



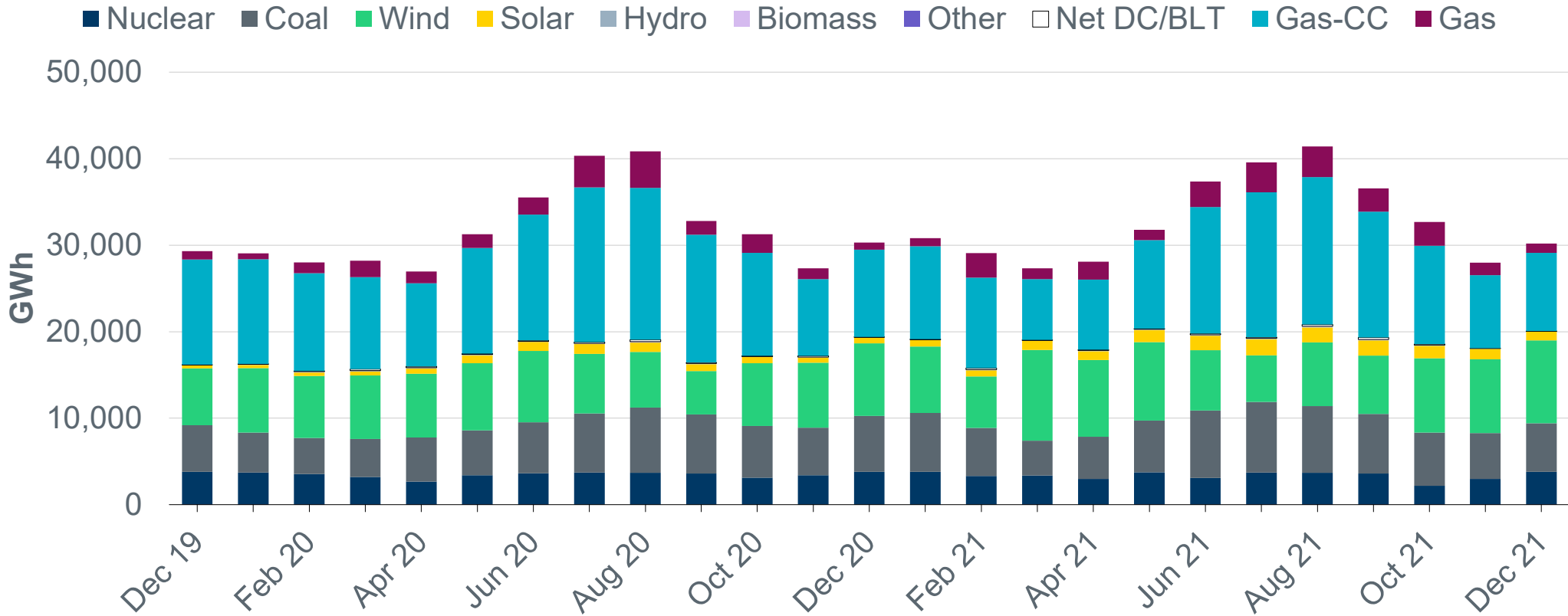
ERCOT Monthly Operational Overview (December 2021)

ERCOT Public
January 24, 2022

Notifications and Records

- ERCOT set a maximum peak demand of 49,179 MW* for the month of December, which is 6,737 MW less than the December 2020 demand of 55,916 MW.
- ERCOT issued 2 notifications:
 - 2 DC Tie Curtailment Notices for DC_R (Railroad) DC Tie due to a planned or unplanned outage.

Monthly energy generation decreased by 0.4% year-over-year to 30,177 GWh in December 2021, compared to 30,301 GWh in December 2020

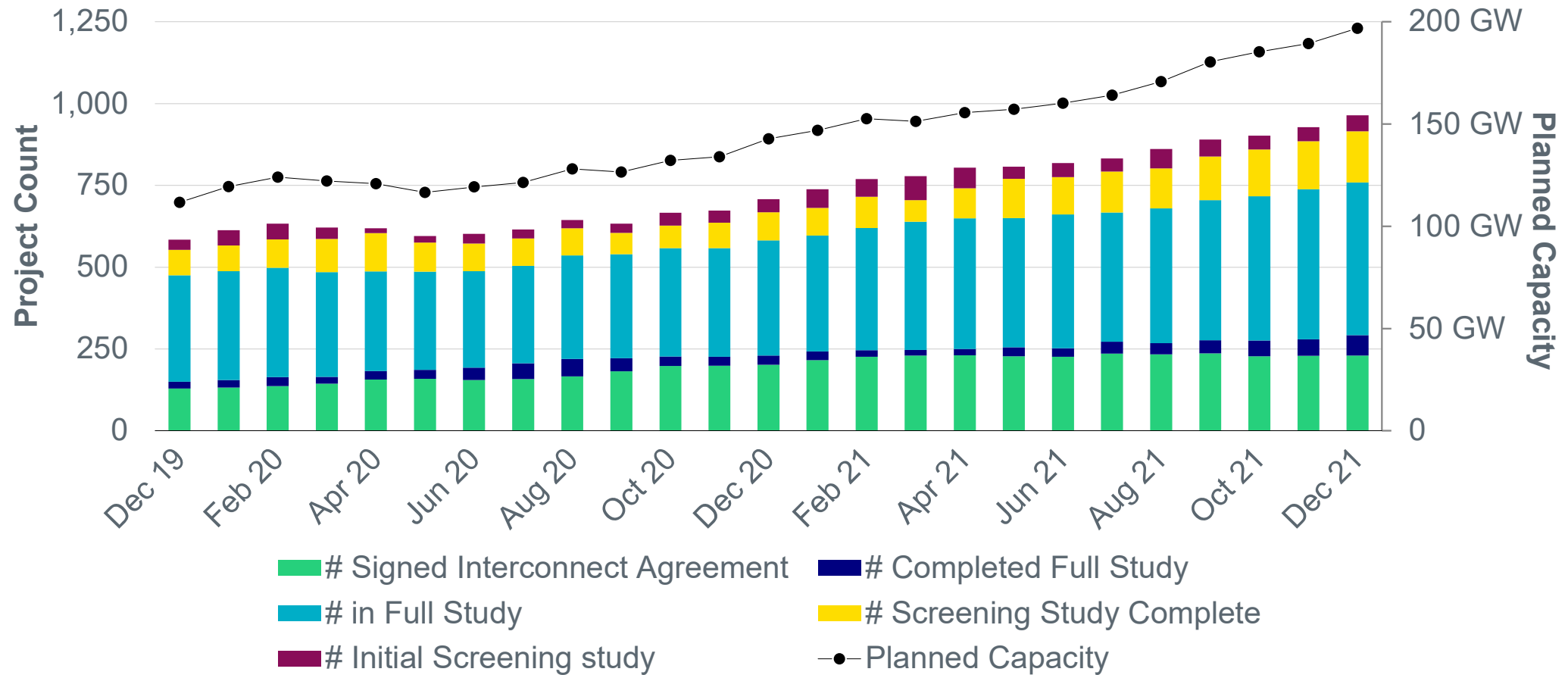


Data for latest two months are based on preliminary settlements.



Generation Interconnection activity by project phase

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

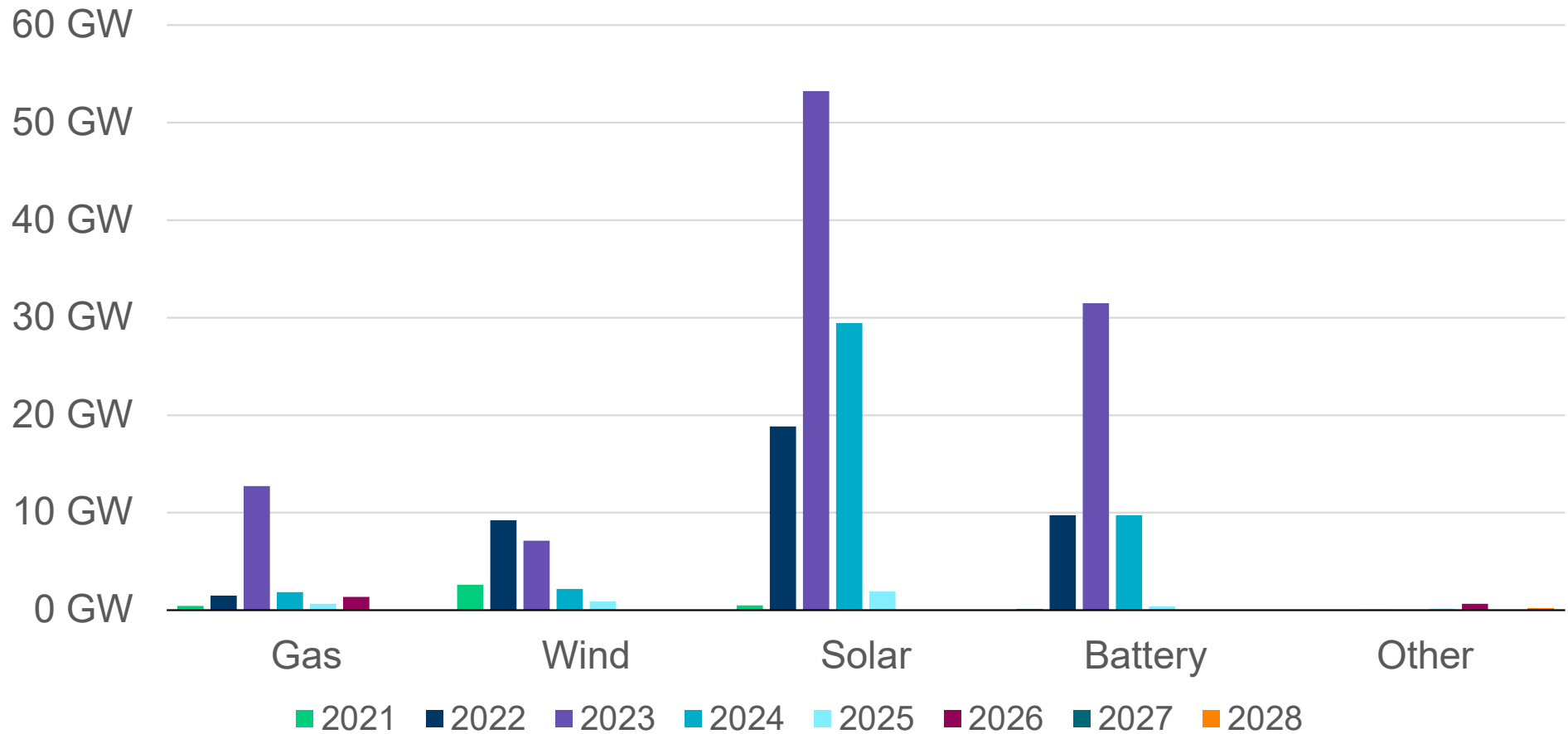


A break-out by fuel type can be found in the monthly Generator Interconnection Status (GIS) reports available on the ERCOT Resource Adequacy Page: <http://www.ercot.com/gridinfo/resource>



Interconnection Queue Capacity by Fuel Type

Queue totals: Solar 104 GW (52.8%), Wind 22 GW (11.1%), Gas 18 GW (9.4%), Battery 51 GW (26.1%)
(Excludes capacity associated with Projects designated as Inactive per Planning Guide Section 5.7.6)

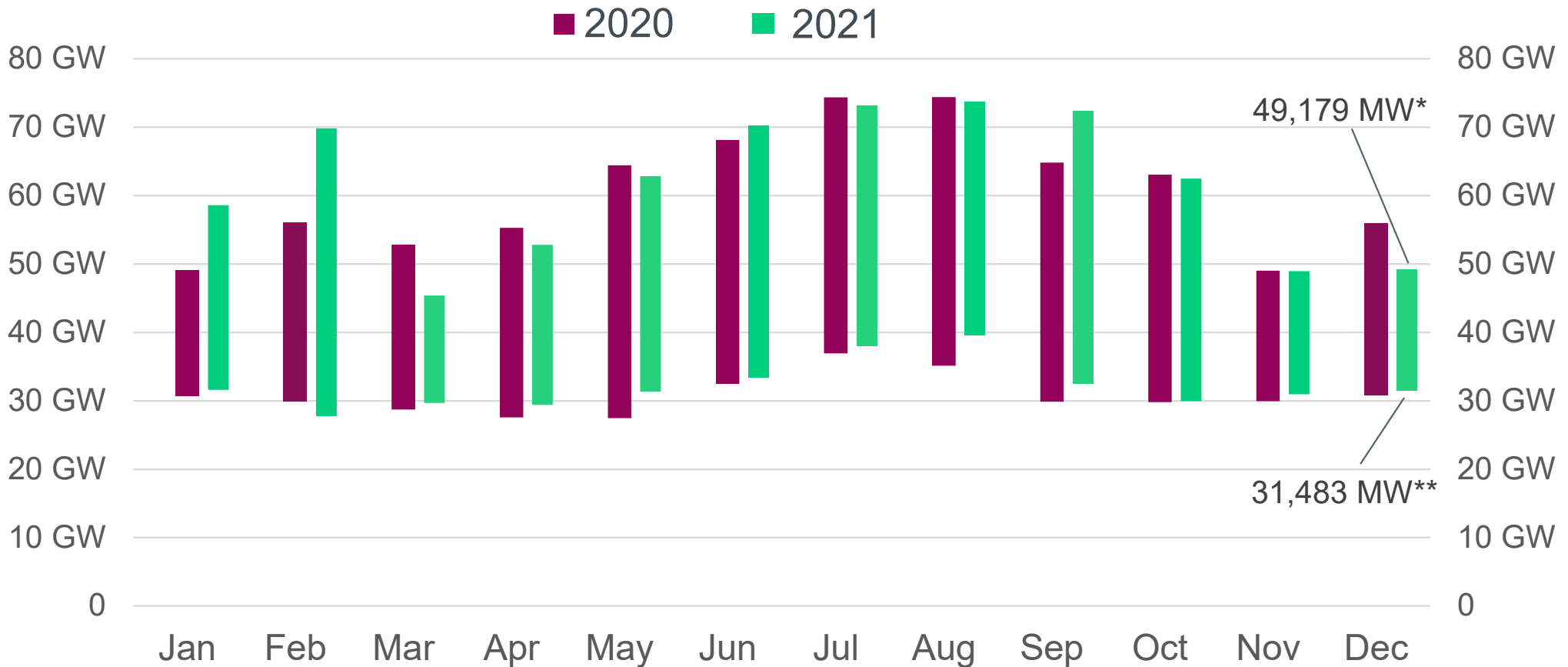


A break-out by zone can be found in the monthly Generator Interconnection Status (GIS) reports available on the ERCOT Resource Adequacy Page: <http://www.ercot.com/gridinfo/resource>

Planning Summary

- ERCOT was tracking 964 active generation interconnection requests totaling 196,763 MW as of December 31. This includes 103,923 MW of solar, 21,939 MW of wind, 51,416 MW of battery, and 18,450 MW of gas projects; 57 projects were categorized as inactive, Down from 60 inactive projects in November.
- ERCOT is currently reviewing proposed transmission improvements with a total estimated cost of \$228.16 Million as of December 31, 2021.
- Transmission Projects endorsed in 2021 total \$2,498.85 Million as of December 31, 2021.
- All projects (in engineering, routing, licensing and construction) total approximately \$8.00 Billion as of October 1, 2021.
- Transmission Projects energized in 2021 total about \$1.438 Billion as of October 1, 2021.

ERCOT set a maximum peak demand of 49,179 MW* for the month of December, which is 6,737 MW less than the December 2020 demand of 55,916 MW.



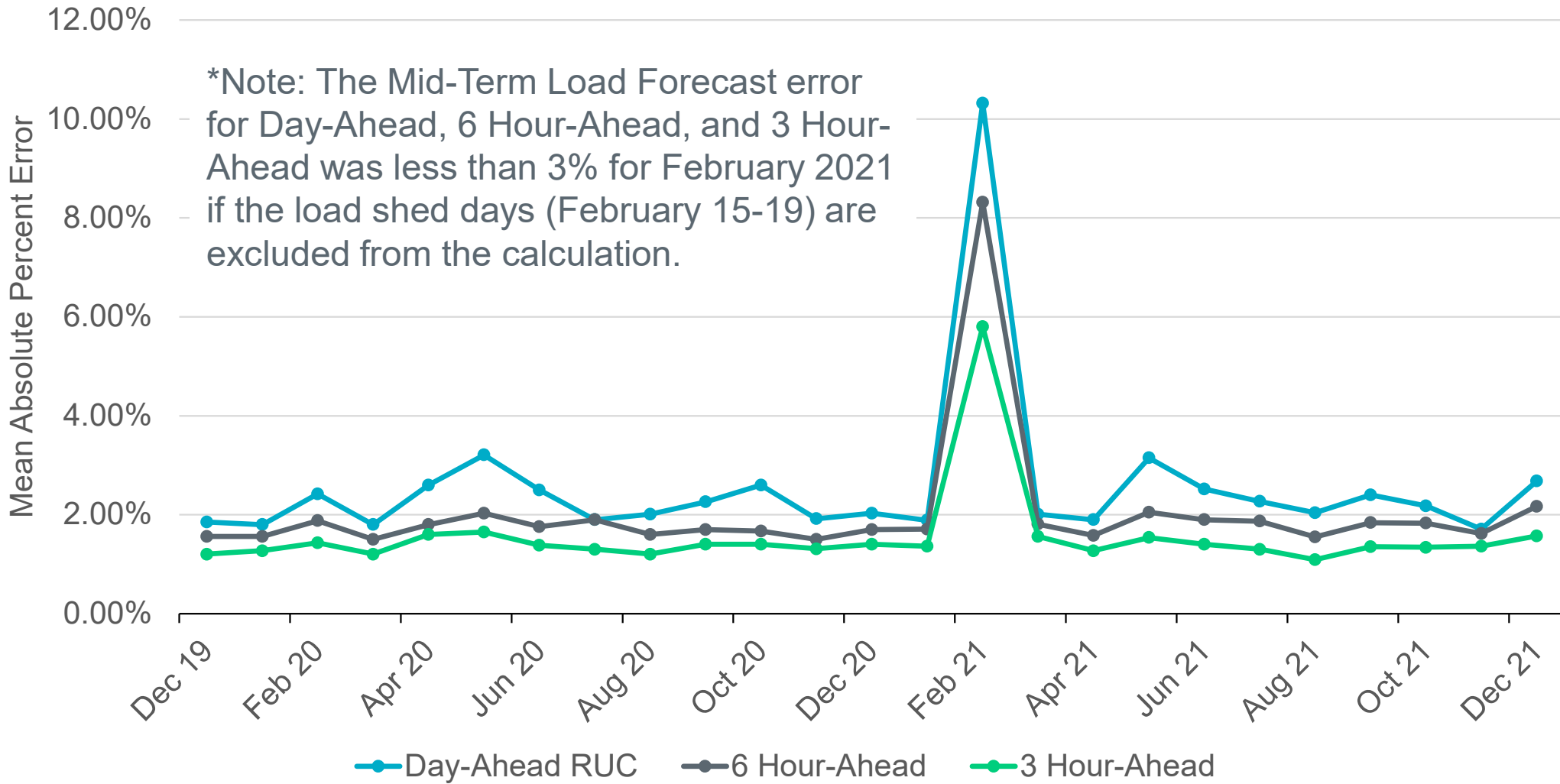
*Based on the maximum net system hourly value from January release of Demand and Energy 2022 report.

**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.



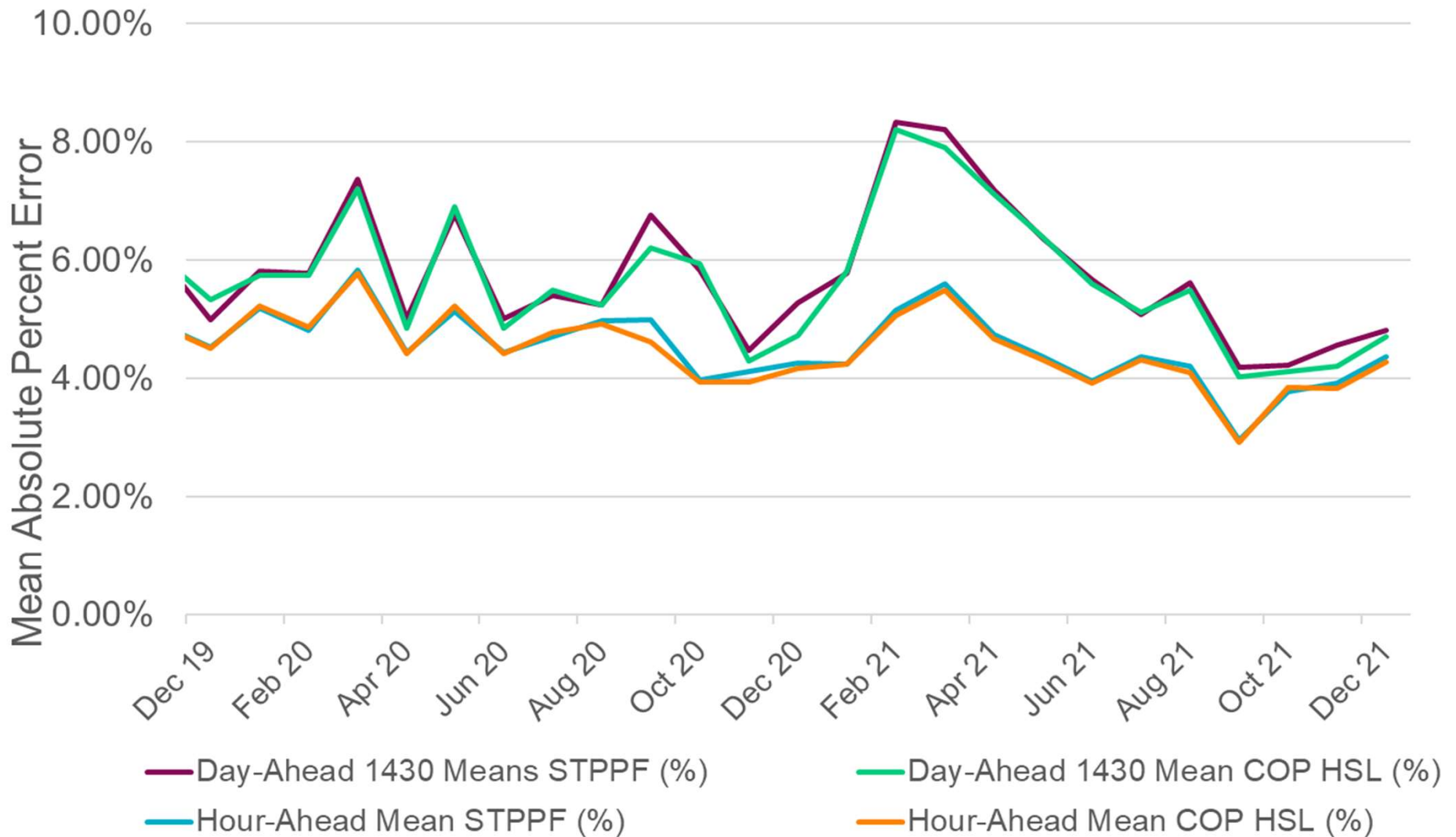
Mid-Term Load Forecast Performance



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



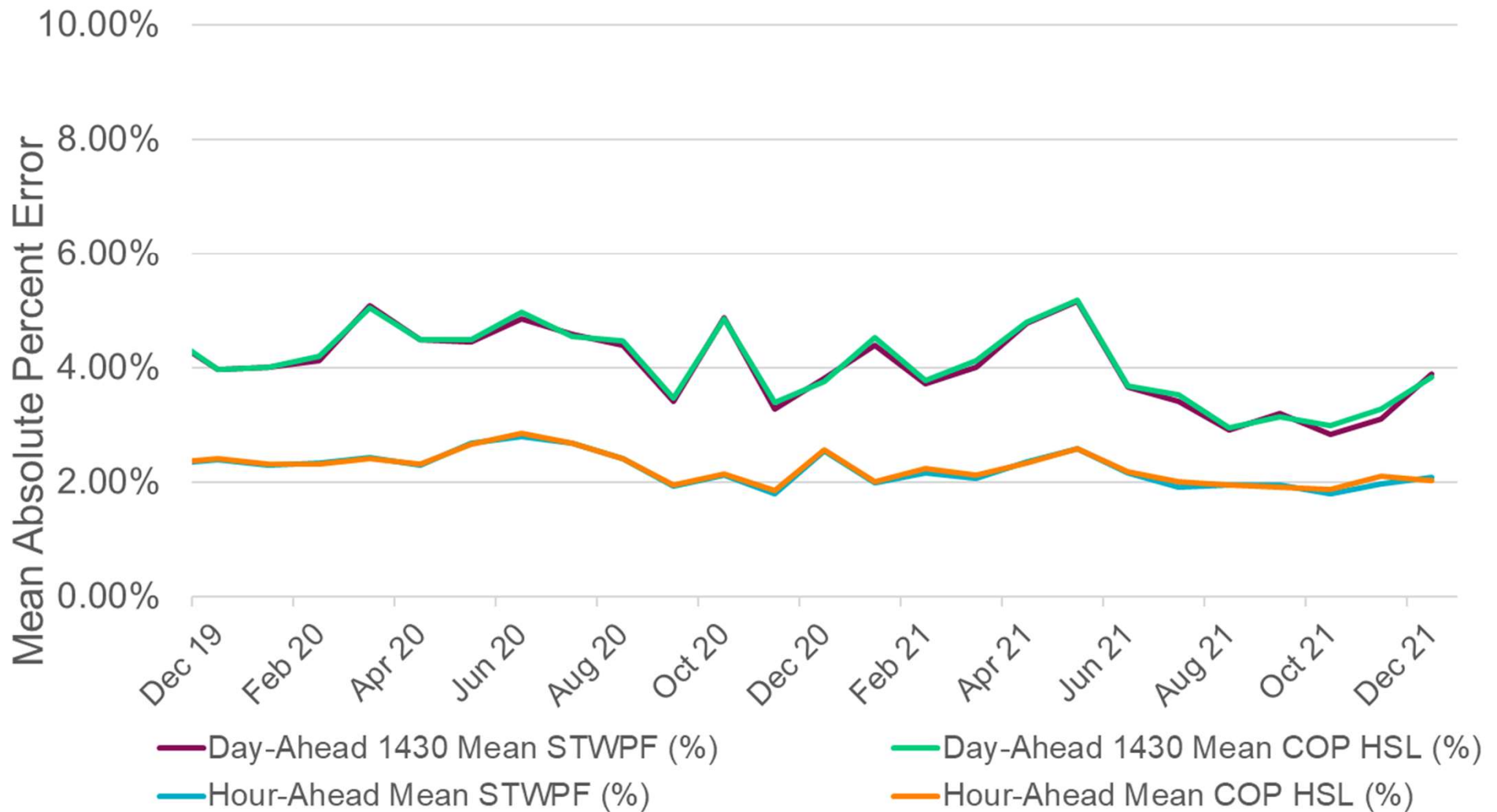
Solar Forecast Performance



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

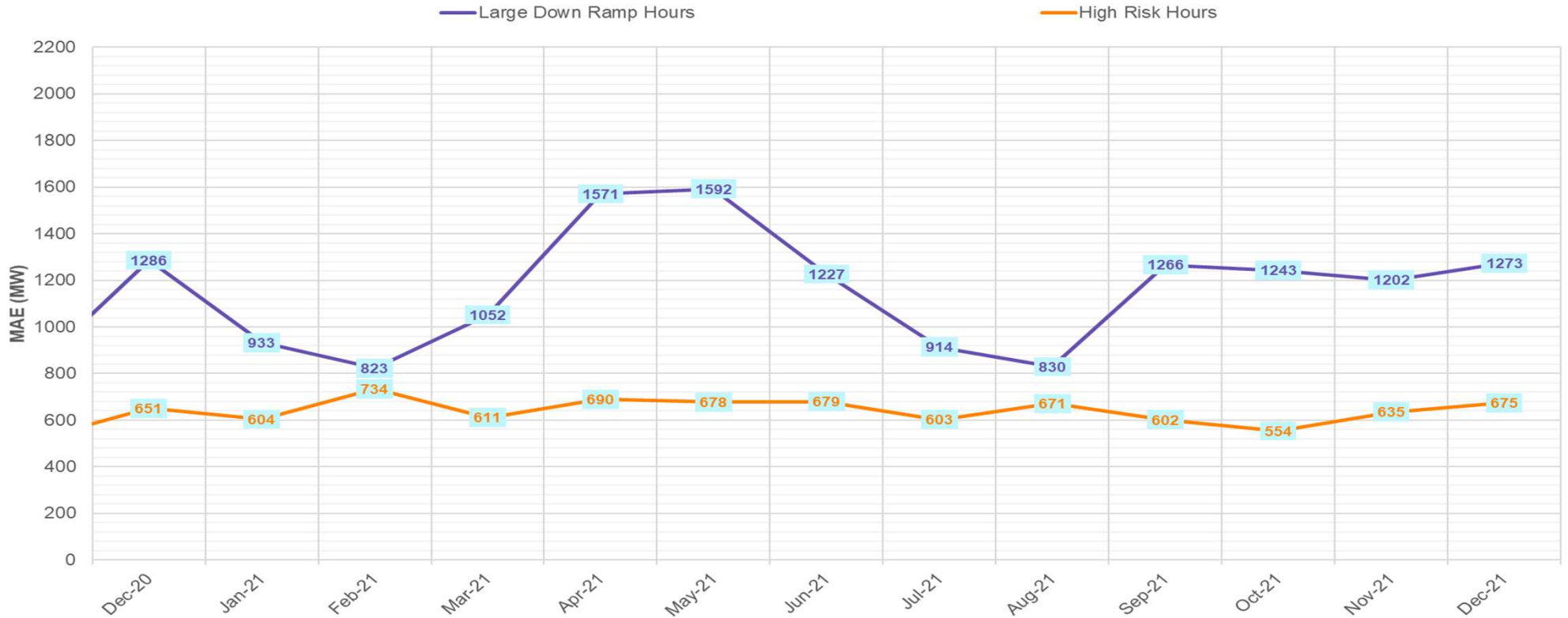


The Short-Term Wind Power Forecast (STWPF) is an ERCOT produced hourly 50% probability of exceedance forecast of the generation in MWh per hour from each Wind Generation Resource.



Hour-Ahead Wind Forecast Performance

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

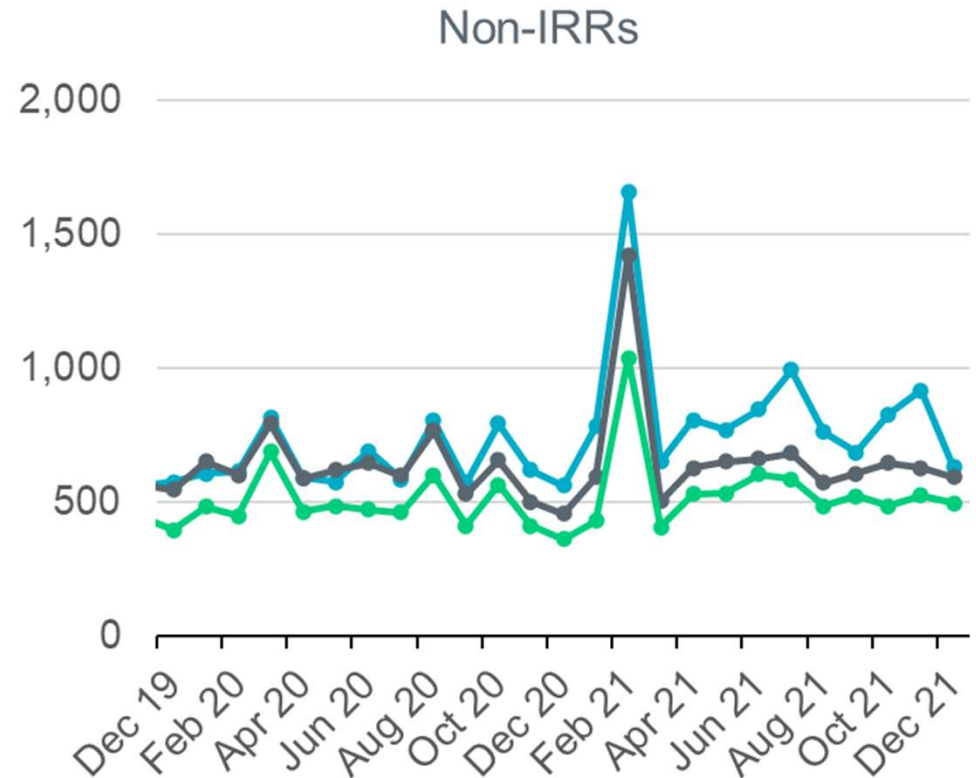
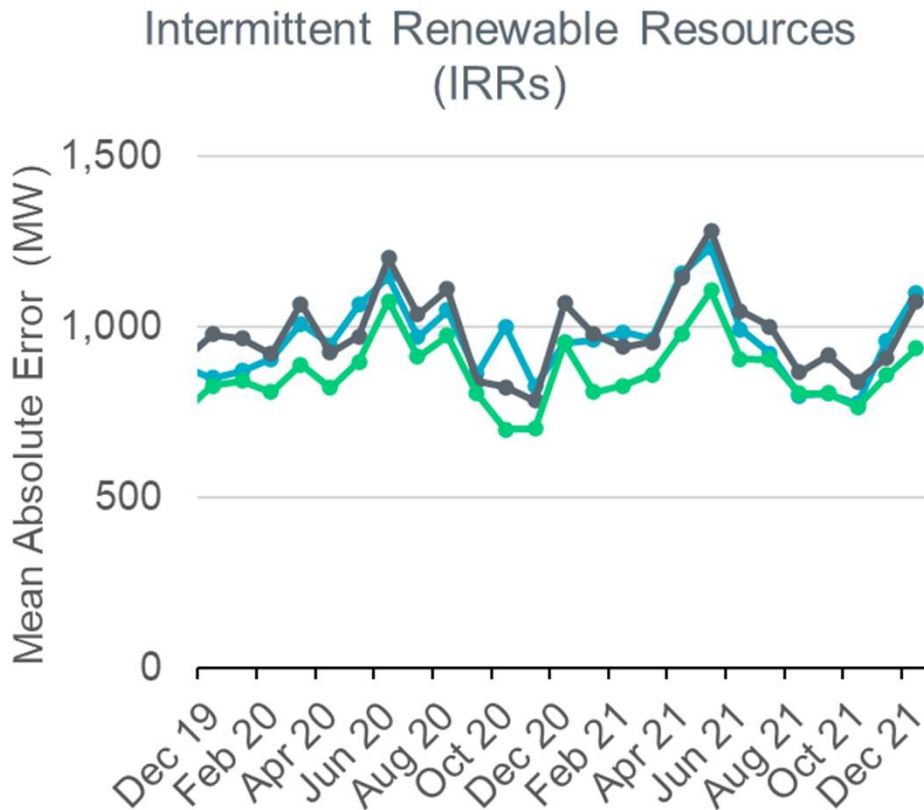


*ERCOT's performance based payment structure for Wind Forecasts with both vendors incentivizes improvements in forecast performance during hours that are of more importance to operational reliability. This approach is a paradigm shift from the "traditional" methodology of measuring wind forecast performance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

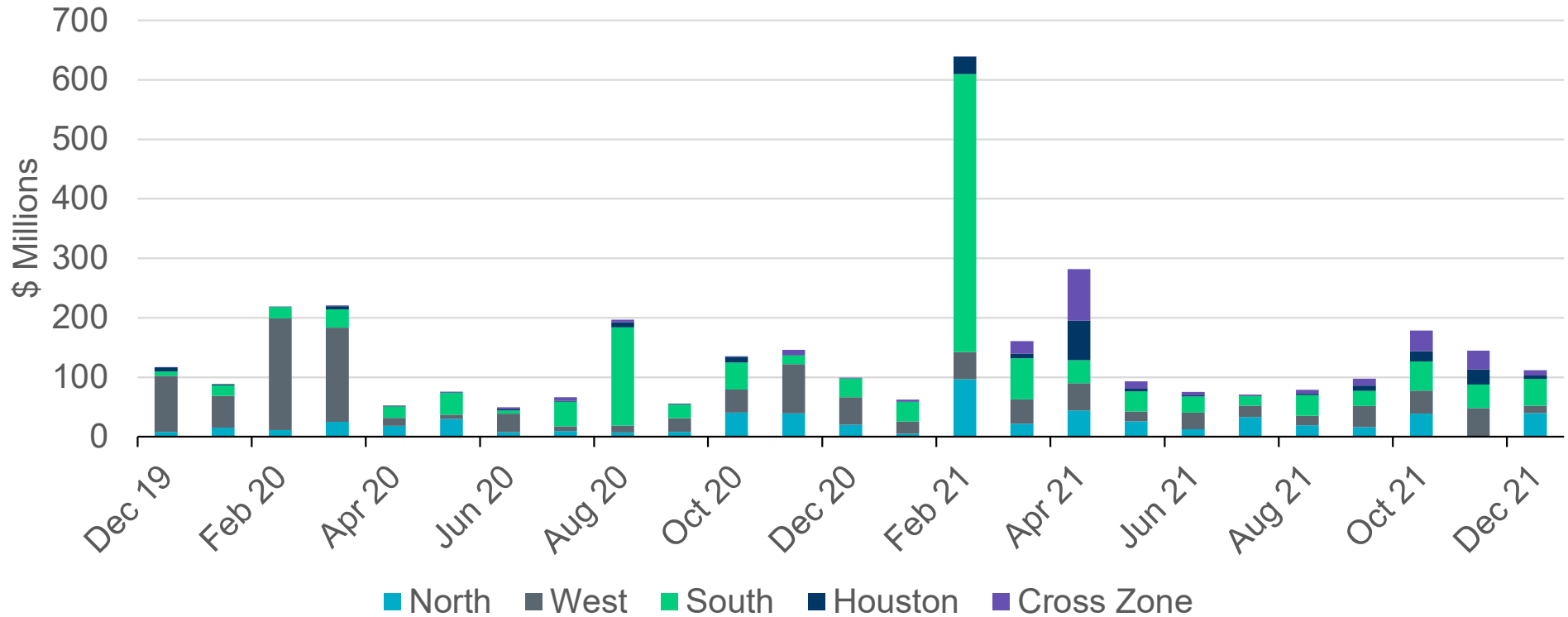


—●— Day-Ahead RUC
 —●— 6 Hour-Ahead
 —●— 3 Hour-Ahead

- 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 34,173 MW (as of December 31, 2021).
- The installed capacity of approved Solar Units is 9,323 MW (as of December 31, 2021).



Real-Time Congestion Rent by Zone



- Congestion rent in the North Zone and South Zone increased in December when compared to November. The most significant constraints for December were DCPSJON5: 161__B in the North Zone and BASE CASE: NE_LOB in the South Zone.
- 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.

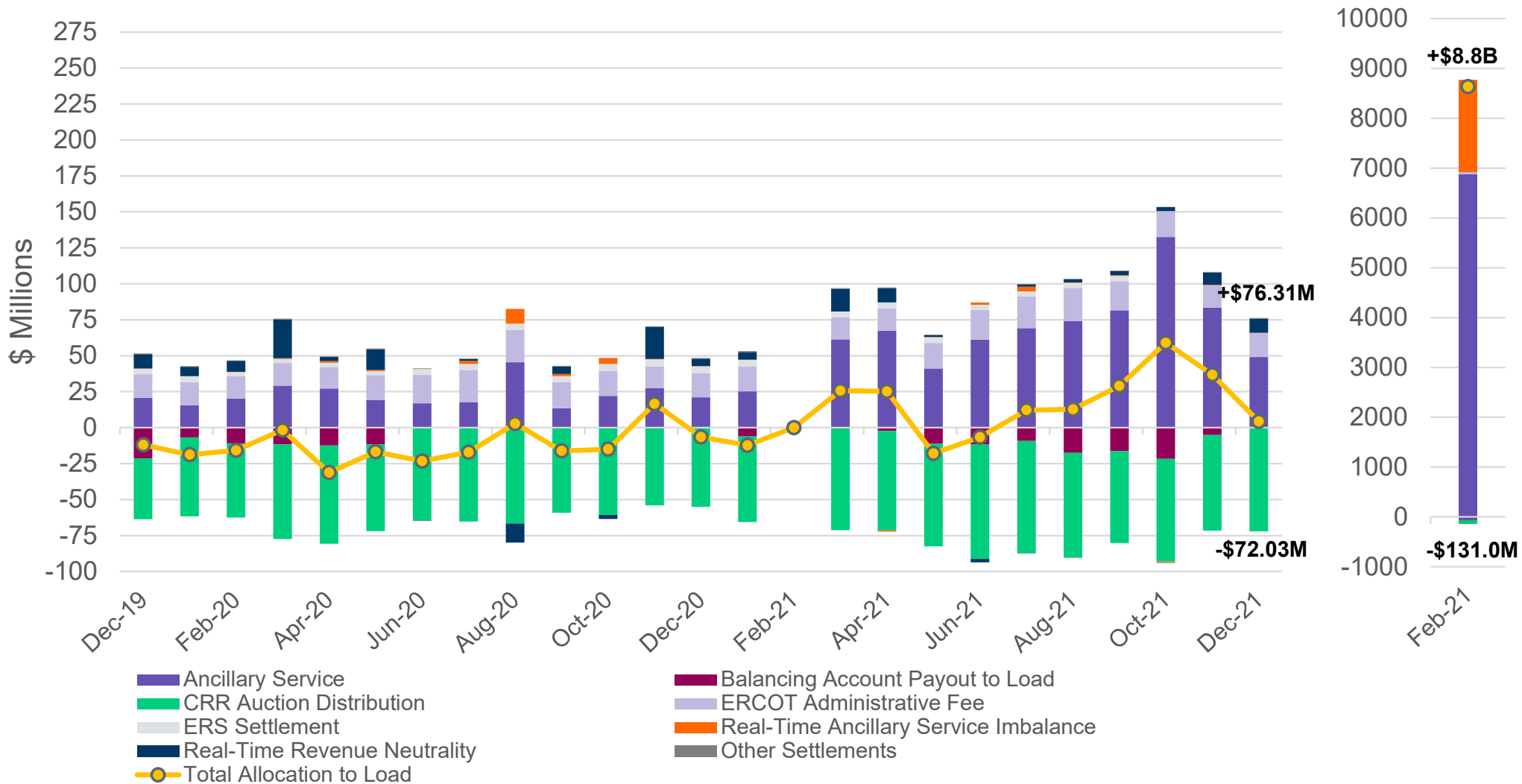
Seven Resources were Committed in December for Capacity and Congestion



“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.



Net Allocation to Load in December 2021 was \$4.3 Million

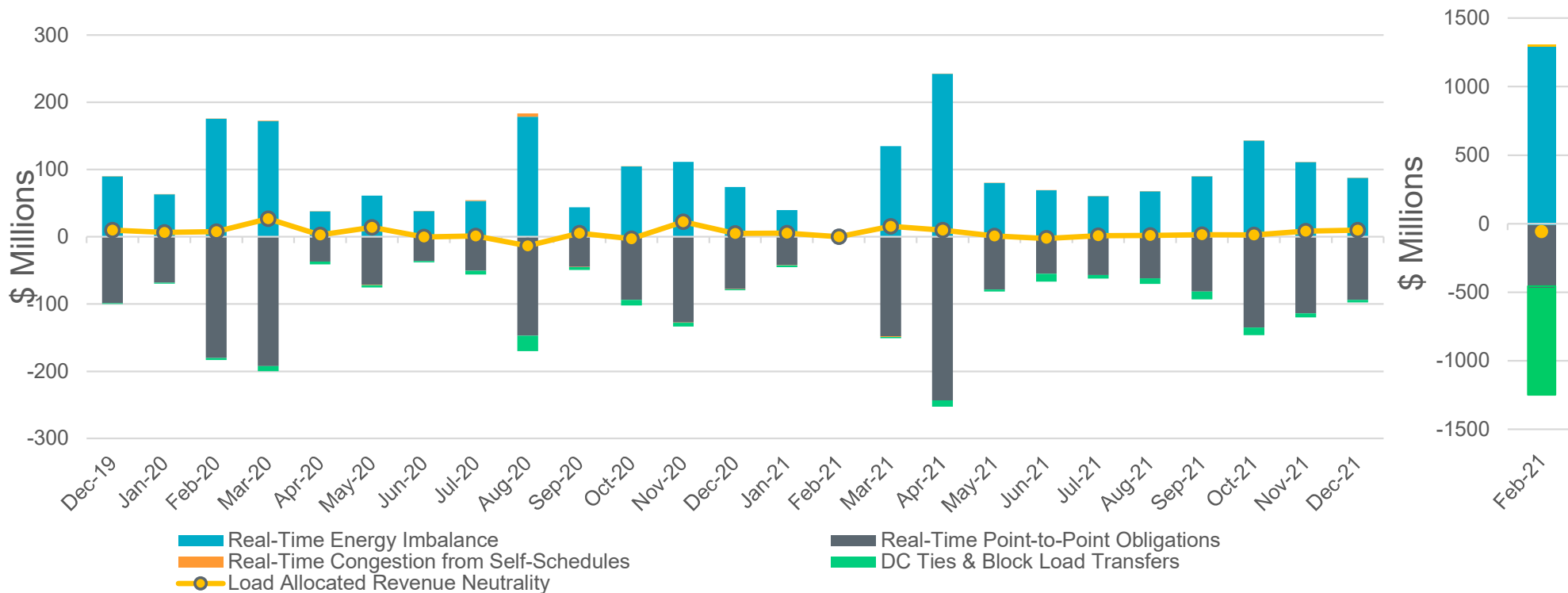


This information is available in tabular form in the Settlement Stability Report presented quarterly to the [Wholesale Market Subcommittee](#)

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 \$9.82M for December 2021

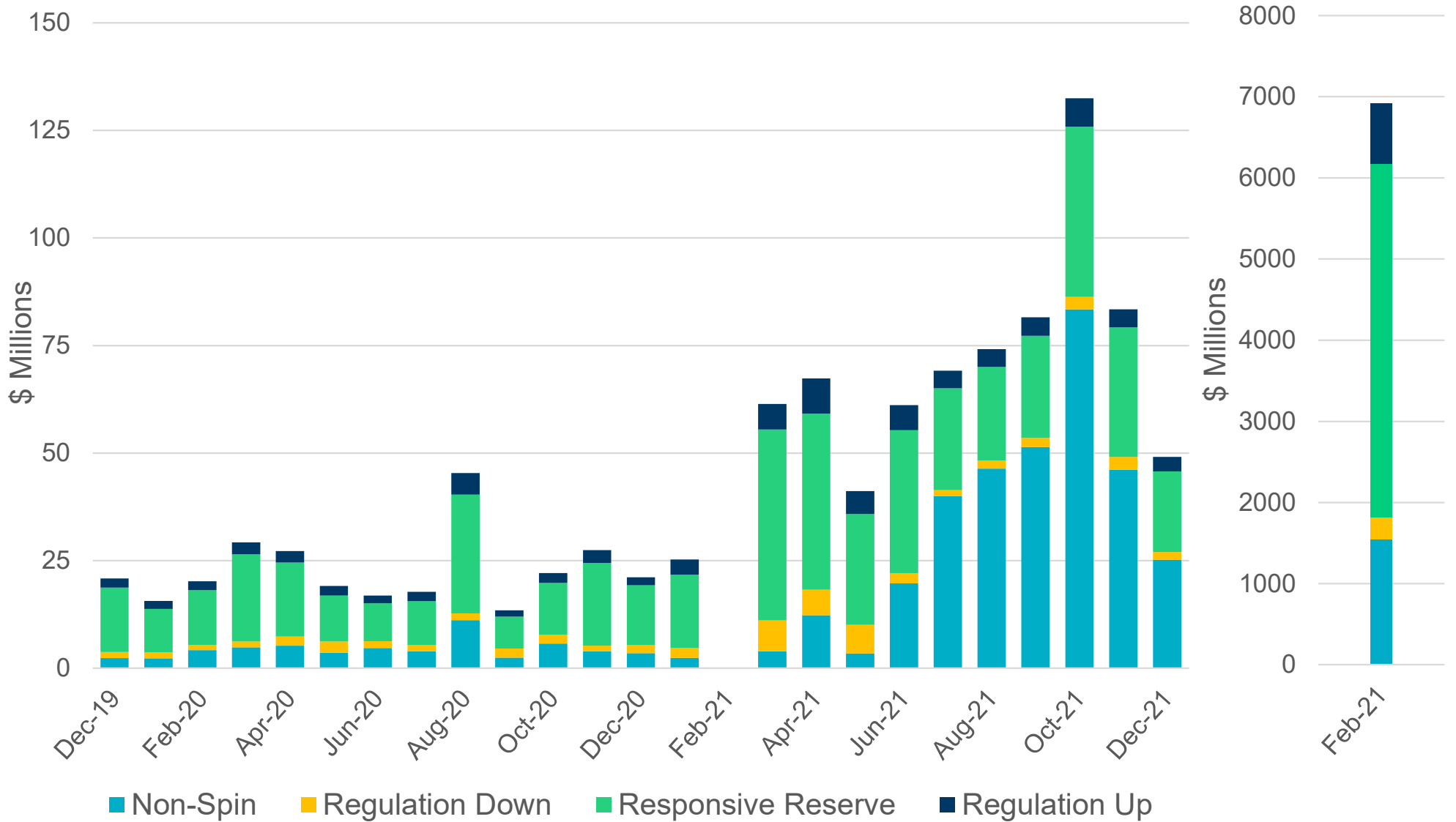


December 2021 (\$M)	
Real-Time Energy Imbalance	\$87.63
Real-Time Point-to-Point Obligation	(\$93.68)
Real-Time Congestion from Self-Schedules	\$0.00
DC Tie & Block Load Transfer	(\$3.78)
Load Allocated Revenue Neutrality	\$9.82

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



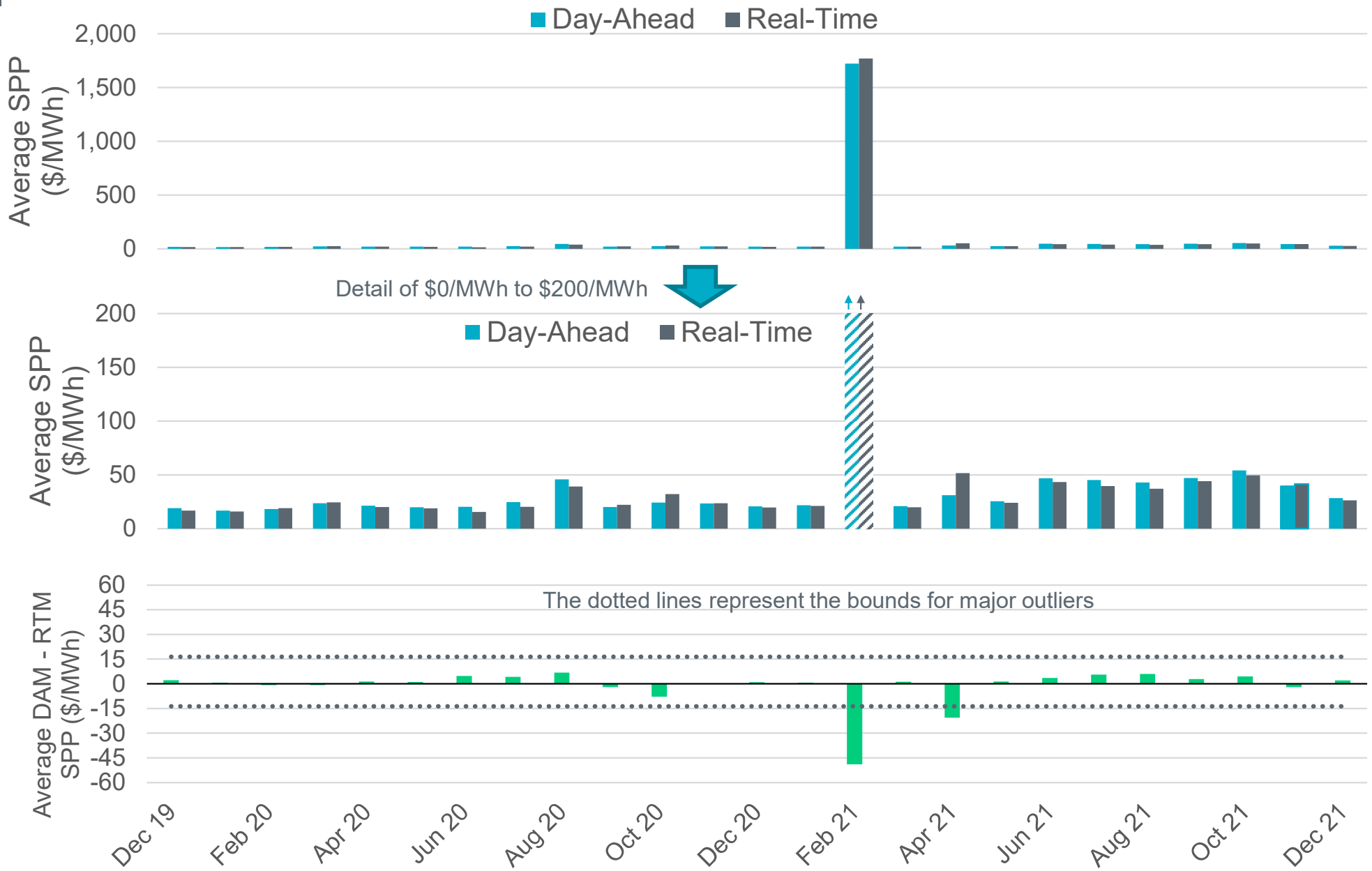
Ancillary Services for December 2021 totaled \$49.14M



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



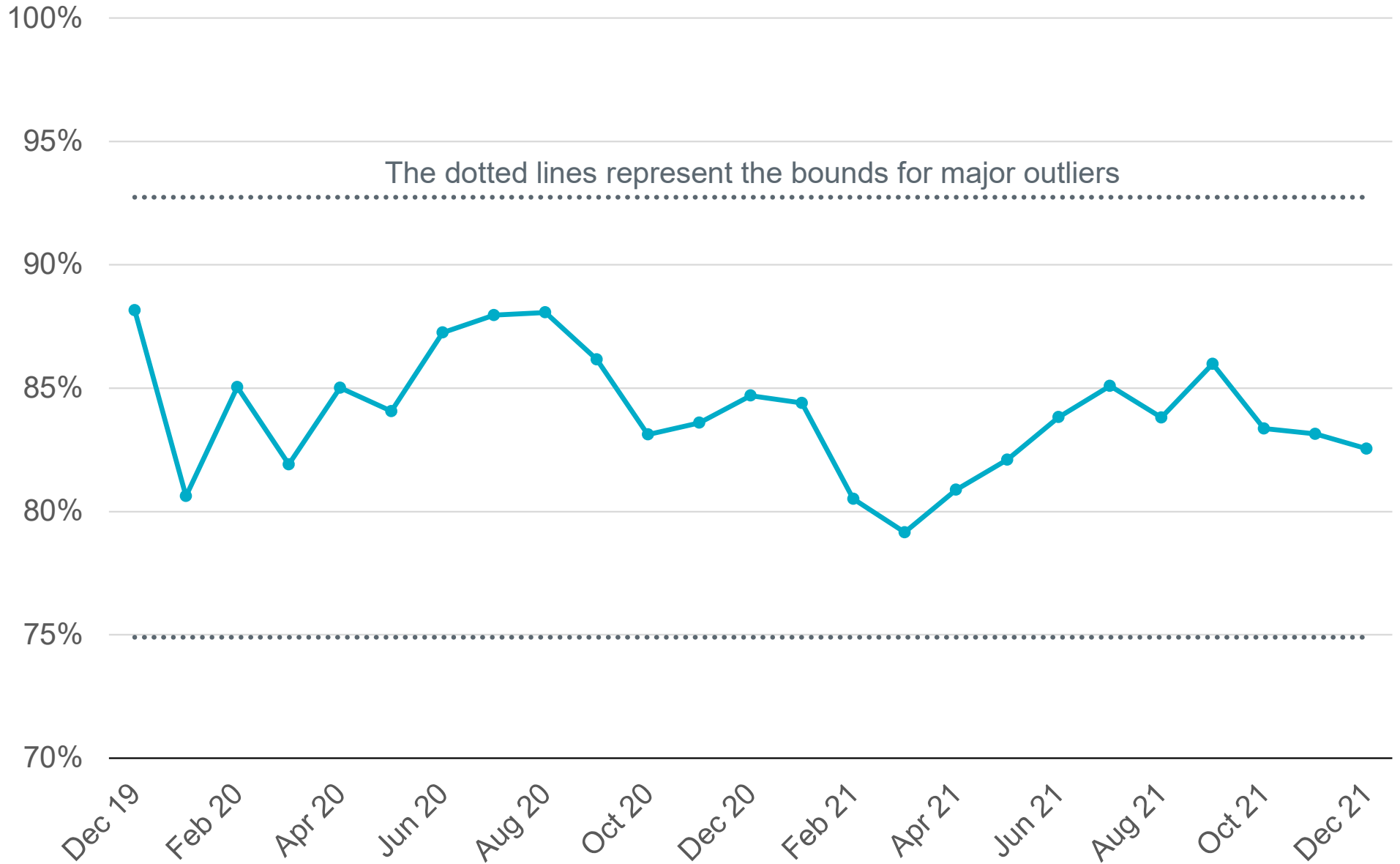
Day-Ahead and Real-Time Market Price Differences



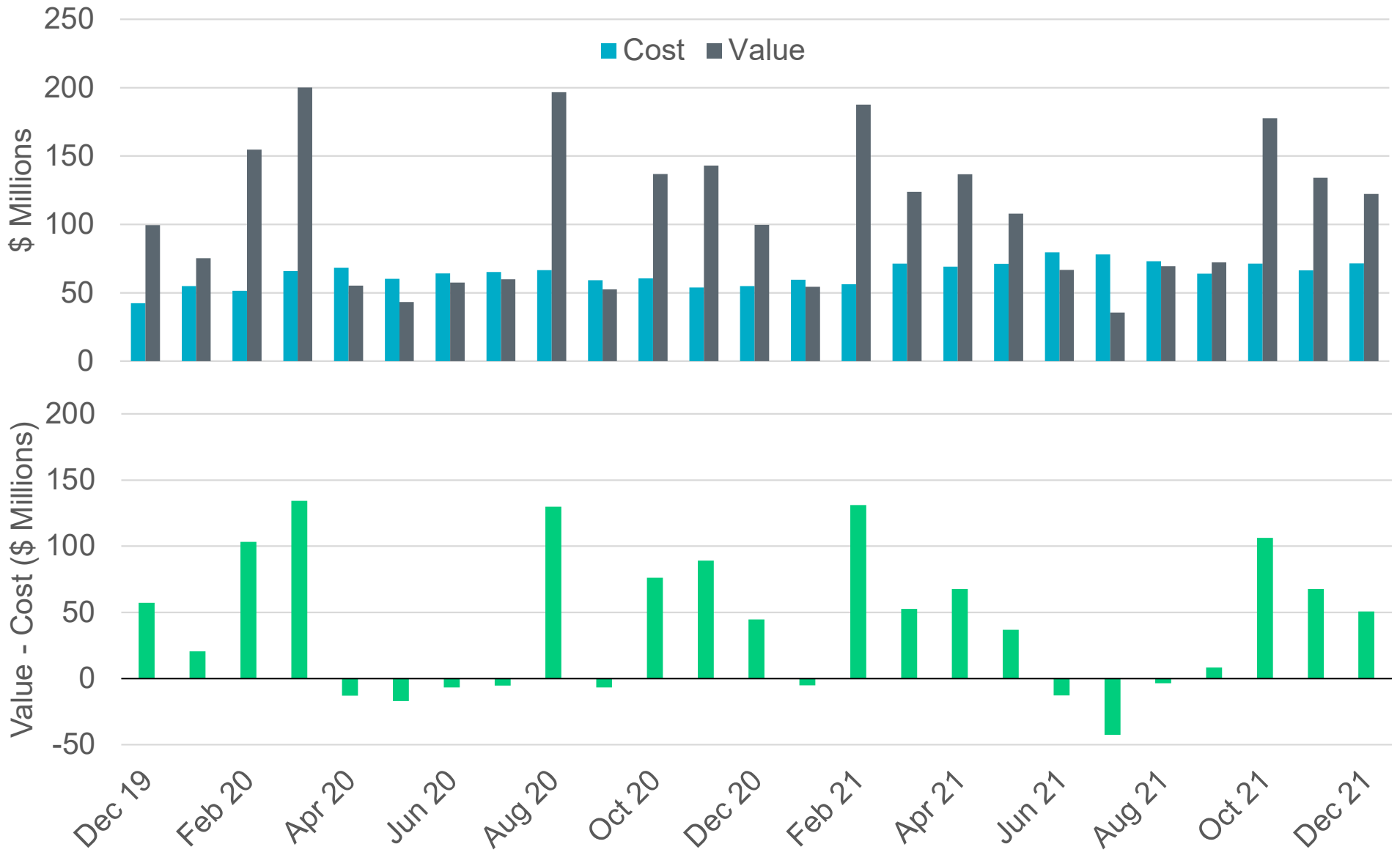
*Averages are weighted by Real-Time Market Load



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



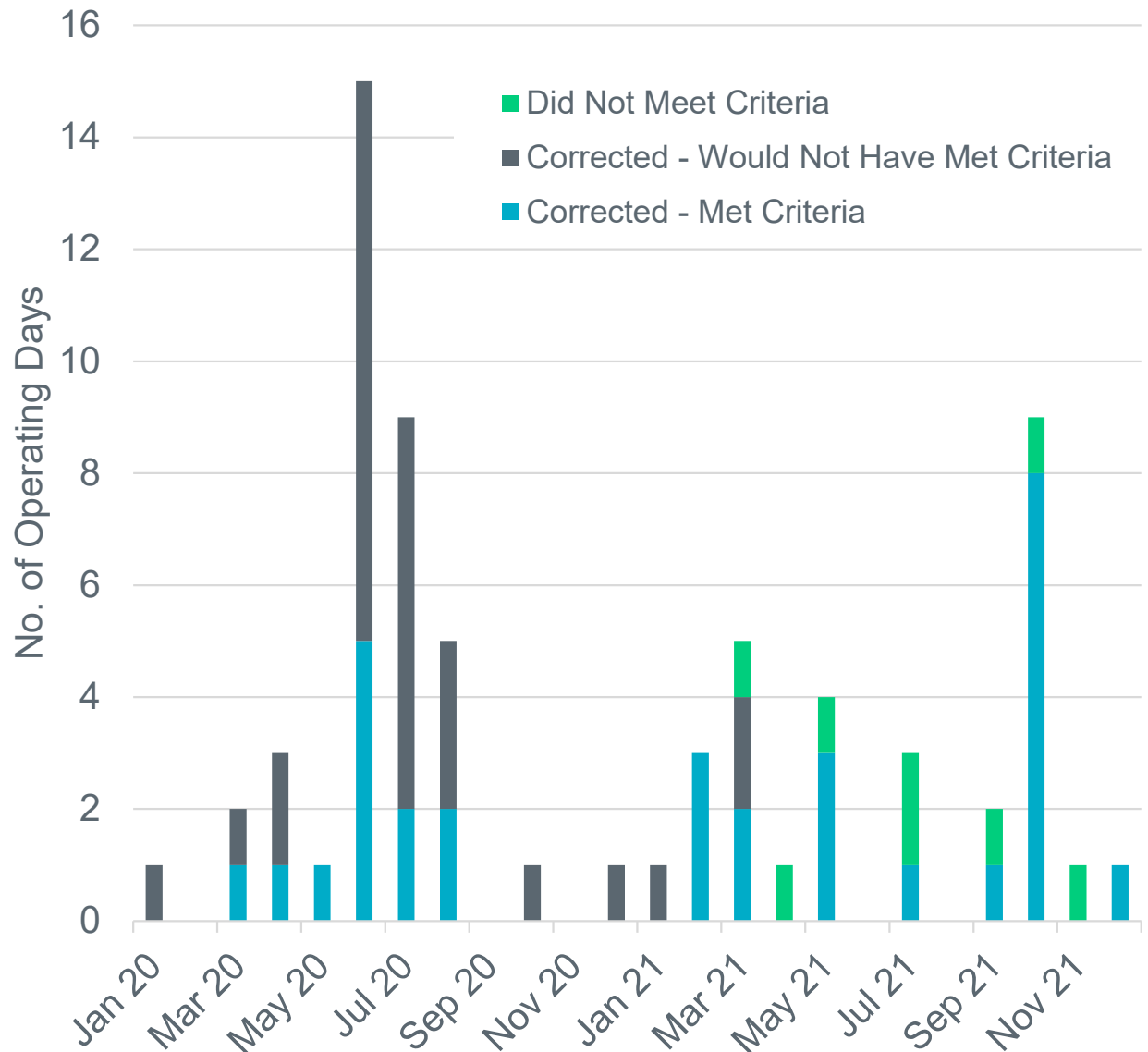
CRR Value and Cost Differences



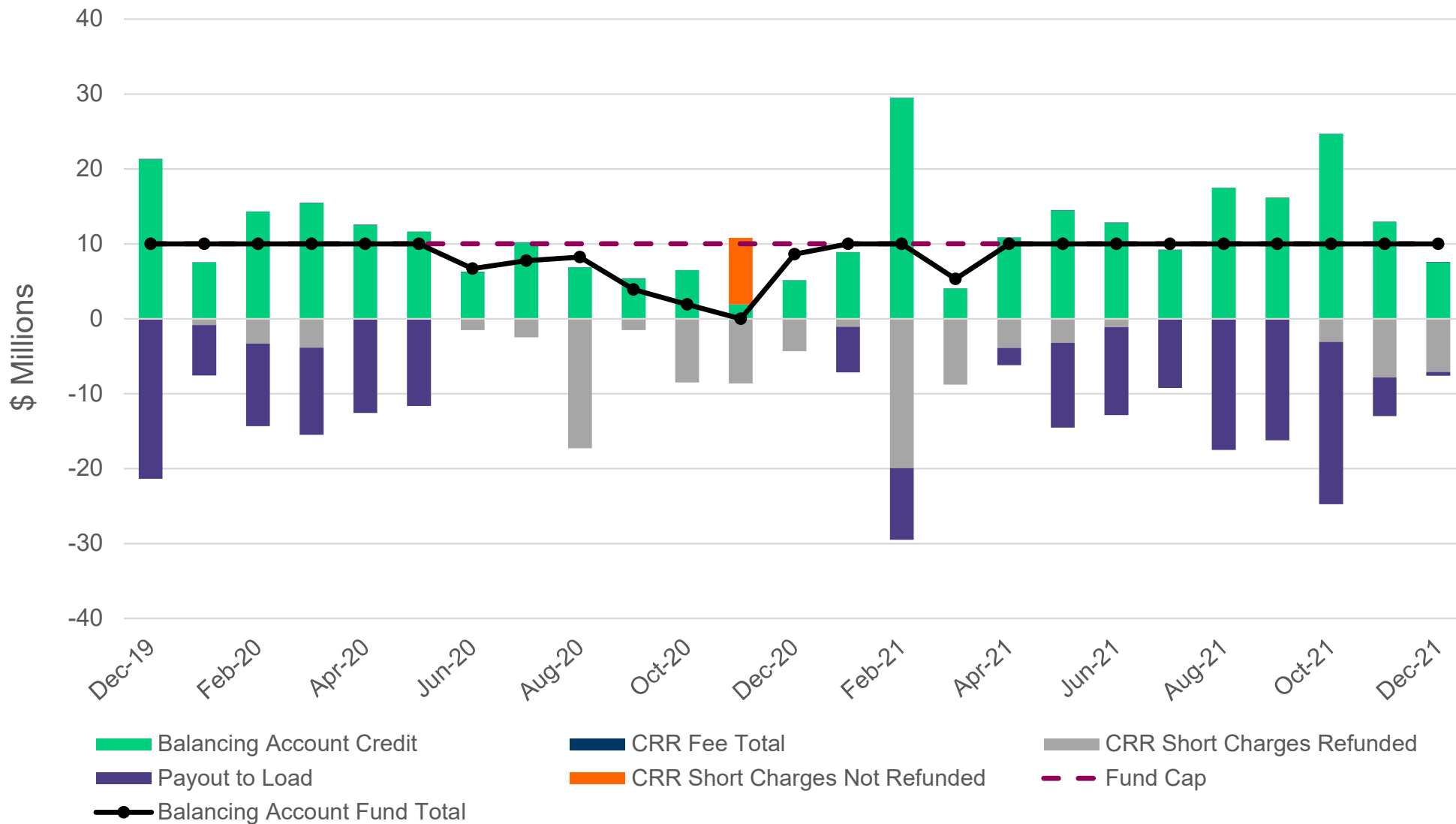
Price Issues and the Impact of Nodal Protocol Revision Request (NPRR) 1024 on Price Corrections

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

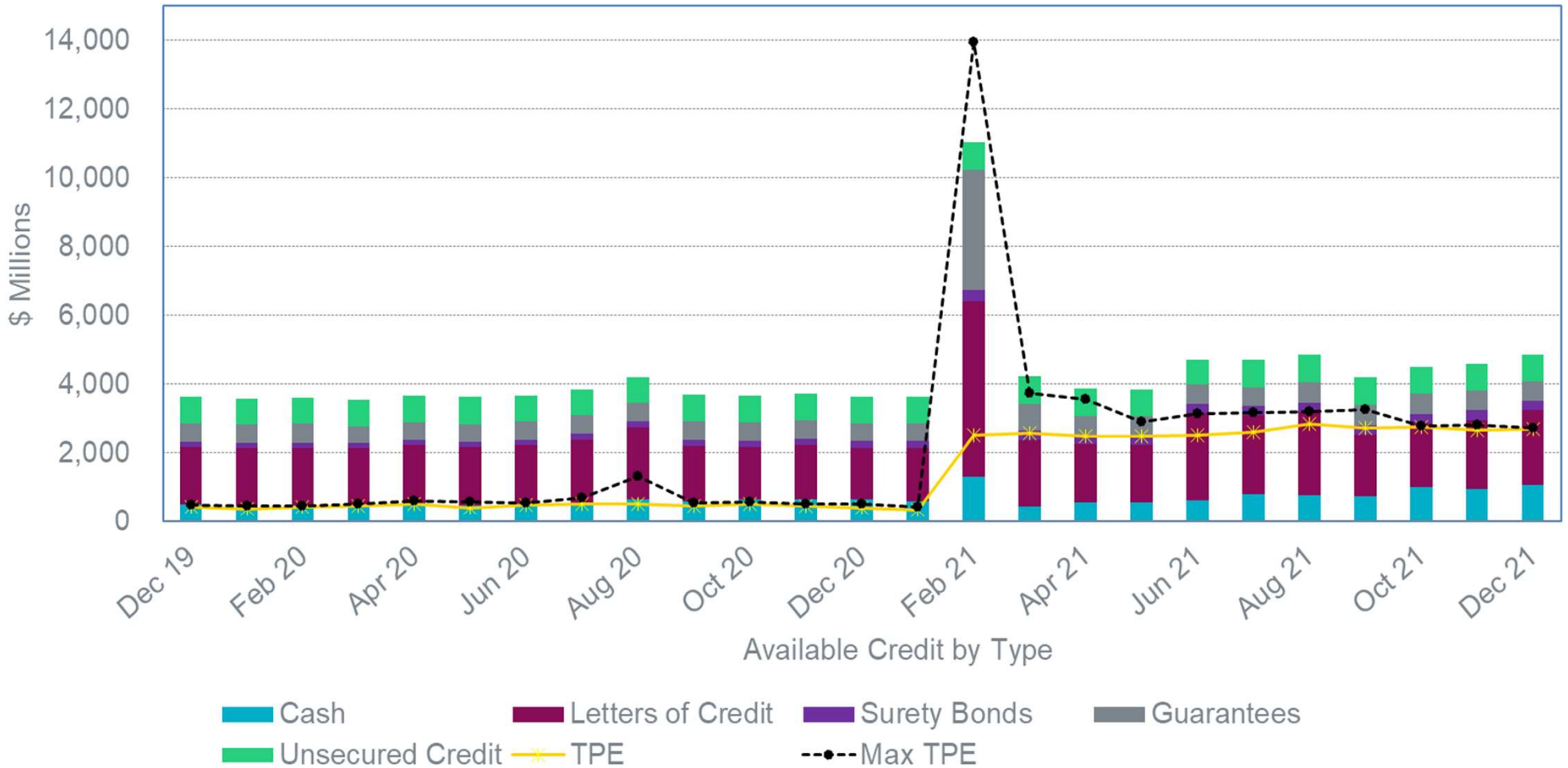
- Days that met the criteria for “significance” under NPRR1024 and were corrected;
- Days that would not have met the criteria for “significance” under NPRR1024, but were corrected because NPRR1024 was not yet in place; and
- Days that were not corrected because they did not meet the criteria for “significance”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



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 2021

Transaction Type	Year-To-Date		Transactions Received	
	December 2021	December 2020	December 2021	December 2020
Switches	1,542,185	1,246,924	70,637	118,401
Acquisitions	48,862	0	0	0
Move - Ins	2,784,176	2,754,421	214,374	232,338
Move - Outs	1,277,550	1,320,147	93,239	104,805
Continuous Service Agreements (CSA)	696,478	515,959	64,948	55,275
Mass Transitions	26,584	0	0	0
Total	6,375,835	5,837,451	443,198	510,819