

# NEPOOL Participants Committee Report

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*April 2024*



Vamsi Chadalavada

EXECUTIVE VICE PRESIDENT AND CHIEF OPERATING OFFICER



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# Regular Operations Report - Highlights

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# Highlights: March 2024

Data is through March 26<sup>th</sup> unless otherwise noted

- **Peak Hour** on March 21
  - 15,692 MW system peak (Revenue Quality Metered/RQM); hour ending 8:00 pm
- **Average Pricing**
  - Day Ahead (DA) Hub Locational Marginal Price (LMP): \$24.31/MWh
  - Real Time (RT) Hub LMP: \$23.33/MWh
  - Natural Gas: \$1.64/Mmbtu (MA Natural Gas Average)
- **Energy Market** value \$217.9M down from \$389.0M in March 2023
  - Ancillary Markets\* value \$6.2M down from \$6.3M in March 2023
  - Average DA cleared physical energy\*\* during the peak hours as percent of forecasted load was 97.3% during March, down from 99.0% during February
  - Updated February Energy Market value: \$374.7M
- **Net Commitment Period Compensation (NCPC)** total \$1.1M
  - First Contingency \$1.1M
    - Dispatch Lost Opportunity Cost (DLOC) - \$207K; Rapid Response Pricing (RRP) Opportunity Cost - \$140K; Posturing - \$0K; Generator Performance Auditing (GPA) - \$0K
    - \$18K paid to resources at external locations, down \$128K from February
      - \$4K charged to DALO at external locations, \$15K to RT Deviations
  - 2nd Contingency, Distribution and Voltage were zero.
- **Forward Capacity Market (FCM)** market value \$86.5M

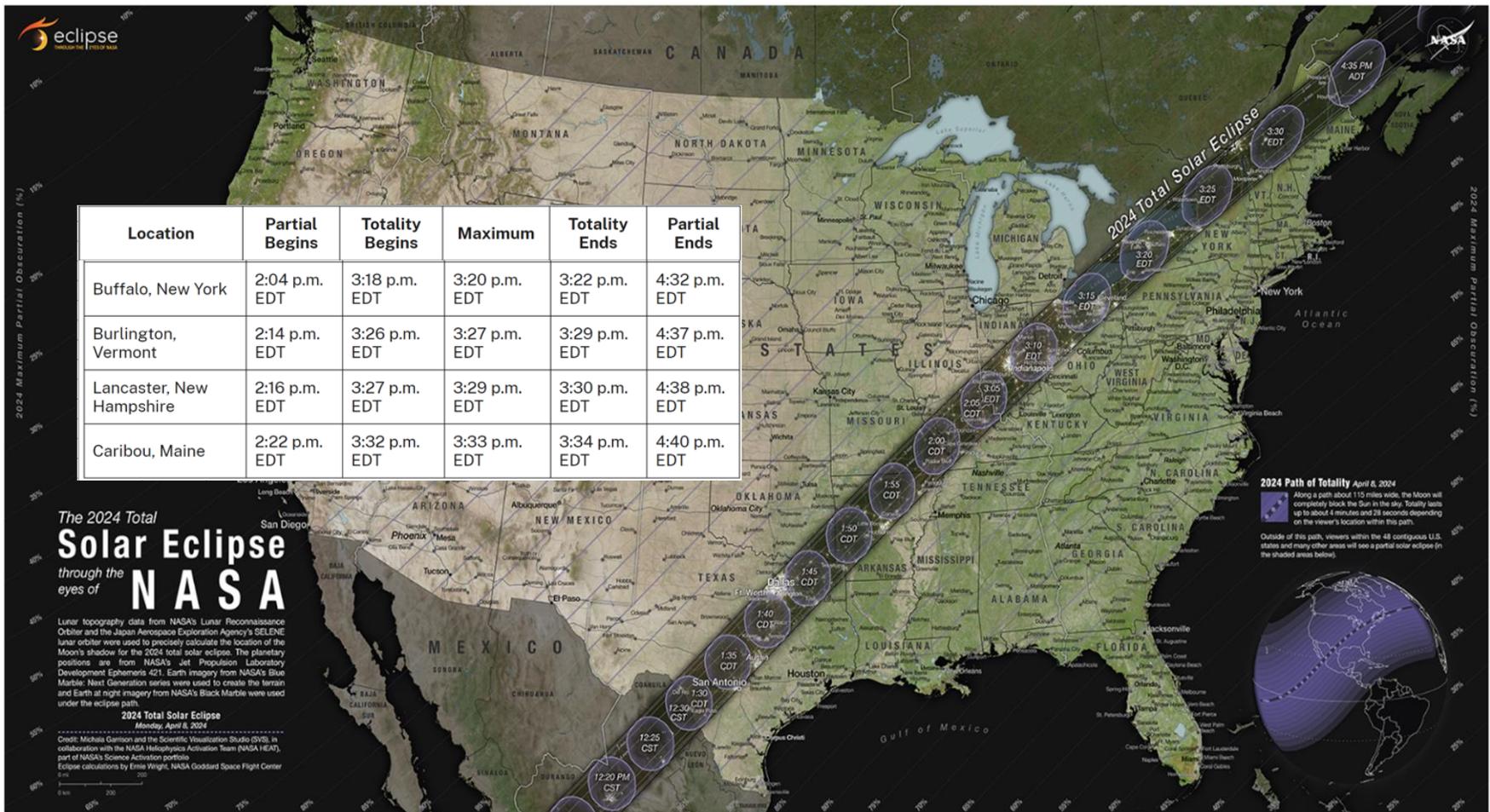
\*Ancillaries = Reserves, Regulation, NCPC, less Marginal Loss Revenue Fund

\*\*DA Cleared Physical Energy is the sum of Generation and Net Imports cleared in the DA Energy Market

Underlying natural gas data furnished by:

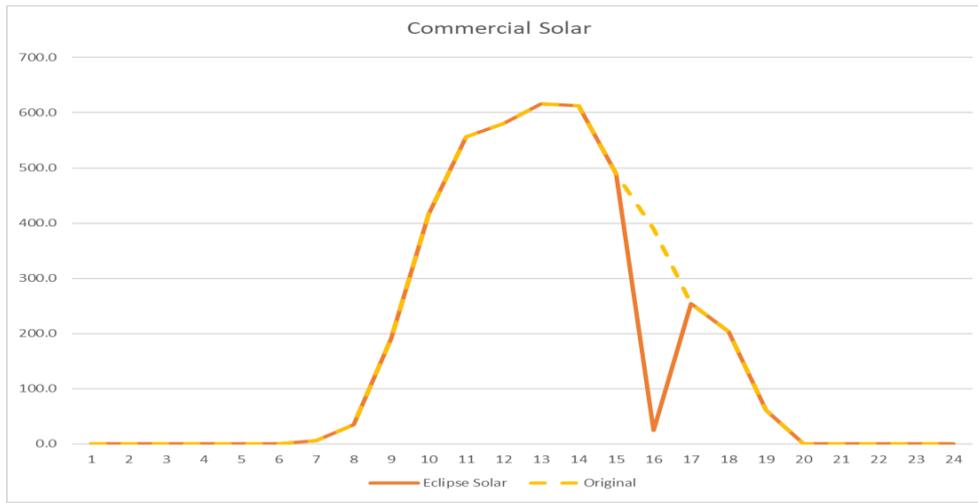


# Highlights – Eclipse Timing

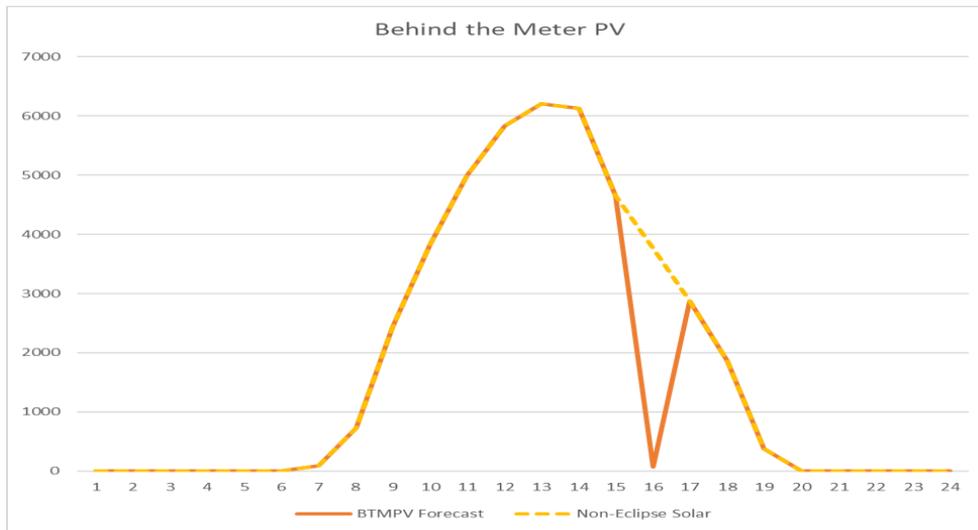


At this time, the weather forecast for 4/8 is clear sunshine, which is estimated to reduce total PV output by ~3,600 MW, and as the eclipse passes, PV generation output is expected to reach ~2,500 MW

# Highlights – Forecasted Solar Output during Eclipse



- ~365 MW loss of Commercial Solar during Eclipse Maximum
- 230 MW gain in Commercial Solar in hour following Totality End



- ~3200 MW loss of BTMPV during Eclipse Maximum
- 2260 MW gain in BTMPV in hour following Totality End

# Highlights – Eclipse Preparations

- The ISO has simulated this event and our operators are ready
- NYISO will implement hourly scheduling on the CTS interface, starting one hour prior to the impact of the eclipse, to one hour after the impact
- The ISO regulation requirements for H/E 15 through H/E 17 will be raised up to 400 MW; NYISO and IESO are also raising their regulation requirements during the eclipse impact period
- The 312 line (Berkshire to Northfield) will be restored to service on 4/8 for the eclipse event, then will be removed from service on 4/9 to continue the planned work



# Forward Capacity Market (FCM) Highlights

- CCP 15 (2024-2025)
  - The ISO held the third annual reconfiguration auction (ARA3) over March 1-5, 2024, and will post the results no later than April 3, 2024
- CCP 16 (2025-2026)
  - The ISO will hold the second annual reconfiguration auction (ARA2) over August 1-5, 2024, and will post the results no later than September 3, 2024
- CCP 17 (2026-2027)
  - The ISO will hold the first annual reconfiguration auction (ARA1) over June 3-5, 2024, and will post the results no later than July 5, 2024
  - ICR and related values for the ARAs to be conducted in 2024 were filed with FERC on November 30, 2023, and FERC issued an order accepting the results effective January 29, 2024

# FCM Highlights, cont.

- CCP 18 (2027-2028)
  - The ISO filed the auction results with FERC on February 21, 2024, and the filing is pending
    - Comments are due April 8, 2024, and ISO requested an effective date of June 20, 2024
- CCP 19 (2028-2029)
  - The ISO filed market rule changes to delay FCA 19 for one year with FERC on November 3, 2023; FERC issued an order accepting the delay to FCA 19 on January 2, 2024
  - The ISO will commence the interim reconfiguration auction qualification process resulting from the FCA 19 delay in April 2024

# SYSTEM OPERATIONS



# System Operations

<b><u>Weather Patterns</u></b>	Boston	Temperature: Above Normal (3.7°F) Max: 60°F, Min: 23°F Precipitation: 8.94" – Above Normal Normal: 4.17" Snow: 0.00"	Hartford	Temperature: Above Normal (6.7°F) Max: 72°F, Min: 22°F Precipitation: 7.99" - Above Normal Normal: 3.81" Snow: 0.00"
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<b><u>Peak Load:</u></b>	15,503 MW	March 21, 2024	20:00 (ending)
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Emergency Procedure Events (OP-4, M/LCC 2, Minimum Generation Emergency)

Procedure	Declared	Cancelled	Note
None			



# System Operations

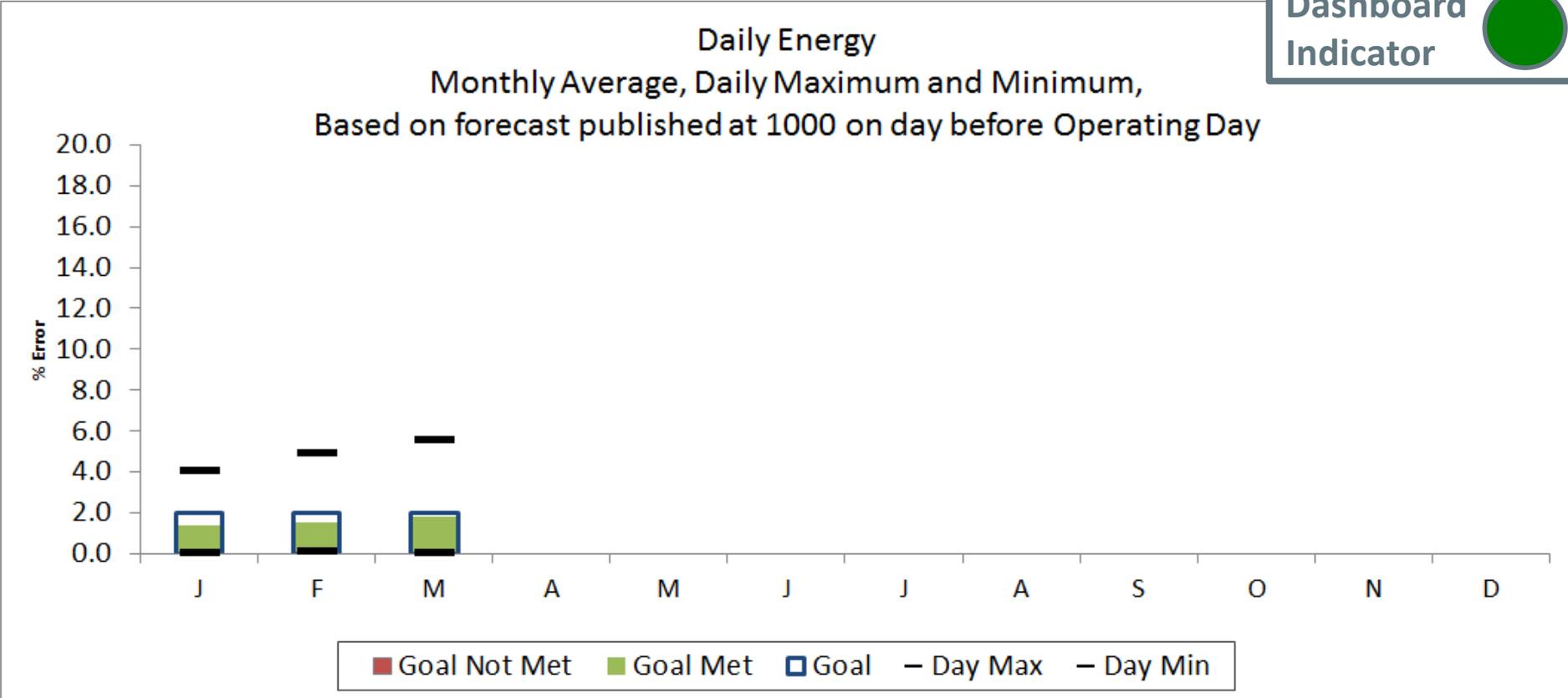
## NPCC Simultaneous Activation of Reserve Events

Date	Area	MW Lost
03/03/2024	NYISO	540
03/26/2024	IESO	860



# 2024 System Operations - Load Forecast Accuracy cont.

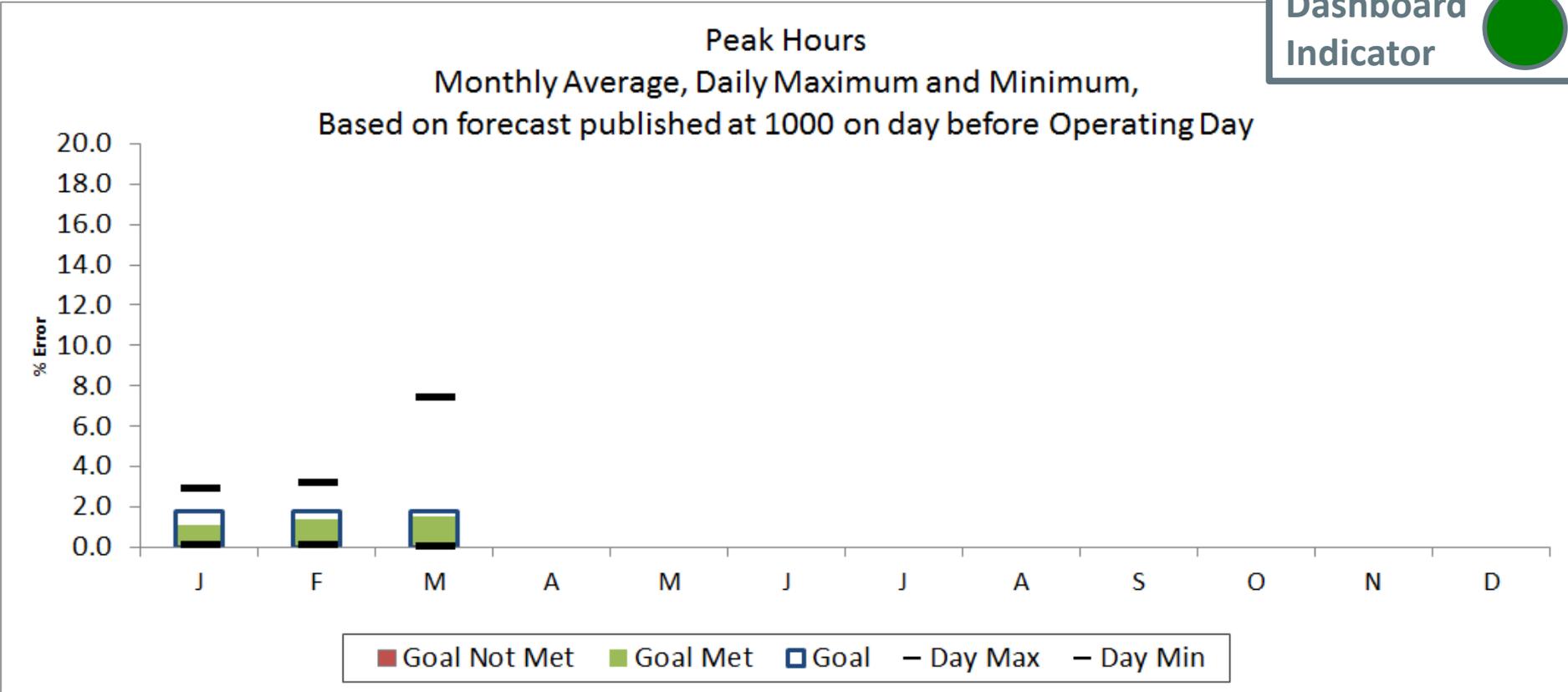
Dashboard Indicator 



Month	J	F	M	A	M	J	J	A	S	O	N	D	
Day Max	4.02	4.89	5.56										5.56
Day Min	0.00	0.12	0.02										0.00
MAPE	1.38	1.54	1.82										1.58
Goal	2.00	2.00	2.00										

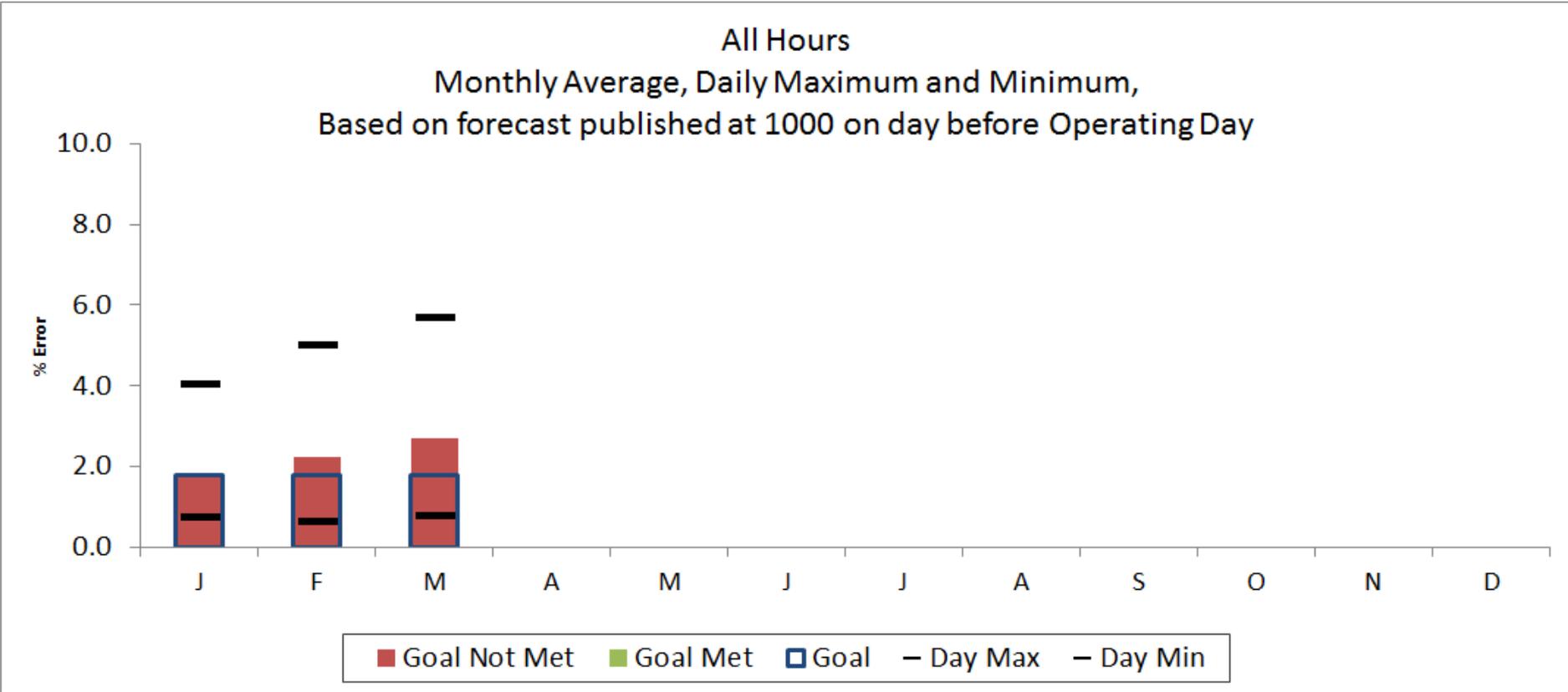
# 2024 System Operations - Load Forecast Accuracy cont.

Dashboard Indicator 



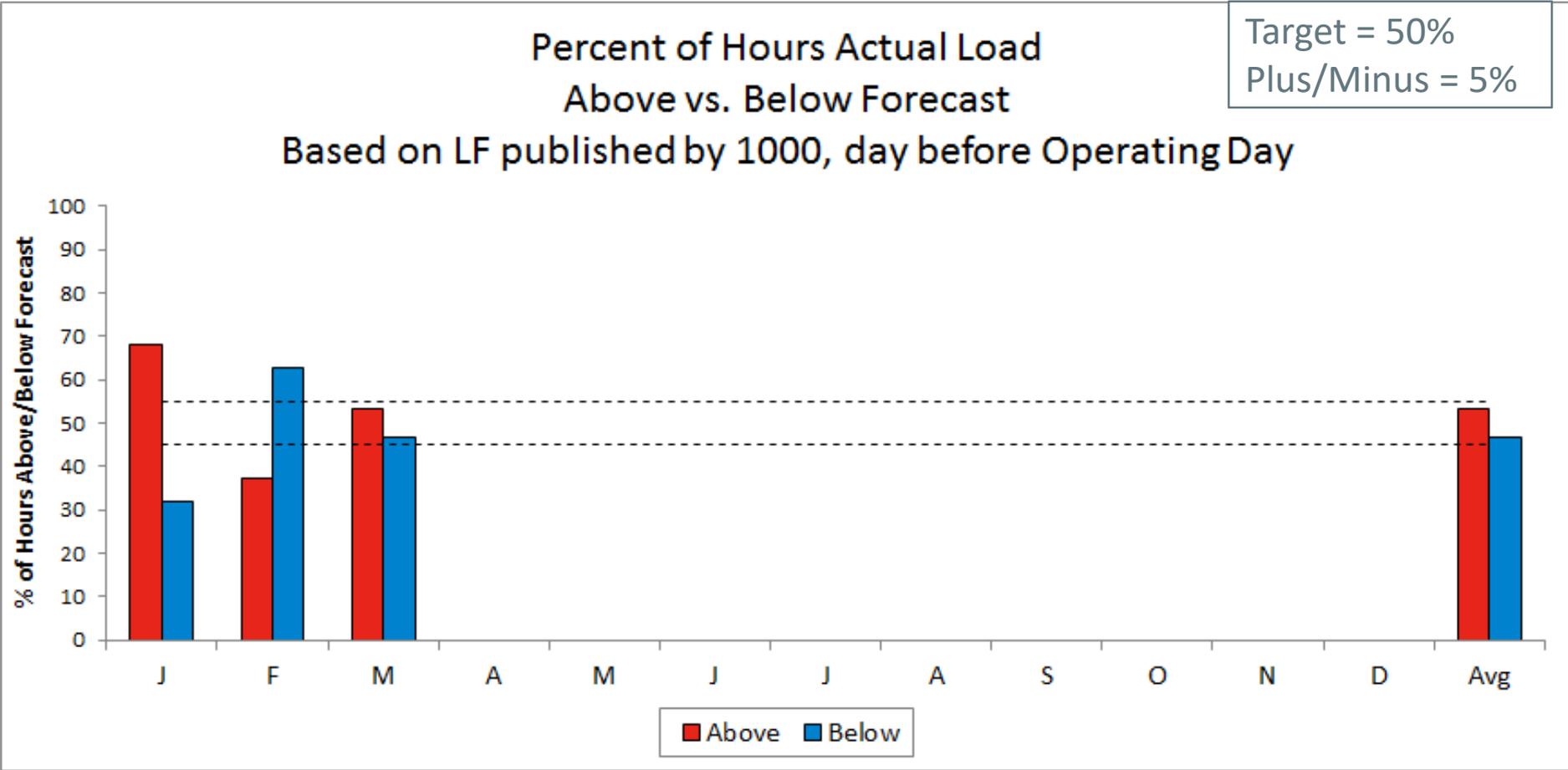
Month	J	F	M	A	M	J	J	A	S	O	N	D	
Day Max	2.90	3.17	7.45										7.45
Day Min	0.08	0.10	0.02										0.02
MAPE	1.10	1.39	1.54										1.34
Goal	1.80	1.80	1.80										

# 2024 System Operations - Load Forecast Accuracy



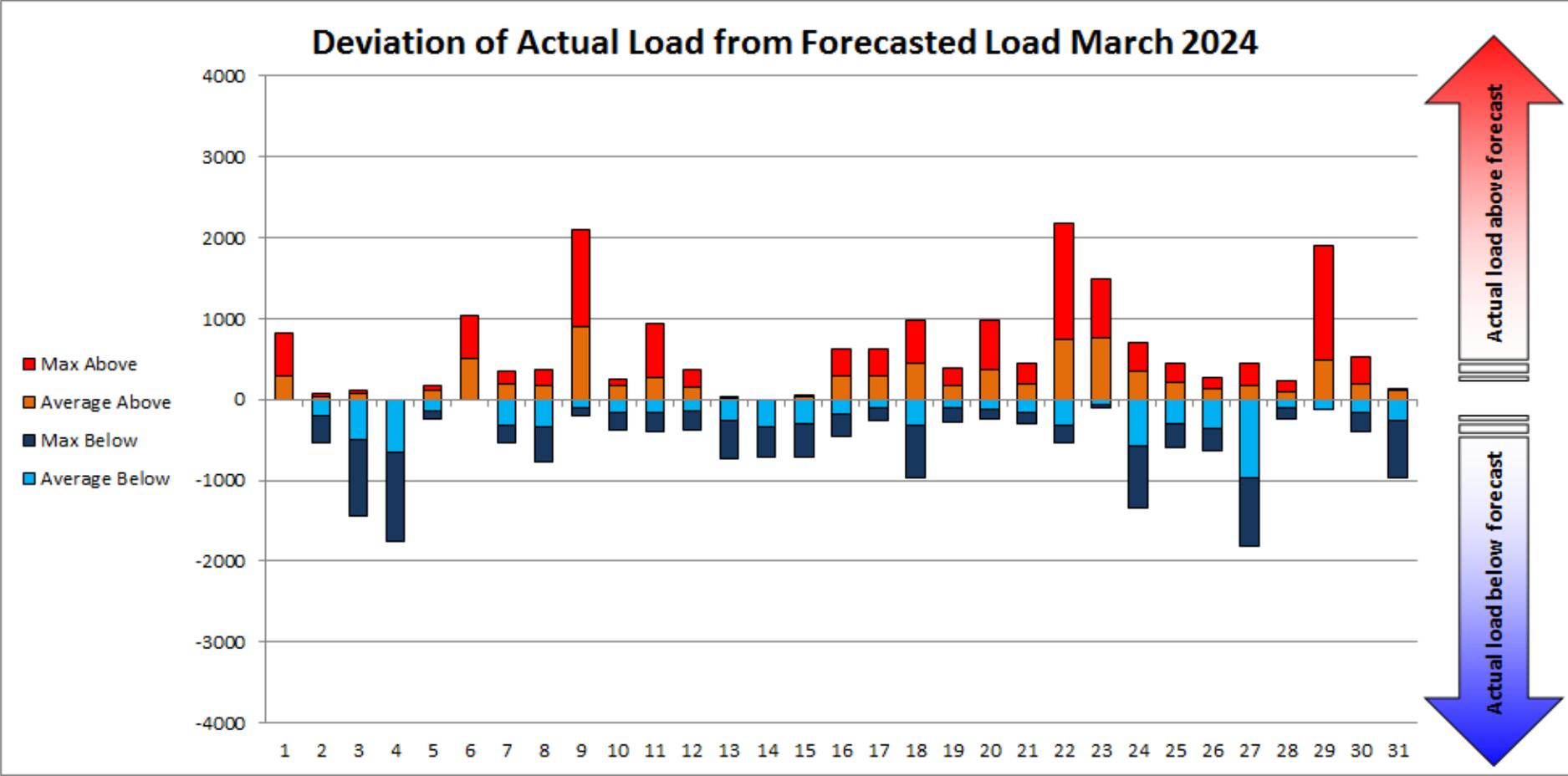
Month	J	F	M	A	M	J	J	A	S	O	N	D	
Day Max	4.03	5.00	5.67										5.67
Day Min	0.73	0.64	0.76										0.64
MAPE	1.83	2.24	2.72										2.26
Goal	1.80	1.80	1.80										

# 2024 System Operations - Load Forecast Accuracy cont.

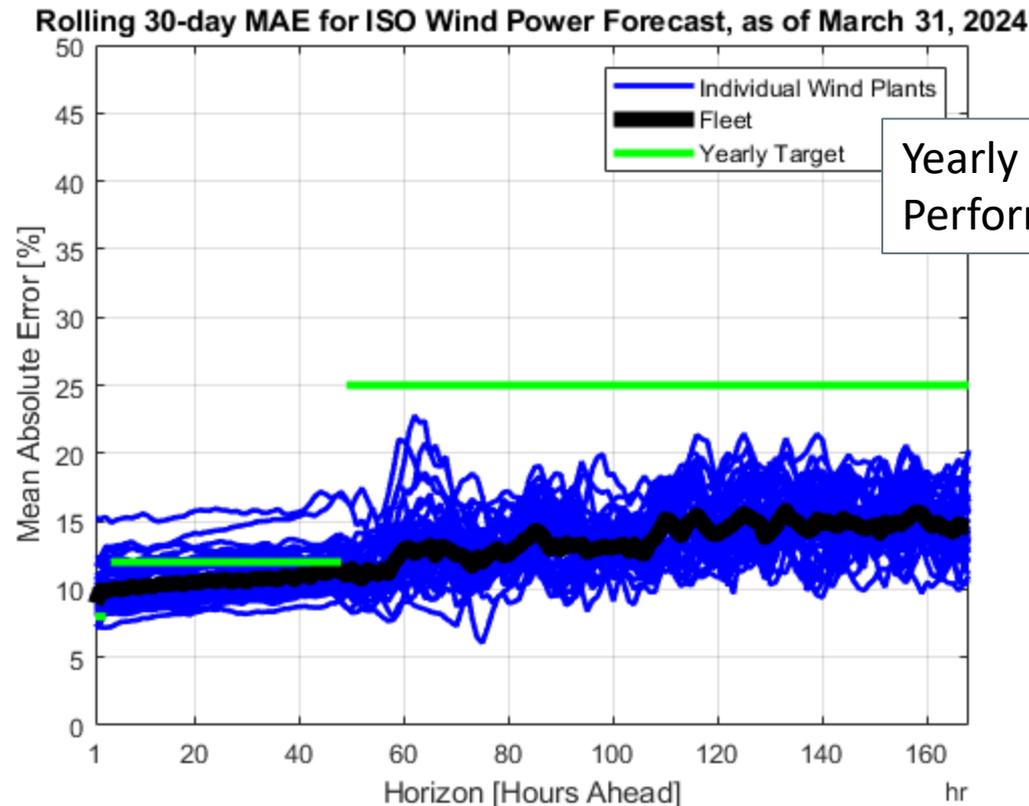


	J	F	M	A	M	J	J	A	S	O	N	D	Avg
Above %	67.9	37.4	53.3										53
Below %	32.1	62.6	46.7										47
Avg Above	260.5	155.2	254.6										261
Avg Below	-155.5	-292.3	-253.5										-292
Avg All	132	-130	39										17

# 2024 System Operations - Load Forecast Accuracy cont.

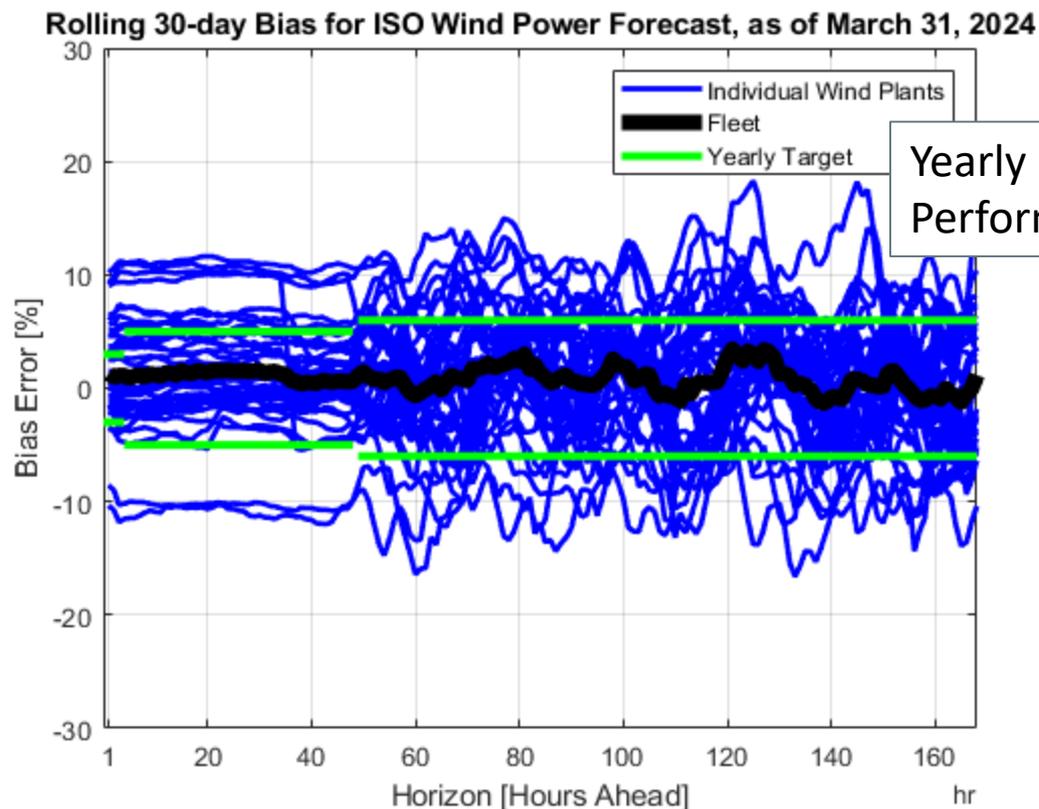


# Wind Power Forecast Error Statistics: Medium and Long Term Forecasts MAE



Ideally, MAE and Bias would be both equal to zero. As is typical, MAE increases with the forecast horizon. MAE and Bias for the fleet of wind power resources are less due to offsetting errors. Across all time frames, the ISO-NE/DNV forecast is very good compared to industry standards; and except for lookahead horizon hour 1, monthly MAE is within the yearly performance targets.

# Wind Power Forecast Error Statistics: Medium and Long Term Forecasts Bias

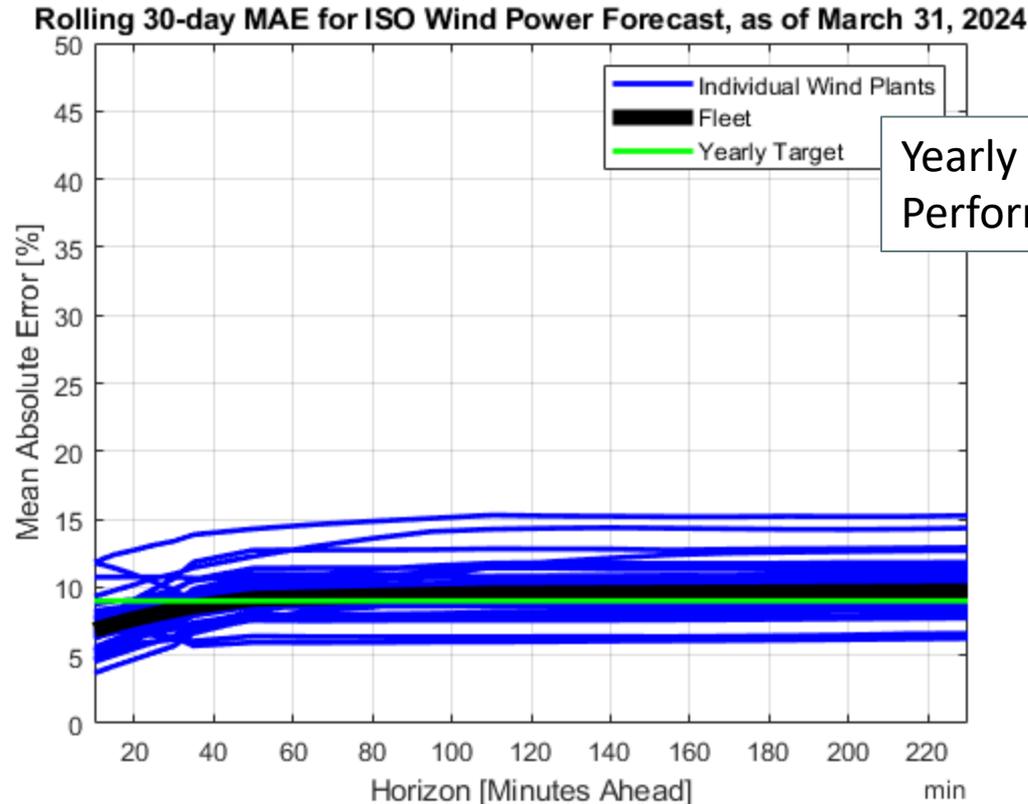


Dashboard Indicator 

Yearly Fleet  
Performance targets 

Ideally, MAE and Bias would be both equal to zero. Positive bias means less windpower was actually available compared to forecast. Negative bias means more windpower was actually available compared to forecast. Across all time frames, the ISO-NE/DNV forecast compares well with industry standards, and monthly Bias is within yearly performance targets.

# Wind Power Forecast Error Statistics: Short Term Forecast MAE

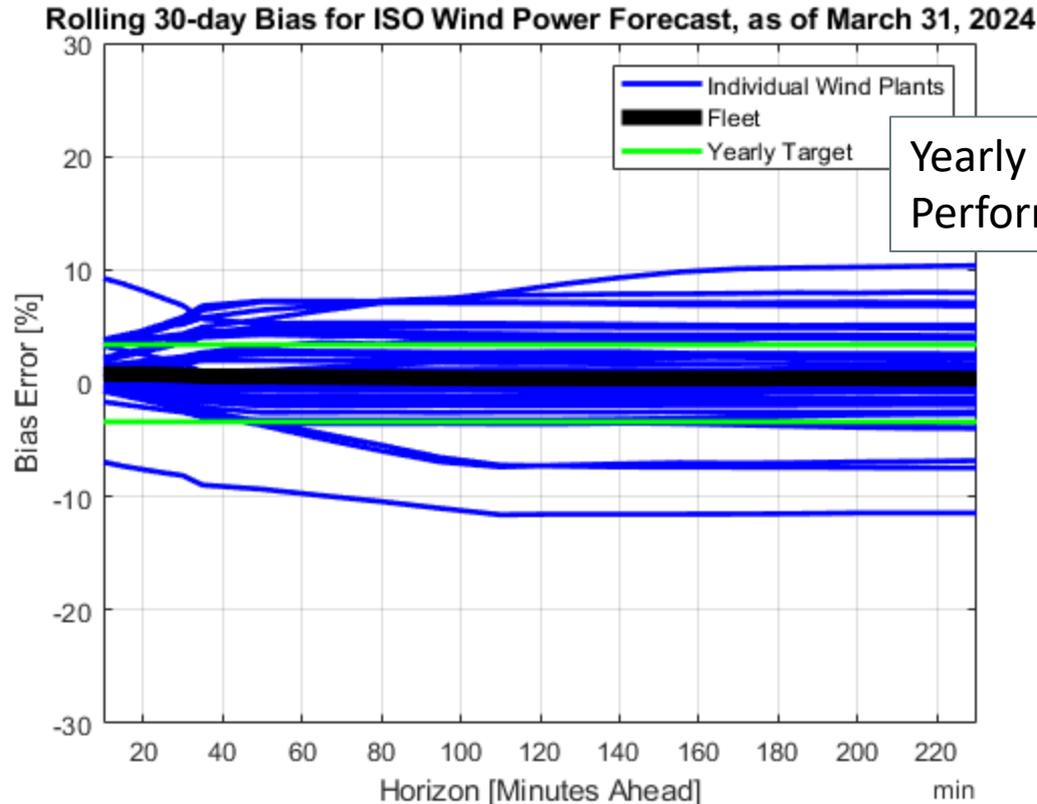


Dashboard Indicator 

Yearly Fleet  
Performance targets 

Ideally, MAE and Bias would be both equal to zero. As is typical, MAE increases with the forecast horizon. MAE and Bias for the fleet of wind power resources are less due to offsetting errors. Across all time frames, the forecast compares well with industry standards. After the 45 minute lookahead horizon, monthly MAE is just outside of yearly performance targets.

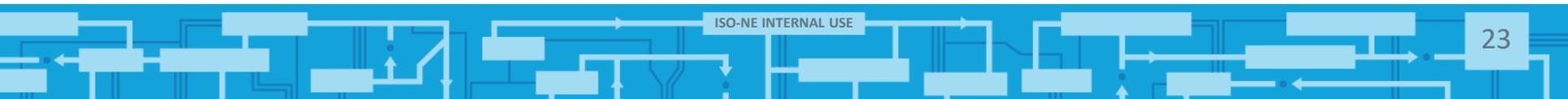
# Wind Power Forecast Error Statistics: Short Term Forecast Bias



Ideally, MAE and Bias would be both equal to zero. Positive bias means less windpower was actually available compared to forecast. Negative bias means more windpower was actually available compared to forecast. Across all time frames, the ISO-NE/DNV forecast compares well with industry standards, and monthly Bias is within yearly performance.

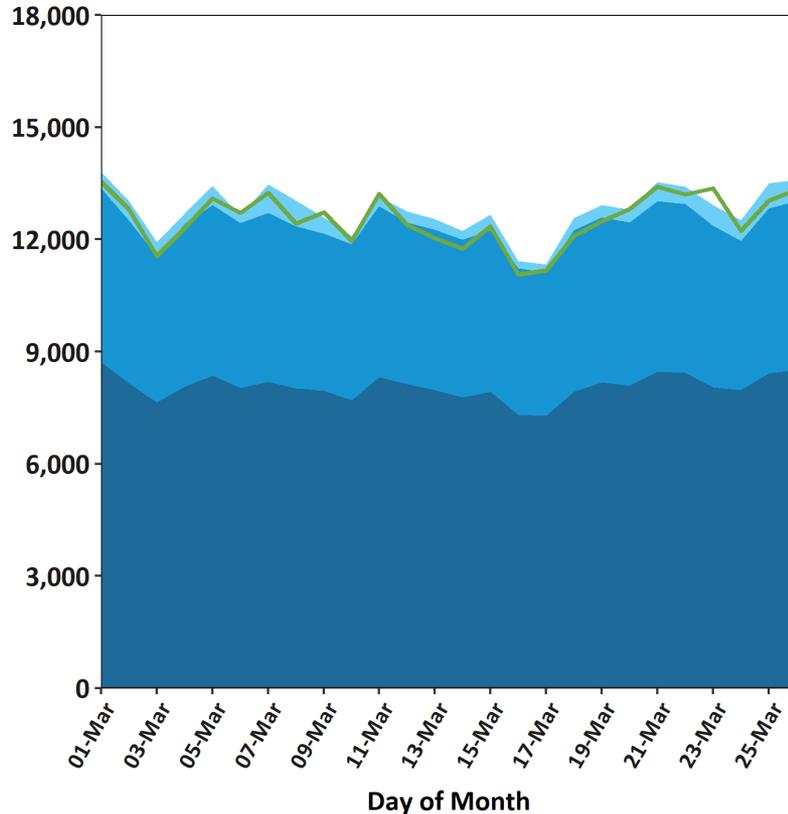
# MARKET OPERATIONS

# SUPPLY AND DEMAND VOLUMES

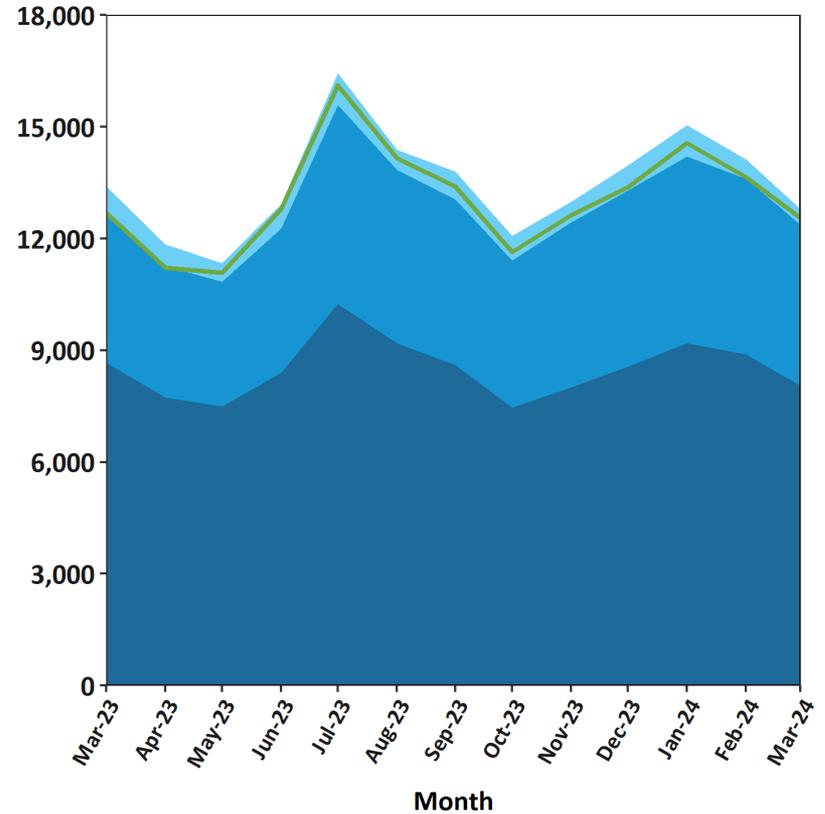


# DA Cleared Native Load by Composition Compared to Native RT Load

Daily Average MW



Monthly Average MW



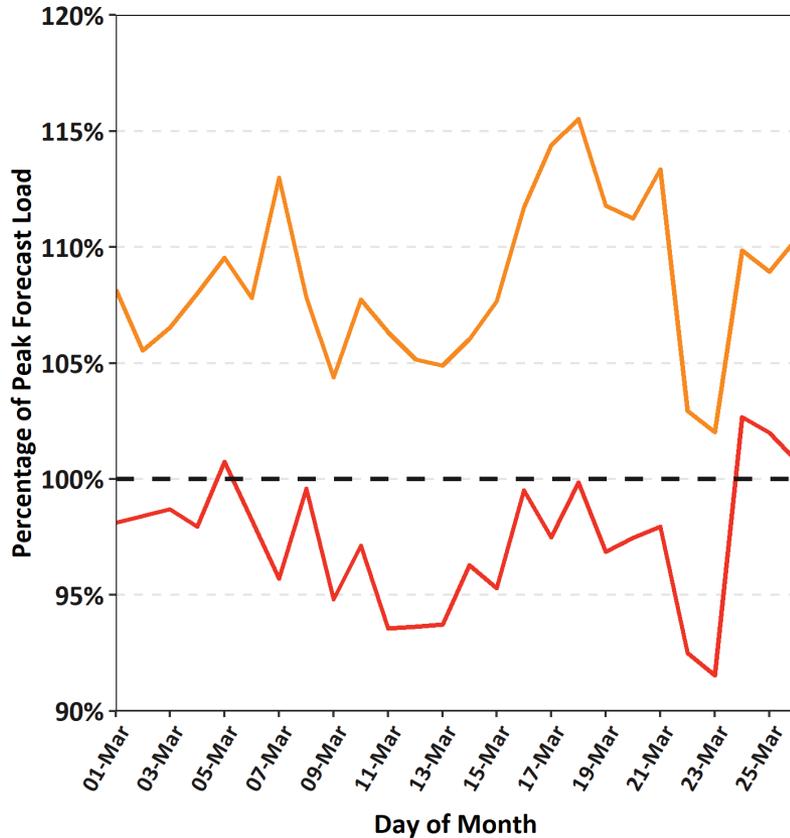
■ DA Fixed Price 
 ■ DA Price Sensitive 
 ■ Native DALO 
 — Native RTLO

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 ■ DA Price Sensitive 
 ■ Native DALO 
 — Native RTLO

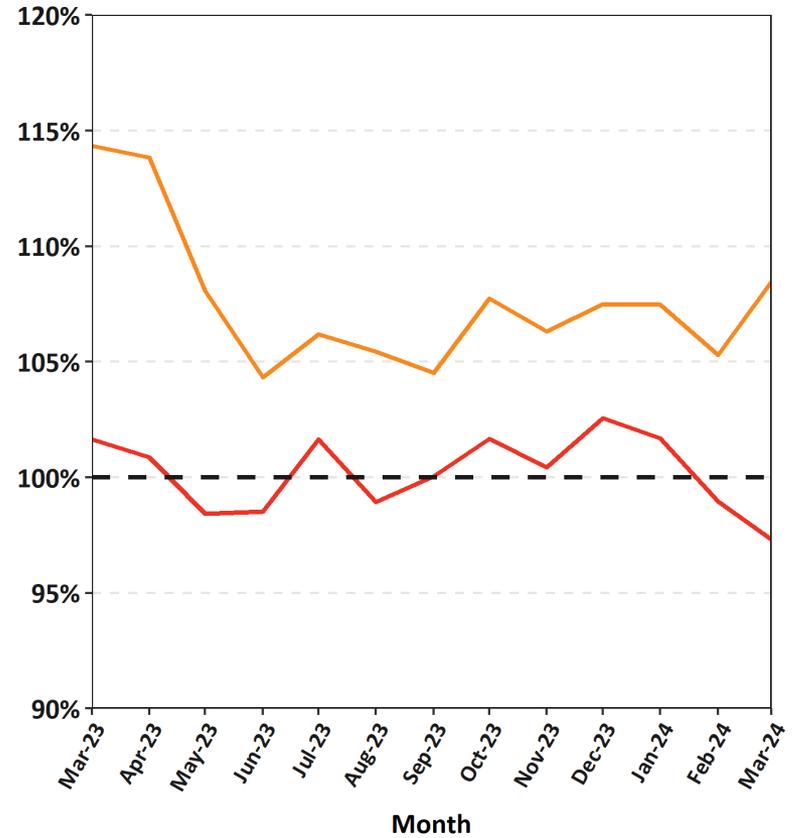
Native Day-Ahead Load Obligation (DALO) is the sum of all day-ahead cleared load, excluding modeled transmission losses and exports Native Real-Time Load Obligation (RTLO) is the sum of all real-time cleared load, excluding exports

# DA Volumes as % of Forecast in Peak Hour

Daily: This Month



Monthly, Last 13 Months



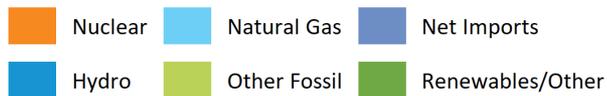
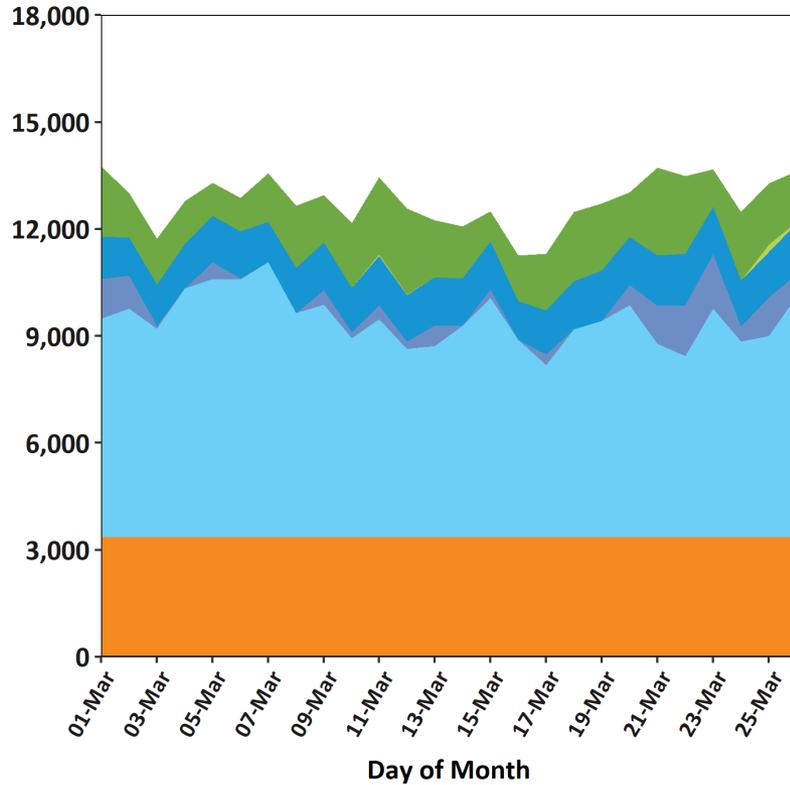
— DA Cleared Physical Energy — DALO — 100% Line

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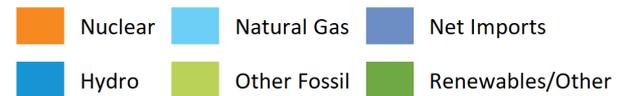
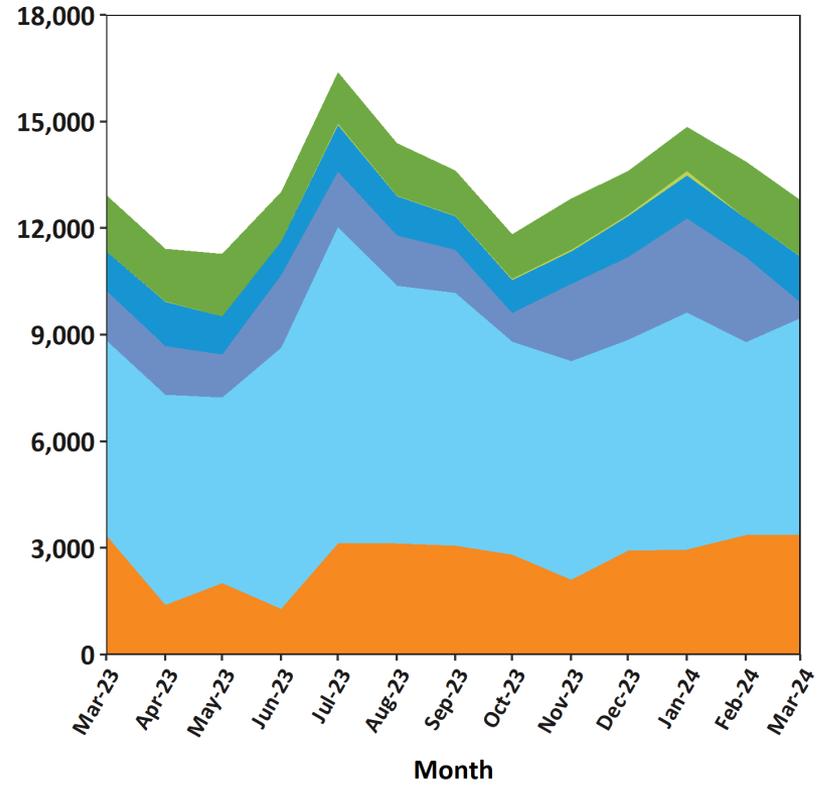
The number of system-level manual supplemental commitments for capacity required during the Reserve Adequacy Assessment (RAA) period during the month was: [none](#)

# Resource Mix

## Daily Average MW

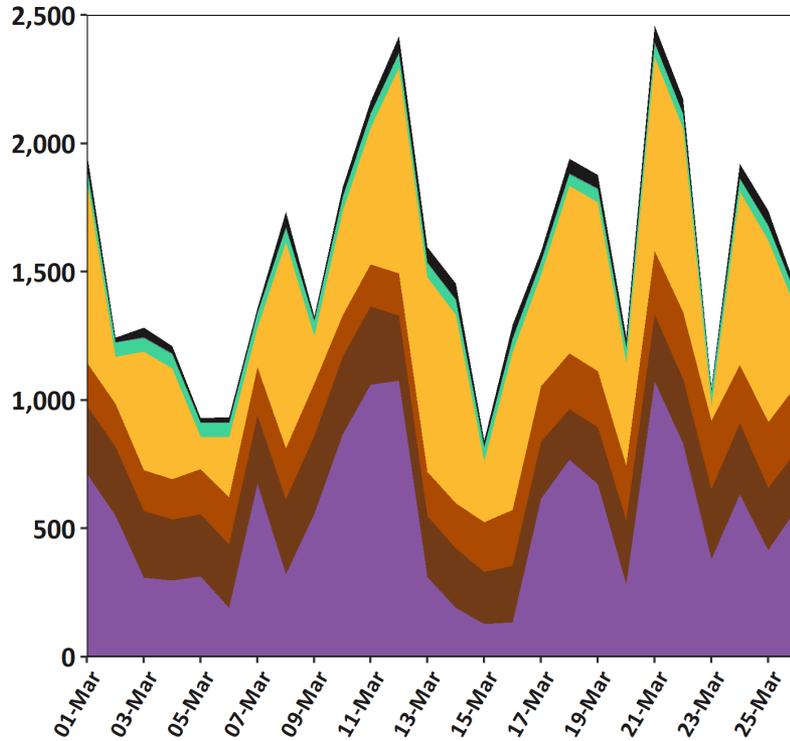


## Monthly Average MW



# Renewable Generation by Fuel Type

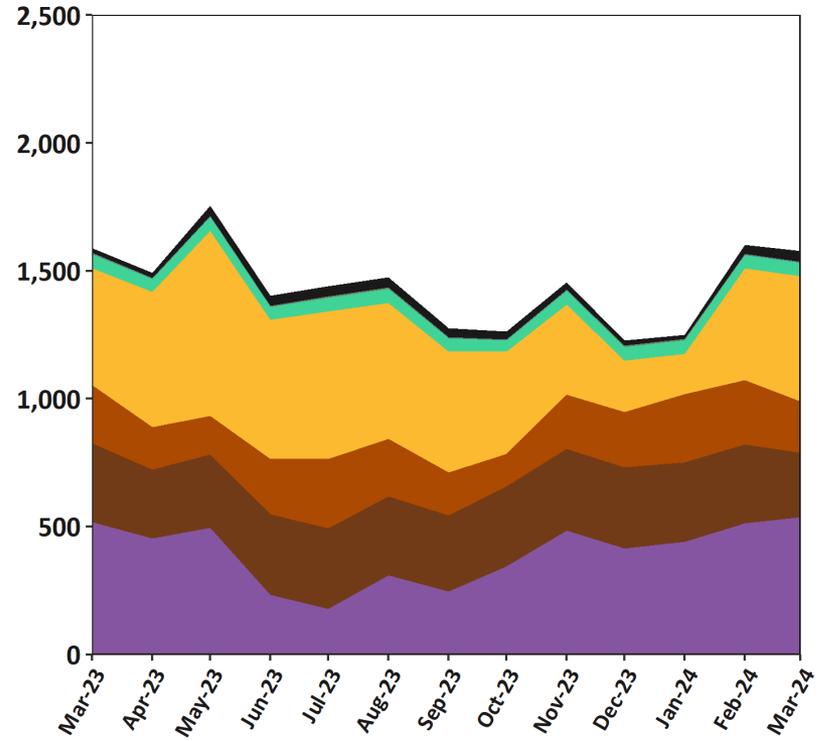
Daily Average MW



Day of Month



Monthly Average MW



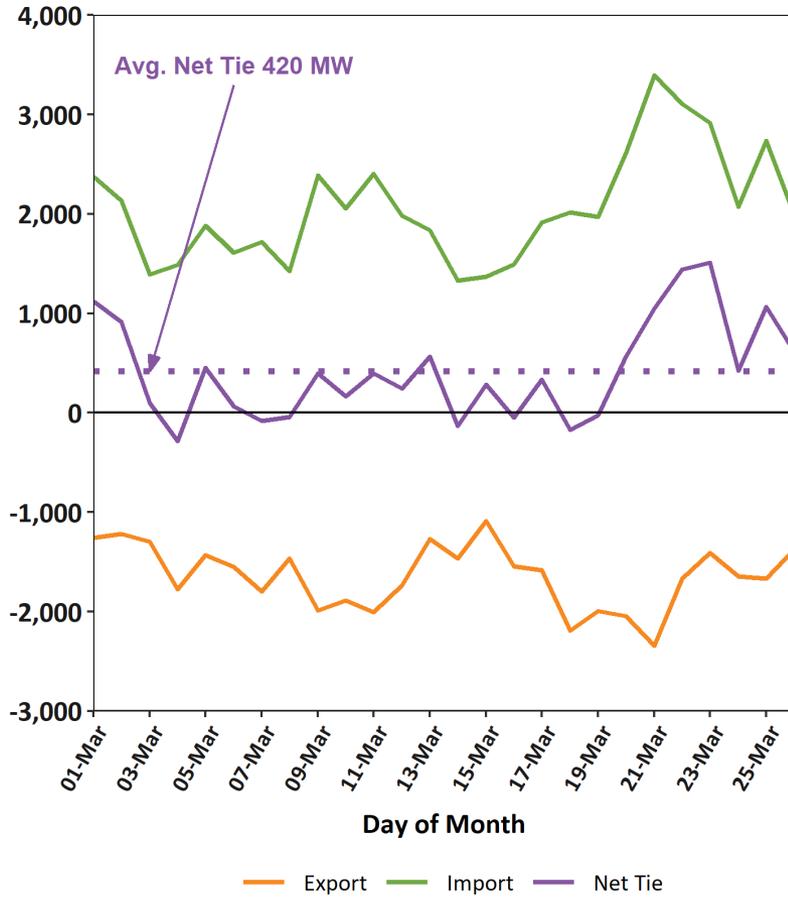
Month



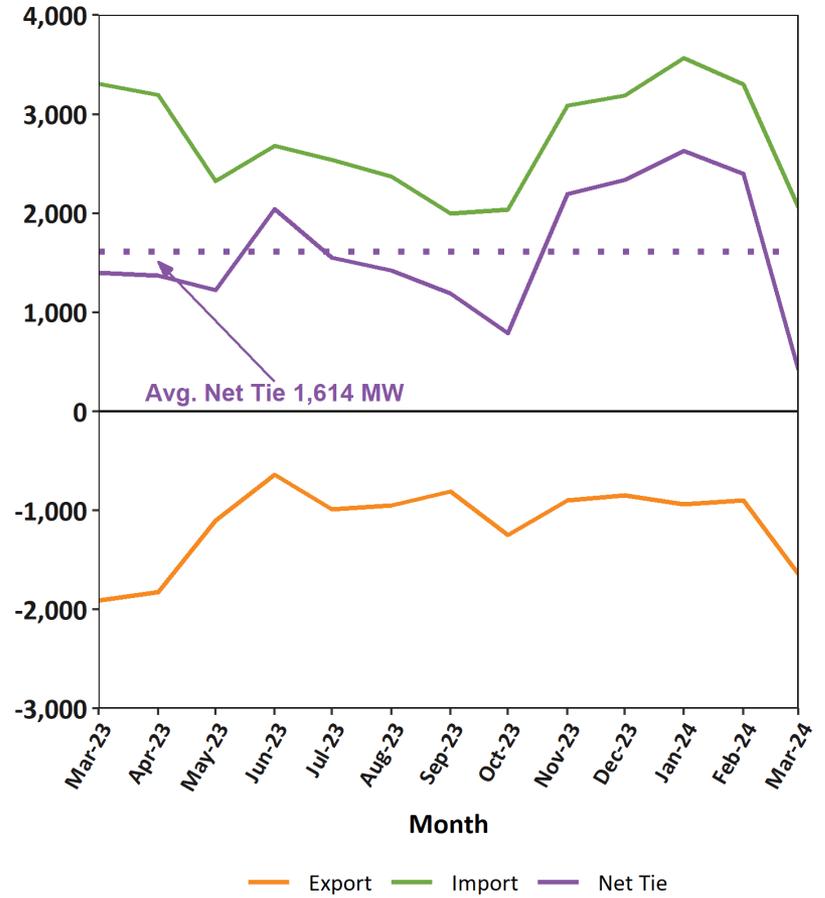
Note: CSF represents Continuous Storage Facilities (a.k.a. Batteries)

# RT Net Interchange

Average Daily Net Interchange MW



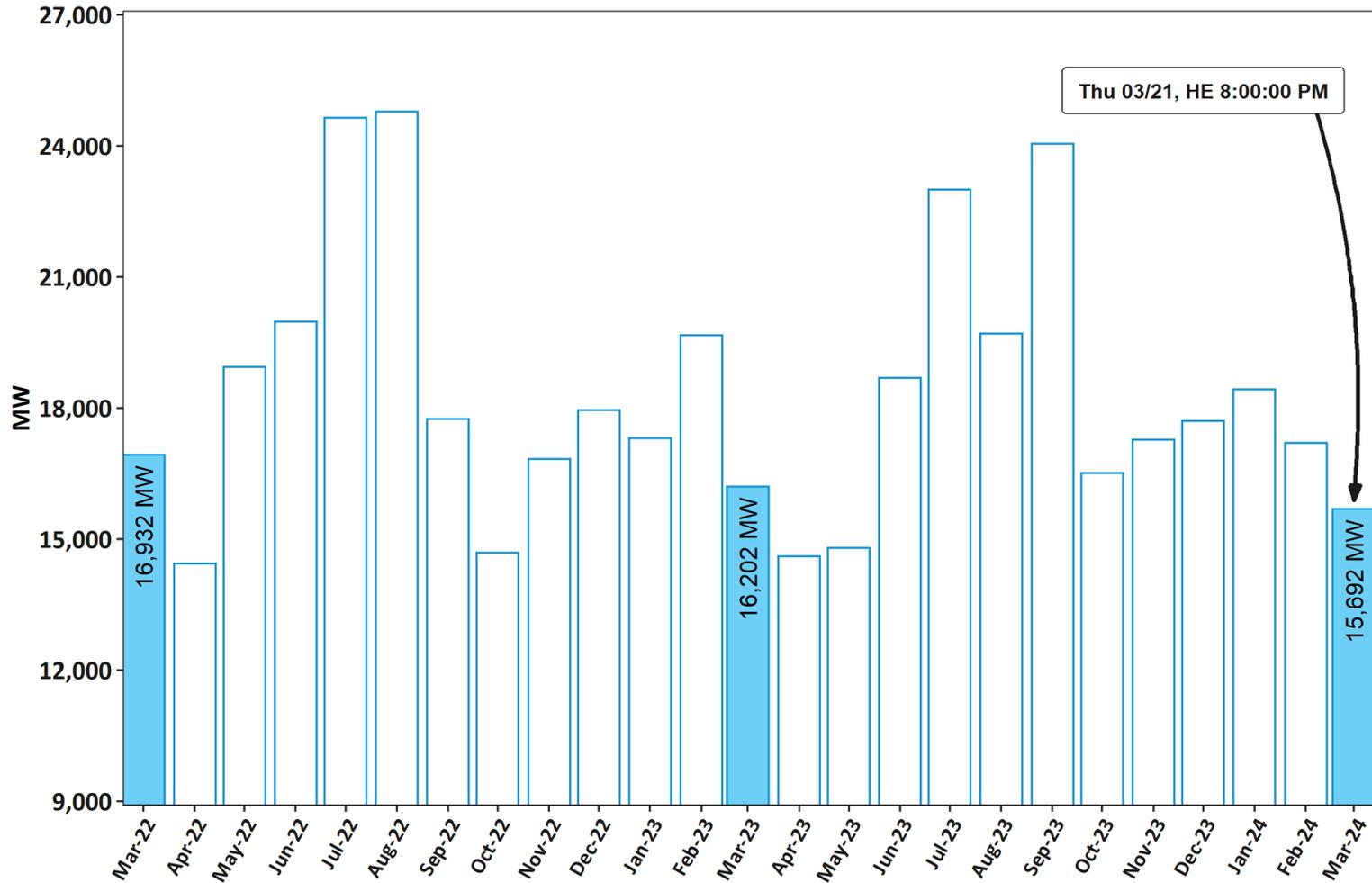
Average Monthly Net Interchange MW



Net Interchange is the participant sum of daily imports minus the sum of daily exports; positive values are net imports



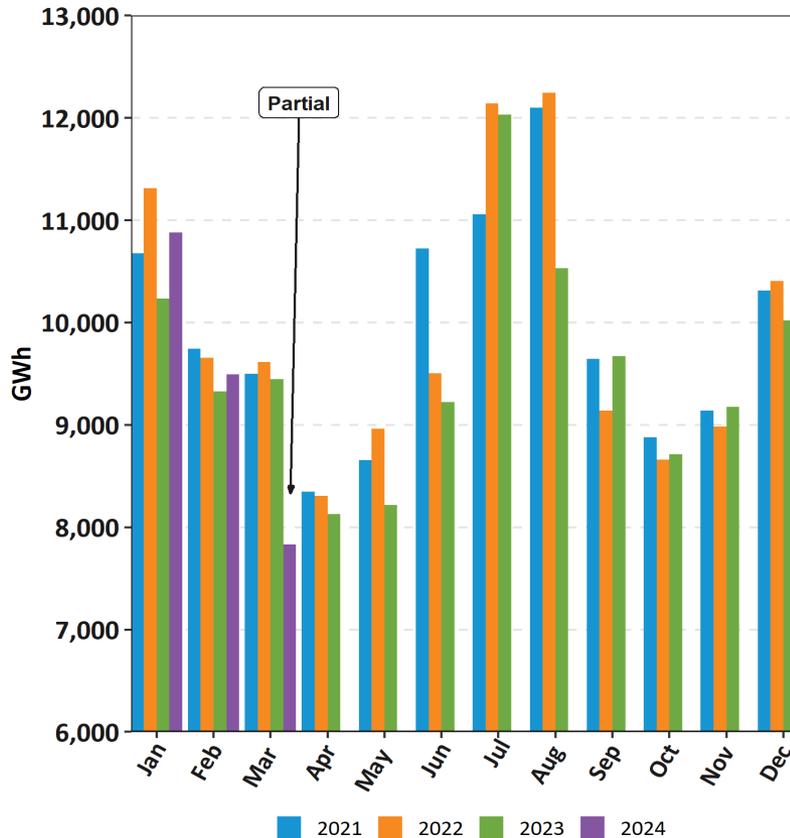
# RQM System Peak Load MW by Month



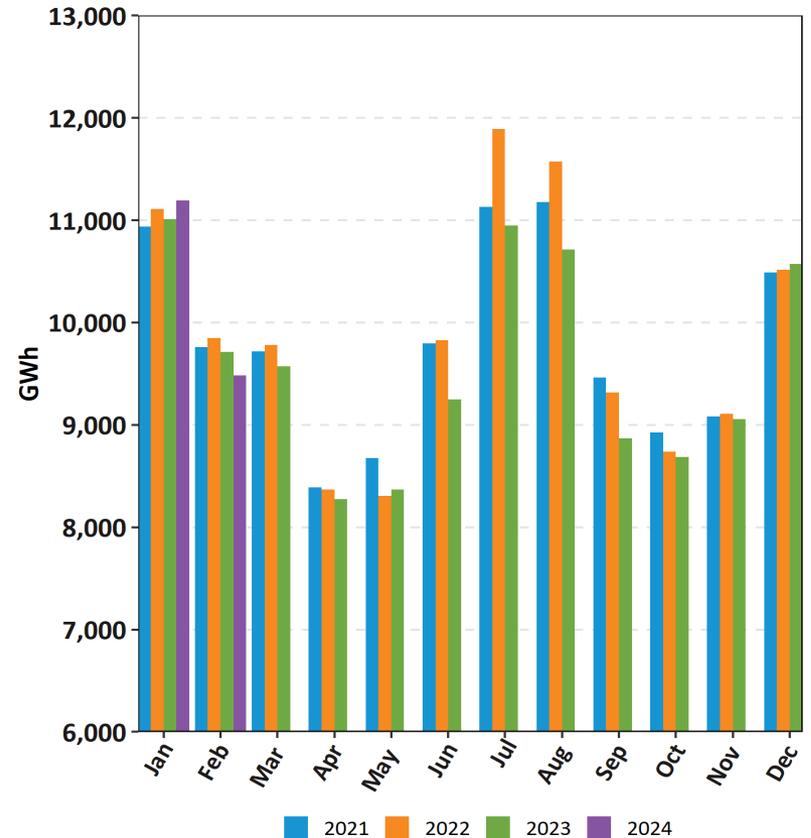
Shaded columns reflect current month and the same month the last 2 years

# Monthly Recorded Net Energy for Load (NEL) and Weather Normalized NEL

Net Energy for Load (NEL)

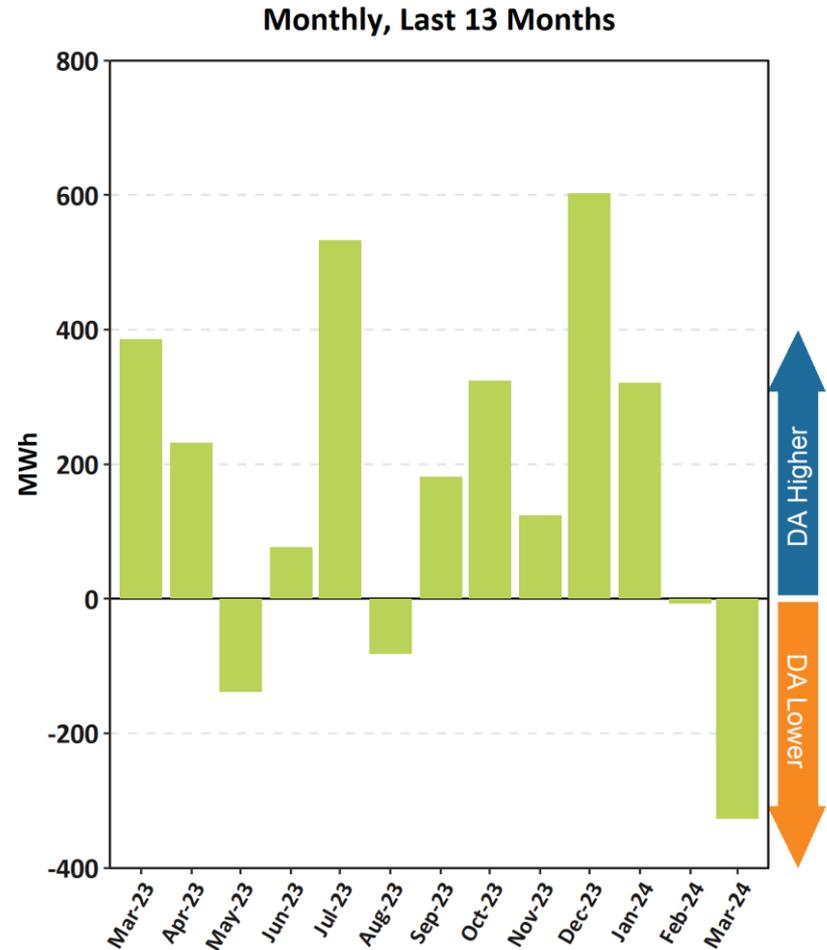
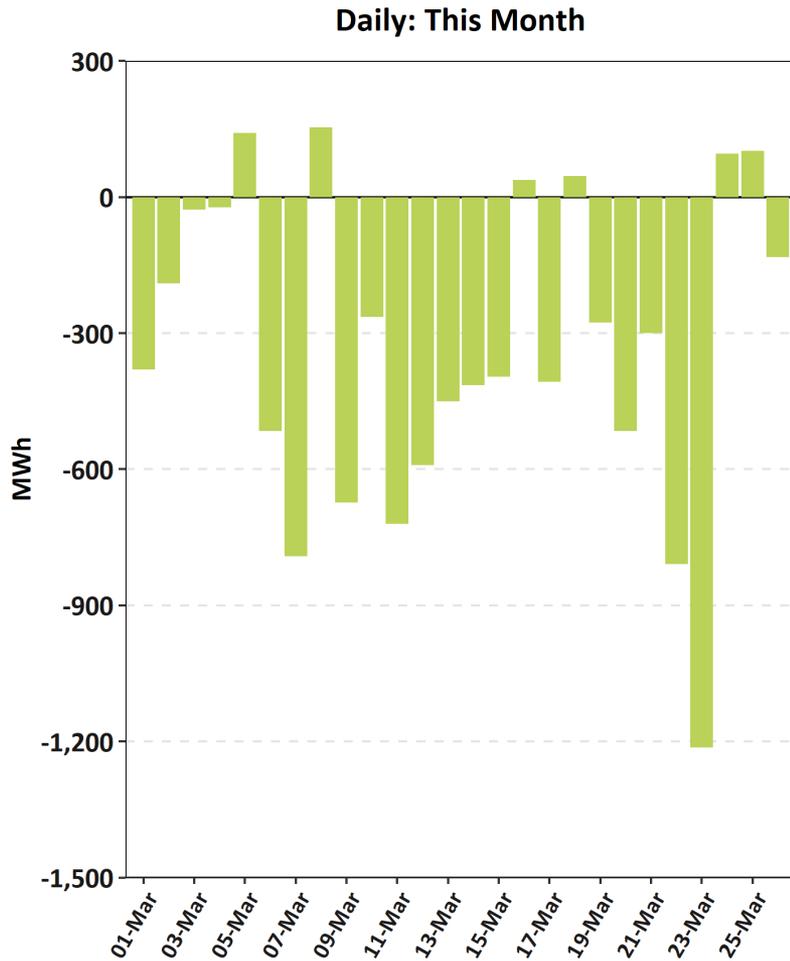


Weather Normalized NEL



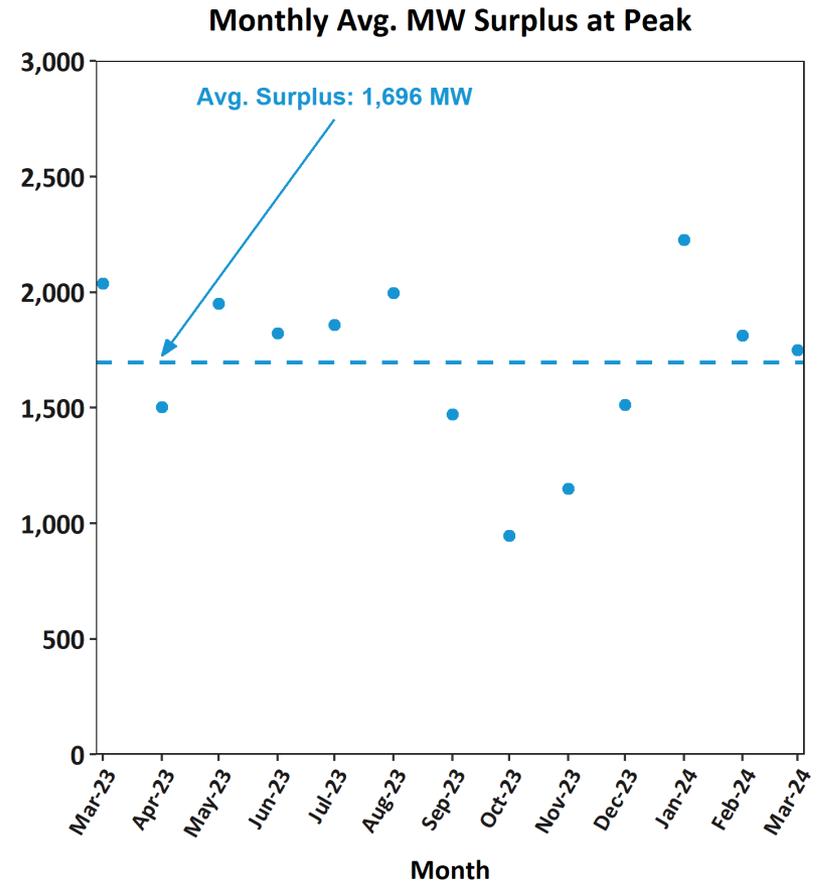
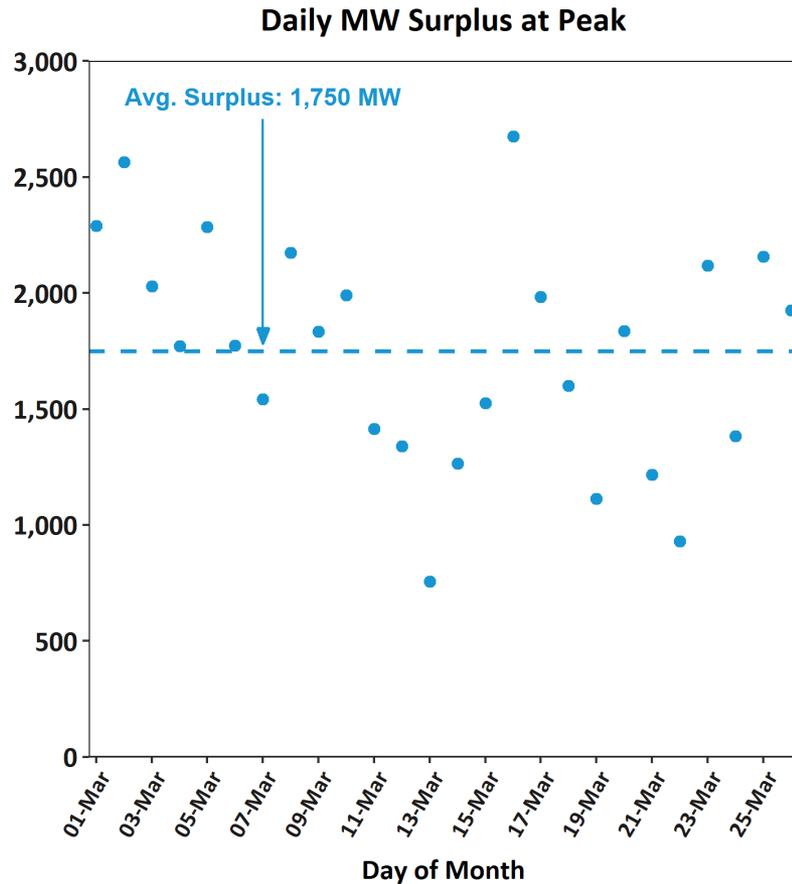
NEPOOL NEL is the total net revenue quality metered energy required to serve load and is analogous to 'RT system load.' NEL is calculated as: Generation + Demand Response Resource output - pumping load + net interchange where imports are positively signed. Current month's data may be preliminary. Weather normalized NEL is typically reported on a one-month lag.

# DA Cleared Physical Energy Difference from RT System Load at Forecasted Peak Hour



Negative values indicate DA Cleared Physical Energy value below its RT counterpart.

# Capacity Surplus\* Cleared in the DA Market Relative to Forecasted Peak-Hour Requirements



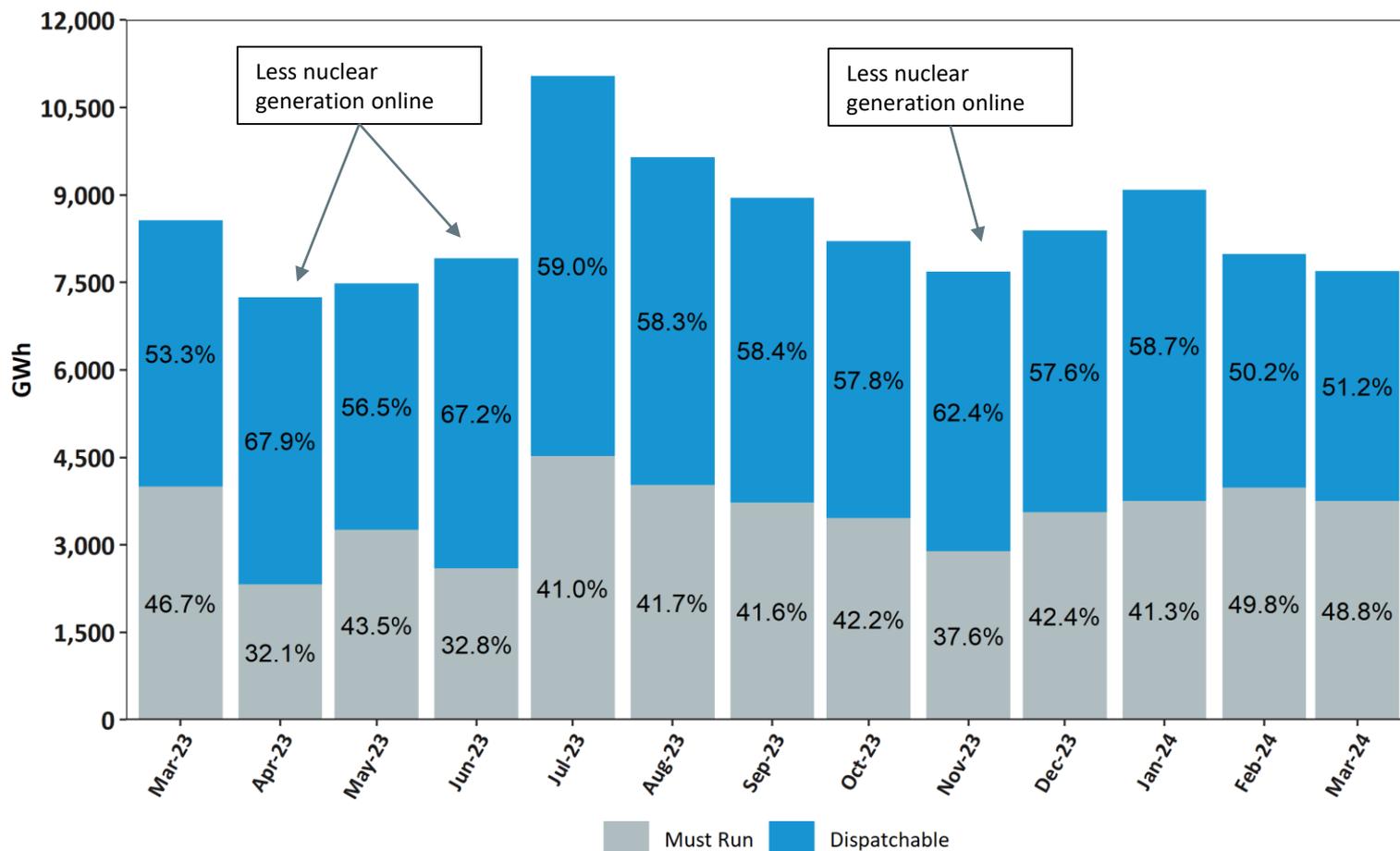
● Surplus at Fcst Peak    - - - Average

● Surplus at Fcst Peak    - - - Average

\*DA capacity surplus includes DA offered ECO max above cleared amounts for cleared resources + offered reserves from available non-cleared resources + DA scheduled net interchange, reflected for the peak hour

# RT Generation Output Offered as Must Run vs Dispatchable

Participant Must Run Supply as % of Total Generation



Includes generation and DRR. Must Run (non-dispatchable) category reflects full output of settlement-only generation (SOG) as well as must run offers from modeled units

# MARKET PRICING

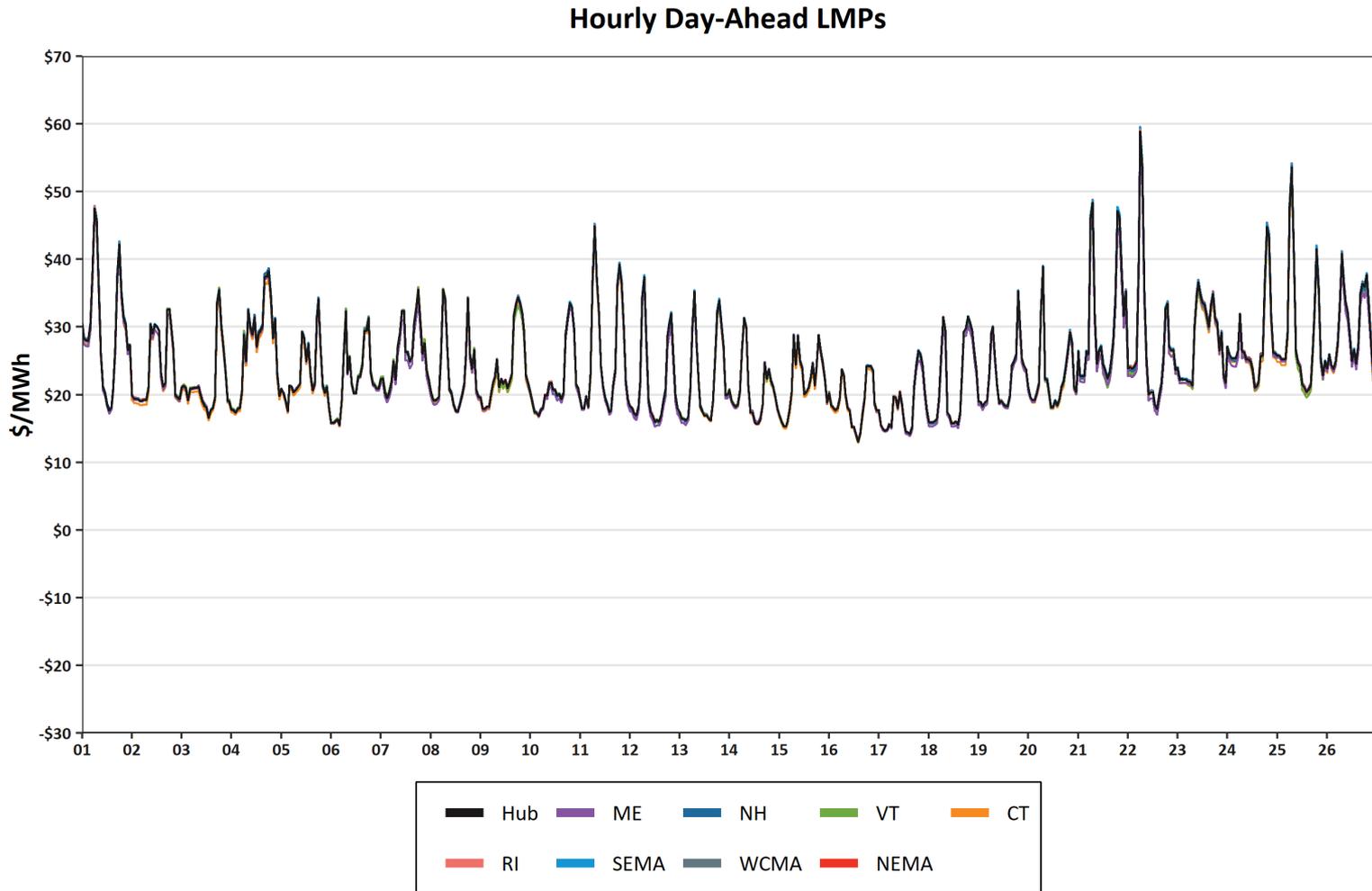
# DA vs. RT LMPs (\$/MWh)

Arithmetic Average

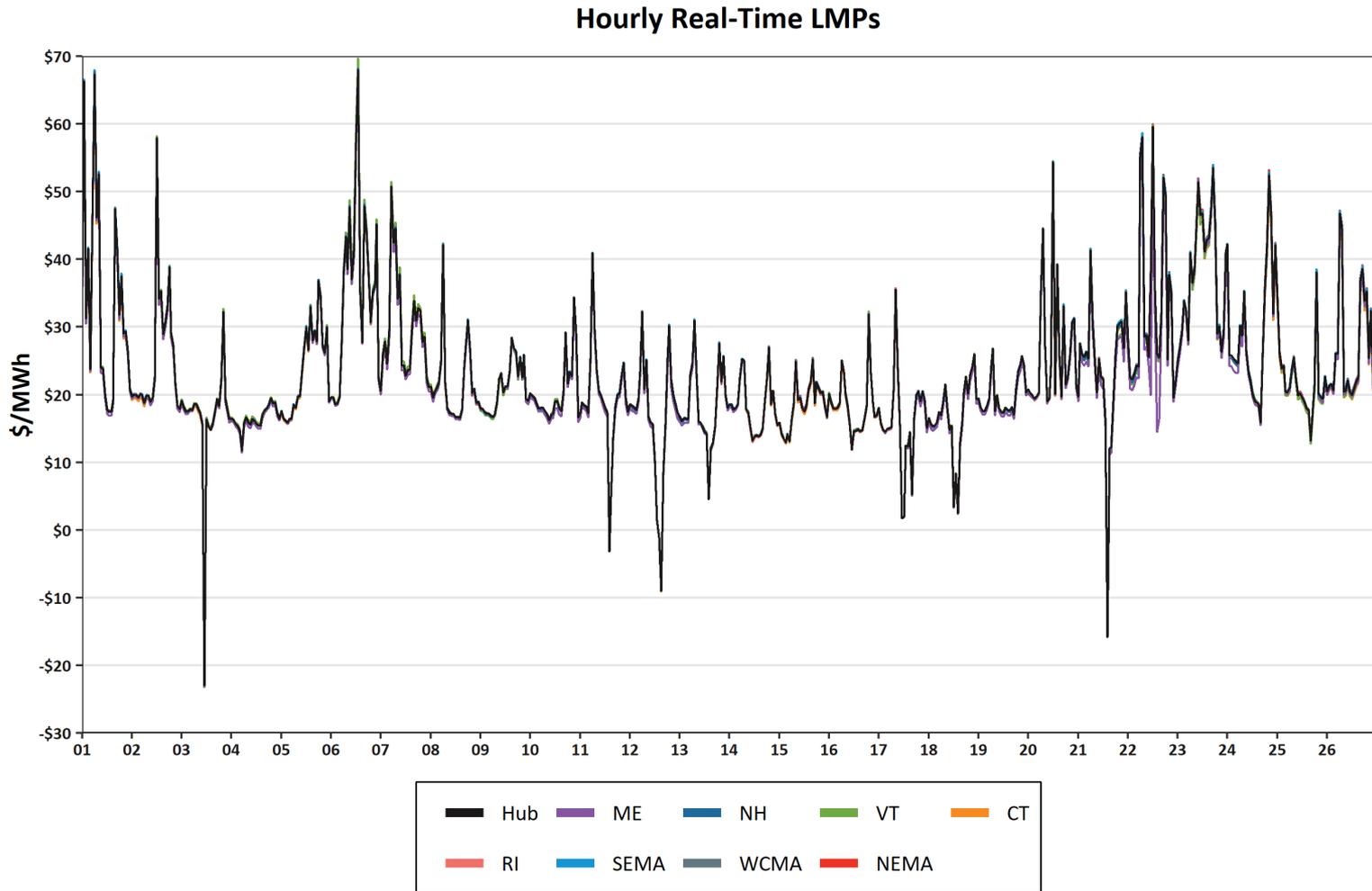
Year 2023	CT	Hub	ME	NEMA	NH	RI	SEMA	VT	WCMA
Day-Ahead	\$84.07	\$85.59	\$84.20	\$86.12	\$85.77	\$85.39	\$86.05	\$84.48	\$85.69
Real-Time	\$83.80	\$84.89	\$83.06	\$85.40	\$85.05	\$84.69	\$85.35	\$83.64	\$84.97
RT Delta %	-0.32%	-0.82%	-1.35%	-0.84%	-0.84%	-0.82%	-0.81%	-0.99%	-0.84%
Year 2022	CT	Hub	ME	NEMA	NH	RI	SEMA	VT	WCMA
Day-Ahead	\$36.25	\$37.04	\$36.59	\$37.35	\$37.22	\$36.89	\$37.34	\$36.78	\$37.07
Real-Time	\$35.26	\$35.91	\$35.36	\$36.21	\$36.05	\$35.71	\$36.17	\$35.55	\$35.92
RT Delta %	-0.32%	-0.82%	-1.35%	-0.84%	-0.84%	-0.82%	-0.81%	-0.99%	-0.84%

March-23	CT	Hub	ME	NEMA	NH	RI	SEMA	VT	WCMA
Day-Ahead	\$34.27	\$35.02	\$34.86	\$35.43	\$35.47	\$34.88	\$35.38	\$34.70	\$35.06
Real-Time	\$30.21	\$30.77	\$30.41	\$31.08	\$31.05	\$30.58	\$31.01	\$30.36	\$30.79
RT Delta %	-11.85%	-12.14%	-12.77%	-12.28%	-12.46%	-12.33%	-12.35%	-12.51%	-12.18%
March-24	CT	Hub	ME	NEMA	NH	RI	SEMA	VT	WCMA
Day-Ahead	\$23.82	\$24.31	\$23.84	\$24.36	\$24.24	\$24.22	\$24.44	\$24.13	\$24.33
Real-Time	\$22.98	\$23.33	\$22.72	\$23.35	\$23.25	\$23.20	\$23.42	\$23.19	\$23.36
RT Delta %	-3.53%	-4.03%	-4.70%	-4.15%	-4.08%	-4.21%	-4.17%	-3.90%	-3.99%
Annual Diff.	CT	Hub	ME	NEMA	NH	RI	SEMA	VT	WCMA
Yr over Yr DA	-30.49%	-30.58%	-31.61%	-31.24%	-31.66%	-30.56%	-30.92%	-30.46%	-30.6%
Yr over Yr RT	-23.93%	-24.18%	-25.29%	-24.87%	-25.12%	-24.13%	-24.48%	-23.62%	-24.13%

# Hourly DA LMPs, March 1-26, 2024

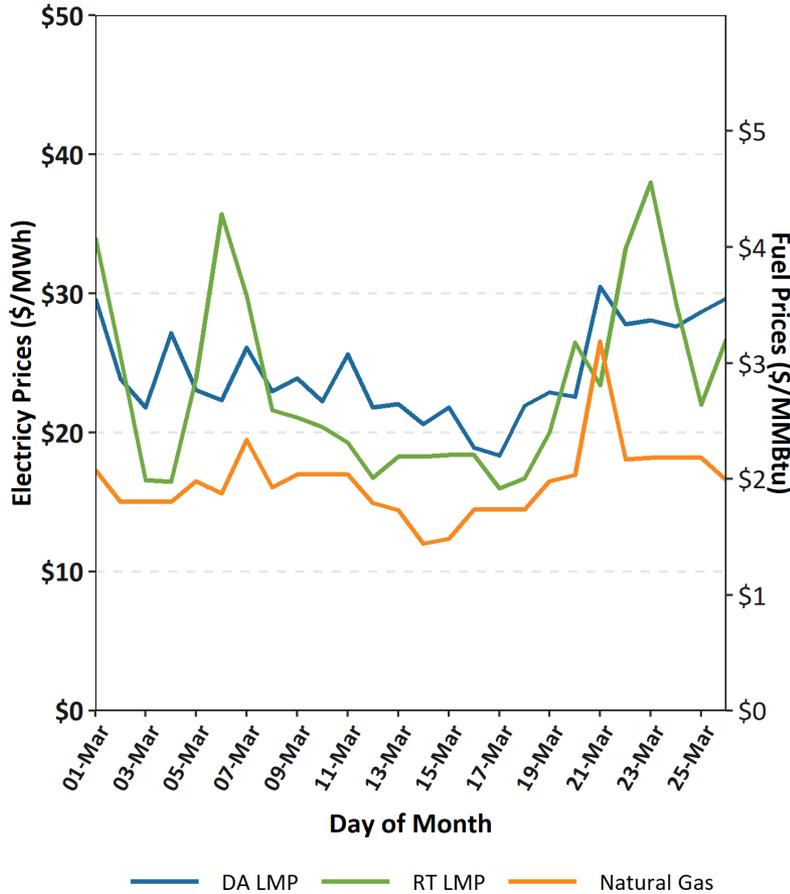


# Hourly RT LMPs, March 1-26, 2024

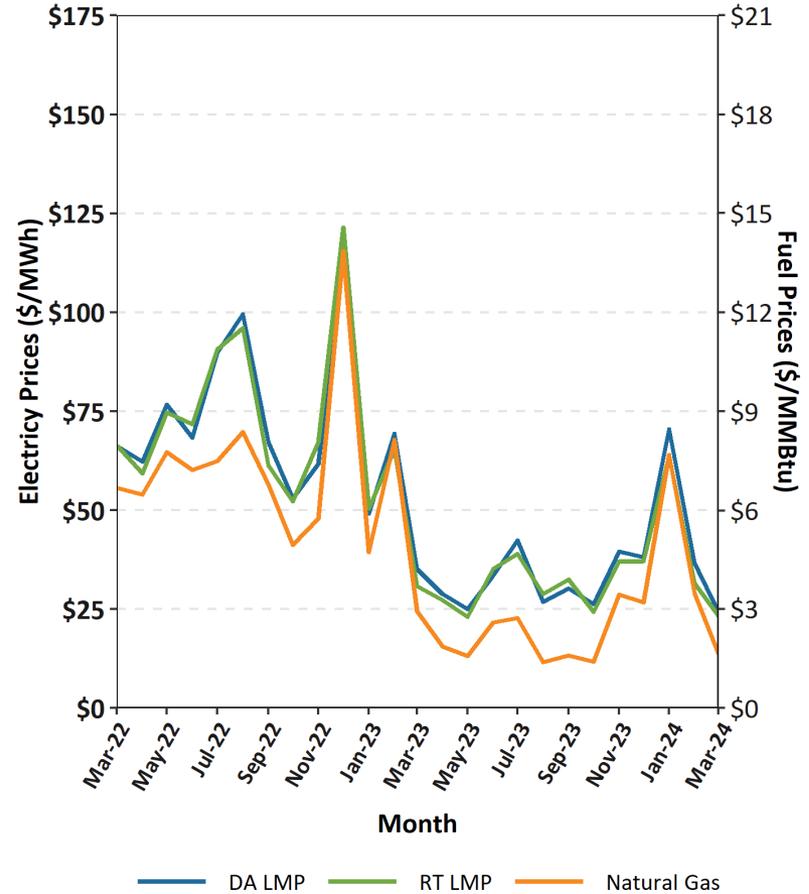


# Wholesale Electricity vs Natural Gas Prices by Month

Daily Price



Monthly Average Price



Underlying natural gas data furnished by:



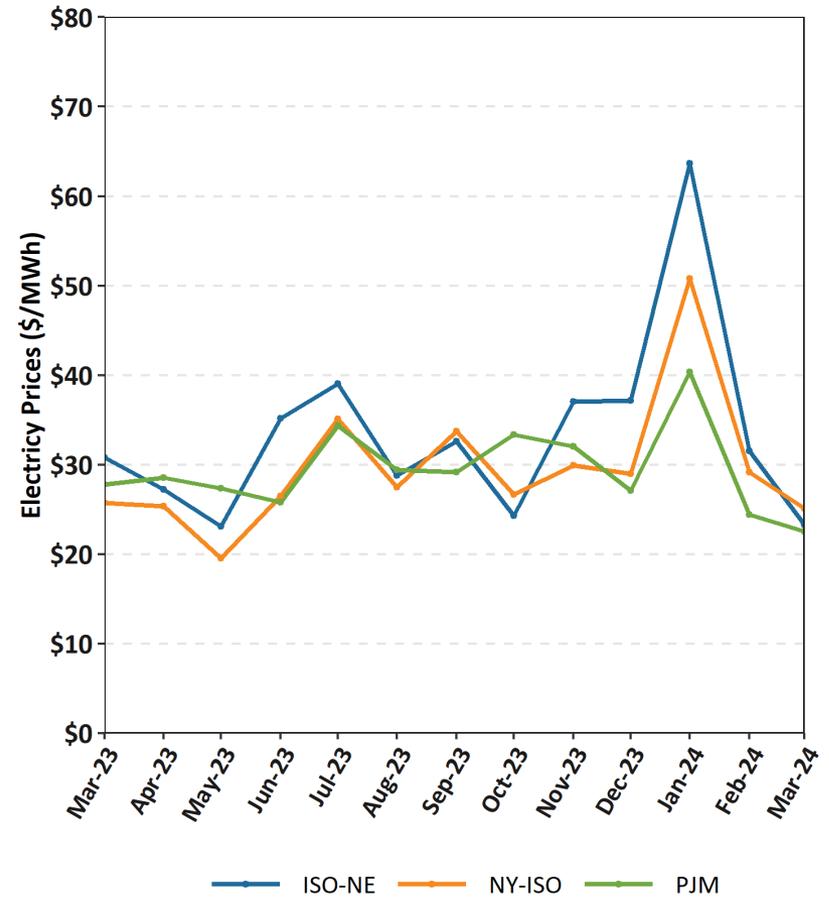
Gas price is average of Massachusetts delivery points

# New England, NY, and PJM Hourly Average RT Prices by Month

Daily: This Month



Monthly, Last 13 Months

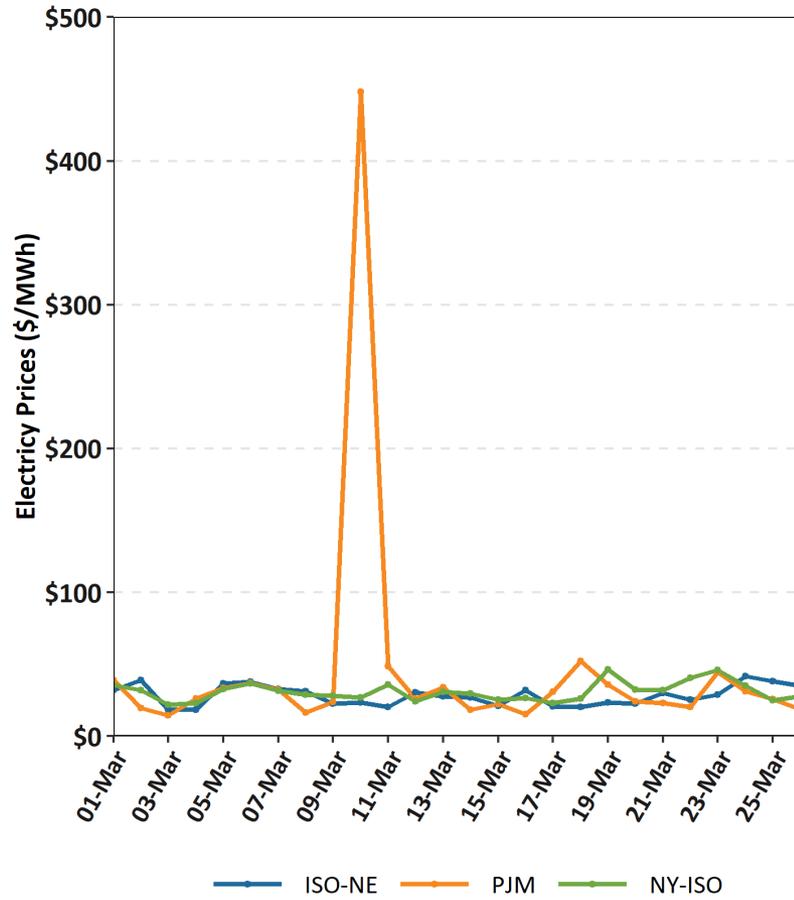


Hourly average prices are shown

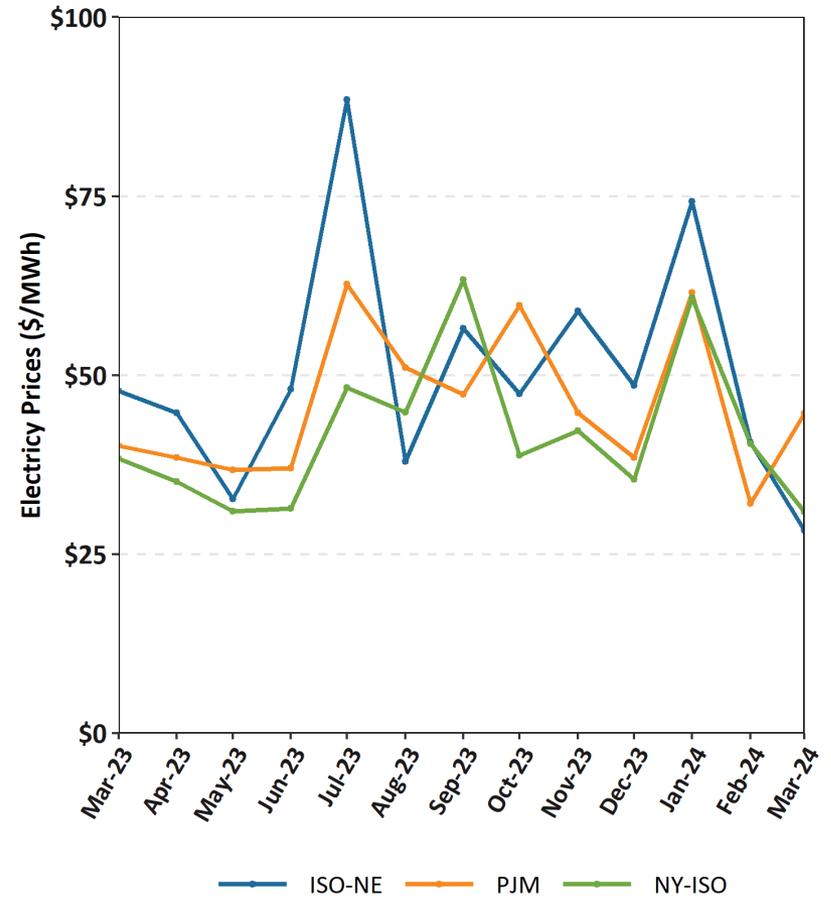


# New England, NY, and PJM Average Forecasted Peak Hour RT Prices

Daily: This Month

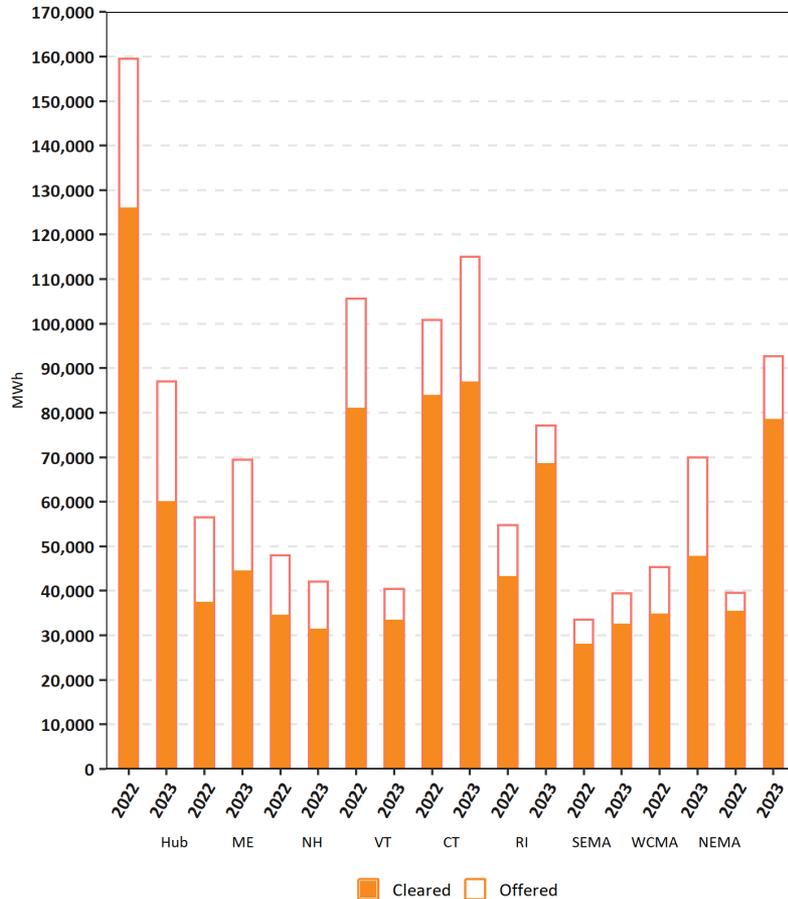


Monthly, Last 13 Months

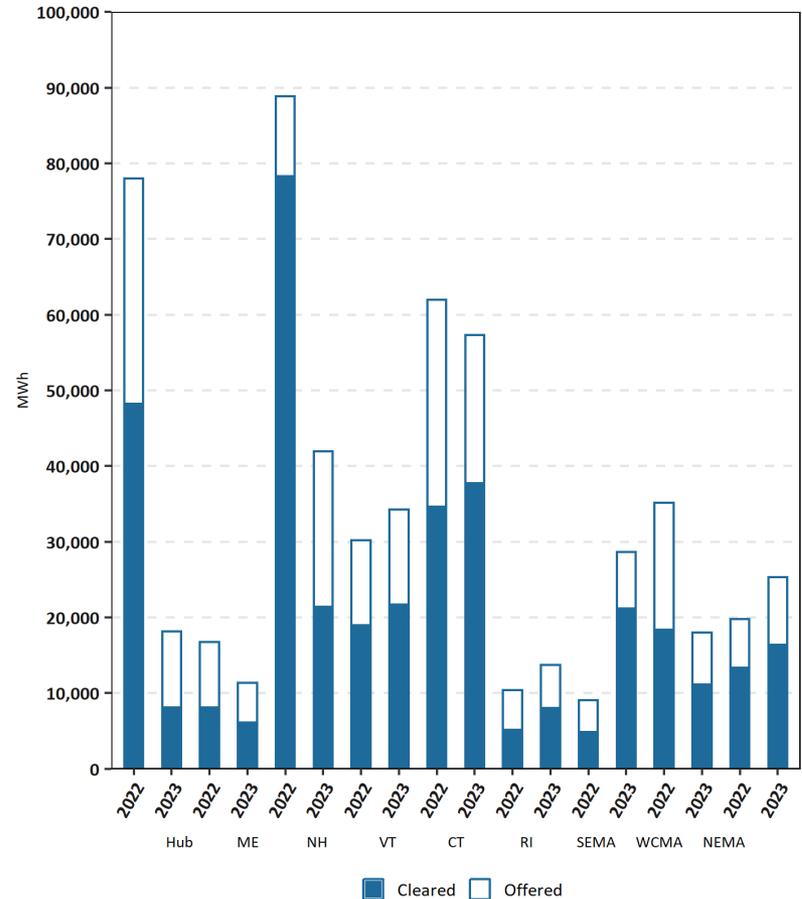


# Zonal Increment Offers and Decrement Bid Amounts

## March Inc Monthly Totals By Zone



## March Dec Monthly Totals By Zone

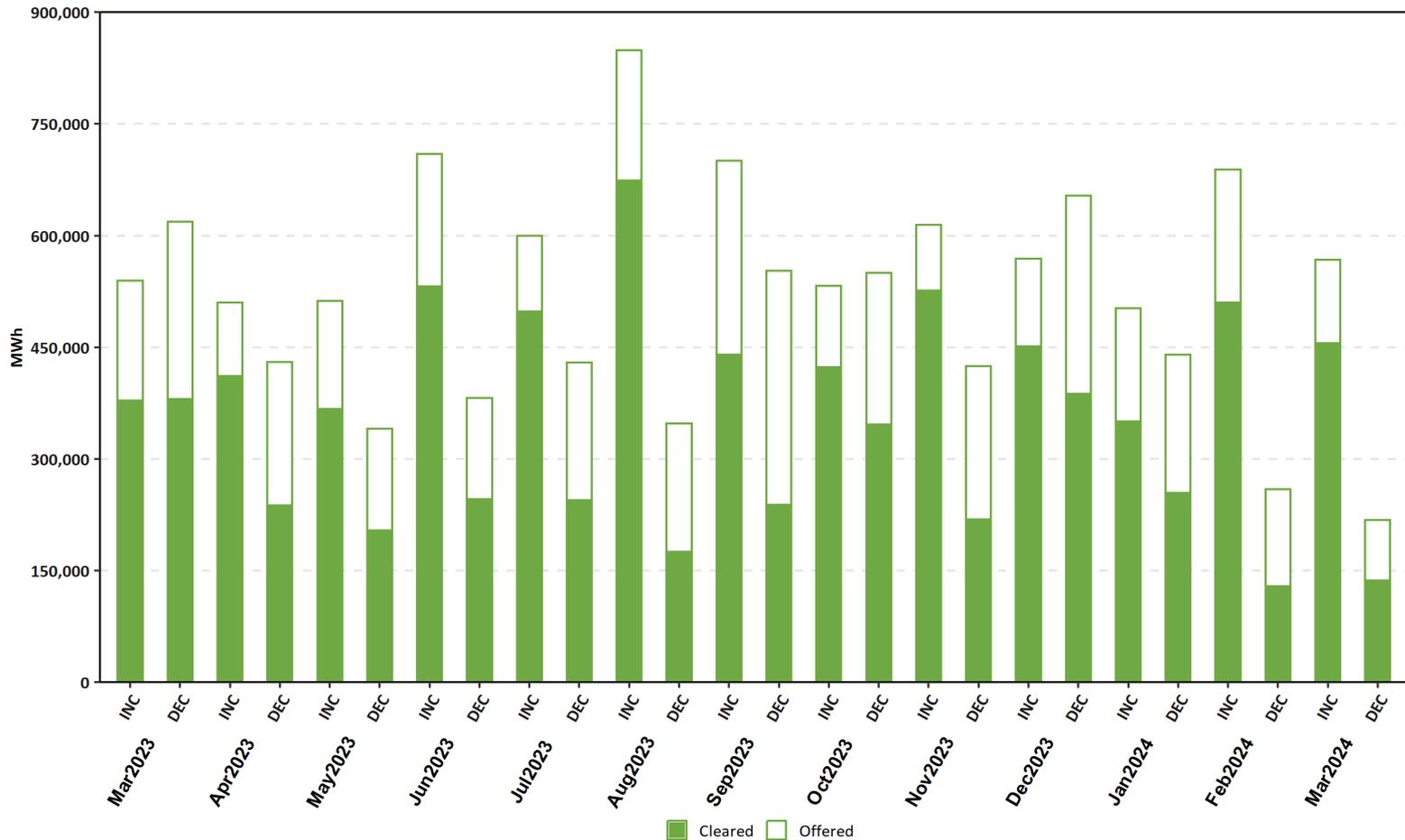


Includes nodal activity within the zone; excludes external nodes



# Total Increment Offers and Decrement Bids

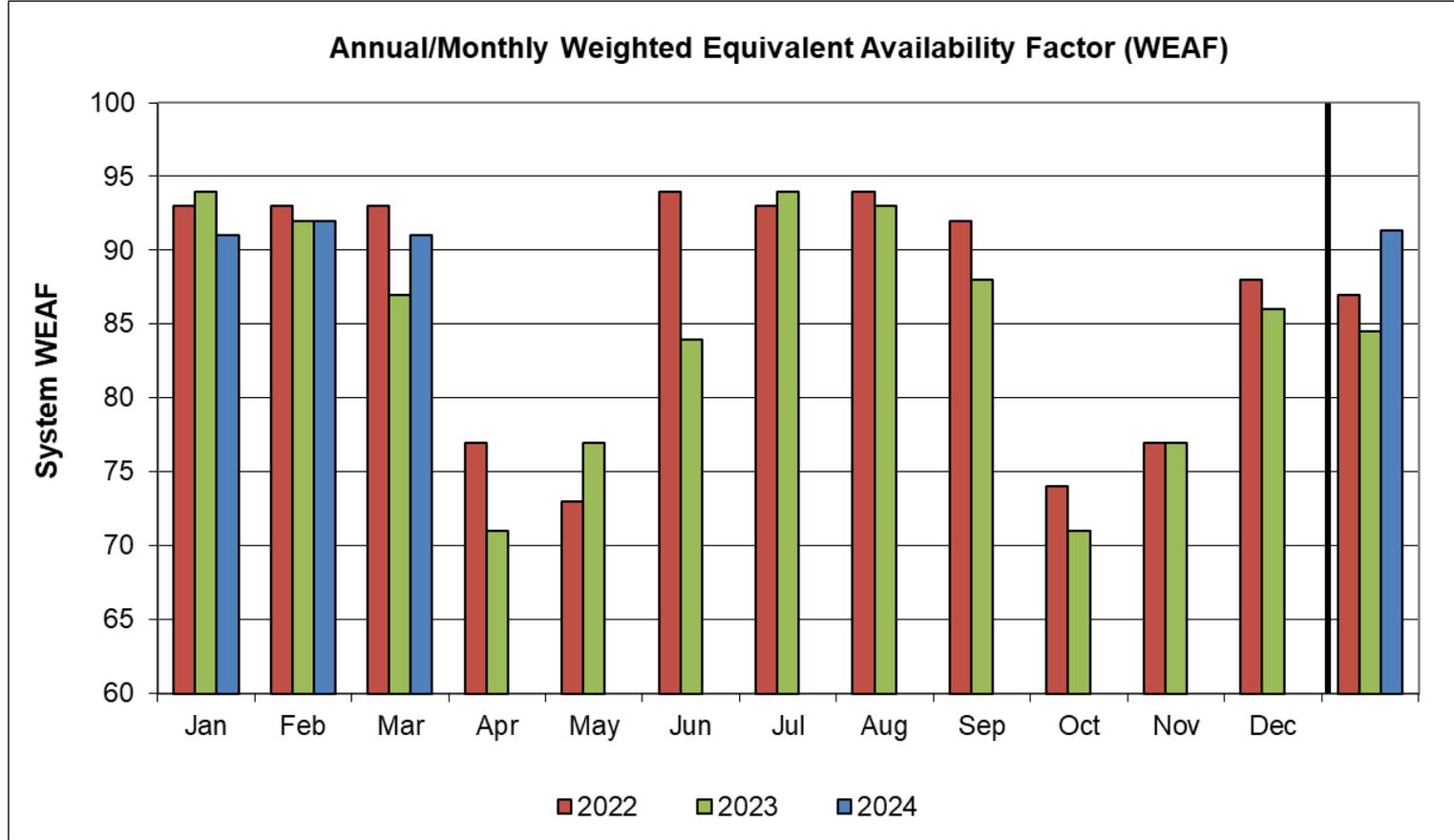
Zonal Level, Last 13 Months



Includes nodal activity within the zone; excludes external nodes



# System Unit Availability



	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	YTD
<b>2024</b>	91	92	91										91
<b>2023</b>	94	92	87	71	77	84	94	93	88	71	77	86	85
<b>2022</b>	93	93	93	77	73	94	93	94	92	74	77	88	87

Data as of 3/25/24



# BACK-UP DETAIL

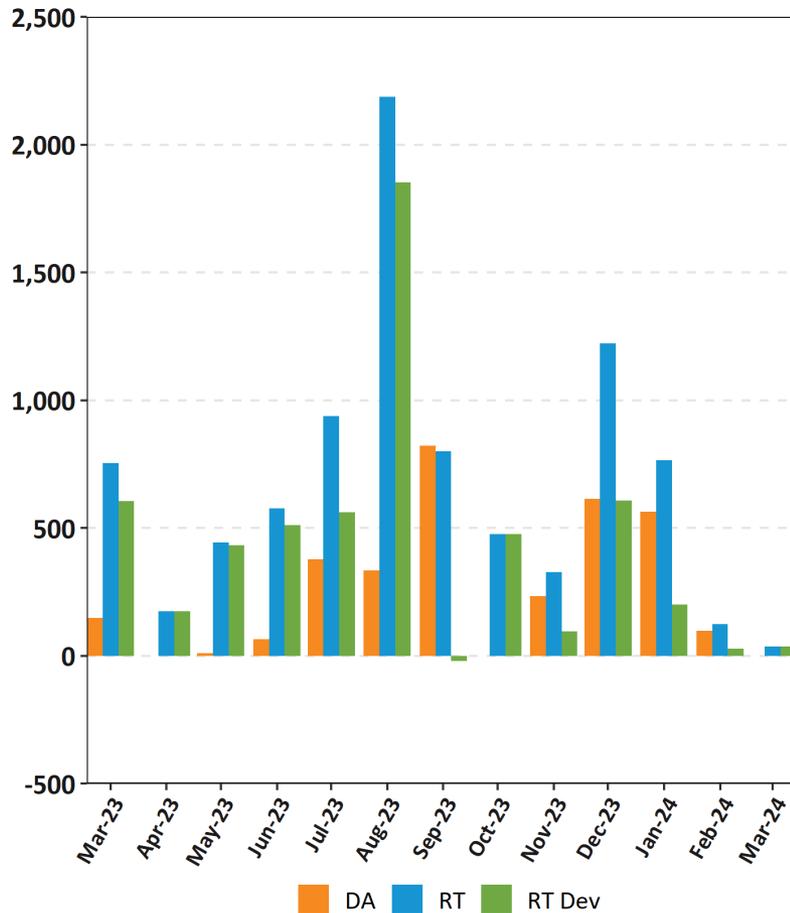


# DEMAND RESPONSE

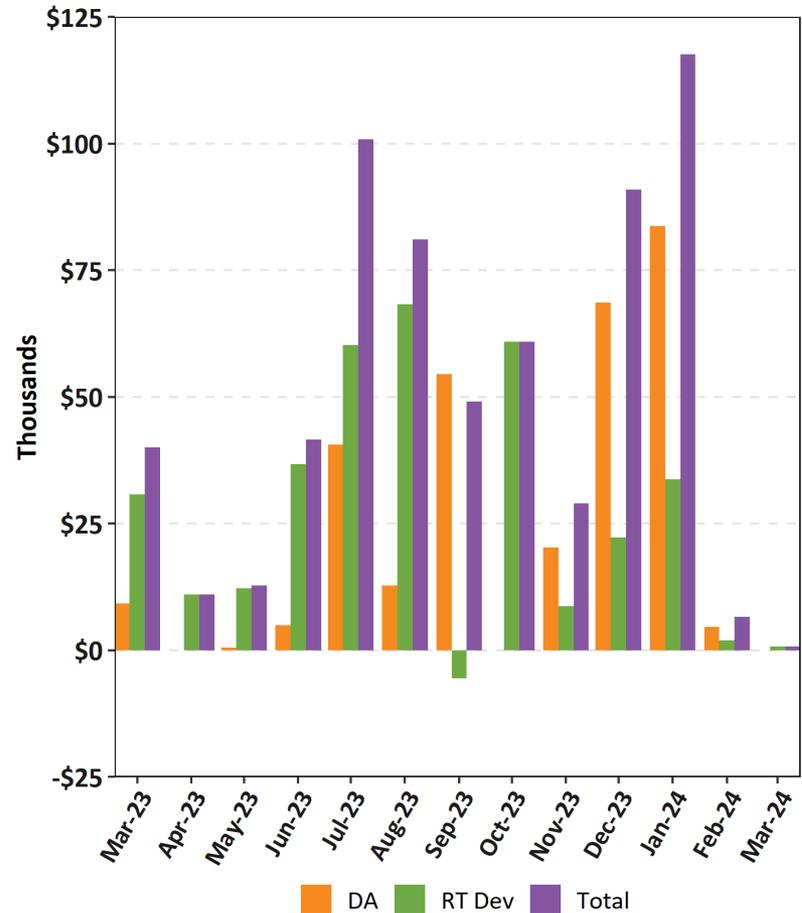


# Price Responsive Demand (PRD) Energy Market Activity by Month

DA, RT, and RT Dev MWh



Market Value



DA and RT (deviation) MWh are settlement obligations and reflect appropriate gross-ups for distribution losses.



# NEW GENERATION

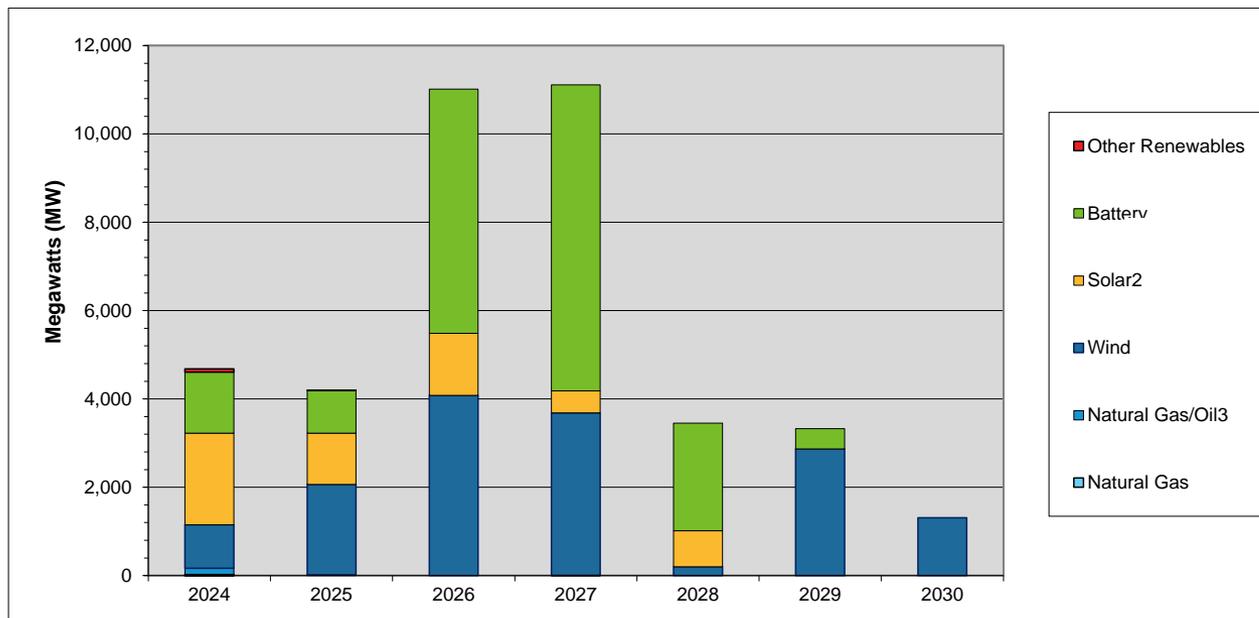
# New Generation Update

*Based on Queue as of 04/01/24*

- Five projects totaling 1,319 MW were added to the interconnection queue since the last update
  - One solar, one battery and one wind project with in-service dates between 2026 and 2031
- In total, 406 generation projects are currently being tracked by the ISO, totaling approximately 42,760 MW



# Actual and Projected Annual Capacity Additions By Supply Fuel Type and Demand Resource Type



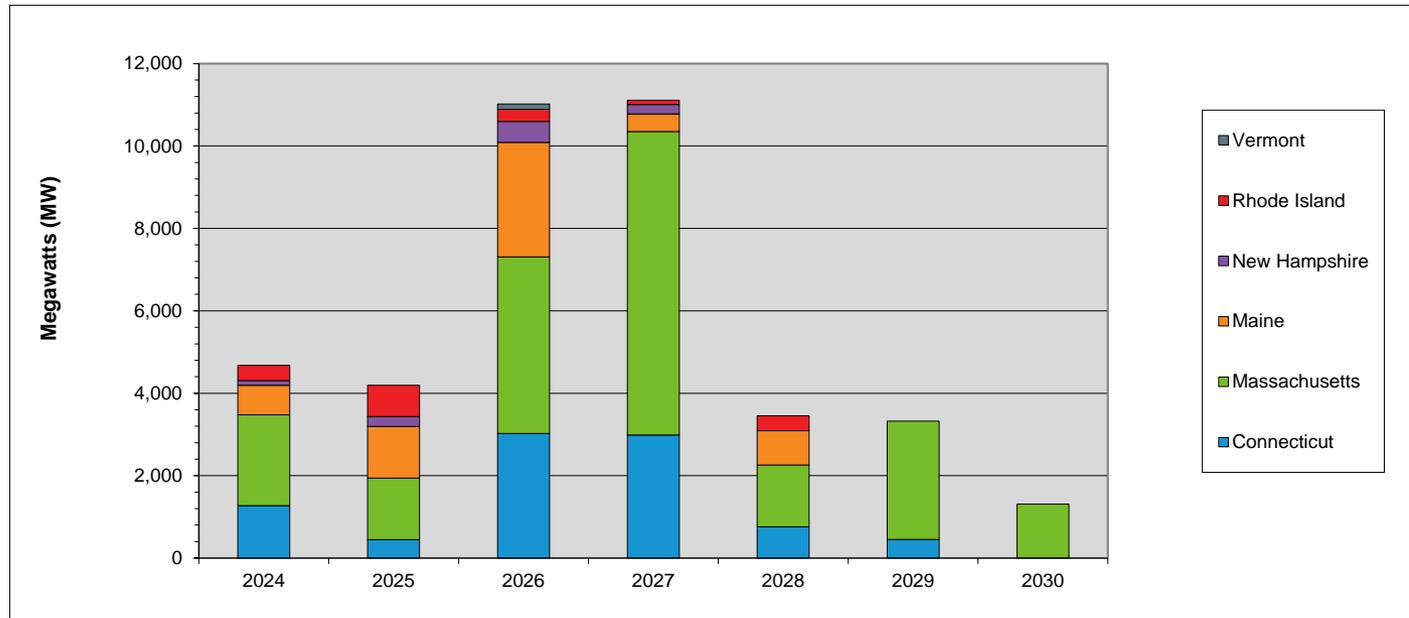
	2024	2025	2026	2027	2028	2029	2030	Total MW	% of Total <sup>1</sup>
Other Renewables	72	2	0	0	0	0	0	74	0.2
Battery	1,384	965	5,532	6,927	2,437	454	0	17,699	45.3
Solar <sup>2</sup>	2,073	1,161	1,406	502	818	0	0	5,960	15.2
Wind	989	2,049	4,079	3,678	197	2,870	1,309	15,171	38.8
Natural Gas/Oil <sup>3</sup>	135	16	0	0	0	0	0	151	0.4
Natural Gas	26	0	0	4	0	0	0	30	0.1
<b>Totals</b>	<b>4,679</b>	<b>4,193</b>	<b>11,017</b>	<b>11,111</b>	<b>3,452</b>	<b>3,324</b>	<b>1,309</b>	<b>39,085</b>	<b>100.0</b>

<sup>1</sup> Sum may not equal 100% due to rounding

<sup>2</sup> This category includes both solar-only, and co-located solar and battery projects

<sup>3</sup> The projects in this category are dual fuel, with either gas or oil as the primary fuel

# Actual and Projected Annual Generator Capacity Additions By State



	2024	2025	2026	2027	2028	2029	2030	Total MW	% of Total <sup>1</sup>
<b>Vermont</b>	0	0	128	0	0	0	0	128	0.3
<b>Rhode Island</b>	371	758	295	102	360	0	0	1,886	4.8
<b>New Hampshire</b>	114	239	504	226	0	0	0	1,083	2.8
<b>Maine</b>	720	1,256	2,779	433	832	0	0	6,020	15.4
<b>Massachusetts</b>	2,204	1,496	4,287	7,361	1,503	2,870	1,309	21,030	53.8
<b>Connecticut</b>	1,270	444	3,024	2,989	757	454	0	8,938	22.9
<b>Totals</b>	<b>4,679</b>	<b>4,193</b>	<b>11,017</b>	<b>11,111</b>	<b>3,452</b>	<b>3,324</b>	<b>1,309</b>	<b>39,085</b>	<b>100.0</b>

<sup>1</sup> Sum may not equal 100% due to rounding

# New Generation Projection

## *By Fuel Type*

Unit Type	Total		Green		Yellow	
	No. of Projects	Capacity (MW)	No. of Projects	Capacity (MW)	No. of Projects	Capacity (MW)
Biomass/Wood Waste	0	0	0	0	0	0
Battery Storage	118	17,699	1	150	117	17,549
Fuel Cell	4	46	1	20	3	26
Hydro	1	28	1	28	0	0
Natural Gas	4	30	0	0	4	30
Natural Gas/Oil	3	151	1	62	2	89
Nuclear	0	0	0	0	0	0
Solar	248	5,960	15	343	233	5,617
Wind	28	18,846	2	926	26	17,920
<b>Total</b>	<b>406</b>	<b>42,760</b>	<b>21</b>	<b>1,529</b>	<b>385</b>	<b>41,231</b>

- Projects in the Natural Gas/Oil category may have either gas or oil as the primary fuel
- Green denotes projects with a high probability of going into service within the next 12 months
- Yellow denotes projects with a lower probability of going into service or new applications

# New Generation Projection

## *By Operating Type*

Operating Type	Total		Green		Yellow	
	No. of Projects	Capacity (MW)	No. of Projects	Capacity (MW)	No. of Projects	Capacity (MW)
Baseload	7	87	2	48	5	39
Intermediate	2	89	0	0	2	89
Peaker	369	23,738	17	555	352	23,183
Wind Turbine	28	18,846	2	926	26	17,920
<b>Total</b>	<b>406</b>	<b>42,760</b>	<b>21</b>	<b>1,529</b>	<b>385</b>	<b>41,231</b>

- Green denotes projects with a high probability of going into service within the next 12 months
- Yellow denotes projects with a lower probability of going into service or new applications

# New Generation Projection

## *By Operating Type and Fuel Type*

Unit Type	Total		Baseload		Intermediate		Peaker		Wind Turbine	
	No. of Projects	Capacity (MW)								
Biomass/Wood Waste	0	0	0	0	0	0	0	0	0	0
Battery Storage	118	17,699	0	0	0	0	118	17,699	0	0
Fuel Cell	4	46	4	46	0	0	0	0	0	0
Hydro	1	28	1	28	0	0	0	0	0	0
Natural Gas	4	30	2	13	0	0	2	17	0	0
Natural Gas/Oil	3	151	0	0	2	89	1	62	0	0
Nuclear	0	0	0	0	0	0	0	0	0	0
Solar	248	5,960	0	0	0	0	248	5,960	0	0
Wind	28	18,846	0	0	0	0	0	0	28	18,846
<b>Total</b>	<b>406</b>	<b>42,760</b>	<b>7</b>	<b>87</b>	<b>2</b>	<b>89</b>	<b>369</b>	<b>23,738</b>	<b>28</b>	<b>18,846</b>

- Projects in the Natural Gas/Oil category may have either gas or oil as the primary fuel

# FORWARD CAPACITY MARKET

# Capacity Supply Obligation FCA 14

Resource Type	Resource Type	FCA	ARA 1		ARA 2		ARA 3	
		CSO	CSO	Change	CSO	Change	CSO	Change
		MW	MW	MW	MW	MW	MW	MW
Demand	Active Demand	592.043	688.07	96.027	659.671	-28.399	564.371	-95.3
	Passive Demand	3,327.071	3,327.932	0.861	3,315.207	-12.725	3,253.179	-62.028
Demand Total		3,919.114	4,016.002	96.888	3,974.878	-41.124	3,817.550	-157.328
Generator	Non-Intermittent	27,816.902	28,275.143	458.241	27,697.714	-577.429	27,684.252	-13.462
	Intermittent	1,160.916	1,128.446	-32.47	925.942	-202.504	893.444	-32.498
Generator Total		28,977.818	29,403.589	425.771	28,623.656	-779.933	28,577.696	-45.96
Import Total		1,058.72	1,058.72	0	1,029.800	-28.92	958.380	-71.42
Grand Total*		33,955.652	34,478.311	522.661	33,628.334	-849.977	33,353.626	-274.708
Net ICR (NICR)		32,490	32,980	490	31,480	-1,500	31,690	210

\* Grand Total reflects both CSO Grand Total and the net total of the Change Column

Note: A resource's CSO may change for a variety of reasons outside ISO-NE administered trading windows. Reasons for CSO changes beyond reconfiguration auctions may include terminations or recent declaration of commercial operation. Details of the changes that occurred due to non-annual event purposes are contained in the 2023-2027 CCP Month Capacity Supply Obligation Changes report on the ISO New England website.

# Capacity Supply Obligation FCA 15

Resource Type	Resource Type	FCA	ARA 1		ARA 2		ARA 3	
		CSO	CSO	Change	CSO	Change	CSO	Change
		MW	MW	MW	MW	MW	MW	MW
Demand	Active Demand	677.673	673.401	-4.272	579.692	-93.709		
	Passive Demand	3,212.865	3,211.403	-1.462	3,134.652	-76.751		
Demand Total		<b>3,890.538</b>	<b>3,884.804</b>	<b>-5.734</b>	<b>3,714.344</b>	<b>-170.460</b>		
Generator	Non-Intermittent	28,154.203	27,714.778	-439.425	27,081.653	-633.125		
	Intermittent	1,089.265	1,073.794	-15.471	1,056.601	-17.193		
Generator Total		<b>29,243.468</b>	<b>28,788.572</b>	<b>-454.896</b>	<b>28,138.254</b>	<b>-650.318</b>		
Import Total		<b>1,487.059</b>	<b>1297.132</b>	<b>-189.927</b>	<b>1,249.545</b>	<b>-47.587</b>		
Grand Total*		<b>34,621.065</b>	<b>33,970.508</b>	<b>-650.557</b>	<b>33,102.143</b>	<b>-868.365</b>		
Net ICR (NICR)		<b>33,270</b>	<b>31,775</b>	<b>-1,495</b>	<b>31,545</b>	<b>-230</b>		

\* Grand Total reflects both CSO Grand Total and the net total of the Change Column

Note: A resource's CSO may change for a variety of reasons outside ISO-NE administered trading windows. Reasons for CSO changes beyond reconfiguration auctions may include terminations or recent declaration of commercial operation. Details of the changes that occurred due to non-annual event purposes are contained in the 2023-2027 CCP Month Capacity Supply Obligation Changes report on the ISO New England website.

# Capacity Supply Obligation FCA 16

Resource Type	Resource Type	FCA	ARA 1		ARA 2		ARA 3	
		CSO	CSO	Change	CSO	Change	CSO	Change
		MW	MW	MW	MW	MW	MW	MW
Demand	<i>Active Demand</i>	765.35	589.882	-175.468				
	<i>Passive Demand</i>	2,557.256	2,579.120	21.864				
<b>Demand Total</b>		<b>3,322.606</b>	<b>3,169.002</b>	<b>-153.604</b>				
Generator	<i>Non-Intermittent</i>	26,805.003	26,643.379	-161.624				
	<i>Intermittent</i>	1,178.933	1,146.783	-32.15				
<b>Generator Total</b>		<b>27,983.936</b>	<b>27,790.162</b>	<b>-193.774</b>				
<b>Import Total</b>		<b>1,503.842</b>	<b>1,247.601</b>	<b>-256.241</b>				
<b>Grand Total*</b>		<b>32,810.384</b>	<b>32,206.765</b>	<b>-603.619</b>				
<b>Net ICR (NICR)</b>		<b>31,645</b>	<b>30,585</b>	<b>-1,060</b>				

\* Grand Total reflects both CSO Grand Total and the net total of the Change Column

Note: A resource's CSO may change for a variety of reasons outside ISO-NE administered trading windows. Reasons for CSO changes beyond reconfiguration auctions may include terminations or recent declaration of commercial operation. Details of the changes that occurred due to non-annual event purposes are contained in the 2023-2027 CCP Month Capacity Supply Obligation Changes report on the ISO New England website.

# Capacity Supply Obligation FCA 17

Resource Type	Resource Type	FCA	ARA 1		ARA 2		ARA 3	
		CSO	CSO	Change	CSO	Change	CSO	Change
		MW	MW	MW	MW	MW	MW	MW
Demand	Active Demand	622.854						
	Passive Demand	2,316.815						
Demand Total		2,939.669						
Generator	Non-Intermittent	26,507.420						
	Intermittent	1,356.084						
Generator Total		27,863.504						
Import Total		566.998						
Grand Total*		31,370.171						
Net ICR (NICR)		30,305						

\* Grand Total reflects both CSO Grand Total and the net total of the Change Column

Note: A resource's CSO may change for a variety of reasons outside ISO-NE administered trading windows. Reasons for CSO changes beyond reconfiguration auctions may include terminations or recent declaration of commercial operation. Details of the changes that occurred due to non-annual event purposes are contained in the 2023-2027 CCP Month Capacity Supply Obligation Changes report on the ISO New England website.

# Capacity Supply Obligation FCA 18

Resource Type	Resource Type	FCA	ARA 1		ARA 2		ARA 3	
		CSO	CSO	Change	CSO	Change	CSO	Change
		MW	MW	MW	MW	MW	MW	MW
Demand	Active Demand	543.580						
	Passive Demand	2,070.498						
Demand Total		2,614.078						
Generator	Non-Intermittent	27,026.635						
	Intermittent	1,450.872						
Generator Total		28,477.507						
Import Total		464.835						
Grand Total*		31,556.420						
Net ICR (NICR)		30,550						

\* Grand Total reflects both CSO Grand Total and the net total of the Change Column

Note: A resource's CSO may change for a variety of reasons outside ISO-NE administered trading windows. Reasons for CSO changes beyond reconfiguration auctions may include terminations or recent declaration of commercial operation. Details of the changes that occurred due to non-annual event purposes are contained in the 2023-2027 CCP Month Capacity Supply Obligation Changes report on the ISO New England website.

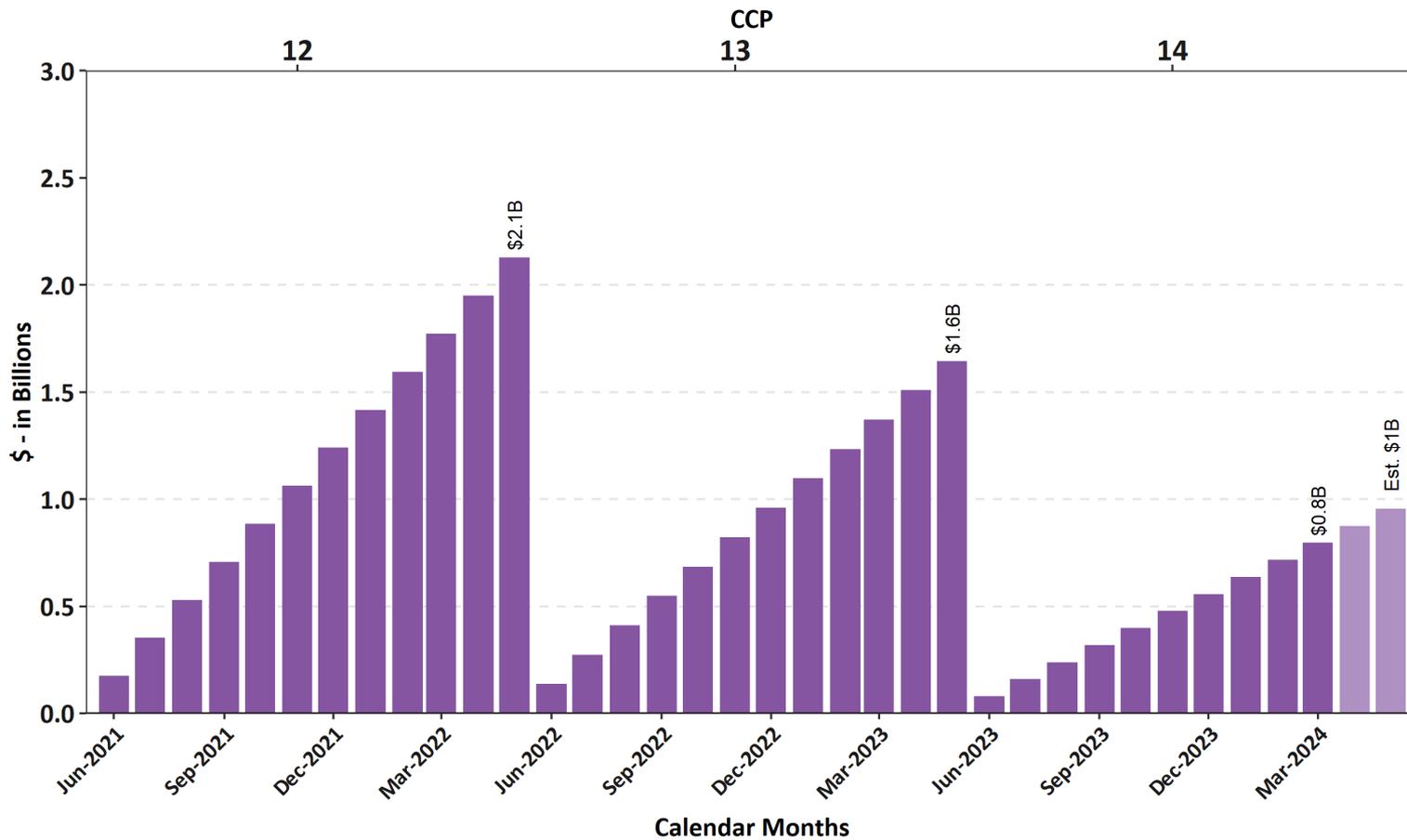
# Active/Passive Demand Response

## CSO Totals by Commitment Period

Commitment Period	Active/Passive	Existing	New	Grand Total
2021-22	Active	480.941	143.504	624.445
	Passive	2,604.79	370.568	2,975.36
	<b>Grand Total</b>	<b>3,085.734</b>	<b>514.072</b>	<b>3,599.806</b>
2022-23	Active	598.376	87.178	685.554
	Passive	2,788.33	566.363	3,354.69
	<b>Grand Total</b>	<b>3,386.703</b>	<b>653.541</b>	<b>4,040.244</b>
2023-24	Active	560.55	31.493	592.043
	Passive	3,035.51	291.565	3,327.07
	<b>Grand Total</b>	<b>3,596.056</b>	<b>323.058</b>	<b>3,919.114</b>
2024-25	Active	674.153	3.520	677.673
	Passive	3,046.064	166.801	3,212.865
	<b>Grand Total</b>	<b>3,720.217</b>	<b>170.321</b>	<b>3,890.538</b>
2025-26	Active	664.01	101.34	765.35
	Passive	2,428.638	128.618	2557.256
	<b>Grand Total</b>	<b>3,092.648</b>	<b>229.958</b>	<b>3,322.606</b>
2026-27	Active	615.369	7.485	622.854
	Passive	2,194.172	122.643	2,316.815
	<b>Grand Total</b>	<b>2,809.541</b>	<b>130.128</b>	<b>2,939.669</b>
2027-28	Active	543.58	0.0	543.58
	Passive	1,965.515	104.983	2070.498
	<b>Grand Total</b>	<b>2,509.095</b>	<b>104.983</b>	<b>2,614.498</b>

# Forward Capacity Market Auctions

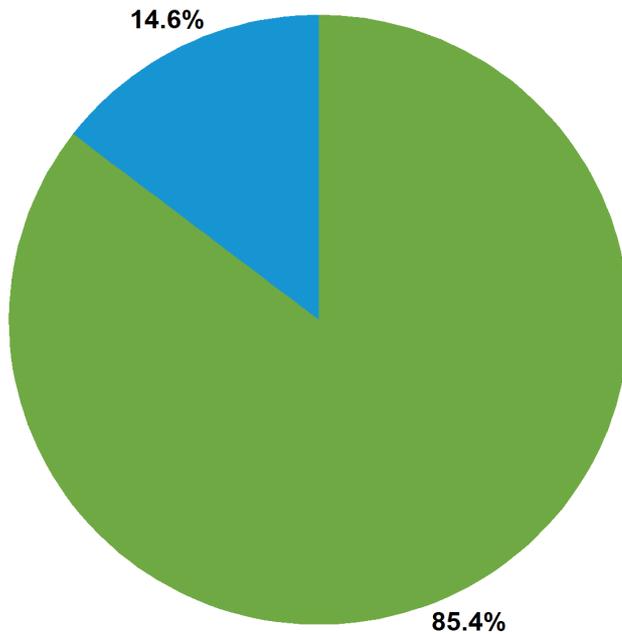
Cumulative FCM Charges by CCP



# NET COMMITMENT PERIOD COMPENSATION

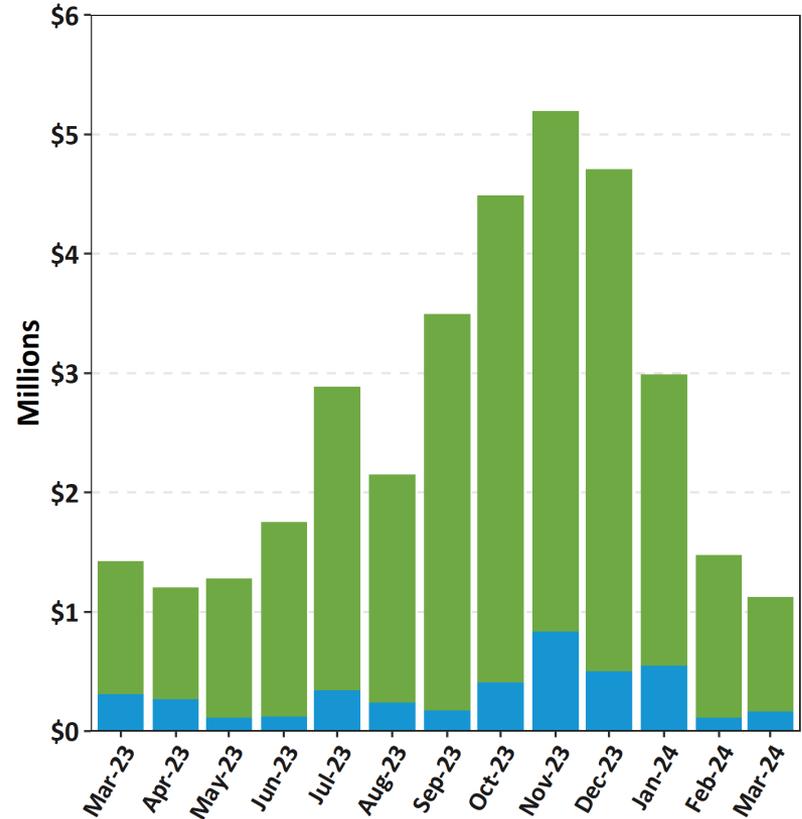
# DA and RT NCPC Charges

Mar-24 Total = \$1.1 M



Day-Ahead Real-Time

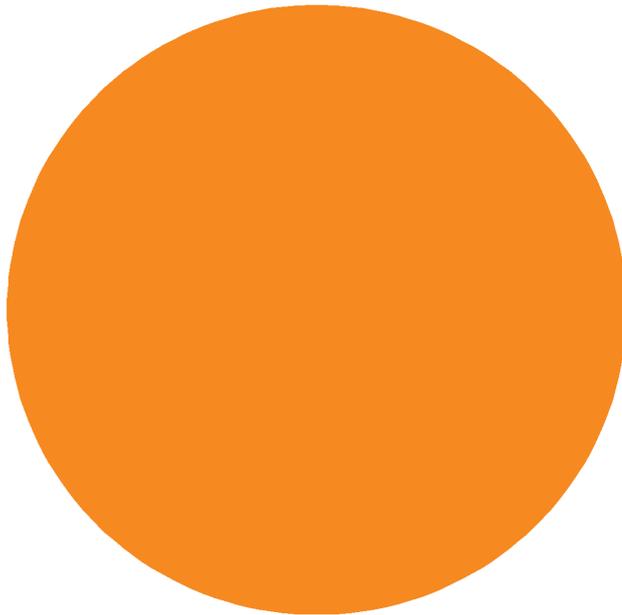
Last 13 Months



Day-Ahead Real-Time

# NCPC Charges by Type

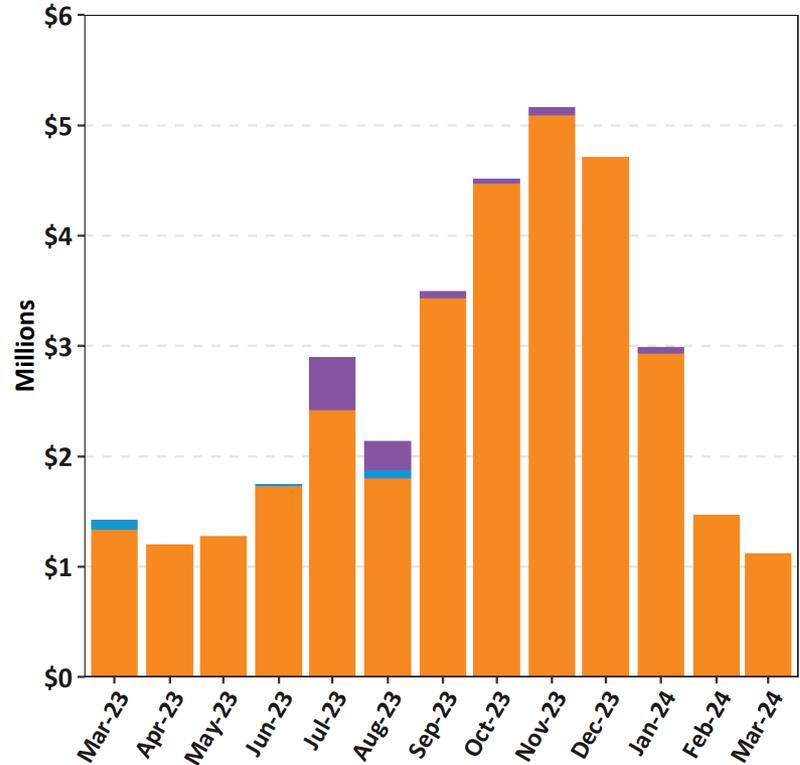
Mar-24 Total = \$1.1 M



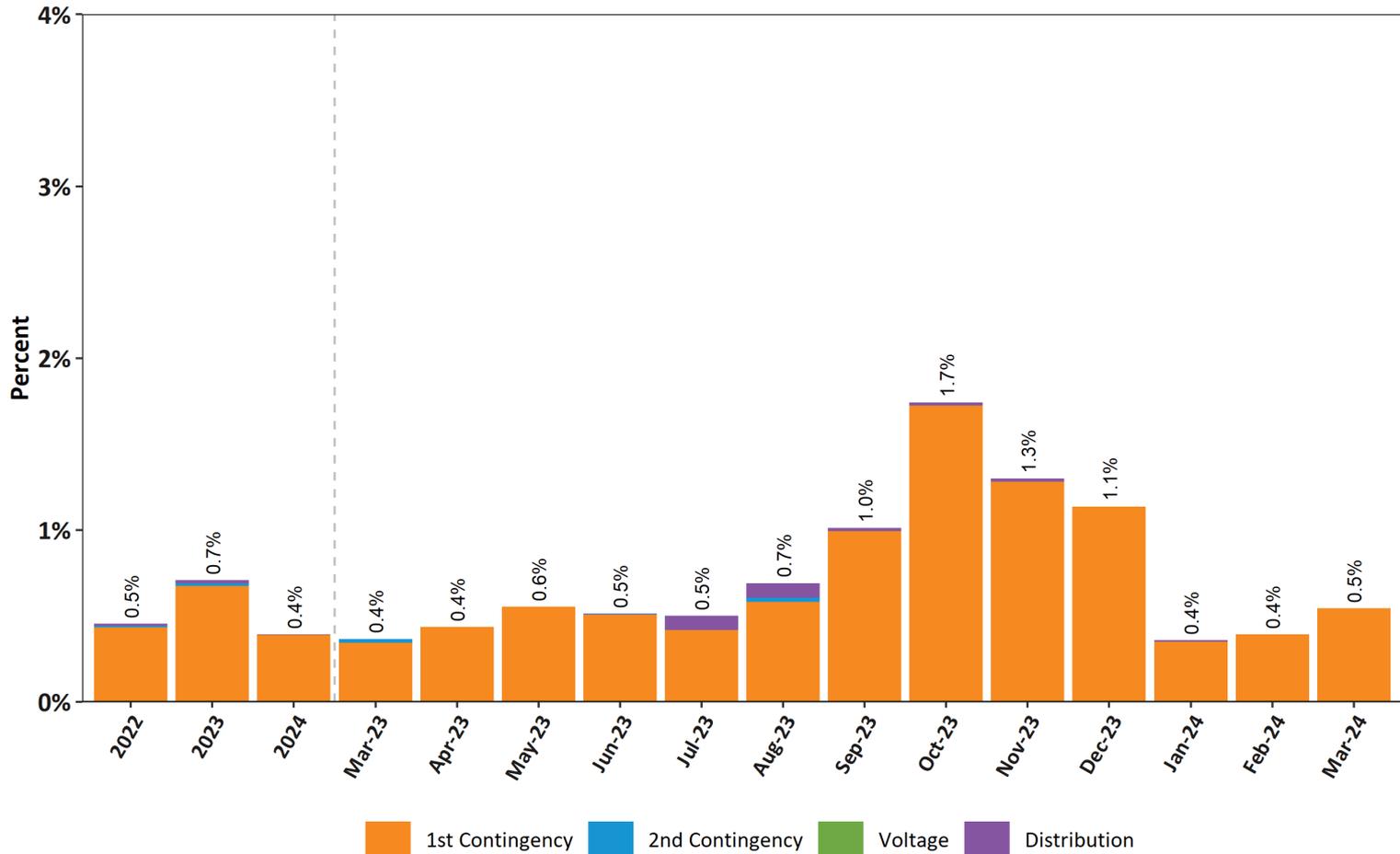
100.0%



Last 13 Months

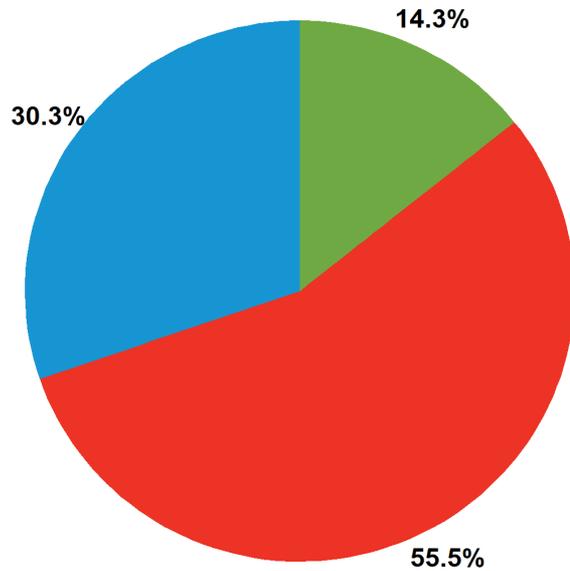


# NCPC Charges by Type as Percent of Energy Market Value



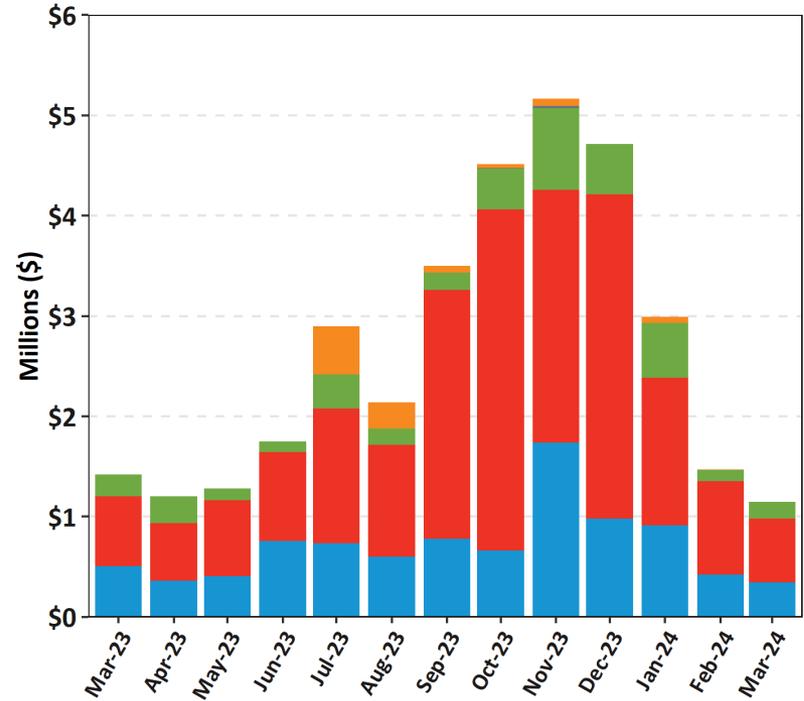
# NCPC Charge Allocations

Mar-24 Total = \$1.1 M



- RT Load Obligation
- RT Deviations
- DA Load Obligation
- DA Gen Obligation
- Transmission Owner
- Reg'l Network Load

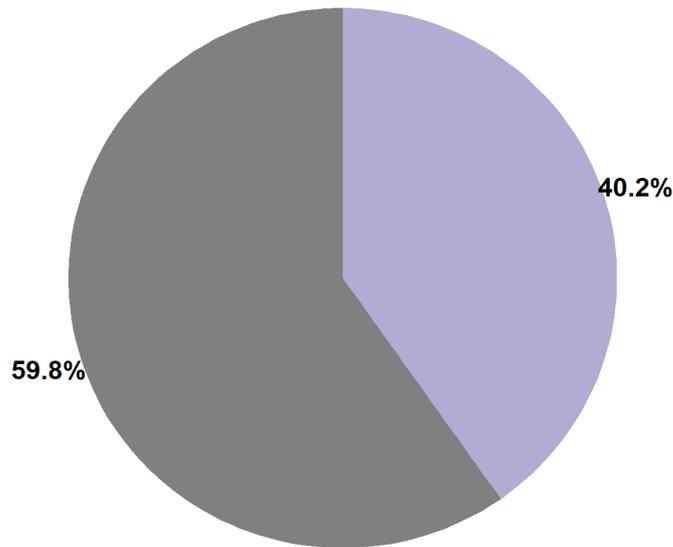
Last 13 Months



- RT Load Obligation
- RT Deviations
- DA Load Obligation
- DA Gen Obligation
- Transmission Owner
- Reg'l Network Load

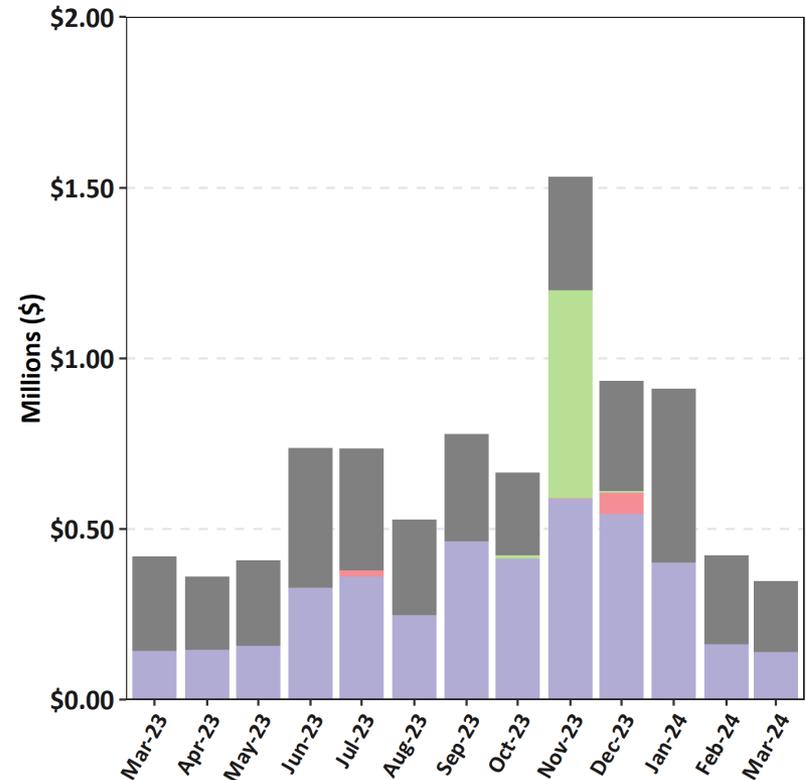
# RT First Contingency NCPC paid to units and allocated to RTLO and/or RTGO

Mar-24 Total = \$0.3 M



DLOC
  Postured Gen
  Min Gen
  GPA
  RRP

Last 13 Months

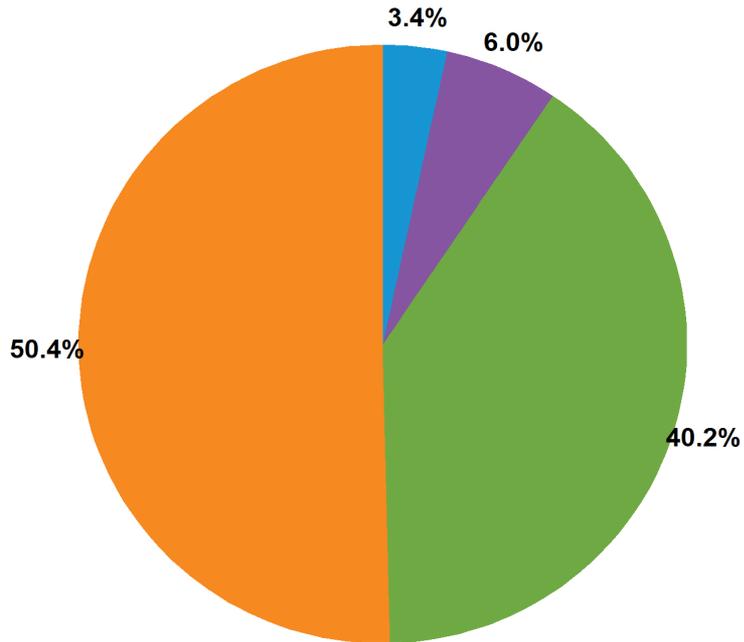


DLOC
  Postured Gen
  Min Gen
  GPA
  RRP

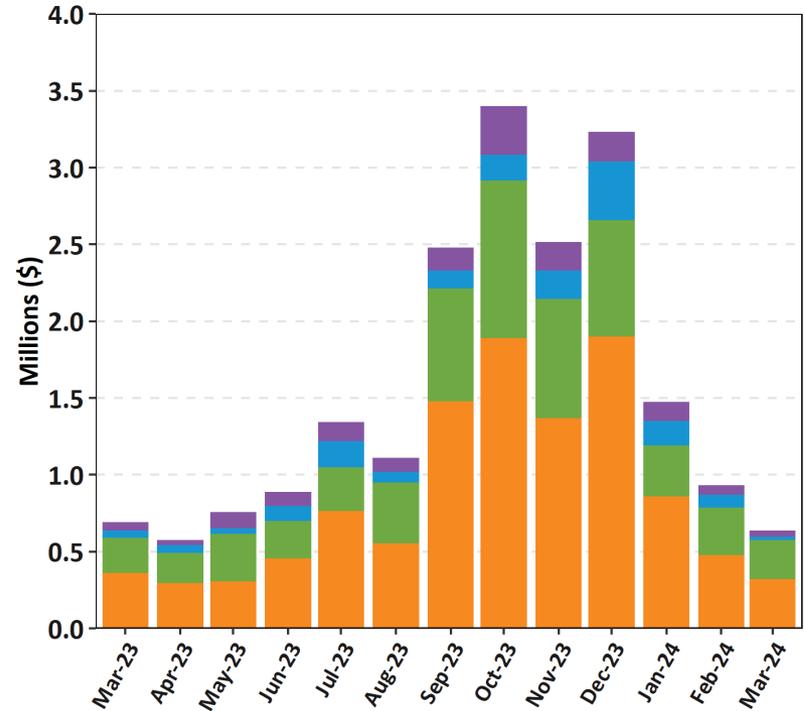
Note: The categories shown above are a subset of those reflected in First Contingency NCPC throughout this report. The above categories are allocated to RTLO, except for Min Gen Emergency credits, which are allocated to RTGO.

# RT First Contingency Charges by Deviation Type

Mar-24 Total = \$0.6 M



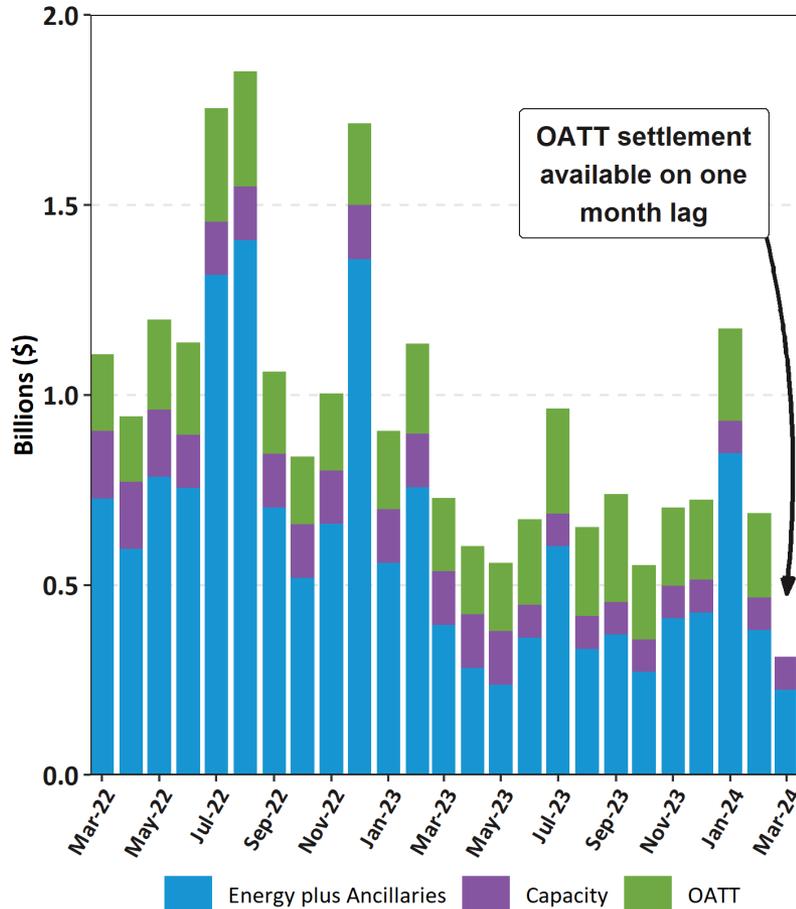
Last 13 Months



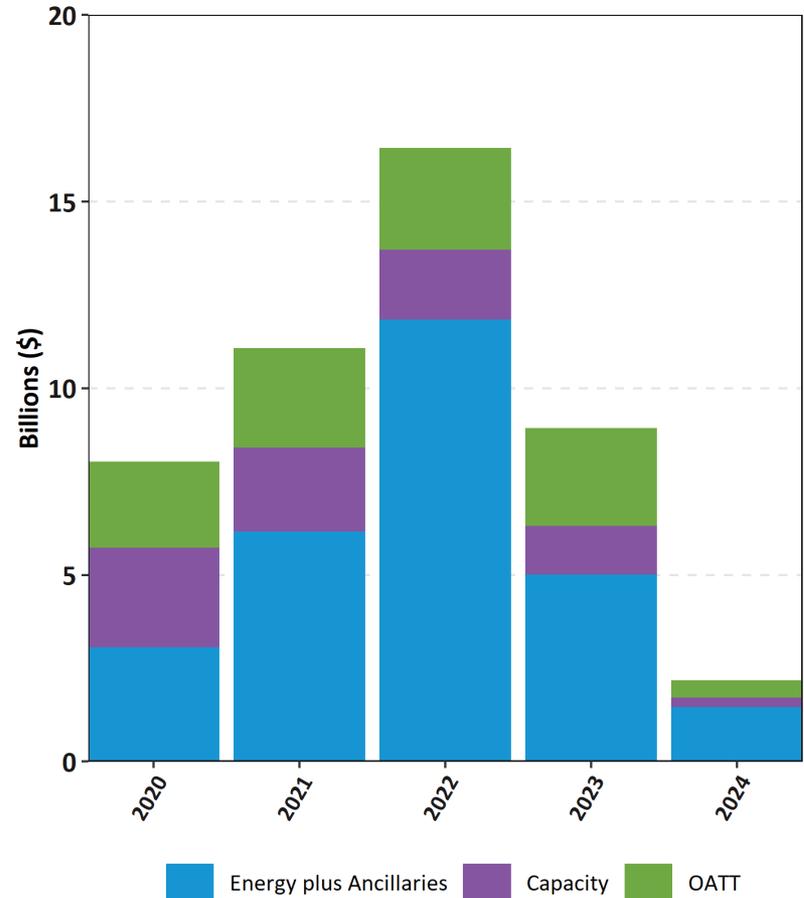
# ISO BILLINGS

# Total ISO Billings

## Monthly Billed Amounts



## Annual Cumulative Billed Amounts



Ancillaries = Reserves, Regulation, NCPC, minus Marginal Loss Revenue Fund. OATT = RNS, Through and Out, Schedule 9

# REGIONAL SYSTEM PLAN (RSP)

# Planning Advisory Committee (PAC)

- April 18 PAC Meeting Agenda Topics\*
  - Asset Condition Projects
    - MEPCO Sections 396 and 3001 End of Life Strategy – Avangrid
    - E-205E and E-205W 230kV Lines Asset Condition Refurbishment – National Grid
    - 339 and 349 345 kV Lines Asset Condition Project – National Grid
    - CT Lines 387 & 3252 Asset Condition Replacements & OPGW Installation – Eversource
    - Hurd State Park Corridor Rebuild Follow-up - Eversource
  - 2050 Transmission Study: Further Analysis on Offshore Wind POI Relocation
  - Economic Planning for the Clean Energy Transition (EPCET) – Discussion of Imports for Market Efficiency Needs Scenario (MENS)
  - Update on Legacy Distributed Energy Resource Assumptions in Needs Assessments
  - 2024 Final Draft Energy and Seasonal Peak Forecasts

\* Agenda topics are subject to change. Visit <https://www.iso-ne.com/committees/planning/planning-advisory> for the latest PAC agendas.

# 2050 Transmission Study

- Final version of the study, technical appendix, responses to stakeholder feedback, and study fact sheet were published on 2/14/24
- Additional analysis to address stakeholder comments on offshore wind points of interconnection was presented to PAC on 3/20/24, and will continue through Q2 and Q3 2024

# Economic Studies: EPCET

- Economic Planning for the Clean Energy Transition (EPCET) Pilot Study
  - An effort to review all assumptions in economic planning and perform a test study consistent with the changes to the Tariff
  - PAC presentations began in April 2022. To date, the ISO has presented results from the Benchmark, Market Efficiency Need, and Policy scenarios and is now in the process of finalizing the study
    - A report will be issued in Q2 2024

# Economic Studies: 2024 Study

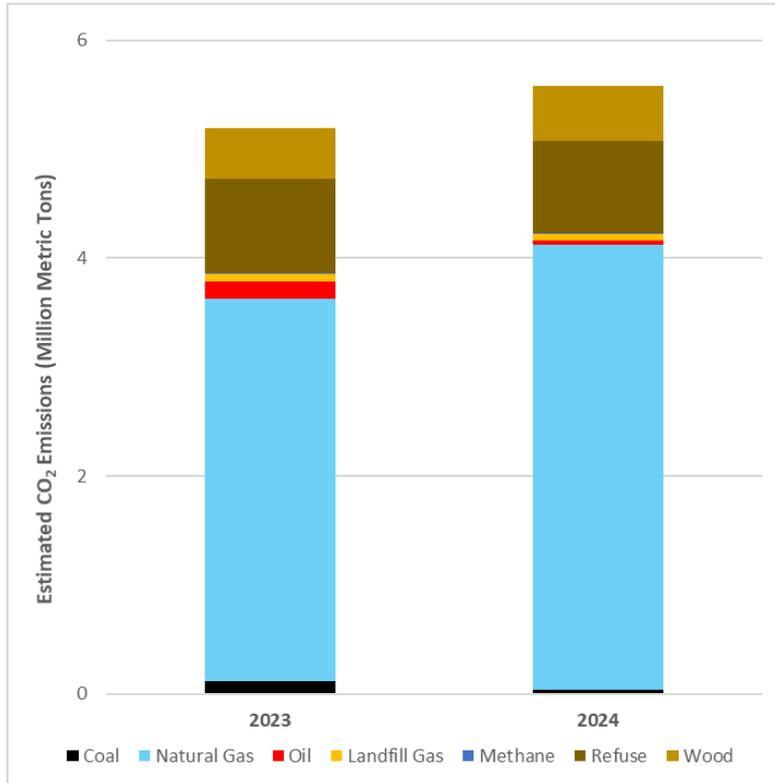
- 2024 Economic Study
  - First use of new Tariff language
    - Study was initiated at the January PAC meeting
  - Study will begin with Benchmark Scenario in Q1-Q2 2024, followed by Policy Scenario in Q3-Q4 2024
  - A Stakeholder-Requested Scenario can be submitted in Q2 2024 for consideration
  - Market Efficiency Needs Scenario will be studied in early 2025

# ISO-NE Tie Benefits Evaluation

- The ISO started the tie benefits evaluation at the October 19 PSPC meeting. The third presentation was given at a special March 15 PSPC meeting and topics included:
  - Responses to stakeholder questions from January
  - A deeper dive into the MARS model methodology
  - Review of flows within MARS replications during tie benefits analyses
- The evaluation will extend through Q4 of 2024
  - Additional PSPC time will be dedicated for this topic
- The next PSPC meeting is scheduled for June 21
  - As a result of the FERC-approved FCA 19 delay, we will be altering this year's PSPC schedule and will be canceling the May PSPC meeting
  - The ISO will review the 2024 PSPC cycle in greater detail at the May RC meeting

# New England Power System Carbon Emissions

## 2023 vs. 2024 New England Power System Estimated Carbon Dioxide (CO<sub>2</sub>) Emissions



## RGGI Allowance Prices



- 3/13/24: RGGI allowance spot price - \$16.70
- [63<sup>rd</sup> RGGI Auction Results:](#)
  - 24,272,157 CO<sub>2</sub> allowances sold at clearing price \$16.00
  - \$388.4 million generated
  - 8.42 million Cost Containment Reserve (CCR) allowances sold after clearing price exceeded CCR threshold price \$15.92
  - No more CCR allowances for the three remaining 2024 auctions

Data as of 3/10/24

RGGI – Regional Greenhouse Gas Initiative

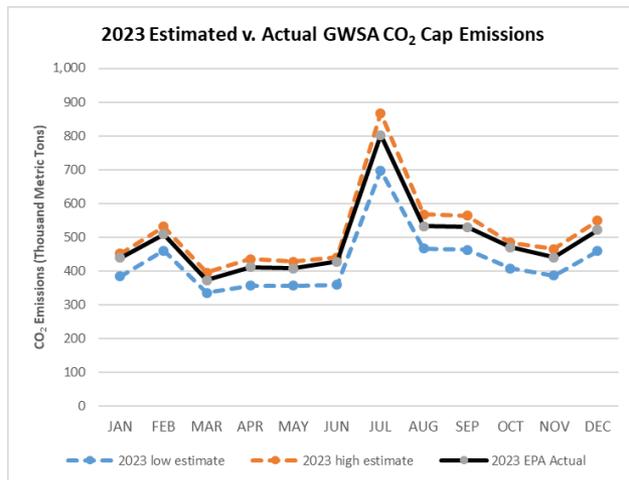
# Massachusetts CO<sub>2</sub> Generator Emissions Cap

## 2024 Estimated Emissions Under CO<sub>2</sub> Cap

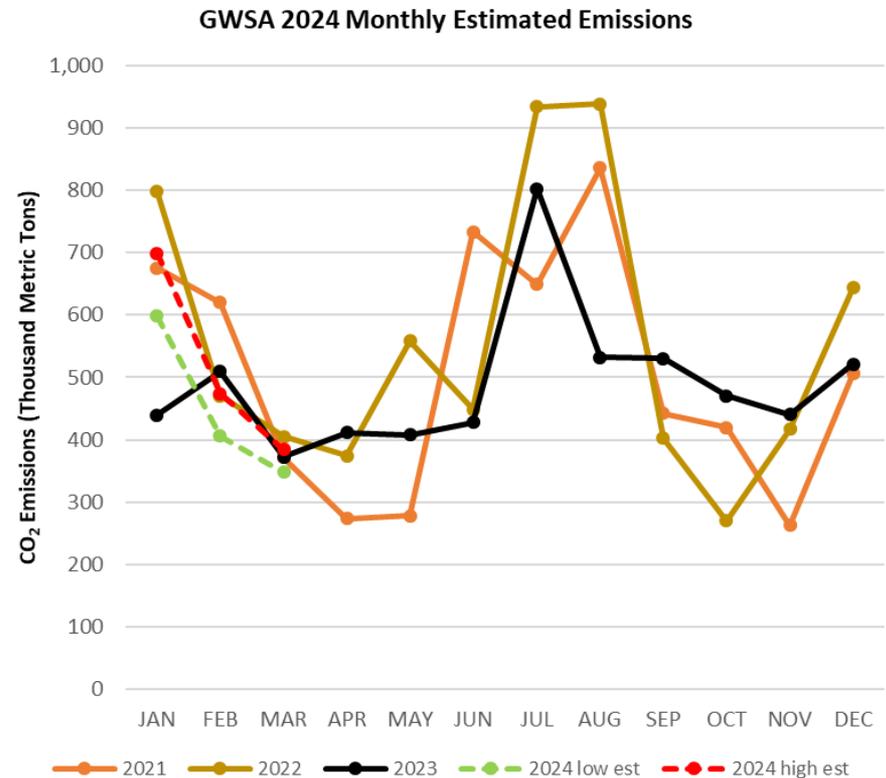
- As of 3/19/24, March estimated GWSA CO<sub>2</sub> emissions range between **347,712** and **383,909** metric tons
  - Year-to-date 2024 estimated emissions range between **17.8%** and **20.4%** of the 2024 cap of 7.61 MMT

## 2023 Estimated Emissions Under CO<sub>2</sub> Cap

- According to the [EPA CAMPD](#), 2023 total GWSA CO<sub>2</sub> emissions were **5.86 MMT**, or **75%** of the 2023 cap of 7.84 MMT



## 2021-2024 Estimated Monthly Emissions (Thousand Metric Tons)



GWSA – Global Warming Solutions Act  
MMT – Million Metric Tons

Source: ISO-NE (estimated emissions)

# RSP Project Stage Descriptions

Stage	Description
1	Planning and Preparation of Project Configuration
2	Pre-construction (e.g., material ordering, project scheduling)
3	Construction in Progress
4	In Service

Note: The listings in this section focus on major transmission line construction and rebuilding.



# Greater Boston Projects

*Status as of 3/25/2024*

*Plan Benefit: Addresses long-term system needs in the Greater Boston area and improves system reliability*

RSP Project List ID	Upgrade	Expected/ Actual In-Service	Present Stage
1213, 1220, 1365	Install new 345 kV line from Scobie to Tewksbury	Dec-17	4
1527, 1528	Reconductor the Y-151 115 kV line from Dracut Junction to Power Street	Apr-17	4
1212, 1549	Reconductor the M-139 115 kV line from Tewksbury to Pinehurst and associated work at Tewksbury	May-17	4
1549	Reconductor the N-140 115 kV line from Tewksbury to Pinehurst and associated work at Tewksbury	May-17	4
1260	Reconductor the F-158N 115 kV line from Wakefield Junction to Maplewood and associated work at Maplewood	Dec-15	4
1550	Reconductor the F-158S 115 kV line from Maplewood to Everett	Jun-19	4
1551, 1552	Install new 345 kV cable from Woburn to Wakefield Junction, install two new 160 MVAR variable shunt reactors and associated work at Wakefield Junction and Woburn*	Apr-24	3*
1329	Refurbish X-24 69 kV line from Millbury to Northboro Road	Dec-15	4
1327	Reconductor W-23W 69 kV line from Woodside to Northboro Road	Jun-19	4

\* Substation portion of the project is a Present Stage status 4



# Greater Boston Projects, cont.

*Status as of 3/25/2024*

*Plan Benefit: Addresses long-term system needs in the Greater Boston area and improves system reliability*

RSP Project List ID	Upgrade	Expected/ Actual In-Service	Present Stage
1330	Separate X-24 and E-157W DCT	Dec-18	4
1363	Separate Q-169 and F-158N DCT	Dec-15	4
1637, 1640	Reconductor M-139/211-503 and N-140/211-504 115 kV lines from Pinehurst to North Woburn tap	May-17	4
1516	Install new 115 kV station at Sharon to segment three 115 kV lines from West Walpole to Holbrook	Sep-20	4
965	Install third 115 kV line from West Walpole to Holbrook	Sep-20	4
1558	Install new 345 kV breaker in series with the 104 breaker at Stoughton	May-16	4
1199	Install new 230/115 kV autotransformer at Sudbury and loop the 282-602 230 kV line in and out of the new 230 kV switchyard at Sudbury	Dec-17	4
1335	Install a new 115 kV line from Sudbury to Hudson	Mar-25	3

# Greater Boston Projects, cont.

*Status as of 3/25/2024*

*Plan Benefit: Addresses long-term system needs in the Greater Boston area and improves system reliability*

RSP Project List ID	Upgrade	Expected/ Actual In-Service	Present Stage
1336	Replace 345/115 kV autotransformer, 345 kV breakers, and 115 kV switchgear at Woburn	Dec-19	4
1553	Install a 345 kV breaker in series with breaker 104 at Woburn	Jun-17	4
1337	Reconfigure Waltham by relocating PARs, 282-507 line, and a breaker	Dec-17	4
1339	Upgrade 533-508 115 kV line from Lexington to Hartwell and associated work at the stations	Aug-16	4
1521	Install a new 115 kV 54 MVAR capacitor bank at Newton	Dec-16	4
1522	Install a new 115 kV 36.7 MVAR capacitor bank at Sudbury	May-17	4
1352	Install a second Mystic 345/115 kV autotransformer and reconfigure the bus	May-19	4
1353	Install a 115 kV breaker on the East bus at K Street	Jun-16	4
1354, 1738	Install 115 kV cable from Mystic to Chelsea and upgrade Chelsea 115 kV station to BPS standards	Jul-21	4
1355	Split 110-522 and 240-510 DCT from Baker Street to Needham for a portion of the way and install a 115 kV cable for the rest of the way	Mar-21	4

# Greater Boston Projects, cont.

*Status as of 3/25/2024*

*Plan Benefit: Addresses long-term system needs in the Greater Boston area and improves system reliability*

<b>RSP Project List ID</b>	<b>Upgrade</b>	<b>Expected/ Actual In-Service</b>	<b>Present Stage</b>
1356	Install a second 115 kV cable from Mystic to Woburn to create a bifurcated 211-514 line	Apr-24	3
1357	Open lines 329-510/511 and 250-516/517 at Mystic and Chatham, respectively. Operate K Street as a normally closed station.	May-19	4
1518	Upgrade Kingston to create a second normally closed 115 kV bus tie and reconfigure the 345 kV switchyard	Mar-19	4
1519	Relocate the Chelsea capacitor bank to the 128-518 termination postion	Dec-16	4



# Greater Boston Projects, cont.

*Status as of 3/25/2024*

*Plan Benefit: Addresses long-term system needs in the Greater Boston area and improves system reliability*

RSP Project List ID	Upgrade	Expected/ Actual In-Service	Present Stage
1520	Upgrade North Cambridge to mitigate 115 kV 5 and 10 stuck breaker contingencies	Dec-17	4
1643	Install a 200 MVAR STATCOM at Coopers Mills	Nov-18	4
1341, 1645	Install a 115 kV 36.7 MVAR capacitor bank at Hartwell	May-17	4
1646	Install a 345 kV 160 MVAR shunt reactor at K Street	Dec-19	4
1647	Install a 115 kV breaker in series with the 5 breaker at Framingham	Mar-17	4
1554	Install a 115 kV breaker in series with the 29 breaker at K Street	Apr-17	4

# SEMA/RI Reliability Projects

*Status as of 3/25/2024*

*Project Benefit: Addresses system needs in the Southeast Massachusetts/Rhode Island area*

RSP Project List ID	Upgrade	Expected/Actual In-Service	Present Stage
1714	Construct a new 115 kV GIS switching station (Grand Army) which includes remote terminal station work at Brayton Point and Somerset substations, and the looping in of the E-183E, F-184, X3, and W4 lines	Oct-20	4
1742	Conduct remote terminal station work at the Wampanoag and Pawtucket substations for the new Grand Army GIS switching station	Oct-20	4
1715	Install upgrades at Brayton Point substation which include a new 115 kV breaker, new 345/115 kV transformer, and upgrades to E183E, F184 station equipment	Oct-20	4
1716	Increase clearances on E-183E & F-184 lines between Brayton Point and Grand Army substations	Nov-19	4
1717	Separate the X3/W4 DCT and reconductor the X3 and W4 lines between Somerset and Grand Army substations; reconfigure Y2 and Z1 lines	Nov-19	4

# SEMA/RI Reliability Projects, cont.

*Status as of 3/25/2024*

*Project Benefit: Addresses system needs in the Southeast Massachusetts/Rhode Island area*

RSP Project List ID	Upgrade	Expected/ Actual In-Service	Present Stage
1718	Add 115 kV circuit breaker at Robinson Ave substation and re-terminate the Q10 line	Mar-22	4
1719	Install 45.0 MVAR capacitor bank at Berry Street substation	Cancelled*	N/A
1720	Separate the N12/M13 DCT and reconductor the N12 and M13 between Somerset and Bell Rock substations	Mar-27	2
1721	Reconfigure Bell Rock to breaker-and-a-half station, split the M13 line at Bell Rock substation, and terminate 114 line at Bell Rock; install a new breaker in series with N12/D21 tie breaker, upgrade D21 line switch, and install a 37.5 MVAR capacitor	Aug-23	4
1722	Extend the Line 114 from the Dartmouth town line (Eversource-National Grid border) to Bell Rock substation	Dec-25	2
1723	Reconductor L14 and M13 lines from Bell Rock substation to Bates Tap	Cancelled*	N/A

\*Cancelled per ISO-NE PAC presentation on August 27, 2020

# SEMA/RI Reliability Projects, cont.

*Status as of 3/25/2024*

*Project Benefit: Addresses system needs in the Southeast Massachusetts/Rhode Island area*

<b>RSP Project List ID</b>	<b>Upgrade</b>	<b>Expected/Actual In-Service</b>	<b>Present Stage</b>
1725	Build a new 115 kV line from Bourne to West Barnstable substations which includes associated terminal work	May-24	3
1726	Separate the 135/122 DCT from West Barnstable to Barnstable substations	Dec-21	4
1727	Retire the Barnstable SPS	Nov-21	4
1728	Build a new 115 kV line from Carver to Kingston substations and add a new Carver terminal	Aug-23	4
1729	Install a new bay position at Kingston substation to accommodate new 115 kV line	Aug-23	4
1730	Extend the 114 line from the Eversource/National Grid border to the Industrial Park Tap	Dec-25	2

# SEMA/RI Reliability Projects, cont.

*Status as of 3/25/2024*

*Project Benefit: Addresses system needs in the Southeast Massachusetts/Rhode Island area*

RSP Project List ID	Upgrade	Expected/Actual In-Service	Present Stage
1731	Install 35.3 MVAR capacitors at High Hill and Wing Lane substations	Dec-21	4
1732	Loop the 201-502 line into the Medway substation to form the 201-502N and 201-502S lines	Dec-25	3
1733	Separate the 325/344 DCT lines from West Medway to West Walpole substations	Cancelled**	N/A
1734	Reconductor and upgrade the 112 Line from the Tremont substation to the Industrial Tap	Jun-18	4
1736	Reconductor the 108 line from Bourne substation to Horse Pond Tap*	Oct-18	4
1737	Replace disconnect switches on 323 line at West Medway substation and replace 8 line structures	Aug-20	4

\* Does not include the reconductoring work over the Cape Cod canal

\*\* Cancelled per ISO-NE PAC presentation on August 27, 2020



# SEMA/RI Reliability Projects, cont.

*Status as of 3/25/2024*

*Project Benefit: Addresses system needs in the Southeast Massachusetts/Rhode Island area*

<b>RSP Project List ID</b>	<b>Upgrade</b>	<b>Expected/Actual In-Service</b>	<b>Present Stage</b>
1741	Rebuild the Middleborough Gas and Electric portion of the E1 line from Bridgewater to Middleborough	Apr-19	4
1782	Reconductor the J16S line	May 22	4
1724	Replace the Kent County 345/115 kV transformer	Mar-22	4
1789	West Medway 345 kV circuit breaker upgrades	Apr-21	4
1790	Medway 115 kV circuit breaker replacements	Nov-20	4

# Eastern CT Reliability Projects

*Status as of 3/25/2024*

*Project Benefit: Addresses system needs in the Eastern Connecticut area*

RSP Project List ID	Upgrade	Expected/ Actual In-Service	Present Stage
1815	Reconductor the L190-4 and L190-5 line sections	Dec-24	3
1850	Install a second 345/115 kV autotransformer (4X) and one 345 kV breaker at Card substation	Dec-22	4
1851	Upgrade Card 115 kV to BPS standards	Dec-22	4
1852	Install one 115 kV circuit breaker in series with Card substation 4T	Feb-23	4
1853	Convert Gales Ferry substation from 69 kV to 115 kV	Nov-23	4
1854	Rebuild the 100 Line from Montville to Gales Ferry to allow operation at 115 kV	Jun-23	4



# Eastern CT Reliability Projects, cont.

*Status as of 3/25/2024*

*Project Benefit: Addresses system needs in the Eastern Connecticut area*

RSP Project List ID	Upgrade	Expected/ Actual In-Service	Present Stage
1855	Re-terminate the 100 Line at Montville station and associated work. Energize the 100 Line at 115 kV	Jun-23	4
1856	Rebuild 400-1 Line section to allow operation at 115 kV (Tunnel to Ledyard Jct.)	Feb-23	4
1857	Add one 115 kV circuit breaker and re-terminate the 400-1 line section into Tunnel substation. Energize 400 Line at 115 kV	Feb-23	4
1858	Rebuild 400-2 Line section to allow operation at 115 kV (Ledyard Jct. to Border Bus with CMEEC)	Sept-22	4
1859	Rebuild the 400-3 Line Section to allow operation at 115 kV (Gales Ferry to Ledyard Jct.)	Feb-23	4
1860	Install a 25.2 MVAR 115 kV capacitor and one capacitor breaker at Killingly	Dec-21	4

# Eastern CT Reliability Projects, cont.

*Status as of 3/25/2024*

*Project Benefit: Addresses system needs in the Eastern Connecticut area*

RSP Project List ID	Upgrade	Expected/ Actual In-Service	Present Stage
1861	Install one 345 kV series breaker with the Montville 1T	Nov-21	4
1862	Install a +55/-29 MVAR synchronous condenser with two 115 kV breakers at Shunock	Dec-23	4
1863	Install a 1% series reactor with bypass switch at Mystic, CT on the 1465 Line	Mar-22	4
1864	Convert the 400-2 Line Section to 115 kV (Border Bus to Buddington)	Feb-23	4
1904	Convert 69 kV equipment at Buddington to 115 kV to facilitate the conversion of the 400-2 line to 115 kV	Dec-23	4

# New Hampshire Solution Projects

*Status as of 3/25/2024*

*Project Benefit: Addresses system needs in the New Hampshire area*

RSP Project List ID	Upgrade	Expected/Actual In-Service	Present Stage
1878	Install a +55/-32.2 MVAR synchronous condenser at N. Keene 115 kV Substation with a 115 kV breaker	Sep-24	3
1879	Install a +55/-32.2 MVAR synchronous condenser at Huckins Hill 115 kV Substation with a 115 kV breaker	May-24	3
1880	Install a +127/-50 MVAR synchronous condenser at Amherst 345 kV Substation with two 345 kV breakers	Sep-24	3
1881	Install two 50 MVAR capacitors on Line 363 near Seabrook Station with three 345 kV breakers	Oct-23	4



# Upper Maine Solution Projects

*Status as of 3/25/2024*

*Project Benefit: Addresses system needs in the Upper Maine area*

RSP Project List ID	Upgrade	Expected/Actual In-Service	Present Stage
1882	Rebuild 21.7 miles of the existing 115 kV line Section 80 Highland-Coopers Mills 115 kV line	Dec-24	3
1883	Convert the Highland 115 kV substation to an eight breaker, breaker-and-a-half configuration with a bus connected 115/34.5 kV transformer	Jul-28	1
1884	Install a 15 MVAR capacitor at Belfast 115 kV substation	Jul-28	1
1885	Install a +50/-25 MVAR synchronous condenser at Highland 115 kV substation	Jul-28	1
1886	Install +50/-25 MVAR synchronous condenser at Boggy Brook 115 kV substation, and install a new 115 kV breaker to separate Line 67 from the proposed solution elements	Jun-24	3

# Upper Maine Solution Projects, cont.

*Status as of 3/25/2024*

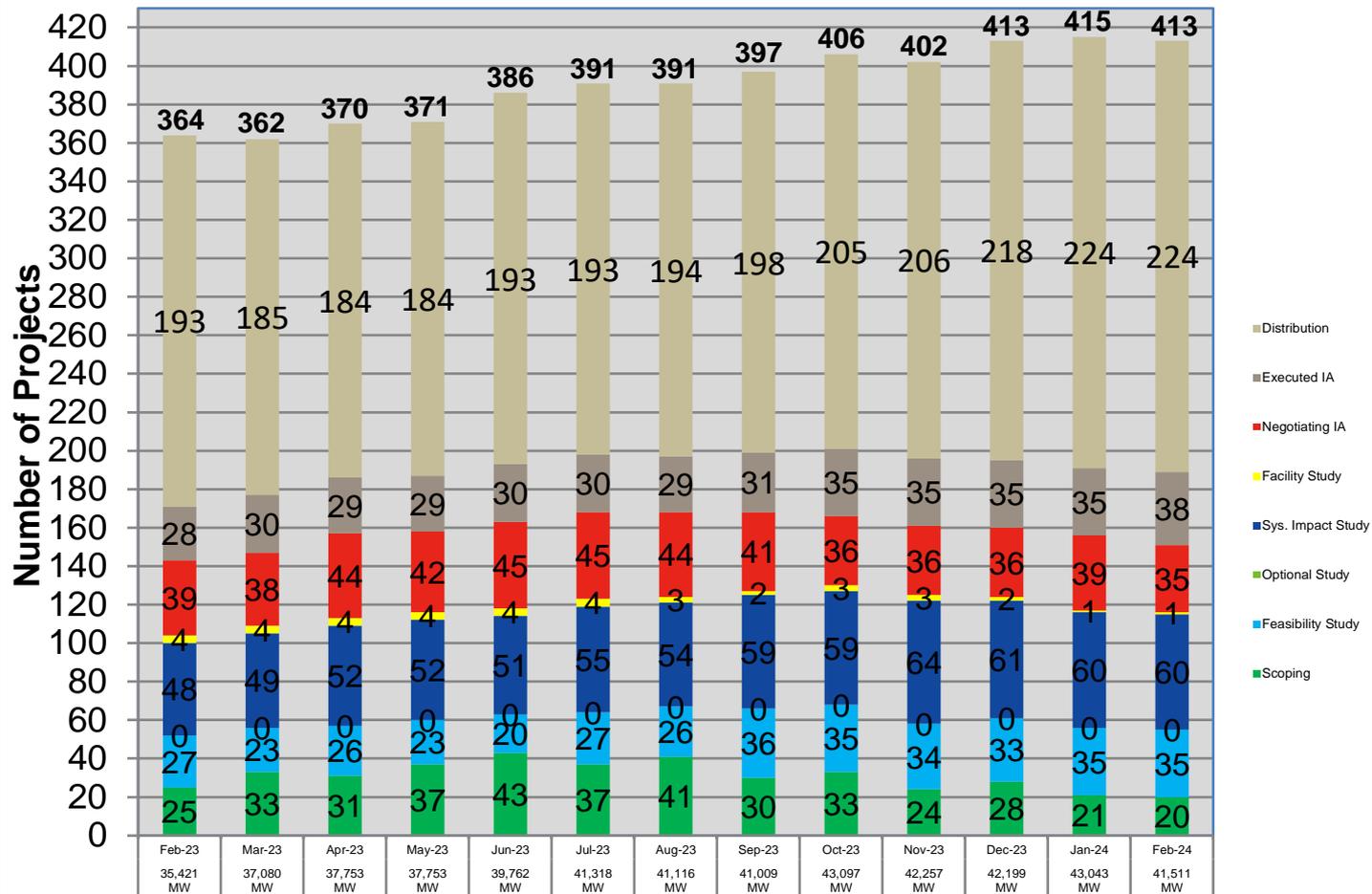
*Project Benefit: Addresses system needs in the Upper Maine area*

RSP Project List ID	Upgrade	Expected/ Actual In-Service	Present Stage
1887	Install 25 MVAR reactor at Boggy Brook 115 kV substation	Jun-24	3
1888	Install 10 MVAR reactor at Keene Road 115 kV substation	Apr-24	3
1889	Install three remotely monitored and controlled switches to split the existing Orrington reactors between the two Orrington 345/115 kV autotransformers	Cancelled *	N/A
1914	Install a new 80 MVAR reactor, reconfigure the existing two reactors at the 345 kV Orrington substation	Jun-25	2

\* Cancelled per the Upper Maine Solutions Study Addendum that was published on January 11, 2024



# Status of Tariff Studies as of March 1, 2024



**Generator Project Status**

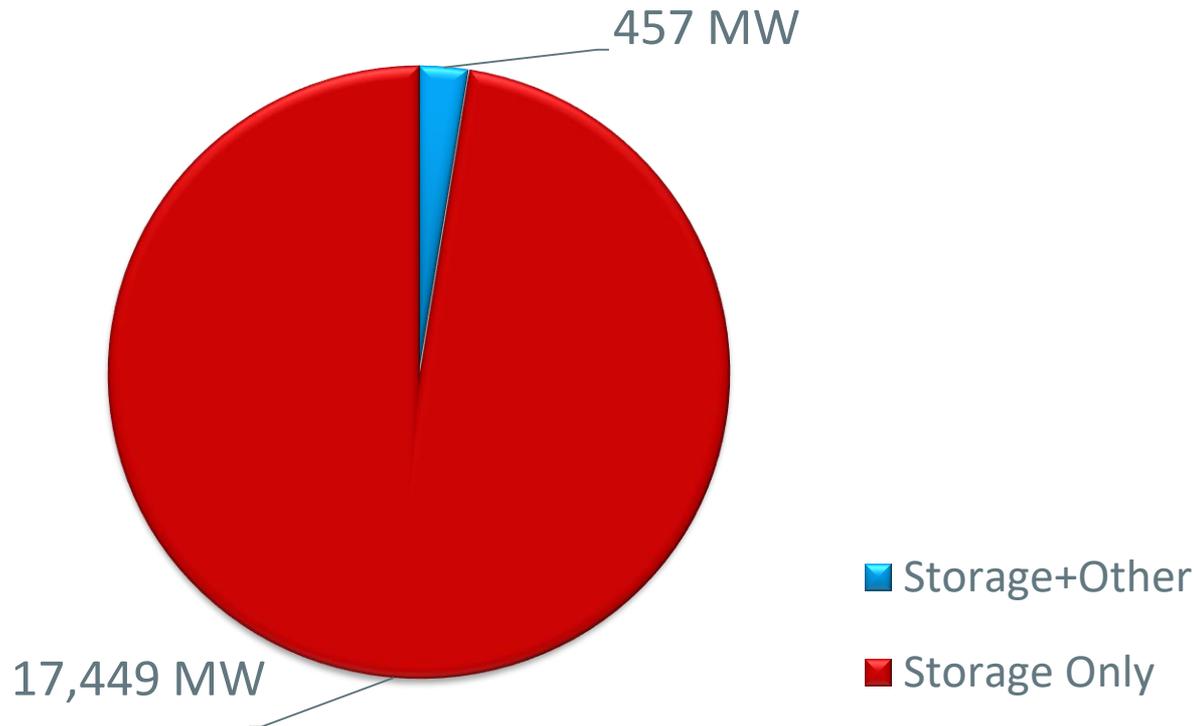
7 ETUs in Scoping, 4 in FS, 2 in SIS, 0 in OIS, 0 in FAC, 1 Negotiating IA, and 4 with Executed IA

Transmission Service Requests needing study: 1 in SIS

<https://irtt.iso-ne.com/external.aspx>

# What is in the Queue (as of March 1, 2024)

Storage Projects are proposed as stand-alone storage or as co-located with wind or solar projects



# OPERABLE CAPACITY ANALYSIS

*Spring 2024 Analysis*

# Spring 2024 Operable Capacity Analysis

50/50 Load Forecast (Reference)	May. - 2024 <sup>2</sup> CSO (MW)	May. - 2024 <sup>2</sup> SCC (MW)
Operable Capacity MW <sup>1</sup>	28,244	31,735
Active Demand Capacity Resource (+) <sup>5</sup>	512	346
External Node Available Net Capacity, CSO imports minus firm capacity exports (+)	894	894
Non Commercial Capacity (+)	198	198
Non Gas-fired Planned Outage MW (-)	3,043	3,765
Gas Generator Outages MW (-)	1,870	2,283
Allowance for Unplanned Outages (-) <sup>4</sup>	3,400	3,400
Generation at Risk Due to Gas Supply (-) <sup>3</sup>	0	0
Net Capacity (NET OPCAP SUPPLY MW)	21,535	23,725
Peak Load Forecast MW (adjusted for Other Demand Resources) <sup>2</sup>	18,945	18,945
Operating Reserve Requirement MW	2,305	2,305
Operable Capacity Required (NET LOAD OBLIGATION MW)	21,250	21,250
Operable Capacity Margin	285	2,475

<sup>1</sup>Operable Capacity is based on data as of **March 26, 2024** and does not include Capacity associated with Settlement Only Generators, Passive and Active Demand Response, and external capacity. The Capacity Supply Obligation (CSO) and Seasonal Claim Capability (SCC) values are based on data as of **March 26, 2024**.

<sup>2</sup> Load forecast that is based on the 2023 CELT report and represents the week with the lowest Operable Capacity Margin, week beginning **May 11, 2024**.

<sup>3</sup> Total of (Gas at Risk MW) – (Gas Gen Outages MW).

<sup>4</sup> Allowance For Unplanned Outage MW is based on the month corresponding to the day with the lowest Operable Capacity Margin for the week.

<sup>5</sup> Active Demand Capacity Resources (ADCRs) can participate in the Forward Capacity Market (FCM), have the ability to obtain a CSO and also participate in the Day-Ahead and Real-Time Energy Markets.

# Spring 2024 Operable Capacity Analysis

90/10 Load Forecast	May. - 2024 <sup>2</sup> CSO (MW)	May. - 2024 <sup>2</sup> SCC (MW)
Operable Capacity MW <sup>1</sup>	28,244	31,735
Active Demand Capacity Resource (+) <sup>5</sup>	512	346
External Node Available Net Capacity, CSO imports minus firm capacity exports (+)	894	894
Non Commercial Capacity (+)	198	198
Non Gas-fired Planned Outage MW (-)	3,043	3,765
Gas Generator Outages MW (-)	1,870	2,283
Allowance for Unplanned Outages (-) <sup>4</sup>	3,400	3,400
Generation at Risk Due to Gas Supply (-) <sup>3</sup>	0	0
Net Capacity (NET OPCAP SUPPLY MW)	21,535	23,725
Peak Load Forecast MW (adjusted for Other Demand Resources) <sup>2</sup>	20,388	20,388
Operating Reserve Requirement MW	2,305	2,305
Operable Capacity Required (NET LOAD OBLIGATION MW)	22,693	22,693
Operable Capacity Margin	-1,158	1,032

<sup>1</sup>Operable Capacity is based on data as of **March 26, 2024** and does not include Capacity associated with Settlement Only Generators, Passive and Active Demand Response, and external capacity. The Capacity Supply Obligation (CSO) and Seasonal Claim Capability (SCC) values are based on data as of **March 26, 2024**.

<sup>2</sup> Load forecast that is based on the 2023 CELT report and represents the week with the lowest Operable Capacity Margin, week beginning **May 11, 2024**.

<sup>3</sup> Total of (Gas at Risk MW) – (Gas Gen Outages MW).

<sup>4</sup> Allowance For Unplanned Outage MW is based on the month corresponding to the day with the lowest Operable Capacity Margin for the week.

<sup>5</sup> Active Demand Capacity Resources (ADCRs) can participate in the Forward Capacity Market (FCM), have the ability to obtain a CSO and also participate in the Day-Ahead and Real-Time Energy Markets.

# Spring 2024 Operable Capacity Analysis

## 50/50 Forecast (Reference)

### ISO-NE OPERABLE CAPACITY ANALYSIS

#### March 26, 2024 - 50-50 FORECAST using CSO MW

This analysis is a tabulation of weekly assessments shown in one single table. The information shows the operable capacity situation under assumed conditions for each week. It is not expected that the system peak will occur every week in April & May.

Report created: 3/26/2024

Study Week (Week Beginning , Saturday)	CSO Supply Resource Capacity MW	CSO Demand Resource Capacity MW	External Node Capacity MW	Non-Commercial Capacity MW	CSO Non Gas- Only Generator Planned Outages MW	CSO Gas-Only Generator Planned Outages MW	Unplanned Outages Allowance MW	CSO Generation at Risk Due to Gas Supply 50- 50PLE MW	CSO Net Available Capacity MW	Peak Load Forecast 50- 50PLE MW	Operating Reserve Requirement MW	CSO Net Required Capacity MW	CSO Operable Capacity Margin MW	Season Min Opcap Margin Flag	Season_Label
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	
4/13/2024	28399	395	941	16	3835	3184	2700	0	20032	15625	2305	17930	2102	N	Spring 2024
4/20/2024	28399	395	877	16	3051	2898	2700	0	21038	15362	2305	17667	3371	N	Spring 2024
4/27/2024	28244	512	894	198	3679	1719	3400	0	21050	15336	2305	17641	3409	N	Spring 2024
5/4/2024	28244	512	894	198	2926	2848	3400	0	20674	17972	2305	20277	397	N	Spring 2024
5/11/2024	28244	512	894	198	3043	1870	3400	0	21535	18945	2305	21250	285	Y	Spring 2024
5/18/2024	28244	512	894	198	1608	987	3400	0	23853	19849	2305	22154	1699	N	Spring 2024
5/25/2024	28244	512	894	198	52	313	3400	0	26083	20841	2305	23146	2937	N	Spring 2024

### Column Definitions

- CSO Supply Resource Capacity MW:** Summation of all resource Capacity supply Obligations (CSO). Does not include Settlement Only Generators (SOG).
- CSO Demand Resource Capacity MW:** Demand resources known as Real-Time Demand Response (RTDR) will become Active Demand Capacity Resources (ADCRs) and can participate in the Forward Capacity market (FCM). These resources will have the ability to obtain a CSO and also participate in the Day-Ahead and Real-Time Energy Markets.
- External Node Capacity MW:** Sum of external Capacity Supply Obligations (CSO) imports and exports.
- Non-Commercial capacity MW:** New resources and generator improvements that have acquired a CSO but have not become commercial.
- CSO Non Gas-Only Generator Planned Outages MW:** All Non-Gas Planned Outages is the total of Non Gas-fired Generator/DARD Outages for the period. This value would also include any known long-term Non Gas-fired Forced Outages.
- CSO Gas-Only Generator Planned Outages MW:** All Planned Gas-fired generation outage for the period. This value would also include any known long-term Gas-fired Forced Outages.
- Unplanned Outage Allowance MW:** Forced Outages and Maintenance Outages scheduled less than 14 days in advance per ISO New England Operating Procedure No. 5 Appendix A.
- CSO Generation at Risk Due to Gas Supply MW:** Gas fired capacity expected to be at risk during cold weather conditions or gas pipeline maintenance outages.
- CSO Net Available Capacity MW:** the summation of columns (1+2+3+4+5+6+7+8=9)
- Peak Load Forecast MW:** Provided in the annual 2023 CELT Report and adjusted for Passive Demand Resources assumes Peak Load Exposure (PLE) and does include credit of Passive Demand Response (PDR) and behind-the-meter PV (BTM PV).
- Operating Reserve Requirement MW:** 120% of first largest contingency plus 50% of the second largest contingency.
- CSO Net Required Capacity MW:** (Net Load Obligation) (10+11=12)
- CSO Operable Capacity Margin MW:** CSO Net Available Capacity MW minus CSO Net Required Capacity MW (9-12=13)
- Operable Capacity Season Label:** Applicable season and year.
- Season Minimum Operable Capacity Flag:** this column indicates whether or not a week has the lowest capacity margin for its applicable season.

# Spring 2024 Operable Capacity Analysis

## 90/10 Forecast

### ISO-NE OPERABLE CAPACITY ANALYSIS

March 26, 2024 - 90/10 FORECAST using CSO MW

This analysis is a tabulation of weekly assessments shown in one single table. The information shows the operable capacity situation under assumed conditions for each week. It is not expected that the system peak will occur every week in April & May.

Report created: 3/26/2024

Study Week (Week Beginning , Saturday)	CSO Supply Resource Capacity MW	CSO Demand Resource Capacity MW	External Node Capacity MW	Non-Commercial Capacity MW	CSO Non Gas- Only Generator Planned Outages MW	CSO Gas-Only Generator Planned Outages MW	Unplanned Outages Allowance MW	CSO Generation at Risk Due to Gas Supply 90- 10PLE MW	CSO Net Available Capacity MW	Peak Load Forecast 90- 10PLE MW	Operating Reserve Requirement MW	CSO Net Required Capacity MW	CSO Operable Capacity Margin MW	Season Min Opcap Margin Flag	Season_Label
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	
4/13/2024	28399	395	941	16	3835	3184	2700	0	20032	16233	2305	18538	1494	N	Spring 2024
4/20/2024	28399	395	877	16	3051	2898	2700	0	21038	15962	2305	18267	2771	N	Spring 2024
4/27/2024	28244	512	894	198	3679	1719	3400	0	21050	15934	2305	18239	2811	N	Spring 2024
5/4/2024	28244	512	894	198	2926	2848	3400	0	20674	19351	2305	21656	-982	N	Spring 2024
5/11/2024	28244	512	894	198	3043	1870	3400	0	21535	20388	2305	22693	-1158	Y	Spring 2024
5/18/2024	28244	512	894	198	1608	987	3400	0	23853	21351	2305	23656	197	N	Spring 2024
5/25/2024	28244	512	894	198	52	313	3400	0	26083	22409	2305	24714	1369	N	Spring 2024

#### Column Definitions

- CSO Supply Resource Capacity MW:** Summation of all resource Capacity supply Obligations (CSO). Does not include Settlement Only Generators (SOG).
- CSO Demand Resource Capacity MW:** Demand resources known as Real-Time Demand Response (RTDR) will become Active Demand Capacity Resources (ADCRs) and can participate in the Forward Capacity market (FCM). These resources will have the ability to obtain a CSO and also participate in the Day-Ahead and Real-Time Energy Markets.
- External Node Capacity MW:** Sum of external Capacity Supply Obligations (CSO) imports and exports.
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- CSO Non Gas-Only Generator Planned Outages MW:** All Non-Gas Planned Outages is the total of Non Gas-fired Generator/DARD Outages for the period. This value would also include any known long-term Non Gas-fired Forced Outages.Outages.
- CSO Gas-Only Generator Planned Outages MW:** All Planned Gas-fired generation outage for the period. This value would also include any known long-term Gas-fired Forced Outages.
- Unplanned Outage Allowance MW:** Forced Outages and Maintenance Outages scheduled less than 14 days in advance per ISO New England Operating Procedure No. 5 Appendix A.
- CSO Generation at Risk Due to Gas Supply Mw:** Gas fired capacity expected to be at risk during cold weather conditions or gas pipeline maintenance outages.
- CSO Net Available Capacity MW:** the summation of columns (1+2+3+4-5-6-7-8=9)
- Peak Load Forecast MW:** Provided in the annual 2023 CELT Report and adjusted for Passive Demand Resources assumes Peak Load Exposure (PLE) and does include credit of Passive Demand Response (PDR) and behind-the-meter PV (BTM PV).
- Operating Reserve Requirement MW:** 120% of first largest contingency plus 50% of the second largest contingency.
- CSO Net Required Capacity MW:** (Net Load Obligation) (10+11=12)
- CSO Operable Capacity Margin MW:** CSO Net Available Capacity MW minus CSO Net Required Capacity MW (9-12=13)
- Operable Capacity Season Label:** Applicable season and year.
- Season Minimum Operable Capacity Flag:** this column indicates whether or not a week has the lowest capacity margin for its applicable season.

\*Highlighted week is based on the week determined by the 50/50 Load Forecast Reference week

# OPERABLE CAPACITY ANALYSIS

*Summer Preliminary 2024 Analysis*

# Summer Preliminary 2024 Operable Capacity Analysis

50/50 Load Forecast (Reference)	June - 2024 <sup>2</sup> CSO (MW)	June - 2024 <sup>2</sup> SCC (MW)
Operable Capacity MW <sup>1</sup>	27,255	27,392
Active Demand Capacity Resource (+) <sup>5</sup>	518	380
External Node Available Net Capacity, CSO imports minus firm capacity exports (+)	1,190	1,190
Non Commercial Capacity (+)	198	198
Non Gas-fired Planned Outage MW (-)	2	13
Gas Generator Outages MW (-)	0	0
Allowance for Unplanned Outages (-) <sup>4</sup>	2,800	2,800
Generation at Risk Due to Gas Supply (-) <sup>3</sup>	0	0
Net Capacity (NET OPCAP SUPPLY MW)	26,359	26,347
Peak Load Forecast MW (adjusted for Other Demand Resources) <sup>2</sup>	24,633	24,633
Operating Reserve Requirement MW	2,305	2,305
Operable Capacity Required (NET LOAD OBLIGATION MW)	26,938	26,938
Operable Capacity Margin	-579	-591

<sup>1</sup>Operable Capacity is based on data as of **March 26, 2024** and does not include Capacity associated with Settlement Only Generators, Passive and Active Demand Response, and external capacity. The Capacity Supply Obligation (CSO) and Seasonal Claim Capability (SCC) values are based on data as of **March 26, 2024**.

<sup>2</sup> Load forecast that is based on the 2023 CELT report and represents the week with the lowest Operable Capacity Margin, week beginning **June 1, 2024**.

<sup>3</sup> Total of (Gas at Risk MW) – (Gas Gen Outages MW).

<sup>4</sup> Allowance For Unplanned Outage MW is based on the month corresponding to the day with the lowest Operable Capacity Margin for the week.

<sup>5</sup> Active Demand Capacity Resources (ADCRs) can participate in the Forward Capacity Market (FCM), have the ability to obtain a CSO and also participate in the Day-Ahead and Real-Time Energy Markets.

# Summer Preliminary 2024 Operable Capacity Analysis

90/10 Load Forecast	June - 2024 <sup>2</sup> CSO (MW)	June - 2024 <sup>2</sup> SCC (MW)
Operable Capacity MW <sup>1</sup>	27,255	27,392
Active Demand Capacity Resource (+) <sup>5</sup>	518	380
External Node Available Net Capacity, CSO imports minus firm capacity exports (+)	1,190	1,190
Non Commercial Capacity (+)	198	198
Non Gas-fired Planned Outage MW (-)	2	13
Gas Generator Outages MW (-)	0	0
Allowance for Unplanned Outages (-) <sup>4</sup>	2,800	2,800
Generation at Risk Due to Gas Supply (-) <sup>3</sup>	0	0
Net Capacity (NET OPCAP SUPPLY MW)	26,359	26,347
Peak Load Forecast MW (adjusted for Other Demand Resources) <sup>2</sup>	26,458	26,458
Operating Reserve Requirement MW	2,305	2,305
Operable Capacity Required (NET LOAD OBLIGATION MW)	28,763	28,763
Operable Capacity Margin	-2,404	-2,416

<sup>1</sup>Operable Capacity is based on data as of **March 26, 2024** and does not include Capacity associated with Settlement Only Generators, Passive and Active Demand Response, and external capacity. The Capacity Supply Obligation (CSO) and Seasonal Claim Capability (SCC) values are based on data as of **March 26, 2024**.

<sup>2</sup> Load forecast that is based on the 2023 CELT report and represents the week with the lowest Operable Capacity Margin, week beginning **June 1, 2024**.

<sup>3</sup> Total of (Gas at Risk MW) – (Gas Gen Outages MW).

<sup>4</sup> Allowance For Unplanned Outage MW is based on the month corresponding to the day with the lowest Operable Capacity Margin for the week.

<sup>5</sup> Active Demand Capacity Resources (ADCRs) can participate in the Forward Capacity Market (FCM), have the ability to obtain a CSO and also participate in the Day-Ahead and Real-Time Energy Markets.

# Summer Preliminary 2024 Operable Capacity Analysis

## 50/50 Forecast (Reference)

### ISO-NE OPERABLE CAPACITY ANALYSIS

March 26, 2024 - 50-50 FORECAST using CSO MW

This analysis is a tabulation of weekly assessments shown in one single table. The information shows the operable capacity situation under assumed conditions for each week. It is not expected that the system peak will occur every week in June through mid September.

Report created: 3/26/2024

Study Week (Week Beginning , Saturday)	CSO Supply Resource Capacity MW	CSO Demand Resource Capacity MW	External Node Capacity MW	Non-Commercial Capacity MW	CSO Non Gas- Only Generator Planned Outages MW	CSO Gas-Only Generator Planned Outages MW	Unplanned Outages Allowance MW	CSO Generation at Risk Due to Gas Supply 50- 50PLE MW	CSO Net Available Capacity MW	Peak Load Forecast 50- 50PLE MW	Operating Reserve Requirement MW	CSO Net Required Capacity MW	CSO Operable Capacity Margin MW	Season Min Opcap Margin Flag	Season_Label
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	
6/1/2024	27255	518	1190	198	2	0	2800	0	26359	24633	2305	26938	-579	Y	Summer 2024
6/8/2024	27255	518	1250	198	2	0	2800	0	26419	24633	2305	26938	-519	N	Summer 2024
6/15/2024	27255	518	1250	198	2	0	2800	0	26419	24633	2305	26938	-519	N	Summer 2024
6/22/2024	27255	518	1250	198	2	0	2800	0	26419	24633	2305	26938	-519	N	Summer 2024
6/29/2024	27255	518	1250	198	2	0	2100	0	27119	24633	2305	26938	181	N	Summer 2024
7/6/2024	27255	518	1250	198	156	0	2100	0	26965	24633	2305	26938	27	N	Summer 2024
7/13/2024	27255	518	1250	198	169	0	2100	0	26952	24633	2305	26938	14	N	Summer 2024
7/20/2024	27255	518	1250	198	186	0	2100	0	26935	24633	2305	26938	-3	N	Summer 2024
7/27/2024	27255	518	1250	198	69	0	2100	0	27052	24633	2305	26938	114	N	Summer 2024
8/3/2024	27255	518	1250	198	128	0	2100	0	26993	24633	2305	26938	55	N	Summer 2024
8/10/2024	27255	518	1250	198	105	0	2100	0	27016	24633	2305	26938	78	N	Summer 2024
8/17/2024	27255	518	1250	198	104	0	2100	0	27017	24633	2305	26938	79	N	Summer 2024
8/24/2024	27255	518	1250	198	112	0	2100	0	27009	24633	2305	26938	71	N	Summer 2024
8/31/2024	27255	518	1250	198	71	0	2100	0	27050	24633	2305	26938	112	N	Summer 2024
9/7/2024	27255	518	1250	198	110	10	2100	0	27001	24633	2305	26938	63	N	Summer 2024
9/14/2024	27255	518	1250	198	167	10	2100	0	26944	24633	2305	26938	6	N	Summer 2024

### Column Definitions

- CSO Supply Resource Capacity MW:** Summation of all resource Capacity supply Obligations (CSO). Does not include Settlement Only Generators (SOG).
- CSO Demand Resource Capacity MW:** Demand resources known as Real-Time Demand Response (RTDR) will become Active Demand Capacity Resources (ADCRs) and can participate in the Forward Capacity market (FCM). These resources will have the ability to obtain a CSO and also participate in the Day-Ahead and Real-Time Energy Markets.
- External Node Capacity MW:** Sum of external Capacity Supply Obligations (CSO) imports and exports.
- Non-Commercial capacity MW:** New resources and generator improvements that have acquired a CSO but have not become commercial.
- CSO Non Gas-Only Generator Planned Outages MW:** All Non-Gas Planned Outages is the total of Non Gas-fired Generator/DARD Outages for the period. This value would also include any known long-term Non Gas-fired Forced Outages.
- CSO Gas-Only Generator Planned Outages MW:** All Planned Gas-fired generation outage for the period. This value would also include any known long-term Gas-fired Forced Outages.
- Unplanned Outage Allowance MW:** Forced Outages and Maintenance Outages scheduled less than 14 days in advance per ISO New England Operating Procedure No. 5 Appendix A.
- CSO Generation at Risk Due to Gas Supply Mw:** Gas fired capacity expected to be at risk during cold weather conditions or gas pipeline maintenance outages.
- CSO Net Available Capacity MW:** the summation of columns (1+2+3+4-5-6-7-8=9)
- Peak Load Forecast MW:** Provided in the annual 2023 CELT Report and adjusted for Passive Demand Resources assumes Peak Load Exposure (PLE) and does include credit of Passive Demand Response (PDR) and behind-the-meter PV (BTM PV).
- Operating Reserve Requirement MW:** 120% of first largest contingency plus 50% of the second largest contingency.
- CSO Net Required Capacity MW:** (Net Load Obligation) (10+11=12)
- CSO Operable Capacity Margin MW:** CSO Net Available Capacity MW minus CSO Net Required Capacity MW (9-12=13)
- Operable Capacity Season Label:** Applicable season and year.
- Season Minimum Operable Capacity Flag:** this column indicates whether or not a week has the lowest capacity margin for its applicable season.

# Summer Preliminary 2024 Operable Capacity Analysis

## 90/10 Forecast

### ISO-NE OPERABLE CAPACITY ANALYSIS

March 26, 2024 - 90/10 FORECAST using CSO MW

This analysis is a tabulation of weekly assessments shown in one single table. The information shows the operable capacity situation under assumed conditions for each week. It is not expected that the system peak will occur every week in June through mid September.

Report created: 3/26/2024

Study Week (Week Beginning , Saturday)	CSO Supply Resource Capacity MW	CSO Demand Resource Capacity MW	External Node Capacity MW	Non-Commercial Capacity MW	CSO Non Gas- Only Generator Planned Outages MW	CSO Gas-Only Generator Planned Outages MW	Unplanned Outages Allowance MW	CSO Generation at Risk Due to Gas Supply 90- 10PLE MW	CSO Net Available Capacity MW	Peak Load Forecast 90- 10PLE MW	Operating Reserve Requirement MW	CSO Net Required Capacity MW	CSO Operable Capacity Margin MW	Season Min Opcap Margin Flag	Season_Label
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	
6/1/2024	27255	518	1190	198	2	0	2800	0	26359	26458	2305	28763	-2404	Y	Summer 2024
6/8/2024	27255	518	1250	198	2	0	2800	0	26419	26458	2305	28763	-2344	N	Summer 2024
6/15/2024	27255	518	1250	198	2	0	2800	0	26419	26458	2305	28763	-2344	N	Summer 2024
6/22/2024	27255	518	1250	198	2	0	2800	0	26419	26458	2305	28763	-2344	N	Summer 2024
6/29/2024	27255	518	1250	198	2	0	2100	0	27119	26458	2305	28763	-1644	N	Summer 2024
7/6/2024	27255	518	1250	198	156	0	2100	0	26965	26458	2305	28763	-1798	N	Summer 2024
7/13/2024	27255	518	1250	198	169	0	2100	0	26952	26458	2305	28763	-1811	N	Summer 2024
7/20/2024	27255	518	1250	198	186	0	2100	0	26935	26458	2305	28763	-1828	N	Summer 2024
7/27/2024	27255	518	1250	198	69	0	2100	0	27052	26458	2305	28763	-1711	N	Summer 2024
8/3/2024	27255	518	1250	198	128	0	2100	0	26993	26458	2305	28763	-1770	N	Summer 2024
8/10/2024	27255	518	1250	198	105	0	2100	0	27016	26458	2305	28763	-1747	N	Summer 2024
8/17/2024	27255	518	1250	198	104	0	2100	0	27017	26458	2305	28763	-1746	N	Summer 2024
8/24/2024	27255	518	1250	198	112	0	2100	0	27009	26458	2305	28763	-1754	N	Summer 2024
8/31/2024	27255	518	1250	198	71	0	2100	0	27050	26458	2305	28763	-1713	N	Summer 2024
9/7/2024	27255	518	1250	198	110	10	2100	0	27001	26458	2305	28763	-1762	N	Summer 2024
9/14/2024	27255	518	1250	198	167	10	2100	0	26944	26458	2305	28763	-1819	N	Summer 2024

#### Column Definitions

- CSO Supply Resource Capacity MW:** Summation of all resource Capacity supply Obligations (CSO). Does not include Settlement Only Generators (SOG).
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- CSO Non Gas-Only Generator Planned Outages MW:** All Non-Gas Planned Outages is the total of Non Gas-fired Generator/DARD Outages for the period. This value would also include any known long-term Non Gas-fired Forced Outages, Outages.
- CSO Gas-Only Generator Planned Outages MW:** All Planned Gas-fired generation outage for the period. This value would also include any known long-term Gas-fired Forced Outages.
- Unplanned Outage Allowance MW:** Forced Outages and Maintenance Outages scheduled less than 14 days in advance per ISO New England Operating Procedure No. 5 Appendix A.
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- CSO Net Available Capacity MW:** the summation of columns (1+2+3+4-5-6-7-8-9)
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- Operating Reserve Requirement MW:** 120% of first largest contingency plus 50% of the second largest contingency.
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- Operable Capacity Season Label:** Applicable season and year.
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\*Highlighted week is based on the week determined by the 50/50 Load Forecast Reference week

# Possible Relief Under OP4: Appendix A

OP 4 Action Number	Page 1 of 2 Action Description	Amount Assumed Obtainable Under OP 4 (MW)
1	Implement Power Caution and advise Resources with a CSO to prepare to provide capacity and notify "Settlement Only" generators with a CSO to monitor reserve pricing to meet those obligations. Begin to allow the depletion of 30-minute reserve.	0 <sup>1</sup>  600
2	Declare Energy Emergency Alert (EEA) Level 1 <sup>4</sup>	0
3	Voluntary Load Curtailment of Market Participants' facilities.	40 <sup>2</sup>
4	Implement Power Watch	0
5	Schedule Emergency Energy Transactions and arrange to purchase Control Area-to-Control Area Emergency	1,000
6	Voltage Reduction requiring > 10 minutes	125 <sup>3</sup>

NOTES:

1. Based on Summer Ratings. Assumes 25% of total MW Settlement Only resources <5 MW will be available and respond.
2. The actual load relief obtained is highly dependent on circumstances surrounding the appeals, including timing and the amount of advanced notice that can be given.
3. The MW values are based on a 25,000 MW system load and verified by the most recent voltage reduction test.
4. EEA Levels are described in Attachment 1 to NERC Reliability Standard EOP-011 - Emergency Operations

# Possible Relief Under OP4: Appendix A

OP 4 Action Number	Page 2 of 2 Action Description	Amount Assumed Obtainable Under OP 4 (MW)
7	Request generating resources not subject to a Capacity Supply Obligation to voluntarily provide energy for reliability purposes	0
8	5% Voltage Reduction requiring 10 minutes or less	250 <sup>3</sup>
9	Transmission Customer Generation Not Contractually Available to Market Participants during a Capacity Deficiency.  Voluntary Load Curtailment by Large Industrial and Commercial Customers.	5  200 <sup>2</sup>
10	Radio and TV Appeals for Voluntary Load Curtailment Implement Power Warning	200 <sup>2</sup>
11	Request State Governors to Reinforce Power Warning Appeals.	100 <sup>2</sup>
Total		<b>2,520</b>

NOTES:

1. Based on Summer Ratings. Assumes 25% of total MW Settlement Only resources <5 MW will be available and respond.
2. The actual load relief obtained is highly dependent on circumstances surrounding the appeals, including timing and the amount of advanced notice that can be given.
3. The MW values are based on a 25,000 MW system load and verified by the most recent voltage reduction test.
4. EEA Levels are described in Attachment 1 to NERC Reliability Standard EOP-011 - Emergency Operations