

Operations Performance Metrics Monthly Report



April 2015 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 8, 2015.

Table of Contents

- ◆ **Highlights**
 - *Operations Performance*

- ◆ **Reliability Performance Metrics**
 - *Alert State Declarations*
 - *Major Emergency State Declarations*
 - *IROL Exceedance Times*
 - *Balancing Area Control Performance*
 - *Reserve Activations*
 - *Disturbance Recovery Times*
 - *Load Forecasting Performance*
 - *Wind Forecasting Performance*
 - *Wind Curtailment Performance*
 - *Lake Erie Circulation and ISO Schedules*

- ◆ **Broader Regional Market Performance Metrics**
 - *Ramapo Interconnection Congestion Coordination Monthly Value*
 - *Ramapo Interconnection Congestion Coordination Daily Value*
 - *Regional Generation Congestion Coordination Monthly Value*
 - *Regional Generation Congestion Coordination Daily Value*
 - *Regional RT Scheduling - PJM Monthly Value*
 - *Regional RT Scheduling - PJM Daily Value*

- ◆ **Market Performance Metrics**
 - *Monthly Statewide Uplift Components and Rate*
 - *RTM Congestion Residuals Monthly Trend*
 - *RTM Congestion Residuals Daily Costs*
 - *RTM Congestion Residuals Event Summary*
 - *RTM Congestion Residuals Cost Categories*
 - *DAM Congestion Residuals Monthly Trend*
 - *DAM Congestion Residuals Daily Costs*
 - *DAM Congestion Residuals Cost Categories*
 - *NYCA Unit Uplift Components Monthly Trend*
 - *NYCA Unit Uplift Components Daily Costs*
 - *Local Reliability Costs Monthly Trend & Commitment Hours*
 - *TCC Monthly Clearing Price with DAM Congestion*
 - *ICAP Spot Market Clearing Price*
 - *UCAP Awards*

April 2015 Operations Performance Highlights

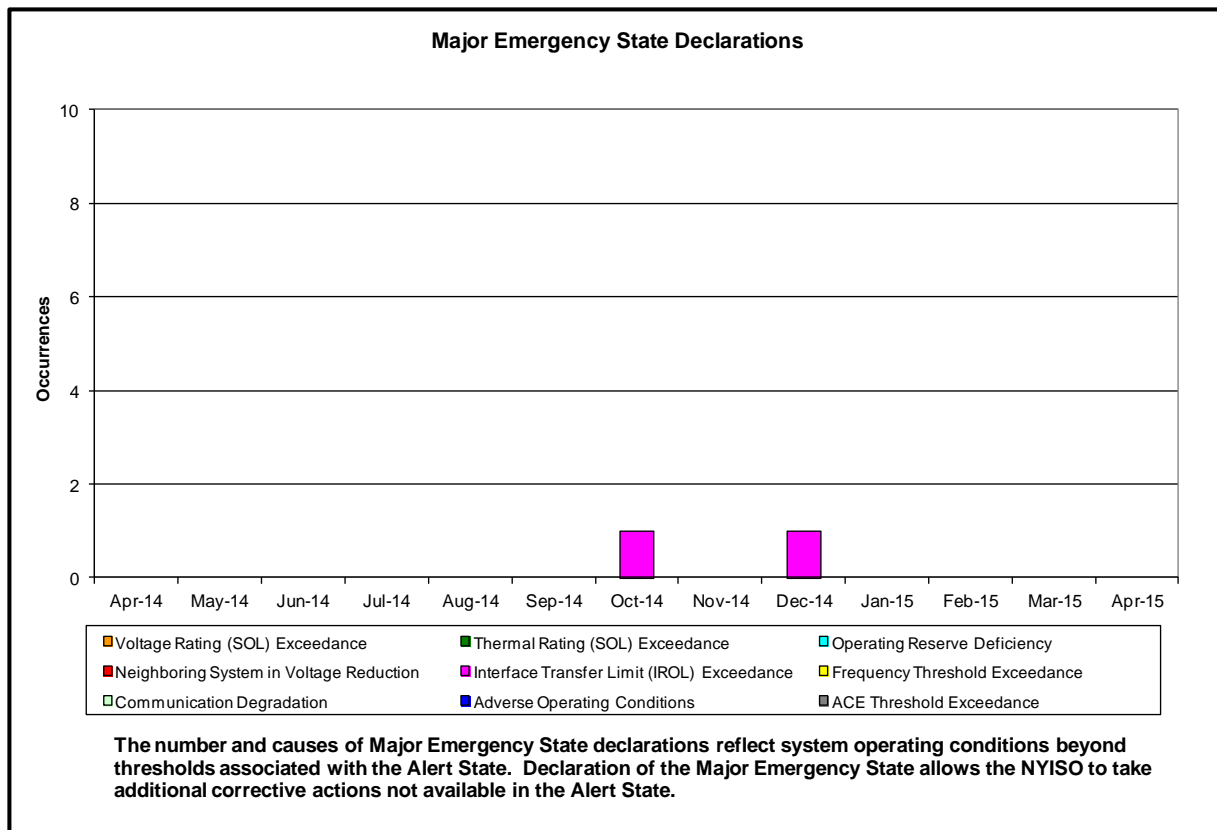
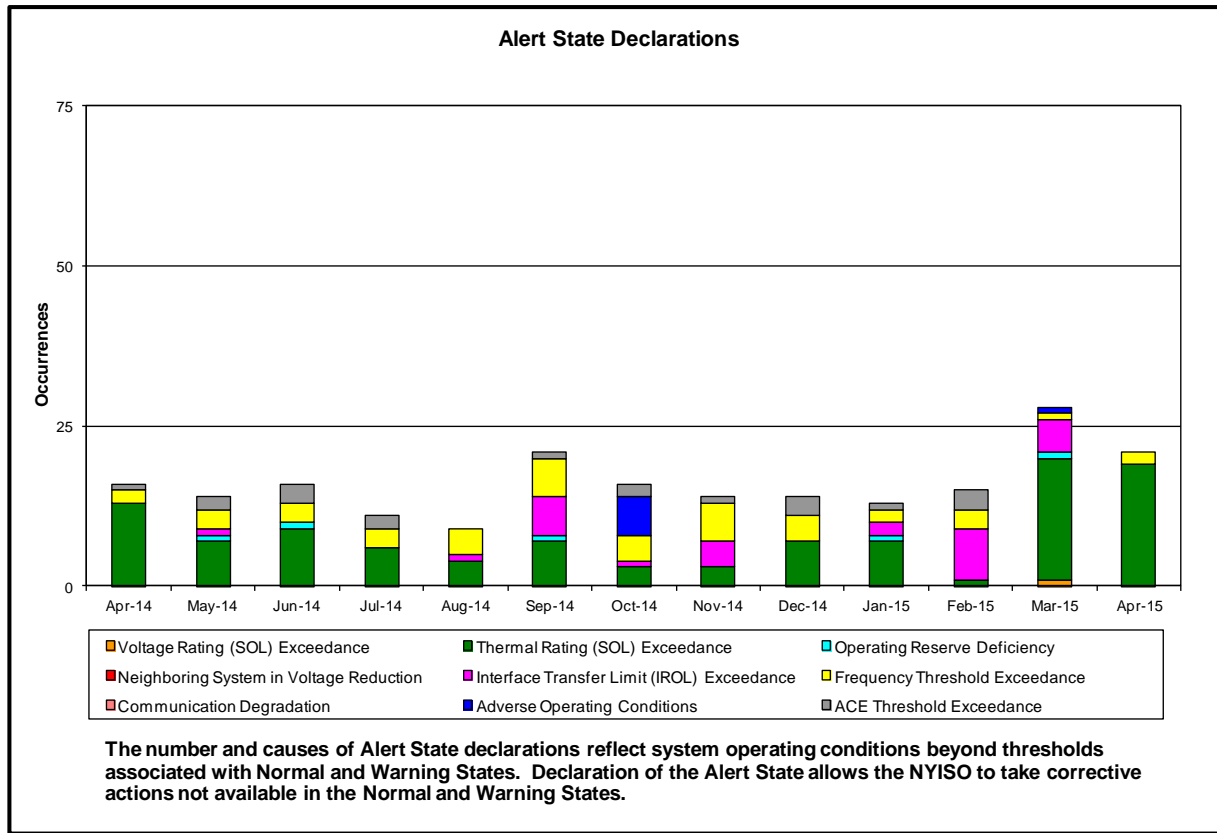
- Peak load of 19,521 MW occurred on 4/8/2015 HB 19
- All-time winter capability period peak load of 25,738 MW occurred on 1/7/2014 HB 18
- 0 hours of Thunder Storm Alerts were declared
- 0 hours of NERC TLR level 3 curtailment
- The following table identifies the estimated production cost savings associated with the Broader Regional Market initiatives.

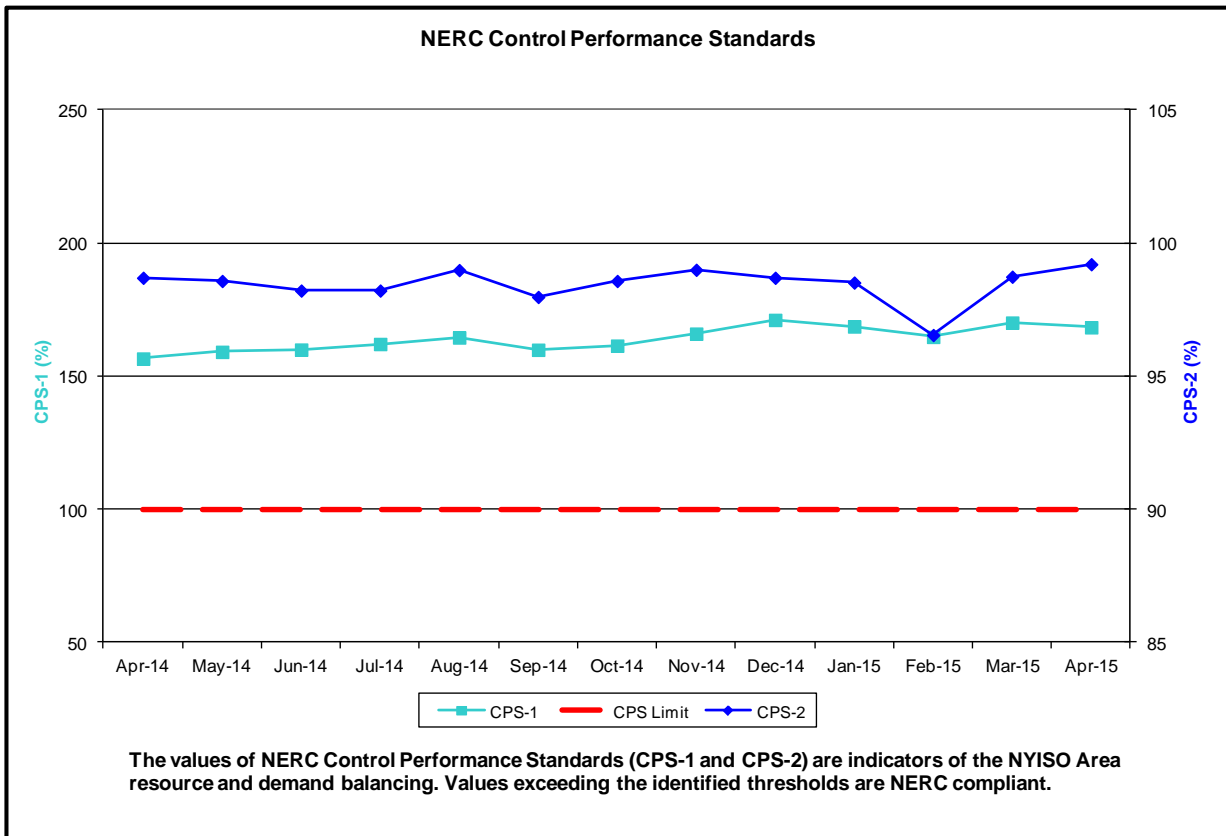
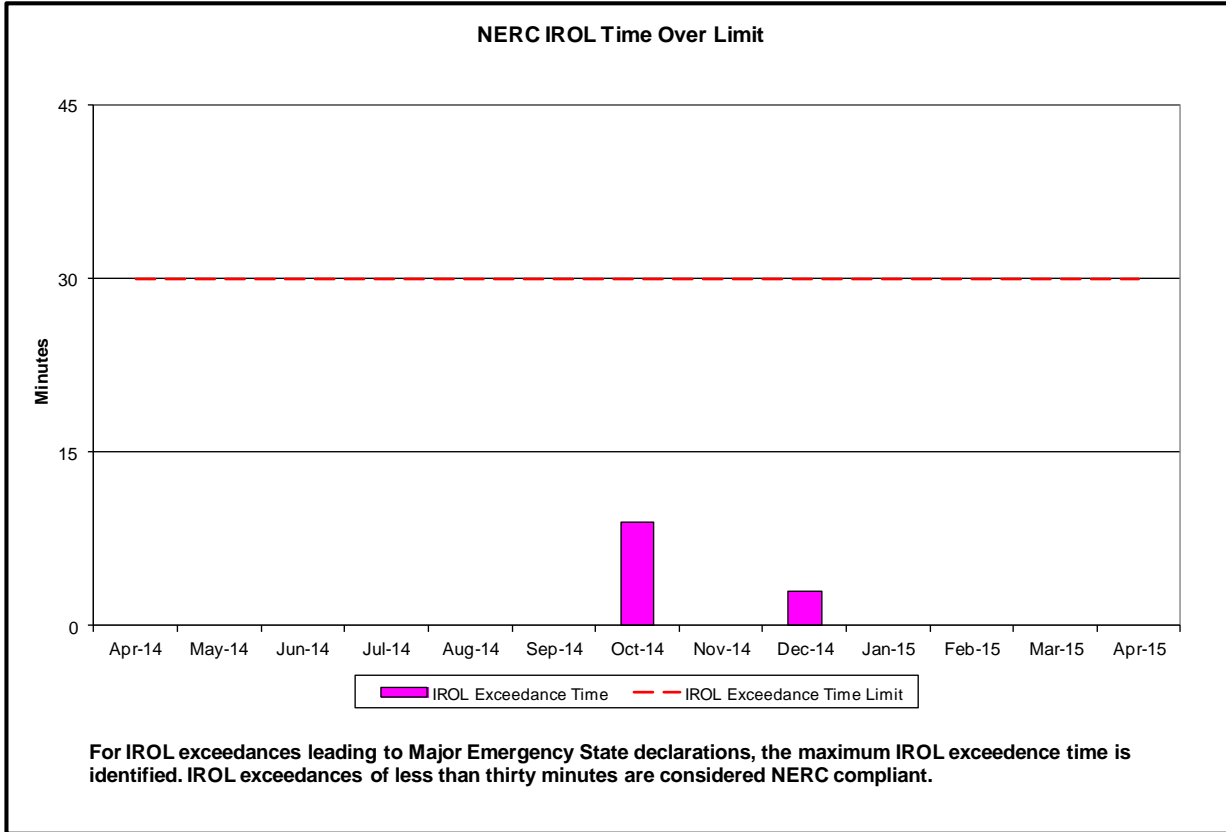
| | Current Month Value (\$M) | Year-to-Date Value (\$M) |
|---|---------------------------|--------------------------|
| Regional Congestion Coordination | \$0.58 | \$7.82 |
| Regional PJM-NY RT Scheduling | \$0.25 | \$2.52 |
| Total | \$0.83 | \$10.34 |

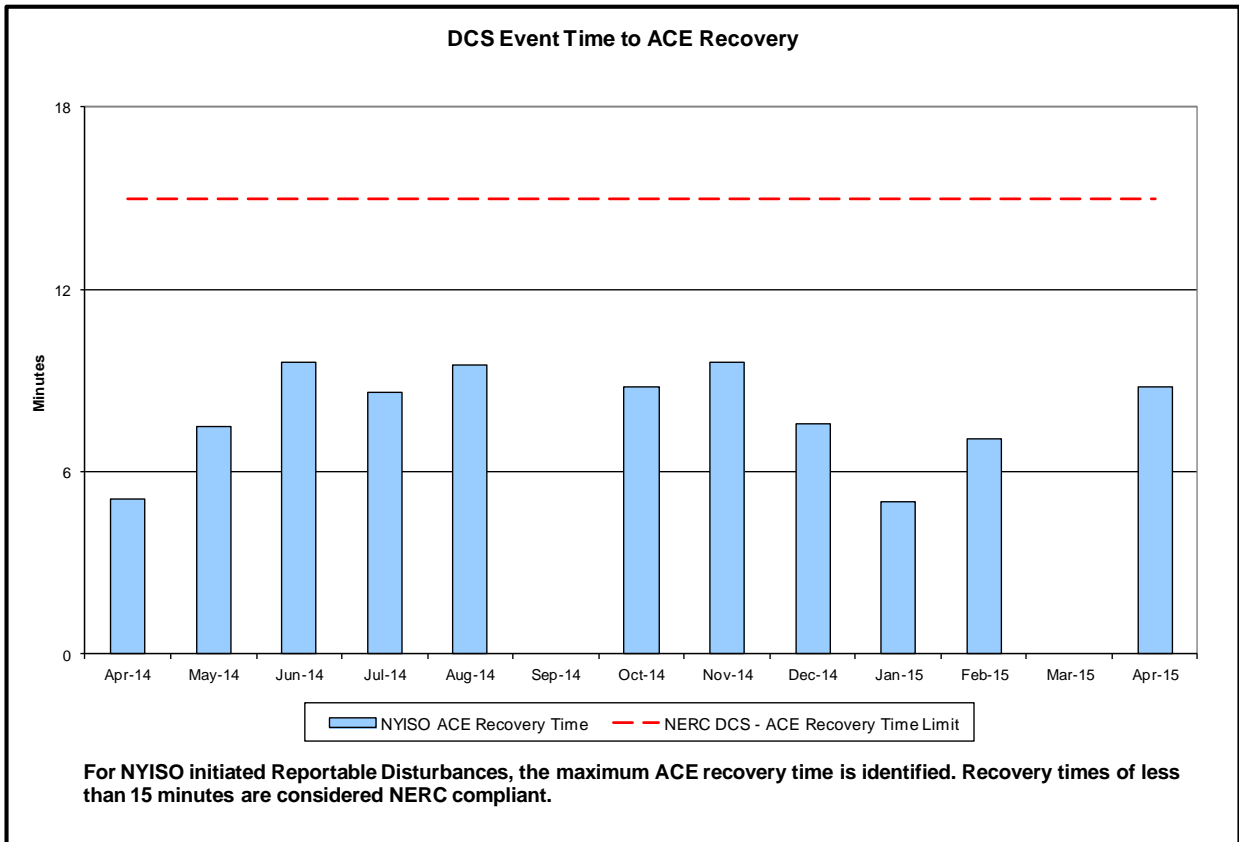
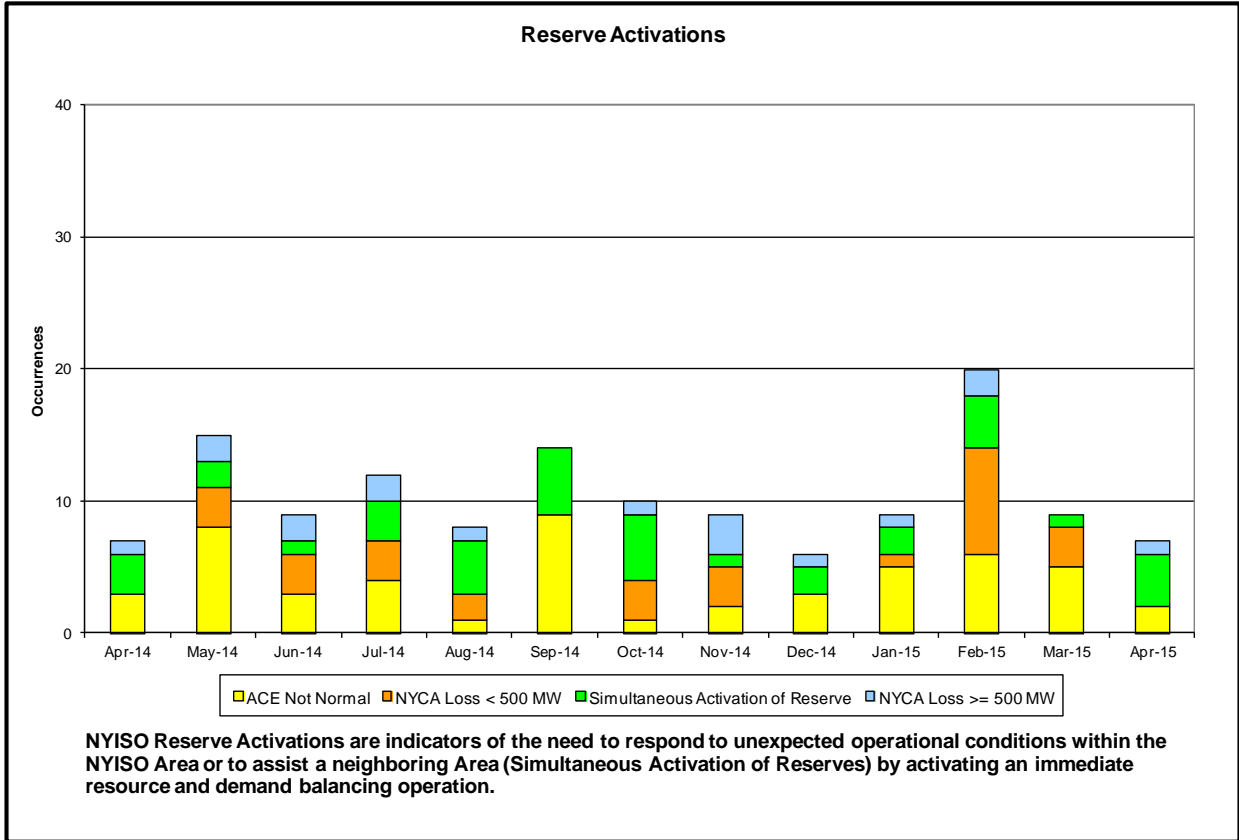
- Statewide uplift cost monthly average was **(\$0.41)/MWh**
- The following table identifies the Monthly ICAP spot market prices by locality. Given the transition to the Summer Capability period, the price changes from the prior month are excluded.

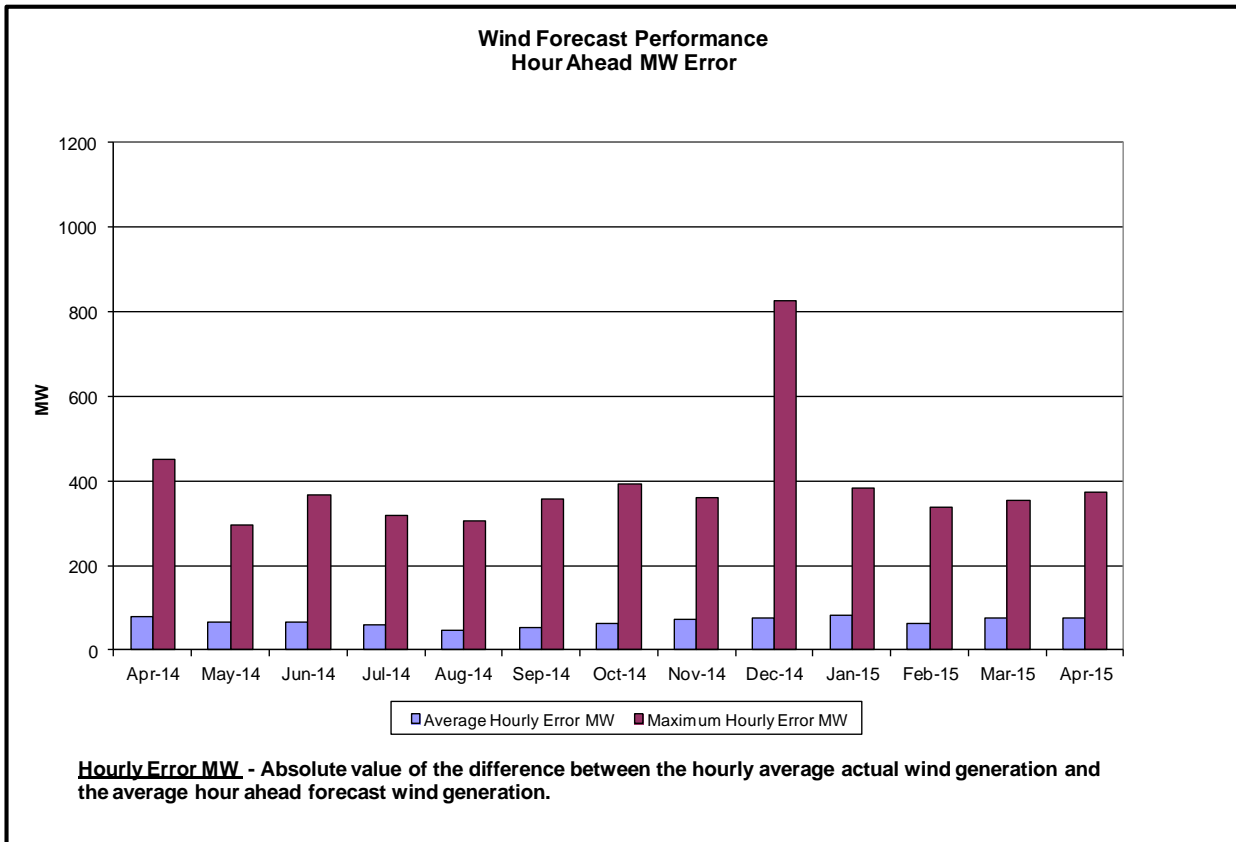
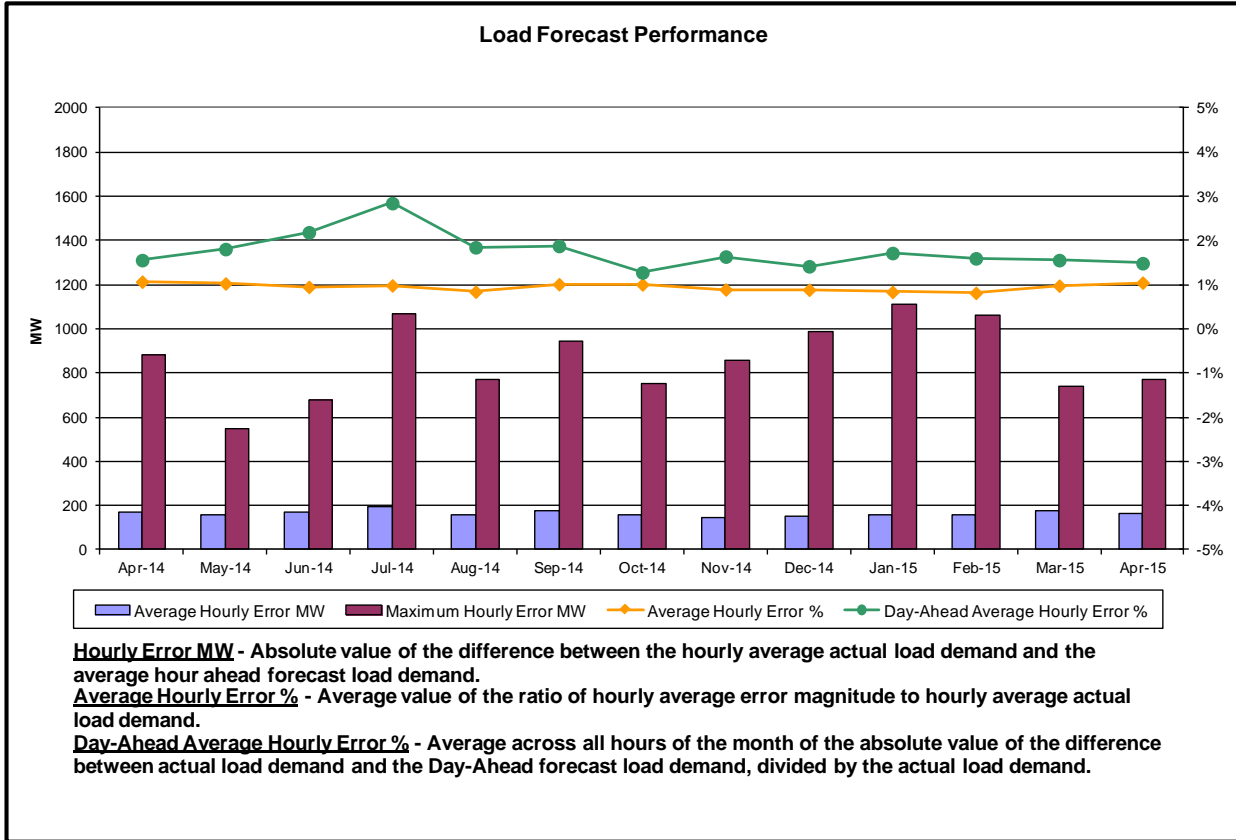
| Spot Auction Price Results | NYCA | Lower Hudson Valley Zones | New York City Zone | Long Island Zone |
|----------------------------|--------|---------------------------|--------------------|------------------|
| May 2015 Spot Price | \$4.07 | \$10.93 | \$16.04 | \$5.78 |
| | | | | |

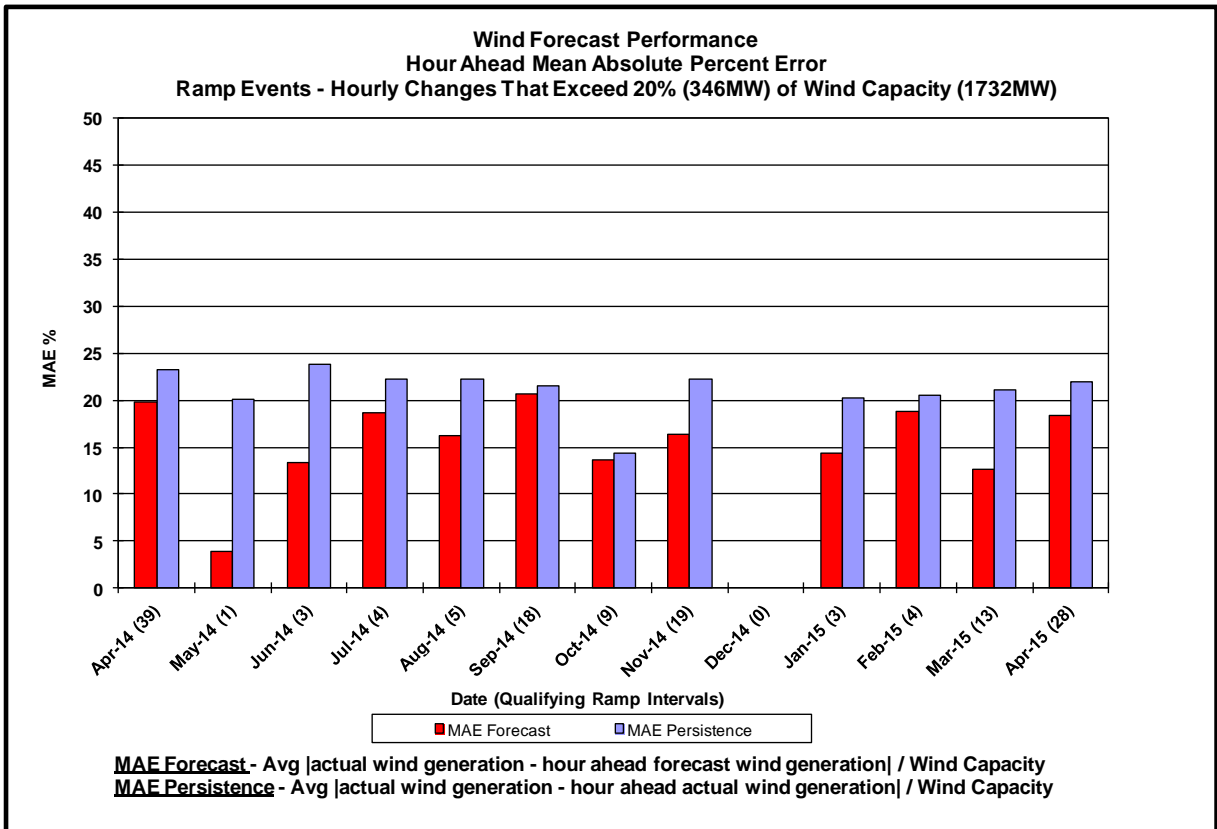
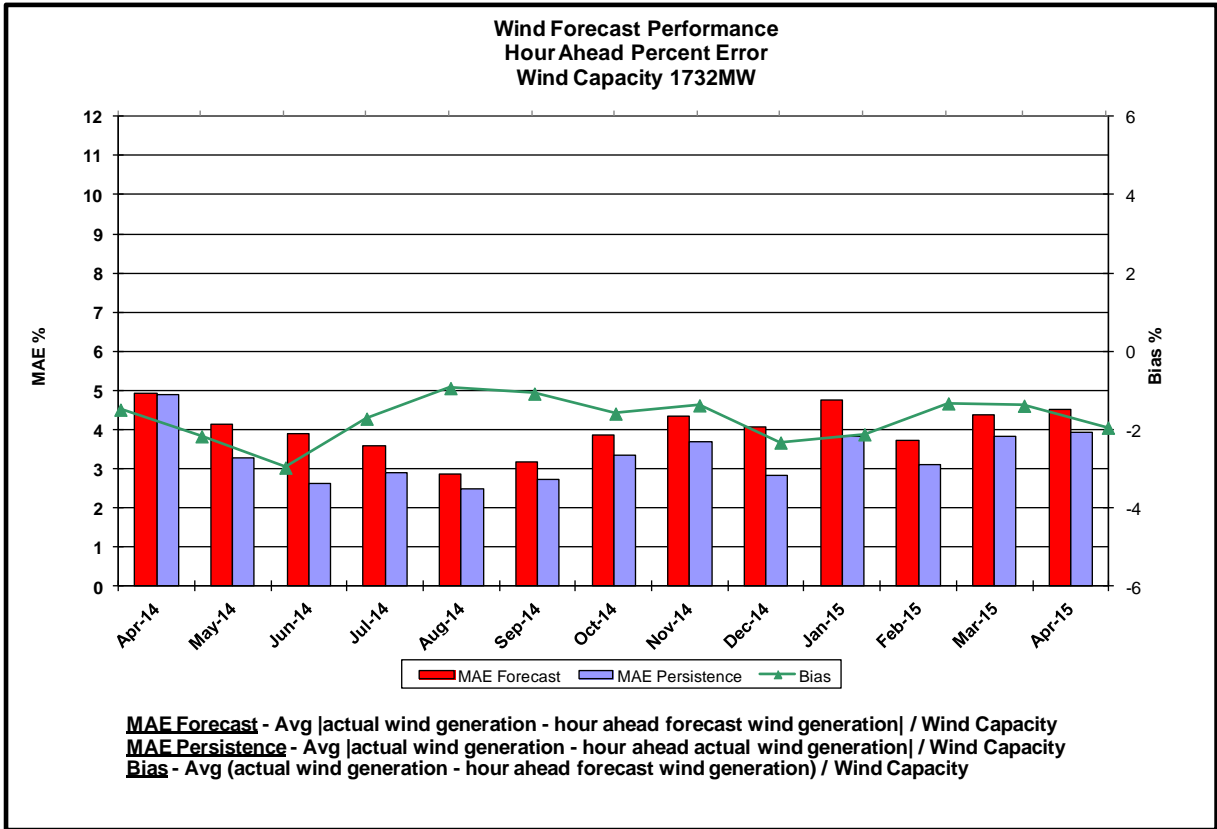
Reliability Performance Metrics

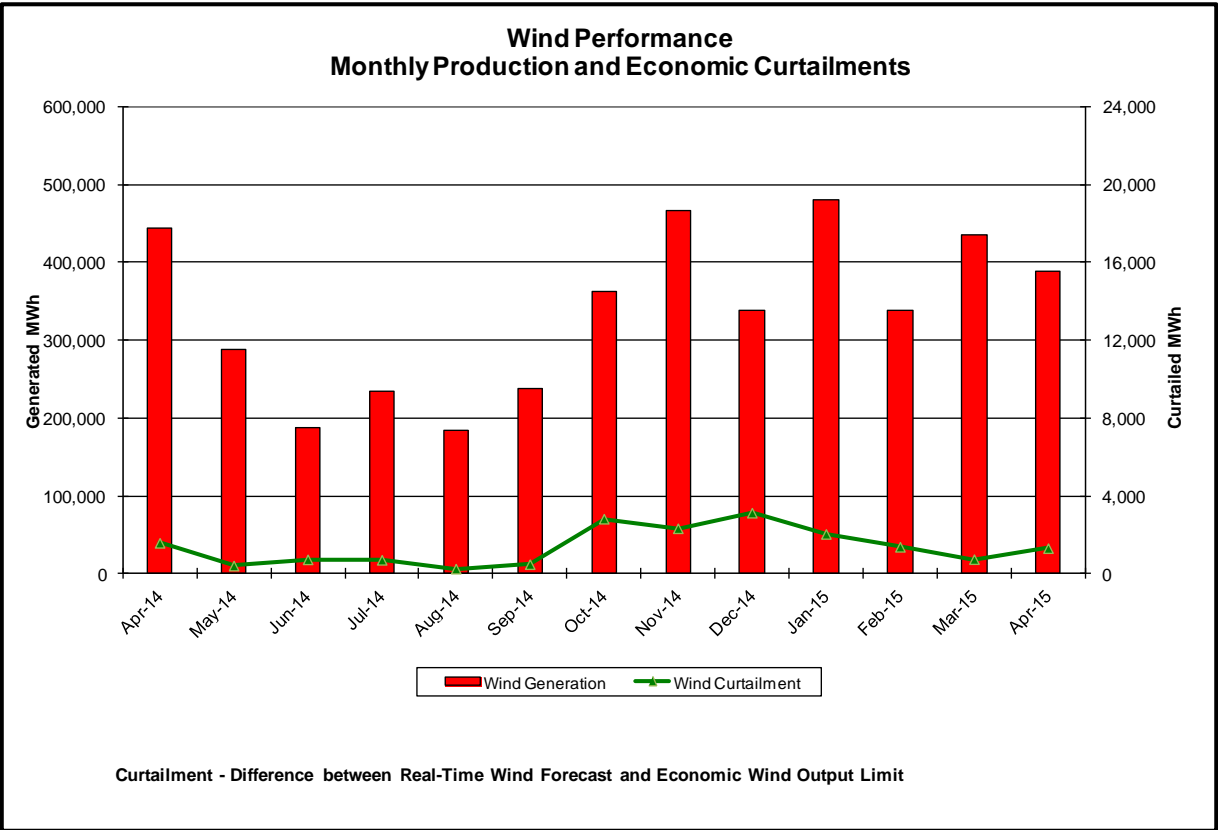
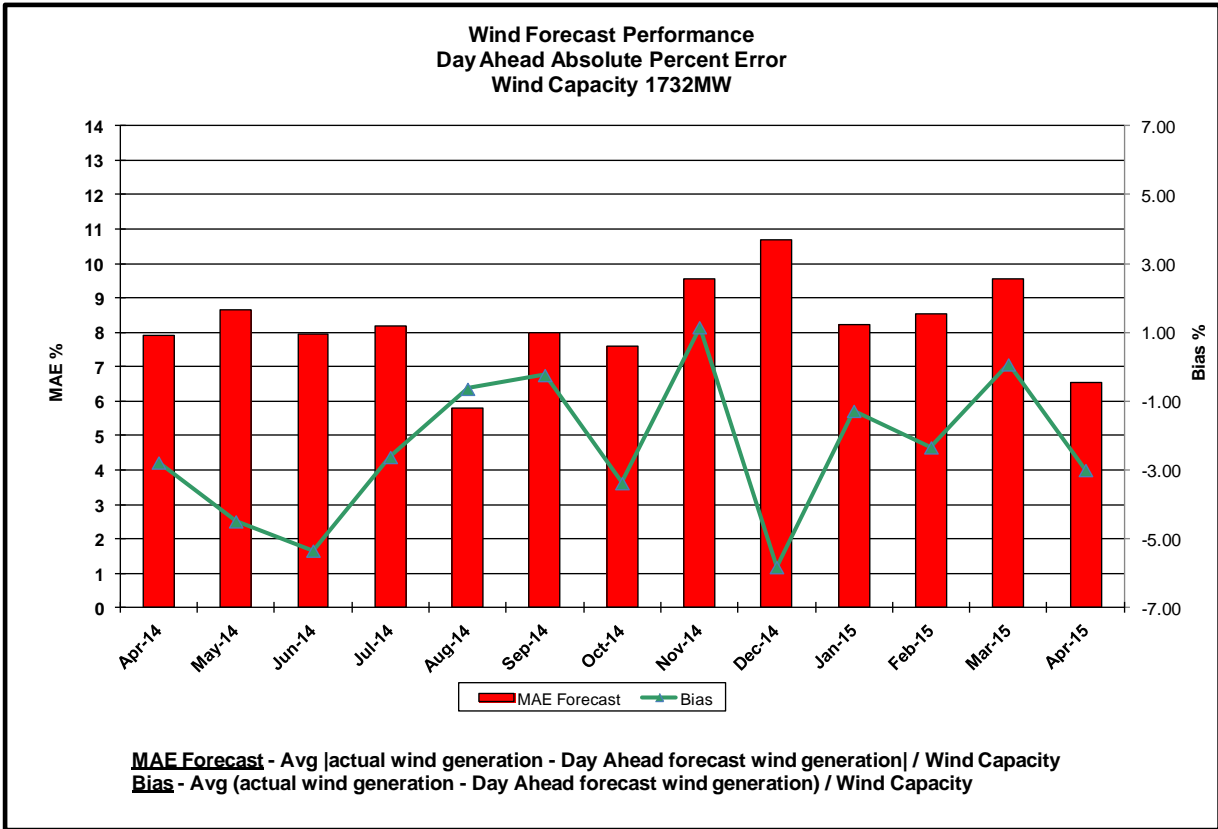


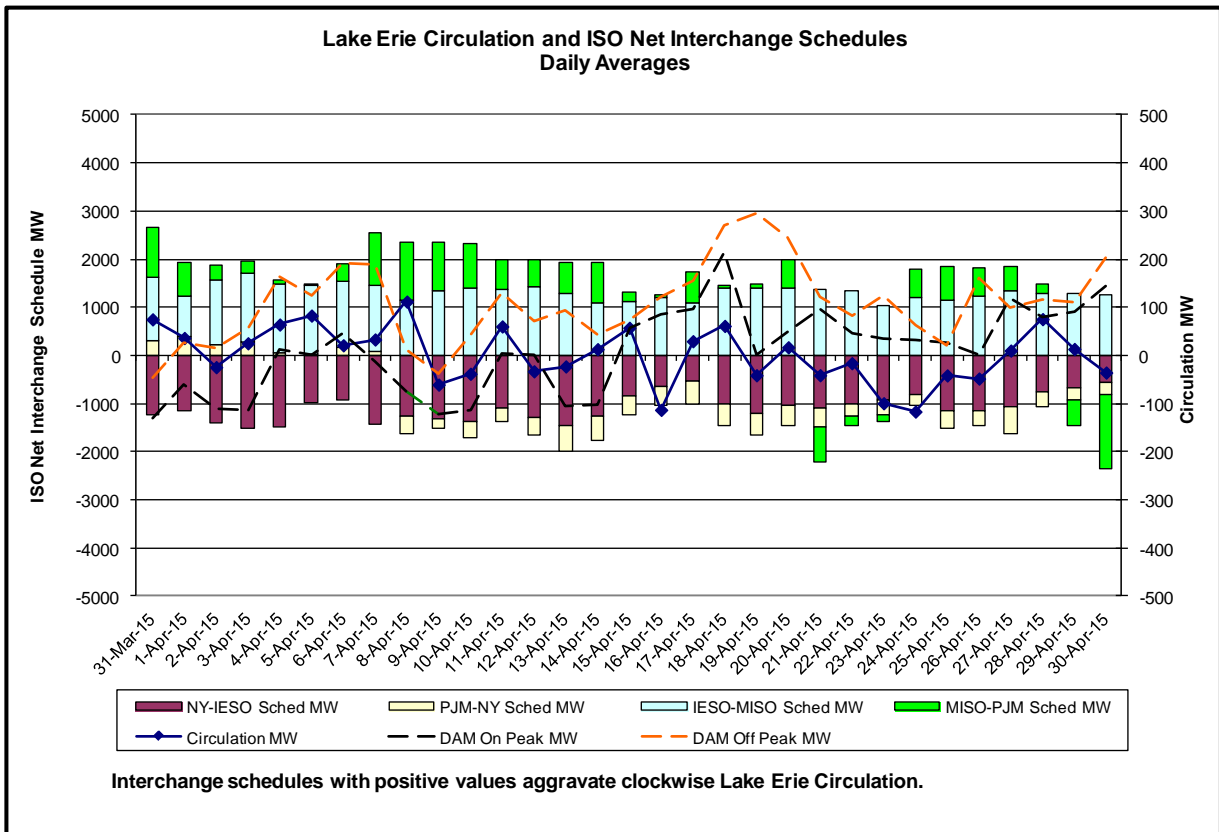
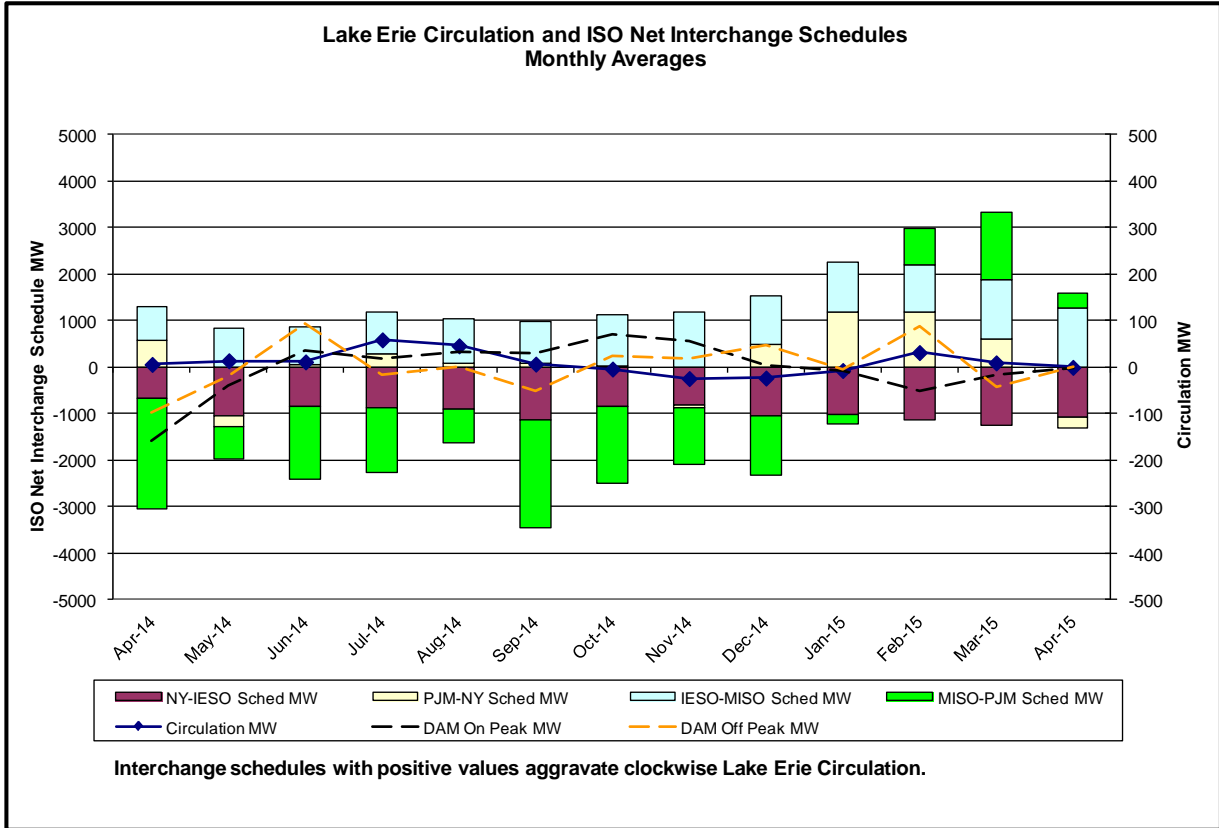




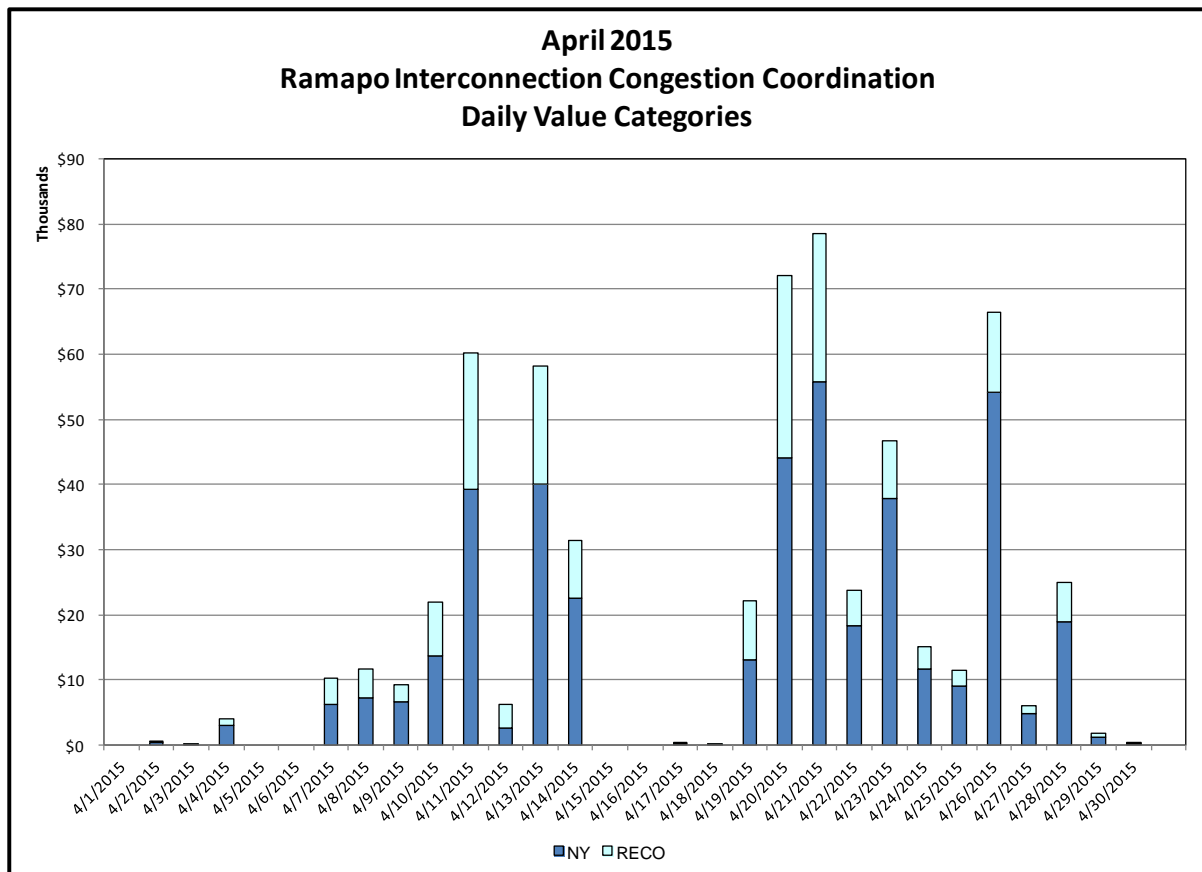
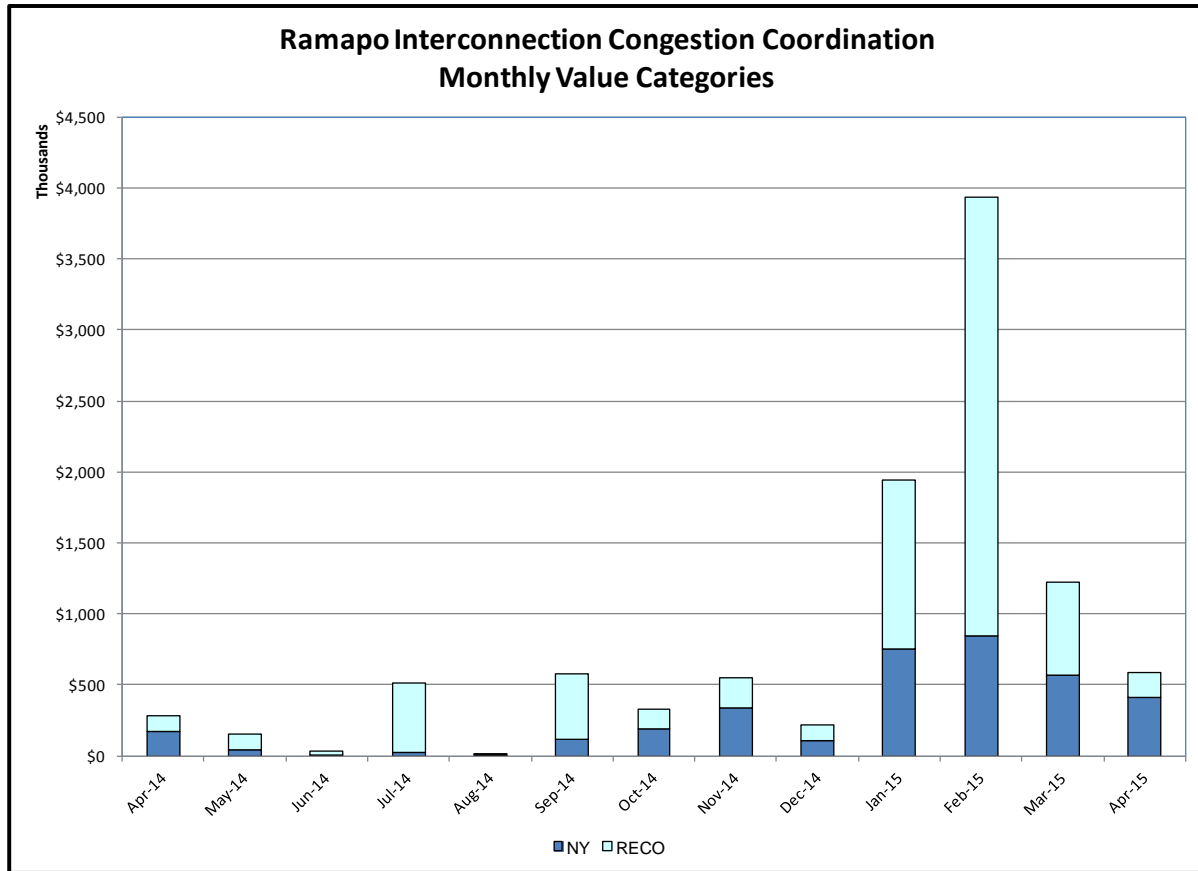






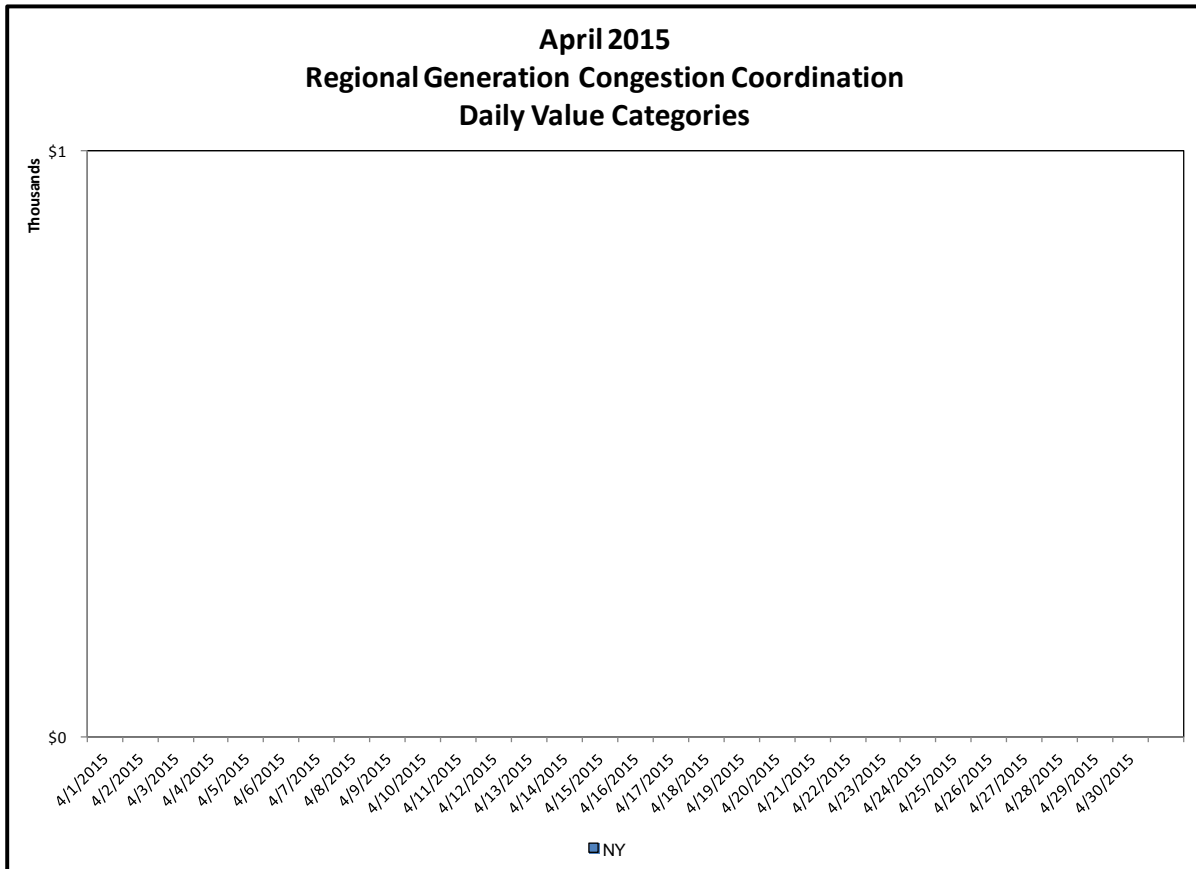
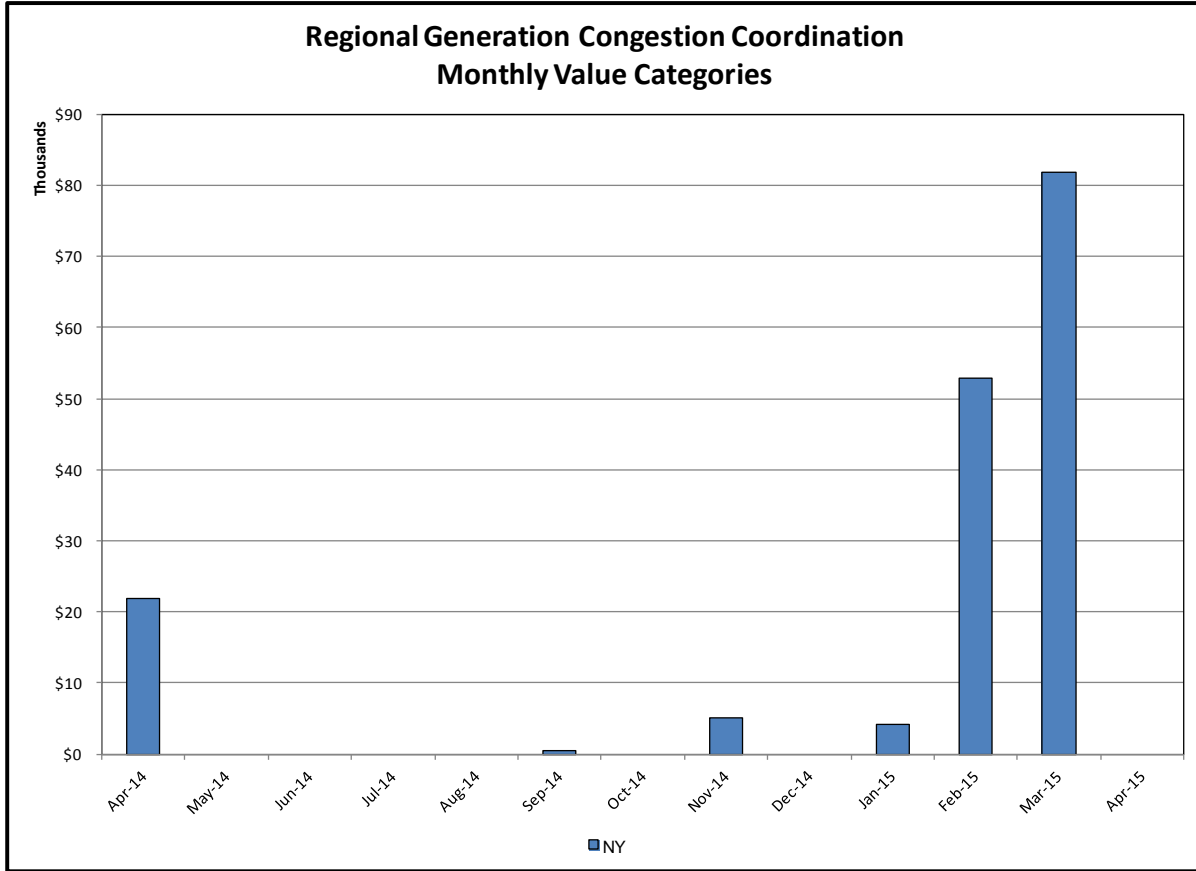


Broader Regional Market Performance Metrics



Ramapo Interconnection Congestion Coordination

| <u>Category</u> | <u>Description</u> |
|-----------------|---|
| NY | <p>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.</p> |
| RECO | <p>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.</p> |



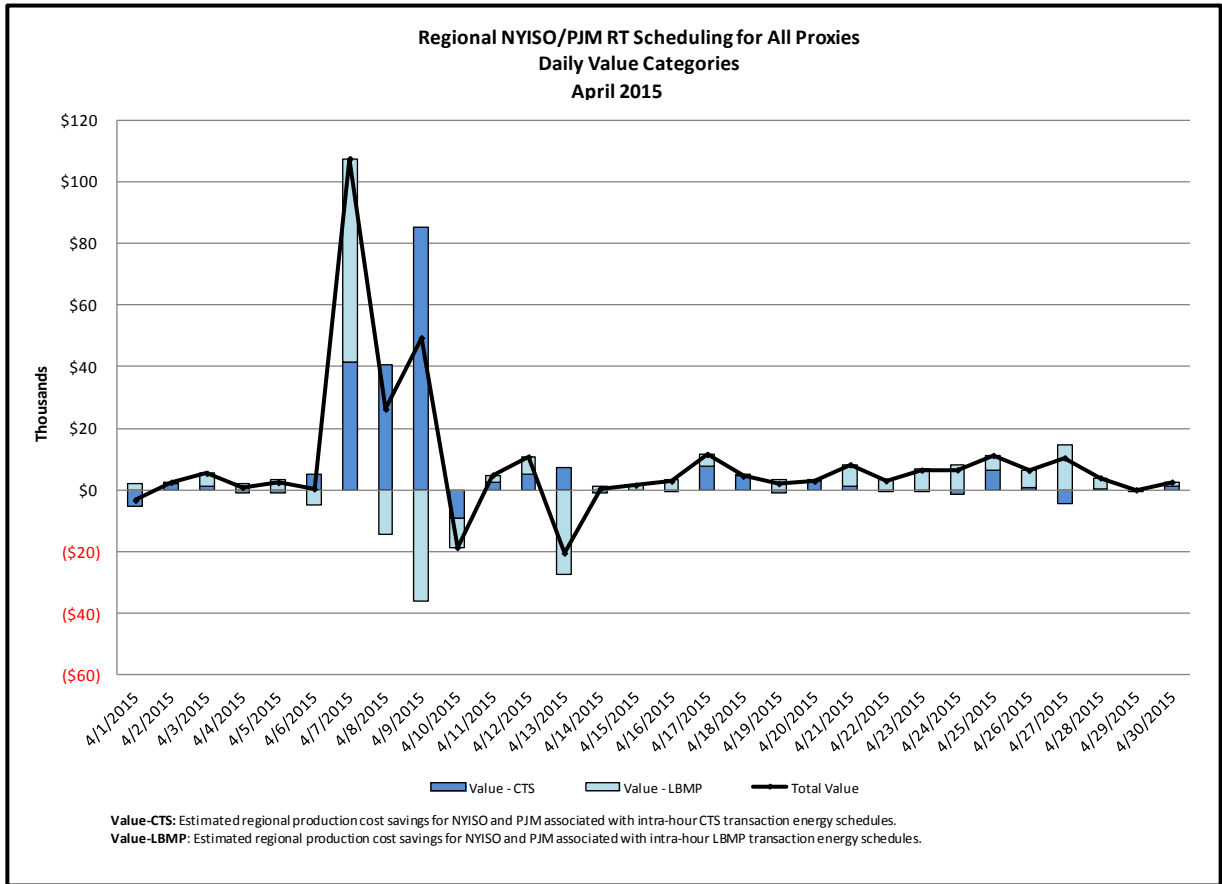
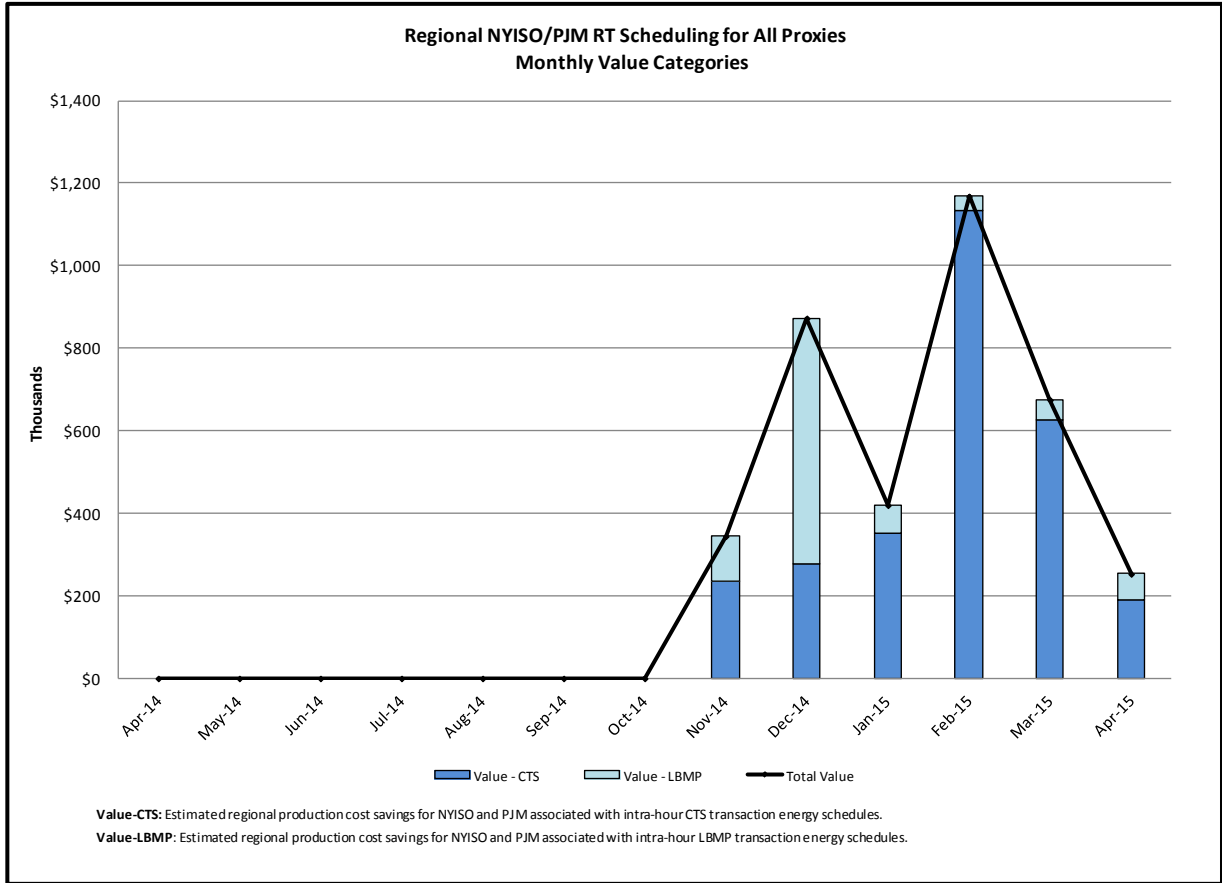
Regional Generation Congestion Coordination

Category

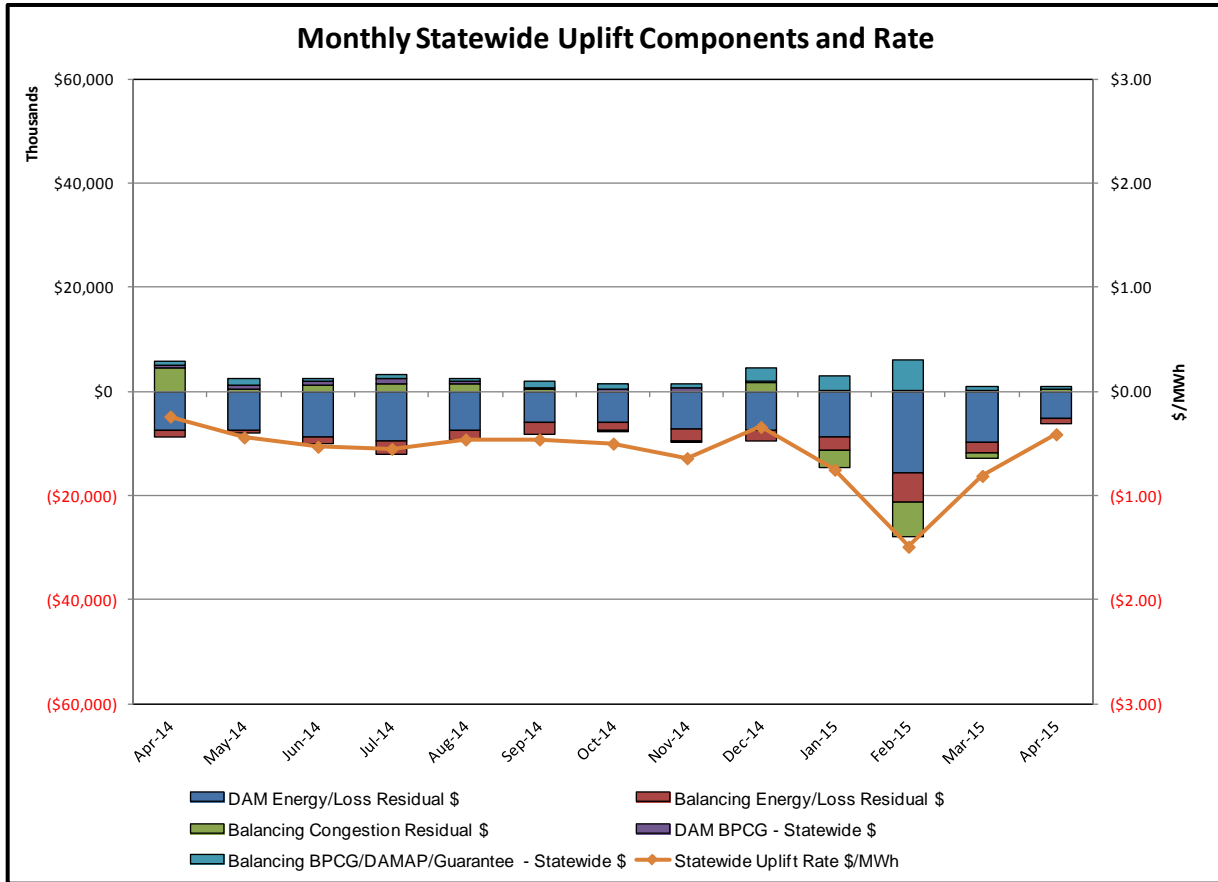
NY

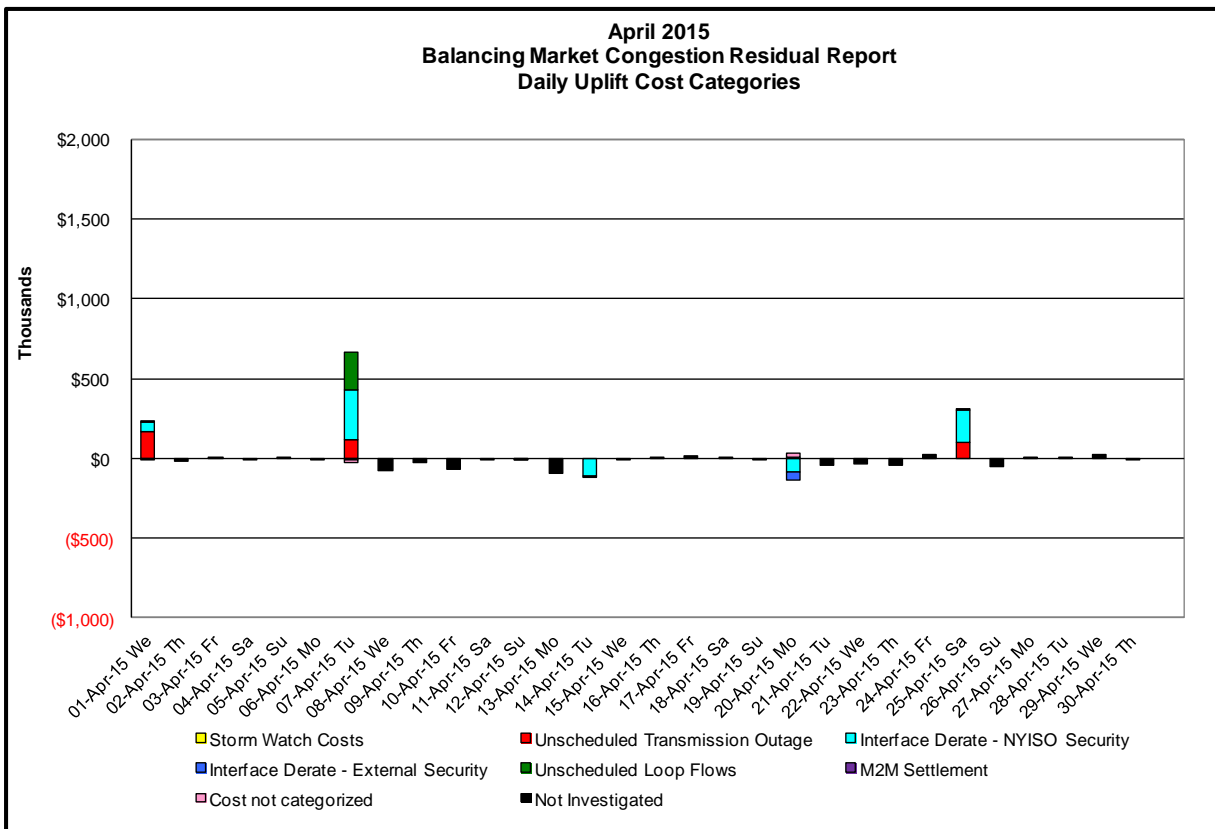
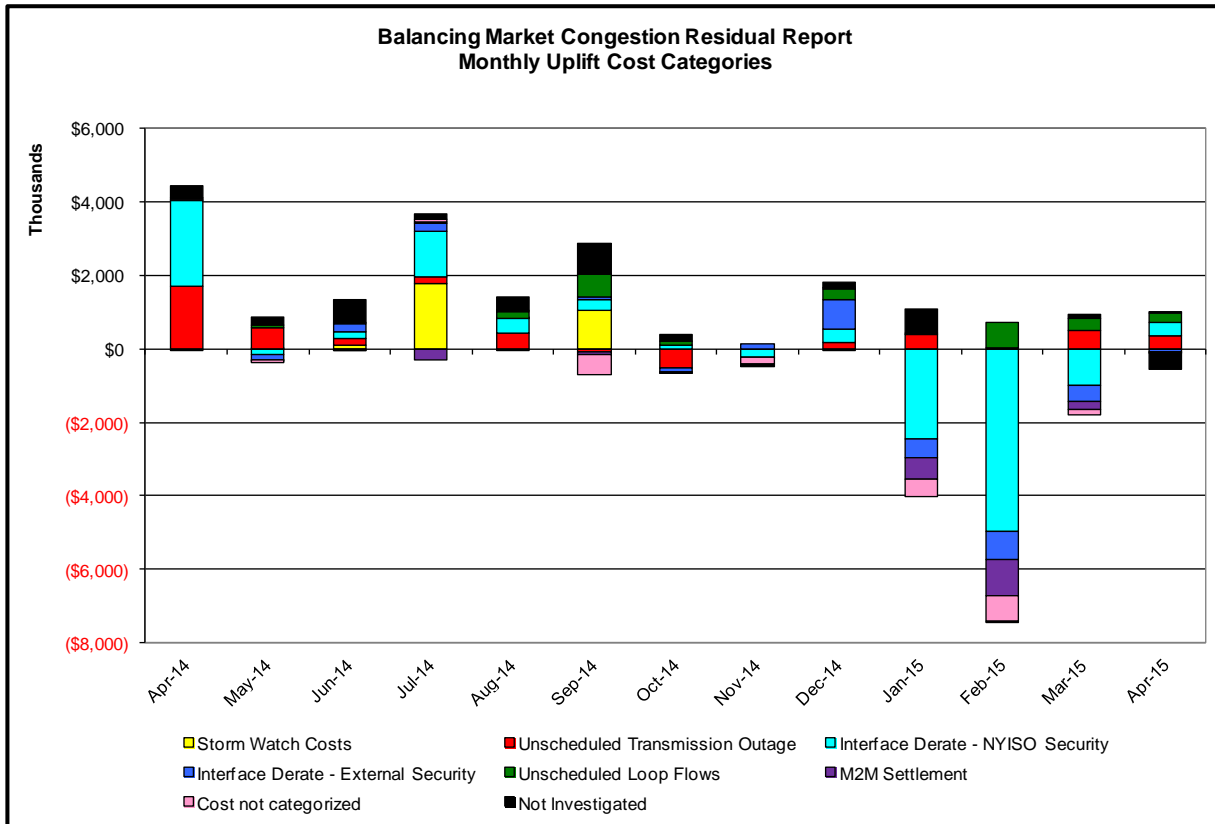
Description

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





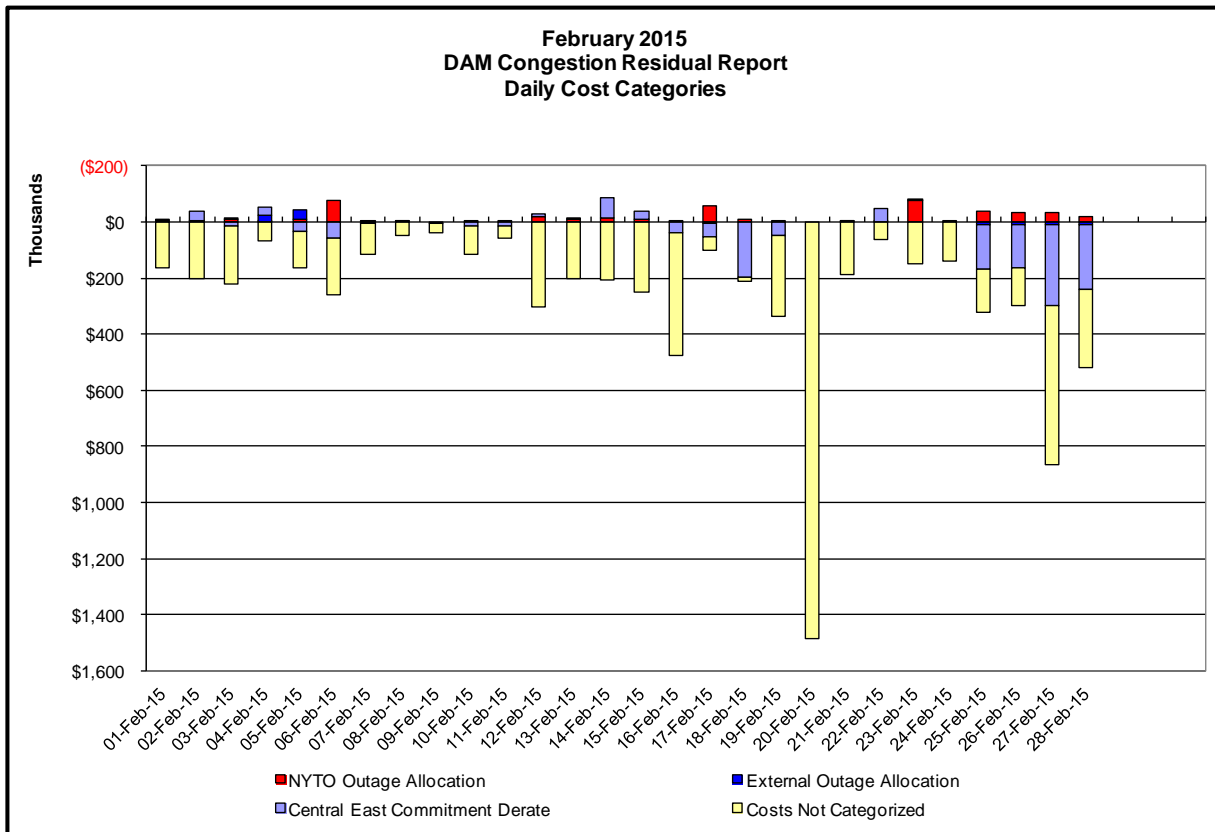
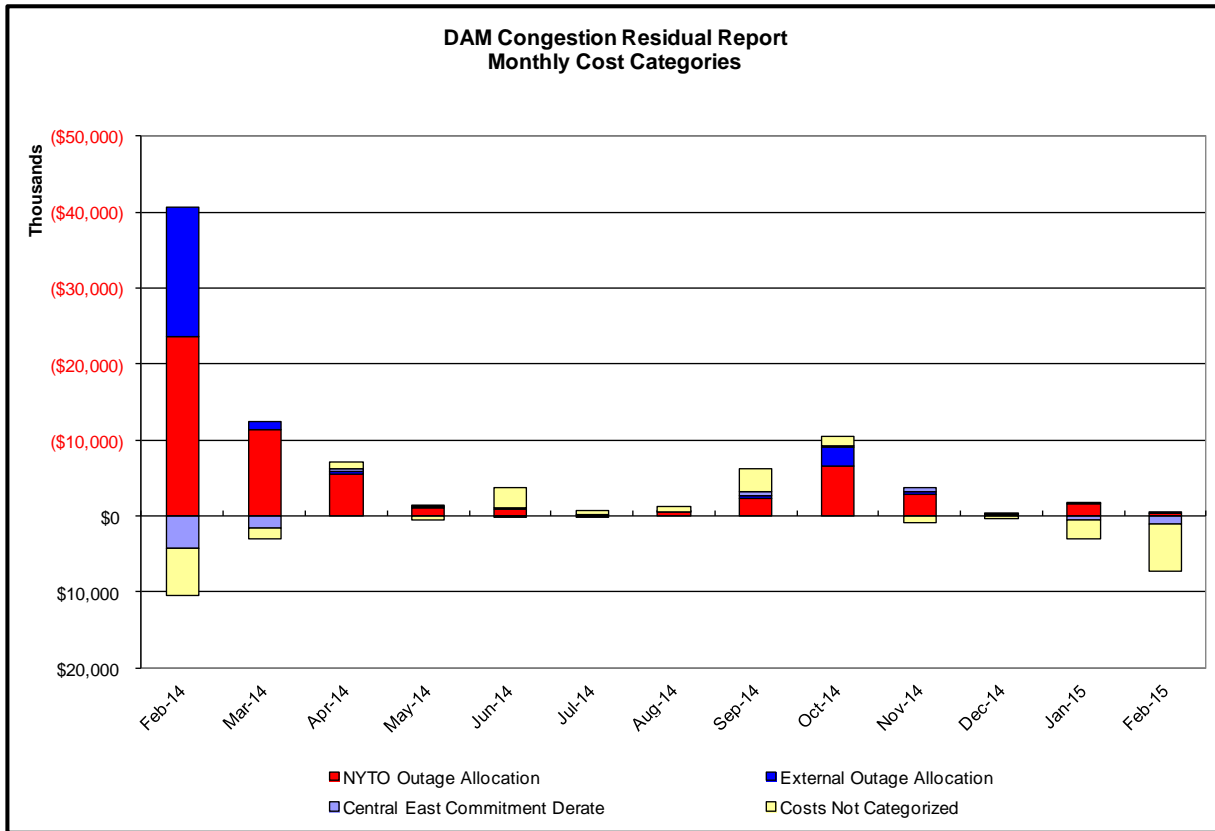
| Day's investigated in April: 1, 7, 14, 20, 25 | | | |
|---|-----------------|-------------------------|---|
| Event | Date (yyyymmdd) | Hours | Description |
| | 4/1/2015 | 0-5, 7-9, 11, 12, 14-20 | Forced outage Northfield-Bershire 345kV (#312) |
| | 4/1/2015 | 5, 7, 19 | NYCA DNI Ramp Limit |
| | 4/1/2015 | 7-9, 11, 12, 16 | Derate Astoria Annex-East 13th Street 345kV (#Q35L) for I/o SCB:ASTAX(5):34091&PAR&TR&Q35M |
| | 4/1/2015 | 10, 11 | IESO_AC DNI Ramp Limit |
| | 4/7/2015 | 10, 11 | Forced outage of Hudson-Farragut 345kV (#C3403) |
| | 4/7/2015 | 15 | NYCA DNI Ramp Limit |
| | 4/7/2015 | 10-14, 19 | Derate Astoria Annex-East 13th Street 345kV (#Q35L) for I/o SCB:ASTAX(5):34091&PAR&TR&Q35M |
| | 4/7/2015 | 10-15, 19 | Derate Central East |
| | 4/7/2015 | 19 | Derate Dunwoodie-Shore Road 345kV (#Y50) for I/o SCB:SPBK(RNS2):Y49 & M29 |
| | 4/7/2015 | 19 | Derate Dunwoodie-Shore Road 345kV (#Y50) for I/o Sprainbrook-East Garden City 345kV (#Y49) |
| | 4/7/2015 | 11, 12 | Derate Gowanus-Greenwood 138kV (#42232) for I/o SCB:GOWANUS(2):41&42231 |
| | 4/7/2015 | 10-15, 19 | Derate Niagara-Packard 230kV (#61) or I/o TWR:PACKARD 62 & BP76 |
| | 4/7/2015 | 17, 18 | NE_NNC1385-NY Scheduling Limit |
| | 4/7/2015 | 17, 18 | NE_AC-NY Scheduling Limit |
| | 4/7/2015 | 11-15 | Lake Erie Clockwise Circulation, DAM-RTM exceeds 125MW; Niagara-Packard (#61), Central East |
| | 4/14/2015 | 0, 9-17 | Uprate Central East |
| | 4/20/2015 | 20 | Forced outage of Vernon-Queensbridge 138kV (#31281) |
| | 4/20/2015 | 20 | Forced outage of Hudson-Farragut 345kV (#C3403) |
| | 4/20/2015 | 1, 2, 9-19 | Uprate Central East |
| | 4/20/2015 | 20 | Derate Dunwoodie-Shore Road 345kV (#Y50) for I/o SCB:SPBK(RNS2):Y49 & M29 |
| | 4/20/2015 | 10, 11 | Uprate Malone-Willis 115kV (#1-MW) for I/o Moses-Willis 230kV (#MW1) |
| | 4/20/2015 | 10, 12-18 | HQ_CHAT-NY Scheduling Limit |
| | 4/25/2015 | 15-17 | Forced outage East Garden City 345/138kV (#Bk2) |
| | 4/25/2015 | 17, 22 | Derate Central East |
| | 4/25/2015 | 15-17 | Derate Dunwoodie-Shore Road 345kV (#Y50) |
| | 4/25/2015 | 20-22 | Derate Dunwoodie-Shore Road 345kV (#Y50) for I/o NEPTUNE HVDC TIE LINE |

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 | |

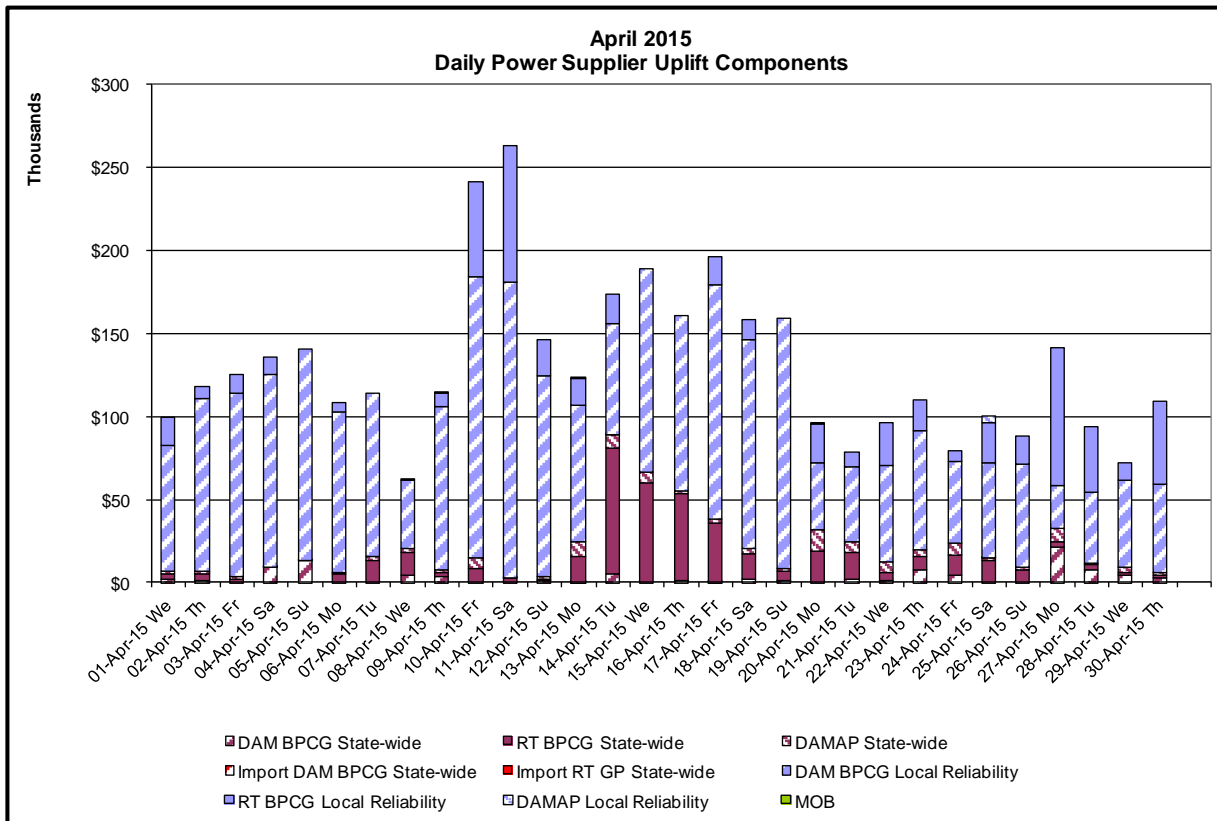
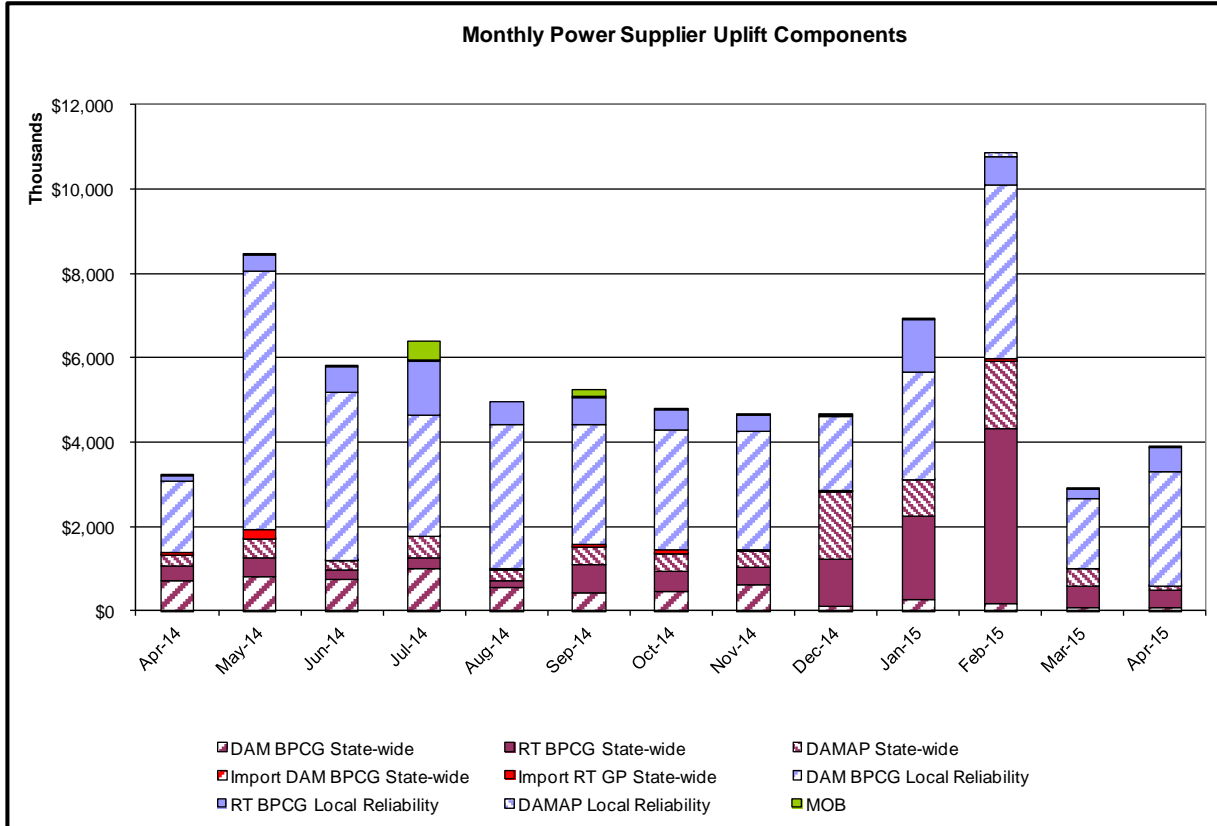
Monthly Balancing Market Congestion Report Assumptions/Notes

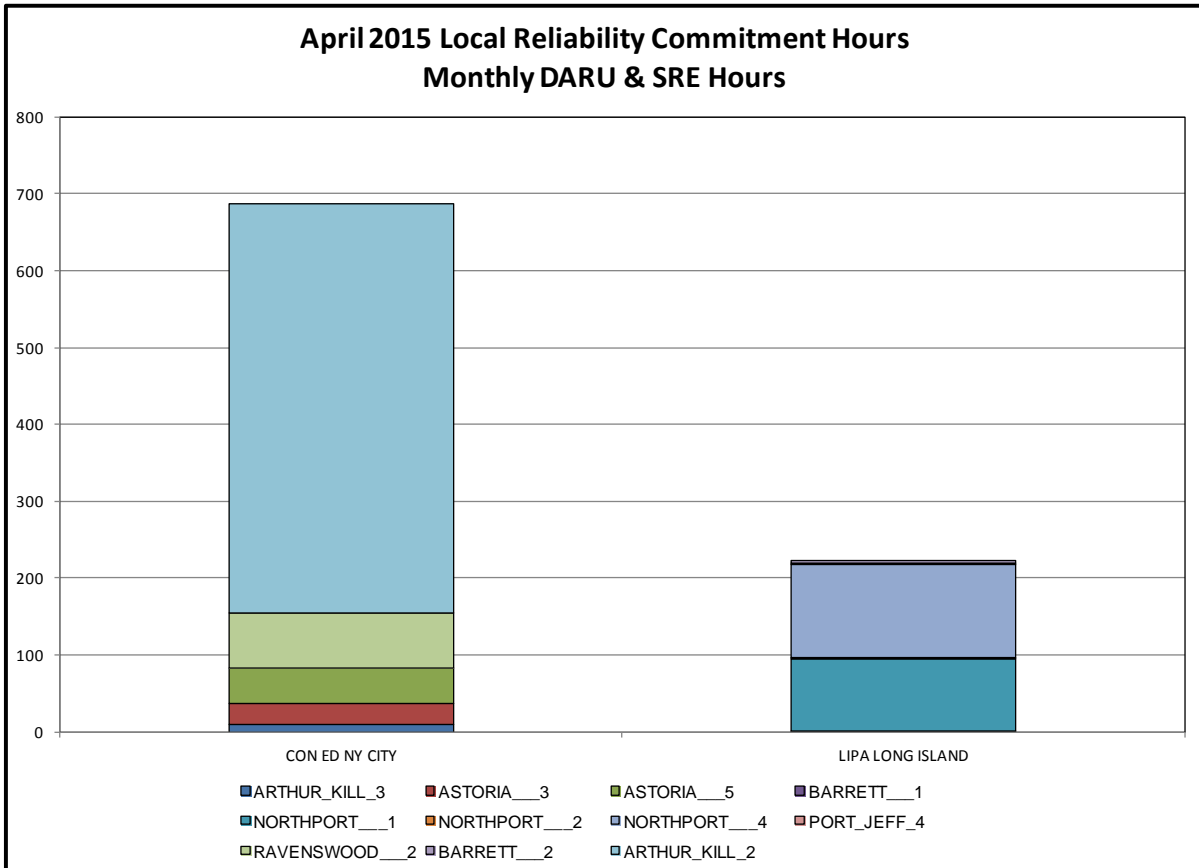
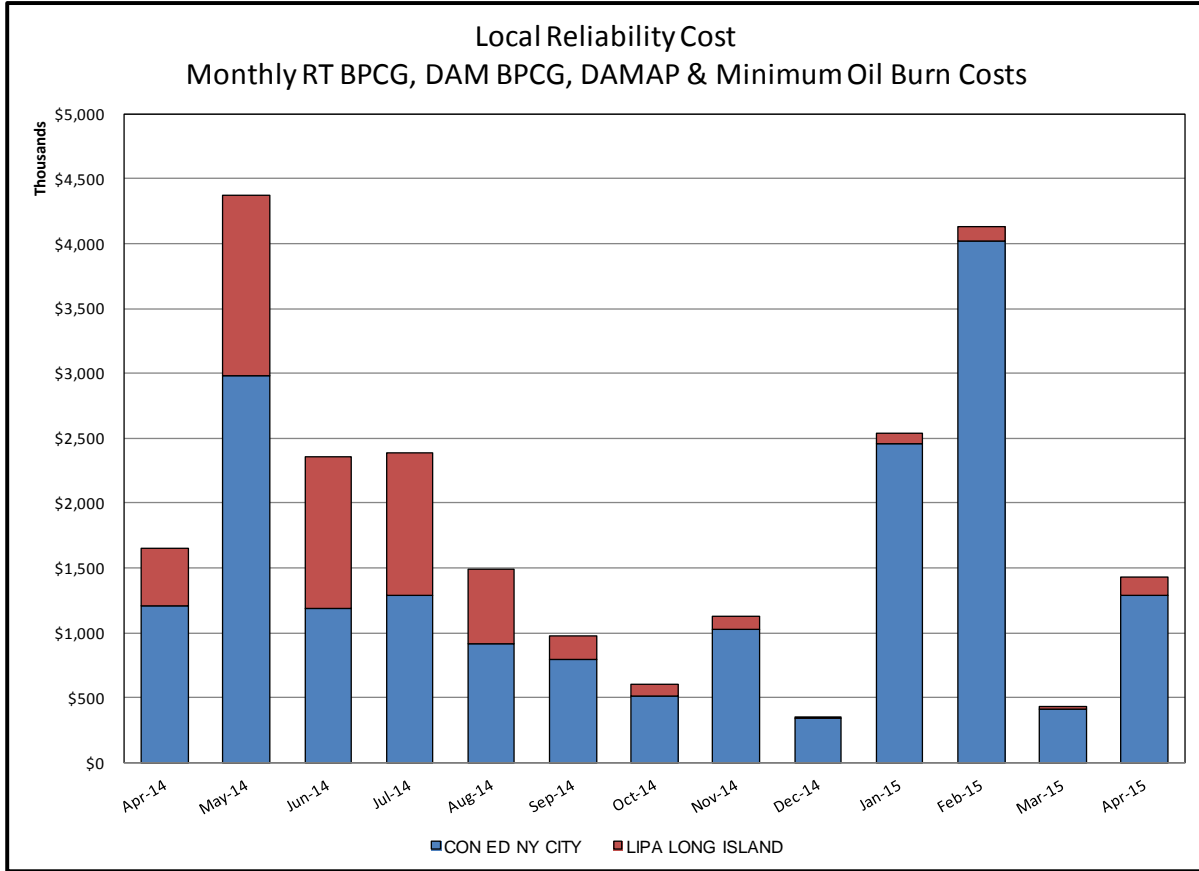
- 1) Storm Watch Costs are identified as daily total uplift costs
- 2) Days with a value of BMCR less M2M Settlement of \$100K/HR, shortfall of \$200K/Day or more, or surplus of \$100K/Day or more are investigated.
- 3) Uplift costs associated with multiple event types are apportioned equally by hour

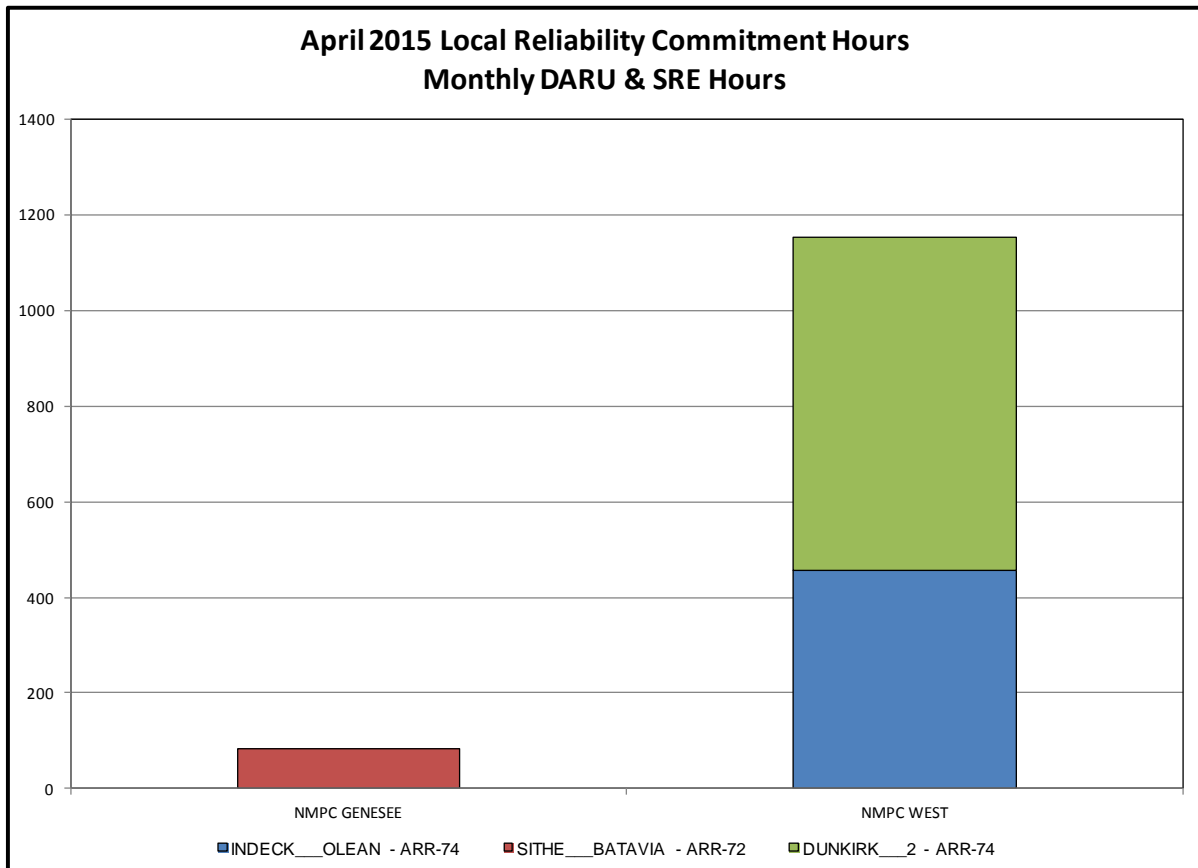
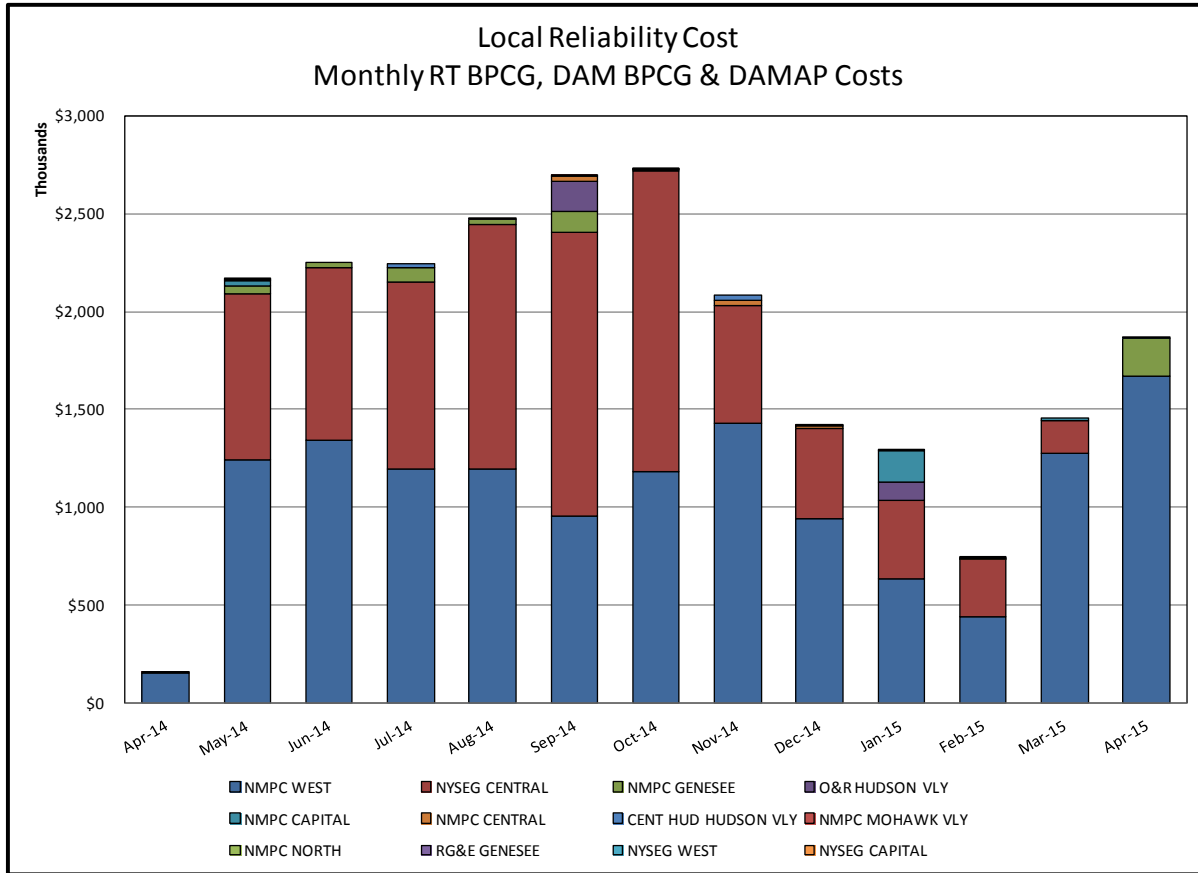


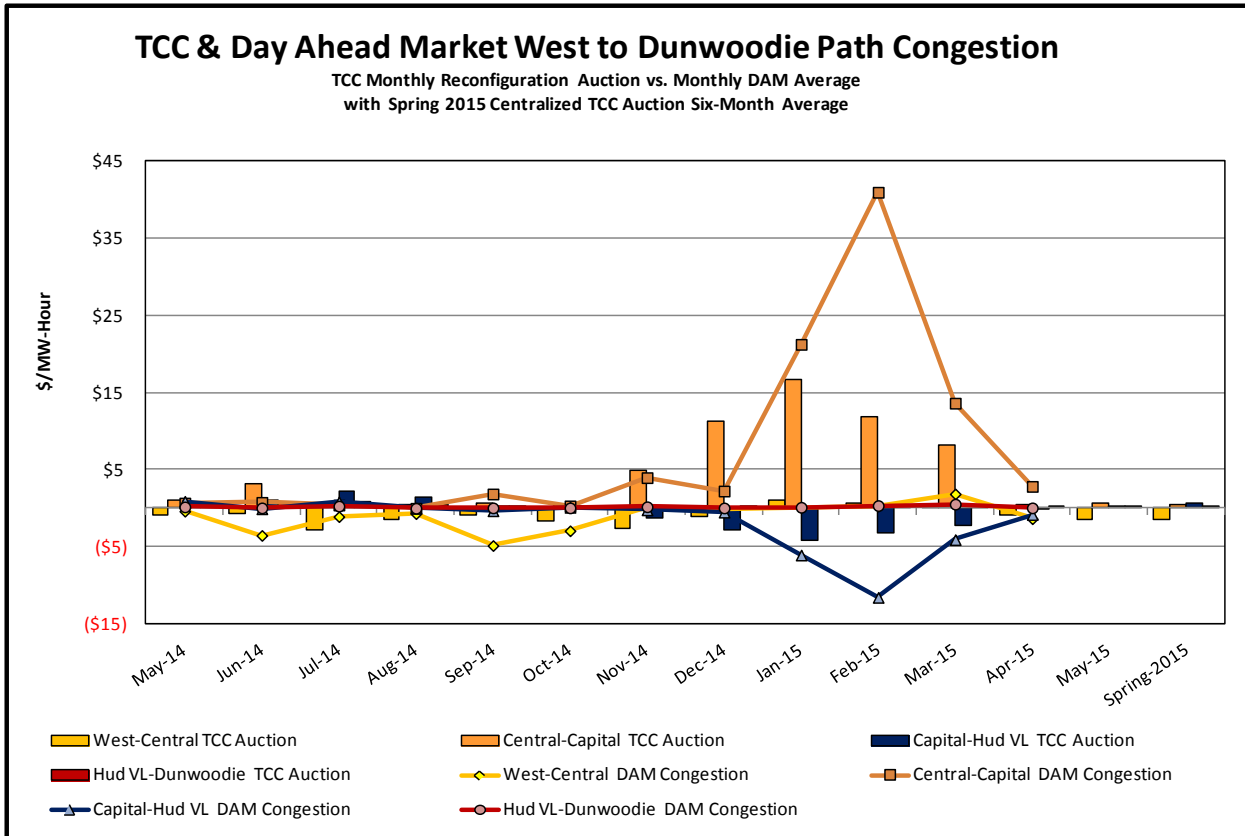
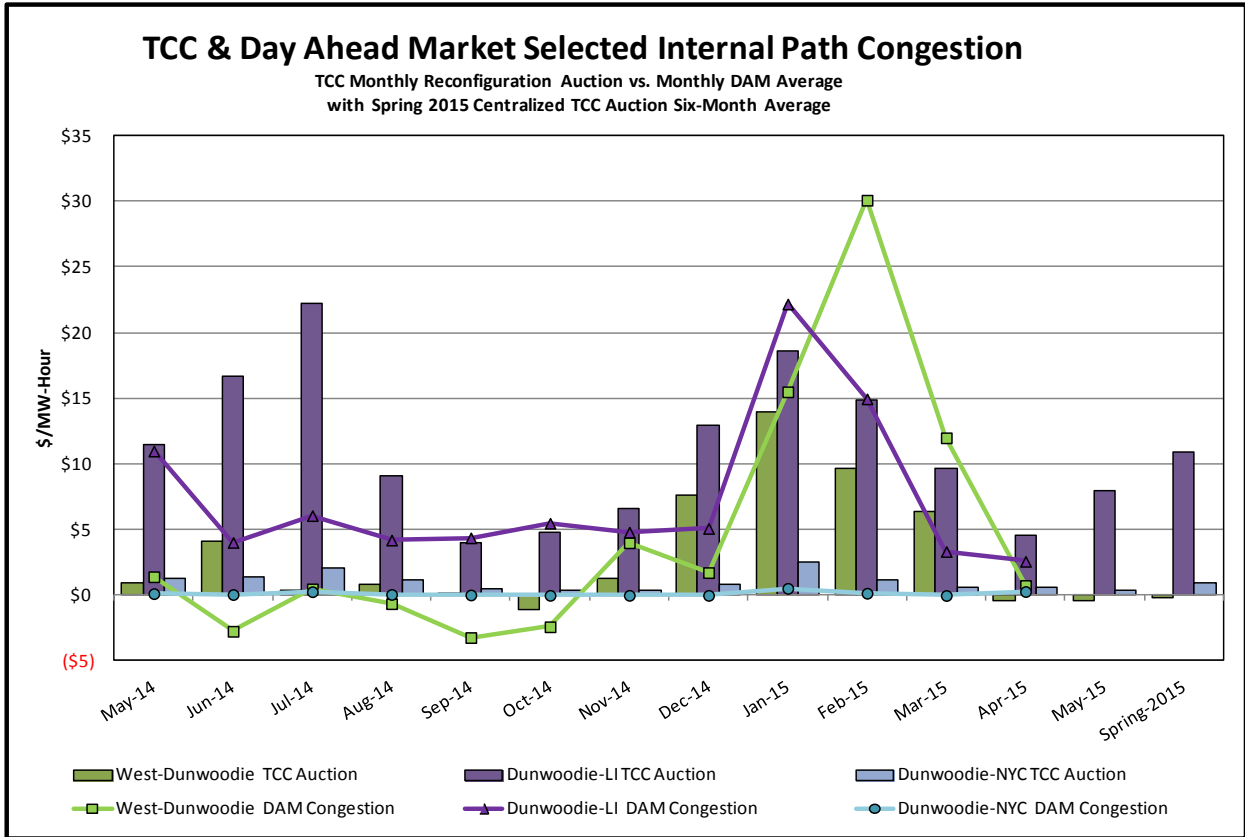
Day-Ahead Market Congestion Residual Categories

| <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. |
| 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. | |



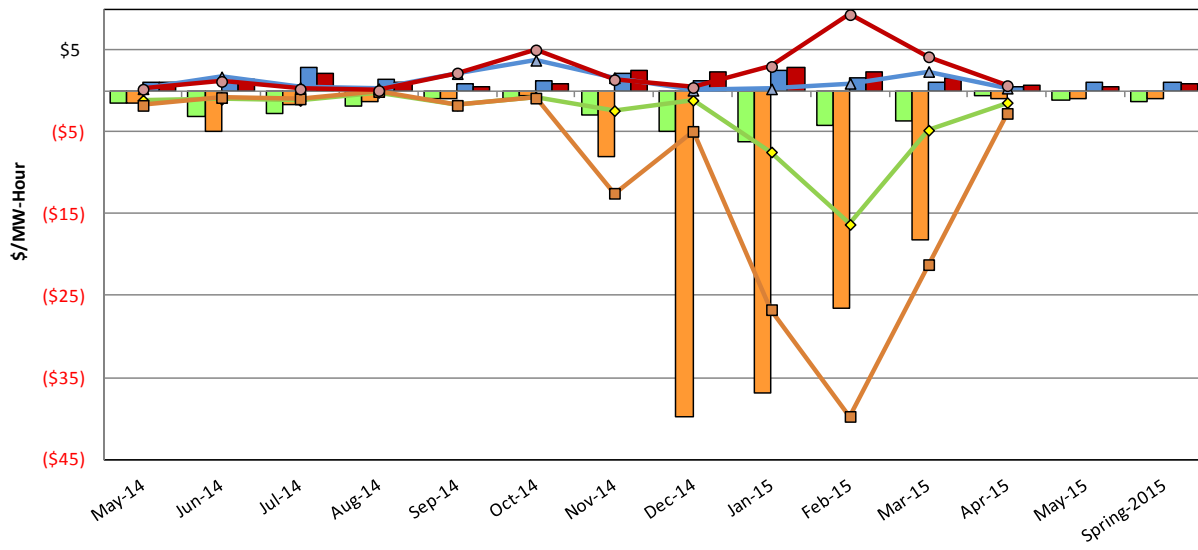






TCC & Day Ahead Market Selected External Path Congestion

TCC Monthly Reconfiguration Auction vs. Monthly DAM Average
with Spring 2015 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

