

Operations Performance Metrics Monthly Report



June 2018 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 July 10, 2018.

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June 2018 Operations Performance Highlights

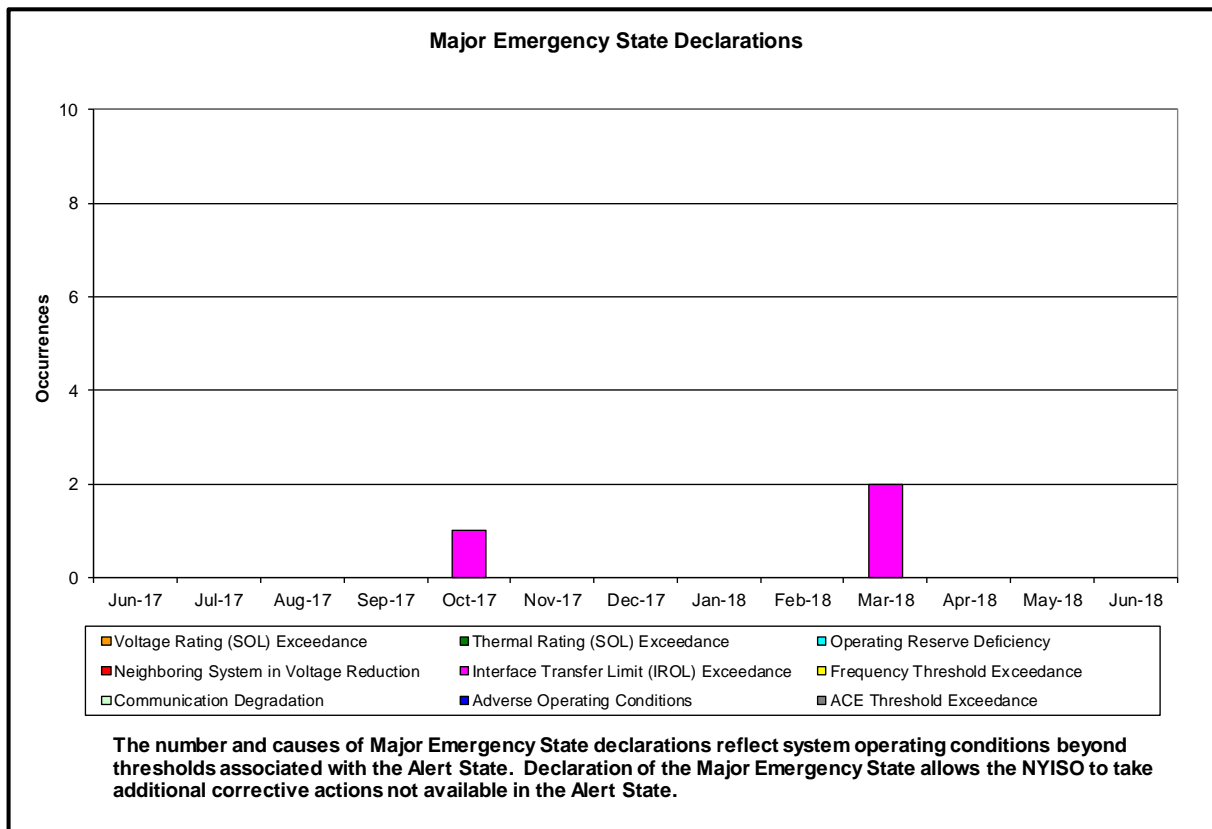
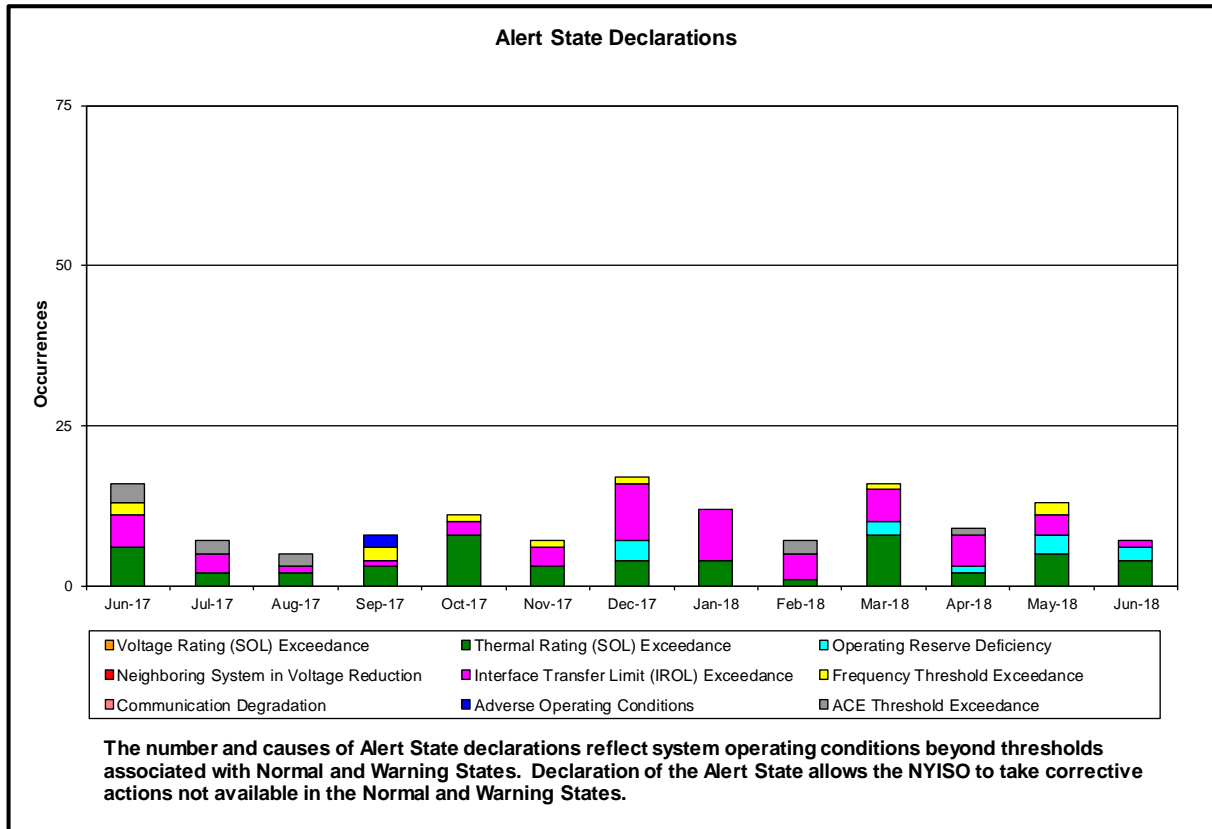
- Peak load of 28,166 MW occurred on 06/18/2018 HB 15
- All-time summer capability period peak load of 33,956 MW occurred on 7/19/2013 HB 16
- 12.5 hours of Thunder Storm Alerts were declared
- 0 hours of NERC TLR level 3 curtailment
- High levels of wind curtailment in the North Country this month were coincident with the scheduled outages of the Browns Falls-Taylorville 115kV (#3/4), and the forced outage of the Marcy-Coopers Corners 345kV (UCC2-41).
- The high BMCR settlement in early June was due to forced outages of 345kV lines that are detailed in this report.
- The following table identifies the estimated production cost savings associated with the Broader Regional Market initiatives.

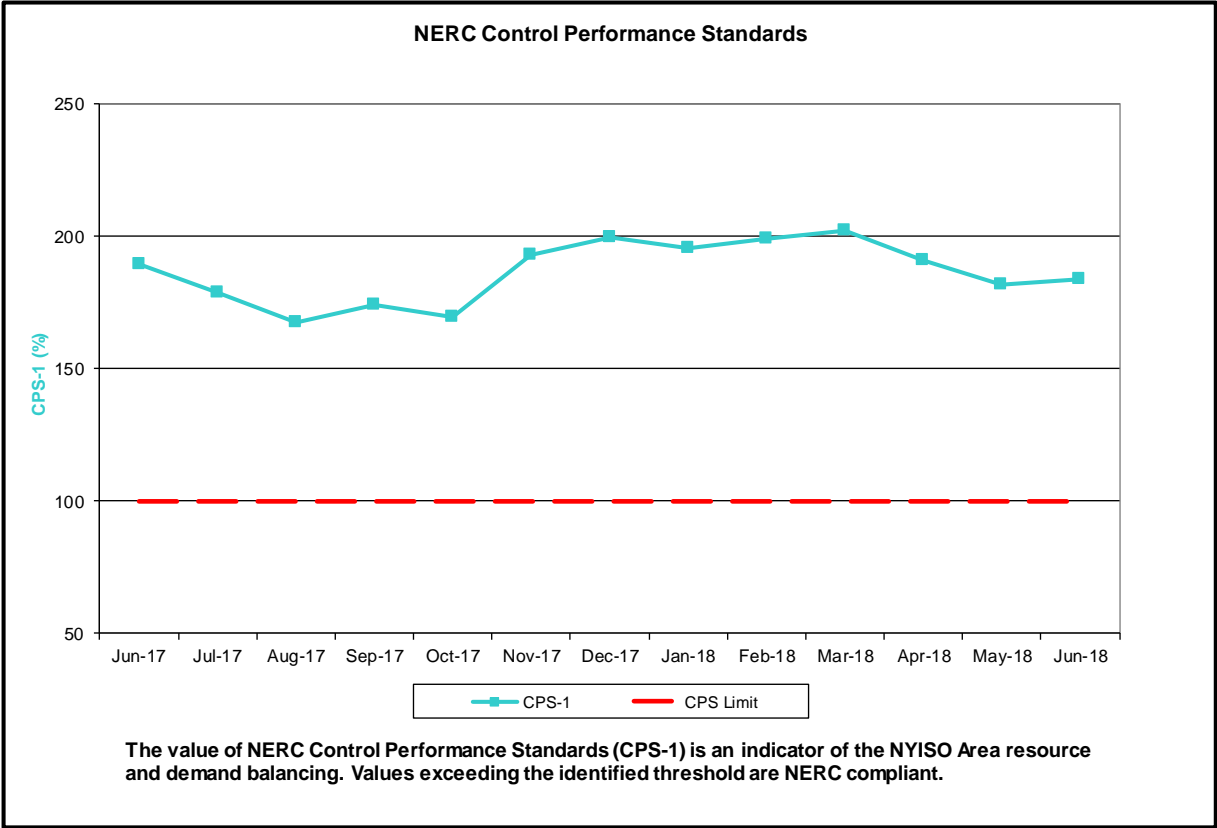
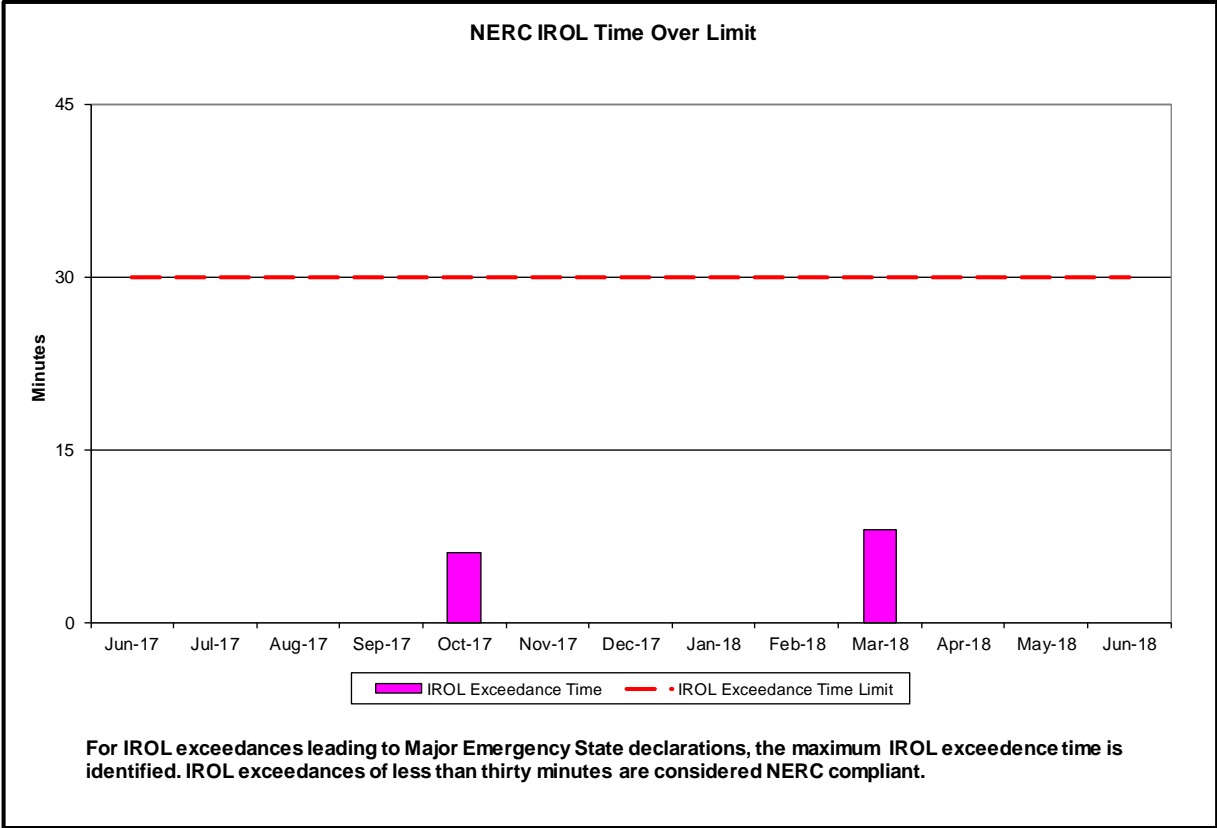
	Current Month Value (\$M)	Year-to-Date Value (\$M)
NY Savings from PJM-NY Congestion Coordination	\$0.10	\$8.89
NY Savings from PJM-NY Coordinated Transaction Scheduling	\$0.14	\$0.75
NY Savings from NE-NY Coordinated Transaction Scheduling	(\$0.01)	(\$0.69)
Total NY Savings	\$0.23	\$8.95
Regional Savings from PJM-NY Coordinated Transaction Scheduling	\$0.19	\$1.46
Regional Savings from NE-NY Coordinated Transaction Scheduling	\$0.08	\$0.36
Total Regional Savings	\$0.27	\$1.82

- Statewide uplift cost monthly average was \$0.12/MWh
- The following table identifies the Monthly ICAP Spot Market prices and the price delta.

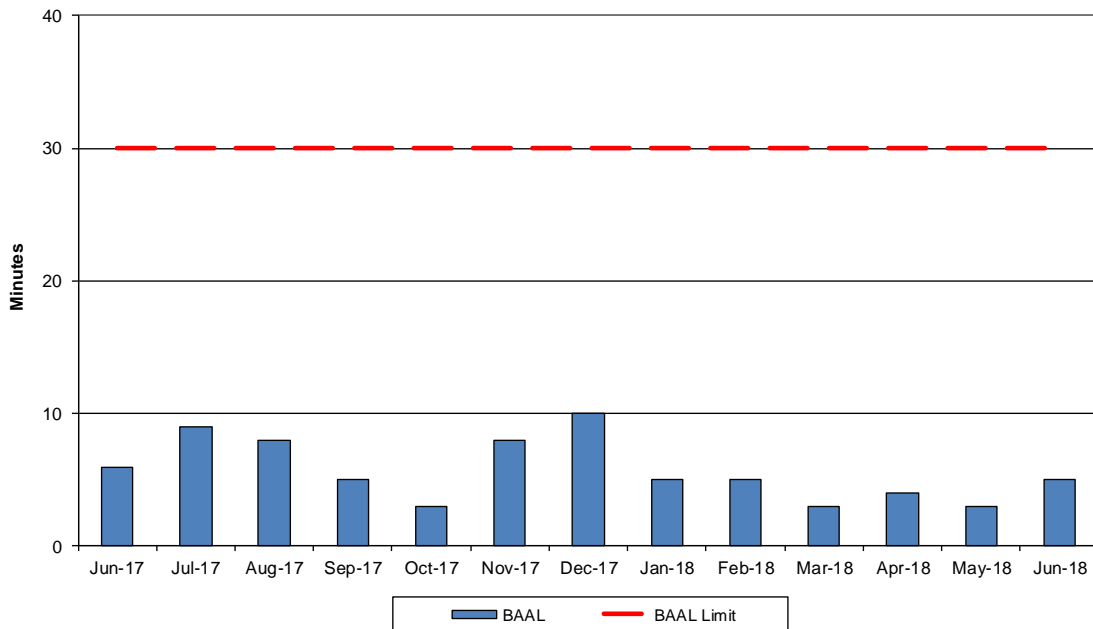
Spot Auction Price Results	NYCA	Lower Hudson Valley Zones	New York City Zone	Long Island Zone
July 2018 Spot Price	\$4.22	\$10.16	\$10.16	\$6.68
June 2018 Spot Price	\$4.33	\$10.24	\$10.24	\$6.80
Delta	(\$0.11)	(\$0.08)	(\$0.08)	(\$0.12)

Reliability Performance Metrics



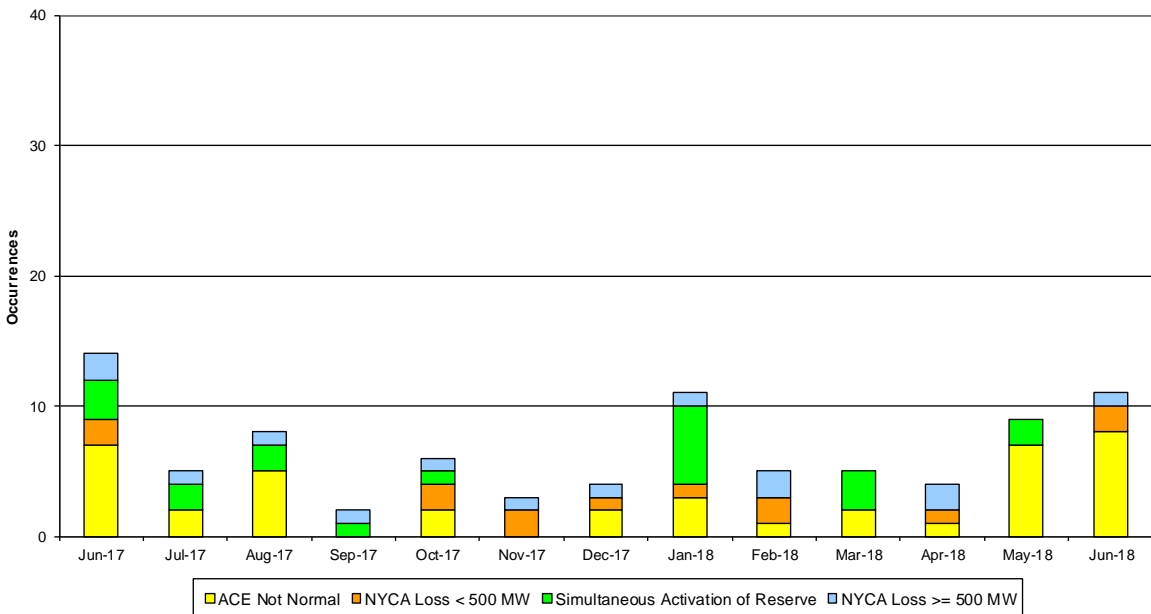


NERC Balancing Authority ACE Limit Standard

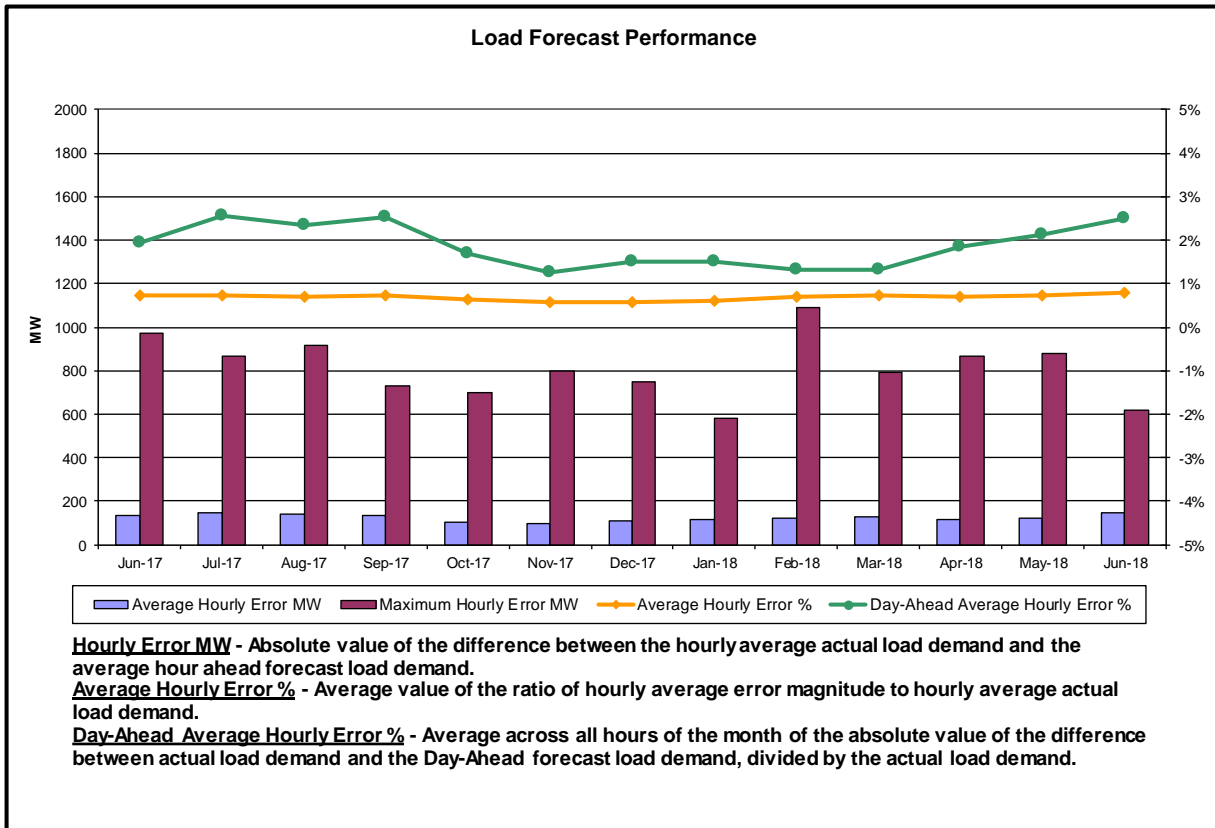
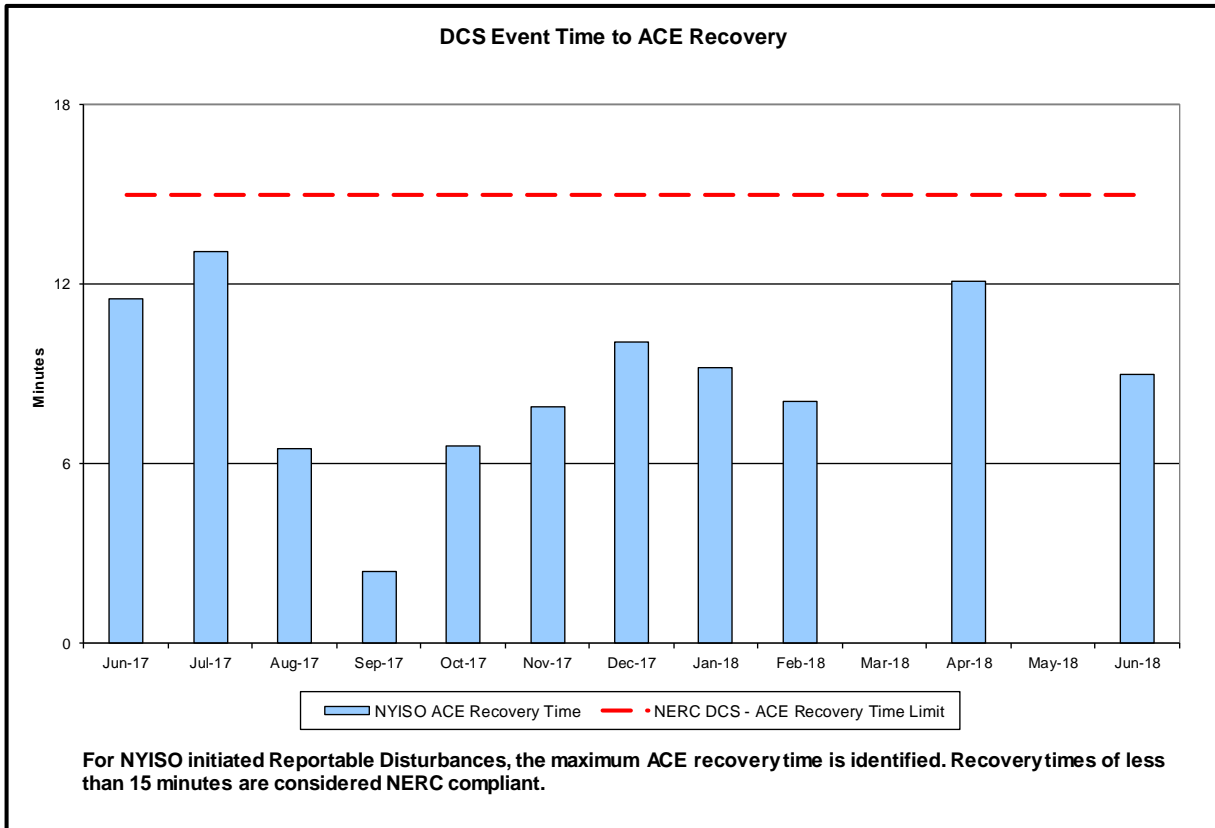


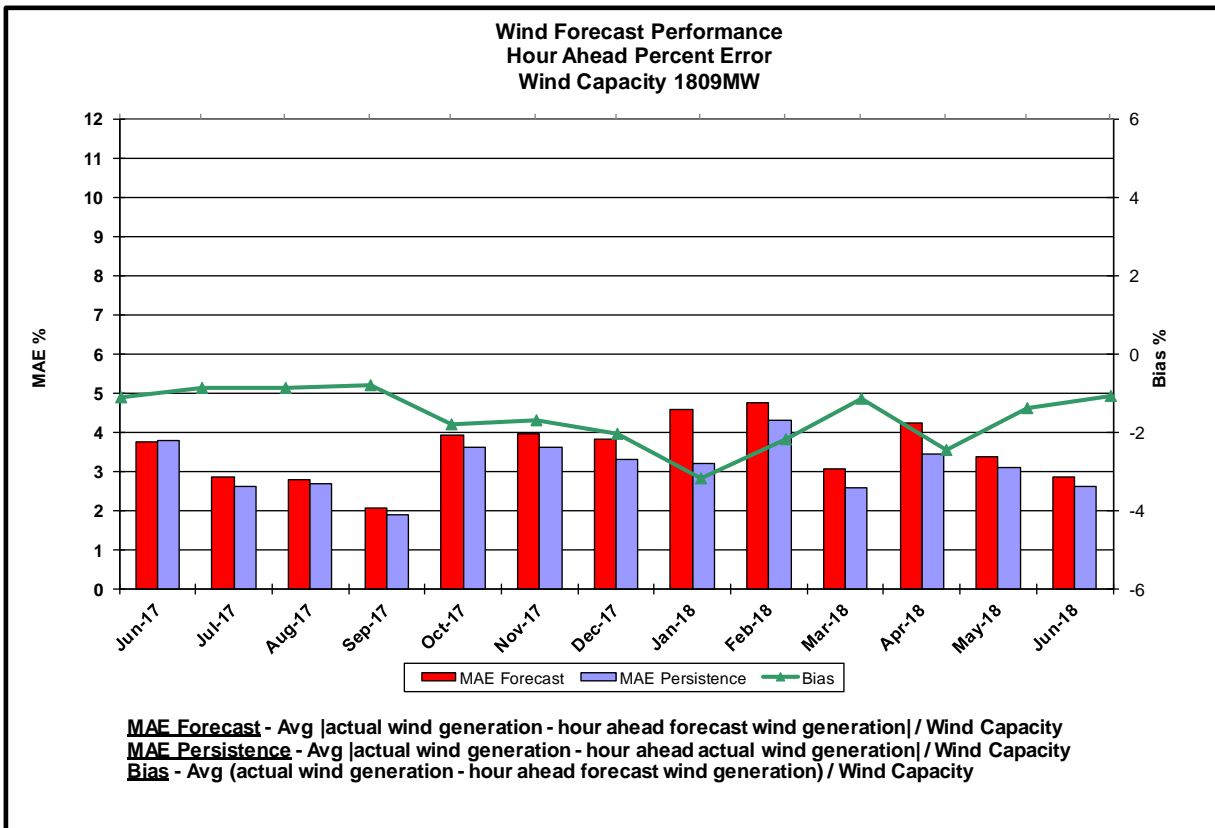
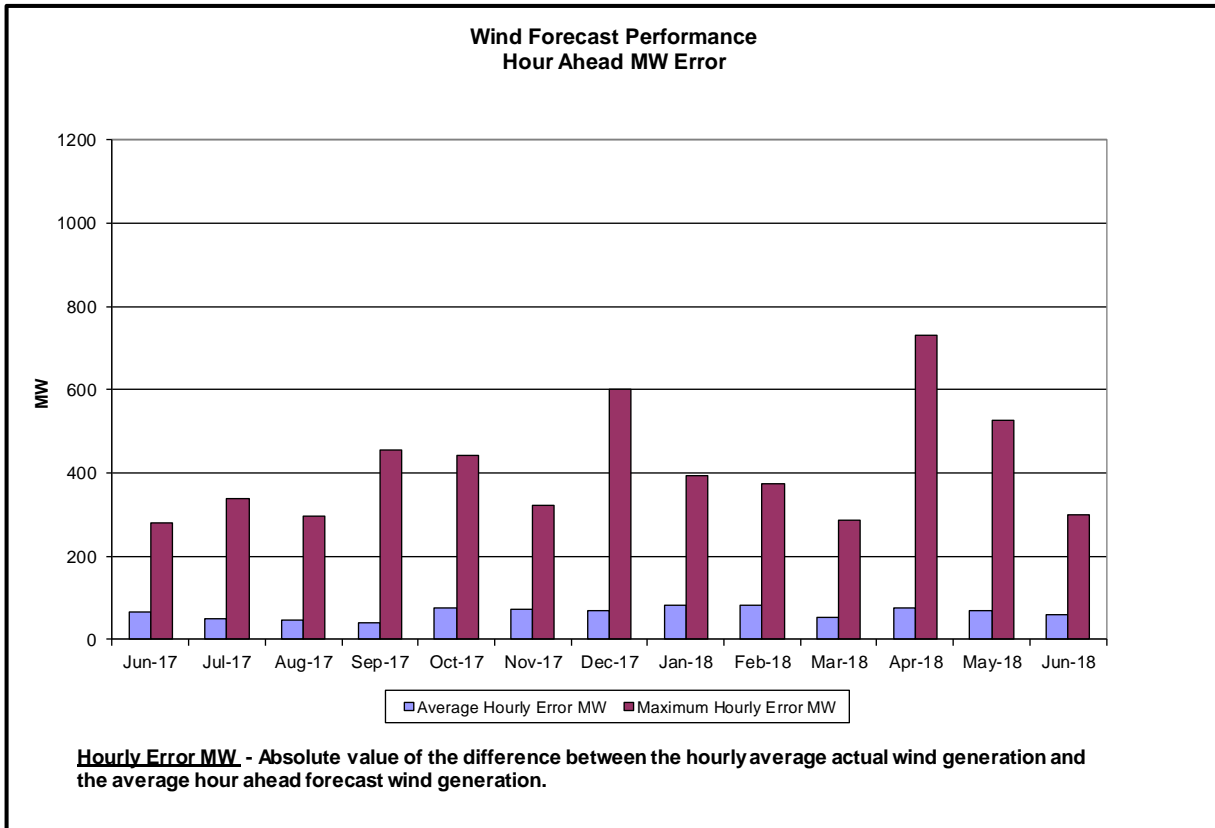
The amount of time the clock-minute average ACE exceeds the clock-minute Balancing Authority ACE Limit (BAAL) is an indicator of the NYISO Area resource and demand balancing. The maximum BAAL exceedance time is identified. BAAL exceedances of less than 30 consecutive clock-minutes are NERC compliant.

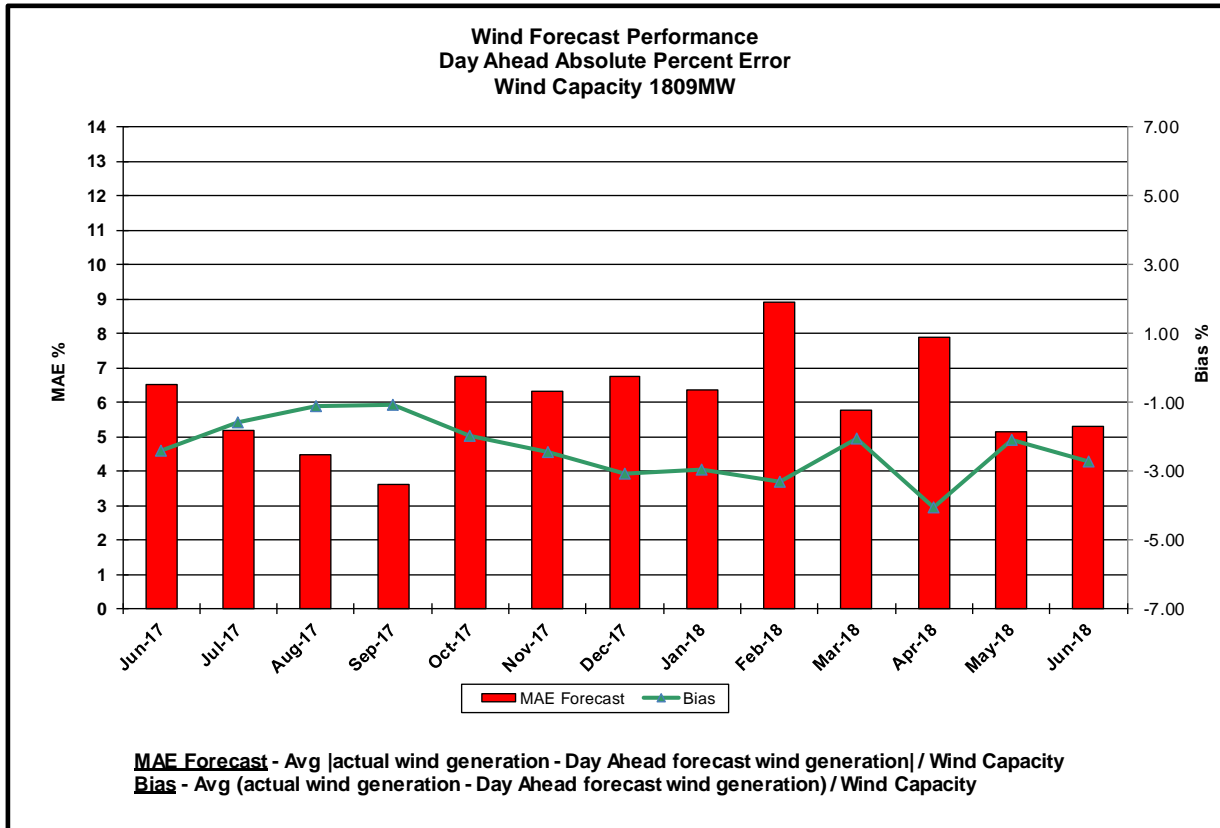
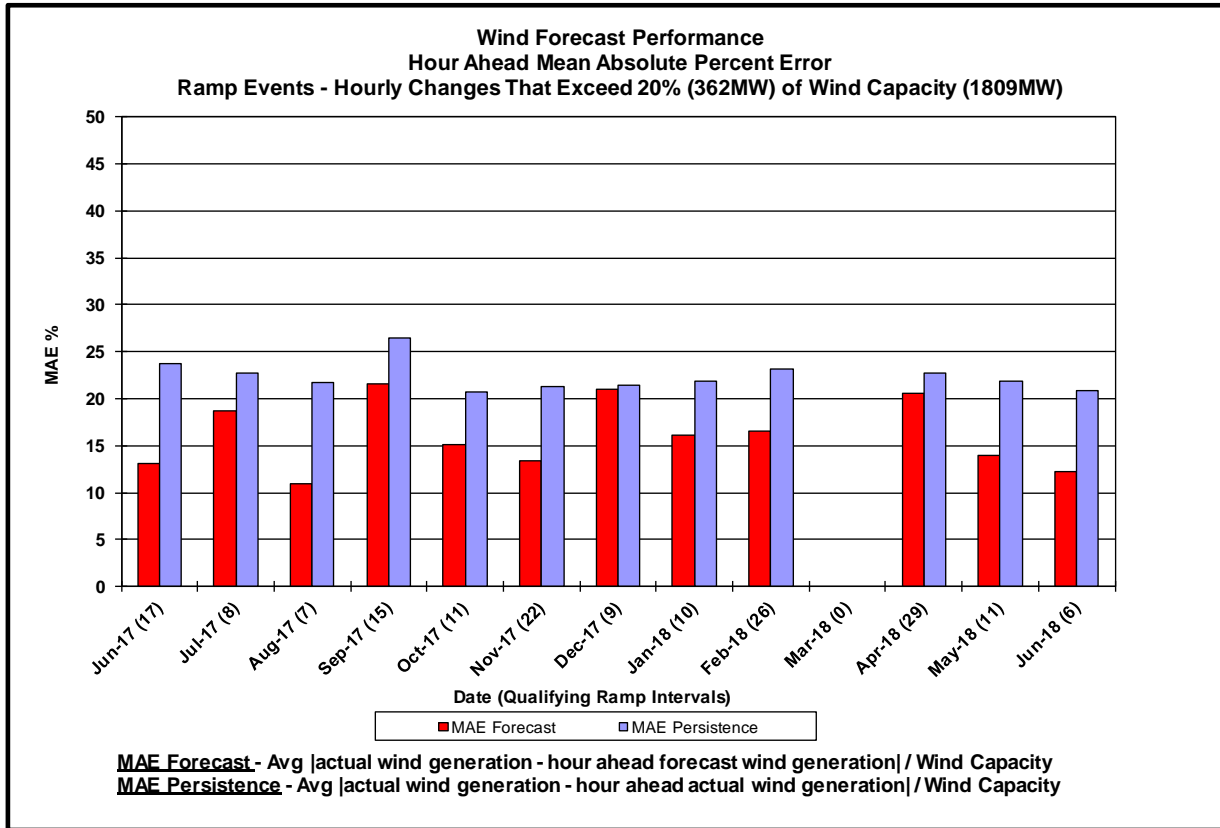
Reserve Activations

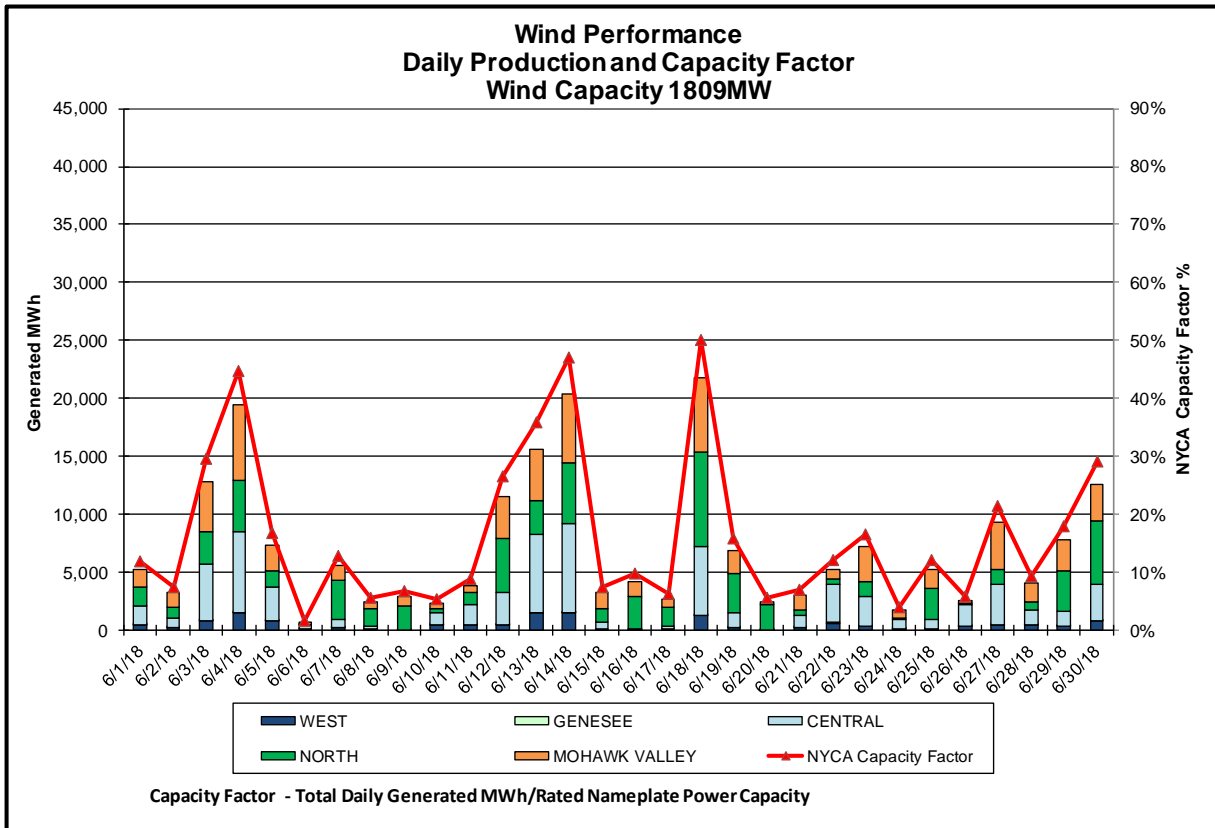
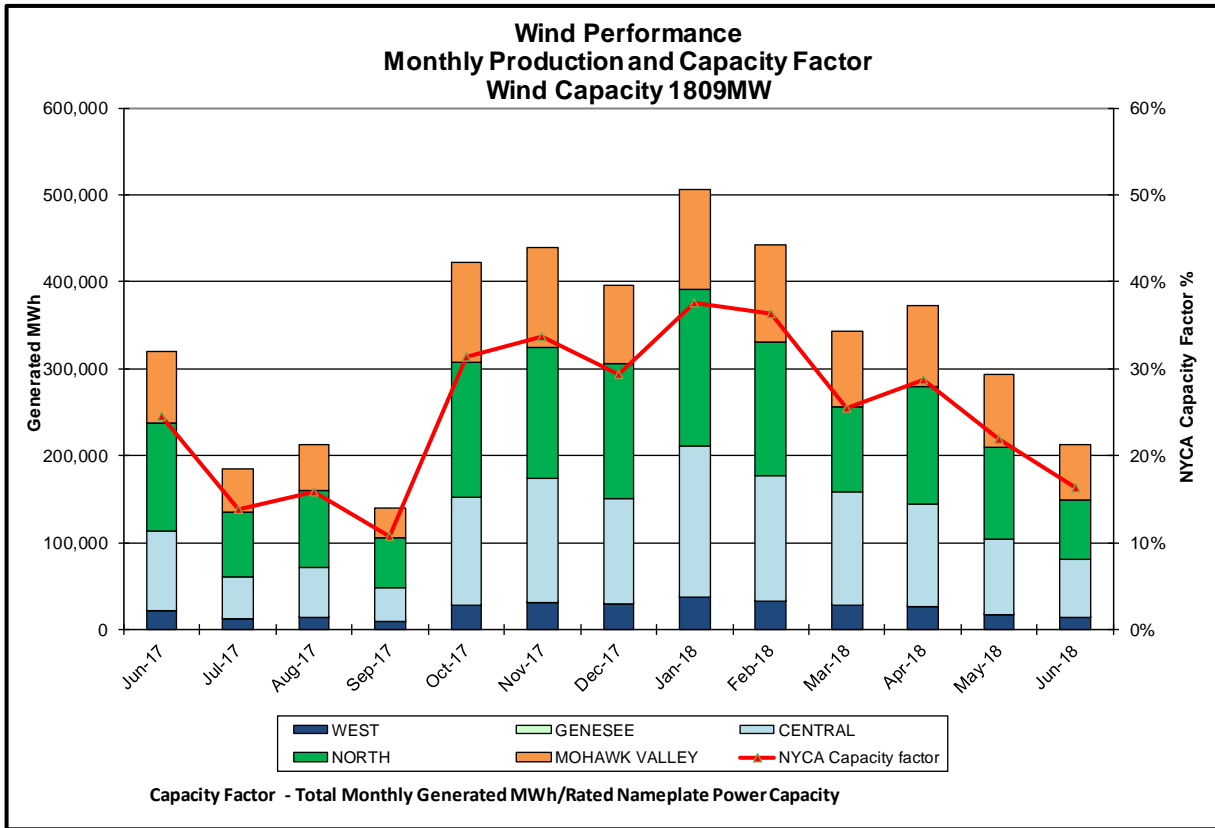


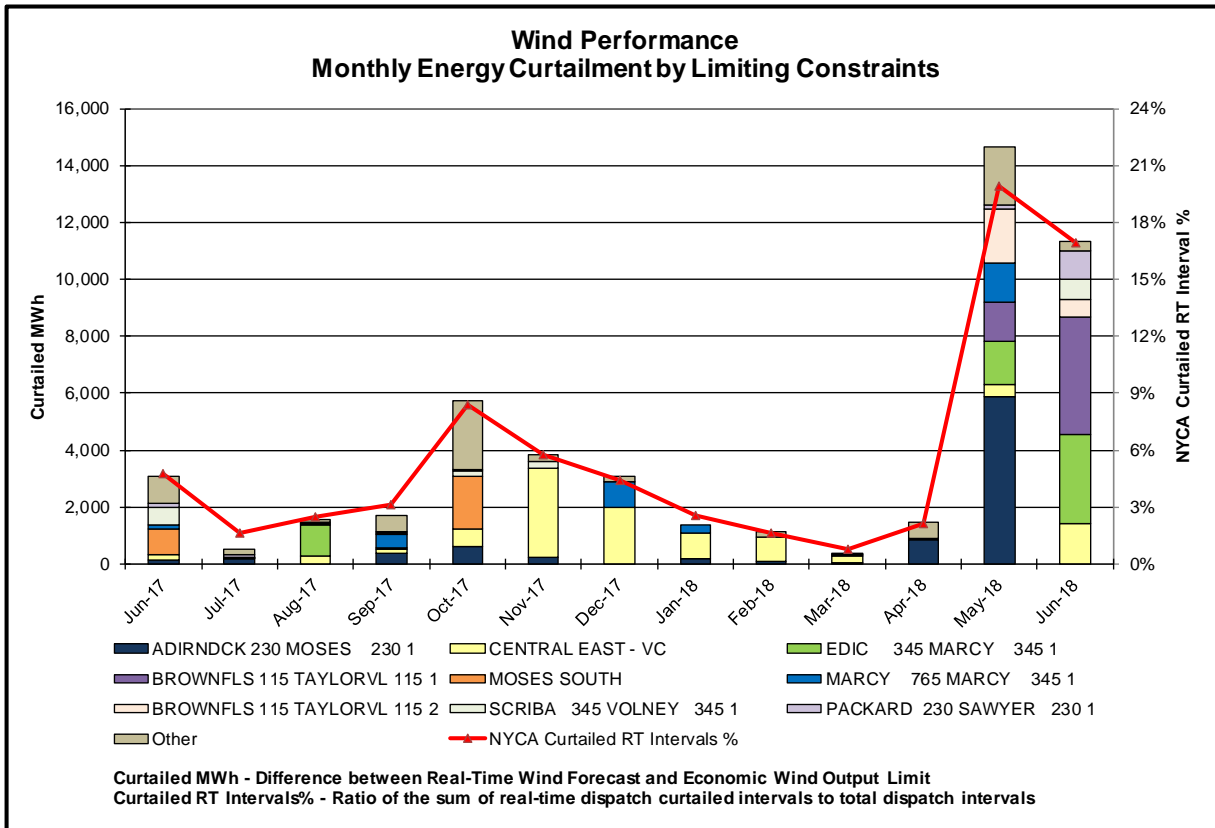
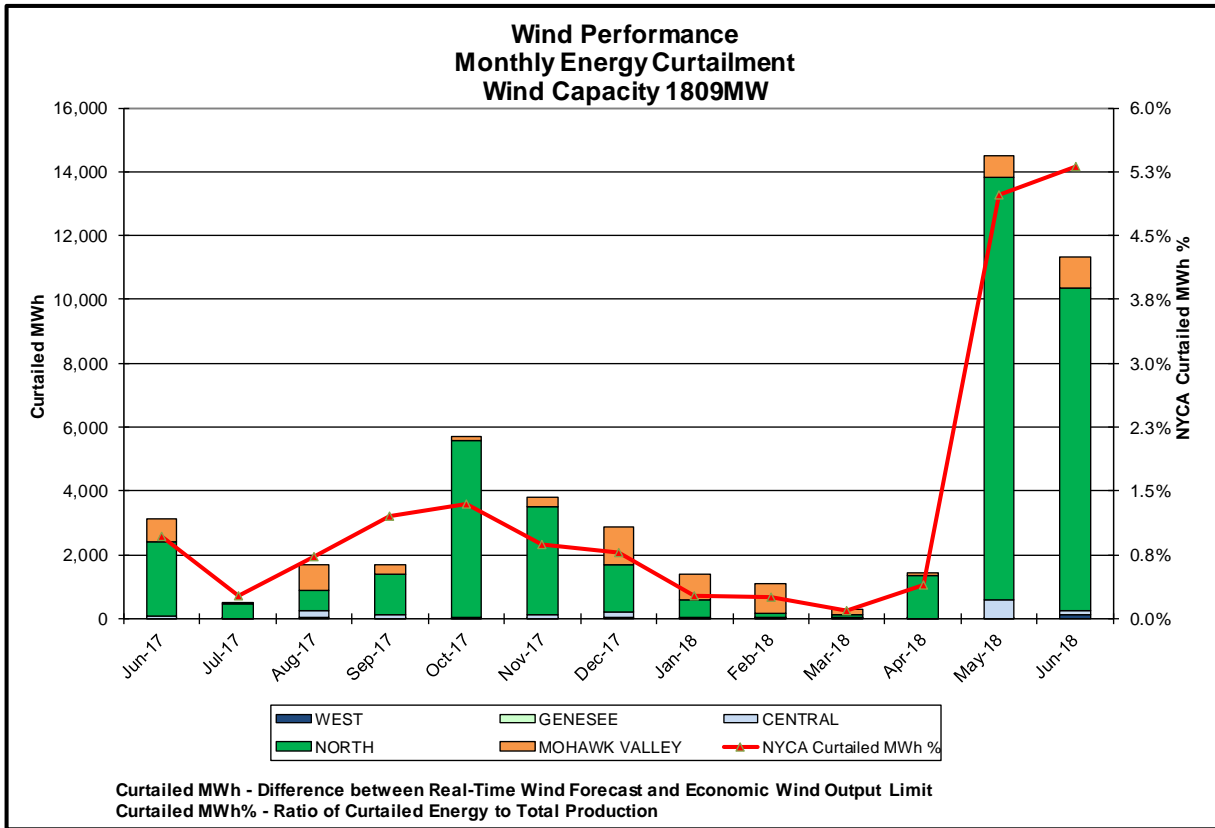
NYISO Reserve Activations are indicators of the need to respond to unexpected operational conditions within the NYISO Area or to assist a neighboring Area (Simultaneous Activation of Reserves) by activating an immediate resource and demand balancing operation.

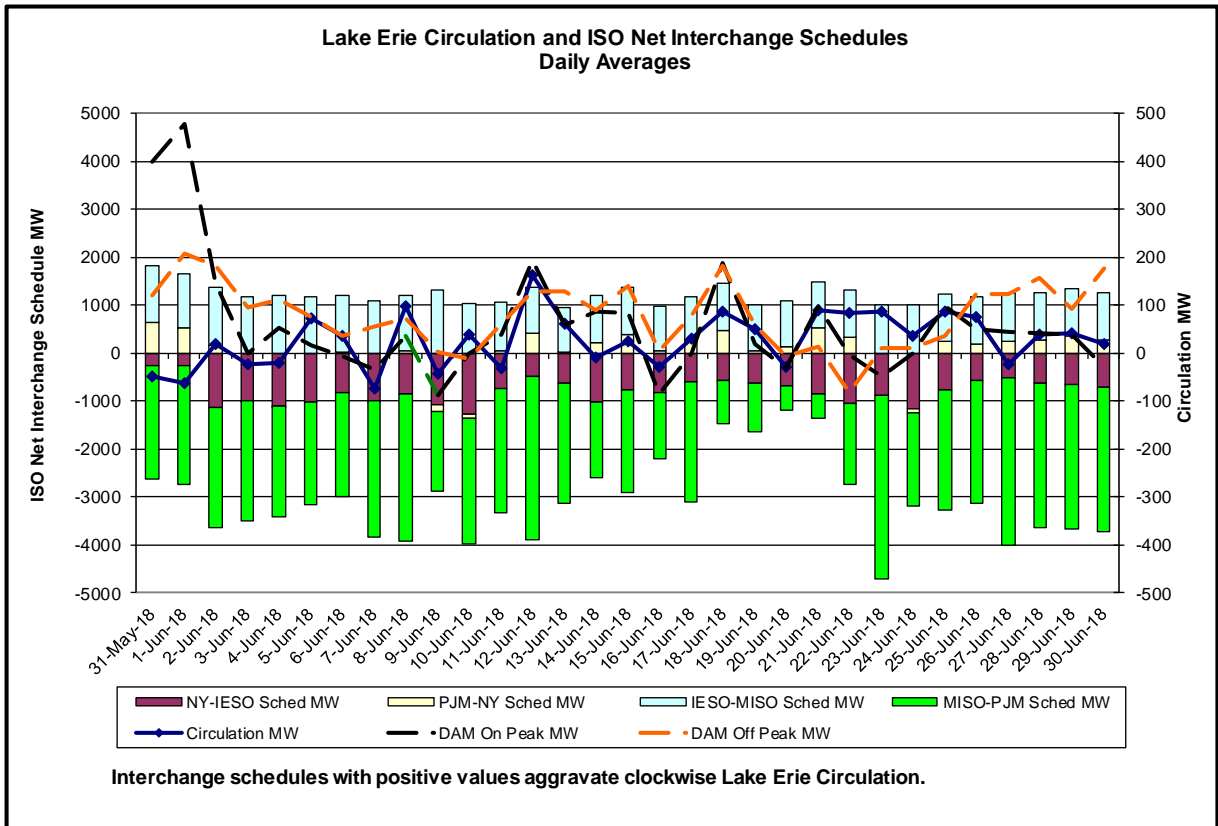
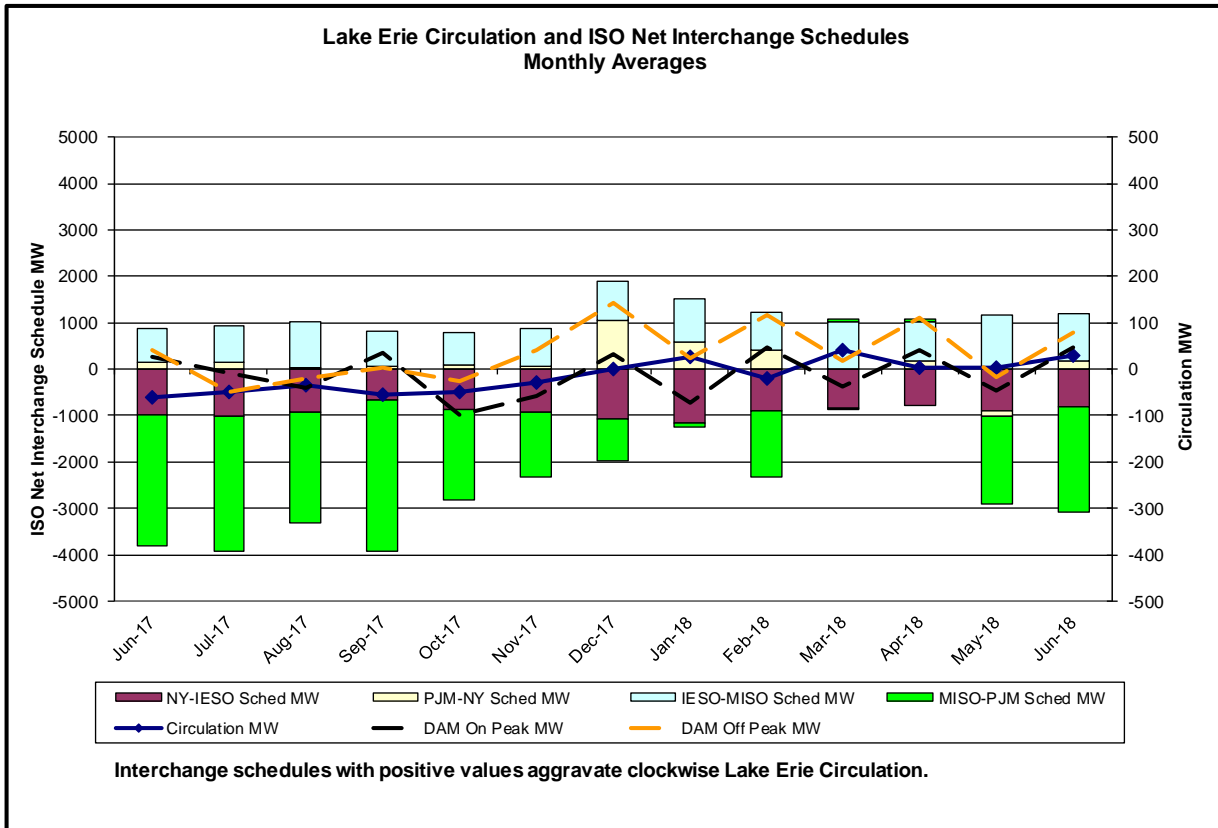




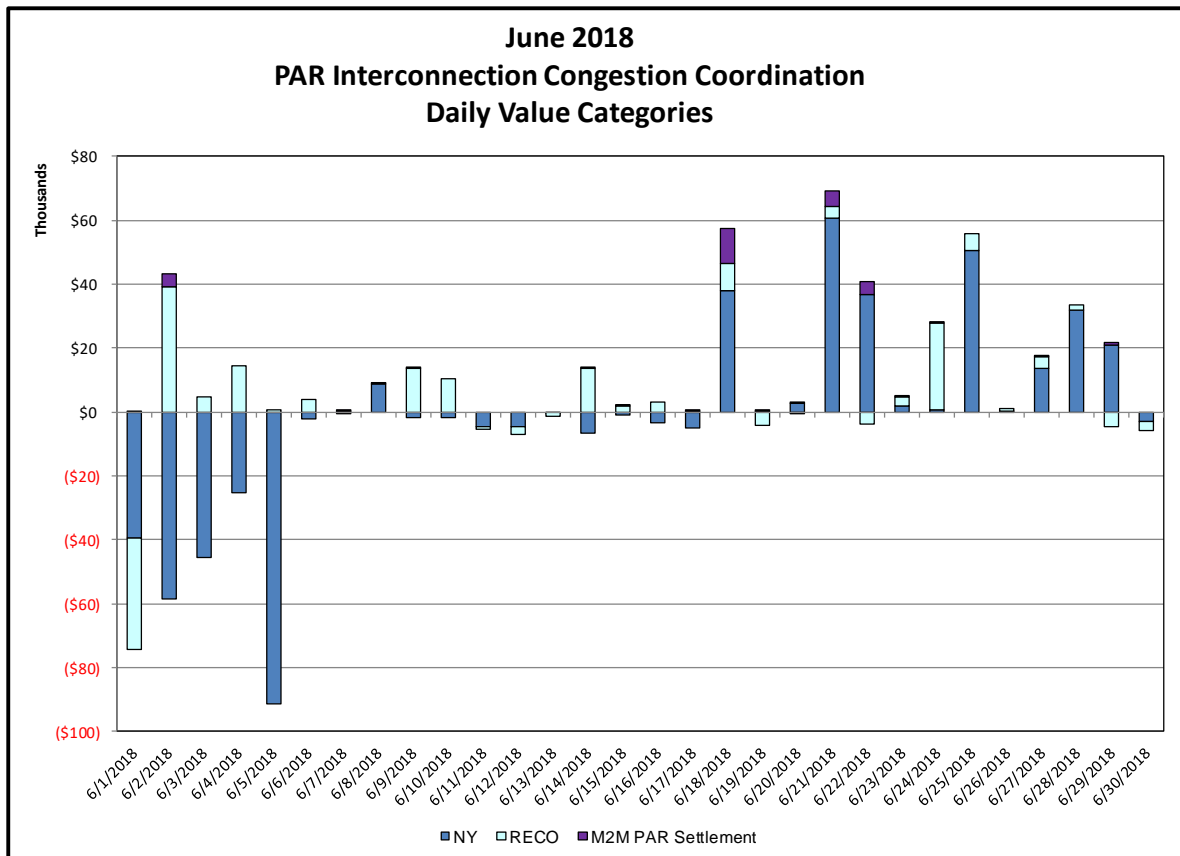
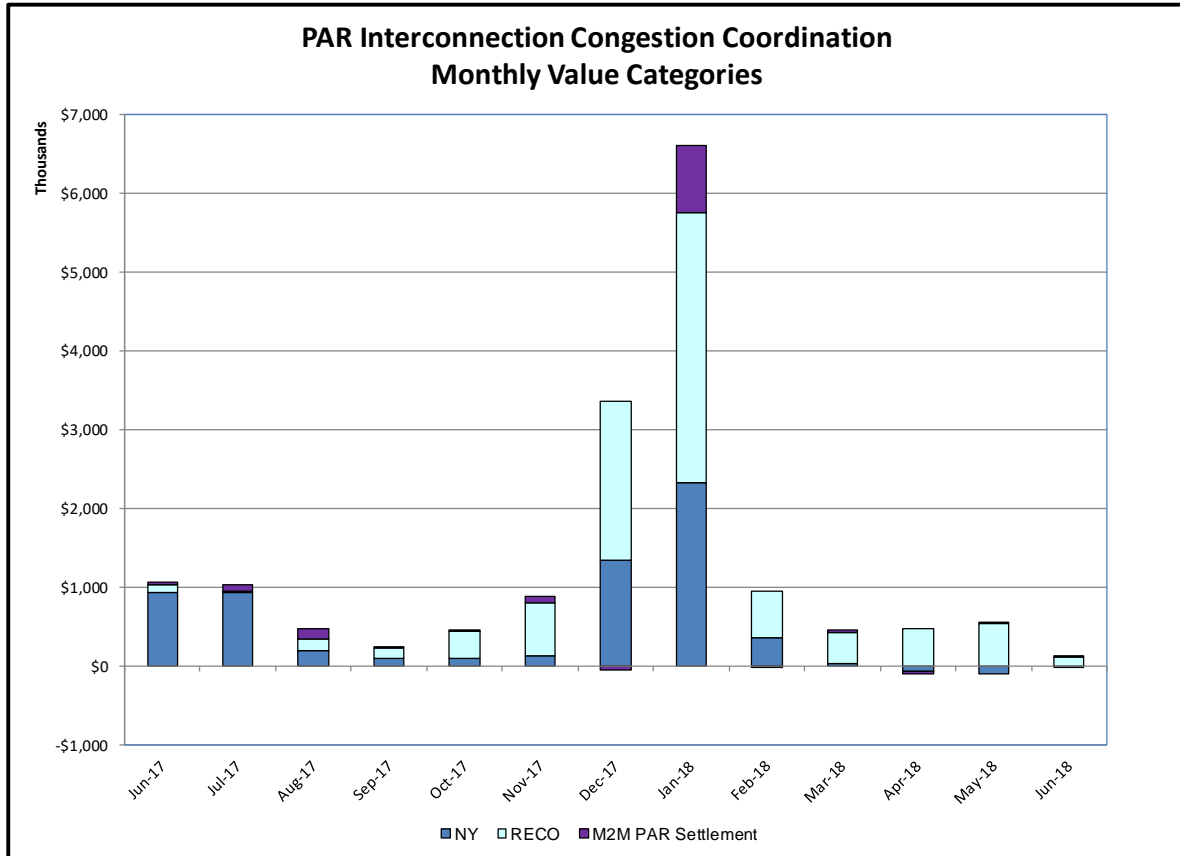






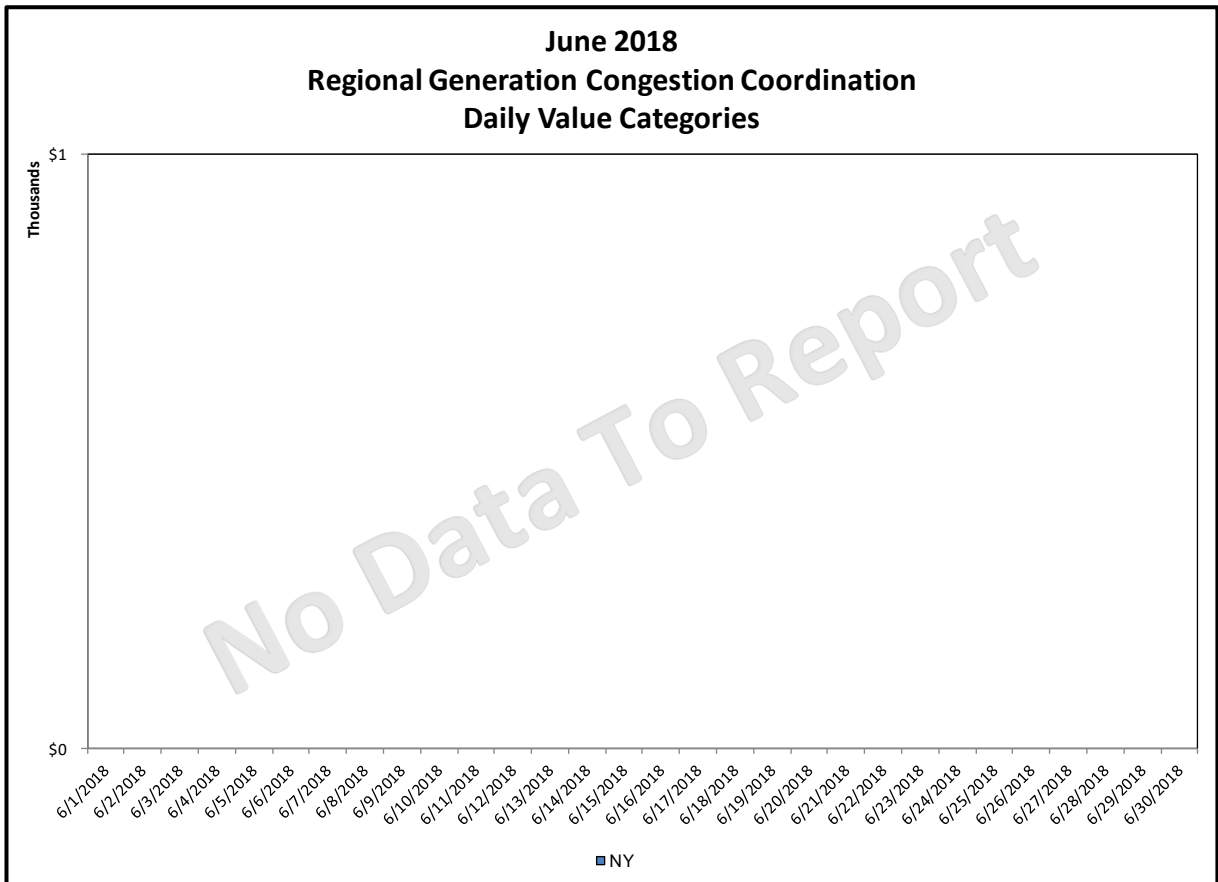
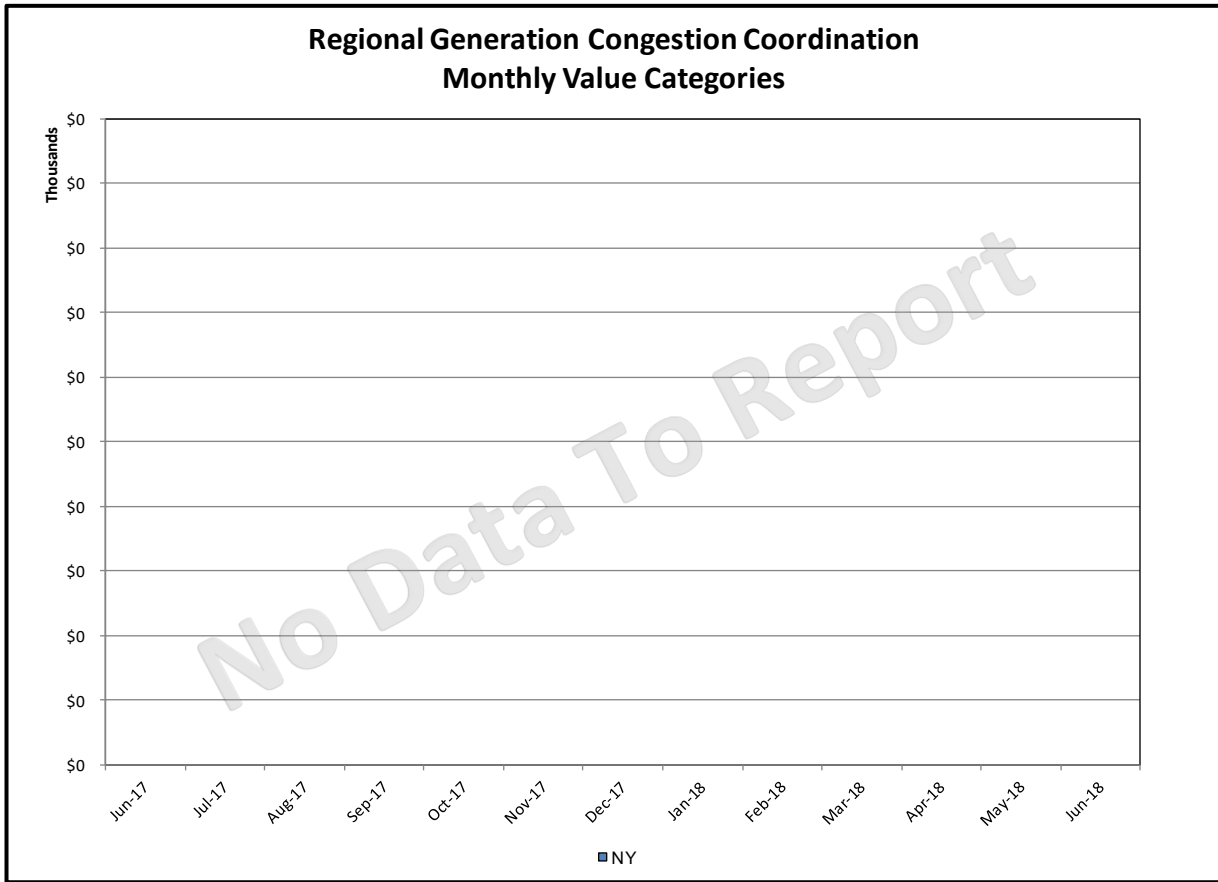


Broader Regional Market Performance Metrics



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 is the estimated savings to NY for additional deliveries into NY
RECO	Represents the value of PJM's obligation to deliver 80% of service to RECO load over Ramapo 5018. This is the estimated reduction in NYCA congestion due to the PJM delivery of RECO over Ramapo 5018.
M2M PAR Settlement	Market-to-Market PAR Coordination settlement on coordinated flowgates. Through April 2017 this value was included in the NY and RECO categories. The positive sign convention indicates settlement to NY while the negative indicates settlement to PJM.



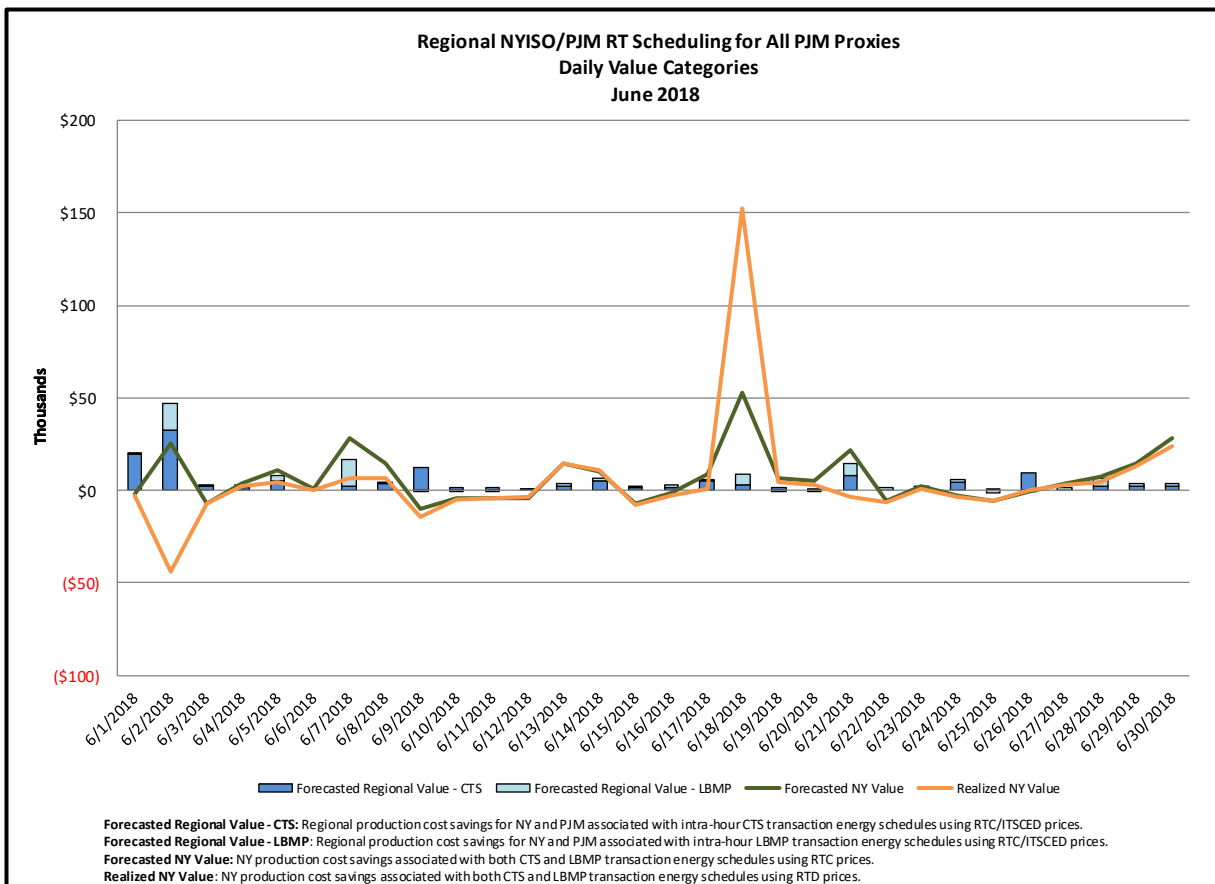
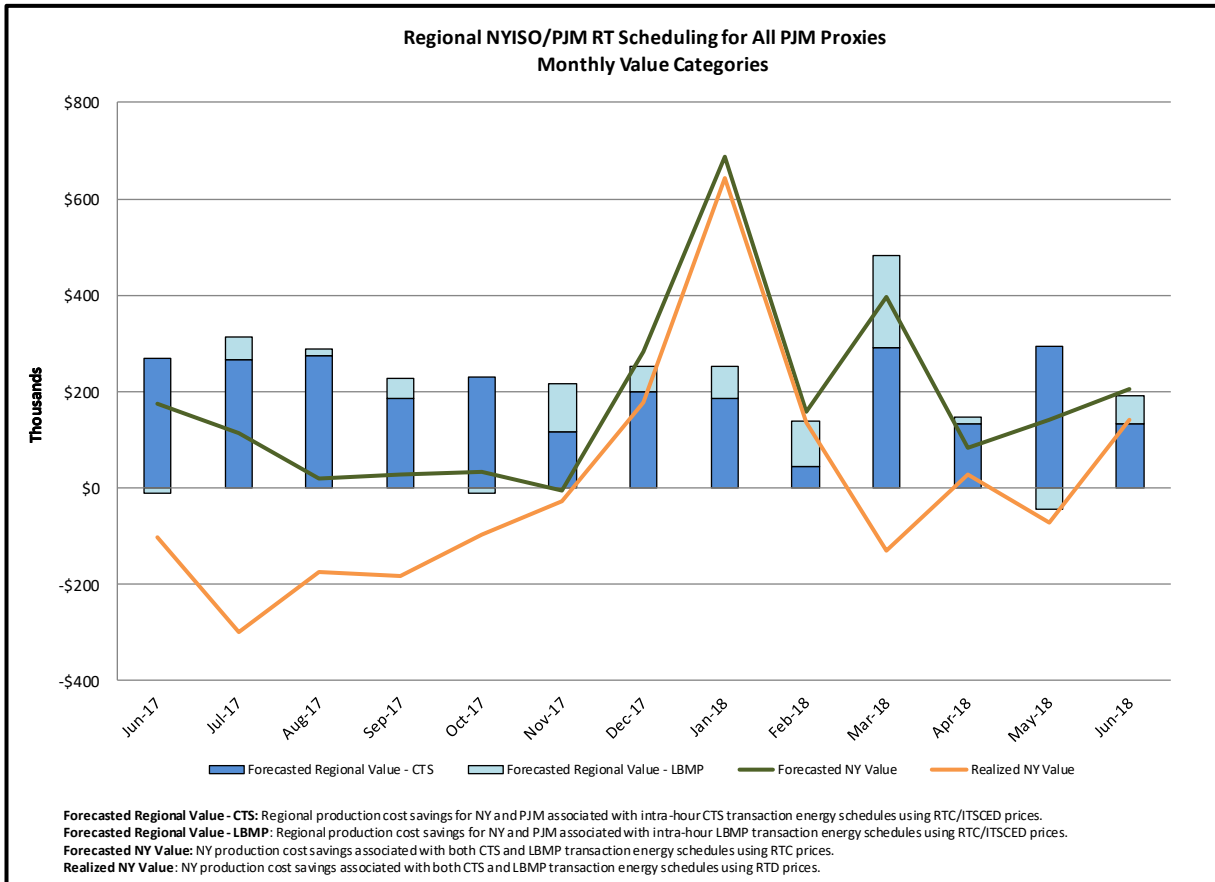
Regional Generation Congestion Coordination

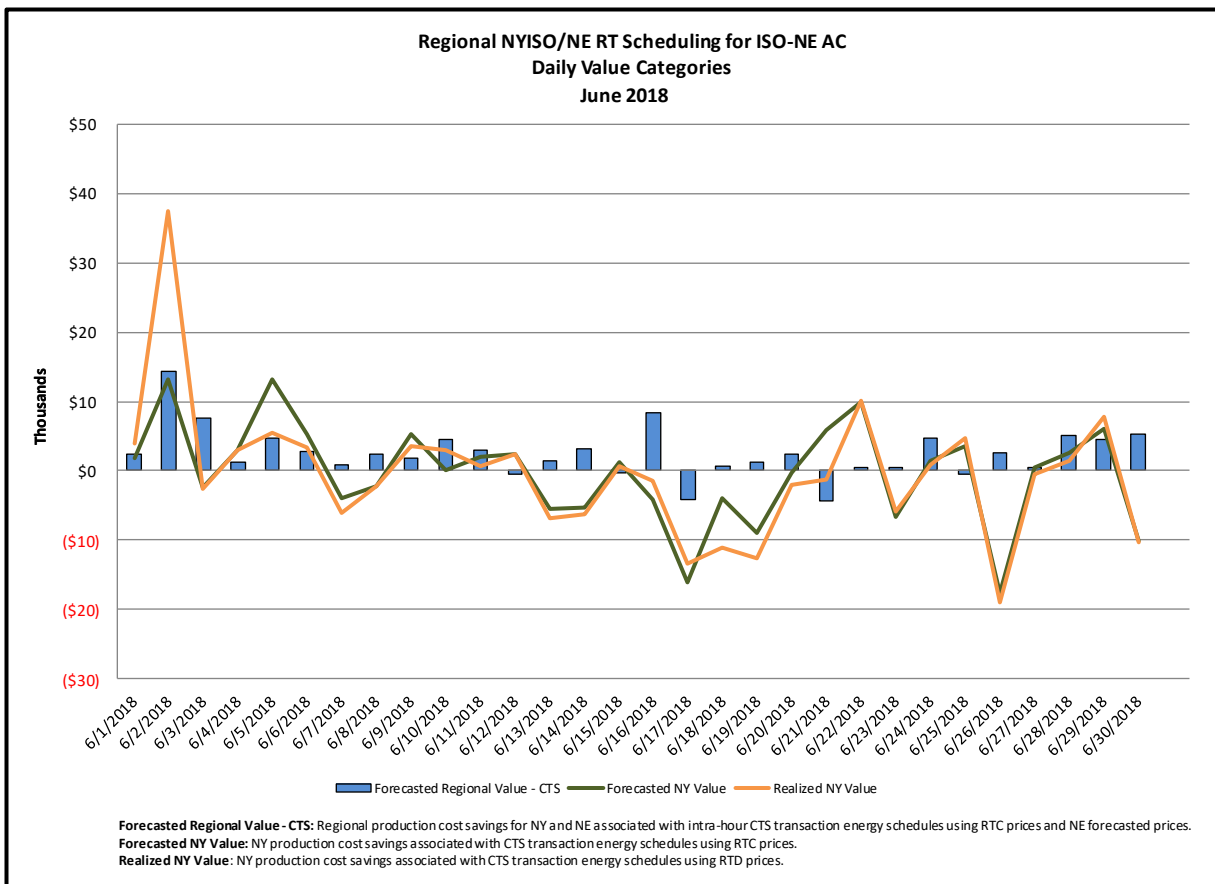
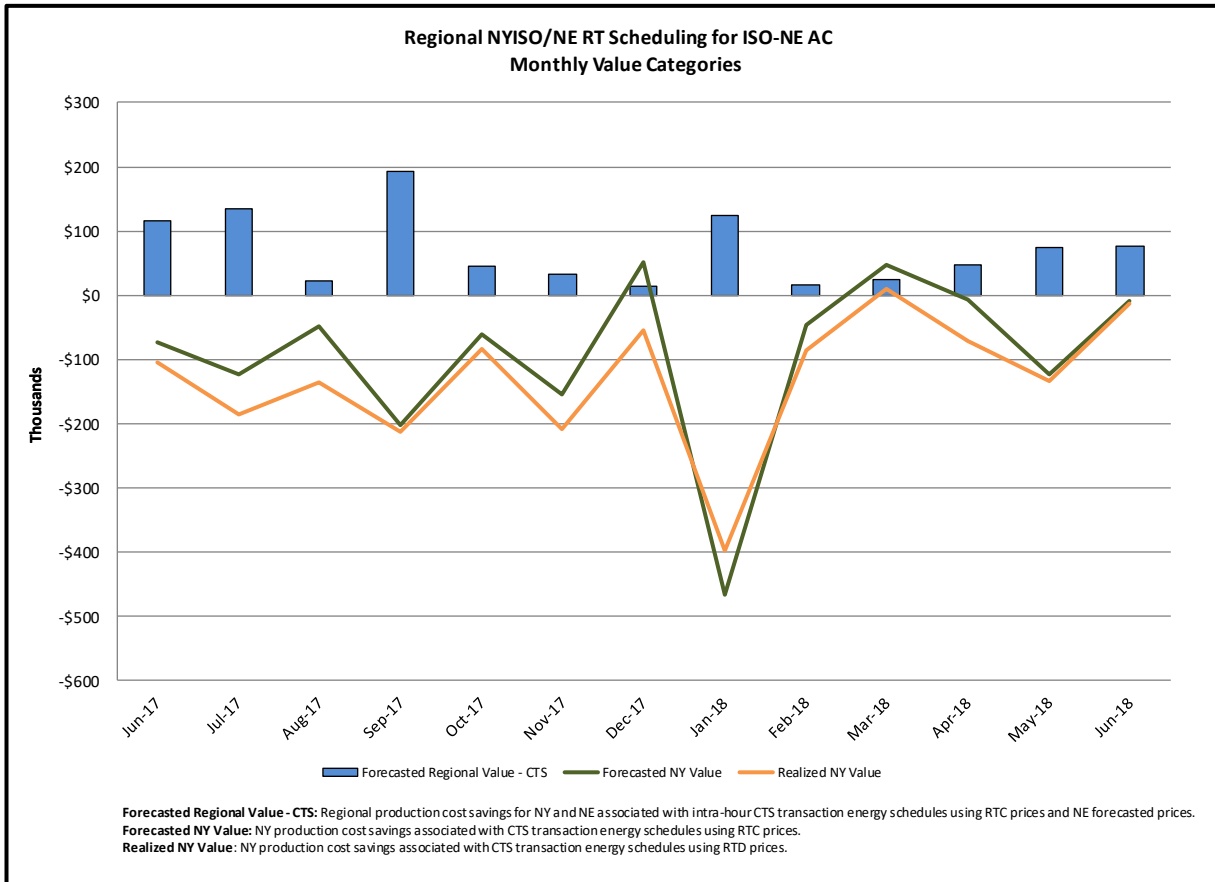
Category

NY

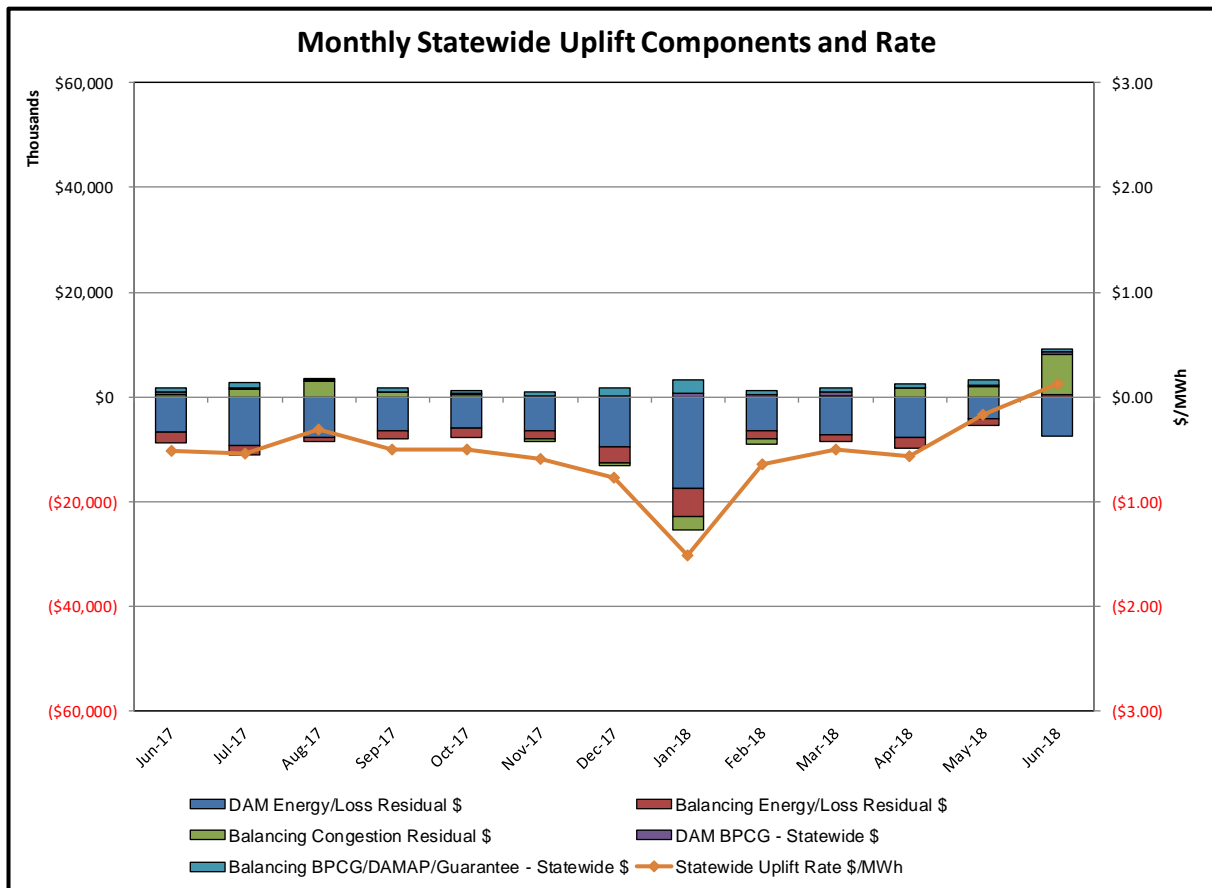
Description

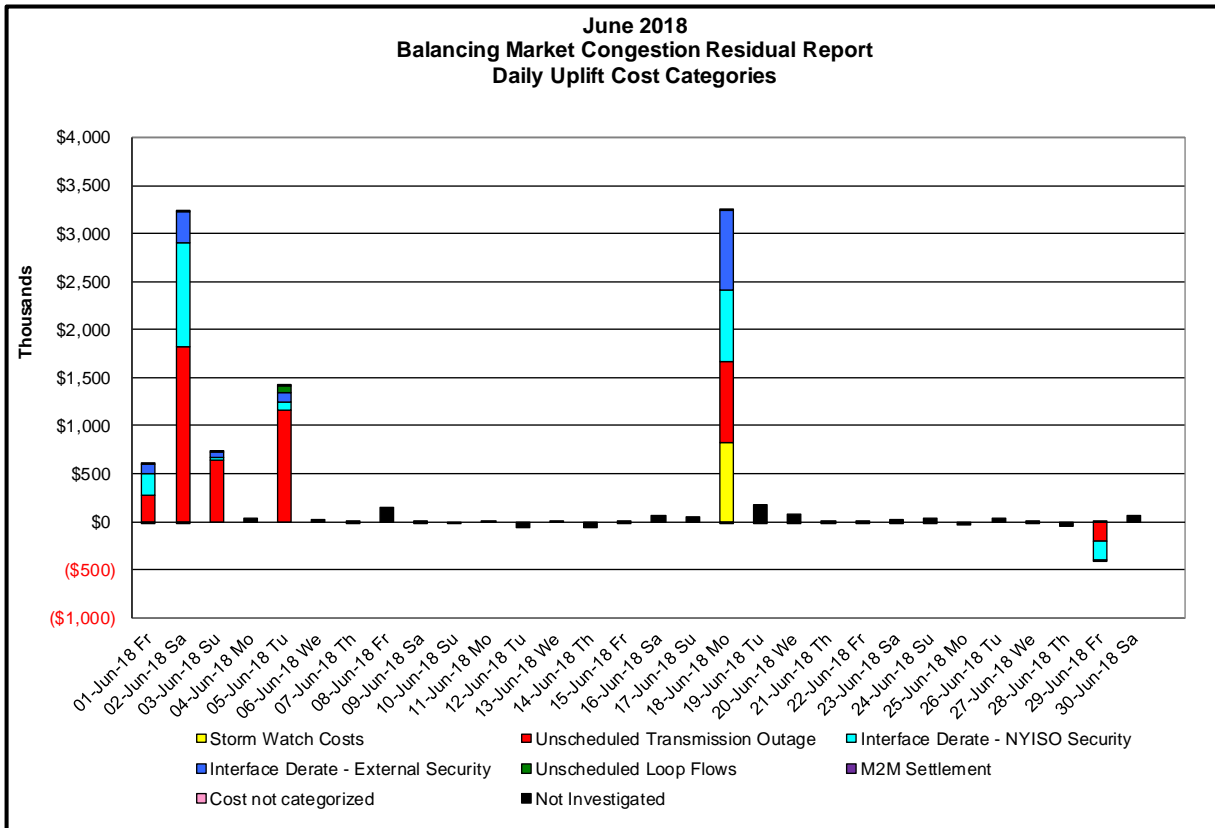
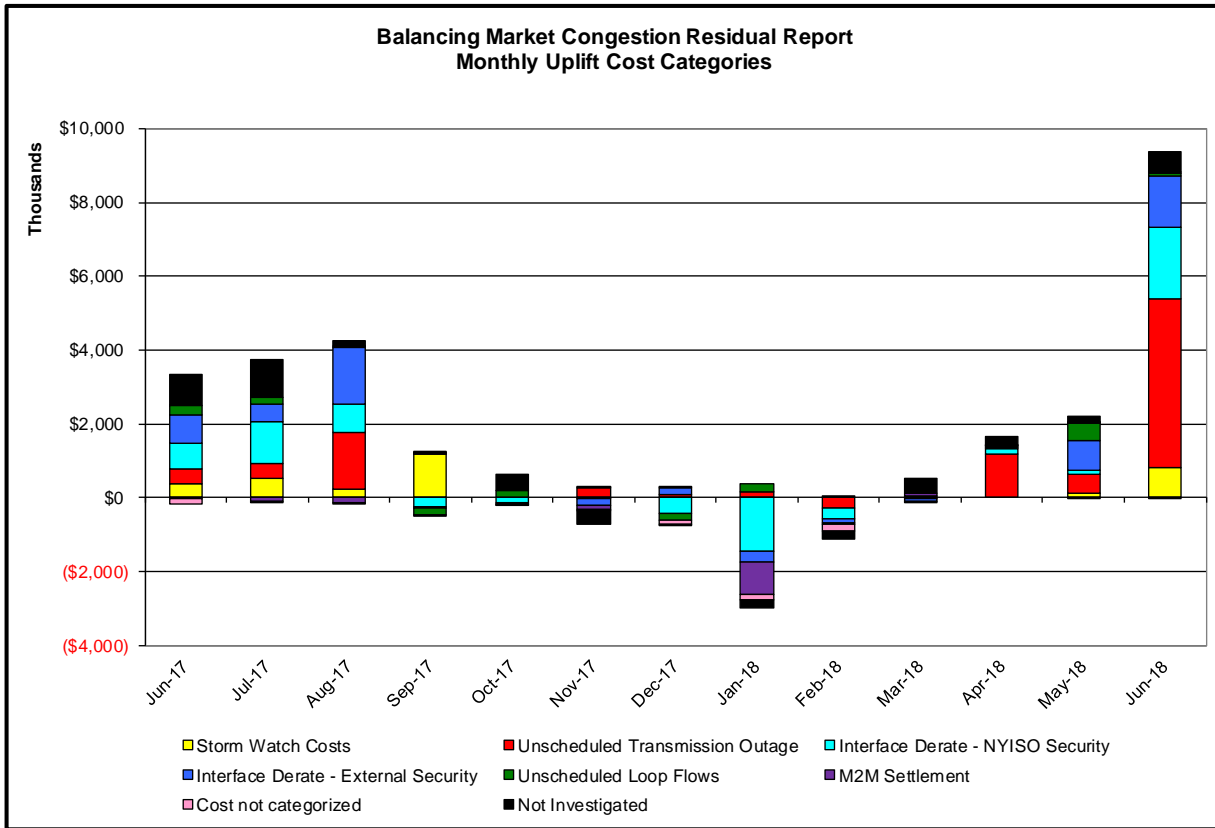
NYISO savings that result from PJM payments to NYISO when PJM's transmission use (PJM's market flow) is greater than PJM's entitlement of the NY transmission system and NYISO is incurring Western or Central NY congestion. Additionally, NYISO savings may result from the more efficient regional utilization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





Market Performance Metrics





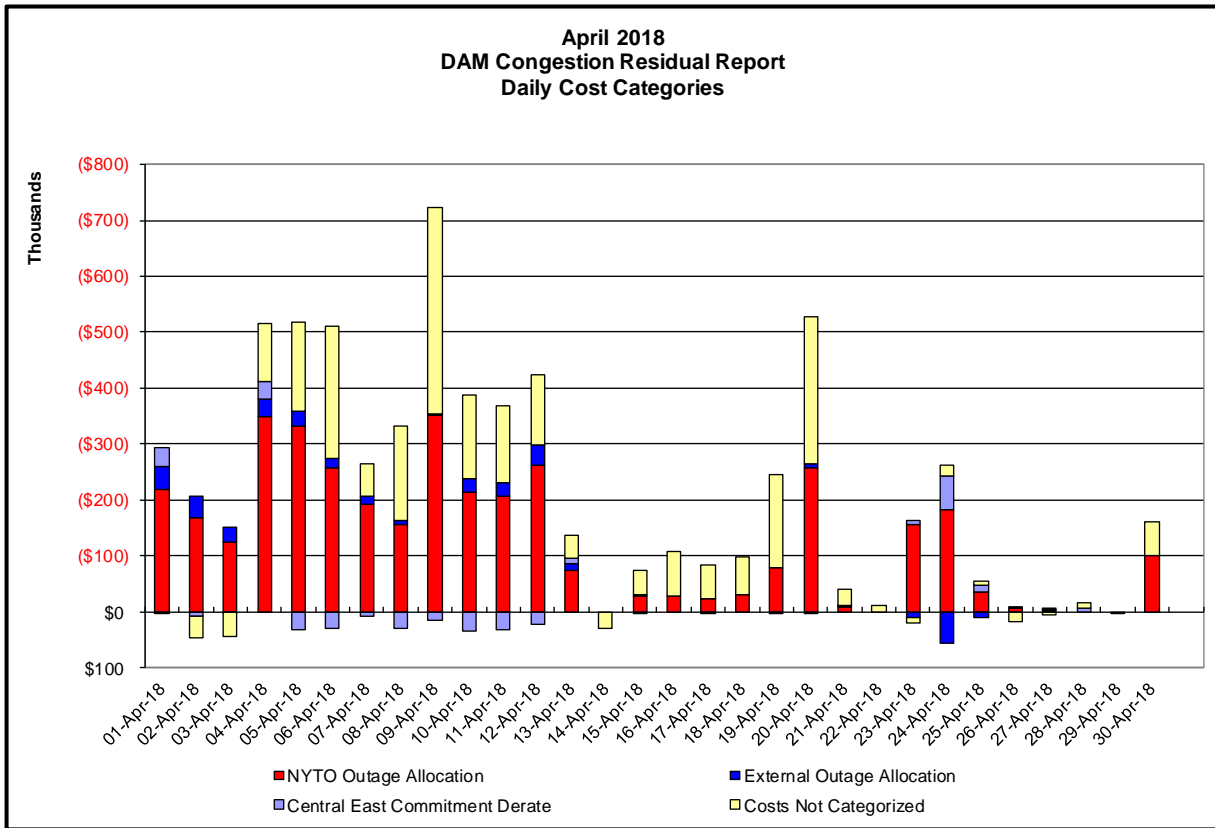
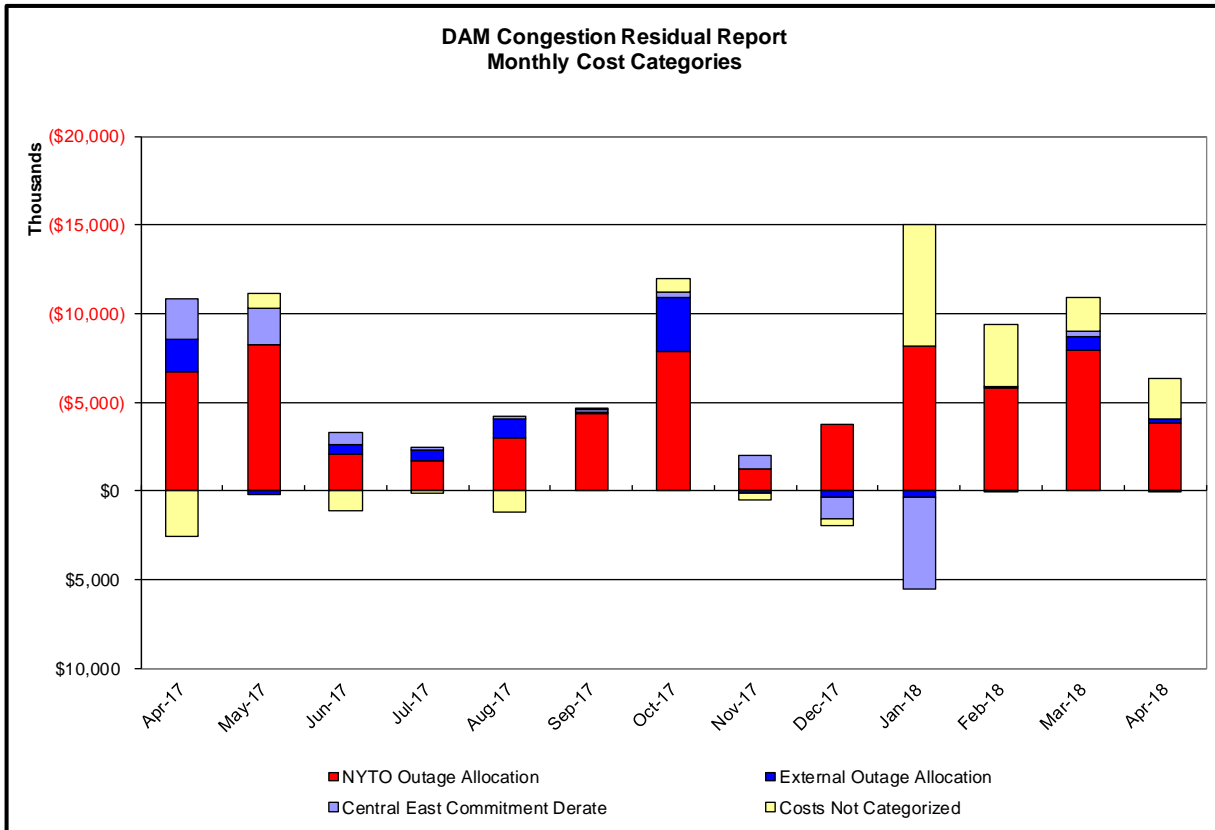
Day's investigated in June:1,2,3,5,18,29			
Event	Date (yyyymmdd)	Hours	Description
	6/1/2018	18-20,23	Extended outage Marcy-Fraser Annex-Coopers Comers345kV (#UCC2-41)
	6/1/2018	23	NYCA DNI Ramp Limit
	6/1/2018	20	Derate MottHaven-Dunwoodie 345kV (#72) for I/o MottHaven-Dunwoodie 345kV (#71)
	6/1/2018	20	Derate MottHaven-Dunwoodie 345kV (#71) for I/o MottHaven-Dunwoodie 345kV (#72)
	6/1/2018	23	Derate Edic-Marcy 345kV (#UE1-7) for I/o TWR:12& UNS-18
	6/1/2018	20	PJM AC DNI Ramp Limit
	6/1/2018	18,20	NE AC DNI Ramp Limit
	6/2/2018	0,1,4-6,13-18,20-22	Extended outage Marcy-Fraser Annex-Coopers Comers345kV (#UCC2-41)
	6/2/2018	4,11,21	NYCA DNI Ramp Limit
	6/2/2018	0	Derate MottHaven-Dunwoodie 345kV (#72) for I/o MottHaven-Dunwoodie 345kV (#71)
	6/2/2018	0	Derate MottHaven-Dunwoodie 345kV (#71) for I/o MottHaven-Dunwoodie 345kV (#72)
	6/2/2018	6,8,9,12	Derate West 49th Street-Sprainbrook 345kV (#M51) for I/o SCB SPRAIN RS4 WITH RNS3 O/S
	6/2/2018	8-12,14	HQ_CHAT-NY Scheduling Limit
	6/2/2018	0,1	NE AC DNI Ramp Limit
	6/3/2018	0-6,8-13,16,19-22	Extended outage Marcy-Fraser Annex-Coopers Comers345kV (#UCC2-41)
	6/3/2018	7	Derate Dunwoodie-Shore Rd 345kV (#Y50)
	6/3/2018	0-2	Derate East Garden City-Valley Stream 138kV (#262) I/o SCB:NEWBRDG 1380 461&BK6+4
	6/3/2018	1,6-8,13,14,16-18	HQ_CHAT-NY Scheduling Limit
	6/3/2018	9	NE AC DNI Ramp Limit
	6/5/2018	0,1,3-13	Extended outage Marcy-Fraser Annex-Coopers Comers345kV (#UCC2-41)
	6/5/2018	23	Forced outage West 49th St-Sprainbrook 345kV (#M51)
	6/5/2018	1,4-6,8	NYCA DNI Ramp Limit
	6/5/2018	23	Derate East Garden City-Valley Stream 138kV (#262) I/o SCB:NEWBRDG 1380 461&BK6+4
	6/5/2018	23	Derate Freeport-Newbridge 138kV (#461)
	6/5/2018	3-5,8,10	NE AC DNI Ramp Limit
	6/5/2018	16	Lake Erie Circulation, DAM-RTM exceeds +/-125MW; Niagara-Packard 230kV, Packard-Sawyer 230kV, Niagara-Robinson Rd 230kV
	6/18/2018	14-23	Thunder Storm Alert
	6/18/2018	12-23	Forced outage Leeds-Pleasant Valley 345kV (#92)
	6/18/2018	15,16,21	Derate East Garden City-Newbridge 138kV (#462)
	6/18/2018	15,16	Derate East Garden City-Newbridge 138kV (#462) for I/o SCB:NEWBRDG 1310 467&BK7+9
	6/18/2018	21-23	Derate East Garden City-Valley Stream 138kV (#262) for I/o SCB:NEWBRDG 1380 461&BK6+4
	6/18/2018	11-13,22	Derate Greenwood-Foxhills 138kV (#29231)
	6/18/2018	12-13,22,23	Derate Greenwood-Foxhills 138kV (#29232)
	6/18/2018	22,23	Derate Freeport-Newbridge 138kV (#461)
	6/18/2018	16	Derate Rainey-Vernon 138kV (#36312)
	6/18/2018	22,23	Derate Scriba-Volney 345kV (#20) for I/o Scriba-Volney 345kV (#21)
	6/18/2018	12,15-19,22	NYCA DNI Ramp Limit
	6/18/2018	12-23	NE AC DNI Ramp Limit
	6/18/2018	23	PJM AC DNI Ramp Limit
	6/18/2018	17	NE_NNC1385-NY Scheduling Limit
	6/18/2018	9,10	HQ_CHAT-NY Scheduling Limit
	6/29/2018	15,16	Forced outage Jamaica-Lake Success 138kV (#903)
	6/29/2018	15,16	Uprate Packard-Sawyer 345kV (#77) for I/o BUS:PACKARD BK3 & 61 & 78
	6/29/2018	15	Uprate Packard-Sawyer 345kV (#78) for I/o Packard-Sawyer 345kV (#77)

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	

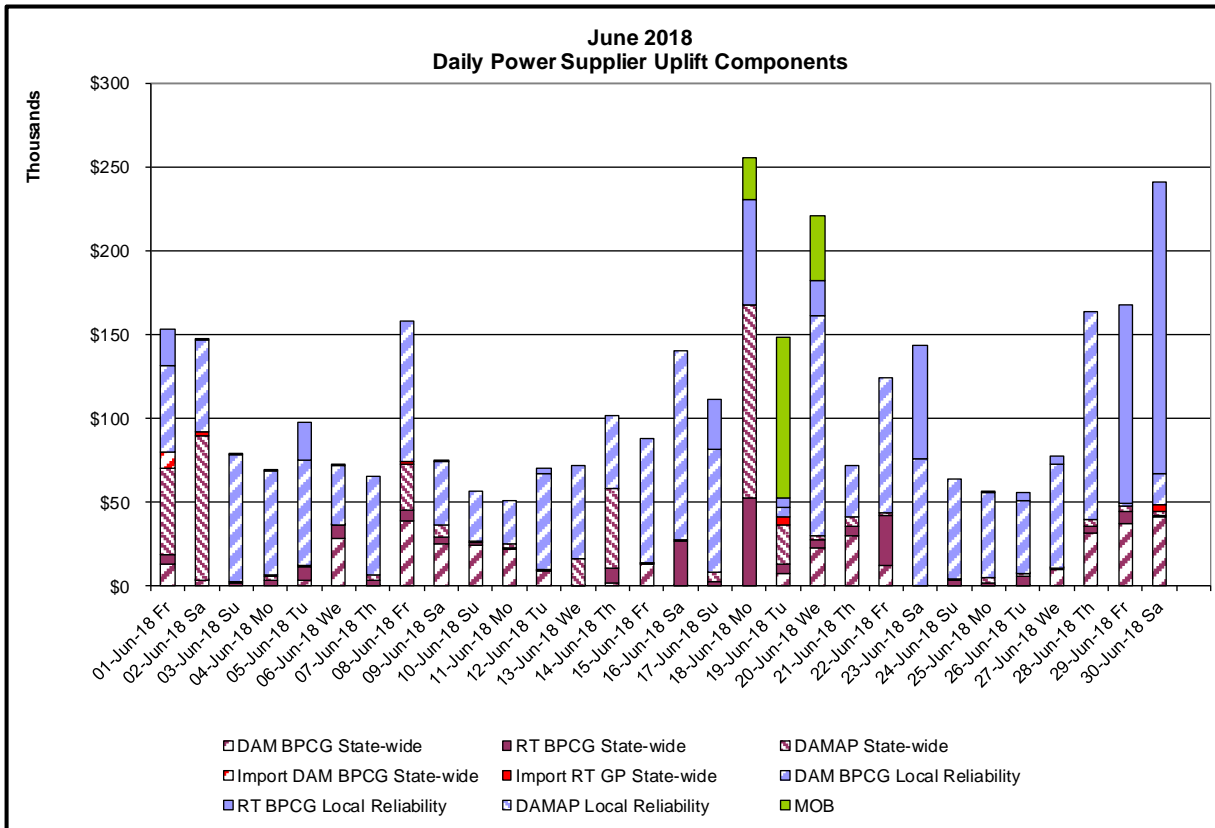
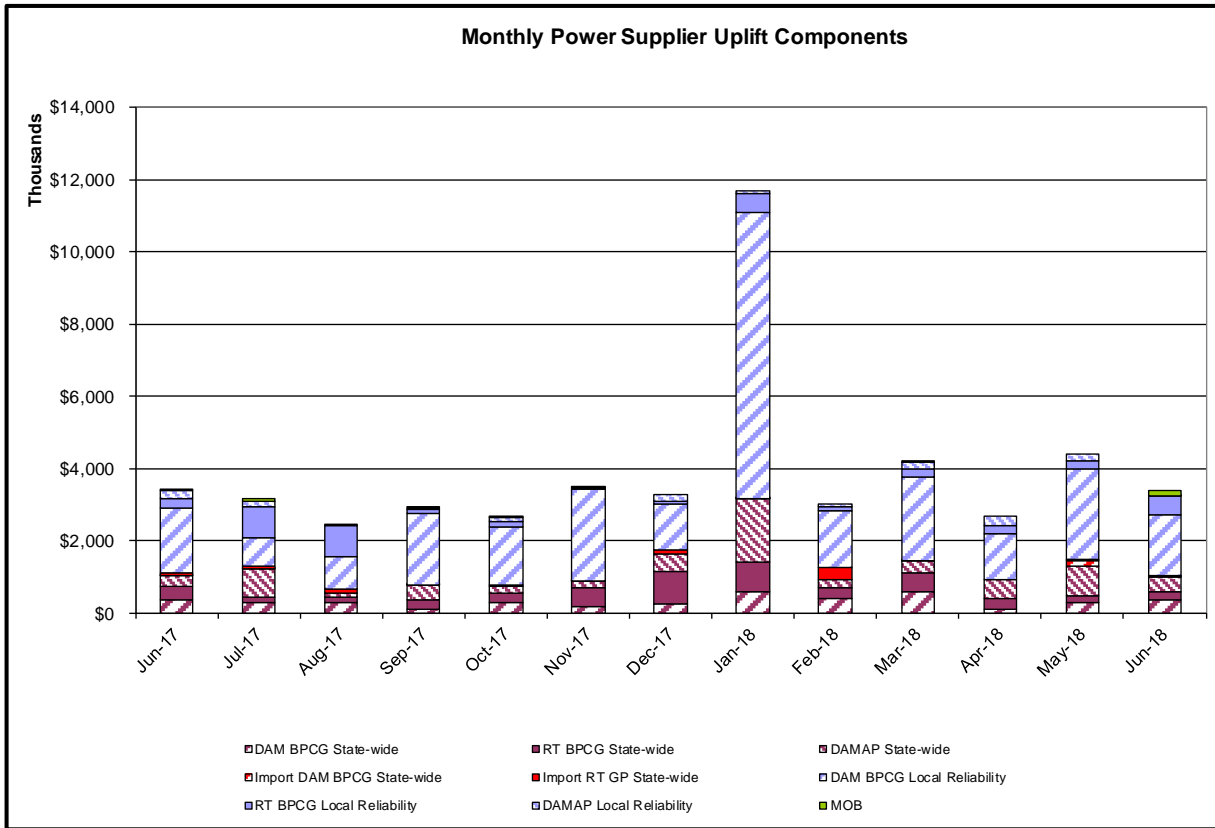
Monthly Balancing Market Congestion Report Assumptions/Notes

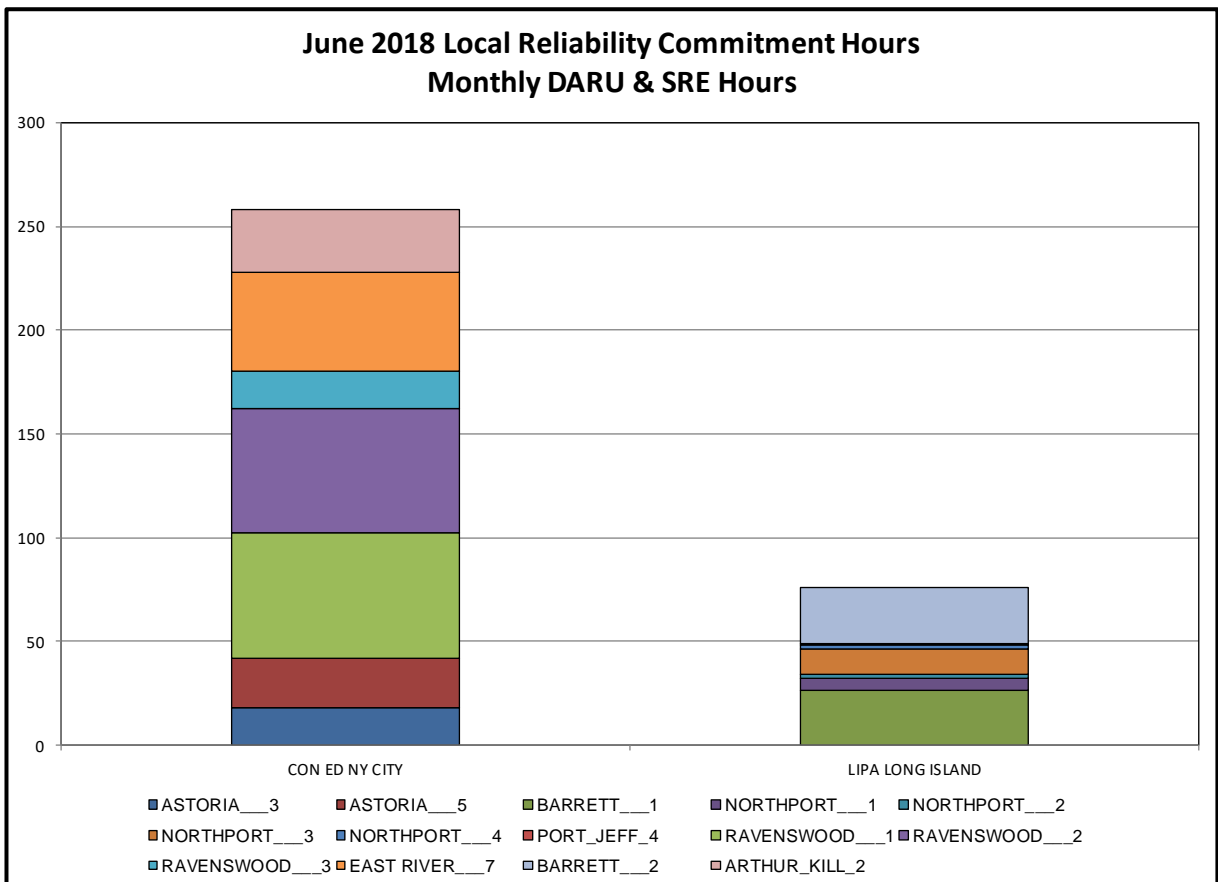
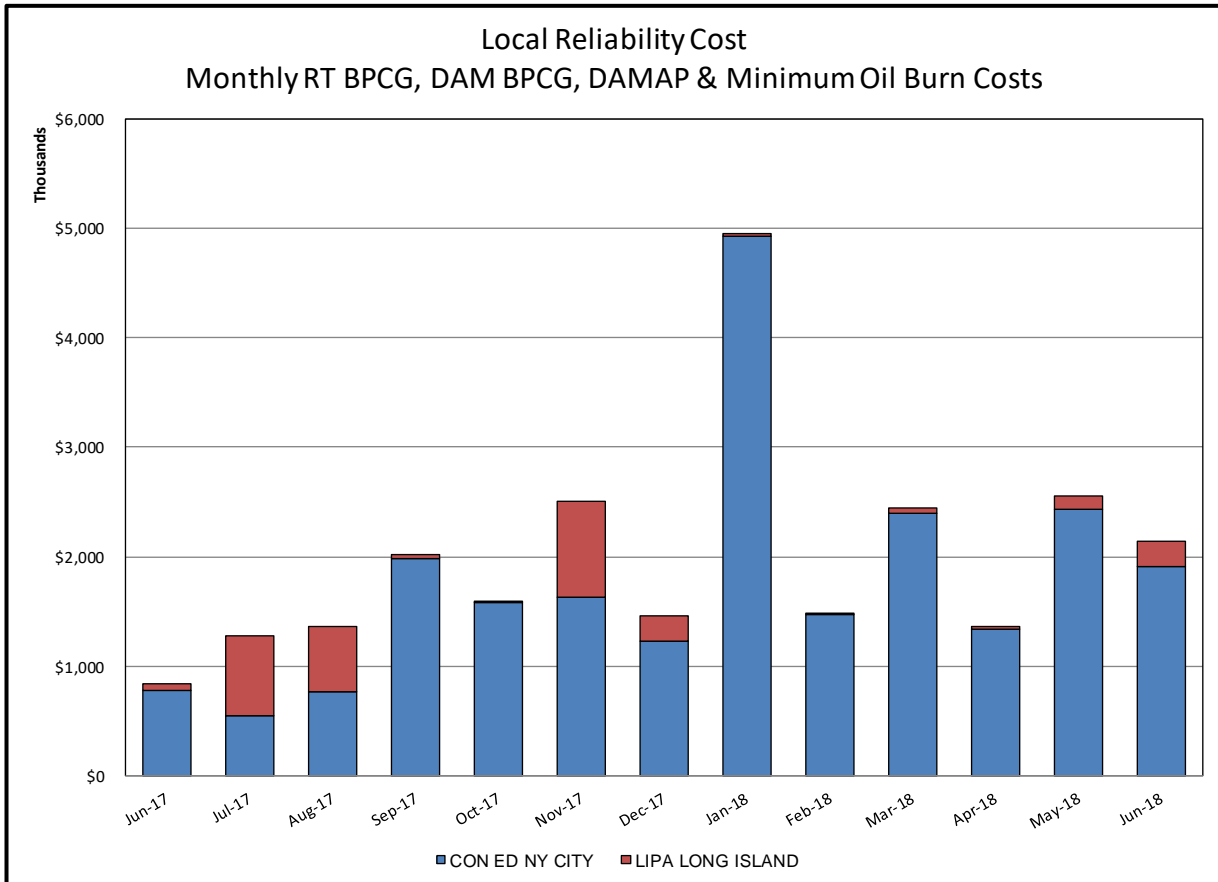
1) Storm Watch Costs are identified as daily total uplift costs
 2) Days with a value of BMCR less M2M Settlement of \$100K/HR, shortfall of \$200K/Day or more, or surplus of \$100K/Day or more are investigated.
 3) Uplift costs associated with multiple event types are apportioned equally by hour

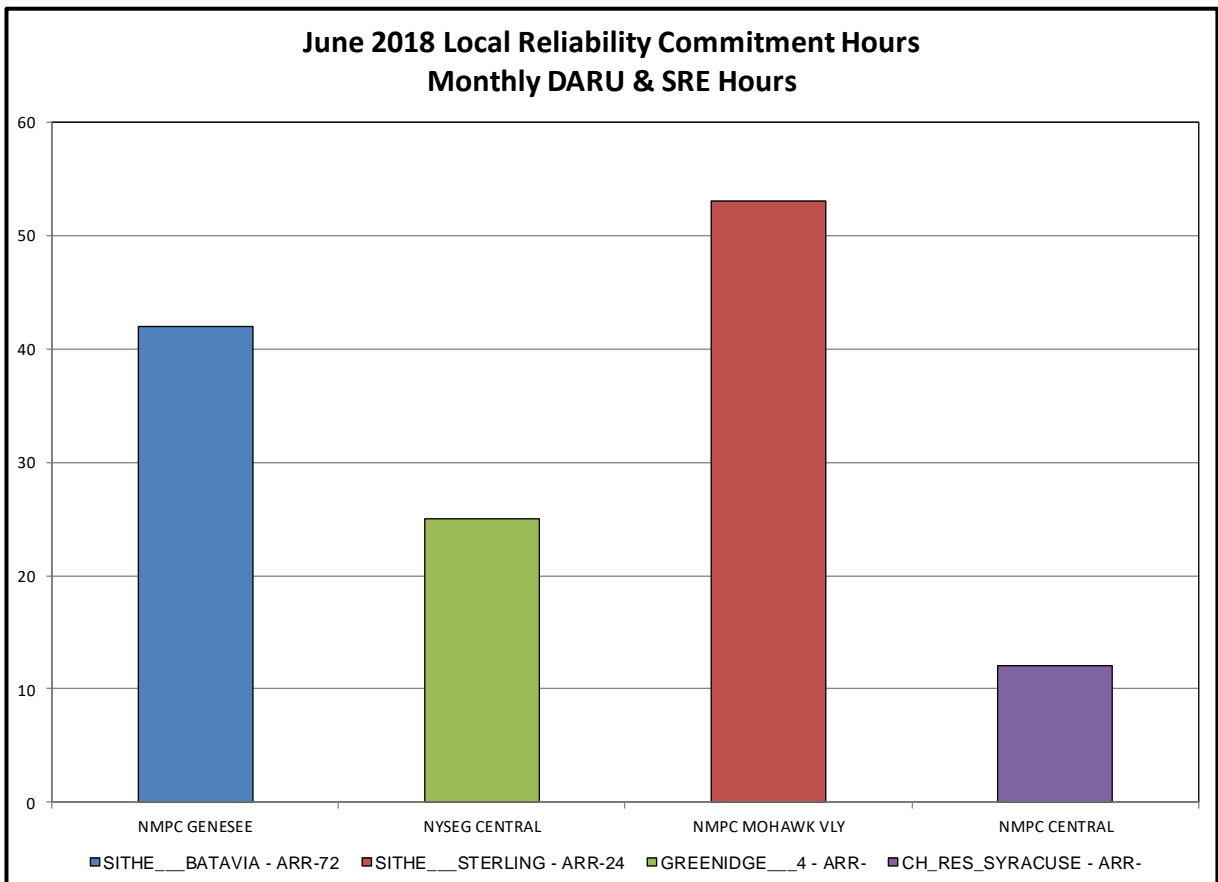
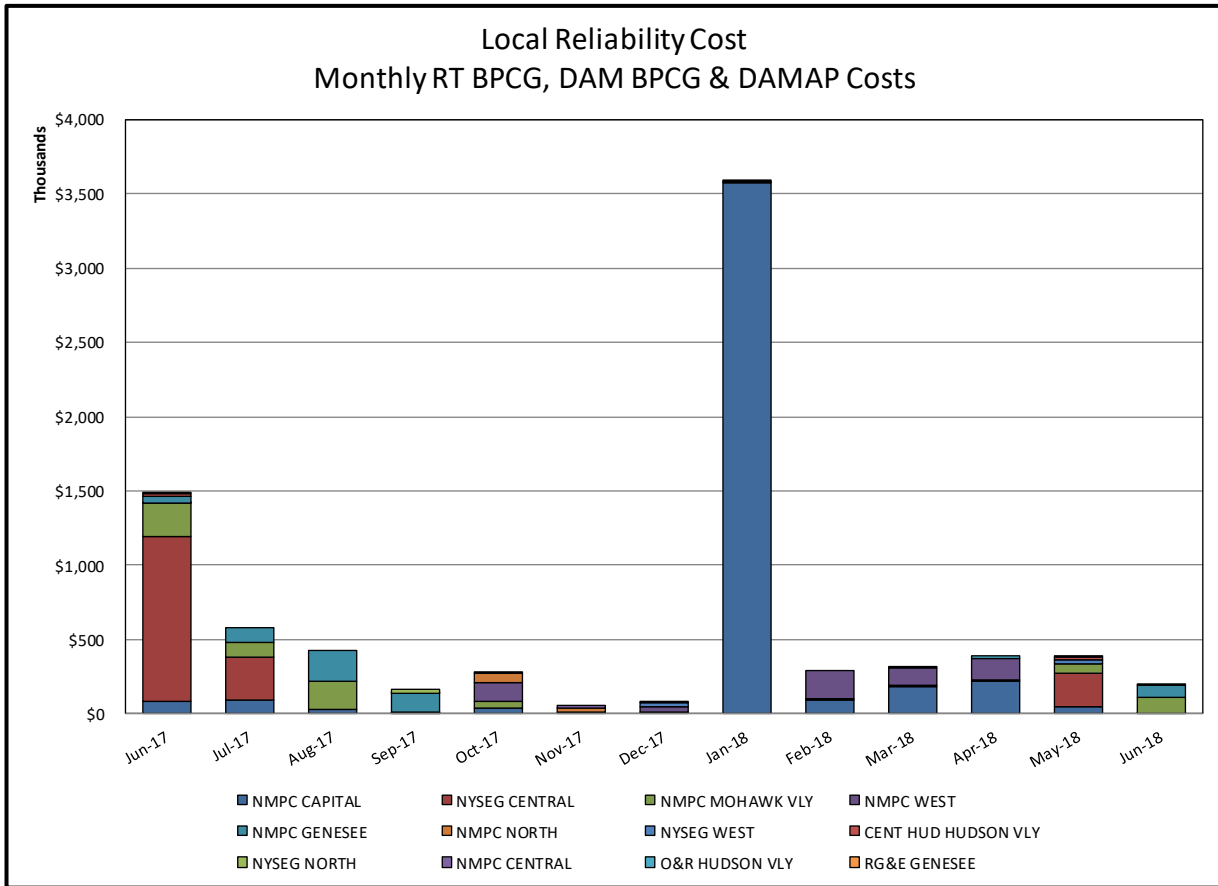


Day-Ahead Market Congestion Residual Categories

<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.	

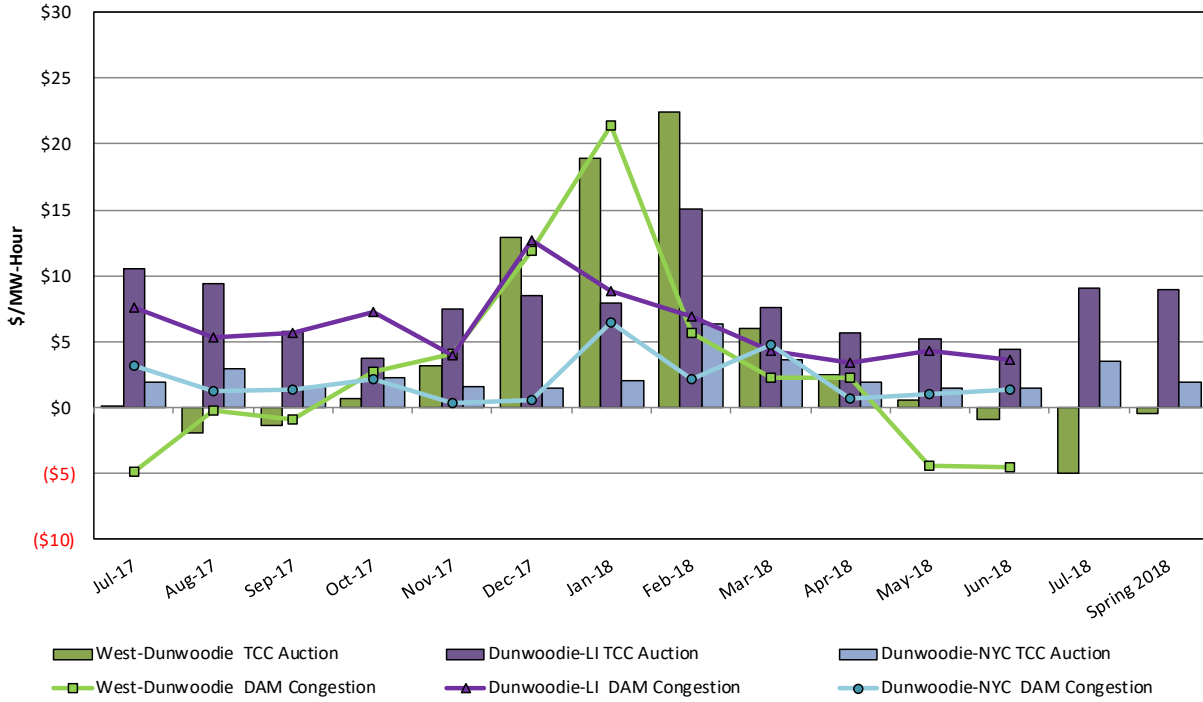






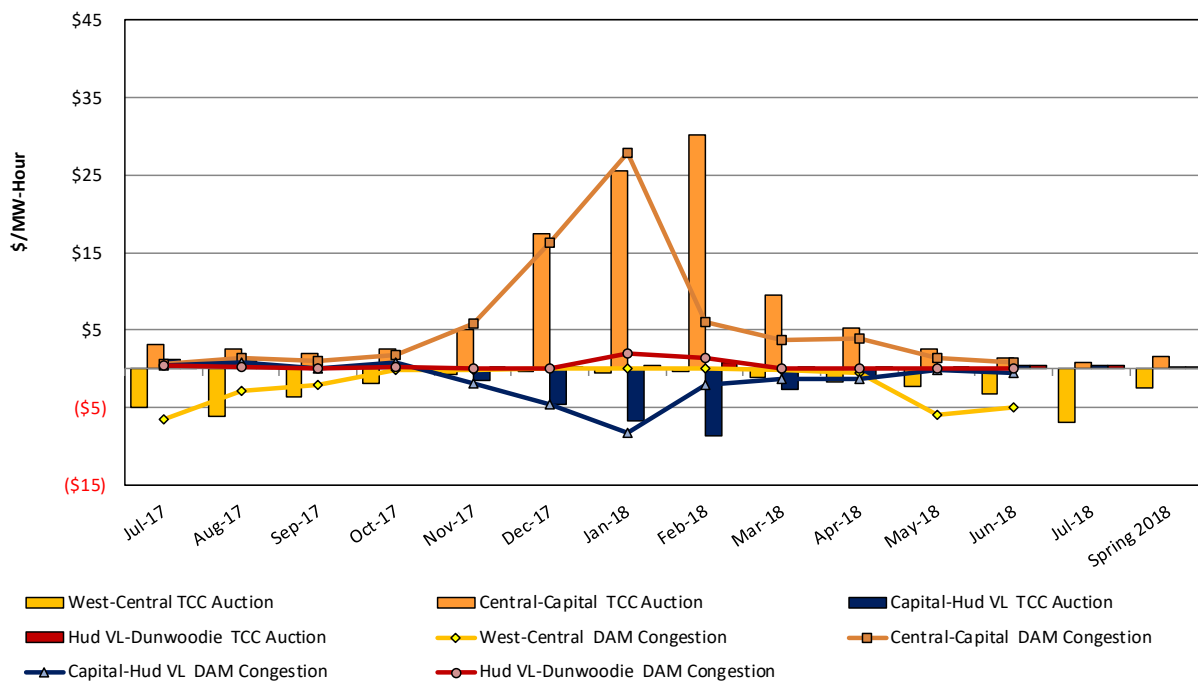
TCC & Day Ahead Market Selected Internal Path Congestion

TCC Monthly Reconfiguration Auction vs. Monthly DAM Average with Spring 2018 Centralized TCC Auction Six-Month Average



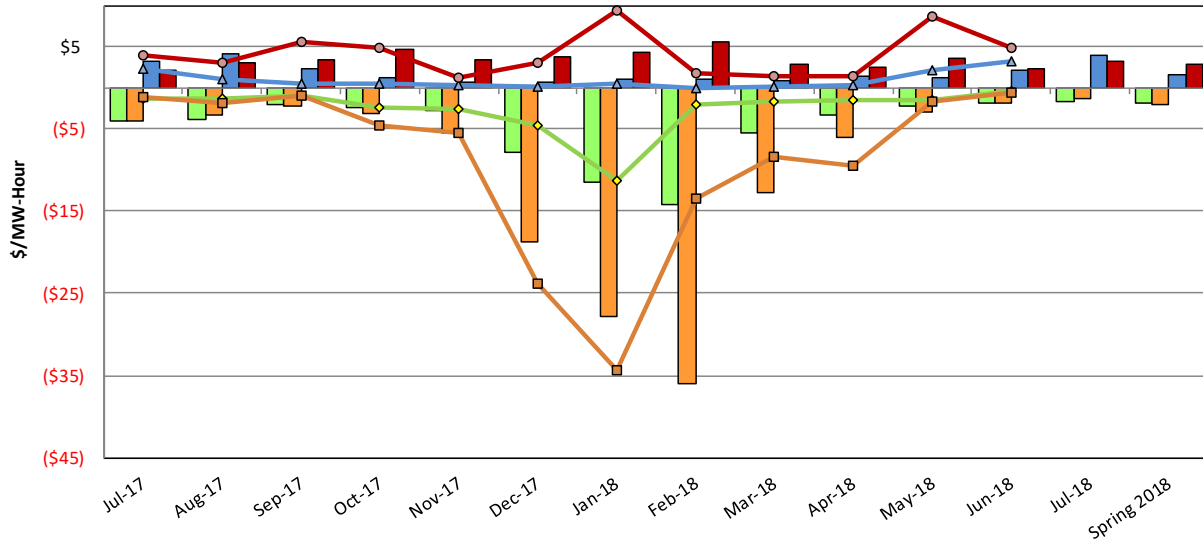
TCC & Day Ahead Market West to Dunwoodie Path Congestion

TCC Monthly Reconfiguration Auction vs. Monthly DAM Average with Spring 2018 Centralized TCC Auction Six-Month Average



TCC & Day Ahead Market Selected External Path Congestion

TCC Monthly Reconfiguration Auction vs. Monthly DAM Average
with Spring 2018 Centralized TCC Auction Six-Month Average



■ PJM-Central TCC Auction
 ■ NE-Central TCC Auction
 ■ OH-Central TCC Auction
 ■ HQ-Central TCC Auction
◆ PJM-Central DAM Congestion
 ■ NE-Central DAM Congestion
 ▲ OH-Central DAM Congestion
 ● HQ-Central DAM Congestion

