

Operations Performance Metrics Monthly Report



June 2023 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 July 11, 2023.

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June 2023 Operations Performance Highlights

Monthly Peak Load	Monthly Minimum Load	Summer 2023 Peak	All-time Summer Peak
06/02/2023 HB 16 22,867 MW	06/04/2023 HB 05 11,999 MW	06/02/2023 HB 16 22,867 MW	07/19/2013 HB 16 33,956 MW

- 22.9 hours of Thunderstorm Alerts were declared
- 0.0 hours of NERC TLR level 3 curtailment
- VanWagner-Pleasant Valley 345kV (#Y58) and VanWagner-Pleasant Valley 345kV (#Y59) transmission facilities associated with AC Transmission Public Policy Segment B were placed in-service on 06/06/2023 and 06/22/2023 respectively.
- Effective 06/01/2023, the NYISO implemented updated regulation requirements and updated the web posting detailing the [regulation requirements](#).

Installed Wind, Solar and Energy Storage Resource Nameplate Values:

Land-Based Wind	Behind-the-Meter Solar	Front-of-the-Meter Solar	Energy Storage Resource (ESR)
2,521 MW	4,695 MW	154 MW	40 MW

Estimated production cost savings associated with the Broader Regional Market initiatives:

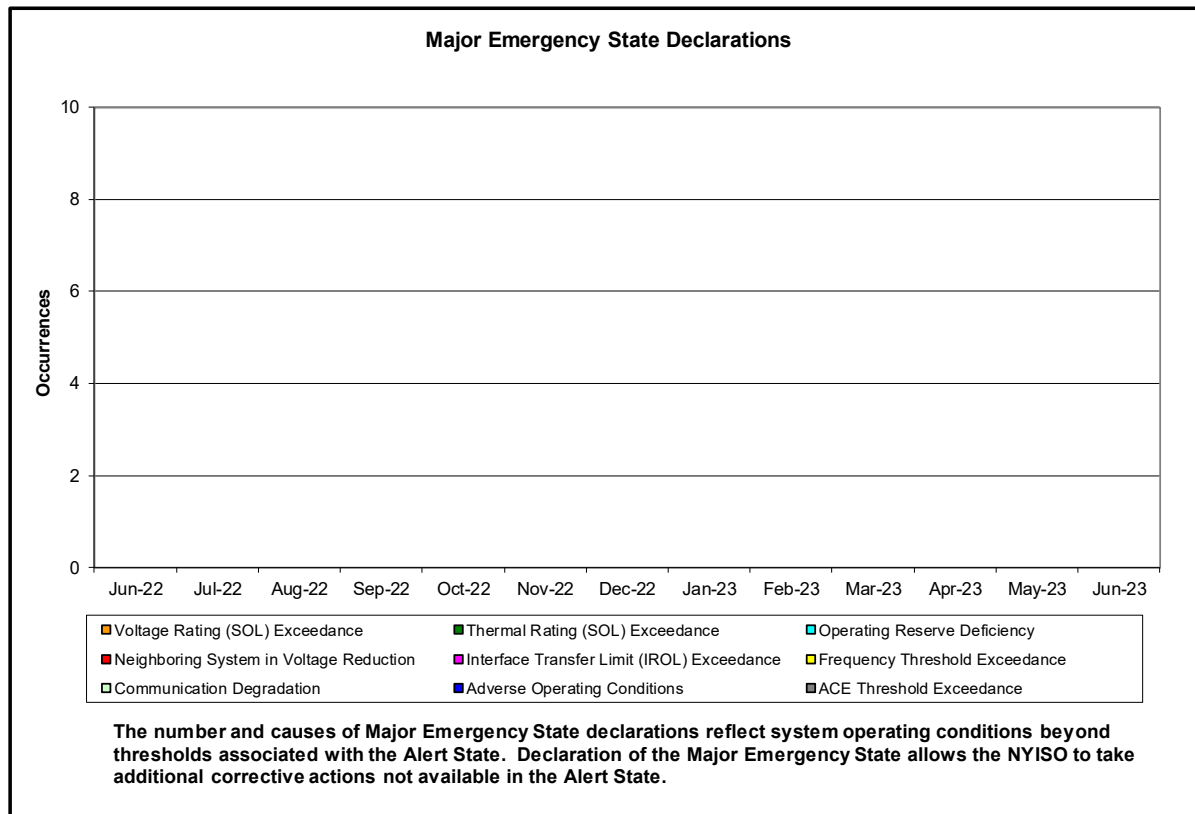
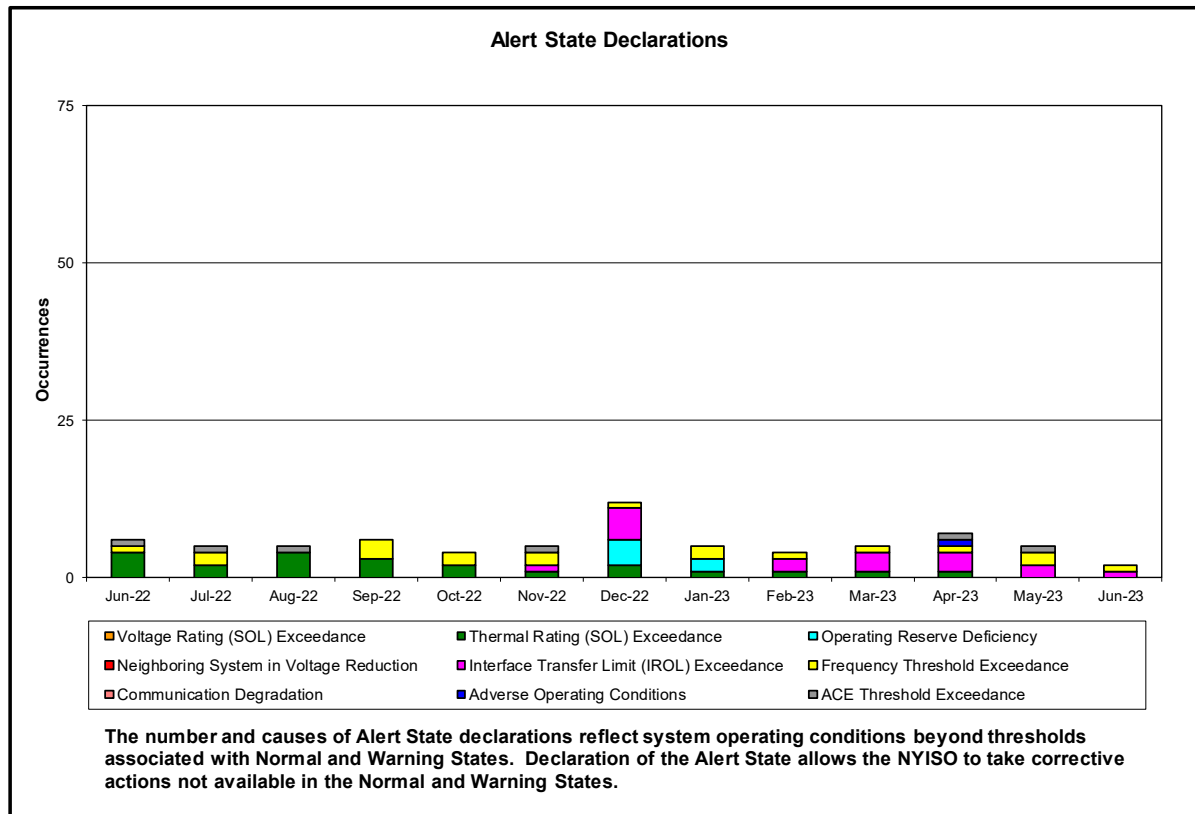
	Current Month Value (\$M)	Year-to-Date Value (\$M)
NY Savings from PJM-NY Congestion Coordination	(\$0.66)	\$12.99
NY Savings from PJM-NY Coordinated Transaction Scheduling	(\$0.30)	(\$0.43)
NY Savings from NE-NY Coordinated Transaction Scheduling	(\$0.18)	(\$1.29)
Total NY Savings	(\$1.14)	\$11.28
Regional Savings from PJM-NY Coordinated Transaction Scheduling	\$0.74	\$3.07
Regional Savings from NE-NY Coordinated Transaction Scheduling	\$0.04	\$0.46
Total Regional Savings	\$0.78	\$3.53

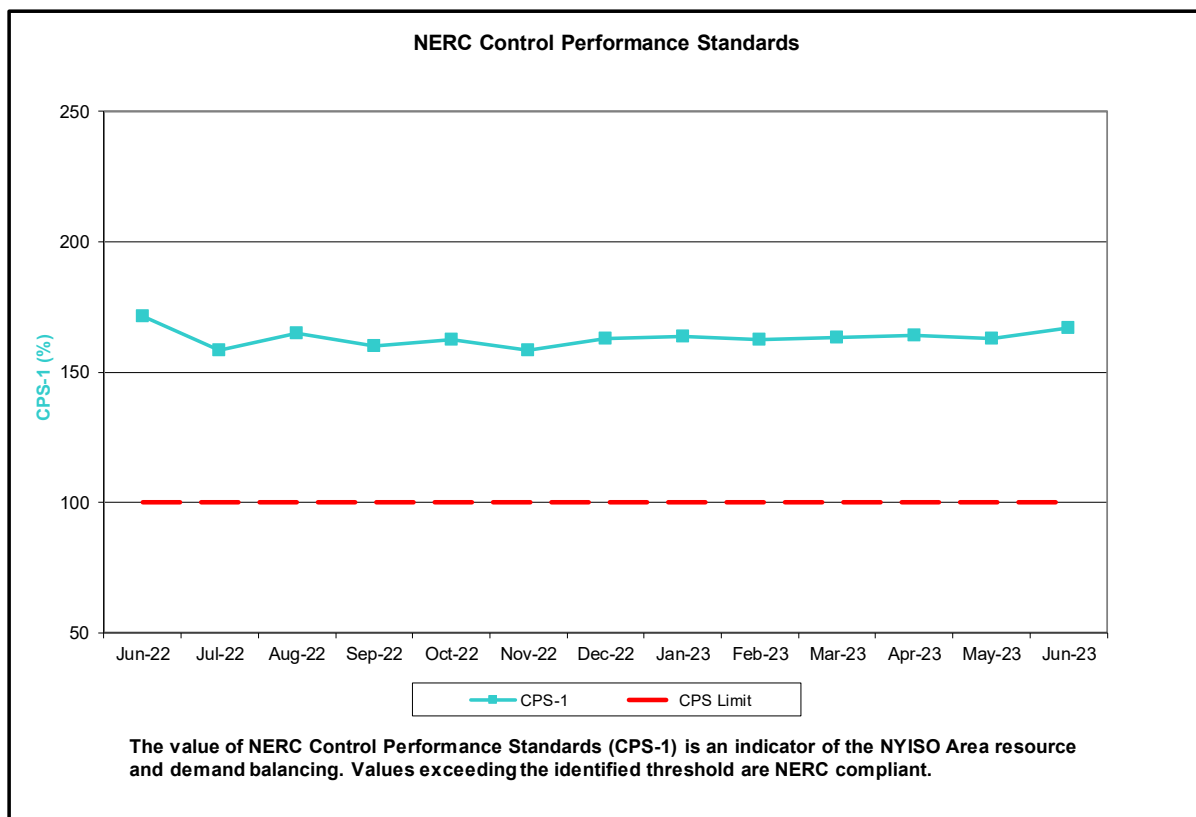
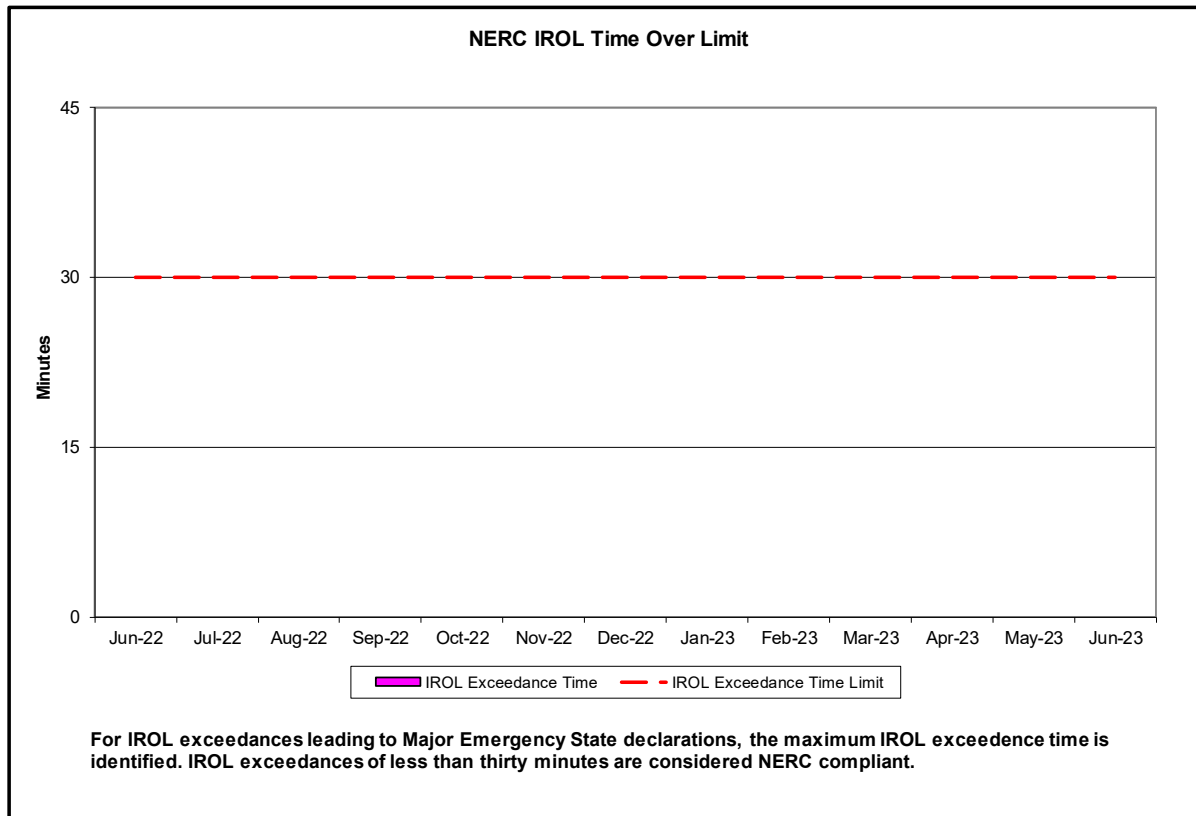
- Statewide uplift cost monthly average was (\$0.26)/MWh.
- The following table identifies the Monthly ICAP spot market prices and the price delta.

Spot Auction Price Results	NYCA	Lower Hudson Valley Zones	New York City Zone	Long Island Zone
July 2023 Spot Price	\$6.16	\$6.16	\$19.47	\$6.16
June 2023 Spot Price	\$5.70	\$5.70	\$18.58	\$5.70
Delta	\$0.46	\$0.46	\$0.89	\$0.46

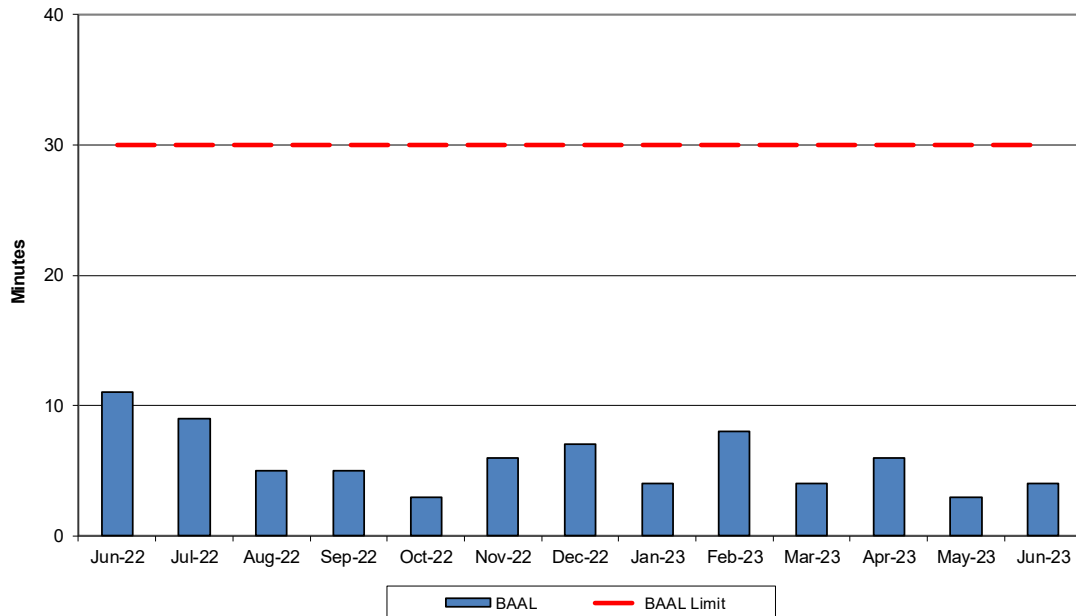
- The Market Clearing Prices in all zones increased as a result of the new demand curve reference points utilized effective July 2023.

Reliability Performance Metrics



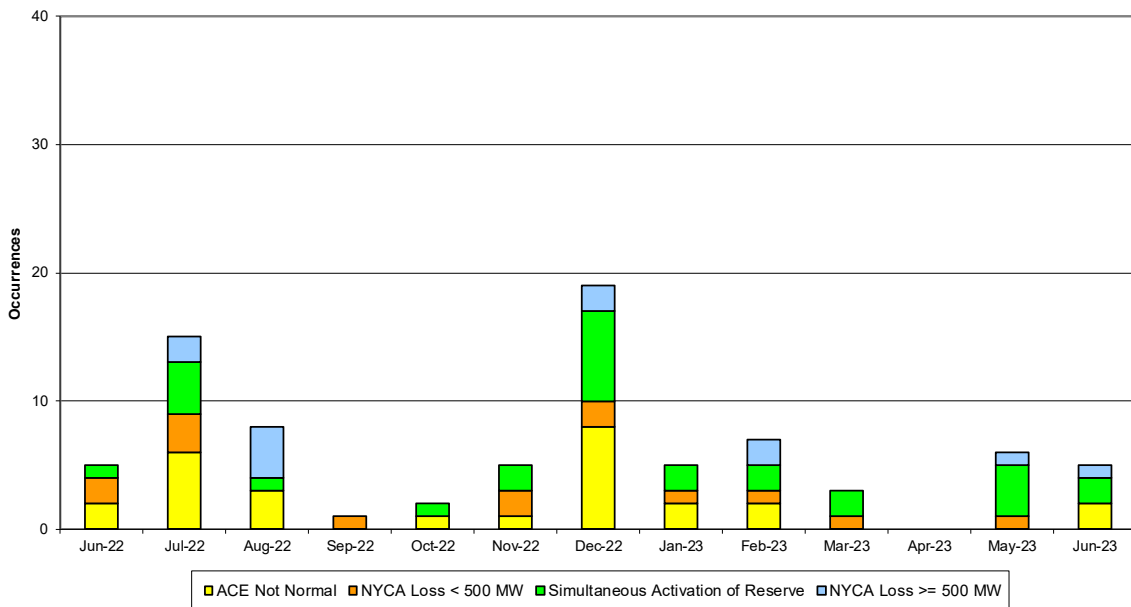


NERC Balancing Authority ACE Limit Standard



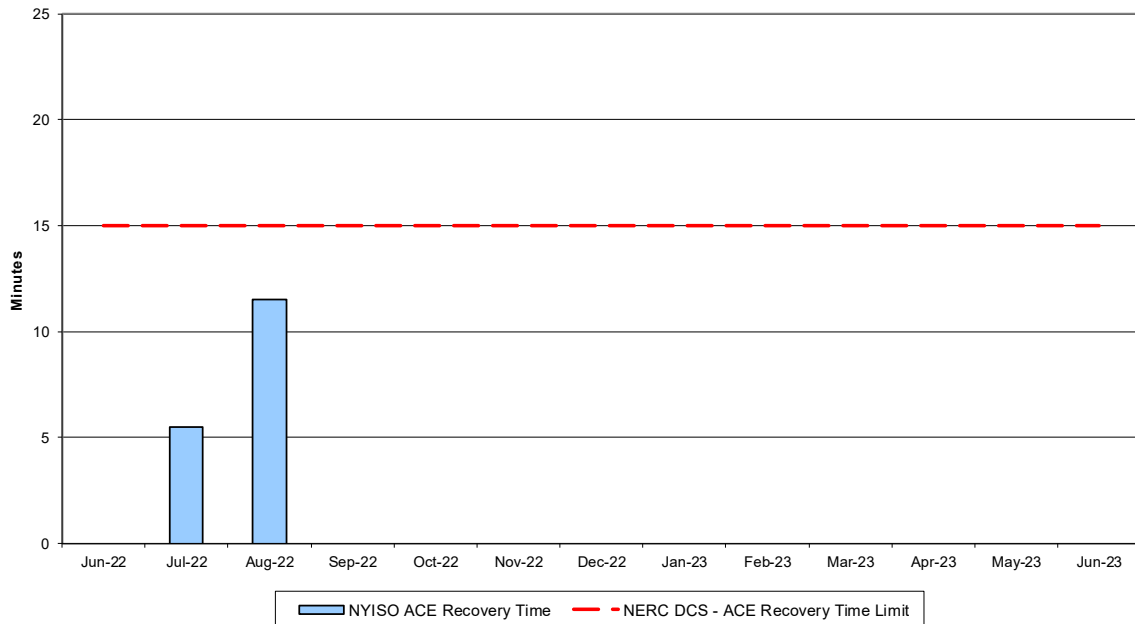
The amount of time the clock-minute average ACE exceeds the clock-minute Balancing Authority ACE Limit (BAAL) is an indicator of the NYISO Area resource and demand balancing. The maximum BAAL exceedance time is identified. BAAL exceedances of less than 30 consecutive clock-minutes are NERC compliant.

Reserve Activations



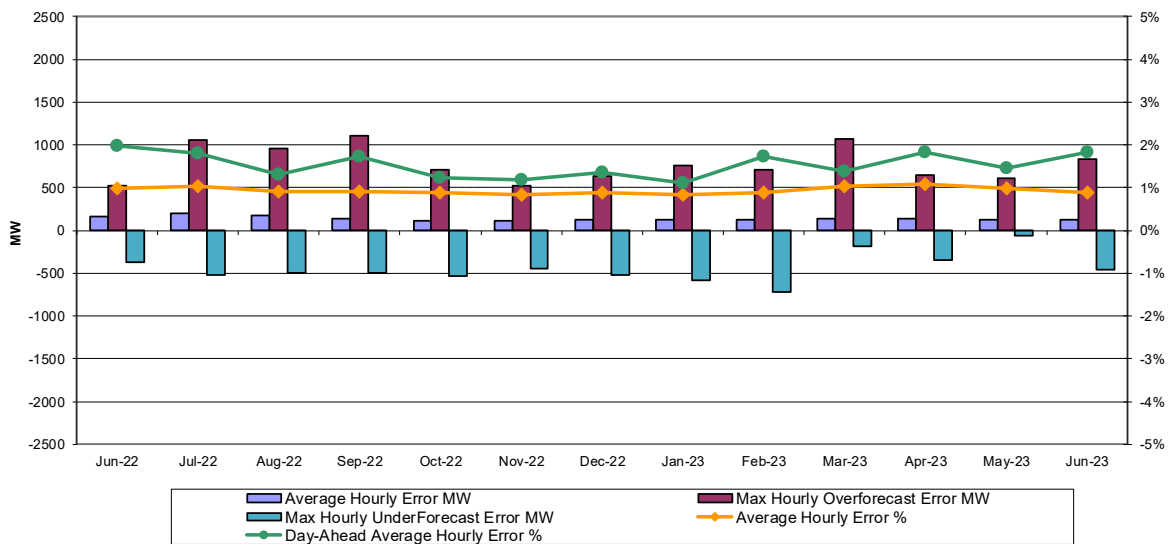
NYISO Reserve Activations are indicators of the need to respond to unexpected operational conditions within the NYISO Area or to assist a neighboring Area (Simultaneous Activation of Reserves) by activating an immediate resource and demand balancing operation.

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.

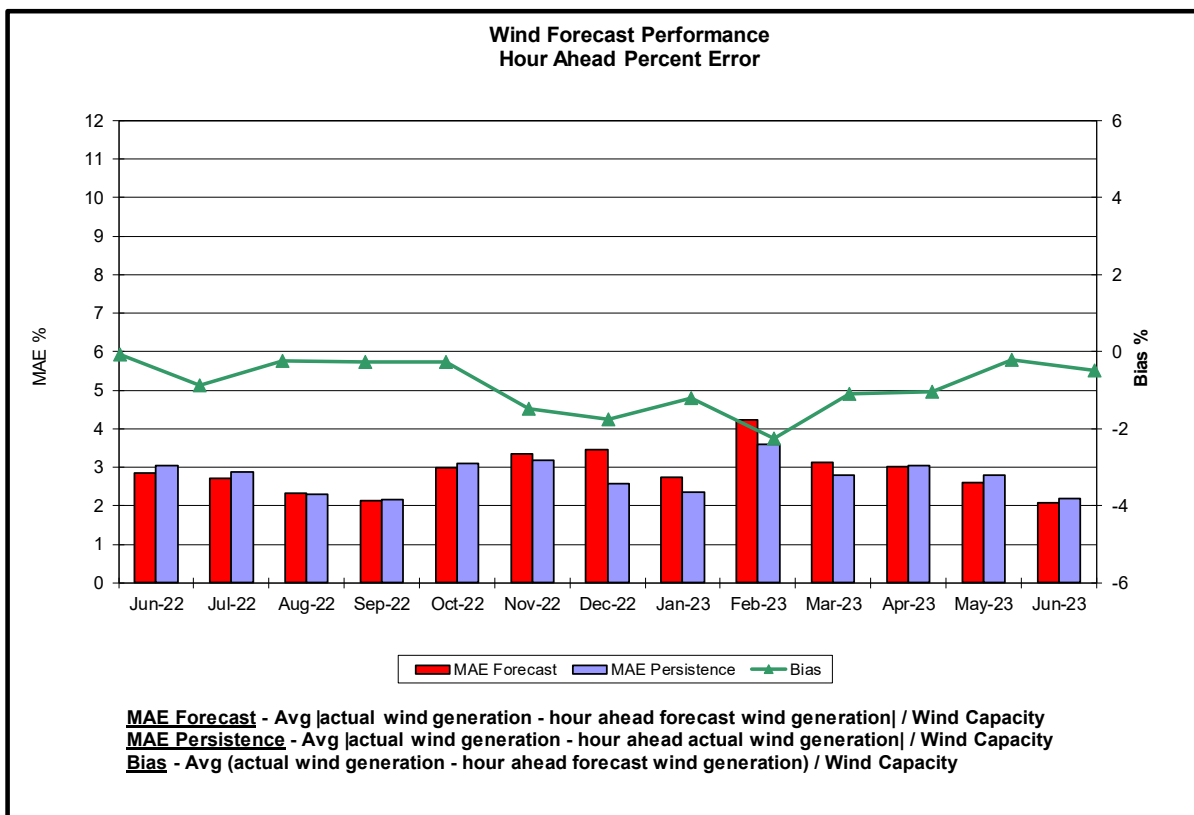
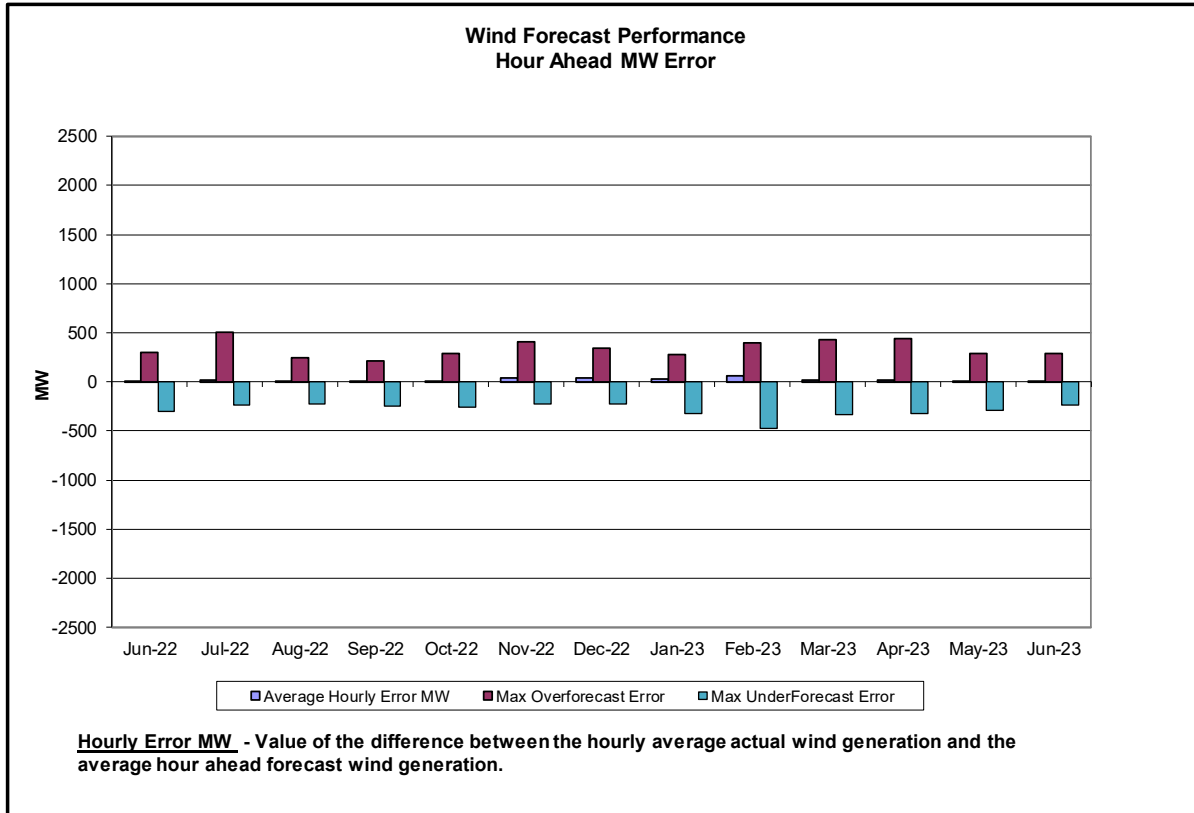
Load Forecast Performance

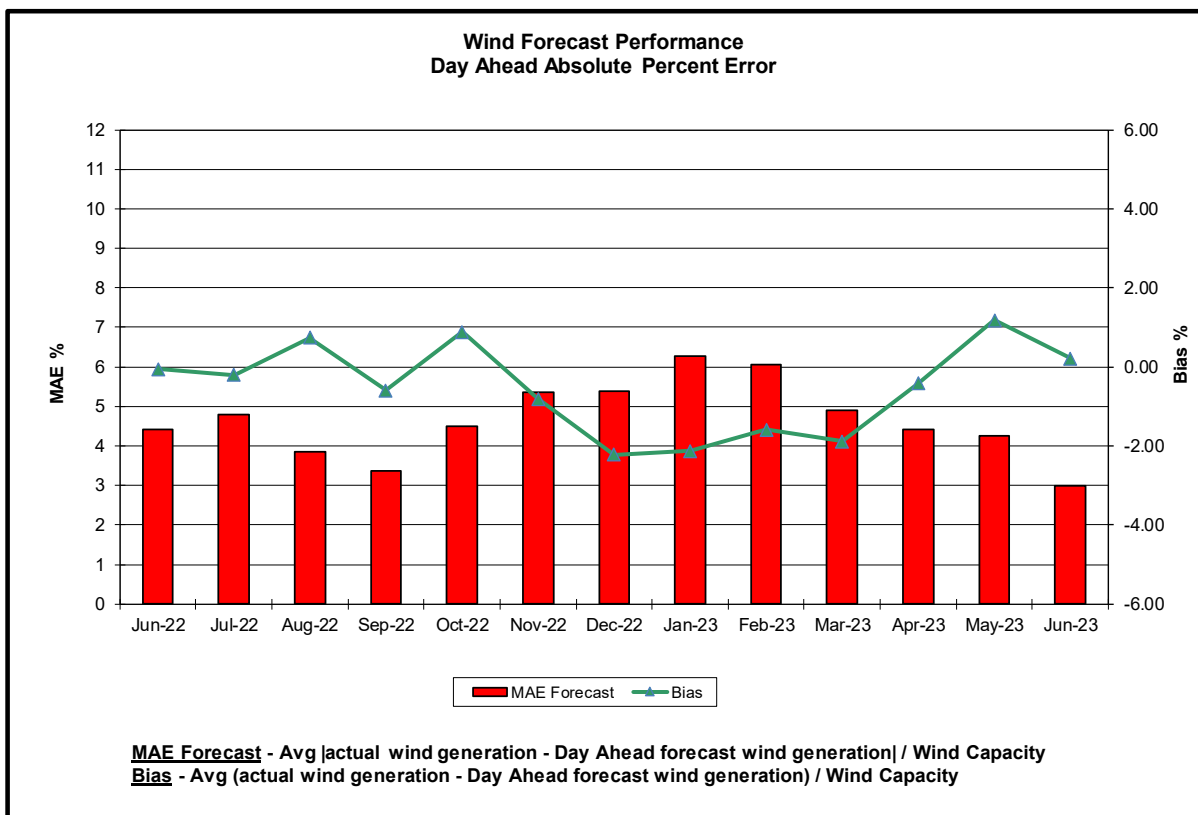
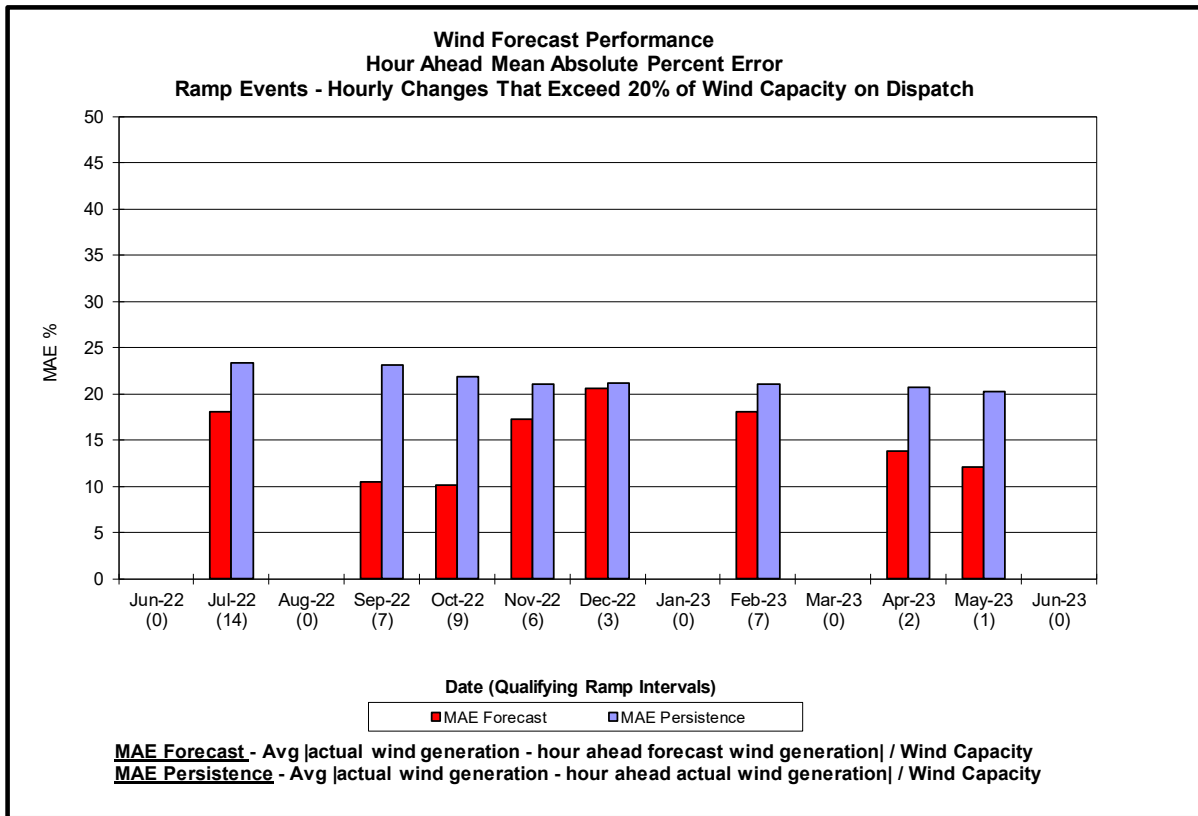


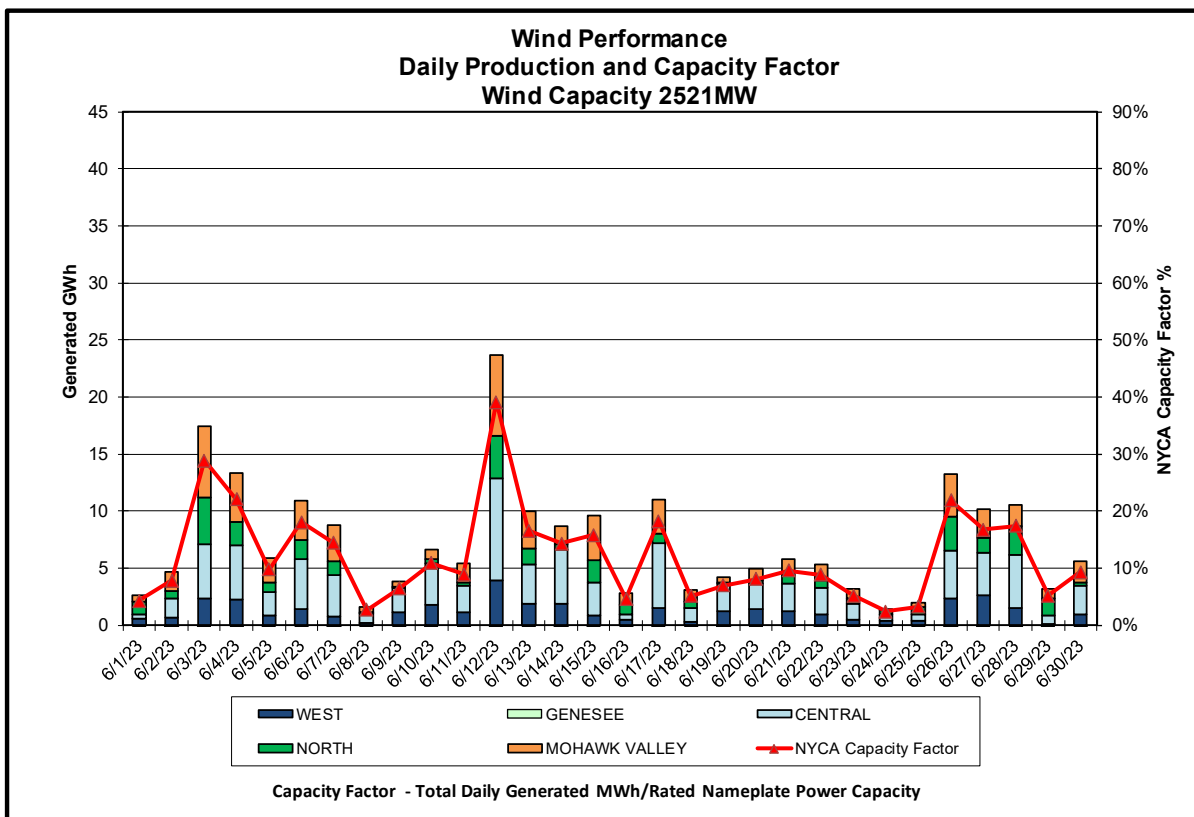
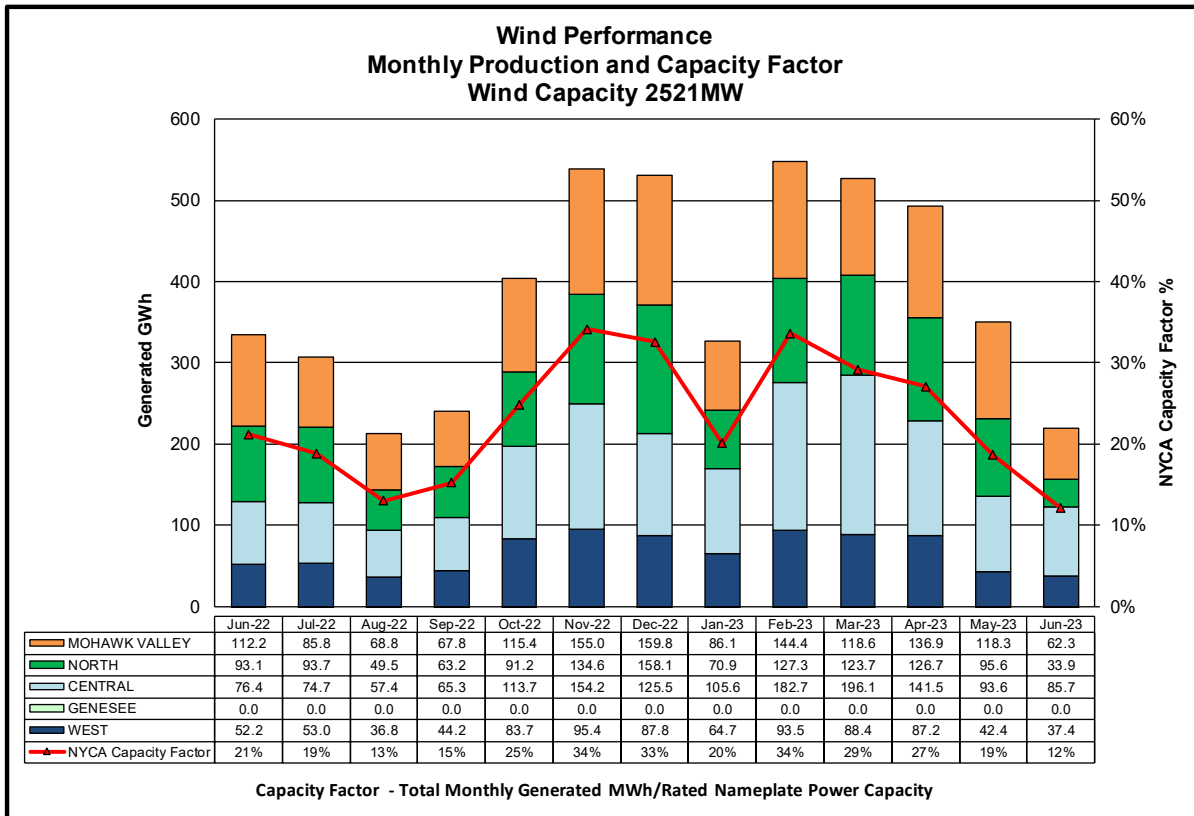
Hourly Error MW - Value of the difference between the hourly average actual load demand and the average hour ahead forecast load demand.

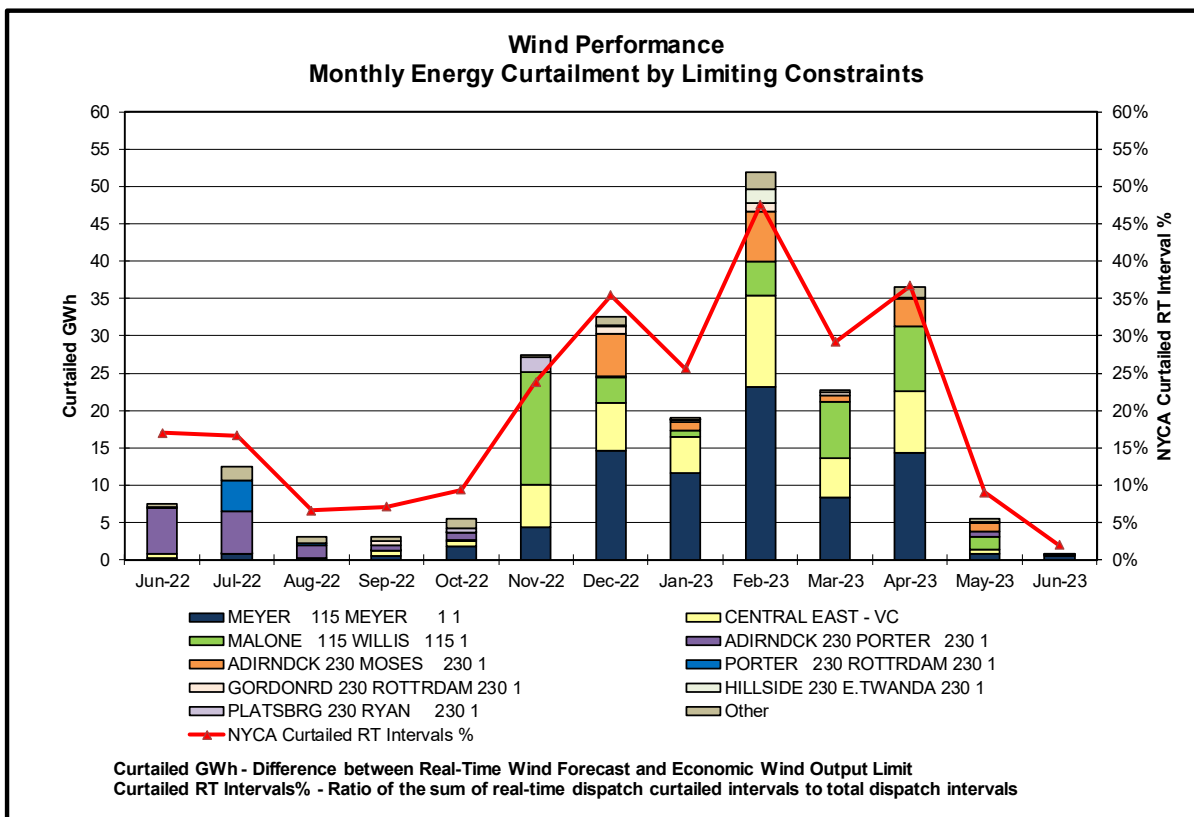
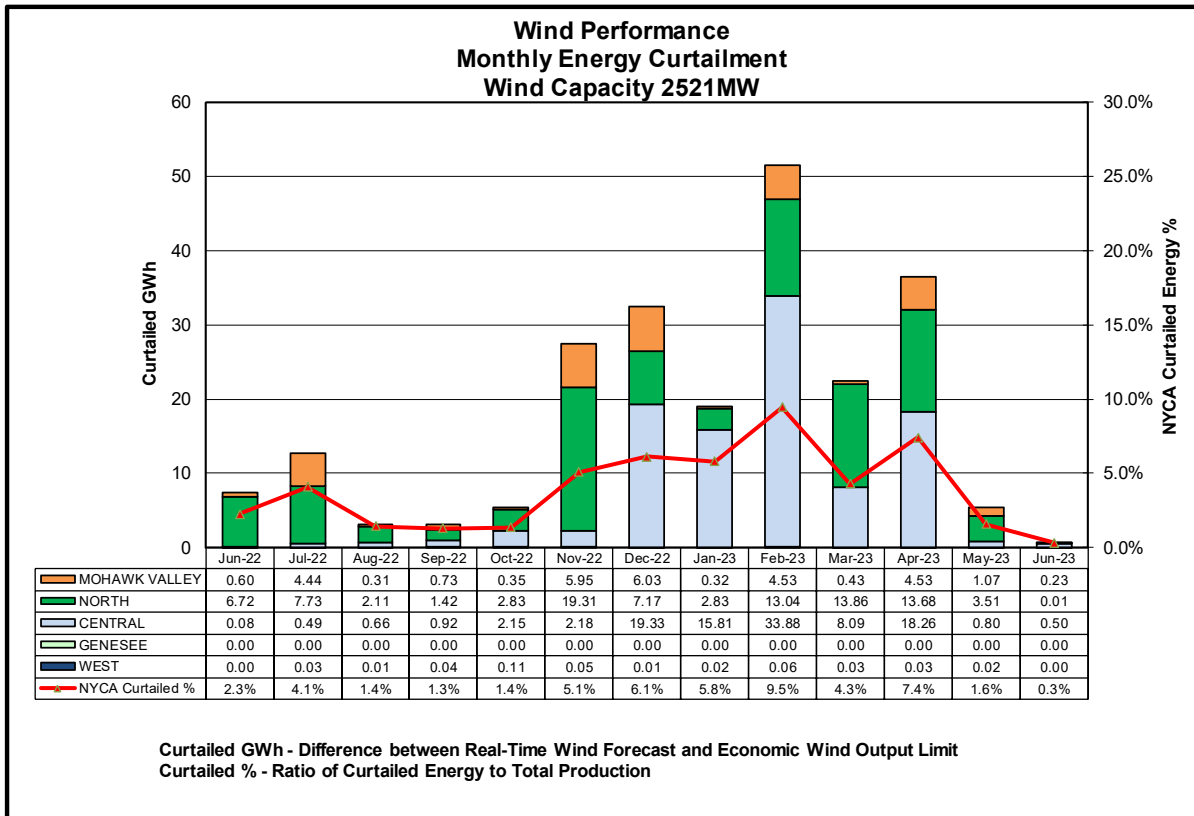
Average Hourly Error % - Average value of the ratio of hourly average error magnitude to hourly average actual load demand.

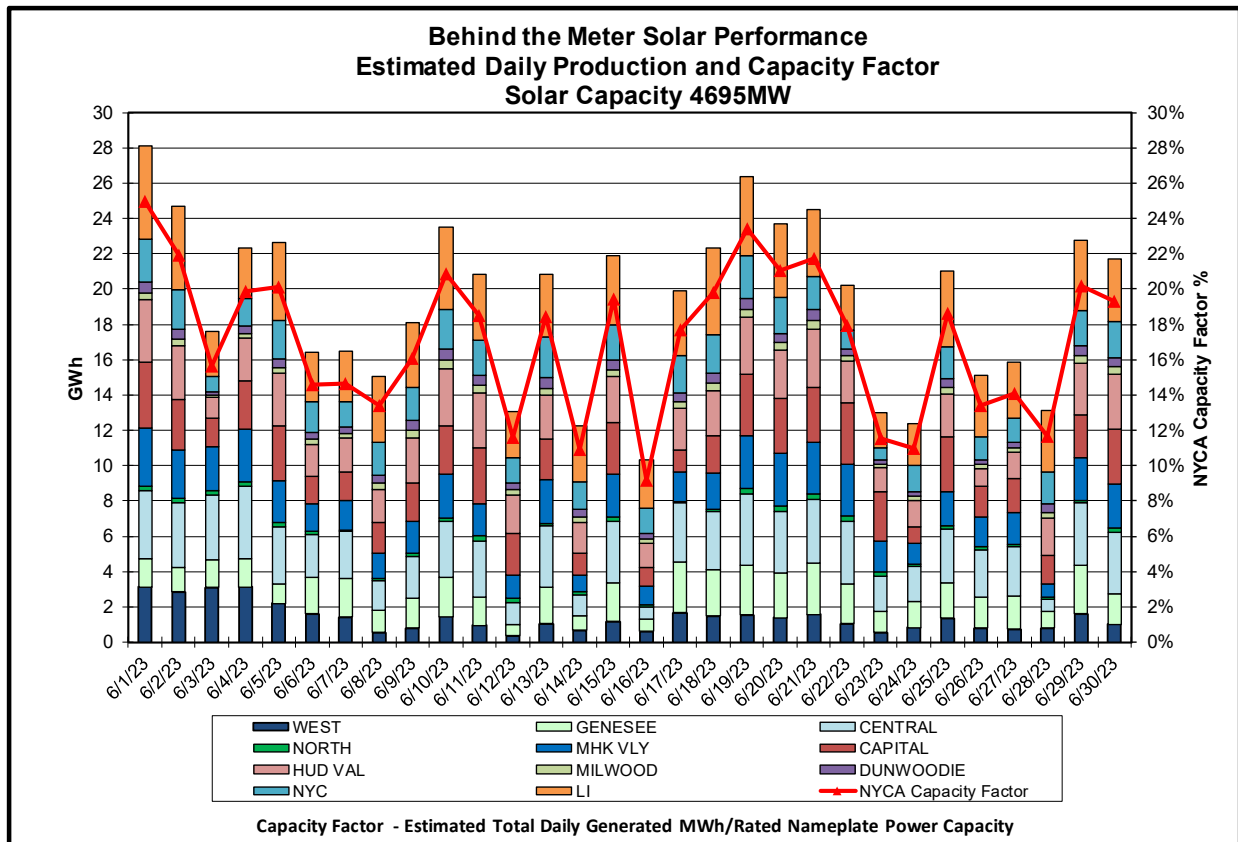
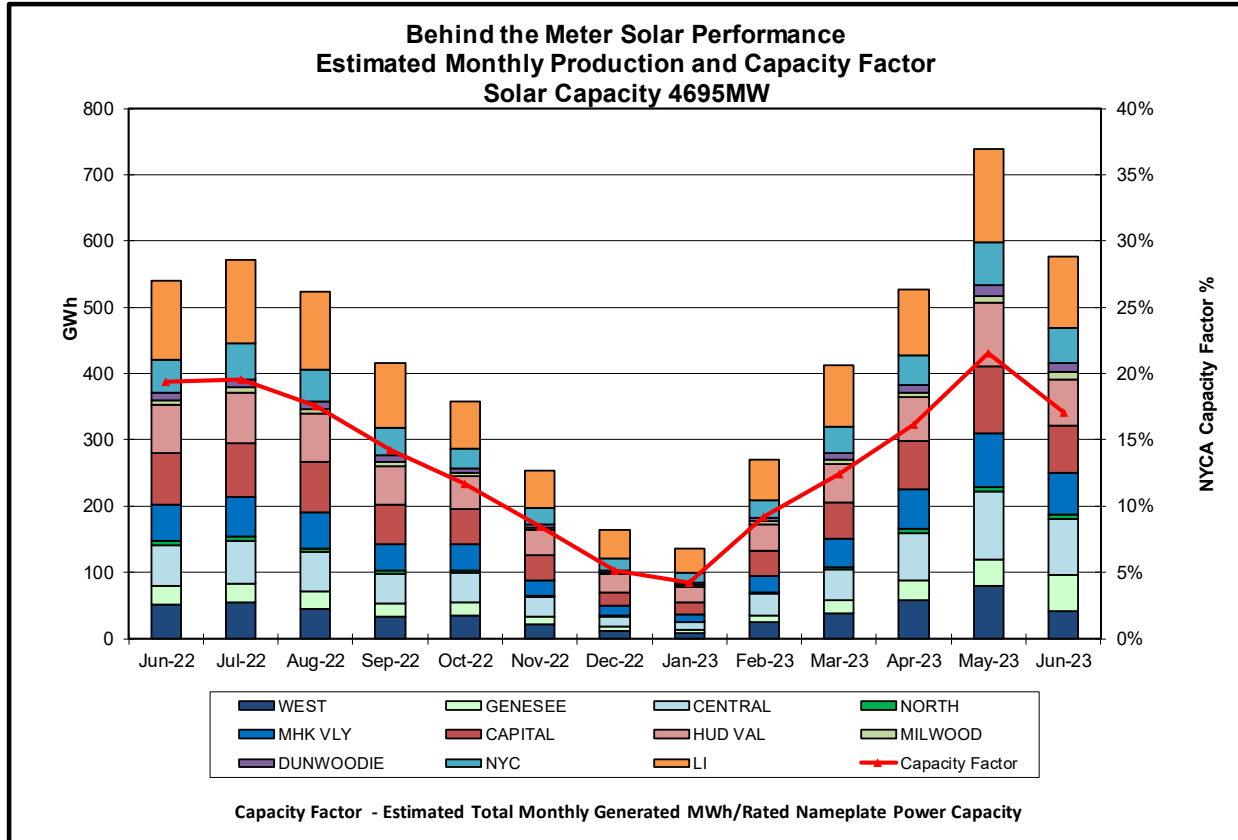
Day-Ahead Average Hourly Error % - Average across all hours of the month of the absolute value of the difference between actual load demand and the Day-Ahead forecast load demand, divided by the actual load demand.

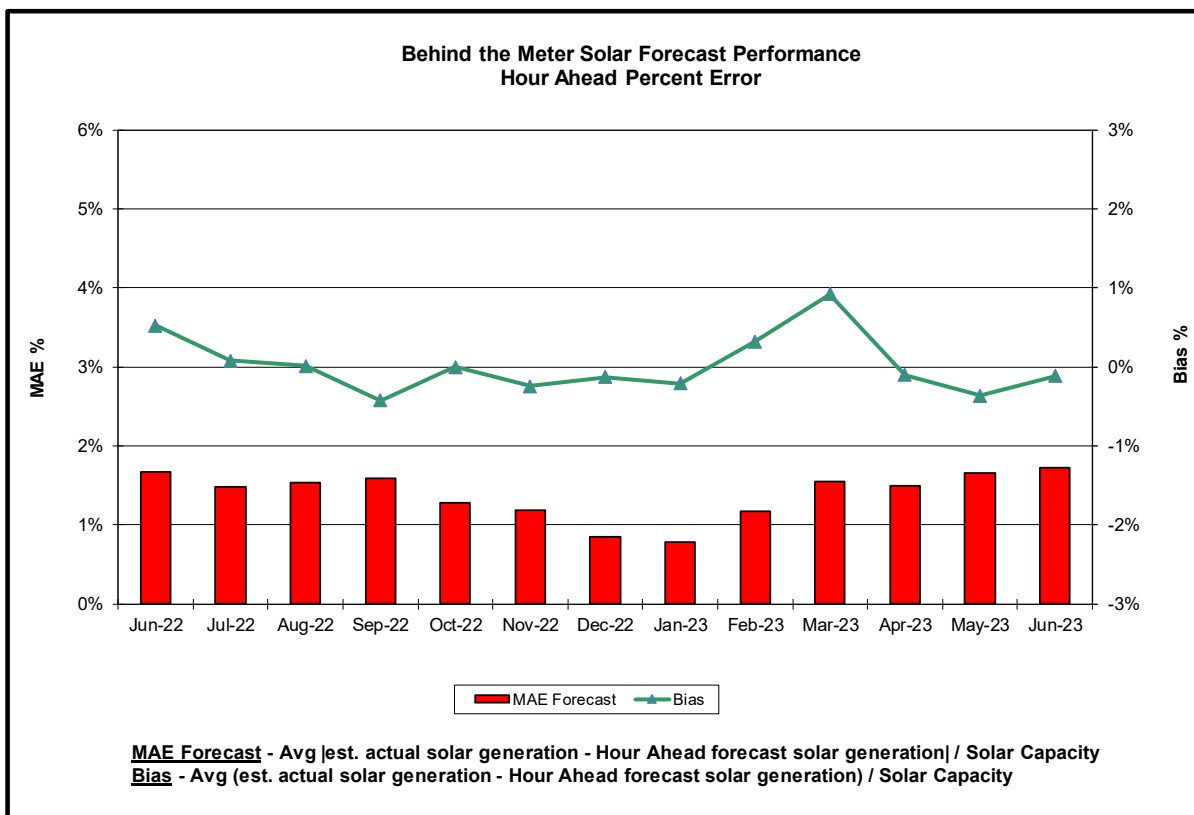
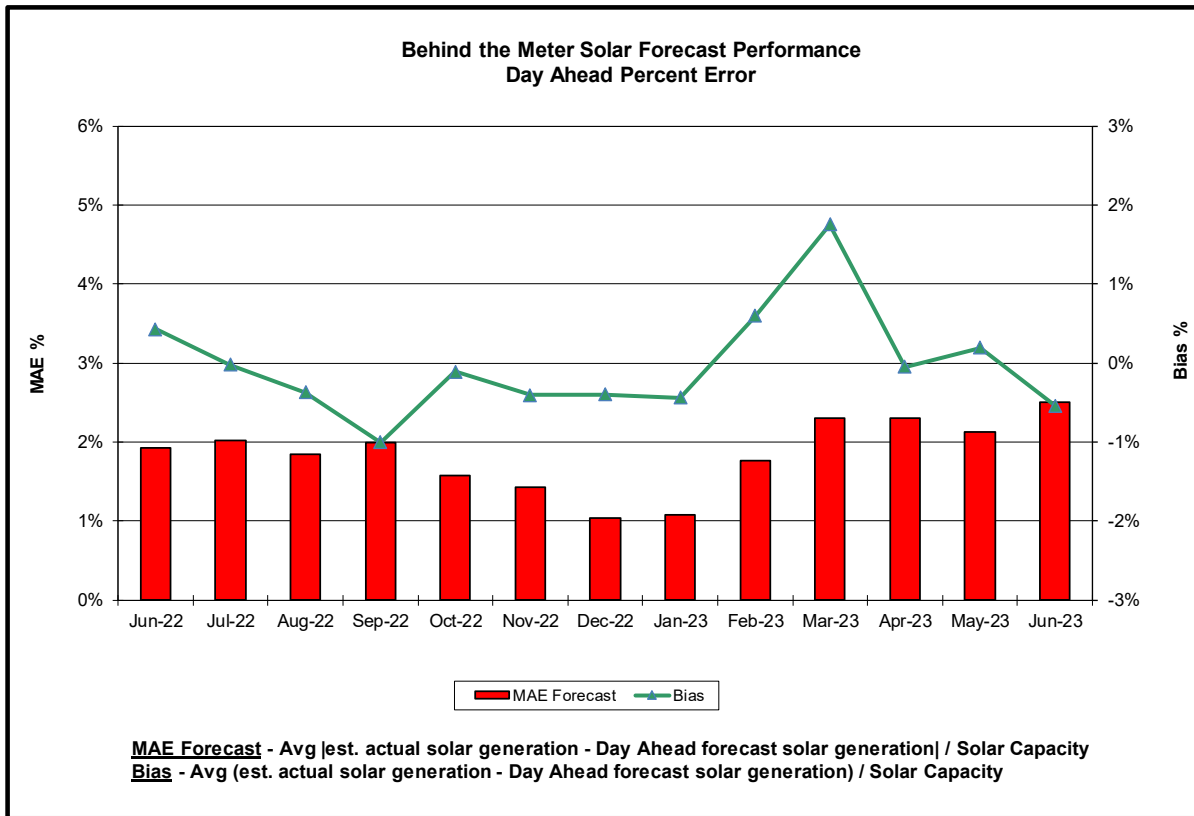


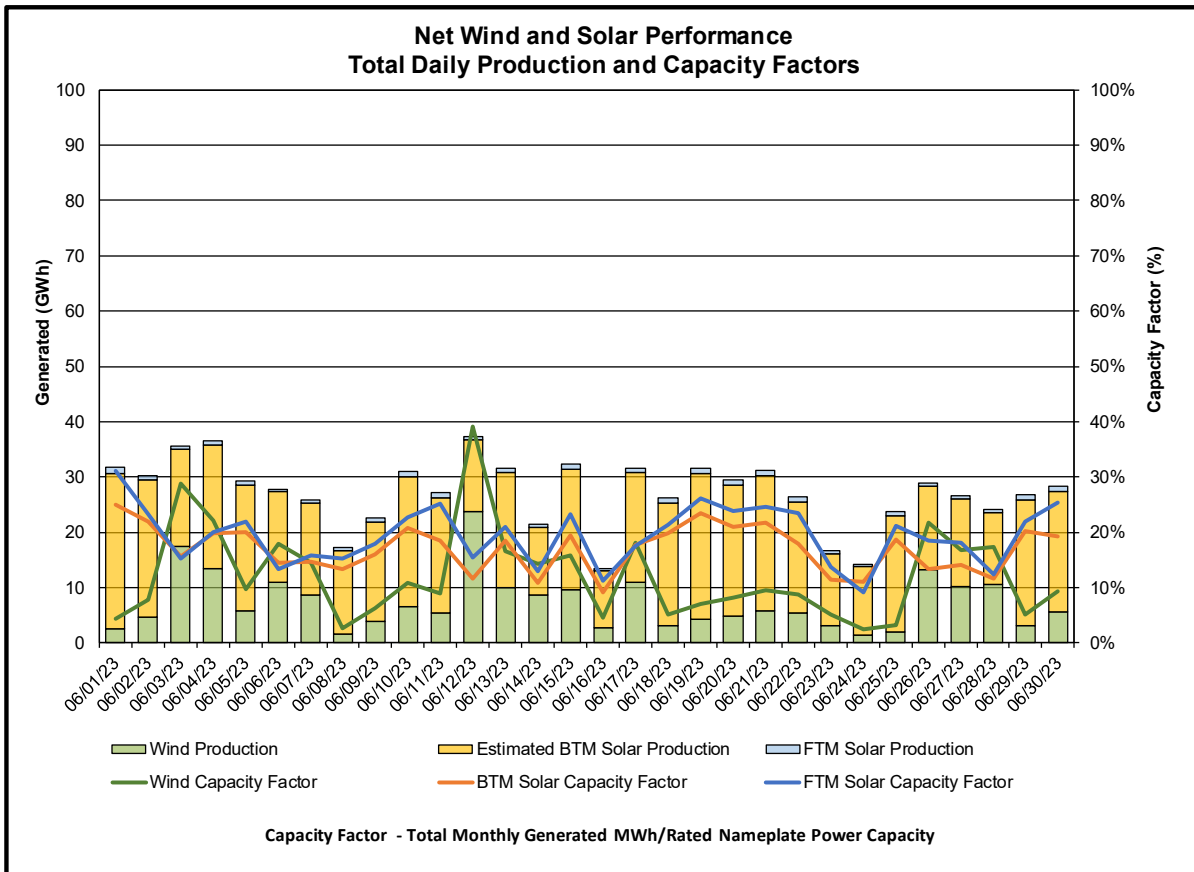
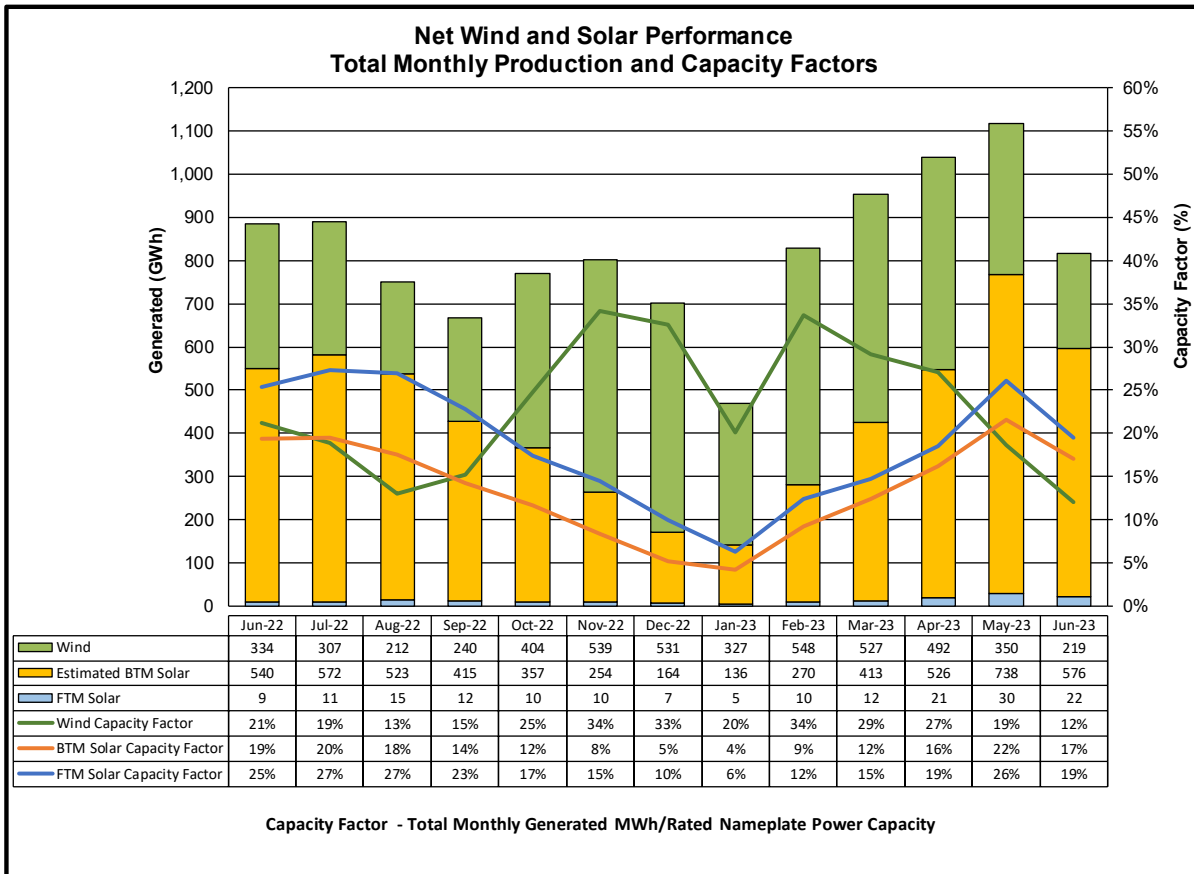


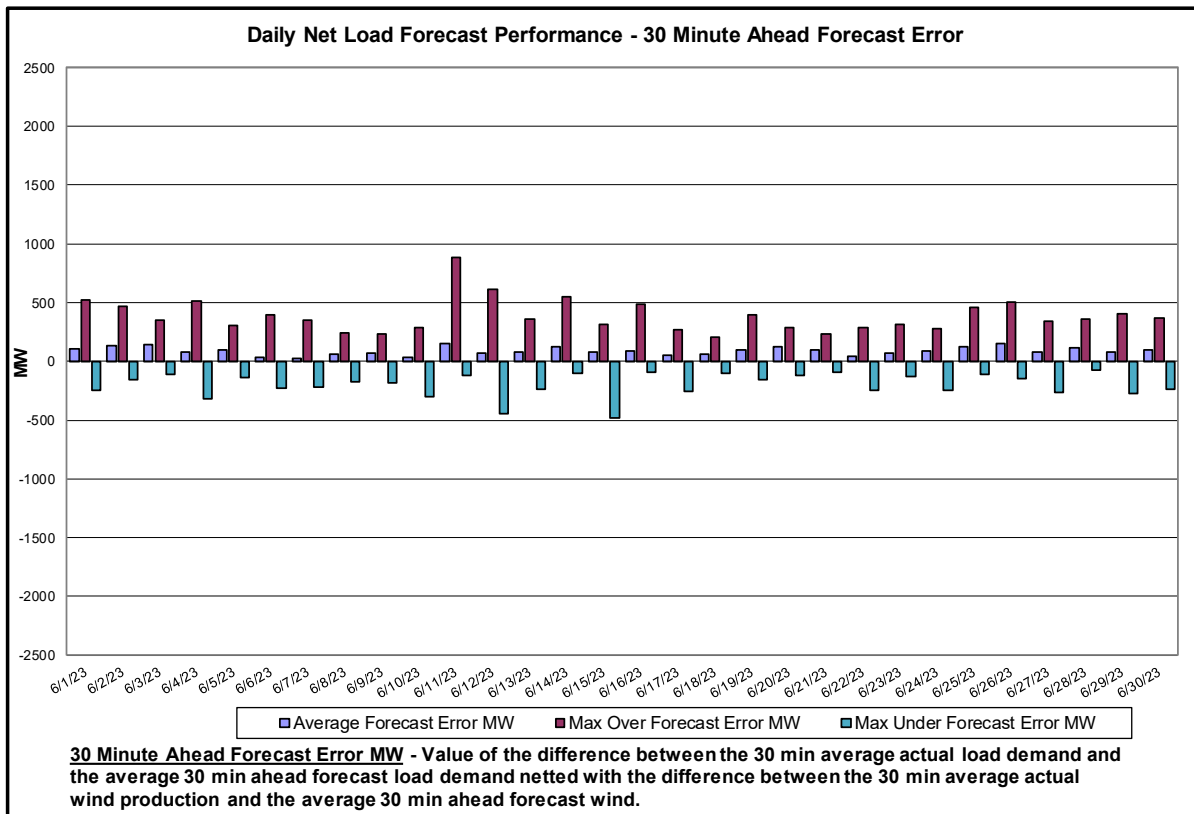
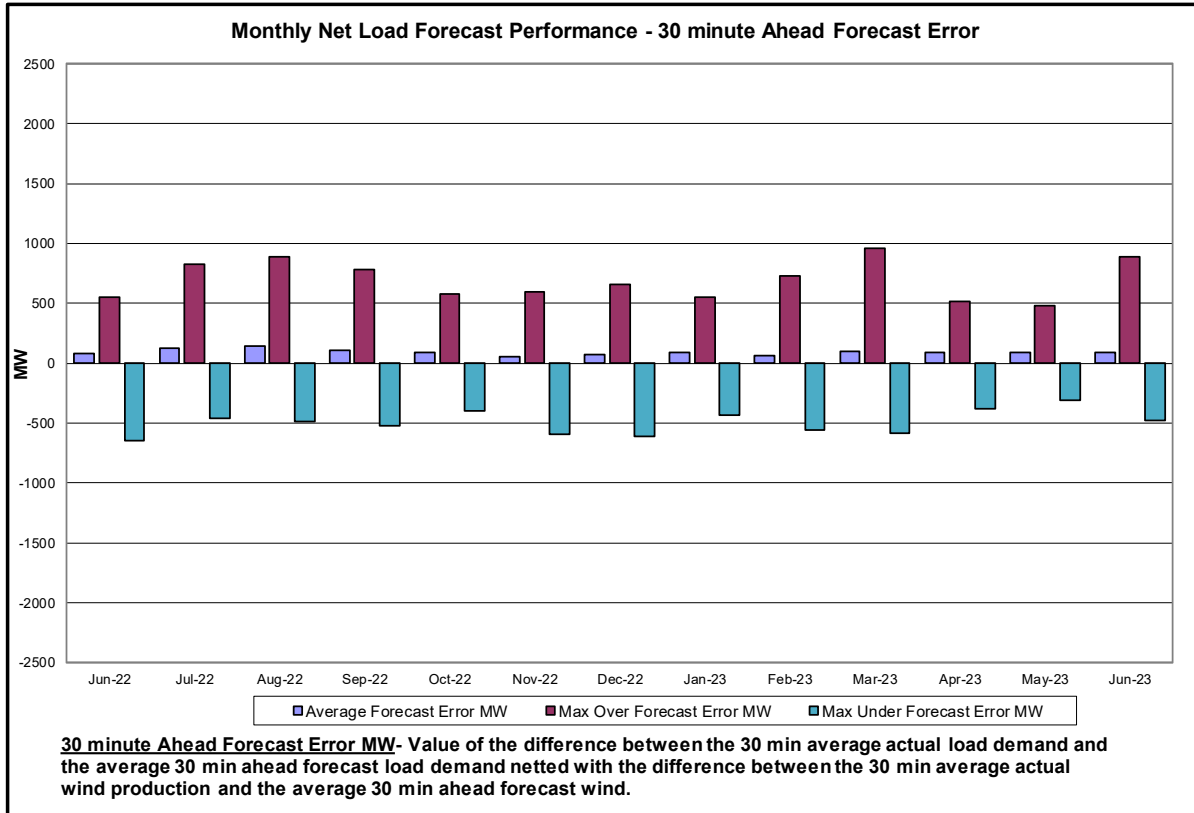


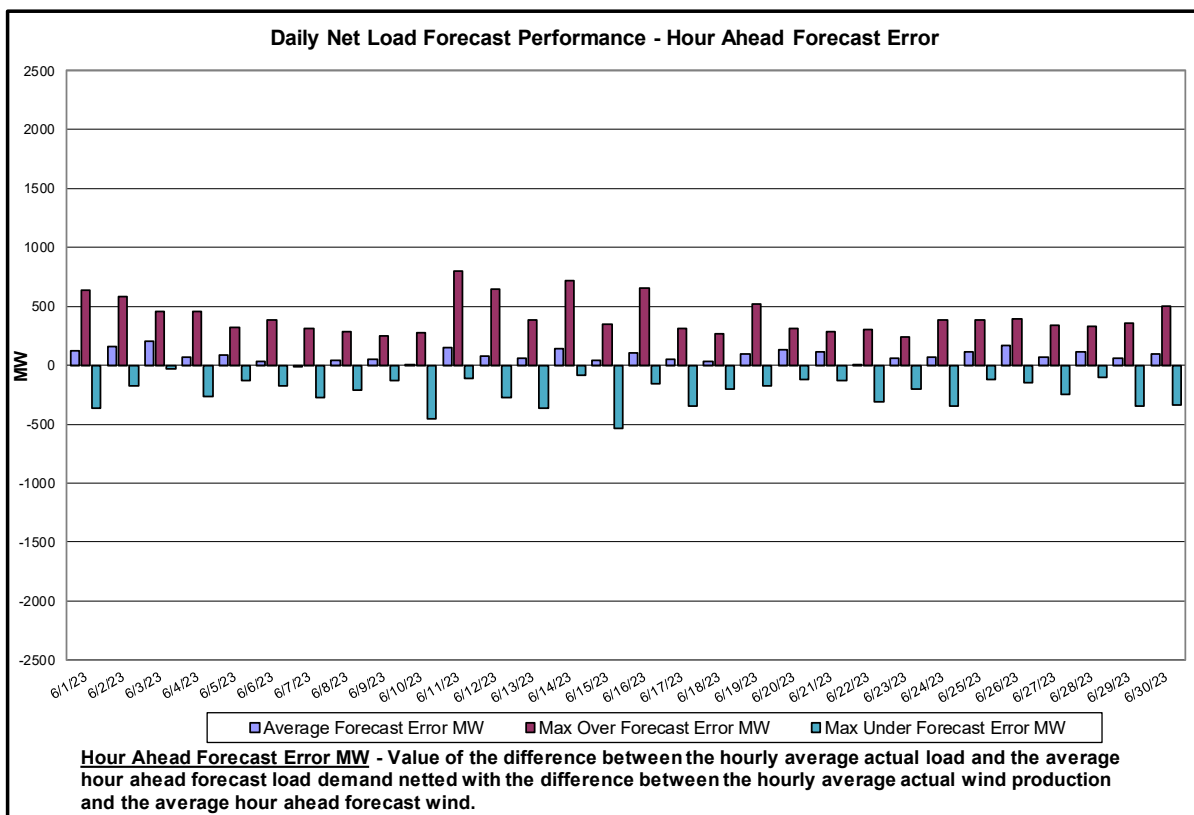
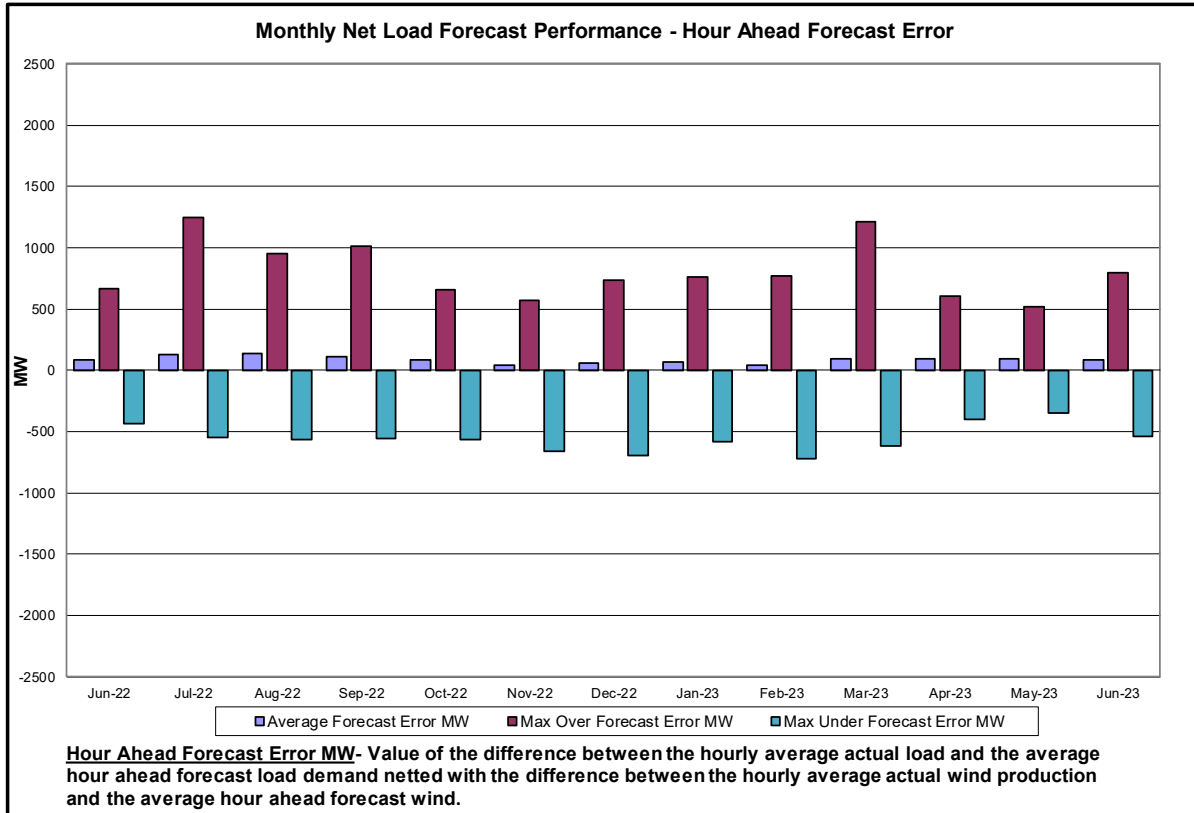


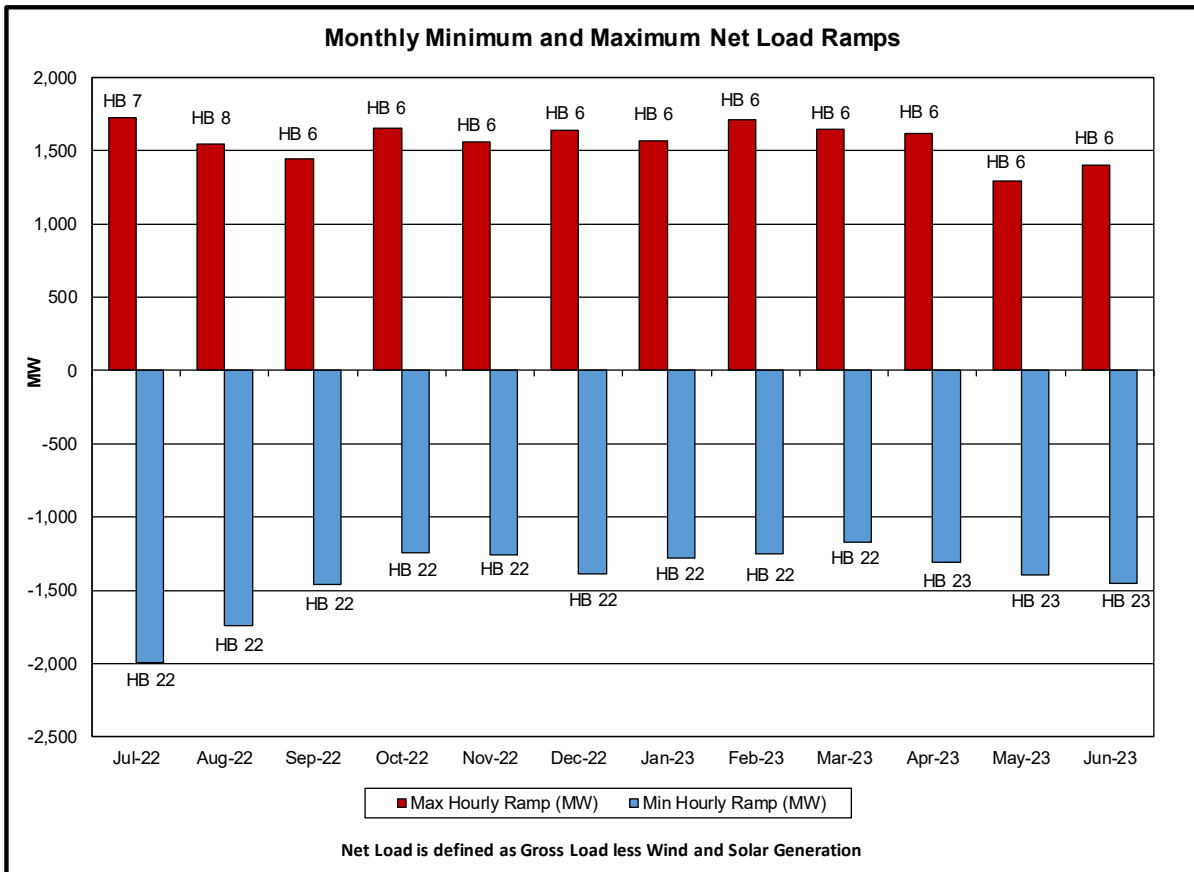
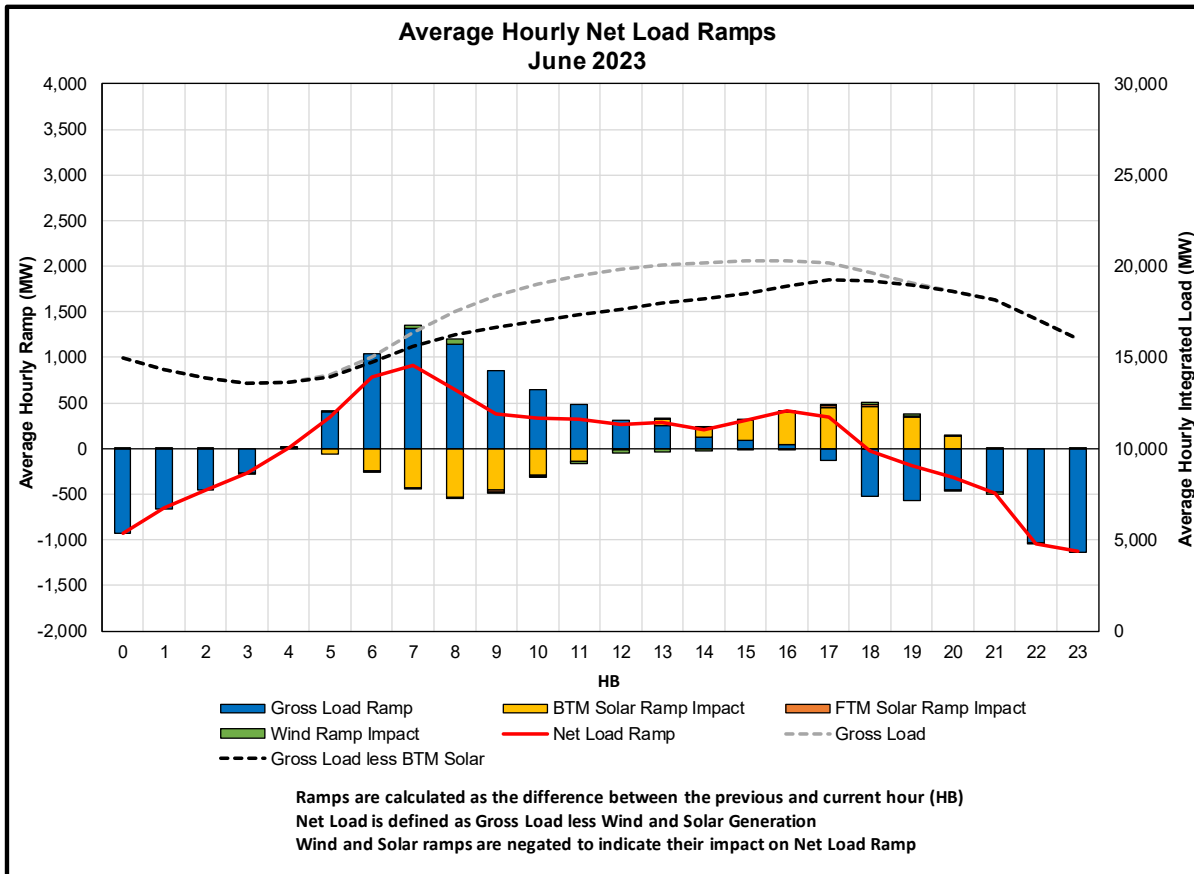




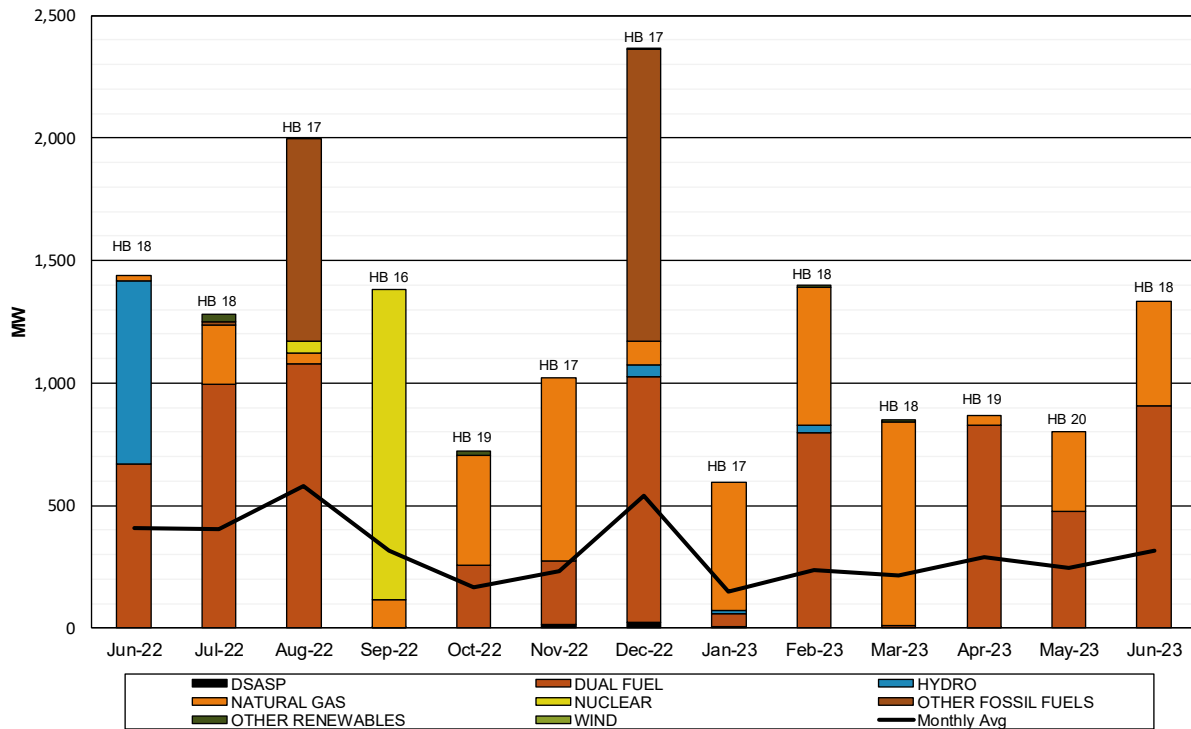








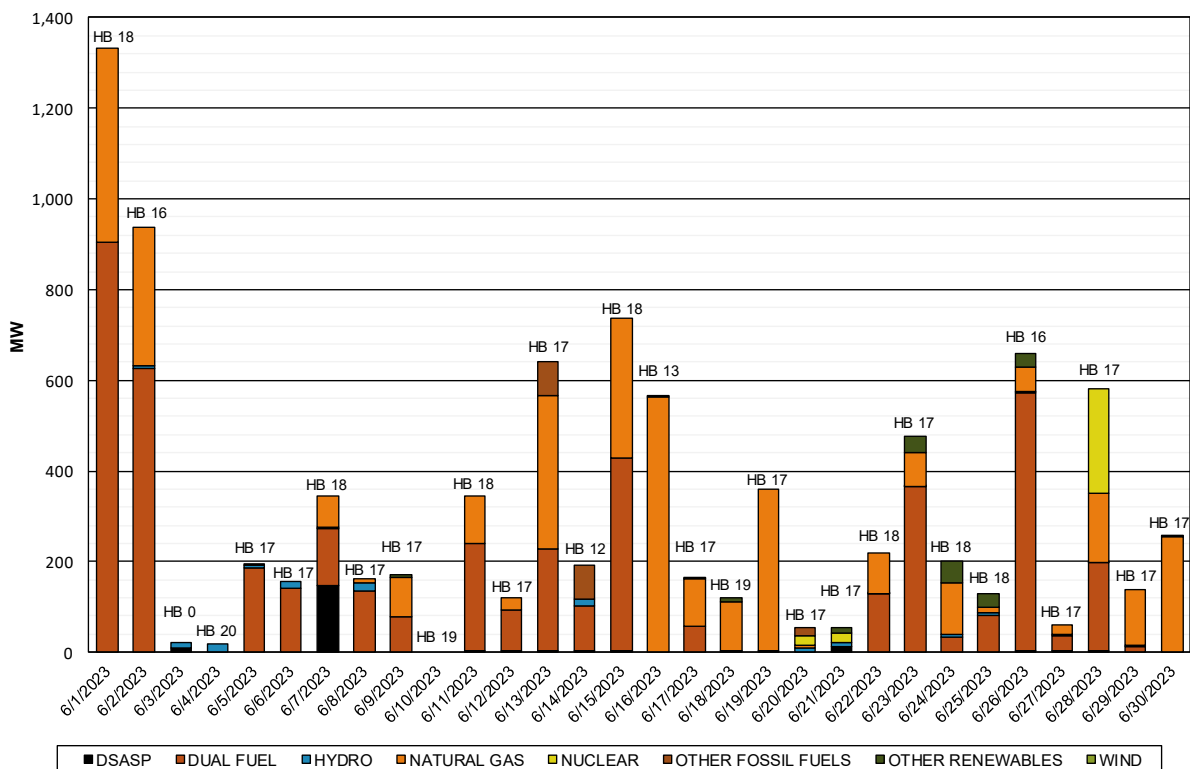
Monthly Maximum Day-Ahead Market Capacity Unavailable In Real Time



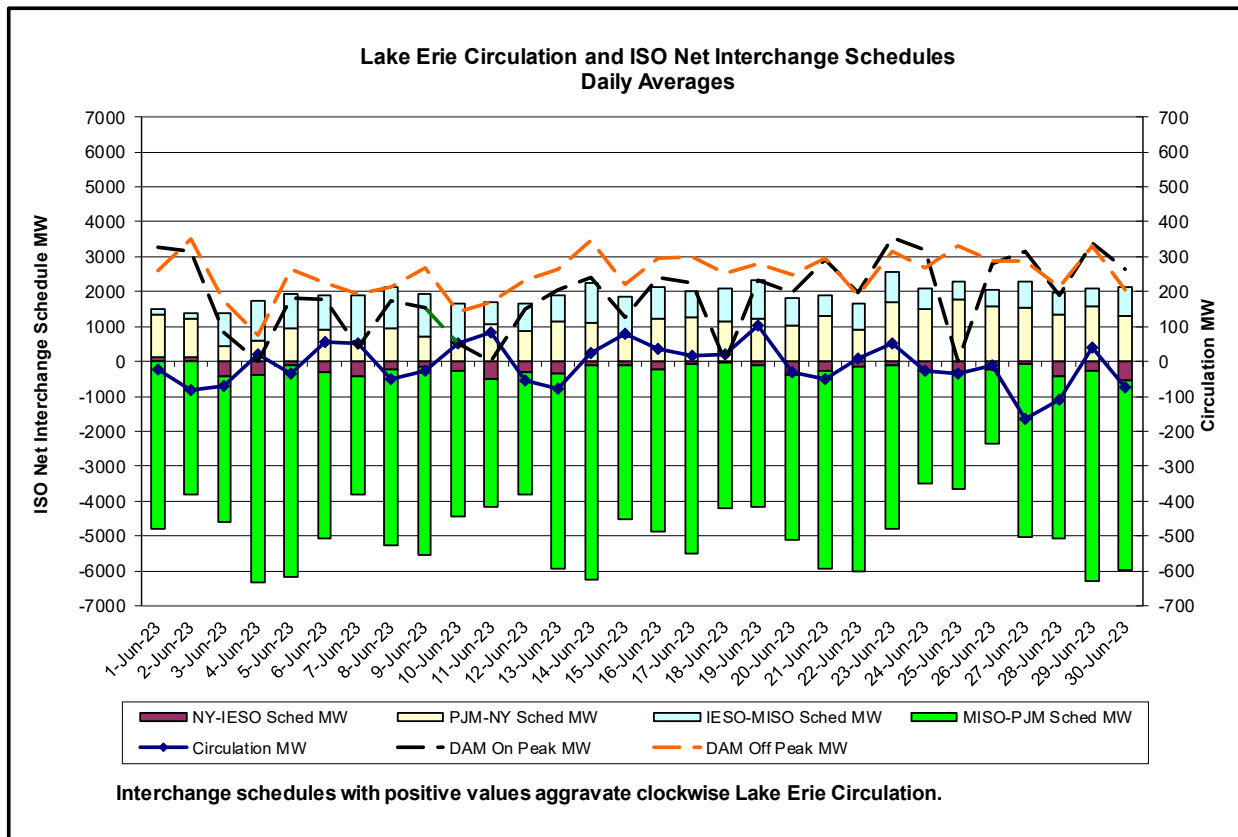
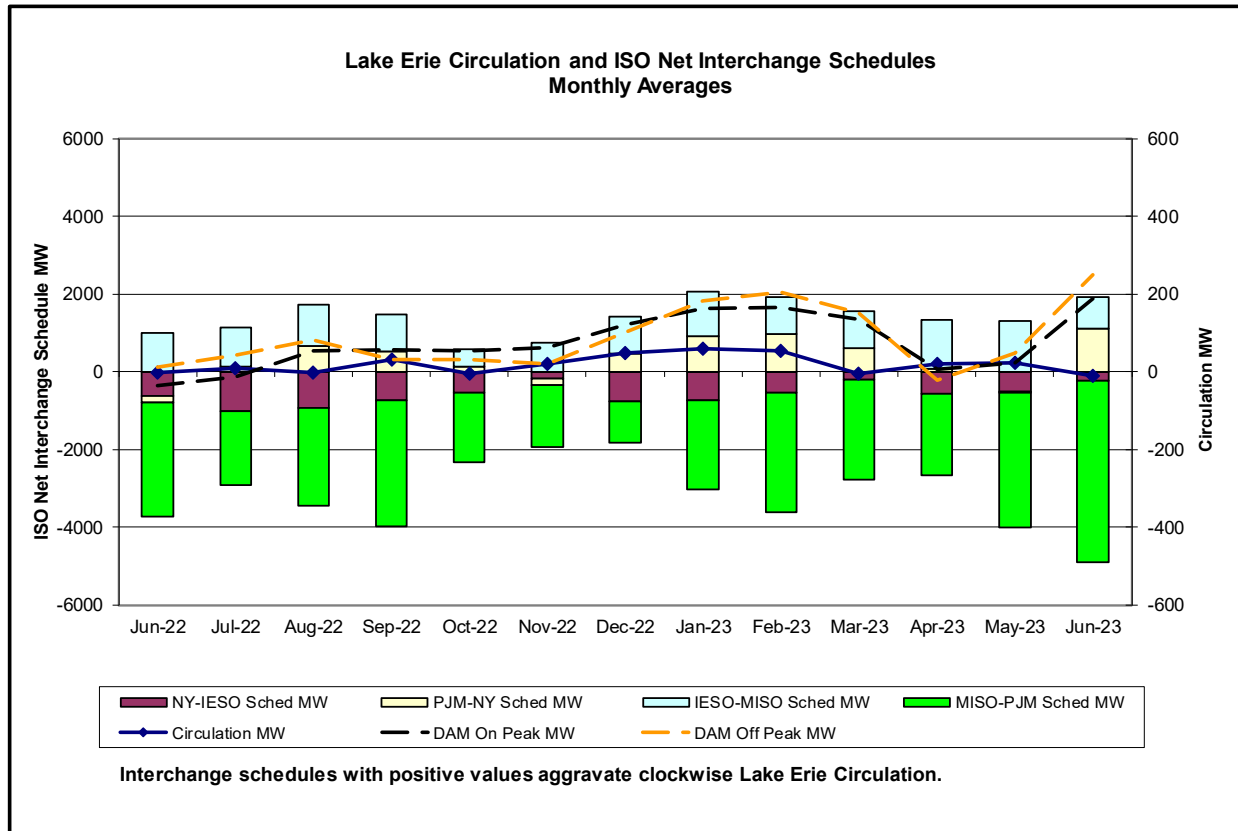
Unavailable Capacity is calculated as the difference of Day-Ahead Market (DAM) capacity relative to Real-Time (RT) capacity during RT peak load hour.

The Monthly Maximum is the day with the largest observed deficit during RT peak load hour.

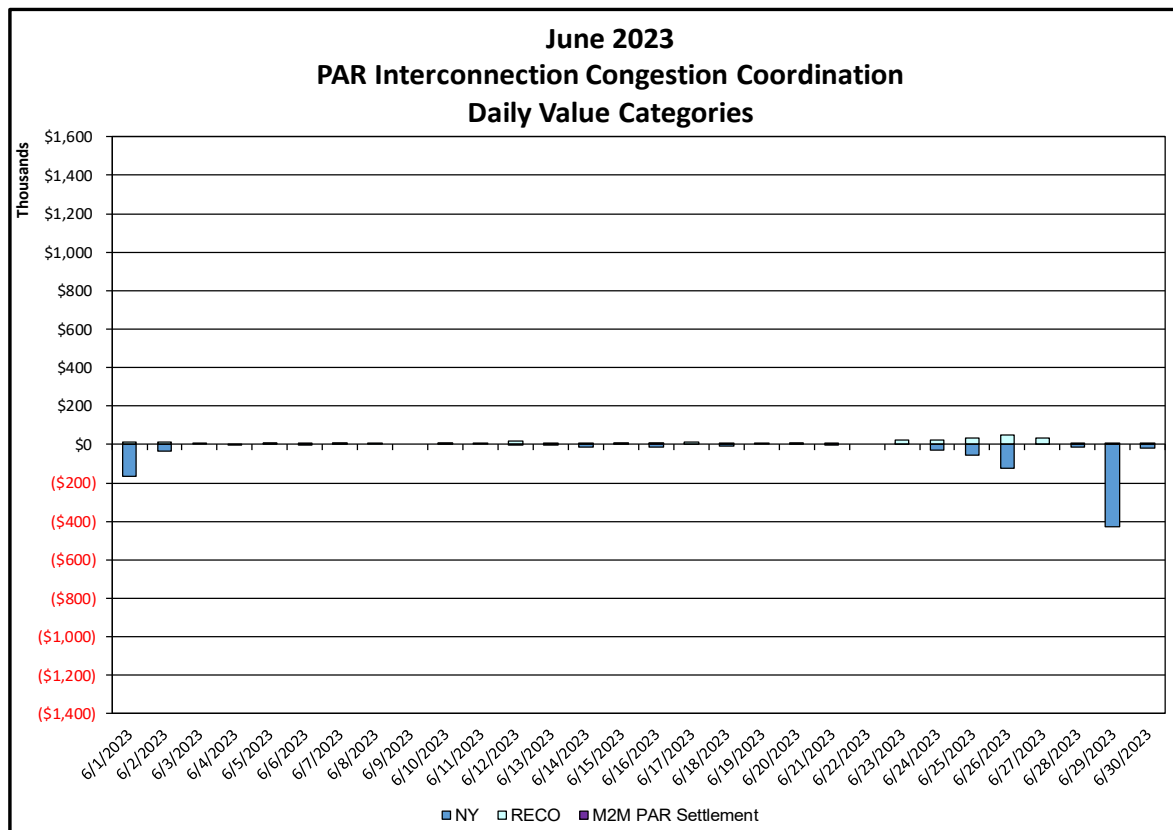
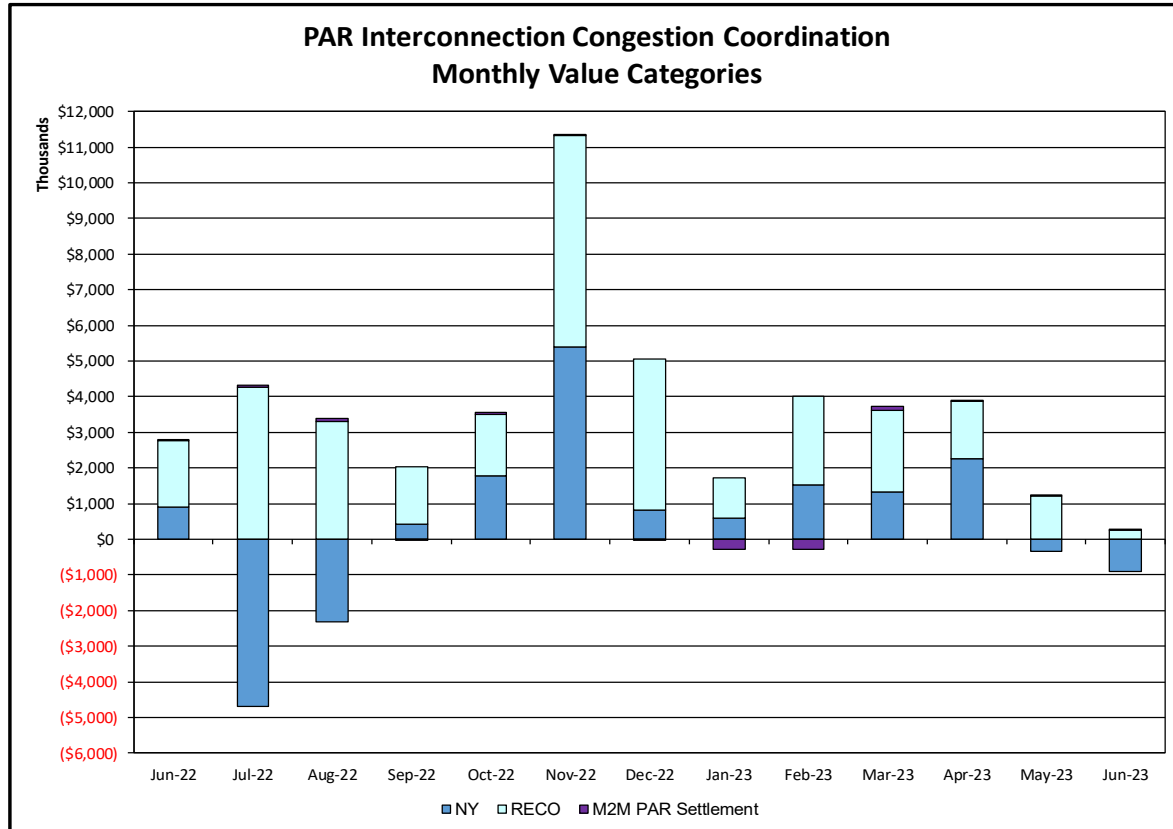
Daily Day-Ahead Market Capacity Unavailable In Real Time



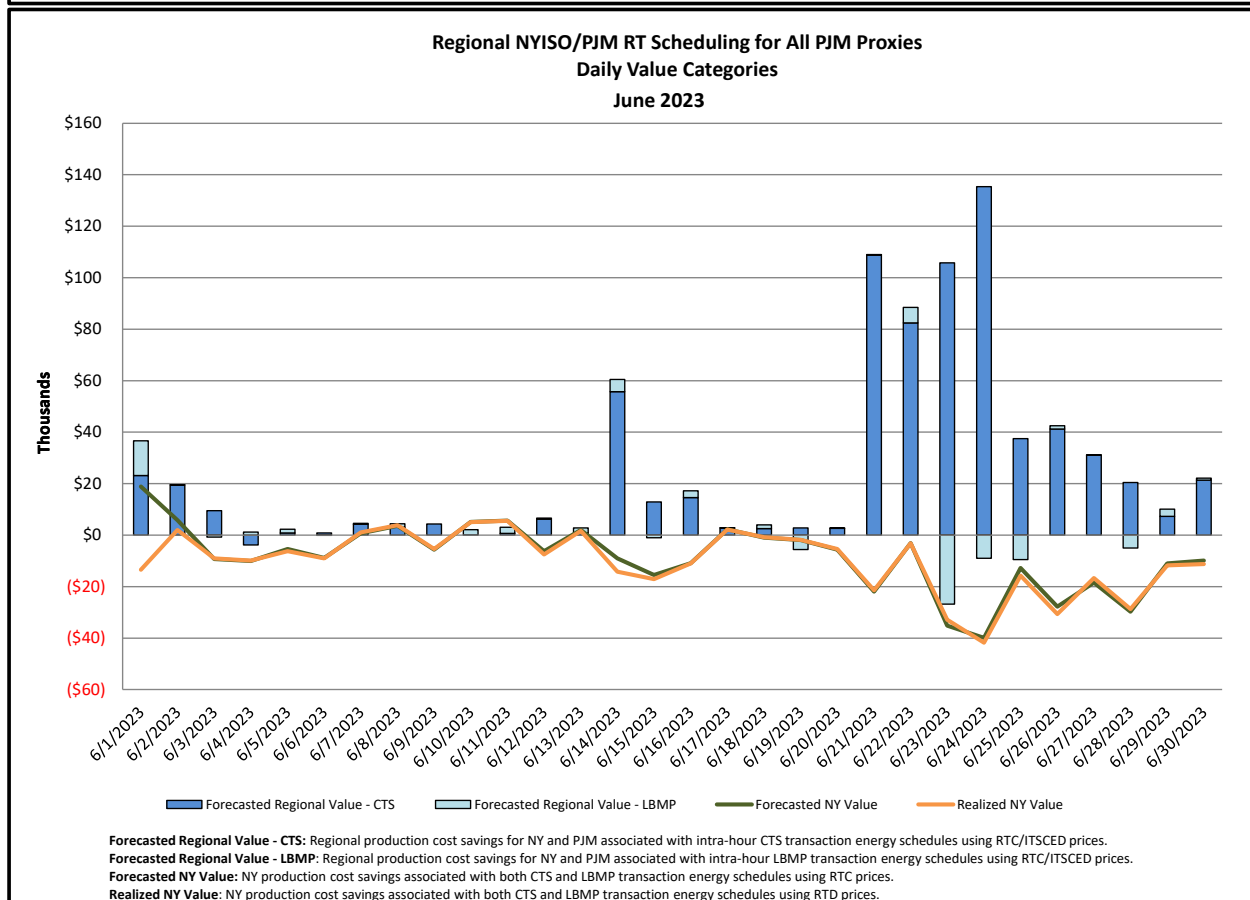
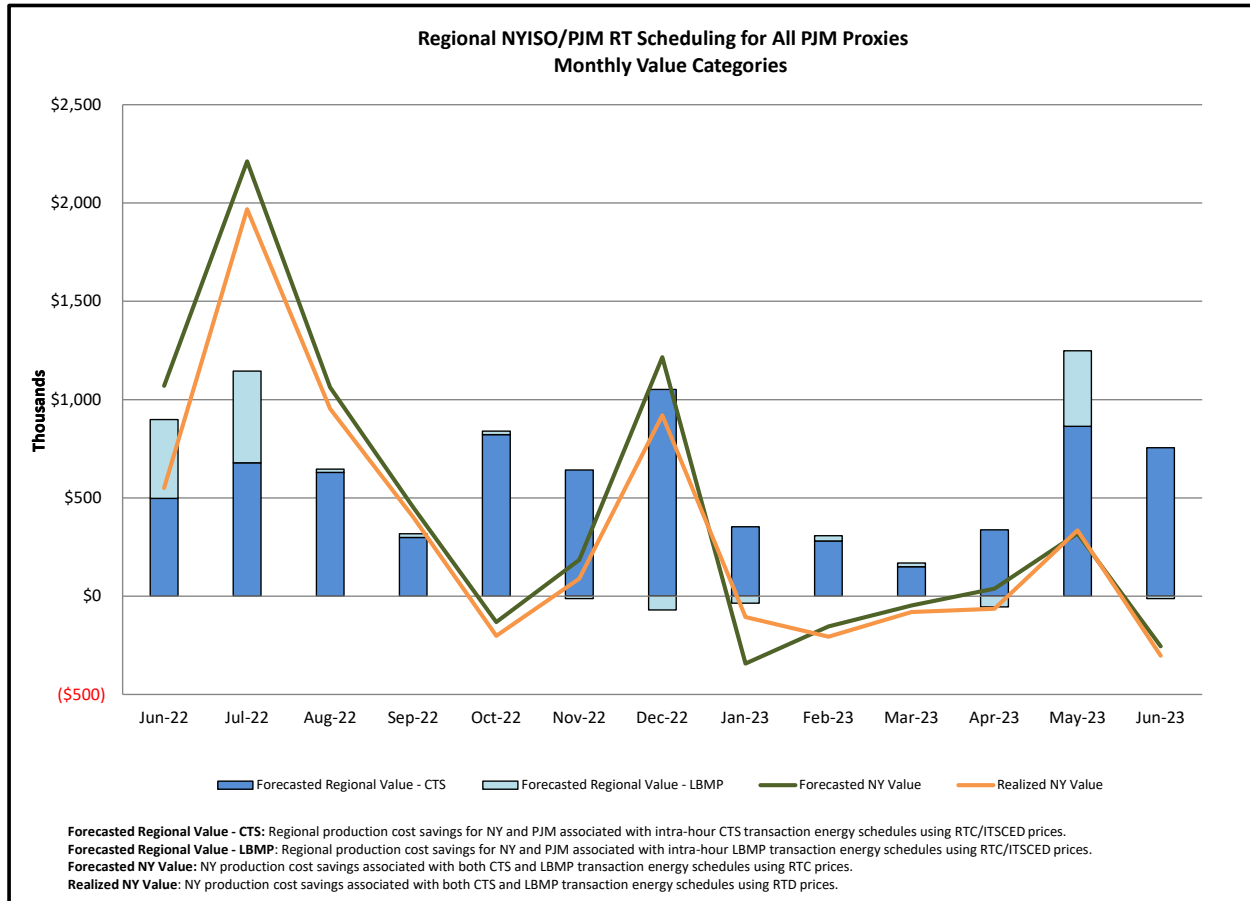
Unavailable Capacity is calculated as the difference of Day-Ahead Market (DAM) capacity relative to Real-Time (RT) capacity during RT peak load hour.

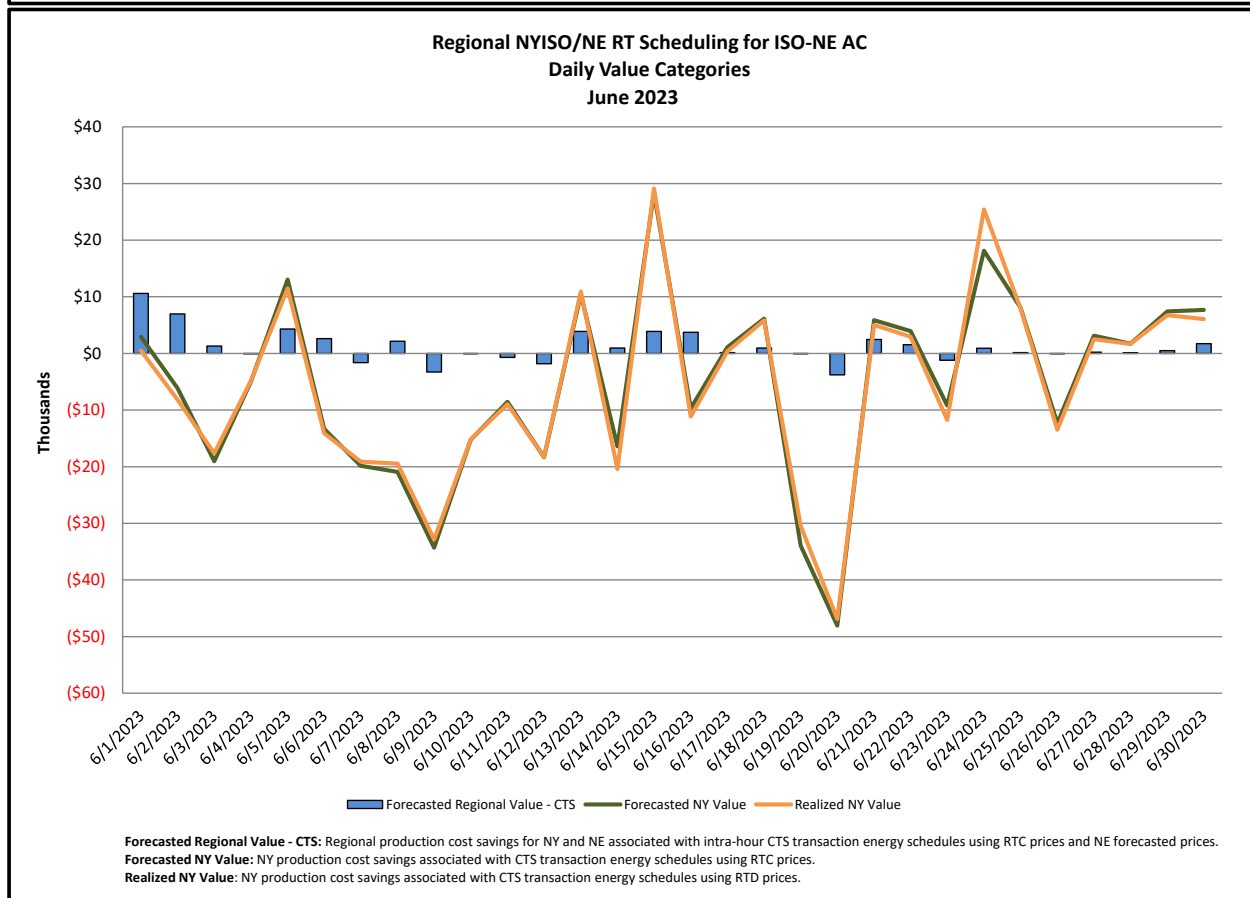
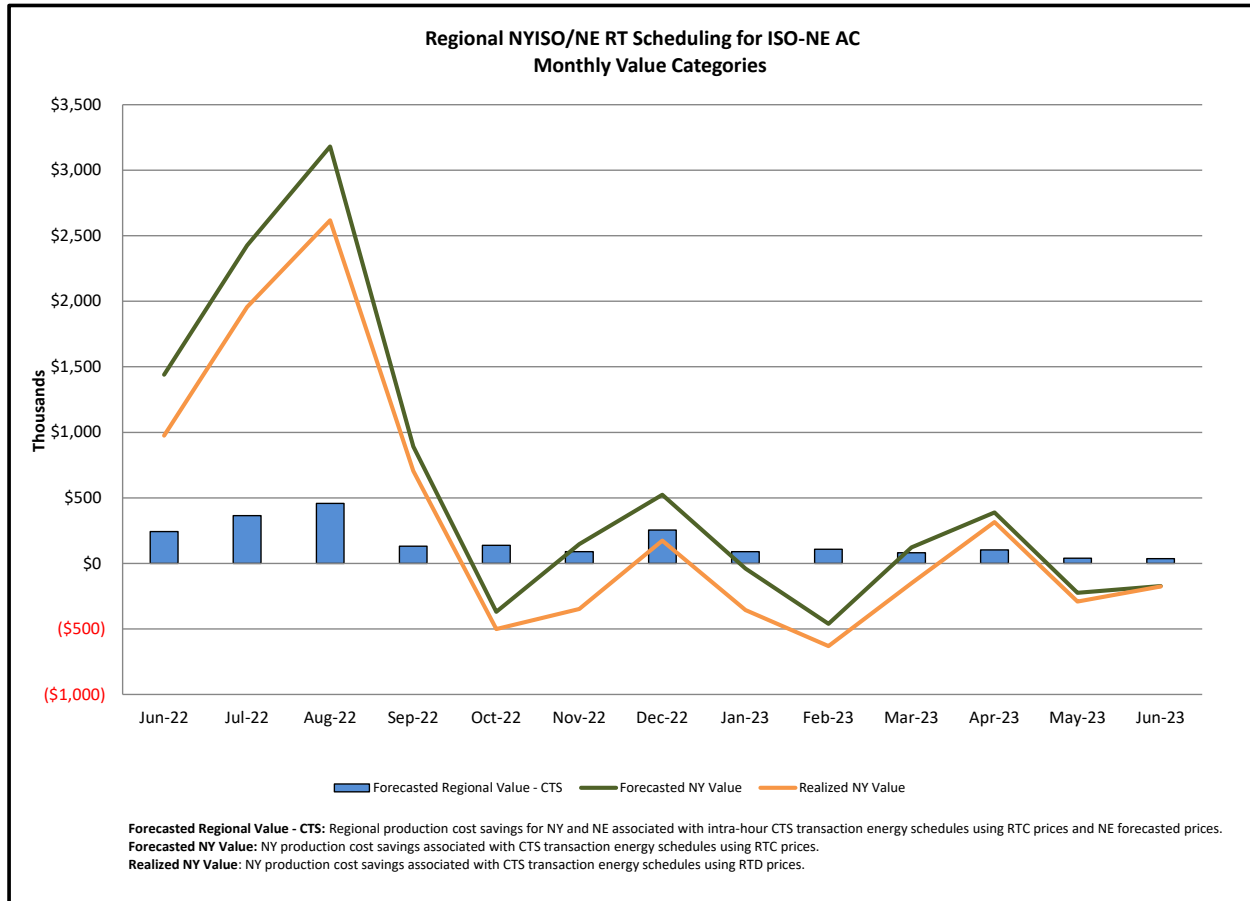


Broader Regional Market Performance Metrics

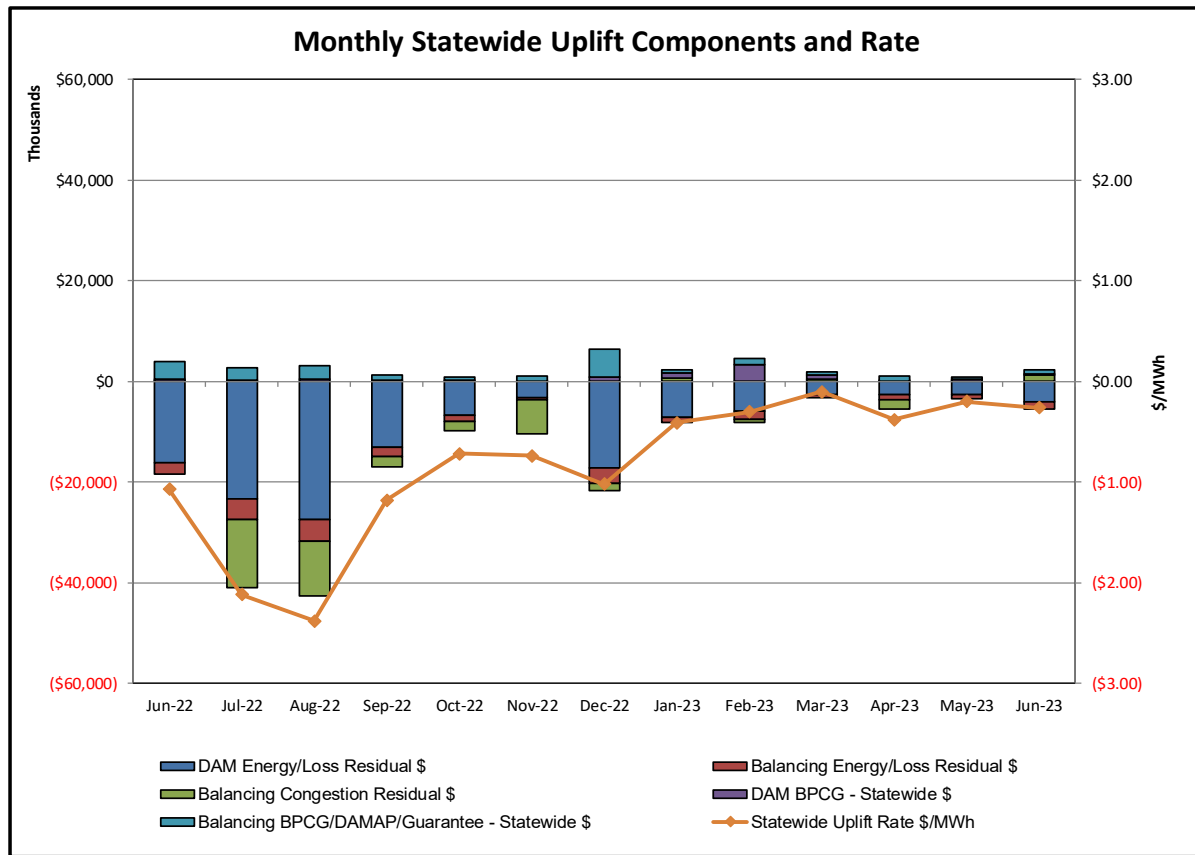


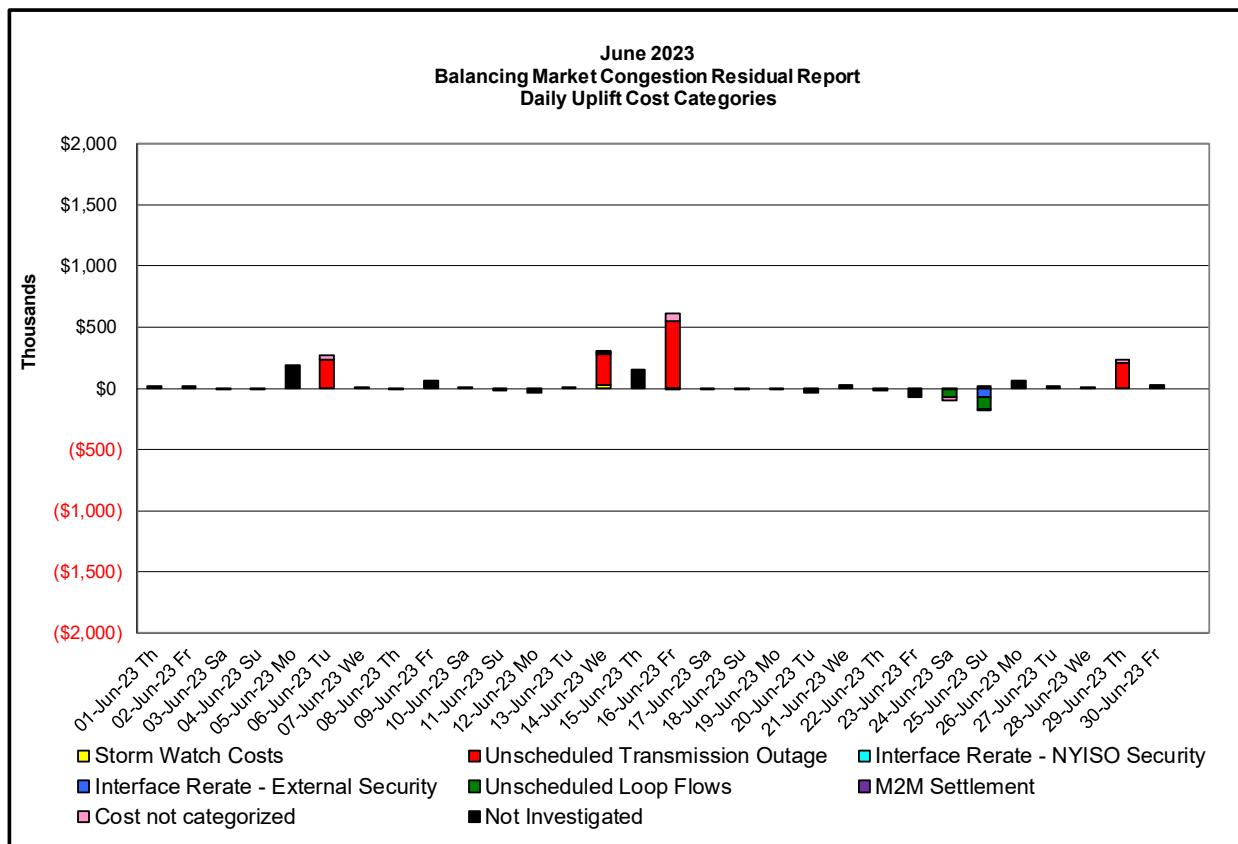
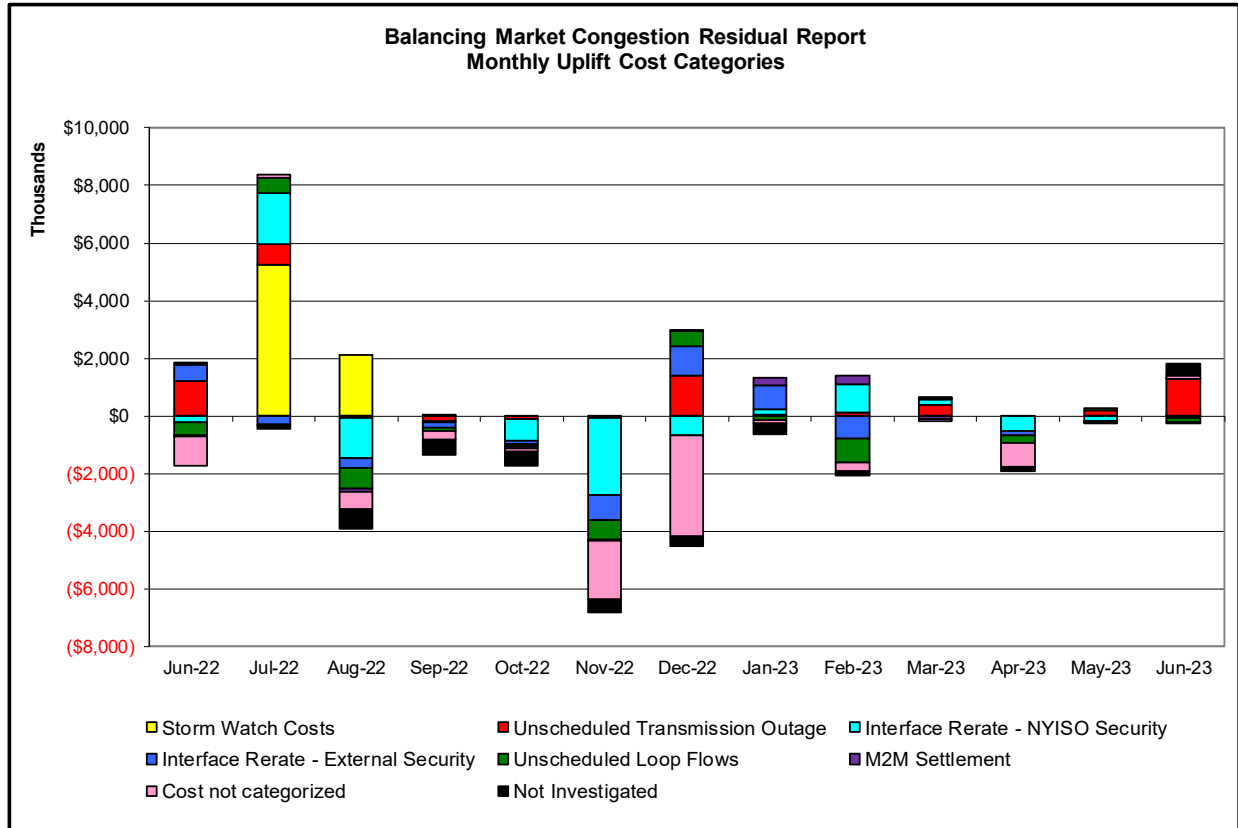
<u>PAR Interconnection Congestion Coordination</u>	
<u>Category</u>	<u>Description</u>
NY	Represents the value NY realizes from Market-to-Market PAR Coordination when experiencing congestion. This is the estimated savings to NY for additional deliveries into NY
RECO	Represents the value of PJM's obligation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





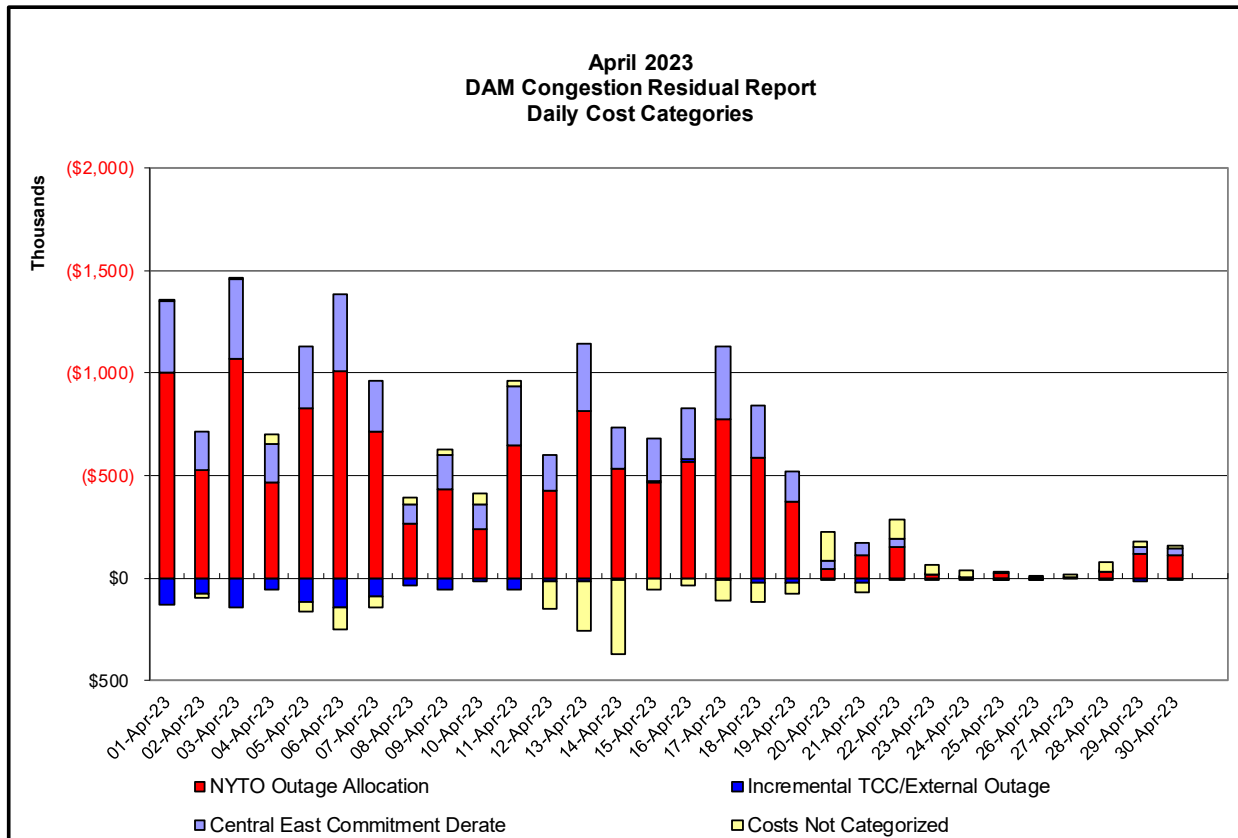
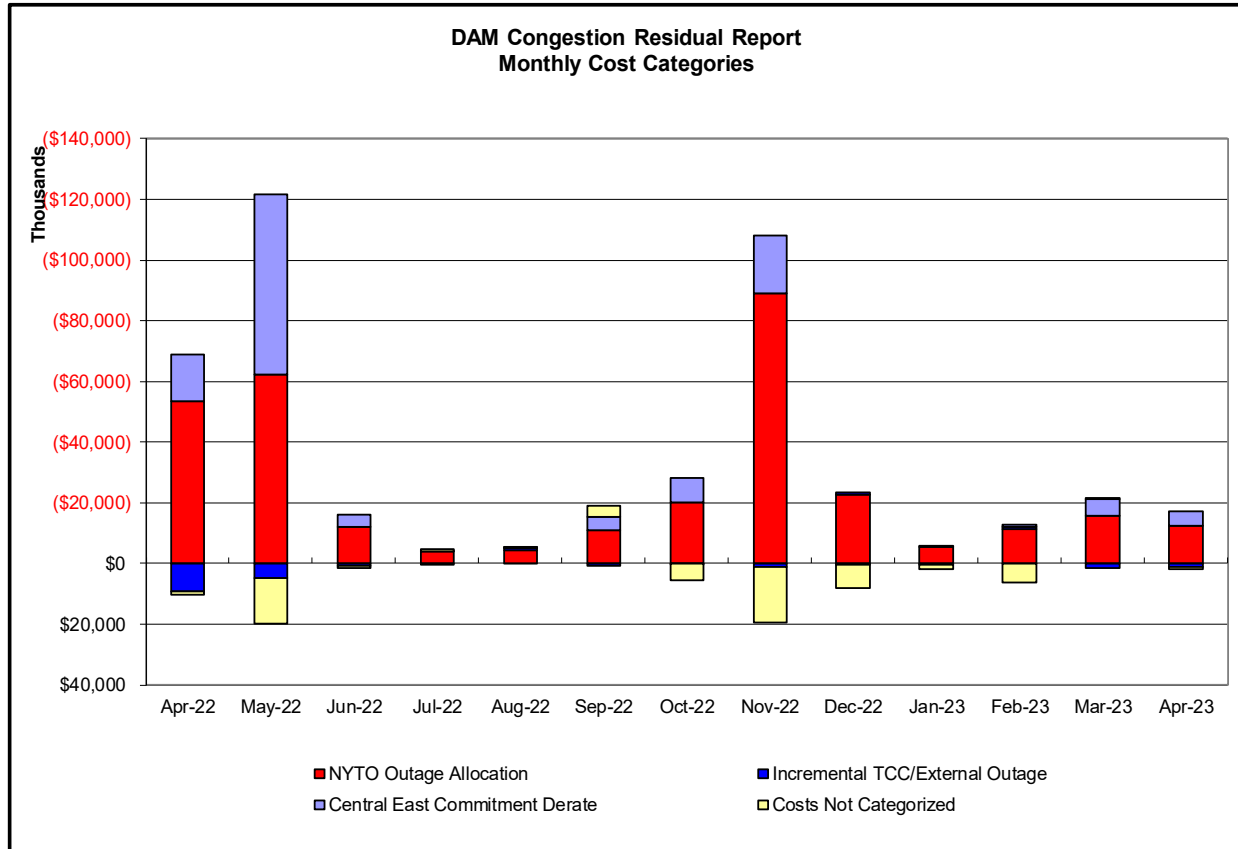
Day's investigated in June: 6,14,16,24,25,29			
Event	Date (yyyymmdd)	Hours	Description
	6/6/2023	15	Forced Outage of Canandaigua-Stony Ridge 230kV (#68)
	6/6/2023	0,7,9,10,15,18,21	Forced Outage of Sprainbook-East Garden City 345kV (#Y49)
	6/14/2023	15	Thunder Storm Alert, Chestor-Shoemaker 138kV (#27)
	6/14/2023	14,15	Thunder Storm Alert, Linden-Goethals 230kV (#A2253)
	6/14/2023	10-16,18	Forced Outage of Sprainbook-East Garden City 345kV (#Y49)
	6/14/2023	16	NYCA DNI Ramp Limit
	6/14/2023	16	NE AC ACTIVE DNI Ramp Limit
	6/14/2023	16	NE AC Scheduling Limit
	6/14/2023	16	PJM AC ACTIVE DNI Ramp Limit
	6/16/2023	0,7-15	Forced Outage of Sprainbook-East Garden City 345kV (#Y49)
	6/24/2023	18	NE AC ACTIVE DNI Ramp Limit
	6/24/2023	15	NE AC Scheduling Limit
	6/24/2023	15,19,20	Lake Erie Circulation, DAM-RTM exceeds +/-125MW; Central East
	6/25/2023	22	Extended Outage of Freshkills-Goethals 345kV (#22)
	6/25/2023	15,16,18-21	NE AC Scheduling Limit
	6/25/2023	18	PJM AC - NY Scheduling Limit
	6/25/2023	15-21	Lake Erie Circulation, DAM-RTM exceeds +/-125MW; Central East
	6/29/2023	0-11,18	Forced Outage East Garden City 345/138kV (#AT2)

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
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	

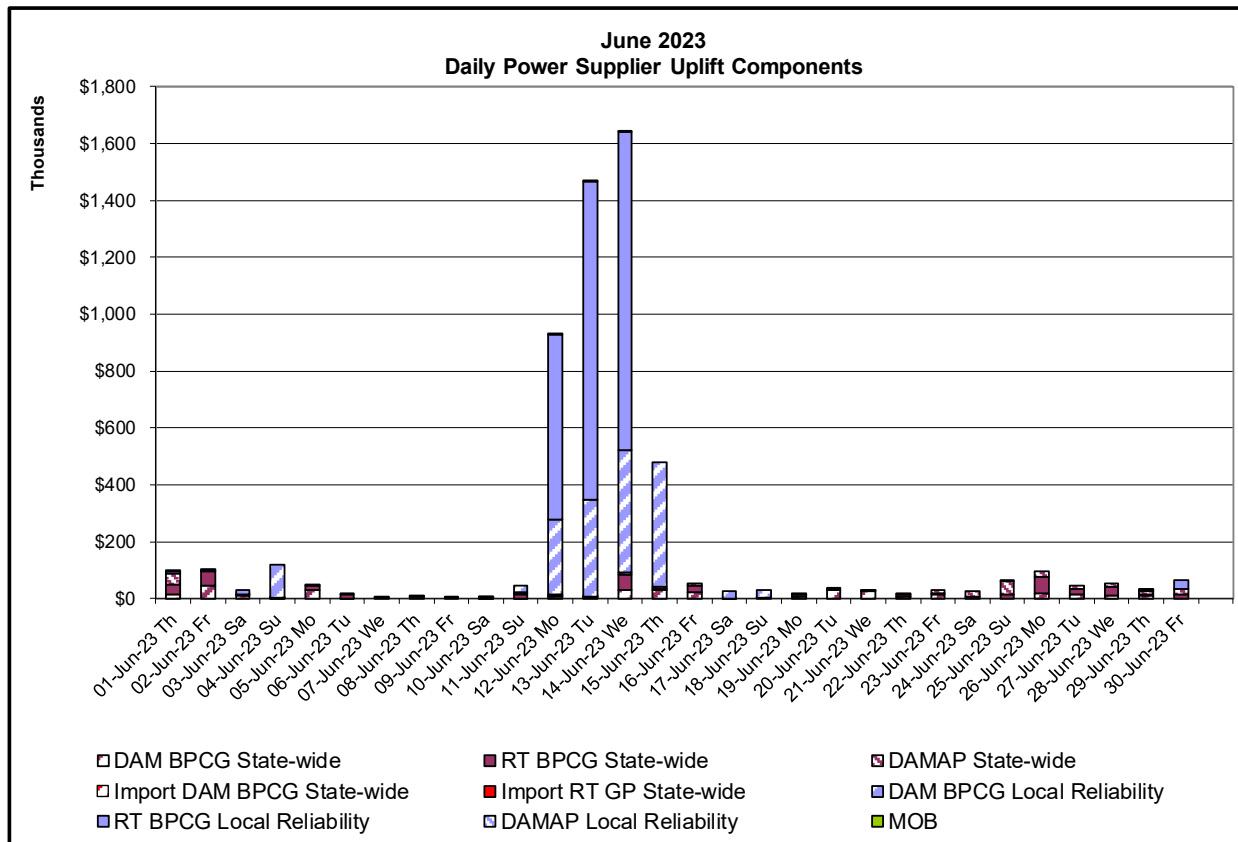
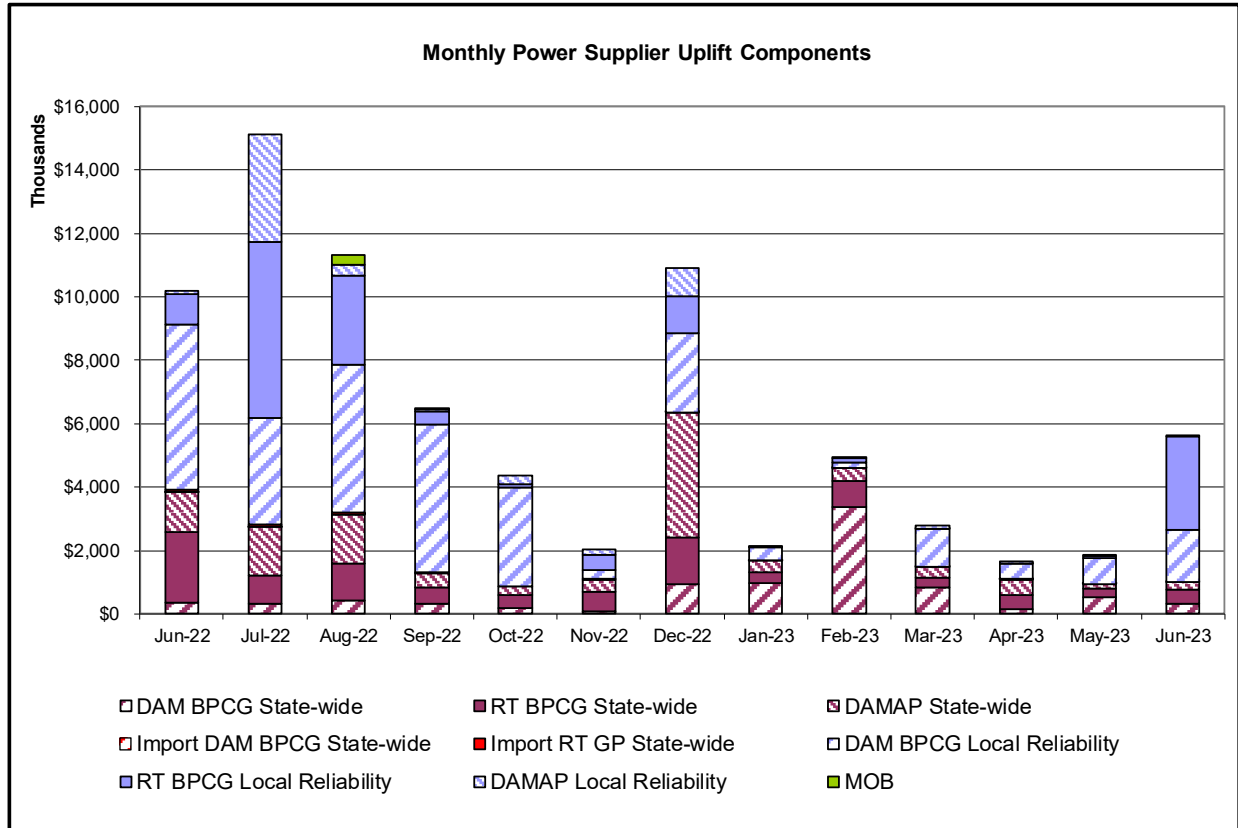
Monthly Balancing Market Congestion Report Assumptions/Notes

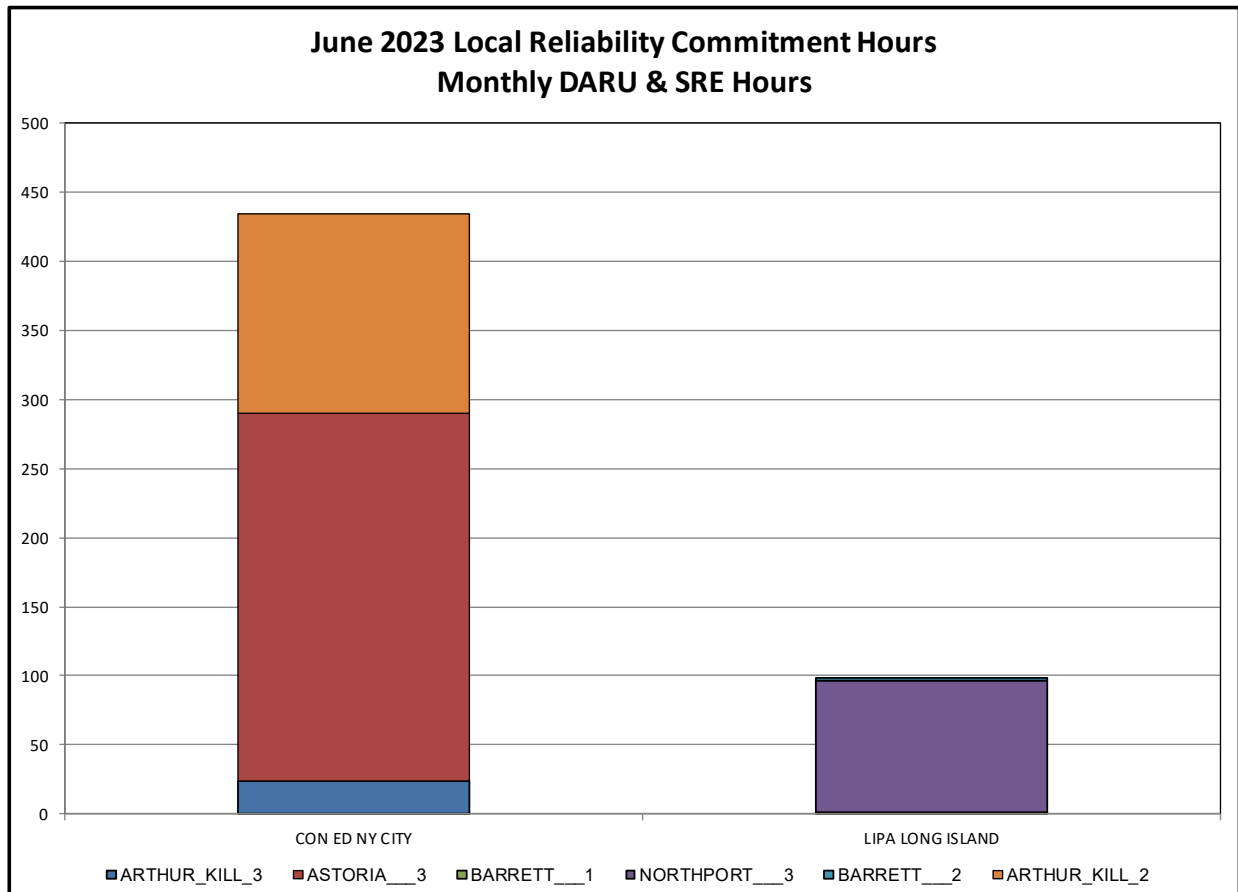
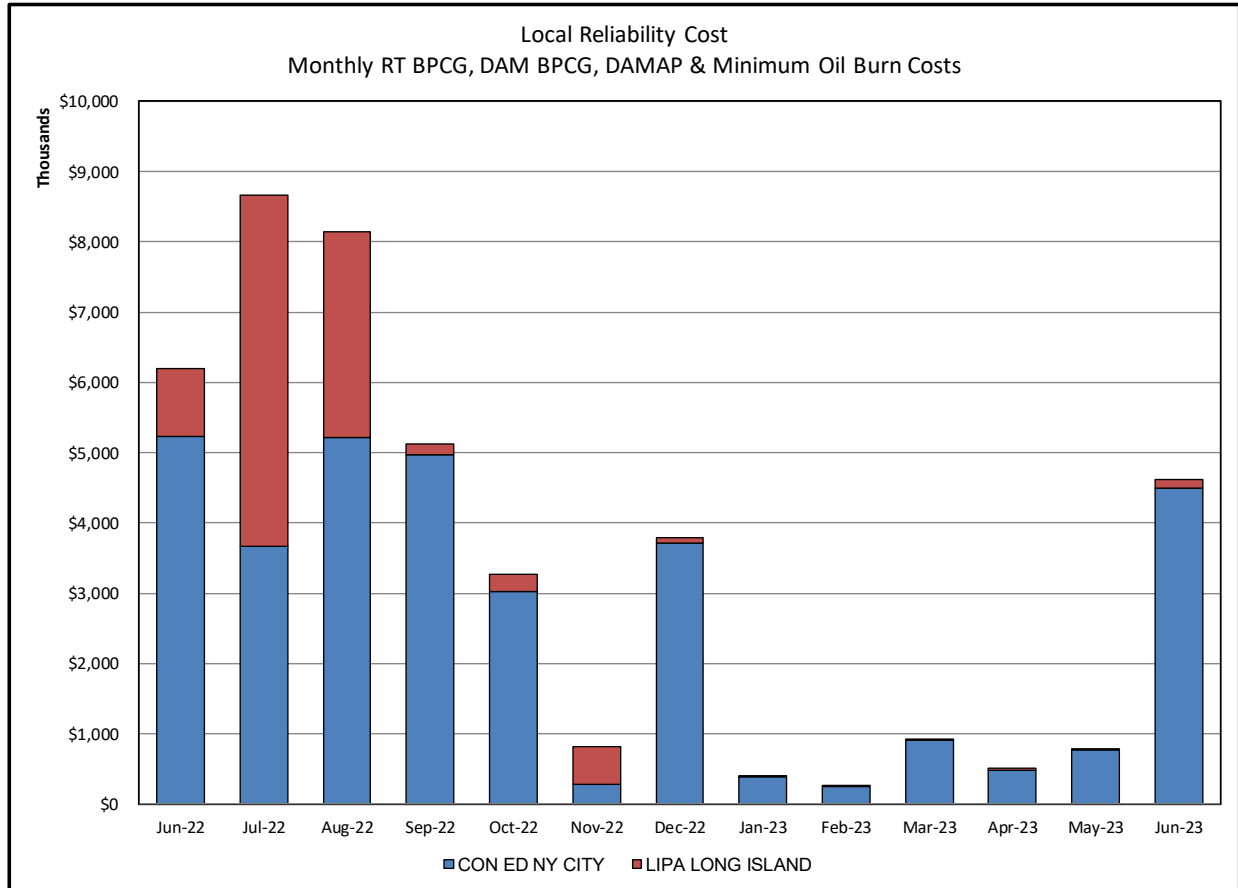
- 1) Storm Watch Costs are identified as daily total uplift costs
- 2) Days with a value of BMCR less M2M Settlement of \$100K/HR, shortfall of \$200K/Day or more, or surplus of \$100K/Day or more are investigated.
- 3) Uplift costs associated with multiple event types are apportioned equally by hour

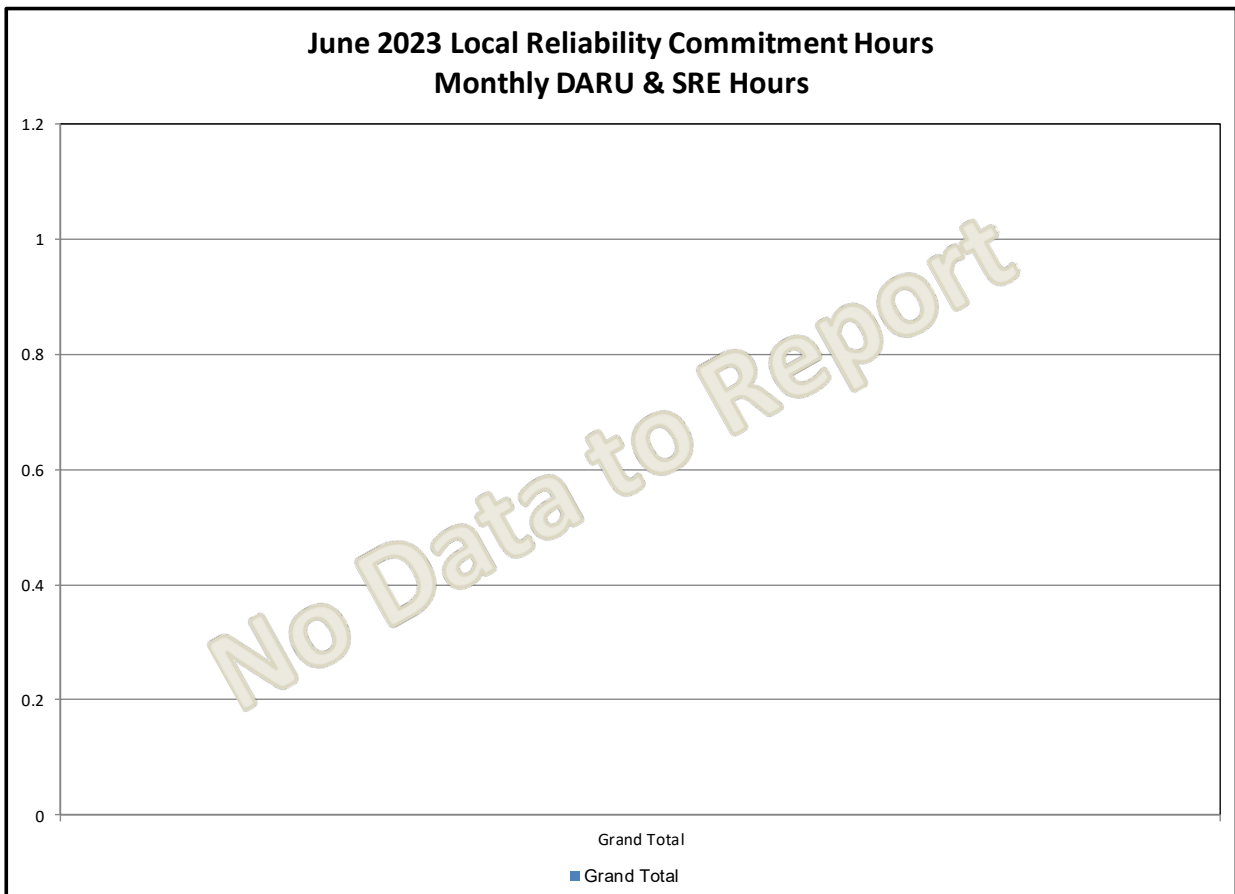
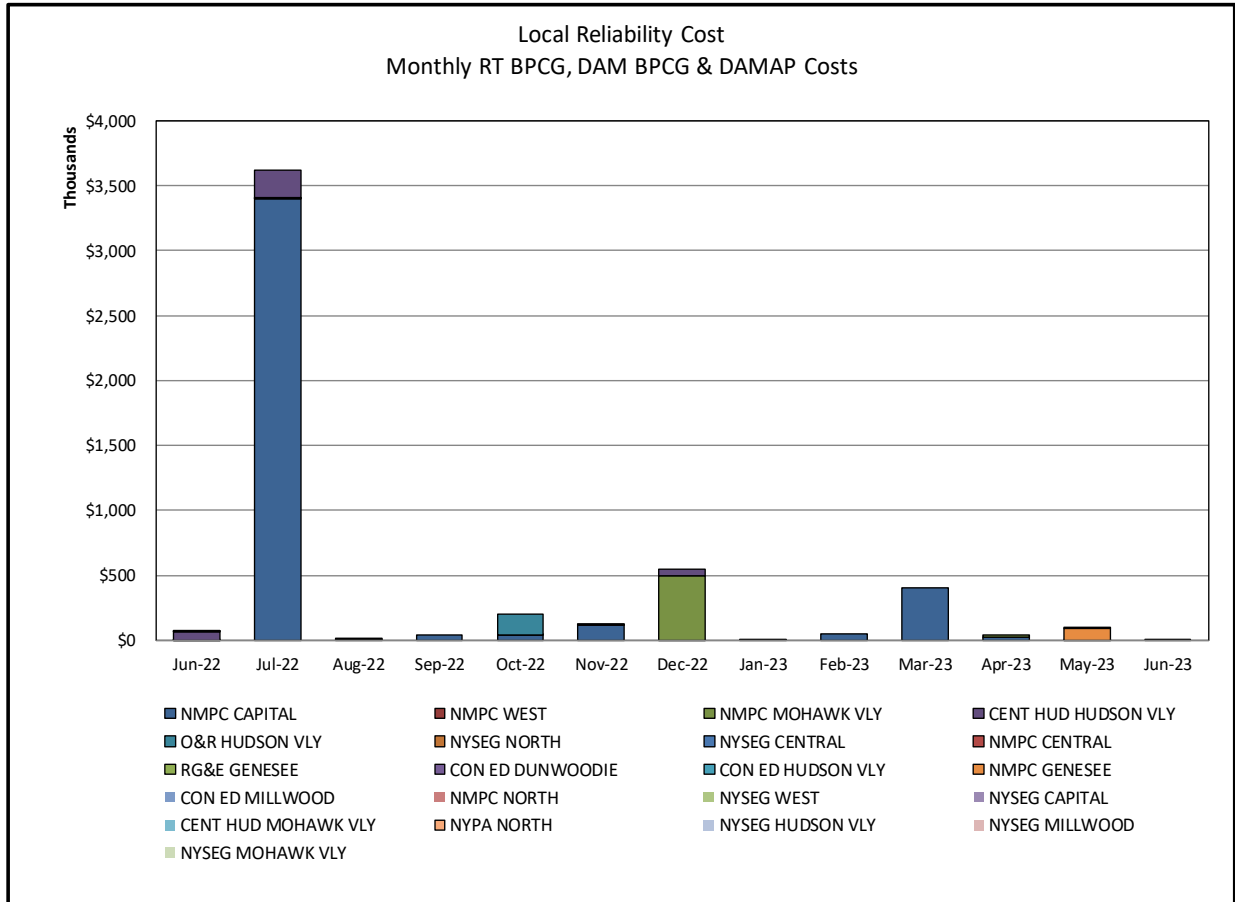


Day-Ahead Market Congestion Residual Categories

<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.	

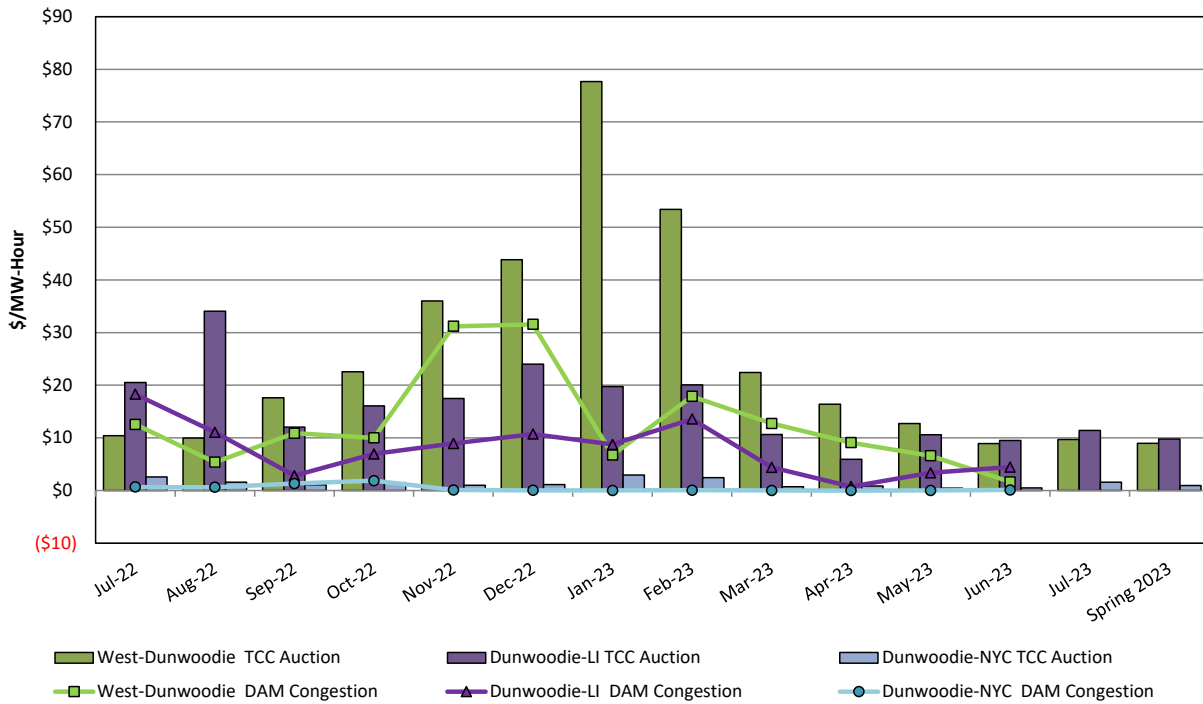






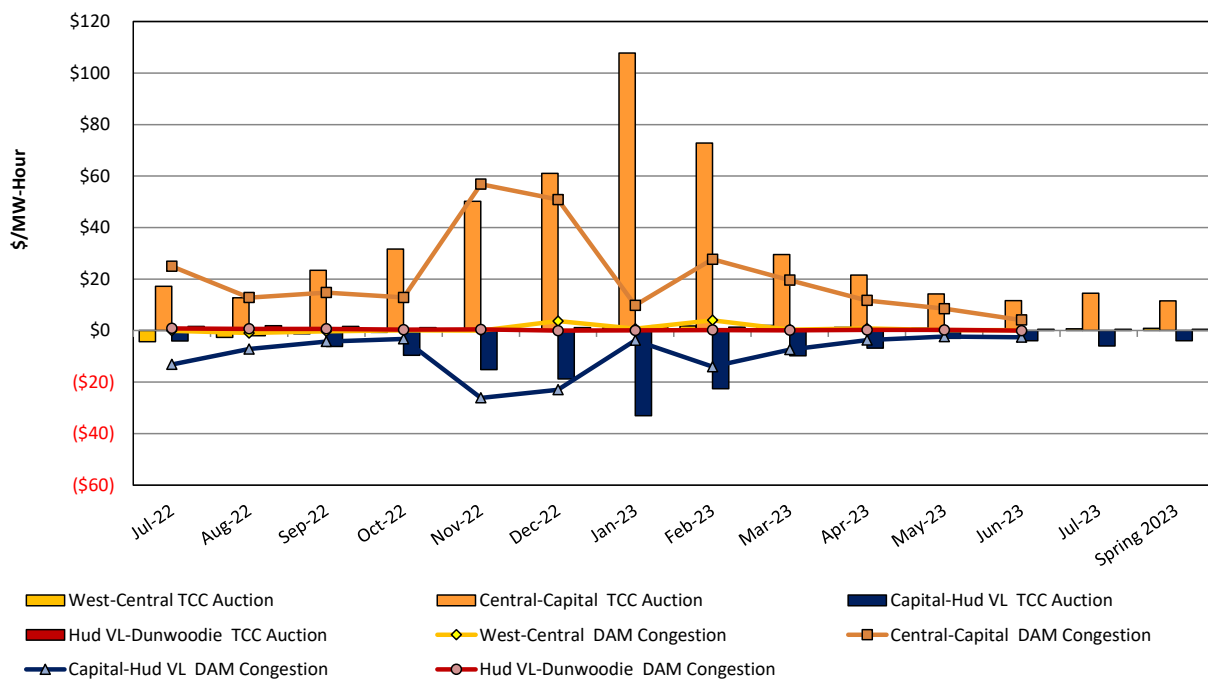
TCC & Day Ahead Market Selected Internal Path Congestion

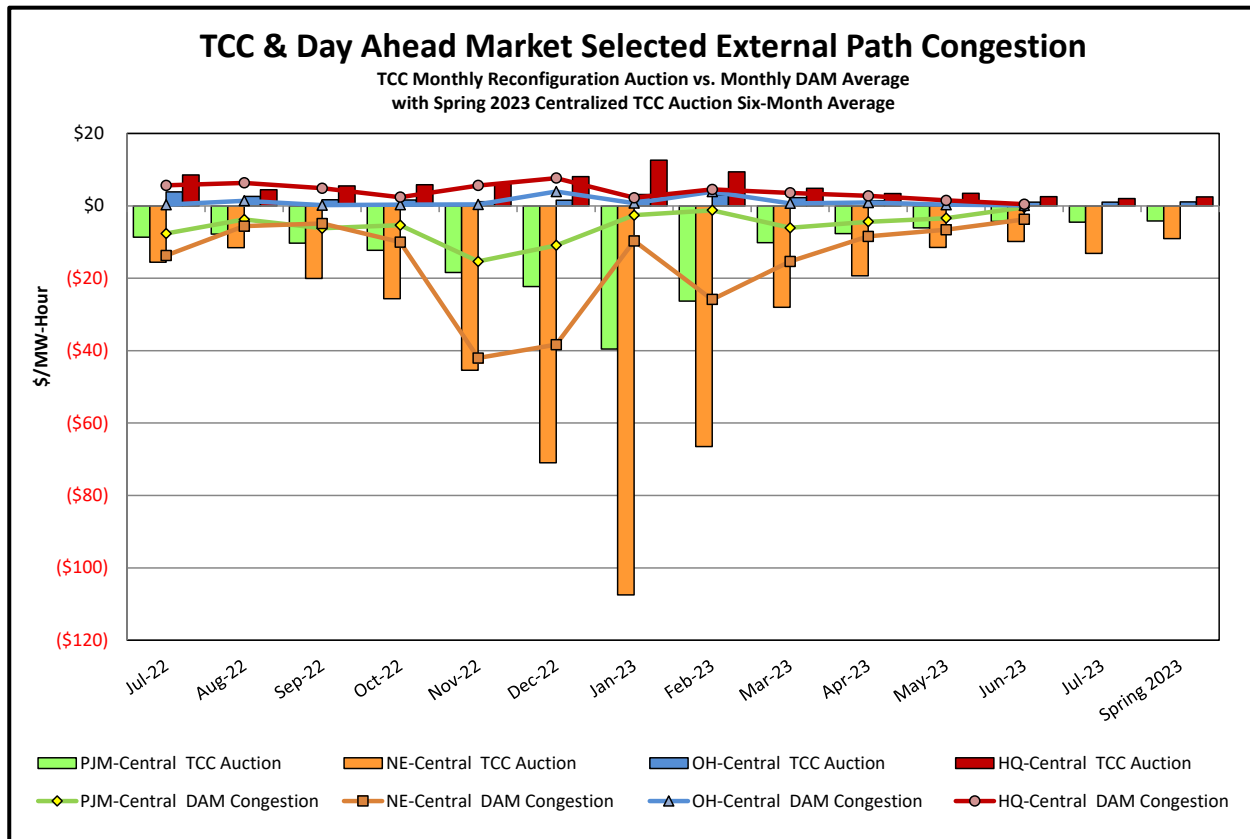
TCC Monthly Reconfiguration Auction vs. Monthly DAM Average
with Spring 2023 Centralized TCC Auction Six-Month Average



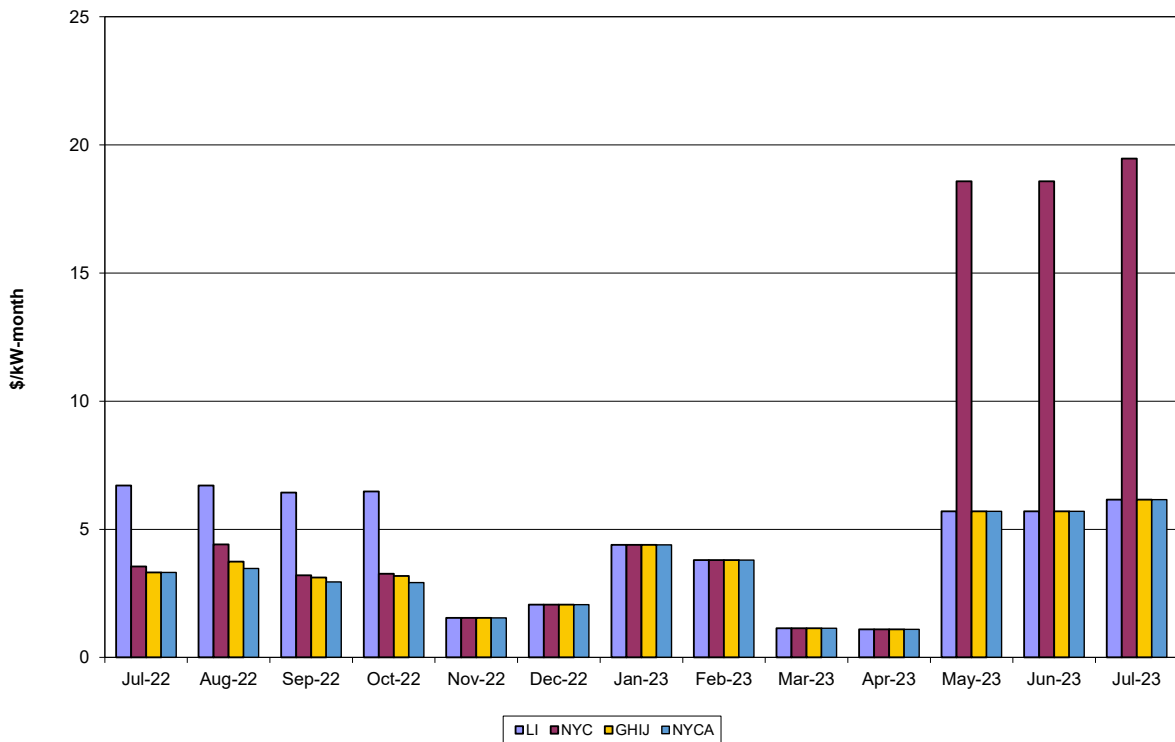
TCC & Day Ahead Market West to Dunwoodie Path Congestion

TCC Monthly Reconfiguration Auction vs. Monthly DAM Average
with Spring 2023 Centralized TCC Auction Six-Month Average





ICAP Spot Market Clearing Price



UCAP Sales

