

Operations Performance Metrics Monthly Report



September 2022 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 October 10, 2022.

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September 2022 Operations Performance Highlights

- September 2022 peak load of 23,264 MW occurred on 9/13/2022 HB 17
- Summer 2022 capability period peak load to date of 30,505MW occurred on 7/20/2022 HB 17
- All-time summer capability period peak load of 33,956 MW occurred on 07/19/2013 HB 16
- 6.0 hours of Thunderstorm Alerts were declared
- 8.4 hours of NERC TLR level 3 curtailment
- The Gordon Rd 345kV substation associated with Public Policy Segment A was placed in-service which included new circuits Edic-Gordon Rd 345kV (#14), Gordon Rd-New Scotland 345kV (#55) and Gordon Rd-Rotterdam 345kV (#31). Transition to the new Total East Stability, Central East Stability and Central East -VC transfer limits occurred on 9/12/2022.

The following table identifies the estimated production cost savings associated with the Broader Regional Market initiatives.

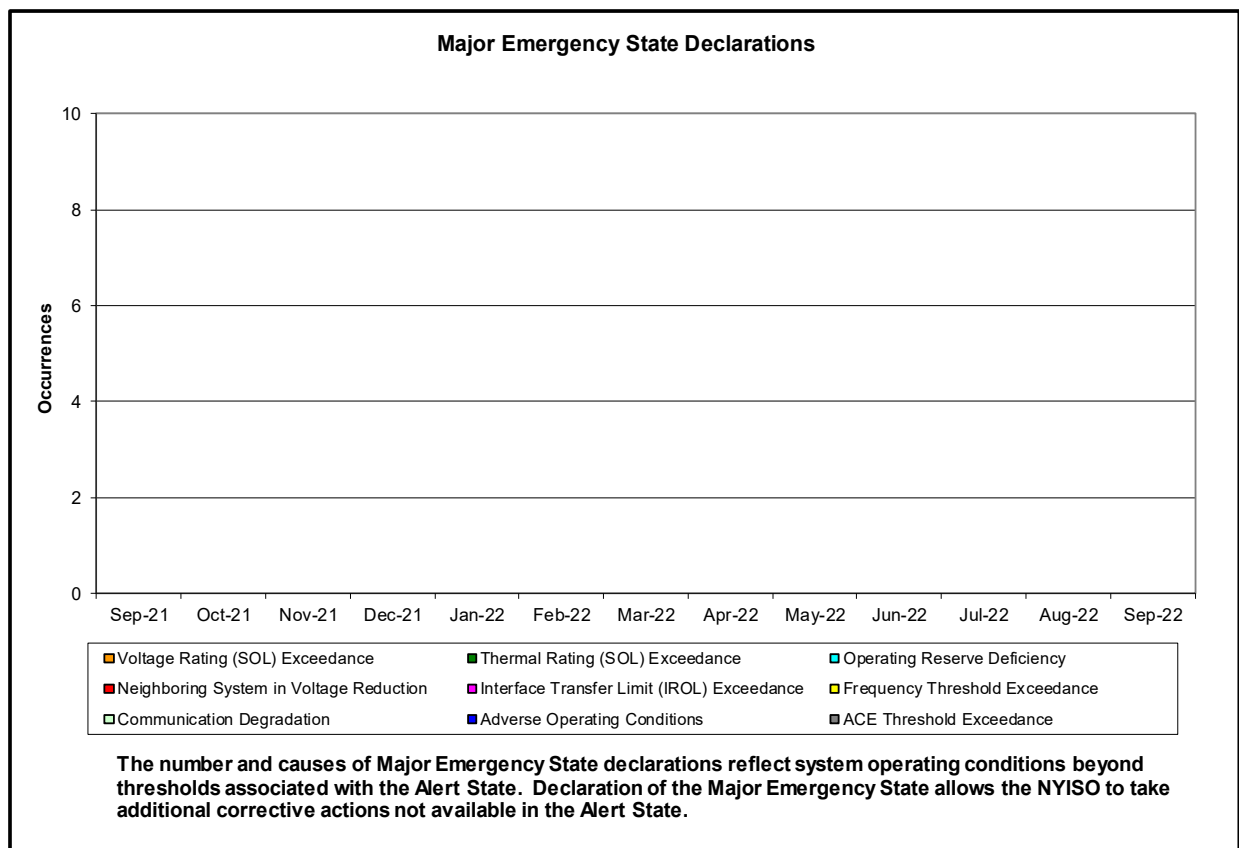
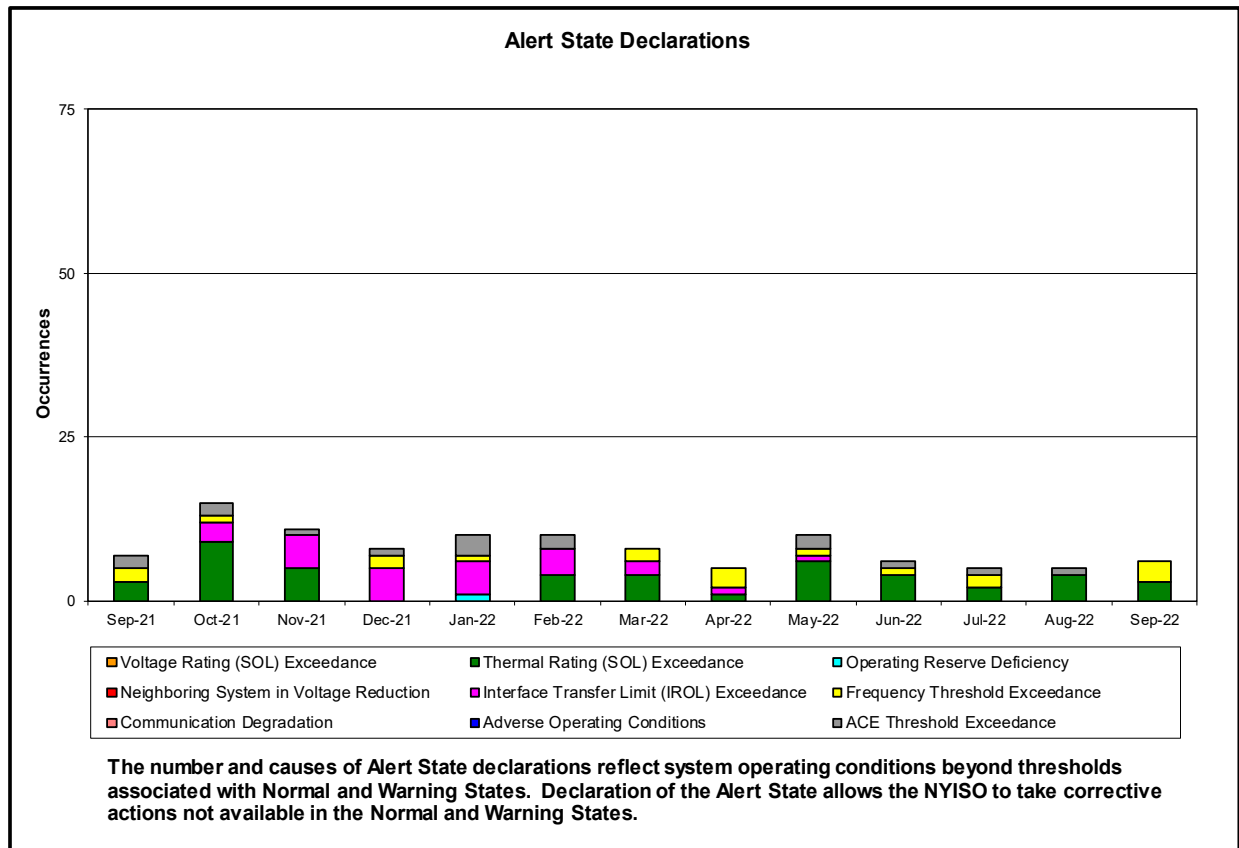
	Current Month Value (\$M)	Year-to-Date Value (\$M)
NY Savings from PJM-NY Congestion Coordination	\$2.00	\$25.84
NY Savings from PJM-NY Coordinated Transaction Scheduling	\$0.40	\$1.64
NY Savings from NE-NY Coordinated Transaction Scheduling	\$0.70	\$8.96
Total NY Savings	\$3.10	\$36.44
Regional Savings from PJM-NY Coordinated Transaction Scheduling	\$0.32	\$5.18
Regional Savings from NE-NY Coordinated Transaction Scheduling	\$0.13	\$3.12
Total Regional Savings	\$0.45	\$8.30

- Statewide uplift cost monthly average was (\$1.18)/MWh.
- The following table identifies the Monthly ICAP spot market prices and the price delta.

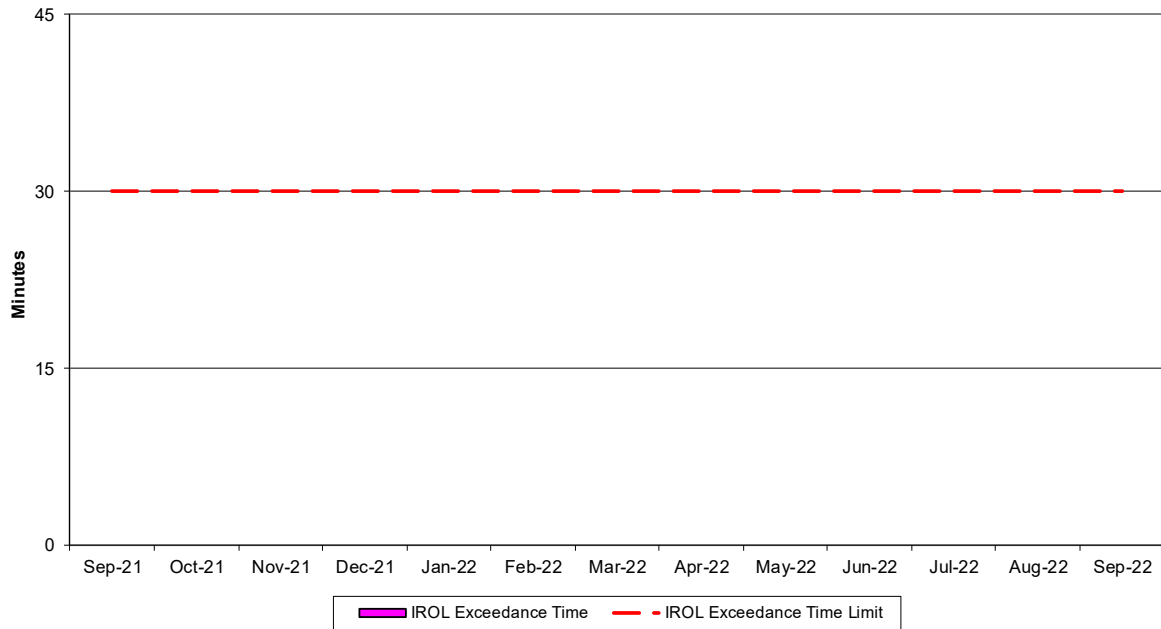
Spot Auction Price Results	NYCA	Lower Hudson Valley Zones	New York City Zone	Long Island Zone
October 2022 Spot Price	\$2.92	\$3.18	\$3.27	\$6.48
September 2022 Spot Price	\$2.95	\$3.12	\$3.21	\$6.43
Delta	(\$0.03)	\$0.06	\$0.06	\$0.05

- Long Island experienced an increase in price due to more unoffered MWs. In NYC and Lower Hudson Valley Zones the price increased due to a decrease in SCR UCAP. The NYCA clearing price decreased due to increased imports and a decrease in unoffered MWs.

Reliability Performance Metrics

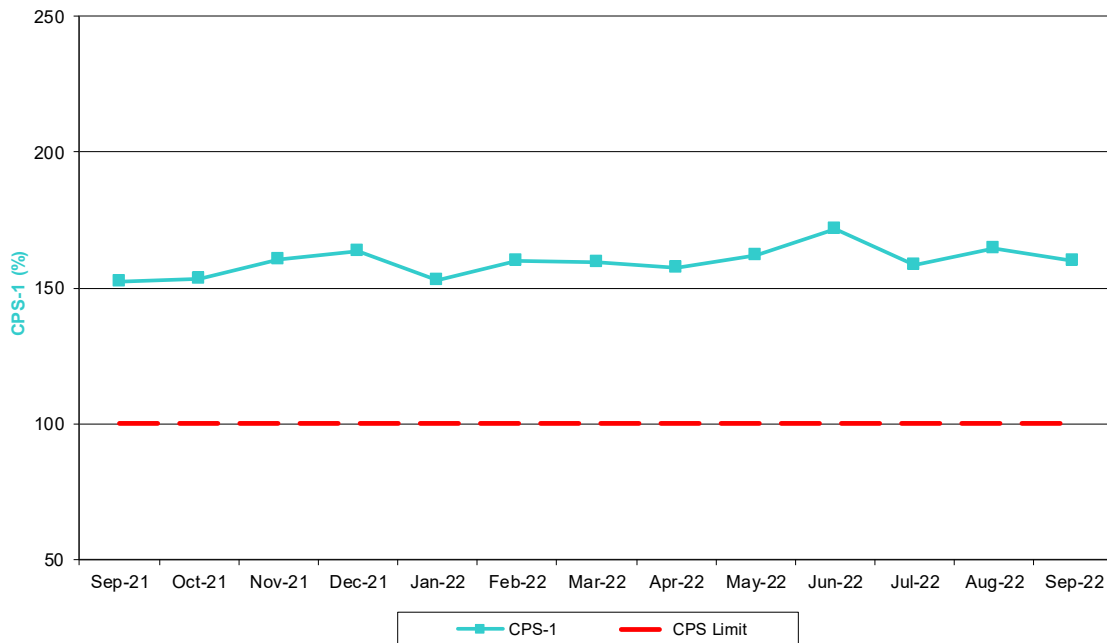


NERC IROL Time Over Limit



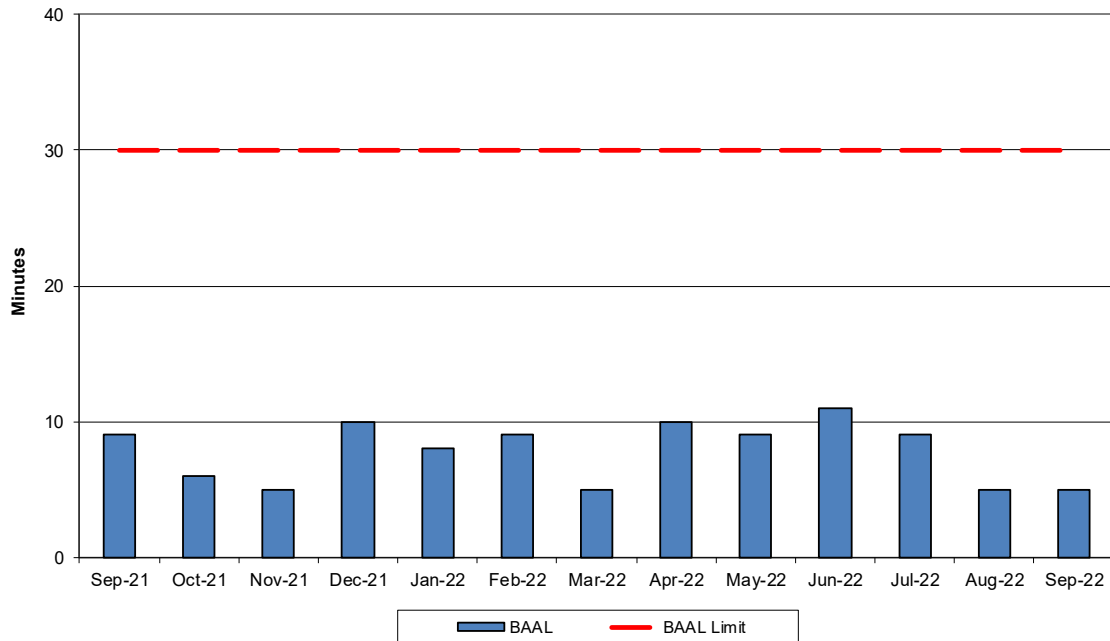
For IROL exceedances leading to Major Emergency State declarations, the maximum IROL exceedance time is identified. IROL exceedances of less than thirty minutes are considered NERC compliant.

NERC Control Performance Standards



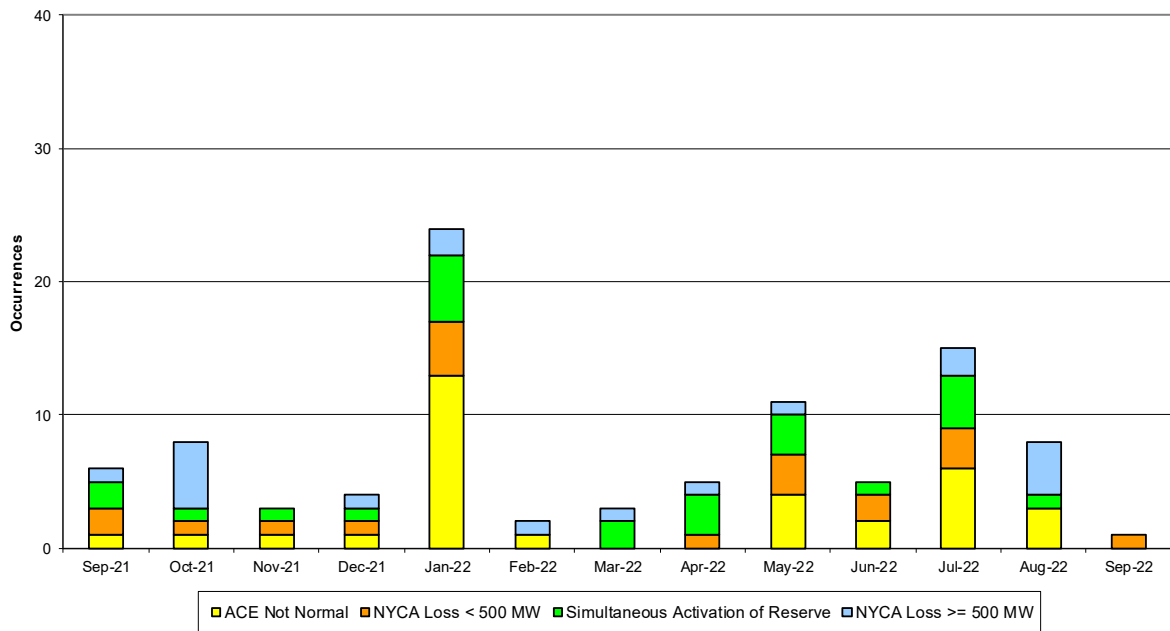
The value of NERC Control Performance Standards (CPS-1) is an indicator of the NYISO Area resource and demand balancing. Values exceeding the identified threshold are NERC compliant.

NERC Balancing Authority ACE Limit Standard



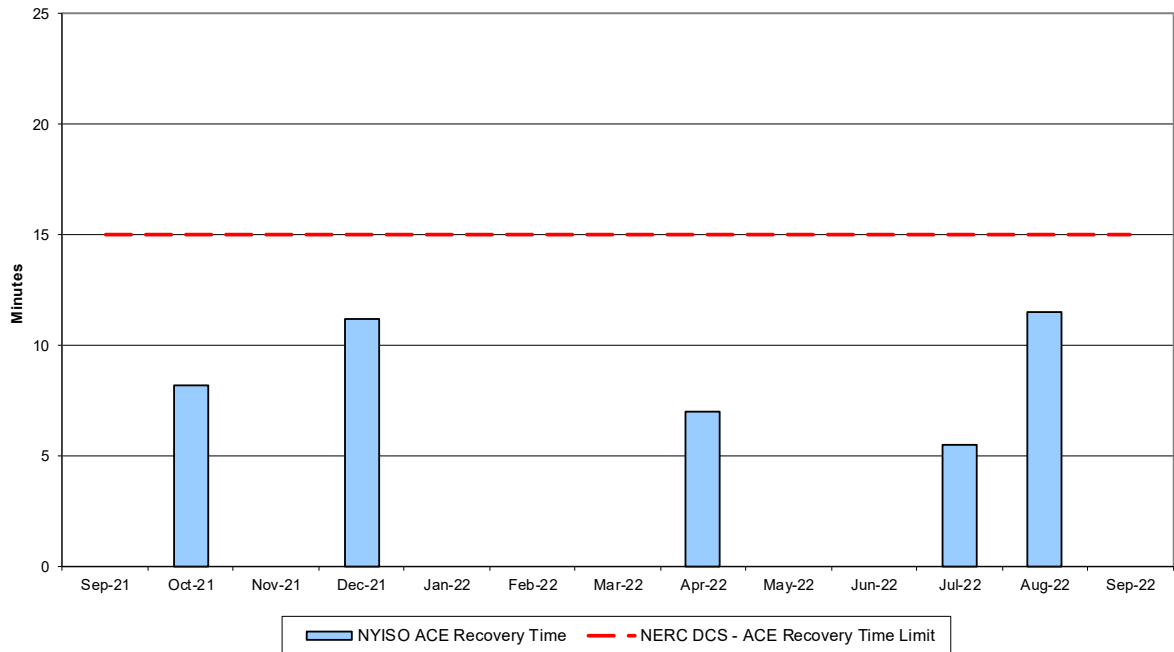
The amount of time the clock-minute average ACE exceeds the clock-minute Balancing Authority ACE Limit (BAAL) is an indicator of the NYISO Area resource and demand balancing. The maximum BAAL exceedance time is identified. BAAL exceedances of less than 30 consecutive clock-minutes are NERC compliant.

Reserve Activations



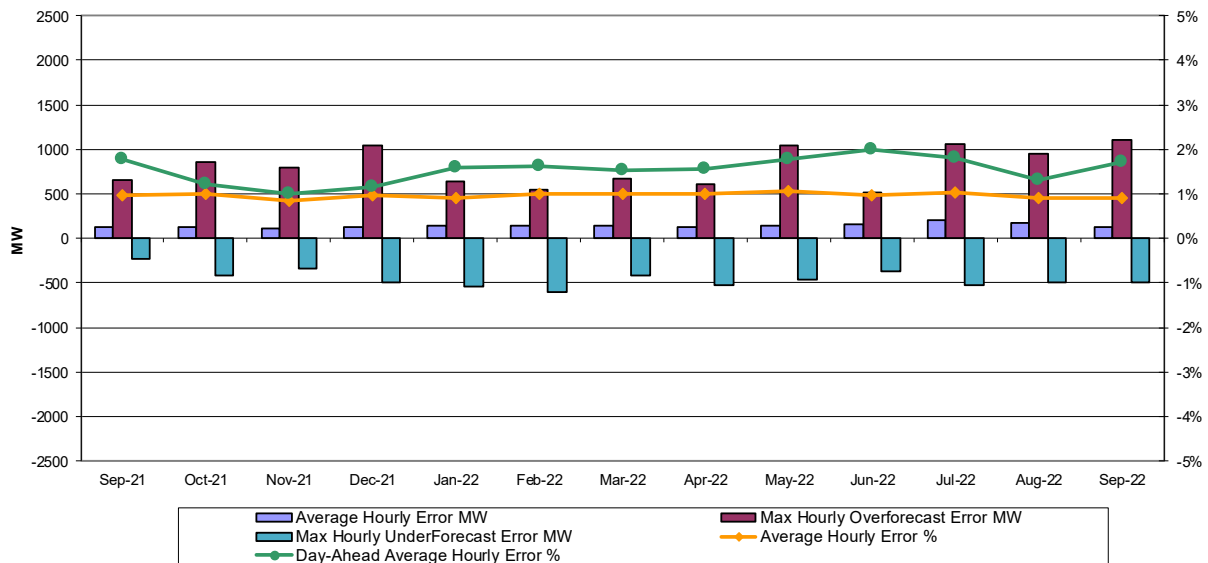
NYISO Reserve Activations are indicators of the need to respond to unexpected operational conditions within the NYISO Area or to assist a neighboring Area (Simultaneous Activation of Reserves) by activating an immediate resource and demand balancing operation.

DCS Event Time to ACE Recovery



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

Load Forecast Performance

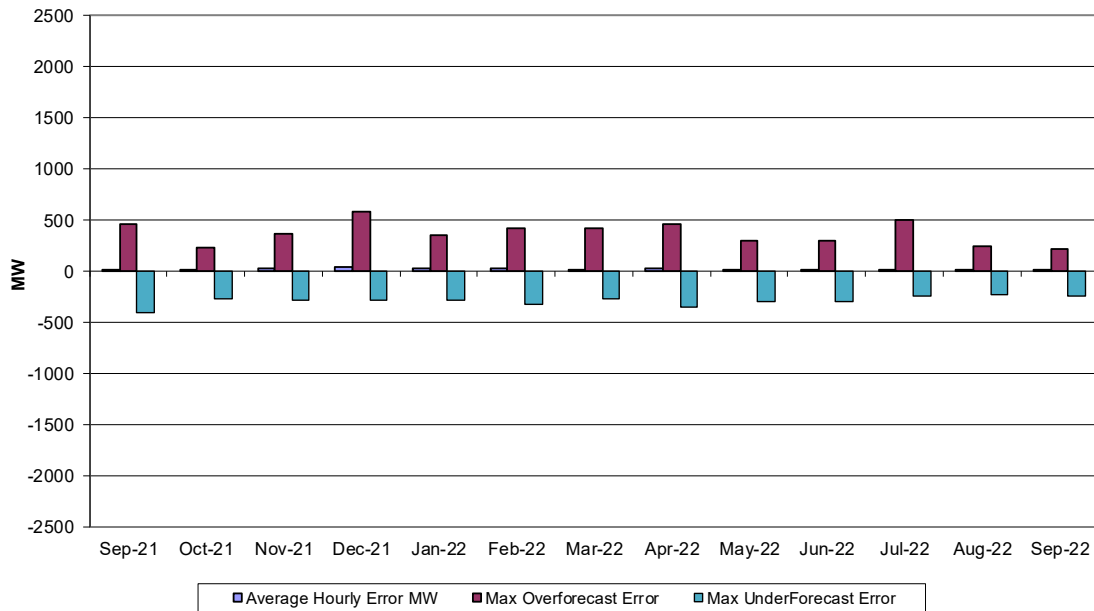


Hourly Error MW - Value of the difference between the hourly average actual load demand and the average hour ahead forecast load demand.

Average Hourly Error % - Average value of the ratio of hourly average error magnitude to hourly average actual load demand.

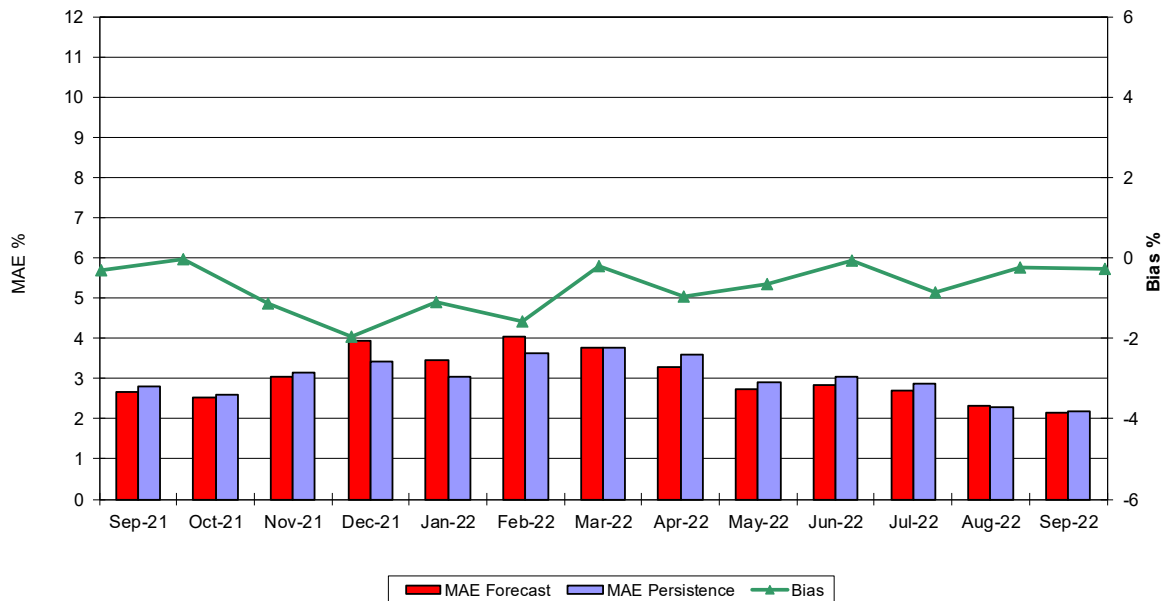
Day-Ahead Average Hourly Error % - Average across all hours of the month of the absolute value of the difference between actual load demand and the Day-Ahead forecast load demand, divided by the actual load demand.

Wind Forecast Performance Hour Ahead MW Error

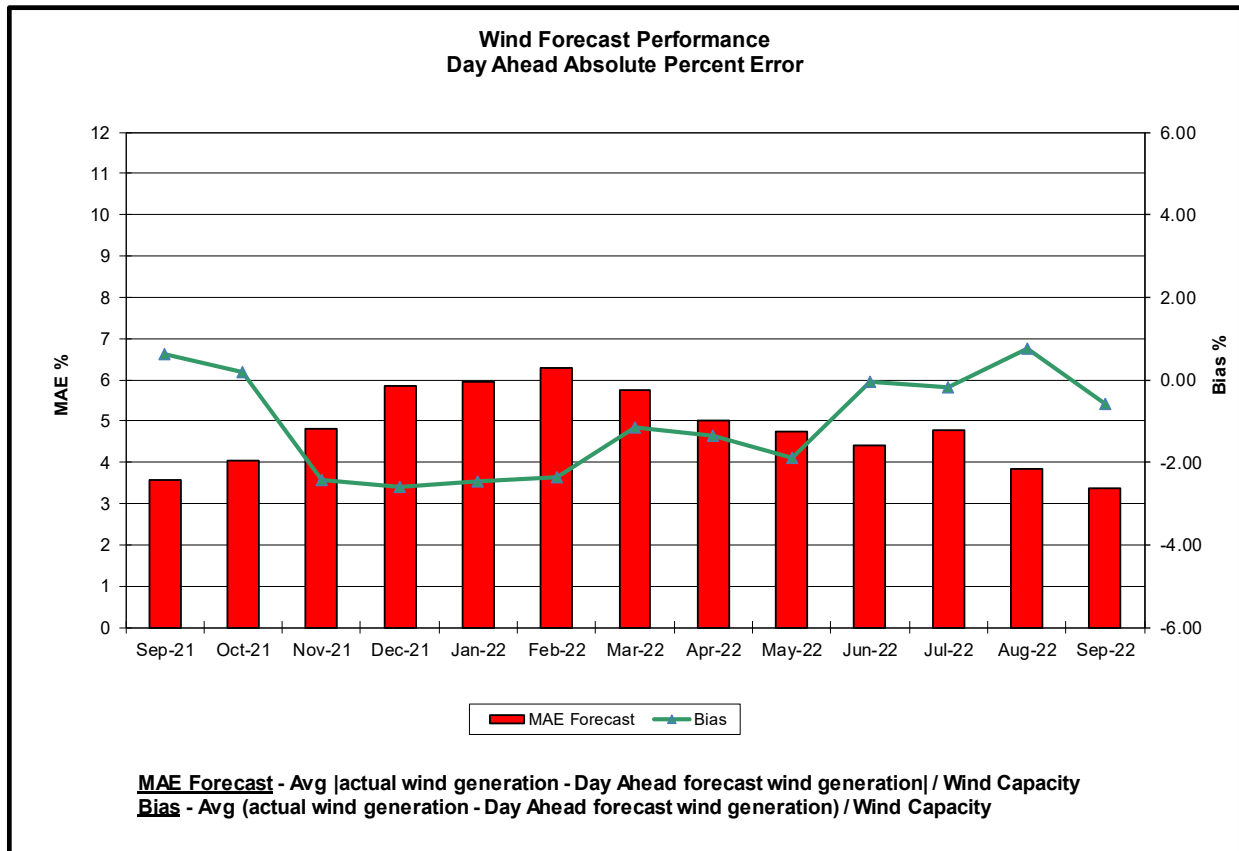
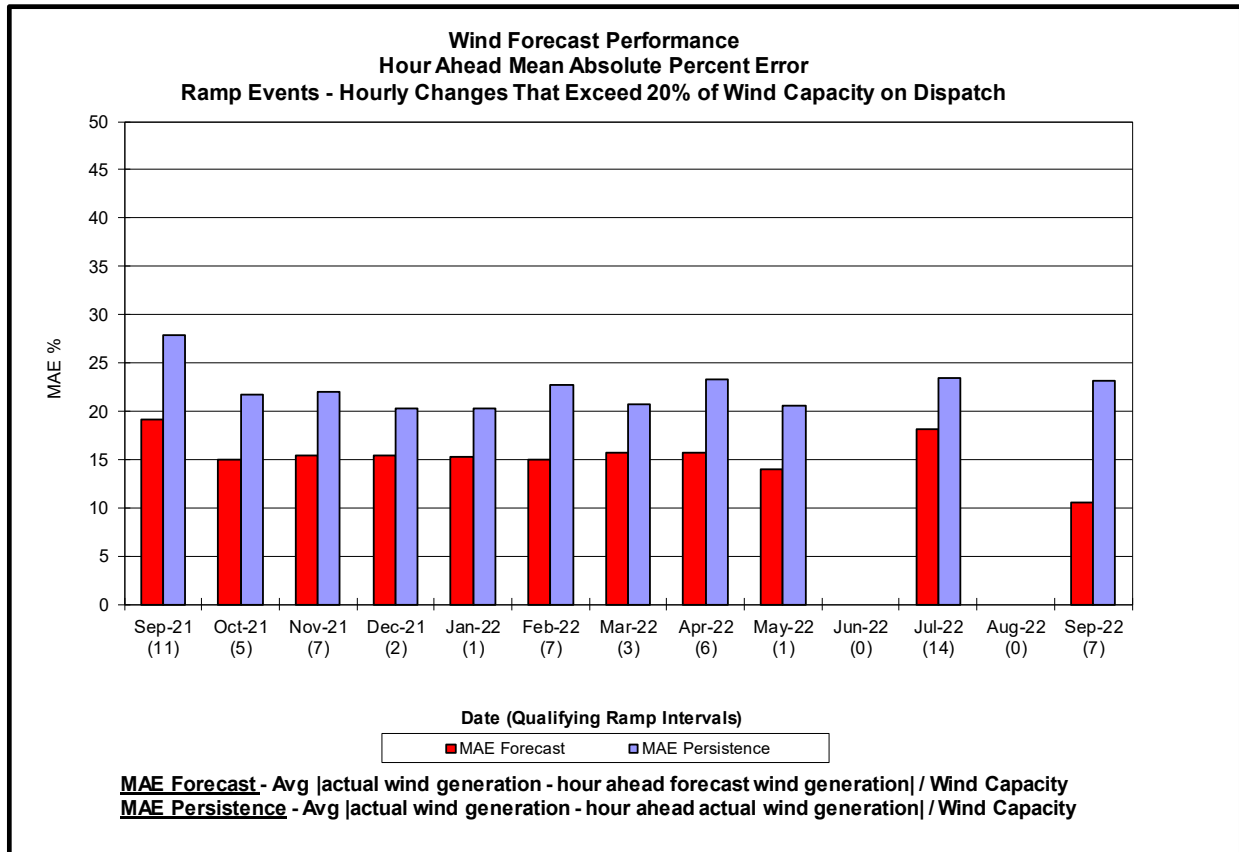


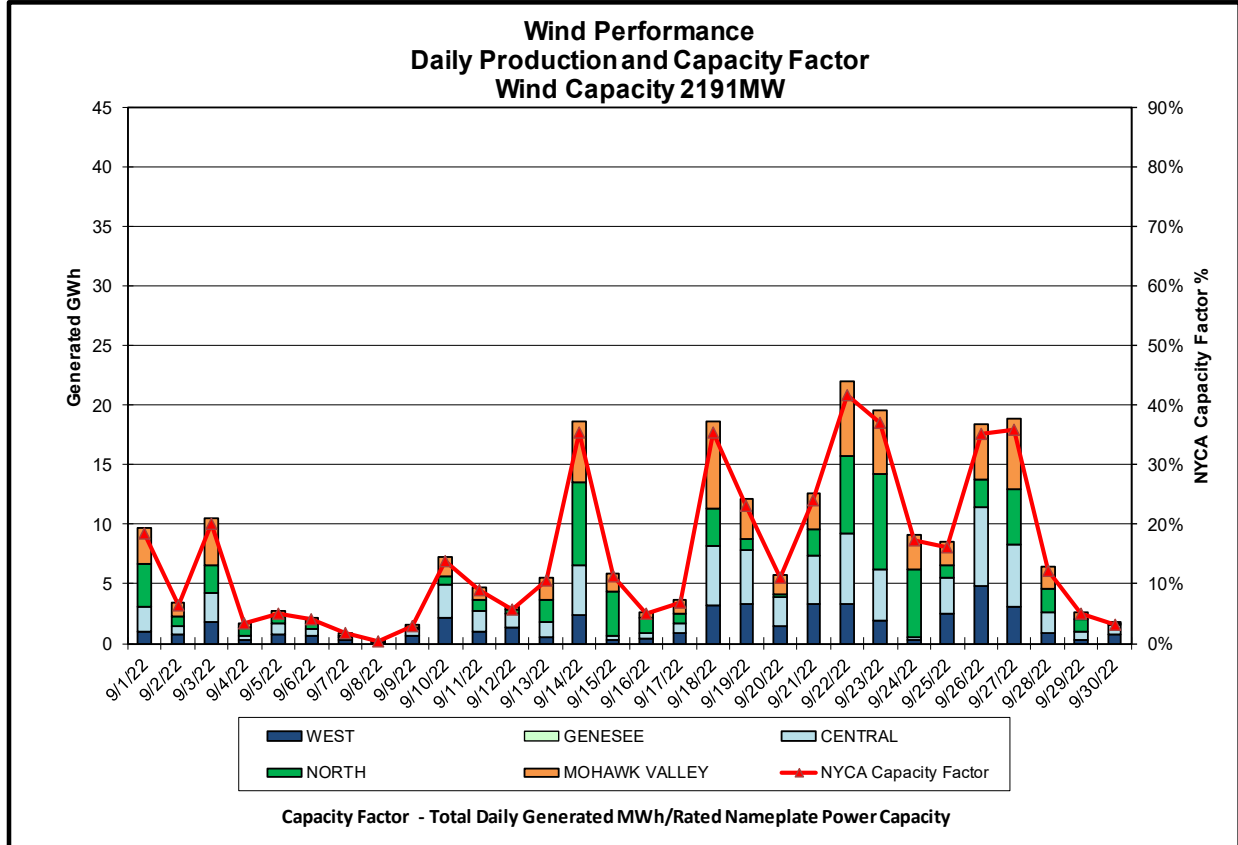
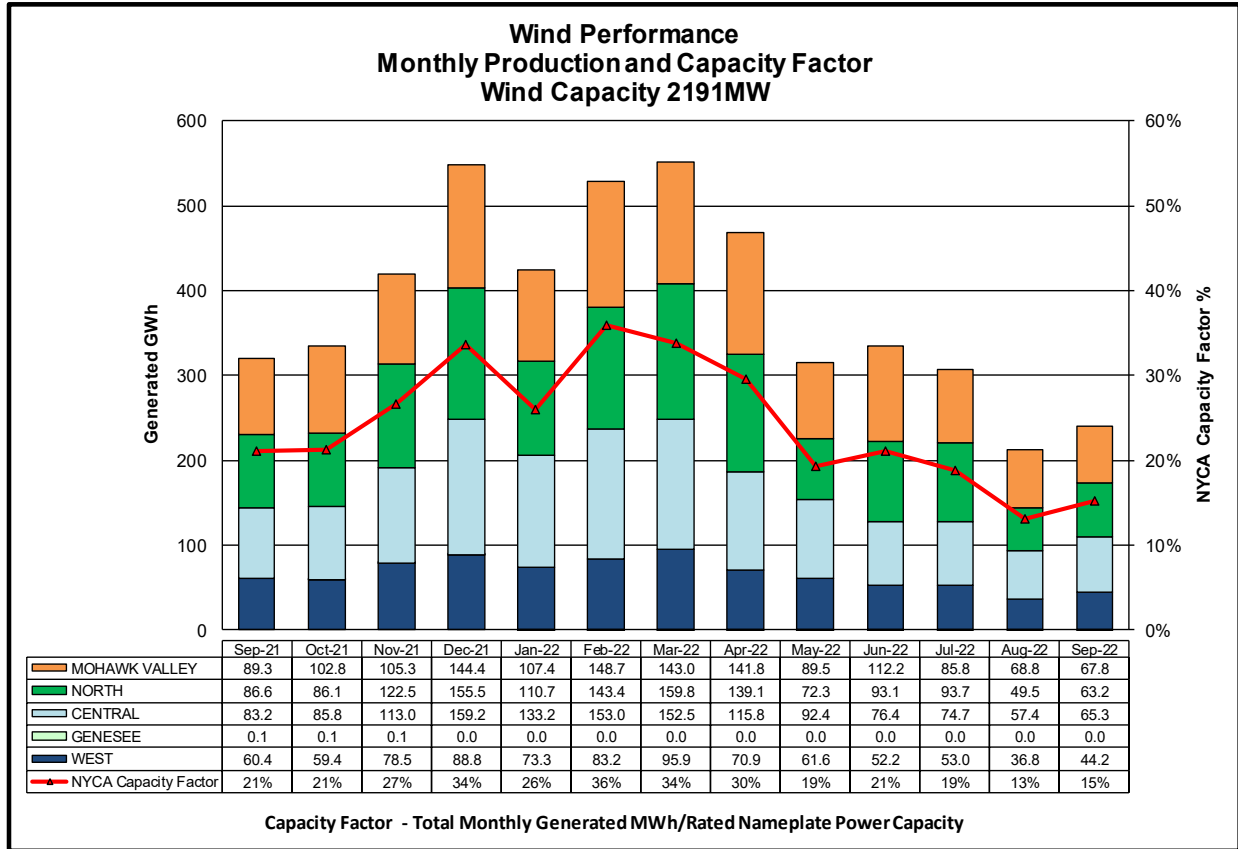
Hourly Error MW - Value of the difference between the hourly average actual wind generation and the average hour ahead forecast wind generation.

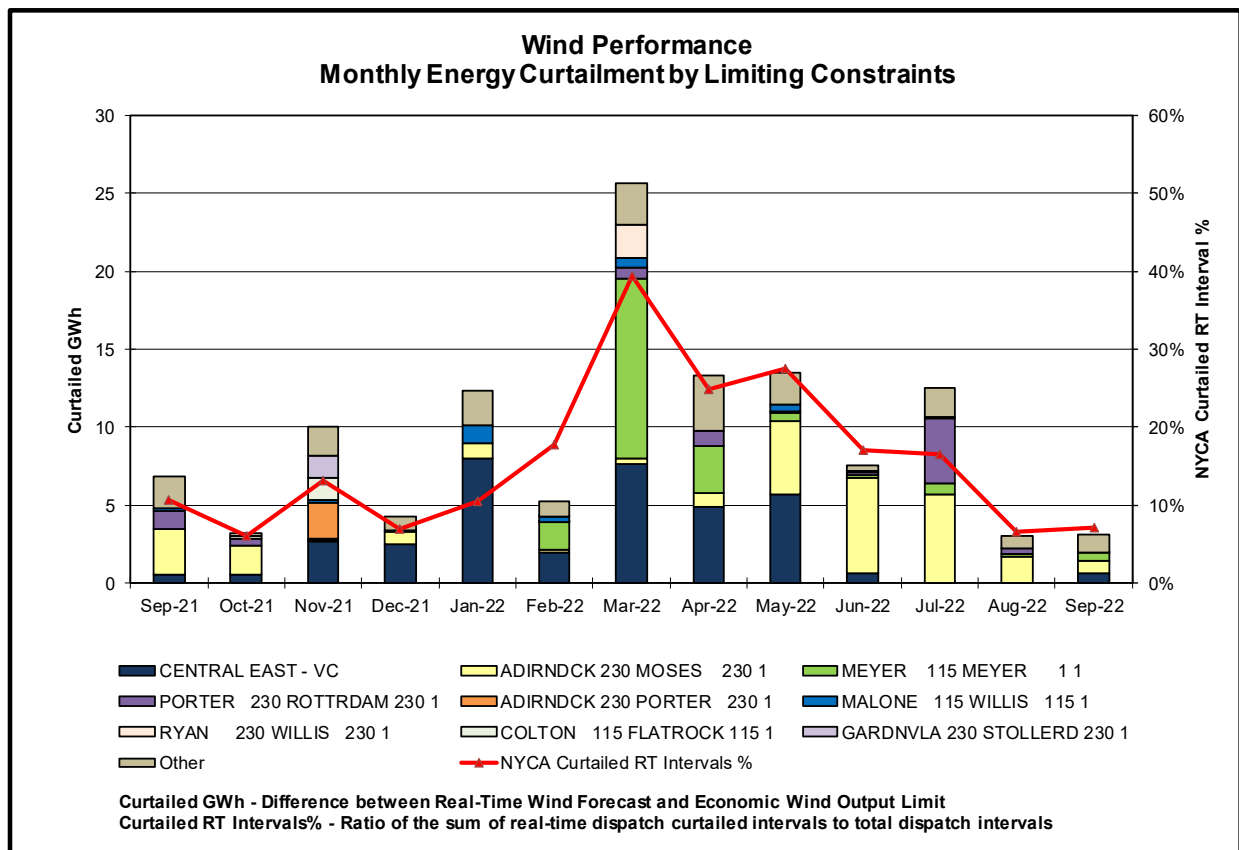
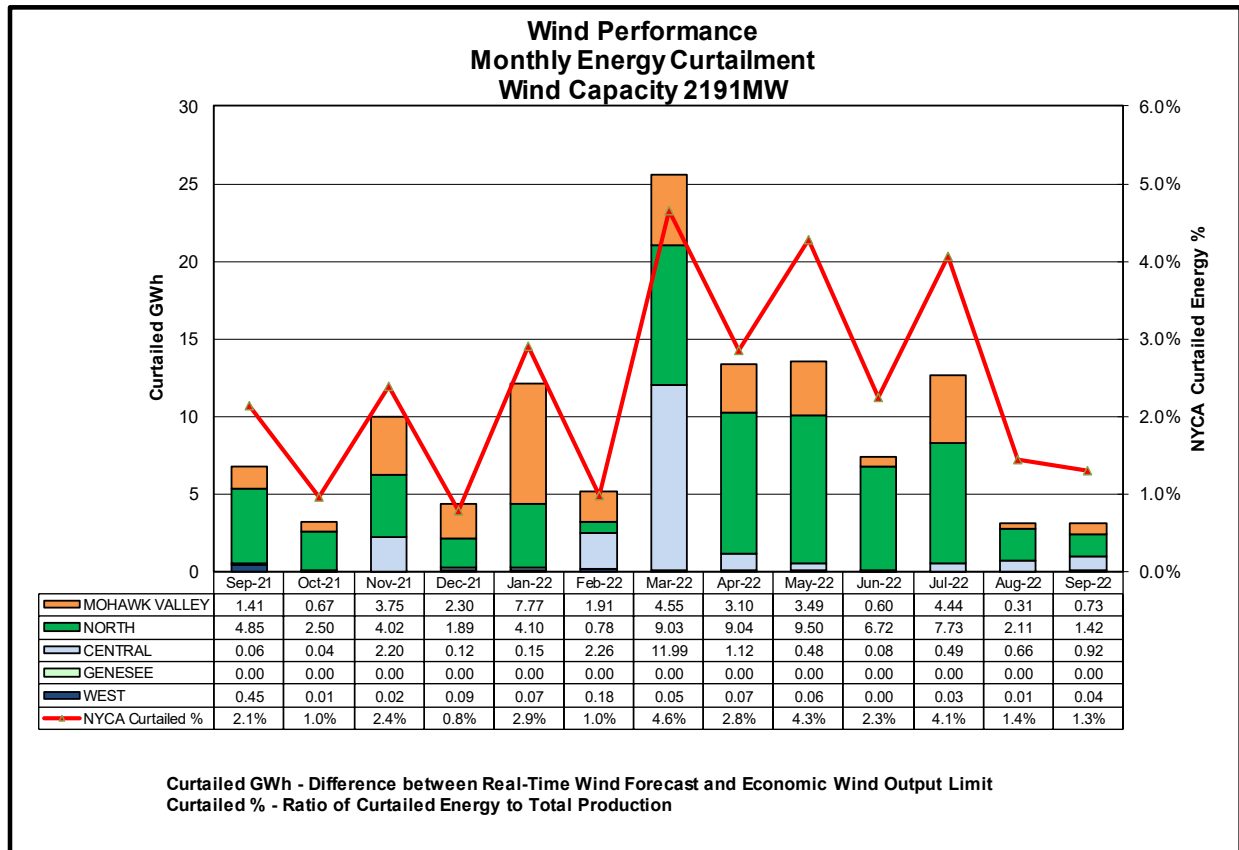
Wind Forecast Performance Hour Ahead Percent Error

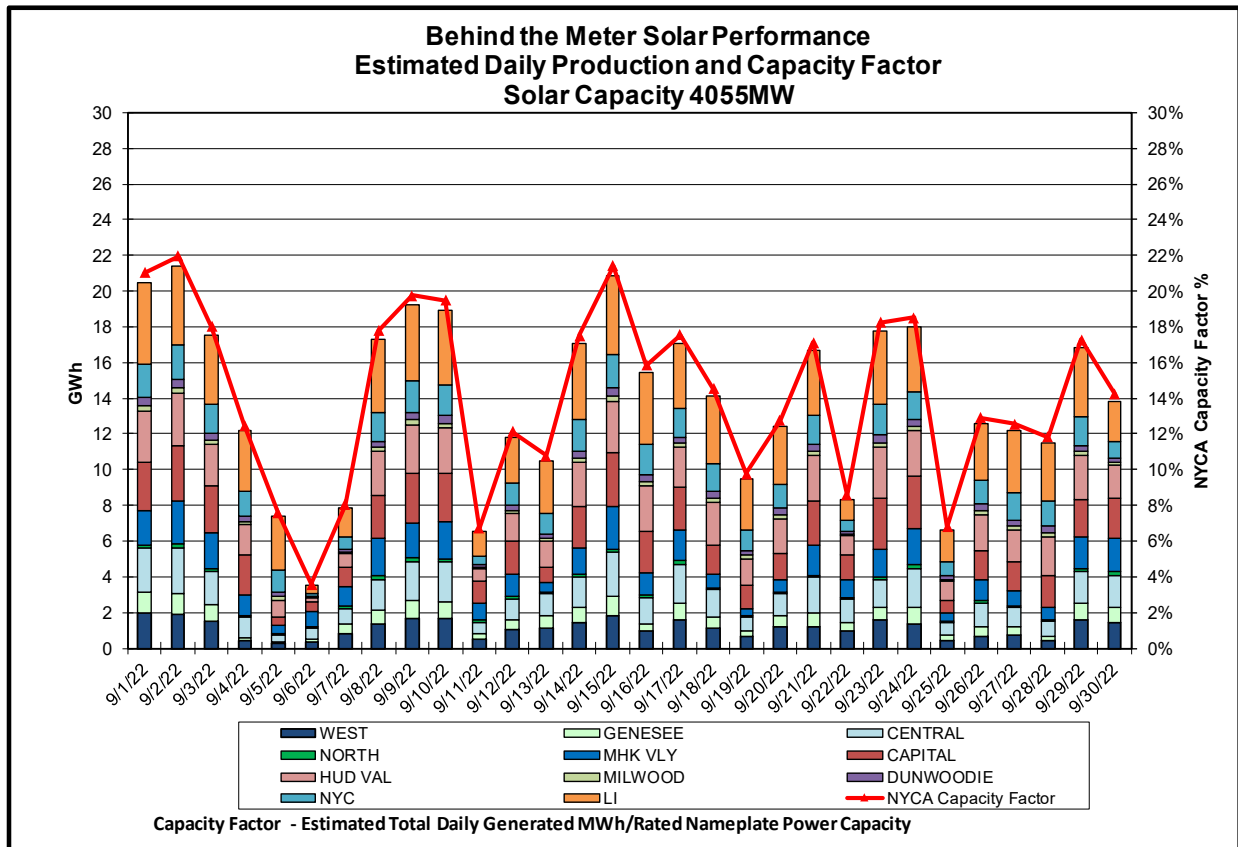
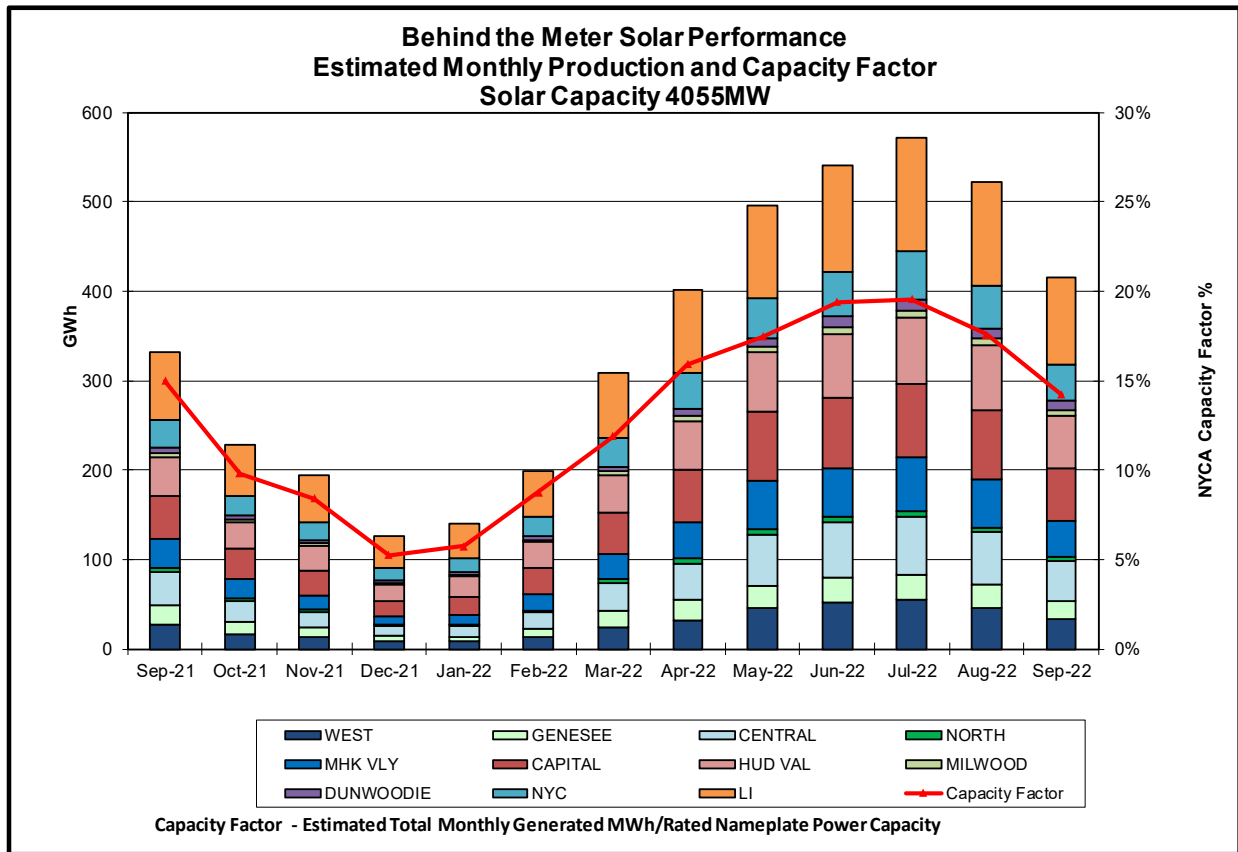


MAE Forecast - Avg |actual wind generation - hour ahead forecast wind generation| / Wind Capacity
MAE Persistence - Avg |actual wind generation - hour ahead actual wind generation| / Wind Capacity
Bias - Avg (actual wind generation - hour ahead forecast wind generation) / Wind Capacity

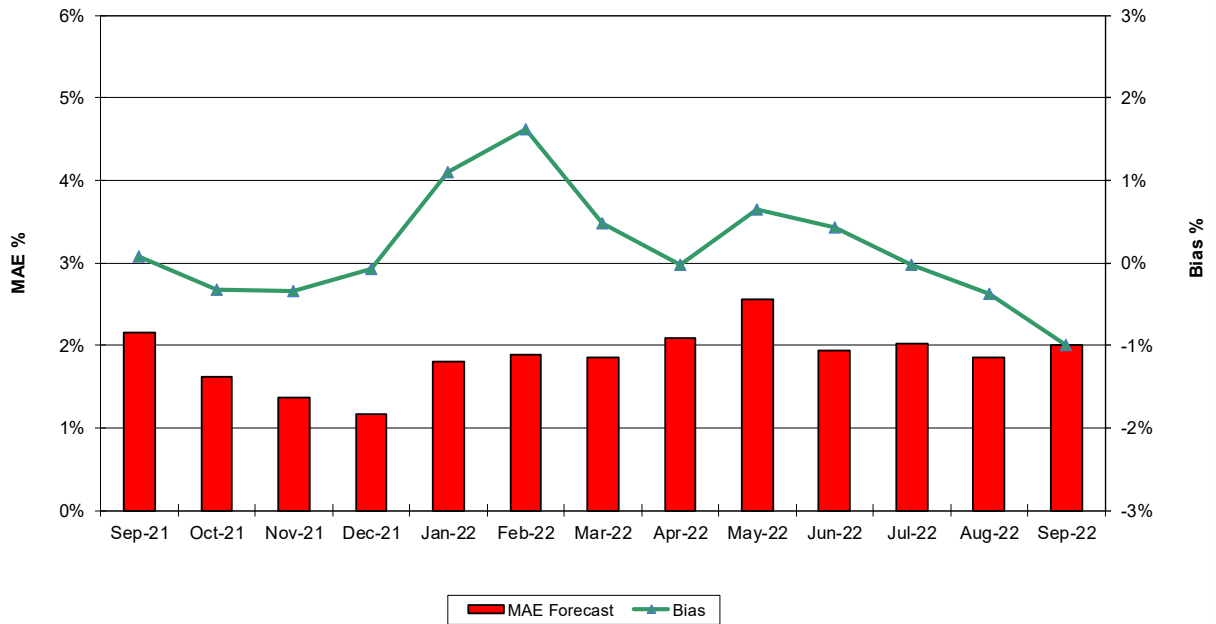






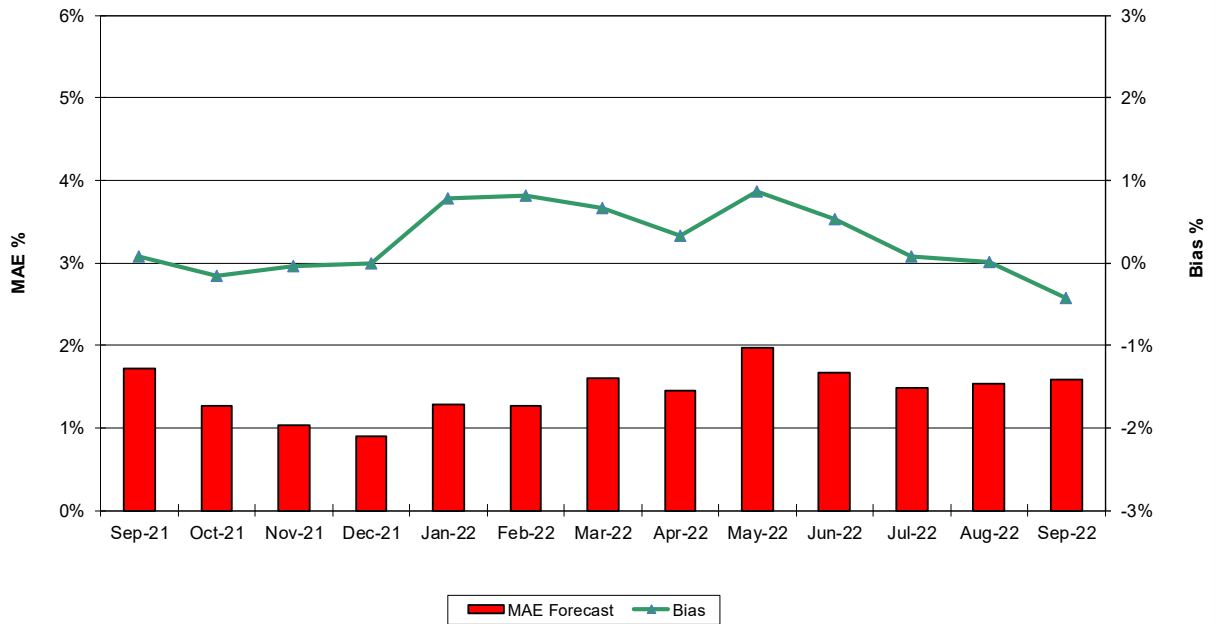


Behind the Meter Solar Forecast Performance Day Ahead Percent Error

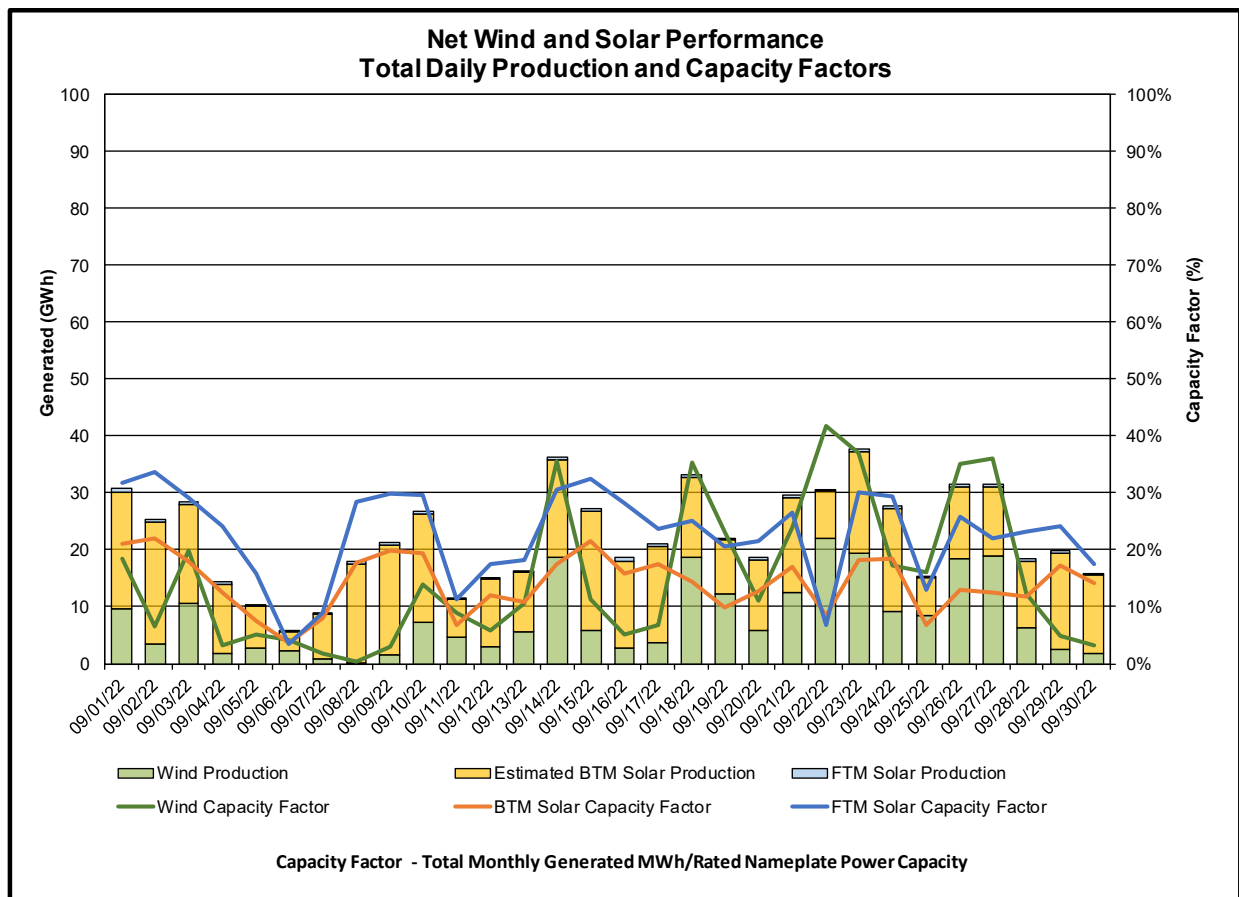
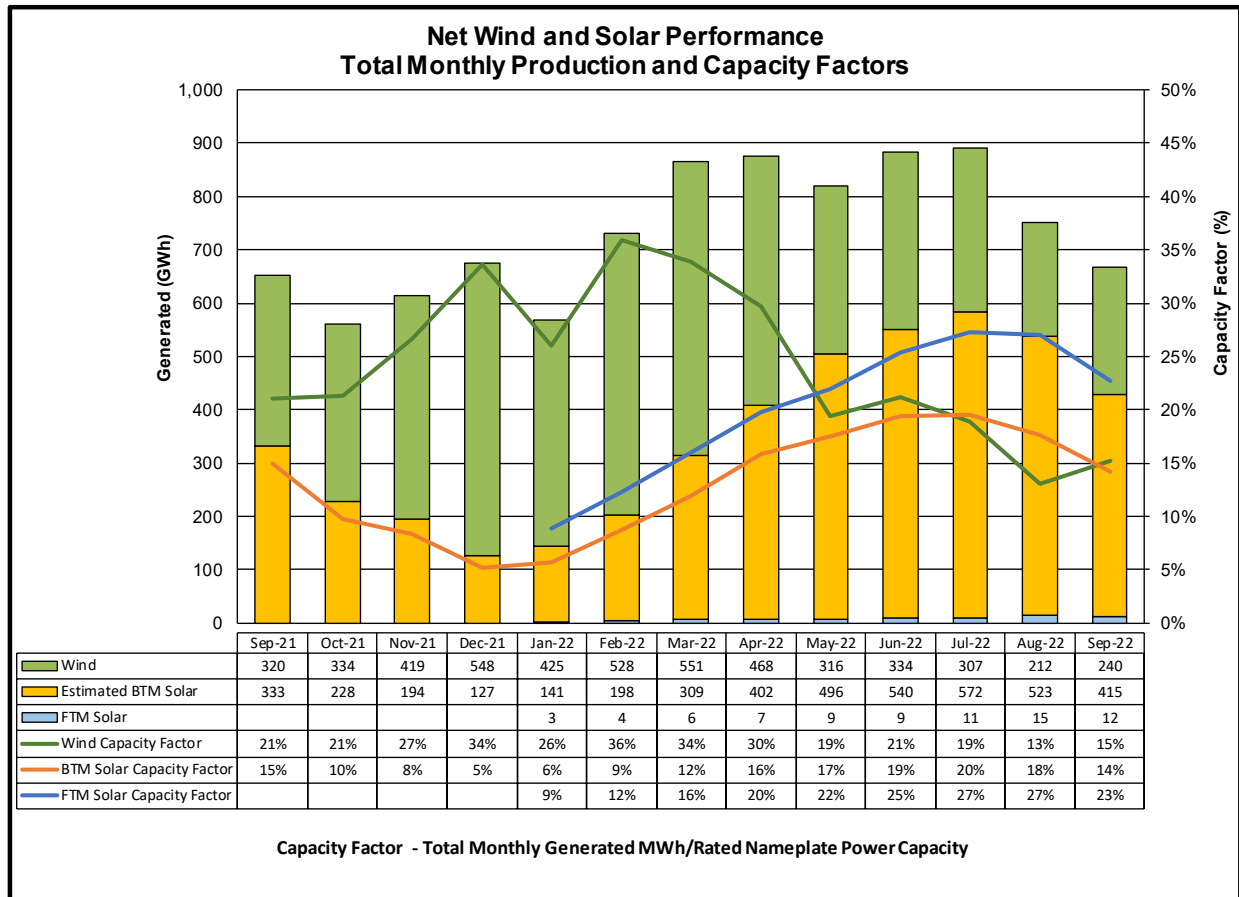


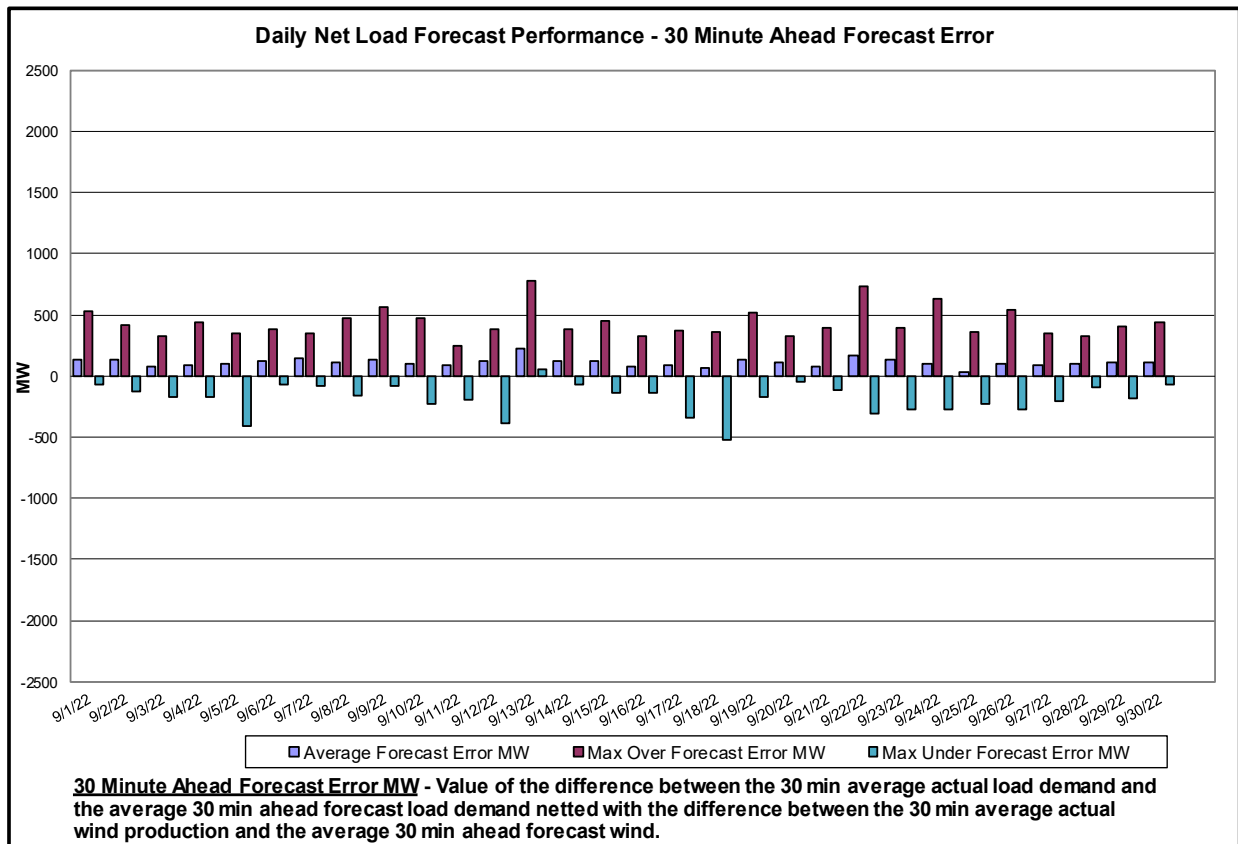
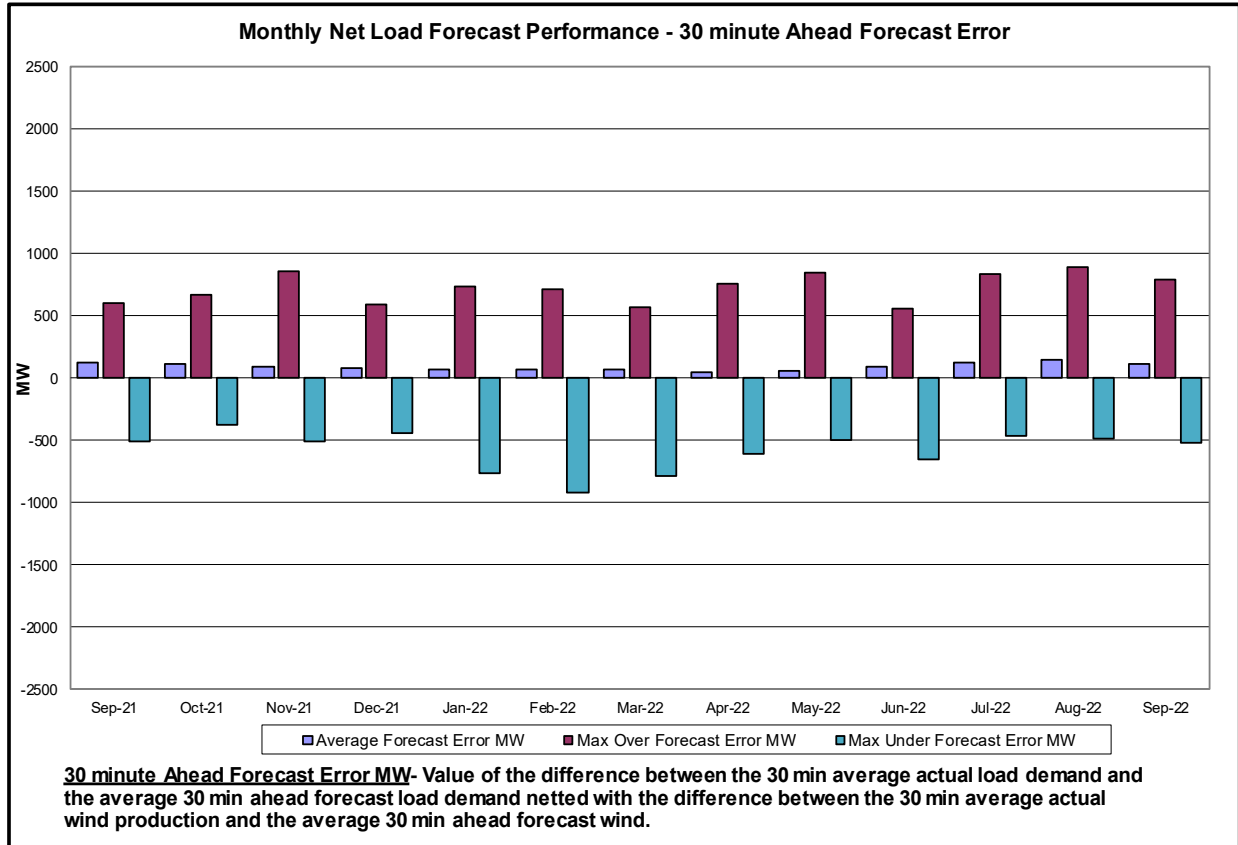
MAE Forecast - Avg |est. actual solar generation - Day Ahead forecast solar generation| / Solar Capacity
Bias - Avg (est. actual solar generation - Day Ahead forecast solar generation) / Solar Capacity

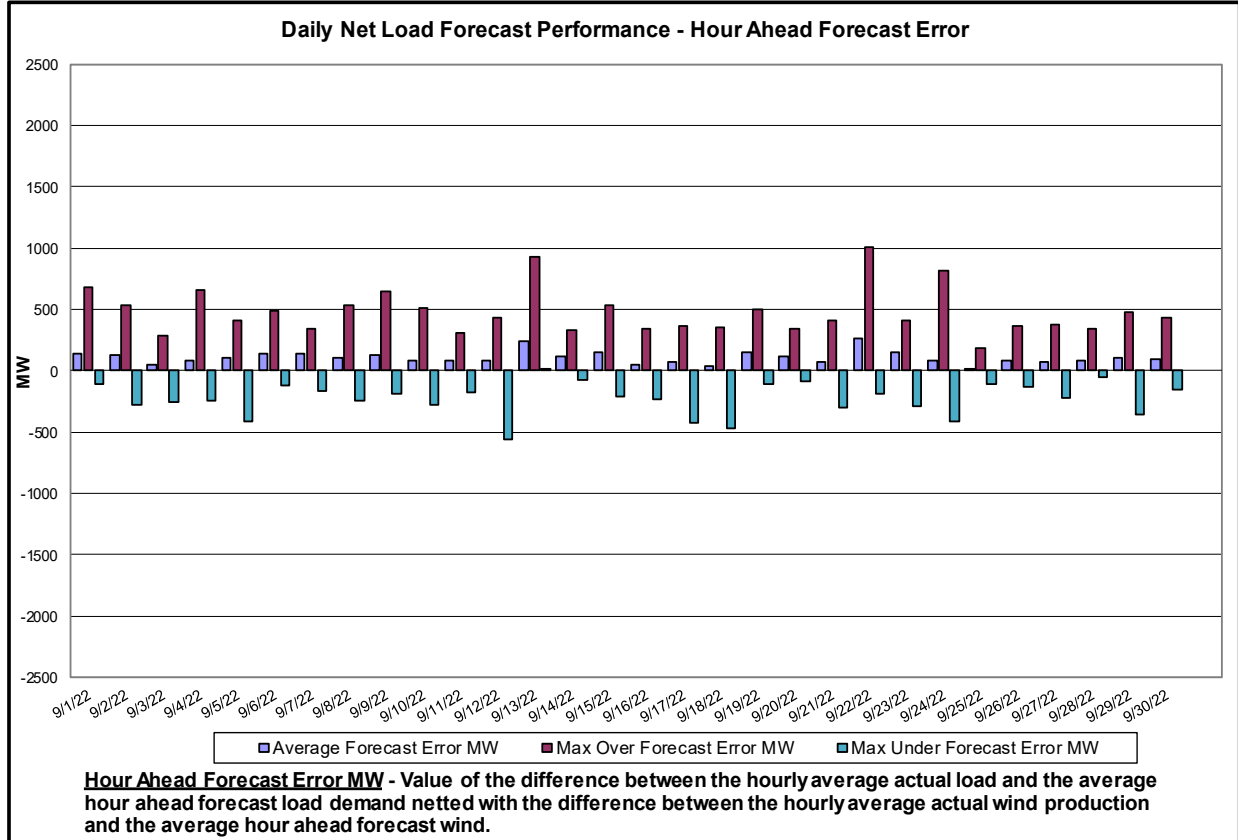
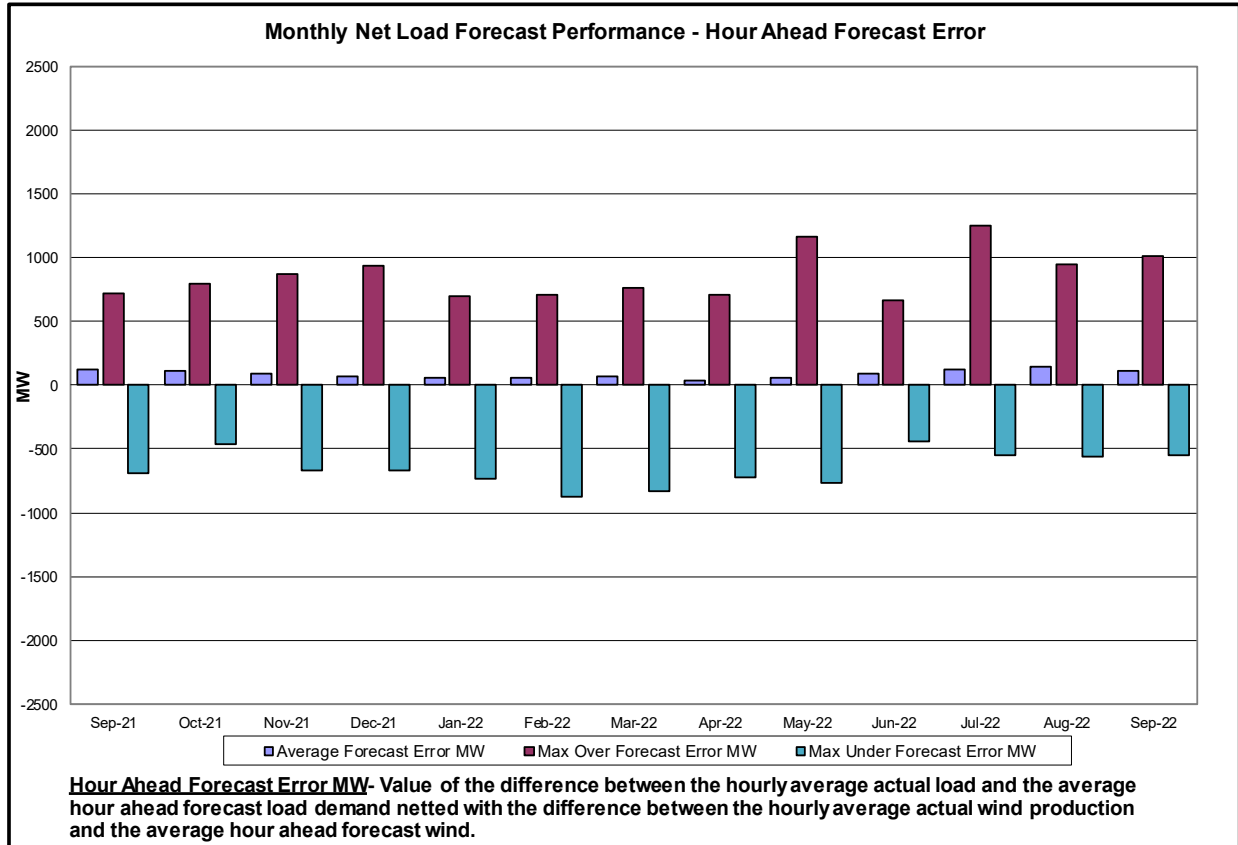
Behind the Meter Solar Forecast Performance Hour Ahead Percent Error

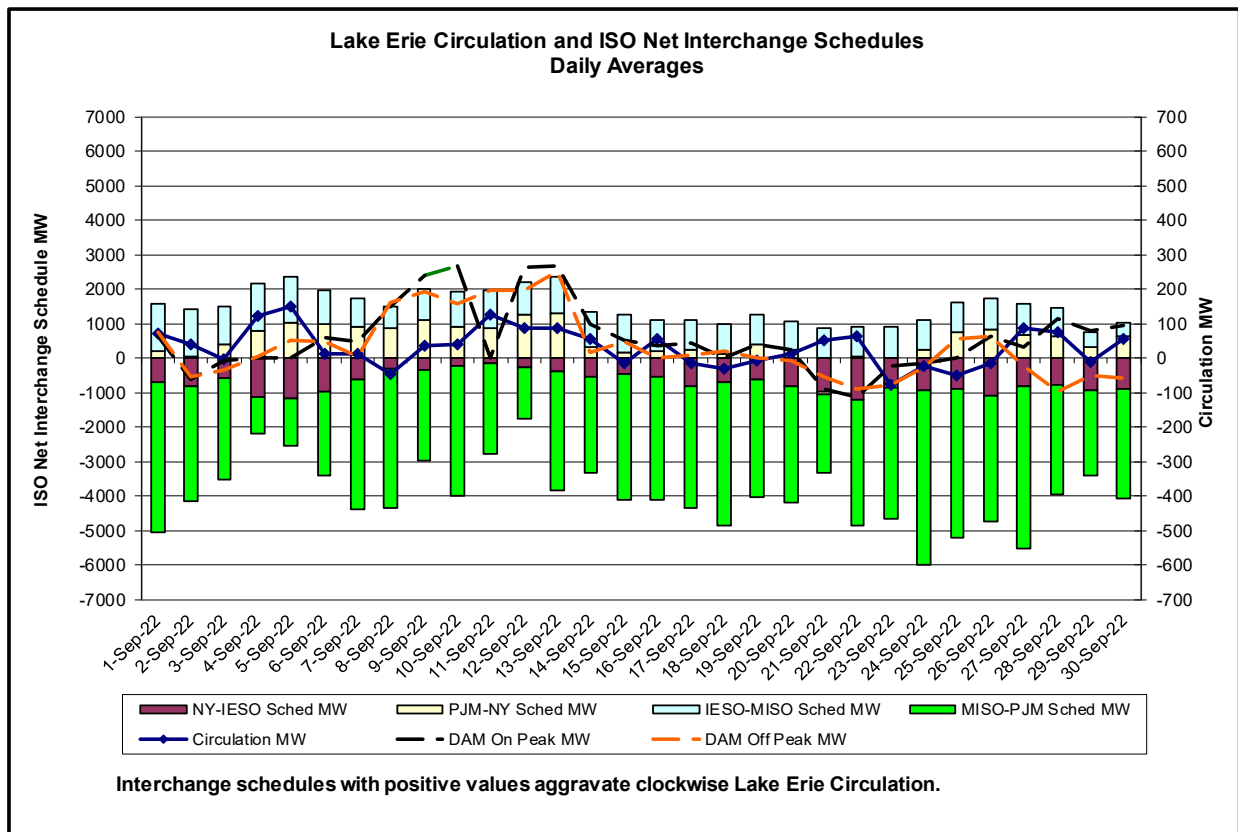
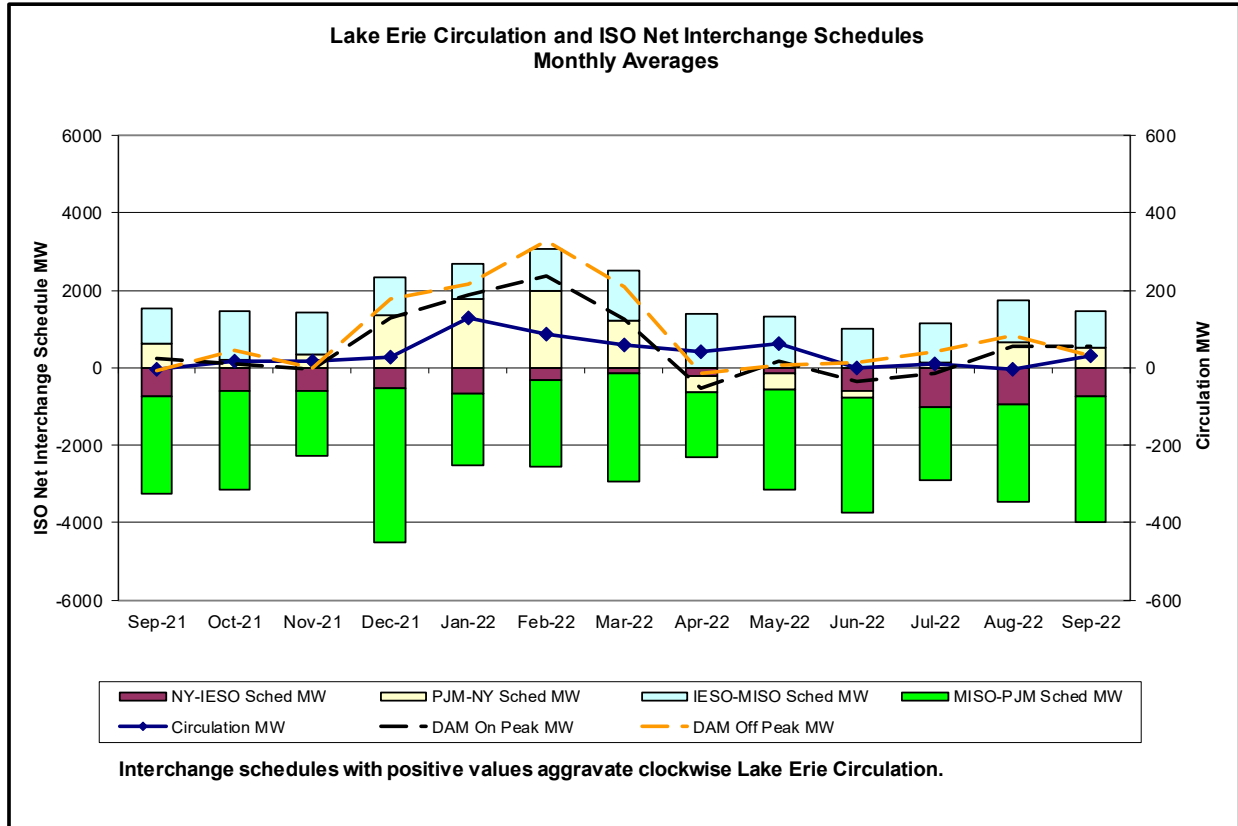


MAE Forecast - Avg |est. actual solar generation - Hour Ahead forecast solar generation| / Solar Capacity
Bias - Avg (est. actual solar generation - Hour Ahead forecast solar generation) / Solar Capacity

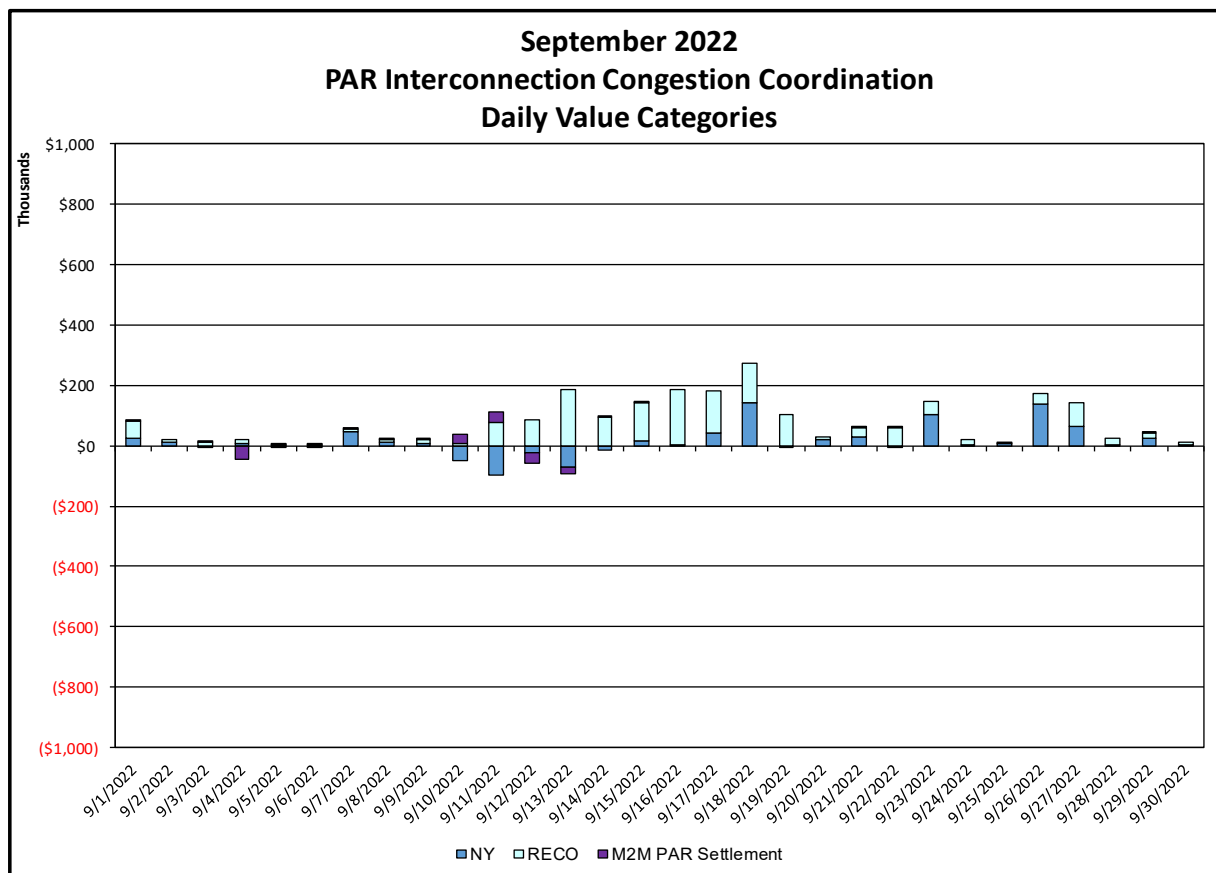
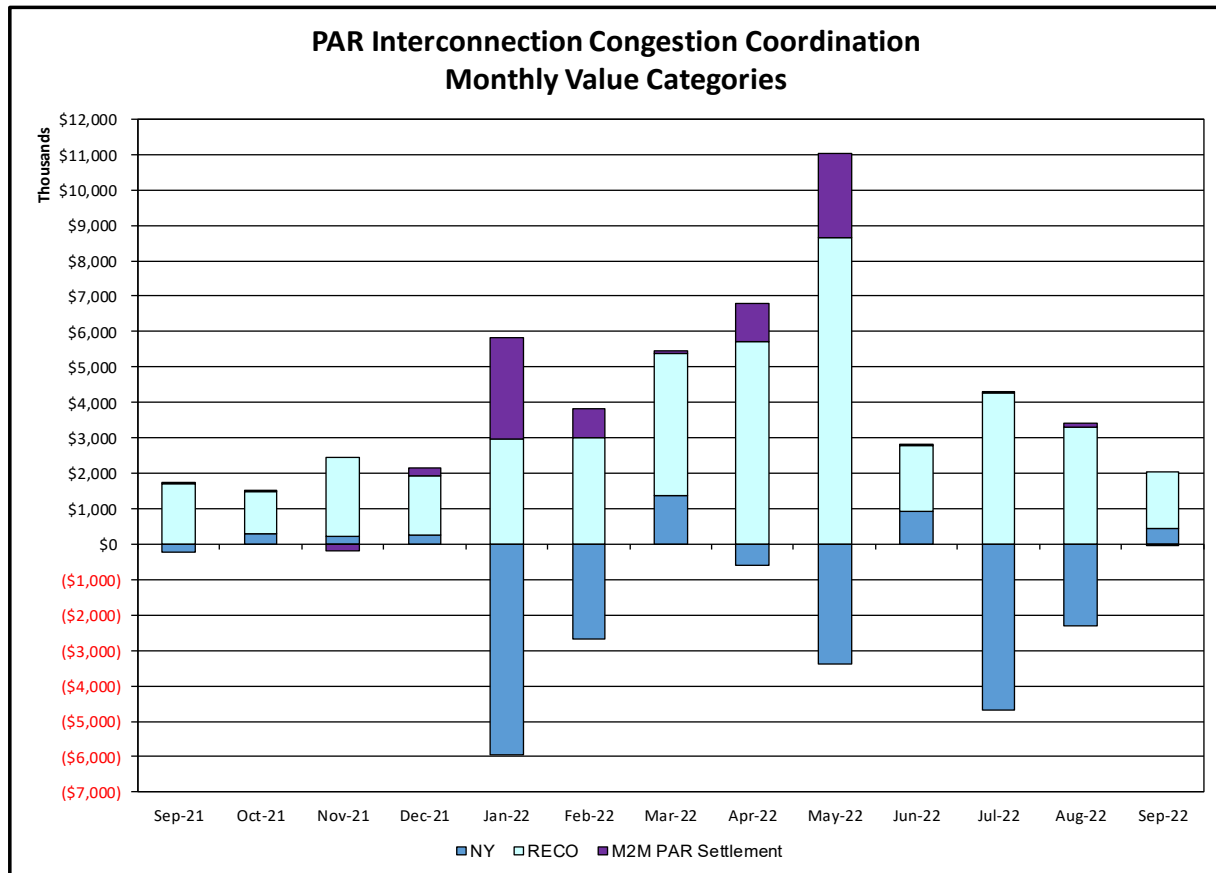




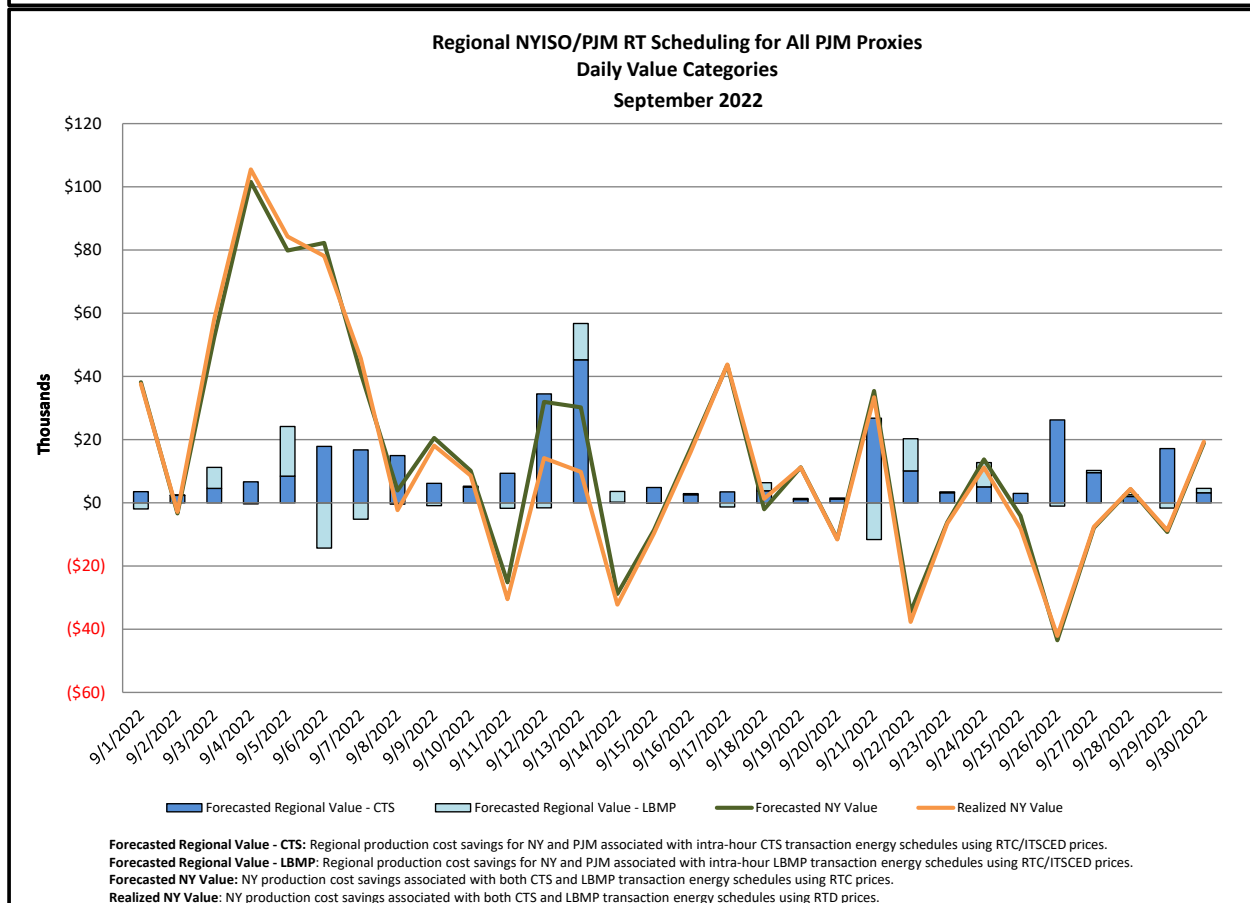
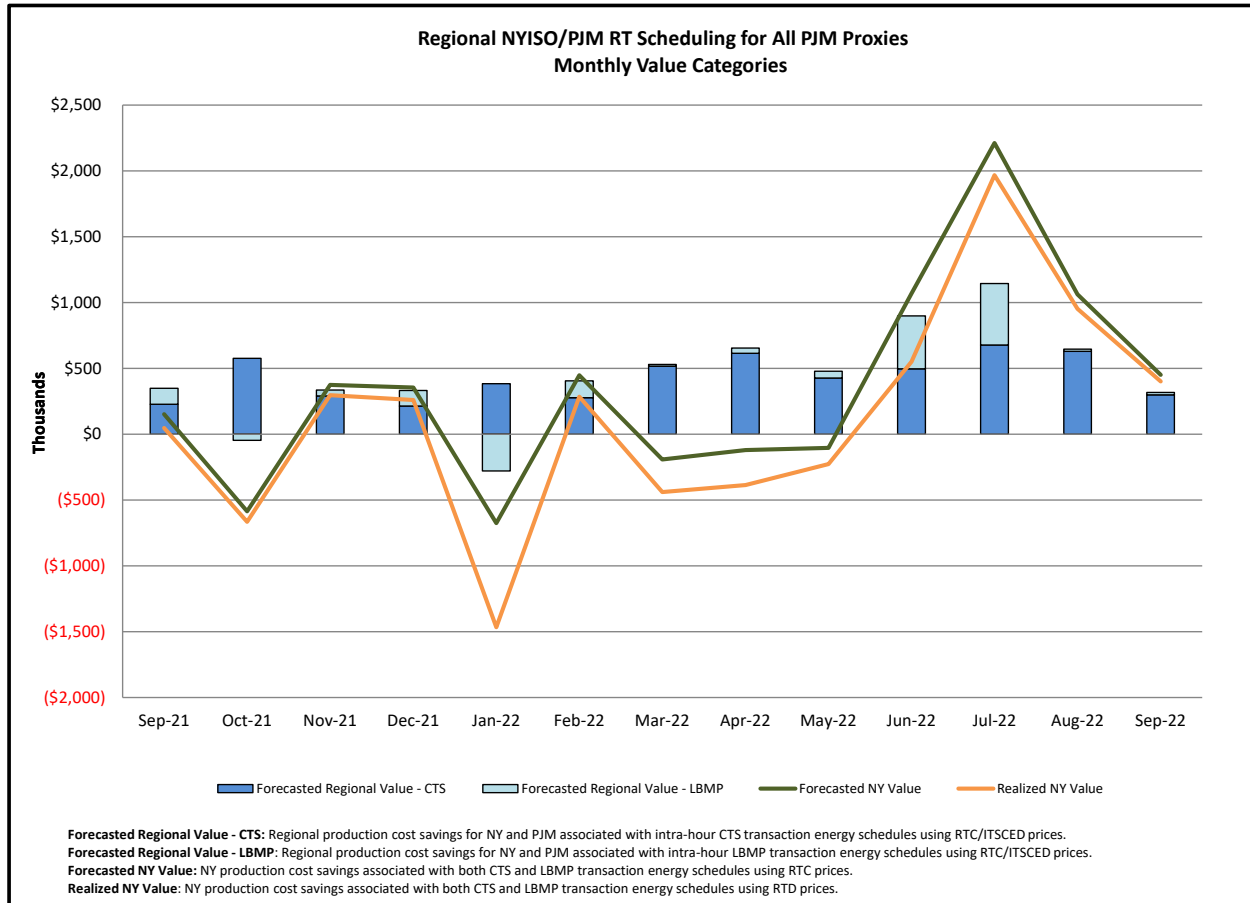


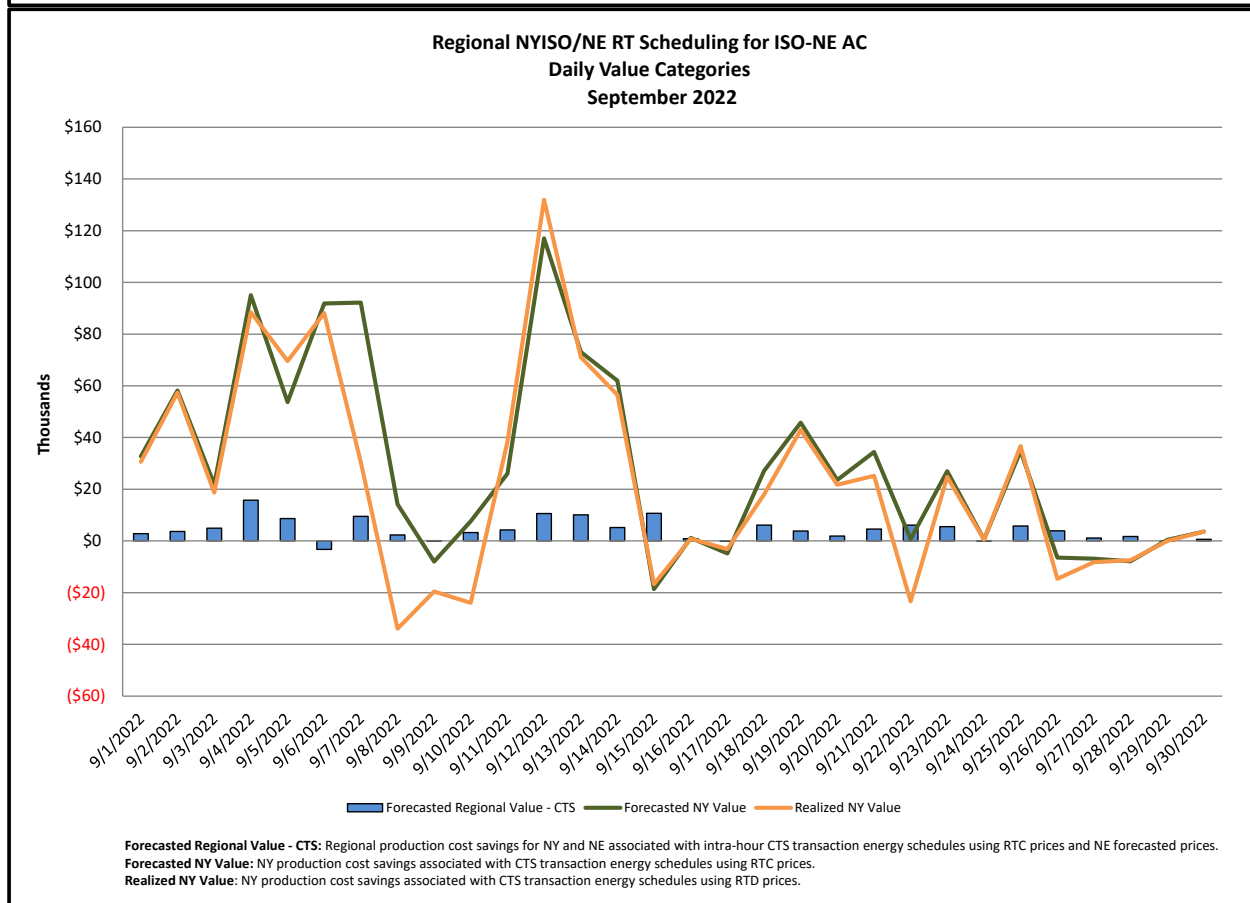
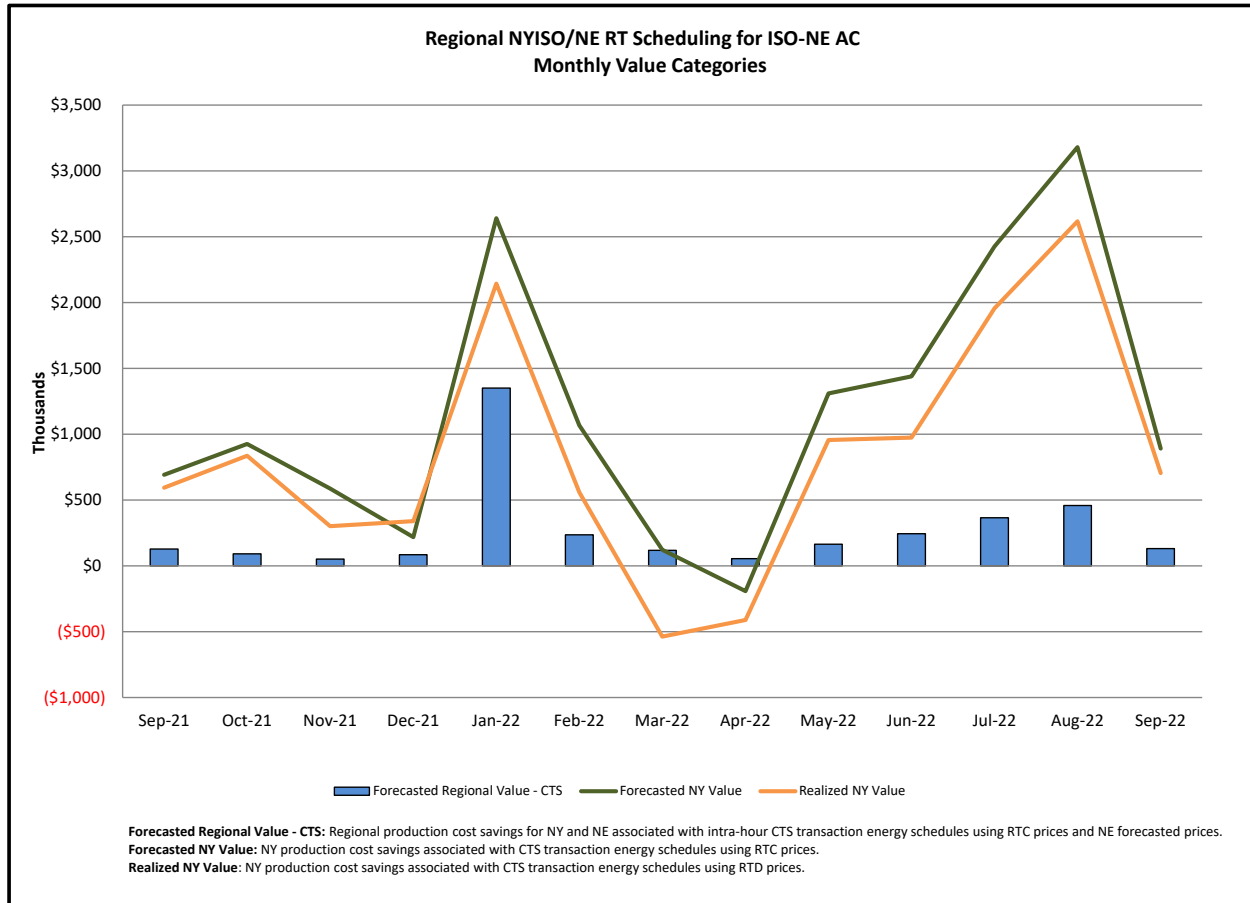


Broader Regional Market Performance Metrics

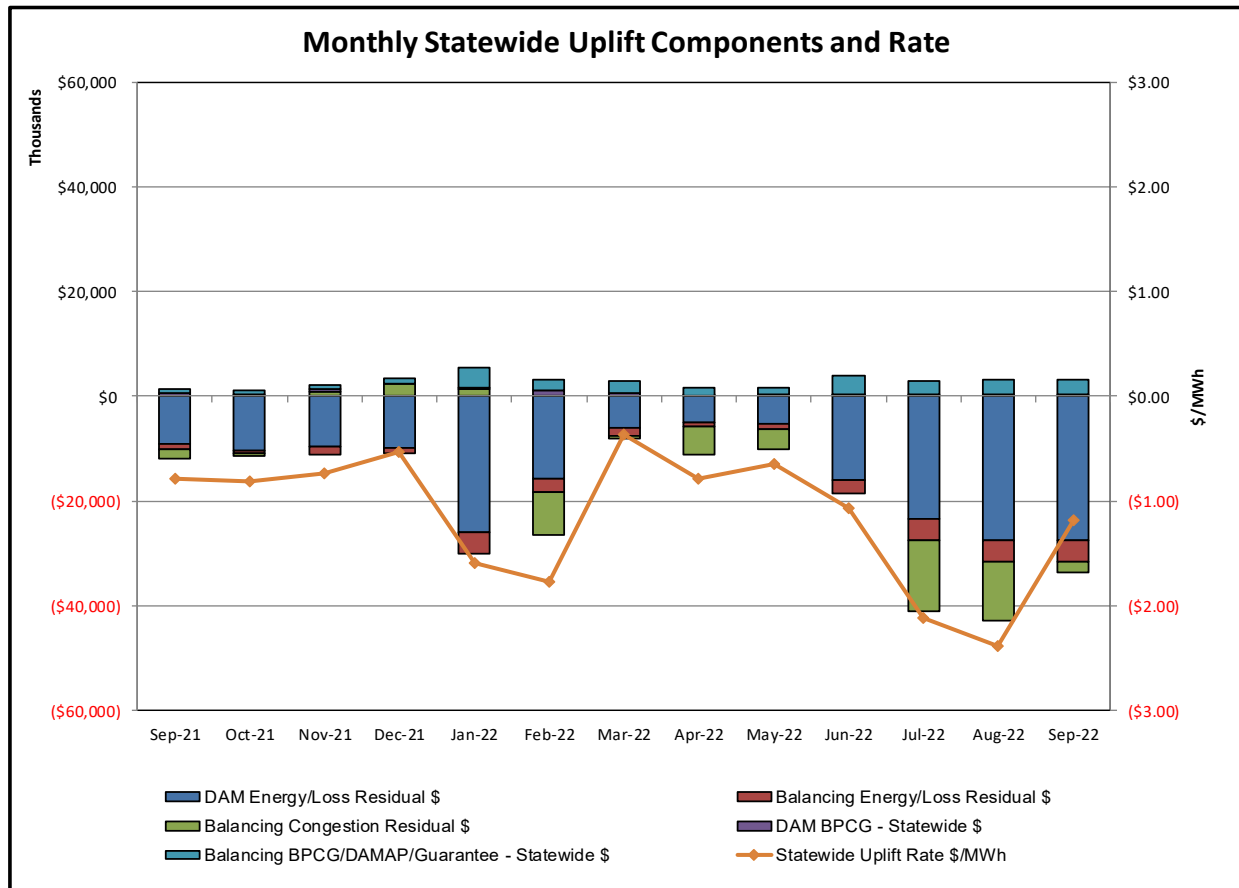


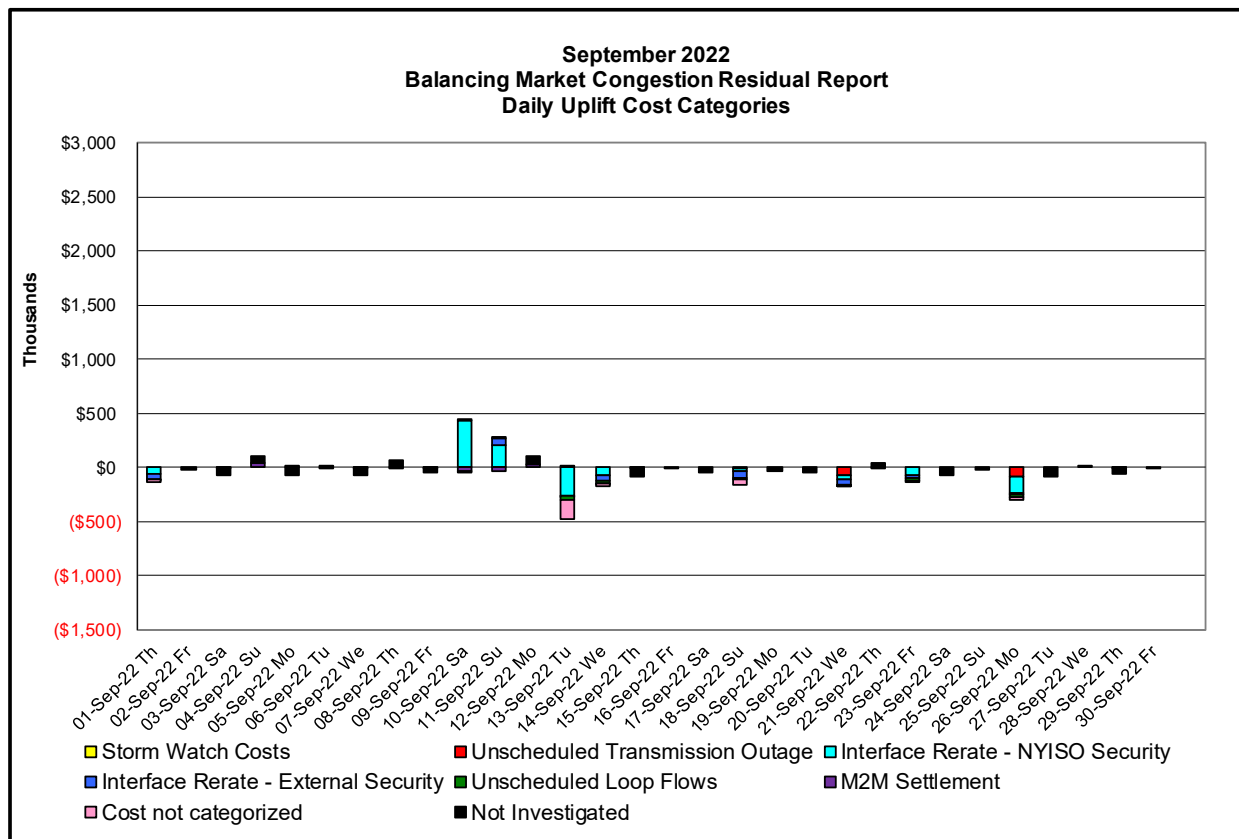
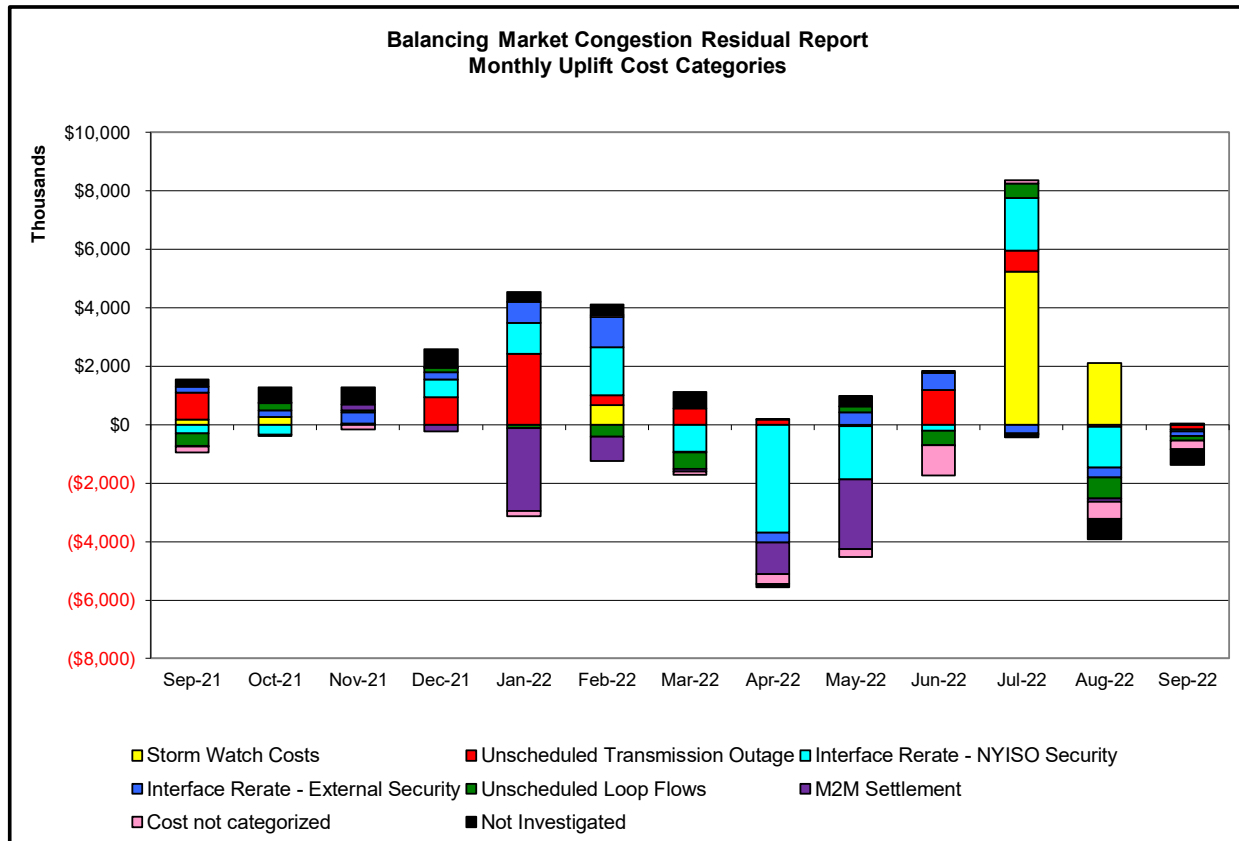
<u>PAR Interconnection Congestion Coordination</u>	
<u>Category</u>	<u>Description</u>
NY	Represents the value NY realizes from Market-to-Market PAR Coordination when experiencing congestion. This is the estimated savings to NY for additional deliveries into NY
RECO	Represents the value of PJM's obligation 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.





Market Performance Metrics

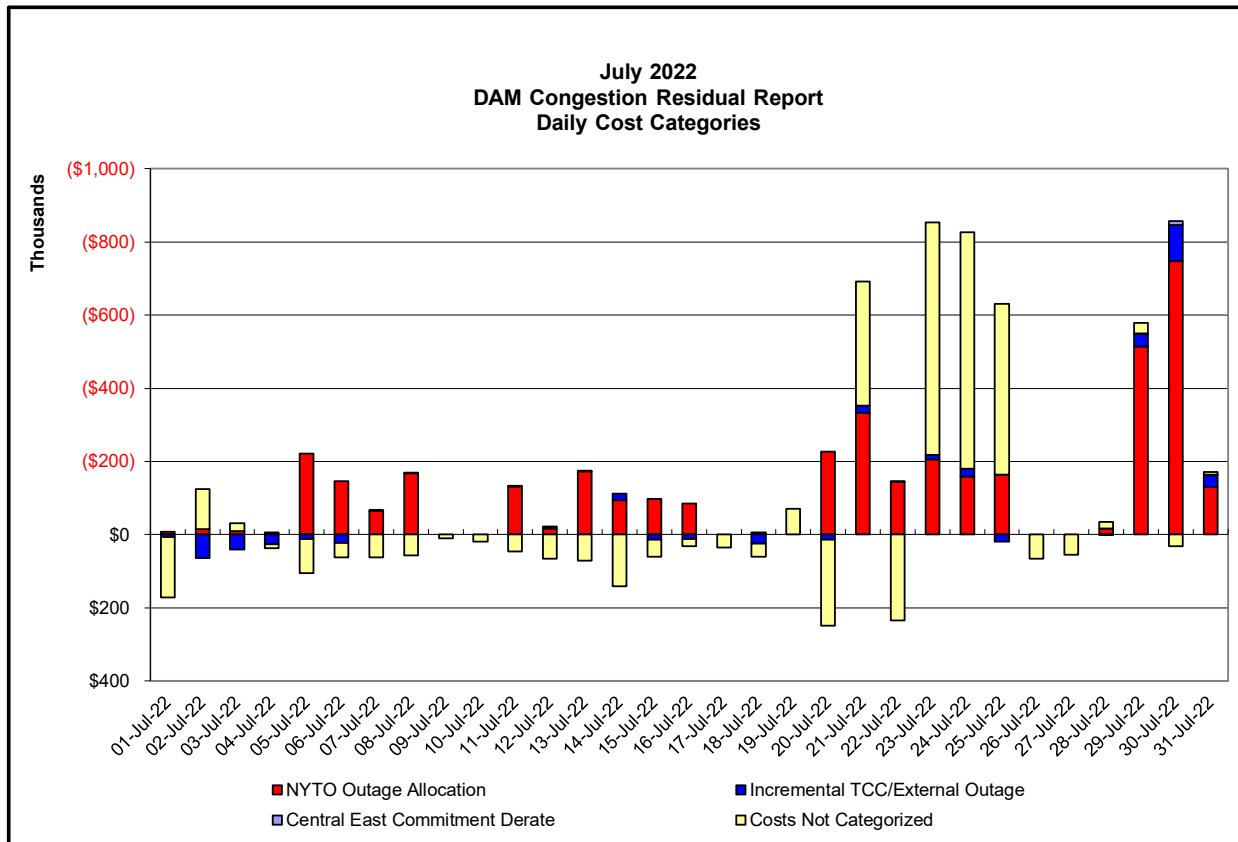
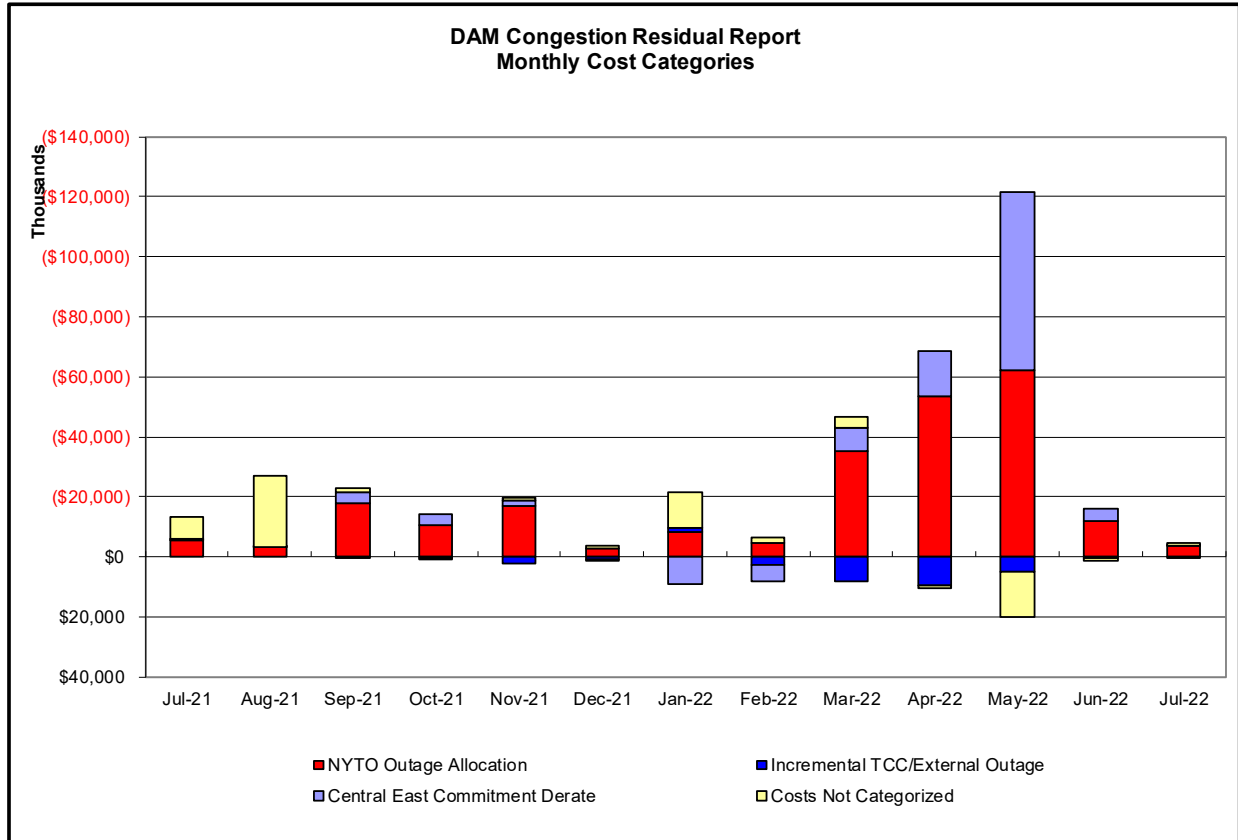




Day's investigated in September: 1,10,11,13,14,18,21,23,26		
Event	Description	September Dates
	Early return-to-service of Coopers Corners-Dolson Ave 345kV (#CCDA42)	21
	Early return-to-service of Fraser-Gilboa 345kV (#GF5-35)	18
	Early return-to-service of Gowanus-Greenwood 138kV (#42231)	26
	Early return-to-service of Vernon-Greenwood 138kV (#31231)	21
	Derate Central East	10,11
	Derate Cricket Valley-Pleasant Valley (#F83) I/o Cricket Valley-Pleasant Valley (#F84)	10,11
	Derate East 13th Sta.-Farragut 345kV (#46) I/o SCB:SPBK(RS5):M51&99941&5S1&S2	13
	Derate Gordon Rd.-Rotterdam 230kV (#31) I/o TWR:CCRT34&DART44&BK114	13
	Derate Gordon Rd.-Rotterdam 230kV (#31) I/o TWR:UCC2-41&EF24-40	18
	NYCA DNI Ramp Limit	11,13,14,21,23
	Uprate Brownfalls-Taylorville 115kV (#3) I/o Brownfalls-Taylorville 115kV (#4)	21
	Uprate Buffalo78-Huntley 115kV (#130) I/o SIN:PACKARD-WALCK RD 129	21,26
	Uprate Central East	11,14,18,23,26
	Uprate Chester-Shoemaker 138kV (#27) I/o SCB:ROCKT(4455)44&TR3&C1&C2	13
	Uprate Chester-Shoemaker 138kV (#27) I/o TWR:RAMAPO 76 & 77 & BK1112	1
	Uprate East 179th St.-Hellgate 138kV (#15055)	1,18,21,23,26
	Uprate Motthaven-Rainey 345kV (#Q12)	23
	Uprate Pleasant Valley-Leeds 345kV (#92) I/o Athens-Pleasant Valley 345kV (#91)	21
	HQ CEDARS-NY Scheduling Limit	10,13
	HQ CHAT-NY Scheduling Limit	13,14,18,21
	IESO AC ACTIVE DNI Ramp Limit	1,13
	NE AC Scheduling Limit	23
	NE_NNC1385-NY Scheduling Limit	18,26
	PJM AC ACTIVE DNI Ramp Limit	11
	Lake Erie Circulation, DAM-RTM exceeds +/-125MW; Central East	13,14,18,21,23,26
	Lake Erie Circulation, DAM-RTM exceeds +/-125MW; West	18,26

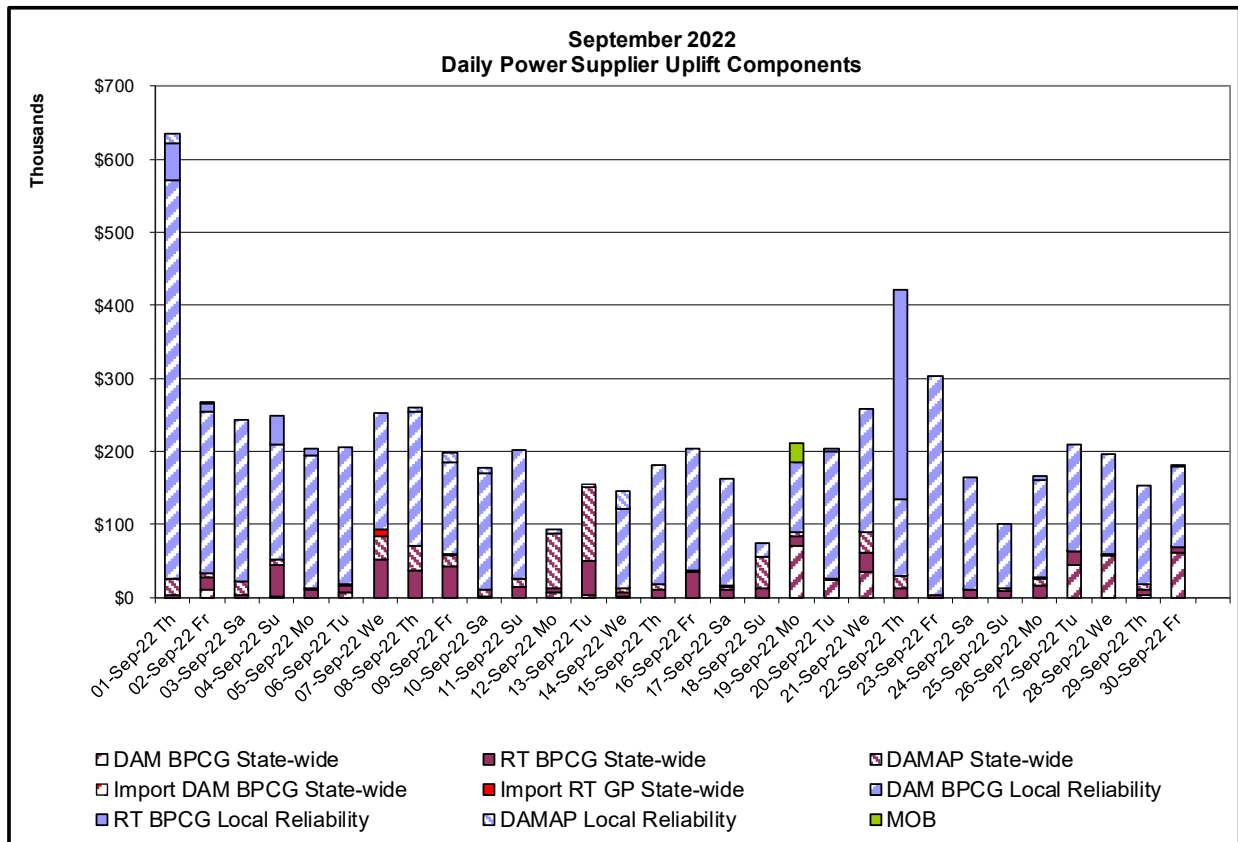
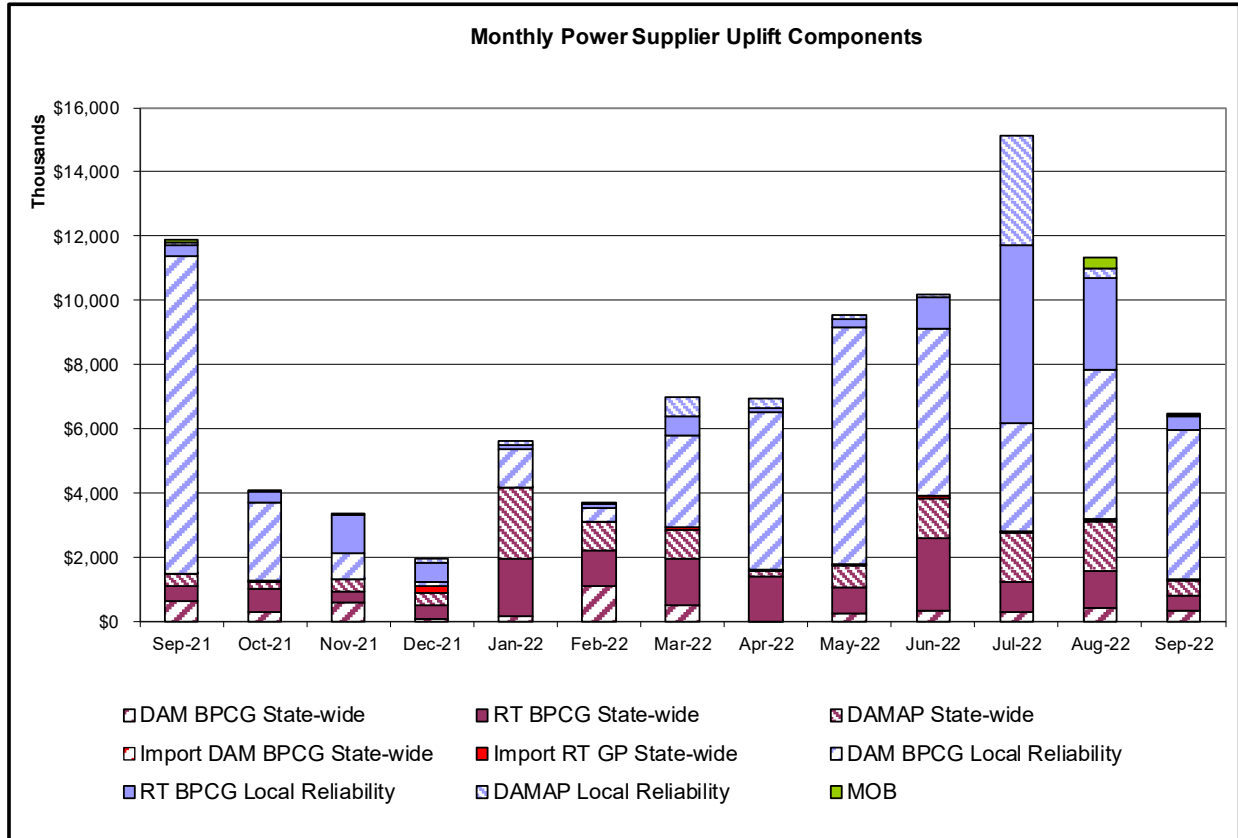
Real-Time Balancing Market Congestion Residual (Uplift Cost) Categories

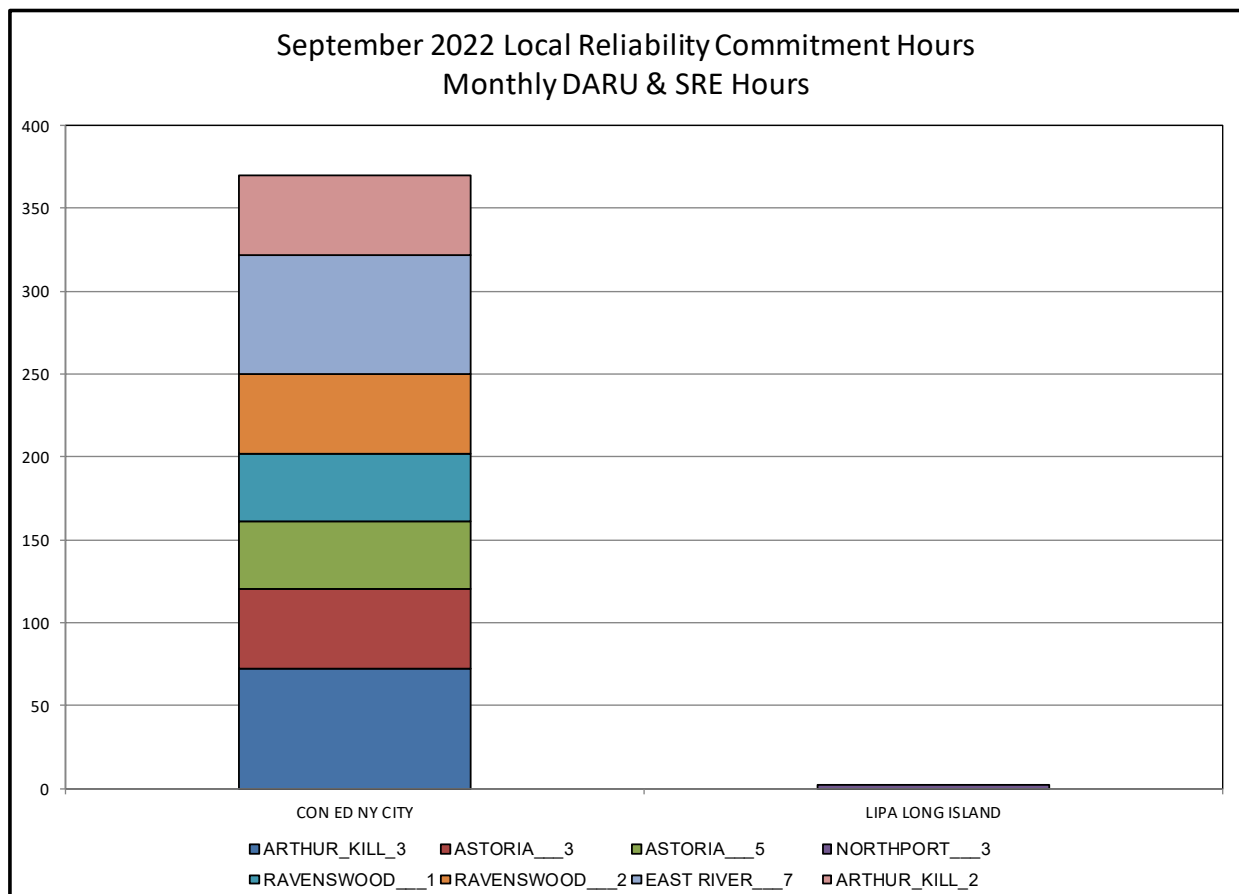
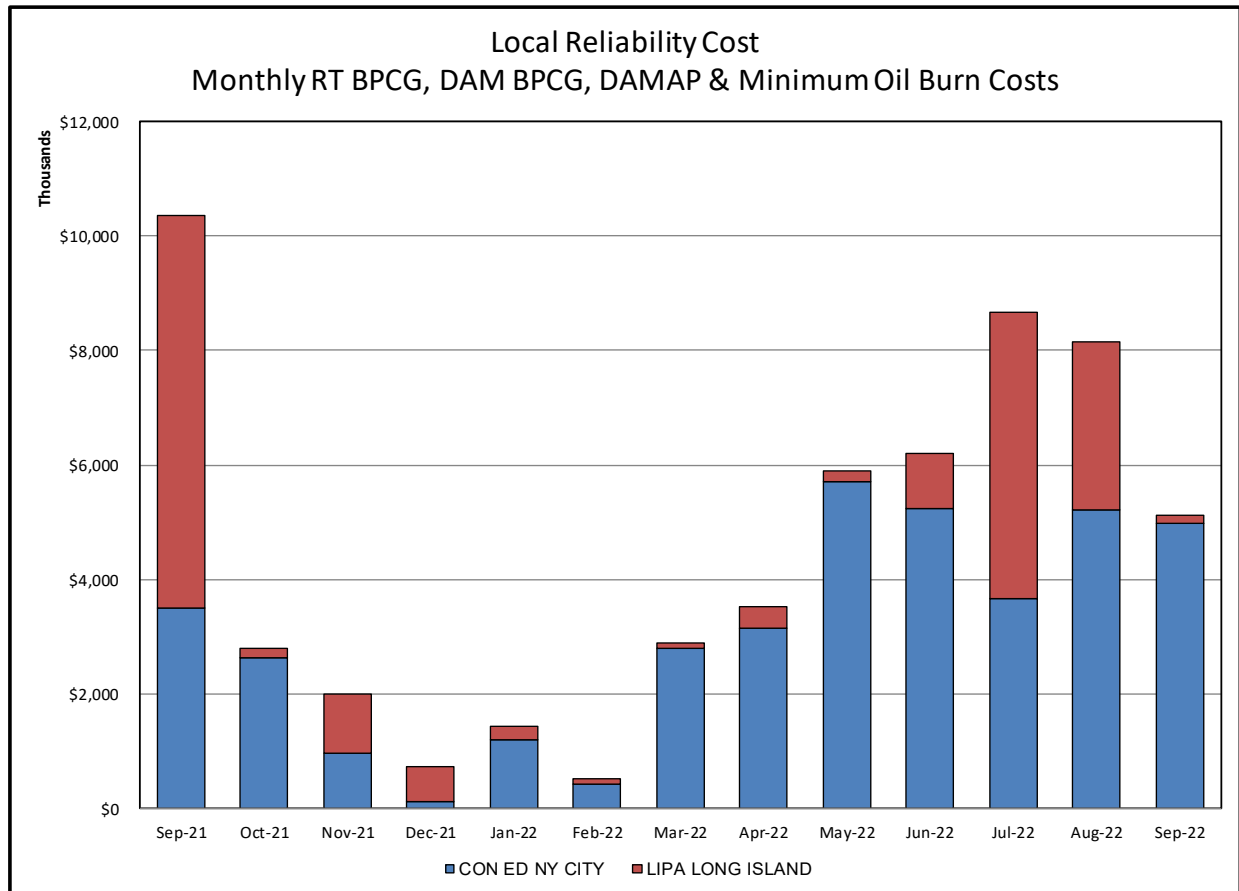
Category	Cost Assignment	Events Types	Event Examples
Storm Watch	Zone J	Thunderstorm Alert (TSA)	TSA Activations
Transmission Outage Mismatch	Market-wide	Changes in DAM to RTM transfers related to transmission outage mismatch	Forced Line Outage, Unit AVR Outages, Early Line Return from Outage
Interface/Facility 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			

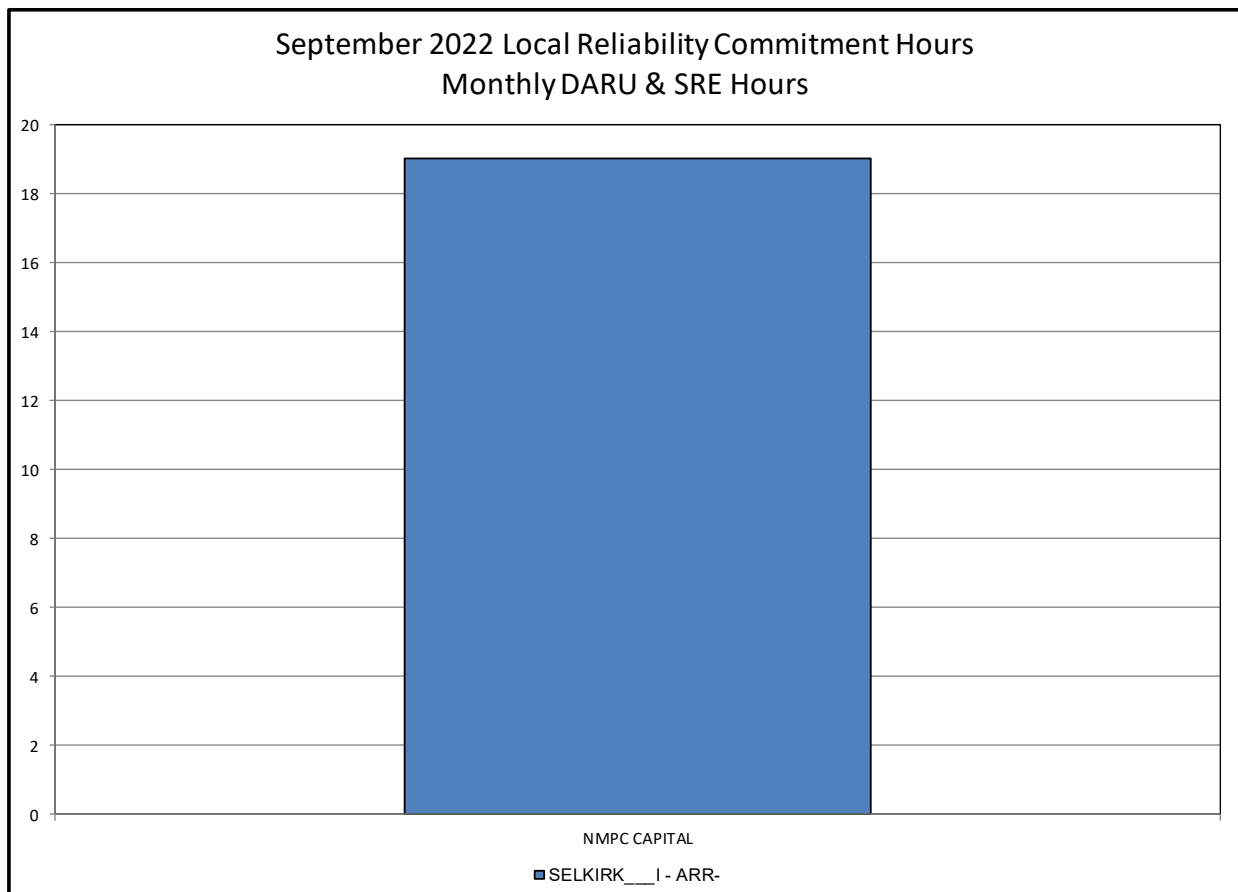
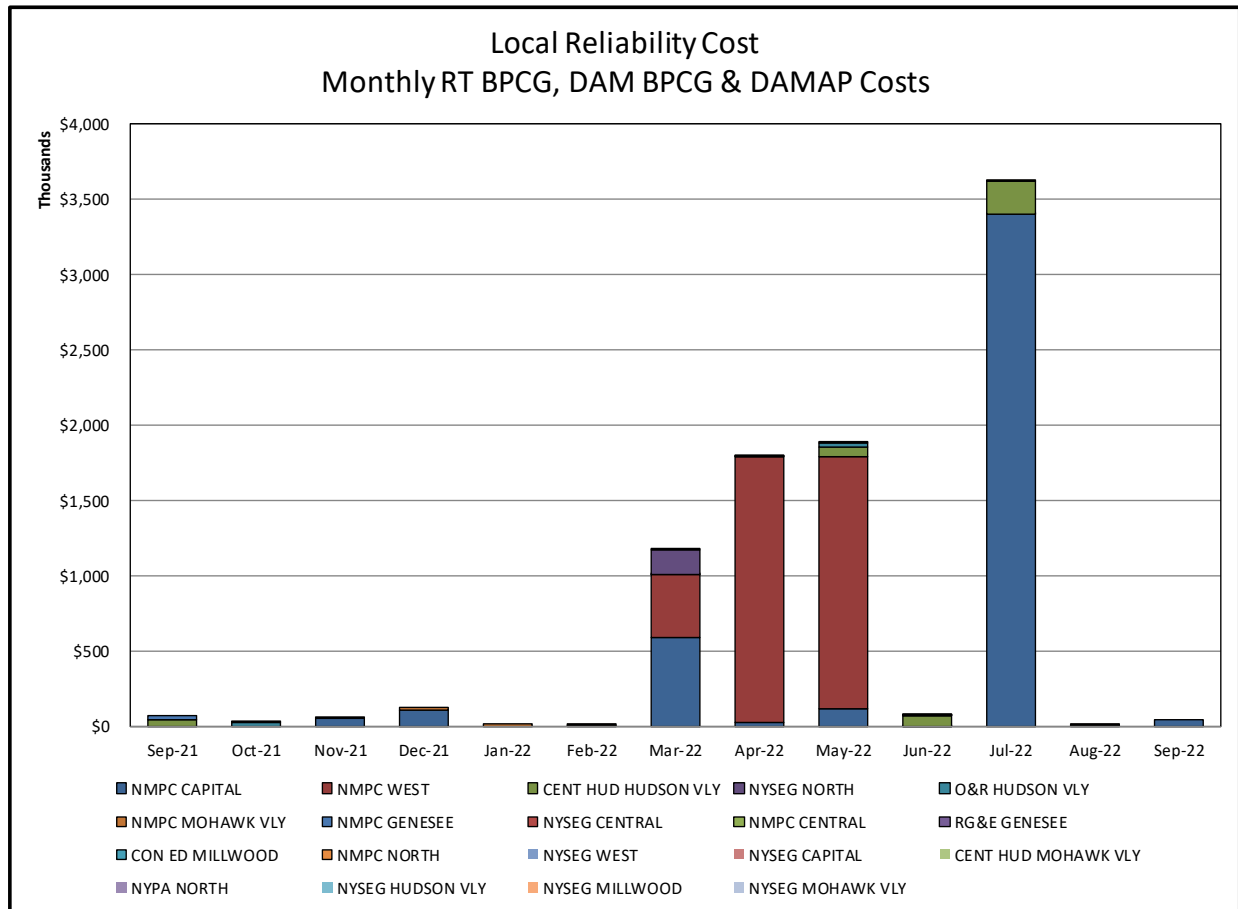


Day-Ahead Market Congestion Residual Categories

<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.
Incremental TCC/External Outage Impacts	All TO by Monthly Allocation Factor	Allocation associated with transmission equipment status change caused by change in status of external equipment or change in status of equipment associated with Incremental TCC.	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.	

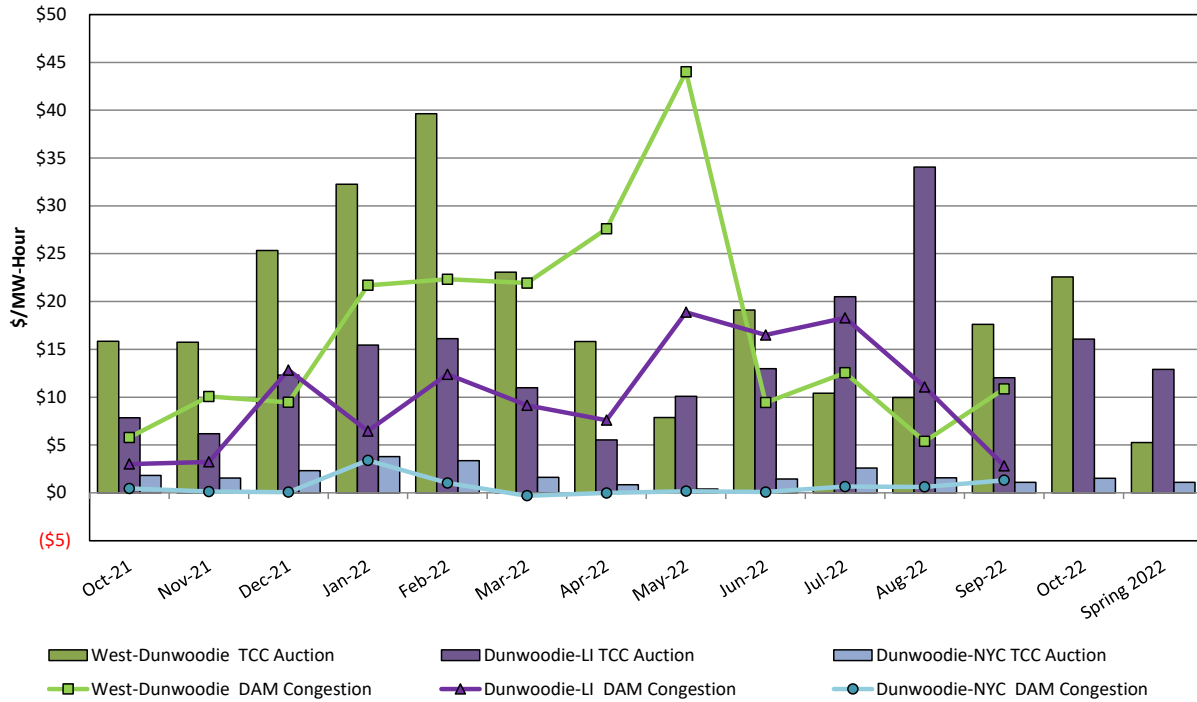






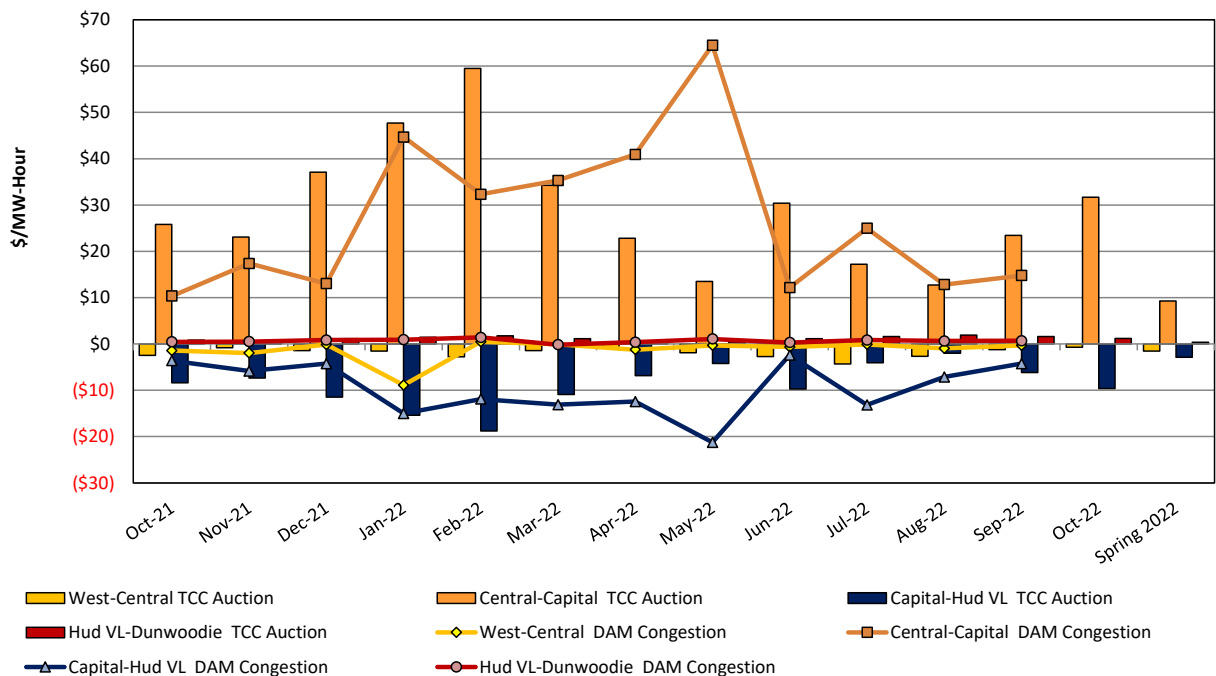
TCC & Day Ahead Market Selected Internal Path Congestion

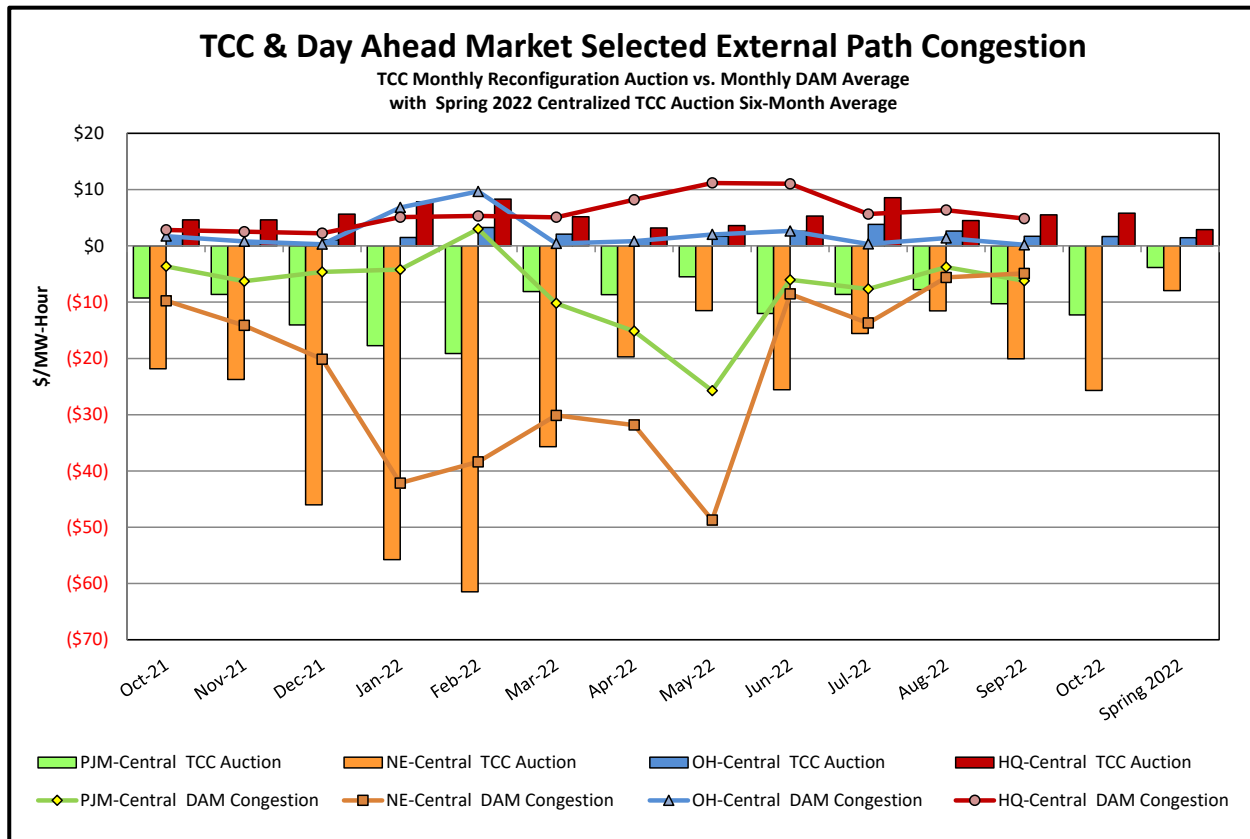
TCC Monthly Reconfiguration Auction vs. Monthly DAM Average
with Spring 2022 Centralized TCC Auction Six-Month Average



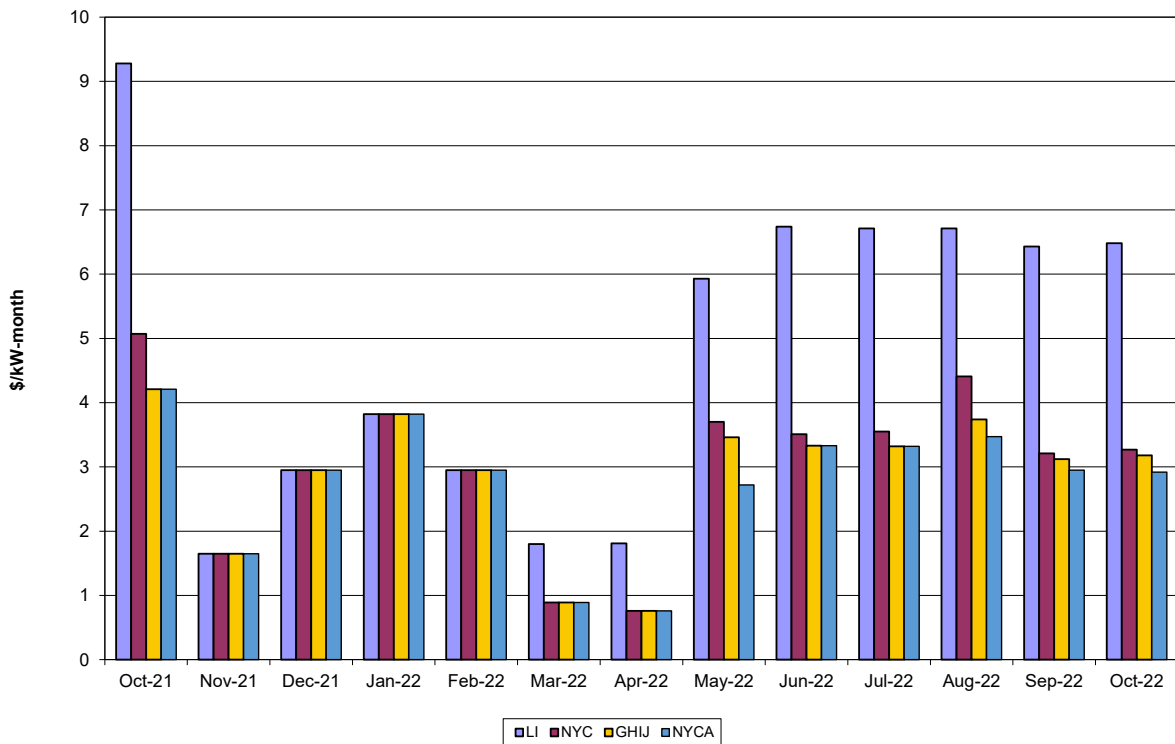
TCC & Day Ahead Market West to Dunwoodie Path Congestion

TCC Monthly Reconfiguration Auction vs. Monthly DAM Average
with Spring 2022 Centralized TCC Auction Six-Month Average





ICAP Spot Market Clearing Price



UCAP Sales

