



# Monthly Report

April 2016

## TABLE OF CONTENTS

- Operations Performance Metrics Report
- Market Operation's Report
- Daily Loads
- Regulatory Filings

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



## ***April 2016 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 May 9, 2016.

## **Table of Contents**

- ◆ **Highlights**
  - *Operations Performance*
  
- ◆ **Reliability Performance Metrics**
  - *Alert State Declarations*
  - *Major Emergency State Declarations*
  - *IROL Exceedance Times*
  - *Balancing Area Control Performance*
  - *Reserve Activations*
  - *Disturbance Recovery Times*
  - *Load Forecasting Performance*
  - *Wind Forecasting Performance*
  - *Wind Curtailment Performance*
  - *Lake Erie Circulation and ISO Schedules*
  
- ◆ **Broader Regional Market Performance Metrics**
  - *Ramapo Interconnection Congestion Coordination Monthly Value*
  - *Ramapo Interconnection Congestion Coordination Daily Value*
  - *Regional Generation Congestion Coordination Monthly Value*
  - *Regional Generation Congestion Coordination Daily Value*
  - *Regional RT Scheduling - PJM Monthly Value*
  - *Regional RT Scheduling - PJM Daily Value*
  
- ◆ **Market Performance Metrics**
  - *Monthly Statewide Uplift Components and Rate*
  - *RTM Congestion Residuals Monthly Trend*
  - *RTM Congestion Residuals Daily Costs*
  - *RTM Congestion Residuals Event Summary*
  - *RTM Congestion Residuals Cost Categories*
  - *DAM Congestion Residuals Monthly Trend*
  - *DAM Congestion Residuals Daily Costs*
  - *DAM Congestion Residuals Cost Categories*
  - *NYCA Unit Uplift Components Monthly Trend*
  - *NYCA Unit Uplift Components Daily Costs*
  - *Local Reliability Costs Monthly Trend & Commitment Hours*
  - *TCC Monthly Clearing Price with DAM Congestion*
  - *ICAP Spot Market Clearing Price*
  - *UCAP Awards*

## April 2016 Operations Performance Highlights

- Peak load of 20,173 MW occurred on 04/04/2016 HB 19
- All-time winter capability period peak load of 25,738 MW occurred on 1/7/2014 HB 18
- 0 hours of Thunder Storm Alerts were declared
- 0 hours of NERC TLR level 3 curtailment
- Real-time Markets began initializing the Lake Success and Valley Stream PARs to each PAR's telemetered control schedule on 04/20/2016.
- The following table identifies the estimated production cost savings associated with the Broader Regional Market initiatives.

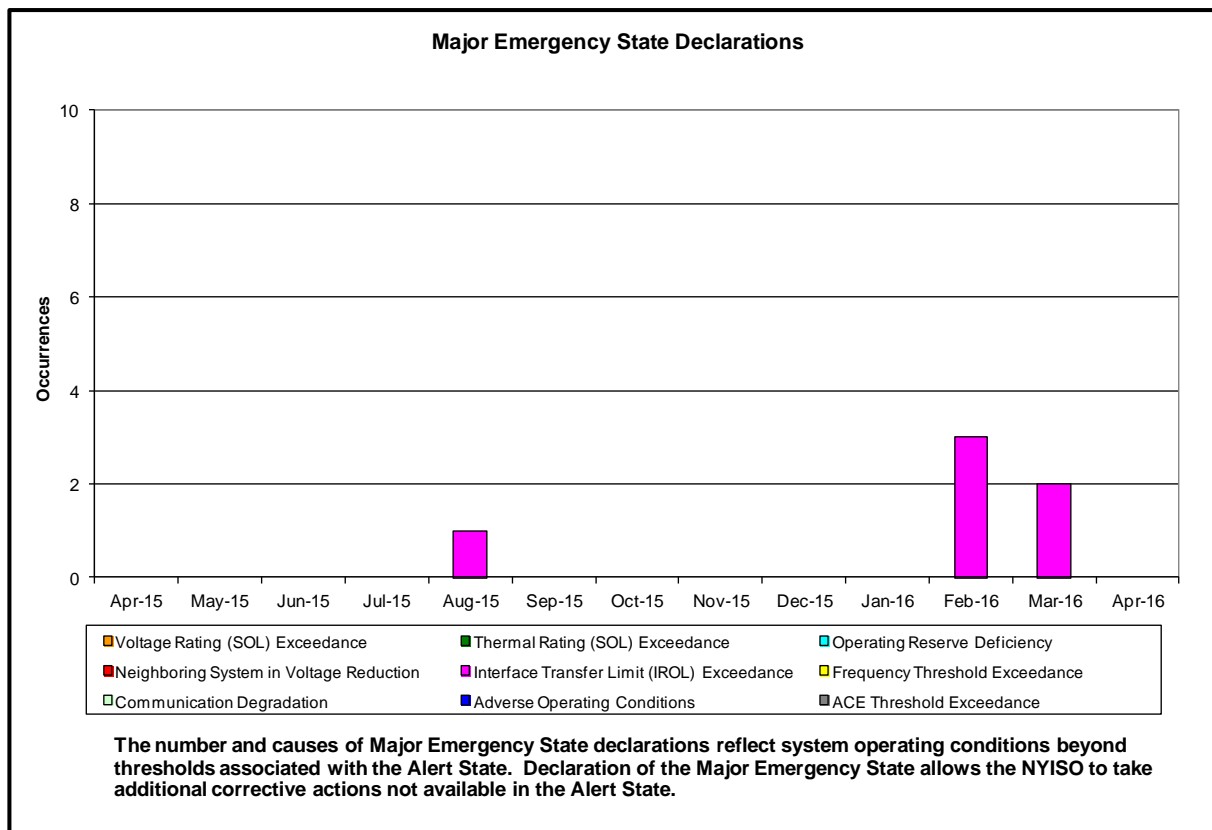
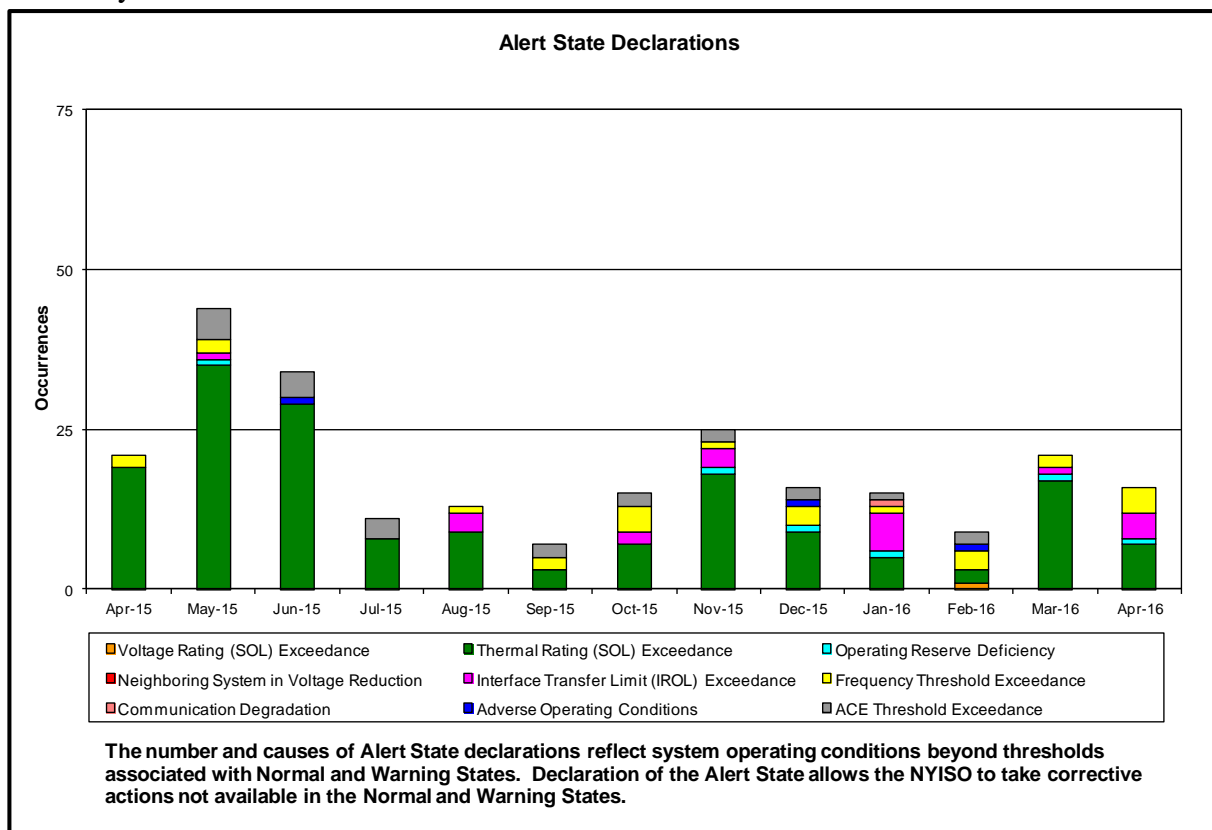
	Current Month Value (\$M)	Year-to-Date Value (\$M)
<b>NY Savings from PJM-NY Congestion Coordination</b>	\$0.72	\$13.43
<b>NY Savings from PJM-NY Coordinated Transaction Scheduling</b>	\$0.09	\$0.18
<b>NY Savings from NE-NY Coordinated Transaction Scheduling</b>	(\$0.14)	(\$0.80)
<b>Total NY Savings</b>	\$0.67	\$12.81
<b>Regional Savings from PJM-NY Coordinated Transaction Scheduling</b>	\$0.06	\$0.80
<b>Regional Savings from NE-NY Coordinated Transaction Scheduling</b>	\$0.06	\$0.45
<b>Total Regional Savings</b>	\$0.12	\$1.25

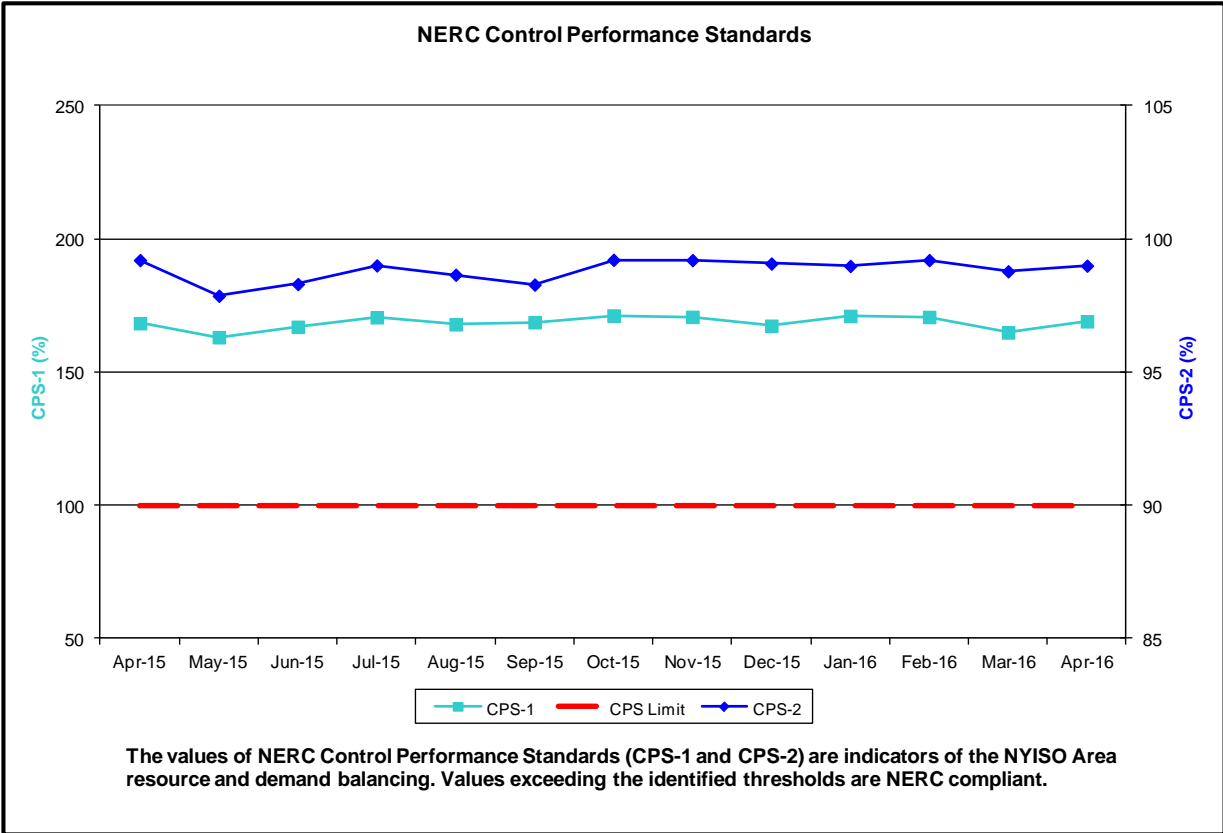
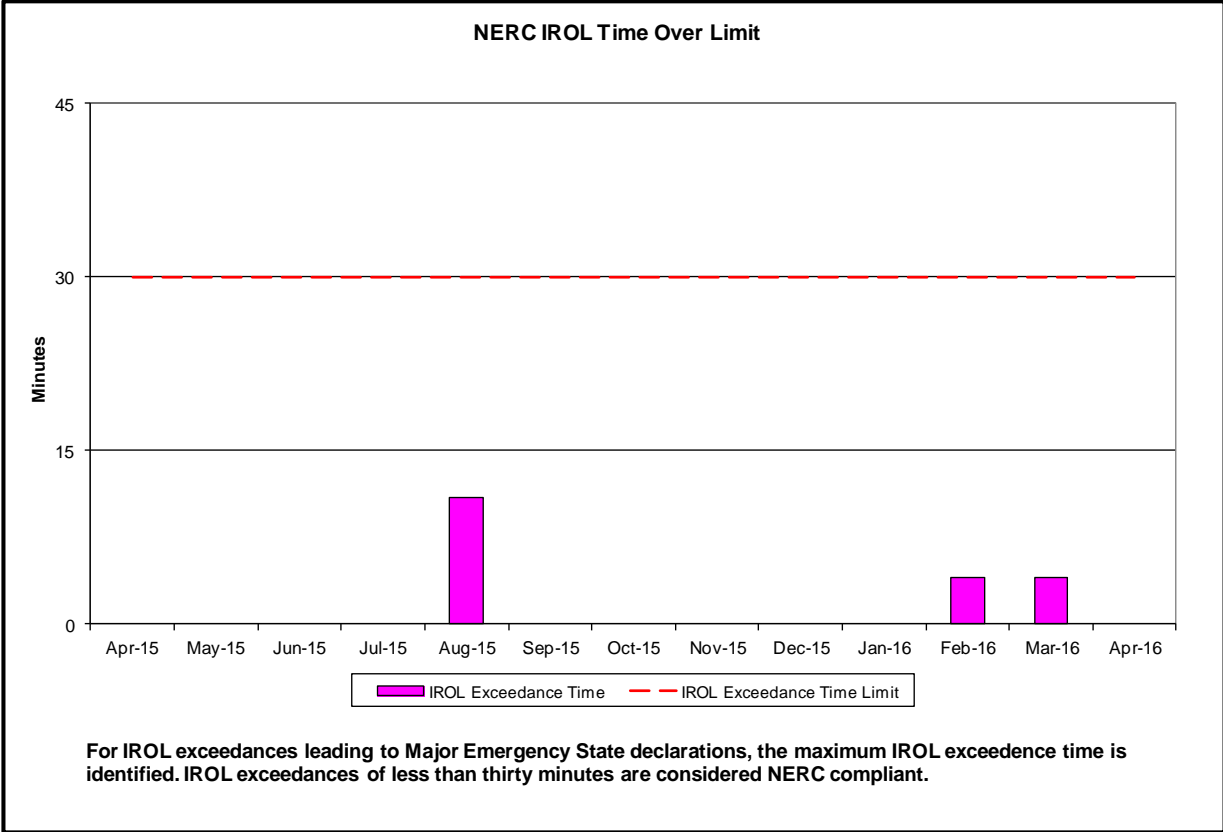
- Statewide uplift cost monthly average was (\$0.41)/MWh
- The following table identifies the Monthly ICAP spot market prices by locality and changes from the end of the prior Summer Capability period.

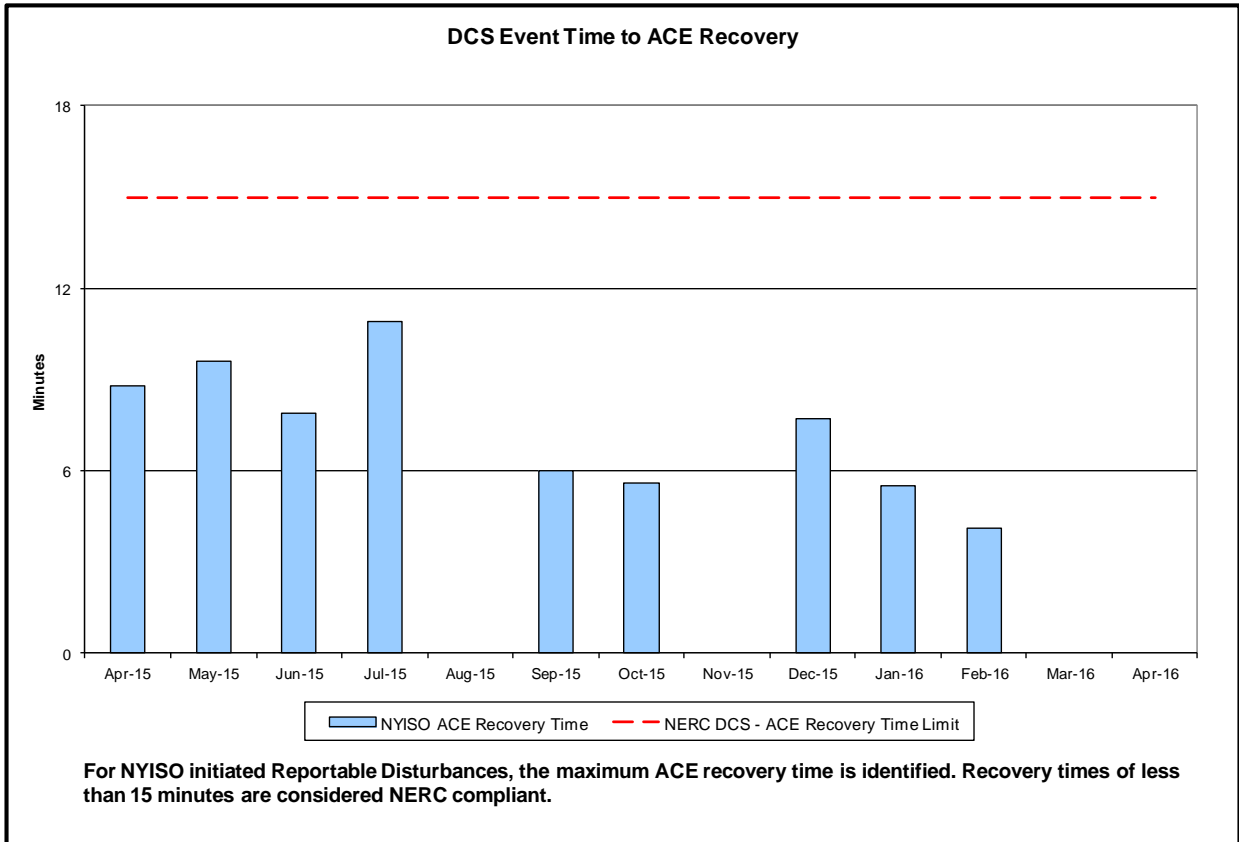
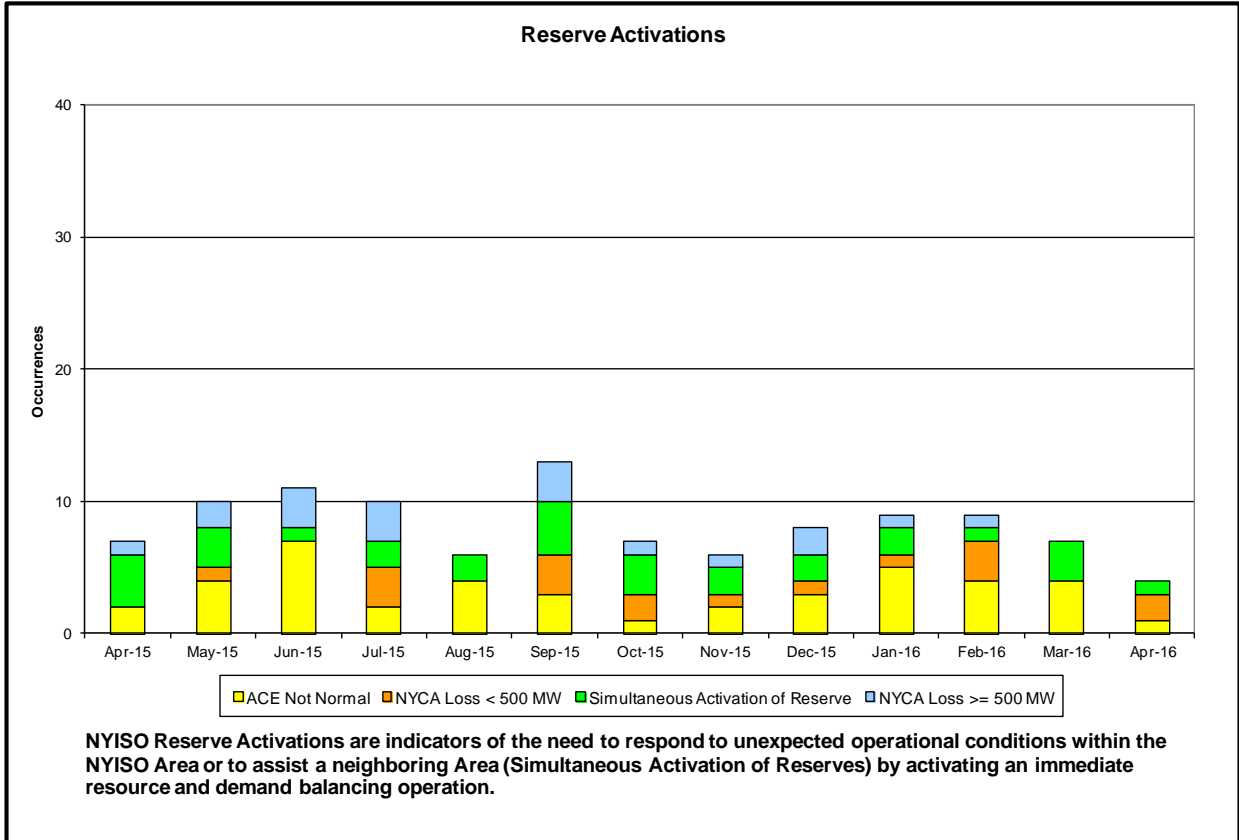
Spot Auction Price Results	NYCA	Lower Hudson Valley Zones	New York City Zone	Long Island Zone
May 2016 Spot Price	\$5.27	\$9.36	\$12.41	\$5.27
October 2015 Spot Price	\$2.96	\$8.13	\$15.01	\$5.61
Delta	\$2.31	\$1.23	(\$2.60)	(\$0.34)

- Price changes from October 2015 to May 2016 are driven by changes in supply as well as Capability Year inputs such as Demand Curve Parameters, Locational Capacity Requirements, the Installed Reserve Margin and the Load Forecast.

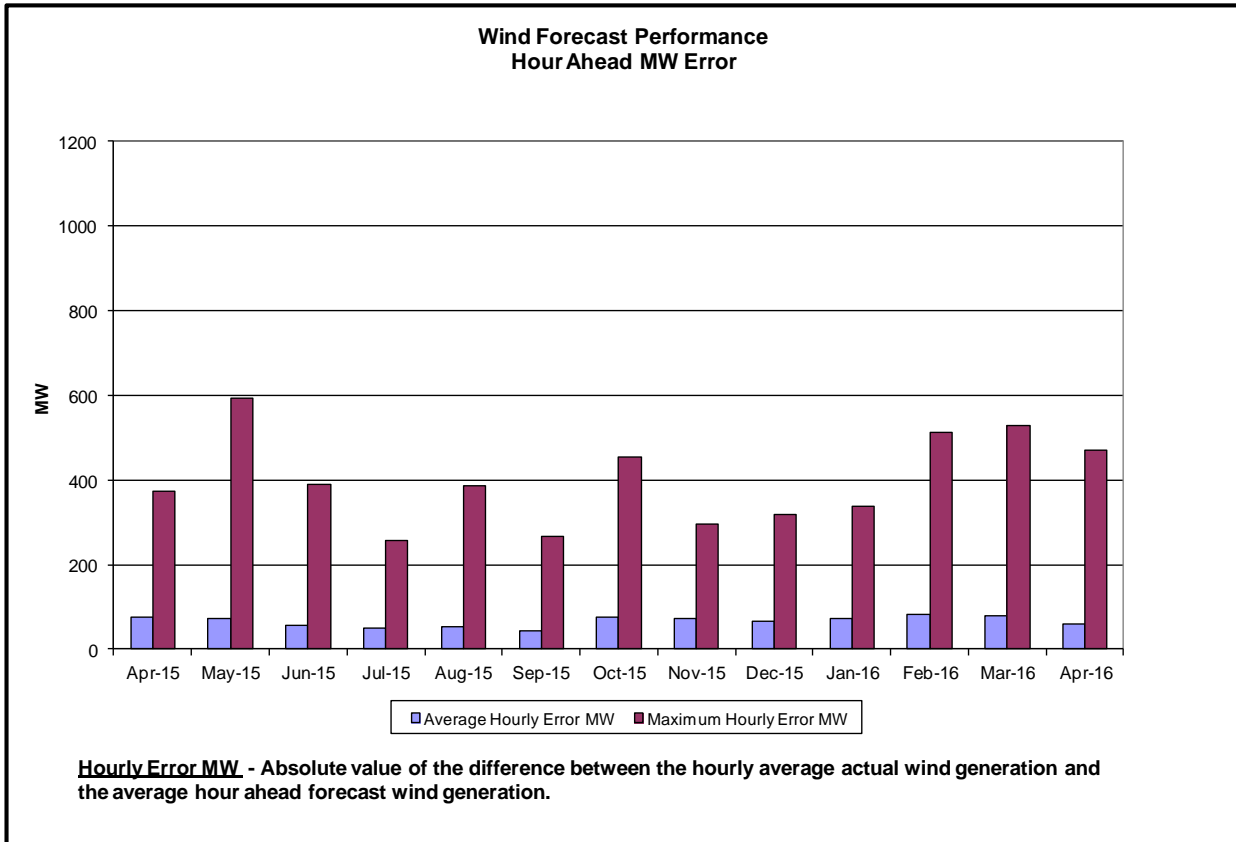
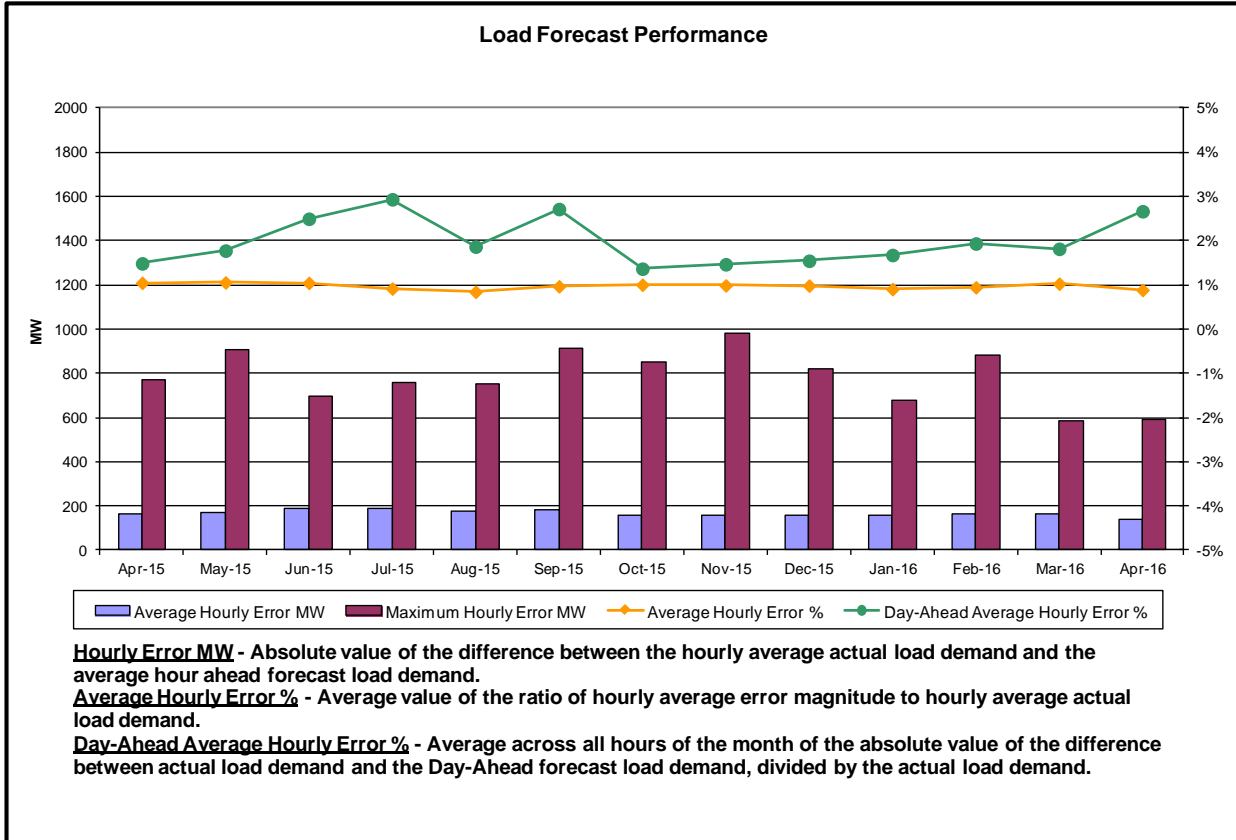
## Reliability Performance Metrics

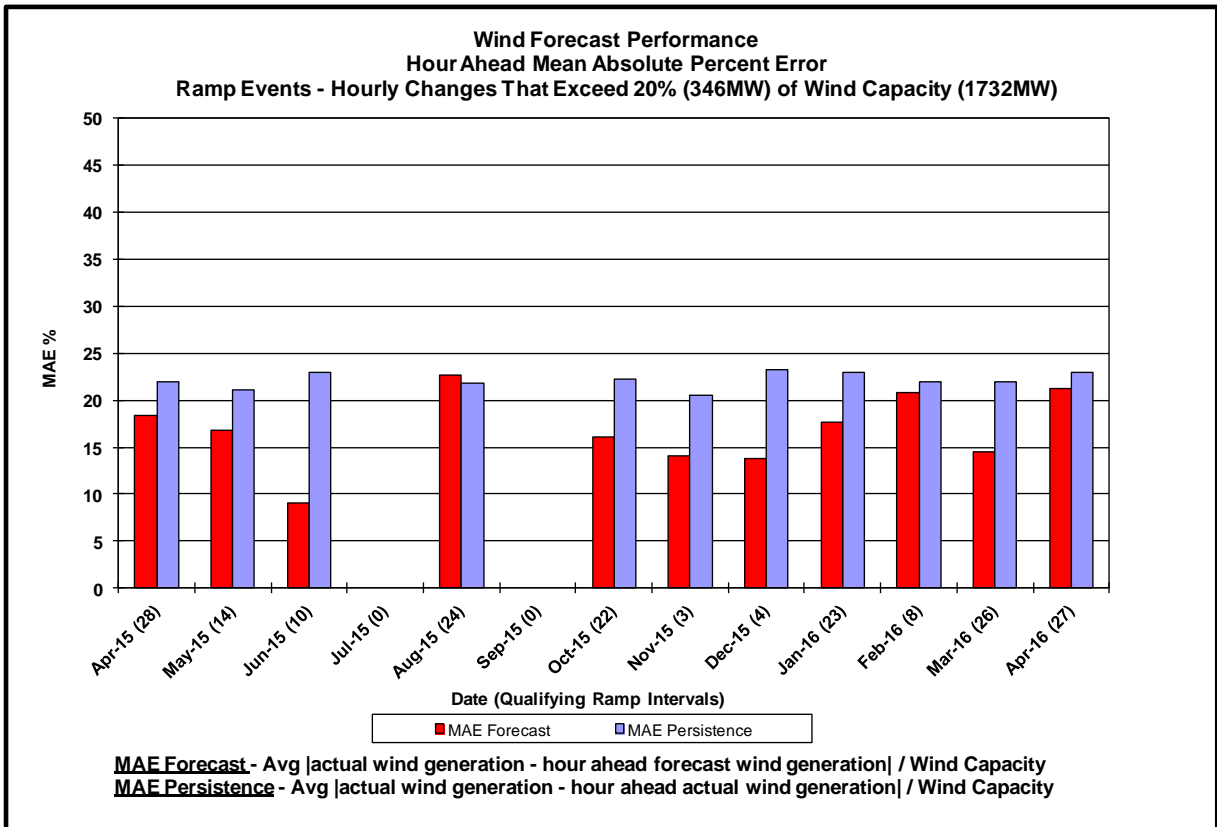
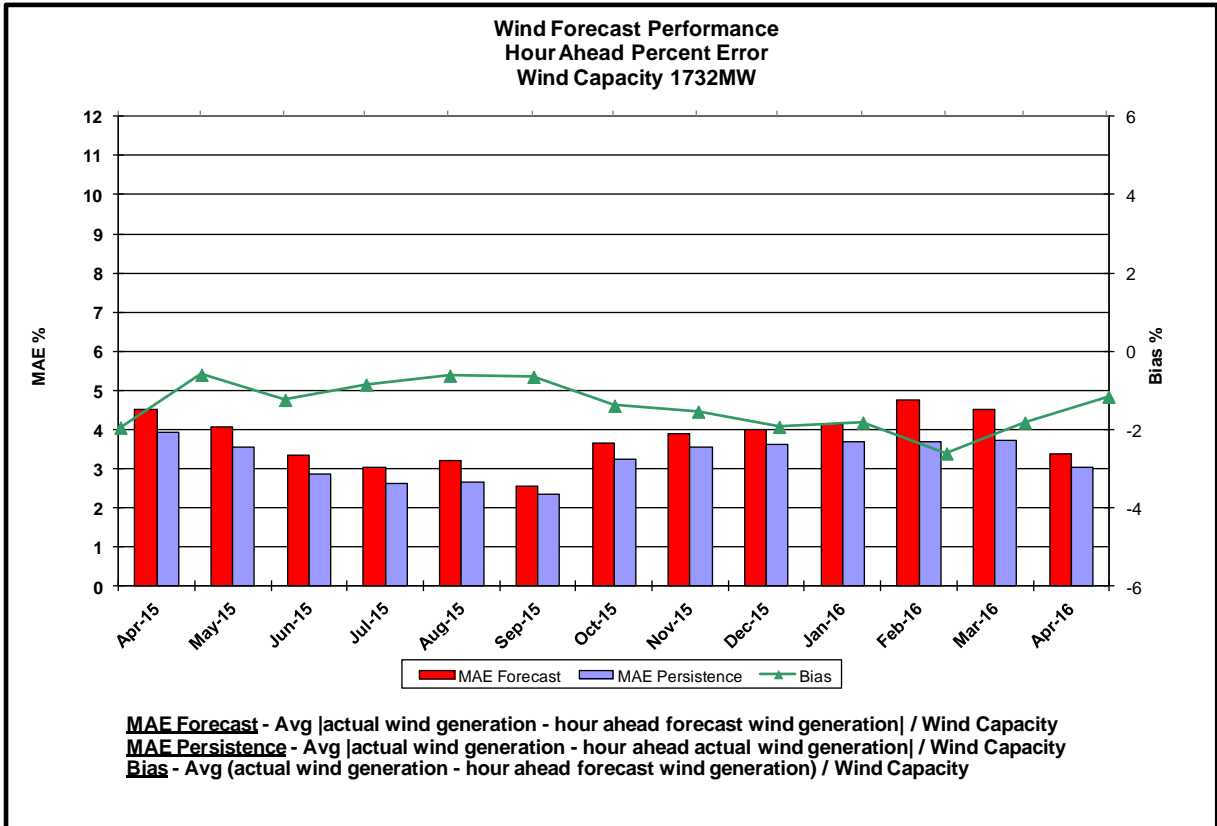


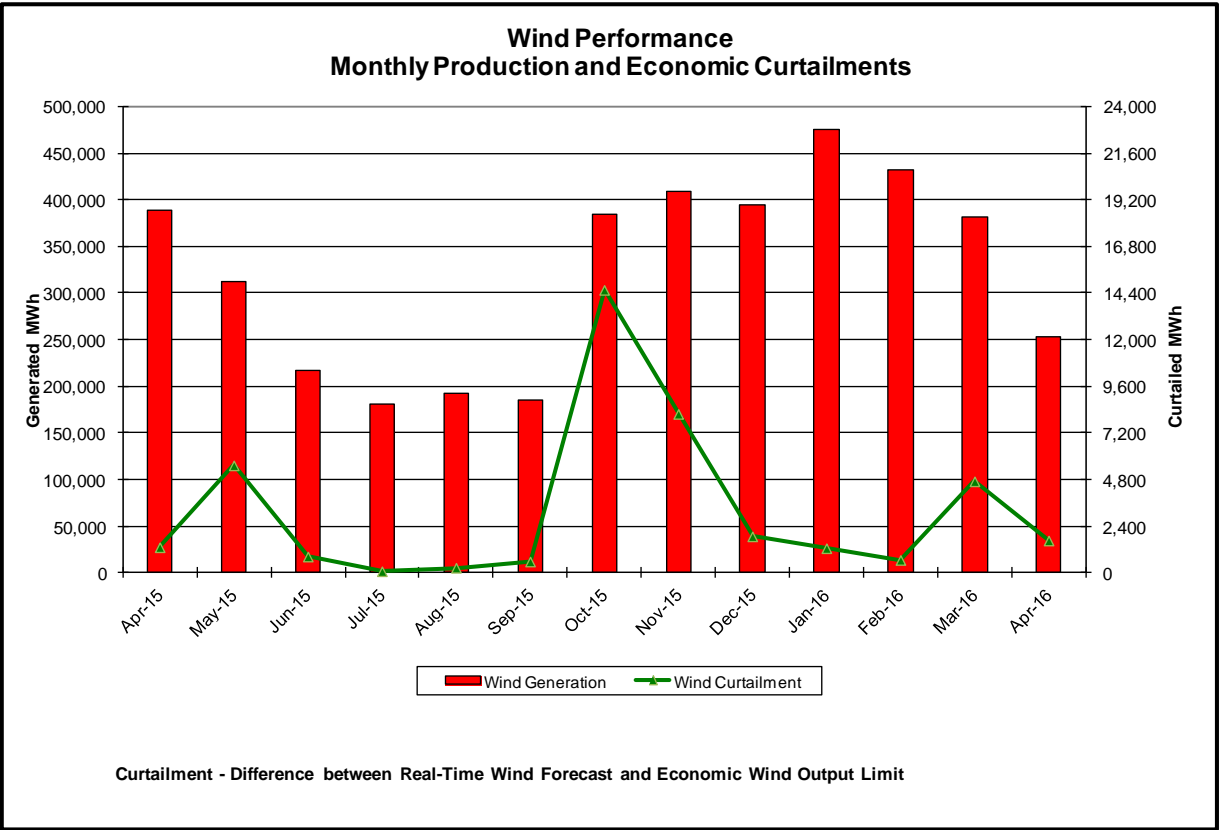
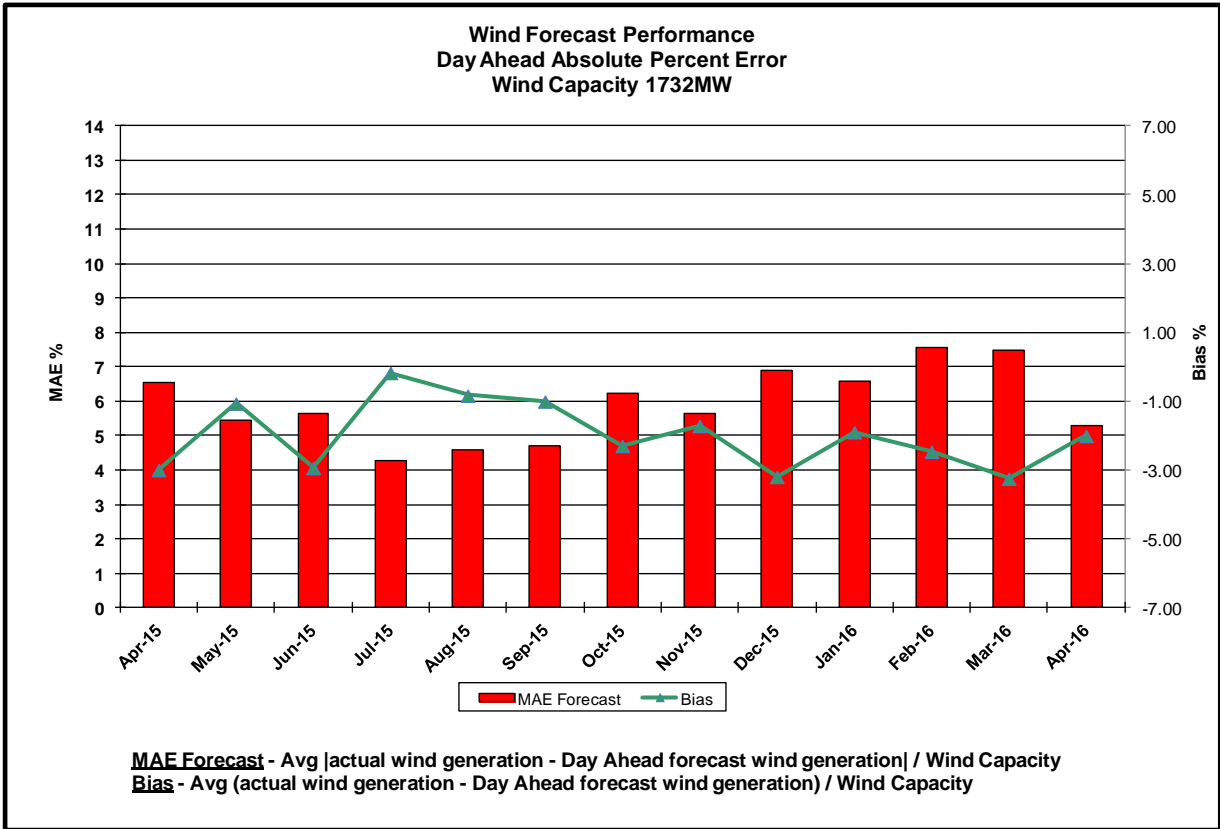


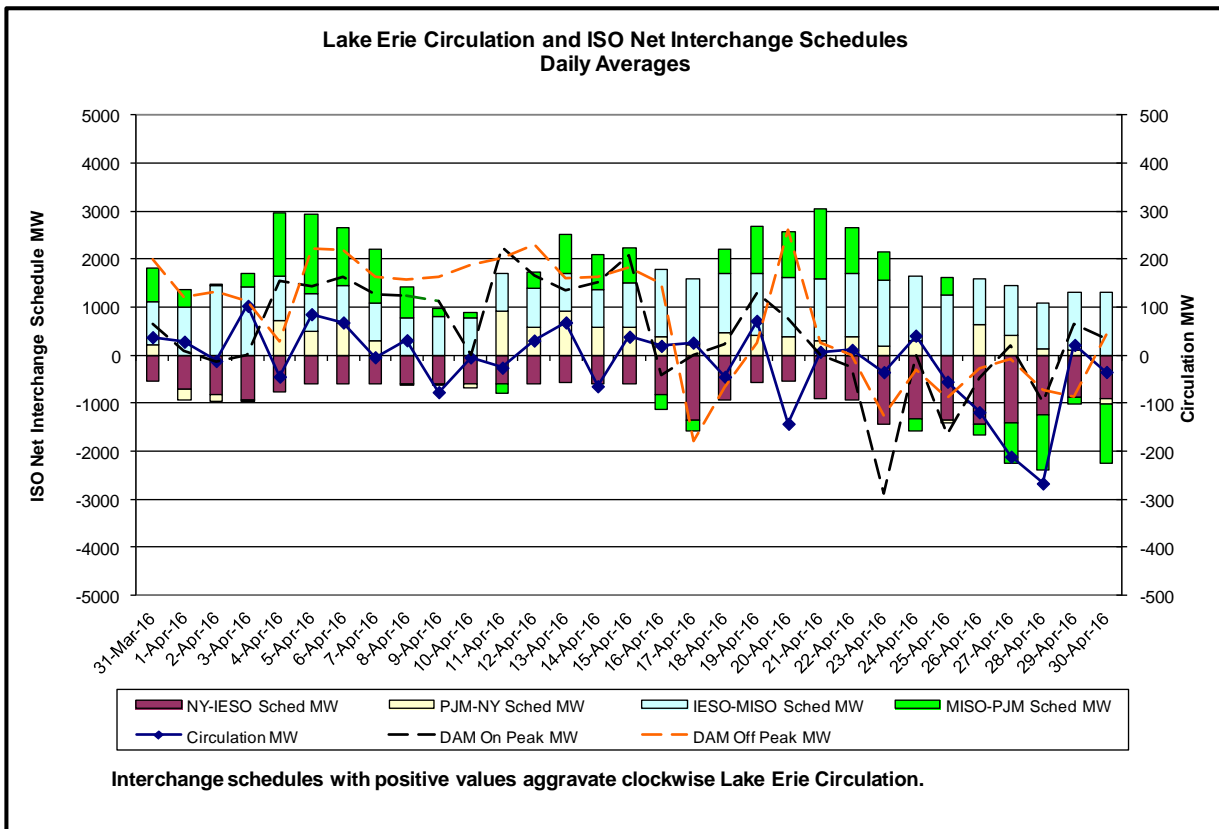
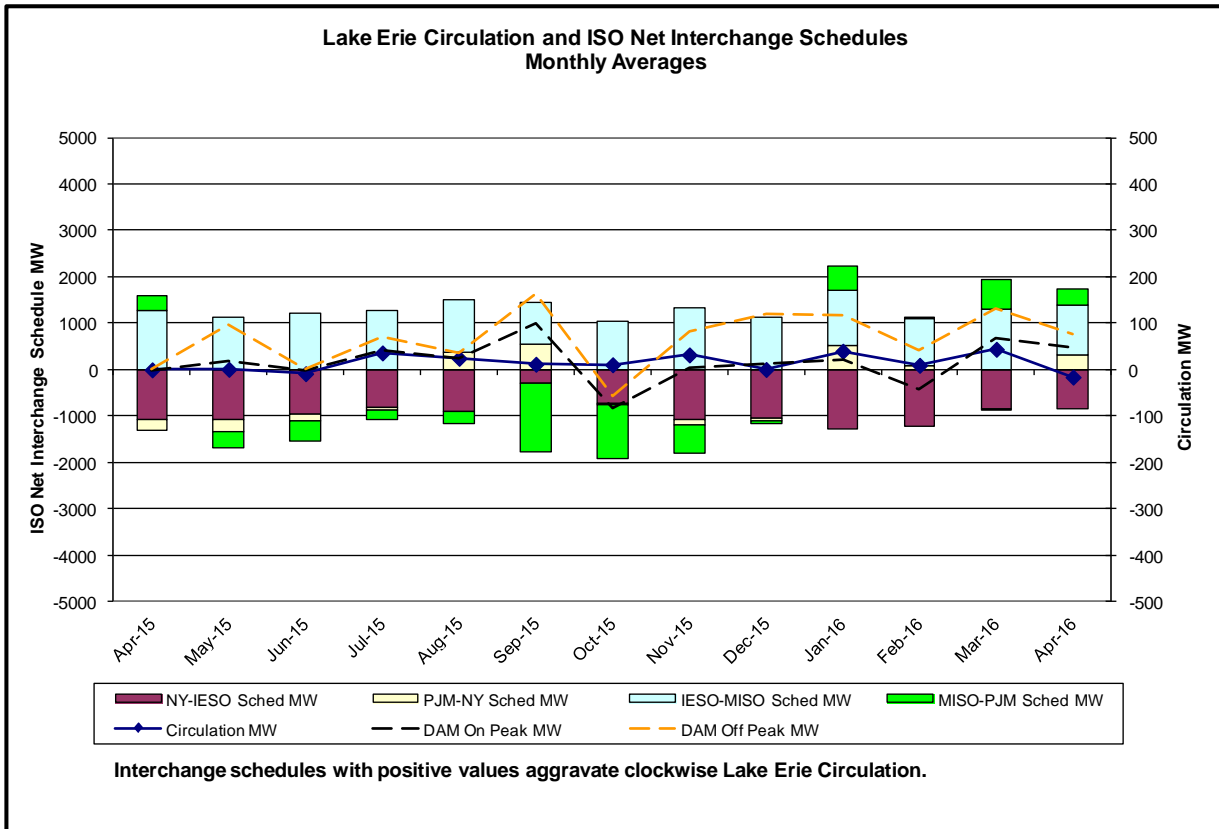




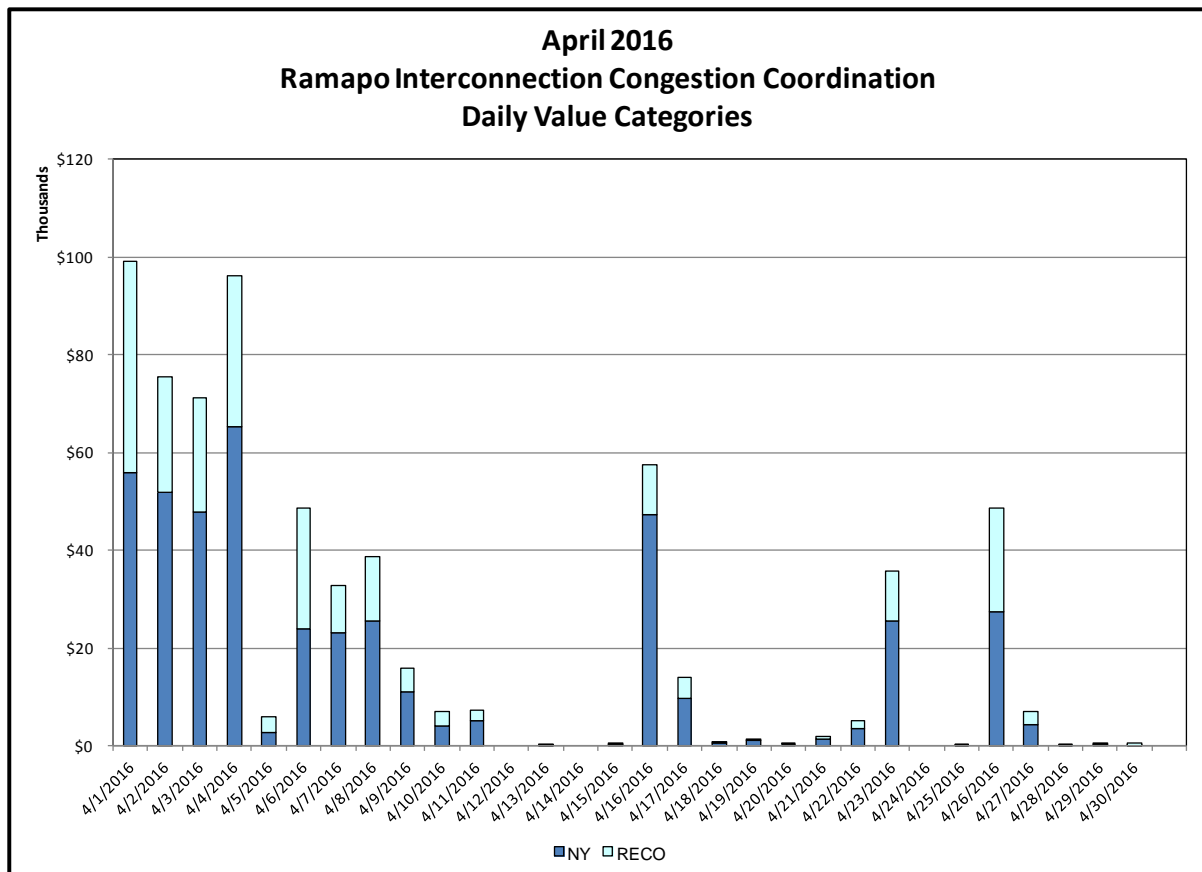
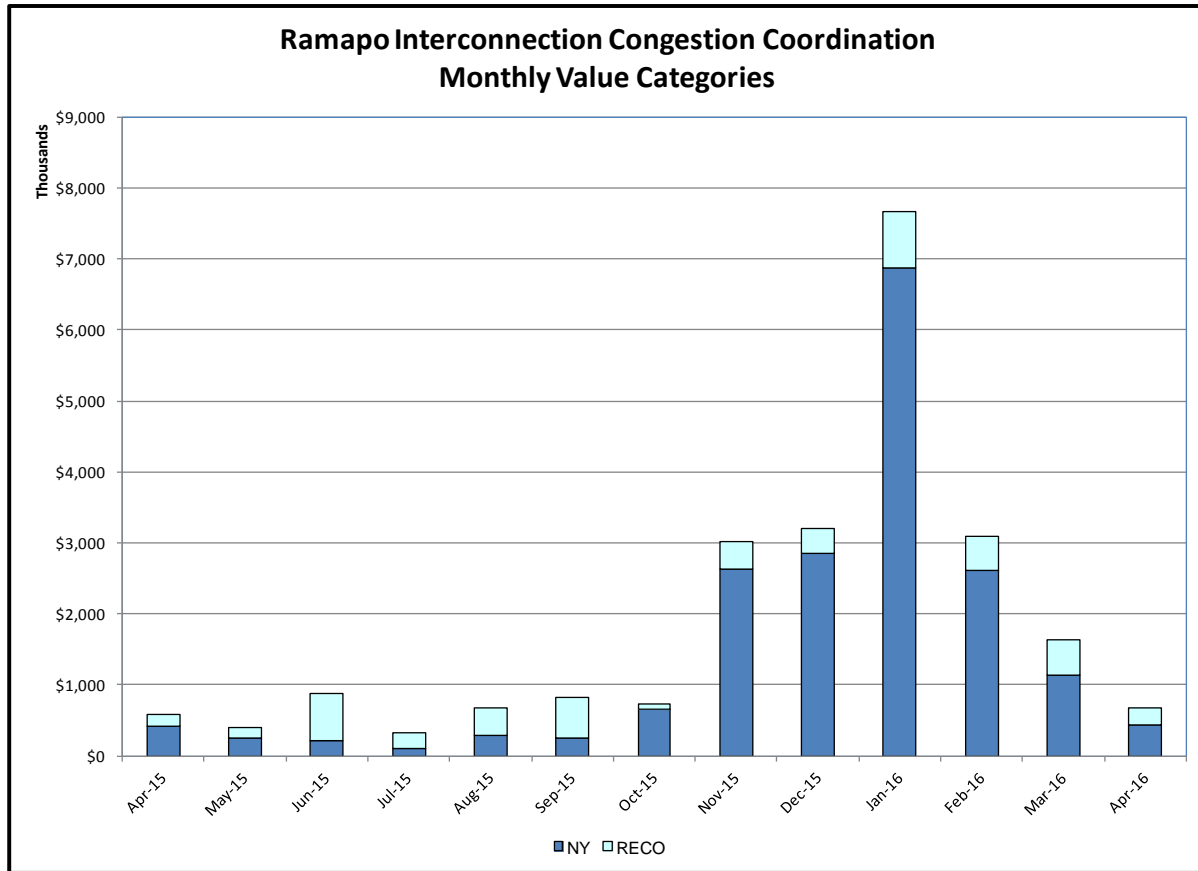






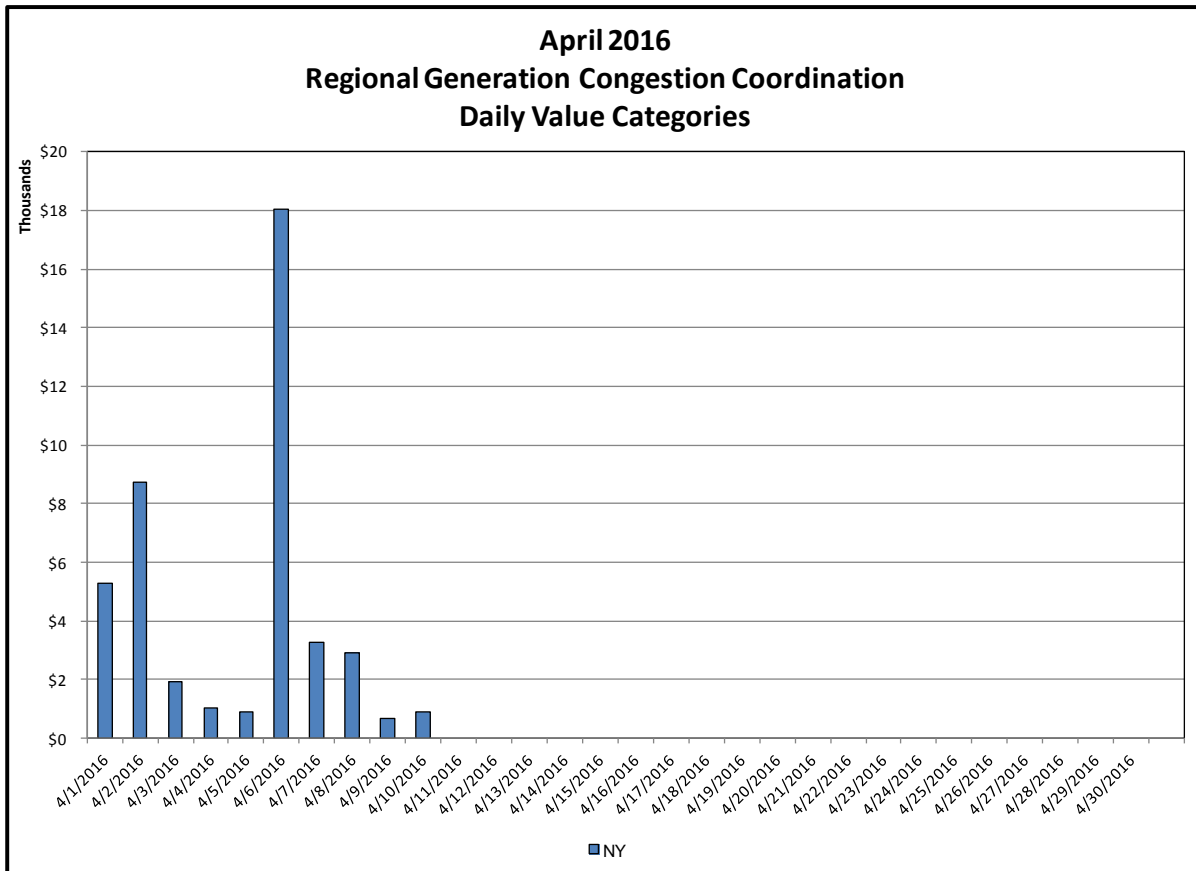
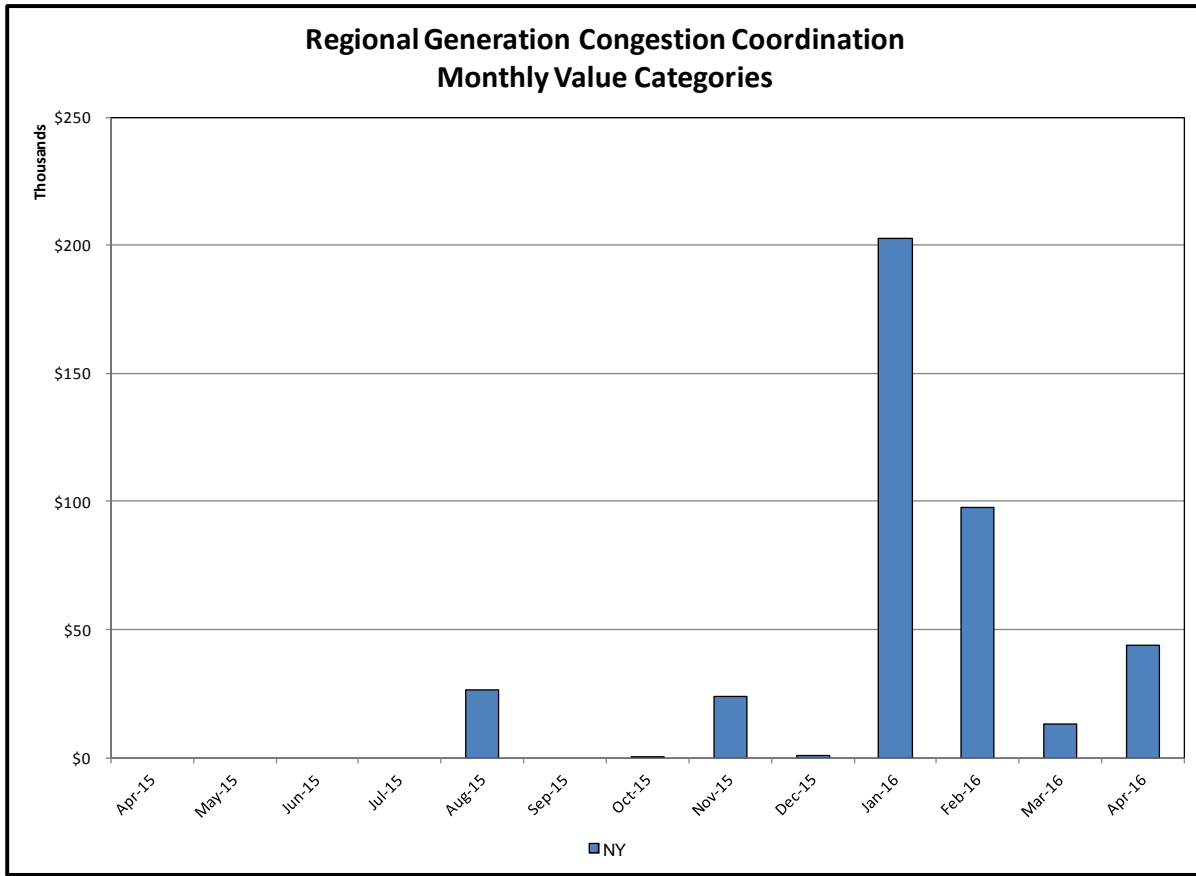


## Broader Regional Market Performance Metrics



**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

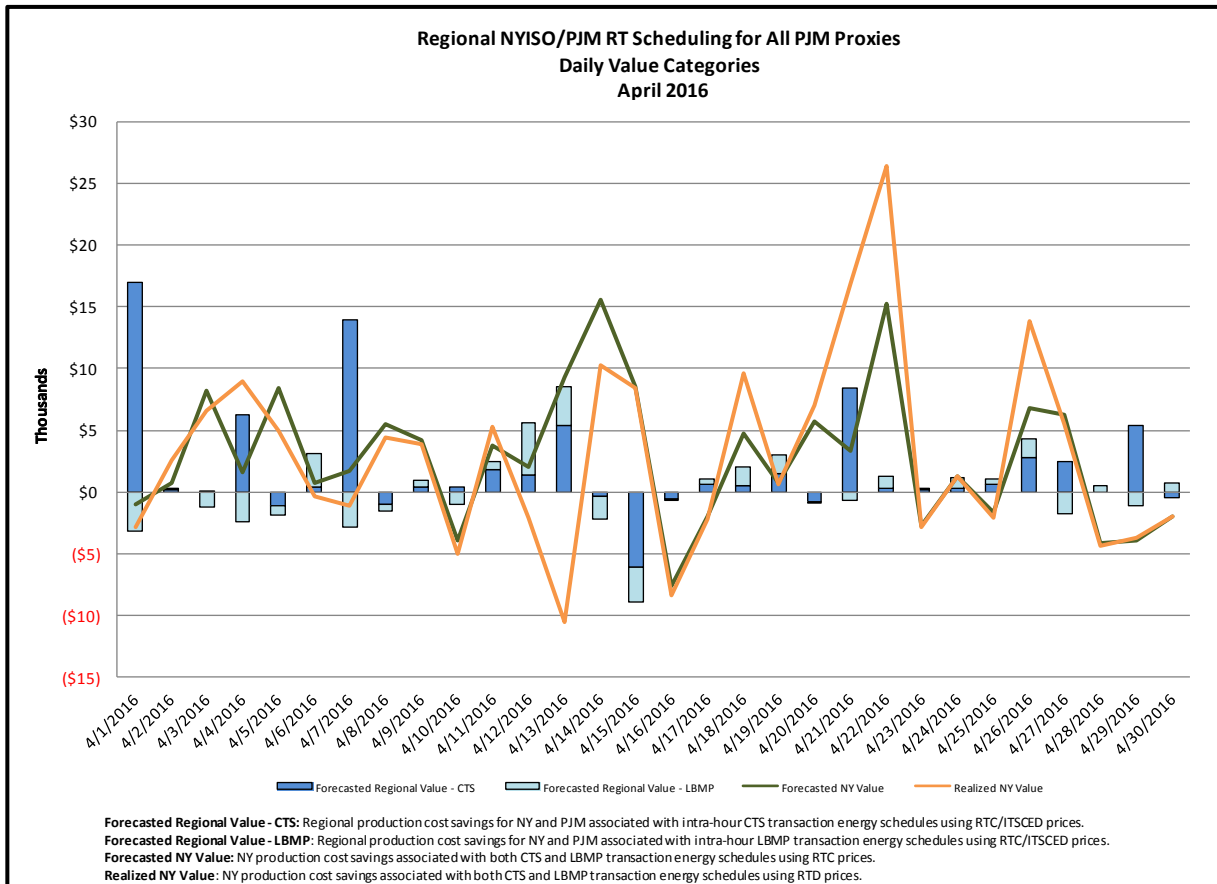
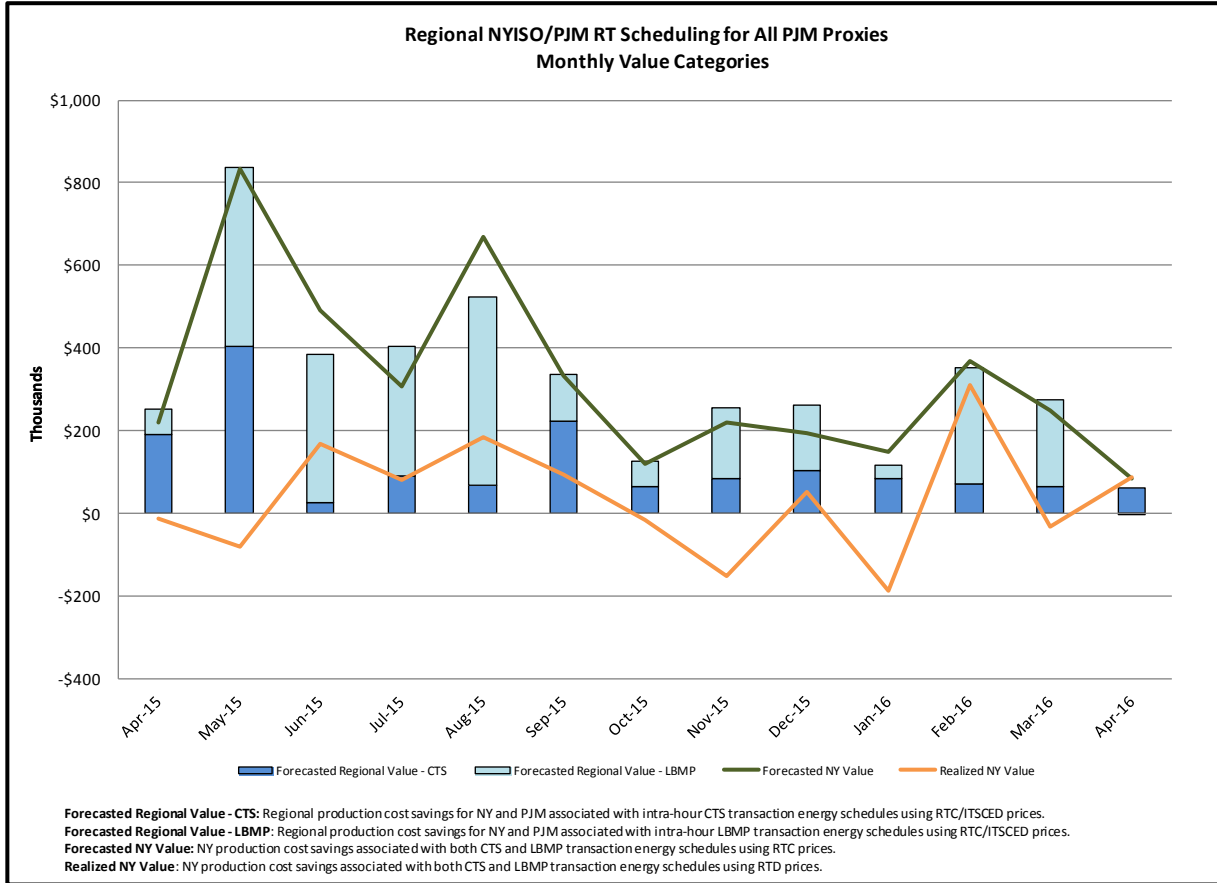
Category

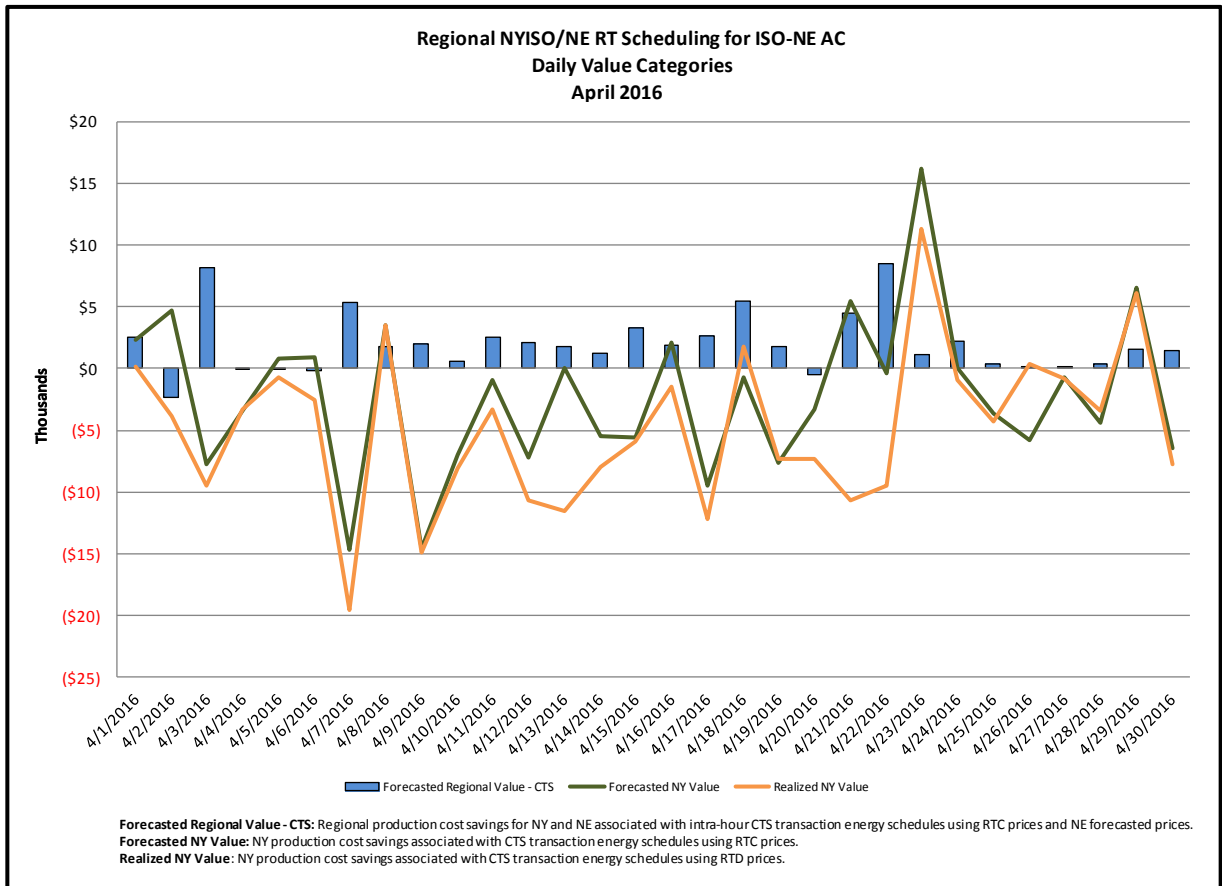
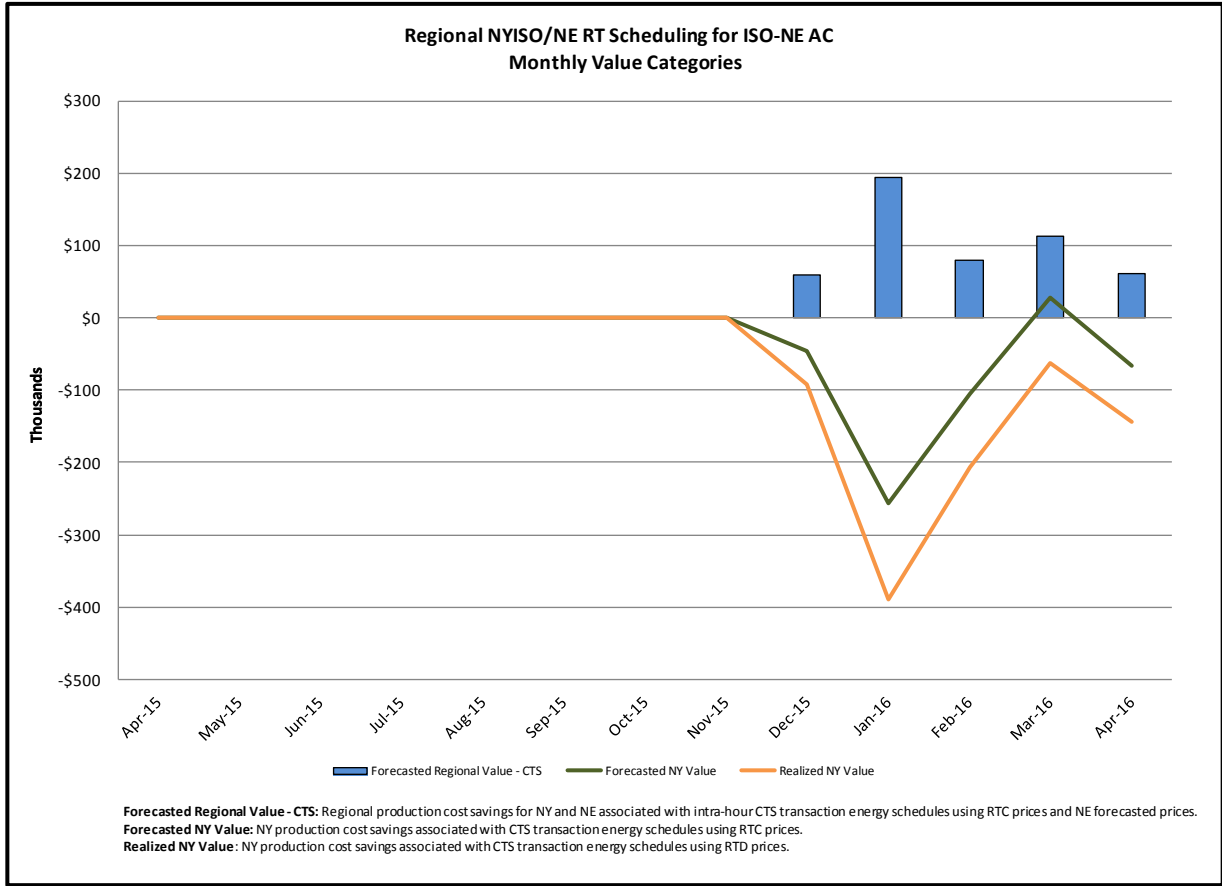
NY

Description

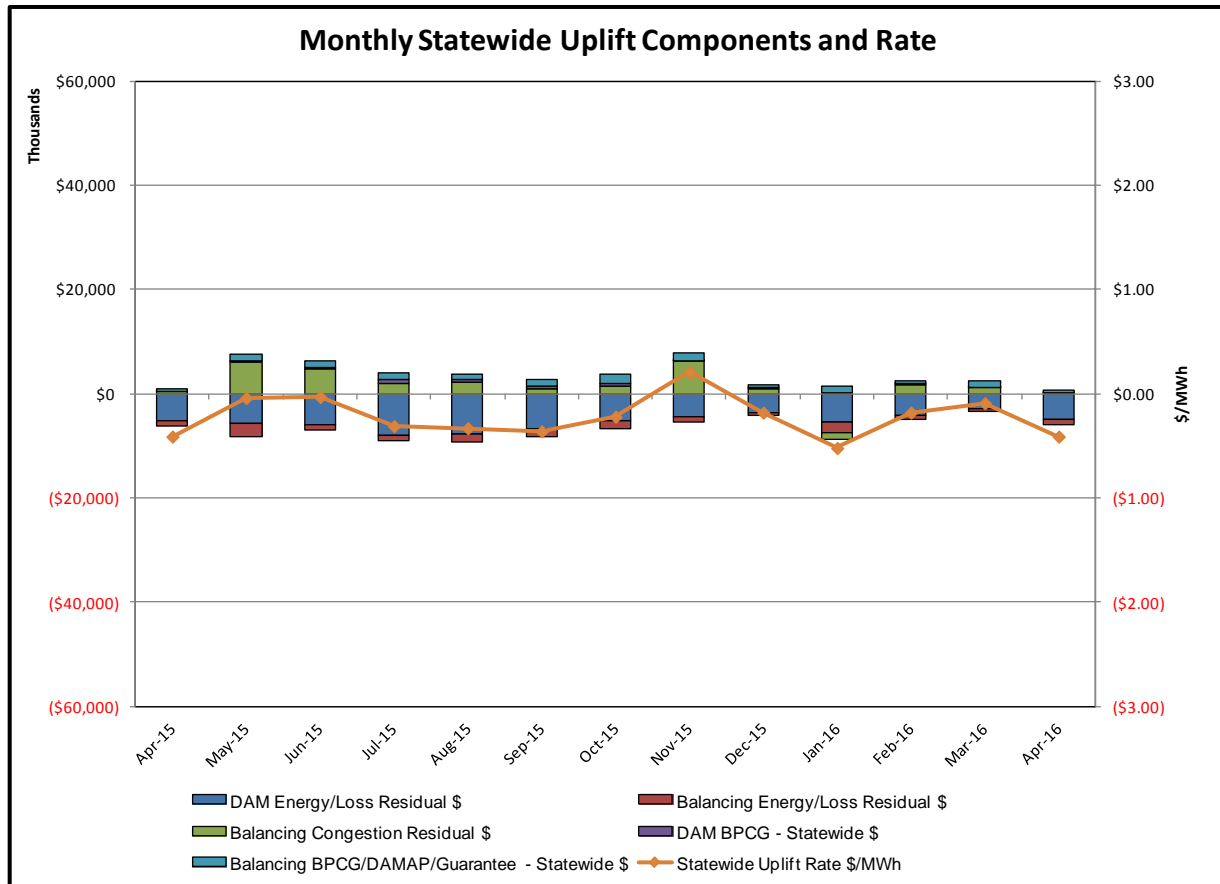
NYISO savings that result from PJM payments to NYISO when PJM's transmission use (PJM's market flow) is greater than PJM's entitlement of the NY transmission system and NYISO is incurring Western or Central NY congestion. Additionally, NYISO savings may result from the more efficient regional utilization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

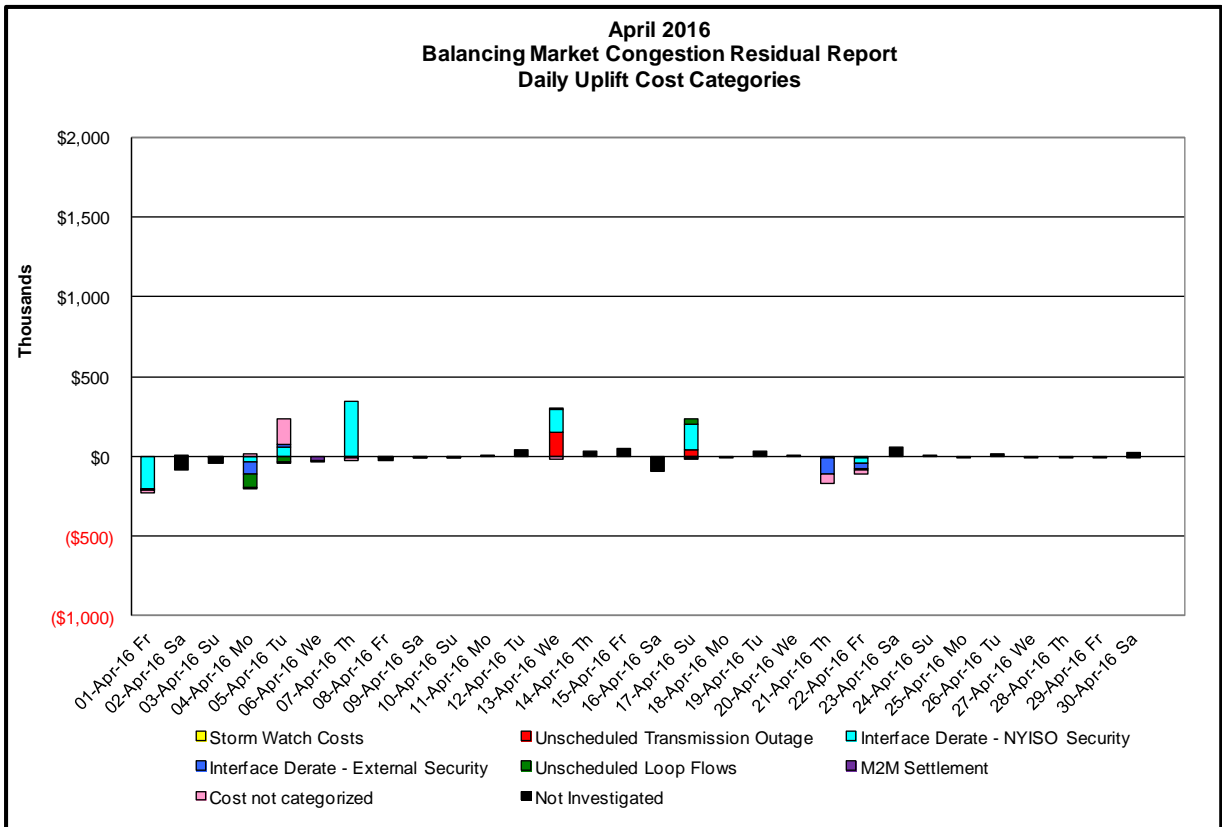
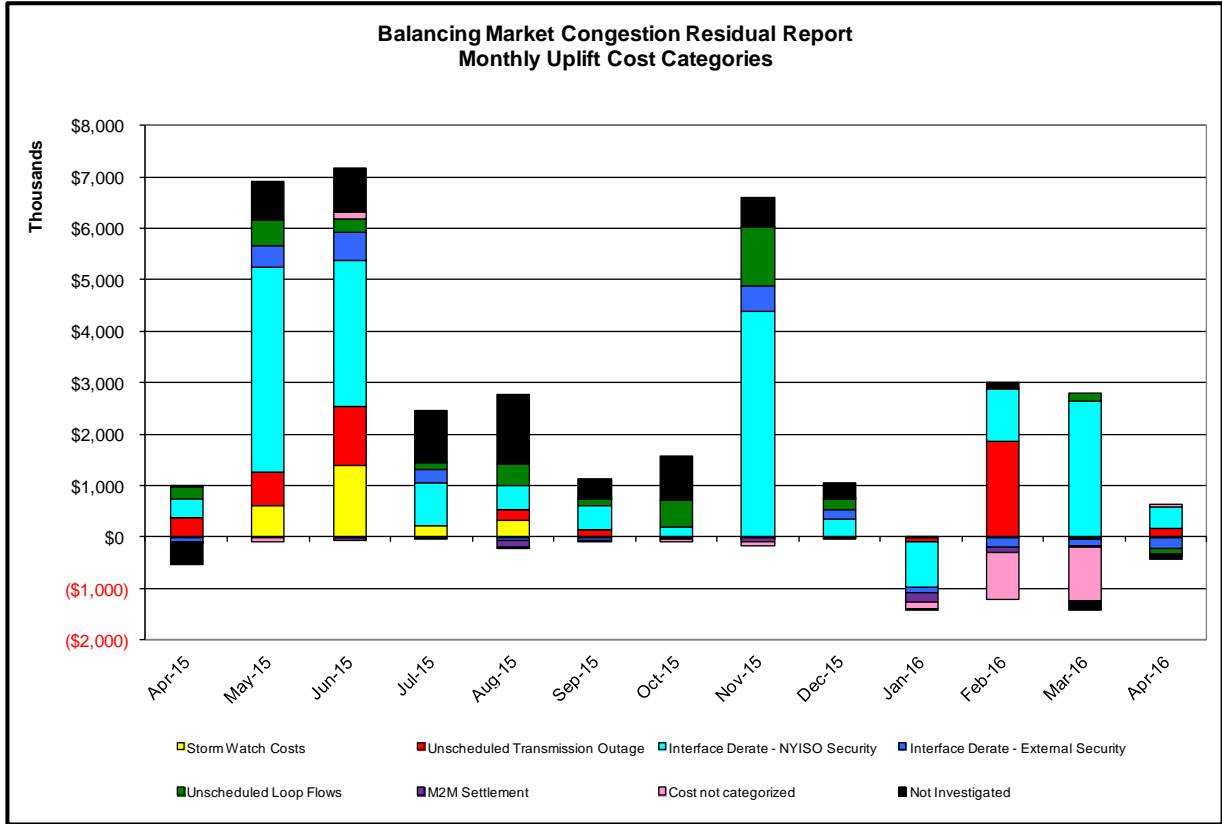






## Market Performance Metrics





Day's investigated in April: 1,4,5,7,13,17,21,22

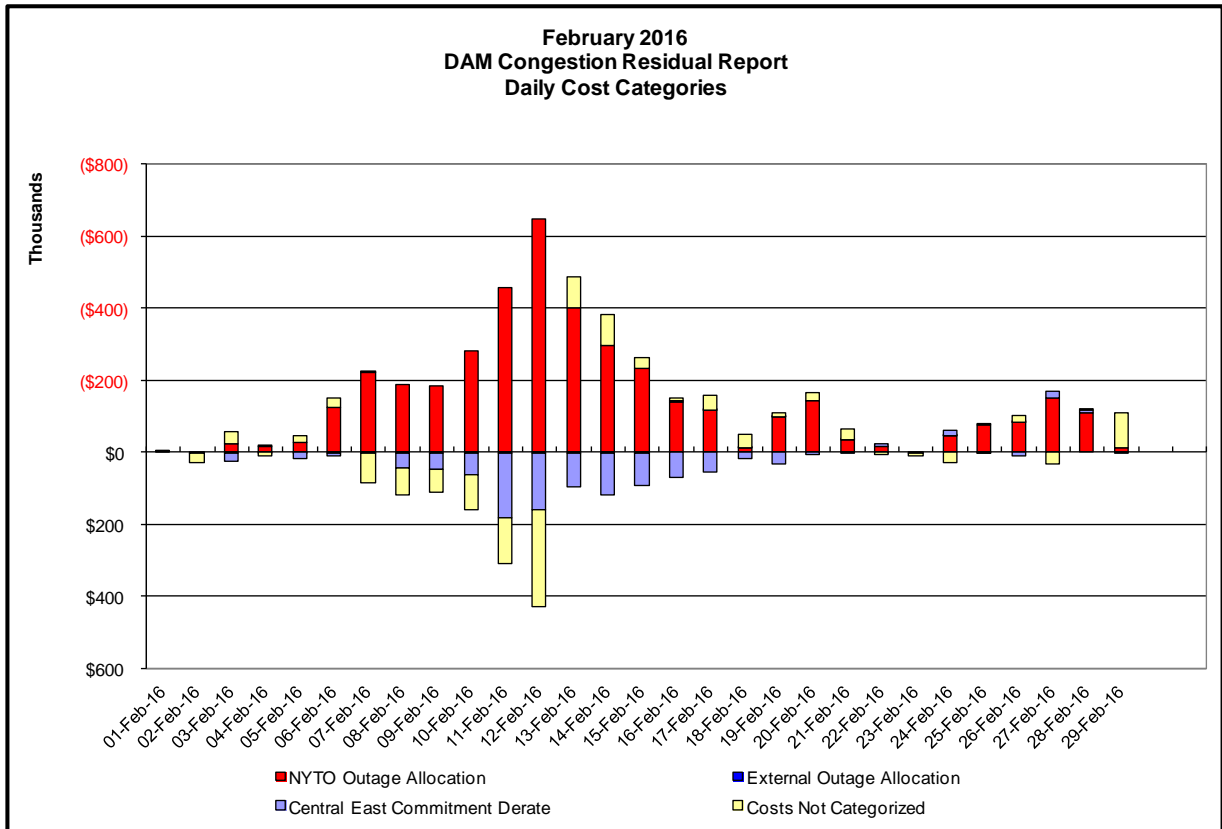
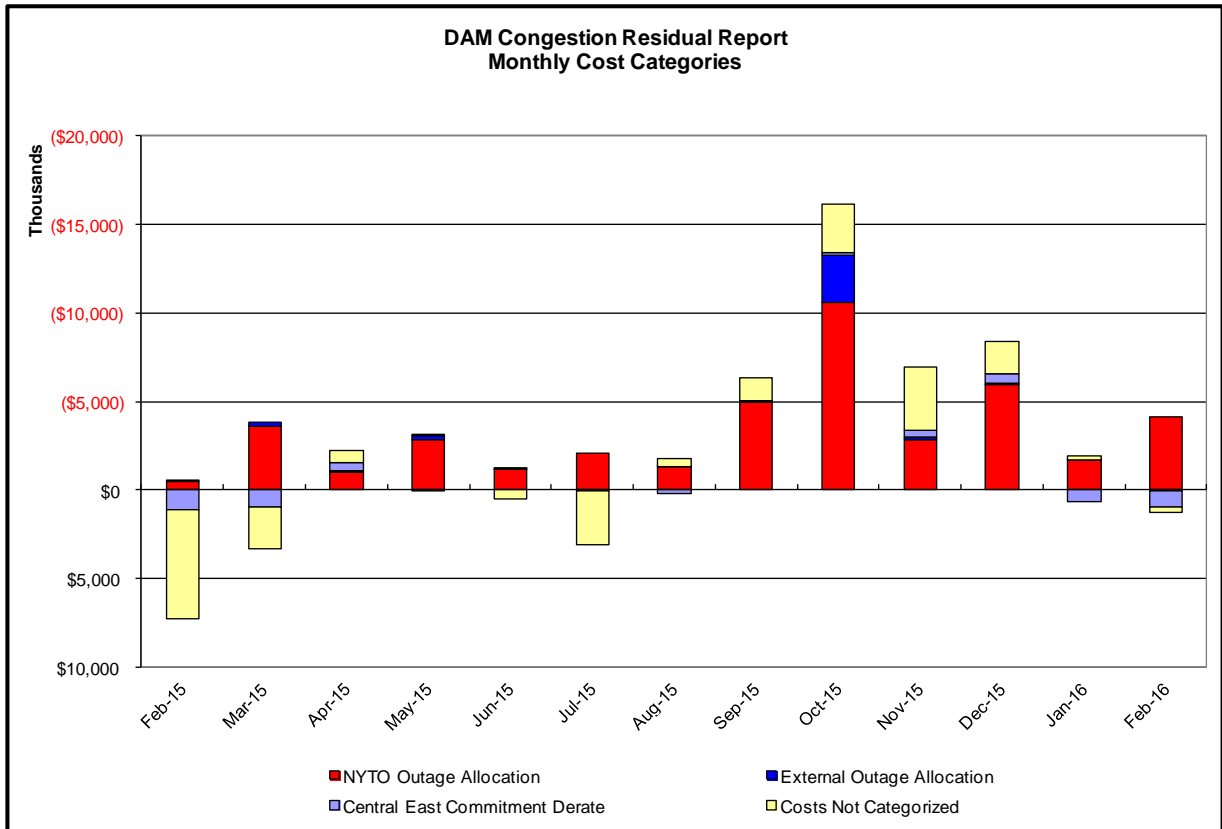
Event	Date (yyyymmdd)	Hours	Description
	4/1/2016	1,2,7-19,21	Uprate Central East
	4/1/2016	1,2	Lake Erie Circulation, DAM-RTM exceeds +/-125MW; Central East
	4/4/2016	12,14-16,22	Uprate Central East
	4/4/2016	18,20,21	Derate Dunwoodie-Shore Road 345kV (#Y50) for I/o NEPTUNE HVDC TIE LINE
	4/4/2016	18,20,21	Derate Packard-Sawyer 230kV (#78) for I/o Niagara-Robinson Road 230kV (#64)
	4/4/2016	12,22	NE_AC-NY Scheduling Limit
	4/4/2016	12,14-16,22	Lake Erie Circulation, DAM-RTM exceeds +/-125MW; Central East
	4/4/2016	12,22	Lake Erie Circulation, DAM-RTM exceeds +/-125MW; Packard-Sawyer 230kV (#78)
	4/5/2016	8,9	Uprate Foxhills-Willowbrook 138kV (#29211) for I/o SCB:GOWANUS(2):41&42231&R4
	4/5/2016	6,9	Uprate Freshkills-Willowbrook 138kV (#29211)
	4/5/2016	10,11,19,20,22,23	Derate Packard-Sawyer 230kV (#78) for I/o Niagara-Robinson Road 230kV (#64)
	4/5/2016	6,8	NE_AC-NY Scheduling Limit
	4/5/2016	6	NE_NNC1385-NY Scheduling Limit
	4/5/2016	22	PJM_AC DNI Ramp Limit
	4/5/2016	8,9,22	Lake Erie Circulation, DAM-RTM exceeds +/-125MW; Central East, Packard-Sawyer 230kV (#78)
	4/7/2016	6-8	Uprate Central East
	4/7/2016	14	Derate Gowanus-Greenwood 138kV (#42232) for I/o SCB:GOWANUS(2):41&42231&R4
	4/7/2016	14	Derate Packard-Sawyer 230kV (#78) for I/o Robinson Road-Stolle Road 230kV (#65)
	4/7/2016	6,7	Lake Erie Circulation, DAM-RTM exceeds +/-125MW; Central East
	4/13/2016	7,8,10-16	Forced outage Niagara-Gardenville 115kV (#180)
	4/13/2016	7,8,10-16	Derate Packard-Sawyer 230kV (#78) for I/o Robinson Road-Stolle Road 230kV (#65)
	4/13/2016	16	Lake Erie Circulation, DAM-RTM exceeds +/-125MW; Packard-Sawyer 230kV (#78)
	4/17/2016	9,10,16,18	Forced outage of Mainsburg-Homer City 345kV (#47)
	4/17/2016	9,10,16,18	Derate Dysinger East
	4/17/2016	16,18,19	Derate Marcy 765/345kV (#Bk2) for I/o TWR:MOSES MA1 & MA2
	4/17/2016	17	NE_AC ACTIVE DNI
	4/17/2016	9,16,18	Lake Erie Circulation, DAM-RTM exceeds +/-125MW; Dysinger East
	4/21/2016	20	NYCA DNI Ramp Limit
	4/21/2016	9,10,20,21	HQ_CHAT-NY Scheduling Limit
	4/22/2016	19,20	Early return South Ripley-Dunkirk 230kV (#69)
	4/22/2016	9,17,19,20,23	Uprate Central East
	4/22/2016	16	HQ_CHAT-NY Scheduling Limit
	4/22/2016	16	IESO_AC DNI Ramp Limit
	4/22/2016	12	NE_AC ACTIVE DNI
	4/22/2016	17,19	Lake Erie Circulation, DAM-RTM exceeds +/-125MW; Central East
	4/22/2016	19	Lake Erie Circulation, DAM-RTM exceeds +/-125MW; Packard-Sawyer 230kV (#78)

**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**

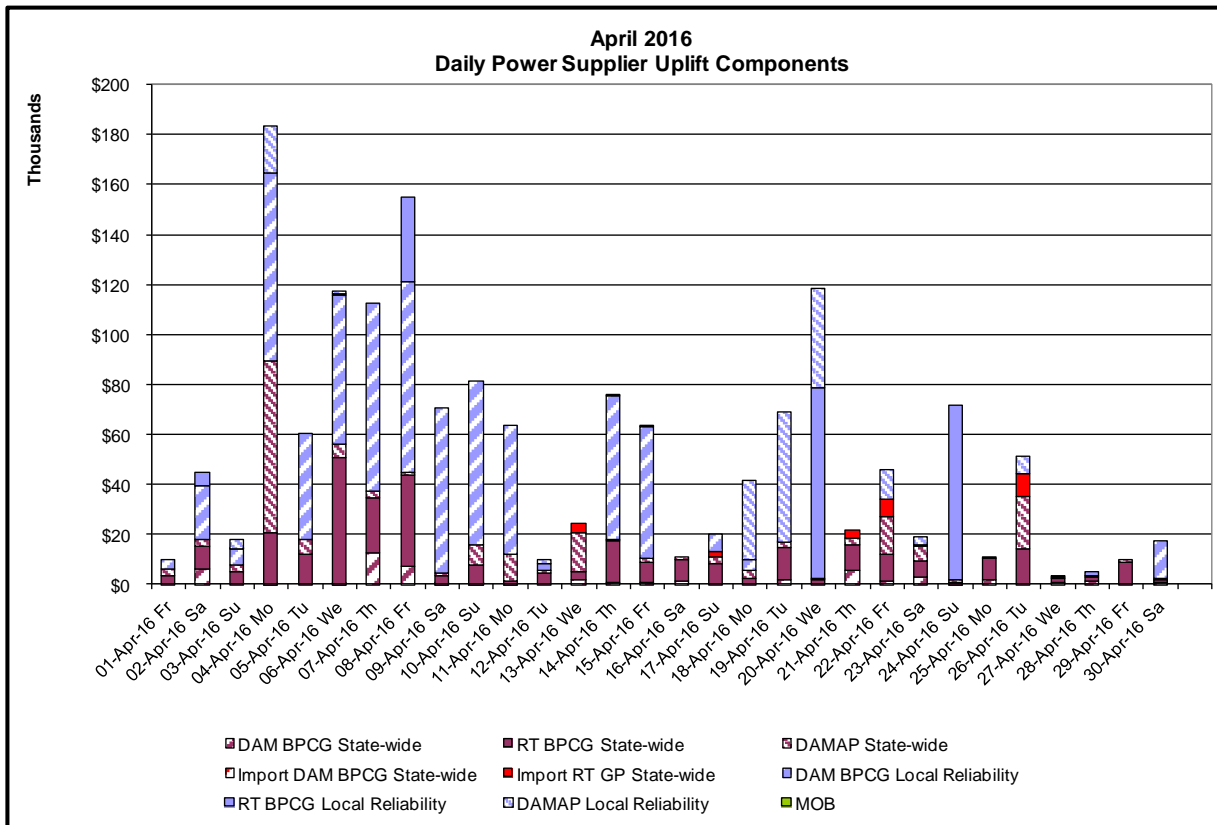
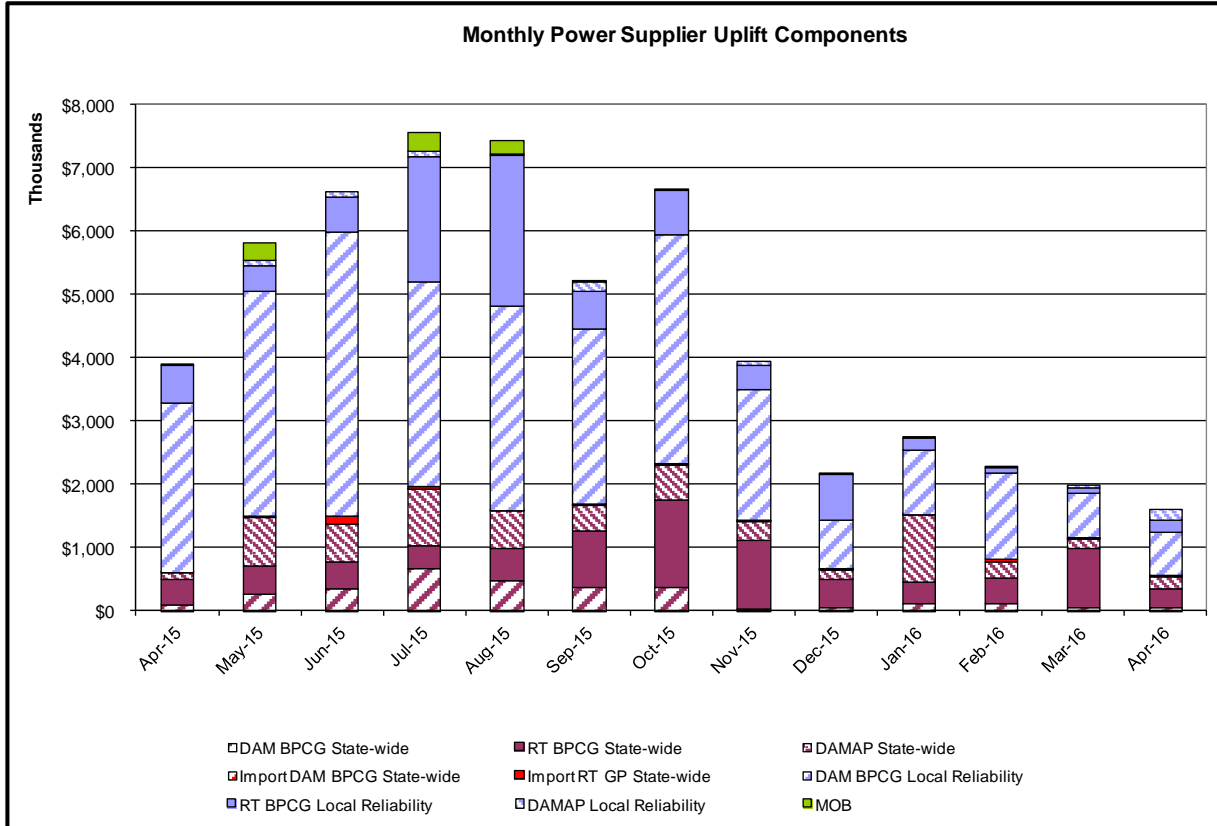
- 1) Storm Watch Costs are identified as daily total uplift costs
- 2) Days with a value of BMCR less M2M Settlement of \$100K/HR, shortfall of \$200K/Day or more, or surplus of \$100K/Day or more are investigated.
- 3) Uplift costs associated with multiple event types are apportioned equally by hour

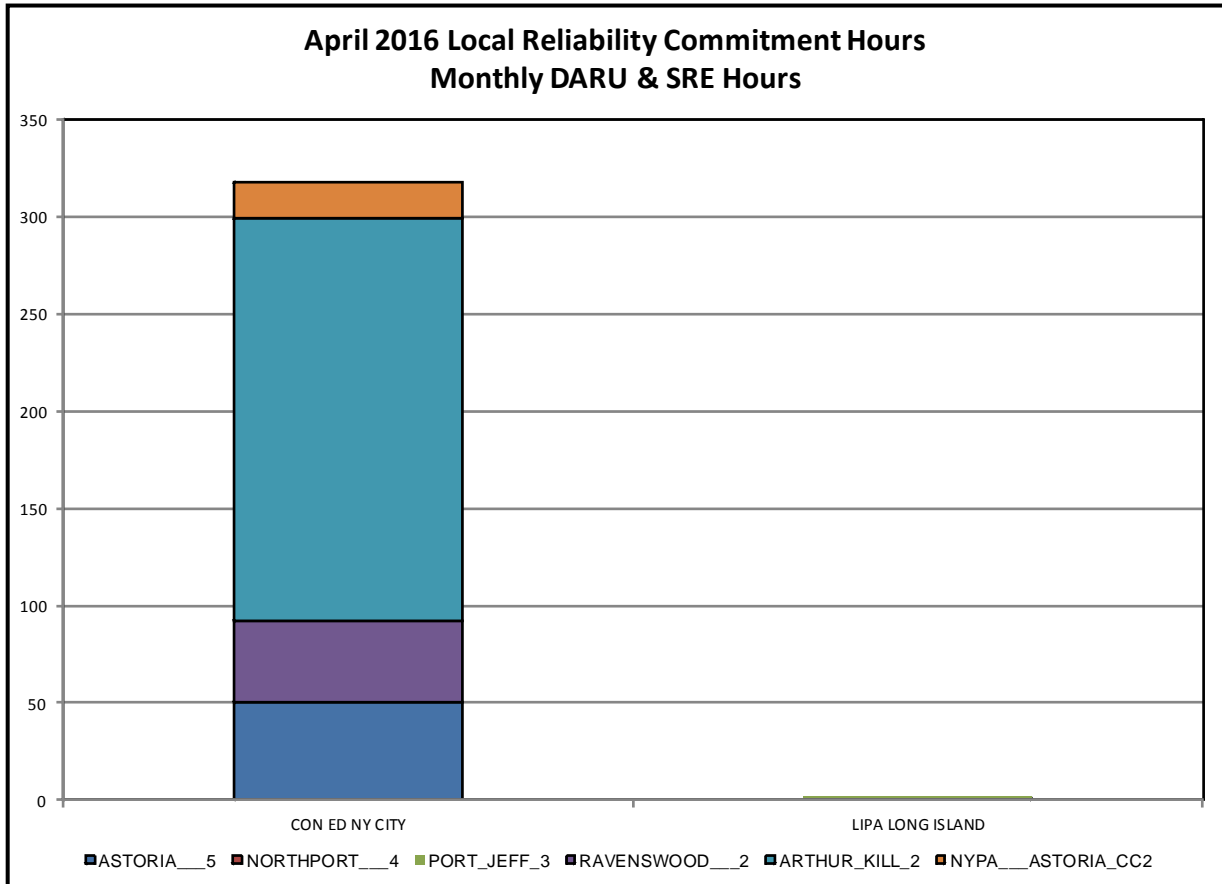
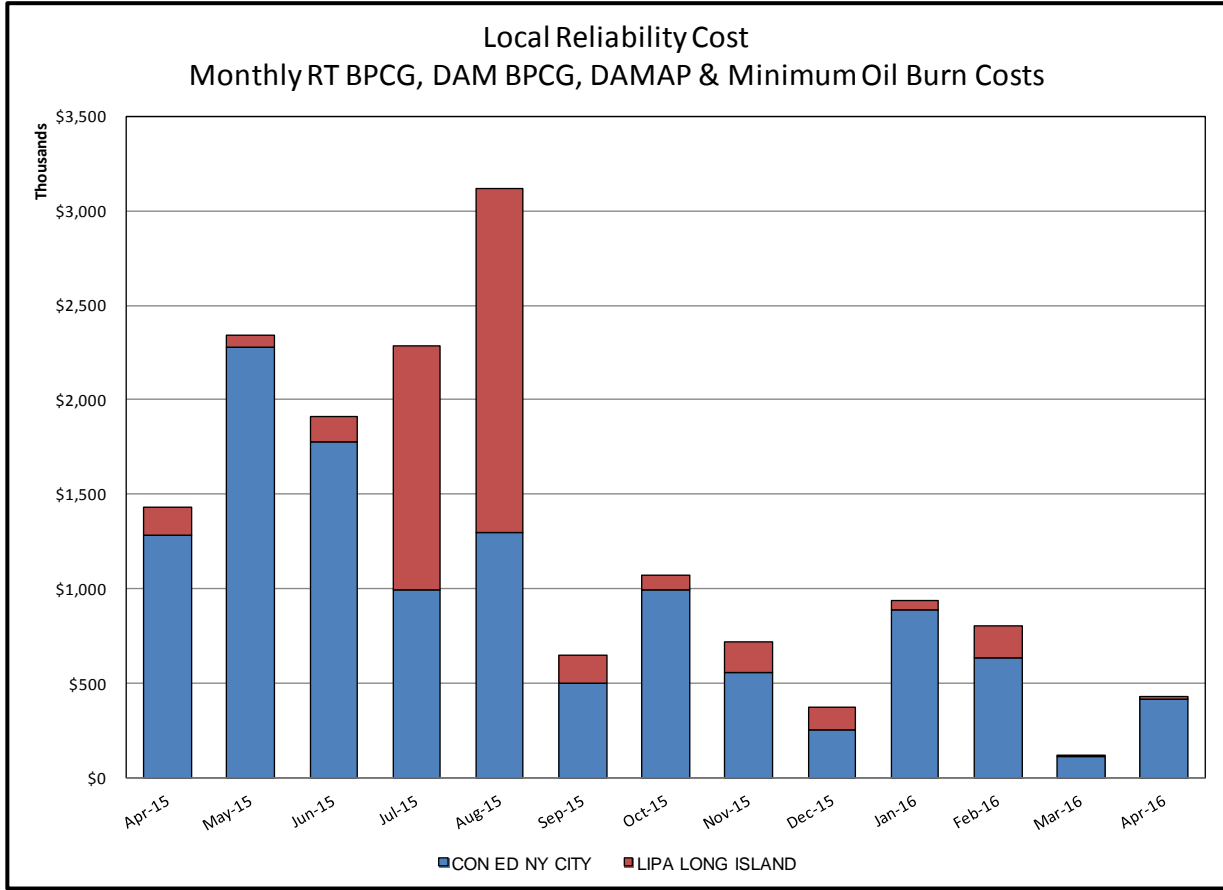


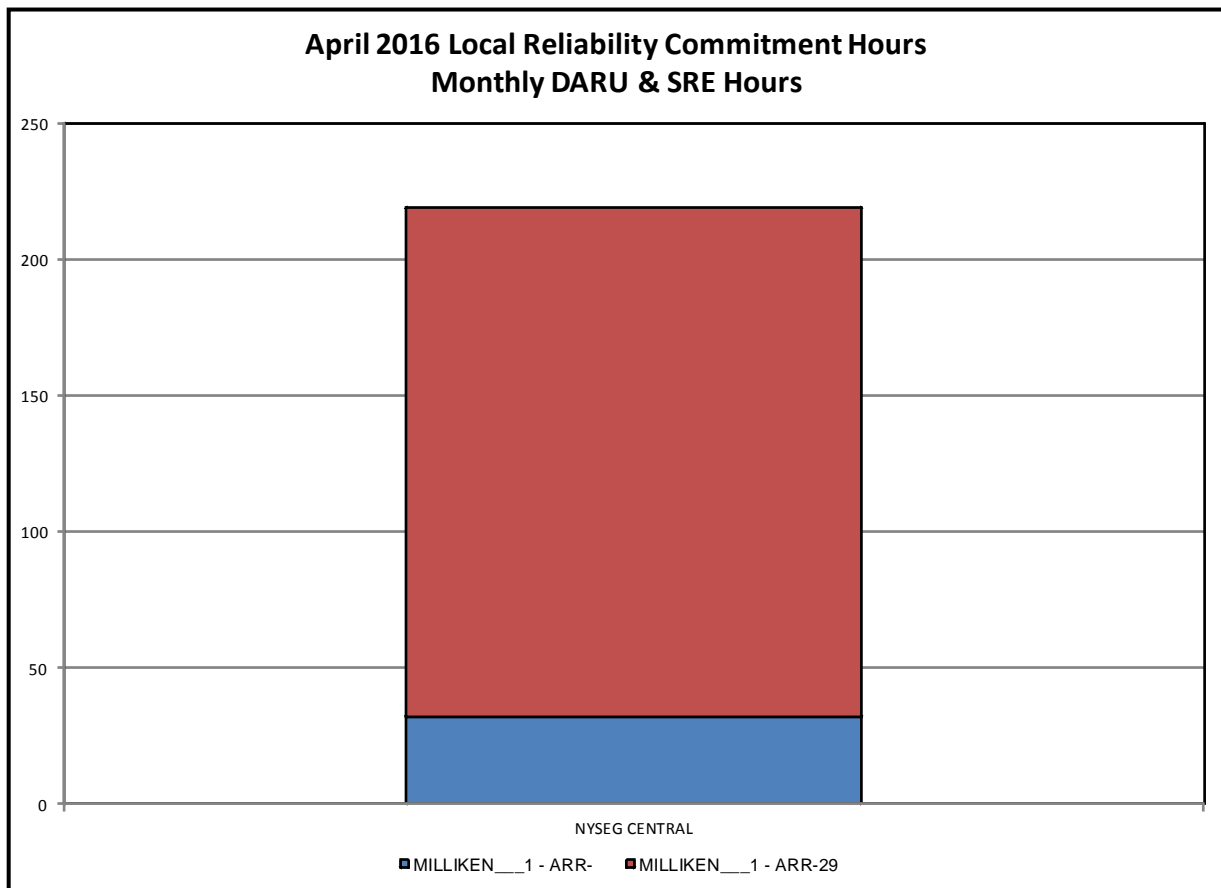
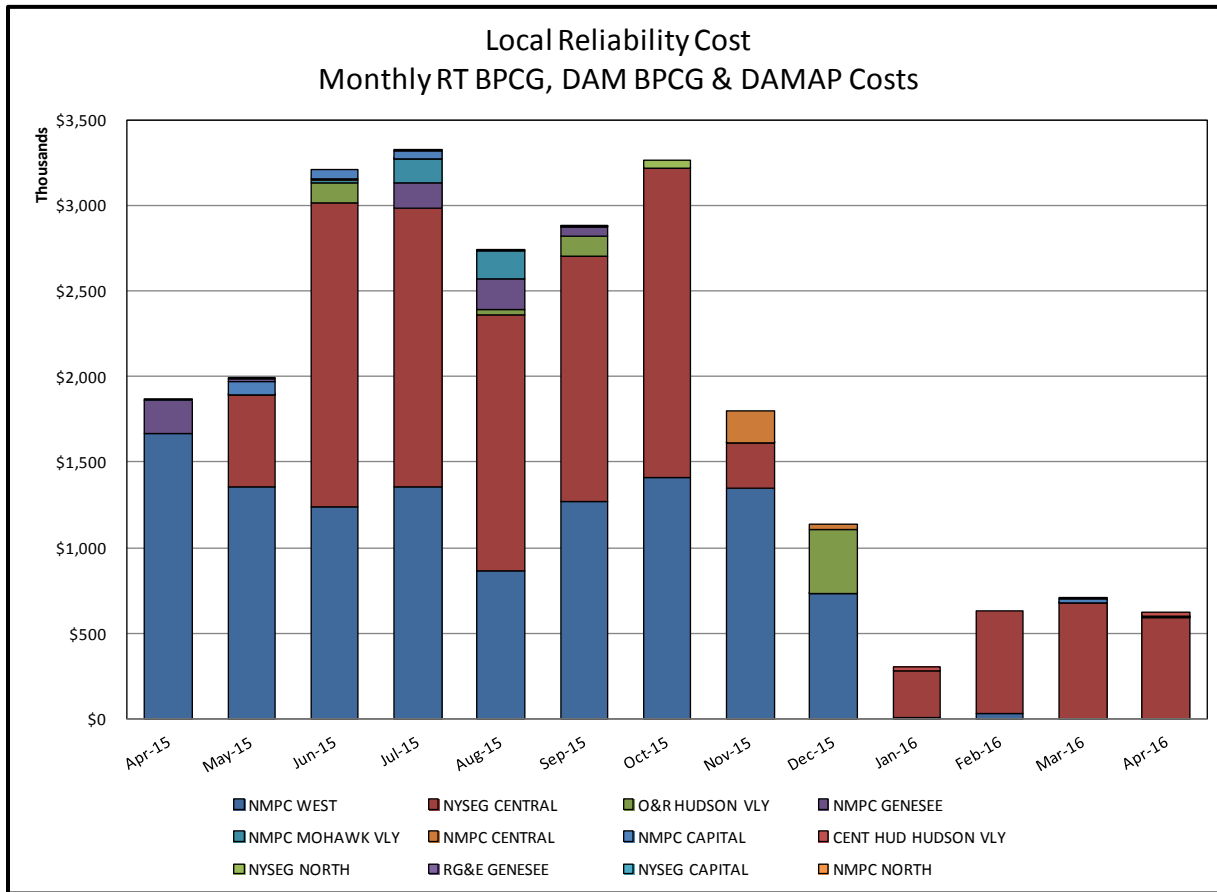
**Day-Ahead Market Congestion Residual Categories**

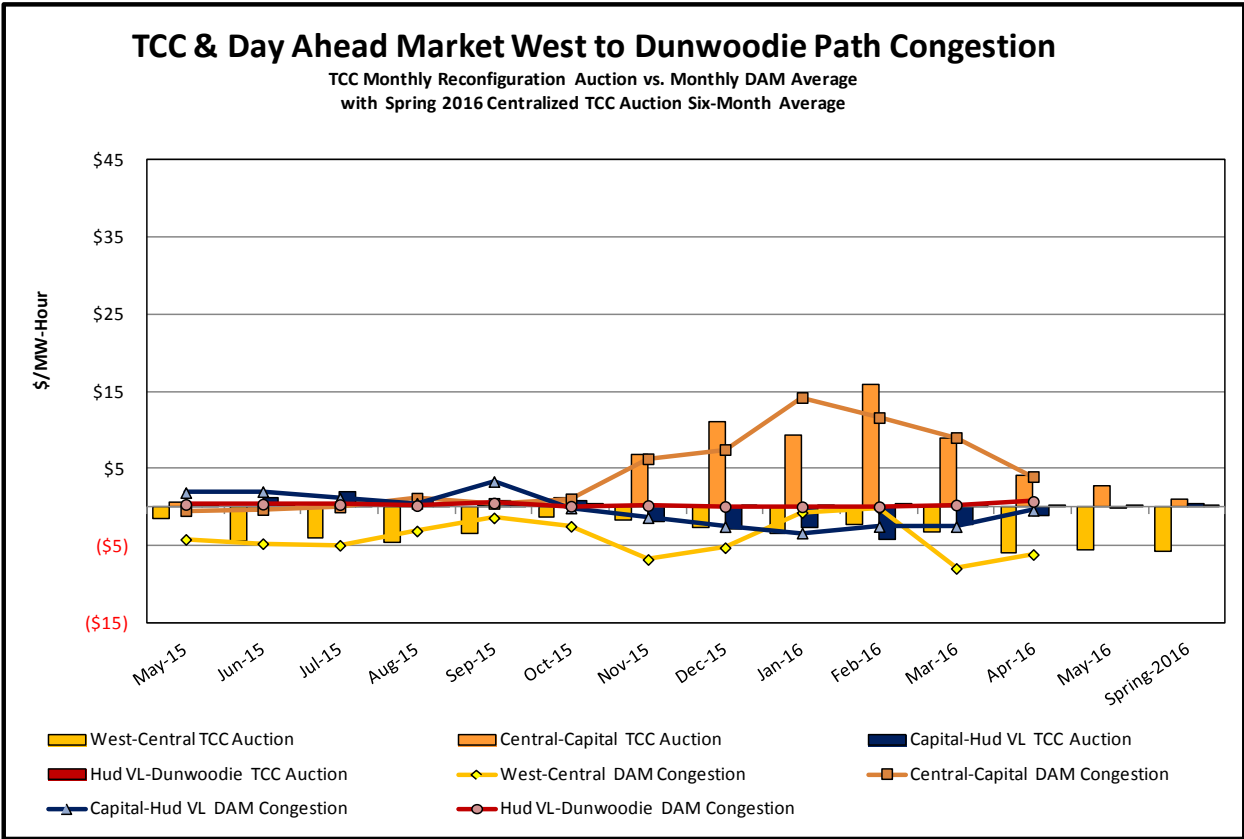
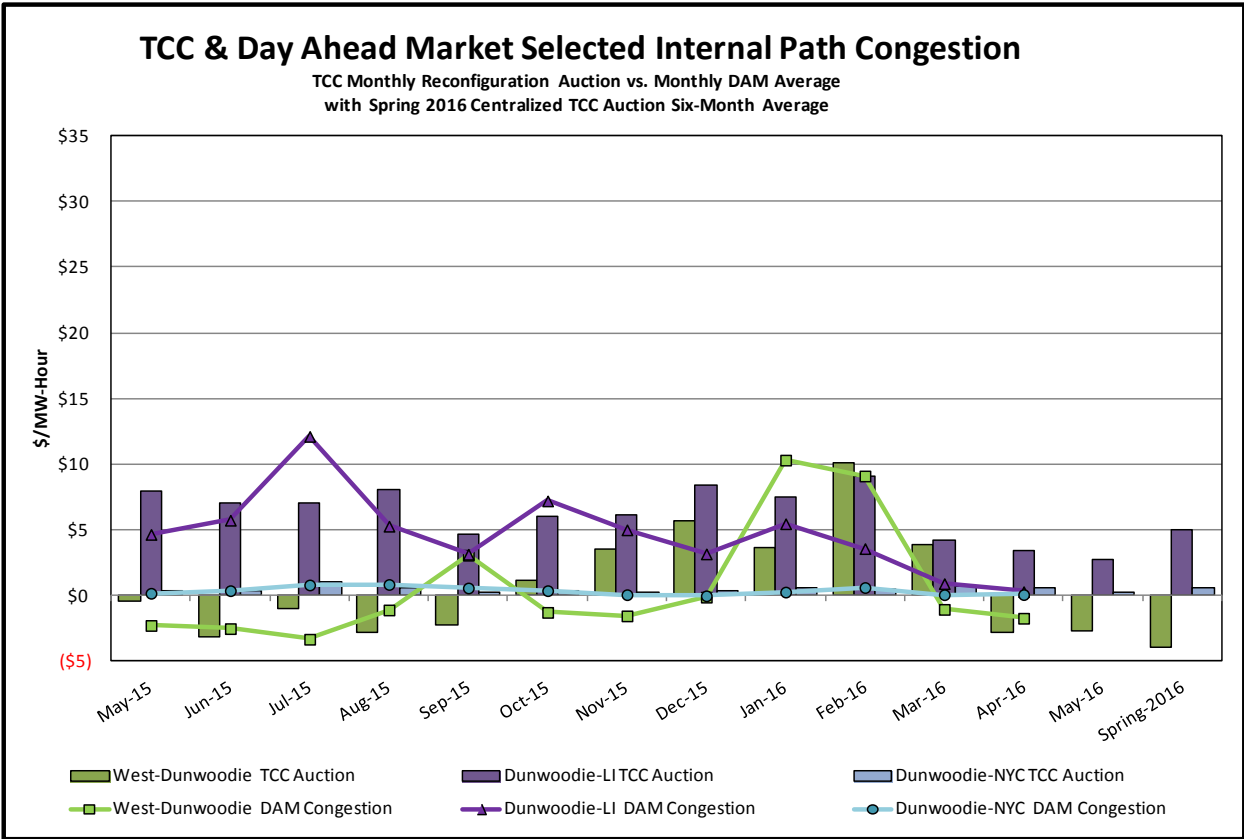
<u>Category</u>	<u>Cost Assignment</u>	<u>Events Types</u>	<u>Event Examples</u>
NYTO Outage Allocation	Responsible TO	Direct allocation to NYTO's responsible for transmission equipment status change.	DAM scheduled outage for equipment modeled in-service for the TCC Auction.
External Outage Allocation	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.	





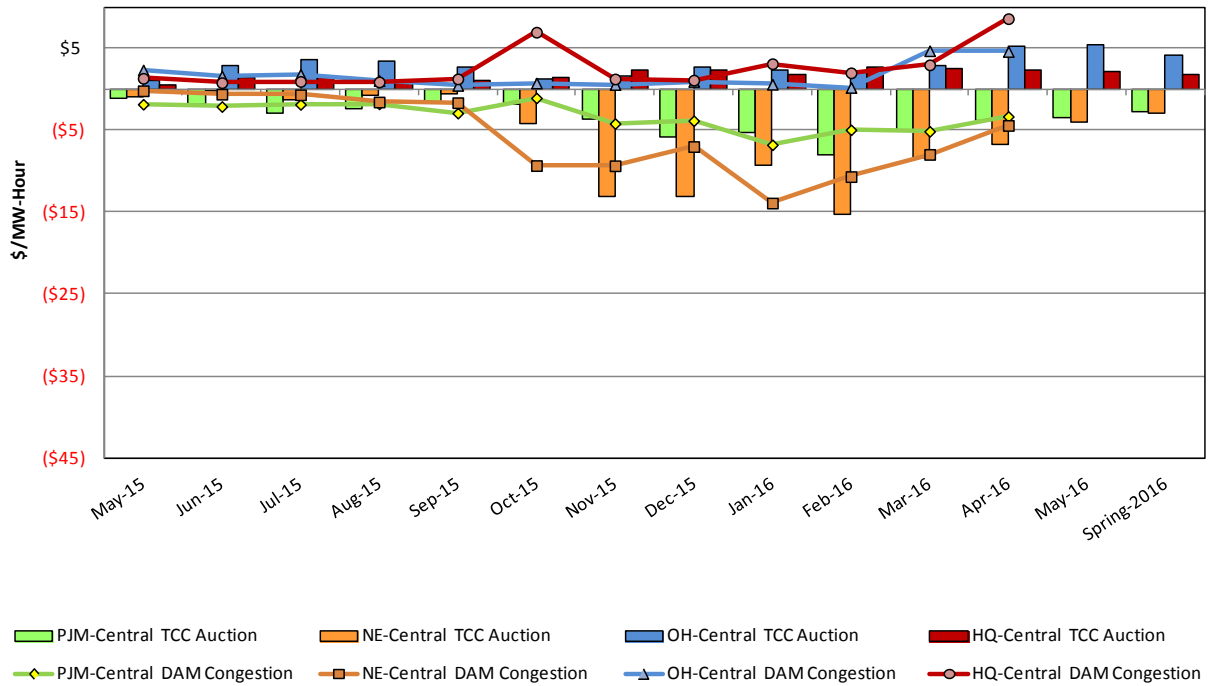


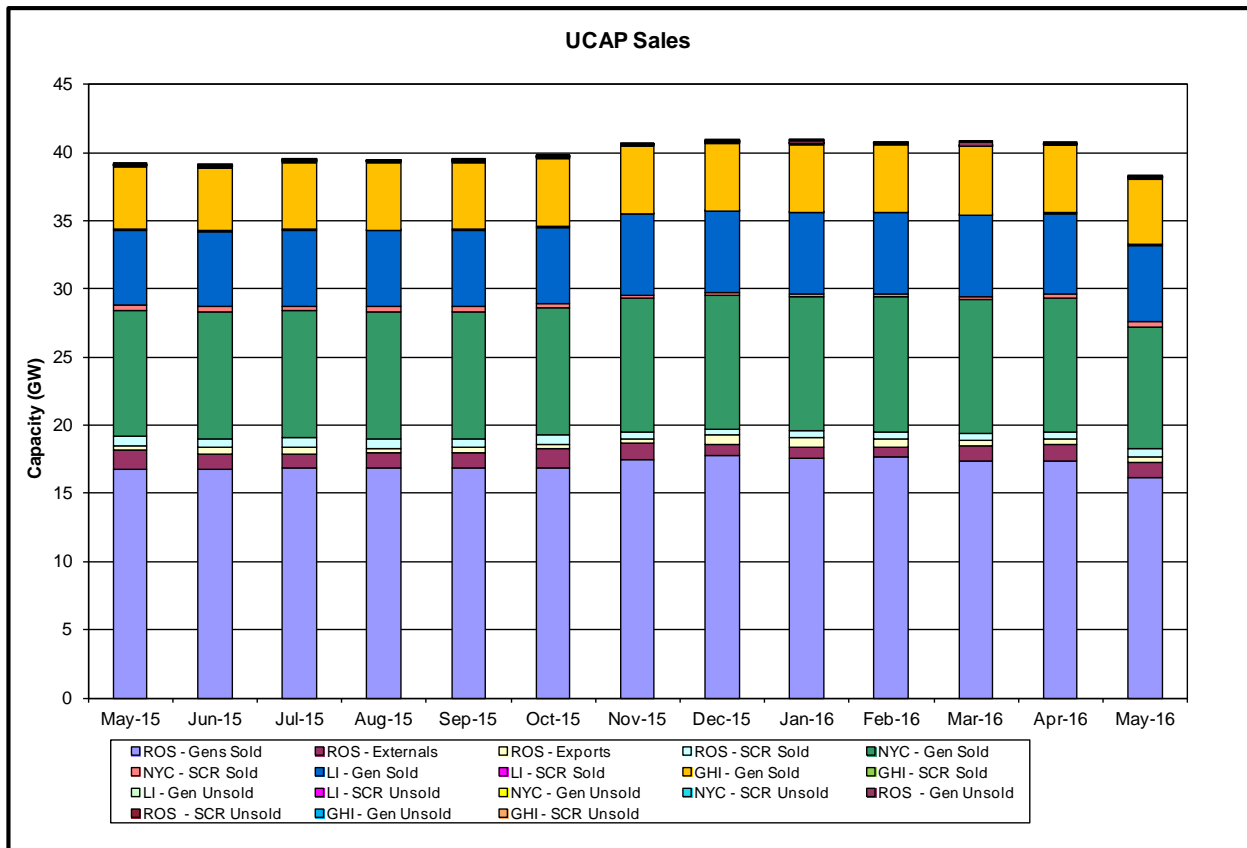
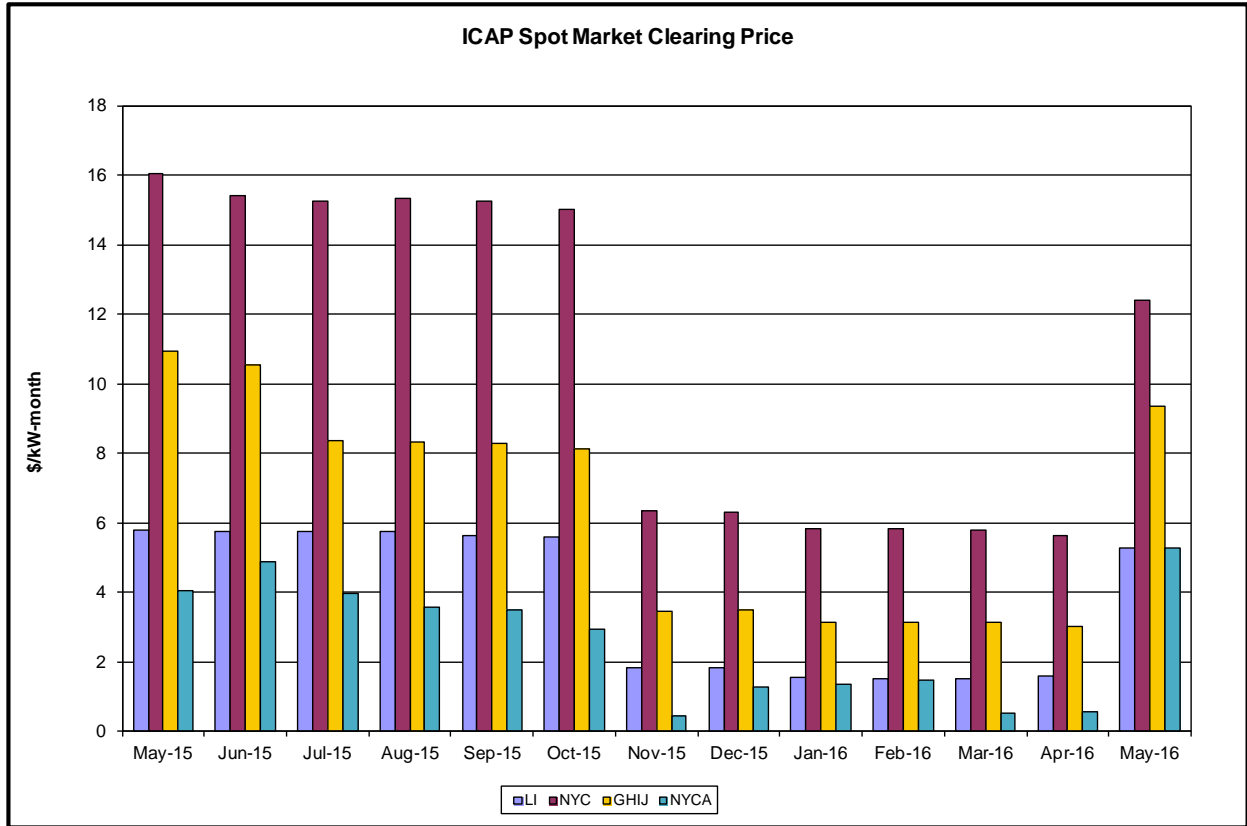




### TCC & Day Ahead Market Selected External Path Congestion

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

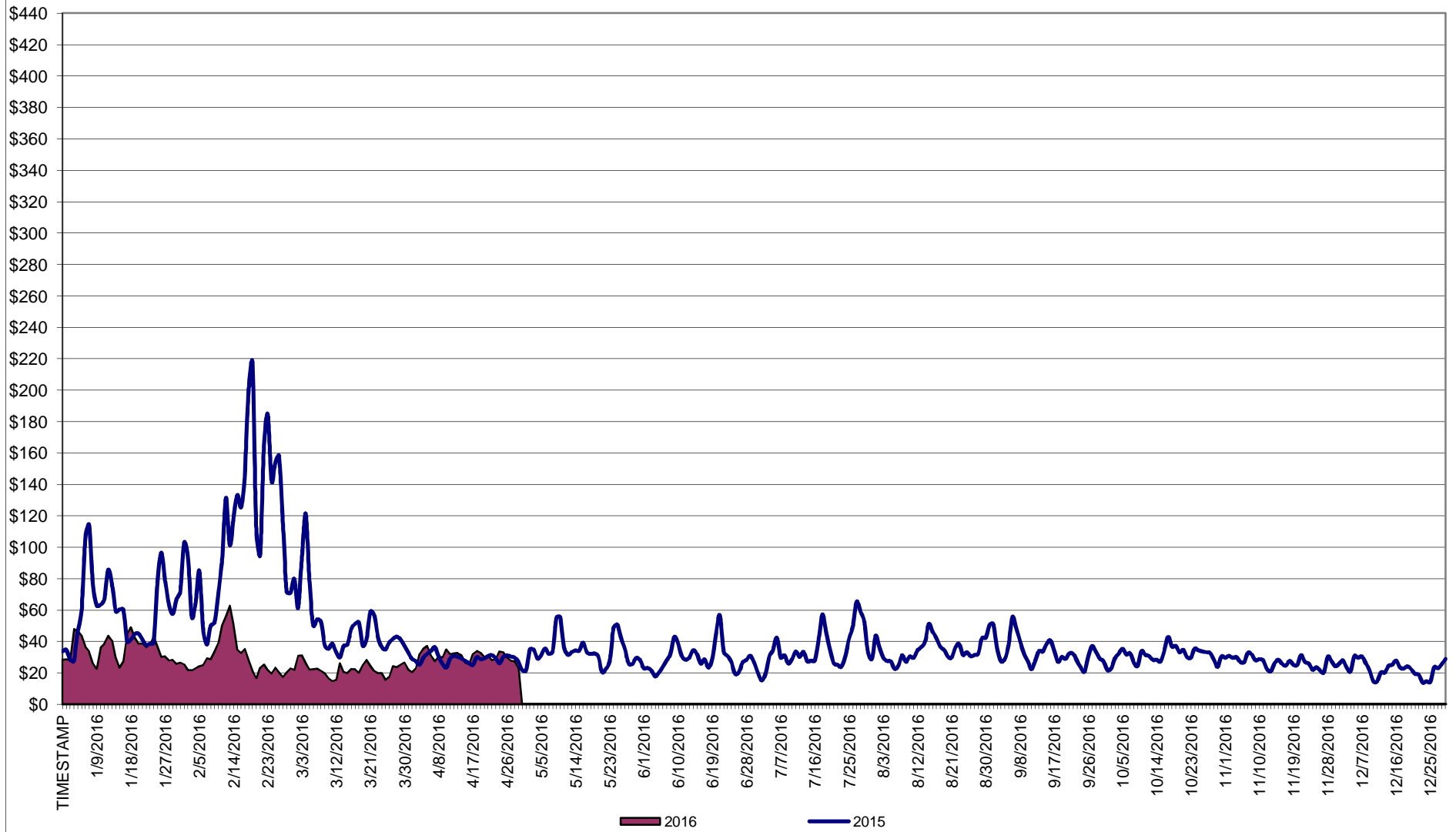




# Market Performance Highlights for April 2016

- **LBMP for April is \$27.96/MWh; higher than \$20.66/MWh in March 2016 and lower than \$28.36/MWh in April 2015.**
  - Day Ahead and Real Time Load Weighted LBMPs are higher compared to March.
- **April 2016 average year-to-date monthly cost of \$30.71/MWh is a 54% decrease from \$66.82/MWh in April 2015.**
- **Average daily sendout is 385 GWh/day in April; lower than 397 GWh/day in March 2016 and 387 GWh/day in April 2015.**
- **Natural gas and distillate prices were higher compared to the previous month.**
  - Natural Gas (Transco Z6 NY) was \$1.62/MMBtu, up from \$1.30/MMBtu in March.
    - Natural gas prices are down 26% year-over-year
  - Jet Kerosene Gulf Coast was \$8.46/MMBtu, up from \$7.96/MMBtu in March.
  - Ultra Low Sulfur No.2 Diesel NY Harbor was \$8.89/MMBtu, up from \$8.54/MMBtu in March.
    - Distillate prices are down 32% 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 (\$0.03)/MWh in March.
    - The Local Reliability Share is \$0.07/MWh, higher than \$0.06 in March.
    - The Statewide Share is (\$0.41)/MWh, lower than (\$0.09)/MWh in March.
  - TSA \$ per NYC MWh is \$0.00/MWh.
- Total uplift costs (Schedule 1 components including NYISO Cost of Operations) are lower than March.

**Daily NYISO Average Cost/MWh (Energy & Ancillary Services)\***  
 2015 Annual Average \$44.10MWh  
 April 2015 YTD Average \$66.82/MWh  
 April 2016 YTD Average \$30.71/MWh



\* Excludes ICAP payments.



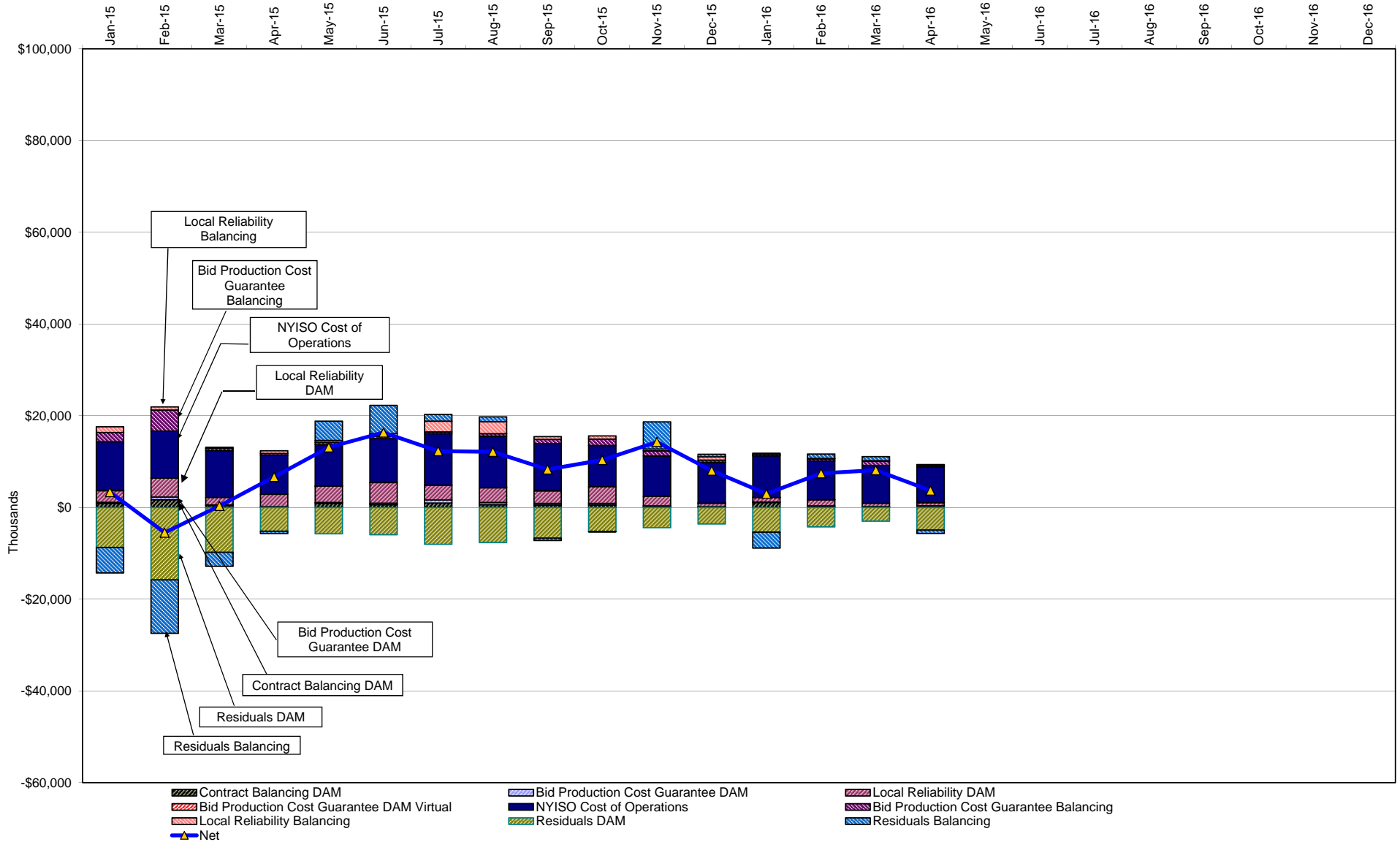
**NYISO Average Cost/MWh (Energy and Ancillary Services) \***  
**from the LBMP Customer point of view**

<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								
NTAC	0.59	0.78	0.62	1.14								
Reserve	0.77	0.73	0.73	0.87								
Regulation	0.12	0.12	0.12	0.12								
NYISO Cost of Operations	0.64	0.65	0.65	0.64								
FERC Fee Recovery	0.09	0.10	0.11	0.10								
Uplift	(0.43)	(0.07)	(0.03)	(0.34)								
Uplift: Local Reliability Share	0.09	0.11	0.06	0.07								
Uplift: Statewide Share	(0.52)	(0.18)	(0.09)	(0.41)								
Voltage Support and Black Start	0.35	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>								
Avg YTD Cost	36.42	34.02	30.68	30.71								
TSA \$ per NYC MWh	0.00	0.00	0.05	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
<b>2014</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	183.36	123.19	109.58	46.09	40.30	43.39	43.97	34.48	37.63	35.61	42.89	38.08
NTAC	0.56	0.64	0.39	1.18	0.69	0.78	0.43	0.41	0.50	0.57	0.68	0.86
Reserve	0.78	0.49	0.56	0.46	0.28	0.27	0.26	0.26	0.29	0.48	0.37	0.23
Regulation	0.27	0.21	0.22	0.13	0.12	0.12	0.12	0.13	0.11	0.12	0.11	0.08
NYISO Cost of Operations	0.69	0.69	0.69	0.69	0.69	0.69	0.69	0.69	0.69	0.69	0.69	0.69
Uplift	0.22	0.56	0.35	(0.09)	0.07	(0.21)	(0.26)	(0.19)	(0.20)	(0.24)	(0.40)	(0.20)
Uplift: Local Reliability Share	1.43	0.75	0.62	0.15	0.51	0.32	0.29	0.27	0.26	0.26	0.24	0.13
Uplift: Statewide Share	(1.21)	(0.19)	(0.27)	(0.24)	(0.44)	(0.53)	(0.55)	(0.45)	(0.46)	(0.50)	(0.64)	(0.33)
Voltage Support and Black Start	0.36	0.36	0.36	0.36	0.36	0.36	0.36	0.36	0.36	0.36	0.36	0.36
<b>Avg Monthly Cost</b>	<b>186.24</b>	<b>126.14</b>	<b>112.15</b>	<b>48.82</b>	<b>42.51</b>	<b>45.39</b>	<b>45.57</b>	<b>36.14</b>	<b>39.38</b>	<b>37.59</b>	<b>44.71</b>	<b>40.09</b>
Avg YTD Cost	186.24	157.93	142.77	121.97	108.36	97.84	89.46	82.60	78.07	74.63	72.06	69.31
TSA \$ per NYC MWh	0.00	0.00	0.00	0.00	0.00	0.03	0.35	0.00	0.42	0.00	0.00	0.00

\* Excludes ICAP payments.  
Market Mitigation and Analysis  
Prepared: 5/5/2016 8:59 AM

As of Jan. 2016, the annual FERC fee is recovered separately from Cost of Ops.  
Data reflects true-ups thru December 2015.

## NYISO Dollar Flows - Uplift- OATT Schedule 1 components - Data through April 30, 2016



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

2016	January	February	March	April	May	June	July	August	September	October	November	December
<b>Day Ahead Market MWh</b>	14,760,915	13,614,754	13,413,781	12,496,141								
DAM LSE Internal LBMP Energy Sales	54%	55%	55%	57%								
DAM External TC LBMP Energy Sales	4%	2%	1%	5%								
DAM Bilateral - Internal Bilaterals	34%	34%	35%	28%								
DAM Bilateral - Import/Non-LBMP Market Bilaterals	5%	5%	5%	6%								
DAM Bilateral - Export/Non-LBMP Market Bilaterals	2%	1%	2%	2%								
DAM Bilateral - Wheel Through Bilaterals	2%	2%	2%	2%								
<b>Balancing Energy Market MWh</b>	-522,919	-580,900	-741,701	-303,313								
Balancing Energy LSE Internal LBMP Energy Sales	-125%	-114%	-118%	-76%								
Balancing Energy External TC LBMP Energy Sales	12%	13%	19%	-13%								
Balancing Energy Bilateral - Internal Bilaterals	19%	9%	4%	8%								
Balancing Energy Bilateral - Import/Non-LBMP Market Bilaterals	0%	0%	0%	0%								
Balancing Energy Bilateral - Export/Non-LBMP Market Bilaterals	6%	5%	3%	5%								
Balancing Energy Bilateral - Wheel Through Bilaterals	-12%	-12%	-8%	-24%								
<b>Transactions Summary</b>												
LBMP	56%	56%	54%	62%								
Internal Bilaterals	36%	36%	37%	29%								
Import Bilaterals	5%	5%	6%	6%								
Export Bilaterals	2%	2%	2%	2%								
Wheels Through	1%	1%	1%	1%								
<b>Market Share of Total Load</b>												
Day Ahead Market	103.7%	104.5%	105.9%	102.5%								
Balancing Energy +	-3.7%	-4.5%	-5.9%	-2.5%								
Total MWh	14,237,996	13,033,853	12,672,080	12,192,828								
Average Daily Energy Sendout/Month GWh	439	436	397	385								

2015	January	February	March	April	May	June	July	August	September	October	November	December
<b>Day Ahead Market MWh</b>	15,961,306	14,967,371	15,059,207	12,589,321	13,291,917	14,277,299	16,573,027	16,333,932	14,740,907	13,546,033	13,338,332	13,620,002
DAM LSE Internal LBMP Energy Sales	55%	54%	53%	55%	57%	57%	62%	61%	58%	53%	53%	55%
DAM External TC LBMP Energy Sales	5%	6%	6%	4%	2%	1%	1%	1%	3%	6%	5%	1%
DAM Bilateral - Internal Bilaterals	35%	33%	33%	33%	35%	33%	30%	31%	31%	34%	33%	35%
DAM Bilateral - Import/Non-LBMP Market Bilaterals	3%	5%	5%	6%	4%	5%	4%	4%	5%	5%	5%	5%
DAM Bilateral - Export/Non-LBMP Market Bilaterals	2%	2%	1%	2%	1%	1%	1%	1%	1%	2%	2%	2%
DAM Bilateral - Wheel Through Bilaterals	0%	1%	1%	1%	0%	2%	2%	2%	2%	1%	2%	2%
<b>Balancing Energy Market MWh</b>	-650,944	-296,616	-396,739	-409,205	-331,091	-549,794	-505,637	-228,461	-33,268	-604,600	-718,787	-642,268
Balancing Energy LSE Internal LBMP Energy Sales	-149%	-247%	-192%	-147%	-142%	-106%	-120%	-139%	-345%	-115%	-110%	-115%
Balancing Energy External TC LBMP Energy Sales	30%	113%	64%	36%	35%	16%	25%	50%	110%	12%	12%	17%
Balancing Energy Bilateral - Internal Bilaterals	13%	14%	19%	5%	6%	6%	13%	25%	239%	7%	4%	5%
Balancing Energy Bilateral - Import/Non-LBMP Market Bilaterals	0%	0%	0%	0%	0%	1%	0%	0%	0%	0%	0%	0%
Balancing Energy Bilateral - Export/Non-LBMP Market Bilaterals	6%	8%	12%	12%	10%	4%	3%	8%	46%	5%	5%	6%
Balancing Energy Bilateral - Wheel Through Bilaterals	0%	12%	-4%	-5%	-9%	-22%	-21%	-44%	-149%	-9%	-11%	-13%
<b>Transactions Summary</b>												
LBMP	58%	59%	57%	57%	58%	57%	61%	61%	61%	56%	56%	54%
Internal Bilaterals	37%	34%	35%	35%	36%	35%	32%	32%	32%	36%	35%	37%
Import Bilaterals	3%	5%	5%	6%	4%	5%	5%	5%	5%	5%	6%	6%
Export Bilaterals	2%	2%	2%	2%	2%	1%	1%	1%	1%	2%	2%	2%
Wheels Through	0%	1%	1%	0%	0%	1%	1%	1%	1%	0%	1%	1%
<b>Market Share of Total Load</b>												
Day Ahead Market	104.3%	102.0%	102.7%	103.4%	102.6%	104.0%	103.1%	101.4%	100.2%	104.7%	105.7%	104.9%
Balancing Energy +	-4.3%	-2.0%	-2.7%	-3.4%	-2.6%	-4.0%	-3.1%	-1.4%	-0.2%	-4.7%	-5.7%	-4.9%
Total MWh	15,310,362	14,670,755	14,662,468	12,180,116	12,960,826	13,727,505	16,067,390	16,105,471	14,707,639	12,941,433	12,619,545	12,977,734
Average Daily Energy Sendout/Month GWh	462	481	436	387	409	450	512	511	473	389	396	408

+ 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 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								
Standard Deviation	\$10.86	\$12.46	\$6.99	\$6.95								
Load Weighted Price **	\$32.13	\$26.75	\$19.37	\$27.14								
<b><u>RTC LBMP</u></b>												
Price *	\$26.12	\$24.10	\$16.41	\$23.41								
Standard Deviation	\$16.06	\$17.89	\$11.32	\$9.09								
Load Weighted Price **	\$27.16	\$25.29	\$17.11	\$24.10								
<b><u>REAL TIME LBMP</u></b>												
Price *	\$30.15	\$24.28	\$17.84	\$25.71								
Standard Deviation	\$60.09	\$18.19	\$15.06	\$16.59								
Load Weighted Price **	\$31.80	\$25.61	\$18.64	\$26.57								
Average Daily Energy Sendout/Month GWh	439	436	397	385								

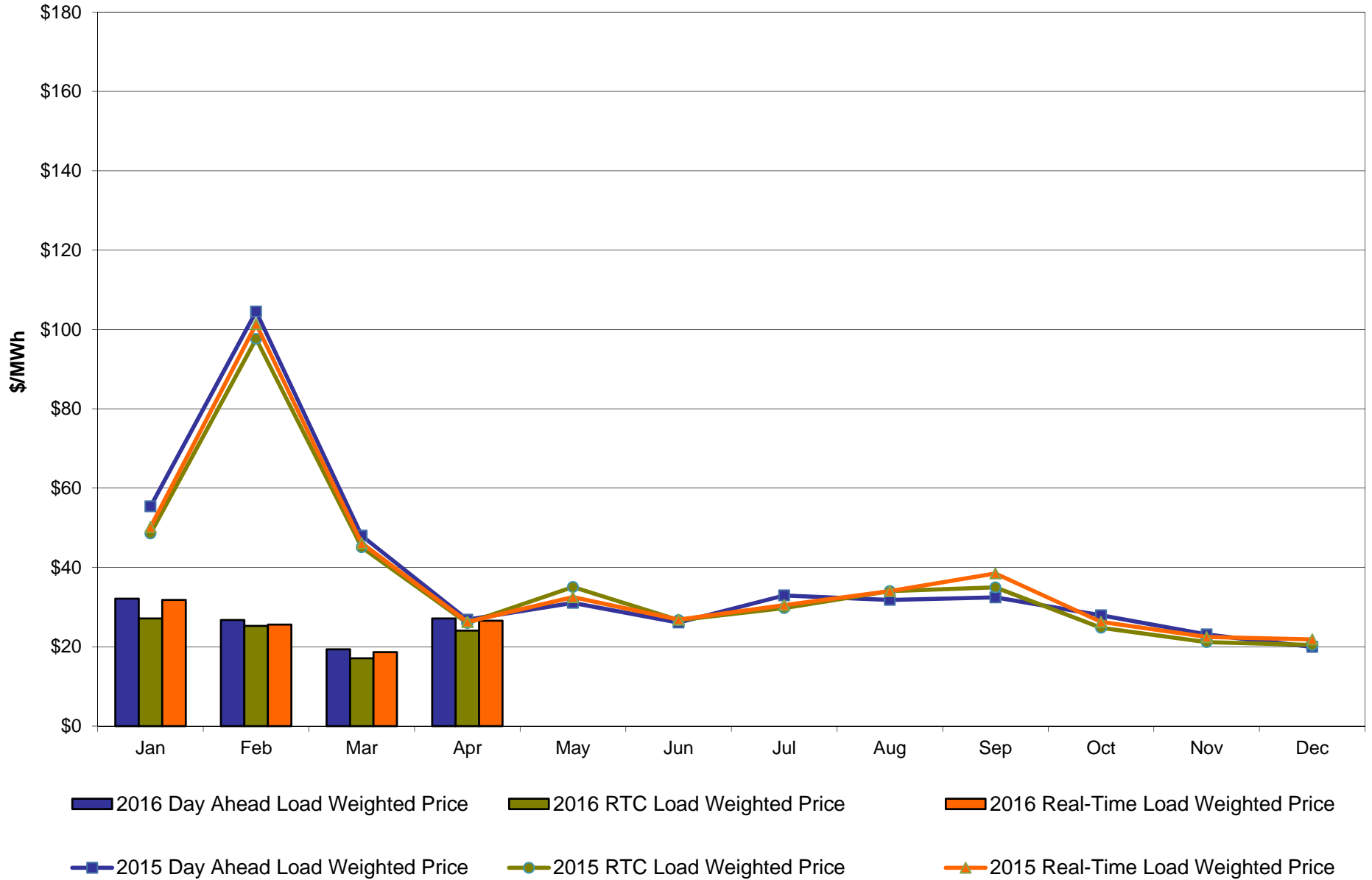
### NYISO Markets 2015 Energy Statistics

	<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 *	\$53.35	\$101.48	\$46.59	\$26.07	\$29.21	\$24.30	\$30.27	\$30.01	\$30.18	\$27.11	\$22.18	\$18.94
Standard Deviation	\$24.61	\$48.85	\$21.51	\$6.73	\$13.44	\$11.96	\$17.67	\$12.05	\$13.37	\$7.64	\$7.94	\$8.41
Load Weighted Price **	\$55.40	\$104.52	\$48.01	\$26.84	\$31.08	\$26.12	\$32.94	\$31.81	\$32.46	\$27.95	\$23.12	\$19.97
<b><u>RTC LBMP</u></b>												
Price *	\$46.98	\$95.06	\$43.43	\$25.11	\$32.85	\$24.73	\$27.51	\$31.83	\$32.39	\$23.97	\$20.07	\$19.34
Standard Deviation	\$22.84	\$47.55	\$29.42	\$12.31	\$35.40	\$24.71	\$21.84	\$23.25	\$22.99	\$10.56	\$15.66	\$14.23
Load Weighted Price **	\$48.59	\$97.62	\$45.10	\$26.00	\$35.08	\$26.73	\$29.76	\$34.04	\$34.99	\$24.79	\$21.17	\$20.46
<b><u>REAL TIME LBMP</u></b>												
Price *	\$48.51	\$98.83	\$44.38	\$25.46	\$30.39	\$23.96	\$27.71	\$31.54	\$34.82	\$25.50	\$21.33	\$20.75
Standard Deviation	\$25.99	\$52.53	\$29.07	\$12.66	\$31.69	\$31.14	\$23.42	\$26.51	\$34.85	\$12.56	\$18.76	\$19.00
Load Weighted Price **	\$50.18	\$101.34	\$46.10	\$26.28	\$32.52	\$26.86	\$30.50	\$34.05	\$38.48	\$26.29	\$22.47	\$21.86
Average Daily Energy Sendout/Month GWh	462	481	436	387	409	450	512	511	473	389	396	408

\* Average zonal load weighted prices.

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

## NYISO Monthly Average Internal LBMPs 2015- 2016

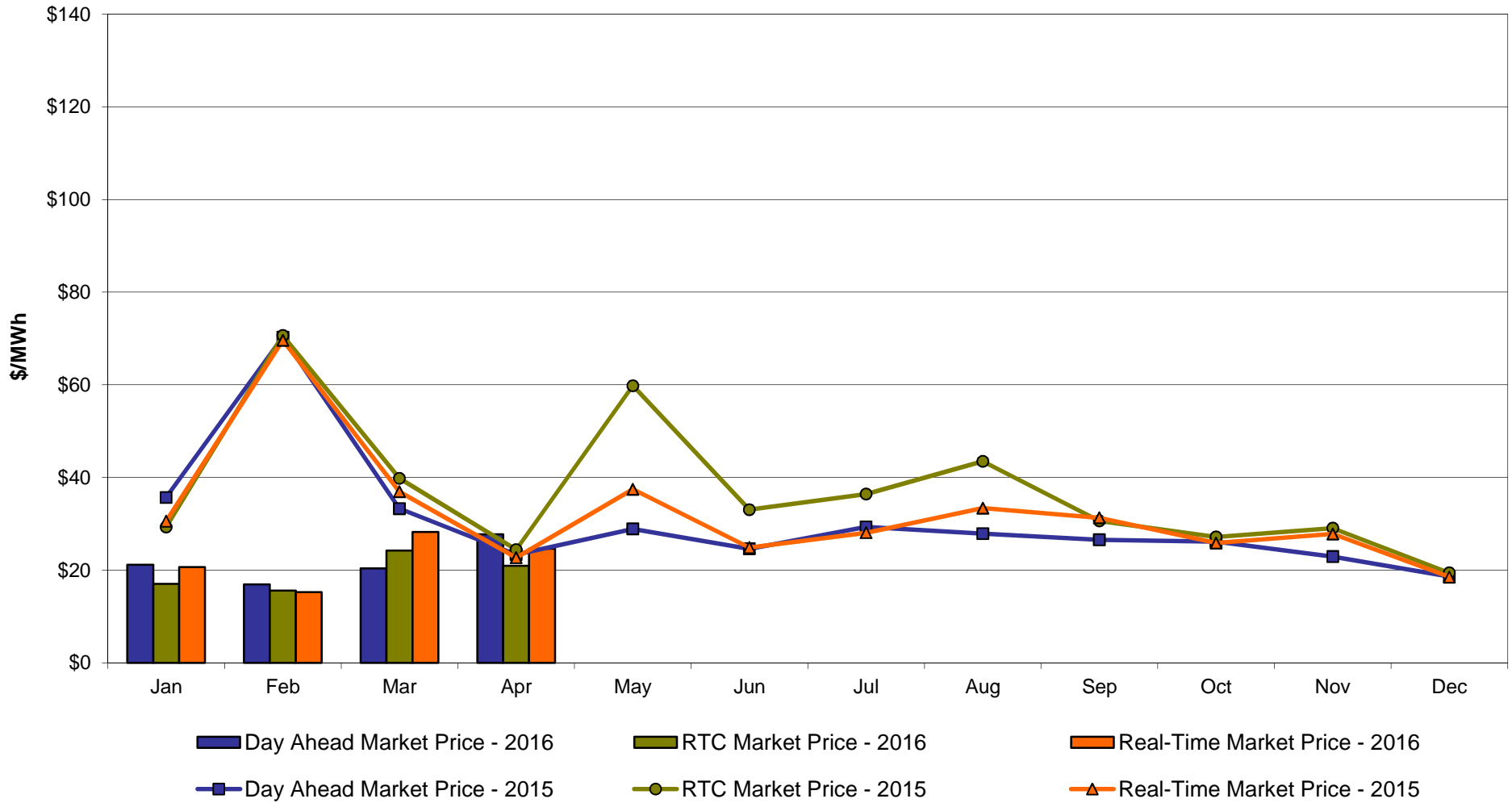


**April 2016 Zonal LBMP Statistics for NYISO (\$/MWh)**

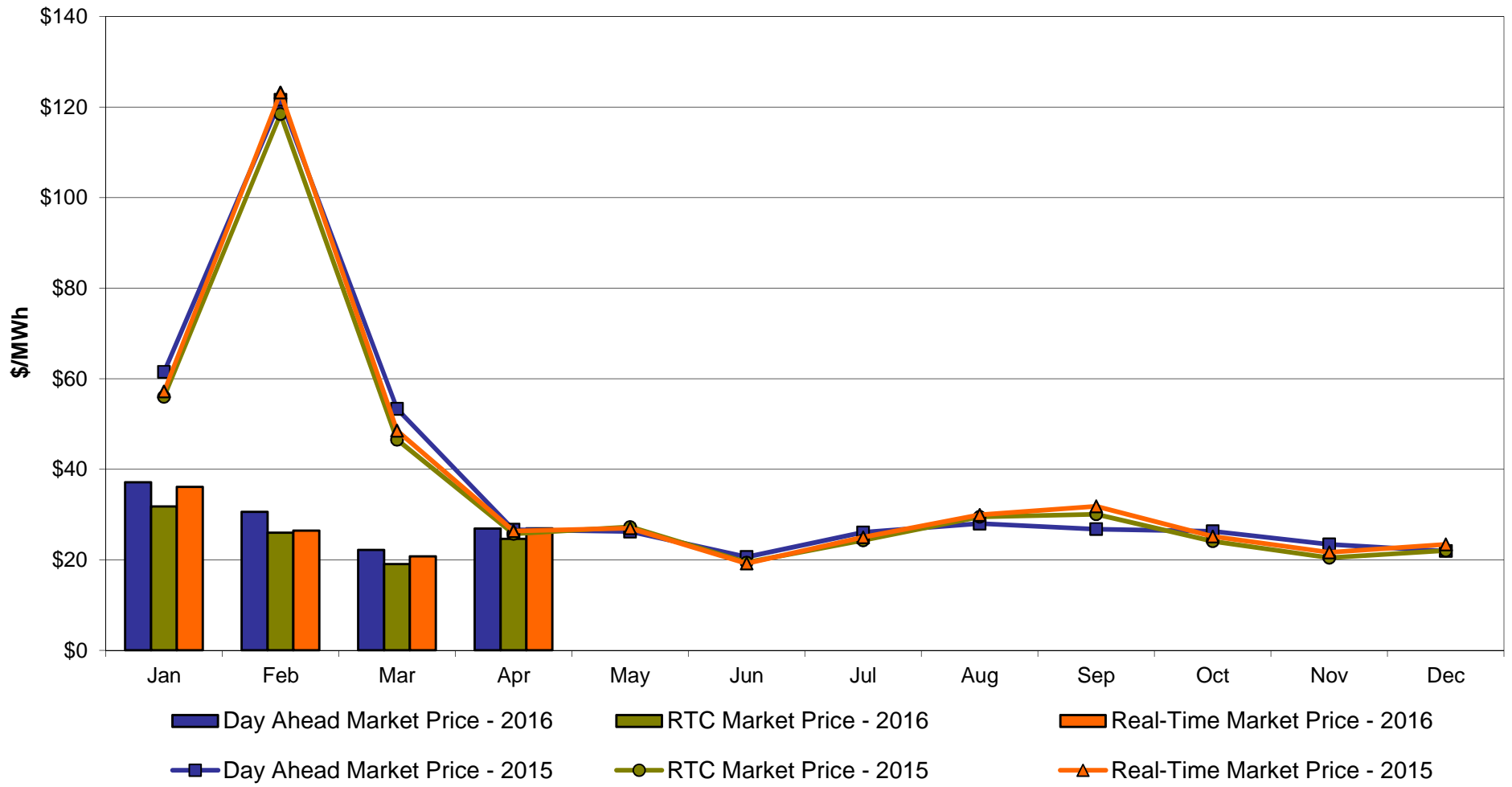
	<u>WEST</u> <u>Zone A</u>	<u>GENESEE</u> <u>Zone B</u>	<u>NORTH</u> <u>Zone D</u>	<u>CENTRAL</u> <u>Zone C</u>	<u>MOHAWK</u> <u>VALLEY</u> <u>Zone E</u>	<u>CAPITAL</u> <u>Zone F</u>	<u>HUDSON</u> <u>VALLEY</u> <u>Zone G</u>	<u>MILLWOOD</u> <u>Zone H</u>	<u>DUNWOODIE</u> <u>Zone I</u>	<u>NEW YORK</u> <u>CITY</u> <u>Zone J</u>	<u>LONG</u> <u>ISLAND</u> <u>Zone K</u>
<b><u>DAY AHEAD LBMP</u></b>											
Unweighted Price *	27.73	20.38	13.34	22.01	21.33	26.87	27.35	27.72	28.40	28.62	29.18
Standard Deviation	13.47	6.84	5.60	7.56	6.95	5.86	6.18	6.29	6.96	7.05	7.44
<b><u>RTC LBMP</u></b>											
Unweighted Price *	20.93	19.46	8.81	20.44	20.25	24.62	24.74	24.92	25.01	25.73	26.01
Standard Deviation	15.44	8.78	88.28	9.30	10.88	9.13	9.03	9.08	9.11	9.90	10.55
<b><u>REAL TIME LBMP</u></b>											
Unweighted Price *	24.62	21.10	6.04	22.39	21.58	26.95	27.07	27.28	27.37	28.50	28.20
Standard Deviation	29.84	14.62	95.99	16.08	16.83	17.79	16.82	16.96	16.95	18.76	17.77
	<u>ONTARIO</u> <u>IESO</u> <u>Zone O</u>	<u>HYDRO</u> <u>QUEBEC</u> <u>(Wheel)</u> <u>Zone M</u>	<u>HYDRO</u> <u>QUEBEC</u> <u>(Import/Export)</u> <u>Zone M</u>	<u>PJM</u> <u>Zone P</u>	<u>NEW</u> <u>ENGLAND</u> <u>Zone N</u>	<u>CROSS</u> <u>SOUND</u> <u>CABLE</u> <u>Controllable</u> <u>Line</u>	<u>NORTHPORT-</u> <u>NORWALK</u> <u>Controllable</u> <u>Line</u>	<u>NEPTUNE</u> <u>Controllable</u> <u>Line</u>	<u>LINDEN VFT</u> <u>Controllable</u> <u>Line</u>	<u>HUDSON</u> <u>Controllable</u> <u>Line</u>	<u>Dennison</u> <u>Controllable</u> <u>Line</u>
<b><u>DAY AHEAD LBMP</u></b>											
Unweighted Price *	16.53	12.13	12.13	26.36	27.72	29.29	27.99	28.44	26.80	28.59	13.19
Standard Deviation	6.30	5.52	5.52	7.03	6.29	7.62	6.56	7.06	8.21	7.09	5.45
<b><u>RTC LBMP</u></b>											
Unweighted Price *	18.47	7.22	7.22	22.96	26.69	25.44	25.01	24.72	24.04	25.11	8.71
Standard Deviation	8.43	96.28	96.28	8.53	13.07	9.53	9.25	9.05	8.59	9.13	85.99
<b><u>REAL TIME LBMP</u></b>											
Unweighted Price *	19.50	3.74	3.74	25.21	28.08	27.68	27.52	27.04	27.22	27.48	5.85
Standard Deviation	14.07	104.91	104.91	16.06	18.45	16.81	16.73	16.65	16.93	16.98	93.52

\* Straight LBMP averages

**West Zone A  
Monthly Average LBMP Prices 2015 - 2016**

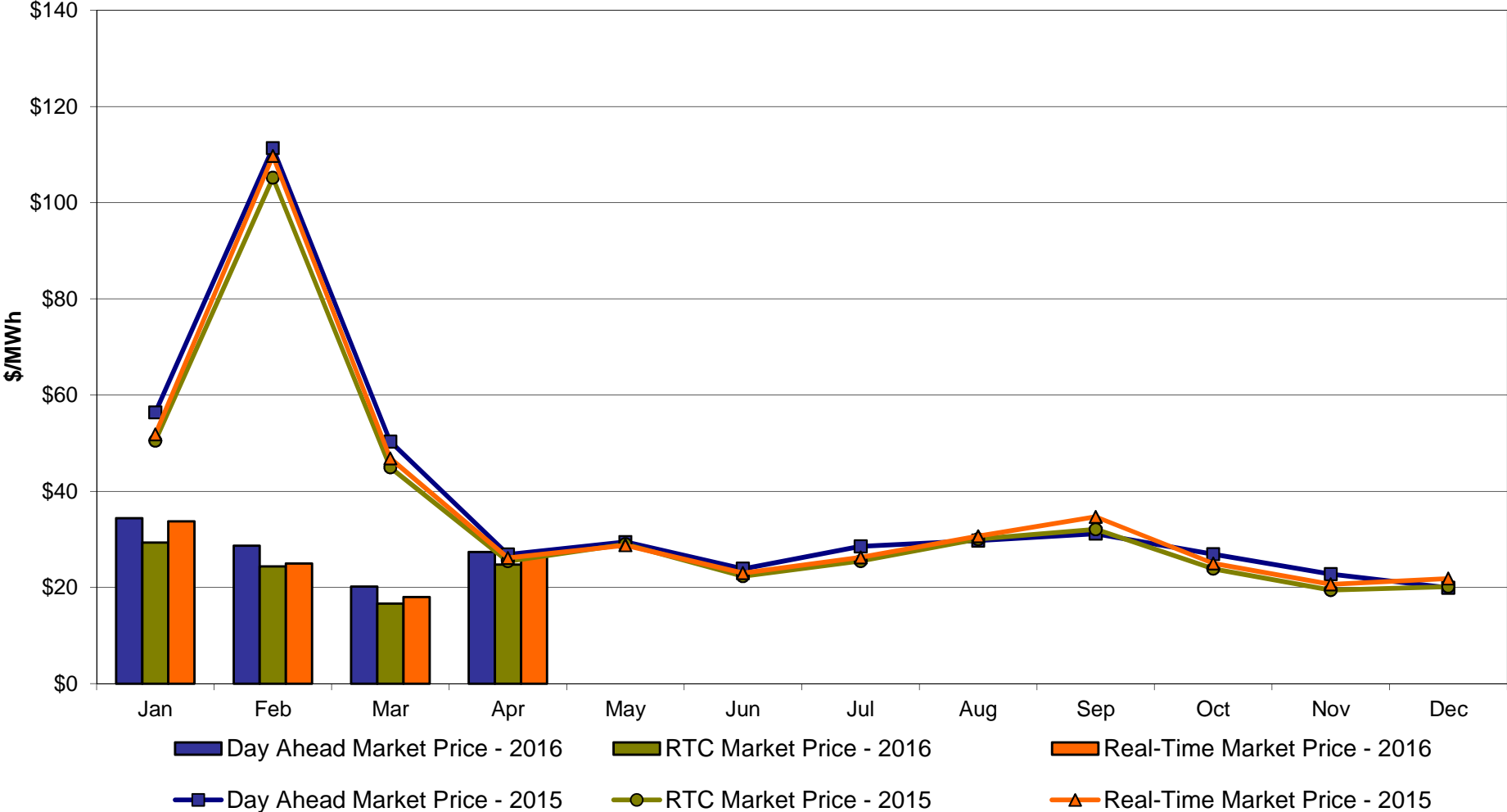


## Capital Zone F Monthly Average LBMP Prices 2015 - 2016

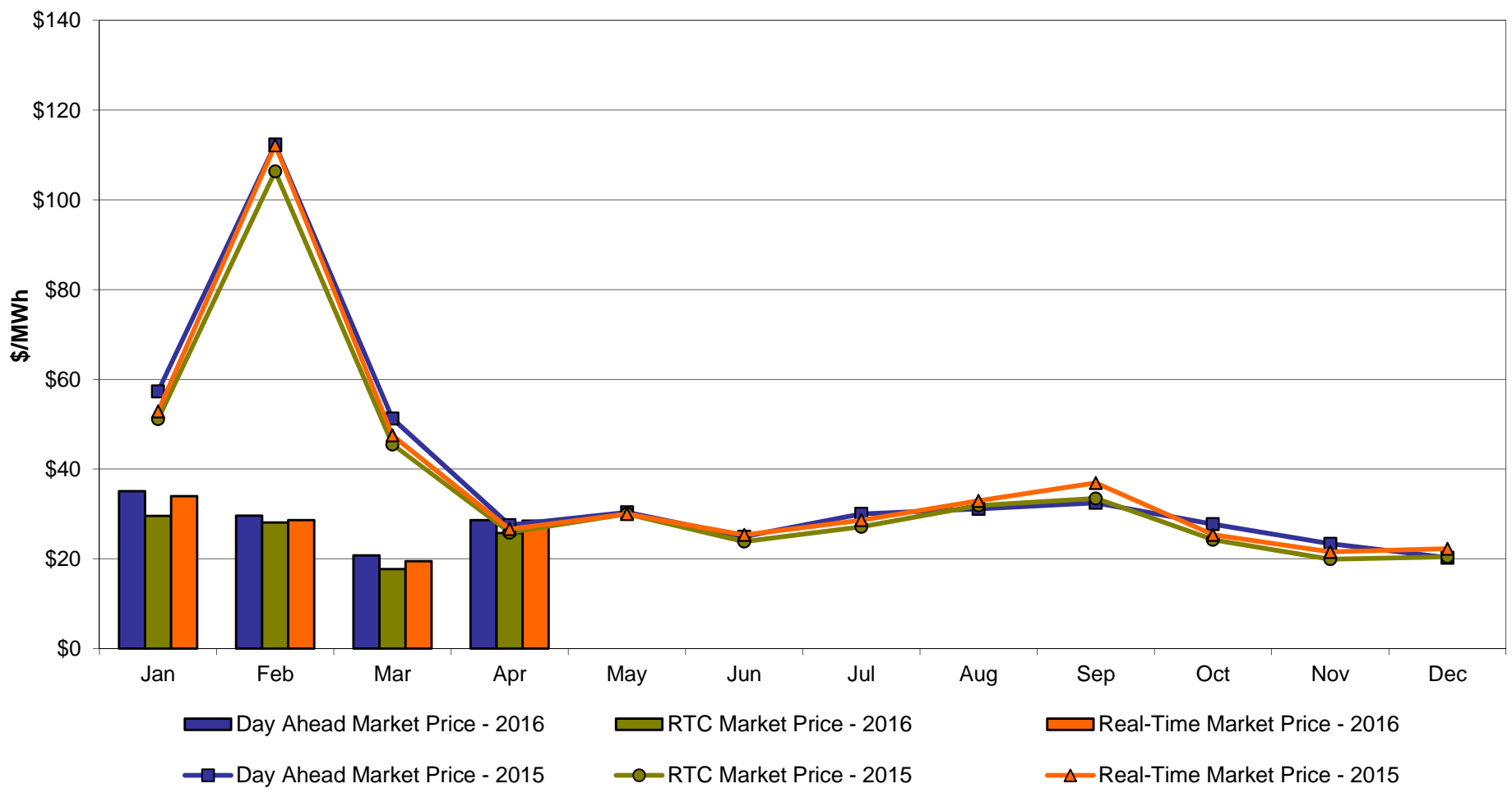




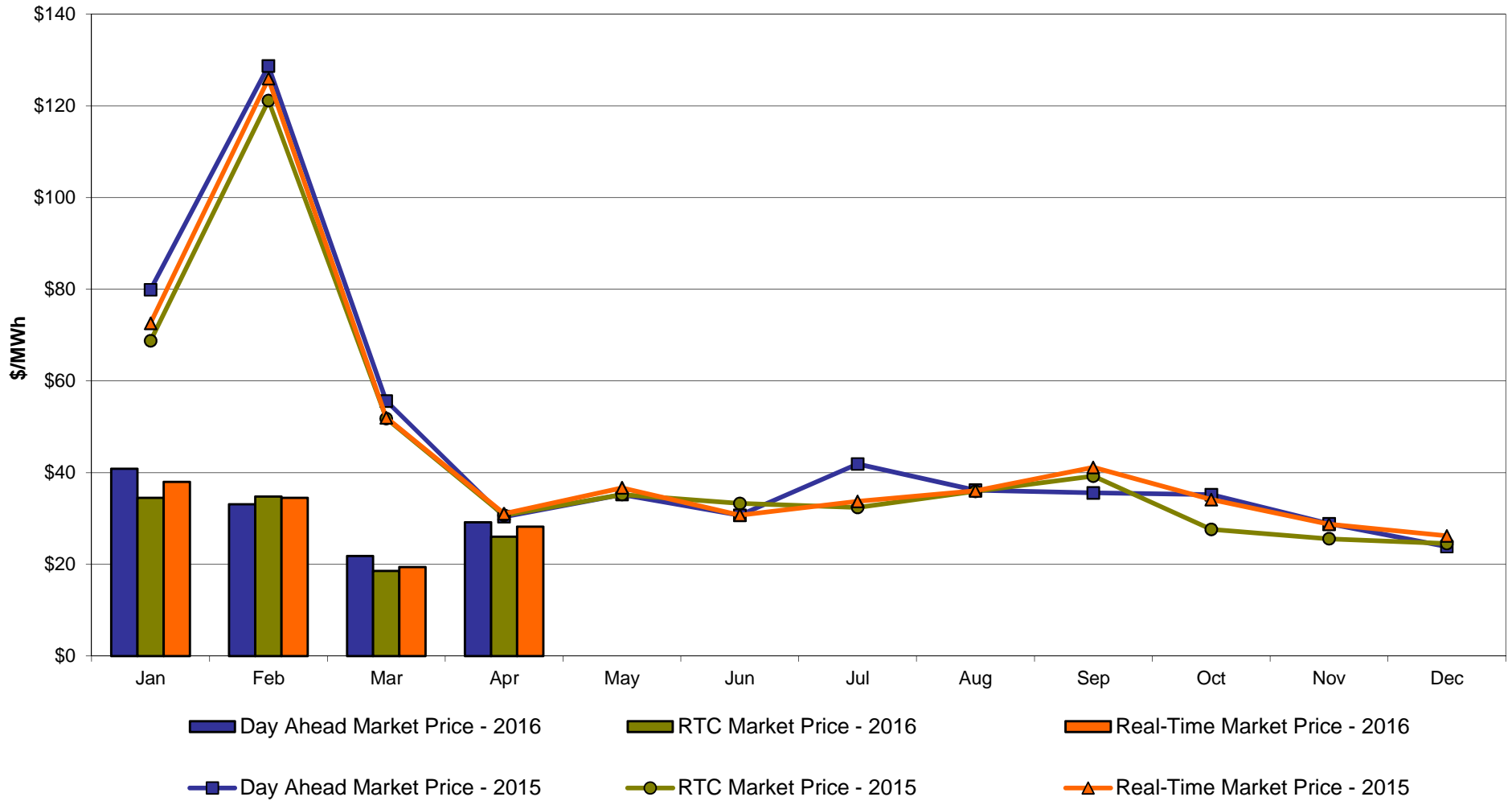
### Hudson Valley Zone G Monthly Average LBMP Prices 2015 - 2016



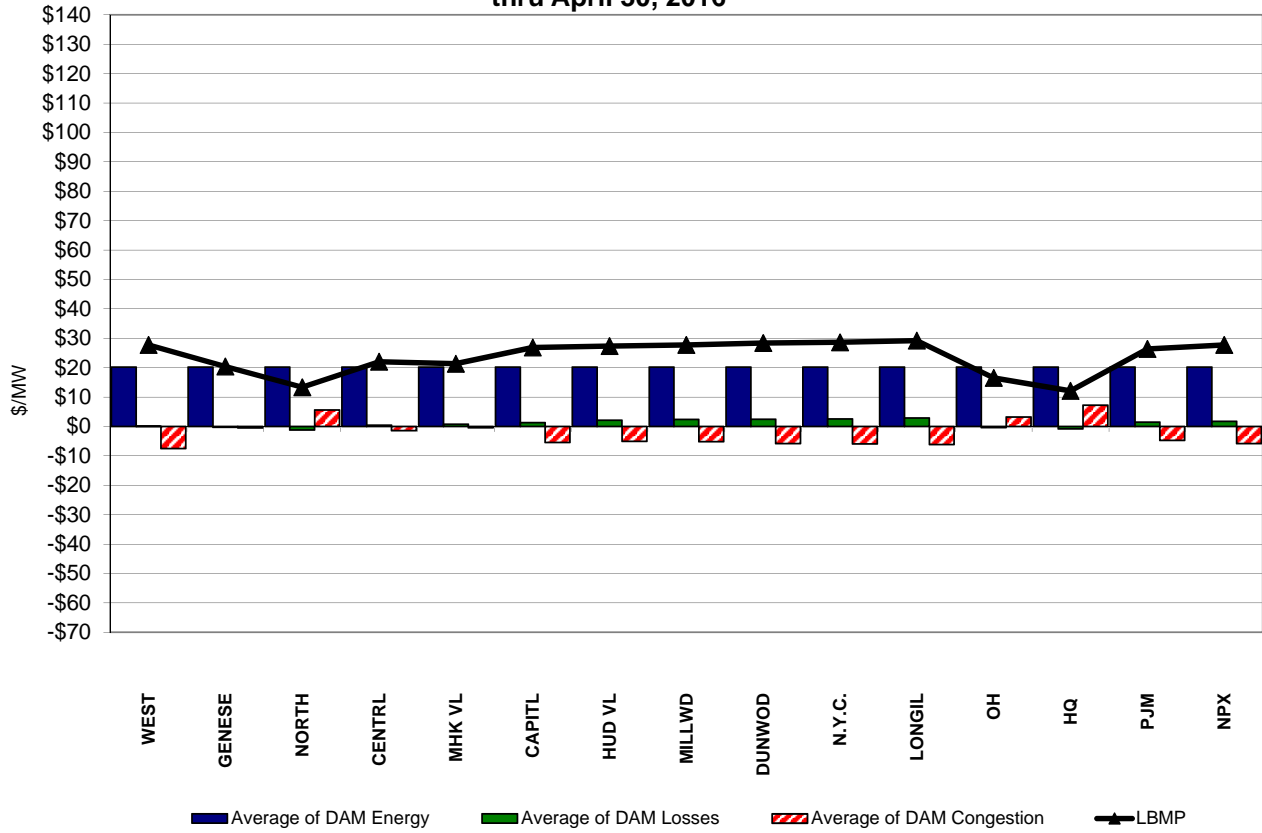
## NYC Zone J Monthly Average LBMP Prices 2015 - 2016



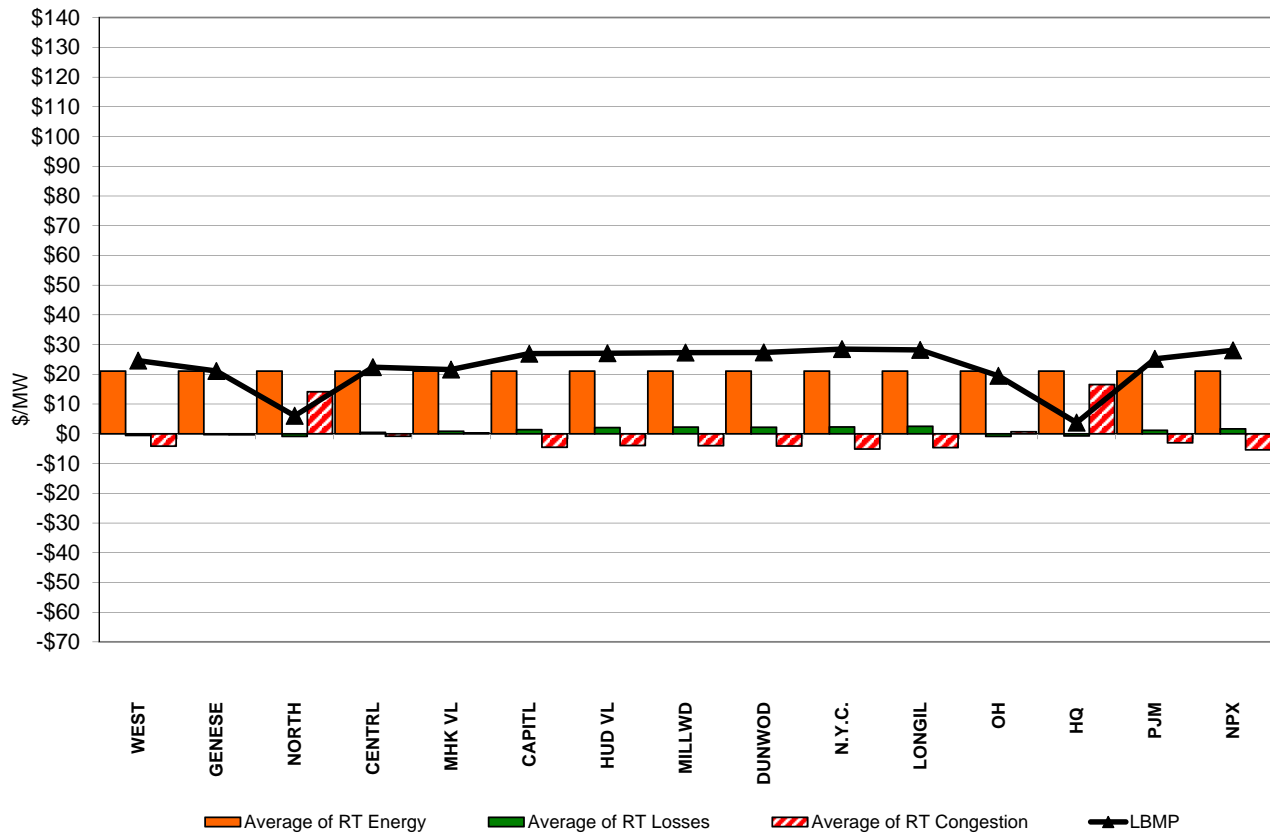
## Long Island Zone K Monthly Average LBMP Prices 2015 - 2016



### DAM Zonal Unweighted Monthly Average LBMP Components thru April 30, 2016

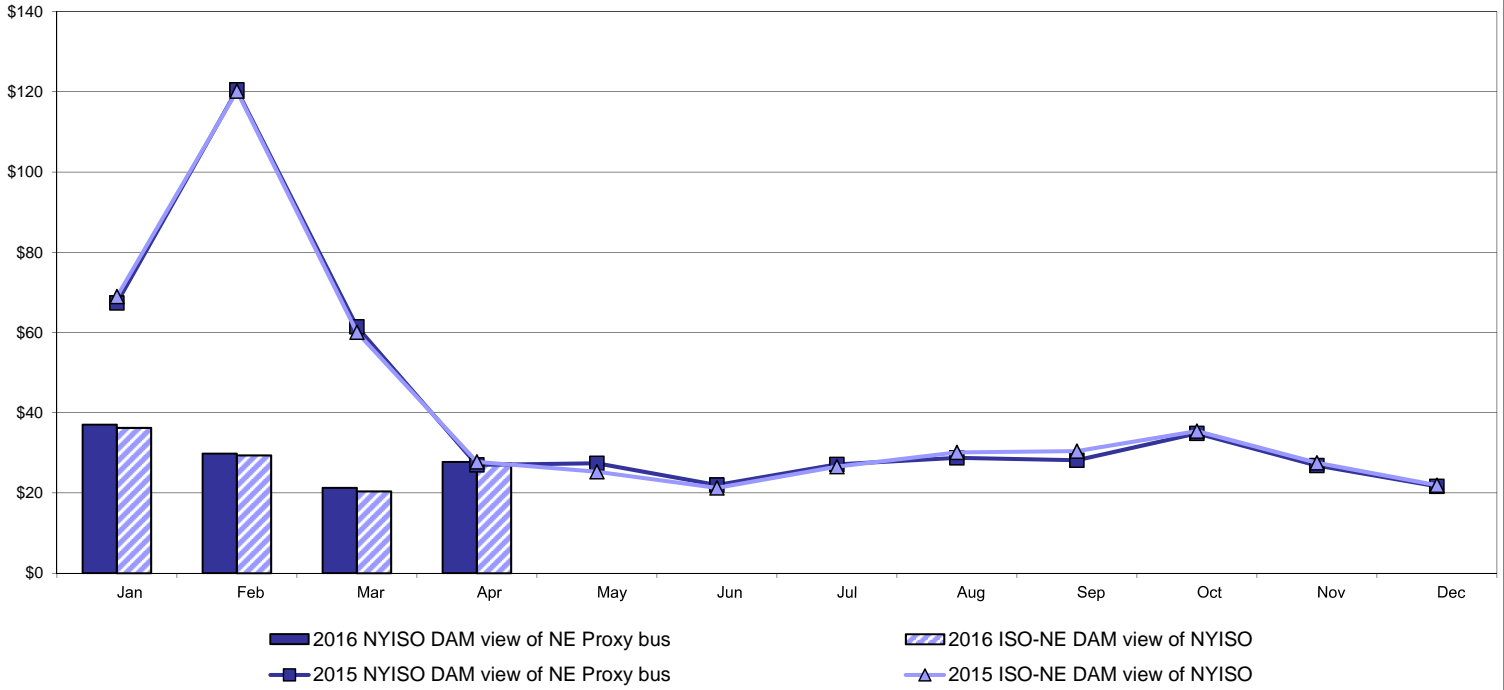


### RT Zonal Unweighted Monthly Average LBMP Components thru April 30, 2016

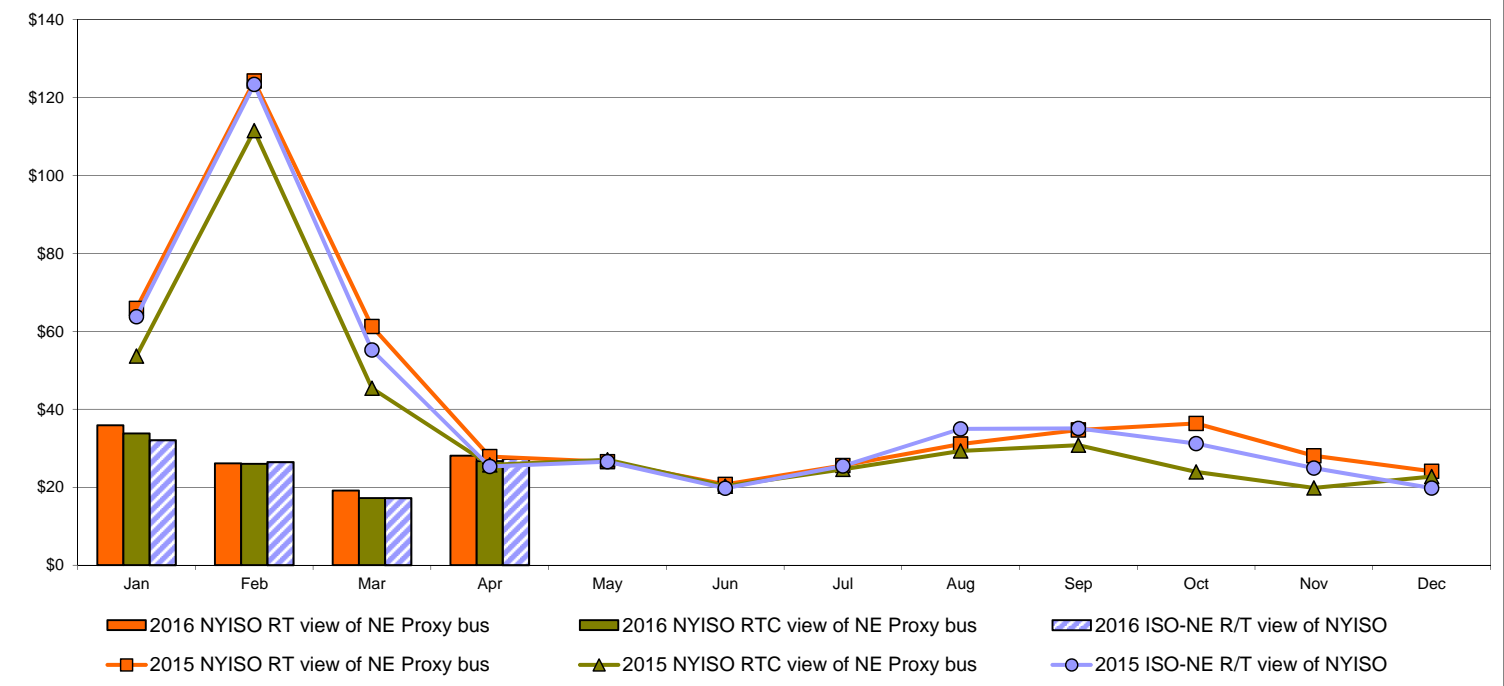


# External Comparison ISO-New England

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

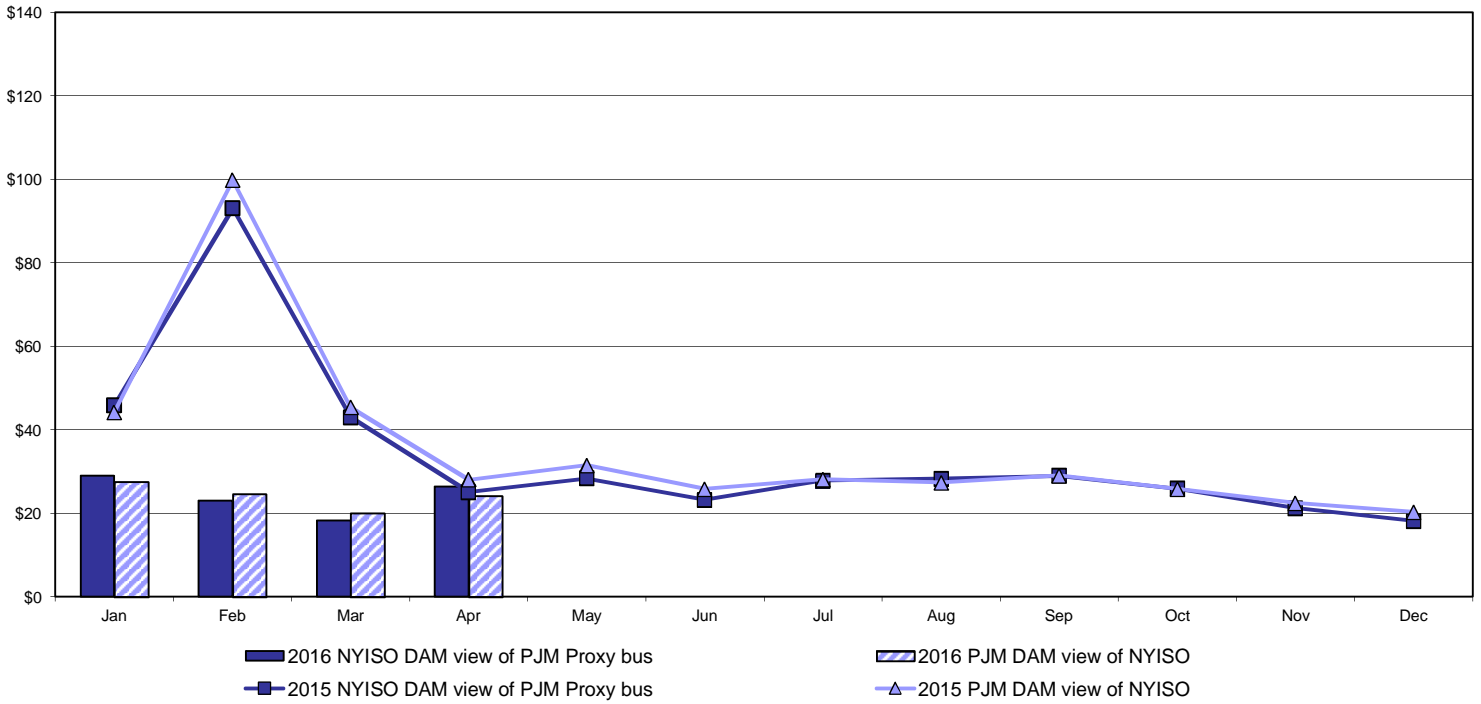


### Real Time Market External Zone Comparison: ISO-NE (\$/MWh)

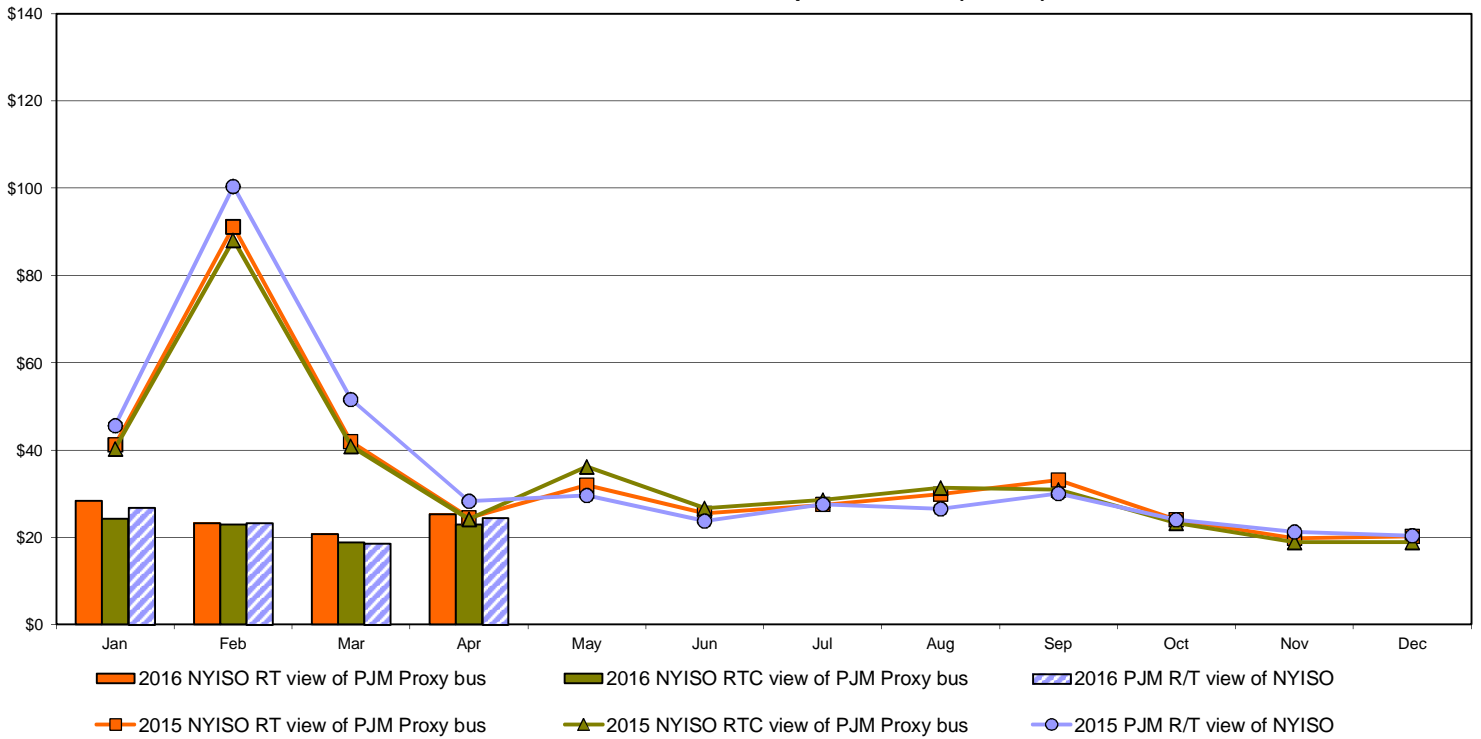


# External Comparison PJM

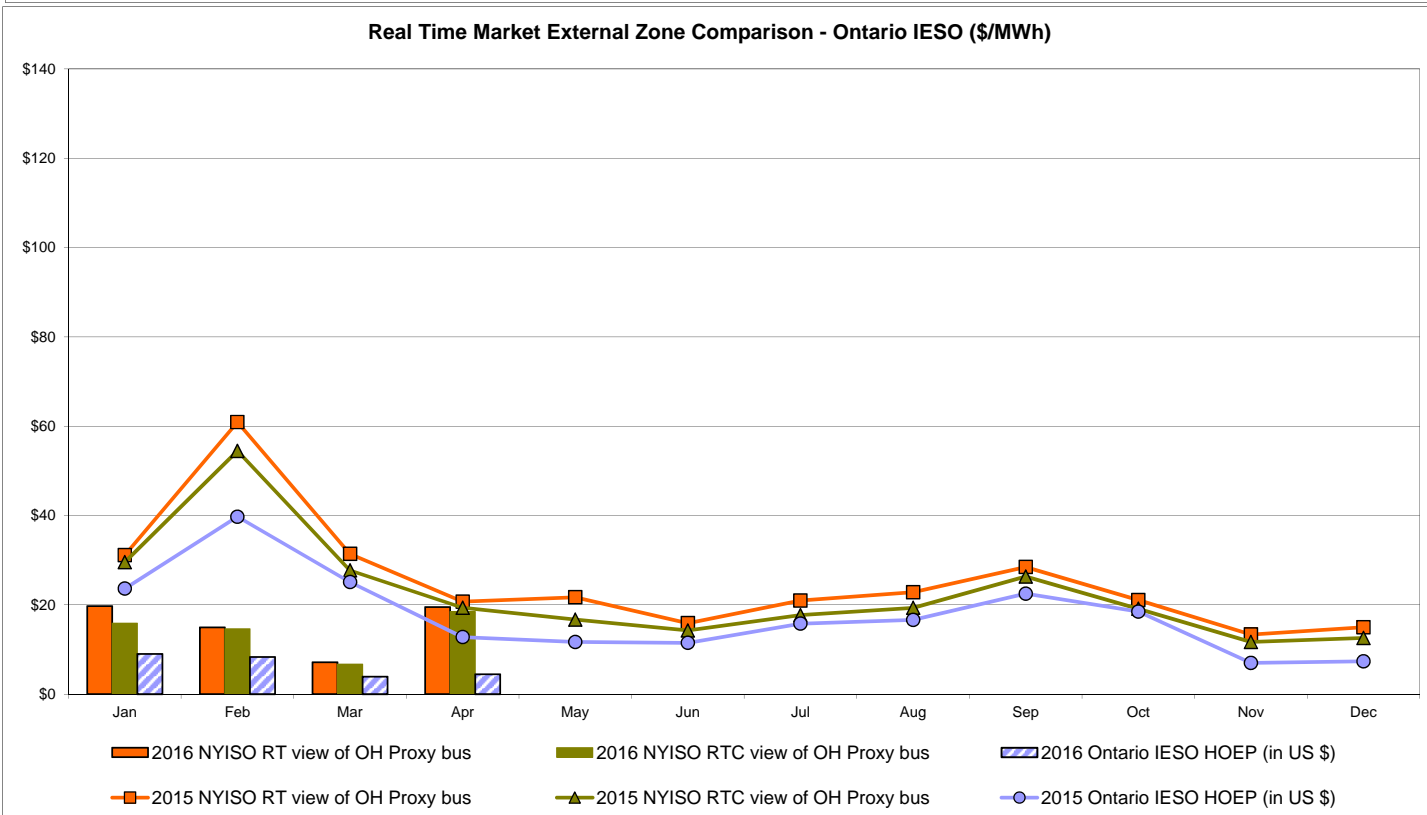
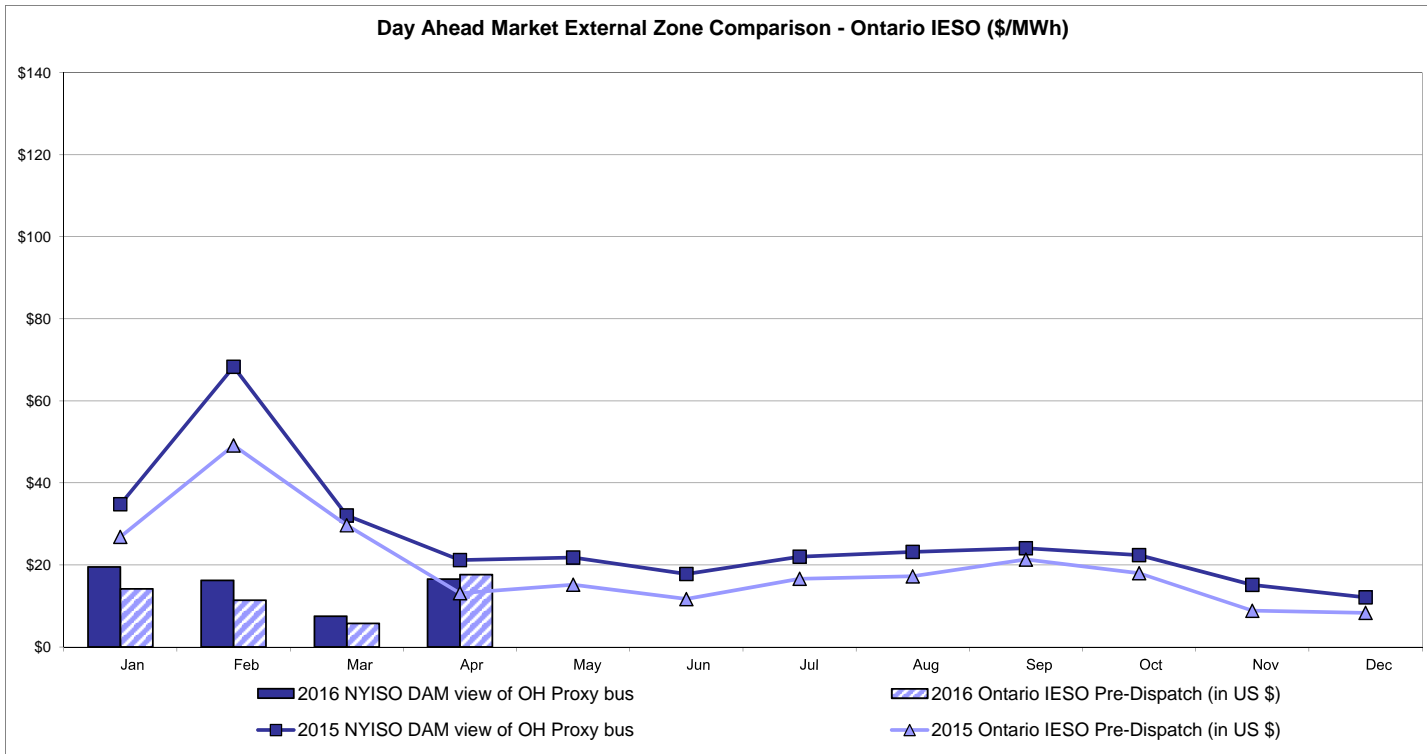
## Day Ahead Market External Zone Comparison - PJM (\$/MWh)



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

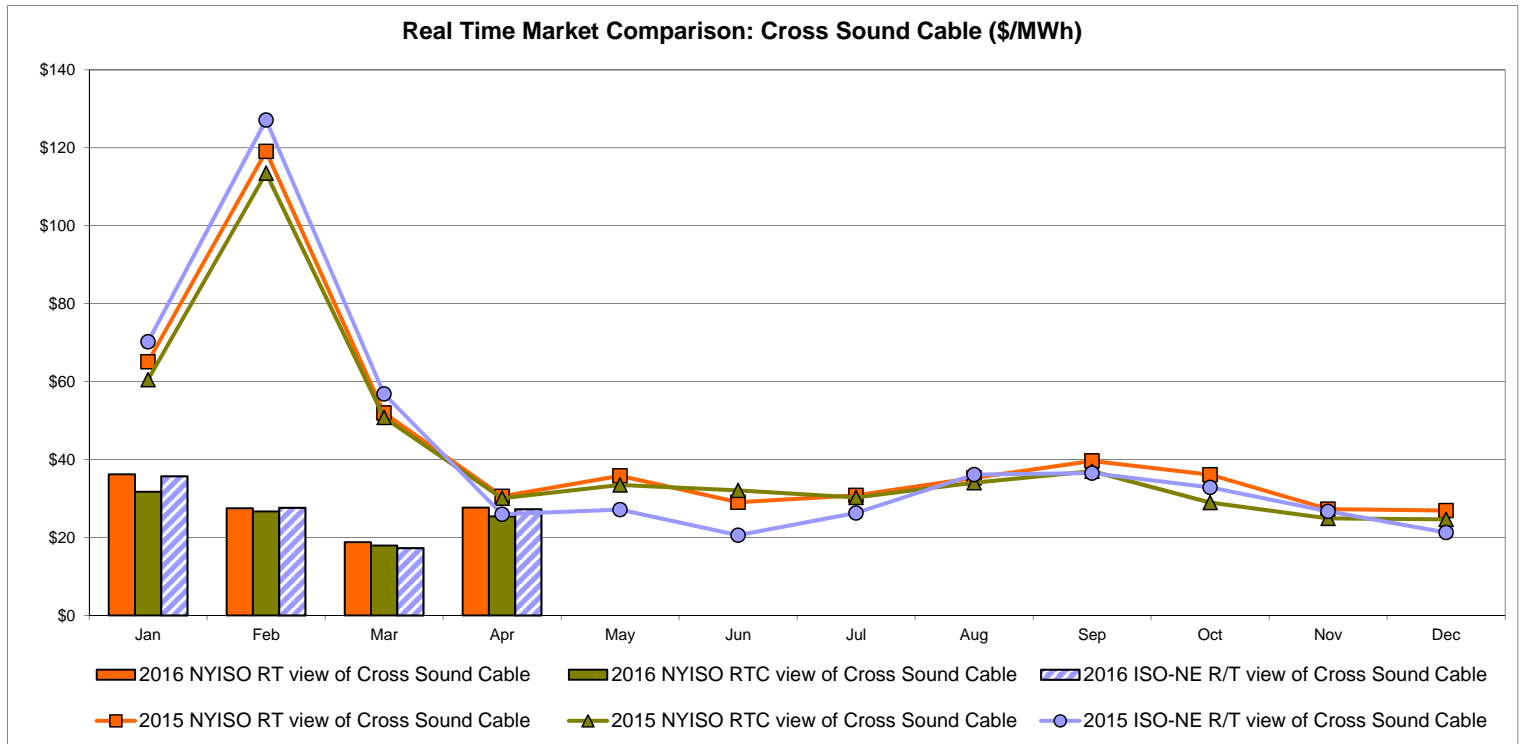
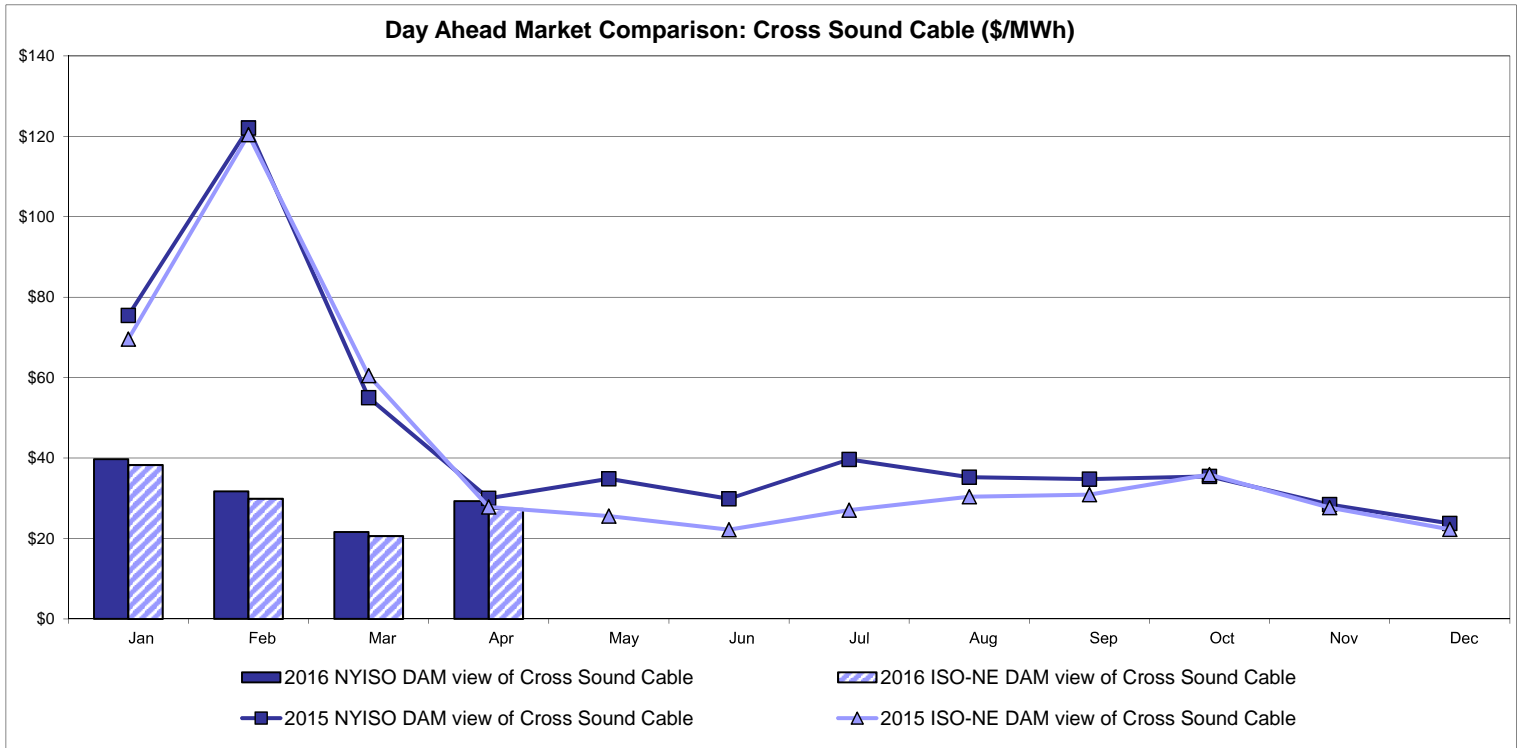


# External Comparison Ontario IESO



Notes: Exchange factor used for April 2016 was 0.7802 to US  
 HOEP: Hourly Ontario Energy Price  
 Pre-Dispatch: Projected Energy Price

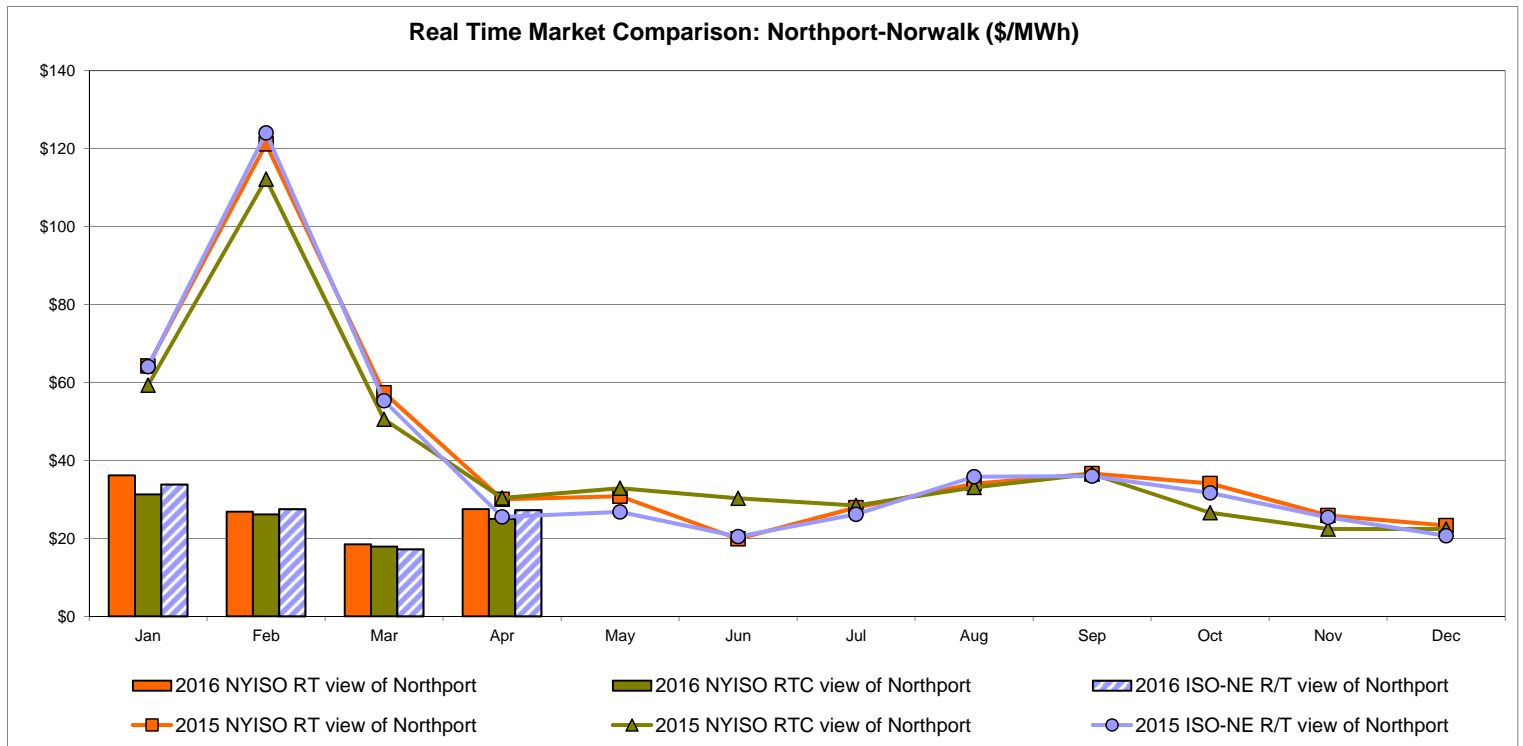
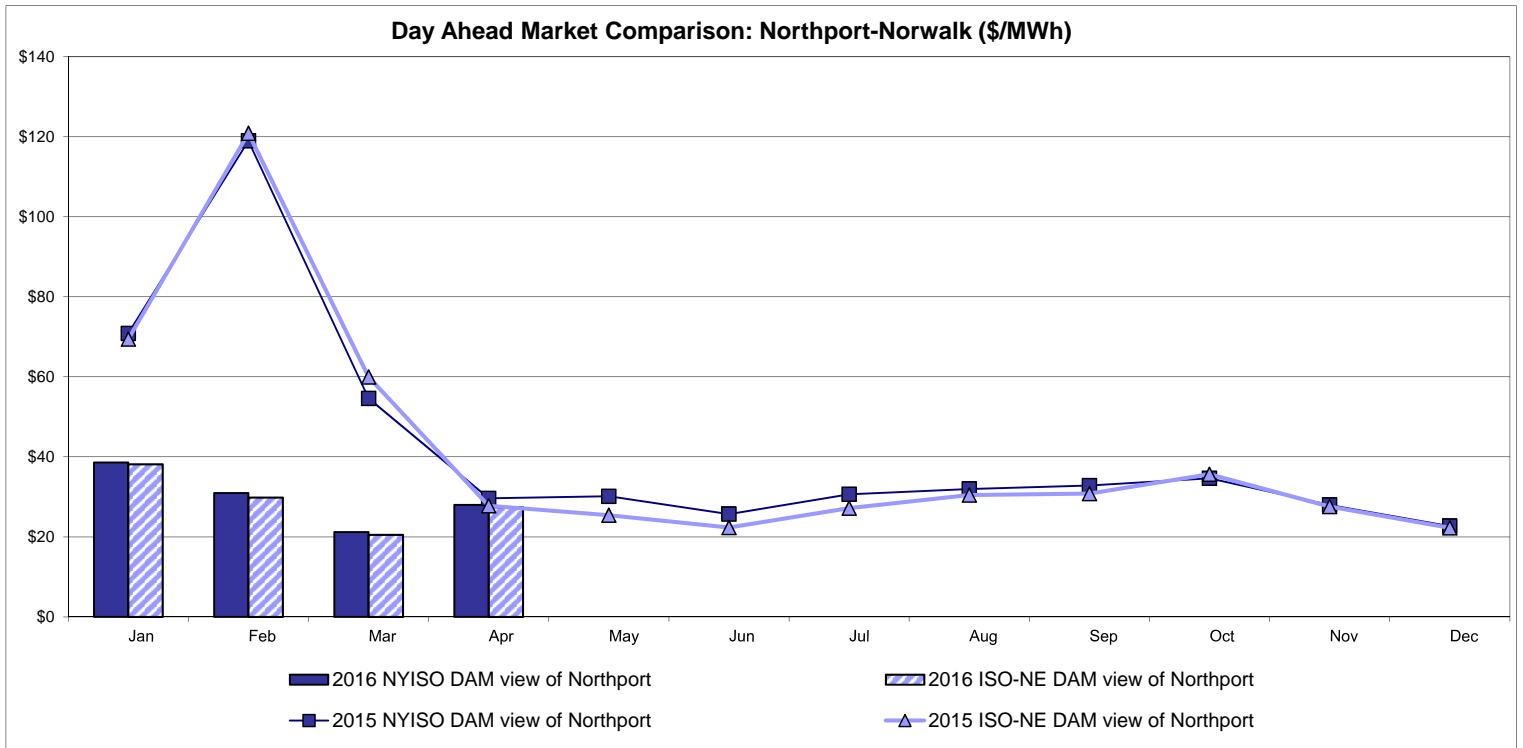
# External Controllable Line: Cross Sound Cable (New England)



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.



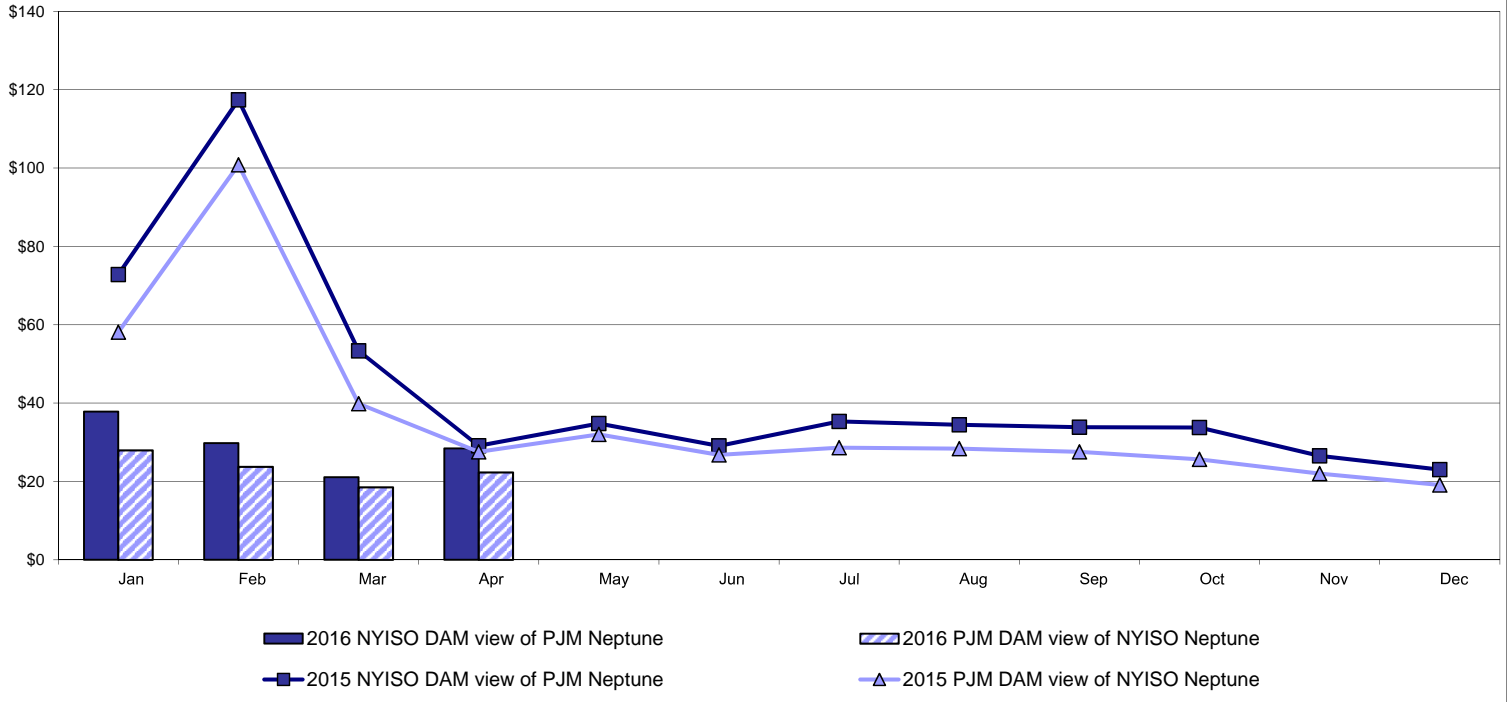
# External Controllable Line: Northport - Norwalk (New England)



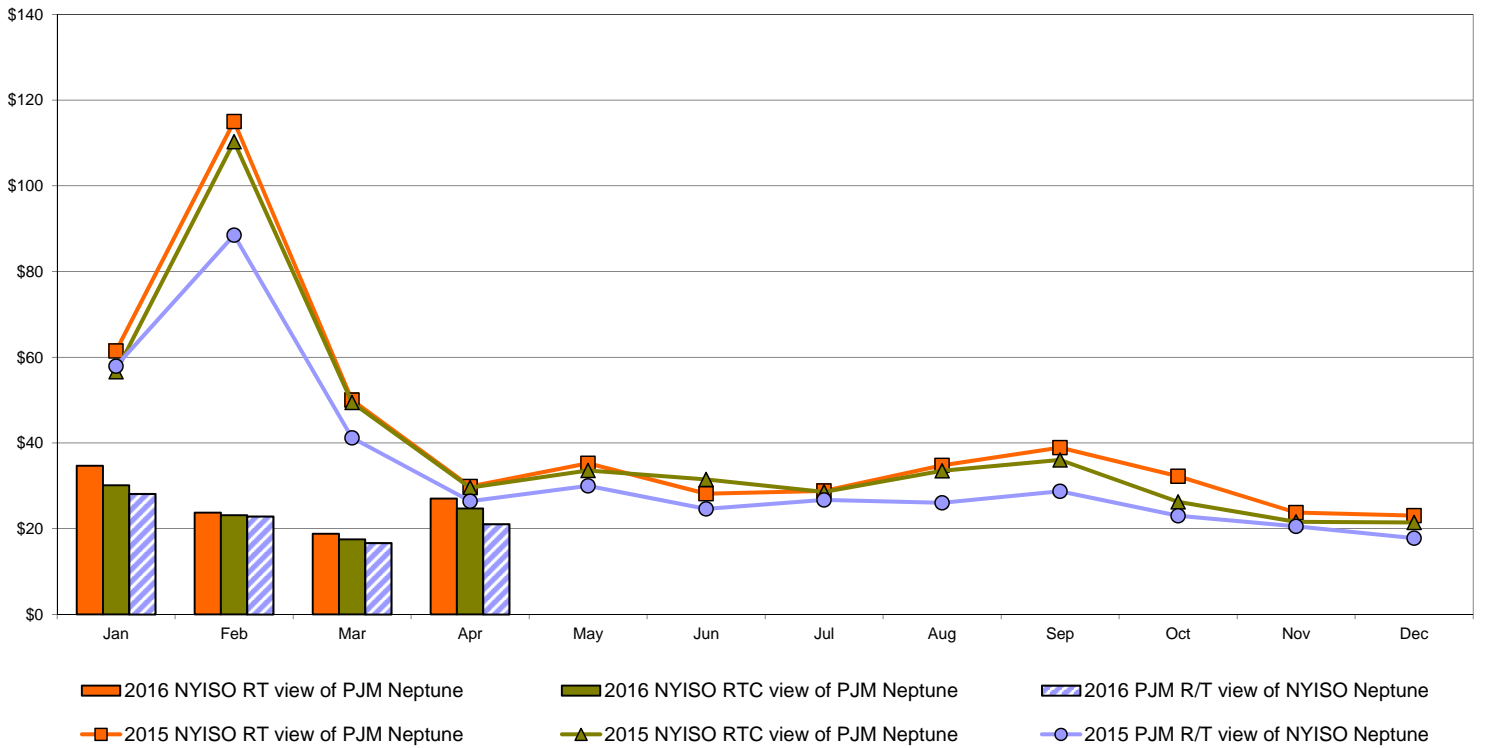
Note:  
 ISO-NE Forecast is an advisory posting @ 18:00 day before.  
 The DAM and R/T prices at the Northport 138 interface are used for ISO-NE.  
 The DAM and R/T prices at the 1385 interface are used for NYISO.

## External Controllable Line: Neptune (PJM)

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

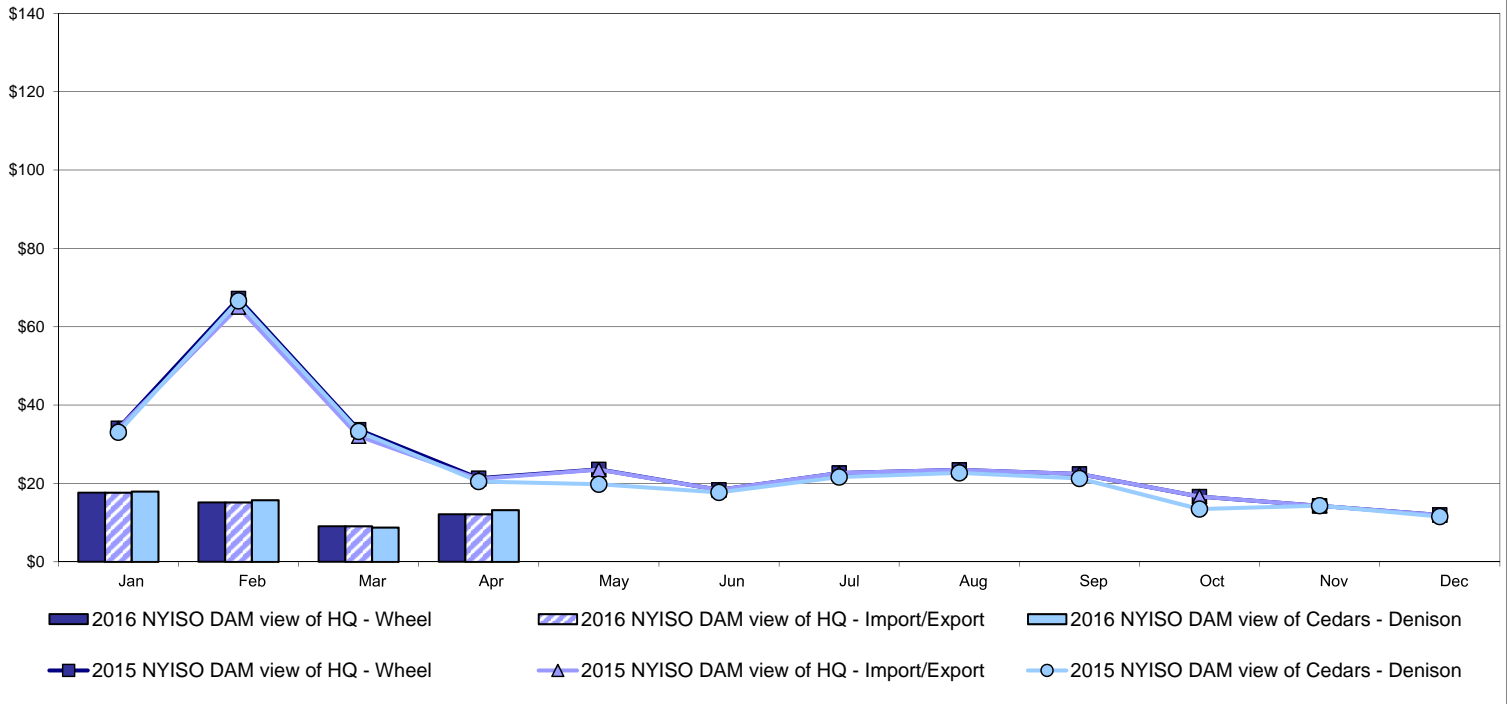


**Real Time Market Comparison: Neptune (\$/MWh)**

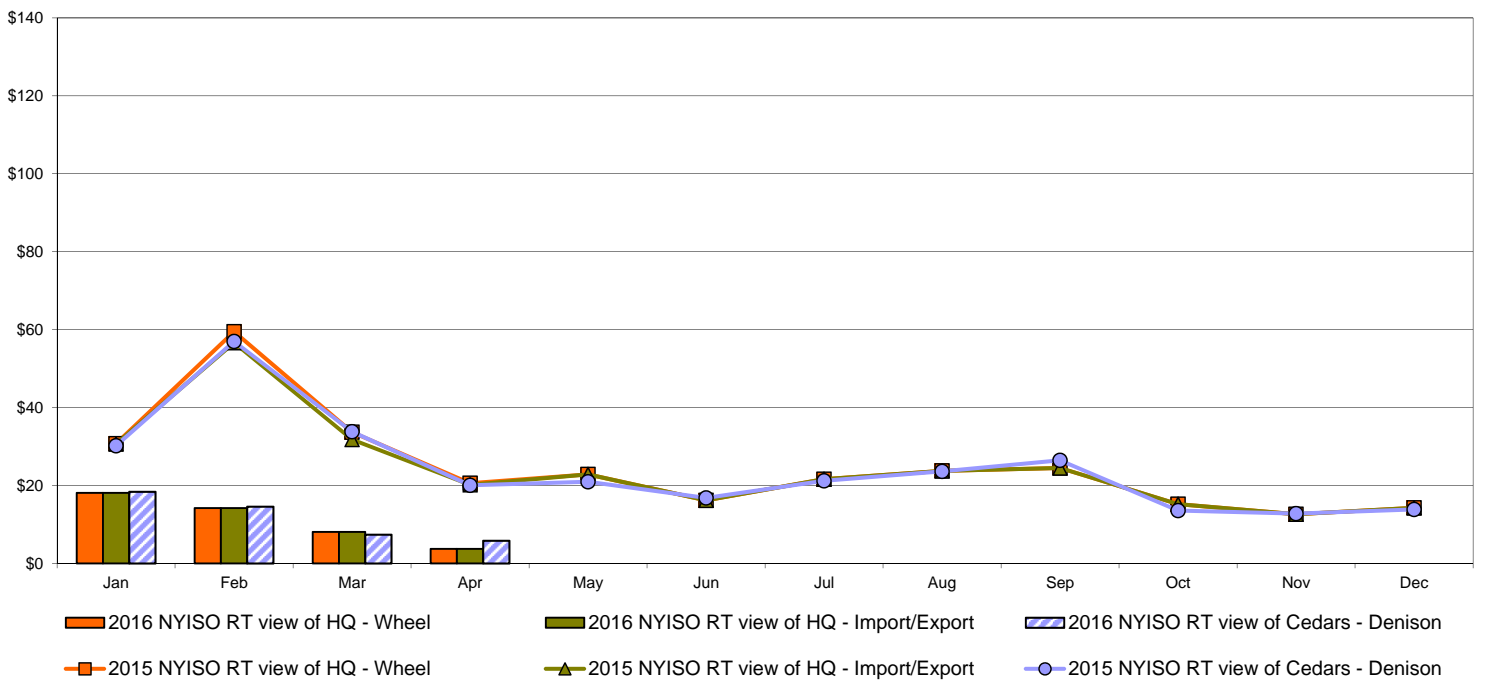


# External Comparison Hydro-Quebec

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

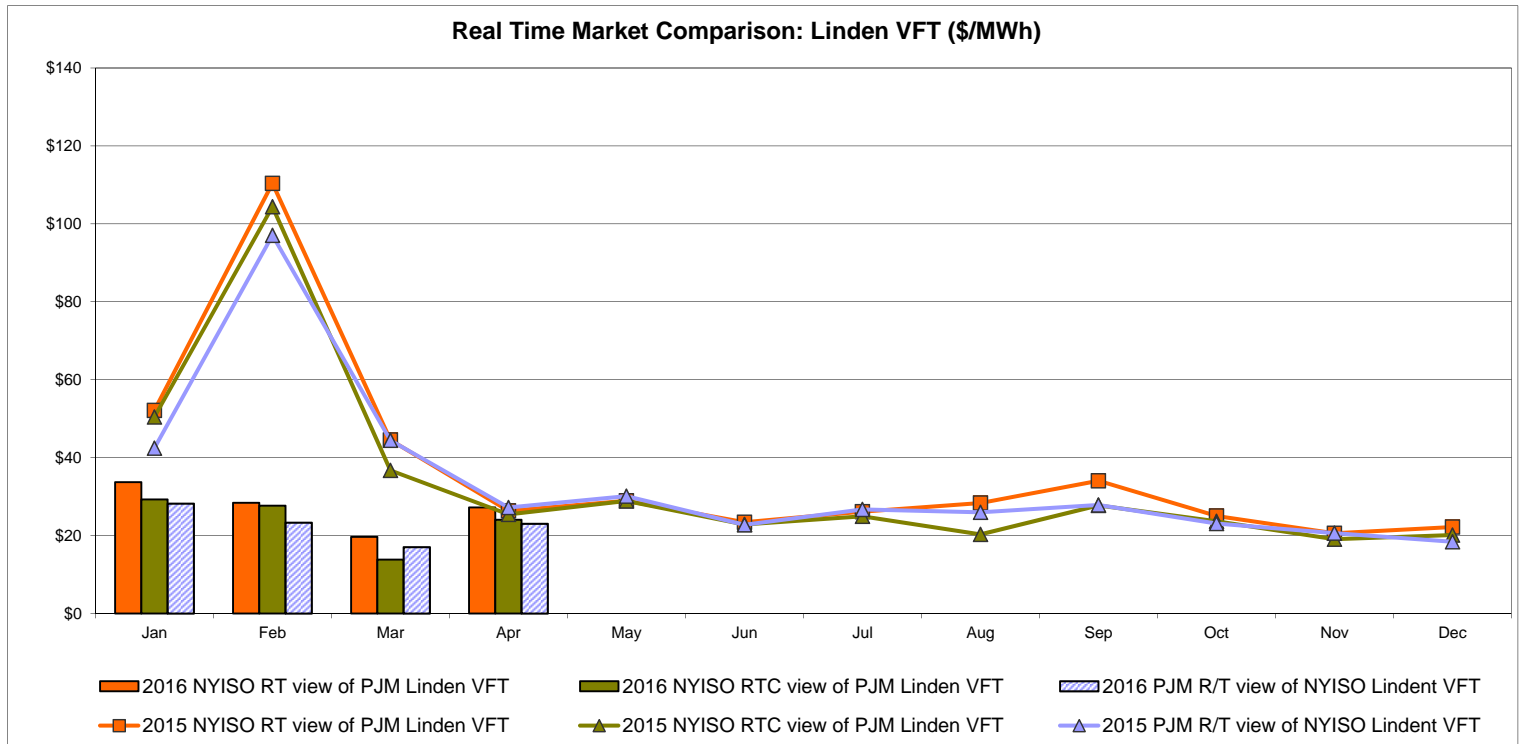
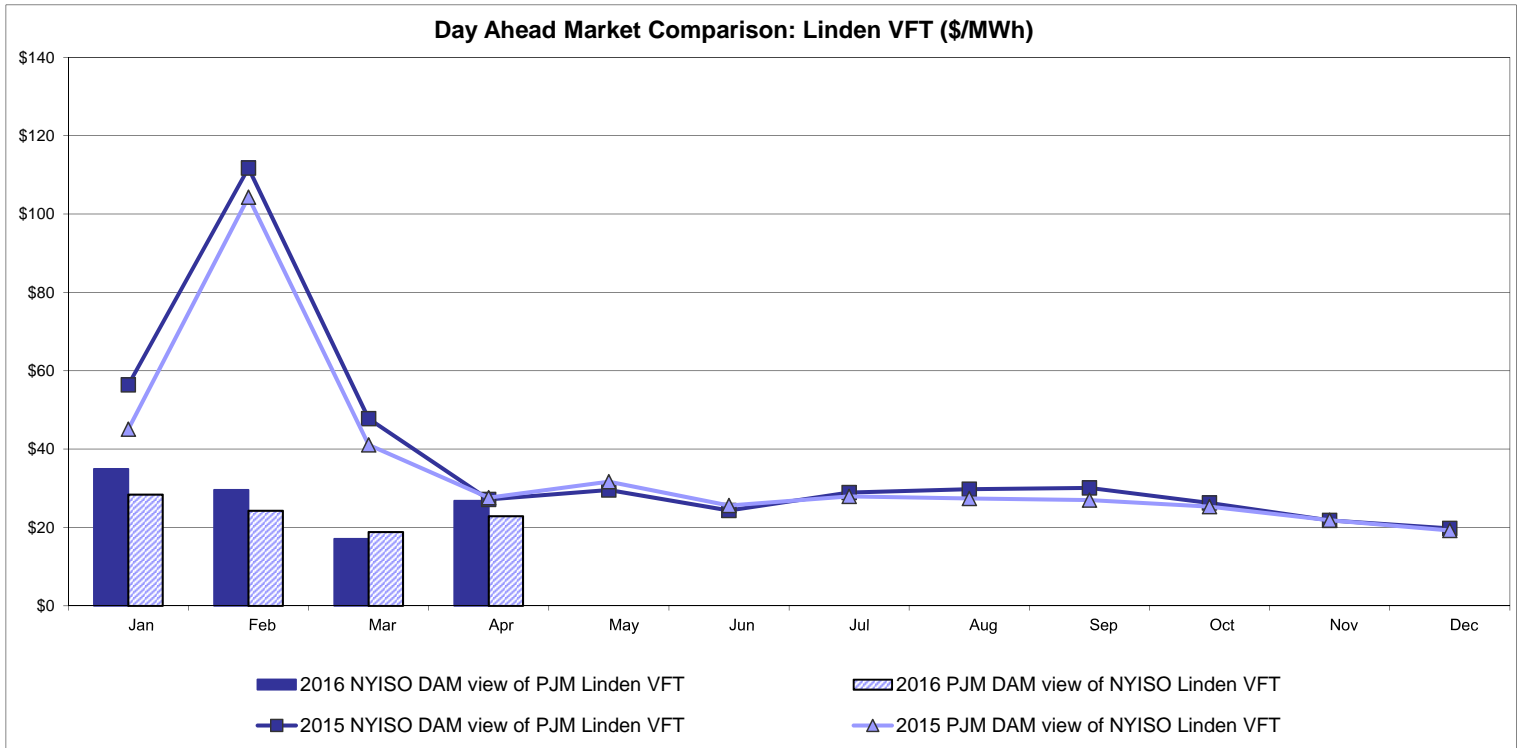


## Real Time Market External Zone Comparison - HQ (\$/MWh)

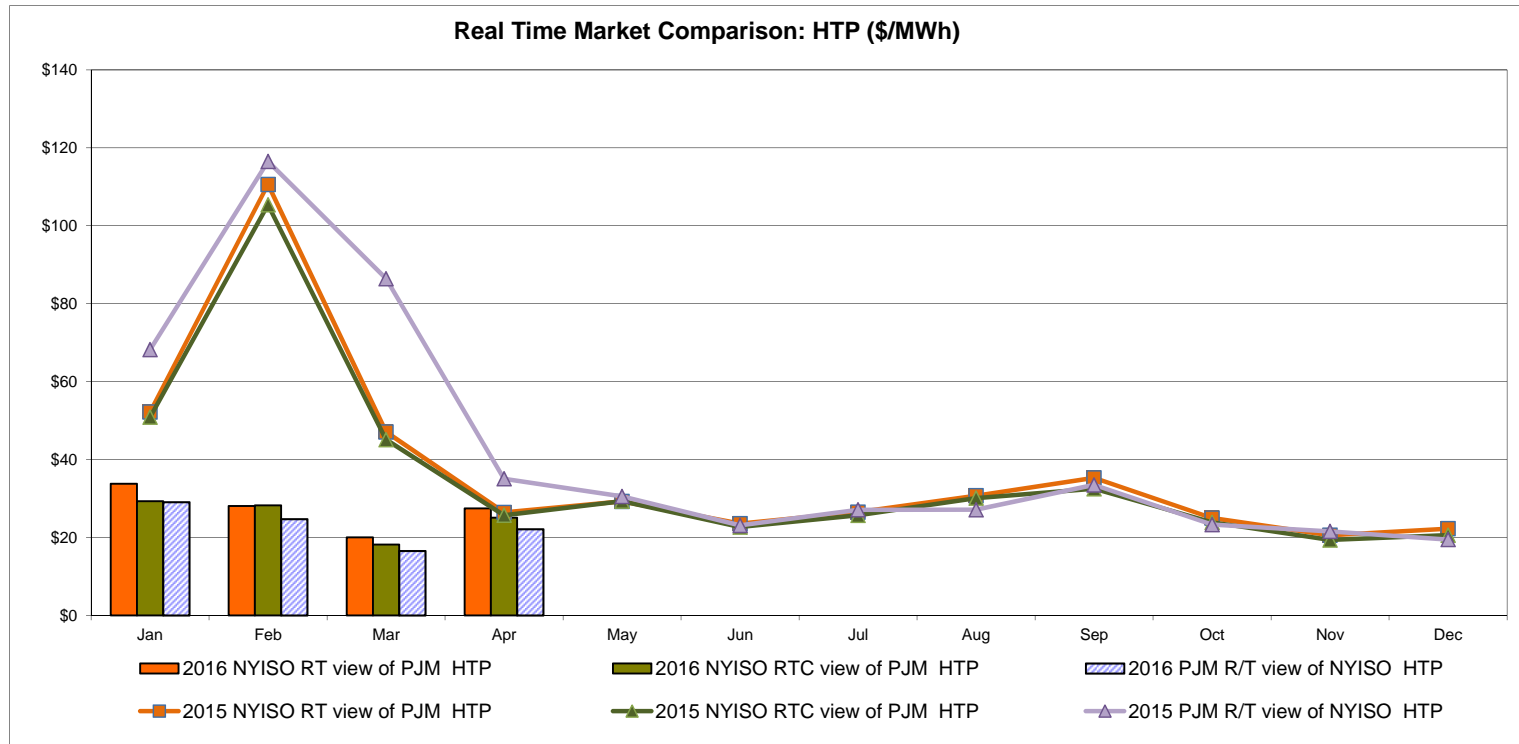
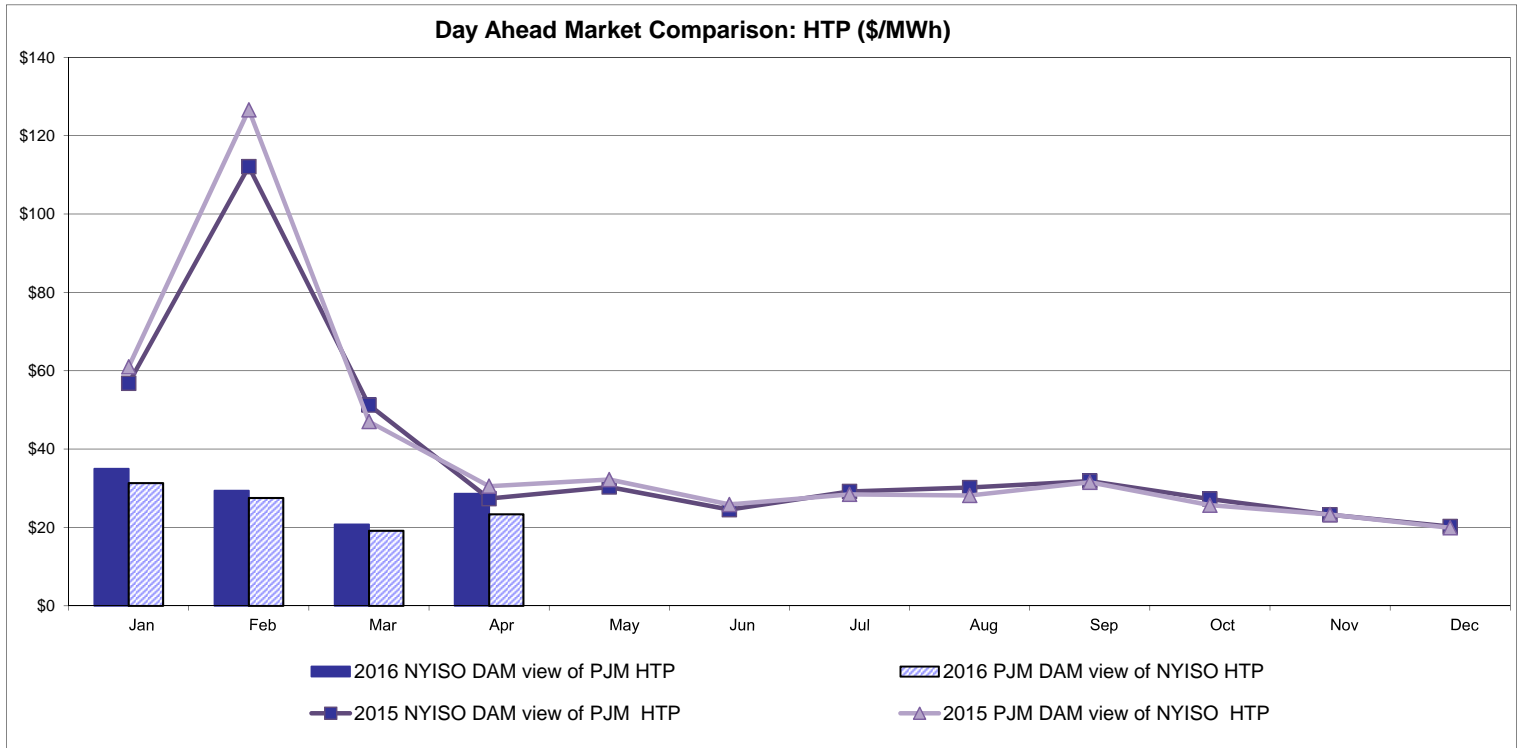


Note:  
Hydro-Quebec Prices are unavailable.

## External Controllable Line: Linden VFT (PJM)



## External Controllable Line: Hudson (PJM)

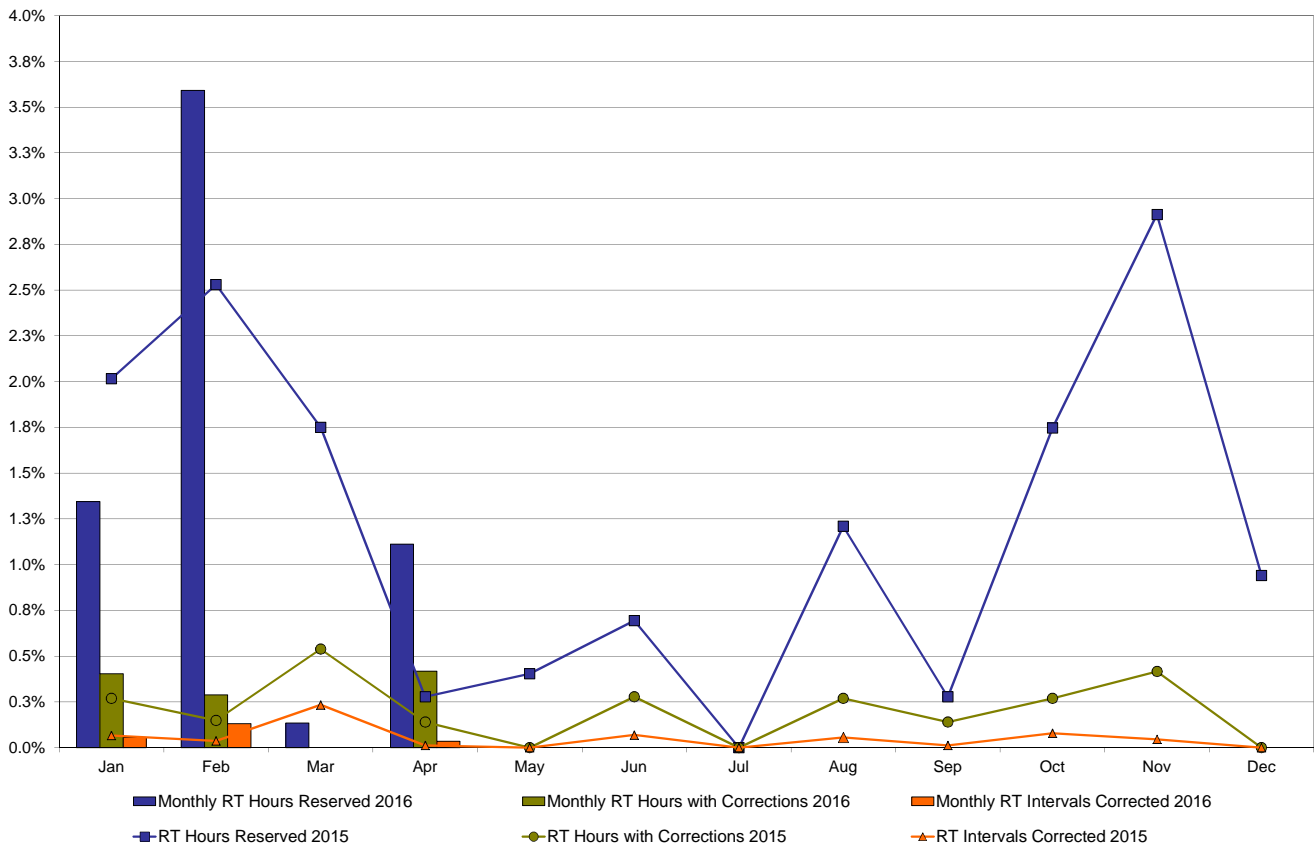


**NYISO Real Time Price Correction Statistics**

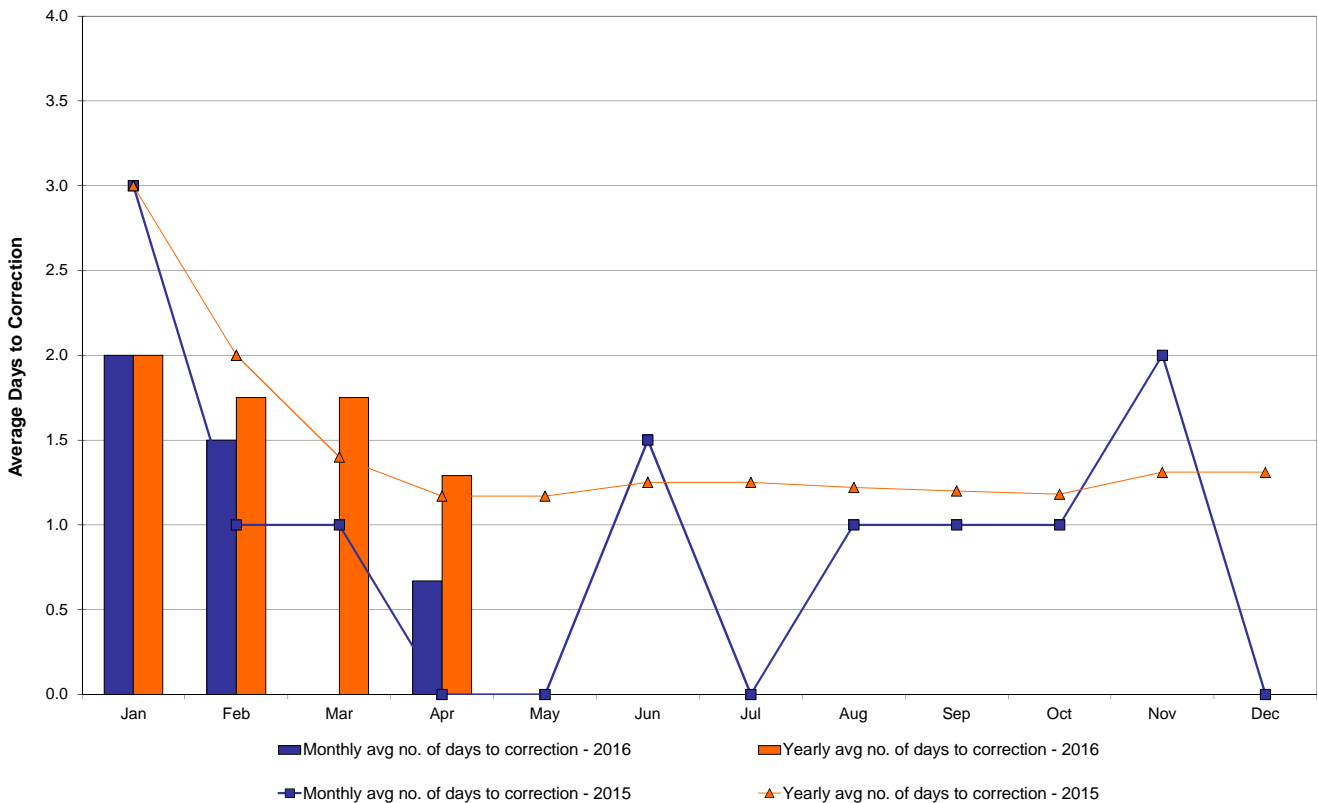
<b>2016</b>		<u>January</u>	<u>February</u>	<u>March</u>	<u>April</u>	<u>May</u>	<u>June</u>	<u>July</u>	<u>August</u>	<u>September</u>	<u>October</u>	<u>November</u>	<u>December</u>
<b>Hour Corrections</b>													
Number of hours with corrections	in the month	3	2	0	3								
Number of hours	in the month	744	696	743	720								
% of hours with corrections	in the month	0.40%	0.29%	0.00%	0.42%								
% of hours with corrections	year-to-date	0.40%	0.35%	0.23%	0.28%								
<b>Interval Corrections</b>													
Number of intervals corrected	in the month	5	11	0	3								
Number of intervals	in the month	9,000	8,440	8,995	8,724								
% of intervals corrected	in the month	0.06%	0.13%	0.00%	0.03%								
% of intervals corrected	year-to-date	0.06%	0.09%	0.06%	0.05%								
<b>Hours Reserved</b>													
Number of hours reserved	in the month	10	25	1	8								
Number of hours	in the month	744	696	743	720								
% of hours reserved	in the month	1.34%	3.59%	0.13%	1.11%								
% of hours reserved	year-to-date	1.34%	2.43%	1.65%	1.52%								
<b>Days to Correction *</b>													
Avg. number of days to correction	in the month	2.00	1.50	0.00	0.67								
Avg. number of days to correction	year-to-date	2.00	1.75	1.75	1.29								
<b>Days Without Corrections</b>													
Days without corrections	in the month	29	27	31	27								
Days without corrections	year-to-date	29	56	87	114								
<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>
<b>Hour Corrections</b>													
Number of hours with corrections	in the month	2	1	4	1	0	2	0	2	1	2	3	0
Number of hours	in the month	744	672	743	720	744	720	744	744	720	744	721	744
% of hours with corrections	in the month	0.27%	0.15%	0.54%	0.14%	0.00%	0.28%	0.00%	0.27%	0.14%	0.27%	0.42%	0.00%
% of hours with corrections	year-to-date	0.27%	0.21%	0.32%	0.28%	0.22%	0.23%	0.20%	0.21%	0.20%	0.21%	0.22%	0.21%
<b>Interval Corrections</b>													
Number of intervals corrected	in the month	6	3	21	1	0	6	0	5	1	7	4	0
Number of intervals	in the month	9,066	8,231	9,005	8,696	9,032	8,731	9,025	8,987	8,728	9,008	8,743	8,975
% of intervals corrected	in the month	0.07%	0.04%	0.23%	0.01%	0.00%	0.07%	0.00%	0.06%	0.01%	0.08%	0.05%	0.00%
% of intervals corrected	year-to-date	0.07%	0.05%	0.11%	0.09%	0.07%	0.07%	0.06%	0.06%	0.05%	0.06%	0.06%	0.05%
<b>Hours Reserved</b>													
Number of hours reserved	in the month	15	17	13	2	3	5	0	9	2	13	21	7
Number of hours	in the month	744	672	743	720	744	720	744	744	720	744	721	744
% of hours reserved	in the month	2.02%	2.53%	1.75%	0.28%	0.40%	0.69%	0.00%	1.21%	0.28%	1.75%	2.91%	0.94%
% of hours reserved	year-to-date	2.02%	2.26%	2.08%	1.63%	1.38%	1.27%	1.08%	1.10%	1.01%	1.08%	1.25%	1.22%
<b>Days to Correction *</b>													
Avg. number of days to correction	in the month	3.00	1.00	1.00	0.00	0.00	1.50	0.00	1.00	1.00	1.00	2.00	0.00
Avg. number of days to correction	year-to-date	3.00	2.00	1.40	1.17	1.17	1.25	1.25	1.22	1.20	1.18	1.31	1.31
<b>Days Without Corrections</b>													
Days without corrections	in the month	30	27	28	29	31	28	31	30	29	30	28	31
Days without corrections	year-to-date	30	57	85	114	145	173	204	234	263	293	321	352

\* Calendar days from reservation date.

### Percentage of Real-Time Corrections

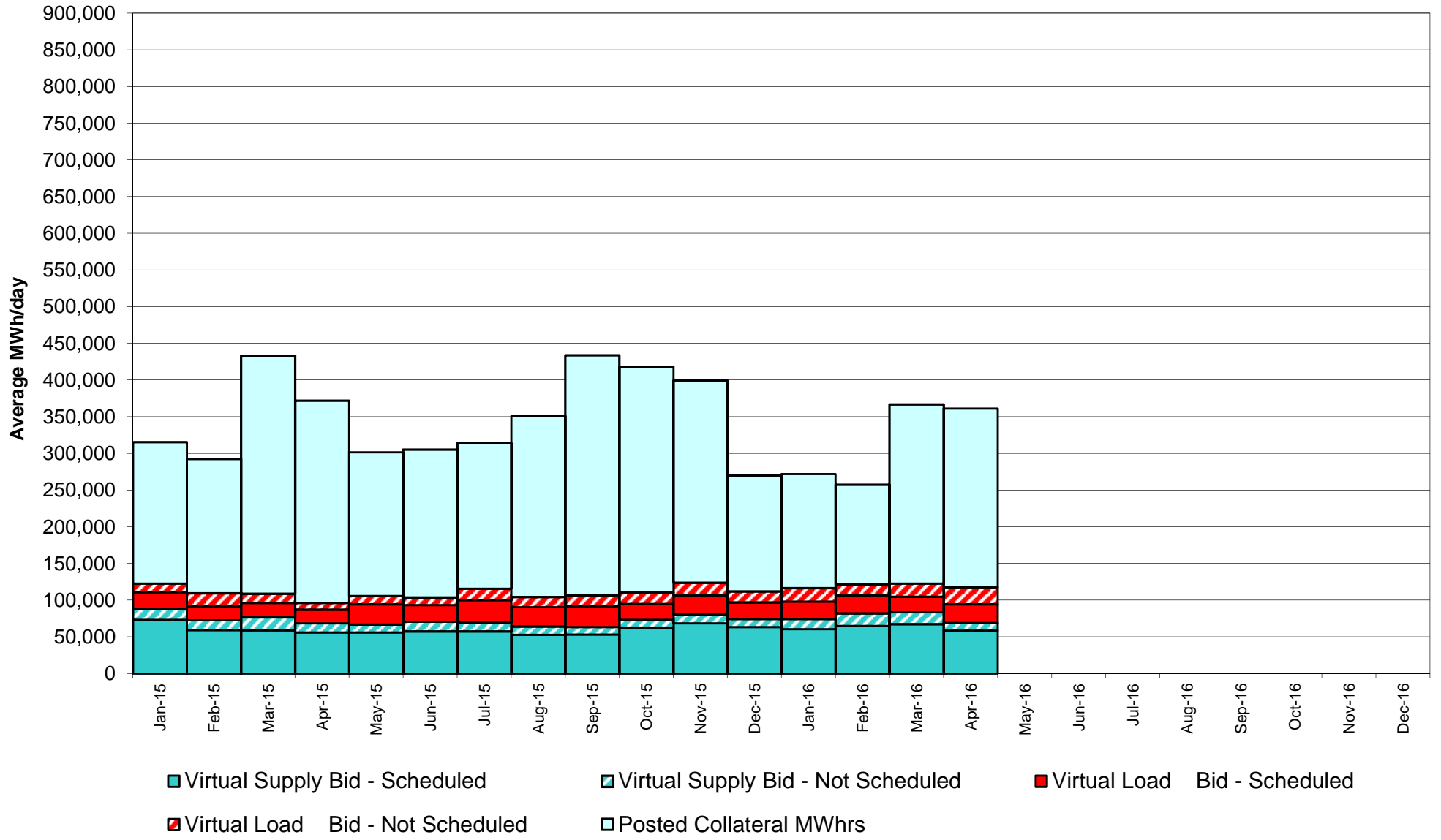


### Annual average time period for making Price Corrections (from reservation date) \*



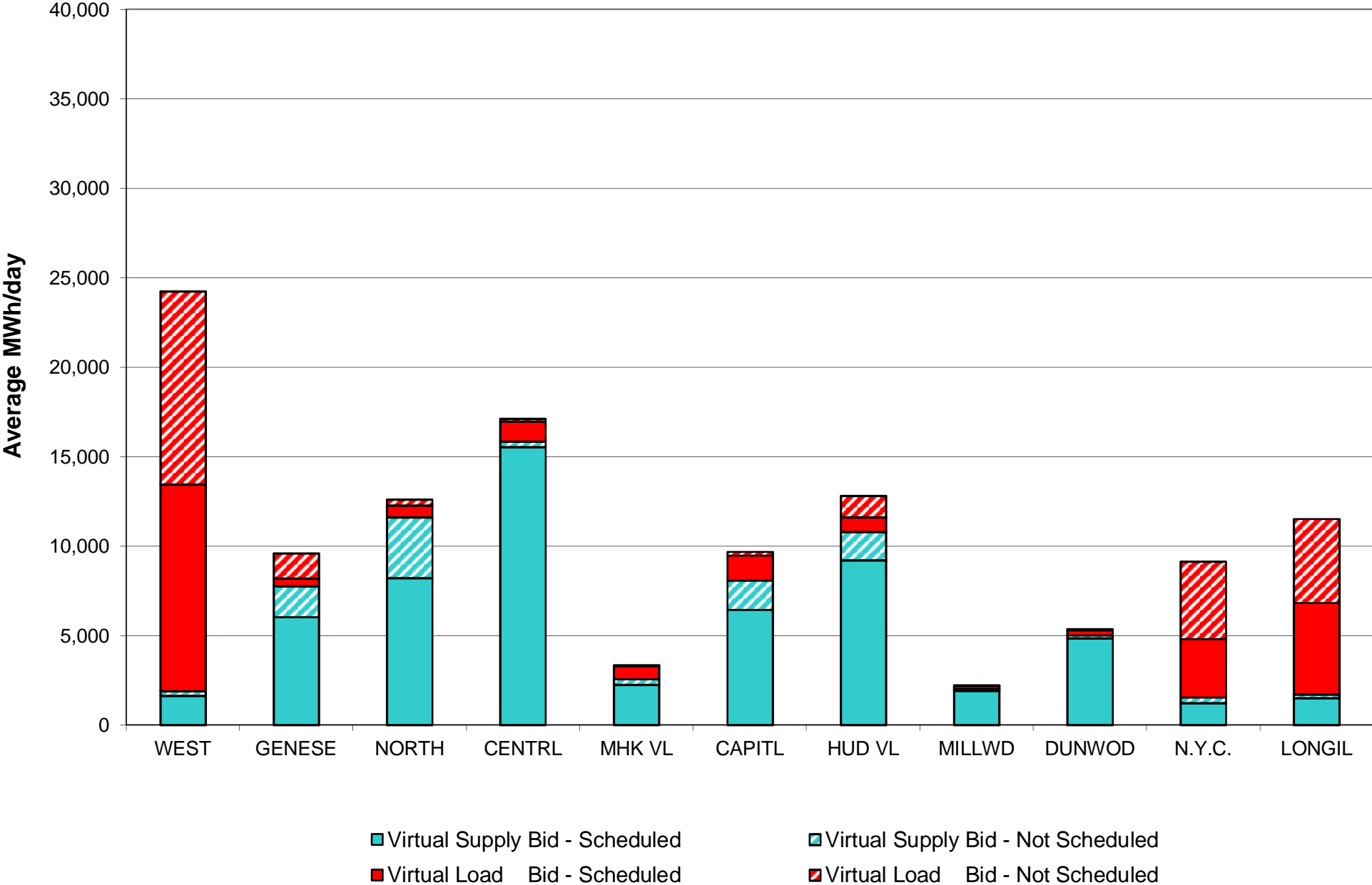
\* Calendar days from reservation date.

## NYISO Virtual Trading Average MWh per day





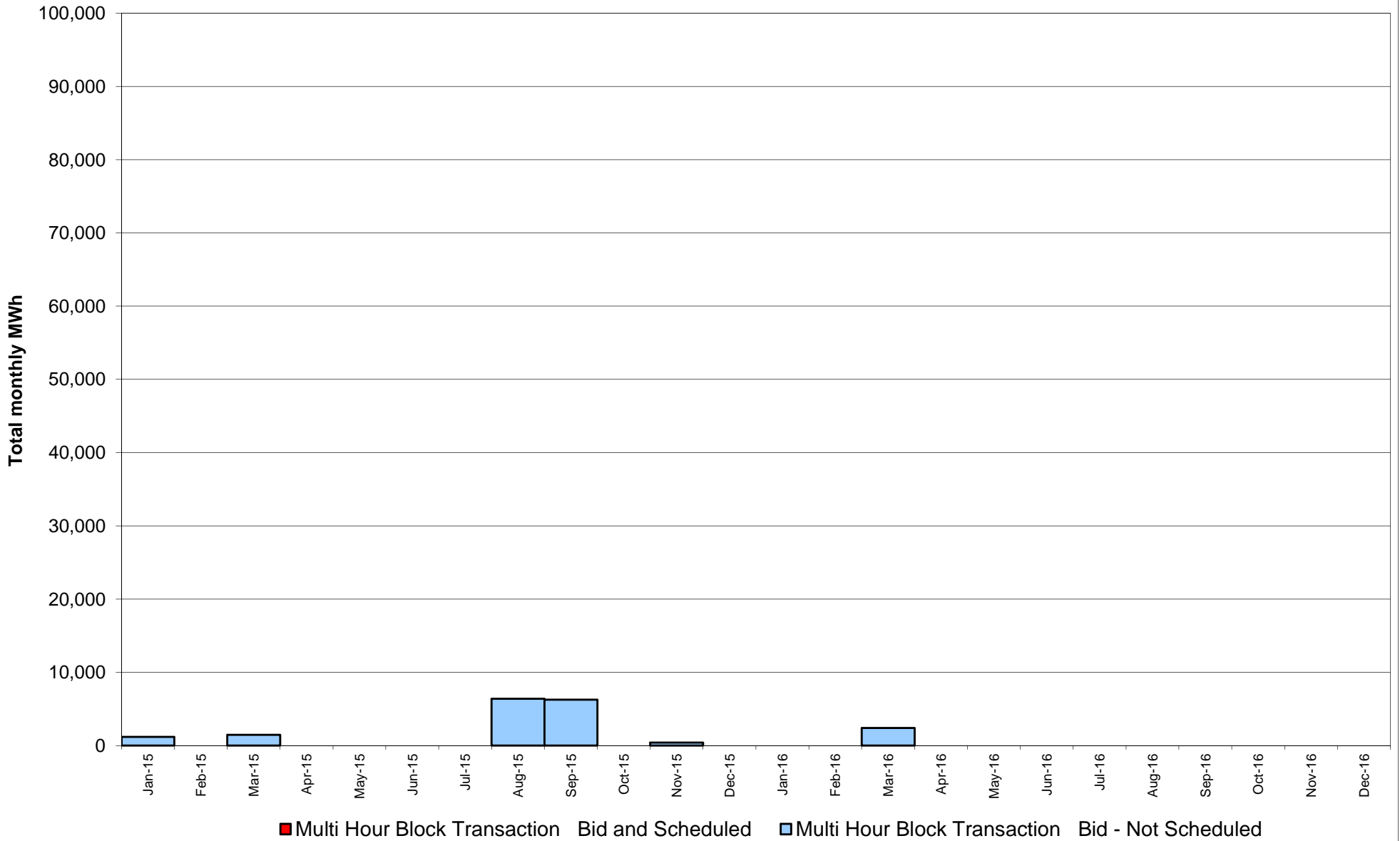
### Virtual Load and Supply Zonal Statistics through April 30, 2016



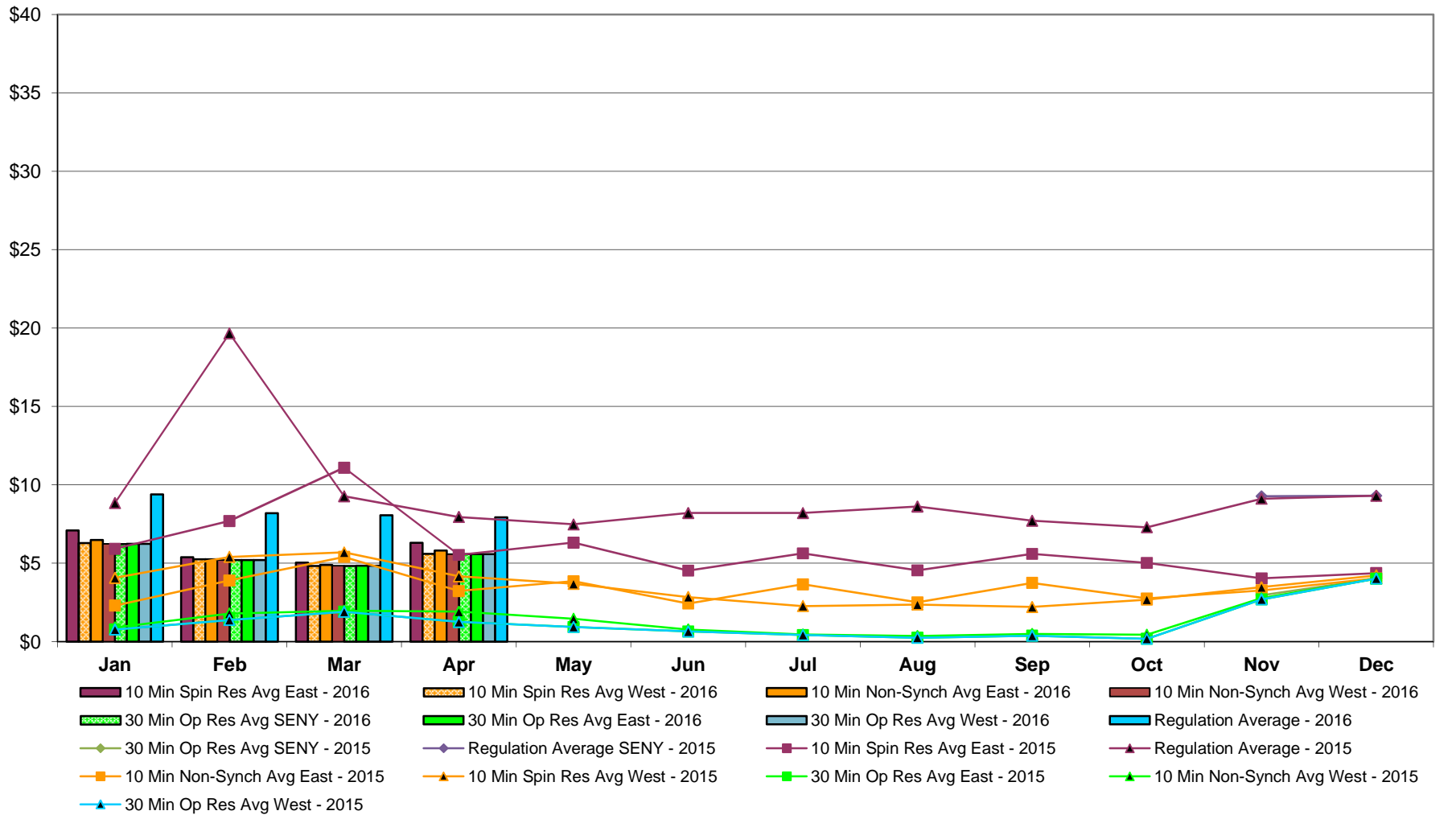
**Virtual Load and Supply Zonal Statistics (Average MWh/day) - 2016**

		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-16	8,416	4,440	2,862	419	<b>MHK VL</b>	Jan-16	463	92	2,024	146	<b>DUNWOD</b>	Jan-16	402	216	3,262	61
	Feb-16	7,967	3,554	2,706	521		Feb-16	544	80	2,329	611		Feb-16	803	185	3,555	269
	Mar-16	7,947	7,233	2,564	720		Mar-16	440	49	2,695	931		Mar-16	460	100	4,207	304
	Apr-16	11,544	10,793	1,645	263		Apr-16	735	55	2,236	317		Apr-16	277	48	4,840	190
	May-16						May-16						May-16				
	Jun-16						Jun-16						Jun-16				
	Jul-16						Jul-16						Jul-16				
	Aug-16						Aug-16						Aug-16				
	Sep-16						Sep-16						Sep-16				
	Oct-16						Oct-16						Oct-16				
	Nov-16						Nov-16						Nov-16				
	Dec-16						Dec-16						Dec-16				
	<b>GENESE</b>	Jan-16	1,030	638	3,868		2,421	<b>CAPITL</b>	Jan-16	2,195	1,472		4,568	3,470	<b>N.Y.C.</b>	Jan-16	2,862
Feb-16		795	923	3,461	3,707	Feb-16	1,593		684	5,140	3,581	Feb-16	3,281	4,752		2,390	403
Mar-16		824	1,113	5,340	3,764	Mar-16	960		238	5,023	2,071	Mar-16	1,838	4,229		1,239	748
Apr-16		448	1,398	6,028	1,718	Apr-16	1,410		198	6,433	1,645	Apr-16	3,263	4,302		1,221	336
May-16						May-16						May-16					
Jun-16						Jun-16						Jun-16					
Jul-16						Jul-16						Jul-16					
Aug-16						Aug-16						Aug-16					
Sep-16						Sep-16						Sep-16					
Oct-16						Oct-16						Oct-16					
Nov-16						Nov-16						Nov-16					
Dec-16						Dec-16						Dec-16					
<b>NORTH</b>		Jan-16	274	312	7,038	3,010	<b>HUD VL</b>		Jan-16	1,036	1,609	6,763	2,202	<b>LONGIL</b>		Jan-16	6,153
	Feb-16	499	215	7,169	3,894	Feb-16		1,008	1,135	9,550	3,078	Feb-16	6,539		3,211	814	869
	Mar-16	338	107	6,127	4,874	Mar-16		964	510	10,835	1,568	Mar-16	6,305		3,906	1,090	411
	Apr-16	666	332	8,237	3,363	Apr-16		821	1,176	9,231	1,566	Apr-16	5,087		4,696	1,511	215
	May-16					May-16						May-16					
	Jun-16					Jun-16						Jun-16					
	Jul-16					Jul-16						Jul-16					
	Aug-16					Aug-16						Aug-16					
	Sep-16					Sep-16						Sep-16					
	Oct-16					Oct-16						Oct-16					
	Nov-16					Nov-16						Nov-16					
	Dec-16					Dec-16						Dec-16					
	<b>CENTRL</b>	Jan-16	954	502	25,792	259		<b>MILLWD</b>	Jan-16	304	114	1,211	60		<b>NYISO</b>	Jan-16	24,086
Feb-16		975	212	26,176	301	Feb-16	403		145	1,477	100	Feb-16	24,407	15,096		64,766	17,335
Mar-16		1,076	70	26,818	564	Mar-16	182		60	1,462	239	Mar-16	21,332	17,615		67,399	16,195
Apr-16		1,124	159	15,555	284	Apr-16	186		26	1,913	101	Apr-16	25,563	23,182		58,849	9,998
May-16						May-16						May-16					
Jun-16						Jun-16						Jun-16					
Jul-16						Jul-16						Jul-16					
Aug-16						Aug-16						Aug-16					
Sep-16						Sep-16						Sep-16					
Oct-16						Oct-16						Oct-16					
Nov-16						Nov-16						Nov-16					
Dec-16						Dec-16						Dec-16					

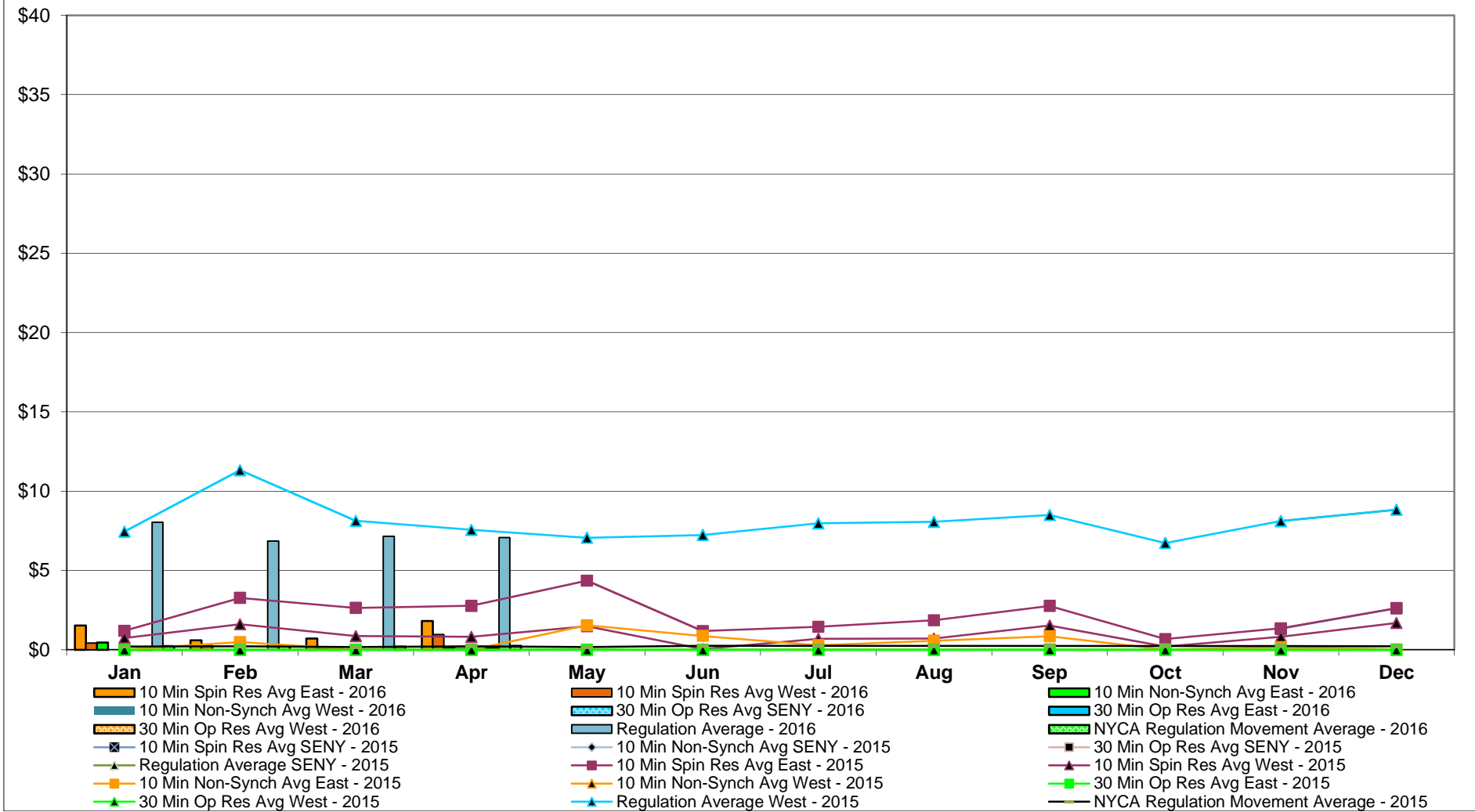
## NYISO Multi Hour Block Transactions Monthly Total MWh



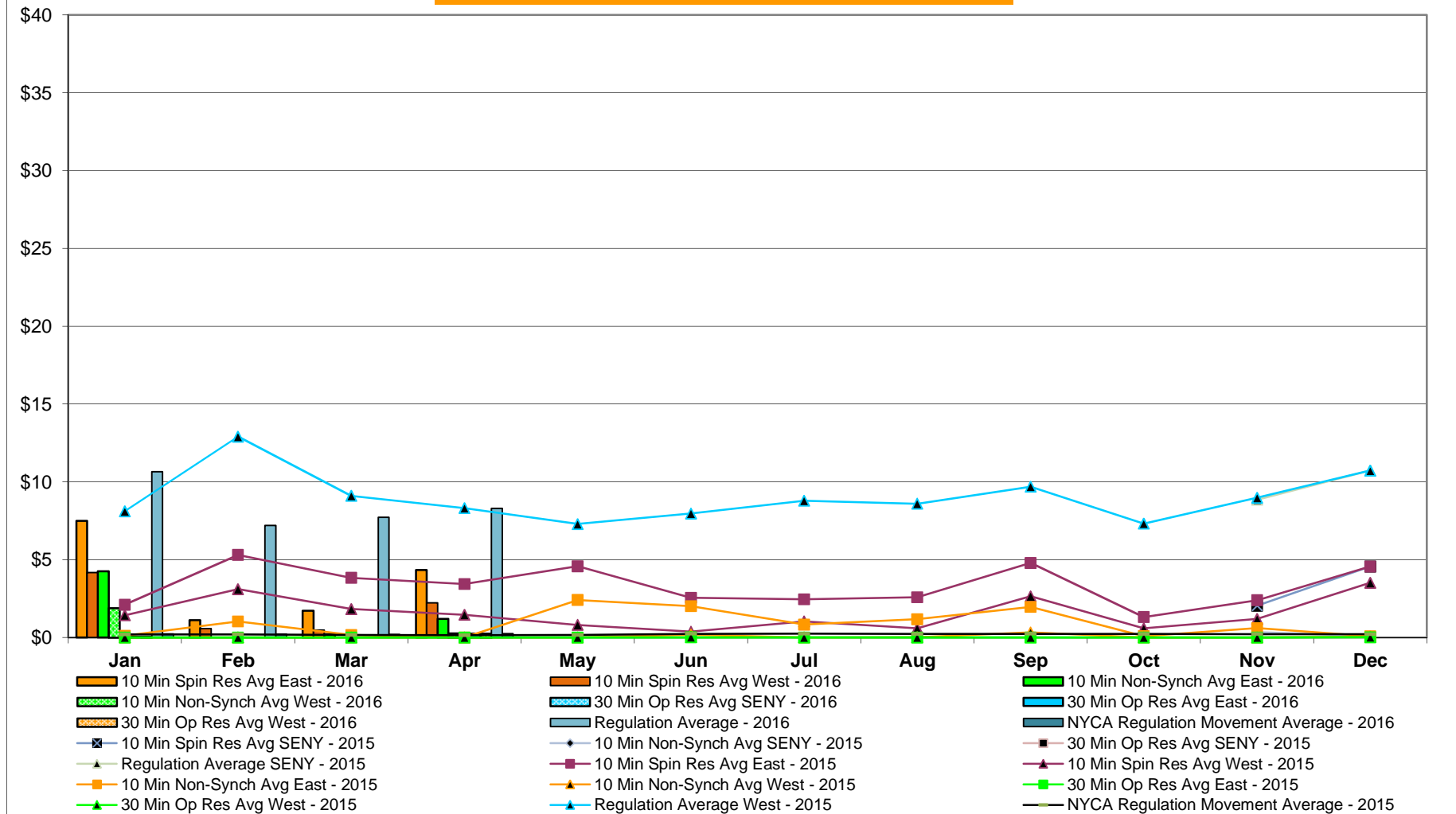
### NYISO Monthly Average Ancillary Service Prices Day Ahead Market 2015 - 2016



## NYISO Monthly Average Ancillary Service Prices RTC Market 2015 - 2016



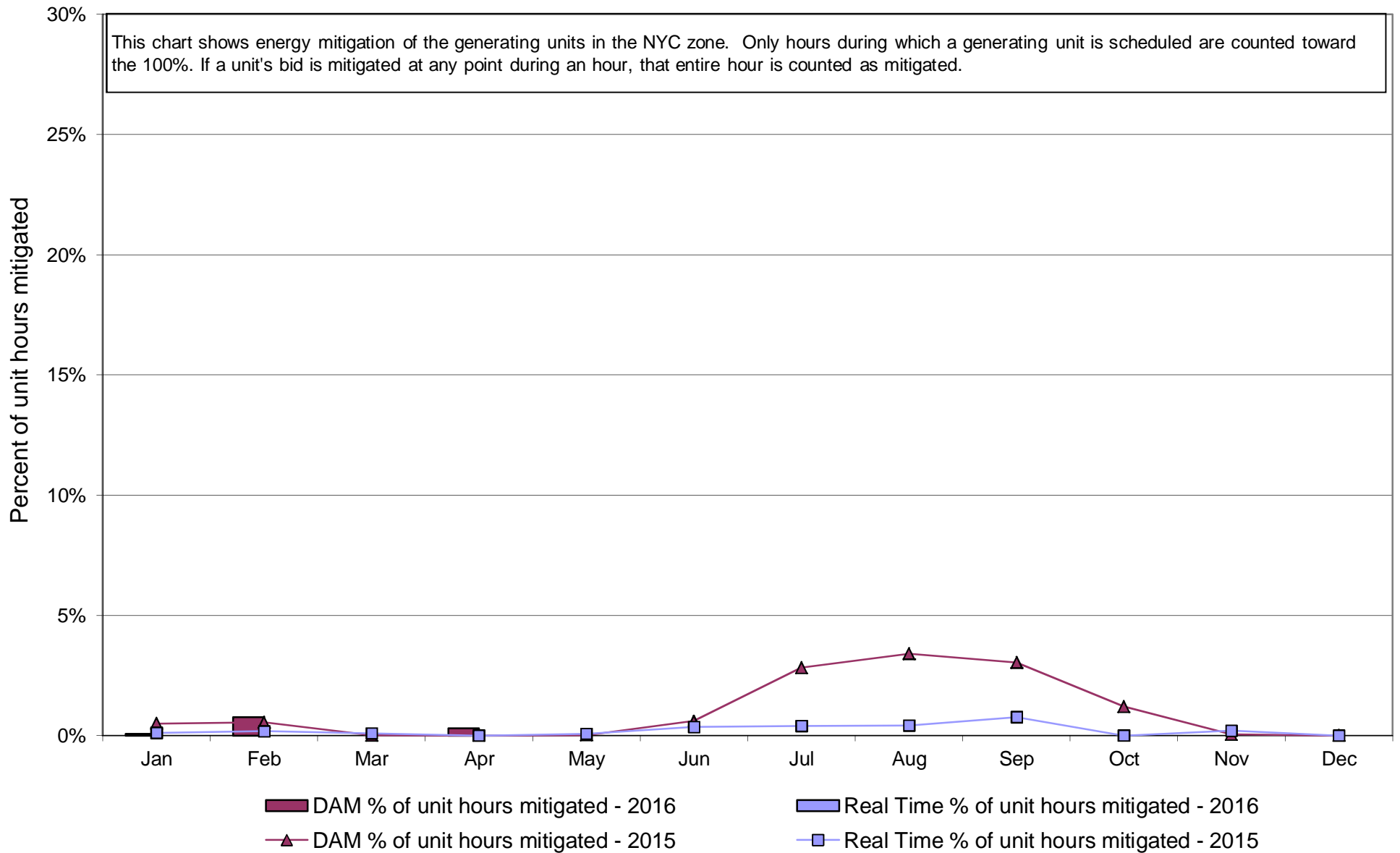
### NYISO Monthly Average Ancillary Service Prices Real Time Market 2015 - 2016



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

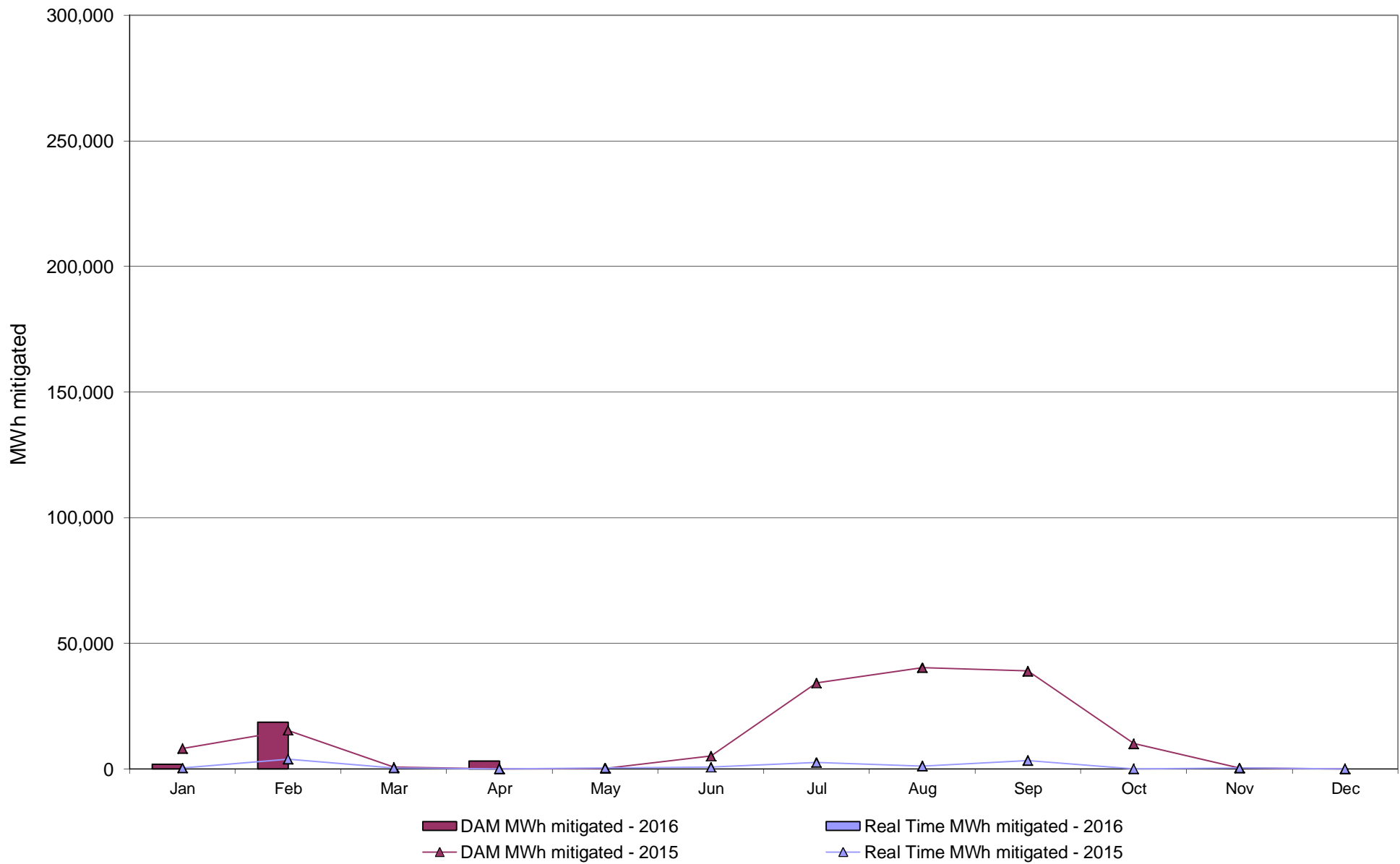
<b>2016</b>	<u>January</u>	<u>February</u>	<u>March</u>	<u>April</u>	<u>May</u>	<u>June</u>	<u>July</u>	<u>August</u>	<u>September</u>	<u>October</u>	<u>November</u>	<u>December</u>
<b>Day Ahead Market</b>												
10 Min Spin East	7.09	5.38	5.04	6.31								
10 Min Spin West	6.28	5.25	4.84	5.60								
10 Min Non Synch East	6.47	5.25	4.88	5.80								
10 Min Non Synch West	6.23	5.20	4.84	5.58								
30 Min SENY	6.23	5.20	4.84	5.58								
30 Min East	6.23	5.20	4.84	5.58								
30 Min West	6.23	5.20	4.84	5.58								
Regulation	9.39	8.19	8.05	7.93								
<b>RTC Market</b>												
10 Min Spin East	1.53	0.59	0.71	1.81								
10 Min Spin West	0.42	0.26	0.08	0.95								
10 Min Non Synch East	0.45	0.00	0.17	0.14								
10 Min Non Synch West	0.04	0.00	0.00	0.14								
30 Min SENY	0.01	0.00	0.00	0.14								
30 Min East	0.01	0.00	0.00	0.14								
30 Min West	0.01	0.00	0.00	0.14								
Regulation	8.04	6.86	7.15	7.07								
NYCA Regulation Movement	0.23	0.21	0.20	0.25								
<b>Real Time Market</b>												
10 Min Spin East	7.51	1.12	1.73	4.34								
10 Min Spin West	4.17	0.58	0.48	2.23								
10 Min Non Synch East	4.26	0.00	0.22	1.20								
10 Min Non Synch West	1.89	0.00	0.00	0.26								
30 Min SENY	0.06	0.00	0.00	0.25								
30 Min East	0.06	0.00	0.00	0.25								
30 Min West	0.06	0.00	0.00	0.25								
Regulation	10.66	7.21	7.73	8.30								
NYCA Regulation Movement	0.23	0.22	0.20	0.25								
<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>
<b>Day Ahead Market</b>												
10 Min Spin East	5.92	7.69	11.09	5.53	6.31	4.53	5.62	4.54	5.60	5.02	4.03	4.36
10 Min Spin West	4.07	5.40	5.68	4.16	3.69	2.84	2.26	2.36	2.20	2.68	3.47	4.22
10 Min Non Synch East	2.30	3.89	5.40	3.22	3.84	2.42	3.66	2.51	3.74	2.75	3.27	4.03
10 Min Non Synch West	0.90	1.79	1.97	1.91	1.45	0.77	0.45	0.36	0.49	0.45	2.77	4.02
30 Min SENY	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	2.95	4.02
30 Min East	0.77	1.38	1.91	1.26	0.93	0.64	0.43	0.24	0.37	0.18	2.69	4.02
30 Min West	0.77	1.38	1.91	1.26	0.93	0.64	0.43	0.24	0.37	0.18	2.69	4.02
Regulation	8.84	19.65	9.27	7.94	7.48	8.20	8.20	8.61	7.71	7.29	9.10	9.30
<b>RTC Market</b>												
10 Min Spin East	1.20	3.27	2.64	2.77	4.36	1.18	1.44	1.86	2.76	0.67	1.35	2.62
10 Min Spin West	0.74	1.61	0.86	0.81	1.48	0.04	0.69	0.70	1.53	0.20	0.81	1.68
10 Min Non Synch East	0.01	0.48	0.01	0.00	1.54	0.87	0.28	0.57	0.84	0.01	0.16	0.01
10 Min Non Synch West	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.02	0.00	0.00	0.00
30 Min SENY	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.00	0.00
30 Min East	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.02	0.00	0.00	0.00
30 Min West	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.02	0.00	0.00	0.00
Regulation	7.45	11.32	8.13	7.56	7.06	7.24	7.97	8.07	8.49	6.73	8.12	8.83
NYCA Regulation Movement	0.21	0.21	0.16	0.22	0.16	0.24	0.25	0.23	0.24	0.23	0.22	0.22
<b>Real Time Market</b>												
10 Min Spin East	2.12	5.31	3.84	3.44	4.59	2.56	2.47	2.59	4.79	1.32	2.40	4.57
10 Min Spin West	1.44	3.11	1.83	1.46	0.81	0.38	1.04	0.59	2.65	0.59	1.20	3.53
10 Min Non Synch East	0.12	1.03	0.17	0.01	2.41	2.01	0.83	1.19	1.97	0.09	0.61	0.09
10 Min Non Synch West	0.00	0.00	0.00	0.00	0.00	0.19	0.00	0.02	0.33	0.00	0.00	0.05
30 Min SENY	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.00	0.03
30 Min East	0.00	0.00	0.00	0.00	0.00	0.02	0.00	0.00	0.00	0.00	0.00	0.03
30 Min West	0.00	0.00	0.00	0.00	0.00	0.02	0.00	0.00	0.00	0.00	0.00	0.03
Regulation	8.12	12.91	9.11	8.32	7.30	7.97	8.80	8.60	9.69	7.32	8.98	10.73
NYCA Regulation Movement	0.20	0.21	0.17	0.15	0.16	0.24	0.24	0.24	0.24	0.23	0.22	0.21

## NYISO In City Energy Mitigation - AMP (NYC Zone) 2015 - 2016 Percentage of committed unit-hours mitigated

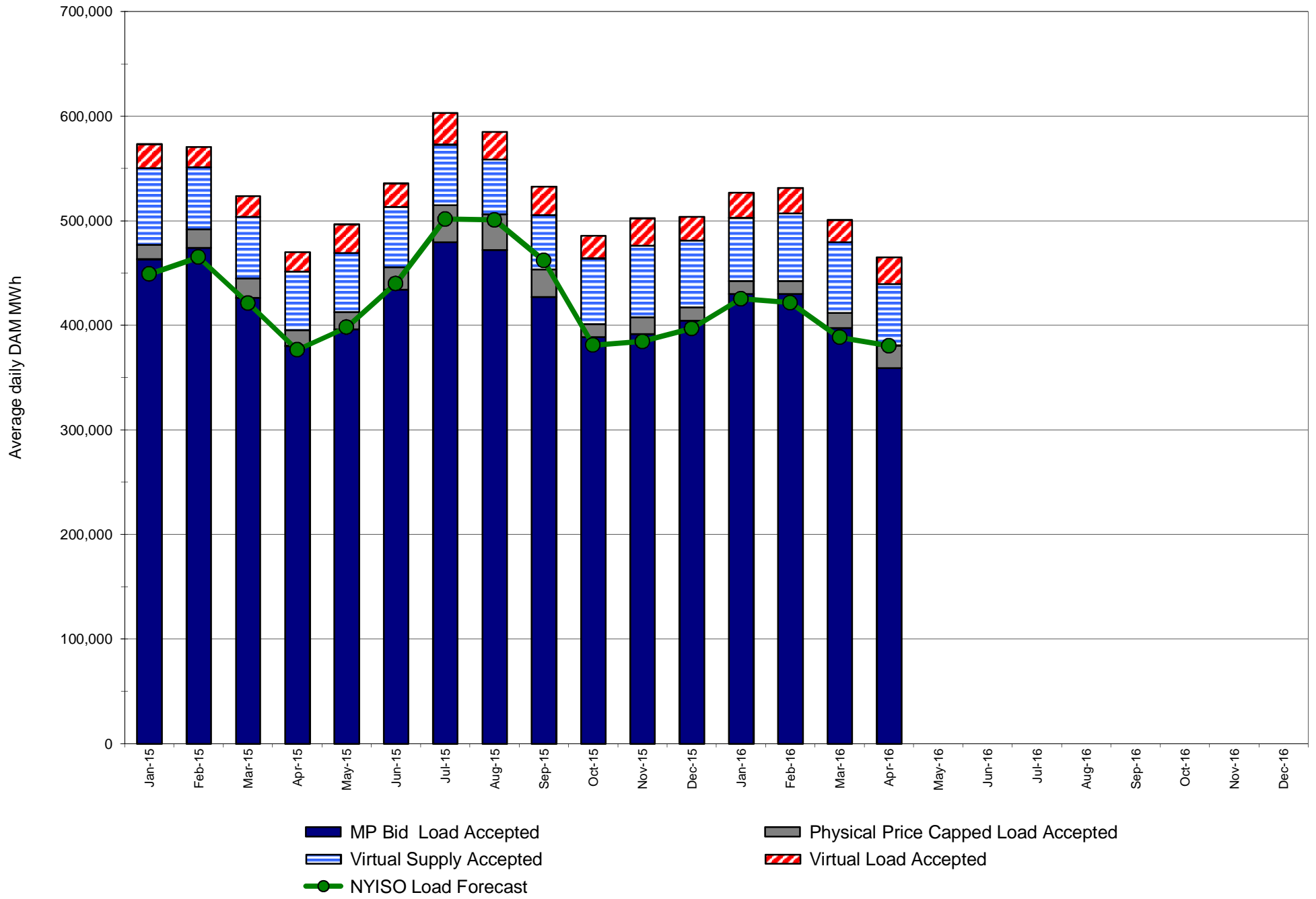




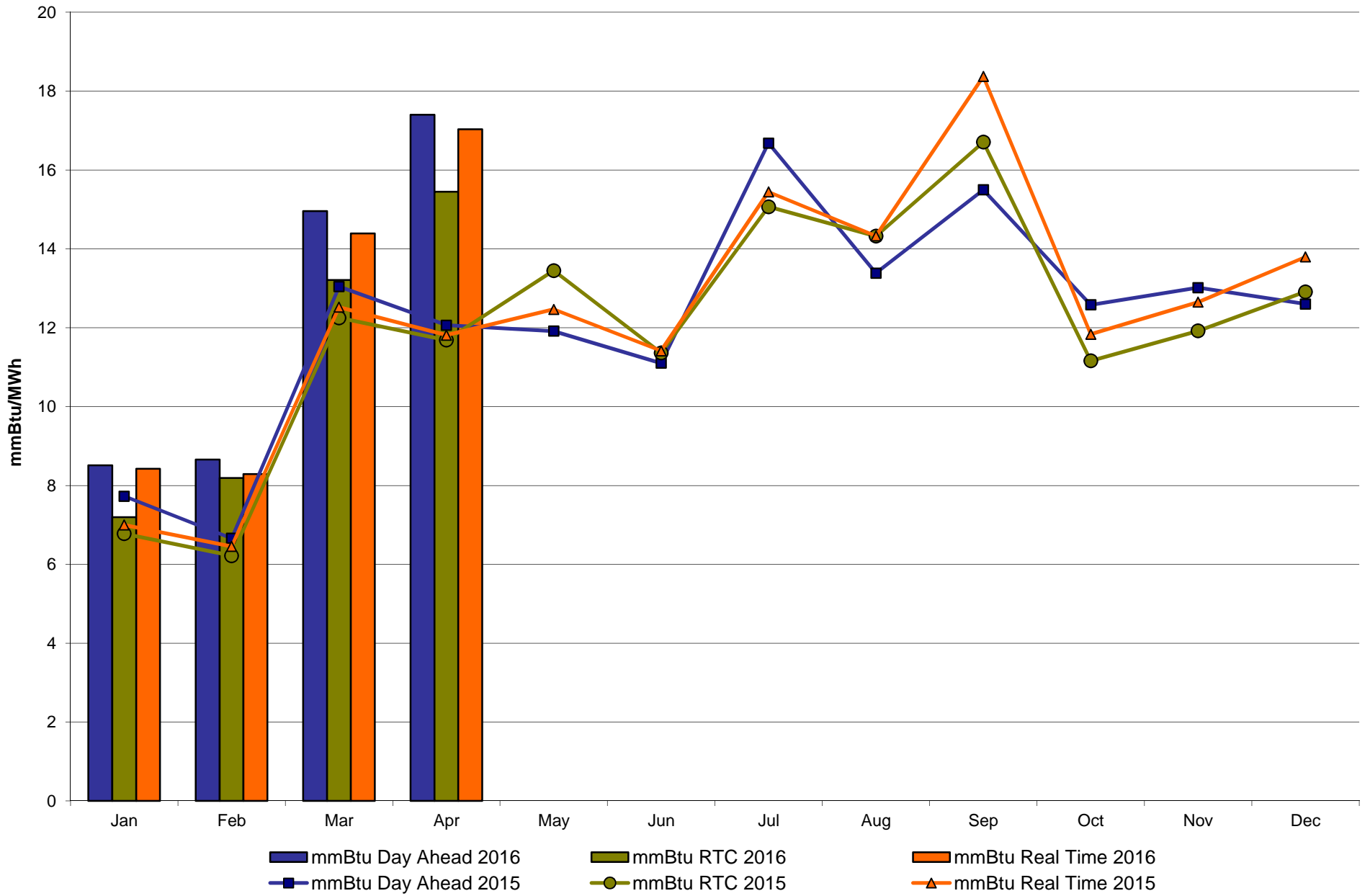
**NYISO In City Energy Mitigation (NYC Zone) 2015 - 2016**  
**Monthly megawatt hours mitigated**



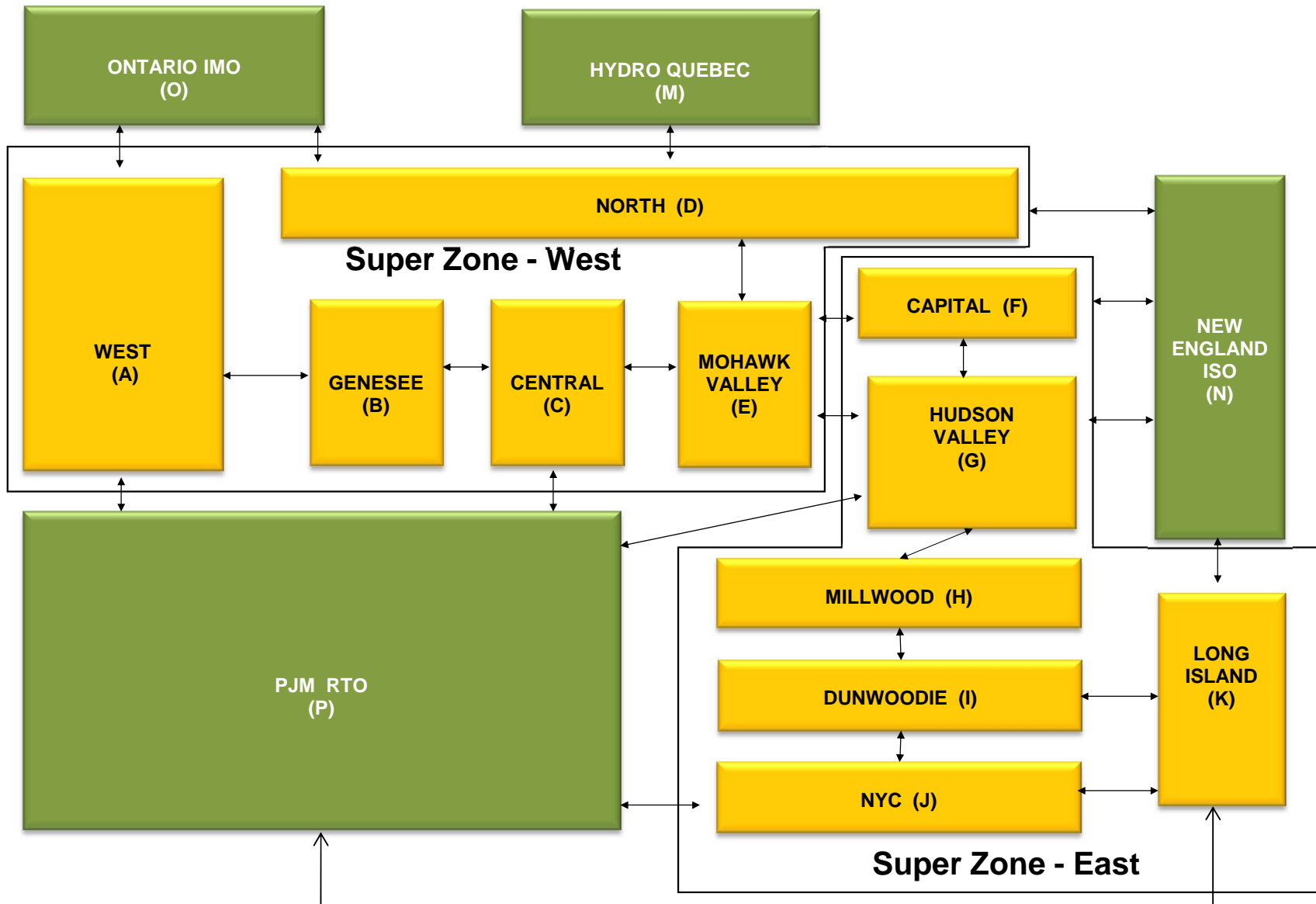
### NYISO Average Daily DAM Load Bid Summary



## Monthly Implied Heat Rate 2015-2016



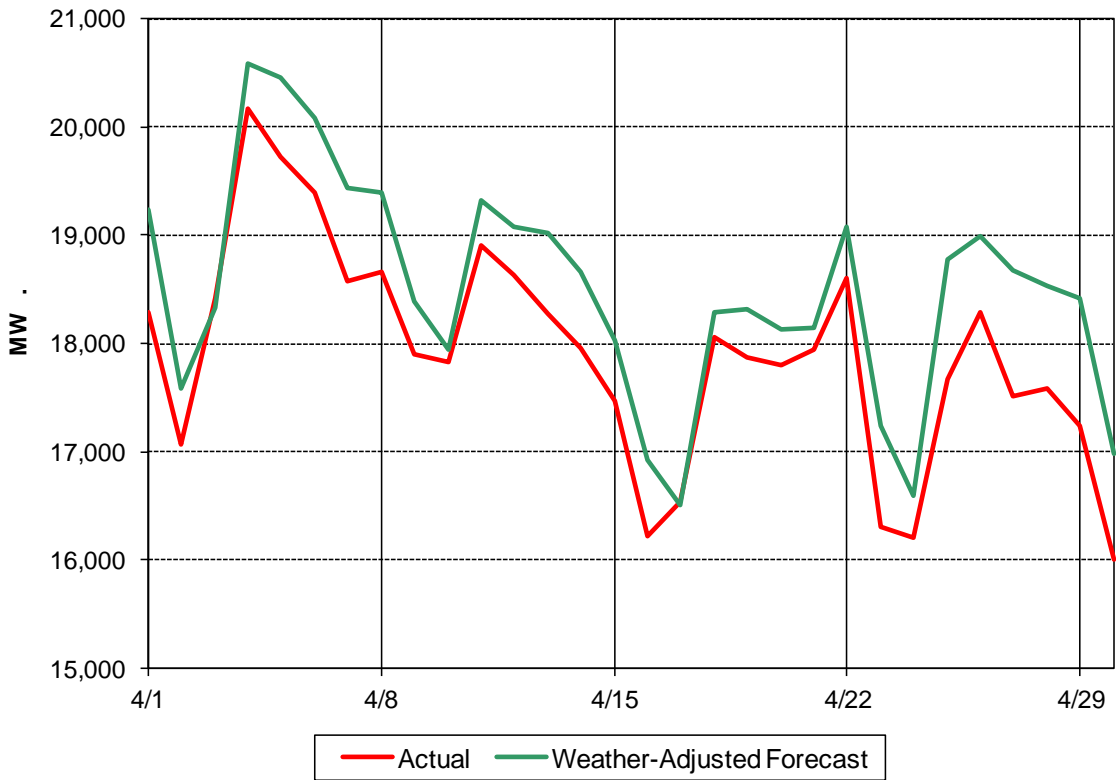
# NYISO LBMP ZONES



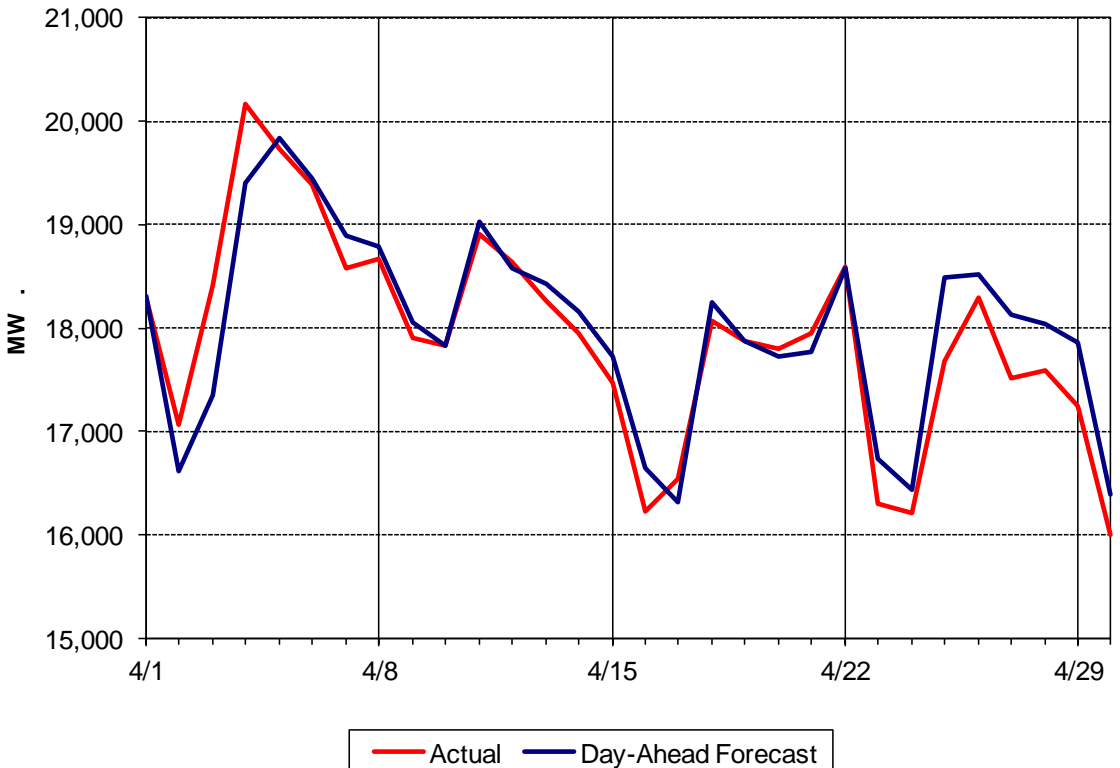
**Billing Codes for Chart C**

<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

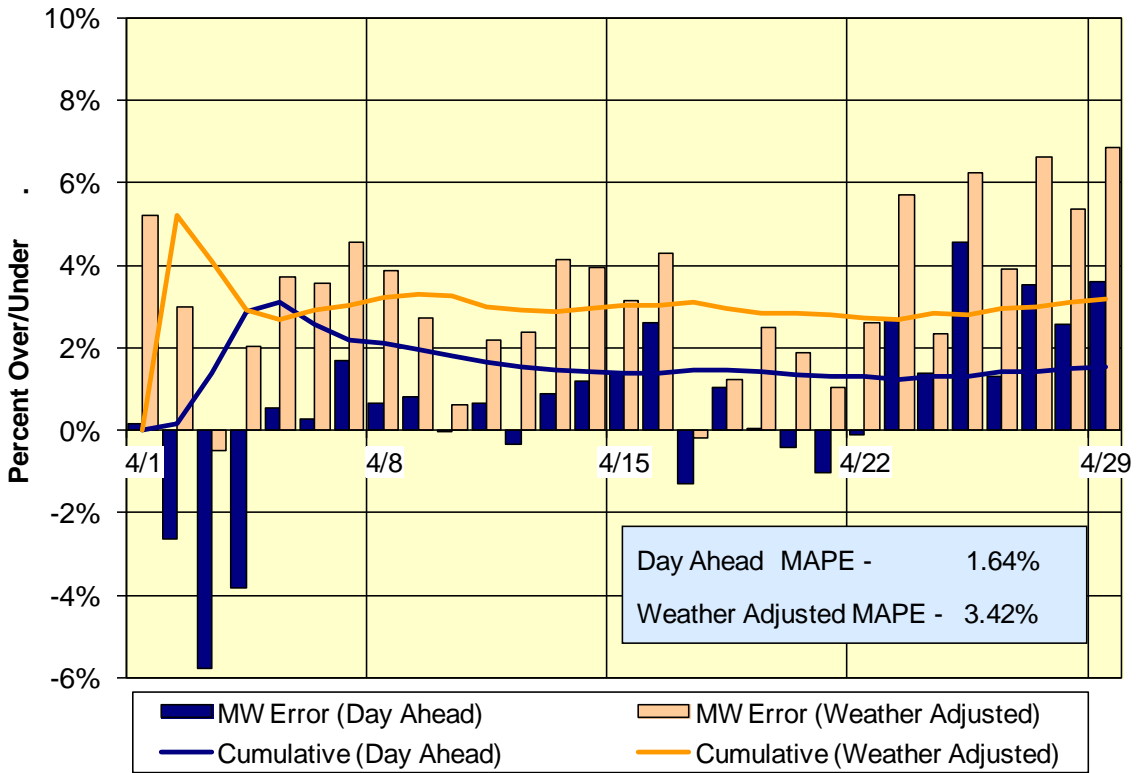
**NYISO Daily Peak Load - April 2016  
Actual vs. Weather-Adjusted Forecast**



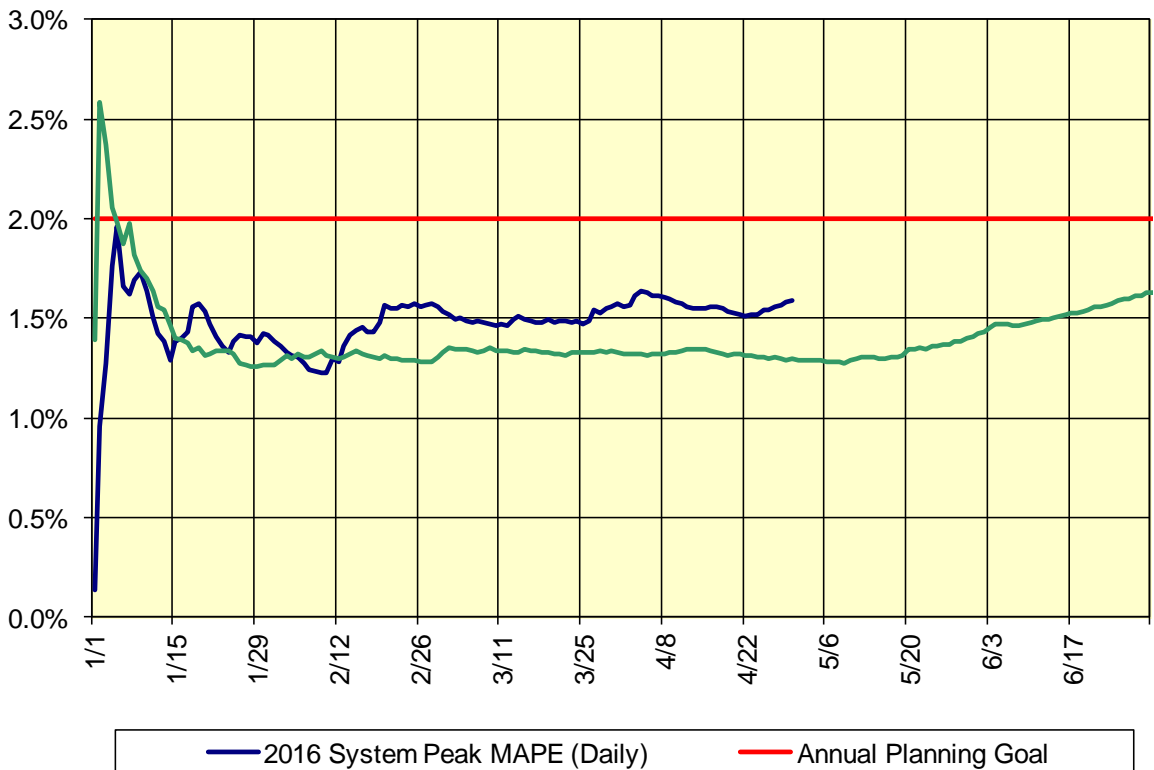
**NYISO Daily Peak Load - April 2016  
Actual vs. Forecast**



### Day Ahead Peak Forecast - April 2016 Percent Error - Actual & Weather Adjusted



### Day-Ahead Forecast Accuracy - Cumulative Performance 2016 Year-to-Date



## Summary Description of Regulatory Filings, Investigations, Rulemakings and Related Orders in NYISO Matters – April 2016

<b>Filing Date</b>	<b>Filing Summary</b>	<b>Docket</b>	<b>Order Date</b>	<b>Order Summary</b>
10/19/2015	NYISO compliance filing re: reliability must run (“RMR”) tariff provisions	ER16-120-000 EL15-37-001	04/21/2016	FERC Order accepted in part, rejected in part, directed a further compliance filing within 60 days (i.e., 06/20/2016) and rejected requests for rehearing and clarification of the RMR Order
02/09/2016	NYISO filing re: submission of ministerial revisions to remove rejected tariff language from OATT Section 31.4 and corrected tariff records in various dockets that were inadvertently filed without previously accepted language in OATT Section 6.1.6	ER13-1942-002	04/01/2016	FERC letter order accepted filing subject to further compliance to revise certain tariff records
02/11/2016	NYISO filing on behalf of Niagara Mohawk Power Corp. re: Large Generator Interconnection Agreement (SA No. 2260) between NMPC and Indeck-Corinth	ER16-925-000	04/05/2016	FERC letter order accepted the filing, effective 11/19/2015, as requested, subject to a compliance filing to be filed within 15 days (i.e., 04/20/2016)
02/18/2016	NYISO filing re: revisions to the public policy transmission planning process portion of NYISO’s Comprehensive System Planning Process	ER16-966-000	04/18/2016	FERC order accepted and rejected in part NYISO’s proposed PPTPP tariff revisions and directed a compliance filing to be filed within 30 days (i.e., 05/18/2016)
02/19/2016	NYISO and Niagara Mohawk Power Corp. (NMPC) joint filing re: notice of termination (SA 1483) among NYISO, NMPC and Green Power Energy	ER16-975-000	04/29/2016	FERC order rejected the notice of termination
02/22/2016	NYISO filing, on behalf of Consolidated Edison re: an amended and restated facilities agreement (SA 2263) between Con Edison and Central Hudson Gas & Electric Corporation	ER16-981-000	04/11/2016	FERC letter order accepted the filing effective 02/02/2016
04/01/2016	NYISO filing re: submission of FERC Form No. 715 Annual Transmission Planning and Evaluation Report (CEII Filing)	No Docket No.		
04/01/2016	NYISO filing re: comments concerning the Notice of Termination of an SGIA among, NYISO, Niagara Mohawk Power Corporation and Grid and Green Power Energy Notice	ER16-975-000		
04/04/2016	NYISO filing re: comments in response to FERC’s NOPR on Offer Caps in Markets Operated by RTOs and ISOs	RM16-5-000		



04/04/2016	IRC filing re: comments in response to FERC's NOPR on Offer Caps in Markets Operated by RTOs and ISOs	RM16-5-000		
04/12/2016	NYISO compliance filing on behalf of NY Transco re: transmission formula rate template and protocols	ER15-572-005		
04/13/2016	NYISO compliance filing re: revisions to the buyer-side market mitigation rules	ER16-1404-000		
04/14/2016	NYISO confidential NYPSC filing re: Reliability Commitment Data Report for the period ending 03/31/2016	PSC Matter No. 10-02007		
04/20/2016	NYISO compliance filing on behalf of Niagara Mohawk Power Corp. re: Large Generator Interconnection Agreement (SA No. 2260) between NMPC and Indeck-Corinth	ER16-925-001		
04/20/2016	IRC filing re: request for extension of time to respond to the data request regarding electric storage participation	AD16-20-000		
04/22/2016	NYISO filing re: comments concerning the DPS Staff White Paper on the Clean Energy Standard	PSC Case No. 15-E-0302		
04/22/2016	NYISO filing re: answer to third party comments and limited protests of NYISO's Behind-the-Meter Net Generation tariff filing	ER16-1213-000		
04/25/2016	NYISO joint filing with ISO-NE, PJM, SPP and IESO re: comments in response to the FERC Notice of Inquiry on frequency response levels required for grid reliability	RM16-6-000		
04/25/2016	NYISO filing re: First Quarter 2016 Electric Quarterly Report	ER02-2001-000		No order to be issued.
04/27/2016	NYISO filing re: answer to third party comments and protest of NYISO's supplemental compliance filing in the Order No. 1000 proceeding	ER13-102-009		
04/28/2016	NYISO filing re: FERC Reporting Requirement No. 582 – report of total megawatt-hours of transmission service in interstate commerce for the calendar year 2015	No Docket No.		No order to be issued.