

Operations Performance Metrics Monthly Report



June 2019 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 9, 2019.

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June 2019 Operations Performance Highlights

- Peak load of 27,190 MW occurred on 06/28/2019 HB 16
- All-time summer capability period peak load of 33,956 MW occurred on 7/19/2013 HB 16
- 11.48 hours of Thunder Storm Alerts were declared
- 3 hours of NERC TLR level 3 curtailment
- The high BMCR settlements in June were due to unscheduled 345kV transmission outages that are detailed in this report.
- In response to Alert state declarations in May and June, NYISO increased the CRM values for the Niagara 230kV transmission facilities (#61, #62 & #64) on 06/17/2019.
- On 06/26/2019, the NYISO began securing a new 10-minute and 30-minute reserve requirement for the NYC zone in its Day-Ahead and Real-Time energy markets.
- The following table identifies the estimated production cost savings associated with the Broader Regional Market initiatives.

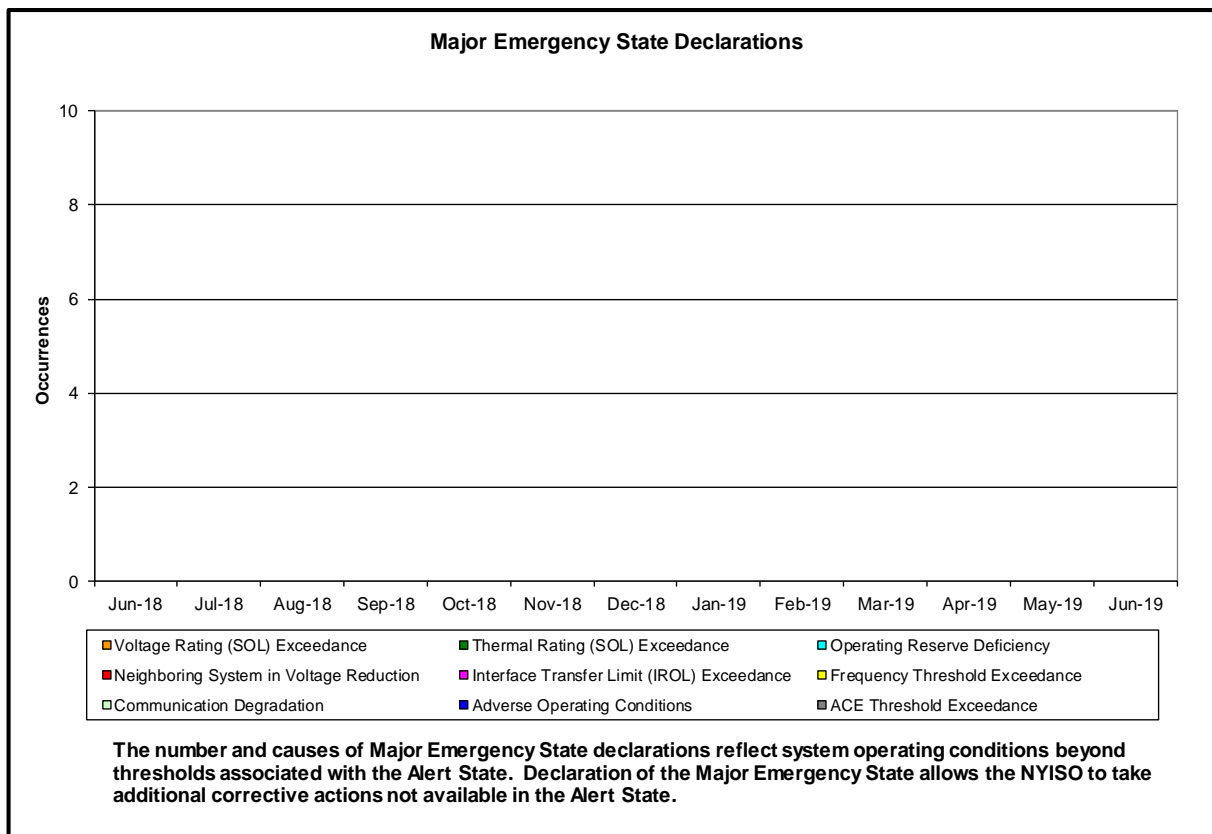
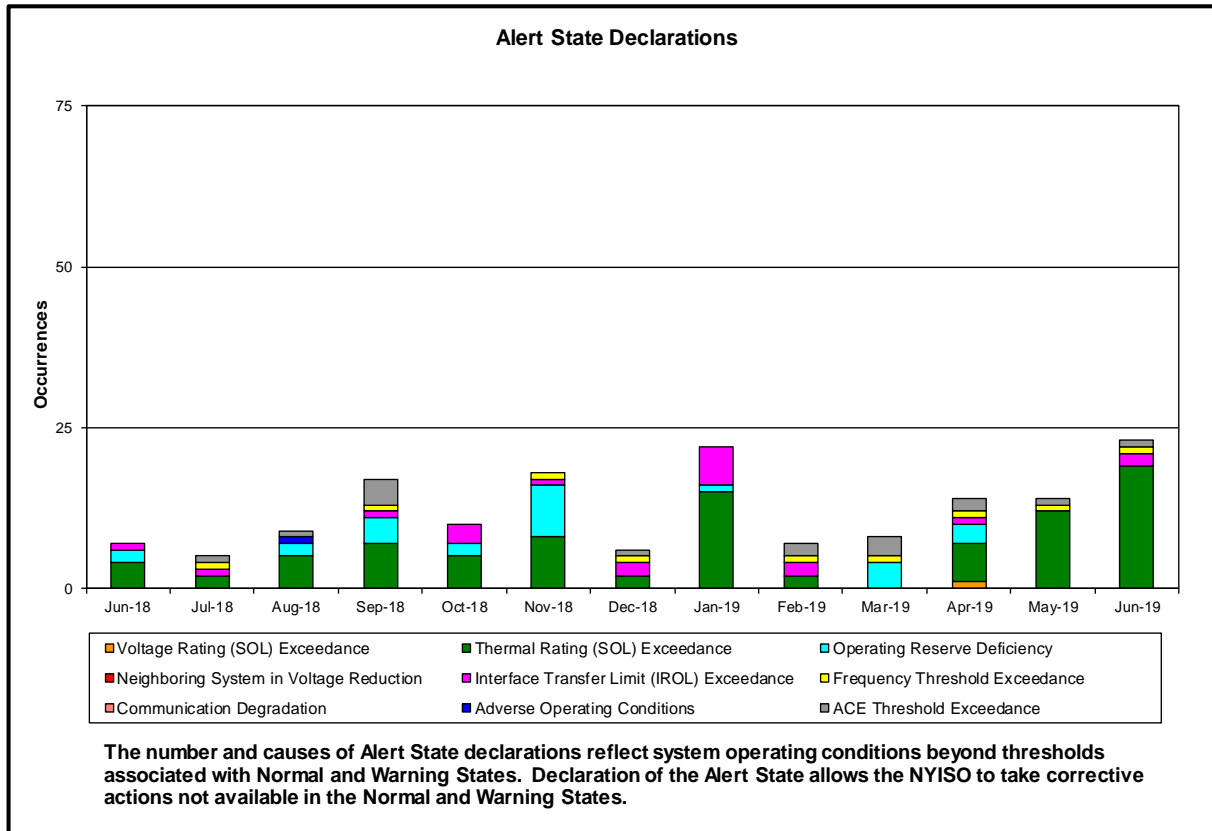
	Current Month Value (\$M)	Year-to-Date Value (\$M)
NY Savings from PJM-NY Congestion Coordination	\$0.46	\$6.06
NY Savings from PJM-NY Coordinated Transaction Scheduling	(\$0.54)	(\$0.71)
NY Savings from NE-NY Coordinated Transaction Scheduling	(\$0.17)	(\$0.56)
Total NY Savings	(\$0.25)	\$4.79
Regional Savings from PJM-NY Coordinated Transaction Scheduling	\$0.45	\$2.64
Regional Savings from NE-NY Coordinated Transaction Scheduling	\$0.06	\$0.29
Total Regional Savings	\$0.51	\$2.93

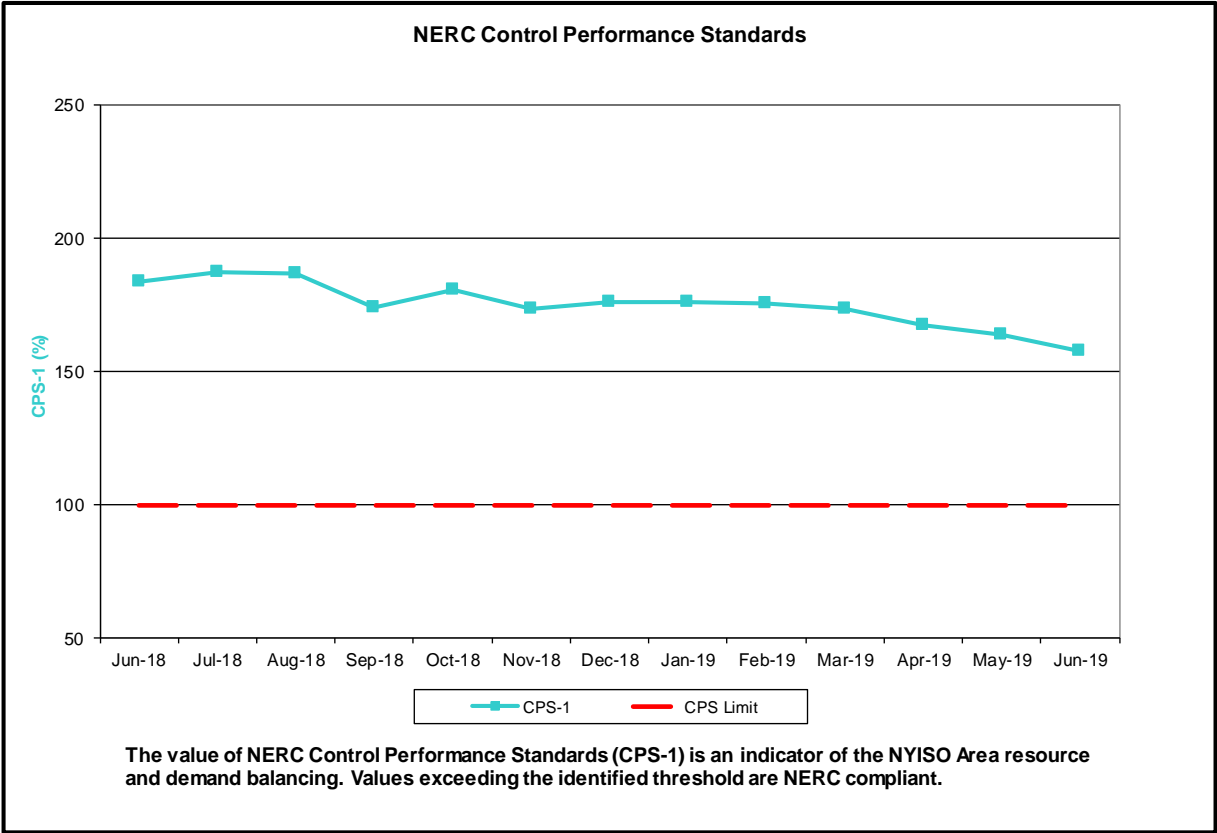
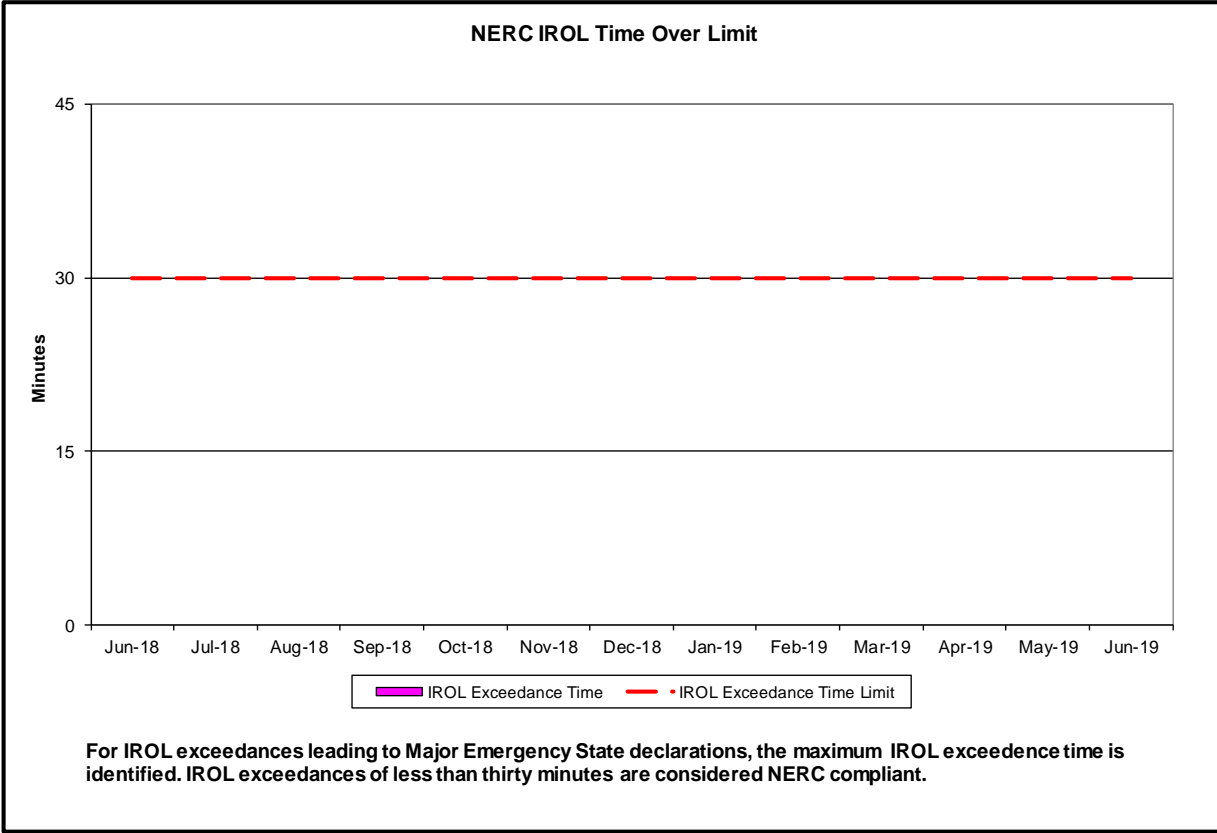
- Statewide uplift cost monthly average was (\$0.12)/MWh
- The following table identifies the Monthly ICAP spot market prices and the price delta.

Spot Auction Price Results	NYCA	Lower Hudson Valley Zones	New York City Zone	Long Island Zone
July 2019 Spot Price	\$1.39	\$4.83	\$13.46	\$5.94
June 2019 Spot Price	\$1.80	\$5.21	\$13.79	\$5.94
Delta	(\$0.41)	(\$0.38)	(\$0.33)	\$0.00

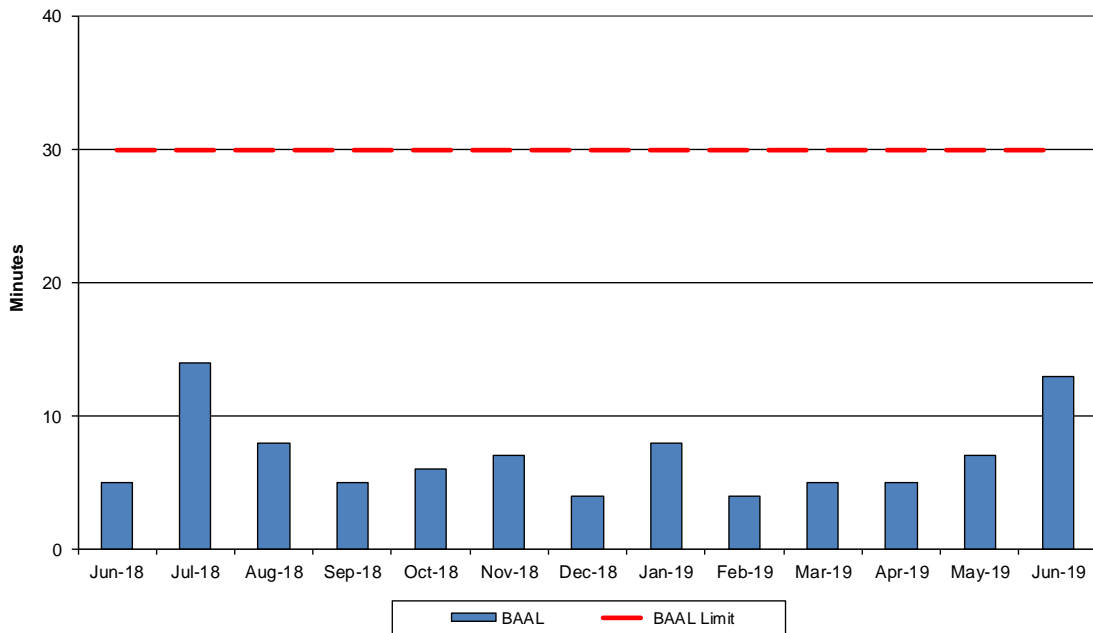
- NYC - Price is decreased by \$0.33 due primarily to a decrease in Unoffered.
- GHJ - Price is decreased by \$0.38 due primarily to an increase in Generation/SCR UCAP Available.
- NYCA - Price is decreased by \$0.41 due to an increase in Generation/SCR UCAP Available, an increase in net Imports offset, and partially by an increase in Unsold.

Reliability Performance Metrics



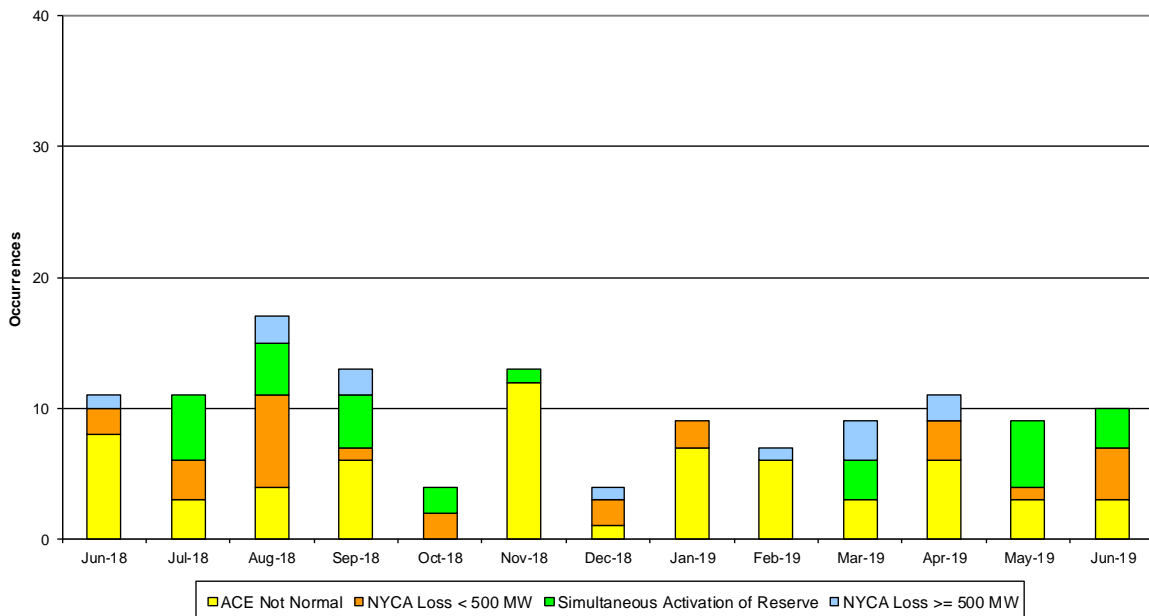


NERC Balancing Authority ACE Limit Standard

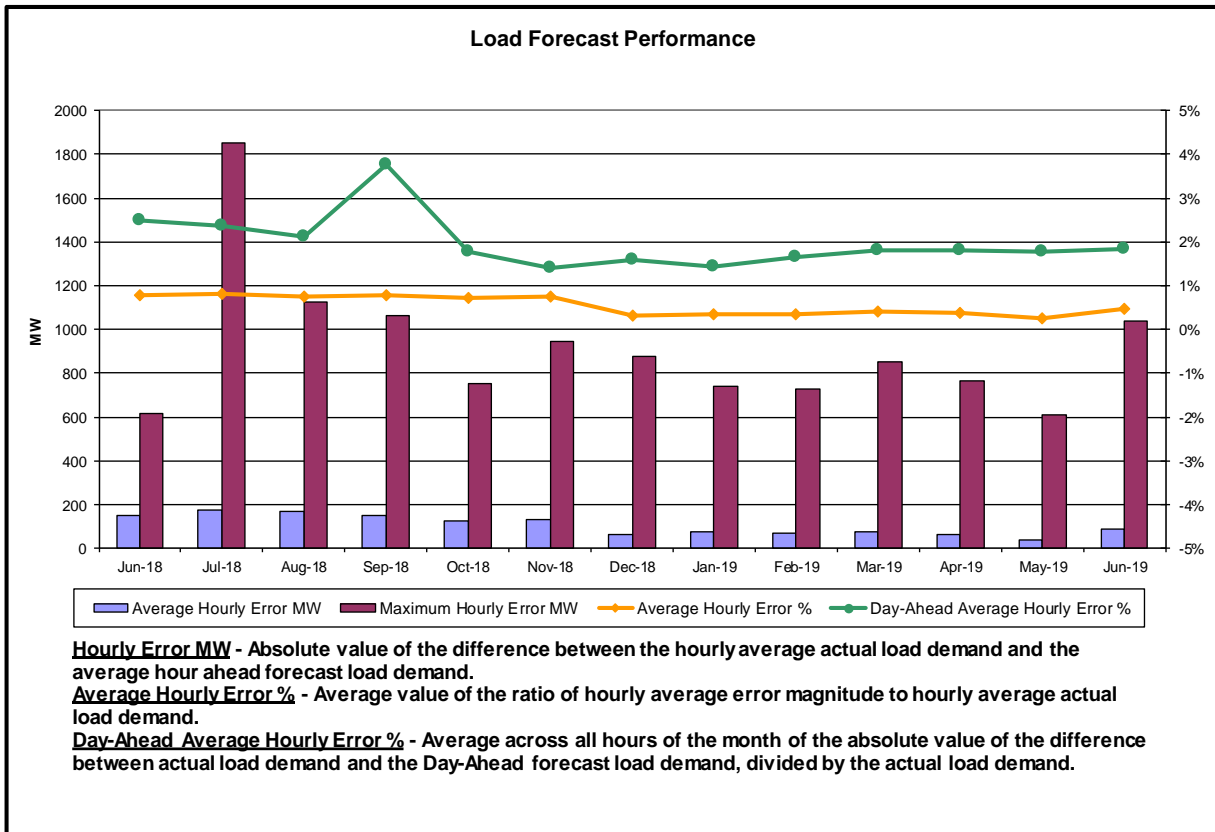
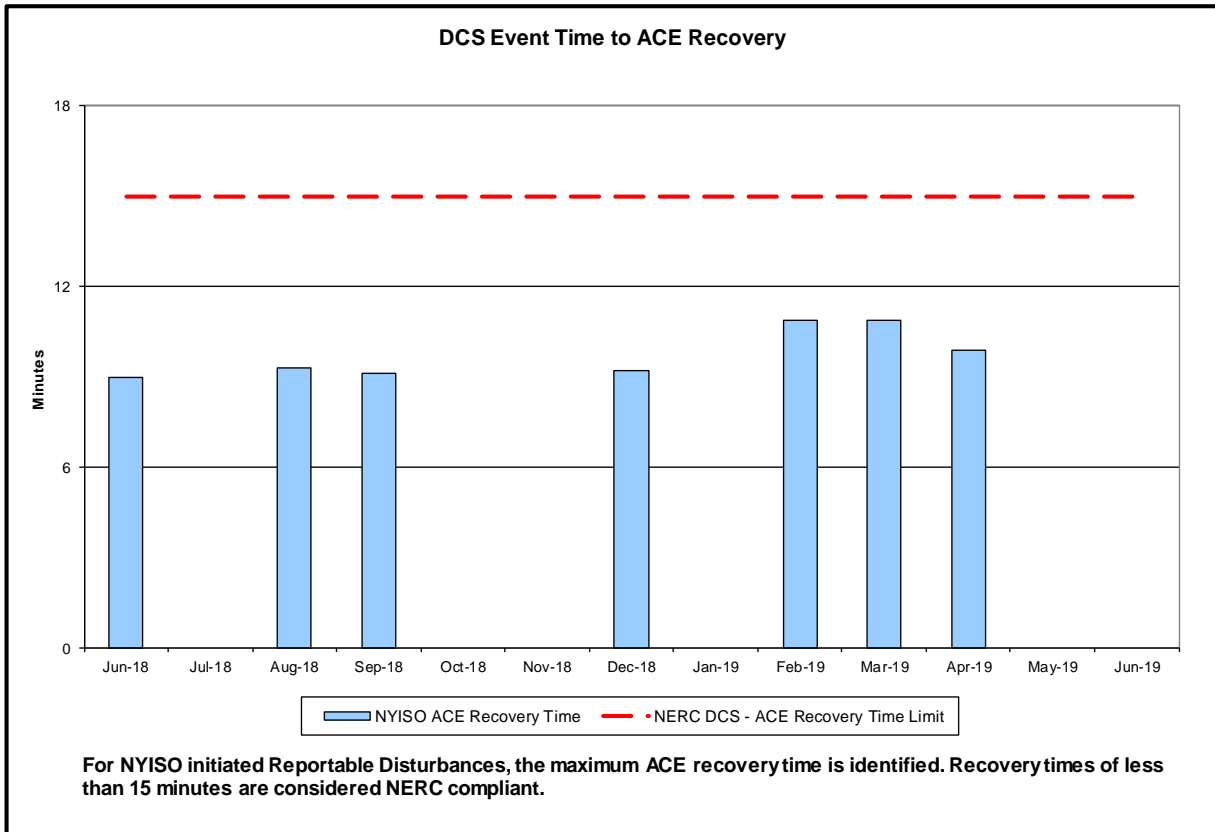


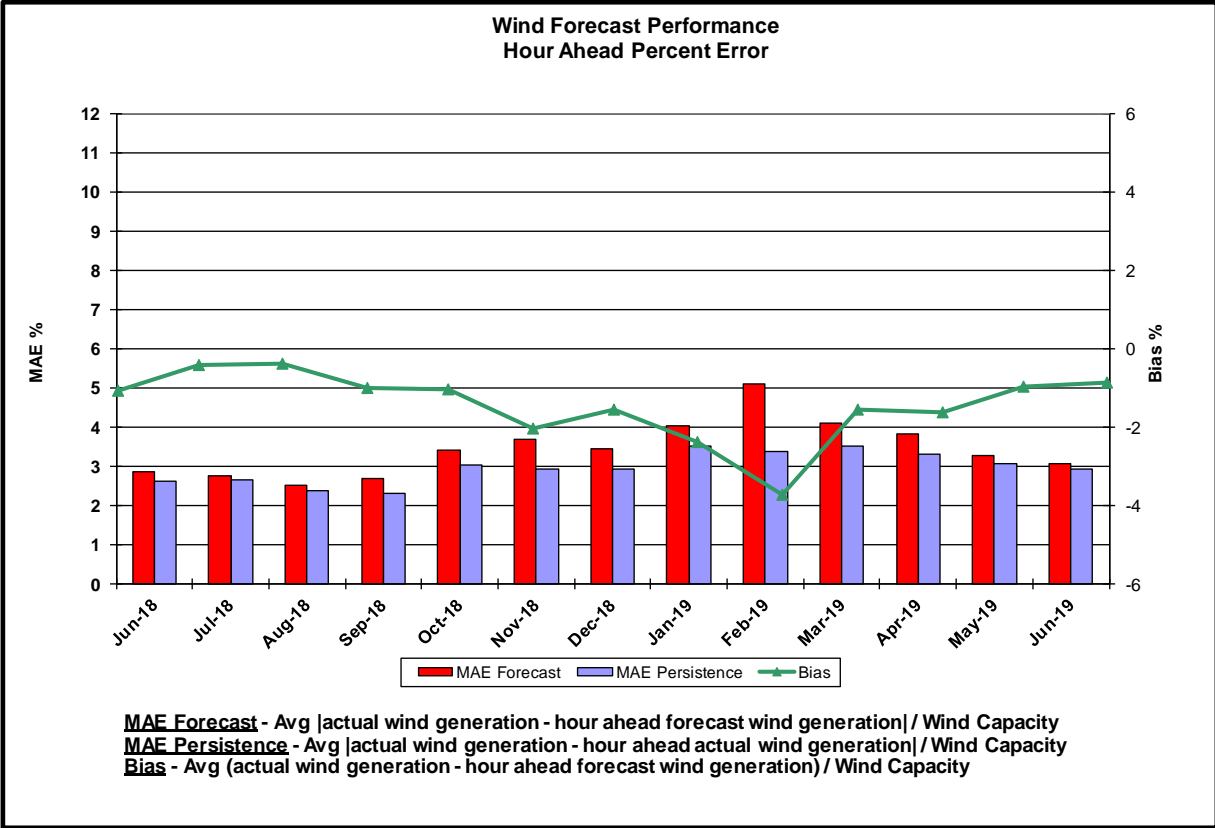
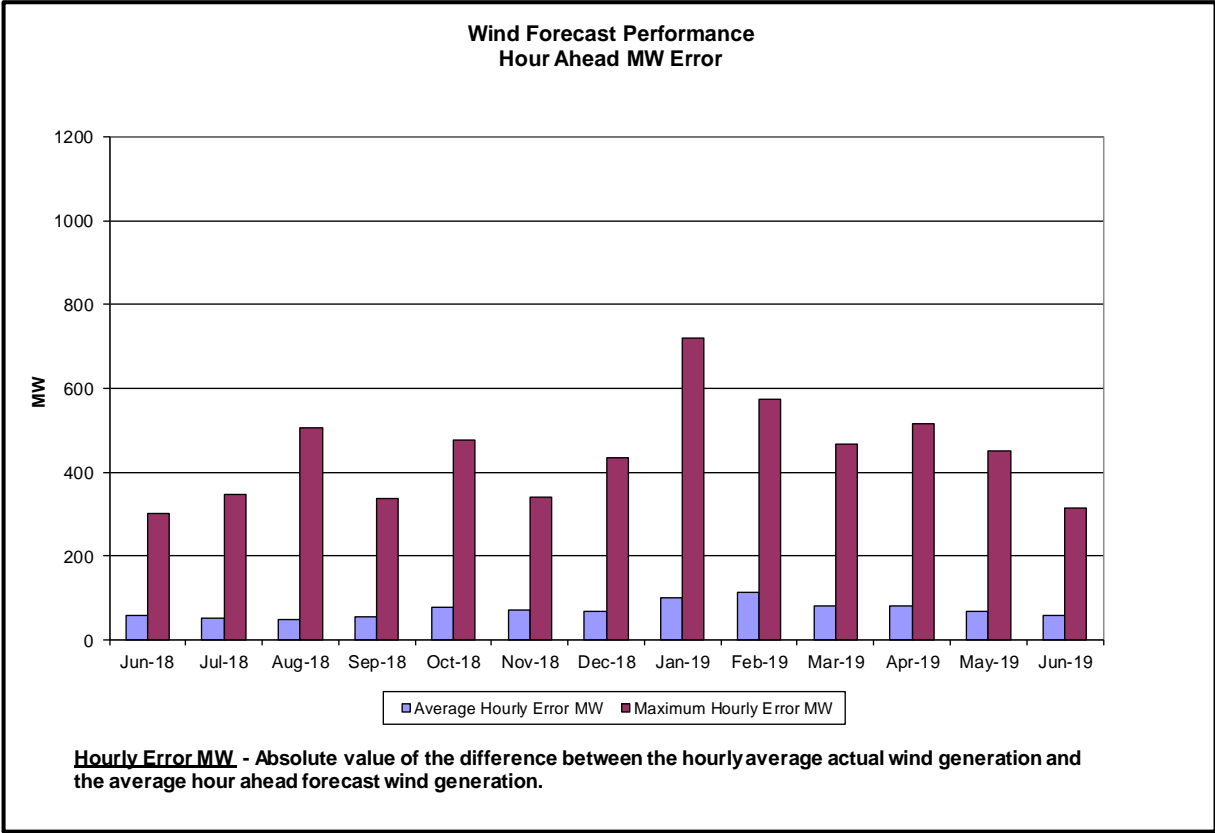
The amount of time the clock-minute average ACE exceeds the clock-minute Balancing Authority ACE Limit (BAAL) is an indicator of the NYISO Area resource and demand balancing. The maximum BAAL exceedance time is identified. BAAL exceedances of less than 30 consecutive clock-minutes are NERC compliant.

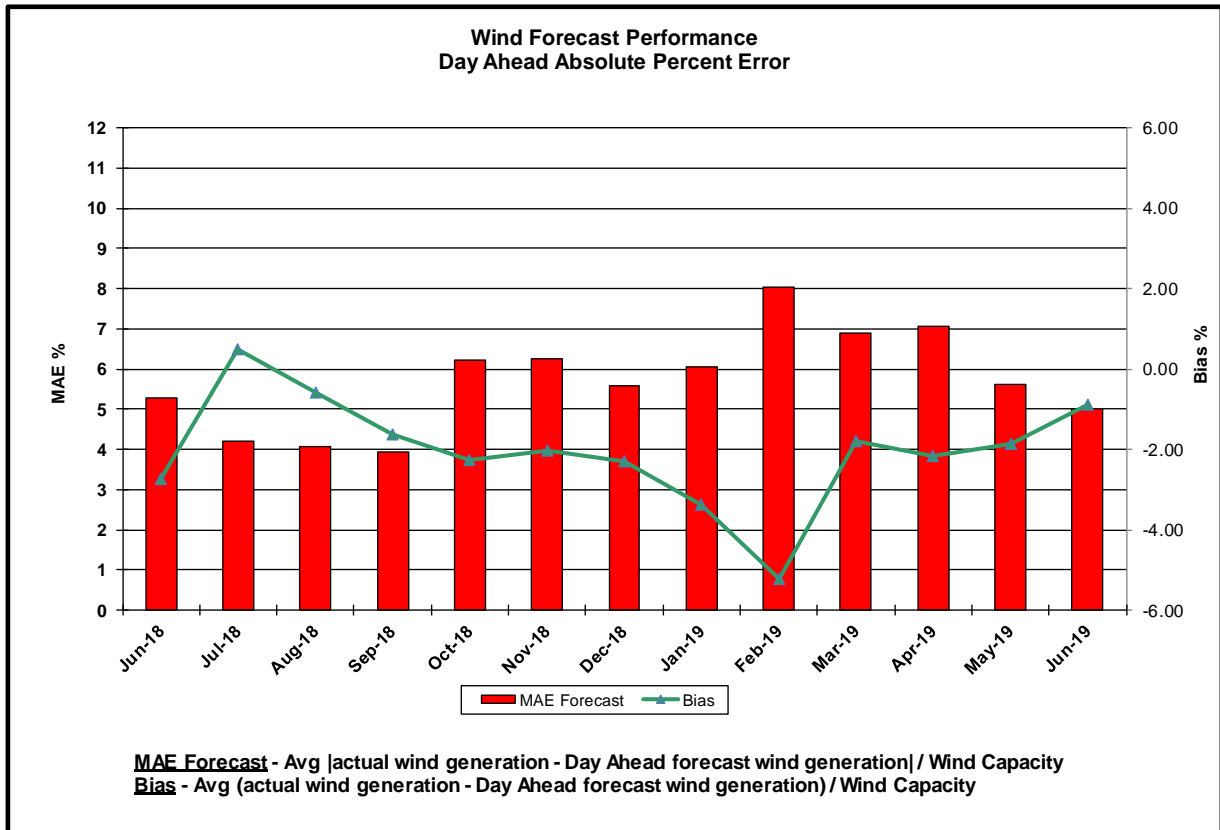
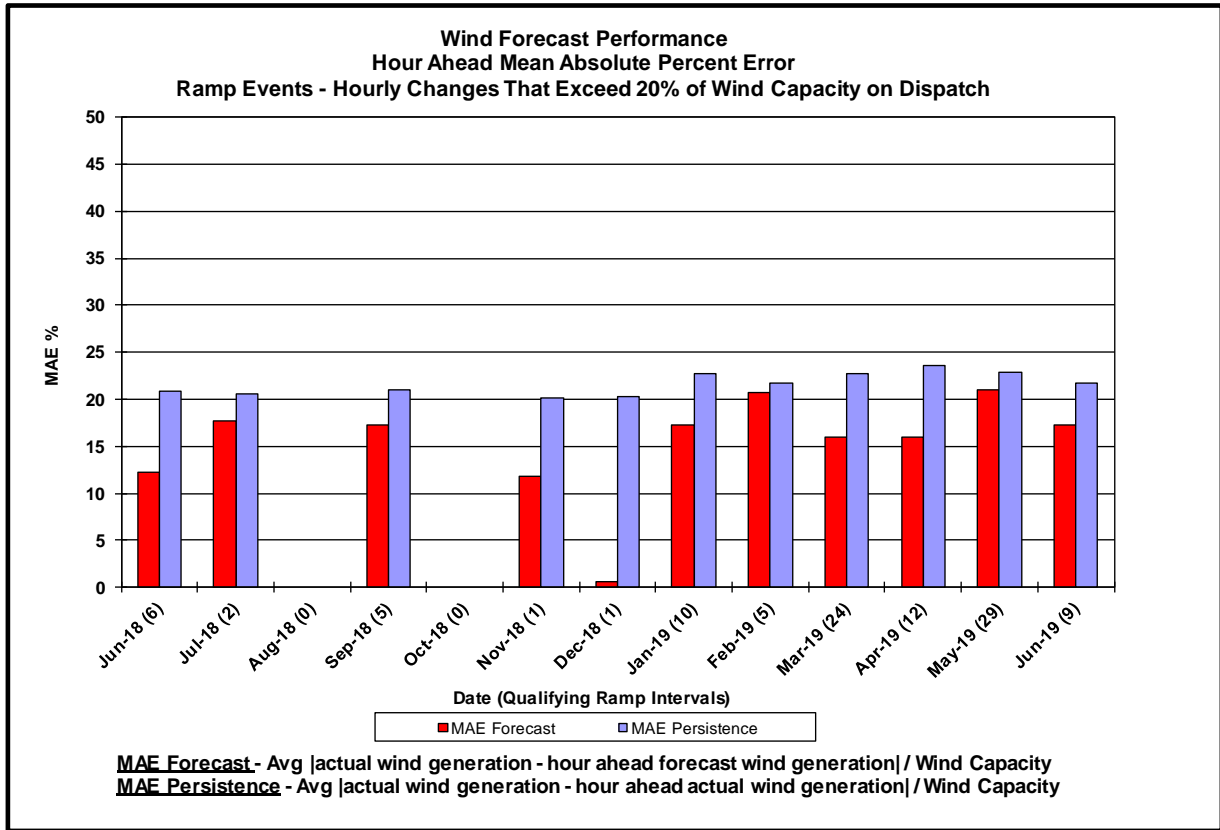
Reserve Activations

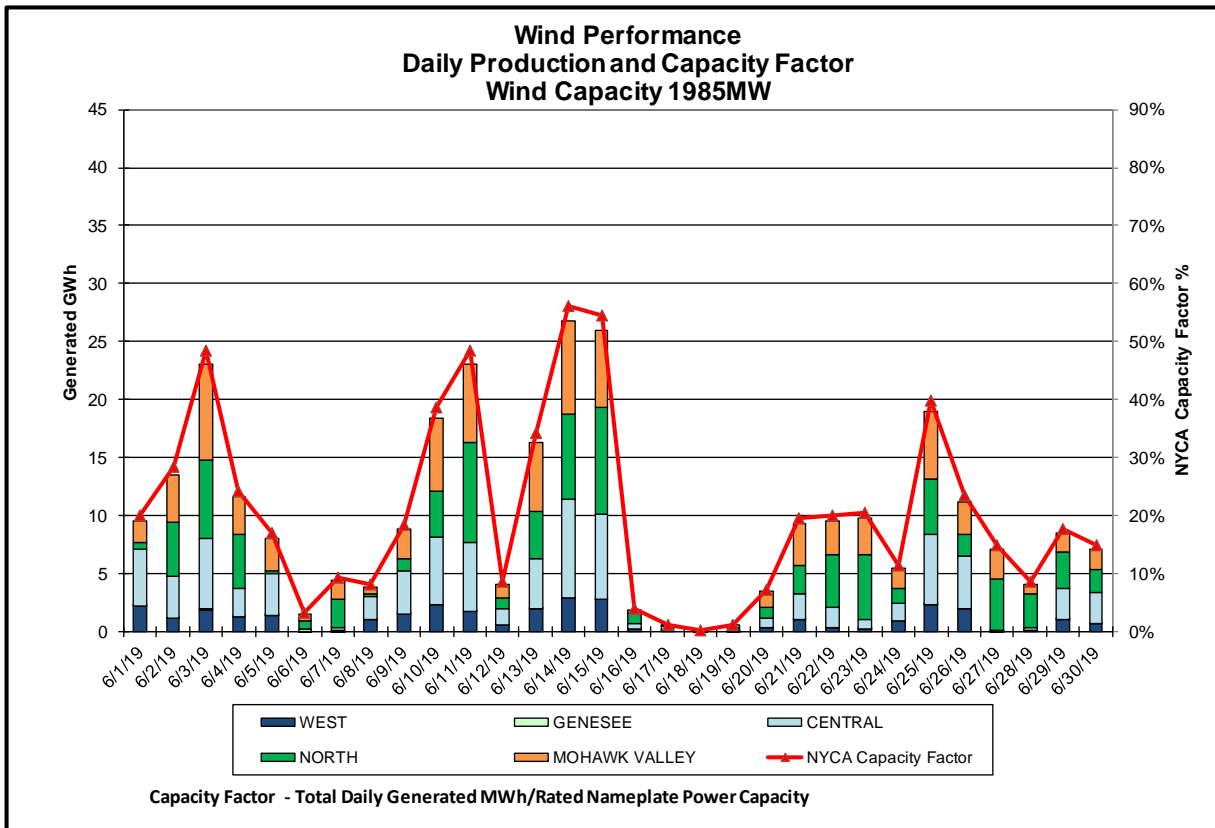
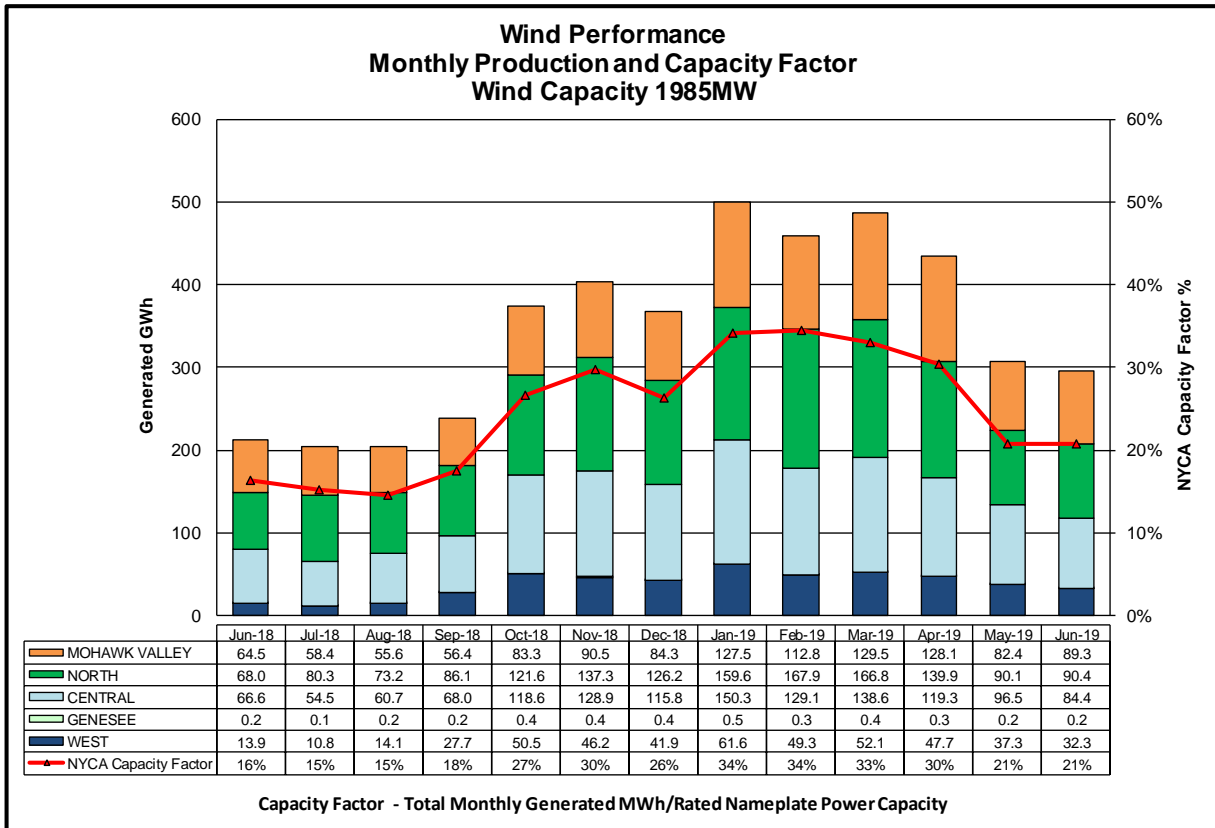


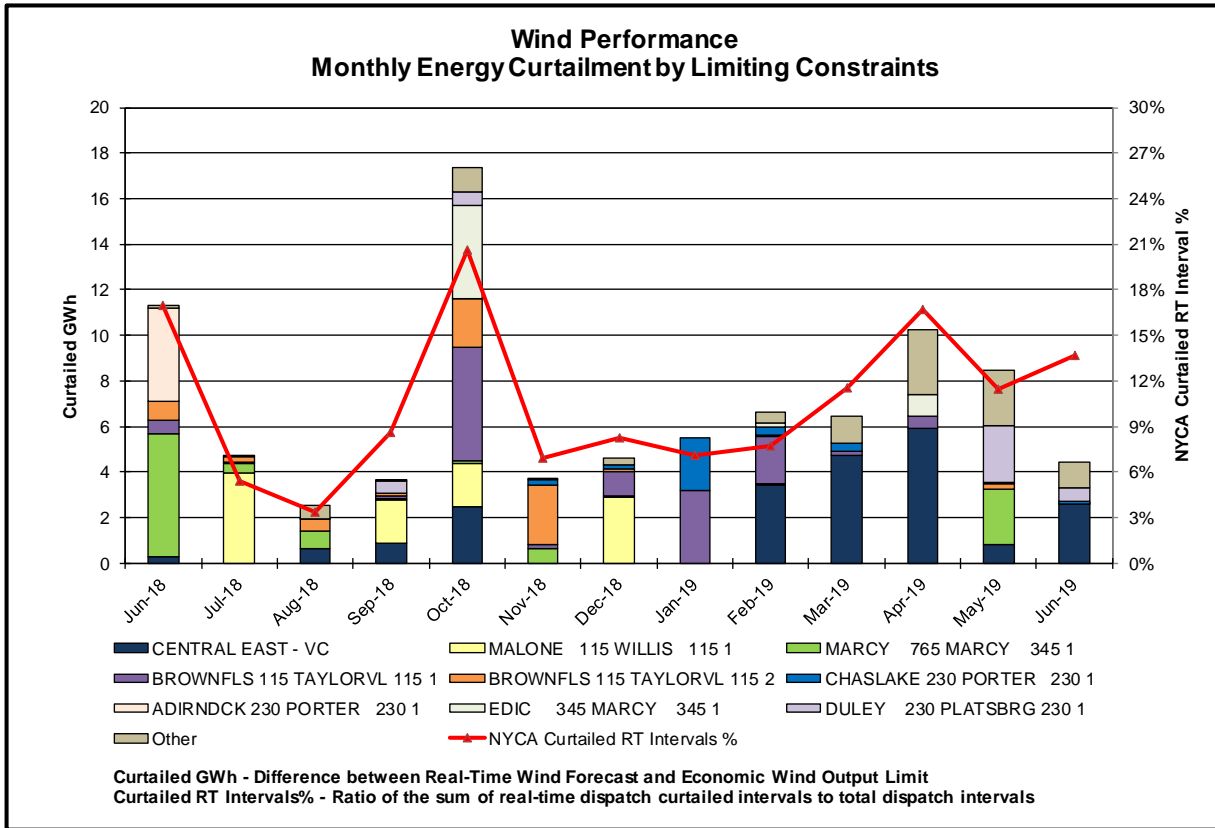
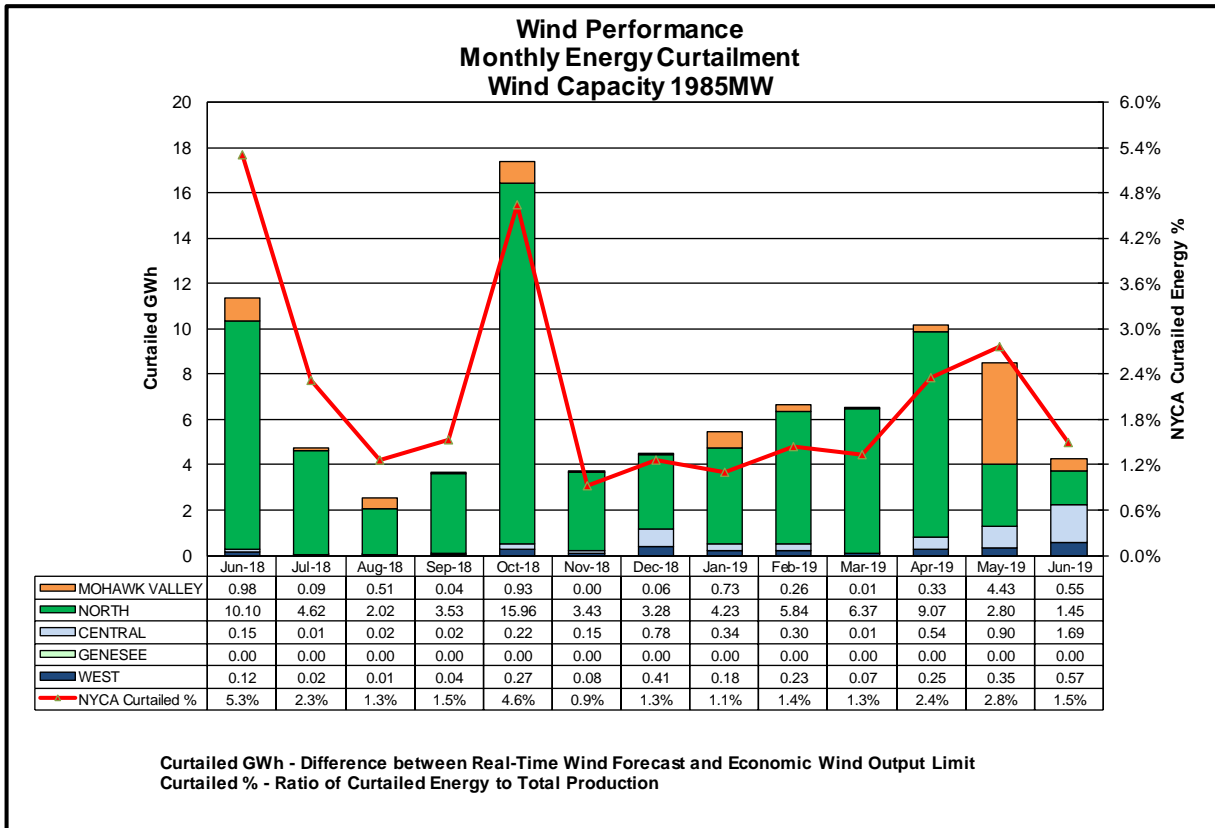
NYISO Reserve Activations are indicators of the need to respond to unexpected operational conditions within the NYISO Area or to assist a neighboring Area (Simultaneous Activation of Reserves) by activating an immediate resource and demand balancing operation.

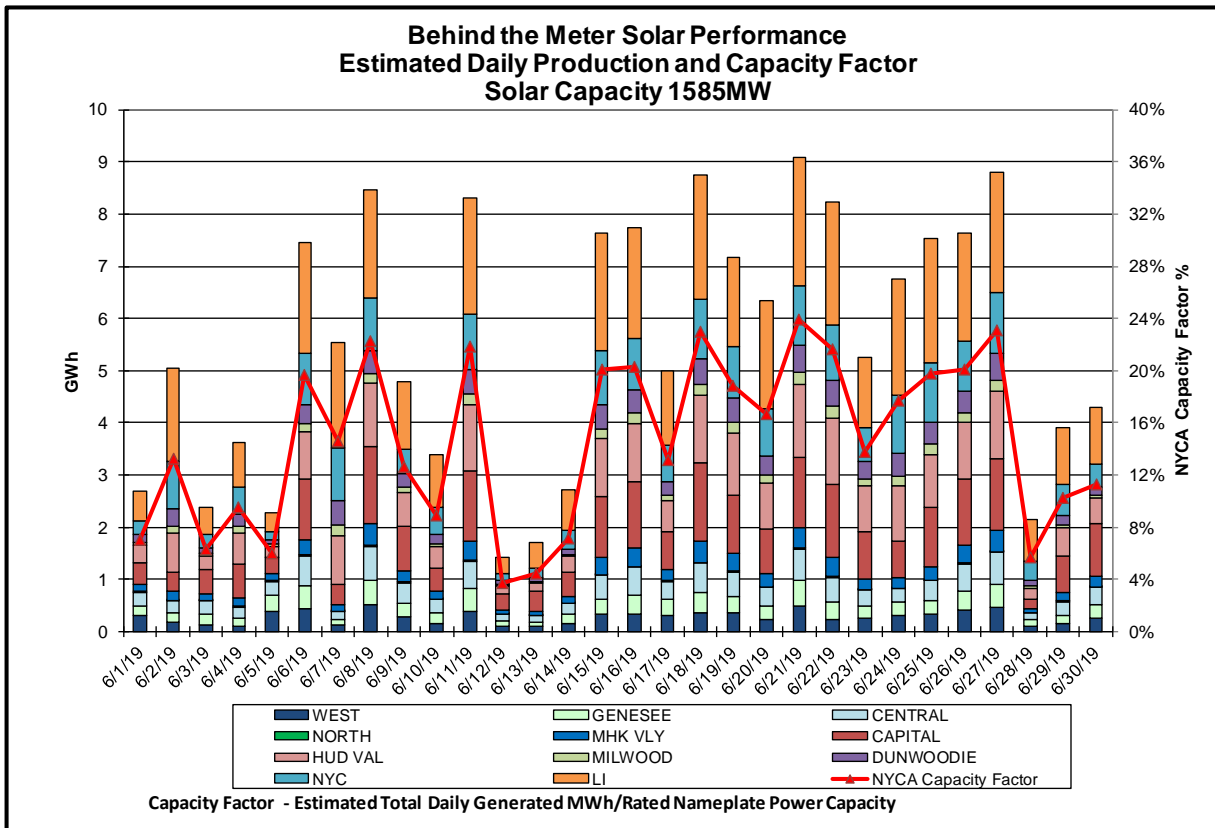
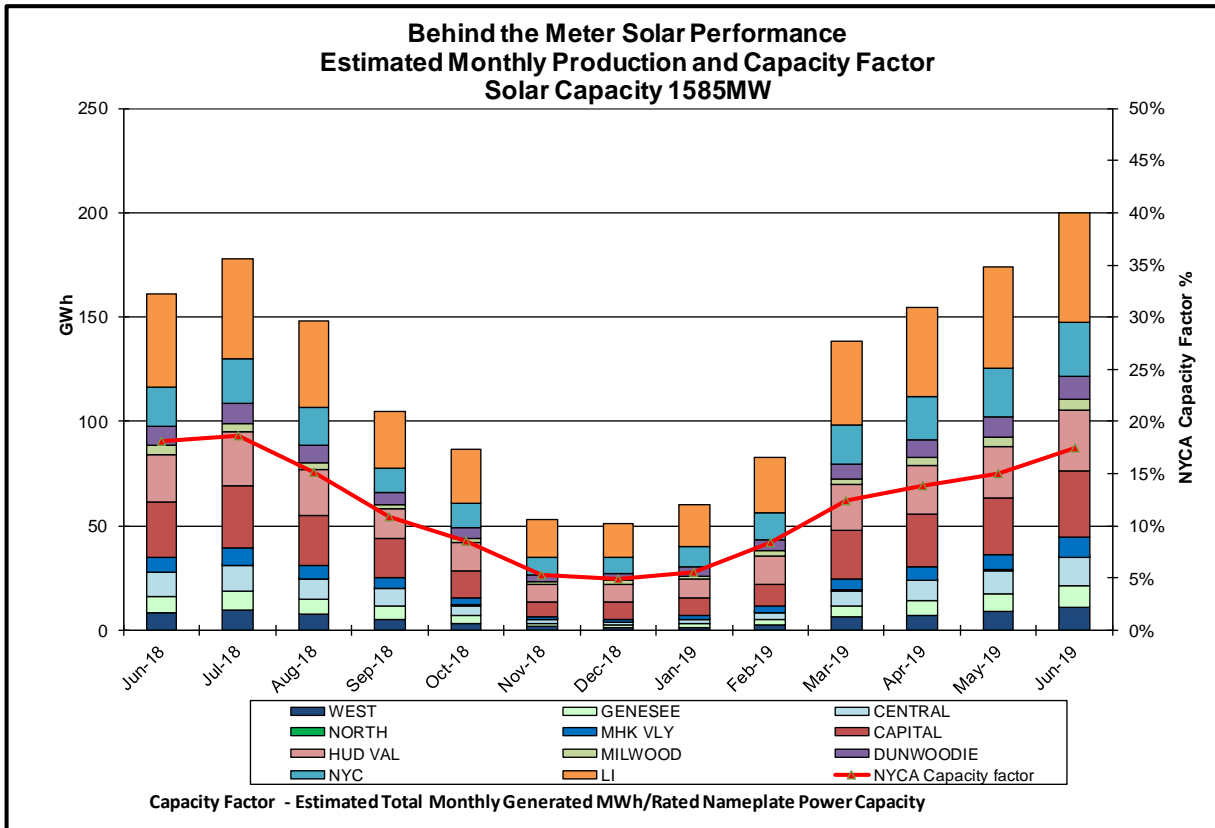


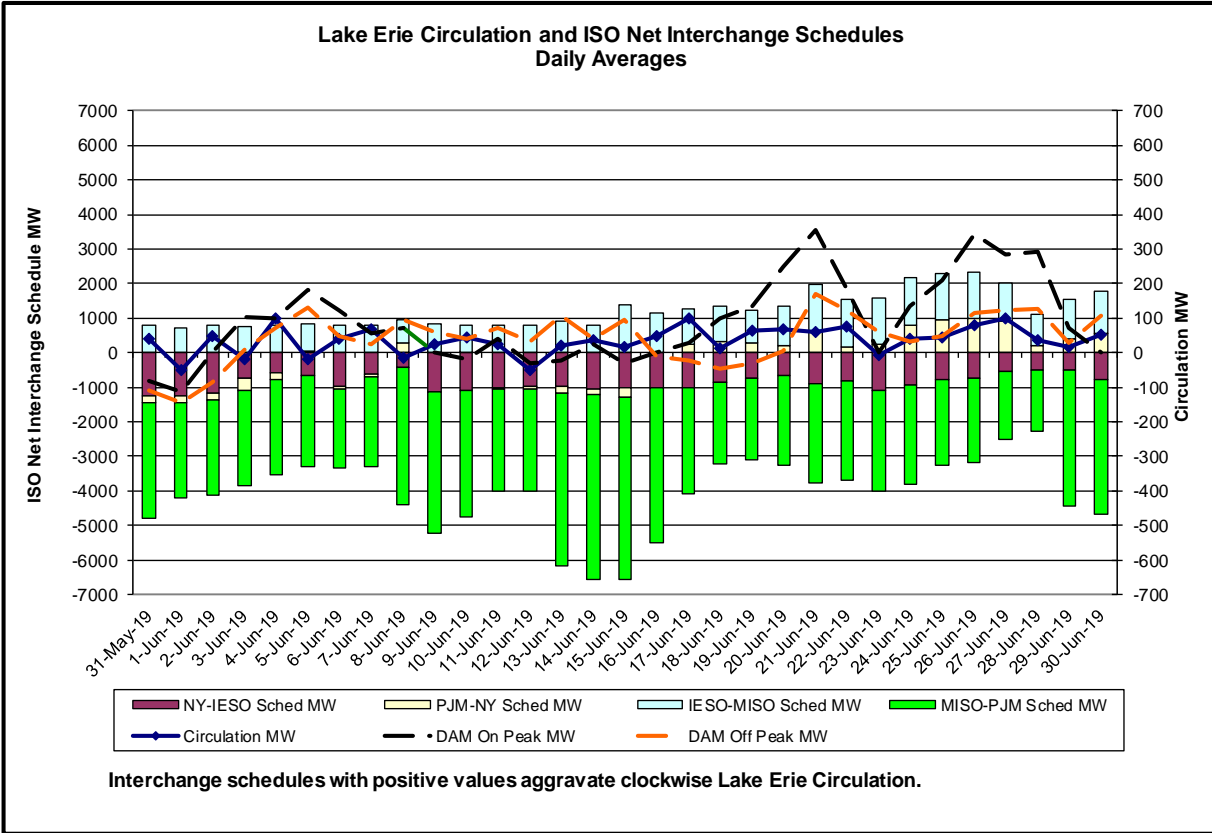
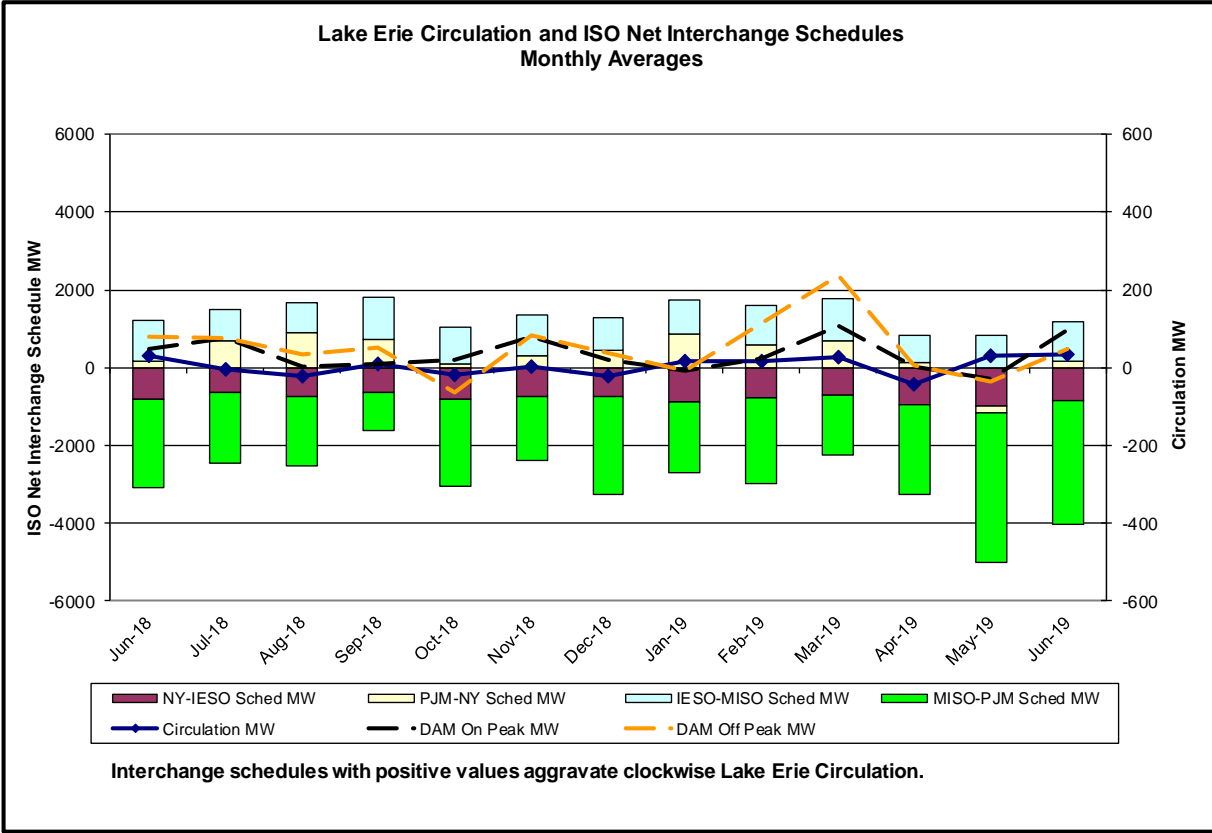




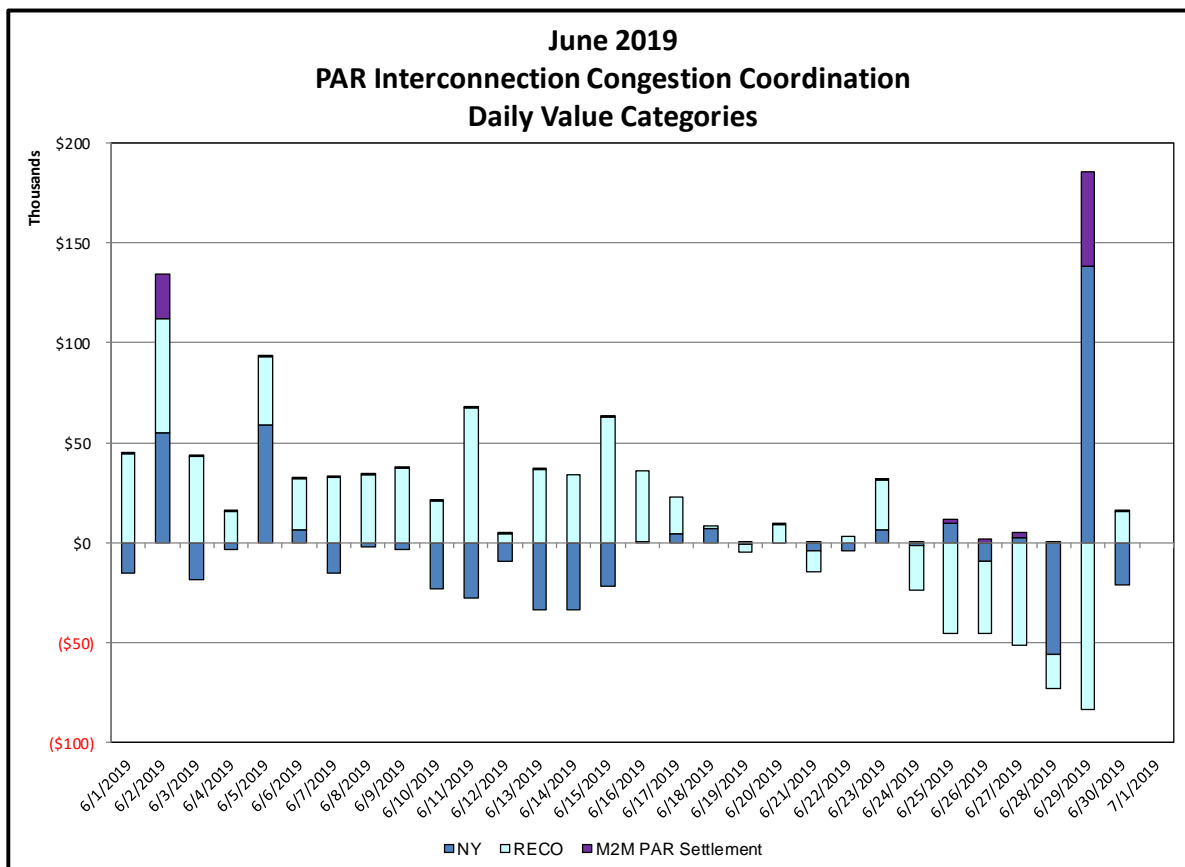
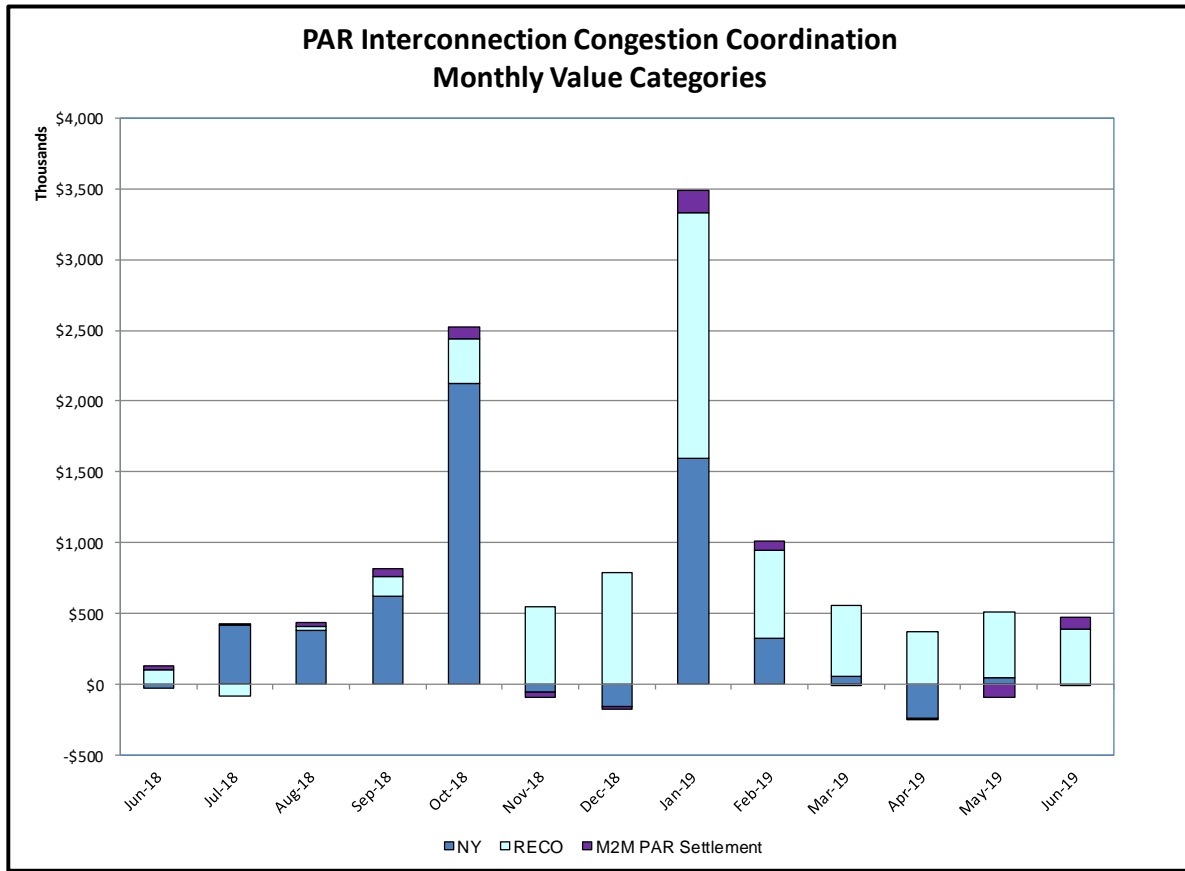






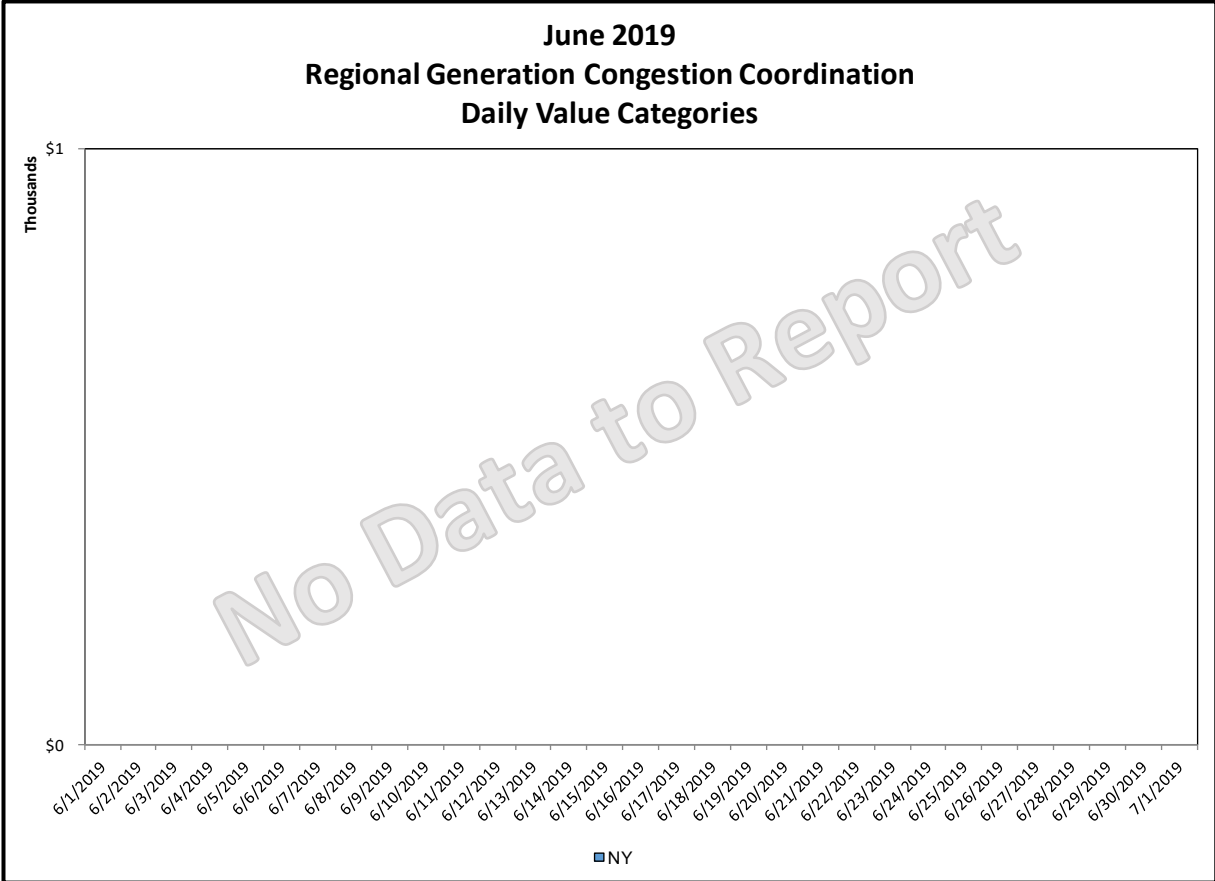
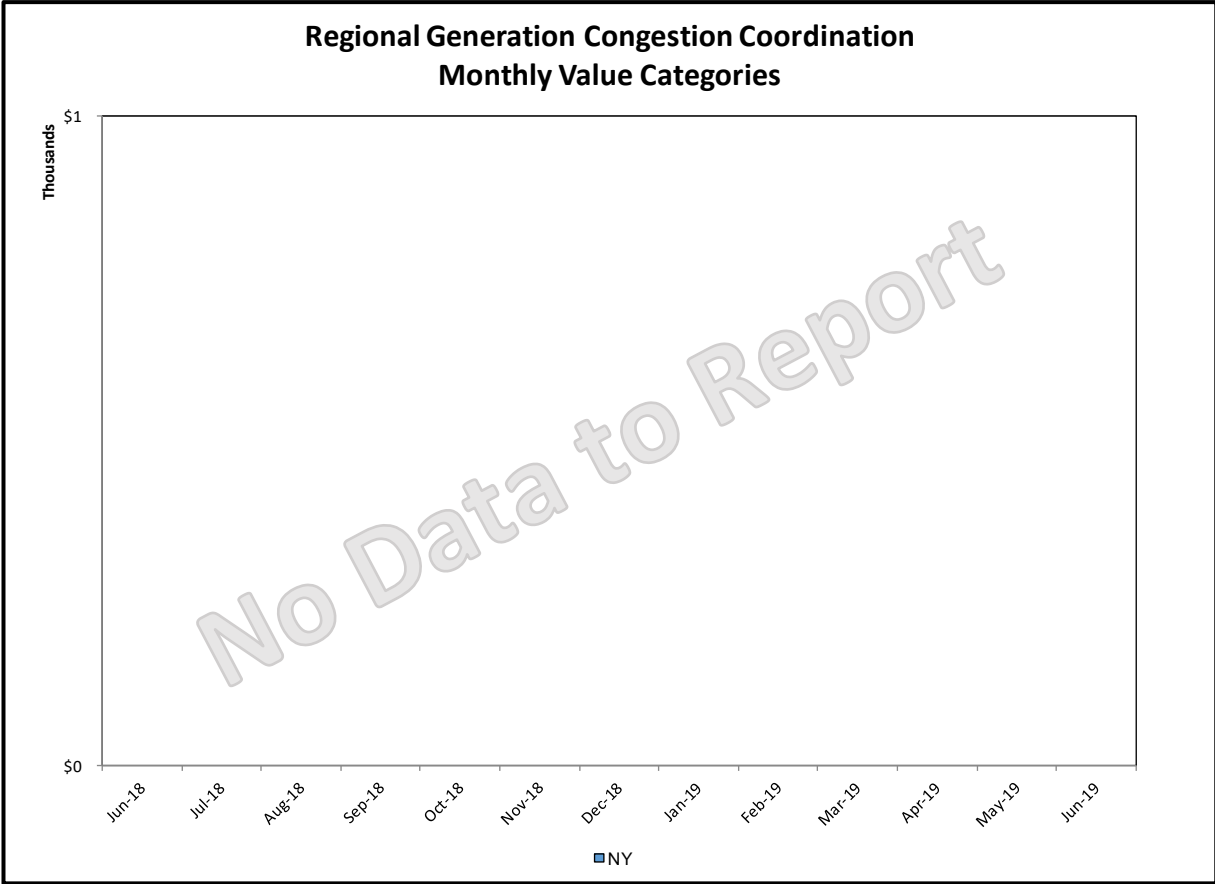


Broader Regional Market Performance Metrics



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.



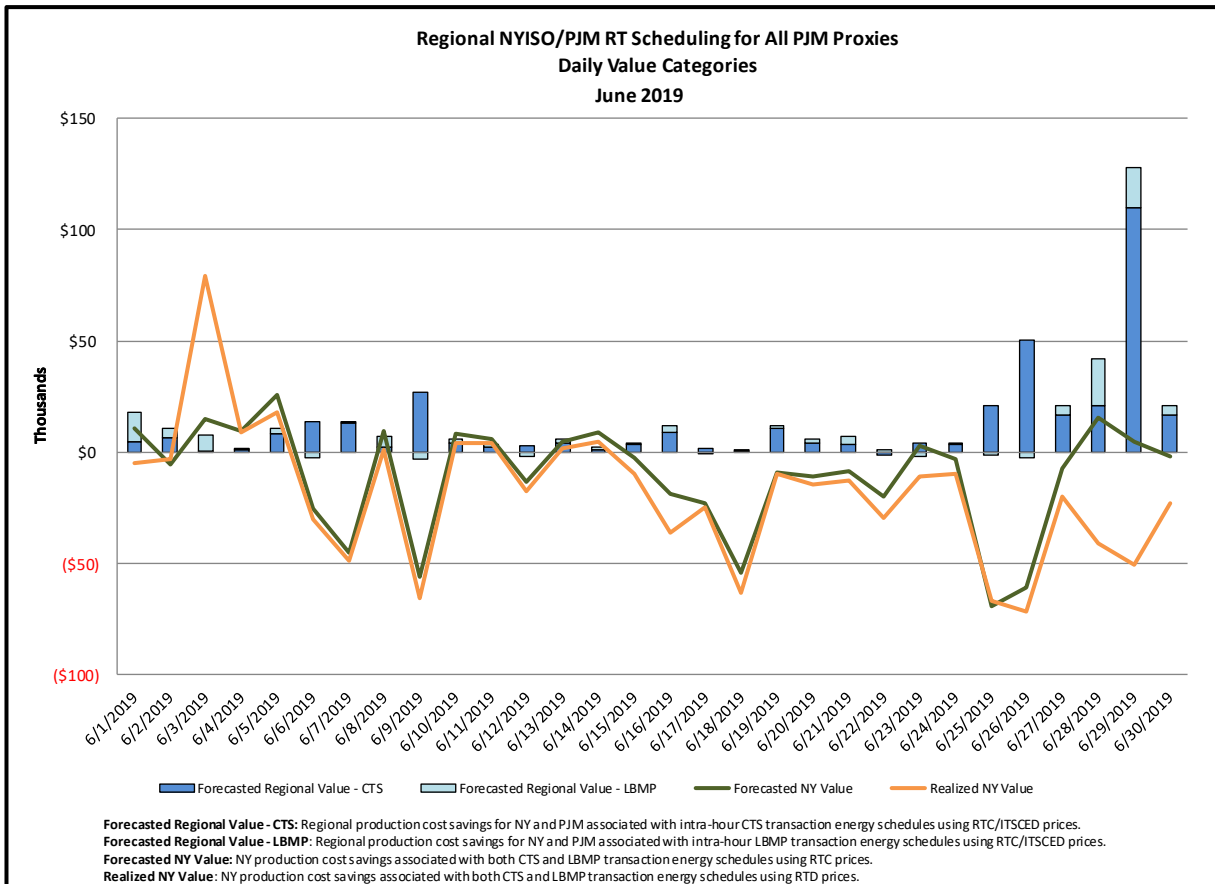
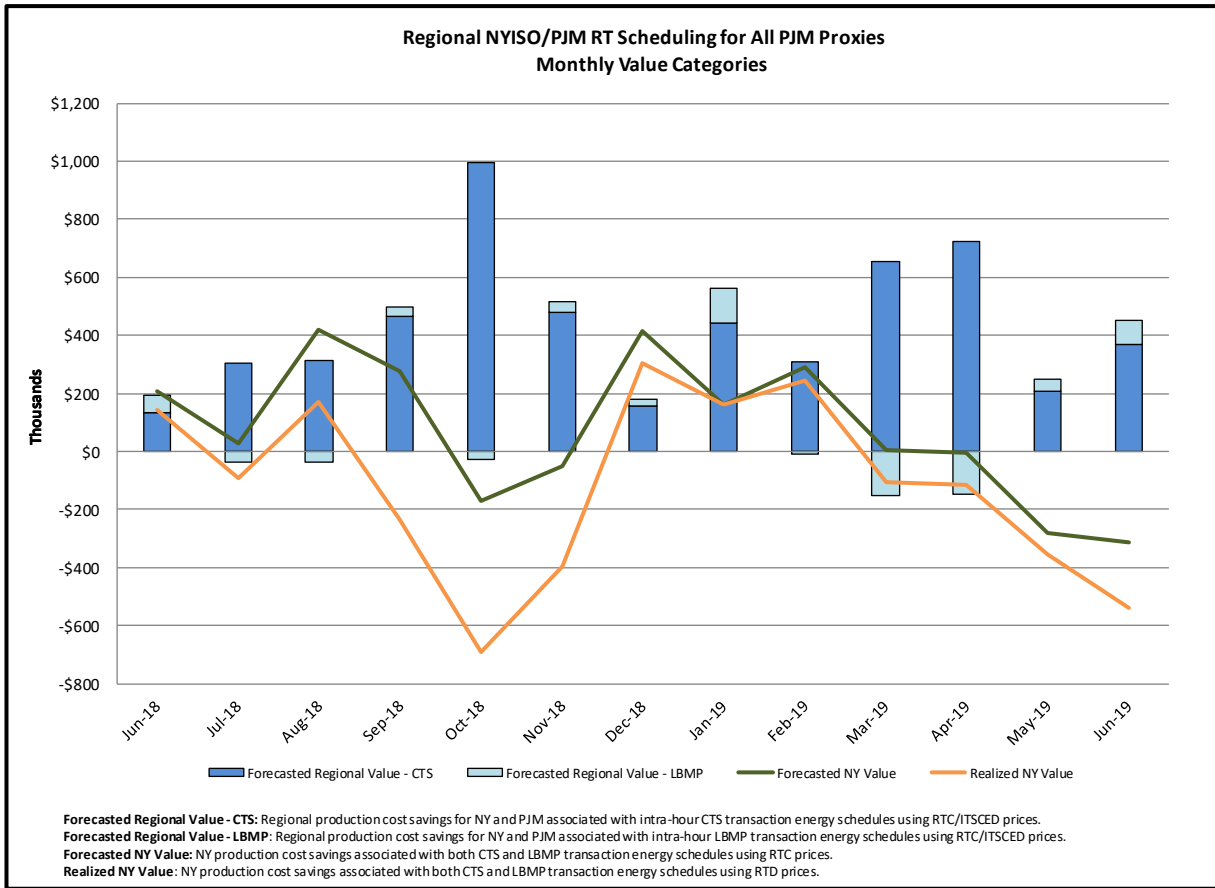
Regional Generation Congestion Coordination

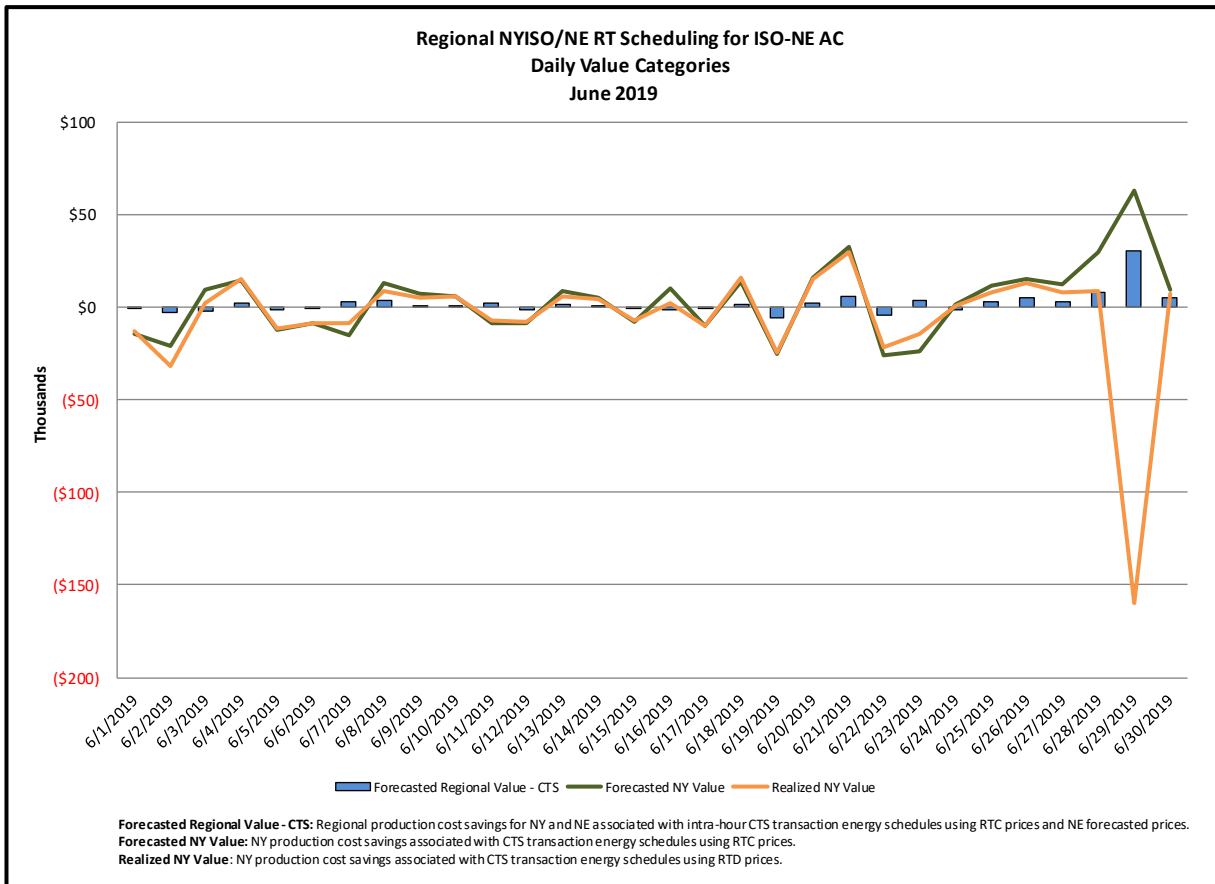
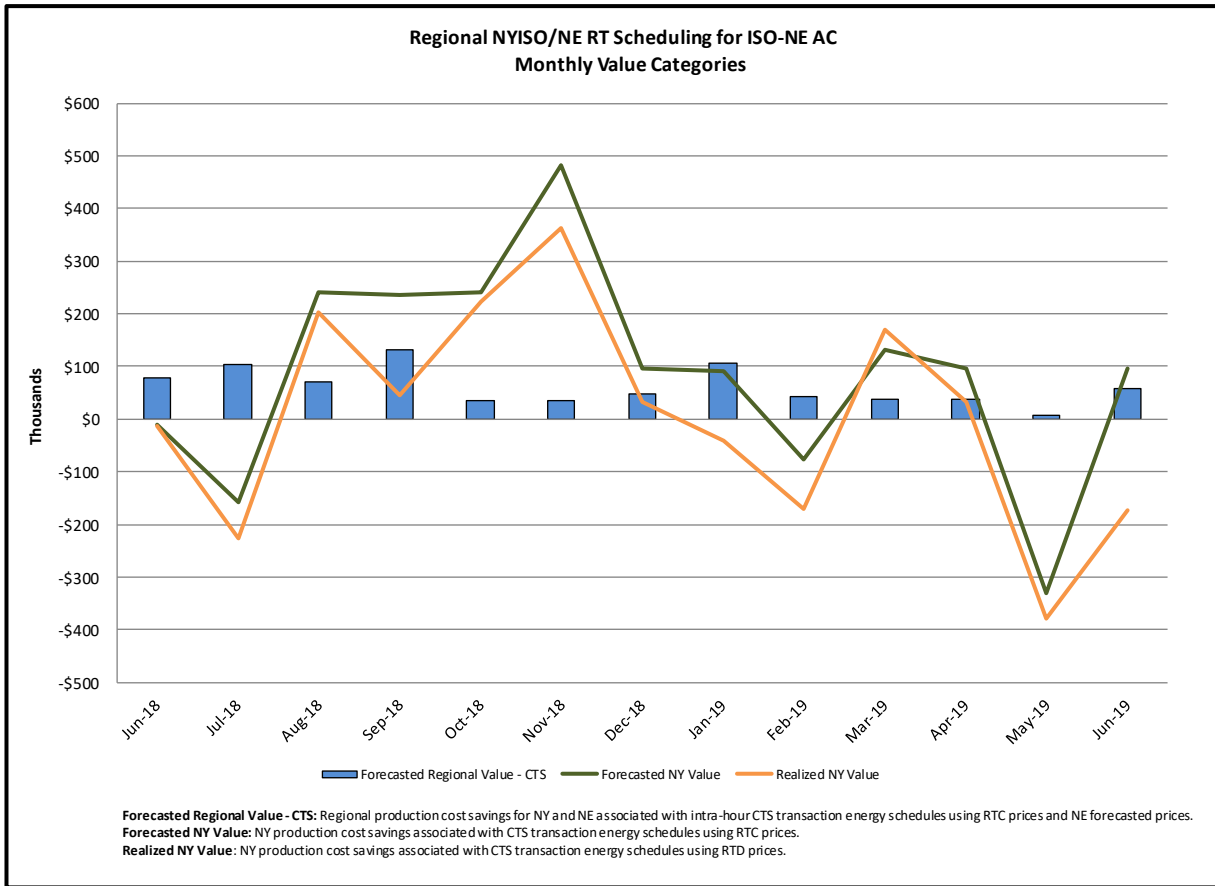
Category

NY

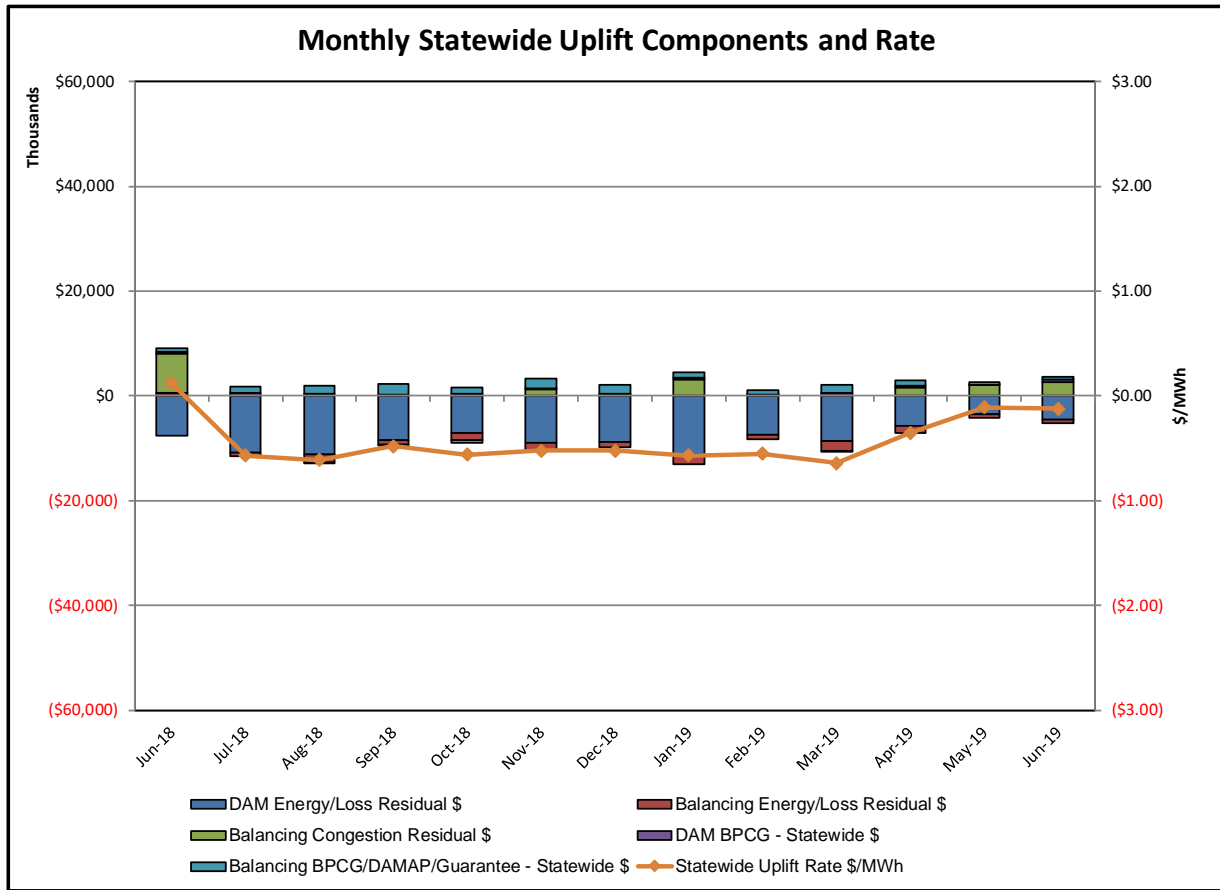
Description

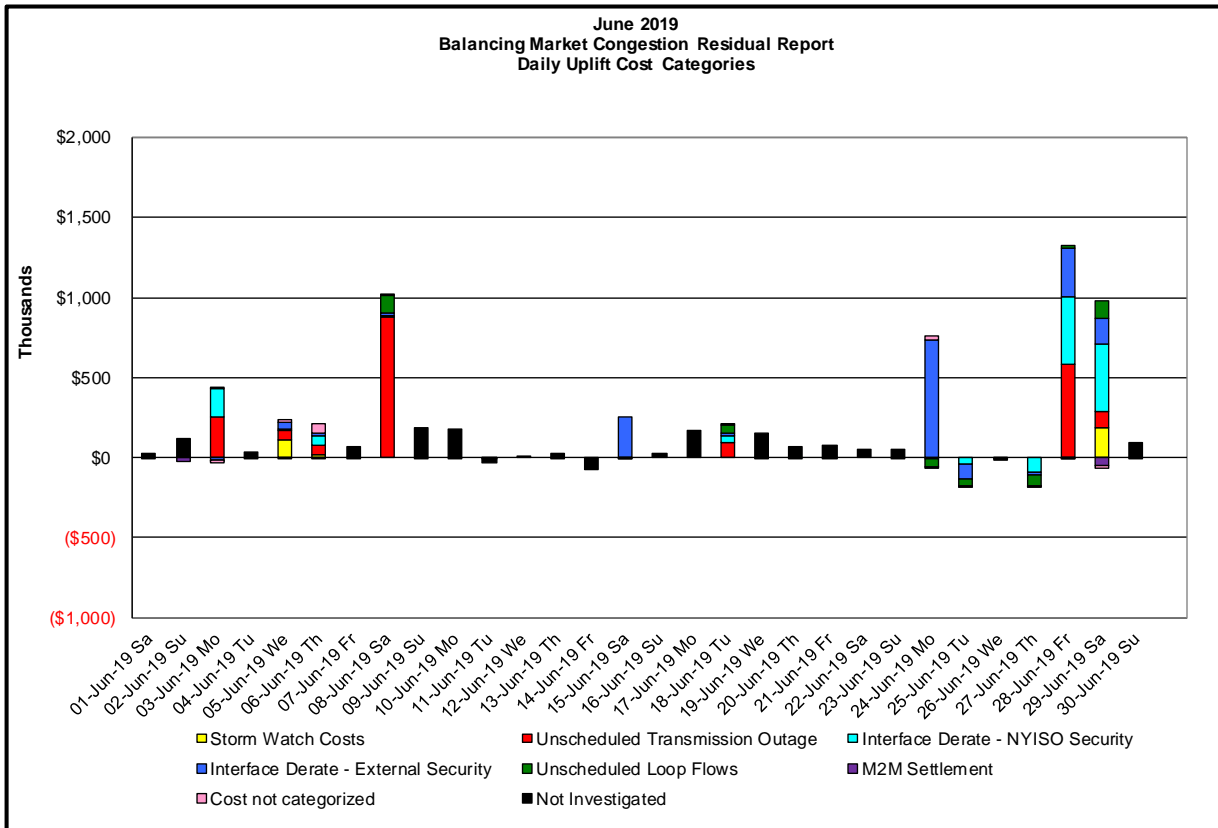
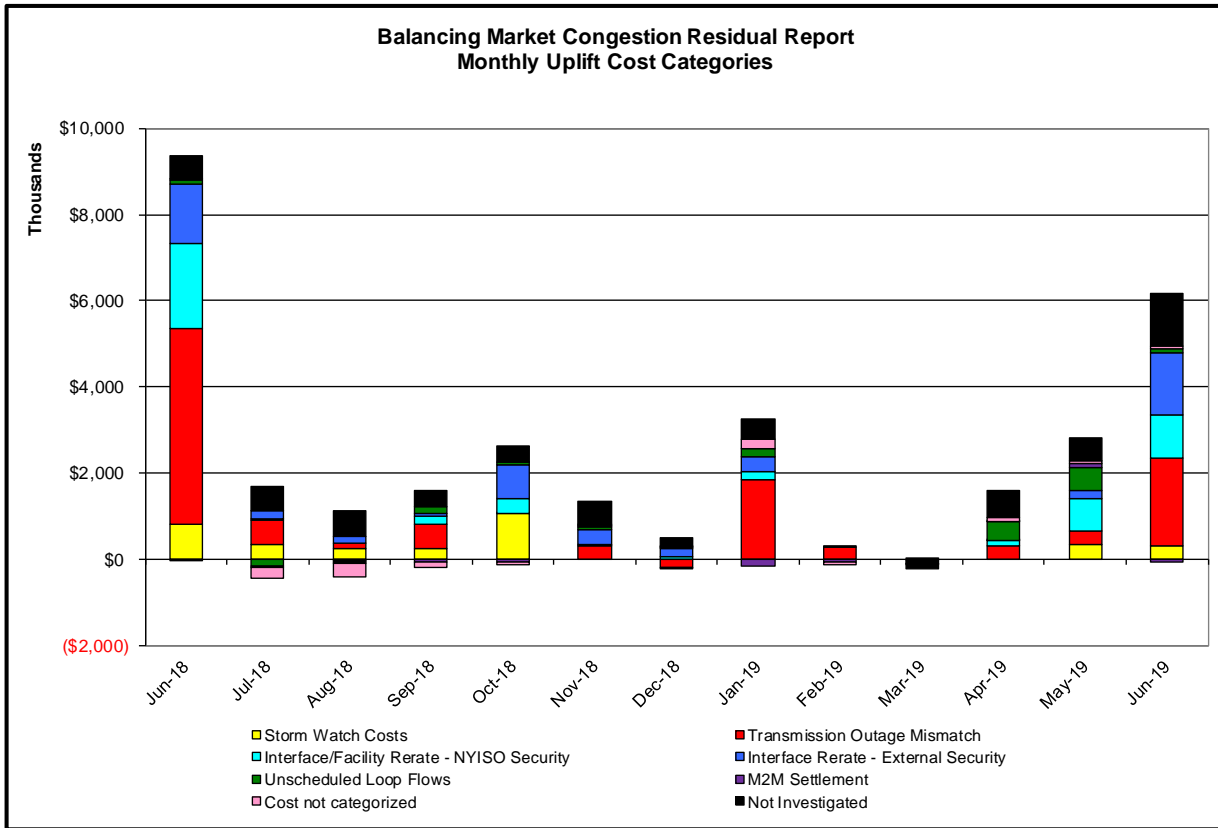
NYISO savings that result from PJM payments to NYISO when PJM's transmission use (PJM's market flow) is greater than PJM's entitlement of the NY transmission system and NYISO is incurring Western or Central NY congestion. Additionally, NYISO savings may result from the more efficient regional utilization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





Market Performance Metrics





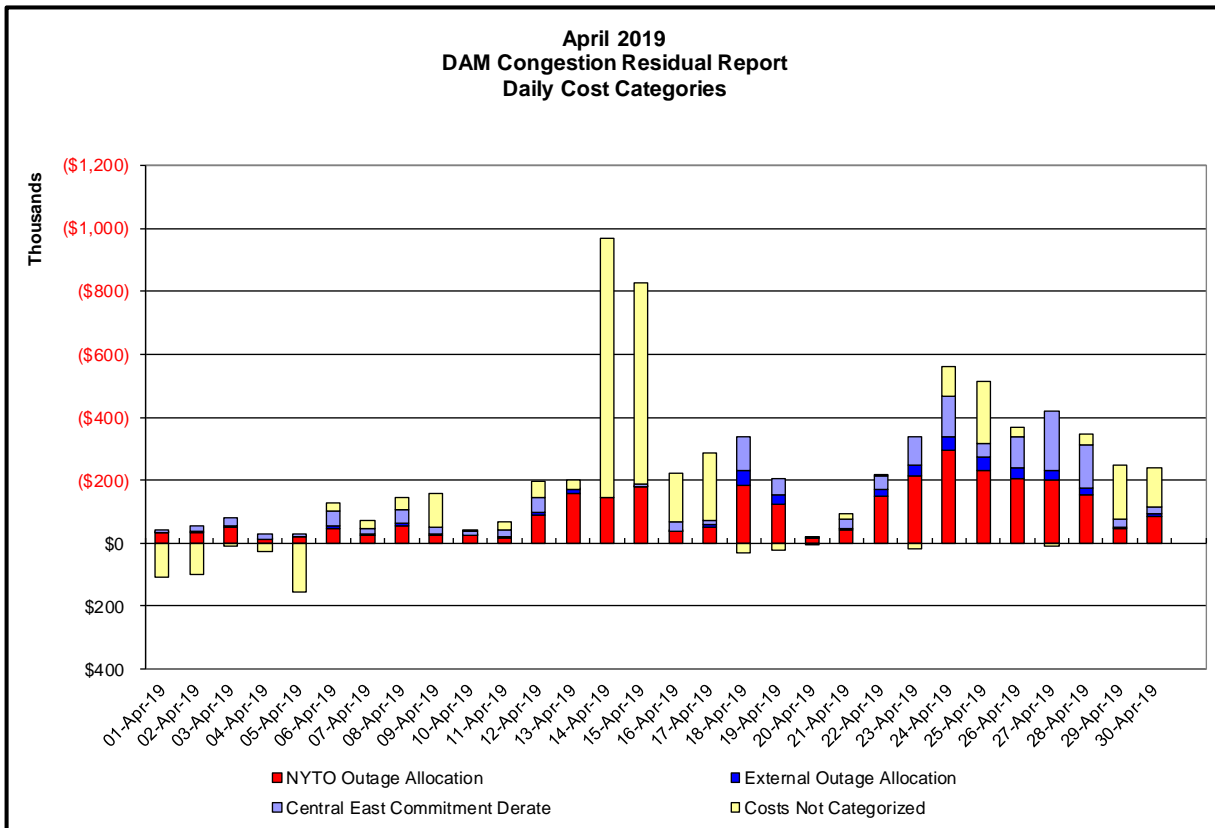
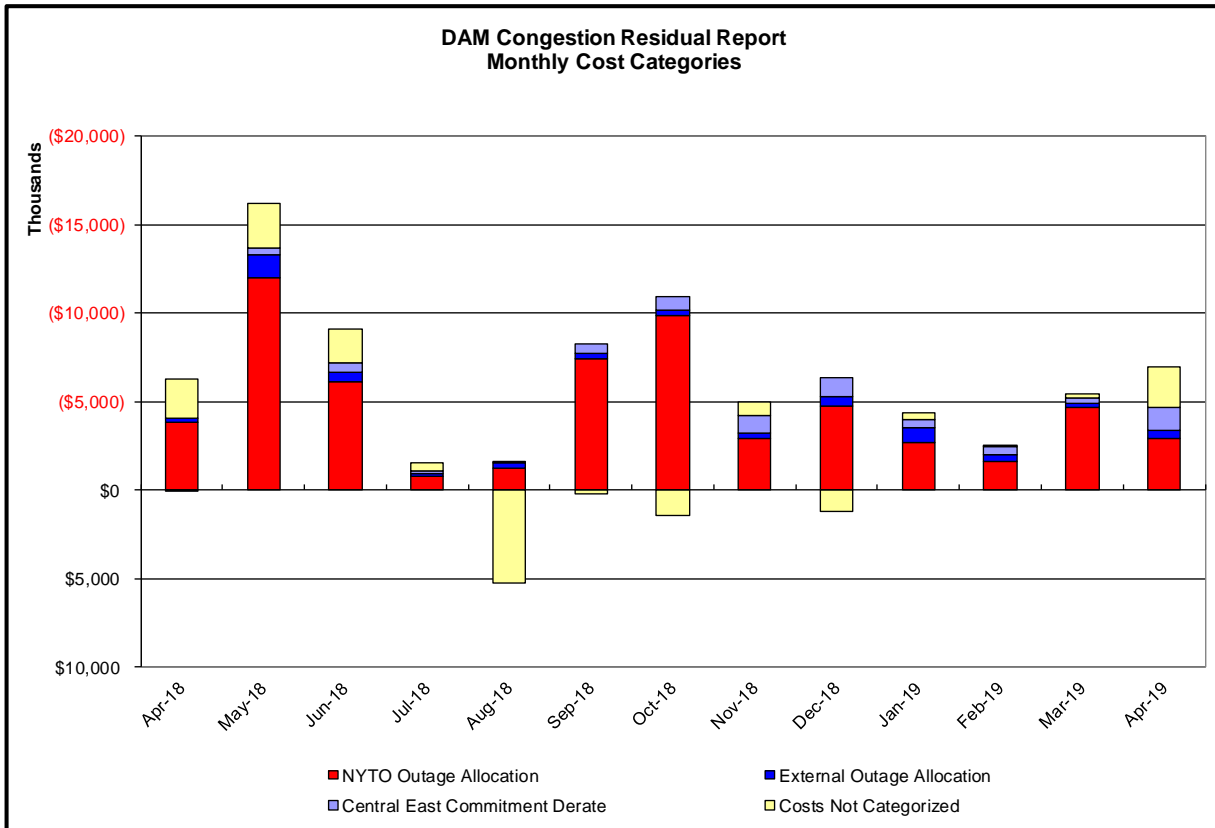
Day's investigated in June: 3, 5, 6, 8, 15, 18, 24, 25, 27, 28, 29			
Event	Date (yyyymmdd)	Hours	Description
	6/3/2019	13-19	Forced Outage Buchanan South-Millwood 345kV (#W97)
	6/3/2019	14,15,22	NYCA DNI Ramp Limit
	6/3/2019	14-16	Derate Central East
	6/3/2019	14,16,17	Derate East Garden City-ValleyStream 138kV (#262) for I/o BUS:BARRETT 292&459&G2&IC9-12
	6/3/2019	13-16	Derate East Garden City-ValleyStream 138kV (#262) for I/o SCB:NEWBRDG 1380 461&BK6+4
	6/3/2019	6,7,10,11,23	Uprate Central East
	6/3/2019	6,10,22,23	NE_AC-NY Scheduling Limit
	6/3/2019	22	PJM_AC-NY Scheduling Limit
	6/3/2019	6,7,10,11,15,22	Lake Erie Circulation, DAM-RTM exceeds +/-125MW; Central East
	6/3/2019	10	Lake Erie Circulation, DAM-RTM exceeds +/-125MW; West 115kV & 230kV
	6/5/2019	20-23	Thunder Storm Alert
	6/5/2019	16,17,20,22,23	Forced Outage East Garden City 345/138kV AT1
	6/5/2019	7	Derate Dunwoodie-Shore Road 345kV (#Y50) for I/oSCB:SPBK(RNS2):Y49&M29&Y49_ST
	6/5/2019	16	NE_AC DNI Ramp Limit
	6/5/2019	7	IESO_AC-NY Scheduling Limit
	6/5/2019	22,23	NE_NNC1385-NY Scheduling Limit
	6/6/2019	0-1	Thunder Storm Alert
	6/6/2019	0,9-12	Forced Outage East Garden City 345/138kV AT1
	6/6/2019	10,11	Forced Outage Sprainbrook-Tremont 345kV (#X28)
	6/6/2019	21	Forced Outage Beck 220kV Bus Tie (#1K2)
	6/6/2019	11-14,21	Derate Greenwood-Vernon 138kV (#31231) for I/o TWR:GOETHALS 22 & 21
	6/6/2019	9-13,21	Derate Motthaven-Dunwoodie 345kV (#)
	6/6/2019	9	Derate Niagara-Packard 230kV (#61) for I/o TWR:PACKARD 62 & BP76
	6/6/2019	9,12-14	NE_AC Active DNI Ramp Limit
	6/6/2019	10-14	HQ_CHAT-NY Scheduling Limit
	6/6/2019	12	NE_NNC1385-NY Scheduling Limit
	6/8/2019	1,10,12-16,21,22	Forced Outage Niagara-Gardenville 115kV (#180), Packard-Gardenville 115kV (#182)
	6/8/2019	21,22	Derate Niagara Blvd-Packard 115kV (#181) for I/o TWR:PACKARD 77 & 78
	6/8/2019	15,16	PJM_AC-NY DNI Ramp Limit
	6/8/2019	13	Lake Erie Circulation, DAM-RTM exceeds +/-125MW; West 115kV
	6/15/2019	14	IESO_AC-NY Scheduling Limit
	6/18/2019	6-13,17-20,23	Extended Outage Niagara-Kintigh 345kV (#NS1-38)
	6/18/2019	10-13,17-20	Derate Scriba-Volney 345kV (#20) for I/o Scriba-Volney 345kV (#21)
	6/18/2019	6,23	PJM_AC Active DNI Ramp Limit
	6/18/2019	6,7,11-13	Lake Erie Circulation, DAM-RTM exceeds +/-125MW; West 115kV & 230kV
	6/24/2019	10	NYCA DNI Ramp Limit
	6/24/2019	10,12	Derate Gardenville-Langner Rd 115kV (#180) for I/o TWR:PACKARD 77 & 78
	6/24/2019	12	Derate Niagara 230/115kV AT1 for I/o TWR:PACKARD 77 & 78
	6/24/2019	0,22,23	Uprate Central East
	6/24/2019	15,16	IESO_AC-NY Scheduling Limit
	6/24/2019	0,23	NE_AC DNI Ramp Limit
	6/24/2019	23	NE_AC-NY Scheduling Limit
	6/24/2019	12	PJM_AC-NY Scheduling Limit
	6/24/2019	17-20	Lake Erie Circulation, DAM-RTM exceeds +/-125MW; West 115kV & 230kV
	6/25/2019	0,22,23	NYCA DNI Ramp Limit
	6/25/2019	15	Uprate Calspan-Frnkyong 115kV (#181) for I/o TWR:PACKARD 77 & 78
	6/25/2019	5	Uprate Central East
	6/25/2019	15,16,23	Uprate E179thSt-Hellgate West 138kV (#15055)
	6/25/2019	22	Derate Gowanus-Greenwood 138kV (#42232) for I/o TWR:GOETHALS 22 & 21
	6/25/2019	9,10,22	Derate Motthaven-Dunwoodie 345kV (#71)
	6/25/2019	9,22	Derate Niagara-Packard 230kV (#61) for I/o TWR:PACKARD 62 & BP76
	6/25/2019	9,10	Derate Niagara Blvd-Packard 115kV (#181) for I/o TWR:PACKARD 77 & 78
	6/25/2019	0	IESO_AC DNI Ramp Limit
	6/25/2019	5	NE_AC-NY Scheduling Limit
	6/25/2019	15,16	HQ_CHAT-NY Scheduling Limit
	6/25/2019	18	PJM_AC-NY Scheduling Limit
	6/25/2019	22,23	PJM_AC DNI Ramp Limit
	6/25/2019	0,16,18	Lake Erie Circulation, DAM-RTM exceeds +/-125MW; West 115kV & 230kV
	6/25/2019	0	Lake Erie Circulation, DAM-RTM exceeds +/-125MW; Central East
	6/27/2019	2	Uprate Calspan-Frnkyong 115kV (#181) for I/o TWR:PACKARD 77 & 78
	6/27/2019	20,22	Uprate Calspan-Frnkyong 115kV (#181) for I/o TWR:PACKARD 77 & 78 & SAWY BKS
	6/27/2019	12,13,20	Uprate E179thSt-Hellgate West 138kV (#15055)
	6/27/2019	12-14,16	Uprate Freshkills-Willowbrook 138kV (#29211)
	6/27/2019	22	Uprate North Broadway-Erie St 115kV (#181-922) for I/o TWR:PACK 77 & 78 & SAWY BKS
	6/27/2019	2	Uprate North Broadway-Erie St 115kV (#181-922) for I/o TWR:PACK 77 & 78
	6/27/2019	13	Uprate Niagara-Packard 230kV (#61) for I/o TWR:PACKARD 62 & BP76
	6/27/2019	16,19	Uprate Leeds-Pleasant Valley 345kV (#92) for I/o Athens-Pleasant Valley 345kV (#91)
	6/27/2019	18	Derate Buchanan North-Eastview 345kV (#W93) for I/o TWR:PVILLE F38&F39&Y86&Y87&BK1
	6/27/2019	18	Derate Freshkills-Willowbrook 138kV (#29211)
	6/27/2019	18	Derate Greenwood-Vernon 138kV (#31231)
	6/27/2019	2	NYCA DNI Ramp Limit
	6/27/2019	18	NE_AC DNI Ramp Limit
	6/27/2019	12,20	HQ Chat-NY Scheduling Limit
	6/27/2019	13,16,19,22	Lake Erie Circulation, DAM-RTM exceeds +/-125MW; West 115kV & 230kV
	6/27/2019	13,16	Lake Erie Circulation, DAM-RTM exceeds +/-125MW; Leeds-N.Scntdn 345kV
	6/28/2019	2-23	Early Return to Service Buchanan-Ladentown 345kV (#Y88)
	6/28/2019	3,6,8-14,20,22	NYCA DNI Ramp Limit
	6/28/2019	2	Derate Gardenville-Langner Rd 115kV (#180) for I/o TWR:PACKARD 77 & 78
	6/28/2019	18	Derate Niagara 230/115kV AT1 for I/o TWR:PACK 77 & 78 & SAWY BKS
	6/28/2019	2,9-11	Derate Niagara 230/115kV AT1 for I/o TWR:PACKARD 77 & 78
	6/28/2019	2,9,11-23	Uprate Niagara-Packard 230kV (#61) for I/o TWR:PACKARD 62 & BP76
	6/28/2019	12-15,18,20	Derate Niagara Blvd-Packard 115kV (#181) for I/o TWR:PACK 77 & 78 & SAWY BKS
	6/28/2019	9-11	Derate Niagara Blvd-Packard 115kV (#181) for I/o TWR:PACKARD 77 & 78
	6/28/2019	3-6,9,22	PJM_AC DNI Ramp Limit
	6/28/2019	9,10,13,15	NE_NNC1385-NY Scheduling Limit
	6/28/2019	3,8,9,16-19	NE_AC DNI Ramp Limit
	6/28/2019	3	Lake Erie Circulation, DAM-RTM exceeds +/-125MW; West 115kV & 230kV
	6/29/2019	14,15,17	Thunder Storm Alert
	6/29/2019	0,2,3,6	Forced Outage Oakdale-Fraser 345kV (#32)
	6/29/2019	12,14,15,17	NYCA DNI Ramp Limit
	6/29/2019	0,1,3,4,6-15,17	Uprate Niagara-Packard 230kV (#61) for I/o TWR:PACKARD 62 & BP76
	6/29/2019	17	Derate Niagara Blvd-Packard 115kV (#181) for I/o TWR:PACK 77 & 78 & SAWY BKS
	6/29/2019	14-16	NE_AC DNI Ramp Limit
	6/29/2019	16	NE_AC-NY Scheduling Limit
	6/29/2019	10,11,13,14,16	Lake Erie Circulation, DAM-RTM exceeds +/-125MW; West 115kV & 230kV

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
Transmission Outage Mismatch	Market-wide	Changes in DAM to RTM transfers related to transmission outage mismatch	Forced Line Outage, Unit AVR Outages Early Line Return from Outage
Interface/Facility Rerate - NYISO Security	Market-wide	Changes in DAM to RTM transfers not related to transmission outage	Interface/Facility Rerates due to RTM voltages
Interface Rerate - External Security	Market-wide	Changes 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	

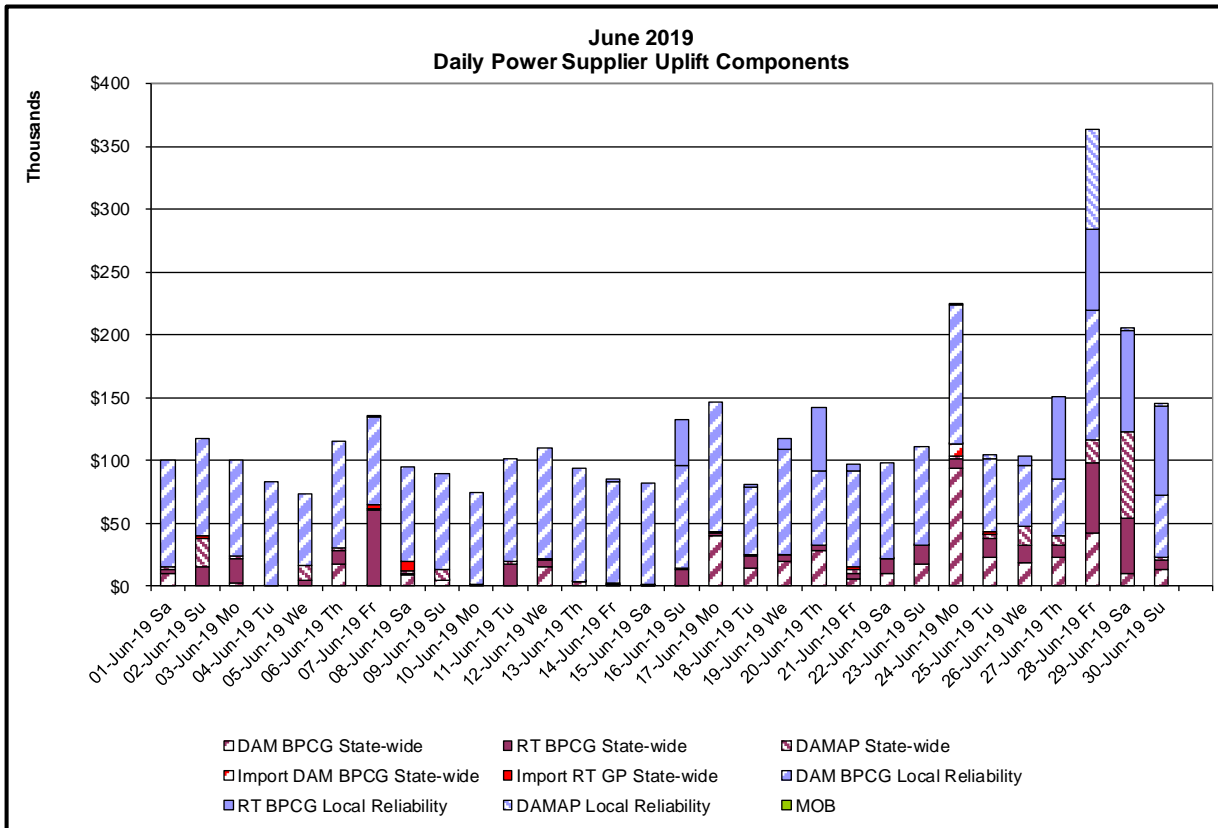
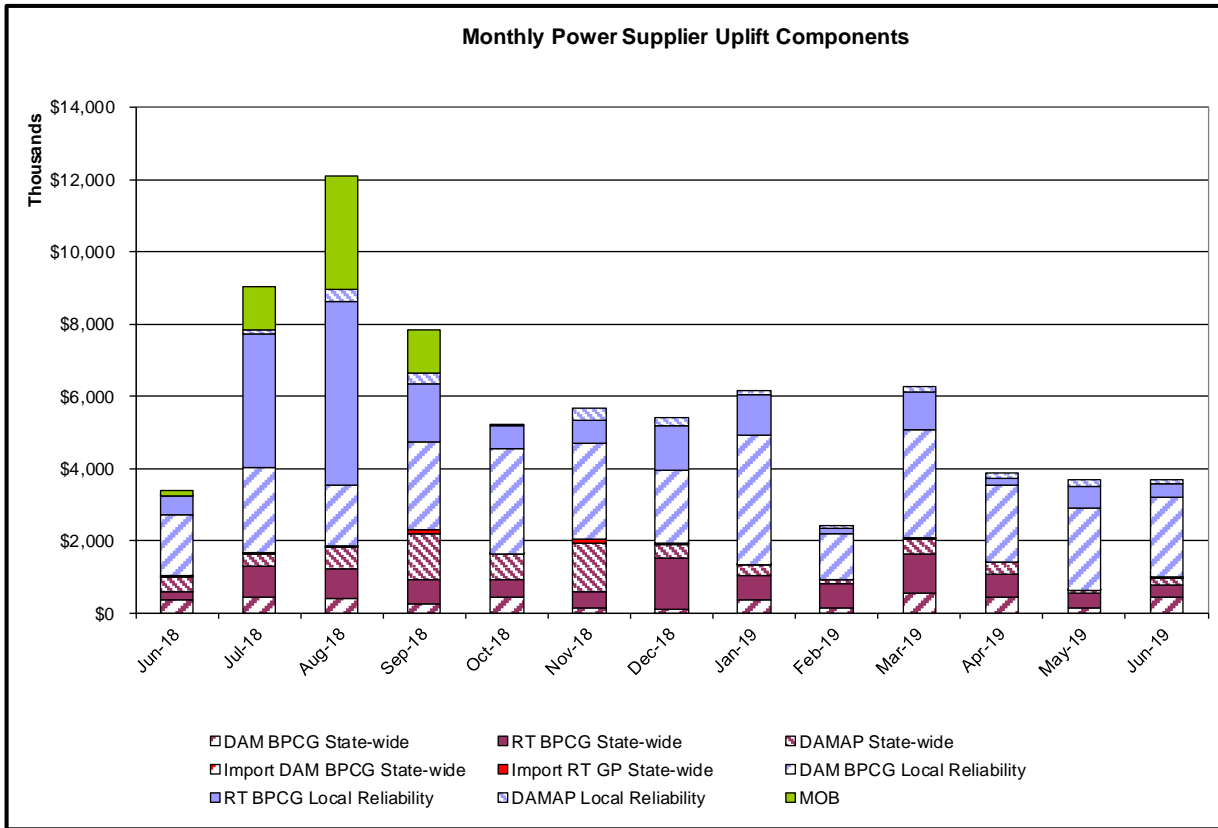
Monthly Balancing Market Congestion Report Assumptions/Notes

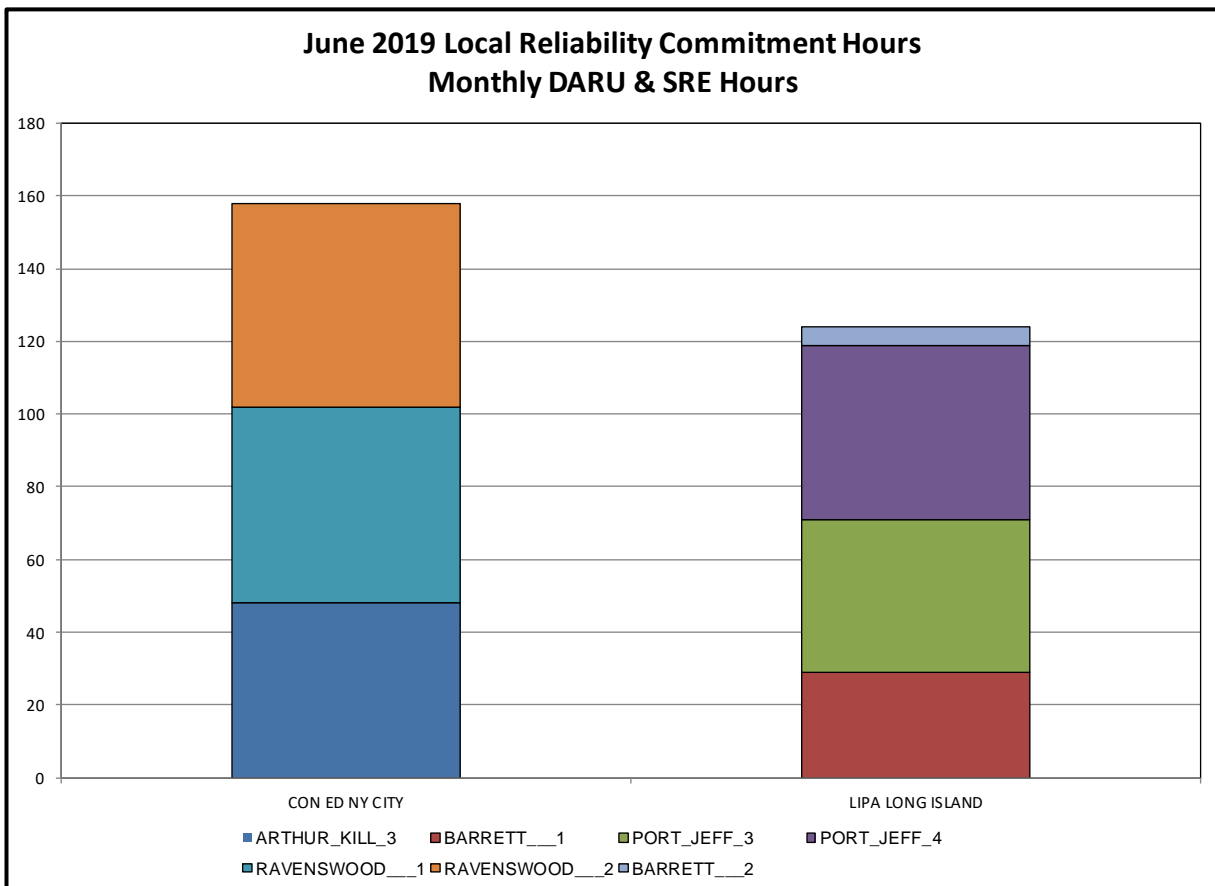
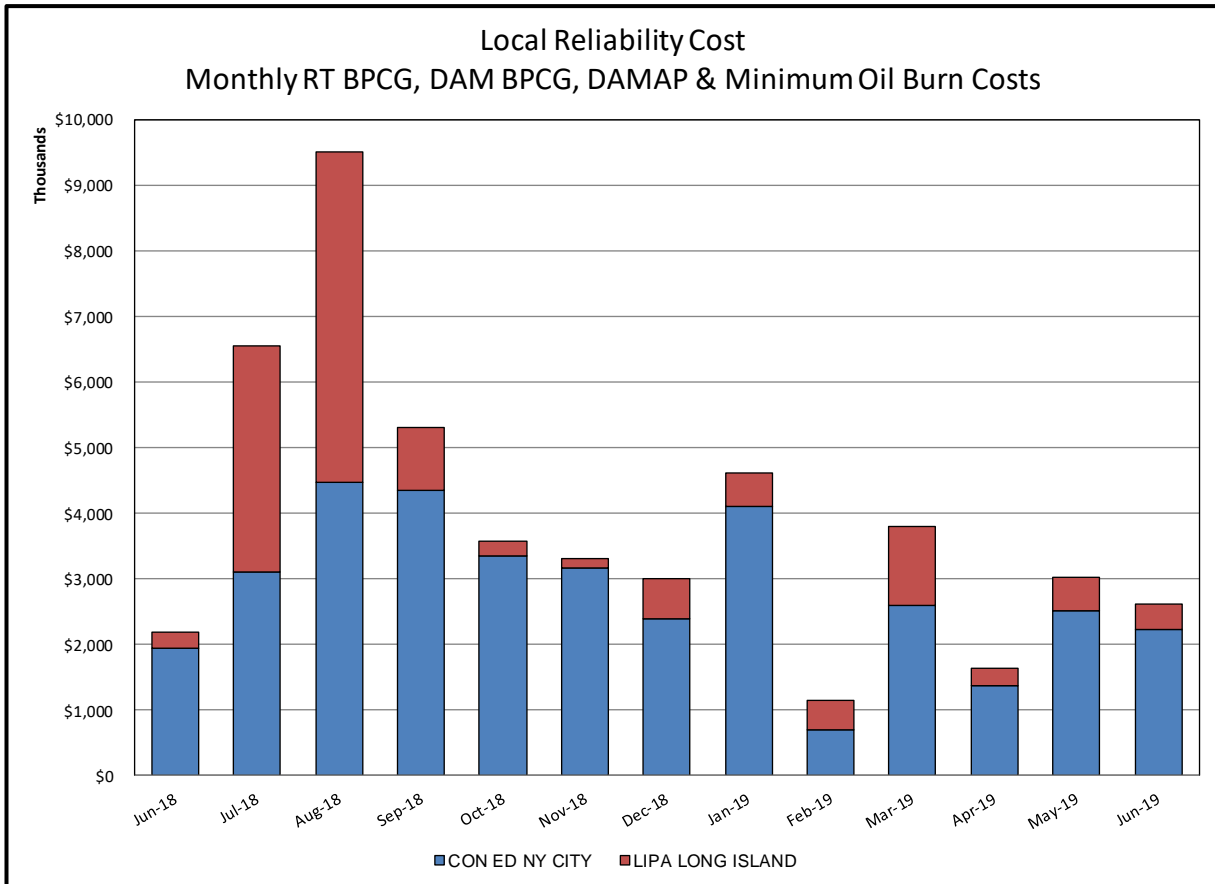
1) Storm Watch Costs are identified as daily total uplift costs
 2) Days with a value of BMCR less M2M Settlement of \$100K/HR, shortfall of \$200K/Day or more, or surplus of \$100K/Day or more are investigated.
 3) Uplift costs associated with multiple event types are apportioned equally by hour

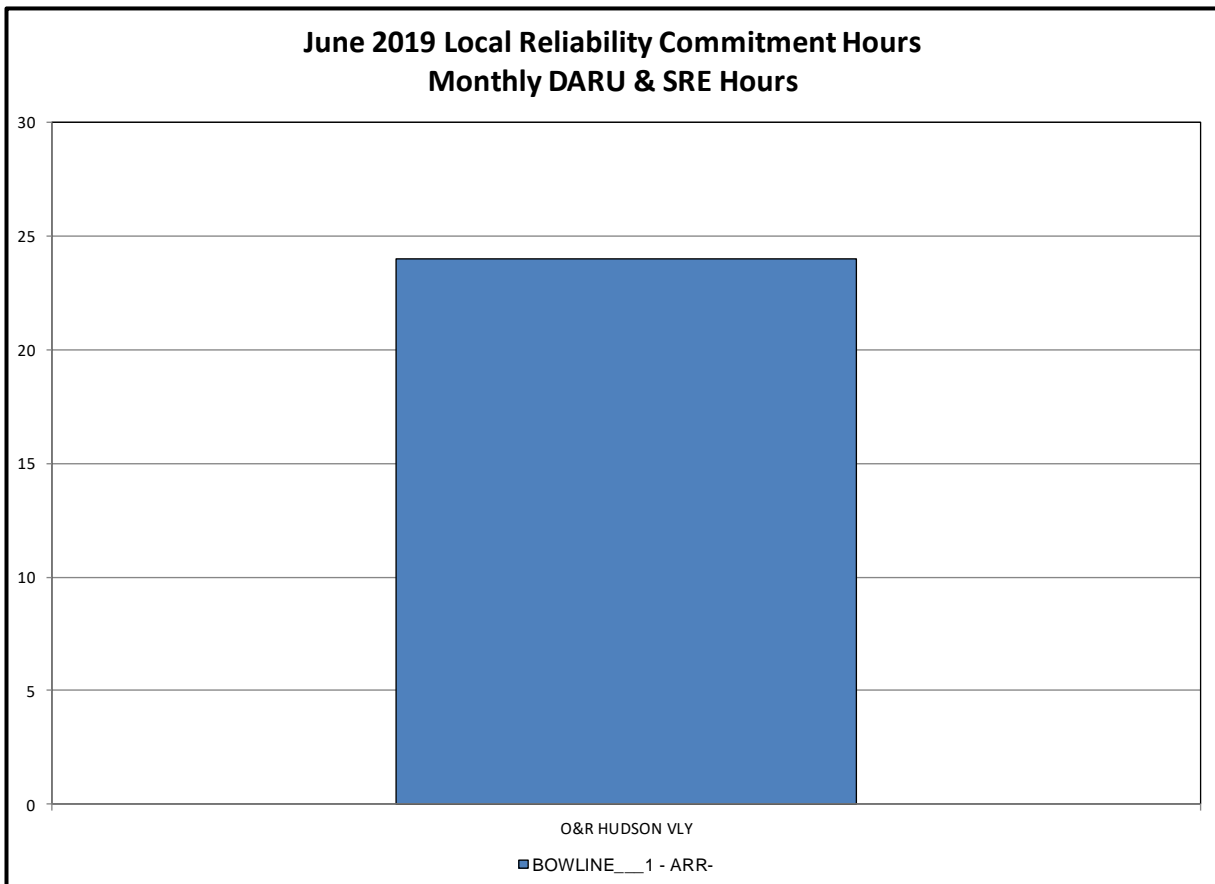
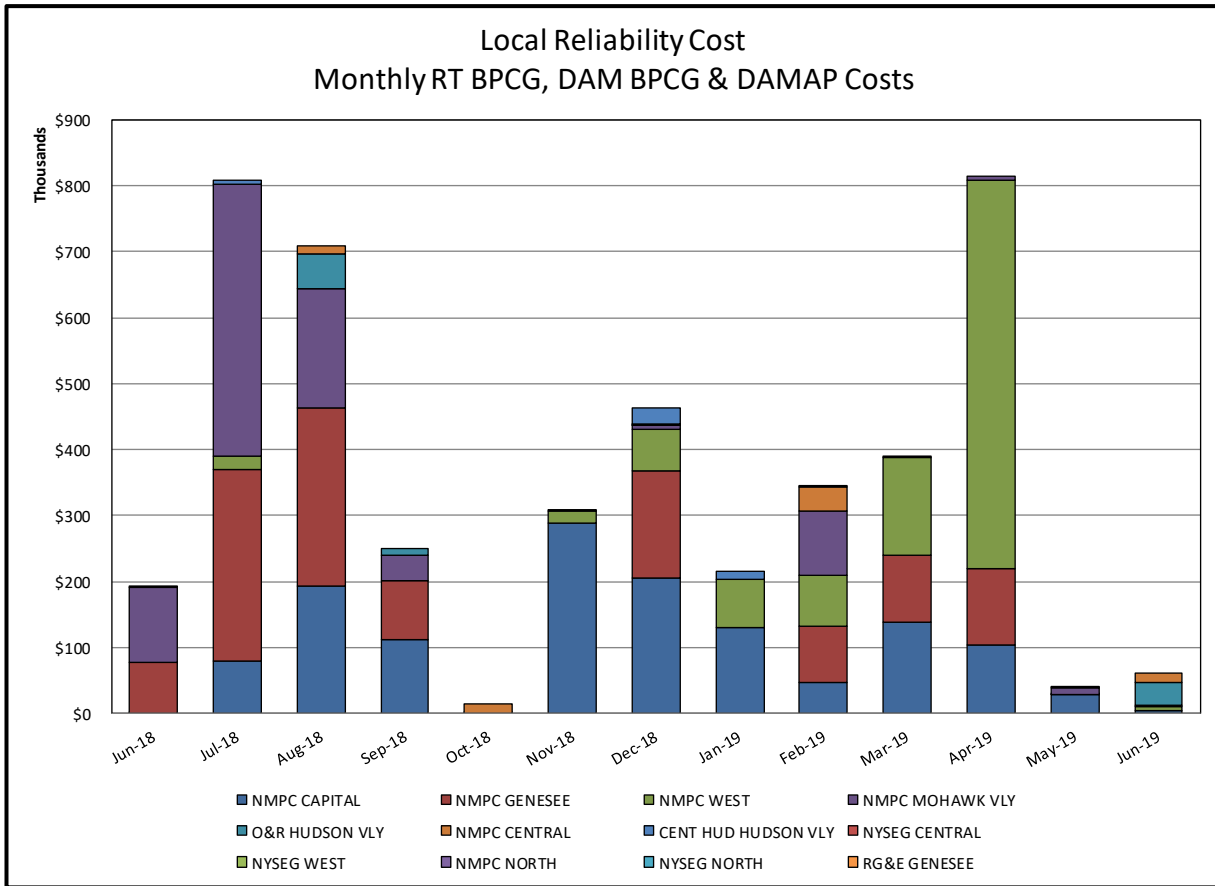


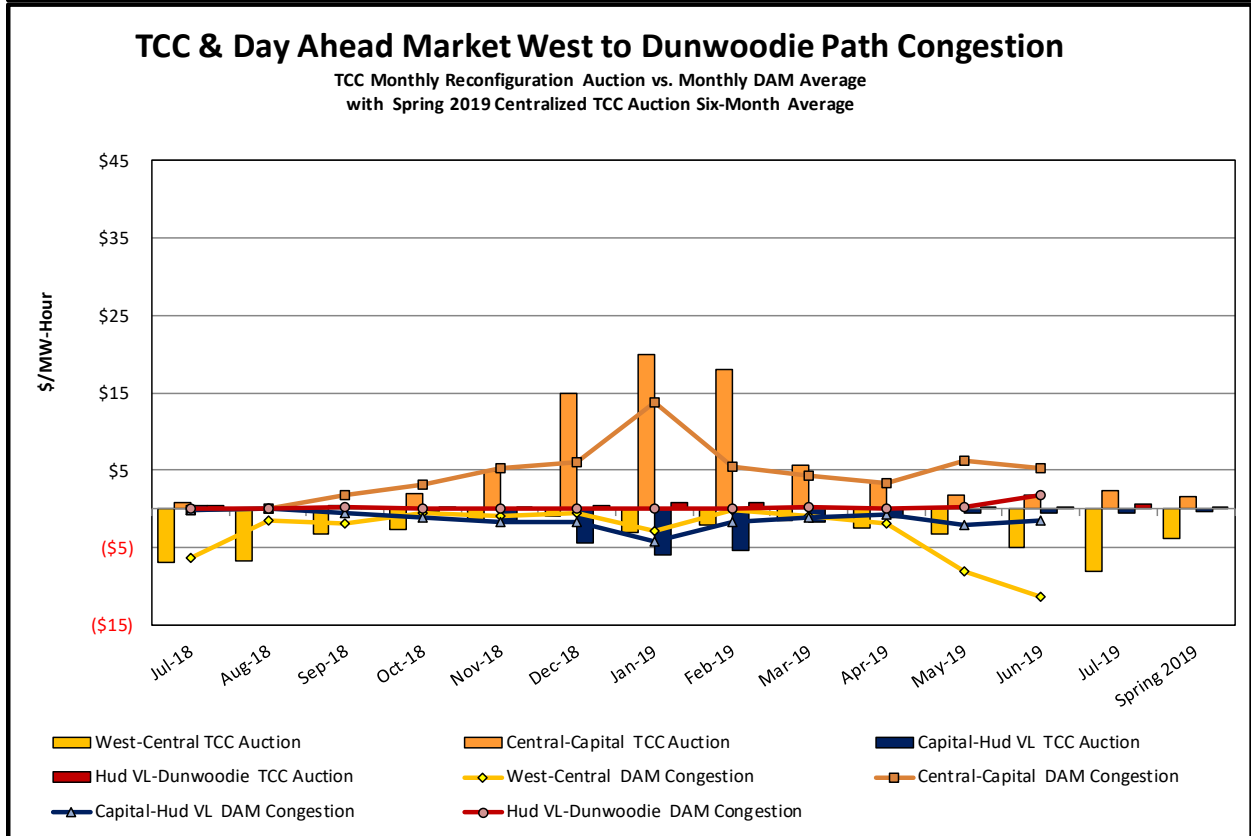
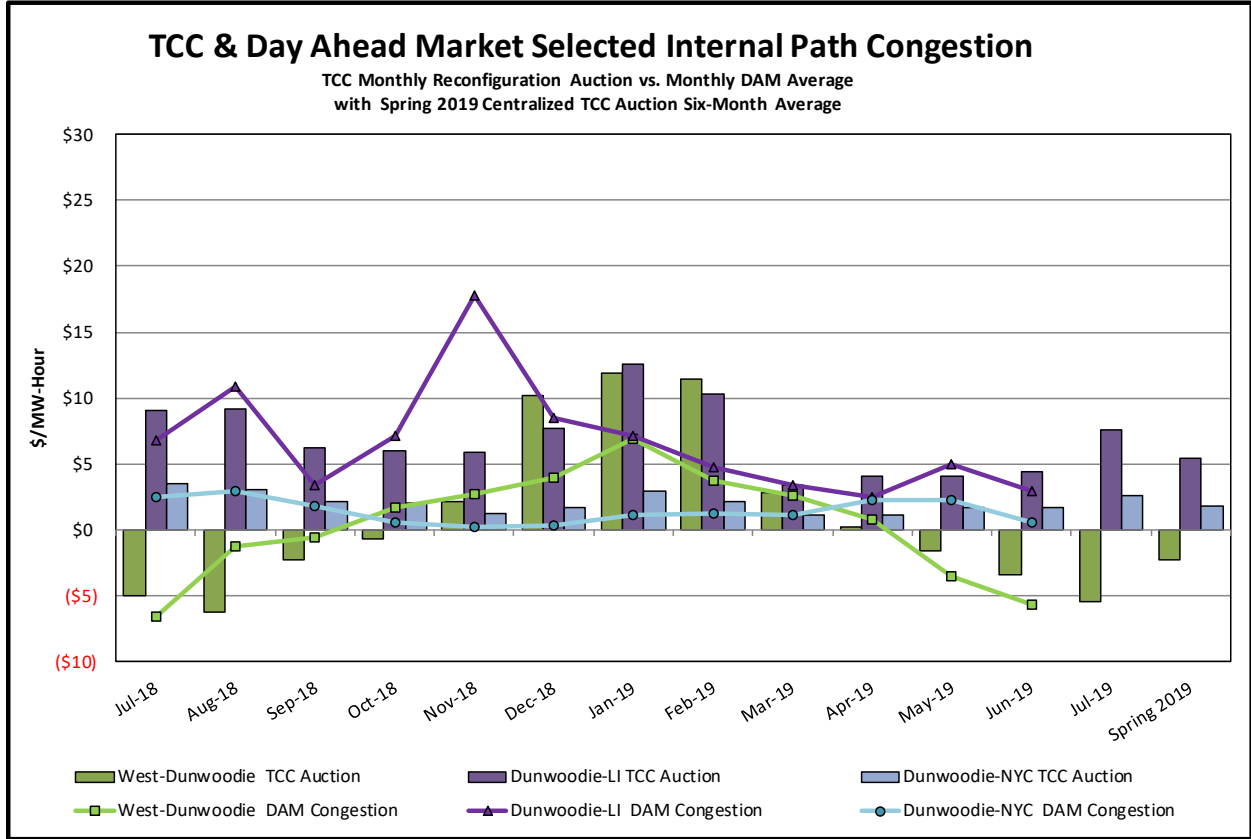
Day-Ahead Market Congestion Residual Categories

<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.	



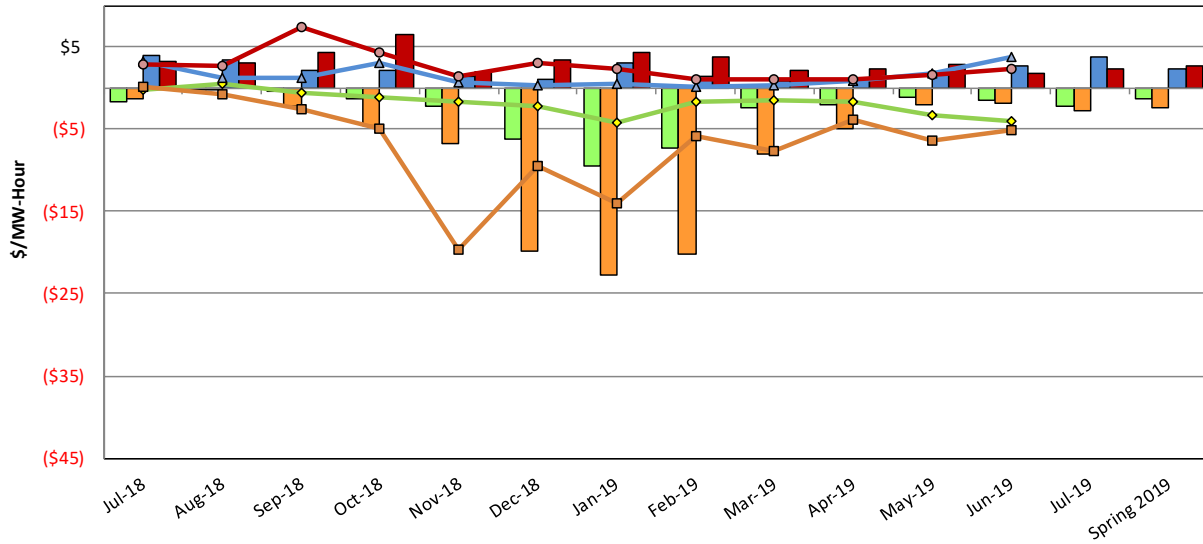






TCC & Day Ahead Market Selected External Path Congestion

TCC Monthly Reconfiguration Auction vs. Monthly DAM Average
with Spring 2019 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

