Operations Performance Metrics Monthly Report




May 2014 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 June 9, 2014.

Table of Contents

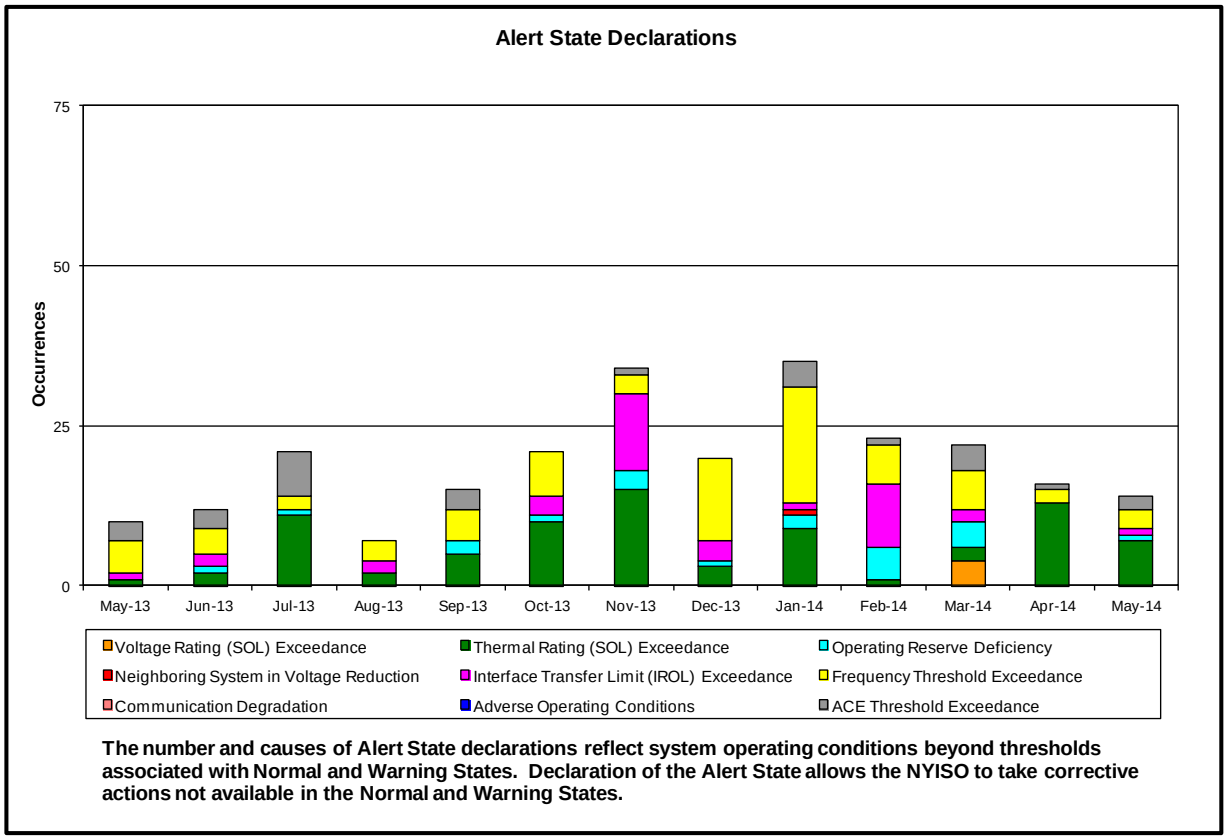
May 2014 Operations Performance Highlights

- Peak load of 23,198 MW occurred on 5/27/2014 HB 16
- All-time summer capability period peak load of 33,956 MW occurred on 7/19/2013 HB 16
- 6 hours of Thunder Storm Alerts were declared
- 0 hours of NERC TLR level 3 curtailment
- Broader Regional Market Coordination monthly value was $0.15M
- Broader Regional Market Coordination year-to-date value was $6.11M
- Statewide uplift cost monthly average was $(0.44)/MWh
- Goethals 345kV ring bus completed and placed in-service 5/17
- The following table identifies the Monthly ICAP spot market prices by locality and the price changes from the prior month,

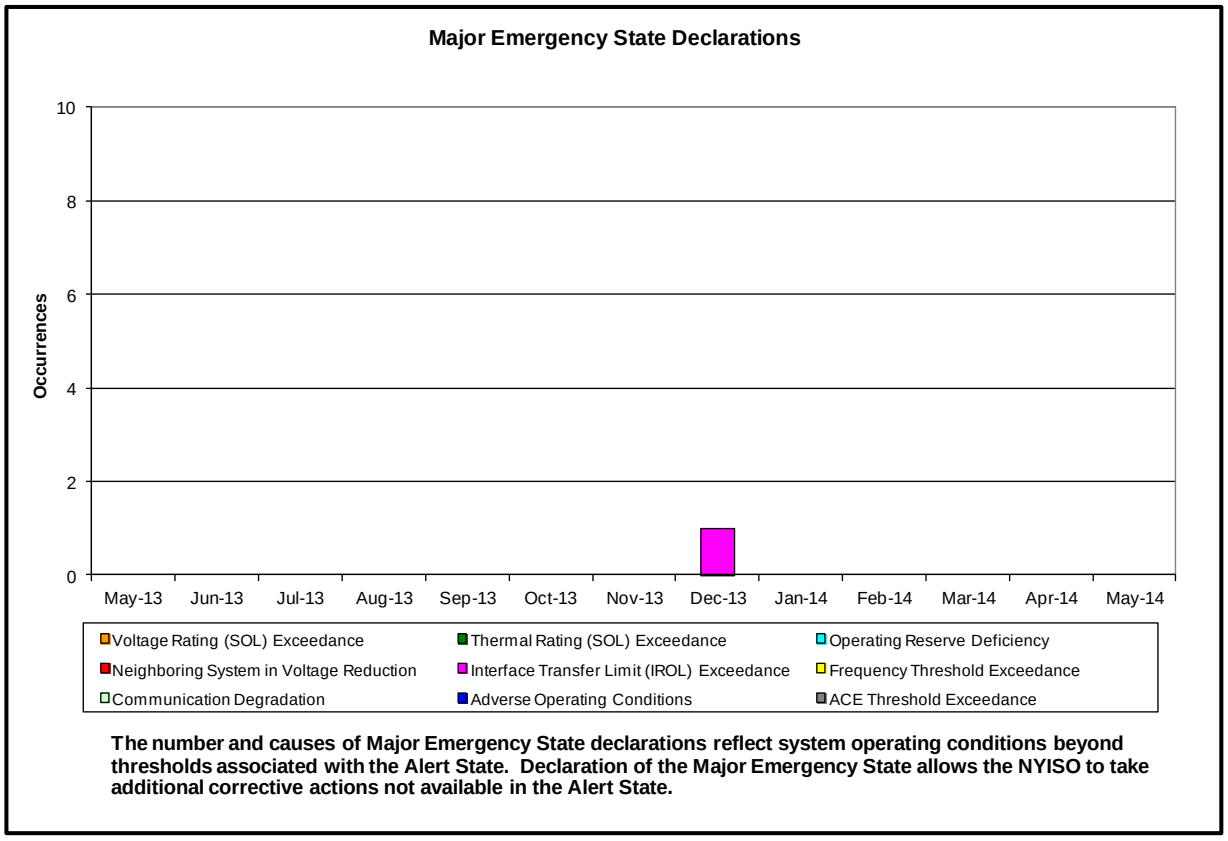
Spot Auction Price Results	NYCA	Lower Hudson Valley Zones	New York City Zone	Long Island Zone
June 2014 Spot Price	$6.21	$12.35	$18.84	$6.44
Change from Prior Month	($0.47)	($0.03)	$0.01	($0.24)

  - NYCA – The -$0.47 change in price is primarily driven by an increase in offered MWs and an increase in ISONE imports.
  - Long Island - The -$0.24 change in price is due to the drop in NYCA price and the Long Island locality requirement setting price.

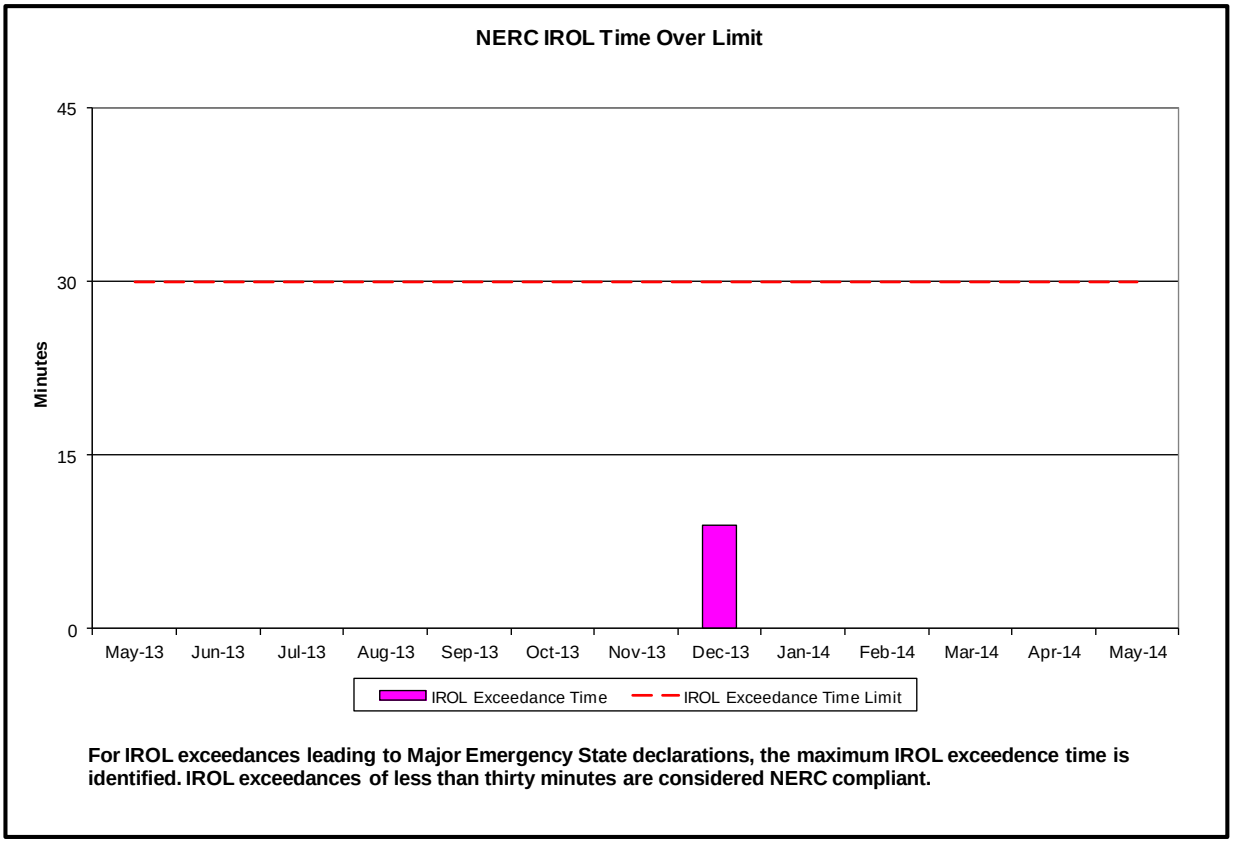
Reliability Performance Metrics



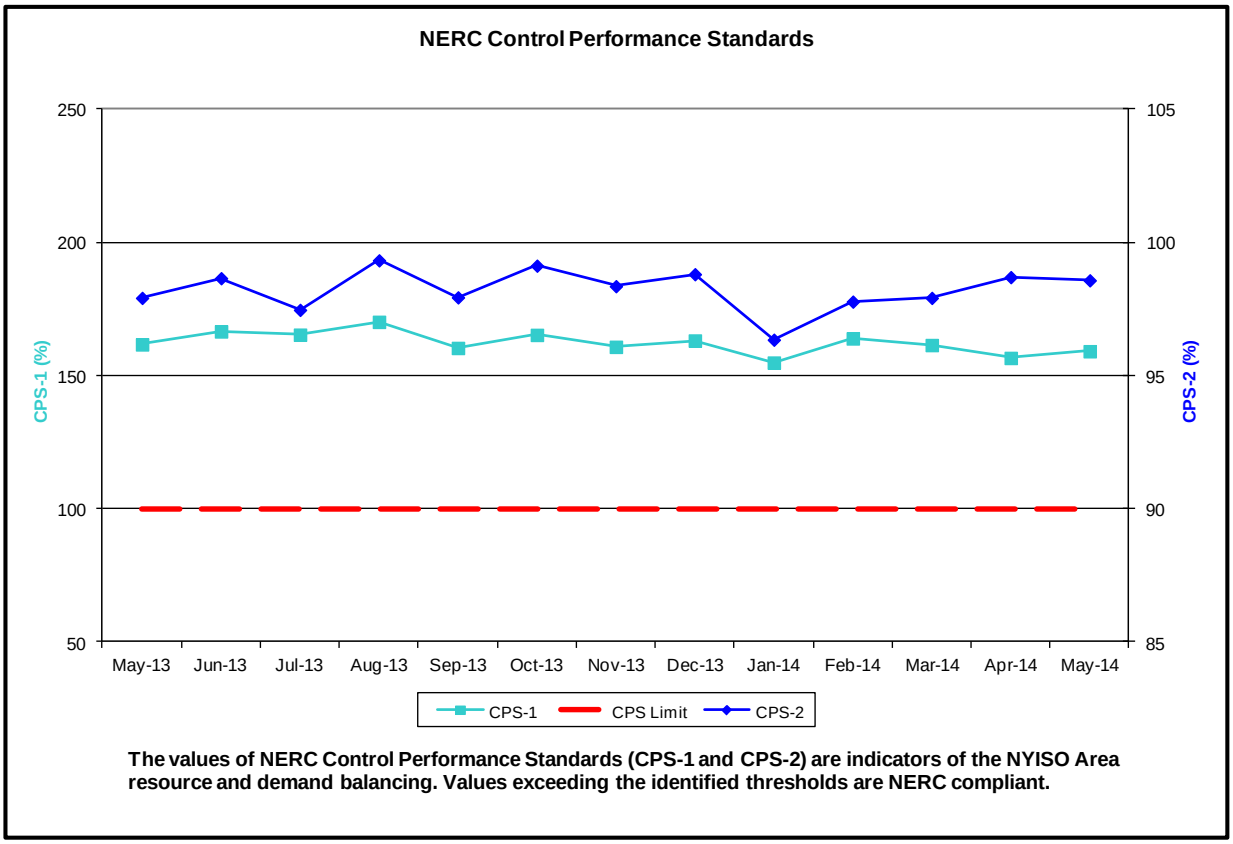
The number and causes of Alert State declarations reflect system operating conditions beyond thresholds associated with Normal and Warning States. Declaration of the Alert State allows the NYISO to take corrective actions not available in the Normal and Warning States.



The number and causes of Major Emergency State declarations reflect system operating conditions beyond thresholds associated with the Alert State. Declaration of the Major Emergency State allows the NYISO to take additional corrective actions not available in the Alert State.

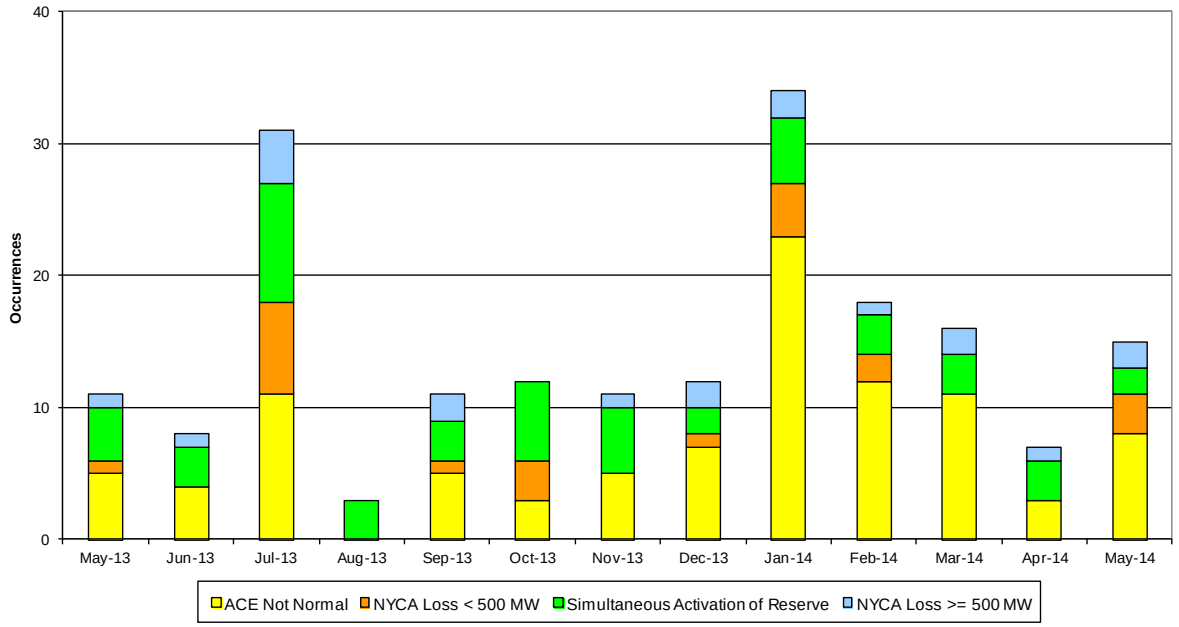


For IROL exceedances leading to Major Emergency State declarations, the maximum IROL exceedence time is identified. IROL exceedances of less than thirty minutes are considered NERC compliant.



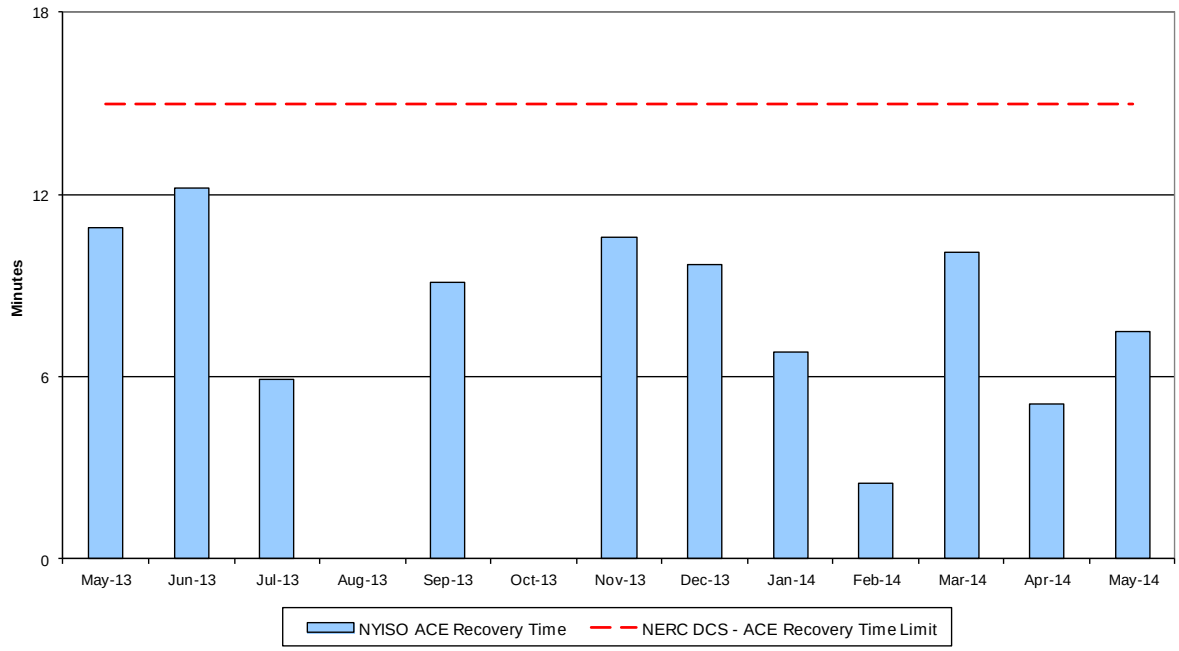
The values of NERC Control Performance Standards (CPS-1 and CPS-2) are indicators of the NYISO Area resource and demand balancing. Values exceeding the identified thresholds are NERC compliant.

Reserve Activations



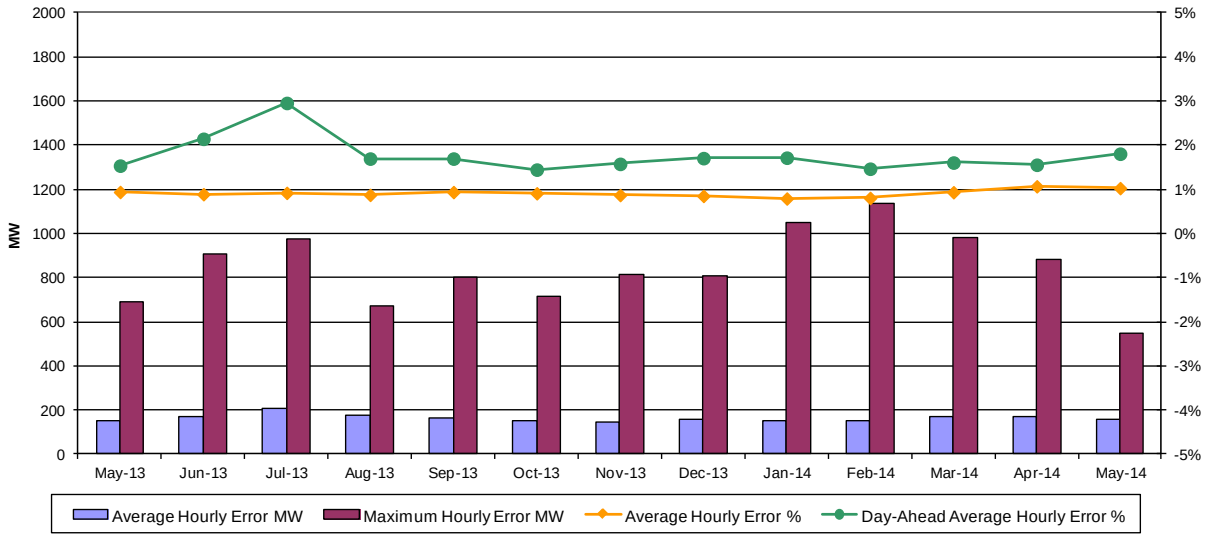
NYISO Reserve Activations are indicators of the need to respond to unexpected operational conditions within the NYISO Area or to assist a neighboring Area (Simultaneous Activation of Reserves) by activating an immediate resource and demand balancing operation.

DCS Event Time to ACE Recovery



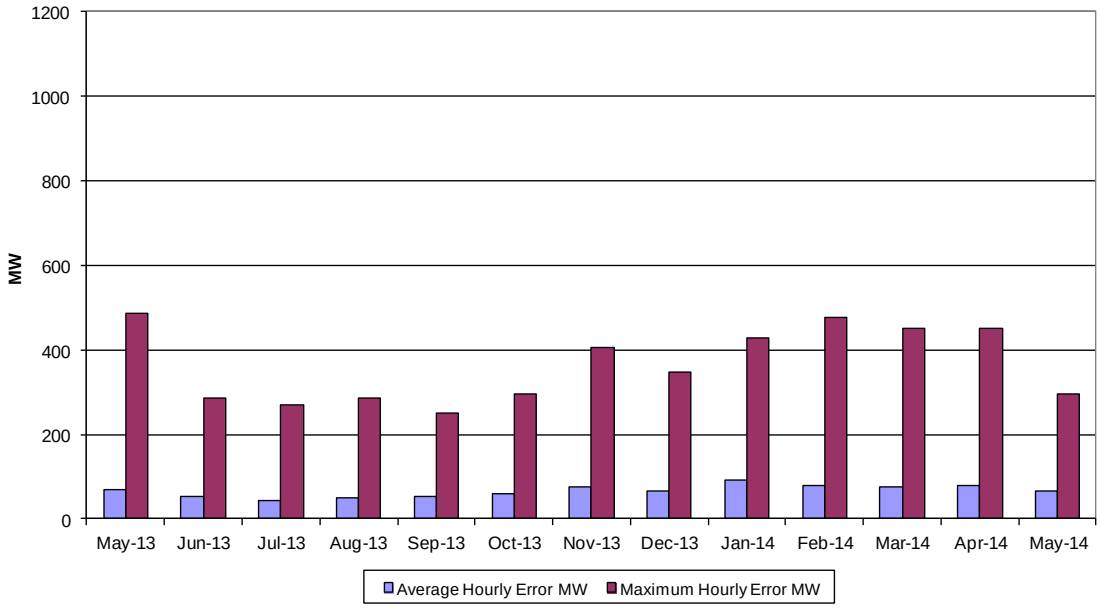
For NYISO initiated Reportable Disturbances, the maximum ACE recovery time is identified. Recovery times of less than 15 minutes are considered NERC compliant.

Load Forecast Performance

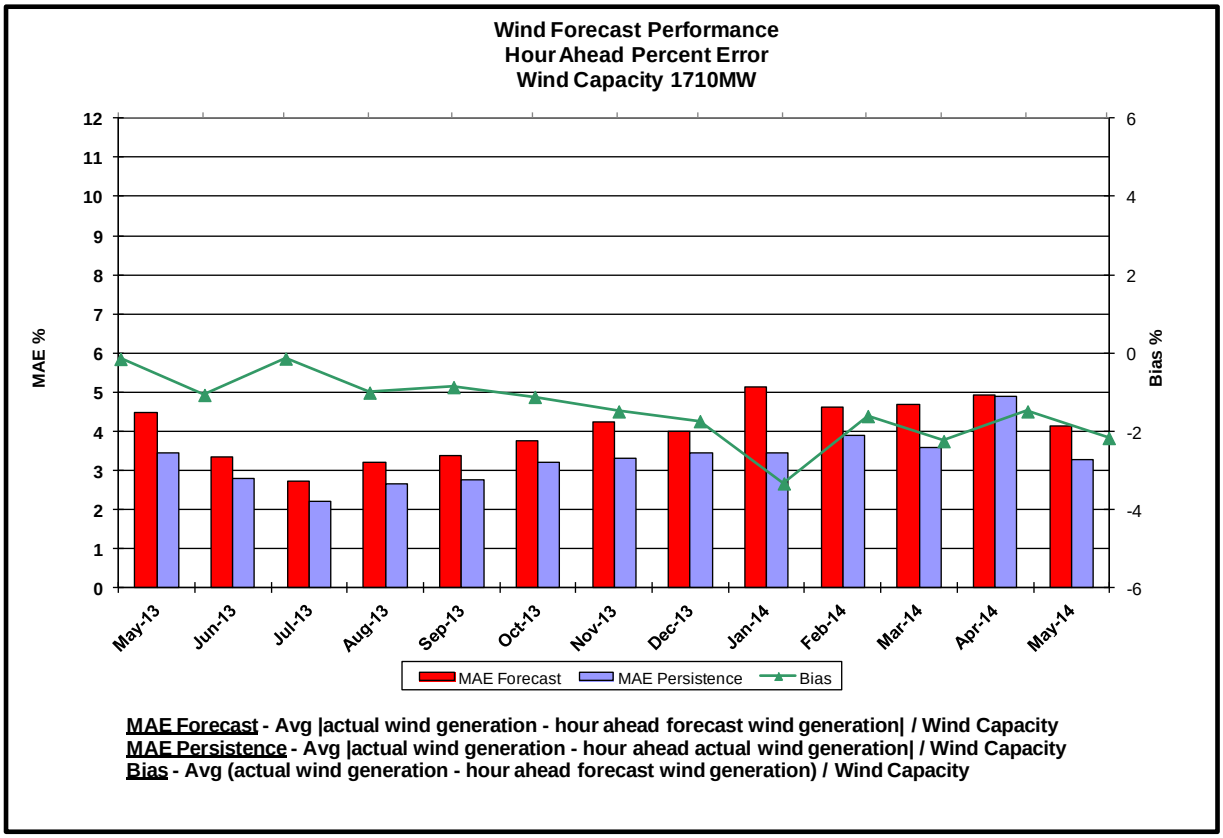


Hourly Error MW - Absolute value of the difference between the hourly average actual load demand and the average hour ahead forecast load demand.
Average Hourly Error % - Average value of the ratio of hourly average error magnitude to hourly average actual load demand.
Day-Ahead Average Hourly Error % - 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.

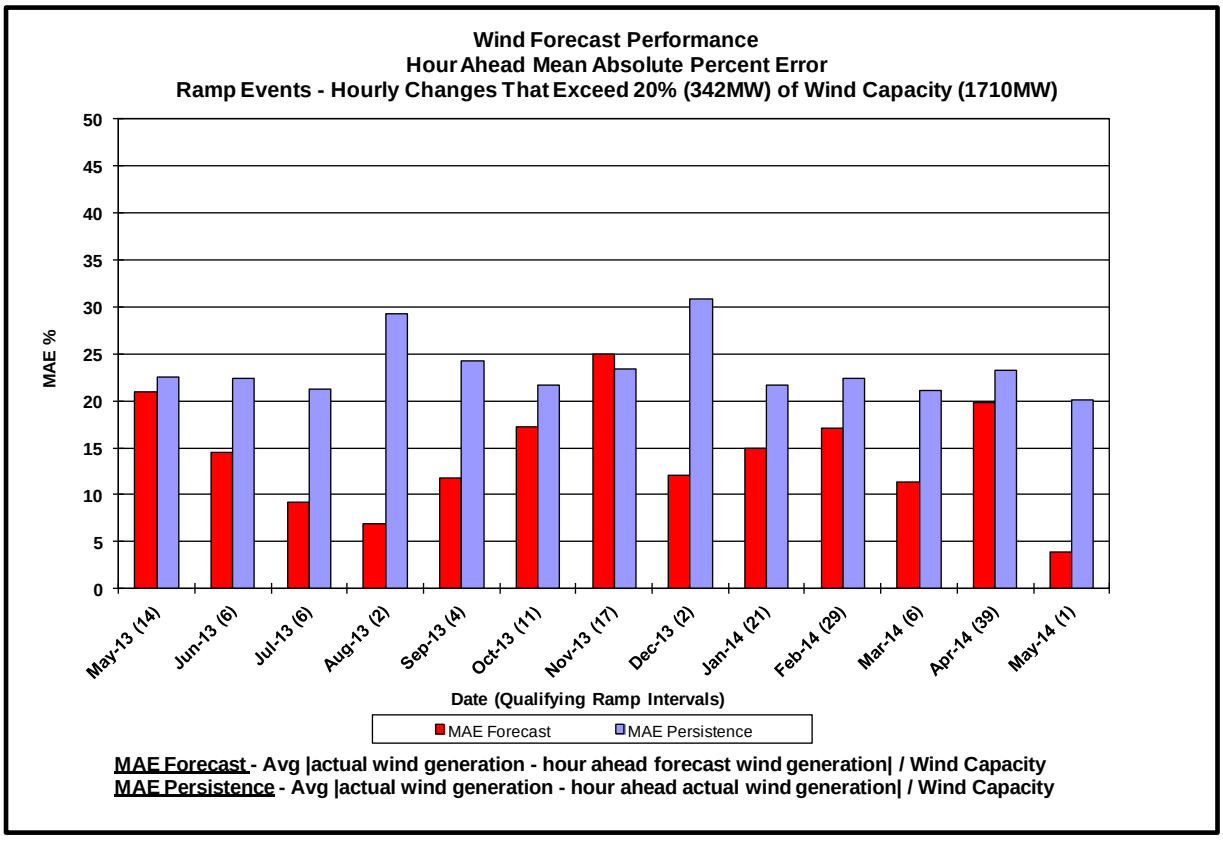
Wind Forecast Performance
Hour Ahead MW Error



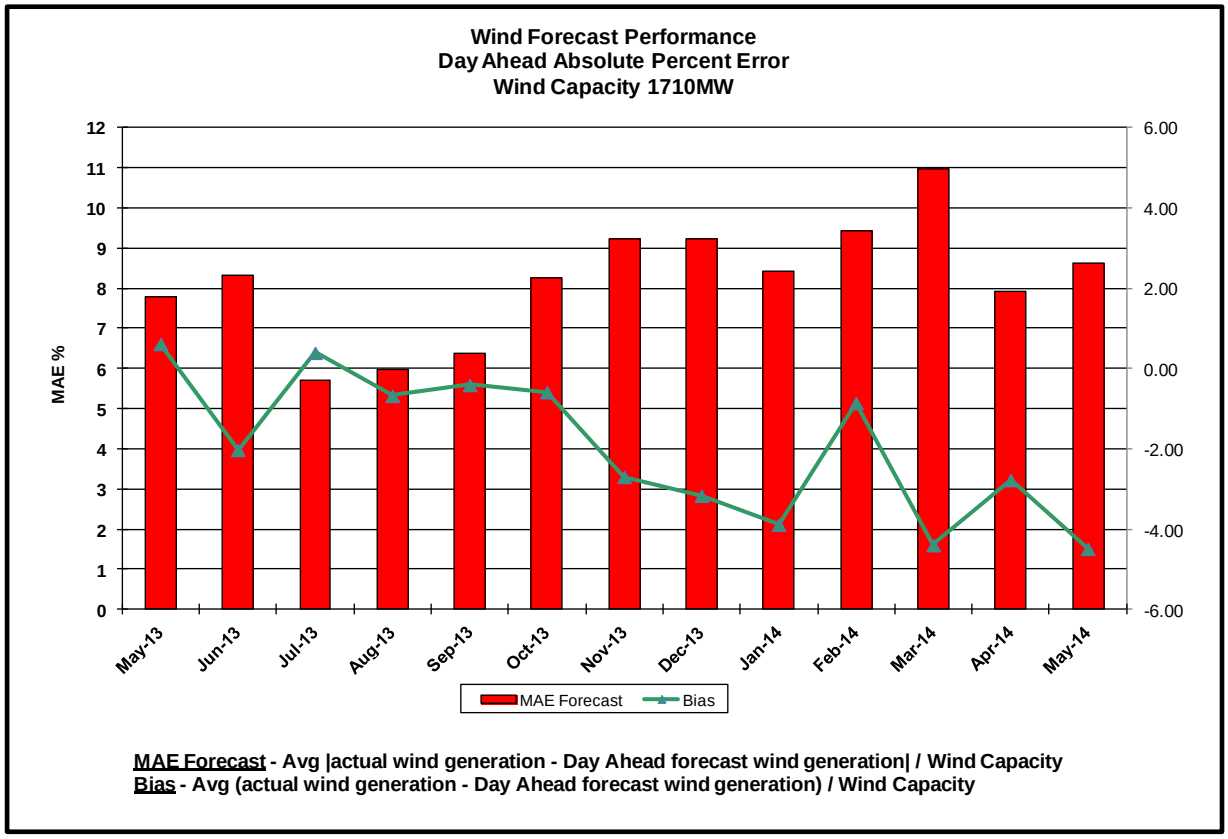
Hourly Error MW - Absolute value of the difference between the hourly average actual wind generation and the average hour ahead forecast wind generation.



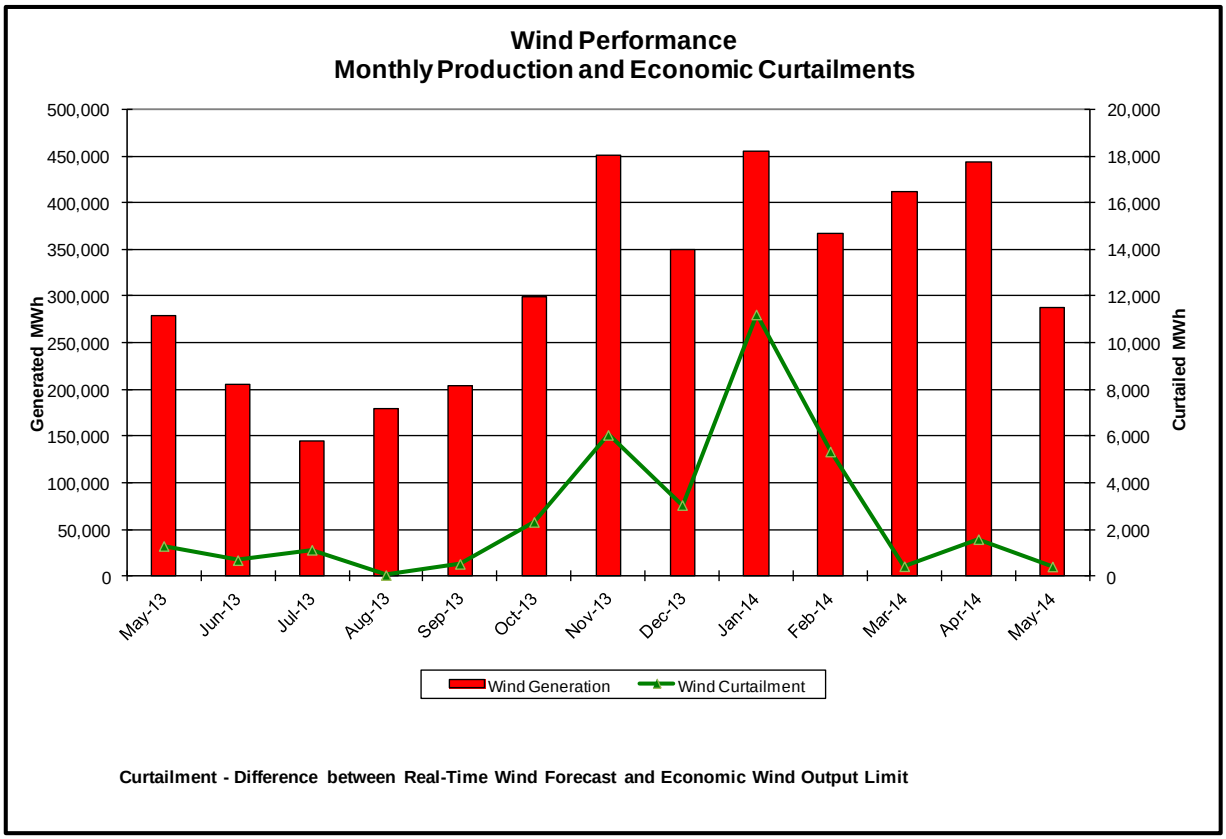
MAE Forecast - Avg |actual wind generation - hour ahead forecast wind generation| / Wind Capacity
MAE Persistence - Avg |actual wind generation - hour ahead actual wind generation| / Wind Capacity
Bias - Avg (actual wind generation - hour ahead forecast wind generation) / Wind Capacity



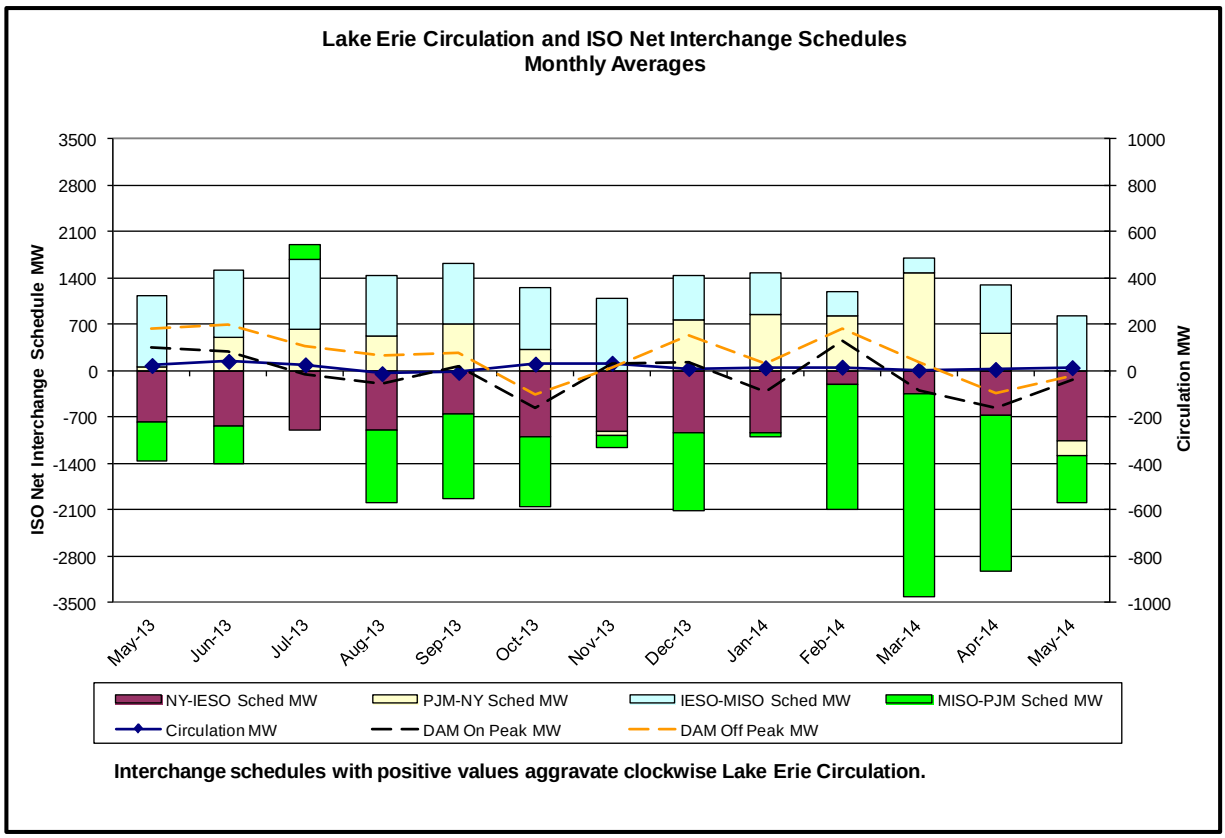
MAE Forecast - Avg |actual wind generation - hour ahead forecast wind generation| / Wind Capacity
MAE Persistence - Avg |actual wind generation - hour ahead actual wind generation| / Wind Capacity



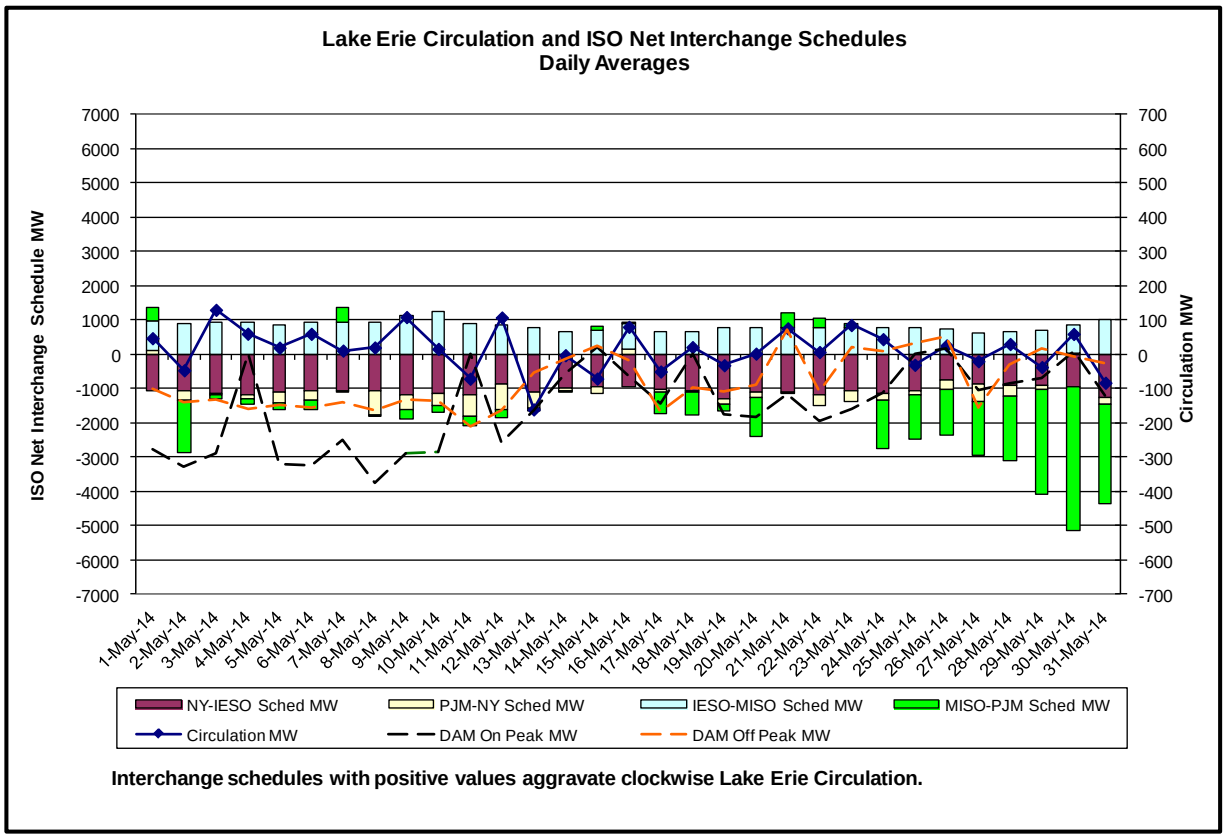
MAE Forecast - Avg |actual wind generation - Day Ahead forecast wind generation| / Wind Capacity
Bias - Avg (actual wind generation - Day Ahead forecast wind generation) / Wind Capacity



Curtailment - Difference between Real-Time Wind Forecast and Economic Wind Output Limit

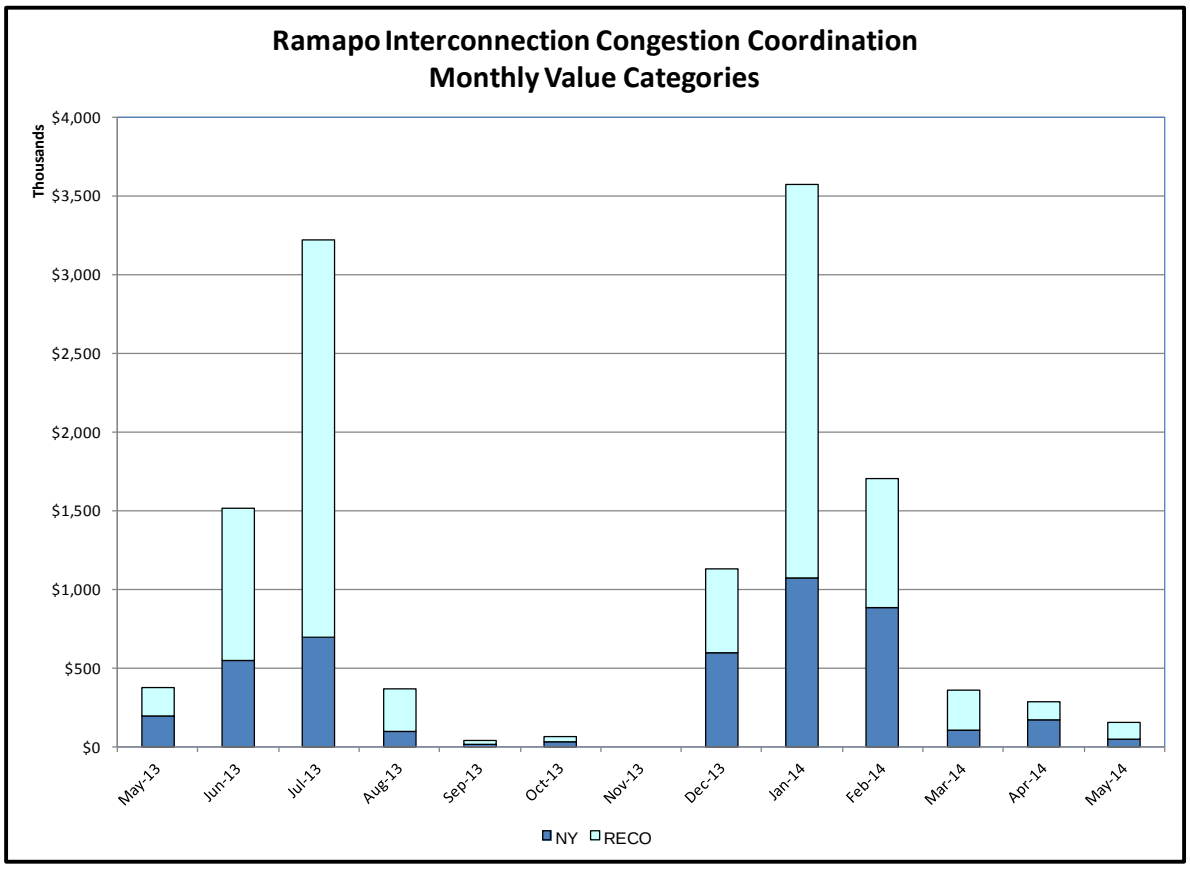


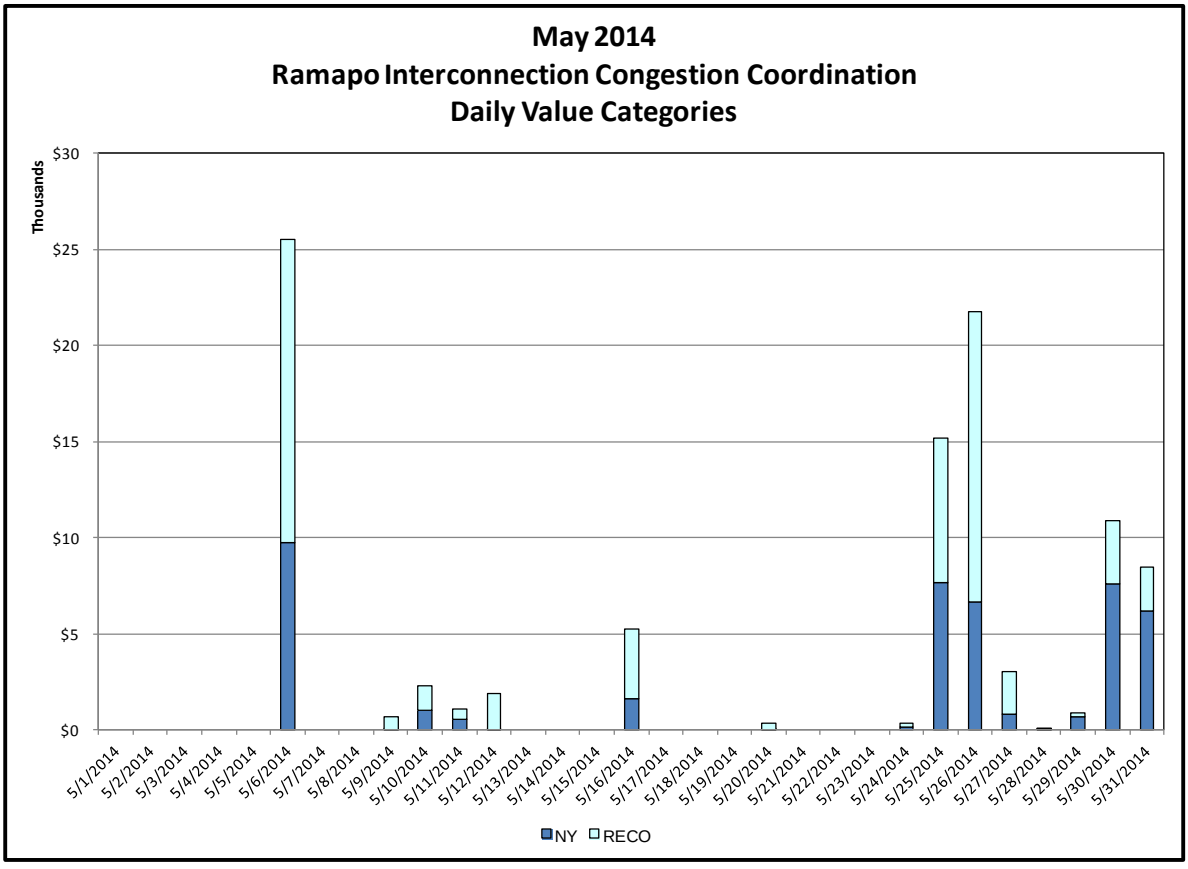
Interchange schedules with positive values aggravate clockwise Lake Erie Circulation.



Interchange schedules with positive values aggravate clockwise Lake Erie Circulation.

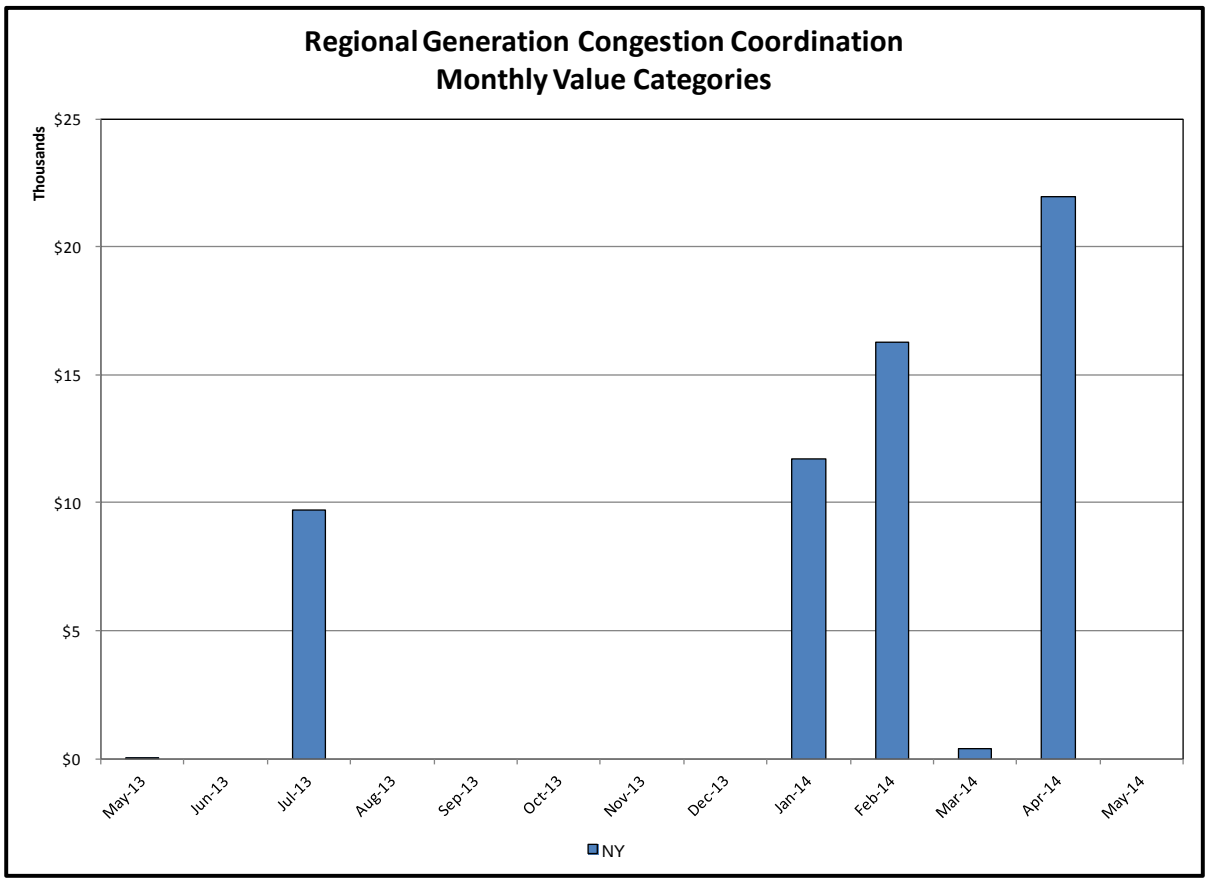
Broader Regional Market Performance Metrics

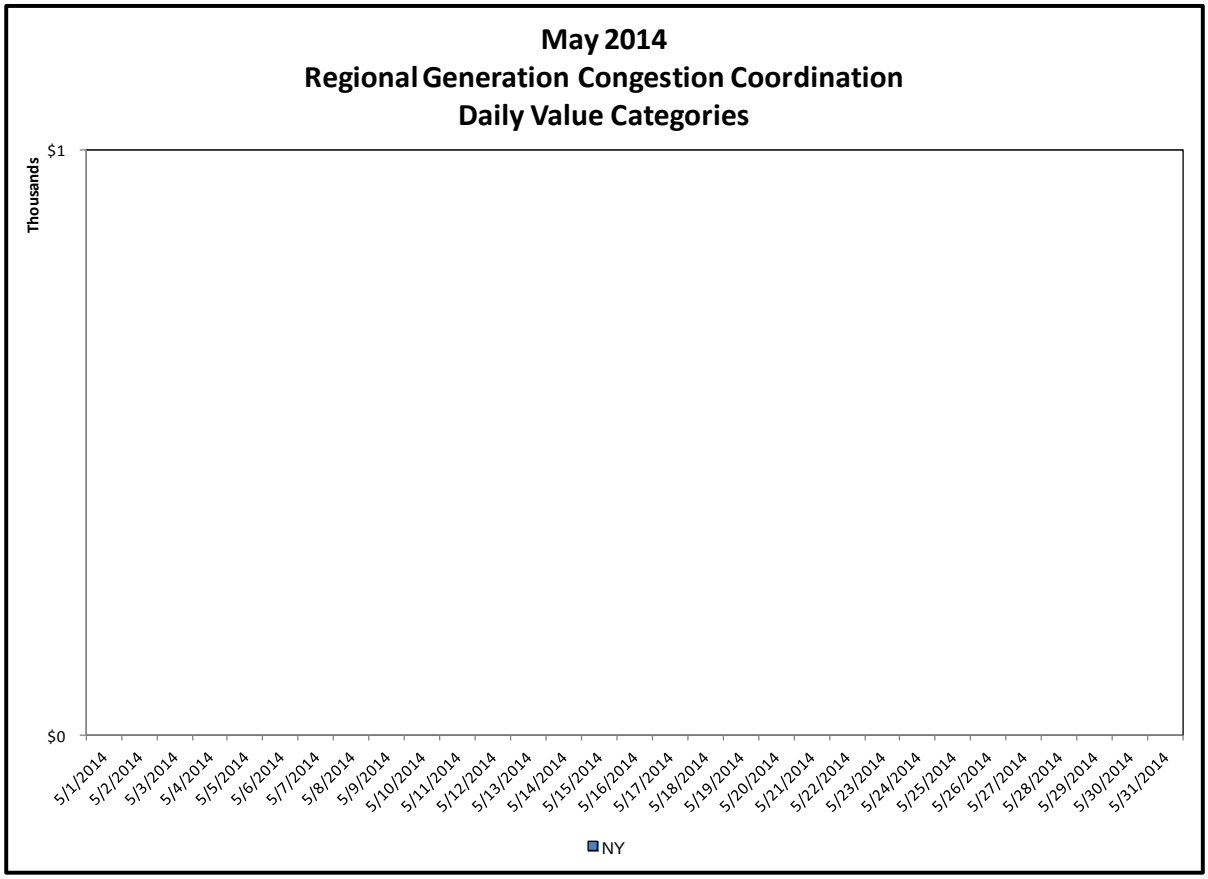




Ramapo Interconnection Congestion Coordination

Category	Description
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.

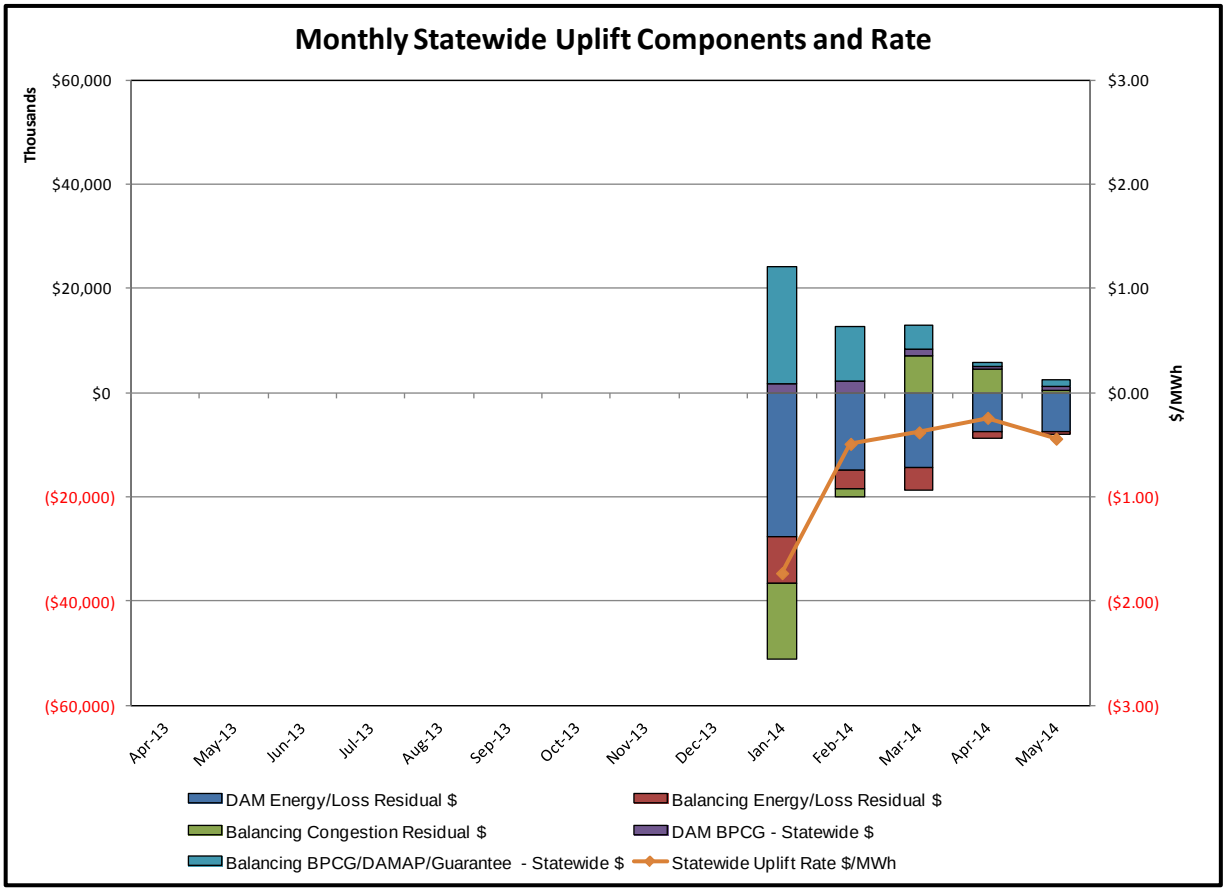

Regional Generation Congestion Coordination
Monthly Value Categories
Thousands
$25
$20
$15
$10
$5
$0
May-13
Jun-13
Jul-13
Aug-13
Sep-13
Oct-13
Nov-13
Dec-13
Jan-14
Feb-14
Mar-14
Apr-14
May-14
NY

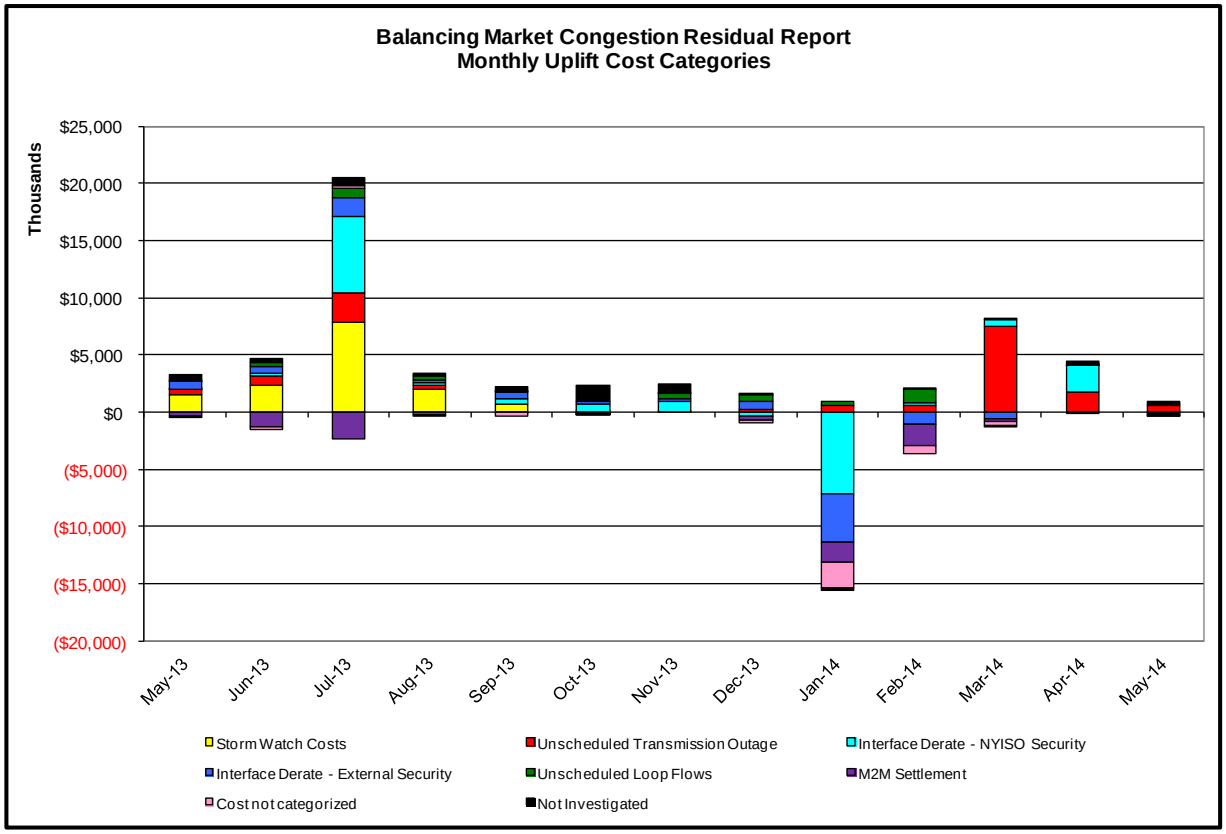

May 2014
Regional Generation Congestion Coordination
Daily Value Categories
Thousands
$1
$0
5/1/2014
5/2/2014
5/3/2014
5/4/2014
5/5/2014
5/6/2014
5/7/2014
5/8/2014
5/9/2014
5/10/2014
5/11/2014
5/12/2014
5/13/2014
5/14/2014
5/15/2014
5/16/2014
5/17/2014
5/18/2014
5/19/2014
5/20/2014
5/21/2014
5/22/2014
5/23/2014
5/24/2014
5/25/2014
5/26/2014
5/27/2014
5/28/2014
5/29/2014
5/30/2014
5/31/2014
NY

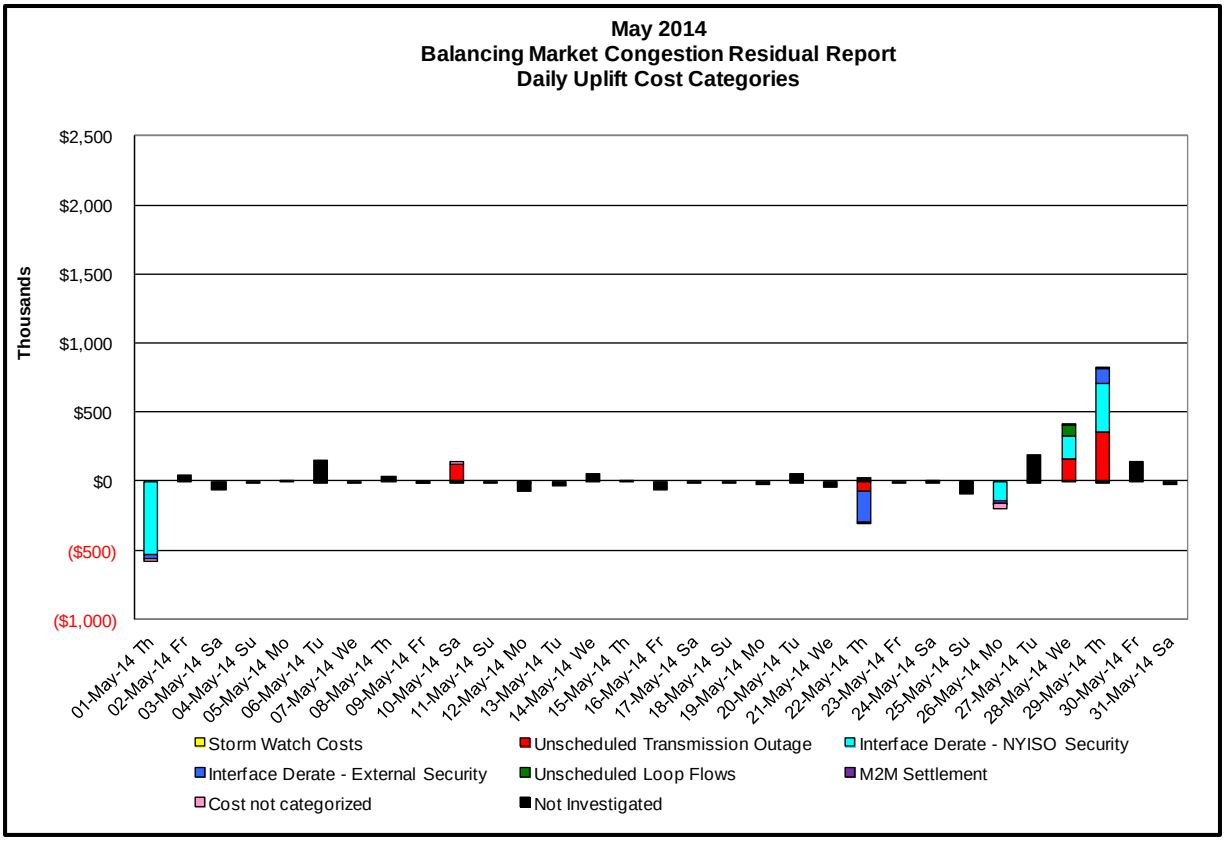
Regional Generation Congestion Coordination

Category	*Description*
NY	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




Balancing Market Congestion Residual Report
Monthly Uplift Cost Categories
Thousands
$25,000
$20,000
$15,000
$10,000
$5,000
$0
($5,000)
($10,000)
($15,000)
($20,000)
May-13
Jun-13
Jul-13
Aug-13
Sep-13
Oct-13
Nov-13
Dec-13
Jan-14
Feb-14
Mar-14
Apr-14
May-14
Storm Watch Costs
Unscheduled Transmission Outage
Interface Derate - NYISO Security
Interface Derate - External Security
Unscheduled Loop Flows
M2M Settlement
Cost not categorized
Not Investigated


May 2014
Balancing Market Congestion Residual Report
Daily Uplift Cost Categories
Thousands
$2,500
$2,000
$1,500
$1,000
$500
$0
($500)
($1,000)
01-May-14 Th
02-May-14 Fr
03-May-14 Sa
04-May-14 Su
05-May-14 Mo
06-May-14 Tu
07-May-14 We
08-May-14 Th
09-May-14 Fr
10-May-14 Sa
11-May-14 Su
12-May-14 Mo
13-May-14 Tu
14-May-14 We
15-May-14 Th
16-May-14 Fr
17-May-14 Sa
18-May-14 Su
19-May-14 Mo
20-May-14 Tu
21-May-14 We
22-May-14 Th
23-May-14 Fr
24-May-14 Sa
25-May-14 Su
26-May-14 Mo
27-May-14 Tu
28-May-14 We
29-May-14 Th
30-May-14 Fr
31-May-14 Sa
Storm Watch Costs
Unscheduled Transmission Outage
Interface Derate - NYISO Security
Interface Derate - External Security
Unscheduled Loop Flows
M2M Settlement
Cost not categorized
Not Investigated

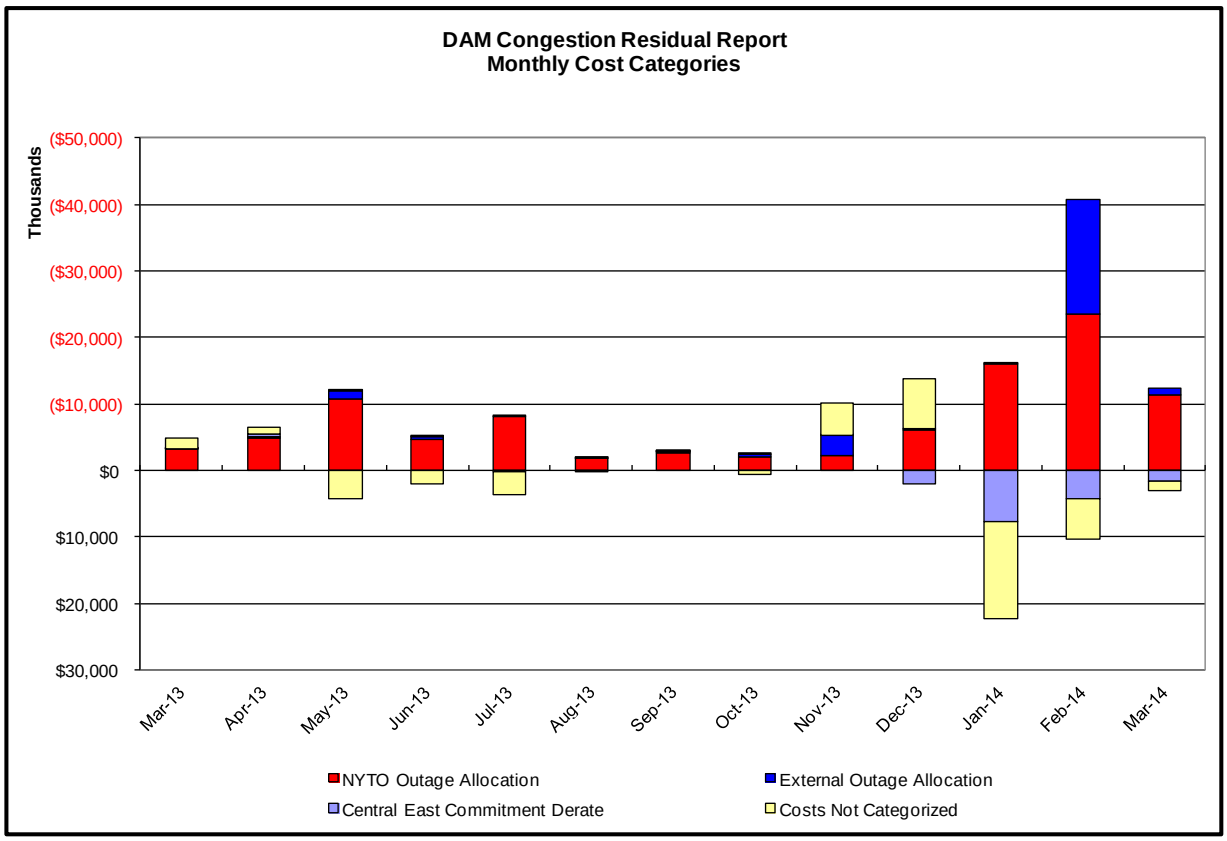
Day's investigated in May:1,10,22,26,28,29			
Event	Date (yyyymmdd)	Hours	Description
	5/1/2014	0-10,13,23	Uprate Dunwoodie-Shore Road 345kV (#Y50) for l/o SCB:SPBK (RNS2): Y49 & M29
	5/1/2014	8,12,15,23	NE_NNC1385-NY Scheduling Limit
	5/10/2014	13	Forced outage New Scotland-Alps (#2-AN), Berkshire-Alps (#393), Reynolds-Alps (#1-AR)
	5/22/2014	10,11	Thunder Storm Alert
	5/22/2014	12-15	Forced outage Massena-Marcy 765kV (#MSU1), Chateaugay-Massena 765kV (#7040)
	5/22/2014	11	Derate Niagara-Packard 230kV (#61) for l/o TWR:Niagara-Packard 230kV (#62) & Beck-Packard 230kV (#BP76)
	5/22/2014	21	IESO_AC DNI Ramp Limit
	5/22/2014	13	PJM_AC - NY Scheduling Limit
	5/26/2014	0-2	Uprate Central East
	5/26/2014	14,16,19	NYCA DNI Ramp Limit
	5/26/2014	16-18,20-22	Uprate Dunwoodie-Shore Road 345kV (#Y50)
	5/26/2014	20,21	Uprate Freshkills-Willow Brook 138kV (#29212-2)
	5/26/2014	15,17	Uprate Leeds-New Scotland 345kV (#93) for l/o Leeds-New Scotland 345kV (#94)
	5/26/2014	13-19	Uprate Meyer-Wethersfield 230kV (#85/87) for l/o Niagara-Rochester 345 (#NR2)
	5/26/2014	20,21	IESO_AC DNI Ramp Limit
	5/28/2014	8-16	Forced outage Niagara 230/115 kV Bk (#T1)
	5/28/2014	13,14	Forced outage Chategauy DC Pole 1
	5/28/2014	9-16	Derate Niagara-Packard 230kV (#61) for l/o TWR:Niagara-Packard 230kV (#62) & Beck-Packard 230kV (#BP76)
	5/28/2014	8-11,13,15	Derate Niagara-Packard 230kV (#62) for l/o TWR:NIAGARA 61 & 64
	5/28/2014	15	Lake Erie Clockwise Circulation, DAM-RTM exceeds 125MW; Niagara-Packard 230kV (#61&#62)
	5/29/2014	8-21	Forced outage Niagara 230/115 kV Bk (#T1)
	5/29/2014	20	Forced outage Chategauy DC Pole 1
	5/29/2014	8,11-15,17-20	Derate Niagara-Packard 230kV (#61) for l/o TWR:Niagara-Packard 230kV (#62) & Beck-Packard 230kV (#BP76)
	5/29/2014	8-21	Derate Niagara-Packard 230kV (#62) for l/o TWR:NIAGARA 61 & 64
	5/29/2014	8-10,16	IESO_AC-NY Scheduling Limit
	5/29/2014	17-19	Lake Erie Clockwise Circulation, DAM-RTM exceeds 125MW; Niagara-Packard 230kV (#61&#62)

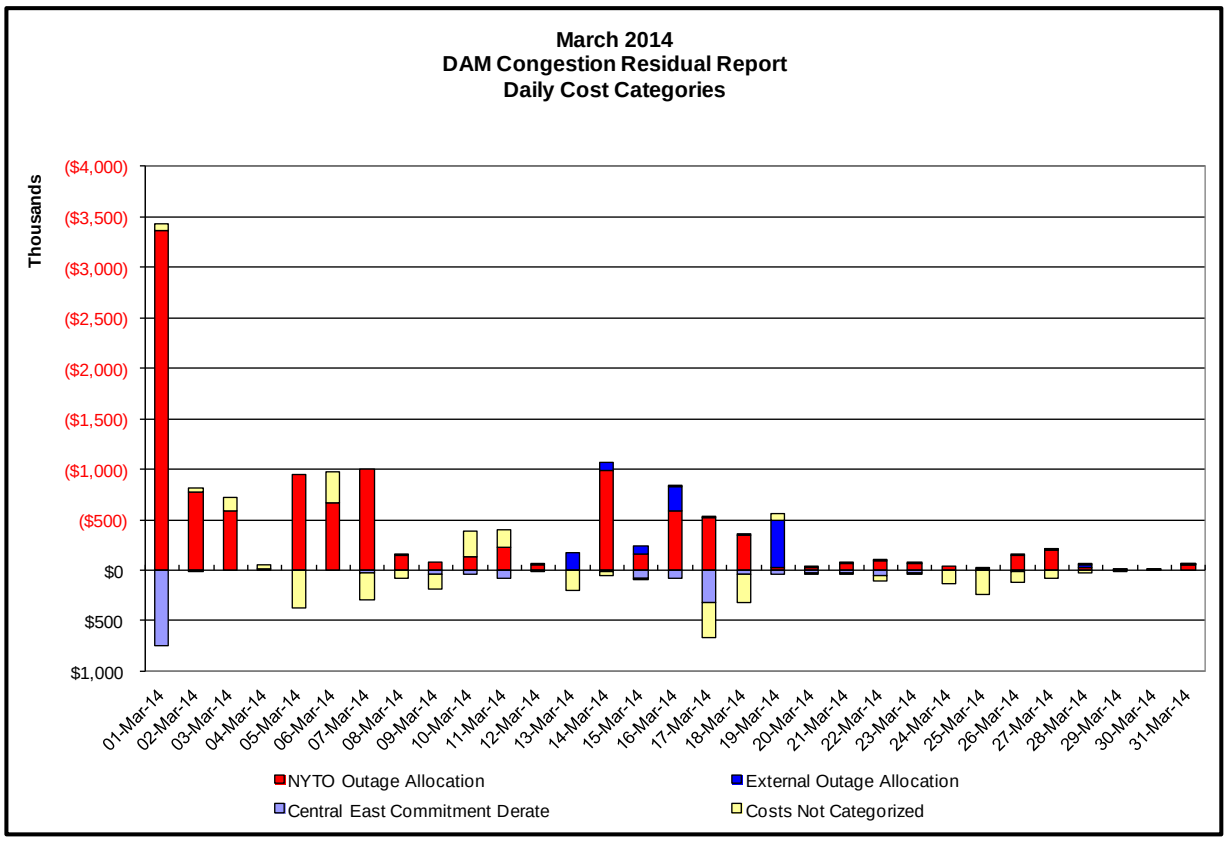
Real-Time Balancing Market Congestion Residual (Uplift Cost) Categories

Category	*Cost Assignment*	*Events Types*	*Event Examples*
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**	**Settlment result inclusive of coordinated redispatch and Ramapo flowgates**	

Monthly Balancing Market Congestion Report Assumptions/Notes

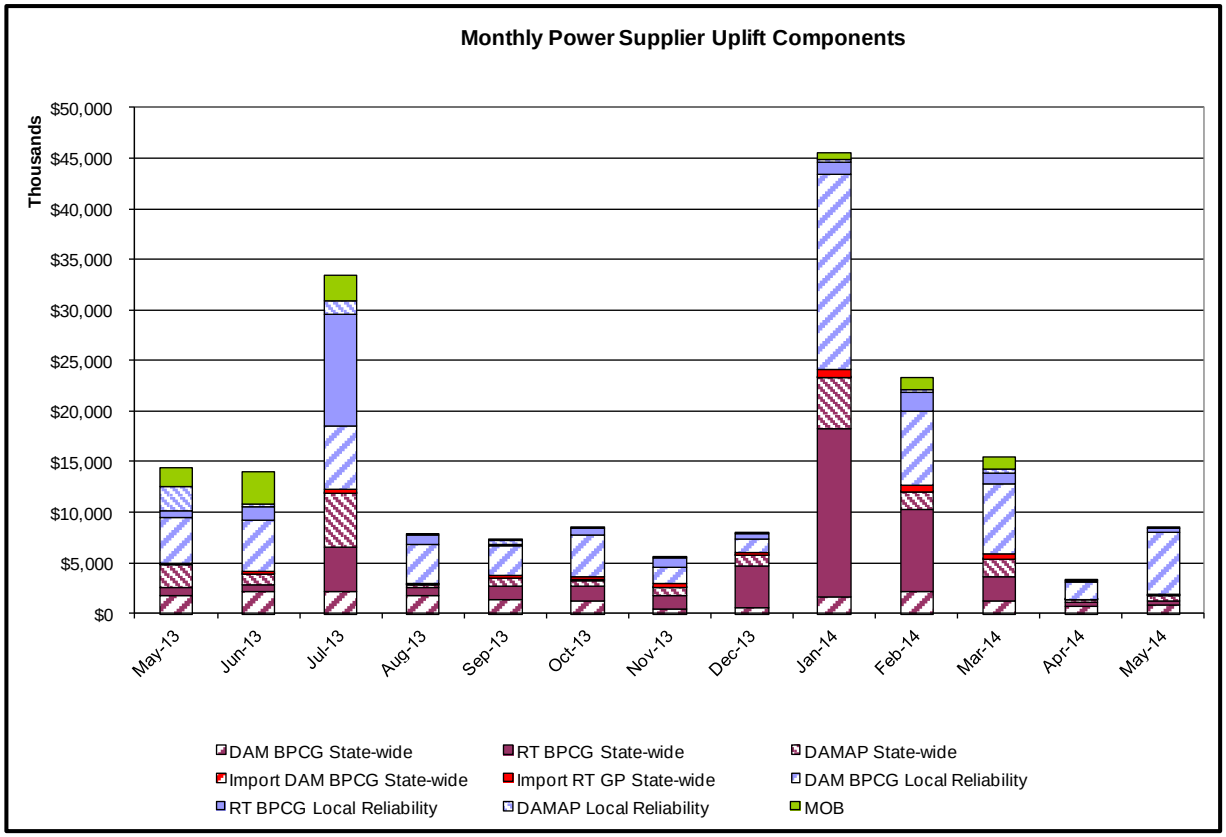
1) Storm Watch Costs are identified as daily total uplift costs
2) Days with a value of BMCR less M2M Settlement of $100K/HR, shortfall of $200K/Day or more, or surplus of $100K/Day or more are investigated.
3) Uplift costs associated with multiple event types are apportioned equally by hour

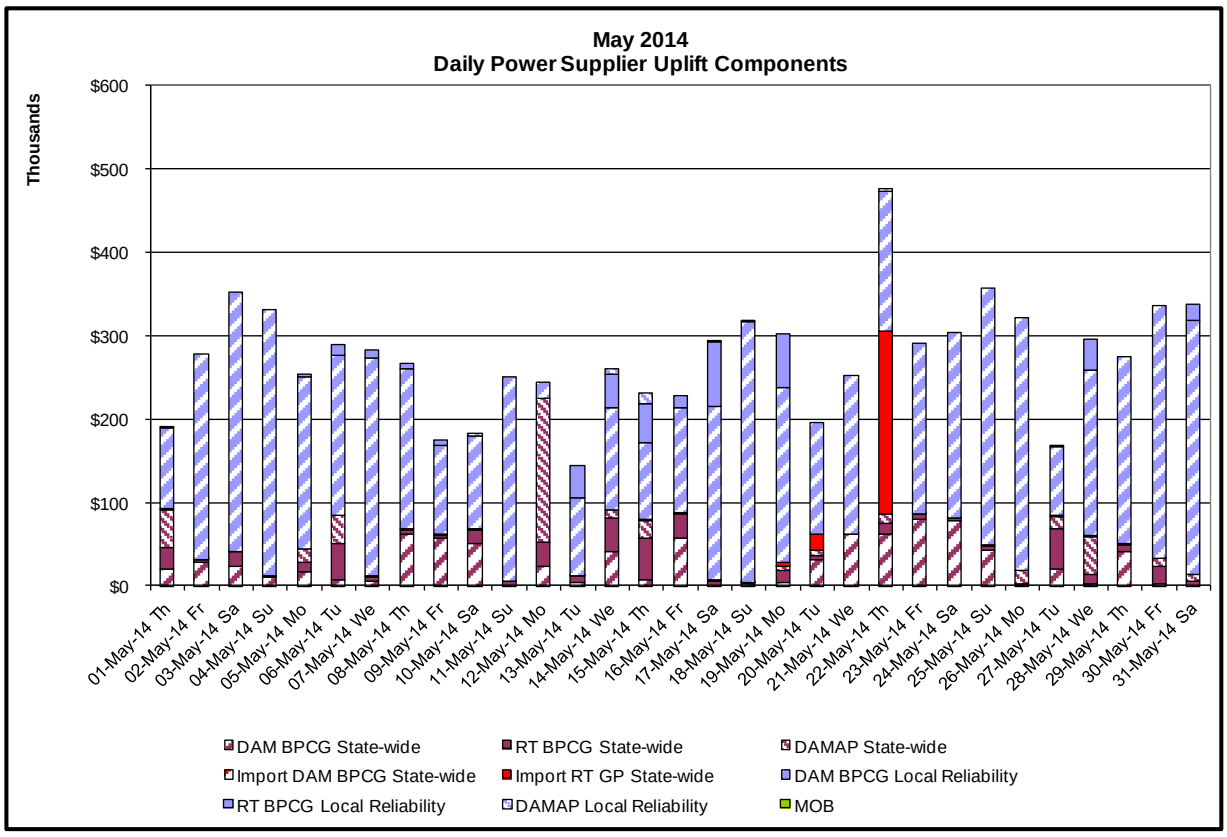

DAM Congestion Residual Report
Monthly Cost Categories
Thousands
($50,000)
($40,000)
($30,000)
($20,000)
($10,000)
$0
$10,000
$20,000
$30,000
Mar-13
Apr-13
May-13
Jun-13
Jul-13
Aug-13
Sep-13
Oct-13
Nov-13
Dec-13
Jan-14
Feb-14
Mar-14
NYTO Outage Allocation
External Outage Allocation
Central East Commitment Derate
Costs Not Categorized

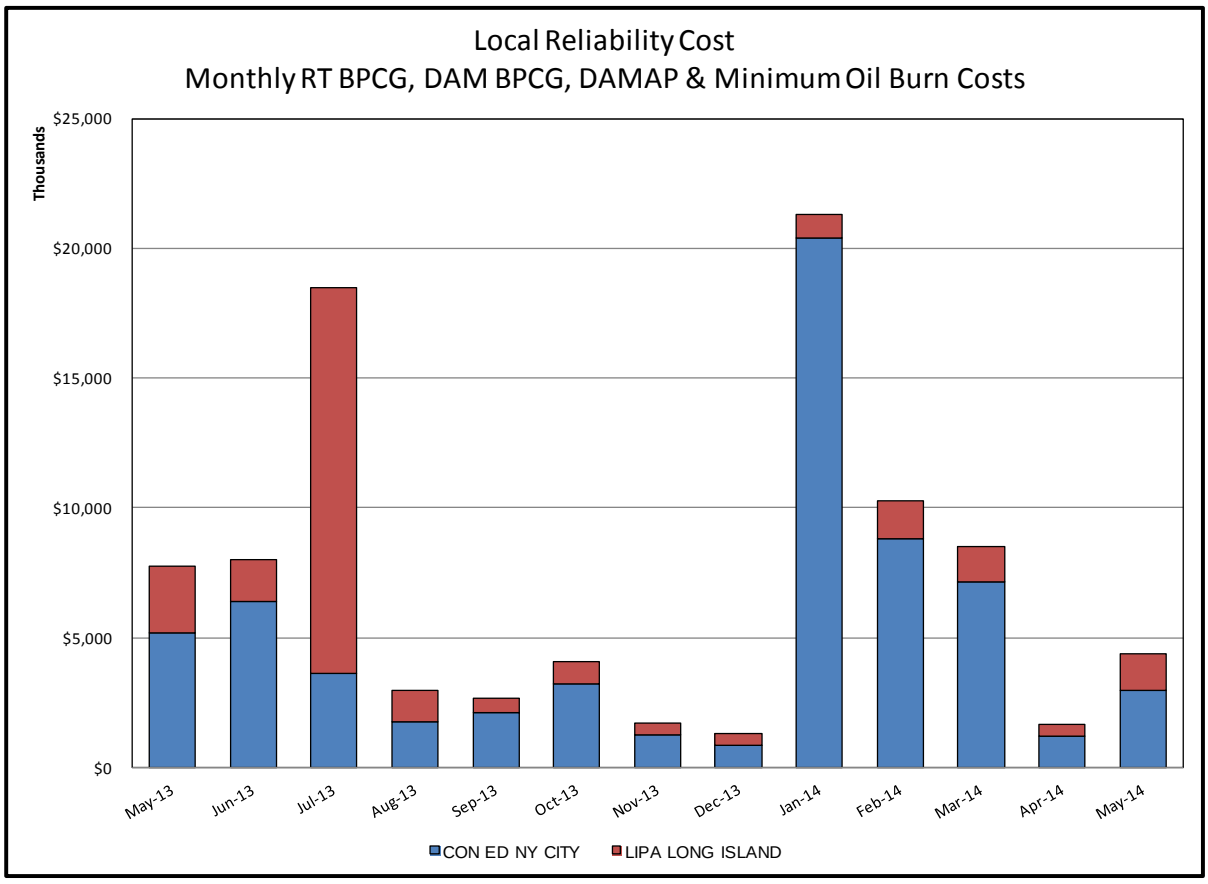

March 2014
DAM Congestion Residual Report
Daily Cost Categories
Thousands
($4,000)
($3,500)
($3,000)
($2,500)
($2,000)
($1,500)
($1,000)
($500)
$0
$500
$1,000
01-Mar-14
02-Mar-14
03-Mar-14
04-Mar-14
05-Mar-14
06-Mar-14
07-Mar-14
08-Mar-14
09-Mar-14
10-Mar-14
11-Mar-14
12-Mar-14
13-Mar-14
14-Mar-14
15-Mar-14
16-Mar-14
17-Mar-14
18-Mar-14
19-Mar-14
20-Mar-14
21-Mar-14
22-Mar-14
23-Mar-14
24-Mar-14
25-Mar-14
26-Mar-14
27-Mar-14
28-Mar-14
29-Mar-14
30-Mar-14
31-Mar-14
NYTO Outage Allocation
External Outage Allocation
Central East Commitment Derate
Costs Not Categorized

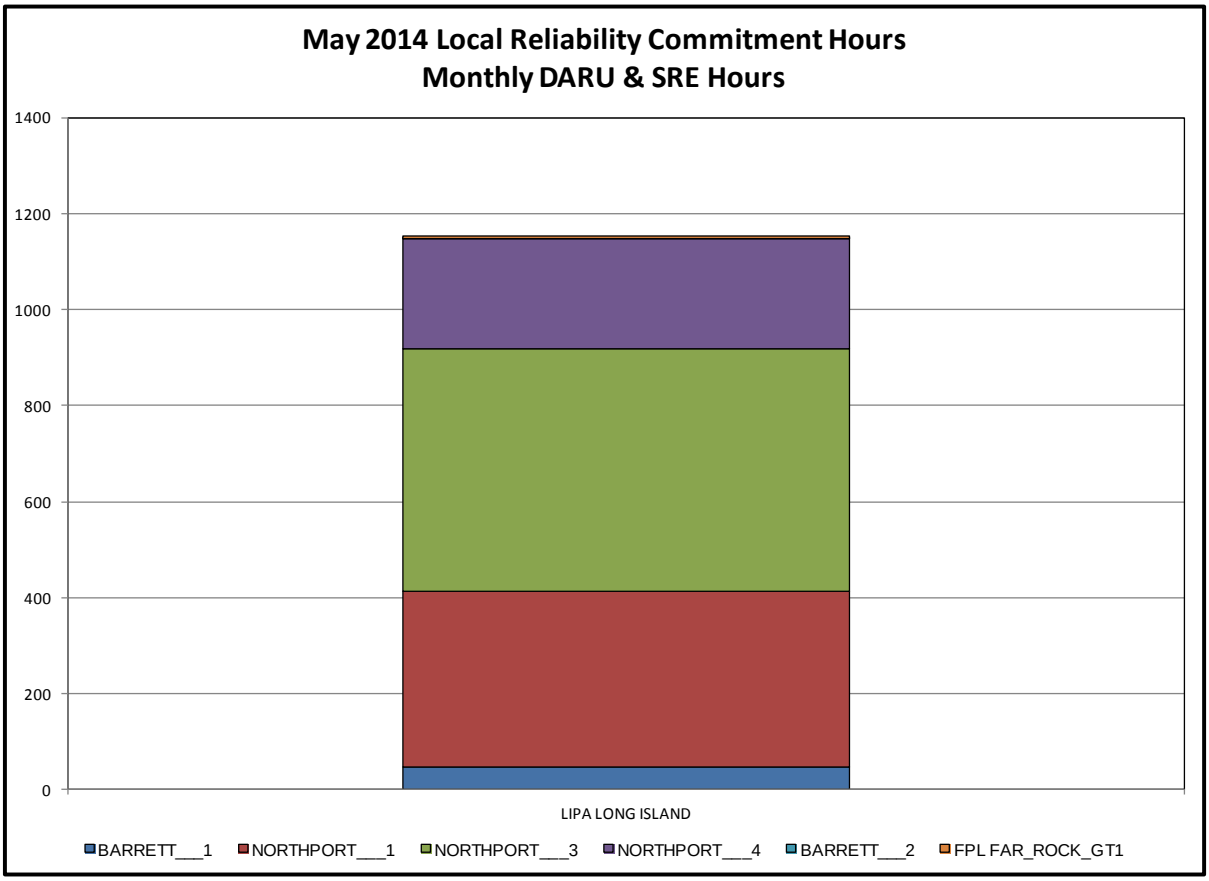
Day-Ahead Market Congestion Residual Categories

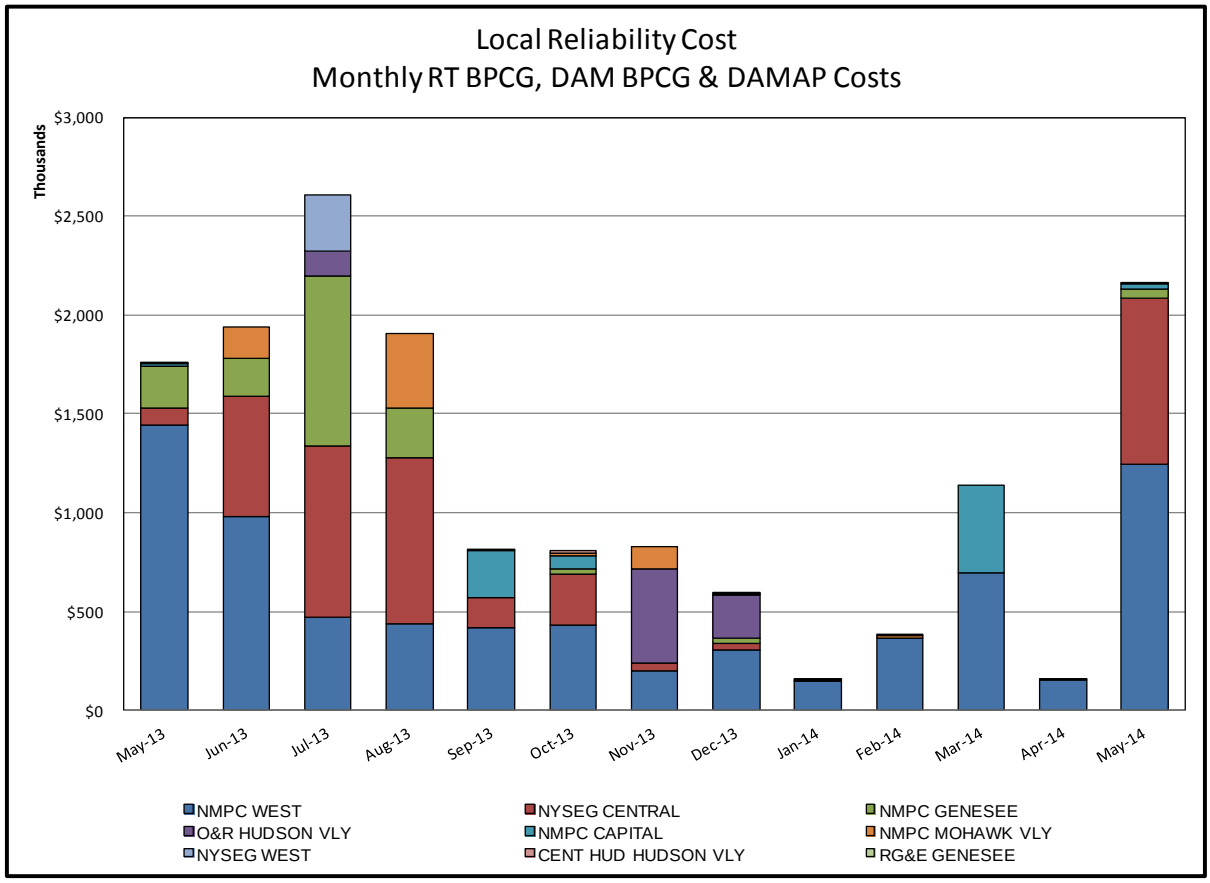
Category	*Cost Assignment*	*Events Types*	*Event Examples*
NYTO Outage Allocation	Responsible TO	Direct allocation to NYTO's responsible for transmission equipment status change.	DAM scheduled outage for equipment modeled in-service for the TCC Auction.
External Outage Allocation	All TO by Monthly Allocation 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.	

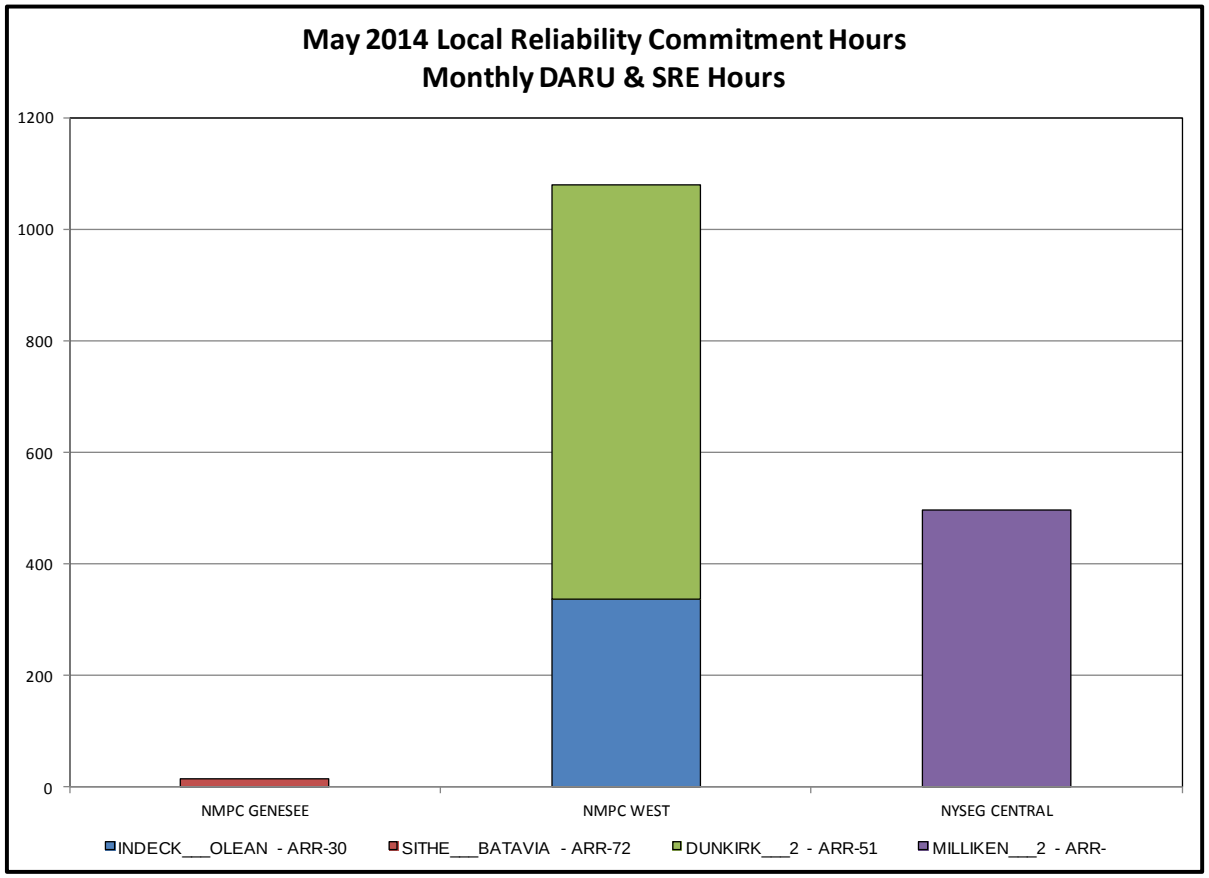

Monthly Power Supplier Uplift Components
Thousands
$50,000
$45,000
$40,000
$35,000
$30,000
$25,000
$20,000
$15,000
$10,000
$5,000
$0
May-13
Jun-13
Jul-13
Aug-13
Sep-13
Oct-13
Nov-13
Dec-13
Jan-14
Feb-14
Mar-14
Apr-14
May-14
DAM BPCG State-wide
RT BPCG State-wide
DAMAP State-wide
Import DAM BPCG State-wide
Import RT GP State-wide
DAM BPCG Local Reliability
RT BPCG Local Reliability
DAMAP Local Reliability
MOB

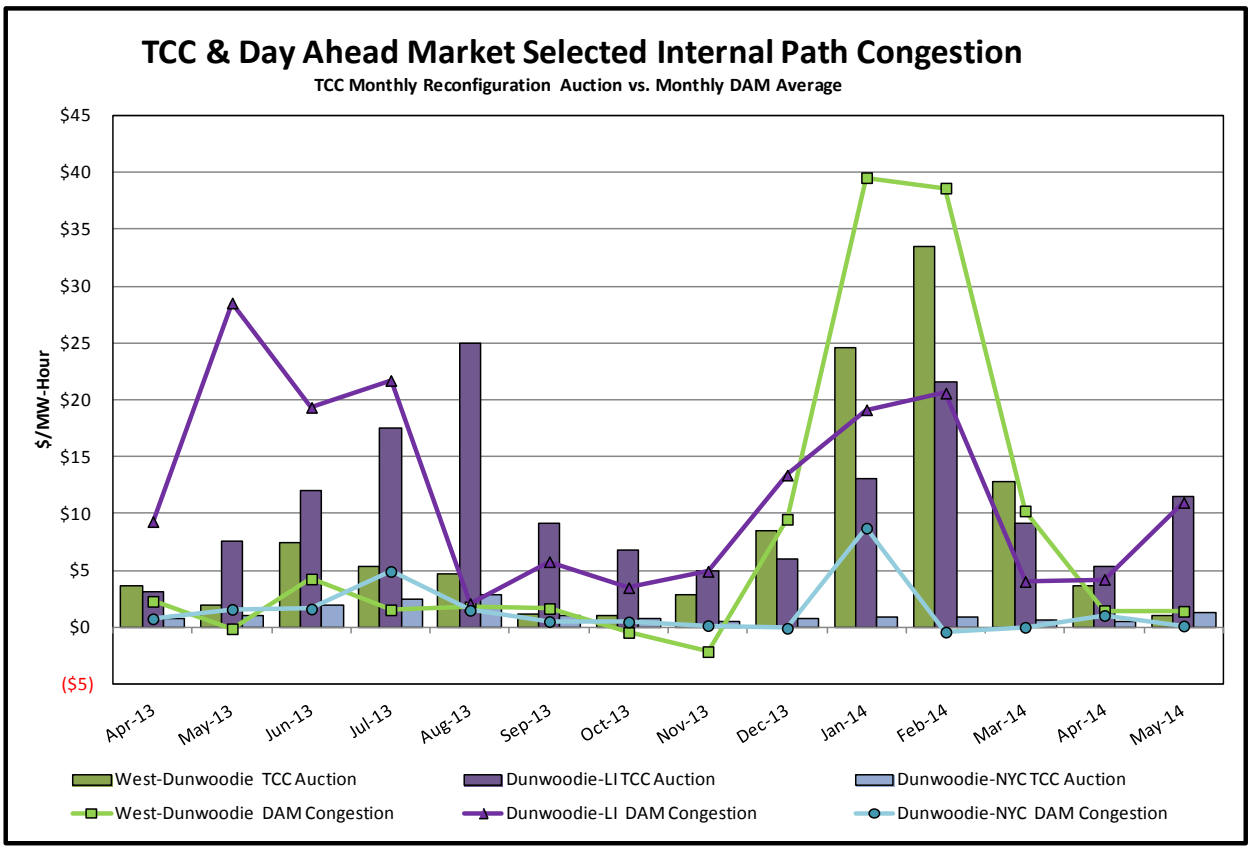

May 2014
Daily Power Supplier Uplift Components
Thousands
$600
$500
$400
$300
$200
$100
$0
01-May-14 Th
02-May-14 Fr
03-May-14 Sa
04-May-14 Su
05-May-14 Mo
06-May-14 Tu
07-May-14 We
08-May-14 Th
09-May-14 Fr
10-May-14 Sa
11-May-14 Su
12-May-14 Mo
13-May-14 Tu
14-May-14 We
15-May-14 Th
16-May-14 Fr
17-May-14 Sa
18-May-14 Su
19-May-14 Mo
20-May-14 Tu
21-May-14 We
22-May-14 Th
23-May-14 Fr
24-May-14 Sa
25-May-14 Su
26-May-14 Mo
27-May-14 Tu
28-May-14 We
29-May-14 Th
30-May-14 Fr
31-May-14 Sa
DAM BPCG State-wide
RT BPCG State-wide
DAMAP State-wide
Import DAM BPCG State-wide
Import RT GP State-wide
DAM BPCG Local Reliability
RT BPCG Local Reliability
DAMAP Local Reliability
MOB

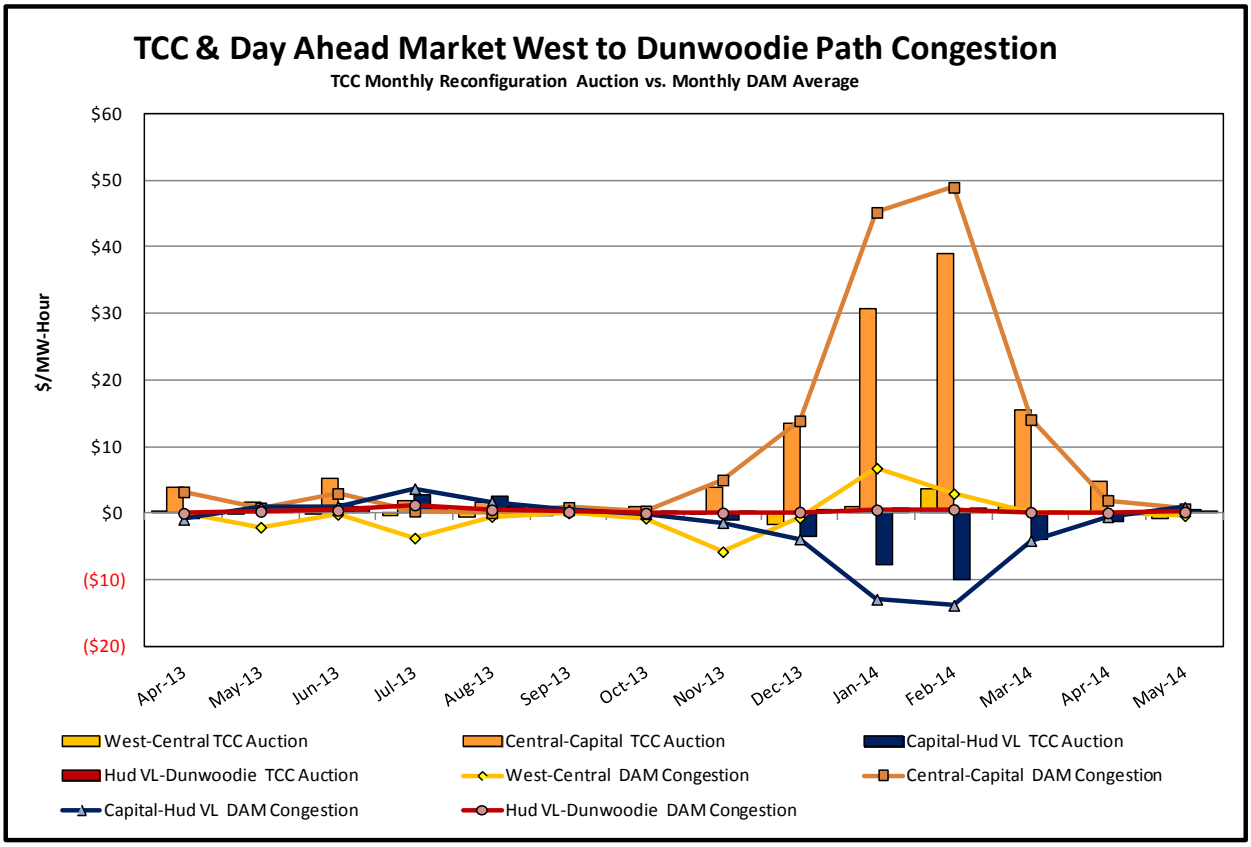

Local Reliability Cost
Monthly RT BPCG, DAM BPCG, DAMAP & Minimum Oil Burn Costs
Thousands
$25,000
$20,000
$15,000
$10,000
$5,000
$0
May-13
Jun-13
Jul-13
Aug-13
Sep-13
Oct-13
Nov-13
Dec-13
Jan-14
Feb-14
Mar-14
Apr-14
May-14
CON ED NY CITY
LIPA LONG ISLAND

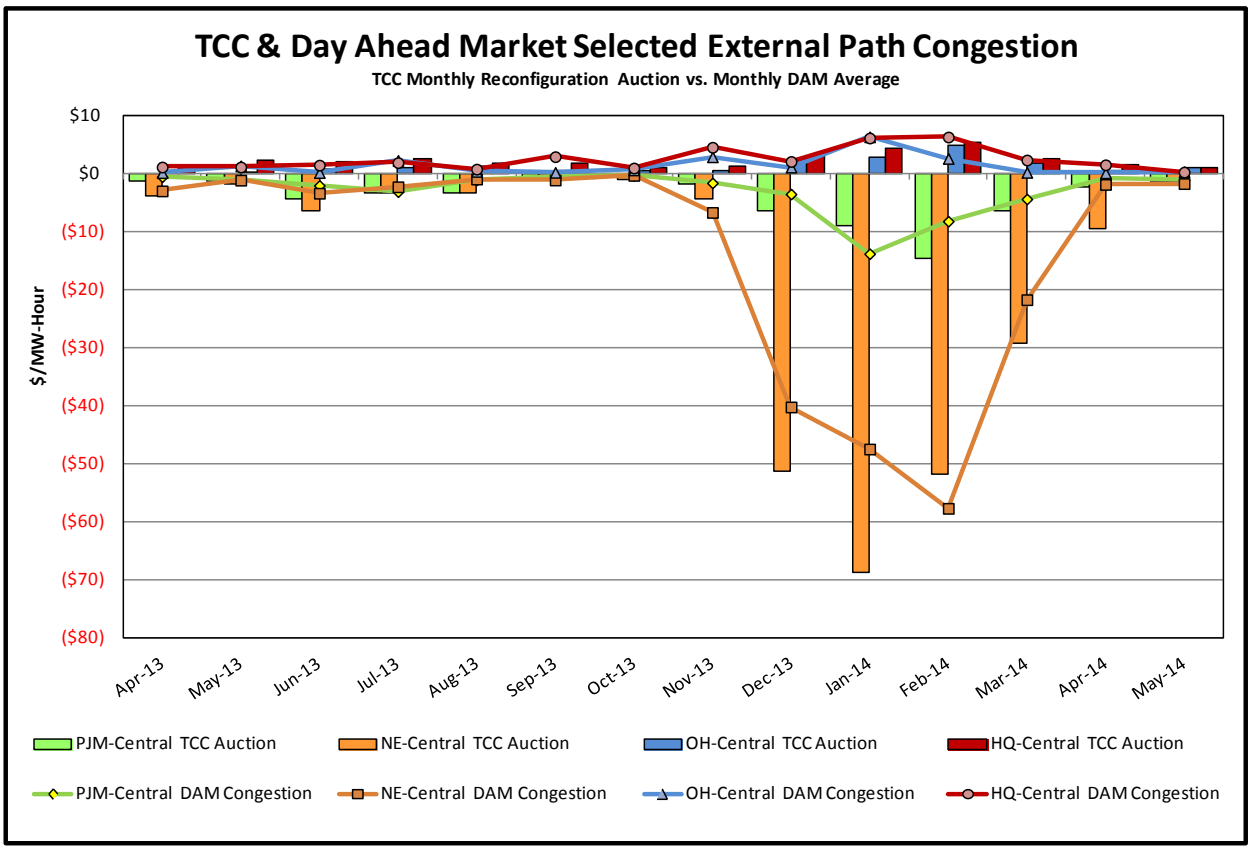

May 2014 Local Reliability Commitment Hours
Monthly DARU & SRE Hours
1400
1200
1000
800
600
400
200
0
LIPA LONG ISLAND
BARRETT___1
NORTHPORT___1
NORTHPORT___3
NORTHPORT___4
BARRETT___2
FPL FAR_ROCK_GT1

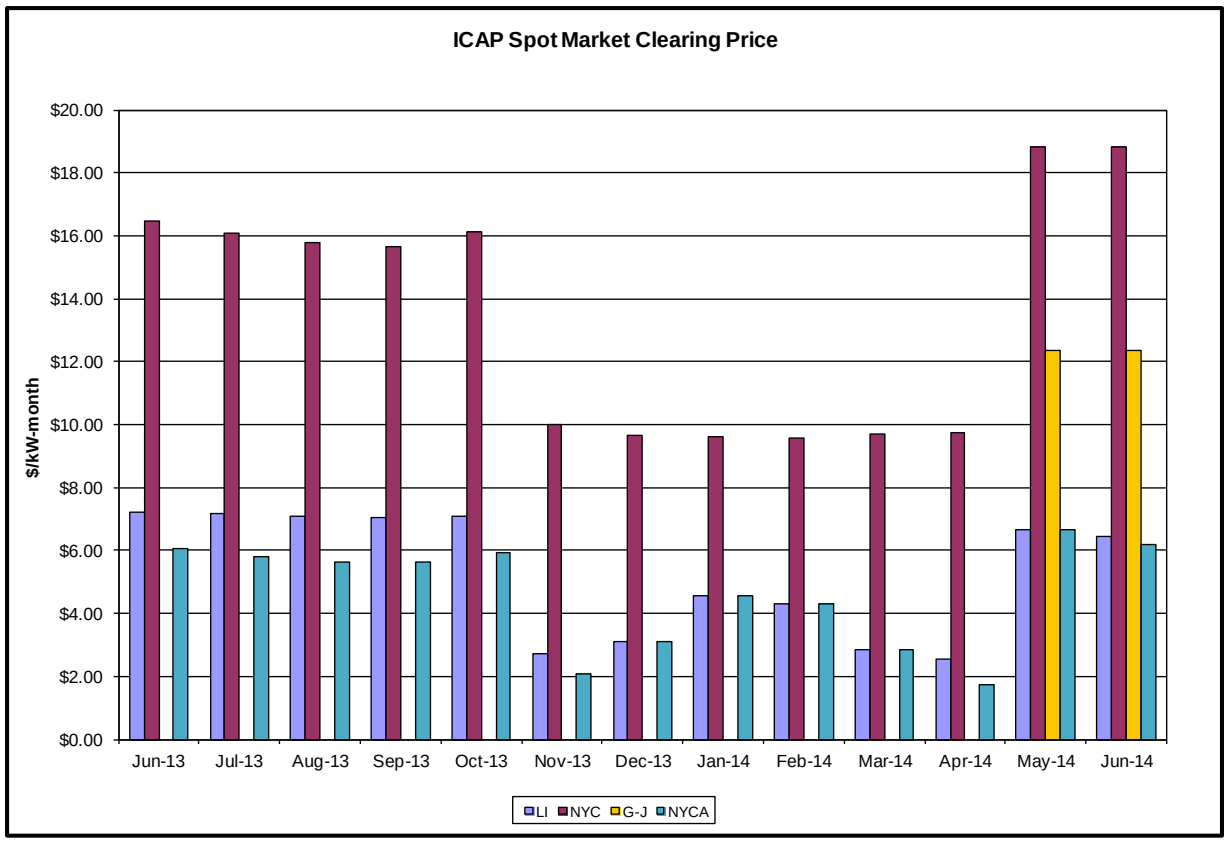

Local Reliability Cost
Monthly RT BPCG, DAM BPCG & DAMAP Costs
Thousands
$3,000
$2,500
$2,000
$1,500
$1,000
$500
$0
May-13
Jun-13
Jul-13
Aug-13
Sep-13
Oct-13
Nov-13
Dec-13
Jan-14
Feb-14
Mar-14
Apr-14
May-14
NMPC WEST
NYSEG CENTRAL
NMPC GENESEE
O&R HUDSON VLY
NMPC CAPITAL
NMPC MOHAWK VLY
NYSEG WEST
CENT HUD HUDSON VLY
RG&E GENESEE

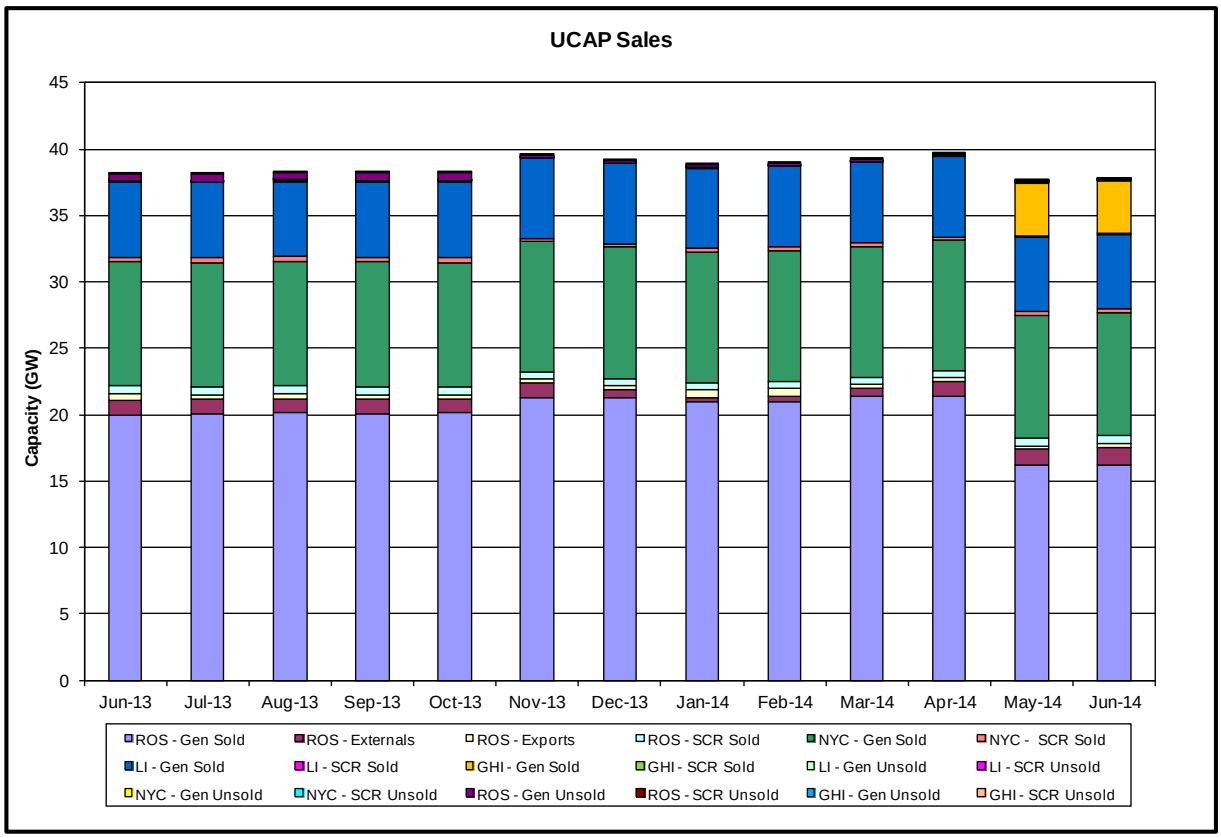

May 2014 Local Reliability Commitment Hours
Monthly DARU & SRE Hours
1200
1000
800
600
400
200
0
NMPC GENESEE
NMPC WEST
NYSEG CENTRAL
INDECK___OLEAN - ARR-30
SITHE___BATAVIA - ARR-72
DUNKIRK___2 - ARR-51
MILLIKEN___2 - ARR-


TCC & Day Ahead Market Selected Internal Path Congestion
TCC Monthly Reconfiguration Auction vs. Monthly DAM Average
$/MW-Hour
$45
$40
$35
$30
$25
$20
$15
$10
$5
$0
($5)
Apr-13
May-13
Jun-13
Jul-13
Aug-13
Sep-13
Oct-13
Nov-13
Dec-13
Jan-14
Feb-14
Mar-14
Apr-14
May-14
West-Dunwoodie TCC Auction
Dunwoodie-LI TCC Auction
Dunwoodie-NYC TCC Auction
West-Dunwoodie DAM Congestion
Dunwoodie-LI DAM Congestion
Dunwoodie-NYC DAM Congestion


TCC & Day Ahead Market West to Dunwoodie Path Congestion
TCC Monthly Reconfiguration Auction vs. Monthly DAM Average
$/MW-Hour
$60
$50
$40
$30
$20
$10
$0
($10)
($20)
Apr-13
May-13
Jun-13
Jul-13
Aug-13
Sep-13
Oct-13
Nov-13
Dec-13
Jan-14
Feb-14
Mar-14
Apr-14
May-14
West-Central TCC Auction
Central-Capital TCC Auction
Capital-Hud VL TCC Auction
Hud VL-Dunwoodie TCC Auction
West-Central DAM Congestion
Central-Capital DAM Congestion
Capital-Hud VL DAM Congestion
Hud VL-Dunwoodie DAM Congestion


TCC & Day Ahead Market Selected External Path Congestion
TCC Monthly Reconfiguration Auction vs. Monthly DAM Average
$/MW-Hour
$10
$0
($10)
($20)
($30)
($40)
($50)
($60)
($70)
($80)
Apr-13
May-13
Jun-13
Jul-13
Aug-13
Sep-13
Oct-13
Nov-13
Dec-13
Jan-14
Feb-14
Mar-14
Apr-14
May-14
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


ICAP Spot Market Clearing Price
$/kW-month
$20.00
$18.00
$16.00
$14.00
$12.00
$10.00
$8.00
$6.00
$4.00
$2.00
$0.00
Jun-13
Jul-13
Aug-13
Sep-13
Oct-13
Nov-13
Dec-13
Jan-14
Feb-14
Mar-14
Apr-14
May-14
Jun-14
LI
NYC
G-J
NYCA


UCAP Sales
Capacity (GW)
45
40
35
30
25
20
15
10
5
0
Jun-13
Jul-13
Aug-13
Sep-13
Oct-13
Nov-13
Dec-13
Jan-14
Feb-14
Mar-14
Apr-14
May-14
Jun-14
ROS - Gen Sold
ROS - Externals
ROS - Exports
ROS - SCR Sold
NYC - Gen Sold
NYC - SCR Sold
LI - Gen Sold
LI - SCR Sold
GHI - Gen Sold
GHI - SCR Sold
LI - Gen Unsold
LI - SCR Unsold
NYC - Gen Unsold
NYC - SCR Unsold
ROS - Gen Unsold
ROS - SCR Unsold
GHI - Gen Unsold
GHI - SCR Unsold