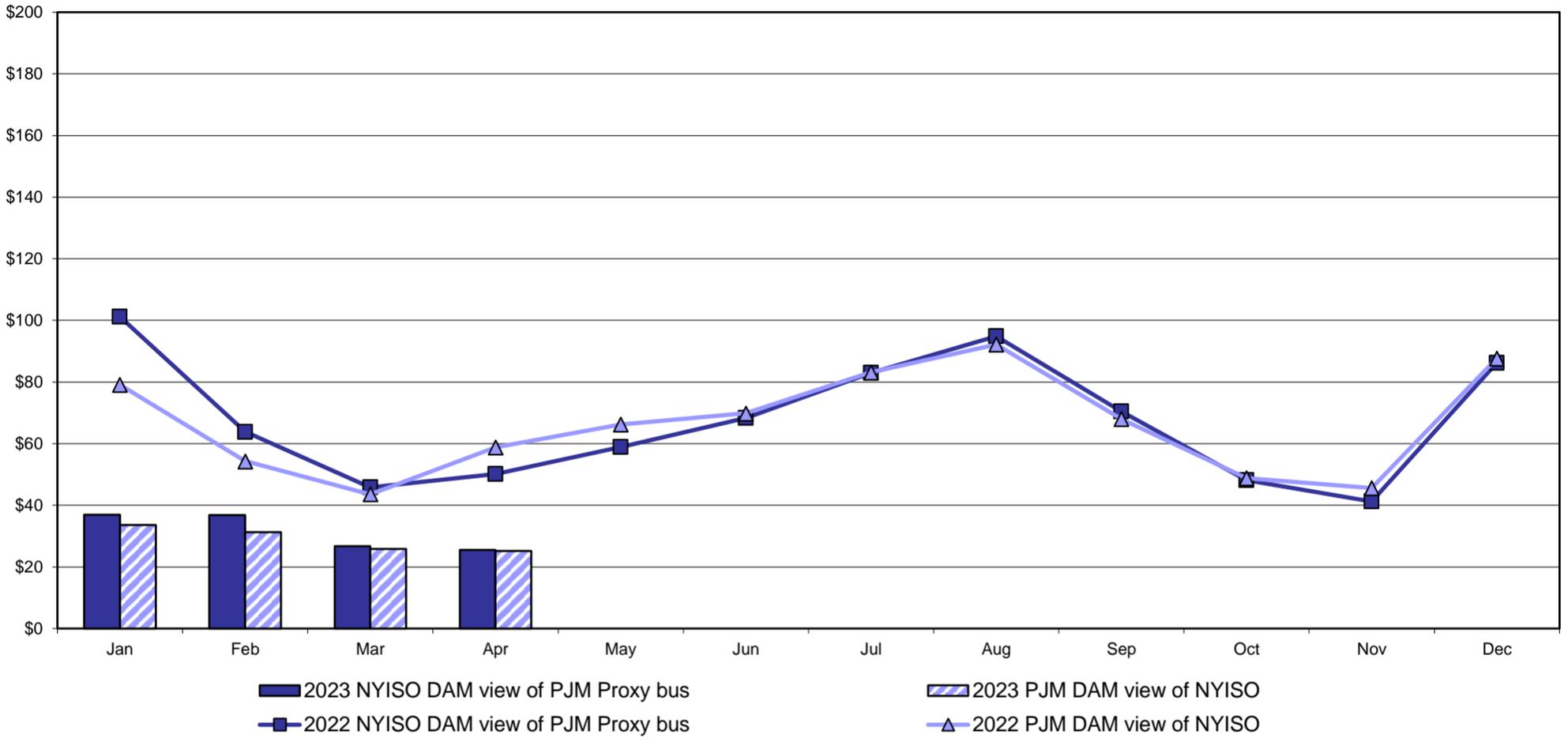


External Comparison ISO-New England

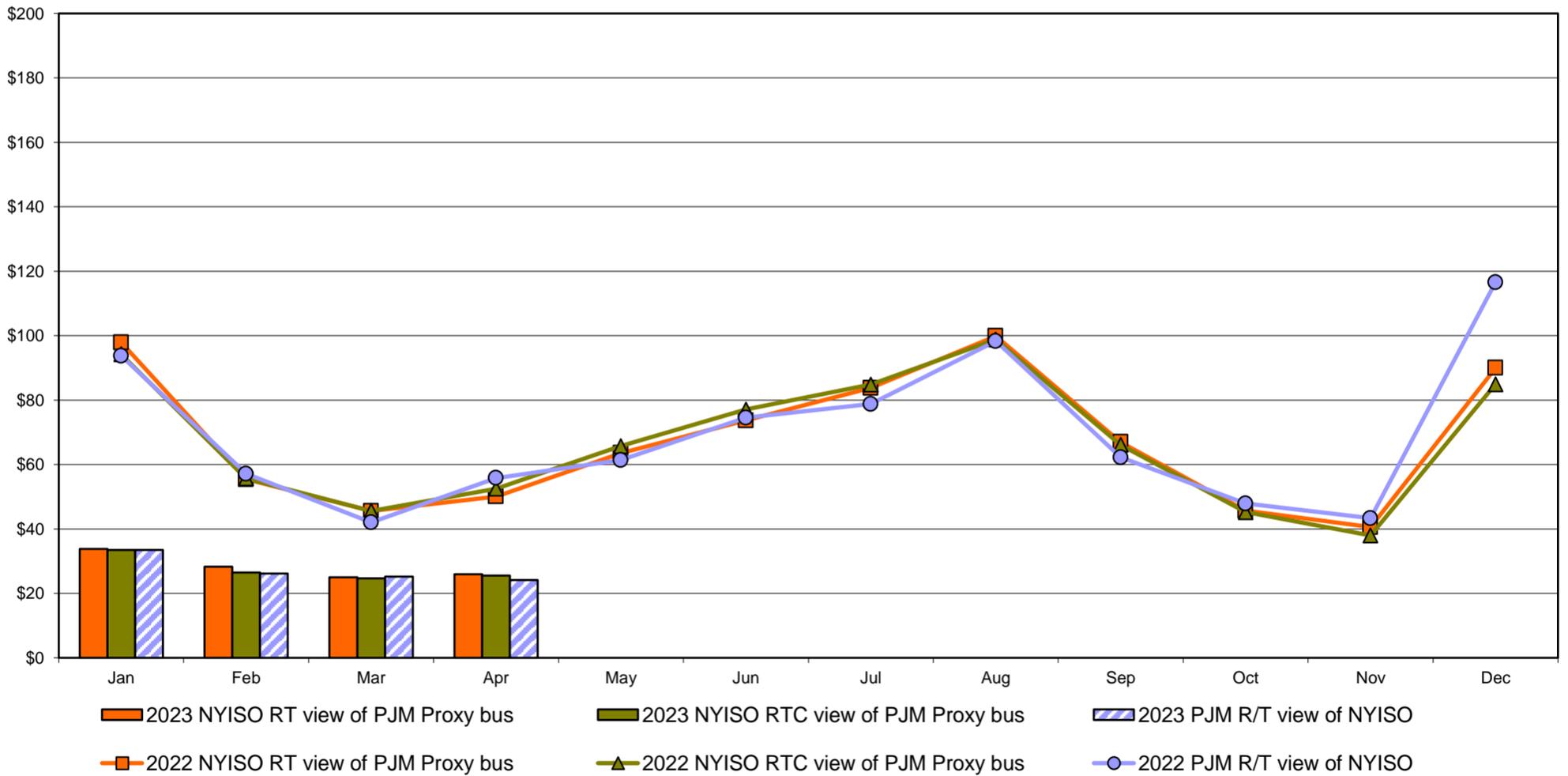


External Comparison PJM

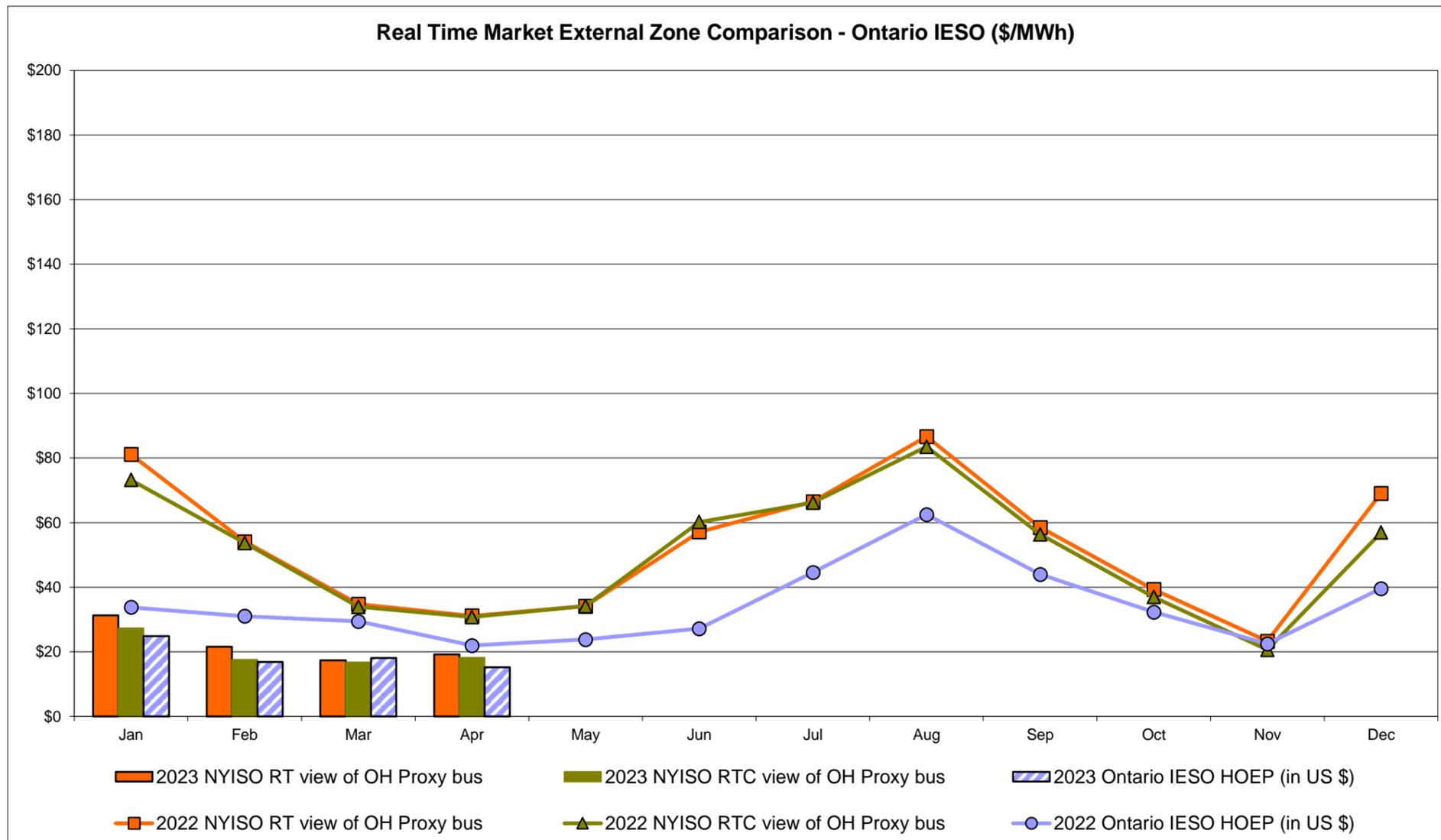
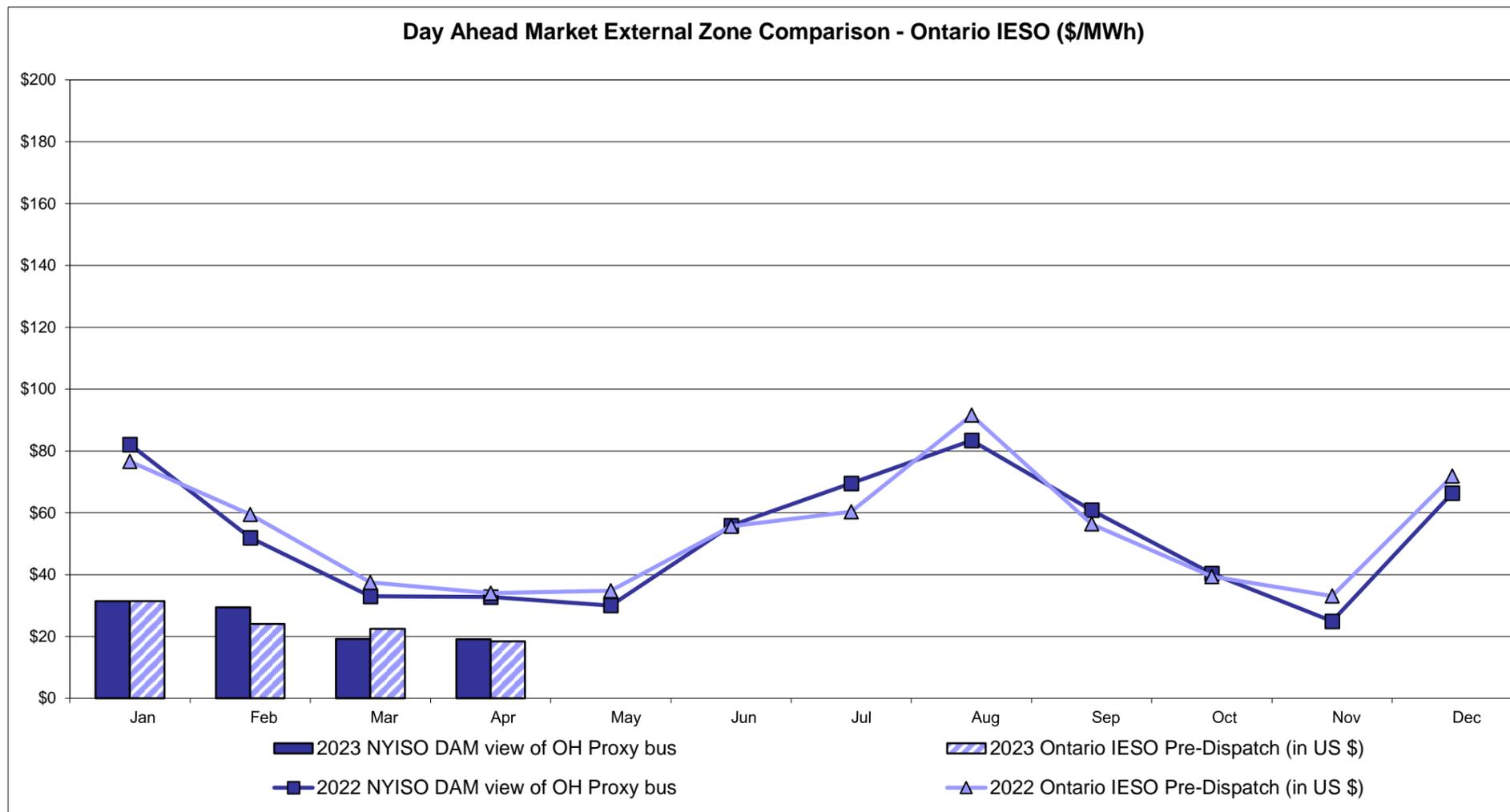
Day Ahead Market External Zone Comparison - PJM (\$/MWh)



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

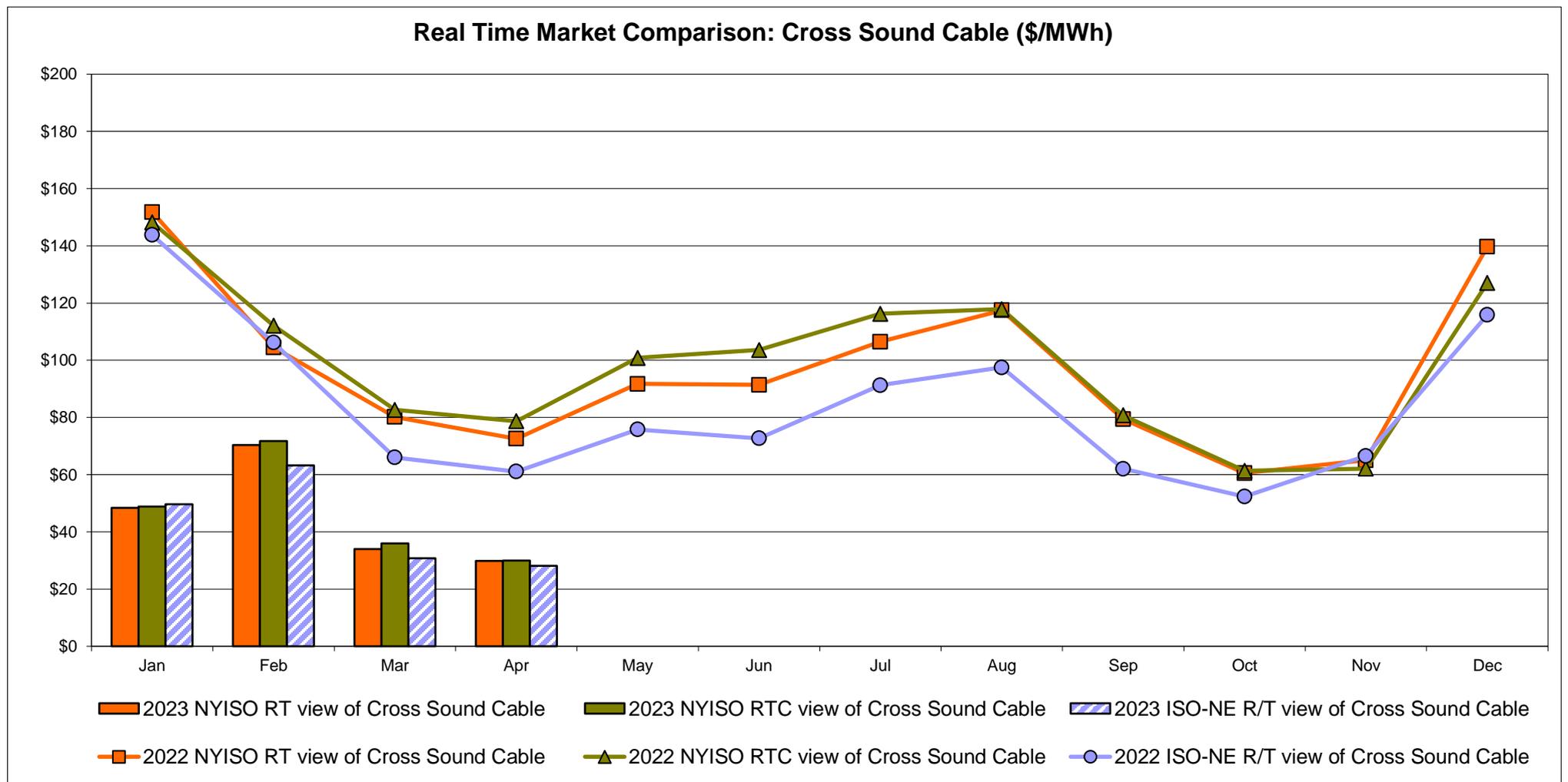
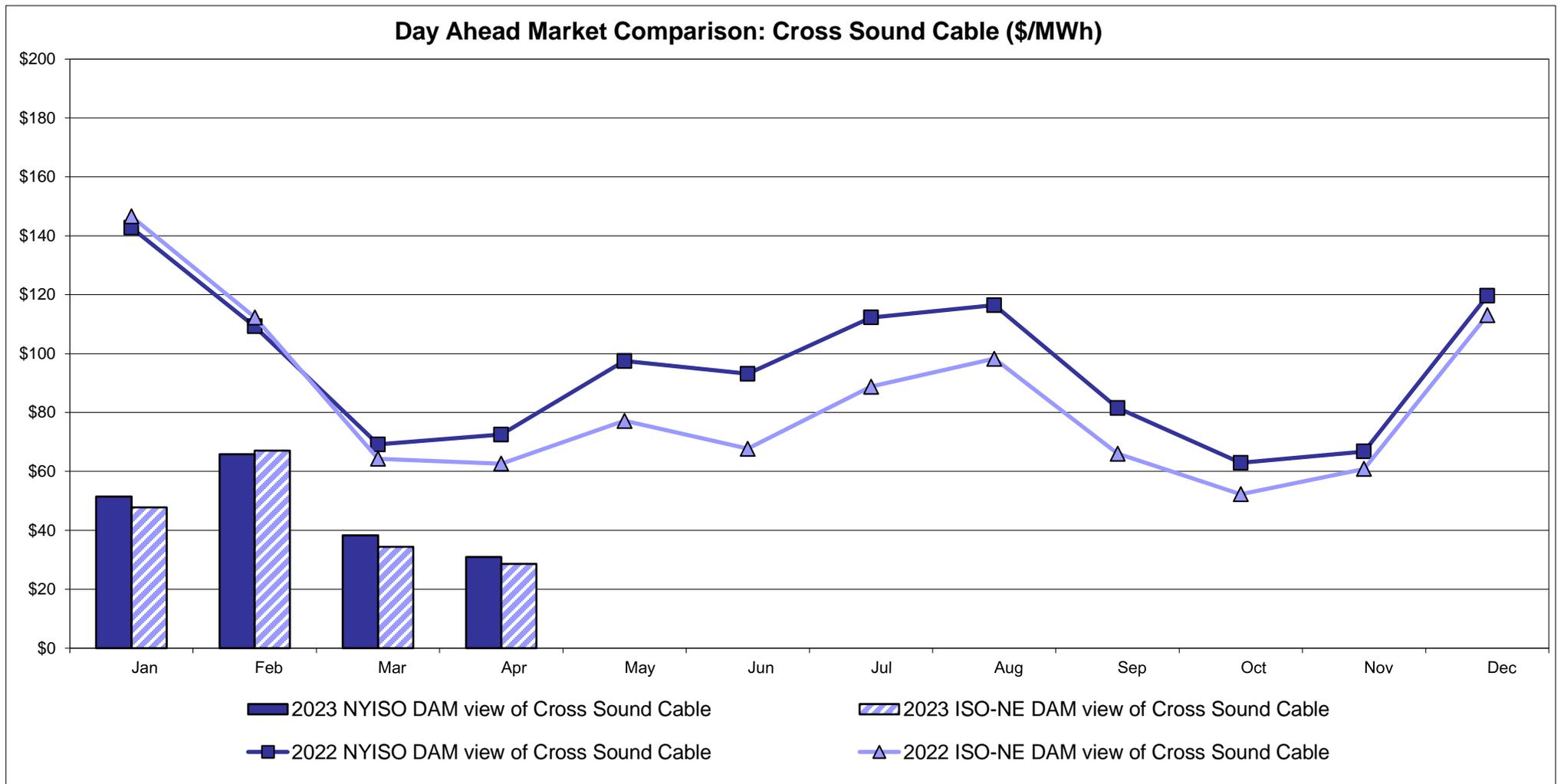


External Comparison Ontario IESO



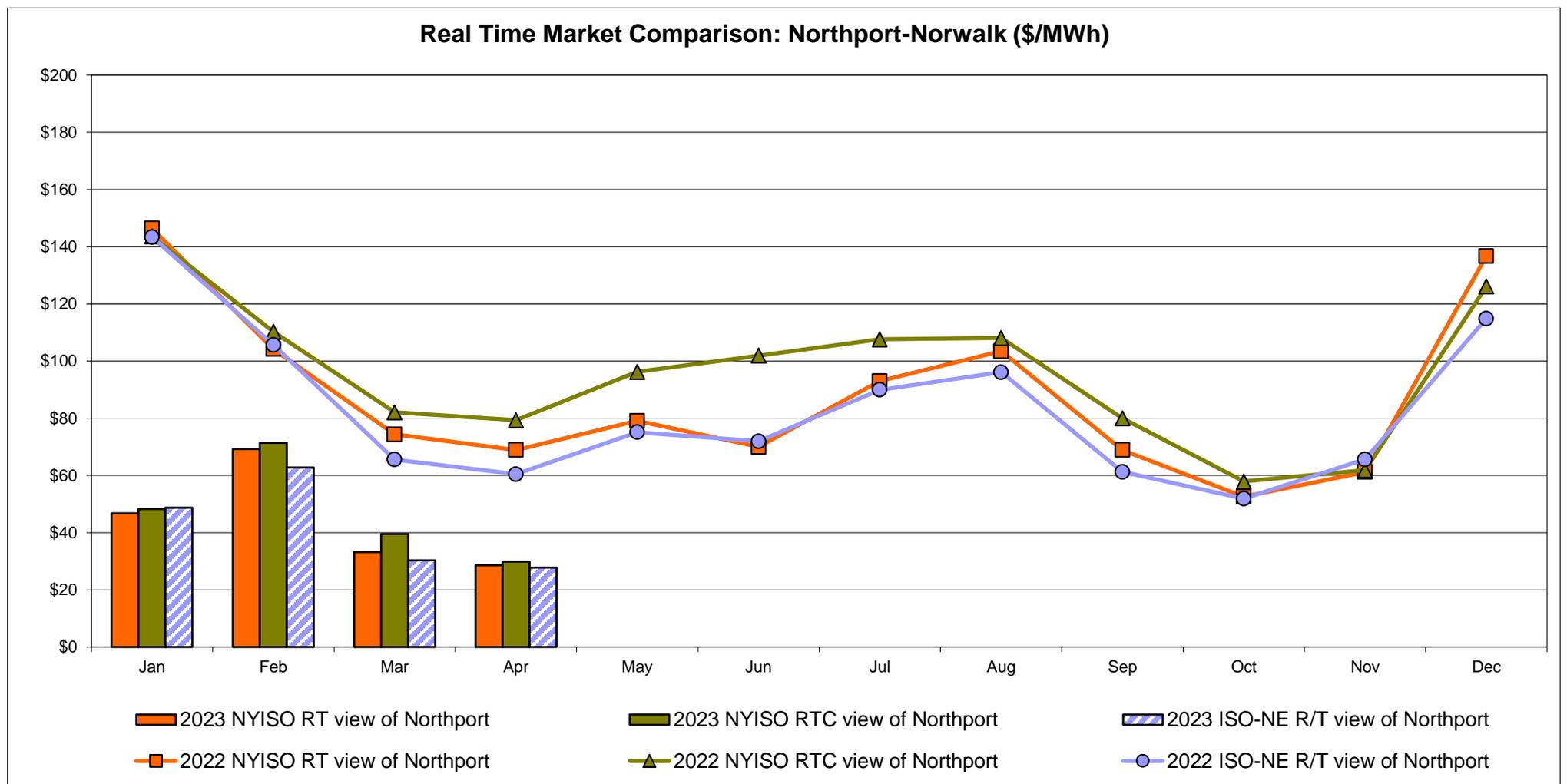
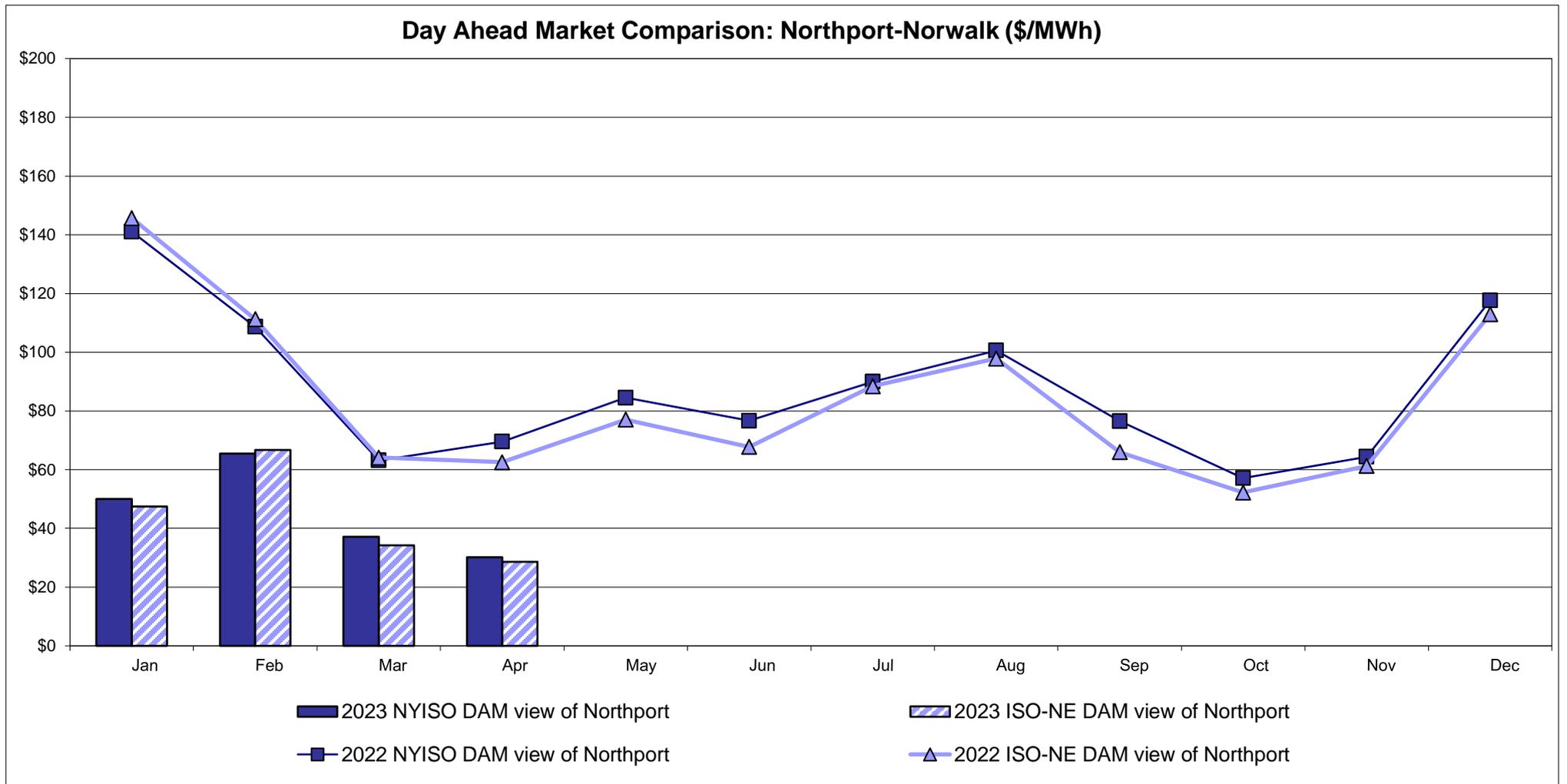
Notes: Exchange factor used for April 2023 was 0.741619697419163 to US
 HOEP: Hourly Ontario Energy Price
 Pre-Dispatch: Projected Energy Price

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.

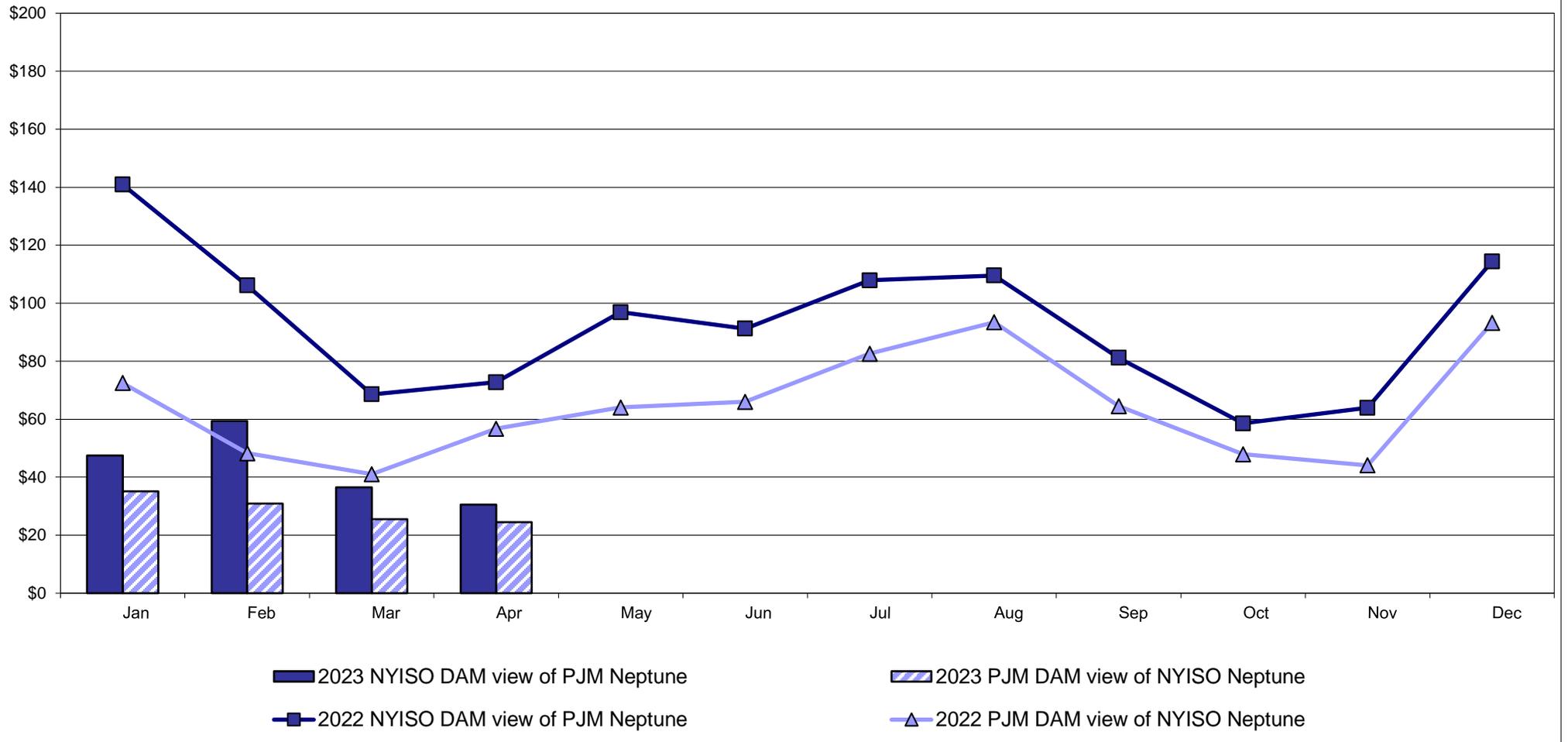
External Controllable Line: Northport - Norwalk (New England)



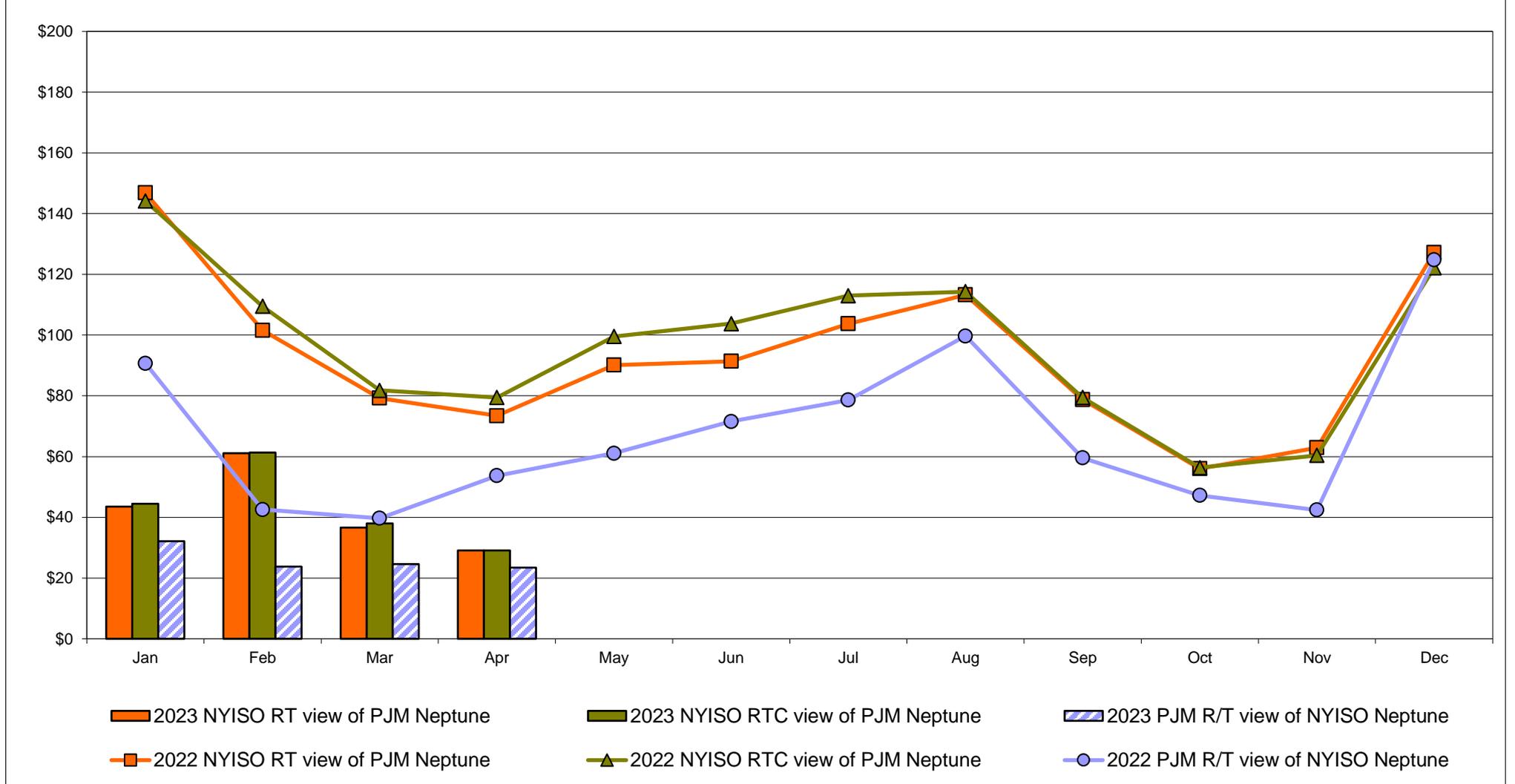
Note:
 ISO-NE Forecast is an advisory posting @ 18:00 day before.
 The DAM and R/T prices at the Northport 138 interface are used for ISO-NE.
 The DAM and R/T prices at the 1385 interface are used for NYISO.

External Controllable Line: Neptune (PJM)

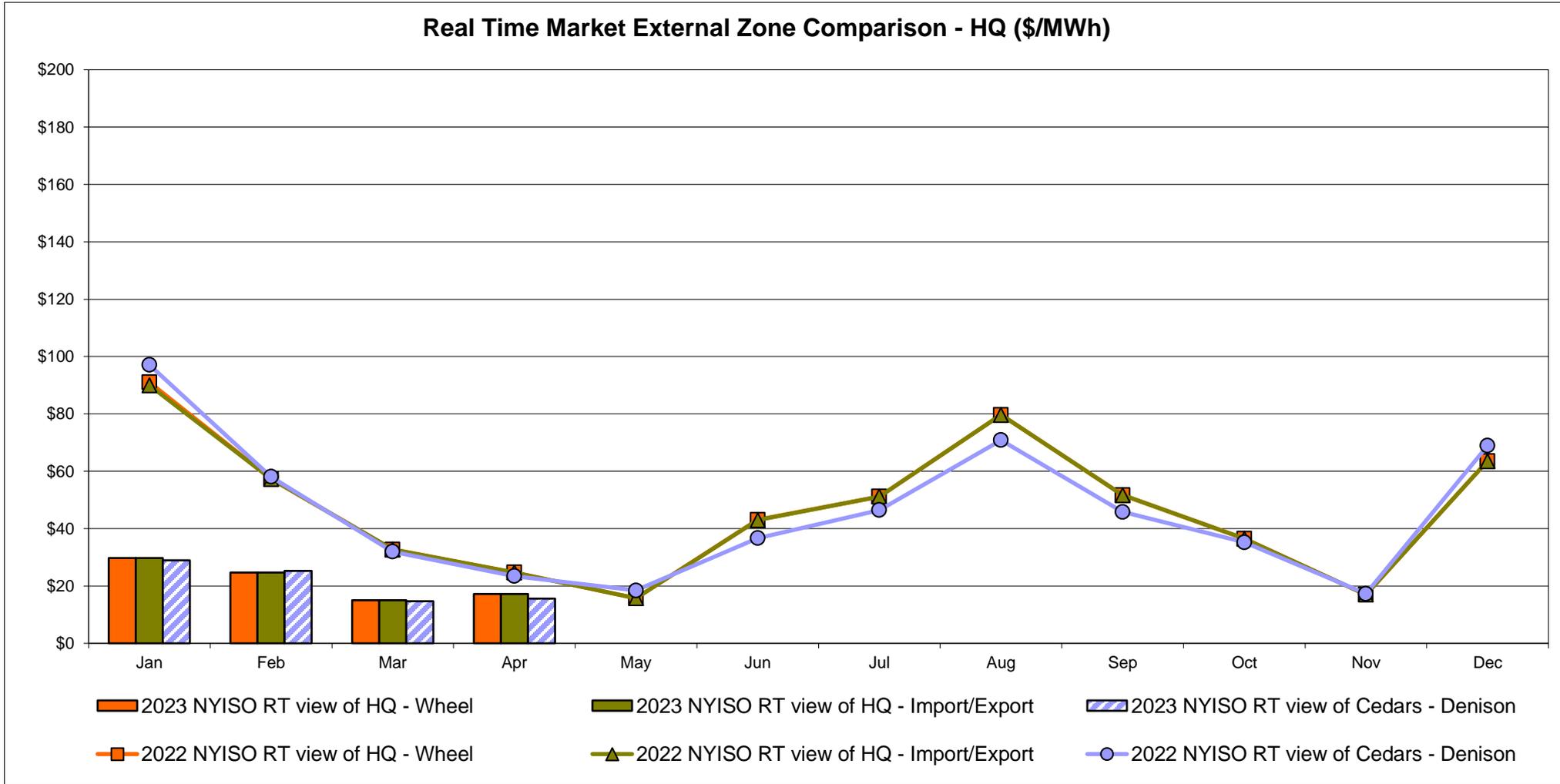
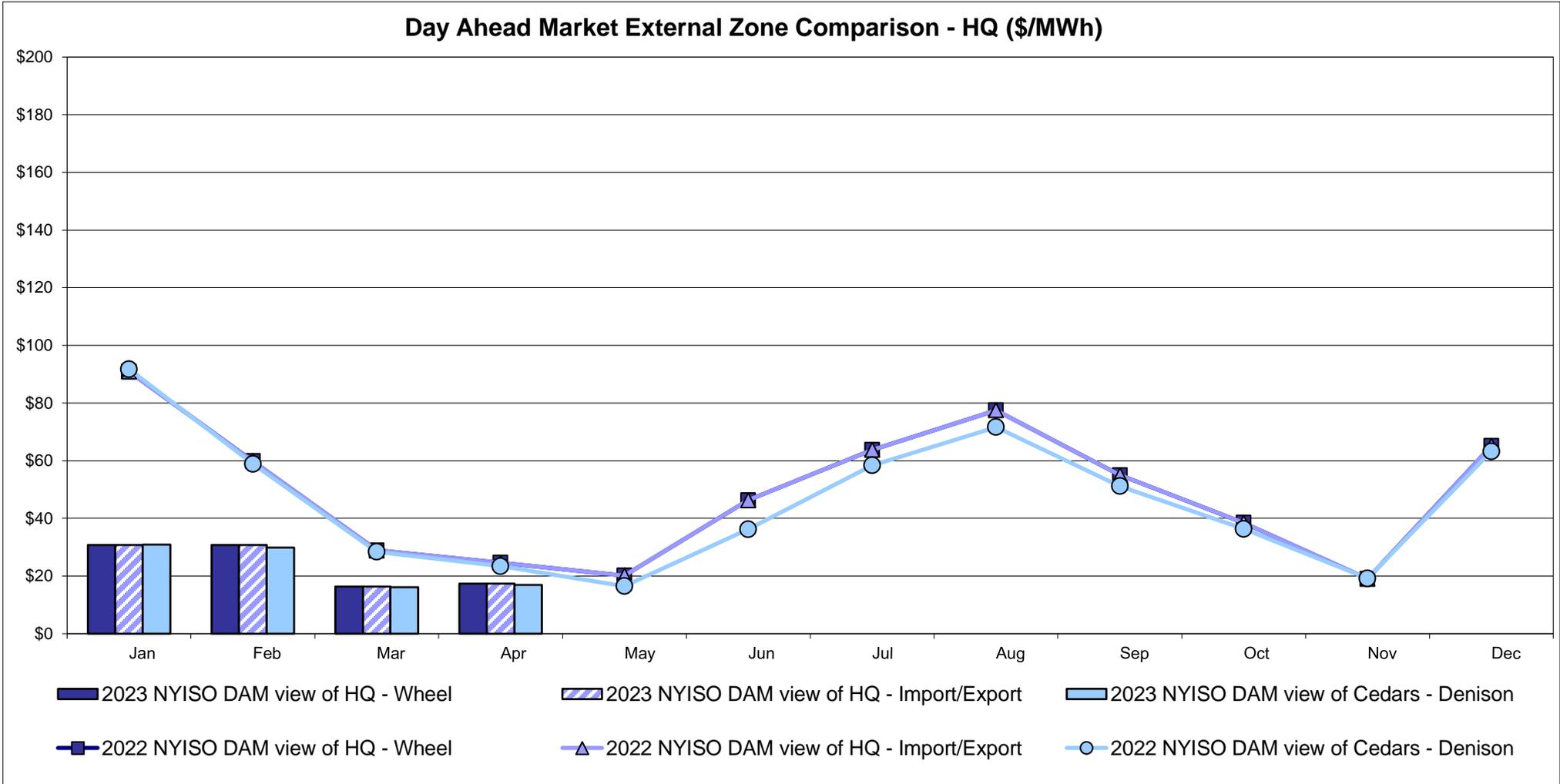
Day Ahead Market Comparison: Neptune (\$/MWh)



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

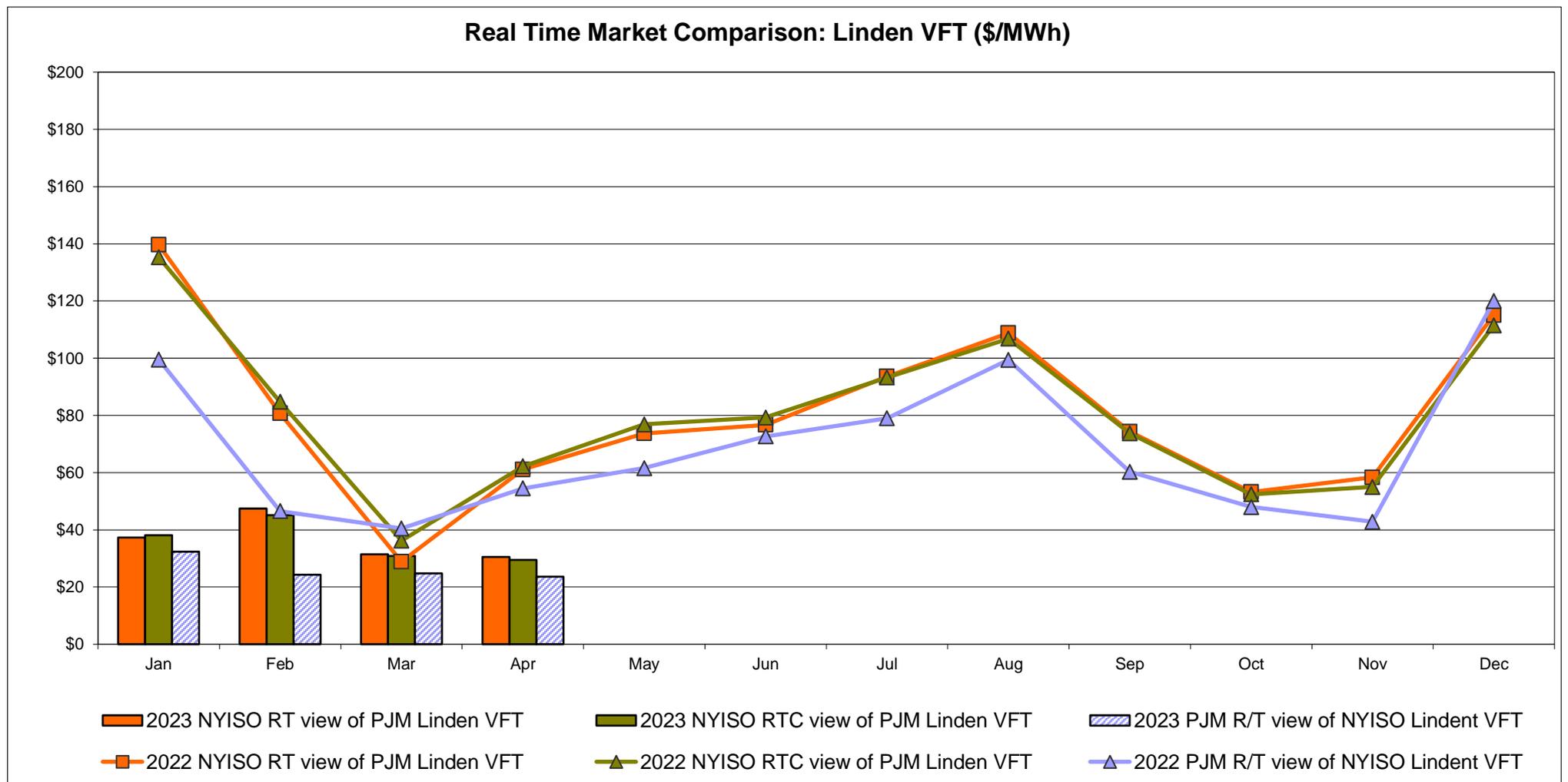
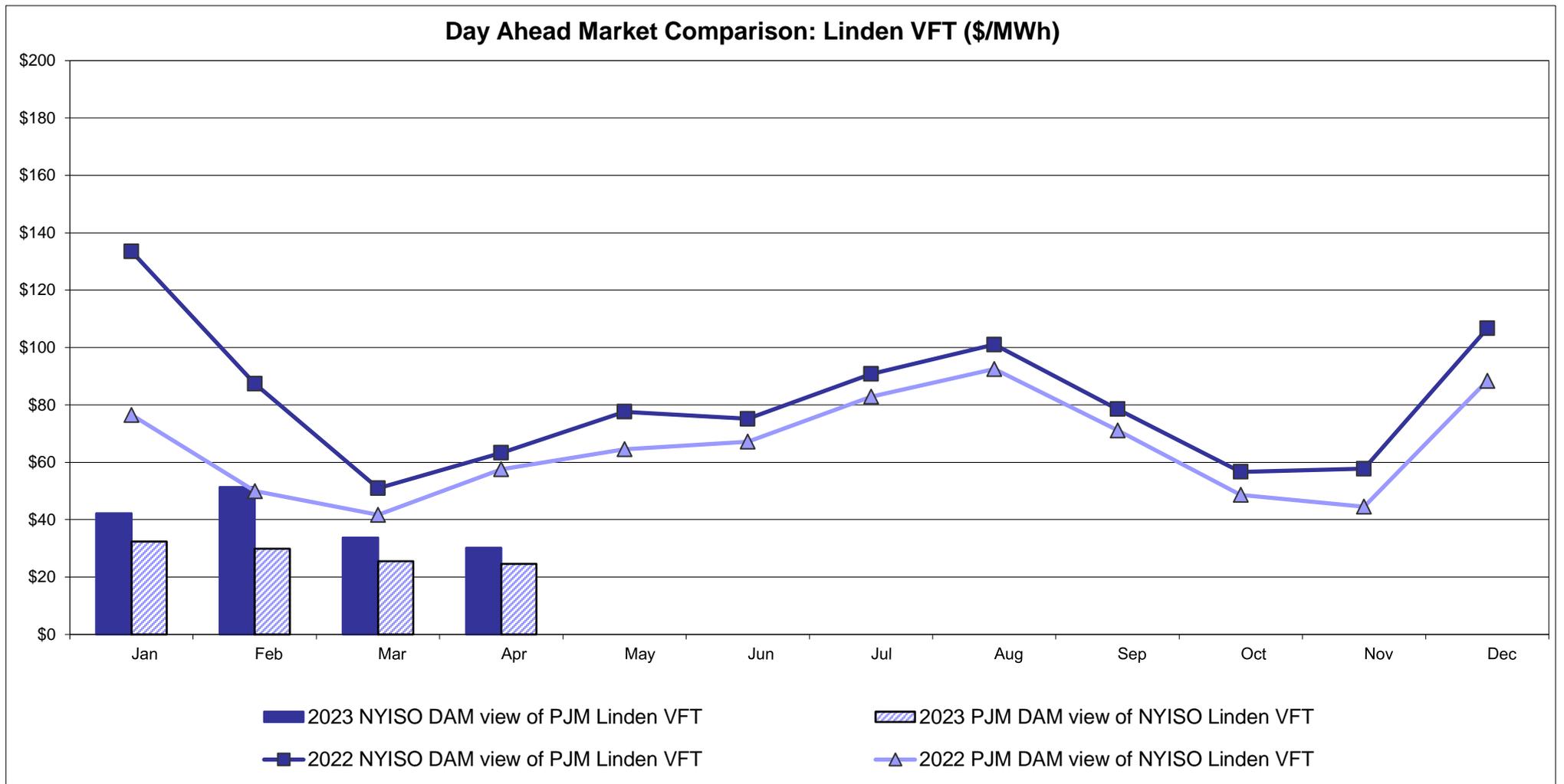


External Comparison Hydro-Quebec

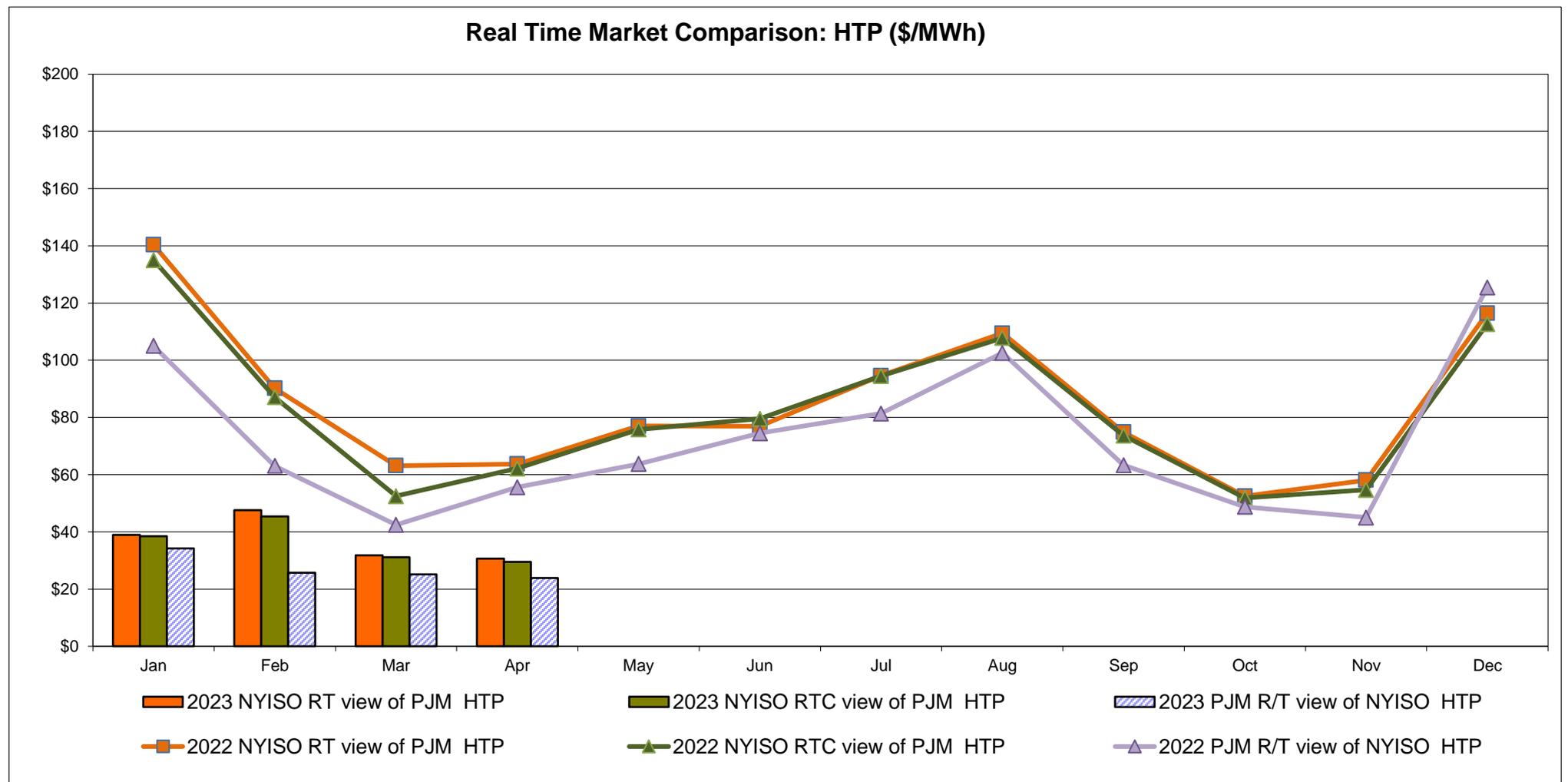
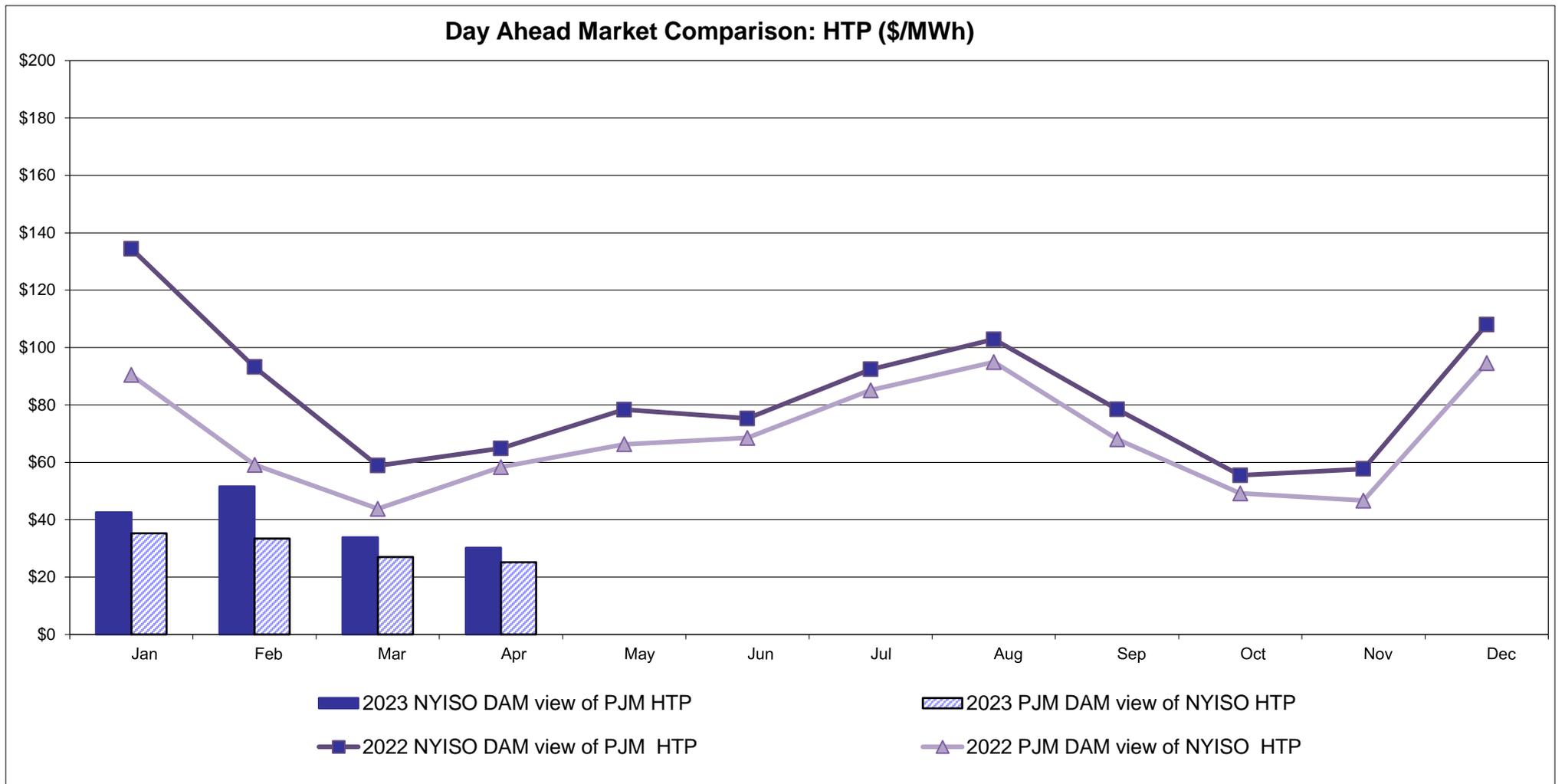


Note:
Hydro-Quebec Prices are unavailable.

External Controllable Line: Linden VFT (PJM)



External Controllable Line: Hudson (PJM)

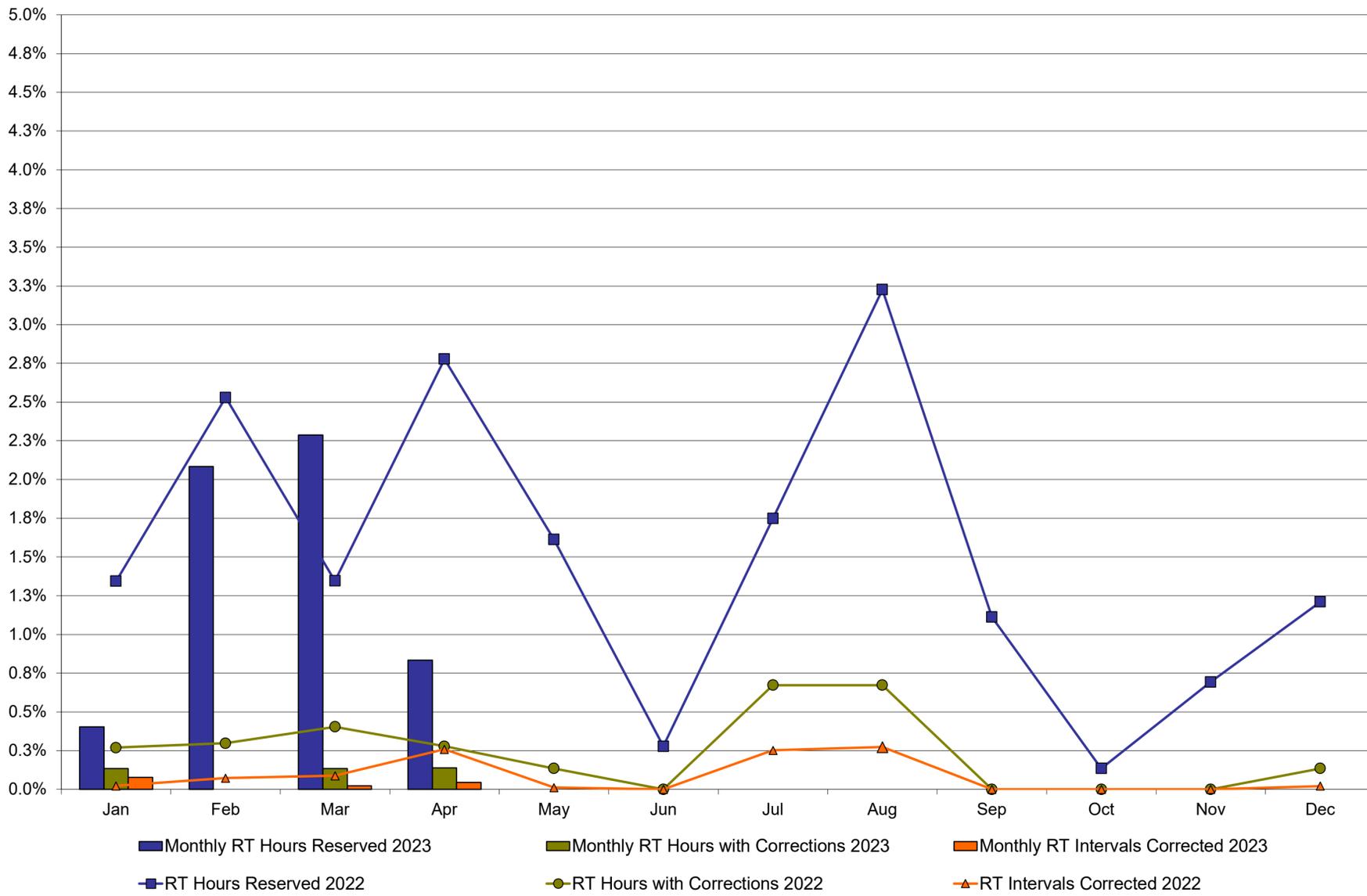


NYISO Real Time Price Correction Statistics

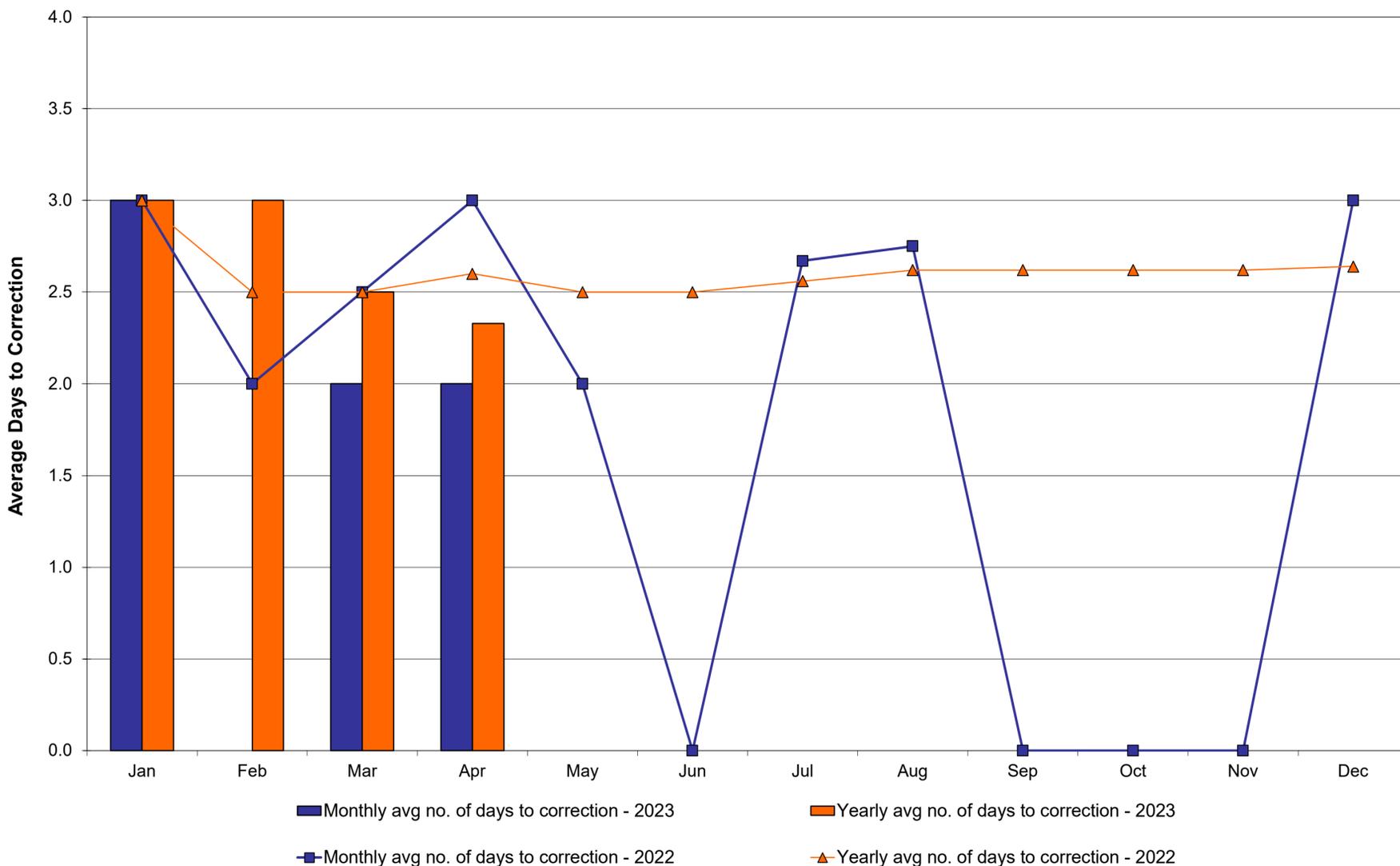
2023		<u>January</u>	<u>February</u>	<u>March</u>	<u>April</u>	<u>May</u>	<u>June</u>	<u>July</u>	<u>August</u>	<u>September</u>	<u>October</u>	<u>November</u>	<u>December</u>
Hour Corrections													
Number of hours with corrections	in the month	1	0	1	0								
Number of hours	in the month	744	672	743	720								
% of hours with corrections	in the month	0.13%	0.00%	0.13%	0.00%								
% of hours with corrections	year-to-date	0.13%	0.07%	0.09%	0.07%								
Interval Corrections													
Number of intervals corrected	in the month	7	0	2	0								
Number of intervals	in the month	9,082	8,373	9,171	0								
% of intervals corrected	in the month	0.08%	0.00%	0.02%	#DIV/0!								
% of intervals corrected	year-to-date	0.08%	0.04%	0.03%	0.03%								
Hours Reserved													
Number of hours reserved	in the month	3	14	17	0								
Number of hours	in the month	744	672	743	720								
% of hours reserved	in the month	0.40%	2.08%	2.29%	0.00%								
% of hours reserved	year-to-date	0.40%	1.20%	1.57%	1.18%								
Days to Correction *													
Avg. number of days to correction	in the month	3.00	0.00	2.00	2.00								
Avg. number of days to correction	year-to-date	3.00	3.00	2.50	2.33								
Days Without Corrections													
Days without corrections	in the month	30	28	30	0								
Days without corrections	year-to-date	30	58	88	88								
2022		<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>
Hour Corrections													
Number of hours with corrections	in the month	2	2	3	2	1	0	5	5	0	0	0	1
Number of hours	in the month	744	672	743	720	744	720	744	744	720	744	721	744
% of hours with corrections	in the month	0.27%	0.30%	0.40%	0.28%	0.13%	0.00%	0.67%	0.67%	0.00%	0.00%	0.00%	0.13%
% of hours with corrections	year-to-date	0.27%	0.28%	0.32%	0.31%	0.28%	0.23%	0.29%	0.34%	0.31%	0.27%	0.25%	0.24%
Interval Corrections													
Number of intervals corrected	in the month	2	6	8	23	1	0	23	25	0	0	0	2
Number of intervals	in the month	9,258	8,338	9,118	8,908	9,181	8,864	9,140	9,145	8,825	9,097	8,857	9,317
% of intervals corrected	in the month	0.02%	0.07%	0.09%	0.26%	0.01%	0.00%	0.25%	0.27%	0.00%	0.00%	0.00%	0.02%
% of intervals corrected	year-to-date	0.02%	0.05%	0.06%	0.11%	0.09%	0.07%	0.10%	0.12%	0.11%	0.10%	0.09%	0.08%
Hours Reserved													
Number of hours reserved	in the month	10	17	10	20	12	2	13	24	8	1	5	9
Number of hours	in the month	744	672	743	720	744	720	744	744	720	744	721	744
% of hours reserved	in the month	1.34%	2.53%	1.35%	2.78%	1.61%	0.28%	1.75%	3.23%	1.11%	0.13%	0.69%	1.21%
% of hours reserved	year-to-date	1.34%	1.91%	1.71%	1.98%	1.90%	1.63%	1.65%	1.85%	1.77%	1.60%	1.52%	1.50%
Days to Correction *													
Avg. number of days to correction	in the month	3.00	2.00	2.50	3.00	2.00	0.00	2.67	2.75	0.00	0.00	0.00	3.00
Avg. number of days to correction	year-to-date	3.00	2.50	2.50	2.60	2.50	2.50	2.56	2.62	2.62	2.62	2.62	2.64
Days Without Corrections													
Days without corrections	in the month	30	27	29	29	30	30	28	27	30	31	30	30
Days without corrections	year-to-date	30	57	86	115	145	175	203	230	260	291	321	351

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

Percentage of Real-Time Corrections

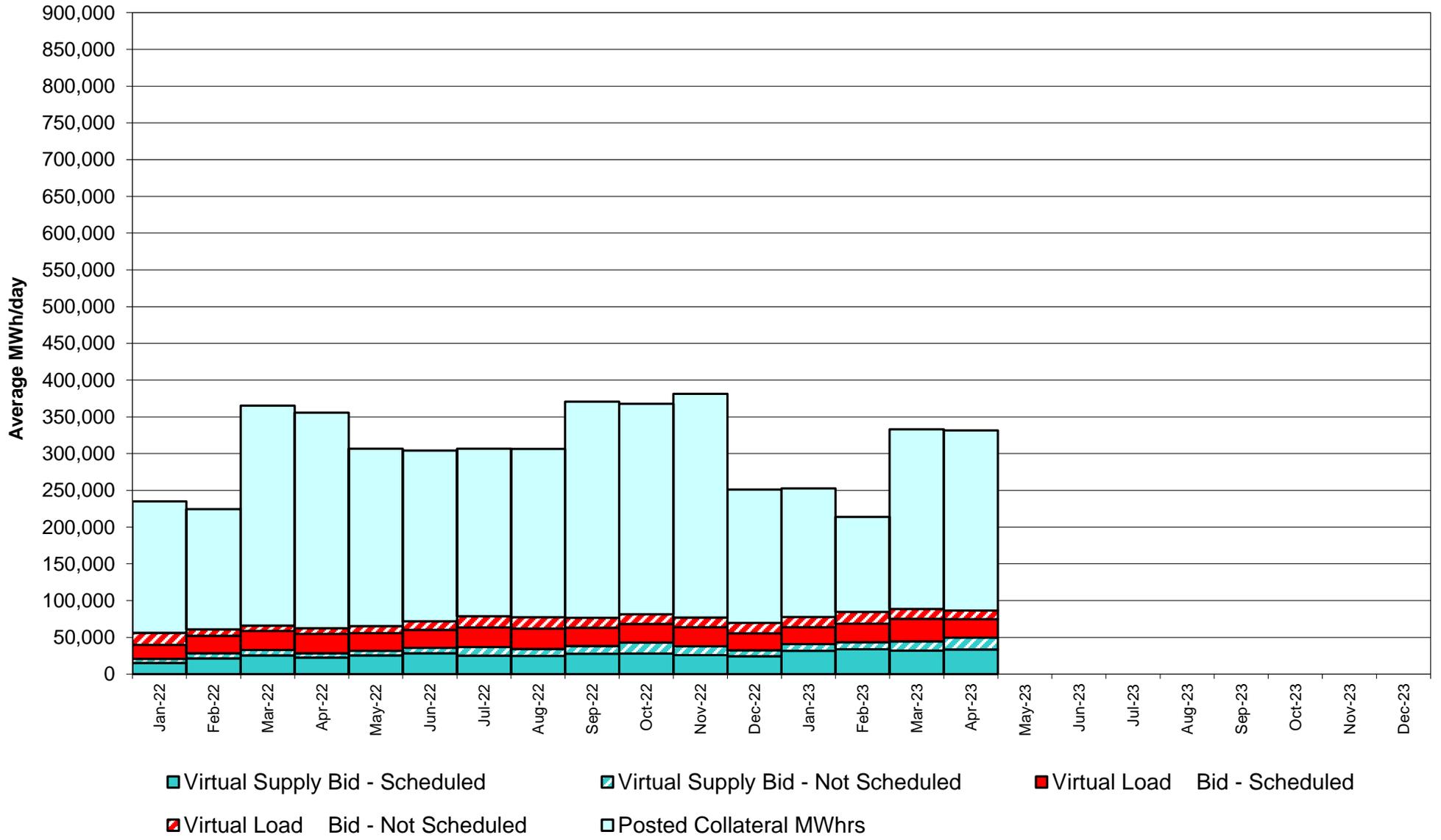


Annual average time period for making Price Corrections (from reservation date) *

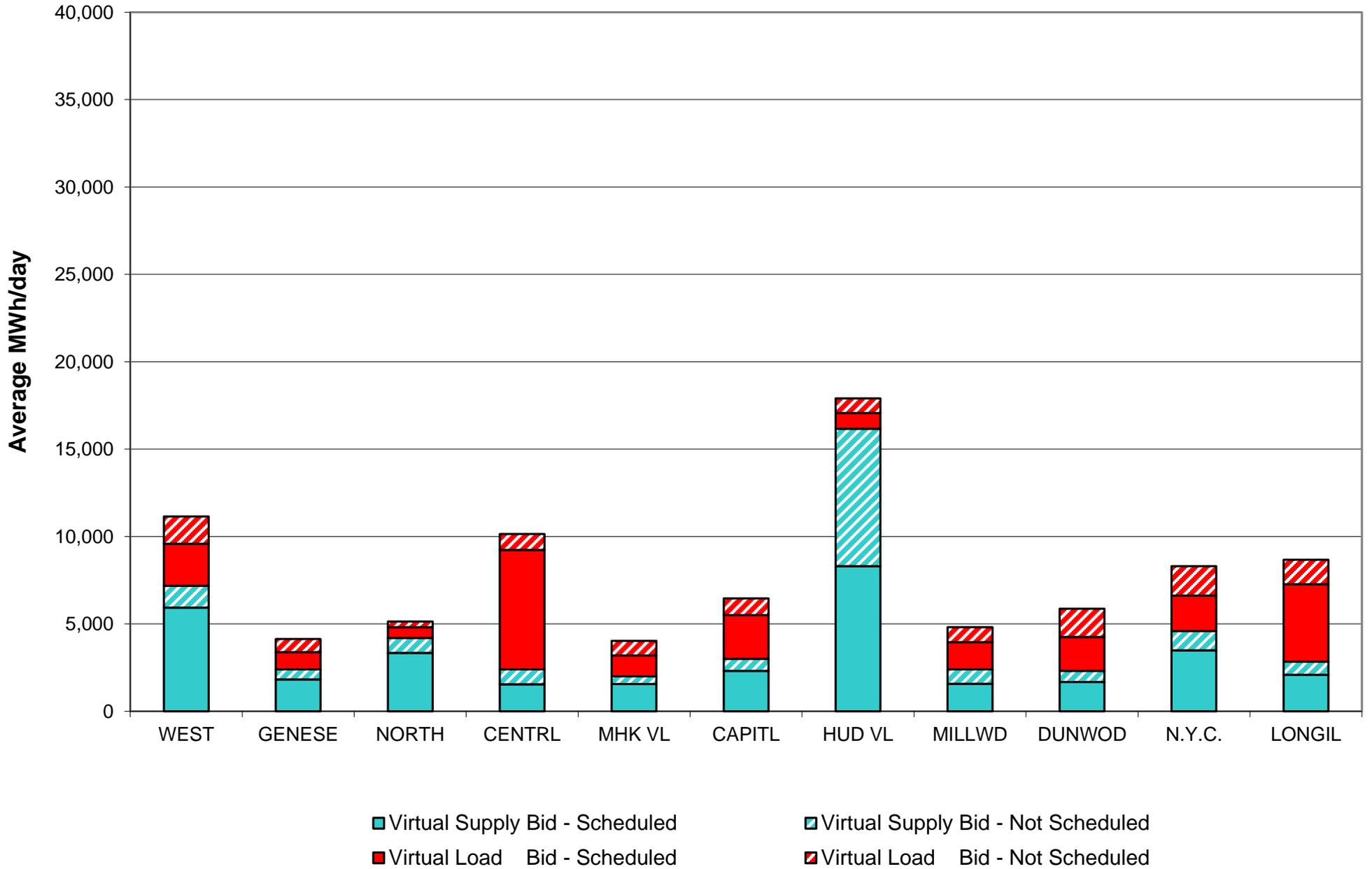


*Calendar days from reservation date; for June 2018 forward, business days from market date

NYISO Virtual Trading Average MWh per day



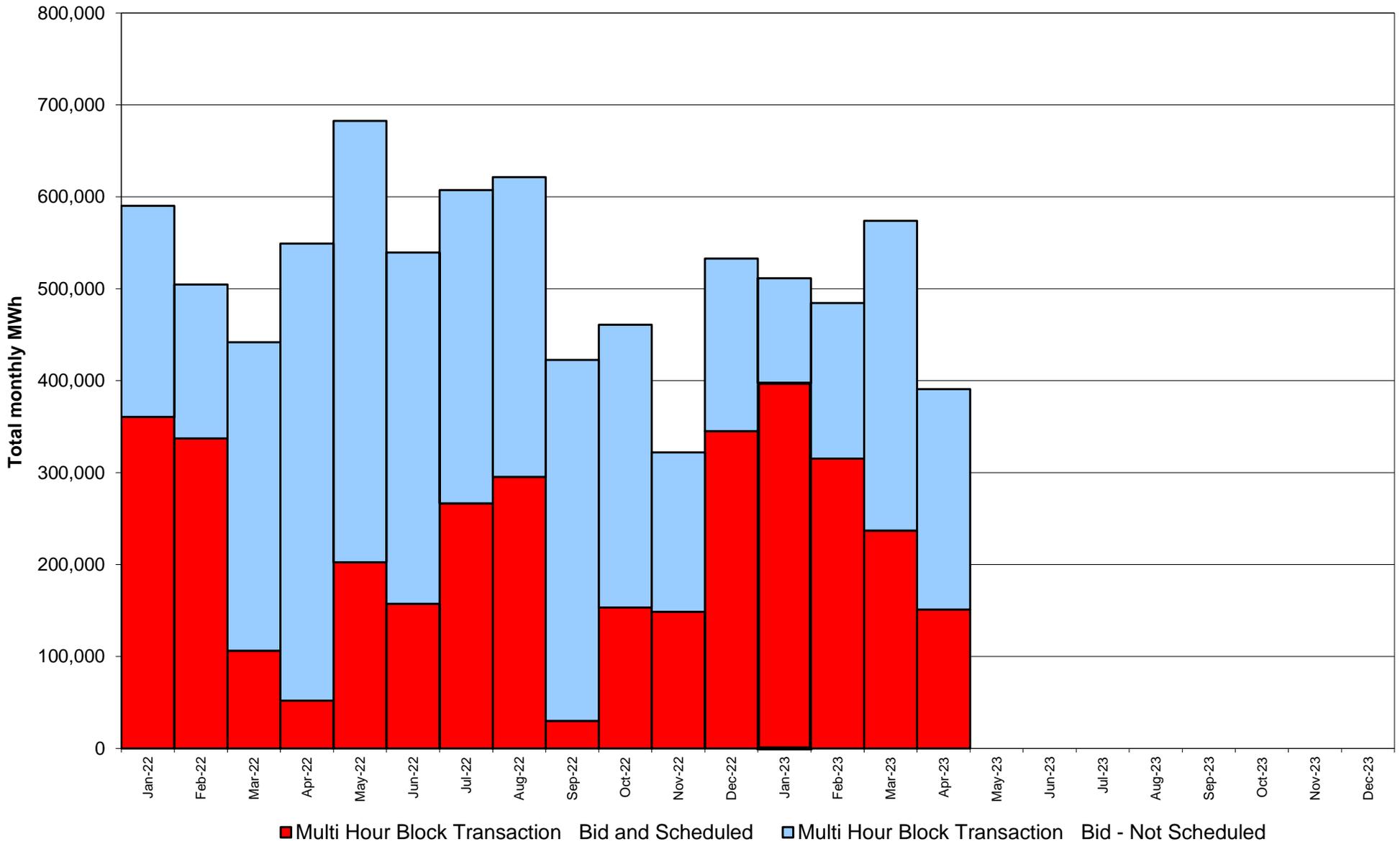
Virtual Load and Supply Zonal Statistics through April 30, 2023



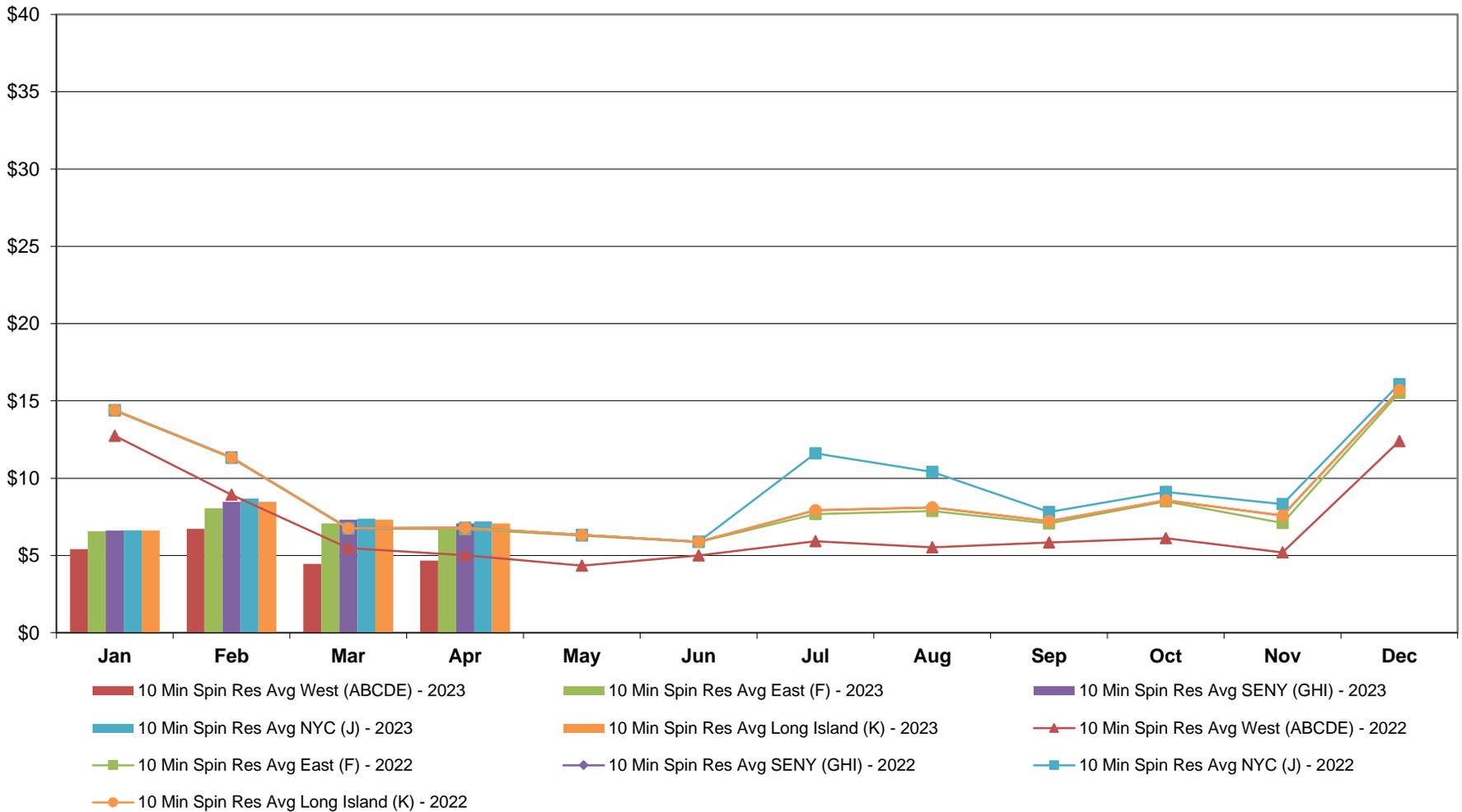
Virtual Load and Supply Zonal Statistics (Average MWh/day) - 2023

		Virtual Load Bid		Virtual Supply Bid				Virtual Load Bid		Virtual Supply Bid				Virtual Load Bid		Virtual Supply Bid	
Zone	Date	Scheduled	Not Scheduled	Scheduled	Not Scheduled	Zone	Date	Scheduled	Not Scheduled	Scheduled	Not Scheduled	Zone	Date	Scheduled	Not Scheduled	Scheduled	Not Scheduled
WEST	Jan-23	3,364	1,605	5,555	1,026	MHK VL	Jan-23	1,312	1,038	1,590	558	DUNWOD	Jan-23	862	1,623	1,884	319
	Feb-23	2,266	1,863	6,652	1,270		Feb-23	1,146	1,395	2,484	436		Feb-23	1,366	1,793	2,082	408
	Mar-23	3,318	1,373	5,353	2,062		Mar-23	1,815	829	1,488	1,135		Mar-23	2,505	1,556	2,093	670
	Apr-23	2,407	1,561	5,939	1,245		Apr-23	1,182	841	1,556	450		Apr-23	1,941	1,615	1,682	633
	May-23						May-23						May-23				
	Jun-23						Jun-23						Jun-23				
	Jul-23						Jul-23						Jul-23				
	Aug-23						Aug-23						Aug-23				
	Sep-23						Sep-23						Sep-23				
	Oct-23						Oct-23						Oct-23				
	Nov-23						Nov-23						Nov-23				
	Dec-23						Dec-23						Dec-23				
GENESE	Jan-23	1,005	469	1,438	255	CAPITL	Jan-23	1,762	834	1,824	917	N.Y.C.	Jan-23	2,674	2,287	4,516	977
	Feb-23	1,136	523	1,480	586		Feb-23	1,902	1,166	2,655	729		Feb-23	2,663	2,398	3,564	1,126
	Mar-23	835	495	1,562	905		Mar-23	3,256	1,595	2,454	594		Mar-23	2,230	2,393	4,646	1,121
	Apr-23	982	746	1,817	584		Apr-23	2,509	960	2,303	695		Apr-23	2,032	1,683	3,490	1,100
	May-23						May-23						May-23				
	Jun-23						Jun-23						Jun-23				
	Jul-23						Jul-23						Jul-23				
	Aug-23						Aug-23						Aug-23				
	Sep-23						Sep-23						Sep-23				
	Oct-23						Oct-23						Oct-23				
	Nov-23						Nov-23						Nov-23				
	Dec-23						Dec-23						Dec-23				
NORTH	Jan-23	1,246	284	2,910	1,072	HUD VL	Jan-23	835	1,168	5,672	1,513	LONGIL	Jan-23	4,119	2,358	2,370	1,687
	Feb-23	1,111	302	2,854	1,432		Feb-23	1,335	1,484	5,382	1,297		Feb-23	4,408	2,440	2,494	1,130
	Mar-23	789	383	3,605	1,395		Mar-23	2,224	1,049	5,815	1,357		Mar-23	5,725	1,753	1,778	1,029
	Apr-23	615	332	3,338	854		Apr-23	896	846	8,301	7,864		Apr-23	4,436	1,401	2,087	746
	May-23						May-23						May-23				
	Jun-23						Jun-23						Jun-23				
	Jul-23						Jul-23						Jul-23				
	Aug-23						Aug-23						Aug-23				
	Sep-23						Sep-23						Sep-23				
	Oct-23						Oct-23						Oct-23				
	Nov-23						Nov-23						Nov-23				
	Dec-23						Dec-23						Dec-23				
CENTRL	Jan-23	5,294	1,193	1,715	563	MILLWD	Jan-23	649	1,103	2,019	278	NYISO	Jan-23	23,122	13,963	31,494	9,165
	Feb-23	6,851	1,526	2,219	703		Feb-23	888	1,228	2,021	434		Feb-23	25,071	16,118	33,885	9,552
	Mar-23	6,340	843	1,355	1,520		Mar-23	1,616	992	1,938	736		Mar-23	30,654	13,262	32,086	12,525
	Apr-23	6,824	914	1,546	855		Apr-23	1,564	853	1,566	831		Apr-23	25,387	11,752	33,625	15,856
	May-23						May-23						May-23				
	Jun-23						Jun-23						Jun-23				
	Jul-23						Jul-23						Jul-23				
	Aug-23						Aug-23						Aug-23				
	Sep-23						Sep-23						Sep-23				
	Oct-23						Oct-23						Oct-23				
	Nov-23						Nov-23						Nov-23				
	Dec-23						Dec-23						Dec-23				

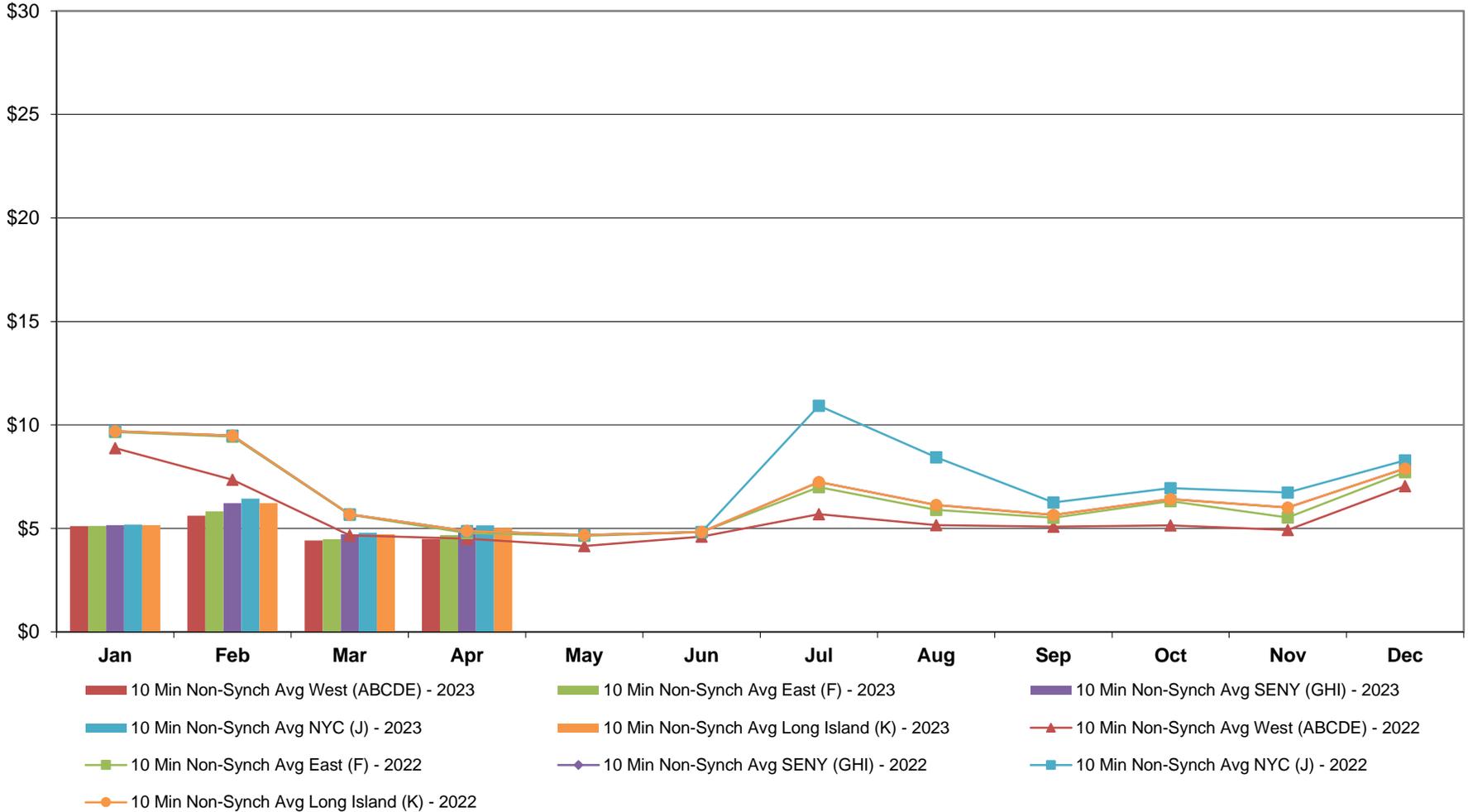
NYISO Multi Hour Block Transactions Monthly Total MWh



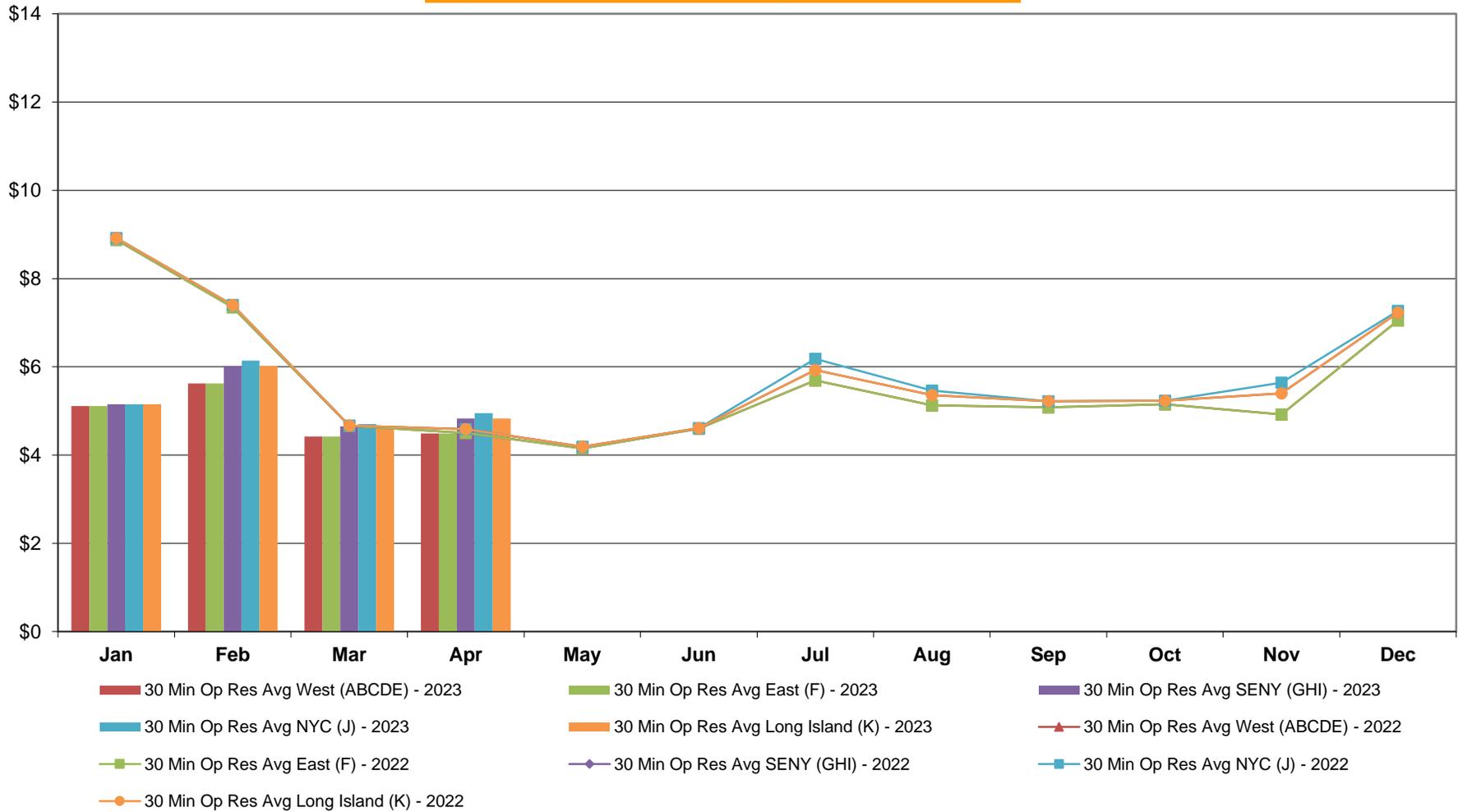
**NYISO Monthly Average Ancillary Service Prices
Day Ahead Market - 10 Min Spin 2022 - 2023**



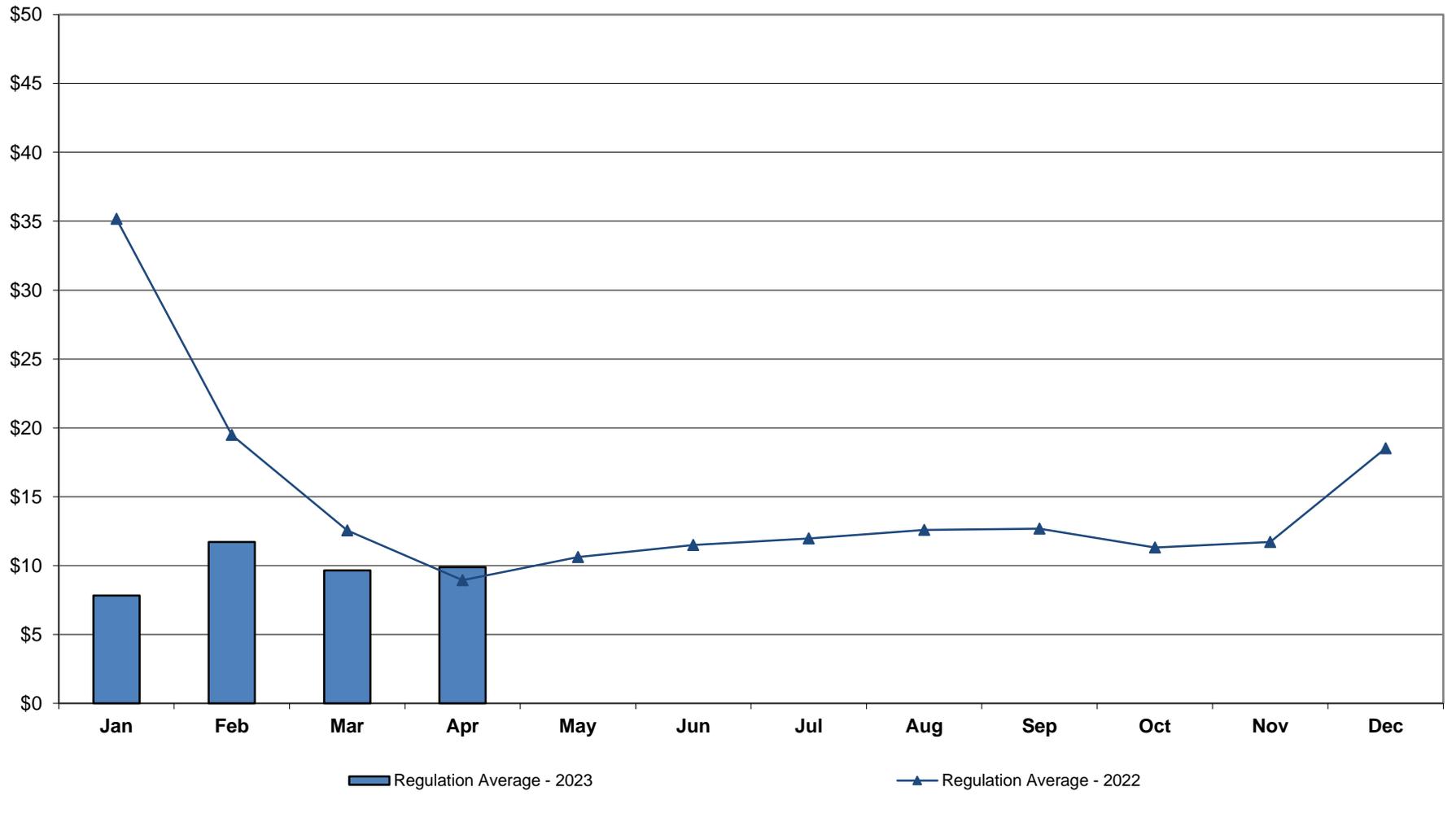
**NYISO Monthly Average Ancillary Service Prices
Day Ahead Market - 10 Min Non-Synch 2022 - 2023**



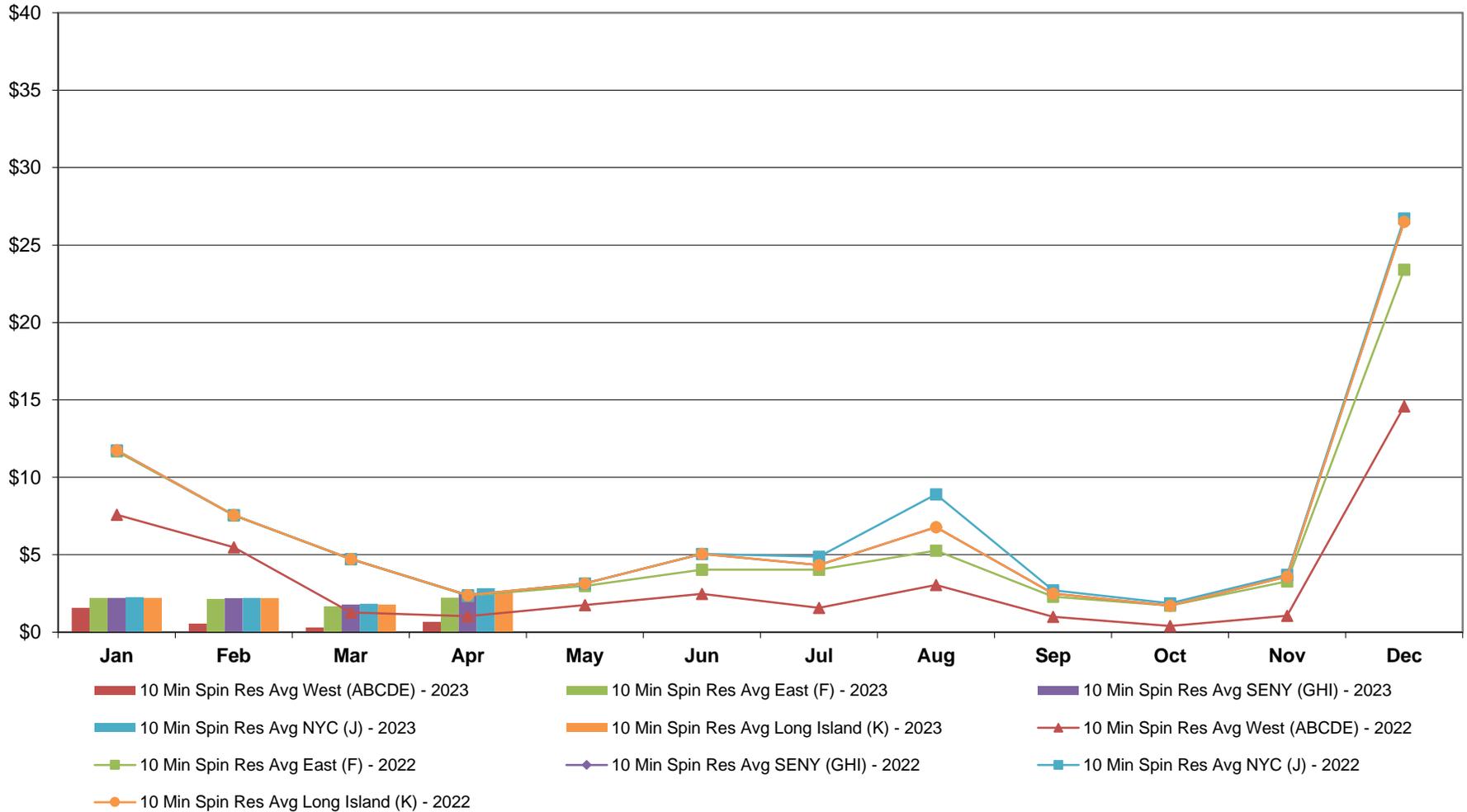
**NYISO Monthly Average Ancillary Service Prices
Day Ahead Market - 30 Min Op Res 2022 - 2023**



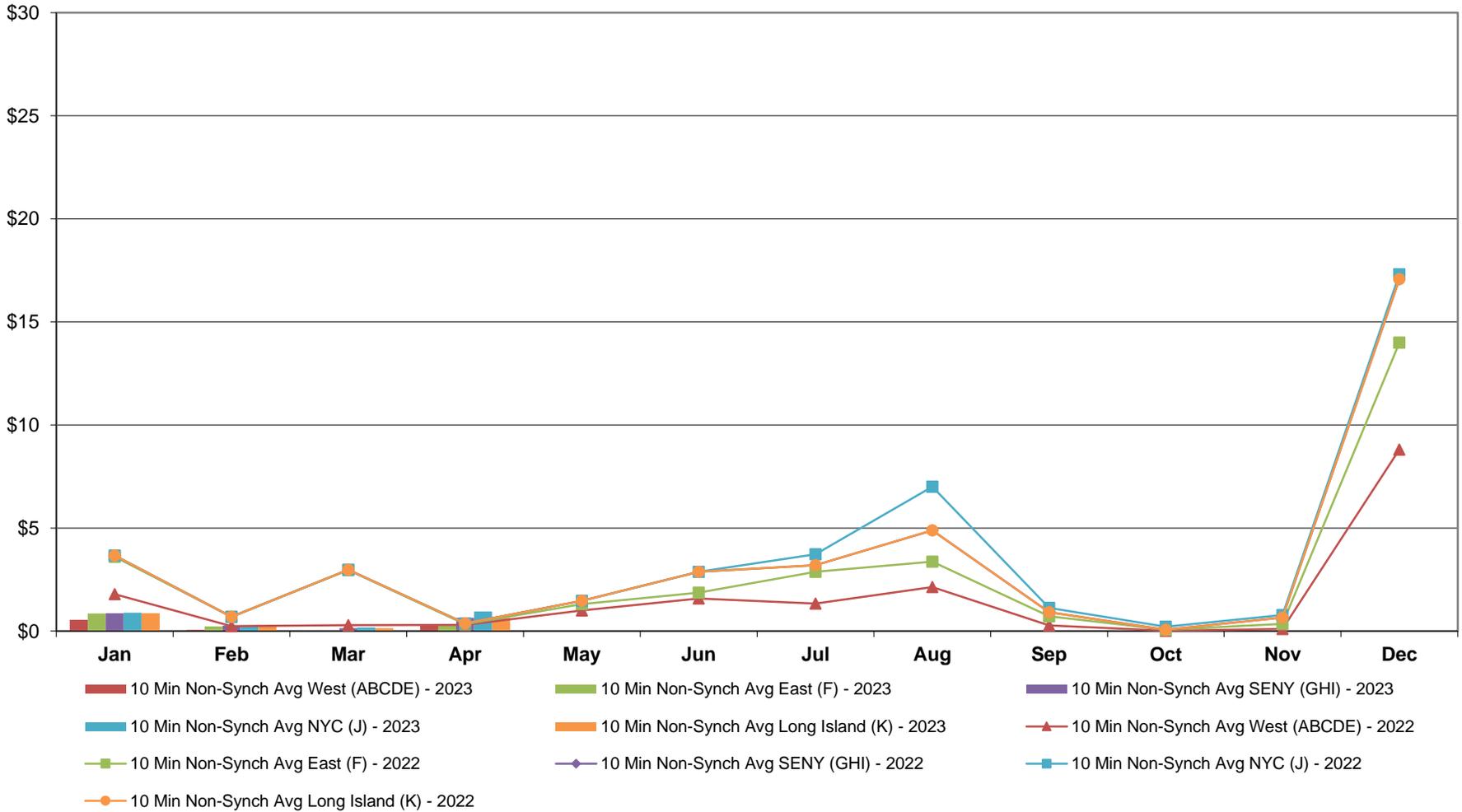
**NYISO Monthly Average Ancillary Service Prices
Day Ahead Market - Regulation 2022 - 2023**



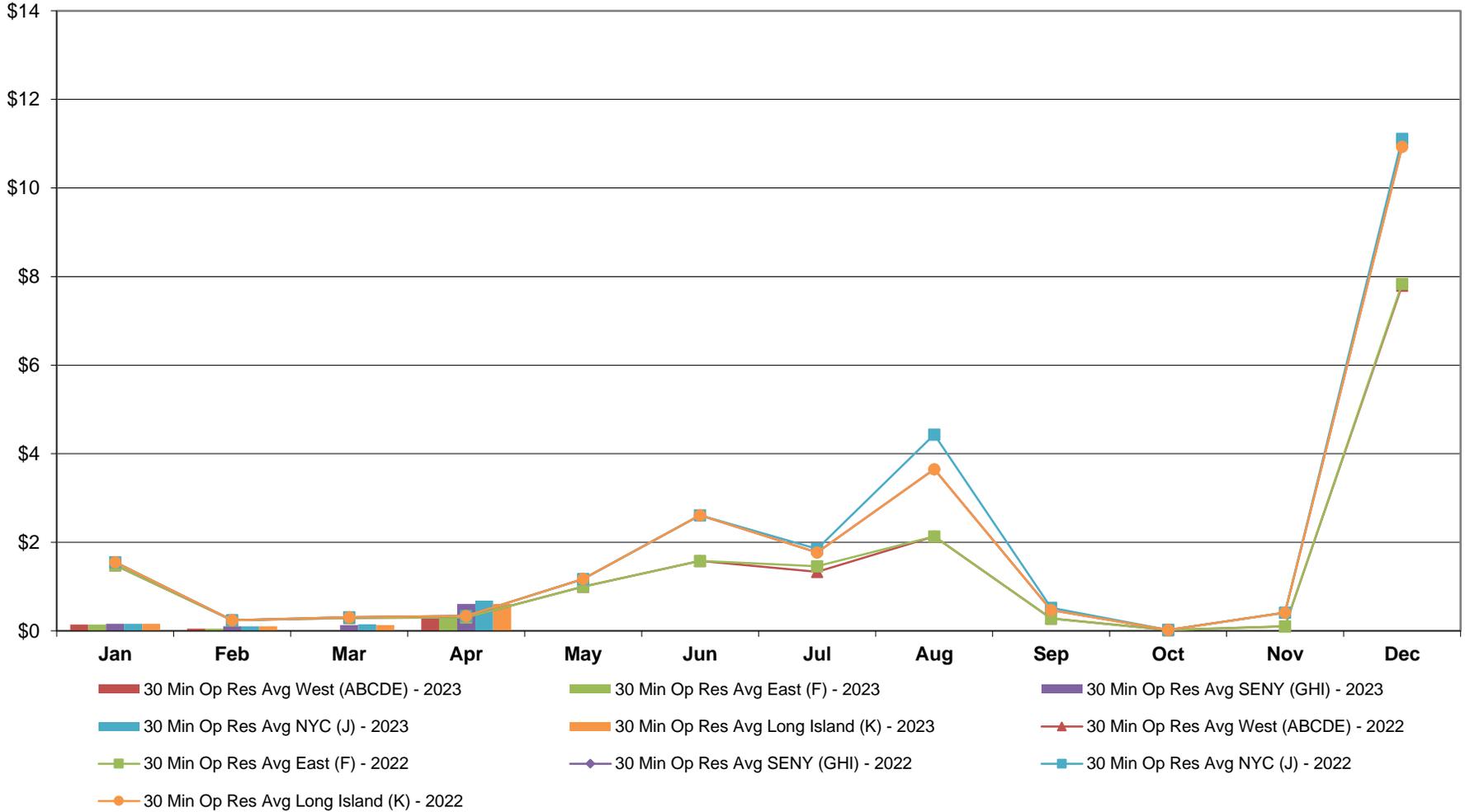
NYISO Monthly Average Ancillary Service Prices RTC Market - 10 Min Spin 2022 - 2023



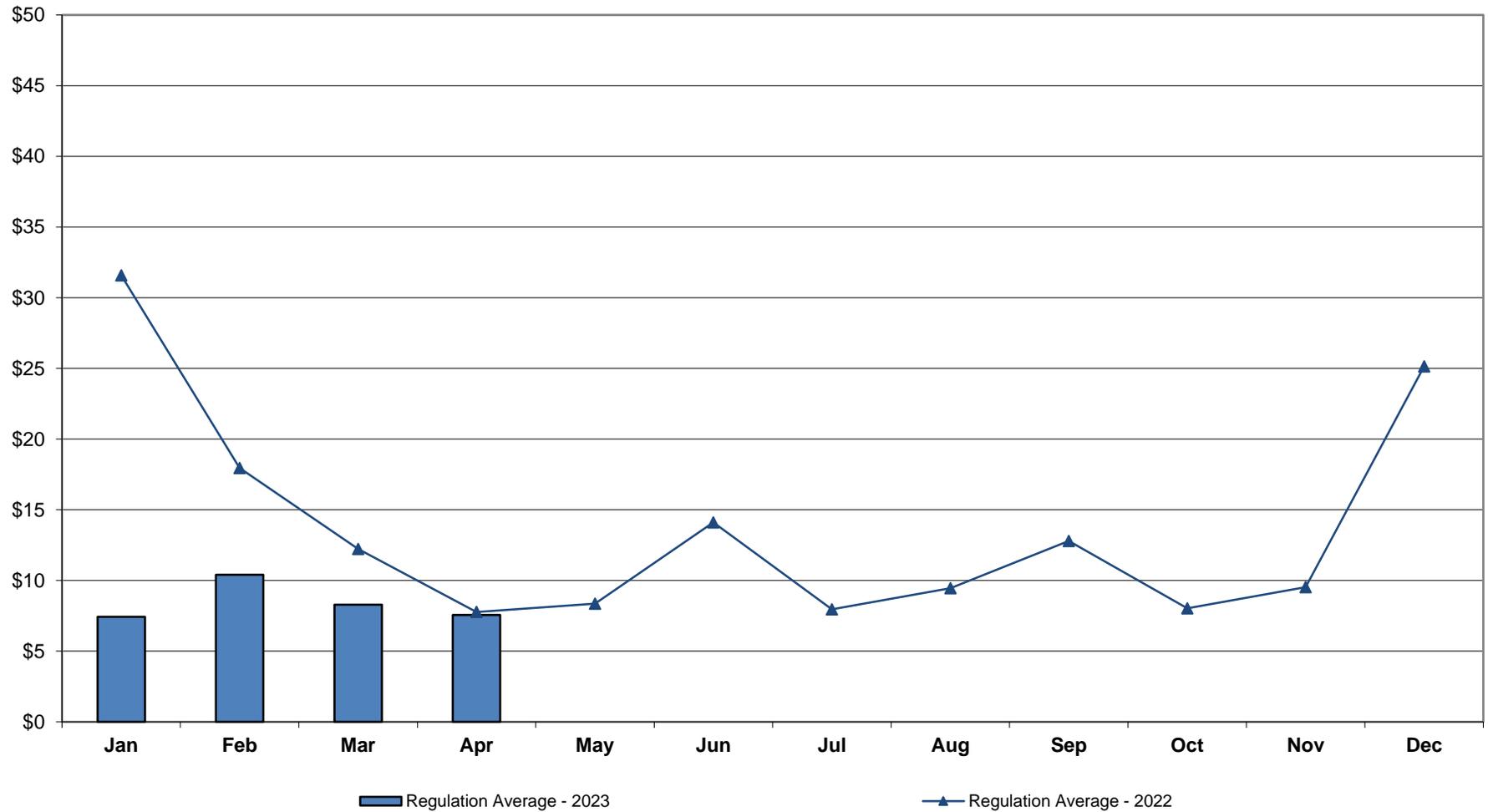
**NYISO Monthly Average Ancillary Service Prices
RTC Market - 10 Min Non-Synch 2022 - 2023**



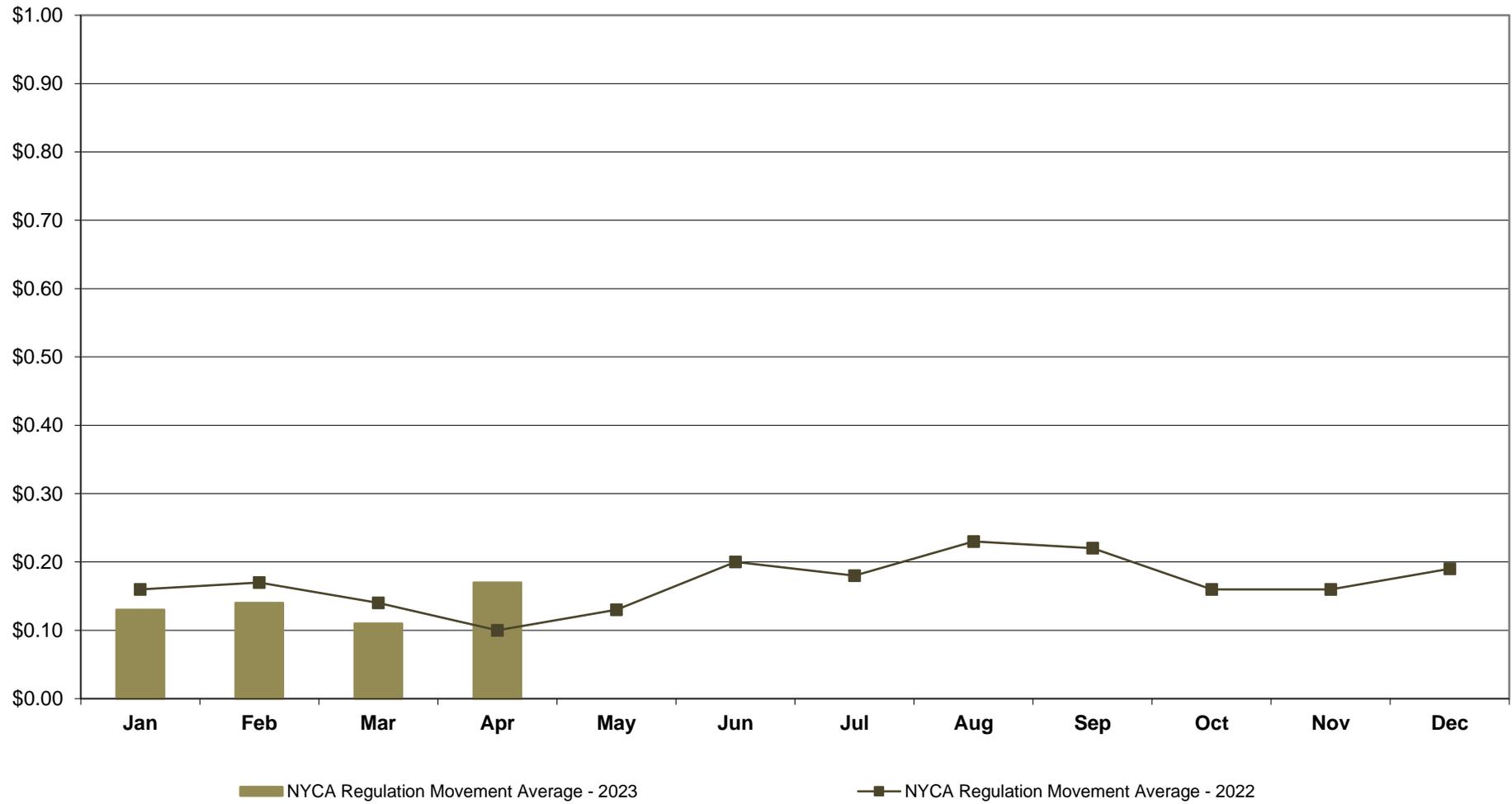
**NYISO Monthly Average Ancillary Service Prices
RTC Market - 30 Min Op Res 2022 - 2023**



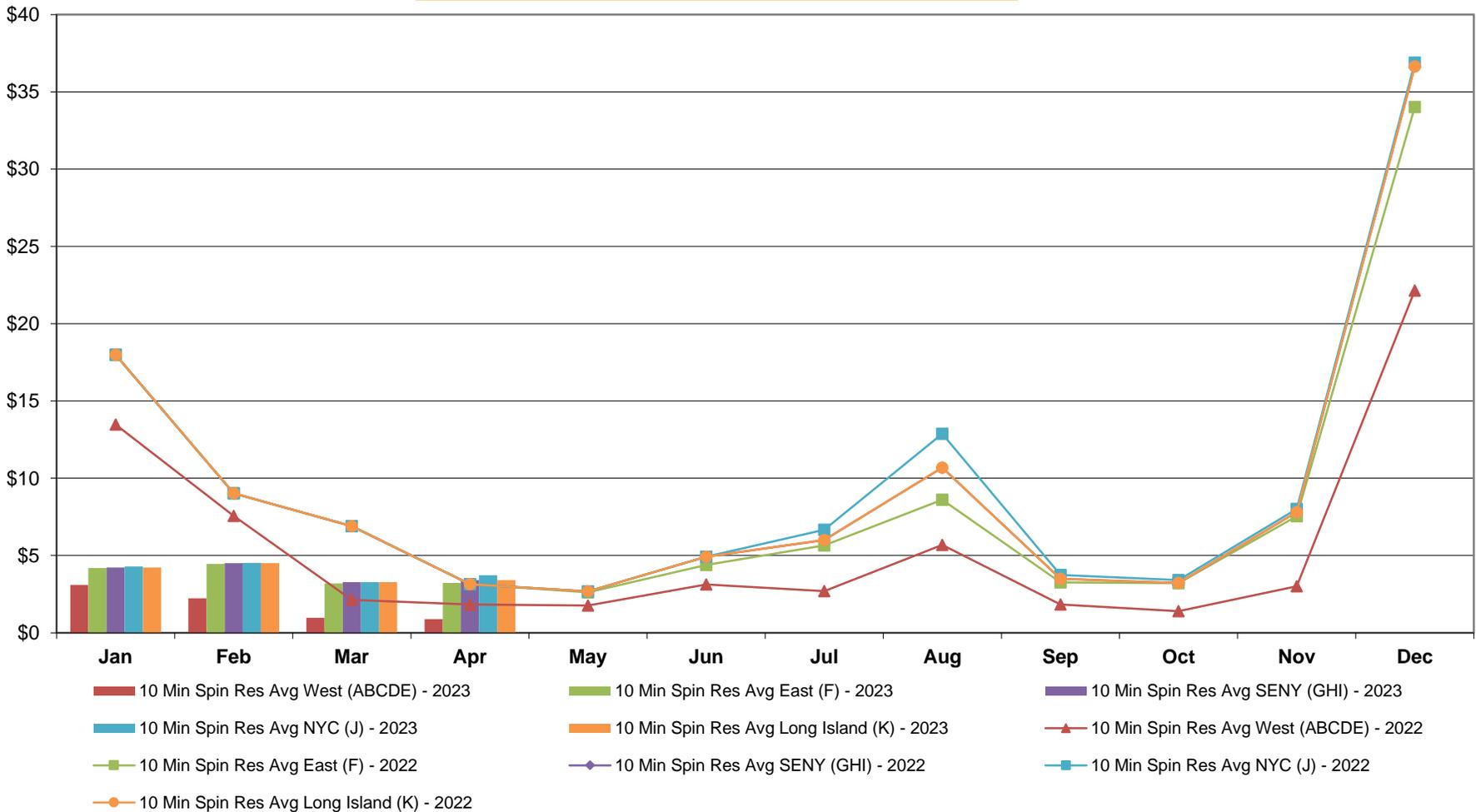
**NYISO Monthly Average Ancillary Service Prices
RTC Market - Regulation 2022 - 2023**



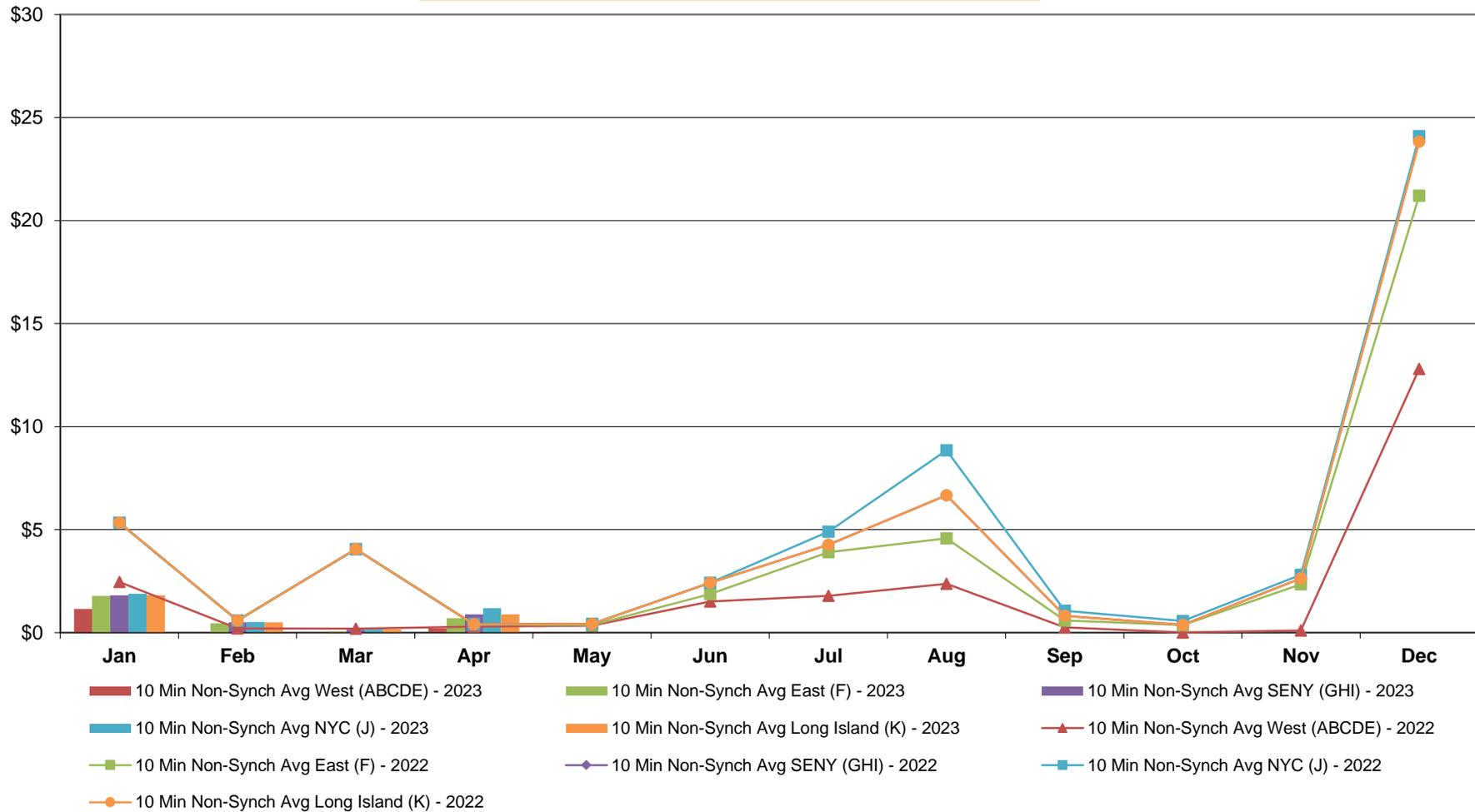
**NYISO Monthly Average Ancillary Service Prices
RTC Market - Regulation Movement 2022 - 2023**



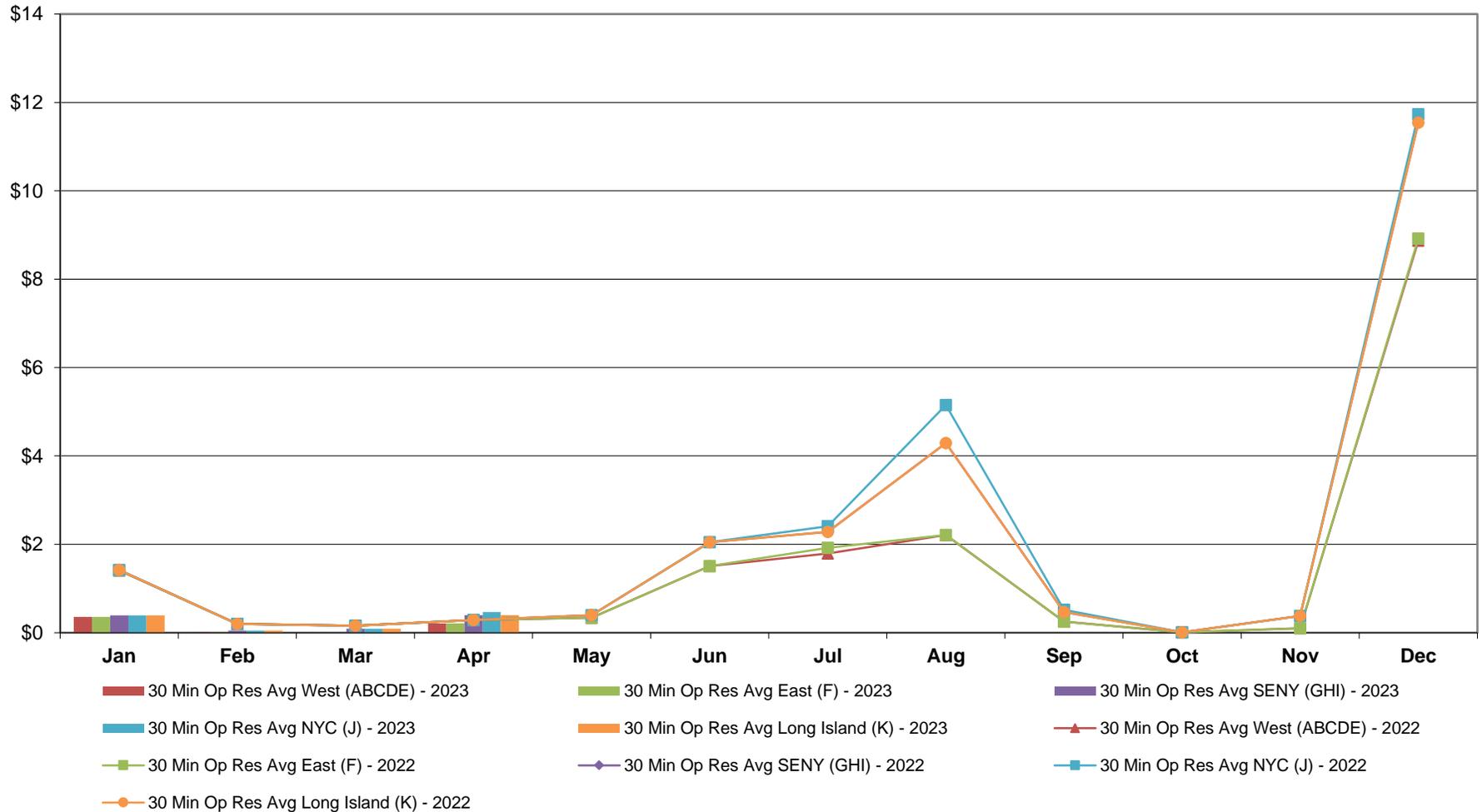
**NYISO Monthly Average Ancillary Service Prices
Real Time Market - 10 Min Spin 2022 - 2023**



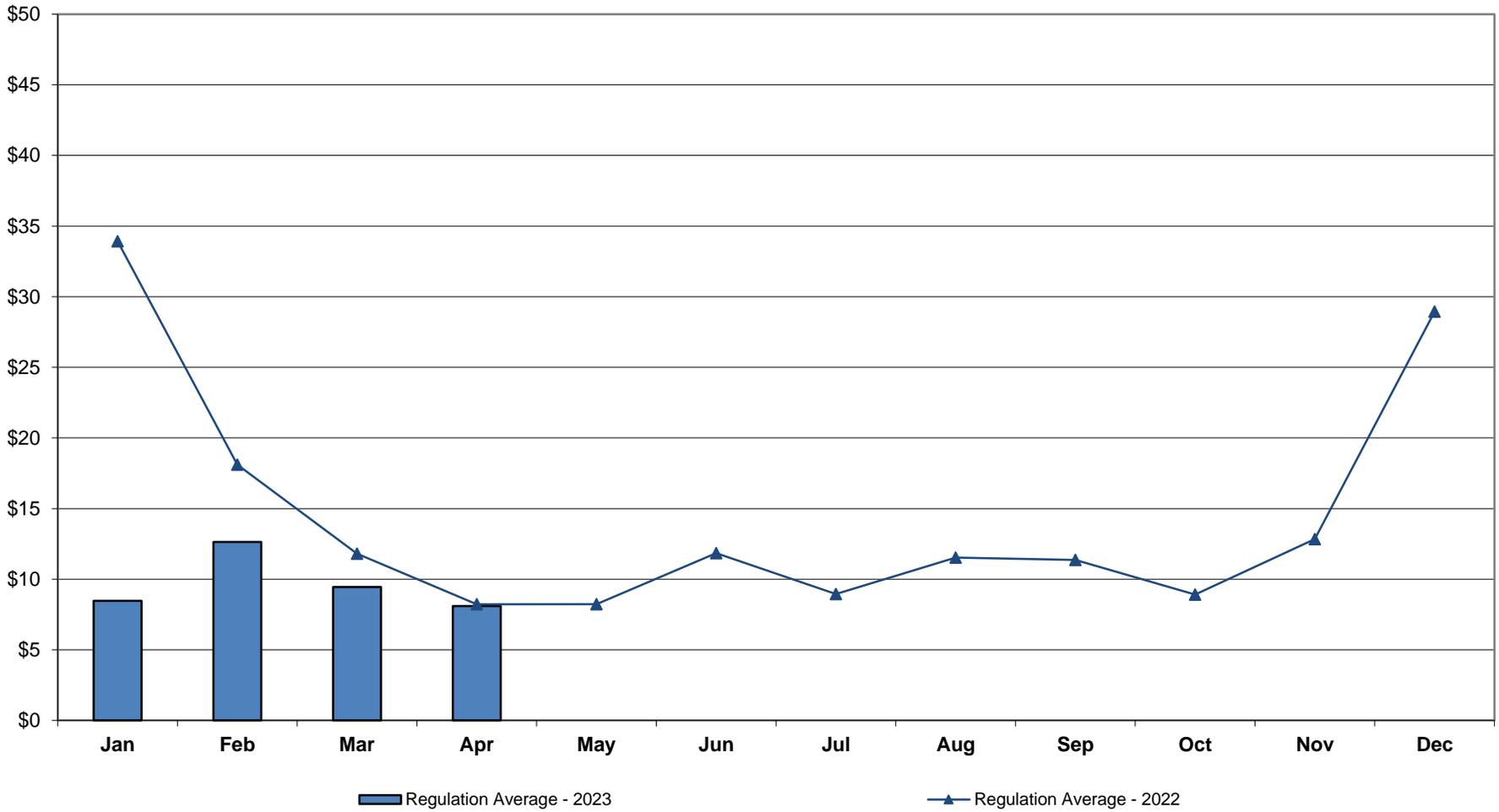
**NYISO Monthly Average Ancillary Service Prices
Real Time Market - 10 Min Non-Synch 2022 - 2023**



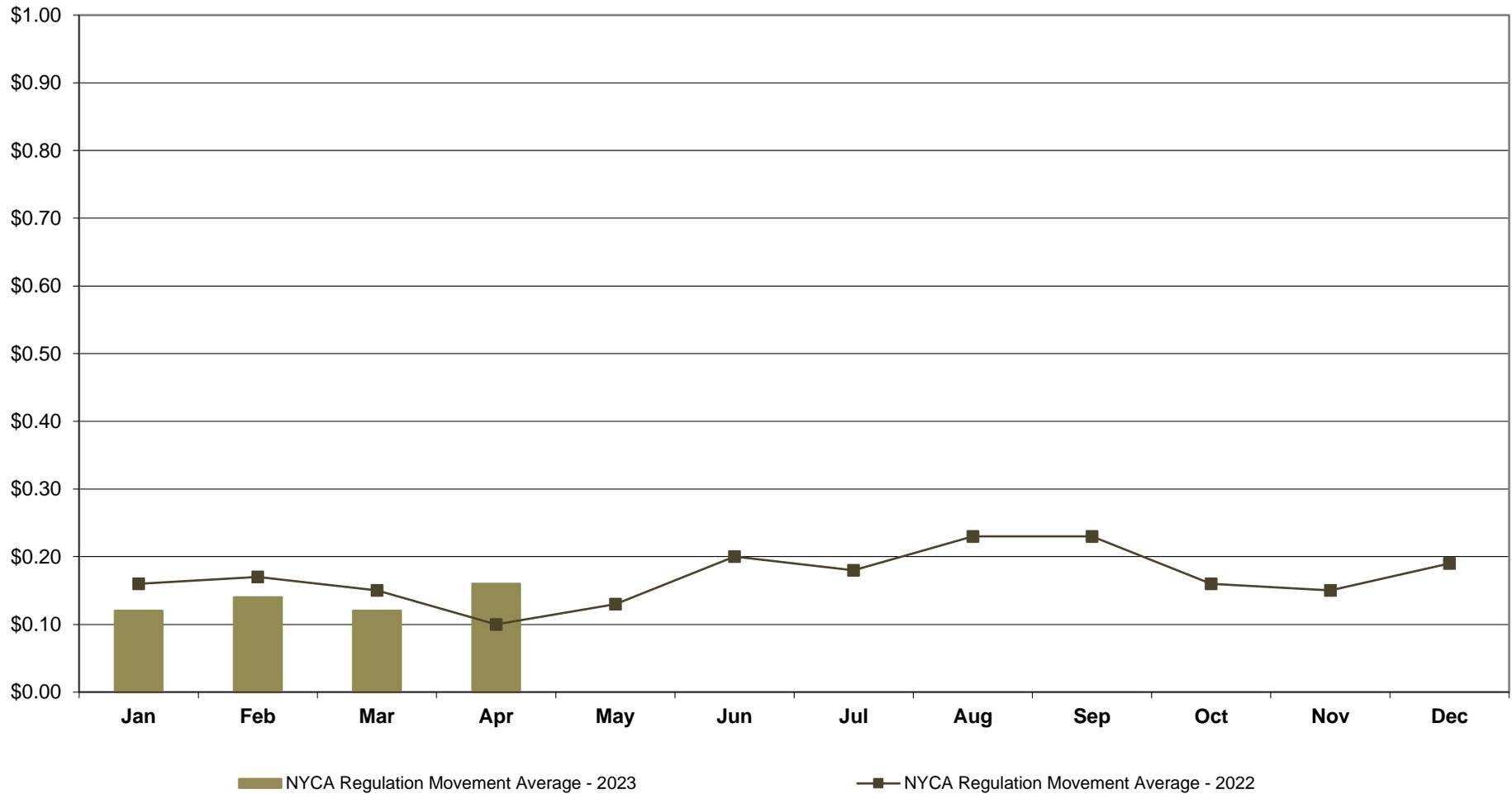
**NYISO Monthly Average Ancillary Service Prices
Real Time Market - 30 Min Op Res 2022 - 2023**



**NYISO Monthly Average Ancillary Service Prices
Real Time Market - Regulation 2022 - 2023**



**NYISO Monthly Average Ancillary Service Prices
Real Time Market - Regulation Movement 2022 - 2023**



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

2023	<u>January</u>	<u>February</u>	<u>March</u>	<u>April</u>	<u>May</u>	<u>June</u>	<u>July</u>	<u>August</u>	<u>September</u>	<u>October</u>	<u>November</u>	<u>December</u>
Day Ahead Market												
10 Min Spin Long Island (K)	6.60	8.46	7.31	7.07								
10 Min Spin NYC (J)	6.63	8.68	7.38	7.20								
10 Min Spin SENY (GHI)	6.60	8.46	7.31	7.07								
10 Min Spin East (F)	6.56	8.06	7.07	6.73								
10 Min Spin West (ABCDE)	5.41	6.73	4.45	4.67								
10 Min Non Synch Long Island (K)	5.16	6.22	4.72	5.02								
10 Min Non Synch NYC (J)	5.18	6.44	4.79	5.15								
10 Min Non Synch SENY (GHI)	5.16	6.22	4.72	5.02								
10 Min Non Synch East (F)	5.12	5.82	4.48	4.68								
10 Min Non Synch West (ABCDE)	5.11	5.62	4.42	4.49								
30 Min Long Island (K)	5.15	6.02	4.65	4.83								
30 Min NYC (J)	5.15	6.14	4.70	4.95								
30 Min SENY (GHI)	5.15	6.02	4.65	4.83								
30 Min East (F)	5.11	5.62	4.42	4.49								
30 Min West (ABCDE)	5.11	5.62	4.42	4.49								
Regulation	7.82	11.71	9.65	9.88								
2022	<u>January</u>	<u>February</u>	<u>March</u>	<u>April</u>	<u>May</u>	<u>June</u>	<u>July</u>	<u>August</u>	<u>September</u>	<u>October</u>	<u>November</u>	<u>December</u>
Day Ahead Market												
10 Min Spin Long Island (K)	14.40	11.34	6.76	6.79	6.32	5.88	7.92	8.10	7.22	8.57	7.57	15.69
10 Min Spin NYC (J)	15.32	12.52	7.29	6.80	7.01	6.12	11.61	10.41	7.81	9.10	8.31	16.08
10 Min Spin SENY (GHI)	14.40	11.34	6.76	6.79	6.32	5.88	7.92	8.10	7.22	8.57	7.57	15.69
10 Min Spin East (F)	14.37	11.30	6.74	6.70	6.28	5.87	7.68	7.88	7.07	8.49	7.10	15.51
10 Min Spin West (ABCDE)	12.74	8.93	5.48	5.01	4.34	4.99	5.91	5.53	5.84	6.11	5.20	12.39
10 Min Non Synch Long Island (K)	9.70	9.48	5.68	4.87	4.68	4.83	7.24	6.13	5.65	6.41	6.01	7.90
10 Min Non Synch NYC (J)	10.61	10.66	6.20	4.89	5.38	5.07	10.93	8.44	6.25	6.94	6.74	8.29
10 Min Non Synch SENY (GHI)	9.70	9.48	5.68	4.87	4.68	4.83	7.24	6.13	5.65	6.41	6.01	7.90
10 Min Non Synch East (F)	9.66	9.44	5.66	4.78	4.64	4.82	7.00	5.90	5.51	6.32	5.53	7.72
10 Min Non Synch West (ABCDE)	8.88	7.35	4.66	4.50	4.15	4.60	5.69	5.16	5.08	5.15	4.92	7.05
30 Min Long Island (K)	8.92	7.40	4.67	4.59	4.19	4.61	5.93	5.36	5.22	5.23	5.40	7.23
30 Min NYC (J)	8.95	7.42	4.67	4.59	4.21	4.61	6.18	5.46	5.22	5.23	5.64	7.27
30 Min SENY (GHI)	8.92	7.40	4.67	4.59	4.19	4.61	5.93	5.36	5.22	5.23	5.40	7.23
30 Min East (F)	8.88	7.35	4.66	4.50	4.15	4.60	5.69	5.13	5.08	5.15	4.92	7.05
30 Min West (ABCDE)	8.88	7.35	4.66	4.50	4.15	4.60	5.69	5.13	5.08	5.15	4.92	7.05
Regulation	35.17	19.48	12.56	8.94	10.61	11.49	11.96	12.58	12.68	11.31	11.72	18.51

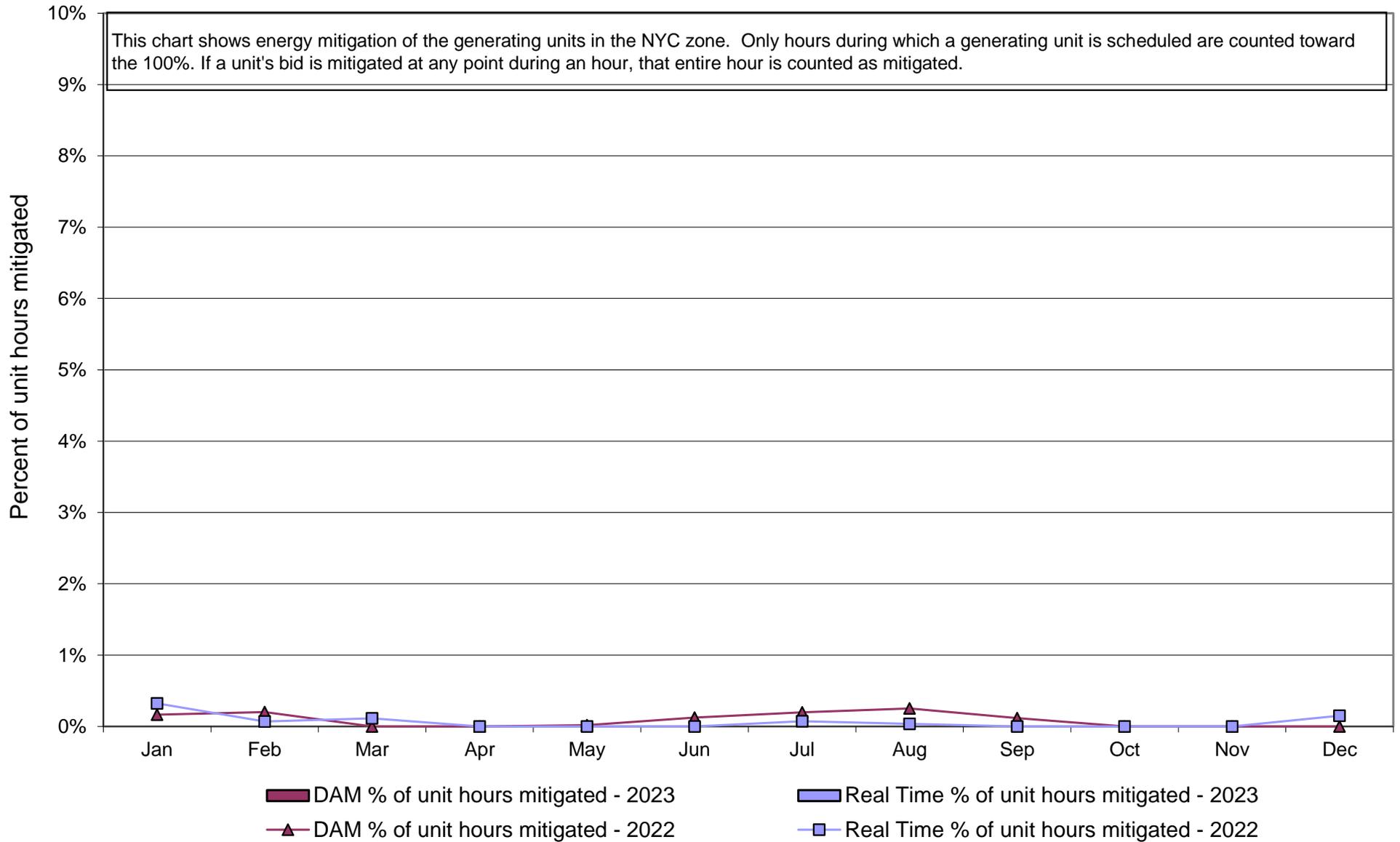
NYISO Markets Ancillary Services Statistics - Unweighted Price (\$/MWH) - RTC

<u>2023</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>
RTC Market												
10 Min Spin Long Island (K)	2.22	2.19	1.79	2.55								
10 Min Spin NYC (J)	2.26	2.21	1.83	2.84								
10 Min Spin SENY (GHI)	2.22	2.19	1.79	2.55								
10 Min Spin East (F)	2.21	2.15	1.67	2.23								
10 Min Spin West (ABCDE)	1.57	0.56	0.30	0.67								
10 Min Non Synch Long Island (K)	0.86	0.26	0.14	0.65								
10 Min Non Synch NYC (J)	0.89	0.27	0.18	0.95								
10 Min Non Synch SENY (GHI)	0.86	0.26	0.14	0.65								
10 Min Non Synch East (F)	0.85	0.22	0.02	0.34								
10 Min Non Synch West (ABCDE)	0.54	0.05	0.00	0.29								
30 Min Long Island (K)	0.16	0.10	0.13	0.61								
30 Min NYC (J)	0.16	0.10	0.15	0.68								
30 Min SENY (GHI)	0.16	0.10	0.13	0.61								
30 Min East (F)	0.14	0.05	0.00	0.29								
30 Min West (ABCDE)	0.14	0.05	0.00	0.29								
Regulation	7.44	10.40	8.29	7.55								
NYCA Regulation Movement	0.13	0.14	0.11	0.17								
2022	<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>
RTC Market												
10 Min Spin Long Island (K)	11.75	7.55	4.73	2.39	3.15	5.06	4.34	6.79	2.49	1.72	3.59	26.50
10 Min Spin NYC (J)	11.75	7.81	4.92	2.53	3.72	5.51	4.88	8.90	2.71	1.87	3.71	26.72
10 Min Spin SENY (GHI)	11.75	7.55	4.73	2.39	3.15	5.06	4.34	6.79	2.49	1.72	3.59	26.50
10 Min Spin East (F)	11.68	7.55	4.71	2.36	2.98	4.03	4.03	5.27	2.29	1.72	3.28	23.41
10 Min Spin West (ABCDE)	7.59	5.49	1.27	1.03	1.75	2.47	1.58	3.05	0.99	0.40	1.06	14.59
10 Min Non Synch Long Island (K)	3.67	0.69	2.97	0.37	1.47	2.88	3.19	4.89	0.92	0.07	0.66	17.08
10 Min Non Synch NYC (J)	3.67	0.95	3.16	0.51	2.04	3.34	3.73	7.00	1.13	0.21	0.78	17.31
10 Min Non Synch SENY (GHI)	3.67	0.69	2.97	0.37	1.47	2.88	3.19	4.89	0.92	0.07	0.66	17.08
10 Min Non Synch East (F)	3.60	0.69	2.96	0.33	1.31	1.86	2.88	3.37	0.72	0.07	0.35	13.99
10 Min Non Synch West (ABCDE)	1.79	0.24	0.29	0.30	1.00	1.58	1.33	2.13	0.28	0.02	0.10	8.81
30 Min Long Island (K)	1.55	0.24	0.31	0.34	1.17	2.61	1.77	3.65	0.47	0.02	0.41	10.93
30 Min NYC (J)	1.55	0.24	0.31	0.34	1.34	2.74	1.85	4.43	0.52	0.02	0.41	11.11
30 Min SENY (GHI)	1.55	0.24	0.31	0.34	1.17	2.61	1.77	3.65	0.47	0.02	0.41	10.93
30 Min East (F)	1.48	0.24	0.29	0.30	1.00	1.58	1.46	2.13	0.28	0.02	0.10	7.84
30 Min West (ABCDE)	1.48	0.24	0.29	0.30	1.00	1.58	1.33	2.13	0.28	0.02	0.10	7.80
Regulation	31.59	17.95	12.23	7.77	8.36	14.11	7.96	9.46	12.79	8.03	9.52	25.14
NYCA Regulation Movement	0.16	0.17	0.14	0.10	0.13	0.20	0.18	0.23	0.22	0.16	0.16	0.19

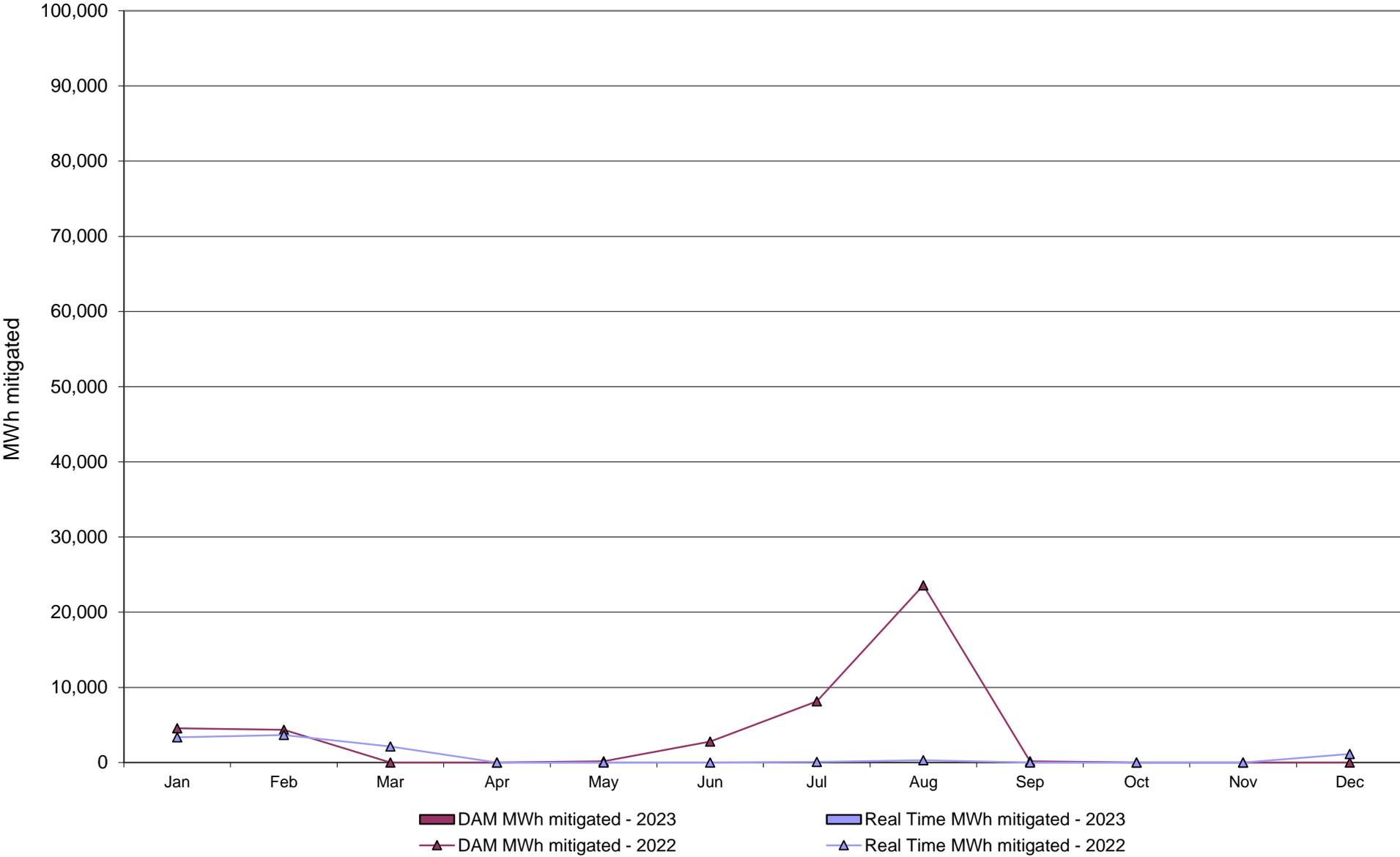
NYISO Markets Ancillary Services Statistics - Unweighted Price (\$/MWH) - RT

<u>2023</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>
Real Time Market												
10 Min Spin Long Island (K)	4.22	4.51	3.28	3.42								
10 Min Spin NYC (J)	4.30	4.53	3.28	3.72								
10 Min Spin SENY (GHI)	4.22	4.51	3.28	3.42								
10 Min Spin East (F)	4.20	4.46	3.19	3.23								
10 Min Spin West (ABCDE)	3.10	2.24	0.97	0.89								
10 Min Non Synch Long Island (K)	1.81	0.50	0.15	0.89								
10 Min Non Synch NYC (J)	1.89	0.52	0.15	1.19								
10 Min Non Synch SENY (GHI)	1.81	0.50	0.15	0.89								
10 Min Non Synch East (F)	1.79	0.45	0.05	0.70								
10 Min Non Synch West (ABCDE)	1.15	0.01	0.00	0.21								
30 Min Long Island (K)	0.39	0.05	0.09	0.40								
30 Min NYC (J)	0.39	0.05	0.09	0.47								
30 Min SENY (GHI)	0.39	0.05	0.09	0.40								
30 Min East (F)	0.36	0.01	0.00	0.21								
30 Min West (ABCDE)	0.36	0.01	0.00	0.21								
Regulation	8.46	12.64	9.44	8.10								
NYCA Regulation Movement	0.12	0.14	0.12	0.16								
2022	<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>
Real Time Market												
10 Min Spin Long Island (K)	17.99	9.02	6.90	3.15	2.68	4.93	6.01	10.69	3.49	3.23	7.82	36.64
10 Min Spin NYC (J)	18.04	9.27	7.04	3.27	3.17	5.46	6.66	12.88	3.74	3.41	8.01	36.89
10 Min Spin SENY (GHI)	17.99	9.02	6.90	3.15	2.68	4.93	6.01	10.69	3.49	3.23	7.82	36.64
10 Min Spin East (F)	17.97	9.02	6.90	3.15	2.62	4.39	5.65	8.61	3.27	3.22	7.54	34.02
10 Min Spin West (ABCDE)	13.47	7.56	2.14	1.83	1.76	3.13	2.70	5.68	1.84	1.40	3.02	22.15
10 Min Non Synch Long Island (K)	5.34	0.59	4.05	0.40	0.43	2.42	4.26	6.67	0.81	0.38	2.63	23.83
10 Min Non Synch NYC (J)	5.40	0.84	4.19	0.51	0.92	2.95	4.90	8.85	1.06	0.56	2.81	24.09
10 Min Non Synch SENY (GHI)	5.34	0.59	4.05	0.40	0.43	2.42	4.26	6.67	0.81	0.38	2.63	23.83
10 Min Non Synch East (F)	5.33	0.59	4.05	0.40	0.37	1.88	3.90	4.58	0.59	0.37	2.35	21.21
10 Min Non Synch West (ABCDE)	2.46	0.20	0.19	0.29	0.34	1.51	1.79	2.37	0.25	0.01	0.10	12.80
30 Min Long Island (K)	1.42	0.20	0.16	0.29	0.40	2.05	2.28	4.29	0.47	0.01	0.38	11.54
30 Min NYC (J)	1.42	0.20	0.16	0.29	0.56	2.20	2.41	5.15	0.52	0.01	0.38	11.73
30 Min SENY (GHI)	1.42	0.20	0.16	0.29	0.40	2.05	2.28	4.29	0.47	0.01	0.38	11.54
30 Min East (F)	1.41	0.20	0.16	0.29	0.34	1.51	1.92	2.21	0.25	0.01	0.10	8.92
30 Min West (ABCDE)	1.41	0.20	0.16	0.29	0.34	1.51	1.79	2.21	0.25	0.01	0.10	8.87
Regulation	33.92	18.10	11.81	8.22	8.23	11.84	8.95	11.52	11.36	8.91	12.84	28.95
NYCA Regulation Movement	0.16	0.17	0.15	0.10	0.13	0.20	0.18	0.23	0.23	0.16	0.15	0.19

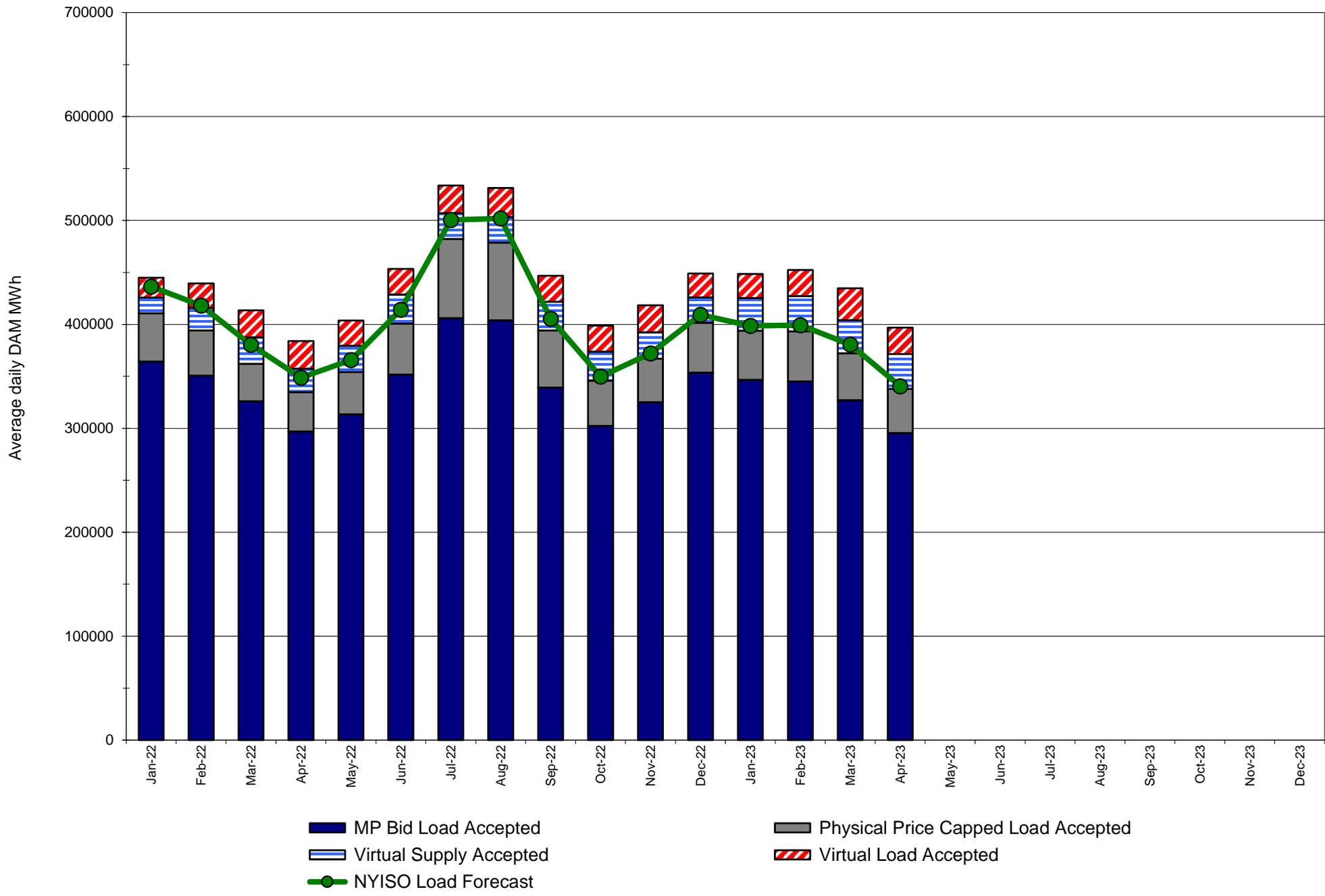
NYISO In City Energy Mitigation - AMP (NYC Zone) 2022 - 2023 Percentage of committed unit-hours mitigated



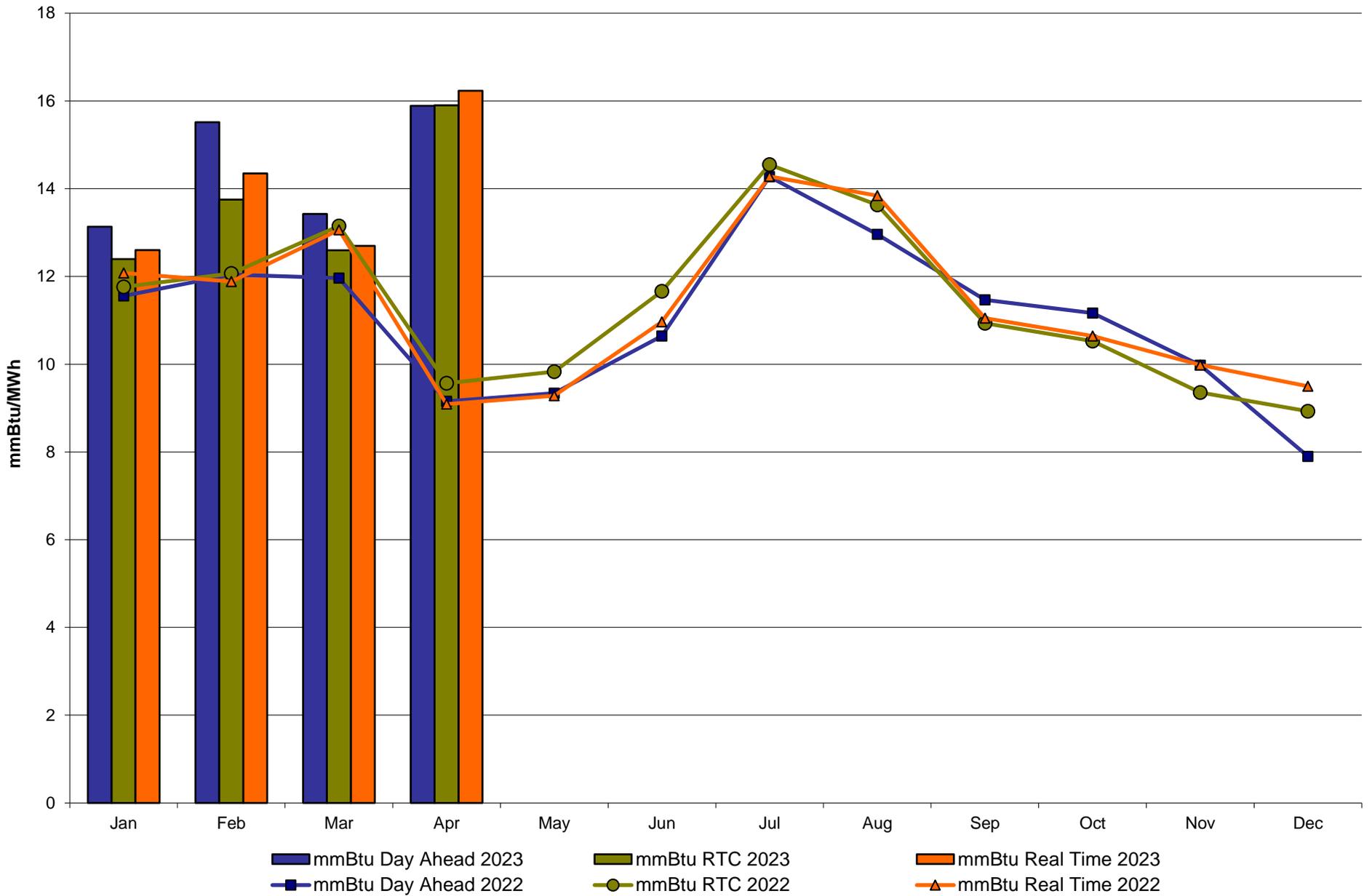
NYISO In City Energy Mitigation (NYC Zone) 2022 - 2023
Monthly megawatt hours mitigated



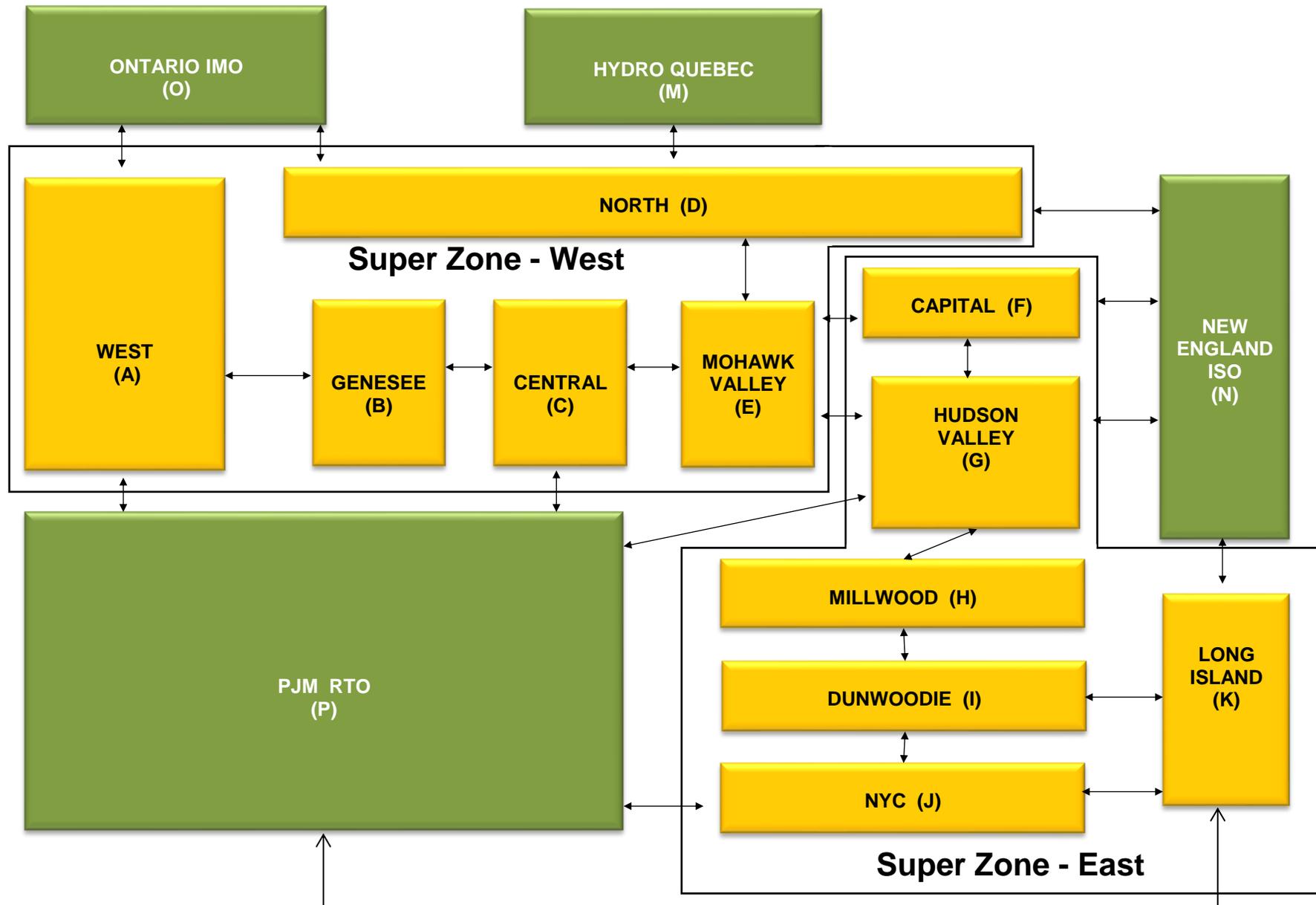
NYISO Average Daily DAM Load Bid Summary



Monthly Implied Heat Rate 2022-2023



NYISO LBMP ZONES



Billing Codes for Chart C

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

Our Mission & Vision



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