

# NYISO CEO/COO Report

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**Rob Fernandez**

Interim President & Chief Executive Officer

**Rick Gonzales**

Senior Vice President & Chief Operating Officer

## Management Committee Meeting

February 27, 2019 Rensselaer, NY

**DRAFT – FOR DISCUSSION PURPOSES ONLY**

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# NYISO CEO/COO Report

## CEO Report

## COO Report

- Market Performance Highlights – For Information Only
- Operations Performance Metrics Monthly Report

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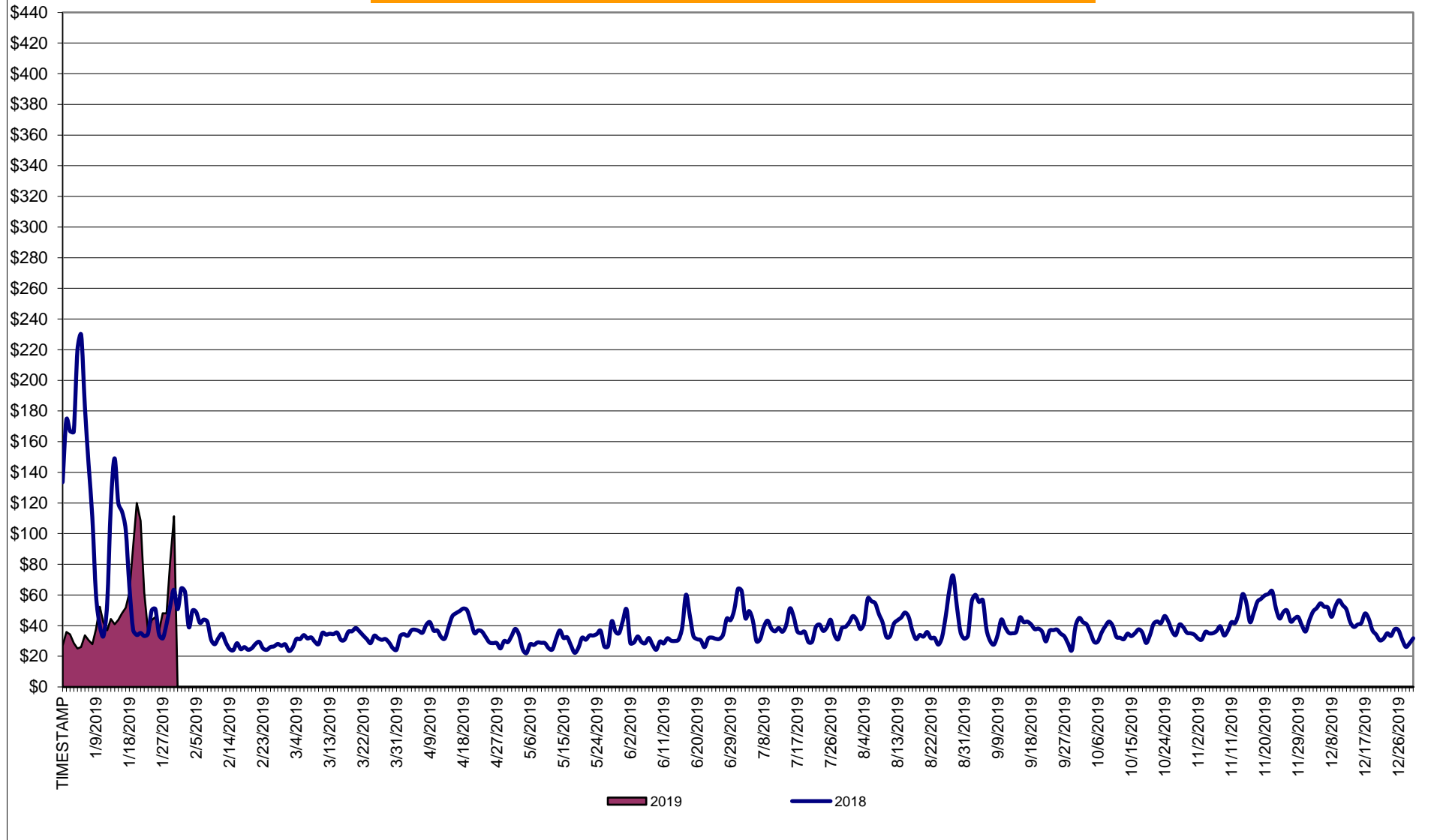
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# Market Performance Highlights

## January 2019

- LBMP for January is \$50.93/MWh; higher than \$40.31/MWh in December 2018 and lower than \$99.55/MWh in January 2018.
  - Day Ahead and Real Time Load Weighted LBMPs are higher compared to December.
- January 2019 average year-to-date monthly cost of \$52.99/MWh is a 48% decrease from \$101.54/MWh in January 2018.
- Average daily sendout is 449 GWh/day in January; higher than 425 GWh/day in December 2018 and lower than 463 GWh/day in January 2018.
- Natural gas and distillate prices were higher compared to the previous month.
  - Natural Gas (Transco Z6 NY) was \$6.11/MMBtu, up from \$4.10/MMBtu in December.
  - Natural gas prices are down 65.9% year-over-year.
  - Jet Kerosene Gulf Coast was \$13.25/MMBtu, up from \$12.54/MMBtu in December.
  - Ultra Low Sulfur No.2 Diesel NY Harbor was \$13.20/MMBtu, up from \$12.84/MMBtu in December.
  - Distillate prices are down 9.7% year-over-year.
- Uplift per MWh is higher compared to the previous month.
  - Uplift (not including NYISO cost of operations) is (\$0.25)/MWh; higher than (\$0.29)/MWh in December.
    - Local Reliability Share is \$0.32/MWh, higher than \$0.23/MWh in December.
    - Statewide Share is (\$0.57)/MWh, lower than (\$0.52)/MWh in December.
  - TSA \$ per NYC MWh is \$0.00/MWh.
  - Total uplift costs (Schedule 1 components including NYISO Cost of Operations) are higher than December.

**Daily NYISO Average Cost/MWh (Energy & Ancillary Services)\***  
**2018 Annual Average \$44.92/MWh**  
**January 2018 YTD Average \$101.54/MWh**  
**January 2019 YTD Average \$52.99/MWh**



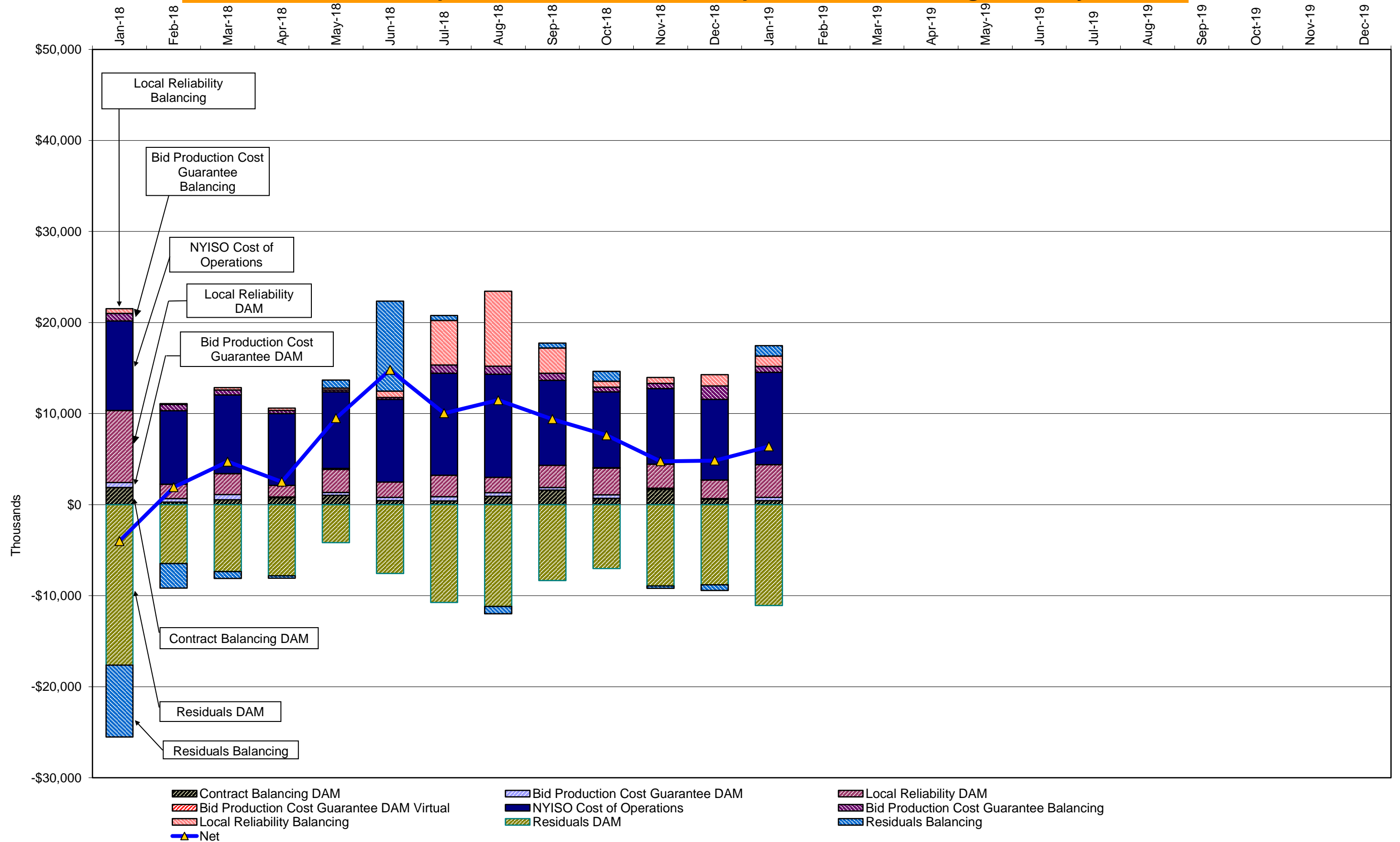
\* Excludes ICAP payments.

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

<b>2019</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	50.93											
NTAC	0.51											
Reserve	0.54											
Regulation	0.13											
NYISO Cost of Operations	0.68											
FERC Fee Recovery	0.08											
Uplift	(0.25)											
Uplift: Local Reliability Share	0.32											
Uplift: Statewide Share	(0.57)											
Voltage Support and Black Start	0.37											
<b>Avg Monthly Cost</b>	<b>52.99</b>											
 Avg YTD Cost	 52.99											
 TSA \$ per NYC MWh	 0.00											
 <b>2018</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	99.55	33.83	29.91	35.00	28.78	32.53	39.58	42.56	38.70	35.85	43.15	40.31
NTAC	0.71	0.58	0.88	1.09	0.88	1.00	0.93	0.72	0.40	0.36	1.18	0.93
Reserve	0.92	0.65	0.64	0.81	0.68	0.57	0.49	0.51	0.52	0.80	0.66	0.54
Regulation	0.15	0.15	0.16	0.12	0.14	0.16	0.09	0.09	0.09	0.16	0.17	0.17
NYISO Cost of Operations	0.65	0.65	0.66	0.65	0.66	0.67	0.67	0.66	0.66	0.63	0.63	0.63
FERC Fee Recovery	0.08	0.10	0.09	0.10	0.09	0.09	0.06	0.06	0.08	0.09	0.09	0.08
Uplift	(0.92)	(0.50)	(0.31)	(0.45)	0.05	0.30	(0.13)	(0.02)	(0.11)	(0.30)	(0.27)	(0.29)
Uplift: Local Reliability Share	0.59	0.14	0.19	0.12	0.22	0.18	0.44	0.59	0.37	0.27	0.25	0.23
Uplift: Statewide Share	(1.52)	(0.64)	(0.51)	(0.57)	(0.17)	0.12	(0.57)	(0.61)	(0.48)	(0.56)	(0.52)	(0.52)
Voltage Support and Black Start	0.40	0.41	0.42	0.41	0.42	0.42	0.42	0.42	0.42	0.40	0.40	0.40
<b>Avg Monthly Cost</b>	<b>101.54</b>	<b>35.87</b>	<b>32.45</b>	<b>37.74</b>	<b>31.70</b>	<b>35.73</b>	<b>42.12</b>	<b>45.01</b>	<b>40.76</b>	<b>38.00</b>	<b>46.01</b>	<b>42.78</b>
 Avg YTD Cost	 101.54	 72.85	 60.06	 54.82	 50.20	 47.70	 46.64	 46.37	 45.75	 45.03	 45.11	 44.92
 TSA \$ per NYC MWh	 0.00	 0.00	 0.04	 0.00	 0.08	 0.39	 0.21	 0.14	 0.33	 0.75	 0.00	 0.00

\* Excludes ICAP payments.  
Market Mitigation and Analysis  
Prepared: 2/8/2019 11:12 AM

# NYISO Dollar Flows - Uplift - OATT Schedule 1 components - Data through January 31, 2019



DAM Contract Balancing amounts are for payments made to generating units to make them whole for being dispatched below their Day-Ahead schedule, as a result of out-of-merit dispatches.

DAM Bid Production Cost Guarantees for Virtual Transactions are included in the chart and are shown from the inception of Virtual Transactions. These values are small and cannot be identified on the chart.

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

## NYISO Markets Transactions

<u>2019</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 MWh</u></b>	15,299,458											
DAM LSE Internal LBMP Energy Sales	57%											
DAM External TC LBMP Energy Sales	6%											
DAM Bilateral - Internal Bilaterals	29%											
DAM Bilateral - Import/Non-LBMP Market Bilaterals	5%											
DAM Bilateral - Export/Non-LBMP Market Bilaterals	1%											
DAM Bilateral - Wheel Through Bilaterals	2%											
<b><u>Balancing Energy Market MWh</u></b>	-322,442											
Balancing Energy LSE Internal LBMP Energy Sales	-120%											
Balancing Energy External TC LBMP Energy Sales	65%											
Balancing Energy Bilateral - Internal Bilaterals	-4%											
Balancing Energy Bilateral - Import/Non-LBMP Market Bilaterals	0%											
Balancing Energy Bilateral - Export/Non-LBMP Market Bilaterals	3%											
Balancing Energy Bilateral - Wheel Through Bilaterals	-45%											
<b><u>Transactions Summary</u></b>												
LBMP	63%											
Internal Bilaterals	29%											
Import Bilaterals	5%											
Export Bilaterals	1%											
Wheels Through	1%											
<b><u>Market Share of Total Load</u></b>												
Day Ahead Market	102.2%											
Balancing Energy +	-2.2%											
Total MWH	14,977,016											
Average Daily Energy Sendout/Month GWh	449											

<u>2018</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 MWh</u></b>	15,153,751	12,643,854	13,521,386	12,158,686	12,721,073	13,983,384	16,839,994	17,195,447	14,432,632	13,548,828	13,506,134	14,450,460
DAM LSE Internal LBMP Energy Sales	59%	57%	58%	60%	61%	61%	65%	65%	61%	57%	58%	56%
DAM External TC LBMP Energy Sales	4%	3%	2%	2%	2%	1%	1%	2%	3%	6%	6%	6%
DAM Bilateral - Internal Bilaterals	29%	31%	32%	30%	29%	30%	26%	25%	28%	29%	30%	30%
DAM Bilateral - Import/Non-LBMP Market Bilaterals	5%	5%	5%	5%	5%	5%	4%	4%	5%	5%	2%	5%
DAM Bilateral - Export/Non-LBMP Market Bilaterals	2%	2%	2%	2%	2%	1%	1%	1%	1%	2%	2%	2%
DAM Bilateral - Wheel Through Bilaterals	1%	2%	2%	2%	2%	2%	2%	2%	2%	1%	1%	2%
<b><u>Balancing Energy Market MWh</u></b>	-149,619	-299,377	-386,811	-72,862	-29,539	-354,112	-80,438	-44,732	-210,436	-314,885	-304,277	-428,748
Balancing Energy LSE Internal LBMP Energy Sales	-147%	-101%	-128%	-208%	-458%	-113%	-123%	-75%	-82%	-105%	-100%	-94%
Balancing Energy External TC LBMP Energy Sales	74%	24%	37%	189%	564%	29%	129%	209%	14%	30%	18%	27%
Balancing Energy Bilateral - Internal Bilaterals	9%	5%	0%	-11%	29%	5%	18%	23%	7%	2%	3%	3%
Balancing Energy Bilateral - Import/Non-LBMP Market Bilaterals	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	10%	0%
Balancing Energy Bilateral - Export/Non-LBMP Market Bilaterals	22%	9%	6%	34%	51%	3%	14%	25%	3%	0%	0%	0%
Balancing Energy Bilateral - Wheel Through Bilaterals	-58%	-36%	-15%	-103%	-287%	-23%	-138%	-281%	-42%	-27%	-31%	-36%
<b><u>Transactions Summary</u></b>												
LBMP	63%	59%	59%	62%	63%	61%	66%	68%	64%	63%	64%	61%
Internal Bilaterals	30%	32%	33%	30%	29%	31%	27%	25%	28%	30%	31%	31%
Import Bilaterals	5%	5%	6%	5%	5%	5%	4%	4%	5%	5%	3%	5%
Export Bilaterals	2%	2%	2%	2%	2%	1%	1%	1%	1%	2%	2%	2%
Wheels Through	1%	1%	1%	1%	1%	2%	1%	1%	2%	1%	1%	1%
<b><u>Market Share of Total Load</u></b>												
Day Ahead Market	101.0%	102.4%	102.9%	100.6%	100.2%	102.6%	100.5%	100.3%	101.5%	102.4%	102.3%	103.1%
Balancing Energy +	-1.0%	-2.4%	-2.9%	-0.6%	-0.2%	-2.6%	-0.5%	-0.3%	-1.5%	-2.4%	-2.3%	-3.1%
Total MWH	15,004,132	12,344,477	13,134,575	12,085,824	12,691,534	13,629,272	16,759,556	17,150,715	14,222,196	13,233,943	13,201,857	14,021,712
Average Daily Energy Sendout/Month GWh	463	426	413	390	397	445	529	537	458	399	411	425

+ 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 2019 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 *	\$45.01											
Standard Deviation	\$25.67											
Load Weighted Price **	\$46.88											
<b><u>RTC LBMP</u></b>												
Price *	\$40.86											
Standard Deviation	\$23.02											
Load Weighted Price **	\$42.39											
<b><u>REAL TIME LBMP</u></b>												
Price *	\$39.54											
Standard Deviation	\$26.03											
Load Weighted Price **	\$41.24											
Average Daily Energy Sendout/Month GWh	449											

### NYISO Markets 2018 Energy Statistics

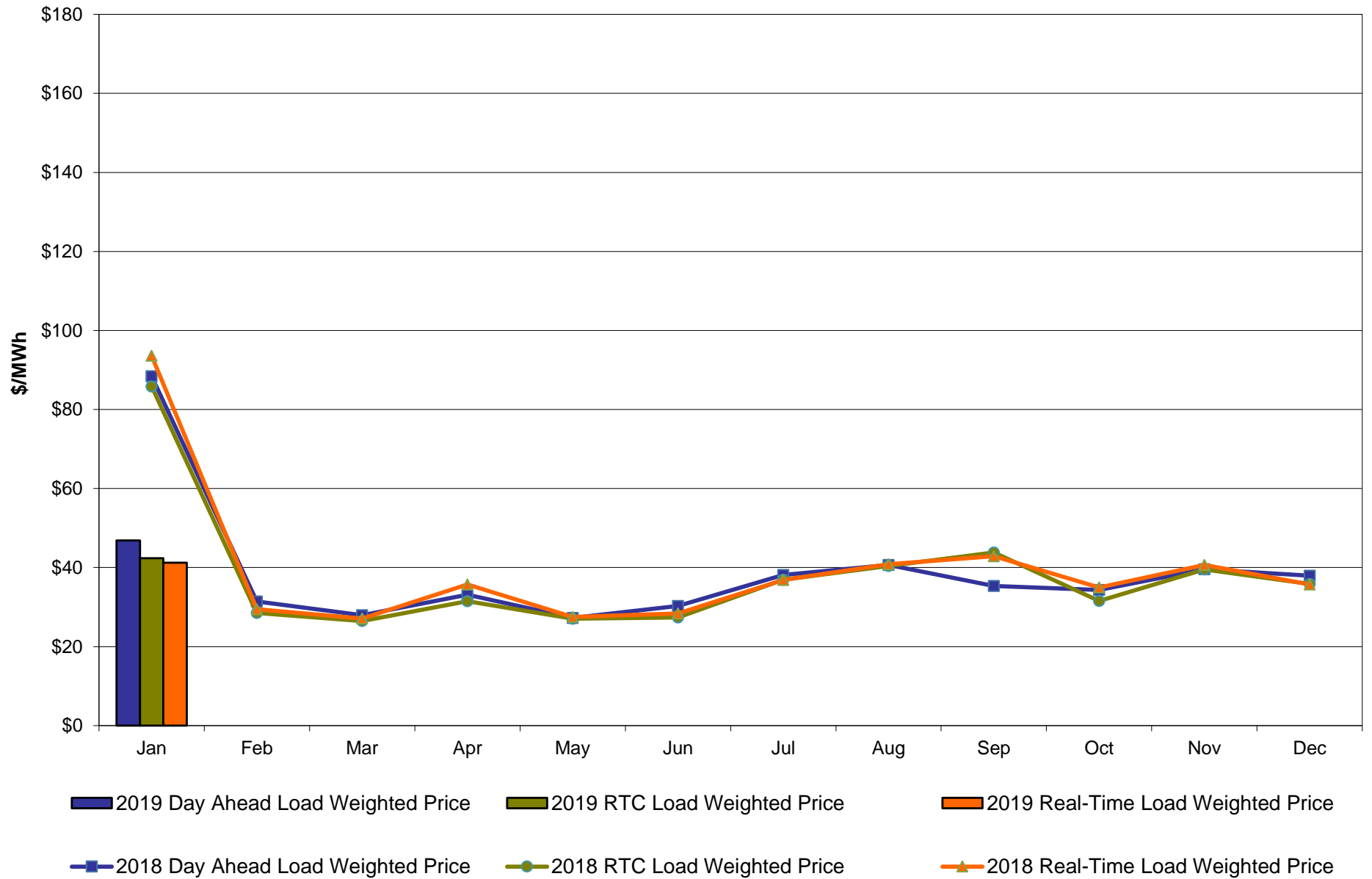
	<u>January</u>	<u>February</u>	<u>March</u>	<u>April</u>	<u>May</u>	<u>June</u>	<u>July</u>	<u>August</u>	<u>September</u>	<u>October</u>	<u>November</u>	<u>December</u>
<b><u>DAY AHEAD LBMP</u></b>												
Price *	\$83.53	\$30.37	\$27.37	\$32.40	\$25.97	\$28.41	\$35.73	\$38.00	\$33.28	\$33.27	\$38.36	\$36.88
Standard Deviation	\$58.94	\$12.38	\$6.34	\$9.06	\$9.22	\$11.42	\$15.25	\$16.51	\$12.01	\$9.24	\$11.36	\$11.61
Load Weighted Price **	\$88.42	\$31.44	\$27.95	\$33.14	\$27.26	\$30.27	\$38.14	\$40.64	\$35.33	\$34.33	\$39.55	\$37.96
<b><u>RTC LBMP</u></b>												
Price *	\$81.65	\$27.73	\$25.99	\$30.80	\$25.40	\$26.06	\$34.65	\$38.13	\$39.52	\$30.92	\$38.37	\$35.01
Standard Deviation	\$60.83	\$11.96	\$8.99	\$14.30	\$20.37	\$12.78	\$17.44	\$20.05	\$61.50	\$13.43	\$17.24	\$12.27
Load Weighted Price **	\$85.85	\$28.54	\$26.46	\$31.47	\$27.08	\$27.35	\$36.93	\$40.40	\$43.83	\$31.55	\$39.53	\$35.84
<b><u>REAL TIME LBMP</u></b>												
Price *	\$87.94	\$28.50	\$26.49	\$34.53	\$25.57	\$26.31	\$34.34	\$38.07	\$38.15	\$33.88	\$39.18	\$34.74
Standard Deviation	\$87.41	\$17.36	\$12.25	\$26.57	\$23.49	\$24.34	\$18.44	\$27.21	\$46.81	\$37.42	\$26.15	\$17.44
Load Weighted Price **	\$93.59	\$29.49	\$27.09	\$35.72	\$27.47	\$28.38	\$36.84	\$40.87	\$42.87	\$34.94	\$40.63	\$35.70
Average Daily Energy Sendout/Month GWh	463	426	413	390	397	445	529	537	458	399	411	425

\* Average zonal load weighted prices.

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



# **NYISO Monthly Average Internal LBMPs 2018- 2019**

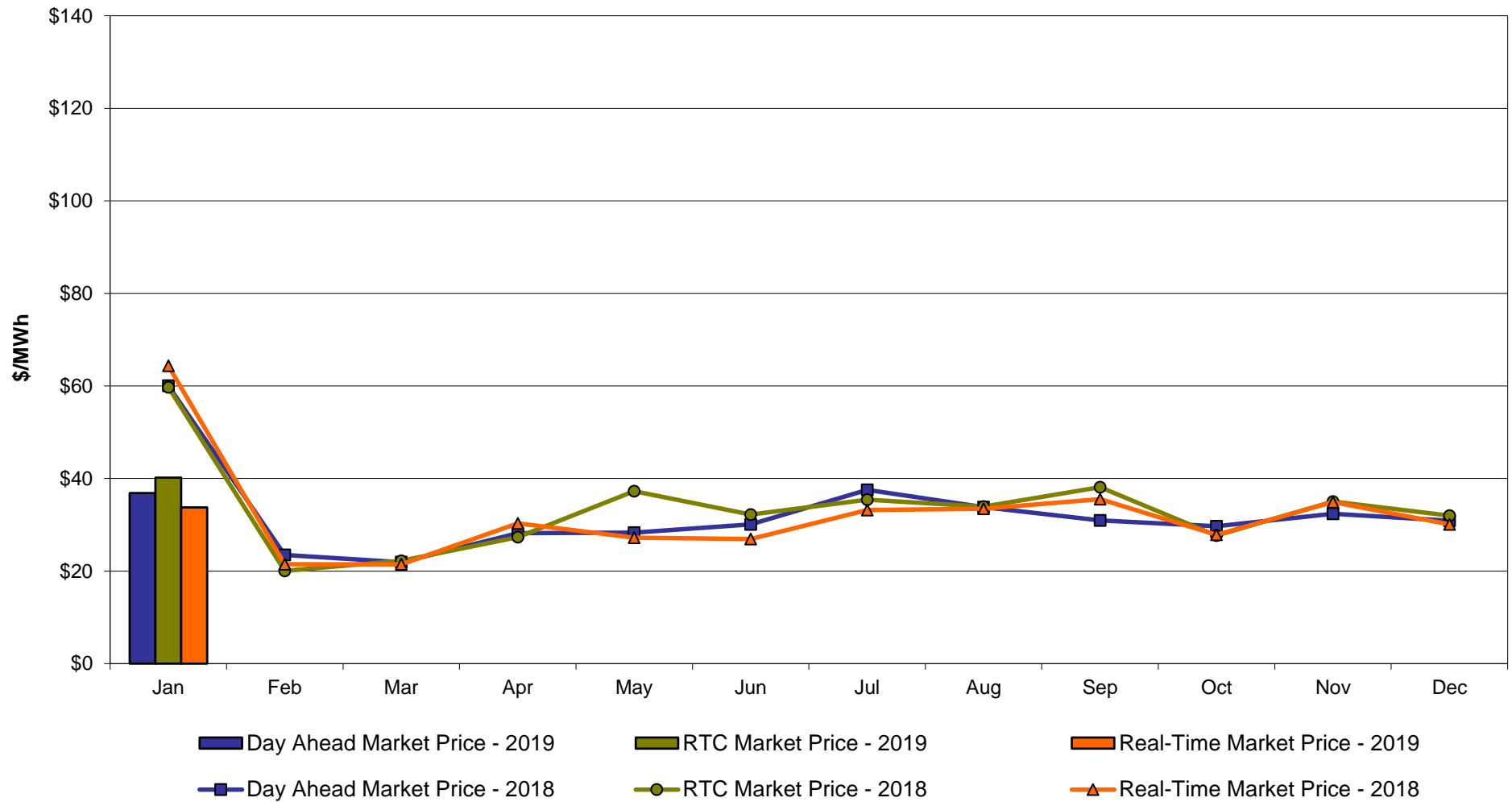


**January 2019 Zonal LBMP Statistics for NYISO (\$/MWh)**

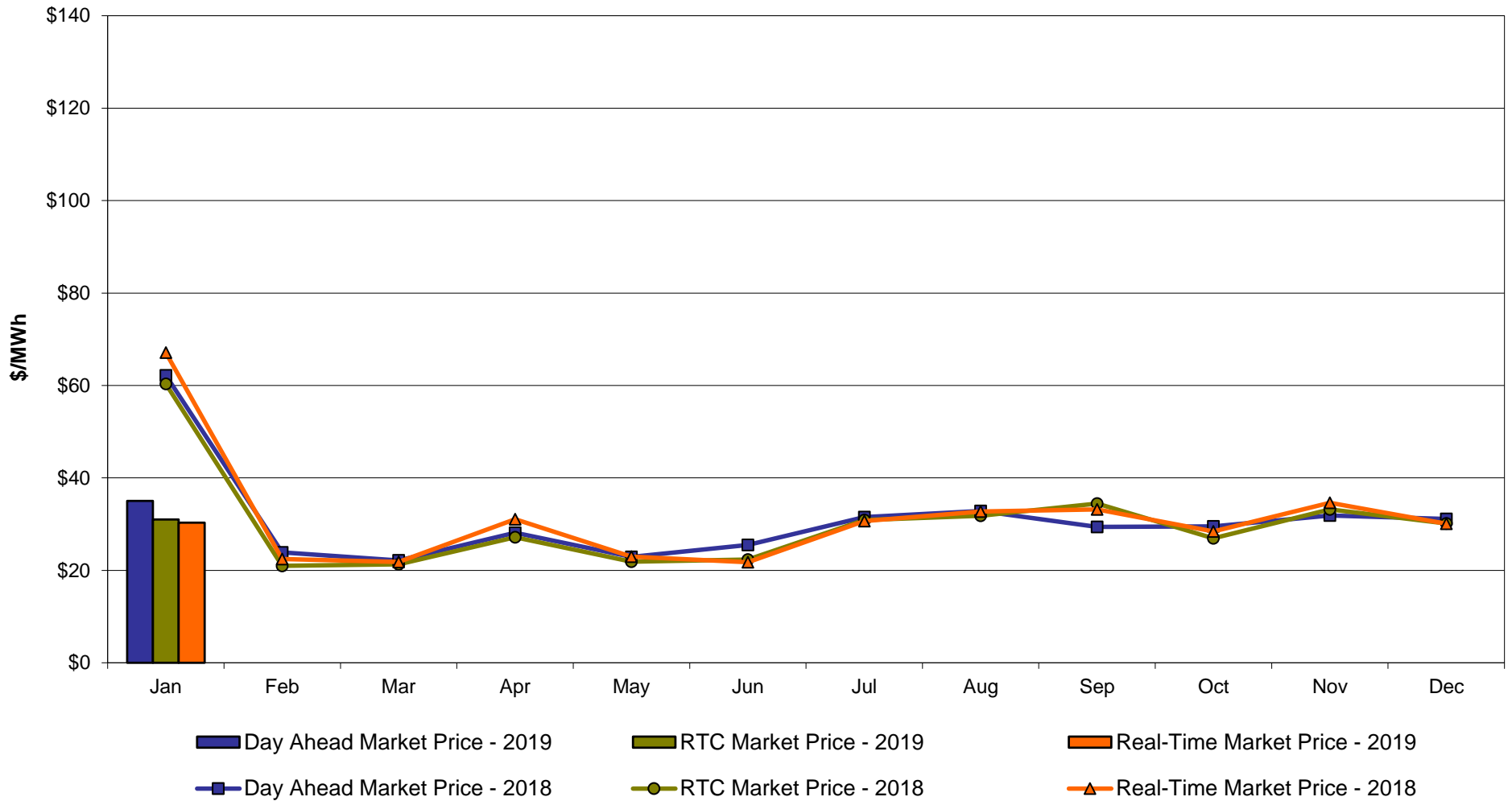
	<b><u>WEST</u></b> <b><u>Zone A</u></b>	<b><u>GENESEE</u></b> <b><u>Zone B</u></b>	<b><u>NORTH</u></b> <b><u>Zone D</u></b>	<b><u>CENTRAL</u></b> <b><u>Zone C</u></b>	<b><u>MOHAWK</u></b> <b><u>VALLEY</u></b> <b><u>Zone E</u></b>	<b><u>CAPITAL</u></b> <b><u>Zone F</u></b>	<b><u>HUDSON</u></b> <b><u>VALLEY</u></b> <b><u>Zone G</u></b>	<b><u>MILLWOOD</u></b> <b><u>Zone H</u></b>	<b><u>DUNWOODIE</u></b> <b><u>Zone I</u></b>	<b><u>NEW YORK</u></b> <b><u>CITY</u></b> <b><u>Zone J</u></b>	<b><u>LONG</u></b> <b><u>ISLAND</u></b> <b><u>Zone K</u></b>
<b><u>DAY AHEAD LBMP</u></b>											
Unweighted Price *	36.84	33.08	31.06	35.02	35.99	51.03	47.38	47.79	47.76	49.20	56.48
Standard Deviation	21.65	19.36	20.46	20.49	21.55	29.17	26.99	27.23	27.19	29.44	31.54
<b><u>RTC LBMP</u></b>											
Unweighted Price *	40.22	28.83	28.44	31.02	32.21	45.02	42.72	43.08	42.96	44.02	50.32
Standard Deviation	39.68	17.66	19.80	18.92	19.89	27.93	25.33	25.84	25.67	25.72	34.17
<b><u>REAL TIME LBMP</u></b>											
Unweighted Price *	33.74	28.35	27.94	30.34	31.59	44.37	42.01	42.37	42.26	43.78	48.25
Standard Deviation	29.03	21.71	23.76	22.68	23.94	31.19	28.71	29.20	29.03	31.00	32.55
	<b><u>ONTARIO</u></b> <b><u>IESO</u></b>  <b><u>Zone O</u></b>	<b><u>HYDRO</u></b> <b><u>QUEBEC</u></b> <b><u>(Wheel)</u></b> <b><u>Zone M</u></b>	<b><u>HYDRO</u></b> <b><u>QUEBEC</u></b> <b><u>(Import/Export)</u></b> <b><u>Zone M</u></b>	<b><u>PJM</u></b>  <b><u>Zone P</u></b>	<b><u>NEW</u></b> <b><u>ENGLAND</u></b>  <b><u>Zone N</u></b>	<b><u>CROSS</u></b> <b><u>SOUND</u></b> <b><u>CABLE</u></b> <b><u>Controllable</u></b> <b><u>Line</u></b>	<b><u>NORTHPORT-</u></b> <b><u>NORWALK</u></b> <b><u>Controllable</u></b> <b><u>Line</u></b>	<b><u>NEPTUNE</u></b> <b><u>Controllable</u></b> <b><u>Line</u></b>	<b><u>LINDEN VFT</u></b> <b><u>Controllable</u></b> <b><u>Line</u></b>	<b><u>HUDSON</u></b> <b><u>Controllable</u></b> <b><u>Line</u></b>	<b><u>Dennison</u></b> <b><u>Controllable</u></b> <b><u>Line</u></b>
<b><u>DAY AHEAD LBMP</u></b>											
Unweighted Price *	32.55	31.48	31.47	39.91	51.59	55.11	54.71	52.25	48.26	48.78	30.48
Standard Deviation	18.82	20.25	20.25	21.83	28.15	31.32	30.17	30.31	28.79	28.88	20.20
<b><u>RTC LBMP</u></b>											
Unweighted Price *	26.89	22.73	22.73	35.67	50.95	50.65	49.16	47.60	42.78	44.02	27.92
Standard Deviation	16.21	21.58	21.58	21.60	29.95	37.10	32.13	31.62	26.22	25.71	19.55
<b><u>REAL TIME LBMP</u></b>											
Unweighted Price *	25.92	23.91	23.89	33.84	46.90	48.62	47.76	45.77	36.30	44.12	23.88
Standard Deviation	38.24	23.41	23.42	24.20	30.41	34.13	31.49	30.22	69.93	31.74	22.51

\* Straight LBMP averages

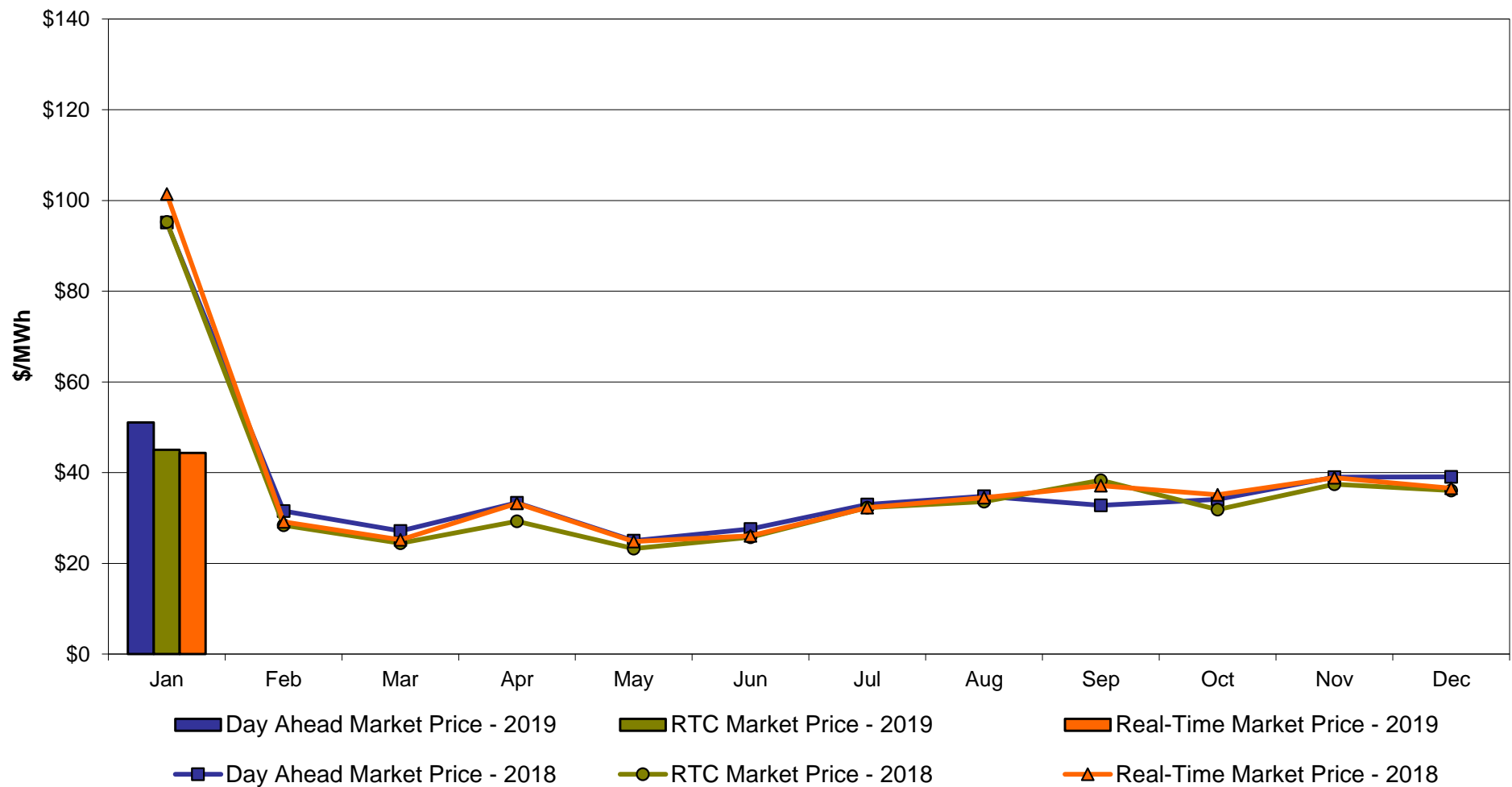
# **West Zone A** **Monthly Average LBMP Prices 2018 - 2019**



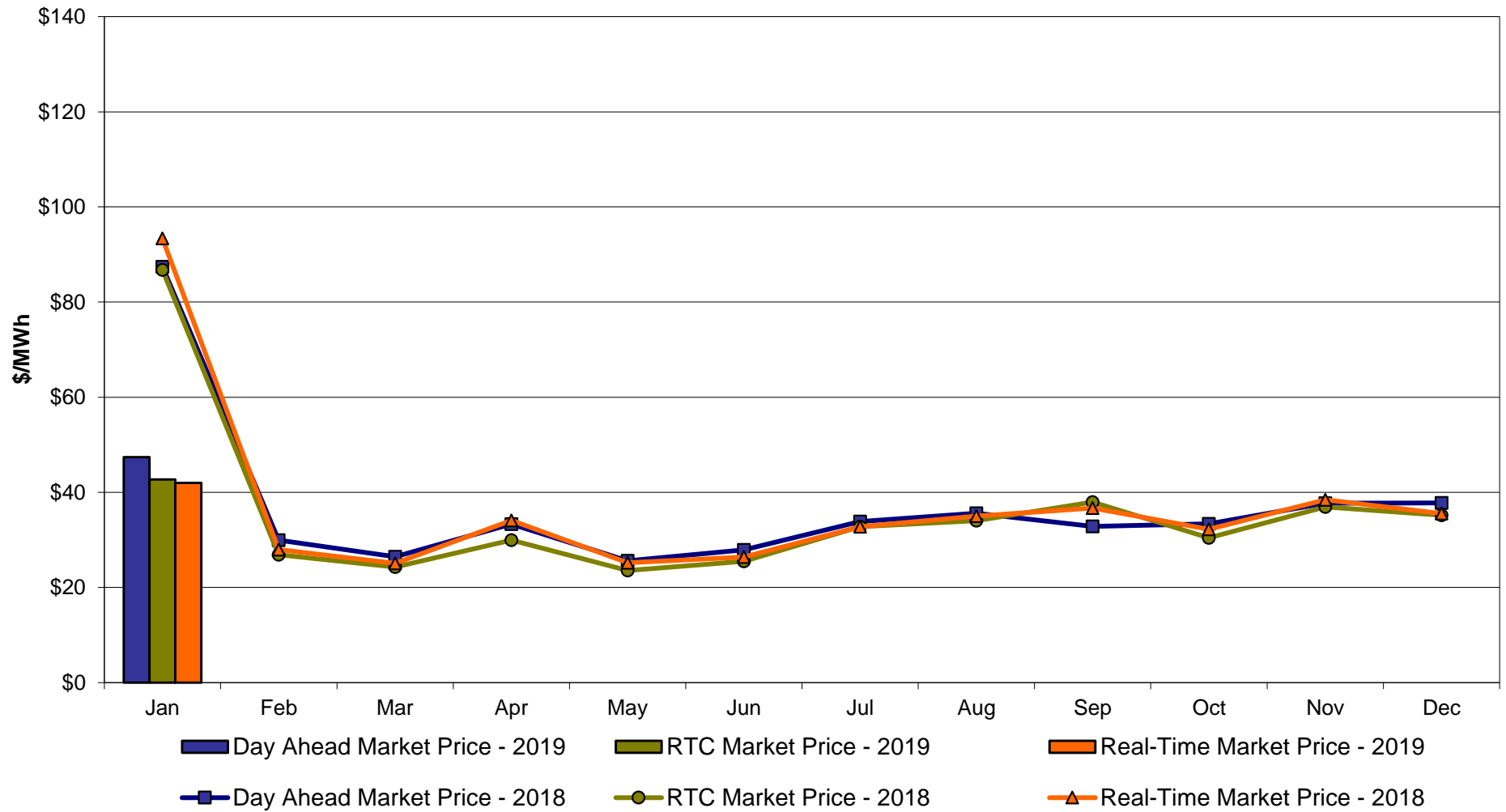
# **Central Zone C** **Monthly Average LBMP Prices 2018 - 2019**



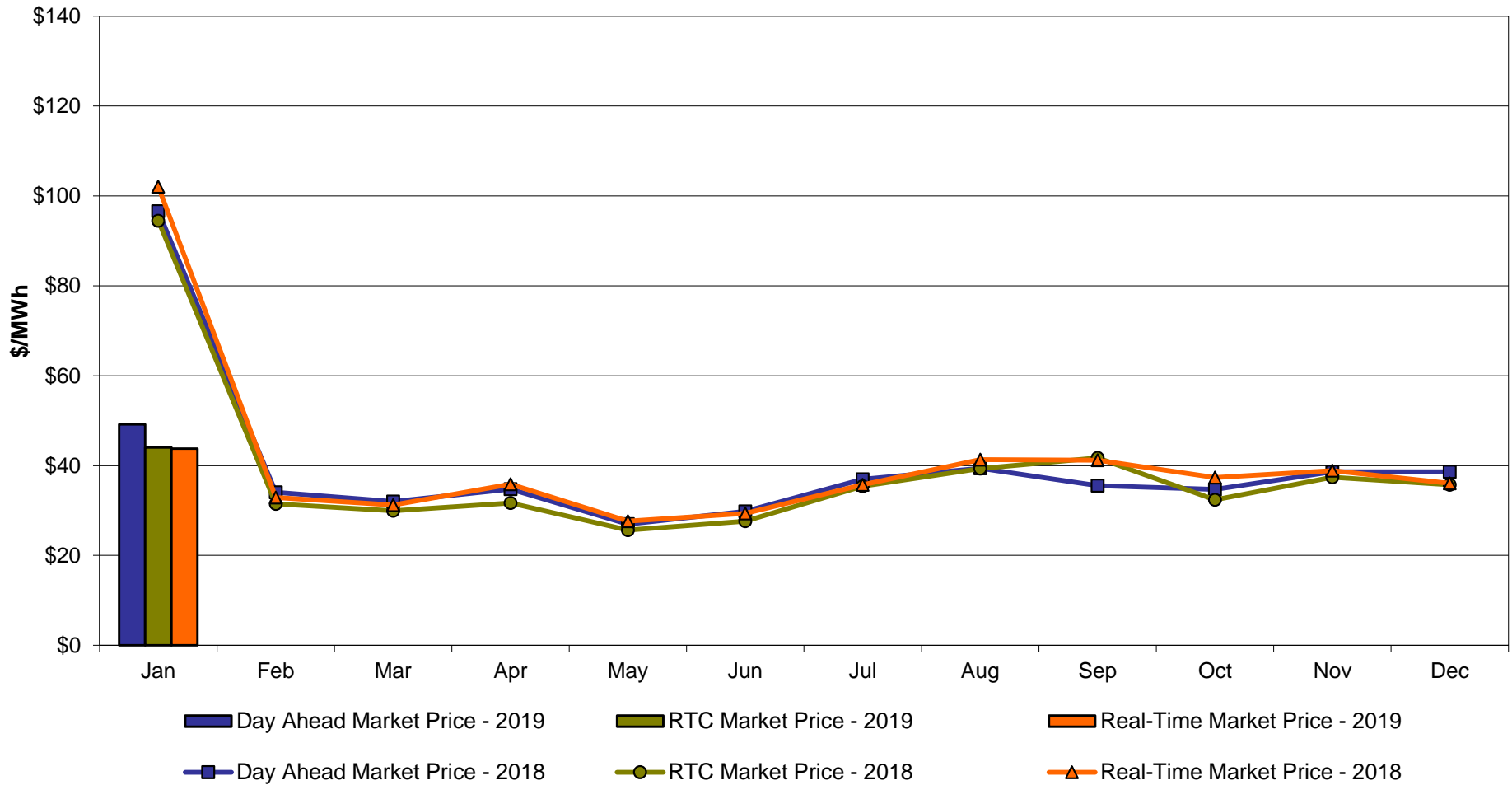
# **Capital Zone F** **Monthly Average LBMP Prices 2018 - 2019**



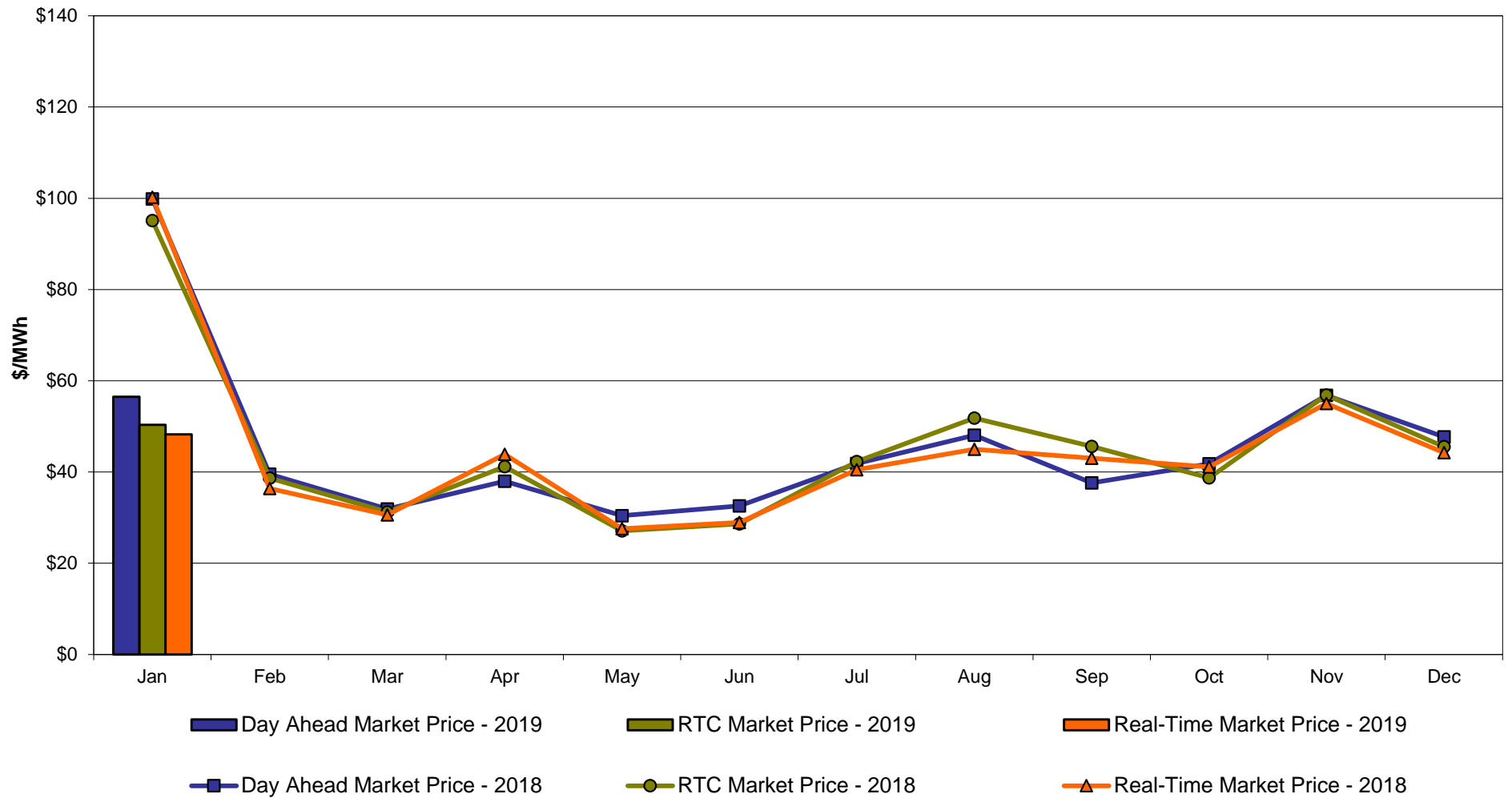
# Hudson Valley Zone G Monthly Average LBMP Prices 2018 - 2019



# NYC Zone J Monthly Average LBMP Prices 2018 - 2019

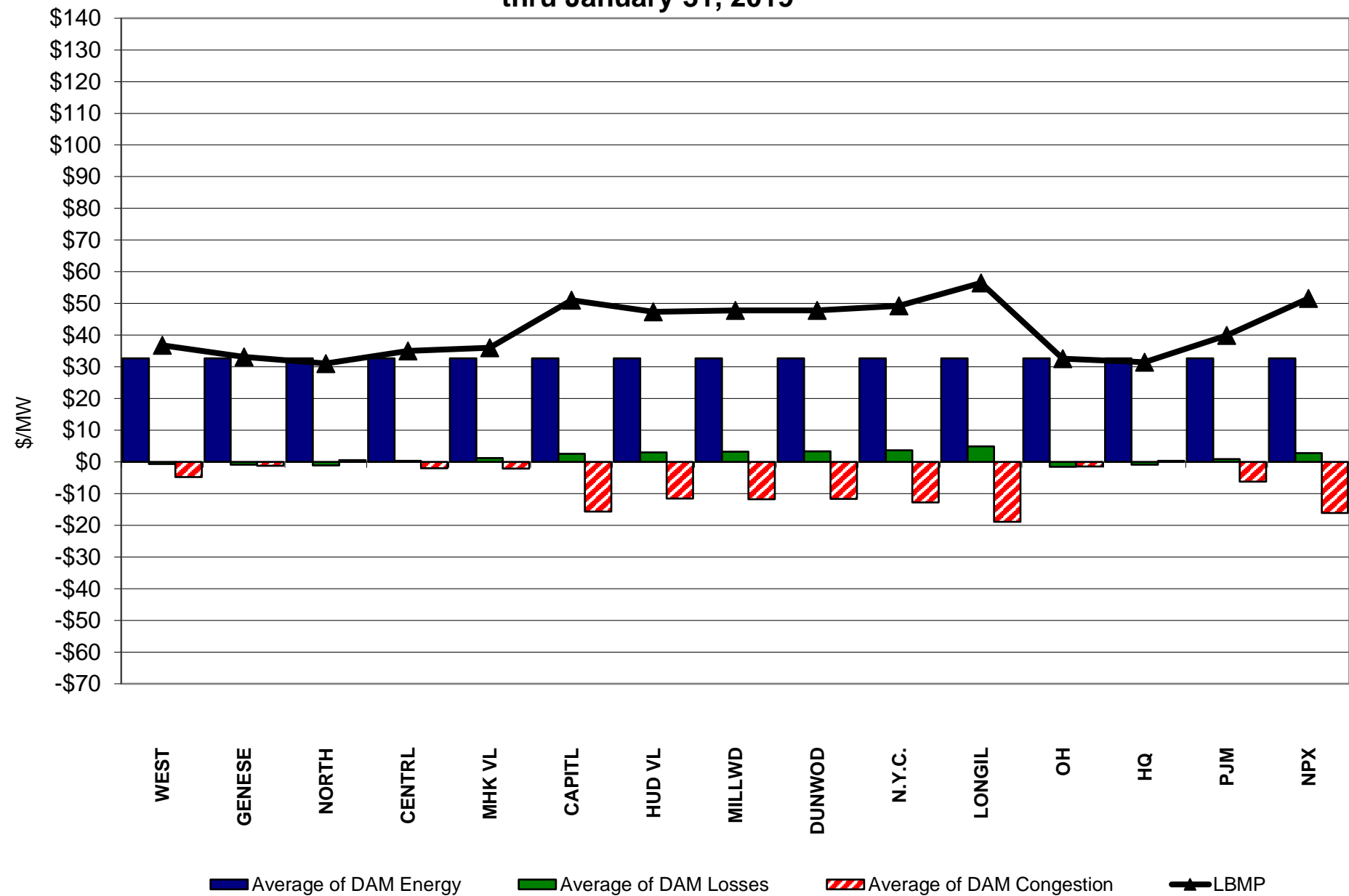


# Long Island Zone K Monthly Average LBMP Prices 2018 - 2019

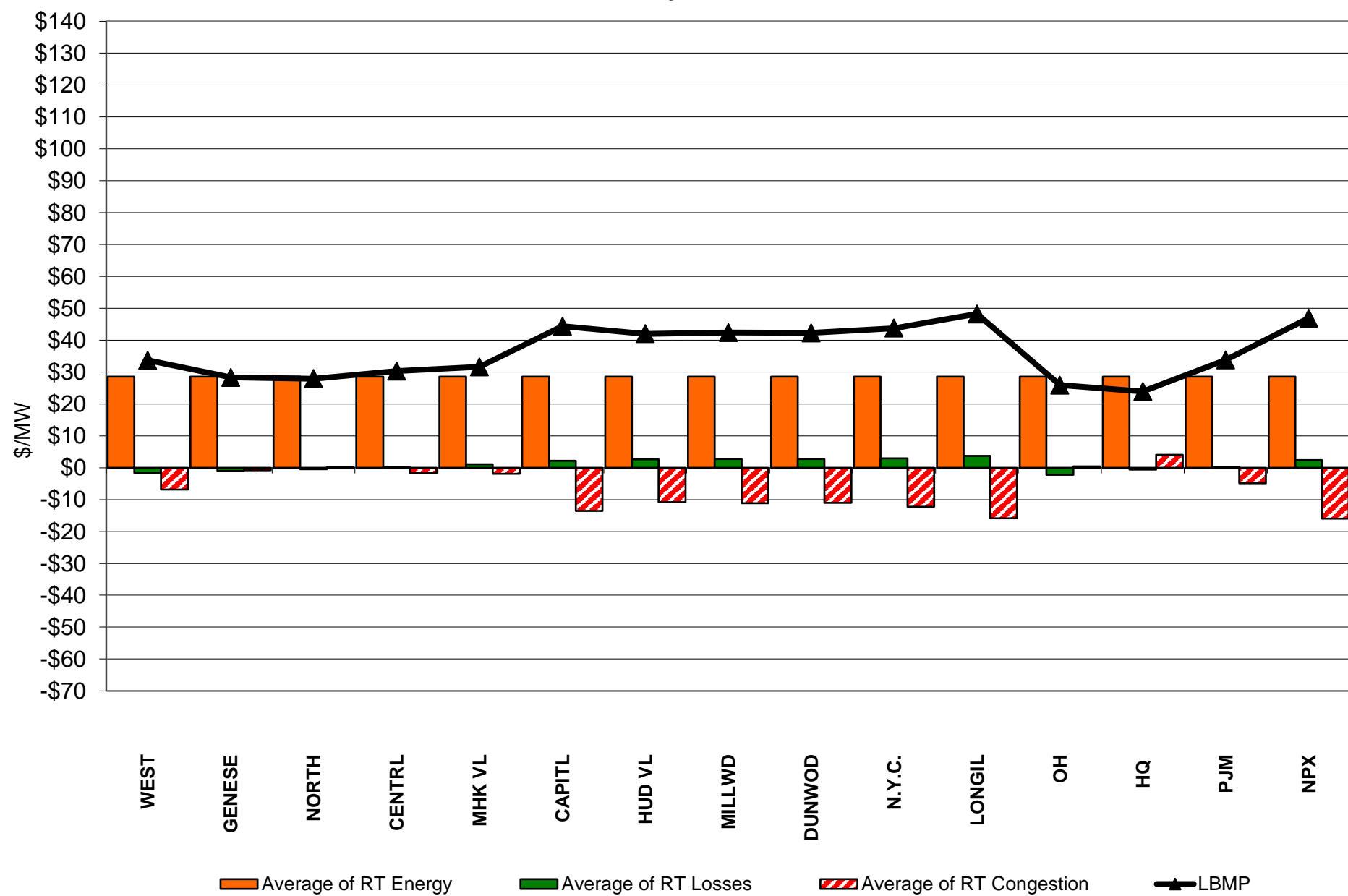




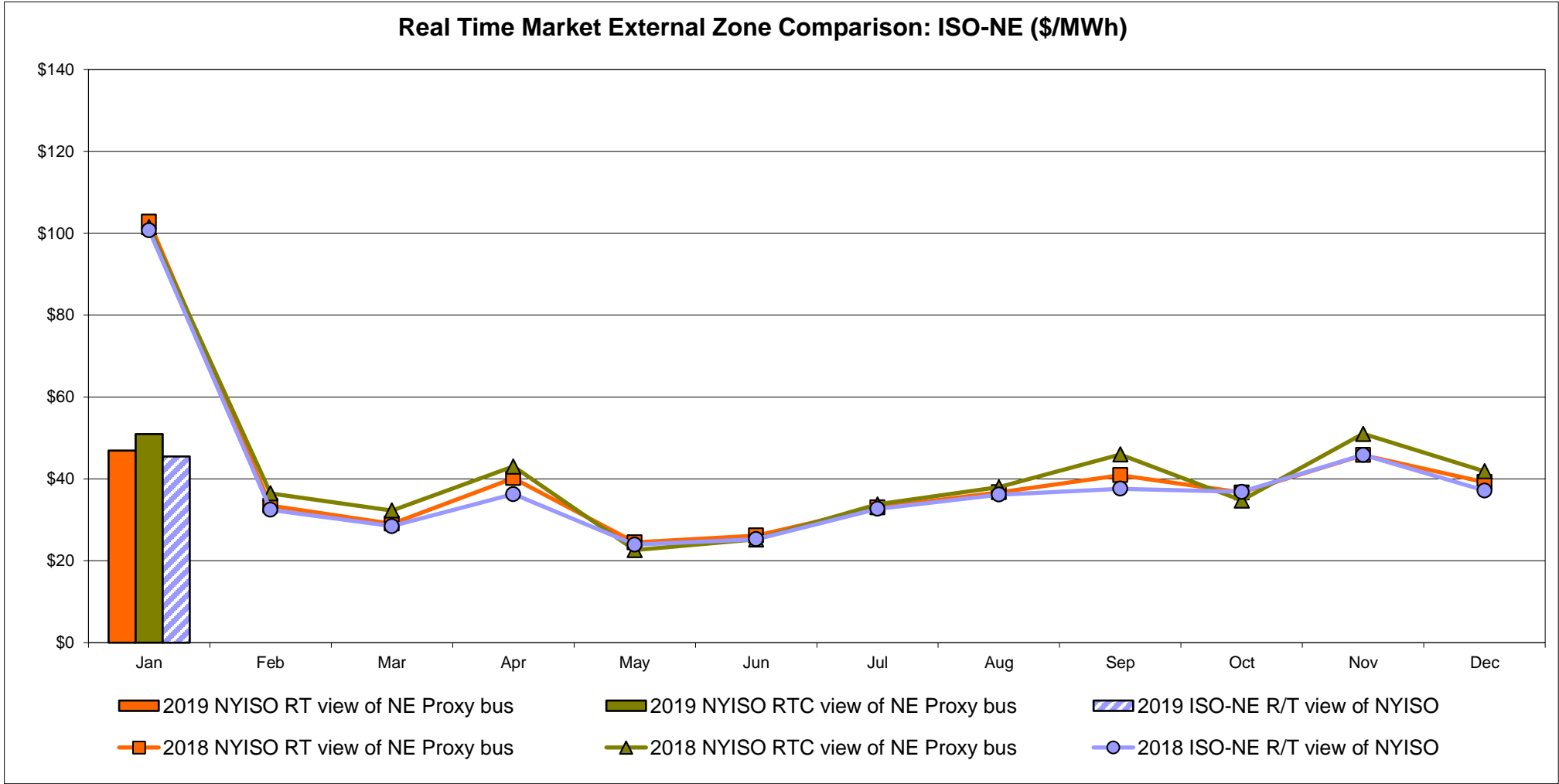
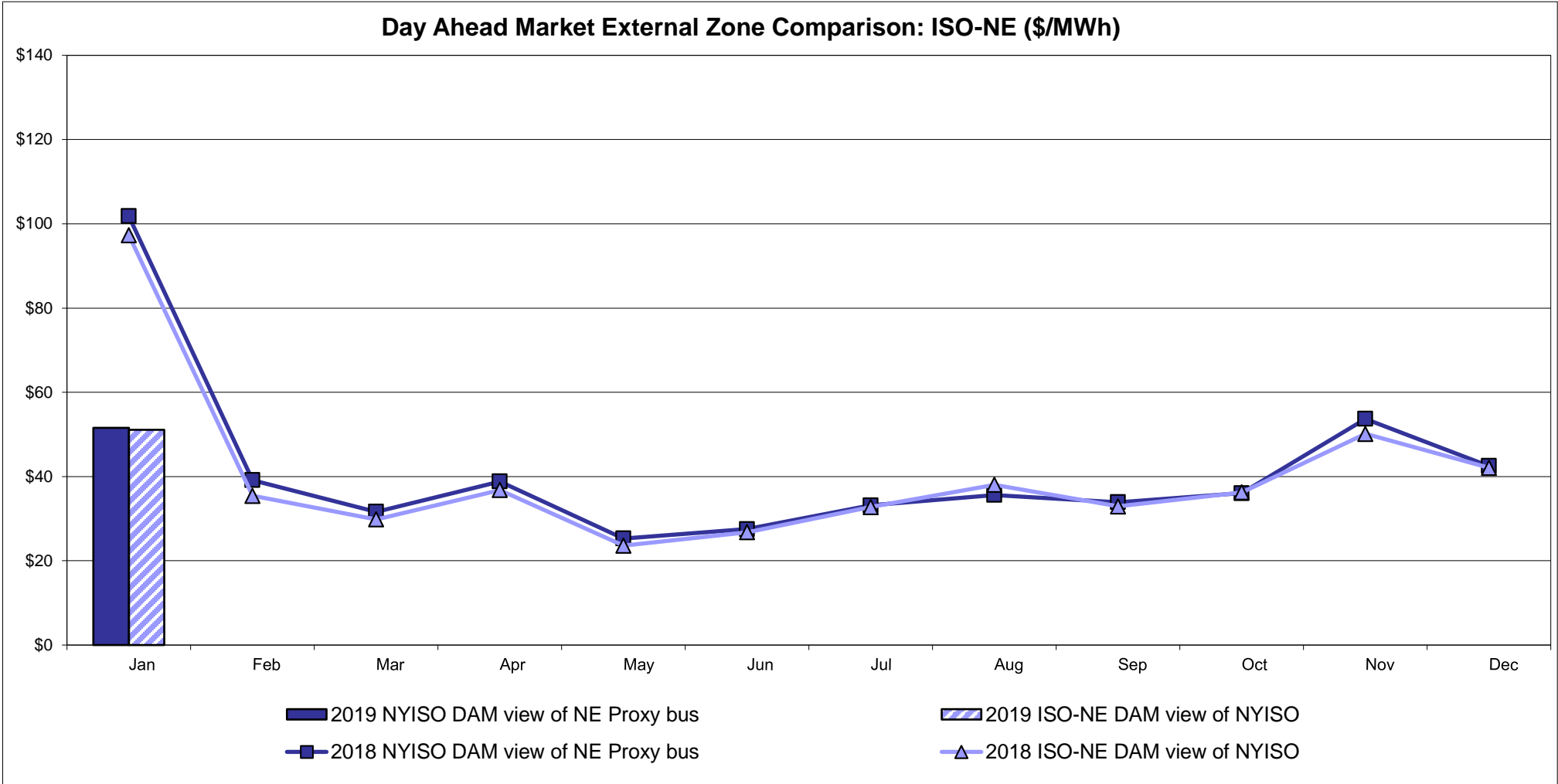
DAM Zonal Unweighted Monthly Average LBMP Components  
thru January 31, 2019



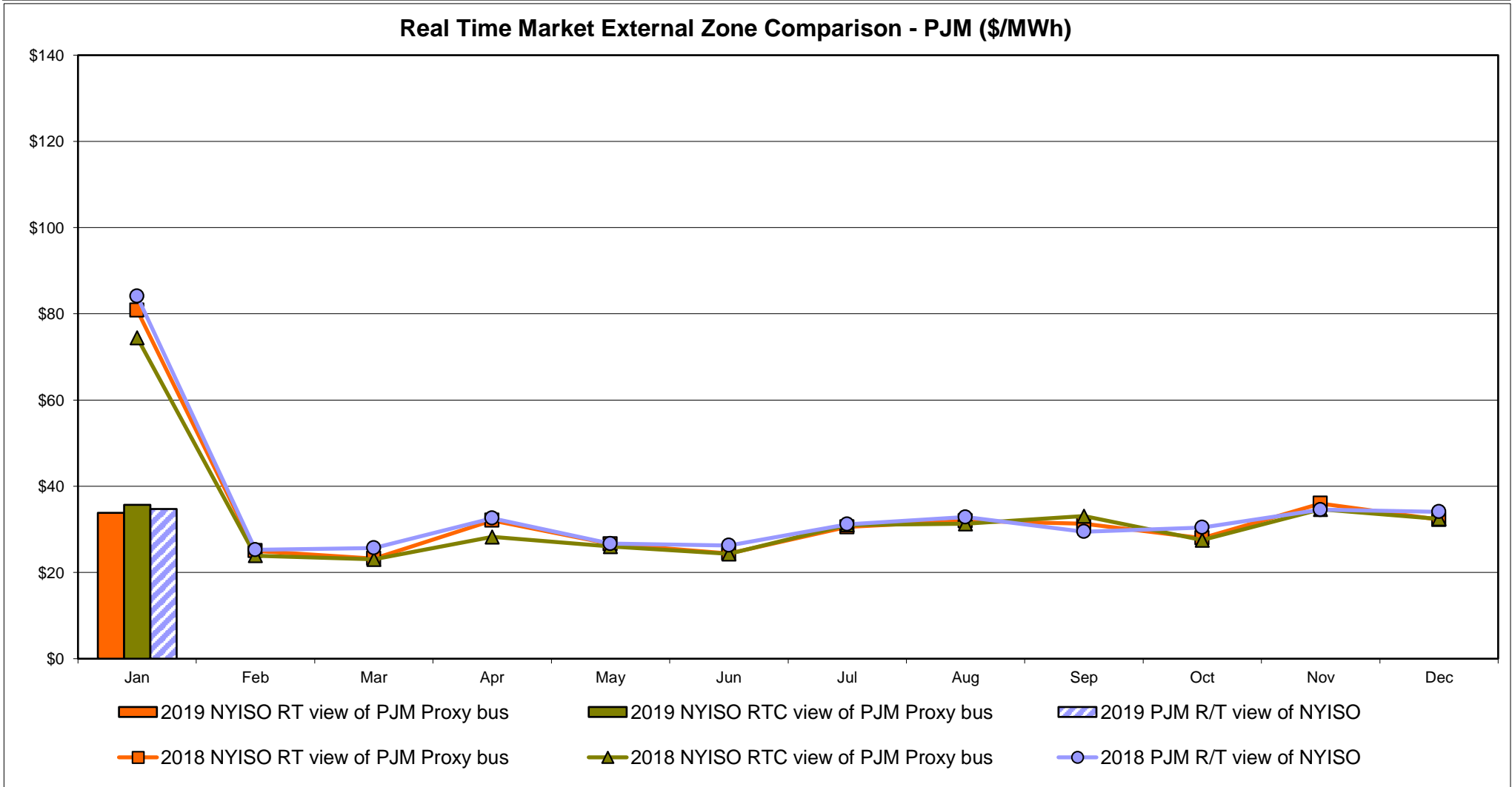
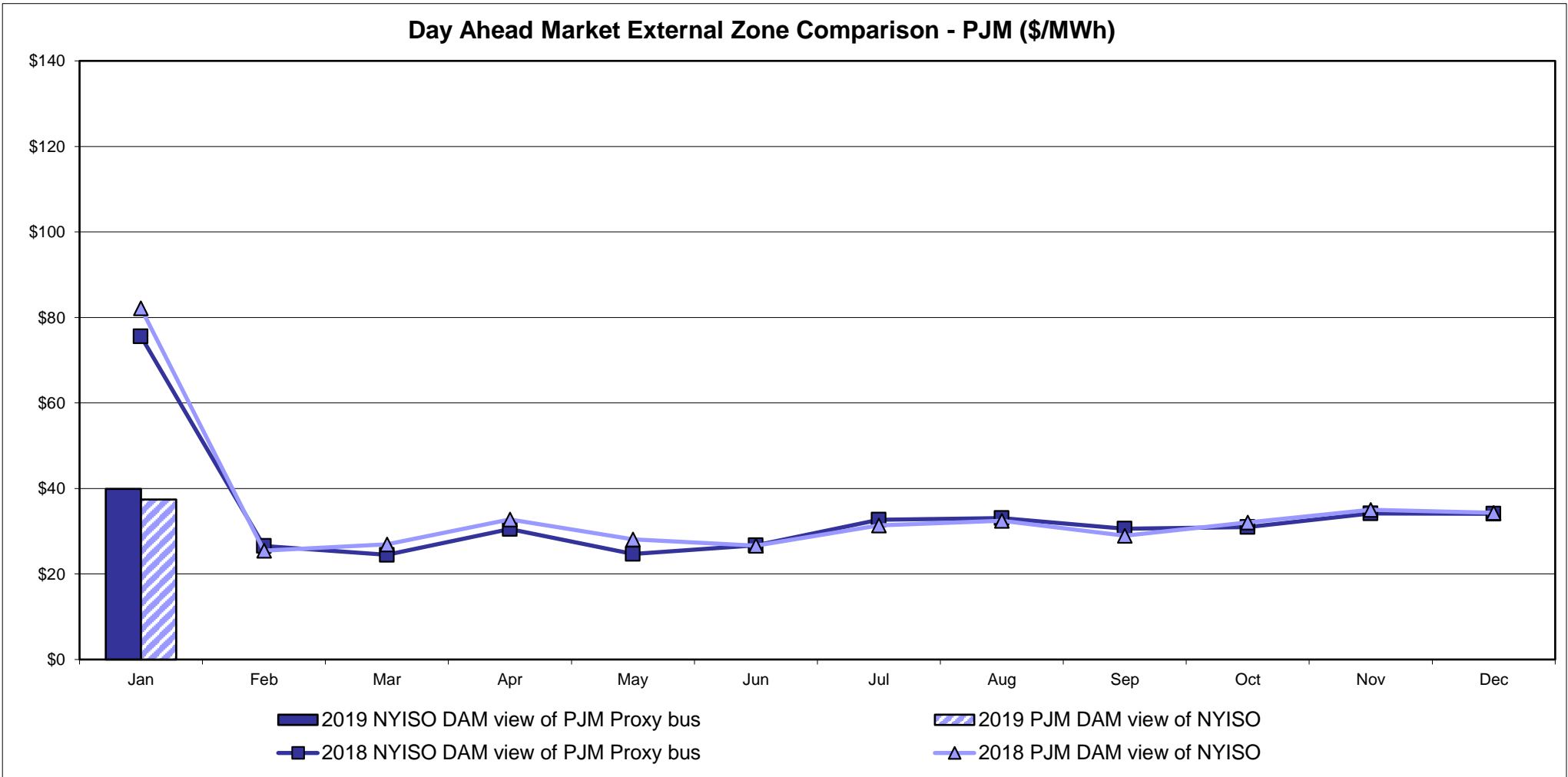
RT Zonal Unweighted Monthly Average LBMP Components  
thru January 31, 2019



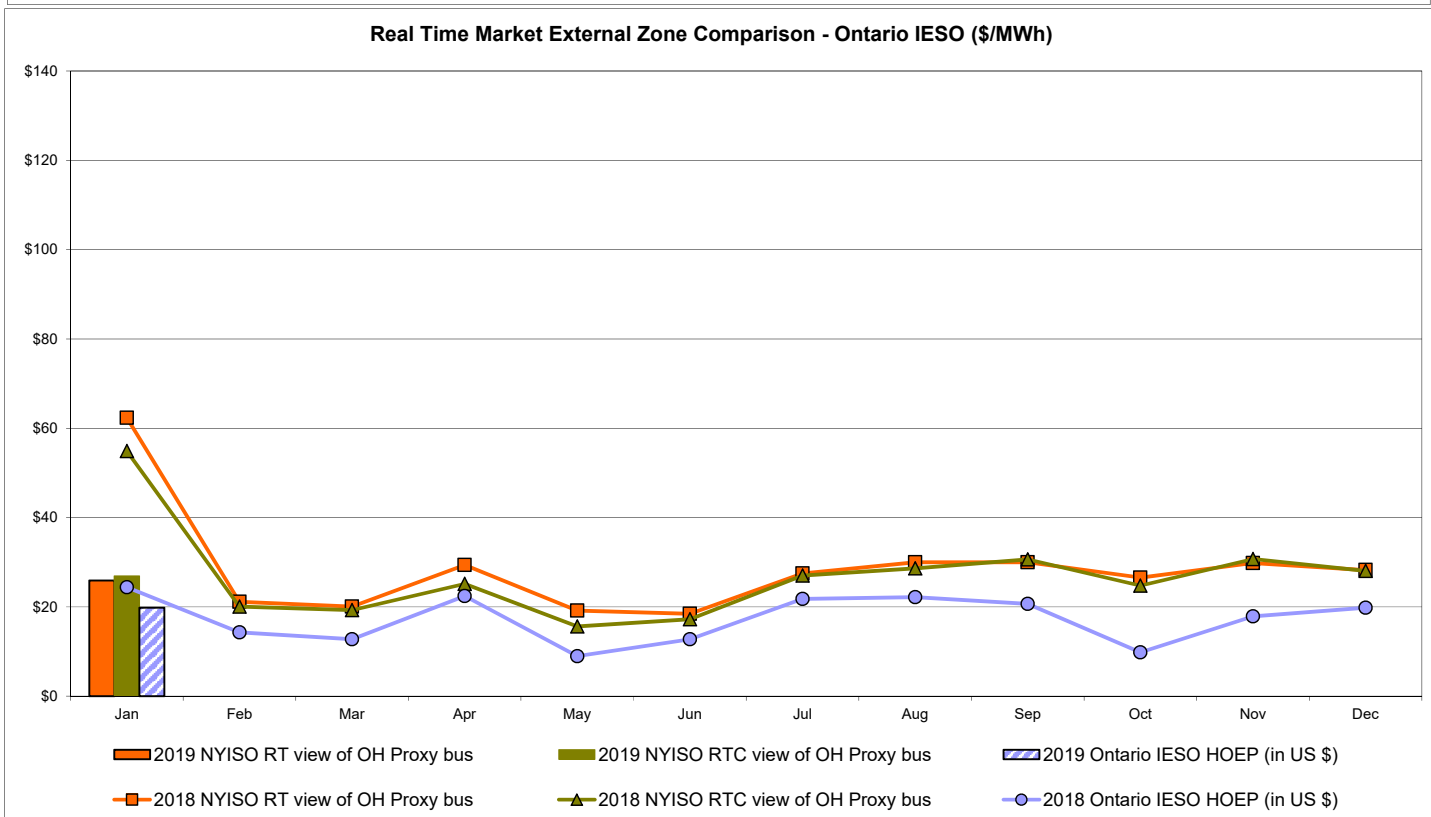
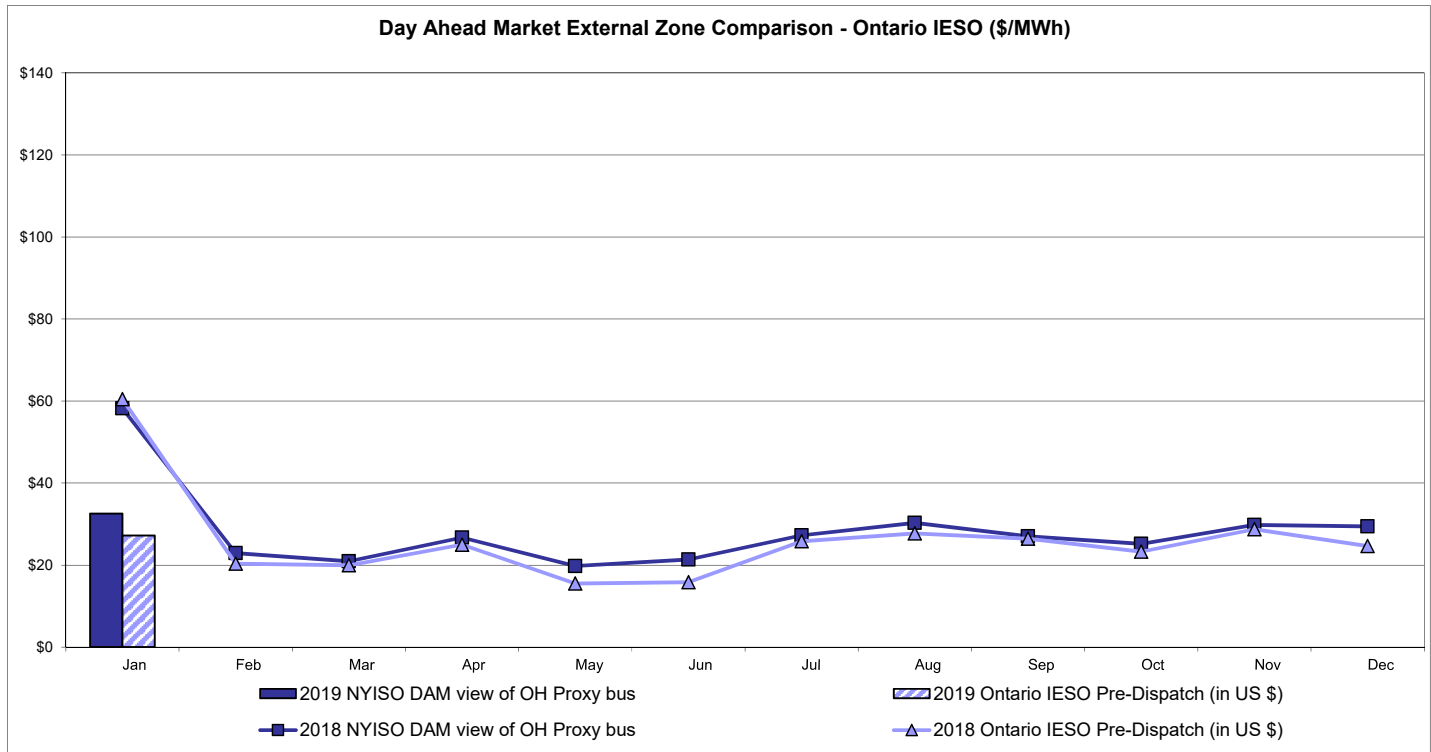
External Comparison ISO-New England



# External Comparison PJM

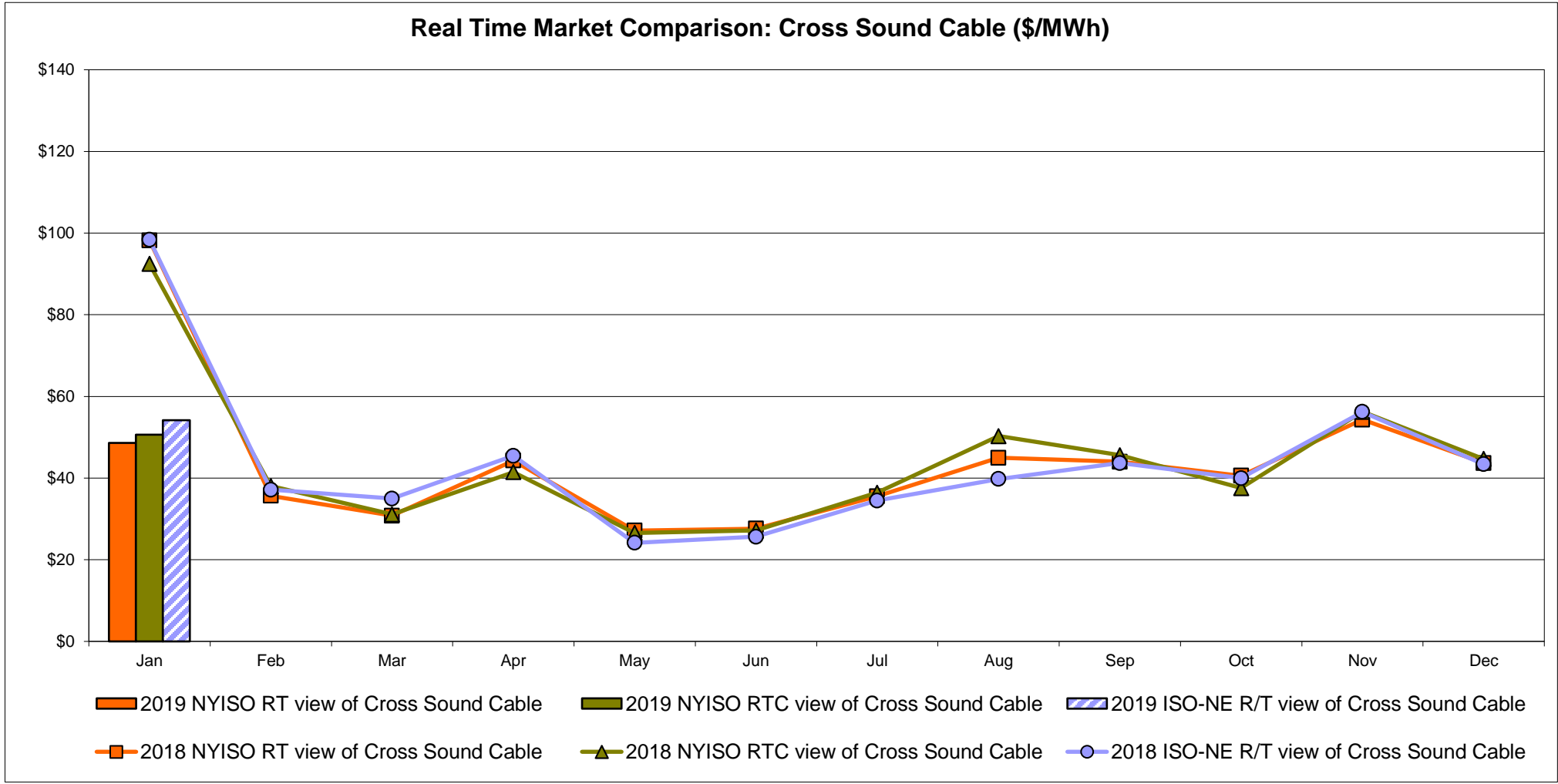
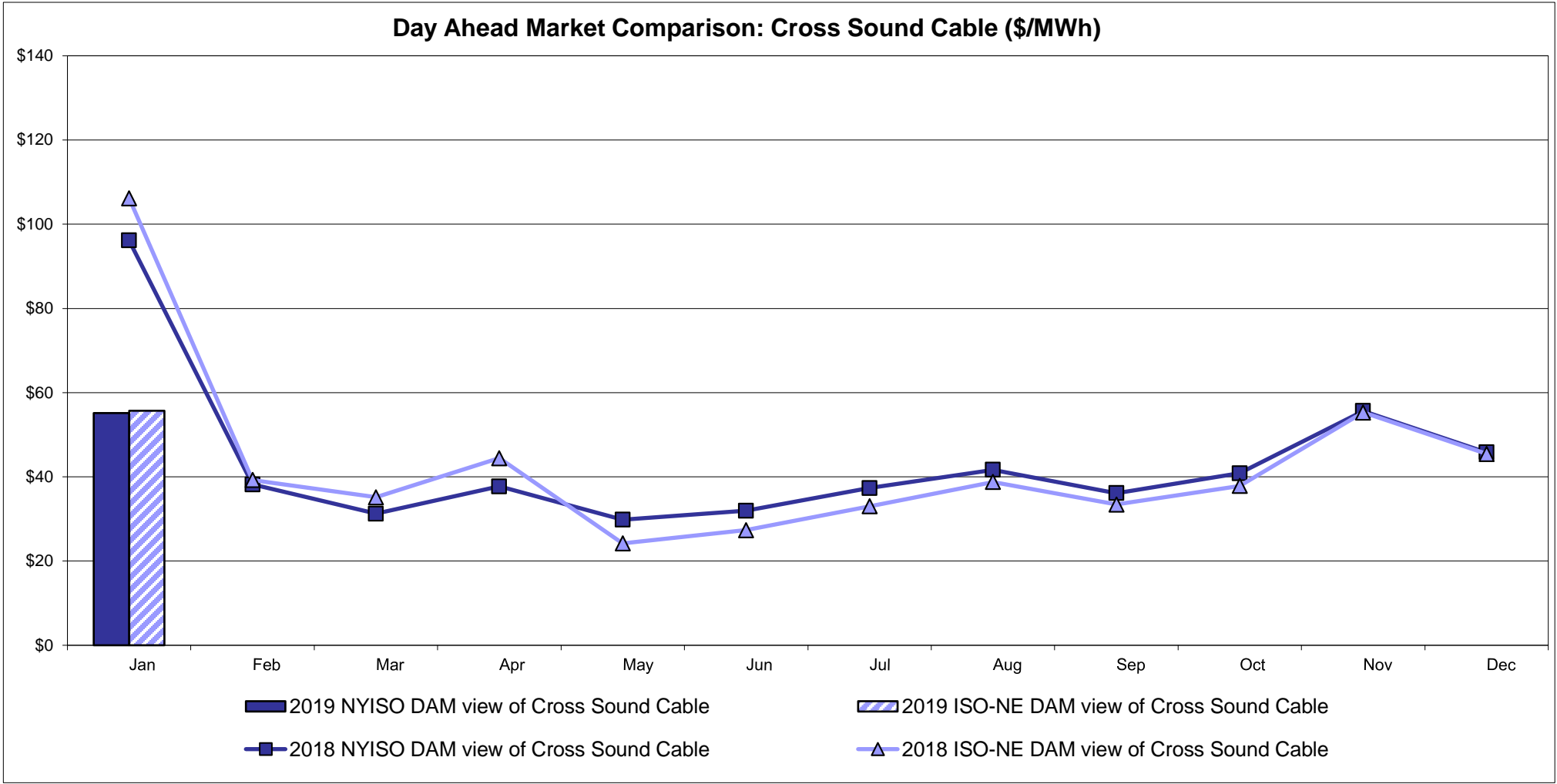


## External Comparison Ontario IESO



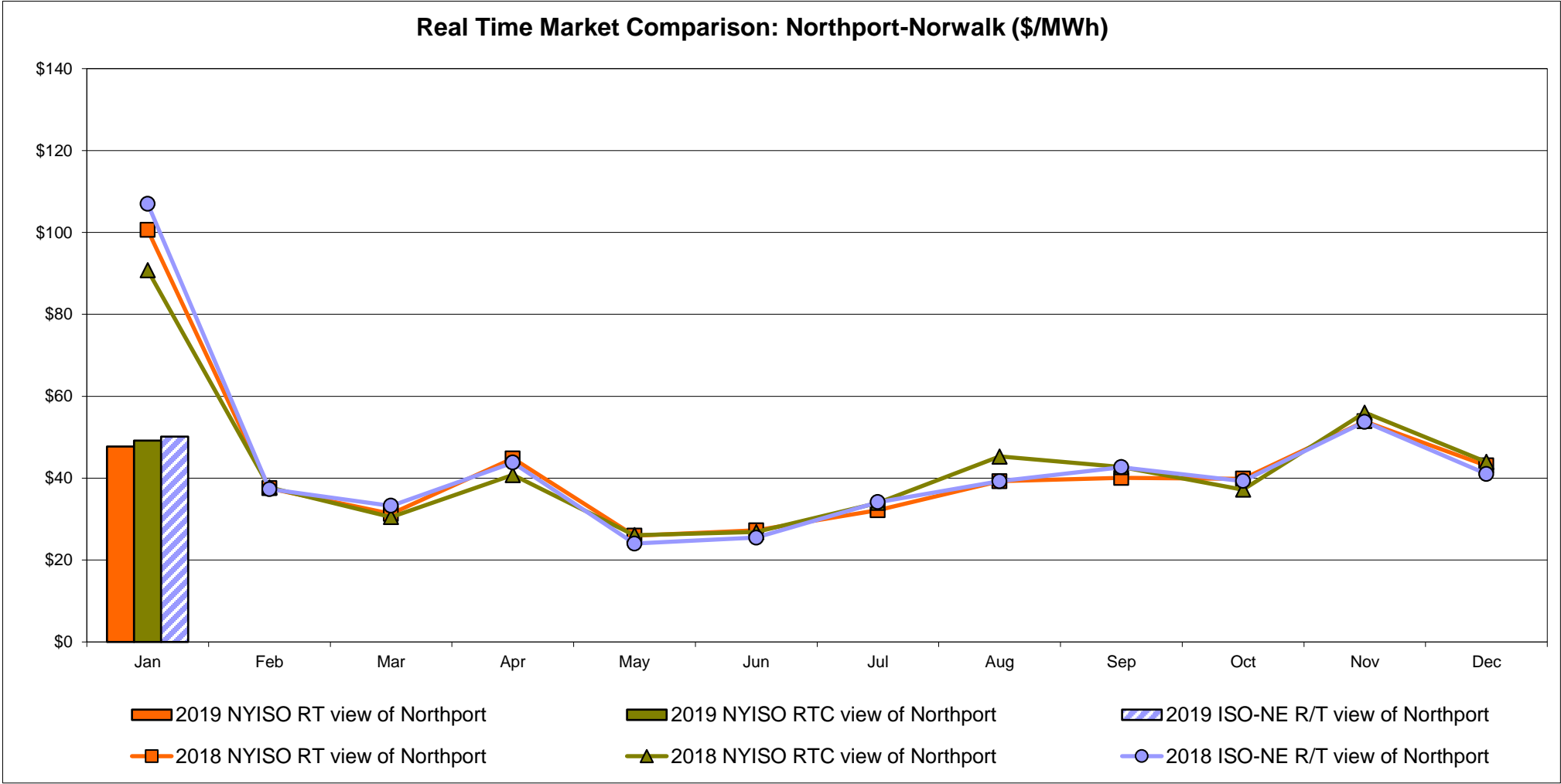
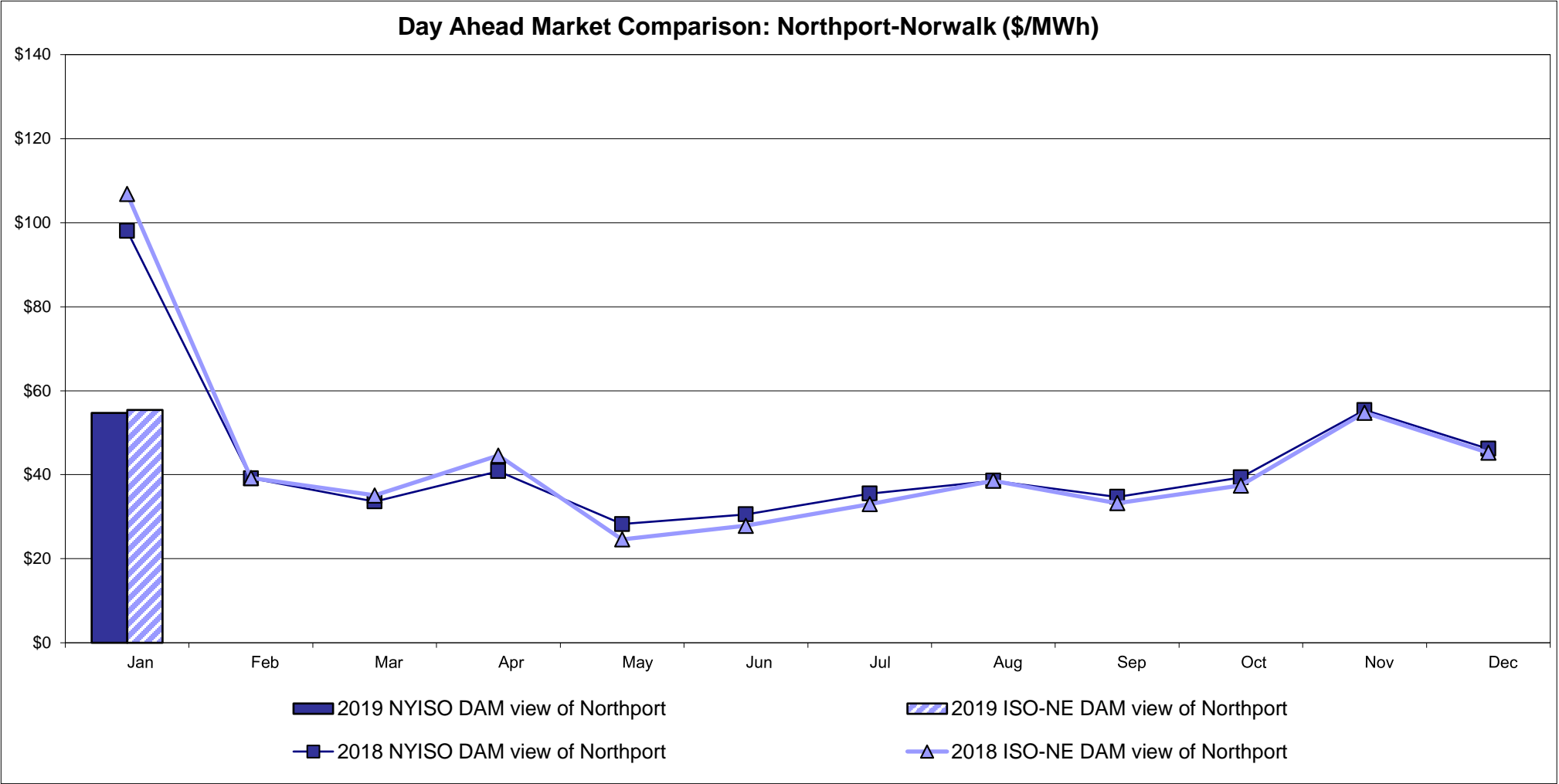
Notes: Exchange factor used for January 2019 was 0.75187969924812 to US  
 HOEP: Hourly Ontario Energy Price  
 Pre-Dispatch: Projected Energy Price

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



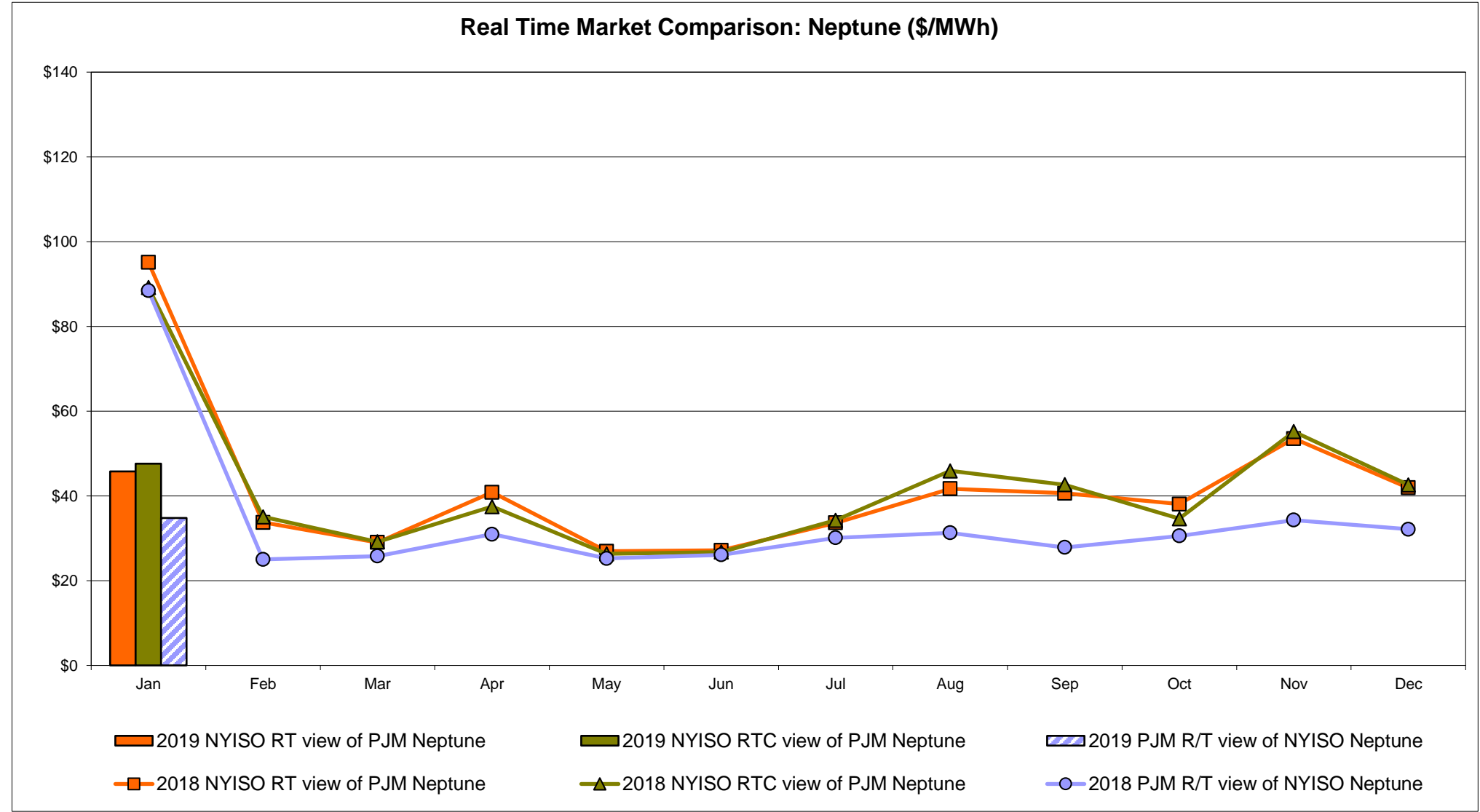
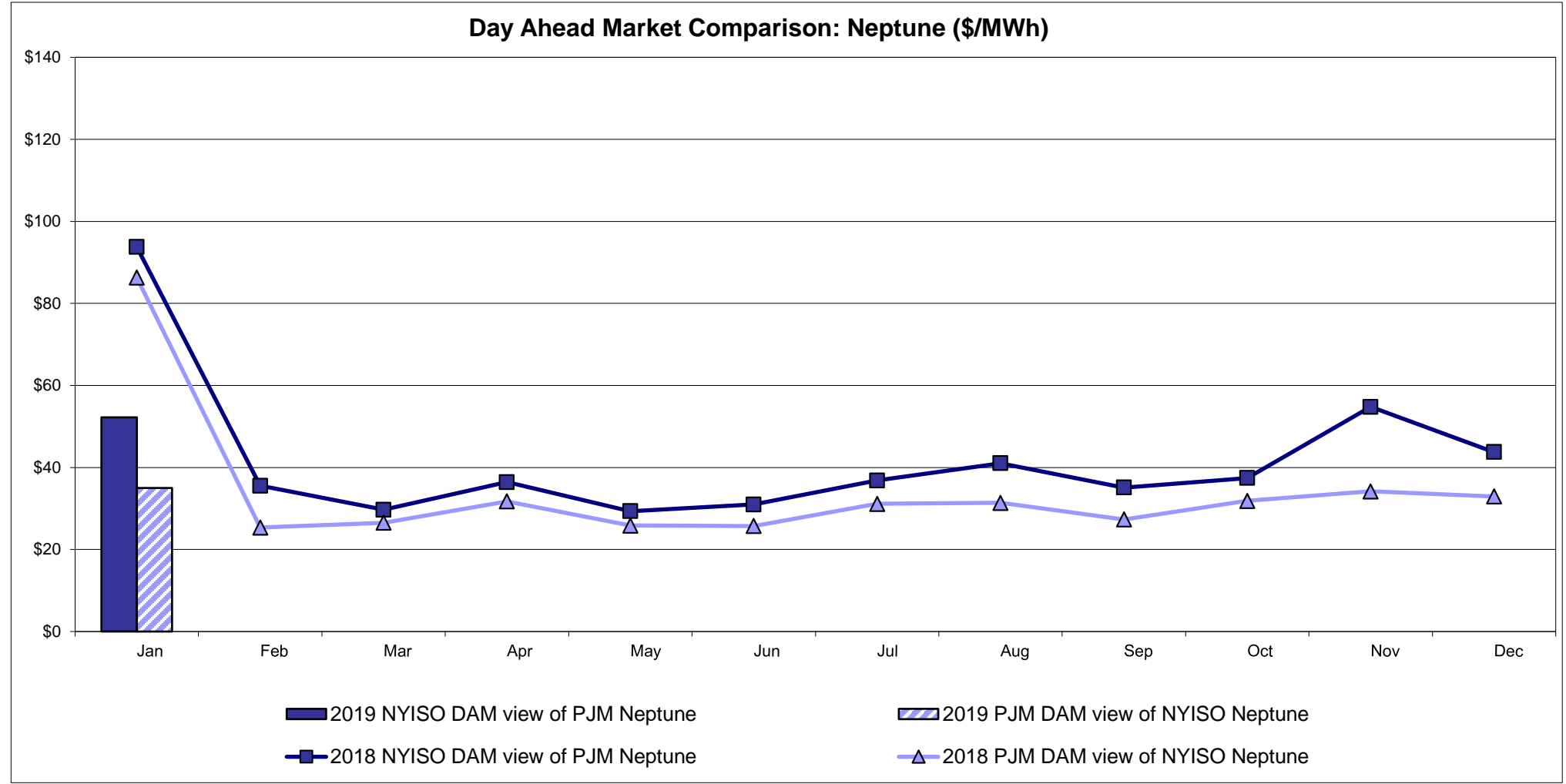
Note:  
ISO-NE Forecast is an advisory posting @ 18:00 day before.  
The DAM and R/T prices at the Shorham 13899 interface are used for ISO-NE.  
The DAM and R/T prices at the CSC interface are used for NYISO.

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

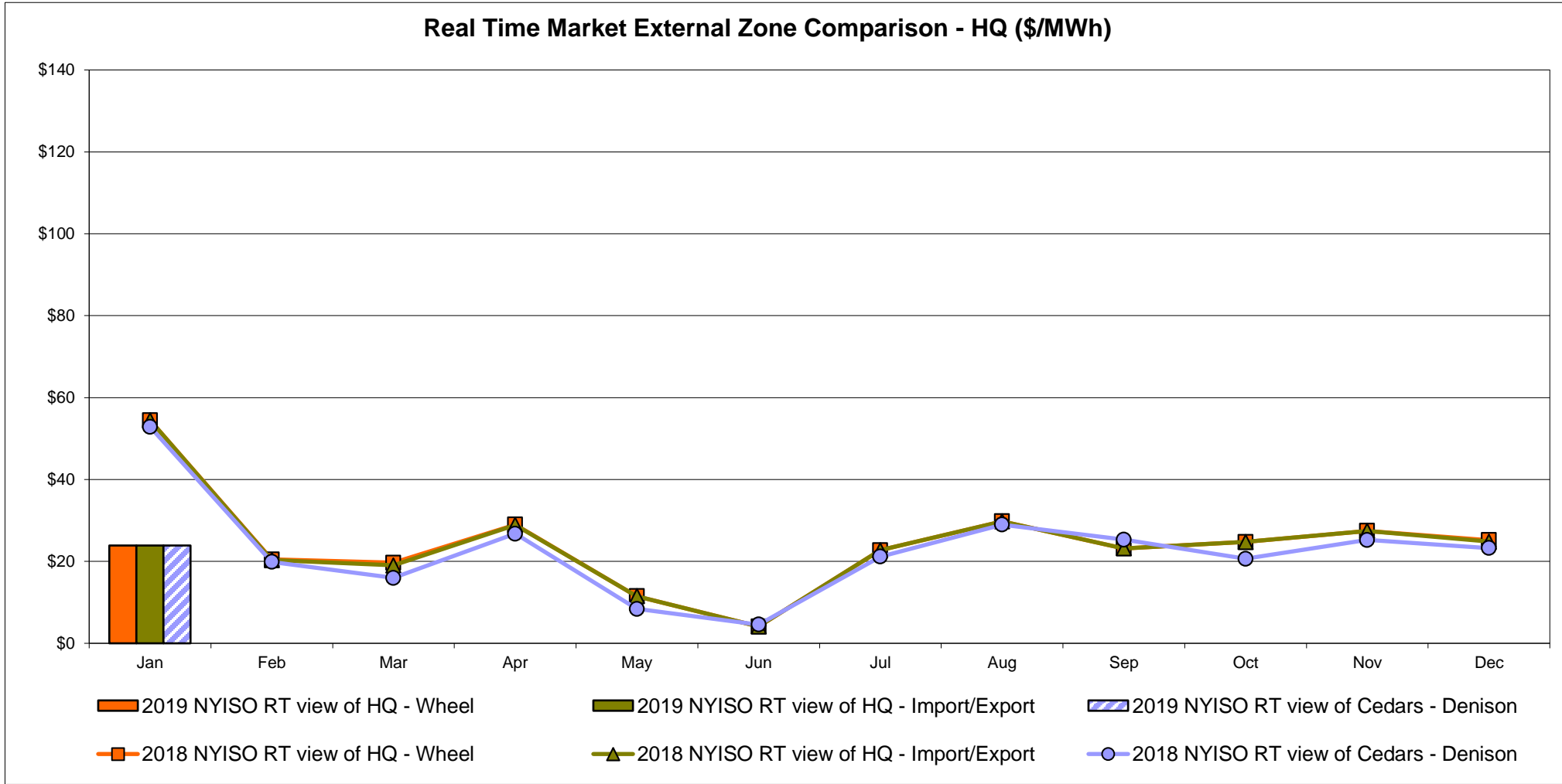
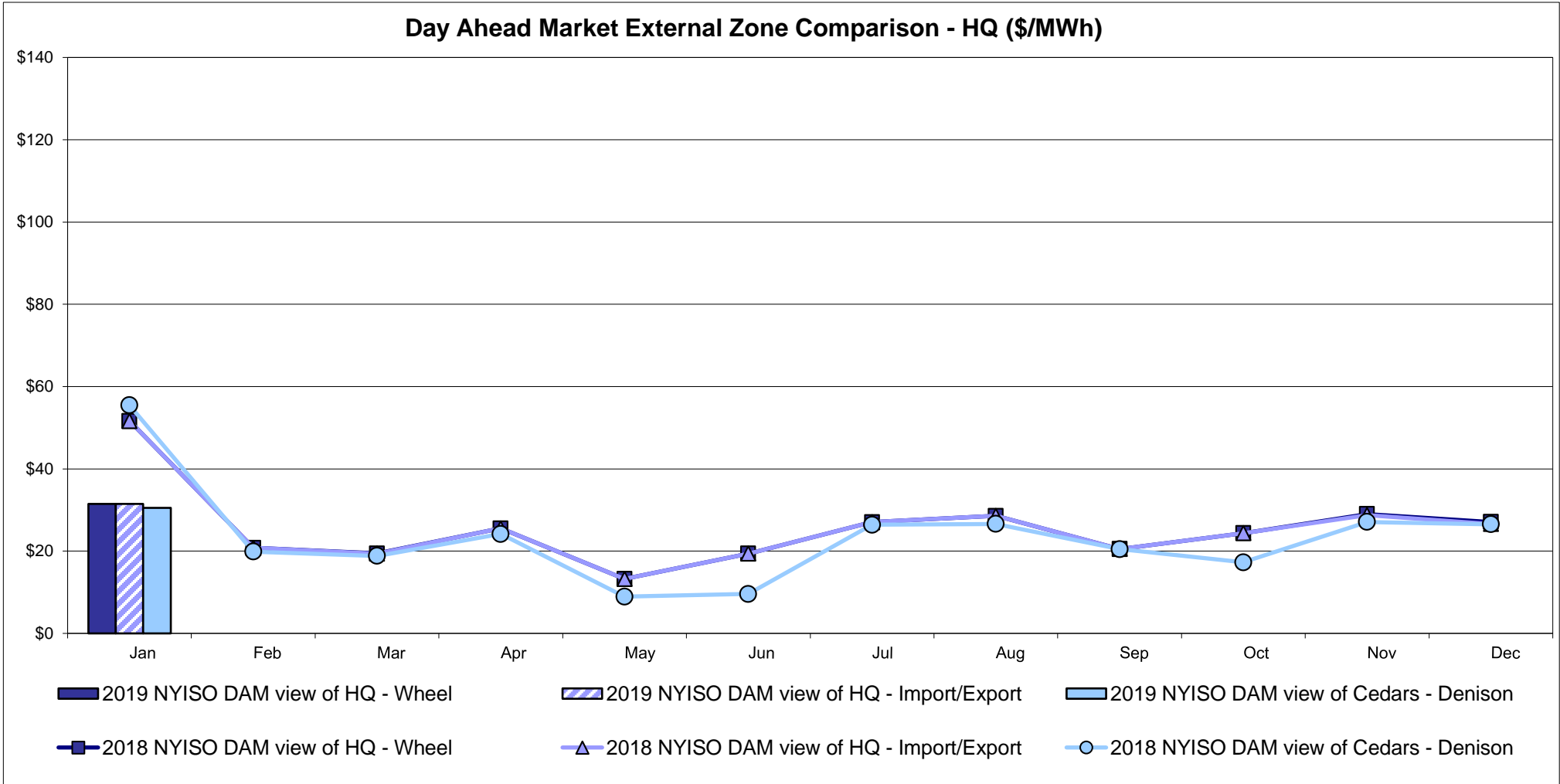


Note:  
ISO-NE Forecast is an advisory posting @ 18:00 day before.  
The DAM and R/T prices at the Northport 138 interface are used for ISO-NE.  
The DAM and R/T prices at the 1385 interface are used for NYISO.

External Controllable Line: Neptune (PJM)



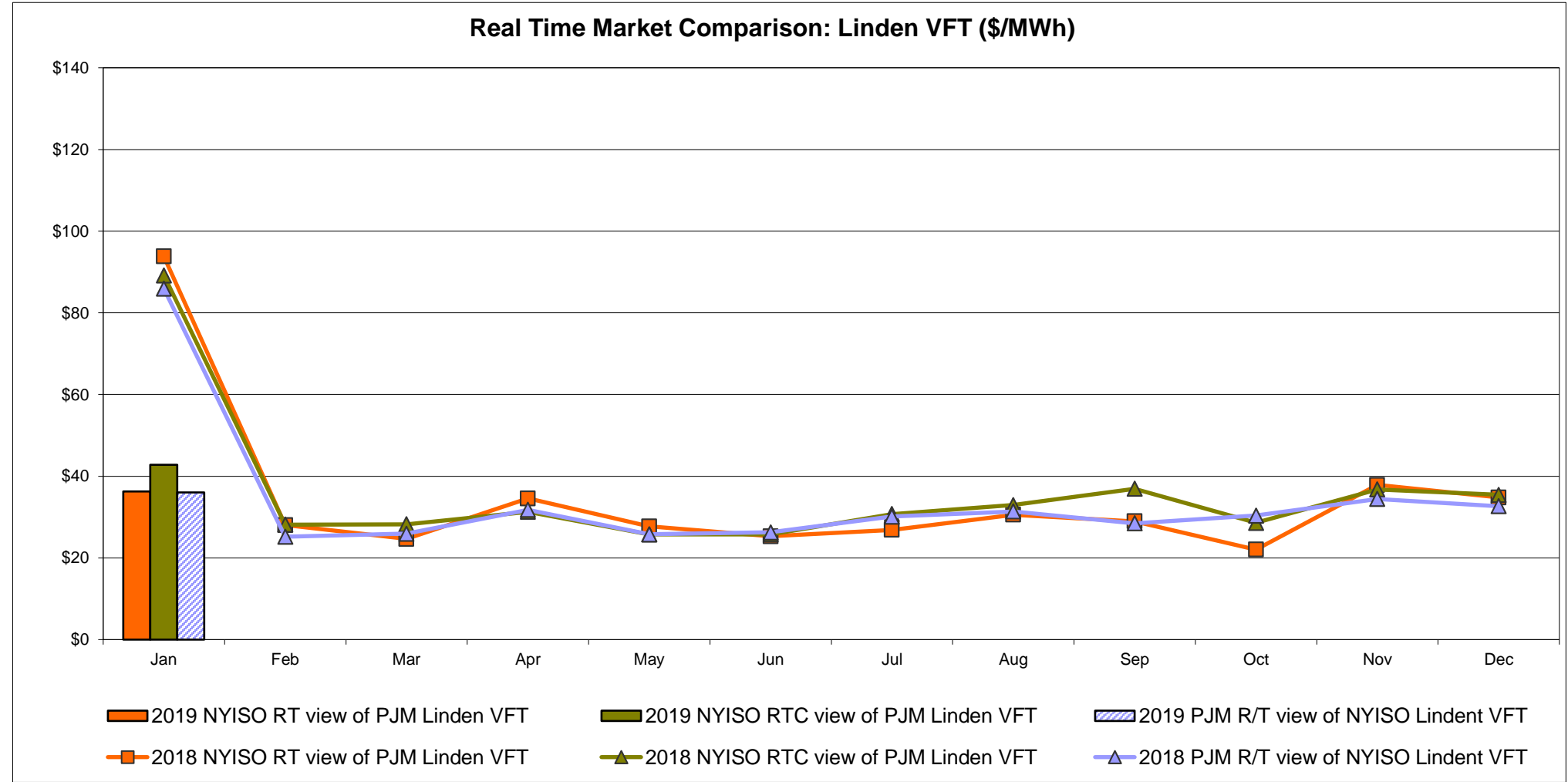
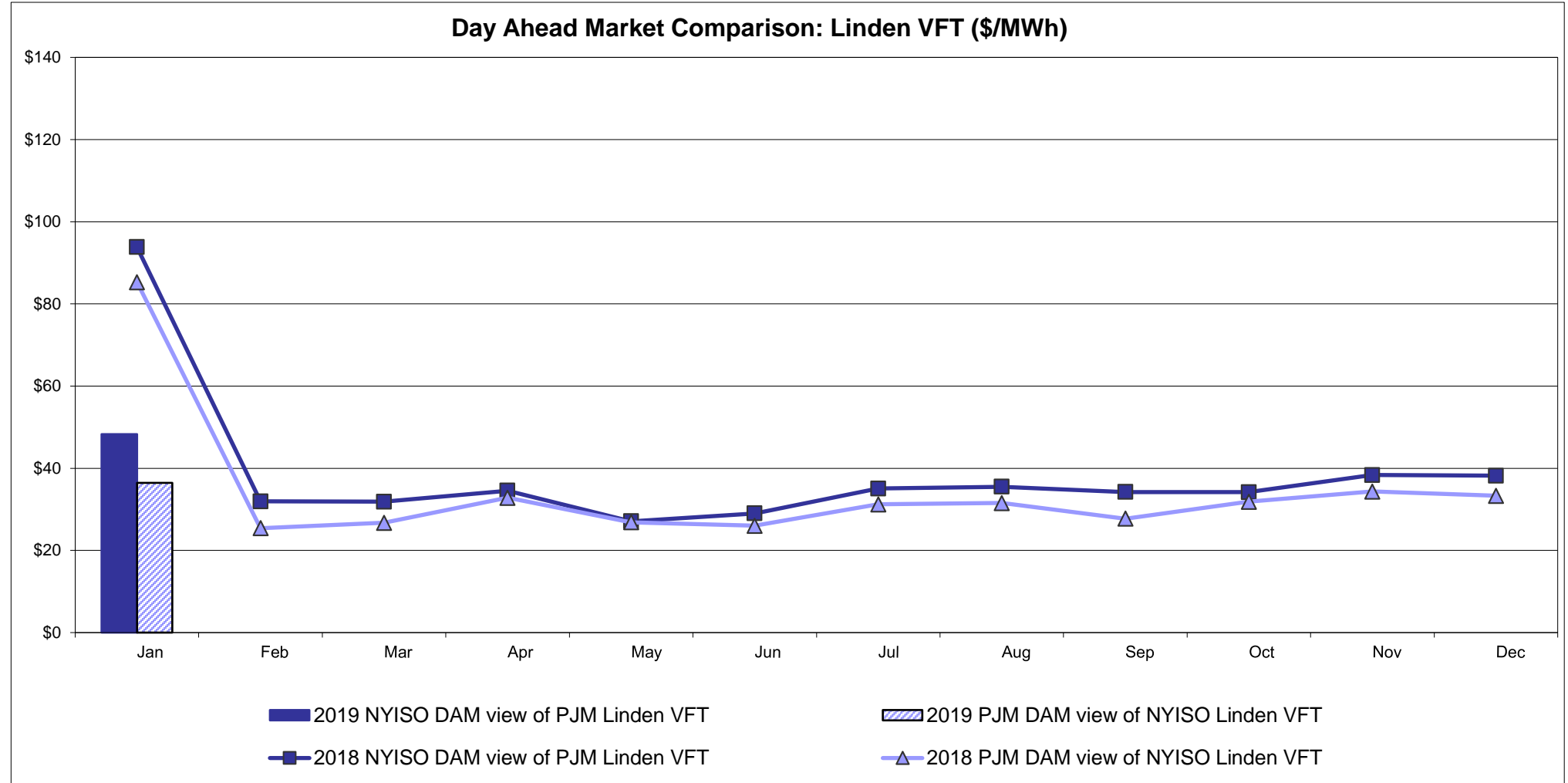
External Comparison Hydro-Quebec



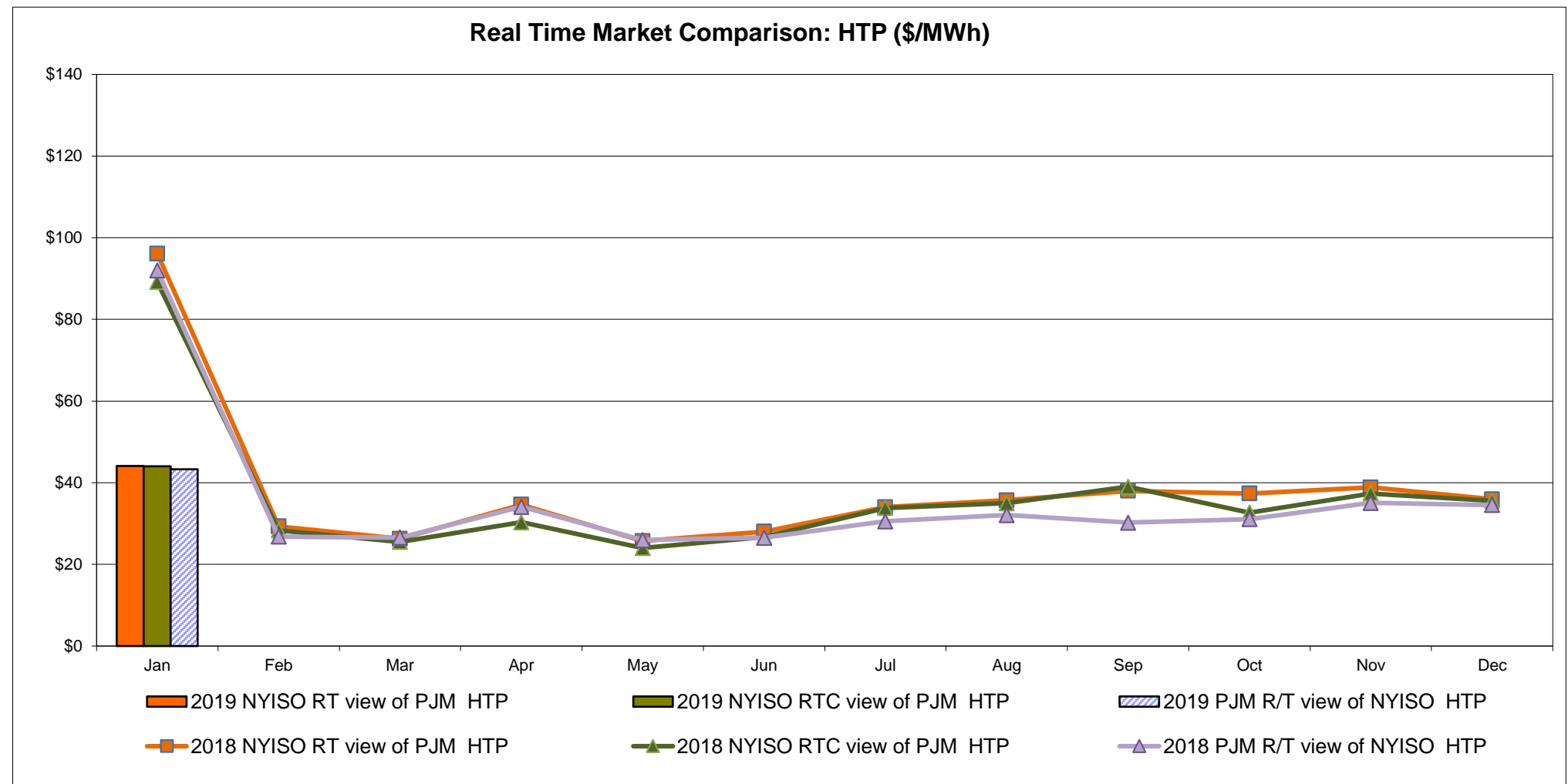
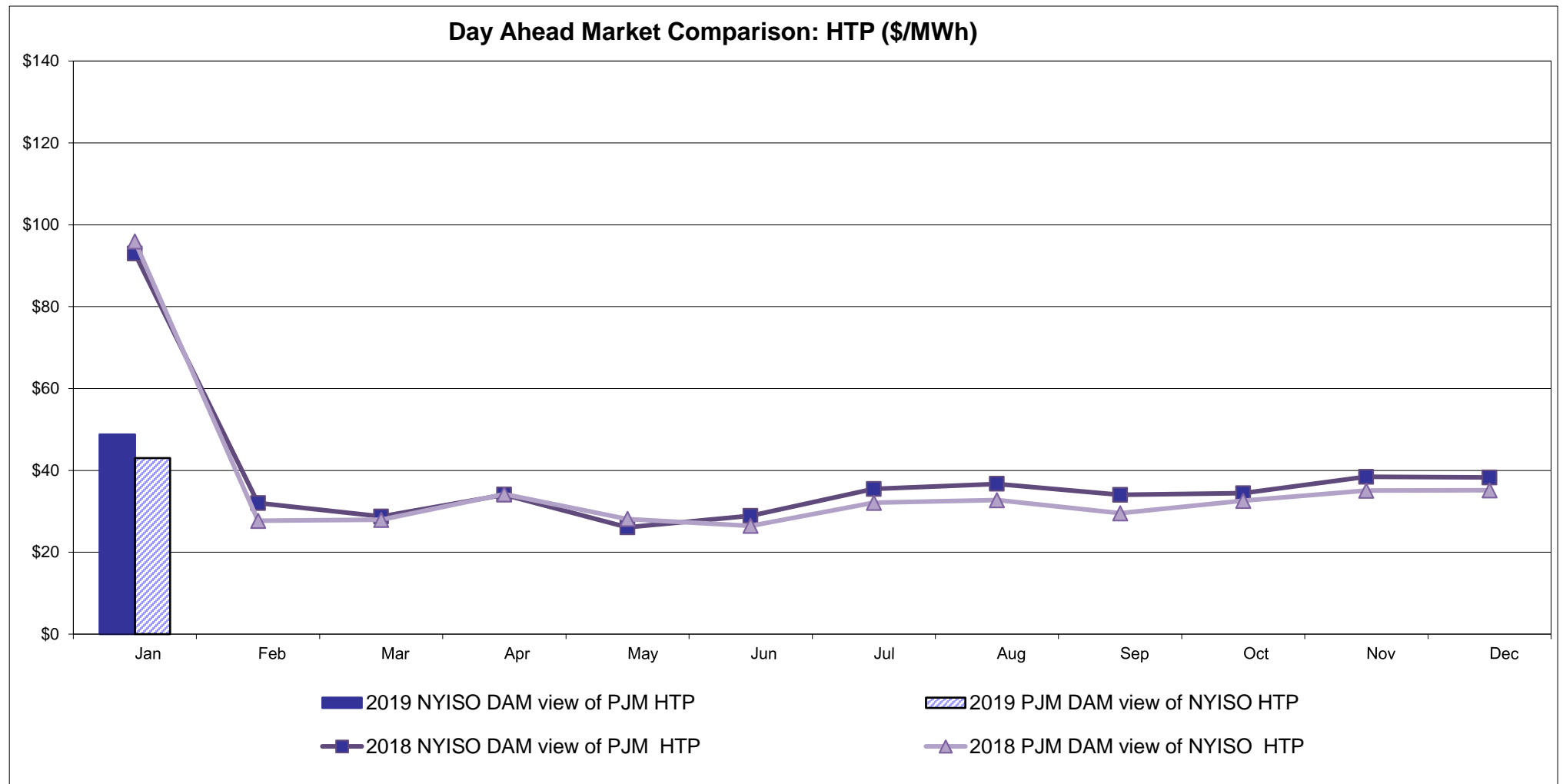
Note:  
Hydro-Quebec Prices are unavailable.



External Controllable Line: Linden VFT (PJM)



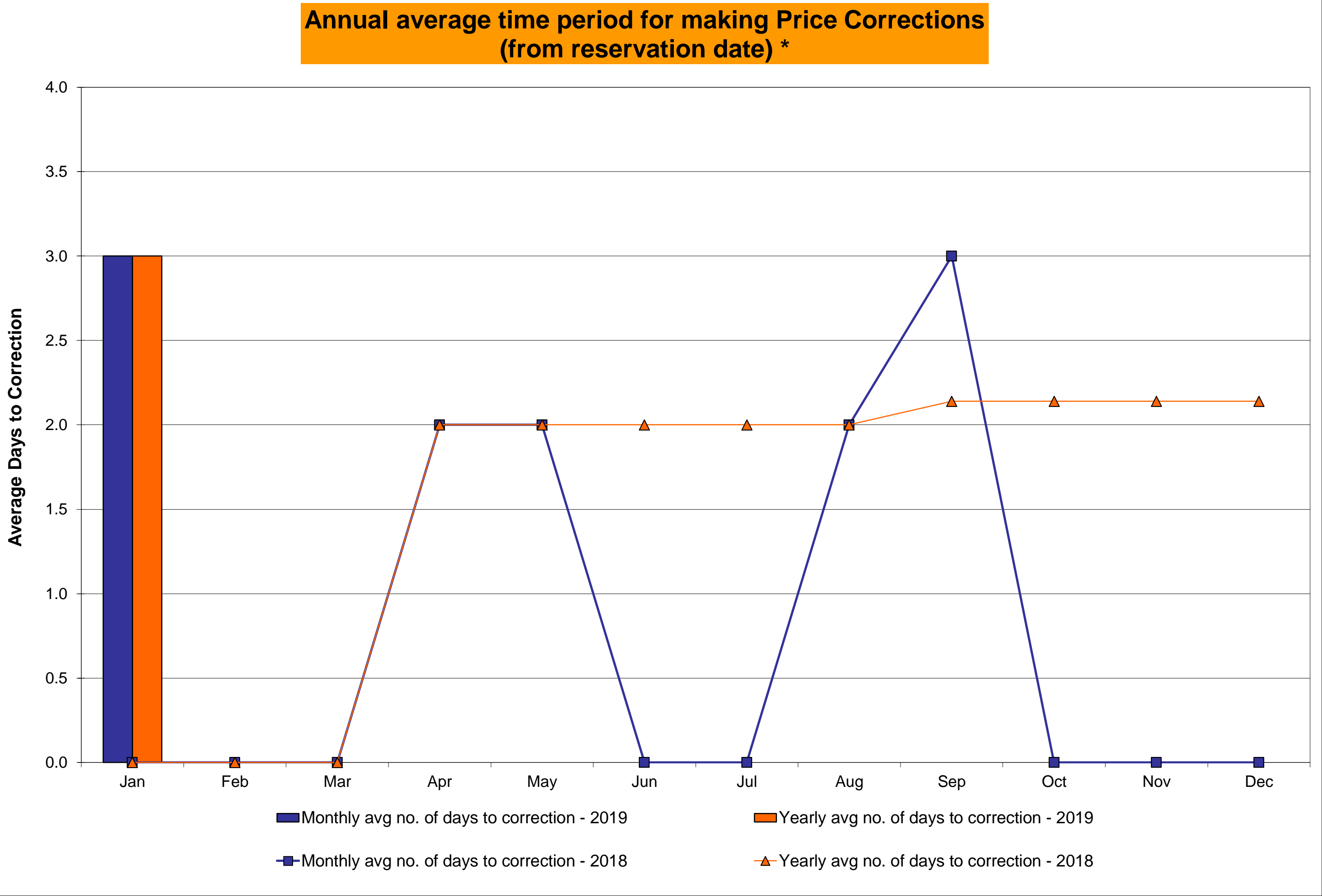
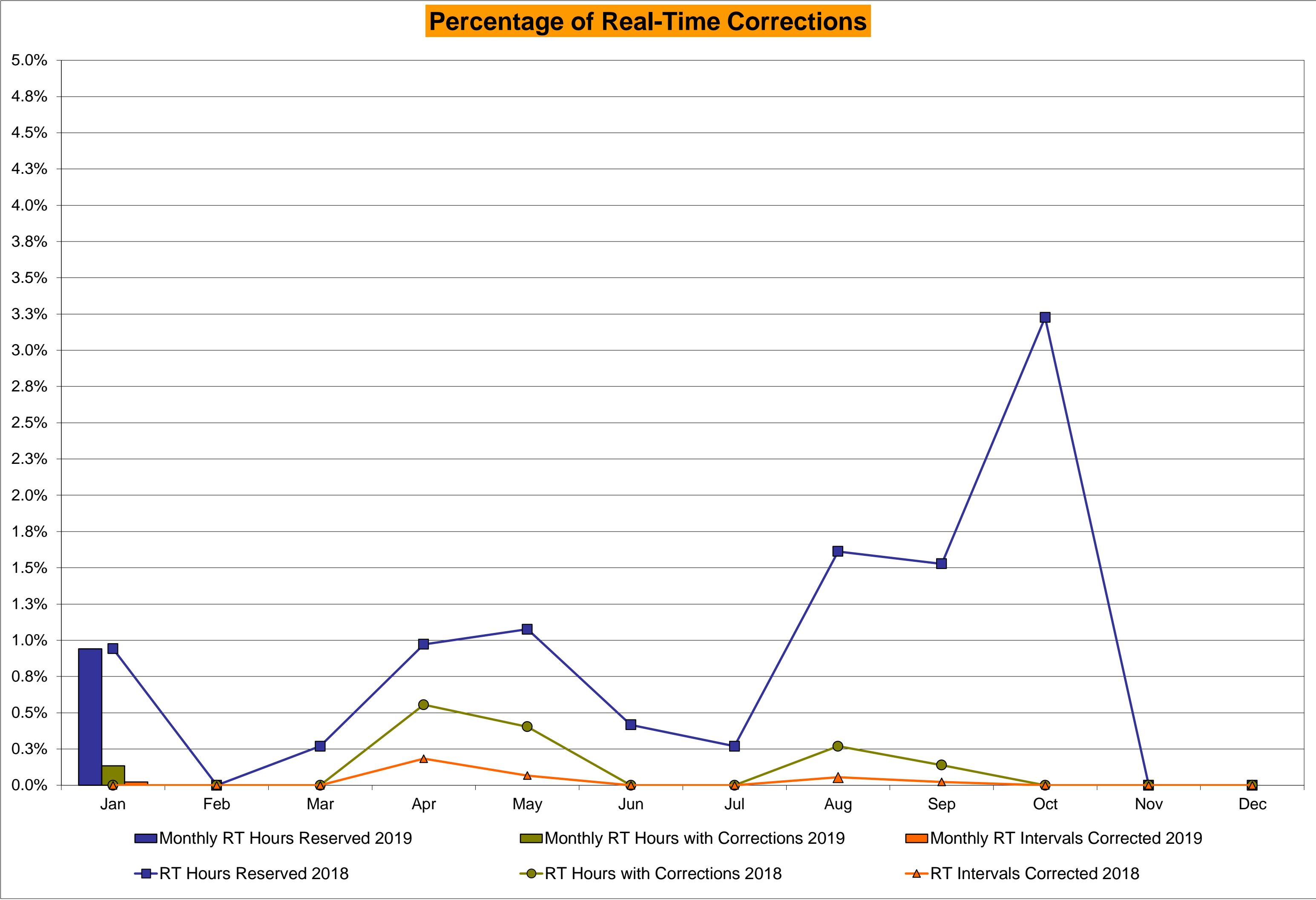
External Controllable Line: Hudson (PJM)



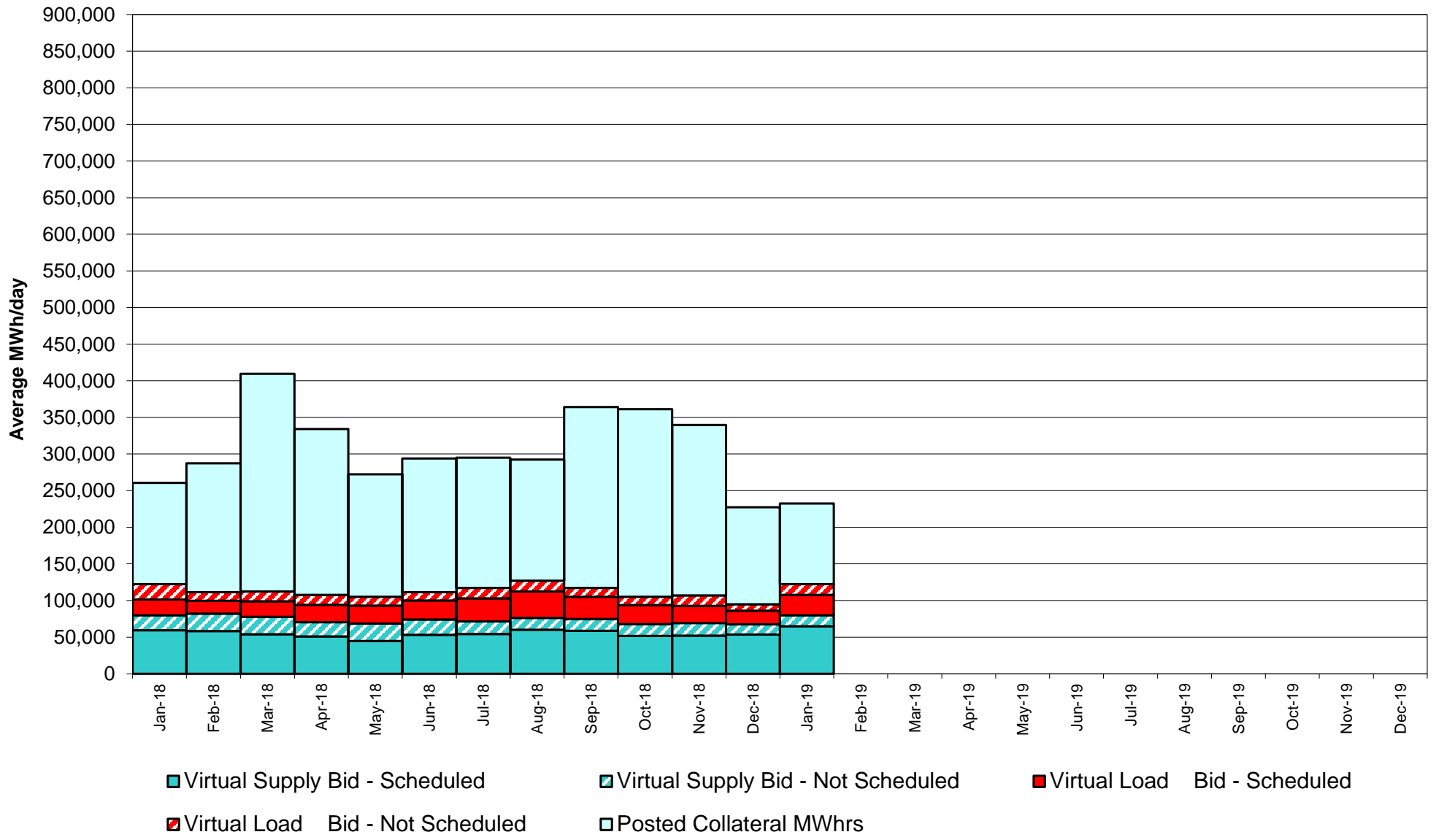
## NYISO Real Time Price Correction Statistics

<b>2019</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><u>Hour Corrections</u></b>													
Number of hours with corrections	in the month	1											
Number of hours	in the month	744											
% of hours with corrections	in the month	0.13%											
% of hours with corrections	year-to-date	0.13%											
<b><u>Interval Corrections</u></b>													
Number of intervals corrected	in the month	2											
Number of intervals	in the month	9,071											
% of intervals corrected	in the month	0.02%											
% of intervals corrected	year-to-date	0.02%											
<b><u>Hours Reserved</u></b>													
Number of hours reserved	in the month	7											
Number of hours	in the month	744											
% of hours reserved	in the month	0.94%											
% of hours reserved	year-to-date	0.94%											
<b><u>Days to Correction</u> *</b>													
Avg. number of days to correction	in the month	3.00											
Avg. number of days to correction	year-to-date	3.00											
<b><u>Days Without Corrections</u></b>													
Days without corrections	in the month	30											
Days without corrections	year-to-date	30											
<b>2018</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><u>Hour Corrections</u></b>													
Number of hours with corrections	in the month	0	0	0	4	3	0	0	2	1	0	0	0
Number of hours	in the month	744	672	743	720	744	720	744	744	720	744	721	744
% of hours with corrections	in the month	0.00%	0.00%	0.00%	0.56%	0.40%	0.00%	0.00%	0.27%	0.14%	0.00%	0.00%	0.00%
% of hours with corrections	year-to-date	0.00%	0.00%	0.00%	0.14%	0.19%	0.16%	0.14%	0.15%	0.15%	0.14%	0.12%	0.11%
<b><u>Interval Corrections</u></b>													
Number of intervals corrected	in the month	0	0	0	16	6	0	0	5	2	0	0	0
Number of intervals	in the month	9,021	8,112	9,002	8,717	9,033	8,723	9,021	9,071	8,723	8,990	8,763	8,993
% of intervals corrected	in the month	0.00%	0.00%	0.00%	0.18%	0.07%	0.00%	0.00%	0.06%	0.02%	0.00%	0.00%	0.00%
% of intervals corrected	year-to-date	0.00%	0.00%	0.00%	0.05%	0.05%	0.04%	0.04%	0.04%	0.04%	0.03%	0.03%	0.03%
<b><u>Hours Reserved</u></b>													
Number of hours reserved	in the month	7	0	2	7	8	3	2	12	11	24	0	0
Number of hours	in the month	744	672	743	720	744	720	744	744	720	744	721	744
% of hours reserved	in the month	0.94%	0.00%	0.27%	0.97%	1.08%	0.42%	0.27%	1.61%	1.53%	3.23%	0.00%	0.00%
% of hours reserved	year-to-date	0.94%	0.49%	0.42%	0.56%	0.66%	0.62%	0.57%	0.70%	0.79%	1.04%	0.95%	0.87%
<b><u>Days to Correction</u> *</b>													
Avg. number of days to correction	in the month	0.00	0.00	0.00	2.00	2.00	0.00	0.00	2.00	3.00	0.00	0.00	0.00
Avg. number of days to correction	year-to-date	0.00	0.00	0.00	2.00	2.00	2.00	2.00	2.00	2.14	2.14	2.14	2.14
<b><u>Days Without Corrections</u></b>													
Days without corrections	in the month	31	28	31	28	28	30	31	30	29	31	30	31
Days without corrections	year-to-date	31	59	90	118	146	176	207	237	266	297	327	358

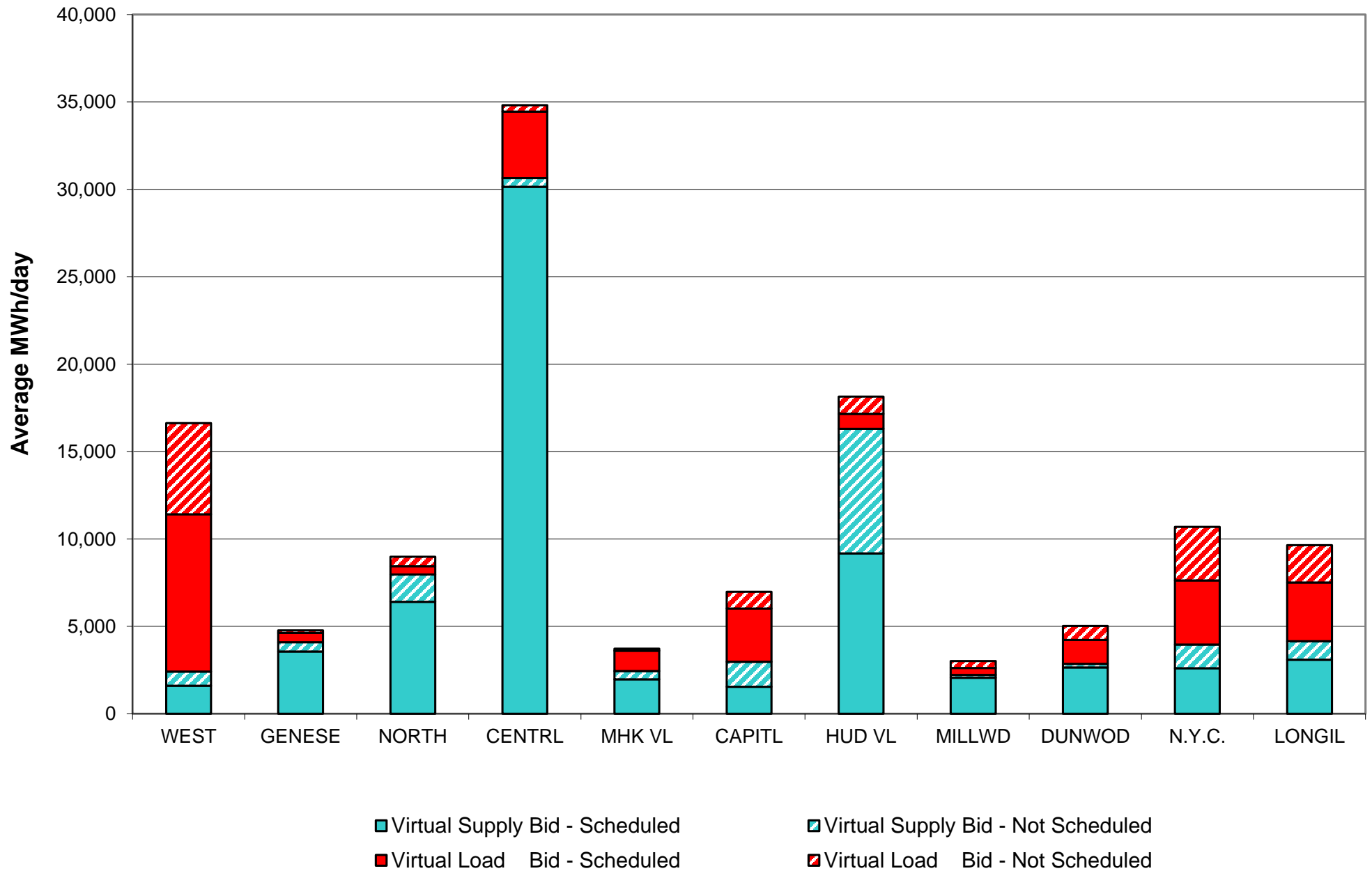
\*Calendar days from reservation date; for June 2018 forward, business days from market date



# NYISO Virtual Trading Average MWh per day



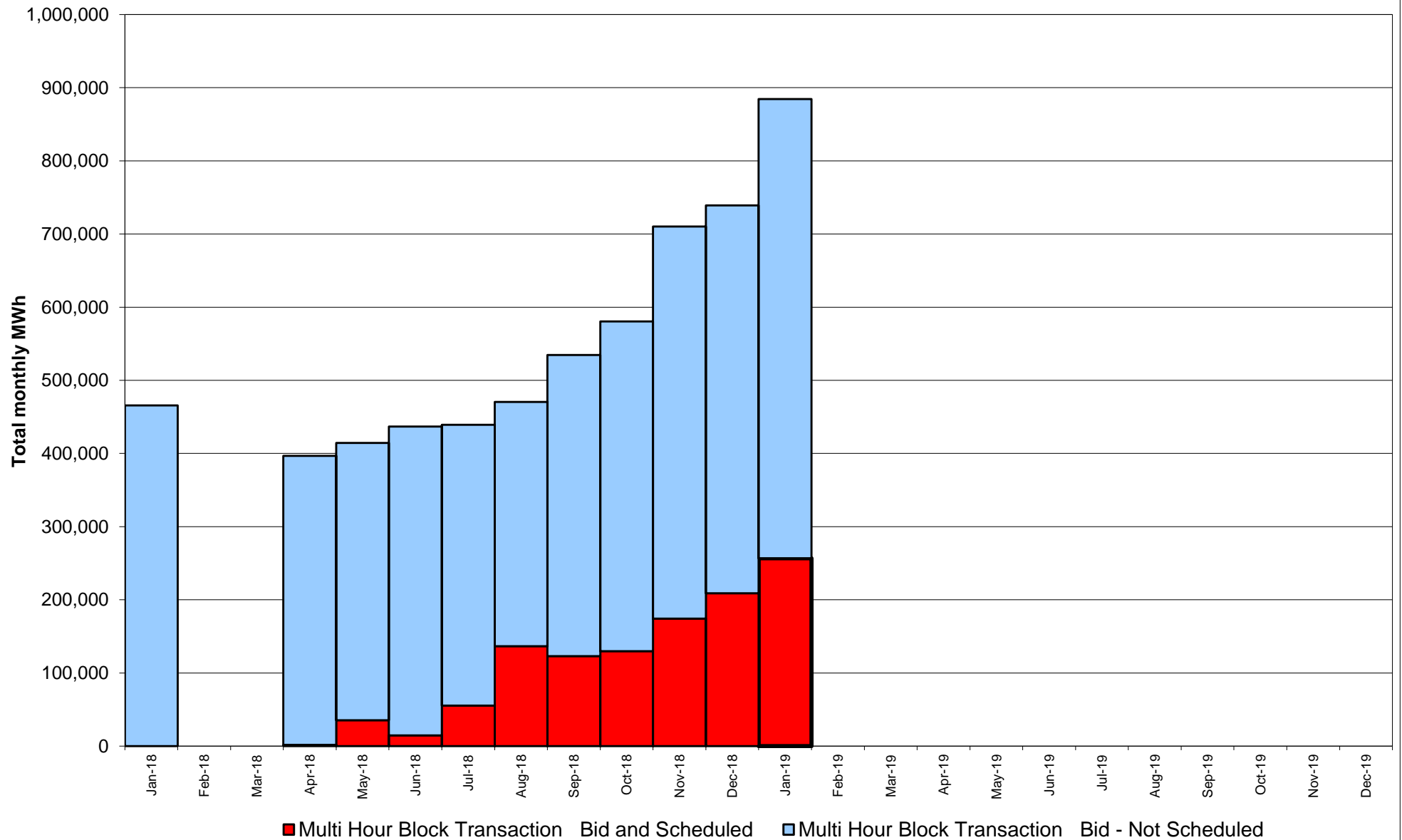
# Virtual Load and Supply Zonal Statistics through January 31, 2019



## Virtual Load and Supply Zonal Statistics (Average MWh/day) - 2019

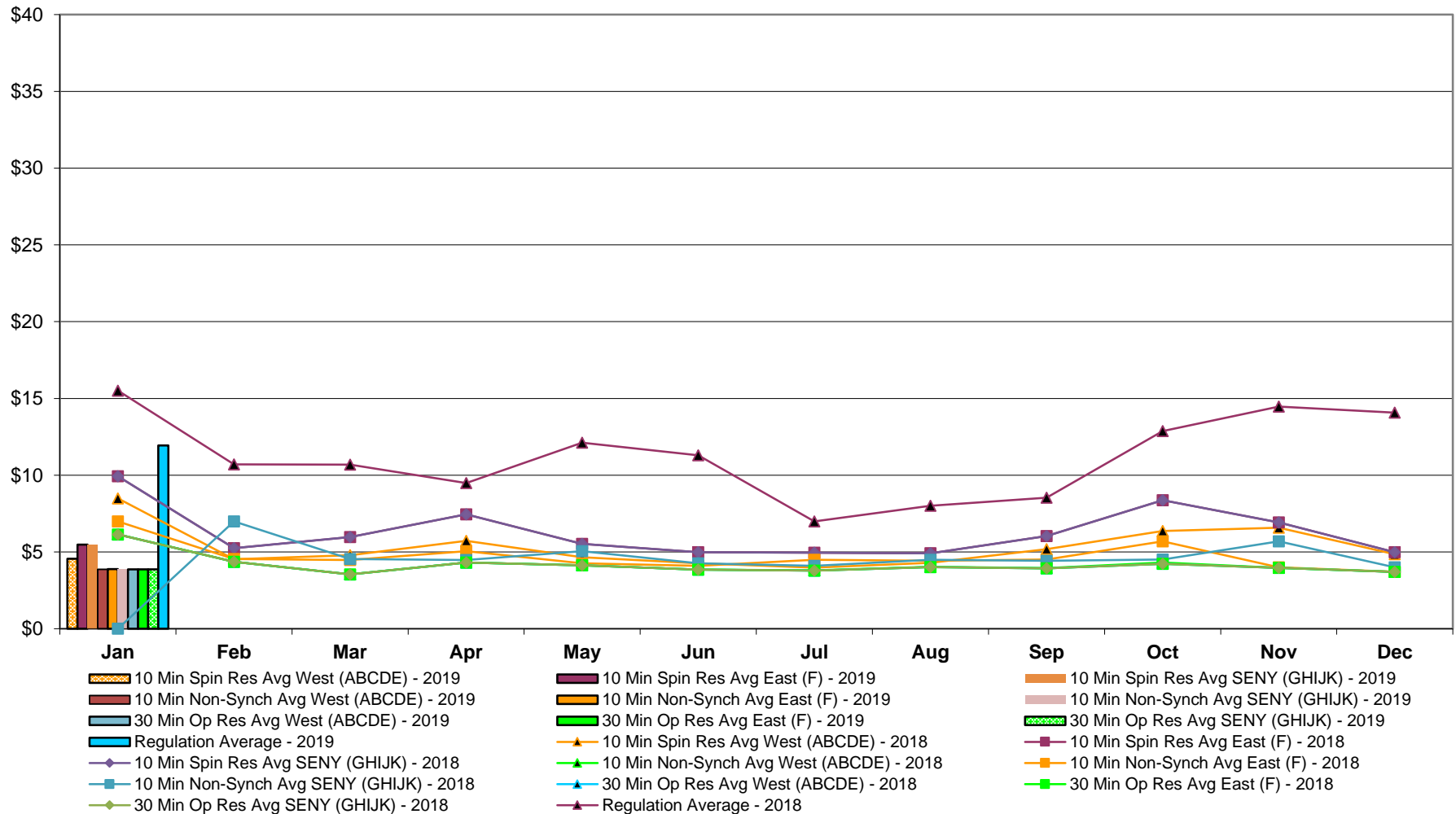
		Virtual Load Bid		Virtual Supply Bid					Virtual Load Bid		Virtual Supply Bid					Virtual Load Bid		Virtual Supply Bid	
Zone	Date	Scheduled	Not Scheduled	Scheduled	Not Scheduled		Zone	Date	Scheduled	Not Scheduled	Scheduled	Not Scheduled		Zone	Date	Scheduled	Not Scheduled	Scheduled	Not Scheduled
WEST	Jan-19	9,007	5,211	1,609	797		MHK VL	Jan-19	1,171	117	1,965	471		DUNWOD	Jan-19	1,370	798	2,651	203
	Feb-19							Feb-19							Feb-19				
	Mar-19							Mar-19							Mar-19				
	Apr-19							Apr-19							Apr-19				
	May-19							May-19							May-19				
	Jun-19							Jun-19							Jun-19				
	Jul-19							Jul-19							Jul-19				
	Aug-19							Aug-19							Aug-19				
	Sep-19							Sep-19							Sep-19				
	Oct-19							Oct-19							Oct-19				
	Nov-19							Nov-19							Nov-19				
	Dec-19							Dec-19							Dec-19				
	GENESE	Jan-19	527	153	3,560	529			CAPITL	Jan-19	3,042	962	1,550		1,424		N.Y.C.	Jan-19	3,665
	Feb-19							Feb-19							Feb-19				
	Mar-19							Mar-19							Mar-19				
	Apr-19							Apr-19							Apr-19				
	May-19							May-19							May-19				
	Jun-19							Jun-19							Jun-19				
	Jul-19							Jul-19							Jul-19				
	Aug-19							Aug-19							Aug-19				
	Sep-19							Sep-19							Sep-19				
	Oct-19							Oct-19							Oct-19				
	Nov-19							Nov-19							Nov-19				
	Dec-19							Dec-19							Dec-19				
	NORTH	Jan-19	484	540	6,406	1,553			HUD VL	Jan-19	856	980	9,176		7,130		LONGIL	Jan-19	3,362
	Feb-19							Feb-19							Feb-19				
	Mar-19							Mar-19							Mar-19				
	Apr-19							Apr-19							Apr-19				
	May-19							May-19							May-19				
	Jun-19							Jun-19							Jun-19				
	Jul-19							Jul-19							Jul-19				
	Aug-19							Aug-19							Aug-19				
	Sep-19							Sep-19							Sep-19				
	Oct-19							Oct-19							Oct-19				
	Nov-19							Nov-19							Nov-19				
	Dec-19							Dec-19							Dec-19				
	CENTRL	Jan-19	3,795	374	30,145	507			MILLWD	Jan-19	405	386	2,051		169		NYISO	Jan-19	27,683
	Feb-19							Feb-19							Feb-19				
	Mar-19							Mar-19							Mar-19				
	Apr-19							Apr-19							Apr-19				
	May-19							May-19							May-19				
	Jun-19							Jun-19							Jun-19				
	Jul-19							Jul-19							Jul-19				
	Aug-19							Aug-19							Aug-19				
	Sep-19							Sep-19							Sep-19				
	Oct-19							Oct-19							Oct-19				
	Nov-19							Nov-19							Nov-19				
	Dec-19							Dec-19							Dec-19				

# **NYISO Multi Hour Block Transactions Monthly Total MWh**

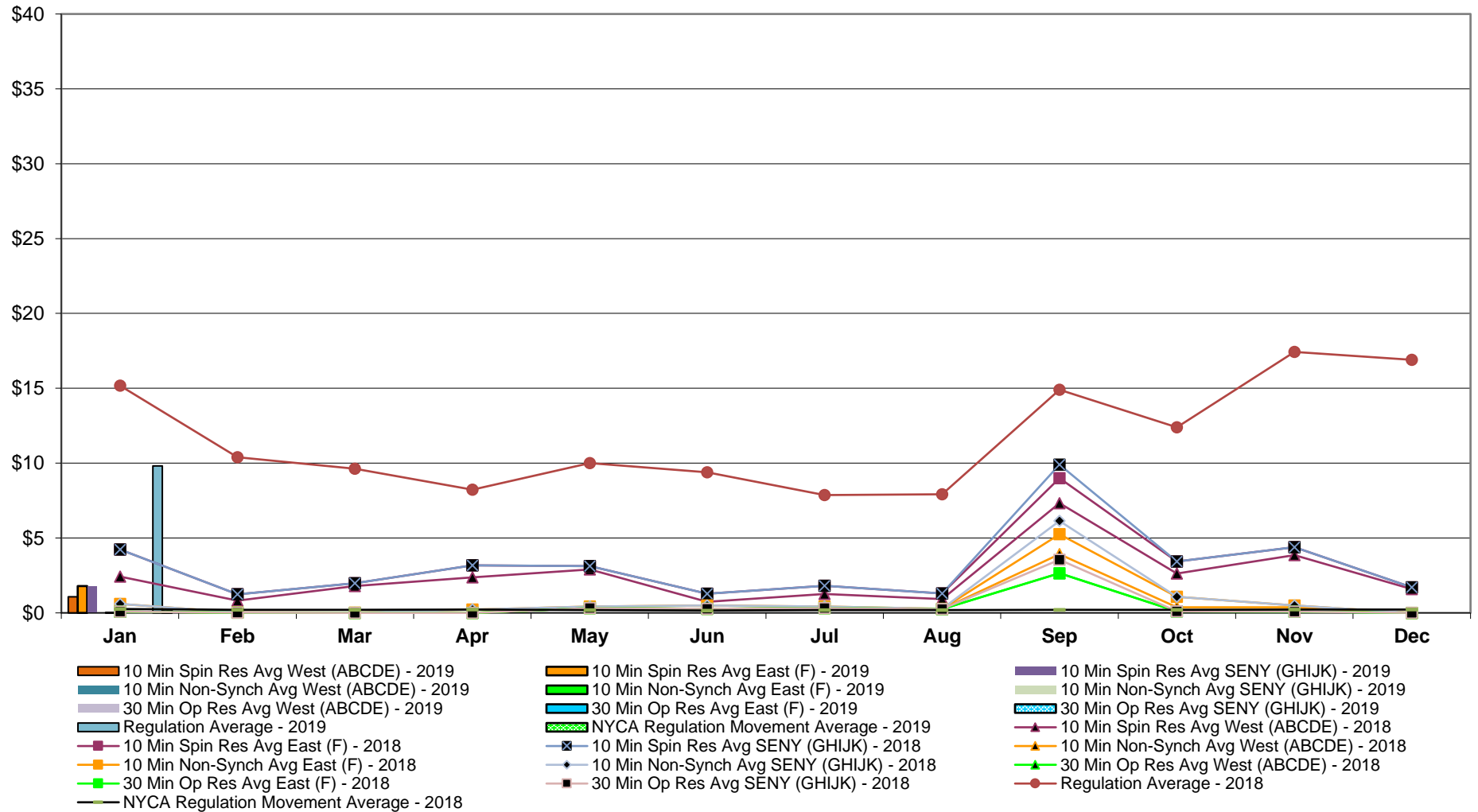




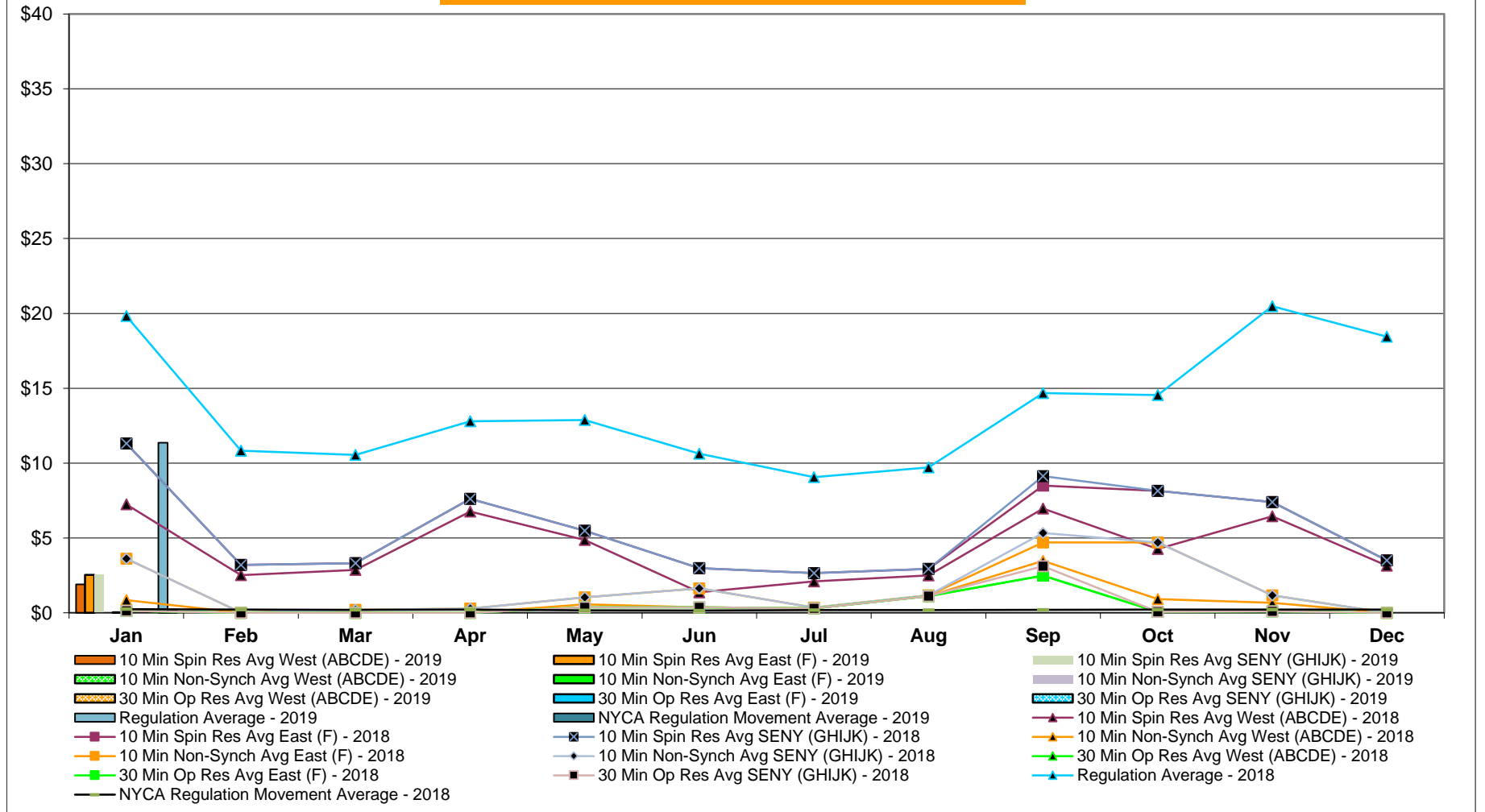
# **NYISO Monthly Average Ancillary Service Prices Day Ahead Market 2018 - 2019**



## NYISO Monthly Average Ancillary Service Prices RTC Market 2018 - 2019



# **NYISO Monthly Average Ancillary Service Prices Real Time Market 2018 - 2019**



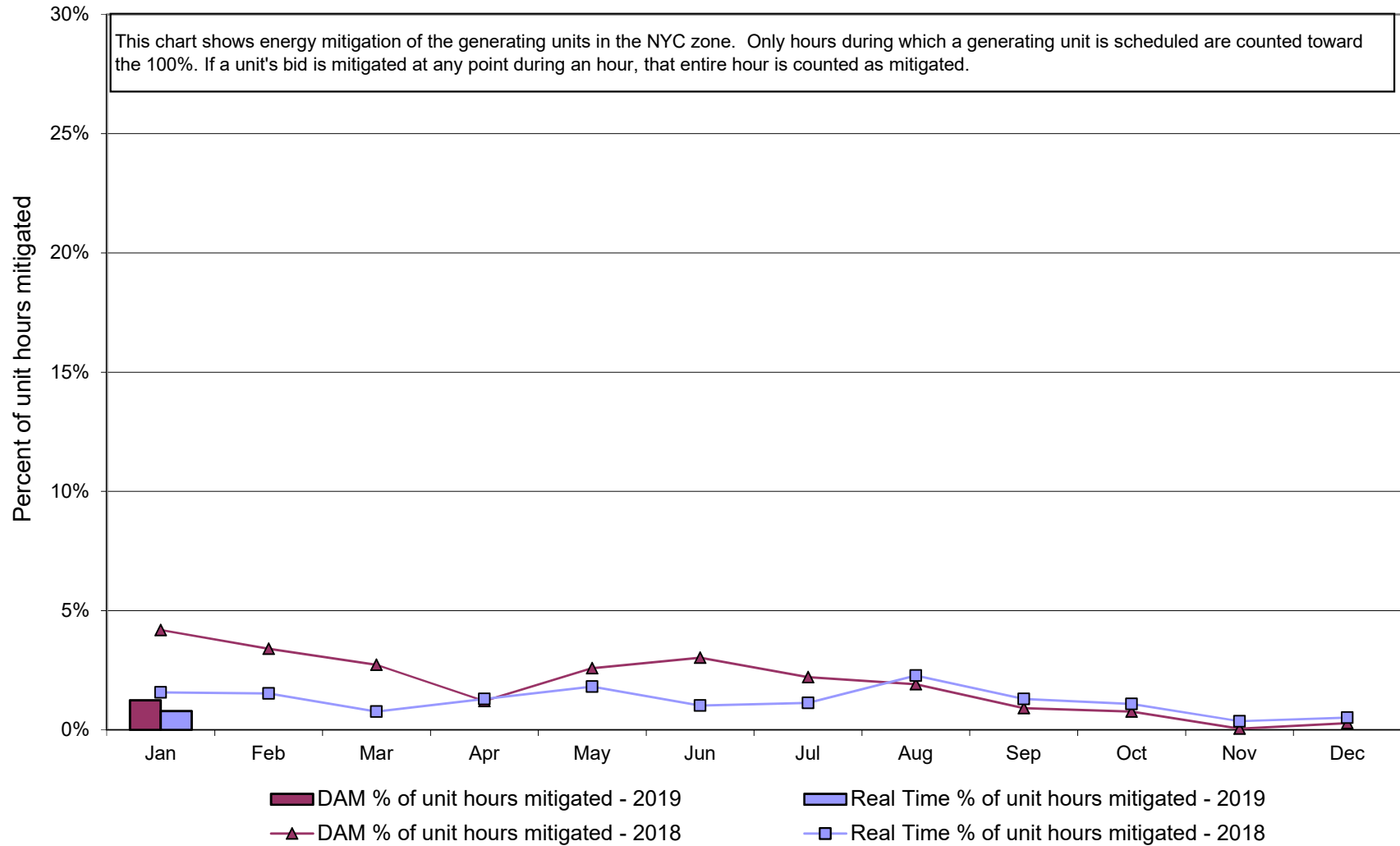
## NYISO Markets Ancillary Services Statistics - Unweighted Price (\$/MWH)

<b>2019</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><u>Day Ahead Market</u></b>												
10 Min Spin SENY (GHIJK)	5.47											
10 Min Spin East (F)	5.47											
10 Min Spin West (ABCDE)	4.56											
10 Min Non Synch SENY (GHIJK)	3.88											
10 Min Non Synch East (F)	3.88											
10 Min Non Synch West (ABCDE)	3.86											
30 Min SENY (GHIJK)	3.86											
30 Min East (F)	3.86											
30 Min West (ABCDE)	3.86											
Regulation	11.94											
<b><u>RTC Market</u></b>												
10 Min Spin SENY (GHIJK)	1.80											
10 Min Spin East (F)	1.80											
10 Min Spin West (ABCDE)	1.08											
10 Min Non Synch SENY (GHIJK)	0.01											
10 Min Non Synch East (F)	0.01											
10 Min Non Synch West (ABCDE)	0.00											
30 Min SENY (GHIJK)	0.00											
30 Min East (F)	0.00											
30 Min West (ABCDE)	0.00											
Regulation	9.81											
NYCA Regulation Movement	0.23											
<b><u>Real Time Market</u></b>												
10 Min Spin SENY (GHIJK)	2.53											
10 Min Spin East (F)	2.53											
10 Min Spin West (ABCDE)	1.89											
10 Min Non Synch SENY (GHIJK)	0.03											
10 Min Non Synch East (F)	0.03											
10 Min Non Synch West (ABCDE)	0.00											
30 Min SENY (GHIJK)	0.00											
30 Min East (F)	0.00											
30 Min West (ABCDE)	0.00											
Regulation	11.36											
NYCA Regulation Movement	0.22											
<b>2018</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><u>Day Ahead Market</u></b>												
10 Min Spin SENY (GHIJK)	9.93	5.24	5.97	7.45	5.52	4.98	4.95	4.91	6.04	8.37	6.93	4.99
10 Min Spin East (F)	9.93	5.24	5.97	7.45	5.52	4.98	4.95	4.91	6.04	8.37	6.93	4.99
10 Min Spin West (ABCDE)	8.49	4.53	4.78	5.73	4.65	4.26	3.98	4.30	5.18	6.36	6.57	4.86
10 Min Non Synch SENY (GHIJK)	6.99	4.54	4.48	5.05	4.26	4.09	4.49	4.43	4.51	5.69	4.00	3.71
10 Min Non Synch East (F)	6.99	4.54	4.48	5.05	4.26	4.09	4.49	4.43	4.51	5.69	4.00	3.71
10 Min Non Synch West (ABCDE)	6.15	4.36	3.54	4.31	4.13	3.85	3.80	4.03	3.95	4.31	3.97	3.70
30 Min SENY (GHIJK)	6.14	4.36	3.54	4.31	4.13	3.85	3.79	4.02	3.94	4.22	3.97	3.70
30 Min East (F)	6.14	4.36	3.54	4.31	4.13	3.85	3.79	4.02	3.94	4.22	3.97	3.70
30 Min West (ABCDE)	6.14	4.36	3.54	4.31	4.13	3.85	3.79	4.02	3.94	4.22	3.97	3.70
Regulation	15.51	10.70	10.68	9.49	12.11	11.30	6.99	8.00	8.54	12.88	14.47	14.07
<b><u>RTC Market</u></b>												
10 Min Spin SENY (GHIJK)	4.23	1.24	1.98	3.17	3.13	1.28	1.81	1.29	9.90	3.43	4.39	1.71
10 Min Spin East (F)	4.23	1.24	1.98	3.17	3.13	1.28	1.81	1.29	9.00	3.43	4.39	1.71
10 Min Spin West (ABCDE)	2.43	0.82	1.79	2.38	2.91	0.74	1.27	0.93	7.33	2.63	3.85	1.58
10 Min Non Synch SENY (GHIJK)	0.59	0.03	0.01	0.22	0.42	0.49	0.42	0.27	6.14	1.07	0.50	0.00
10 Min Non Synch East (F)	0.59	0.03	0.01	0.22	0.42	0.49	0.42	0.27	5.25	1.07	0.50	0.00
10 Min Non Synch West (ABCDE)	0.08	0.02	0.00	0.00	0.33	0.27	0.33	0.25	3.92	0.38	0.38	0.00
30 Min SENY (GHIJK)	0.08	0.02	0.00	0.00	0.32	0.27	0.33	0.25	3.55	0.11	0.09	0.00
30 Min East (F)	0.08	0.02	0.00	0.00	0.32	0.27	0.33	0.25	2.65	0.11	0.09	0.00
30 Min West (ABCDE)	0.08	0.02	0.00	0.00	0.32	0.27	0.33	0.25	2.65	0.11	0.09	0.00
Regulation	15.17	10.40	9.63	8.22	10.01	9.39	7.87	7.92	14.90	12.40	17.43	16.90
NYCA Regulation Movement	0.26	0.21	0.20	0.22	0.19	0.16	0.19	0.19	0.20	0.21	0.22	0.22
<b><u>Real Time Market</u></b>												
10 Min Spin SENY (GHIJK)	11.31	3.19	3.31	7.62	5.48	2.98	2.65	2.93	9.13	8.14	7.39	3.49
10 Min Spin East (F)	11.31	3.19	3.31	7.62	5.48	2.98	2.65	2.93	8.50	8.14	7.39	3.49
10 Min Spin West (ABCDE)	7.24	2.52	2.86	6.77	4.86	1.37	2.10	2.50	6.96	4.26	6.45	3.15
10 Min Non Synch SENY (GHIJK)	3.61	0.01	0.19	0.28	1.03	1.63	0.35	1.16	5.33	4.70	1.16	0.00
10 Min Non Synch East (F)	3.61	0.01	0.19	0.28	1.03	1.63	0.35	1.16	4.70	4.70	1.16	0.00
10 Min Non Synch West (ABCDE)	0.85	0.00	0.00	0.00	0.57	0.37	0.29	1.12	3.47	0.92	0.67	0.00
30 Min SENY (GHIJK)	0.13	0.00	0.00	0.00	0.37	0.37	0.29	1.12	3.11	0.06	0.10	0.00
30 Min East (F)	0.13	0.00	0.00	0.00	0.37	0.37	0.29	1.12	2.48	0.06	0.10	0.00
30 Min West (ABCDE)	0.13	0.00	0.00	0.00	0.37	0.37	0.29	1.12	2.48	0.06	0.10	0.00
Regulation	19.82	10.82	10.54	12.80	12.88	10.62	9.06	9.71	14.67	14.54	20.48	18.44
NYCA Regulation Movement	0.24	0.21	0.20	0.21	0.17	0.15	0.18	0.18	0.20	0.21	0.22	0.21

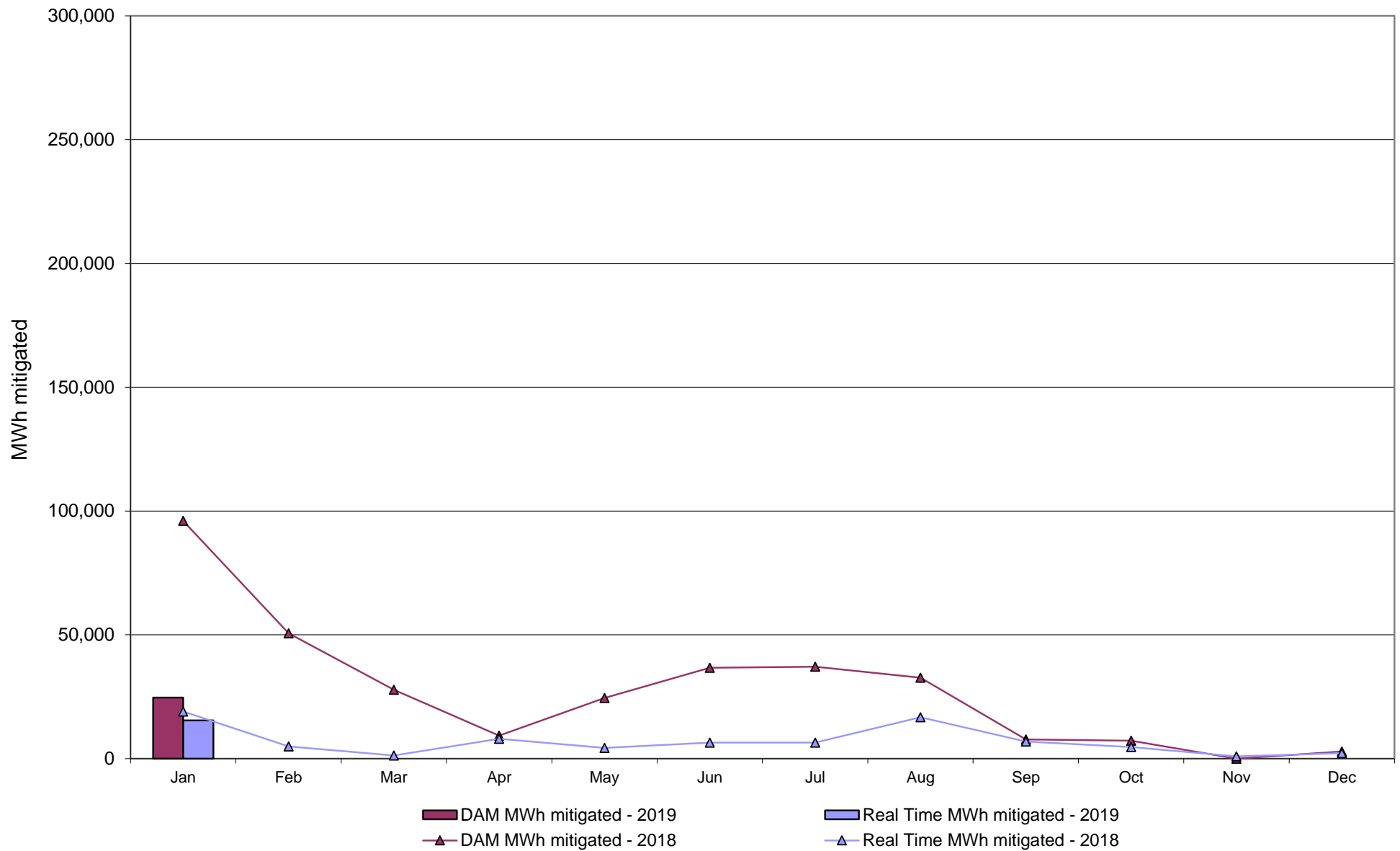
## NYISO In City Energy Mitigation - AMP (NYC Zone) 2018 - 2019

### Percentage of committed unit-hours mitigated

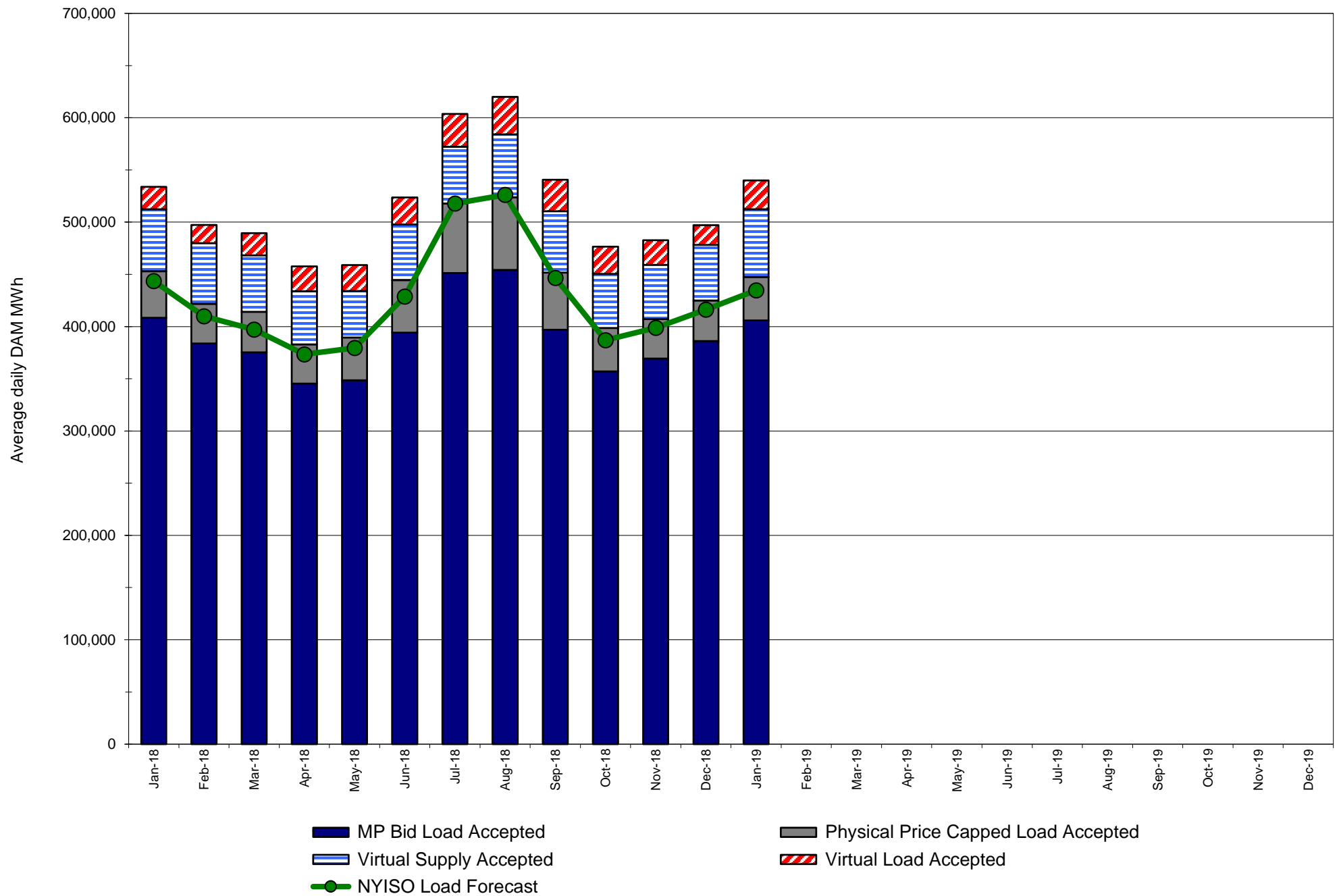
This chart shows energy mitigation of the generating units in the NYC zone. Only hours during which a generating unit is scheduled are counted toward the 100%. If a unit's bid is mitigated at any point during an hour, that entire hour is counted as mitigated.



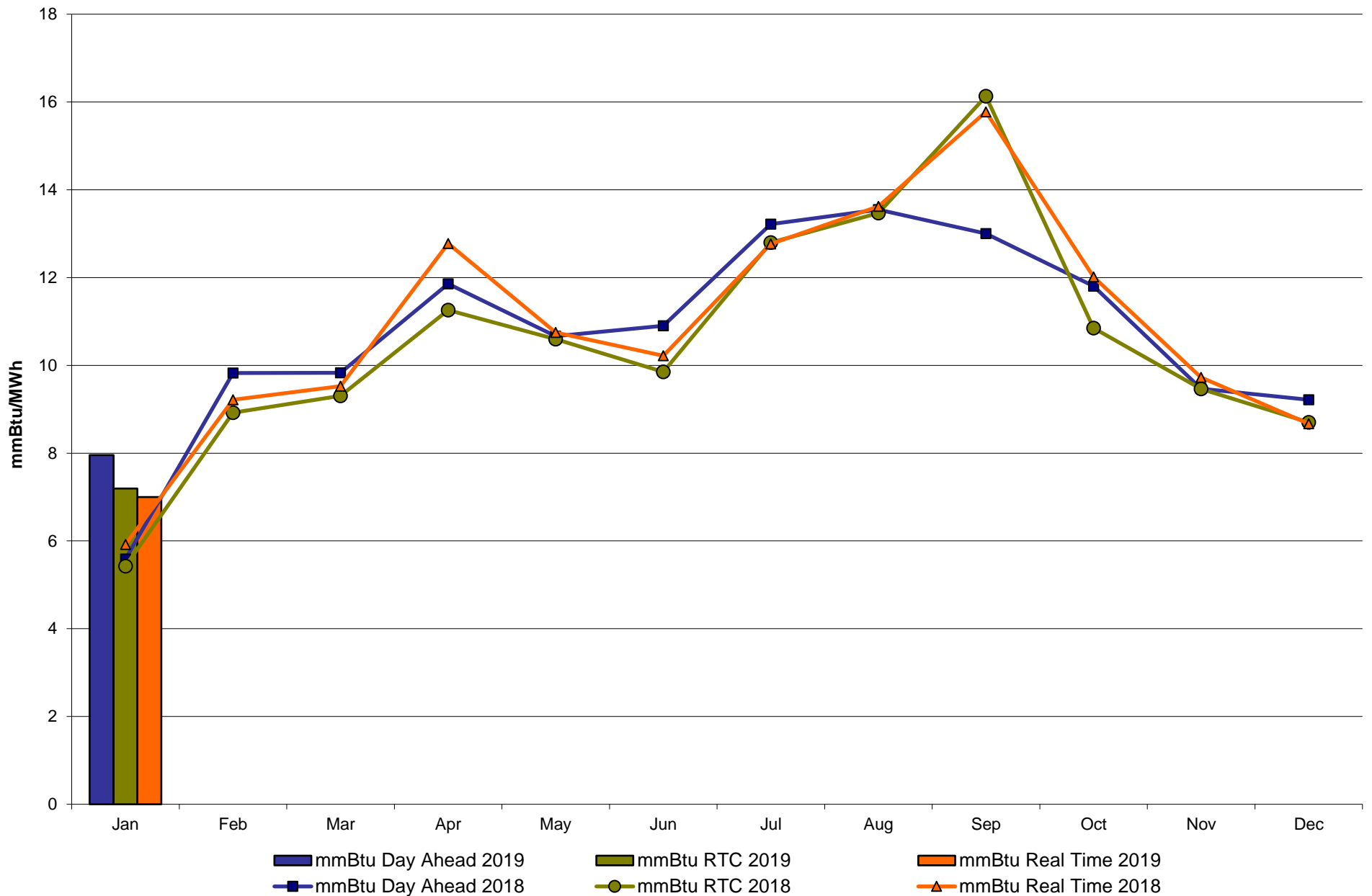
# **NYISO In City Energy Mitigation (NYC Zone) 2018 - 2019** **Monthly megawatt hours mitigated**



# NYISO Average Daily DAM Load Bid Summary

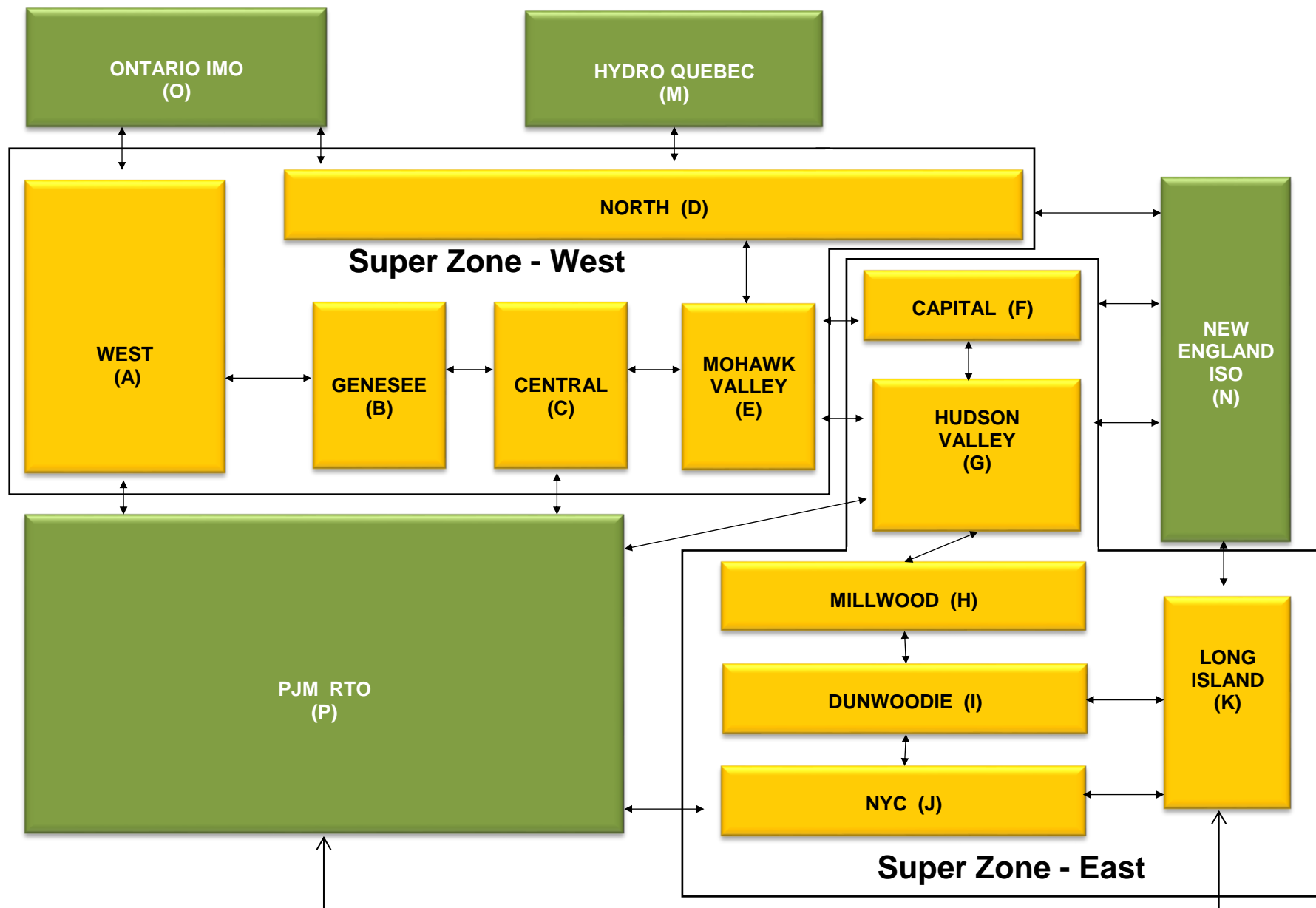


# Monthly Implied Heat Rate 2018-2019





# NYISO LBMP ZONES



### Billing Codes for Chart C

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

# **The Mission of the New York Independent System Operator, in collaboration with its stakeholders, is to serve the public interest and provide benefits 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 policy makers, stakeholders and investors in the power system



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## Summary Description of Upcoming Regulatory Compliance Filings, Recently Submitted Filings and Issued Orders on NYISO Matters

### Upcoming Compliance Filings

<b>Filing Due Date</b>	<b>Upcoming Compliance Filings (Description)</b>	<b>Docket Number</b>
04/15/2019	NYISO compliance with Order No. 845 regarding reform of generator interconnection procedures and agreements	RM17-8-000

### Recently Issued Orders

<b>Filing Date</b>	<b>Filing Summary (Order Issued)</b>	<b>Docket Number</b>	<b>Order Date</b>	<b>Order Summary</b>
12/11/2018	NYISO 205 filing re: revisions to the Public Policy Transmission Planning Process portion of its Comprehensive System Planning Process, as well as to its pro forma non-incumbent transmission owner operating agreement	ER19-528-000	02/08/2019	Order accepted filing effective 02/10/2019, as requested
12/18/2018	NYISO 205 filing re: small generator interconnection agreement (SA 2436) among the NYISO, LIPA and Riverhead Solar Farm, LLC	ER19-589-000	02/01/2019	Order accepted filing effective 11/29/2018, as requested
01/08/2019	NYISO motion to intervene and comment re: NYSRC filing of a 17.0% IRM for the 2019-2020 Capability Year	ER19-659-000	02/08/2019	Order accepted NYSRC filing effective 02/15/2019, as requested

### Recently Submitted Filings

<b>Filing Date</b>	<b>Filing Summary</b>	<b>Docket Number</b>
01/22/2019	NYISO filing to the PSC re: comments in support of the PSC NOPR in "Proposed Public Policy Transmission Needs/Public Policy Requirements"	PSC Case No. 18-E-0623
01/23/2019	NYISO filing to the PSC re: comments in support of the proposed rulemaking on the New York State Reliability Council's establishment of an Installed Reserve Margin of 17.0% for the New York Control Area	PSC Case No. 07-E-0088
02/01/2019	NYISO motion to intervene and comment re: Con Edison request for tariff waiver concerning correction of LSE bus metering data for April 2018	ER19-814-000
02/04/2019	NYISO initial brief re: response to 12/20/2018 order denying NRG tariff waiver request and establishing a paper hearing concerning NYISO's current metering requirements	EL18-188-000

## FINAL

02/05/2019	NYISO filing re: notice to FERC concerning successful deployment of software fix to address an offer cap implementation concern that arose from NYISO's response to Order No. 831	ER17-1561-003
02/11/2019	NYISO errata filing re: notice to FERC concerning successful deployment of software fix to address an offer cap implementation concern that arose from NYISO's response to Order No. 831	ER17-1561-003
02/12/2019	NYISO filing re: Notice of Termination from the ISO-Administered Markets of BBPC, LLC dba Great Eastern Energy	No Docket No.