



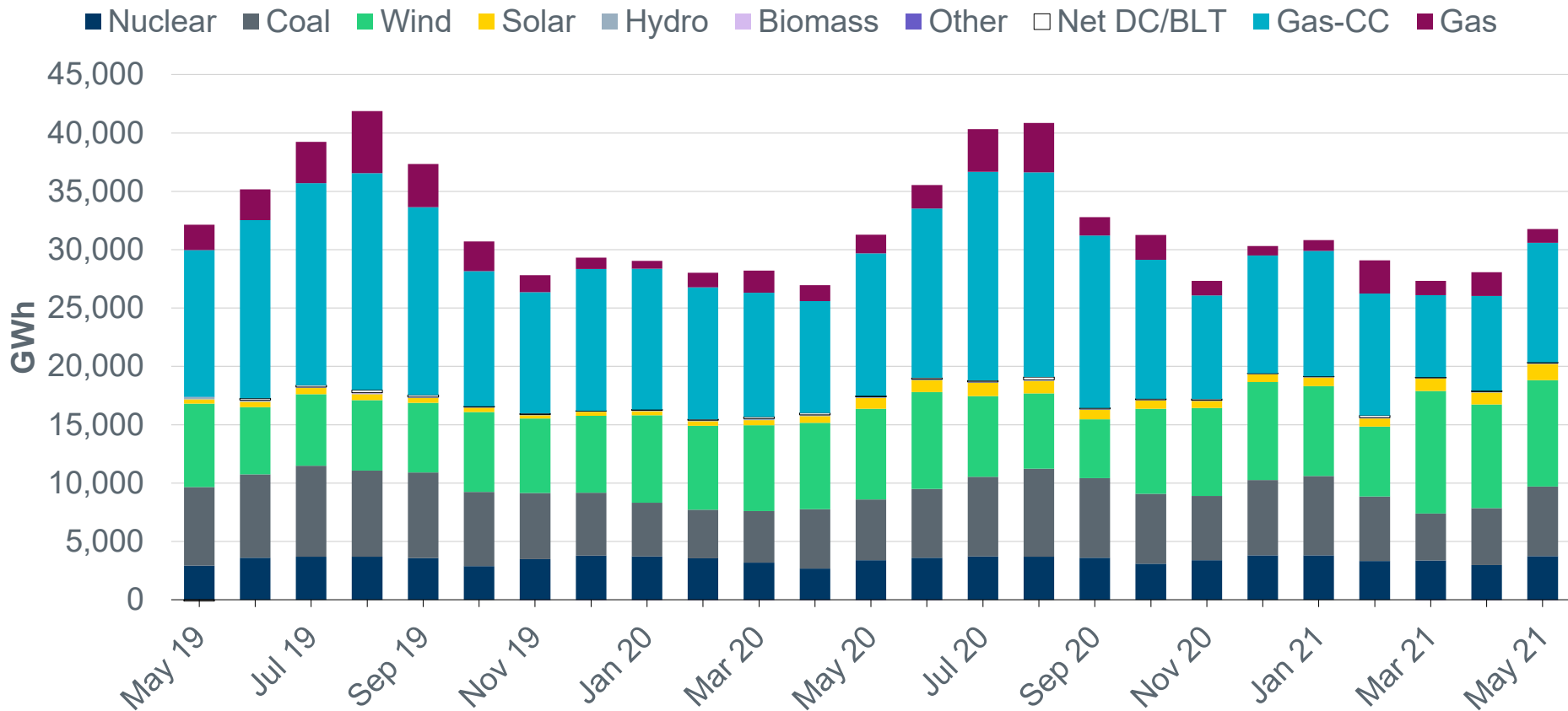
## ERCOT Monthly Operational Overview (May 2021)

ERCOT Public  
July 6, 2021

# Notifications and Records

- ERCOT set a maximum peak demand of 62,821 MW\* in May 2021, which is 1,590 MW less than the May 2020 demand of 64,411 MW.
- ERCOT issued 4 notifications:
  - 4 DC Tie Curtailment Notices due to an unplanned outage.

# Monthly energy generation increased by 1.6% year-over-year to 31,776 GWh in May 2021, compared to 31,283 GWh in May 2020

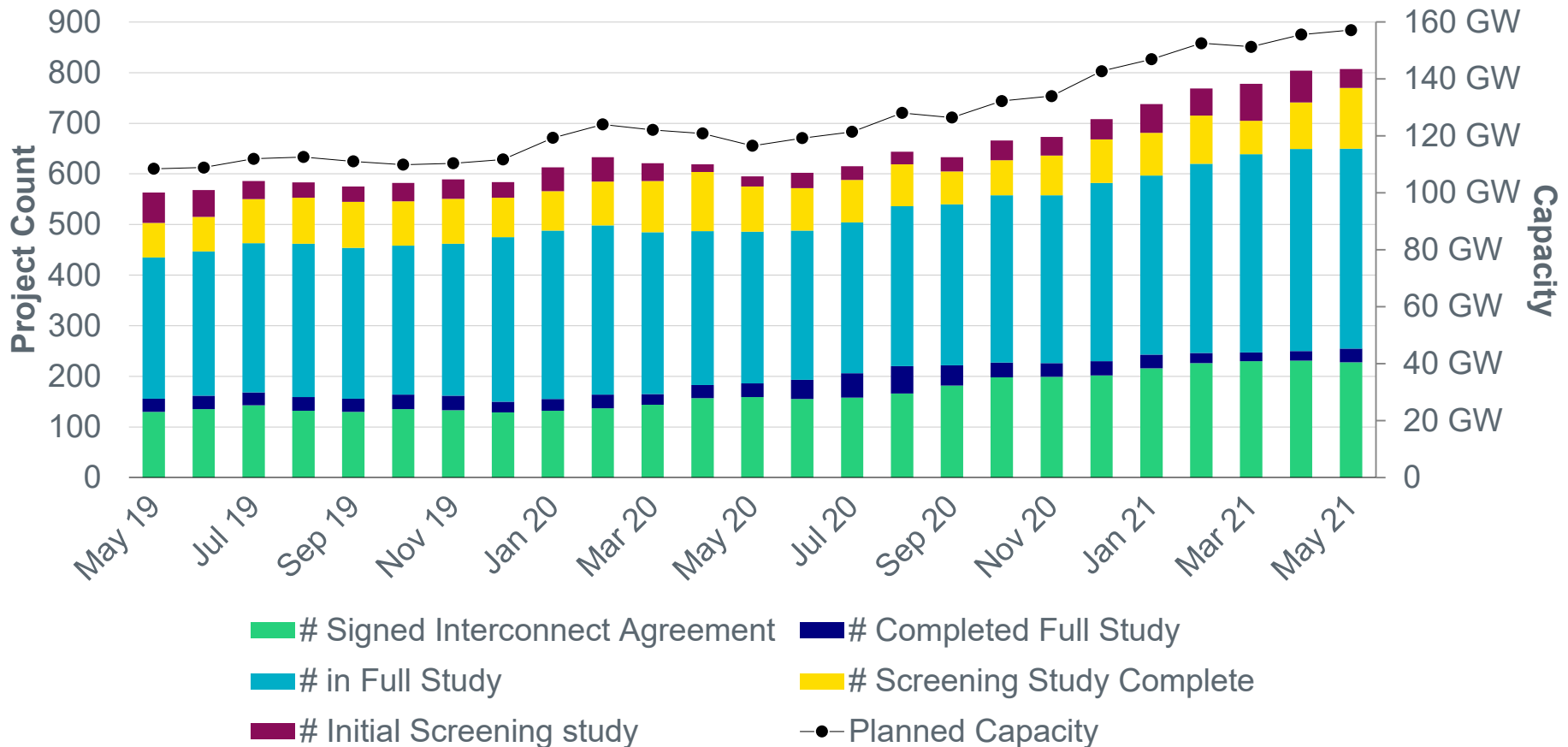


Data for latest two months are based on preliminary settlements.



# Generation Interconnection activity by project phase

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

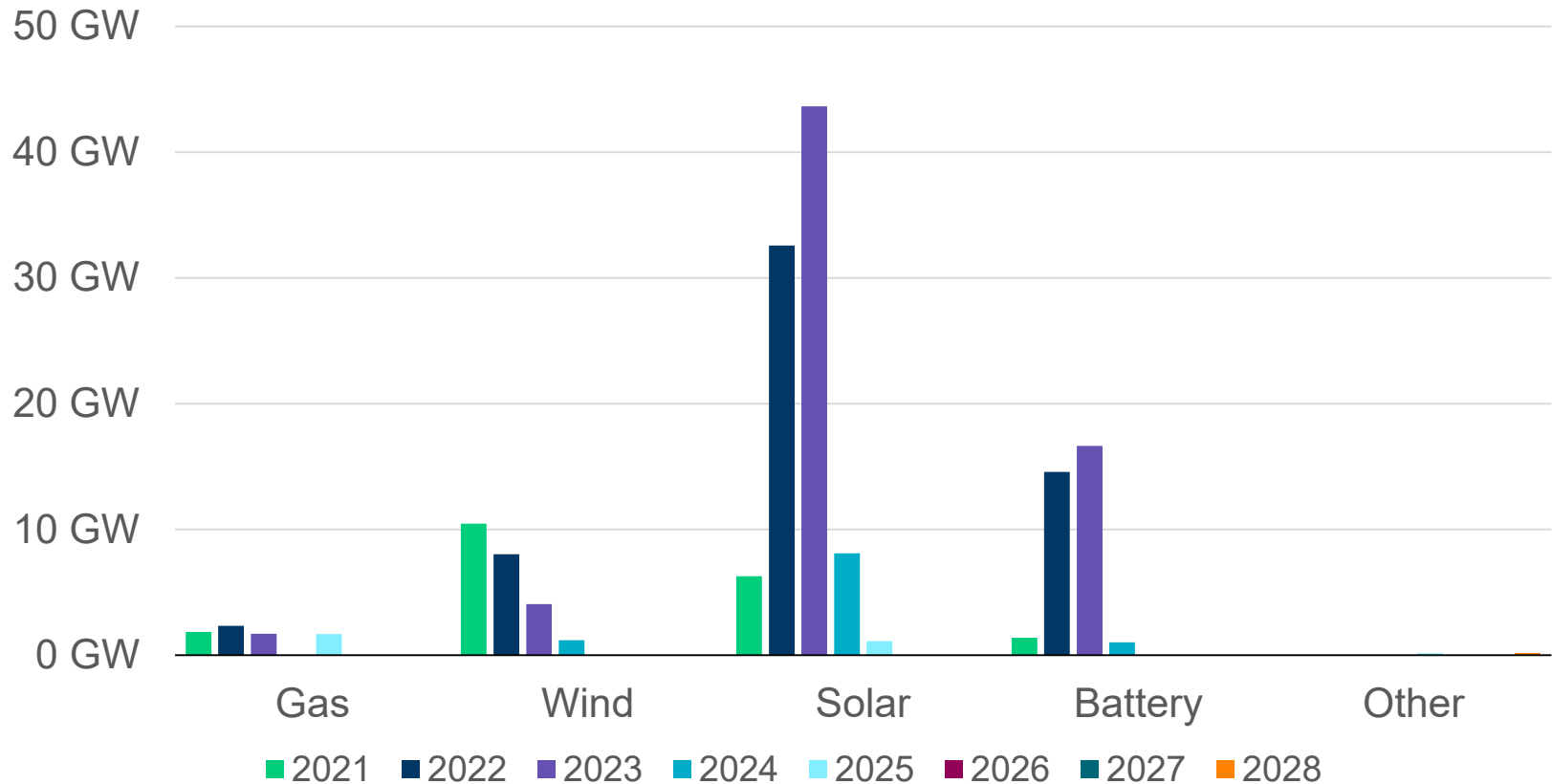


A break-out by fuel type can be found in the monthly Generator Interconnection Status (GIS) reports available on the ERCOT Resource Adequacy Page: <http://www.ercot.com/gridinfo/resource>



# Interconnection Queue Capacity by Fuel Type

Queue totals: Solar 92 GW (58.4%), Wind 24 GW (15.1%), Gas 8 GW (4.8%), Battery 34 GW (21.4%)  
(Excludes capacity associated with Projects designated as Inactive per Planning Guide Section 5.7.6)



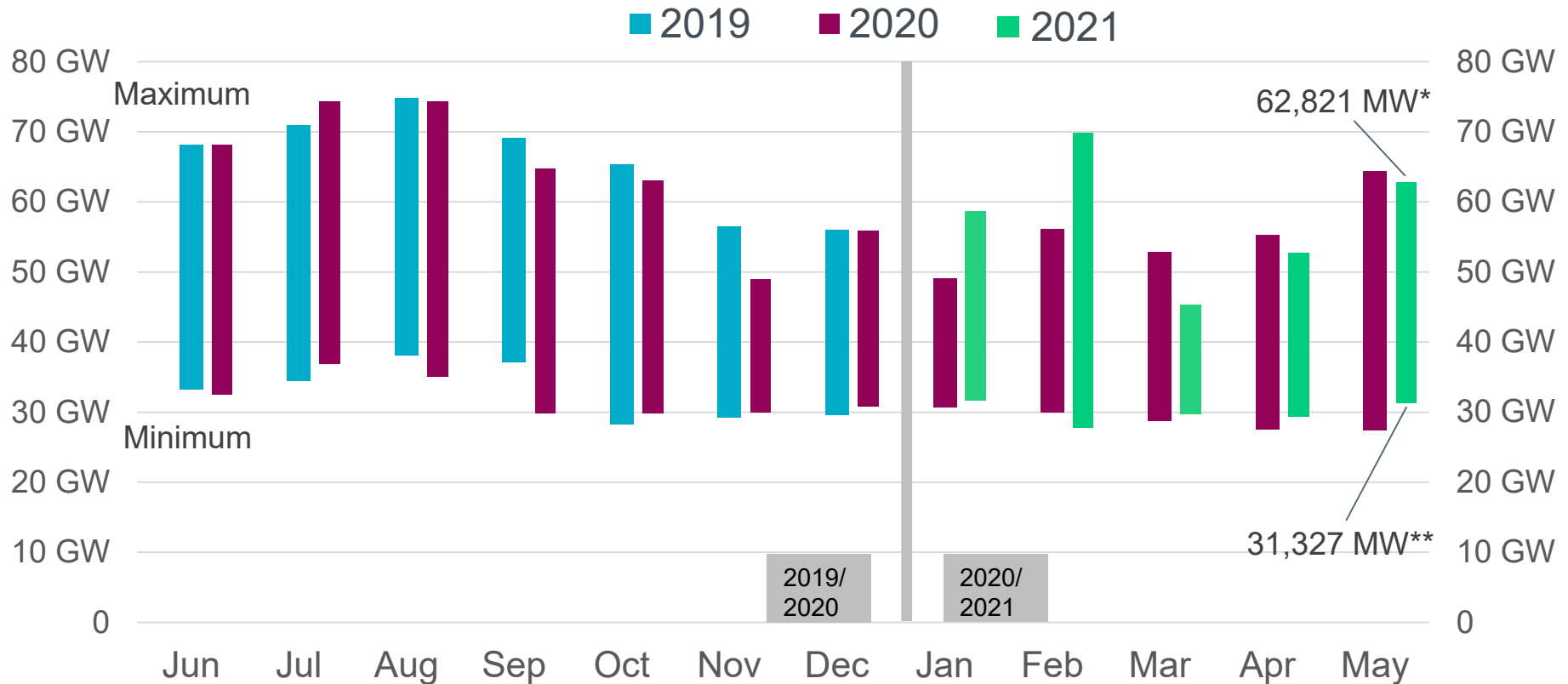
A break-out by zone can be found in the monthly Generator Interconnection Status (GIS) reports available on the ERCOT Resource Adequacy Page: <http://www.ercot.com/gridinfo/resource>

# Planning Summary

- ERCOT was tracking 807 active generation interconnection requests totaling 157,161 MW as of May 31. This includes 91,769 MW of solar, 23,764 MW of wind, 33,671 MW of battery, and 7,606 MW of gas projects as of May 31, 2021; 57 projects were categorized as inactive, down from 58 inactive projects in April.
- ERCOT is currently reviewing proposed transmission improvements with a total estimated cost of \$1,315.96 Million as of May 31, 2021.
- Transmission Projects endorsed in 2021 total \$322.46 Million as of May 31, 2021.
- All projects (in engineering, routing, licensing and construction) total approximately \$7.3 Billion as of February 1, 2021.
- Transmission Projects energized in 2021 total about \$49.4 Million as of February 1, 2021.

# ERCOT set a maximum peak demand of 62,821 MW\* in May 2021, which is 1,590 MW less than the May 2020 demand of 64,411 MW

## demand of 64,411 MW



\*Based on the maximum net system hourly value from June release of Demand and Energy 2021 report.

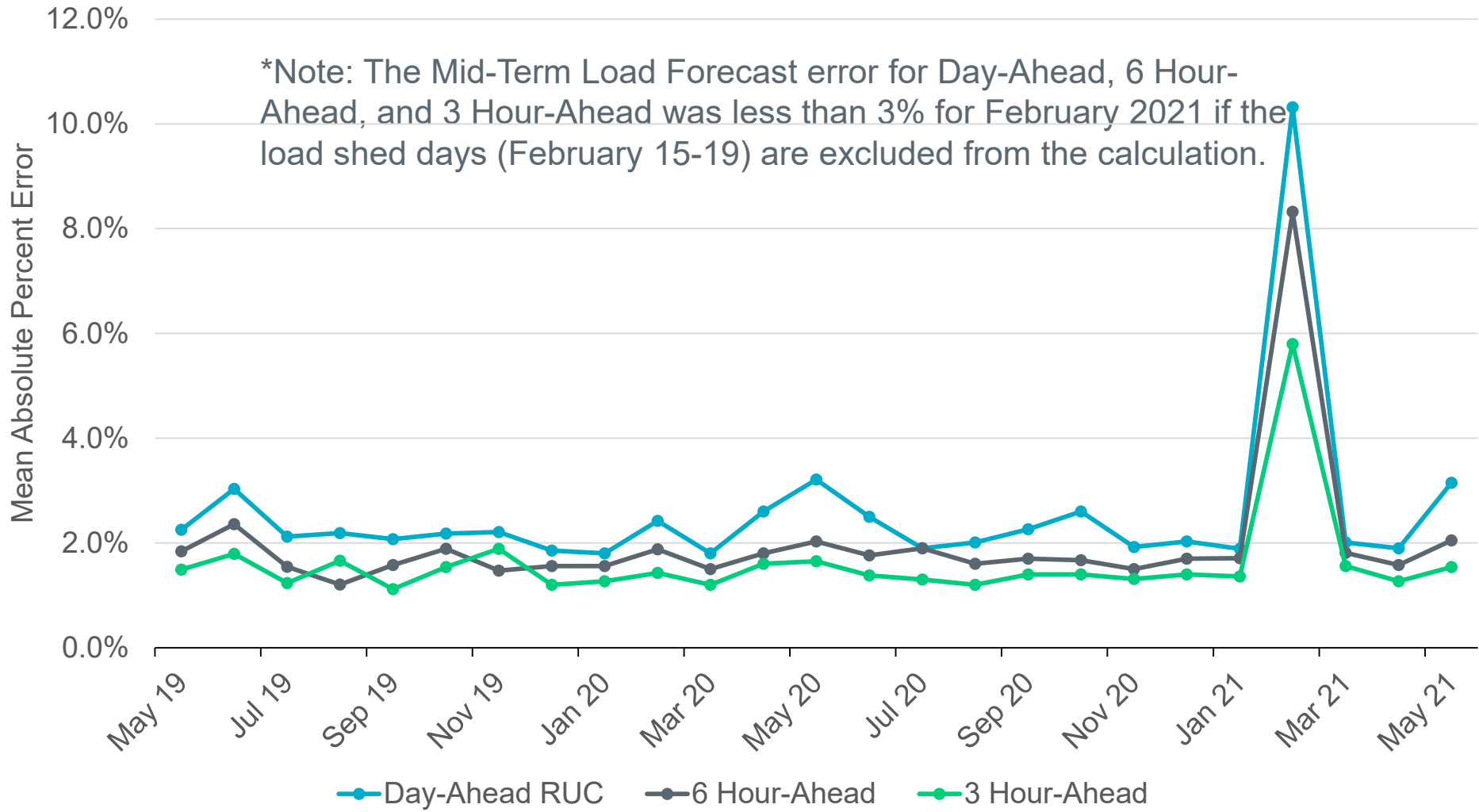
\*\*Based on the minimum net system 15-minute interval value from June release of Demand and Energy 2021 report.

Data for latest two months are based on preliminary settlements.



# Mid-Term Load Forecast Performance

\*Note: The Mid-Term Load Forecast error for Day-Ahead, 6 Hour-Ahead, and 3 Hour-Ahead was less than 3% for February 2021 if the load shed days (February 15-19) are excluded from the calculation.

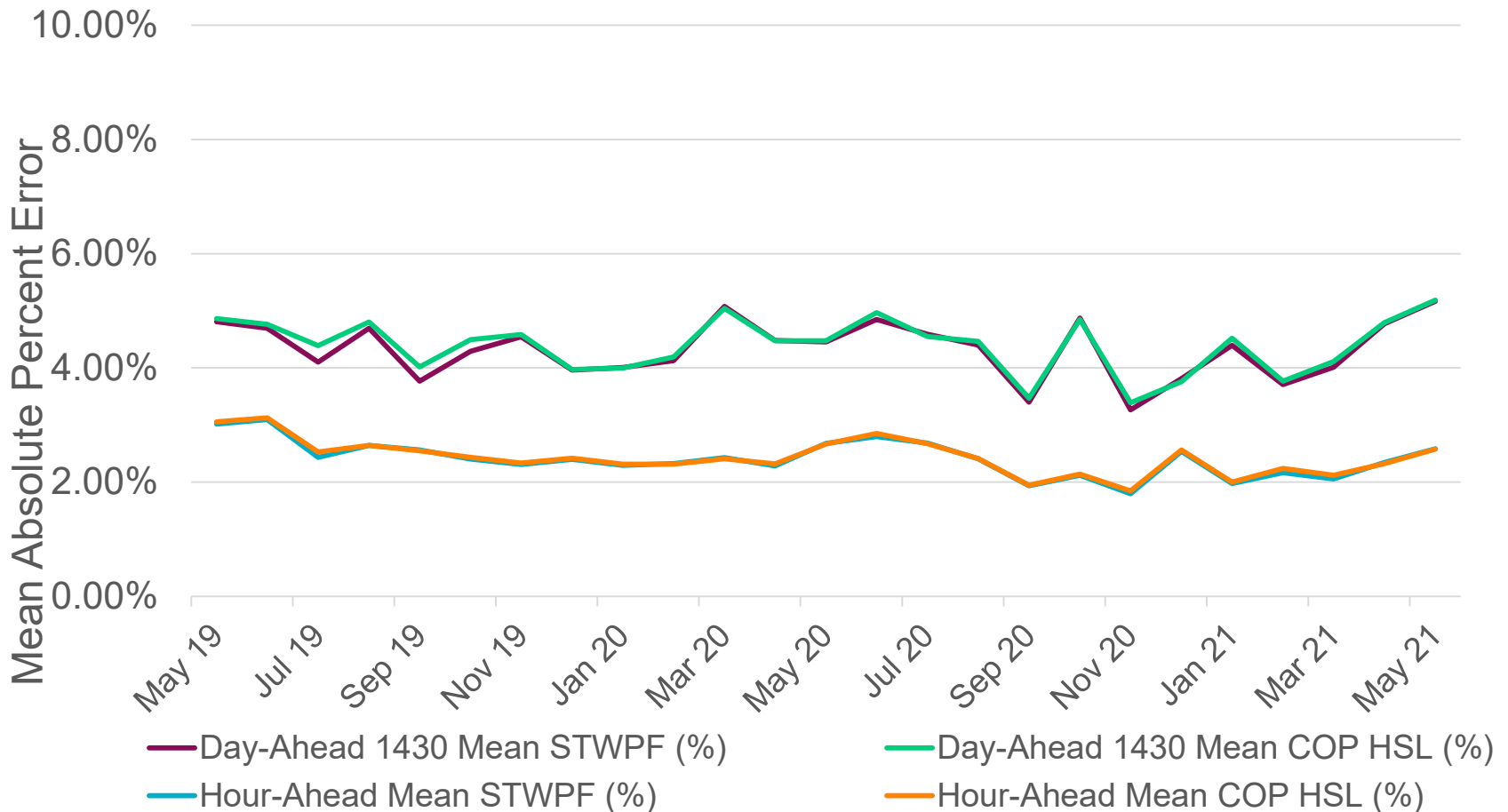


The Mid-Term Load Forecast is an hourly forecast that looks 7 days into the future





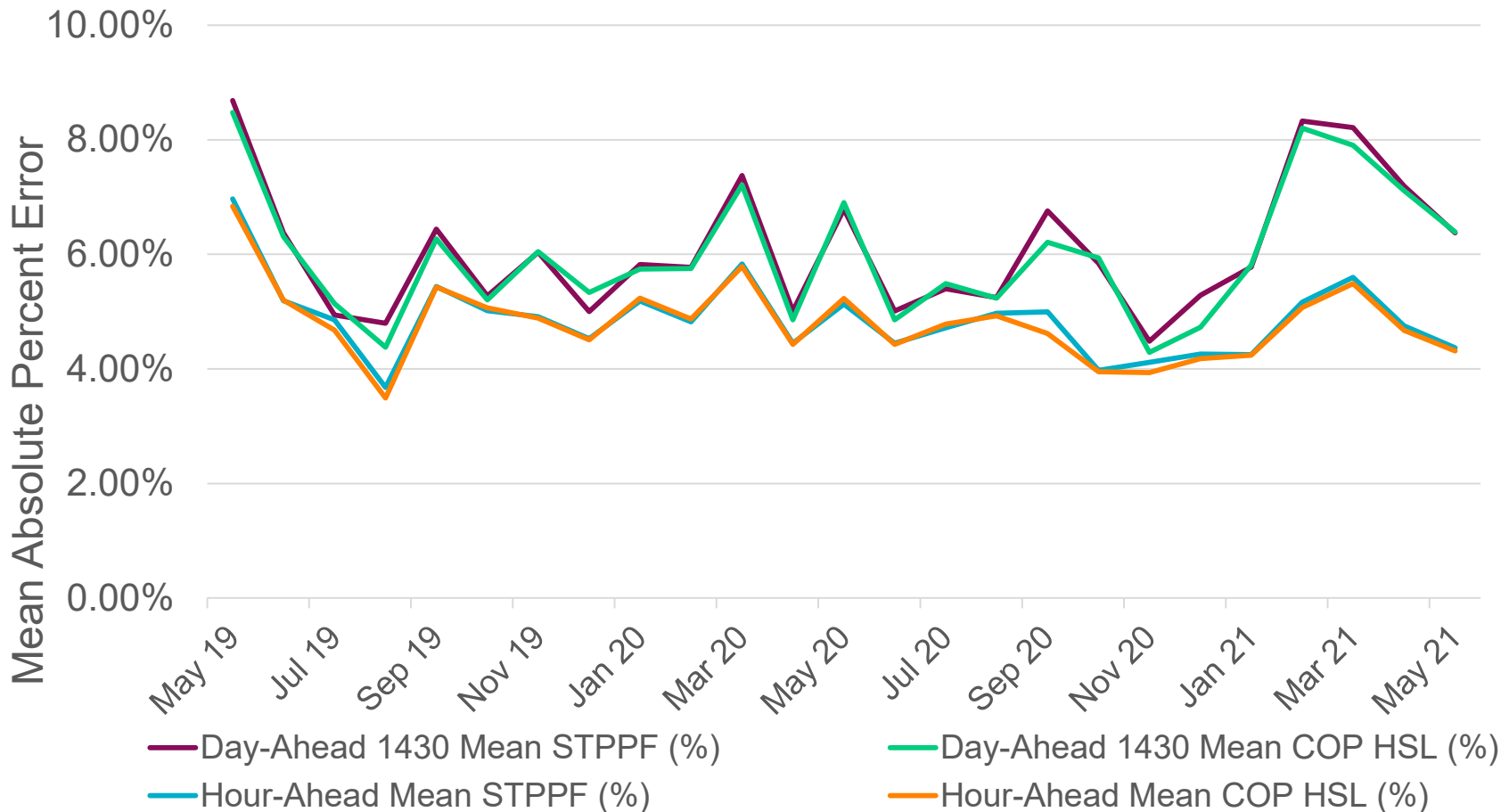
# Wind Forecast Performance



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.



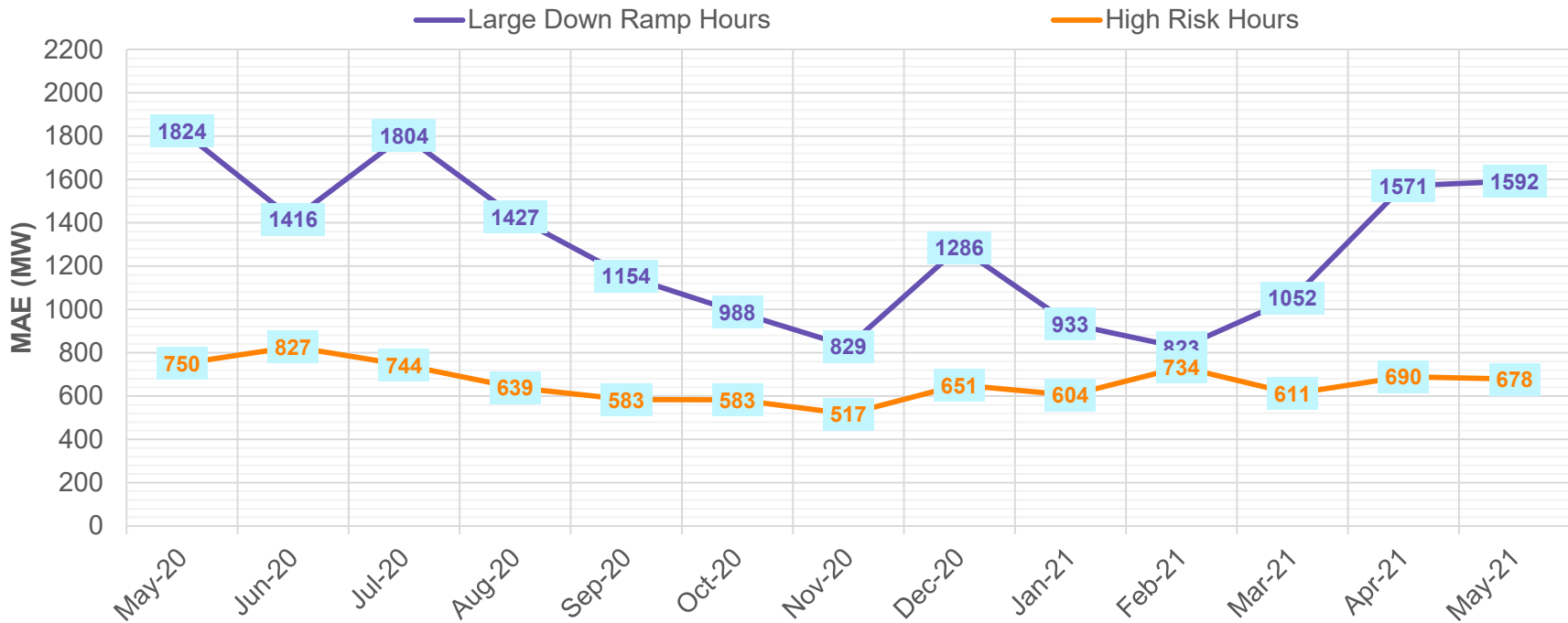
# Solar Forecast Performance



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.

# Hour-Ahead Wind Forecast Performance

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

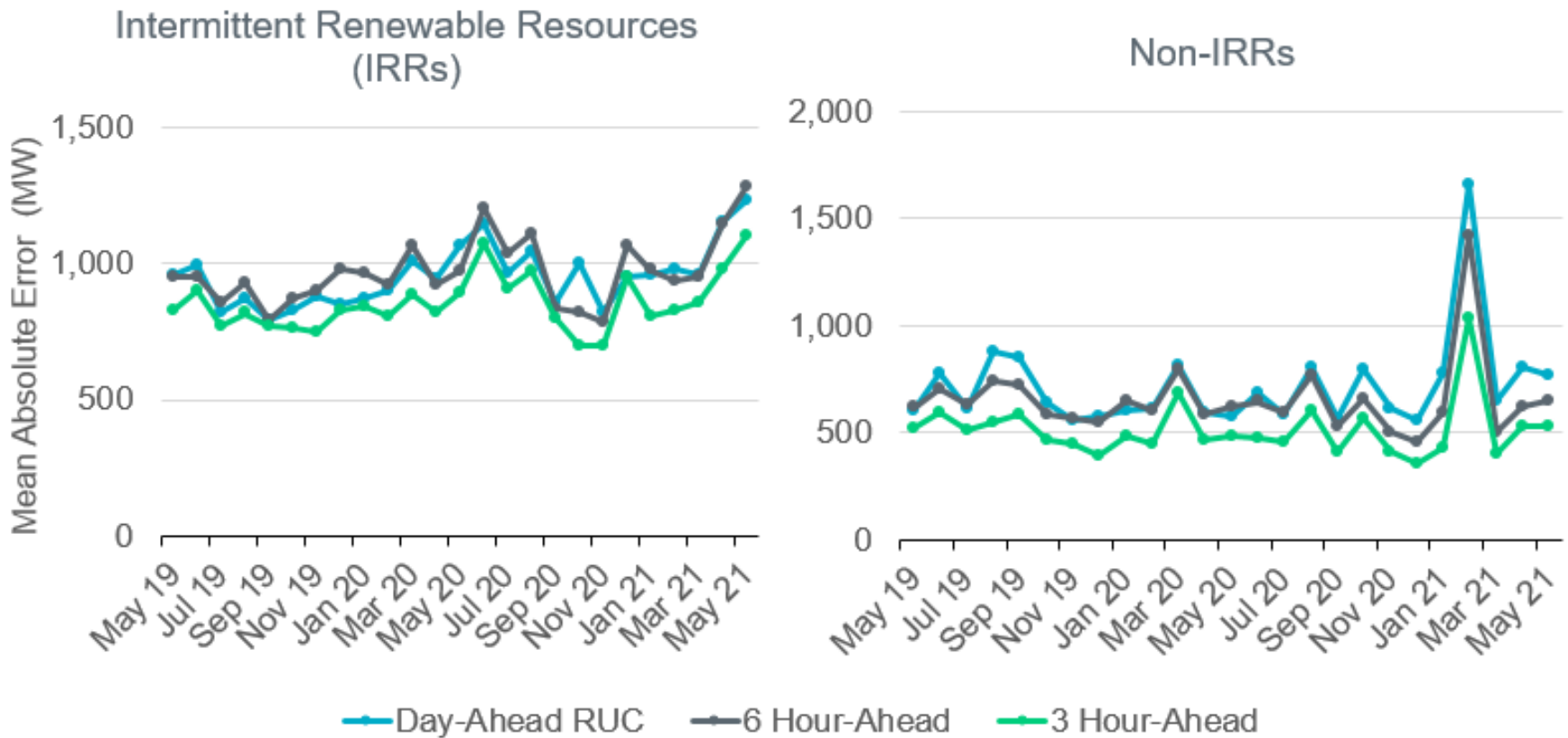


\*ERCOT's performance based payment structure for Wind Forecasts with both vendors incentivizes improvements in forecast performance during hours that are of more importance to operational reliability. This approach is a paradigm shift from the "traditional" methodology of measuring wind forecast performance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

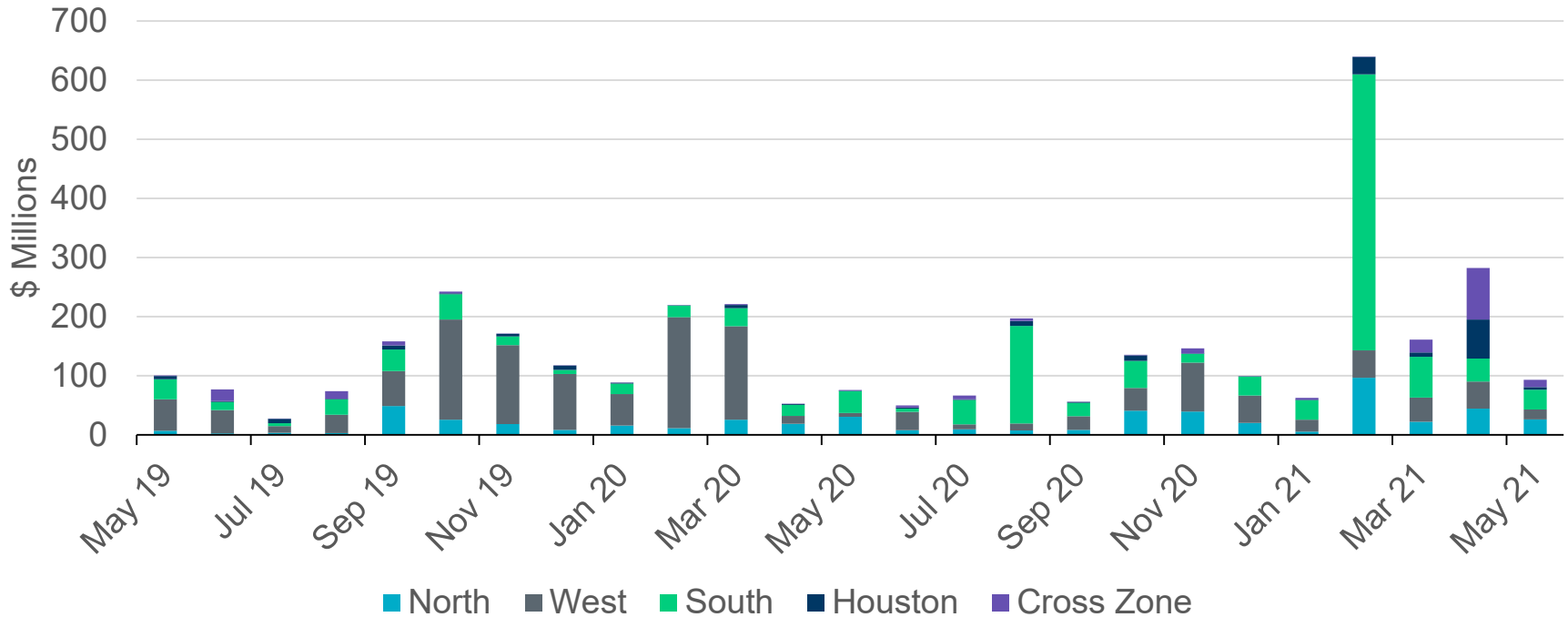


# Current Operating Plan (COP) Performance



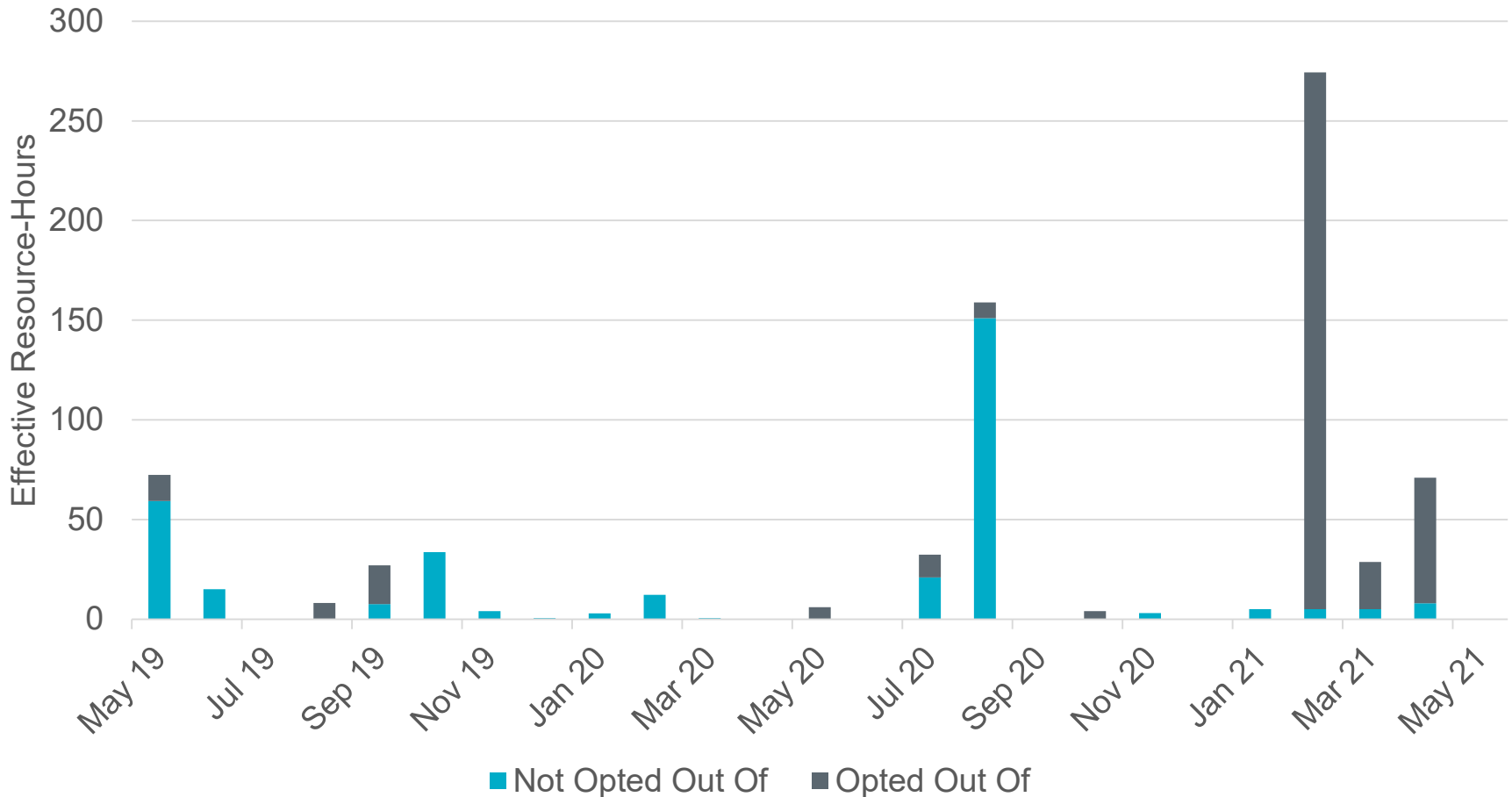
- COPs for IRRs are derived from wind and solar forecasts from ERCOT with any adjustments from Qualified Scheduling Entities.
- The installed capacity of approved Wind Units is 31,890 MW (as of May 31, 2021).
- The installed capacity of approved Solar Units is 7,320 MW (as of May 31, 2021).

# Real-Time Congestion Rent by Zone



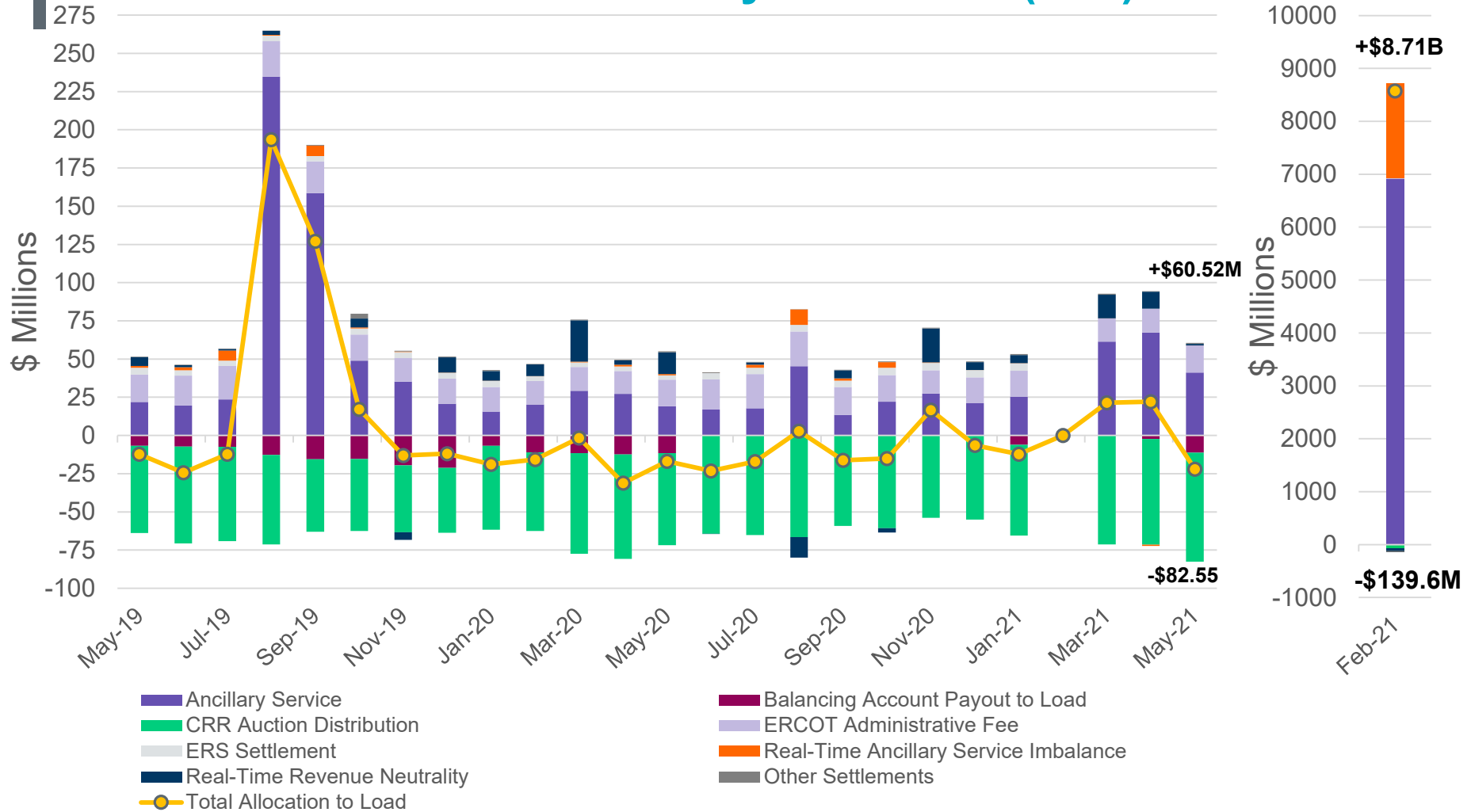
- The congestion rent for May decreased across all zones when compared to April. The most significant constraints for May are BASE CASE: WESTEX in the Cross Zone and DHCKDEN8: 6265\_\_E in the North Zone.
- Congestion Rent is determined using the shadow prices and MW flows for individual constraints 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.

# Zero Resources were Committed through RUC in May



“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 May 2021 was (\$22) Million

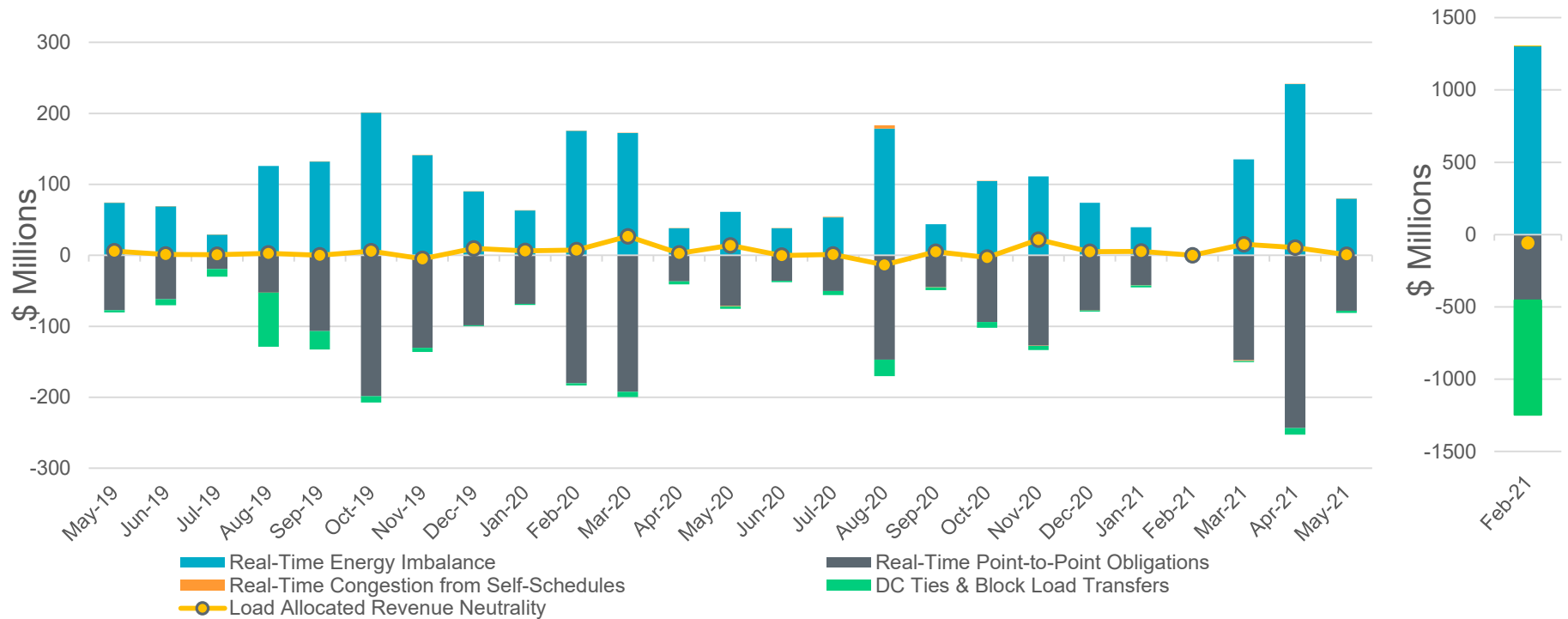


This information is available in tabular form in the Settlement Stability Report presented quarterly to the [Wholesale Market Subcommittee](#)

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 \$1.05M for May 2021



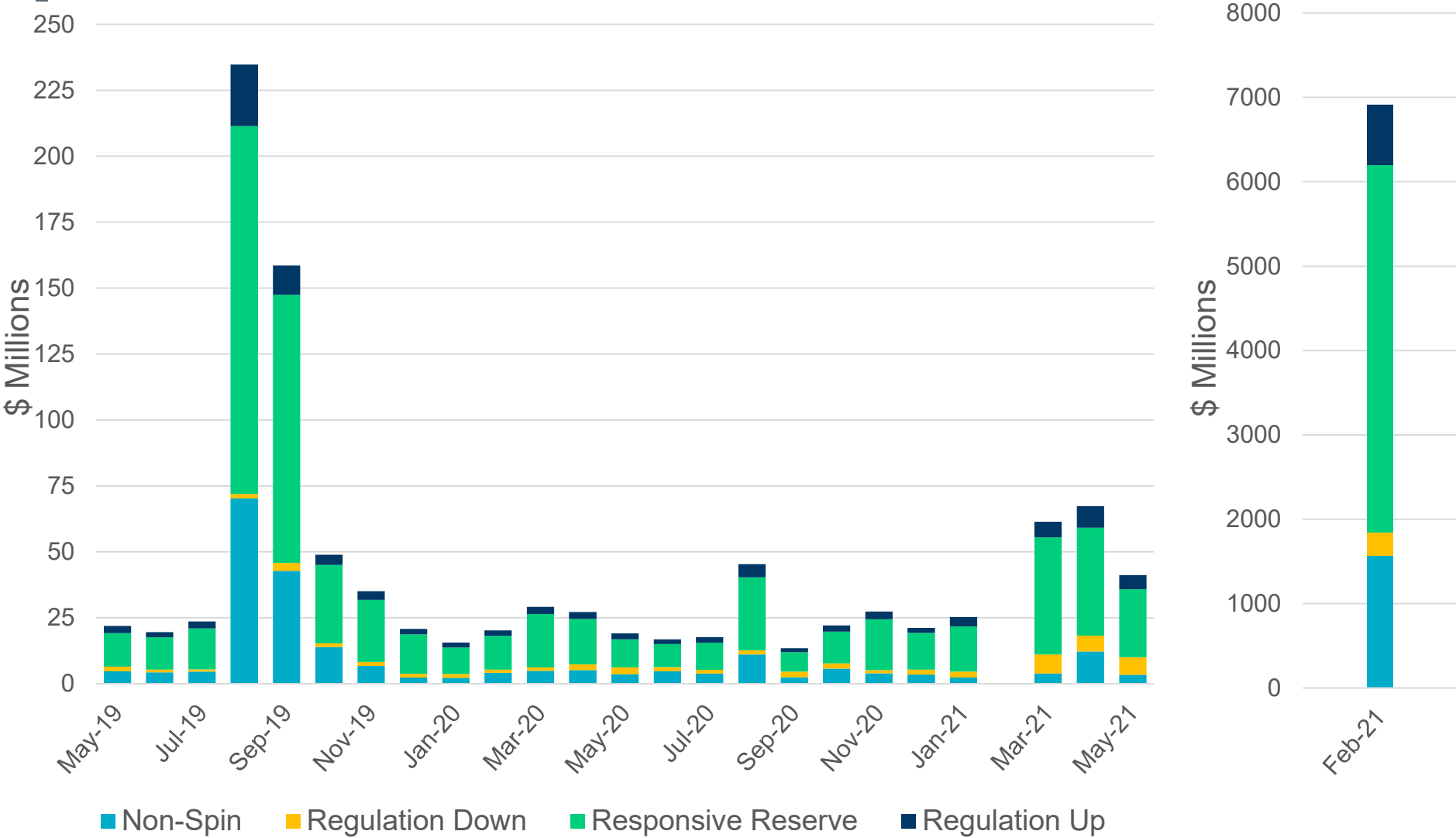
May 2021 (\$M)	
Real-Time Energy Imbalance	\$80.06
Real-Time Point-to-Point Obligation	(\$78.16)
Real-Time Congestion from Self-Schedules	\$0.15
DC Tie & Block Load Transfer	(\$3.10)
<b>Load Allocated Revenue Neutrality</b>	<b>\$1.05</b>

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





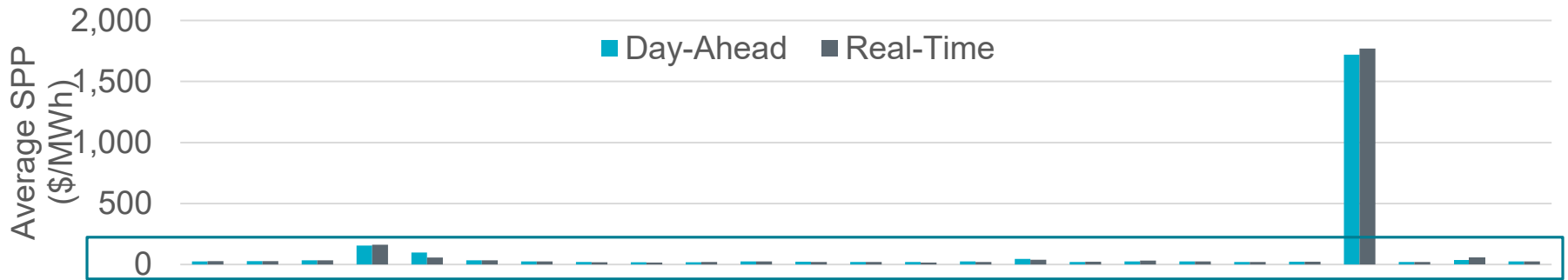
# Ancillary Services for May 2021 totaled \$41.2M



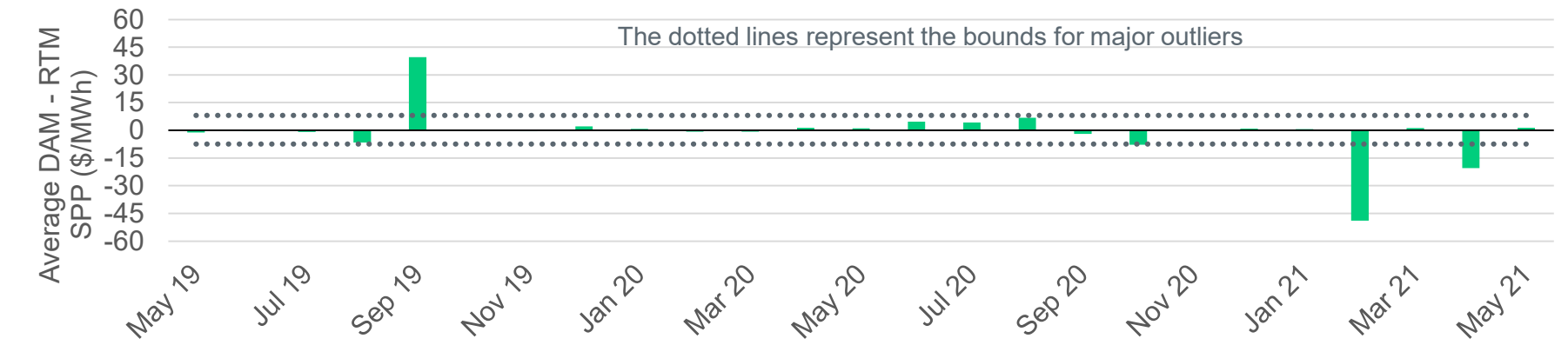
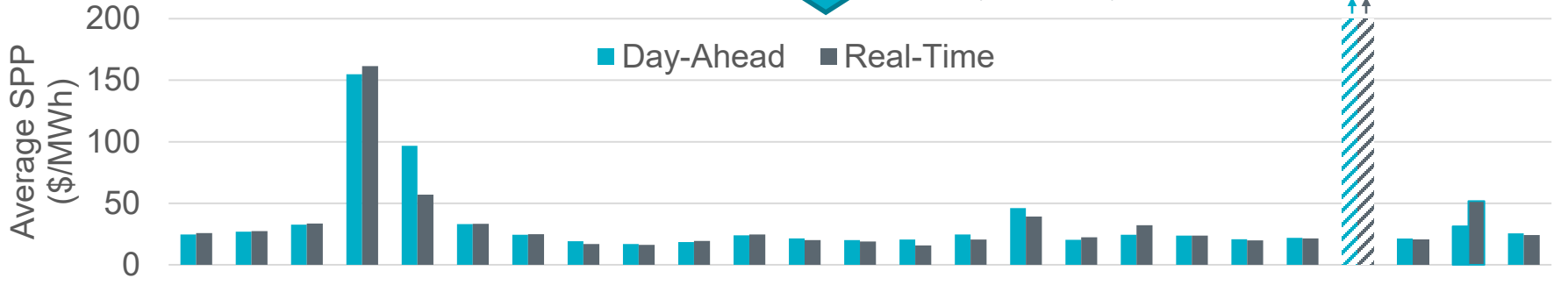
Note: For visual purposes, February 2021 has been separated into its own graph with different scaling. The legend applies for both graphs.



# Day-Ahead and Real-Time Market Price Differences



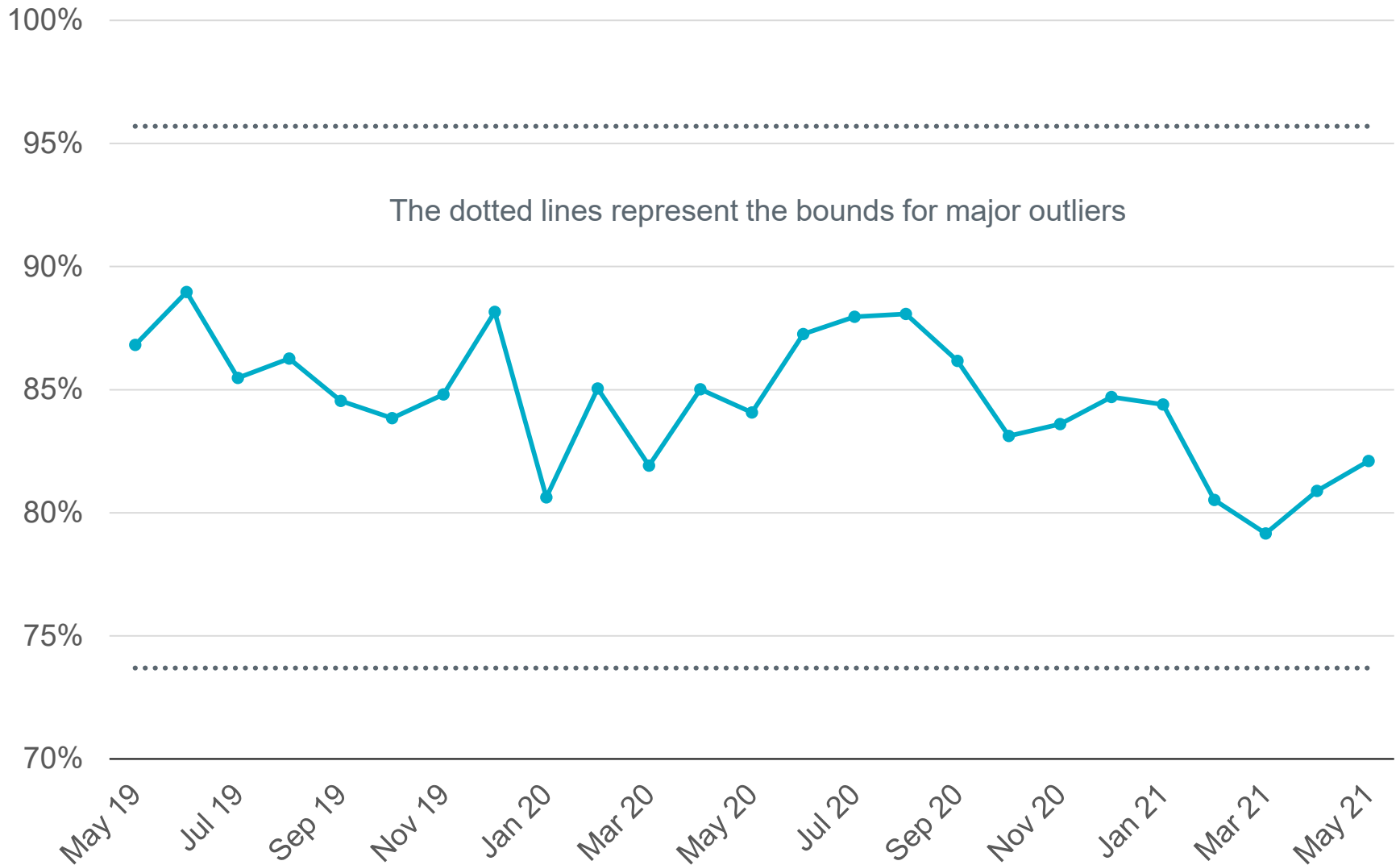
Detail of \$0/MWh to \$200/MWh



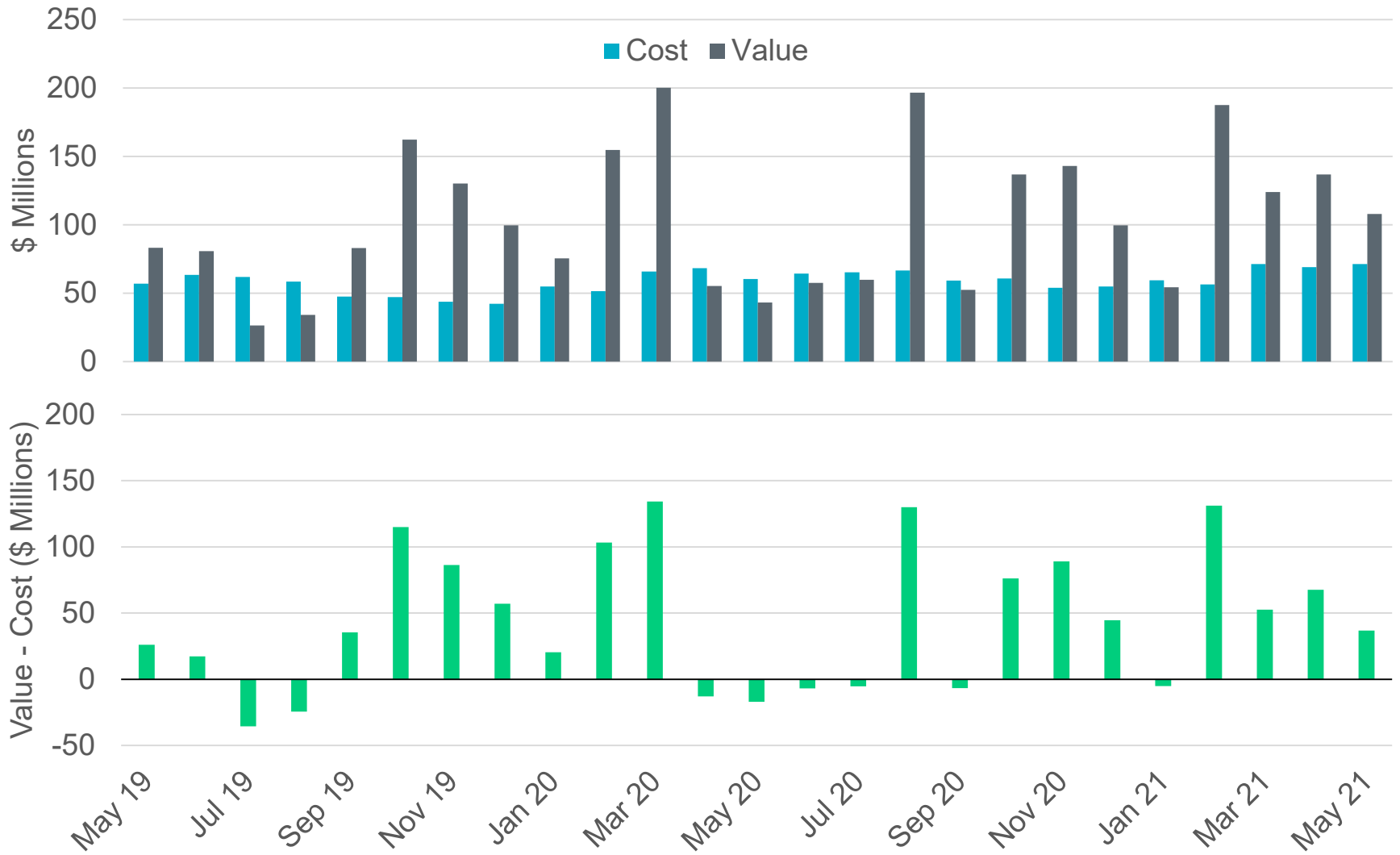
\*Averages are weighted by Real-Time Market Load



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



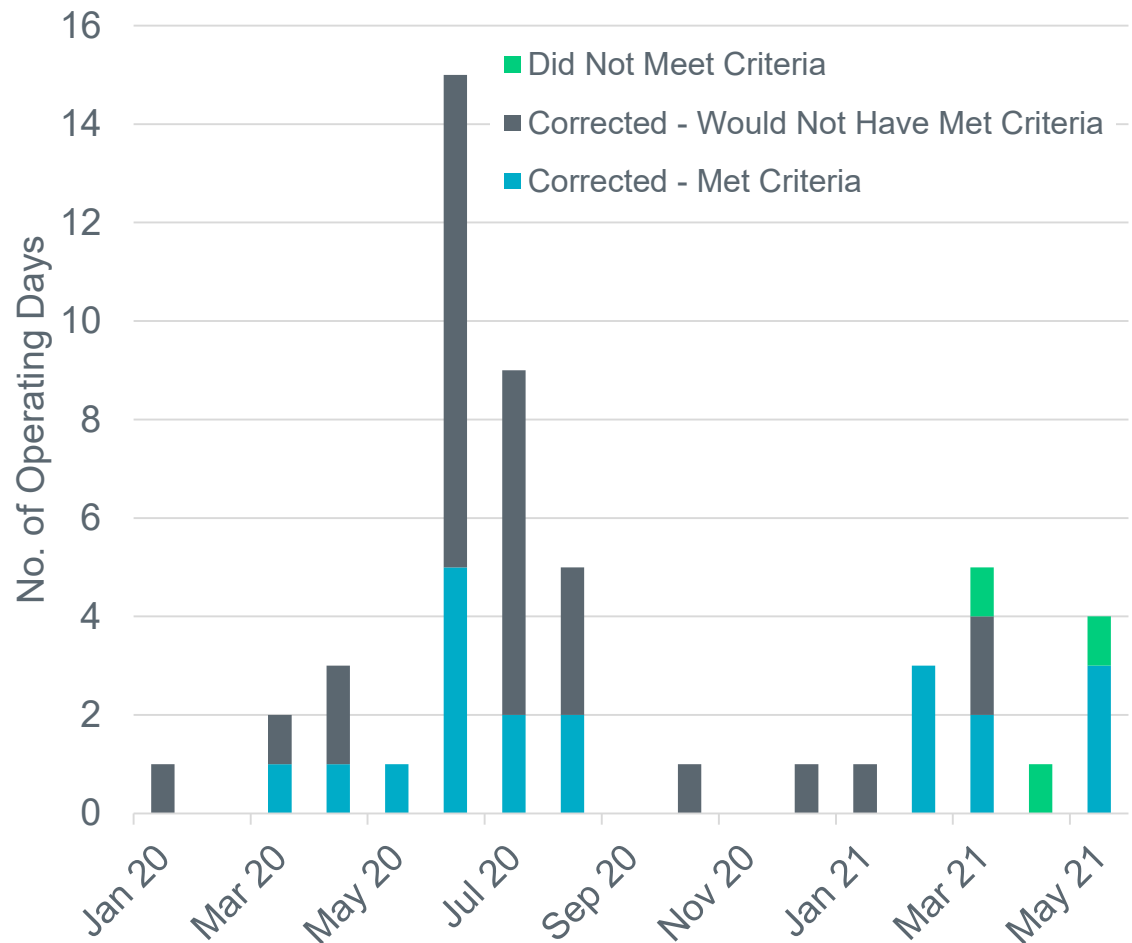
# CRR Value and Cost Differences



# 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 on Price Issues not Meeting the Criteria for Significance

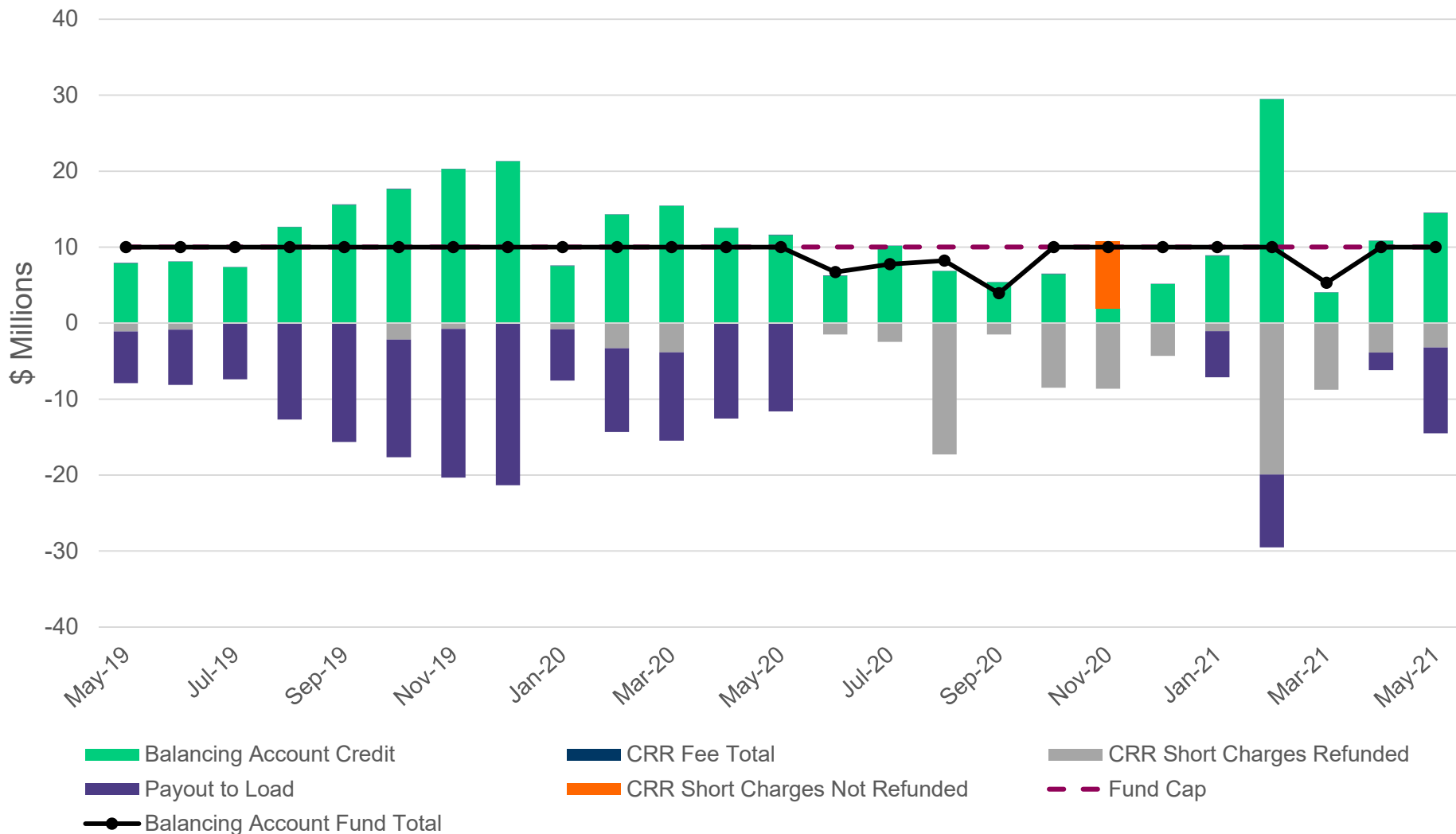
## Operating Day March 9, 2021

- The reliability deployment price adder process was incorrectly triggered during RRS testing for Load Resources.
  - Error associated with the automatic deployment process that occurs at the top of the hour
  - Software and procedural updates have been put in place to mitigate the issue moving forward.
- This impacted Real-Time Market prices during the time window between Settlement Intervals 11:15 and 14:15 with a maximum 15-minute Real-Time Reliability Deployment Price impact of \$0.83/MWh.
- With the timing of this issue and the implementation of NPRR1024, the impacts were evaluated relative to the significance criteria in paragraph (7)(b) of Protocol section 6.3, Adjustment Period and Real-Time Operations Timeline.
- No Counter-Parties met the required criteria
  - The largest dollar impact was \$2,456 and the largest percent impact for a Counter-Party impacted by more than \$2,000 was 4.3%.

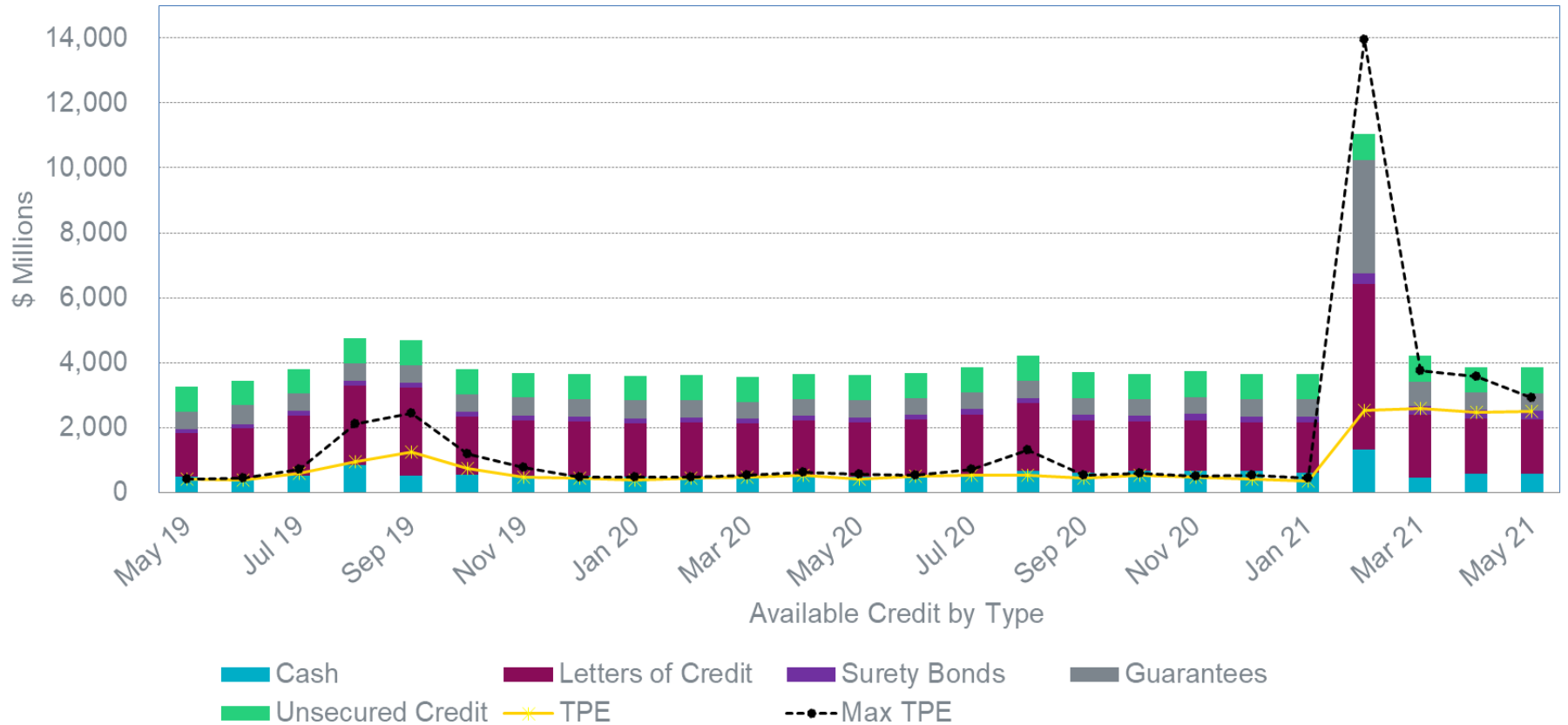
## Operating Days April 1, 2021 and May 11, 2021

- These two items were driven by SCED executions that were missed during routine system activities (e.g., release migrations or site failovers).
- Impacts were minor and specific to Real-Time Prices for Energy Metered for Resources (RTRMPRs)

# 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 – May 2021

Transaction Type	Year-To-Date		Transactions Received	
	May 2021	May 2020	May 2021	May 2020
<b>Switches</b>	651,853	424,265	101,790	99,776
<b>Acquisitions</b>	48,862	0	0	0
<b>Move - Ins</b>	1,076,802	1,059,835	207,518	208,903
<b>Move - Outs</b>	499,615	517,407	100,343	108,513
<b>Continuous Service Agreements (CSA)</b>	300,424	242,135	33,874	25,369
<b>Mass Transitions</b>	26,584	0	6,172	0
<b>Total</b>	<b>2,604,140</b>	<b>2,243,642</b>	<b>449,697</b>	<b>442,561</b>