ERCOT Monthly Operational Overview
(December 2022)

ERCOT Public
January 17, 2023

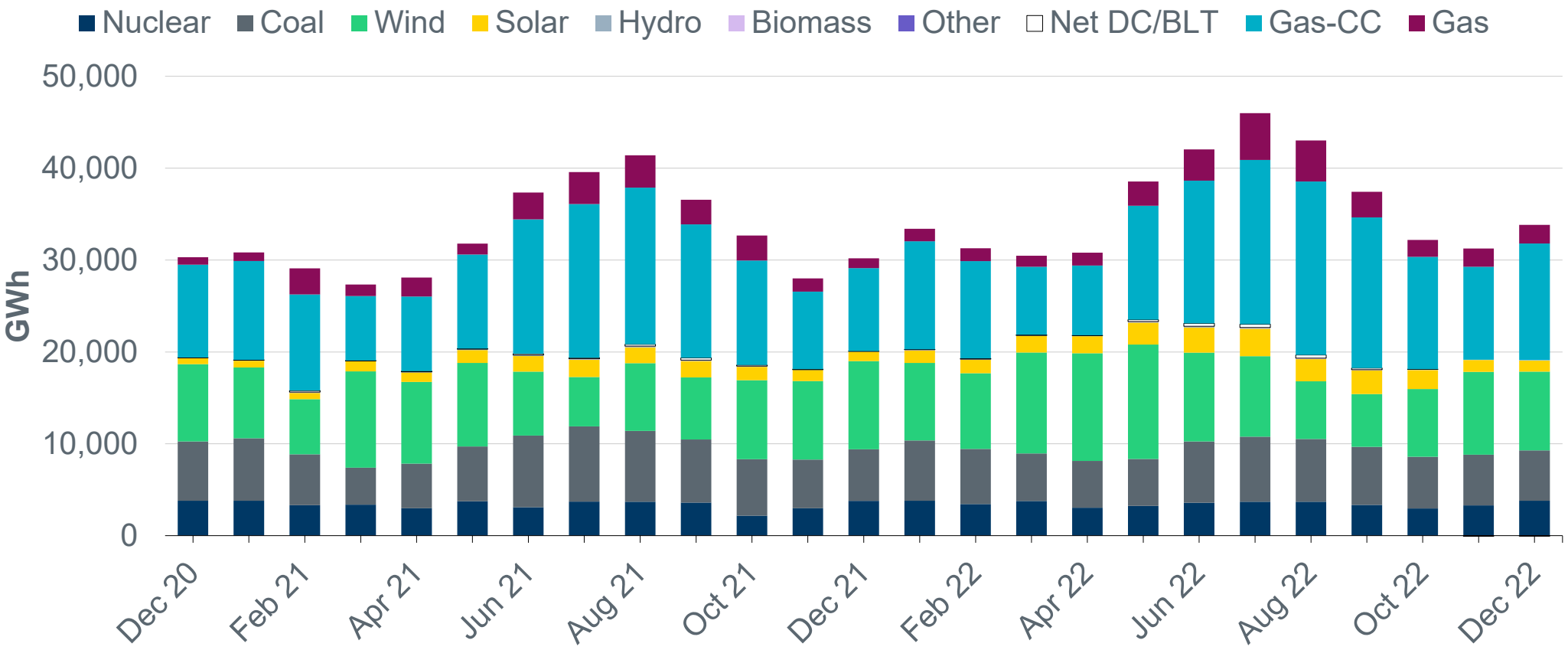
Highlights, Records and Notifications

- ERCOT set a new all-time winter peak record of 74,427 MW* in the month of December on 12/23/2022; this is 4,615 MW more than the previous winter record of 69,812 MW set on 2/14/2021. This is 25,235 MW more than the December 2021 demand of 49,192 MW.

- ERCOT issued 5 notifications:
  - 1 DC Tie Curtailment Notices for the DC_L due to forced or unplanned outages.
  - 1 OCN issued for taking manual action on the WESTEX IROL due to topology change.
  - 1 OCN issued for the predicted extreme cold weather event for the ERCOT Region.
  - 1 Advisory issued for the predicted extreme cold weather event for the ERCOT Region.
  - 1 Advisory issued for a postponed deadline for the posting of the DAM solution due to a manual action and dam restart.

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

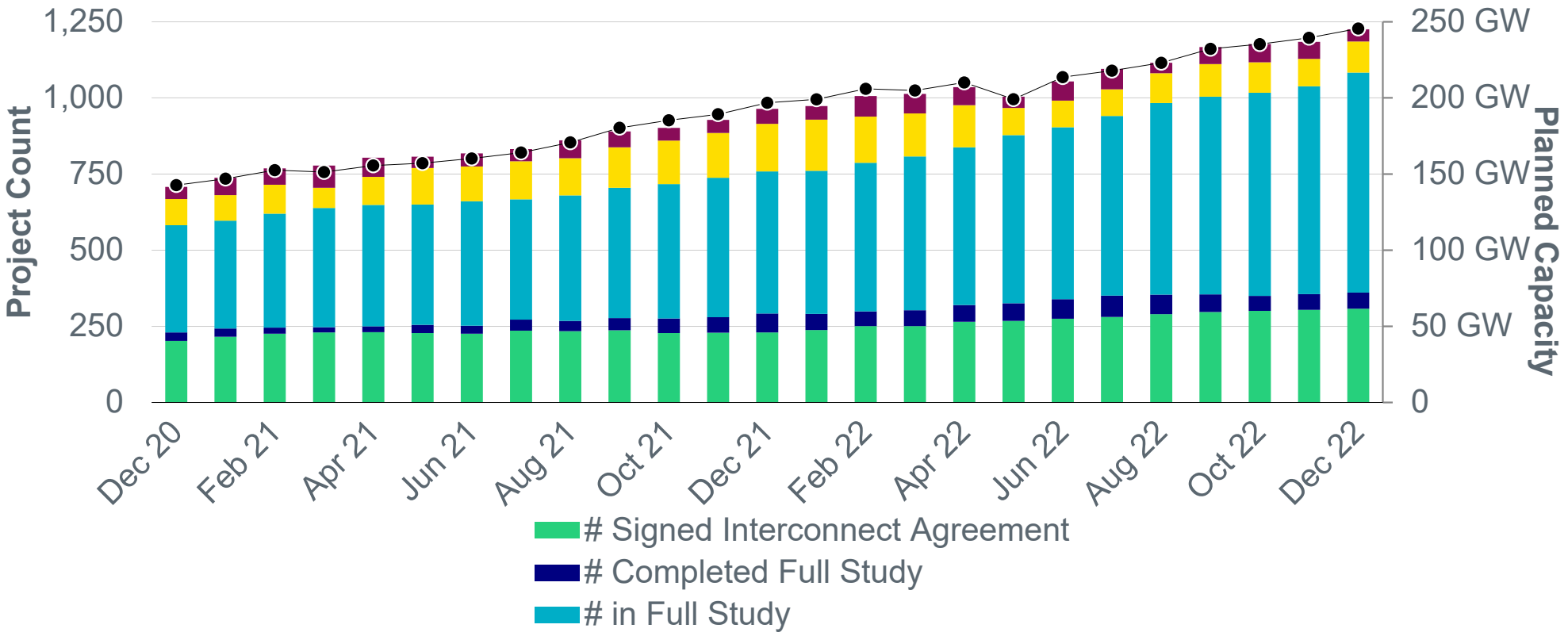
Monthly energy generation increased by 12% year-over-year to 33,783 GWh in December 2022, compared to 30,188 GWh in December 2021



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)

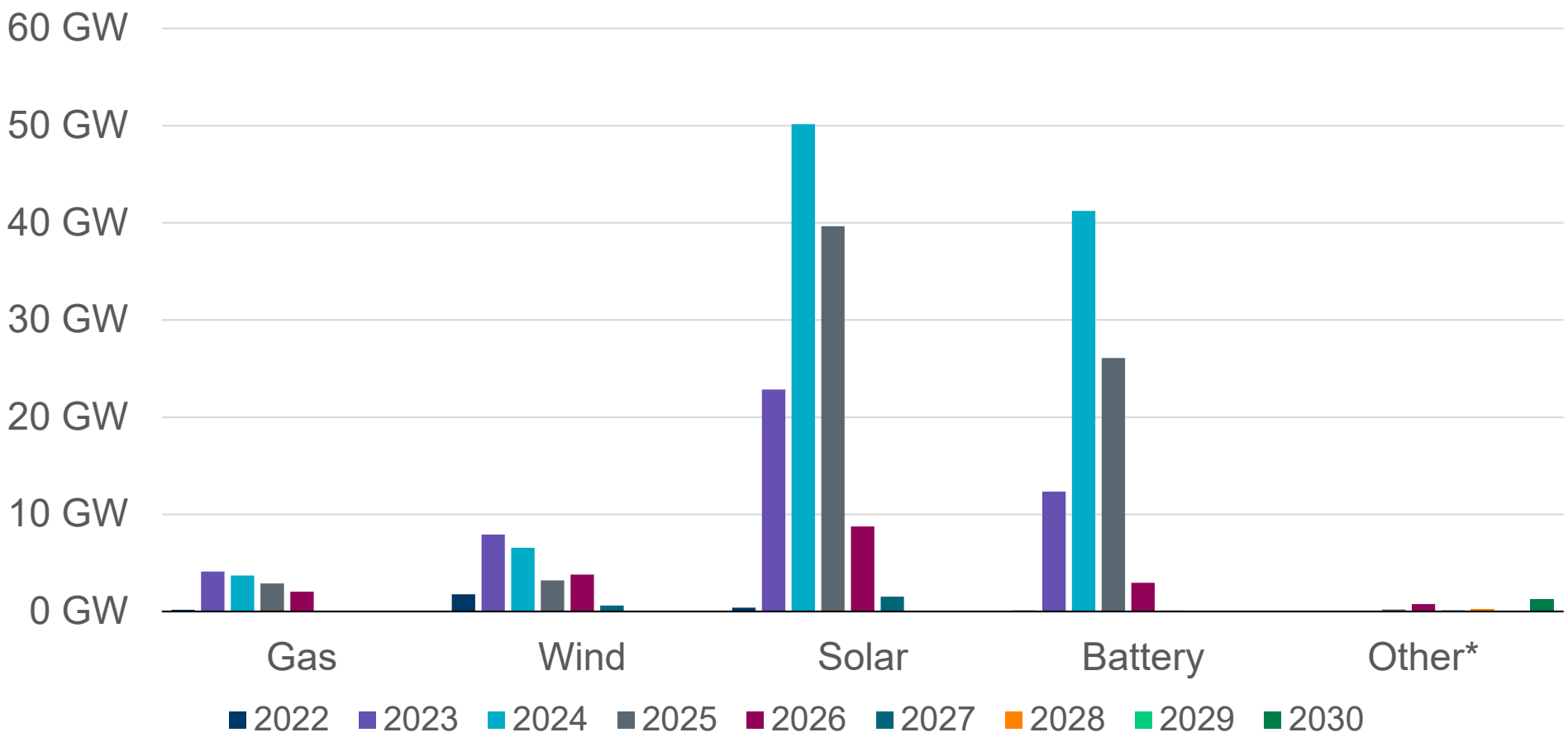


- There are an additional 8 “Small Generator” projects totaling 77 MW that are going through the simplified interconnection process.

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 123 GW (50.2%), Wind 24 GW (9.7%), Gas 13 GW (5.3%), Battery 83 GW (33.7%)
(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

* Other includes petroleum coke (pet coke), hydroelectric, fuel oil, geothermal energy, other miscellaneous fuels reported by developers, and fuel cells that use fuels other than natural gas.

Planning Summary

- ERCOT is tracking 1,254 active generation interconnection requests totaling 245,535 MW as of December 31, 2022. This includes 123,340 MW of solar, 23,876 MW of wind, 82,844 MW of battery, and 12,935 MW of gas projects; 69 projects were categorized as inactive, down from 81 inactive projects in November 2022.

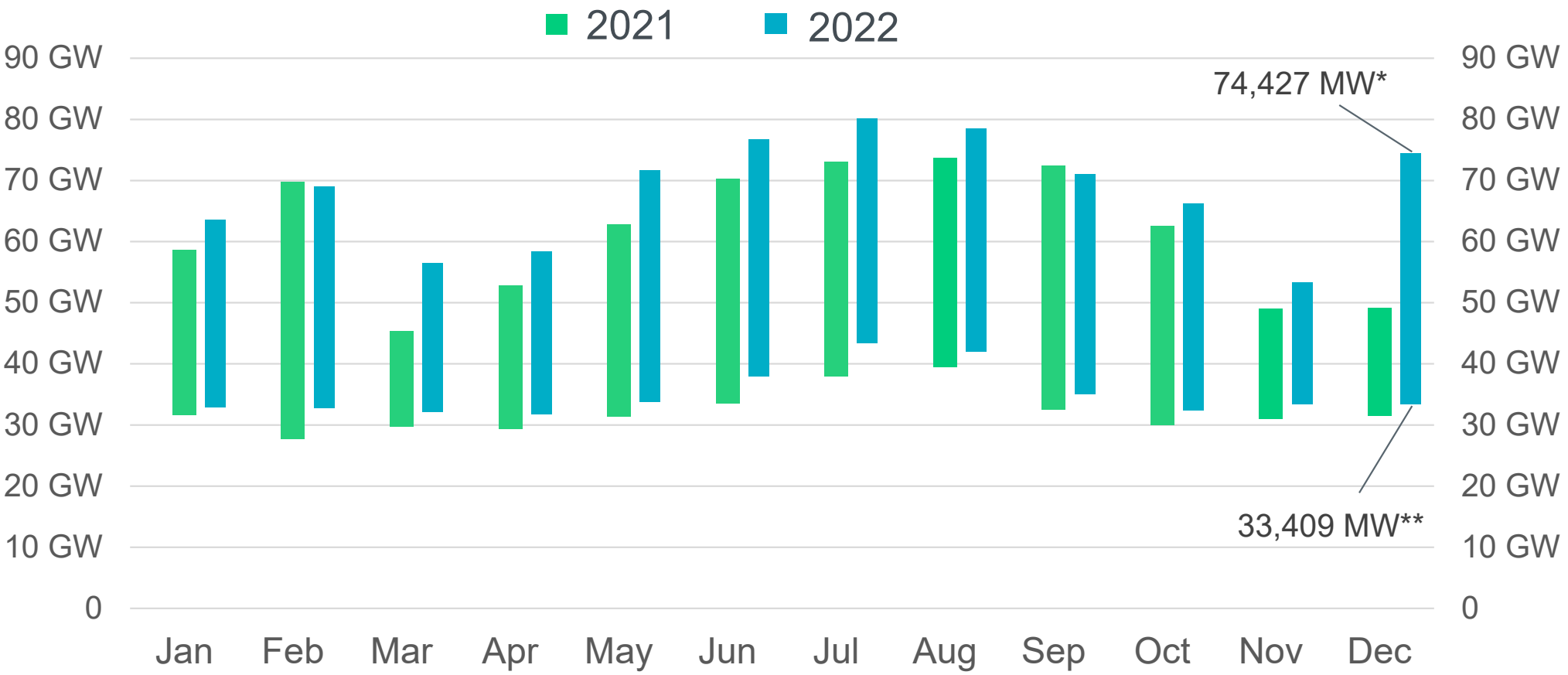
- ERCOT is currently reviewing proposed transmission improvements with a total estimated cost of $595.72 million as of December 31, 2022.

- Transmission Projects endorsed in 2022 total $3.311 billion as of December 31, 2022.

- All projects (in engineering, routing, licensing and construction) total approximately $11.093 billion as of October 1, 2022.

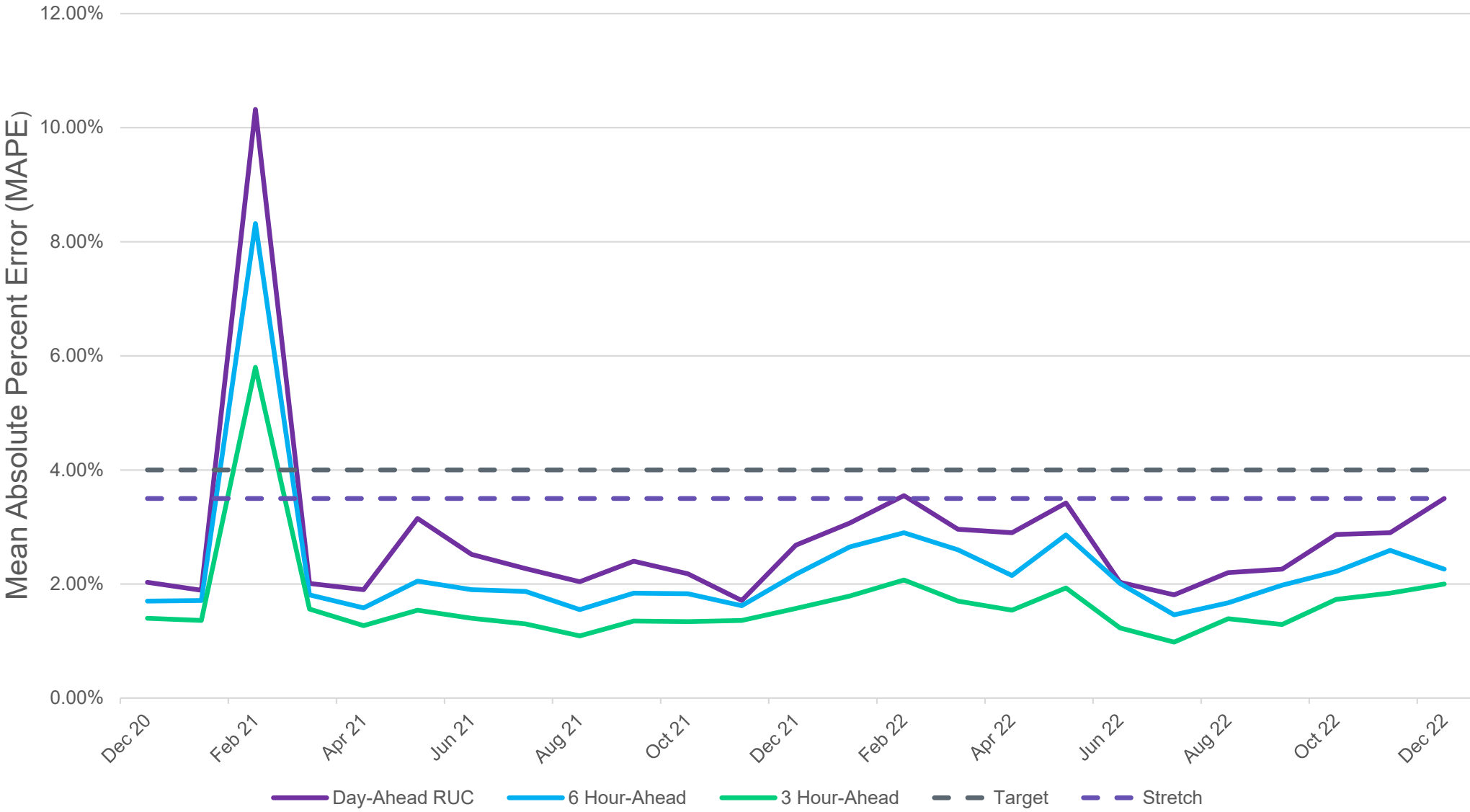
- Transmission Projects energized in 2022 total about $1.198 billion as of October 1, 2022.

ERCOT set a new all-time winter peak record of 74,427 MW* in the month of December on 12/23/2022; this is 4,615 MW more than the previous winter record of 69,812 MW set on 2/14/2021.



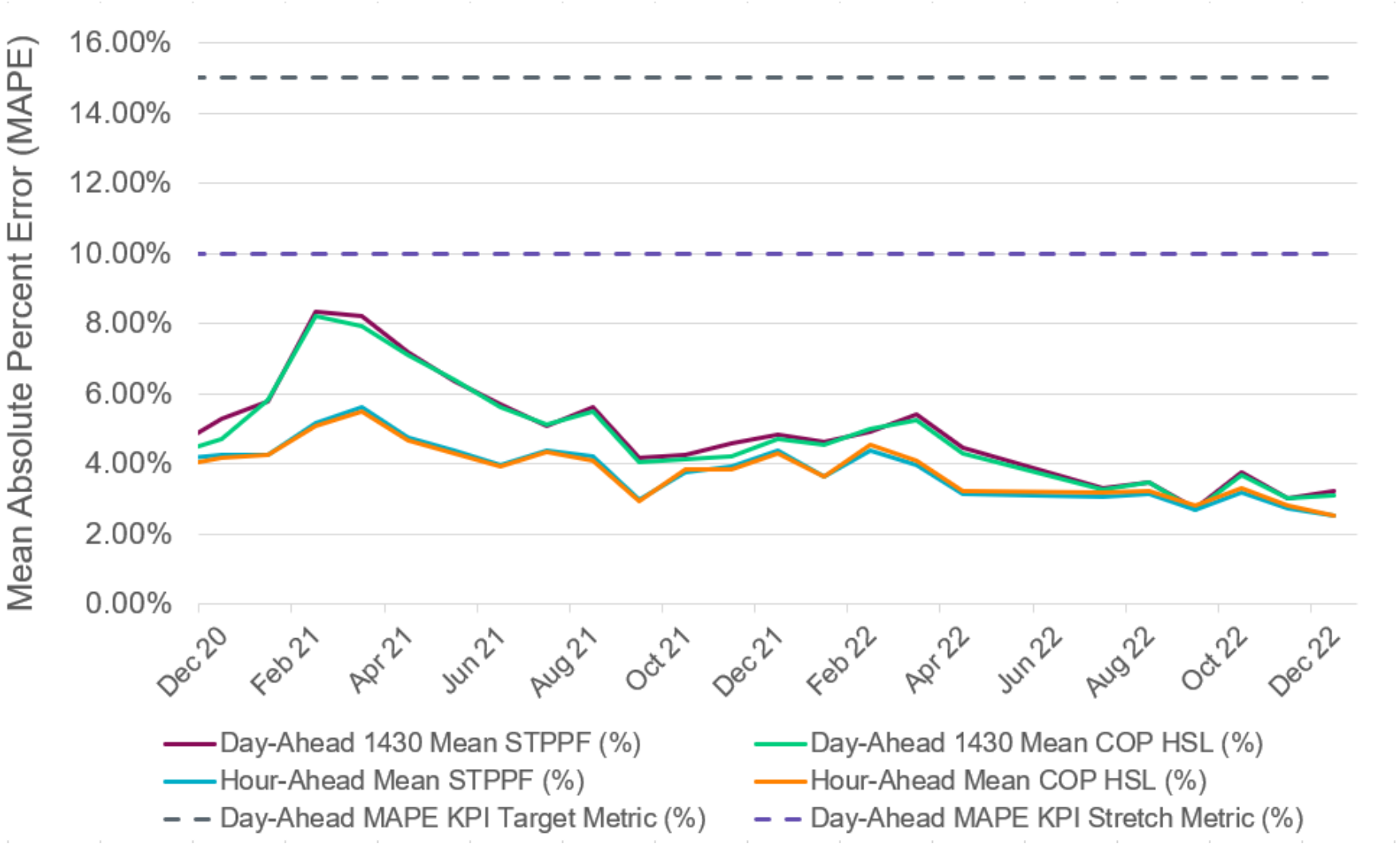
*Based on the maximum net system hourly value from January release of Demand and Energy 2022 report.
**Based on the minimum net system 15-minute interval value from January release of Demand and Energy 2022 report.
Data for latest two months are based on preliminary settlements.

Mid-Term Load Forecast Performance



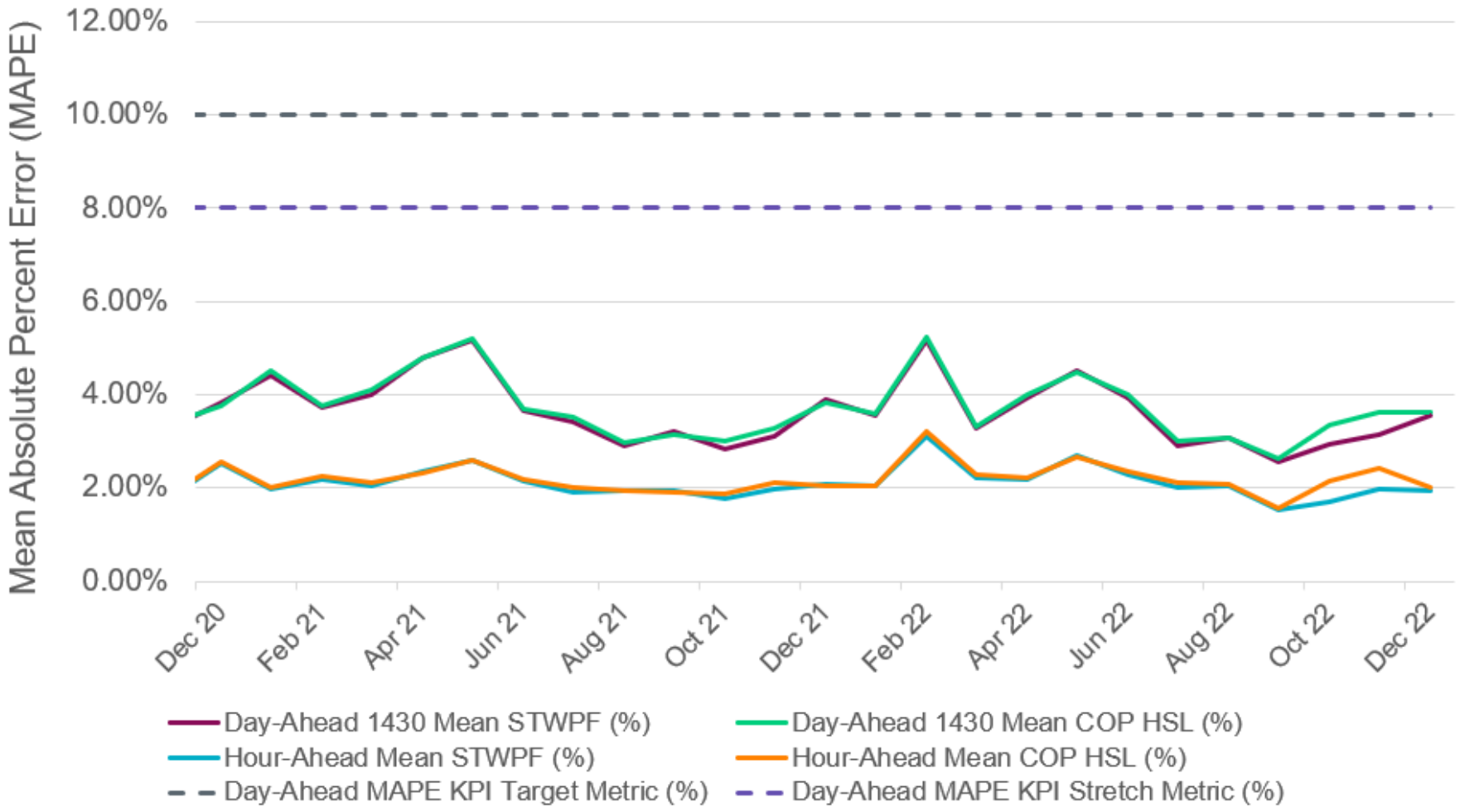
The Mid-Term Load Forecast is an hourly forecast that looks 7 days into the future

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.

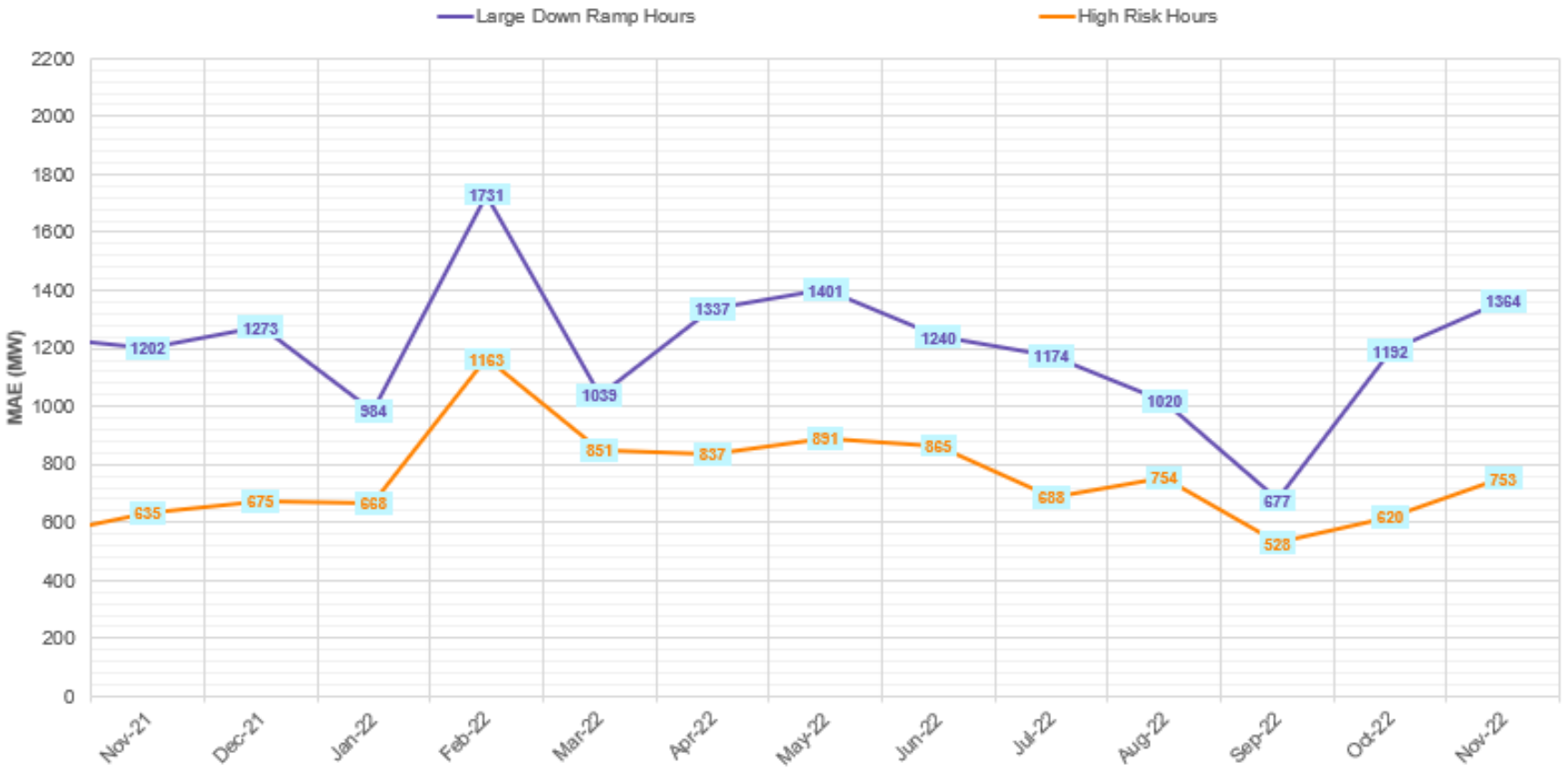
Wind Forecast Performance



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

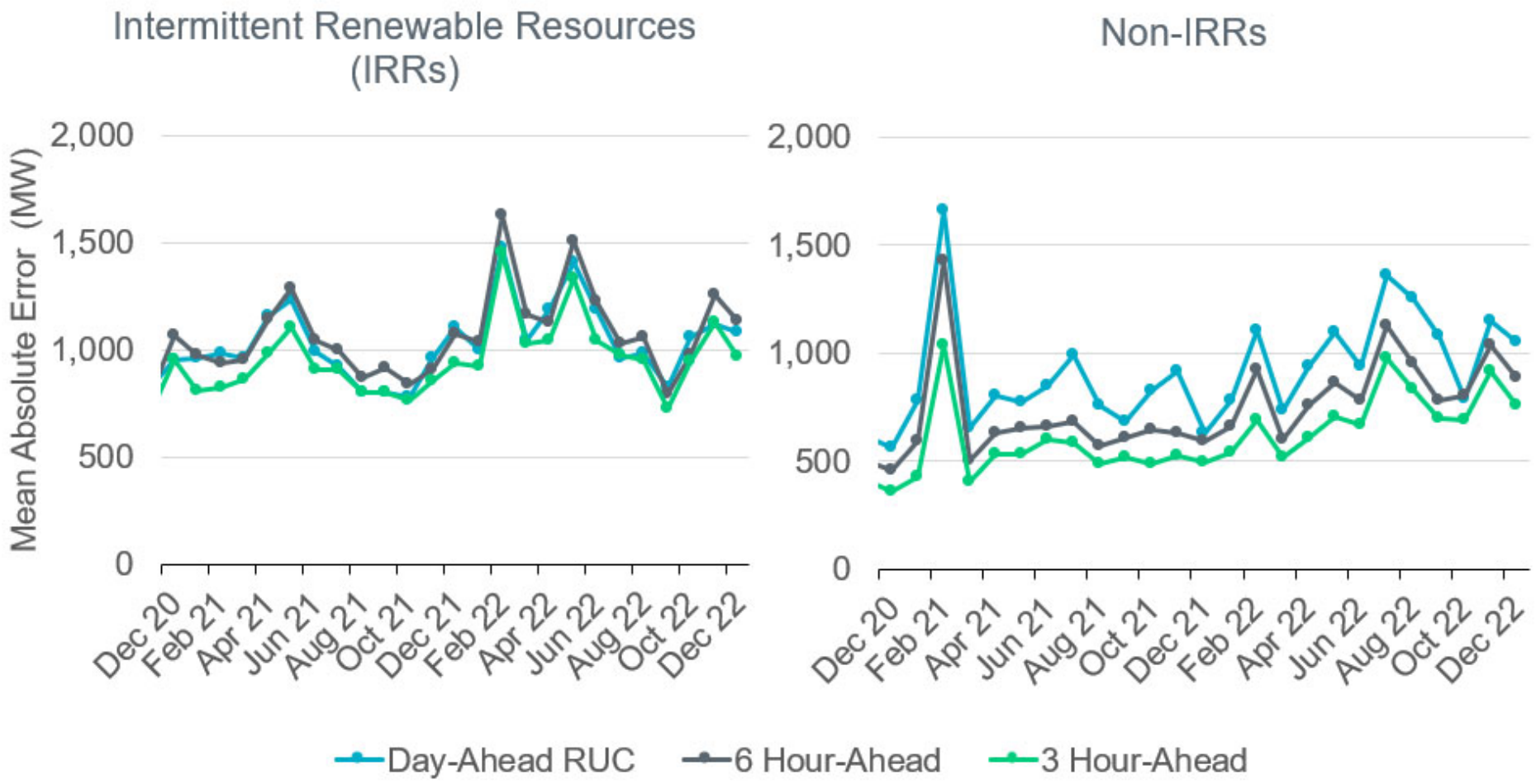
Hour-Ahead Mean Absolute Error (MAE) During Large Down Ramp (> 2000 MW) and High Risk Hours*



**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.*

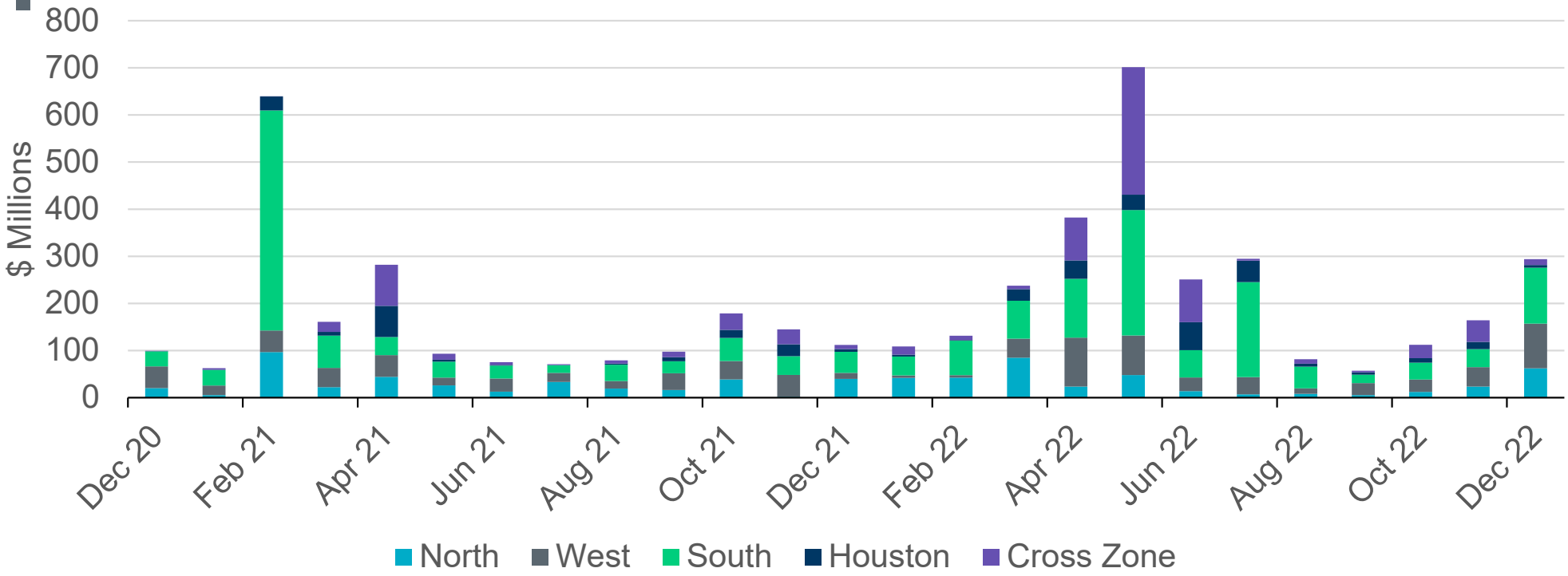
Forecast performance during large down ramp (wind ramp > 2000 MW) hours and high risk hours (historic risk of load ramping up and wind ramping down is high) is focused upon. Note that for the purposes of forecast performance measurement every hour in a month is classified as either a large down ramp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



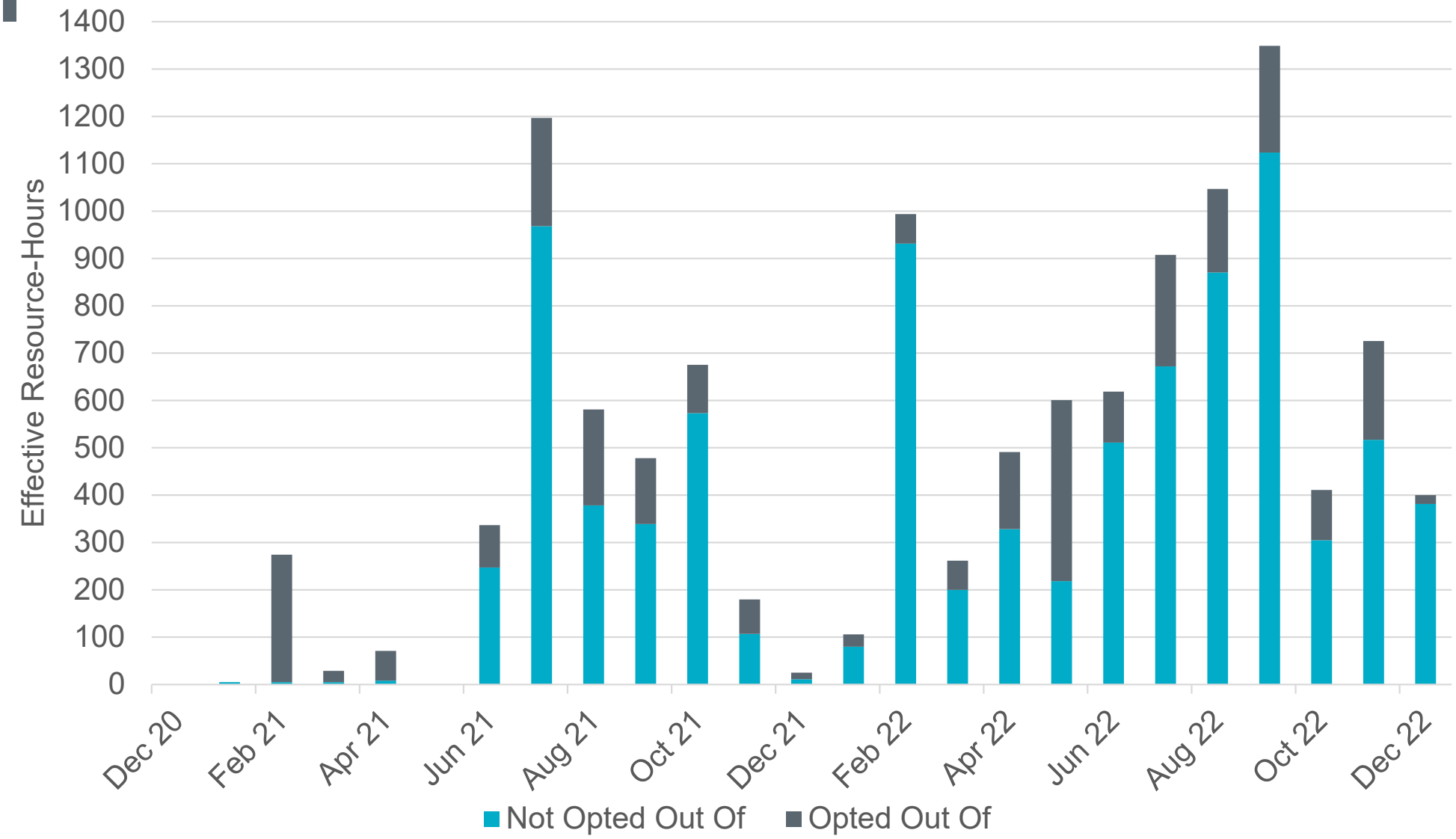
- COPs for IRRs are derived from wind and solar forecasts from ERCOT with any adjustments from Qualified Scheduling Entities.
- The installed capacity of approved Wind Units is 36,858 MW (as of December 31, 2022).
- The installed capacity of approved Solar Units is 14,249 MW (as of December 31, 2022).

Real-Time Congestion Rent by Zone



- Congestion rent increased in the North, West, and South Zones in December 2022 compared to November 2022. 38% of the month's congestion rent accumulated on December 23rd as Winter Storm Elliot passed through Texas.
- The two zones with the highest congestion rent were the West and South Zones.
  - Congestion rent in the West Zone was primarily driven by the loss of the Skywest to Spraberry switch 138 kV contingency overloading the 138 kV line from Cottonfield station to Consavvy switch.
  - Congestion rent in the South Zone was primarily driven by the loss of the Elmcreek to San Miguel 345 kV double circuit contingency overloading the 345 kV line from Pawnee switching station to Calaveras.
- 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-nine Resources were Committed in December for Capacity

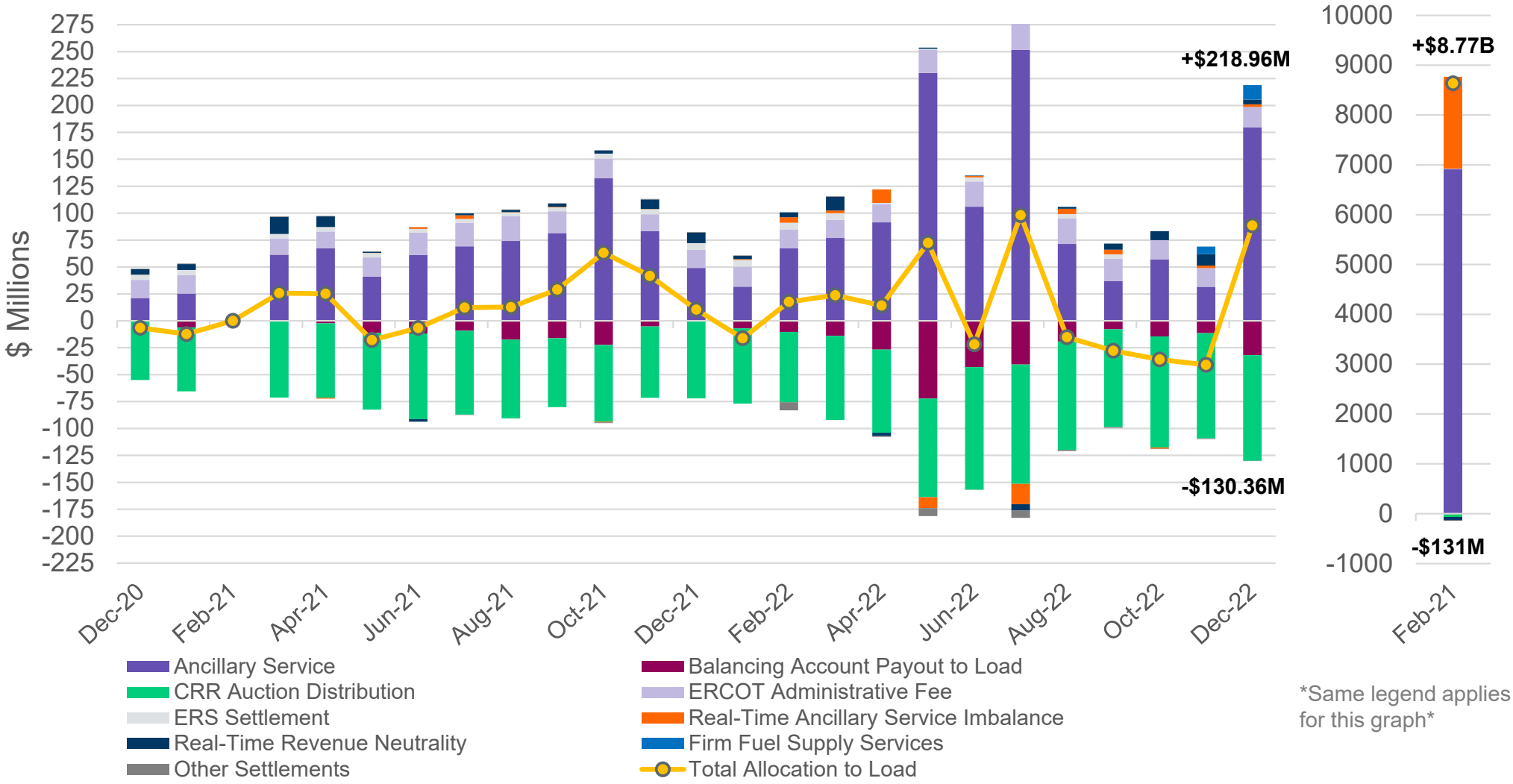


"Effective Resource-Hours" excludes any period during a Reliability Unit Commitment hour when the RUC-committed Resource was starting up, shutting down, off-line, or otherwise not available for dispatch by SCED.

Twenty-nine Resources were Committed in December for Capacity

Resource #	Effective Resource-hours	Non Opt Out (Effective Hours)	Opt Out (Effective Hours)
1	11.0	6.0	5.0
2	11.0	11.0	0.0
3	9.5	9.5	0.0
4	9.8	9.8	0.0
5	5.0	0.0	5.0
6	31.0	31.0	0.0
7	22.3	22.3	0.0
8	0.9	0.9	0.0
9	31.0	31.0	0.0
10	26.9	26.9	0.0
11	0.8	0.0	0.8
12	0.8	0.0	0.8
13	0.8	0.0	0.8
14	0.8	0.0	0.8
15	35.9	35.9	0.0
16	35.0	33.0	2.0
17	8.0	8.0	0.0
18	14.0	14.0	0.0
19	14.0	14.0	0.0
20	2.0	2.0	0.0
21	26.3	22.8	3.5
22	1.1	1.1	0.0
23	5.0	5.0	0.0
24	5.0	5.0	0.0
25	3.0	3.0	0.0
26	5.0	5.0	0.0
27	62.0	62.0	0.0
28	9.3	9.3	0.0
29	12.9	12.9	0.0
	399.9	**381.3**	**18.6**

Net Allocation to Load in December 2022 was $88.60 Million

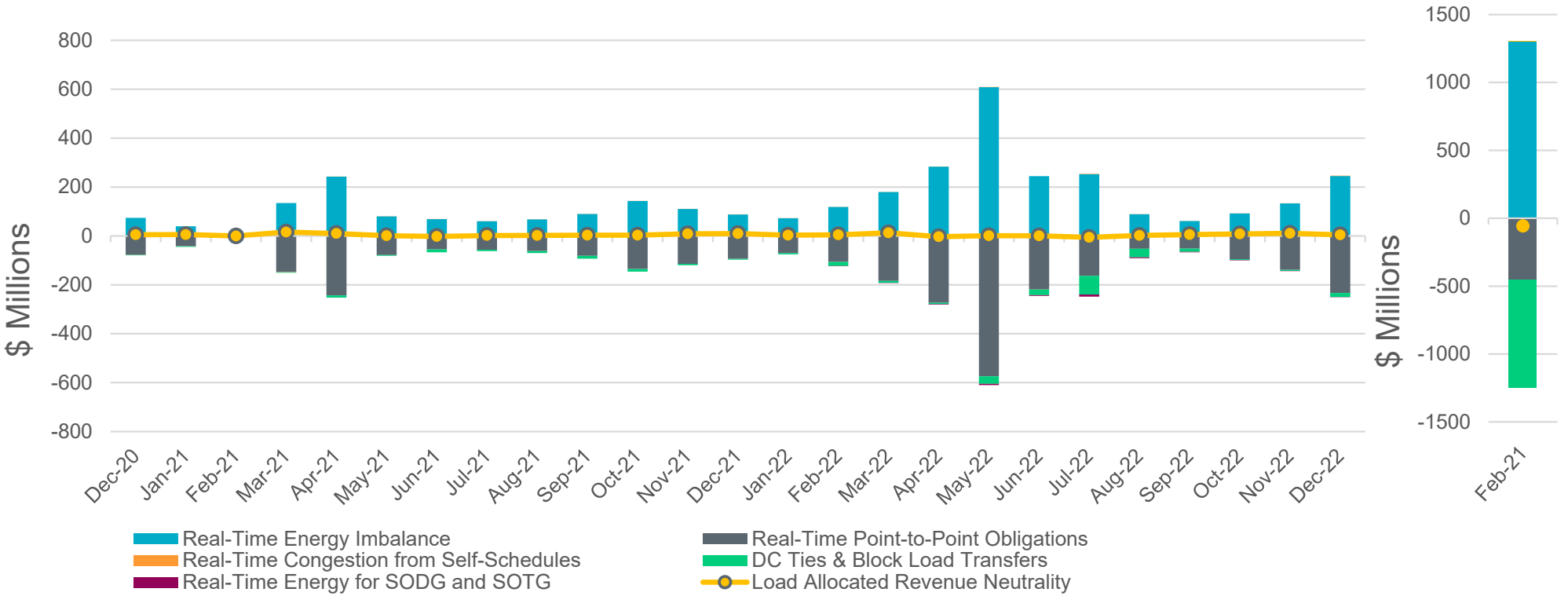


Same legend applies for this graph

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.

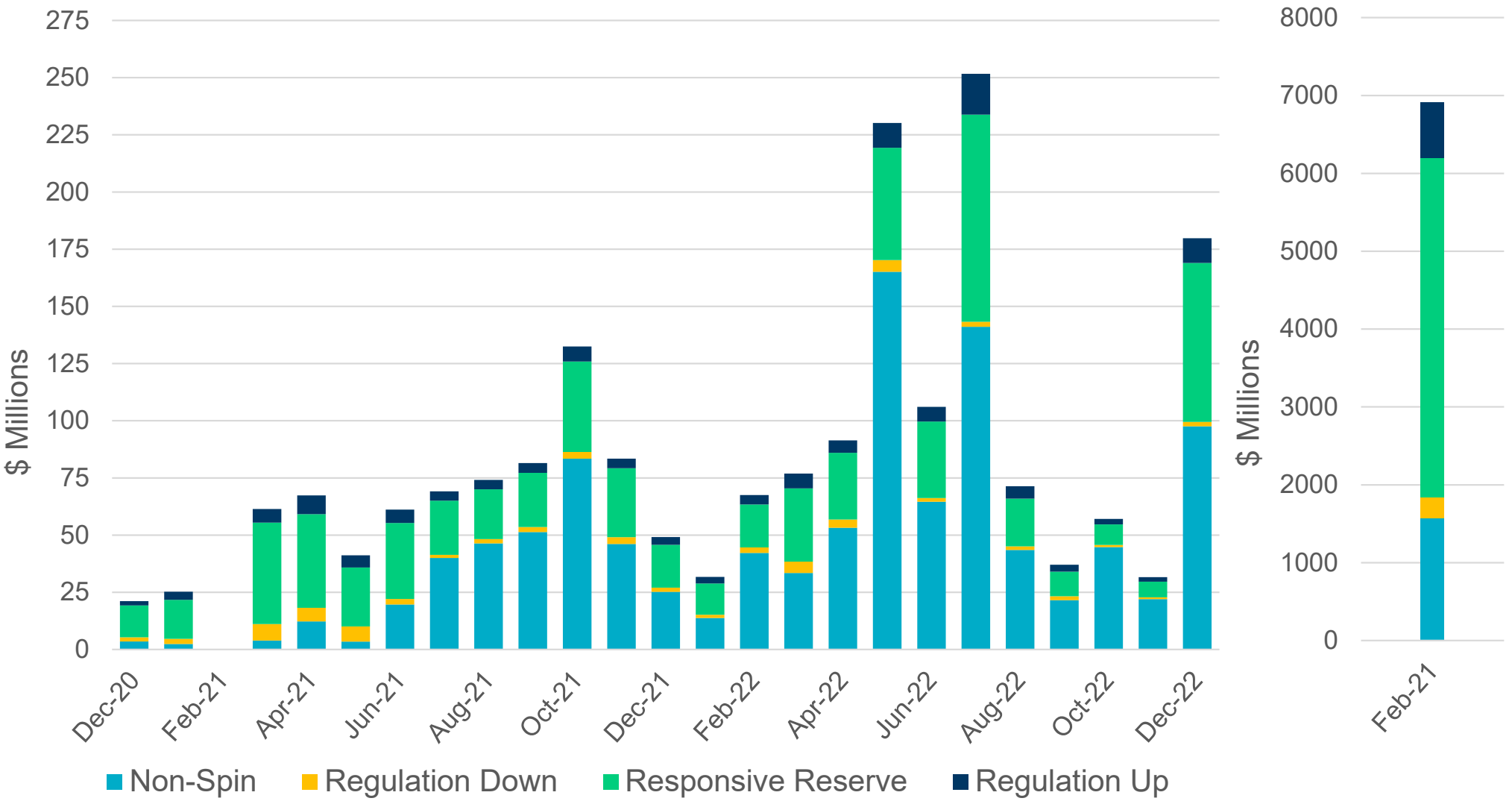
Real-Time Revenue Neutrality Allocated to Load was $4.34M for December 2022



	December 2022 ($M)
Real-Time Energy Imbalance	$245.17
Real-Time Point-to-Point Obligation	($233.37)
Real-Time Congestion from Self-Schedules	$1.51
DC Tie & Block Load Transfer	($16.39)
Real-Time Energy for SODG and SOTG	($1.25)
Load Allocated Revenue Neutrality	**$4.34**

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 December 2022 totaled $179.78M



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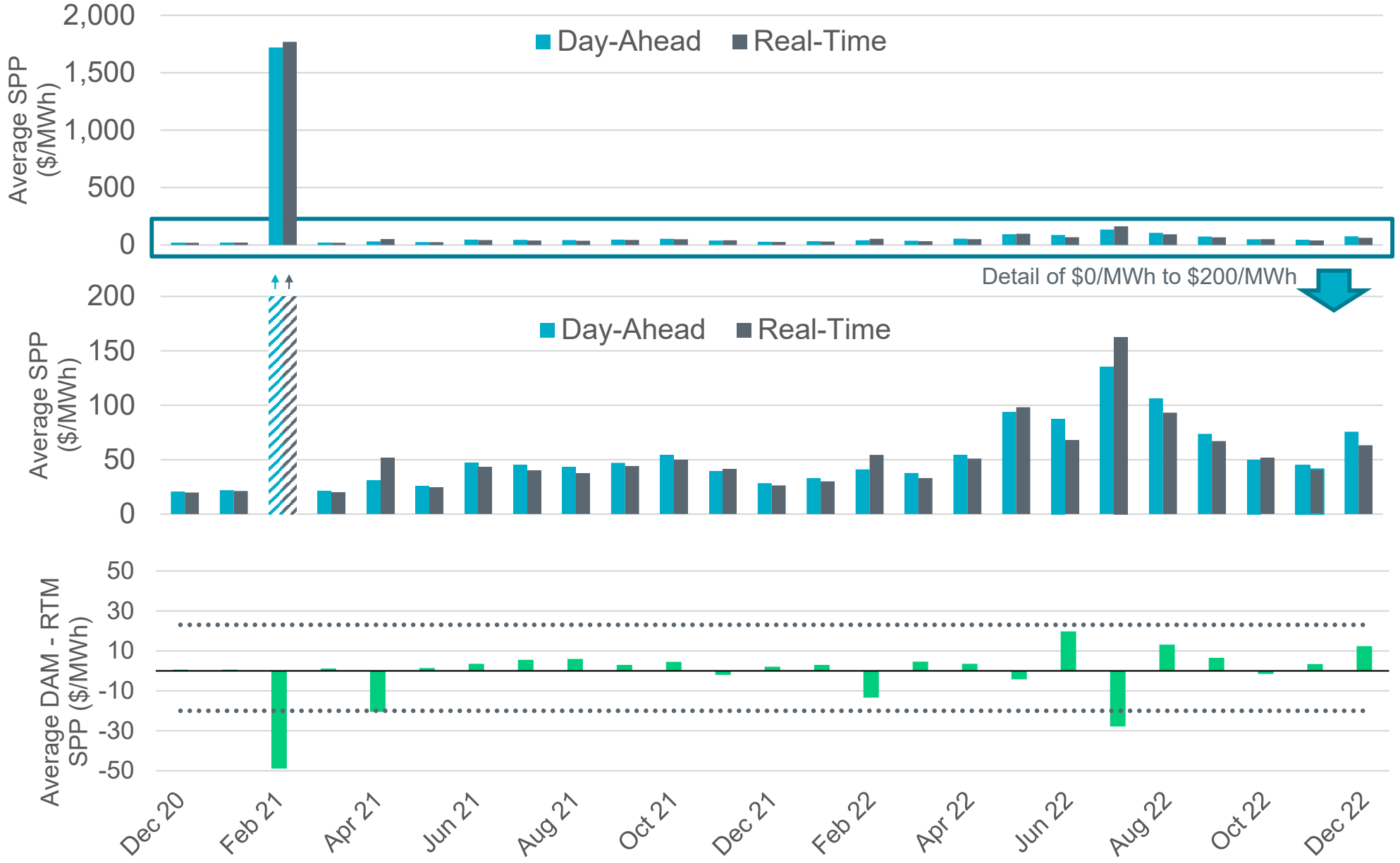
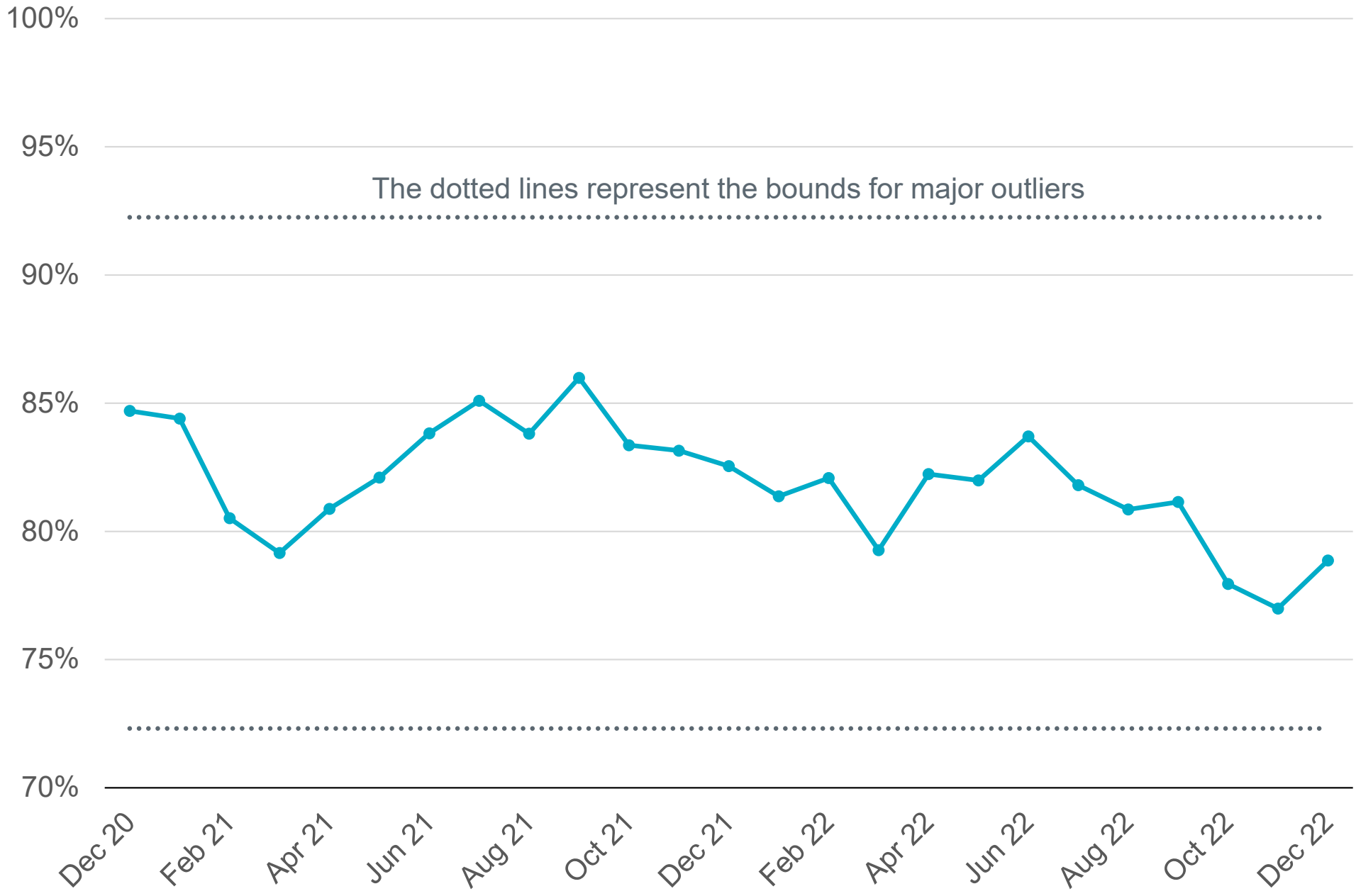
Day-Ahead and Real-Time Market Price Differences

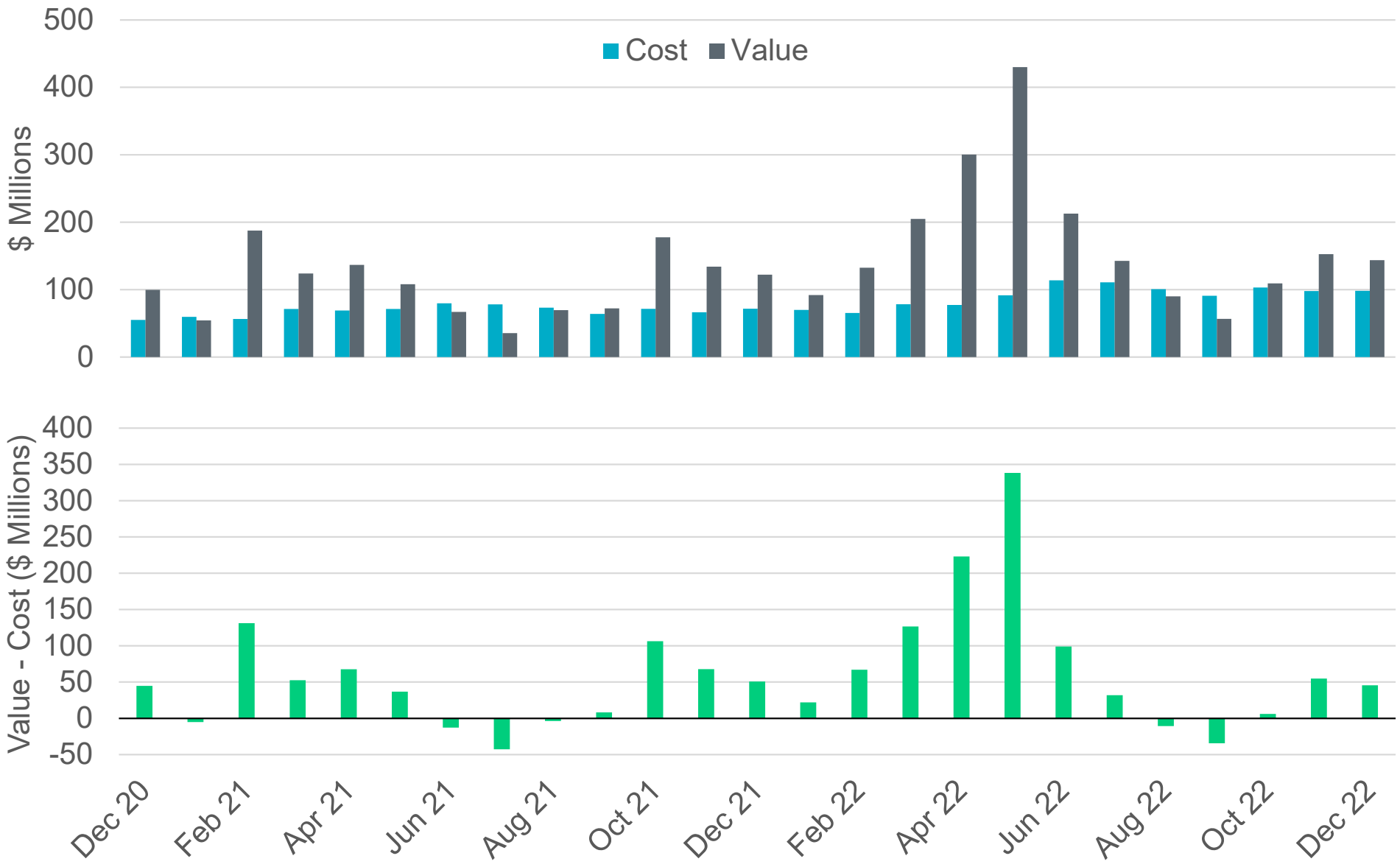


*Averages are weighted by Real-Time Market Load

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



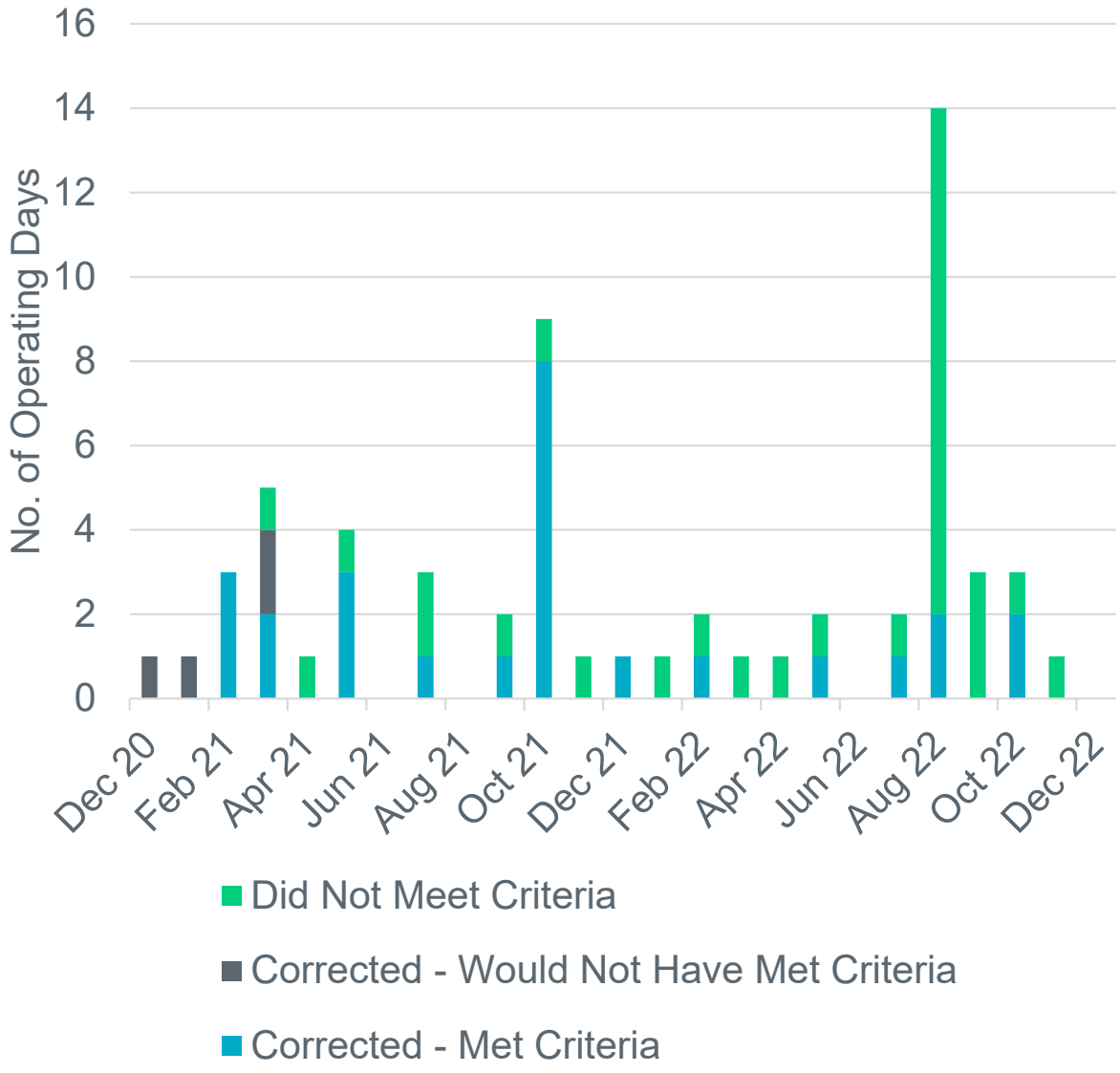
CRR Value and Cost Differences



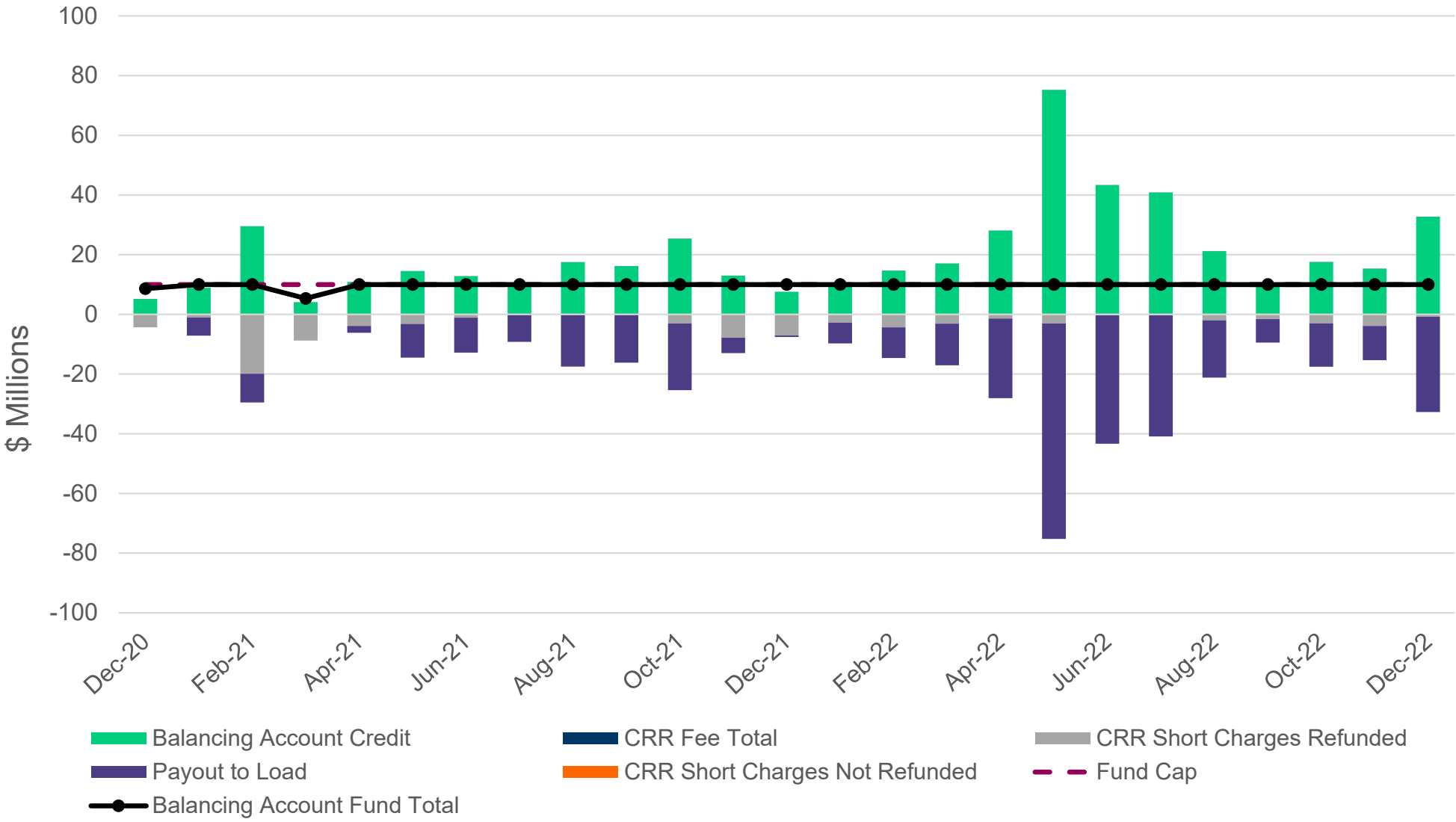
Price Issues and the Impact of Nodal Protocol Revision Request (NPRR) 1024 on Price Corrections

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

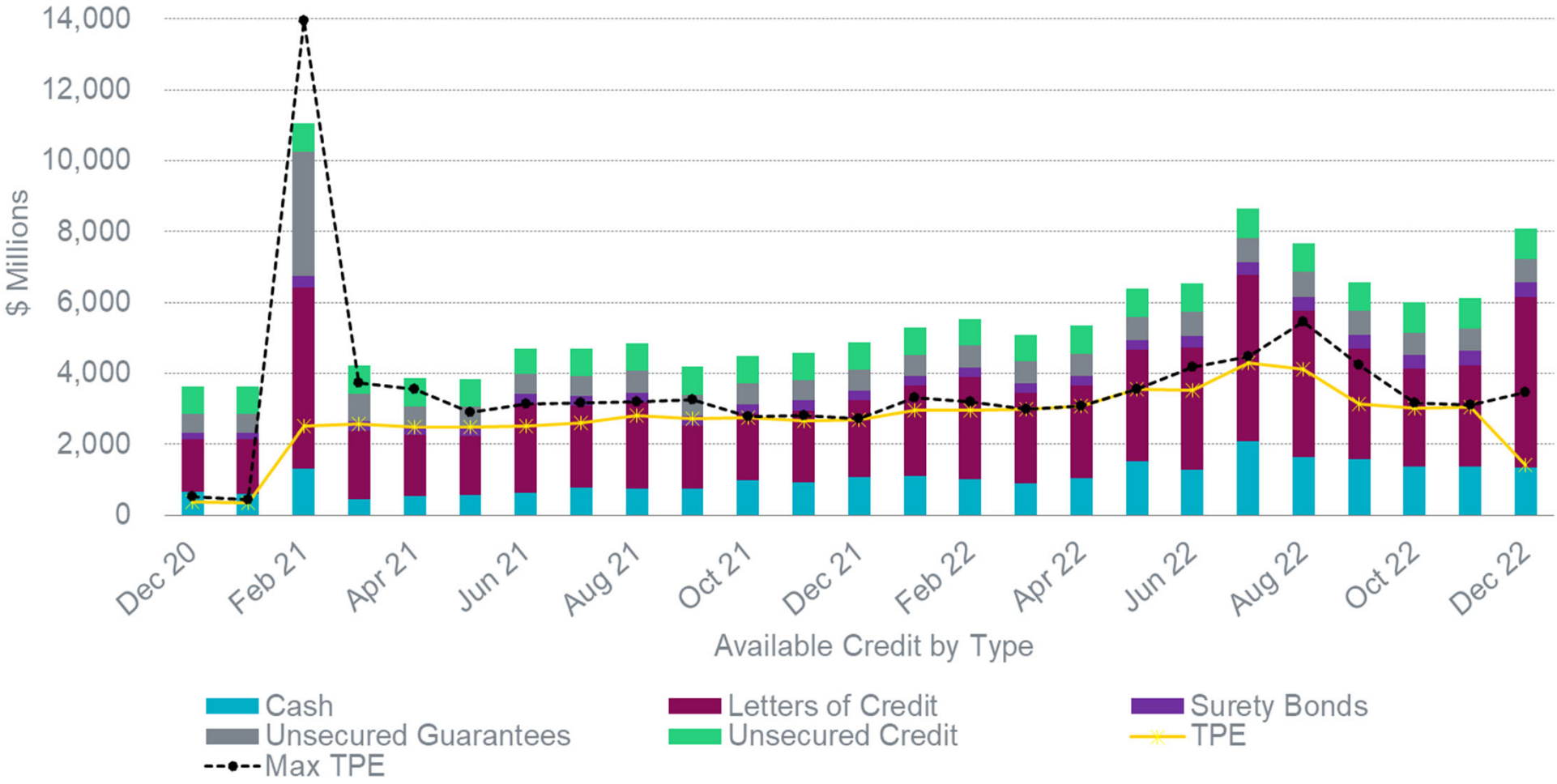
- Days that met the criteria for "significance" under NPRR1024 and were corrected;
- Days that would not have met the criteria for "significance" under NPRR1024, but were corrected because NPRR1024 was not yet in place; and
- Days that were not corrected because they did not meet the criteria for "significance"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



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 – December 2022

	Year-To-Date		Transactions Received	
Transaction Type	December 2022	December 2021	December 2022	December 2021
Switches	1,182,485	1,542,185	70,513	70,637
Acquisitions	0	48,862	0	0
Move - Ins	3,098,201	2,784,176	232,968	214,374
Move - Outs	1,381,804	1,277,550	95,982	93,239
Continuous Service Agreements (CSA)	676,125	696,478	33,759	64,948
Mass Transitions	24,463	26,584	0	0
Total	6,363,078	6,375,835	433,222	443,198