

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



## ***March 2016 Report***

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

Prepared by NYISO Operations Analysis and Services, based on settlements initial settlement data collected on or before April 8, 2016.

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## March 2016 Operations Performance Highlights

- Peak load of 21,234 MW occurred on 03/03/2016 HB 18
- All-time winter capability period peak load of 25,738 MW occurred on 1/7/2014 HB 18
- 3 hours of Thunder Storm Alerts were declared
- 0 hours of NERC TLR level 3 curtailment
- A Major Emergency was declared on 03/02/2016 in HB02 for the loss of 1,260MW of generation in ISONE causing the Central East interface flow to exceed its voltage collapse limit.
- A Major Emergency was declared on 03/02/2016 in HB08 for a trip of the Gilboa-Fraser 345kV (#GF5-35) circuit causing the Central East interface flow to exceed its voltage collapse limit.
- Huntley 67 and 68 generator statuses changed to retired as of 03/01/2016
- The following table identifies the estimated production cost savings associated with the Broader Regional Market initiatives.

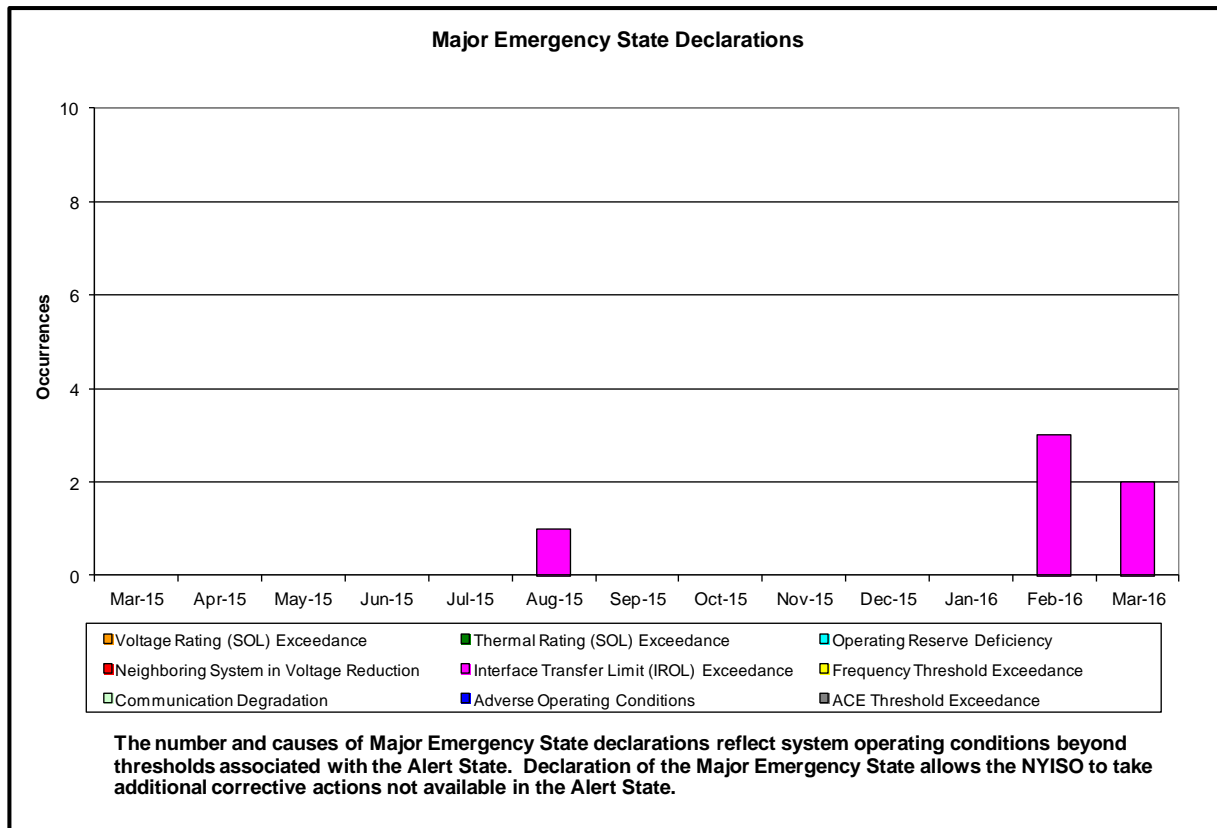
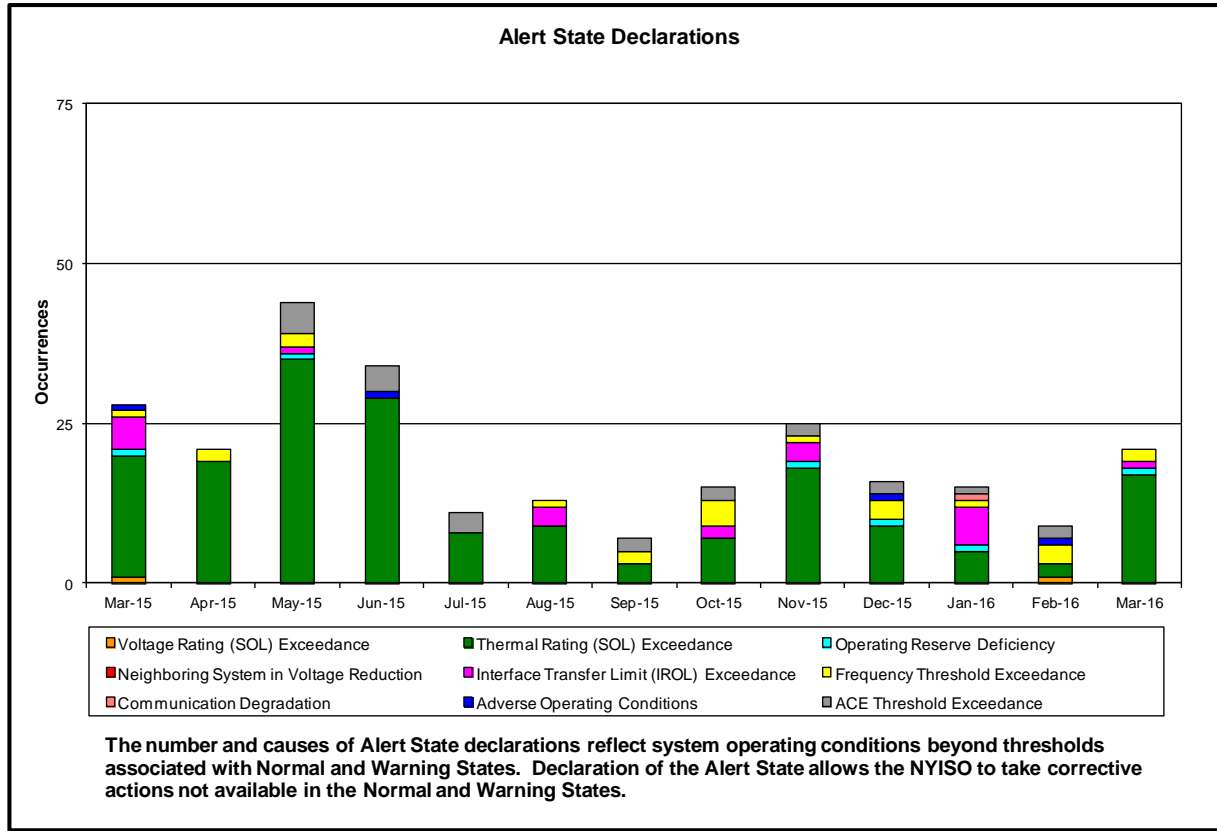
	Current Month Value (\$M)	Year-to-Date Value (\$M)
<b>NY Savings from PJM-NY Congestion Coordination</b>	\$1.65	\$12.70
<b>NY Savings from PJM-NY Coordinated Transaction Scheduling</b>	(\$0.03)	\$0.09
<b>NY Savings from NE-NY Coordinated Transaction Scheduling</b>	(\$0.06)	(\$0.66)
<b>Total NY Savings</b>	\$1.56	\$12.13
<b>Regional Savings from PJM-NY Coordinated Transaction Scheduling</b>	\$0.27	\$0.74
<b>Regional Savings from NE-NY Coordinated Transaction Scheduling</b>	\$0.11	\$0.39
<b>Total Regional Savings</b>	\$0.38	\$1.13

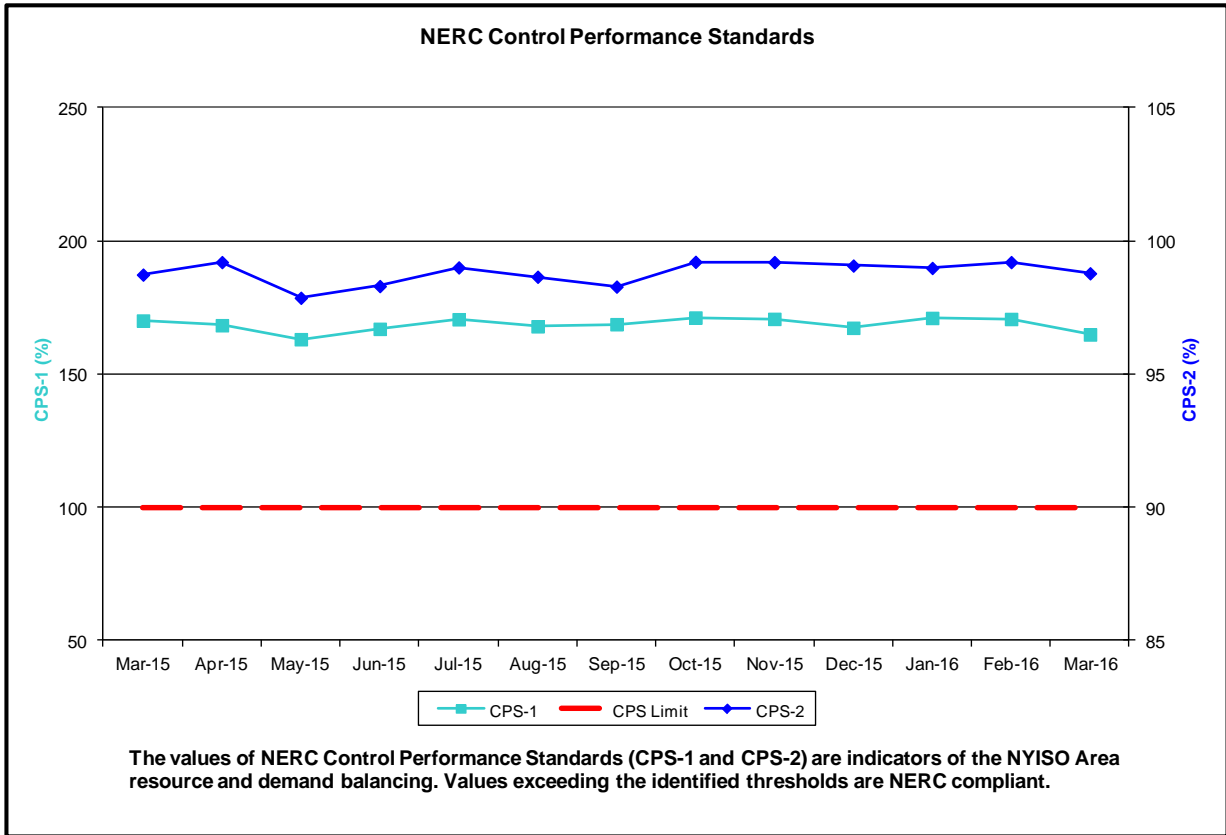
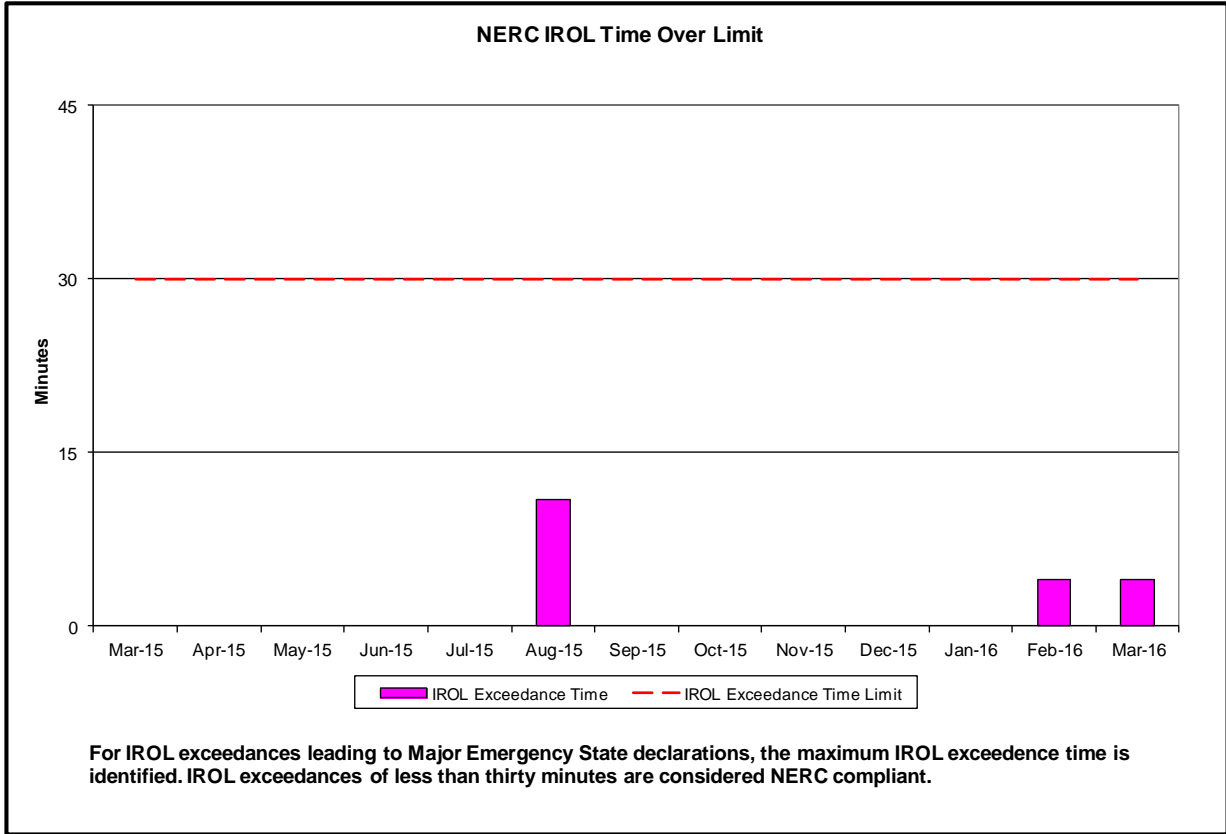
- Statewide uplift cost monthly average was (\$0.09)/MWh
- The following table identifies the Monthly ICAP spot market prices by locality and the price delta.

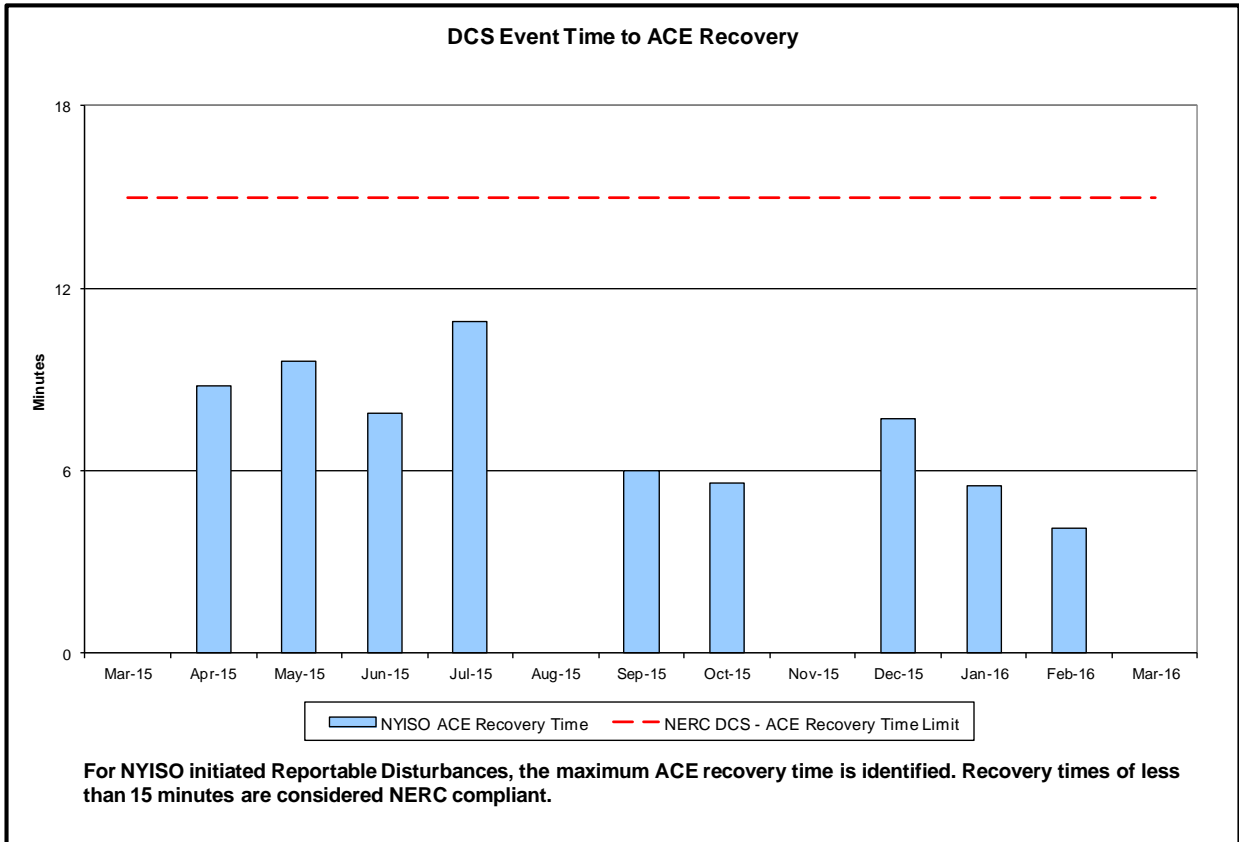
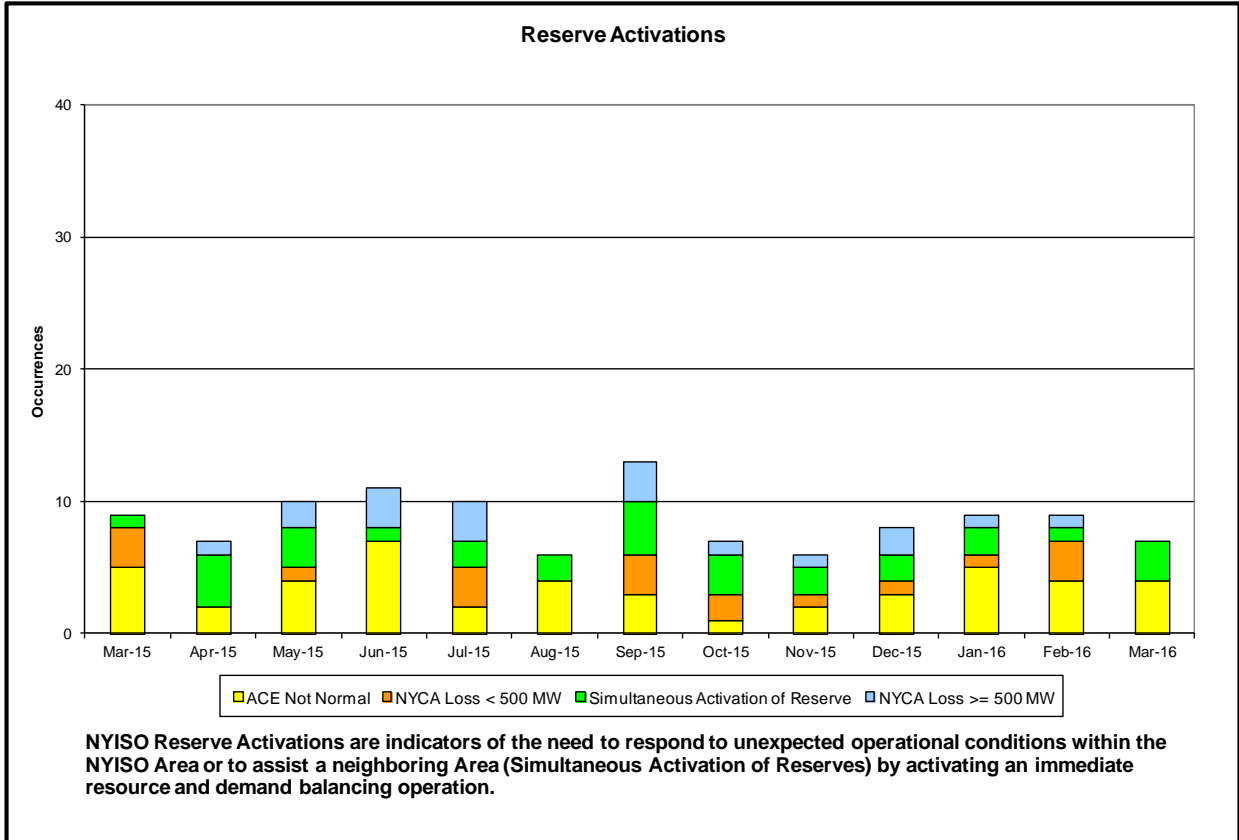
Spot Auction Price Results	NYCA	Lower Hudson Valley Zones	New York City Zone	Long Island Zone
April 2016 Spot Price	\$0.58	\$3.03	\$5.65	\$1.60
March 2016 Spot Price	\$0.54	\$3.14	\$5.81	\$1.52
Delta	\$0.04	(\$0.11)	(\$0.16)	\$0.08

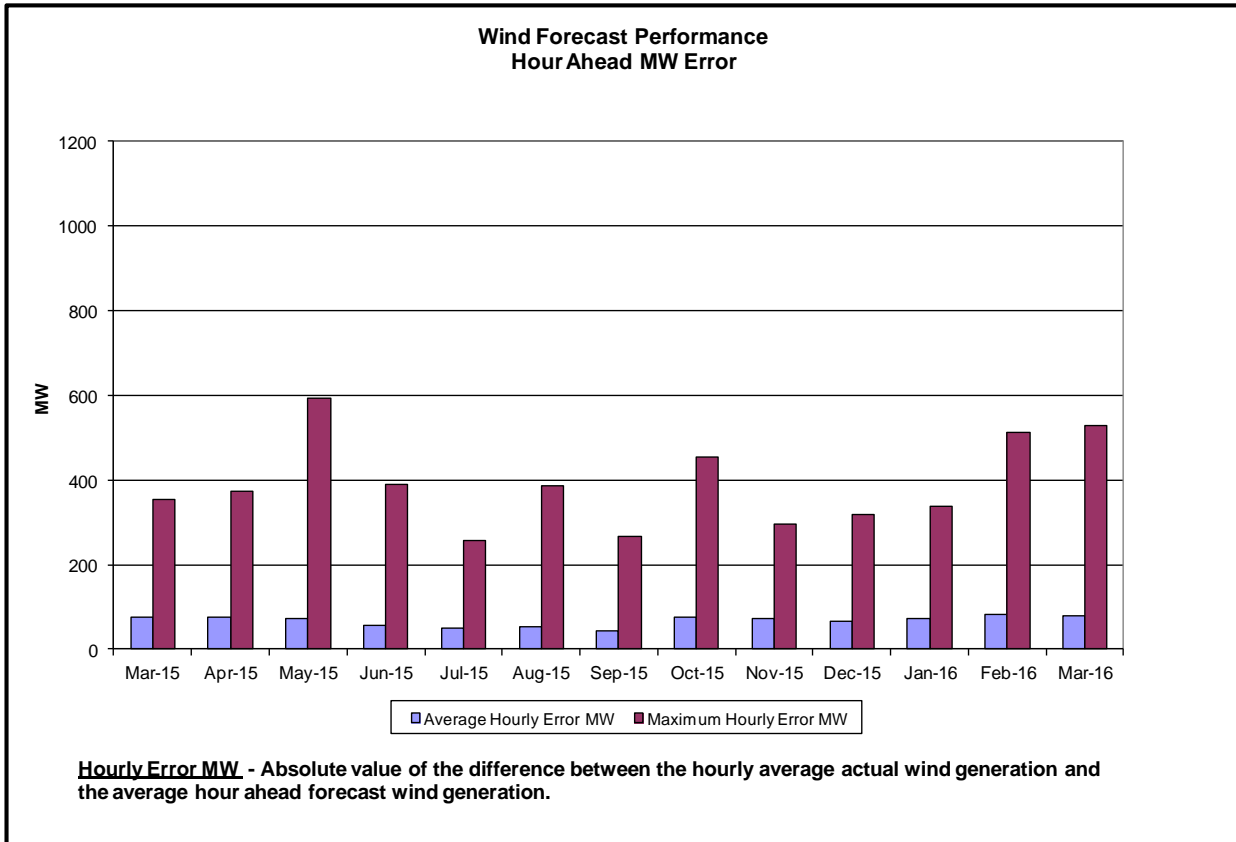
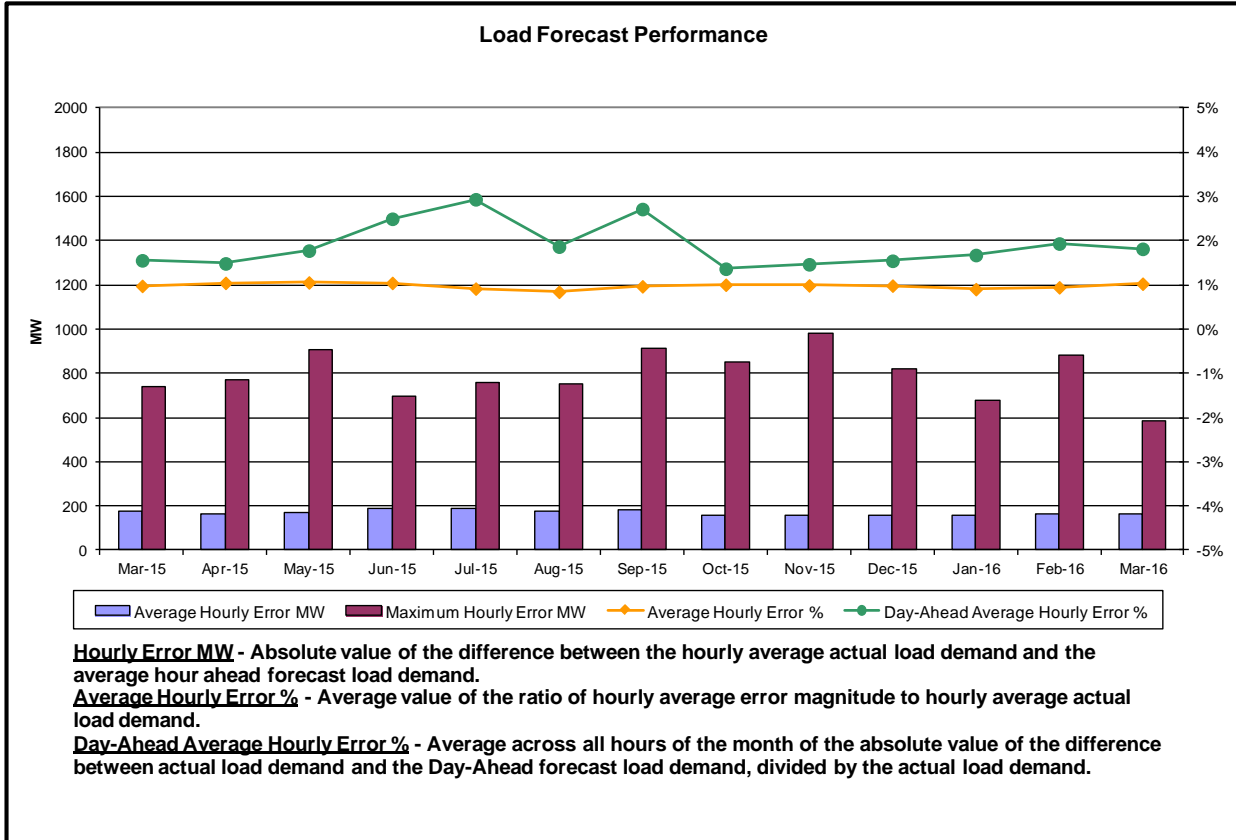
- LHV & NYC - Price decreased \$0.11 in LHV and \$0.16 in NYC due to an increase in SCR MW Available.

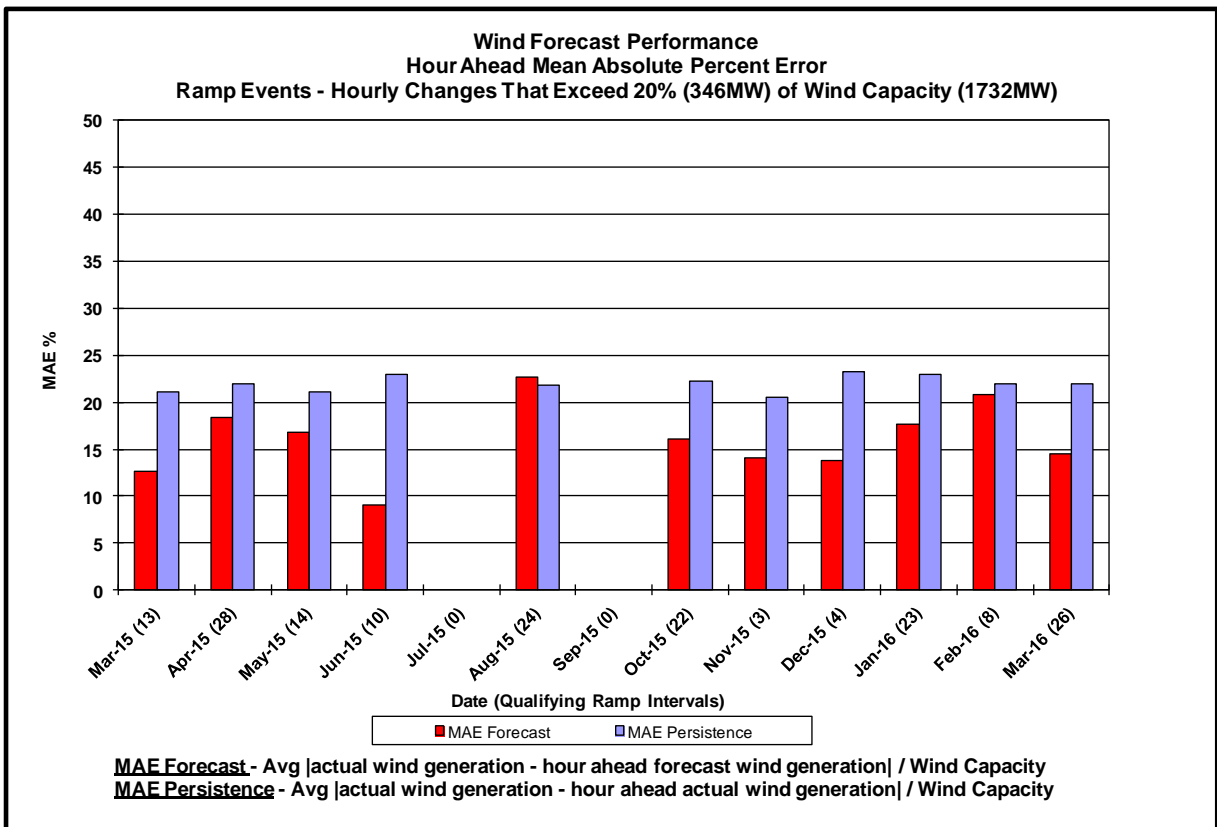
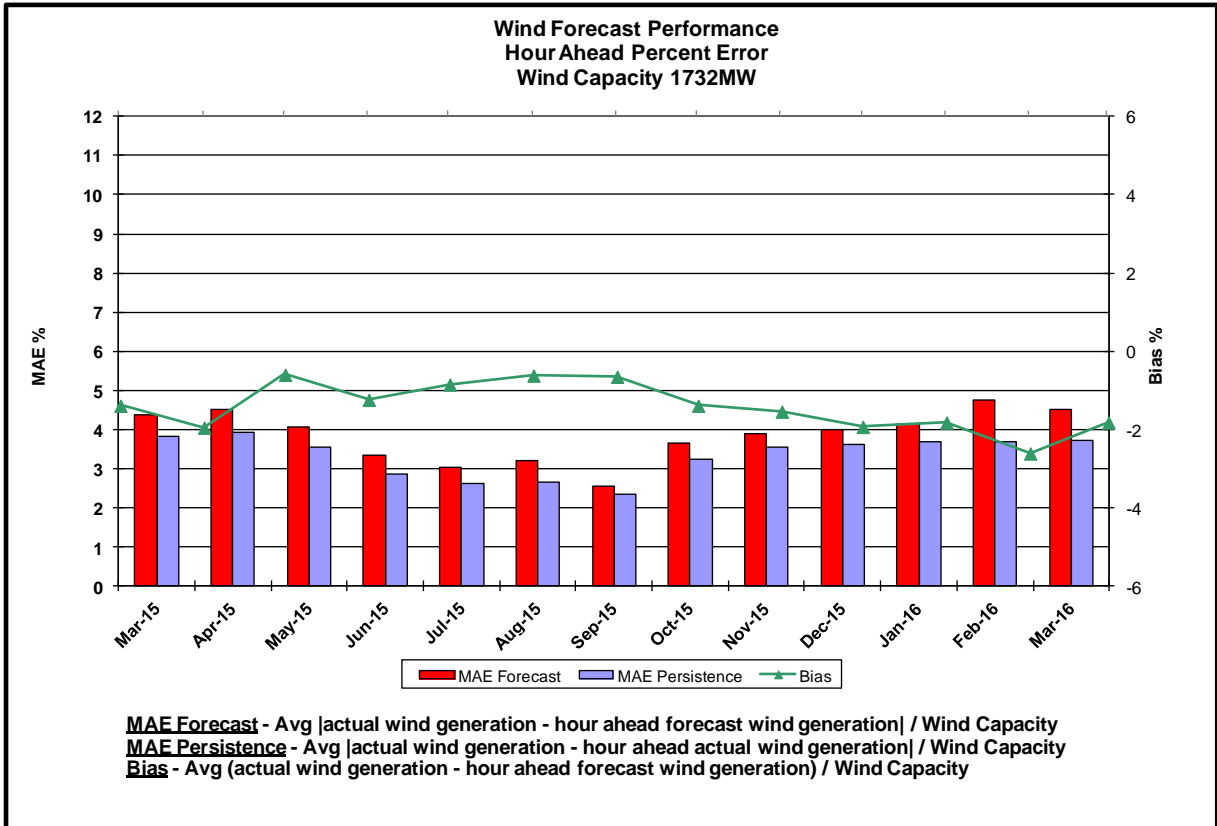
## Reliability Performance Metrics



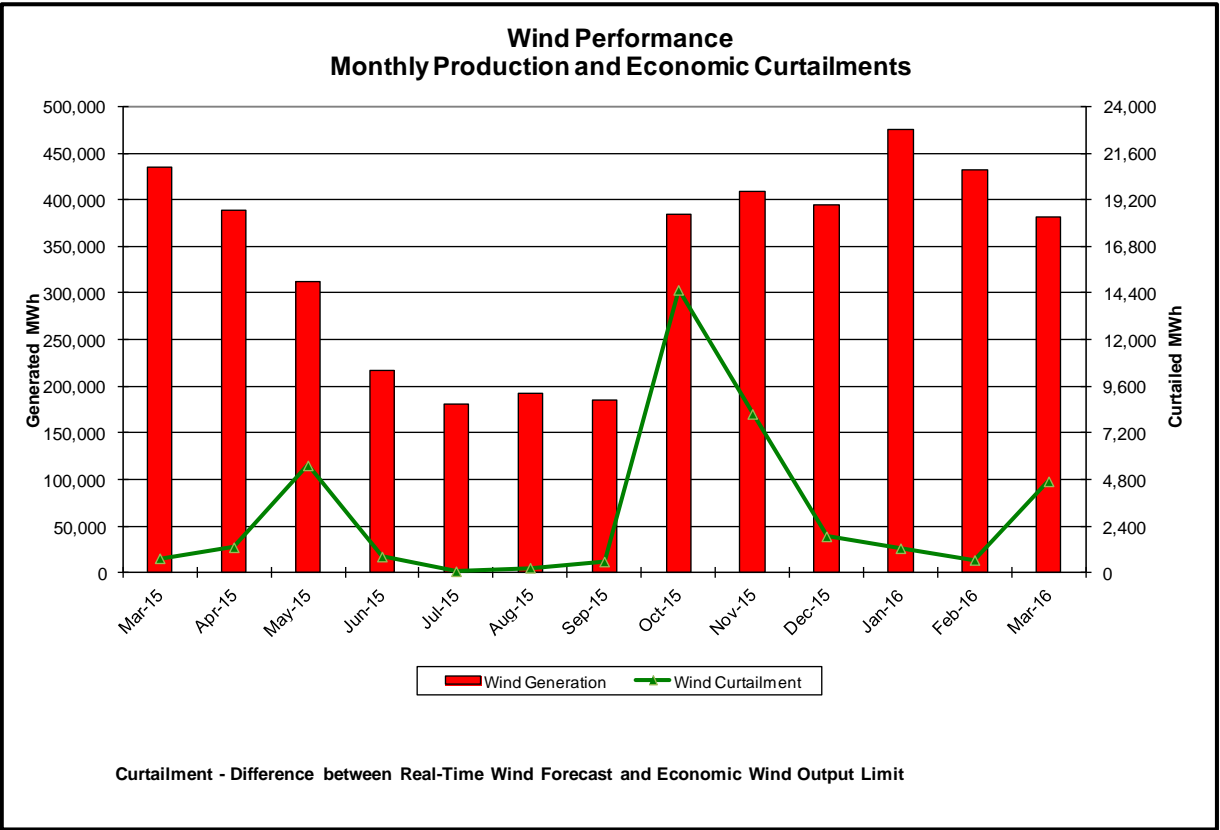
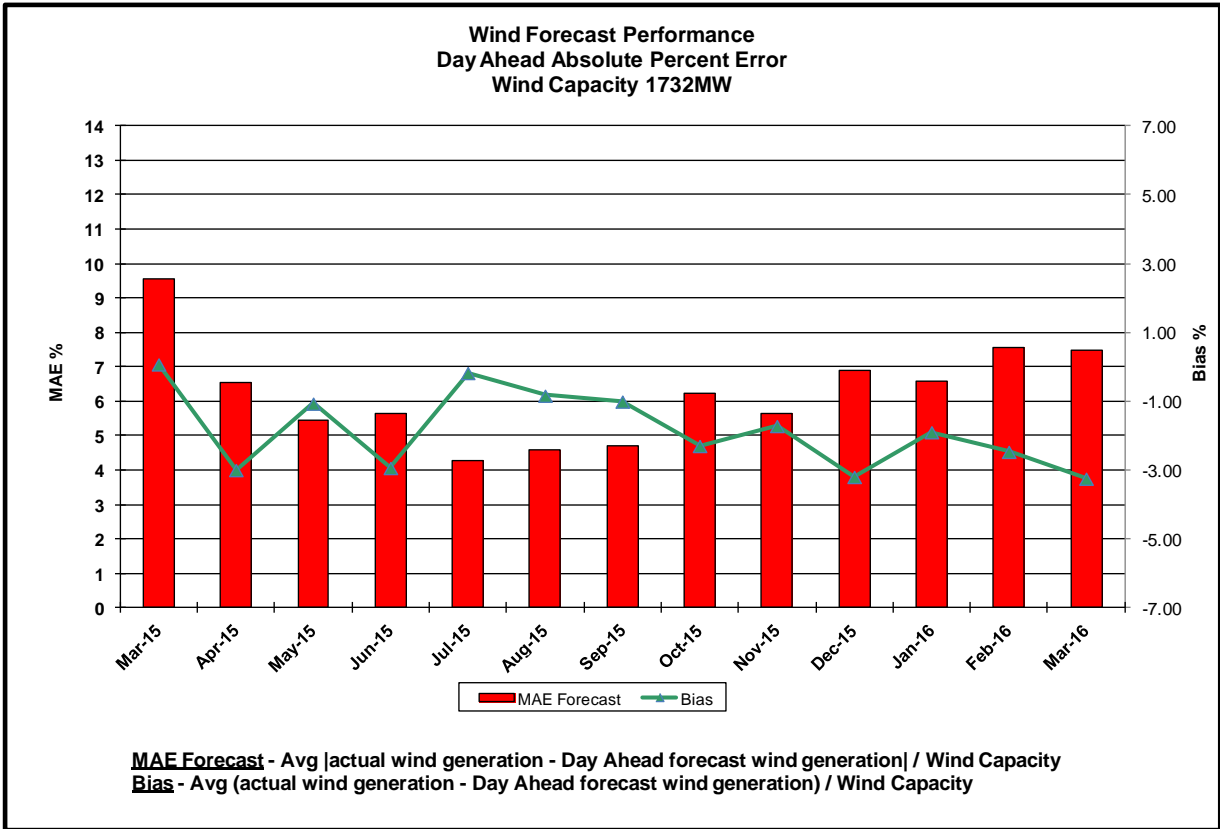


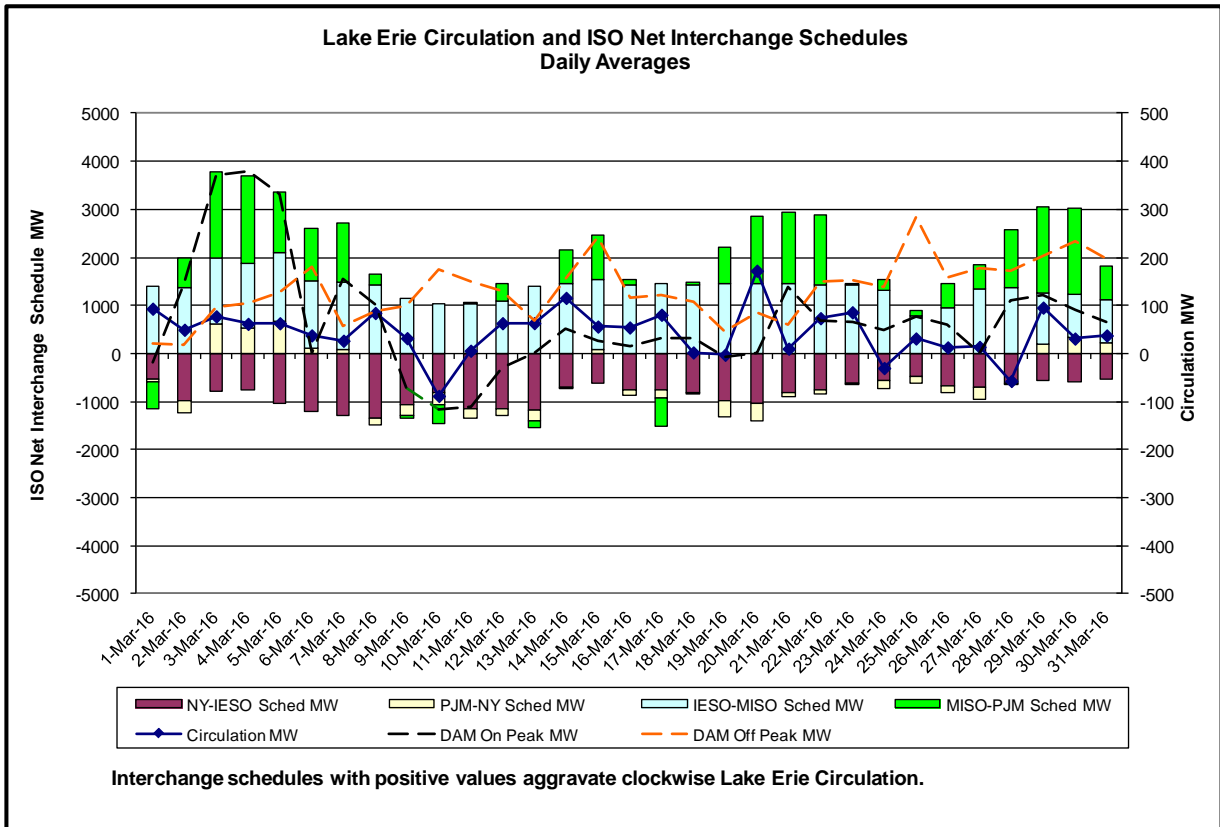
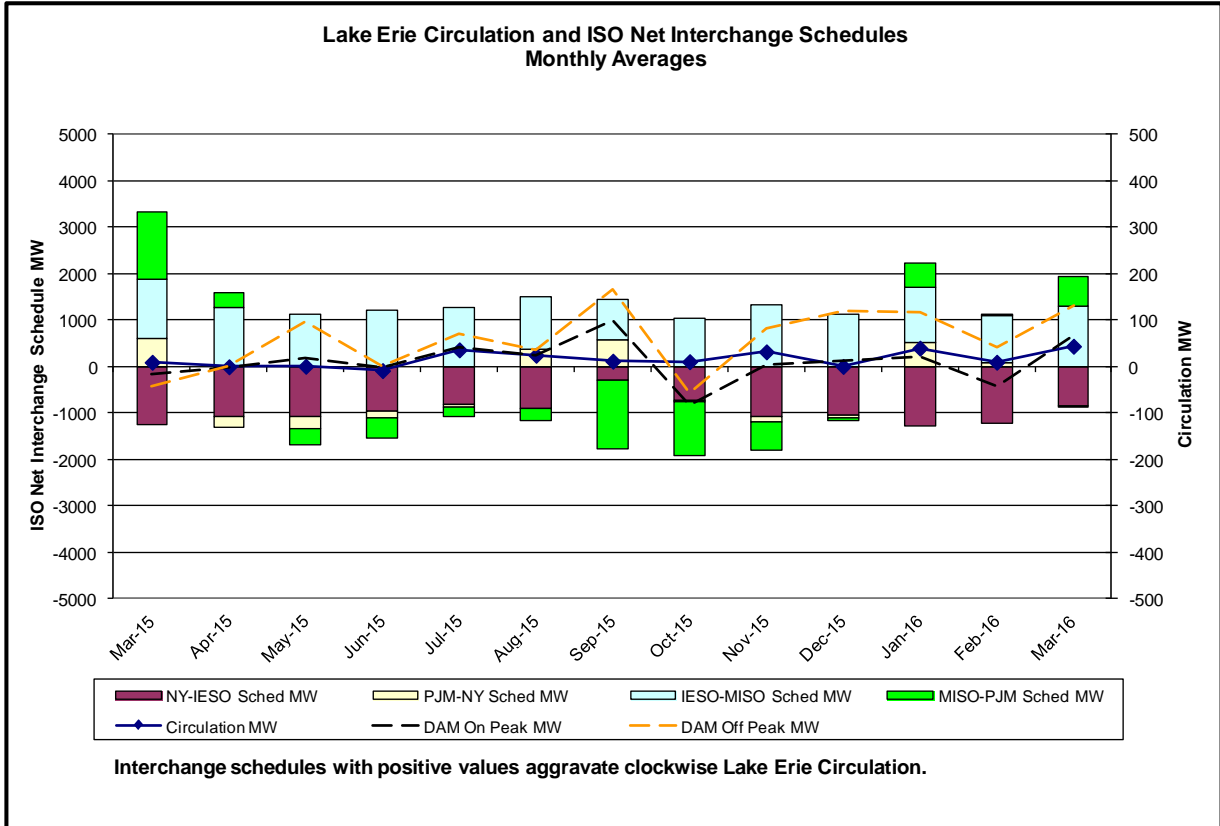




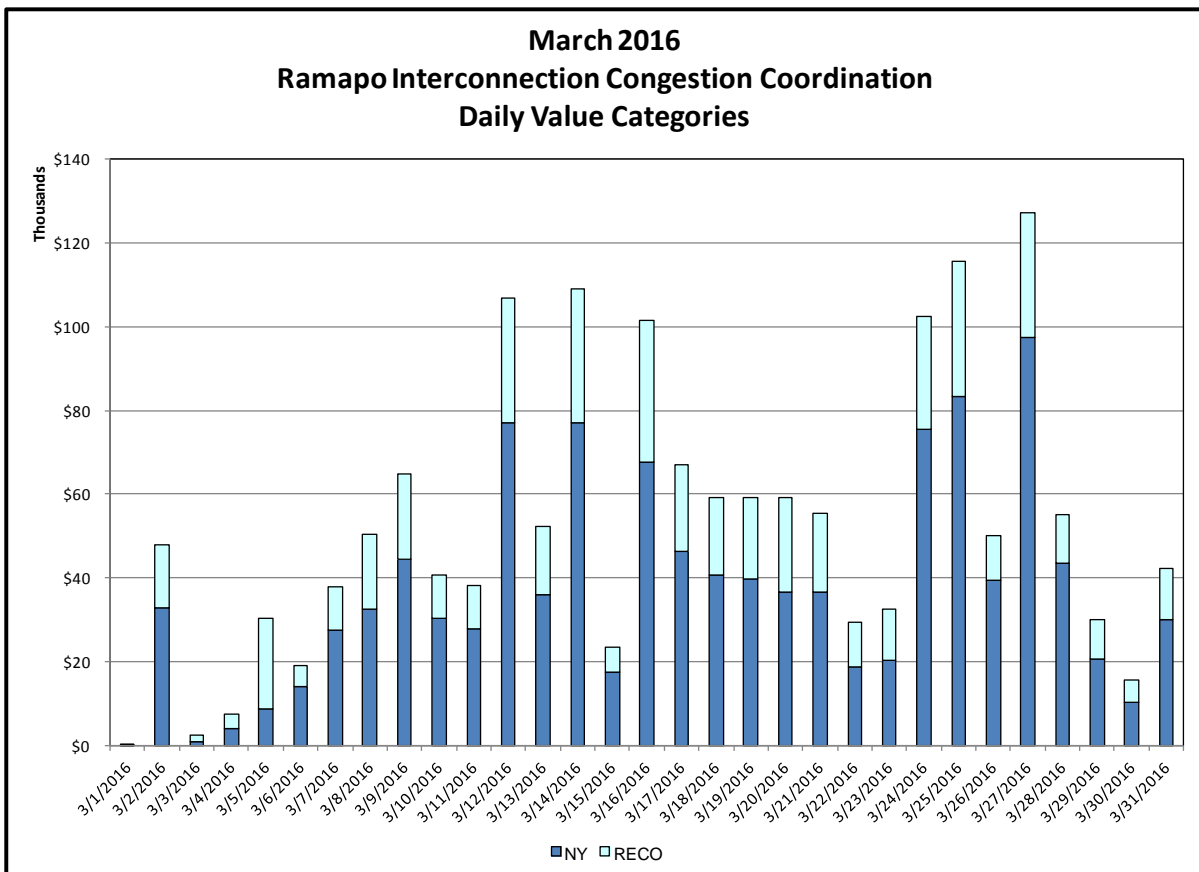
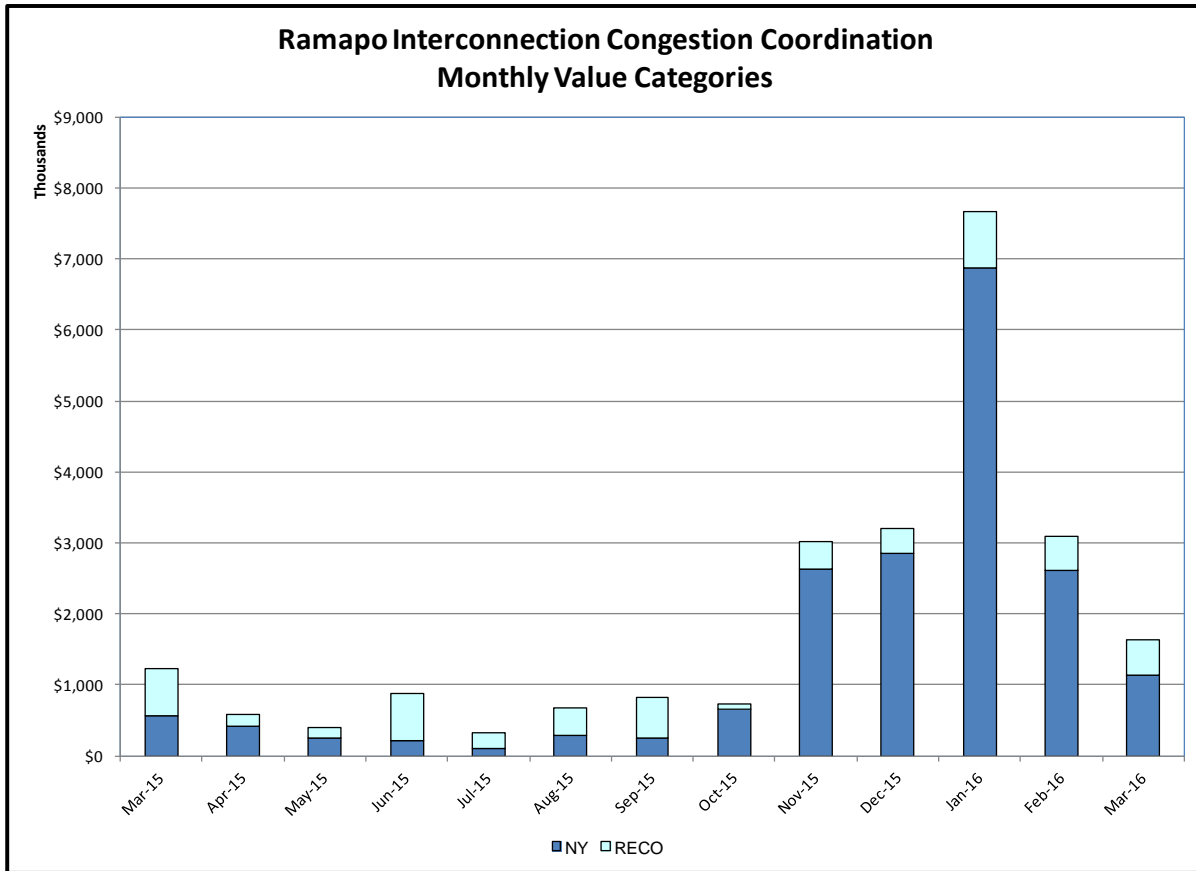






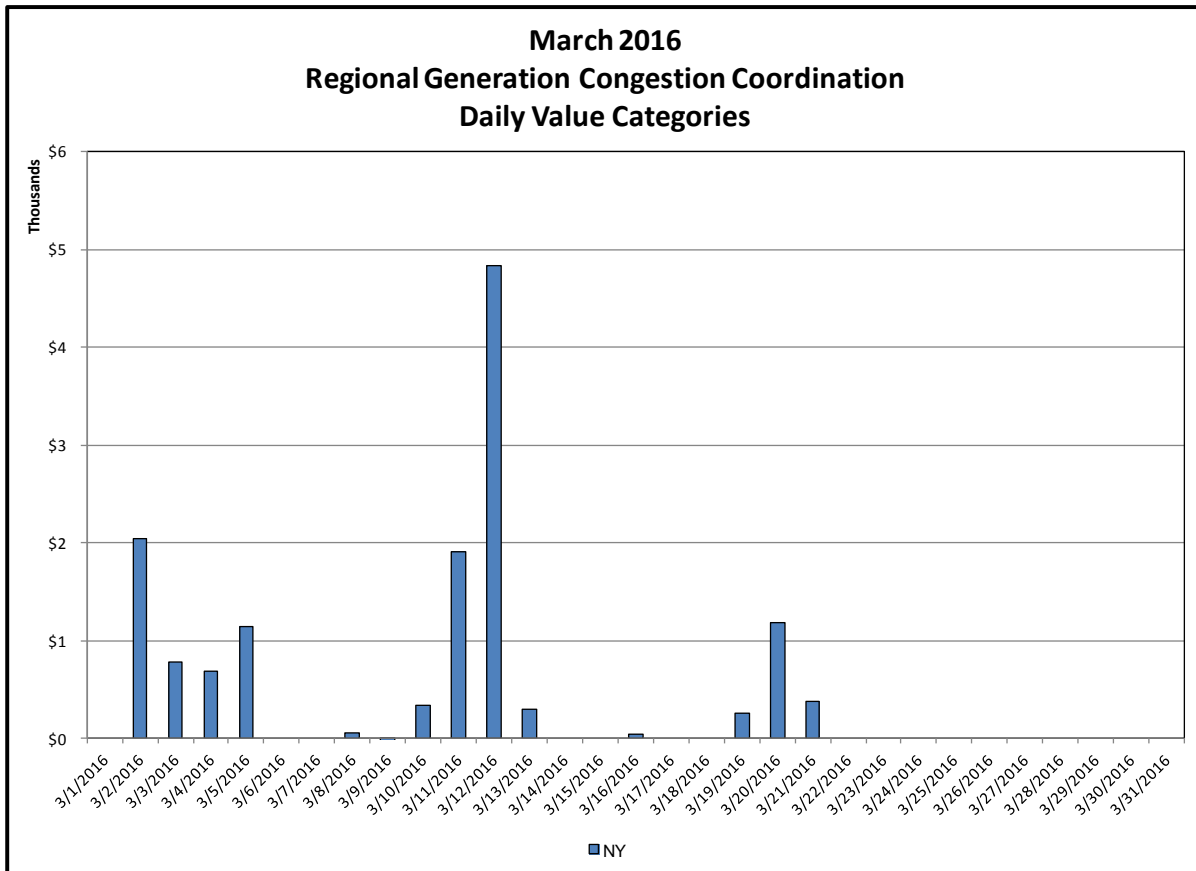
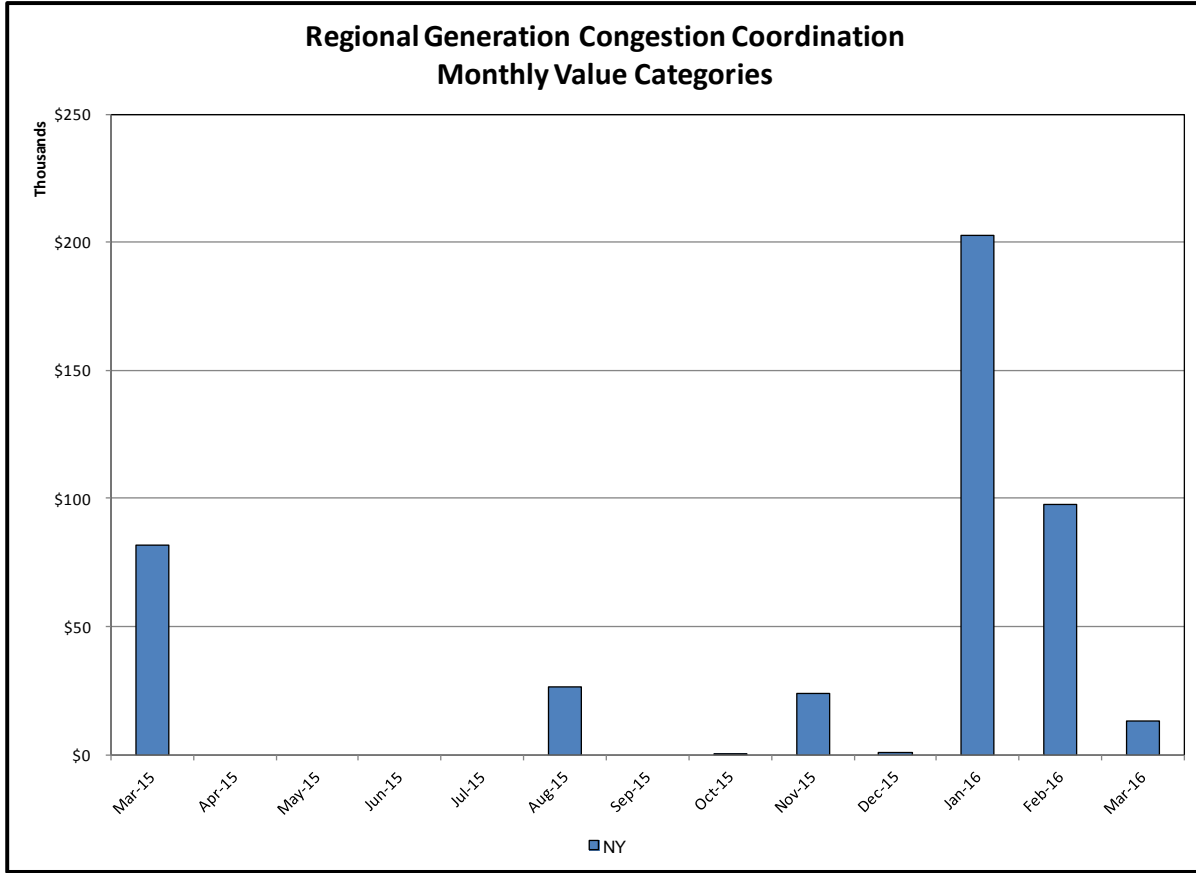


## Broader Regional Market Performance Metrics



**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.



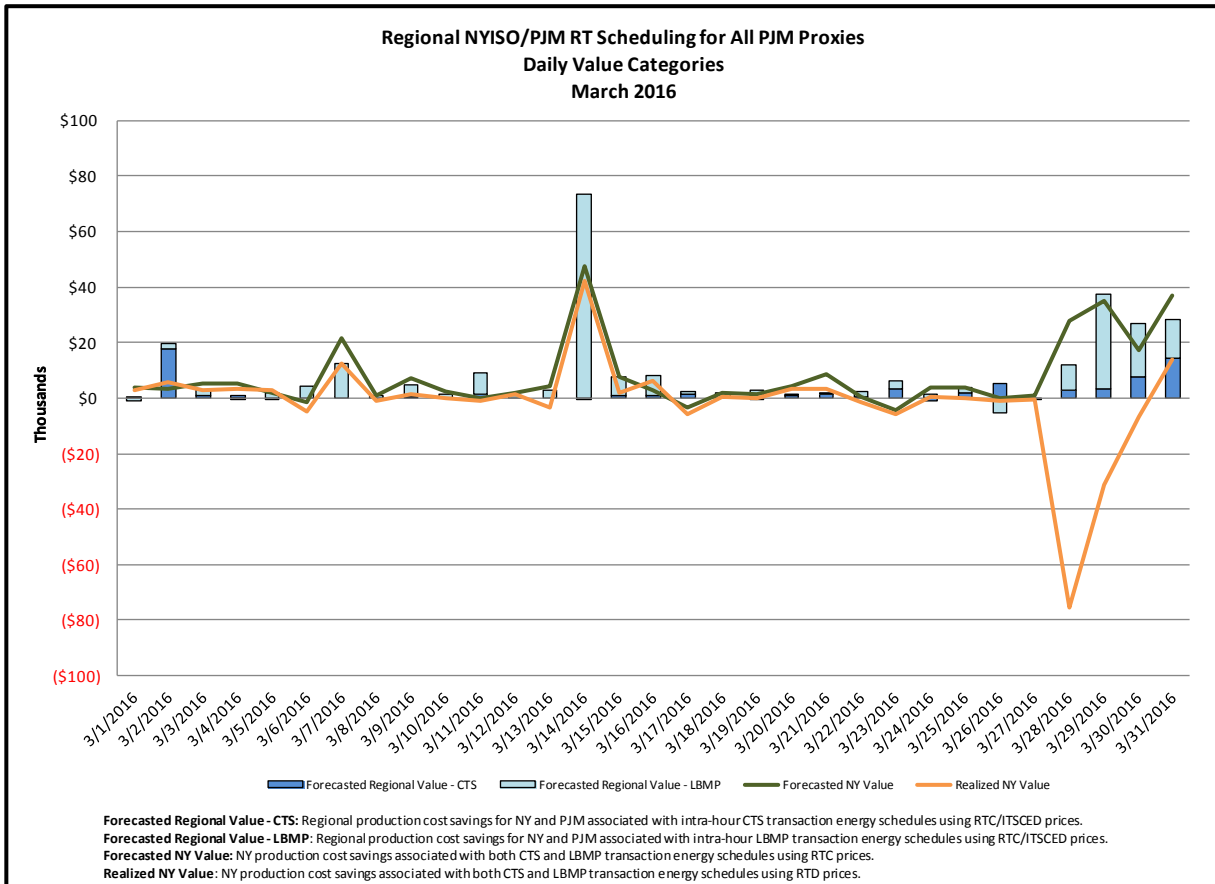
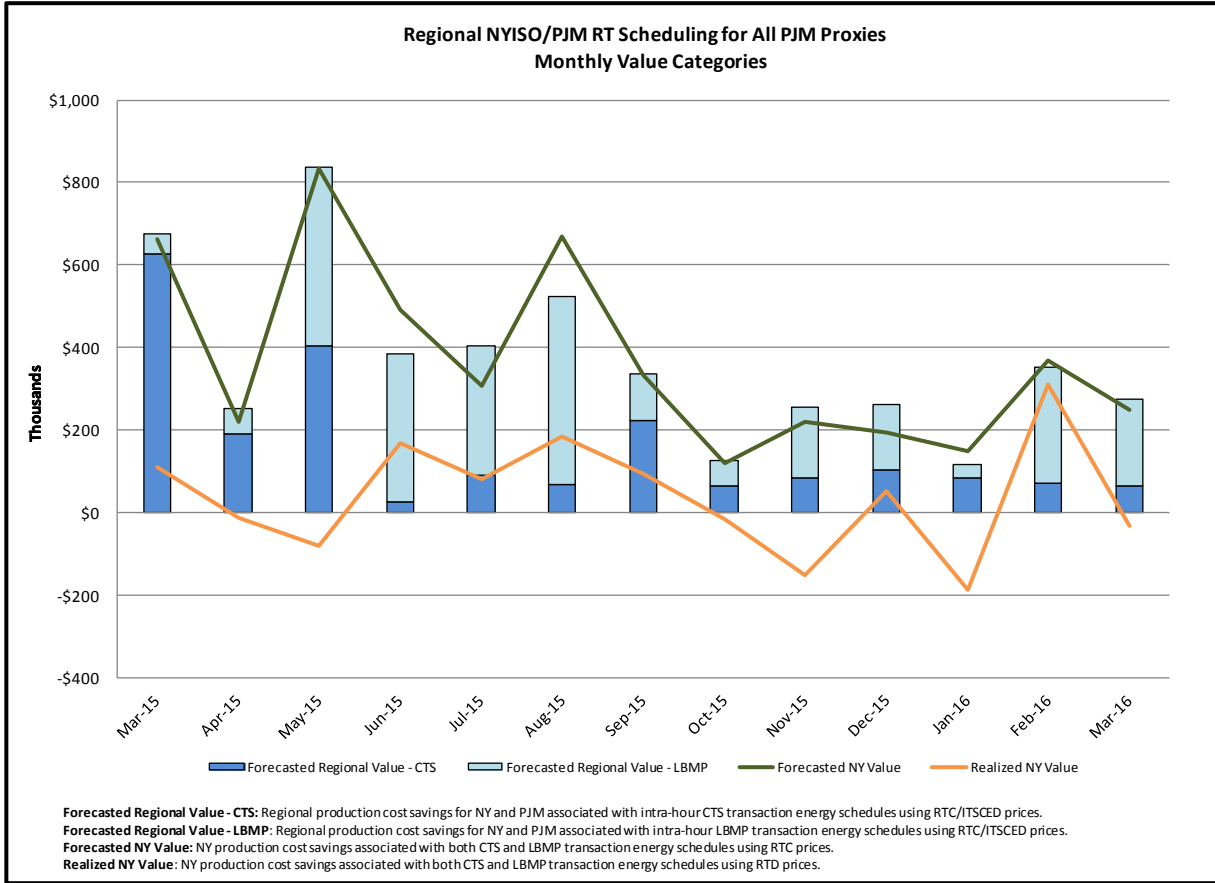
### Regional Generation Congestion Coordination

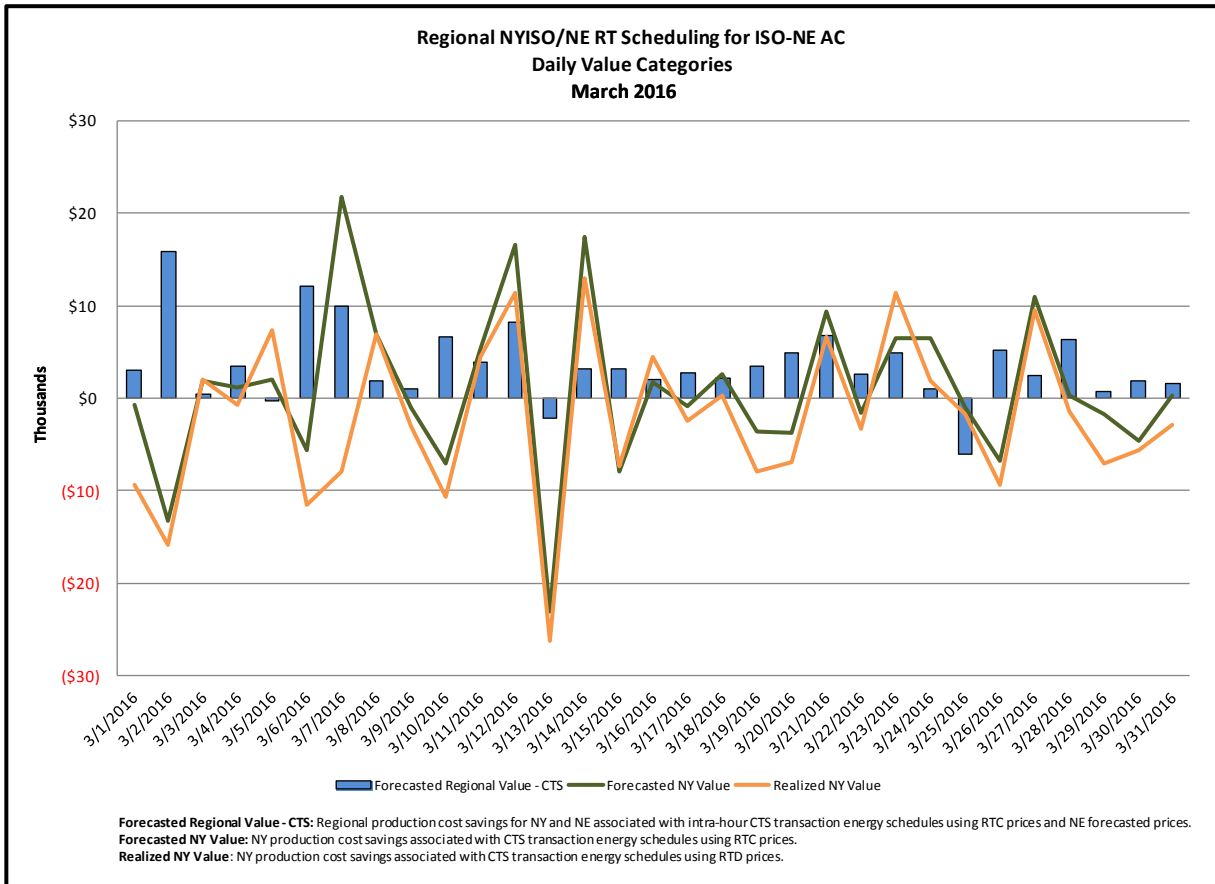
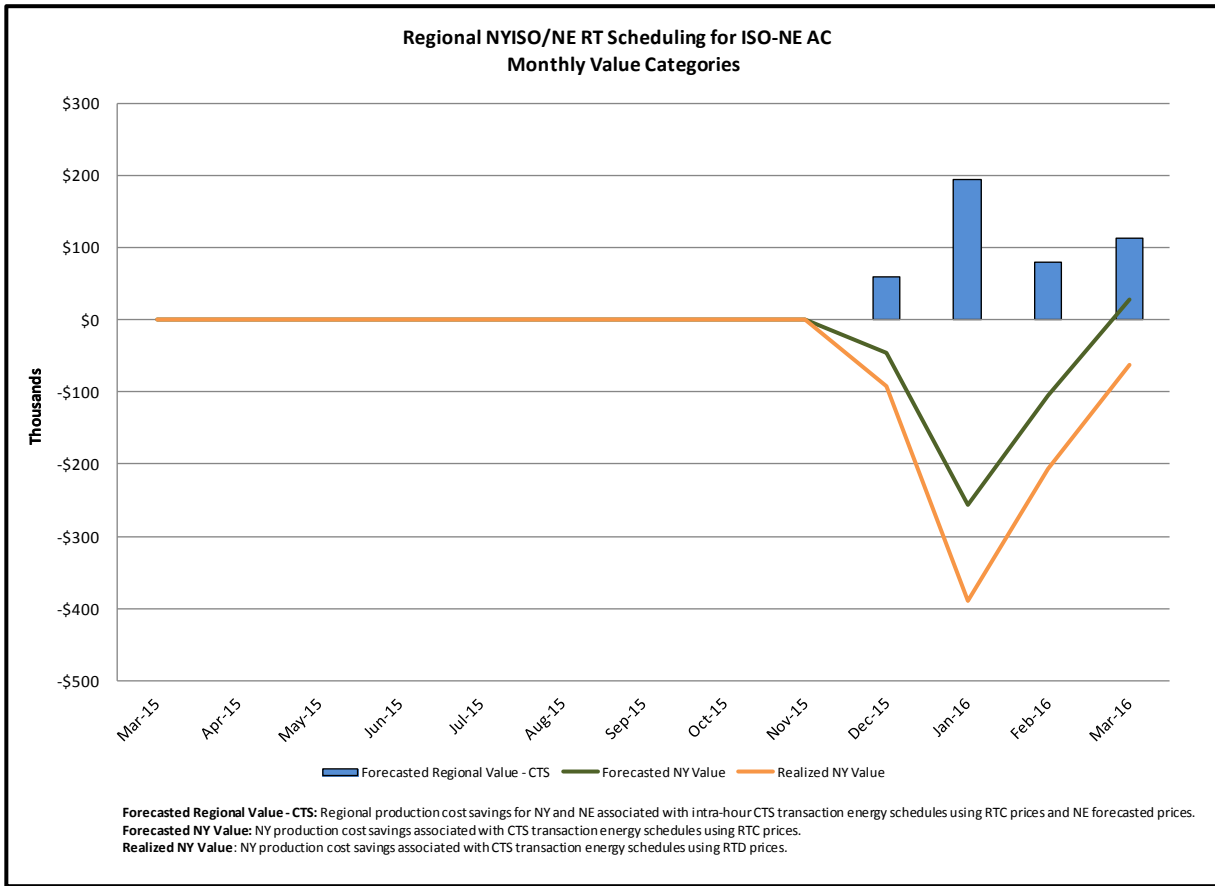
Category

NY

Description

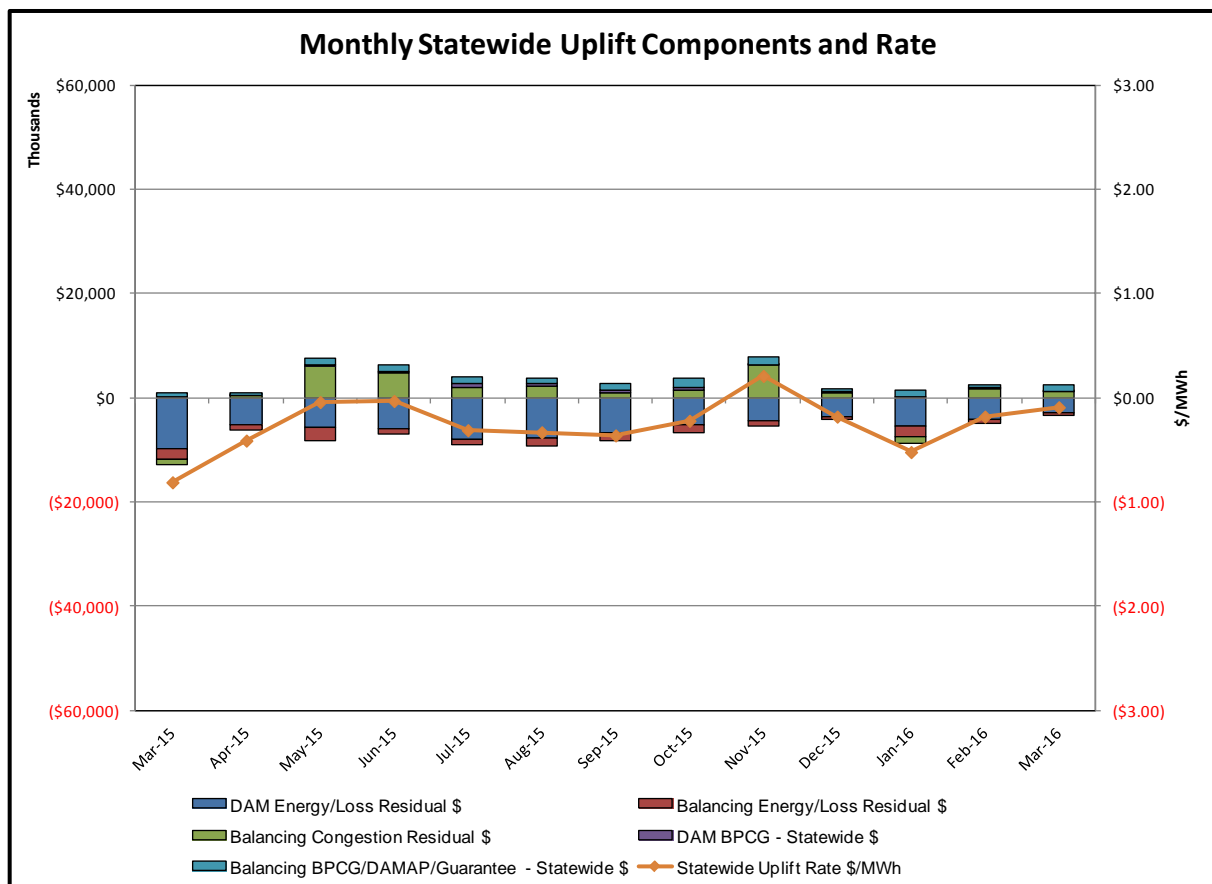
NYISO savings that result from PJM payments to NYISO when PJM's transmission use (PJM's market flow) is greater than PJM's entitlement of the NY transmission system and NYISO is incurring Western or Central NY congestion. Additionally, NYISO savings may result from the more efficient regional utilization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

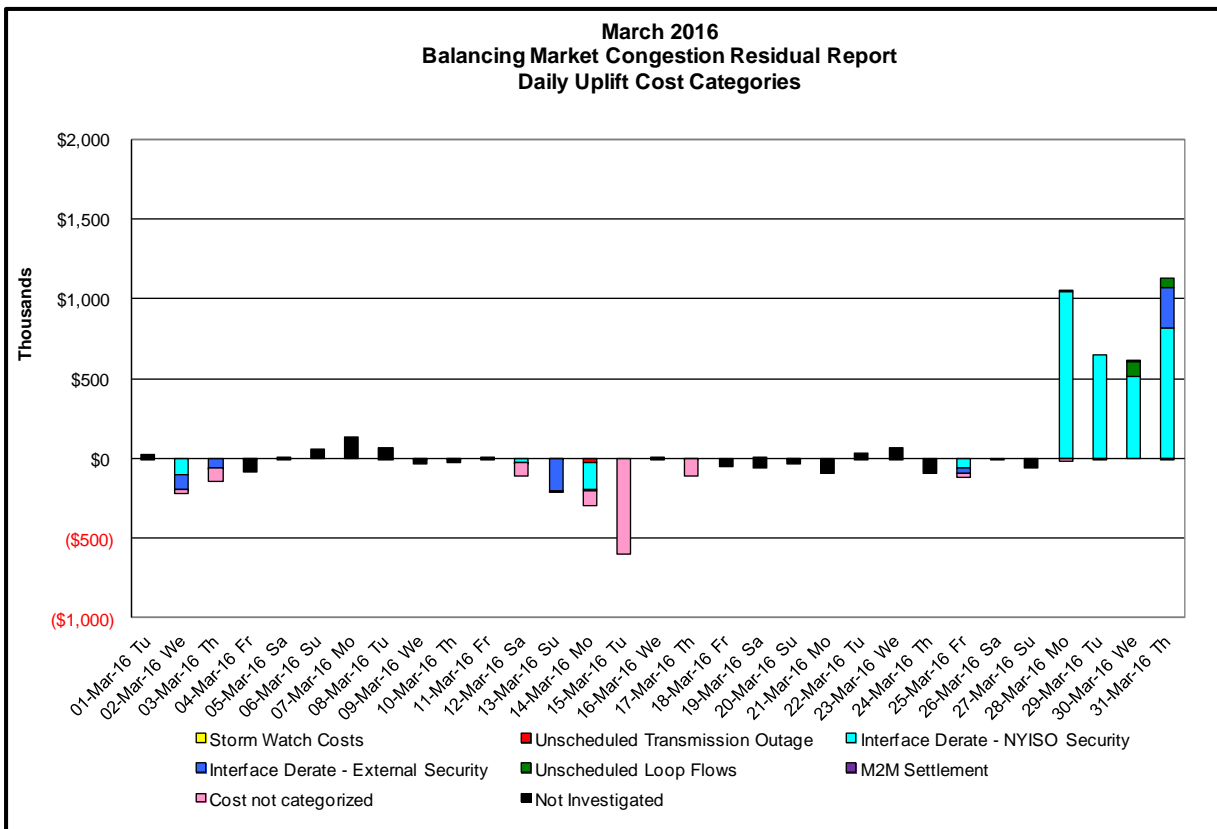
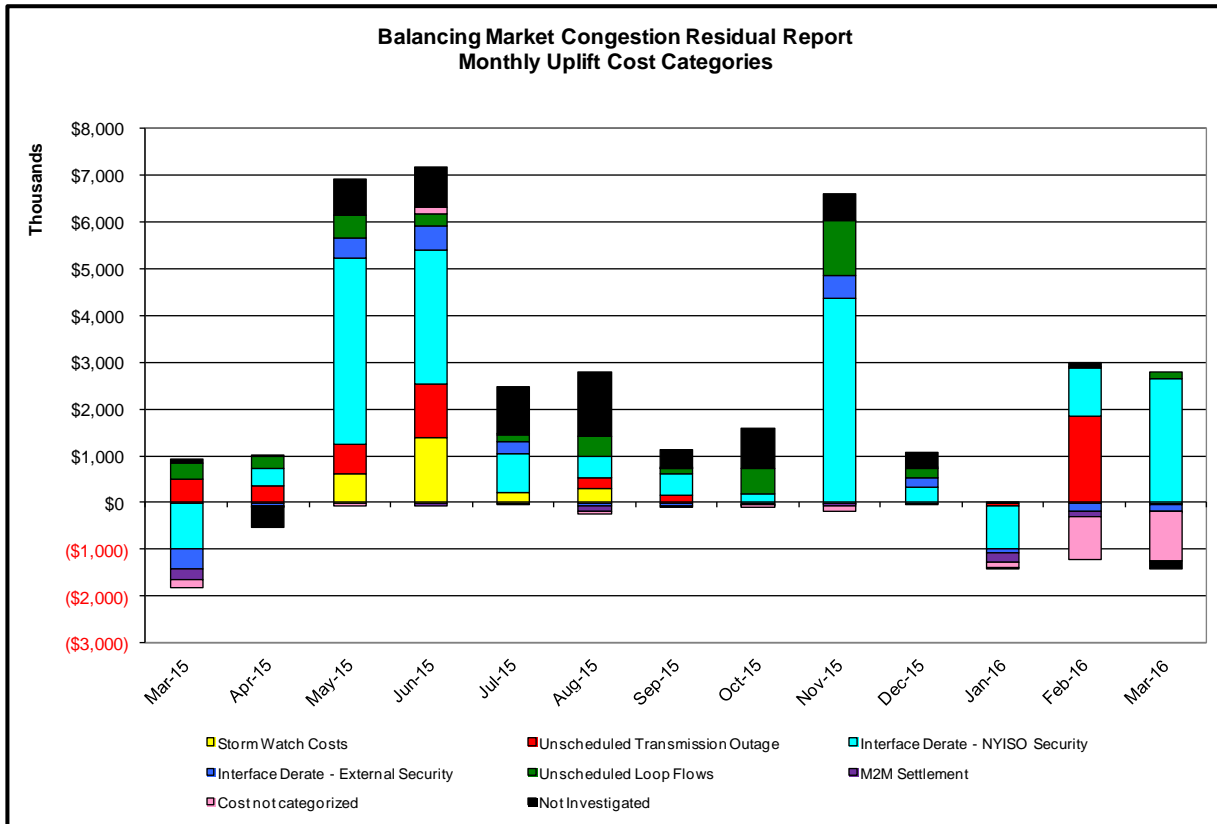






## Market Performance Metrics





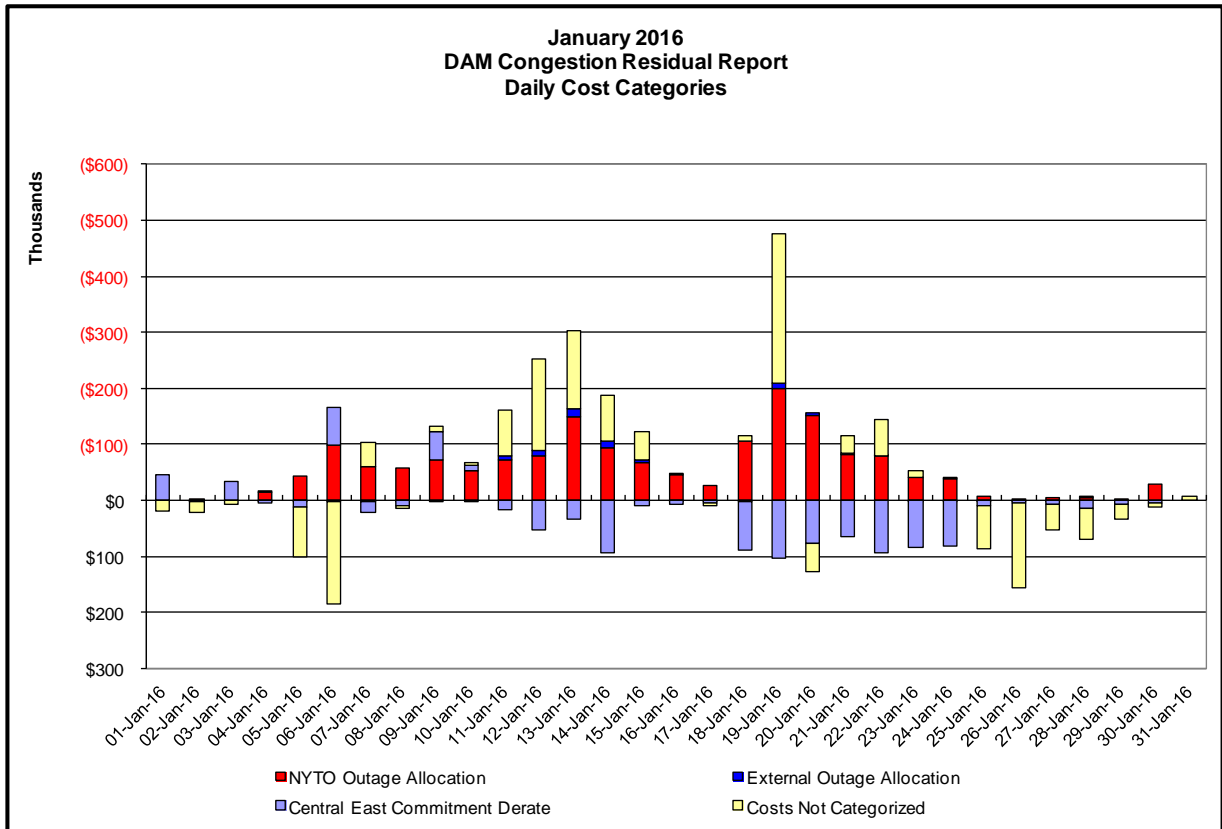
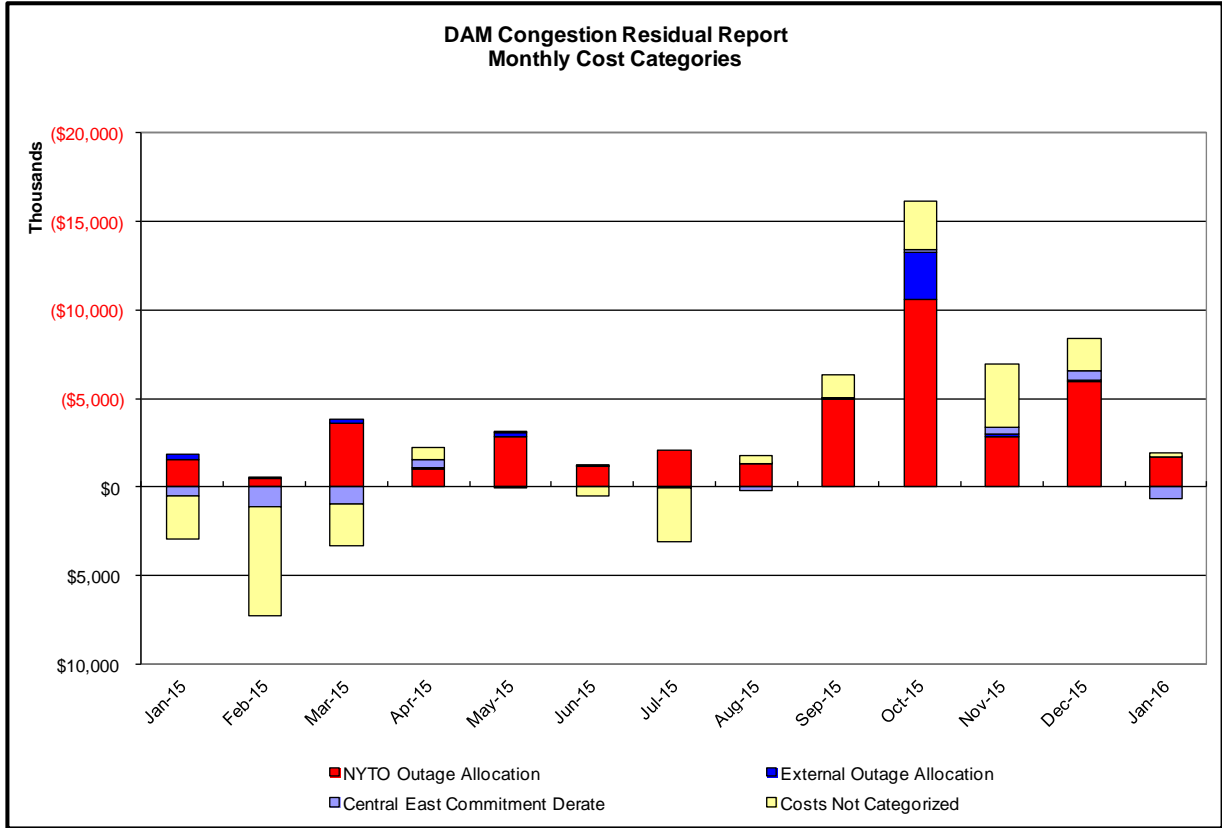
Day/s investigated in March: 2,3,12,13,14,15,17,25,28,29,30,31			
Event	Date (yyyymmdd)	Hours	Description
	3/2/2016	8,16,23	NYCA DNI Ramp Limit
	3/2/2016	8-11,14-18,23	Uprate Central East
	3/2/2016	16,23	IESO_AC DNI Ramp Limit
	3/2/2016	9,10,11,18	NE_AC-NY Scheduling Limit
	3/2/2016	8,9,15,18,20,23	NE_AC DNI Ramp Limit
	3/2/2016	14,15	NE_NNC1385-NY Scheduling Limit
	3/3/2016	20	HQ_CHAT-NY Scheduling Limit
	3/3/2016	7,10	NE_AC-NY Scheduling Limit
	3/3/2016	7	NE_AC DNI Ramp Limit -\$1k]
	3/3/2016	13	NE_NNC1385-NY Scheduling Limit
	3/12/2016	7,13,16,23	Uprate Central East
	3/12/2016	23	IESO_AC DNI Ramp Limit
	3/13/2016	1	Derate Central East
	3/13/2016	23	Uprate Central East
	3/13/2016	9,10,12-15	NE_AC-NY Scheduling Limit
	3/13/2016	6,10	NE_AC DNI Ramp Limit
	3/14/2016	16,17	Early Return to Service Beck-Packard 230kV (#BP76)
	3/14/2016	0	NYCA DNI Ramp Limit
	3/14/2016	3	Derate Central East
	3/14/2016	3,6	NE_AC DNI Ramp Limit
	3/14/2016	6	NE_AC-NY Scheduling Limit
	3/15/2016	7	Uprate Central East
	3/17/2016	23	Uprate Central East
	3/25/2016	7	NYCA DNI Ramp Limit
	3/25/2016	10-15	Uprate Central East
	3/25/2016	21	Derate Packard-Sawyer 230kV (#77) for I/o Robinson Road-Stolle Road 230kV (#65)
	3/25/2016	7,10-12,14	NE_AC DNI Ramp Limit
	3/28/2016	12,15,17,23	NYCA DNI Ramp Limit
	3/28/2016	7,21	Uprate Central East
	3/28/2016	11-20,22,23	Derate Gardenville-Stolle Road 230kV (#66) for I/o SCB:PACKARD(R0506):62&77&BP76
	3/28/2016	15-20,22,23	Derate Packard-Sawyer 230kV (#77) for I/o Gardenville-Stolle Road 230kV (#66)
	3/28/2016	8,10-14	Derate Packard-Sawyer 230kV (#77) for I/o Robinson Road-Stolle Road 230kV (#65)
	3/28/2016	10,11,13,17	Derate Rainey-Vernon 138kV (#36312)
	3/28/2016	20	PJM DNI Ramp Limit
	3/29/2016	12,13	NYCA DNI Ramp Limit
	3/29/2016	19,20	Derate Dunwoodie-Shore Road 345kV (#Y50) for SCB:SPNBK(RNS2):Y49&M29&Y49_ST
	3/29/2016	15	Derate East 179th Street-Hell Gate West 138kV (#15055)
	3/29/2016	7,10-15,20,22,23	Derate Gardenville-Stolle Road 230kV (#66) for I/o SCB:PACKARD(R0506):62&77&BP76
	3/29/2016	15	Derate Greenwood-Kentave 138kV (#31232) for I/o Rainey-Vernon 138kV (#36312)
	3/29/2016	7,10-15	Derate Packard-Sawyer 230kV (#77) for I/o Gardenville-Stolle Road 230kV (#66)
	3/29/2016	19-23	Derate Packard-Sawyer 230kV (#77) for I/o Robinson Road-Stolle Road 230kV (#65)
	3/29/2016	15	Derate Rainey-Vernon 138kV (#36312)
	3/29/2016	0-6,8	Uprate Central East
	3/30/2016	23	NYCA DNI Ramp Limit
	3/30/2016	16	Derate Central East
	3/30/2016	23	Uprate Central East
	3/30/2016	1,3,20,21	Derate Dunwoodie-Shore Road 345kV (#Y50)
	3/30/2016	19,20	Derate East 179th Street-Hell Gate West 138kV (#15055)
	3/30/2016	7,8	Derate Edic-Marcy 345kV (#UE1-7) for I/o TWR:12& UNS-18
	3/30/2016	1,3,7,17,19,21,22	Derate Gardenville-Stolle Road 230kV (#66) for I/o SCB:PACKARD(R0506):62&77&BP76
	3/30/2016	20,21	Derate Huntley-Sawyer 230kV (#80) for I/o Niagara-Robinson Road 230kV (#64)
	3/30/2016	16-20	Derate Packard-Sawyer 230kV (#77) for I/o Gardenville-Stolle Road 230kV (#66)
	3/30/2016	1,3,7,9-12,14	Derate Packard-Sawyer 230kV (#77) for I/o Robinson Road-Stolle Road 230kV (#65)
	3/30/2016	7-9,19	Derate Rainey-Vernon 138kV (#36312)
	3/30/2016	9,19,20	Derate Rainey-Vernon 138kV (#36311)
	3/30/2016	7-9,19,20	Derate Gowanus-Greenwood 138kV (#42231) for I/o TWR:GOETHALS 22 & 21
	3/30/2016	7-9,19,20	Derate Gowanus-Greenwood 138kV (#42232) for I/o TWR:GOETHALS 22 & 21
	3/30/2016	18	Lake Erie Clockwise Circulation, DAM-RTM exceeds 125MW; Central East, Packard-Sawyer 230kV (#77)
	3/31/2016	7,11	NYCA DNI Ramp Limit
	3/31/2016	10,20	Uprate Central East
	3/31/2016	9,11,13,15-18	Derate East 179th Street-Hell Gate West 138kV (#15055)
	3/31/2016	10	Uprate Farragut-Hudson Avenue 138kV (#32711)
	3/31/2016	6-8,11-13	Derate Gardenville-Stolle Road 230kV (#66) for I/o SCB:PACKARD(R0506):62&77&BP76
	3/31/2016	6,11,12	Derate Marcy 765/345kV (#BK1) for I/o TWR:MOSES MA1 & MA2
	3/31/2016	7,8,11	Derate Packard-Sawyer 230kV (#77) for I/o Robinson Road-Stolle Road 230kV (#65)
	3/31/2016	8,9,11-18	Derate Rainey-Vernon 138kV (#36312)
	3/31/2016	8,9,11-18	Derate West 49th Street-Sprainbrook 345kV (#M51)
	3/31/2016	10	NE_AC DNI Ramp Limit
	3/31/2016	4,5	PJM_AC-NY Scheduling Limit
	3/31/2016	12,13	Lake Erie Clockwise Circulation, DAM-RTM exceeds 125MW; Central East, Gardenville-Stolle Road 230kV (#66)

**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 Clockwise Lake Erie Loop Flows greater than 125 MW
M2M Settlement	Market-wide	Settlement result inclusive of coordinated redispatch and Ramapo flowgates	

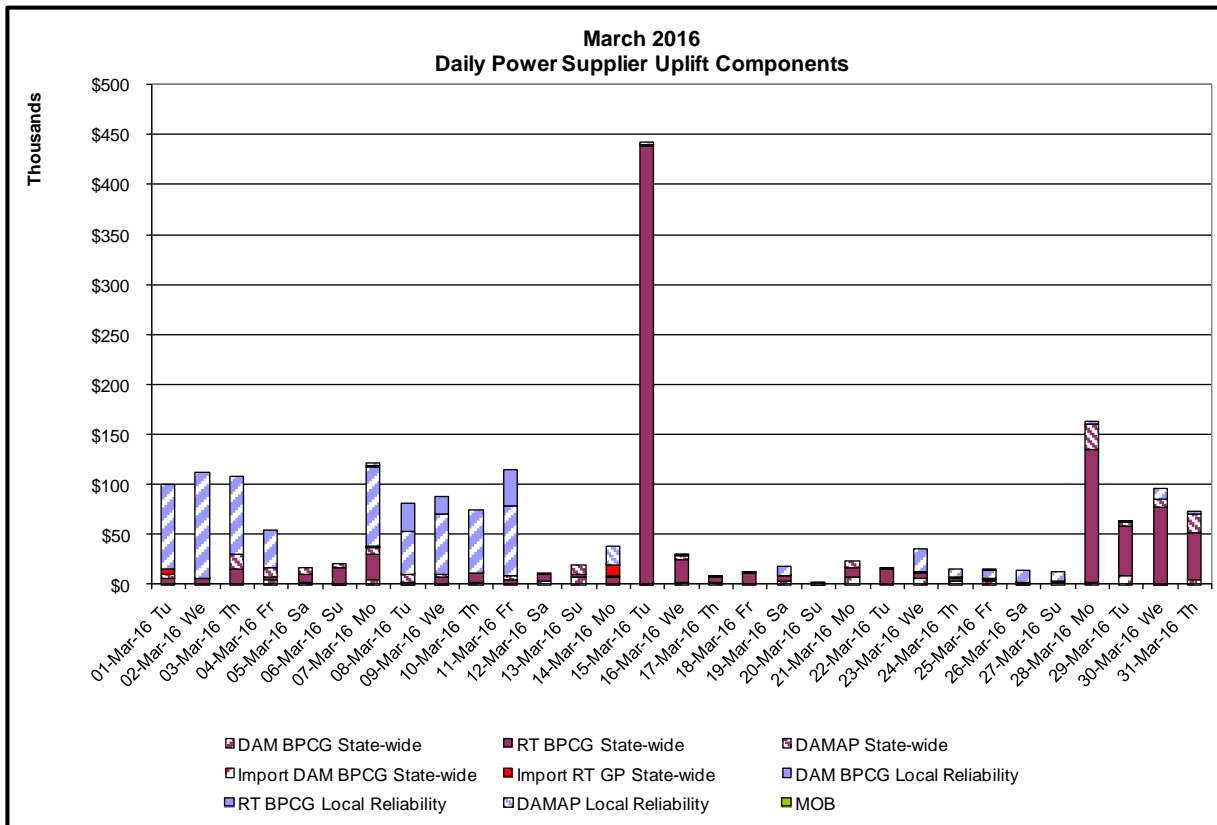
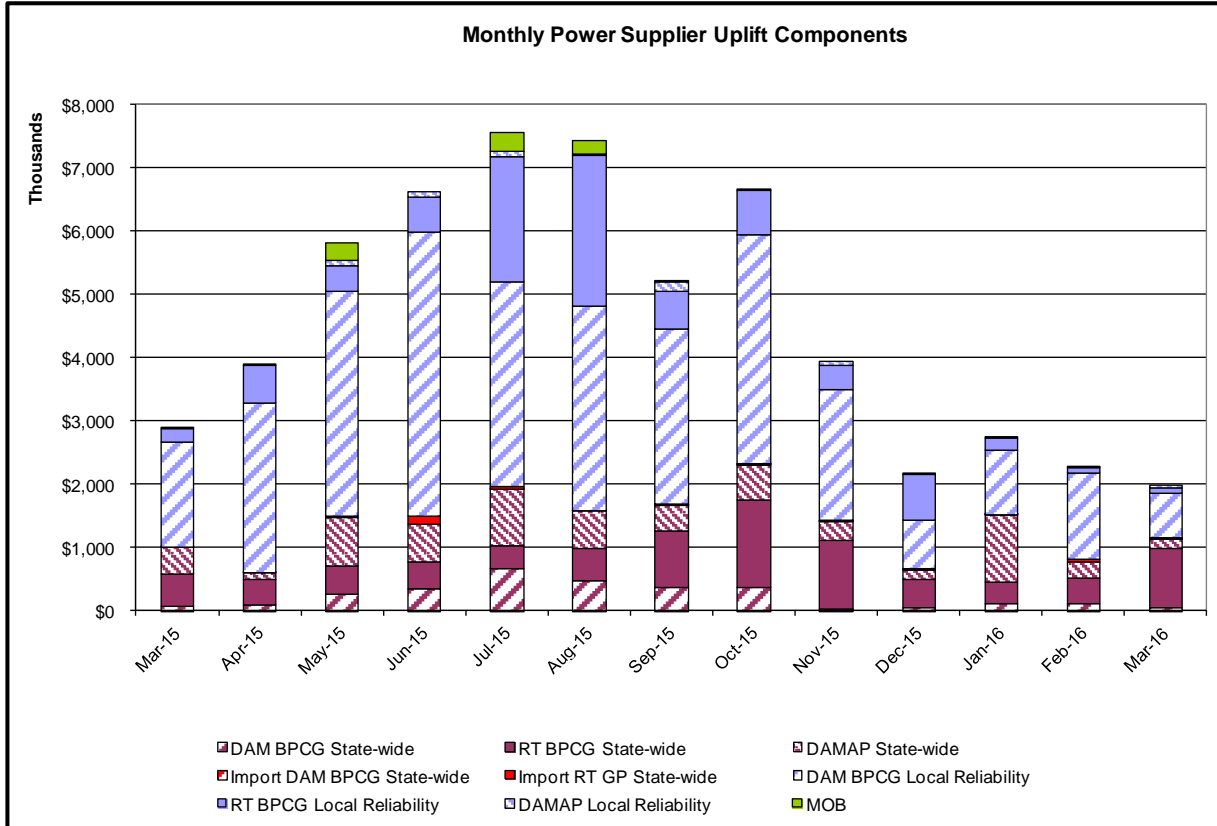
**Monthly Balancing Market Congestion Report Assumptions/Notes**

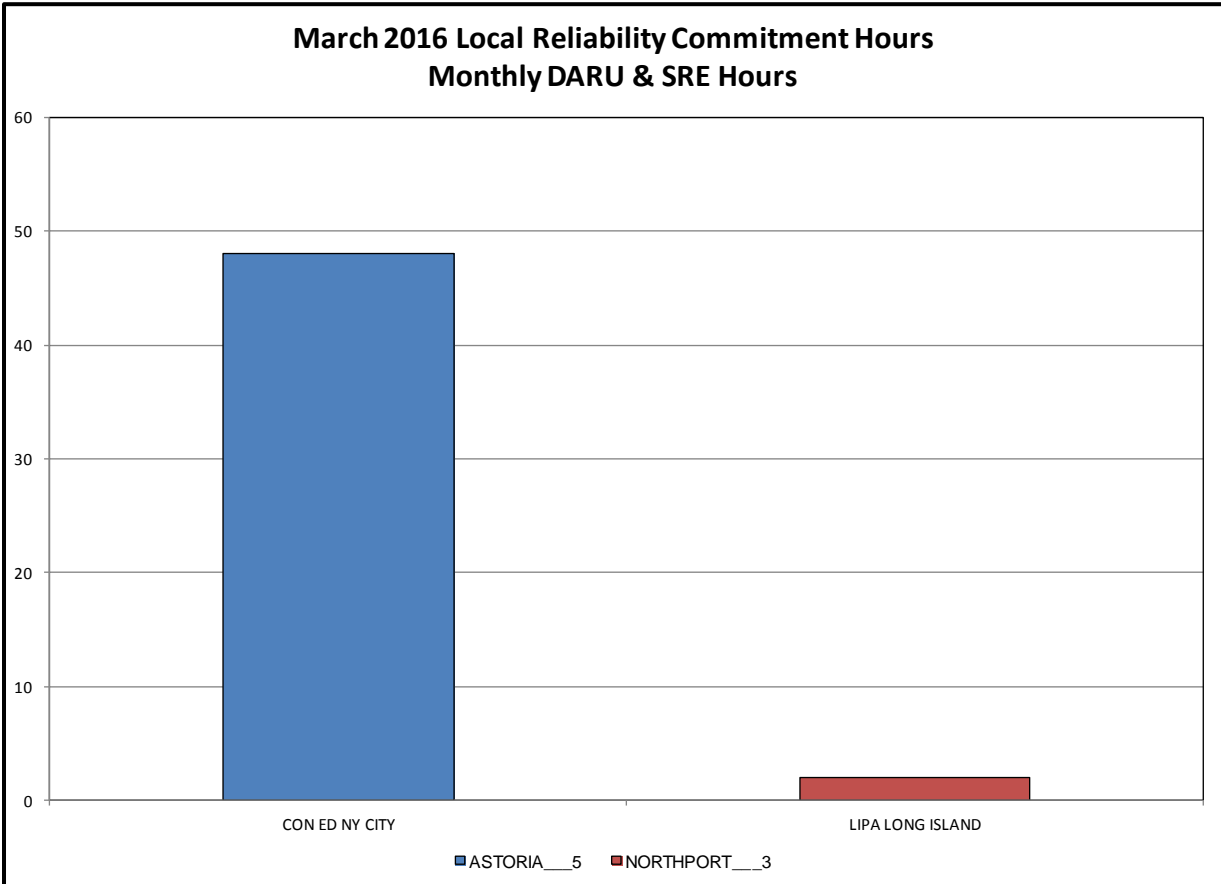
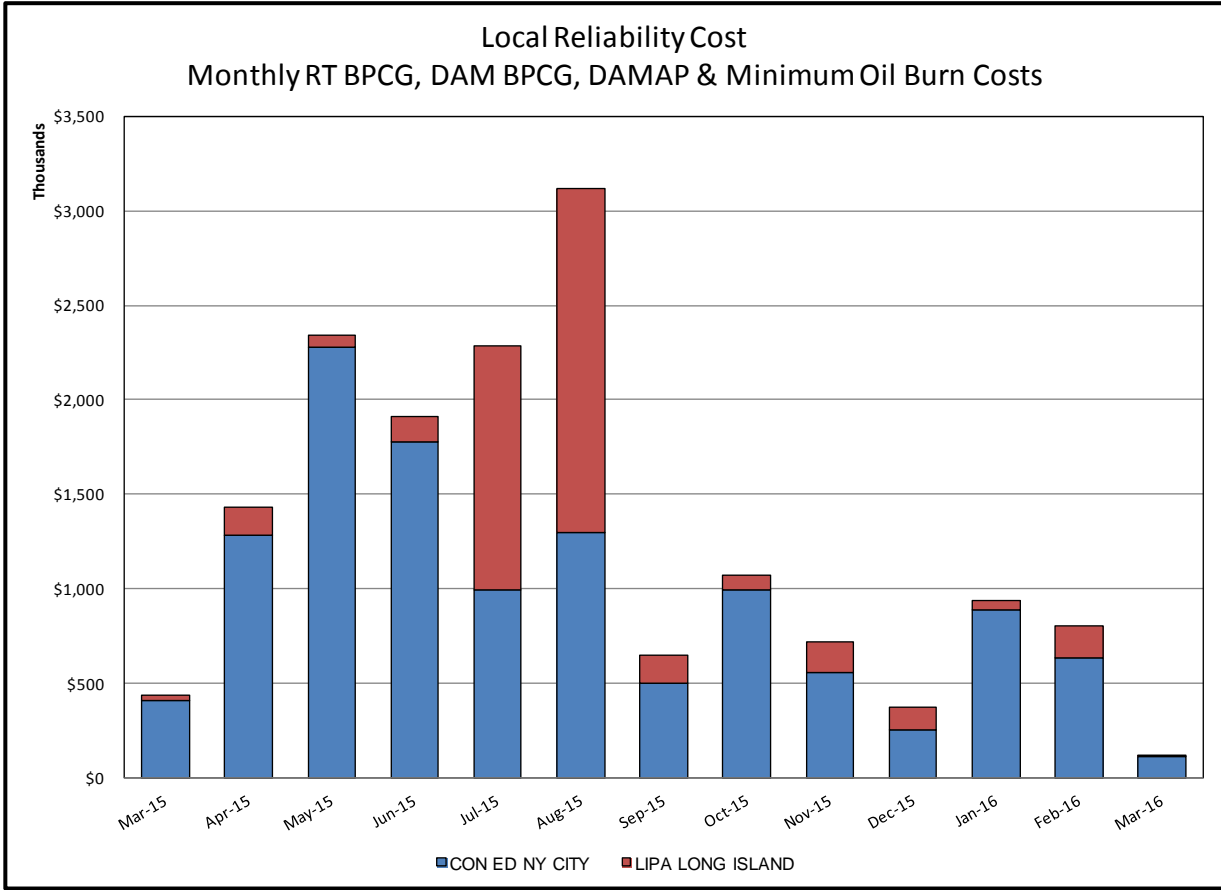
- 1) Storm Watch Costs are identified as daily total uplift costs
- 2) Days with a value of BMCR less M2M Settlement of \$100K/HR, shortfall of \$200K/Day or more, or surplus of \$100K/Day or more are investigated.
- 3) Uplift costs associated with multiple event types are apportioned equally by hour



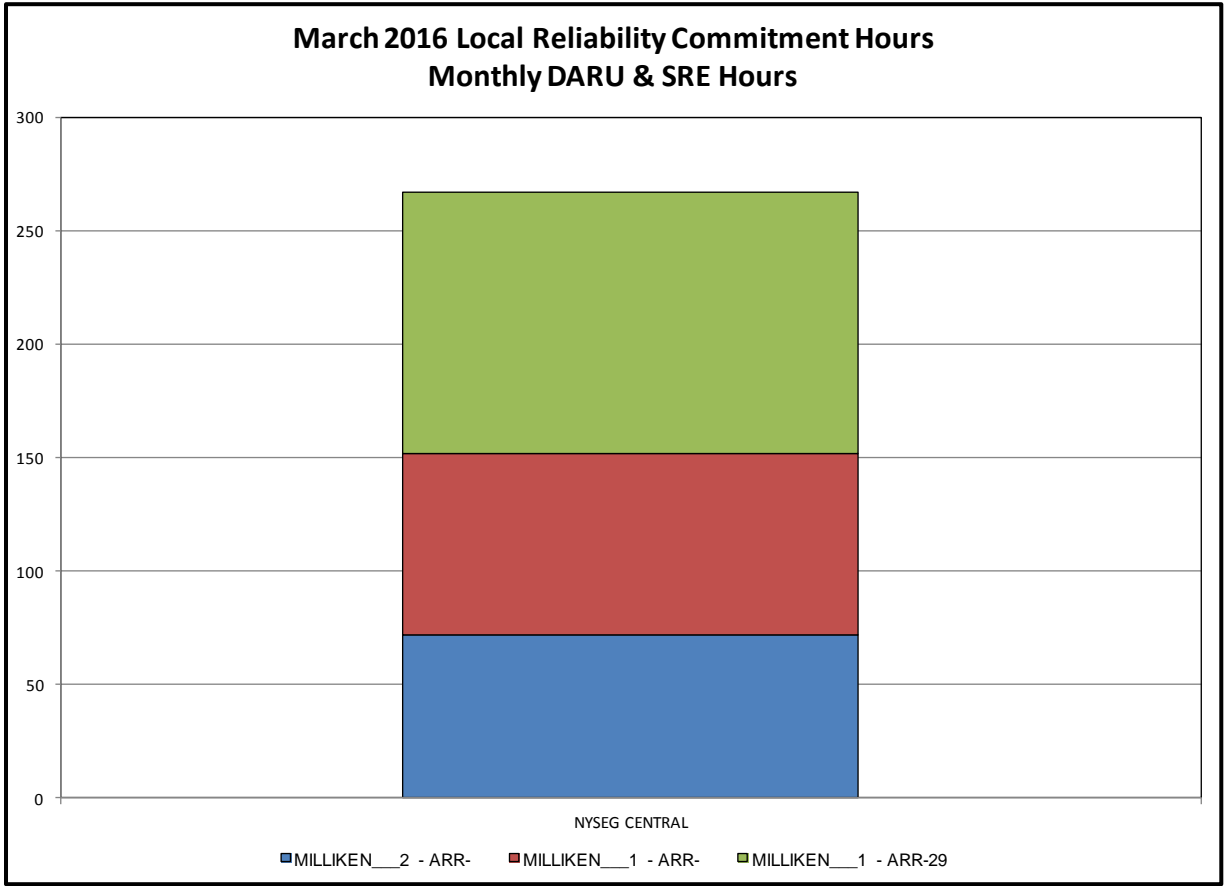
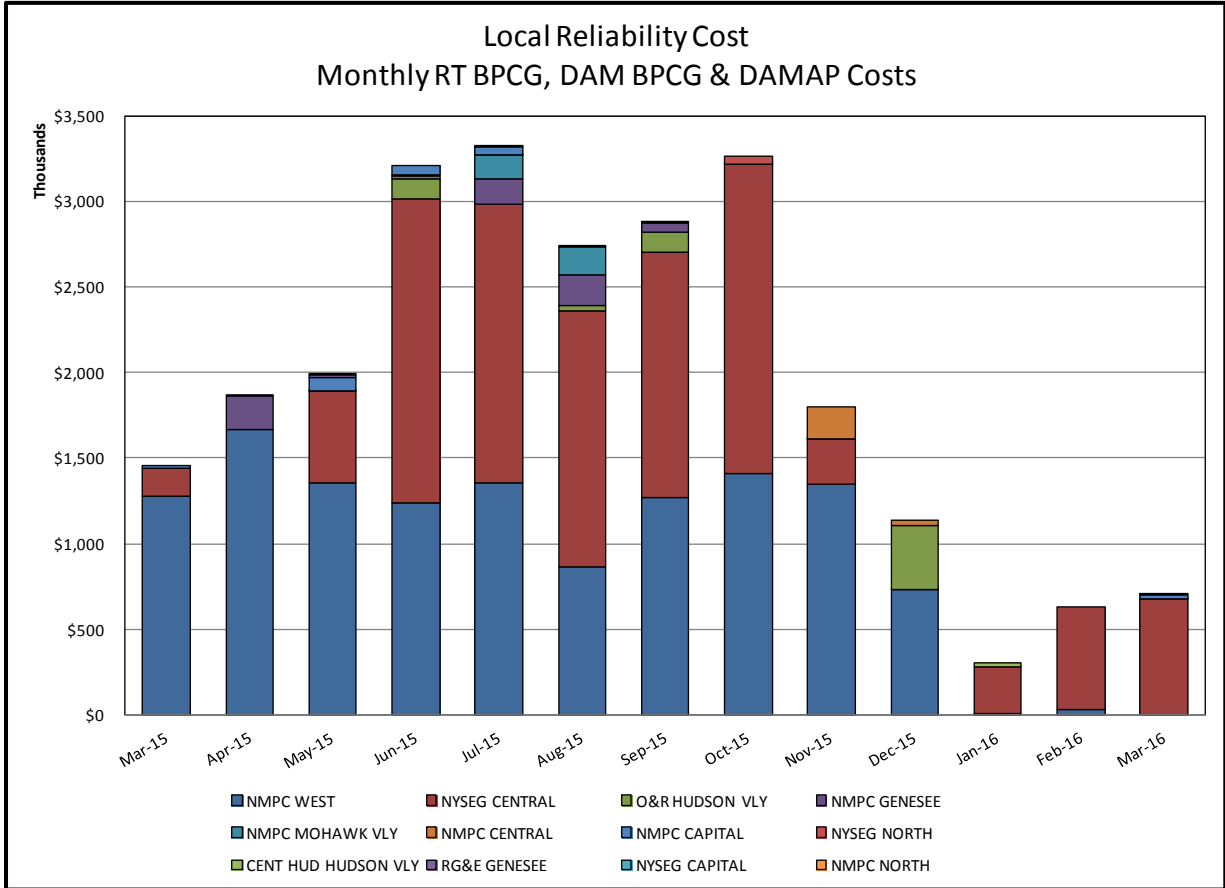
**Day-Ahead Market Congestion Residual Categories**

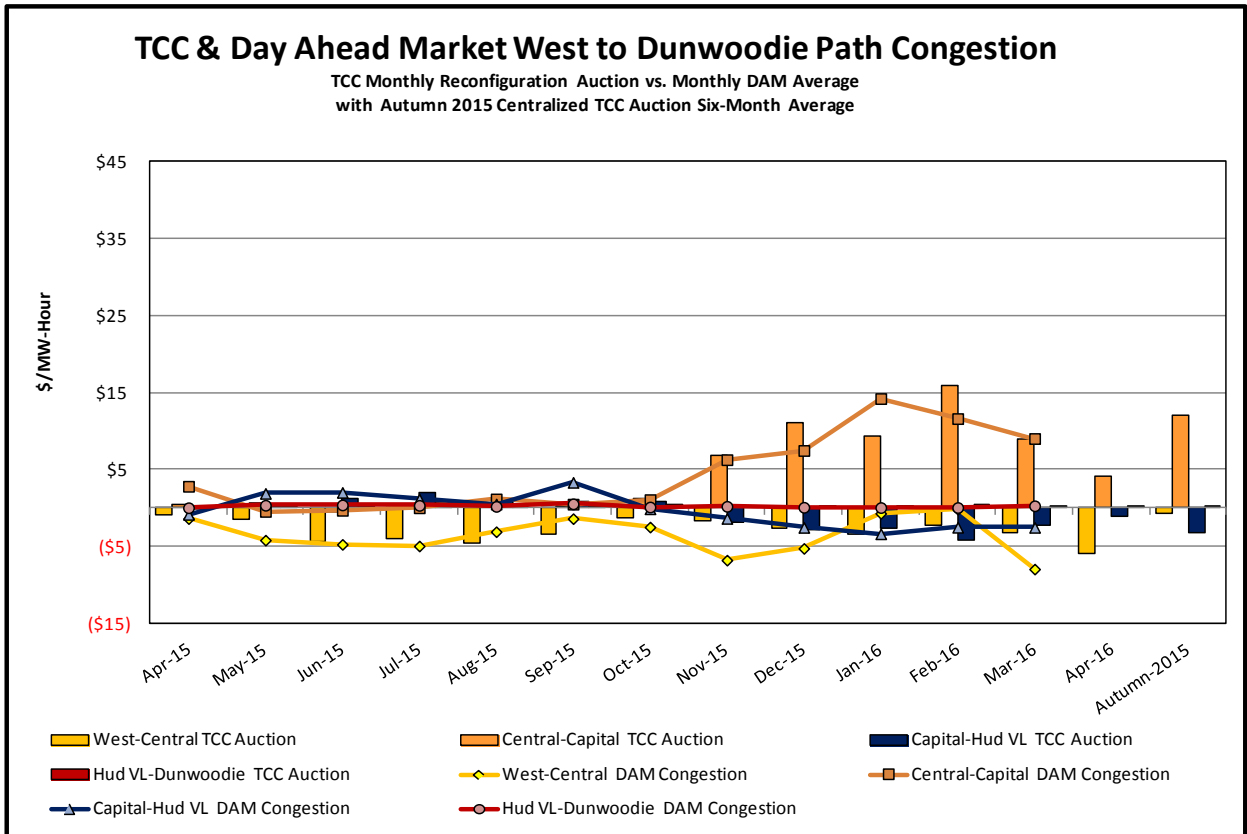
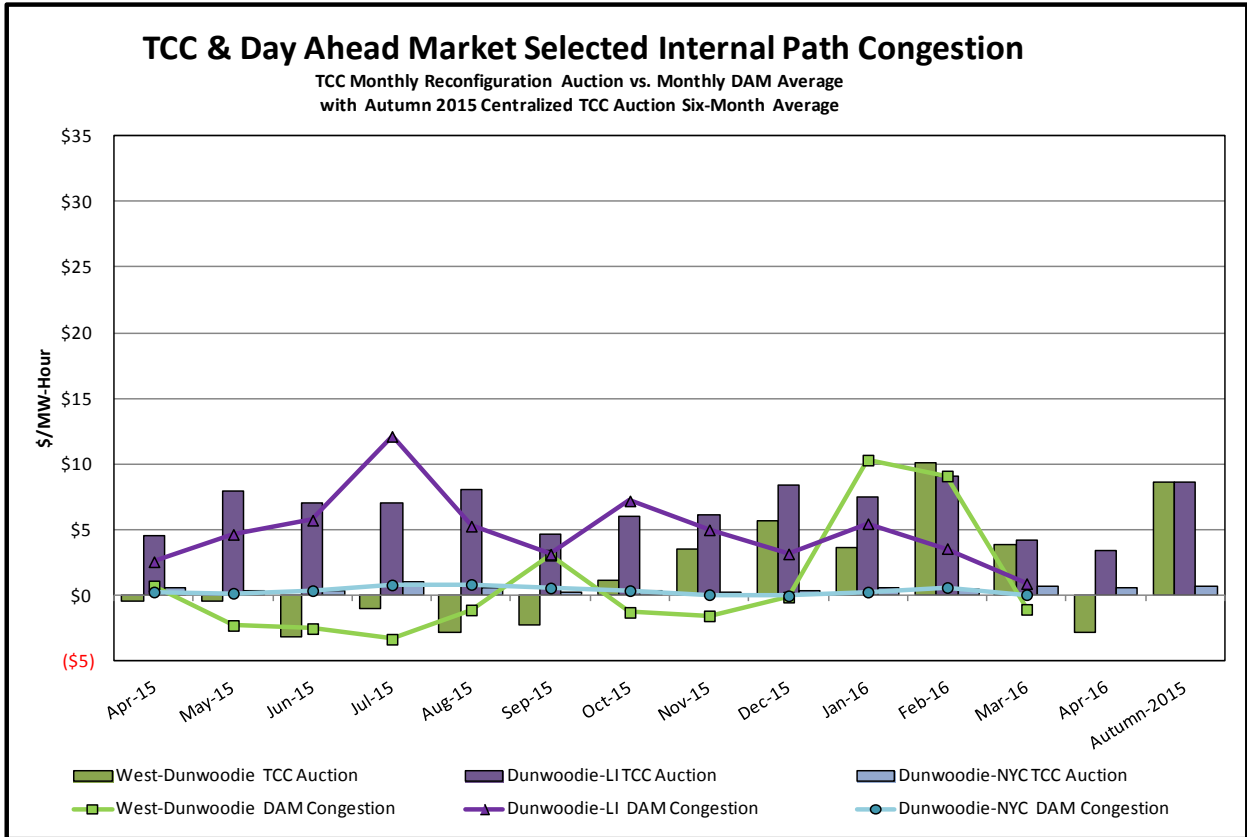
<u>Category</u>	<u>Cost Assignment</u>	<u>Events Types</u>	<u>Event Examples</u>
NYTO Outage Allocation	Responsible TO	Direct allocation to NYTO's responsible for transmission equipment status change.	DAM scheduled outage for equipment modeled in-service for the TCC Auction.
External Outage Allocation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











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

TCC Monthly Reconfiguration Auction vs. Monthly DAM Average  
with Autumn 2015 Centralized TCC Auction Six-Month Average

