



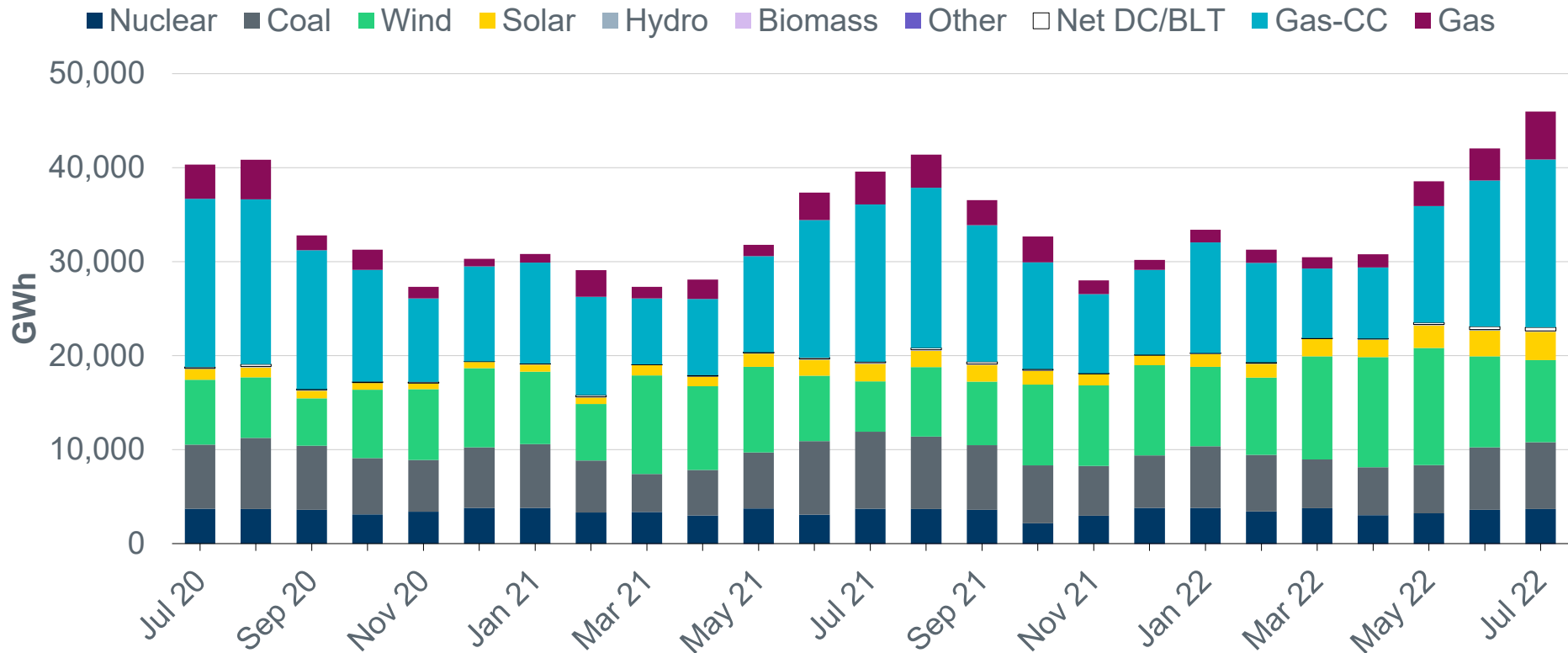
ERCOT Monthly Operational Overview (July 2022)

ERCOT Public
August 22, 2022

Highlights, Records and Notifications

- ERCOT set an all-time maximum peak demand record of 80,038 MW* for the system on 7/20/2022; this was 5,218 MW more than the all-time record going in to 2022 of 74,820 MW set on 8/12/2019. This demand also set a new record for the month of July, being 6,893 MW more than the 7/26/2021 demand of 73,145 MW.
- ERCOT issued 9 notifications:
 - 6 OCNs issued for extreme hot weather with forecasted temperatures above 103 degrees in the North Central and South-Central weather zones.
 - 1 Advisory issued for Physical Responsive Capability below 3,000 MW.
 - 2 Watches issued for a projected reserve capacity shortage with no market solution.

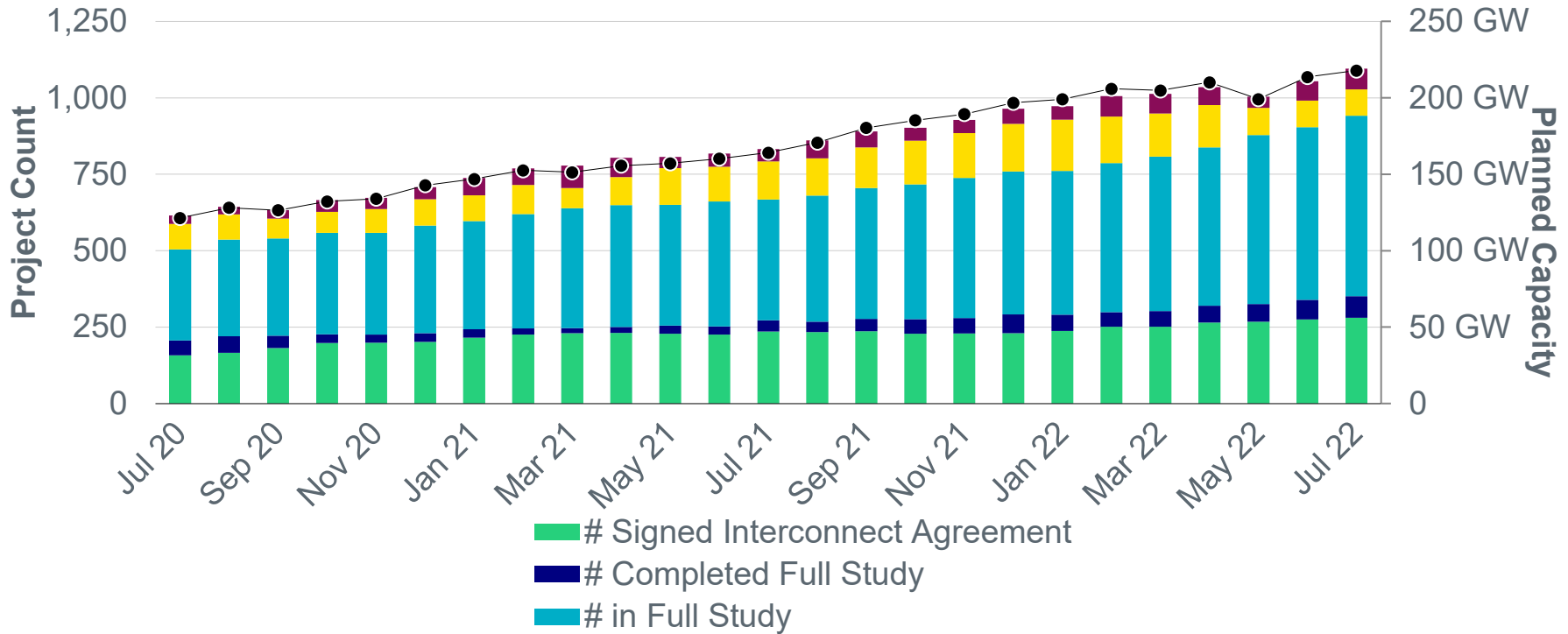
Monthly energy generation increased by 16% year-over-year to 45,971 GWh in July 2022, compared to 39,577 GWh in July 2021



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)

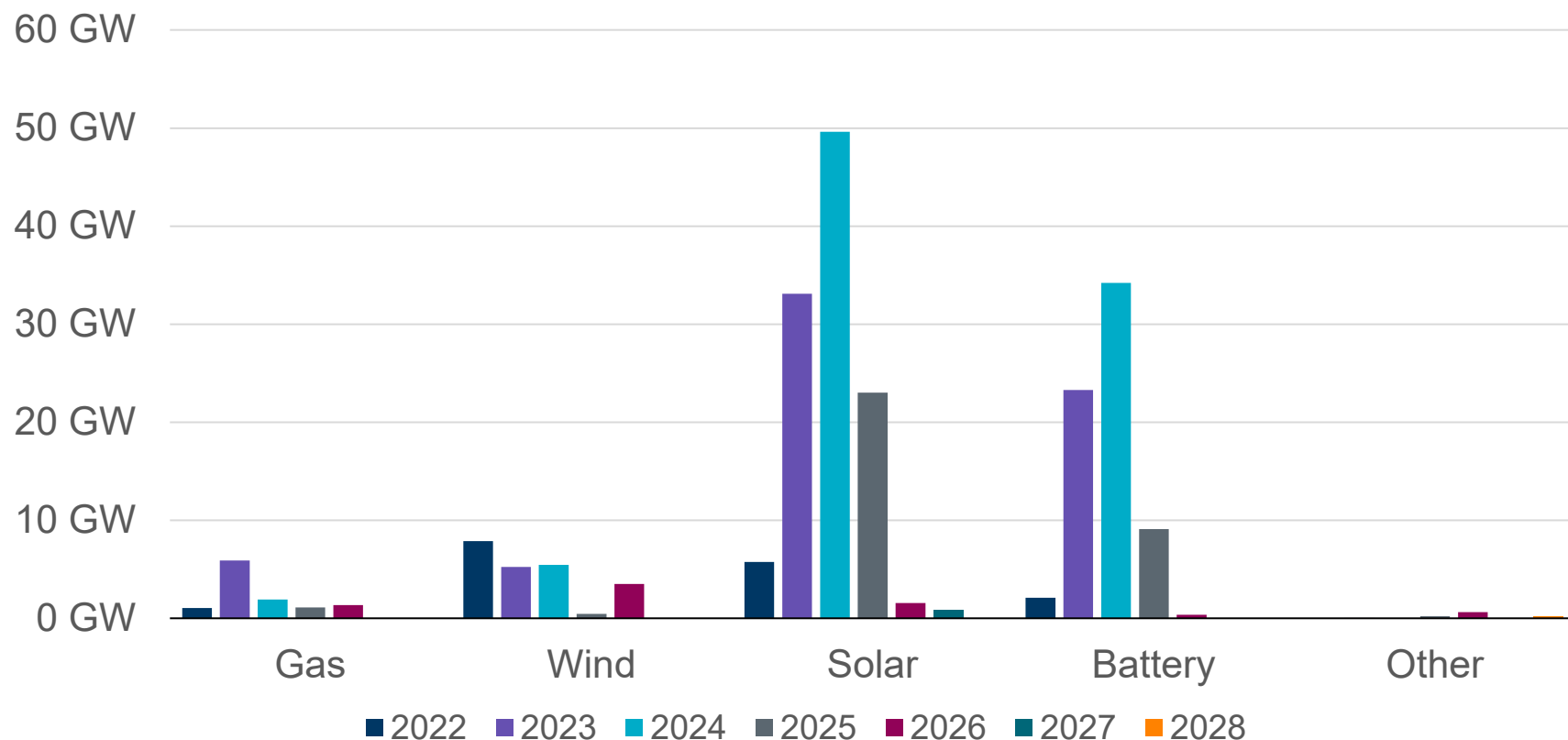


- There are an additional 6 “Small Generator” projects (57 MW) that are going through the simplified interconnection process.

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 114 GW (52.3%), Wind 23 GW (10.3%), Gas 11 GW (5.2%), Battery 69 GW (31.7%)
(Excludes capacity associated with projects designated as Inactive per Planning Guide Section 5.7.6)

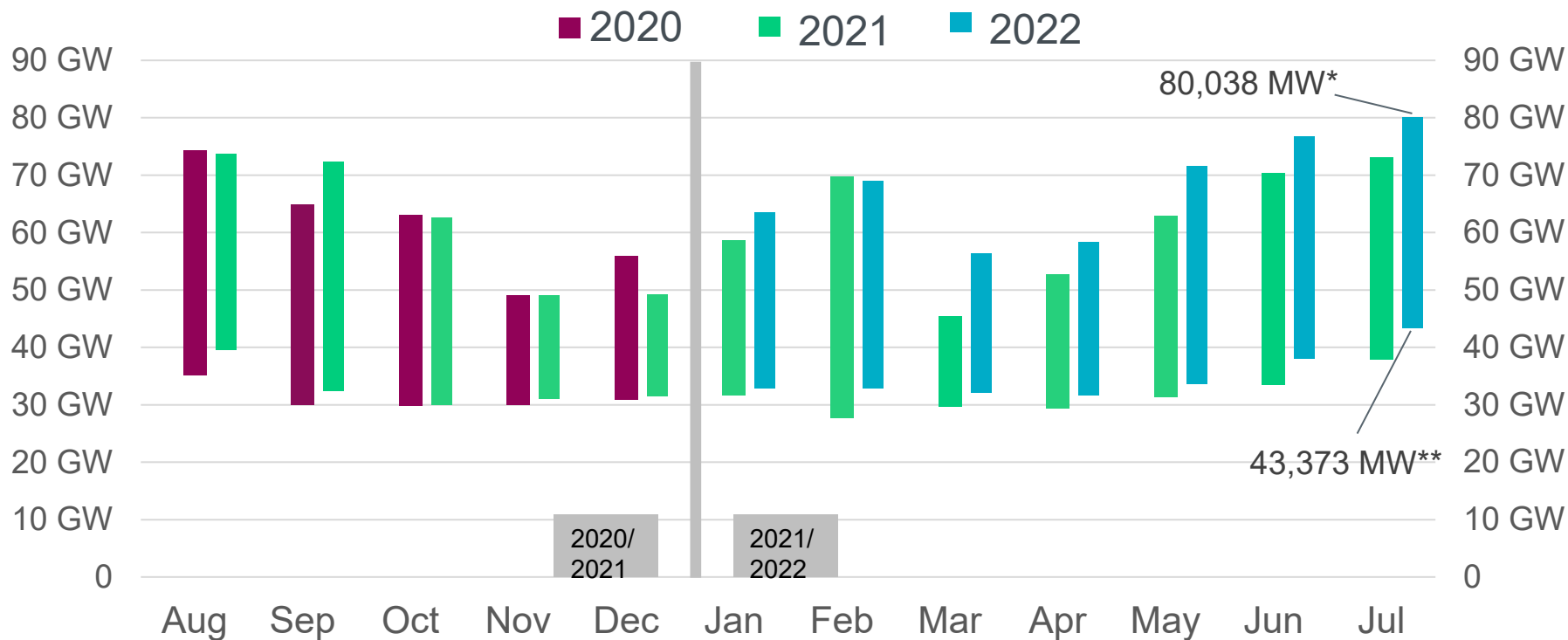


A break-out by zone can be found in the monthly Generator Interconnection Status (GIS) reports available on the ERCOT Resource Adequacy Page: <http://www.ercot.com/gridinfo/resource>

Planning Summary

- ERCOT is tracking 1,105 active generation interconnection requests totaling 217,824 MW as of July 31. This includes 113,904 MW of solar, 22,504 MW of wind, 69,044 MW of battery, and 11,317 MW of gas projects; 56 projects were categorized as inactive, down from 59 inactive projects in June 2022.
- ERCOT is currently reviewing proposed transmission improvements with a total estimated cost of \$763.50 Million as of July 31, 2022.
- Transmission Projects endorsed in 2022 total \$1.483 Billion as of July 31, 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 set an all-time maximum peak demand record of 80,038 MW* for the system on 7/20/2022. This demand also set a new record for the month of July.

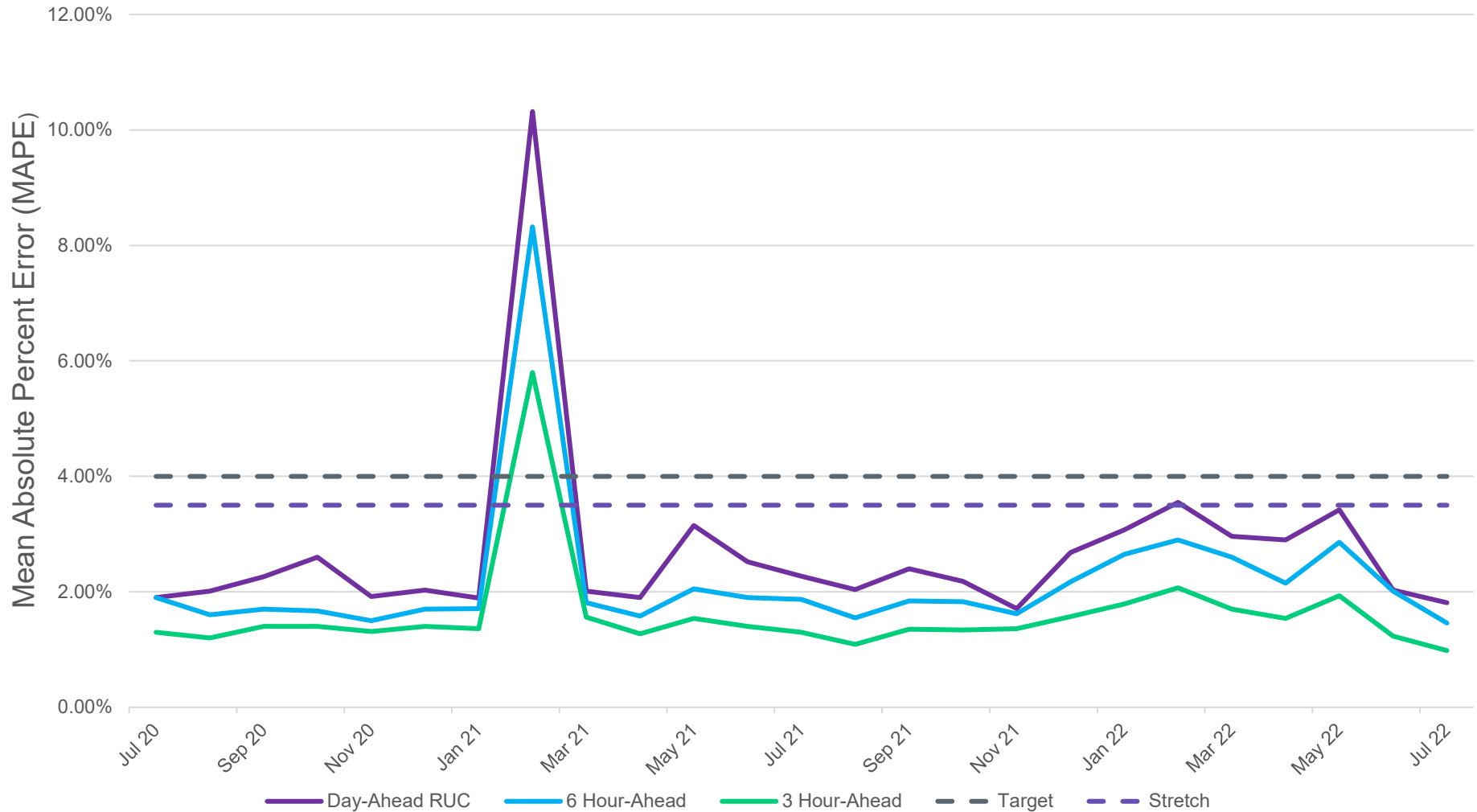


*Based on the maximum net system hourly value from July release of Demand and Energy 2022 report.

**Based on the minimum net system 15-minute interval value from July release of Demand and Energy 2022 report.

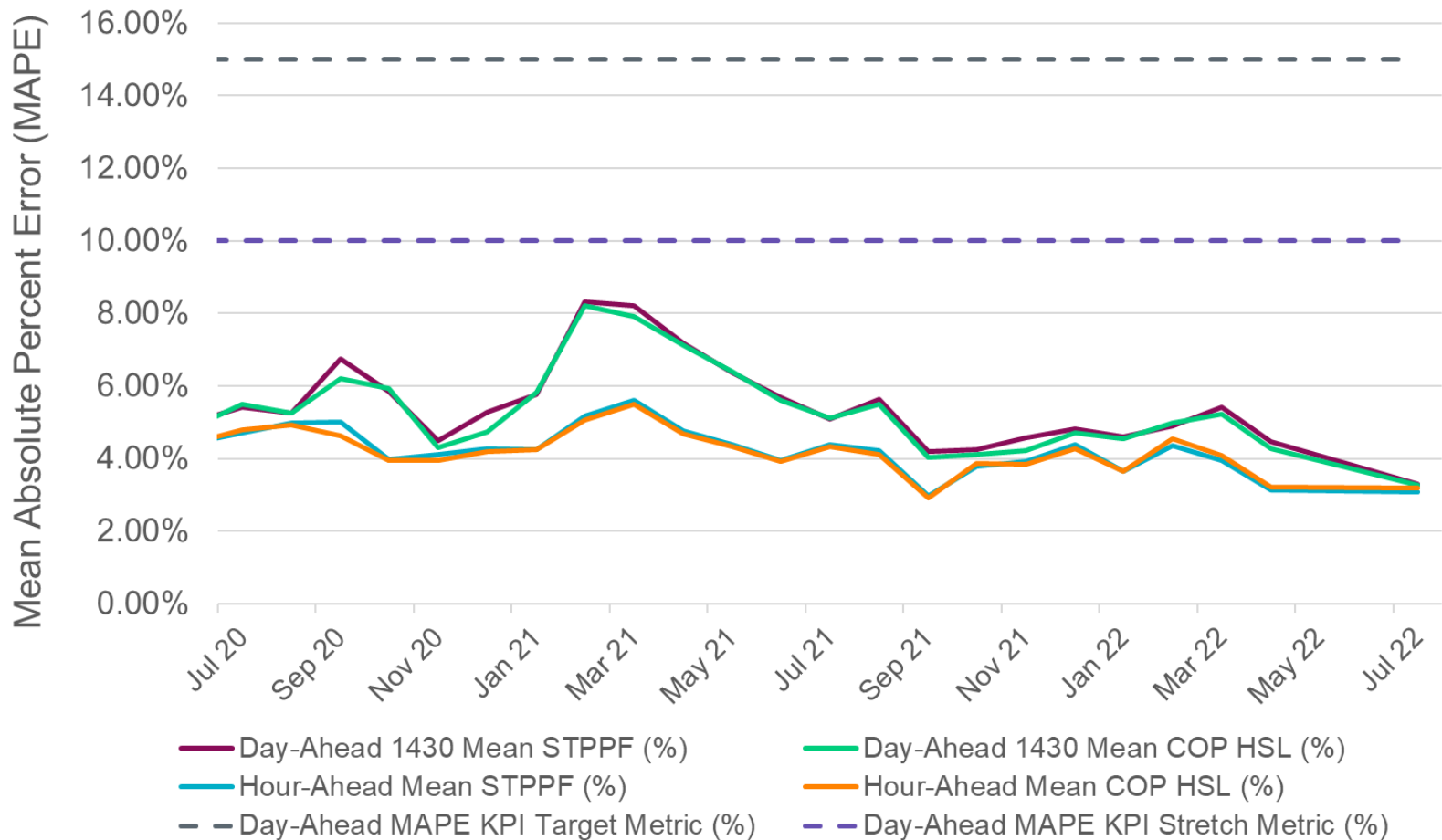
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Mid-Term Load Forecast Performance



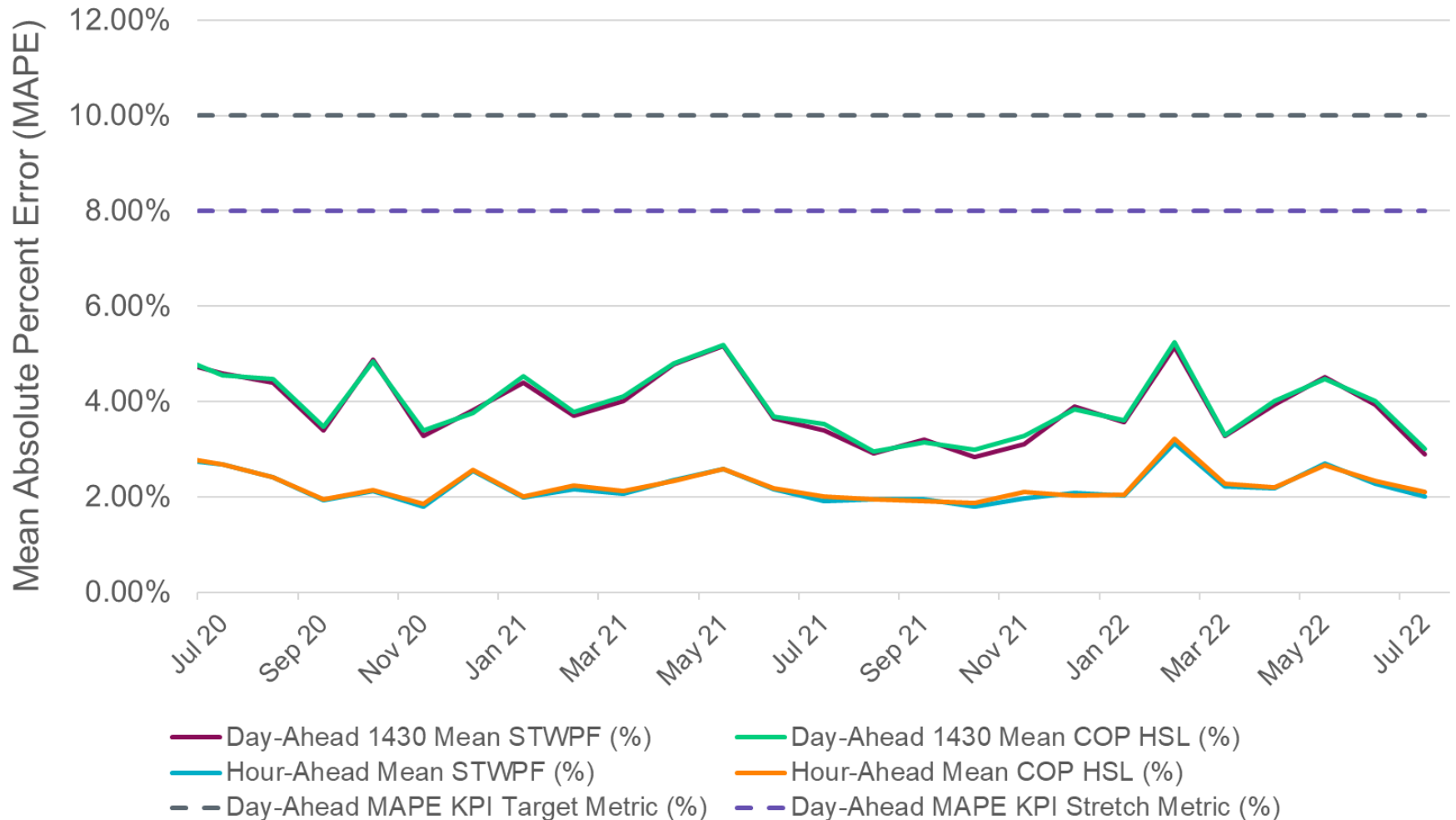
The Mid-Term Load Forecast is an hourly forecast that looks 7 days into the future

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.

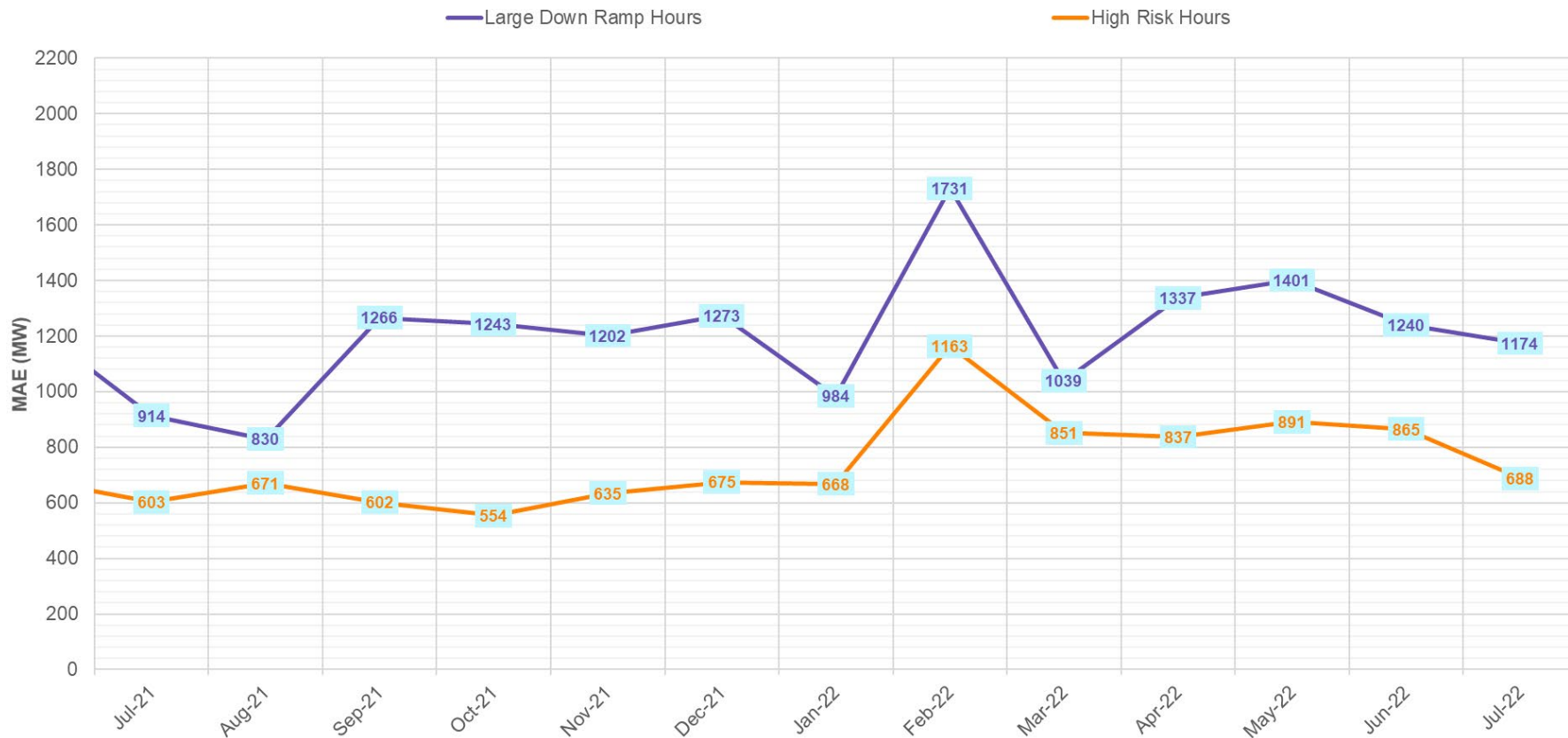
Wind Forecast Performance



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

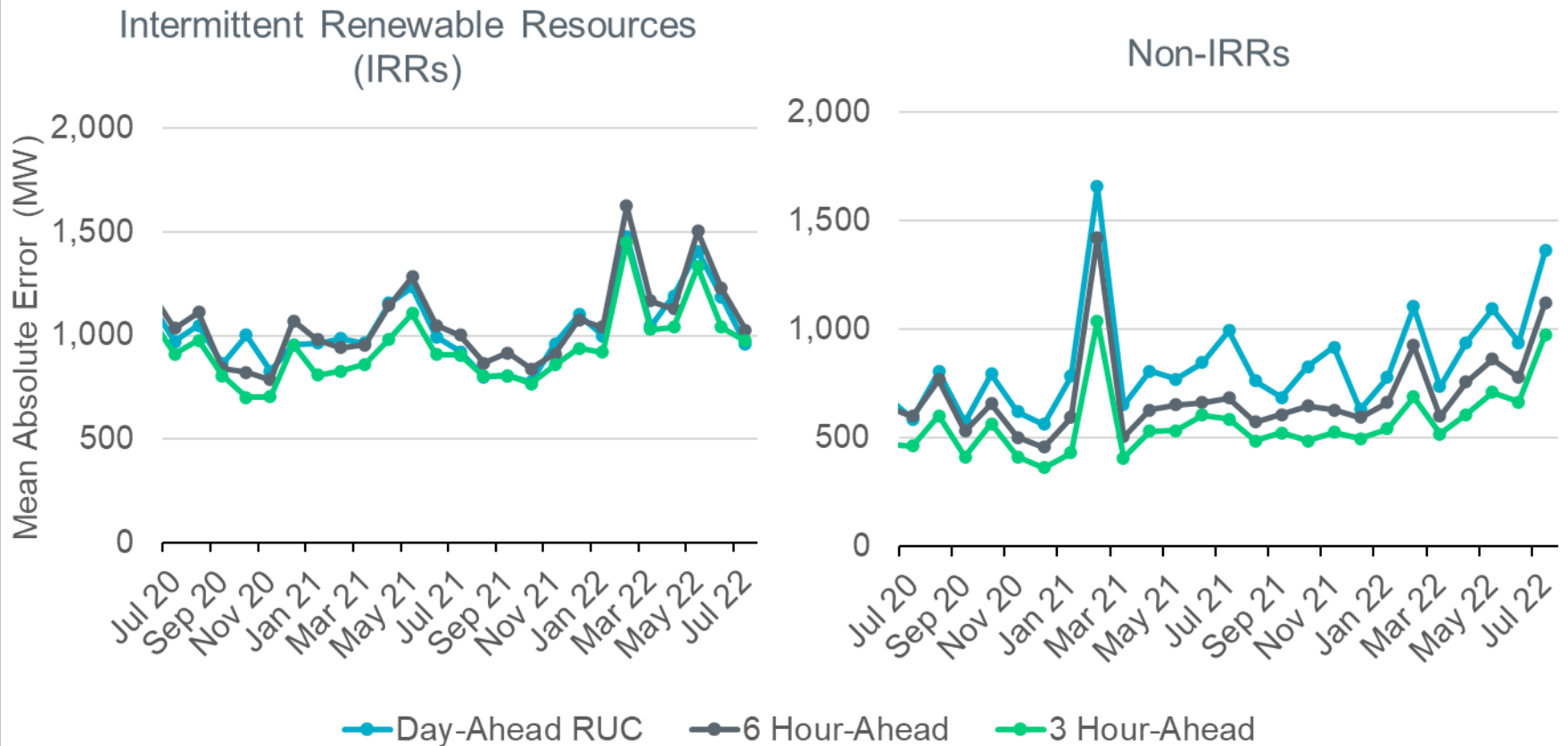
Hour-Ahead Mean Absolute Error (MAE) During Large Down Ramp (> 2000 MW) and High Risk Hours*



*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.

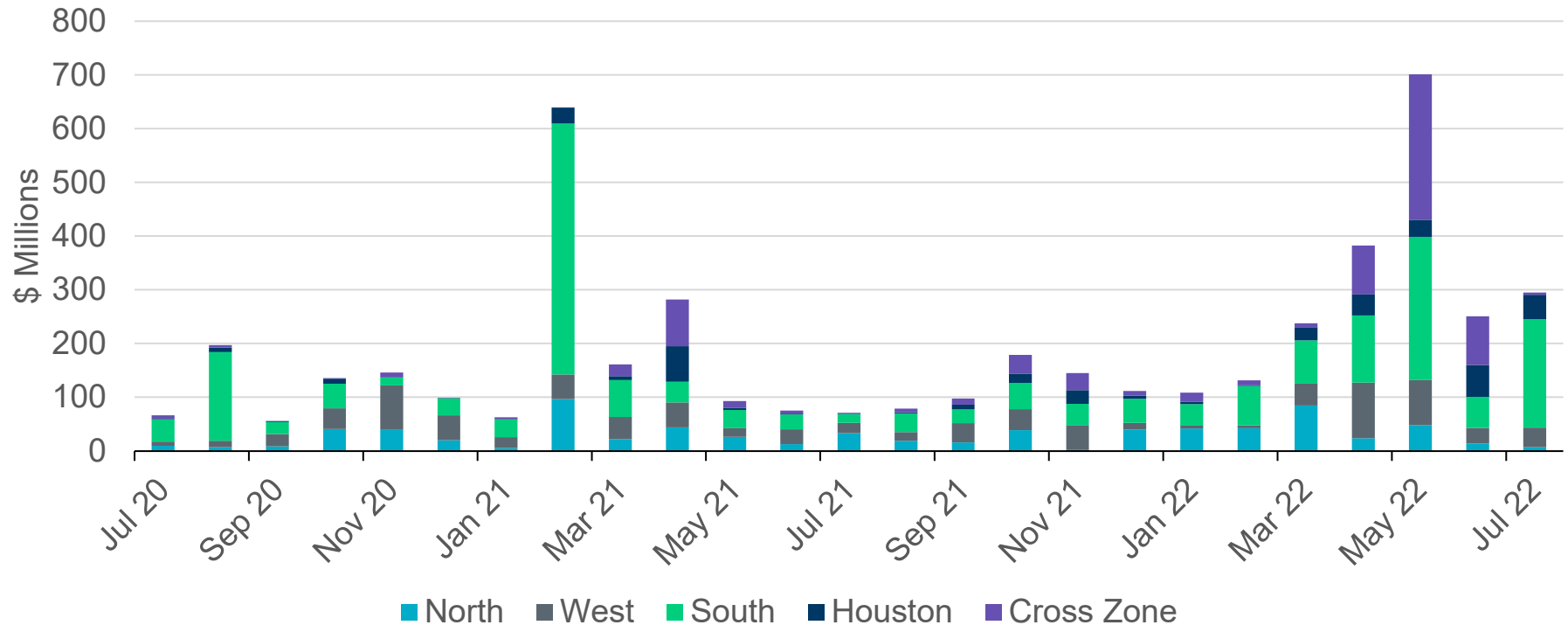
Forecast performance during large down ramp (wind ramp > 2000 MW) hours and high risk hours (historic risk of load ramping up and wind ramping down is high) is focused upon. Note that for the purposes of forecast performance measurement every hour in a month is classified as either a large down ramp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



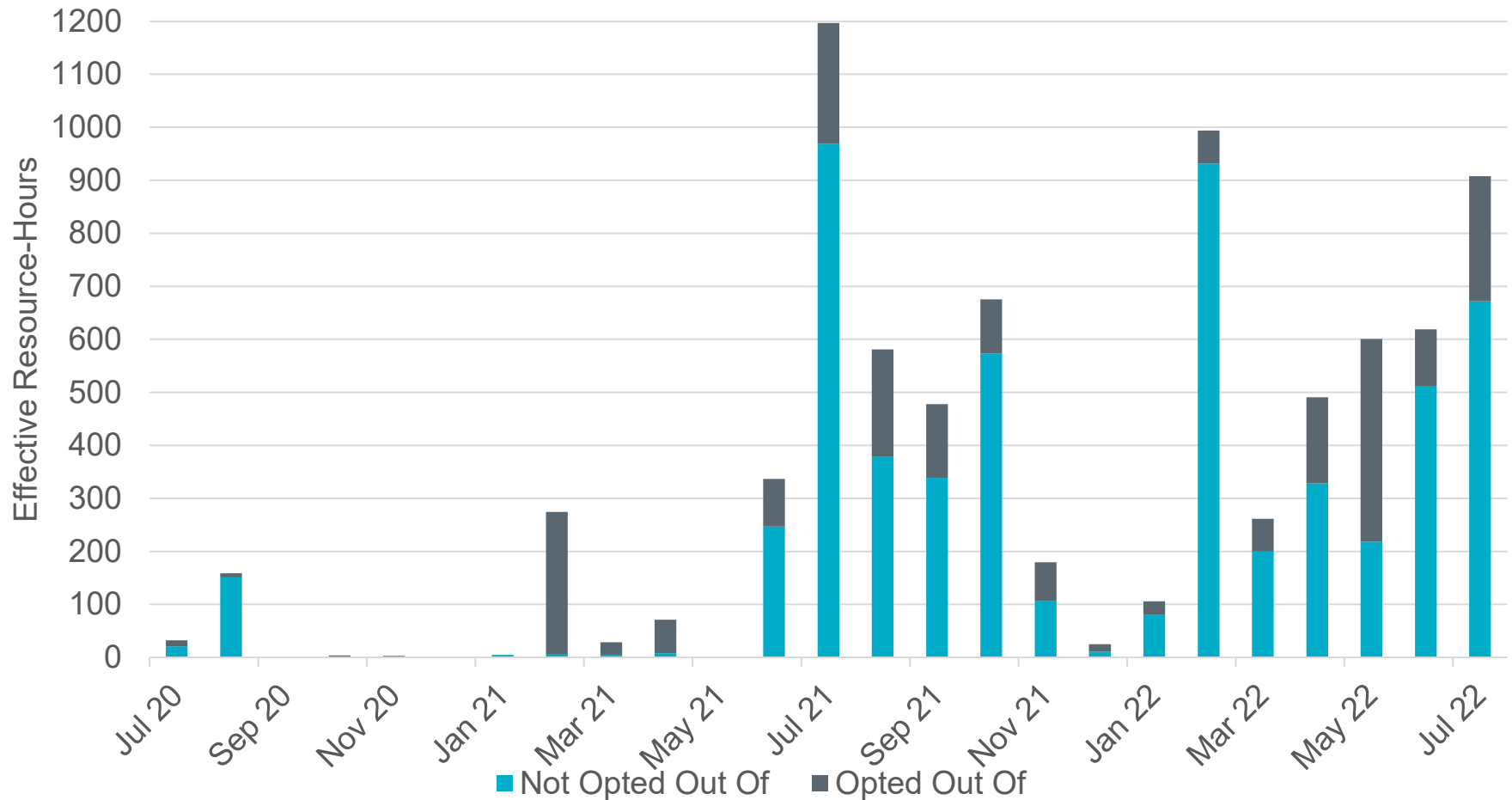
- COPs for IRRs are derived from wind and solar forecasts from ERCOT with any adjustments from Qualified Scheduling Entities.
- The installed capacity of approved Wind Units is 35,644 MW (as of July 31, 2022).
- The installed capacity of approved Solar Units is 12,287 MW (as of July 31, 2022).

Real-Time Congestion Rent by Zone



- Congestion rent in the West and South Zones increased in July 2022 compared to June 2022.
- Congestion rent in the South Zone was primarily driven by the loss of double circuit 345 kV lines from Elmcreek to San Miguel Gen overloading the 345 kV line from Calaveras to Pawnee Switching 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.

Twenty-Two Resources were Committed in July for Capacity or Minimum Run Time

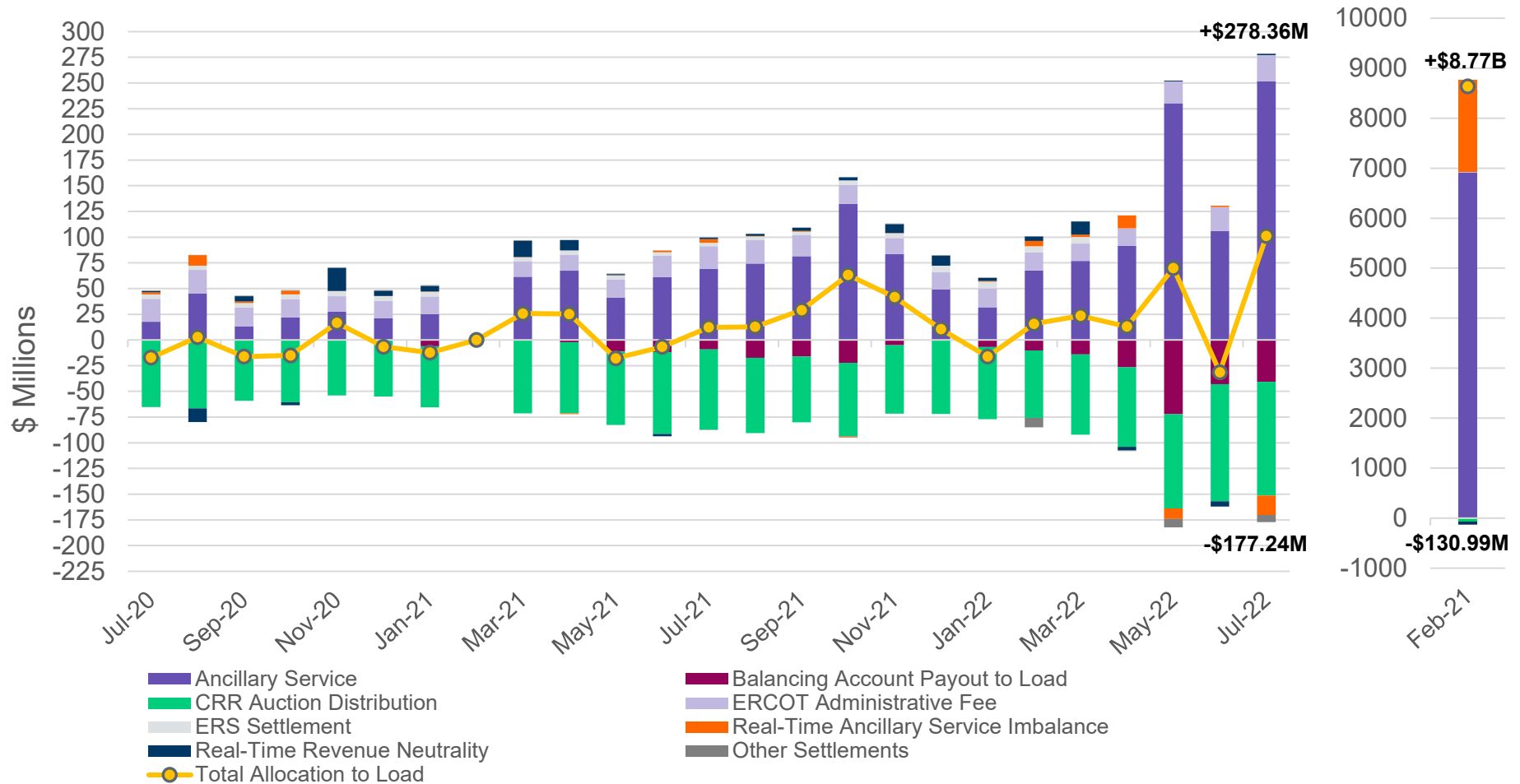


“Effective Resource-Hours” excludes any period during a Reliability Unit Commitment hour when the RUC-committed Resource was starting up, shutting down, off-line, or otherwise not available for dispatch by SCED.

Twenty-Two Resources were Committed in July for Capacity or Minimum Run Time

Resource #	Effective Resource-hours	Non-Opt Out (Effective Hours)	Opt Out (Effective Hours)
1	7.0	0.0	7.0
2	53.9	32.9	21.0
3	0.0	0.0	0.0
4	8.0	8.0	0.0
5	35.5	14.2	21.3
6	7.0	0.0	7.0
7	98.9	97.9	1.0
8	101.0	100.0	1.0
9	32.6	21.6	11.0
10	98.5	19.0	79.5
11	0.2	0.2	0.0
12	78.0	54.0	24.0
13	92.0	68.0	24.0
14	1.0	0.0	1.0
15	18.0	17.0	1.0
16	91.5	87.5	4.0
17	7.9	0.0	7.9
18	42.2	42.2	0.0
19	14.7	14.7	0.0
20	6.9	6.9	0.0
21	106.0	88.0	18.0
22	7.0	0.0	7.0
Total	907.8	672.0	235.7

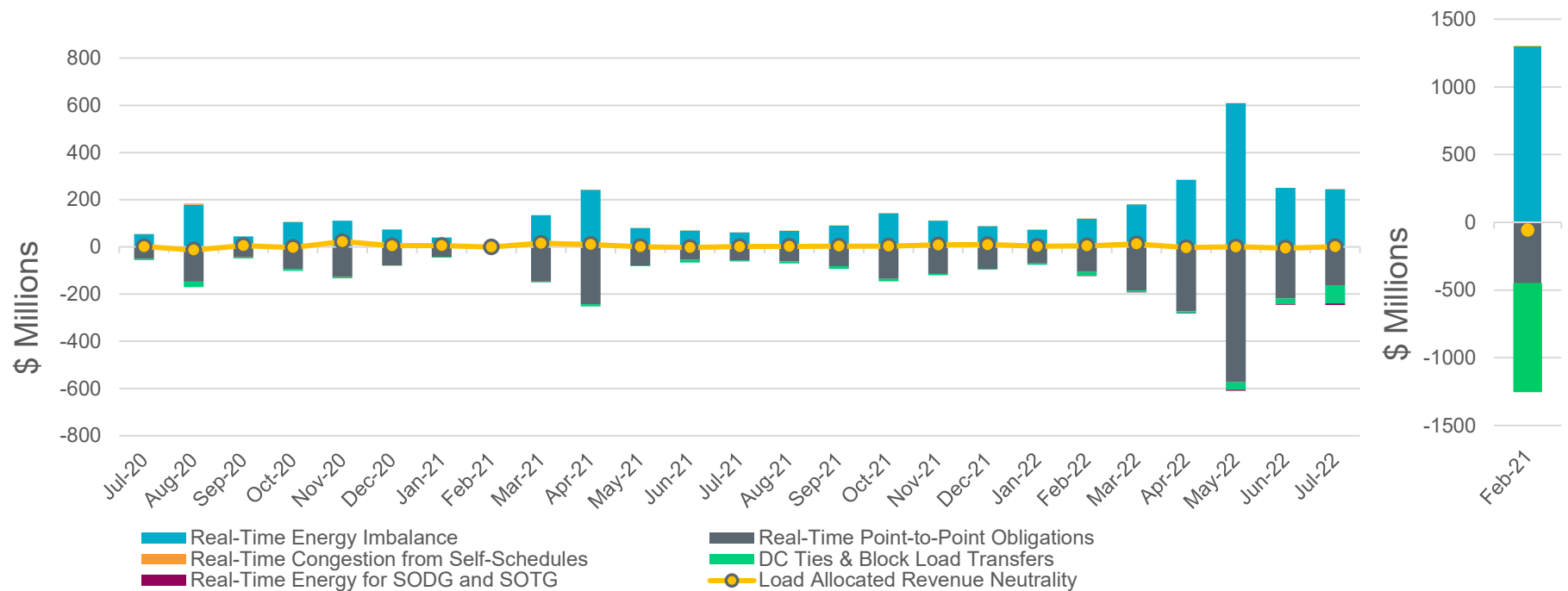
Net Allocation to Load in July 2022 was \$101.12 Million



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 \$1.18M for July 2022

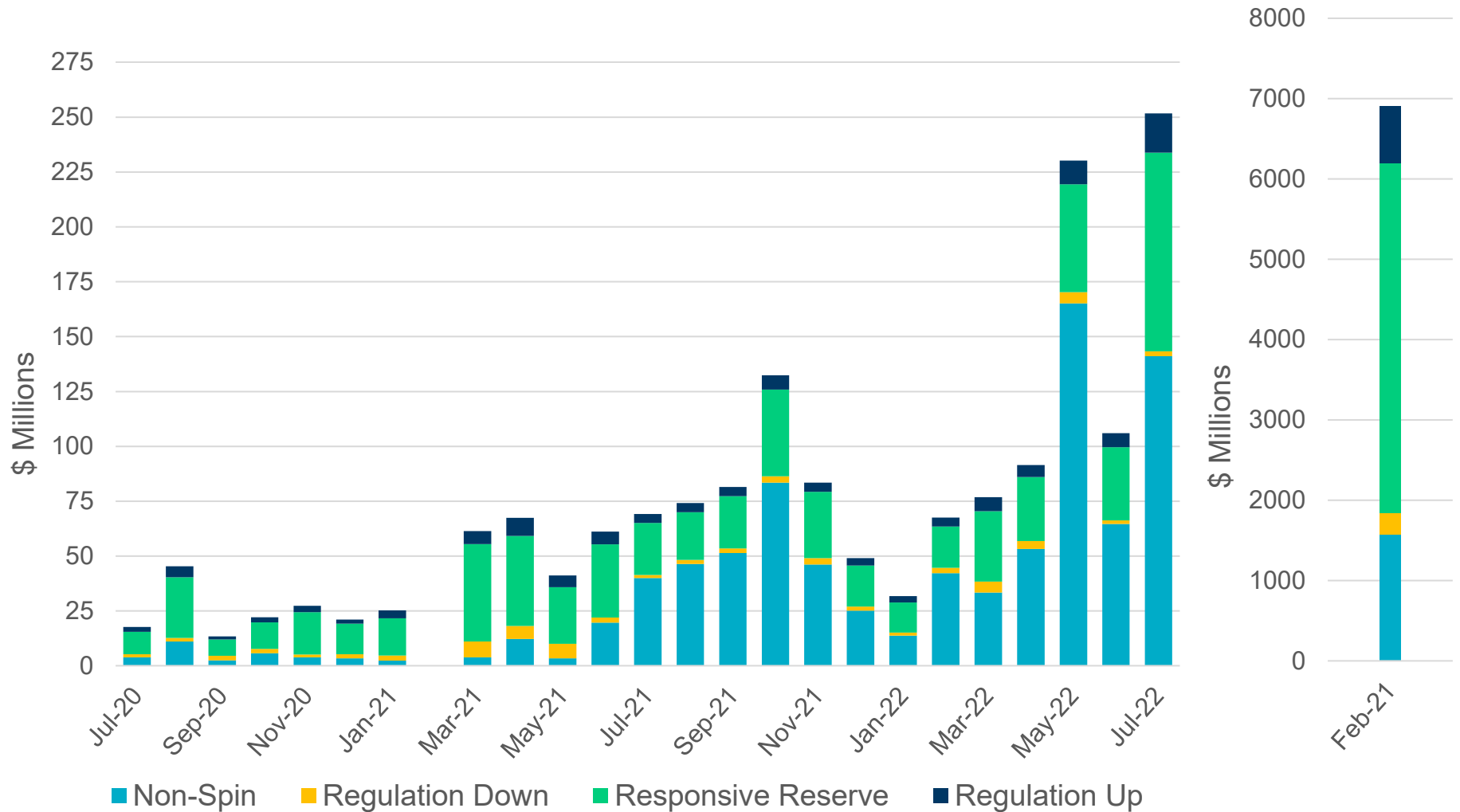


July 2022 (\$M)

Real-Time Energy Imbalance	\$244.03
Real-Time Point-to-Point Obligation	(\$162.74)
Real-Time Congestion from Self-Schedules	\$1.64
DC Tie & Block Load Transfer	(\$76.97)
Real-Time Energy for SODG and SOTG	(\$7.14)
Load Allocated Revenue Neutrality	\$1.18

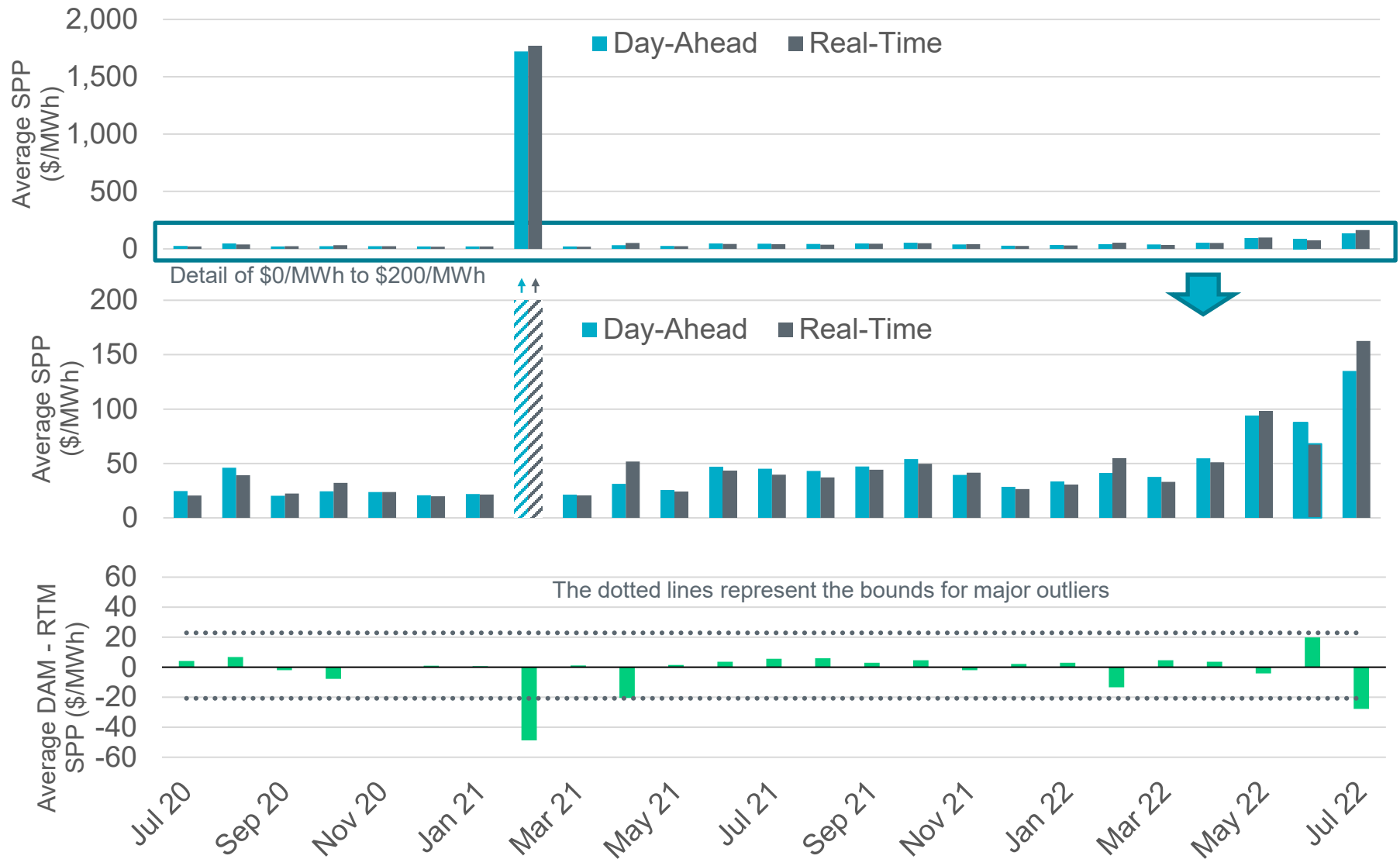
Note: For visual purposes, February 2021 has been separated into its own graph with different scaling. The legend applies for both graphs.

Ancillary Services for July 2022 totaled \$251.65M



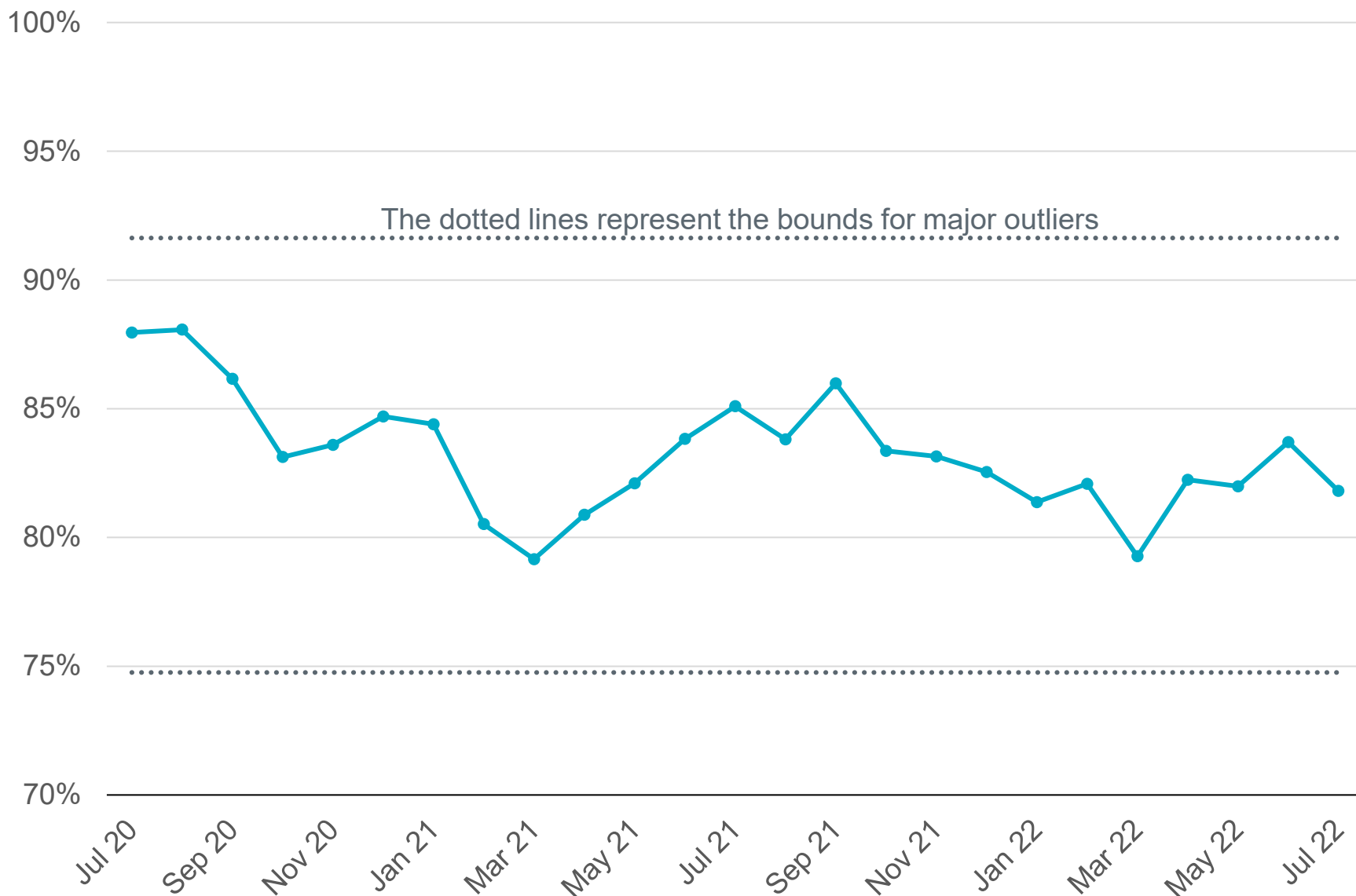
Note: For visual purposes, February 2021 has been separated into its own graph with different scaling. The legend applies for both graphs.

Day-Ahead and Real-Time Market Price Differences

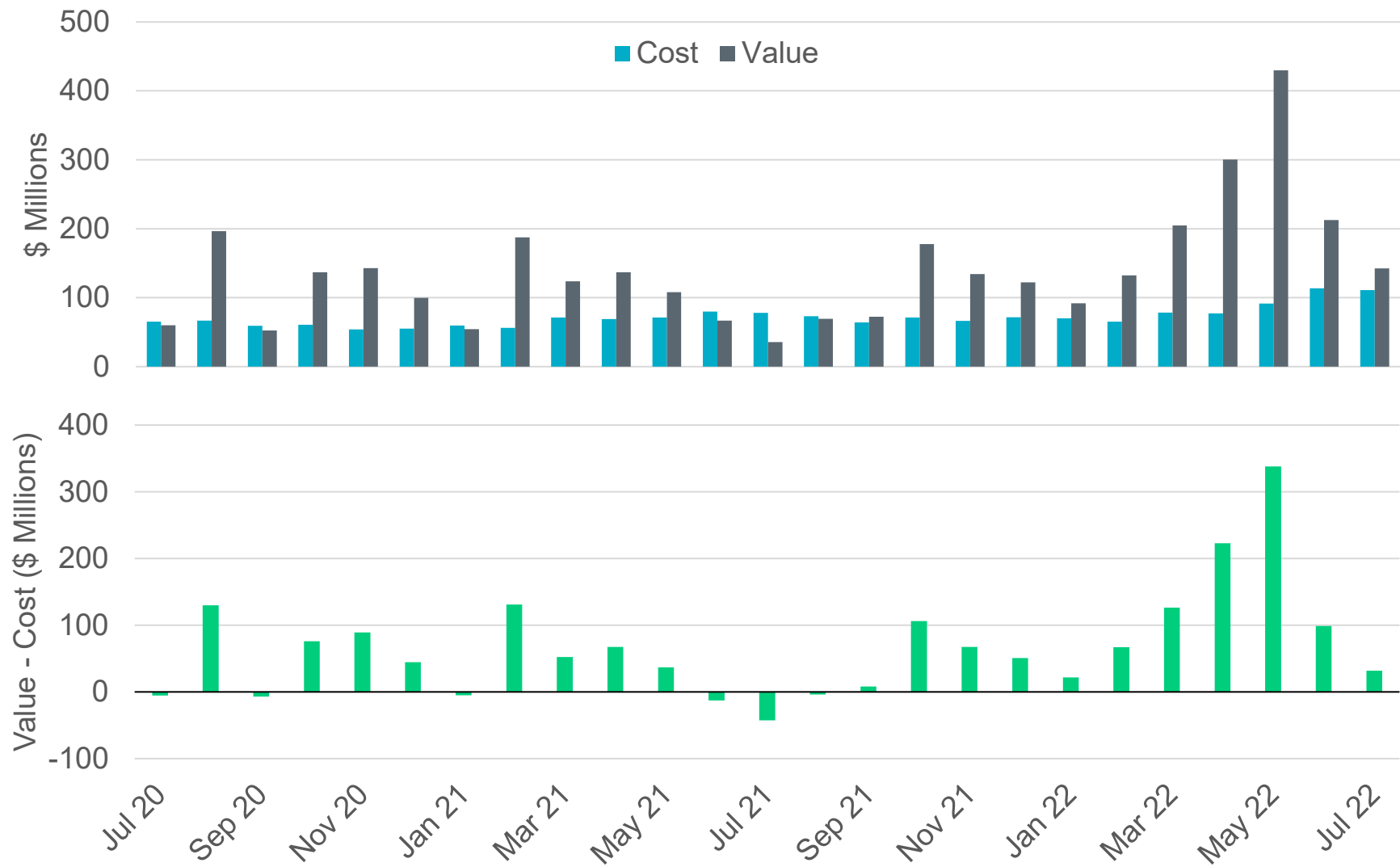


*Averages are weighted by Real-Time Market Load

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



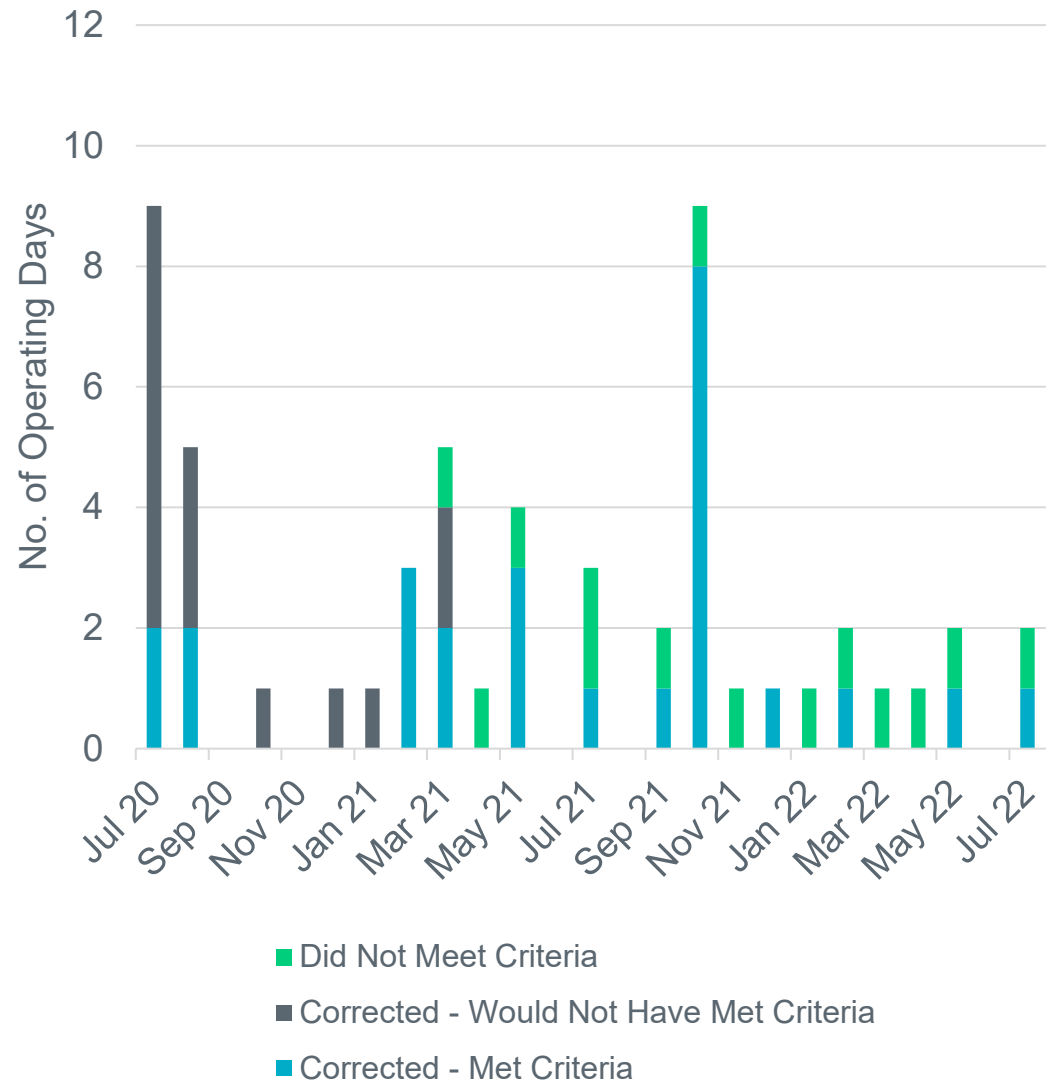
CRR Value and Cost Differences



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.

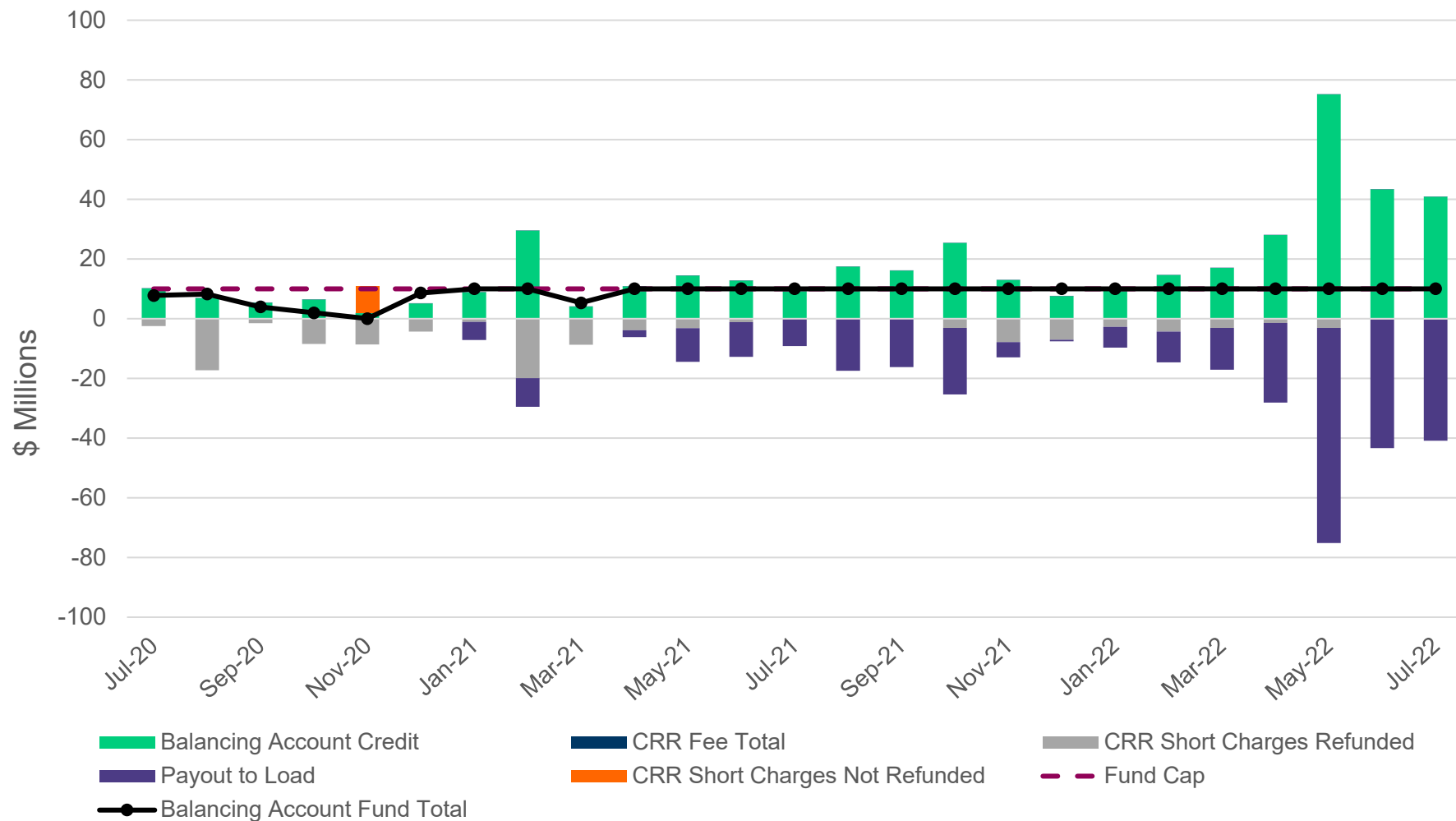


Details for Operating Days not Meeting the Criteria for Significance

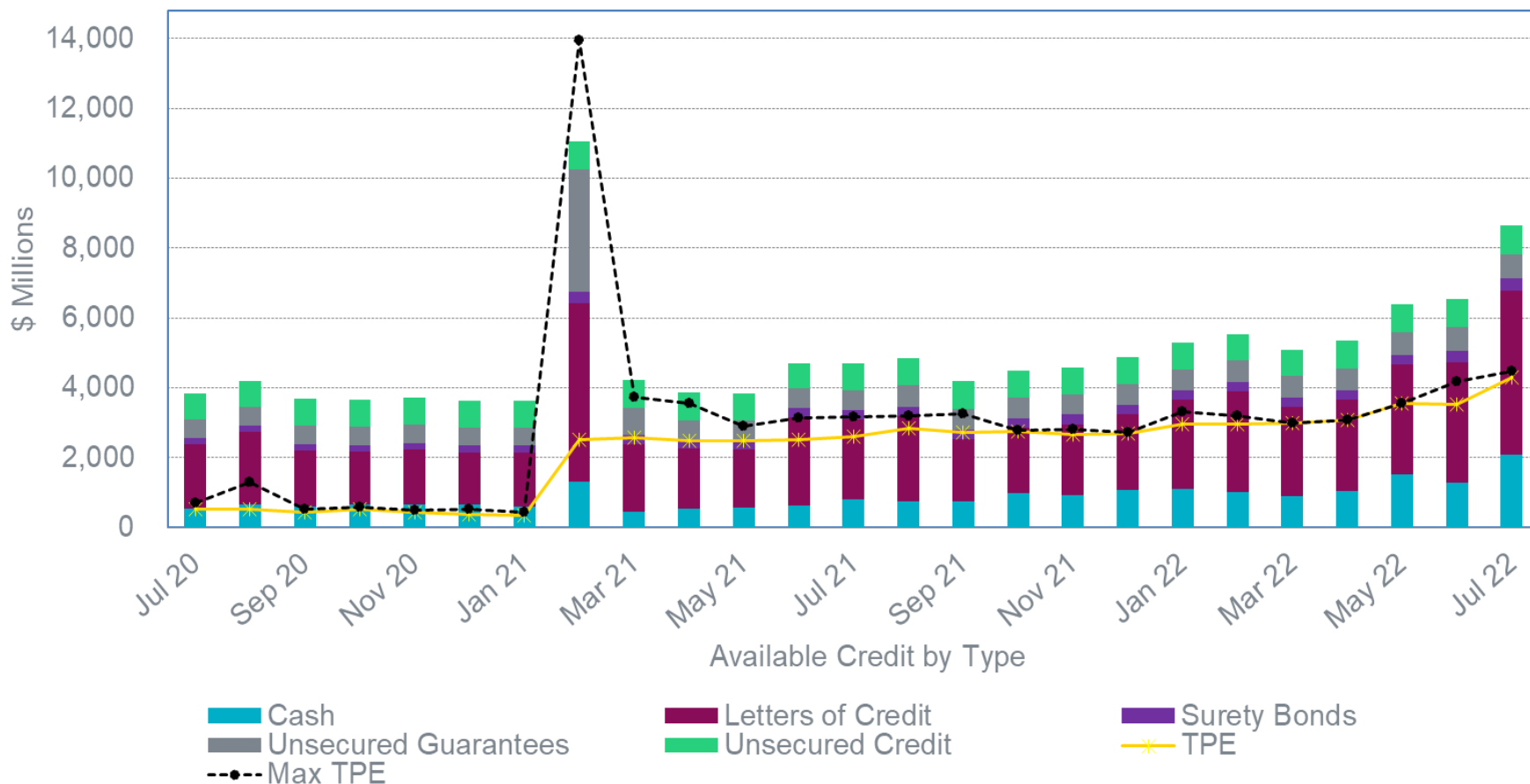
Operating Day July 12, 2022

- The price issue was driven by SCED executions that were missed during planned software maintenance.
- Impacts were minor and specific to Real-Time Prices for Energy Metered for Resources (RTRMPRs).
 - The total dollar impact was estimated as less than \$10.

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 – July 2022

	Year-To-Date		Transactions Received	
Transaction Type	July 2022	July 2021	July 2022	July 2021
Switches	782,568	875,755	96,502	87,752
Acquisitions	0	48,862	0	0
Move - Ins	1,767,450	1,612,269	277,038	291,498
Move - Outs	800,784	747,904	120,453	132,899
Continuous Service Agreements (CSA)	456,553	391,754	43,980	42,805
Mass Transitions	24,463	26,584	1,028	0
Total	3,831,818	3,703,128	539,001	554,954