



Monthly Report

September 2017

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Operations Performance Metrics Monthly Report



September 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 October 9, 2017.

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September 2017 Operations Performance Highlights

- Peak load of 27,442 MW occurred on 09/27/2017 HB 16
- All-time summer capability period peak load of 33,956 MW occurred on 7/19/2013 HB 16
- 0 hours of Thunder Storm Alerts were declared however, on 09/07/2017 and 09/08/2017, the NYISO declared Alert states and reduced power flows to 90% of ratings due to a level K-9 intensity solar storm.
- 0 hours of NERC TLR level 3 curtailment
- On 09/14/2017 the Ramapo PAR 3500 was returned to service. The Ramapo PAR scheduling ratio is now 32% with both PARs in service, as detailed in the *NY-NJ PAR interchange & OBF* web posting.
- On 09/05/2017 the Dolson Ave. station was cut in. It replaces the Coopers Corners-Rock Tavern 345kV (CCRT-42) line with Coopers Corners-Dolson Ave. 345 (CCDA42) line and the Dolson Ave.-Rock Tavern 345kV (DART44) line
- NYISO and PJM have agreed to reduce the initial Operational Base Flow (OBF), which is applied to the ABC and JK Interfaces, from 400 MW to zero MW as of 10/31/2019.
- The following table identifies the estimated production cost savings associated with the Broader Regional Market initiatives.

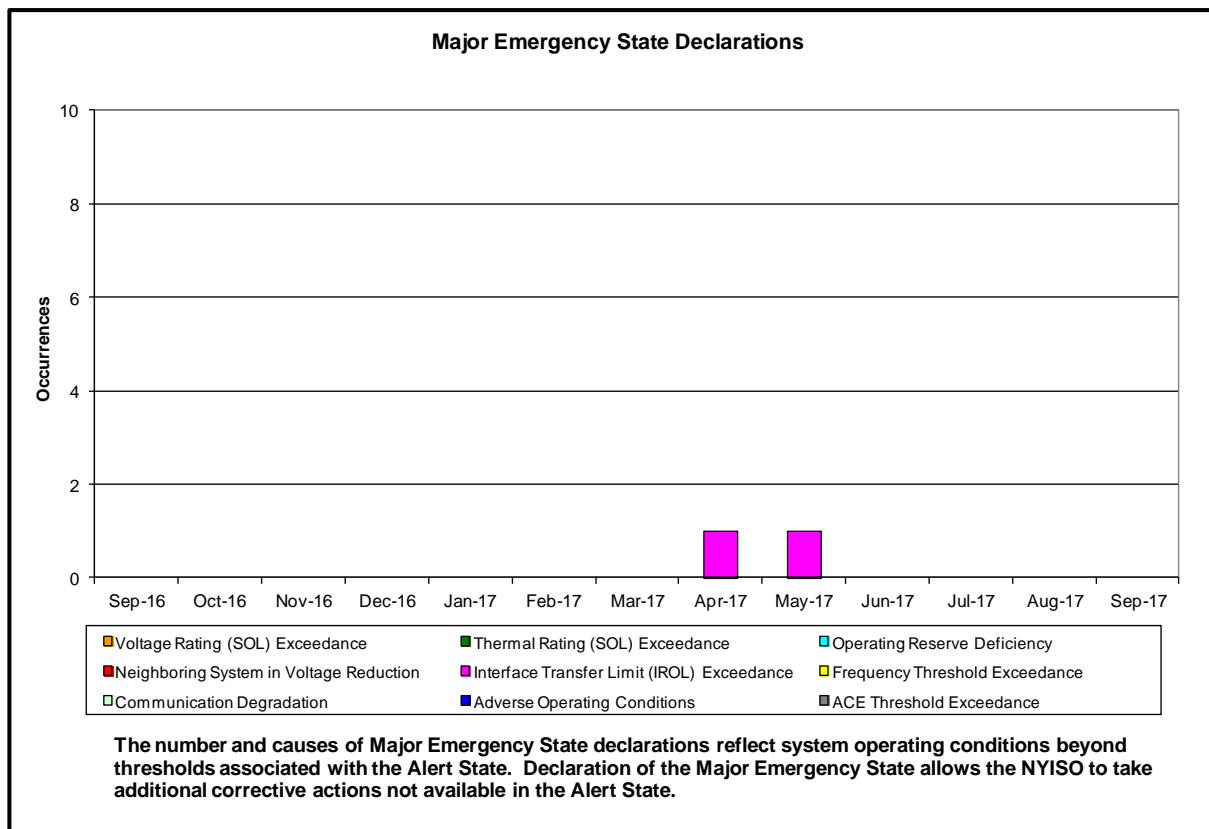
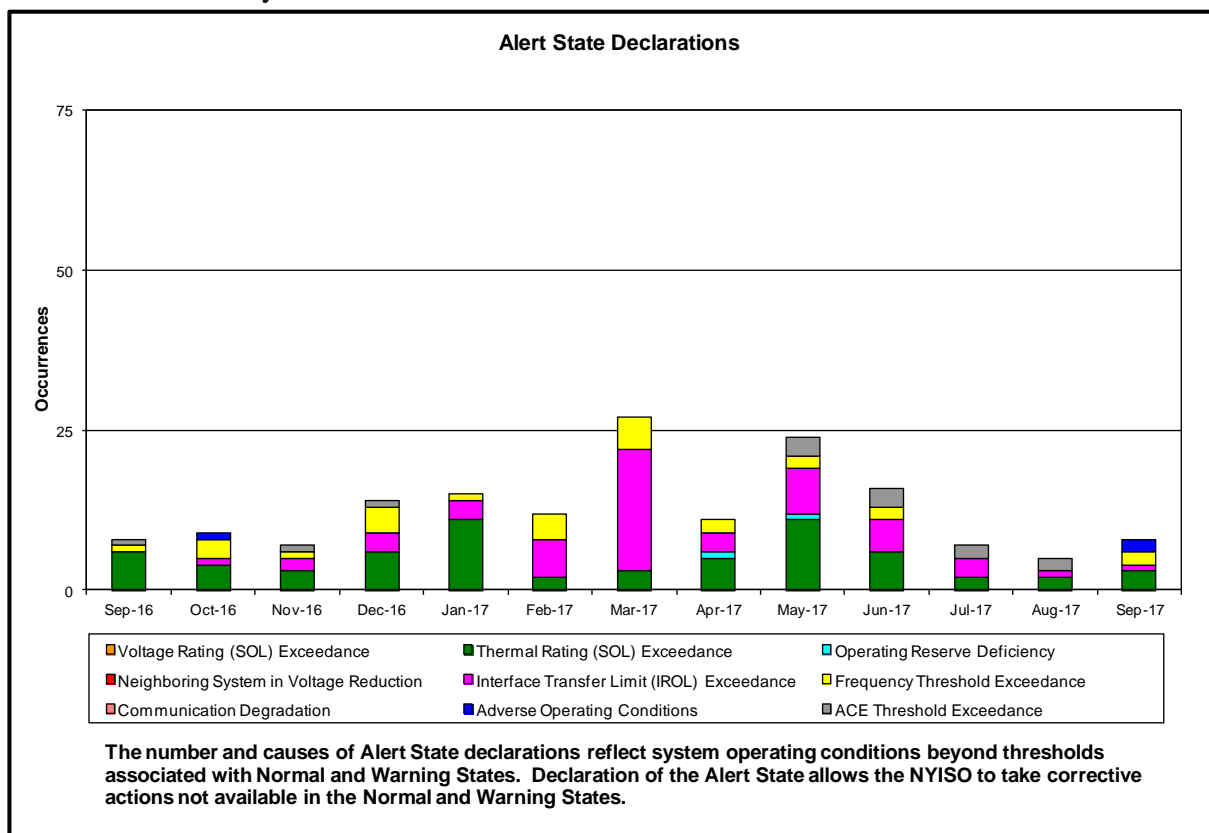
	Current Month Value (\$M)	Year-to-Date Value (\$M)
NY Savings from PJM-NY Congestion Coordination	\$0.35	\$9.12
NY Savings from PJM-NY Coordinated Transaction Scheduling	(\$0.18)	(\$1.01)
NY Savings from NE-NY Coordinated Transaction Scheduling	(\$0.21)	(\$0.87)
Total NY Savings	(\$0.04)	\$7.24
Regional Savings from PJM-NY Coordinated Transaction Scheduling	\$0.23	\$2.39
Regional Savings from NE-NY Coordinated Transaction Scheduling	\$0.19	\$0.95
Total Regional Savings	\$0.42	\$3.34

- Statewide uplift cost monthly average was (\$0.50)/MWh
- The following table identifies the Monthly ICAP spot market prices by locality and price delta.

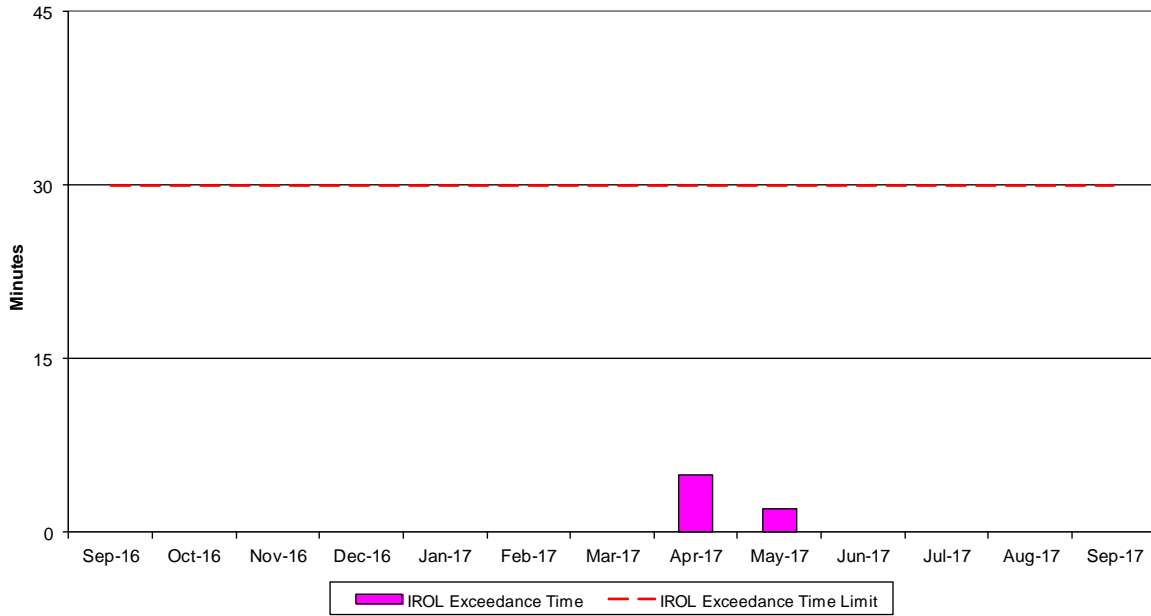
Spot Auction Price Results	NYCA	Lower Hudson Valley Zones	New York City Zone	Long Island Zone
October 2017 Spot Price	\$1.84	\$9.47	\$9.55	\$6.60
September 2017 Spot Price	\$2.18	\$9.90	\$10.19	\$6.59
Delta	(\$0.34)	(\$0.43)	(\$0.64)	\$0.01

- NYC - Price decreases by \$0.64 due to an increase in SCRs and a decrease in unoffered MW
- LHV - Price decreases by \$0.43 due to an increase in SCRs and a decrease in unoffered MW.
- NYCA - Price decreases by \$0.34 due to reduced Imports & Exports, an increase in SCRs and a decrease in unoffered MW.

- Reliability Performance Metrics

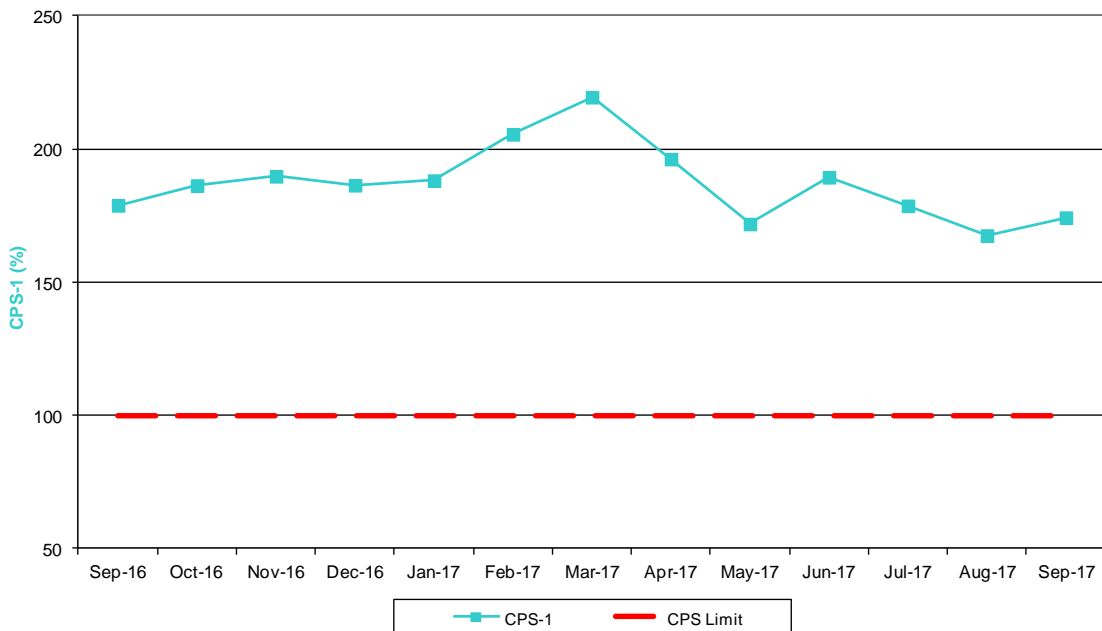


NERC IROL Time Over Limit



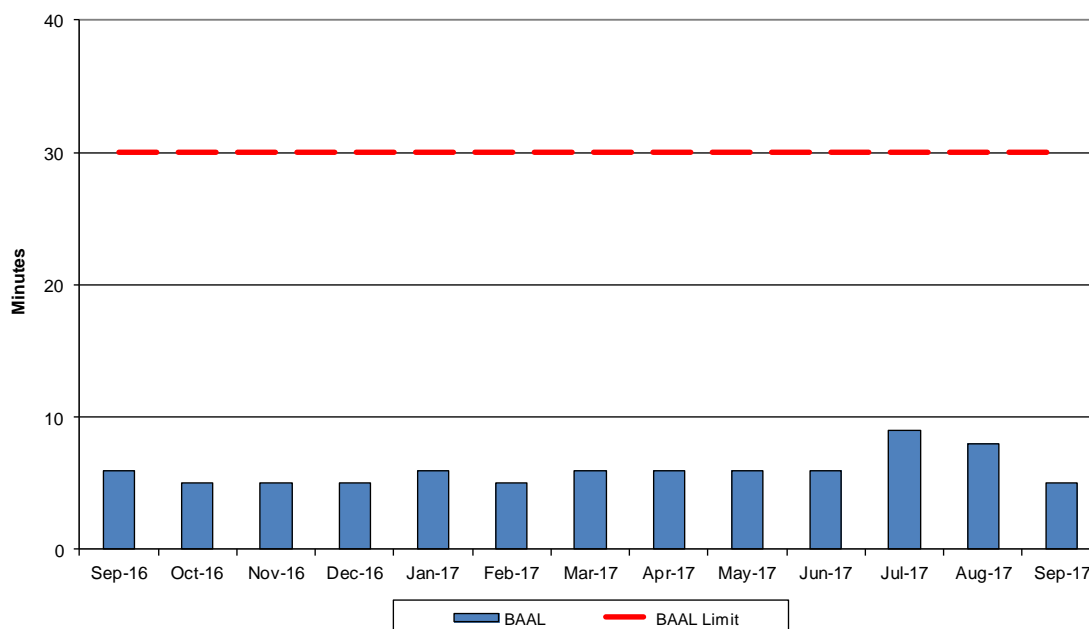
For IROL exceedances leading to Major Emergency State declarations, the maximum IROL exceedance time is identified. IROL exceedances of less than thirty minutes are considered NERC compliant.

NERC Control Performance Standards



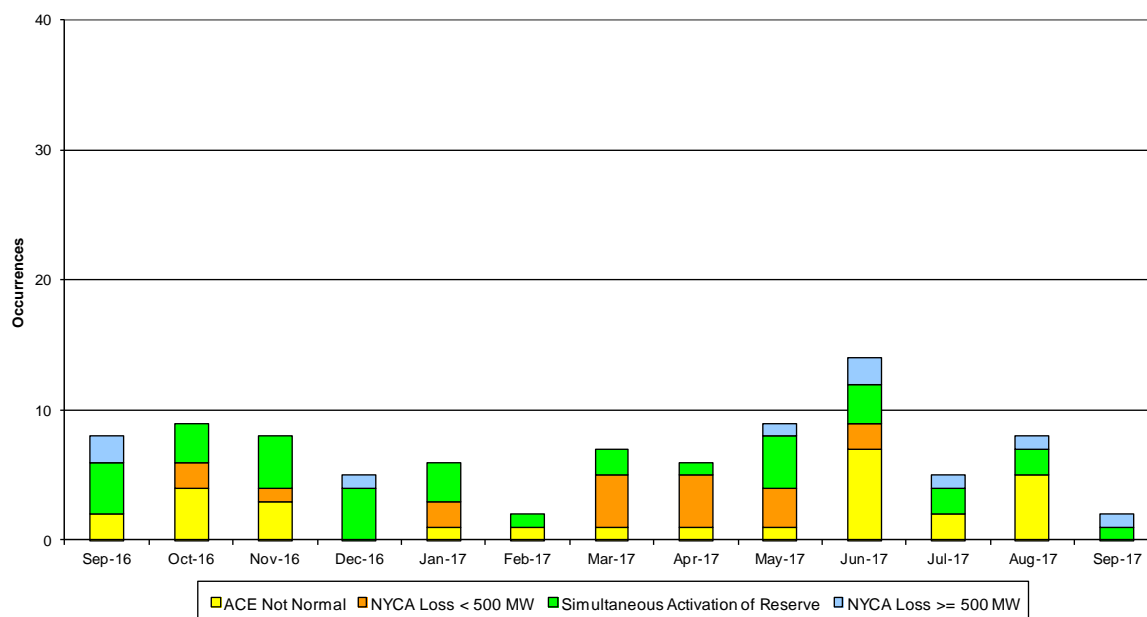
The value of NERC Control Performance Standards (CPS-1) is an indicator of the NYISO Area resource and demand balancing. Values exceeding the identified threshold are NERC compliant.

NERC Balancing Authority ACE Limit Standard



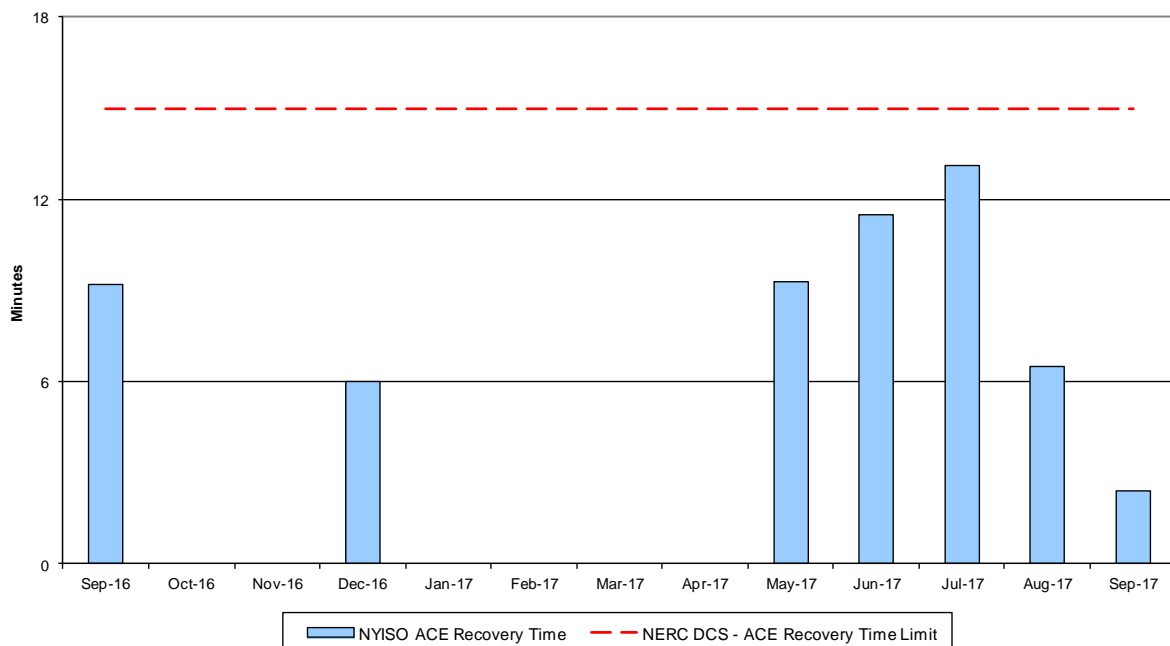
The amount of time the clock-minute average ACE exceeds the clock-minute Balancing Authority ACE Limit (BAAL) is an indicator of the NYISO Area resource and demand balancing. The maximum BAAL exceedance time is identified. BAAL exceedances of less than 30 consecutive clock-minutes are NERC compliant.

Reserve Activations



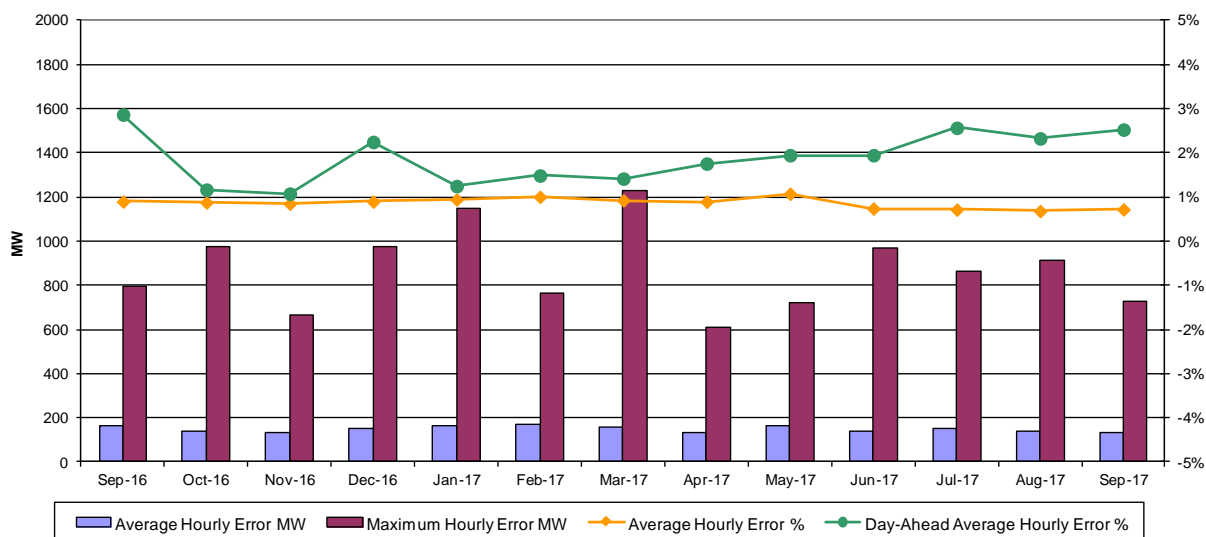
NYISO Reserve Activations are indicators of the need to respond to unexpected operational conditions within the NYISO Area or to assist a neighboring Area (Simultaneous Activation of Reserves) by activating an immediate resource and demand balancing operation.

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

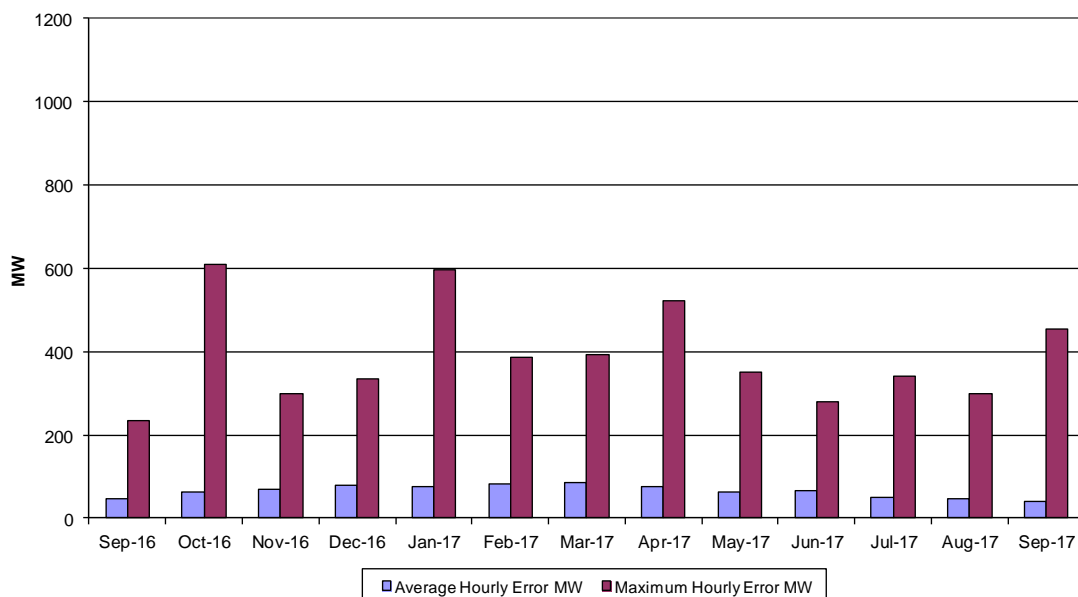


Hourly Error MW - Absolute value of the difference between the hourly average actual load demand and the average hour ahead forecast load demand.

Average Hourly Error % - Average value of the ratio of hourly average error magnitude to hourly average actual load demand.

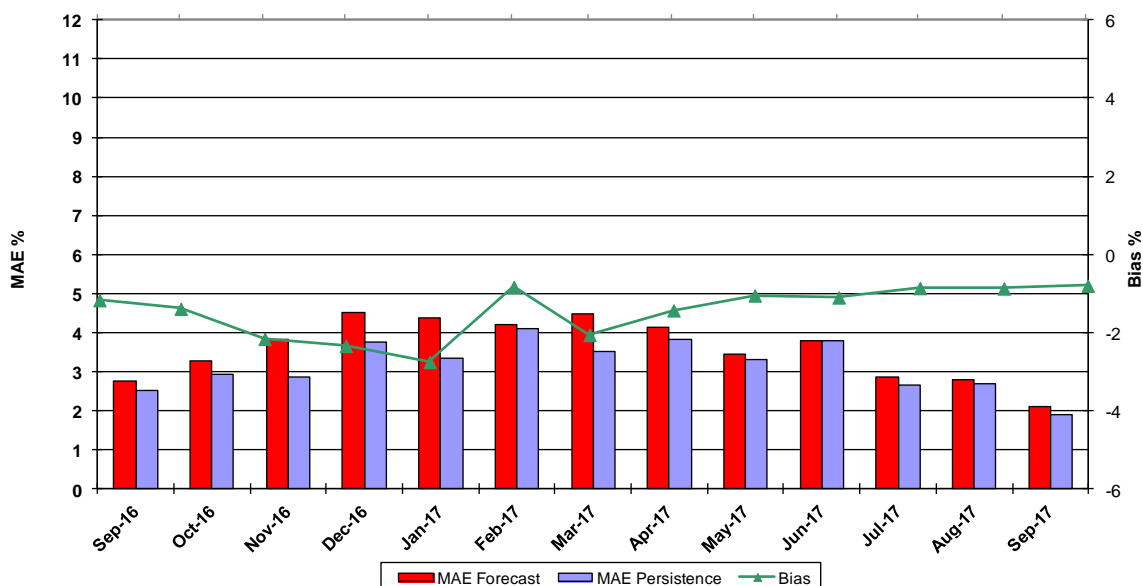
Day-Ahead Average Hourly Error % - Average across all hours of the month of the absolute value of the difference between actual load demand and the Day-Ahead forecast load demand, divided by the actual load demand.

Wind Forecast Performance Hour Ahead MW Error



Hourly Error MW - Absolute value of the difference between the hourly average actual wind generation and the average hour ahead forecast wind generation.

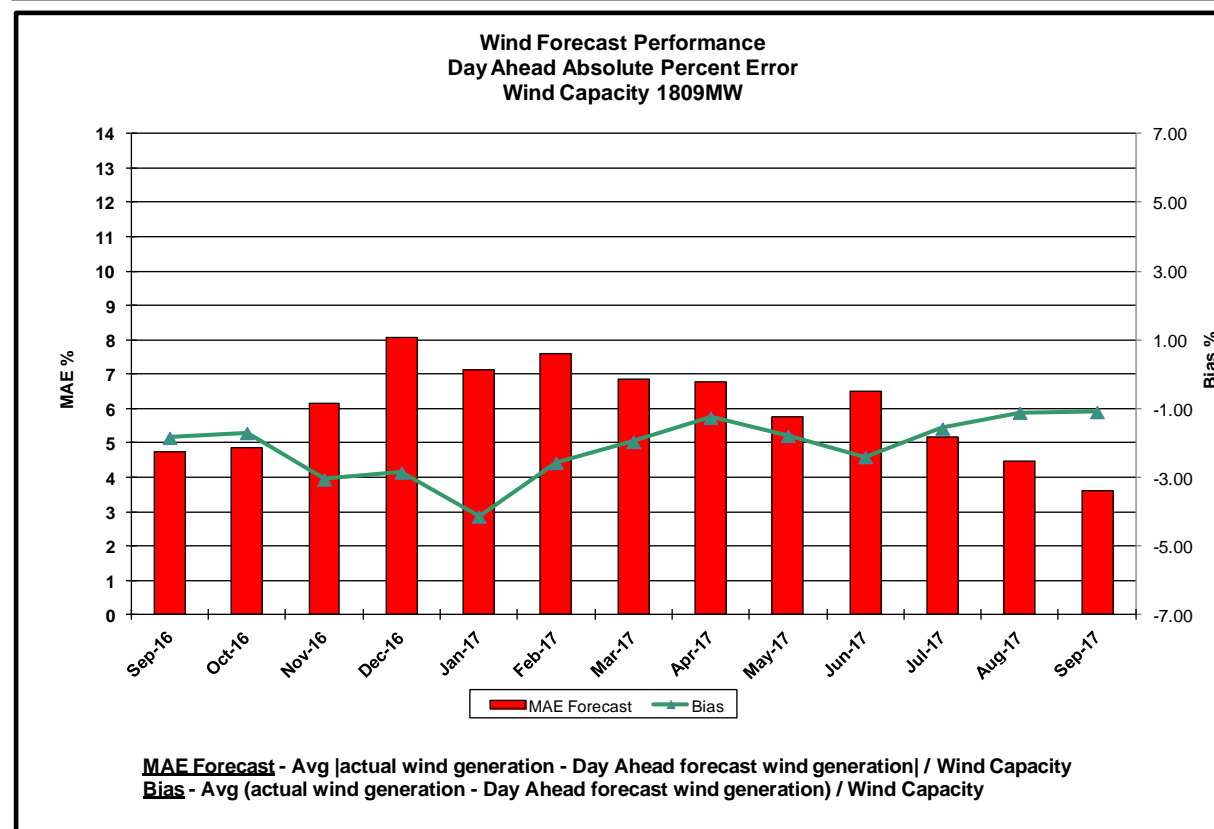
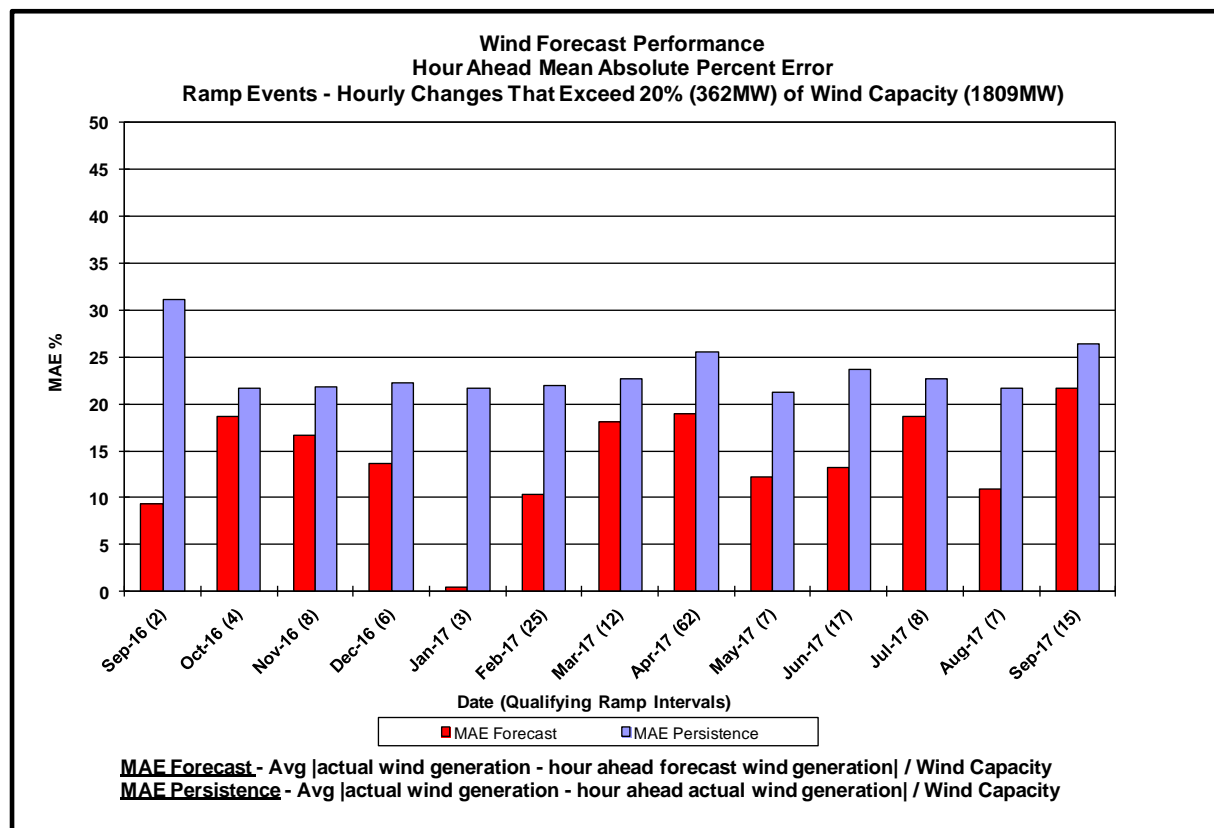
Wind Forecast Performance Hour Ahead Percent Error Wind Capacity 1809MW

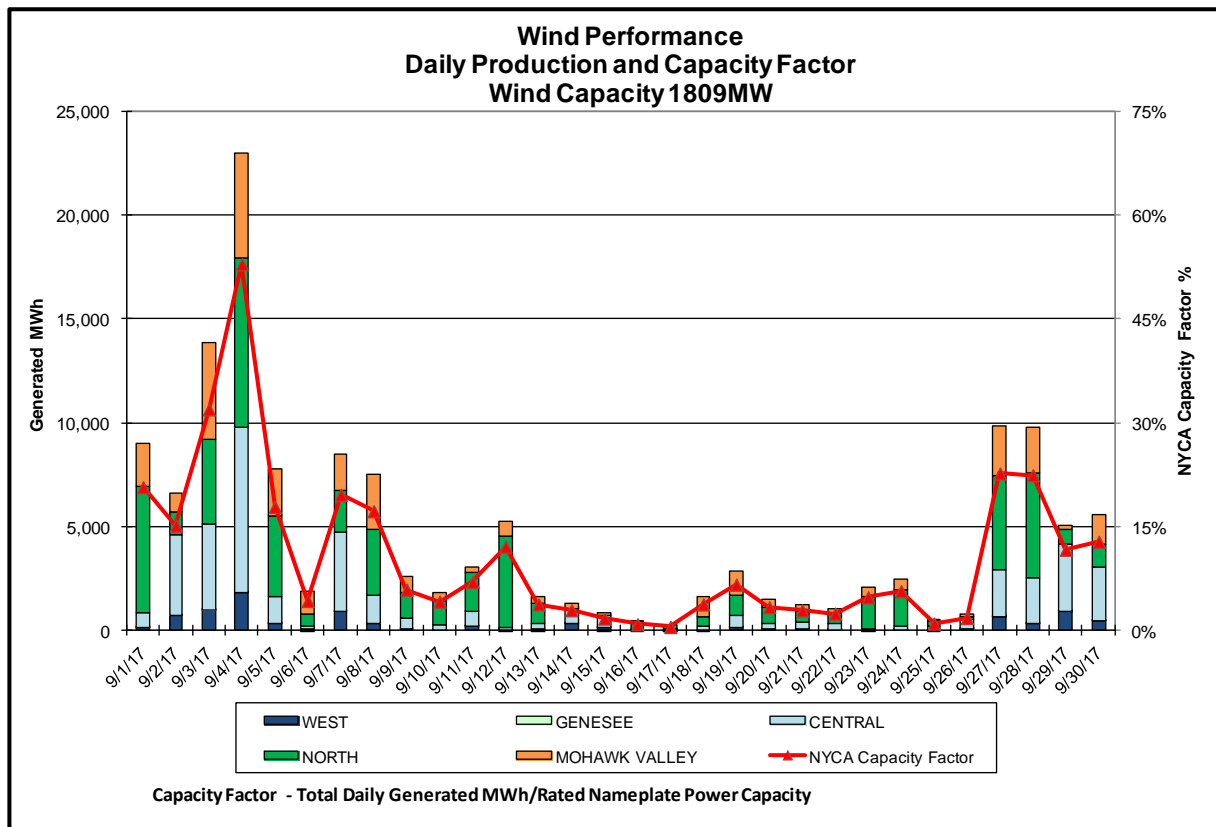
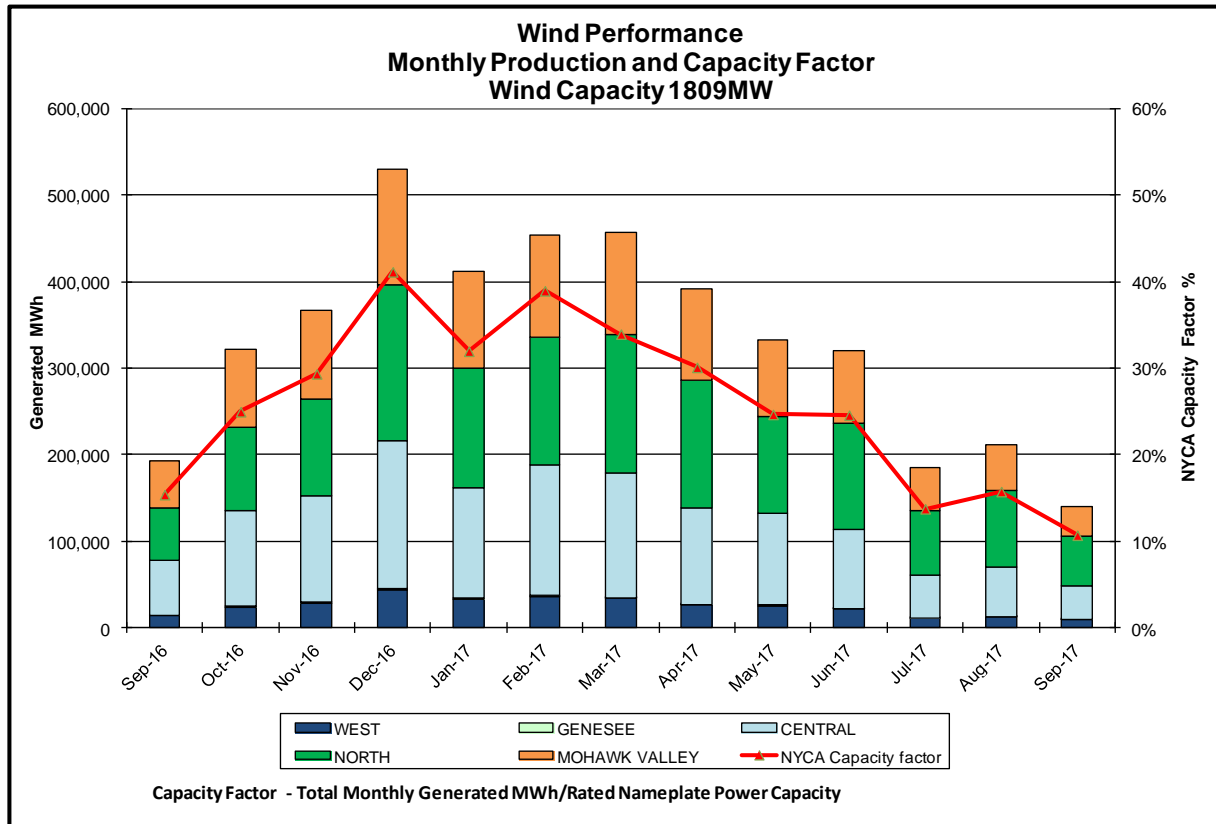


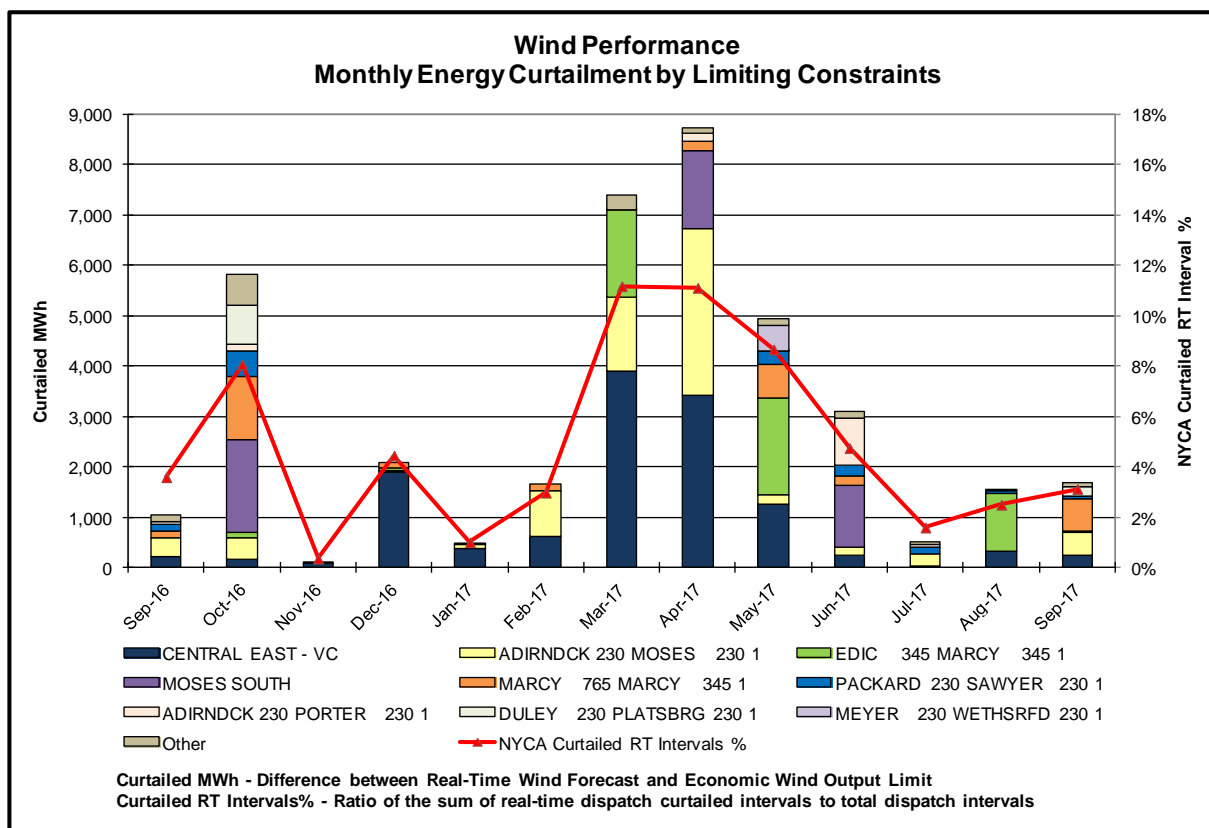
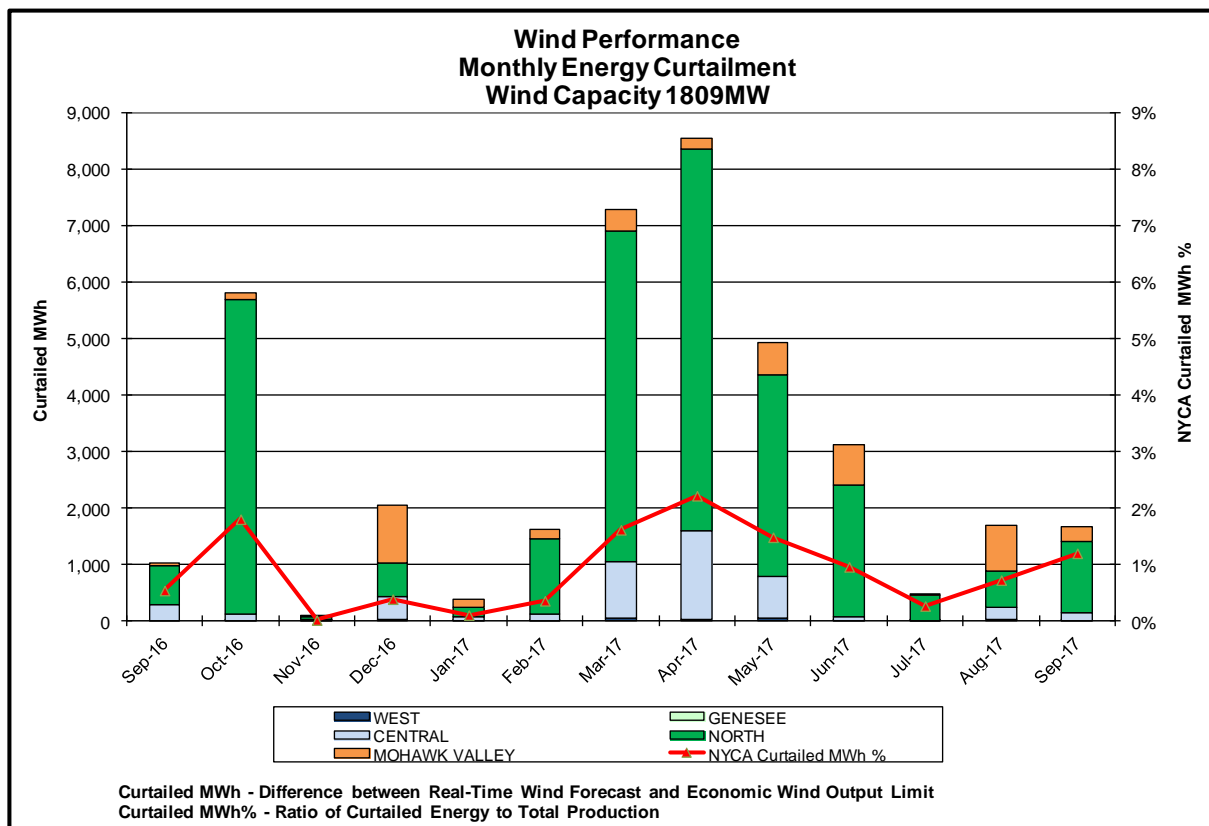
MAE Forecast - Avg |actual wind generation - hour ahead forecast wind generation| / Wind Capacity

MAE Persistence - Avg |actual wind generation - hour ahead actual wind generation| / Wind Capacity

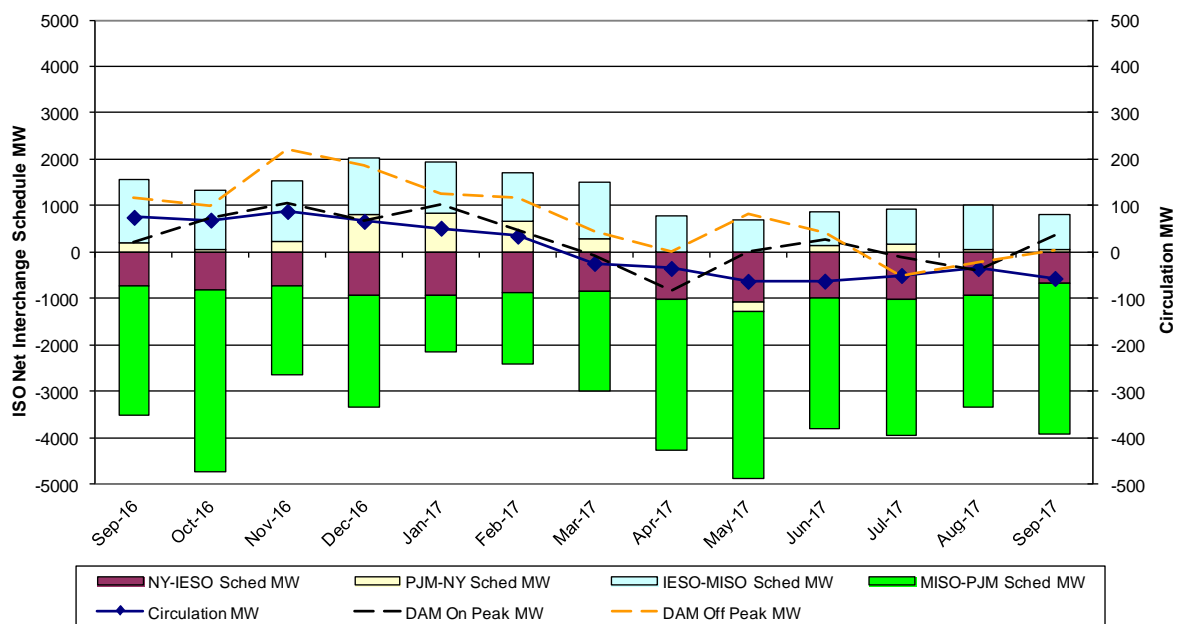
Bias - Avg (actual wind generation - hour ahead forecast wind generation) / Wind Capacity





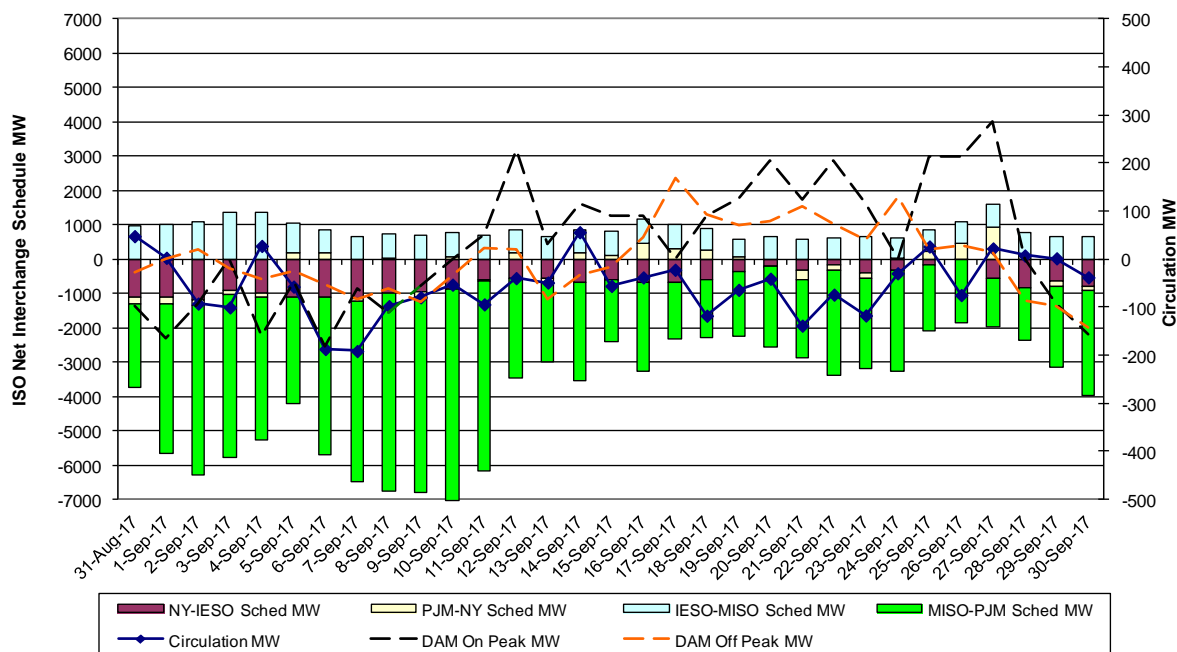


**Lake Erie Circulation and ISO Net Interchange Schedules
Monthly Averages**



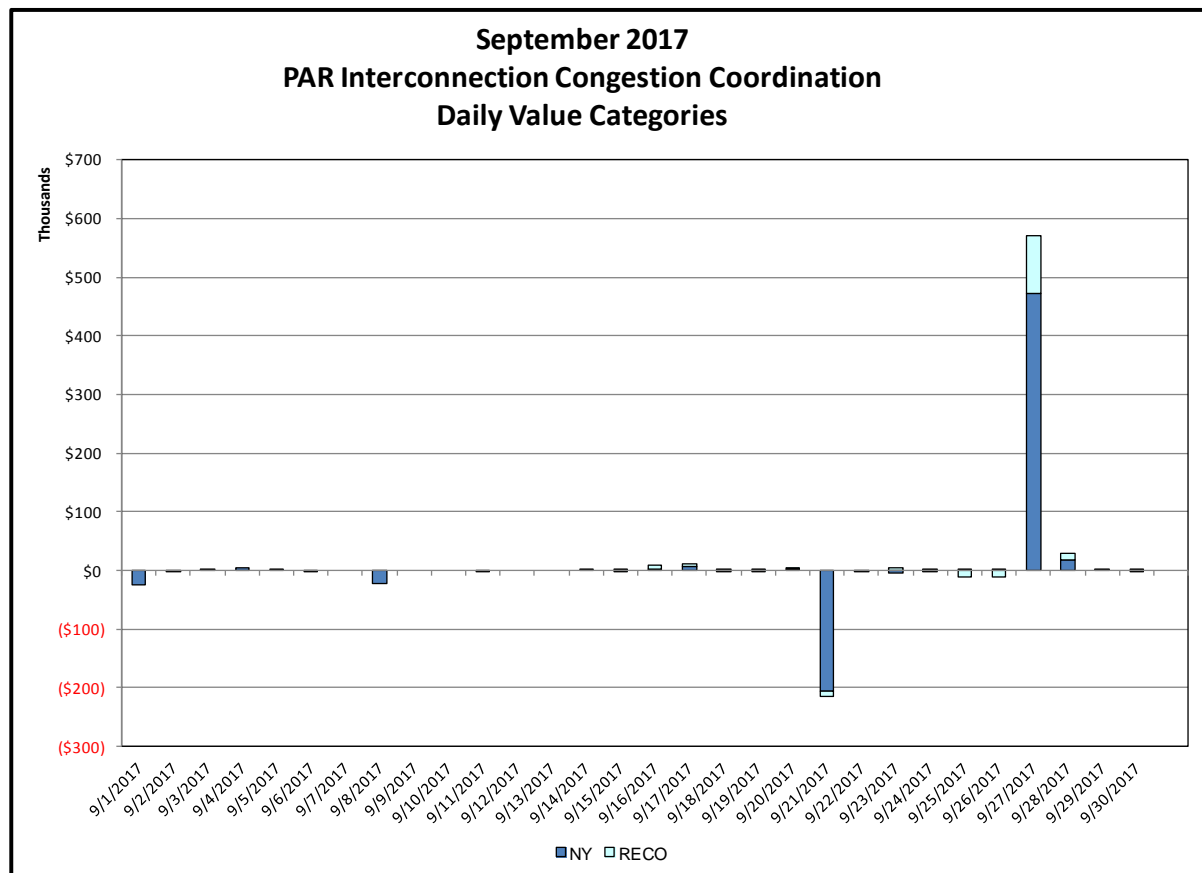
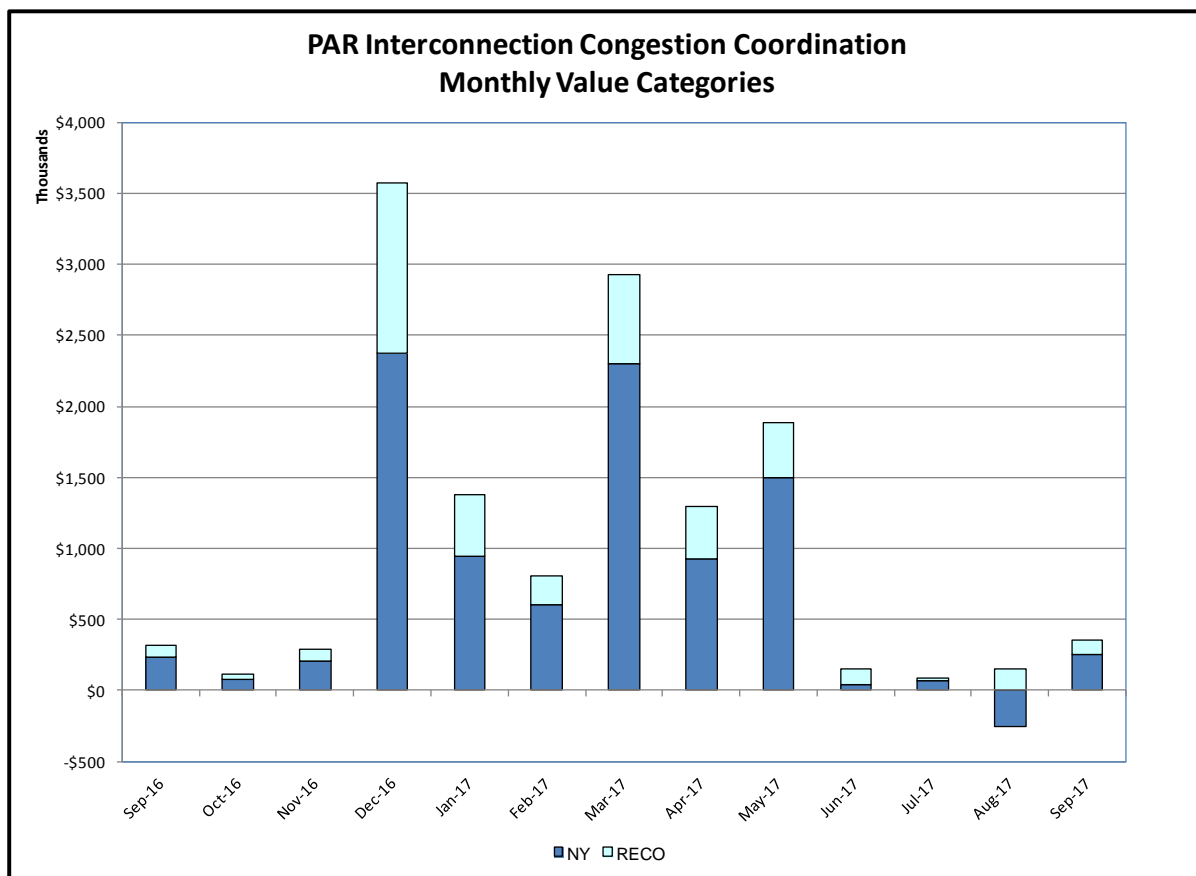
Interchange schedules with positive values aggravate clockwise Lake Erie Circulation.

**Lake Erie Circulation and ISO Net Interchange Schedules
Daily Averages**



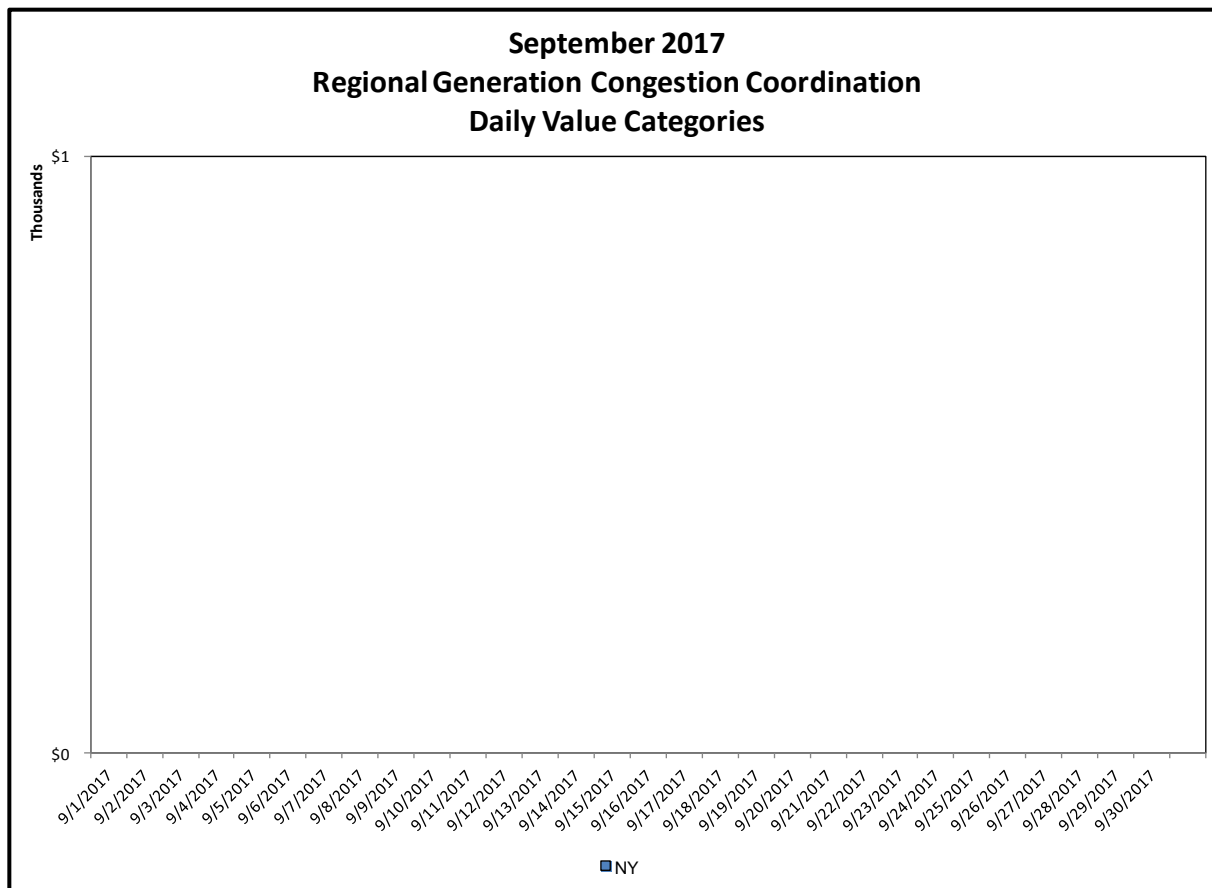
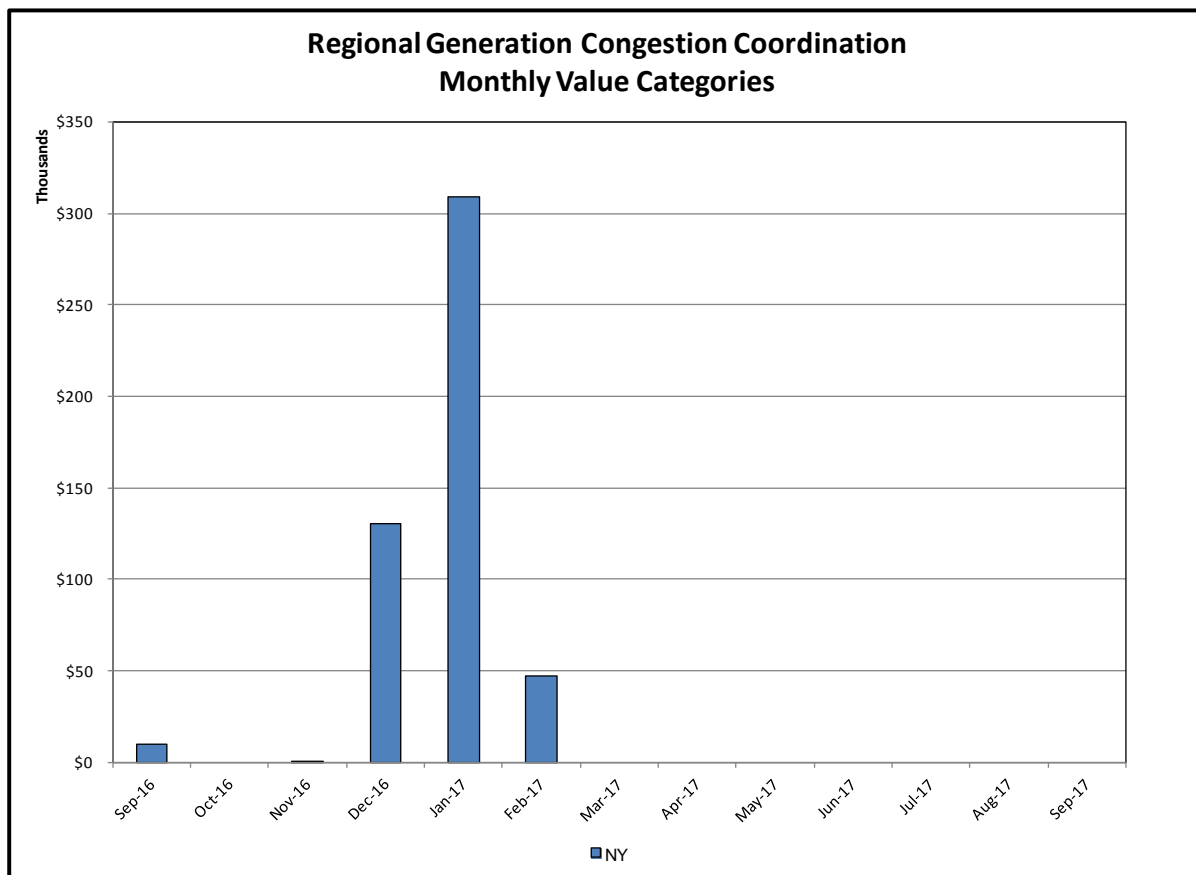
Interchange schedules with positive values aggravate clockwise Lake Erie Circulation.

Broader Regional Market Performance Metrics



PAR Interconnection Congestion Coordination

<u>Category</u>	<u>Description</u>
NY	Represents the value NY realizes from Market-to-Market PAR 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 Interconnection PAR Target levels, excluding RECO on the Ramapo PARs). 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

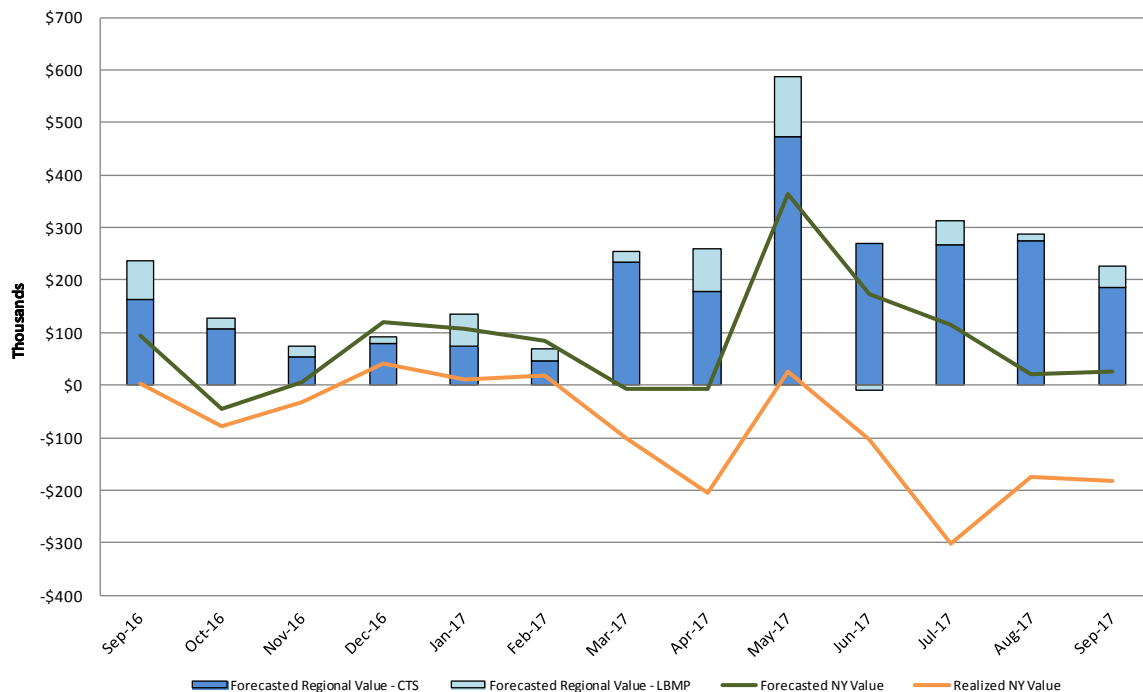
Category

NY

Description

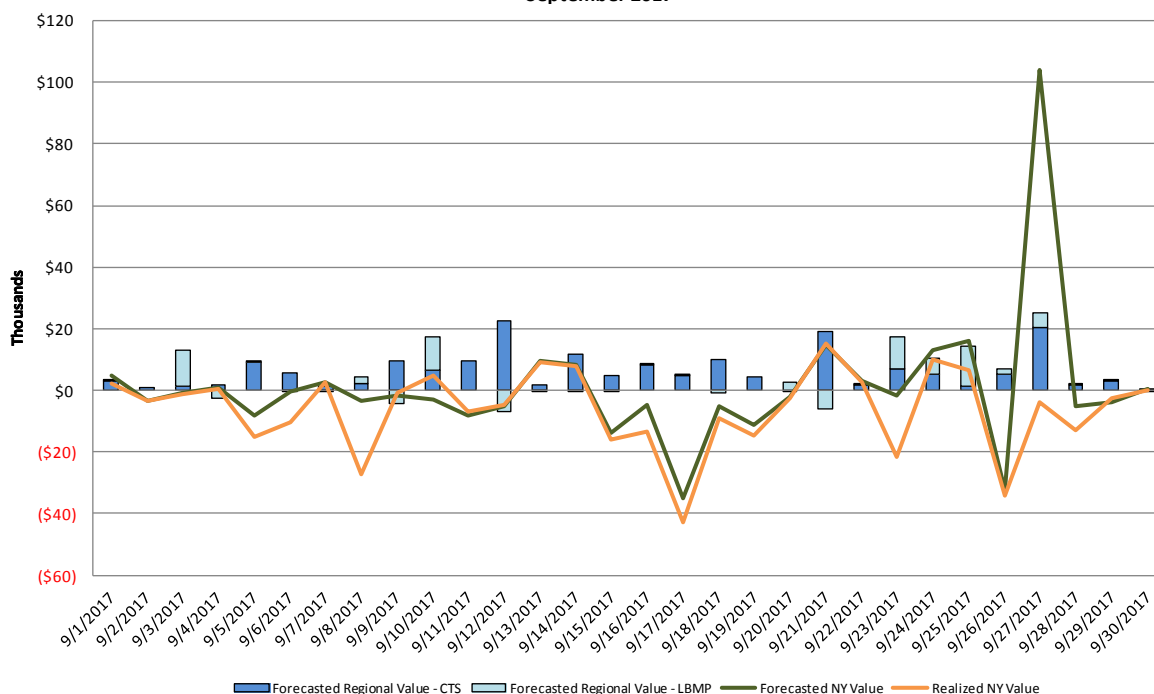
NYISO savings that result from PJM payments to NYISO when PJM's transmission use (PJM's market flow) is greater than PJM's entitlement of the NY transmission system and NYISO is incurring Western or Central NY congestion. Additionally, NYISO savings may result from the more efficient regional utilization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

**Regional NYISO/PJM RT Scheduling for All PJM Proxies
Monthly Value Categories**

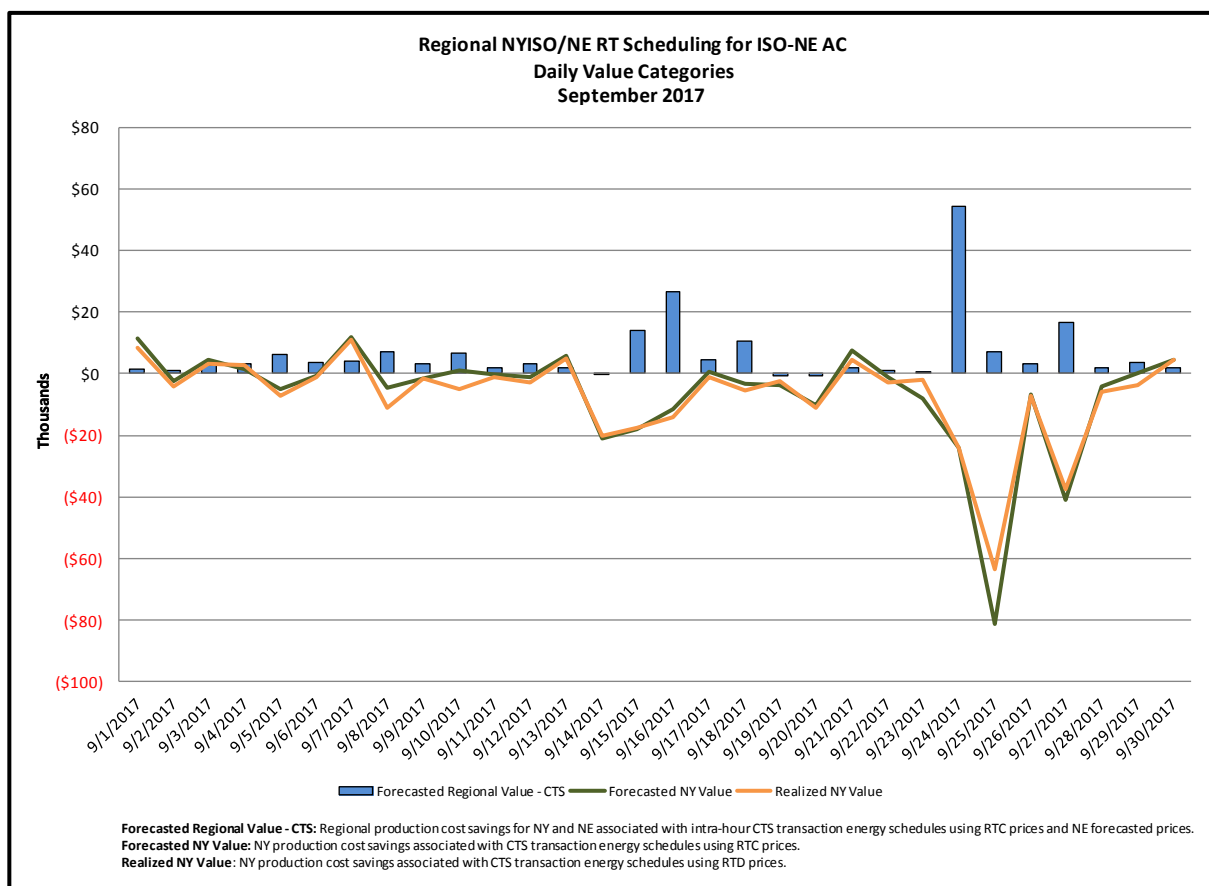
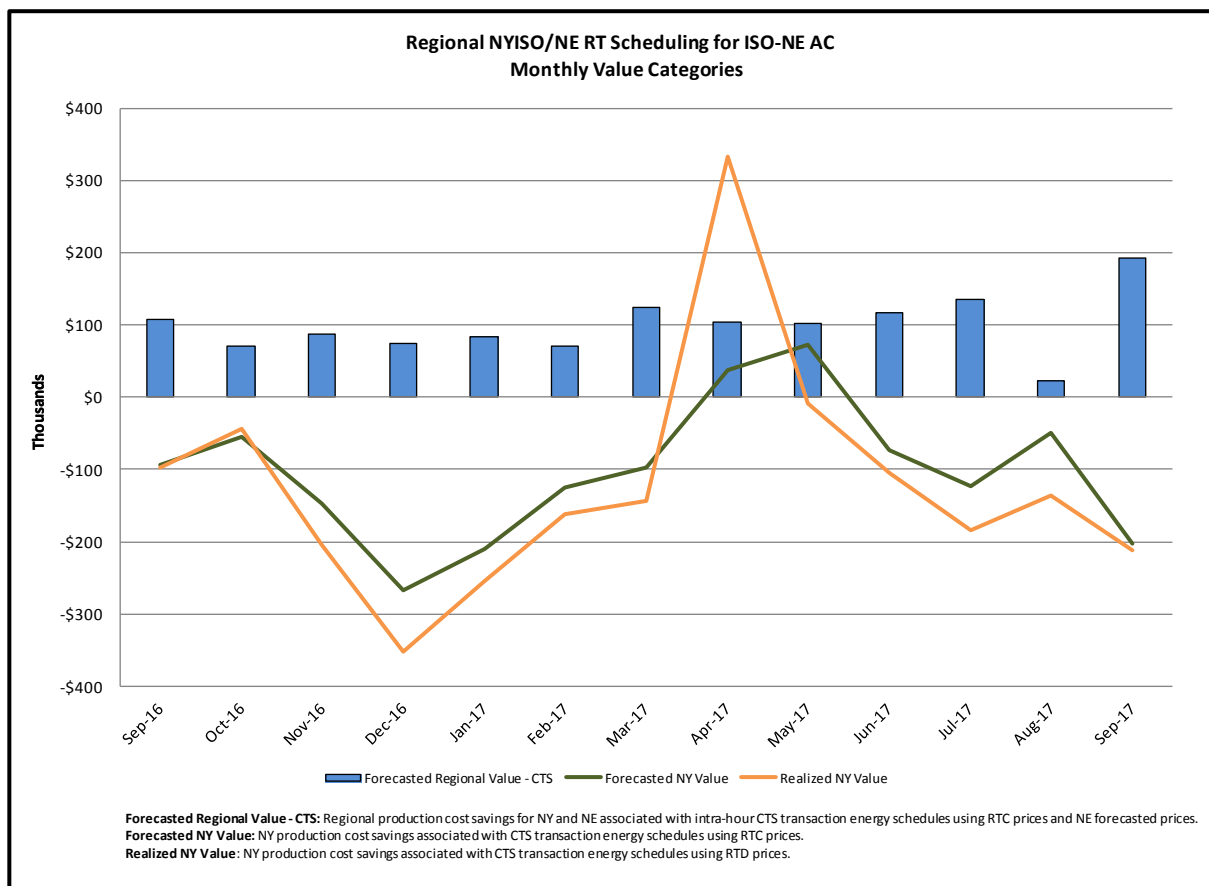


Forecasted Regional Value - CTS: Regional production cost savings for NY and PJM associated with intra-hour CTS transaction energy schedules using RTC/ITSCED prices.
Forecasted Regional Value - LBMP: Regional production cost savings for NY and PJM associated with intra-hour LBMP transaction energy schedules using RTC/ITSCED prices.
Forecasted NY Value: NY production cost savings associated with both CTS and LBMP transaction energy schedules using RTC prices.
Realized NY Value: NY production cost savings associated with both CTS and LBMP transaction energy schedules using RTD prices.

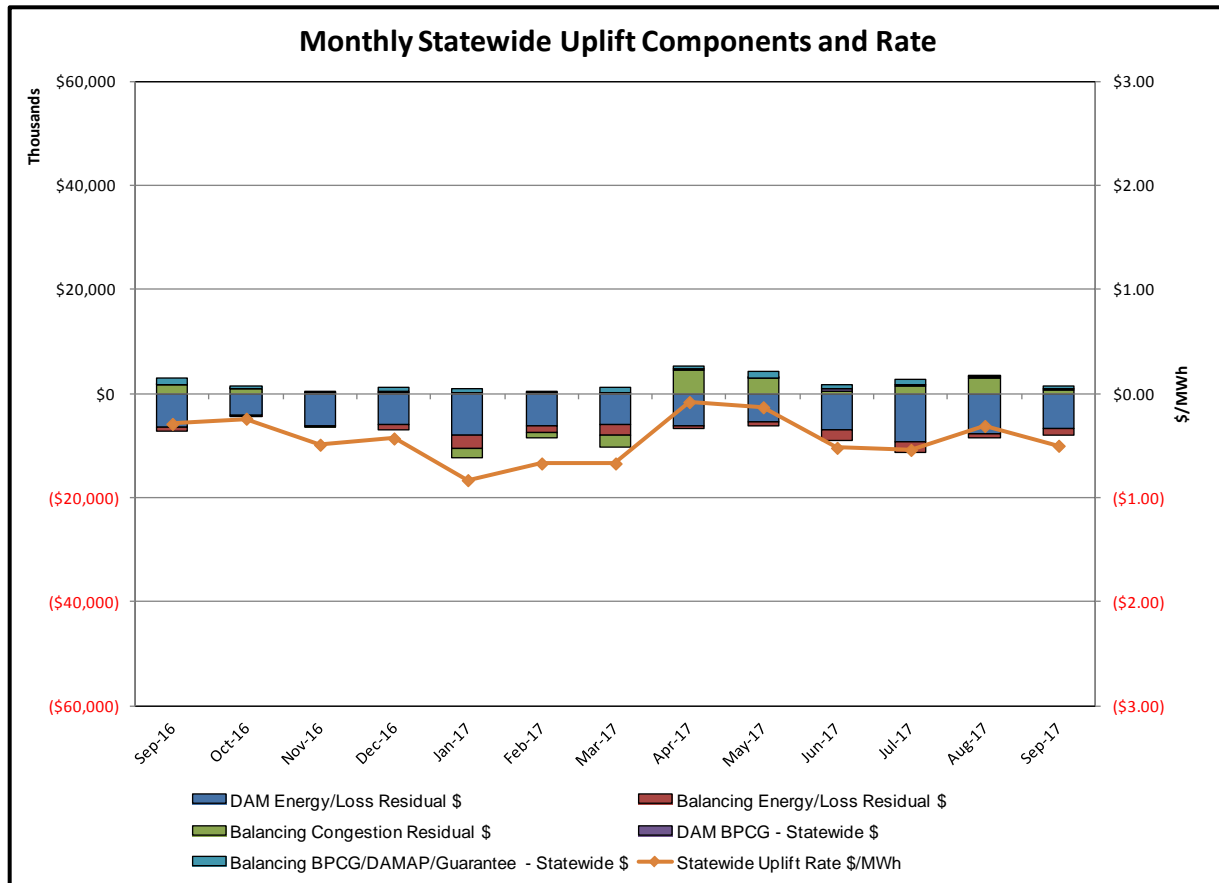
**Regional NYISO/PJM RT Scheduling for All PJM Proxies
Daily Value Categories
September 2017**

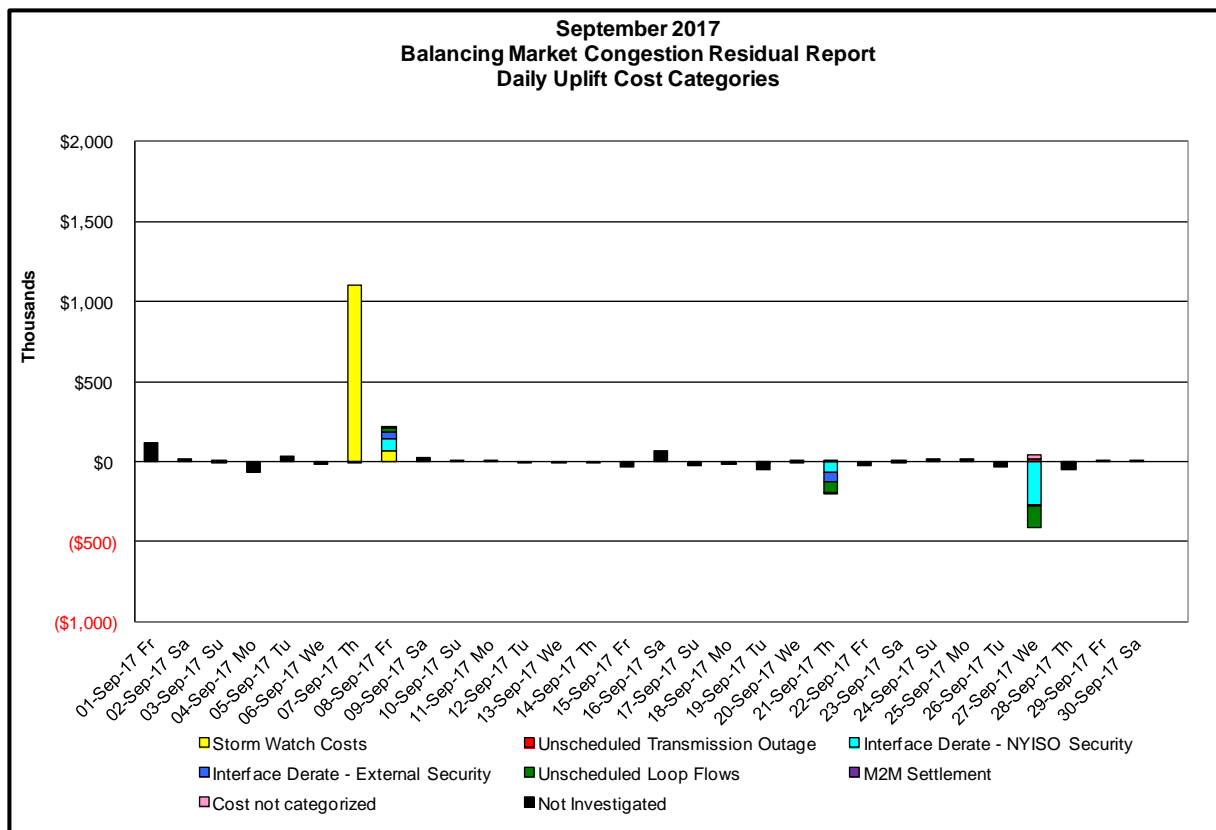
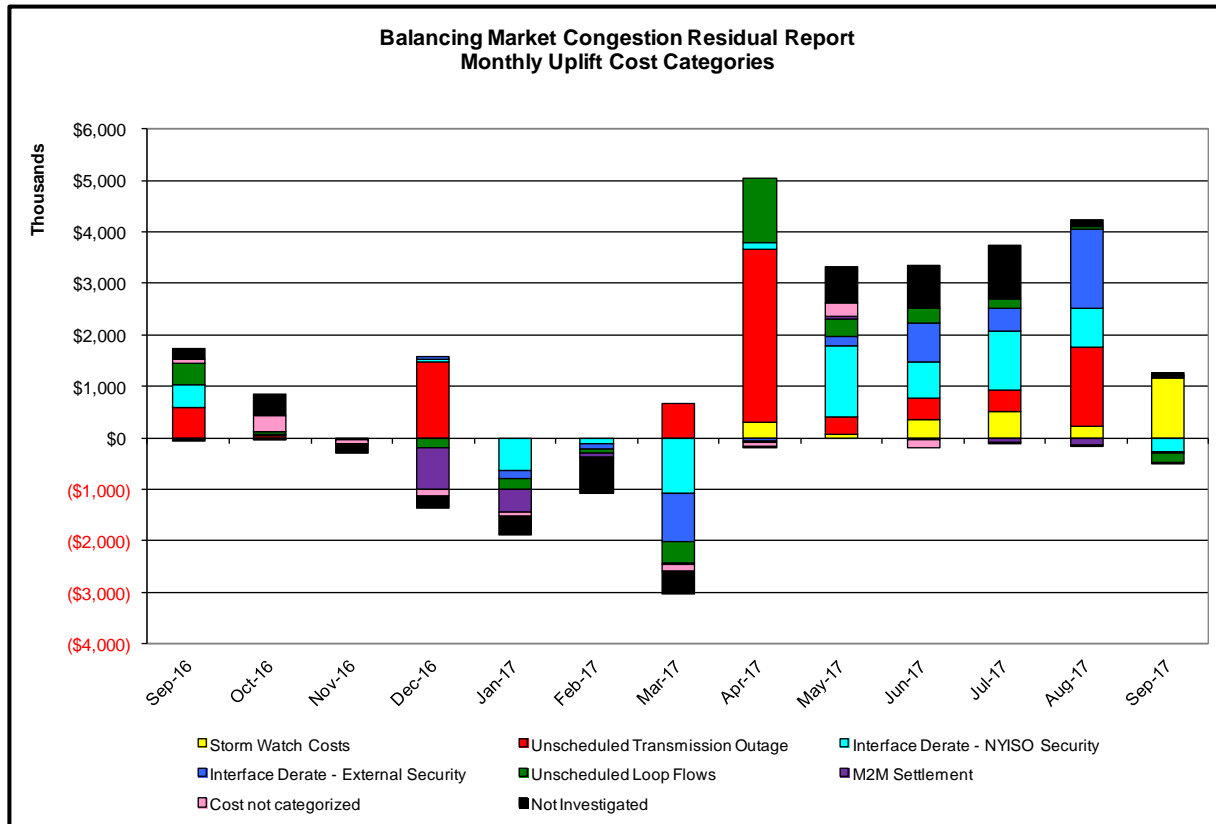


Forecasted Regional Value - CTS: Regional production cost savings for NY and PJM associated with intra-hour CTS transaction energy schedules using RTC/ITSCED prices.
Forecasted Regional Value - LBMP: Regional production cost savings for NY and PJM associated with intra-hour LBMP transaction energy schedules using RTC/ITSCED prices.
Forecasted NY Value: NY production cost savings associated with both CTS and LBMP transaction energy schedules using RTC prices.
Realized NY Value: NY production cost savings associated with both CTS and LBMP transaction energy schedules using RTD prices.



Market Performance Metrics





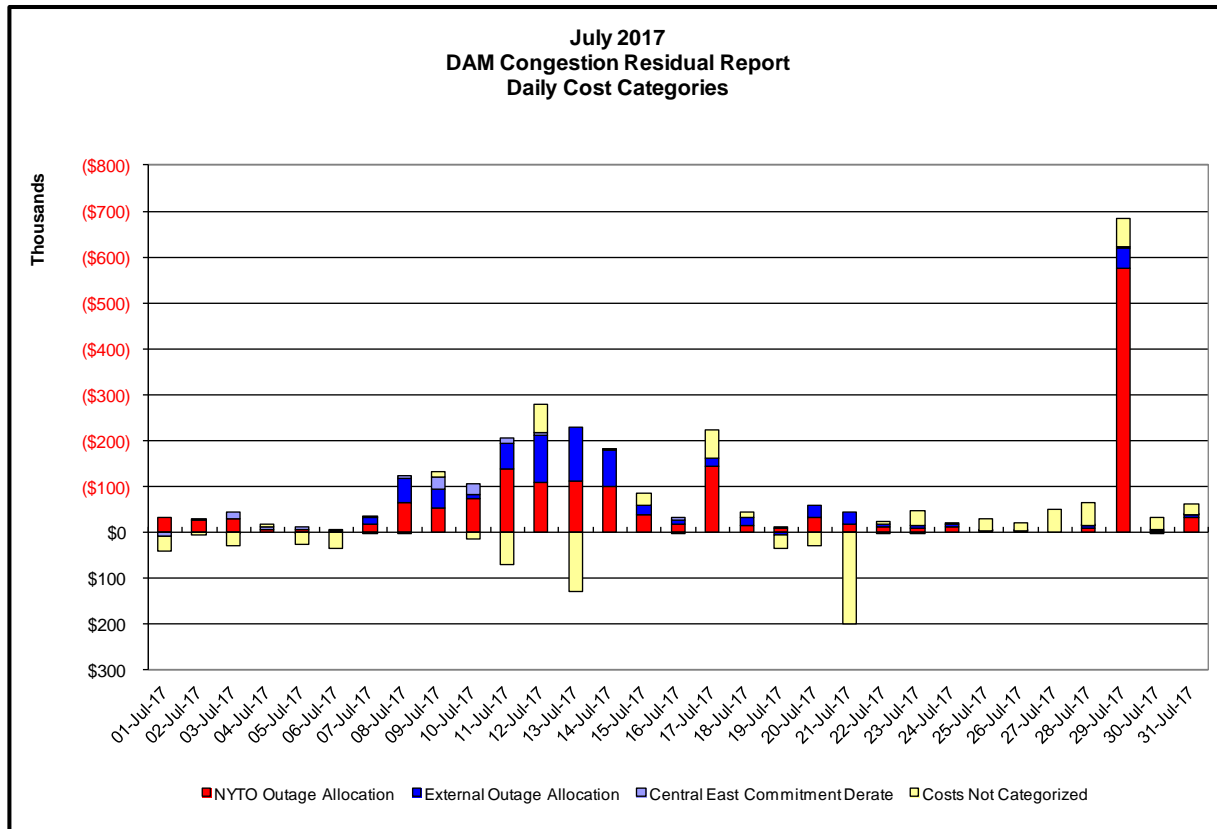
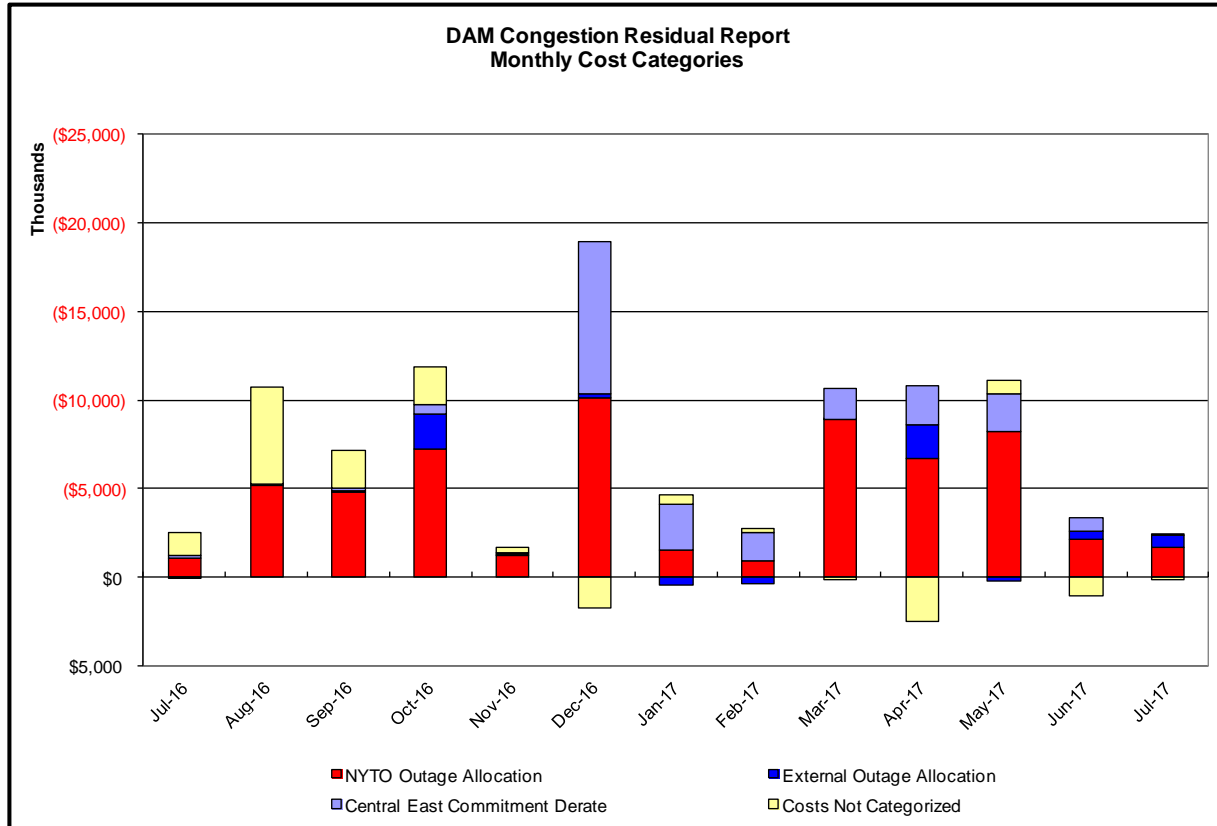
Day's investigated in September: 7,8,21,27			
Event	Date (yyyymmdd)	Hours	Description
	9/7/2017	21-23	Thunderstorm Alert
	9/8/2017	2,3,10	Thunderstorm Alert
	9/8/2017	8,12,15-17	Derate Marcy 765/345kV (#AT1) for I/o TWR:MOSES MA1 & MA2
	9/8/2017	8,12	NYCA DNI RAMP Limit
	9/8/2017	3,12	NE_AC DNI Ramp Limit
	9/8/2017	15	PJM AC-NY Scheduling Limit
	9/8/2017	16,17	Lake Erie Circulation, DAM-RTM exceeds +/-125MW; Niagara-Packard
	9/21/2017	17	Derate Motthaven-Dunwoodie 345kV (#71)
	9/21/2017	15	Uprate Scriba-Volney 345kV (#20) for I/o Scriba-Volney 345kV (#21)
	9/21/2017	21	Uprate E179th Street-Helgate 138kV (#15055)
	9/21/2017	14,16	NYCA DNI RAMP Limit
	9/21/2017	16,17,20	HQ_CHAT Scheduling Limit
	9/21/2017	13-16	NE-NY Scheduling Limit
	9/21/2017	14	NE_AC DNI Ramp Limit
	9/21/2017	13-15	PJM AC-NY Scheduling Limit
	9/21/2017	14,15	Lake Erie Circulation, DAM-RTM exceeds +/-125MW: West Central
	9/27/2017	11,14	Forced outage of Marcy South Series Compensation
	9/27/2017	14	Forced outage East Garden City-Newbridge 138kV (#467)
	9/27/2017	20	NYCA DNI RAMP Limit
	9/27/2017	19,21	Uprate Central East
	9/27/2017	19	Uprate Freshkills 345kV/138kV Bank (#TA1)
	9/27/2017	22,23	Uprate Malone-Willis 115kV (1-910) for I/o TWR:MOSES MW2 & MAL4
	9/27/2017	17,19,22,23	Uprate Scriba-Volney 345kV (#20) for I/o Scriba-Volney 345kV (#21)
	9/27/2017	11	Derate Dunwoodie-Sprainbrook 345kV (#W75) for I/o TWR:PVLLE F38&F39&Y86&Y87&BK1
	9/27/2017	22-23	Uprate Leeds-Pleasant Valley 345kV (#92) for I/o Athens-Pleasant Valley 345kV (#91)
	9/27/2017	12,17,19,22,23	Uprate Scriba-Volney 345kV (#20) for I/o Scriba-Volney 345kV (#21)
	9/27/2017	15	NE_AC DNI Ramp Limit
	9/27/2017	12,19	Lake Erie Circulation, DAM-RTM exceeds +/-125MW: Packard-Sawyer
	9/27/2017	19,21	Lake Erie Circulation, DAM-RTM exceeds +/-125MW: Central-East

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	

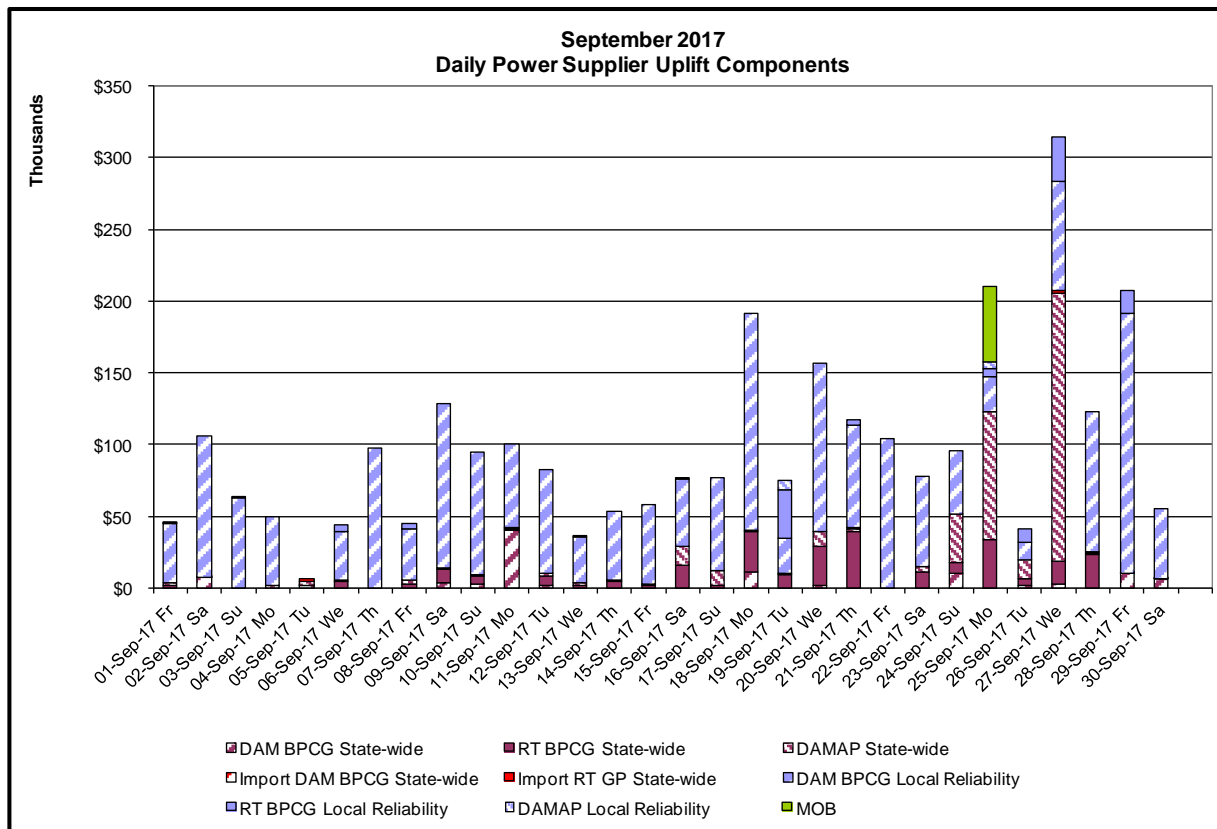
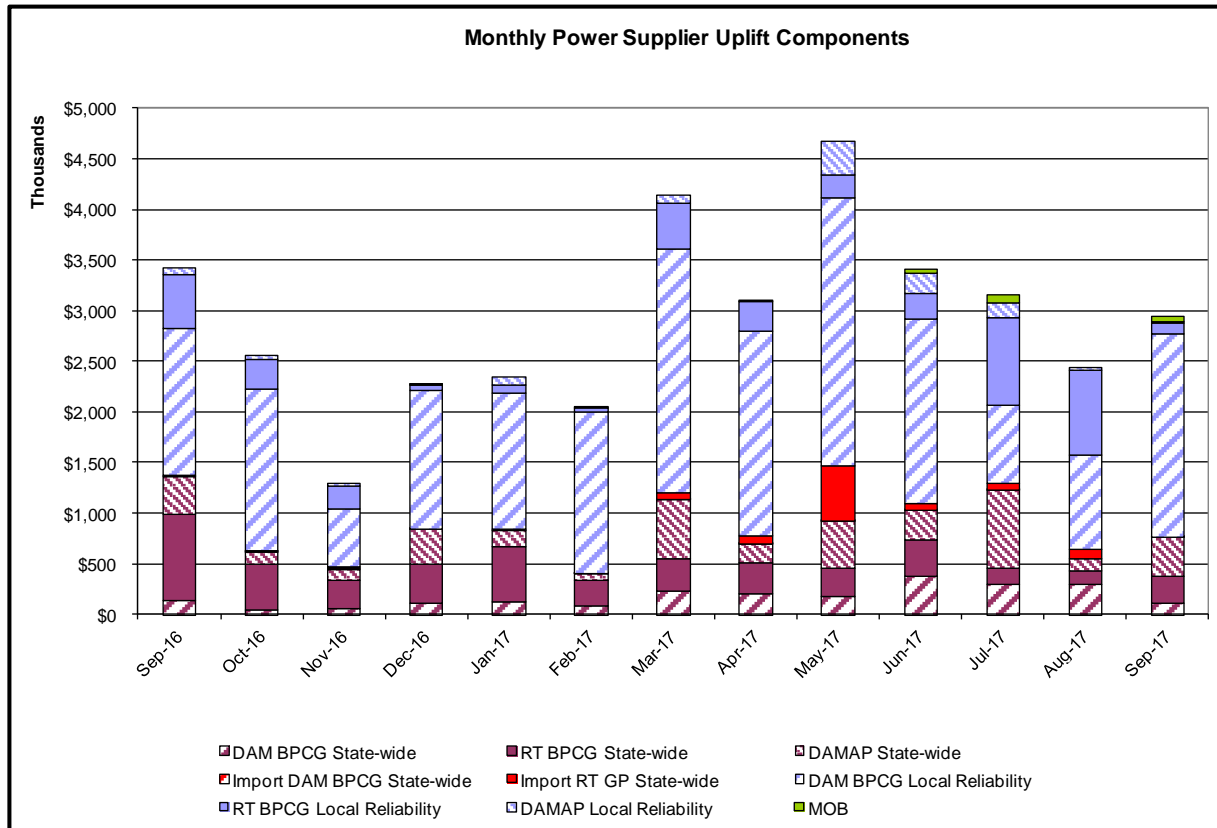
Monthly Balancing Market Congestion Report Assumptions/Notes

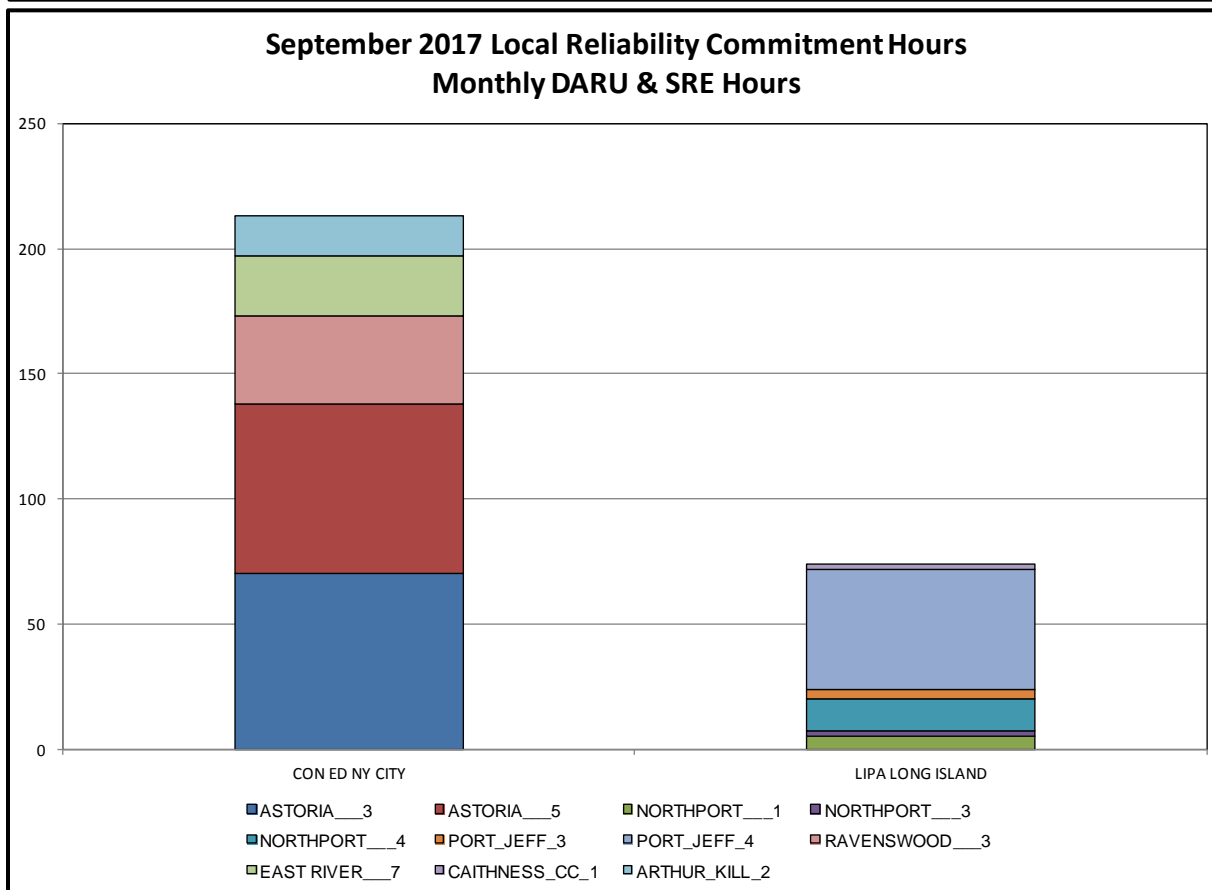
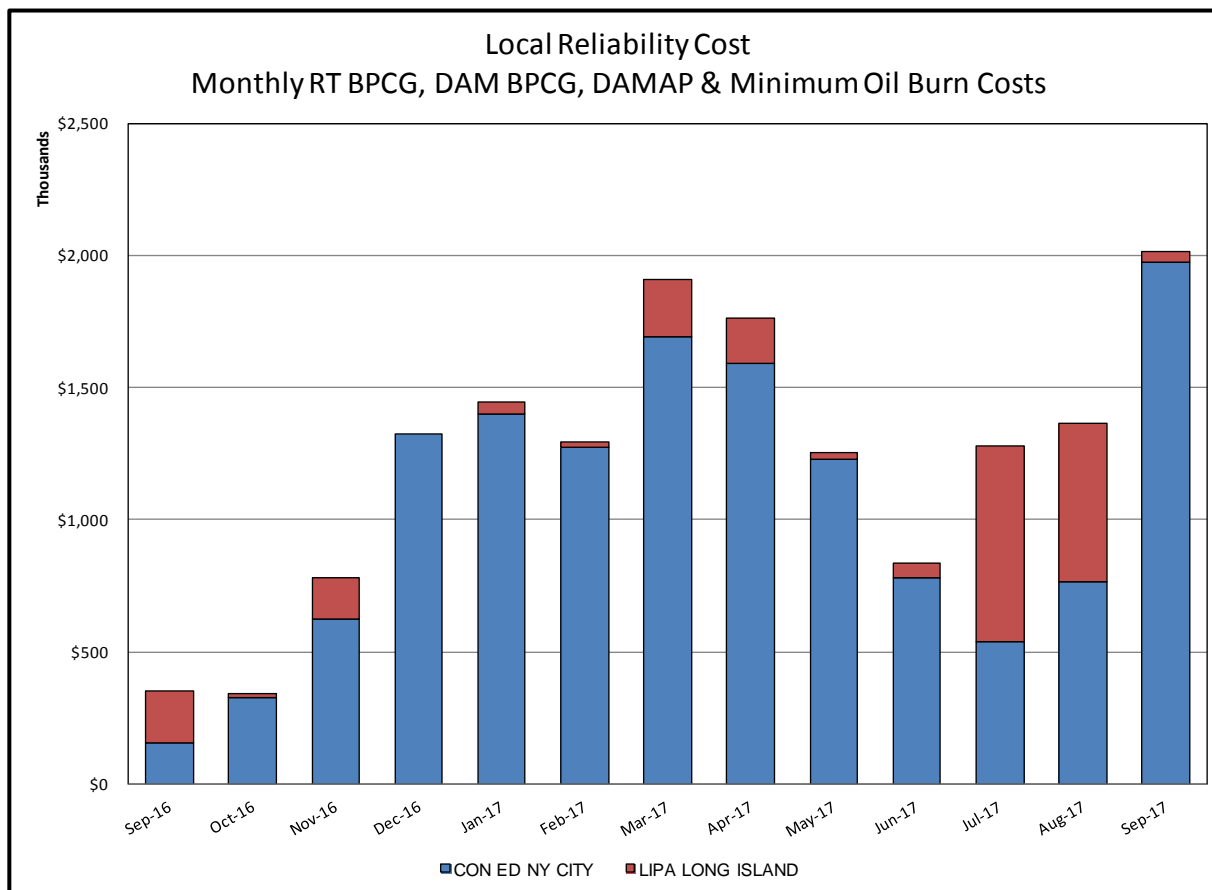
- 1) Storm Watch Costs are identified as daily total uplift costs
- 2) Days with a value of BMCR less M2M Settlement of \$100K/HR, shortfall of \$200K/Day or more, or surplus of \$100K/Day or more are investigated.
- 3) Uplift costs associated with multiple event types are apportioned equally by hour

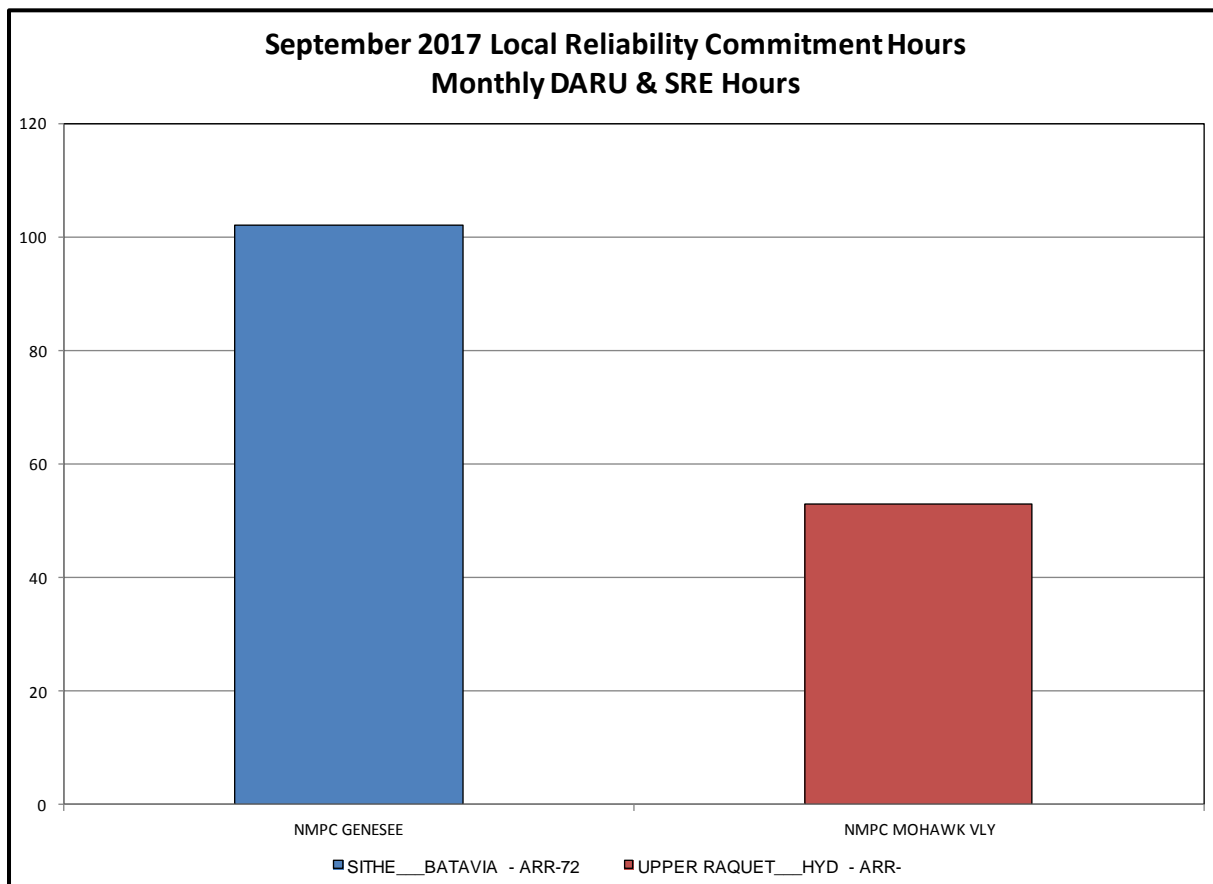
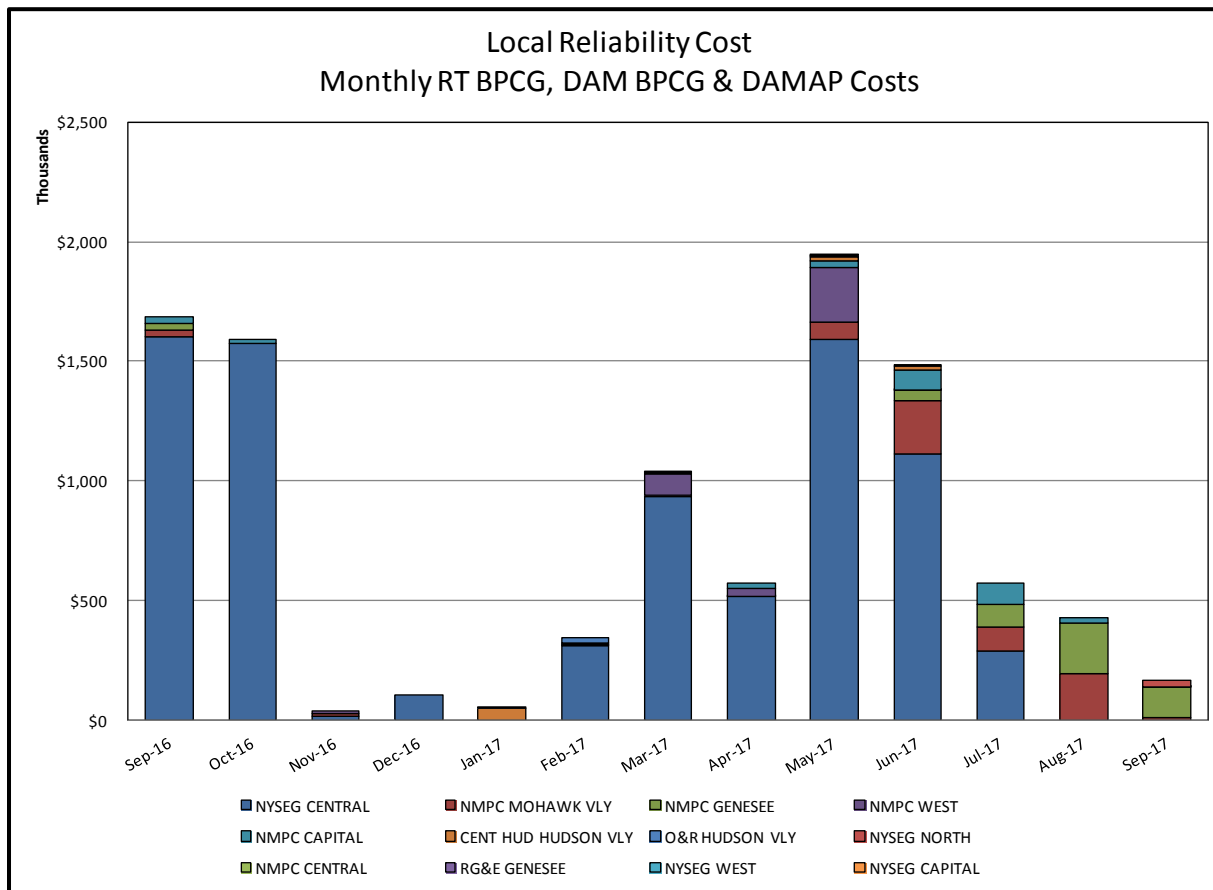


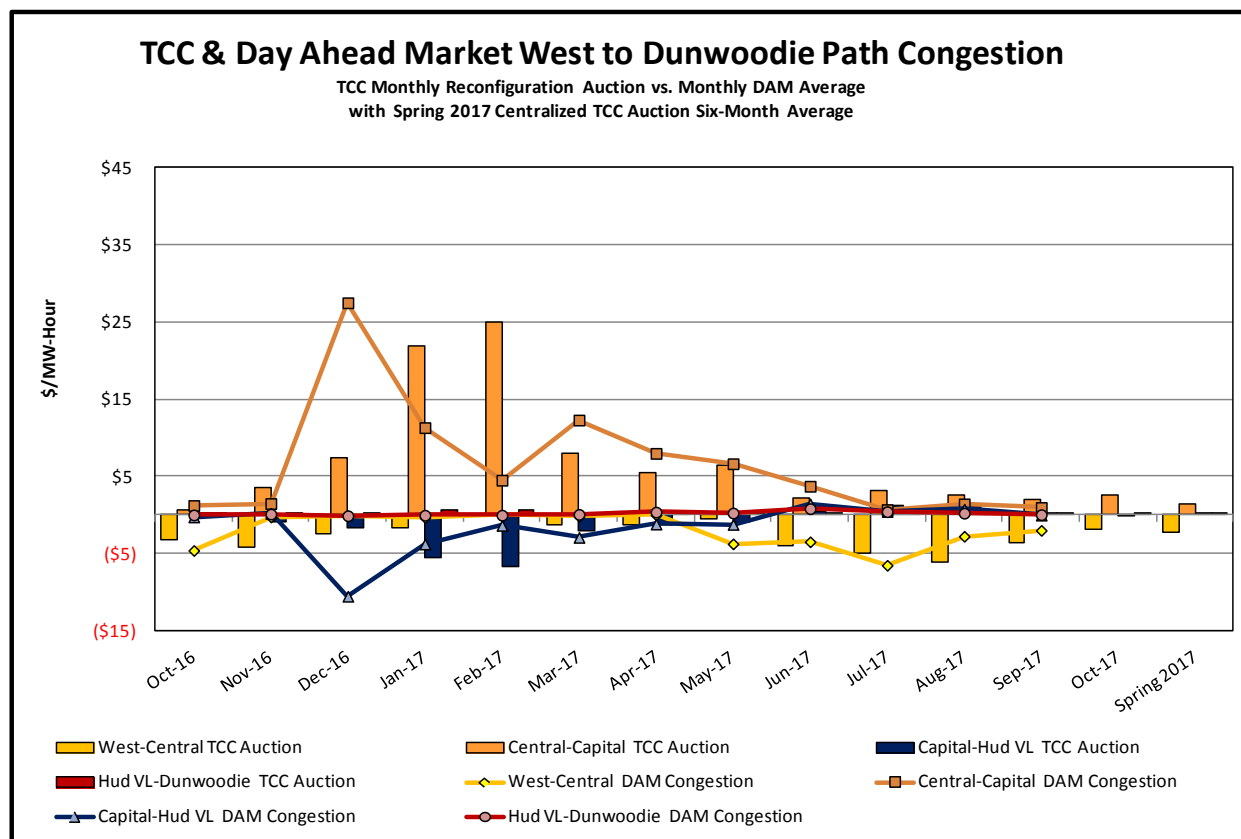
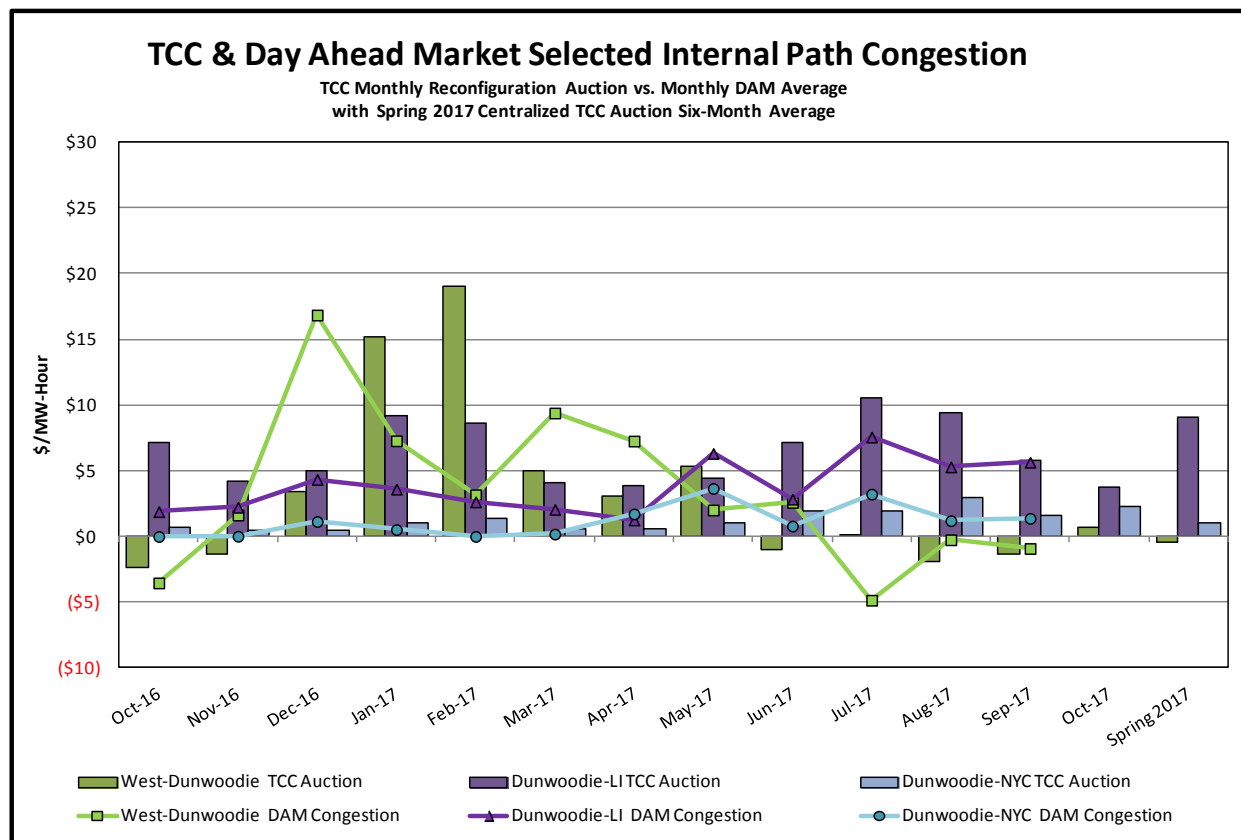
Day-Ahead Market Congestion Residual Categories

<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.	



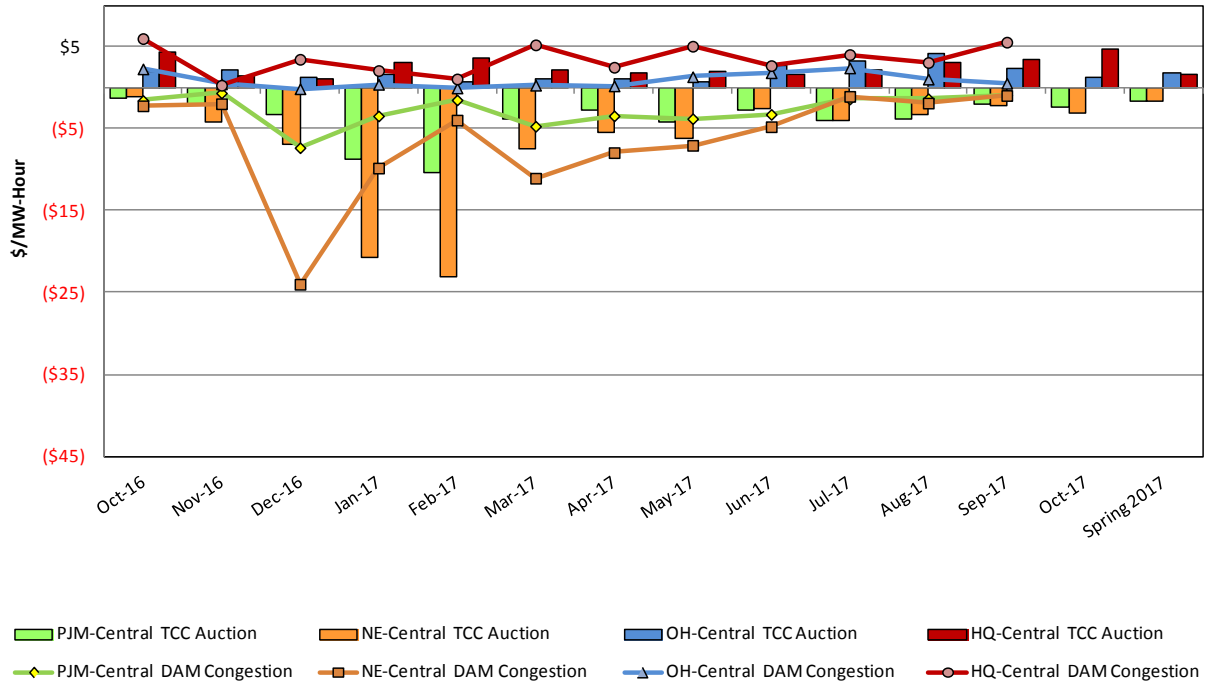


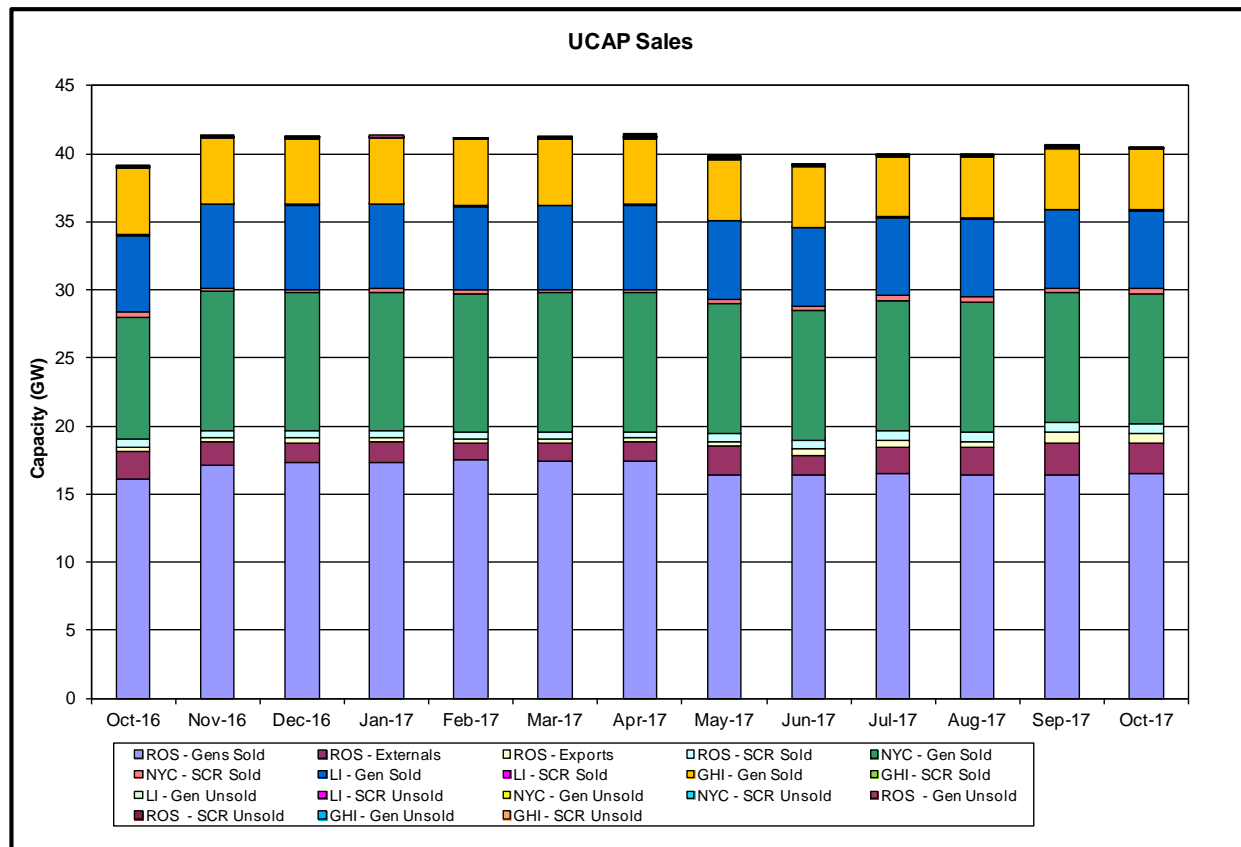
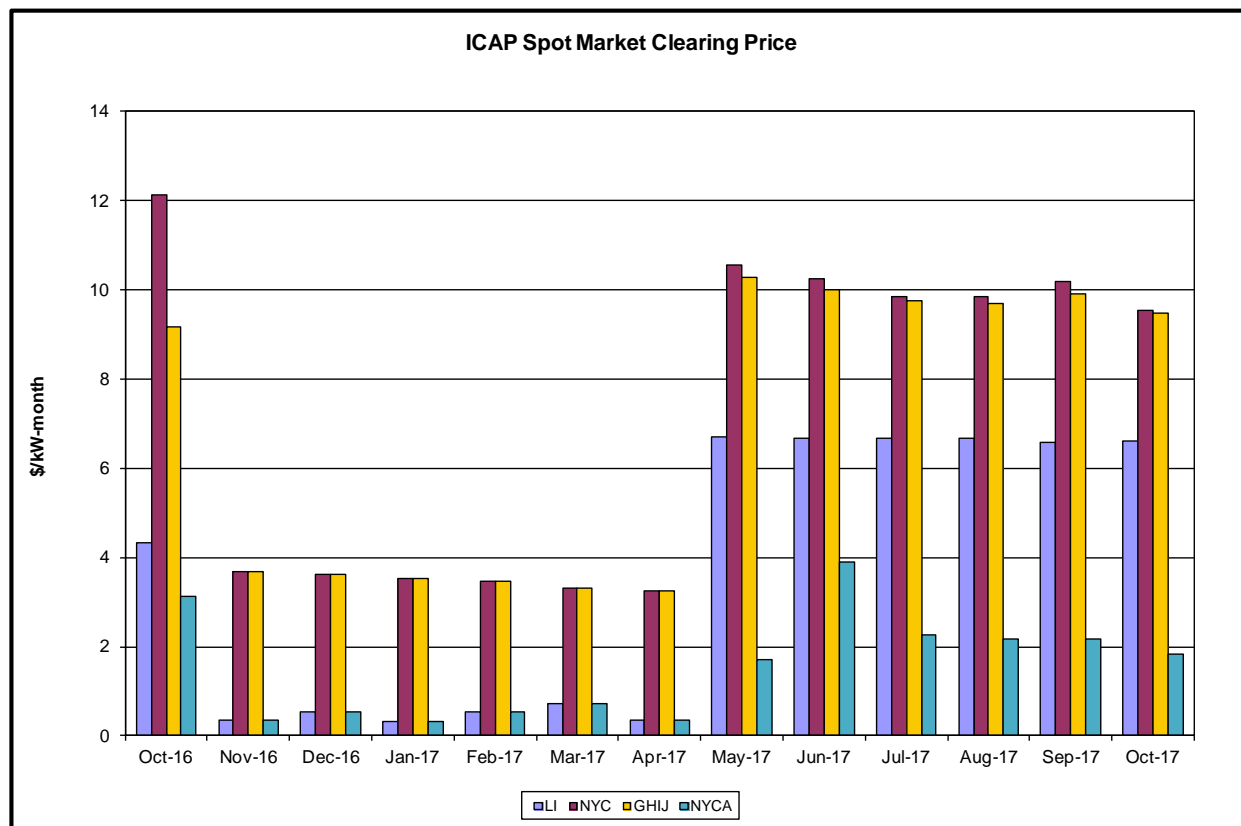




TCC & Day Ahead Market Selected External Path Congestion

TCC Monthly Reconfiguration Auction vs. Monthly DAM Average
with Spring 2017 Centralized TCC Auction Six-Month Average



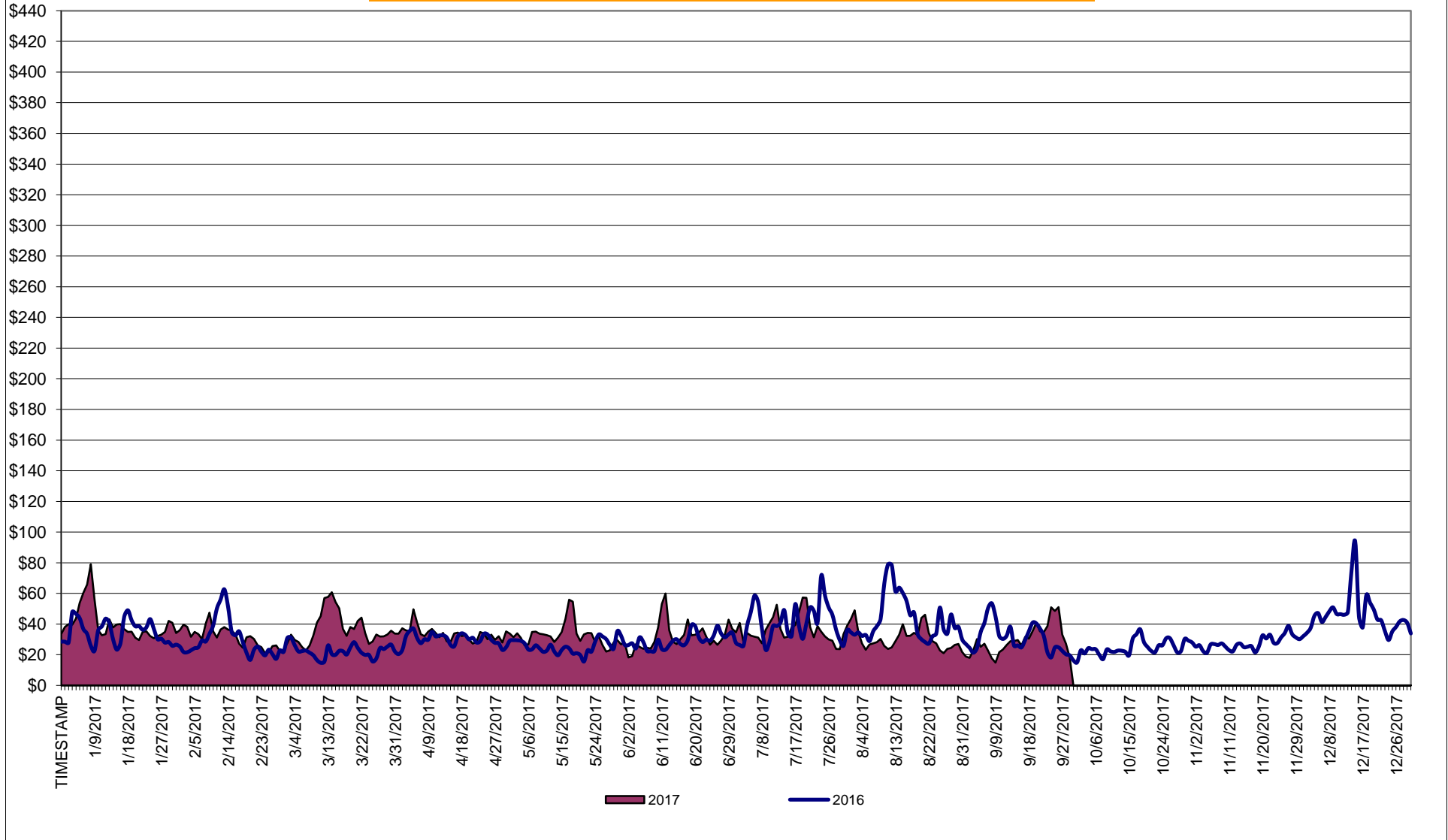


Market Performance Highlights

September 2017

- LBMP for September is \$29.57/MWh; lower than \$30.57/MWh in August 2017 and \$30.89/MWh in September 2016.
 - Day Ahead Load Weighted LBMPs are lower and Real Time Load Weighted LBMPs are higher compared to August.
- September 2017 average year-to-date monthly cost of \$35.34/MWh is a 3% increase from \$34.31/MWh in September 2016.
- Average daily sendout is 437 GWh/day in September; lower than 477 GWh/day in August 2017 and 458 GWh/day in September 2016.
- Natural gas prices and distillate prices were higher compared to the previous month.
 - Natural Gas (Transco Z6 NY) was \$2.27/MMBtu, up from \$2.16/MMBtu in August.
 - Natural gas prices are up 72.2% year-over-year.
 - Jet Kerosene Gulf Coast was \$13.40/MMBtu, up from \$11.53/MMBtu in August.
 - Ultra Low Sulfur No.2 Diesel NY Harbor was \$12.80/MMBtu, up from \$11.65/MMBtu in August.
 - Distillate prices are up 32.3% year-over-year.
- Uplift per MWh is lower compared to the previous month.
 - Uplift (not including NYISO cost of operations) is (\$0.34)/MWh; lower than (\$0.19)/MWh in August.
 - Local Reliability Share is \$0.16/MWh, higher than \$0.12/MWh in August.
 - Statewide Share is (\$0.50)/MWh, lower than (\$0.31)/MWh in August.
 - TSA \$ per NYC MWh is \$0.00/MWh.
 - Total uplift costs (Schedule 1 components including NYISO Cost of Operations) are lower than August.

Daily NYISO Average Cost/MWh (Energy & Ancillary Services)*
2016 Annual Average \$34.28/MWh
September 2016 YTD Average \$34.31/MWh
September 2017 YTD Average \$35.34/MWh

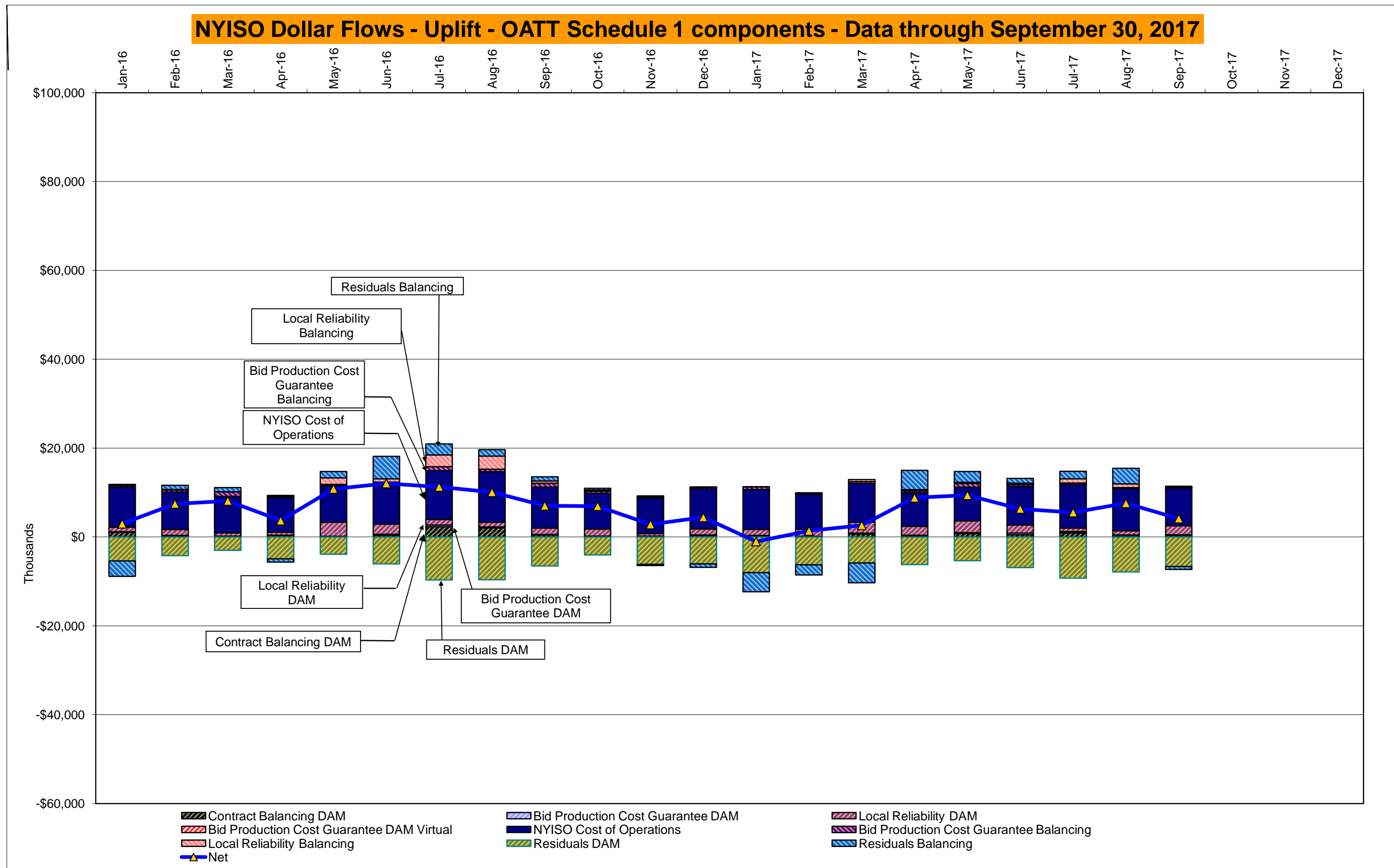


* Excludes ICAP payments.

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

2017	<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	31.06	31.74	31.76	35.84	30.57	29.57			
NTAC	0.66	1.11	0.86	1.05	0.79	0.62	0.87	0.59	0.62			
Reserve	0.70	0.67	0.74	0.70	0.61	0.55	0.48	0.44	0.47			
Regulation	0.14	0.12	0.13	0.17	0.16	0.13	0.10	0.10	0.11			
NYISO Cost of Operations	0.65	0.65	0.65	0.65	0.62	0.63	0.63	0.63	0.63			
FERC Fee Recovery	0.09	0.10	0.10	0.12	0.10	0.09	0.07	0.08	0.09			
Uplift	(0.73)	(0.54)	(0.46)	0.12	0.10	(0.37)	(0.43)	(0.19)	(0.34)			
Uplift: Local Reliability Share	0.10	0.13	0.21	0.20	0.24	0.15	0.11	0.12	0.16			
Uplift: Statewide Share	(0.83)	(0.67)	(0.67)	(0.08)	(0.13)	(0.52)	(0.54)	(0.31)	(0.50)			
Voltage Support and Black Start	0.37	0.37	0.38	0.38	0.38	0.38	0.38	0.38	0.38			
Avg Monthly Cost	41.96	33.44	37.38	34.26	34.52	33.80	37.94	32.60	31.54			
 Avg YTD Cost	41.96	38.02	37.81	37.05	36.54	36.01	36.35	35.80	35.34			
 TSA \$ per NYC MWh	0.00	0.00	0.00	0.08	0.12	0.56	0.42	0.23	0.00			
 2016	<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
Avg Monthly Cost	36.42	31.37	23.23	30.84	26.52	30.29	42.40	44.75	33.16	25.12	28.61	46.42
 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
 2015	<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
Avg Monthly Cost	60.91	115.27	53.58	30.41	35.37	30.79	36.84	35.14	36.35	32.18	27.64	23.71
 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: 10/6/2017 10:38 AM



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>2017</u>	<u>January</u>	<u>February</u>	<u>March</u>	<u>April</u>	<u>May</u>	<u>June</u>	<u>July</u>	<u>August</u>	<u>September</u>	<u>October</u>	<u>November</u>	<u>December</u>
<u>Day Ahead Market MWh</u>	14,135,019	12,565,206	13,983,865	12,061,475	12,966,981	14,406,180	16,505,801	15,948,927	14,100,695			
DAM LSE Internal LBMP Energy Sales	57%	57%	55%	54%	58%	60%	62%	61%	57%			
DAM External TC LBMP Energy Sales	2%	2%	1%	1%	1%	1%	1%	1%	1%			
DAM Bilateral - Internal Bilaterals	32%	32%	34%	35%	33%	31%	29%	29%	32%			
DAM Bilateral - Import/Non-LBMP Market Bilaterals	5%	5%	5%	6%	4%	5%	4%	5%	5%			
DAM Bilateral - Export/Non-LBMP Market Bilaterals	2%	2%	2%	2%	2%	2%	1%	2%	2%			
DAM Bilateral - Wheel Through Bilaterals	2%	2%	2%	2%	2%	2%	3%	3%	4%			
<u>Balancing Energy Market MWh</u>	-256,448	-407,284	-509,053	-466,426	-666,048	-564,312	-747,473	-853,898	-633,990			
Balancing Energy LSE Internal LBMP Energy Sales	-157%	-132%	-148%	-115%	-120%	-114%	-100%	-87%	-76%			
Balancing Energy External TC LBMP Energy Sales	64%	39%	44%	22%	28%	23%	18%	13%	12%			
Balancing Energy Bilateral - Internal Bilaterals	15%	8%	12%	5%	1%	4%	3%	2%	3%			
Balancing Energy Bilateral - Import/Non-LBMP Market Bilaterals	0%	4%	0%	0%	0%	0%	0%	0%	0%			
Balancing Energy Bilateral - Export/Non-LBMP Market Bilaterals	10%	7%	5%	4%	3%	3%	1%	1%	1%			
Balancing Energy Bilateral - Wheel Through Bilaterals	-32%	-26%	-13%	-15%	-12%	-16%	-22%	-29%	-40%			
<u>Transactions Summary</u>												
LBMP	58%	57%	55%	54%	58%	60%	62%	61%	58%			
Internal Bilaterals	33%	34%	36%	37%	34%	32%	30%	31%	33%			
Import Bilaterals	5%	5%	5%	6%	4%	5%	5%	5%	5%			
Export Bilaterals	2%	2%	2%	2%	2%	2%	2%	2%	2%			
Wheels Through	2%	2%	2%	2%	2%	1%	2%	2%	2%			
<u>Market Share of Total Load</u>												
Day Ahead Market	101.8%	103.3%	103.8%	104.0%	105.4%	104.1%	104.7%	105.7%	104.7%			
Balancing Energy +	-1.8%	-3.3%	-3.8%	-4.0%	-5.4%	-4.1%	-4.7%	-5.7%	-4.7%			
Total MWH	13,878,571	12,157,922	13,474,812	11,595,049	12,300,933	13,841,868	15,758,328	15,095,029	13,466,705			
Average Daily Energy Sendout/Month GWh	431	418	419	377	383	454	498	477	437			

<u>2016</u>	<u>January</u>	<u>February</u>	<u>March</u>	<u>April</u>	<u>May</u>	<u>June</u>	<u>July</u>	<u>August</u>	<u>September</u>	<u>October</u>	<u>November</u>	<u>December</u>
<u>Day Ahead Market MWh</u>	14,760,915	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%
<u>Balancing Energy Market MWh</u>	-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%
<u>Transactions Summary</u>												
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%
<u>Market Share of Total Load</u>												
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>
<u>DAY AHEAD LBMP</u>												
Price *	\$37.22	\$28.84	\$32.04	\$27.70	\$27.66	\$27.37	\$31.64	\$27.28	\$25.05			
Standard Deviation	\$13.20	\$7.97	\$11.95	\$7.66	\$9.47	\$12.37	\$13.51	\$10.60	\$12.09			
Load Weighted Price **	\$38.42	\$29.66	\$32.96	\$28.56	\$28.95	\$29.52	\$33.78	\$29.00	\$26.95			
<u>RTC LBMP</u>												
Price *	\$32.87	\$24.09	\$28.86	\$26.19	\$26.19	\$26.40	\$30.84	\$25.26	\$27.97			
Standard Deviation	\$14.57	\$9.52	\$13.70	\$10.36	\$21.29	\$14.76	\$18.14	\$13.08	\$27.14			
Load Weighted Price **	\$33.96	\$24.81	\$29.67	\$26.98	\$28.10	\$28.39	\$33.13	\$26.65	\$30.98			
<u>REAL TIME LBMP</u>												
Price *	\$34.61	\$25.14	\$31.21	\$29.61	\$26.56	\$26.16	\$29.47	\$24.36	\$26.08			
Standard Deviation	\$18.20	\$14.21	\$25.02	\$39.82	\$26.11	\$19.00	\$20.25	\$14.03	\$25.72			
Load Weighted Price **	\$35.80	\$25.84	\$32.21	\$30.81	\$28.64	\$28.67	\$32.11	\$25.95	\$29.13			
Average Daily Energy Sendout/Month GWh	431	418	419	377	383	454	498	477	437			

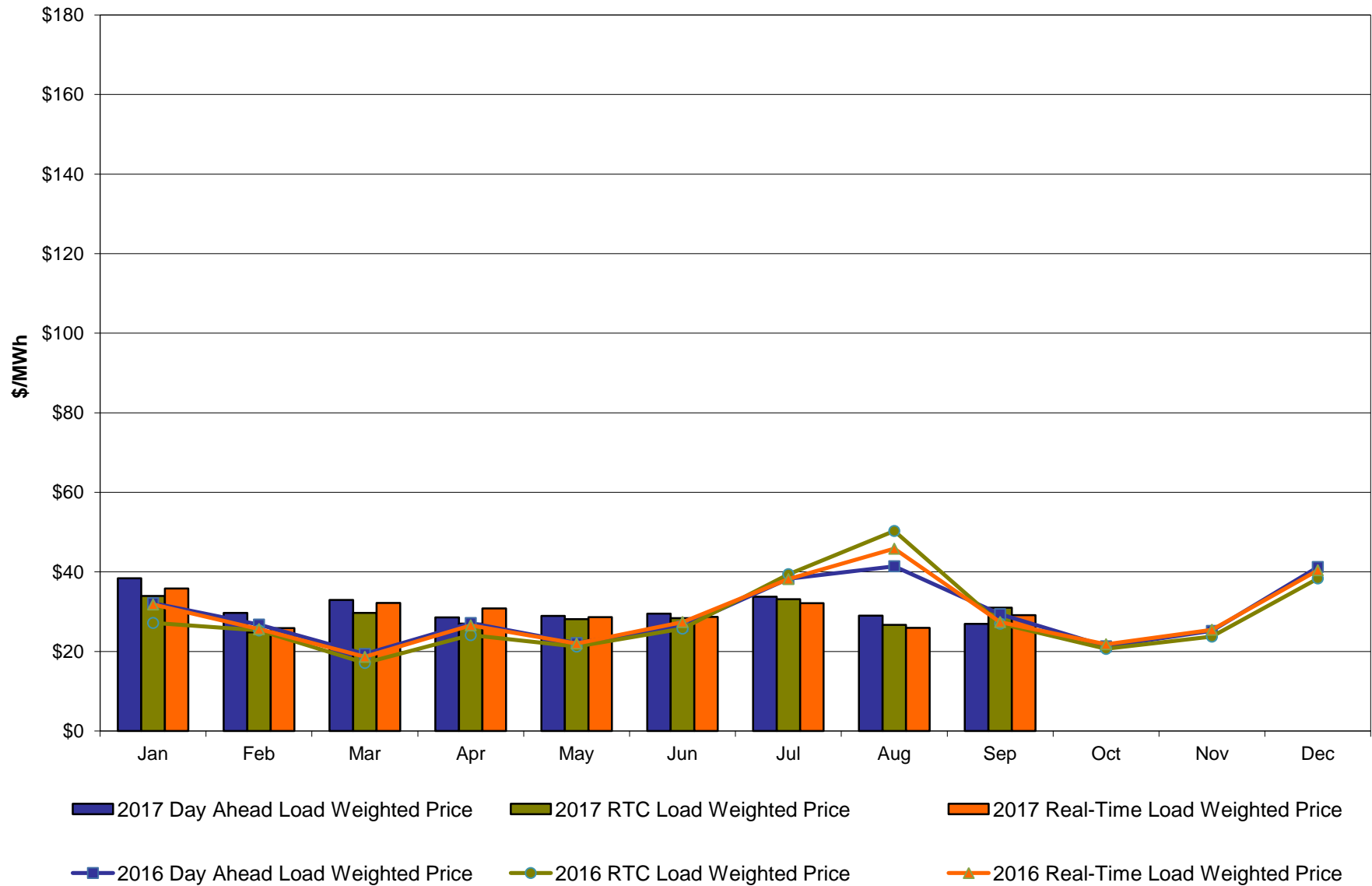
NYISO Markets 2016 Energy Statistics

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

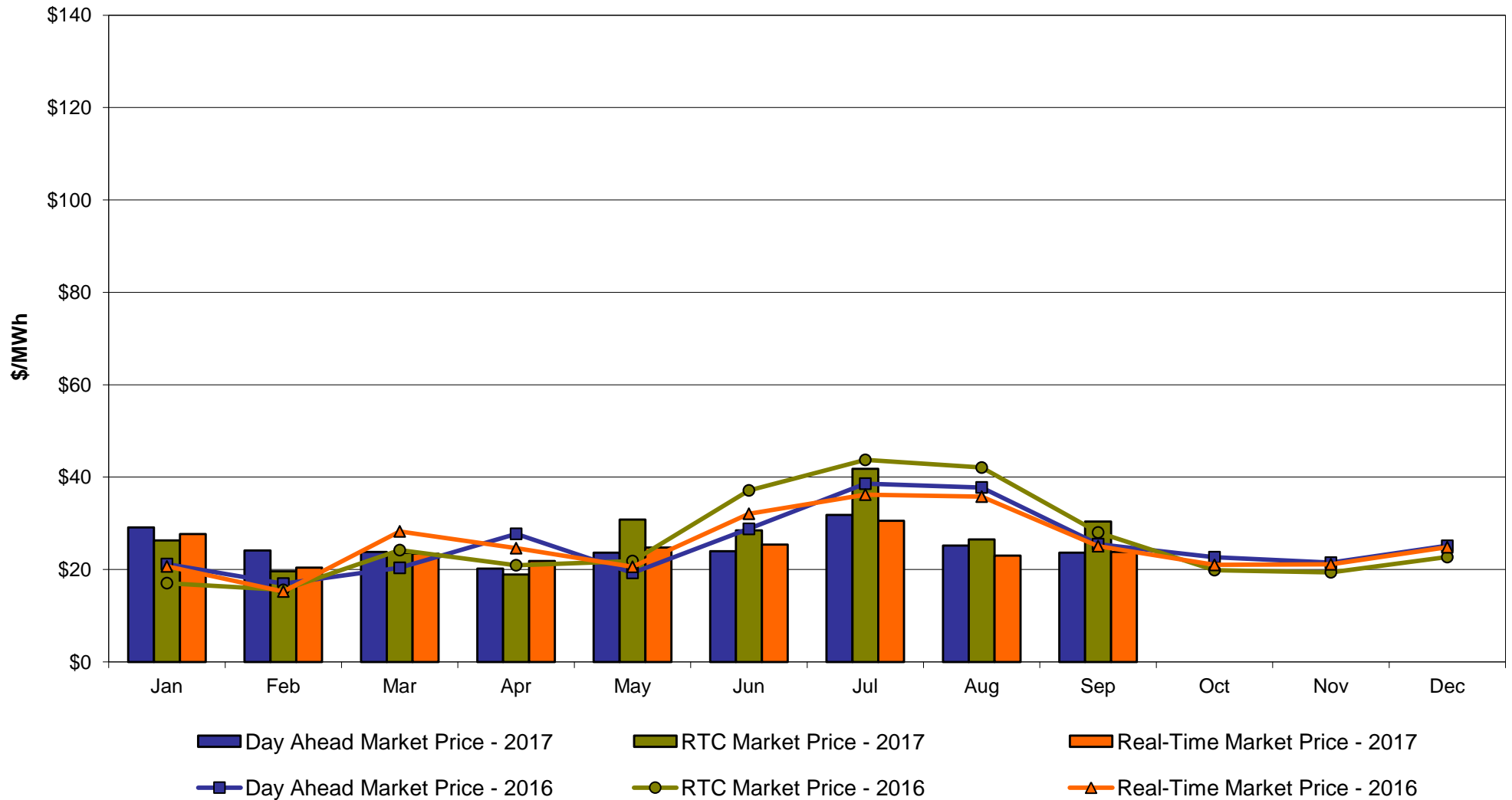


September 2017 Zonal LBMP Statistics for NYISO (\$/MWh)

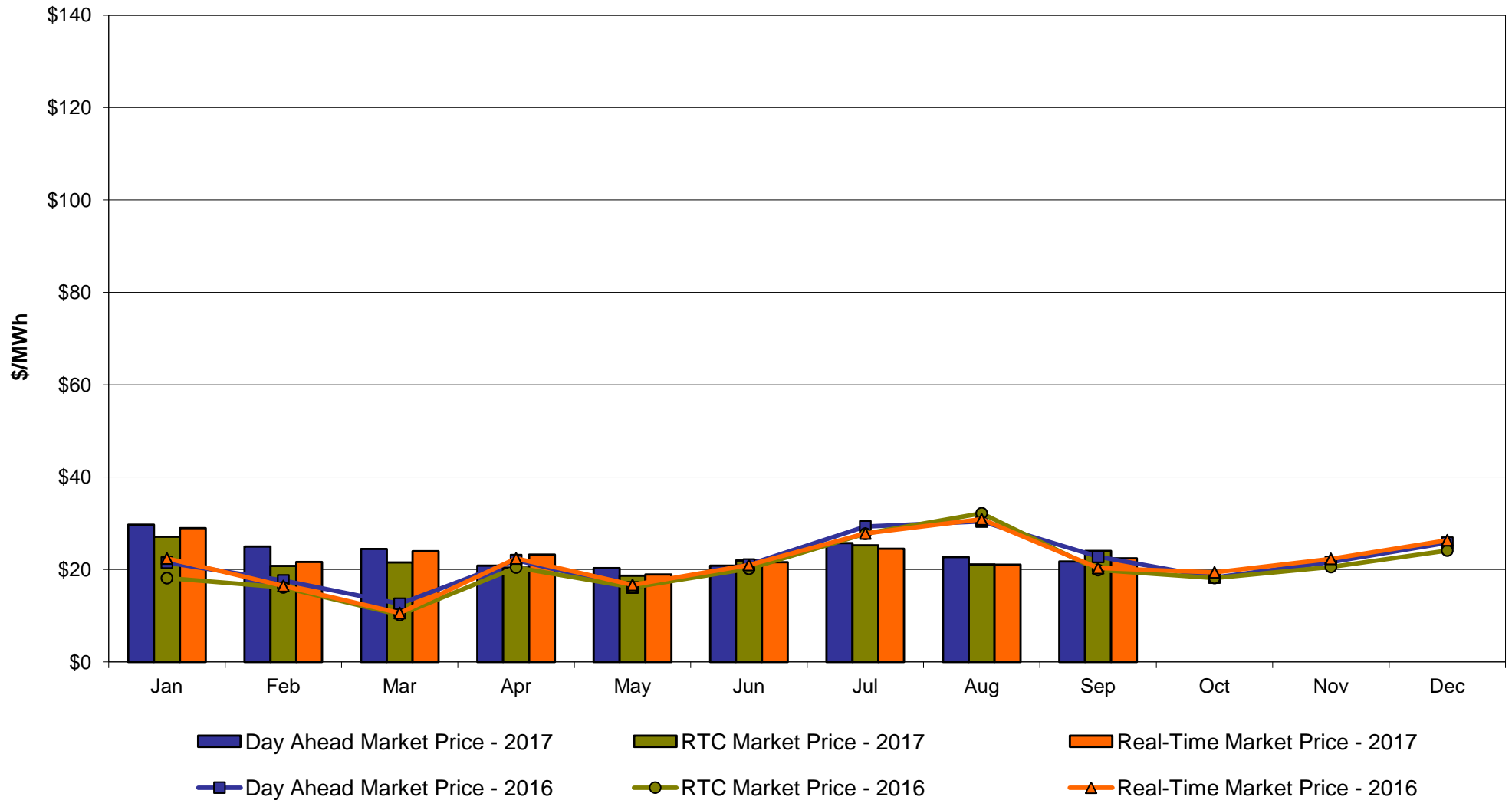
	<u>WEST Zone A</u>	<u>GENESEE Zone B</u>	<u>NORTH Zone D</u>	<u>CENTRAL Zone C</u>	<u>MOHAWK VALLEY Zone E</u>	<u>CAPITAL Zone F</u>	<u>HUDSON VALLEY Zone G</u>	<u>MILLWOOD Zone H</u>	<u>DUNWOODIE Zone I</u>	<u>NEW YORK CITY Zone J</u>	<u>LONG ISLAND Zone K</u>
<u>DAY AHEAD LBMP</u>											
Unweighted Price *	23.64	21.28	14.08	21.72	21.16	23.65	24.42	24.62	24.65	26.26	31.04
Standard Deviation	15.84	11.06	11.48	11.35	11.33	10.75	11.54	11.62	11.59	12.01	14.39
<u>RTC LBMP</u>											
Unweighted Price *	30.39	23.83	17.92	24.01	23.45	25.07	26.52	26.92	27.04	27.74	36.81
Standard Deviation	79.62	25.94	68.19	20.22	23.17	19.78	25.03	27.31	27.58	28.03	49.46
<u>REAL TIME LBMP</u>											
Unweighted Price *	23.83	22.24	12.86	22.42	21.70	23.90	25.64	26.12	26.37	27.16	33.59
Standard Deviation	19.81	16.88	108.47	16.77	26.03	17.09	26.39	30.55	31.21	31.59	45.88
	<u>ONTARIO IESO</u>	<u>HYDRO QUEBEC (Wheel)</u>	<u>HYDRO QUEBEC (Import/Export)</u>	<u>PJM</u>	<u>NEW ENGLAND</u>	<u>CROSS SOUND CABLE Controllable Line</u>	<u>NORTHPORT- NORWALK Controllable Line</u>	<u>NEPTUNE Controllable Line</u>	<u>LINDEN VFT Controllable Line</u>	<u>HUDSON Controllable Line</u>	<u>Dennison Controllable Line</u>
	<u>Zone O</u>	<u>Zone M</u>	<u>Zone M</u>	<u>Zone P</u>	<u>Zone N</u>						
<u>DAY AHEAD LBMP</u>											
Unweighted Price *	20.57	15.07	15.07	23.32	23.78	28.28	26.18	27.50	26.33	26.32	14.60
Standard Deviation	10.67	10.49	10.49	11.86	10.97	12.06	11.39	11.48	12.03	12.07	11.16
<u>RTC LBMP</u>											
Unweighted Price *	21.65	17.71	17.71	28.63	27.99	32.72	32.03	31.81	27.33	27.43	18.65
Standard Deviation	18.43	75.33	75.33	45.45	40.09	43.82	42.30	42.81	27.27	27.55	66.26
<u>REAL TIME LBMP</u>											
Unweighted Price *	21.47	12.09	12.09	26.99	25.53	30.59	28.94	29.93	26.68	26.76	12.59
Standard Deviation	16.42	121.60	121.60	47.08	27.11	40.52	39.56	39.26	30.86	31.28	104.52

* Straight LBMP averages

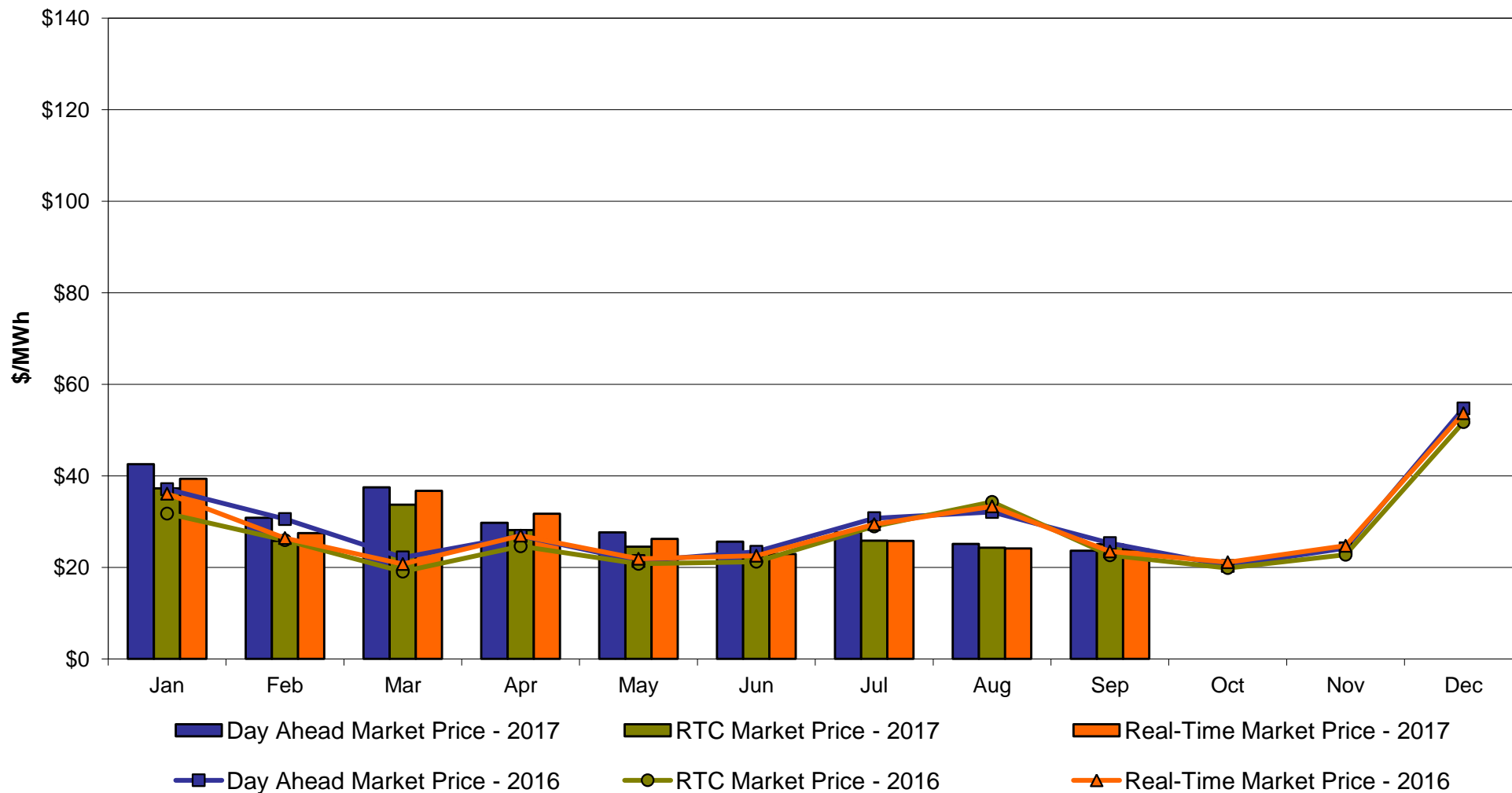
West Zone A **Monthly Average LBMP Prices 2016 - 2017**



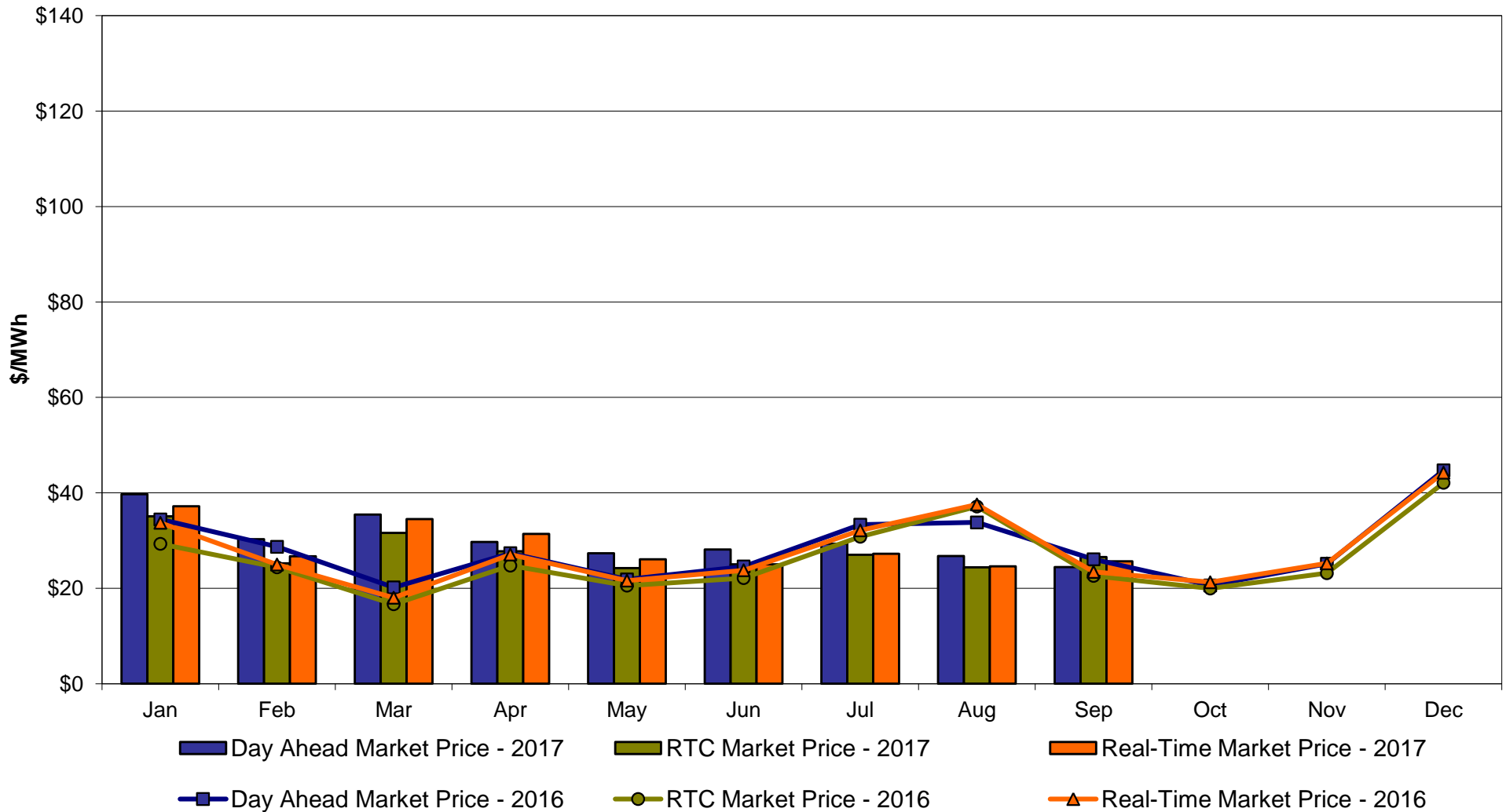
Central Zone C **Monthly Average LBMP Prices 2016 - 2017**



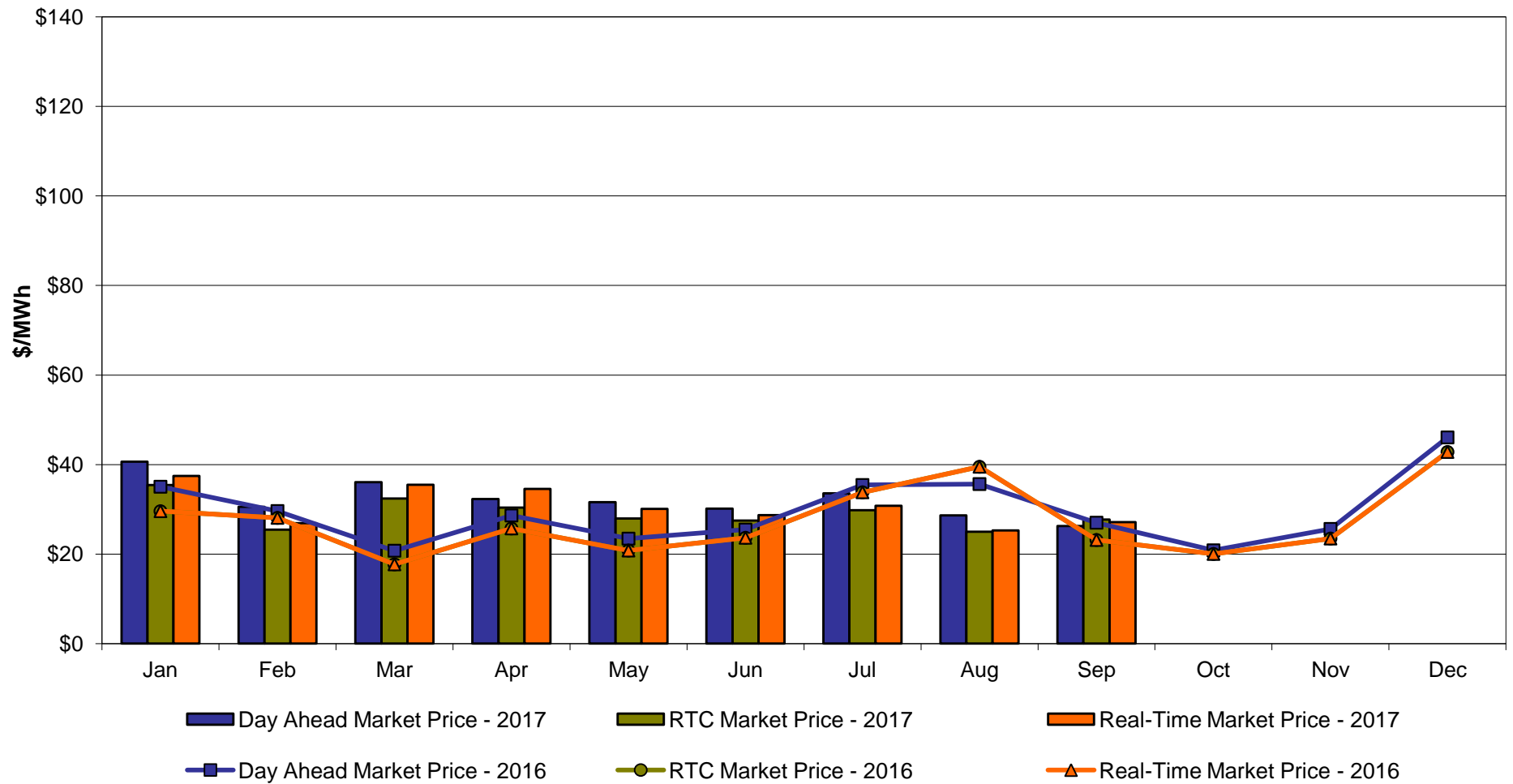
Capital Zone F **Monthly Average LBMP Prices 2016 - 2017**



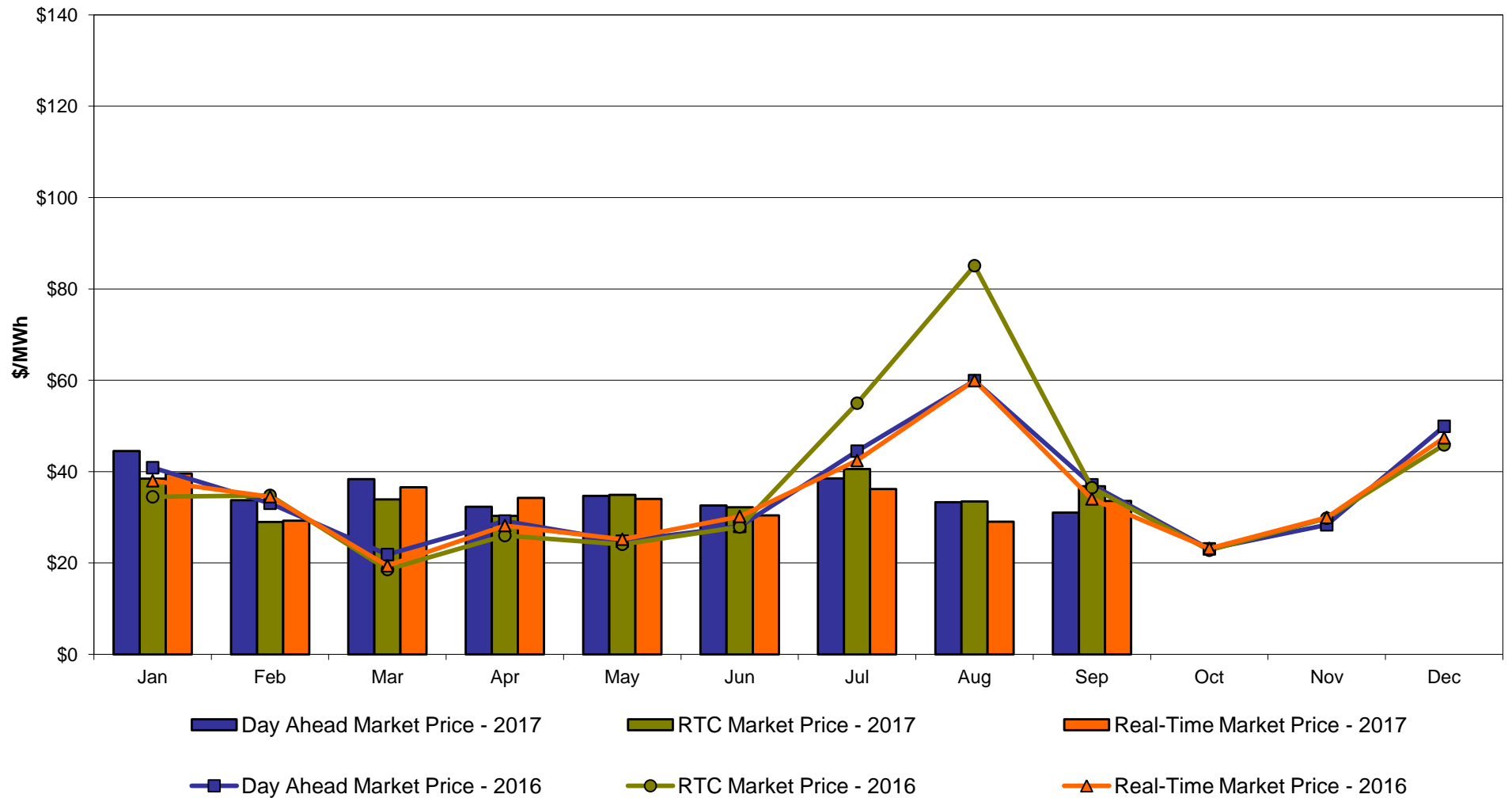
Hudson Valley Zone G **Monthly Average LBMP Prices 2016 - 2017**



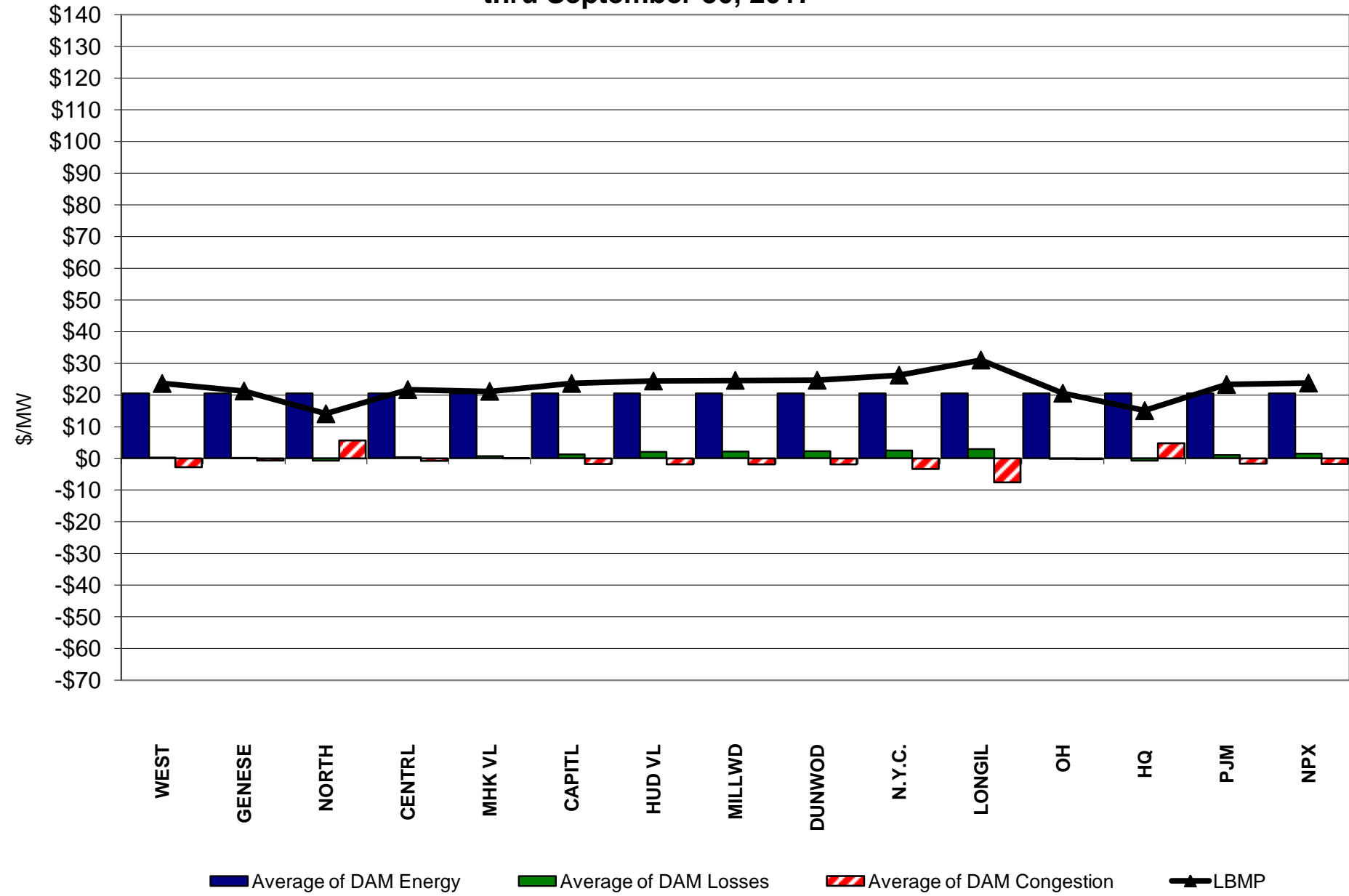
NYC Zone J Monthly Average LBMP Prices 2016 - 2017



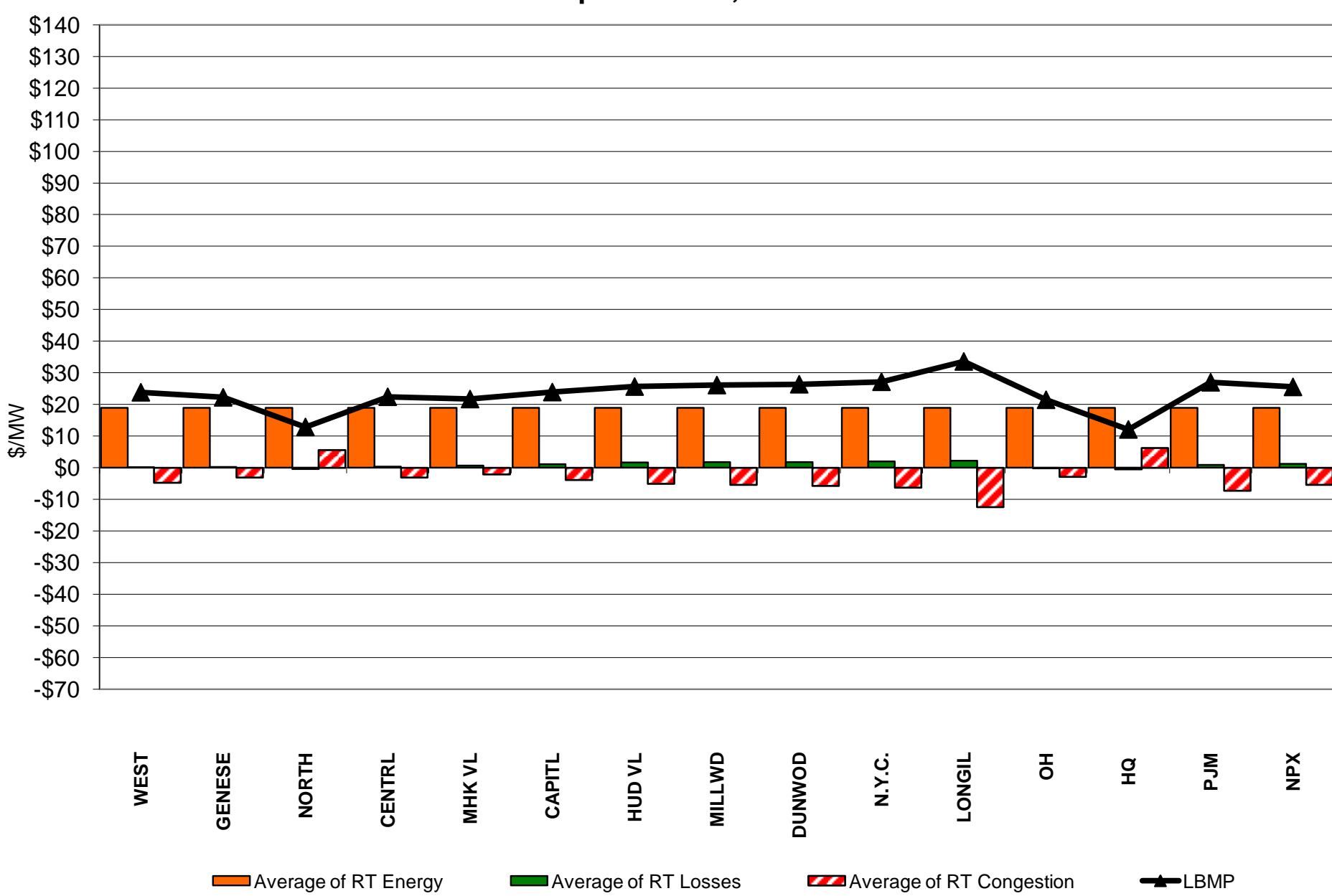
Long Island Zone K Monthly Average LBMP Prices 2016 - 2017



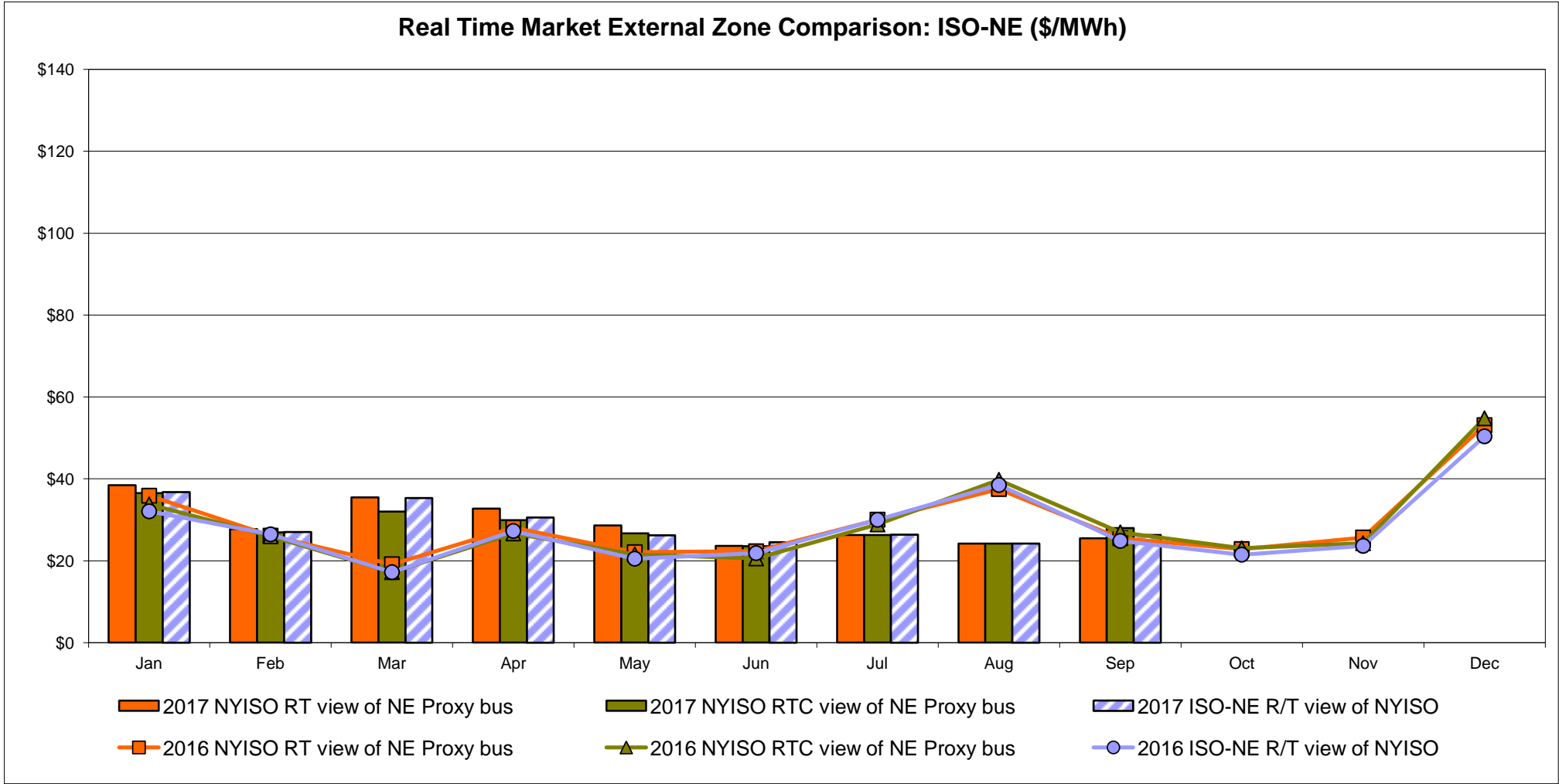
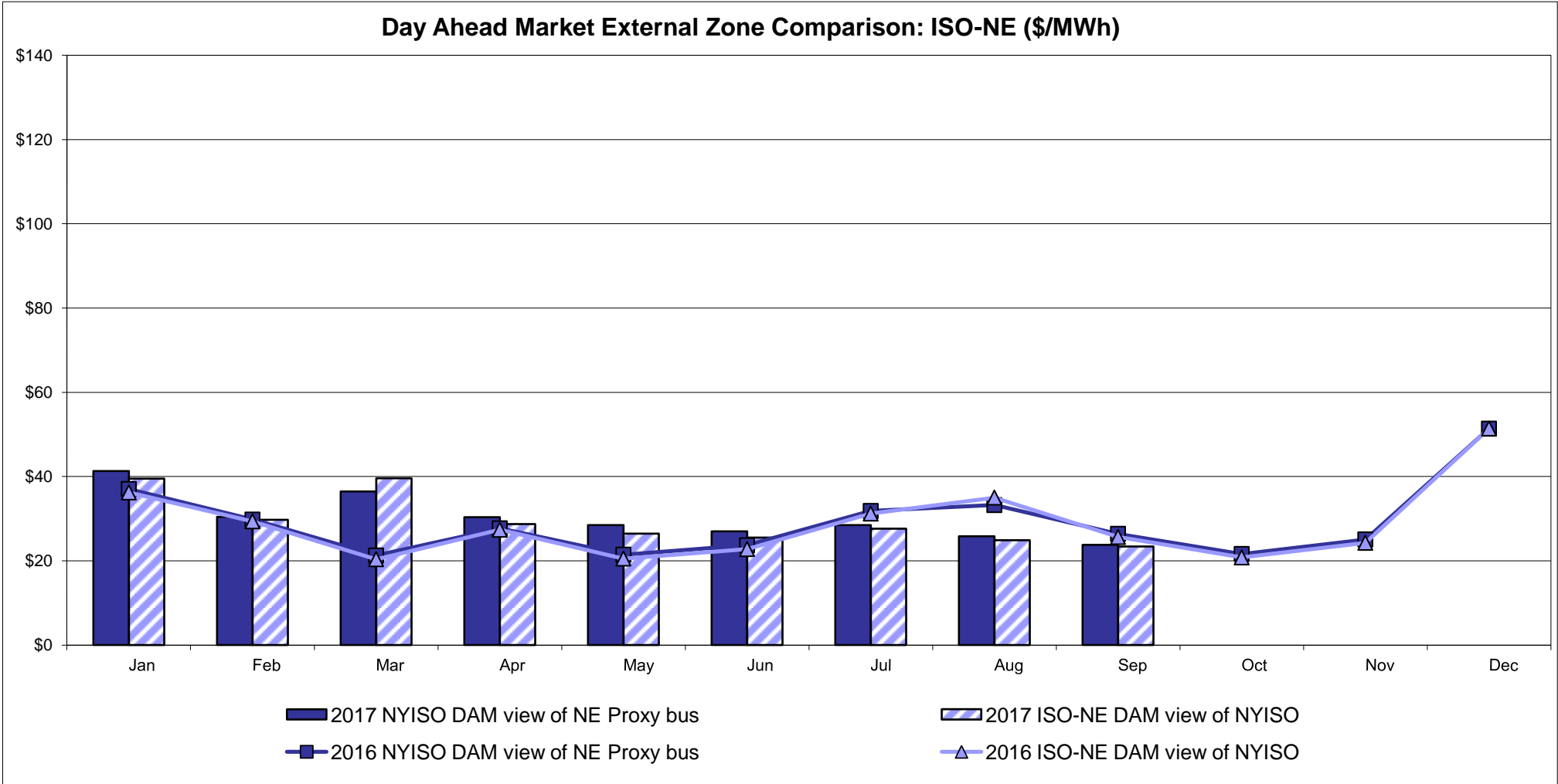
DAM Zonal Unweighted Monthly Average LBMP Components
thru September 30, 2017



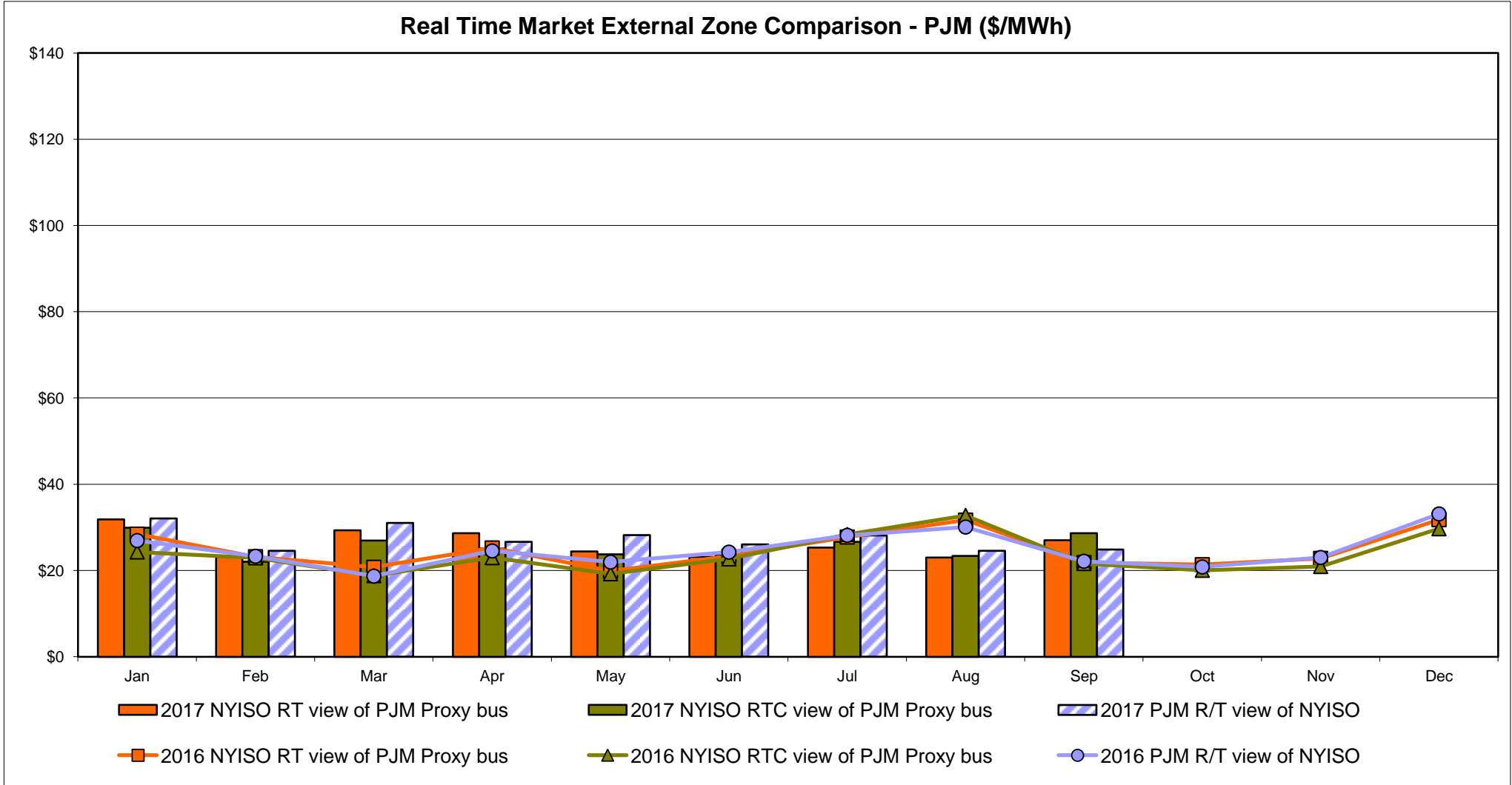
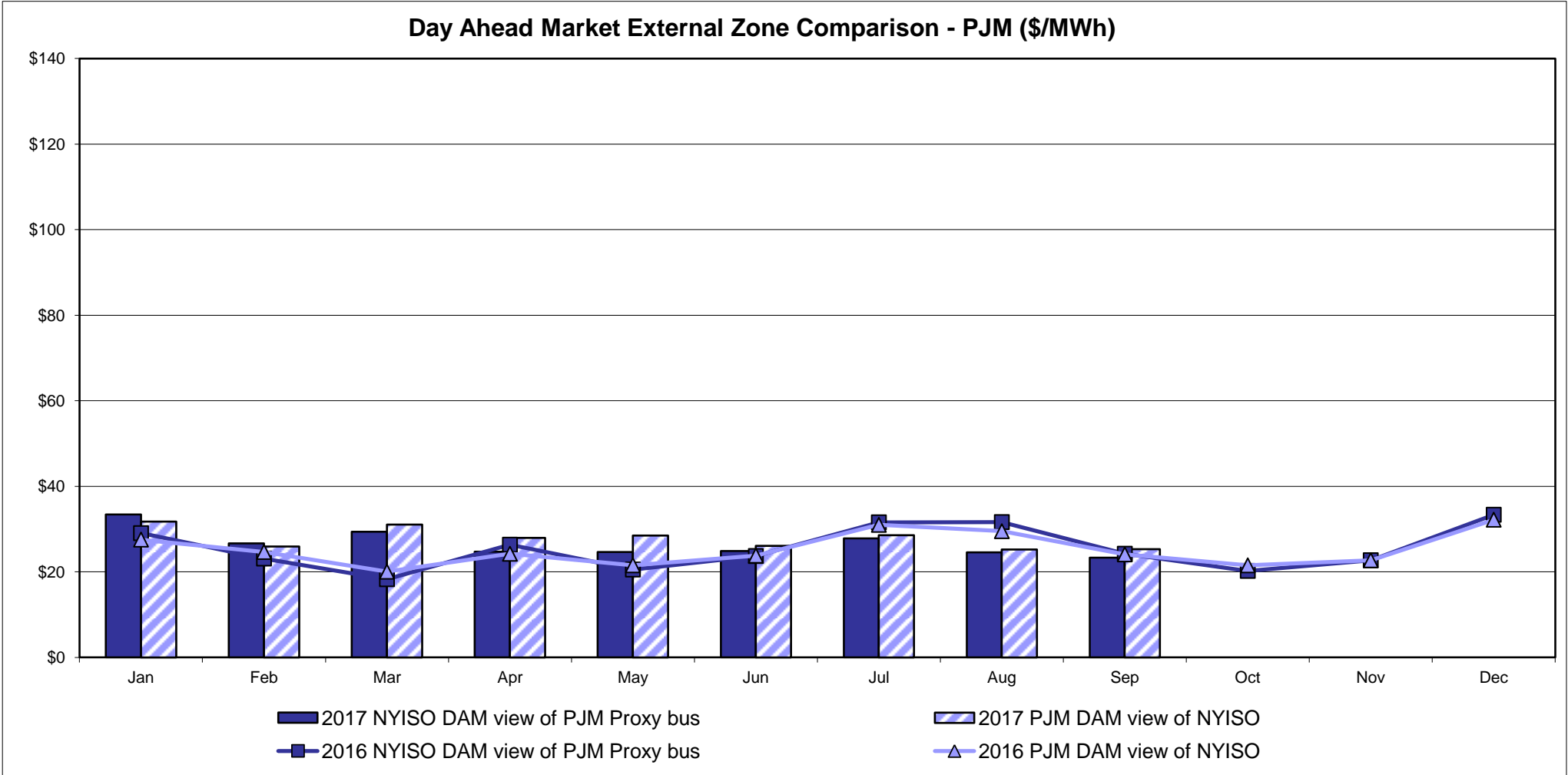
RT Zonal Unweighted Monthly Average LBMP Components
thru September 30, 2017



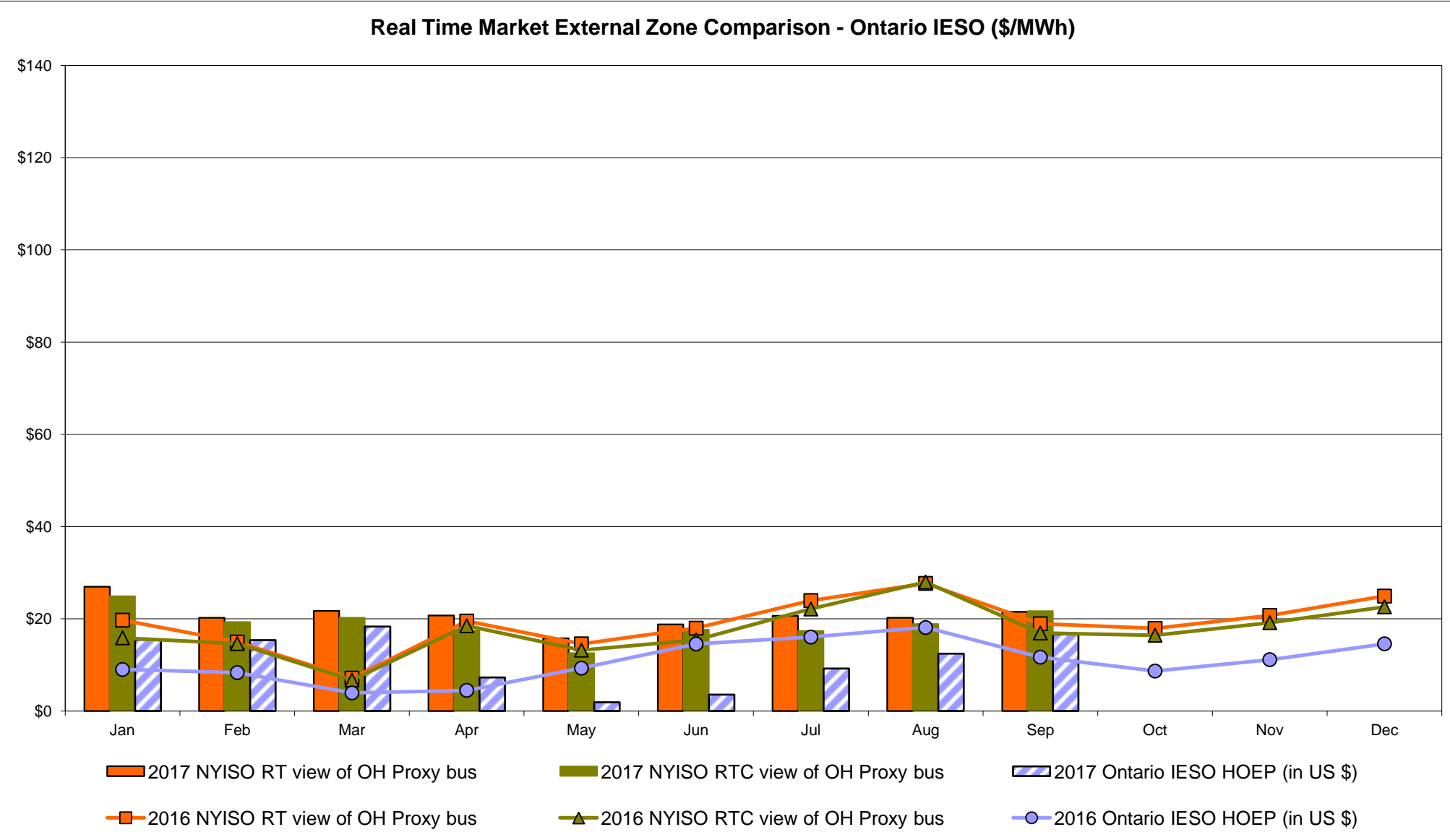
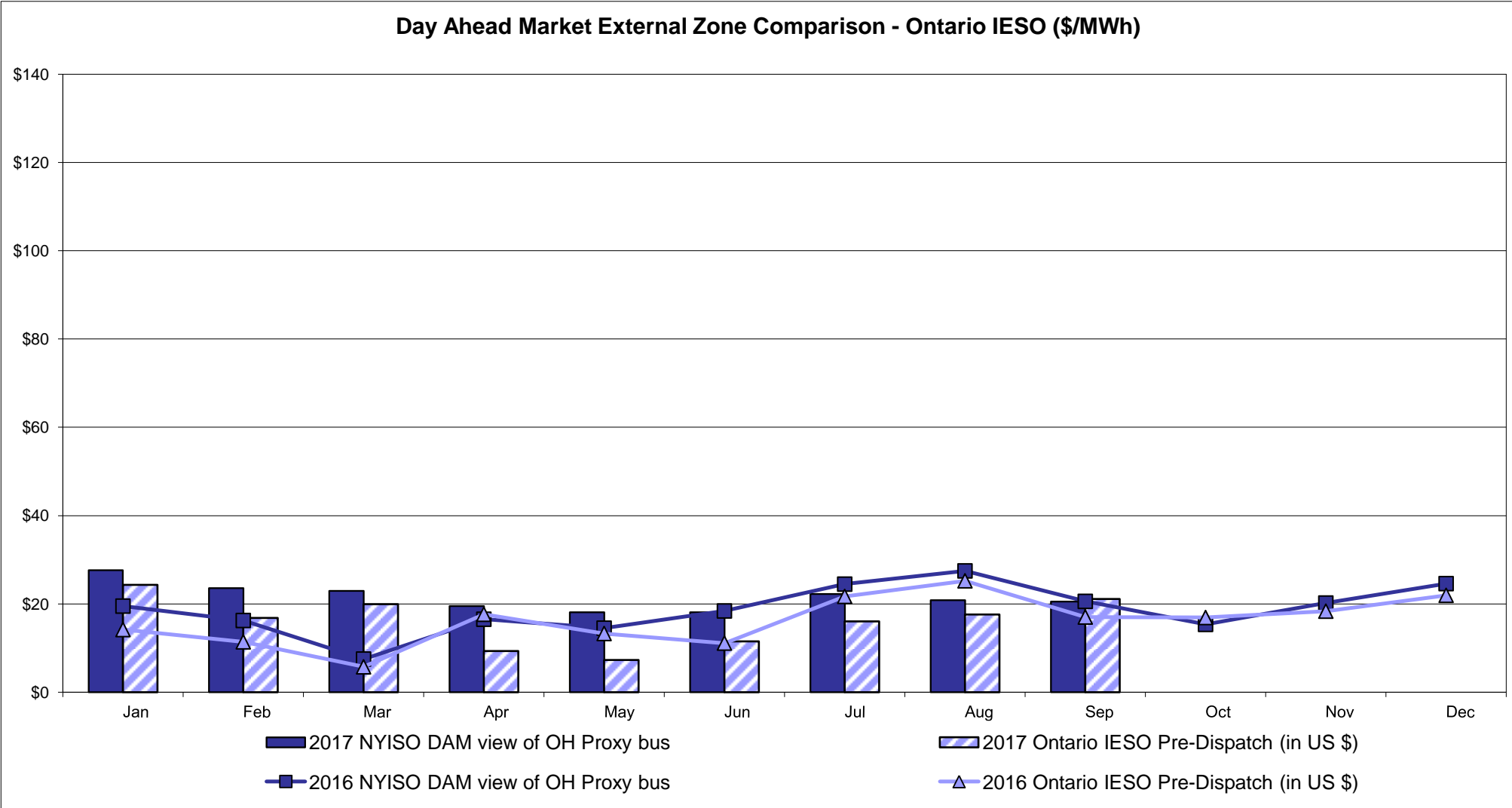
External Comparison ISO-New England



External Comparison PJM

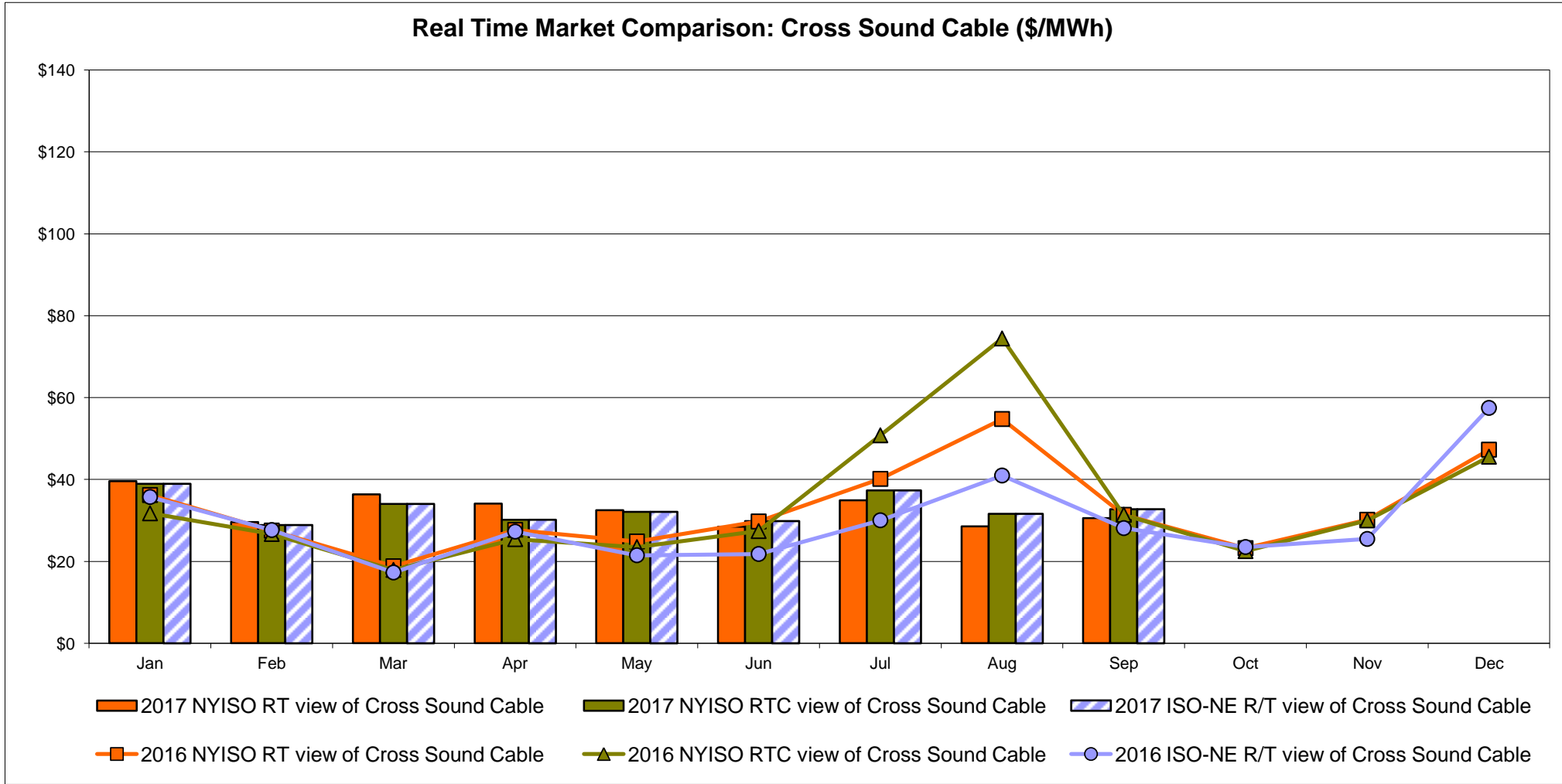
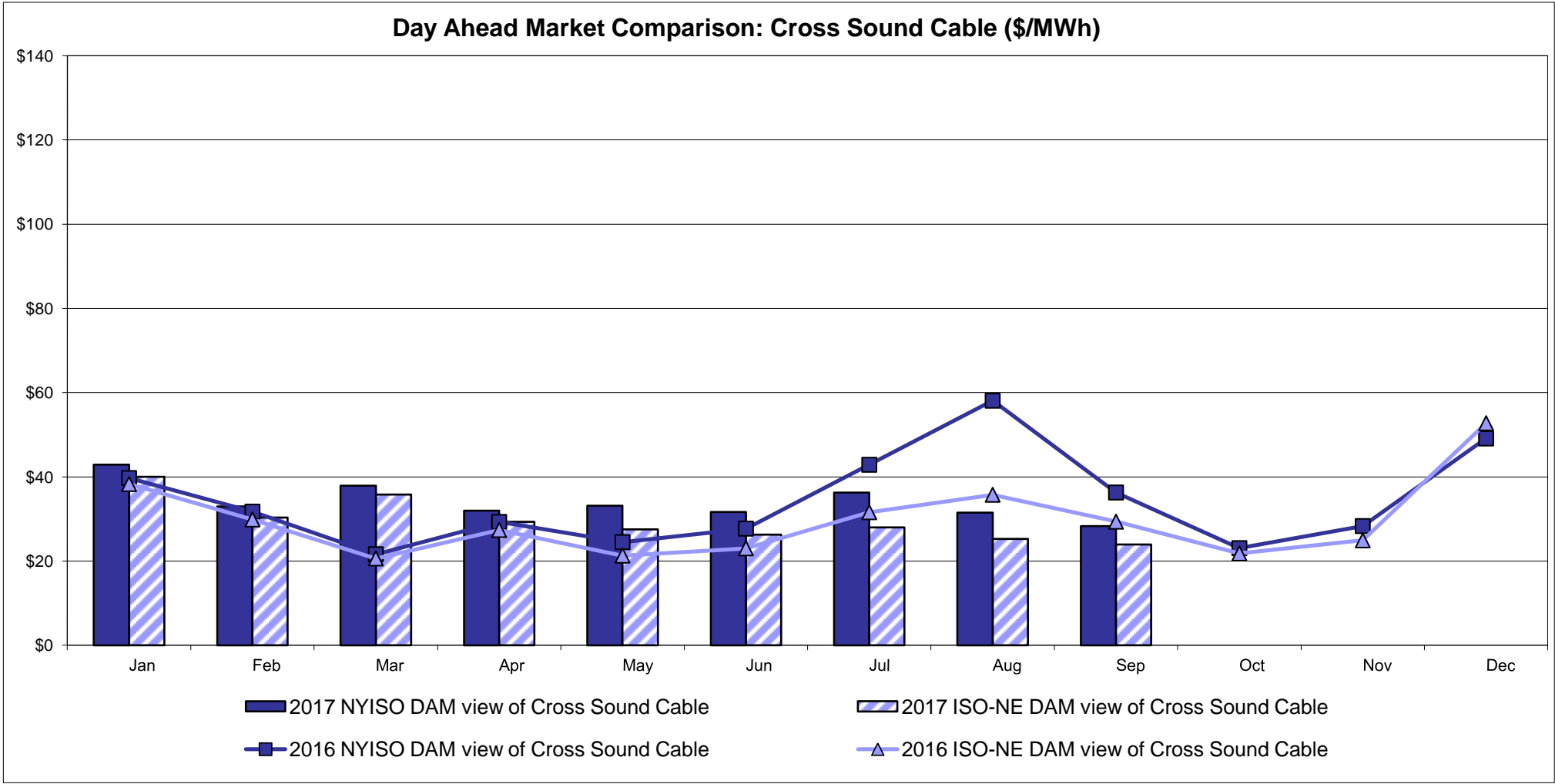


External Comparison Ontario IESO



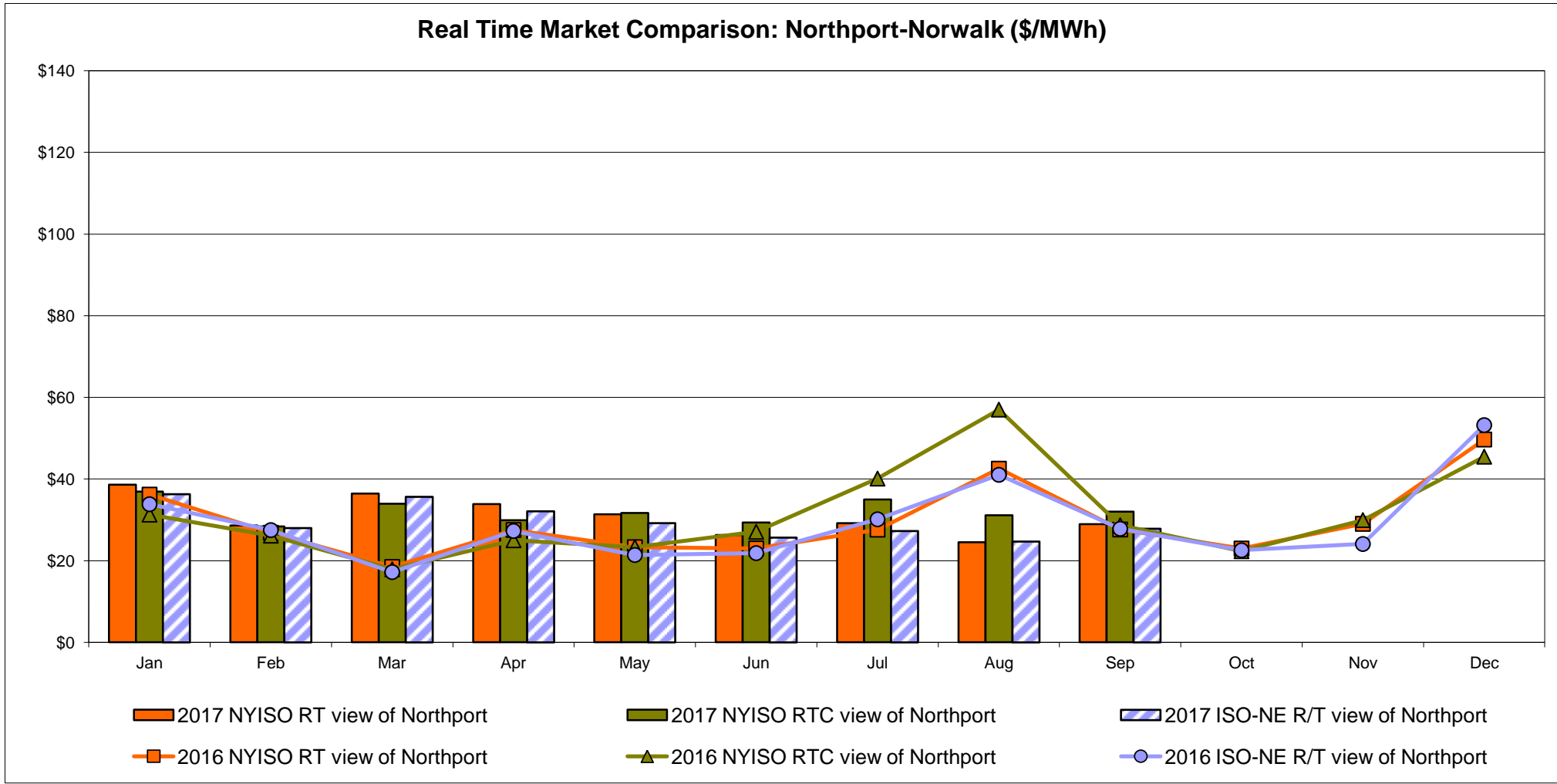
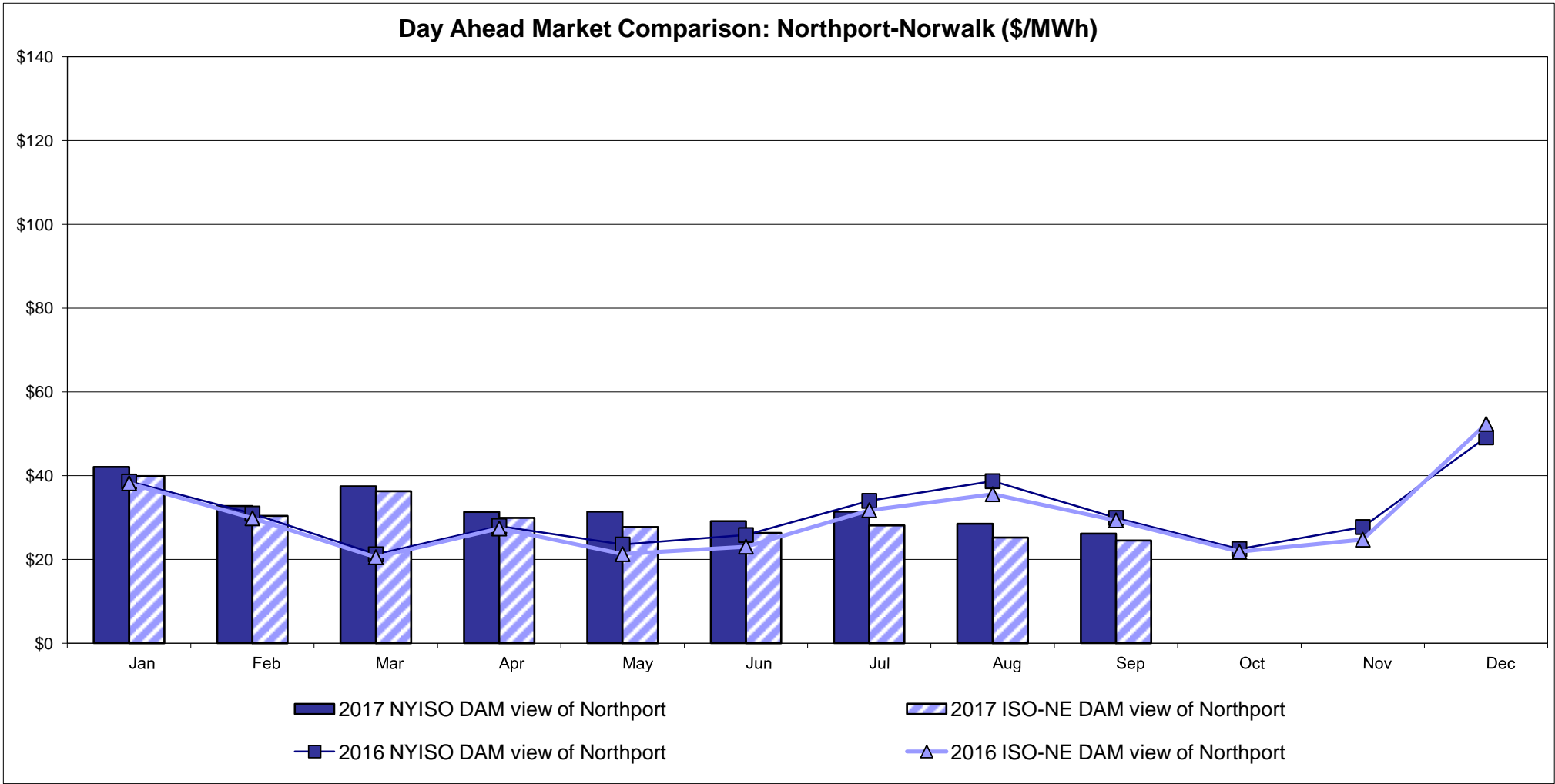
Notes: Exchange factor used for September 2017 was 0.814398566658523 to US
HOEP: Hourly Ontario Energy Price
Pre-Dispatch: Projected Energy Price

External Controllable Line: Cross Sound Cable (New England)



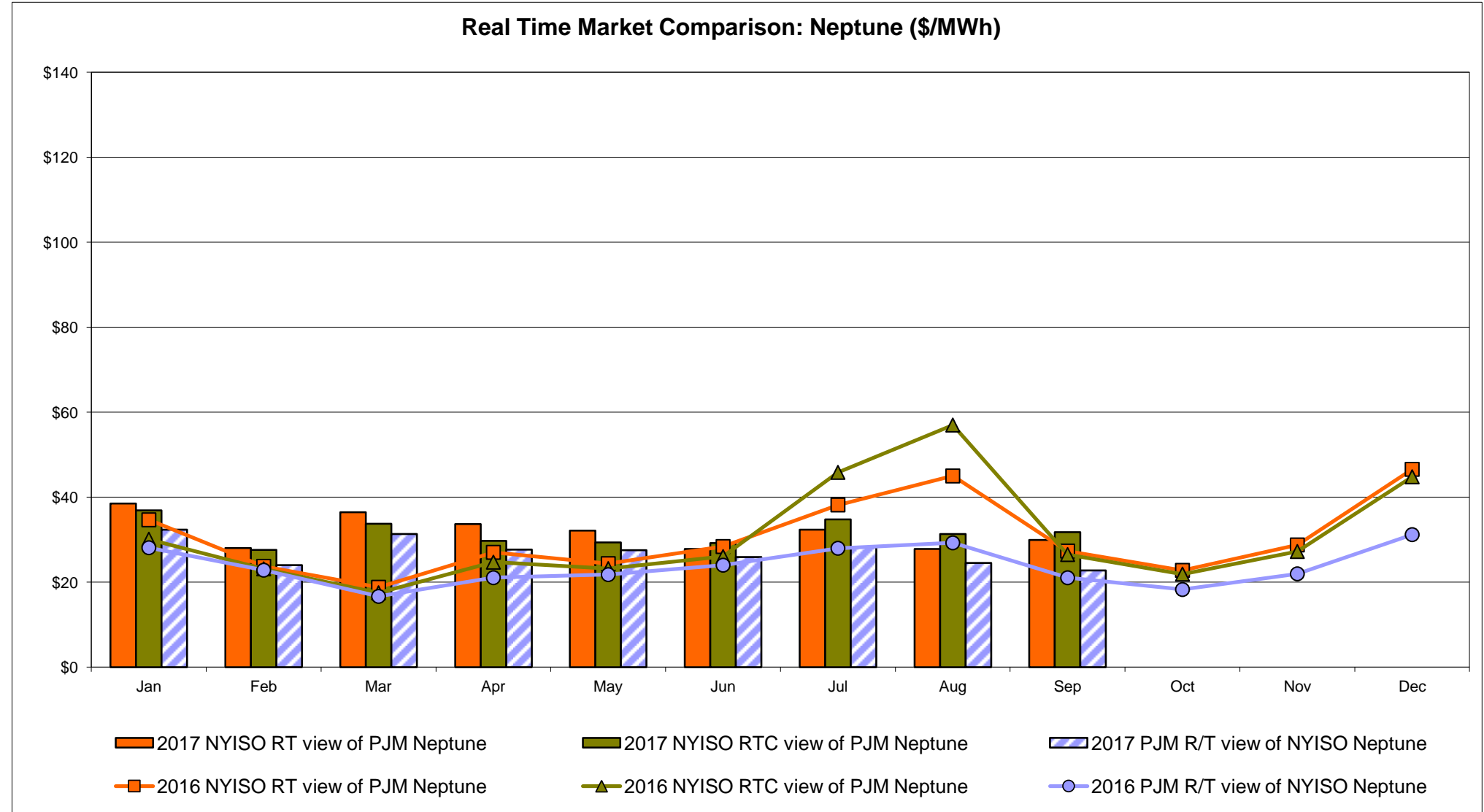
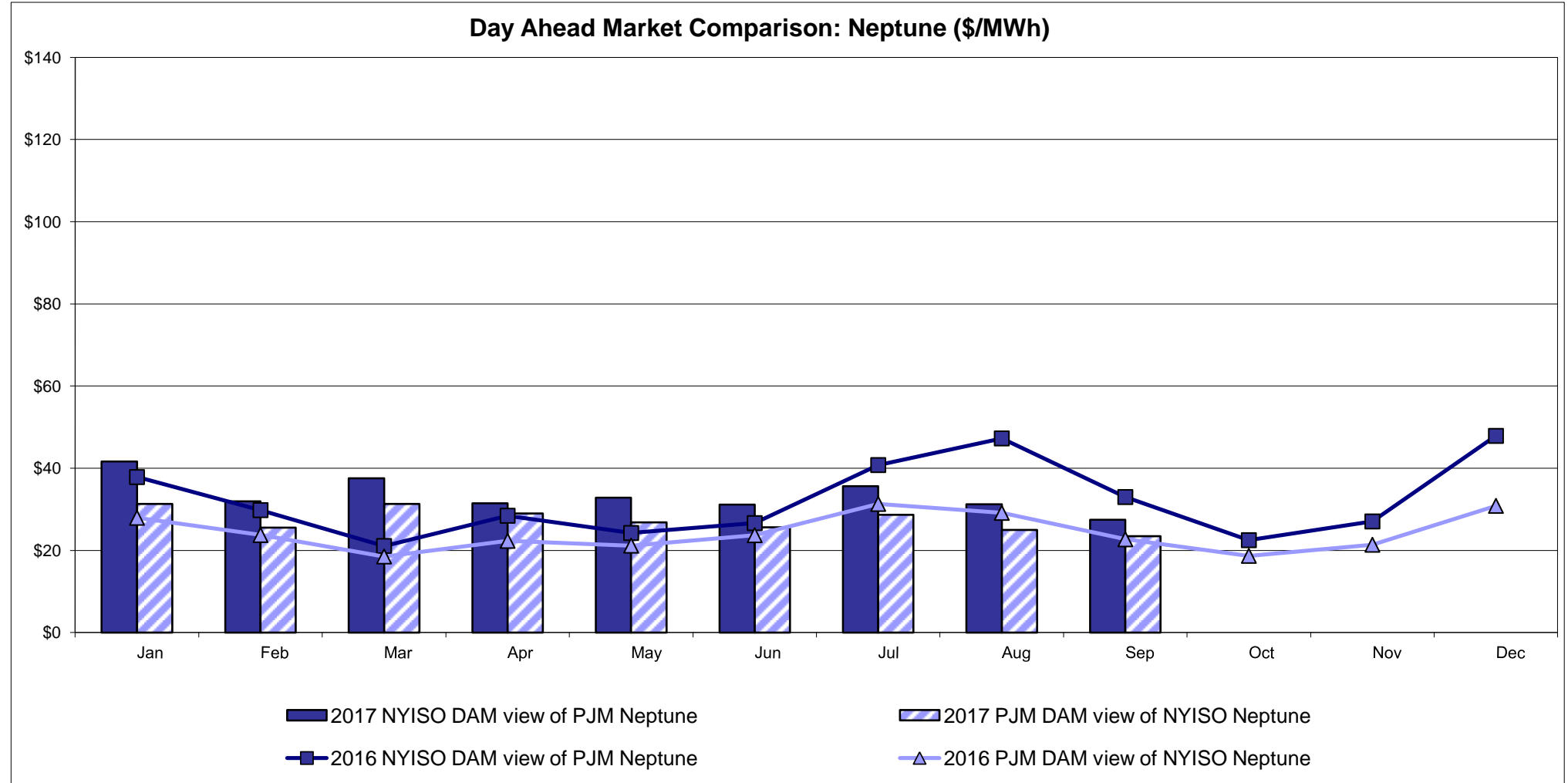
Note:
 ISO-NE Forecast is an advisory posting @ 18:00 day before.
 The DAM and R/T prices at the Shorham 13899 interface are used for ISO-NE.
 The DAM and R/T prices at the CSC interface are used for NYISO.

External Controllable Line: Northport - Norwalk (New England)

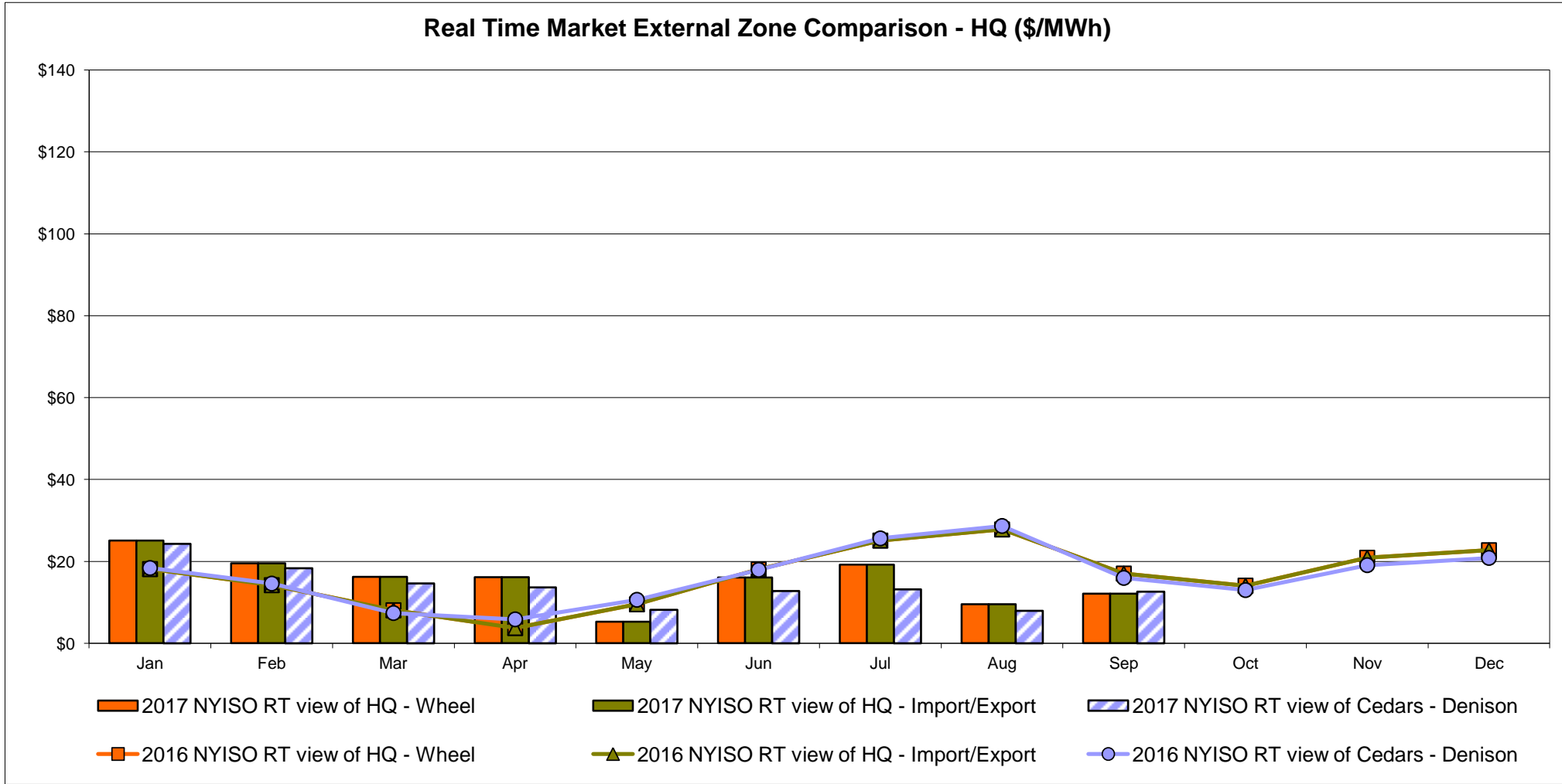
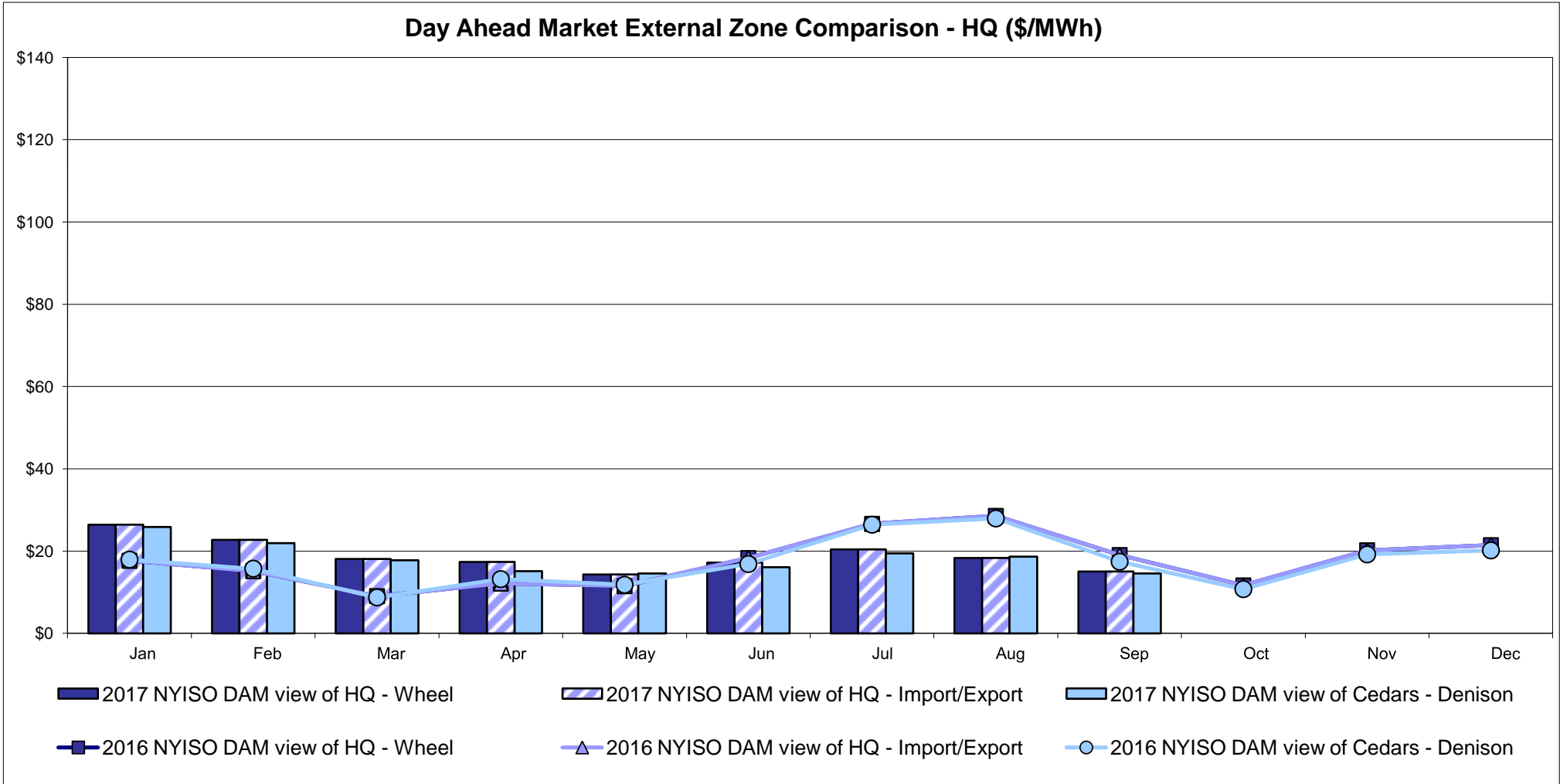


Note:
ISO-NE Forecast is an advisory posting @ 18:00 day before.
The DAM and R/T prices at the Northport 138 interface are used for ISO-NE.
The DAM and R/T prices at the 1385 interface are used for NYISO.

External Controllable Line: Neptune (PJM)

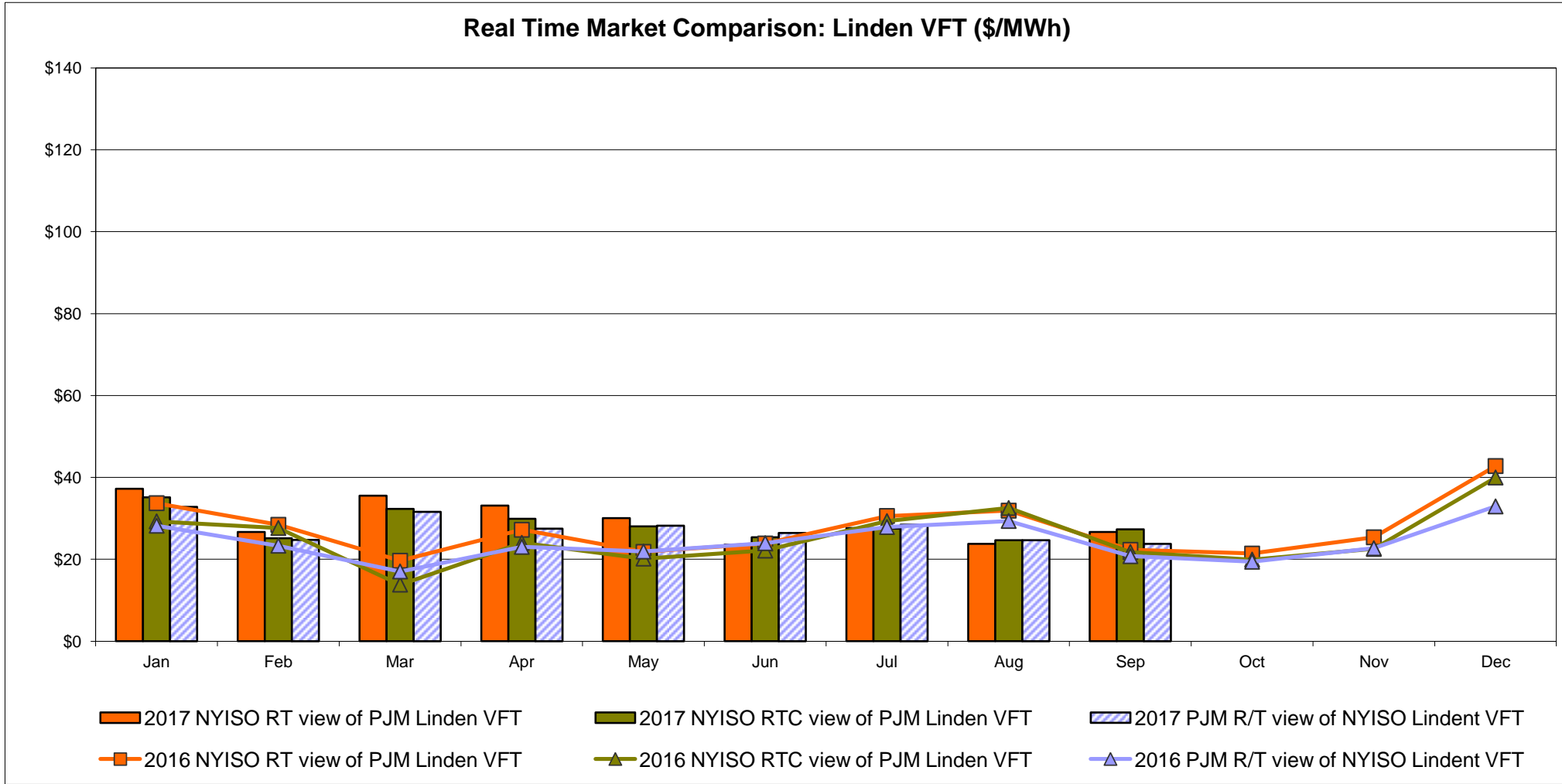
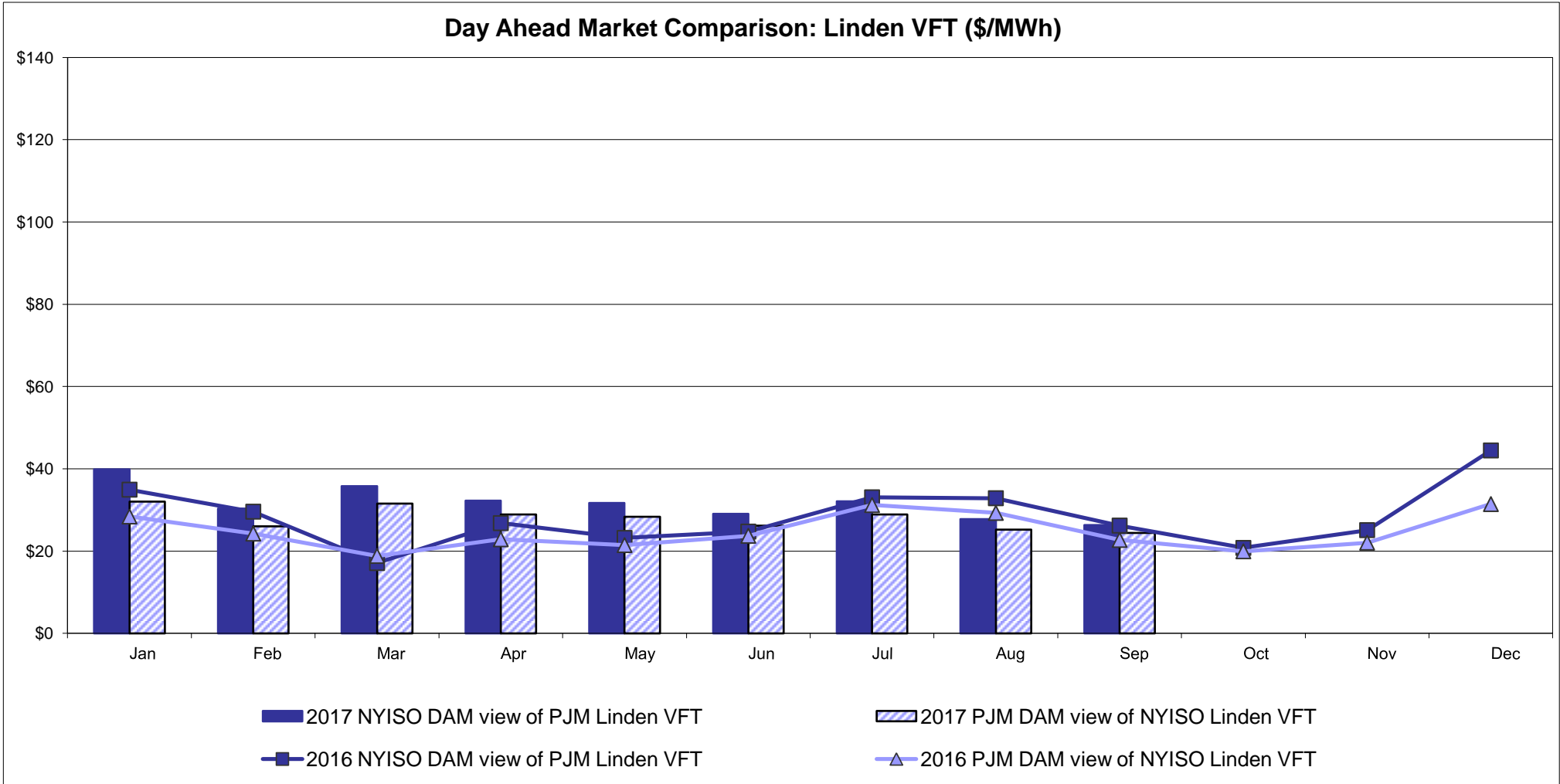


External Comparison Hydro-Quebec

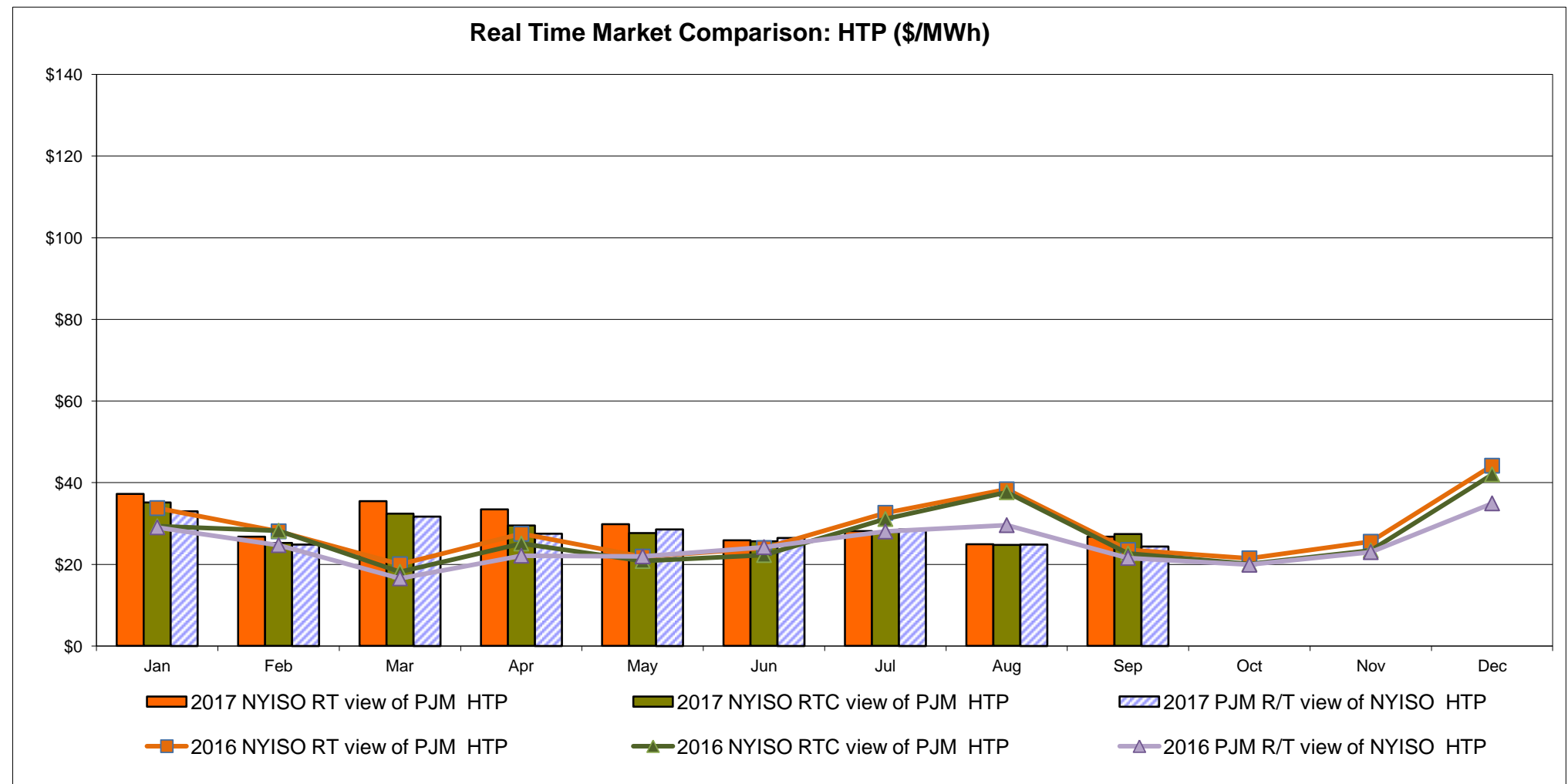
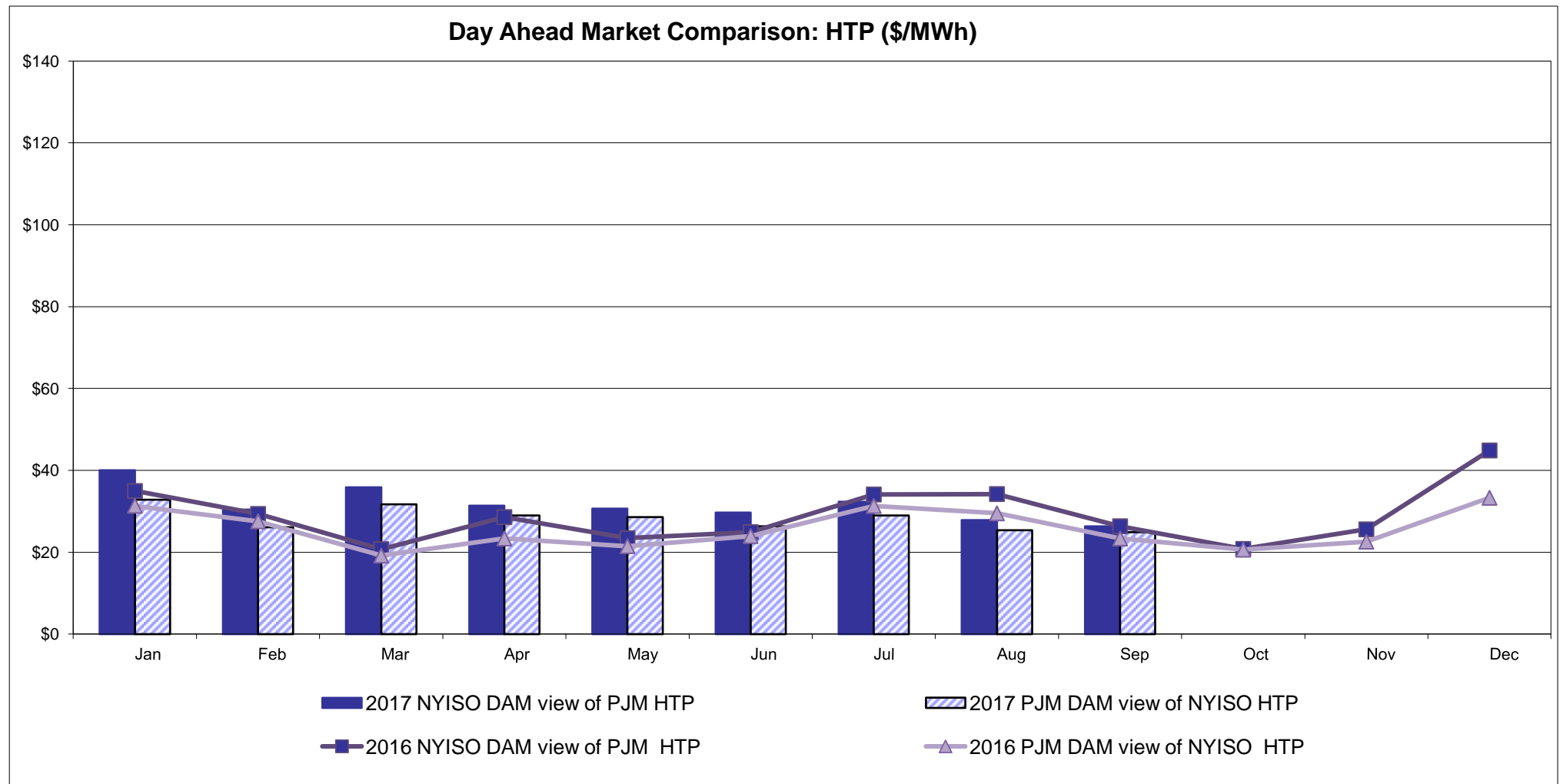


Note:
Hydro-Quebec Prices are unavailable.

External Controllable Line: Linden VFT (PJM)



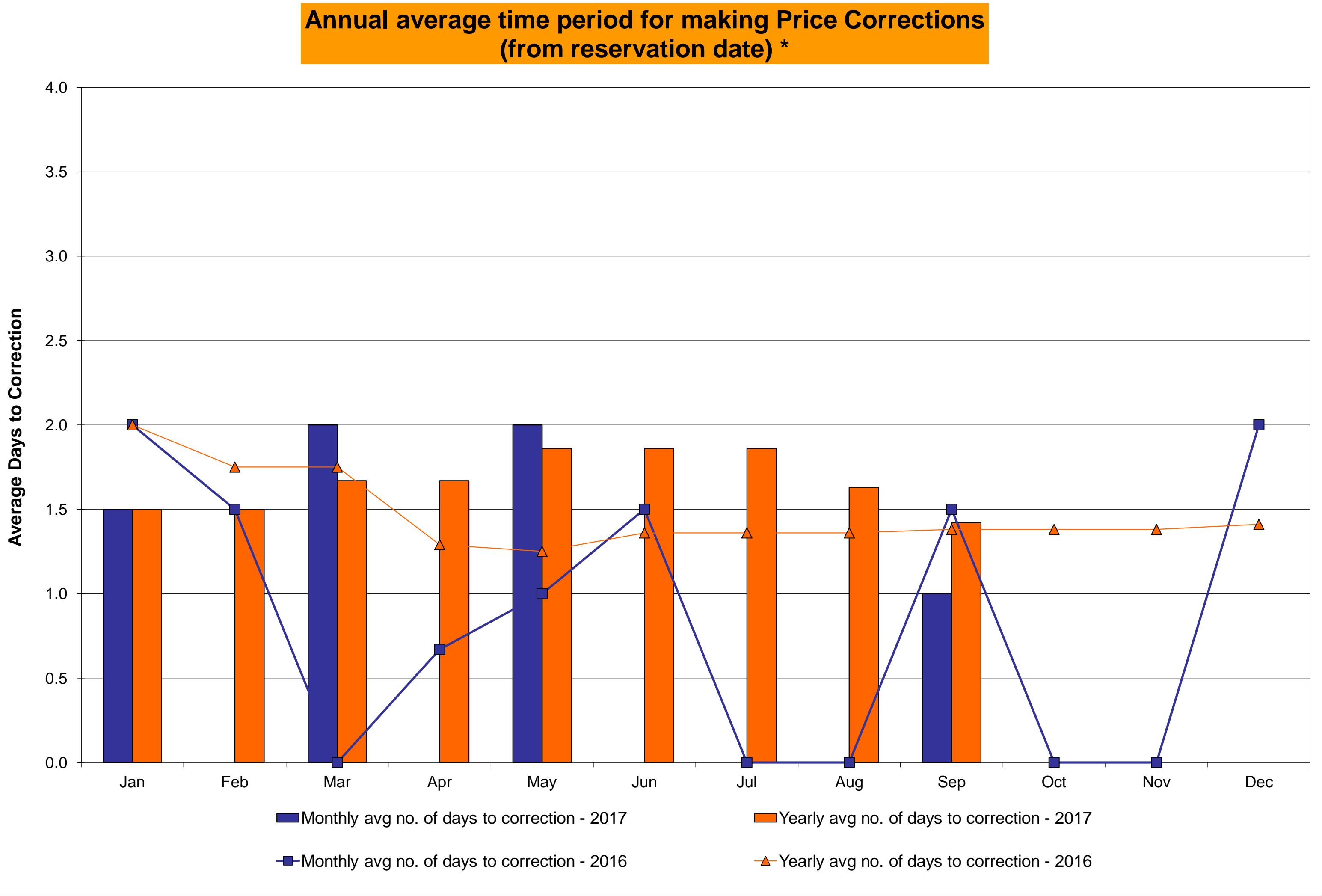
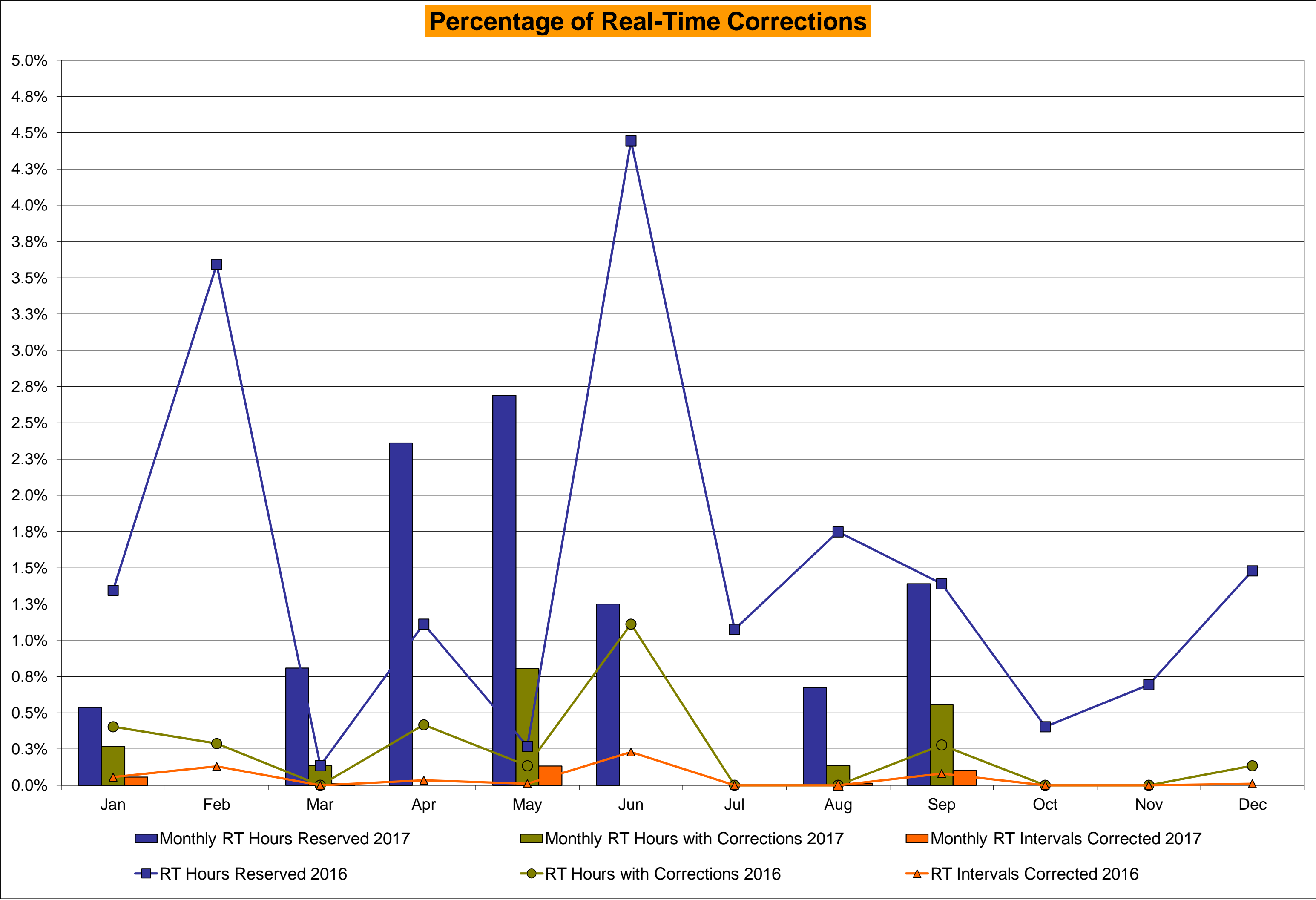
External Controllable Line: Hudson (PJM)



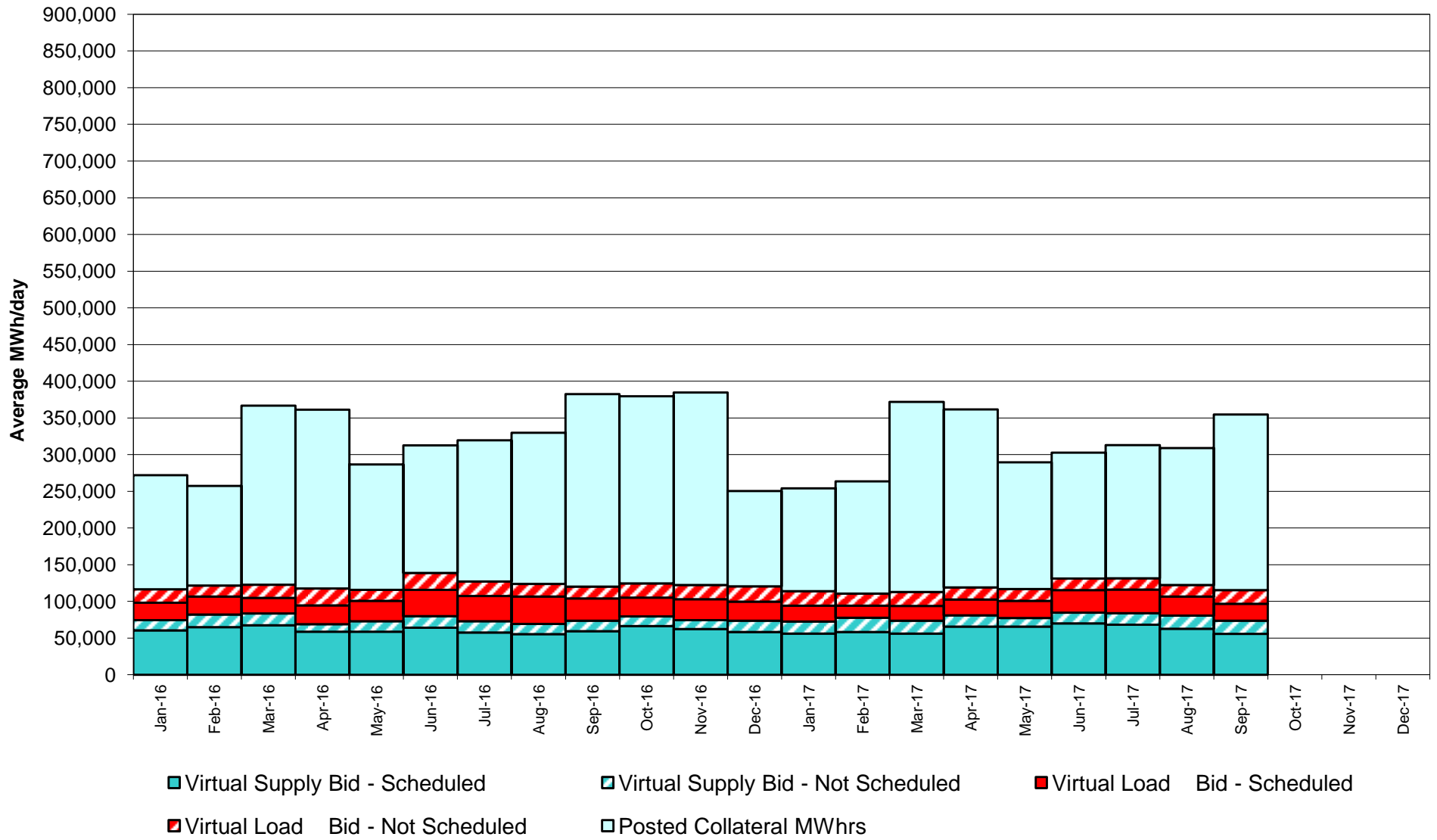
NYISO Real Time Price Correction Statistics

2017		<u>January</u>	<u>February</u>	<u>March</u>	<u>April</u>	<u>May</u>	<u>June</u>	<u>July</u>	<u>August</u>	<u>September</u>	<u>October</u>	<u>November</u>	<u>December</u>
<u>Hour Corrections</u>													
Number of hours with corrections	in the month	2	0	1	0	6	0	0	1	4			
Number of hours	in the month	744	672	743	720	744	720	744	744	720			
% of hours with corrections	in the month	0.27%	0.00%	0.13%	0.00%	0.81%	0.00%	0.00%	0.13%	0.56%			
% of hours with corrections	year-to-date	0.27%	0.14%	0.14%	0.10%	0.25%	0.21%	0.18%	0.17%	0.21%			
<u>Interval Corrections</u>													
Number of intervals corrected	in the month	5	0	1	0	12	0	0	1	9			
Number of intervals	in the month	8,983	8,101	9,026	8,745	9,004	8,712	8,968	8,980	8,701			
% of intervals corrected	in the month	0.06%	0.00%	0.01%	0.00%	0.13%	0.00%	0.00%	0.01%	0.10%			
% of intervals corrected	year-to-date	0.06%	0.03%	0.02%	0.02%	0.04%	0.03%	0.03%	0.03%	0.04%			
<u>Hours Reserved</u>													
Number of hours reserved	in the month	4	0	6	17	20	9	0	5	10			
Number of hours	in the month	744	672	743	720	744	720	744	744	720			
% of hours reserved	in the month	0.54%	0.00%	0.81%	2.36%	2.69%	1.25%	0.00%	0.67%	1.39%			
% of hours reserved	year-to-date	0.54%	0.28%	0.46%	0.94%	1.30%	1.29%	1.10%	1.05%	1.08%			
<u>Days to Correction</u> *													
Avg. number of days to correction	in the month	1.50	0.00	2.00	0.00	2.00	0.00	0.00	0.00	1.00			
Avg. number of days to correction	year-to-date	1.50	1.50	1.67	1.67	1.86	1.86	1.86	1.63	1.42			
<u>Days Without Corrections</u>													
Days without corrections	in the month	29	28	30	30	27	30	31	30	26			
Days without corrections	year-to-date	29	57	87	117	144	174	205	235	261			
2016		<u>January</u>	<u>February</u>	<u>March</u>	<u>April</u>	<u>May</u>	<u>June</u>	<u>July</u>	<u>August</u>	<u>September</u>	<u>October</u>	<u>November</u>	<u>December</u>
<u>Hour Corrections</u>													
Number of hours with corrections	in the month	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%
<u>Interval Corrections</u>													
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%
<u>Hours Reserved</u>													
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%
<u>Days to Correction</u> *													
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
<u>Days Without Corrections</u>													
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

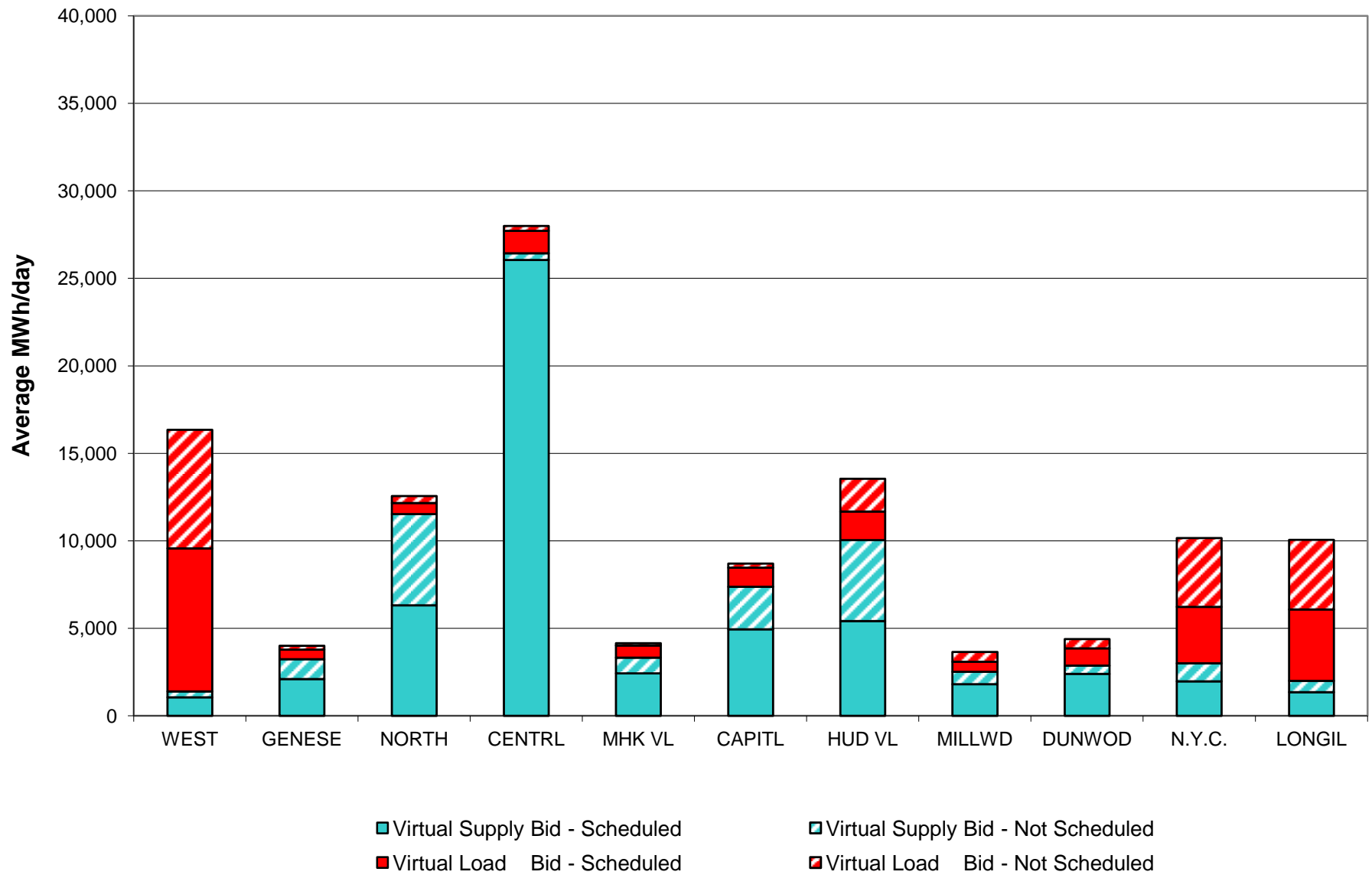
* Calendar days from reservation date.



NYISO Virtual Trading Average MWh per day



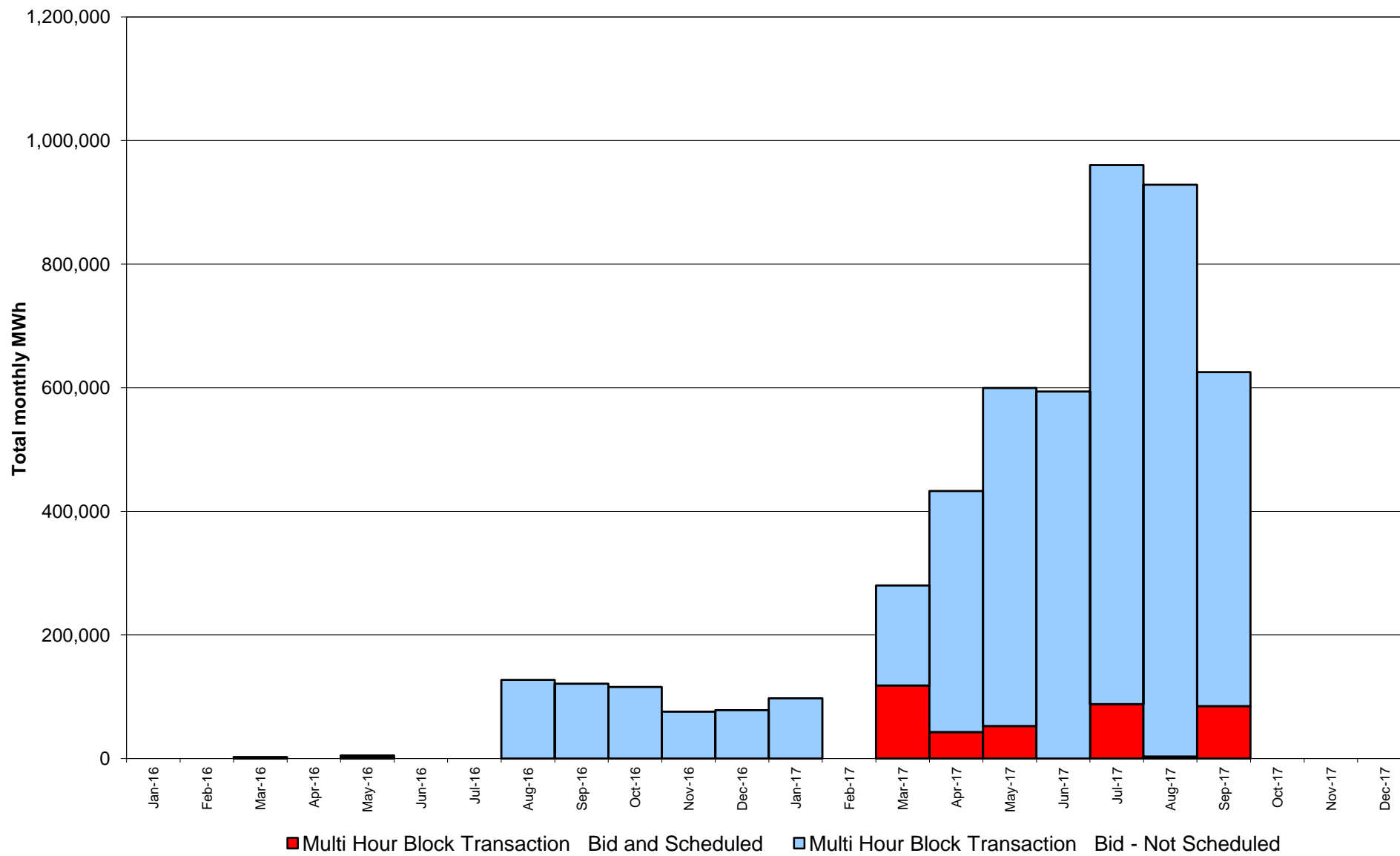
Virtual Load and Supply Zonal Statistics through September 30, 2017



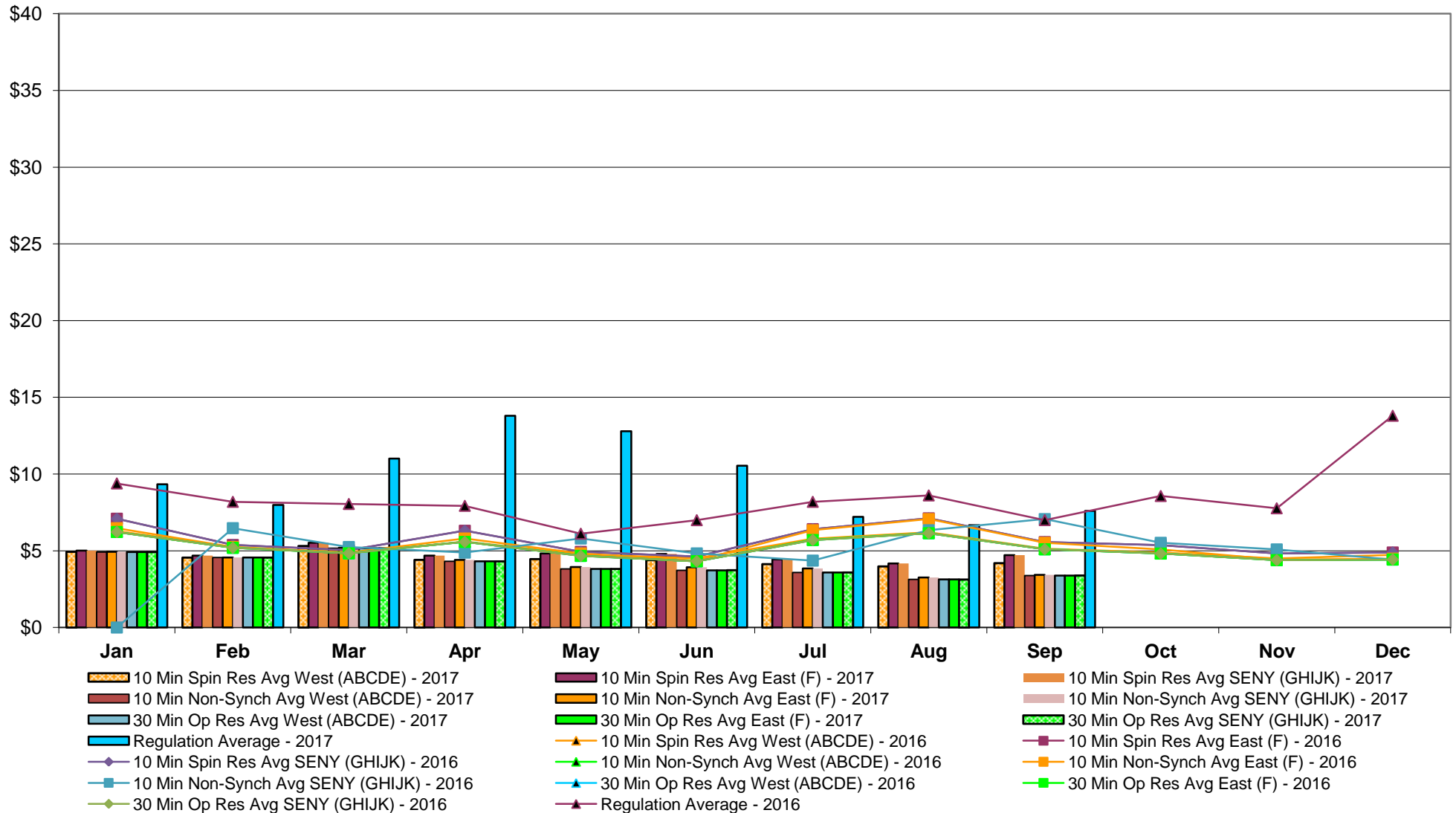
Virtual Load and Supply Zonal Statistics (Average MWh/day) - 2017

		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
WEST	Jan-17	6,094	5,795	2,019	337		MHK VL	Jan-17	566	202	2,022	131		DUNWOD	Jan-17	304	832
	Feb-17	3,771	4,772	3,346	567			Feb-17	422	100	2,459	293			Feb-17	193	585
	Mar-17	6,522	4,960	2,386	616			Mar-17	407	186	3,594	378			Mar-17	436	763
	Apr-17	6,956	5,390	1,934	699			Apr-17	457	102	2,856	430			Apr-17	1,097	406
	May-17	8,468	5,775	1,261	546			May-17	532	105	2,786	401			May-17	1,215	155
	Jun-17	10,776	5,128	1,497	512			Jun-17	516	149	2,492	586			Jun-17	1,117	287
	Jul-17	10,883	6,588	2,341	538			Jul-17	625	174	3,324	468			Jul-17	2,287	281
	Aug-17	9,289	6,104	3,043	595			Aug-17	667	98	2,915	694			Aug-17	875	500
	Sep-17	8,186	6,774	1,056	334			Sep-17	700	125	2,432	892			Sep-17	987	526
	Oct-17							Oct-17							Oct-17		
	Nov-17							Nov-17							Nov-17		
	Dec-17							Dec-17							Dec-17		
GENESE	Jan-17	654	1,282	3,652	2,482		CAPITL	Jan-17	1,291	666	3,990	3,861		N.Y.C.	Jan-17	5,761	5,474
	Feb-17	276	600	3,782	3,206			Feb-17	1,115	409	3,432	3,798			Feb-17	4,622	5,309
	Mar-17	480	838	3,806	3,419			Mar-17	1,409	528	5,186	2,484			Mar-17	4,052	5,826
	Apr-17	353	656	4,074	2,880			Apr-17	1,160	549	5,589	1,973			Apr-17	4,374	4,331
	May-17	393	128	4,096	2,027			May-17	1,232	454	5,697	1,635			May-17	3,357	4,679
	Jun-17	516	169	2,920	2,119			Jun-17	779	372	6,479	1,916			Jun-17	8,293	4,163
	Jul-17	335	190	3,494	1,622			Jul-17	450	290	5,972	2,754			Jul-17	8,732	2,726
	Aug-17	505	119	3,186	1,912			Aug-17	818	399	6,112	2,682			Aug-17	5,911	2,890
	Sep-17	541	230	2,105	1,132			Sep-17	1,093	240	4,943	2,426			Sep-17	3,224	3,937
	Oct-17							Oct-17							Oct-17		
	Nov-17							Nov-17							Nov-17		
	Dec-17							Dec-17							Dec-17		
NORTH	Jan-17	655	316	6,415	3,473		HUD VL	Jan-17	911	817	5,317	3,064		LONGIL	Jan-17	3,559	3,788
	Feb-17	465	338	7,504	4,006			Feb-17	1,292	915	6,266	3,873			Feb-17	3,341	3,127
	Mar-17	426	311	7,227	4,576			Mar-17	659	1,048	5,427	2,652			Mar-17	4,133	3,779
	Apr-17	414	138	7,520	4,435			Apr-17	1,575	871	5,708	2,333			Apr-17	3,706	3,309
	May-17	555	280	7,848	2,436			May-17	1,202	1,006	6,608	2,378			May-17	4,232	2,893
	Jun-17	552	468	6,955	2,920			Jun-17	836	823	6,861	3,317			Jun-17	4,848	2,532
	Jul-17	586	533	6,883	2,889			Jul-17	1,140	726	6,184	4,114			Jul-17	4,846	2,137
	Aug-17	625	294	7,799	4,744			Aug-17	1,059	1,617	7,576	5,051			Aug-17	4,257	2,711
	Sep-17	626	396	6,315	5,216			Sep-17	1,623	1,874	5,422	4,625			Sep-17	4,083	3,980
	Oct-17							Oct-17							Oct-17		
	Nov-17							Nov-17							Nov-17		
	Dec-17							Dec-17							Dec-17		
CENTRL	Jan-17	1,482	455	22,561	196		MILLWD	Jan-17	435	91	1,422	128		NYISO	Jan-17	21,713	19,719
	Feb-17	707	177	20,639	320			Feb-17	202	74	1,555	164			Feb-17	16,405	16,406
	Mar-17	979	605	18,610	518			Mar-17	454	157	1,452	158			Mar-17	19,956	19,002
	Apr-17	1,079	505	30,148	519			Apr-17	595	328	1,228	149			Apr-17	21,767	16,586
	May-17	1,472	492	30,724	312			May-17	662	255	1,474	195			May-17	23,320	16,222
	Jun-17	1,839	672	35,205	380			Jun-17	663	1,057	2,019	340			Jun-17	30,736	15,820
	Jul-17	1,687	435	32,177	303			Jul-17	809	1,316	1,865	361			Jul-17	32,377	15,396
	Aug-17	1,566	174	25,045	258			Aug-17	514	643	1,923	272			Aug-17	26,086	15,550
	Sep-17	1,275	291	26,053	381			Sep-17	574	561	1,815	701			Sep-17	22,912	18,933
	Oct-17							Oct-17							Oct-17		
	Nov-17							Nov-17							Nov-17		
	Dec-17							Dec-17							Dec-17		

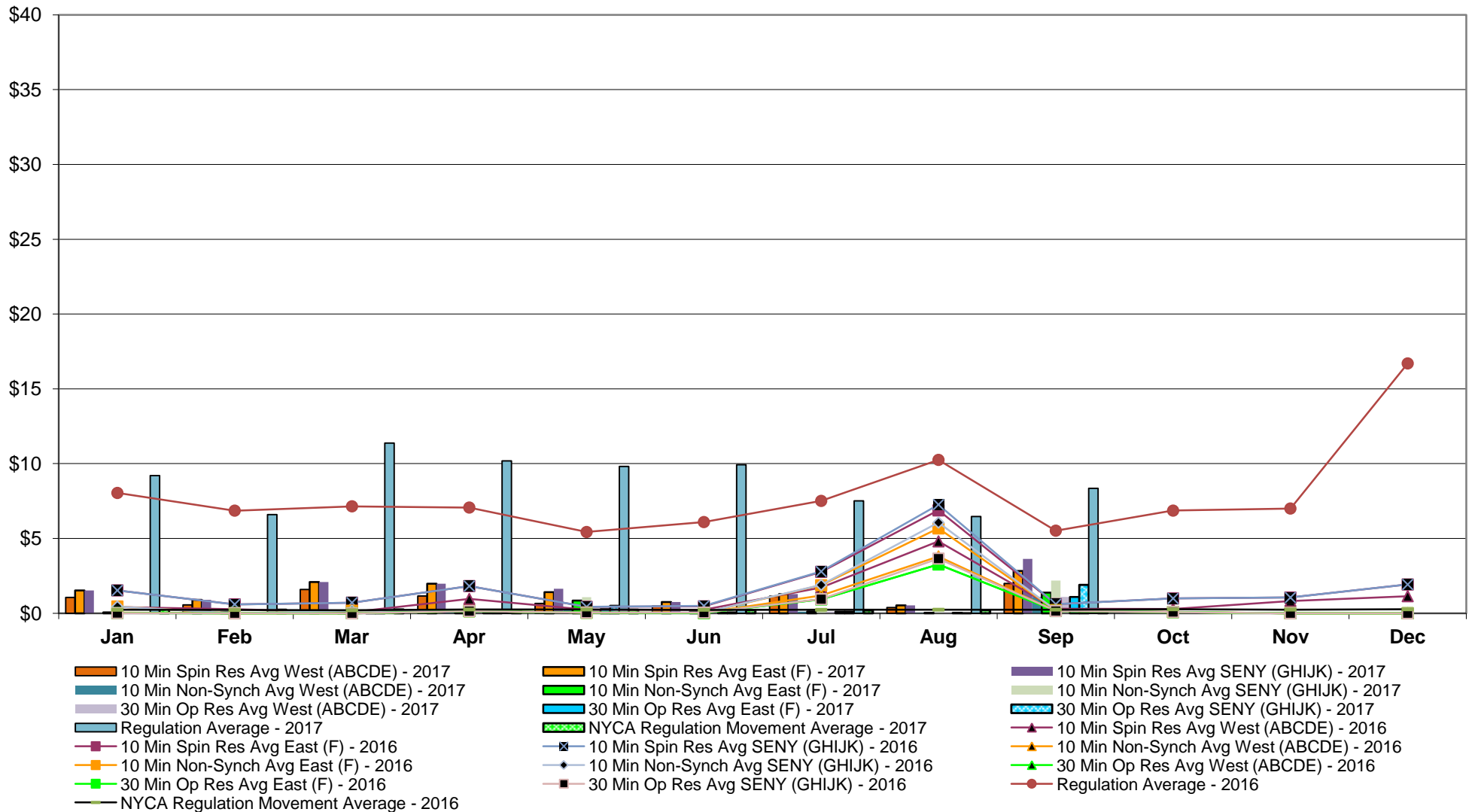
NYISO Multi Hour Block Transactions Monthly Total MWh



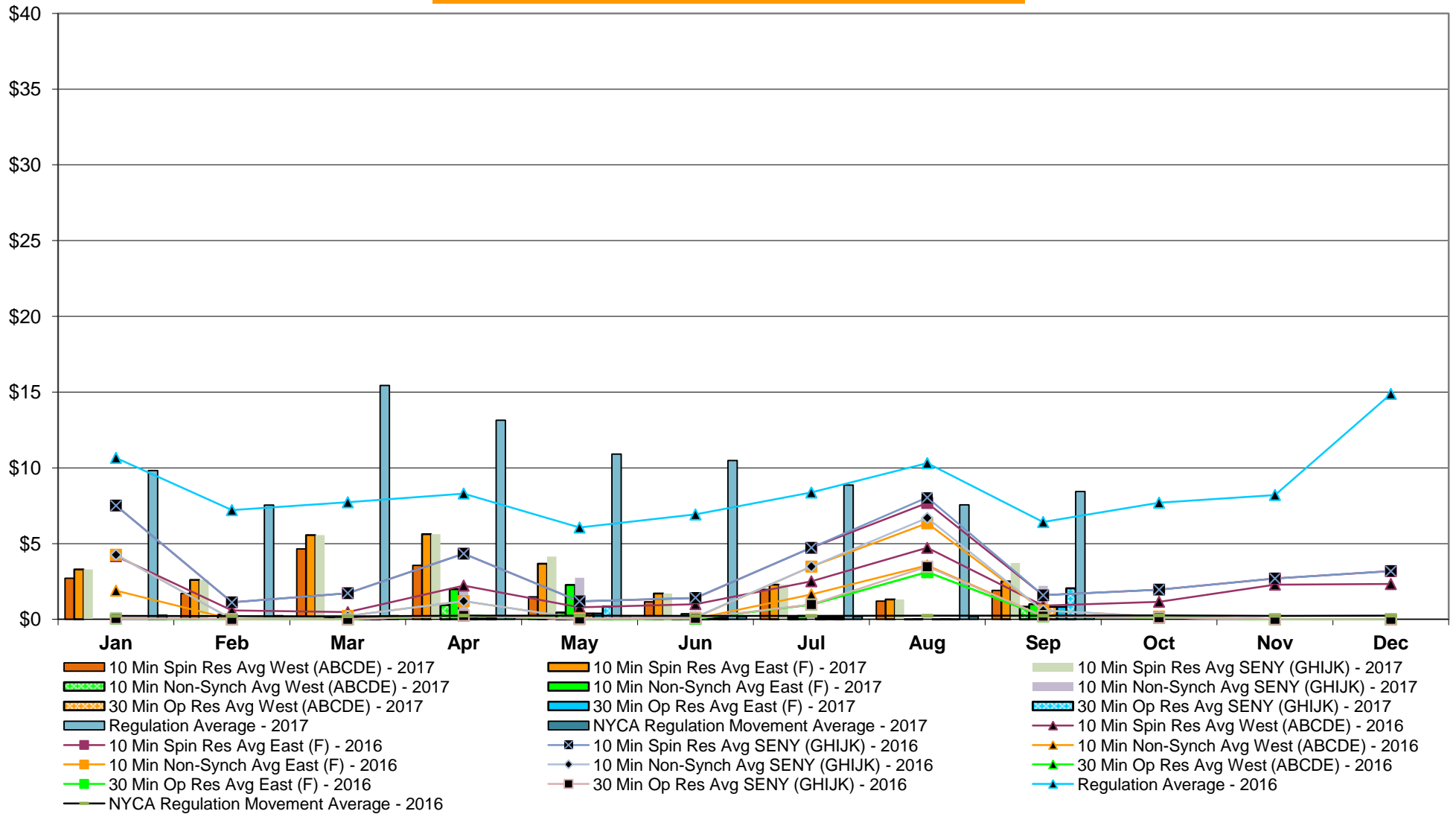
NYISO Monthly Average Ancillary Service Prices Day Ahead Market 2016 - 2017



NYISO Monthly Average Ancillary Service Prices RTC Market 2016 - 2017



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

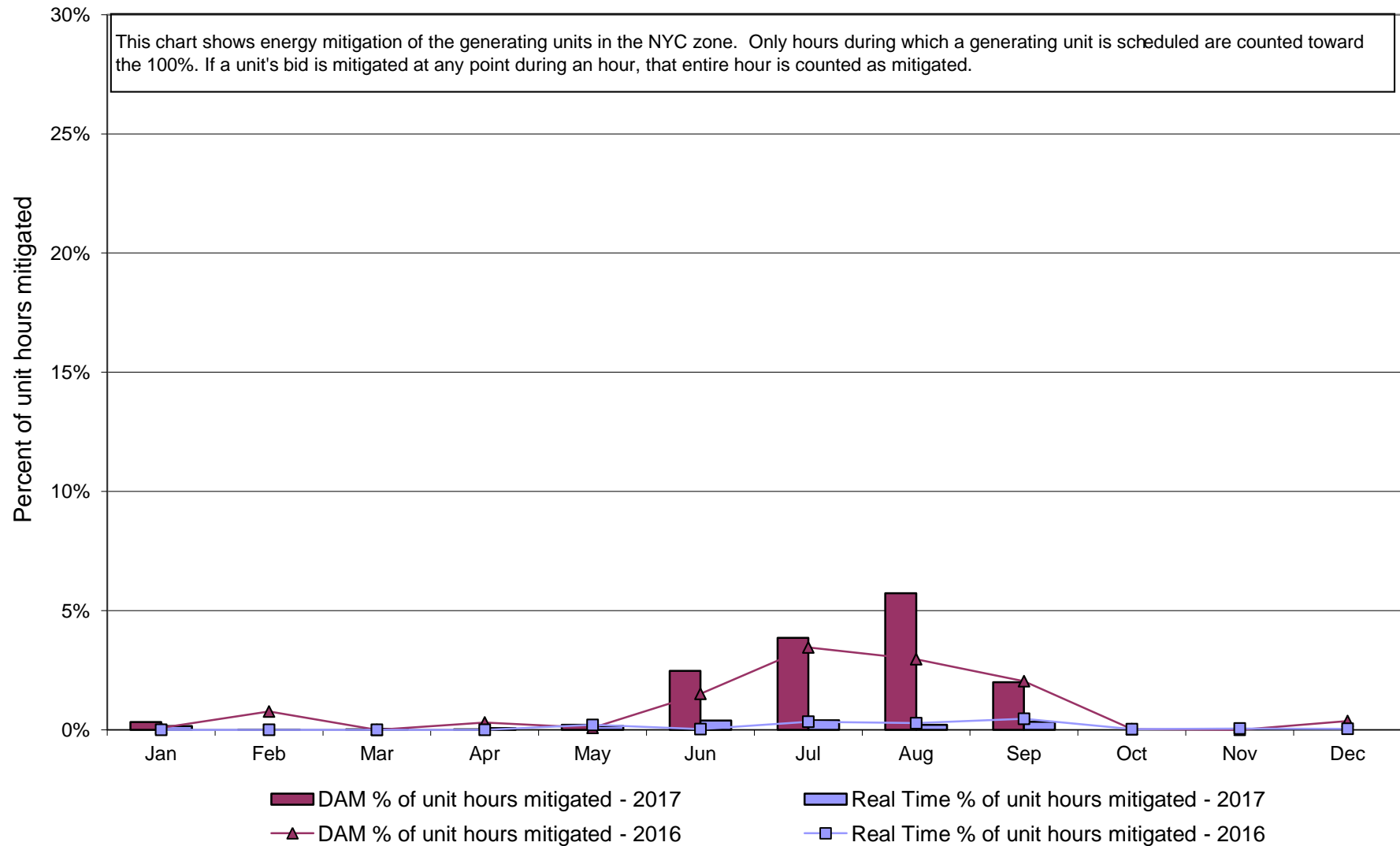


NYISO Markets Ancillary Services Statistics - Unweighted Price (\$/MWH)

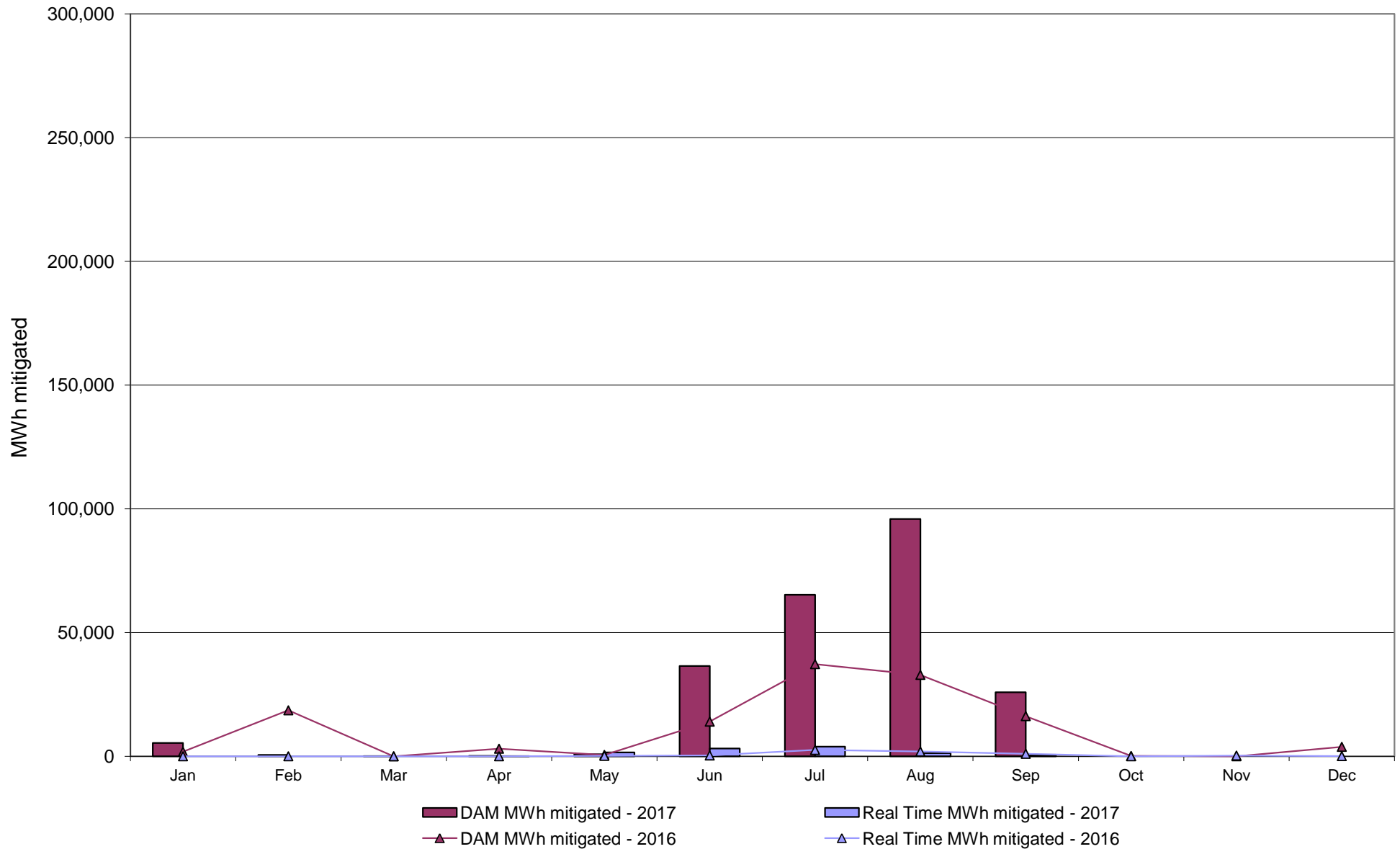
2017	<u>January</u>	<u>February</u>	<u>March</u>	<u>April</u>	<u>May</u>	<u>June</u>	<u>July</u>	<u>August</u>	<u>September</u>	<u>October</u>	<u>November</u>	<u>December</u>
<u>Day Ahead Market</u>												
10 Min Spin SENY (GHIJK)	5.01	4.68	5.53	4.68	4.82	4.79	4.44	4.18	4.72			
10 Min Spin East (F)	5.01	4.68	5.53	4.68	4.82	4.79	4.44	4.18	4.72			
10 Min Spin West (ABCDE)	4.94	4.56	5.31	4.41	4.45	4.39	4.13	3.98	4.19			
10 Min Non Synch SENY (GHIJK)	4.94	4.57	5.20	4.41	3.95	3.92	3.85	3.26	3.43			
10 Min Non Synch East (F)	4.94	4.57	5.20	4.41	3.95	3.92	3.85	3.26	3.43			
10 Min Non Synch West (ABCDE)	4.92	4.56	5.17	4.31	3.82	3.73	3.59	3.13	3.39			
30 Min SENY (GHIJK)	4.92	4.56	5.17	4.31	3.82	3.73	3.59	3.13	3.39			
30 Min East (F)	4.92	4.56	5.17	4.31	3.82	3.73	3.59	3.13	3.39			
30 Min West (ABCDE)	4.92	4.56	5.17	4.31	3.82	3.73	3.59	3.13	3.39			
Regulation	9.34	7.99	11.01	13.80	12.79	10.55	7.22	6.67	7.60			
<u>RTC Market</u>												
10 Min Spin SENY (GHIJK)	1.53	0.89	2.08	1.97	1.64	0.75	1.28	0.52	3.63			
10 Min Spin East (F)	1.53	0.89	2.08	1.97	1.41	0.75	1.28	0.52	2.83			
10 Min Spin West (ABCDE)	1.06	0.55	1.58	1.16	0.65	0.47	1.13	0.38	1.99			
10 Min Non Synch SENY (GHIJK)	0.06	0.06	0.10	0.14	1.08	0.13	0.13	0.02	2.18			
10 Min Non Synch East (F)	0.06	0.06	0.10	0.14	0.85	0.13	0.13	0.02	1.38			
10 Min Non Synch West (ABCDE)	0.00	0.00	0.10	0.07	0.31	0.05	0.11	0.02	1.09			
30 Min SENY (GHIJK)	0.00	0.00	0.10	0.03	0.50	0.05	0.11	0.02	1.89			
30 Min East (F)	0.00	0.00	0.10	0.03	0.27	0.05	0.11	0.02	1.09			
30 Min West (ABCDE)	0.00	0.00	0.10	0.03	0.27	0.05	0.11	0.02	1.09			
Regulation	9.21	6.59	11.37	10.18	9.82	9.92	7.51	6.47	8.35			
NYCA Regulation Movement	0.27	0.24	0.25	0.22	0.24	0.21	0.19	0.20	0.21			
<u>Real Time Market</u>												
10 Min Spin SENY (GHIJK)	3.29	2.61	5.56	5.62	4.14	1.71	2.29	1.31	3.72			
10 Min Spin East (F)	3.29	2.61	5.56	5.62	3.67	1.71	2.29	1.31	2.51			
10 Min Spin West (ABCDE)	2.71	1.71	4.65	3.56	1.48	1.15	1.98	1.20	1.91			
10 Min Non Synch SENY (GHIJK)	0.00	0.31	0.17	1.99	2.75	0.36	0.23	0.01	2.21			
10 Min Non Synch East (F)	0.00	0.31	0.17	1.99	2.28	0.36	0.23	0.01	1.00			
10 Min Non Synch West (ABCDE)	0.00	0.00	0.13	0.95	0.44	0.10	0.13	0.01	0.83			
30 Min SENY (GHIJK)	0.00	0.00	0.12	0.06	0.85	0.10	0.13	0.01	2.05			
30 Min East (F)	0.00	0.00	0.12	0.06	0.38	0.10	0.13	0.01	0.83			
30 Min West (ABCDE)	0.00	0.00	0.12	0.06	0.38	0.10	0.13	0.01	0.83			
Regulation	9.83	7.54	15.44	13.15	10.91	10.48	8.87	7.56	8.44			
NYCA Regulation Movement	0.27	0.24	0.25	0.20	0.22	0.19	0.19	0.20	0.21			
2016	<u>January</u>	<u>February</u>	<u>March</u>	<u>April</u>	<u>May</u>	<u>June</u>	<u>July</u>	<u>August</u>	<u>September</u>	<u>October</u>	<u>November</u>	<u>December</u>
<u>Day Ahead Market</u>												
10 Min Spin 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
<u>RTC Market</u>												
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
<u>Real Time Market</u>												
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

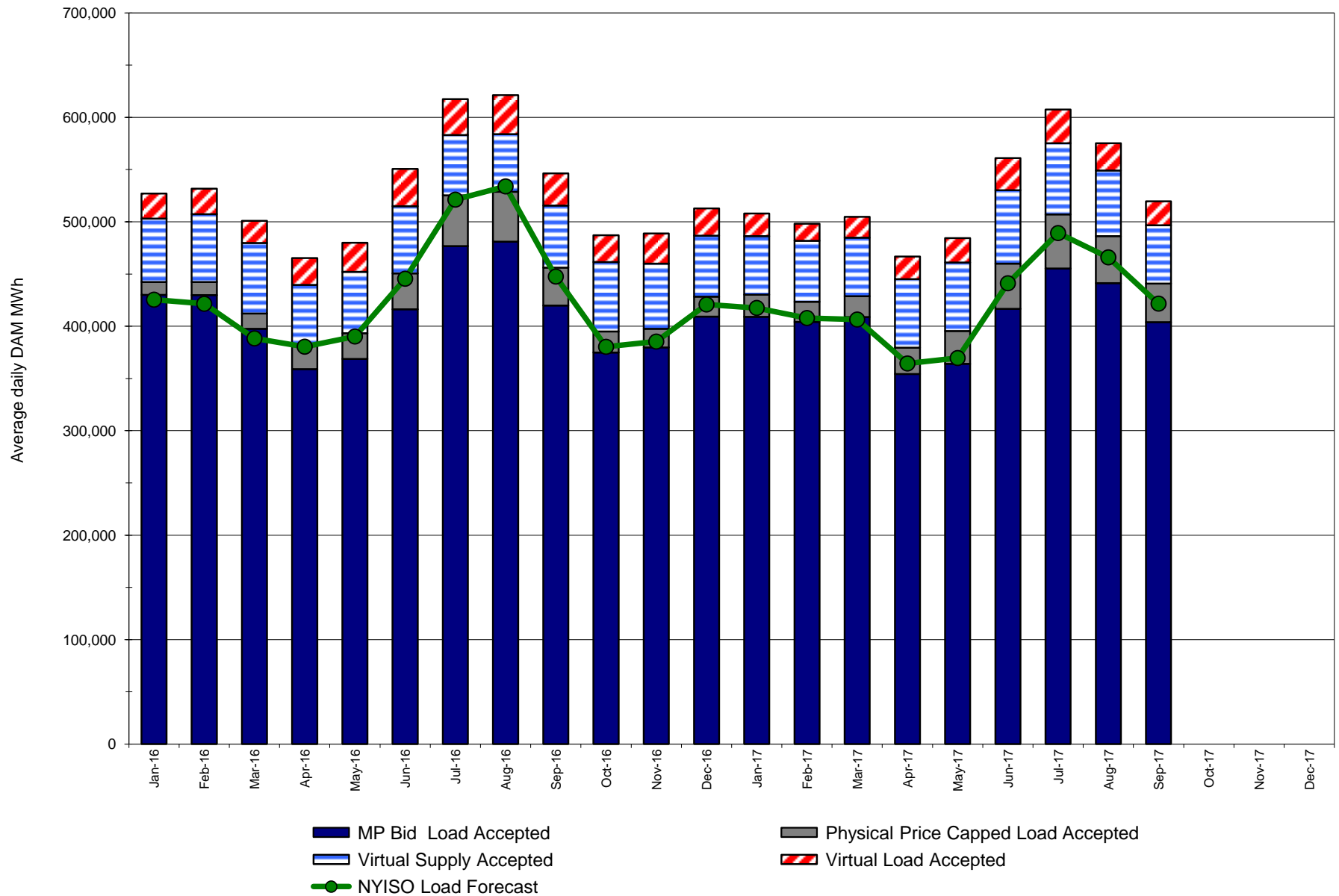
Percentage of committed unit-hours mitigated



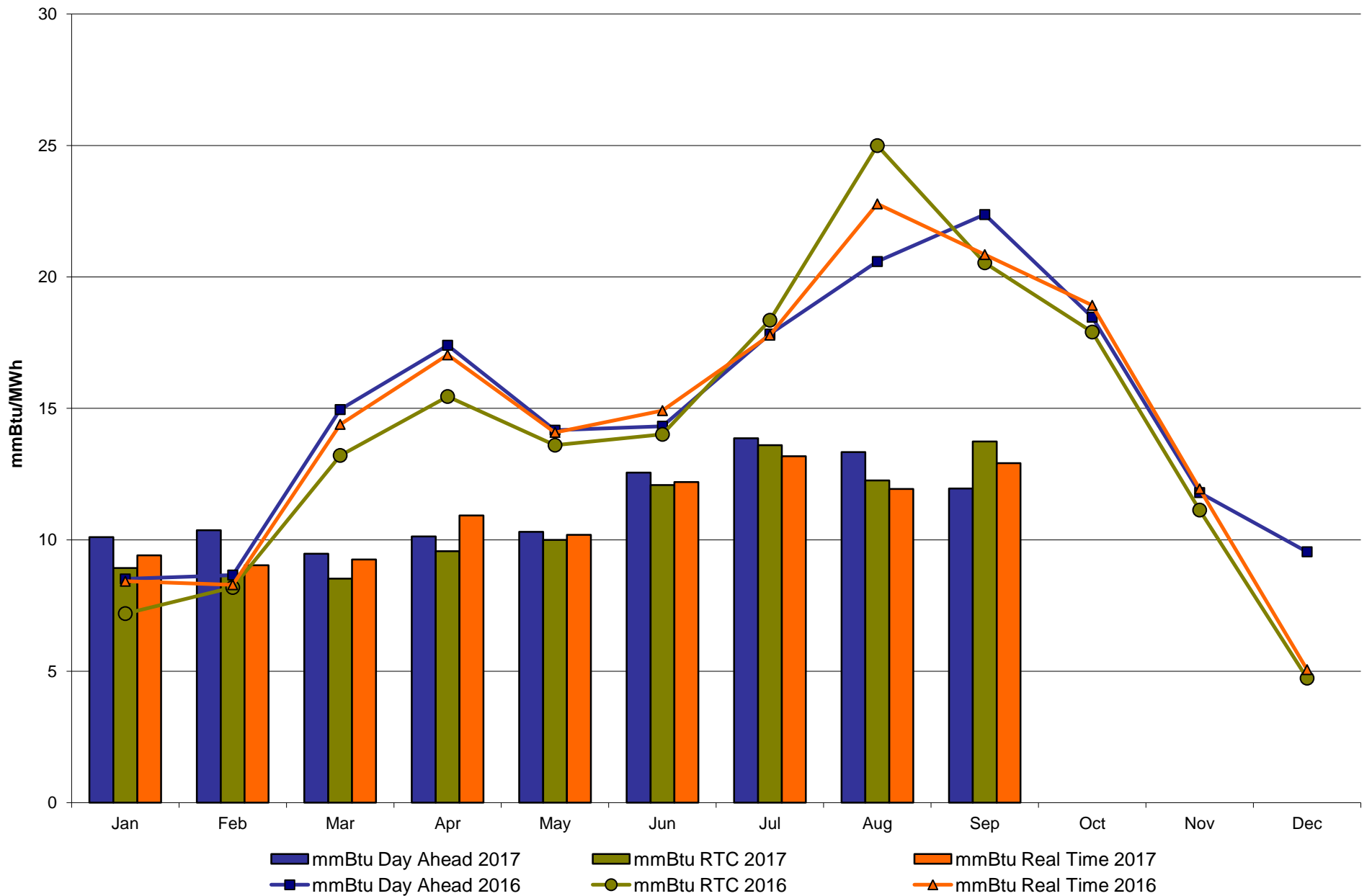
NYISO In City Energy Mitigation (NYC Zone) 2016 - 2017
Monthly megawatt hours mitigated



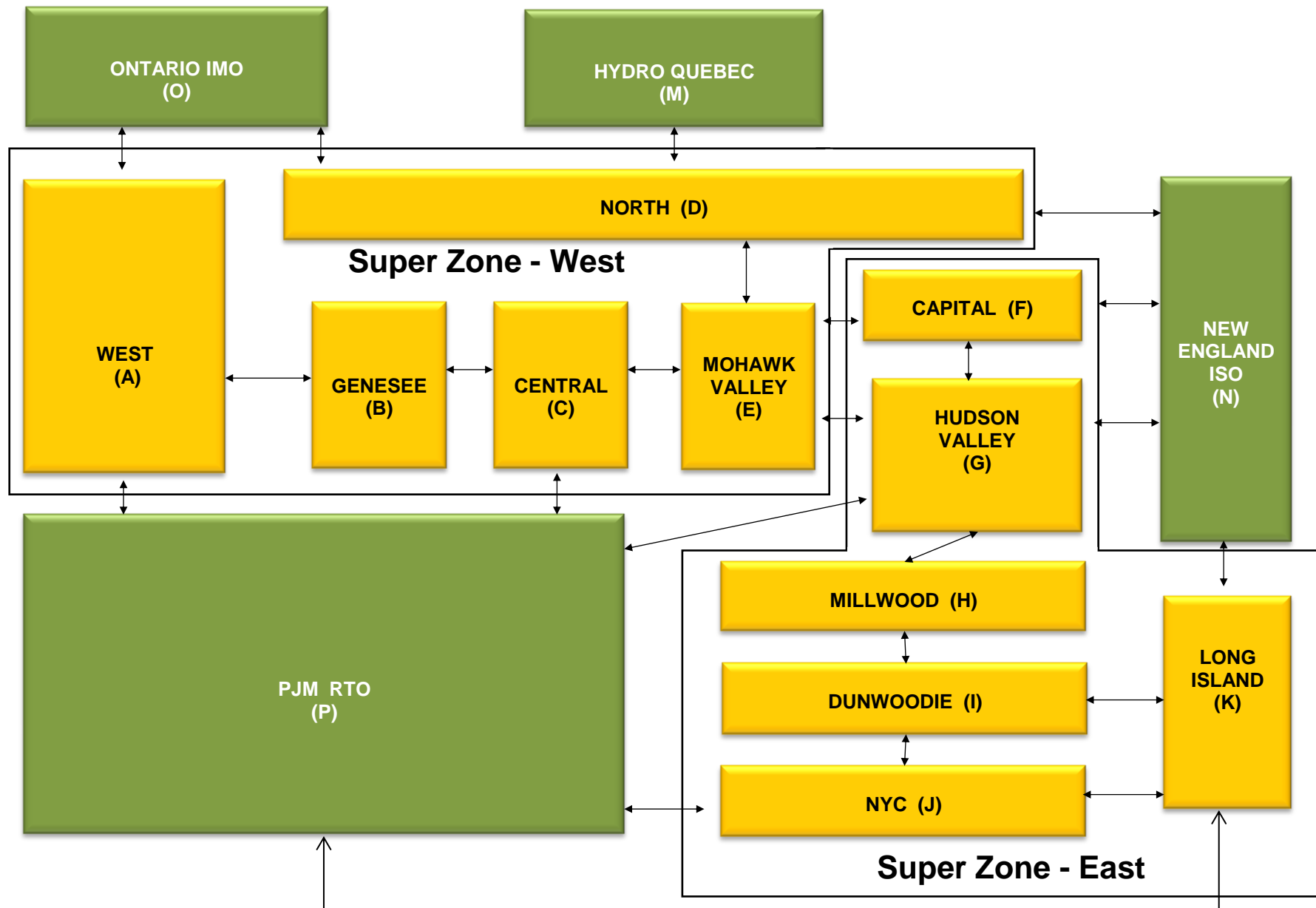
NYISO Average Daily DAM Load Bid Summary



Monthly Implied Heat Rate 2016-2017



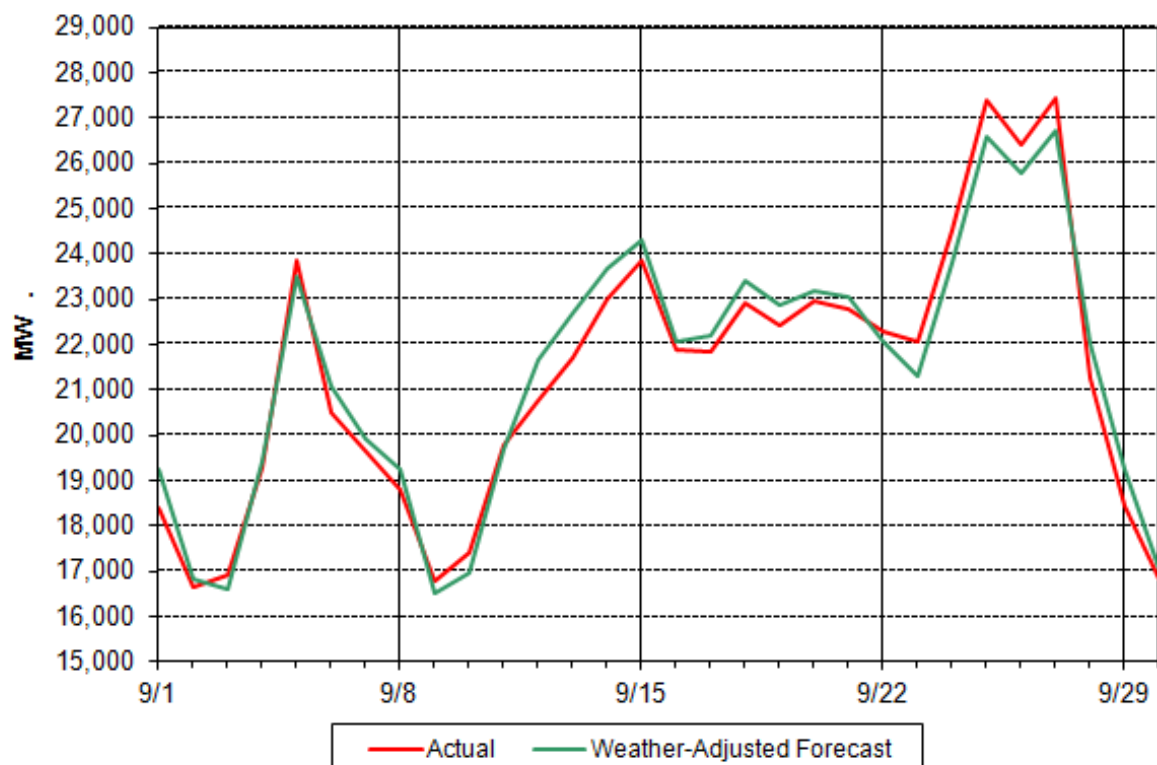
NYISO LBMP ZONES



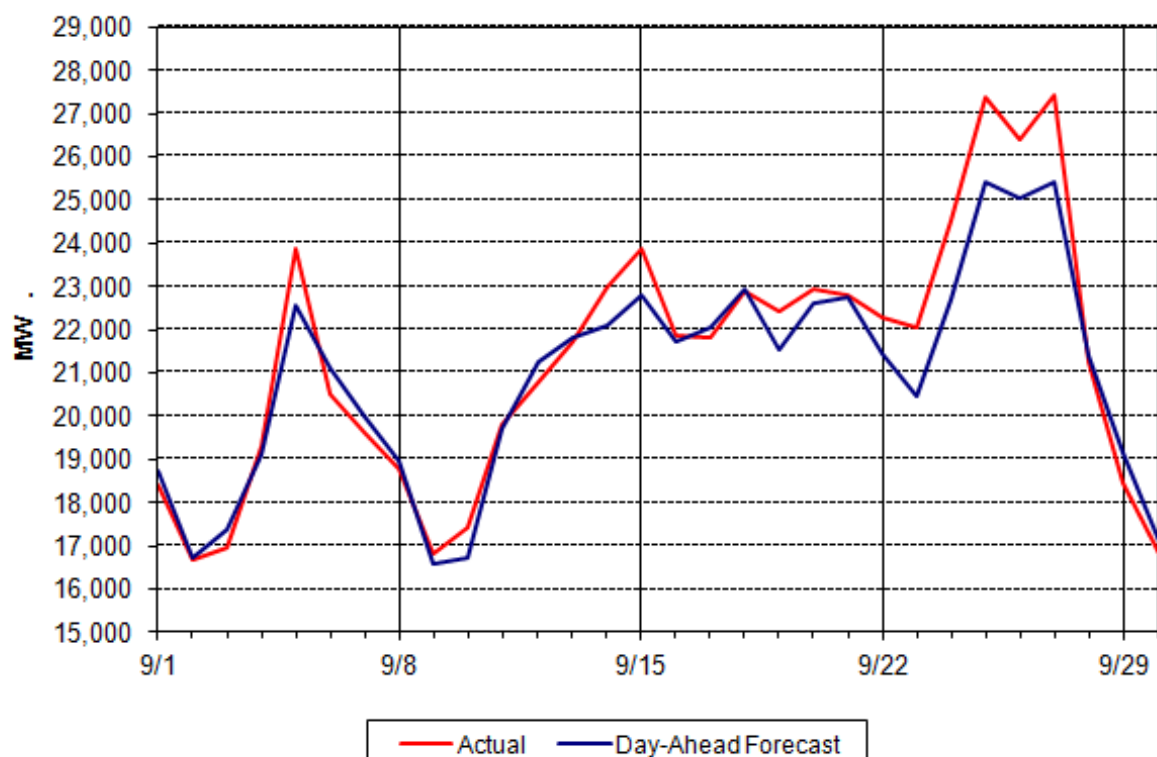
Billing Codes for Chart C

<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

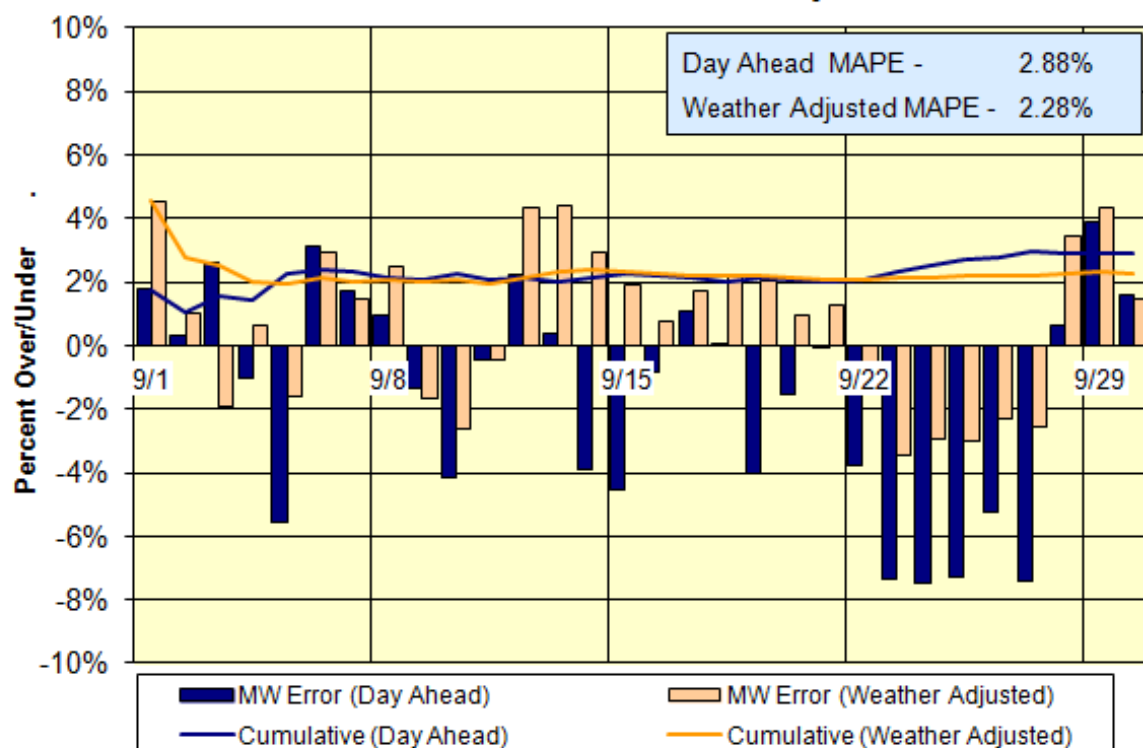
NYISO Daily Peak Load - September 2017
Actual vs. Weather-Adjusted Forecast



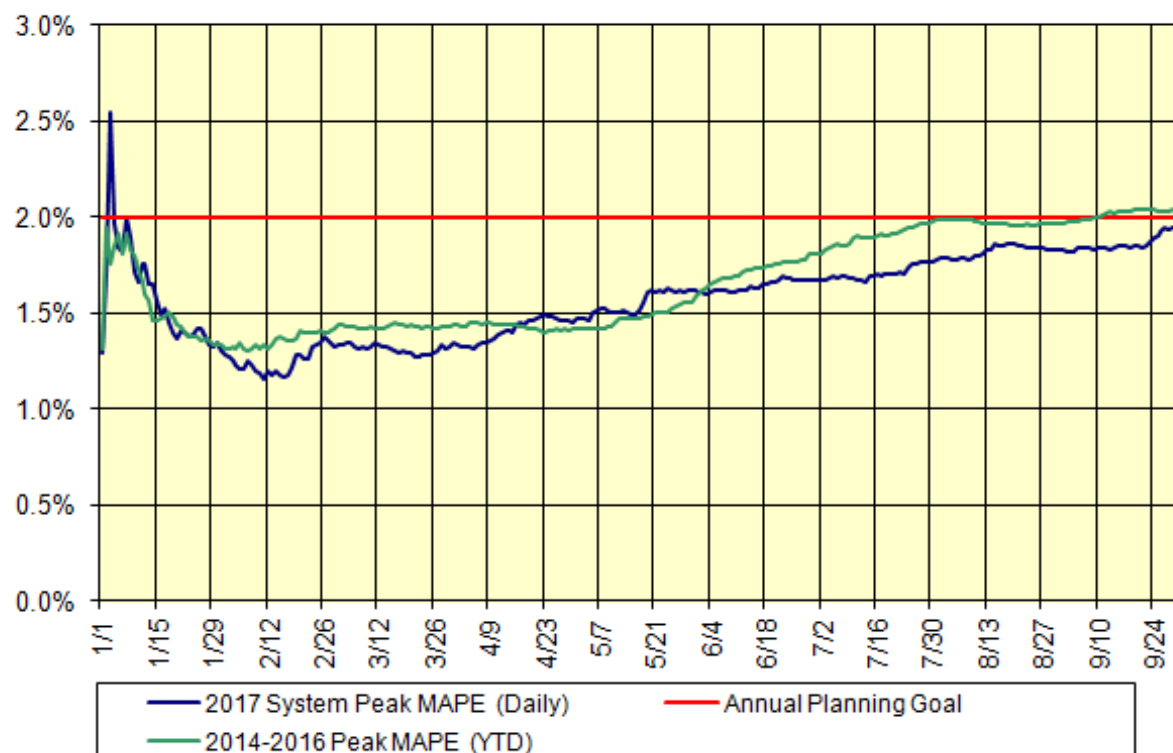
NYISO Daily Peak Load - September 2017
Actual vs. Forecast



Day Ahead Peak Forecast - September 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 – September 2017

Filing Date	Filing Summary	Docket	Order Date	Order Summary
01/06/2017	NYISO tariff waiver request re: transmission constraint pricing and the definition of Transmission Shortage Cost	ER17-758-000	09/27/2017	Order granted the waiver request effective from 02/11/2016 to 06/20/2017, as requested
06/08/2017	NYISO compliance filing re: two week advance notice of the effective date to implement i) a balance-of-period Transmission Congestion Contract ("TCC") auction structure; and (ii) enhancements to the credit requirements for TCCs	ER17-1167-001	09/12/2017	Order accepted revisions effective 06/22/2017 and 08/01/2017, as requested
06/21/2017 08/11/2017	NYISO 205 filing re: OATT Rate Schedule 1 revisions for Ramapo Phase Angle Regulator cost recovery	ER17-1879-000 ER17-1879-001	09/15/2017	Order accepted revisions effective 07/01/2017, as requested
07/14/2017	NYISO 205 filing re: revisions to the Buyer Side Mitigation ("BSM") rules governing the forecasts determined & used by the NYISO in the course of making determinations under the BSM Rules	ER17-2096-000	09/11/2017	Order accepted revisions effective 09/12/2017, as requested
07/18/2017	NYISO compliance filing re: notice of effective date re: tariff revisions to implement balance-of-period TCC auctions	ER17-1167-002	09/12/2017	Order accepted revisions effective 06/22/2017 and 08/01/2017, as requested
07/26/2017	NYISO 205 filing re: an executed large generator interconnection agreement (SA 2344) among the NYISO, LIPA and Shoreham Solar Commons LLC	ER17-2151-000	09/08/2017	Order accepted the agreement effective 07/11/2017, as requested
08/04/2017	NYISO 205 filing re: OATT Rate Schedule 1 amendments to remove the cost recovery mechanism for the Bunce Creek Phase Angle Regulators	ER17-2240-000	09/20/2017	Order accepted revisions effective 10/03/2017, as requested
08/11/2017	NYISO 205 filing re: tariff revisions addressing the testing of automated fuel swap capability	ER17-2286-000	09/20/2017	Order accepted revisions effective 11/01/2017, as requested
09/01/2017	NYISO filing motion to intervene & protest re: PJM filing proposing "Tariff and Operating Agreement Revisions Regarding Dynamic Transfers" (pseudo-tie arrangements)	ER17-2291-000		
09/14/2017	NYISO confidential filing to the NYPSC re: NYISO's three-month Reliability Commitment Data Report for the period ending 08/31/2017	PSC Matter No. 10-002007		

09/14/2017	NYISO filing of an answer to NRG's limited protest re: tariff revisions concerning the testing requirements for generating units participating in the Consolidated Edison System Restoration Plan	ER17-2271-000		
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