

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.

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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.

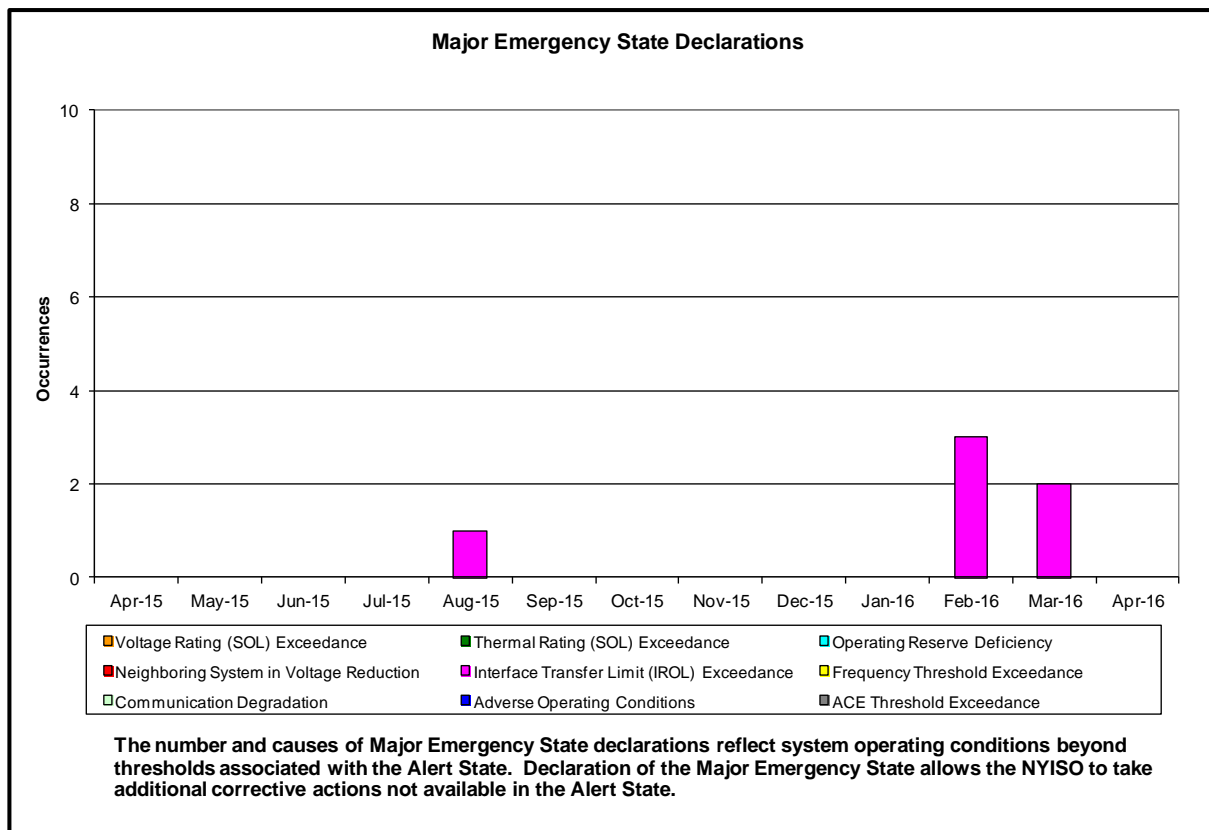
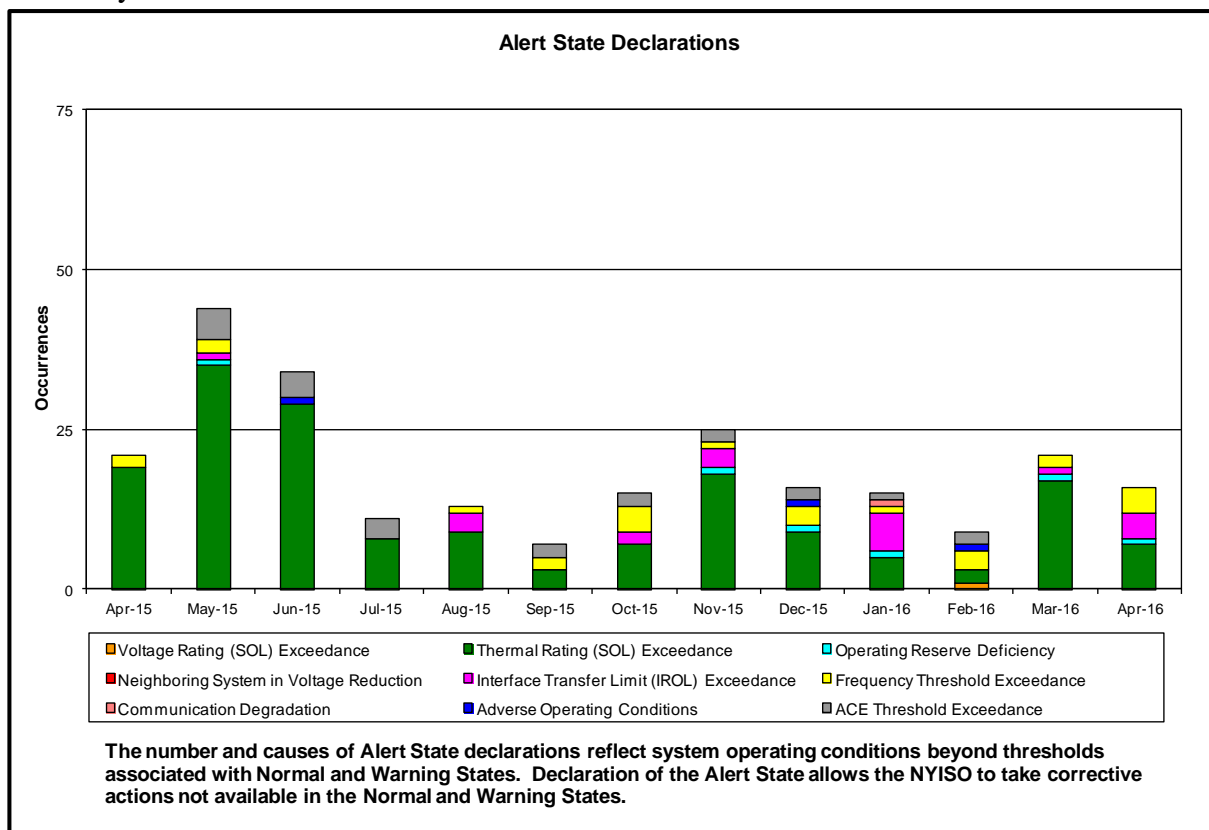
	Current Month Value (\$M)	Year-to-Date Value (\$M)
NY Savings from PJM-NY Congestion Coordination	\$0.72	\$13.43
NY Savings from PJM-NY Coordinated Transaction Scheduling	\$0.09	\$0.18
NY Savings from NE-NY Coordinated Transaction Scheduling	(\$0.14)	(\$0.80)
Total NY Savings	\$0.67	\$12.81
Regional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

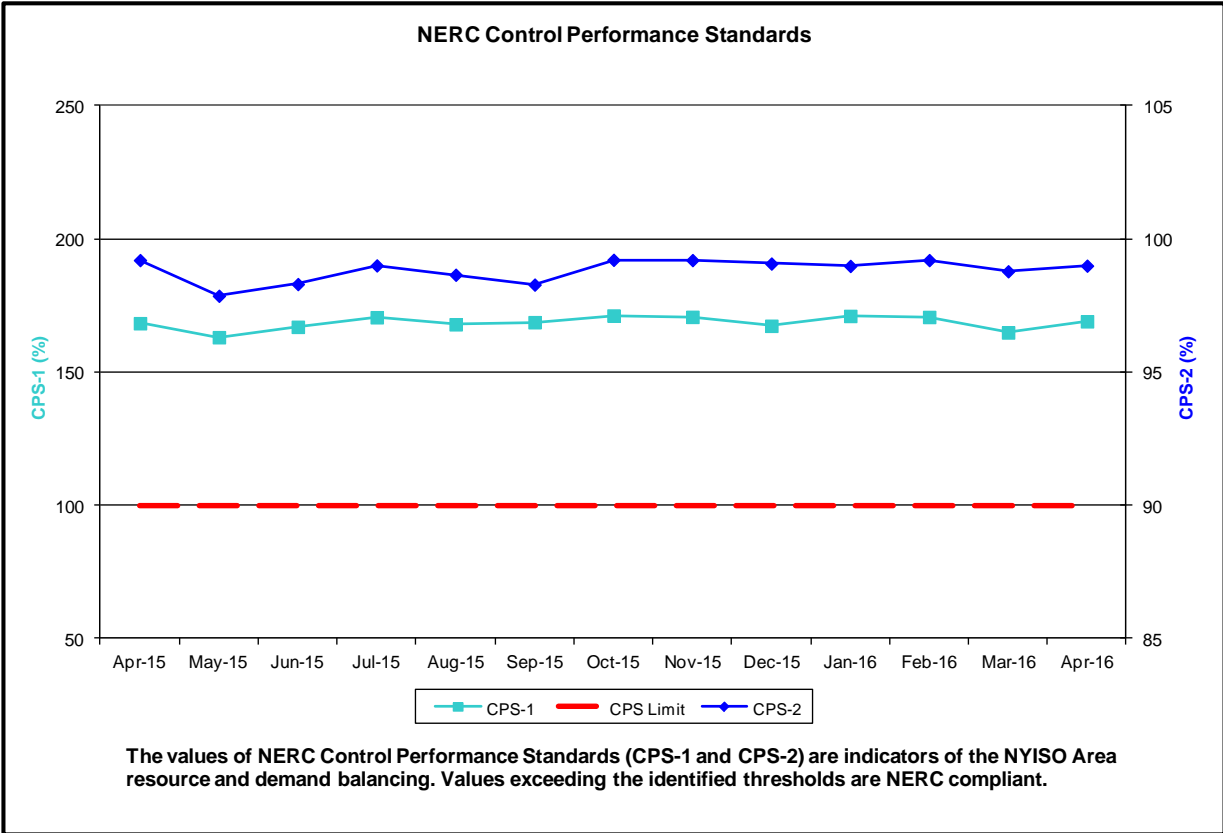
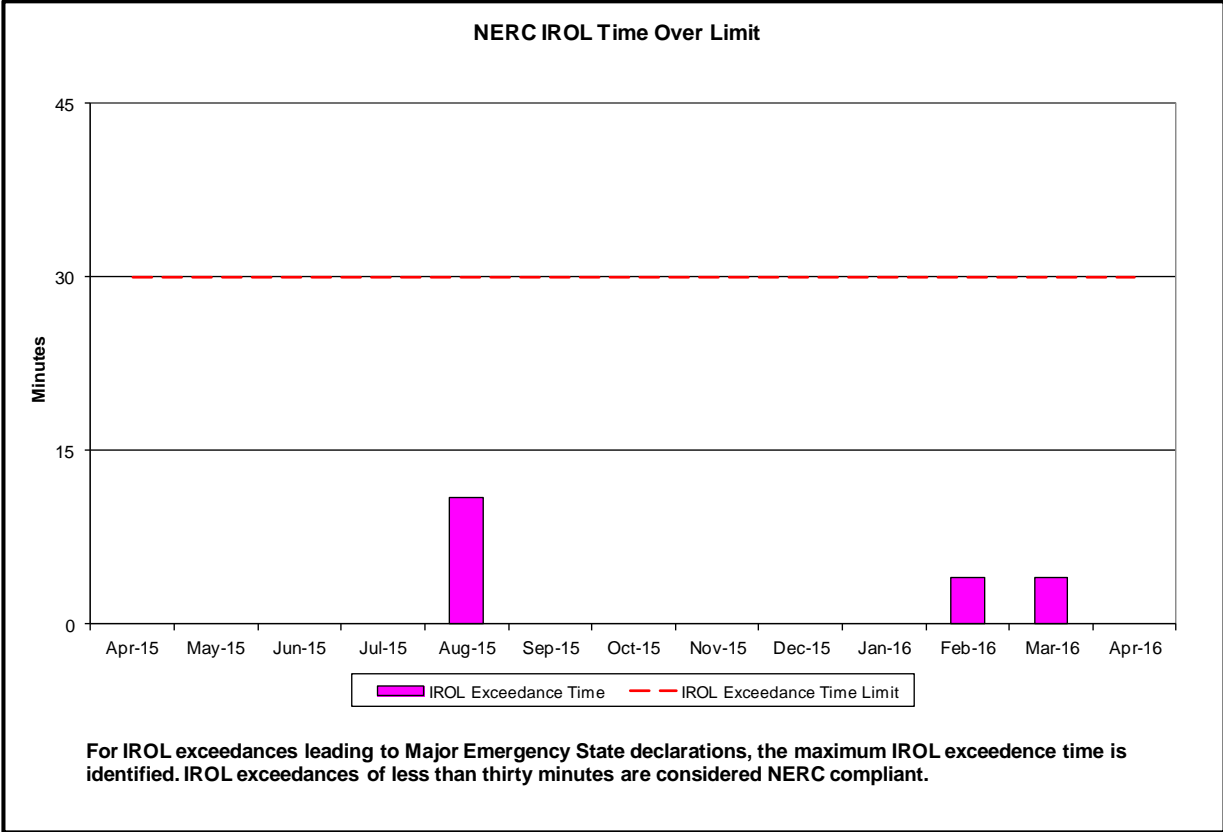
- Statewide uplift cost monthly average was (\$0.41)/MWh
- The following table identifies the Monthly ICAP spot market prices by locality and changes from the end of the prior Summer Capability period.

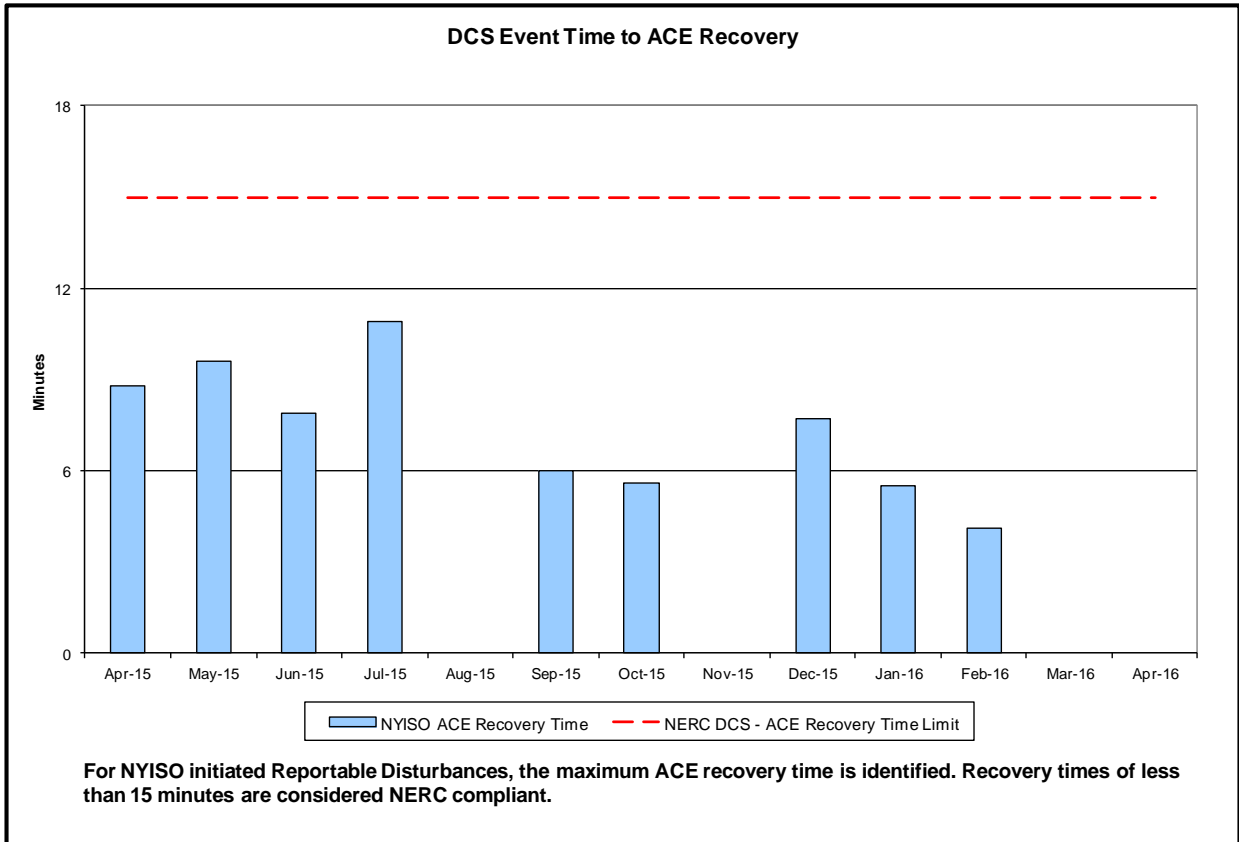
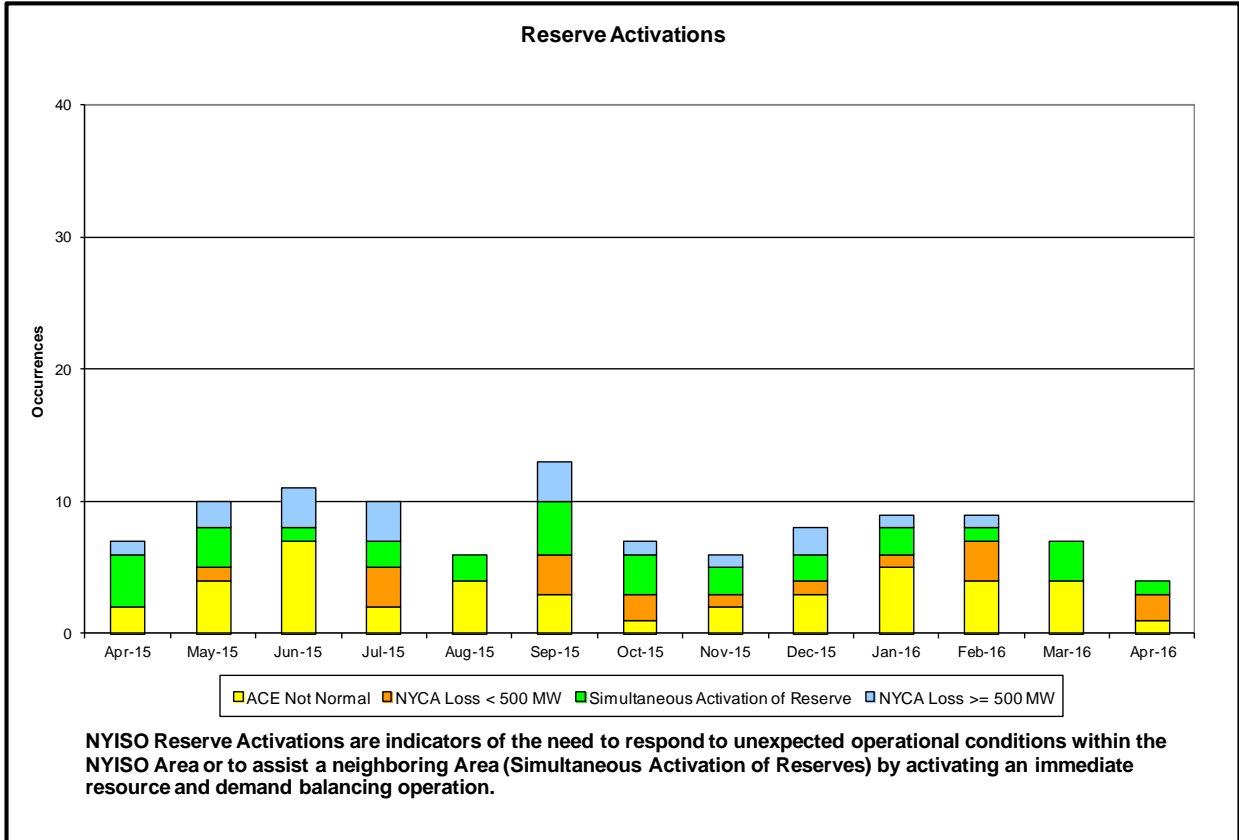
Spot Auction Price Results	NYCA	Lower Hudson Valley Zones	New York City Zone	Long Island Zone
May 2016 Spot Price	\$5.27	\$9.36	\$12.41	\$5.27
October 2015 Spot Price	\$2.96	\$8.13	\$15.01	\$5.61
Delta	\$2.31	\$1.23	(\$2.60)	(\$0.34)

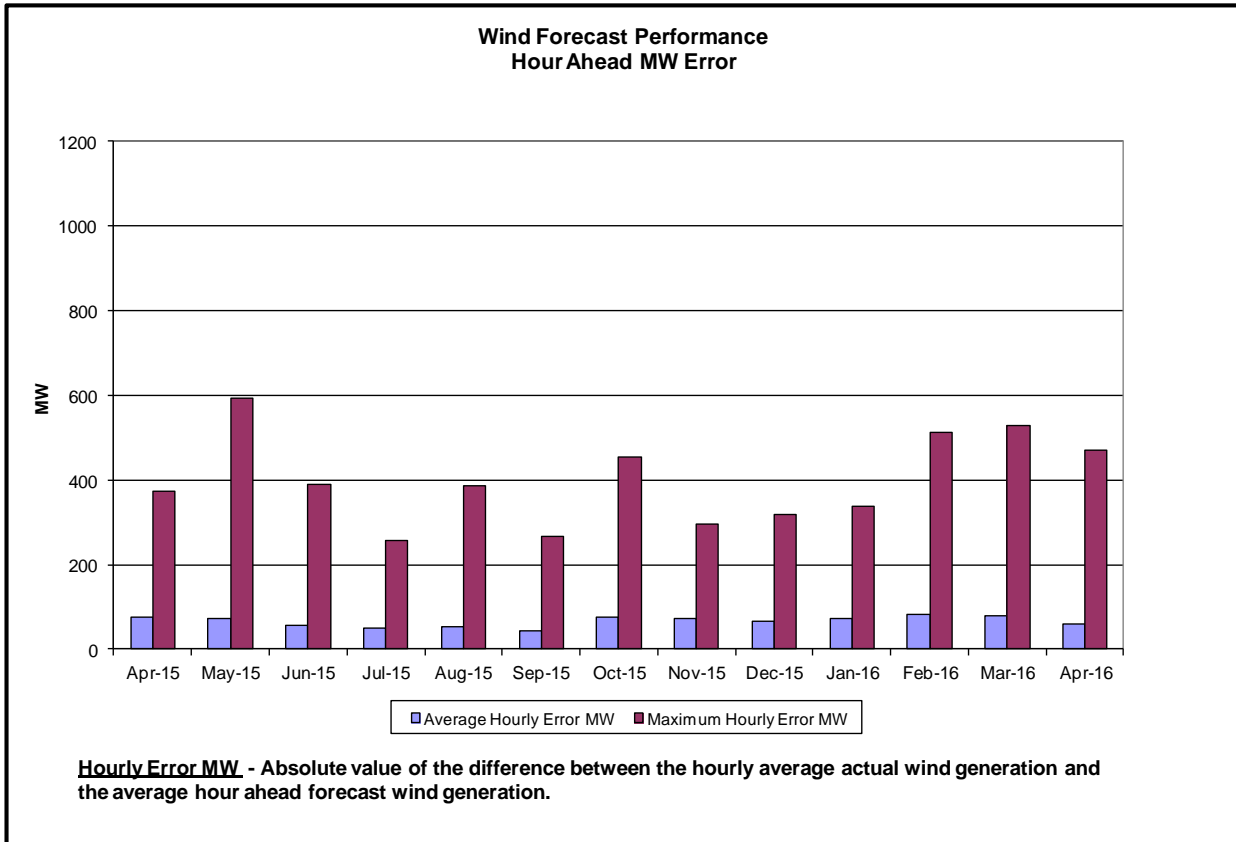
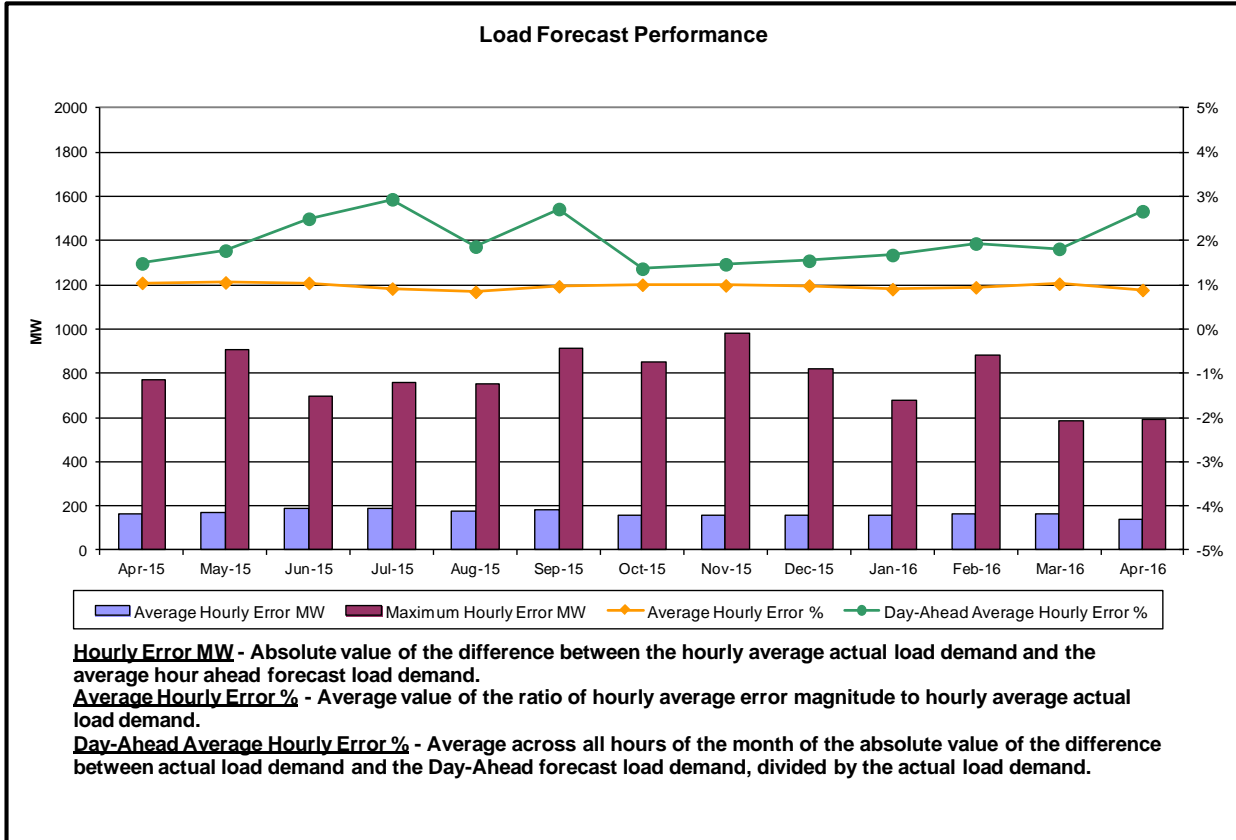
- Price changes from October 2015 to May 2016 are driven by changes in supply as well as Capability Year inputs such as Demand Curve Parameters, Locational Capacity Requirements, the Installed Reserve Margin and the Load Forecast.

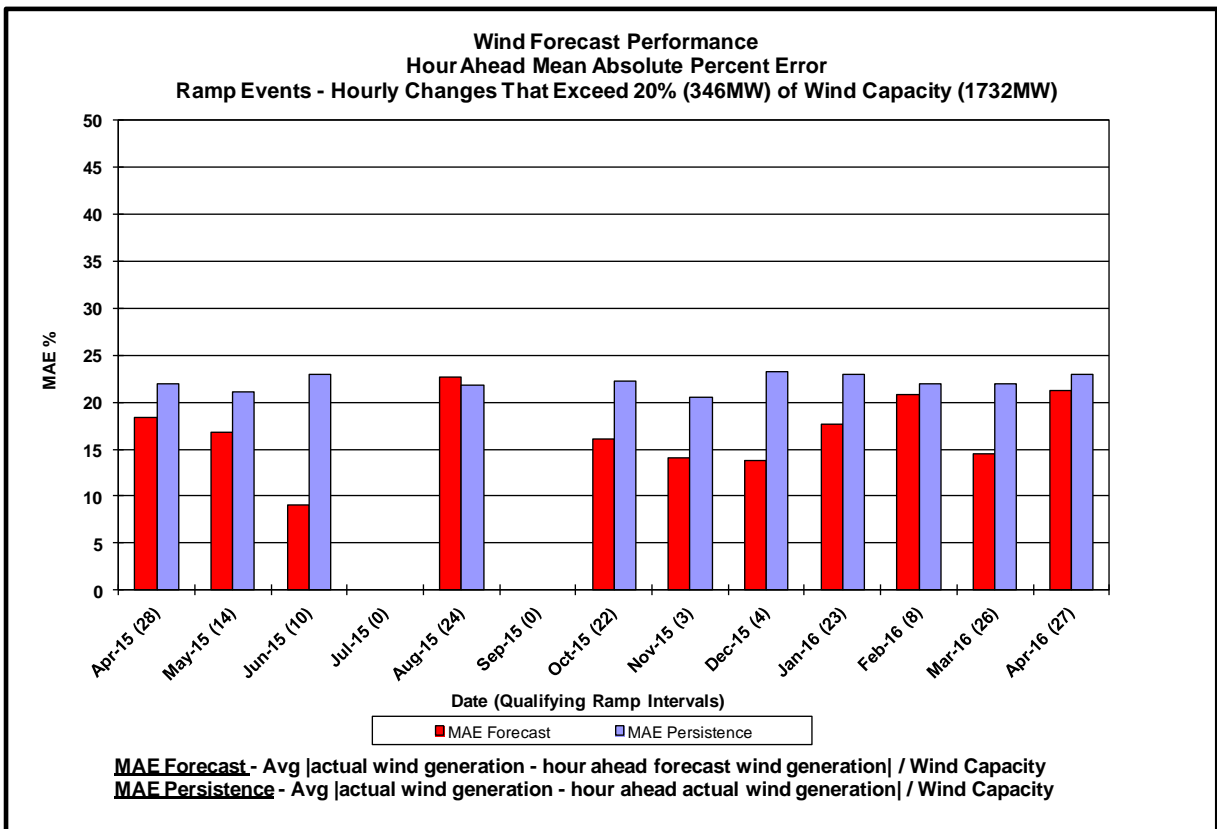
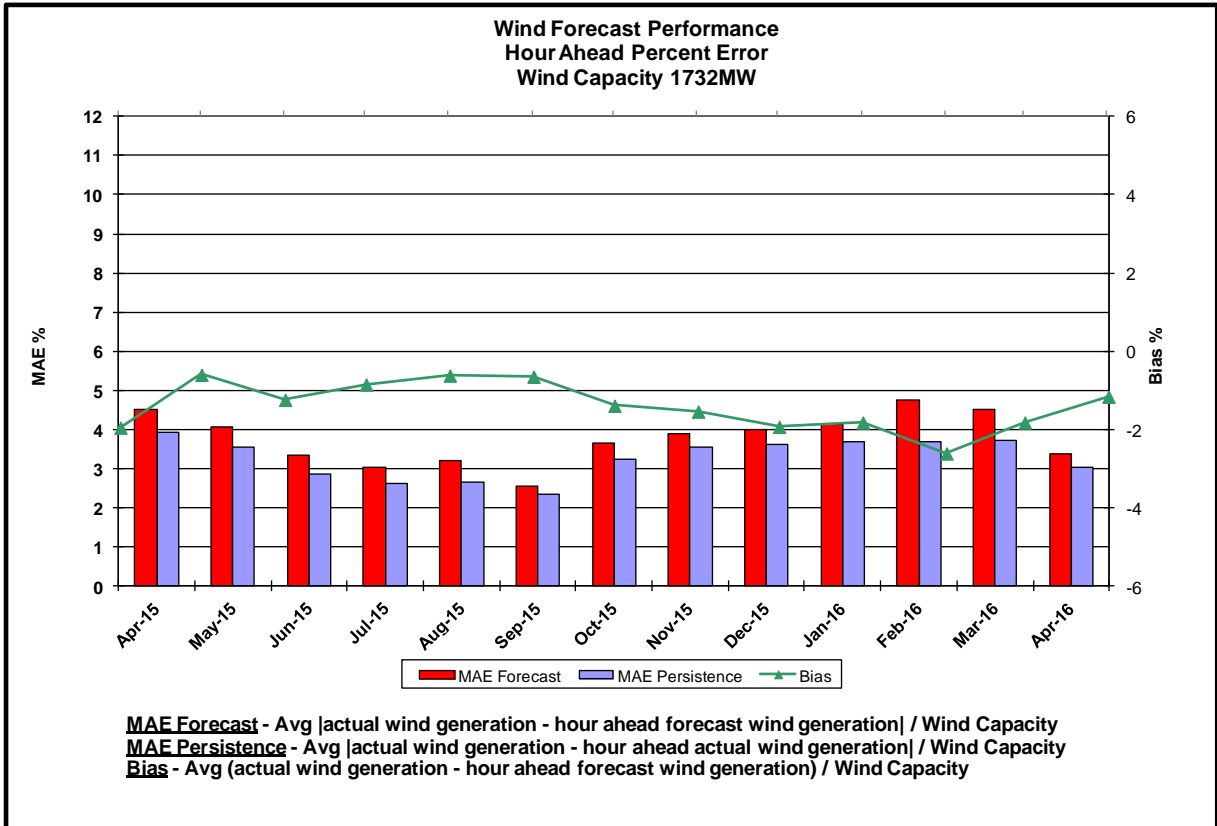
Reliability Performance Metrics

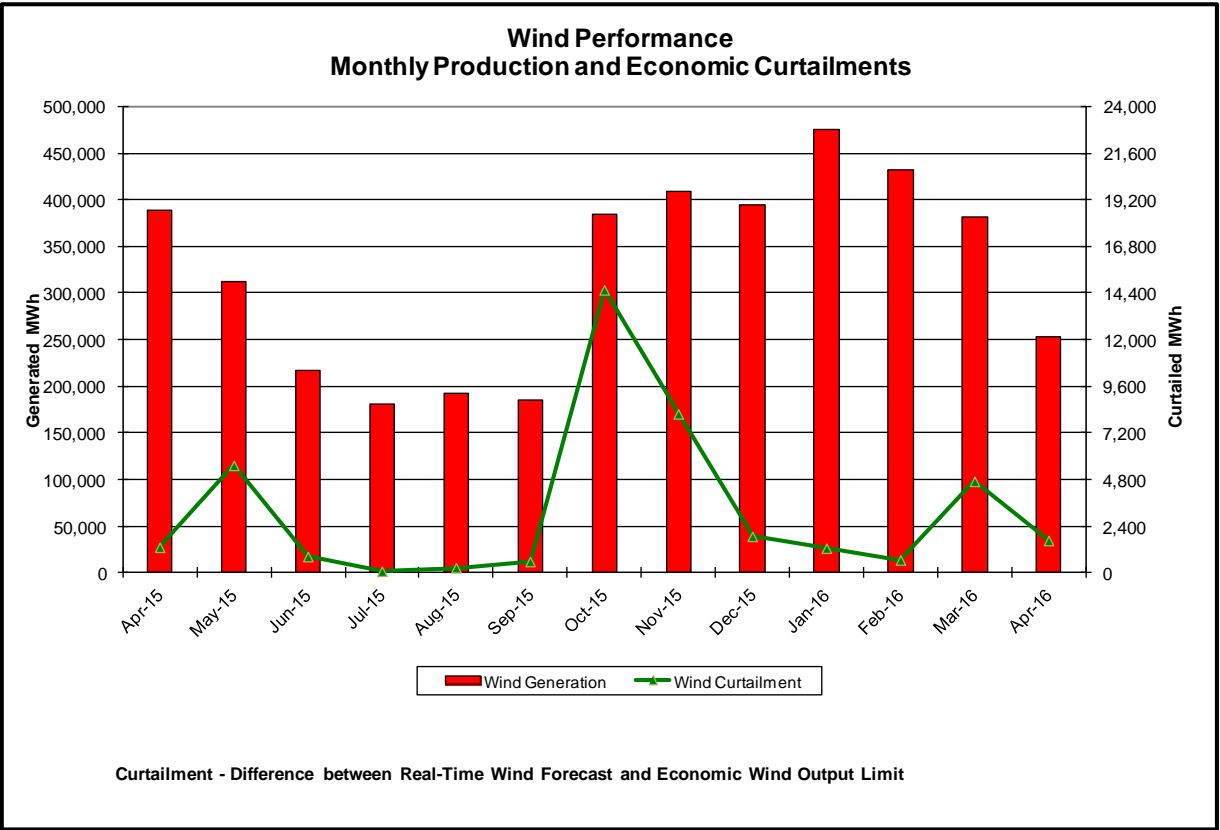
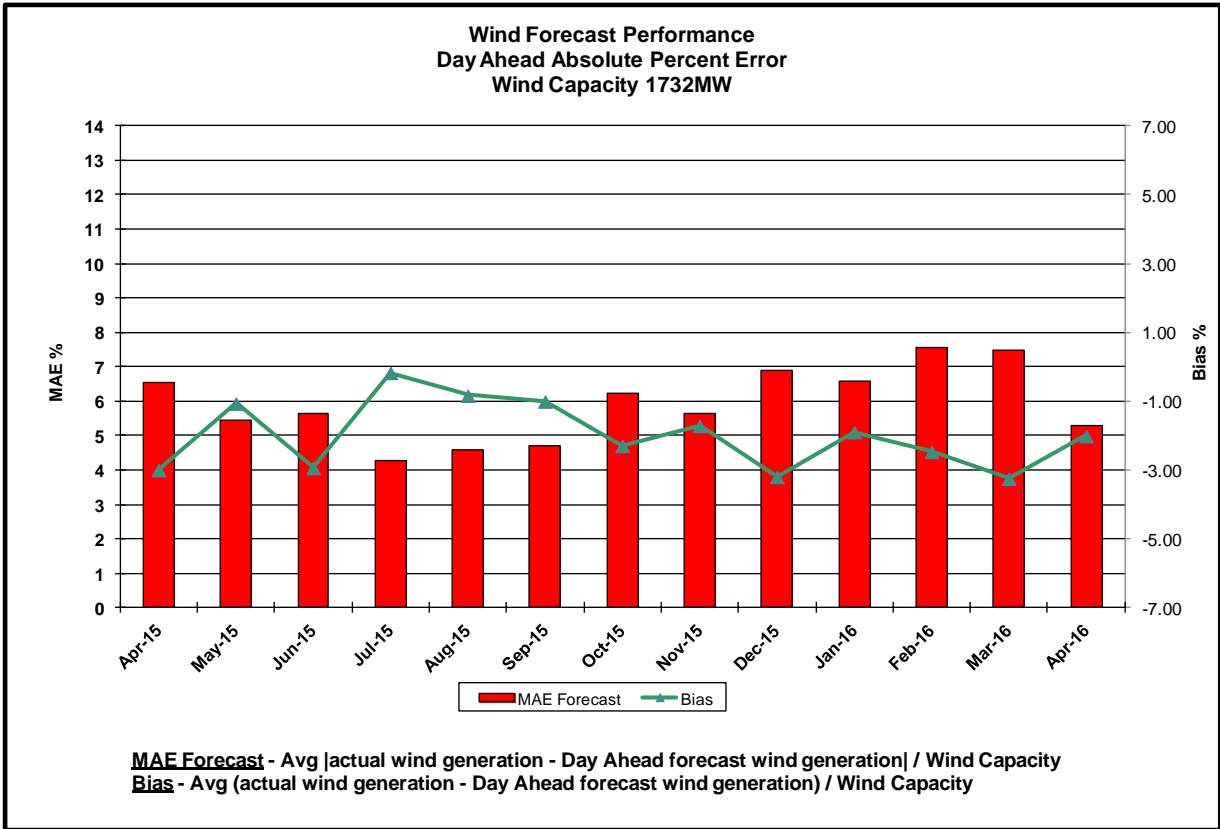


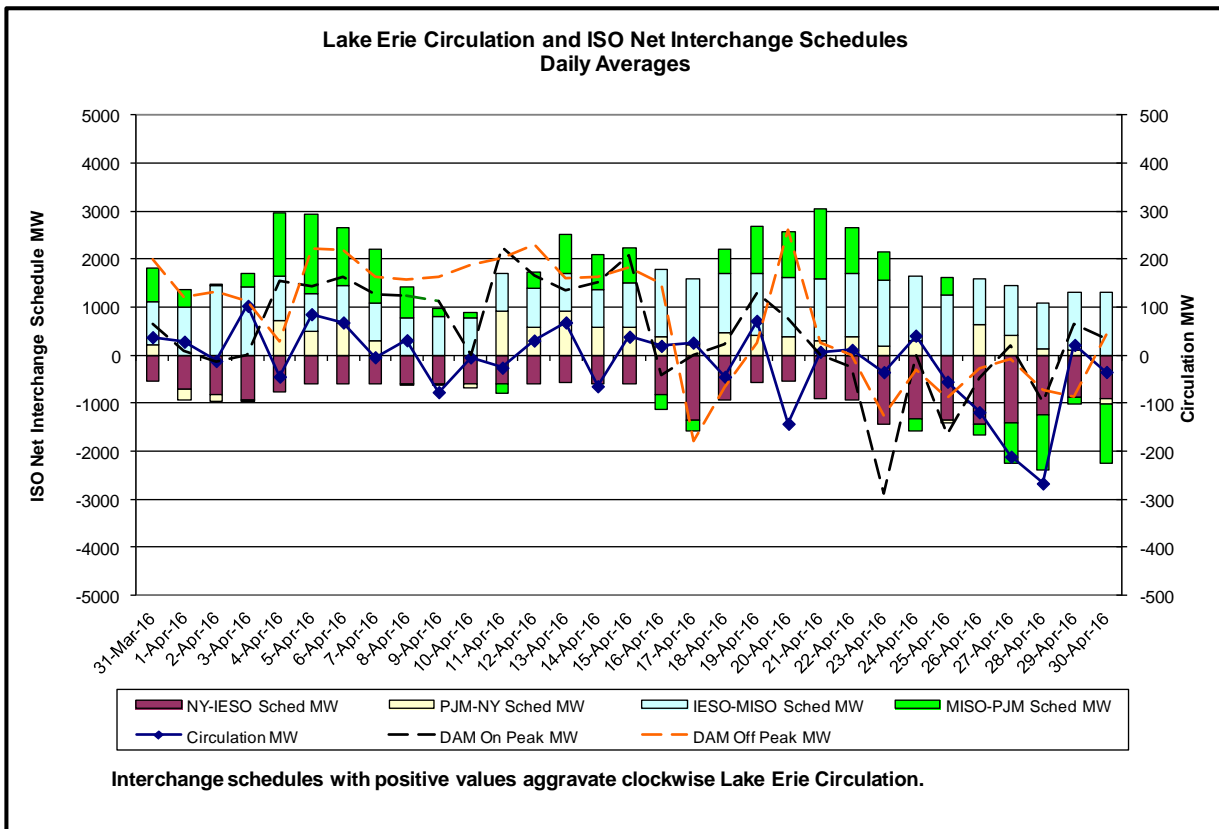
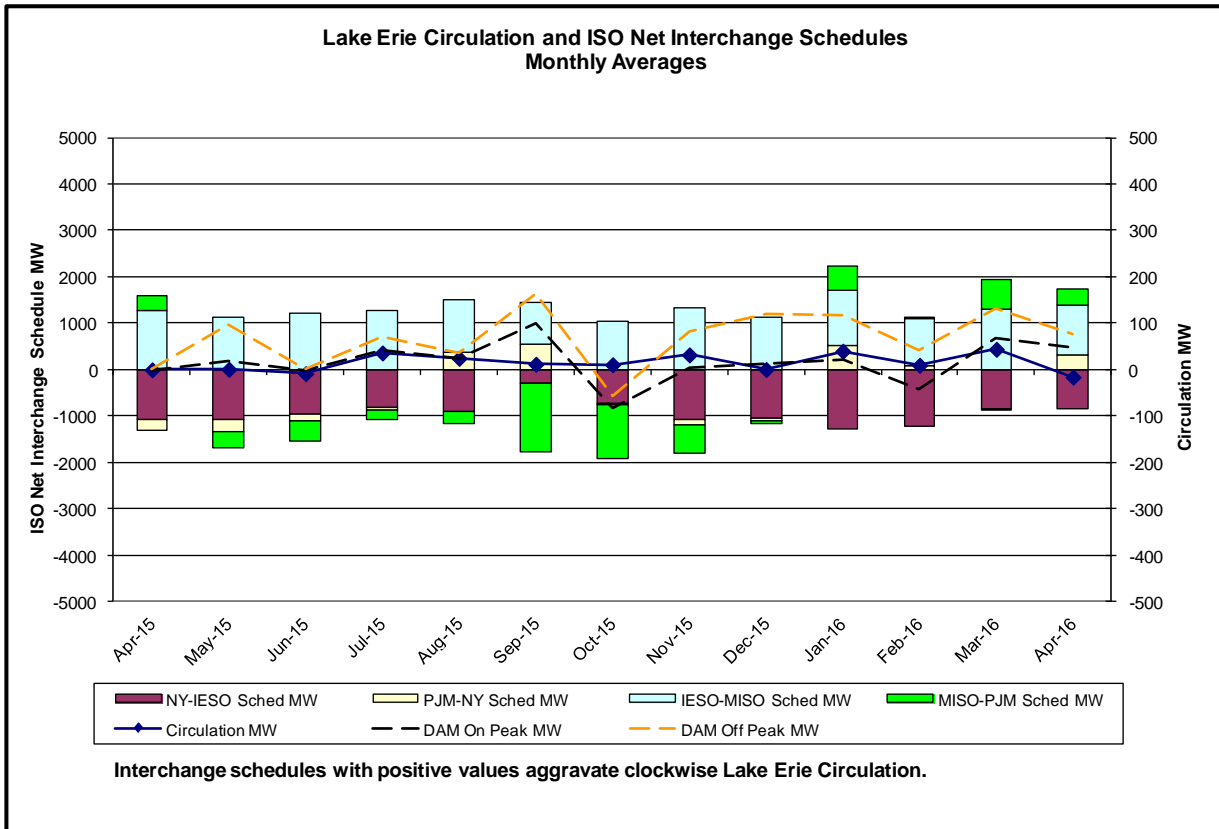




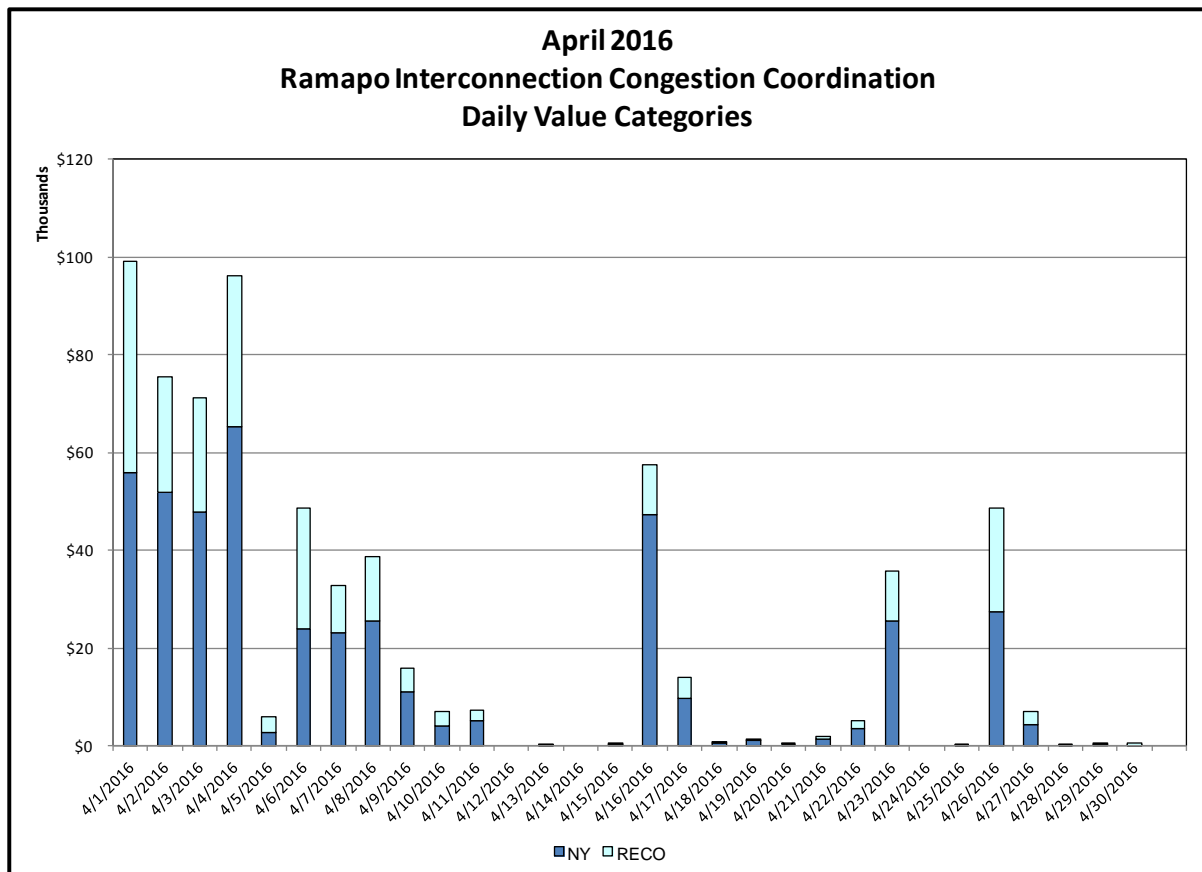
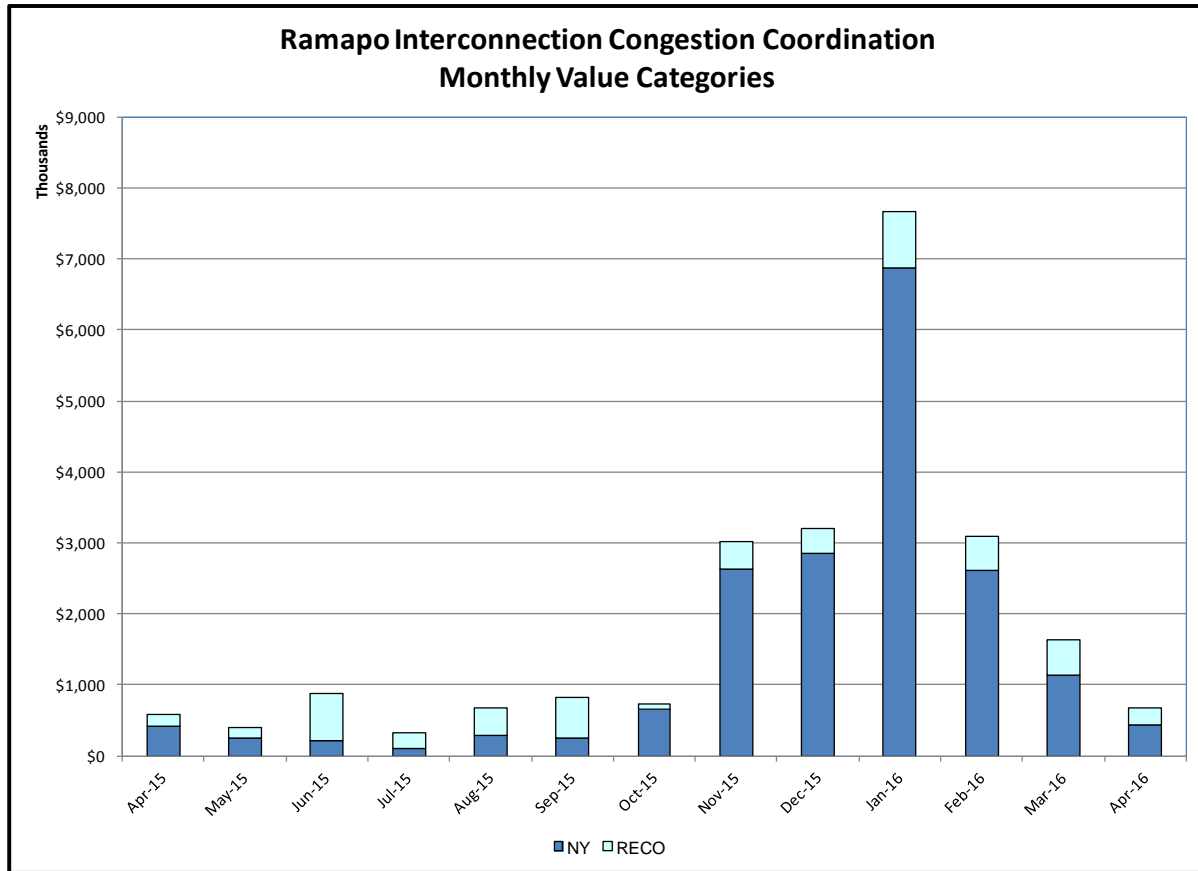






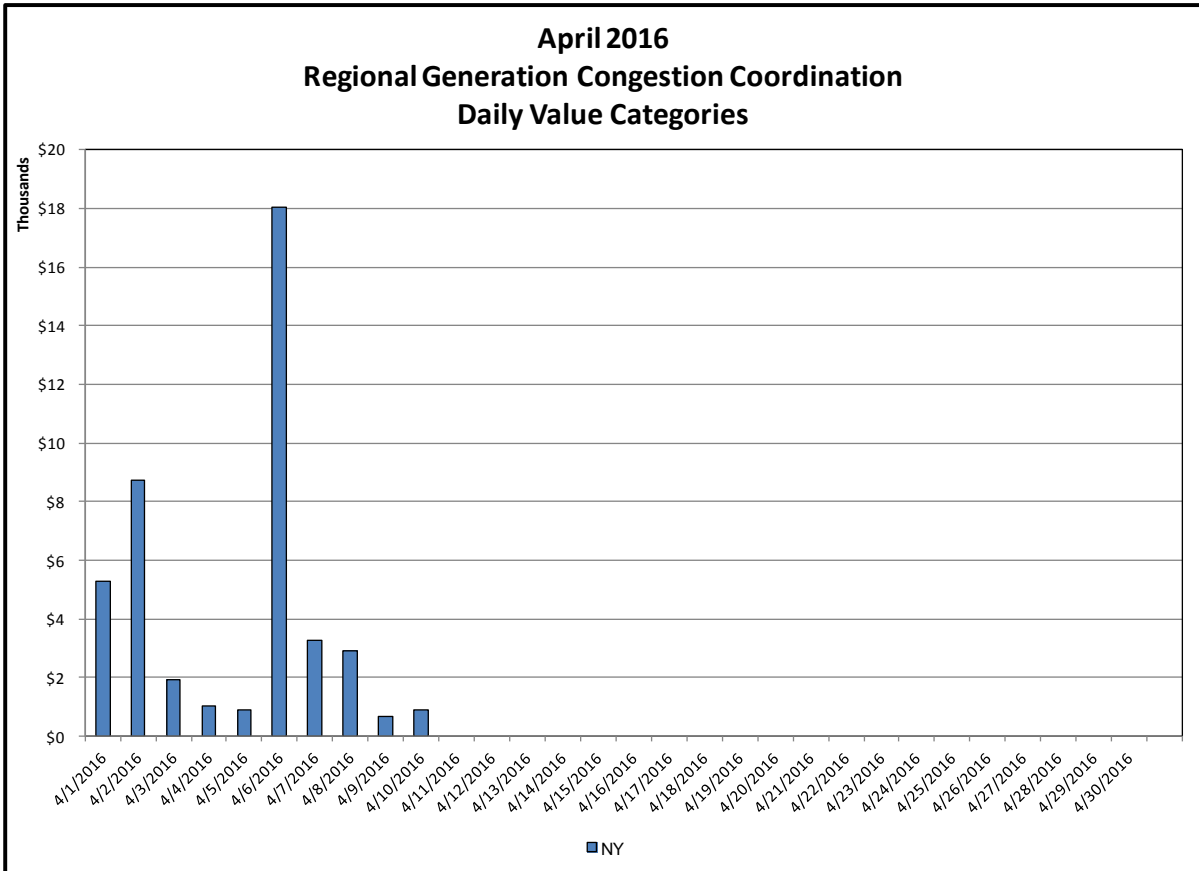
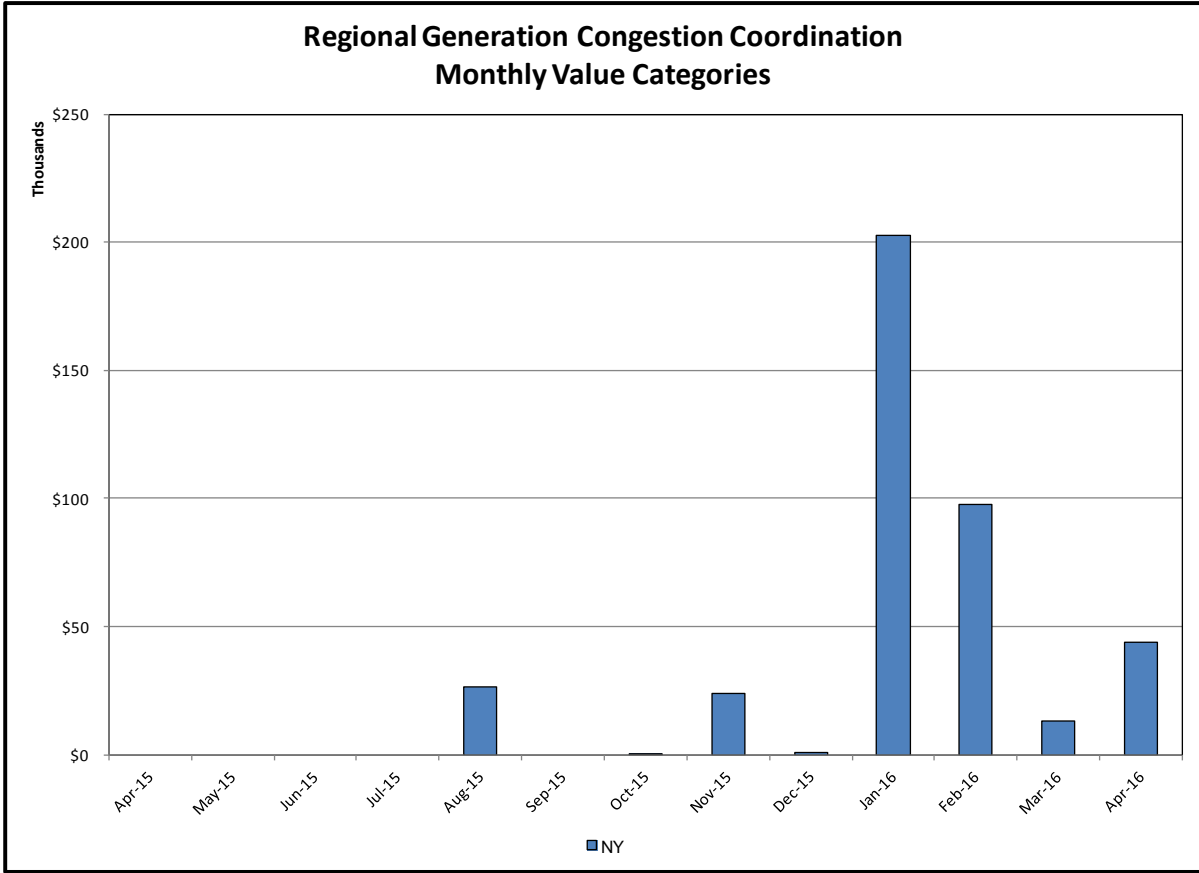


Broader Regional Market Performance Metrics



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.



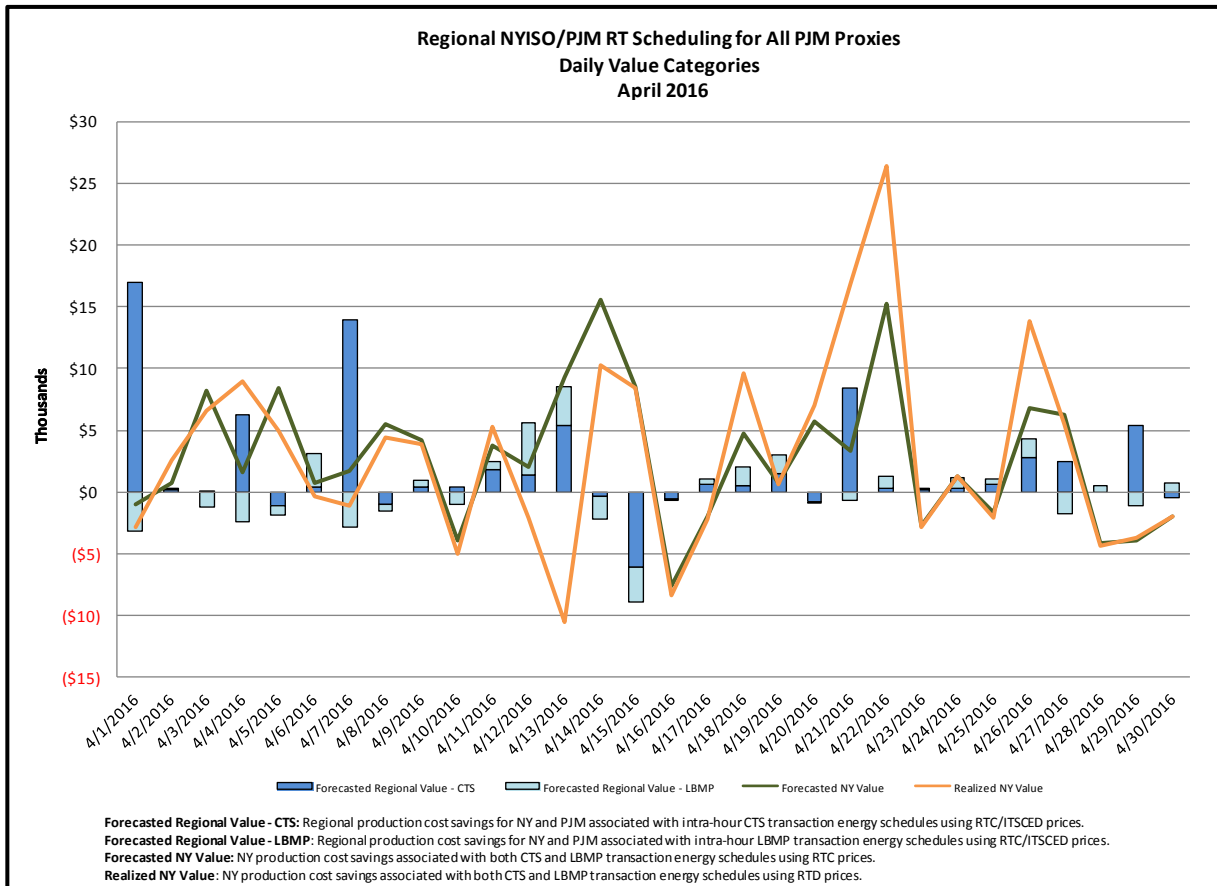
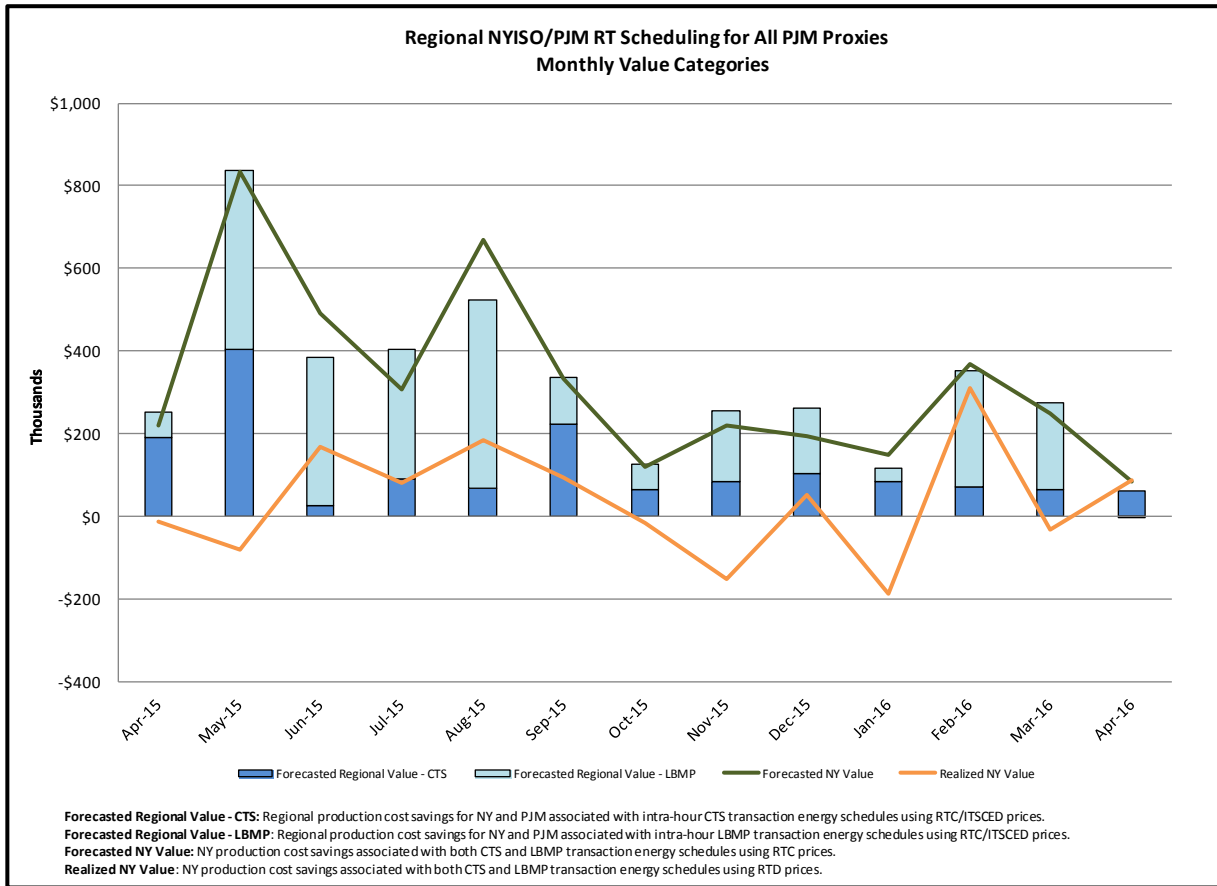
Regional Generation Congestion Coordination

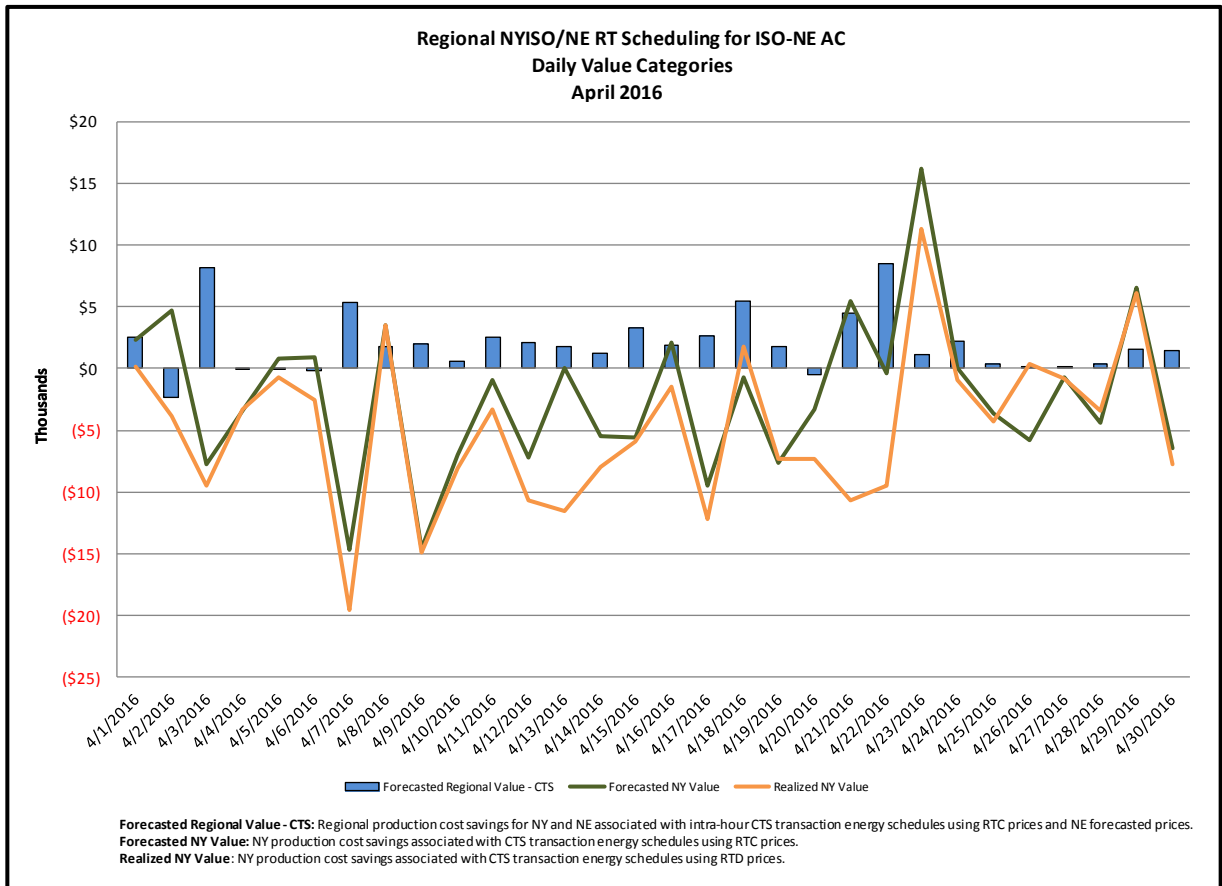
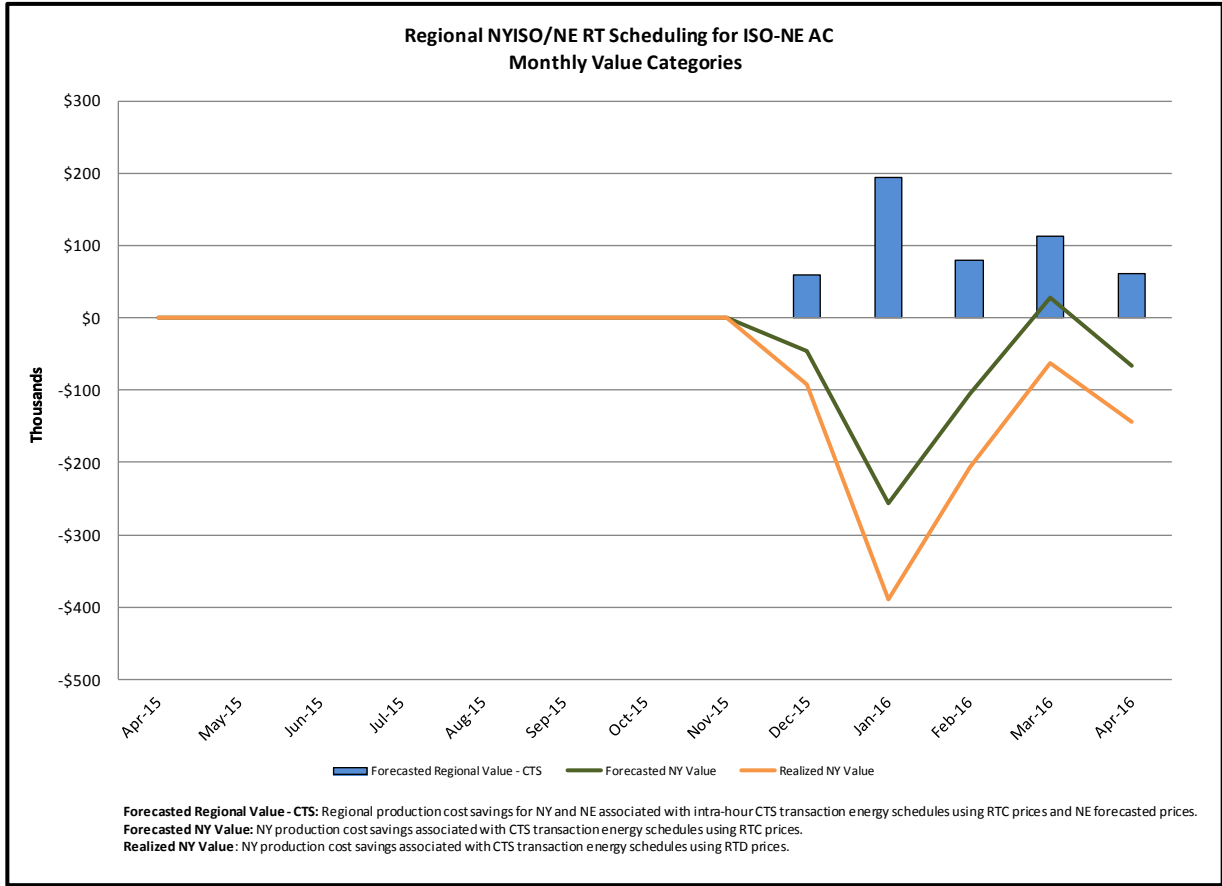
Category

NY

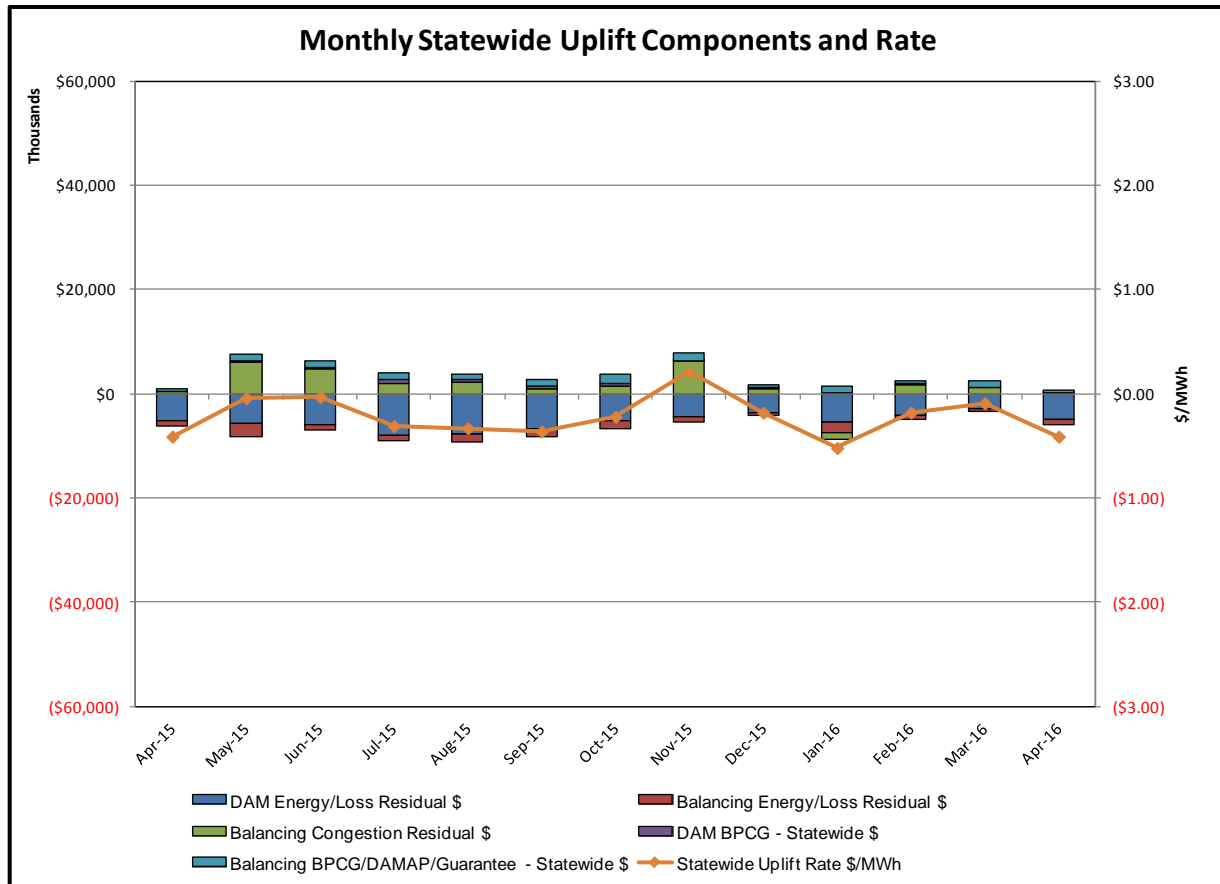
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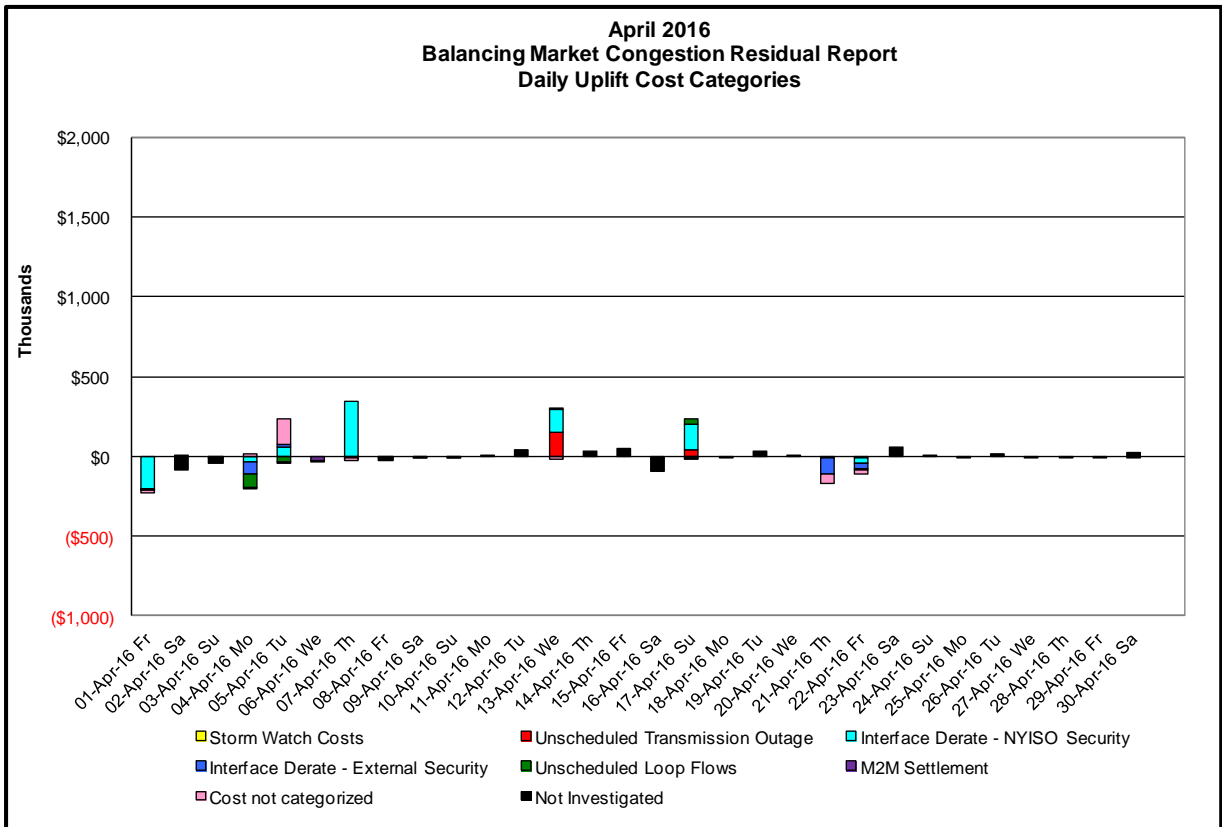
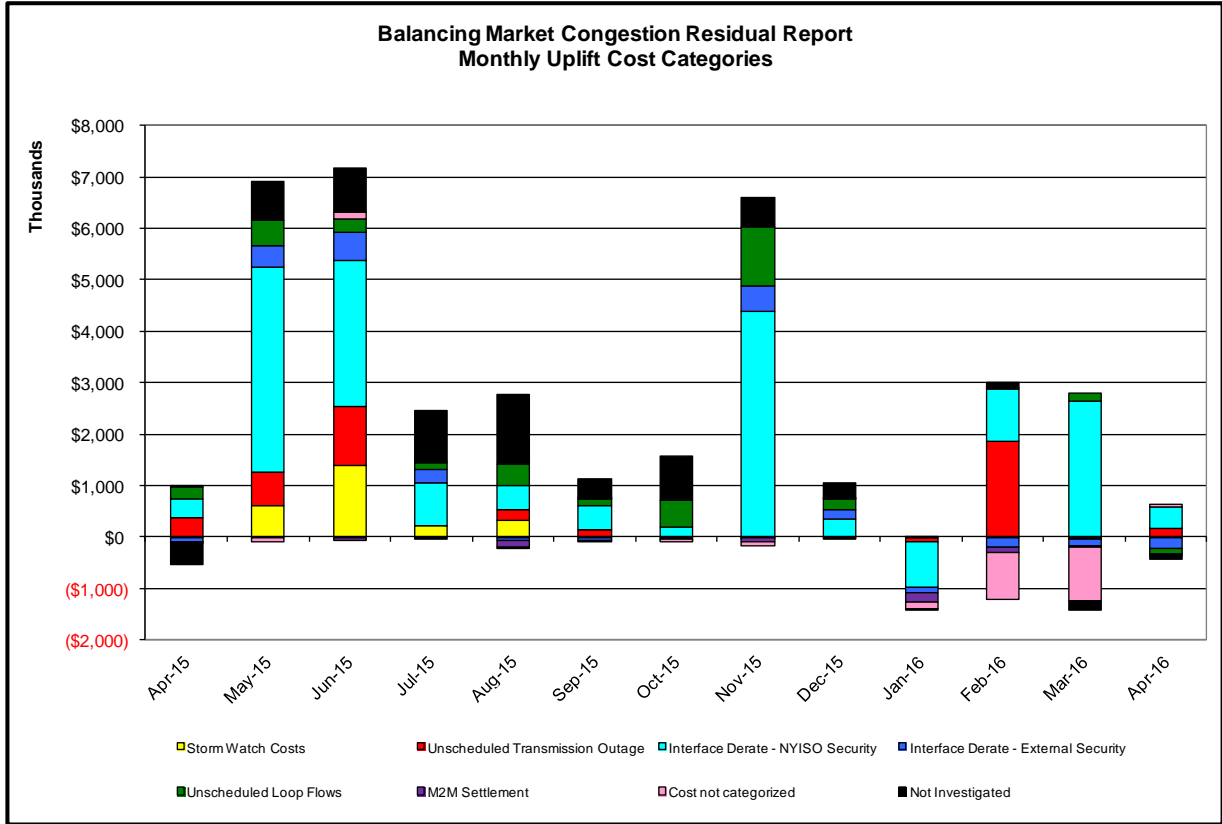
NYISO savings that result from PJM payments to NYISO when PJM's transmission use (PJM's market flow) is greater than PJM's entitlement of the NY transmission system and NYISO is incurring Western or Central NY congestion. Additionally, NYISO savings may result from the more efficient regional utilization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





Market Performance Metrics





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

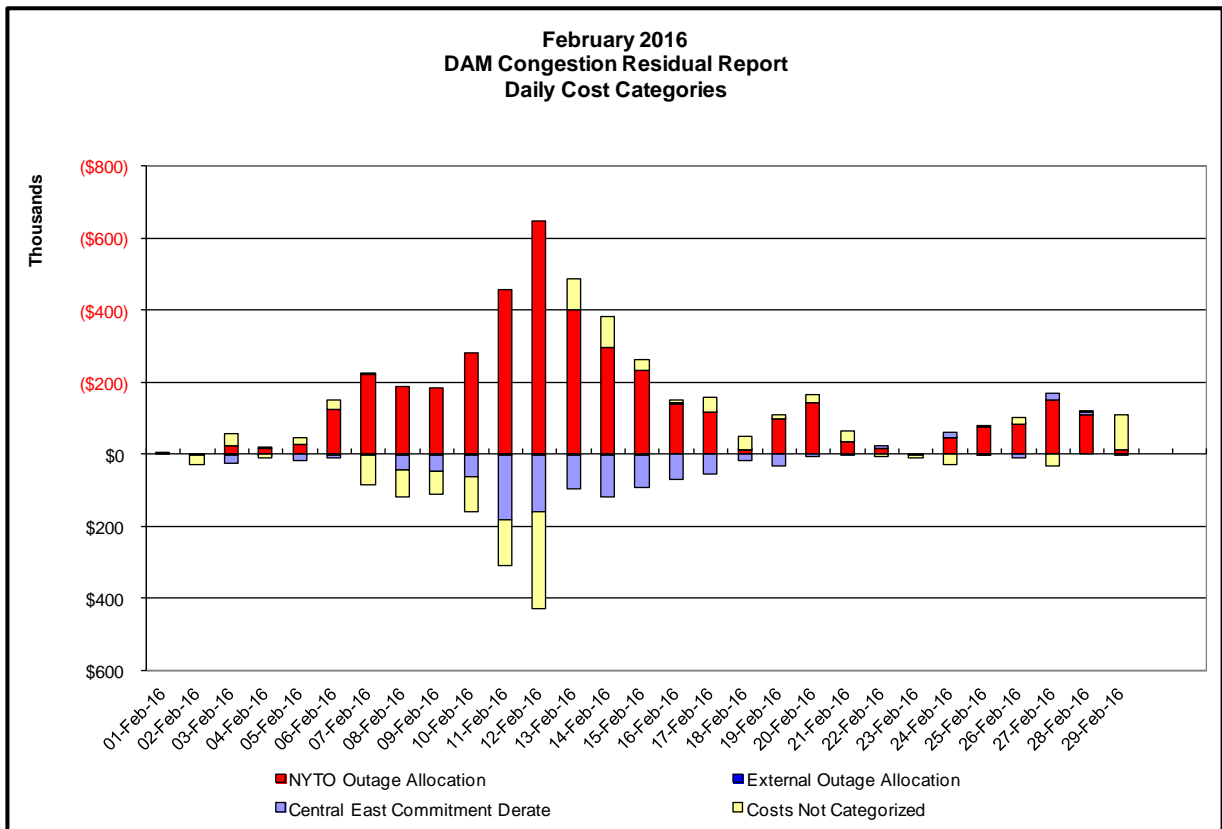
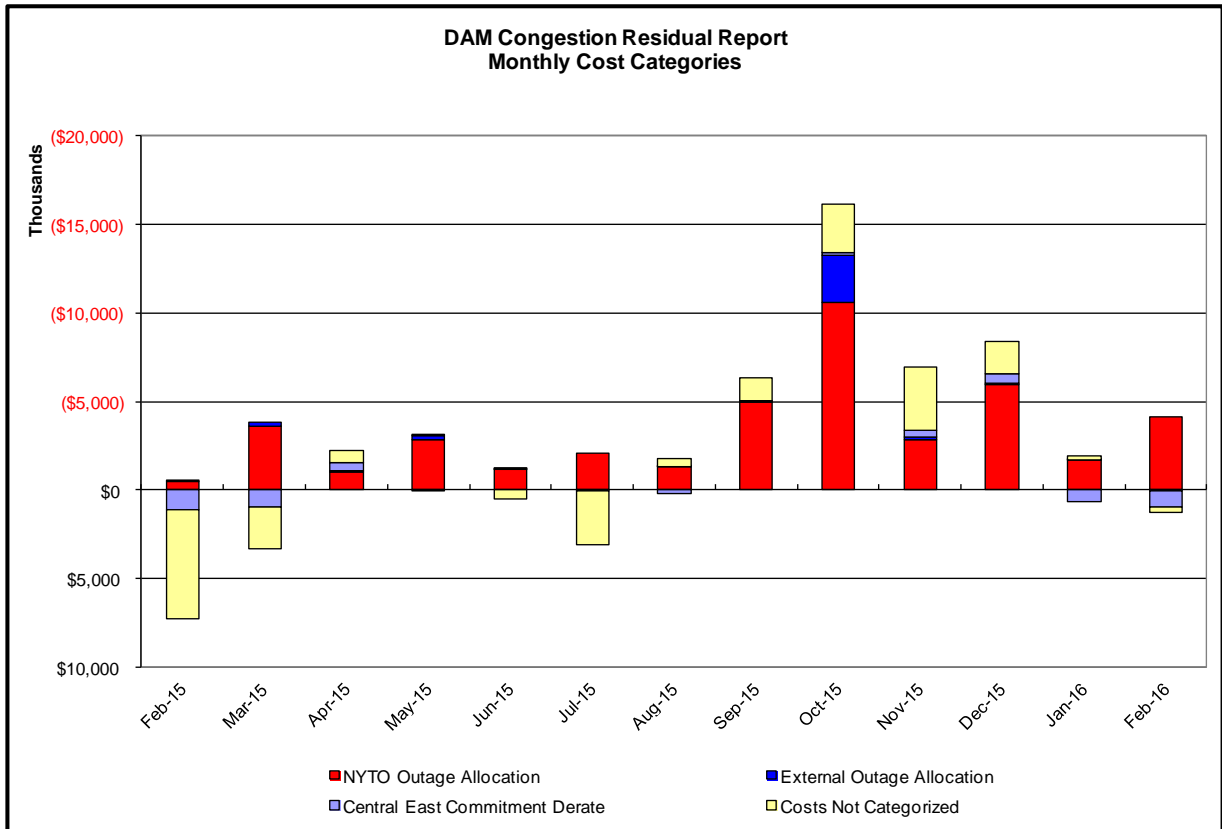
Event	Date (yyyymmdd)	Hours	Description
	4/1/2016	1,2,7-19,21	Uprate Central East
	4/1/2016	1,2	Lake Erie Circulation, DAM-RTM exceeds +/-125MW; Central East
	4/4/2016	12,14-16,22	Uprate Central East
	4/4/2016	18,20,21	Derate Dunwoodie-Shore Road 345kV (#Y50) for I/o NEPTUNE HVDC TIE LINE
	4/4/2016	18,20,21	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	

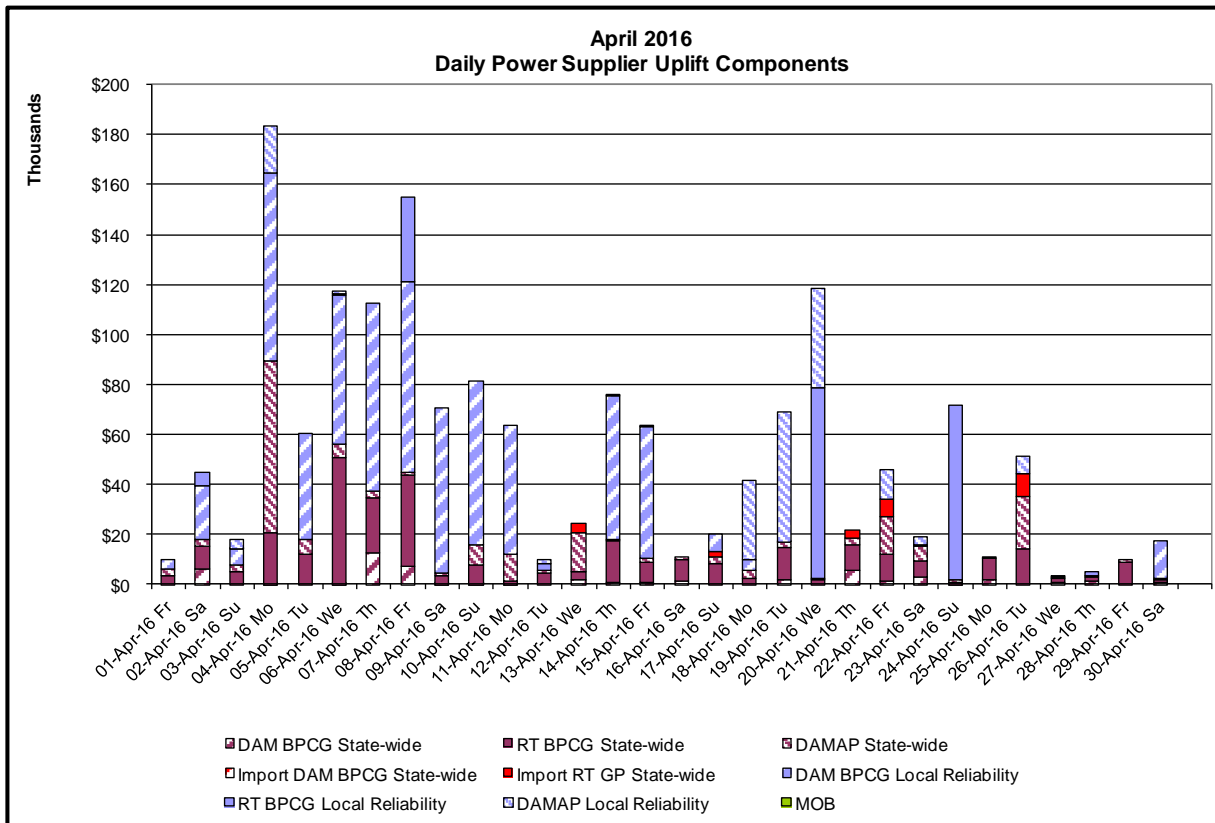
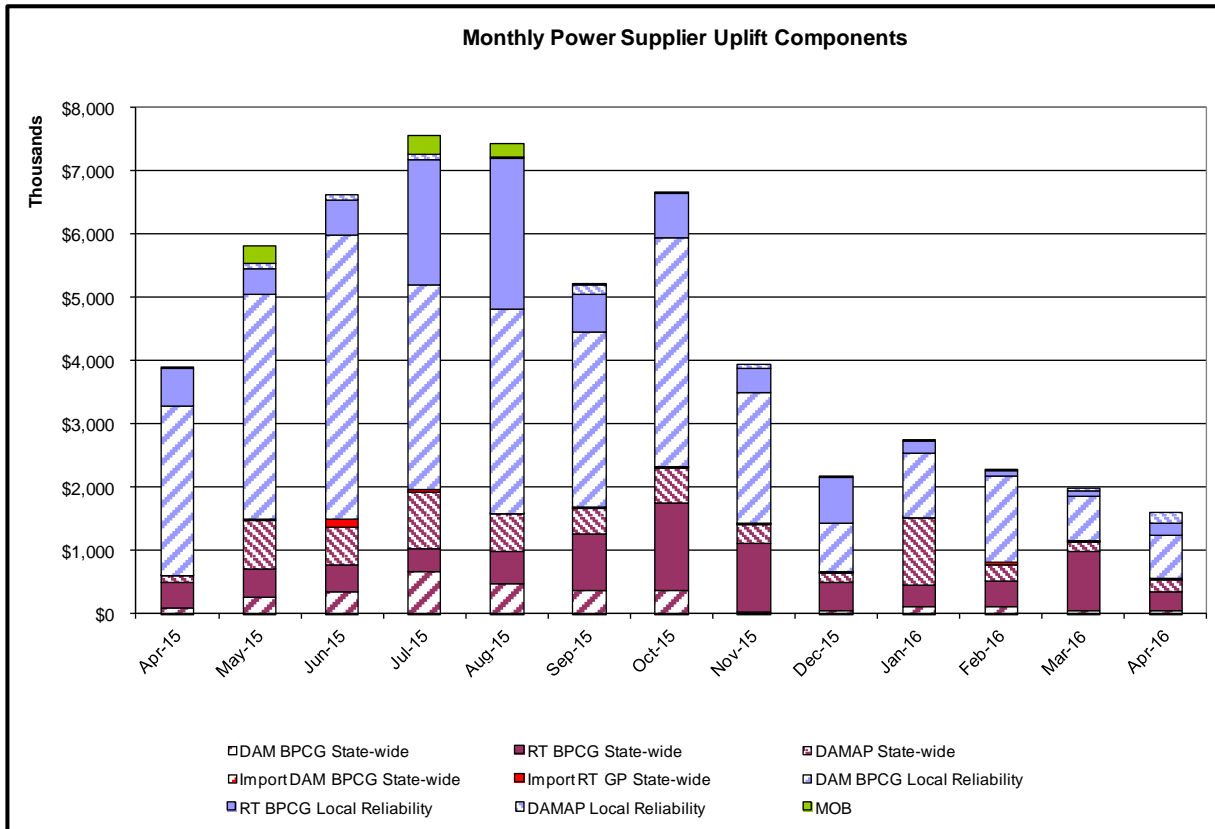
Monthly Balancing Market Congestion Report Assumptions/Notes

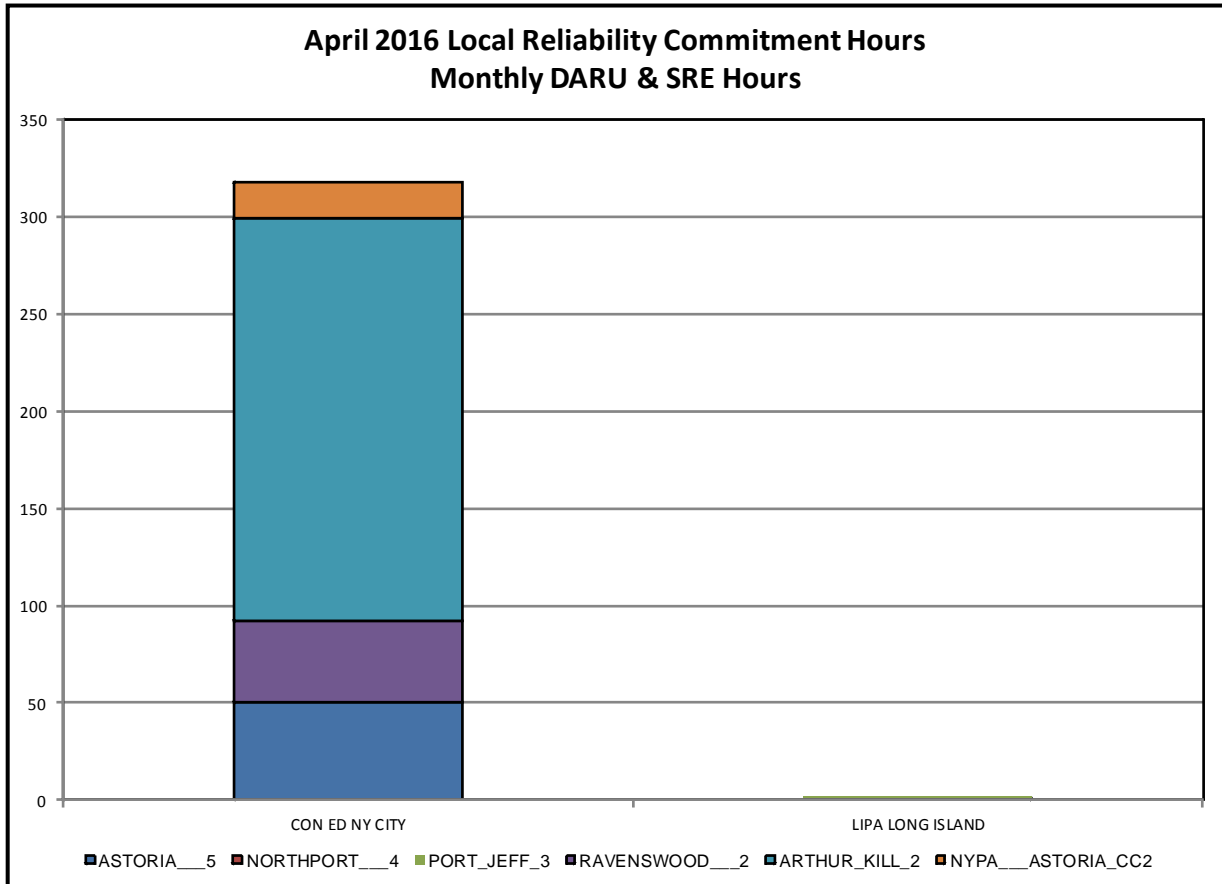
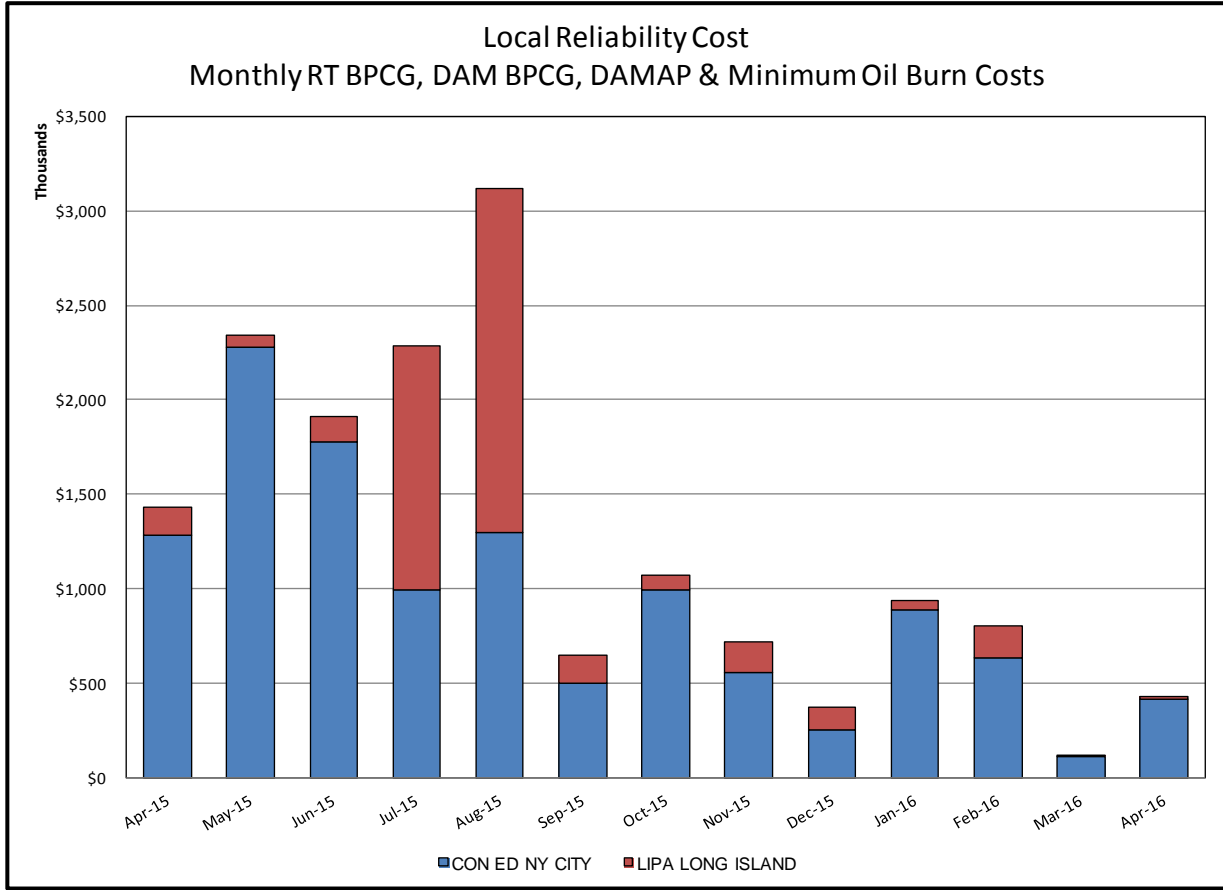
- 1) Storm Watch Costs are identified as daily total uplift costs
- 2) Days with a value of BMCR less M2M Settlement of \$100K/HR, shortfall of \$200K/Day or more, or surplus of \$100K/Day or more are investigated.
- 3) Uplift costs associated with multiple event types are apportioned equally by hour

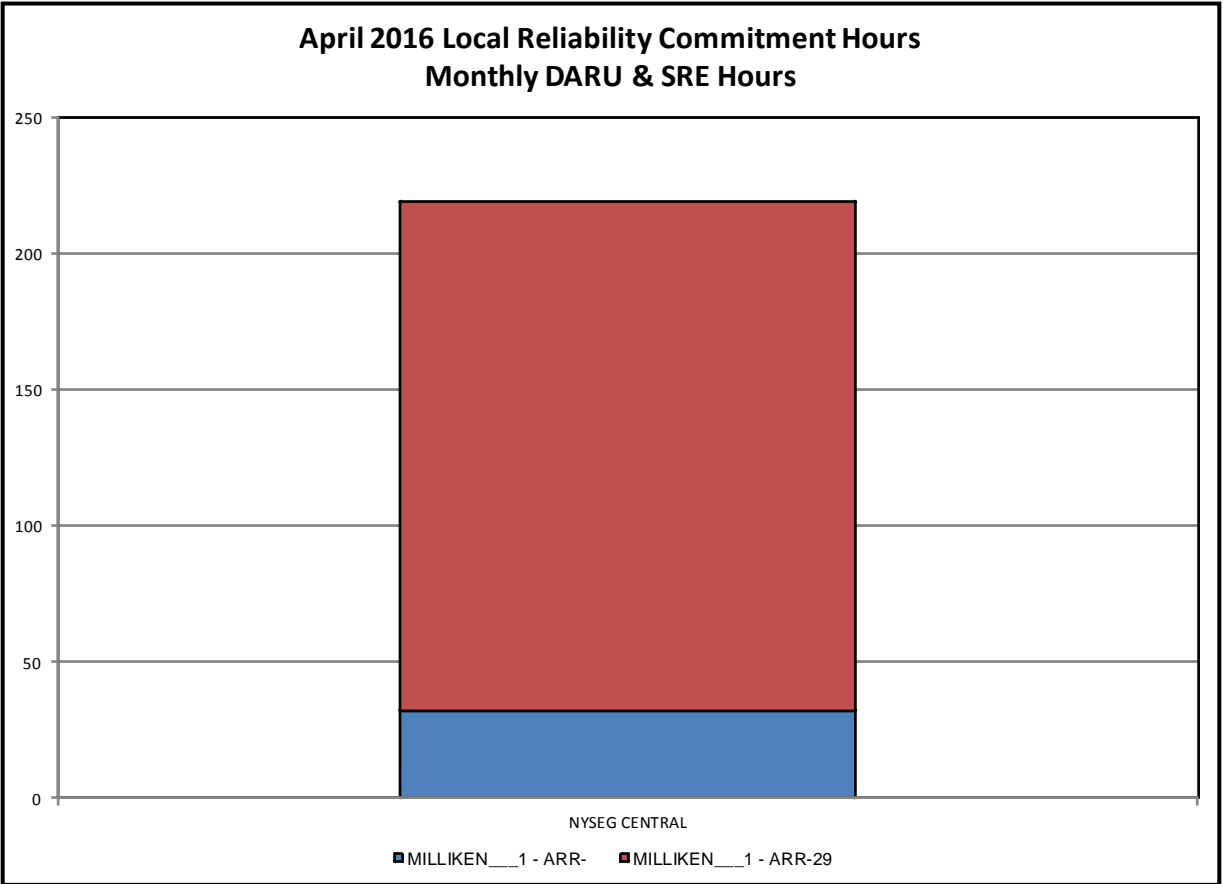
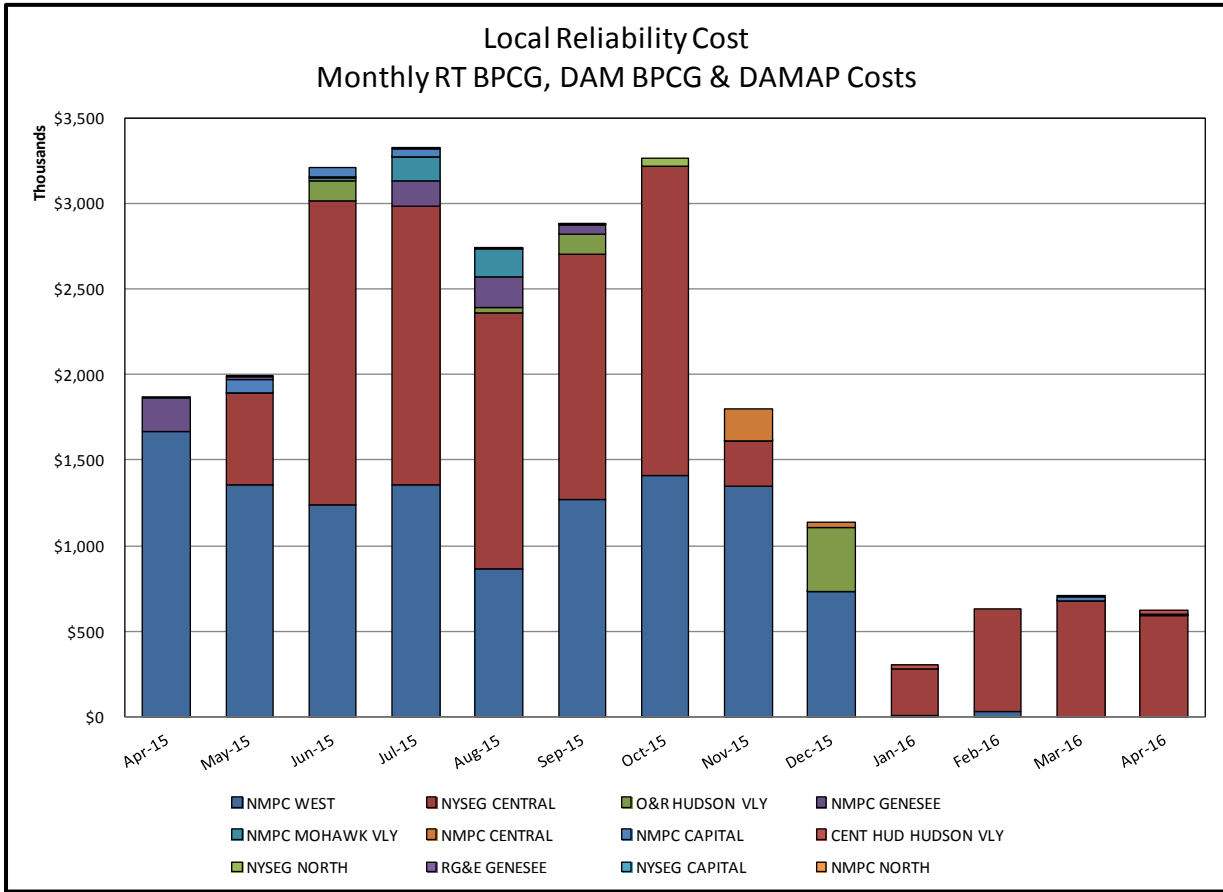


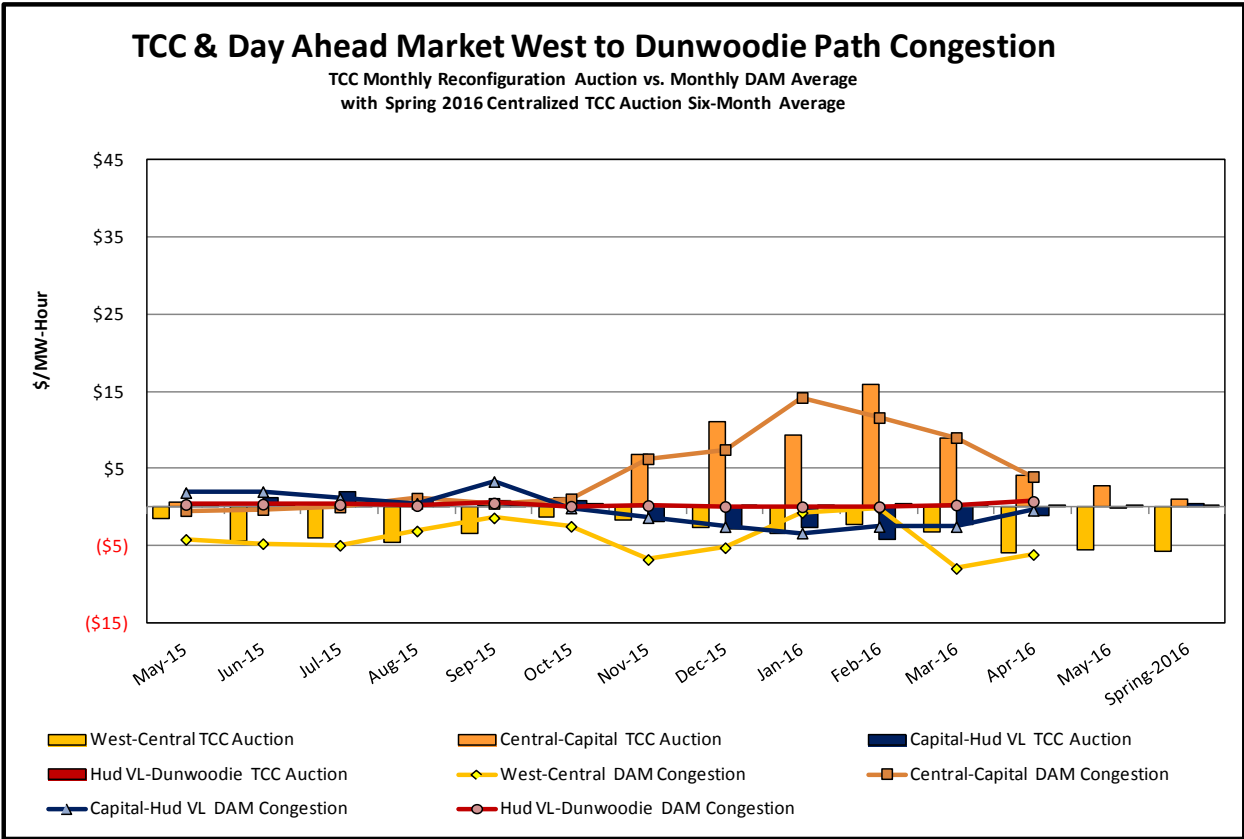
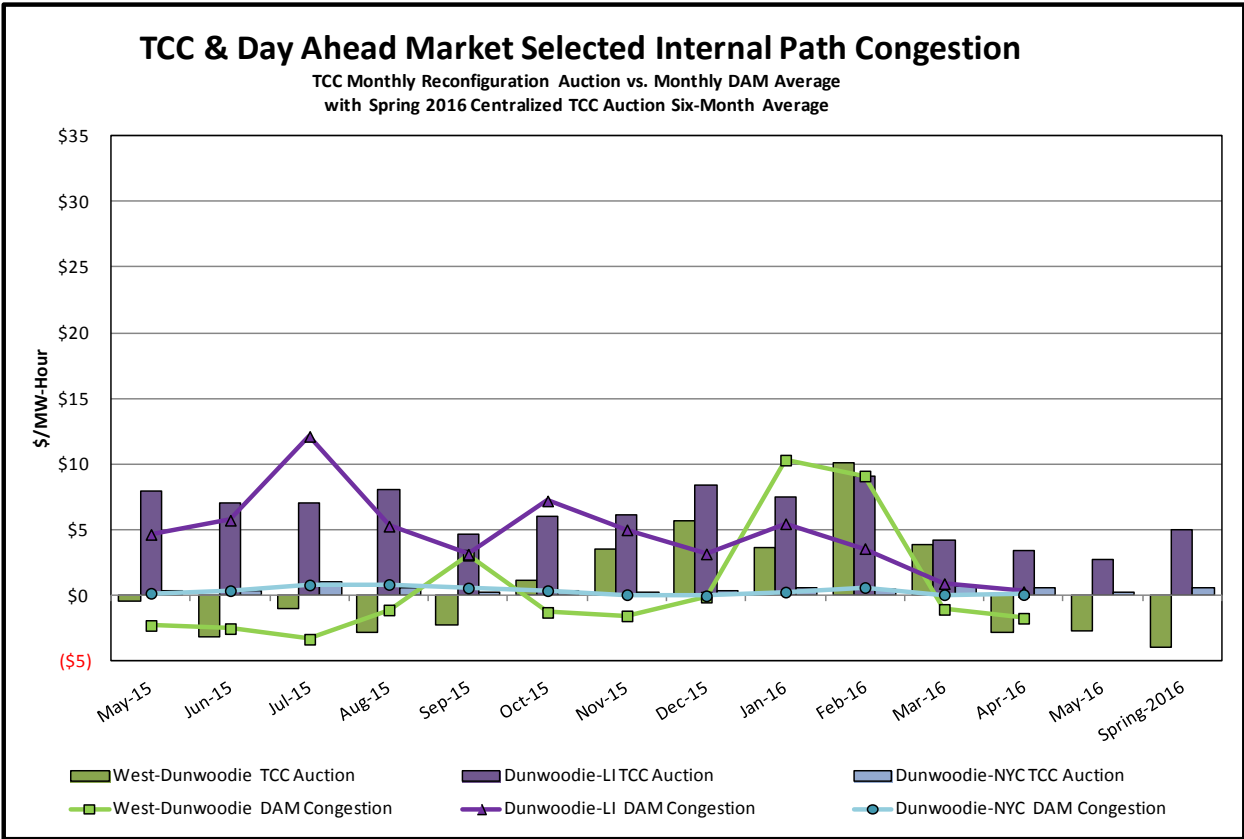
Day-Ahead Market Congestion Residual Categories

<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

