Distributed seperately from meeting materials. Related to agenda item #7.3

Operations Performance Metrics Monthly Report




October 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 November 8, 2019.

Table of Contents

October 2019 Operations Performance Highlights

- Peak load of 23,774 MW occurred on 10/02/2019 HB 15
- All-time summer capability period peak load of 33,956 MW occurred on 7/19/2013 HB 16
- 0 hours of Thunder Storm Alerts were declared
- 0 hours of NERC TLR level 3 curtailment
- A Major Emergency was declared on 10/13/2019 in HB16 for resources producing above schedule, causing the HQ Cedars flow to exceed 105% of its transient stability limit.
- A Major Emergency was declared on 10/13/2019 in HB23 for resources producing above schedule, causing the Northern Export interface flow to exceed 105% of its transient stability limit.
- The following table identifies the estimated production cost savings associated with the Broader Regional Market initiatives.

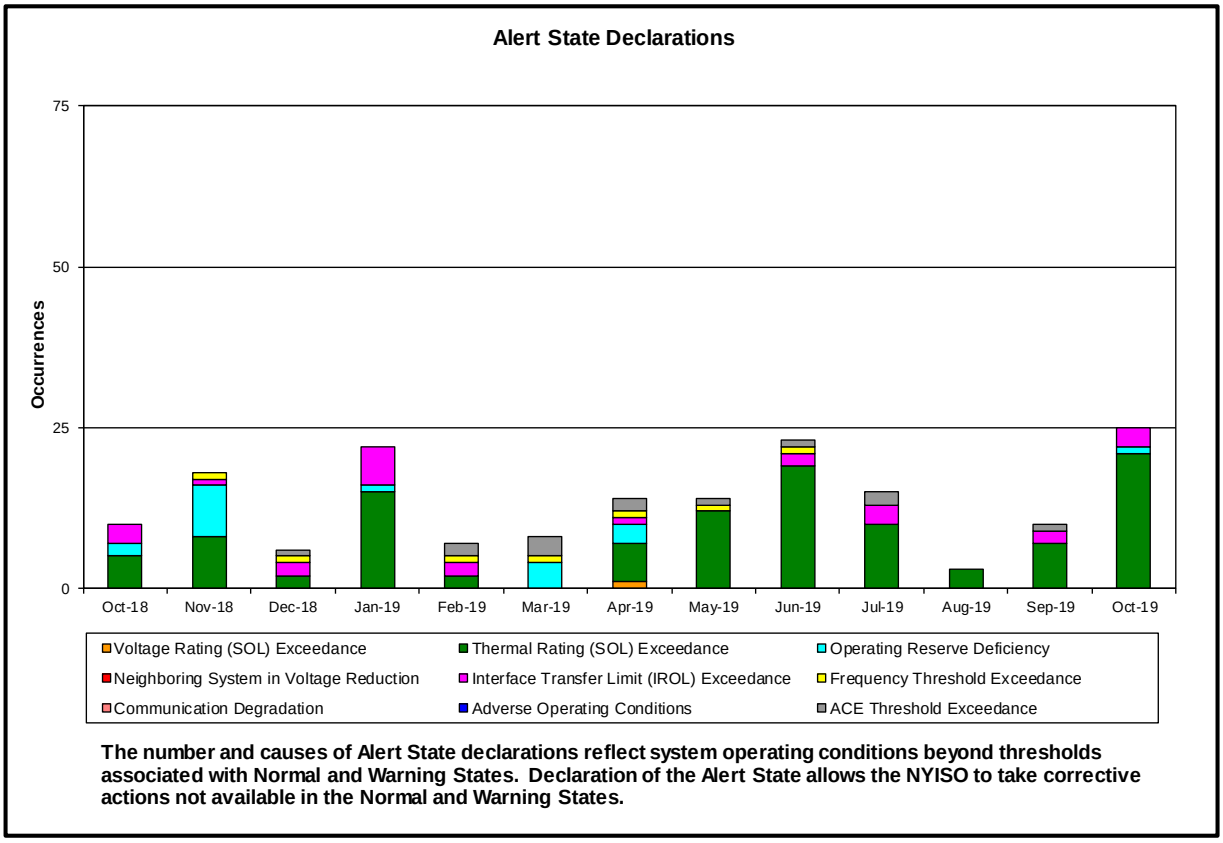
	Current Month Value ($M)	Year-to-Date Value ($M)
NY Savings from PJM-NY Congestion Coordination	$0.53	$7.26
NY Savings from PJM-NY Coordinated Transaction Scheduling	($0.43)	$1.93
NY Savings from NE-NY Coordinated Transaction Scheduling	$0.26	$1.04
Total NY Savings	$0.36	$10.23
Regional Savings from PJM-NY Coordinated Transaction Scheduling	$0.86	$5.31
Regional Savings from NE-NY Coordinated Transaction Scheduling	$0.05	$0.56
Total Regional Savings	$0.91	$5.87

- Statewide uplift cost monthly average was ($0.20)/MWh
- The following table identifies the Monthly ICAP spot market prices and the price delta.

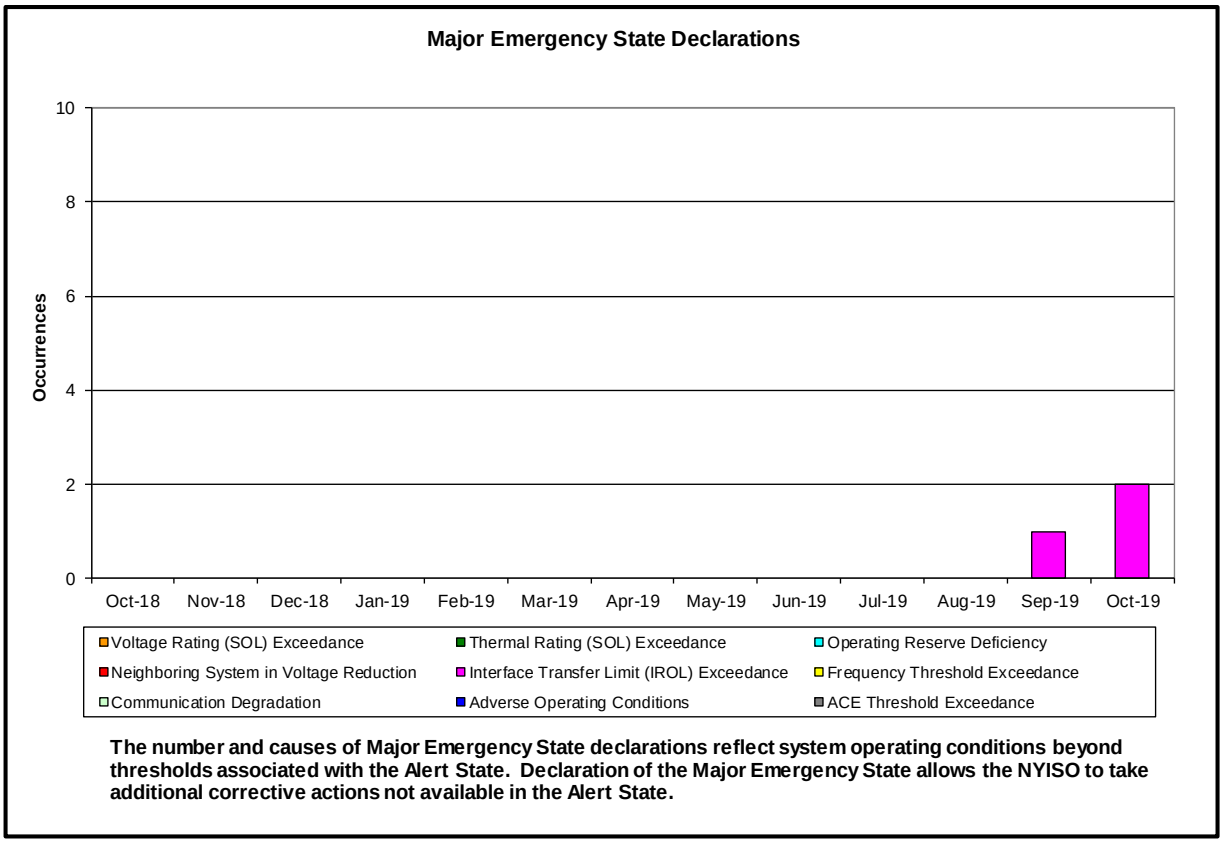
Spot Auction Price Results	NYCA	Lower Hudson Valley Zones	New York City Zone	Long Island Zone
November 2019 Spot Price	$0.10	$0.10	$4.01	$0.10
April 2019 Spot Price	$0.26	$1.45	$1.45	$0.41
Delta	($0.16)	($1.35)	$2.56	($0.31)

  - Price changes from April 2019 to November 2019 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

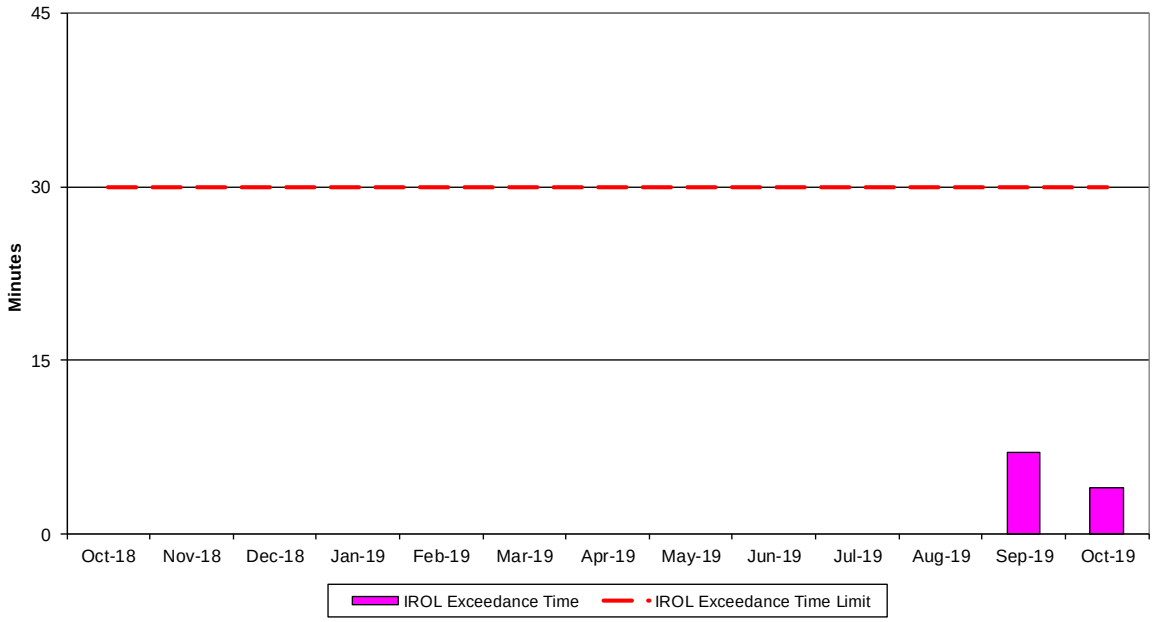


The number and causes of Alert State declarations reflect system operating conditions beyond thresholds associated with Normal and Warning States. Declaration of the Alert State allows the NYISO to take corrective actions not available in the Normal and Warning States.



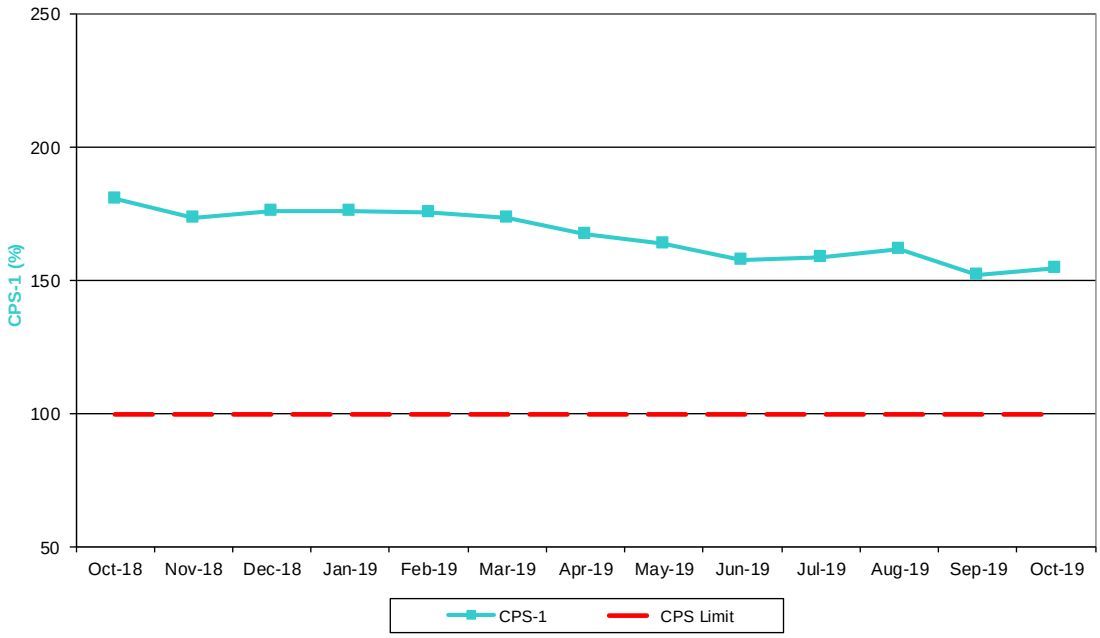
The number and causes of Major Emergency State declarations reflect system operating conditions beyond thresholds associated with the Alert State. Declaration of the Major Emergency State allows the NYISO to take additional corrective actions not available in the Alert State.

NERC IROL Time Over Limit



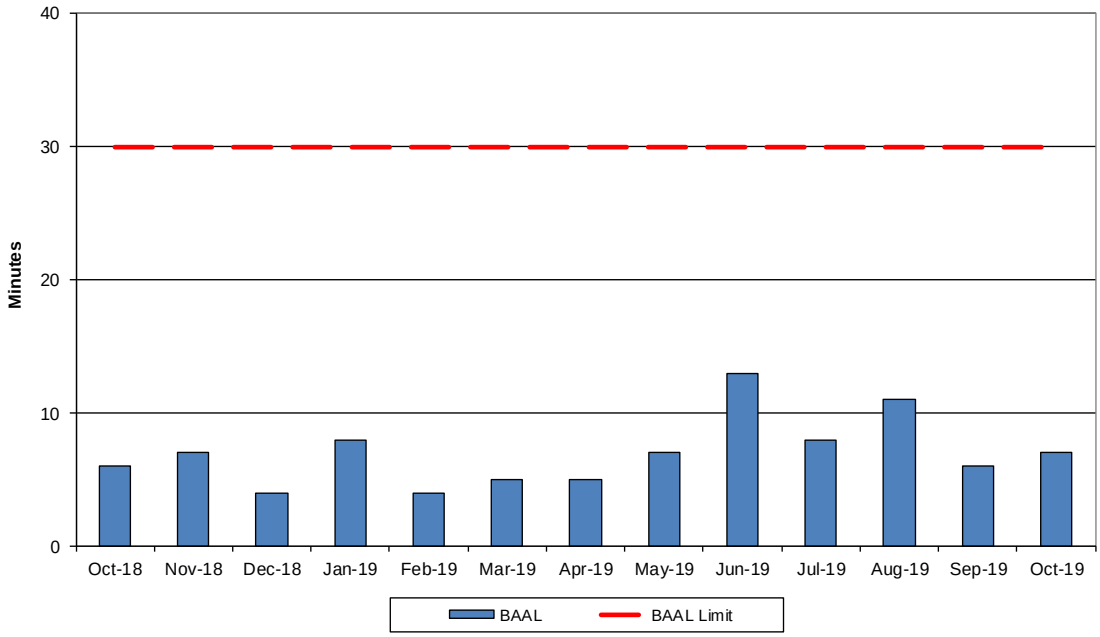
For IROL exceedances leading to Major Emergency State declarations, the maximum IROL exceedence time is identified. IROL exceedances of less than thirty minutes are considered NERC compliant.

NERC Control Performance Standards



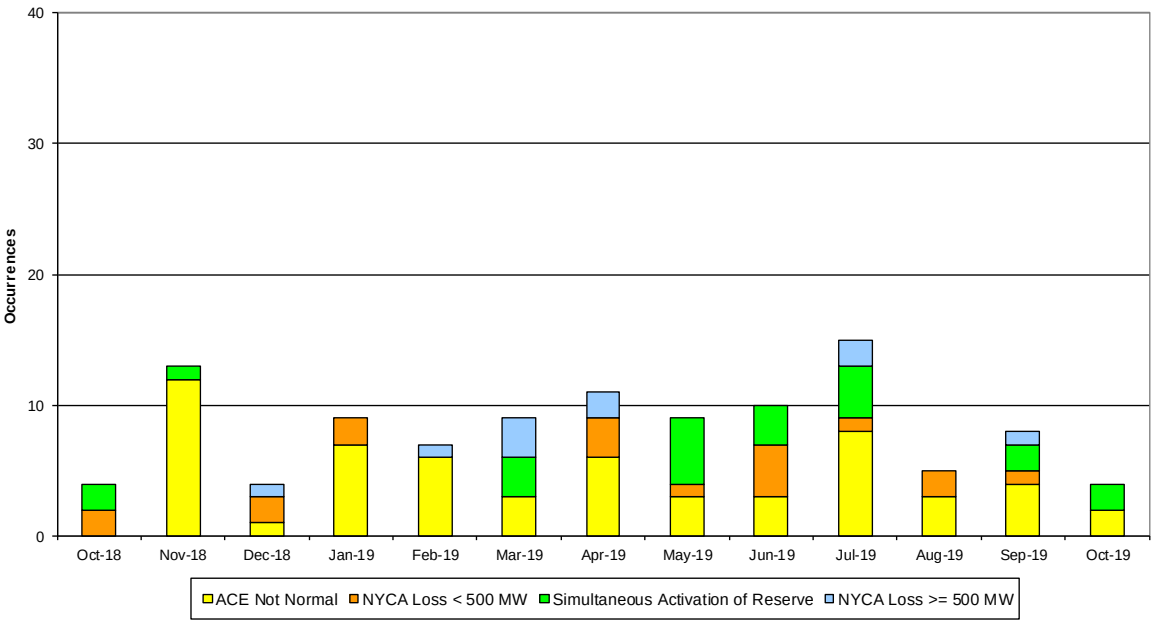
The value of NERC Control Performance Standards (CPS-1) is an indicator of the NYISO Area resource and demand balancing. Values exceeding the identified threshold are NERC compliant.

NERC Balancing Authority ACE Limit Standard



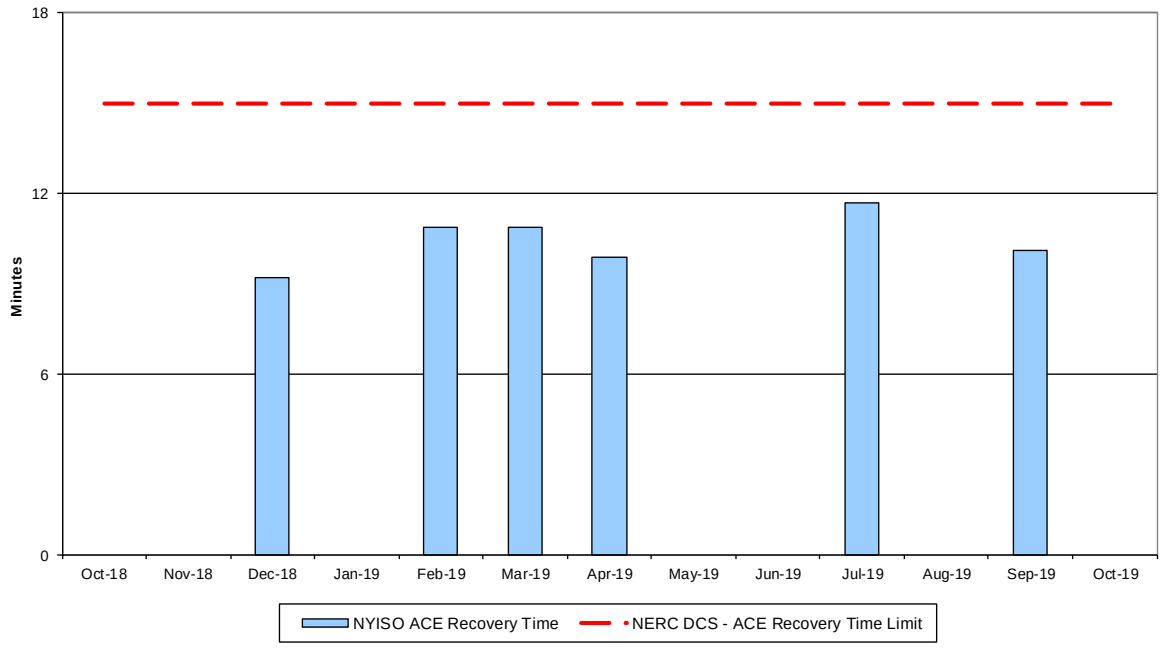
The amount of time the clock-minute average ACE exceeds the clock-minute Balancing Authority ACE Limit (BAAL) is an indicator of the NYISO Area resource and demand balancing. The maximum BAAL exceedance time is identified. BAAL exceedances of less than 30 consecutive clock-minutes are NERC compliant.

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.

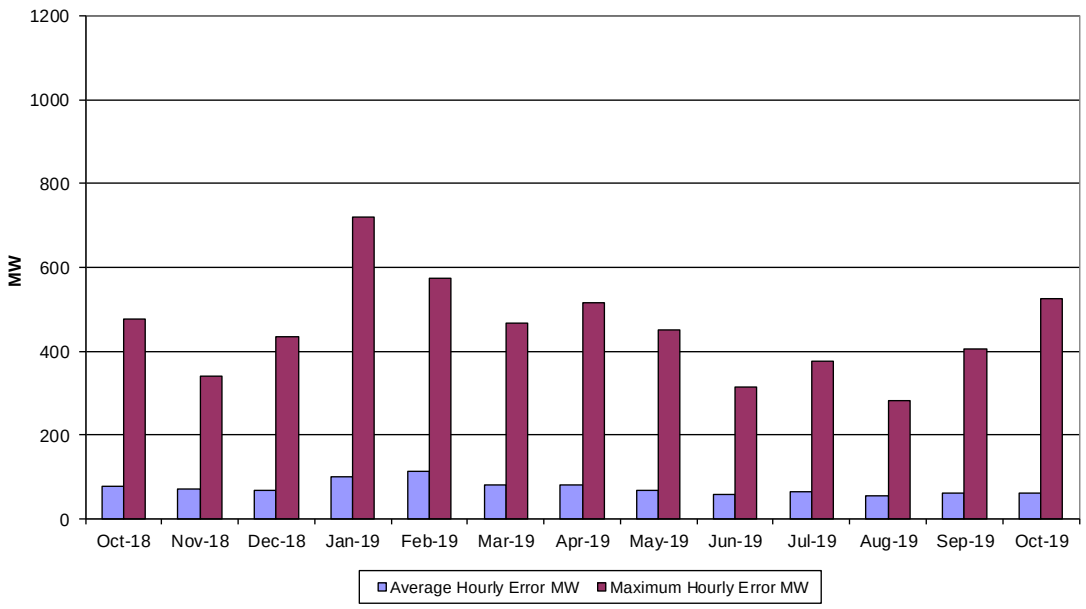
DCS Event Time to ACE Recovery



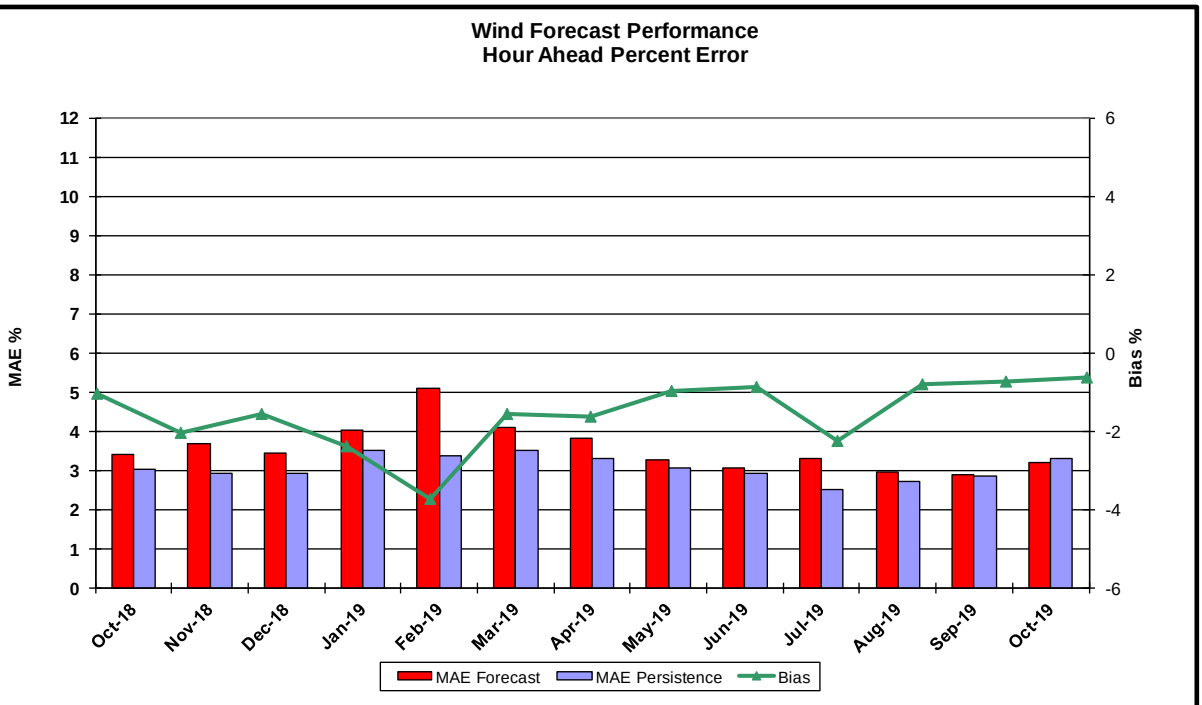
For NYISO initiated Reportable Disturbances, the maximum ACE recovery time is identified. Recovery times of less than 15 minutes are considered NERC compliant.

Load Forecast Performance

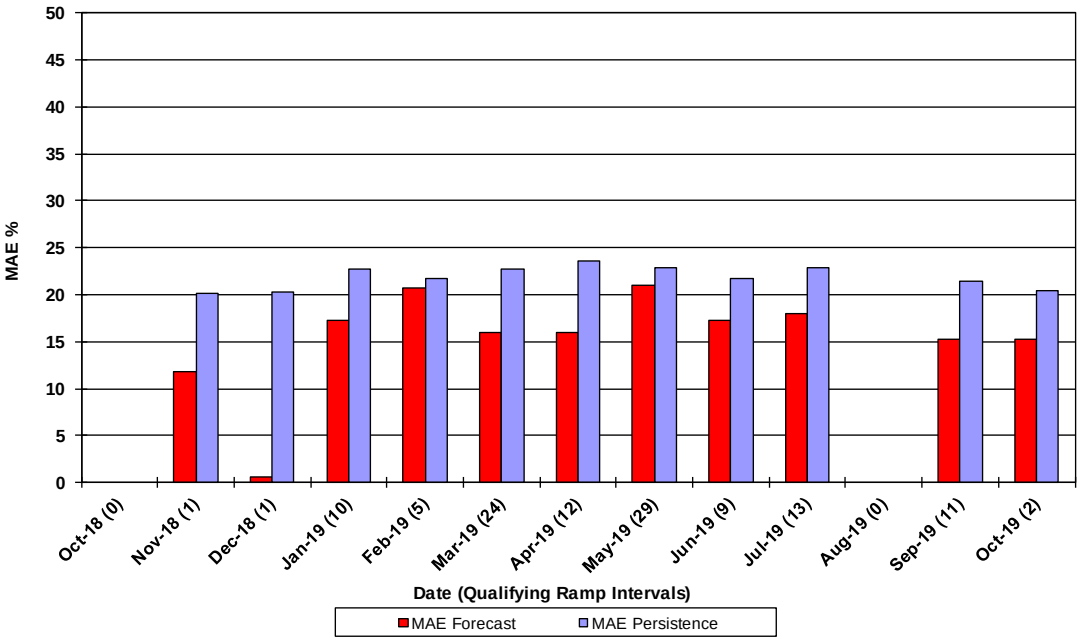
Hourly Error MW - Absolute value of the difference between the hourly average actual load demand and the average hour ahead forecast load demand.
Average Hourly Error % - Average value of the ratio of hourly average error magnitude to hourly average actual load demand.
Day-Ahead Average Hourly Error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



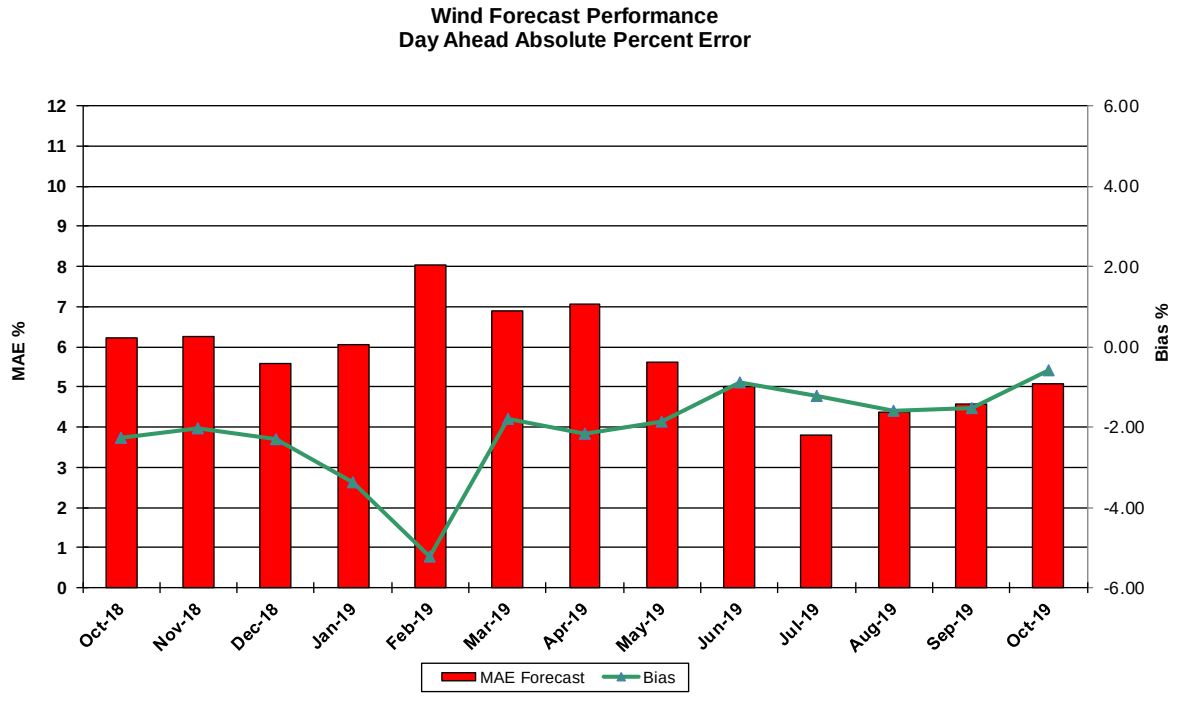
Hourly Error MW - Absolute value of the difference between the hourly average actual wind generation and the average hour ahead forecast wind generation.



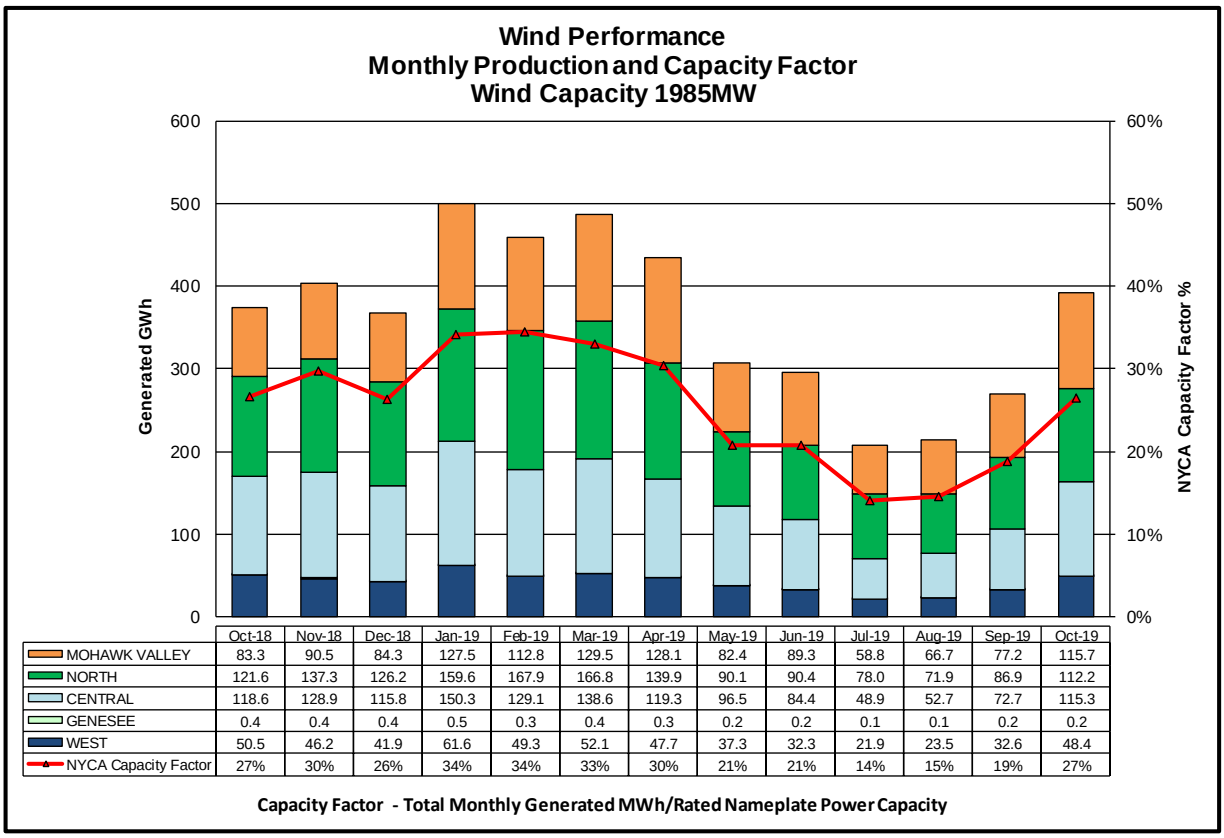
MAE Forecast - Avg |actual wind generation - hour ahead forecast wind generation| / Wind Capacity
MAE Persistence - Avg |actual wind generation - hour ahead actual wind generation| / Wind Capacity
Bias - Avg (actual wind generation - hour ahead forecast wind generation) / Wind Capacity



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

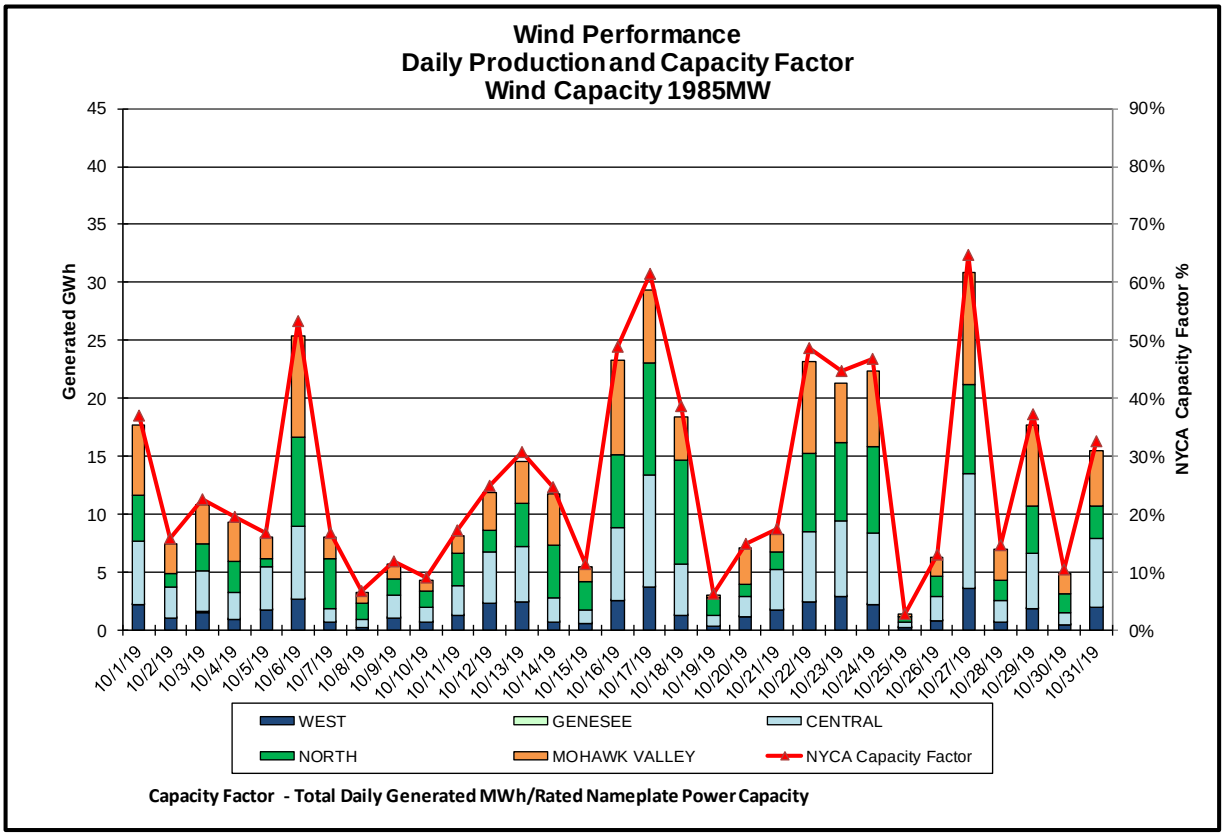


MAE Forecast - Avg |actual wind generation - Day Ahead forecast wind generation| / Wind Capacity
Bias - Avg (actual wind generation - Day Ahead forecast wind generation) / Wind Capacity

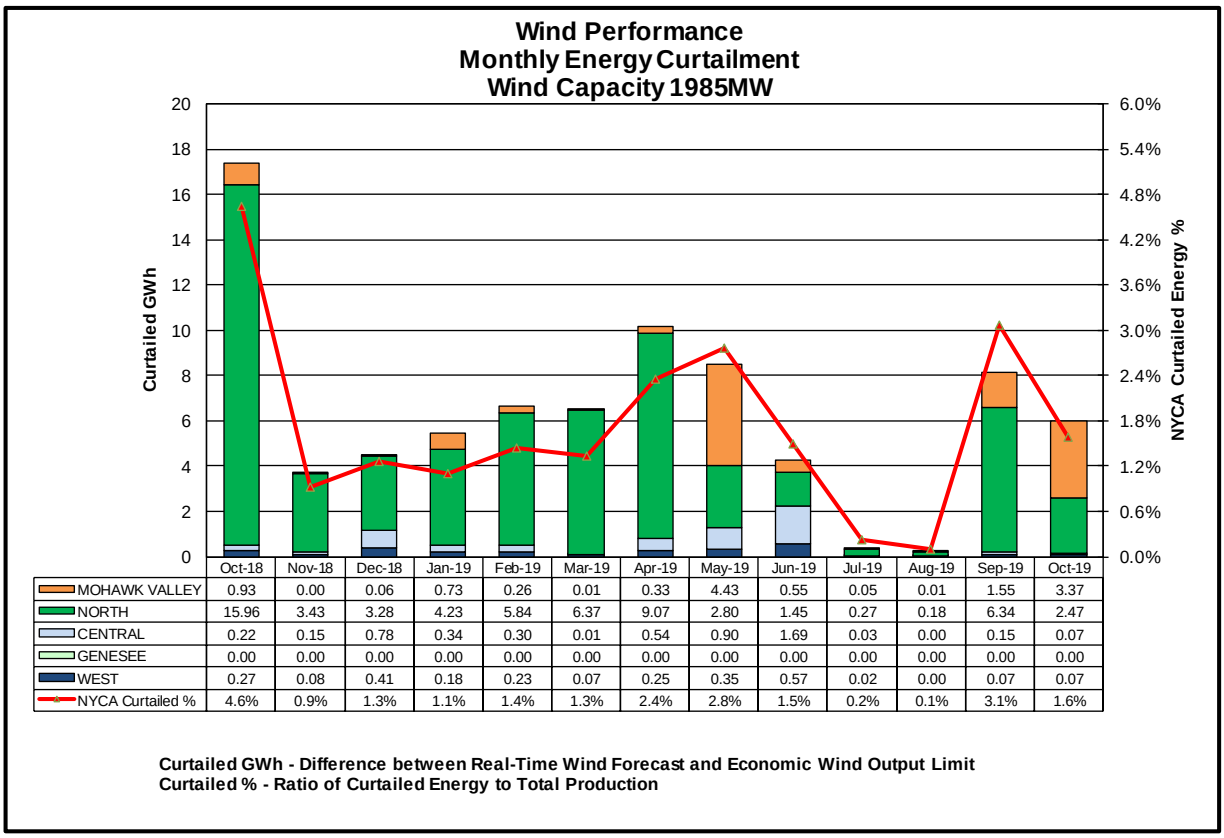


	Oct-18	Nov-18	Dec-18	Jan-19	Feb-19	Mar-19	Apr-19	May-19	Jun-19	Jul-19	Aug-19	Sep-19	Oct-19
MOHAWK VALLEY	83.3	90.5	84.3	127.5	112.8	129.5	128.1	82.4	89.3	58.8	66.7	77.2	115.7
NORTH	121.6	137.3	126.2	159.6	167.9	166.8	139.9	90.1	90.4	78.0	71.9	86.9	112.2
CENTRAL	118.6	128.9	115.8	150.3	129.1	138.6	119.3	96.5	84.4	48.9	52.7	72.7	115.3
GENESEE	0.4	0.4	0.4	0.5	0.3	0.4	0.3	0.2	0.2	0.1	0.1	0.2	0.2
WEST	50.5	46.2	41.9	61.6	49.3	52.1	47.7	37.3	32.3	21.9	23.5	32.6	48.4
NYCA Capacity Factor	27%	30%	26%	34%	34%	33%	30%	21%	21%	14%	15%	19%	27%

Capacity Factor - Total Monthly Generated MWh/Rated Nameplate Power Capacity

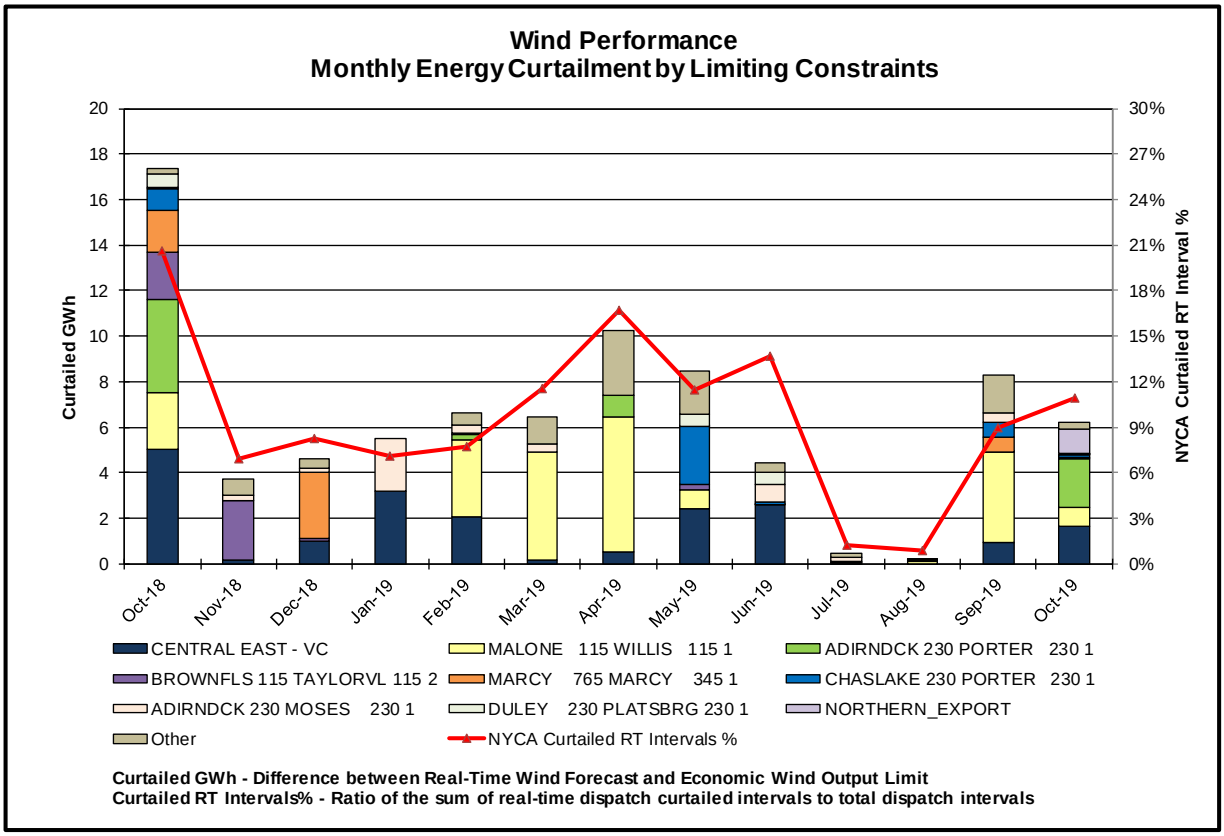


Capacity Factor - Total Daily Generated MWh/Rated Nameplate Power Capacity

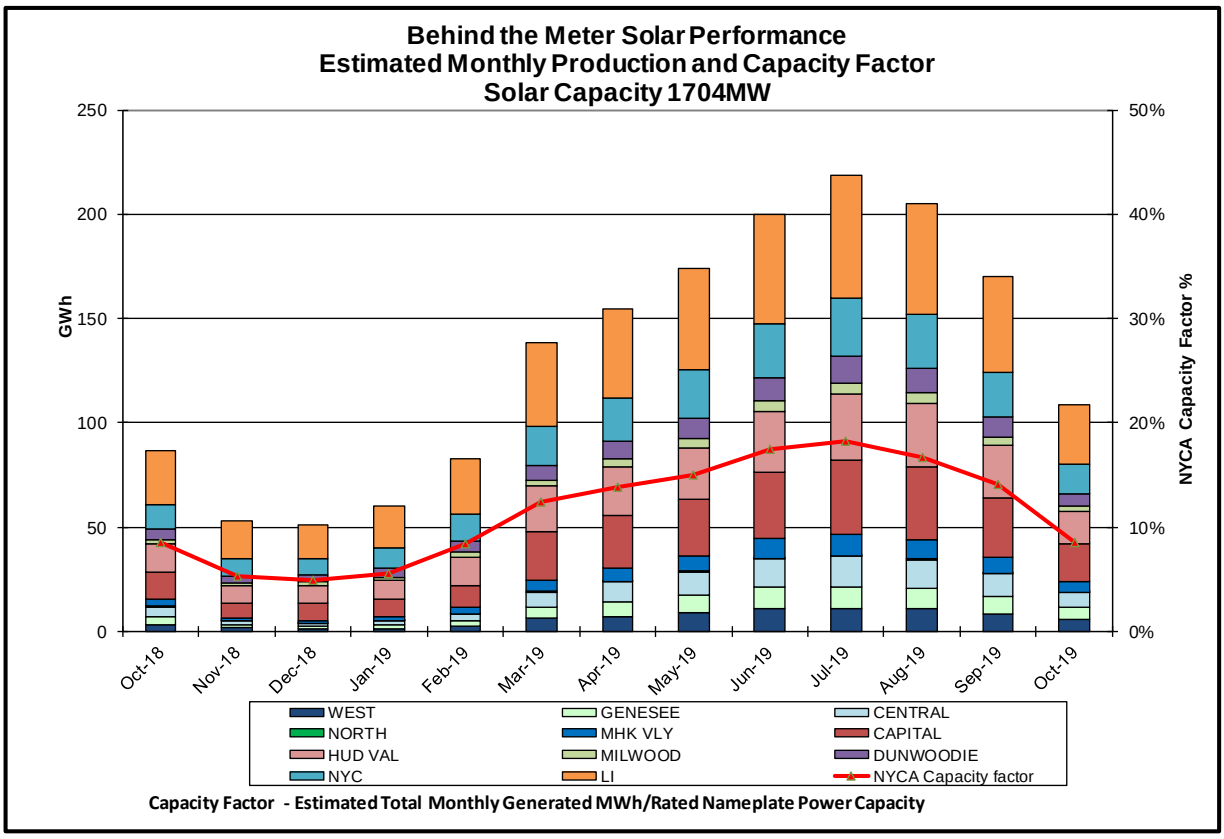


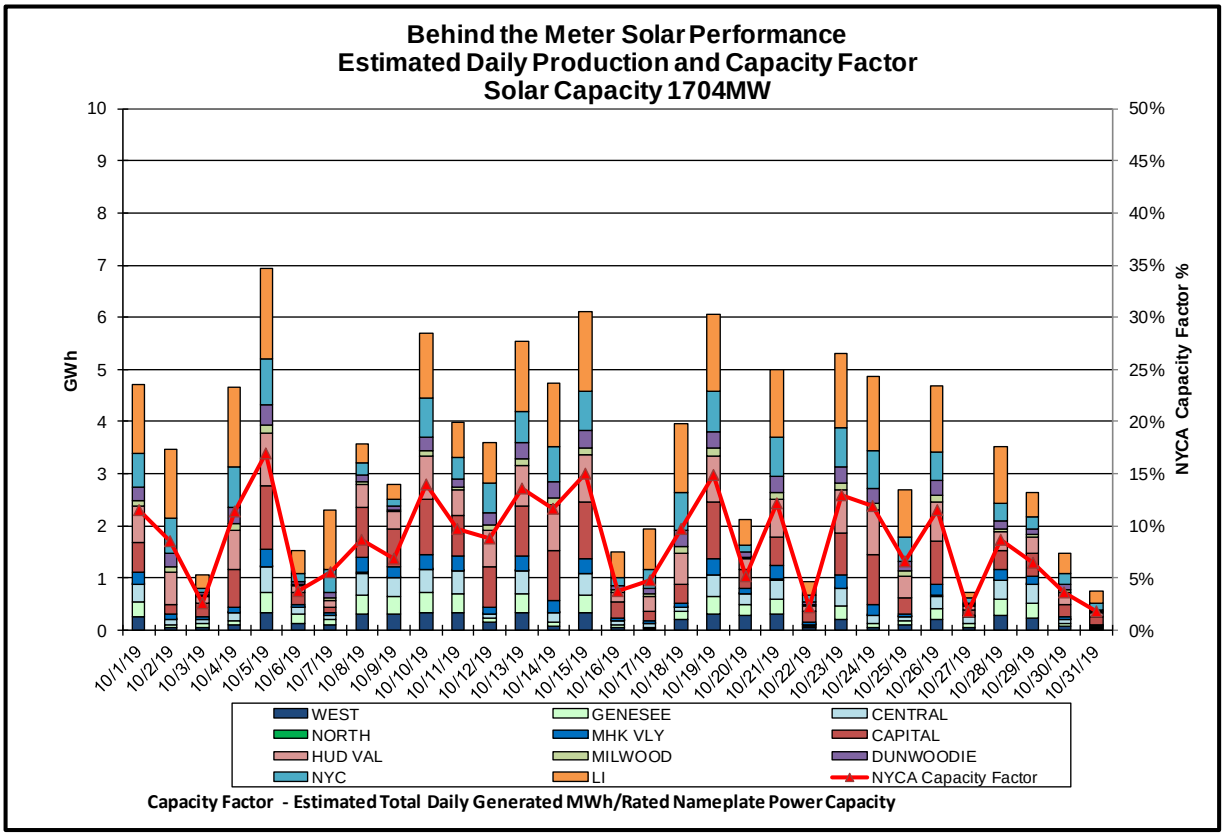
	Oct-18	Nov-18	Dec-18	Jan-19	Feb-19	Mar-19	Apr-19	May-19	Jun-19	Jul-19	Aug-19	Sep-19	Oct-19
MOHAWK VALLEY	0.93	0.00	0.06	0.73	0.26	0.01	0.33	4.43	0.55	0.05	0.01	1.55	3.37
NORTH	15.96	3.43	3.28	4.23	5.84	6.37	9.07	2.80	1.45	0.27	0.18	6.34	2.47
CENTRAL	0.22	0.15	0.78	0.34	0.30	0.01	0.54	0.90	1.69	0.03	0.00	0.15	0.07
GENESEE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
WEST	0.27	0.08	0.41	0.18	0.23	0.07	0.25	0.35	0.57	0.02	0.00	0.07	0.07
NYCA Curtailed %	4.6%	0.9%	1.3%	1.1%	1.4%	1.3%	2.4%	2.8%	1.5%	0.2%	0.1%	3.1%	1.6%

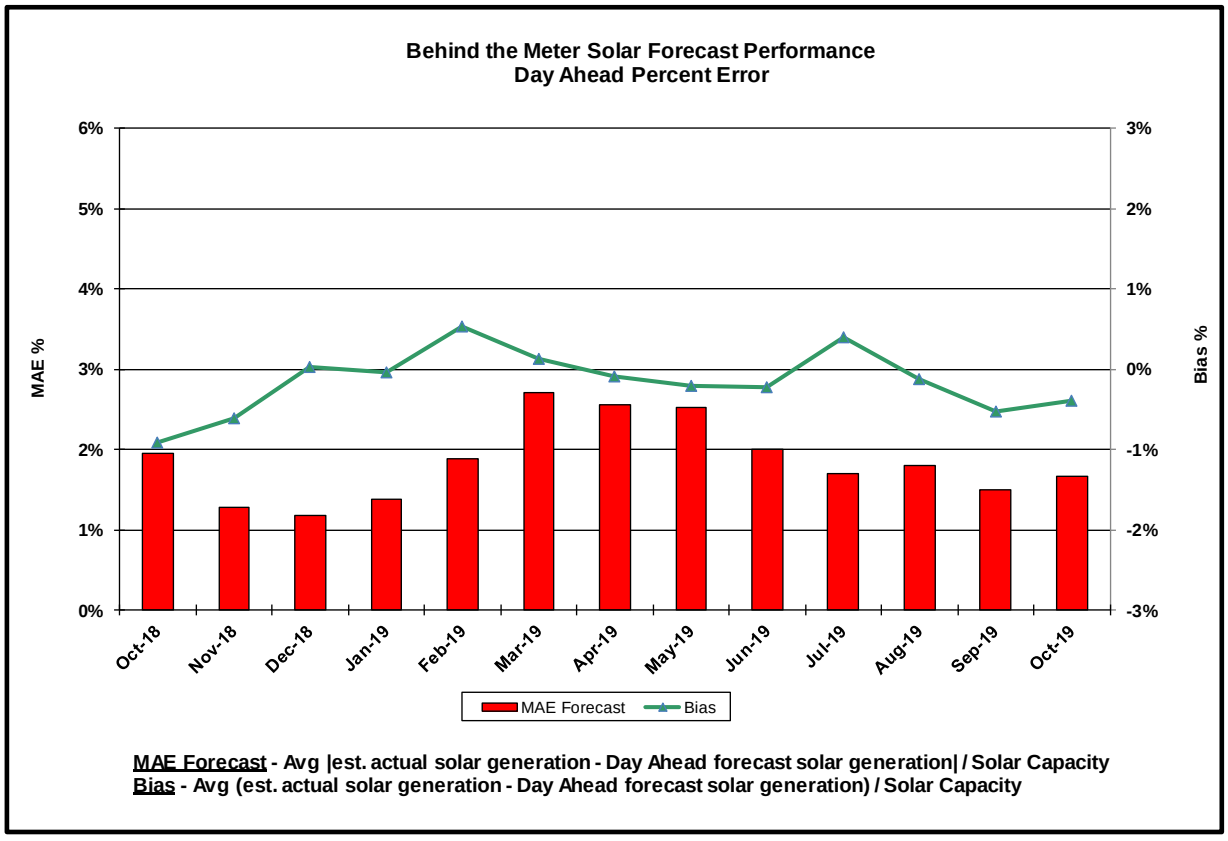
Curtailed GWh - Difference between Real-Time Wind Forecast and Economic Wind Output Limit
Curtailed % - Ratio of Curtailed Energy to Total Production



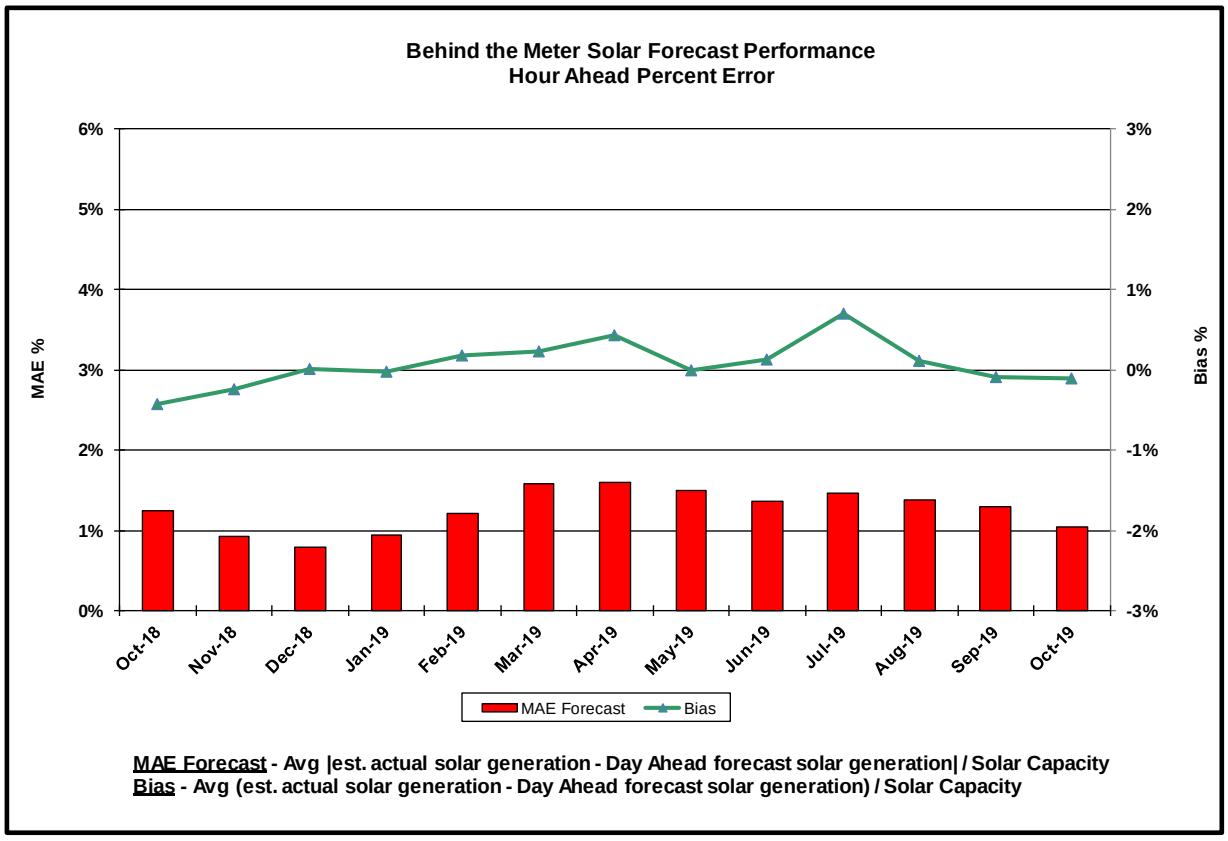
Curtailed GWh - Difference between Real-Time Wind Forecast and Economic Wind Output Limit
Curtailed RT Intervals% - Ratio of the sum of real-time dispatch curtailed intervals to total dispatch intervals


Behind the Meter Solar Performance
Estimated Monthly Production and Capacity Factor
Solar Capacity 1704MW
GWh
NYCA Capacity Factor %
250
200
150
100
50
0
50%
40%
30%
20%
10%
0%
Oct-18
Nov-18
Dec-18
Jan-19
Feb-19
Mar-19
Apr-19
May-19
Jun-19
Jul-19
Aug-19
Sep-19
Oct-19
WEST
GENESEE
CENTRAL
NORTH
MHK VLY
CAPITAL
HUD VAL
MILWOOD
DUNWOODIE
NYC
LI
NYCA Capacity factor
Capacity Factor - Estimated Total Monthly Generated MWh/Rated Nameplate Power Capacity

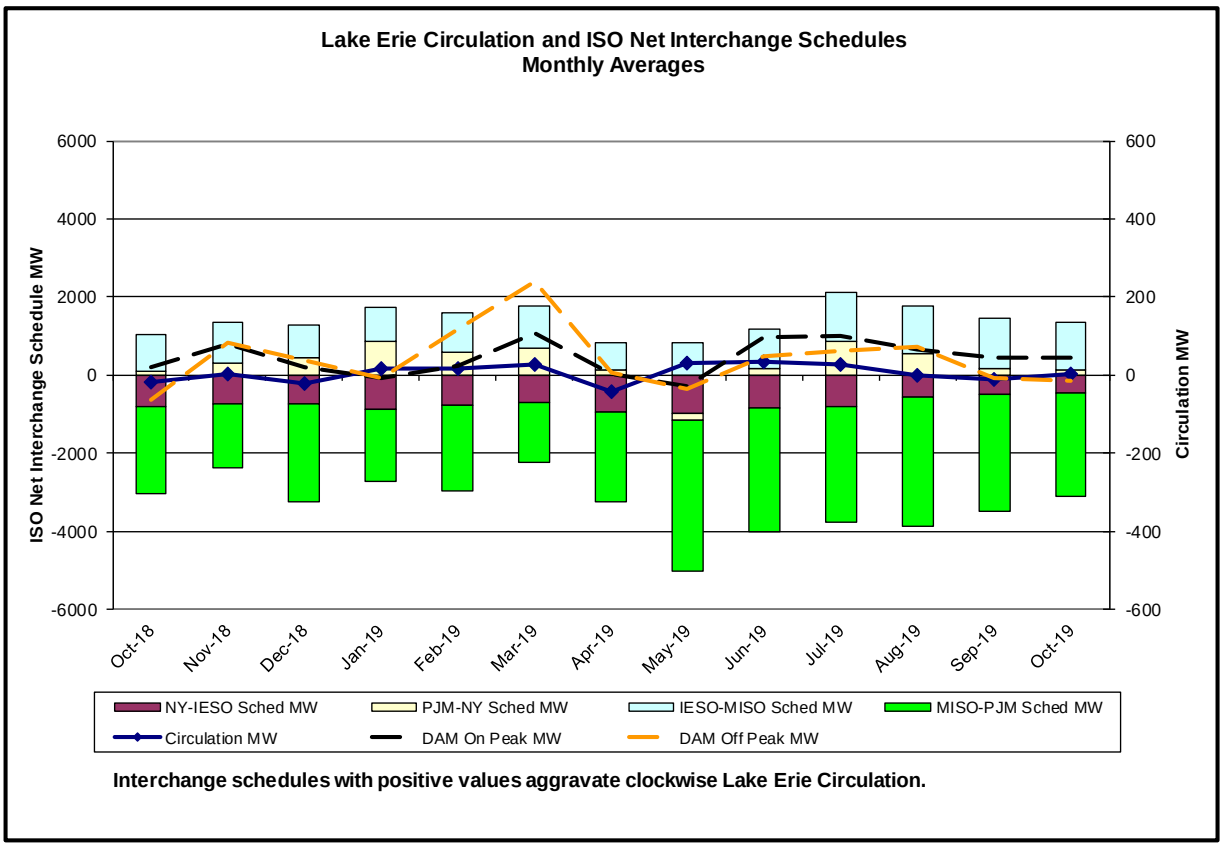

Behind the Meter Solar Performance
Estimated Daily Production and Capacity Factor
Solar Capacity 1704MW
GWh
NYCA Capacity Factor %
10
9
8
7
6
5
4
3
2
1
0
50%
45%
40%
35%
30%
25%
20%
15%
10%
5%
0%
10/1/19
10/2/19
10/3/19
10/4/19
10/5/19
10/6/19
10/7/19
10/8/19
10/9/19
10/10/19
10/11/19
10/12/19
10/13/19
10/14/19
10/15/19
10/16/19
10/17/19
10/18/19
10/19/19
10/20/19
10/21/19
10/22/19
10/23/19
10/24/19
10/25/19
10/26/19
10/27/19
10/28/19
10/29/19
10/30/19
10/31/19
WEST
GENESEE
CENTRAL
NORTH
MHK VLY
CAPITAL
HUD VAL
MILWOOD
DUNWOODIE
NYC
LI
NYCA Capacity Factor
Capacity Factor - Estimated Total Daily Generated MWh/Rated Nameplate Power Capacity



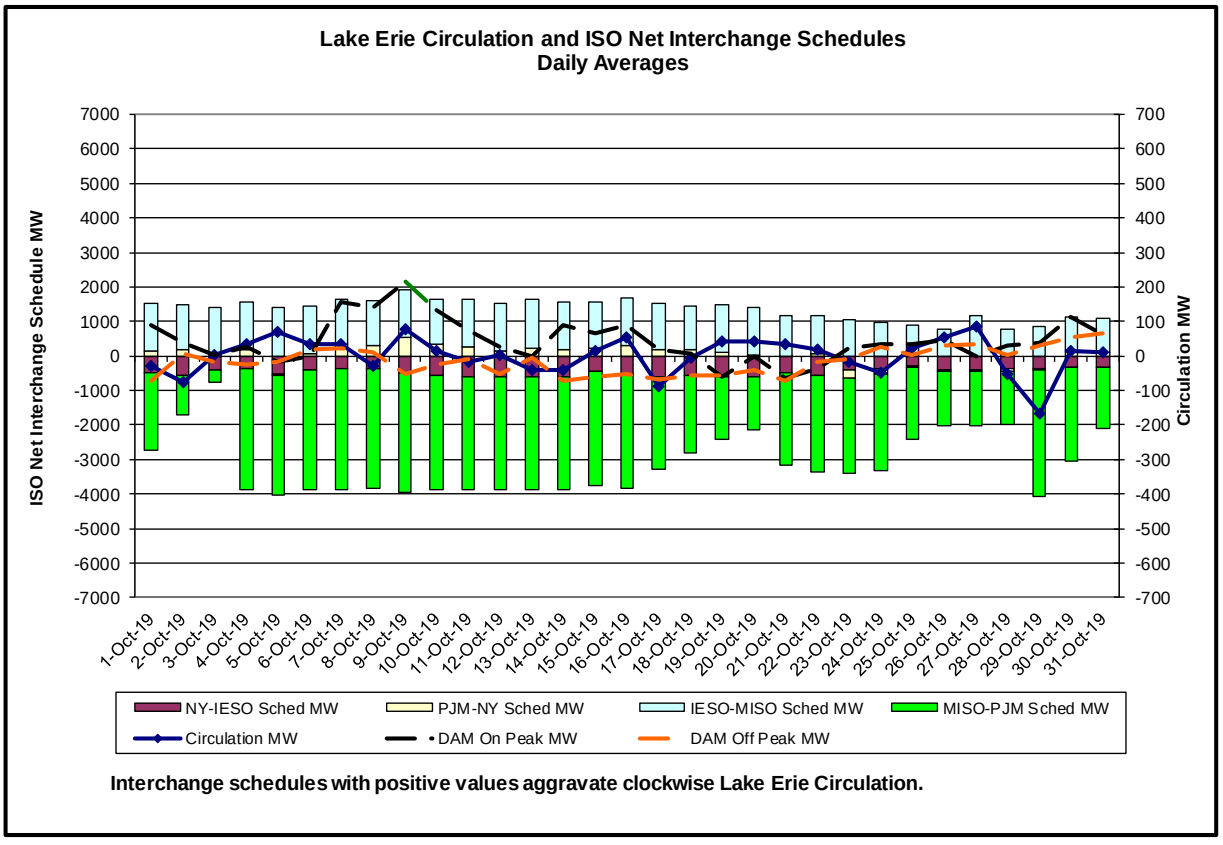
MAE Forecast - Avg |est. actual solar generation - Day Ahead forecast solar generation| / Solar Capacity
Bias - Avg (est. actual solar generation - Day Ahead forecast solar generation) / Solar Capacity



MAE Forecast - Avg |est. actual solar generation - Day Ahead forecast solar generation| / Solar Capacity
Bias - Avg (est. actual solar generation - Day Ahead forecast solar generation) / Solar Capacity

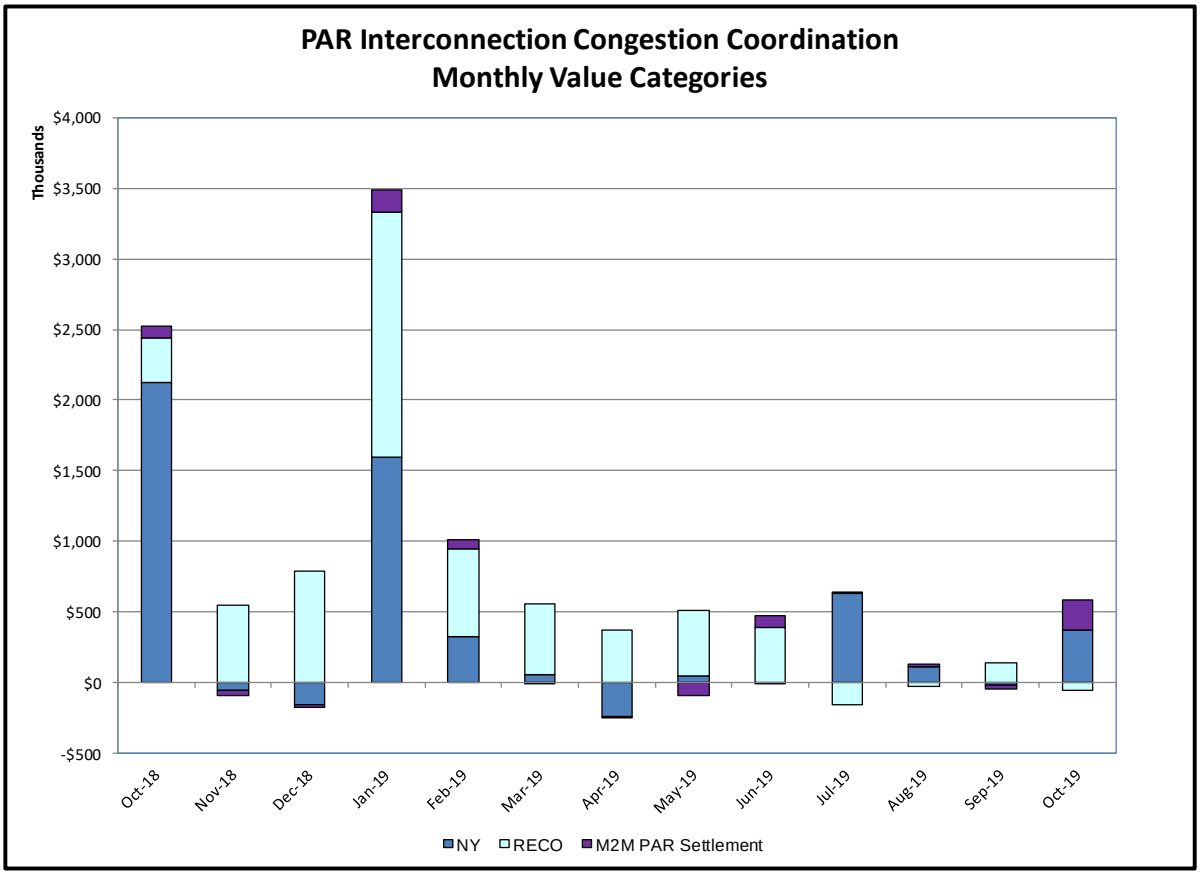


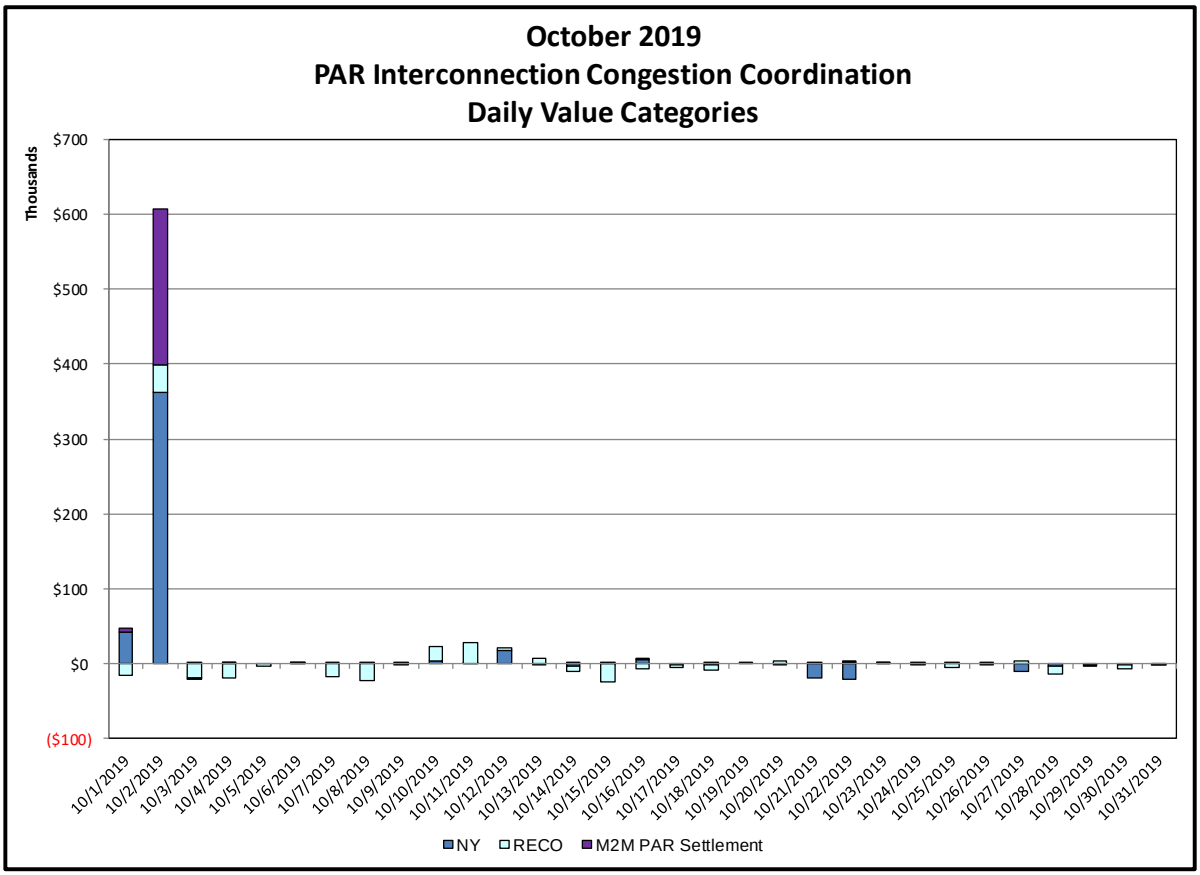
Interchange schedules with positive values aggravate clockwise Lake Erie Circulation.



Interchange schedules with positive values aggravate clockwise Lake Erie Circulation.

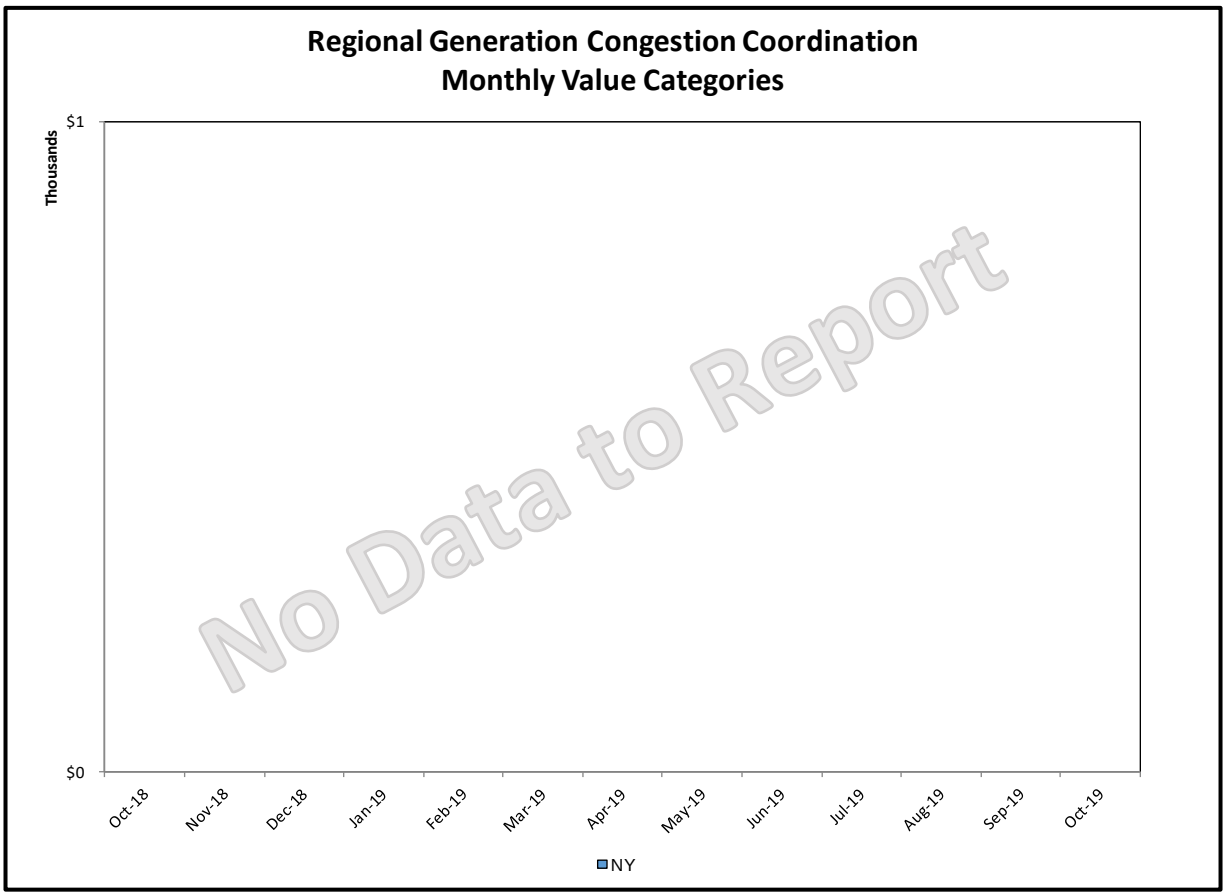
Broader Regional Market Performance Metrics

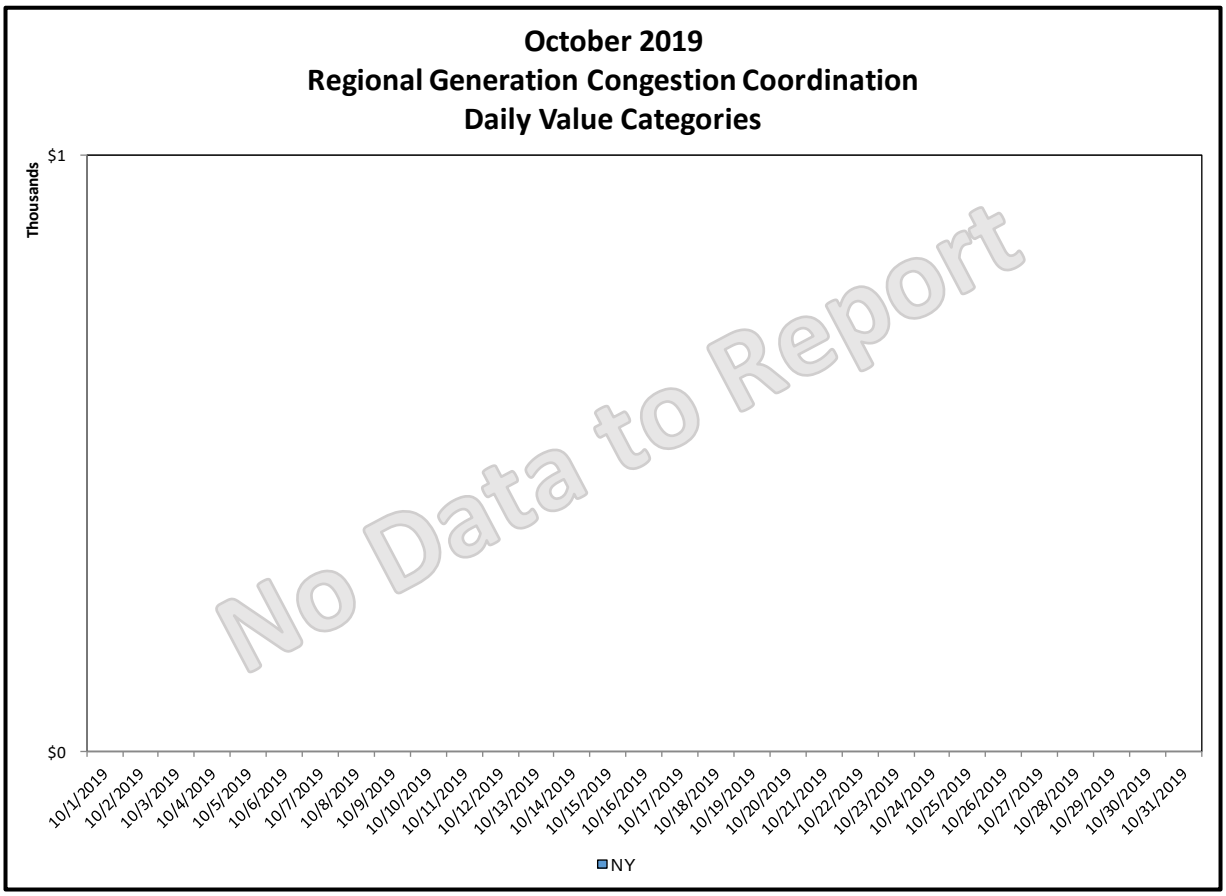




PAR Interconnection Congestion Coordination

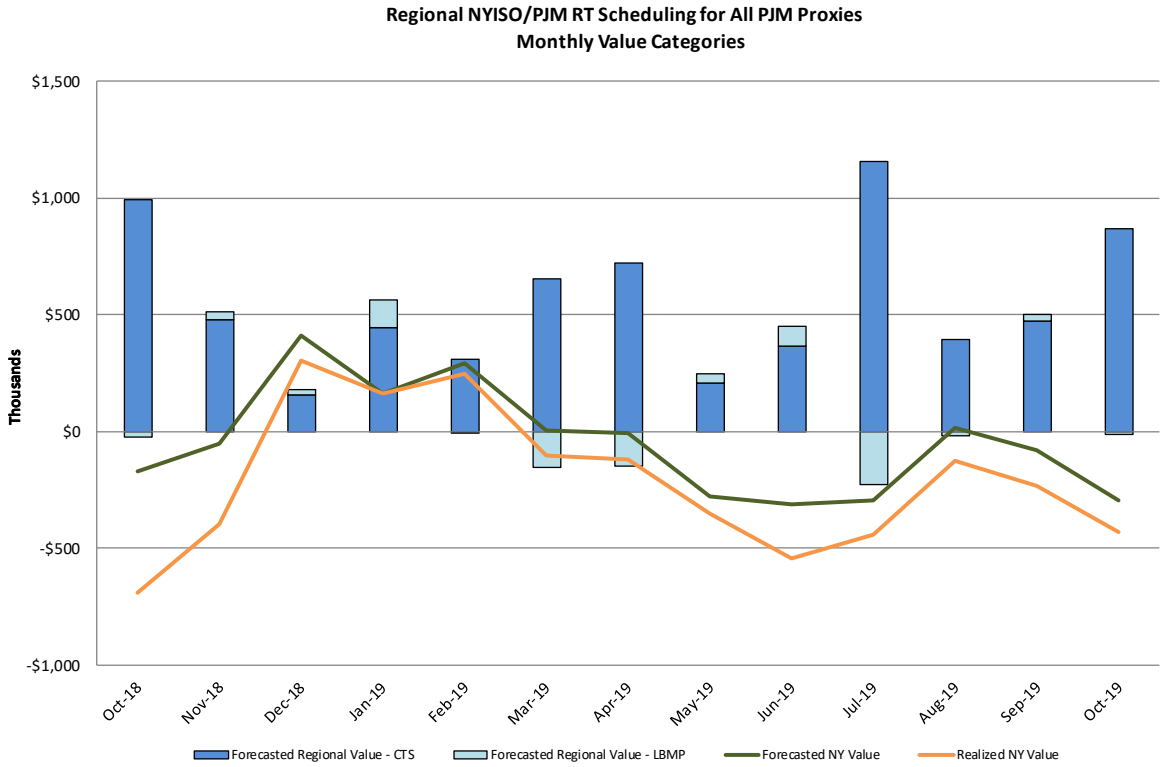
Category	Description
NY	Represents the value NY realizes from Market-to-Market PAR Coordination when experiencing congestion. This is the estimated savings to NY for additional deliveries into NY
RECO	Represents the value of PJM's obligation to deliver 80% of service to RECO load over Ramapo 5018. This 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
Monthly Value Categories
Thousands
$1
$0
No Data to Report
Oct-18
Nov-18
Dec-18
Jan-19
Feb-19
Mar-19
Apr-19
May-19
Jun-19
Jul-19
Aug-19
Sep-19
Oct-19
NY

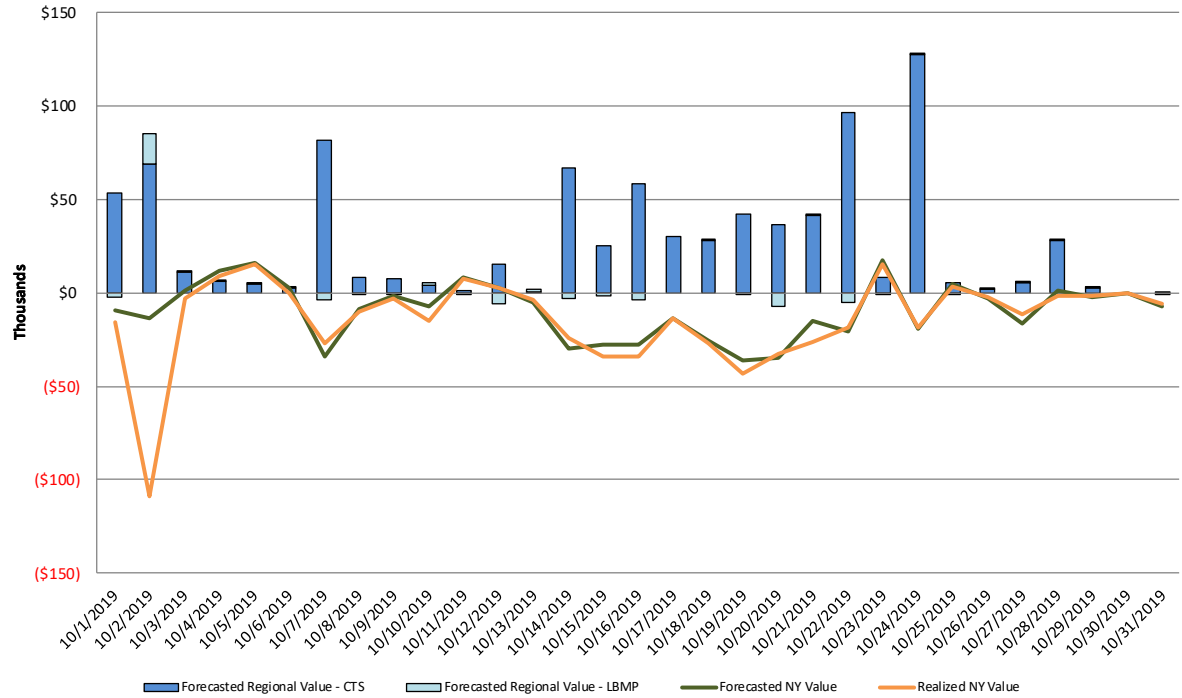

October 2019
Regional Generation Congestion Coordination
Daily Value Categories
Thousands
$1
$0
No Data to Report
10/1/2019
10/2/2019
10/3/2019
10/4/2019
10/5/2019
10/6/2019
10/7/2019
10/8/2019
10/9/2019
10/10/2019
10/11/2019
10/12/2019
10/13/2019
10/14/2019
10/15/2019
10/16/2019
10/17/2019
10/18/2019
10/19/2019
10/20/2019
10/21/2019
10/22/2019
10/23/2019
10/24/2019
10/25/2019
10/26/2019
10/27/2019
10/28/2019
10/29/2019
10/30/2019
10/31/2019
NY

Regional Generation Congestion Coordination

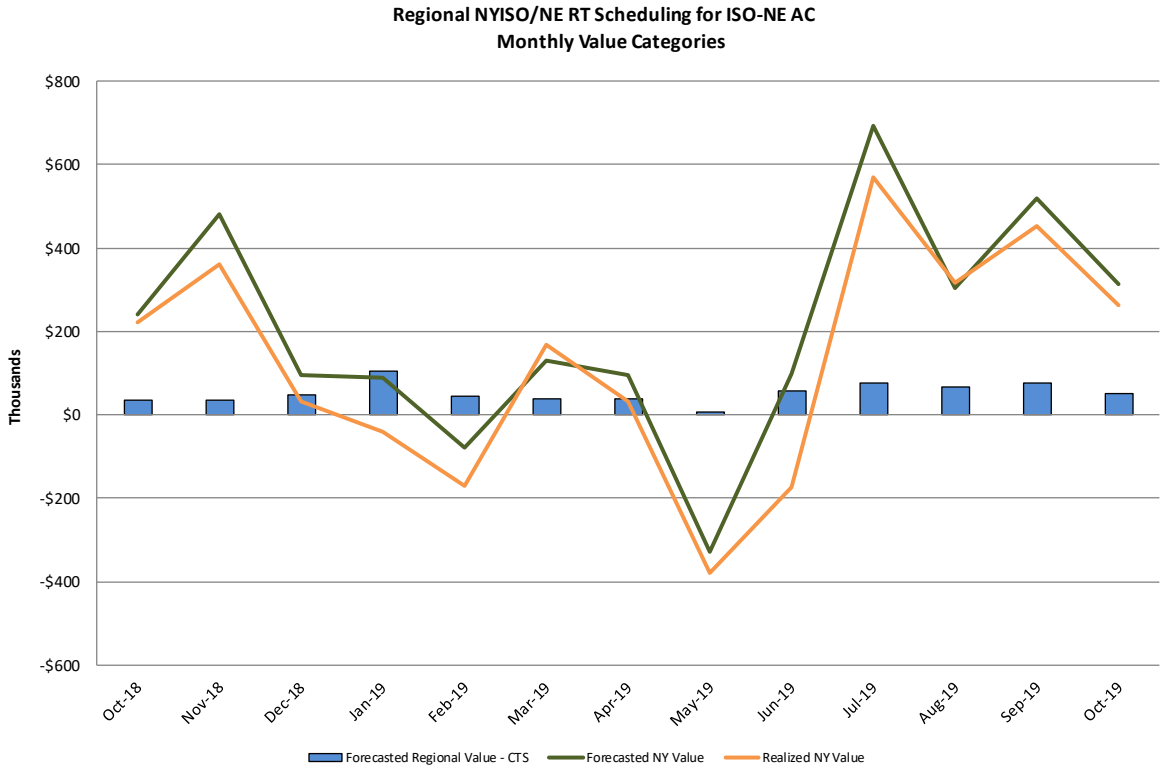
Category	***Description***
NY	NYISO savings that result from PJM payments to NYISO when PJM's transmission use (PJM's market flow) is greater than PJM's entitlement of the NY transmission system and NYISO is incurring Western or Central NY congestion. Additionally, NYISO savings may result from the more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



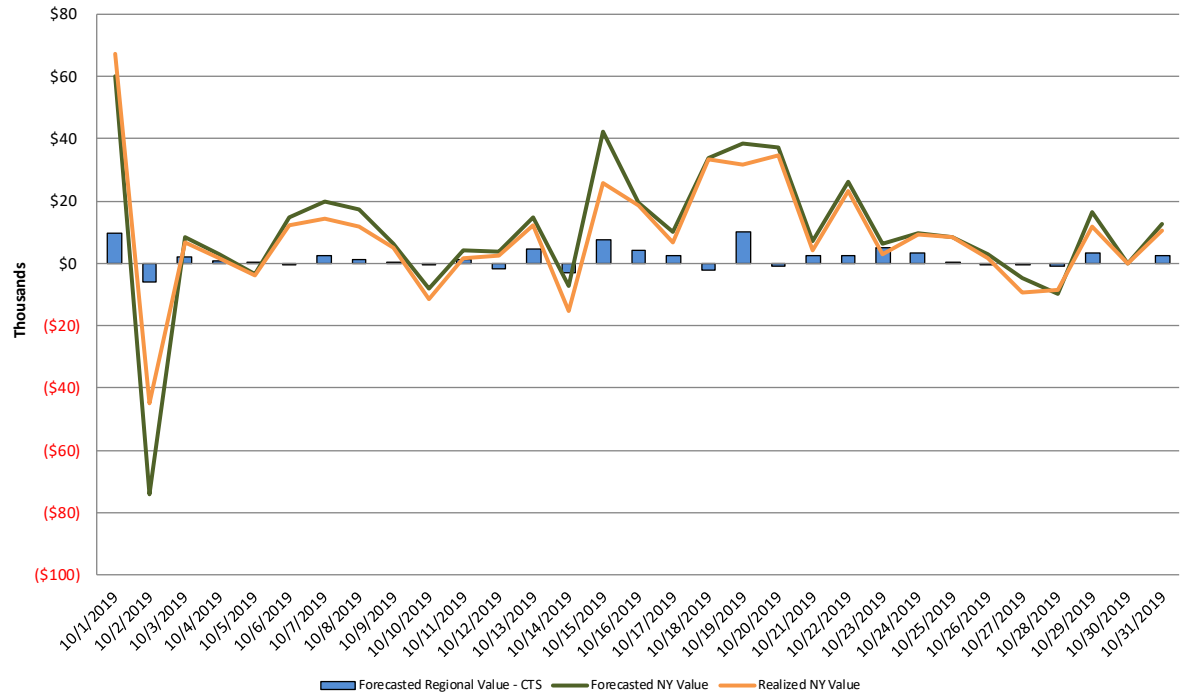
Forecasted Regional Value - CTS: Regional production cost savings for NY and PJM associated with intra-hour CTS transaction energy schedules using RTC/ITSCED prices.
Forecasted Regional Value - LBMP: Regional production cost savings for NY and PJM associated with intra-hour LBMP transaction energy schedules using RTC/ITSCED prices.
Forecasted NY Value: NY production cost savings associated with both CTS and LBMP transaction energy schedules using RTC prices.
Realized NY Value: NY production cost savings associated with both CTS and LBMP transaction energy schedules using RTD prices.



Forecasted Regional Value - CTS: Regional production cost savings for NY and PJM associated with intra-hour CTS transaction energy schedules using RTC/ITSCED prices.
Forecasted Regional Value - LBMP: Regional production cost savings for NY and PJM associated with intra-hour LBMP transaction energy schedules using RTC/ITSCED prices.
Forecasted NY Value: NY production cost savings associated with both CTS and LBMP transaction energy schedules using RTC prices.
Realized NY Value: NY production cost savings associated with both CTS and LBMP transaction energy schedules using RTD prices.

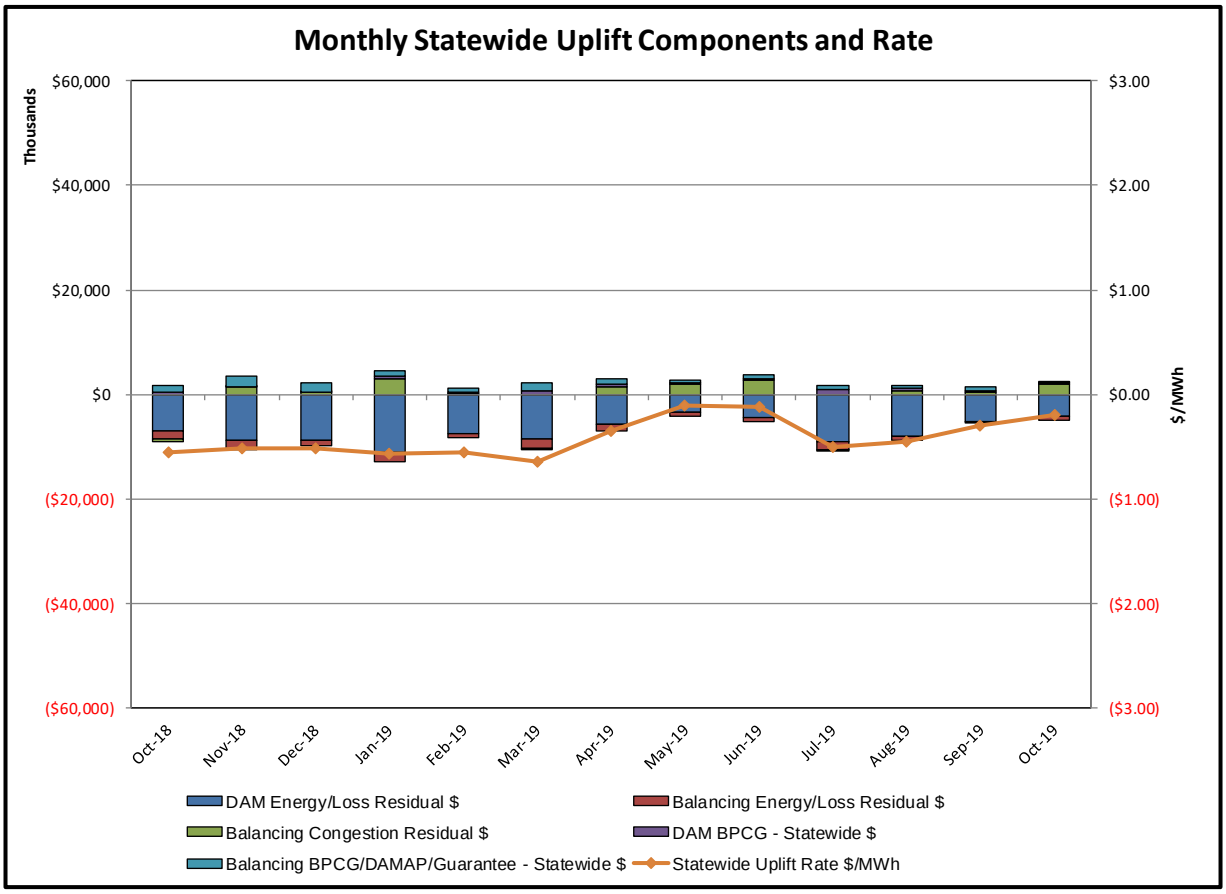


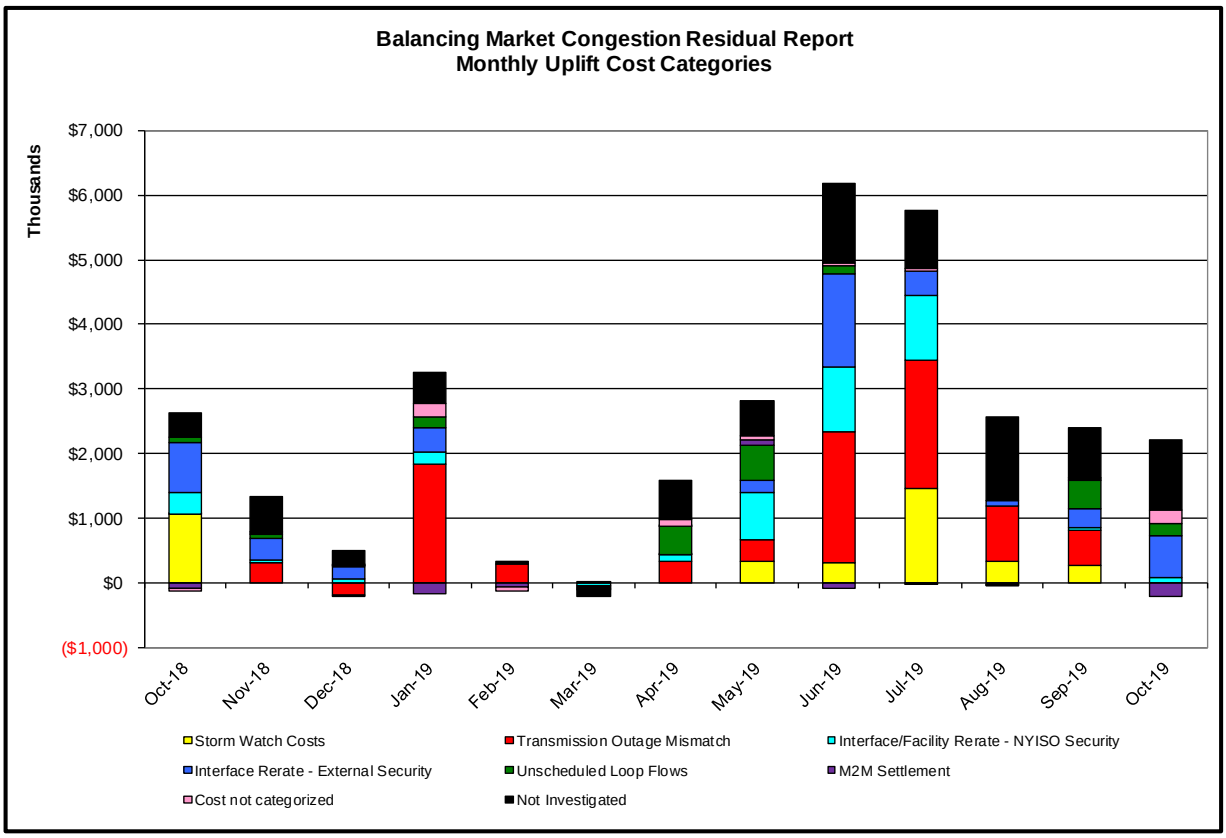
Forecasted Regional Value - CTS: Regional production cost savings for NY and NE associated with intra-hour CTS transaction energy schedules using RTC prices and NE forecasted prices.
Forecasted NY Value: NY production cost savings associated with CTS transaction energy schedules using RTC prices.
Realized NY Value: NY production cost savings associated with CTS transaction energy schedules using RTD prices.

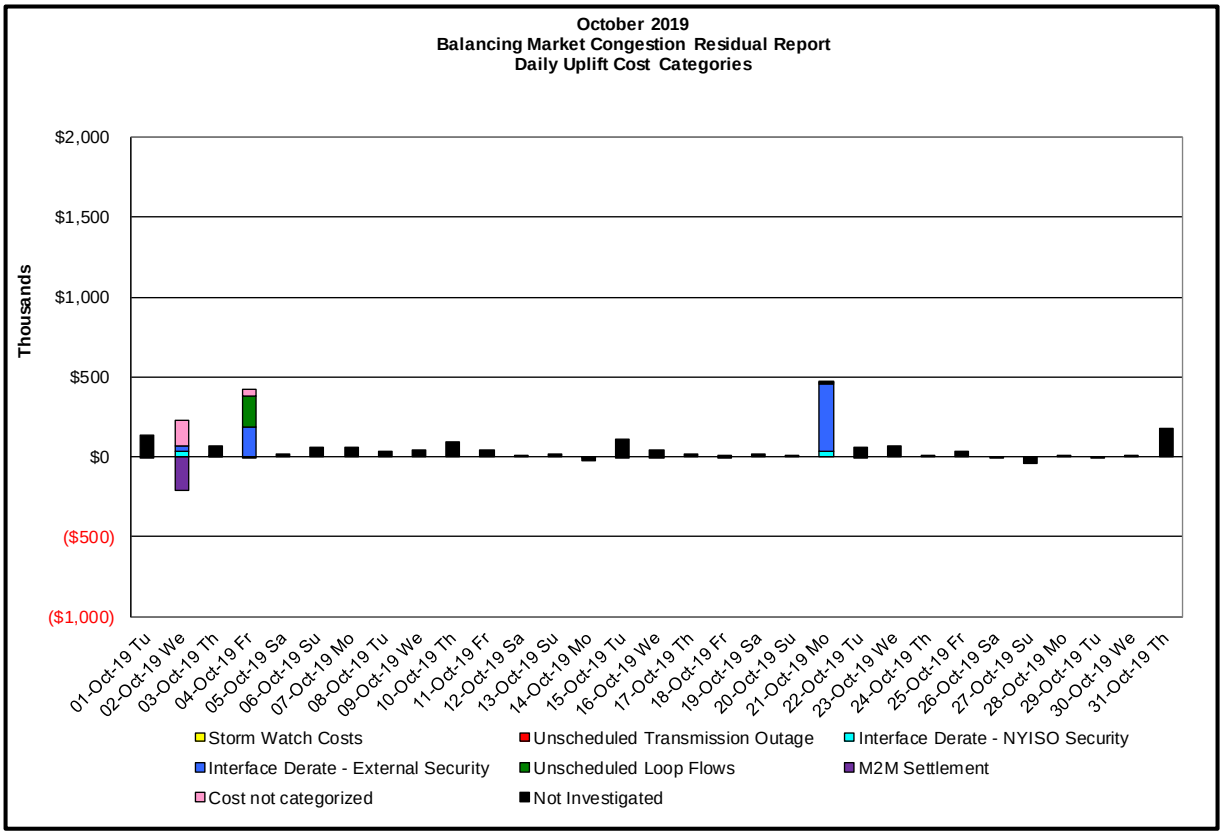


Forecasted Regional Value - CTS: Regional production cost savings for NY and NE associated with intra-hour CTS transaction energy schedules using RTC prices and NE forecasted prices.
Forecasted NY Value: NY production cost savings associated with CTS transaction energy schedules using RTC prices.
Realized NY Value: NY production cost savings associated with CTS transaction energy schedules using RTD prices.

Market Performance Metrics




Balancing Market Congestion Residual Report
Monthly Uplift Cost Categories
Thousands
$7,000
$6,000
$5,000
$4,000
$3,000
$2,000
$1,000
$0
($1,000)
Oct-18
Nov-18
Dec-18
Jan-19
Feb-19
Mar-19
Apr-19
May-19
Jun-19
Jul-19
Aug-19
Sep-19
Oct-19
Storm Watch Costs
Transmission Outage Mismatch
Interface/Facility Rerate - NYISO Security
Interface Rerate - External Security
Unscheduled Loop Flows
M2M Settlement
Cost not categorized
Not Investigated


October 2019
Balancing Market Congestion Residual Report
Daily Uplift Cost Categories
Thousands
$2,000
$1,500
$1,000
$500
$0
($500)
($1,000)
01-Oct-19 Tu
02-Oct-19 We
03-Oct-19 Th
04-Oct-19 Fr
05-Oct-19 Sa
06-Oct-19 Su
07-Oct-19 Mo
08-Oct-19 Tu
09-Oct-19 We
10-Oct-19 Th
11-Oct-19 Fr
12-Oct-19 Sa
13-Oct-19 Su
14-Oct-19 Mo
15-Oct-19 Tu
16-Oct-19 We
17-Oct-19 Th
18-Oct-19 Fr
19-Oct-19 Sa
20-Oct-19 Su
21-Oct-19 Mo
22-Oct-19 Tu
23-Oct-19 We
24-Oct-19 Th
25-Oct-19 Fr
26-Oct-19 Sa
27-Oct-19 Su
28-Oct-19 Mo
29-Oct-19 Tu
30-Oct-19 We
31-Oct-19 Th
Storm Watch Costs
Unscheduled Transmission Outage
Interface Derate - NYISO Security
Interface Derate - External Security
Unscheduled Loop Flows
M2M Settlement
Cost not categorized
Not Investigated

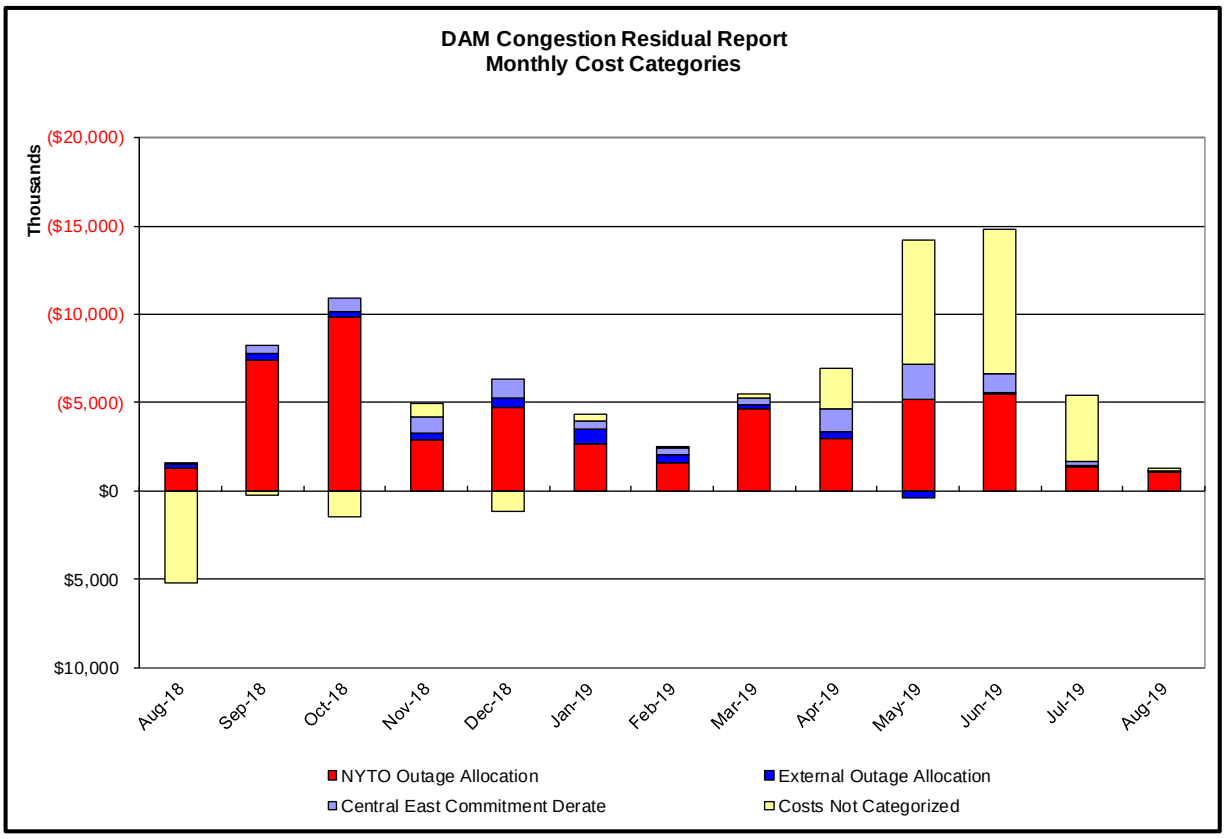
Day's investigated in October:2,4,21			
Event	Date (yyyymmdd)	Hours	Description
	10/2/2019	10	Derate Buchanan-Millwood 345kV (#W98) for l/o Buchanan-Millwood 345kV (#W97)
	10/2/2019	13,14	Derate Leeds-Pleasant Valley 345kV (#92) for l/o Athens-Leeds 345kV (#91)
	10/2/2019	17	HQ_CHAT-NY Scheduling Limit
	10/2/2019	1	IESO_AC-NY Scheduling limit
	10/2/2019	1,13	NE_AC-NY DNI Ramp Limit
	10/4/2019	9,14	IESO_AC-NY Scheduling limit
	10/4/2019	13,14	Lake Erie Circulation, DAM-RTM exceeds +/-125MW; West 115kV
	10/21/2019	9	Derate West 49th St. - Sprainbrook 345kV (#M51)
	10/21/2019	9	Derate Dunwoodie - Shore Rd. 345kV (#Y50) for SCB:SPBK(RNS2):Y49&M29&Y49_ST
	10/21/2019	7,9	Derate Dunwoodie - Shore Rd. 345kV (#Y50) for l/o SPRNBRK-EGRDNCTR 345kV (#Y49)
	10/21/2019	9	Derate Motthaven - Dunwoodie 345 kV (#72)
	10/21/2019	14	IESO_AC-NY Scheduling limit
	10/21/2019	7	Lake Erie Circulation, DAM-RTM exceeds +/-125MW; West 115kV

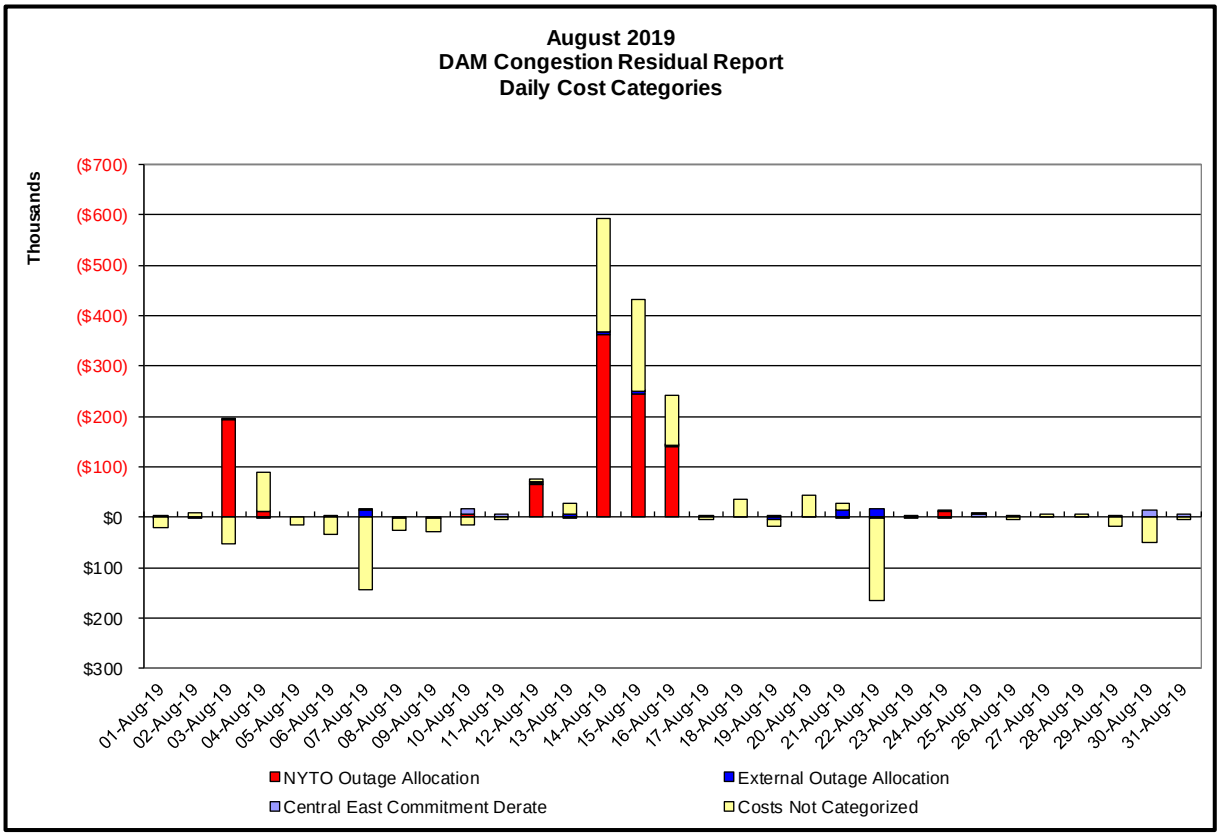
Real-Time Balancing Market Congestion Residual (Uplift Cost) Categories

Category	*Cost Assignment*	*Events Types*	*Event Examples*
Storm Watch	**Zone J**	**Thunderstorm Alert (TSA)**	**TSA Activations**
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

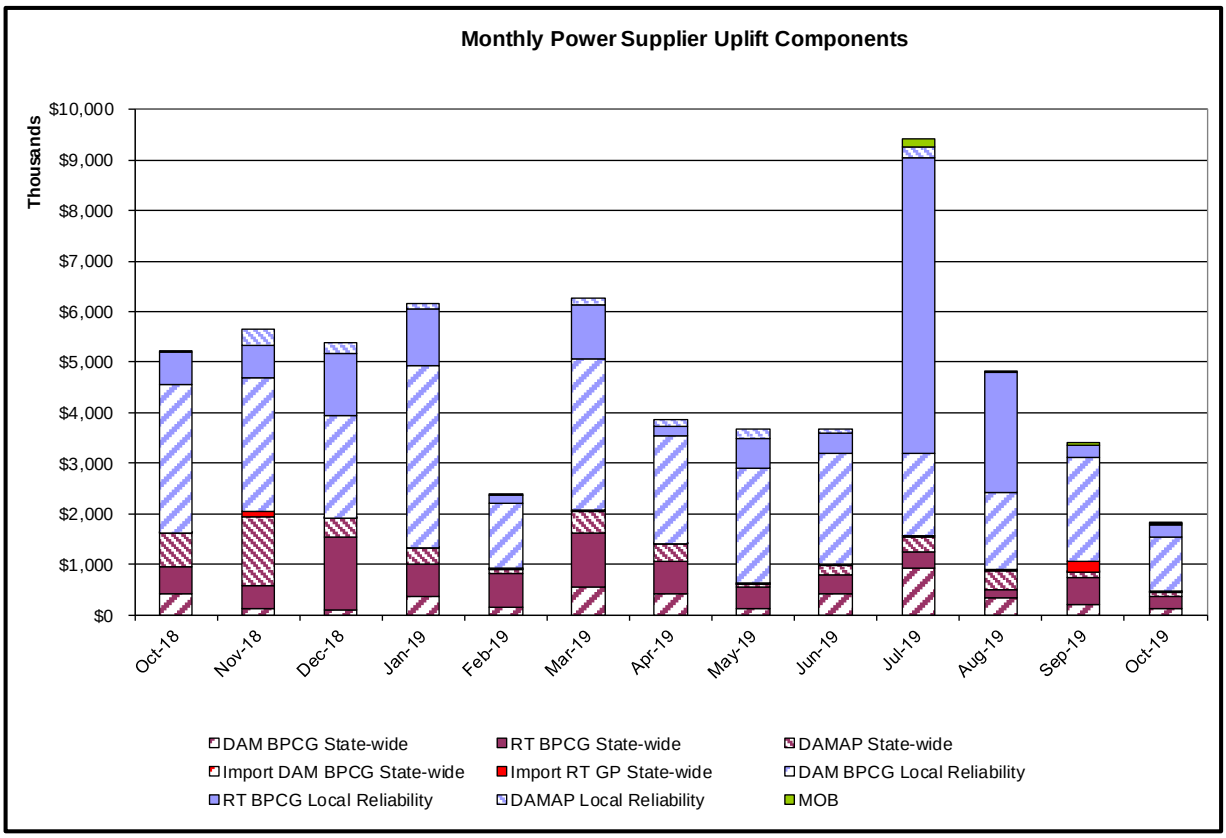
1) Storm Watch Costs are identified as daily total uplift costs
2) Days with a value of BMCR less M2M Settlement of $100K/HR, shortfall of $200K/Day or more, or surplus of $100K/Day or more are investigated.
3) Uplift costs associated with multiple event types are apportioned equally by hour

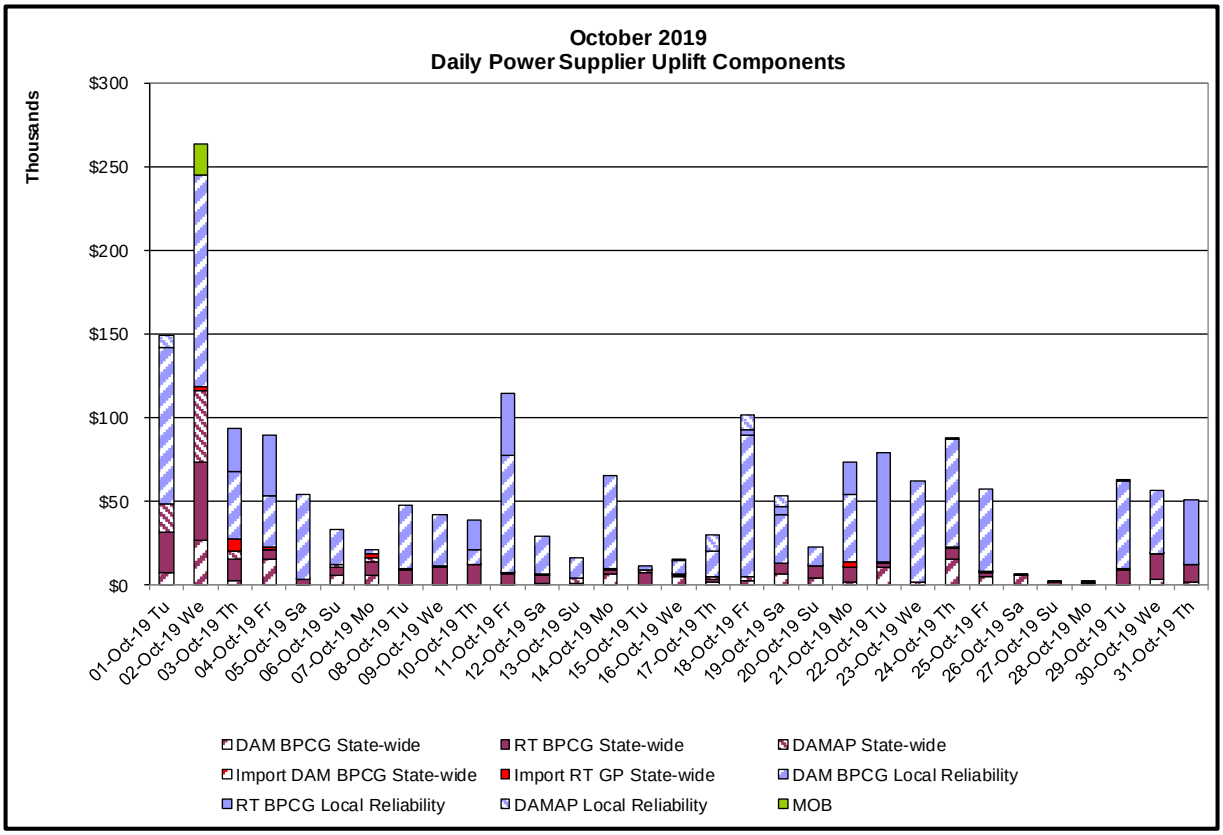

DAM Congestion Residual Report
Monthly Cost Categories
Thousands
($20,000)
($15,000)
($10,000)
($5,000)
$0
$5,000
$10,000
Aug-18
Sep-18
Oct-18
Nov-18
Dec-18
Jan-19
Feb-19
Mar-19
Apr-19
May-19
Jun-19
Jul-19
Aug-19
NYTO Outage Allocation
External Outage Allocation
Central East Commitment Derate
Costs Not Categorized

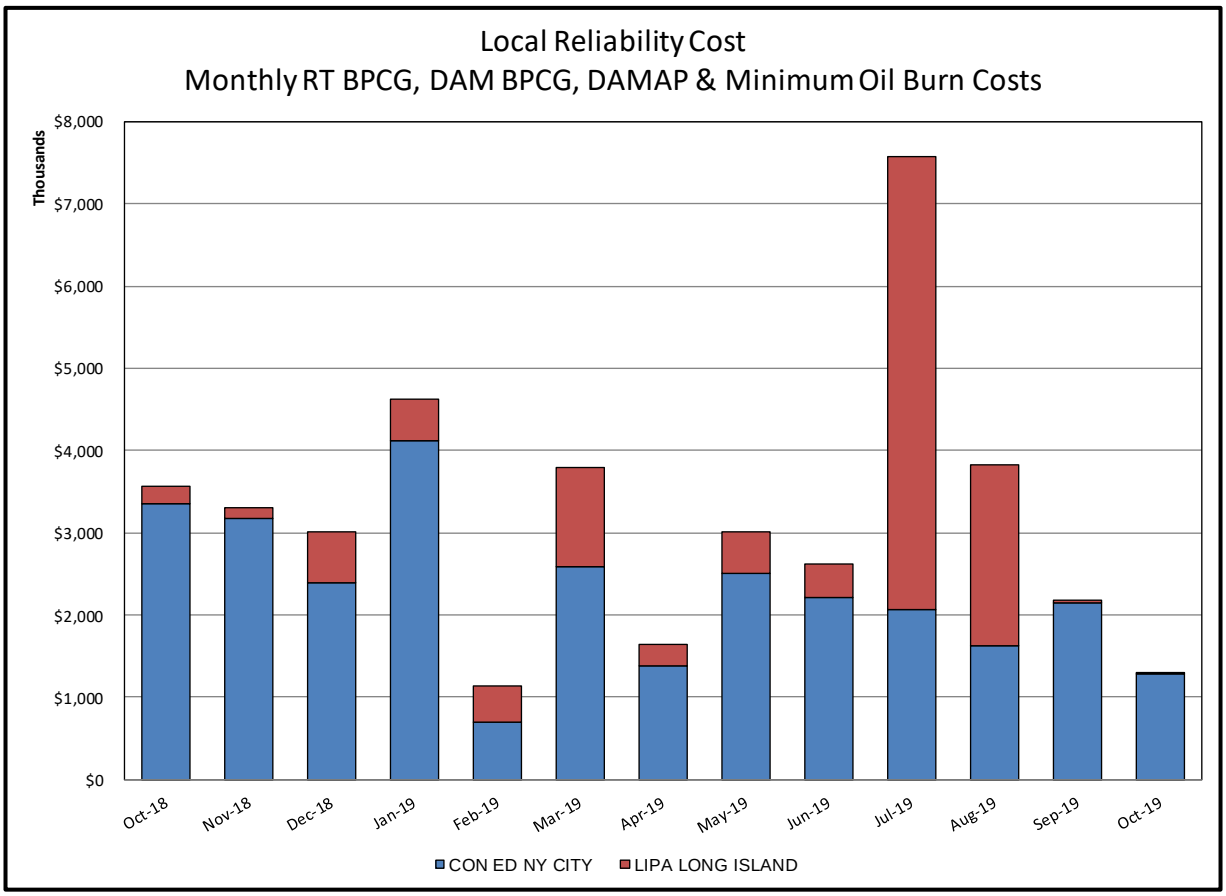

August 2019
DAM Congestion Residual Report
Daily Cost Categories
Thousands
($700)
($600)
($500)
($400)
($300)
($200)
($100)
$0
$100
$200
$300
01-Aug-19
02-Aug-19
03-Aug-19
04-Aug-19
05-Aug-19
06-Aug-19
07-Aug-19
08-Aug-19
09-Aug-19
10-Aug-19
11-Aug-19
12-Aug-19
13-Aug-19
14-Aug-19
15-Aug-19
16-Aug-19
17-Aug-19
18-Aug-19
19-Aug-19
20-Aug-19
21-Aug-19
22-Aug-19
23-Aug-19
24-Aug-19
25-Aug-19
26-Aug-19
27-Aug-19
28-Aug-19
29-Aug-19
30-Aug-19
31-Aug-19
NYTO Outage Allocation
External Outage Allocation
Central East Commitment Derate
Costs Not Categorized

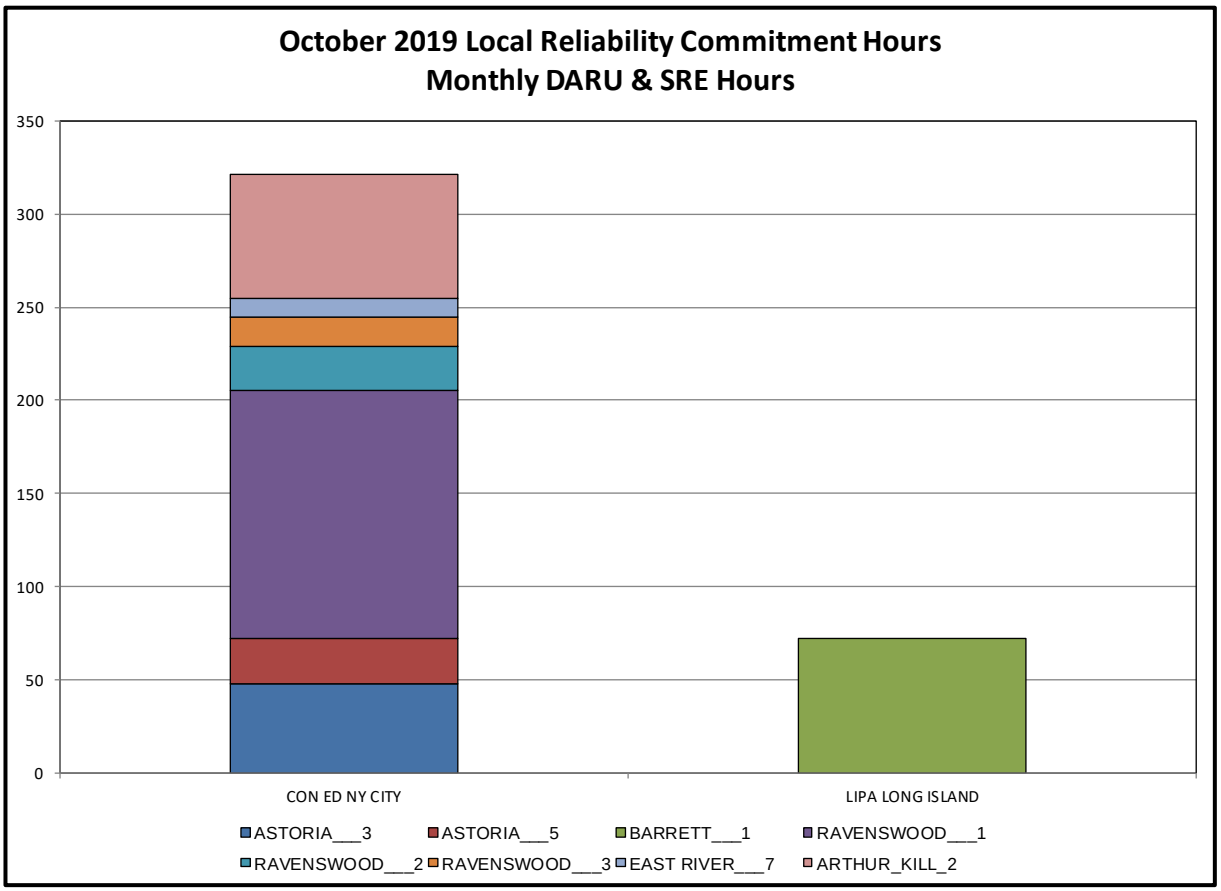
Day-Ahead Market Congestion Residual Categories

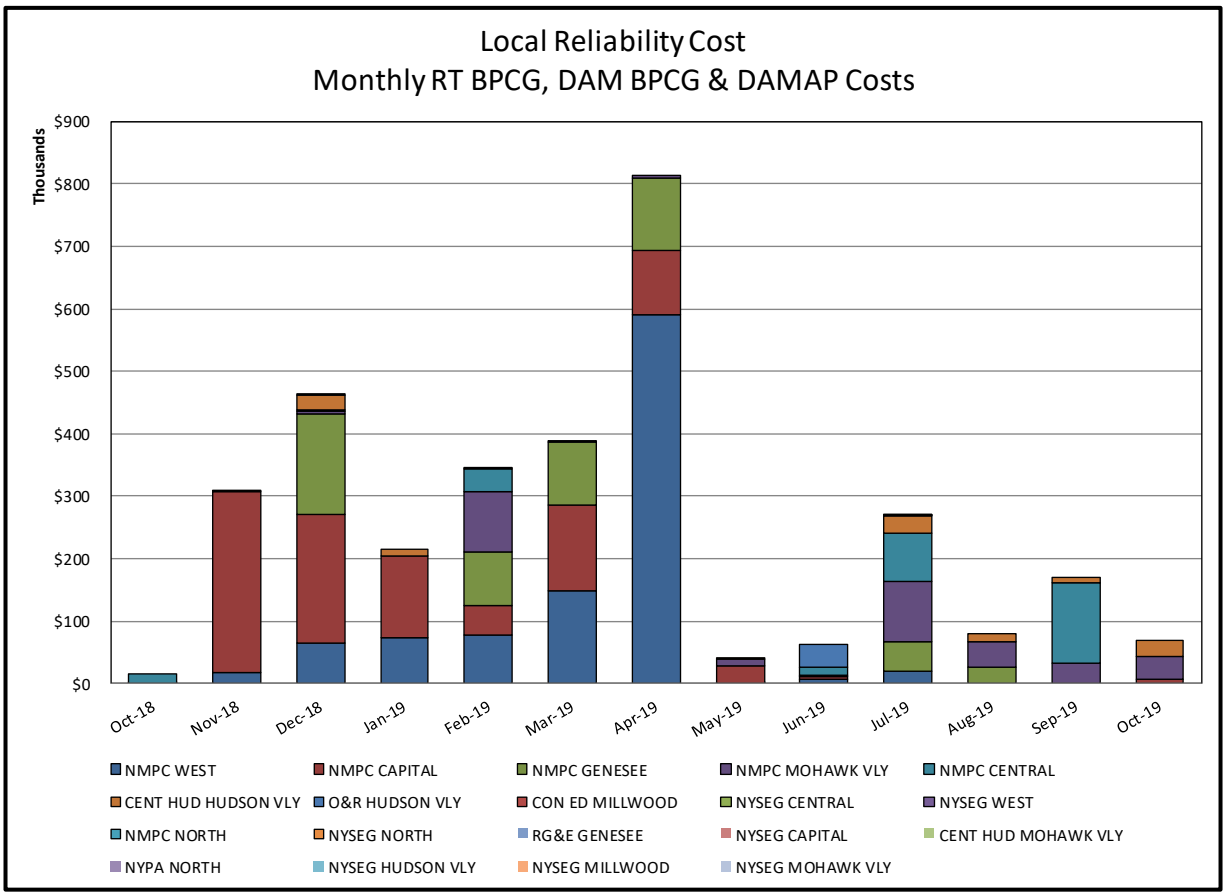
Category	*Cost Assignment*	*Events Types*	*Event Examples*
NYTO Outage Allocation	Responsible TO	Direct allocation to NYTO's responsible for transmission equipment status change.	DAM scheduled outage for equipment modeled in-service for the TCC Auction.
External Outage Allocation	All TO by Monthly Allocation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

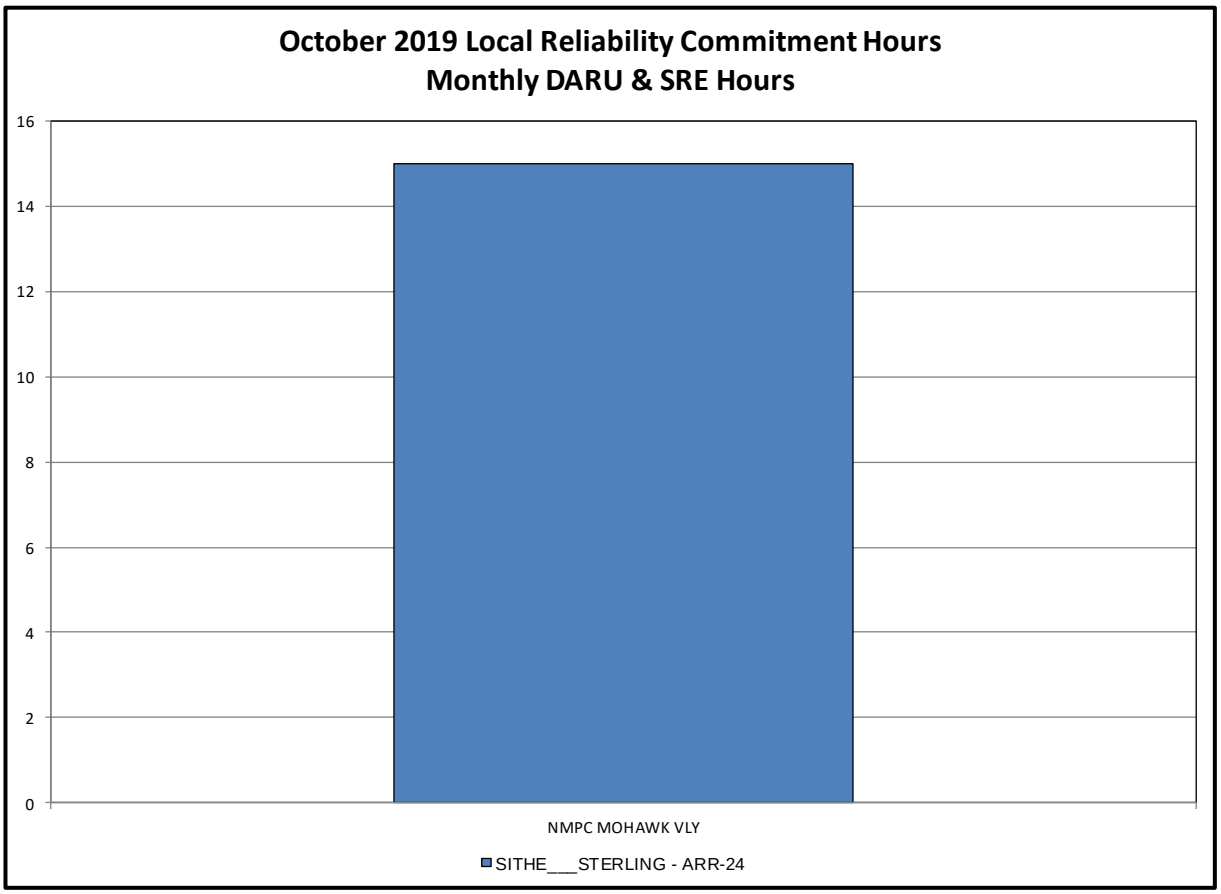

Monthly Power Supplier Uplift Components
Thousands
$10,000
$9,000
$8,000
$7,000
$6,000
$5,000
$4,000
$3,000
$2,000
$1,000
$0
Oct-18
Nov-18
Dec-18
Jan-19
Feb-19
Mar-19
Apr-19
May-19
Jun-19
Jul-19
Aug-19
Sep-19
Oct-19
DAM BPCG State-wide
RT BPCG State-wide
DAMAP State-wide
Import DAM BPCG State-wide
Import RT GP State-wide
DAM BPCG Local Reliability
RT BPCG Local Reliability
DAMAP Local Reliability
MOB

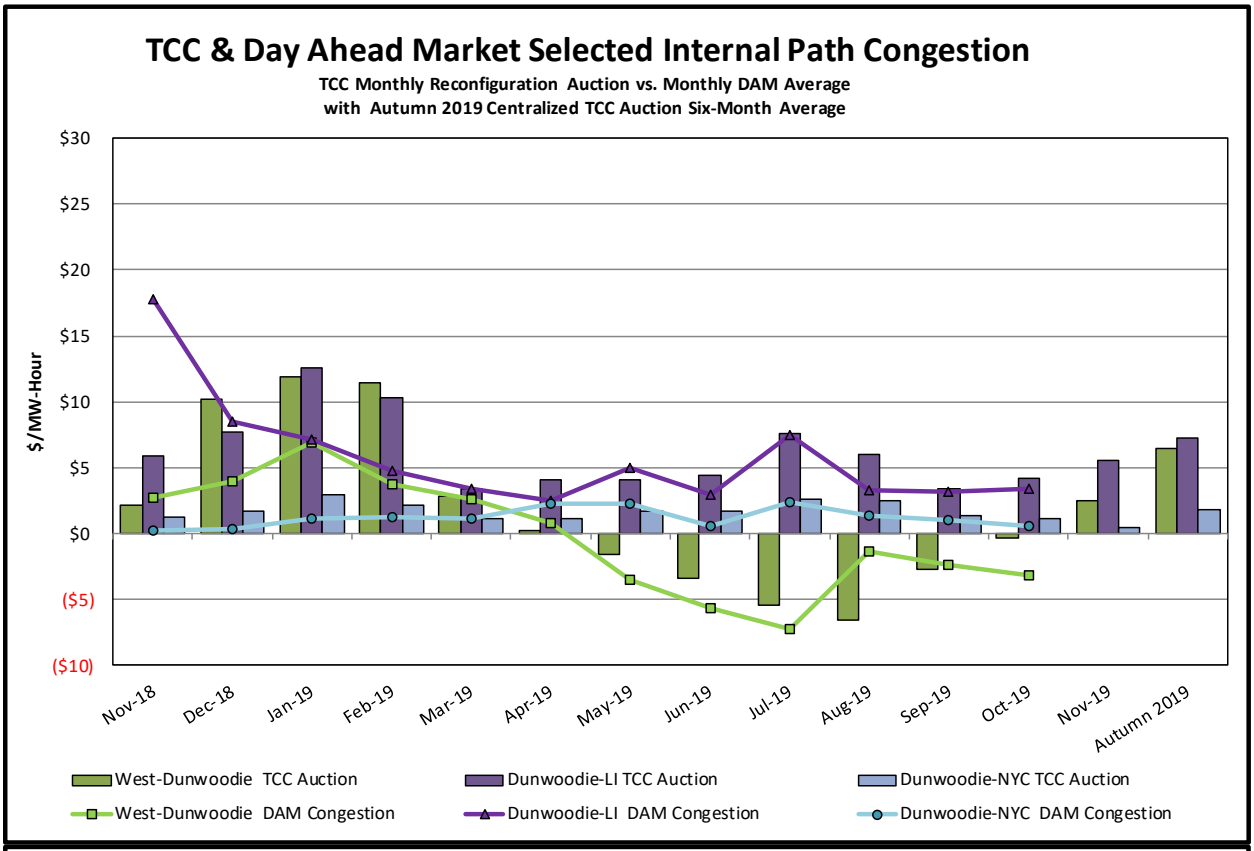

October 2019
Daily Power Supplier Uplift Components
Thousands
$300
$250
$200
$150
$100
$50
$0
01-Oct-19 Tu
02-Oct-19 We
03-Oct-19 Th
04-Oct-19 Fr
05-Oct-19 Sa
06-Oct-19 Su
07-Oct-19 Mo
08-Oct-19 Tu
09-Oct-19 We
10-Oct-19 Th
11-Oct-19 Fr
12-Oct-19 Sa
13-Oct-19 Su
14-Oct-19 Mo
15-Oct-19 Tu
16-Oct-19 We
17-Oct-19 Th
18-Oct-19 Fr
19-Oct-19 Sa
20-Oct-19 Su
21-Oct-19 Mo
22-Oct-19 Tu
23-Oct-19 We
24-Oct-19 Th
25-Oct-19 Fr
26-Oct-19 Sa
27-Oct-19 Su
28-Oct-19 Mo
29-Oct-19 Tu
30-Oct-19 We
31-Oct-19 Th
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

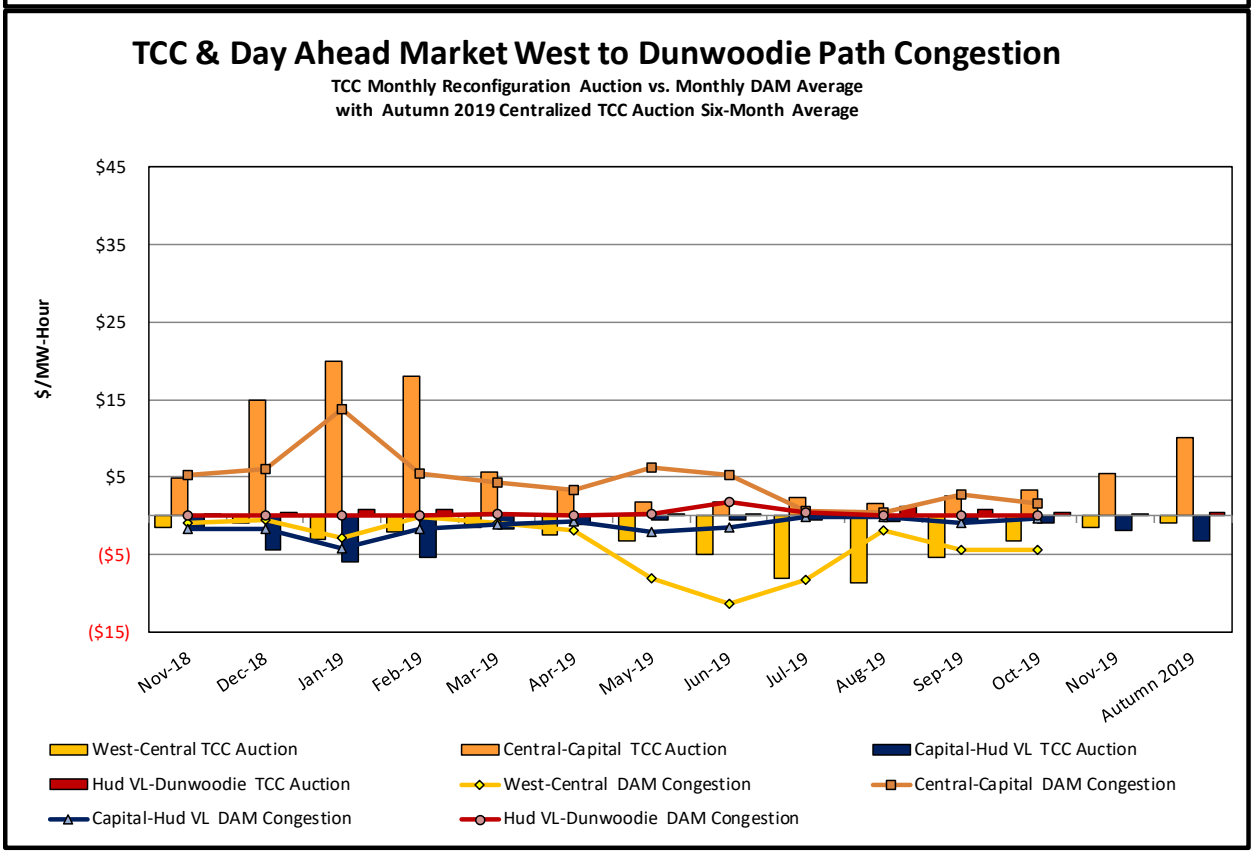

Local Reliability Cost
Monthly RT BPCG, DAM BPCG, DAMAP & Minimum Oil Burn Costs
Thousands
$8,000
$7,000
$6,000
$5,000
$4,000
$3,000
$2,000
$1,000
$0
Oct-18
Nov-18
Dec-18
Jan-19
Feb-19
Mar-19
Apr-19
May-19
Jun-19
Jul-19
Aug-19
Sep-19
Oct-19
CON ED NY CITY
LIPA LONG ISLAND

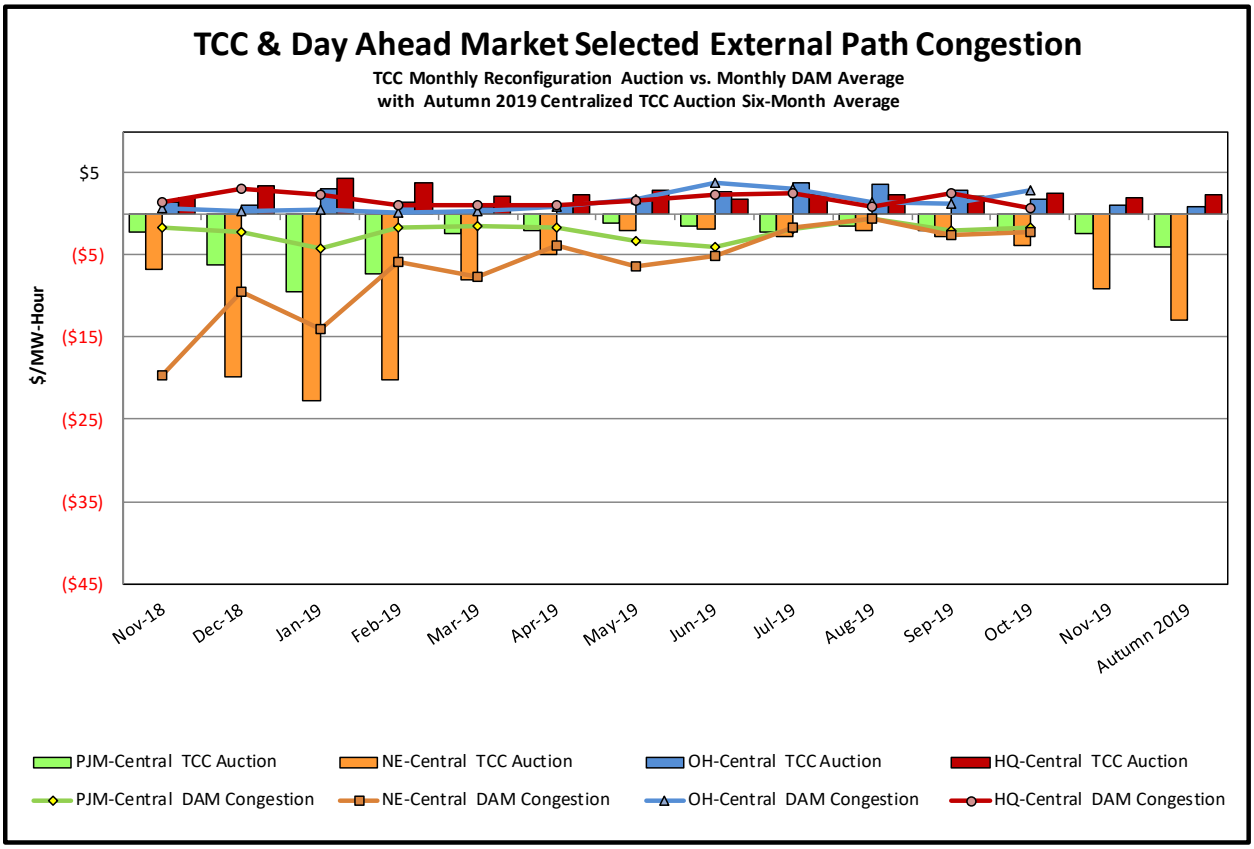

October 2019 Local Reliability Commitment Hours
Monthly DARU & SRE Hours
350
300
250
200
150
100
50
0
CON ED NY CITY
LIPA LONG ISLAND
ASTORIA___3
ASTORIA___5
BARRETT___1
RAVENSWOOD___1
RAVENSWOOD___2
RAVENSWOOD___3
EAST RIVER___7
ARTHUR_KILL_2

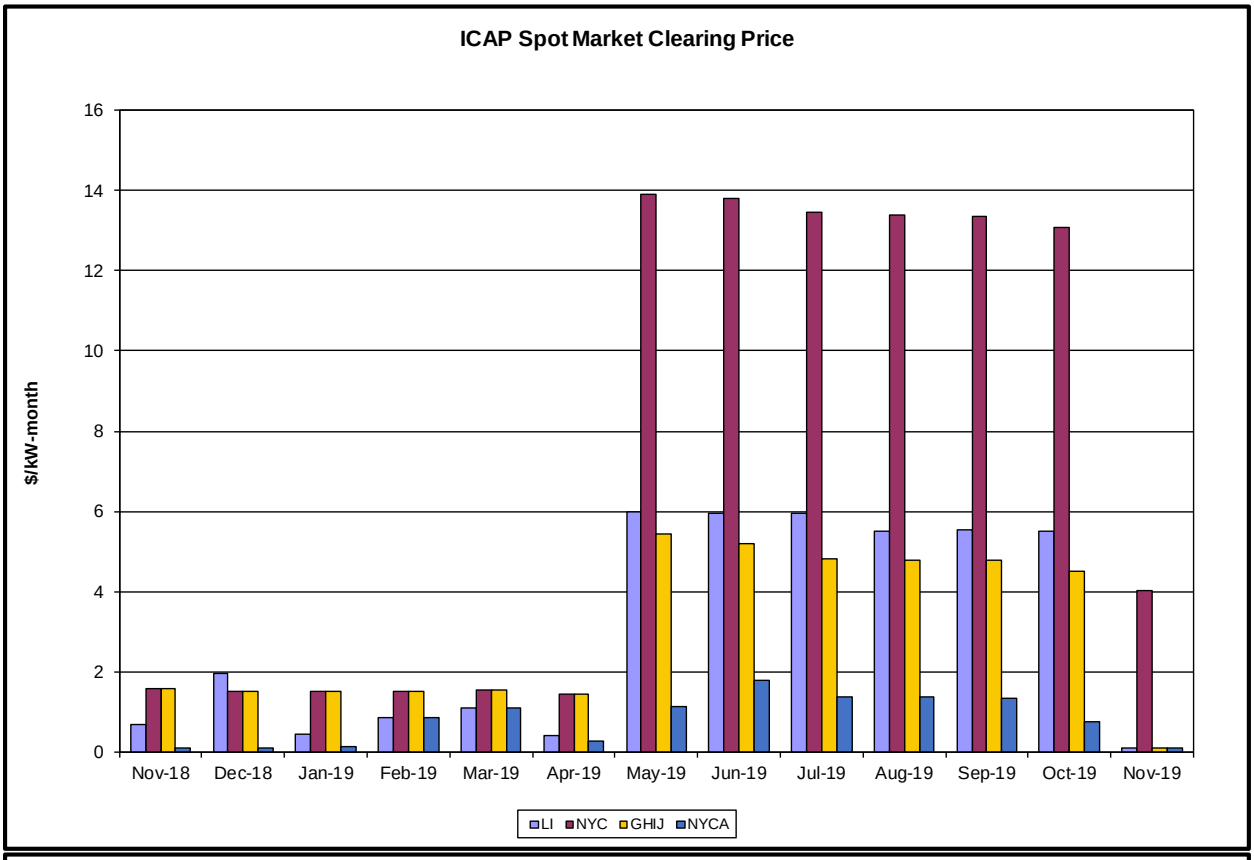

Local Reliability Cost
Monthly RT BPCG, DAM BPCG & DAMAP Costs
Thousands
$900
$800
$700
$600
$500
$400
$300
$200
$100
$0
Oct-18
Nov-18
Dec-18
Jan-19
Feb-19
Mar-19
Apr-19
May-19
Jun-19
Jul-19
Aug-19
Sep-19
Oct-19
NMPC WEST
NMPC CAPITAL
NMPC GENESEE
NMPC MOHAWK VLY
NMPC CENTRAL
CENT HUD HUDSON VLY
O&R HUDSON VLY
CON ED MILLWOOD
NYSEG CENTRAL
NYSEG WEST
NMPC NORTH
NYSEG NORTH
RG&E GENESEE
NYSEG CAPITAL
CENT HUD MOHAWK VLY
NYPA NORTH
NYSEG HUDSON VLY
NYSEG MILLWOOD
NYSEG MOHAWK VLY

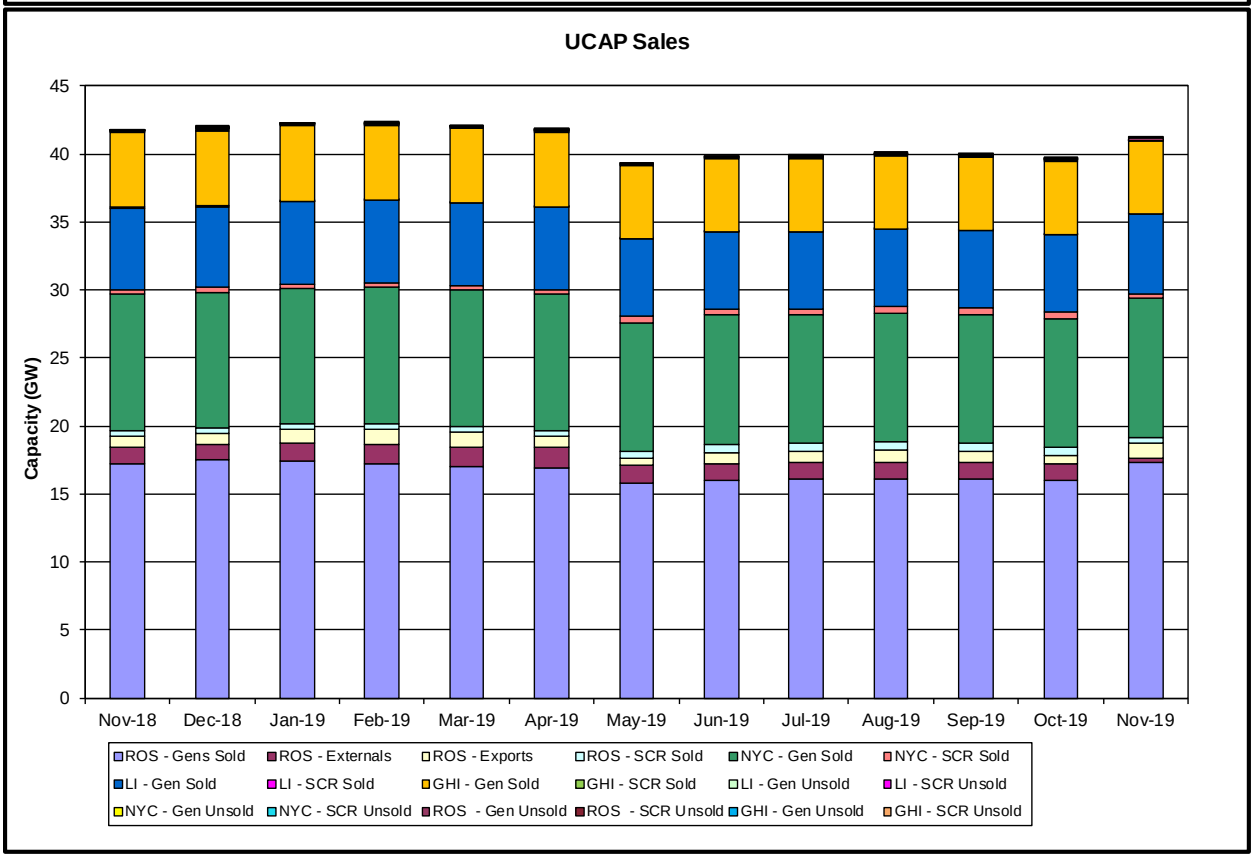

October 2019 Local Reliability Commitment Hours
Monthly DARU & SRE Hours
16
14
12
10
8
6
4
2
0
NMPC MOHAWK VLY
SITHE___STERLING - ARR-24


TCC & Day Ahead Market Selected Internal Path Congestion
TCC Monthly Reconfiguration Auction vs. Monthly DAM Average
with Autumn 2019 Centralized TCC Auction Six-Month Average
$/MW-Hour
$30
$25
$20
$15
$10
$5
$0
($5)
($10)
Nov-18
Dec-18
Jan-19
Feb-19
Mar-19
Apr-19
May-19
Jun-19
Jul-19
Aug-19
Sep-19
Oct-19
Nov-19
Autumn 2019
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
with Autumn 2019 Centralized TCC Auction Six-Month Average
$/MW-Hour
$45
$35
$25
$15
$5
($5)
($15)
Nov-18
Dec-18
Jan-19
Feb-19
Mar-19
Apr-19
May-19
Jun-19
Jul-19
Aug-19
Sep-19
Oct-19
Nov-19
Autumn 2019
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
with Autumn 2019 Centralized TCC Auction Six-Month Average
$/MW-Hour
$5
($5)
($15)
($25)
($35)
($45)
Nov-18
Dec-18
Jan-19
Feb-19
Mar-19
Apr-19
May-19
Jun-19
Jul-19
Aug-19
Sep-19
Oct-19
Nov-19
Autumn 2019
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
16
14
12
10
8
6
4
2
0
Nov-18
Dec-18
Jan-19
Feb-19
Mar-19
Apr-19
May-19
Jun-19
Jul-19
Aug-19
Sep-19
Oct-19
Nov-19
LI
NYC
GHIJ
NYCA


UCAP Sales
Capacity (GW)
45
40
35
30
25
20
15
10
5
0
Nov-18
Dec-18
Jan-19
Feb-19
Mar-19
Apr-19
May-19
Jun-19
Jul-19
Aug-19
Sep-19
Oct-19
Nov-19
ROS - Gens 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