

Operations Performance Metrics Monthly Report



October 2013 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 November 8, 2013.

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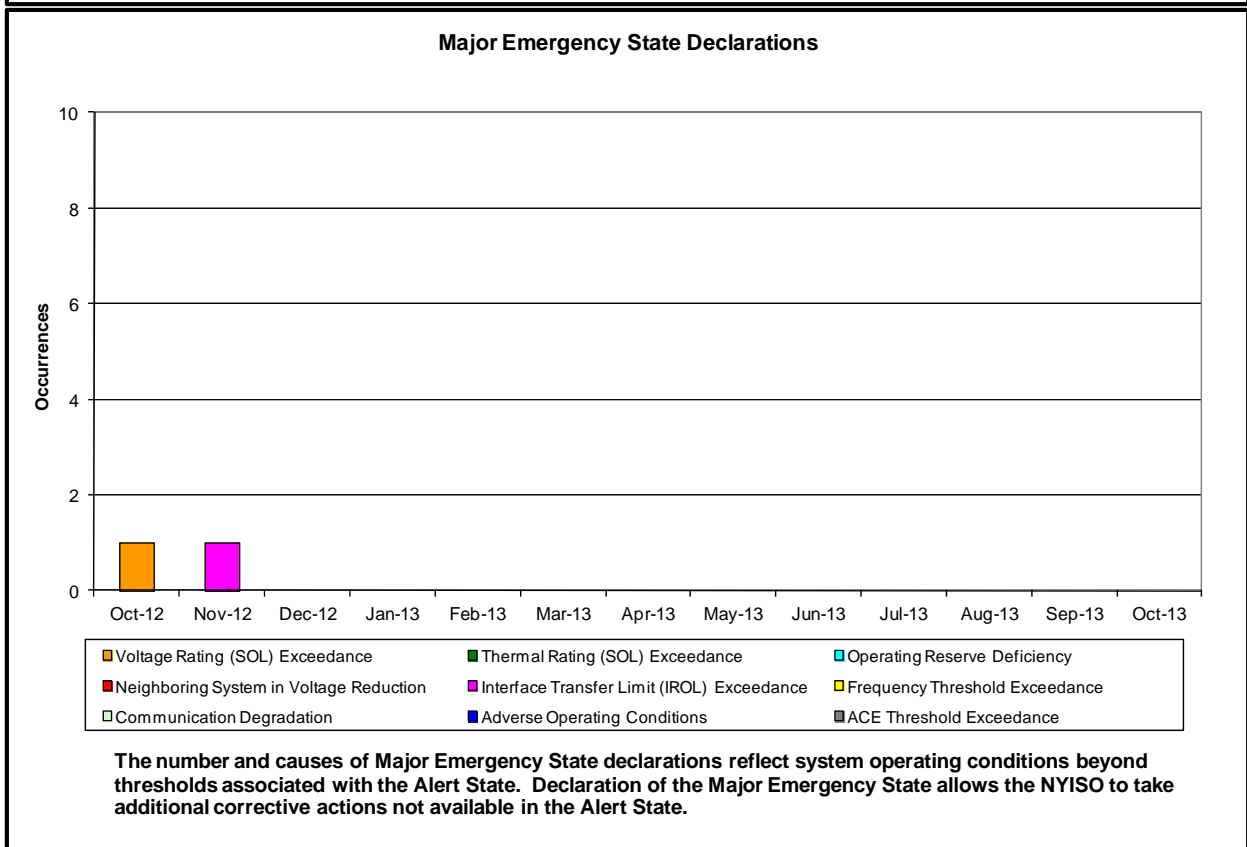
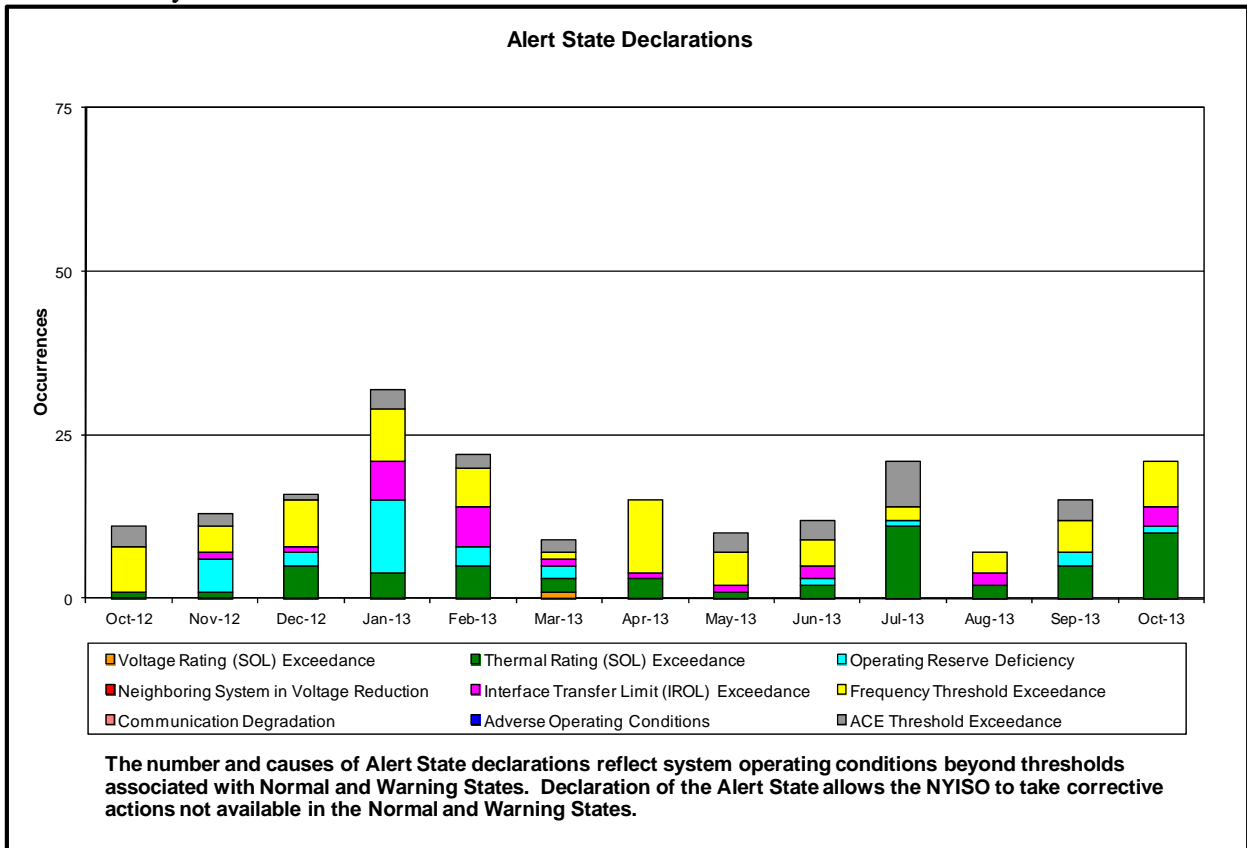
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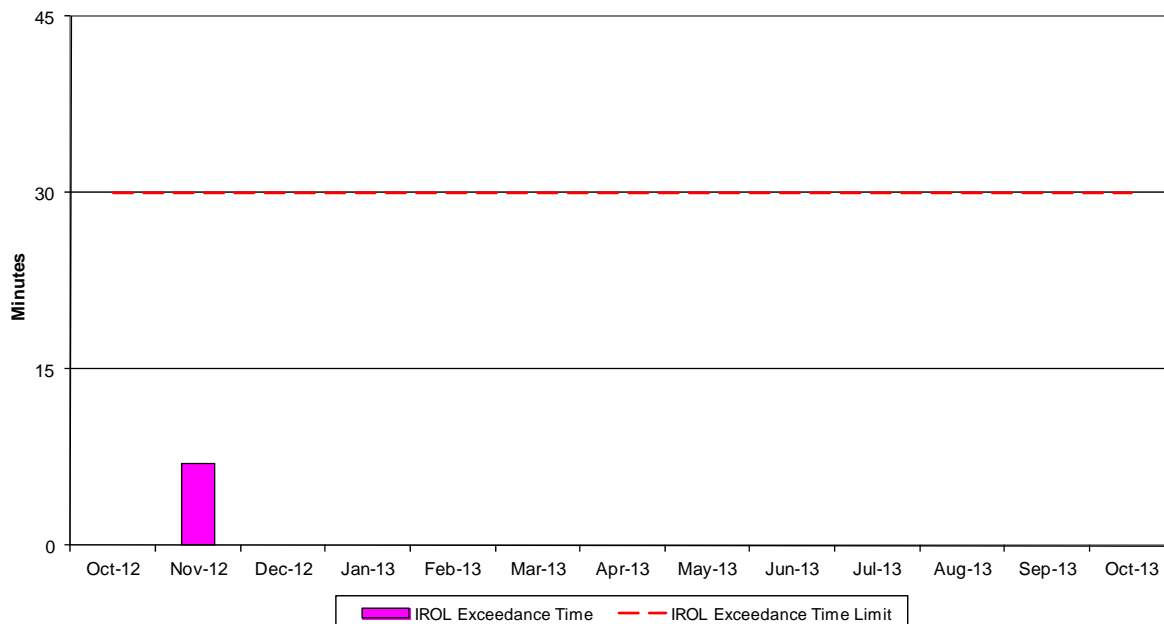
October 2013 Operations Performance Highlights

- Peak load of 22,316 MW occurred on 10/4/2013 HB 15
- All-time summer capability period peak load of 33,956 MW occurred on 7/19/2013 HB 16
- 1 hour of Thunder Storm Alerts was declared
- 0 hours of NERC TLR level 3 curtailment
- Broader Regional Market Coordination monthly value was \$0.07M
- Broader Regional Market Coordination year-to-date value was \$11.5M
- Statewide uplift cost monthly average was (\$0.21)/MWh
- Local reliability uplift cost monthly average was \$0.38/MWh

- Reliability Performance Metrics

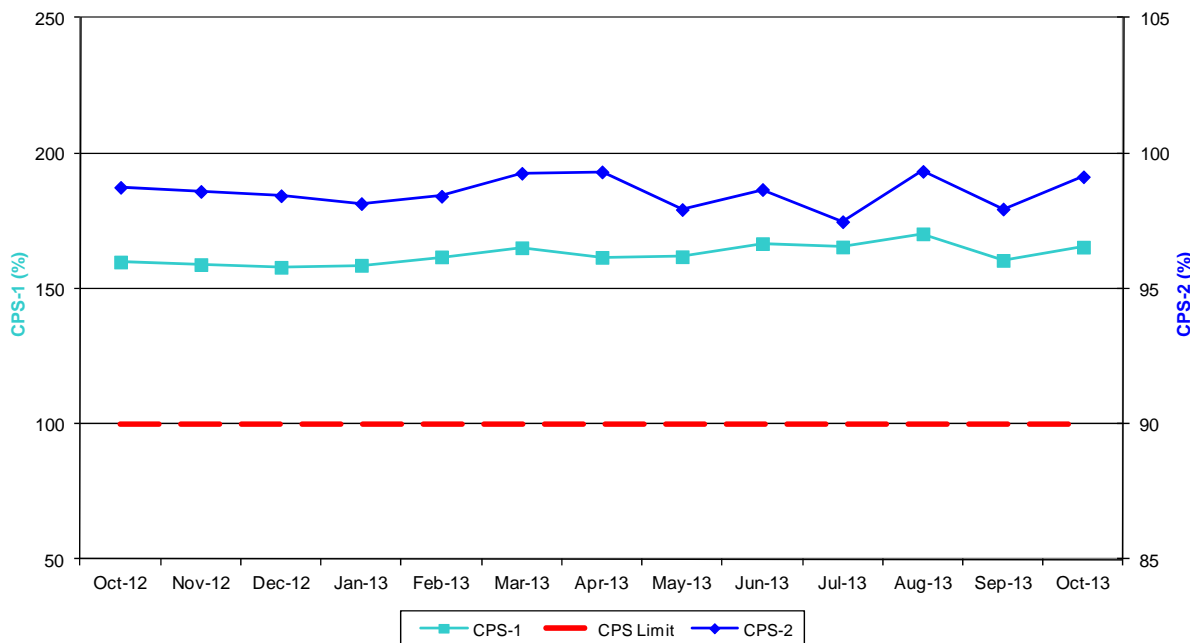


NERC IROL Time Over Limit



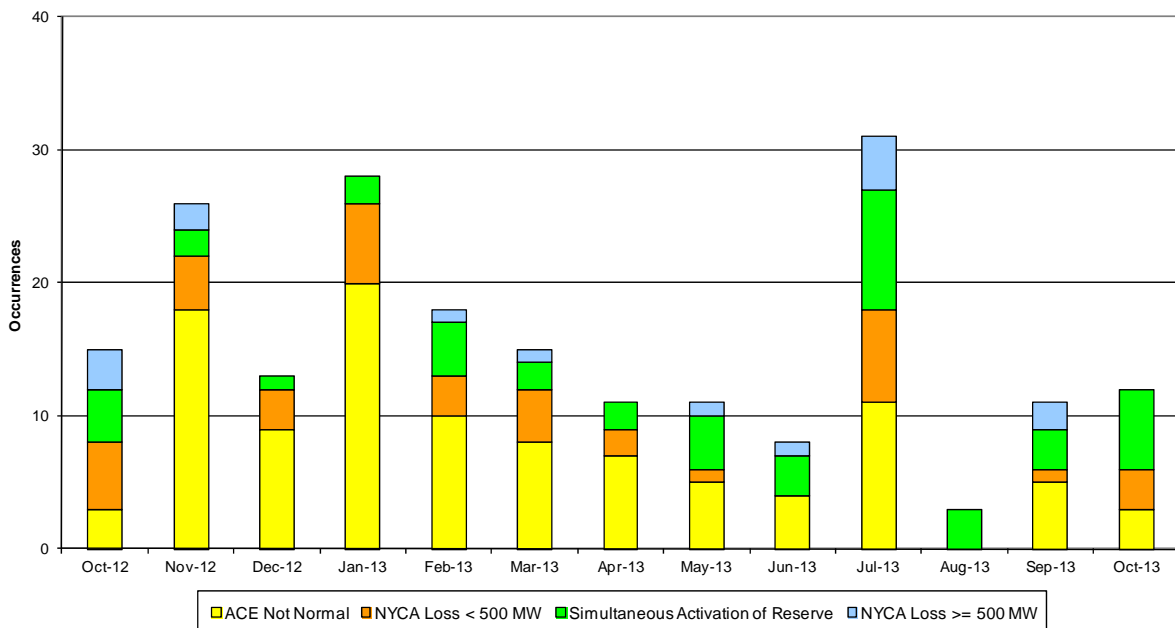
For IROL exceedances leading to Major Emergency State declarations, the maximum IROL exceedance time is identified. IROL exceedances of less than thirty minutes are considered NERC compliant.

NERC Control Performance Standards



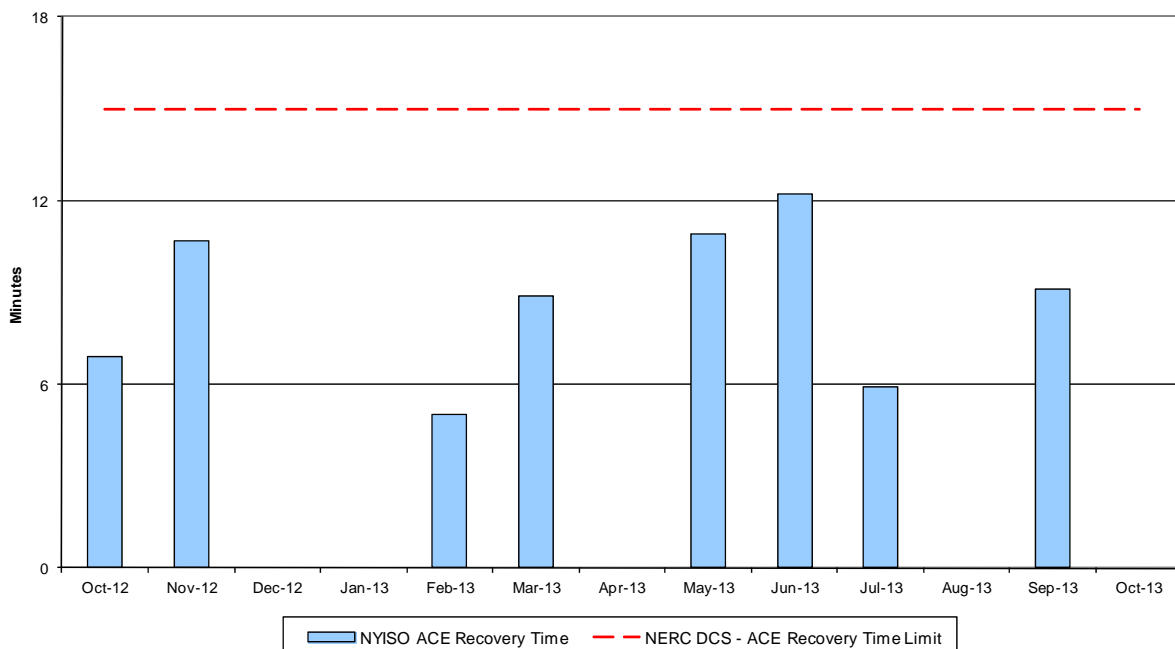
The values of NERC Control Performance Standards (CPS-1 and CPS-2) are indicators of the NYISO Area resource and demand balancing. Values exceeding the identified thresholds are NERC compliant.

Reserve Activations



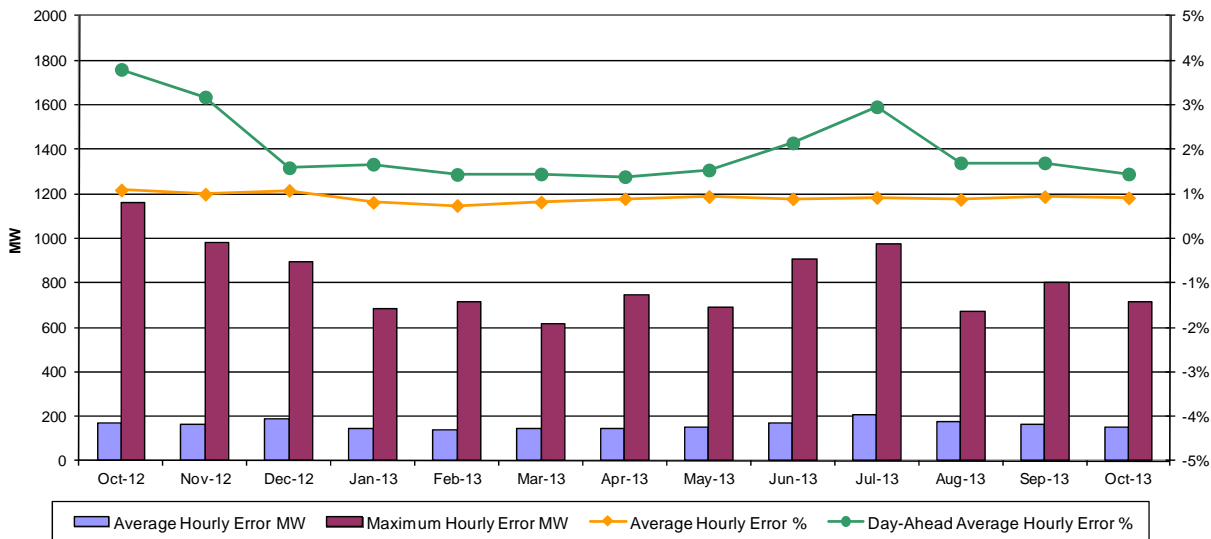
NYISO Reserve Activations are indicators of the need to respond to unexpected operational conditions within the NYISO Area or to assist a neighboring Area (Simultaneous Activation of Reserves) by activating an immediate resource and demand balancing operation.

DCS Event Time to ACE Recovery



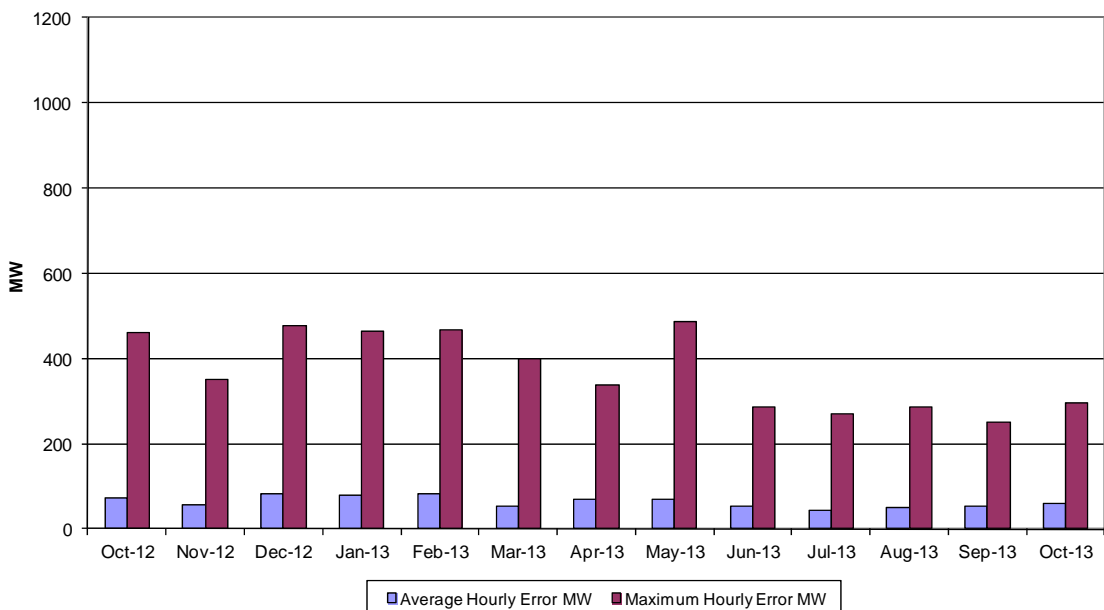
For NYISO initiated Reportable Disturbances, the maximum ACE recovery time is identified. Recovery times of less than 15 minutes are considered NERC compliant.

Load Forecast Performance



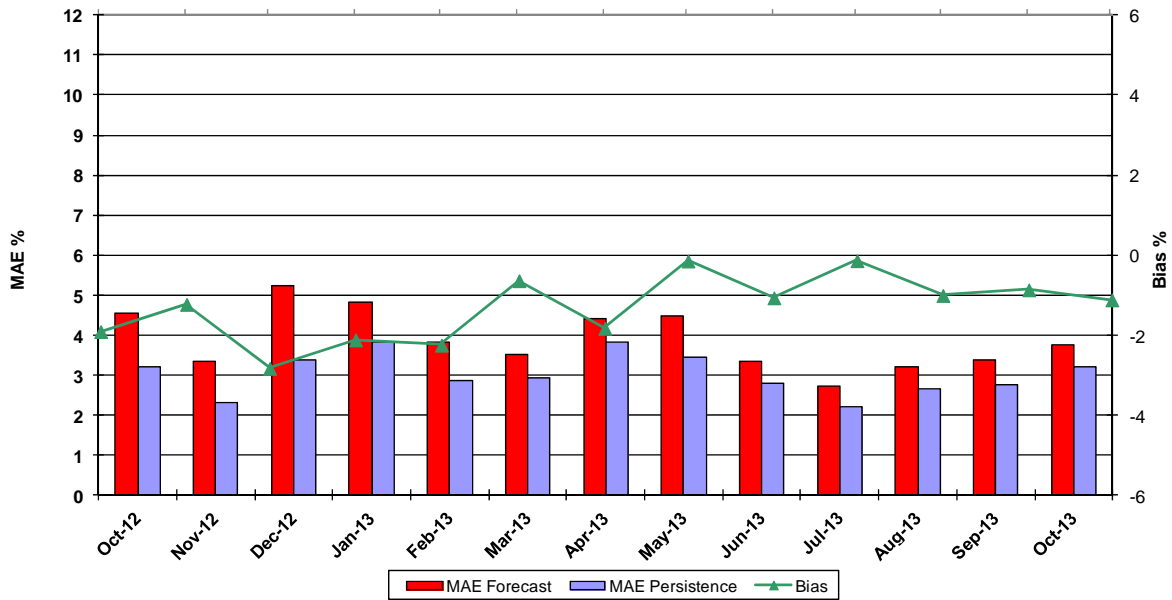
Hourly Error MW - Absolute value of the difference between the hourly average actual load demand and the average hour ahead forecast load demand.
Average Hourly Error % - Average value of the ratio of hourly average error magnitude to hourly average actual load demand.
Day-Ahead Average Hourly Error % - Average across all hours of the month of the absolute value of the difference between actual load demand and the Day-Ahead forecast load demand, divided by the actual load demand.

Wind Forecast Performance Hour Ahead MW Error



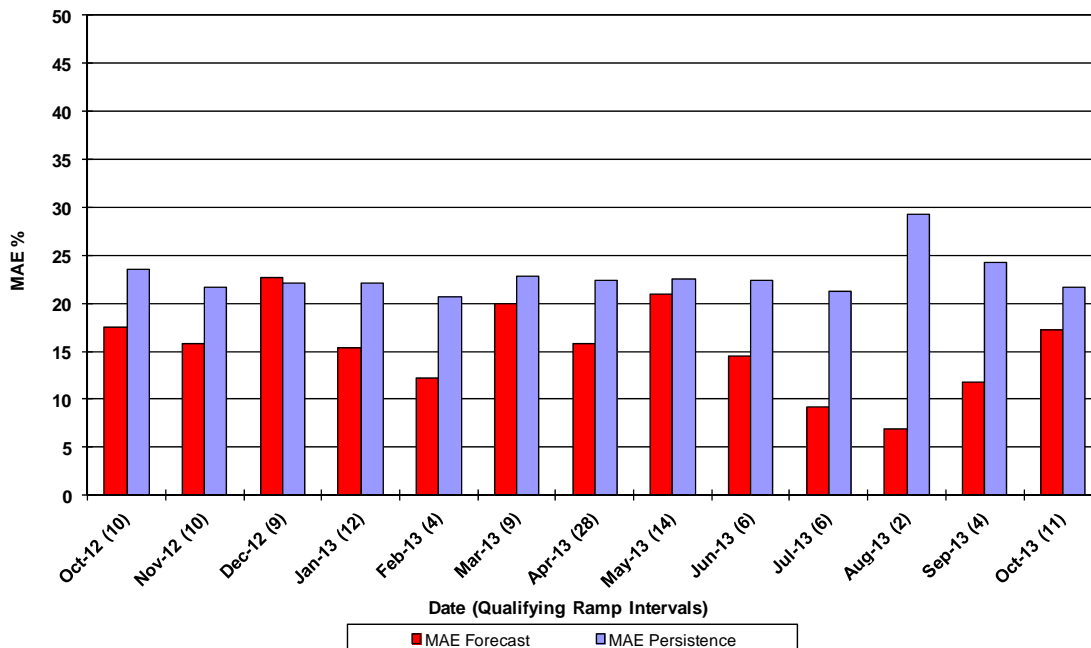
Hourly Error MW - Absolute value of the difference between the hourly average actual wind generation and the average hour ahead forecast wind generation.

Wind Forecast Performance Hour Ahead Percent Error Wind Capacity 1616MW

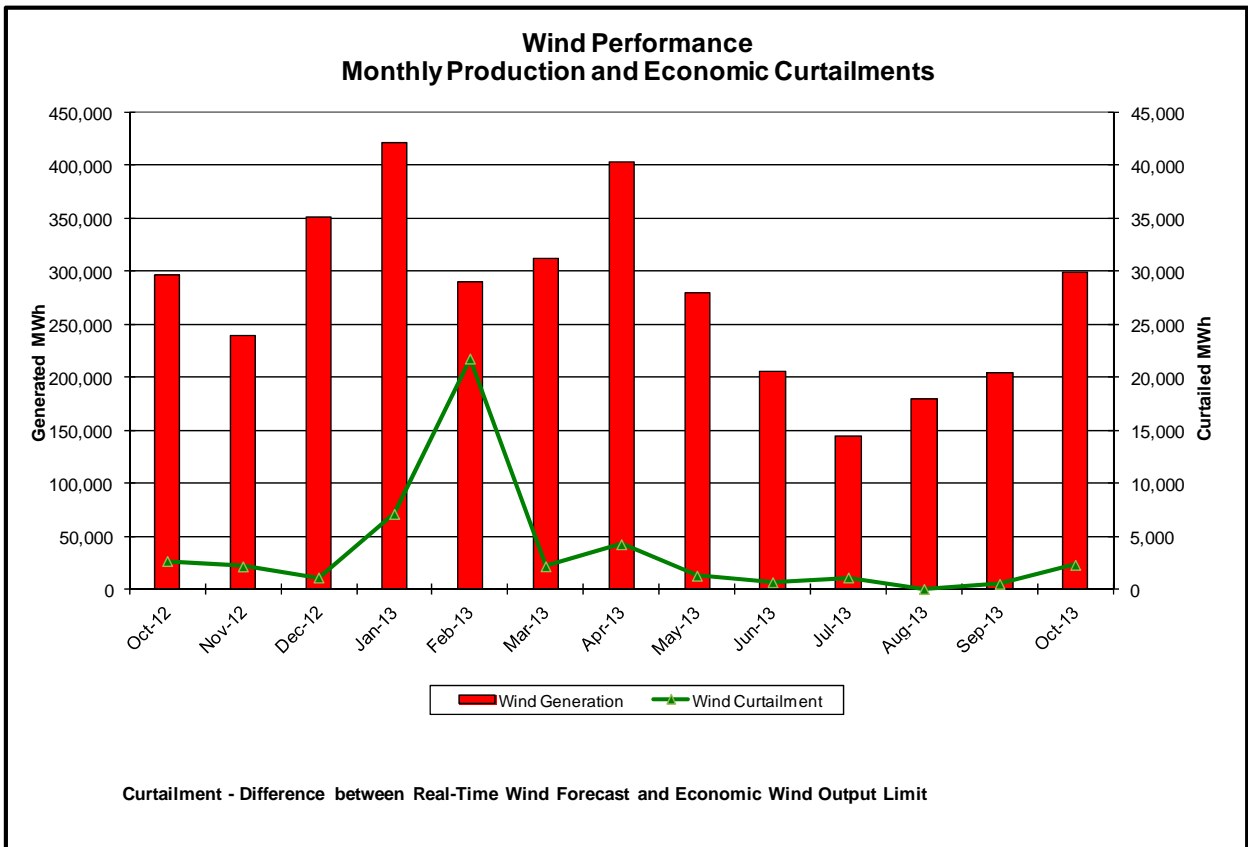
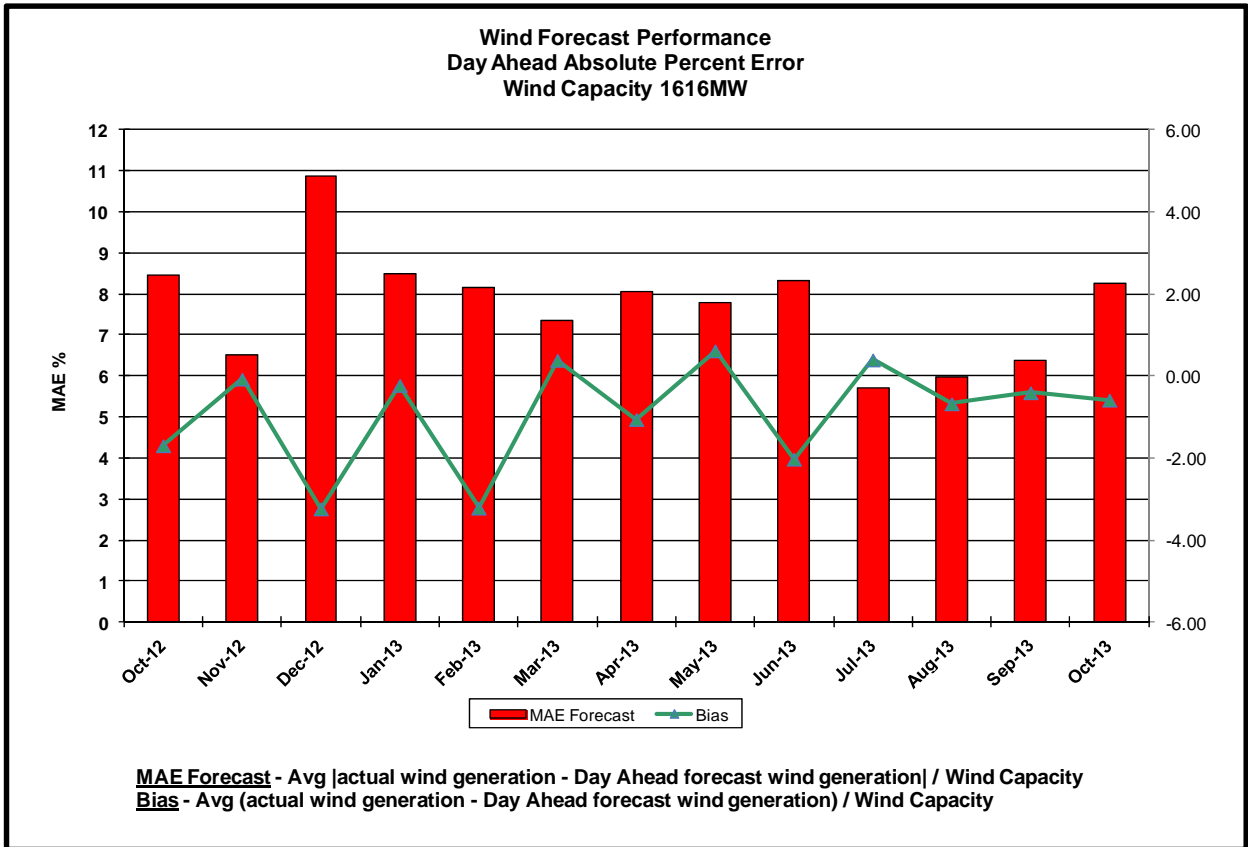


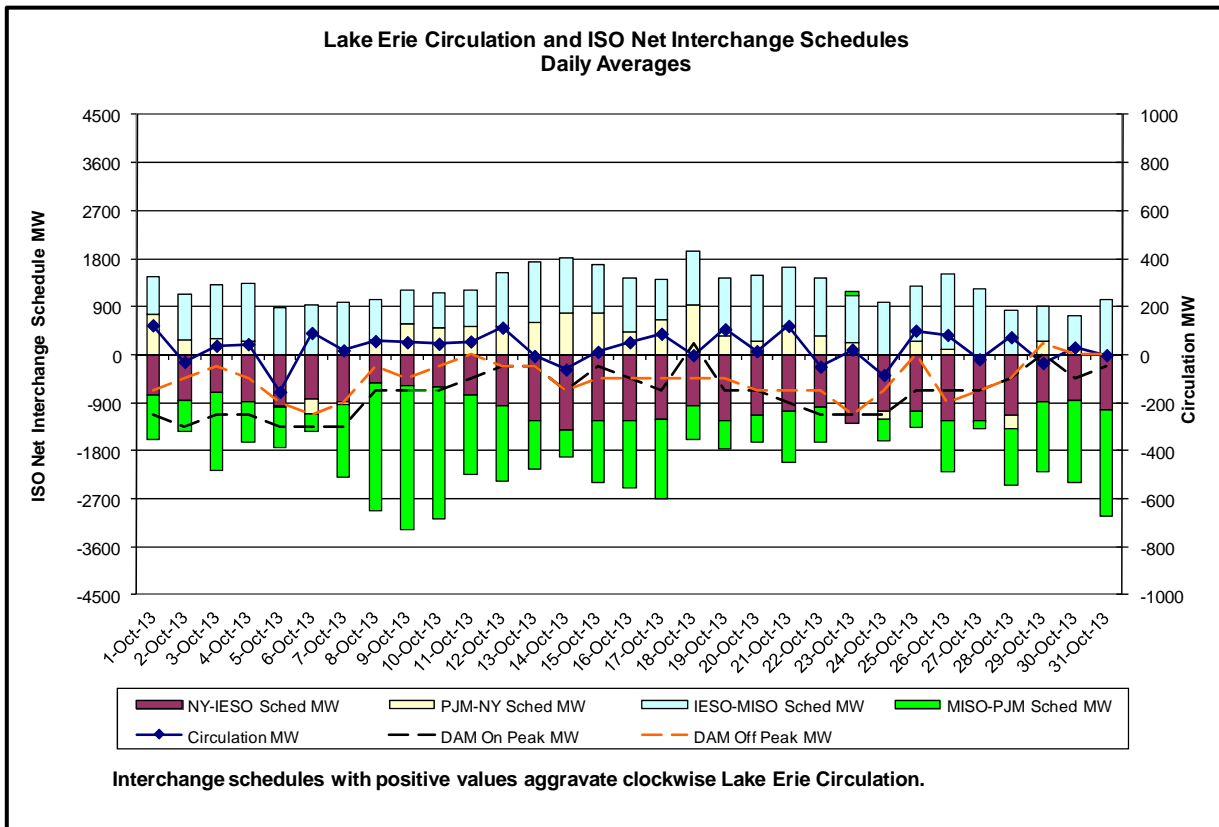
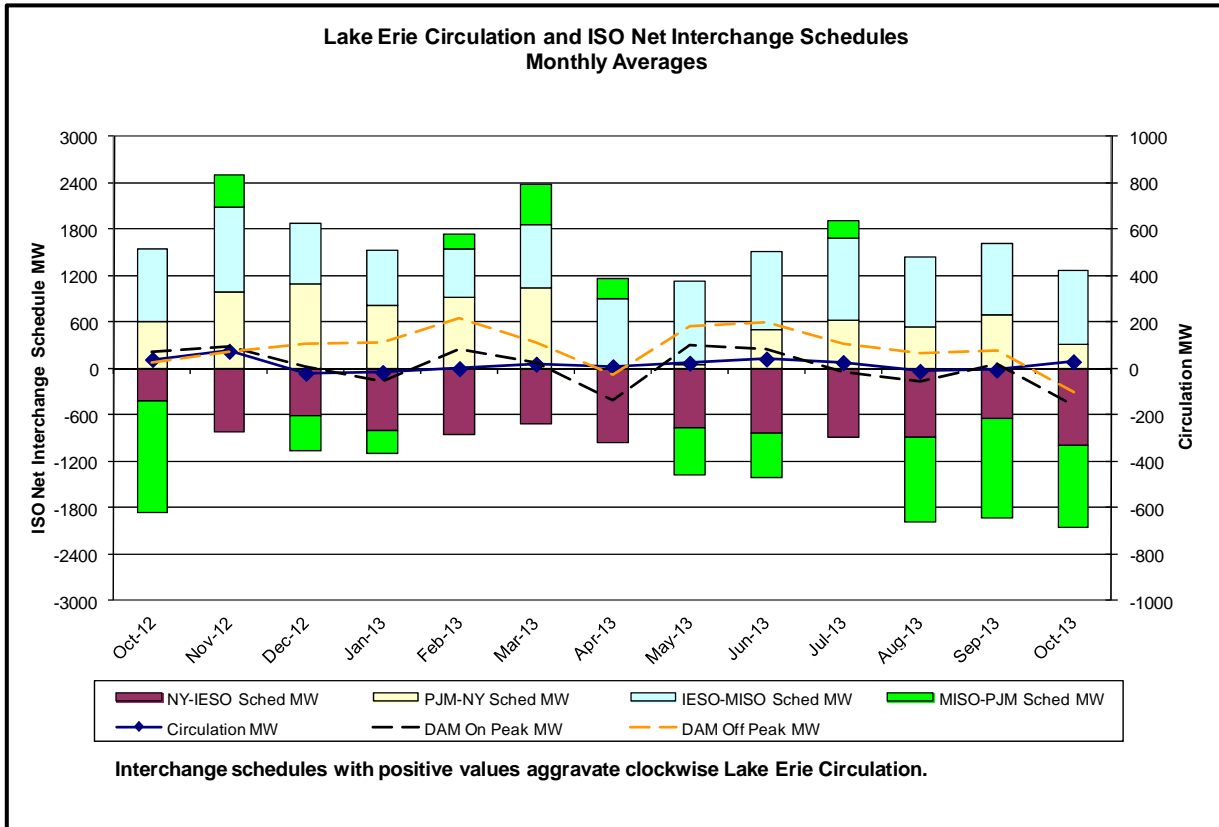
MAE Forecast - Avg $|\text{actual wind generation} - \text{hour ahead forecast wind generation}| / \text{Wind Capacity}$
MAE Persistence - Avg $|\text{actual wind generation} - \text{hour ahead actual wind generation}| / \text{Wind Capacity}$
Bias - Avg $(\text{actual wind generation} - \text{hour ahead forecast wind generation}) / \text{Wind Capacity}$

Wind Forecast Performance Hour Ahead Mean Absolute Percent Error Ramp Events - Hourly Changes That Exceed 20% (323MW) of Wind Capacity (1616MW)

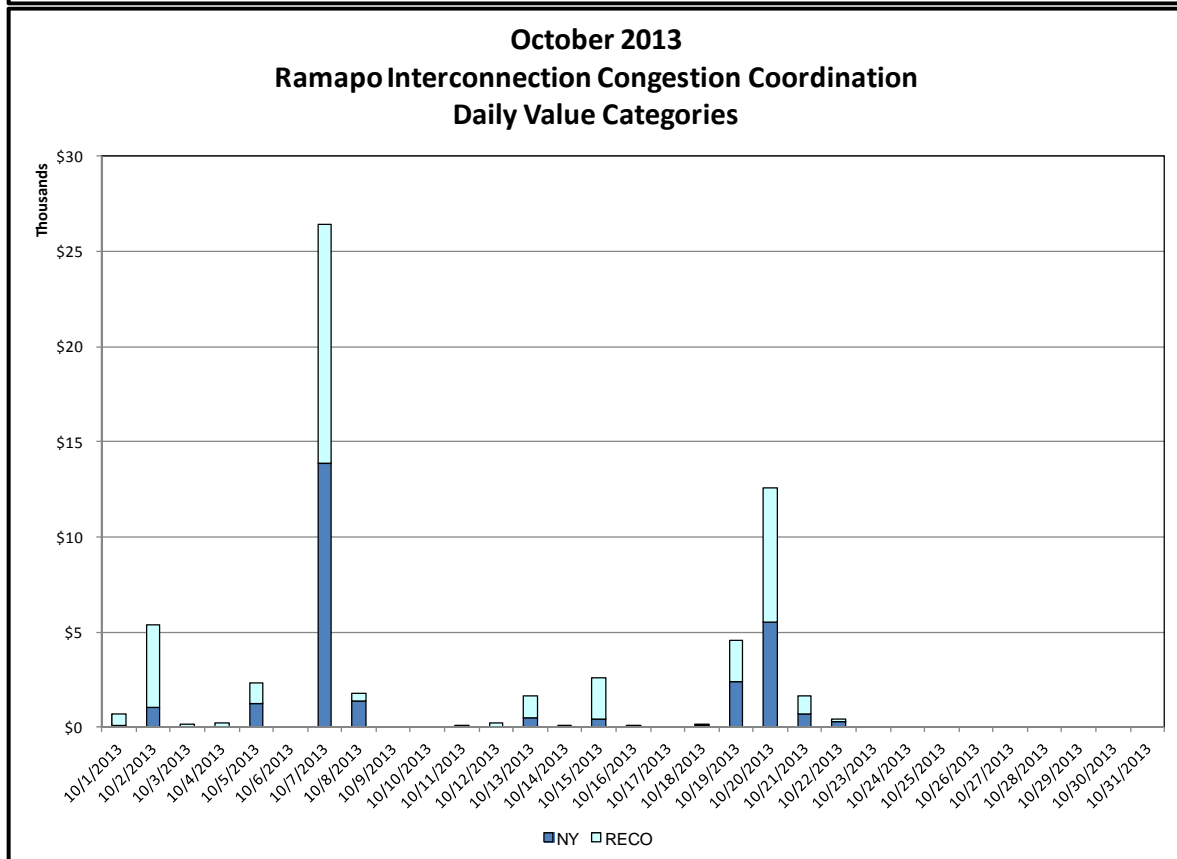
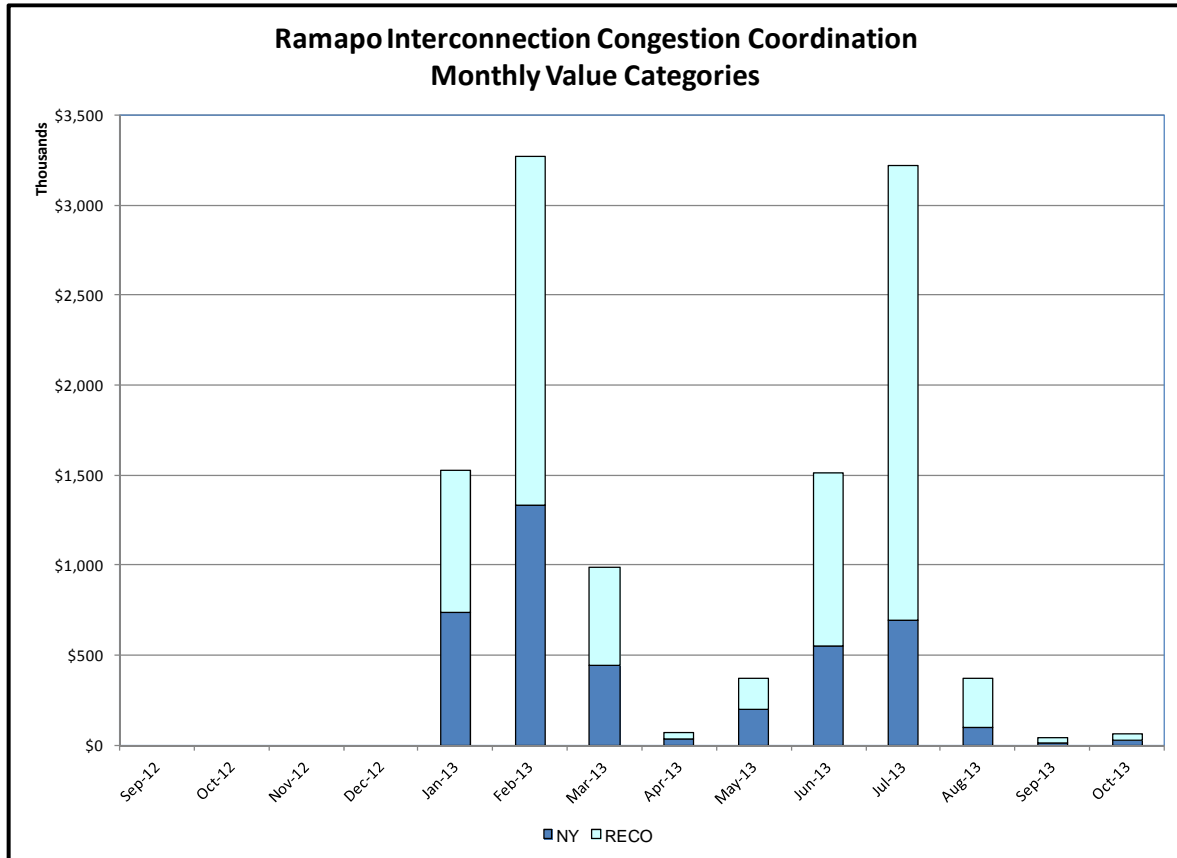


MAE Forecast - Avg $|\text{actual wind generation} - \text{hour ahead forecast wind generation}| / \text{Wind Capacity}$
MAE Persistence - Avg $|\text{actual wind generation} - \text{hour ahead actual wind generation}| / \text{Wind Capacity}$



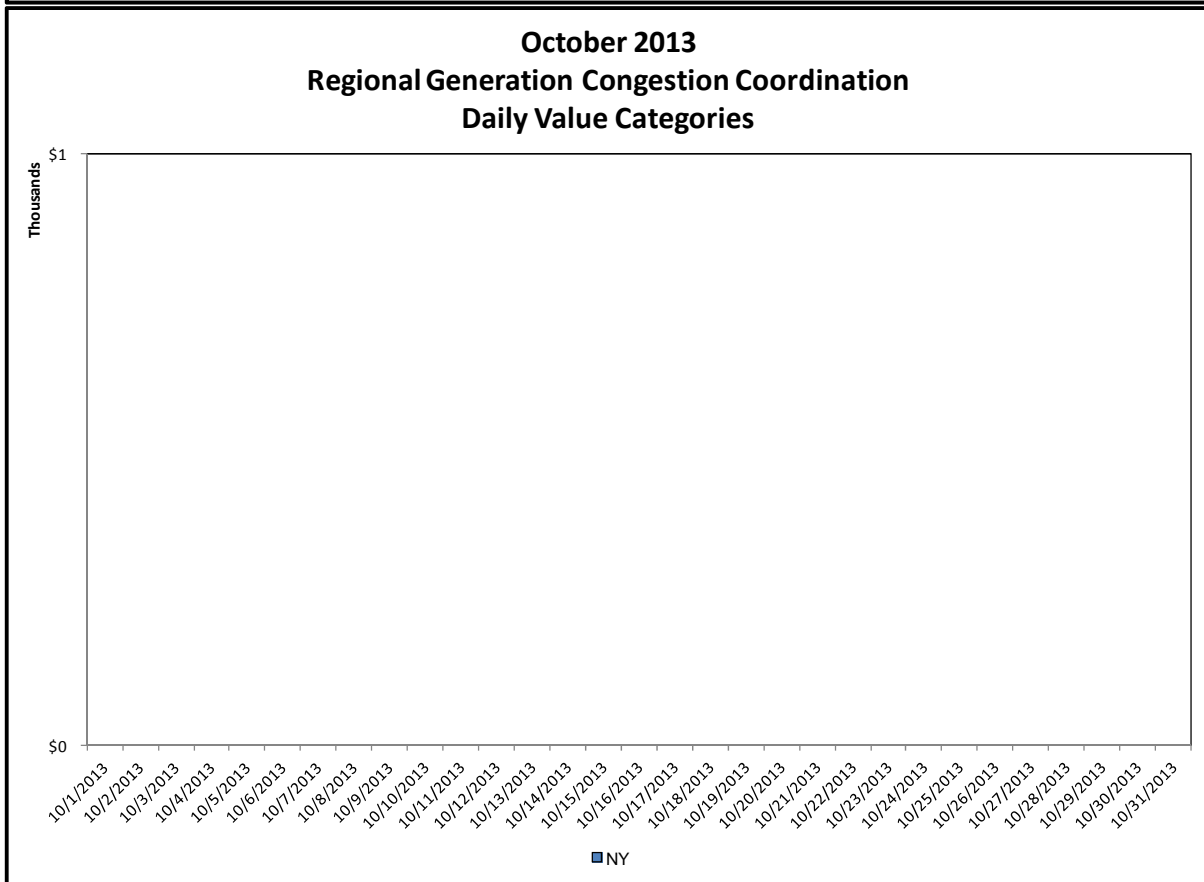
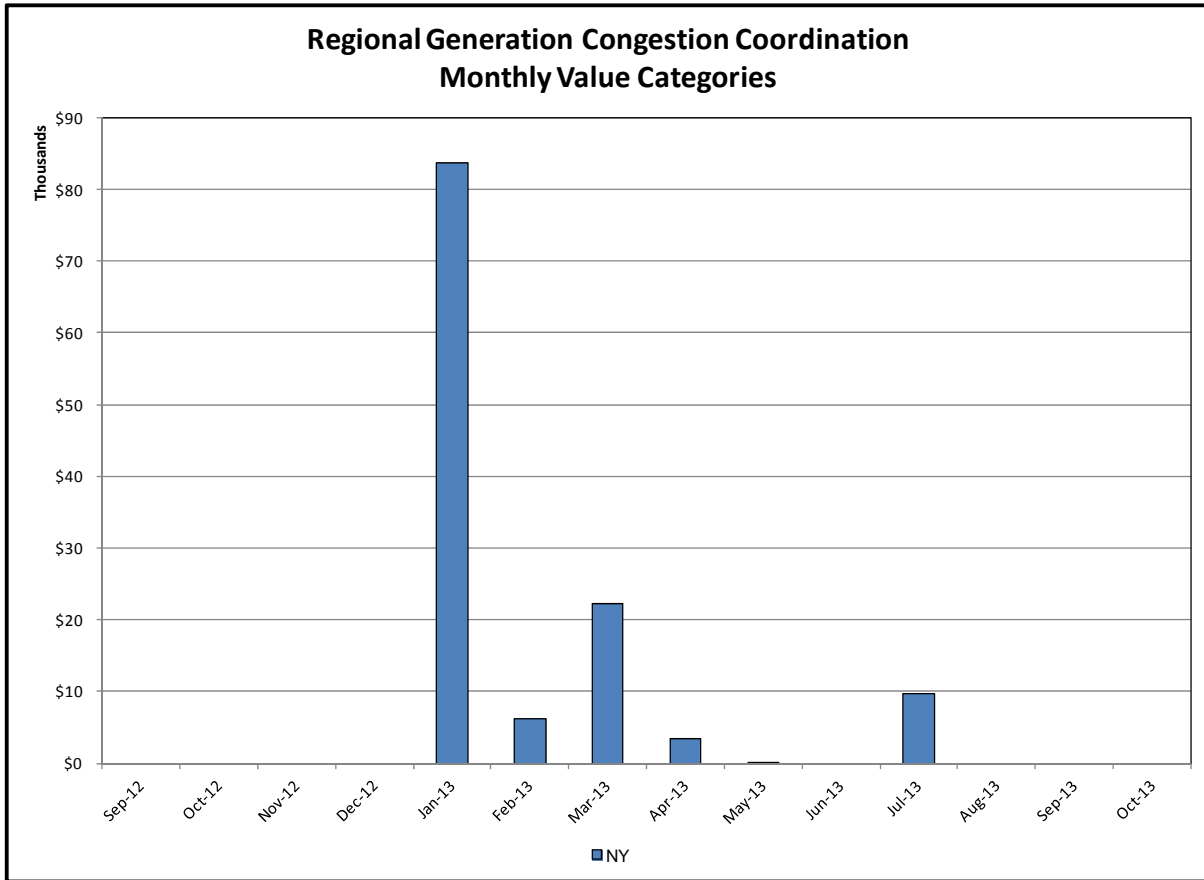


Broader Regional Market Performance Metrics



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

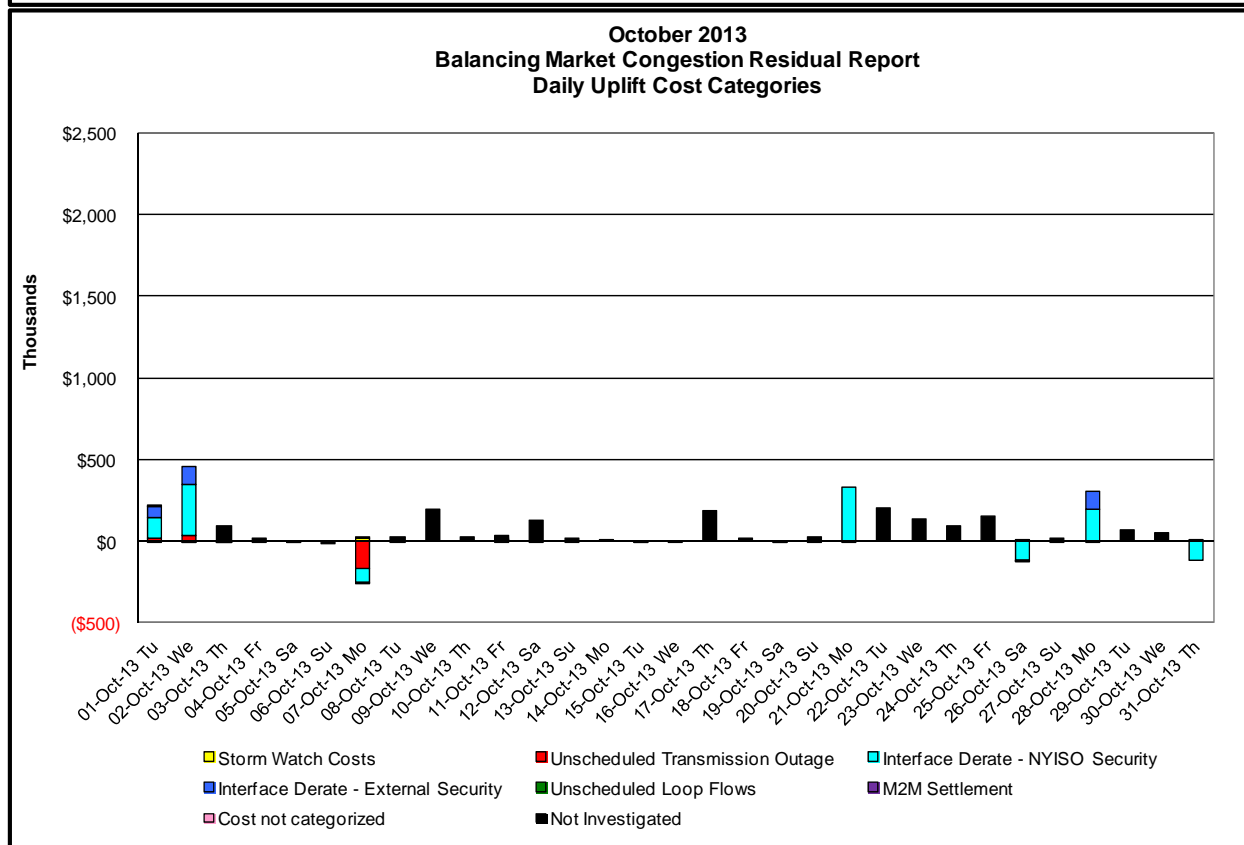
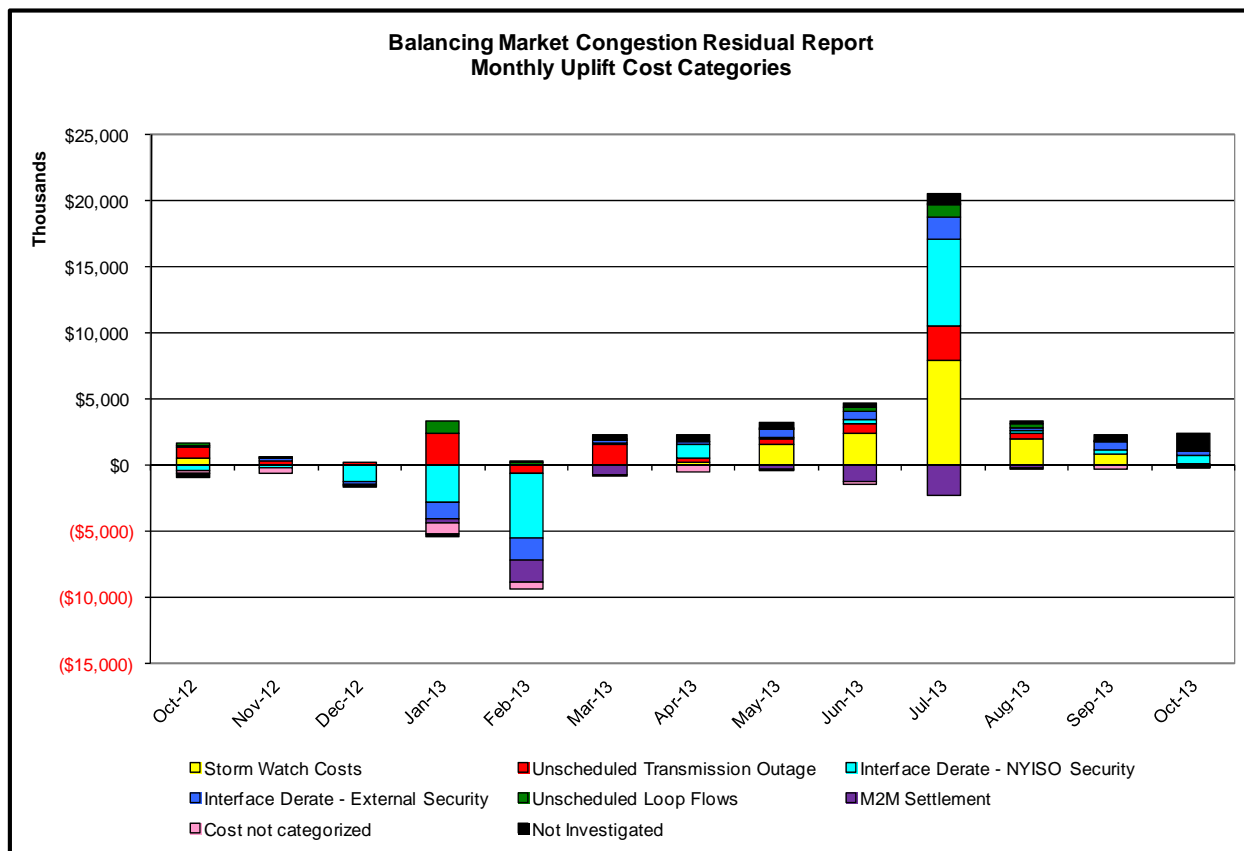
Category

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



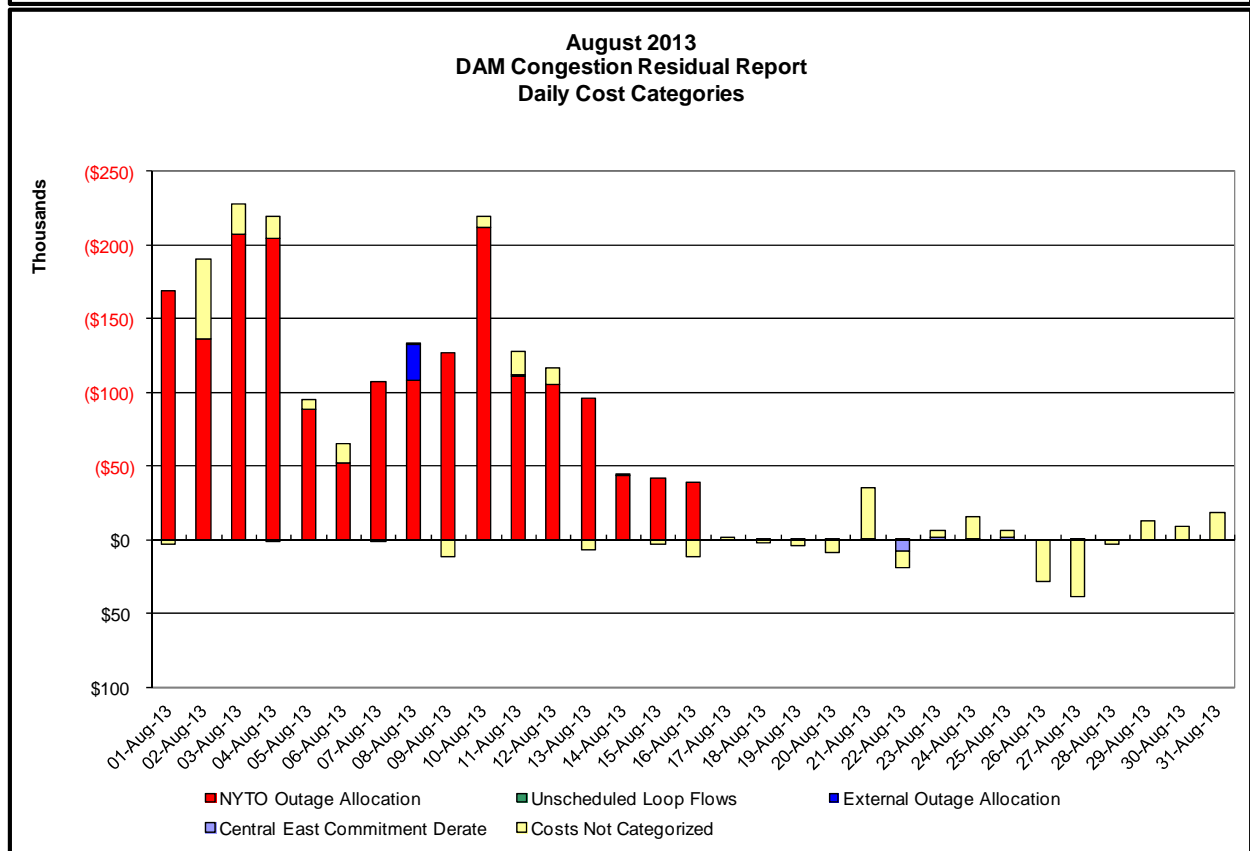
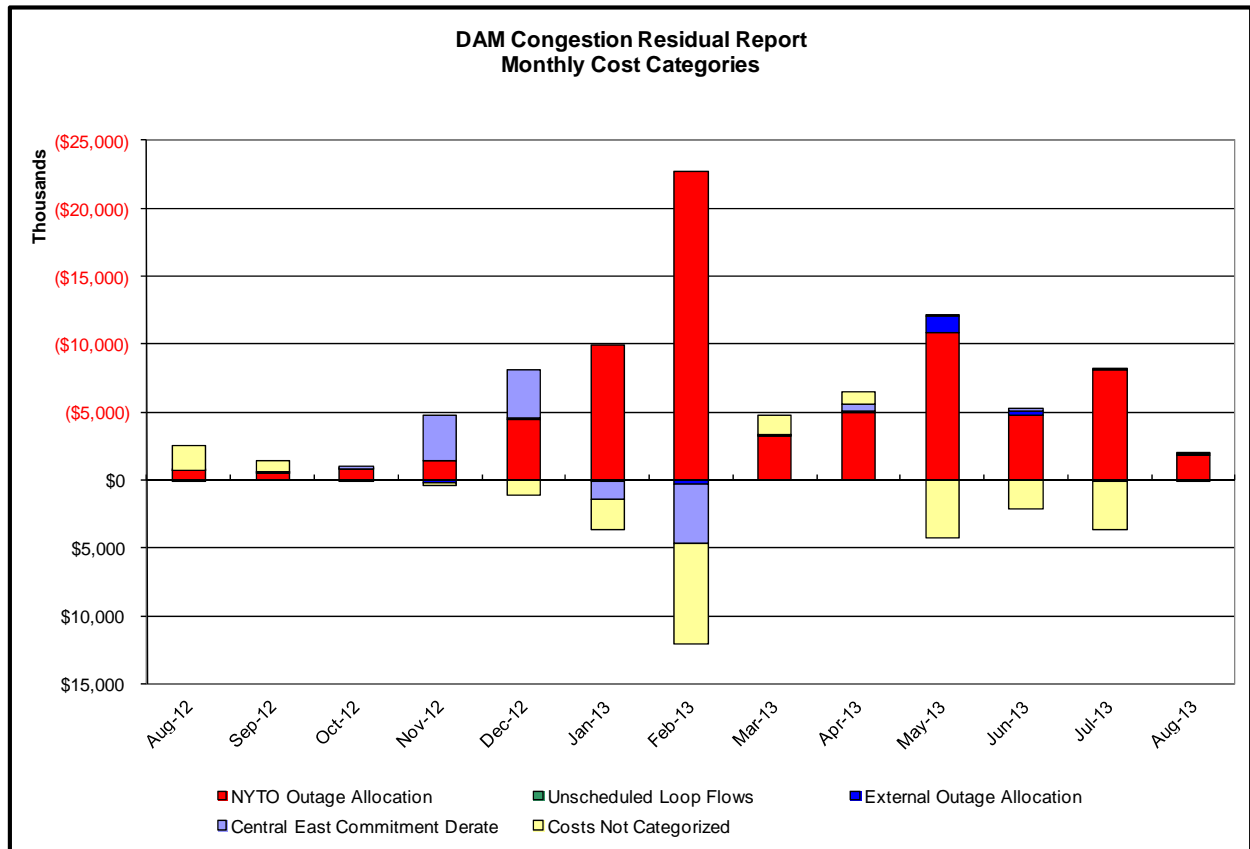
Day's investigated in October: 1,2,7,21,26,28,31			
Event	Date (yyyymmdd)	Hours	Description
	10/1/2013	19-22	Extended outage Gowanus-Greenwood 138kV (#42232)
	10/1/2013	15,16	Derate Dunwoodie-Shore Road 345kV (#Y50) for I/o SprainBrook-East Garden City 345kV (#Y49)
	10/1/2013	12, 13, 15, 16, 19-22	Derate Gowanus-Greenwood 138kV (#42231) for I/o TWR:GOETHALS 22 & 21 & A2253
	10/1/2013	8-13, 19, 20	Derate Packard-Sawyer 230kV (#77) for I/o Packard-Sawyer 230kV (#78)
	10/1/2013	12, 13, 15, 16, 19-22	Derate Rainey-Vernon 138kV (#36312)
	10/1/2013	10-13, 15, 16, 19	HQ_CEDARS-NY Scheduling Limit
	10/1/2013	1	NE_NNC1385-NY Scheduling Limit
	10/2/2013	9-11	Forced outage MottHaven-Rainey 345kV (#Q11)
	10/2/2013	20	Uprate Central East
	10/2/2013	13, 17-19	Derate East Garden City-Valley Stream 138kV (#262)
	10/2/2013	11	Derate Gowanus-Greenwood 138kV (#42231) for I/o TWR:GOETHALS 22 & 21 & A2253
	10/2/2013	22	Uprate MottHaven-Rainey 345kV (#Q12)
	10/2/2013	8-12, 17-19	Derate Packard-Sawyer 230kV (#78) for I/o Packard-Sawyer 230kV (#77)
	10/2/2013	12	Derate Queensbridge/Vernon
	10/2/2013	12	PJM_AC DNI Ramp Limit
	10/2/2013	9	NE_NNC1385-NY Scheduling Limit
	10/7/2013	16	Thunder Storm Alert
	10/7/2013	0-7, 11-13, 17-23	Cancelled outage Malone-Willis 115kV (#MW-1)
	10/7/2013	8	Forced outage Homer City - Stolle Road 345kV (#37)
	10/7/2013	0-7, 12-15, 17	Cancelled outage Rock Tavern - Ramapo 345kV (#77)
	10/7/2013	21	NYCA DNI Ramp Limit
	10/7/2013	0-7, 12-15, 17	Uprate Central East
	10/7/2013	22, 23	Uprate Malone-Willis 115kV (#MW-1) for TWR:WILLIS MW1 & MW2
	10/7/2013	9	Derate Niagara-Packard 230kV (#62) for TWR:Niagara 61 & 64
	10/21/2013	17	NYCA DNI Ramp Limit
	10/21/2013	12-19	Derate East Garden City-Valley Stream 138kV (#262) for I/o BUS:BARRETT 292 & 459 & G2
	10/21/2013	12	Derate East Garden City-Valley Stream 138kV (#262) for I/o SCB:NEWBRDG 1380, 461, BK6
	10/21/2013	12-18	Derate Freeport-Newbridge 138kV (#461)
	10/21/2013	10, 12-16	Derate Gardenville A-Stolle Road 230kV (#66) for I/o TWR:PACKARD 77 & 78
	10/26/2013	17, 19	Uprate Central East
	10/26/2013	13-16, 19	Uprate Dunwoodie-Shore Road 345kV (#Y50)
	10/26/2013	13-20	Uprate Malone-Willis 115kV (#MW-1) for TWR:WILLIS MW1 & MW2
	10/26/2013	7	NE_NNC1385-NY Scheduling Limit
	10/28/2013	8, 9, 11-18	Derate East Garden City-Valley Stream 138kV (#262) for I/o BUS:BARRETT 292 & 459 & G2
	10/28/2013	8, 9, 11-18	Derate Freeport-Newbridge 138kV (#461)
	10/28/2013	11, 18	Derate Gardenville A-Stolle Road 230kV (#66) for I/o TWR:PACKARD 77 & 78
	10/28/2013	9, 11-18	Derate West 49th St.-Sprainbrook 345kV (#M51)
	10/28/2013	11-17	HQ_CEDARS-NY Scheduling Limit
	10/31/2013	19, 20	Forced outage FreshKills 345/138kV (#TB1)
	10/31/2013	10-12, 16, 17	Uprate Astoria Annex-East 13th Street 345kV (#Q35L) for SIN:48&Q35M&BK10&BK11
	10/31/2013	10	Uprate Astoria Annex-East 13th Street 345kV (#Q35M) for SIN:B47&Q35L&E13TH BK16&BK167
	10/31/2013	10-13, 16-18	Uprate Central East
	10/31/2013	10, 13	Uprate Dunwoodie-Shore Road 345kV (#Y50)
	10/31/2013	8	Derate Freeport-Newbridge 138kV (#461)
	10/31/2013	13-18	Uprate Malone-Willis 115kV (#MW-1) for TWR:WILLIS MW1 & MW2
	10/31/2013	20	Derate Mott Haven-Dunwoodie 345kV (#71) for I/o Mott Haven-Dunwoodie 345kV (#72)

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	

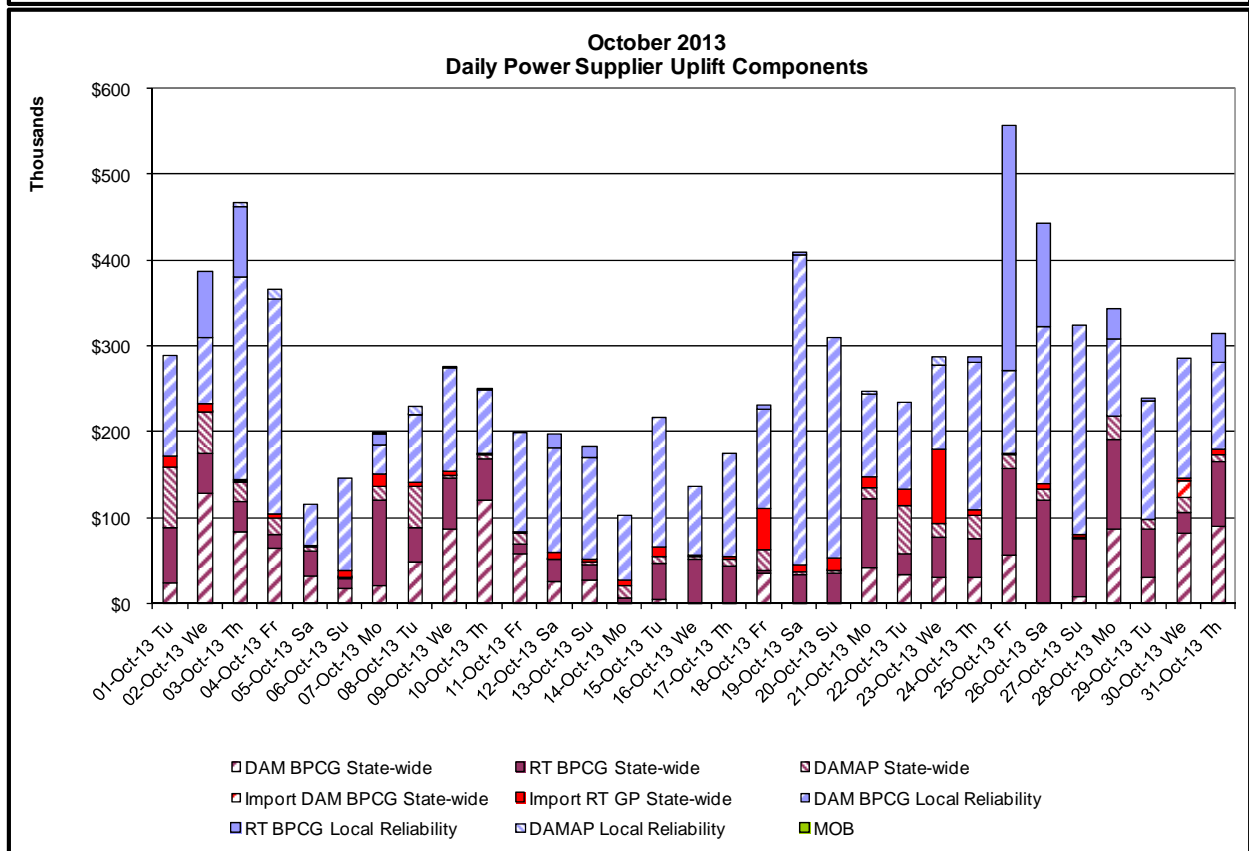
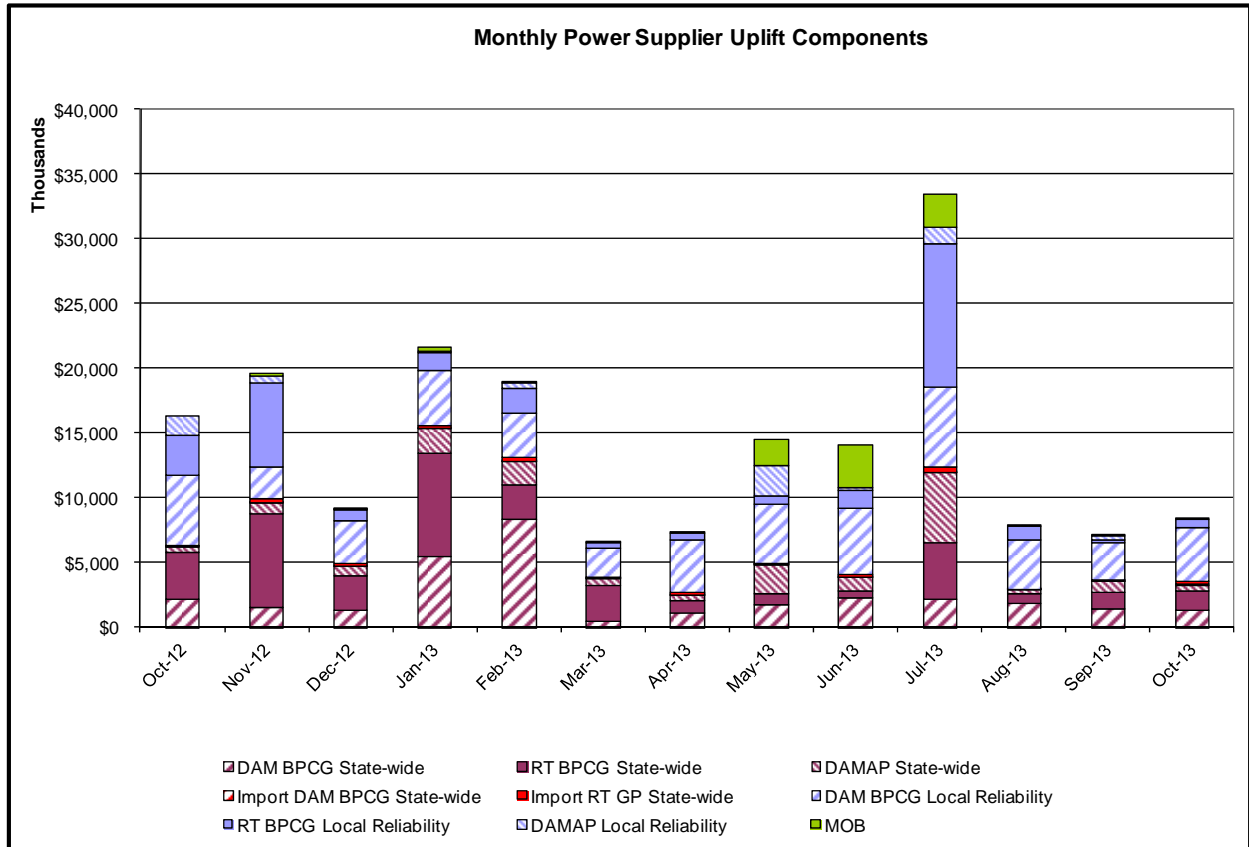
Monthly Balancing Market Congestion Report Assumptions/Notes

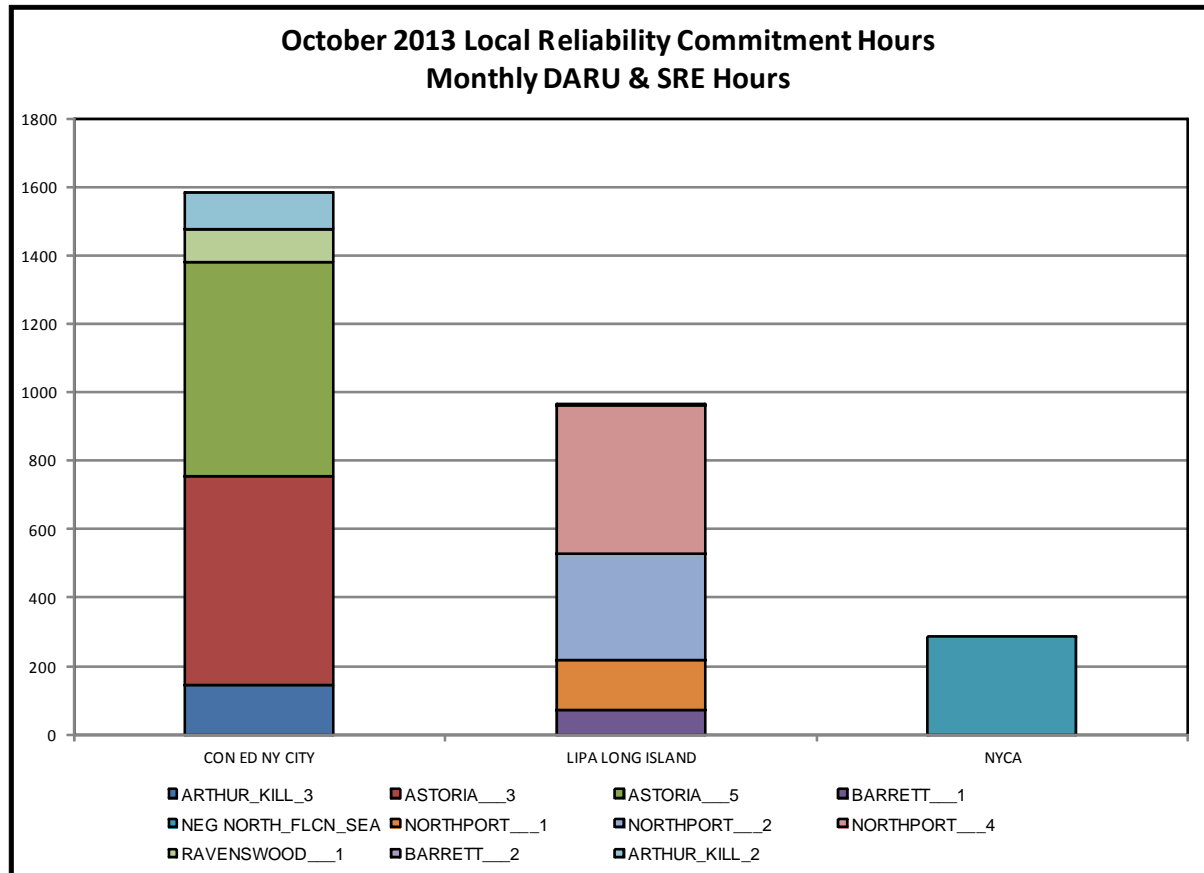
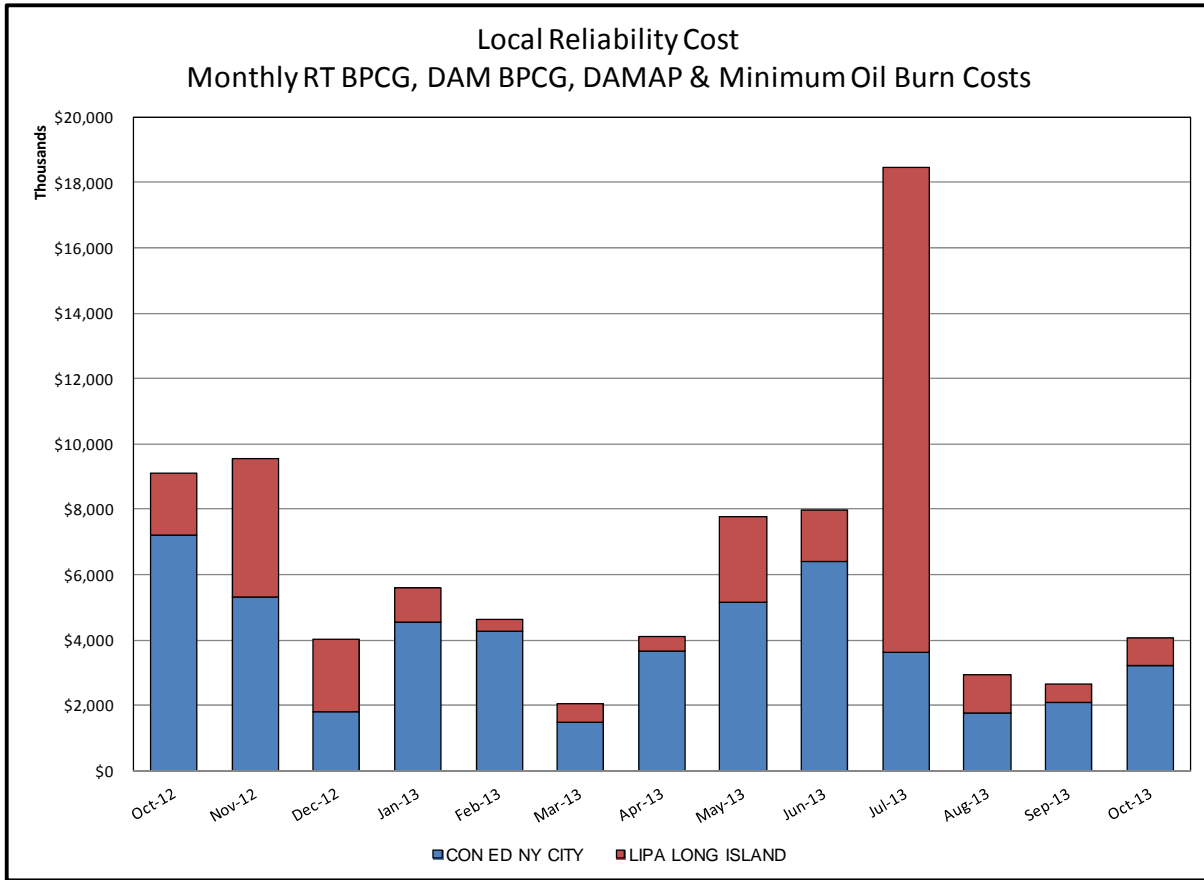
- 1) Storm Watch Costs are identified as daily total uplift costs
- 2) Days with a value of BMCR less M2M Settlement of \$100K/HR, shortfall of \$200K/Day or more, or surplus of \$100K/Day or more are investigated.
- 3) Uplift costs associated with multiple event types are apportioned equally by hour

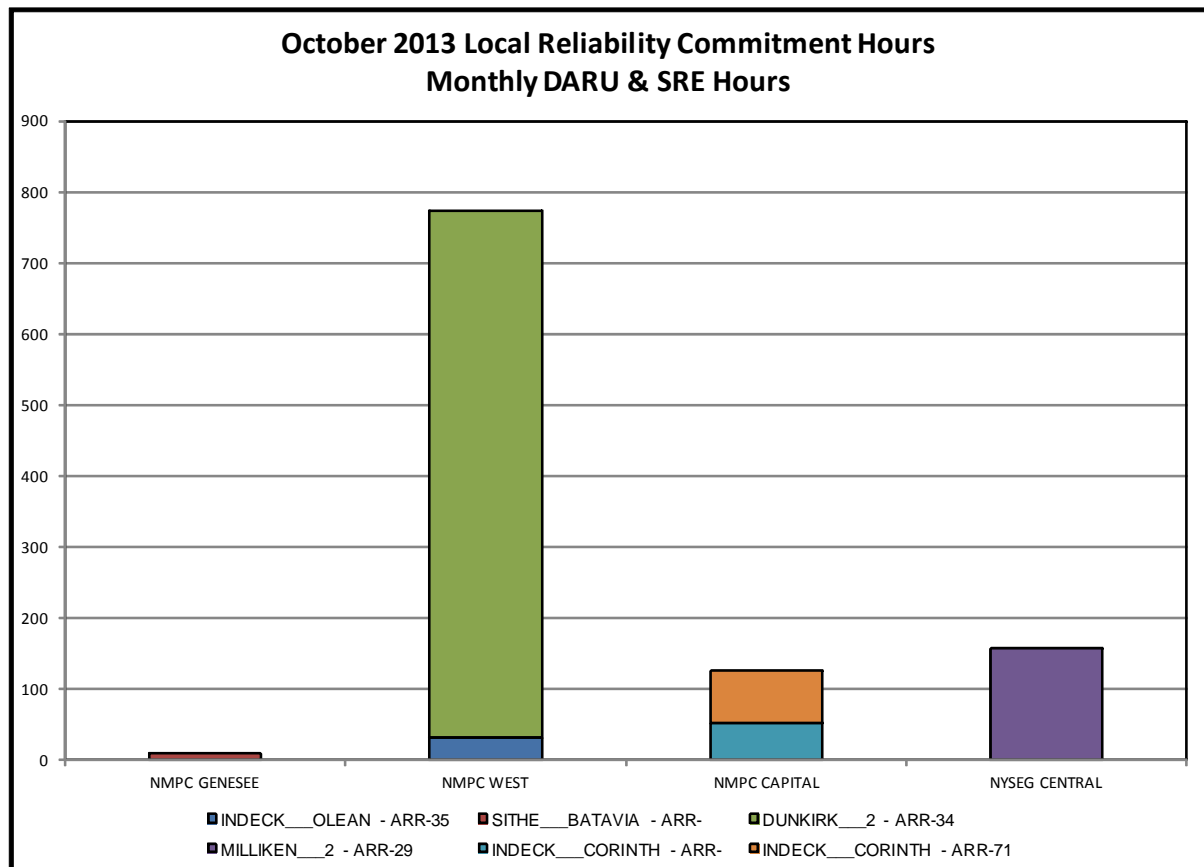
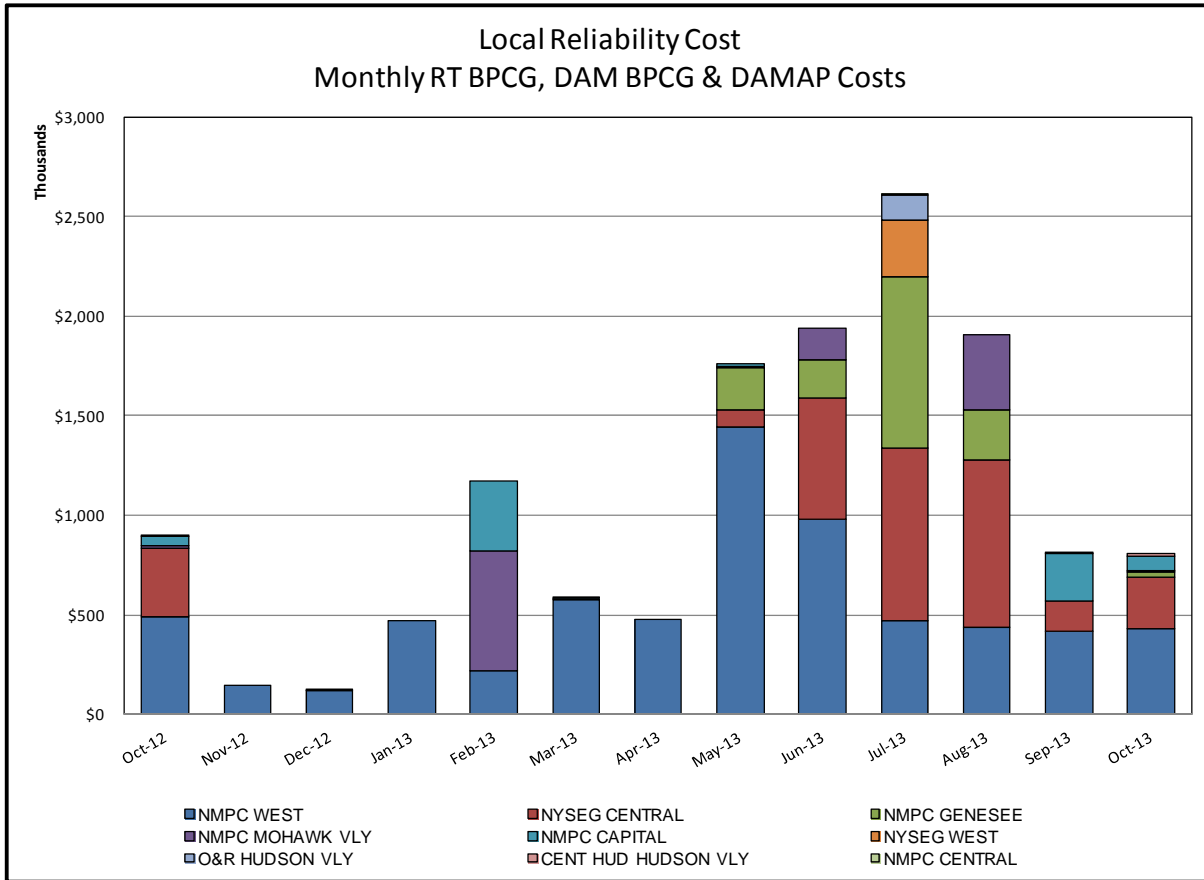


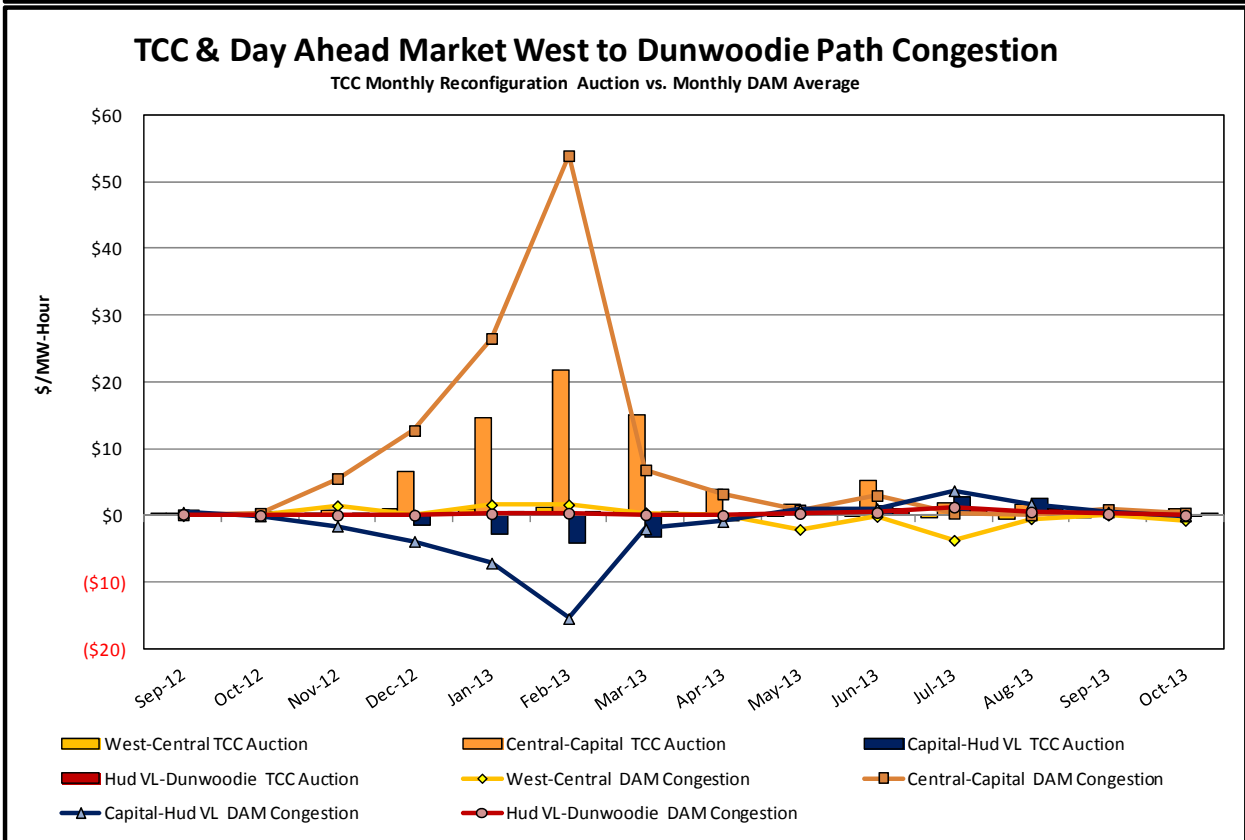
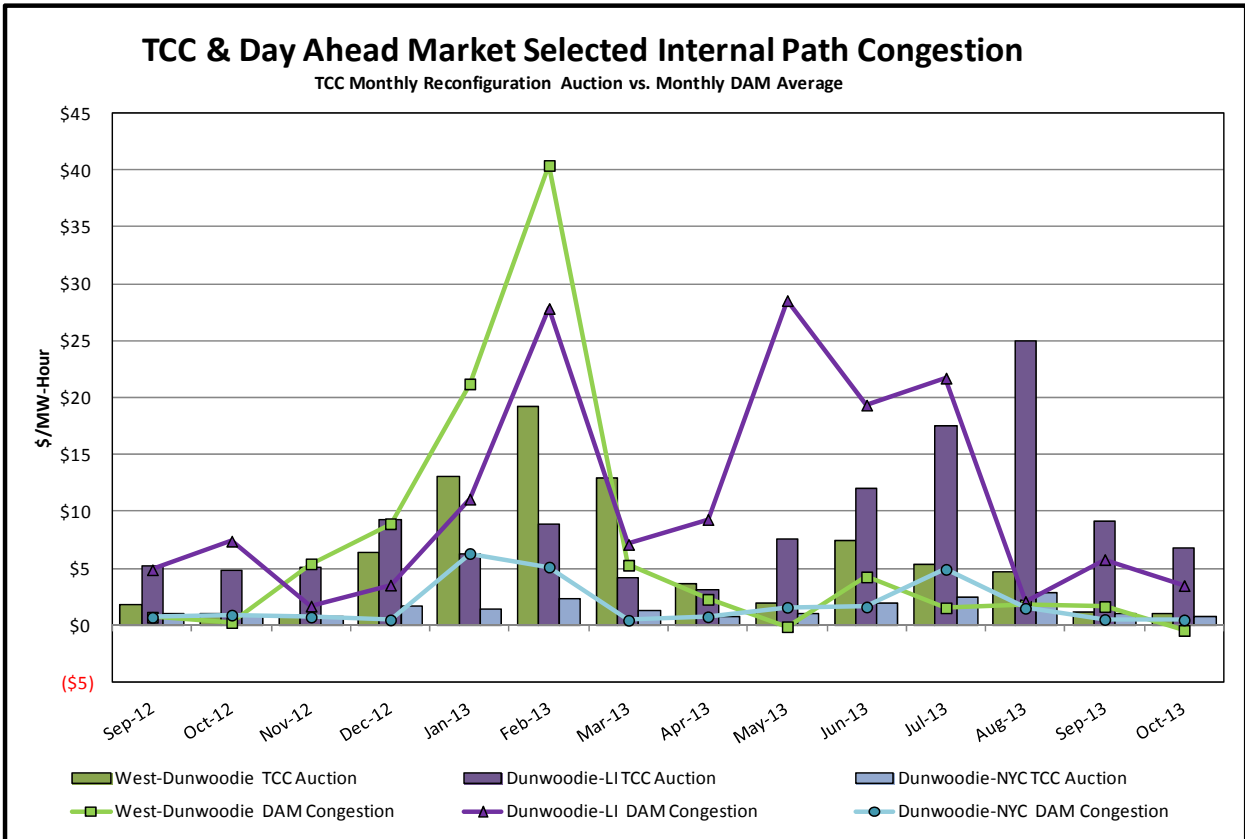
Day-Ahead Market Congestion Residual Categories

<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.
Unscheduled Loop Flows	All TO by Monthly Allocation Factor	Residual impact of Lake Erie circulation, MW difference between the DAM and TCC Auction.	Lake Erie Loop Flow Assumptions
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

