ERCOT Monthly Operational Overview
(September 2022)

ERCOT Public
October 25, 2022

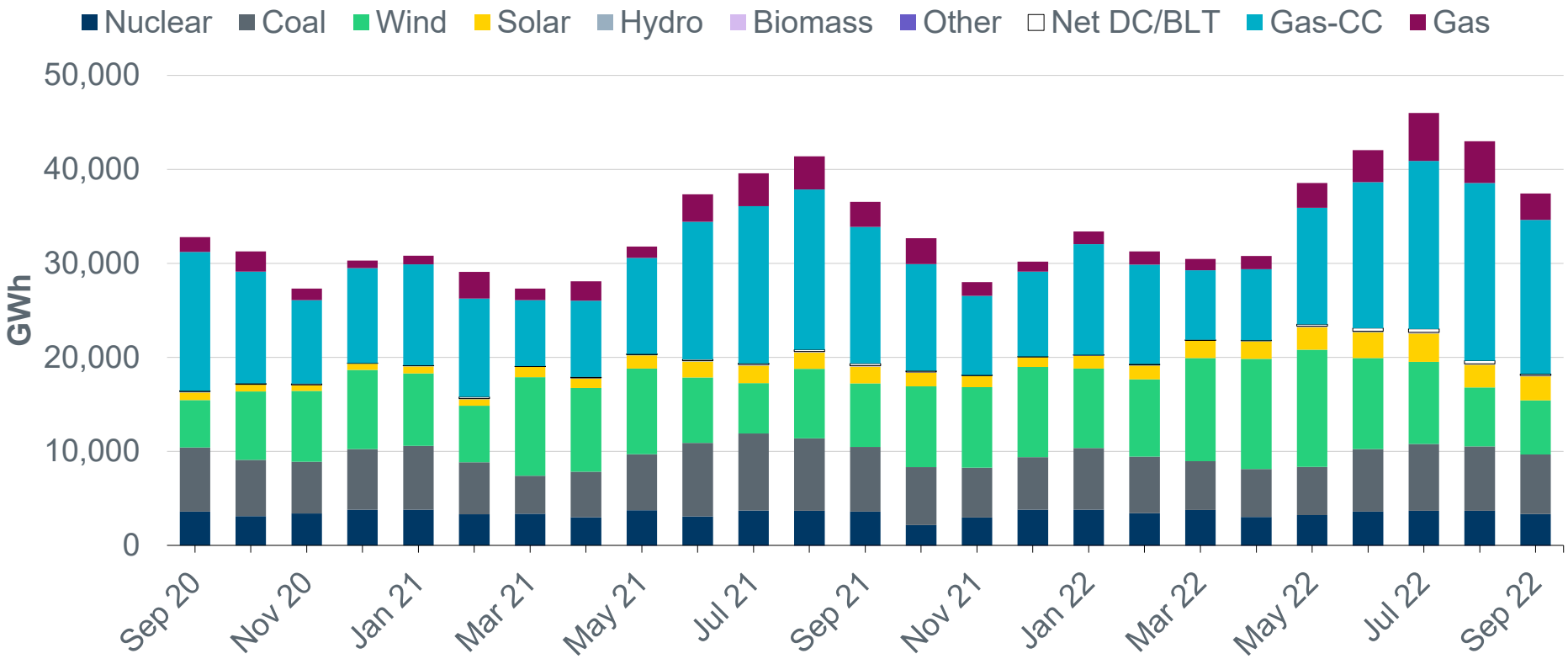
Highlights, Records and Notifications

- ERCOT set a maximum peak demand of 71,037 MW* for the month of September on 9/20/2022. This is 1,333 MW less than the all-time September maximum peak demand of 72,370 MW set on 9/01/2021.

- ERCOT issued 6 notifications:
  - 3 OCNs issued for taking manual action on the following GTCs due to topology changes: 2 OCNs issued for the WESTEX IROL and 1 OCN issued for the BEARKT GTC.
  - 1 Advisory issued for ERCOT's Voltage Security Assessment Tool not solving in the previous 30 minutes.
  - 1 Watch issued for a SCED failure.
  - 1 Watch issued for HRUC failure.

* Preliminary value from October release of Demand and Energy 2022 report.

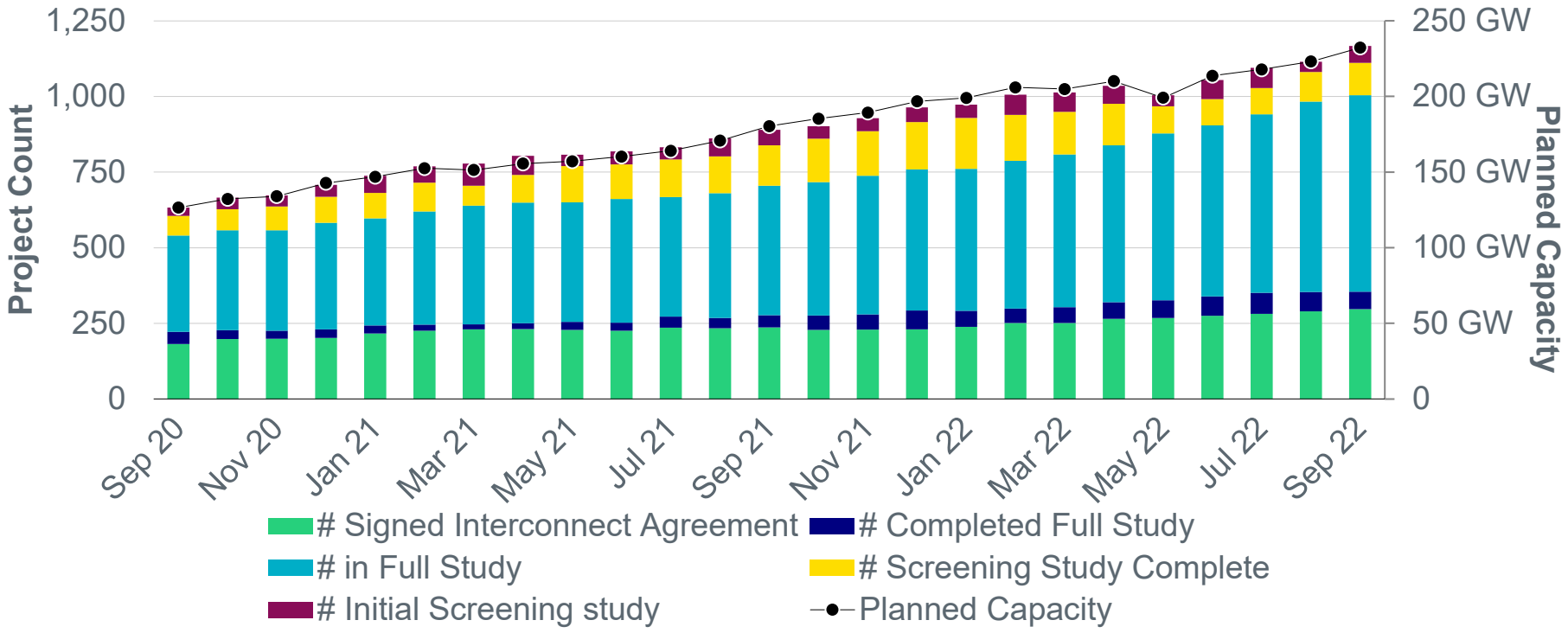
Monthly energy generation increased by 2% year-over-year to 37,412 GWh in September 2022, compared to 36,555 GWh in September 2021



Data for latest two months are based on preliminary settlements.

Generation Interconnection activity by project phase

(Excludes capacity associated with projects designated as Inactive per Planning Guide Section 5.7.6)

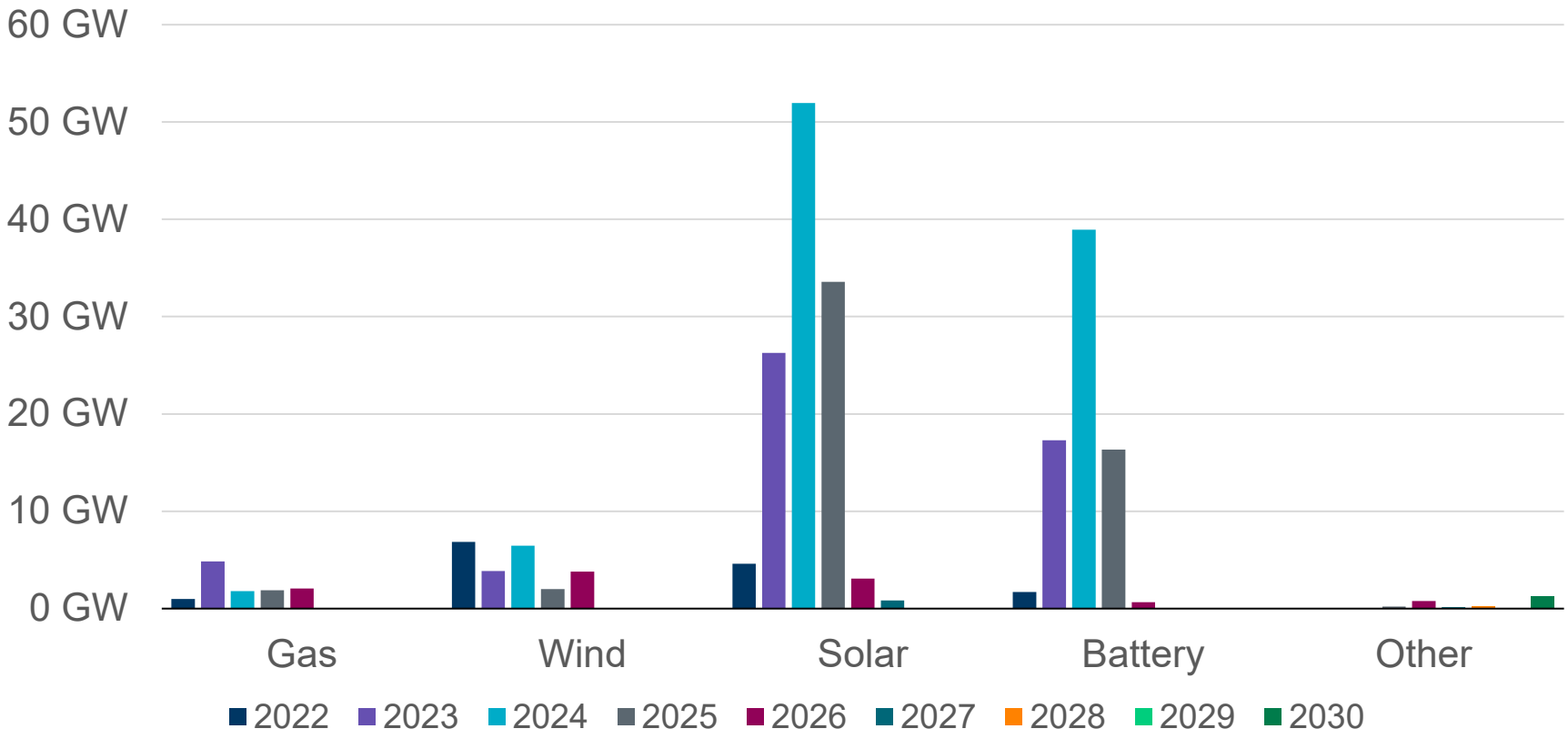


- There are an additional 4 “Small Generator” projects totaling 37 MW that are going through the simplified interconnection process.

A break-out by fuel type can be found in the monthly Generator Interconnection Status (GIS) reports available on the ERCOT Resource Adequacy Page: http://www.ercot.com/gridinfo/resource

Interconnection Queue Capacity by Fuel Type

Queue totals: Solar 120 GW (51.8%), Wind 23 GW (9.9%), Gas 12 GW (5.0%), Battery 75 GW (32.2%)
(Excludes capacity associated with projects designated as Inactive per Planning Guide Section 5.7.6)



A break-out by zone can be found in the monthly Generator Interconnection Status (GIS) reports available on the ERCOT Resource Adequacy Page: http://www.ercot.com/gridinfo/resource

Planning Summary

- ERCOT is tracking 1,192 active generation interconnection requests totaling 232,182 MW as of September 30. This includes 120,296 MW of solar, 22,920 MW of wind, 74,877 MW of battery, and 11,548 MW of gas projects; 53 projects were categorized as inactive, down from 57 inactive projects in August 2022.

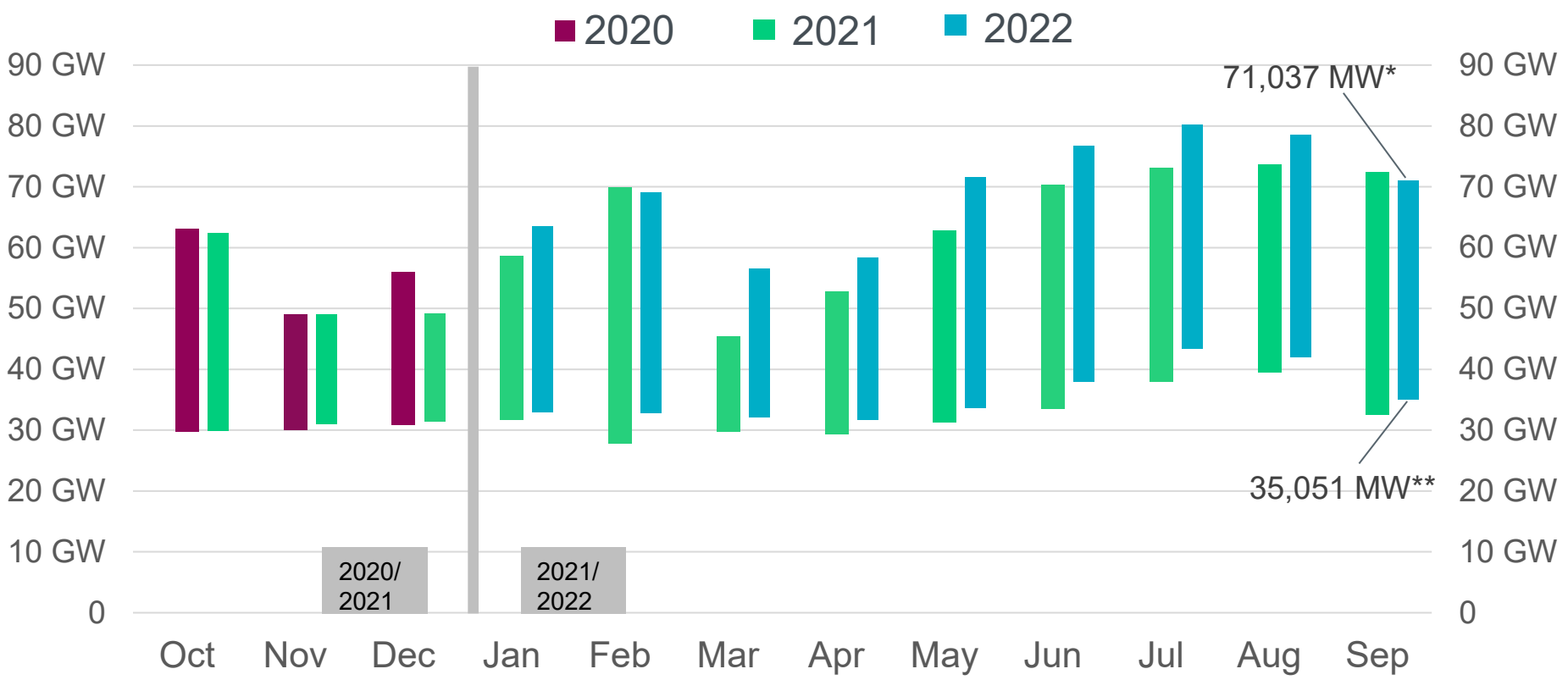
- ERCOT is currently reviewing proposed transmission improvements with a total estimated cost of $202.12 Million as of September 30, 2022.

- Transmission Projects endorsed in 2022 total $2.505 Billion as of September 30, 2022.

- All projects (in engineering, routing, licensing and construction) total approximately $9.275 Billion as of June 1, 2022.

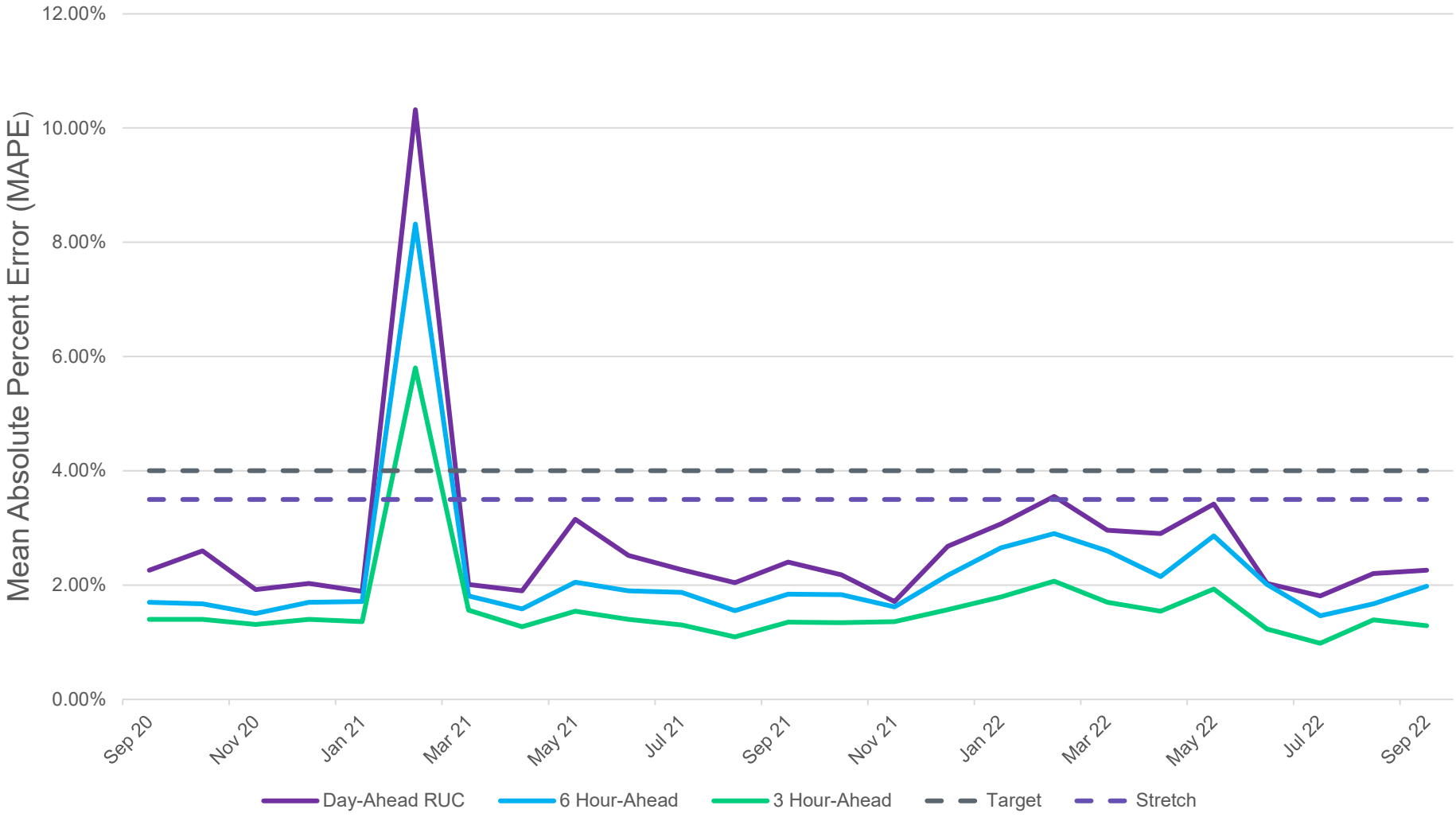
- Transmission Projects energized in 2022 total about $1.523 Billion as of June 1, 2022.

ERCOT's peak demand was 71,037 MW* for the month of September, which is 1,333 MW less than the September 2021 demand of 72,370 MW.



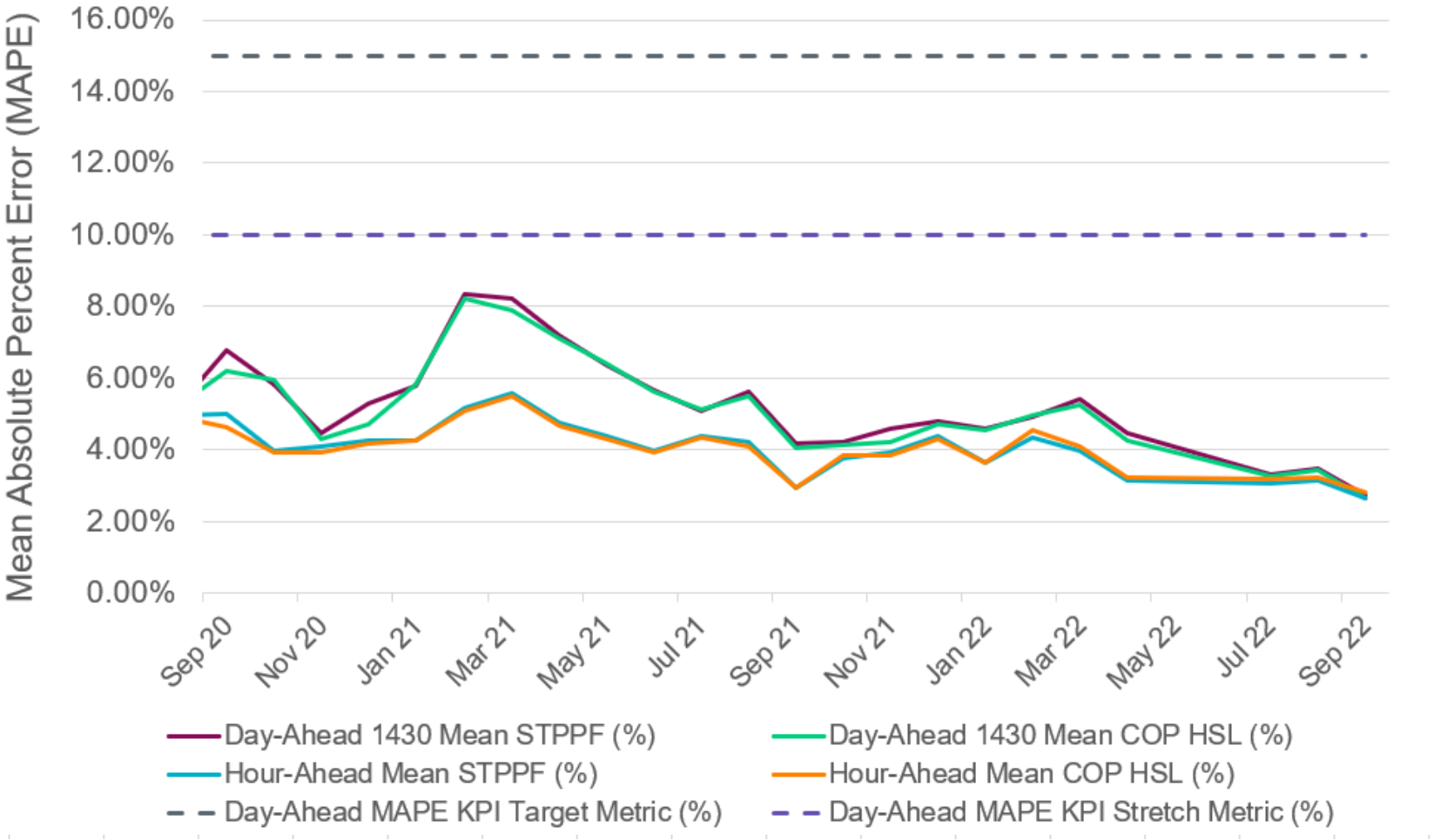
*Based on the maximum net system hourly value from October release of Demand and Energy 2022 report.
**Based on the minimum net system 15-minute interval value from October release of Demand and Energy 2022 report.
Data for latest two months are based on preliminary settlements.

Mid-Term Load Forecast Performance



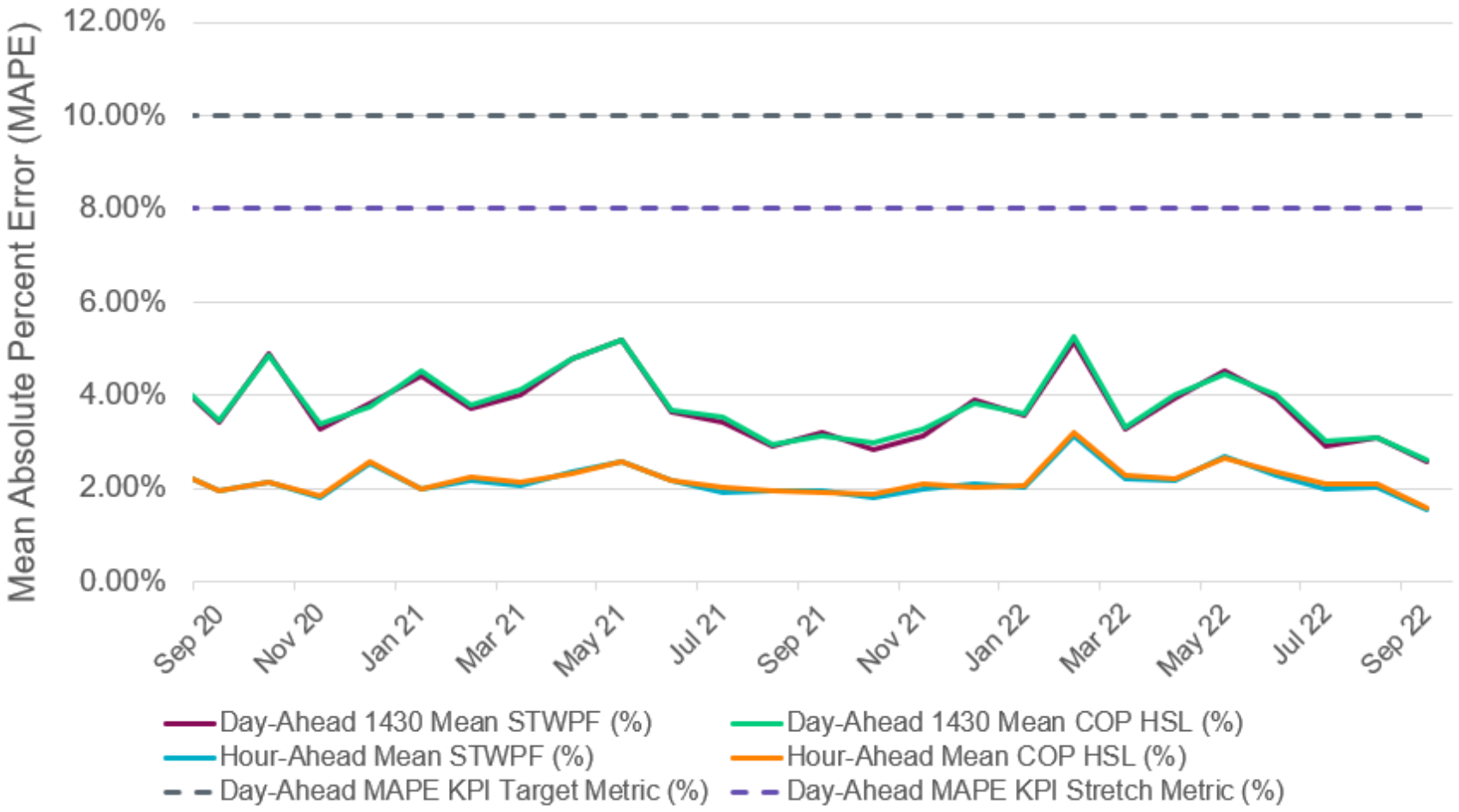
The Mid-Term Load Forecast is an hourly forecast that looks 7 days into the future

Solar Forecast Performance



The Short-Term Photovoltaic Power Forecast (STPPF) is an ERCOT-produced hourly 50% probability of exceedance forecast of the generation in MWh per hour from each PVGR.

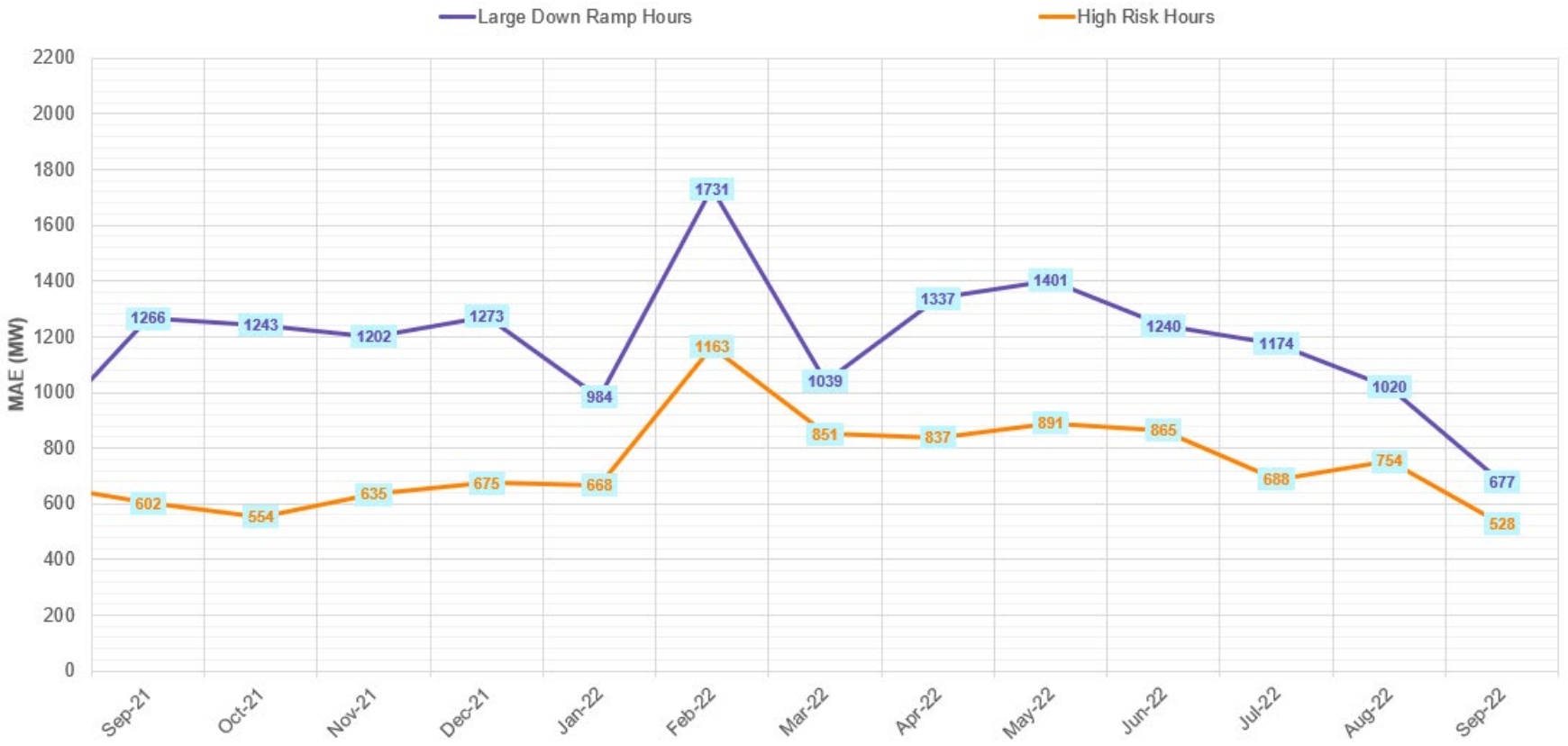
Wind Forecast Performance



The Short-Term Wind Power Forecast (STWPF) is an ERCOT produced hourly 50% probability of exceedance forecast of the generation in MWh per hour from each Wind Generation Resource.

Hour-Ahead Wind Forecast Performance

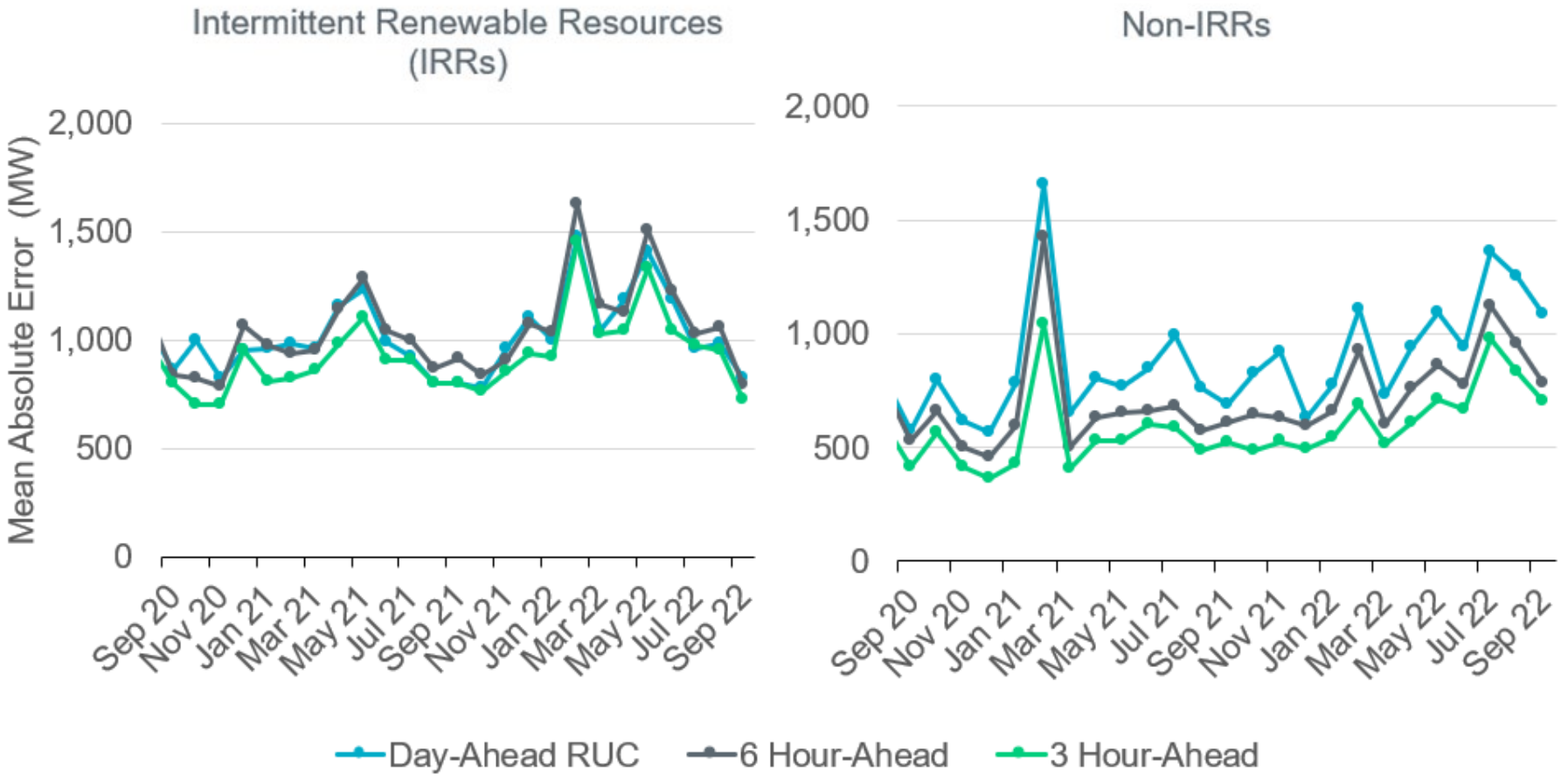
Hour-Ahead Mean Absolute Error (MAE) During Large Down Ramp (> 2000 MW) and High Risk Hours*



**ERCOT's performance-based payment structure for Wind Forecasts with both vendors incentivizes improvements in forecast performance during hours that are of more importance to operational reliability. This approach is a paradigm shift from the "traditional" methodology of measuring wind forecast performance as a singular monthly average metric.*

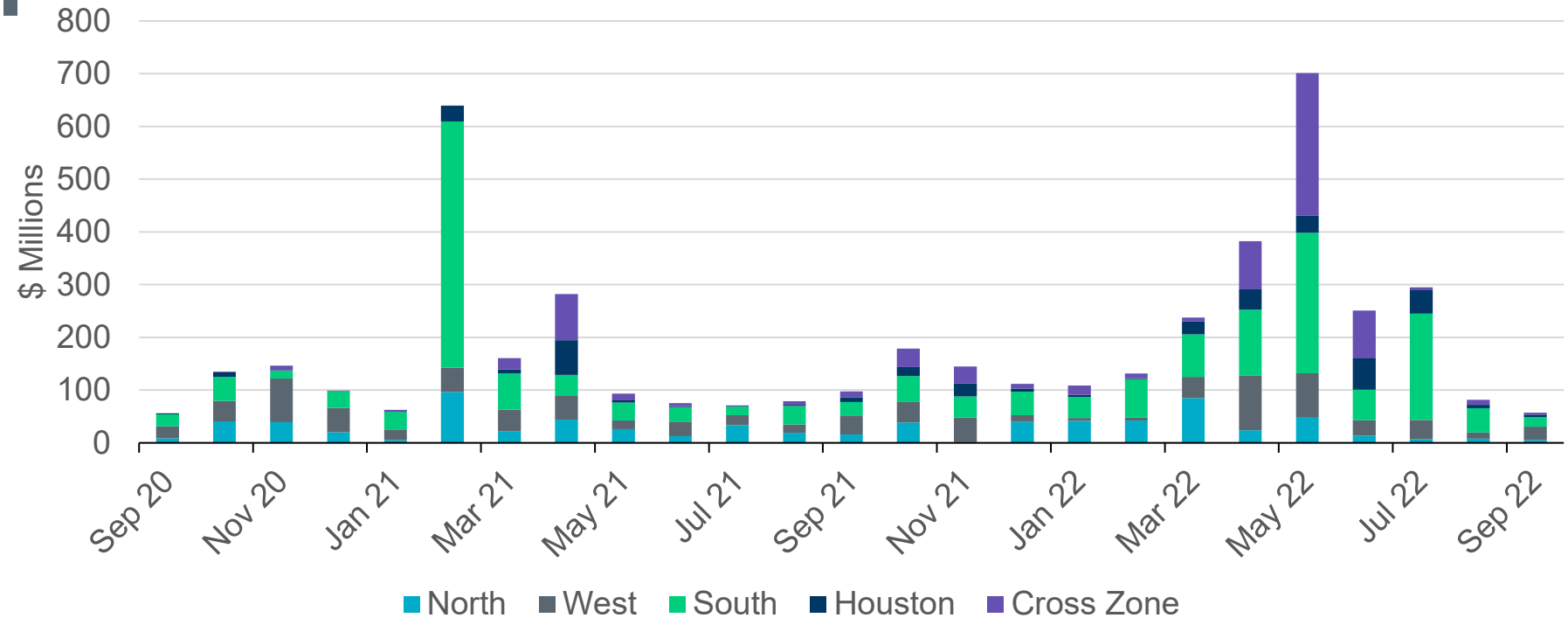
Forecast performance during large down ramp (wind ramp > 2000 MW) hours and high risk hours (historic risk of load ramping up and wind ramping down is high) is focused upon. Note that for the purposes of forecast performance measurement every hour in a month is classified as either a large down ramp hour or a high risk hour or something else. Any hour that is a high risk hour wherein a large down ramp was experienced will be tracked as a large down ramp hour.

Current Operating Plan (COP) Performance



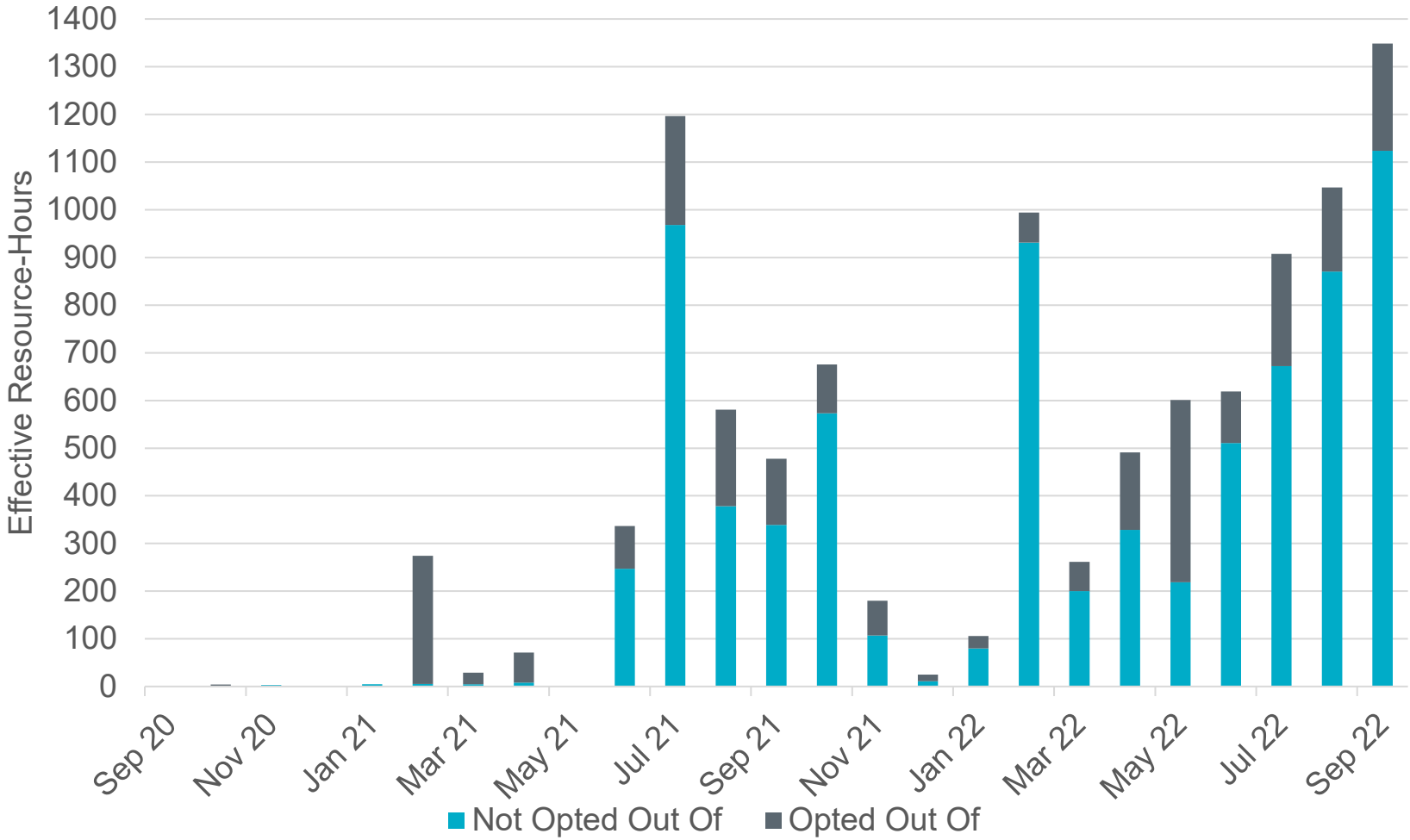
- COPs for IRRs are derived from wind and solar forecasts from ERCOT with any adjustments from Qualified Scheduling Entities.
- The installed capacity of approved Wind Units is 35,573 MW (as of September 30, 2022).
- The installed capacity of approved Solar Units is 12,396 MW (as of September 30, 2022).

Real-Time Congestion Rent by Zone



- Overall congestion rent was down in September 2022 compared to August 2022.
- The two Zones with the highest congestion rent were the South and West Zones.
  - Congestion rent in the South Zone was primarily driven by the loss of the manual Whitepoint 345 kV contingency overloading the 138 kV line from Nueces Bay to Whitepoint station.
  - Congestion rent in the West Zone was primarily driven by the loss of the 345 kV contingency from Blackwater to Double Mountain overloading the 115 kV line from Mackenzie to Northeast station.
- Congestion Rent is determined using the shadow prices and MW flows for individual constraints in SCED as well as the length in time of SCED intervals.
- The “Cross Zone” category consists of cases in which the substations on either end of the constraint are in different zones.

Thirty Resources were Committed in September either for Capacity, Congestion, or Minimum Run Time

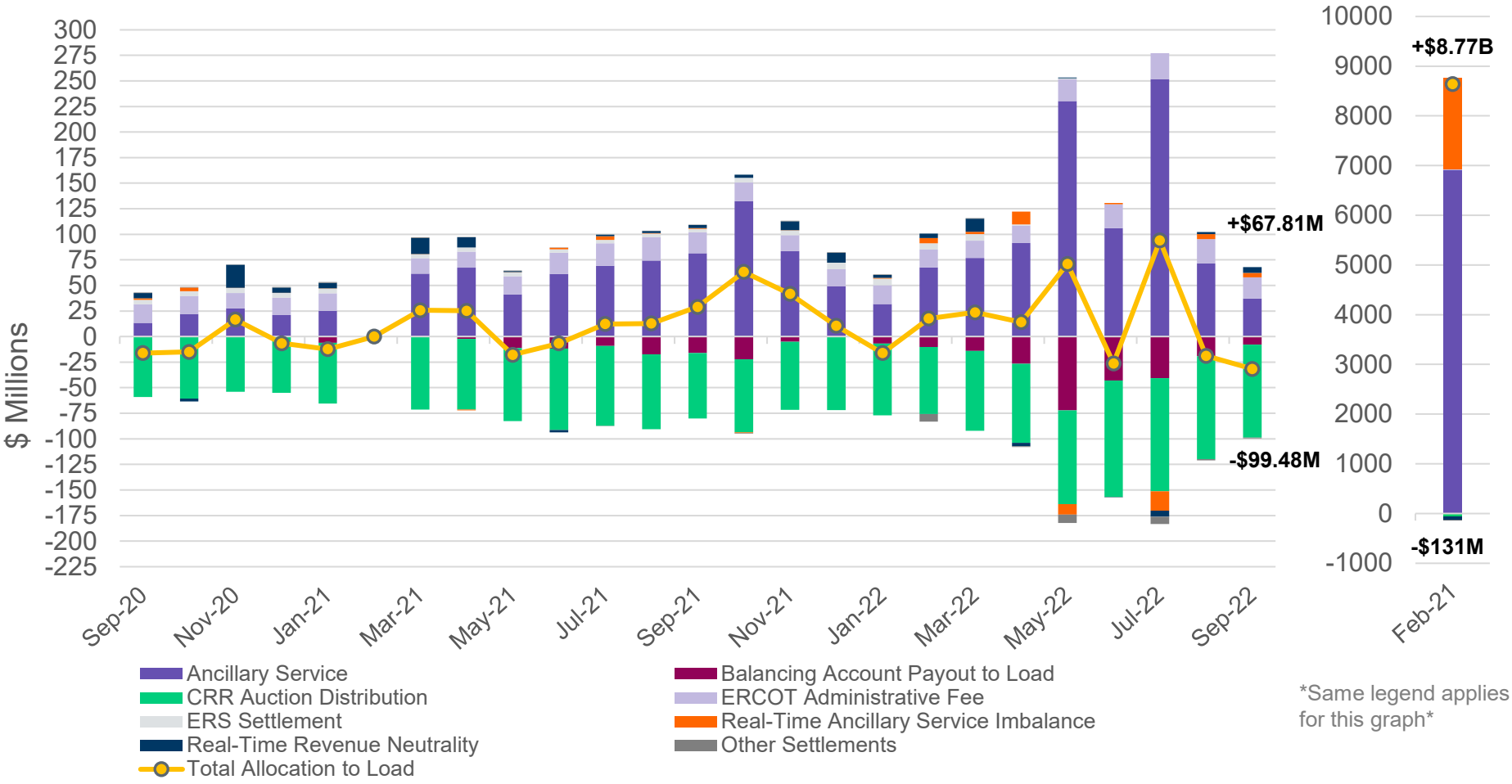


"Effective Resource-Hours" excludes any period during a Reliability Unit Commitment hour when the RUC-committed Resource was starting up, shutting down, off-line, or otherwise not available for dispatch by SCED.

Thirty Resources were Committed in September either for Capacity, Congestion, or Minimum Run Time

Resource #	Effective Resource-hours	Non Opt Out (Effective Hours)	Opt Out (Effective Hours)
1	23.0	23.0	0.0
2	39.0	29.0	10.0
3	10.0	0.0	10.0
4	28.0	18.0	10.0
5	13.1	13.1	0.0
6	7.0	7.0	0.0
7	76.2	76.2	0.0
8	47.4	47.4	0.0
9	145.0	145.0	0.0
10	46.0	46.0	0.0
11	37.2	33.2	4.0
12	68.5	36.9	31.6
13	59.0	6.0	53.0
14	72.0	72.0	0.0
15	120.9	84.9	36.0
16	46.6	46.6	0.0
17	43.8	43.8	0.0
18	62.8	15.0	47.8
19	118.7	113.7	5.0
20	72.0	72.0	0.0
21	27.9	27.9	0.0
22	37.8	37.8	0.0
23	30.9	30.9	0.0
24	3.0	3.0	0.0
25	6.0	6.0	0.0
26	59.0	59.0	0.0
27	6.0	6.0	0.0
28	8.1	8.1	0.0
29	26.0	16.0	10.0
30	8.0	0.0	8.0
Total	1,348.9	1,123.5	225.4

Net Allocation to Load in September 2022 was ($31.66) Million

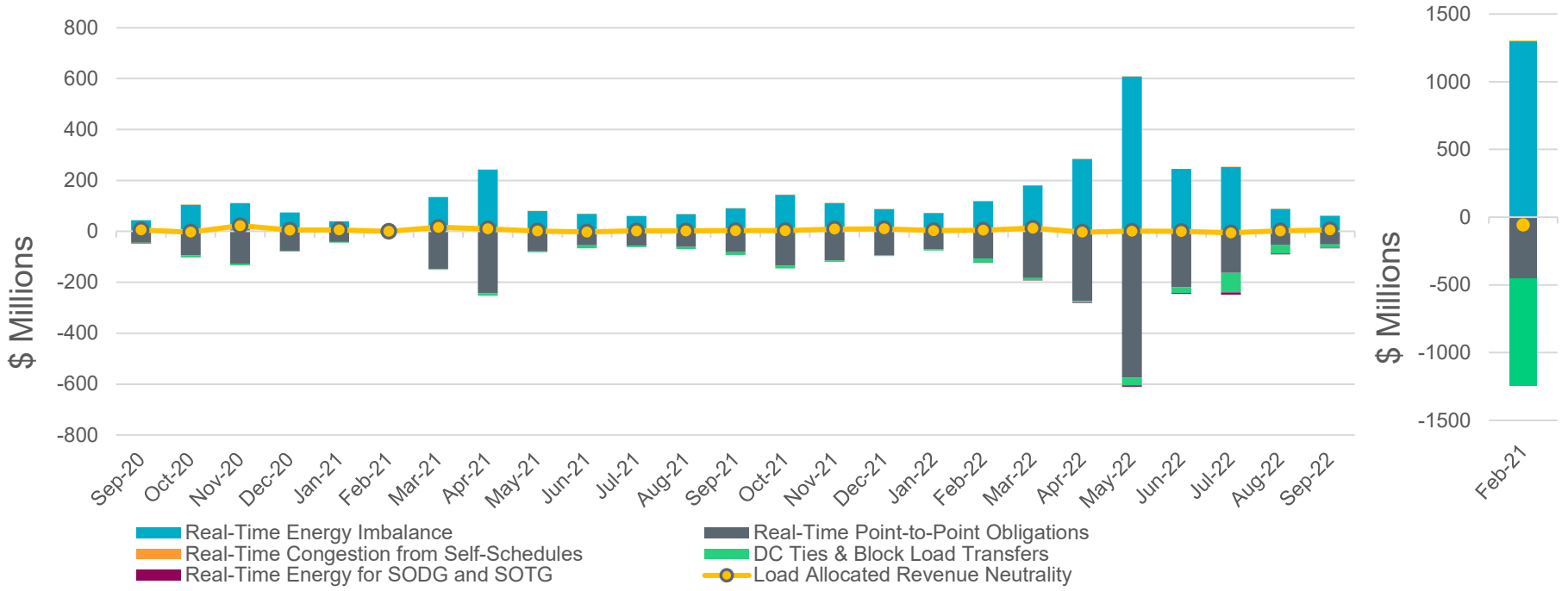


Same legend applies for this graph

This information is available in tabular form in the Settlement Stability Report presented quarterly to the [Wholesale Market Subcommittee]

Note: For visual purposes, February 2021 has been separated into its own graph with different scaling. The legend applies for both graphs.

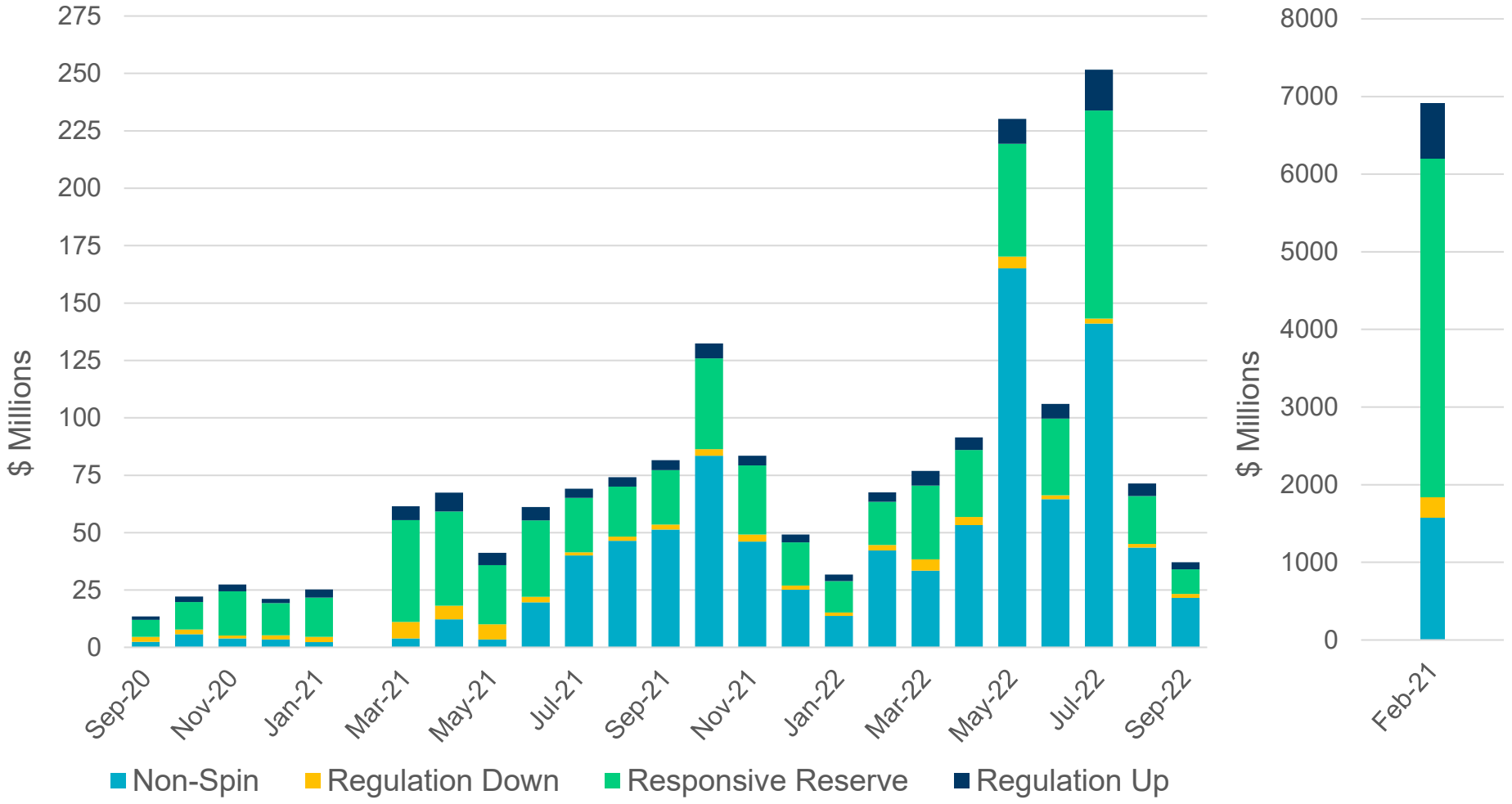
Real-Time Revenue Neutrality Allocated to Load was $5.64M for September 2022



	September 2022 ($M)
Real-Time Energy Imbalance	$60.73
Real-Time Point-to-Point Obligation	($51.83)
Real-Time Congestion from Self-Schedules	$0.34
DC Tie & Block Load Transfer	($12.76)
Real-Time Energy for SODG and SOTG	($2.12)
Load Allocated Revenue Neutrality	**$5.64**

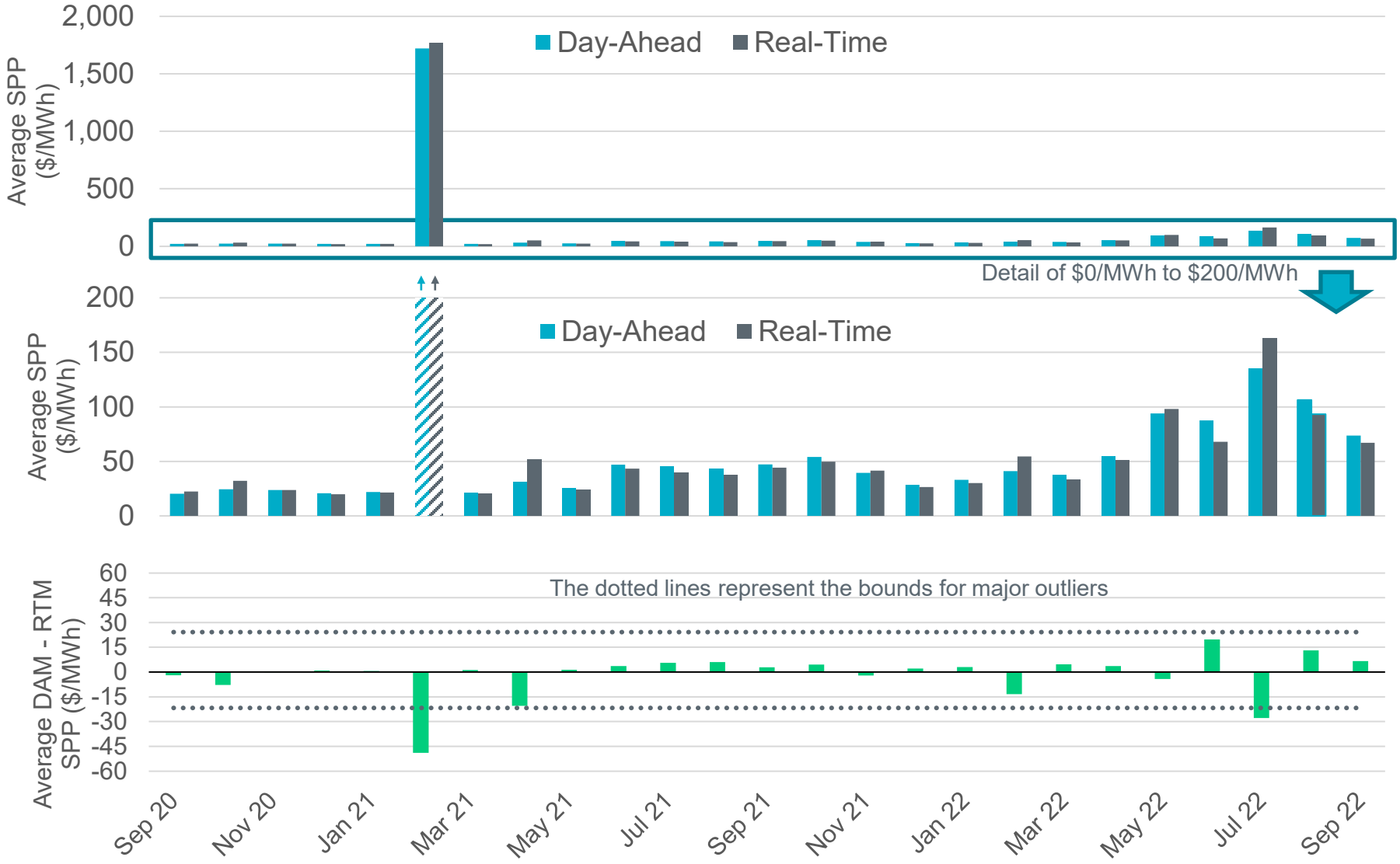
Note: For visual purposes, February 2021 has been separated into its own graph with different scaling. The legend applies for both graphs.

Ancillary Services for September 2022 totaled $37.06M



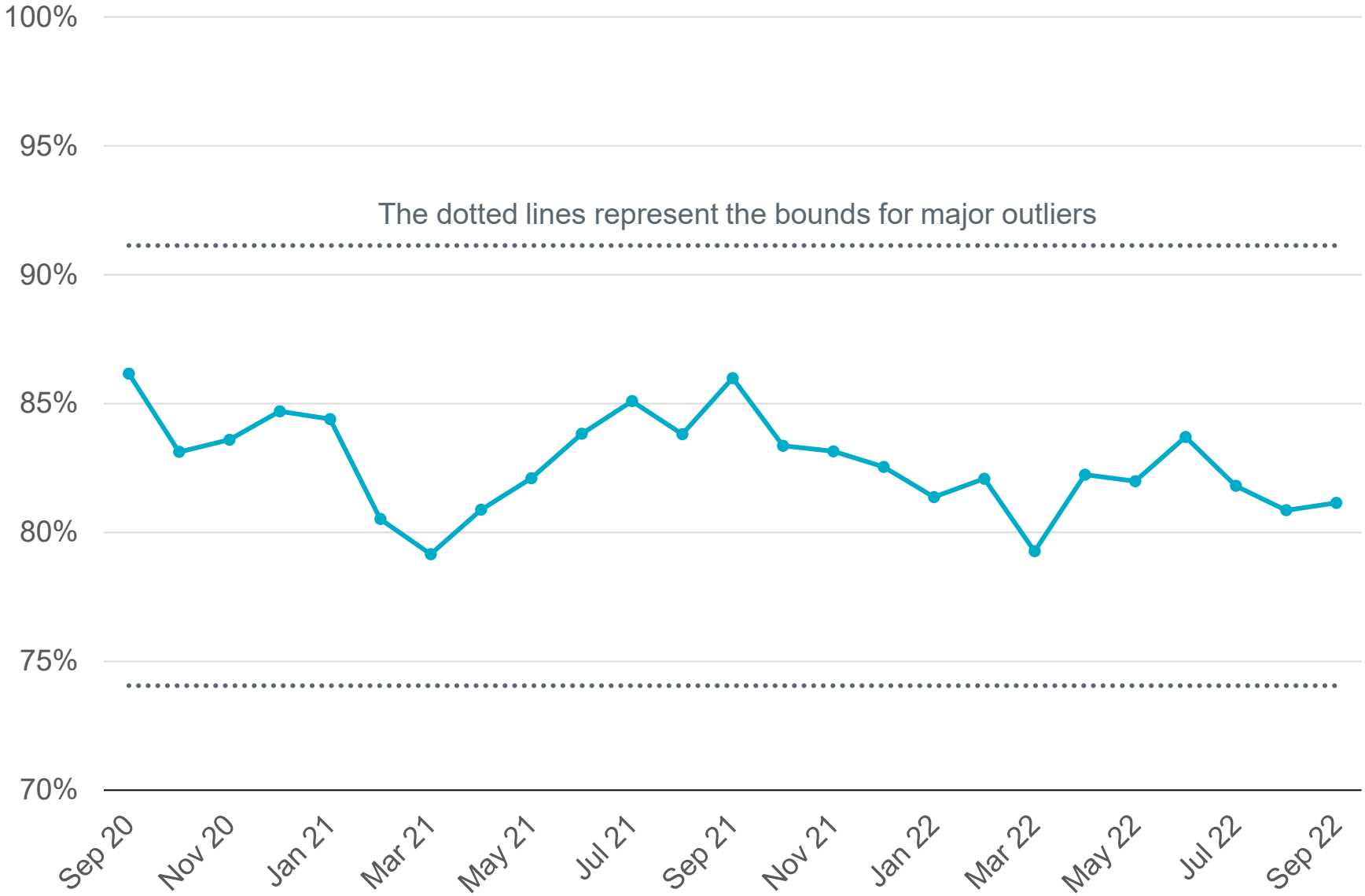
Note: For visual purposes, February 2021 has been separated into its own graph with different scaling. The legend applies for both graphs.

Day-Ahead and Real-Time Market Price Differences

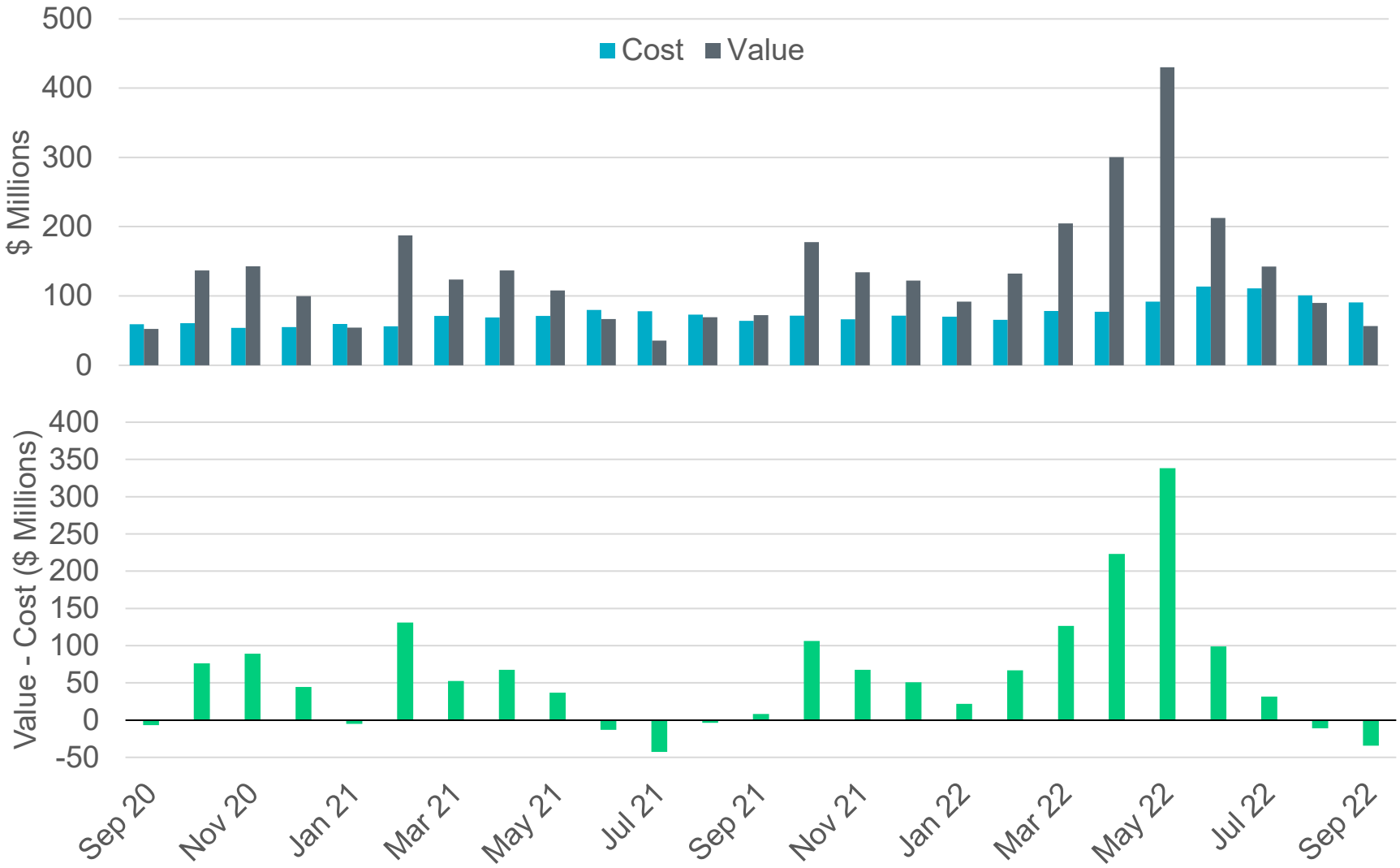


*Averages are weighted by Real-Time Market Load

Percentage of Real-Time Load Transacted in the Day-Ahead Market



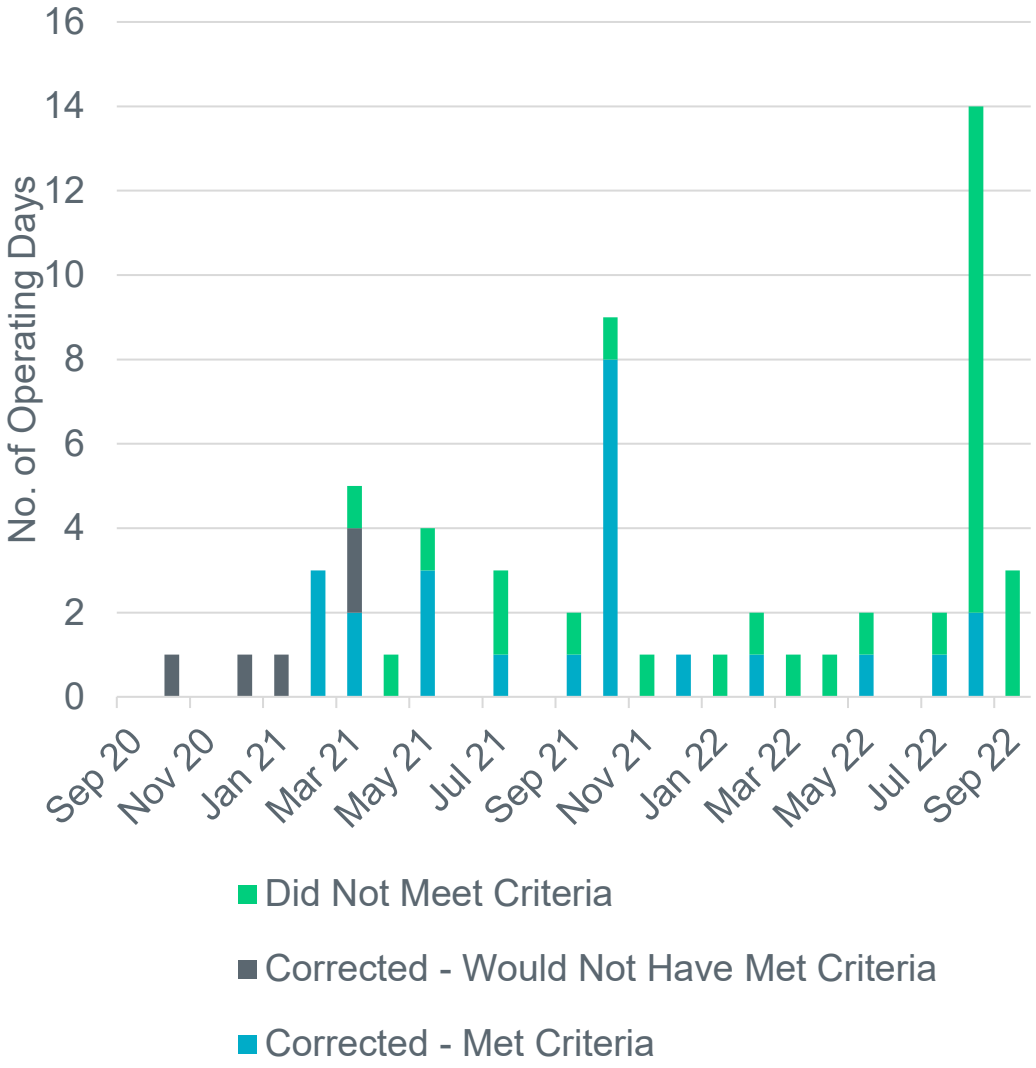
CRR Value and Cost Differences



Price Issues and the Impact of Nodal Protocol Revision Request (NPRR) 1024 on Price Corrections

This graph looks at the recent history of price issues in the RTM or DAM and breaks the impacted Operating Days into three categories:

- Days that met the criteria for “significance” under NPRR1024 and were corrected;
- Days that would not have met the criteria for “significance” under NPRR1024, but were corrected because NPRR1024 was not yet in place; and
- Days that were not corrected because they did not meet the criteria for “significance” under NPRR1024.



Details for Operating Days not Meeting the Criteria for Significance

- For September 1, the price issue was driven by a hardware failure that resulted in SCED failing to run for intervals 13:50 through 14:45. The impact was evaluated before the two business-day period; however, corrected prices were unable to be posted prior to prices becoming final at 16:00 on Sept. 6th, 2022. Further analysis showed that the criteria for bringing it to the ERCOT Board for review after the two-business day period was not met. The absolute value impacts to any single Counter-Party and the impact percentages are shown below with regards to the two defining criteria for bringing a price correction to the ERCOT Board for review.

Criteria 1: 2% and also greater than $20,000
Dollar and percent impacts for Counter-Parties with a dollar impact greater than $20,000:

Dollar Impact	Percent Impact
$25,136.22	1.044%
$24,801.73	0.723%
$23,338.30	0.559%

Criteria 2: 20% and also greater than $2,000
Dollar and percent impacts for Counter-Parties with a percent impact greater than 20%:

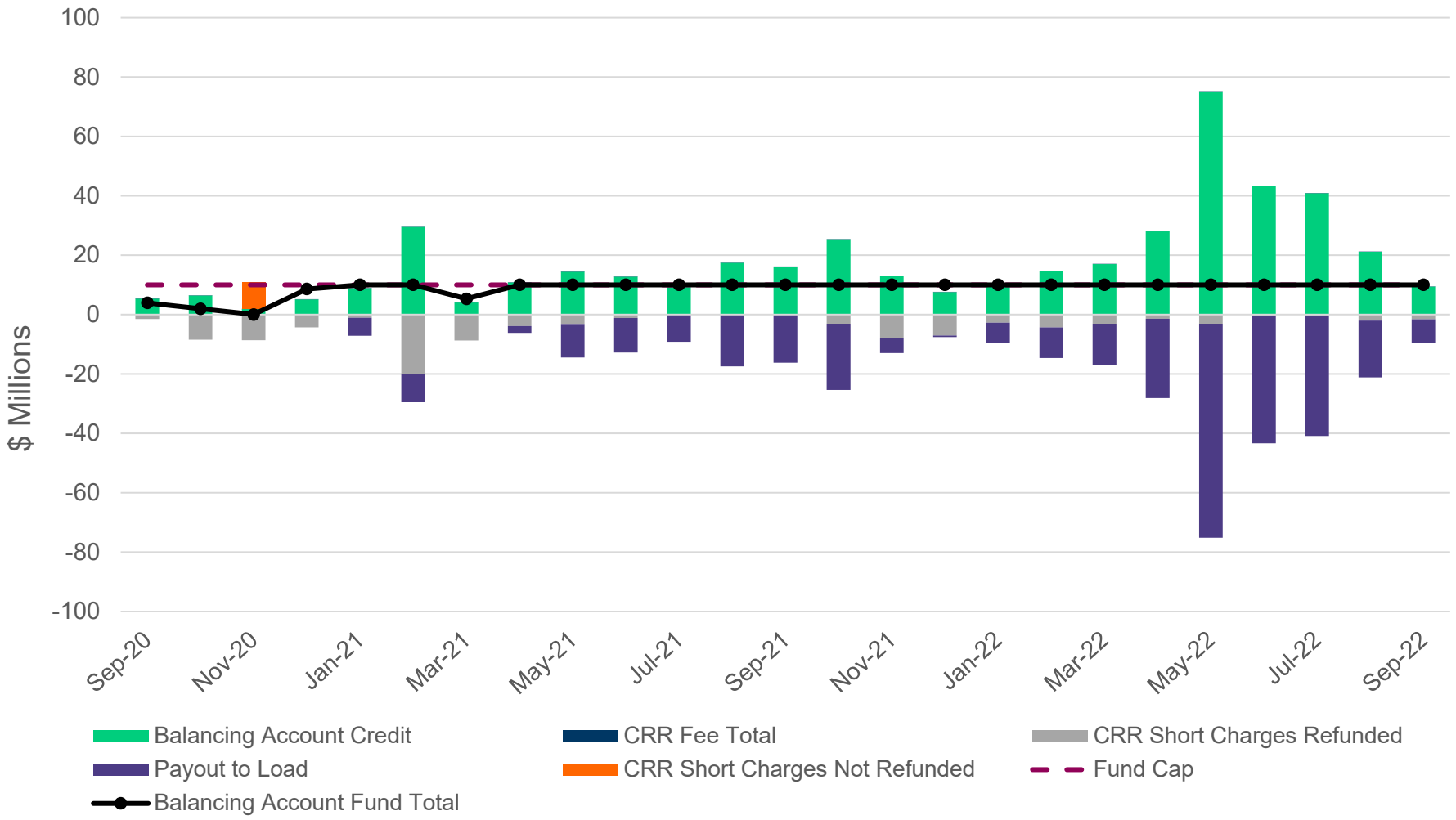
Dollar Impact	Percent Impact
$282.64	97.85%
$23.04	59.50%
$1,806.01	56.80%
$239.37	44.70%

Details for Operating Days not Meeting the Criteria for Significance

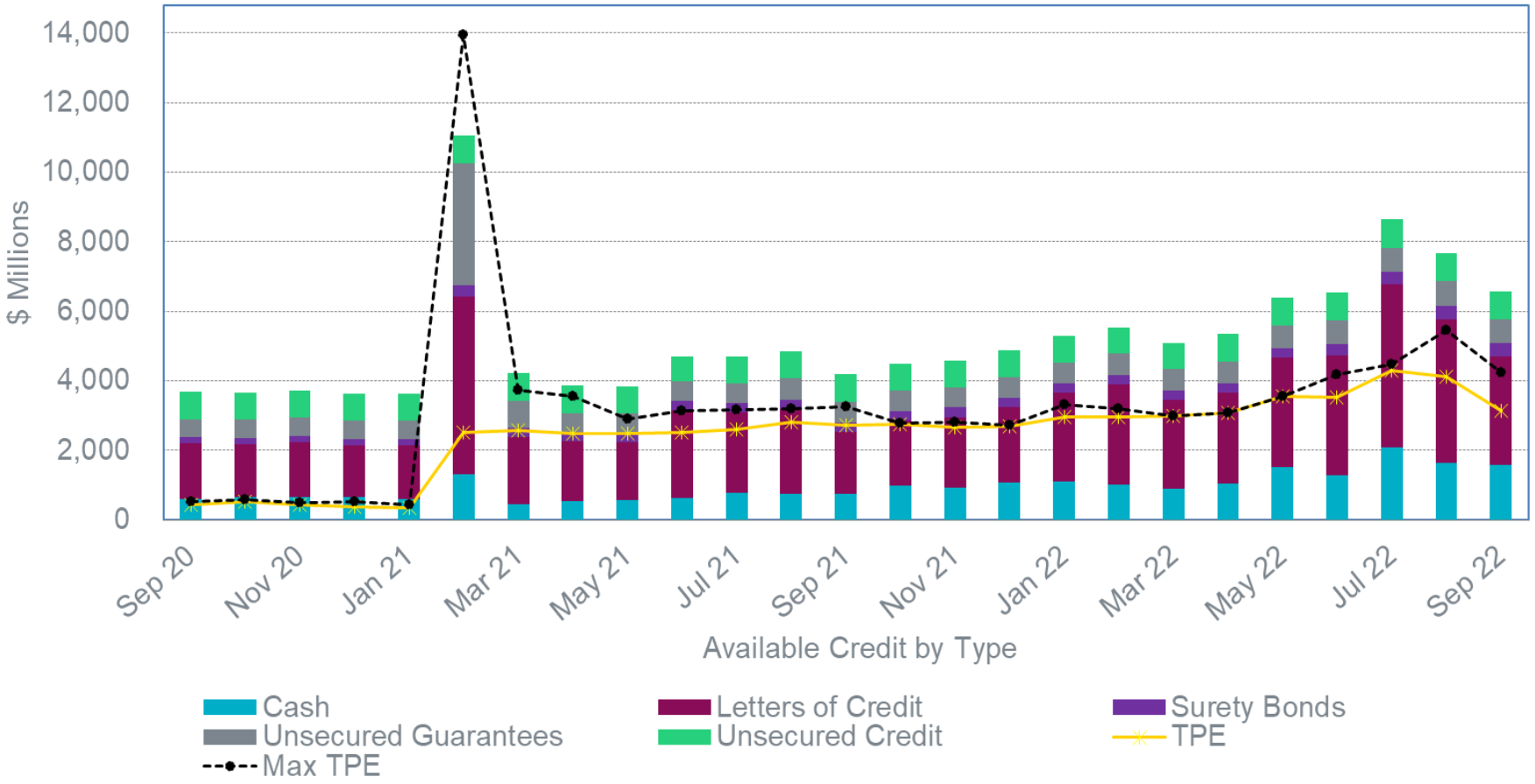
- For September 6, the Operating Day was evaluated before the two business-day period for initial price correction had passed. Impacts were specific to Real-Time Prices for Energy Metered for Resources and were determined to not meet criteria for a price correction. The total dollar impact was estimated as less than $10.

- For September 12, the Operating Day was evaluated before the two business-day period for initial price correction had passed. Impacts were specific to Real-Time Prices for Energy Metered for Resources and were determined to not meet criteria for a price correction. The total dollar impact was estimated as less than $60.

The CRR Balancing Account was fully-funded and excess amounts were allocated to Load



Available Credit by Type Compared to Total Potential Exposure (TPE)



*Numbers are as of month end except for Max TPE

Retail Transaction Volumes – Summary – September 2022

	Year-To-Date		Transactions Received	
Transaction Type	September 2022	September 2021	September 2022	September 2021
Switches	966,486	1,057,571	81,440	68,915
Acquisitions	0	48,862	0	0
Move - Ins	2,372,628	2,120,833	284,323	243,881
Move - Outs	1,070,677	982,040	127,785	108,251
Continuous Service Agreements (CSA)	568,777	510,696	50,023	62,205
Mass Transitions	24,463	26,584	0	0
Total	**5,003,031**	**4,746,586**	**543,571**	**483,252**