



# Monthly Report

**March 2017**

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# ***Operations Performance Metrics Monthly Report***



## ***March 2017 Report***

## **Operations & Reliability Department New York Independent System Operator**

Prepared by NYISO Operations Analysis and Services, based on settlements initial invoice data collected on or before April 10, 2017.

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## March 2017 Operations Performance Highlights

- Peak load of 21,689 MW occurred on 03/15/2017 HB 19
- All-time winter capability period peak load of 25,738 MW occurred on 1/7/2014 HB 18
- 2.3 hours of Thunder Storm Alerts were declared
- 0 hours of NERC TLR level 3 curtailment
- On 03/08/2017 there was a high wind storm event that led to multiple transmission line outages. West Zone generation and Ontario imports were reduced to manage system reliability.
- NYISO achieved a wind energy record of 1,574 MW on 03/02/2017 HB12 providing 9% of the state's power generation.
- The following table identifies the estimated production cost savings associated with the Broader Regional Market initiatives.

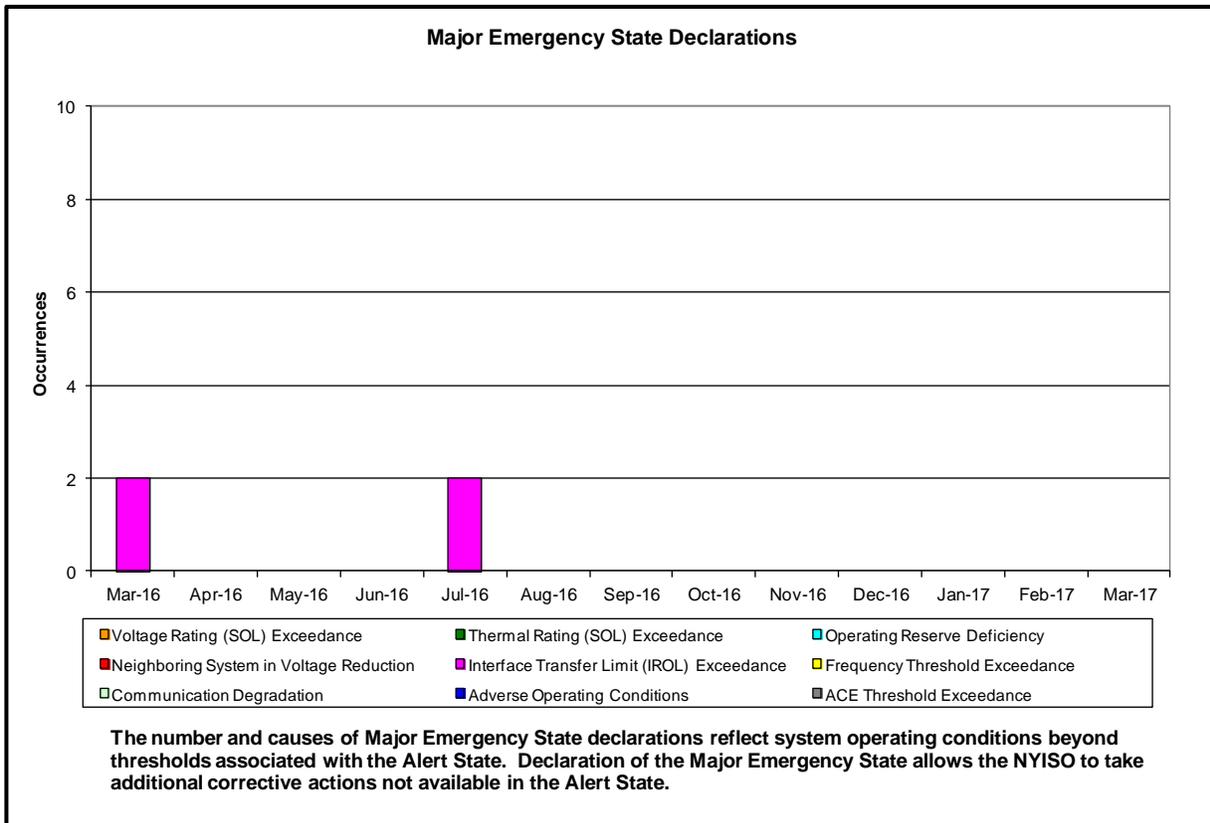
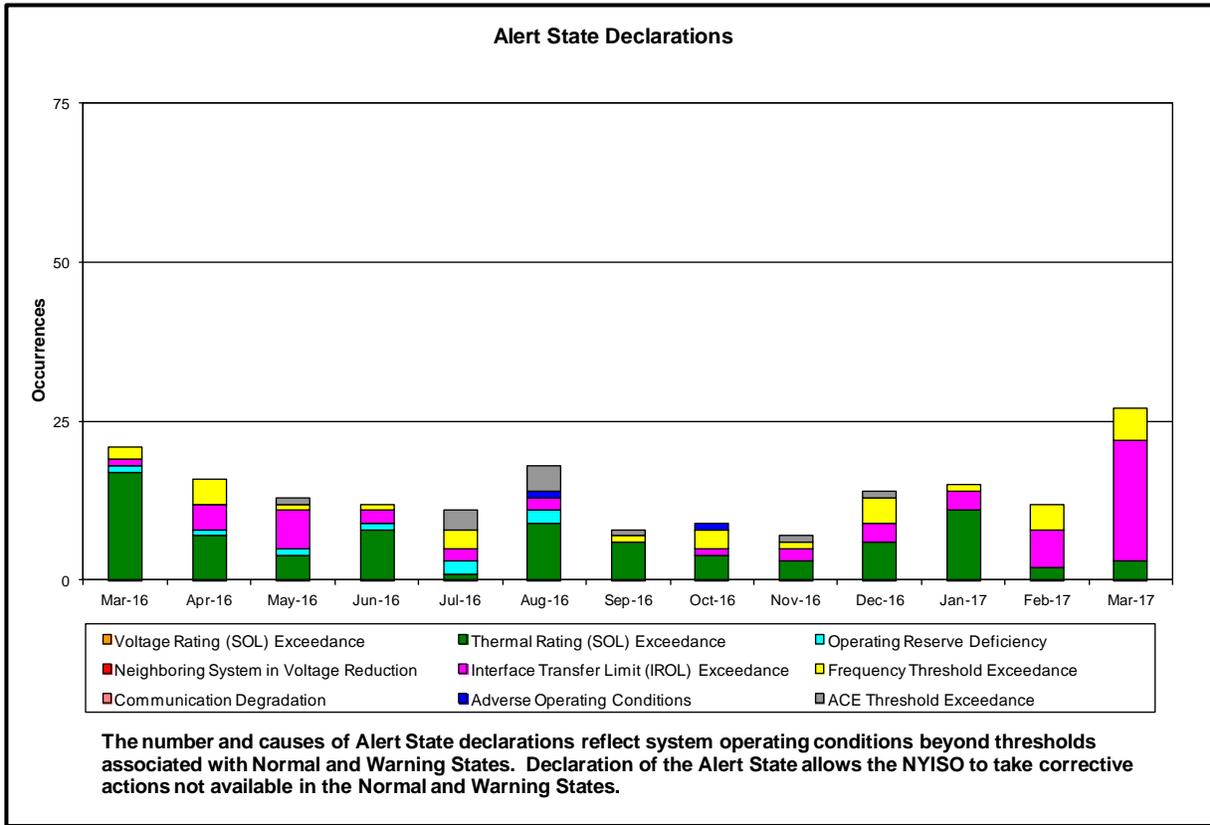
	Current Month Value (\$M)	Year-to-Date Value (\$M)
<b>NY Savings from PJM-NY Congestion Coordination</b>	\$2.93	\$5.46
<b>NY Savings from PJM-NY Coordinated Transaction Scheduling</b>	(\$0.10)	(\$0.07)
<b>NY Savings from NE-NY Coordinated Transaction Scheduling</b>	(\$0.14)	(\$0.56)
<b>Total NY Savings</b>	\$2.69	\$4.83
<b>Regional Savings from PJM-NY Coordinated Transaction Scheduling</b>	\$0.26	\$0.46
<b>Regional Savings from NE-NY Coordinated Transaction Scheduling</b>	\$0.12	\$0.28
<b>Total Regional Savings</b>	\$0.38	\$0.74

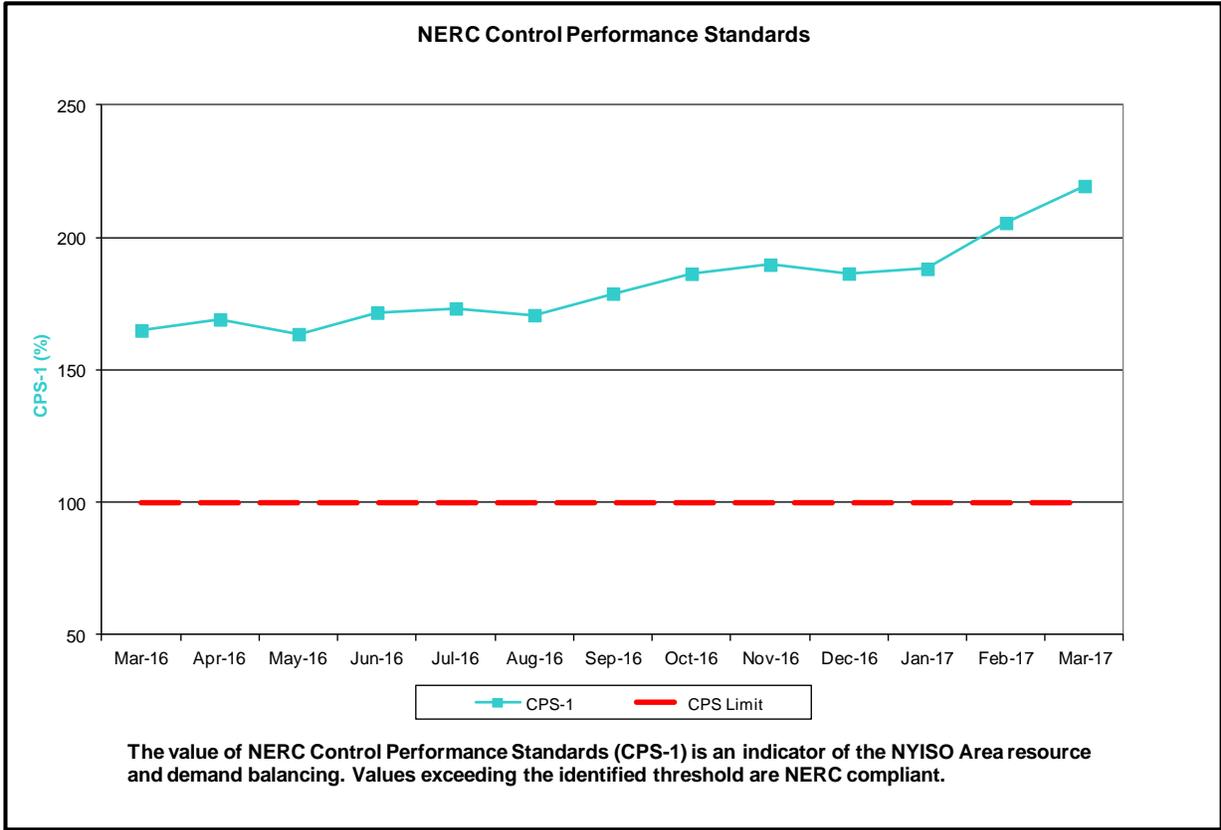
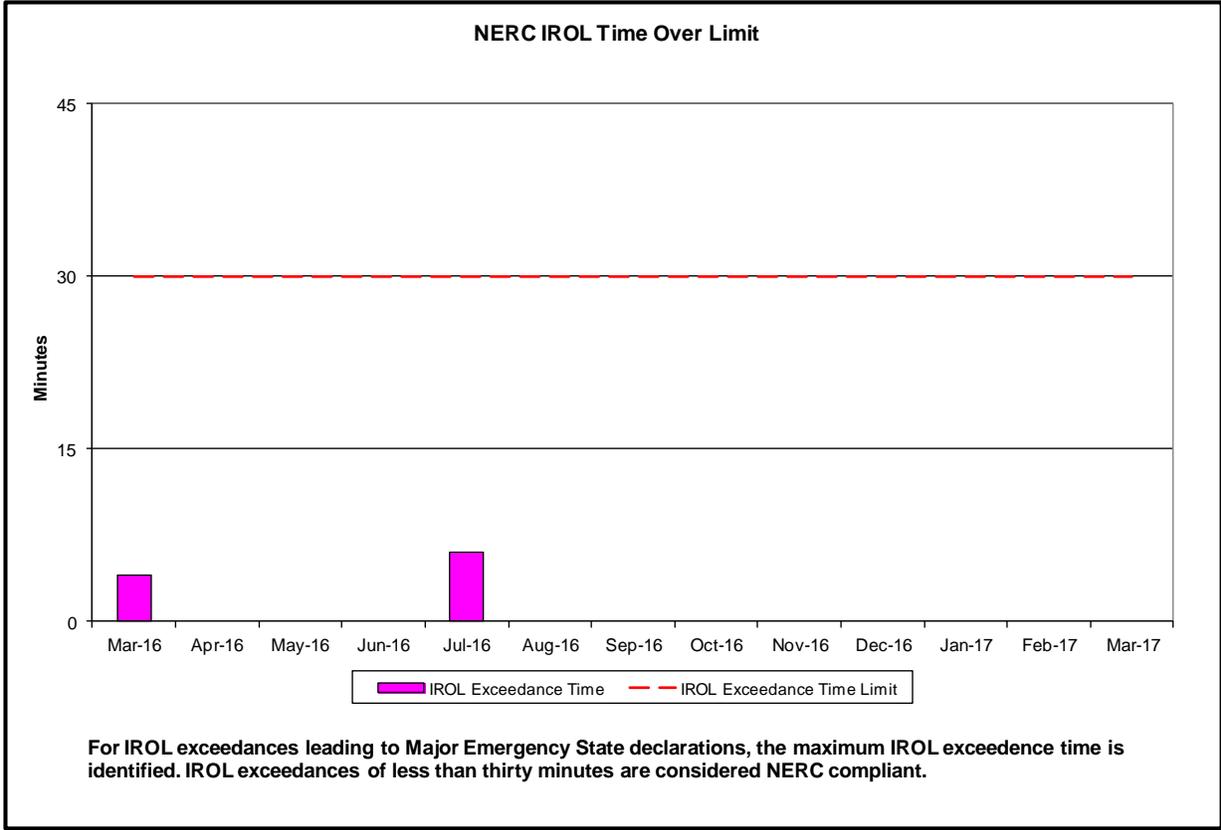
- Statewide uplift cost monthly average was **(\$0.67)/MWh**
- The following table identifies the Monthly ICAP spot market prices by locality and price delta

Spot Auction Price Results	NYCA	Lower Hudson Valley Zones	New York City Zone	Long Island Zone
April 2017 Spot Price	\$0.35	\$3.25	\$3.25	\$0.35
March 2017 Spot Price	\$0.71	\$3.30	\$3.30	\$0.71
Delta	(\$0.36)	(\$0.05)	(\$0.05)	(\$0.36)

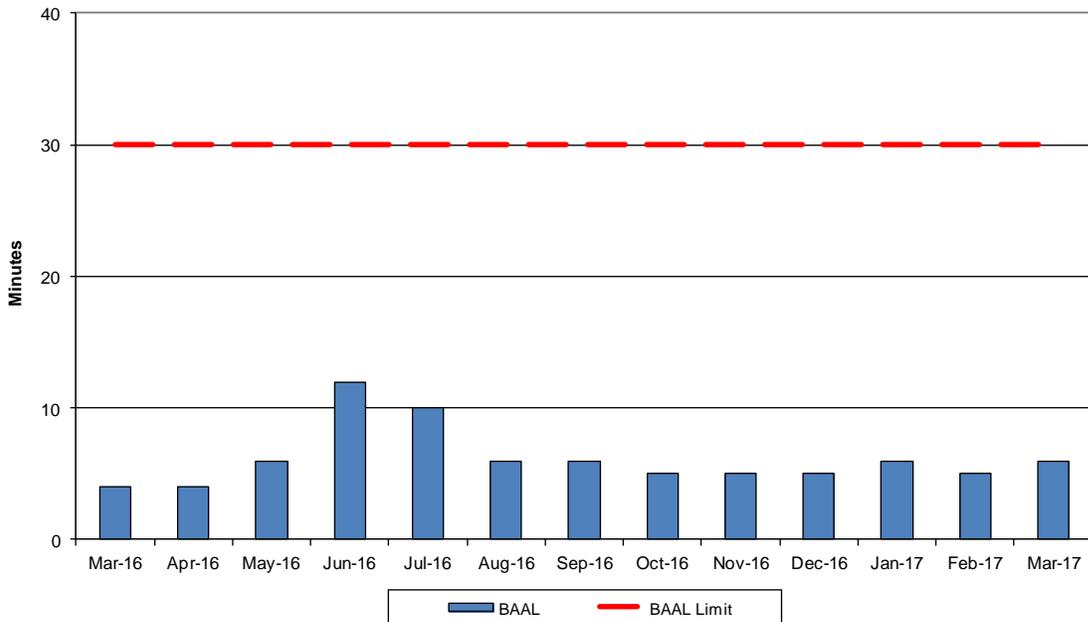
- NYCA - Price decreases by \$0.36 due to increase in generator UCAP available and imports.
- NYCA Price converged with the LI Price
- LHV Price converged with the NYC Price

- Reliability Performance Metrics



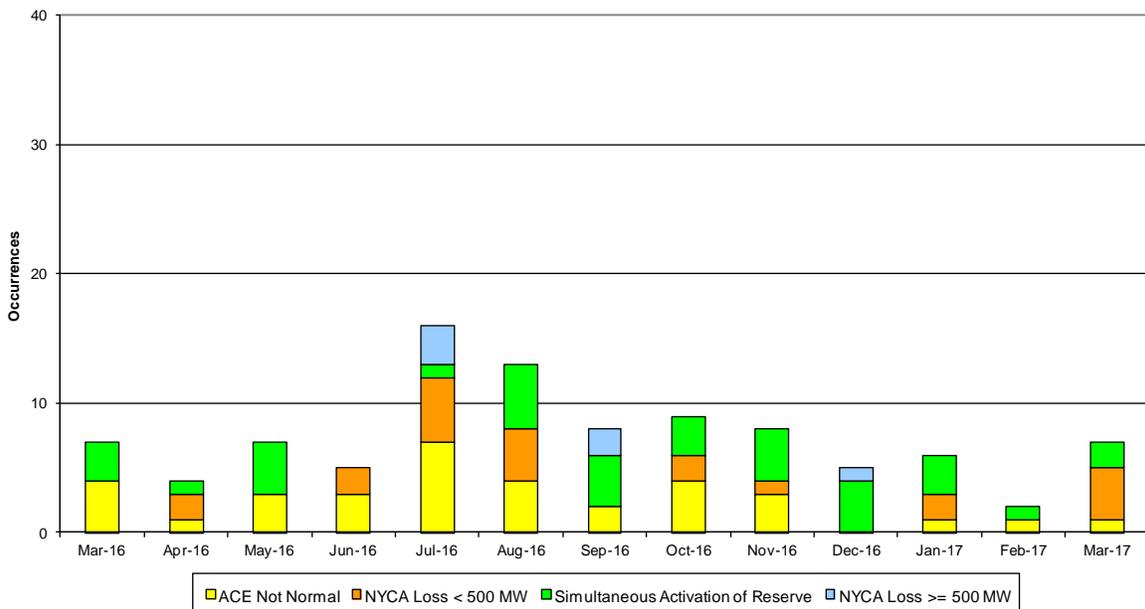


### NERC Balancing Authority ACE Limit Standard



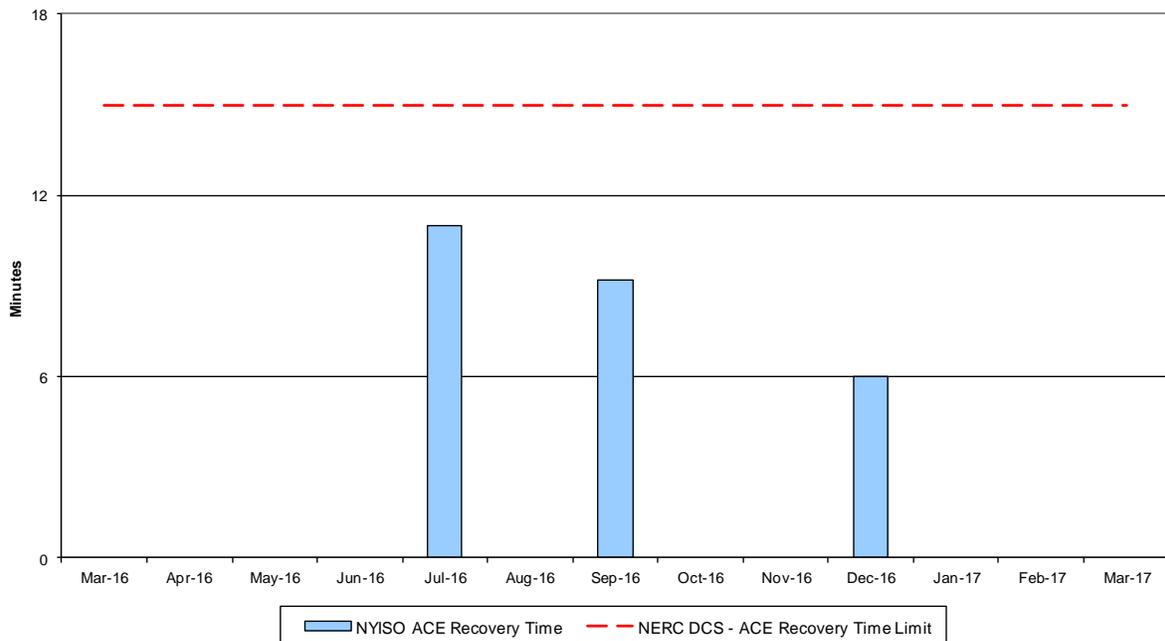
The amount of time the clock-minute average ACE exceeds the clock-minute Balancing Authority ACE Limit (BAAL) is an indicator of the NYISO Area resource and demand balancing. The maximum BAAL exceedance time is identified. BAAL exceedances of less than 30 consecutive clock-minutes are NERC compliant.

### Reserve Activations



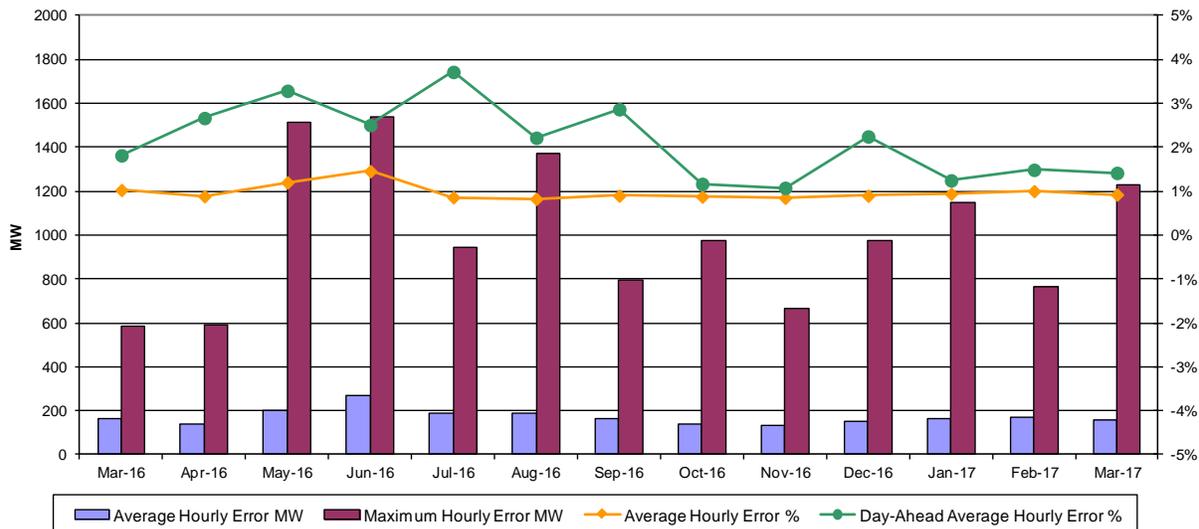
NYISO Reserve Activations are indicators of the need to respond to unexpected operational conditions within the NYISO Area or to assist a neighboring Area (Simultaneous Activation of Reserves) by activating an immediate resource and demand balancing operation.

### DCS Event Time to ACE Recovery

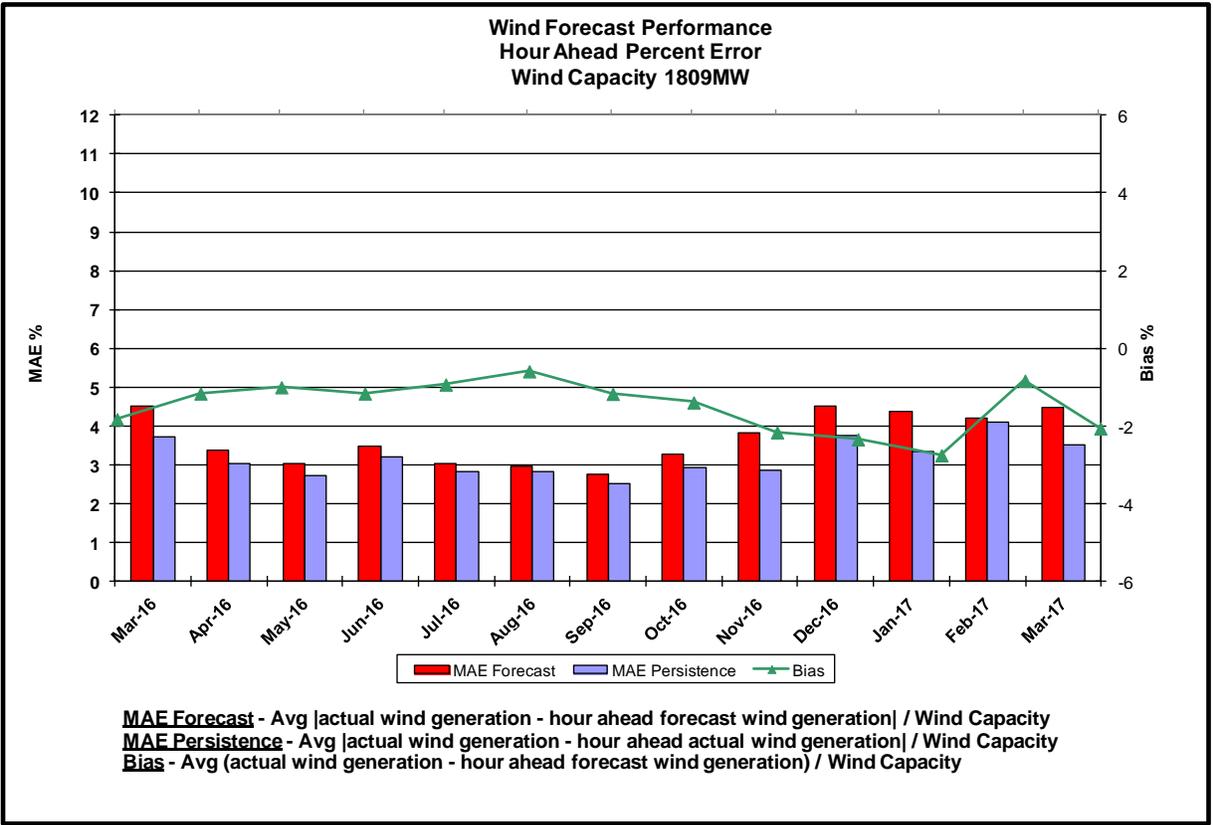
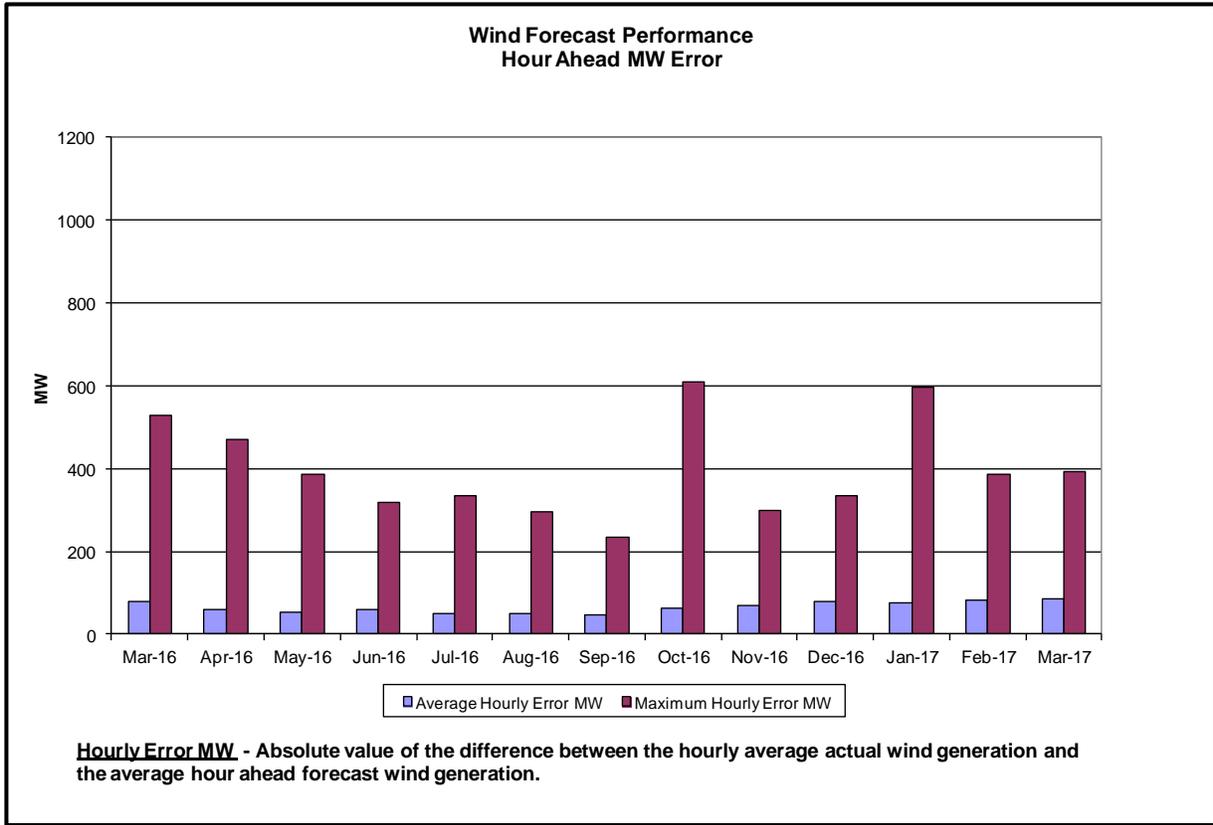


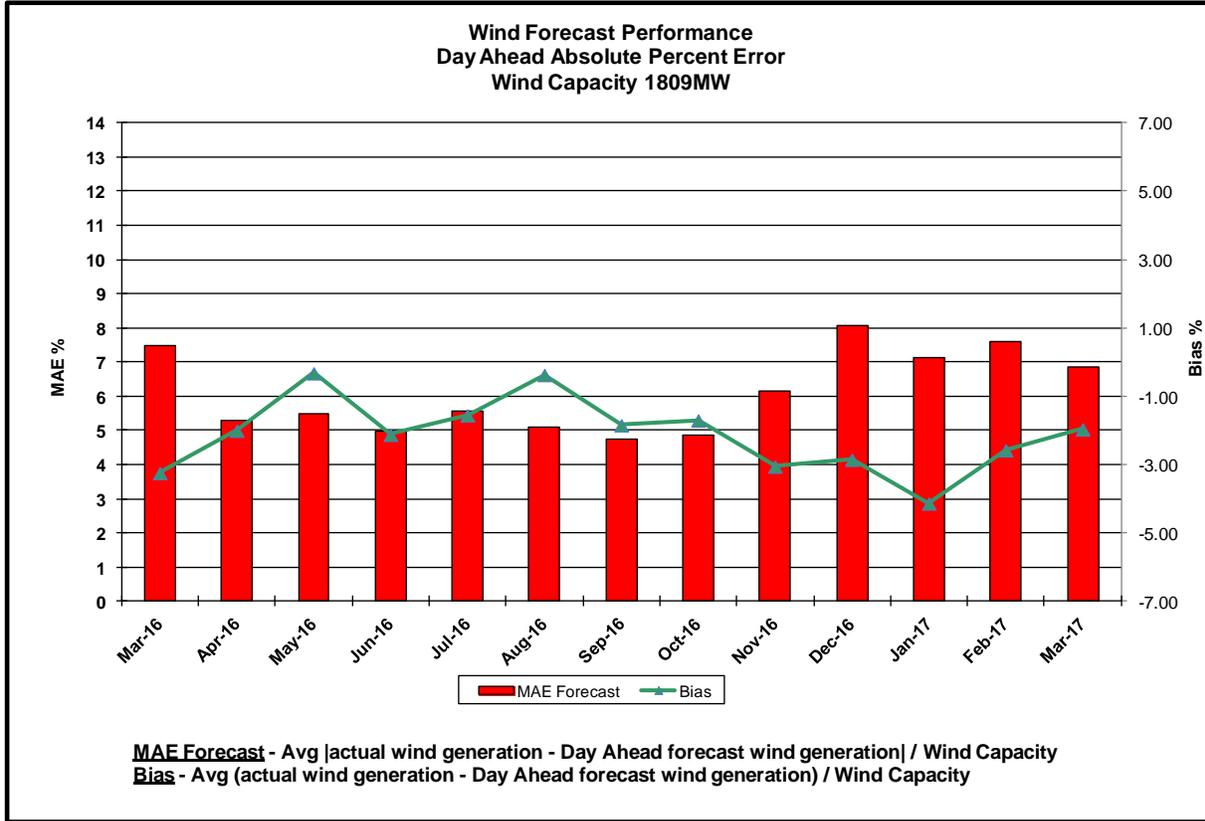
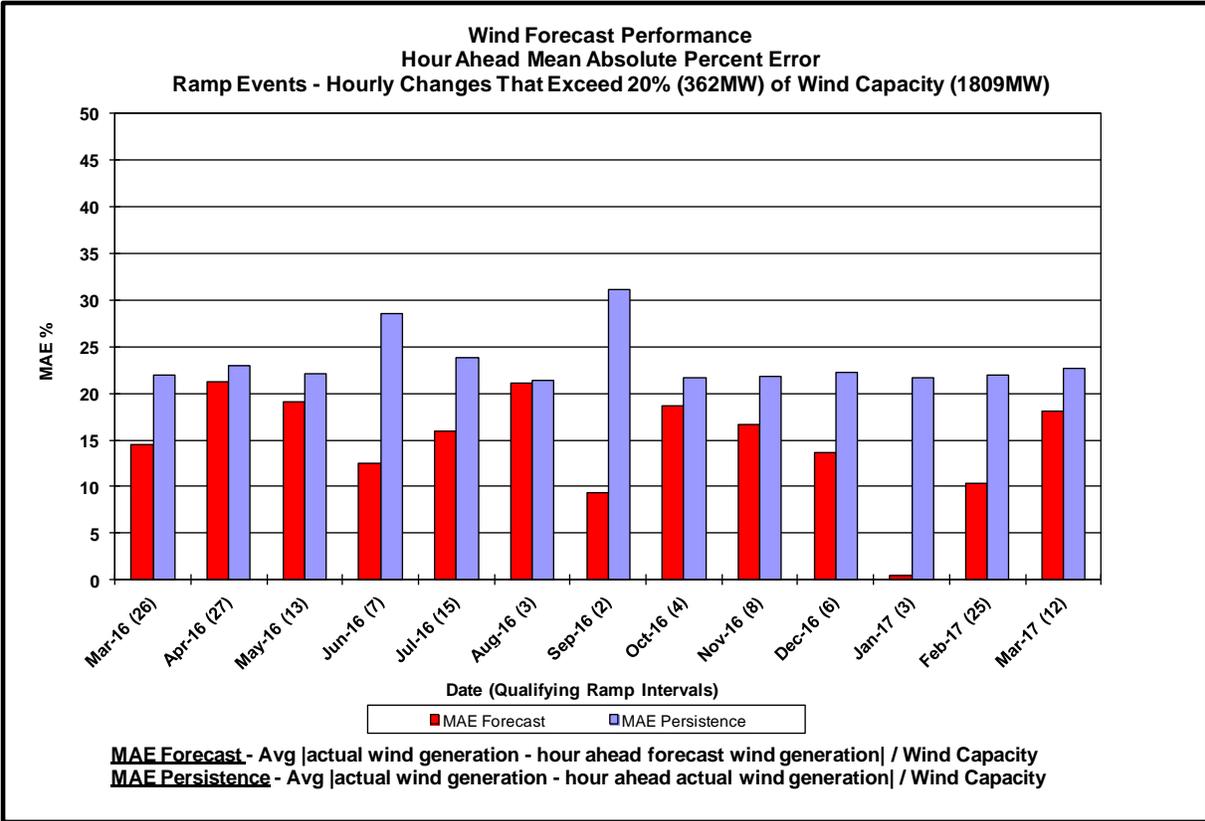
For NYISO initiated Reportable Disturbances, the maximum ACE recovery time is identified. Recovery times of less than 15 minutes are considered NERC compliant.

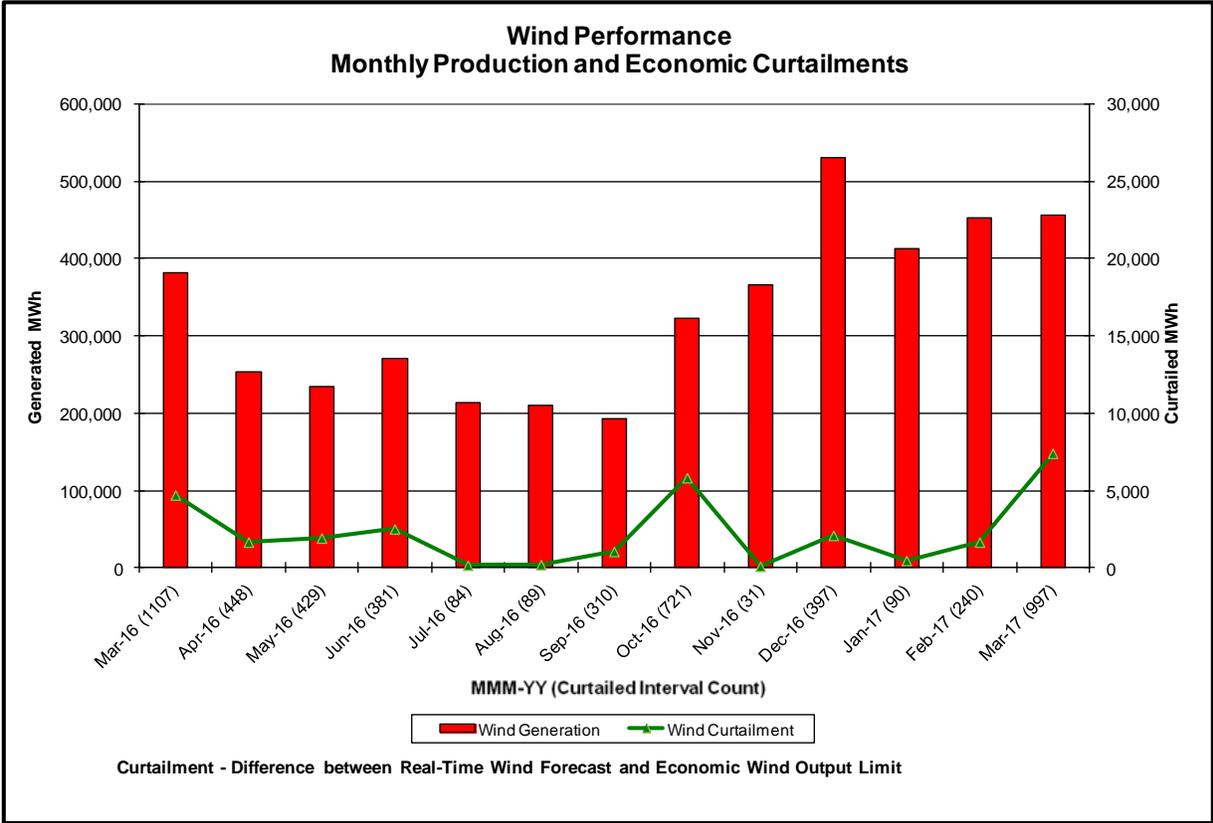
### Load Forecast Performance

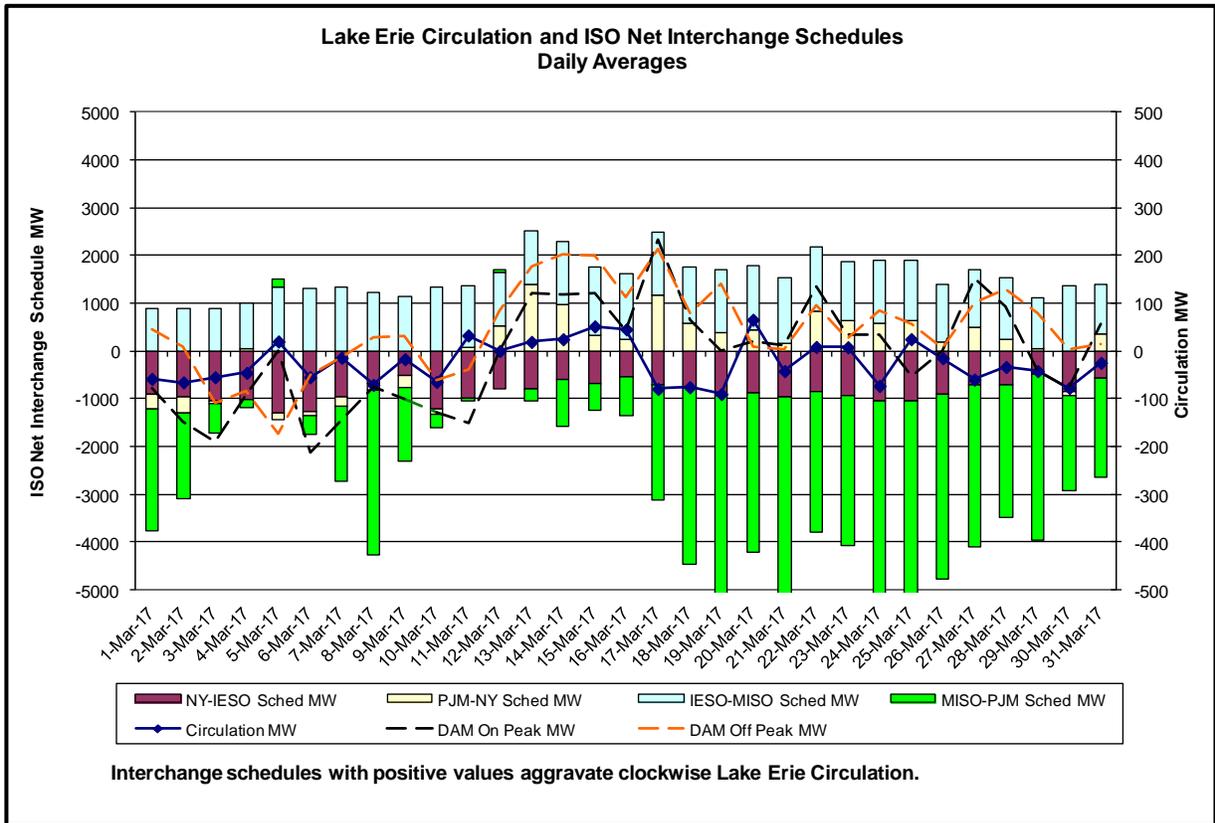
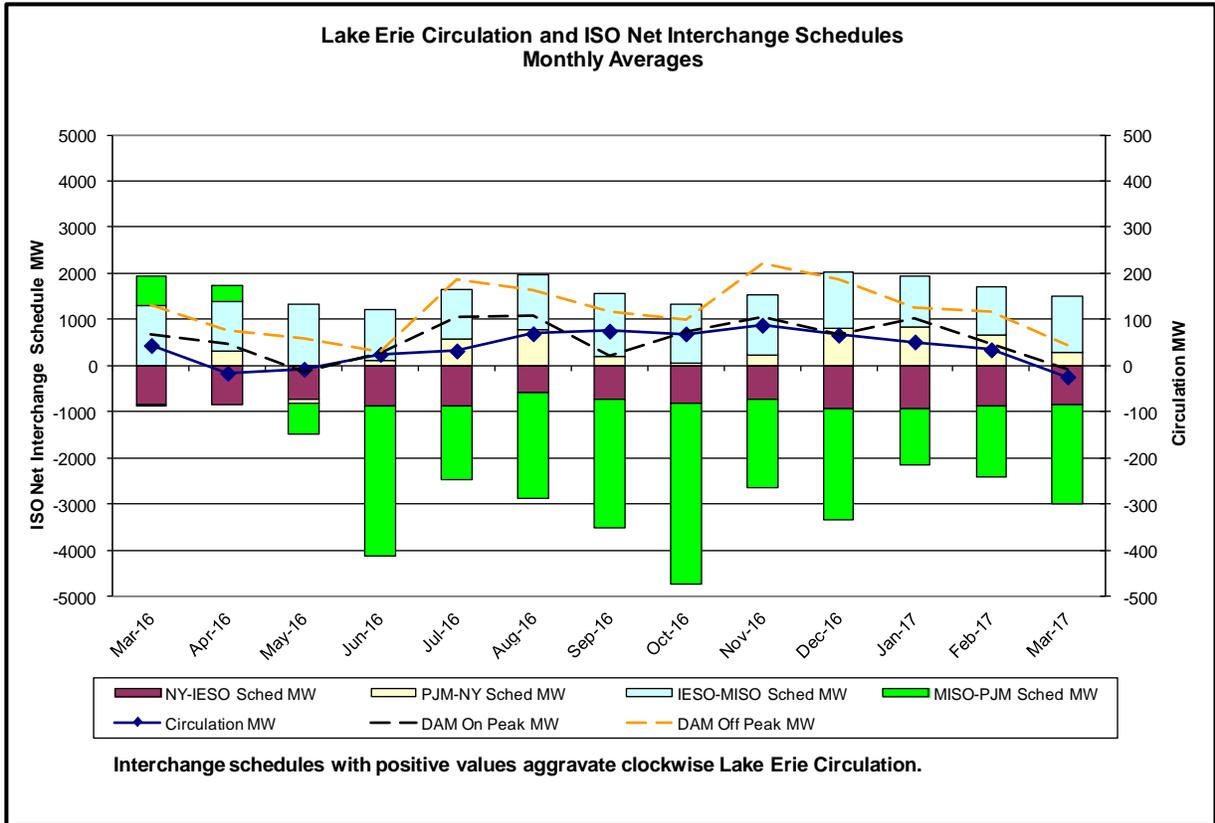


**Hourly Error MW** - Absolute value of the difference between the hourly average actual load demand and the average hour ahead forecast load demand.  
**Average Hourly Error %** - Average value of the ratio of hourly average error magnitude to hourly average actual load demand.  
**Day-Ahead Average Hourly Error %** - Average across all hours of the month of the absolute value of the difference between actual load demand and the Day-Ahead forecast load demand, divided by the actual load demand.

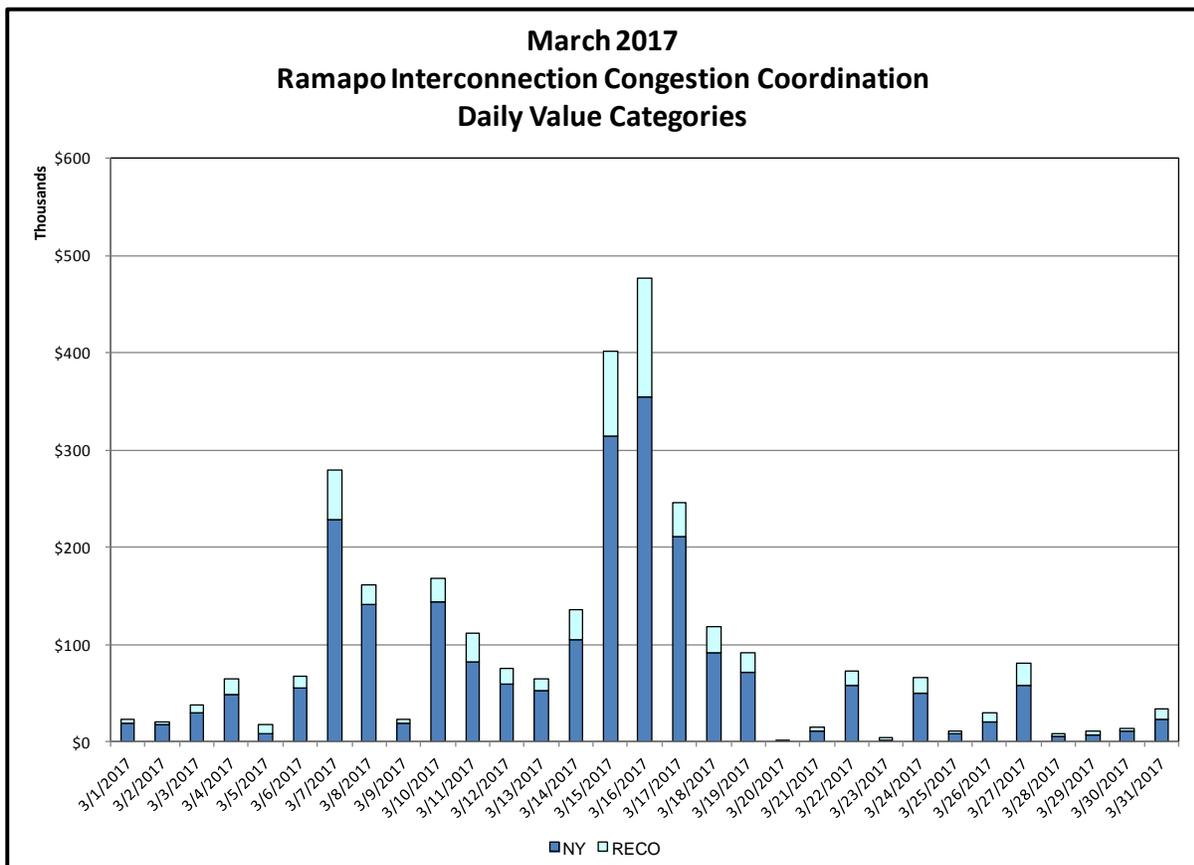
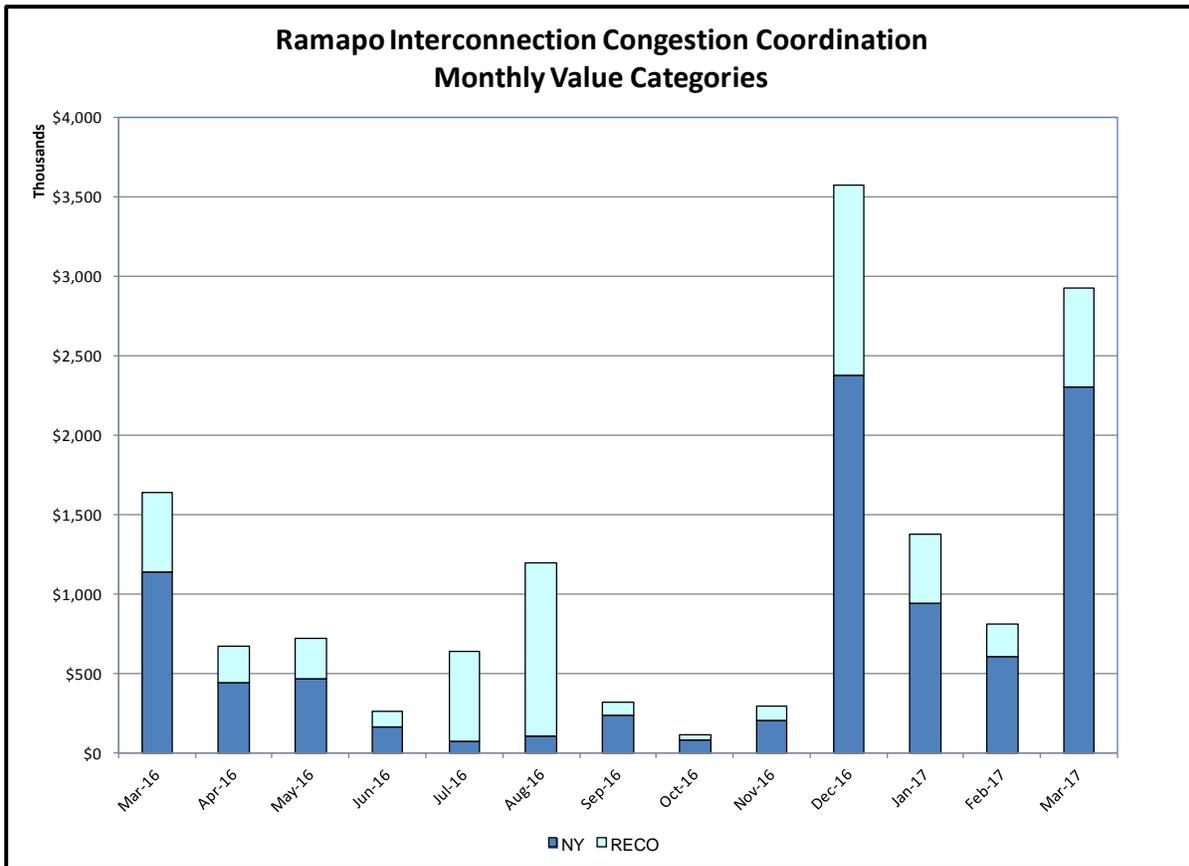






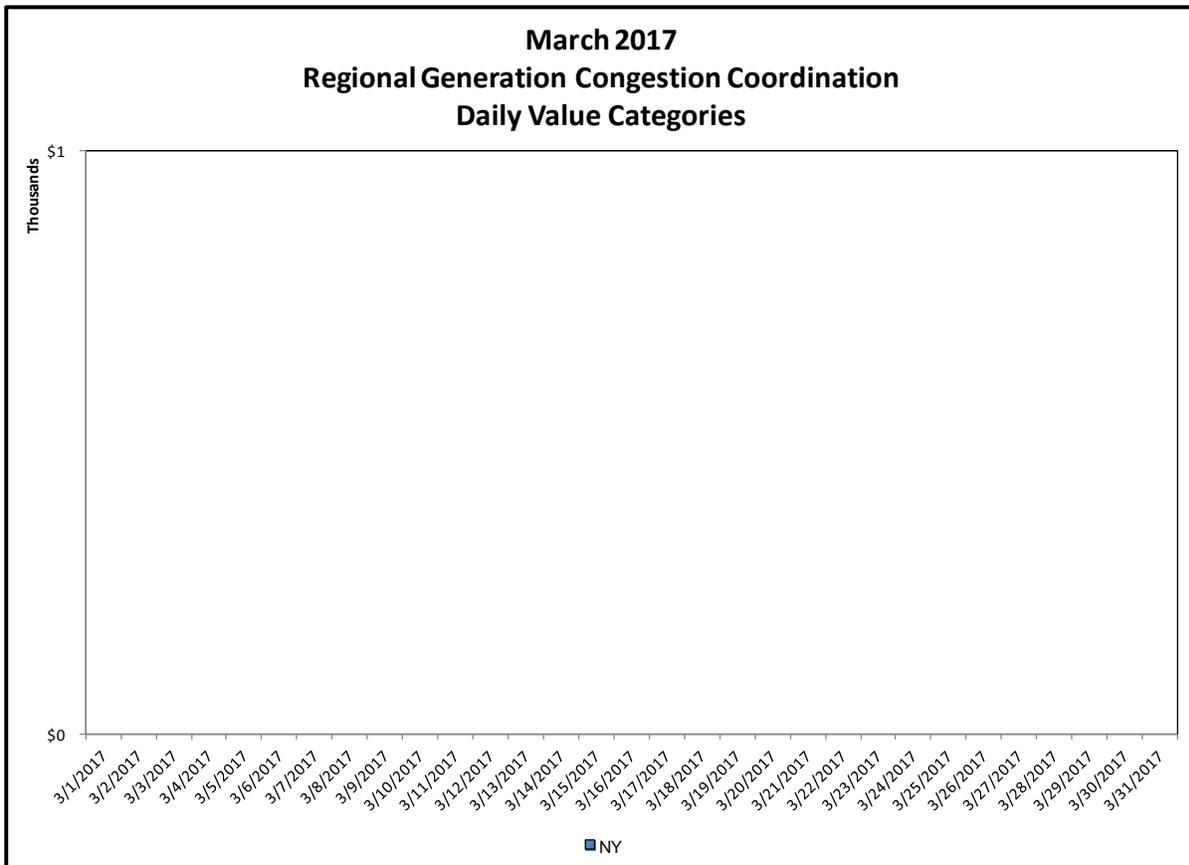
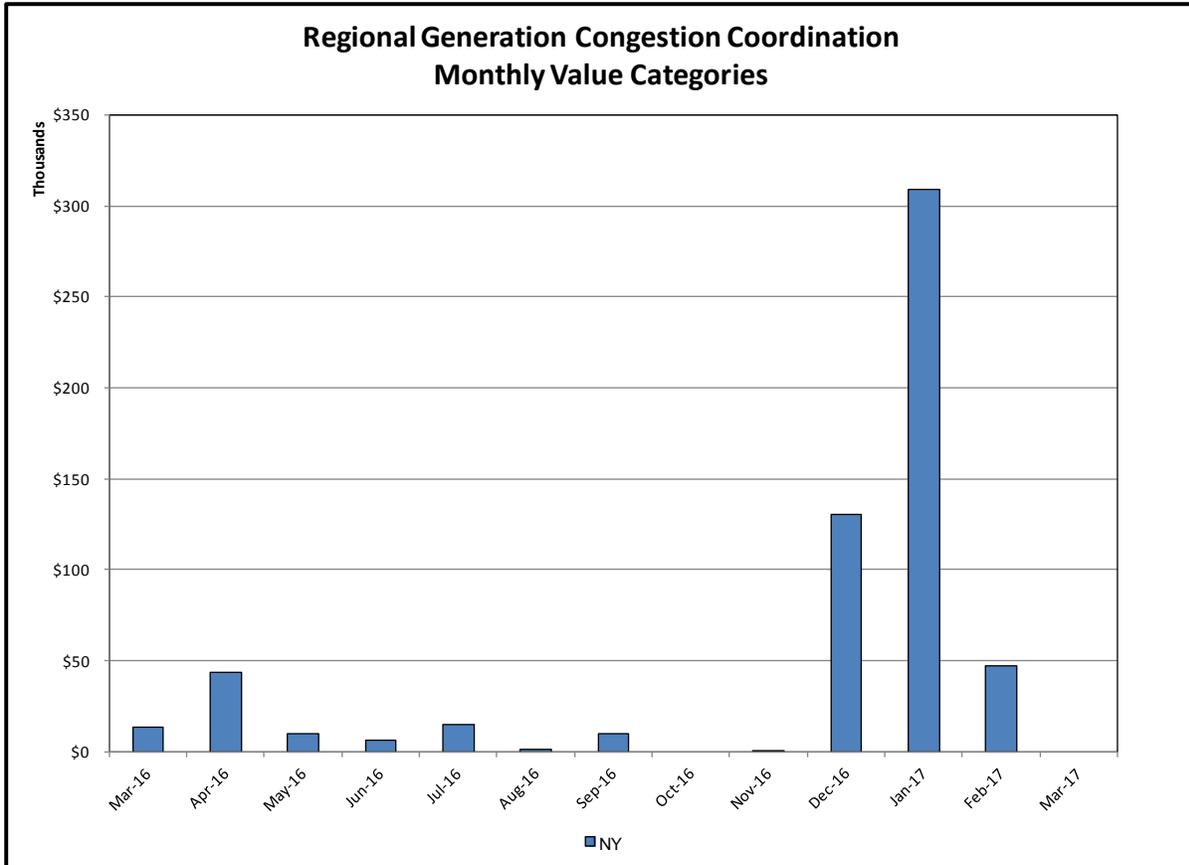


## Broader Regional Market Performance Metrics



**Ramapo Interconnection Congestion Coordination**

<u>Category</u>	<u>Description</u>
NY	Represents the value NY realizes from Market-to-Market Ramapo Coordination. When experiencing congestion, this includes (1) the estimated savings to NY for additional deliveries into NY, plus (2) PJM compensation to NY for additional deliveries into PJM (as compared to the Ramapo Target level, excluding RECO). This is net of any settlements to PJM when they are congested.
RECO	Represents the value of PJM's obligation to deliver 80% of service to RECO load over Ramapo 5018. This includes (1) the estimated reduction in NYCA congestion due to the PJM delivery of RECO over Ramapo 5018, plus (2) PJM compensation to NY for NYCA congestion for the under-delivery or inability to deliver service to RECO load over Ramapo 5018.



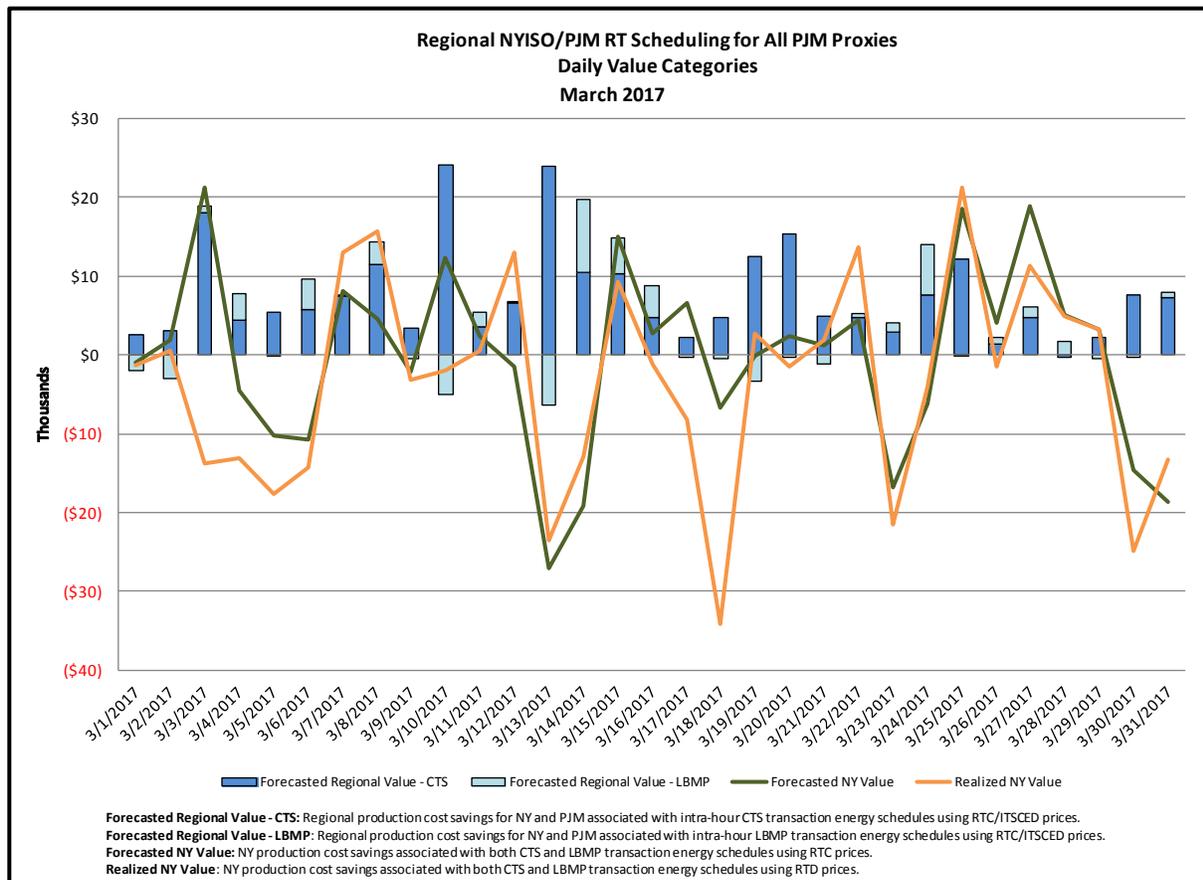
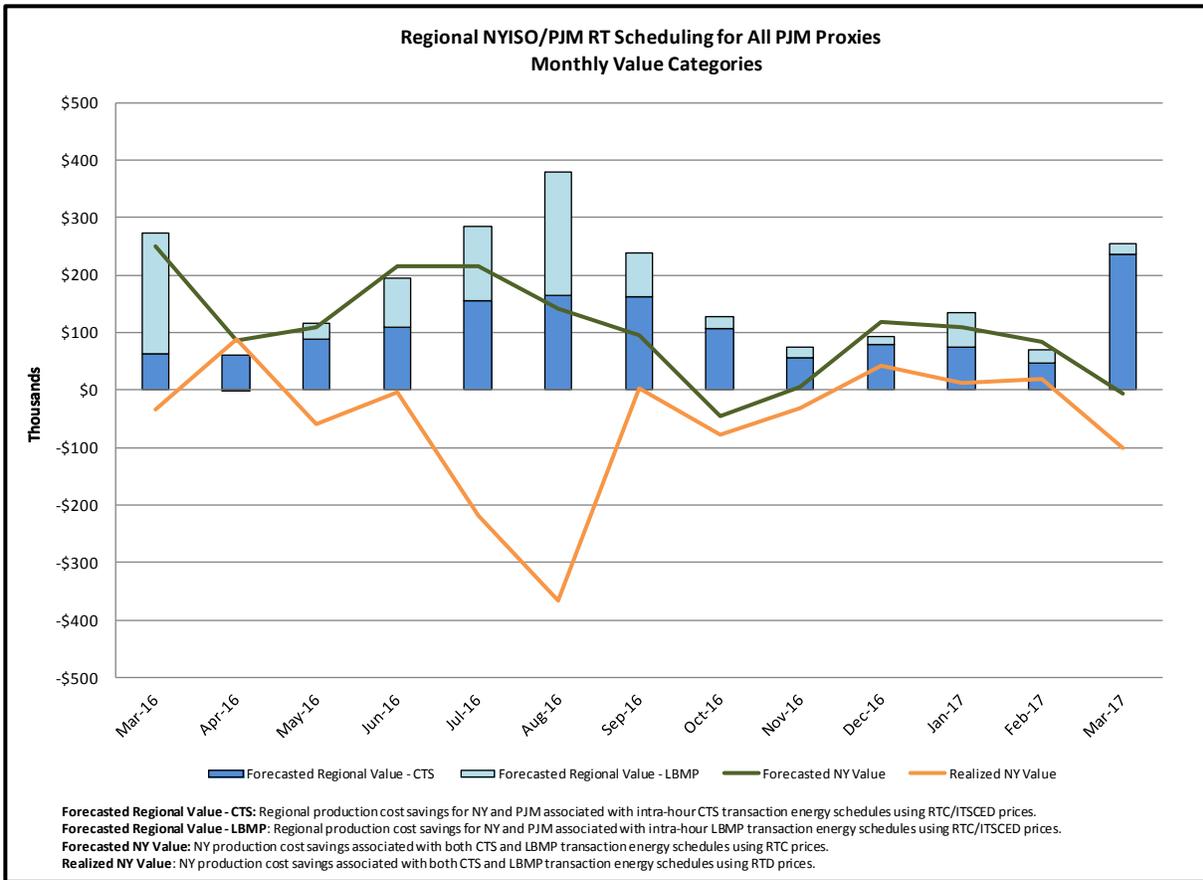
### Regional Generation Congestion Coordination

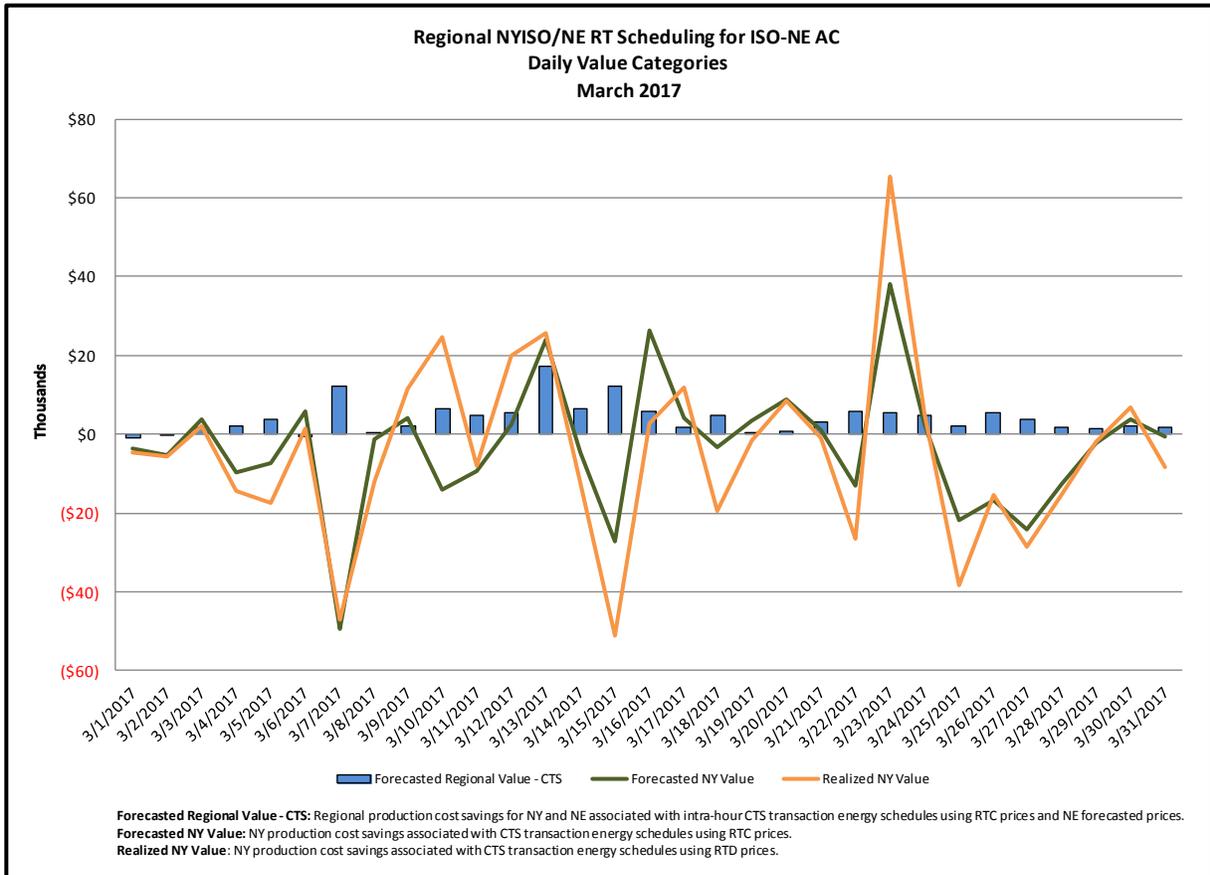
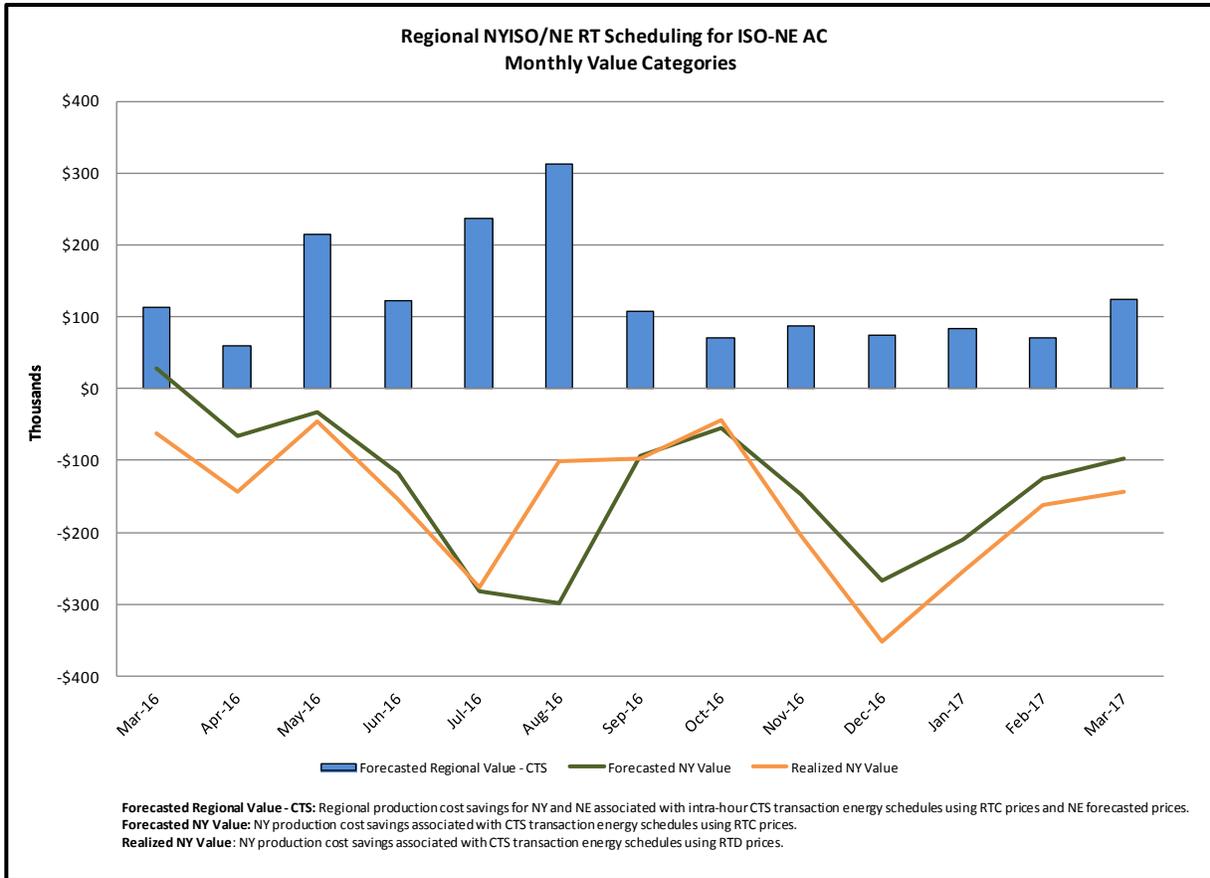
Category

NY

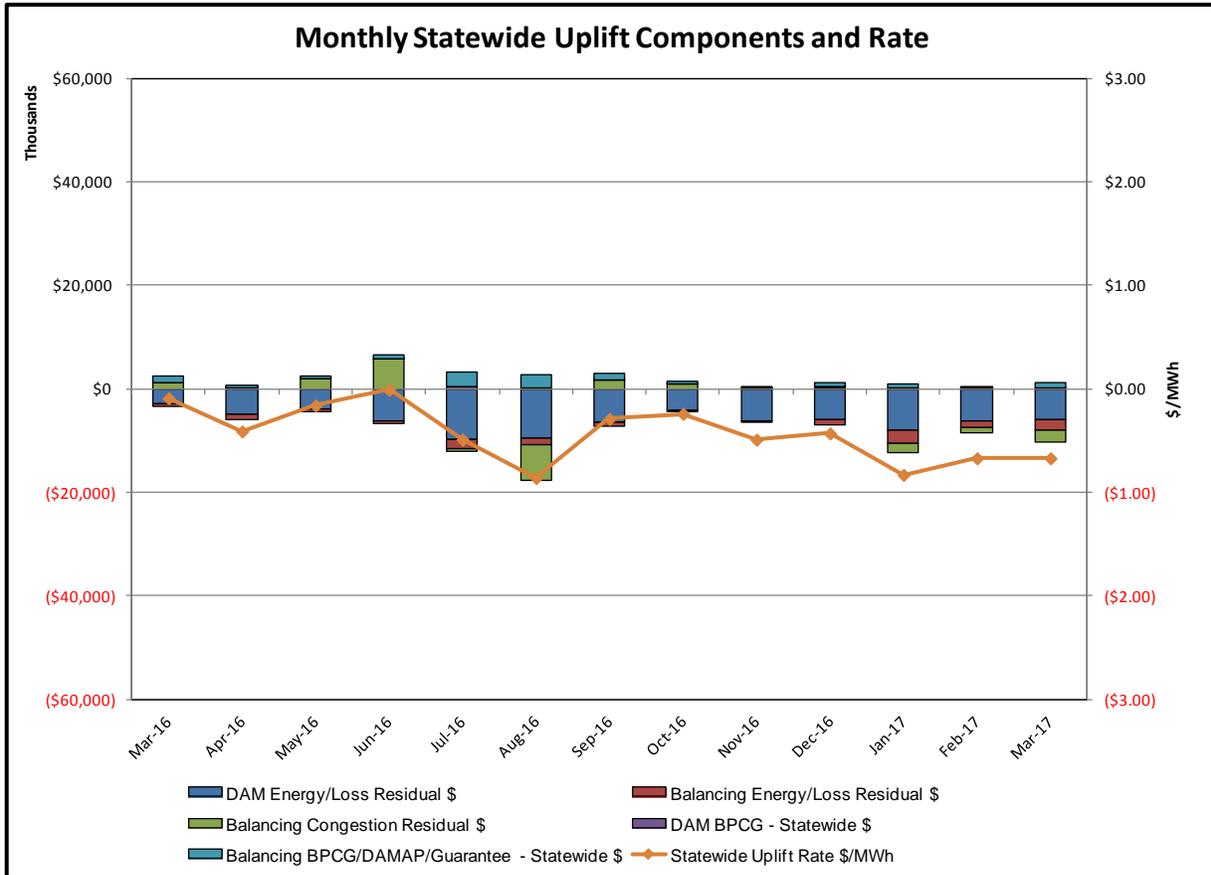
Description

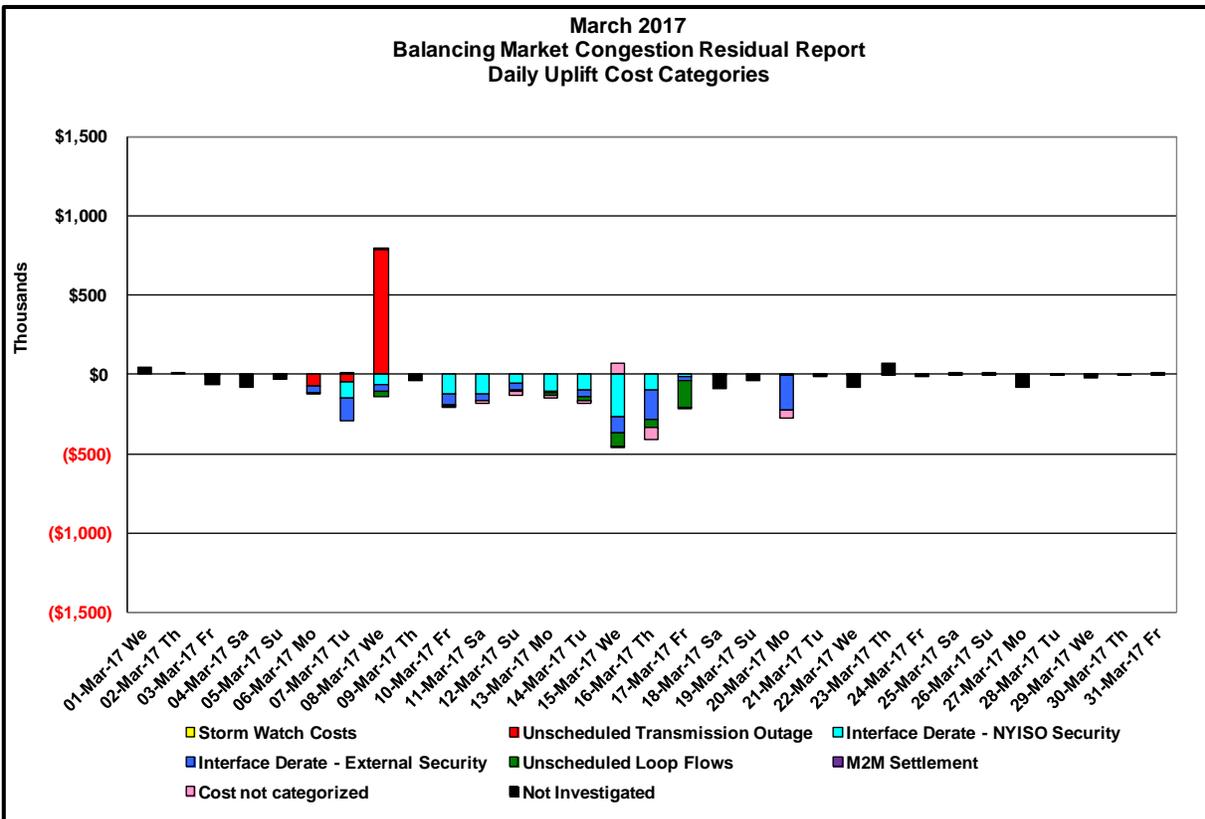
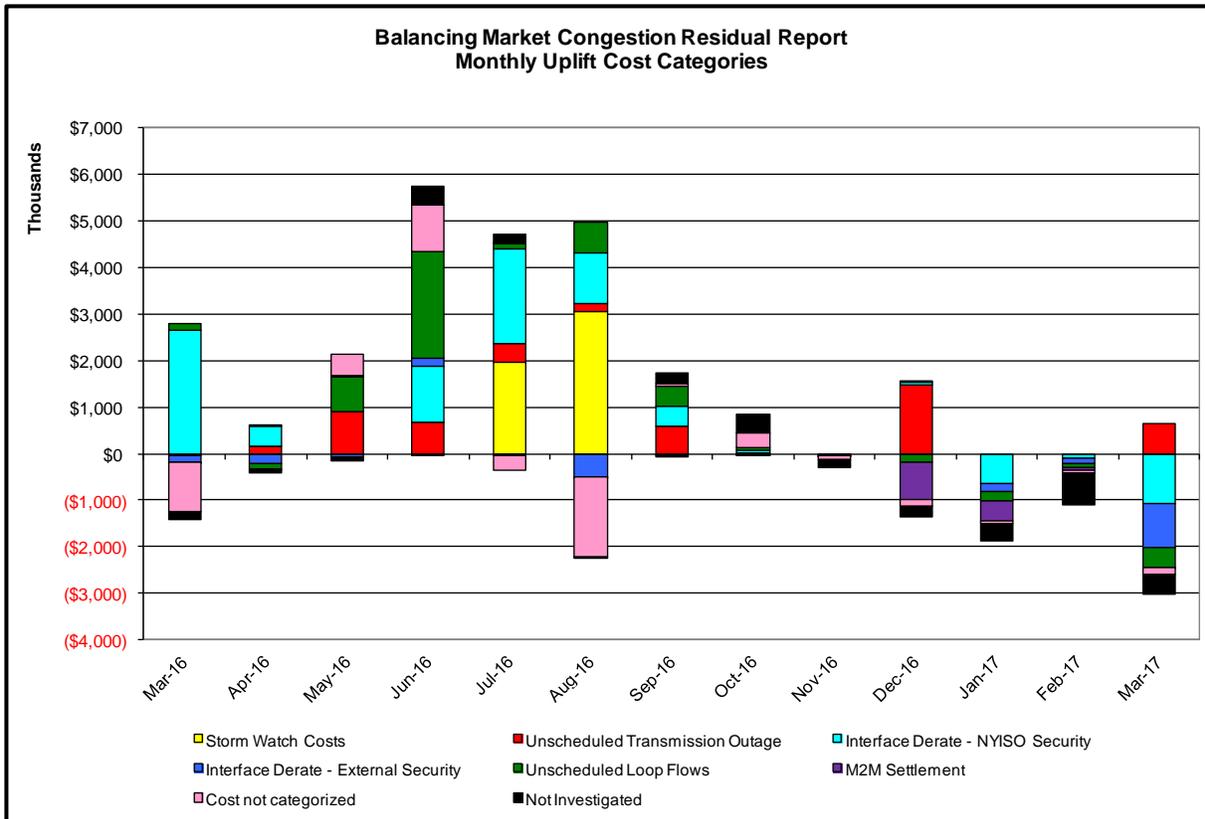
NYISO savings that result from PJM payments to NYISO when PJM's transmission use (PJM's market flow) is greater than PJM's entitlement of the NY transmission system and NYISO is incurring Western or Central NY congestion. Additionally, NYISO savings may result from the more efficient regional utilization of PJM's generation resources to directly address Western or Central NY transmission congestion.





### Market Performance Metrics





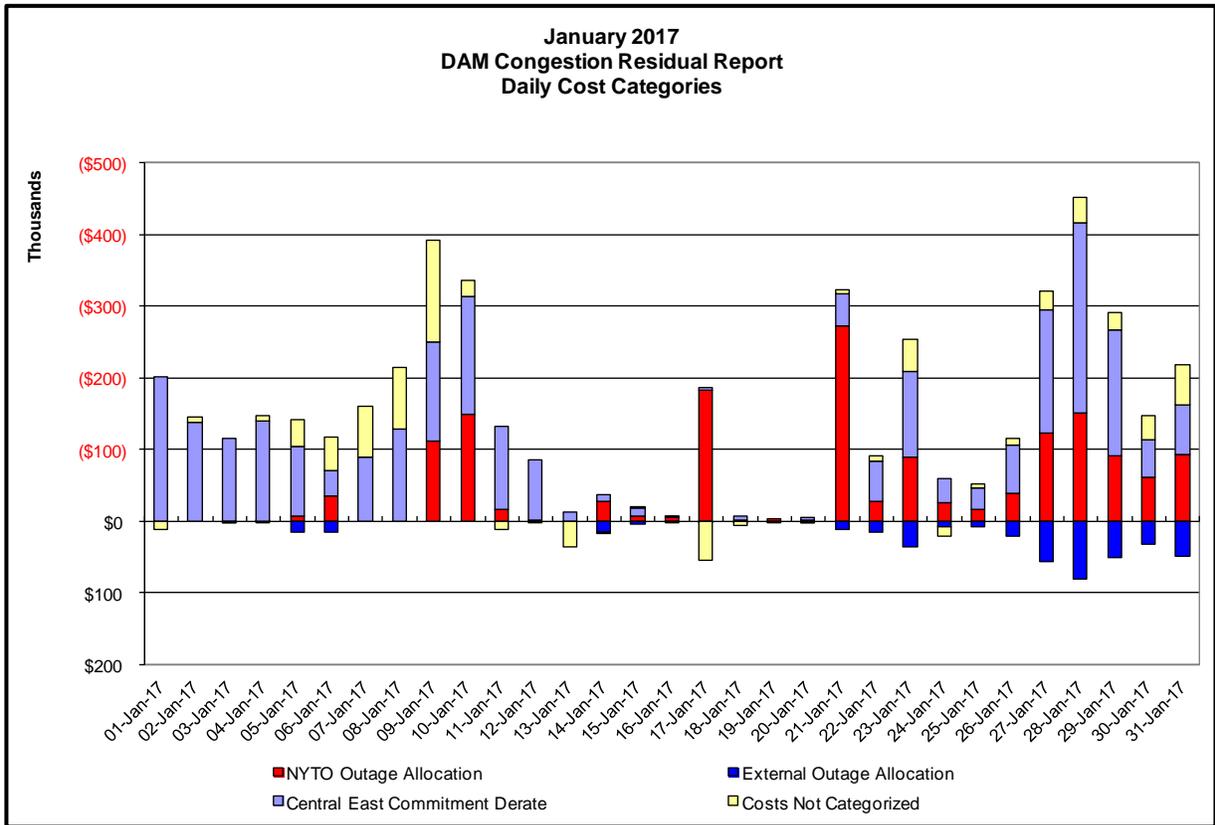
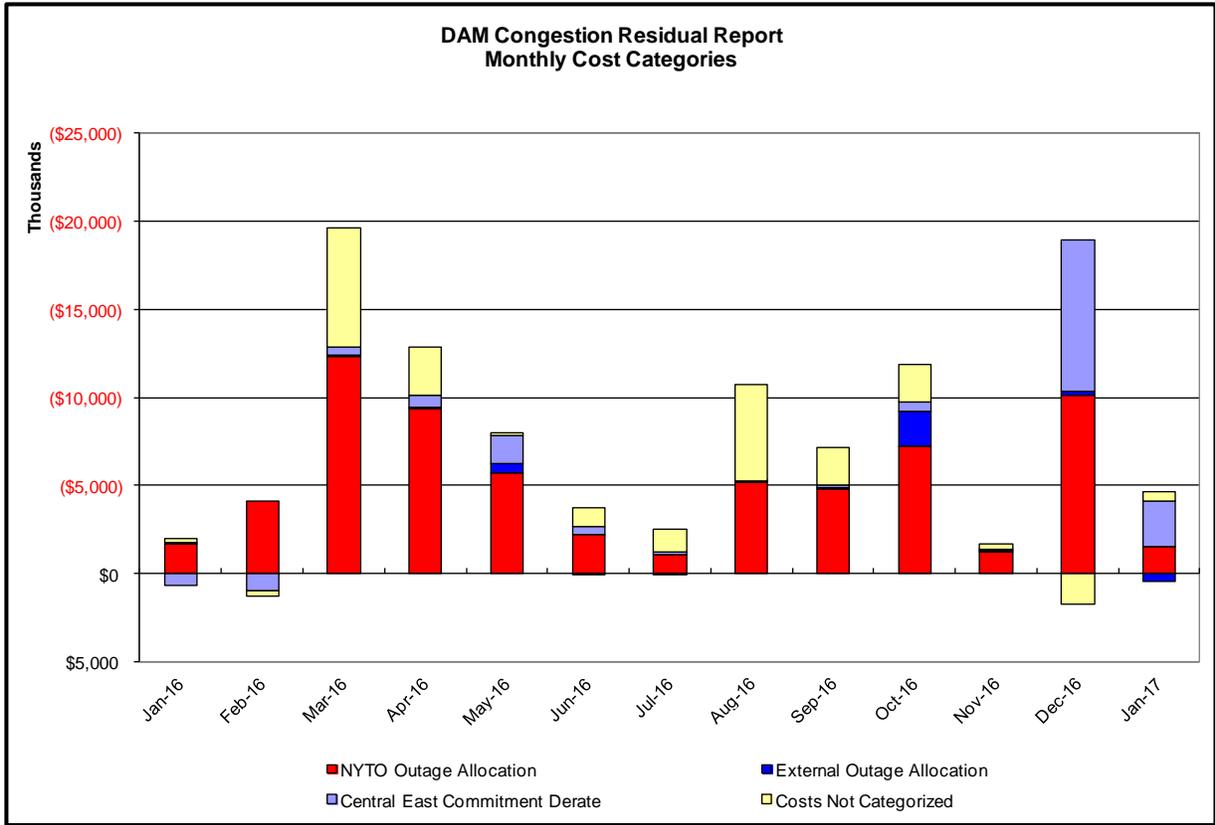
Day's investigated in March: 6,7,8,10,11,12,13,14,15,16,17,20			
Event	Date (yyyymmdd)	Hours	Description
	3/6/2017	20-23	Early return to service Edic - Fraser 345kV (#EF24-40)
	3/6/2017	20,21,23	NE_AC DNI Ramp Limit
	3/7/2017	0,1,5,7,8	Early return to service Edic - Fraser 345kV (#EF24-40)
	3/7/2017	7,12,14-20,23	Uprate Central East
	3/7/2017	19,20	NYCA DNI Ramp Limit
	3/7/2017	0,2,16-19,21-23	NE_AC DNI Ramp Limit
	3/8/2017	23	Early return to service Edic - Fraser 345kV (#EF24-40)
	3/8/2017	16,17	Forced outage West Wind Event for multiple line outages
	3/8/2017	0-4,8-11,13,23	Uprate Central East
	3/8/2017	14,16	Derate MottHaven-Dunwoodie 345kV (#71) for I/o MottHaven-Dunwoodie 345kV (#72)
	3/8/2017		IESO_AC-NY Scheduling Limit HB16:\$5k, HB17:\$774k]
	3/8/2017	0,3,4,9-11,23	NE_AC DNI Ramp Limit
	3/8/2017	0,1,9-11	Lake Erie Circulation, DAM-RTM exceeds +/-125MW; Central East
	3/8/2017	14	Lake Erie Circulation, DAM-RTM exceeds +/-125MW; Packard-Sawyer 230kV (#77)
	3/10/2017	13	NYCA DNI Ramp Limit
	3/10/2017	12-20,23	Uprate Central East
	3/10/2017	13,14,16-18,23	NE_AC DNI Ramp Limit
	3/10/2017	12,14	Lake Erie Circulation, DAM-RTM exceeds +/-125MW; Central East
	3/11/2017	23	NYCA DNI Ramp Limit
	3/11/2017	11-17,23	Uprate Central East
	3/11/2017	12,16,17,23	NE_AC DNI Ramp Limit
	3/11/2017	17	NE_AC-NY Scheduling Limit
	3/12/2017	23	NYCA DNI Ramp Limit
	3/12/2017	0,1,3,4,13-15	Uprate Central East
	3/12/2017	12-15	NE_AC-NY Scheduling Limit
	3/12/2017	4	HQ_CHAT-NY Scheduling Limit
	3/12/2017	0	PJM_AC DNI Ramp Limit
	3/12/2017	13,14	Lake Erie Circulation, DAM-RTM exceeds +/-125MW; Central East
	3/13/2017	1,22,23	Uprate Central East
	3/13/2017	6,7,23	NYCA DNI Ramp Limit
	3/13/2017	6,7,9,10	HQ_CHAT-NY Scheduling Limit
	3/13/2017	9,10	HQ_CEDARS-NY Scheduling Limit
	3/13/2017	1	NE_AC-NY Scheduling Limit
	3/13/2017	7,22,23	NE_AC DNI Ramp Limit
	3/13/2017	23	PJM_AC DNI Ramp Limit
	3/13/2017	1,23	Lake Erie Circulation, DAM-RTM exceeds +/-125MW; Central East
	3/14/2017	1,11,12,14,21,22	NYCA DNI Ramp Limit
	3/14/2017	0,1,3,11-16,19,21-23	Uprate Central East
	3/14/2017	0,1,11,14	NE_AC DNI Ramp Limit
	3/14/2017	22	PJM_AC DNI Ramp Limit
	3/14/2017	3,11-12,15,21	Lake Erie Circulation, DAM-RTM exceeds +/-125MW; Central East
	3/15/2017	0-4,9-23	Uprate Central East
	3/15/2017	9,10	NYCA DNI Ramp Limit
	3/15/2017	4,15-23	NE_AC DNI Ramp Limit
	3/15/2017	9	PJM_AC Scheduling Limit
	3/15/2017	8,16	PJM_AC DNI Ramp Limit
	3/15/2017	4,9,10,14,17,18,21,23	Lake Erie Circulation, DAM-RTM exceeds +/-125MW; Central East
	3/16/2017	0,1,4,6,7,15-17,23	Uprate Central East
	3/16/2017	8	NYCA DNI Ramp Limit
	3/16/2017	0-2,6-9,18-20,22	NE_AC DNI Ramp Limit
	3/16/2017	17,23	PJM_AC DNI Ramp Limit
	3/16/2017	1-3,6,11,16	Lake Erie Circulation, DAM-RTM exceeds +/-125MW; Central East
	3/17/2017	23	NYCA DNI Ramp Limit
	3/17/2017	4-6,23	Uprate Central East
	3/17/2017	0,1,5,6,19,21-23	NE_AC DNI Ramp Limit
	3/17/2017	0,23	PJM_AC DNI Ramp Limit
	3/17/2017	1-6,11-19,21-23	Lake Erie Circulation, DAM-RTM exceeds +/-125MW; Central East
	3/20/2017	23	NYCA DNI Ramp Limit
	3/20/2017	13-15,23	NE_AC-NY Scheduling Limit
	3/20/2017	15	PJM_AC DNI Ramp Limit

**Real-Time Balancing Market Congestion Residual (Uplift Cost) Categories**

<u>Category</u>	<u>Cost Assignment</u>	<u>Events Types</u>	<u>Event Examples</u>
Storm Watch	Zone J	Thunderstorm Alert (TSA)	TSA Activations
Unscheduled Transmission Outage	Market-wide	Reduction in DAM to RTM transfers related to unscheduled transmission outage	Forced Line Outage, Unit AVR Outages
Interface Derate - NYISO Security	Market-wide	Reduction in DAM to RTM transfers not related to transmission outage	Interface Derates due to RTM voltages
Interface Derate - External Security	Market-wide	Reduction in DAM to RTM transfers related to External Control Area Security Events	TLR Events, External Transaction Curtailments
Unscheduled Loop Flows	Market-wide	Changes in DAM to RTM unscheduled loop flows impacting NYISO Interface transmission constraints	DAM to RTM Lake Erie Loop Flows exceeding +/- 125 MW
M2M Settlement	Market-wide	Settlement result inclusive of coordinated redispatch and Ramapo flowgates	

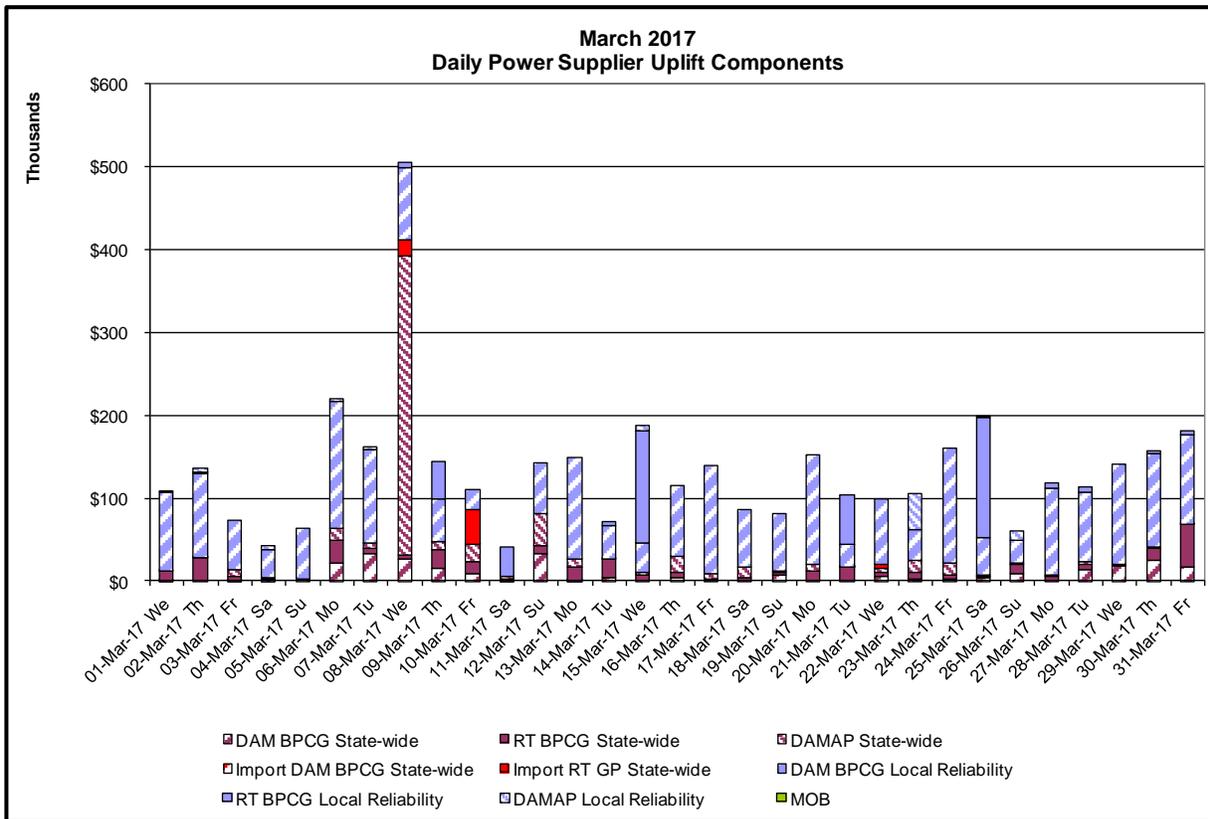
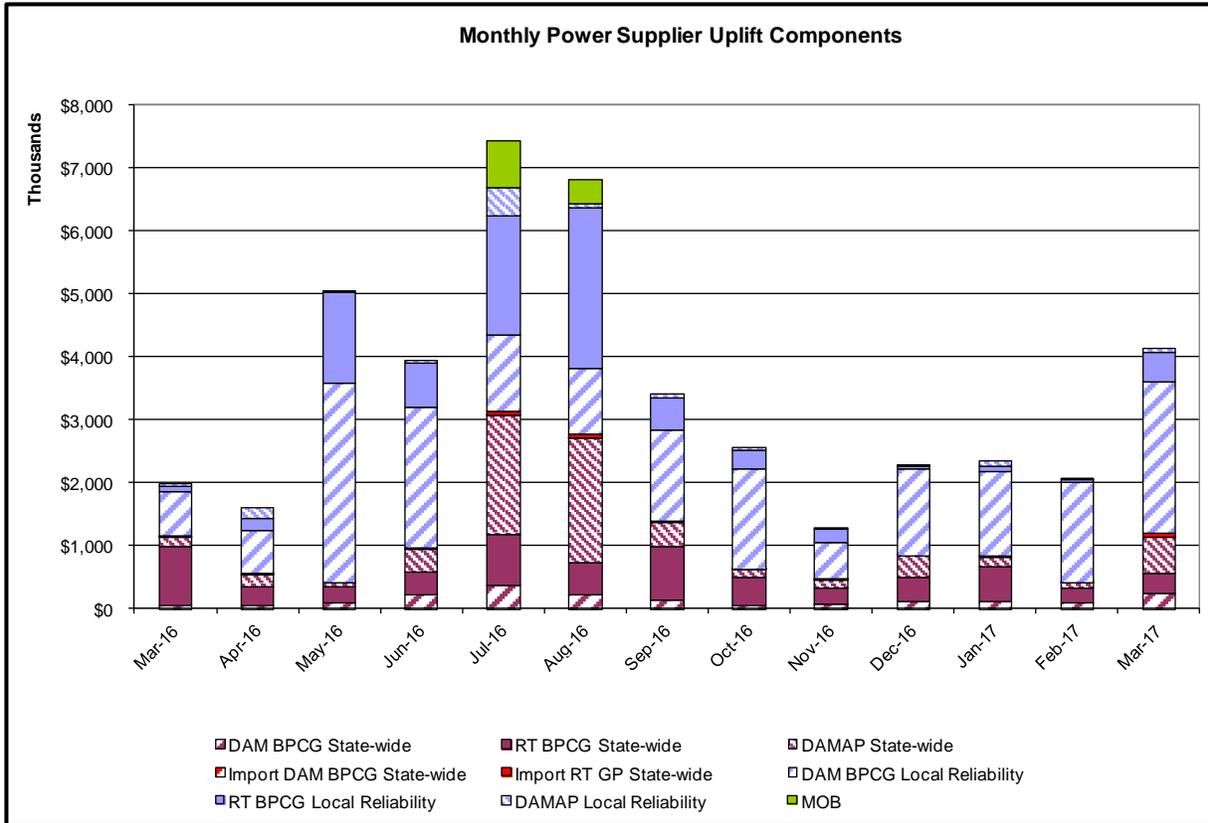
**Monthly Balancing Market Congestion Report Assumptions/Notes**

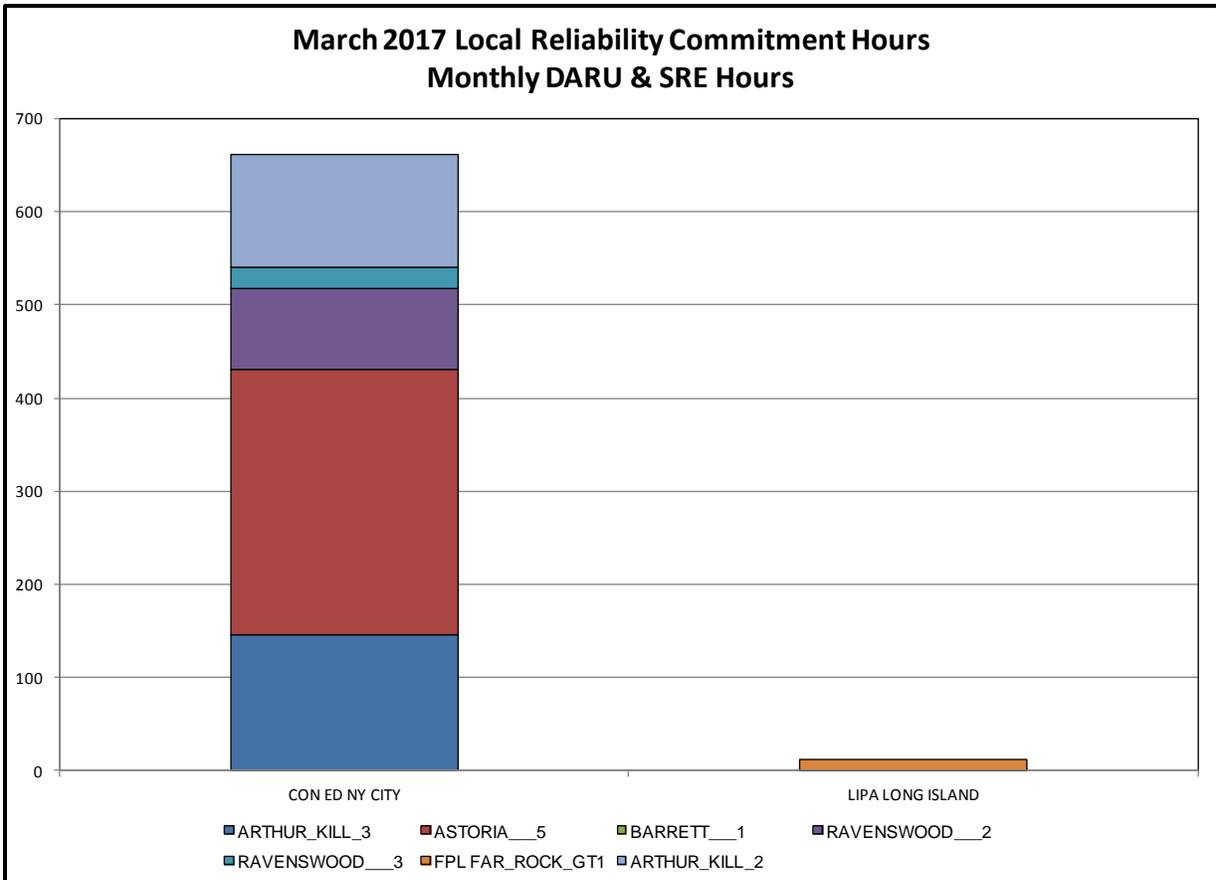
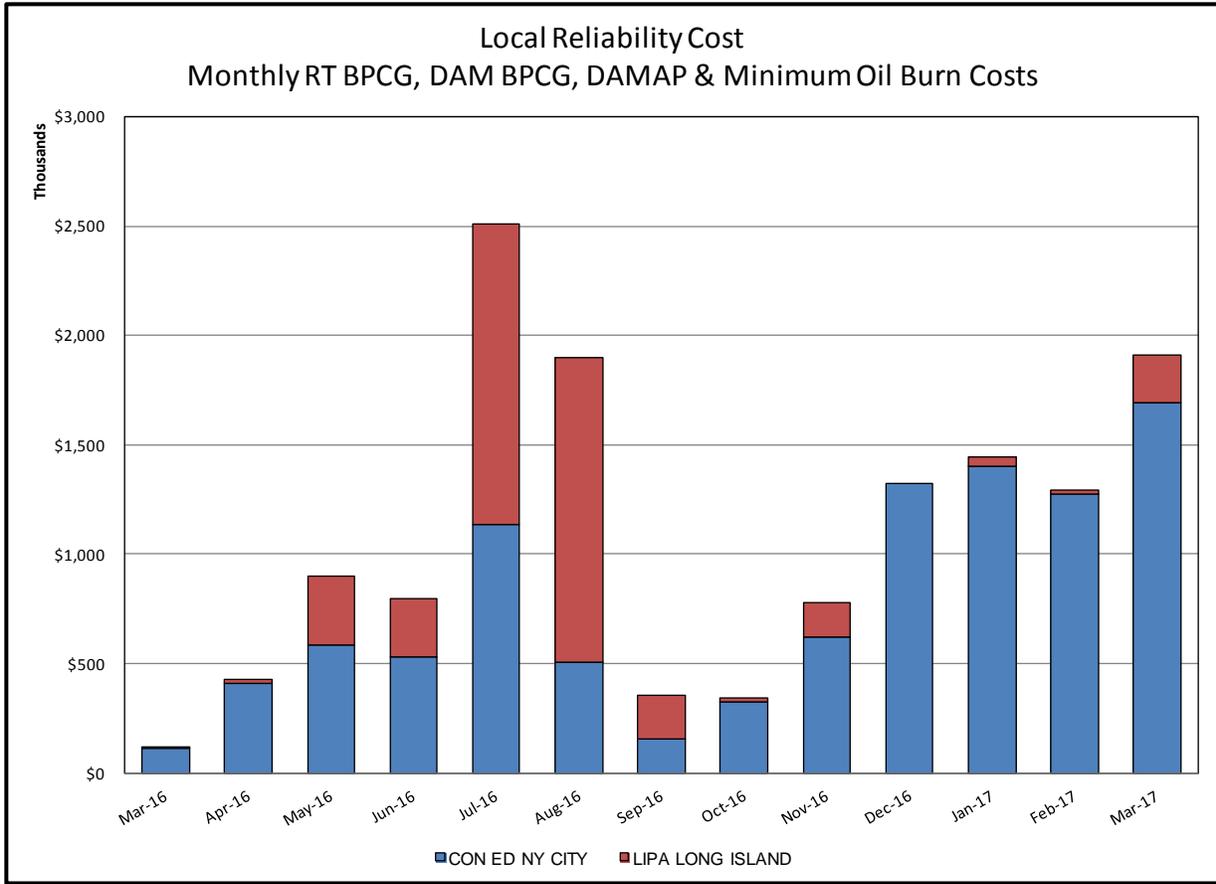
- 1) Storm Watch Costs are identified as daily total uplift costs
- 2) Days with a value of BMCR less M2M Settlement of \$100K/HR, shortfall of \$200K/Day or more, or surplus of \$100K/Day or more are investigated.
- 3) Uplift costs associated with multiple event types are apportioned equally by hour

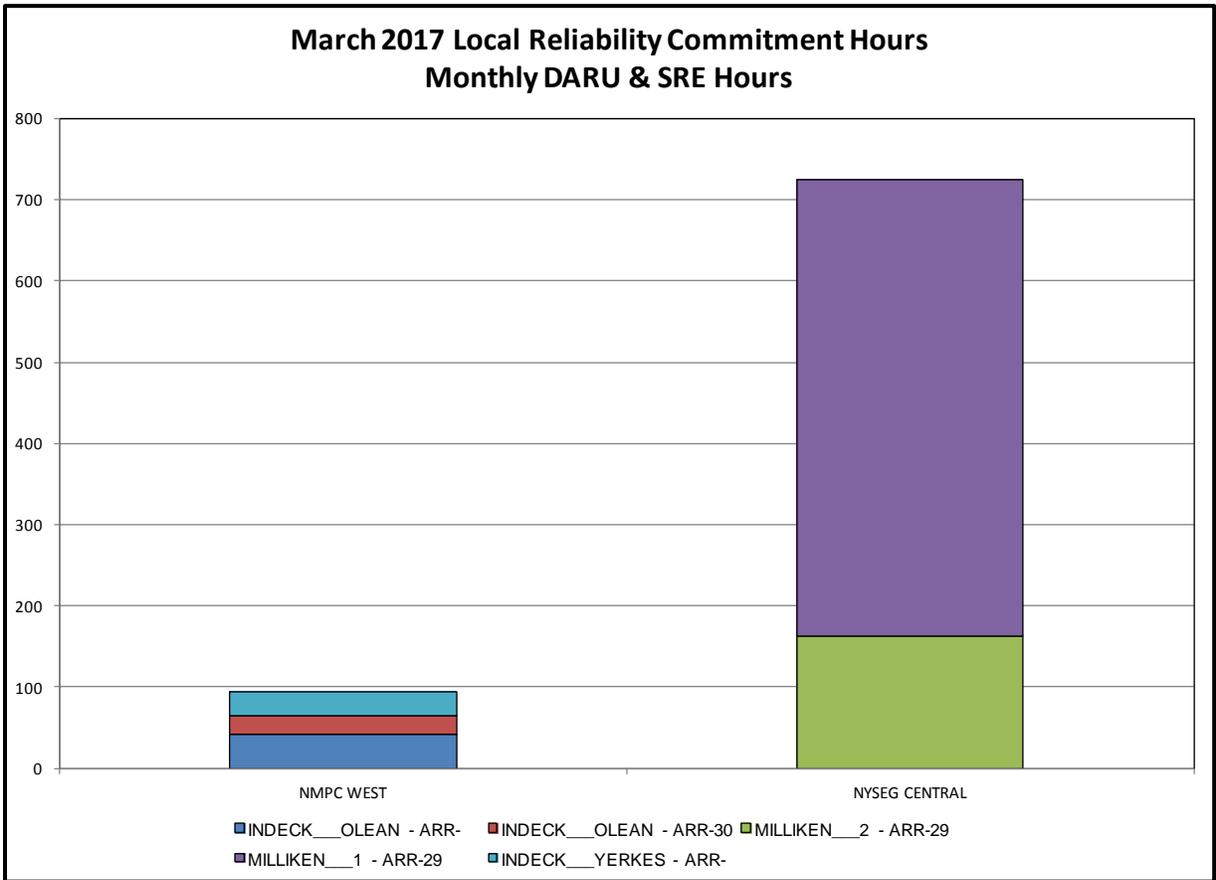
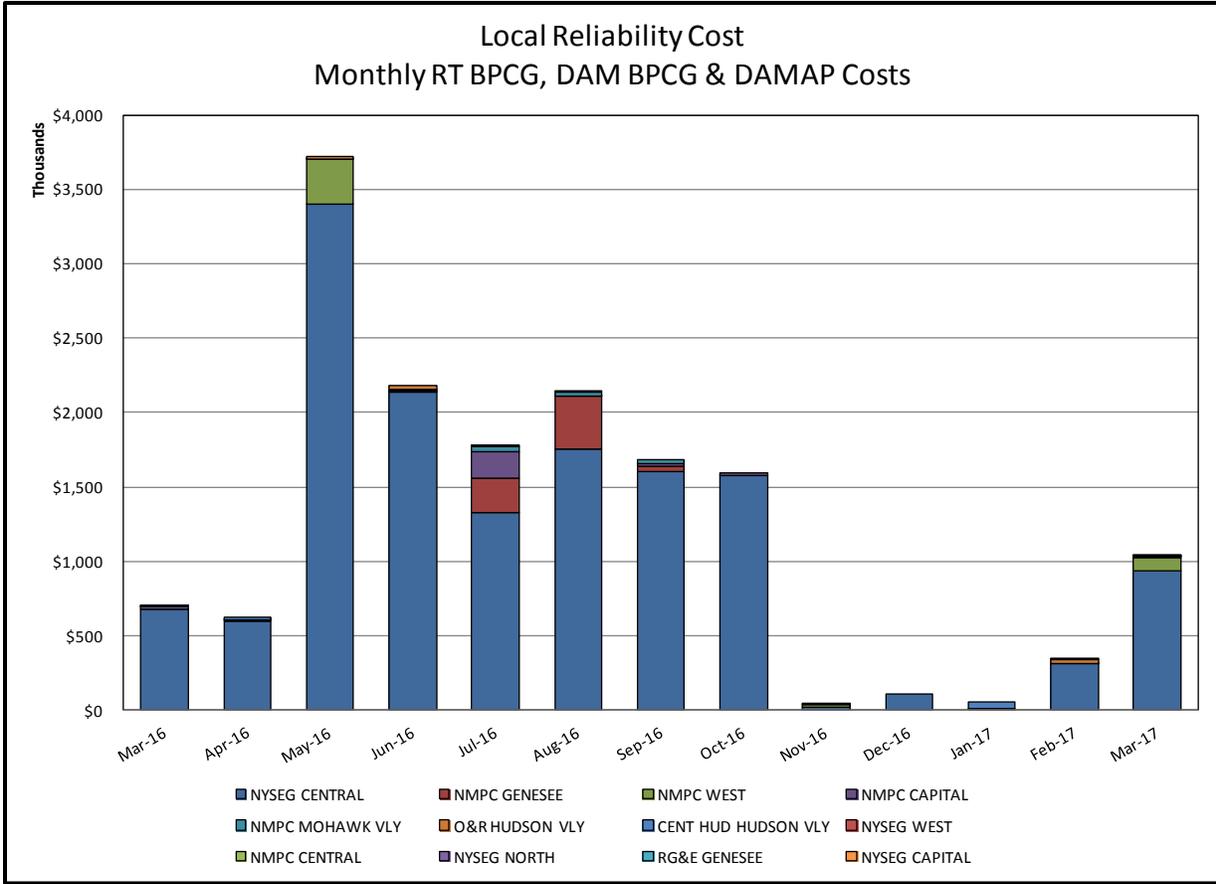


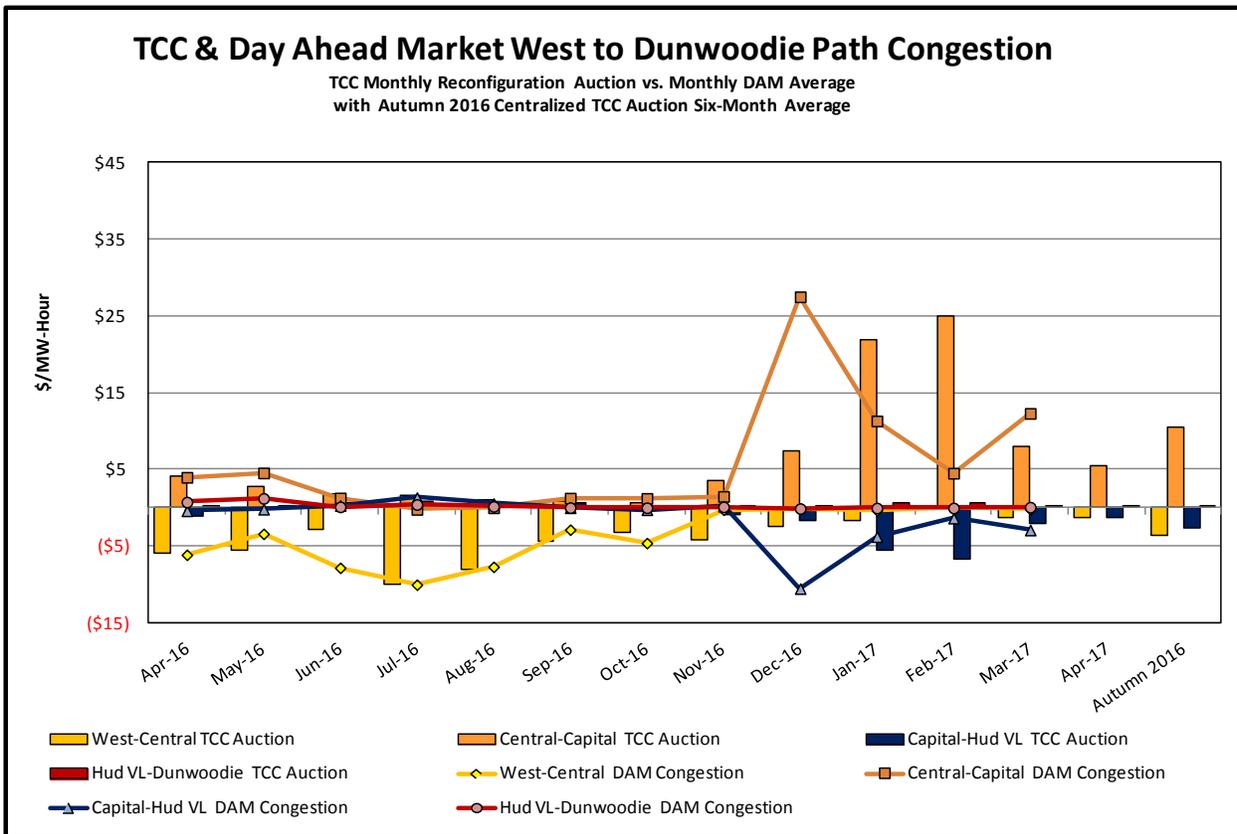
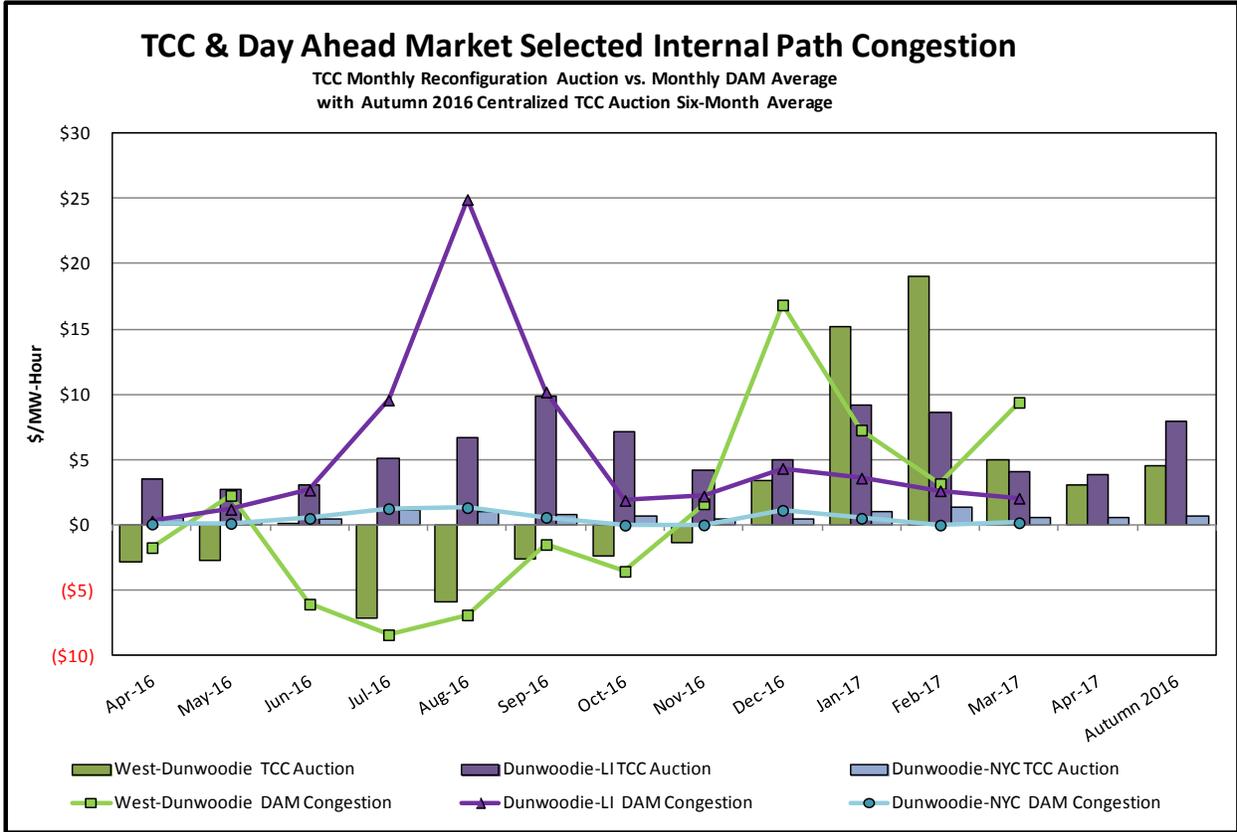
**Day-Ahead Market Congestion Residual Categories**

<u>Category</u>	<u>Cost Assignment</u>	<u>Events Types</u>	<u>Event Examples</u>
NYTO Outage Allocation	Responsible TO	Direct allocation to NYTO's responsible for transmission equipment status change.	DAM scheduled outage for equipment modeled in-service for the TCC Auction.
External Outage Allocation	All TO by Monthly Allocation Factor	Direct allocation to transmission equipment status change caused by change in status of external equipment.	Tie line required out-of-service by TO of neighboring control area.
Central East Commitment Derate	All TO by Monthly Allocation Factor	Reductions in the DAM Central East_VC limit as compared to the TCC Auction limit, which are not associated with transmission line outages.	



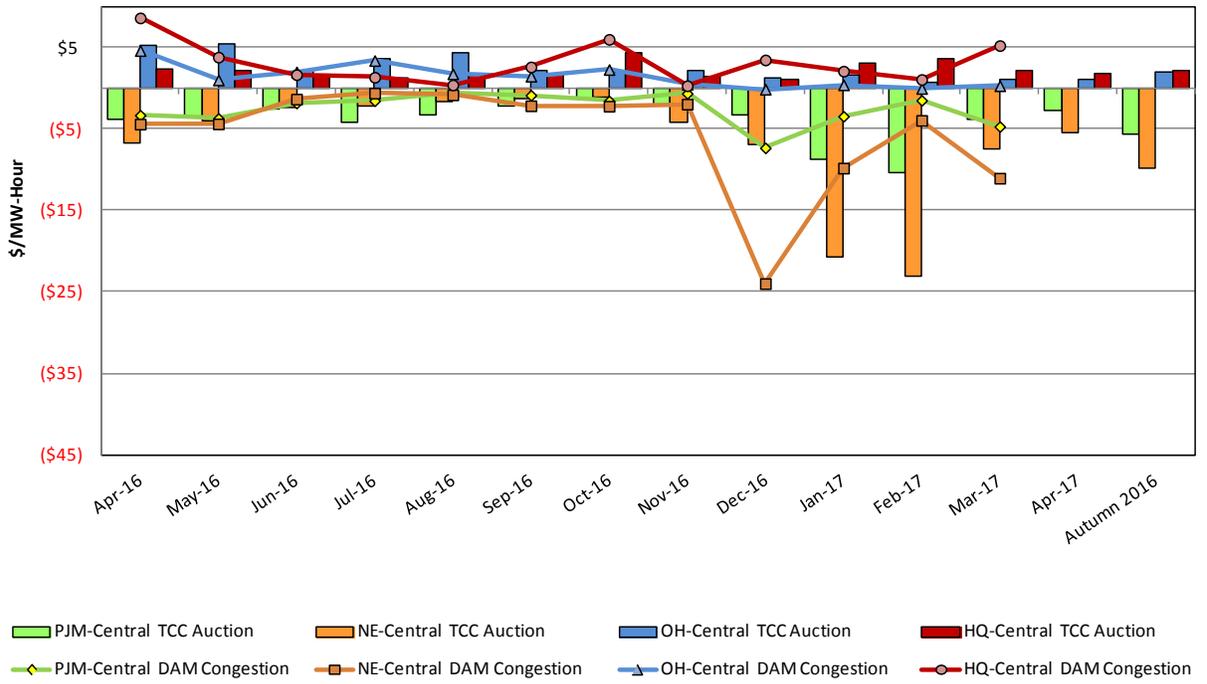


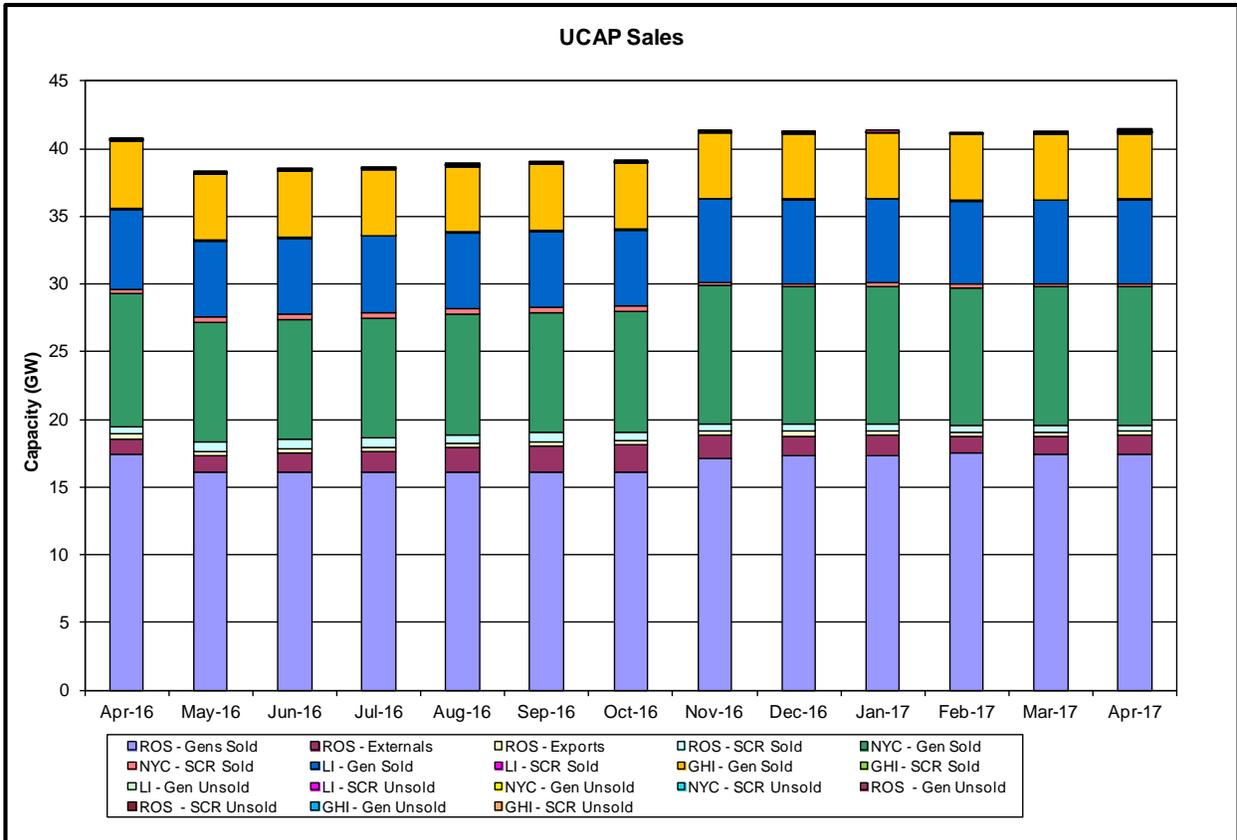
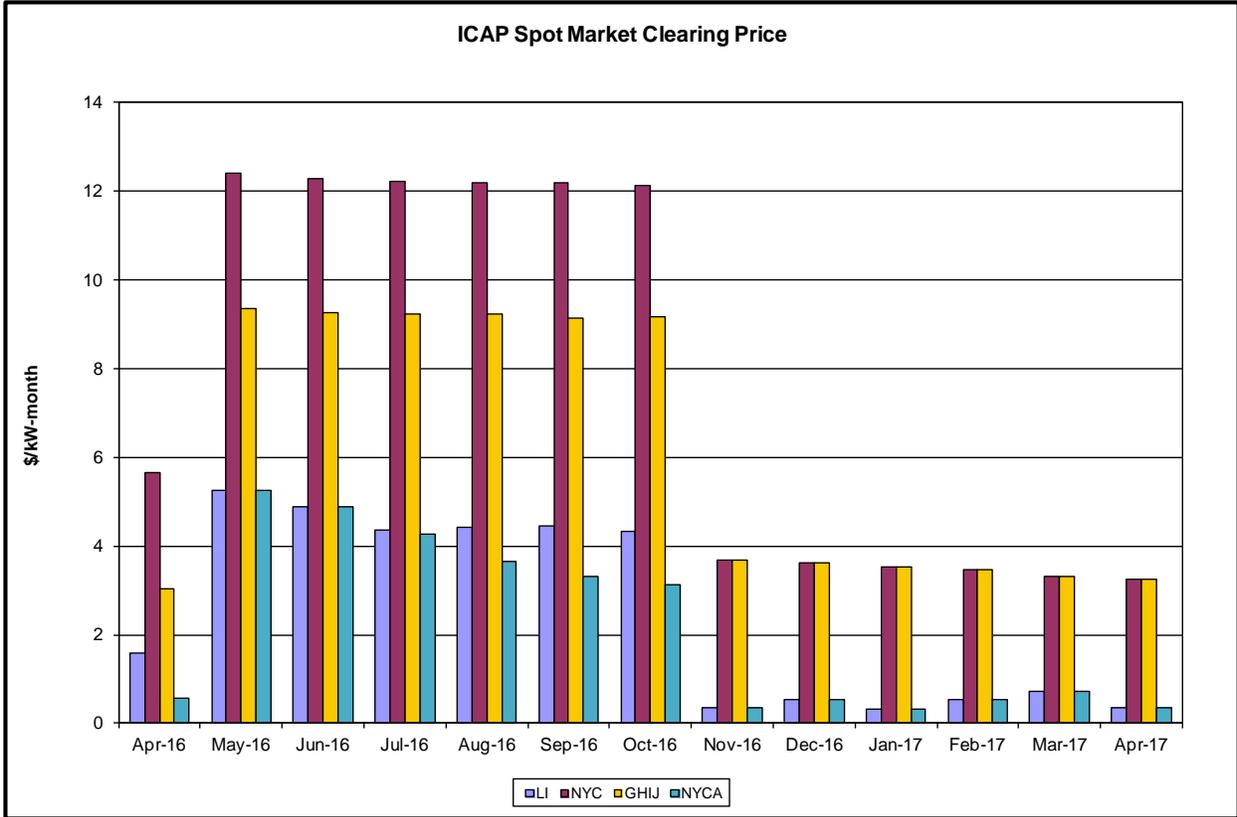




### TCC & Day Ahead Market Selected External Path Congestion

TCC Monthly Reconfiguration Auction vs. Monthly DAM Average  
with Autumn 2016 Centralized TCC Auction Six-Month Average



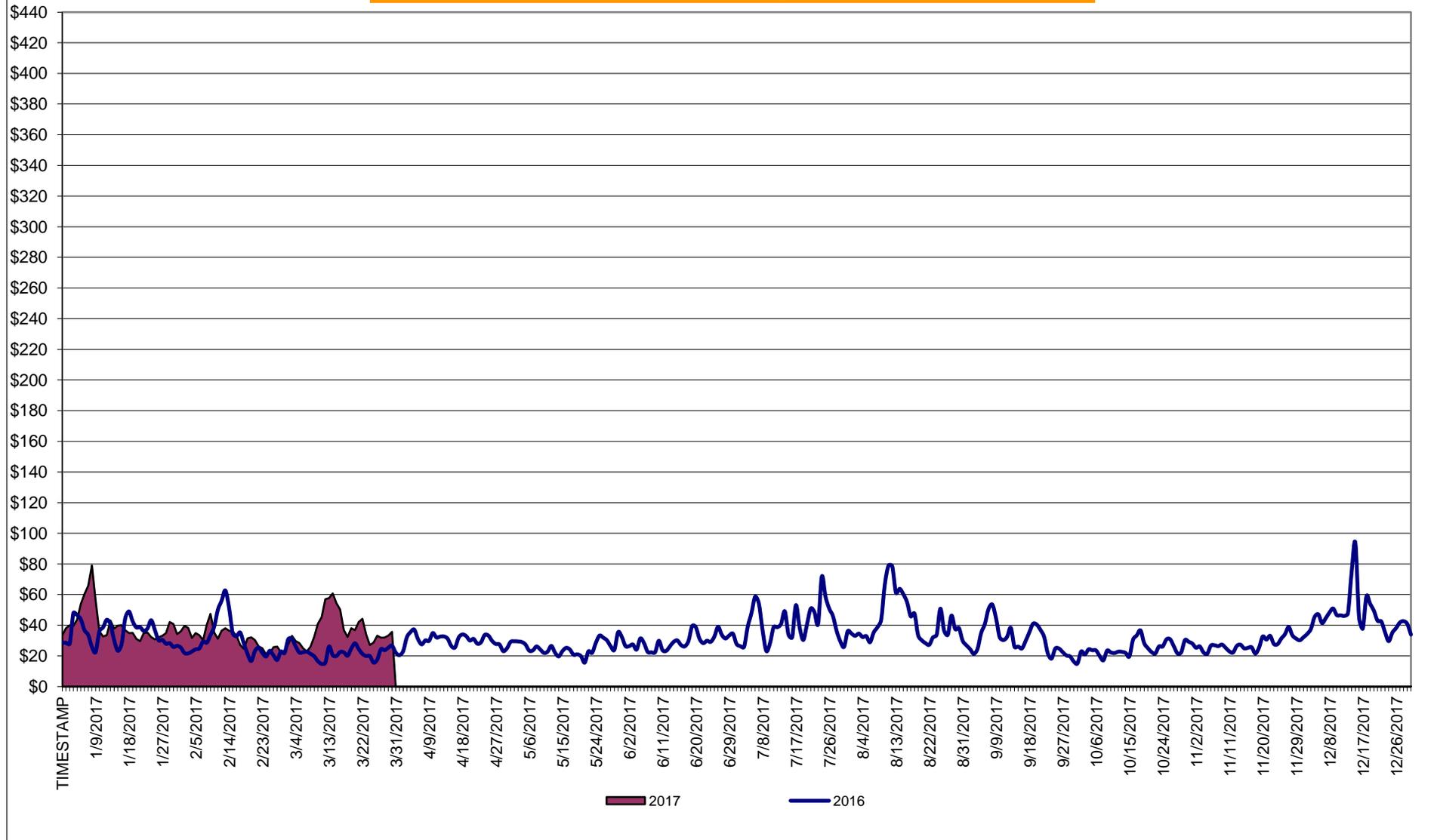


# Market Performance Highlights

## March 2017

- LBMP for March is \$34.97/MWh; higher than \$30.95/MWh in February 2017 and \$20.66/MWh in March 2016.
  - Day Ahead and Real Time Load Weighted LBMPs are higher compared to February.
- March 2017 average year-to-date monthly cost of \$37.81/MWh is a 23% increase from \$30.68/MWh in March 2016.
- Average daily sendout is 419 GWh/day in March; higher than 418 GWh/day in February 2017 and 397 GWh/day in March 2016.
- Natural gas prices were higher and distillate prices were lower compared to the previous month.
  - Natural Gas (Transco Z6 NY) was \$3.49/MMBtu, up from \$2.83/MMBtu in February.
    - Monthly average was driven up by five days of cold weather in March
  - Natural gas prices are up 169.4% year-over-year.
  - Jet Kerosene Gulf Coast was \$10.69/MMBtu, down from \$11.48/MMBtu in February.
  - Ultra Low Sulfur No.2 Diesel NY Harbor was \$10.90/MMBtu, down from \$11.63/MMBtu in February.
  - Distillate prices are up 31% year-over-year.
- Uplift per MWh is higher compared to the previous month.
  - Uplift (not including NYISO cost of operations) is (\$0.46)/MWh; higher than (\$0.54)/MWh in February.
    - Local Reliability Share is \$0.21/MWh, higher than \$0.13/MWh in February.
    - Statewide Share is (\$0.67)/MWh, unchanged from (\$0.67)/MWh in February.
  - TSA \$ per NYC MWh is \$0.00/MWh.
  - Total uplift costs (Schedule 1 components including NYISO Cost of Operations) are higher than February.

**Daily NYISO Average Cost/MWh (Energy & Ancillary Services)\***  
**2016 Annual Average \$34.28/MWh**  
**March 2016 YTD Average \$30.68/MWh**  
**March 2017 YTD Average \$37.81/MWh**



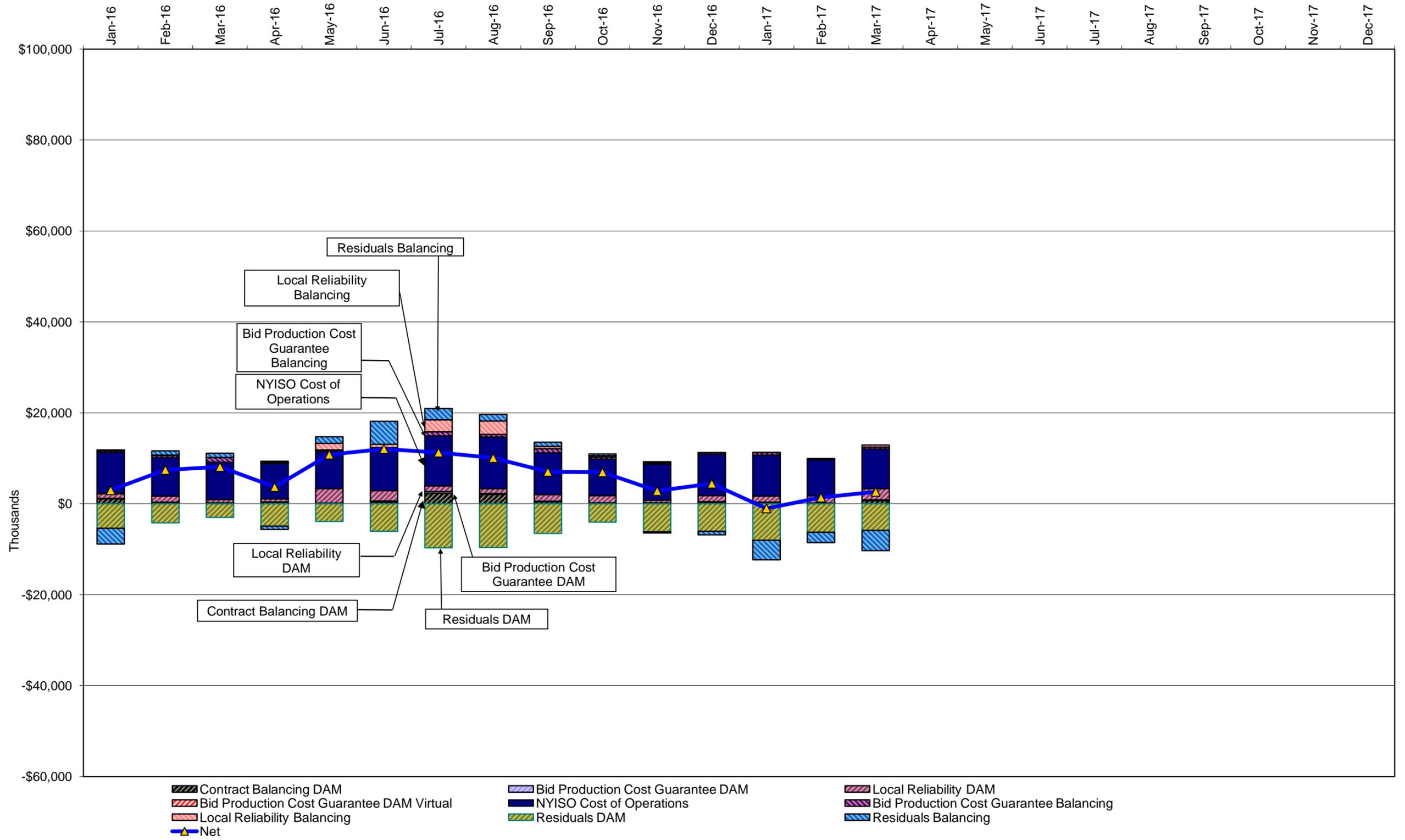
\* Excludes ICAP payments.

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

<b>2017</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	40.07	30.95	34.97									
NTAC	0.66	1.11	0.86									
Reserve	0.70	0.67	0.74									
Regulation	0.14	0.12	0.13									
NYISO Cost of Operations	0.65	0.65	0.65									
FERC Fee Recovery	0.09	0.10	0.10									
Uplift	(0.73)	(0.54)	(0.46)									
Uplift: Local Reliability Share	0.10	0.13	0.21									
Uplift: Statewide Share	(0.83)	(0.67)	(0.67)									
Voltage Support and Black Start	0.37	0.37	0.38									
<b>Avg Monthly Cost</b>	<b>41.96</b>	<b>33.44</b>	<b>37.38</b>									
Avg YTD Cost	41.96	38.02	37.81									
TSA \$ per NYC MWh	0.00	0.00	0.00									
<b>2016</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	34.29	28.71	20.66	27.96	23.31	27.35	40.01	42.99	30.89	22.33	26.31	43.90
NTAC	0.59	0.78	0.62	1.14	1.10	0.93	0.78	0.54	0.55	0.86	0.79	0.97
Reserve	0.77	0.73	0.73	0.87	0.71	0.59	0.67	0.68	0.69	0.77	0.68	0.63
Regulation	0.12	0.12	0.12	0.12	0.11	0.12	0.10	0.10	0.10	0.15	0.13	0.17
NYISO Cost of Operations	0.64	0.65	0.65	0.64	0.65	0.66	0.65	0.65	0.64	0.64	0.64	0.64
FERC Fee Recovery	0.09	0.10	0.11	0.10	0.09	0.09	0.07	0.06	0.08	0.10	0.10	0.08
Uplift	(0.43)	(0.07)	(0.03)	(0.34)	0.19	0.20	(0.26)	(0.63)	(0.15)	(0.09)	(0.42)	(0.33)
Uplift: Local Reliability Share	0.09	0.11	0.06	0.07	0.35	0.21	0.23	0.22	0.14	0.15	0.07	0.10
Uplift: Statewide Share	(0.52)	(0.18)	(0.09)	(0.41)	(0.16)	(0.01)	(0.49)	(0.86)	(0.29)	(0.24)	(0.49)	(0.43)
Voltage Support and Black Start	0.35	0.36	0.36	0.35	0.36	0.36	0.36	0.36	0.36	0.36	0.36	0.35
<b>Avg Monthly Cost</b>	<b>36.42</b>	<b>31.37</b>	<b>23.23</b>	<b>30.84</b>	<b>26.52</b>	<b>30.29</b>	<b>42.40</b>	<b>44.75</b>	<b>33.16</b>	<b>25.12</b>	<b>28.61</b>	<b>46.42</b>
Avg YTD Cost	36.42	34.02	30.68	30.71	29.85	29.93	32.32	34.43	34.31	33.54	33.16	34.28
TSA \$ per NYC MWh	0.00	0.00	0.05	0.00	0.00	0.02	0.84	1.64	0.00	0.00	0.00	0.00
<b>2015</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	59.61	114.37	52.09	28.36	32.98	28.20	34.77	33.09	34.40	30.05	24.83	20.91
NTAC	0.32	0.35	0.41	0.64	0.56	0.80	0.54	0.60	0.63	0.53	0.68	1.05
Reserve	0.27	0.37	0.56	0.36	0.38	0.24	0.27	0.20	0.28	0.28	0.47	0.60
Regulation	0.10	0.18	0.11	0.12	0.10	0.13	0.12	0.12	0.10	0.12	0.13	0.13
NYISO Cost of Operations	0.70	0.70	0.70	0.70	0.70	0.70	0.70	0.70	0.70	0.69	0.70	0.69
Uplift	(0.48)	(1.08)	(0.68)	(0.15)	0.26	0.33	0.04	0.03	(0.15)	0.10	0.44	(0.07)
Uplift: Local Reliability Share	0.25	0.33	0.13	0.27	0.30	0.37	0.35	0.36	0.22	0.33	0.20	0.12
Uplift: Statewide Share	(0.73)	(1.41)	(0.81)	(0.42)	(0.05)	(0.04)	(0.30)	(0.33)	(0.37)	(0.23)	0.25	(0.18)
Voltage Support and Black Start	0.39	0.39	0.39	0.39	0.39	0.39	0.39	0.39	0.39	0.39	0.39	0.38
<b>Avg Monthly Cost</b>	<b>60.91</b>	<b>115.27</b>	<b>53.58</b>	<b>30.41</b>	<b>35.37</b>	<b>30.79</b>	<b>36.84</b>	<b>35.14</b>	<b>36.35</b>	<b>32.18</b>	<b>27.64</b>	<b>23.71</b>
Avg YTD Cost	60.91	87.74	76.64	66.82	60.96	56.02	52.77	50.20	48.59	47.17	45.66	44.10
TSA \$ per NYC MWh	0.00	0.00	0.00	0.00	0.17	0.50	0.07	0.06	0.01	0.00	0.00	0.00

\* Excludes ICAP payments.  
Market Mitigation and Analysis  
Prepared: 4/7/2017 10:28 AM

## NYISO Dollar Flows - Uplift - OATT Schedule 1 components - Data through March 31, 2017



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>2017</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>	14,135,019	12,565,206	13,983,865									
DAM LSE Internal LBMP Energy Sales	57%	57%	55%									
DAM External TC LBMP Energy Sales	2%	2%	1%									
DAM Bilateral - Internal Bilaterals	32%	32%	34%									
DAM Bilateral - Import/Non-LBMP Market Bilaterals	5%	5%	5%									
DAM Bilateral - Export/Non-LBMP Market Bilaterals	2%	2%	2%									
DAM Bilateral - Wheel Through Bilaterals	2%	2%	2%									
<b>Balancing Energy Market MWh</b>	-256,448	-407,284	-509,053									
Balancing Energy LSE Internal LBMP Energy Sales	-157%	-132%	-148%									
Balancing Energy External TC LBMP Energy Sales	64%	39%	44%									
Balancing Energy Bilateral - Internal Bilaterals	15%	8%	12%									
Balancing Energy Bilateral - Import/Non-LBMP Market Bilaterals	0%	4%	0%									
Balancing Energy Bilateral - Export/Non-LBMP Market Bilaterals	10%	7%	5%									
Balancing Energy Bilateral - Wheel Through Bilaterals	-32%	-26%	-13%									
<b>Transactions Summary</b>												
LBMP	58%	57%	55%									
Internal Bilaterals	33%	34%	36%									
Import Bilaterals	5%	5%	5%									
Export Bilaterals	2%	2%	2%									
Wheels Through	2%	2%	2%									
<b>Market Share of Total Load</b>												
Day Ahead Market	101.8%	103.3%	103.8%									
Balancing Energy +	-1.8%	-3.3%	-3.8%									
Total MWh	13,878,571	12,157,922	13,474,812									
Average Daily Energy Sendout/Month GWh	431	418	419									

<b>2016</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>	14,760,915	13,614,754	13,413,781	12,496,141	12,959,886	14,095,904	16,950,819	17,413,898	14,563,318	13,014,354	12,770,775	14,245,185
DAM LSE Internal LBMP Energy Sales	54%	55%	55%	57%	58%	60%	64%	63%	60%	56%	56%	58%
DAM External TC LBMP Energy Sales	4%	2%	1%	5%	2%	1%	1%	3%	3%	2%	2%	3%
DAM Bilateral - Internal Bilaterals	34%	34%	35%	28%	31%	30%	28%	27%	30%	33%	32%	31%
DAM Bilateral - Import/Non-LBMP Market Bilaterals	5%	5%	5%	6%	5%	5%	4%	4%	5%	5%	5%	5%
DAM Bilateral - Export/Non-LBMP Market Bilaterals	2%	1%	2%	2%	2%	2%	1%	1%	1%	2%	2%	2%
DAM Bilateral - Wheel Through Bilaterals	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	3%	2%
<b>Balancing Energy Market MWh</b>	-522,919	-580,900	-741,701	-303,313	-180,848	-143,015	-86,025	224,316	-250,802	-477,109	-394,575	-127,836
Balancing Energy LSE Internal LBMP Energy Sales	-125%	-114%	-118%	-76%	-147%	-203%	-347%	42%	-139%	-111%	-102%	-269%
Balancing Energy External TC LBMP Energy Sales	12%	13%	19%	-13%	55%	77%	204%	56%	49%	21%	28%	138%
Balancing Energy Bilateral - Internal Bilaterals	19%	9%	4%	8%	27%	47%	62%	28%	18%	6%	9%	65%
Balancing Energy Bilateral - Import/Non-LBMP Market Bilaterals	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	4%
Balancing Energy Bilateral - Export/Non-LBMP Market Bilaterals	6%	5%	3%	5%	7%	10%	15%	5%	5%	4%	6%	27%
Balancing Energy Bilateral - Wheel Through Bilaterals	-12%	-12%	-8%	-24%	-42%	-32%	-34%	-31%	-32%	-21%	-40%	-66%
<b>Transactions Summary</b>												
LBMP	56%	56%	54%	62%	59%	61%	65%	66%	62%	57%	57%	60%
Internal Bilaterals	36%	36%	37%	29%	32%	31%	28%	27%	30%	35%	34%	32%
Import Bilaterals	5%	5%	6%	6%	5%	5%	4%	4%	5%	5%	6%	5%
Export Bilaterals	2%	2%	2%	2%	2%	2%	1%	1%	1%	2%	2%	2%
Wheels Through	1%	1%	1%	1%	2%	2%	1%	1%	2%	1%	2%	2%
<b>Market Share of Total Load</b>												
Day Ahead Market	103.7%	104.5%	105.9%	102.5%	101.4%	101.0%	100.5%	98.7%	101.8%	103.8%	103.2%	100.9%
Balancing Energy +	-3.7%	-4.5%	-5.9%	-2.5%	-1.4%	-1.0%	-0.5%	1.3%	-1.8%	-3.8%	-3.2%	-0.9%
Total MWh	14,237,996	13,033,853	12,672,080	12,192,828	12,779,038	13,952,889	16,864,794	17,638,213	14,312,516	12,537,245	12,376,200	14,117,349
Average Daily Energy Sendout/Month GWh	439	436	397	385	397	456	532	548	458	391	398	433

+ 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 2017 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 *	\$37.22	\$28.84	\$32.04									
Standard Deviation	\$13.20	\$7.97	\$11.95									
Load Weighted Price **	\$38.42	\$29.66	\$32.96									
<b><u>RTC LBMP</u></b>												
Price *	\$32.87	\$24.09	\$28.86									
Standard Deviation	\$14.57	\$9.52	\$13.70									
Load Weighted Price **	\$33.96	\$24.81	\$29.67									
<b><u>REAL TIME LBMP</u></b>												
Price *	\$34.61	\$25.14	\$31.21									
Standard Deviation	\$18.20	\$14.21	\$25.02									
Load Weighted Price **	\$35.80	\$25.84	\$32.21									
Average Daily Energy Sendout/Month GWh	431	418	419									

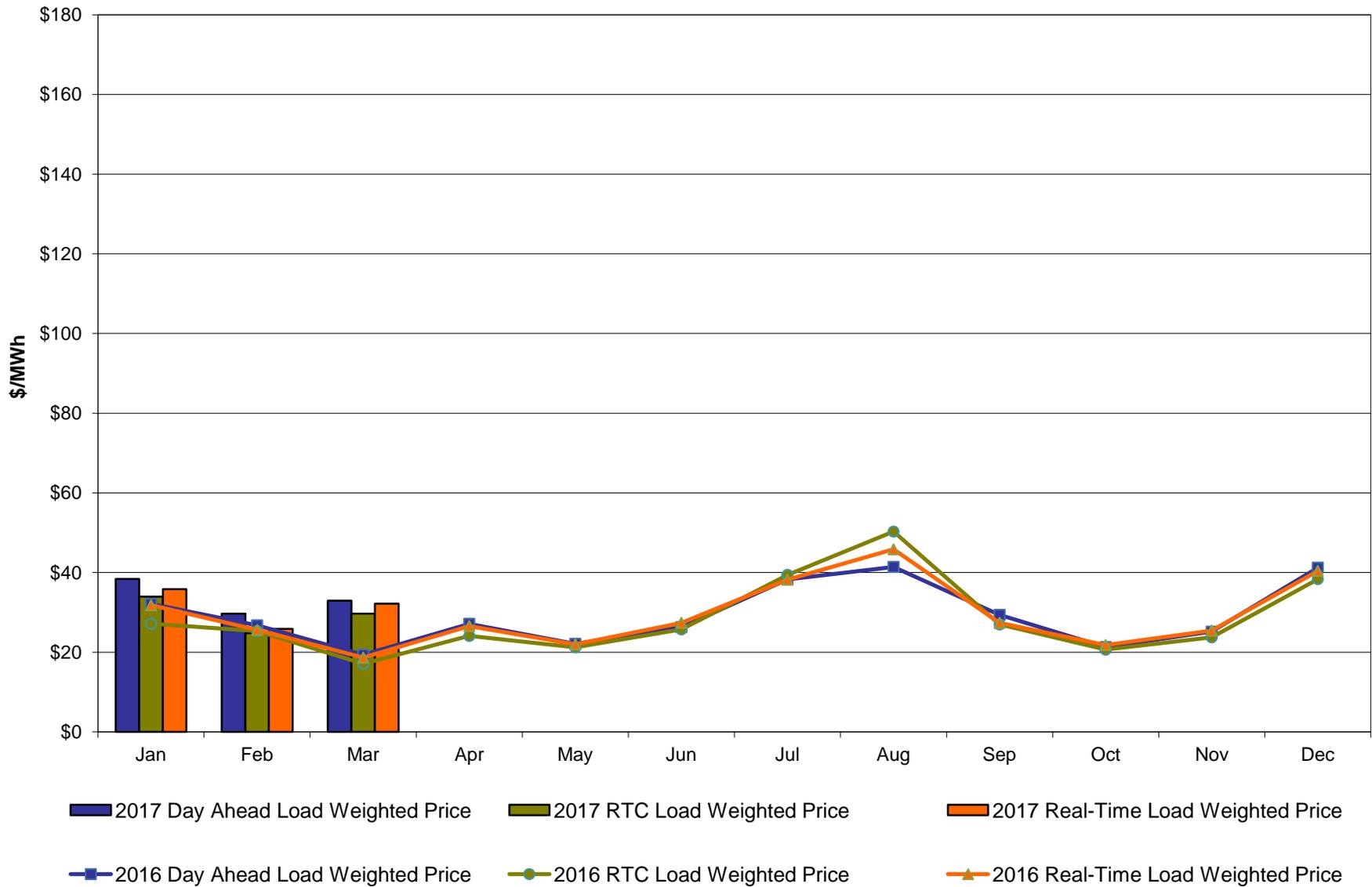
### NYISO Markets 2016 Energy Statistics

	<u>January</u>	<u>February</u>	<u>March</u>	<u>April</u>	<u>May</u>	<u>June</u>	<u>July</u>	<u>August</u>	<u>September</u>	<u>October</u>	<u>November</u>	<u>December</u>
<b><u>DAY AHEAD LBMP</u></b>												
Price *	\$31.01	\$25.76	\$18.63	\$26.39	\$21.07	\$24.83	\$35.24	\$38.25	\$27.15	\$20.37	\$24.35	\$39.83
Standard Deviation	\$10.86	\$12.46	\$6.99	\$6.95	\$7.04	\$9.21	\$18.37	\$20.59	\$13.55	\$7.48	\$7.32	\$15.08
Load Weighted Price **	\$32.13	\$26.75	\$19.37	\$27.14	\$22.12	\$26.30	\$38.29	\$41.41	\$29.38	\$21.29	\$25.15	\$41.22
<b><u>RTC LBMP</u></b>												
Price *	\$26.12	\$24.10	\$16.41	\$23.41	\$19.96	\$24.29	\$36.22	\$45.03	\$24.70	\$19.76	\$23.02	\$37.08
Standard Deviation	\$16.06	\$17.89	\$11.32	\$9.09	\$11.44	\$16.58	\$38.04	\$70.57	\$17.46	\$8.96	\$9.49	\$16.72
Load Weighted Price **	\$27.16	\$25.29	\$17.11	\$24.10	\$21.23	\$25.73	\$39.42	\$50.28	\$26.97	\$20.64	\$23.73	\$38.35
<b><u>REAL TIME LBMP</u></b>												
Price *	\$30.15	\$24.28	\$17.84	\$25.71	\$20.67	\$25.87	\$34.40	\$40.87	\$24.90	\$20.91	\$24.72	\$39.00
Standard Deviation	\$60.09	\$18.19	\$15.06	\$16.59	\$12.84	\$19.27	\$38.56	\$52.85	\$20.70	\$12.15	\$12.71	\$20.92
Load Weighted Price **	\$31.80	\$25.61	\$18.64	\$26.57	\$21.99	\$27.39	\$38.20	\$45.82	\$27.38	\$21.81	\$25.45	\$40.42
Average Daily Energy Sendout/Month GWh	439	436	397	385	397	456	532	548	458	391	398	433

\* Average zonal load weighted prices.

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

### NYISO Monthly Average Internal LBMPs 2016- 2017

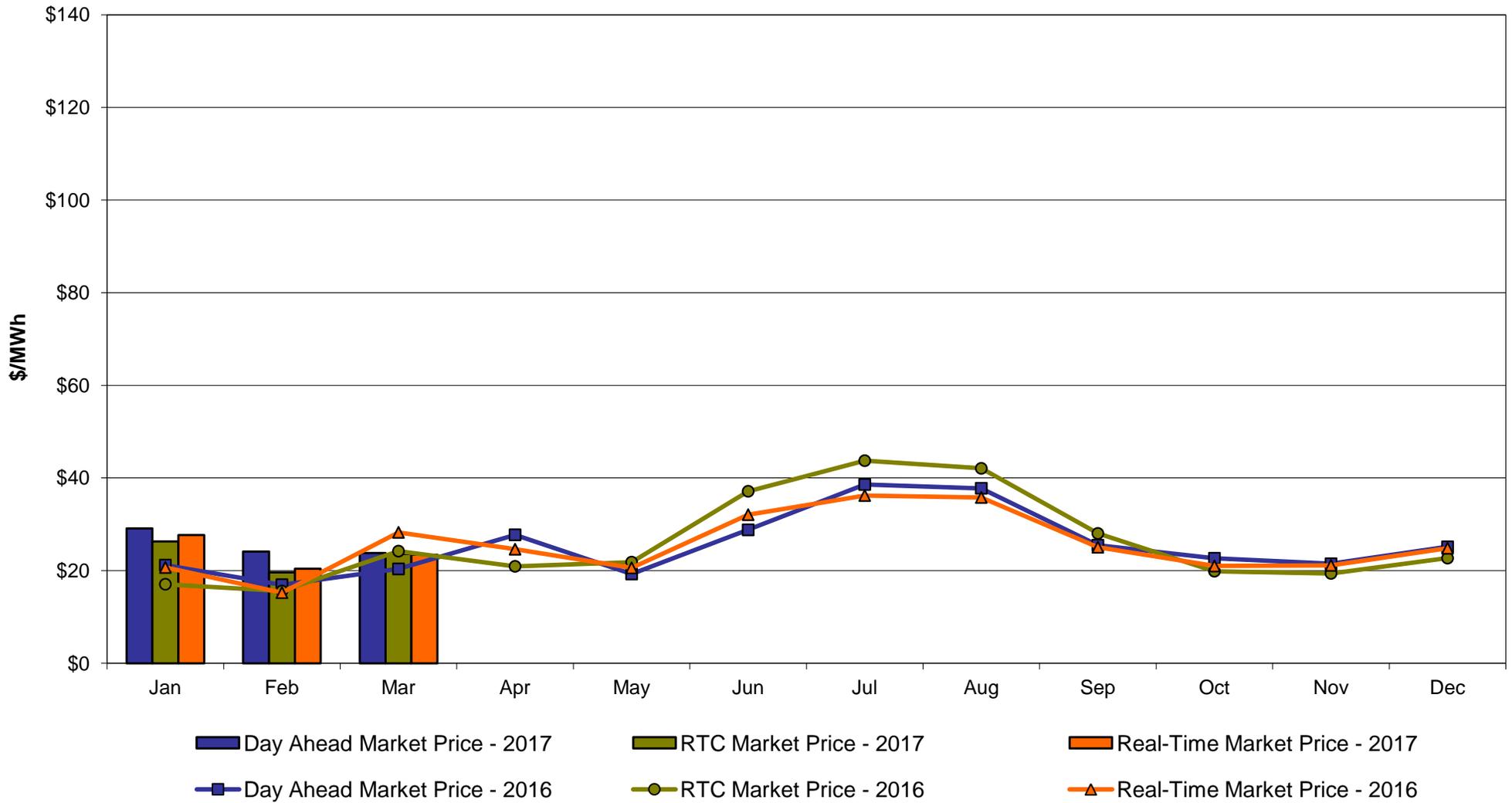


**March 2017 Zonal LBMP Statistics for NYISO (\$/MWh)**

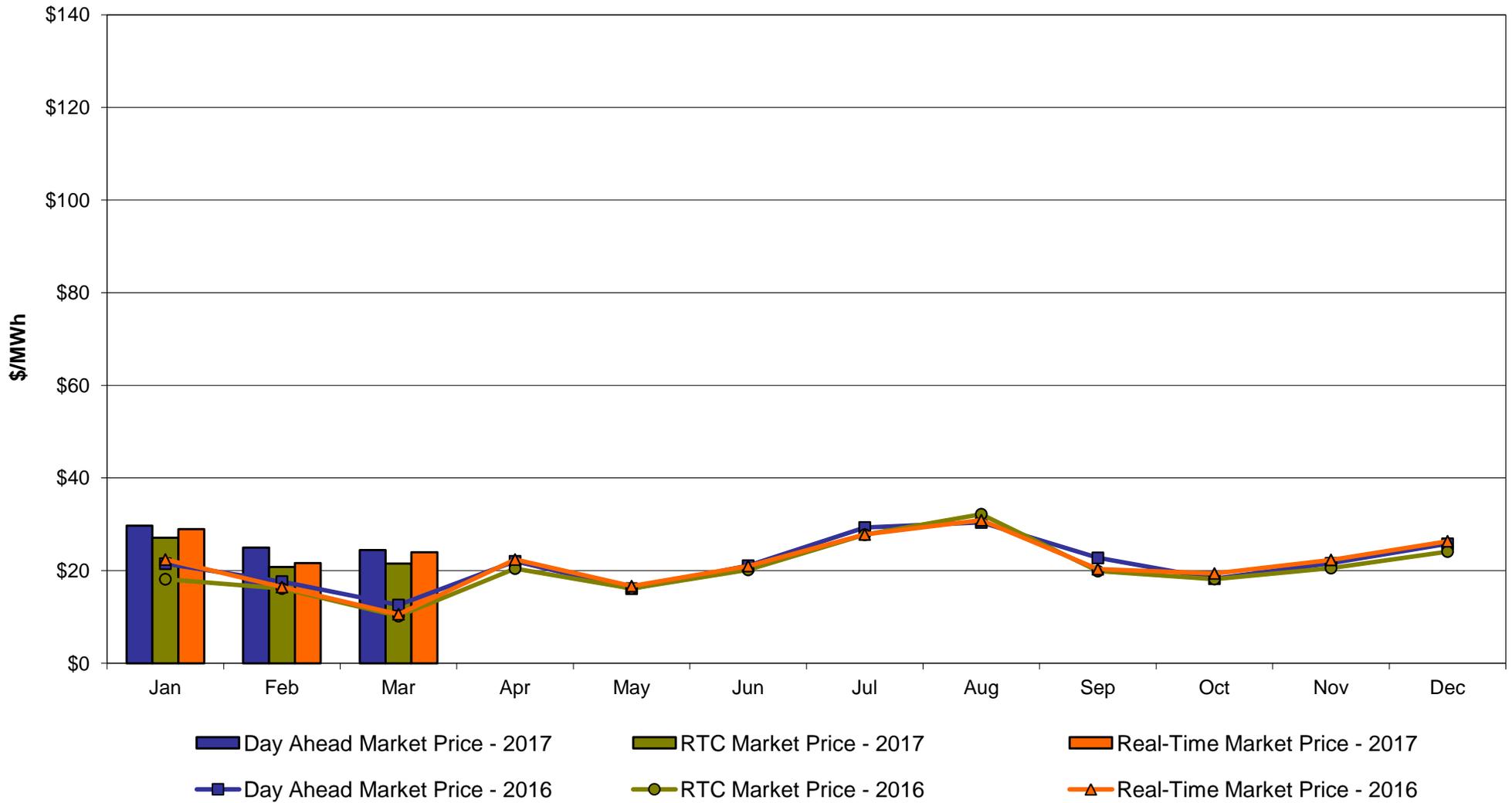
	<u>WEST Zone A</u>	<u>GENESEE Zone B</u>	<u>NORTH Zone D</u>	<u>CENTRAL Zone C</u>	<u>MOHAWK VALLEY Zone E</u>	<u>CAPITAL Zone F</u>	<u>HUDSON VALLEY Zone G</u>	<u>MILLWOOD Zone H</u>	<u>DUNWOODIE Zone I</u>	<u>NEW YORK CITY Zone J</u>	<u>LONG ISLAND Zone K</u>
<b><u>DAY AHEAD LBMP</u></b>											
Unweighted Price *	23.80	23.32	17.83	24.47	24.65	37.52	35.43	35.73	35.65	36.04	38.34
Standard Deviation	8.68	8.72	8.42	8.95	9.10	15.92	14.10	14.23	14.14	14.23	15.30
<b><u>RTC LBMP</u></b>											
Unweighted Price *	23.61	20.55	16.10	21.55	21.90	33.72	31.60	31.88	31.76	32.39	33.91
Standard Deviation	35.04	13.75	18.40	13.94	14.04	16.89	14.89	15.07	14.98	14.86	16.35
<b><u>REAL TIME LBMP</u></b>											
Unweighted Price *	23.46	22.96	16.68	23.95	24.37	36.71	34.52	34.80	34.68	35.48	36.59
Standard Deviation	24.71	24.55	36.44	25.08	25.49	27.15	26.38	26.58	26.45	26.67	27.10
	<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 *	22.92	18.06	18.06	29.35	36.50	37.92	37.45	37.58	35.83	35.85	17.77
Standard Deviation	8.15	8.81	8.81	10.82	14.99	15.15	14.97	14.98	14.05	14.11	8.03
<b><u>RTC LBMP</u></b>											
Unweighted Price *	20.26	15.55	15.55	26.91	32.00	34.06	33.94	33.80	32.35	32.43	16.15
Standard Deviation	17.25	21.78	21.78	16.18	17.60	18.93	18.79	18.76	17.77	17.67	20.21
<b><u>REAL TIME LBMP</u></b>											
Unweighted Price *	21.71	16.24	16.24	29.34	35.50	36.40	36.45	36.50	35.55	35.47	14.63
Standard Deviation	41.52	42.04	42.04	27.74	27.85	27.09	26.97	29.78	29.55	29.61	34.23

\* Straight LBMP averages

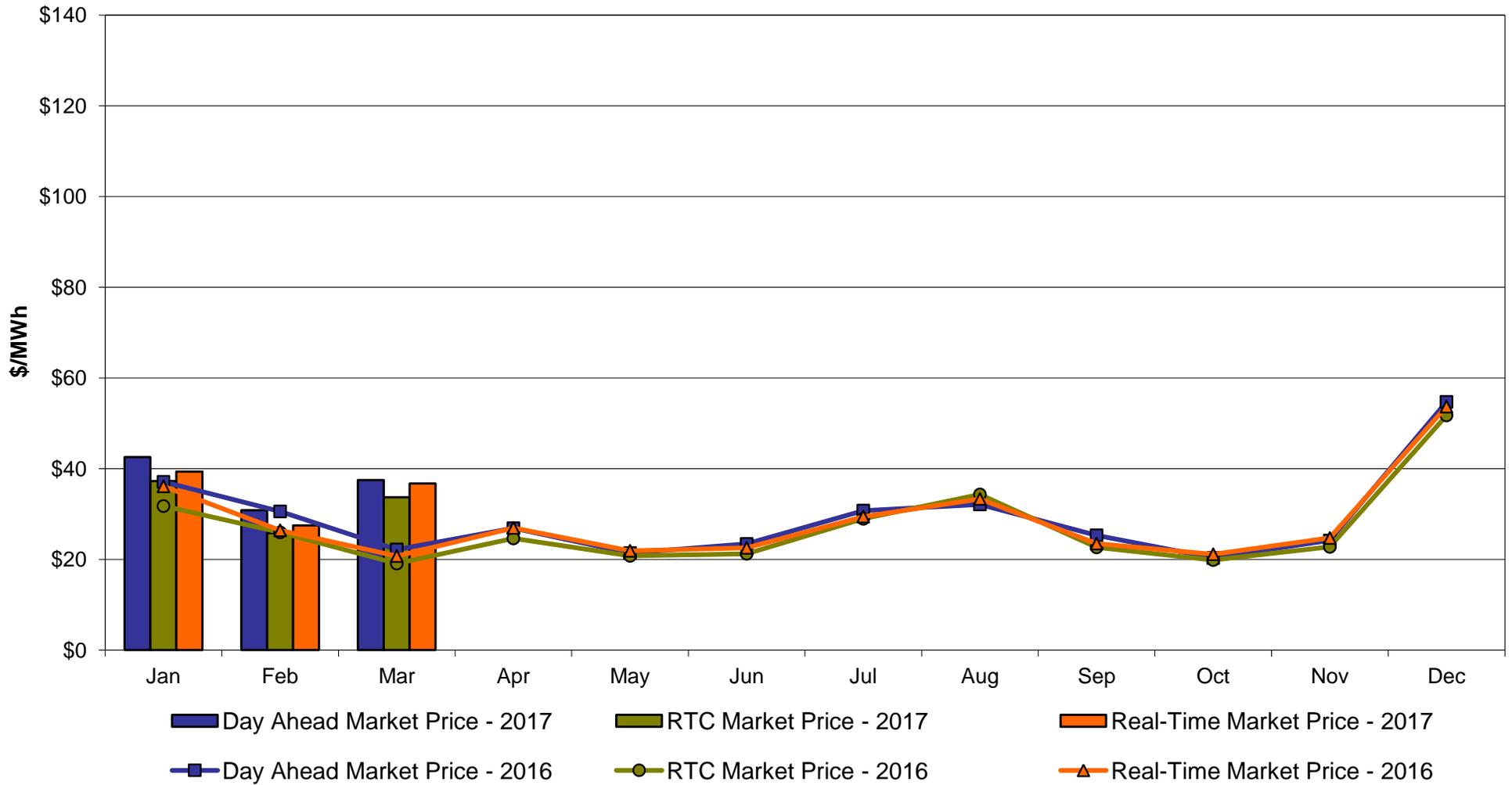
**West Zone A  
Monthly Average LBMP Prices 2016 - 2017**



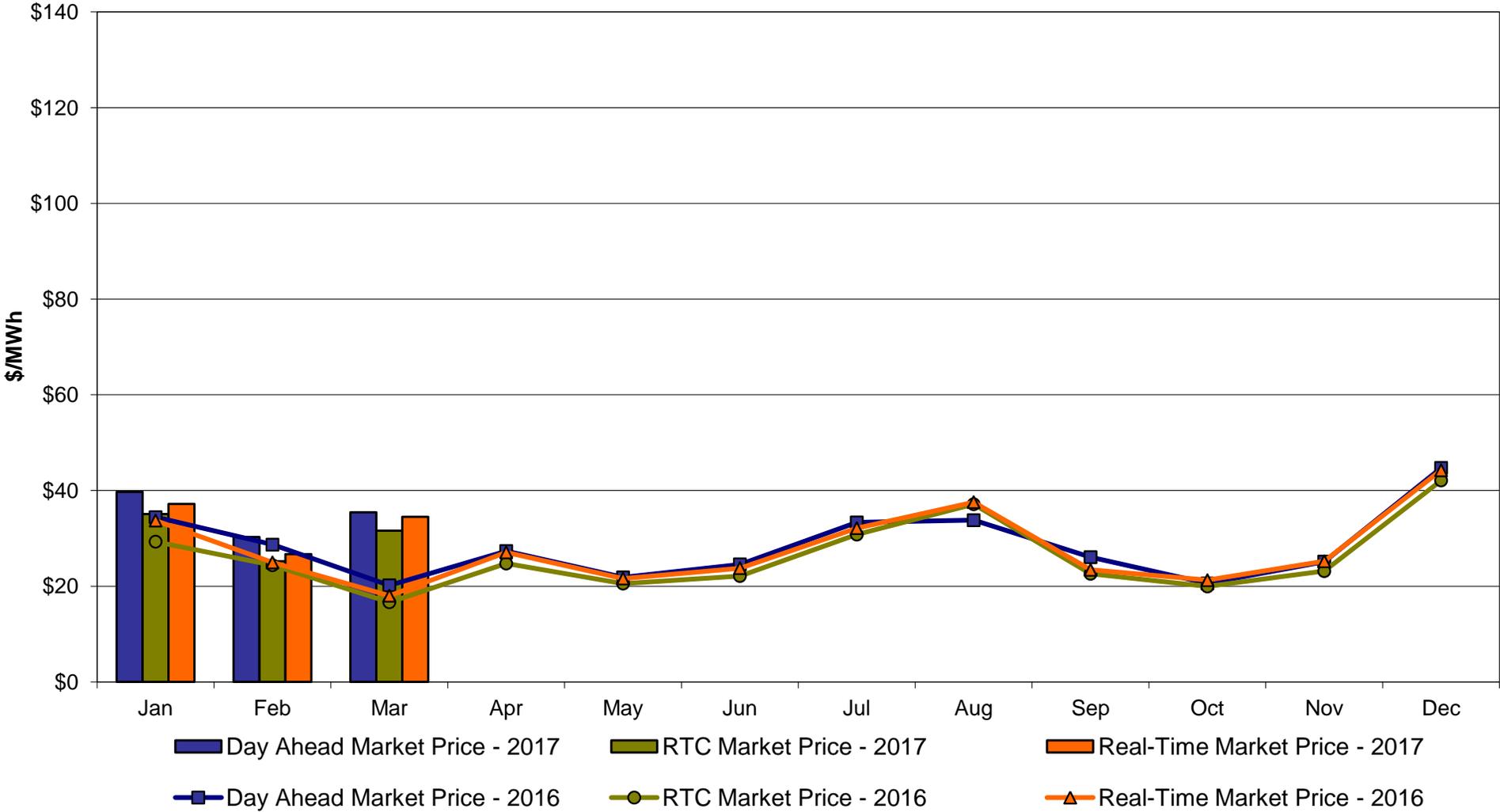
**Central Zone C  
Monthly Average LBMP Prices 2016 - 2017**



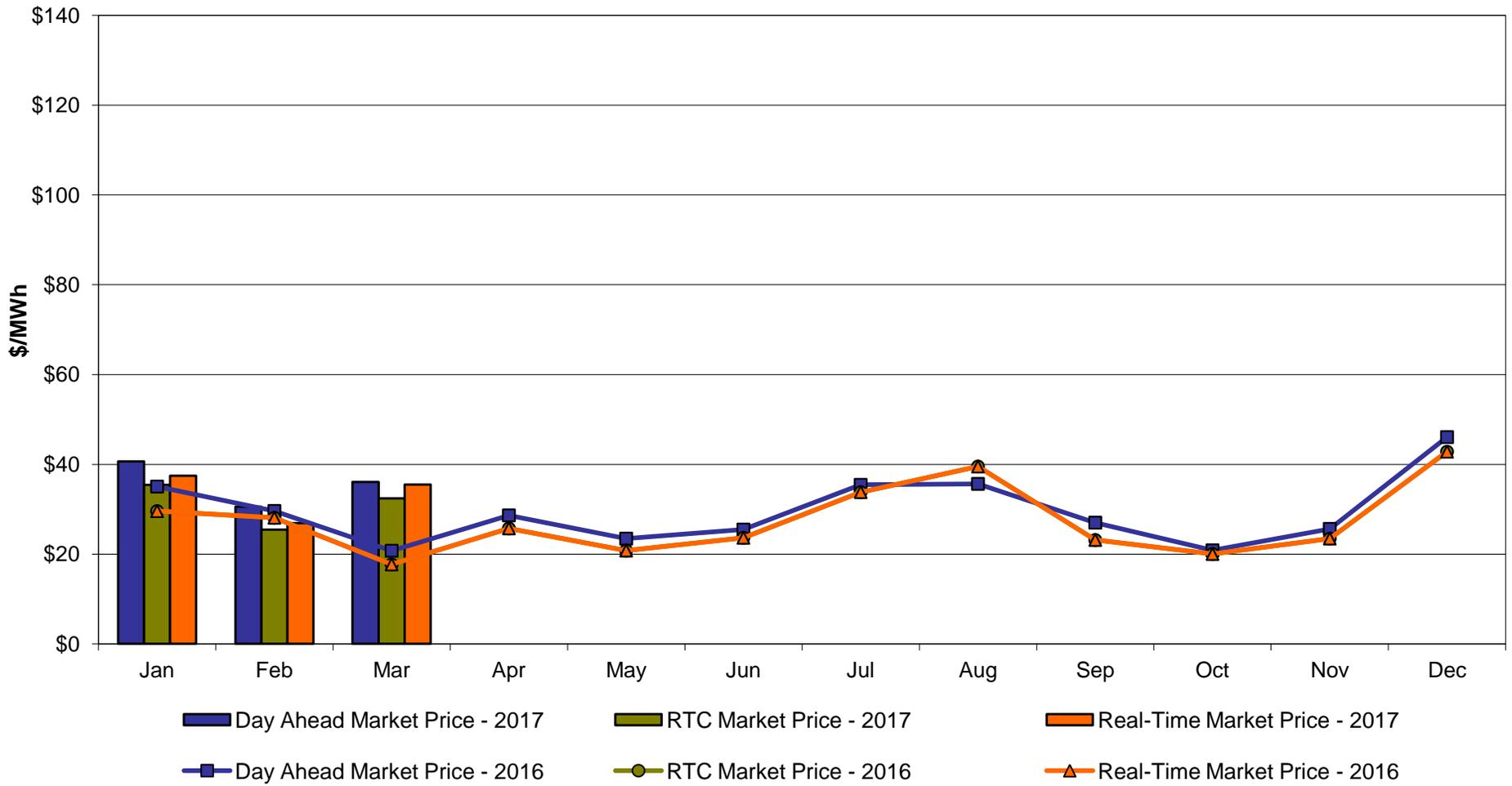
## Capital Zone F Monthly Average LBMP Prices 2016 - 2017



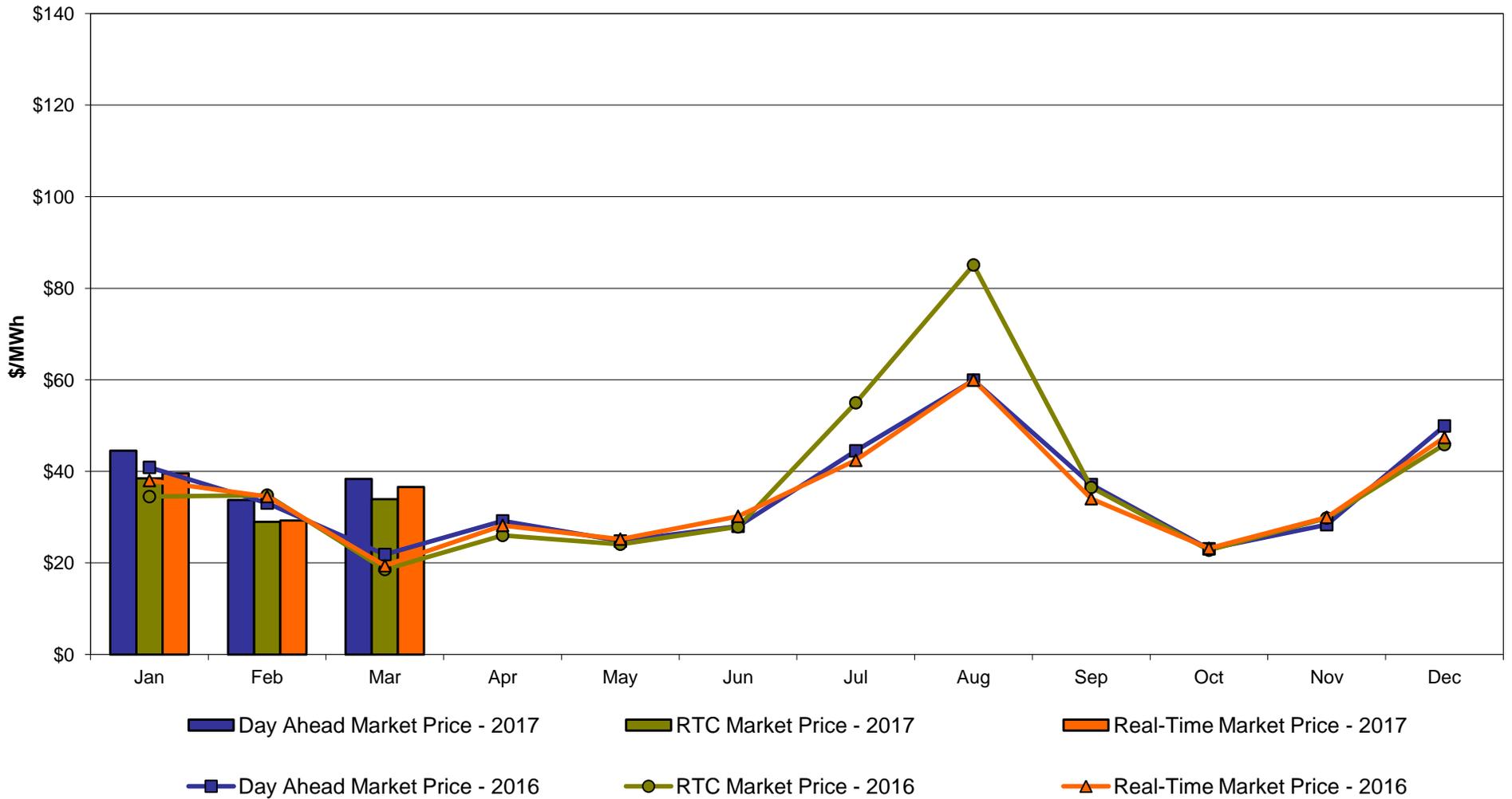
### Hudson Valley Zone G Monthly Average LBMP Prices 2016 - 2017



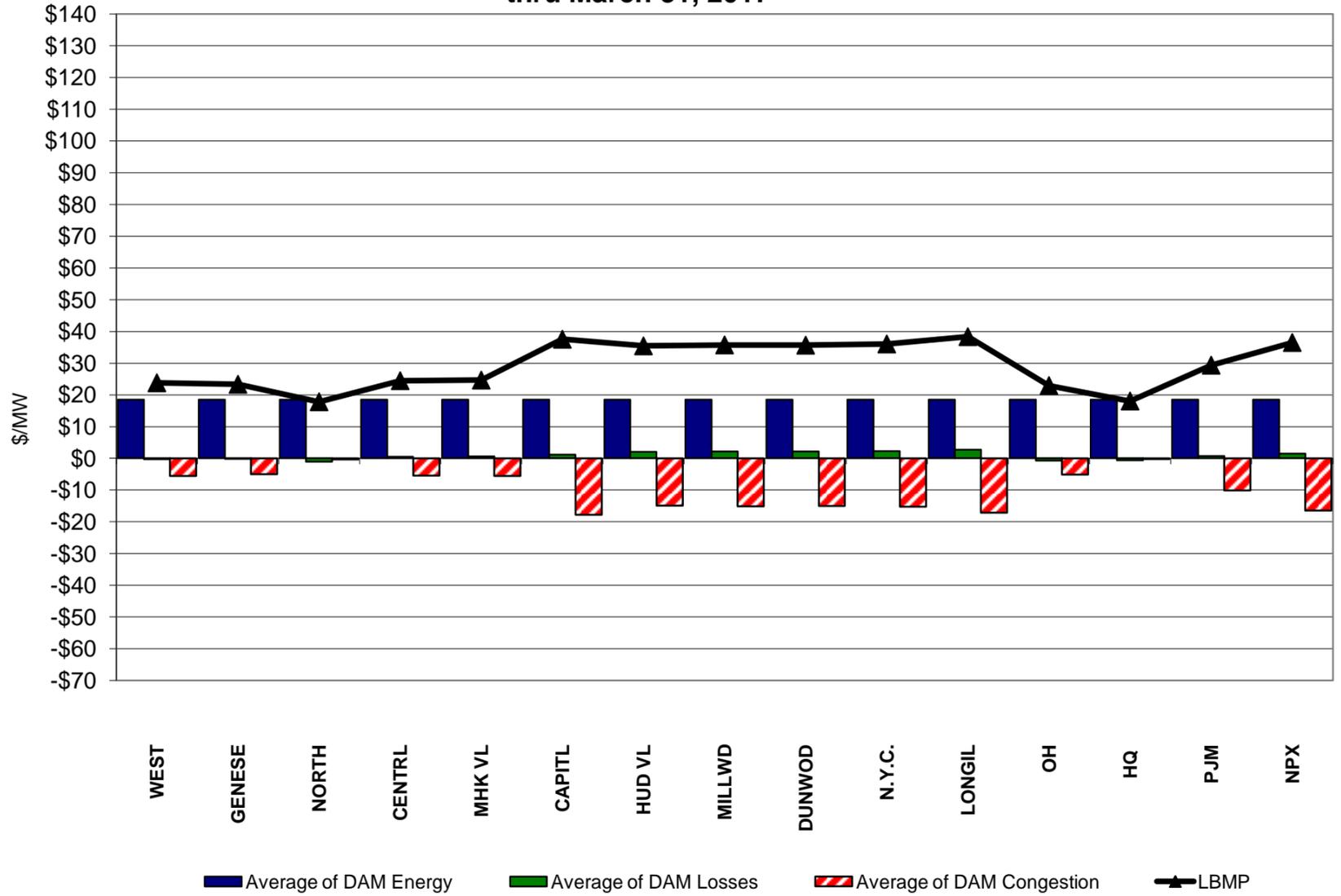
## NYC Zone J Monthly Average LBMP Prices 2016 - 2017



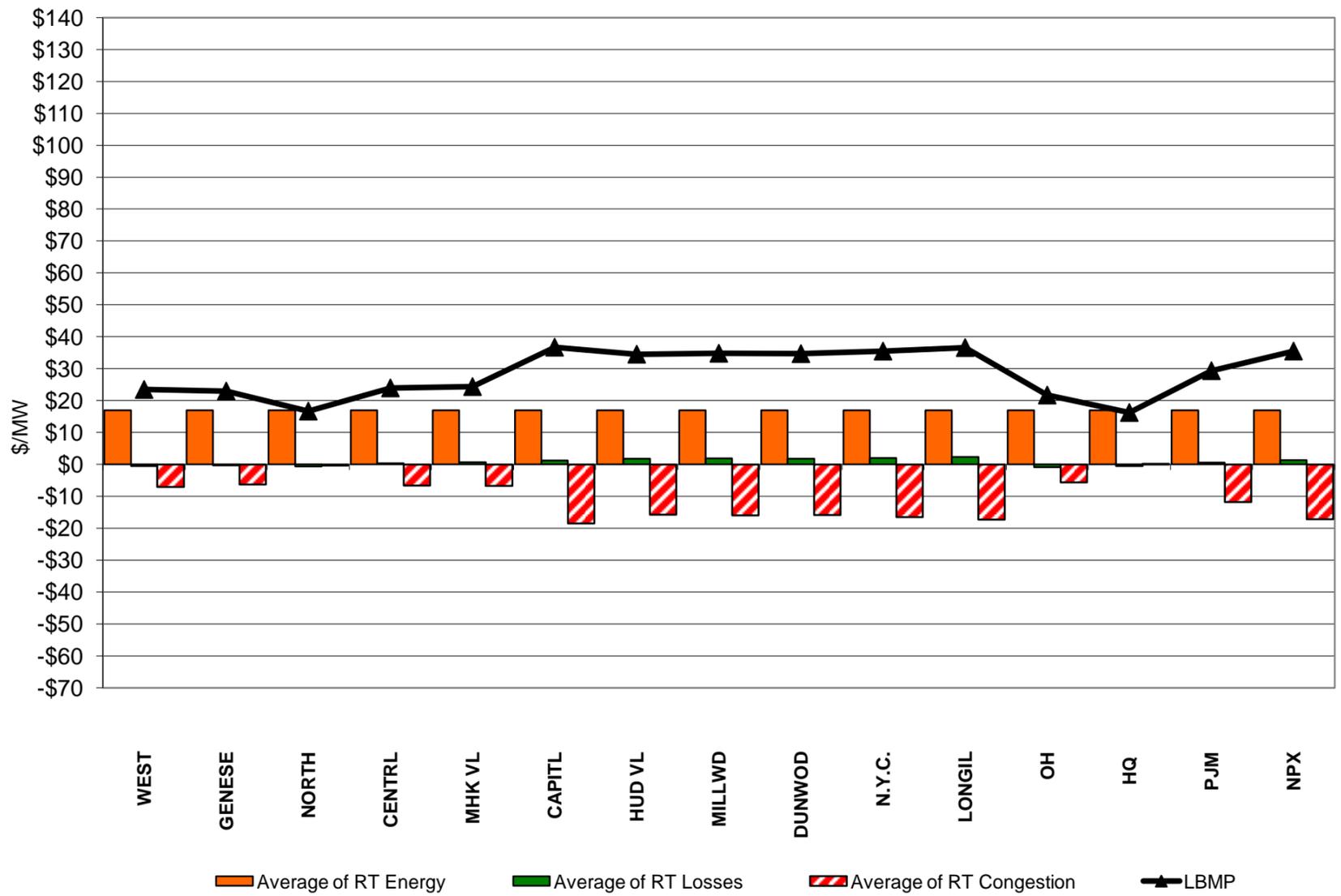
## Long Island Zone K Monthly Average LBMP Prices 2016 - 2017



**DAM Zonal Unweighted Monthly Average LBMP Components  
thru March 31, 2017**

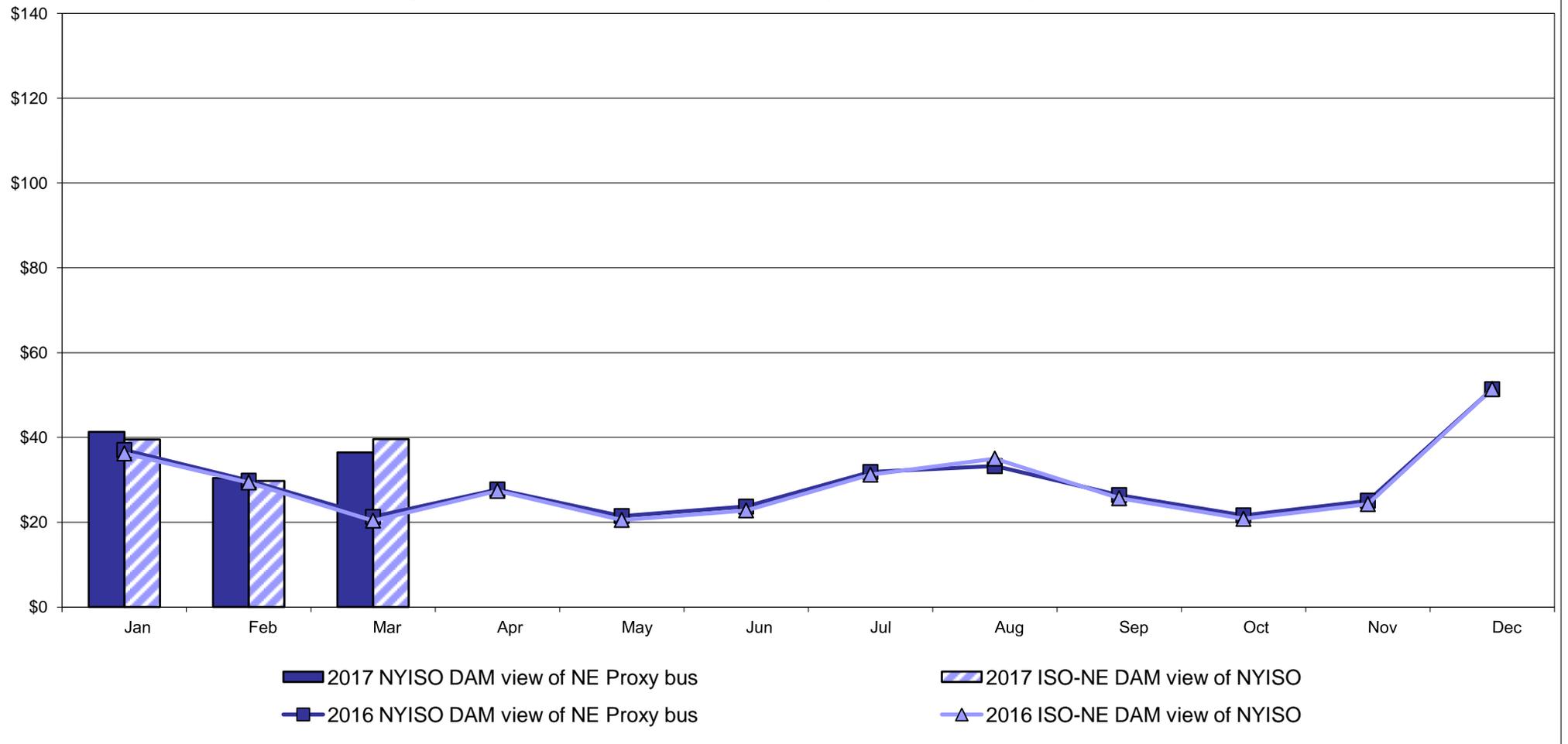


**RT Zonal Unweighted Monthly Average LBMP Components  
thru March 31, 2017**

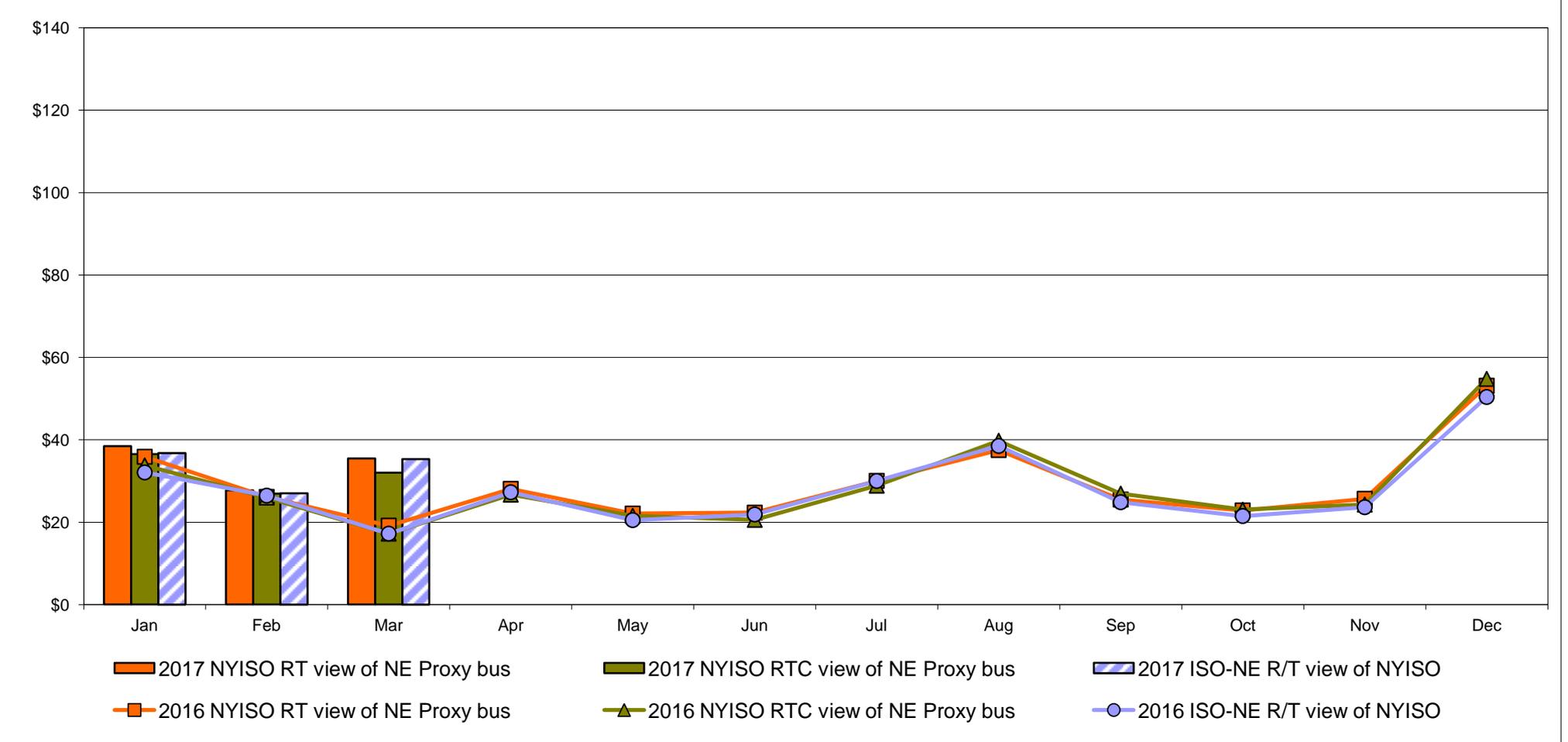


# External Comparison ISO-New England

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

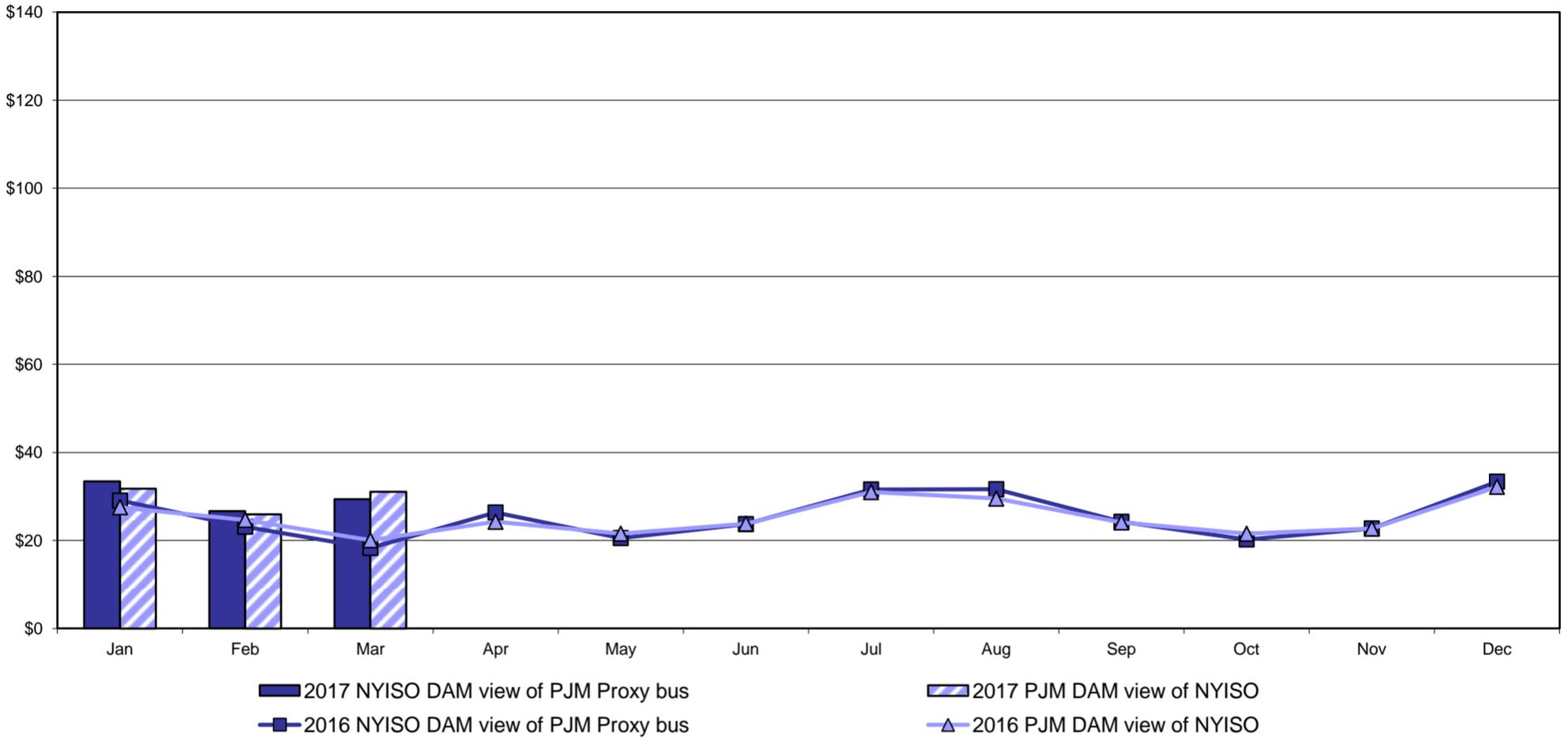


### Real Time Market External Zone Comparison: ISO-NE (\$/MWh)

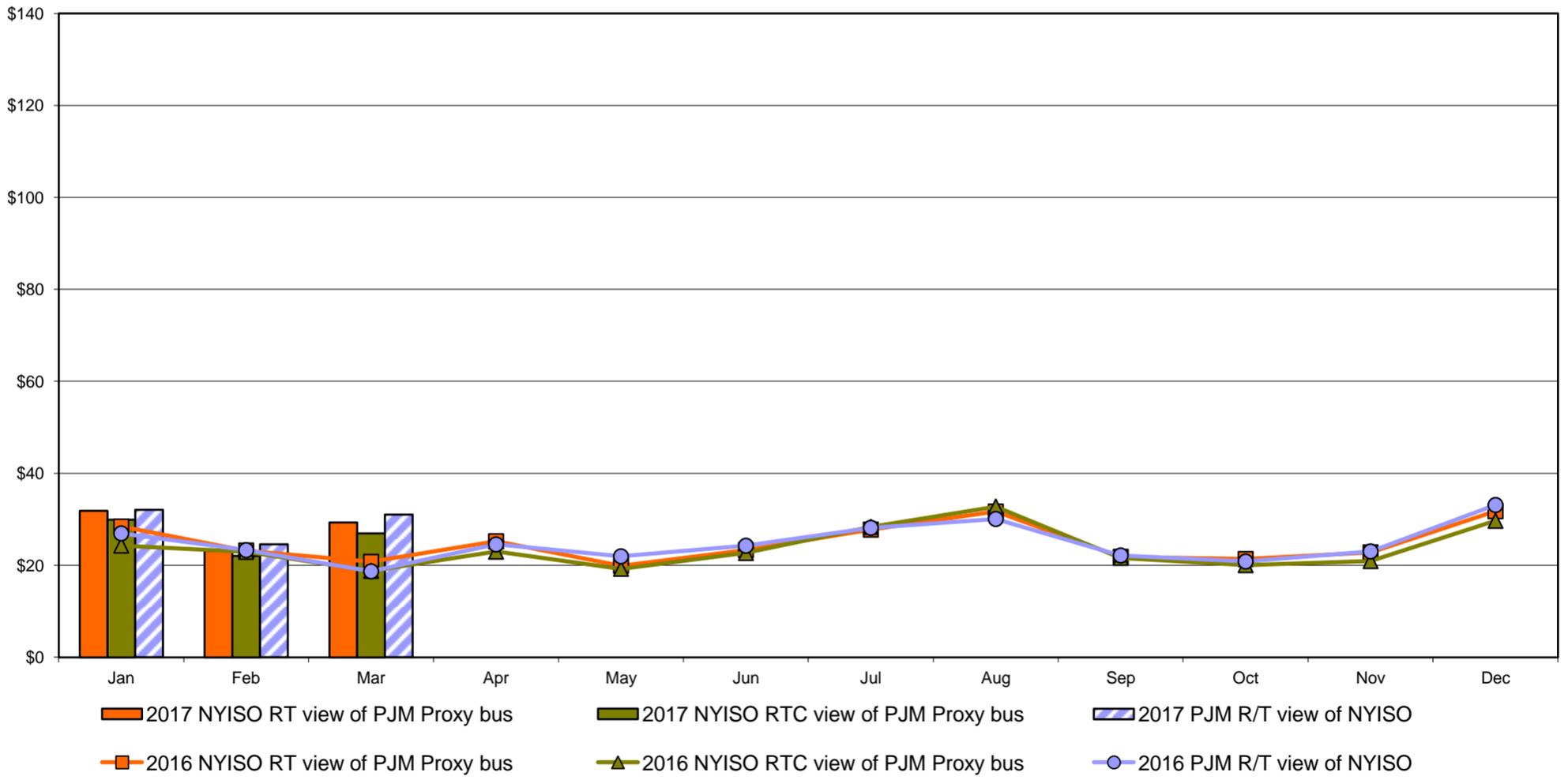


# External Comparison PJM

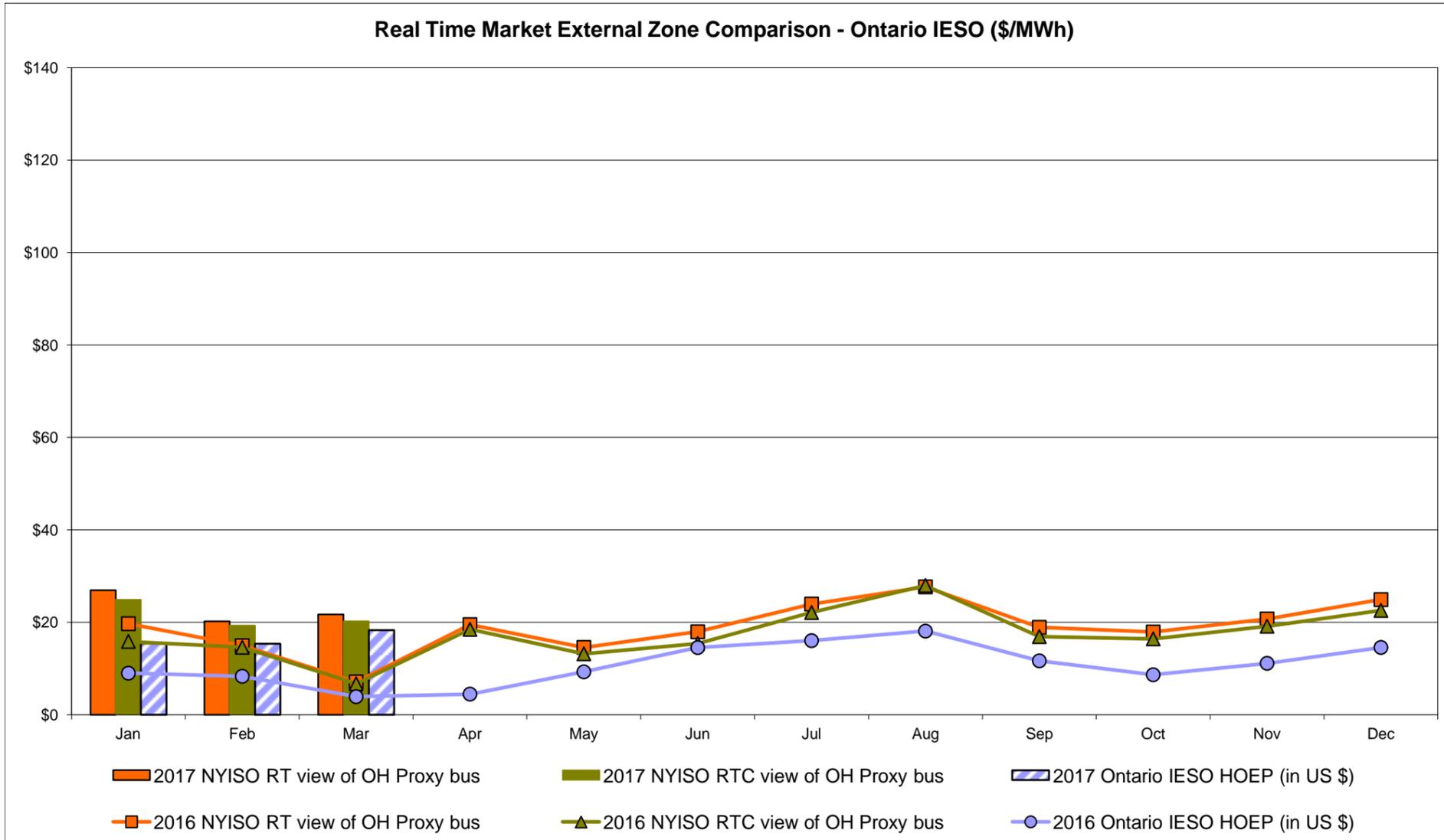
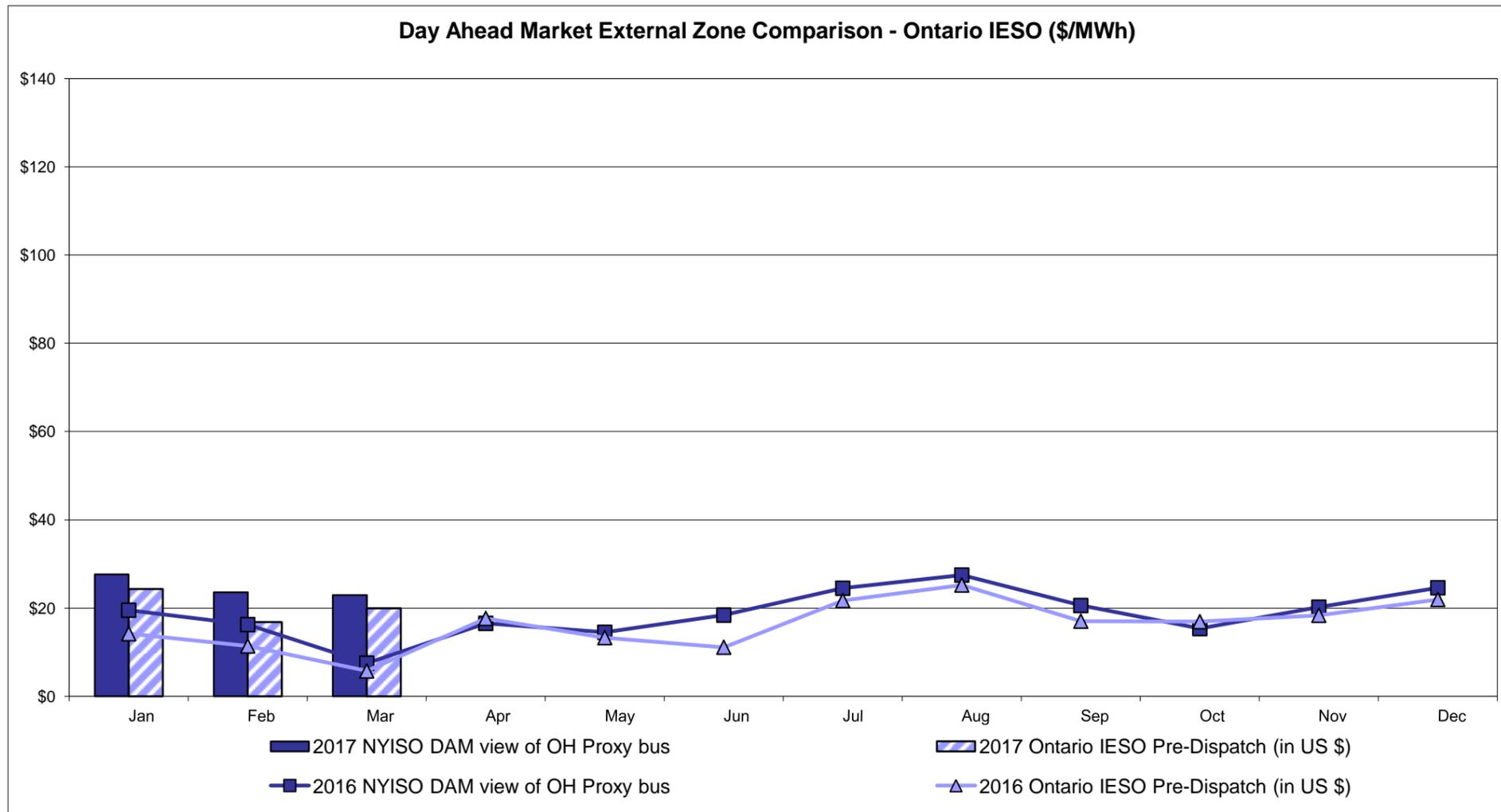
## Day Ahead Market External Zone Comparison - PJM (\$/MWh)



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

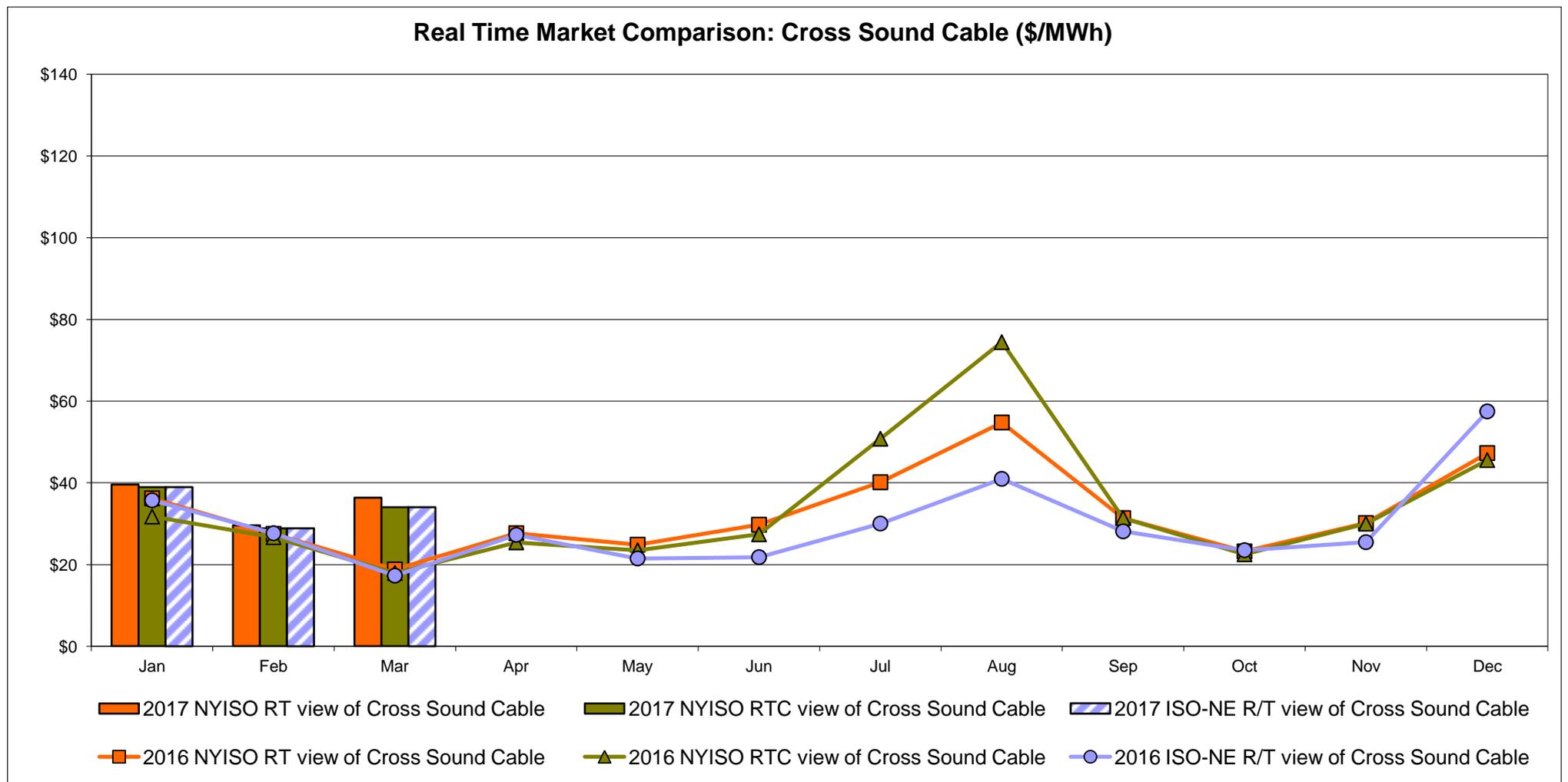
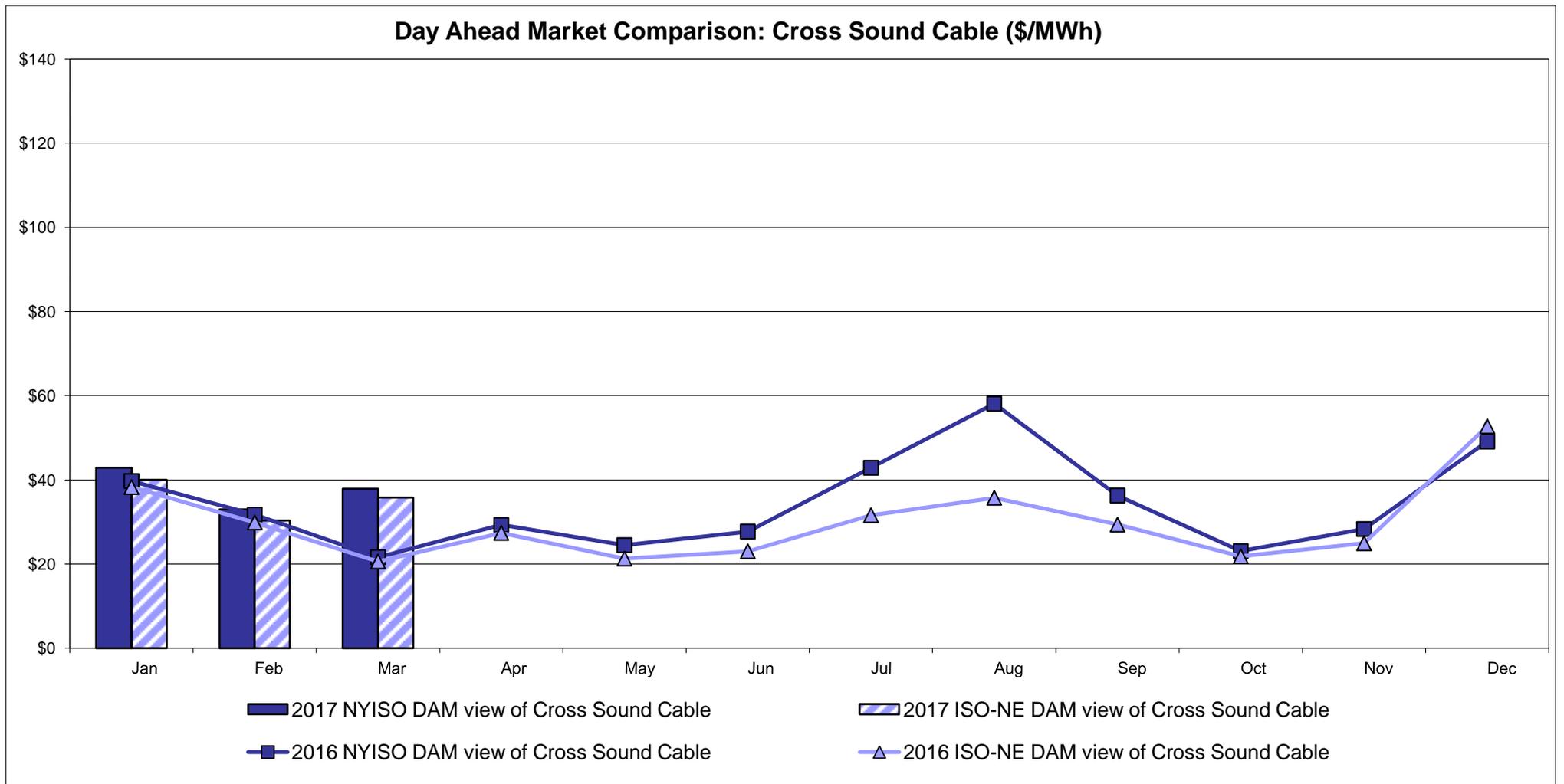


# External Comparison Ontario IESO



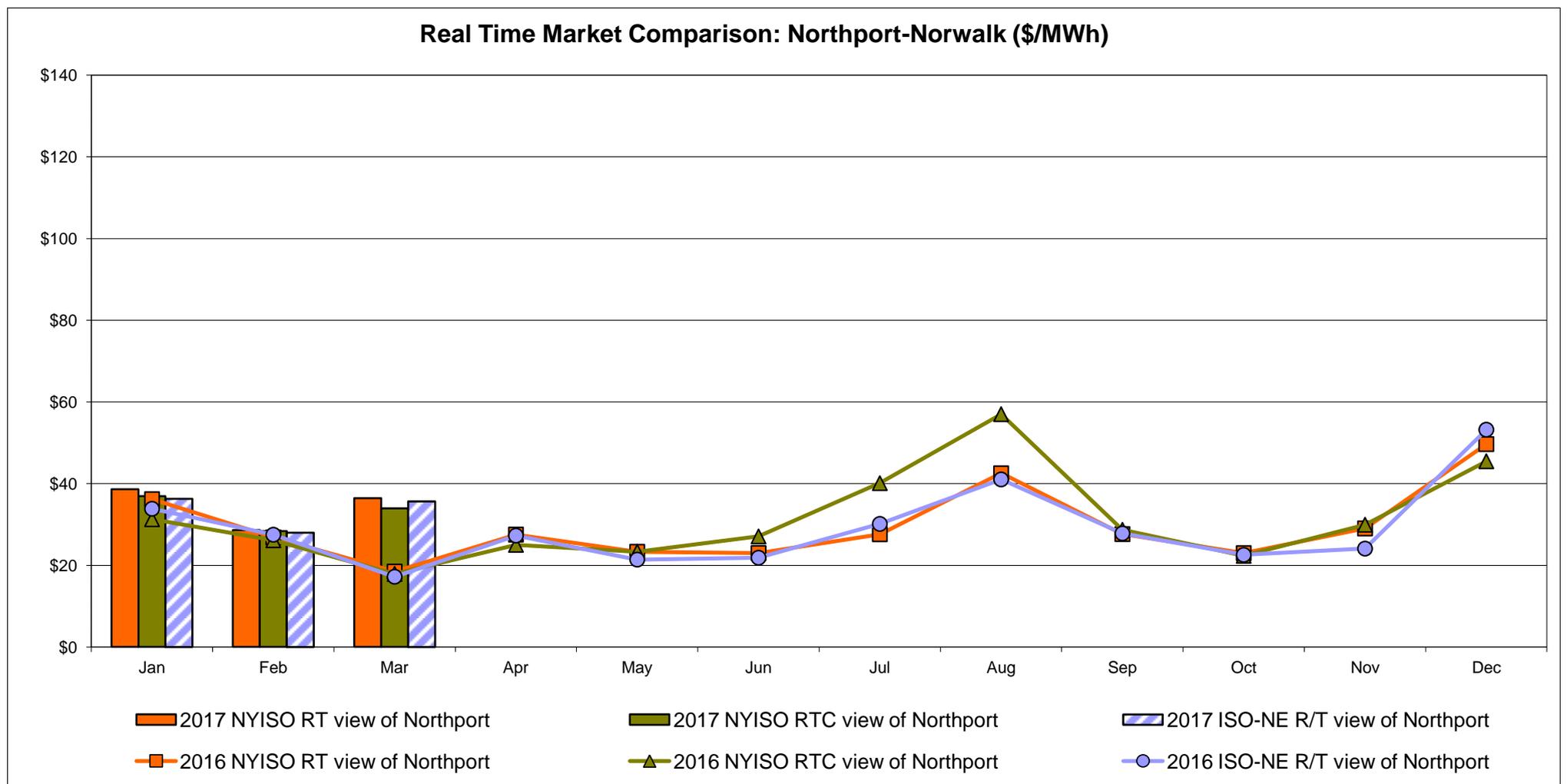
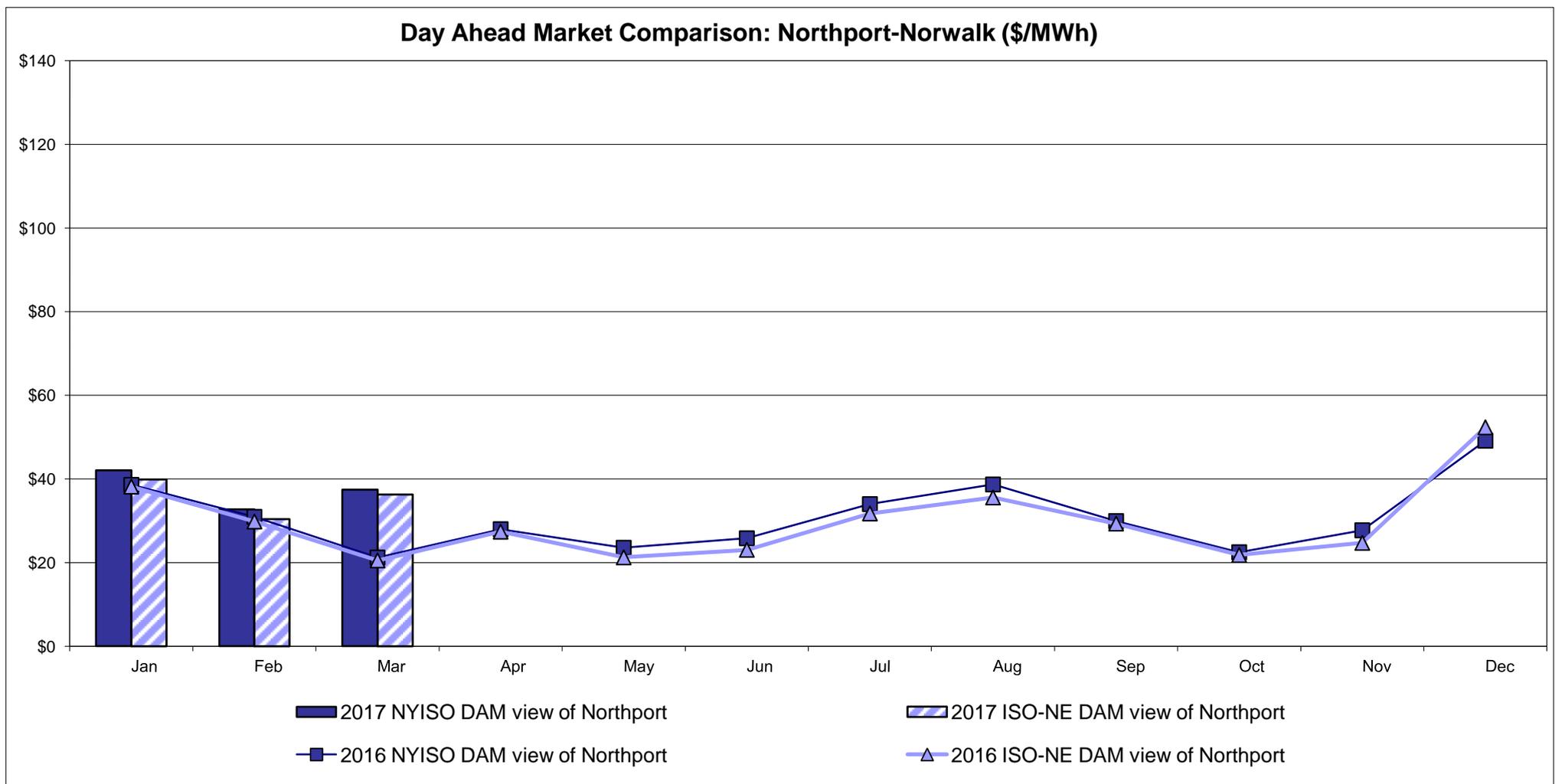
Notes: Exchange factor used for March 2017 was 0.746993352 to US  
 HOEP: Hourly Ontario Energy Price  
 Pre-Dispatch: Projected Energy Price

# 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.

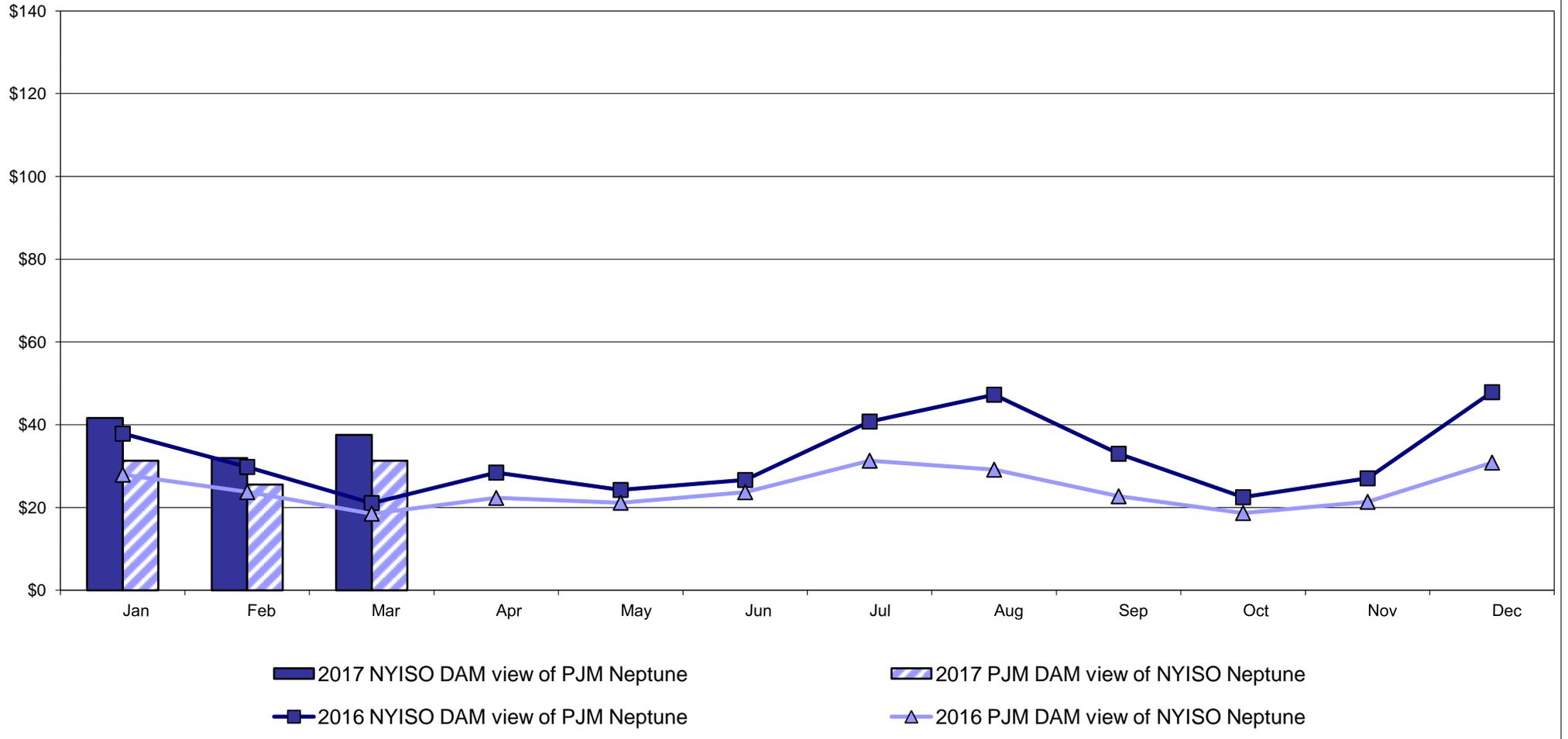
# External Controllable Line: Northport - Norwalk (New England)



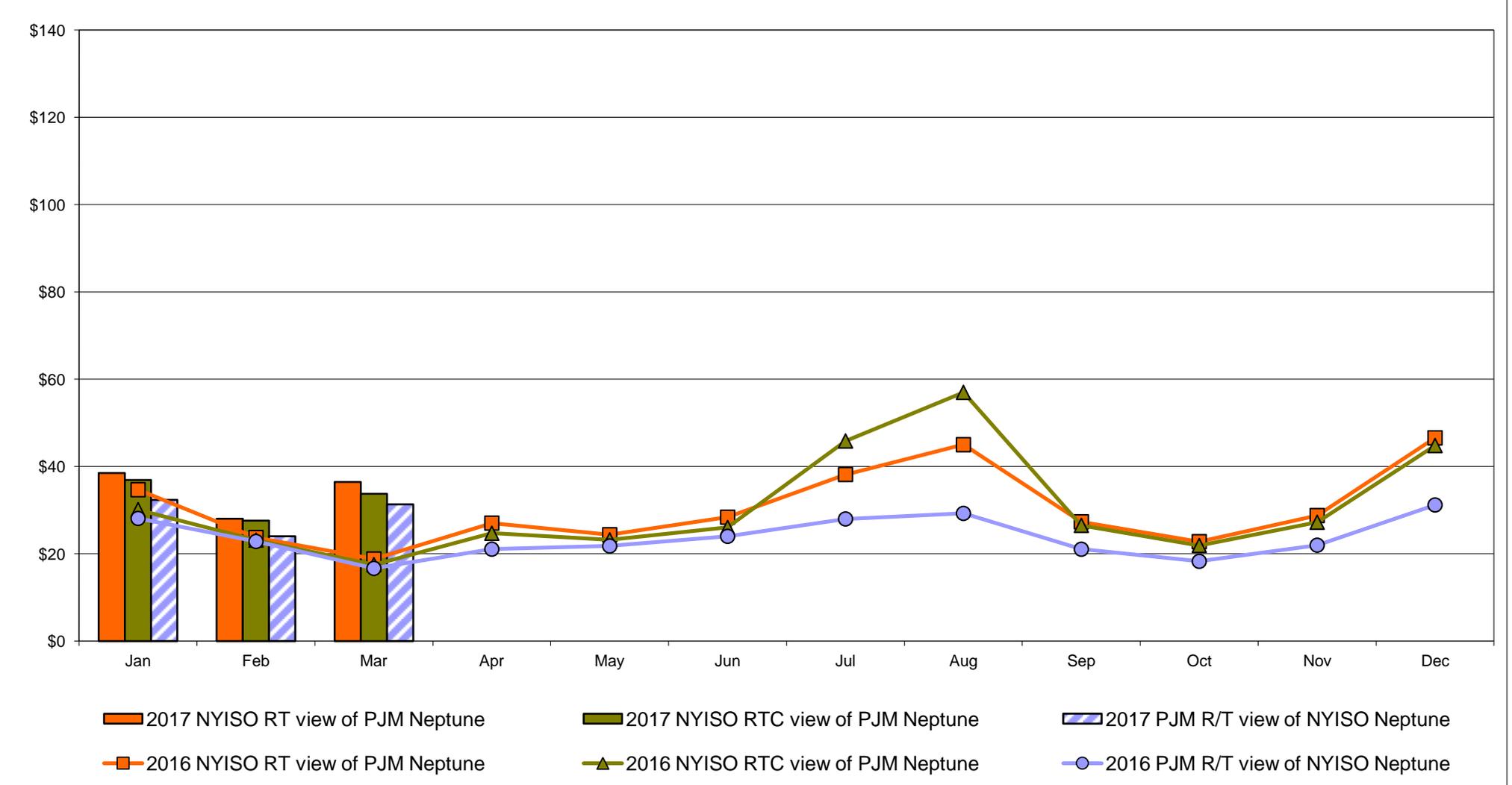
Note:  
 ISO-NE Forecast is an advisory posting @ 18:00 day before.  
 The DAM and R/T prices at the Northport 138 interface are used for ISO-NE.  
 The DAM and R/T prices at the 1385 interface are used for NYISO.

# External Controllable Line: Neptune (PJM)

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

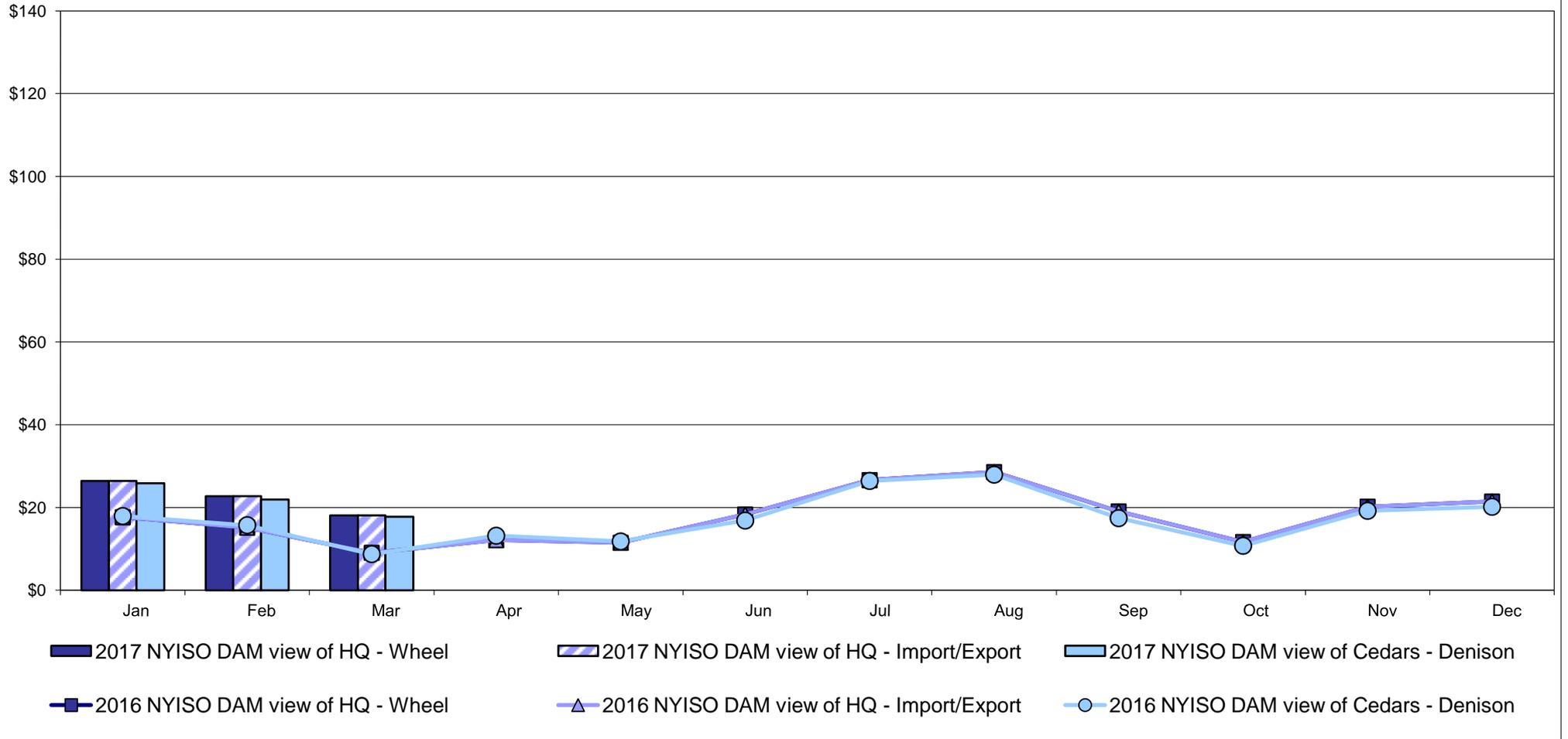


### Real Time Market Comparison: Neptune (\$/MWh)

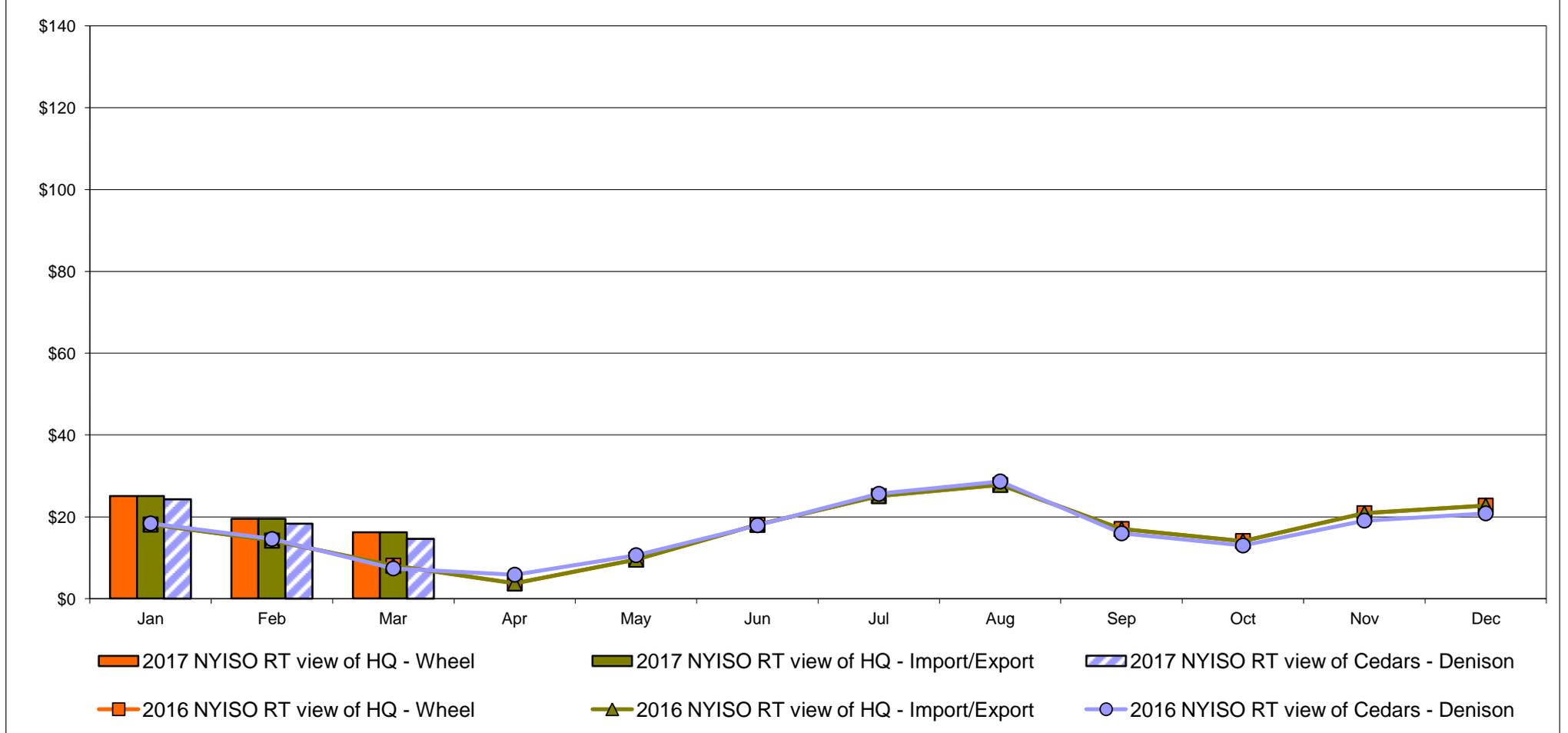


# External Comparison Hydro-Quebec

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

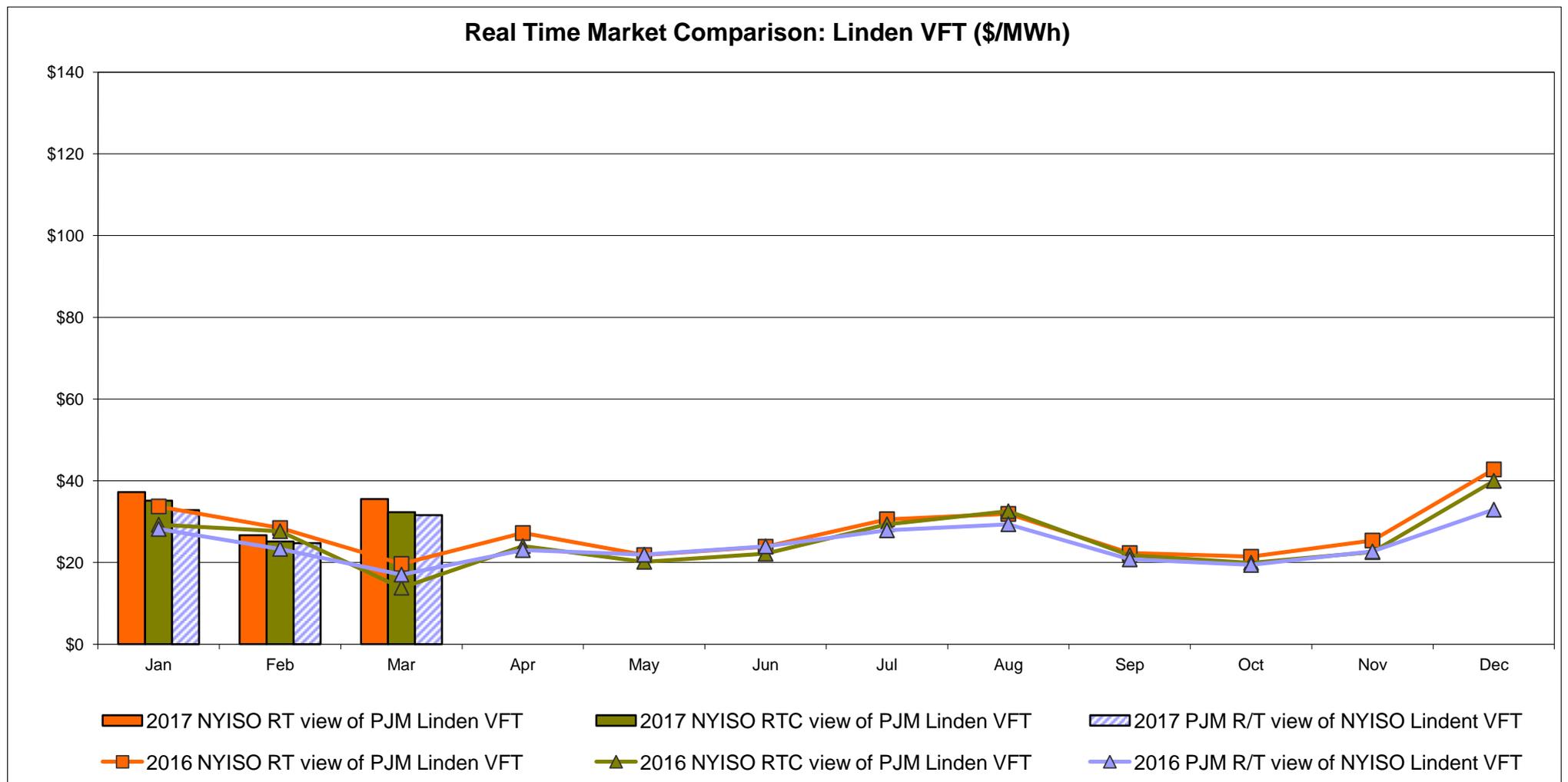
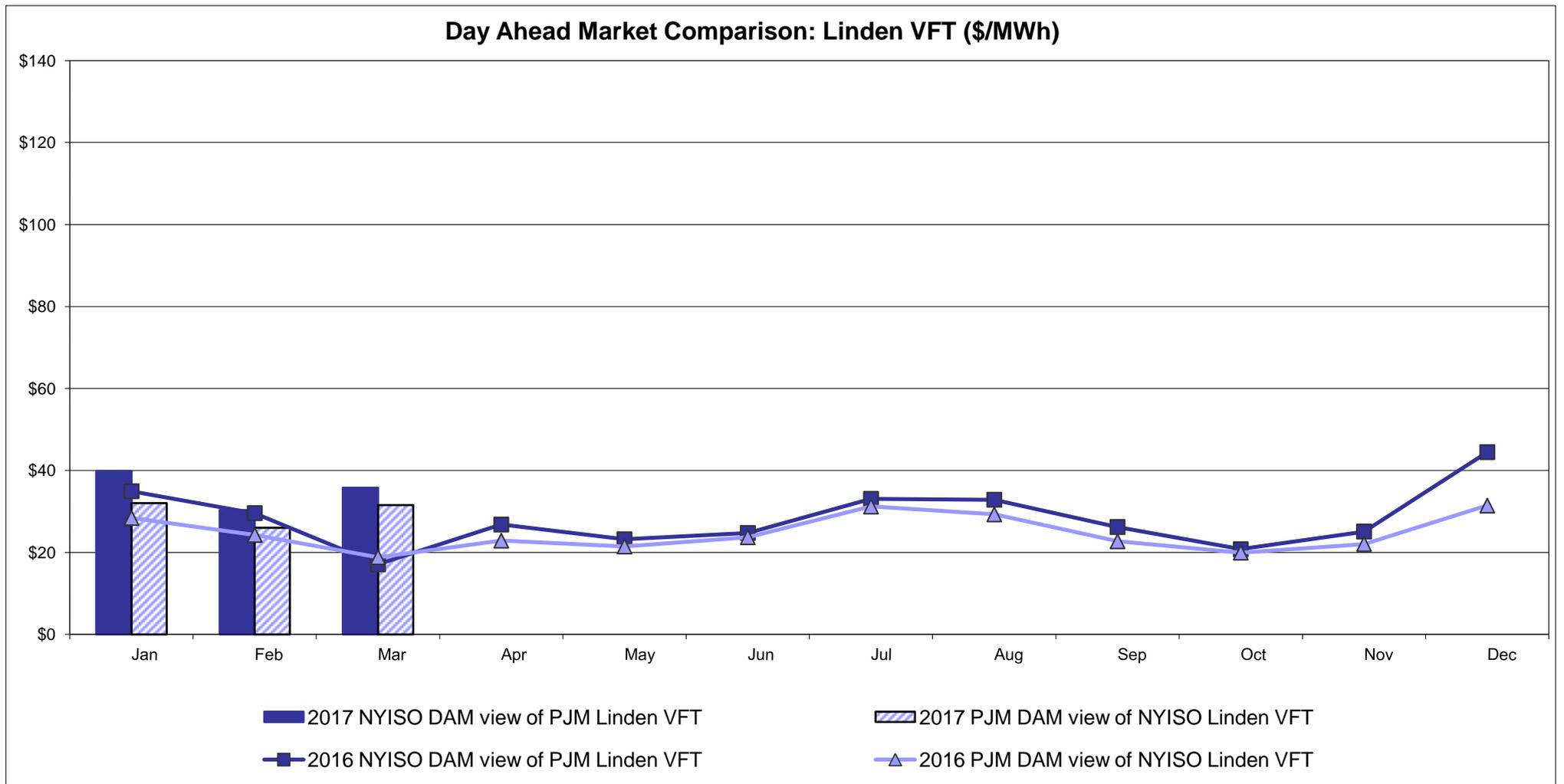


## Real Time Market External Zone Comparison - HQ (\$/MWh)

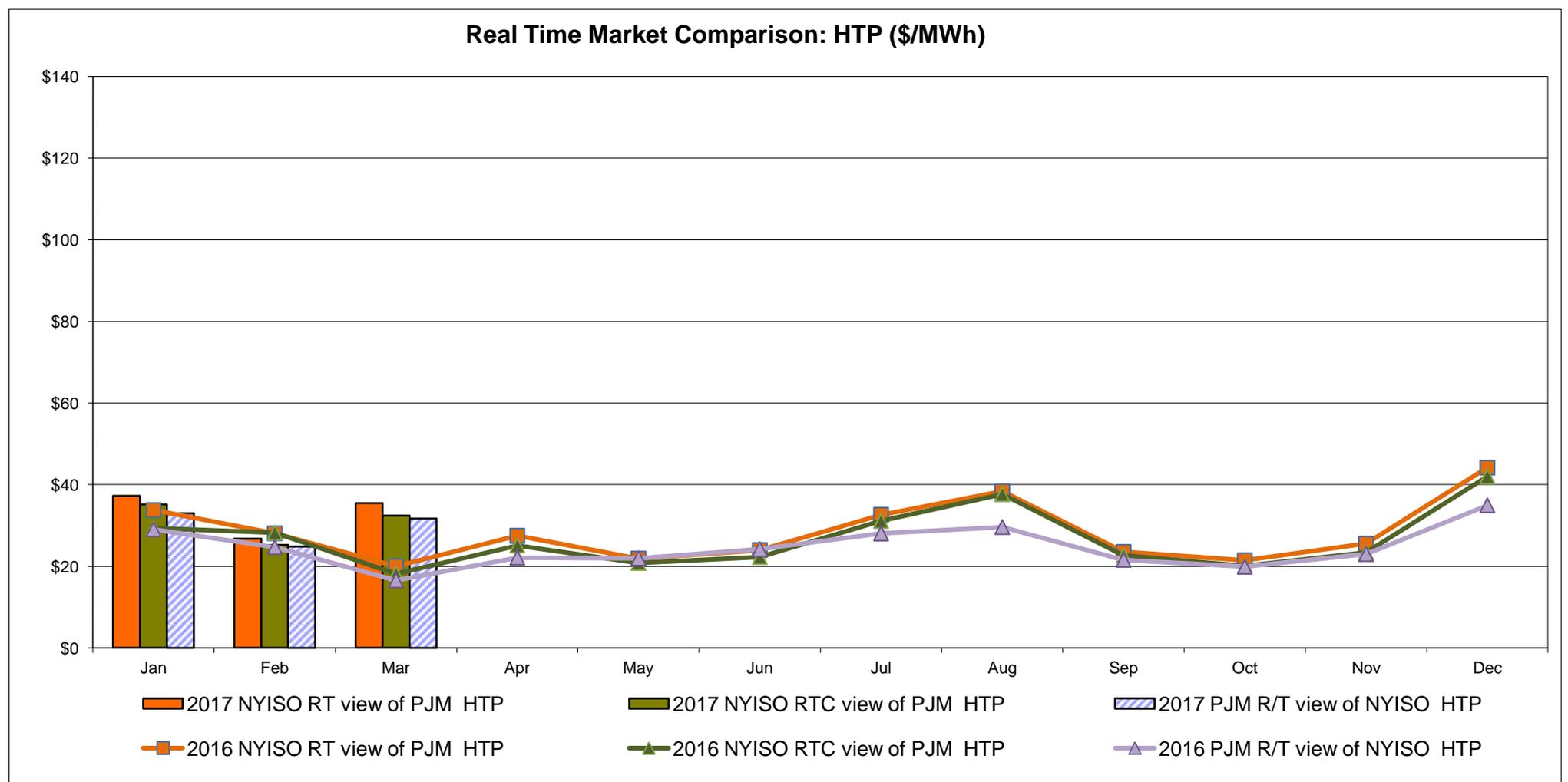
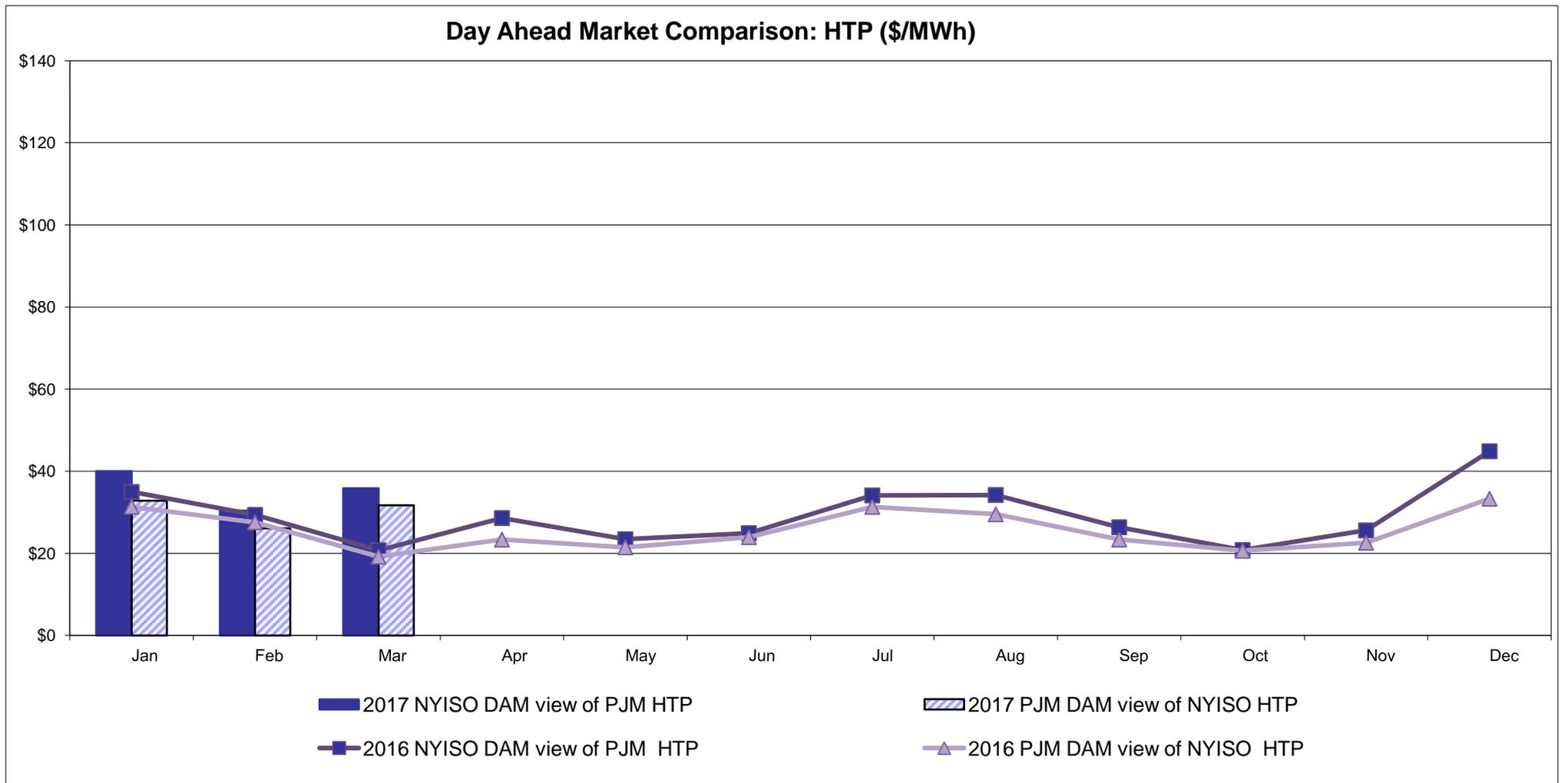


Note:  
Hydro-Quebec Prices are unavailable.

# External Controllable Line: Linden VFT (PJM)



## External Controllable Line: Hudson (PJM)

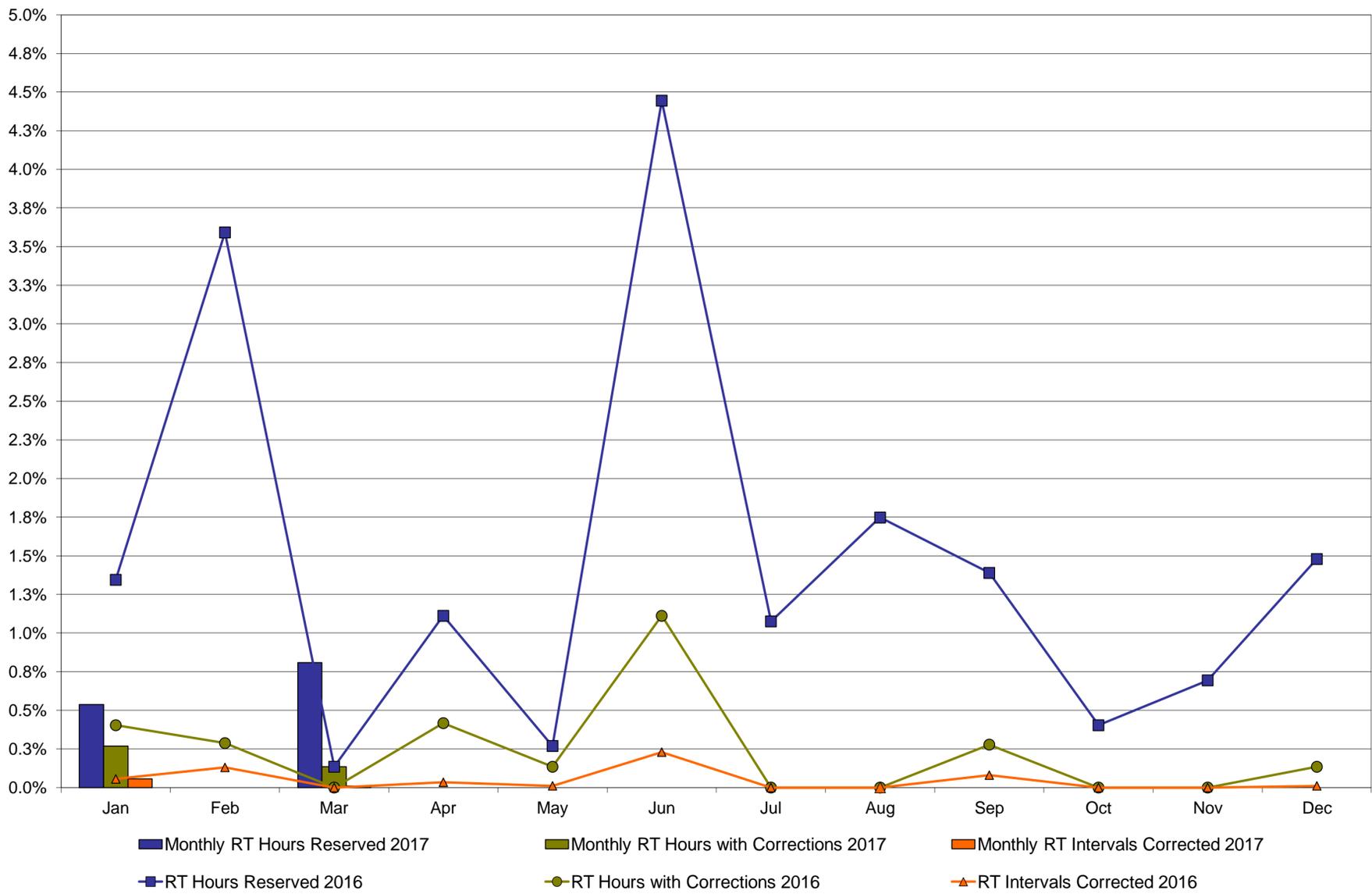


### NYISO Real Time Price Correction Statistics

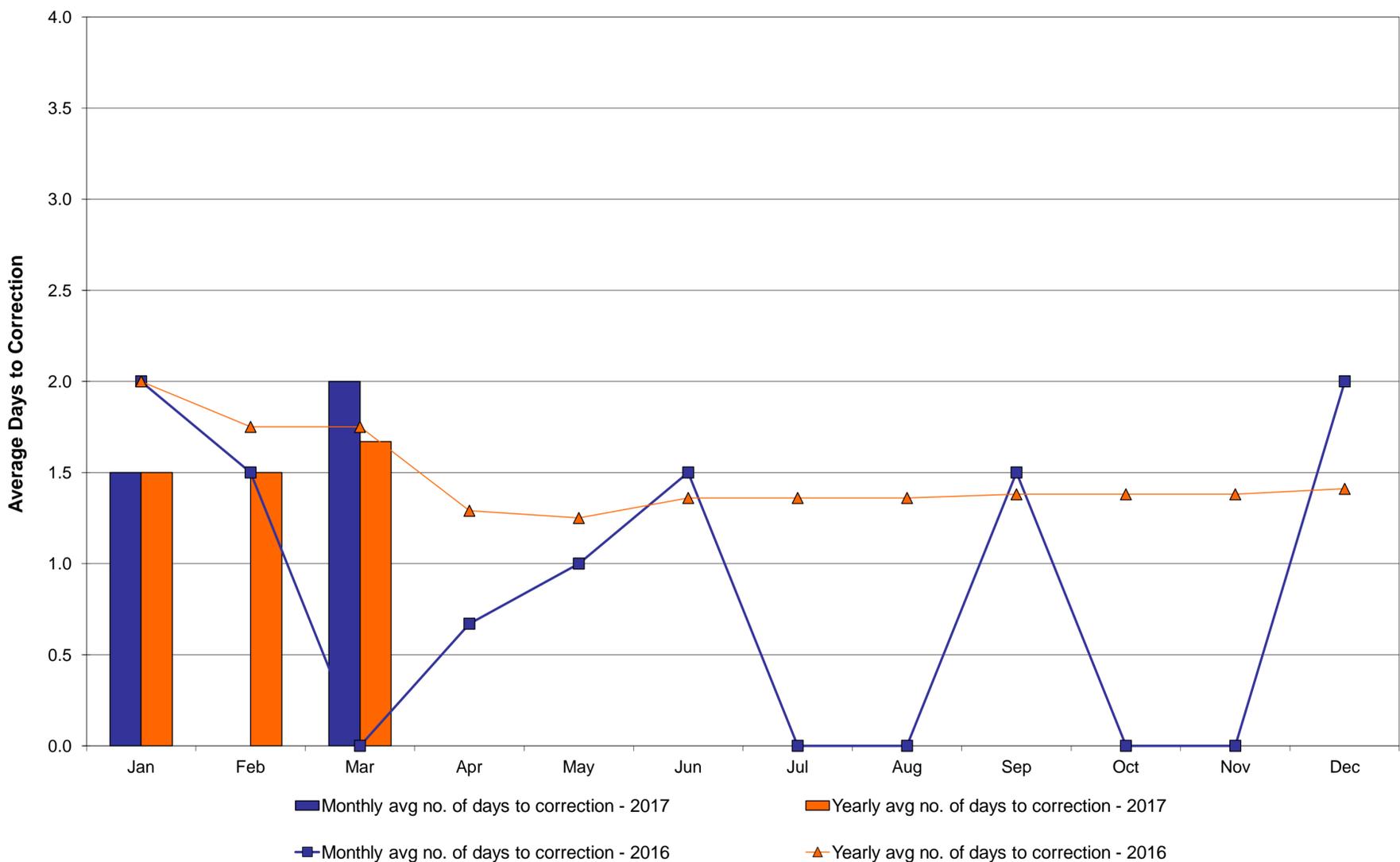
<b>2017</b>		<u>January</u>	<u>February</u>	<u>March</u>	<u>April</u>	<u>May</u>	<u>June</u>	<u>July</u>	<u>August</u>	<u>September</u>	<u>October</u>	<u>November</u>	<u>December</u>
<b>Hour Corrections</b>													
Number of hours with corrections	in the month	2	0	1									
Number of hours	in the month	744	672	743									
% of hours with corrections	in the month	0.27%	0.00%	0.13%									
% of hours with corrections	year-to-date	0.27%	0.14%	0.14%									
<b>Interval Corrections</b>													
Number of intervals corrected	in the month	5	0	1									
Number of intervals	in the month	8,983	8,101	9,026									
% of intervals corrected	in the month	0.06%	0.00%	0.01%									
% of intervals corrected	year-to-date	0.06%	0.03%	0.02%									
<b>Hours Reserved</b>													
Number of hours reserved	in the month	4	0	6									
Number of hours	in the month	744	672	743									
% of hours reserved	in the month	0.54%	0.00%	0.81%									
% of hours reserved	year-to-date	0.54%	0.28%	0.46%									
<b>Days to Correction *</b>													
Avg. number of days to correction	in the month	1.50	0.00	2.00									
Avg. number of days to correction	year-to-date	1.50	1.50	1.67									
<b>Days Without Corrections</b>													
Days without corrections	in the month	29	28	30									
Days without corrections	year-to-date	29	57	87									
<b>2016</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	3	2	0	3	1	8	0	0	2	0	0	1
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	0.40%	0.29%	0.00%	0.42%	0.13%	1.11%	0.00%	0.00%	0.28%	0.00%	0.00%	0.13%
% of hours with corrections	year-to-date	0.40%	0.35%	0.23%	0.28%	0.25%	0.39%	0.33%	0.29%	0.29%	0.26%	0.24%	0.23%
<b>Interval Corrections</b>													
Number of intervals corrected	in the month	5	11	0	3	1	20	0	0	7	0	0	1
Number of intervals	in the month	9,000	8,440	8,995	8,724	8,987	8,725	9,038	9,048	8,713	8,960	8,724	9,034
% of intervals corrected	in the month	0.06%	0.13%	0.00%	0.03%	0.01%	0.23%	0.00%	0.00%	0.08%	0.00%	0.00%	0.01%
% of intervals corrected	year-to-date	0.06%	0.09%	0.06%	0.05%	0.05%	0.08%	0.06%	0.06%	0.06%	0.05%	0.05%	0.05%
<b>Hours Reserved</b>													
Number of hours reserved	in the month	10	25	1	8	2	32	8	13	10	3	5	11
Number of hours	in the month	744	696	743	720	744	720	744	744	720	744	721	744
% of hours reserved	in the month	1.34%	3.59%	0.13%	1.11%	0.27%	4.44%	1.08%	1.75%	1.39%	0.40%	0.69%	1.48%
% of hours reserved	year-to-date	1.34%	2.43%	1.65%	1.52%	1.26%	1.79%	1.68%	1.69%	1.66%	1.53%	1.46%	1.46%
<b>Days to Correction *</b>													
Avg. number of days to correction	in the month	2.00	1.50	0.00	0.67	1.00	1.50	0.00	0.00	1.50	0.00	0.00	2.00
Avg. number of days to correction	year-to-date	2.00	1.75	1.75	1.29	1.25	1.36	1.36	1.36	1.38	1.38	1.38	1.41
<b>Days Without Corrections</b>													
Days without corrections	in the month	29	27	31	27	30	24	31	31	28	31	30	30
Days without corrections	year-to-date	29	56	87	114	144	168	199	230	258	289	319	349

\* Calendar days from reservation date.

### Percentage of Real-Time Corrections

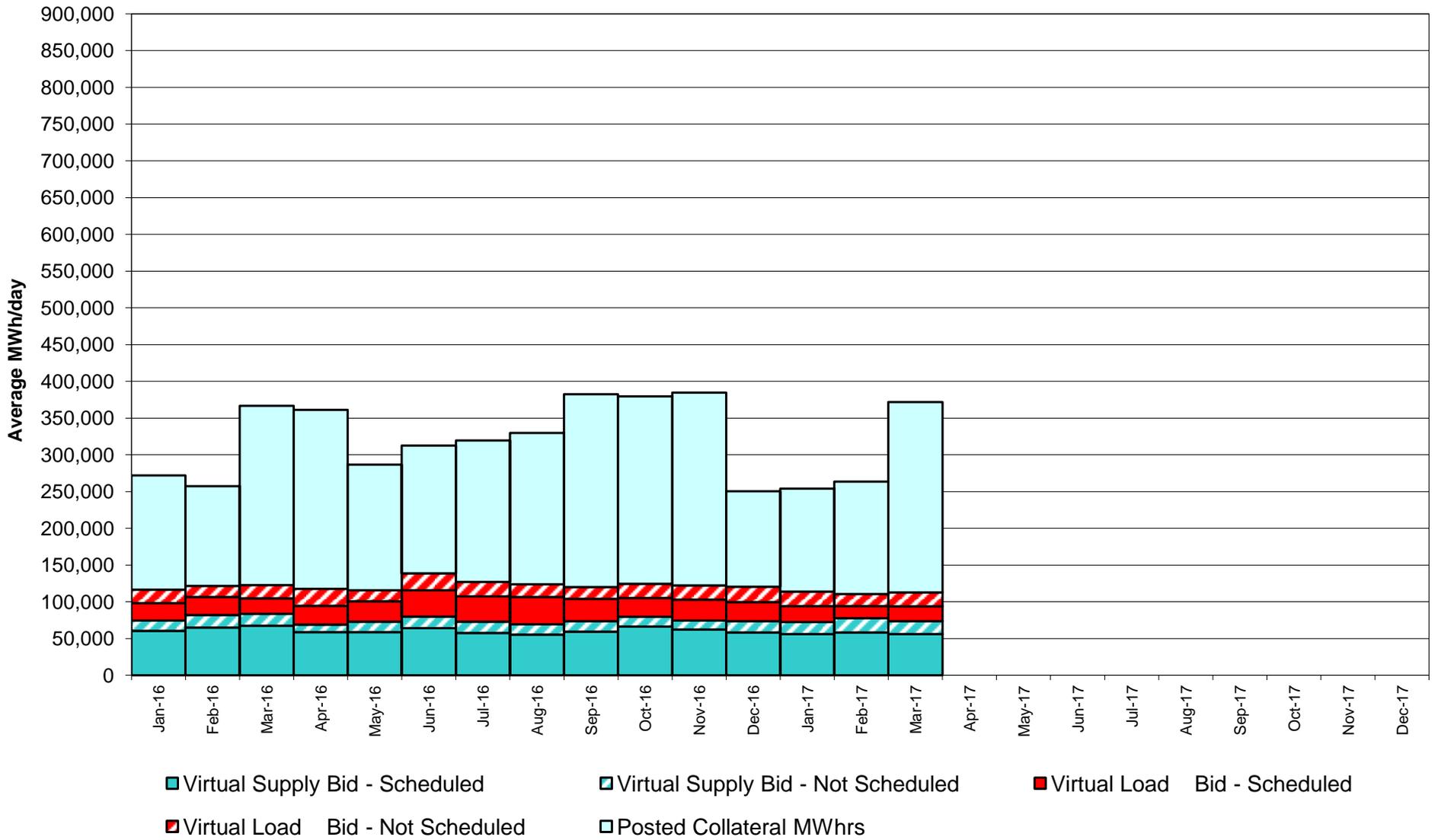


### Annual average time period for making Price Corrections (from reservation date) \*

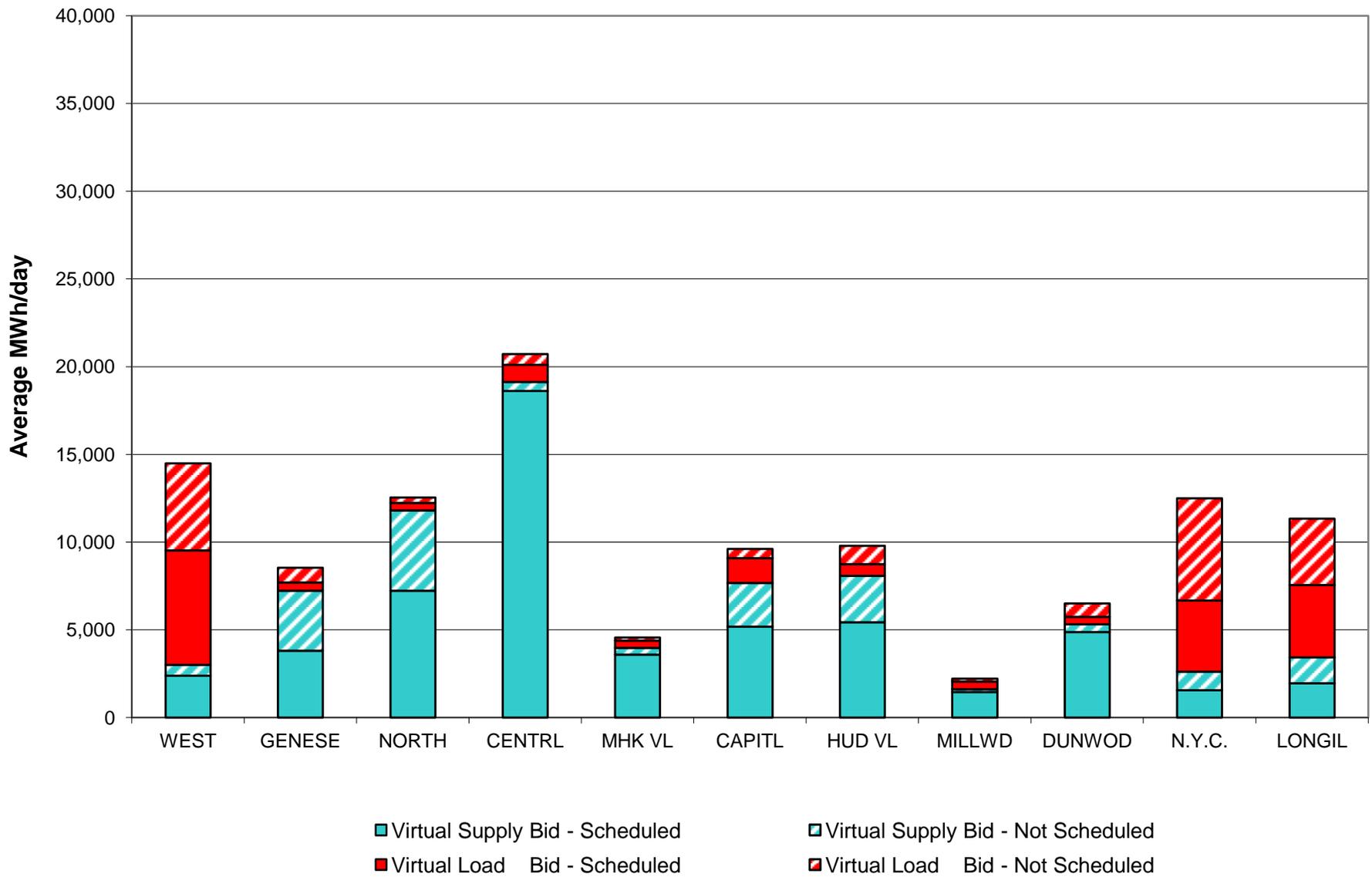


\* Calendar days from reservation date.

## NYISO Virtual Trading Average MWh per day



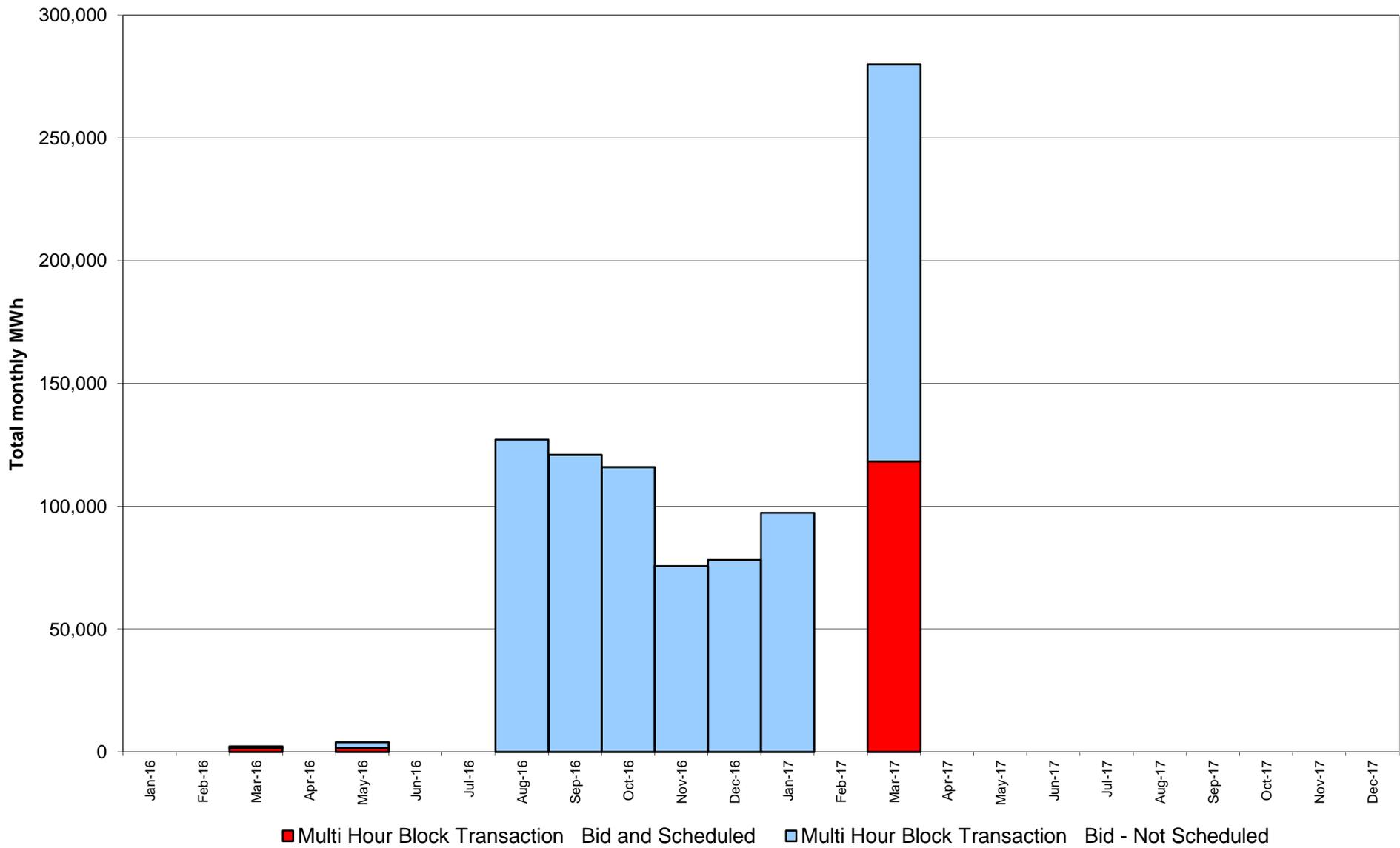
**Virtual Load and Supply Zonal Statistics through March 31, 2017**



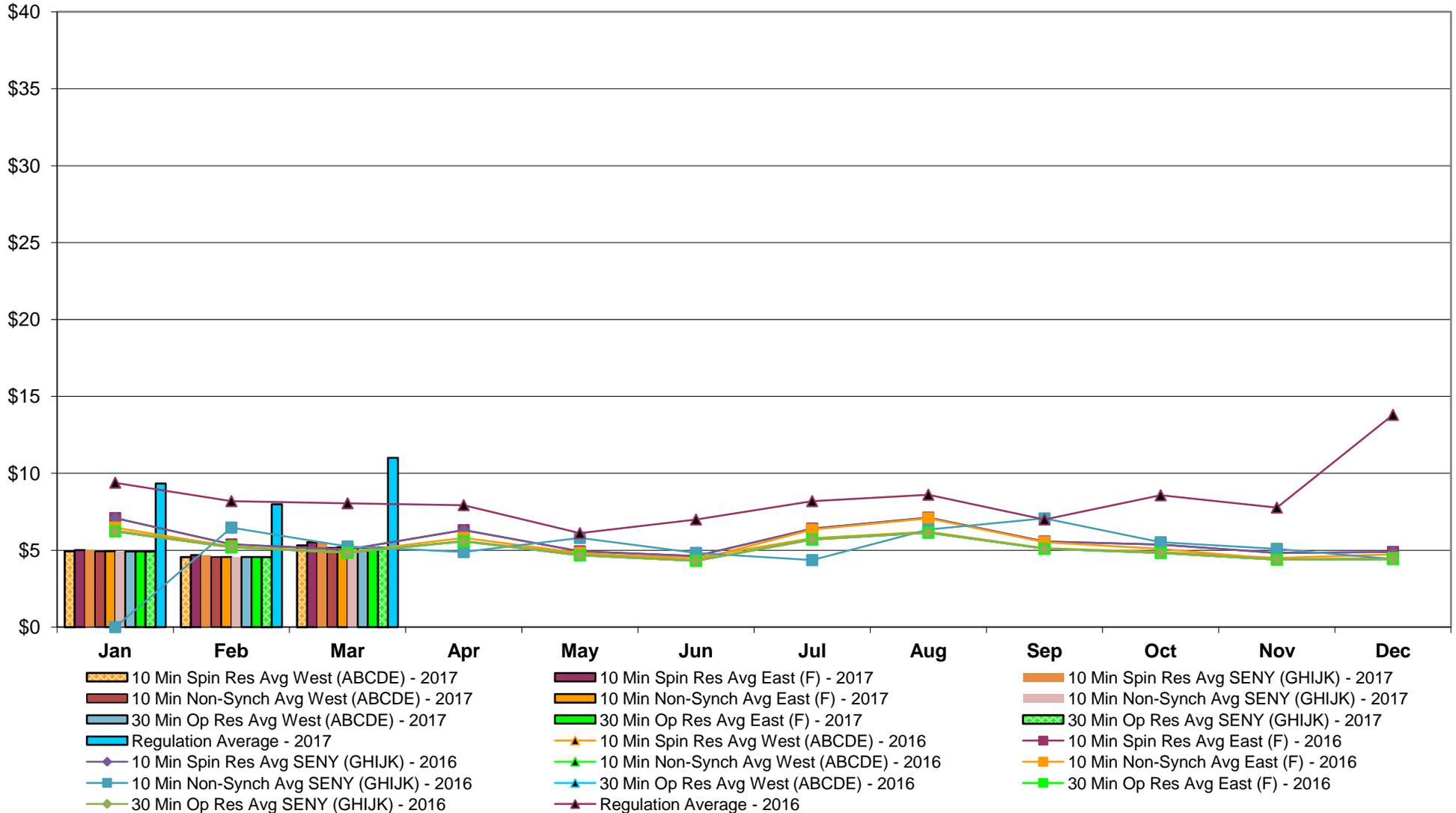
**Virtual Load and Supply Zonal Statistics (Average MWh/day) - 2017**

		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-17	6,094	5,795	2,019	337	<b>MHK VL</b>	Jan-17	566	202	2,022	131	<b>DUNWOD</b>	Jan-17	304	832	5,708	389
	Feb-17	3,771	4,772	3,346	567		Feb-17	422	100	2,459	293		Feb-17	193	585	5,966	424
	Mar-17	6,522	4,960	2,386	616		Mar-17	407	186	3,594	378		Mar-17	436	763	4,871	439
	Apr-17						Apr-17						Apr-17				
	May-17						May-17						May-17				
	Jun-17						Jun-17						Jun-17				
	Jul-17						Jul-17						Jul-17				
	Aug-17						Aug-17						Aug-17				
	Sep-17						Sep-17						Sep-17				
	Oct-17						Oct-17						Oct-17				
	Nov-17						Nov-17						Nov-17				
	Dec-17						Dec-17						Dec-17				
<b>GENESE</b>	Jan-17	654	1,282	3,652	2,482	<b>CAPITL</b>	Jan-17	1,291	666	3,990	3,861	<b>N.Y.C.</b>	Jan-17	5,761	5,474	1,543	1,008
	Feb-17	276	600	3,782	3,206		Feb-17	1,115	409	3,432	3,798		Feb-17	4,622	5,309	1,712	1,219
	Mar-17	480	838	3,806	3,419		Mar-17	1,409	528	5,186	2,484		Mar-17	4,052	5,826	1,561	1,058
	Apr-17						Apr-17						Apr-17				
	May-17						May-17						May-17				
	Jun-17						Jun-17						Jun-17				
	Jul-17						Jul-17						Jul-17				
	Aug-17						Aug-17						Aug-17				
	Sep-17						Sep-17						Sep-17				
	Oct-17						Oct-17						Oct-17				
	Nov-17						Nov-17						Nov-17				
	Dec-17						Dec-17						Dec-17				
<b>NORTH</b>	Jan-17	655	316	6,415	3,473	<b>HUD VL</b>	Jan-17	911	817	5,317	3,064	<b>LONGIL</b>	Jan-17	3,559	3,788	1,354	1,367
	Feb-17	465	338	7,504	4,006		Feb-17	1,292	915	6,266	3,873		Feb-17	3,341	3,127	1,653	1,667
	Mar-17	426	311	7,227	4,576		Mar-17	659	1,048	5,427	2,652		Mar-17	4,133	3,779	1,958	1,463
	Apr-17						Apr-17						Apr-17				
	May-17						May-17						May-17				
	Jun-17						Jun-17						Jun-17				
	Jul-17						Jul-17						Jul-17				
	Aug-17						Aug-17						Aug-17				
	Sep-17						Sep-17						Sep-17				
	Oct-17						Oct-17						Oct-17				
	Nov-17						Nov-17						Nov-17				
	Dec-17						Dec-17						Dec-17				
<b>CENTRL</b>	Jan-17	1,482	455	22,561	196	<b>MILLWD</b>	Jan-17	435	91	1,422	128	<b>NYISO</b>	Jan-17	21,713	19,719	56,001	16,436
	Feb-17	707	177	20,639	320		Feb-17	202	74	1,555	164		Feb-17	16,405	16,406	58,312	19,537
	Mar-17	979	605	18,610	518		Mar-17	454	157	1,452	158		Mar-17	19,956	19,002	56,078	17,759
	Apr-17						Apr-17						Apr-17				
	May-17						May-17						May-17				
	Jun-17						Jun-17						Jun-17				
	Jul-17						Jul-17						Jul-17				
	Aug-17						Aug-17						Aug-17				
	Sep-17						Sep-17						Sep-17				
	Oct-17						Oct-17						Oct-17				
	Nov-17						Nov-17						Nov-17				
	Dec-17						Dec-17						Dec-17				

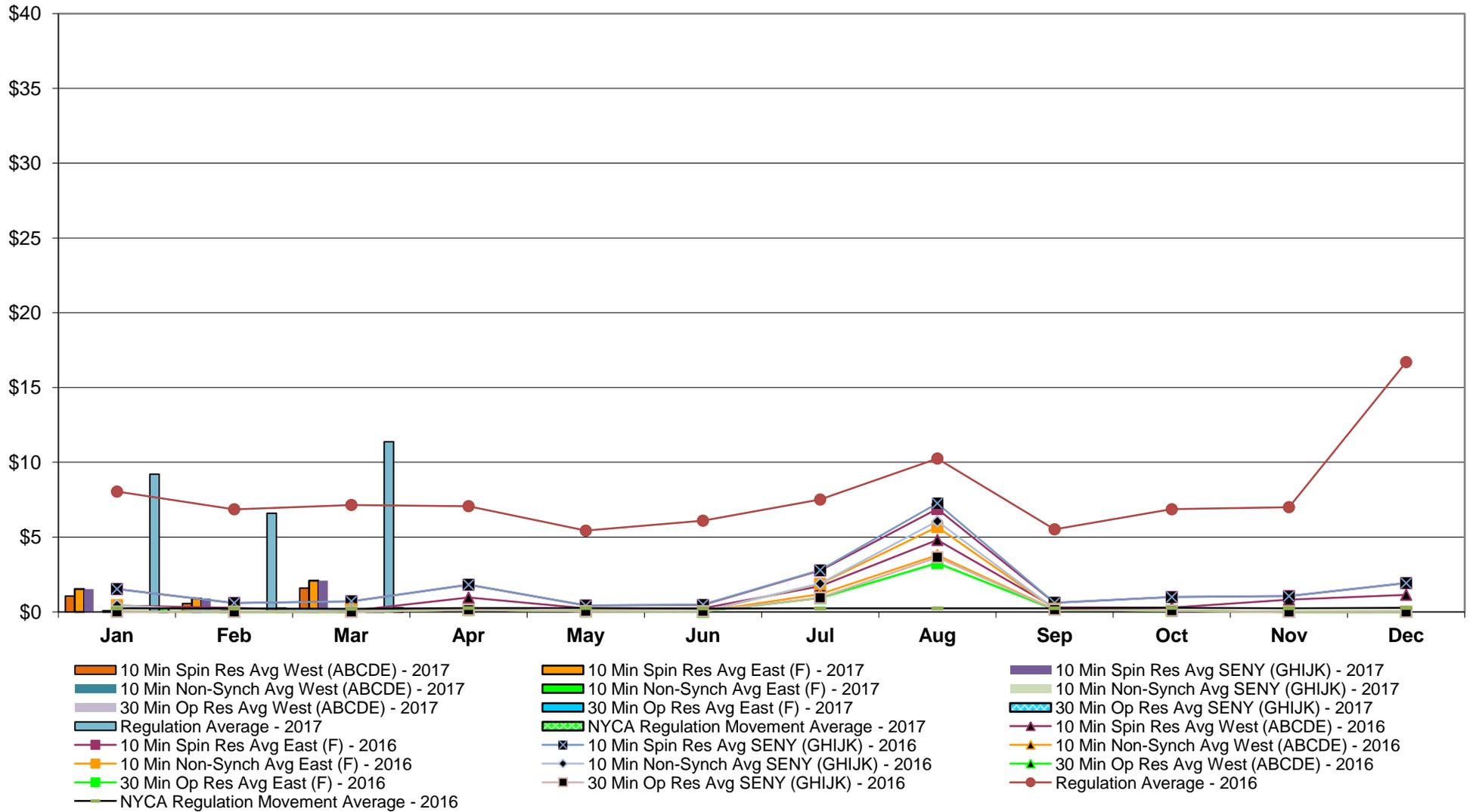
### NYISO Multi Hour Block Transactions Monthly Total MWh



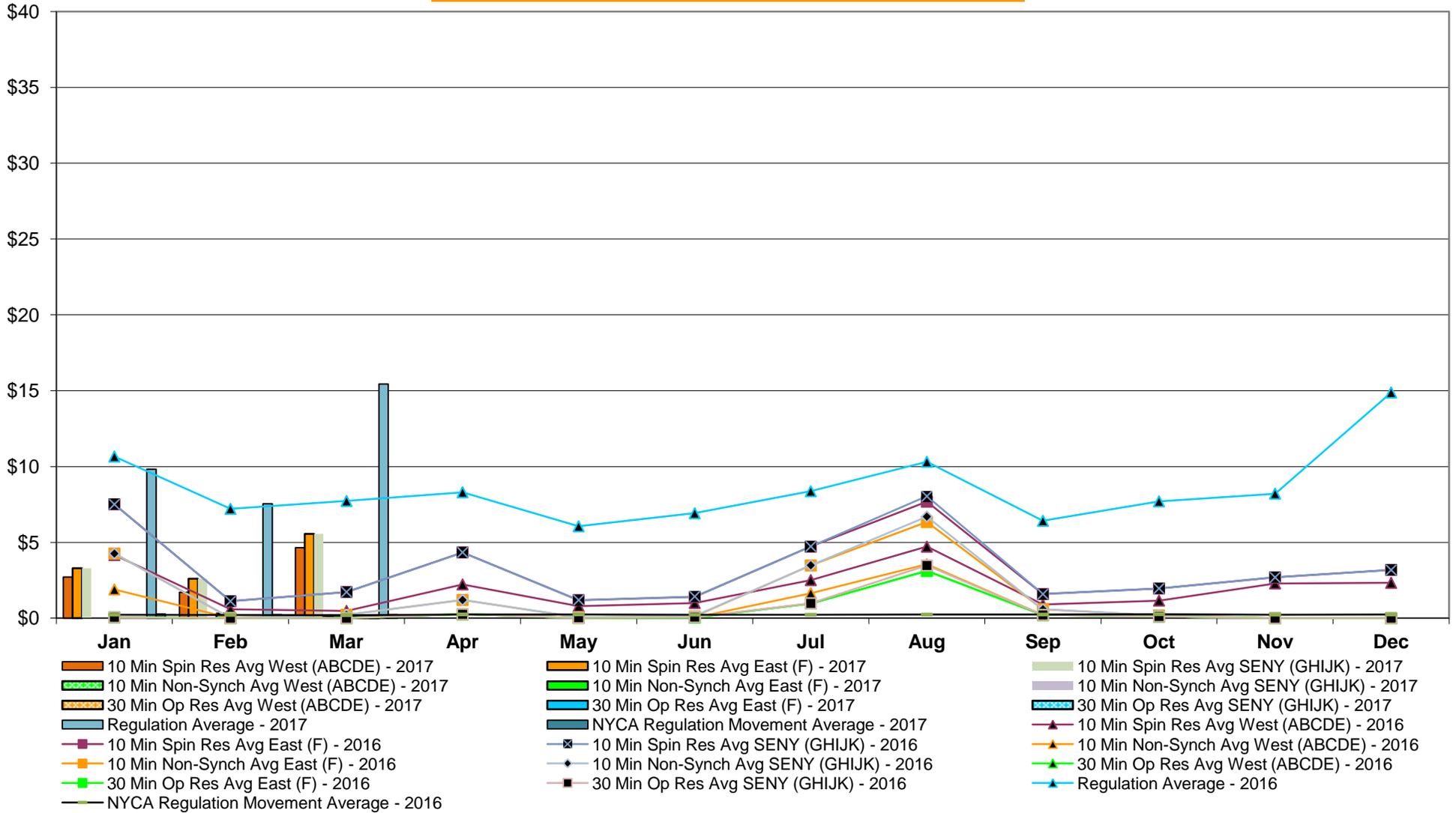
## NYISO Monthly Average Ancillary Service Prices Day Ahead Market 2016 - 2017



## NYISO Monthly Average Ancillary Service Prices RTC Market 2016 - 2017



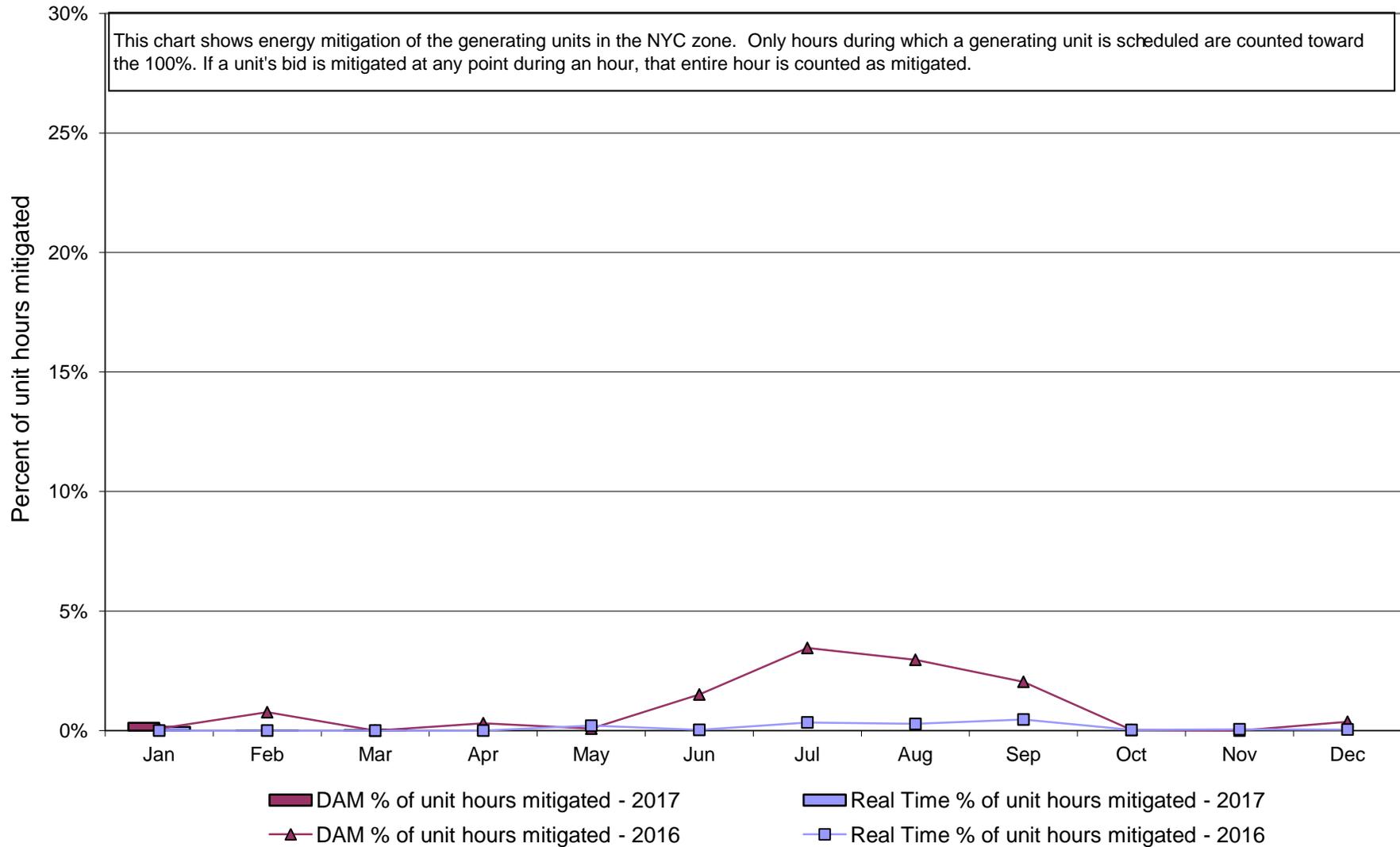
## NYISO Monthly Average Ancillary Service Prices Real Time Market 2016 - 2017



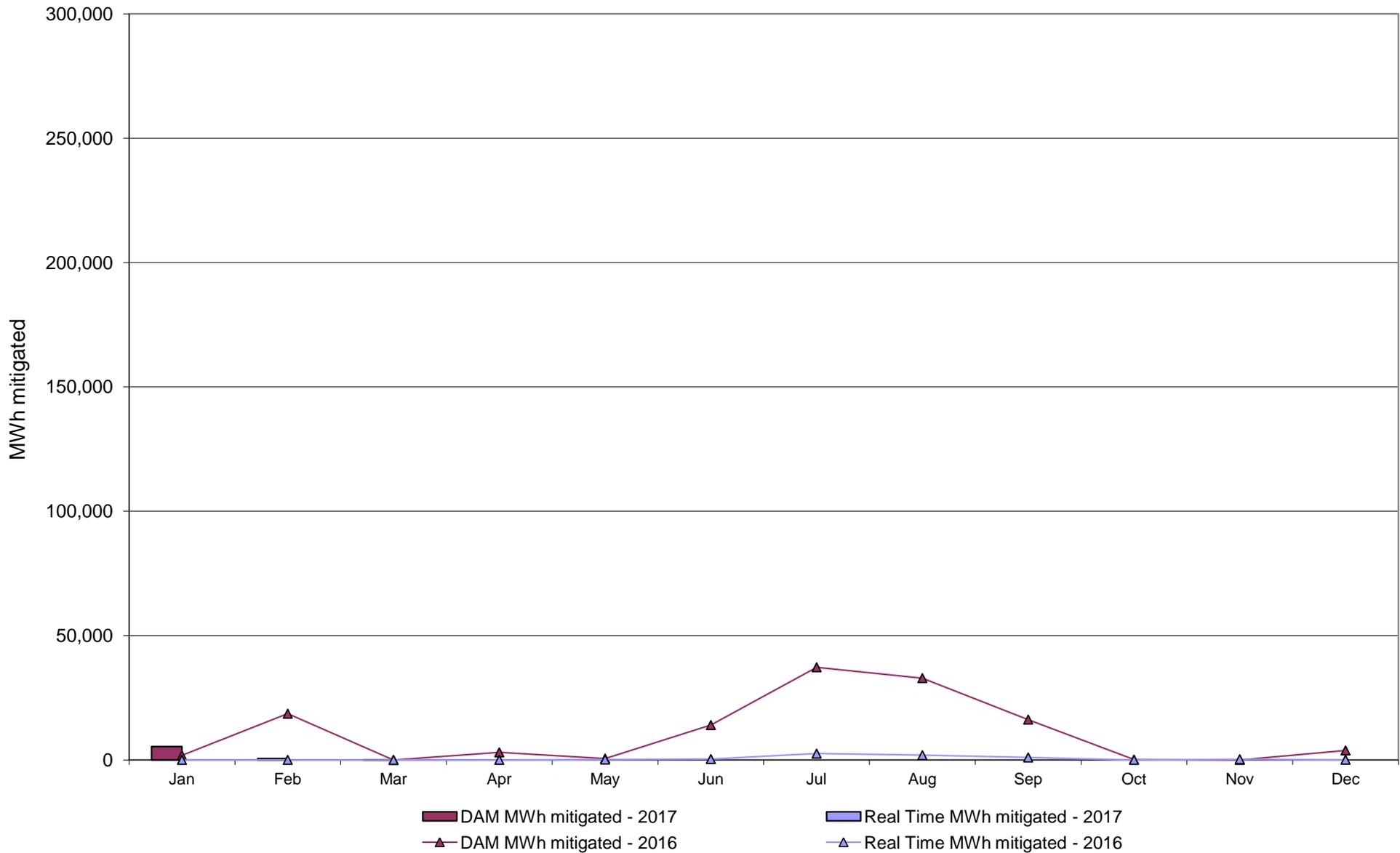
## NYISO Markets Ancillary Services Statistics - Unweighted Price (\$/MWH)

2017	January	February	March	April	May	June	July	August	September	October	November	December
<b>Day Ahead Market</b>												
10 Min Spin SENY (GHIJK)	5.01	4.68	5.53									
10 Min Spin East (F)	5.01	4.68	5.53									
10 Min Spin West (ABCDE)	4.94	4.56	5.31									
10 Min Non Synch SENY (GHIJK)	4.94	4.57	5.20									
10 Min Non Synch East (F)	4.94	4.57	5.20									
10 Min Non Synch West (ABCDE)	4.92	4.56	5.17									
30 Min SENY (GHIJK)	4.92	4.56	5.17									
30 Min East (F)	4.92	4.56	5.17									
30 Min West (ABCDE)	4.92	4.56	5.17									
Regulation	9.34	7.99	11.01									
<b>RTC Market</b>												
10 Min Spin SENY (GHIJK)	1.53	0.89	2.08									
10 Min Spin East (F)	1.53	0.89	2.08									
10 Min Spin West (ABCDE)	1.06	0.55	1.58									
10 Min Non Synch SENY (GHIJK)	0.06	0.06	0.10									
10 Min Non Synch East (F)	0.06	0.06	0.10									
10 Min Non Synch West (ABCDE)	0.00	0.00	0.10									
30 Min SENY (GHIJK)	0.00	0.00	0.10									
30 Min East (F)	0.00	0.00	0.10									
30 Min West (ABCDE)	0.00	0.00	0.10									
Regulation	9.21	6.59	11.37									
NYCA Regulation Movement	0.27	0.24	0.25									
<b>Real Time Market</b>												
10 Min Spin SENY (GHIJK)	3.29	2.61	5.56									
10 Min Spin East (F)	3.29	2.61	5.56									
10 Min Spin West (ABCDE)	2.71	1.71	4.65									
10 Min Non Synch SENY (GHIJK)	0.00	0.31	0.17									
10 Min Non Synch East (F)	0.00	0.31	0.17									
10 Min Non Synch West (ABCDE)	0.00	0.00	0.13									
30 Min SENY (GHIJK)	0.00	0.00	0.12									
30 Min East (F)	0.00	0.00	0.12									
30 Min West (ABCDE)	0.00	0.00	0.12									
Regulation	9.83	7.54	15.44									
NYCA Regulation Movement	0.27	0.24	0.25									
<b>2016</b>												
<b>Day Ahead Market</b>												
10 Min Spin SENY (GHIJK)	7.09	5.38	5.04	6.31	4.93	4.62	6.41	7.12	5.57	5.37	4.83	4.89
10 Min Spin East (F)	7.09	5.38	5.04	6.31	4.93	4.62	6.41	7.12	5.57	5.37	4.83	4.89
10 Min Spin West (ABCDE)	6.28	5.25	4.84	5.60	4.77	4.52	5.78	6.20	5.14	4.89	4.50	4.73
10 Min Non Synch SENY (GHIJK)	6.47	5.25	4.88	5.80	4.83	4.36	6.34	7.07	5.52	5.09	4.43	4.49
10 Min Non Synch East (F)	6.47	5.25	4.88	5.80	4.83	4.36	6.34	7.07	5.52	5.09	4.43	4.49
10 Min Non Synch West (ABCDE)	6.23	5.20	4.84	5.58	4.68	4.32	5.72	6.15	5.10	4.82	4.39	4.43
30 Min SENY (GHIJK)	6.23	5.20	4.84	5.58	4.67	4.32	5.70	6.15	5.10	4.82	4.39	4.43
30 Min East (F)	6.23	5.20	4.84	5.58	4.67	4.32	5.70	6.15	5.10	4.82	4.39	4.43
30 Min West (ABCDE)	6.23	5.20	4.84	5.58	4.67	4.32	5.70	6.15	5.10	4.82	4.39	4.43
Regulation	9.39	8.19	8.05	7.93	6.11	7.00	8.19	8.61	7.00	8.57	7.77	13.80
<b>RTC Market</b>												
10 Min Spin SENY (GHIJK)	1.53	0.59	0.71	1.81	0.43	0.49	2.79	7.26	0.61	0.99	1.05	1.92
10 Min Spin East (F)	1.53	0.59	0.71	1.81	0.43	0.46	2.77	6.88	0.61	0.99	1.05	1.92
10 Min Spin West (ABCDE)	0.42	0.26	0.08	0.95	0.23	0.24	1.72	4.80	0.30	0.29	0.82	1.14
10 Min Non Synch SENY (GHIJK)	0.45	0.00	0.17	0.14	0.05	0.05	1.89	6.06	0.21	0.09	0.00	0.00
10 Min Non Synch East (F)	0.45	0.00	0.17	0.14	0.05	0.02	1.87	5.67	0.21	0.09	0.00	0.00
10 Min Non Synch West (ABCDE)	0.04	0.00	0.00	0.14	0.04	0.02	1.18	3.80	0.16	0.08	0.00	0.00
30 Min SENY (GHIJK)	0.01	0.00	0.00	0.14	0.04	0.04	0.94	3.65	0.15	0.08	0.00	0.00
30 Min East (F)	0.01	0.00	0.00	0.14	0.04	0.02	0.93	3.27	0.15	0.08	0.00	0.00
30 Min West (ABCDE)	0.01	0.00	0.00	0.14	0.04	0.02	0.93	3.27	0.15	0.08	0.00	0.00
Regulation	8.04	6.86	7.15	7.07	5.43	6.09	7.51	10.25	5.52	6.86	7.00	16.70
NYCA Regulation Movement	0.23	0.21	0.20	0.25	0.25	0.23	0.23	0.24	0.24	0.26	0.24	0.26
<b>Real Time Market</b>												
10 Min Spin SENY (GHIJK)	7.51	1.12	1.73	4.34	1.19	1.43	4.73	8.04	1.59	1.96	2.69	3.18
10 Min Spin East (F)	7.51	1.12	1.73	4.34	1.19	1.40	4.72	7.68	1.59	1.96	2.69	3.18
10 Min Spin West (ABCDE)	4.17	0.58	0.48	2.23	0.79	1.00	2.51	4.72	0.90	1.16	2.29	2.33
10 Min Non Synch SENY (GHIJK)	4.26	0.00	0.22	1.20	0.06	0.15	3.49	6.70	0.59	0.18	0.00	0.00
10 Min Non Synch East (F)	4.26	0.00	0.22	1.20	0.06	0.11	3.48	6.34	0.59	0.18	0.00	0.00
10 Min Non Synch West (ABCDE)	1.89	0.00	0.00	0.26	0.03	0.04	1.65	3.56	0.21	0.11	0.00	0.00
30 Min SENY (GHIJK)	0.06	0.00	0.00	0.25	0.03	0.07	0.98	3.48	0.21	0.11	0.00	0.00
30 Min East (F)	0.06	0.00	0.00	0.25	0.03	0.04	0.97	3.12	0.21	0.11	0.00	0.00
30 Min West (ABCDE)	0.06	0.00	0.00	0.25	0.03	0.04	0.97	3.12	0.21	0.11	0.00	0.00
Regulation	10.66	7.21	7.73	8.30	6.06	6.92	8.37	10.31	6.42	7.70	8.21	14.88
NYCA Regulation Movement	0.23	0.22	0.20	0.25	0.25	0.23	0.23	0.24	0.24	0.26	0.23	0.24

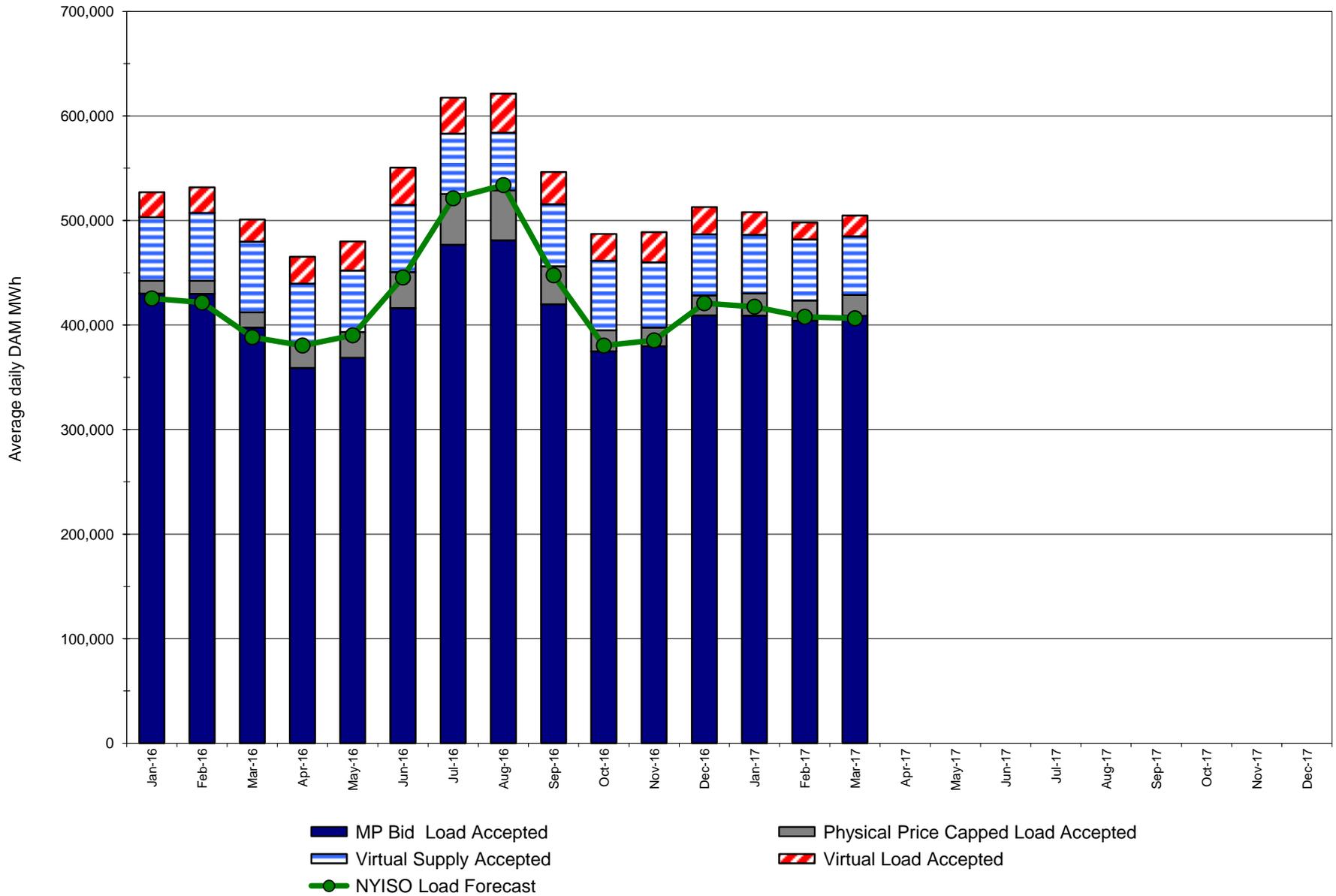
## NYISO In City Energy Mitigation - AMP (NYC Zone) 2016 - 2017 Percentage of committed unit-hours mitigated



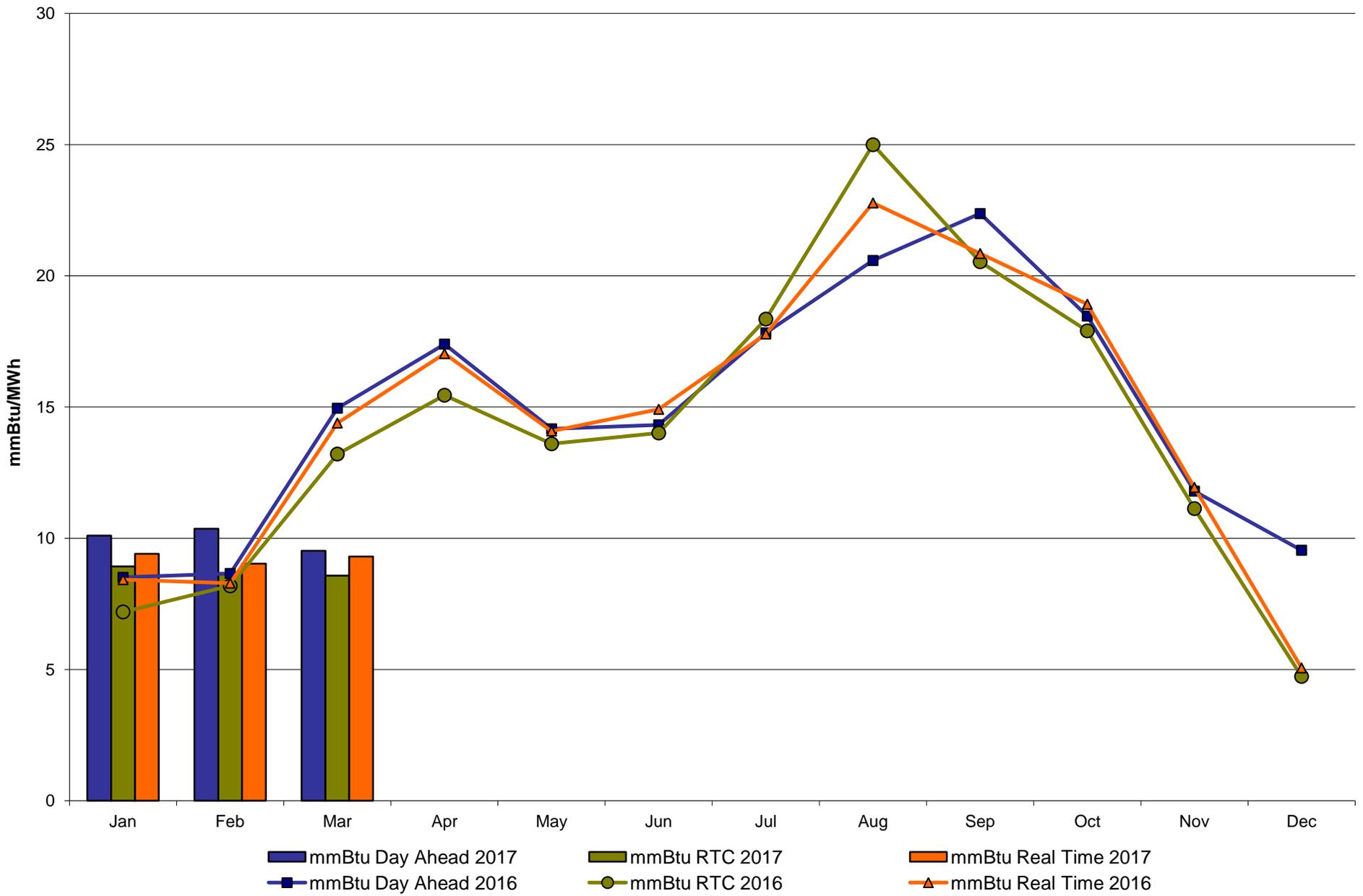
**NYISO In City Energy Mitigation (NYC Zone) 2016 - 2017**  
**Monthly megawatt hours mitigated**



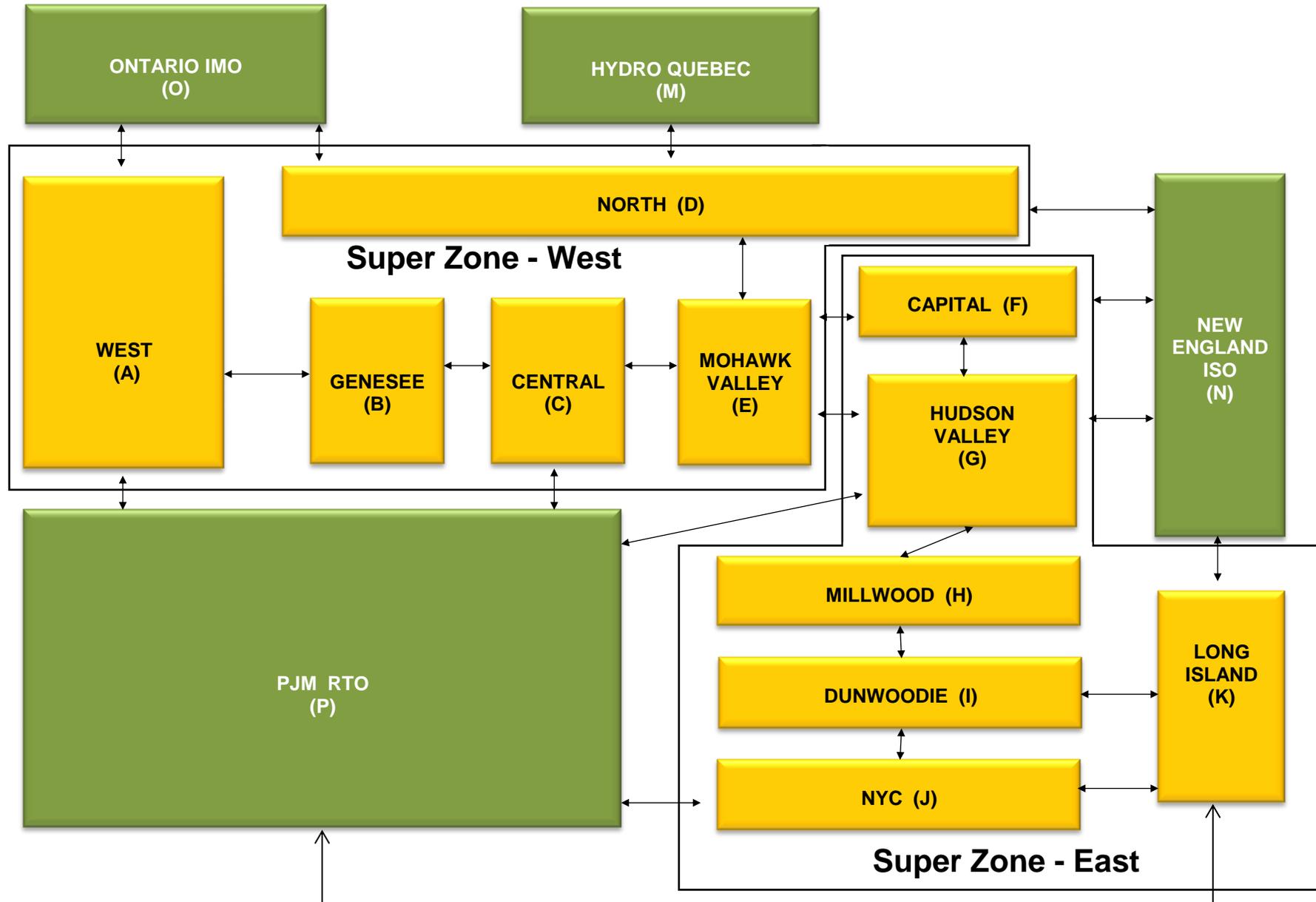
### NYISO Average Daily DAM Load Bid Summary



# Monthly Implied Heat Rate 2016-2017



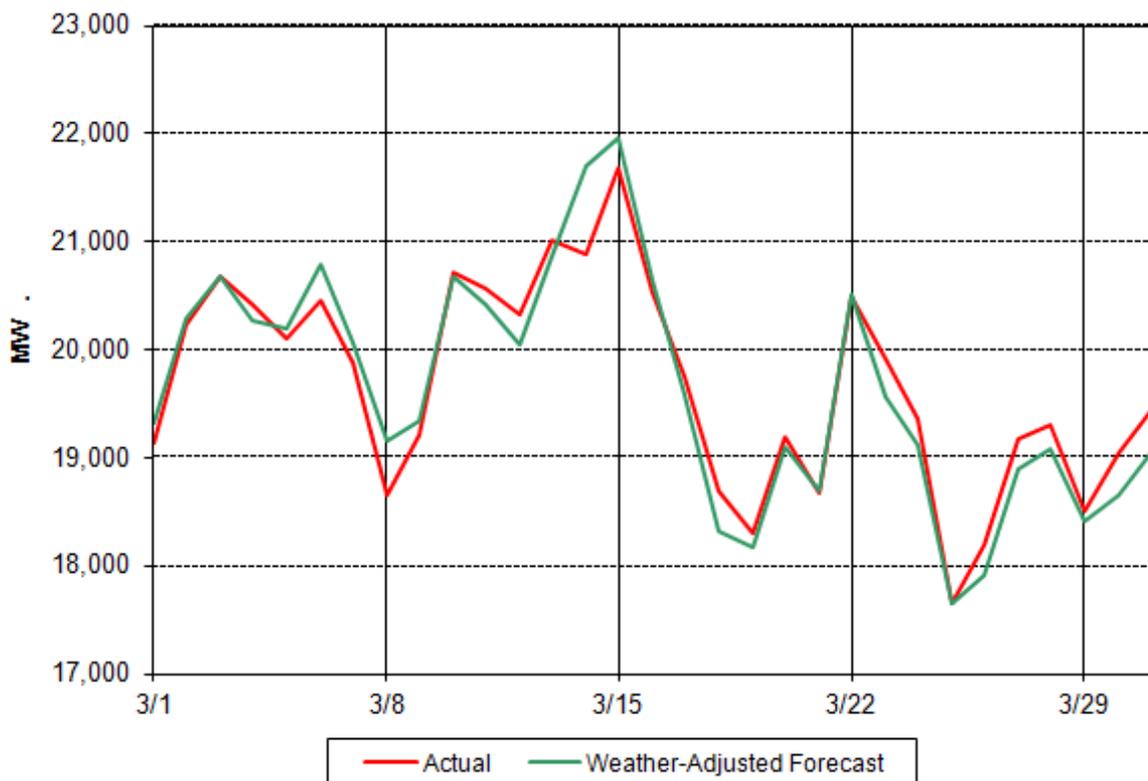
# NYISO LBMP ZONES



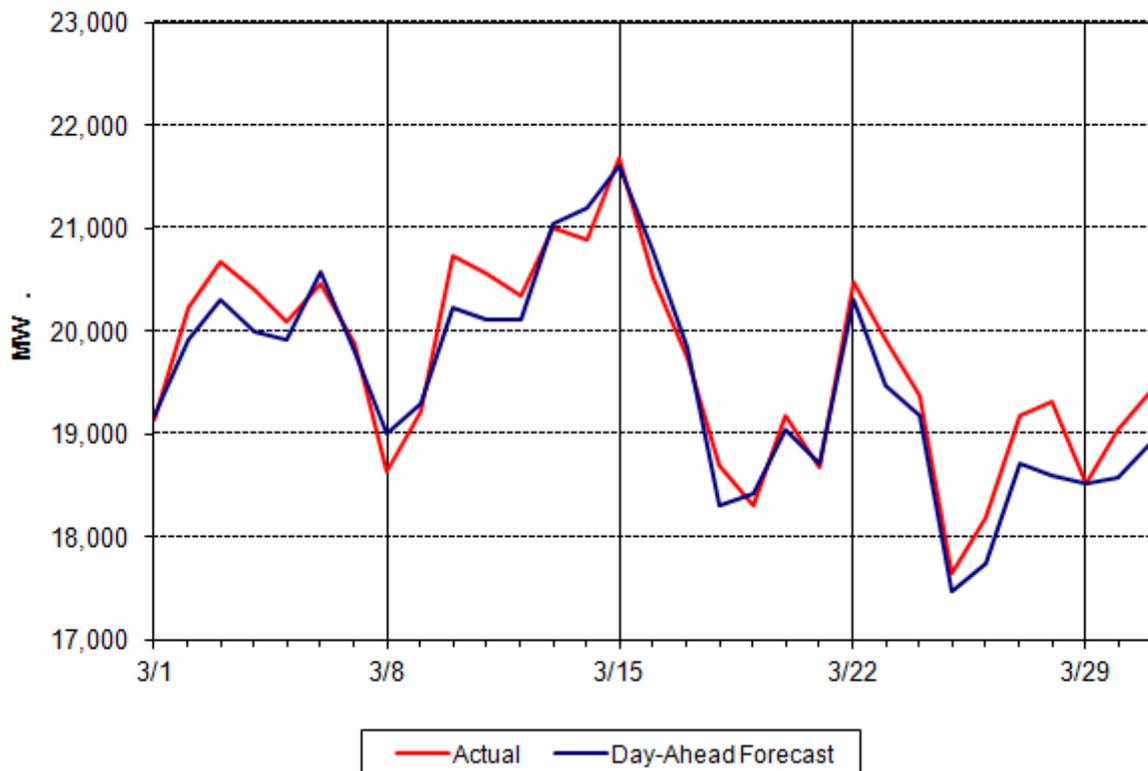
**Billing Codes for Chart C**

<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

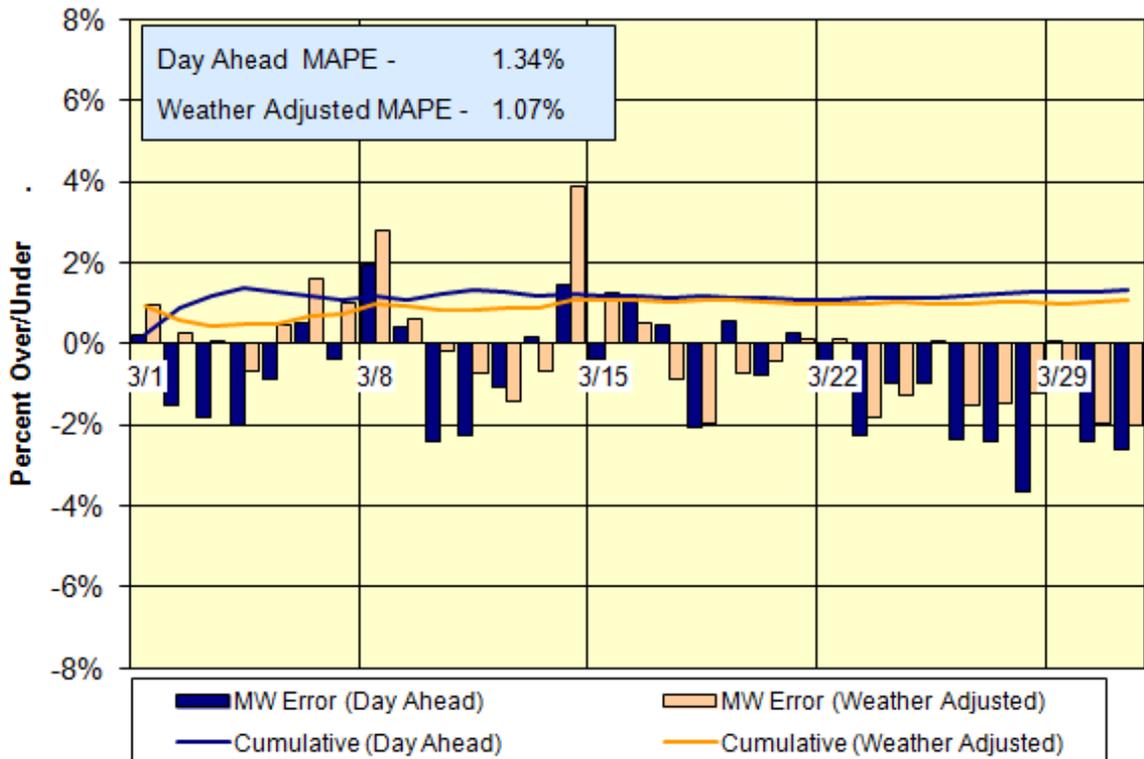
**NYISO Daily Peak Load - March 2017  
Actual vs. Weather-Adjusted Forecast**



**NYISO Daily Peak Load - March 2017  
Actual vs. Forecast**



### Day Ahead Peak Forecast - March 2017 Percent Error - Actual & Weather Adjusted



### Day-Ahead Forecast Accuracy - Cumulative Performance 2017 Year-to-Date



## Summary Description of Regulatory Filings, Investigations, Rulemakings and Related Orders in NYISO Matters – March 2017

<b>Filing Date</b>	<b>Filing Summary</b>	<b>Docket</b>	<b>Order Date</b>	<b>Order Summary</b>
01/31/2017	NYISO and PJM joint 205 filing re: revisions to the Joint Operating Agreement addressing Interchange Scheduling and Market-to-Market Coordination on the ABC Interface and JK Interface after the 1,000 MW Wheel concludes	ER17-905-000	03/31/2017	FERC order accepted (effective 05/01/2017, as requested) and suspended the filing, subject to refund and further FERC order
02/02/2017	NYISO compliance filing re: notice of the effective date for the ICAP Demand Curve reset process revisions	ER16-1751-001	03/24/2017	FERC letter order accepted notice of effective date (i.e., 02/16/2017), as requested
02/03/2017	NYISO compliance filing re: effective date designation for UDR related tariff revisions	ER16-959-001	03/02/2017	FERC letter order accepted filing effective 02/17/2017, as requested
02/06/2017	NYISO 205 filing re: amend MST 23.4.5.5 governing the circumstances under which a Market Party will be deemed to be a Pivotal Supplier in a Mitigated Capacity Zone	ER17-941-000	03/24/2017	FERC letter order accepted revisions effective 04/07/2017, as requested
02/14/2017	NYISO compliance filing re: notice of effective date for revised fixed block unit pricing logic	ER17-549-001	03/28/2017	FERC letter order accepted notice of effective date (i.e., 02/28/2017), as requested
03/06/2017	NYISO request for clarification of 02/03/2017 order re: statement concerning mitigation redeterminations and implications on the retesting provisions of the buyer-side market power mitigation rules	EL16-92-001		
03/10/2017	NYISO and PJM joint filing re: answer to third party comments concerning the Joint Operating Agreement revisions addressing interchange scheduling and market-to-market coordination at certain interfaces after the 1000 MW Wheel concludes	ER17-905-000		
03/13/2017	NYISO 205 filing re: OATT and Services Tariff revisions to implement (i) a monthly balance-of-period Transmission Congestion Contract (“TCC”) auction structure; and (ii) enhancements to the credit requirements for TCCs	ER17-1167-000		
03/15/2017	NYISO filing to the NYS Joint Commission on Public Ethics re: bimonthly report for January – February 2017	No Docket No.		

03/15/2017	NYISO confidential filing to the NY Public Service Commission re: three-month Reliability Commitment Data Report for the period ending 02/28/2017	PSC Matter No. 10-02007		
03/20/2017	NYISO compliance filing re: Fourth Broader Regional Markets Informational Report	ER08-1281-000		
03/20/2017	NYISO compliance refiling re: Fourth Broader Regional Markets Informational Report to include a certificate of service	ER08-1281-000		
03/21/2017	NYISO 205 filing re: enhancements to the Day-Ahead Margin Assurance Payment program rules	ER17-1279-000		
03/22/2017	IRC late filed motion to intervene and supporting comments re: the NERC compliance monitoring and enforcement program ("CMEP") filing	RR15-2-000		
03/27/2017	NYISO filing re: motion to terminate annual informational reporting obligation concerning broader regional markets	ER08-1281-006		
03/27/2017	NYISO filing on behalf of the NYSPSC re: cost allocation under the OATT consistent with public policy transmission planning process	ER17-1310-000		
03/28/2017	NYISO filing re: annual compliance report on unreserved use and late study penalty assessments and distributions	OA08-109-000		
03/29/2017	NYISO and PJM joint filing re: out of time motion to intervene and answer to the Linden VFT motion concerning the NYISO and PJM joint filing addressing interchange scheduling and the implementation of Market-to-Market coordination	ER17-905-000		
03/31/2017	NYISO filing re: annual submission of FERC Form 715 – Annual Transmission Planning and Evaluation Report (CEII status)	No Docket No.		
03/31/2017	NYISO courtesy filing to the NYSPSC re: annual submission of FERC Form 715 – Annual Transmission Planning and Evaluation Report (CEII status)	No Docket No.		
03/31/2017	NYISO late filed motion to intervene and protest re: PJM's proposed external capacity enhancements to its OATT and Reliability Assurance Agreement	ER17-1138-000		
03/31/2017	NYISO compliance filing re: demand response compensation provisions in response to FERC's 01/30/2017 order	ER11-4388-001, <i>et. al.</i>		