

Operations Performance Metrics Monthly Report



July 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 August 8, 2018.

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July 2018 Operations Performance Highlights

- Peak load of 31,293 MW occurred on 07/02/2018 HB 15
- All-time summer capability period peak load of 33,956 MW occurred on 7/19/2013 HB 16
- 22 hours of Thunder Storm Alerts were declared
- 0 hours of NERC TLR level 3 curtailment
- EDRP/SCR resources activated in Zone J on 7/2/2018 from HB13 to HB18.
- The outlier maximum hourly Load Forecast Error (MW) occurred on 7/17/2018 HB15 and is caused by thunderstorms reducing actual load.
- The following table identifies the estimated production cost savings associated with the Broader Regional Market initiatives.

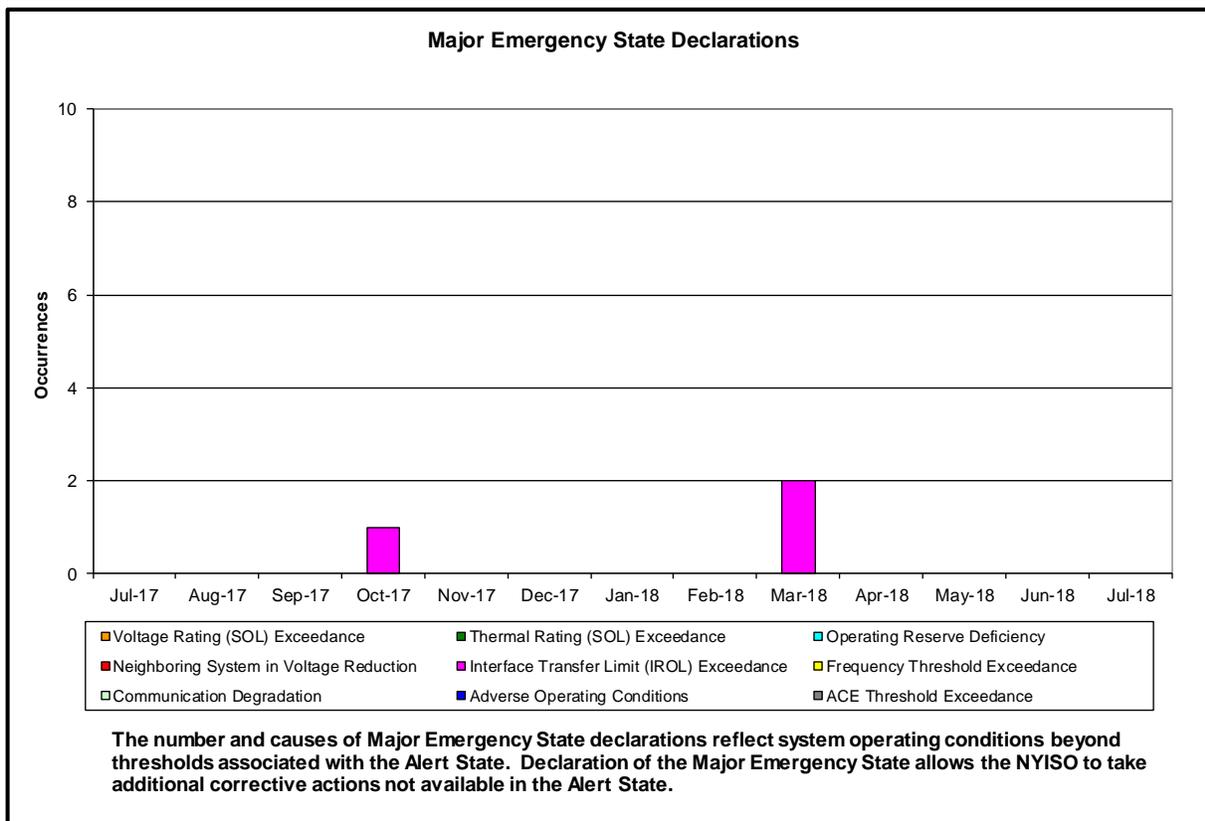
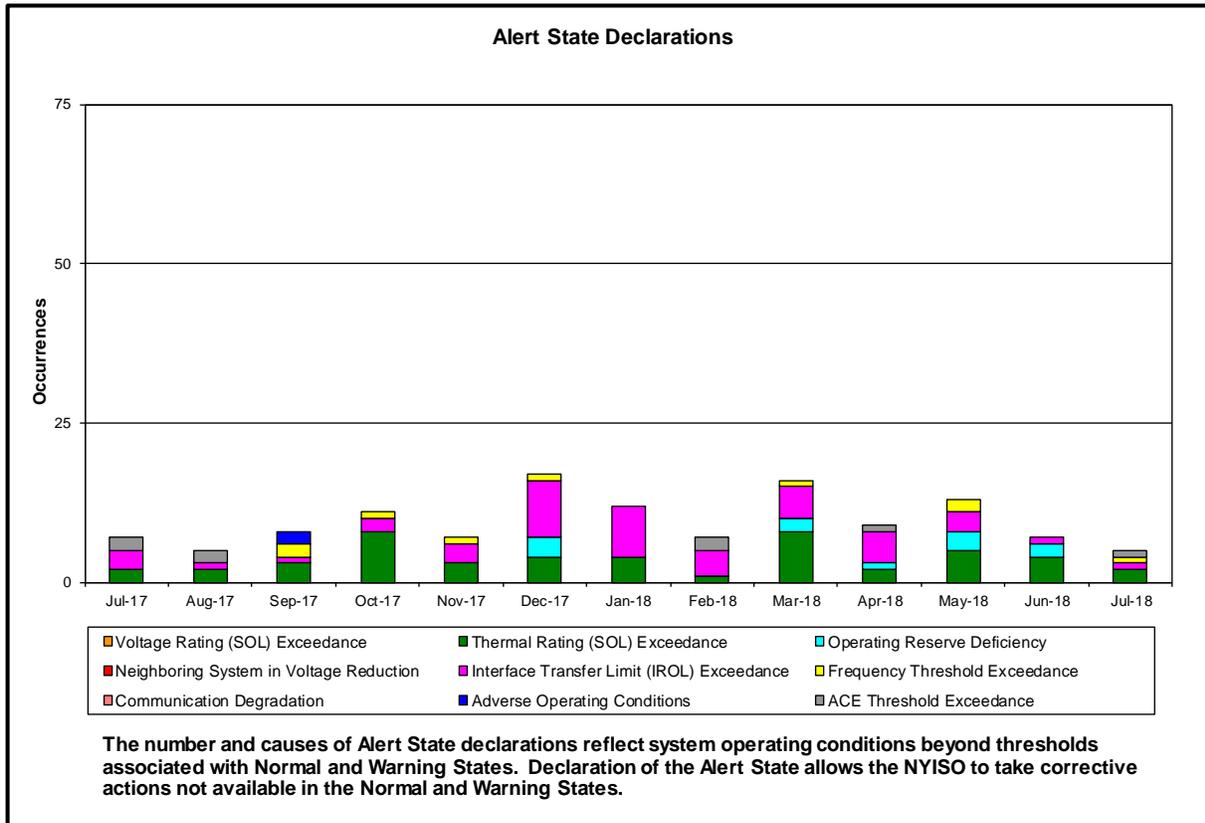
	Current Month Value (\$M)	Year-to-Date Value (\$M)
NY Savings from PJM-NY Congestion Coordination	\$0.34	\$9.24
NY Savings from PJM-NY Coordinated Transaction Scheduling	(\$0.09)	\$0.66
NY Savings from NE-NY Coordinated Transaction Scheduling	(\$0.23)	(\$0.92)
Total NY Savings	\$0.02	\$8.98
Regional Savings from PJM-NY Coordinated Transaction Scheduling	\$0.27	\$1.73
Regional Savings from NE-NY Coordinated Transaction Scheduling	\$0.10	\$0.47
Total Regional Savings	\$0.37	\$2.20

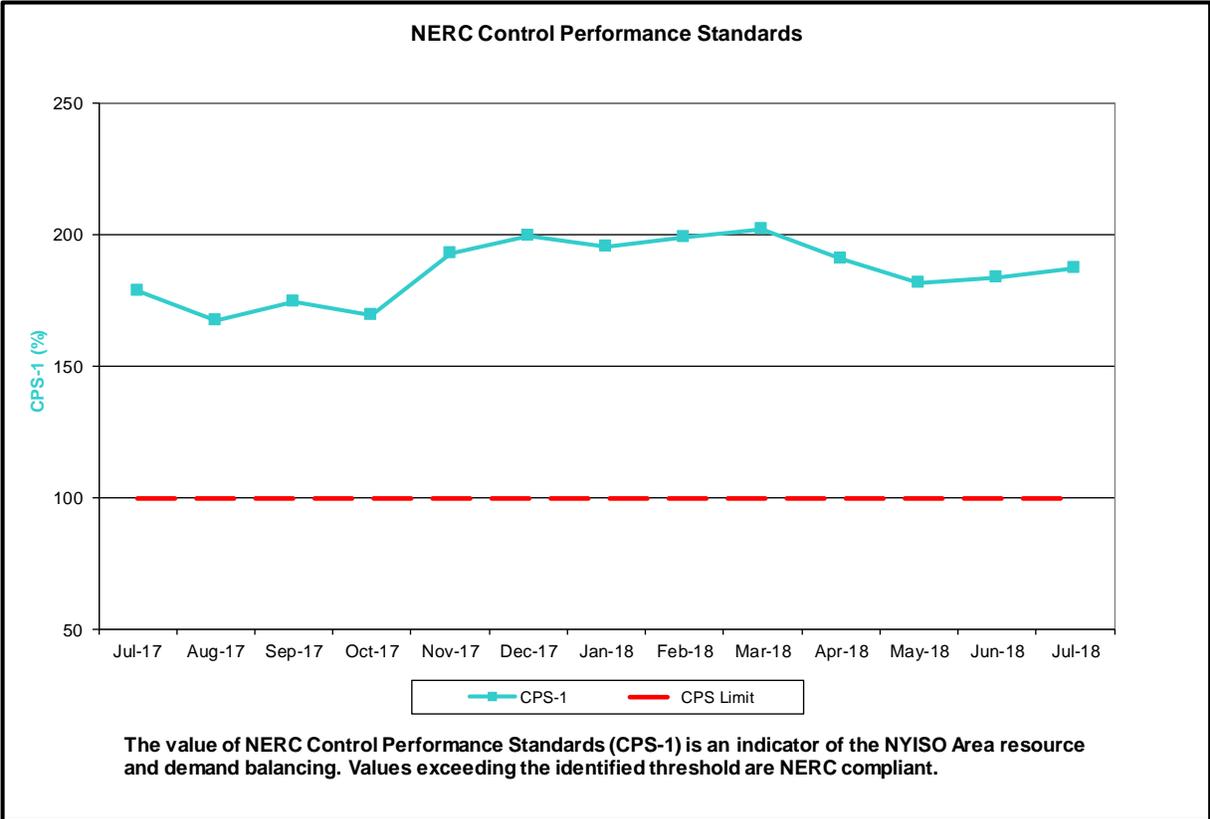
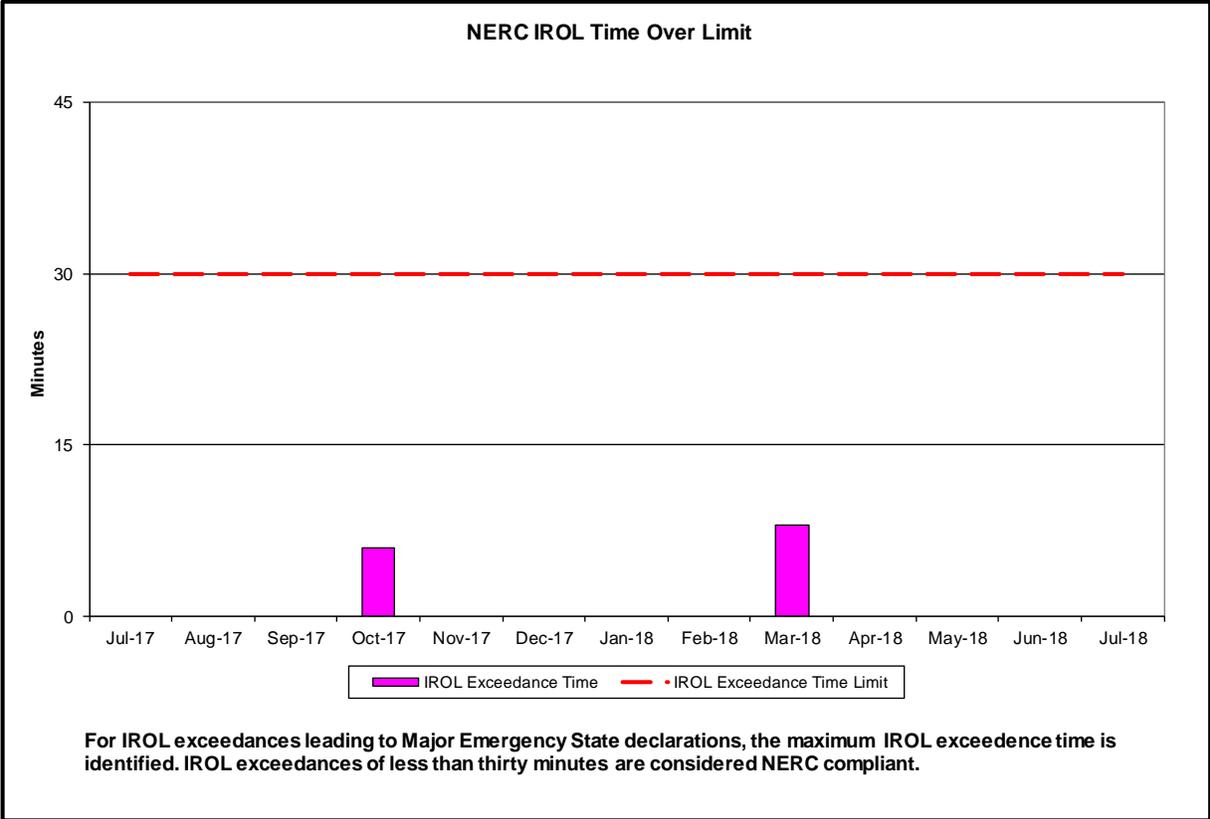
- Statewide uplift cost monthly average was **(\$0.57)/MWh**
- The following table identifies the Monthly ICAP Spot Market prices and the price delta.

Spot Auction Price Results	NYCA	Lower Hudson Valley Zones	New York City Zone	Long Island Zone
August 2018 Spot Price	\$3.88	\$9.58	\$9.58	\$6.68
July 2018 Spot Price	\$4.22	\$10.16	\$10.16	\$6.68
Delta	(\$0.34)	(\$0.58)	(\$0.58)	\$0.00

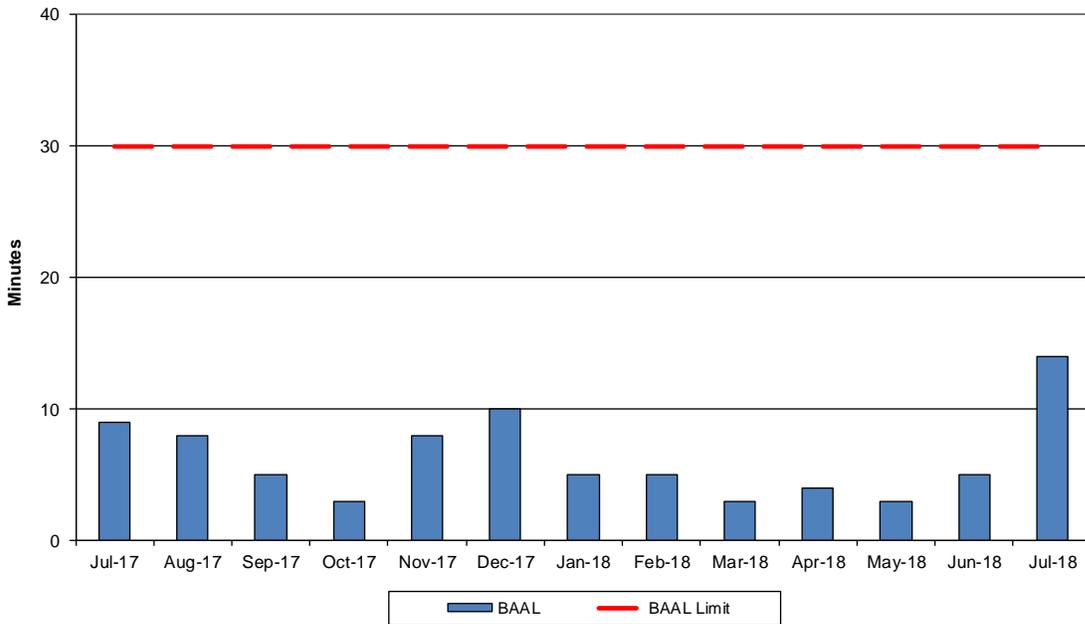
- NYC - Price decrease by \$0.58 due to an increase in Generation UCAP Available
- LHV - Price decrease by \$0.58 due to an increase in Generation UCAP Available
- NYCA - Price decrease by \$0.34 due to an increase in Generation UCAP Available and a reduction in Exports

Reliability Performance Metrics



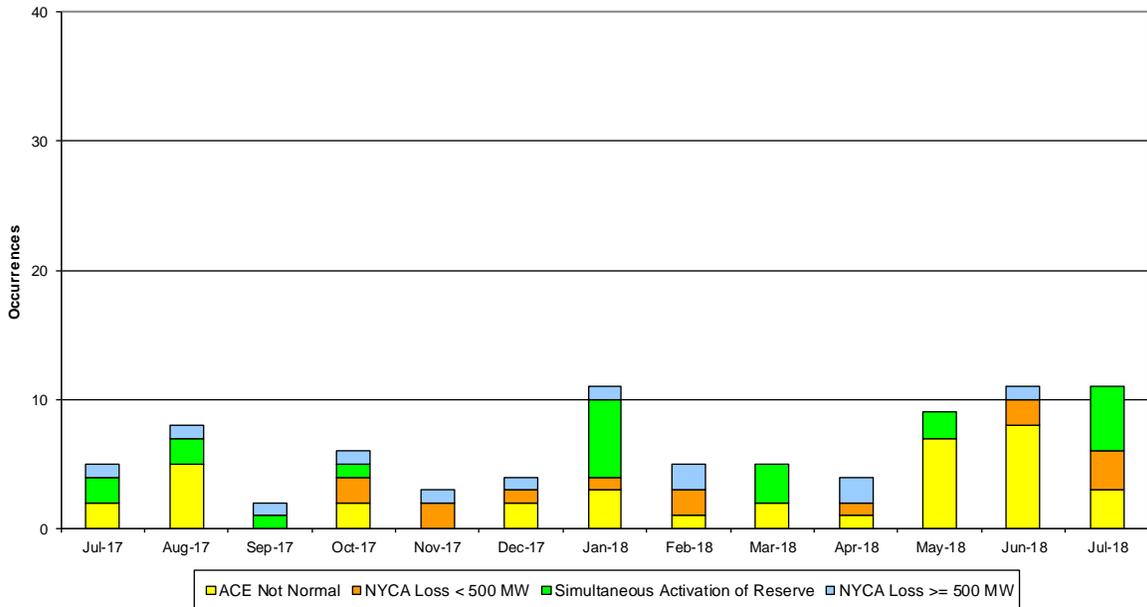


NERC Balancing Authority ACE Limit Standard

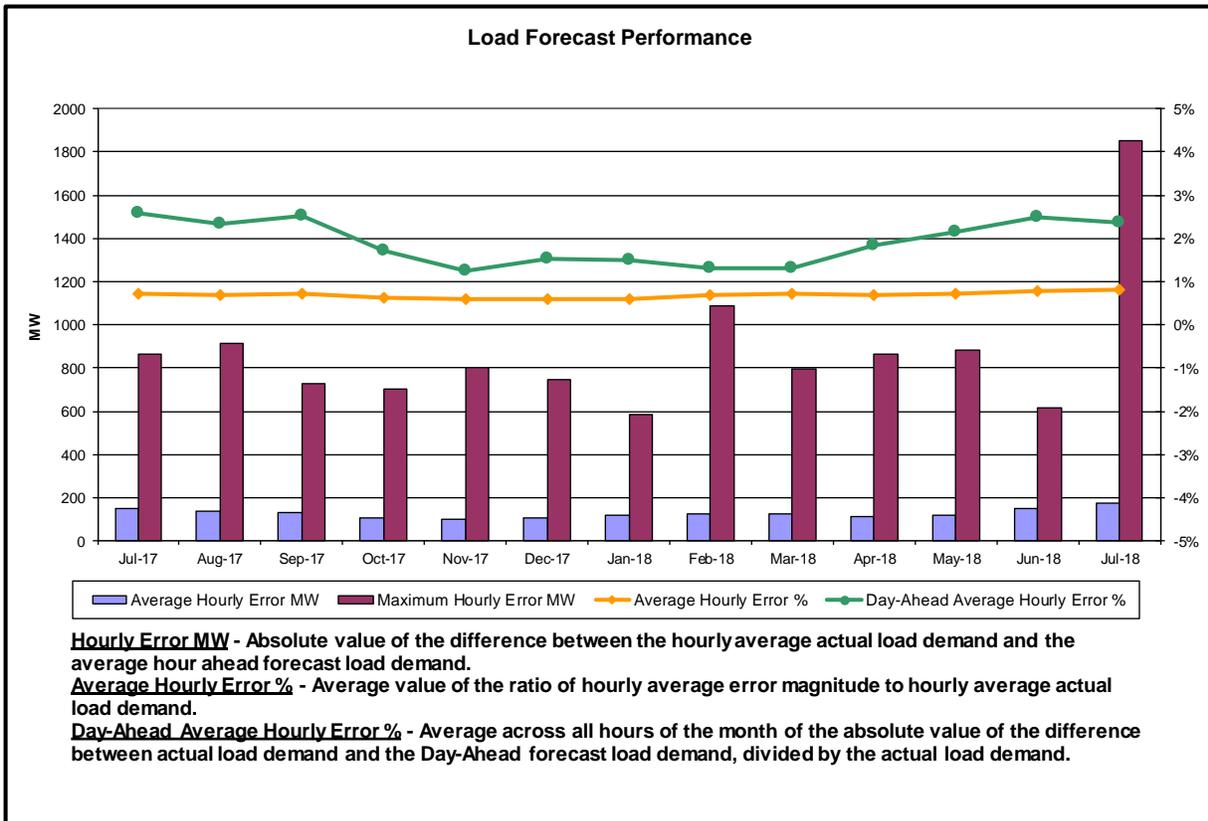
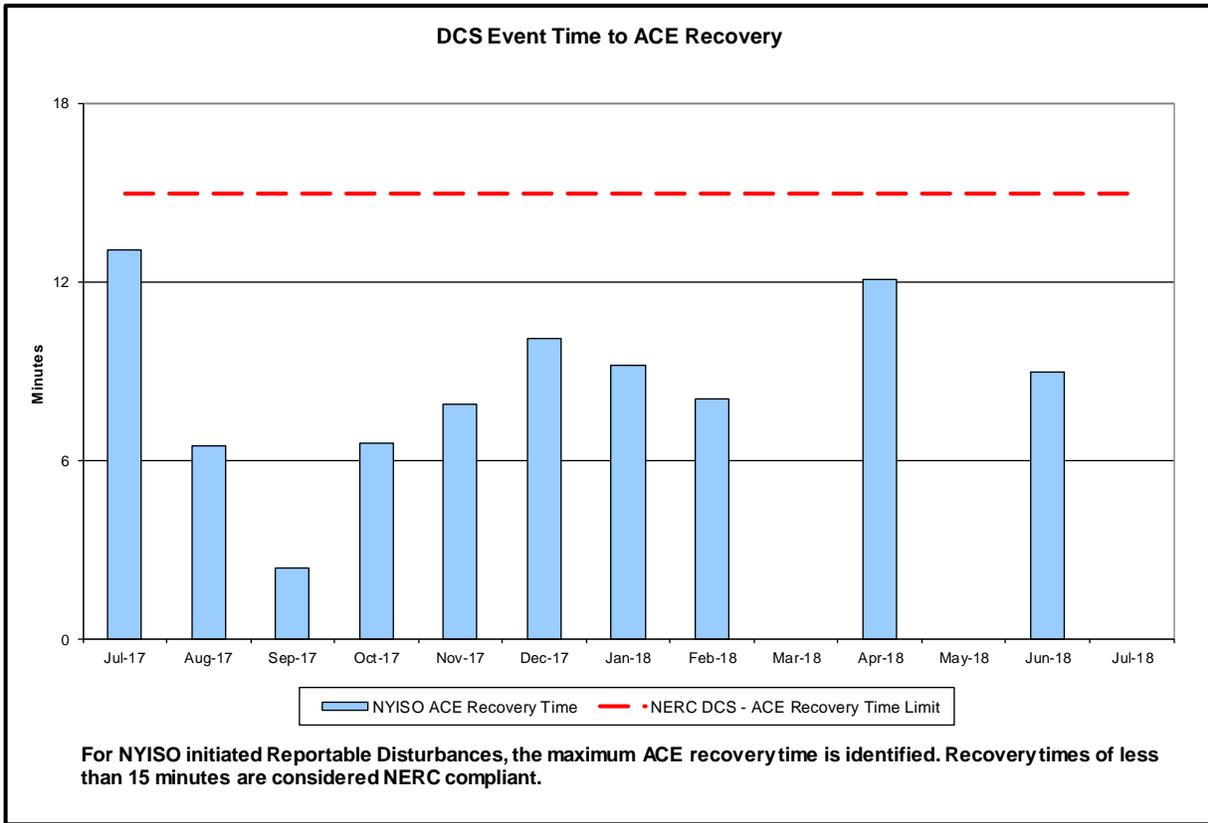


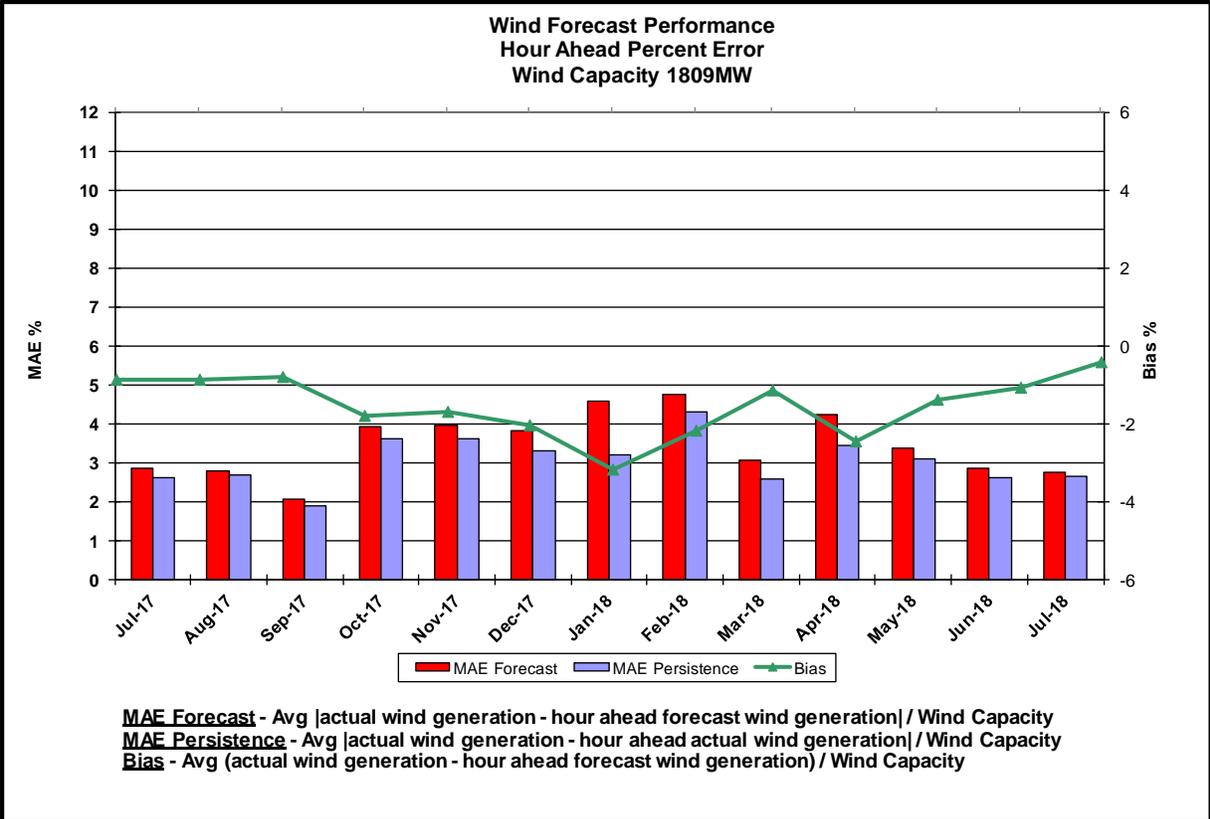
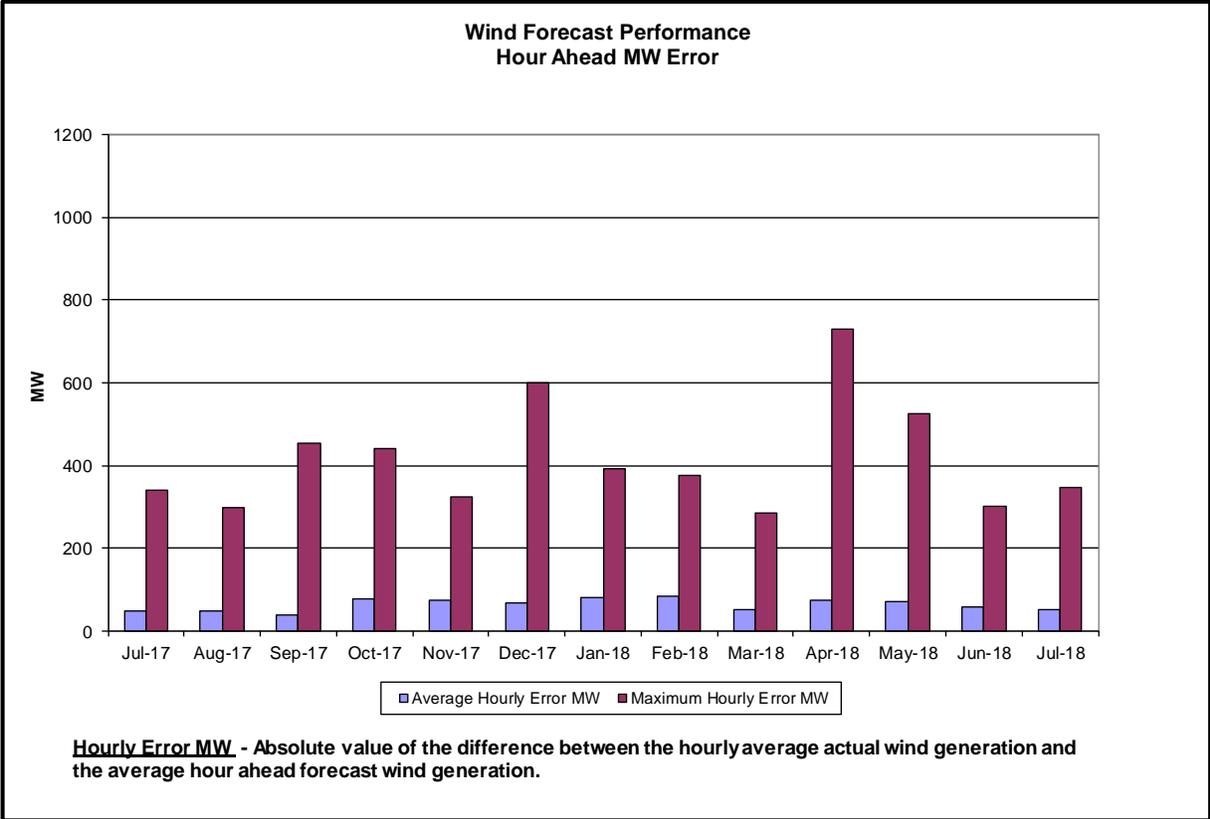
The amount of time the clock-minute average ACE exceeds the clock-minute Balancing Authority ACE Limit (BAAL) is an indicator of the NYISO Area resource and demand balancing. The maximum BAAL exceedance time is identified. BAAL exceedances of less than 30 consecutive clock-minutes are NERC compliant.

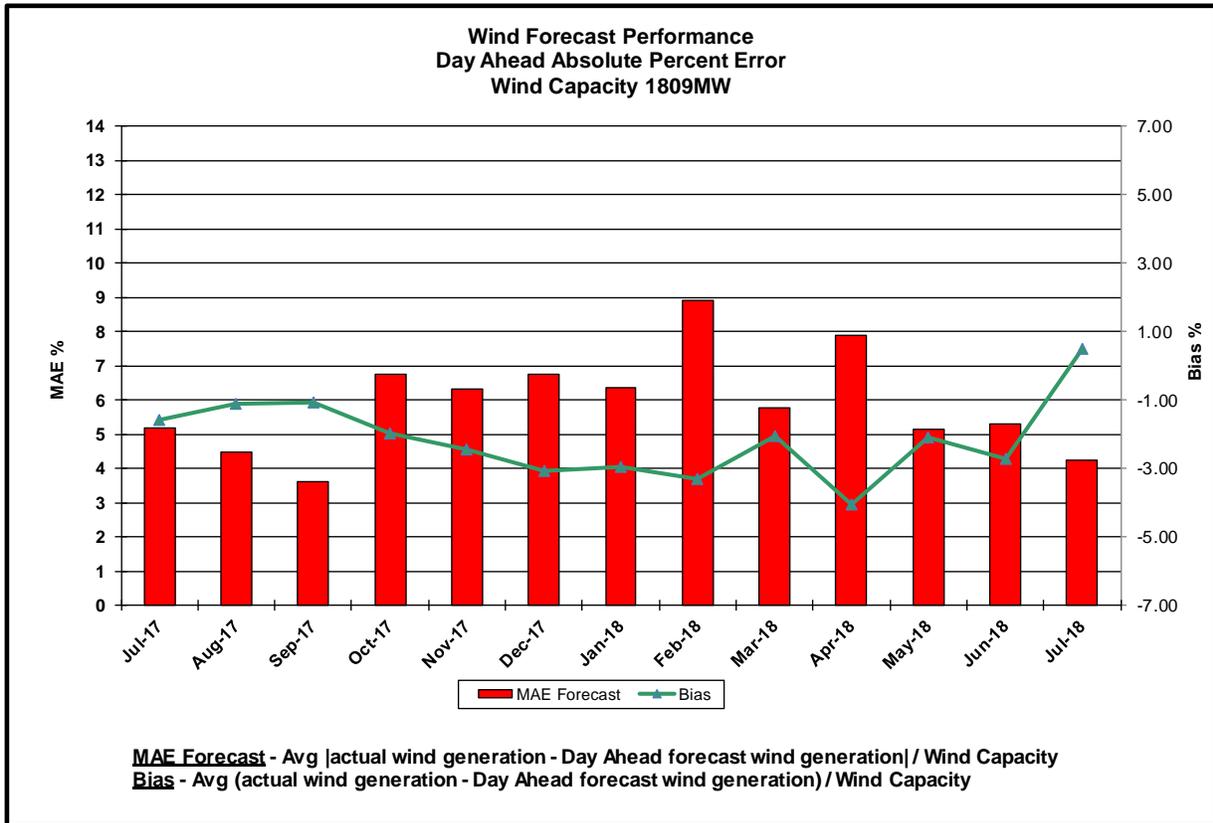
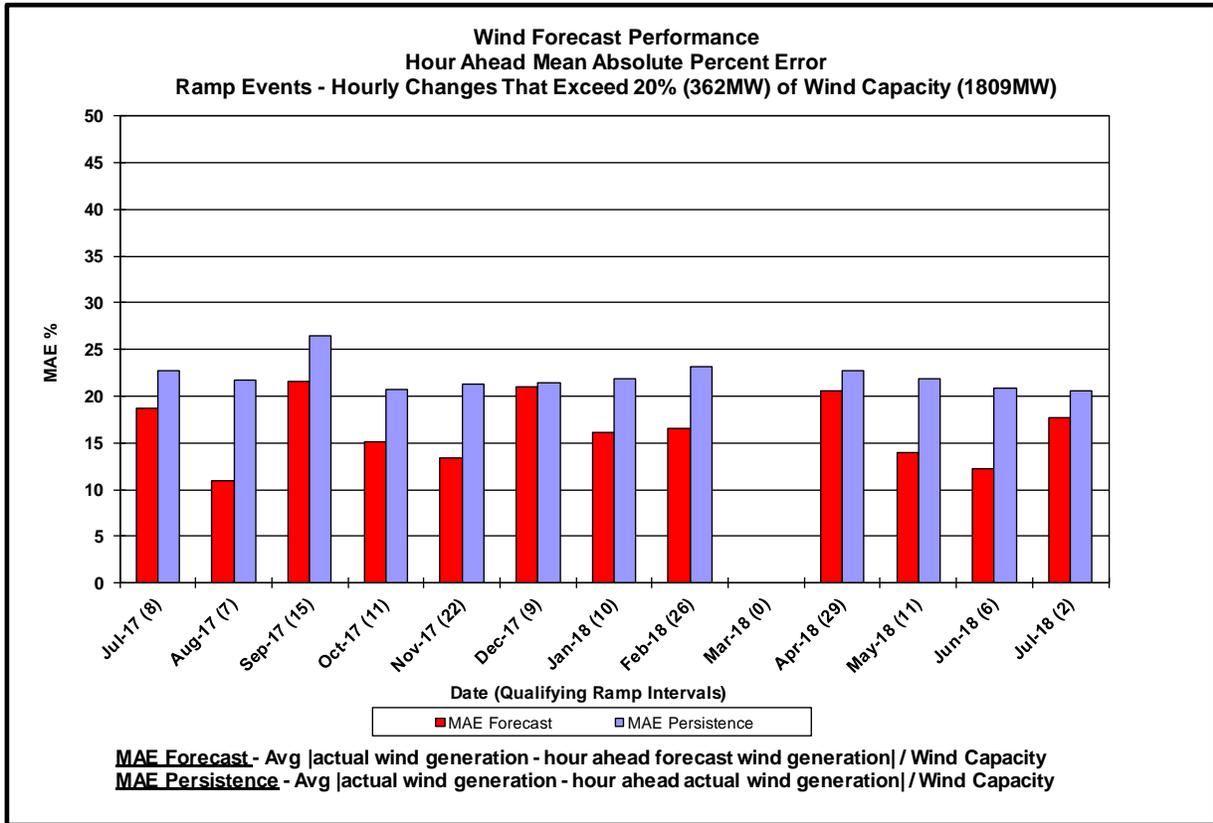
Reserve Activations

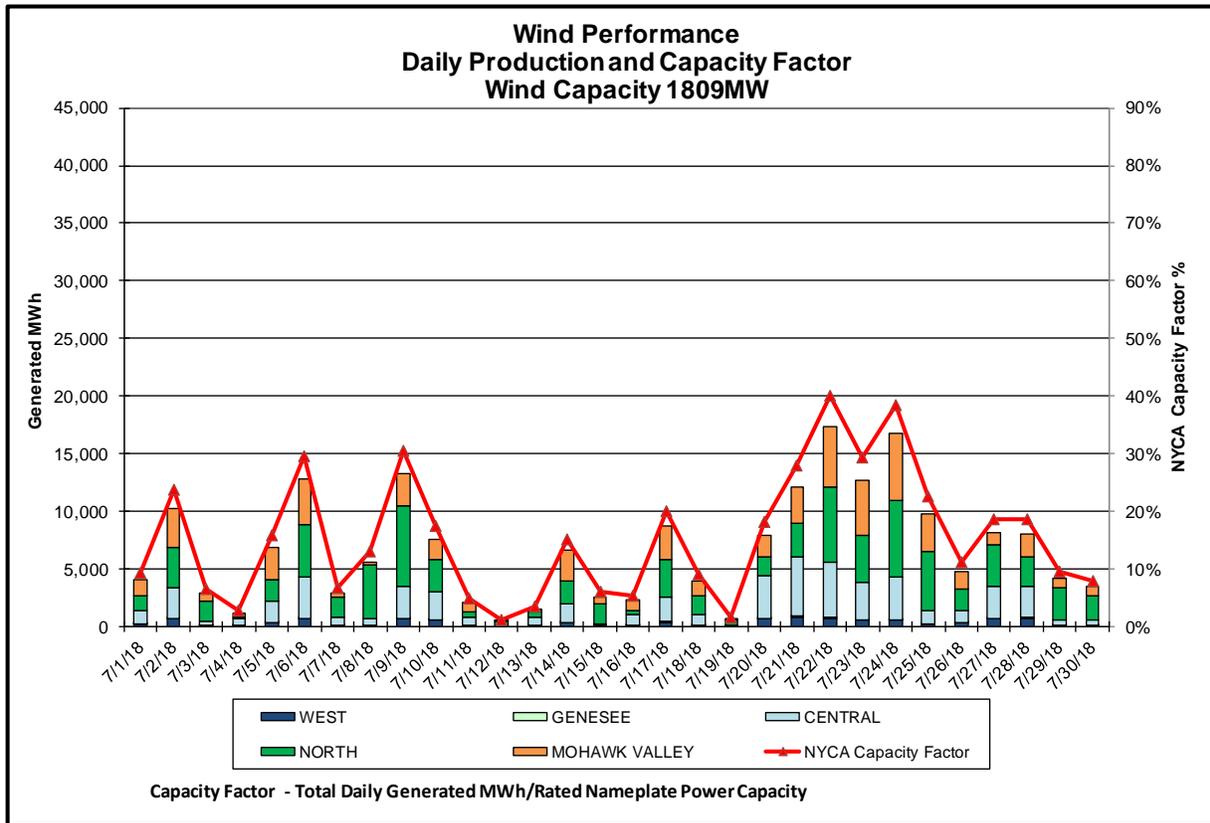
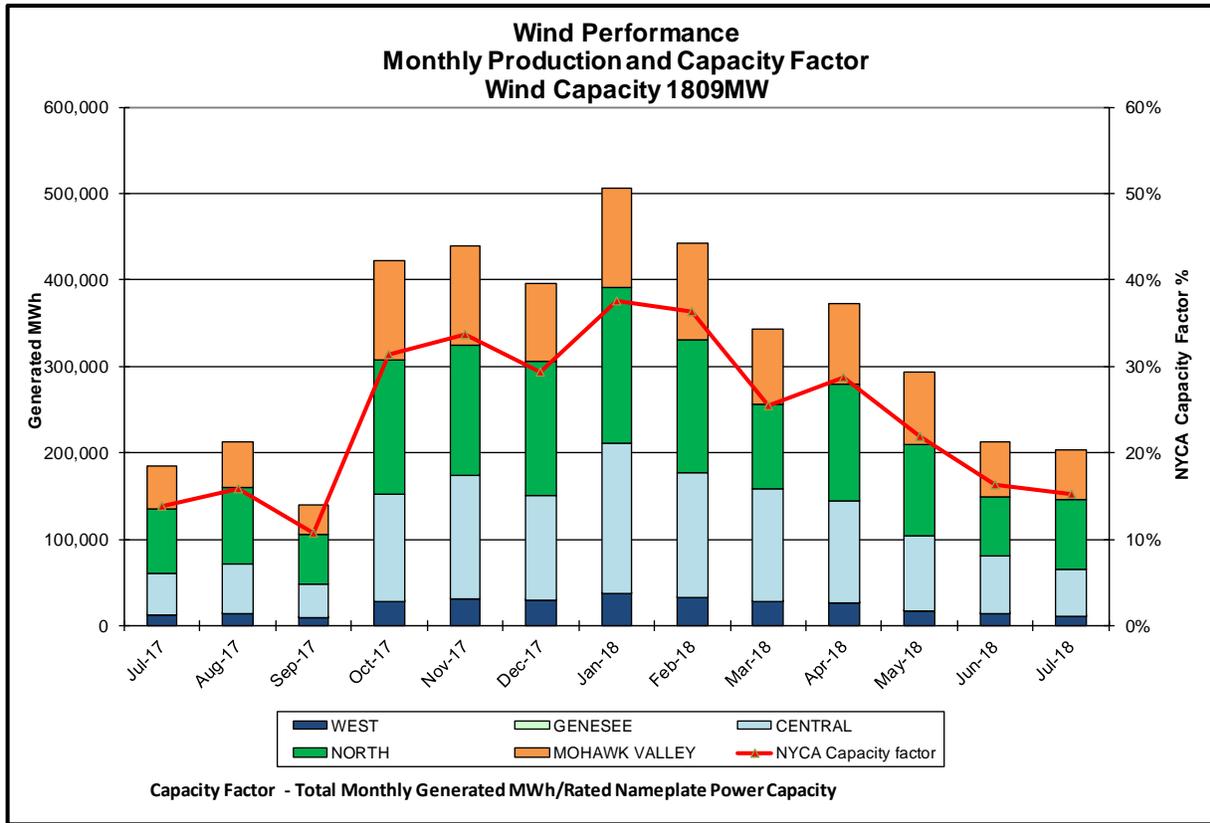


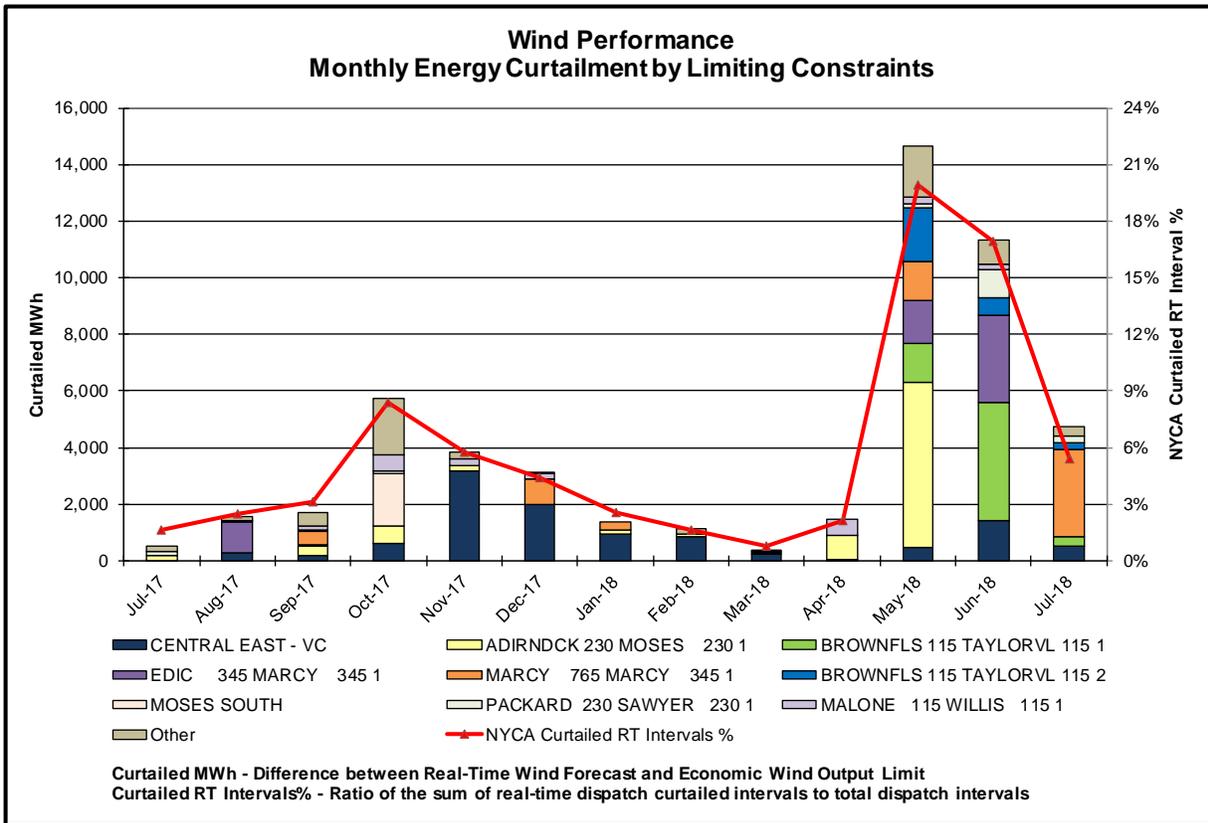
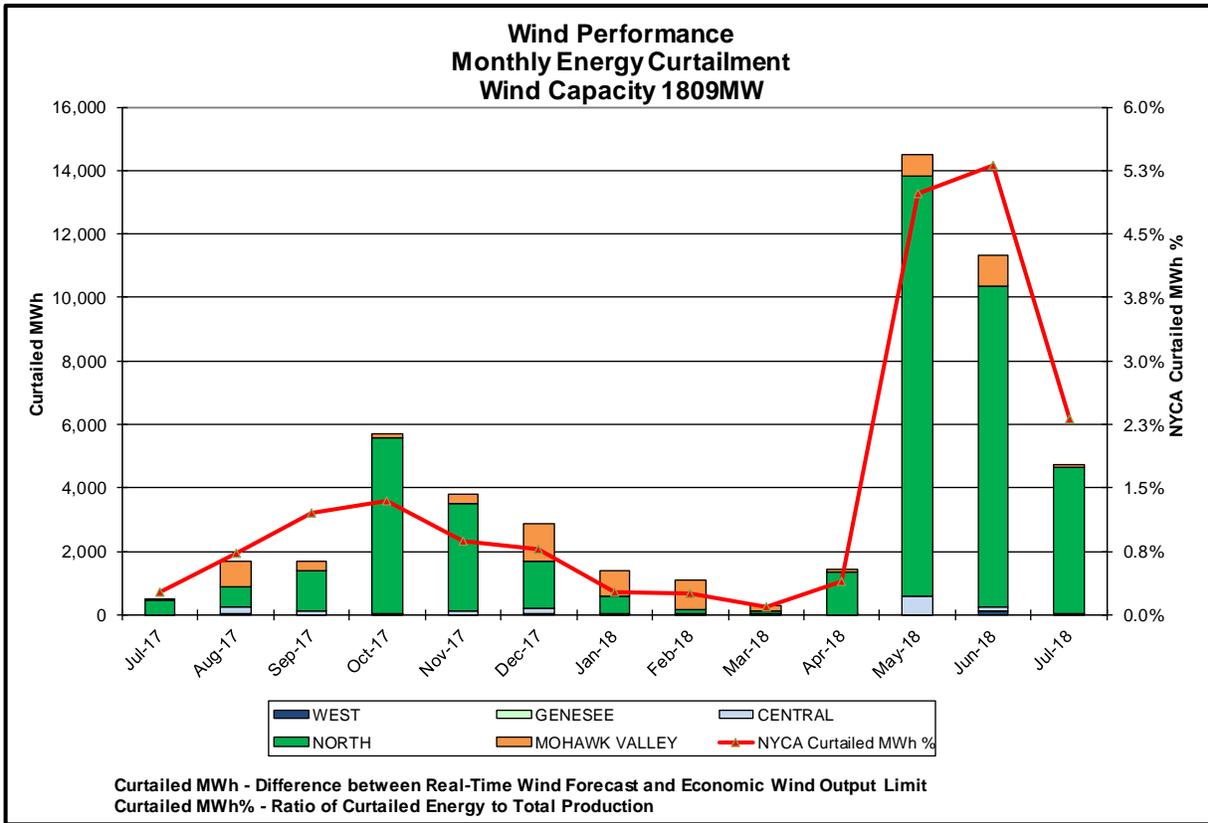
NYISO Reserve Activations are indicators of the need to respond to unexpected operational conditions within the NYISO Area or to assist a neighboring Area (Simultaneous Activation of Reserves) by activating an immediate resource and demand balancing operation.

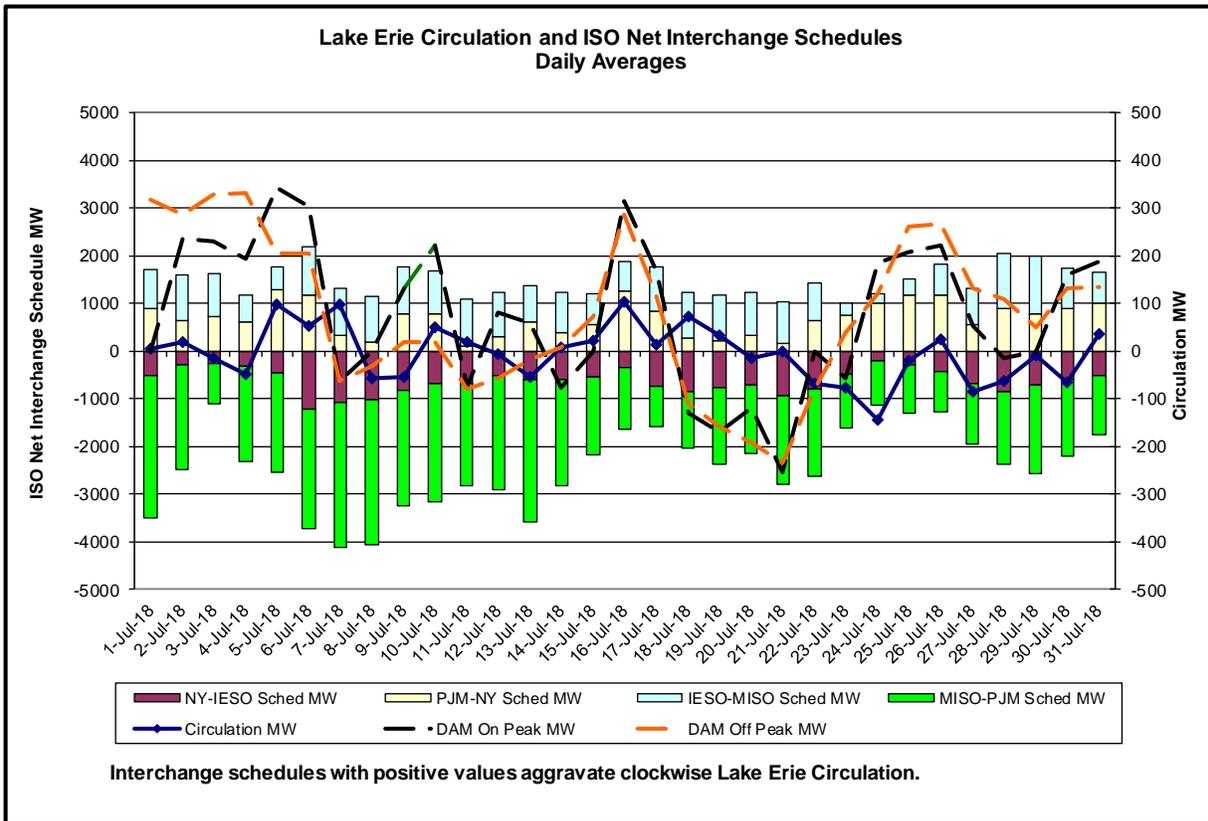
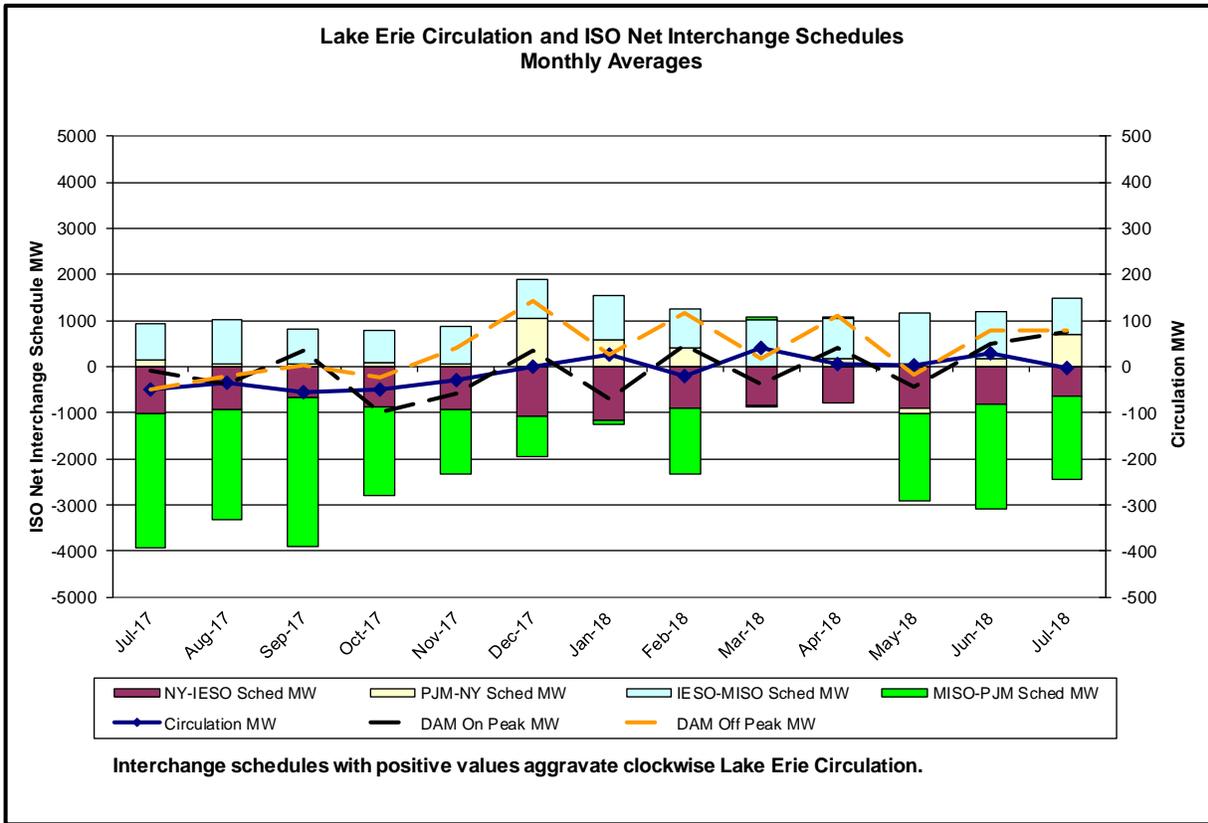




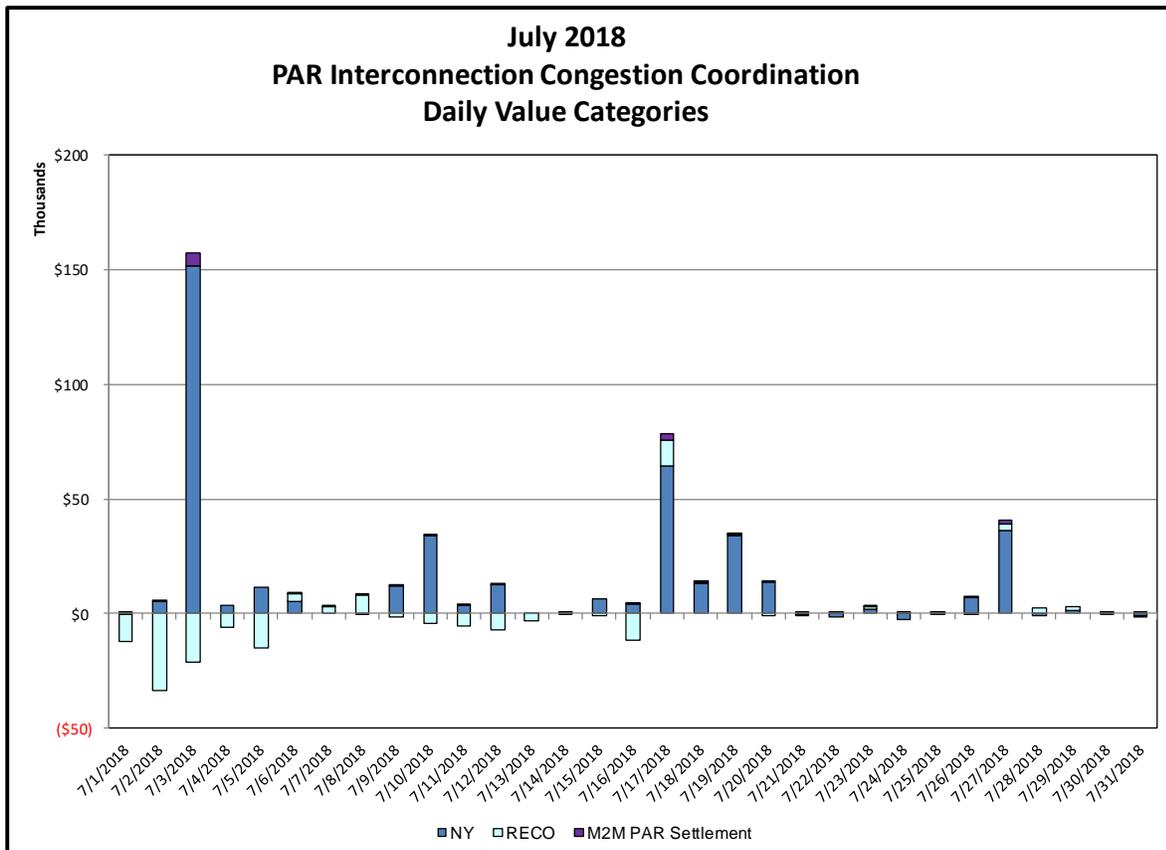
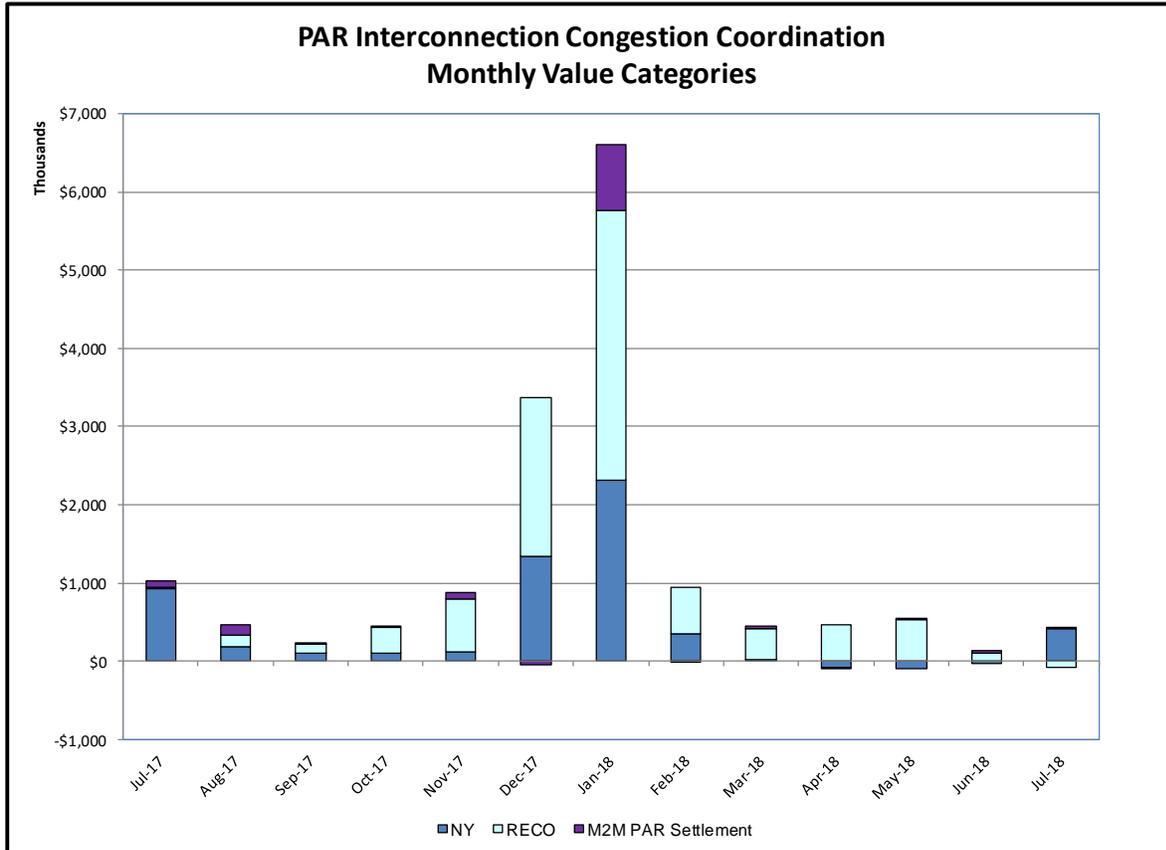






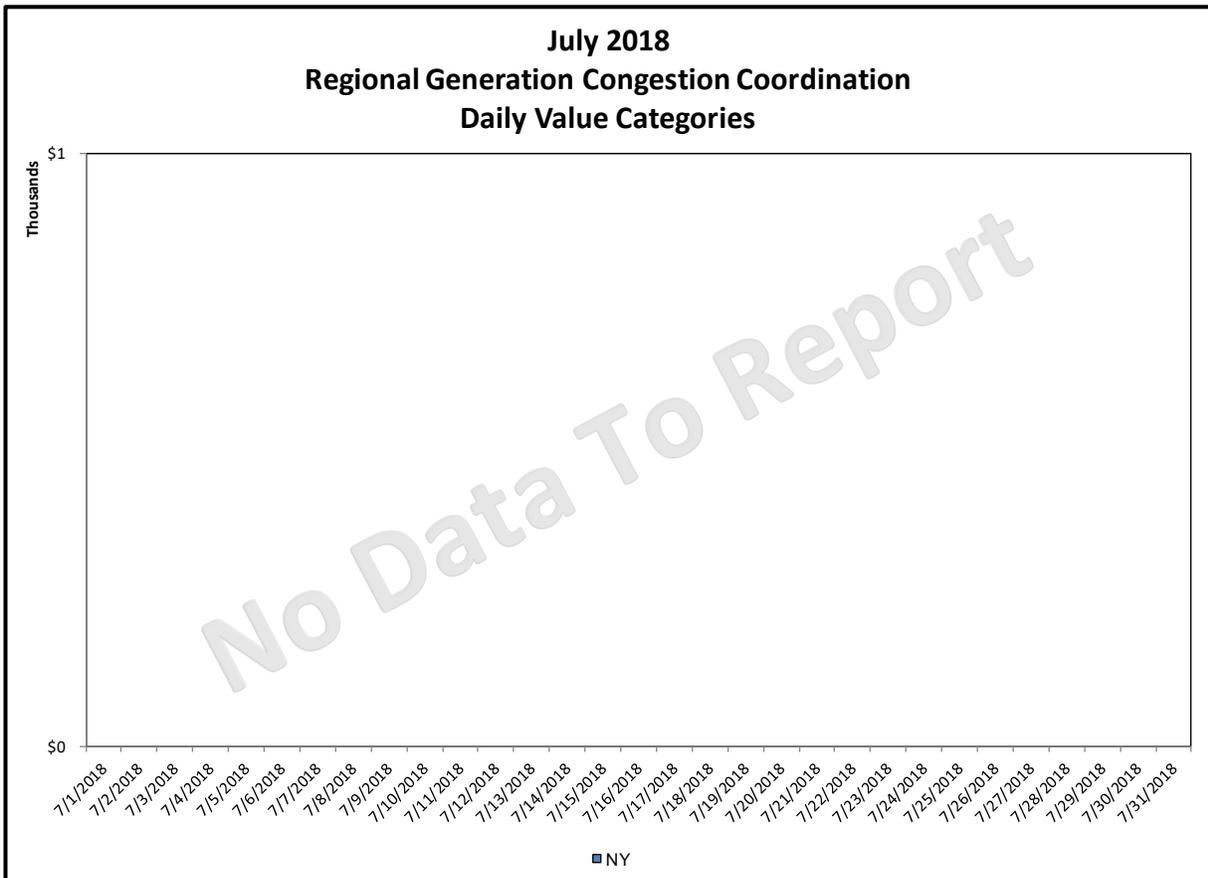
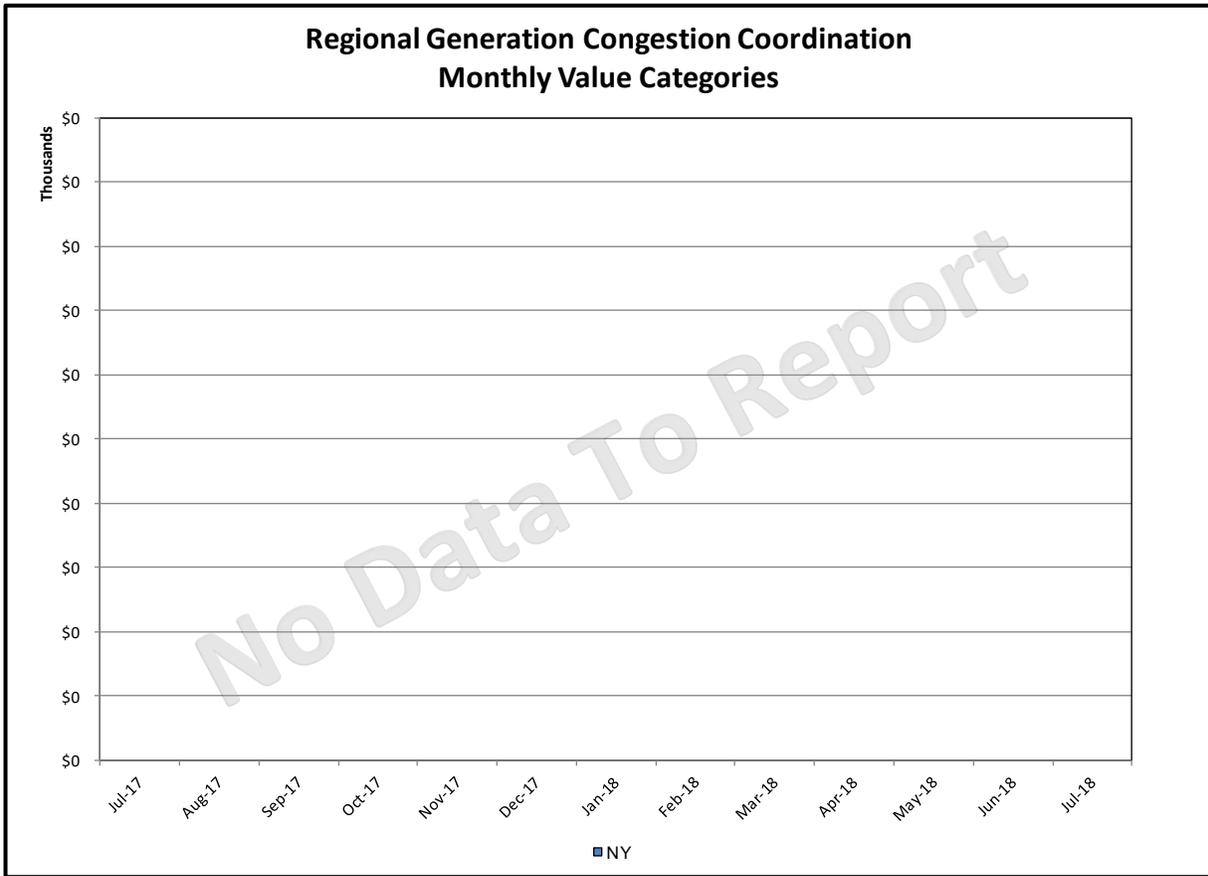


Broader Regional Market Performance Metrics



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.



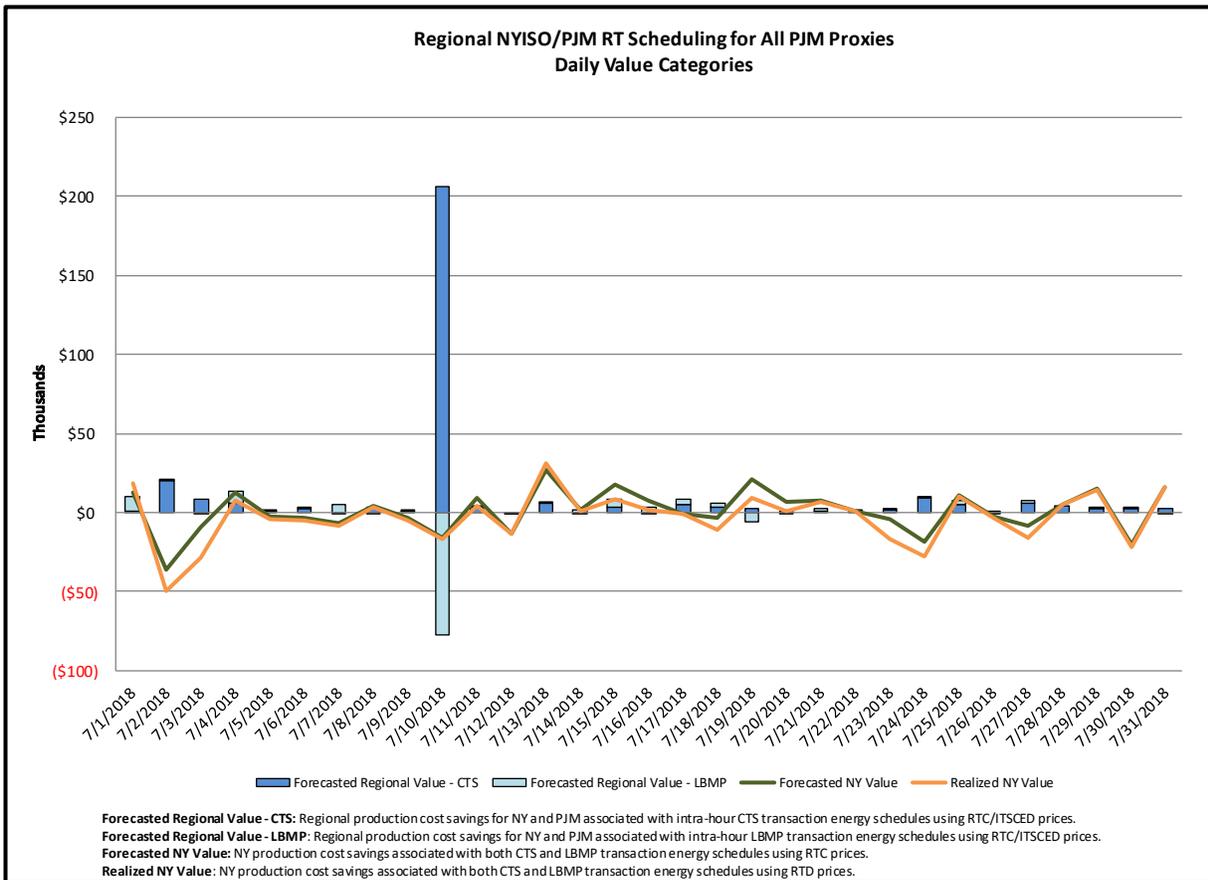
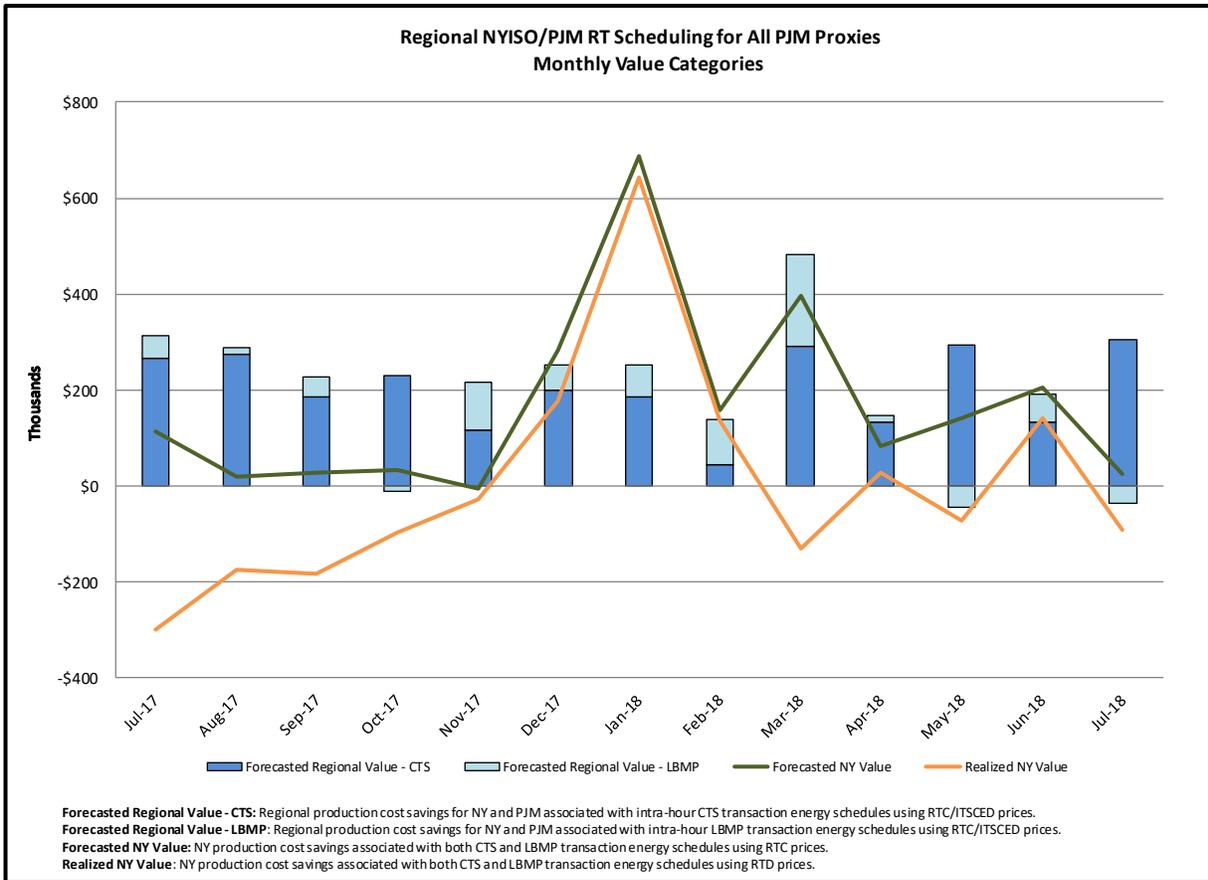
Regional Generation Congestion Coordination

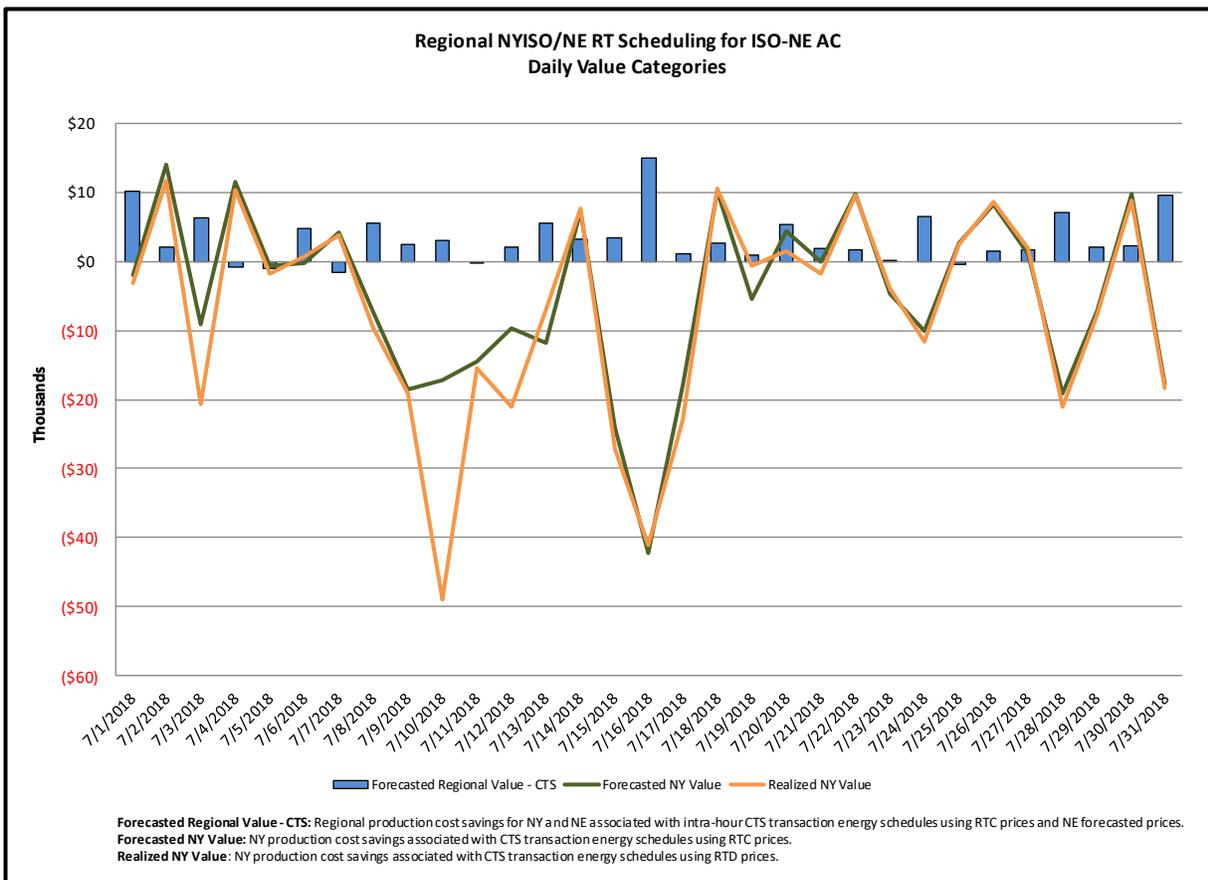
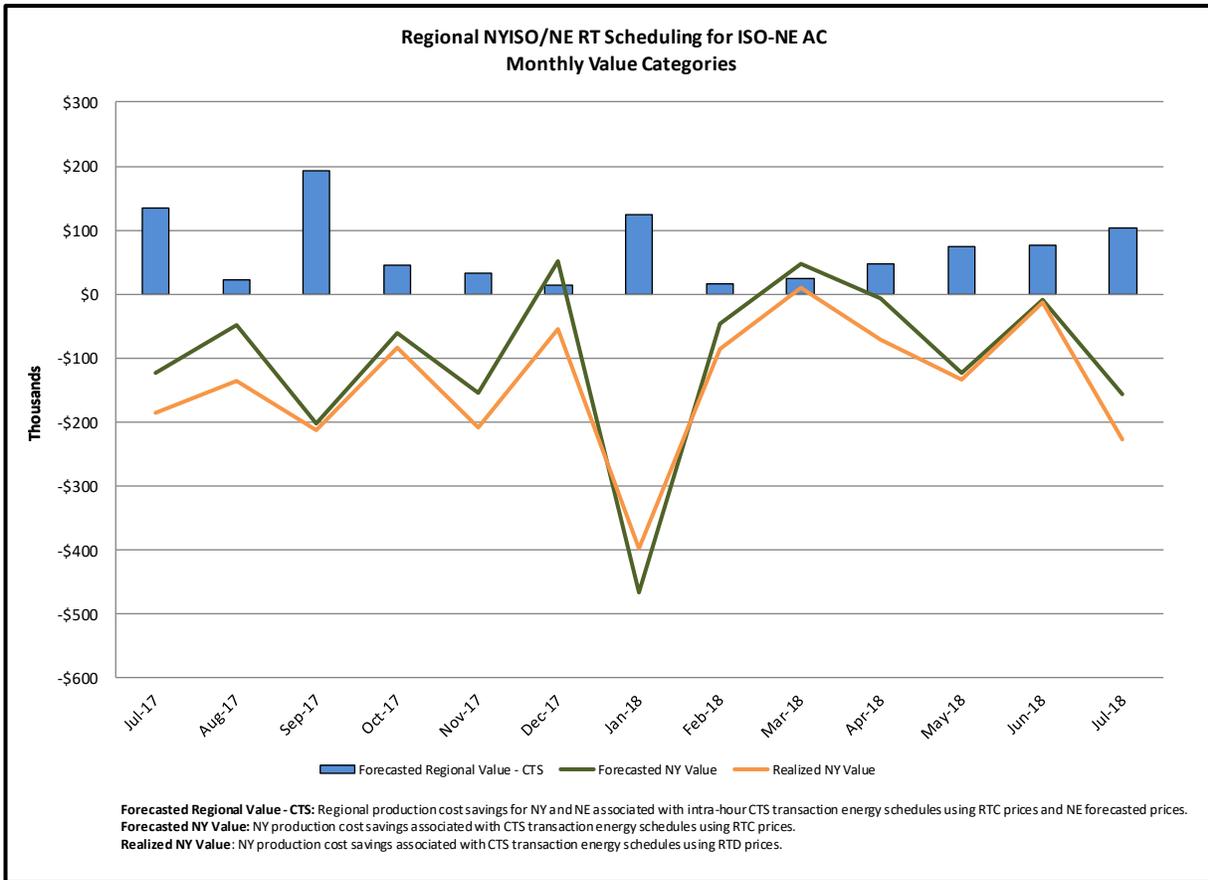
Category

NY

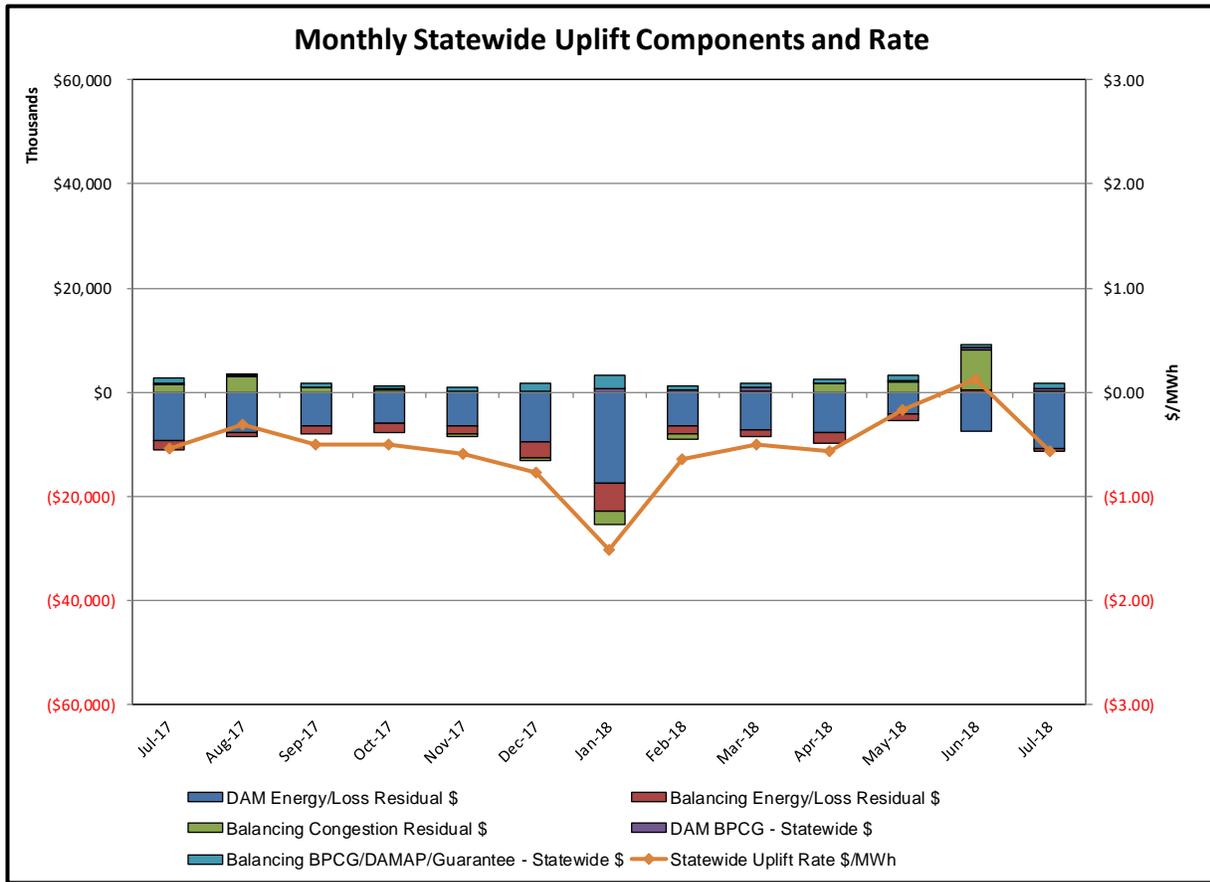
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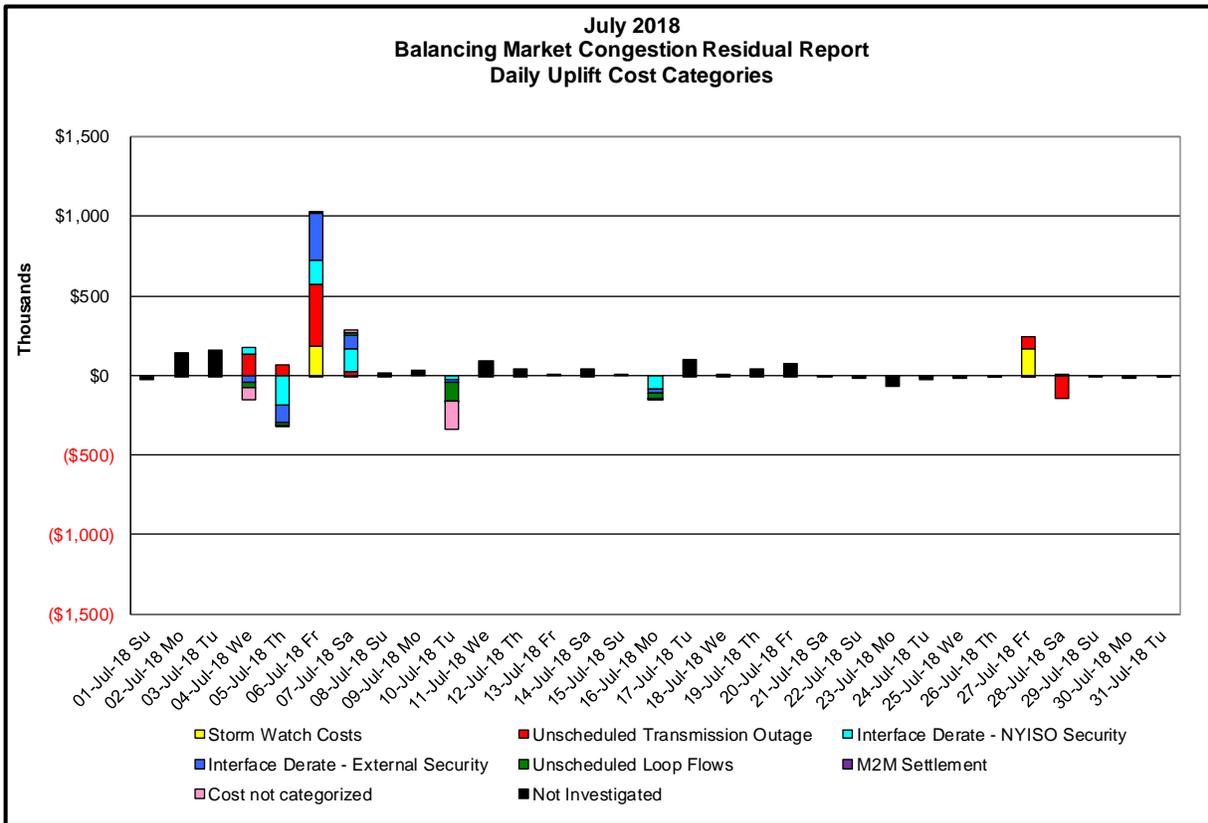
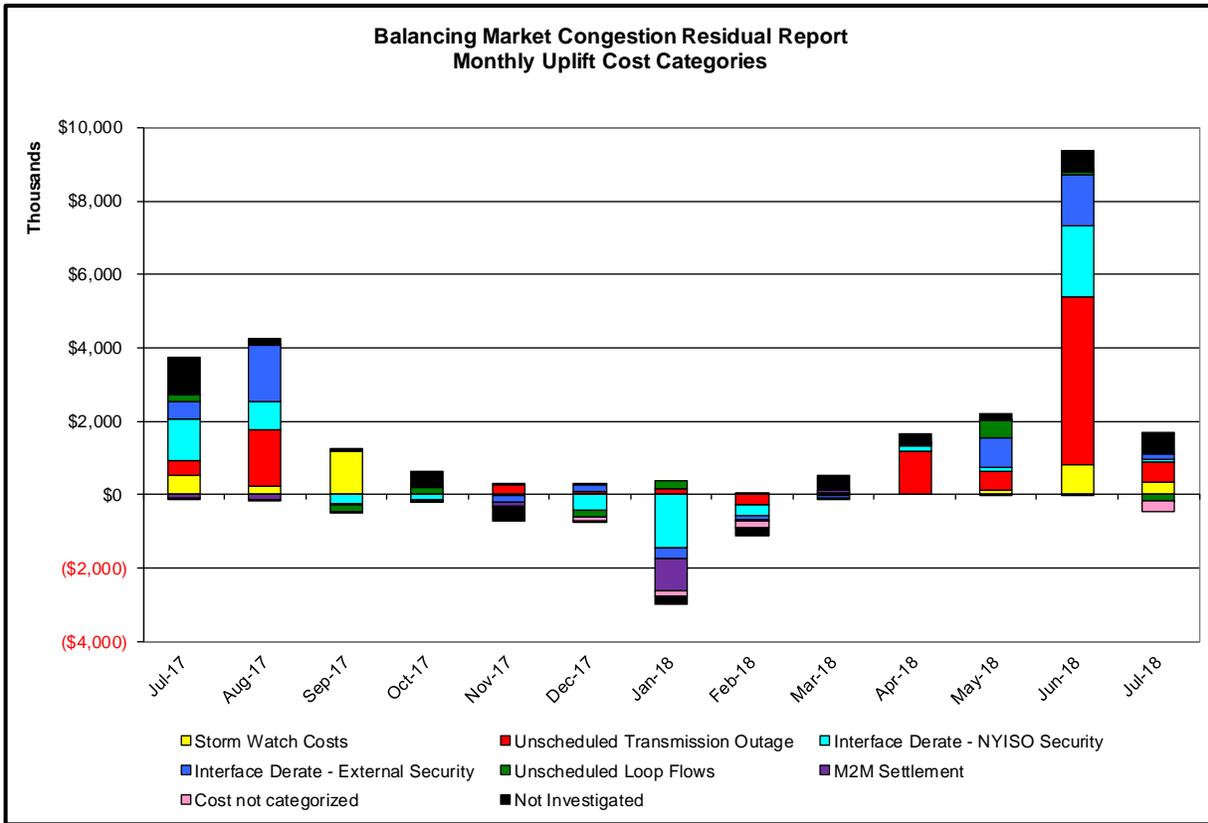
NYISO savings that result from PJM payments to NYISO when PJM's transmission use (PJM's market flow) is greater than PJM's entitlement of the NY transmission system and NYISO is incurring Western or Central NY congestion. Additionally, NYISO savings may result from the more efficient regional utilization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





Market Performance Metrics





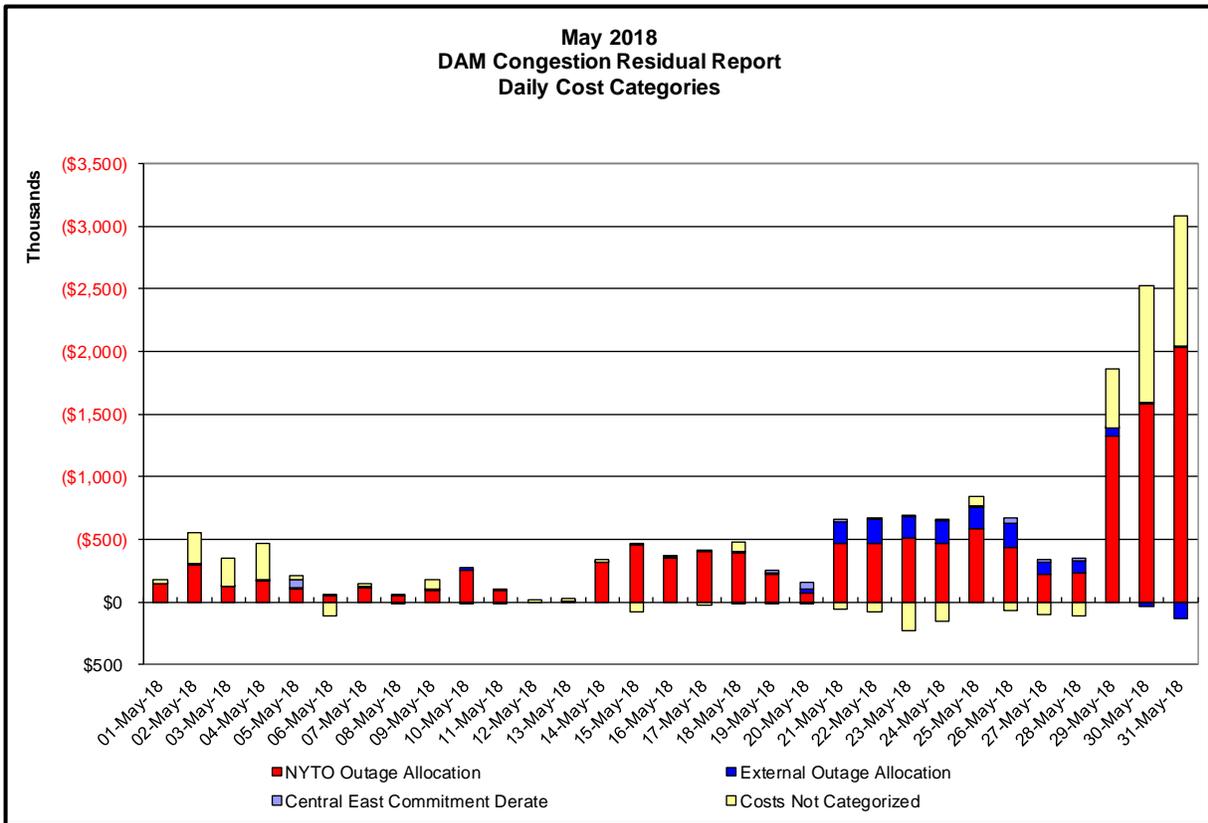
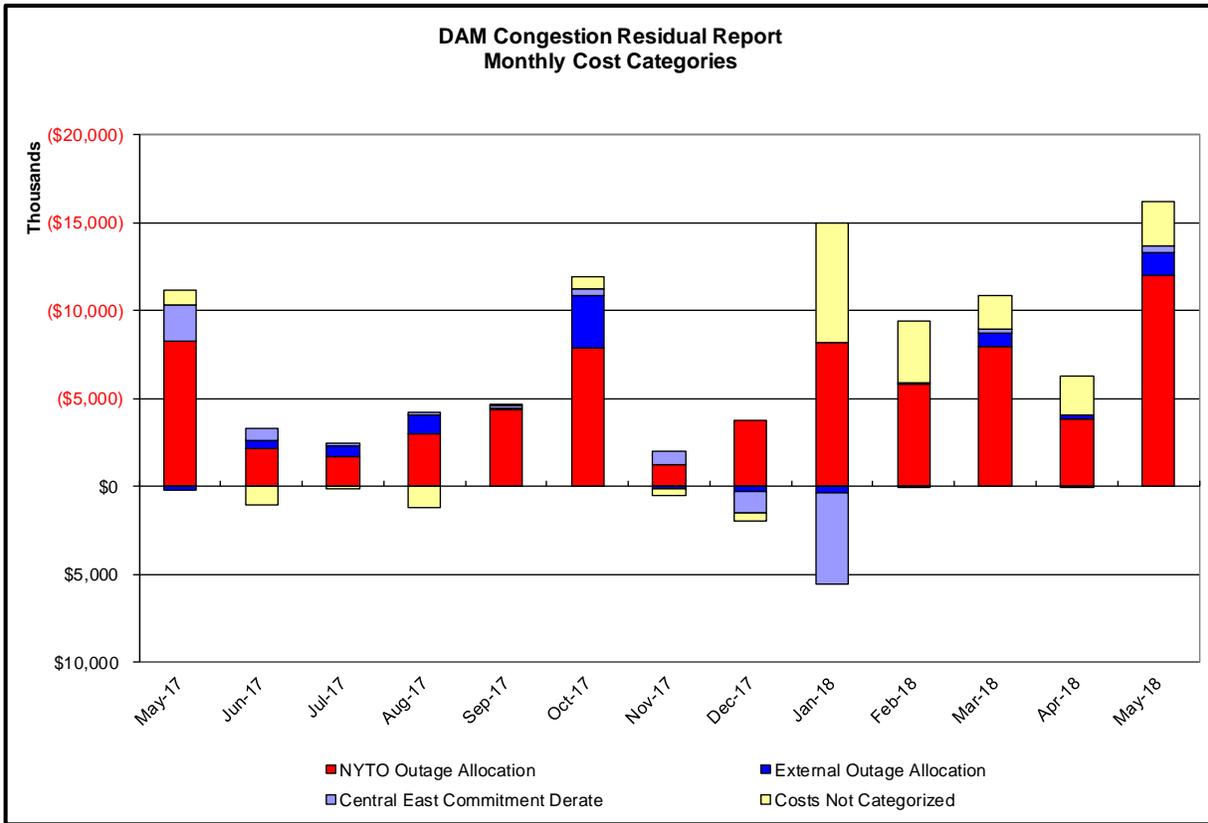
Day's investigated in July: 4,5,6,7,10,16,27,28			
Event	Date (yyyymmdd)	Hours	Description
	7/4/2018	23	Forced Outage Massena-Marcy 765kV (#MSU1), Marcy AT1&AT2
	7/4/2018	0,23	NYCA DNI Ramp Limit
	7/4/2018	23	Derate Central East
	7/4/2018	11,23	Derate Scriba-Volney 345kV (#20) for I/o Scriba-Volney 345kV (#21)
	7/4/2018	13-16	Uprate East Garden City-Valley Stream 138kV (#262) for I/o BUS:BARRETT 292&459&G2&IC9-12
	7/4/2018	23	HQ_Cedars-NY Scheduling Limit
	7/4/2018	1,2	NE_AC-NY Scheduling Limit
	7/4/2018	13	NE-NNC1385-NY Scheduling Limit
	7/4/2018	0-2	Lake Erie Circulation, DAM-RTM exceeds +/-125MW; Central East
	7/4/2018	12	Lake Erie Circulation, DAM-RTM exceeds +/-125MW; Packard-Sawyer
	7/5/2018	3-5,8,23	Forced Outage Massena-Marcy 765/345kV Bank (#AT2)
	7/5/2018	1-4	Derate Dunwoodie-Shore Road 345kV (#Y50) for I/o SCB:SPBK(RNS2):Y49&M29&Y49_ST
	7/5/2018	10,11,13-20	Uprate East Garden City-Valley Stream 138kV (#262) for I/o BUS:BARRETT 292&459&G2&IC9-12
	7/5/2018	23	Derate Scriba-Volney 345kV (#20) for I/o Scriba-Volney 345kV (#21)
	7/5/2018	0,15,18	NYCA DNI Ramp Limit
	7/5/2018	10,11,15-17,20	NE_AC-NY Scheduling Limit
	7/5/2018	0	Lake Erie Circulation, DAM-RTM exceeds +/-125MW; Central East
	7/6/2018	8-11	Thunder Storm Alert
	7/6/2018	0-19	Forced Outage Massena-Marcy 765/345kV Bank (#AT2)
	7/6/2018	3	NYCA DNI Ramp Limit
	7/6/2018	1-8,13,15	Derate Central East
	7/6/2018	1-14,16-18	HQ_Cedars-NY Scheduling Limit
	7/6/2018	21	Lake Erie Circulation, DAM-RTM exceeds +/-125MW; Central East
	7/7/2018	10,11	Forced Outage Brownsfalls-Taylorville 115kV (#3)
	7/7/2018	3,4,10	Derate Central East
	7/7/2018	0-5	Derate Marcy 765/345kV Bank (#AT1) for I/o TWR:MOSES MA1 & MA2
	7/7/2018	0-3	HQ_Cedars-NY Scheduling Limit
	7/7/2018	21	IESO_AC DNI Ramp Limit
	7/7/2018	3,4	Lake Erie Circulation, DAM-RTM exceeds +/-125MW; Central East
	7/10/2018	16	NYCA DNI Ramp Limit
	7/10/2018	16	NE_AC DNI Ramp Limit
	7/10/2018	16	PJM_AC DNI Ramp Limit
	7/10/2018	16,17	Lake Erie Circulation, DAM-RTM exceeds +/-125MW; Packard-Sawyer
	7/16/2018	9	NYCA DNI Ramp Limit
	7/16/2018	8	Uprate Dunwoodie-Mothaven 345kV (#72)
	7/16/2018	10,11	Uprate Packard-Sawyer 230kV (#77) for I/o BUS:PACKARD BK3 & 61 & 78
	7/16/2018	10,11,13	Uprate Packard-Sawyer 230kV (#78) for I/o Packard-Sawyer 230kV (#77)
	7/16/2018	11,13	Uprate Packard-Sawyer 230kV (#77) for I/o Packard-Sawyer 230kV (#78)
	7/16/2018	9-11,13	Uprate Scriba-Volney 345kV (#20) for I/o Scriba-Volney 345kV (#21)
	7/16/2018	16,17	PJM_AC-NY Scheduling Limit
	7/16/2018	9,11	PJM_AC DNI Ramp Limit
	7/16/2018	10,11	Lake Erie Circulation, DAM-RTM exceeds +/-125MW; Packard-Sawyer
	7/16/2018	10	Lake Erie Circulation, DAM-RTM exceeds +/-125MW; Niagara-Packard
	7/27/2018	14-22	Thunder Storm Alert
	7/27/2018	16-22	Forced Outage Gowanus-Goethals 345kV (#25), Linden-Goethals 345kV #(A2253)
	7/28/2018	0	Forced Outage Gowanus-Goethals 345kV (#25), Linden-Goethals 345kV #(A2253)

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.	

