

Operations Performance Metrics Monthly Report



March 2025 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 April 8, 2025.

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March 2025 Operations Performance Highlights

Monthly Peak Load	Monthly Minimum Load	Winter 2024-2025 Peak	All-time Winter Peak
03/03/2025 HB 18 20,652 MW	03/23/2025 HB 14 12,594 MW	01/22/2025 HB 18 23,521 MW	01/07/2014 HB 18 25,738 MW

- 4.0 hours of Thunderstorm Alerts were declared
- 0.0 hours of NERC TLR level 3 curtailment
- Forced transmission outages in Zone J Greenwood/Staten Island load pocket resulted in increased uplift costs.
- NYISO maintained reliable system operations throughout a partial solar eclipse that occurred on Saturday March 29th. The event took place from 6:35am to 7:12am and negligible solar generation impacts were realized due to time of day and increasing cloud cover.

Installed Wind, Solar and Energy Storage Resource Nameplate Values:

Land-Based Wind	Offshore Wind	Behind-the-Meter Solar	Front-of-the-Meter Solar	Energy Storage Resource (ESR)
2,736 MW	136 MW	6,246 MW	571 MW	105 MW

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

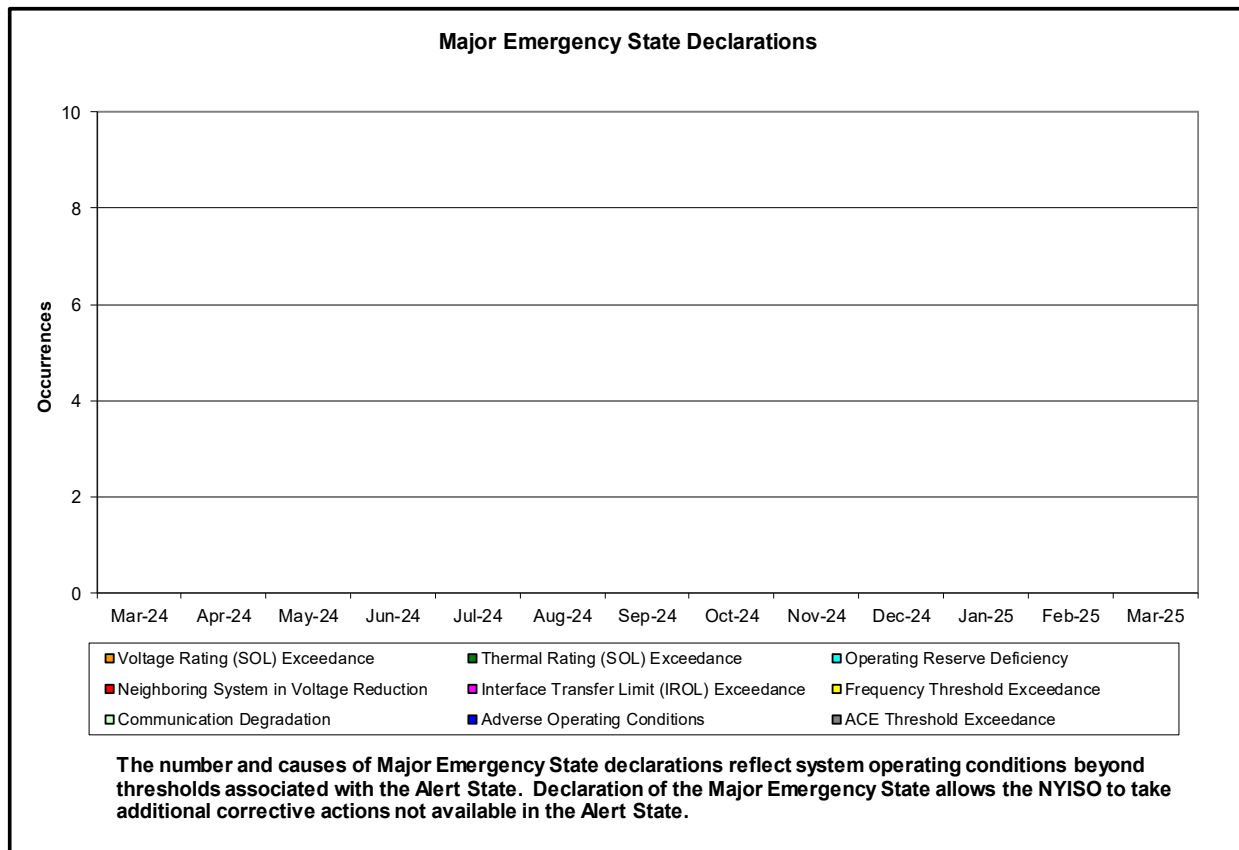
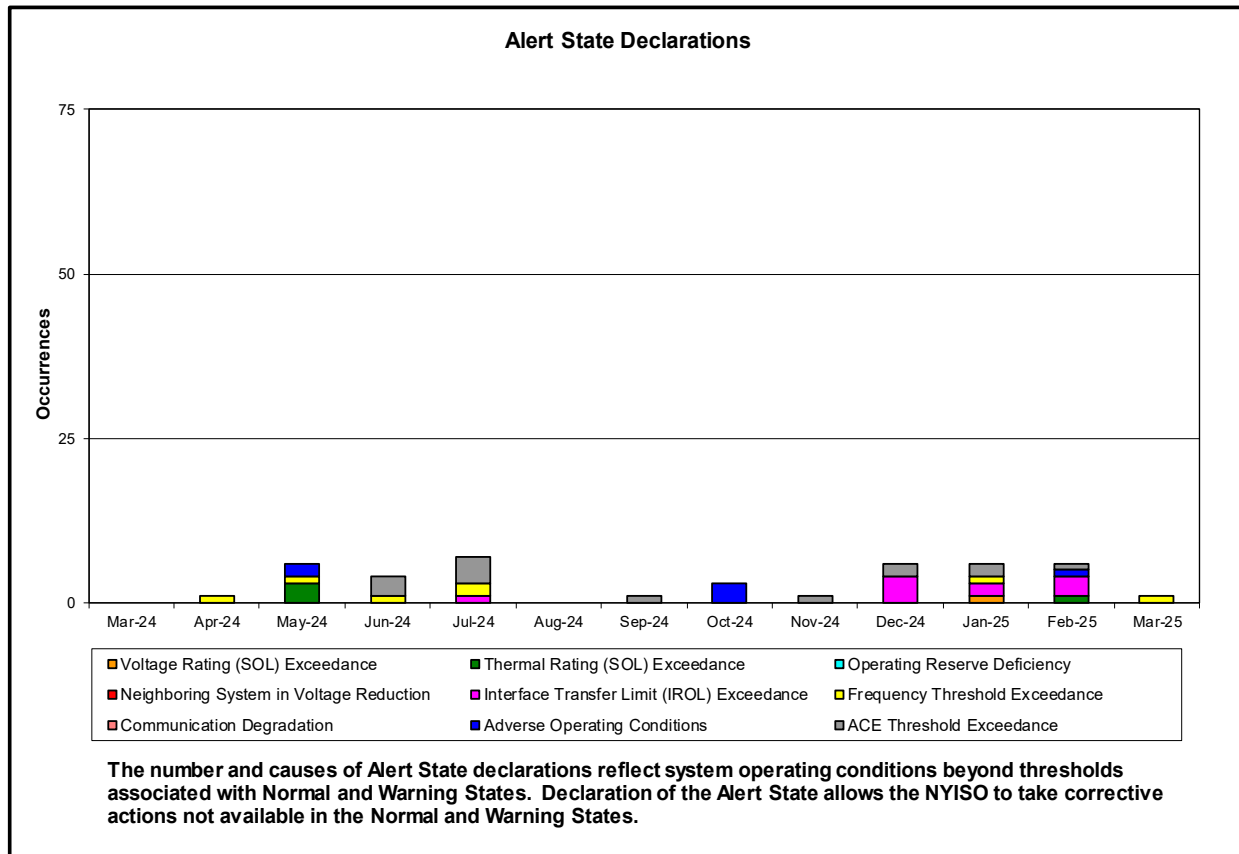
	Current Month Value (\$M)	Year-to-Date Value (\$M)
NY Savings from PJM-NY Congestion Coordination	(\$0.01)	\$0.34
NY Savings from PJM-NY Coordinated Transaction Scheduling	(\$0.20)	\$1.80
NY Savings from NE-NY Coordinated Transaction Scheduling	\$1.53	\$8.23
Total NY Savings	\$1.32	\$10.37
Regional Savings from PJM-NY Coordinated Transaction Scheduling	\$0.91	\$2.98
Regional Savings from NE-NY Coordinated Transaction Scheduling	\$0.23	\$0.72
Total Regional Savings	\$1.14	\$3.70

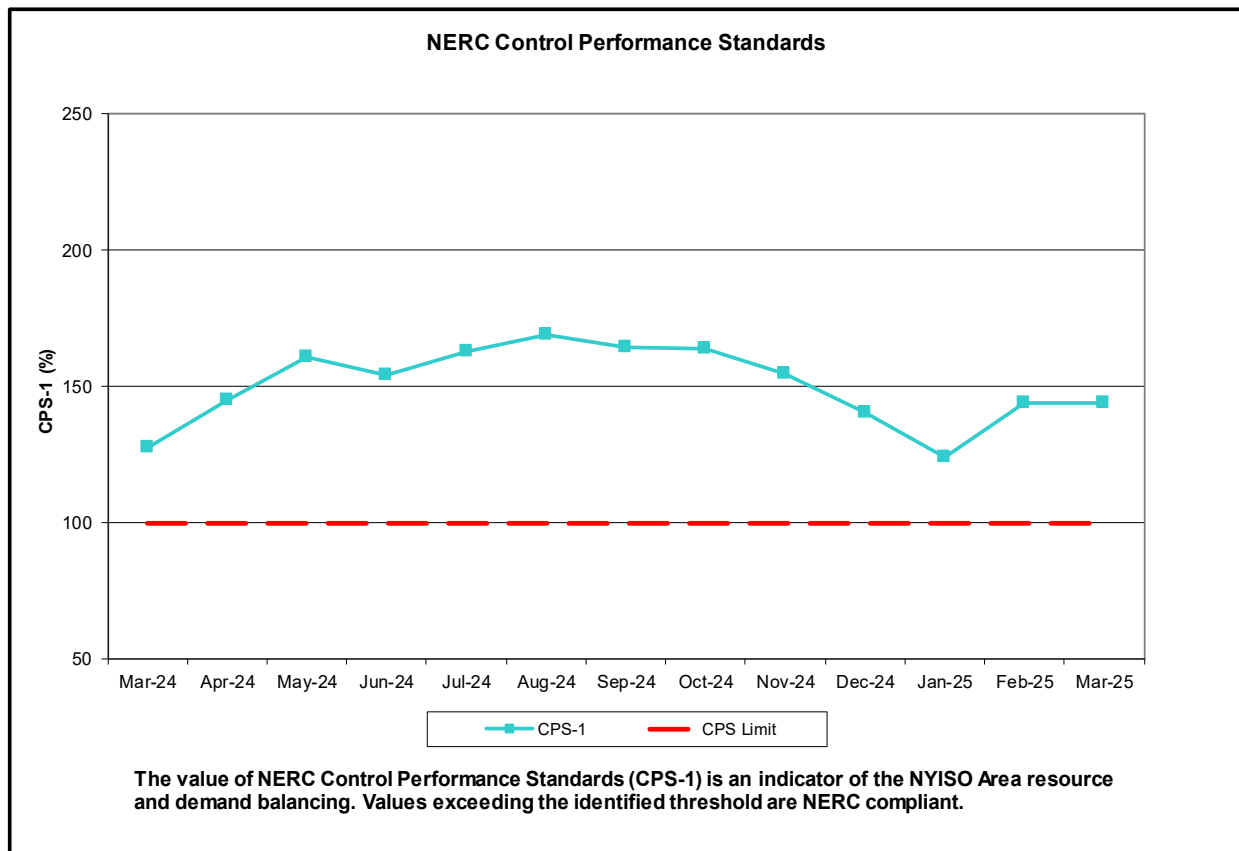
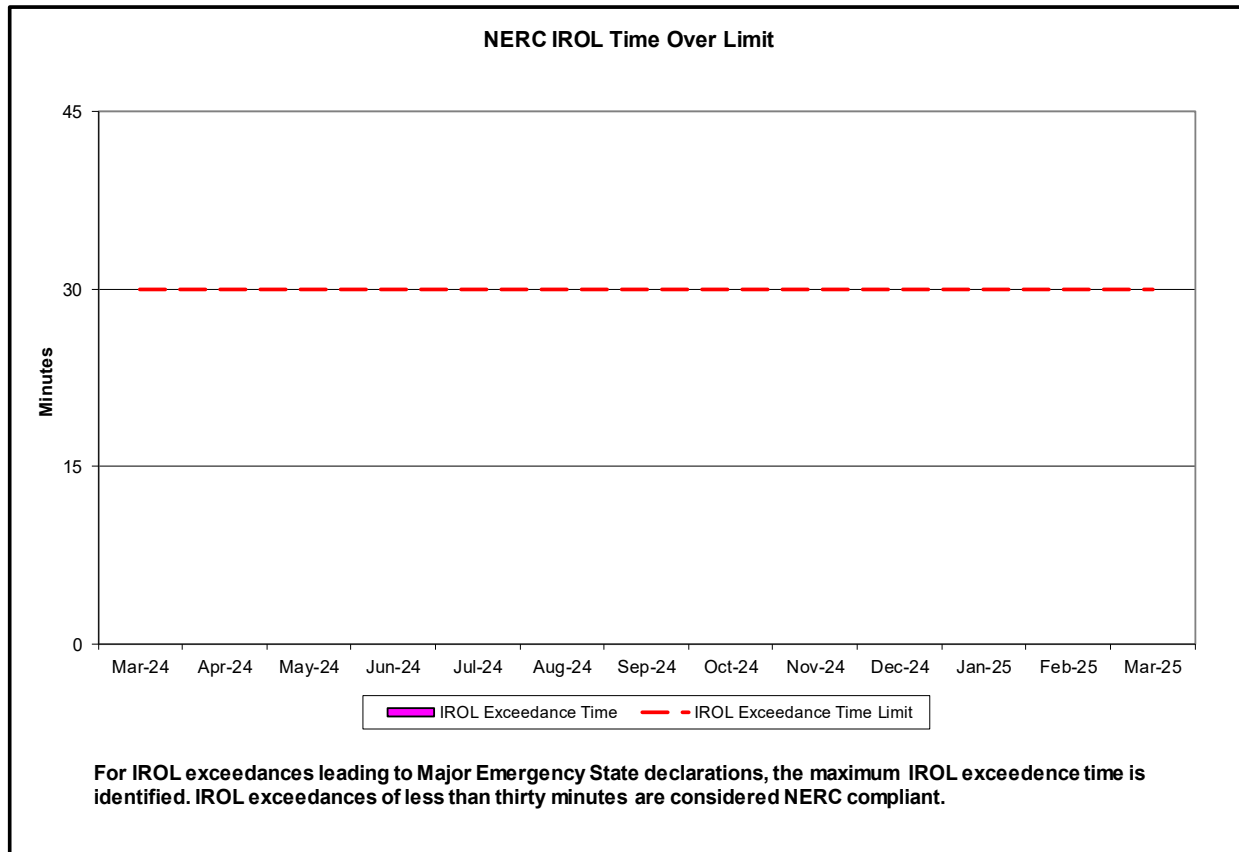
- Statewide uplift cost monthly average was (\$0.23)/MWh.
- The following table identifies the Monthly ICAP spot market prices and the price delta.

Spot Auction Price Results	NYCA	Lower Hudson Valley Zones	New York City Zone	Long Island Zone
April 2025 Spot Price	\$1.27	\$1.27	\$8.11	\$1.27
March 2025 Spot Price	\$1.25	\$1.25	\$8.15	\$1.25
Delta	\$0.02	\$0.02	(\$0.04)	\$0.02

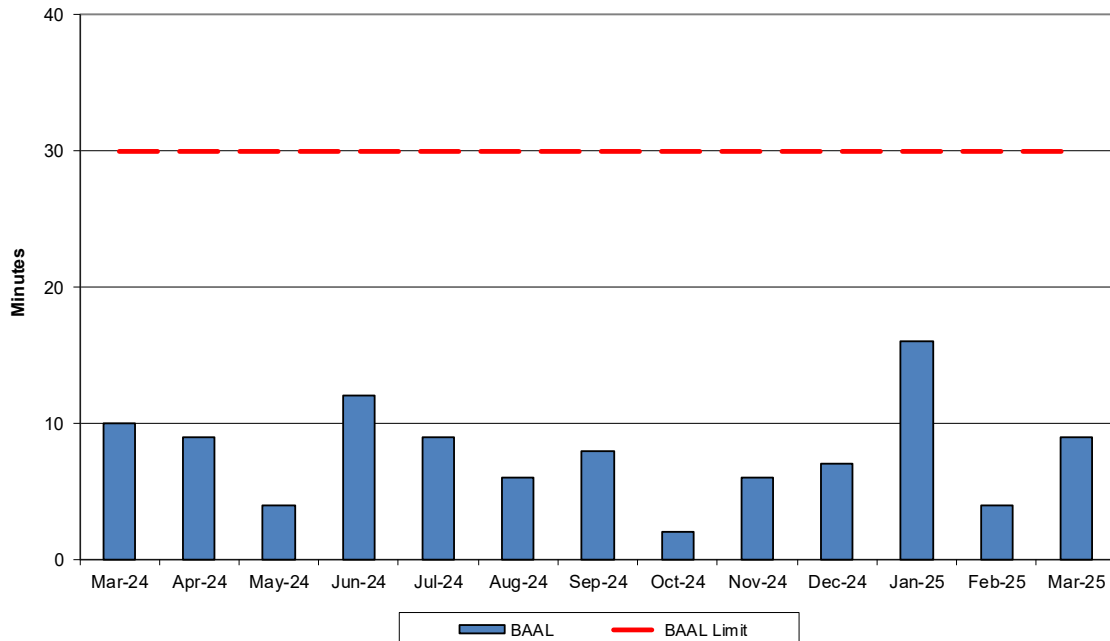
- No significant change observed.

Reliability Performance Metrics



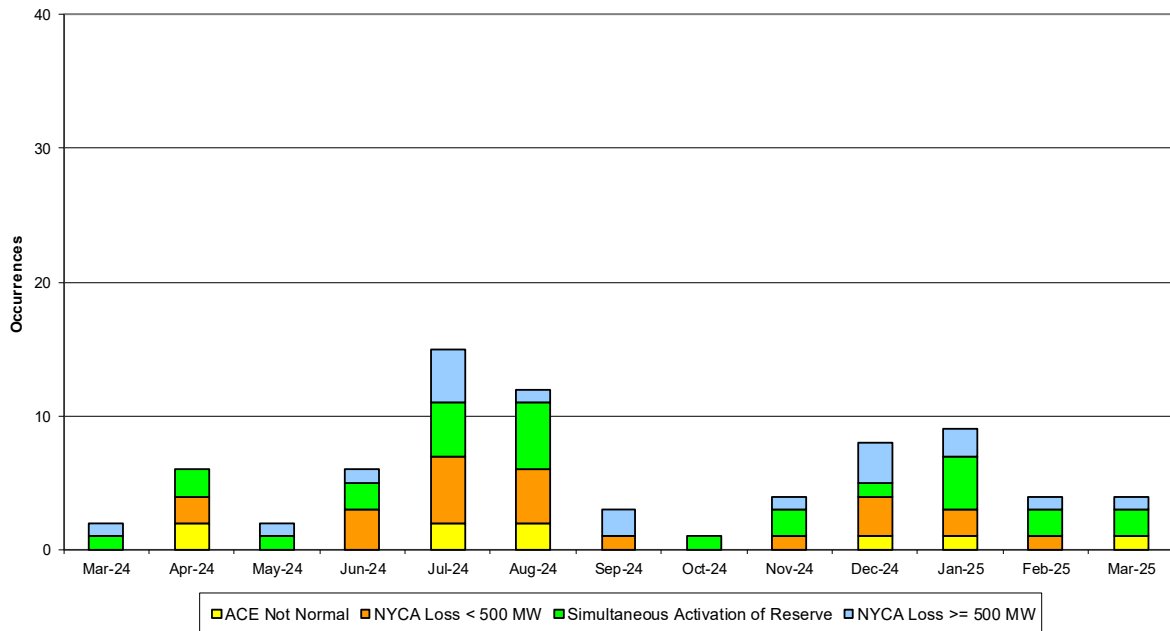


NERC Balancing Authority ACE Limit Standard



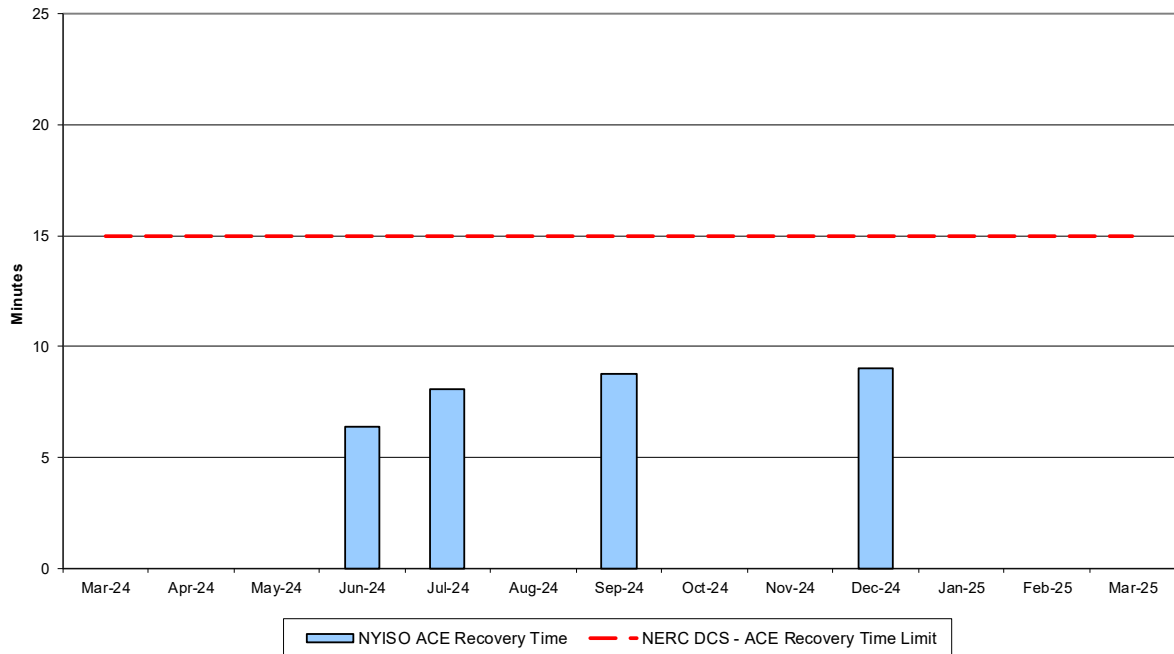
The amount of time the clock-minute average ACE exceeds the clock-minute Balancing Authority ACE Limit (BAAL) is an indicator of the NYISO Area resource and demand balancing. The maximum BAAL exceedance time is identified. BAAL exceedances of less than 30 consecutive clock-minutes are NERC compliant.

Reserve Activations



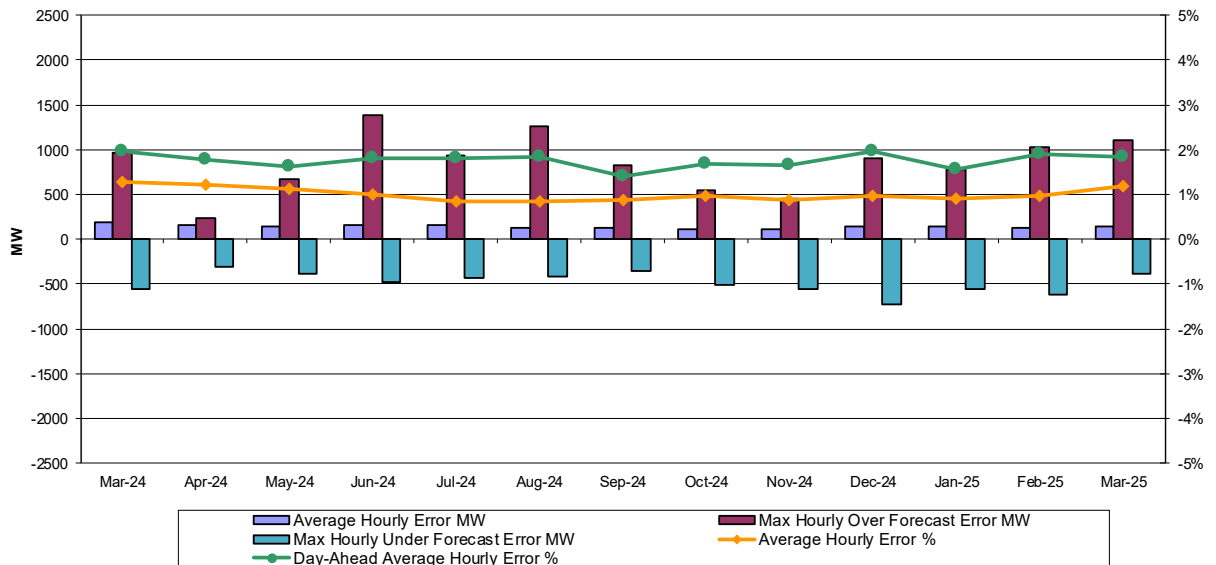
NYISO Reserve Activations are indicators of the need to respond to unexpected operational conditions within the NYISO Area or to assist a neighboring Area (Simultaneous Activation of Reserves) by activating an immediate resource and demand balancing operation.

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

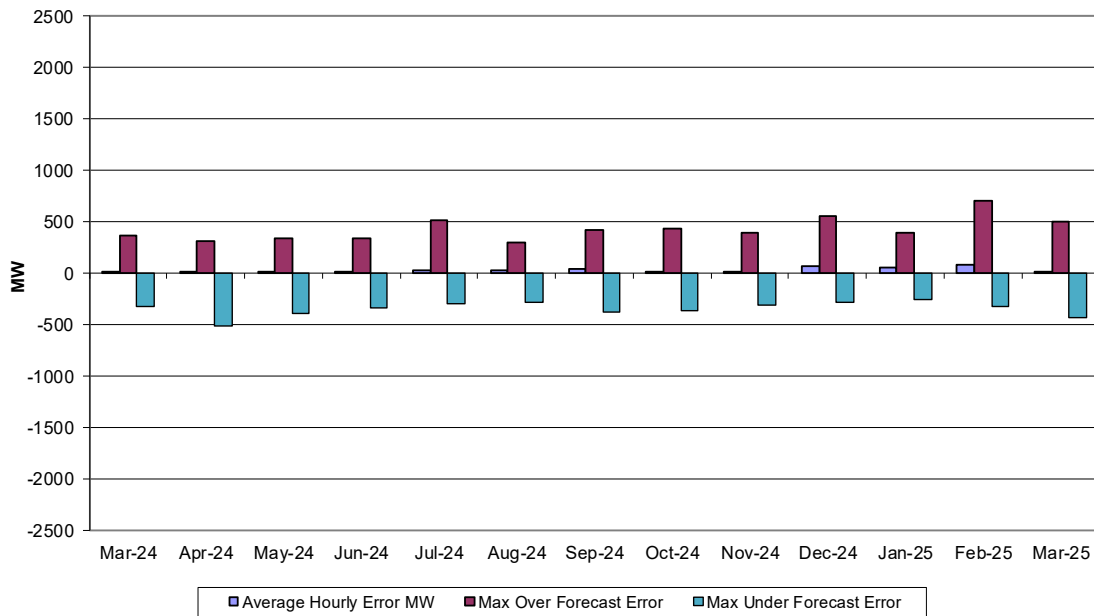


Hourly Error MW - Value of the difference between the hourly average actual load demand and the average hour ahead forecast load demand.

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

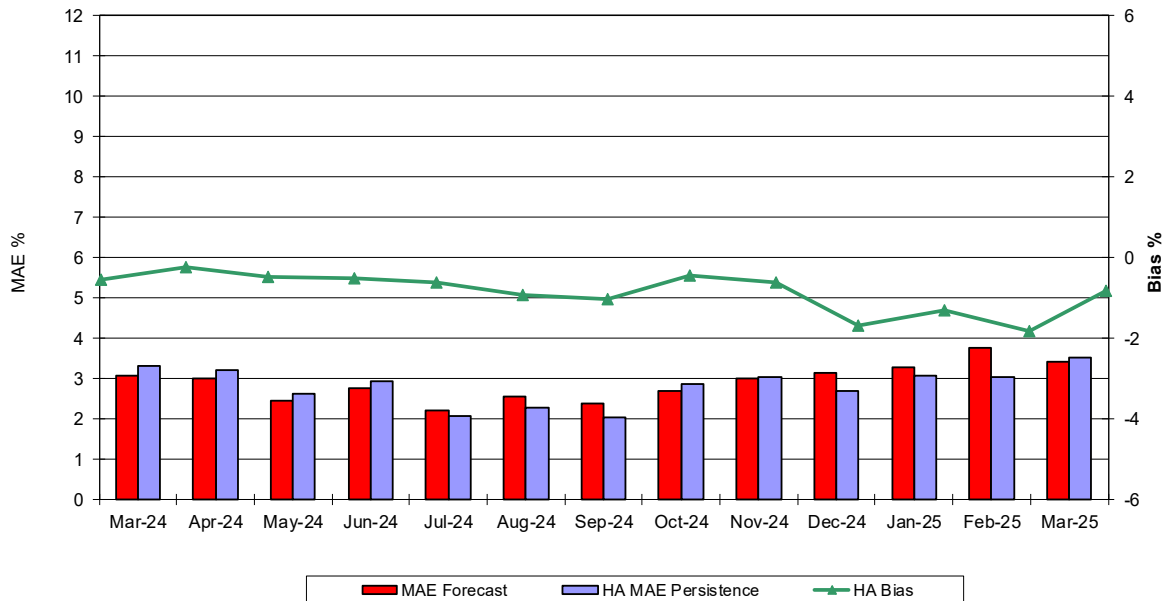
Day-Ahead Average Hourly Error % - Average across all hours of the month of the absolute value of the difference between actual load demand and the Day-Ahead forecast load demand, divided by the actual load demand.

Wind Forecast Performance Hour Ahead MW Error

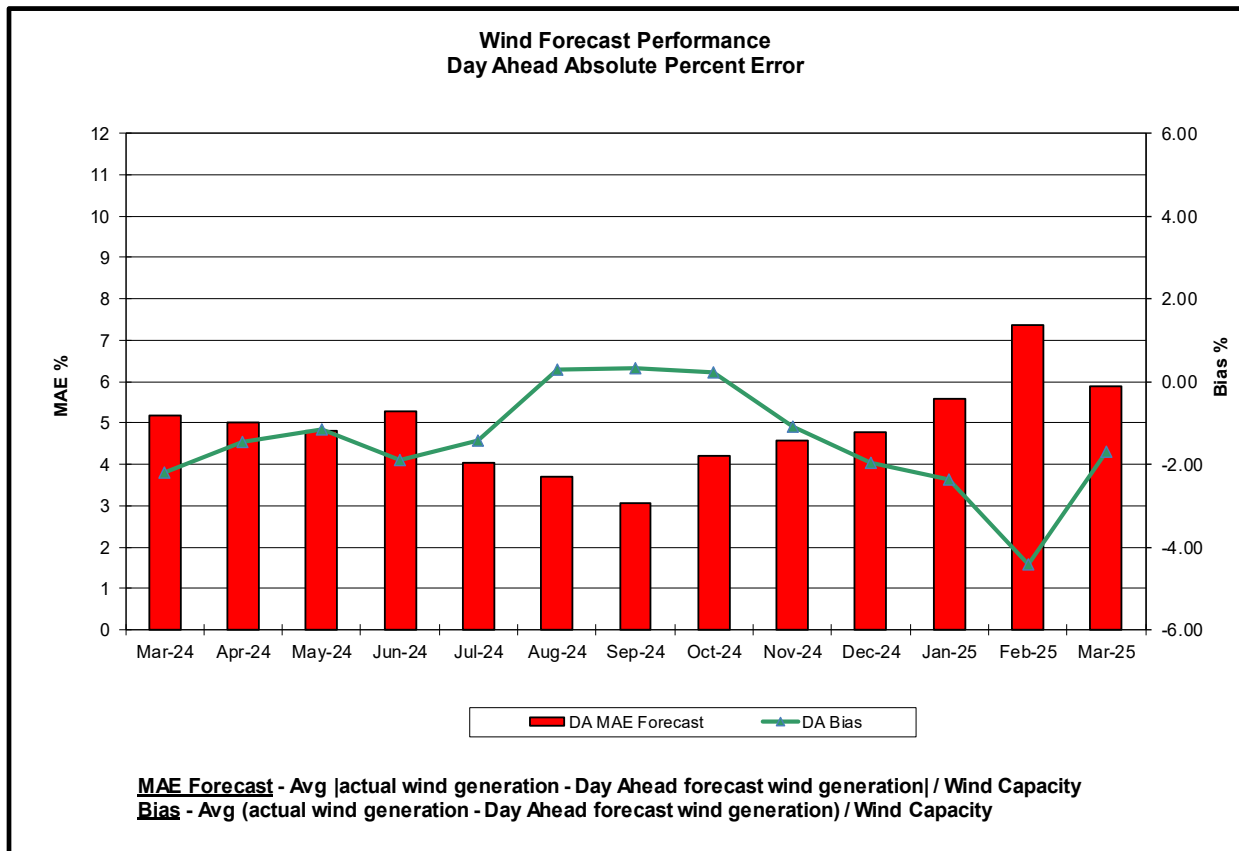
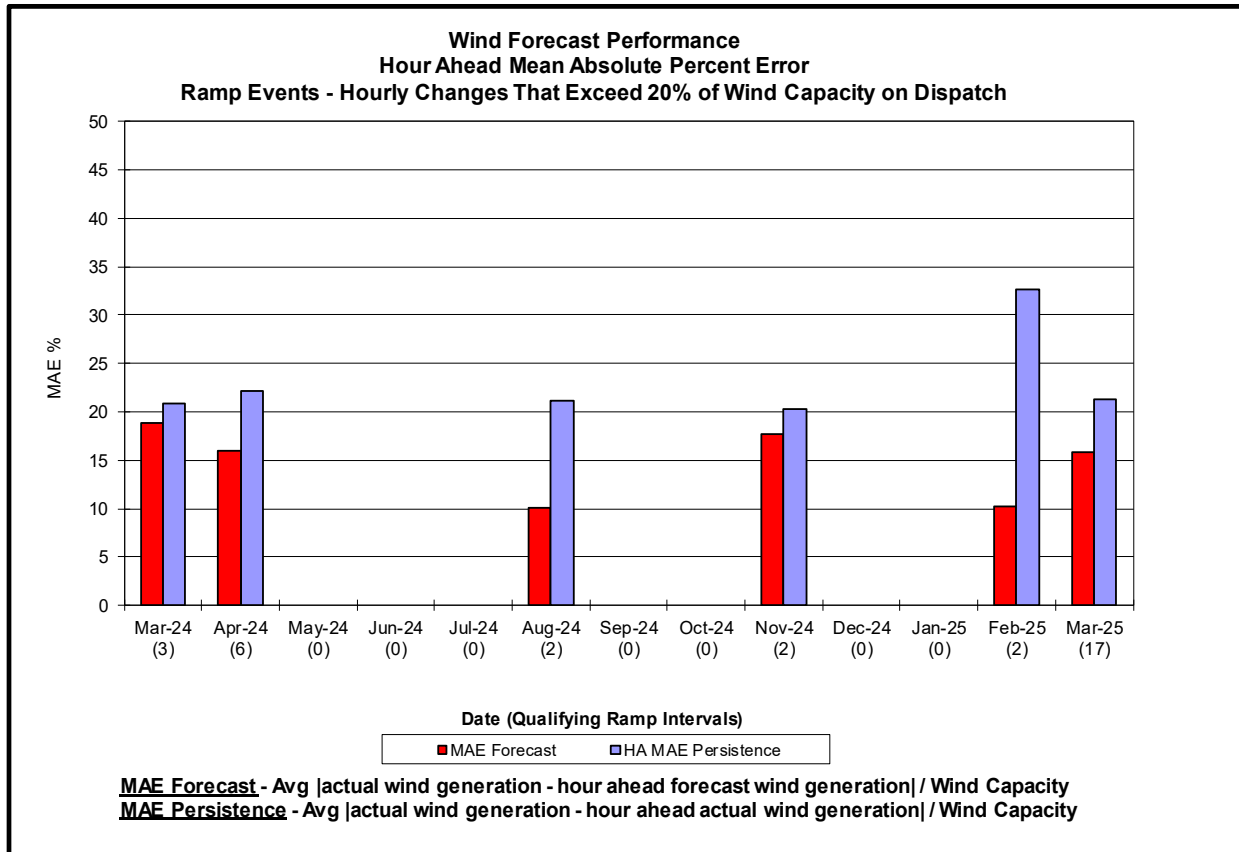


Hourly Error MW - Value of the difference between the hourly average actual wind generation and the average hour ahead forecast wind generation.

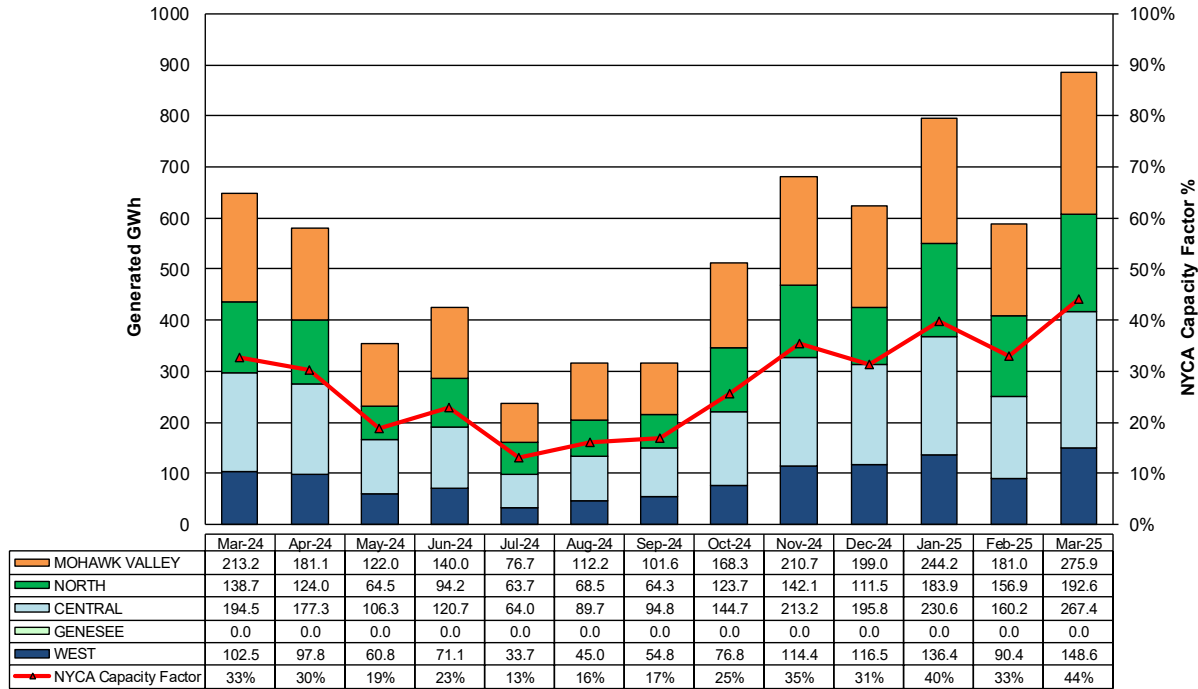
Wind Forecast Performance Hour Ahead Percent Error



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

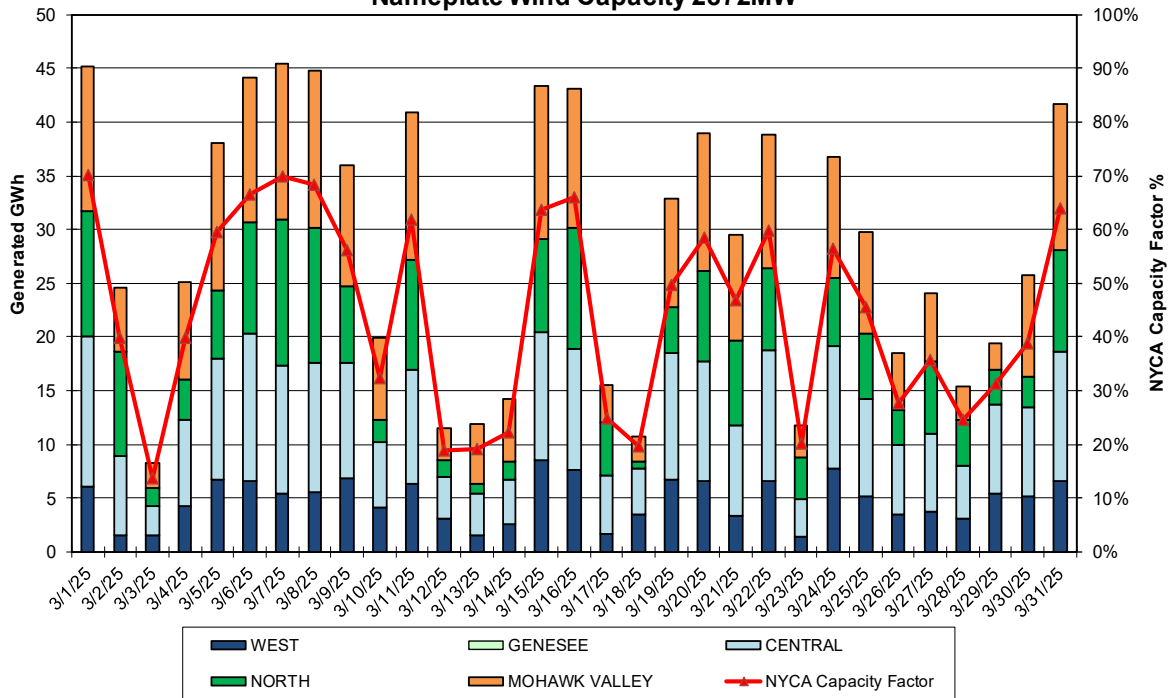


Wind Performance Monthly Production and Capacity Factor Nameplate Wind Capacity 2872MW

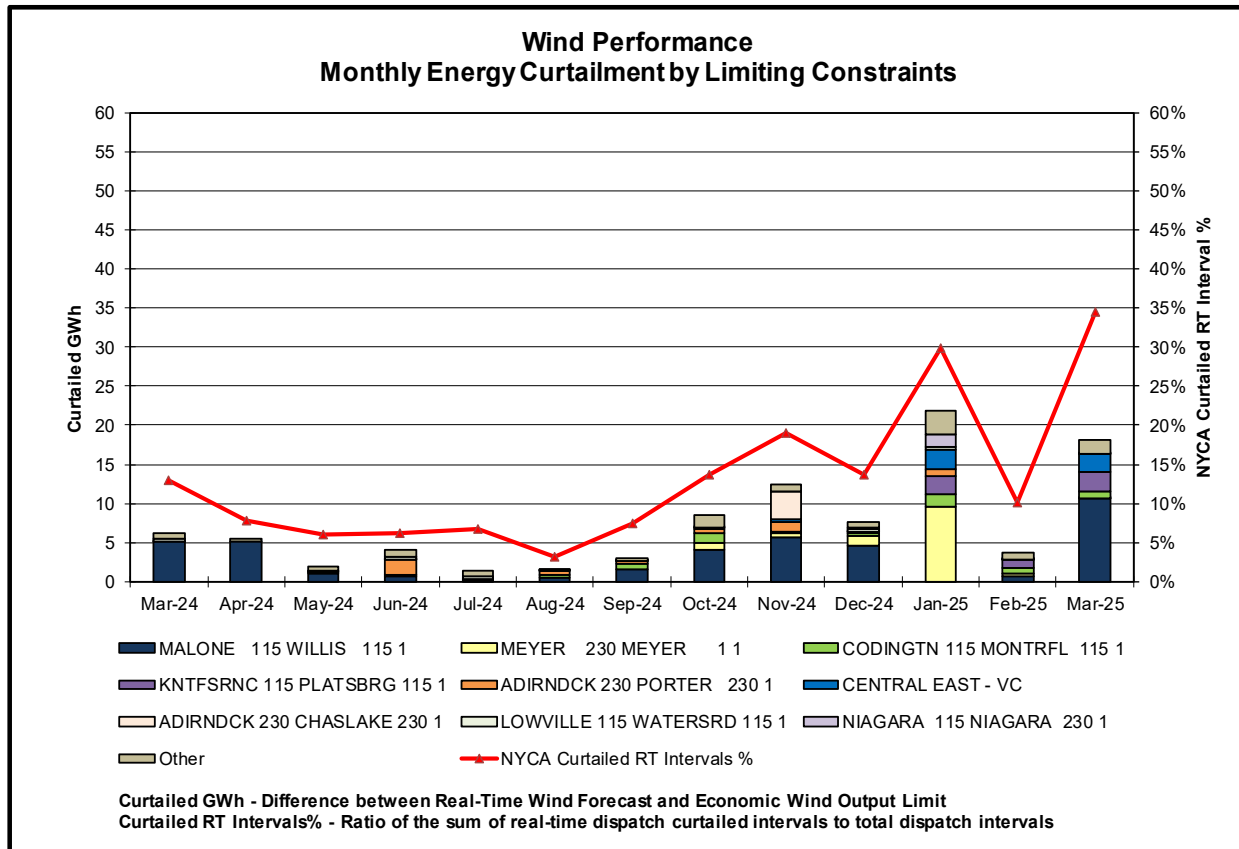
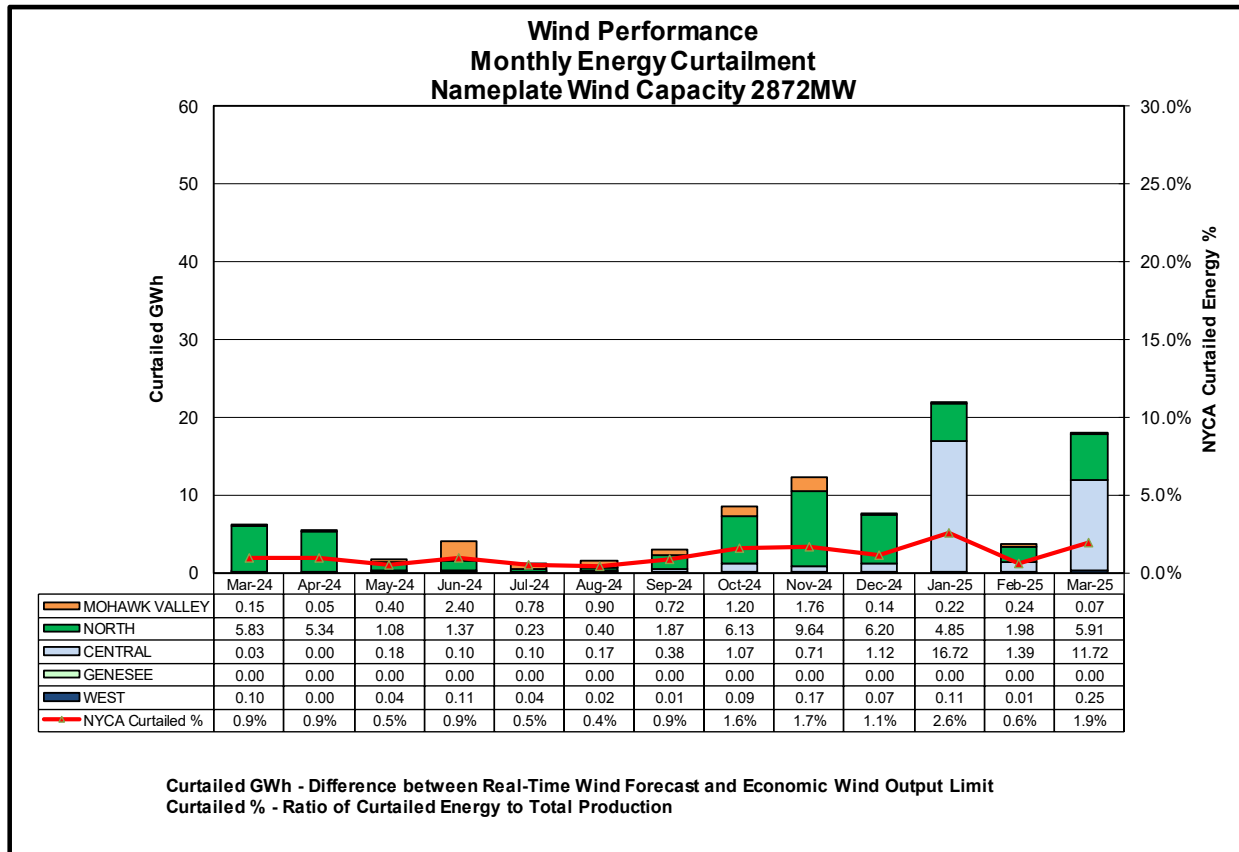


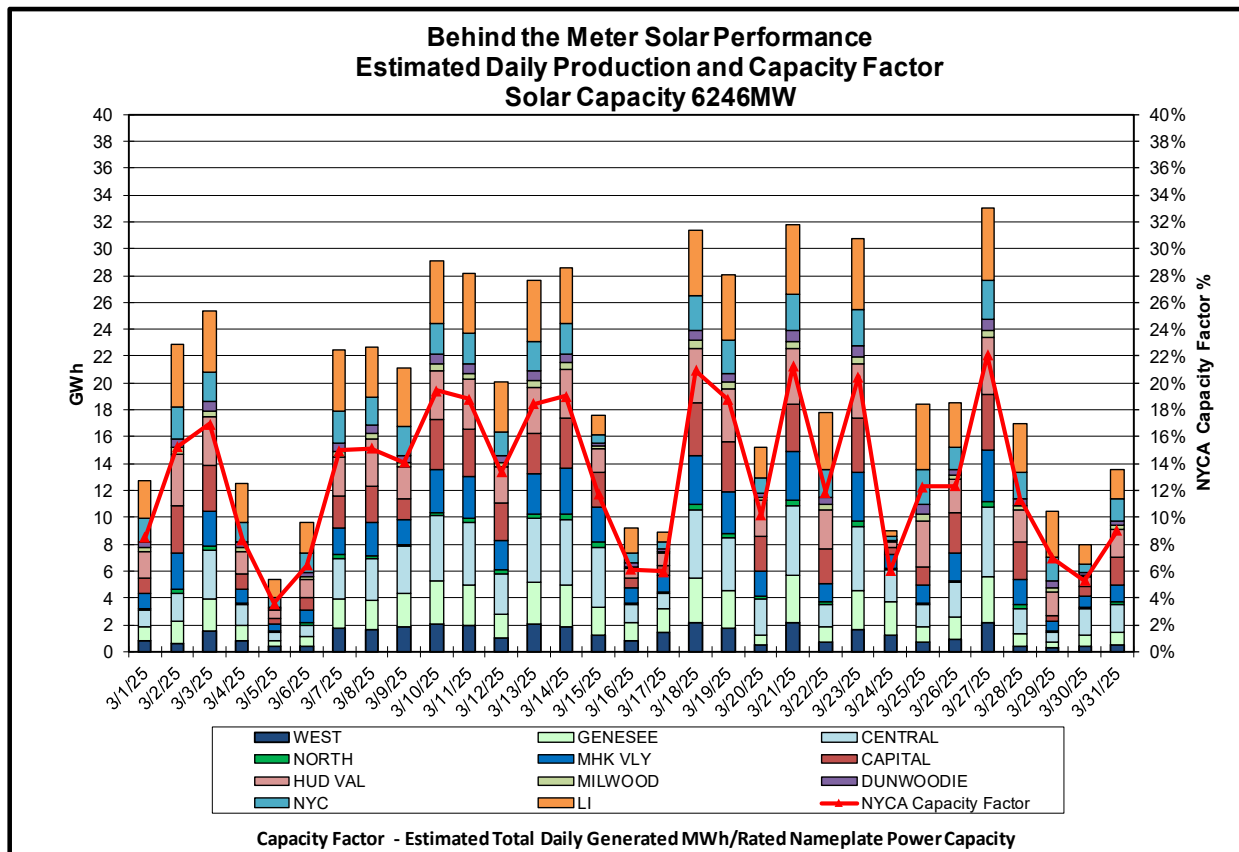
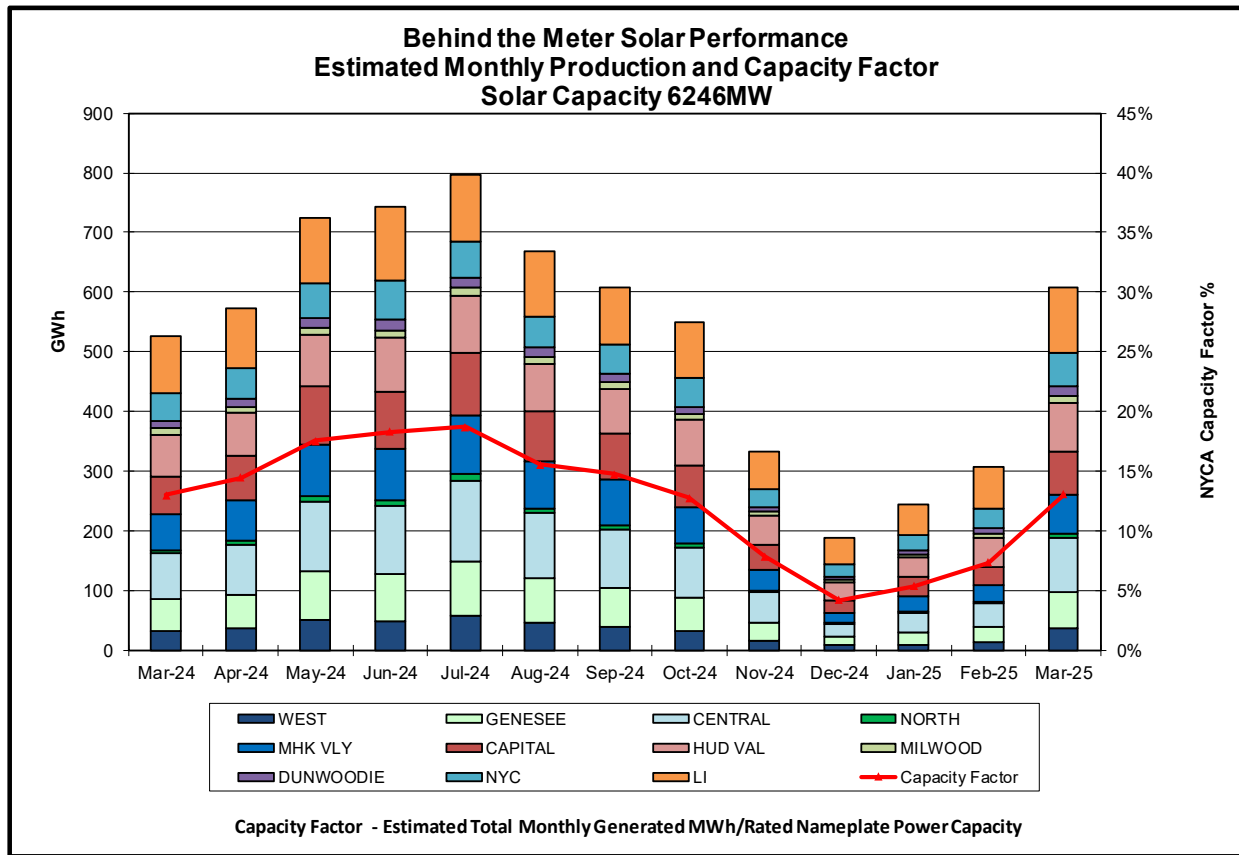
Capacity Factor - Total Monthly Generated MWh/Rated Nameplate Power Capacity

Wind Performance Daily Production and Capacity Factor Nameplate Wind Capacity 2872MW

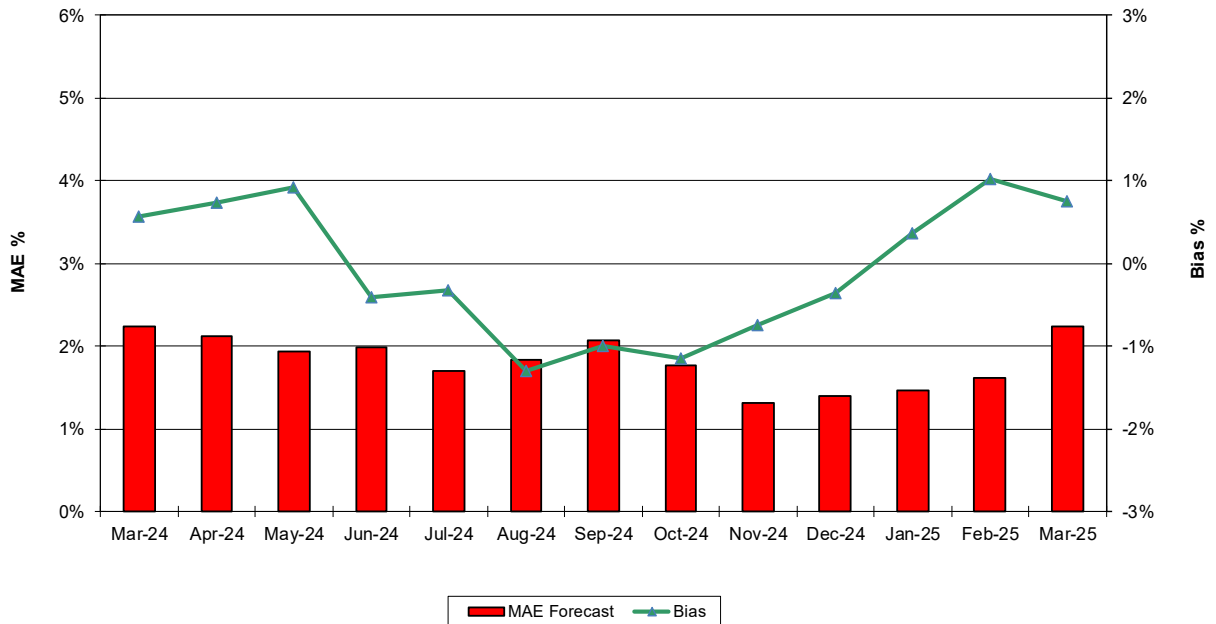


Capacity Factor - Total Daily Generated MWh/Rated Nameplate Power Capacity



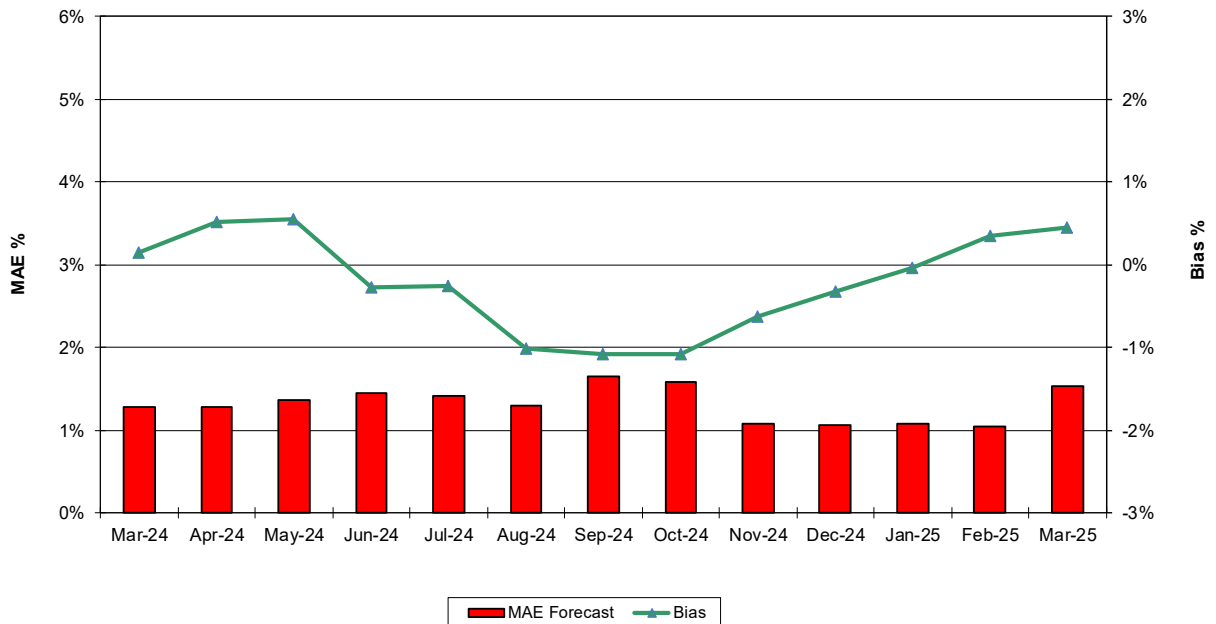


Behind the Meter Solar Forecast Performance Day Ahead Percent Error

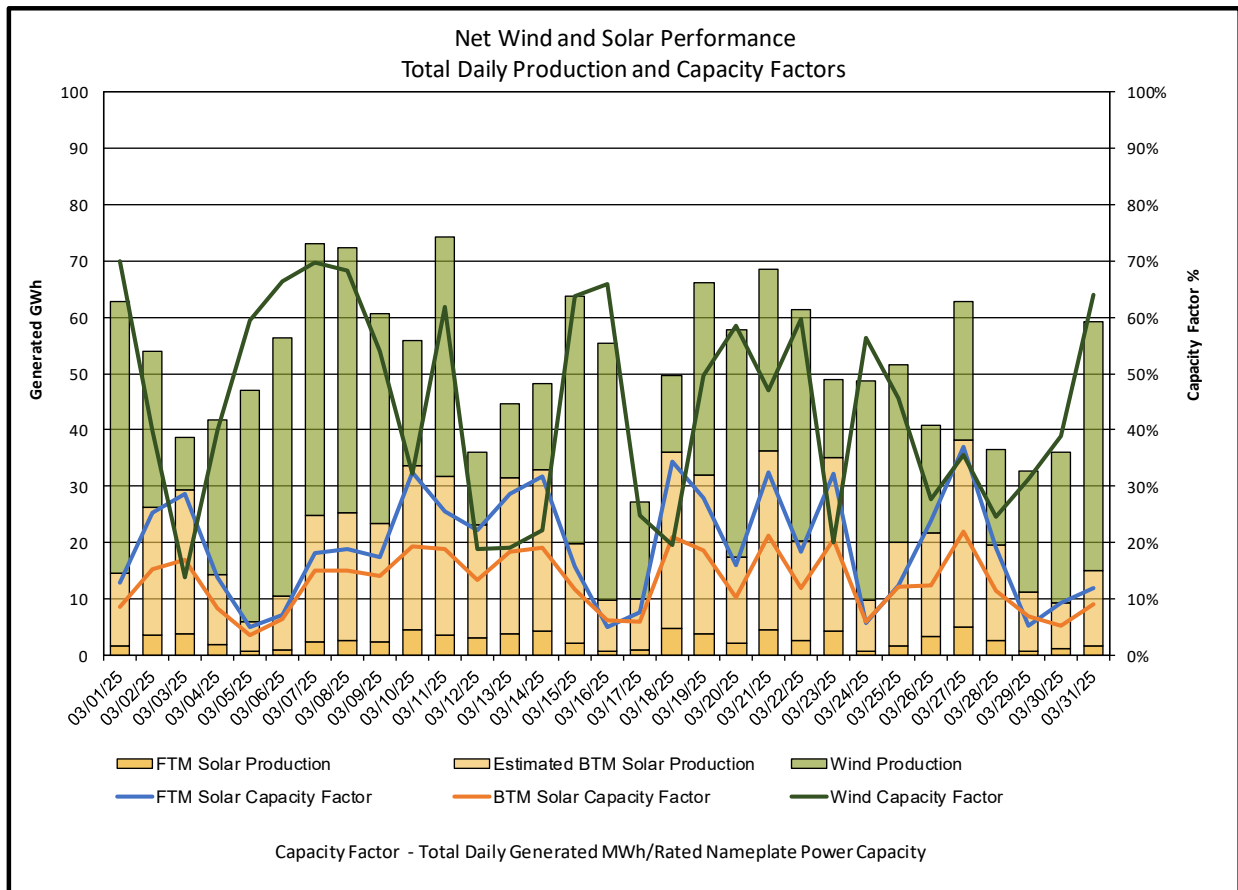
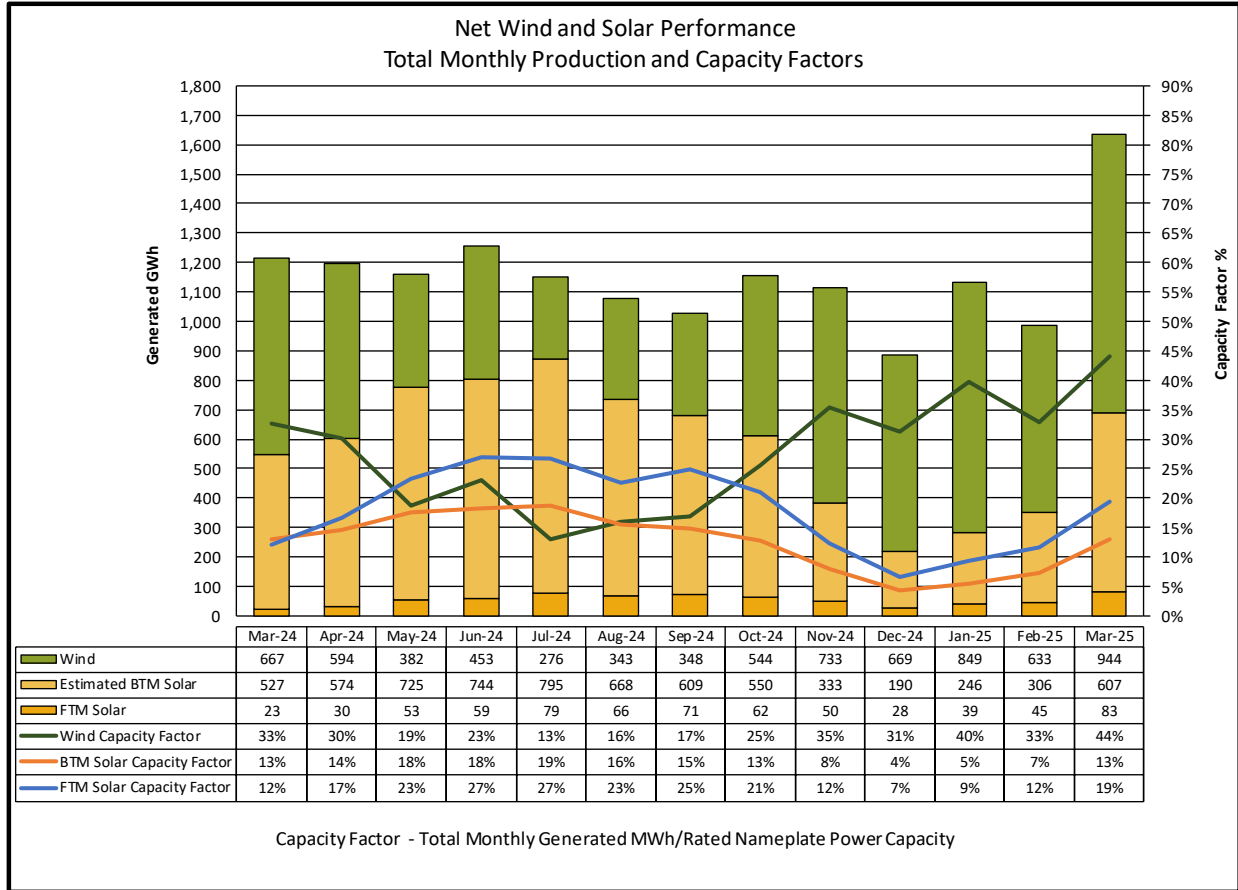


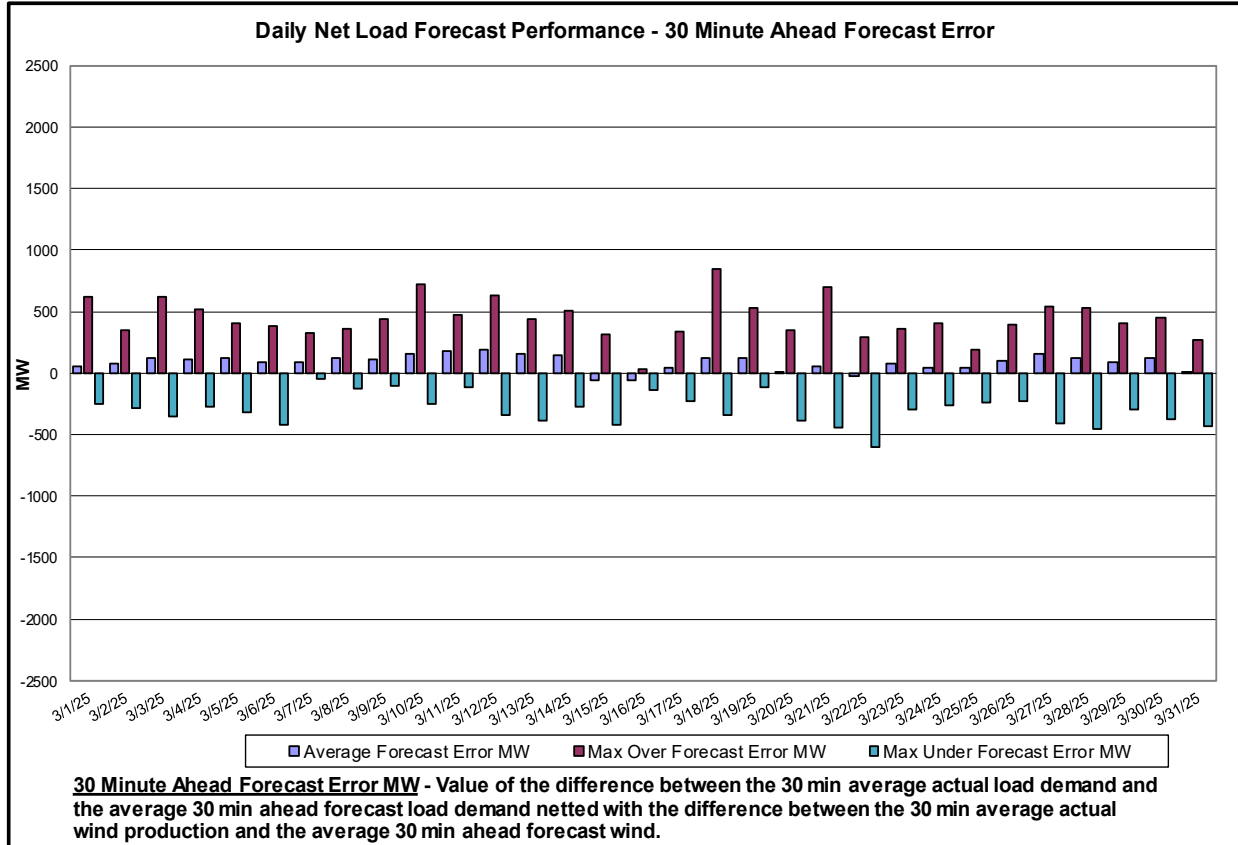
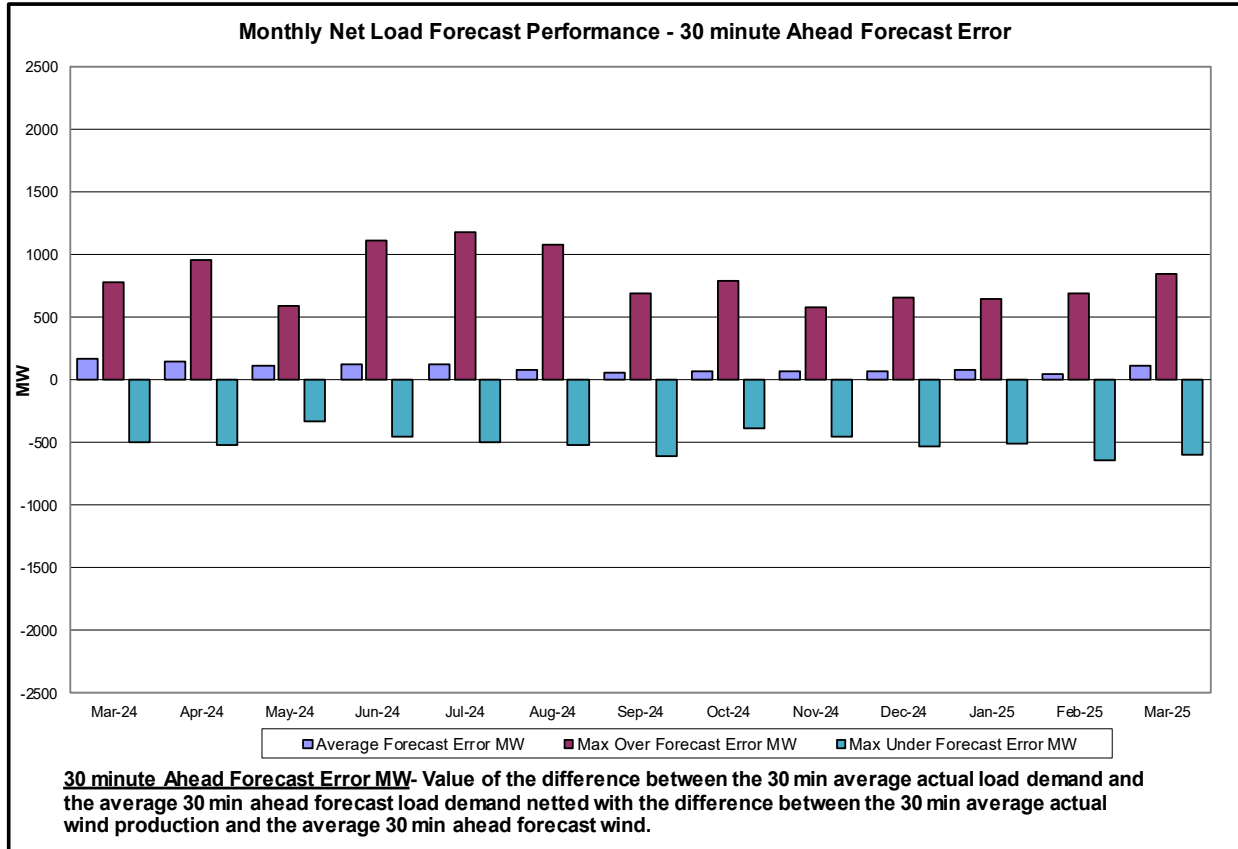
MAE Forecast - Avg |est. actual solar generation - Day Ahead forecast solar generation| / Solar Capacity
Bias - Avg (est. actual solar generation - Day Ahead forecast solar generation) / Solar Capacity

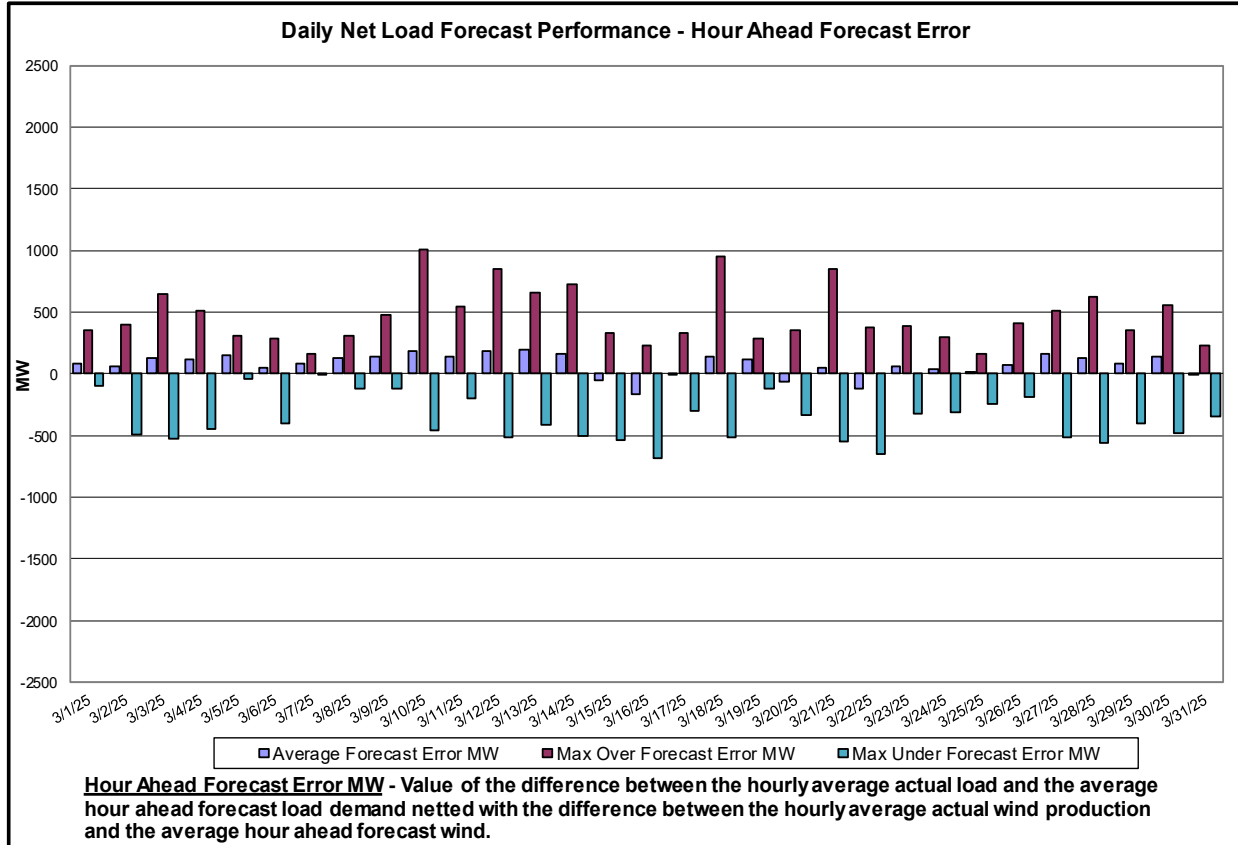
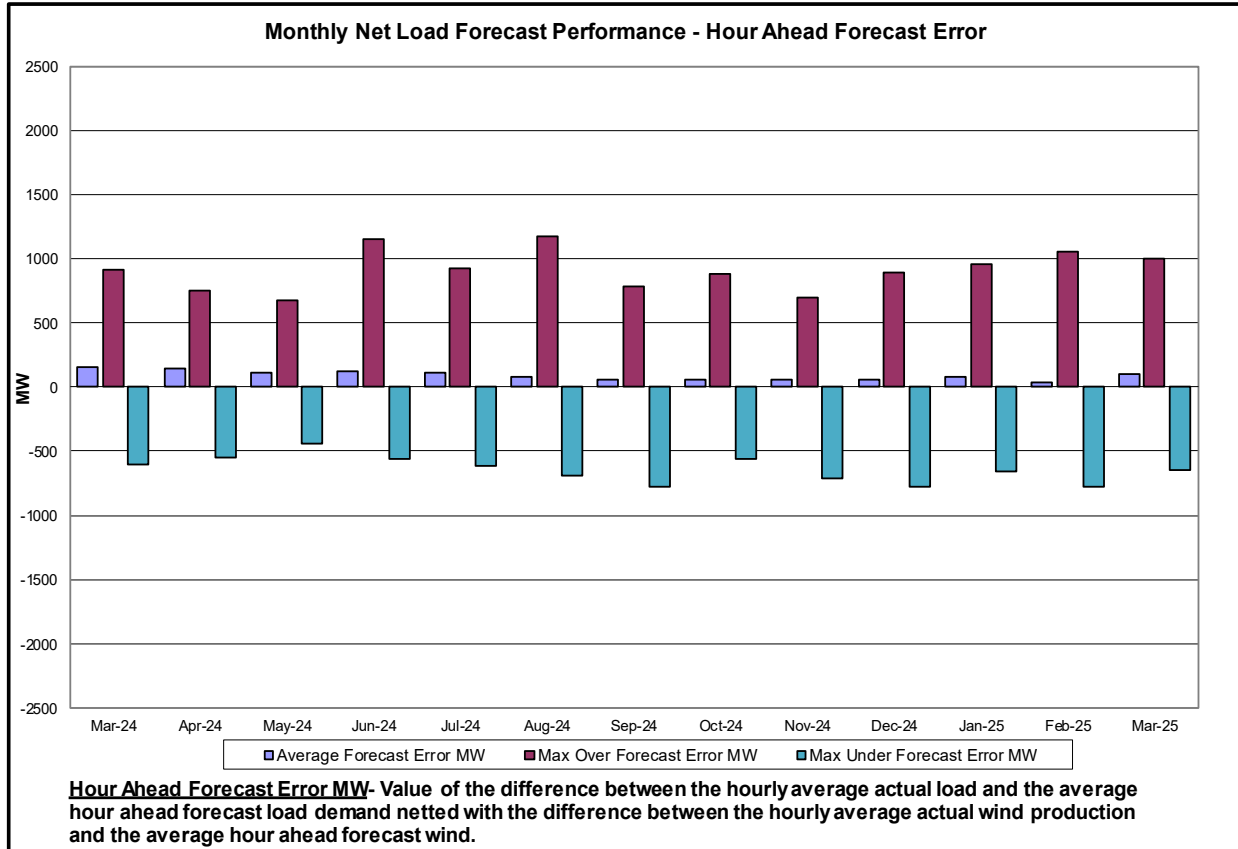
Behind the Meter Solar Forecast Performance Hour Ahead Percent Error

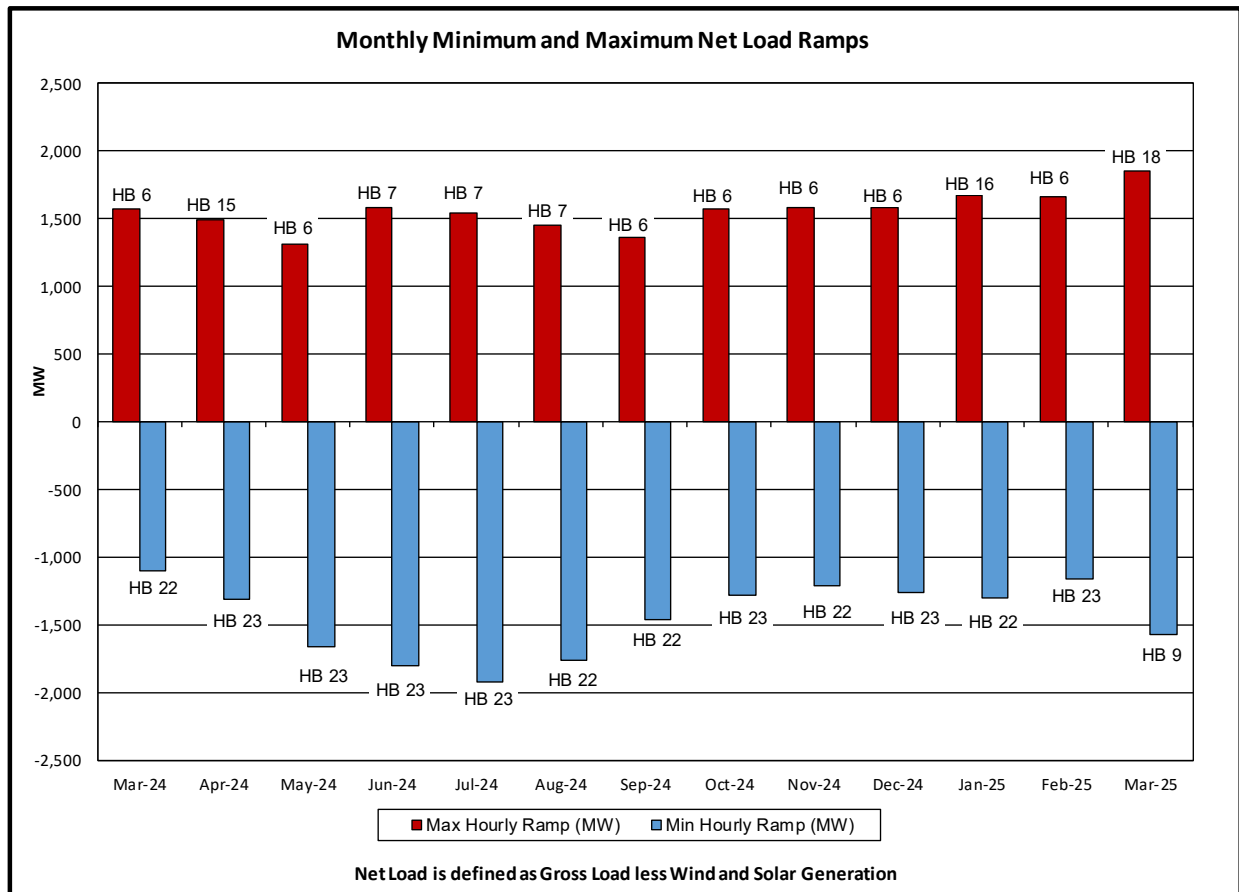
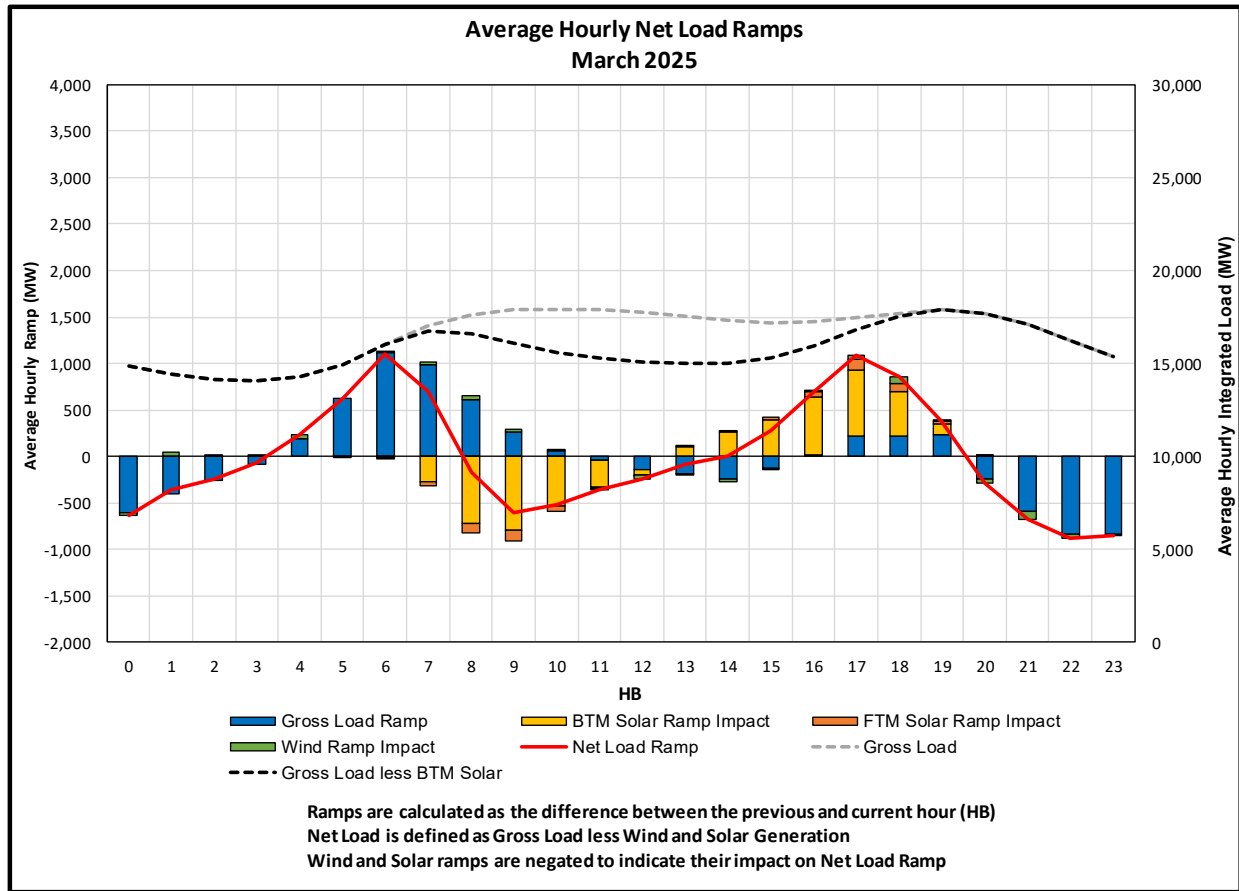


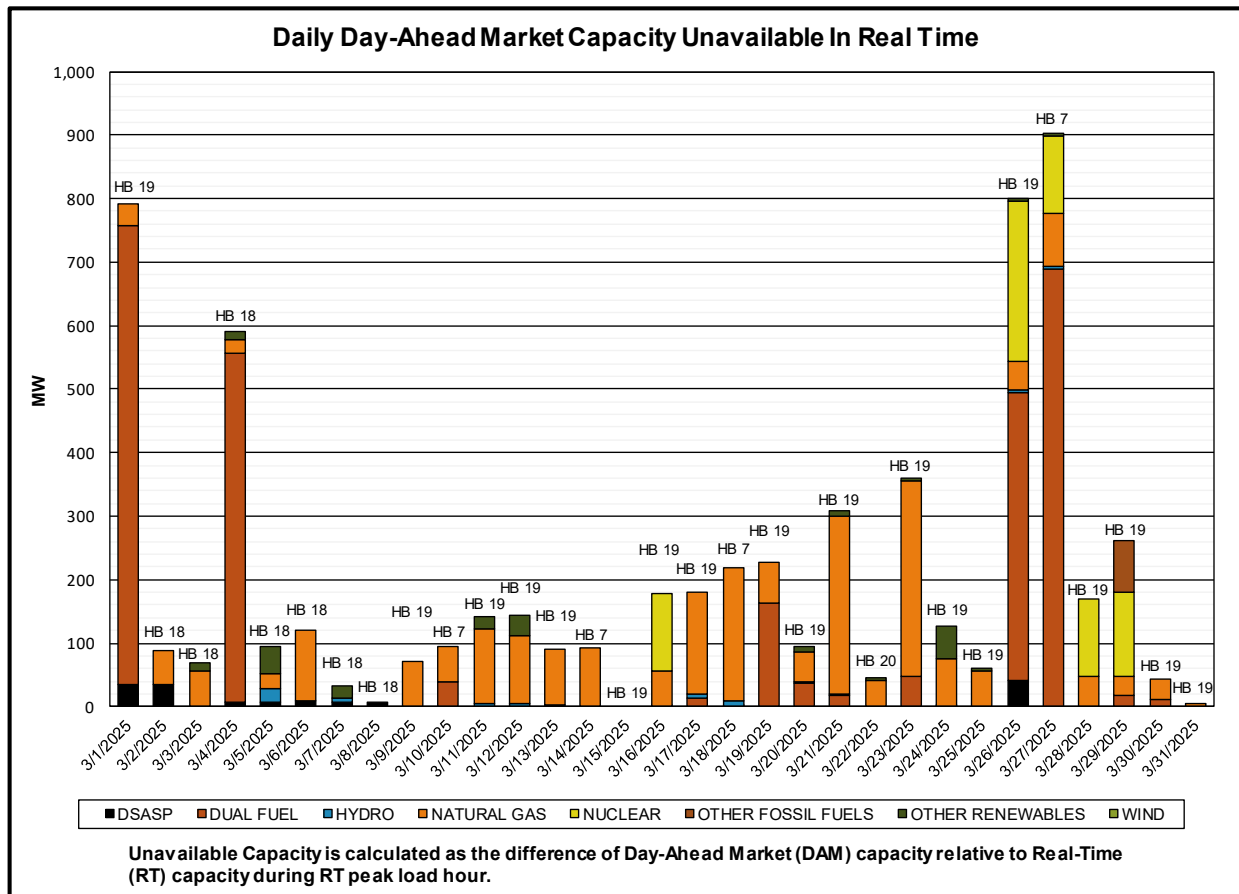
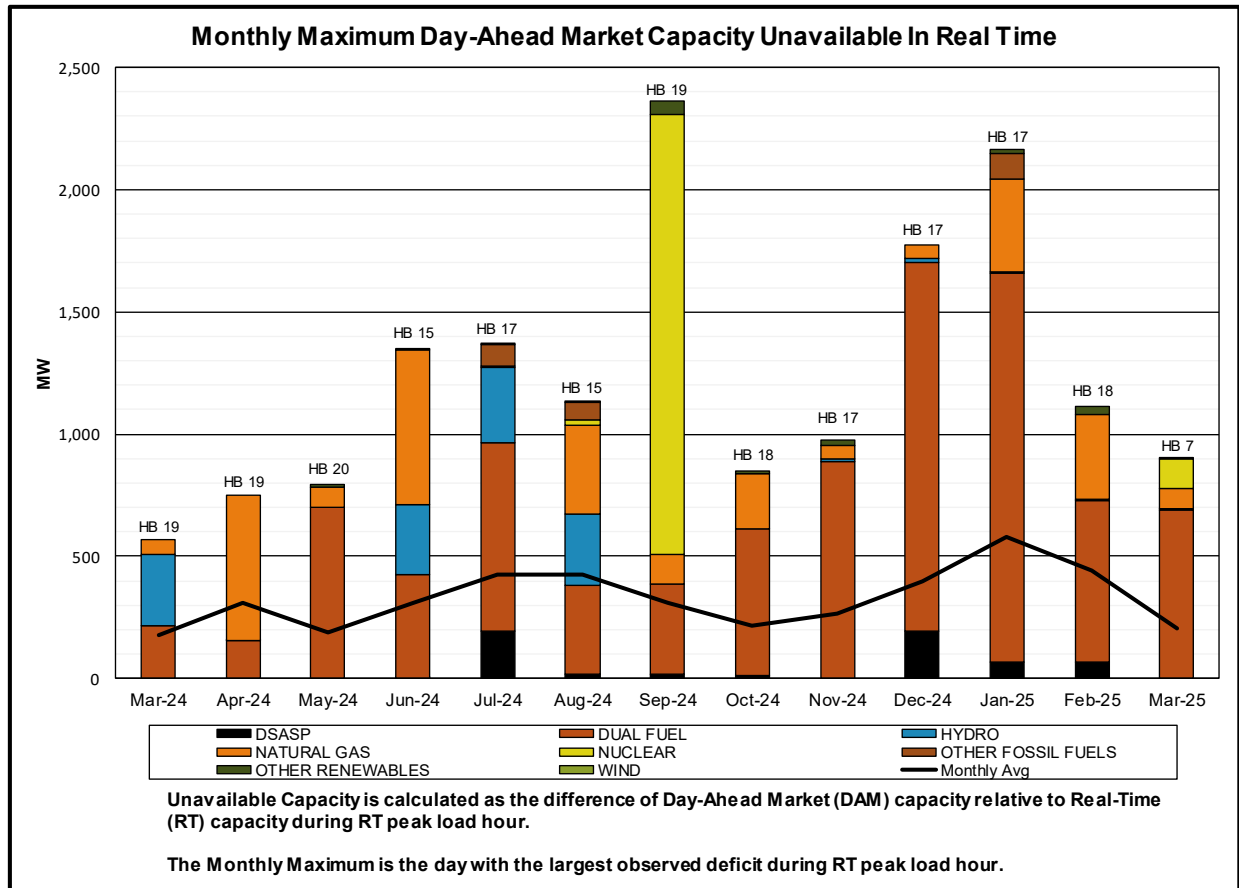
MAE Forecast - Avg |est. actual solar generation - Hour Ahead forecast solar generation| / Solar Capacity
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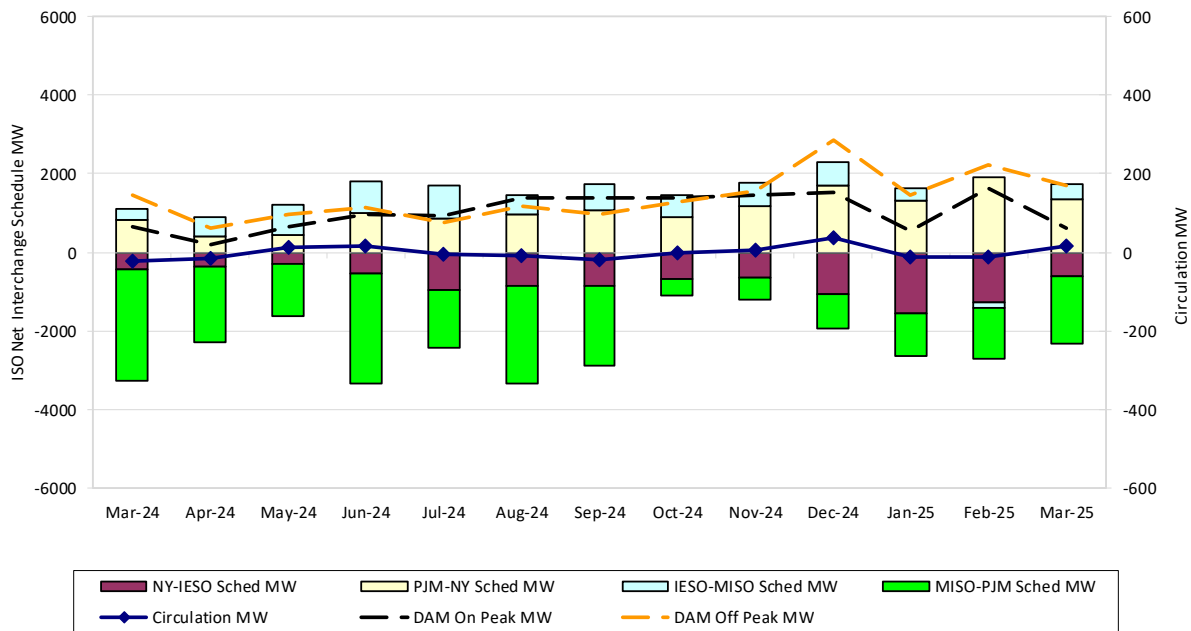






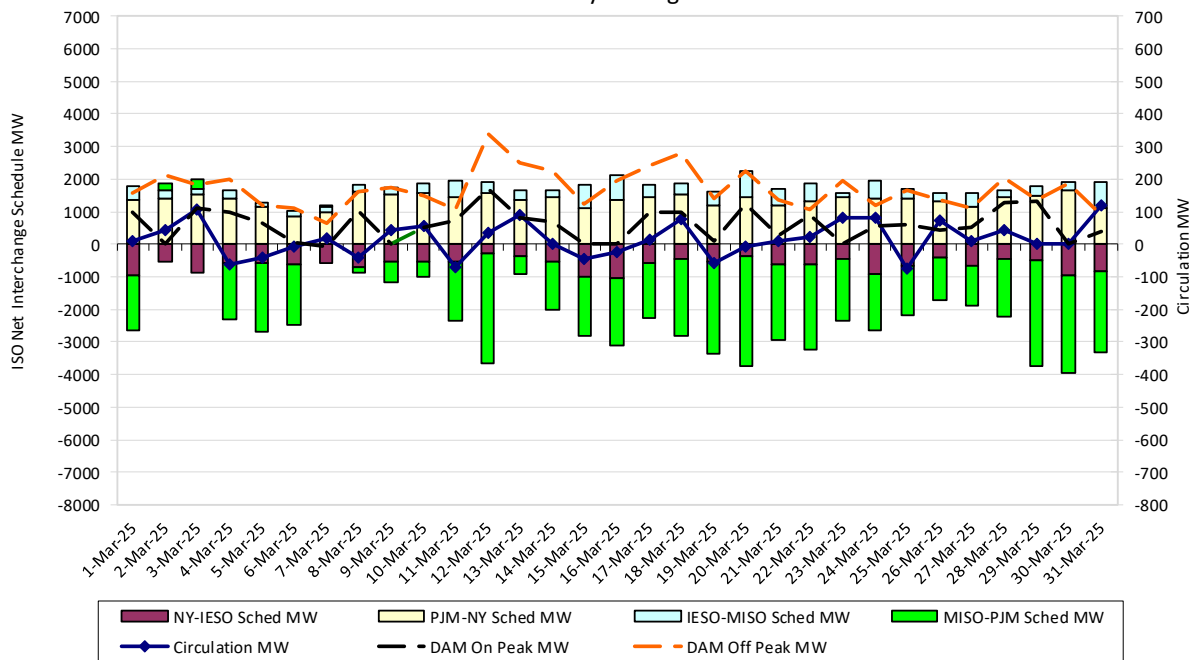


Lake Erie Circulation and ISO Net Interchange Schedules
Monthly Averages



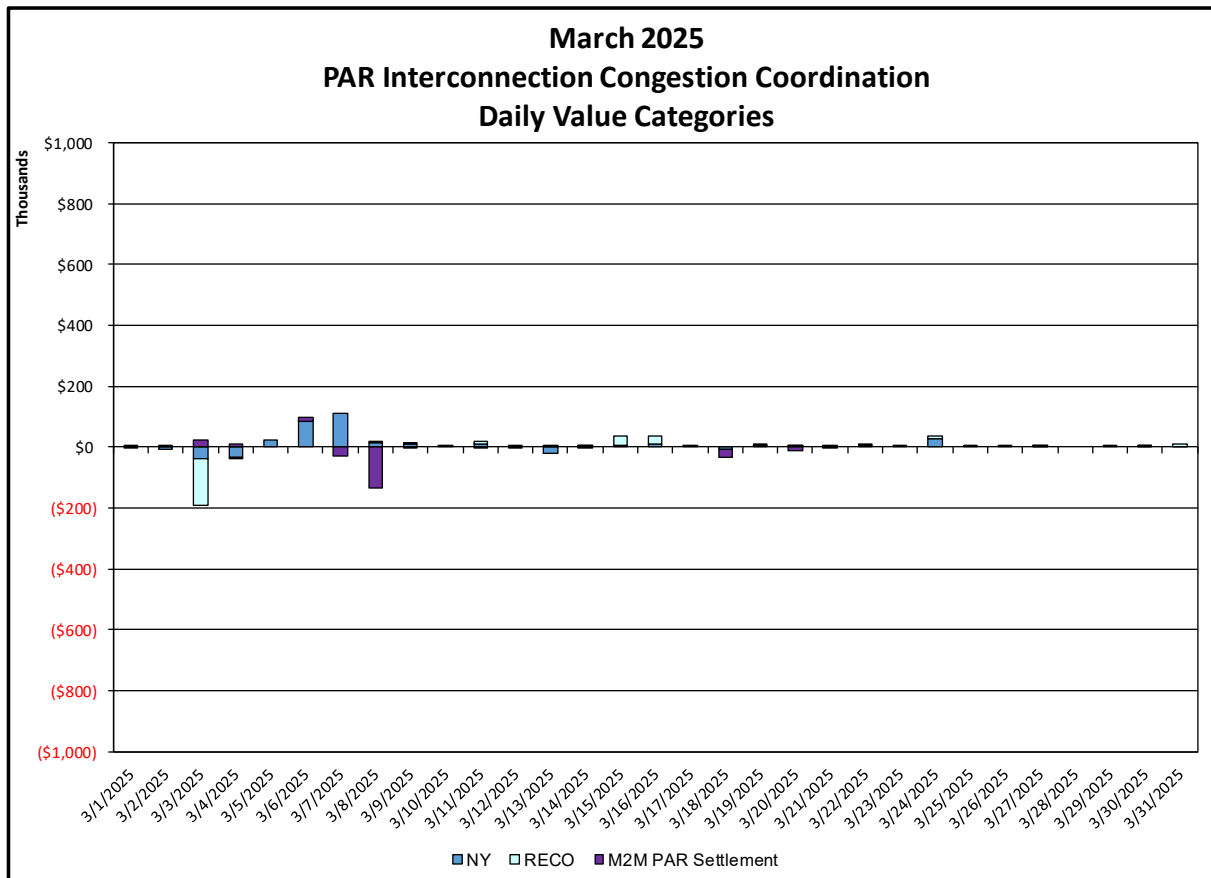
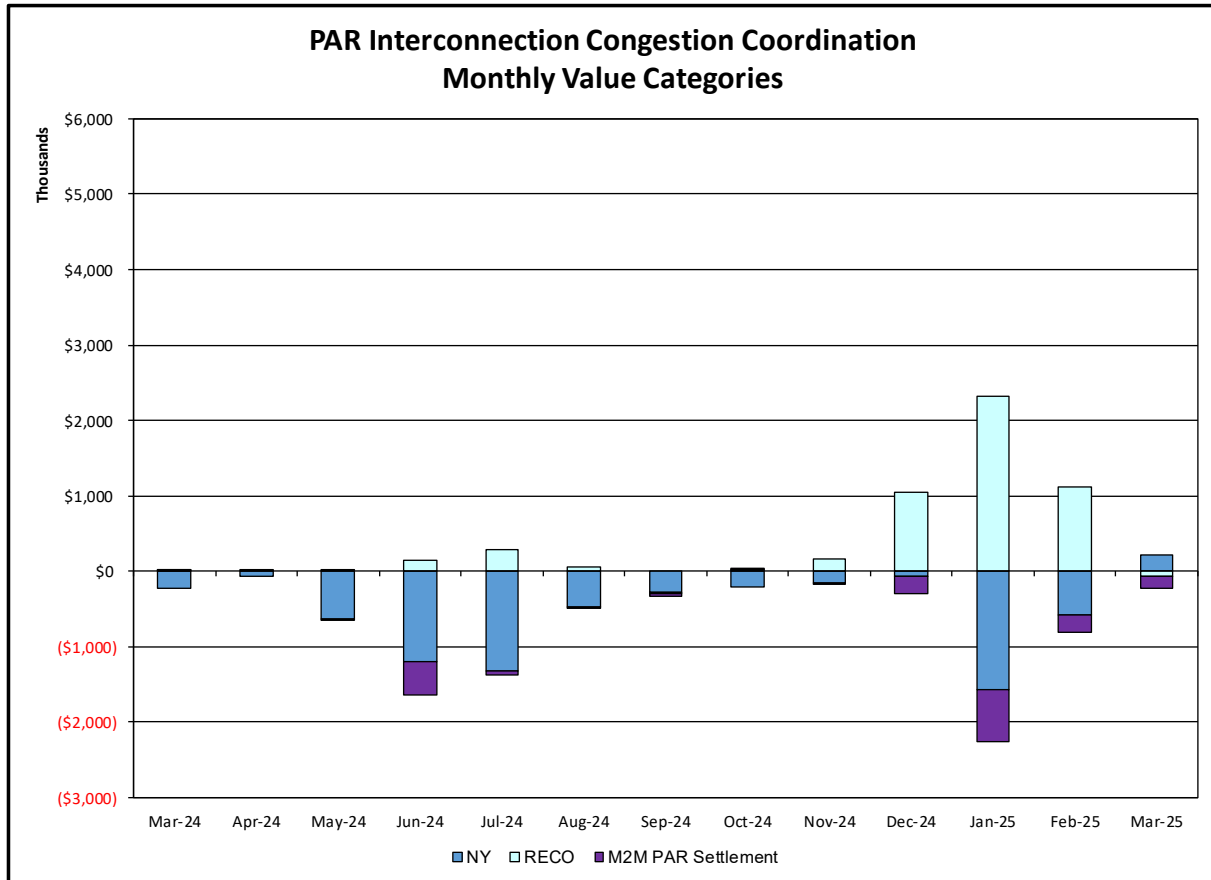
Interchange schedules with positive values aggravate clockwise Lake Erie Circulation.

Lake Erie Circulation and ISO Net Interchange Schedules
Daily Averages

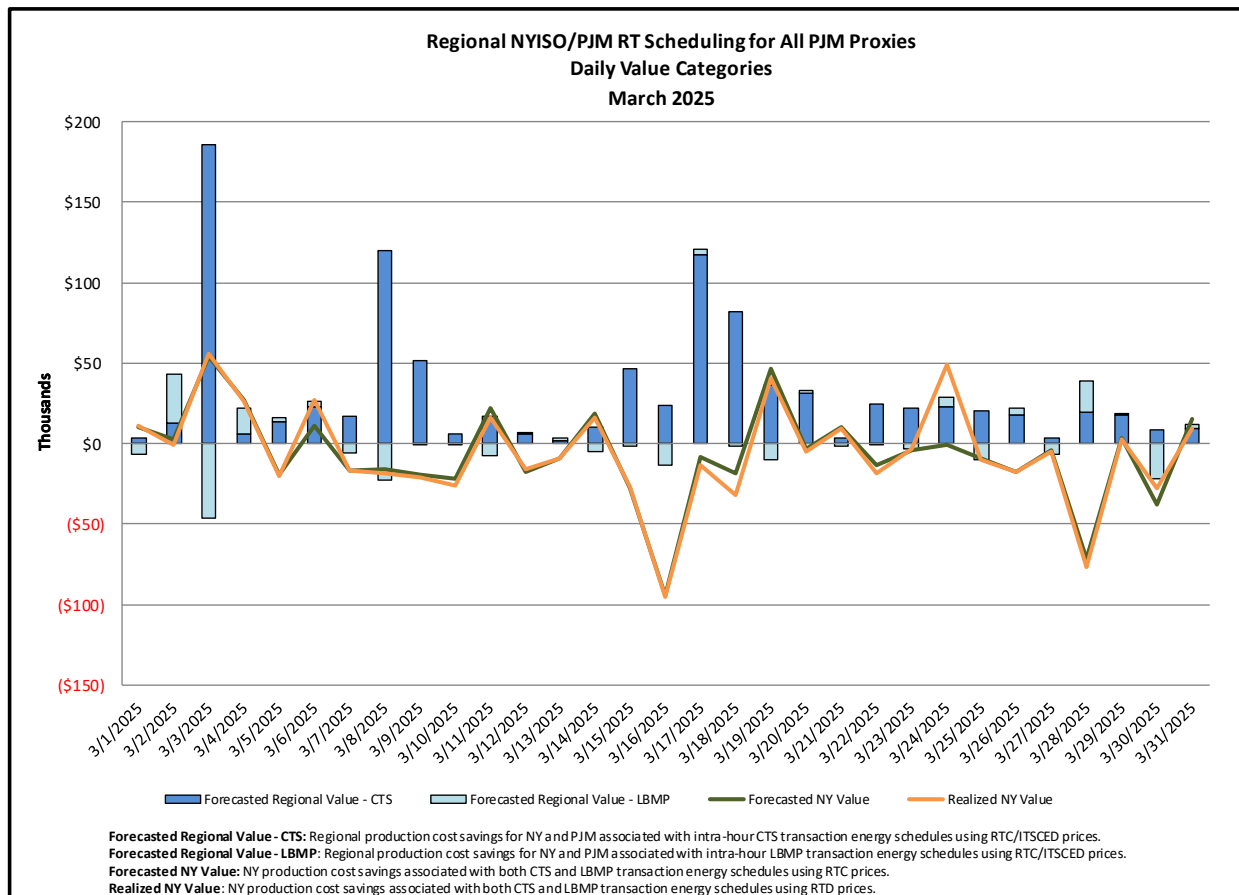
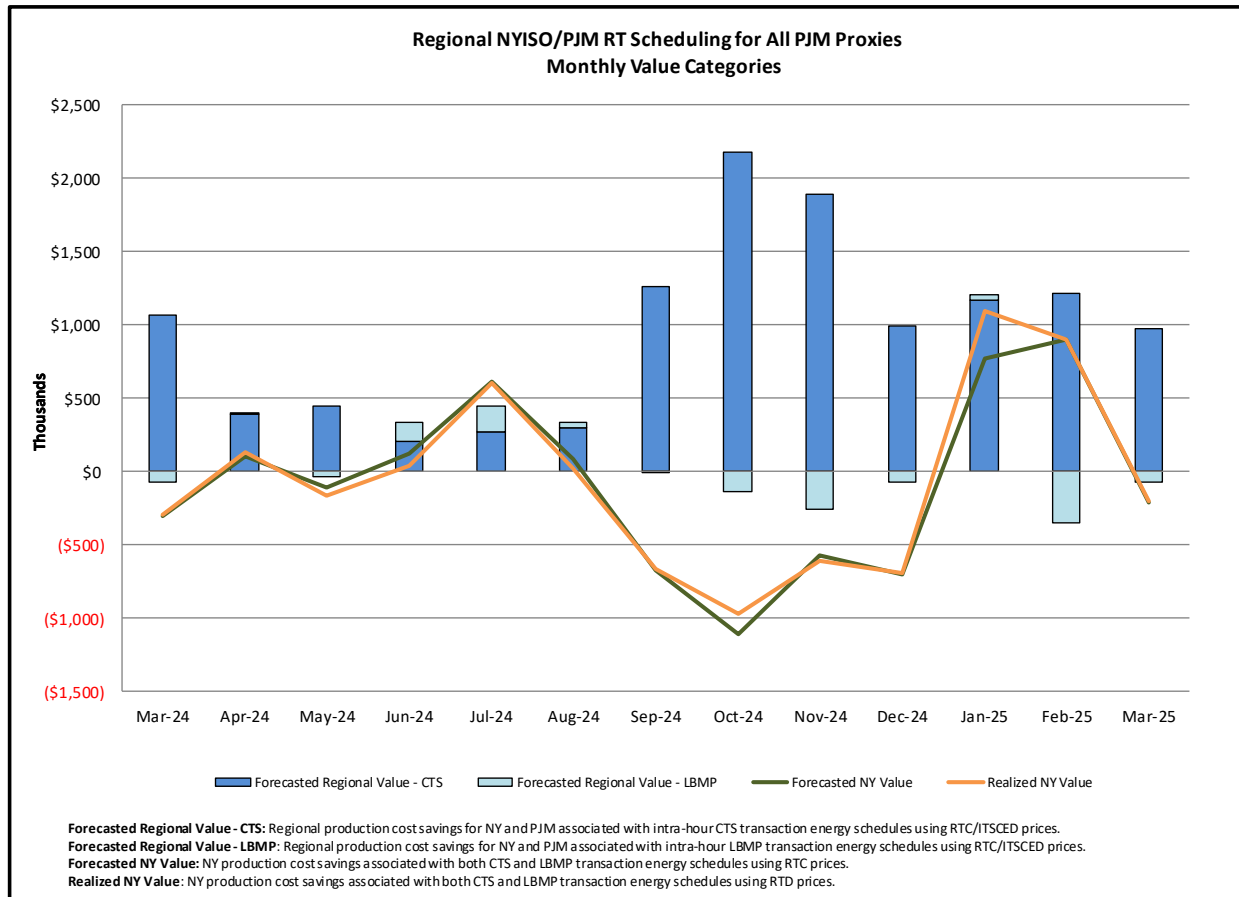


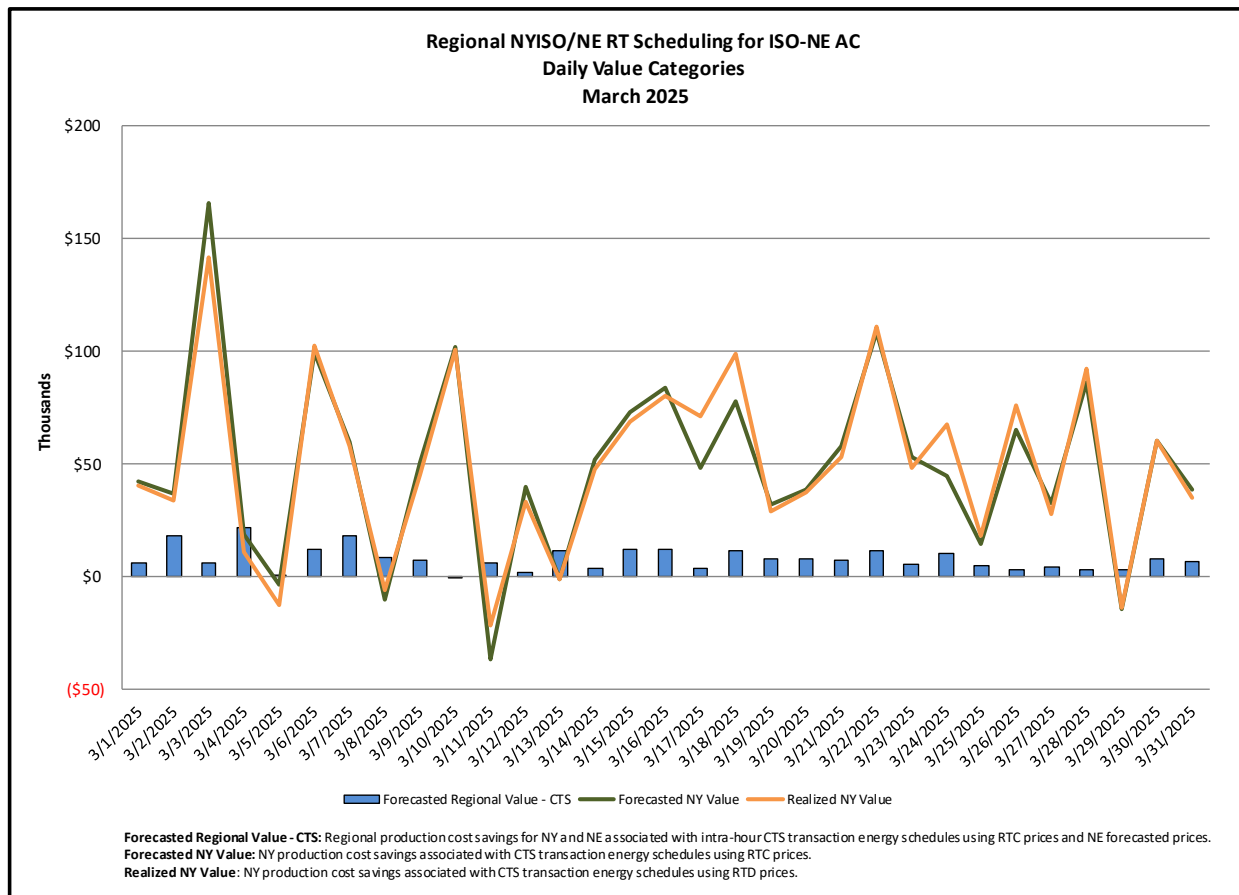
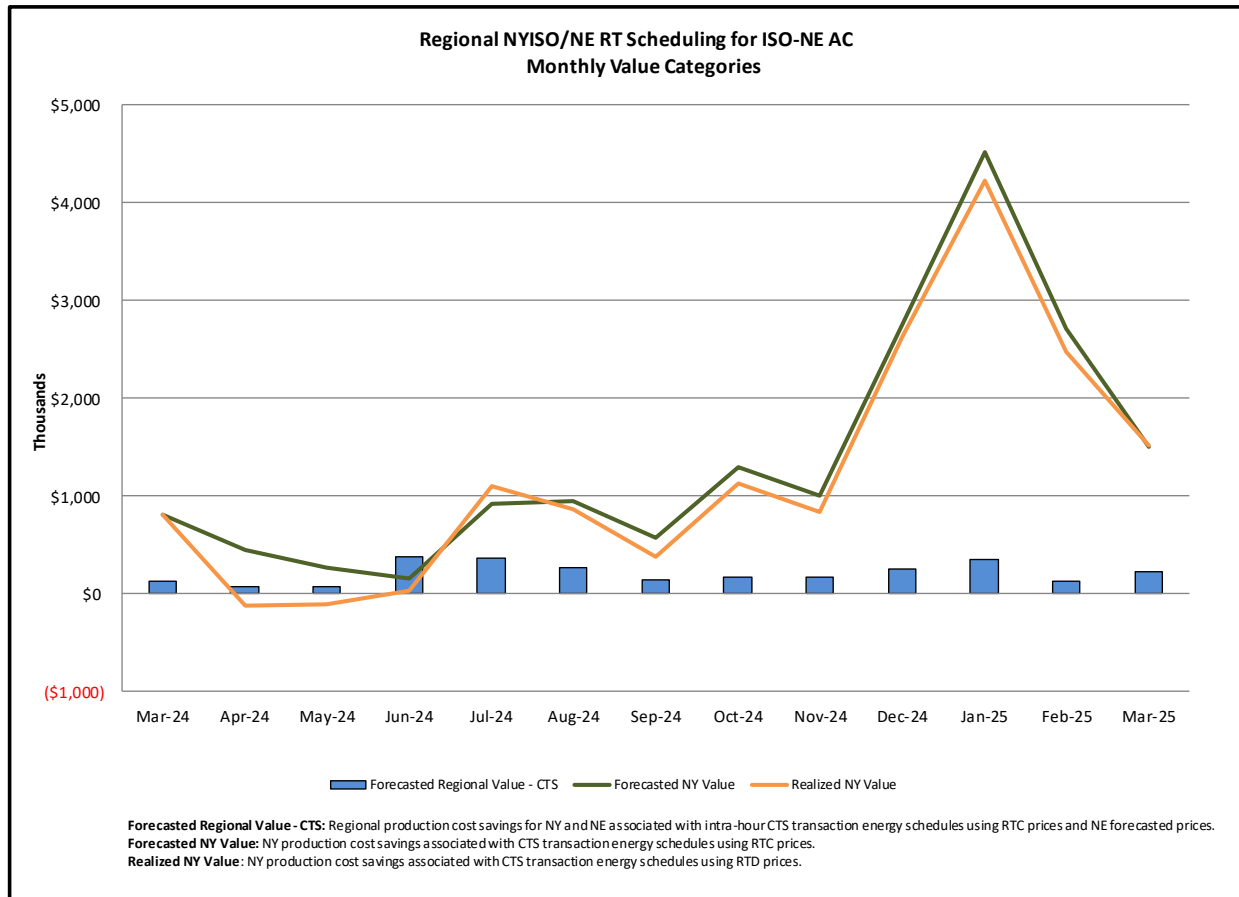
Interchange schedules with positive values aggravate clockwise Lake Erie Circulation.

Broader Regional Market Performance Metrics

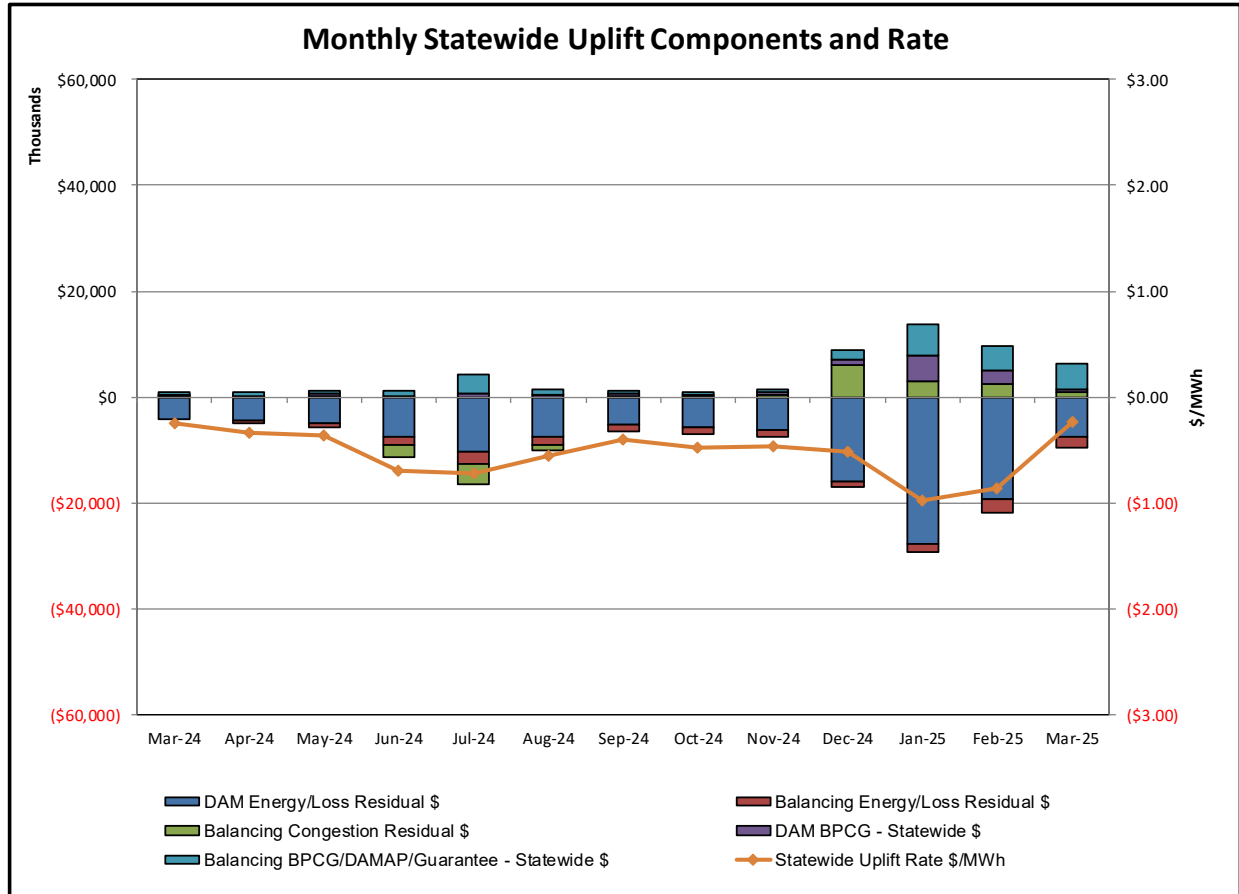


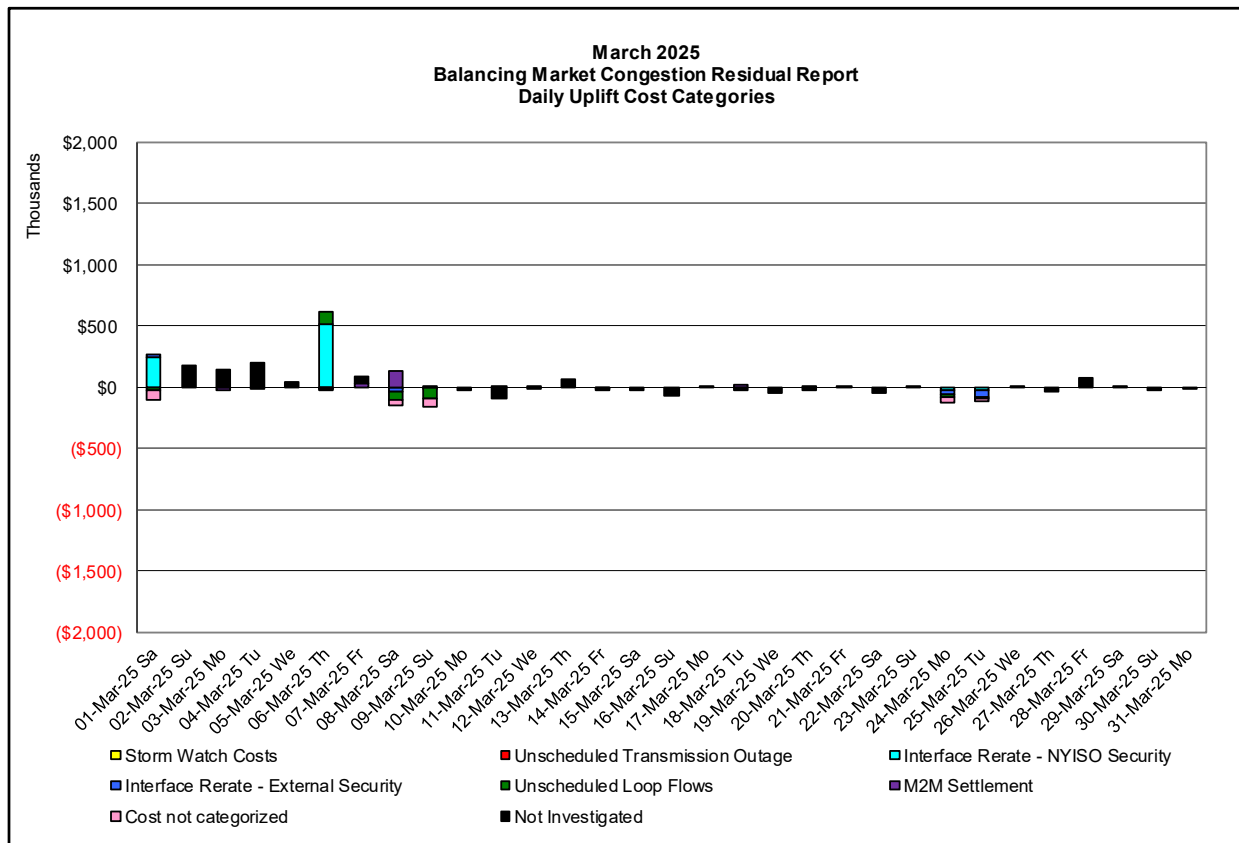
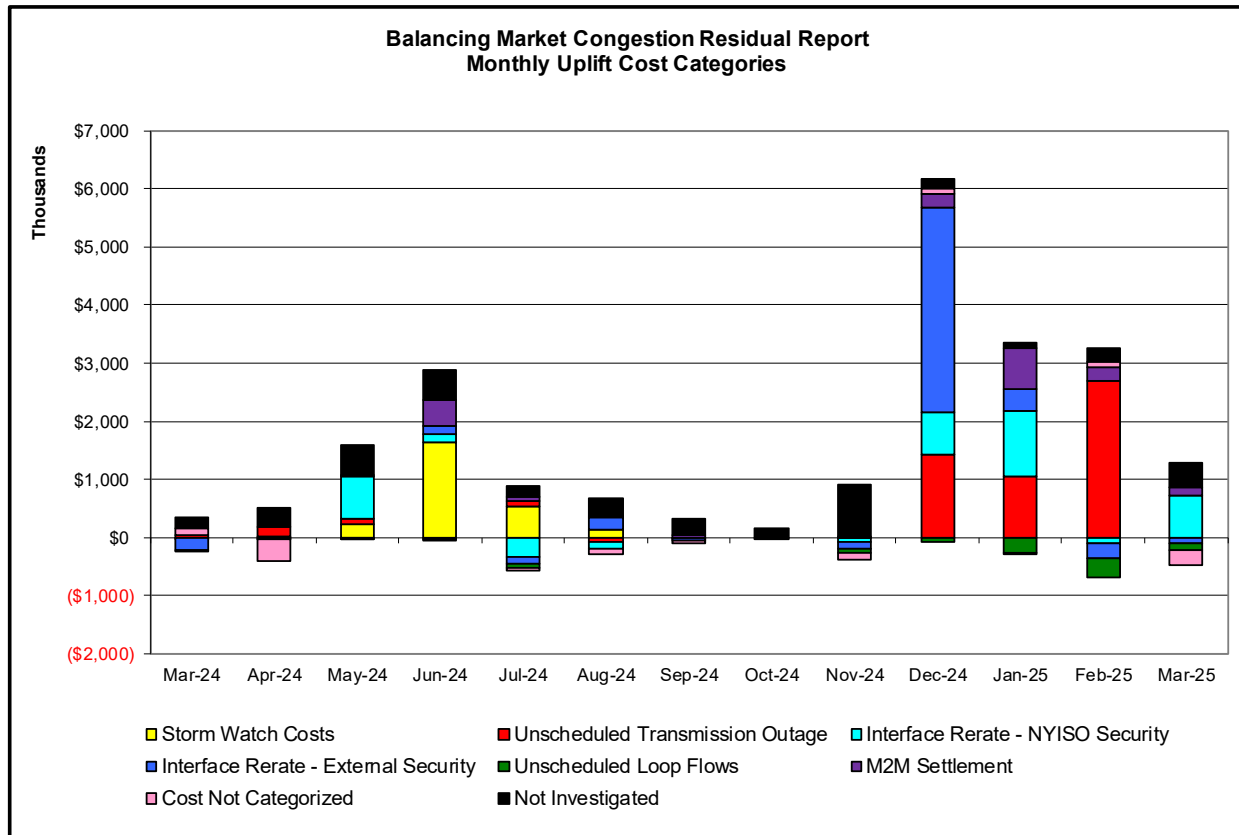
<u>PAR Interconnection Congestion Coordination</u>	
<u>Category</u>	<u>Description</u>
NY	Represents the value NY realizes from Market-to-Market PAR Coordination when experiencing congestion. This is the estimated savings to NY for additional deliveries into NY
RECO	Represents the value of PJM's obligation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

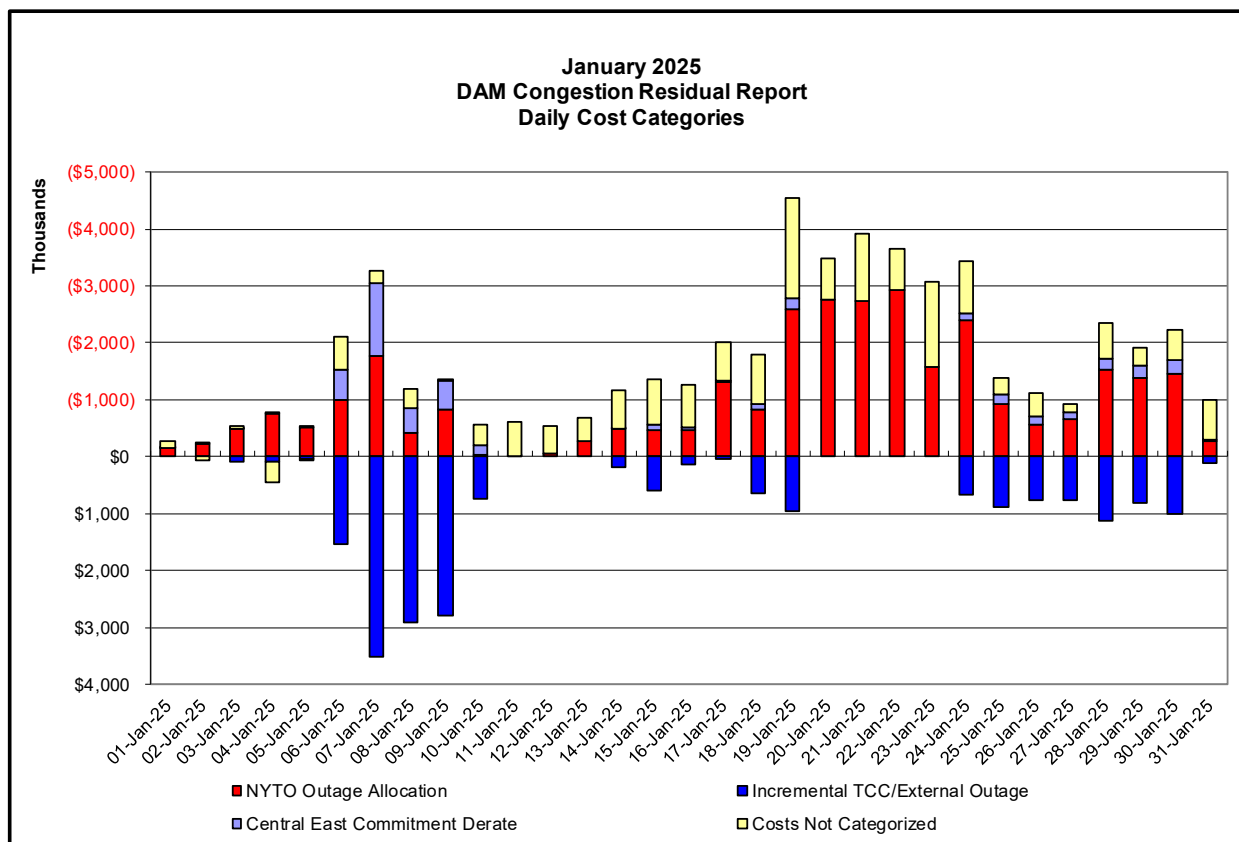
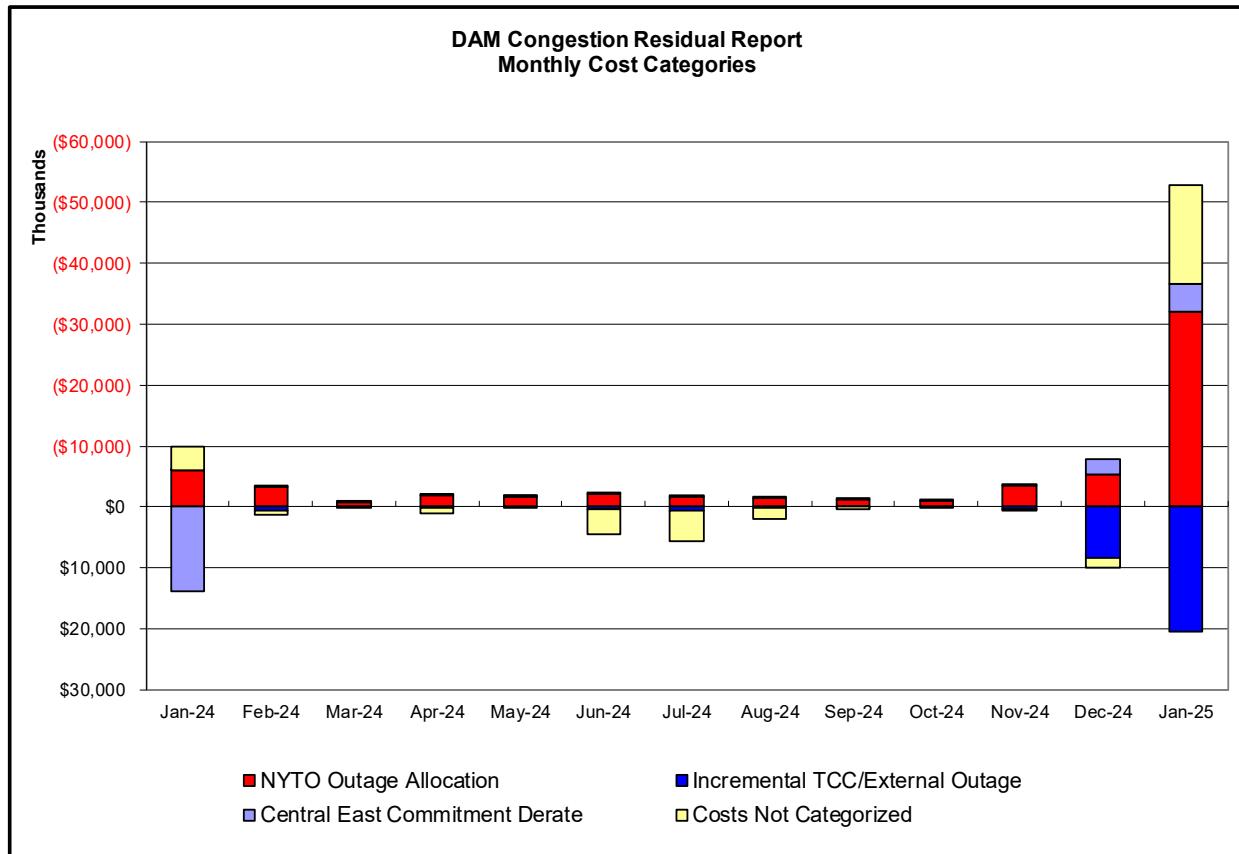




Day's investigated in March: 1,6,8,9,24,25		
Event	Description	March Dates
	NYCA Active DNI Ramp Limit	1,6,8,24
	Derate Foxhills-Greenwood 138kV (#29231) I/o Foxhills-Greenwood 138kV (#29232)	1
	Derate Foxhills-Greenwood 138kV (#29232) I/o Foxhills-Greenwood 138kV (#29231)	1
	Derate Greenwood-Vernon 138kV (#31231) I/o Goethals-Freshkills 345kV (#22)	1,6
	Derate Greenwood-Vernon 138kV (#31231) I/o SCB:FRESHKIL(2):TA1&22&21191	1
	Derate Greenwood-Vernon 138kV (#31231) I/o SCB:FRESHKIL(6):22&TB1&21192	1
	Derate Greenwood-Vernon 138kV (#31231) I/o SCB:GOETH(5):25&R25&A2253&BK1	1
	Derate Rainey - Vernon 138kV (#36312)	1
	Derate Central East - VC	6
	Derate Greenwood-KentAve 138kV (#31232)	6
	Derate Greenwood-Vernon 138kV (#31231)	6,8
	Derate Greenwood-Vernon 138kV (#31231) I/o Gowanus-Goethals 345kV (#25)	6
	Derate Malone-Willis 115kV (#1-910) I/o BUS: MOSES (1A) AT1	8
	Uprate E179thSt - Hellgate 138kV (#15055)	9,24,25
	Uprate Goethals -Gowanus 345kV (#25)	6,8,24
	NE_AC - NY Scheduling Limit	1,8,25
	NE_AC Active DNI Ramp Limit	1,24
	NE_NNC1385 - NY Scheduling Limit	6,24,25
	HQ_CHAT - NY Scheduling Limit	8,25
	PJM_AC Active DNI Ramp Limit	8
	Lake Erie Circulation, DAM-RTM exceeds +/-125MW; West	1,6,8,9,24,25
	Lake Erie Circulation, DAM-RTM exceeds +/-125MW; Central-East	6

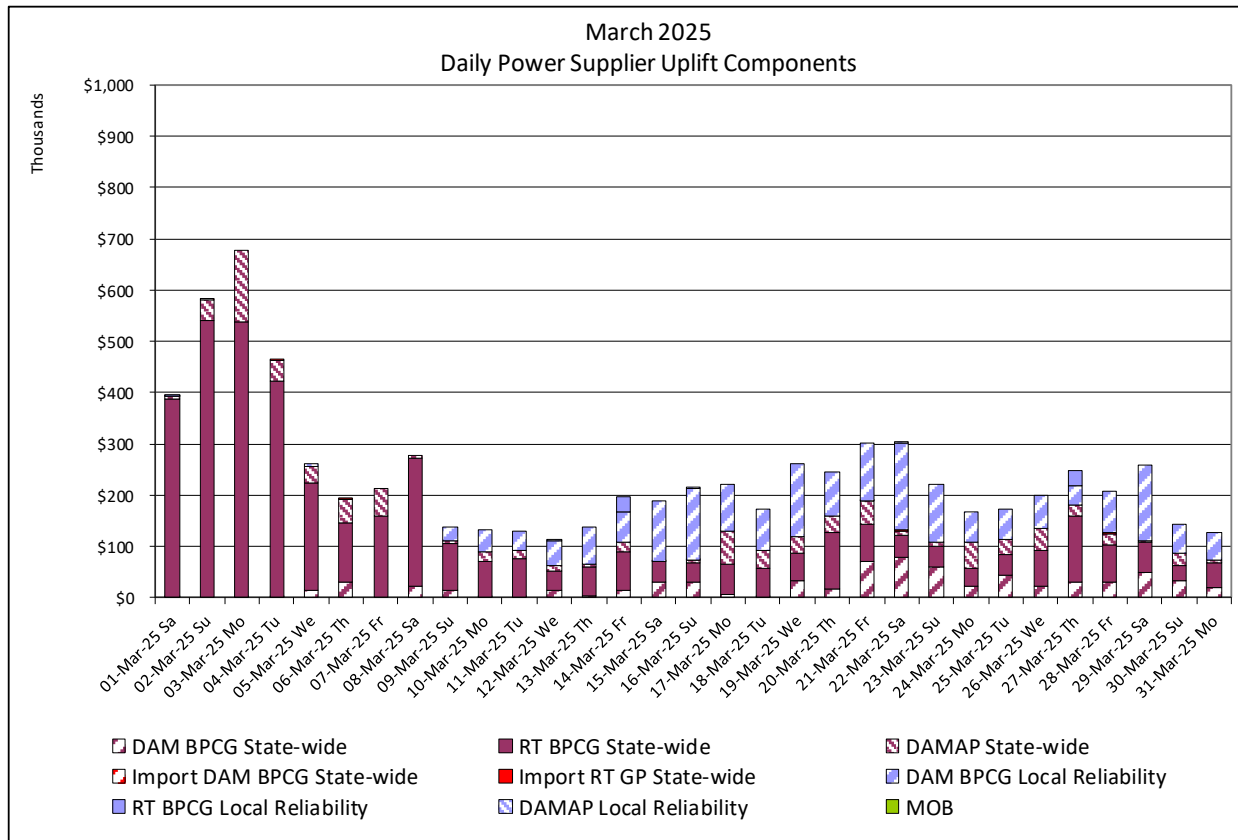
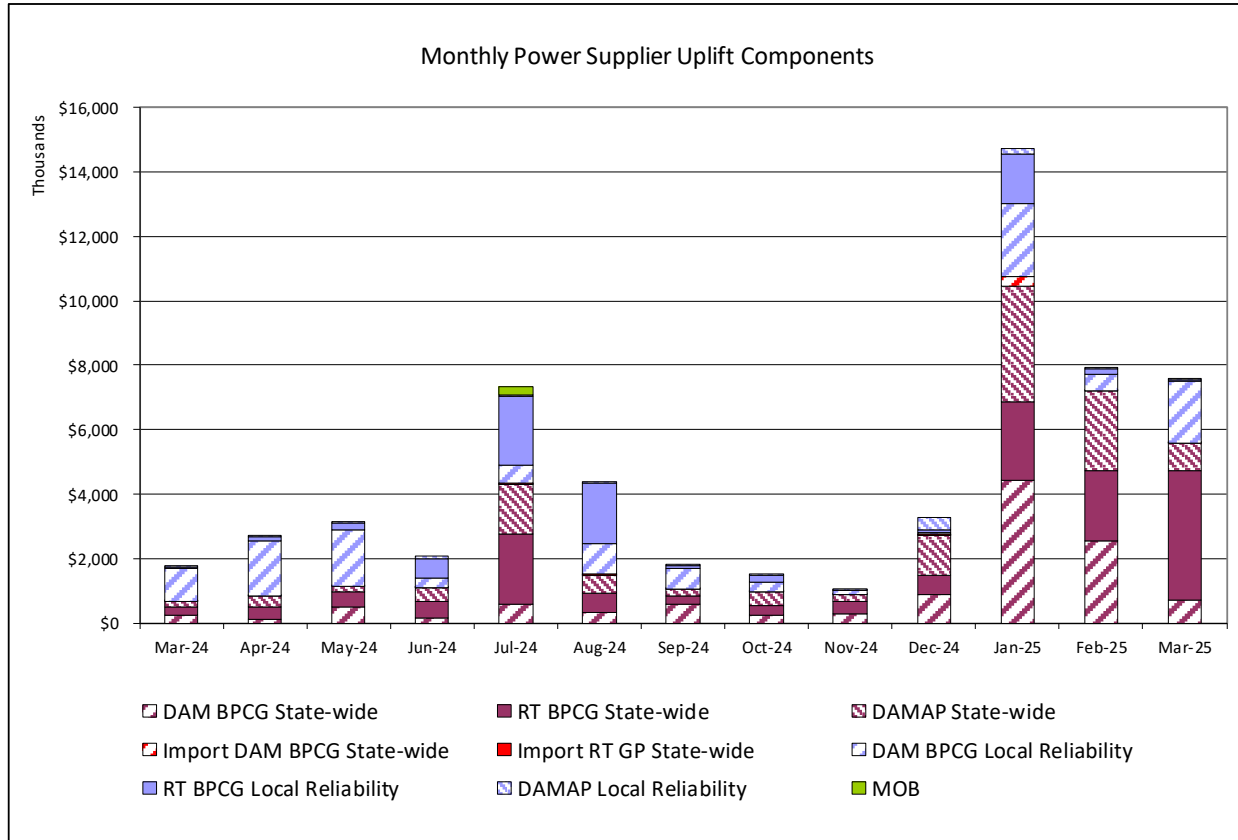
Real-Time Balancing Market Congestion Residual (Uplift Cost) Categories

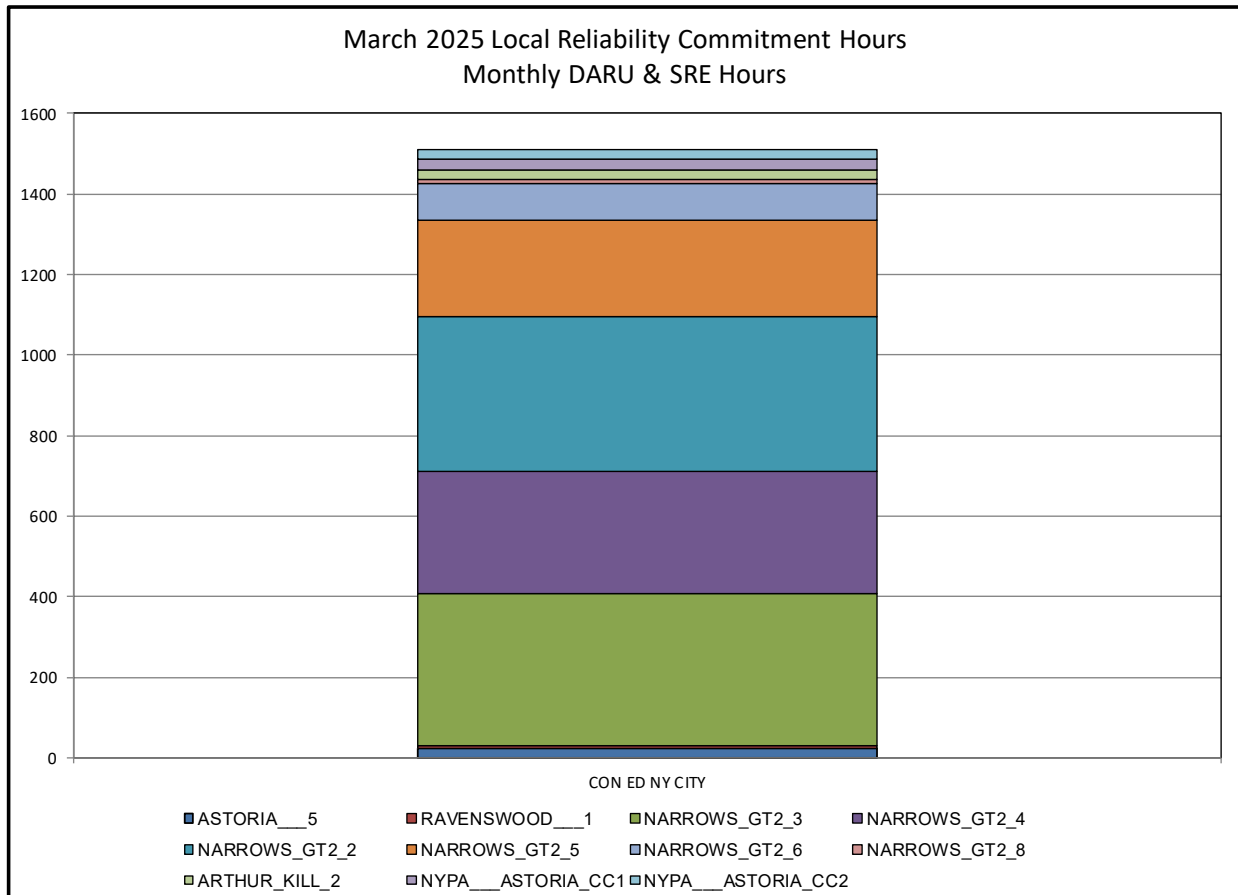
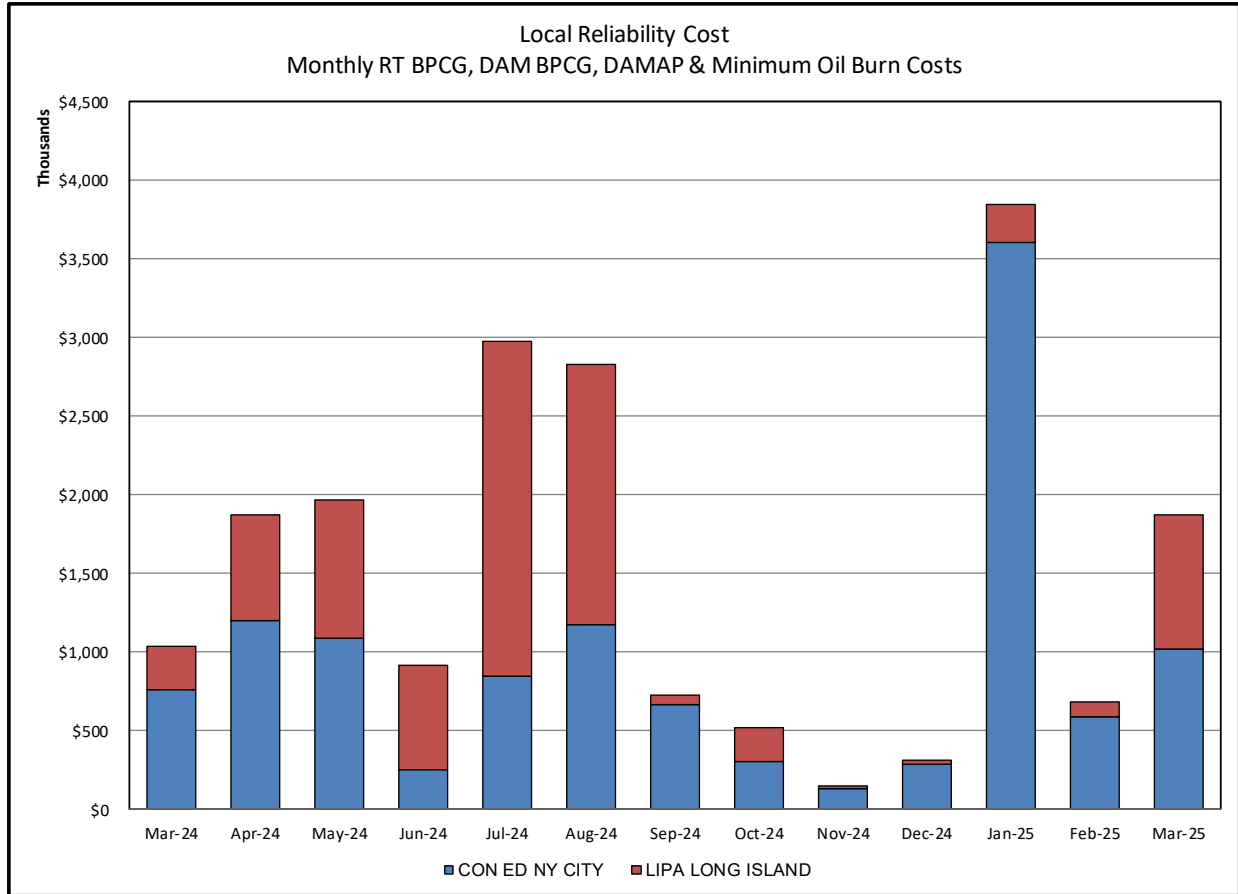
<u>Category</u>	<u>Cost Assignment</u>	<u>Events Types</u>	<u>Event Examples</u>
Storm Watch	Zone J	Thunderstorm Alert (TSA)	TSA Activations
Transmission Outage Mismatch	Market-wide	Changes in DAM to RTM transfers related to transmission outage mismatch	Forced Line Outage, Unit AVR Outages Early Line 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	
<u>Monthly Balancing Market Congestion Report Assumptions/Notes</u>			
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			

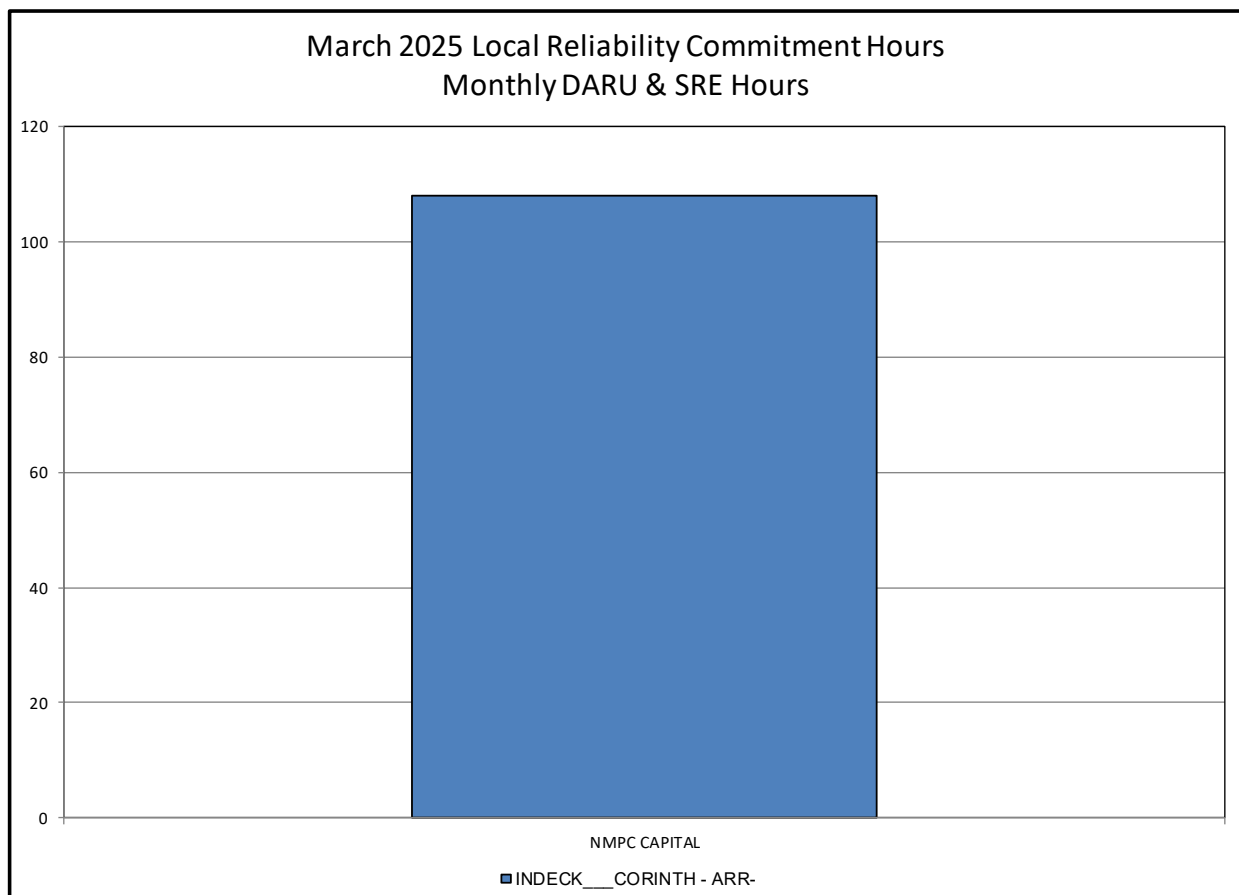
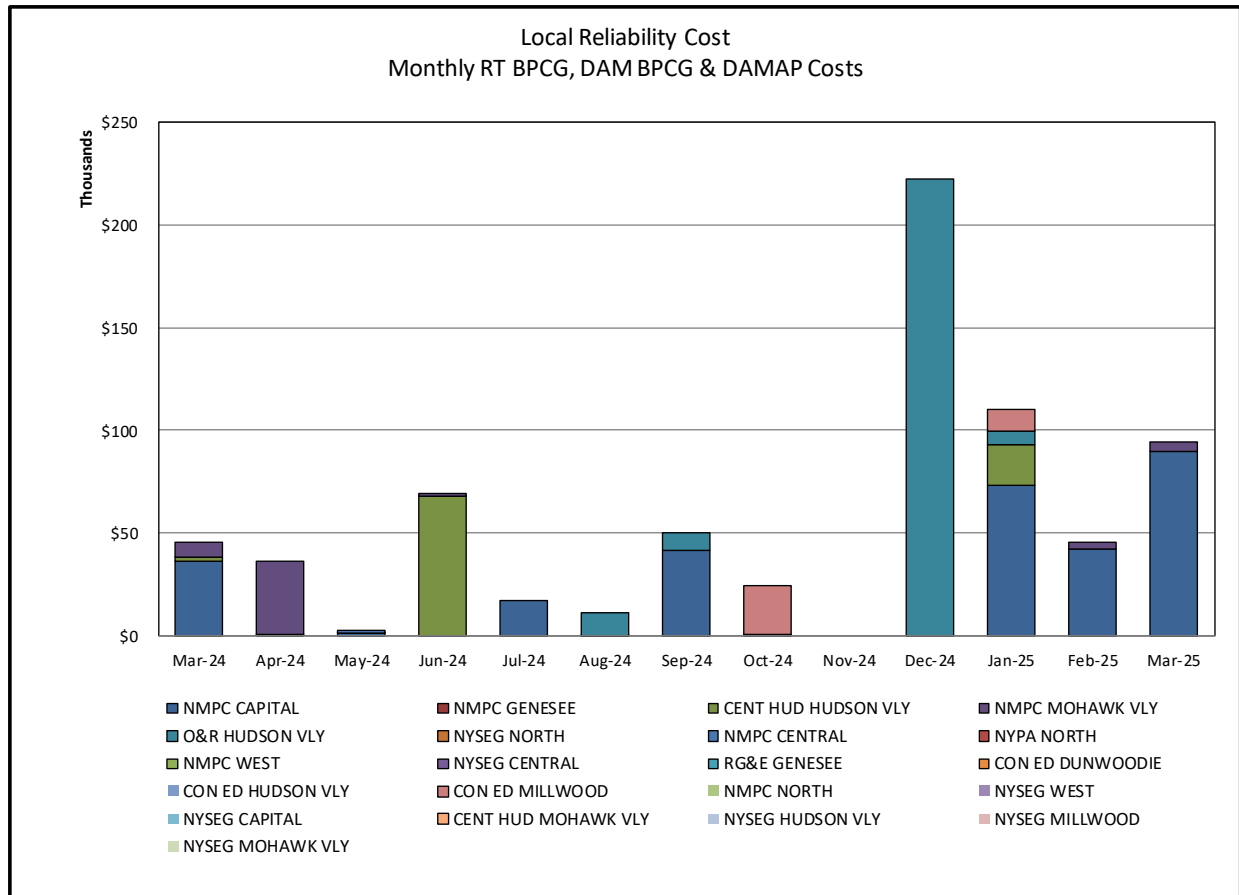


Day-Ahead Market Congestion Residual Categories

<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 Rerate	All TO by Monthly Allocation Factor	Changes in the DAM Central East_VC limit as compared to the TCC Auction limit, which are not associated with transmission line outages.	

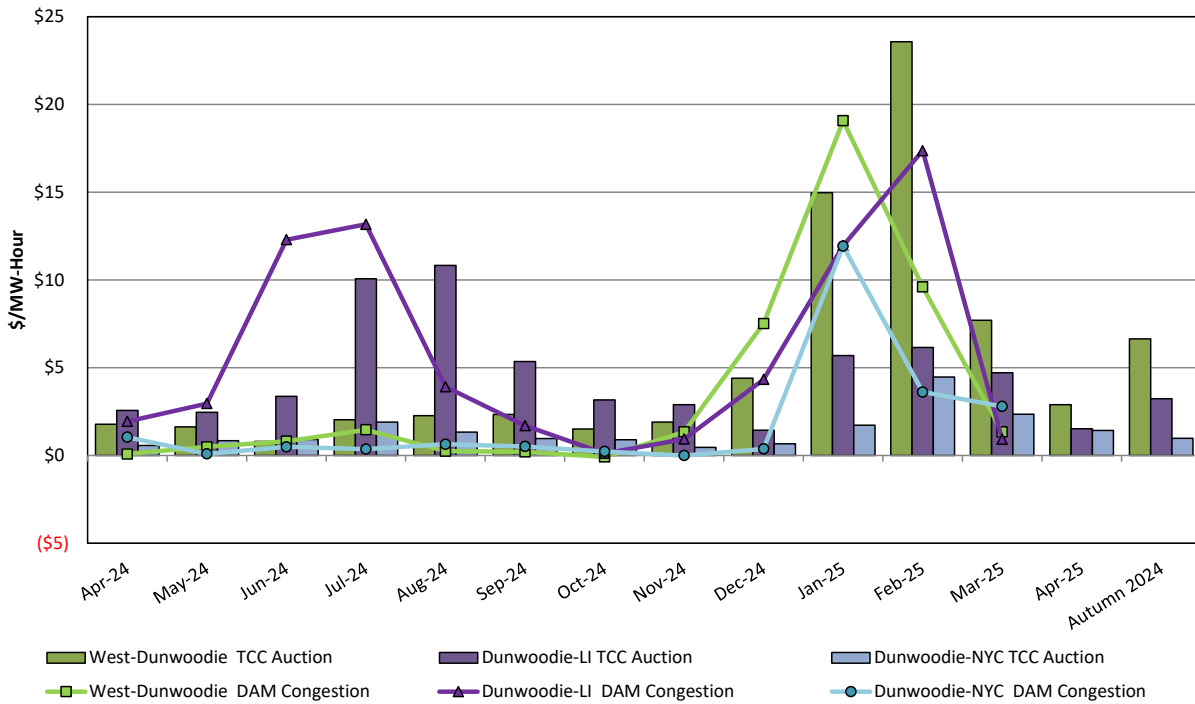






TCC & Day Ahead Market Selected Internal Path Congestion

TCC Monthly Reconfiguration Auction vs. Monthly DAM Average
with Autumn 2024 Centralized TCC Auction Six-Month Average



TCC & Day Ahead Market West to Dunwoodie Path Congestion

TCC Monthly Reconfiguration Auction vs. Monthly DAM Average
with Autumn 2024 Centralized TCC Auction Six-Month Average

