



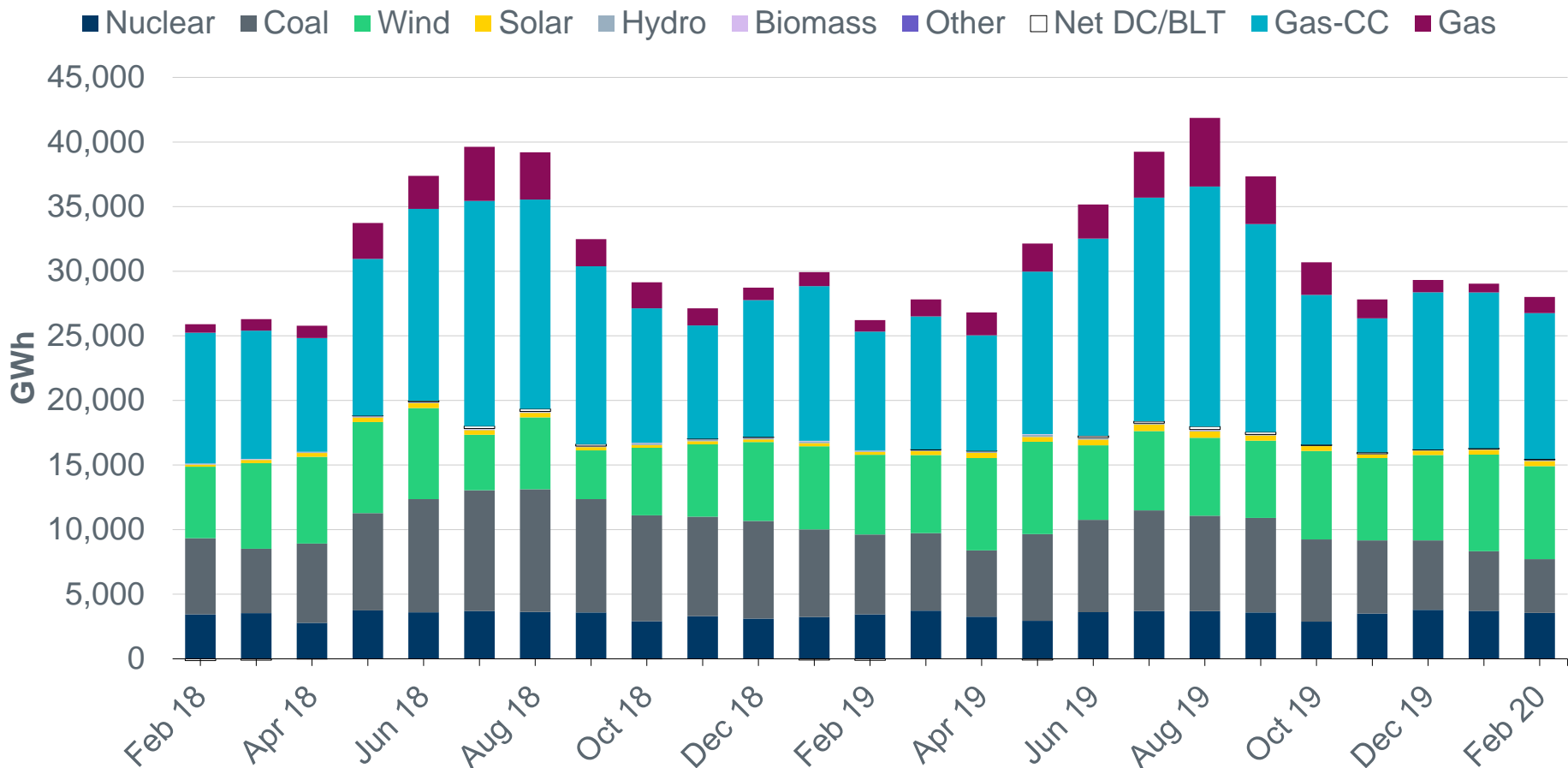
ERCOT Monthly Operational Overview (February 2020)

ERCOT Public
March 19, 2020

Monthly Highlights

- The maximum demand in February 2020 was 56,116 MW*, which was 2,364 MW more than the February 2019 demand of 53,752 MW.
- ERCOT issued 5 notifications:
 - 1 Advisory issued for postponement of the DAM solution posting deadline due to long running solution.
 - 1 DC Tie Curtailment issued due to one or more transmission security violations that would be fully or partially resolved by the curtailment of DC Tie Load.
 - 1 DC Tie Curtailment issued due to an unplanned outage.
 - 2 Emergency Notices issued for Far West Texas area due to a contingency.
- The percentage of Real-Time Load transacted in the Day-Ahead Market recovered from 81% in January to 85% in February after falling from 88% in December. The metric compares the total Day-Ahead Market activity to the Real-Time Load for Counterparties that represent Real-Time Load. The increase in February was due to certain market participants increasing their DAM activity to cover Real-Time Load that was not covered in January and other market participants increasing the amount of Day-Ahead Market activity that exceeded their Real-Time Load.

Monthly energy generation increased 7% year-over-year to 28,005 GWh in February 2020, compared to 26,100 GWh in February 2019

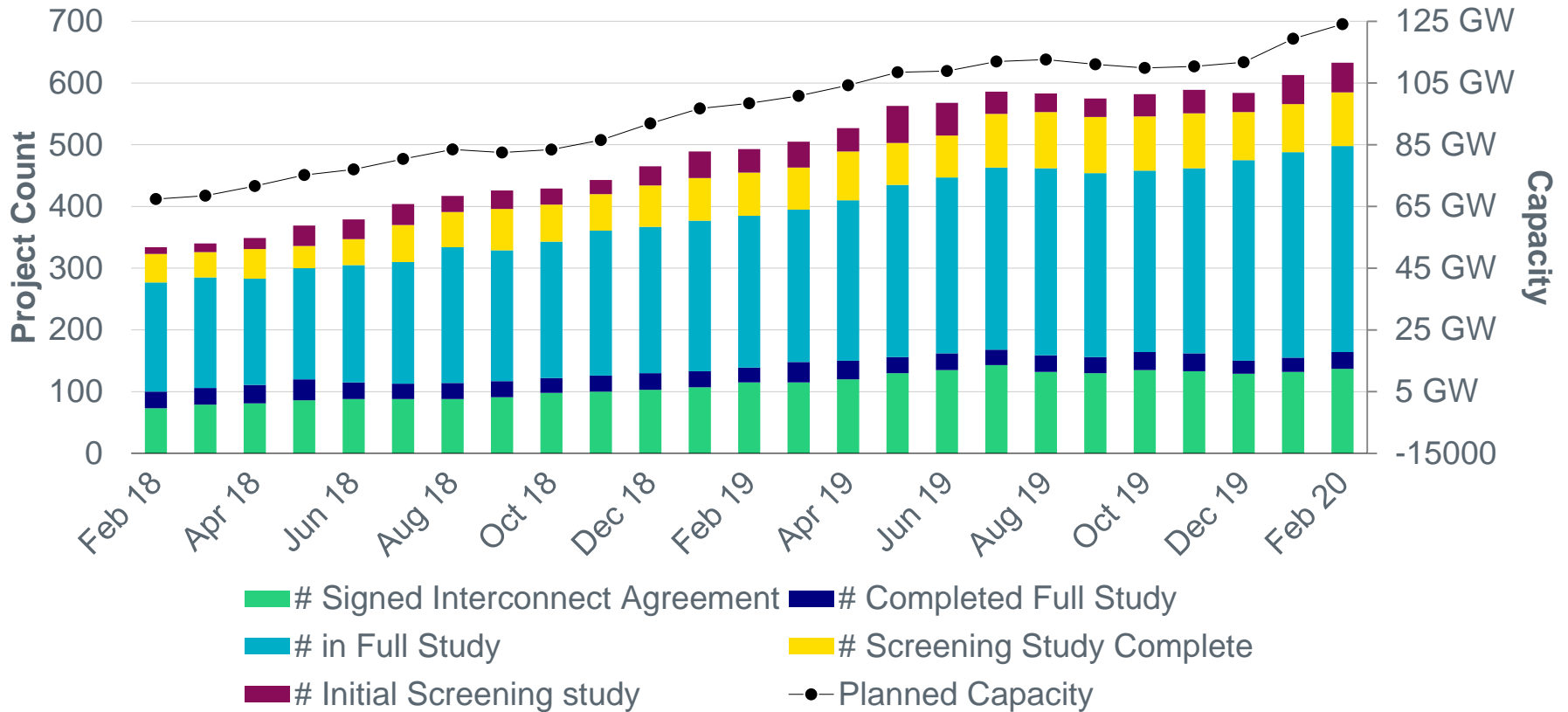


Data for latest two months are based on preliminary settlements.



Generation Interconnection activity by project phase

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

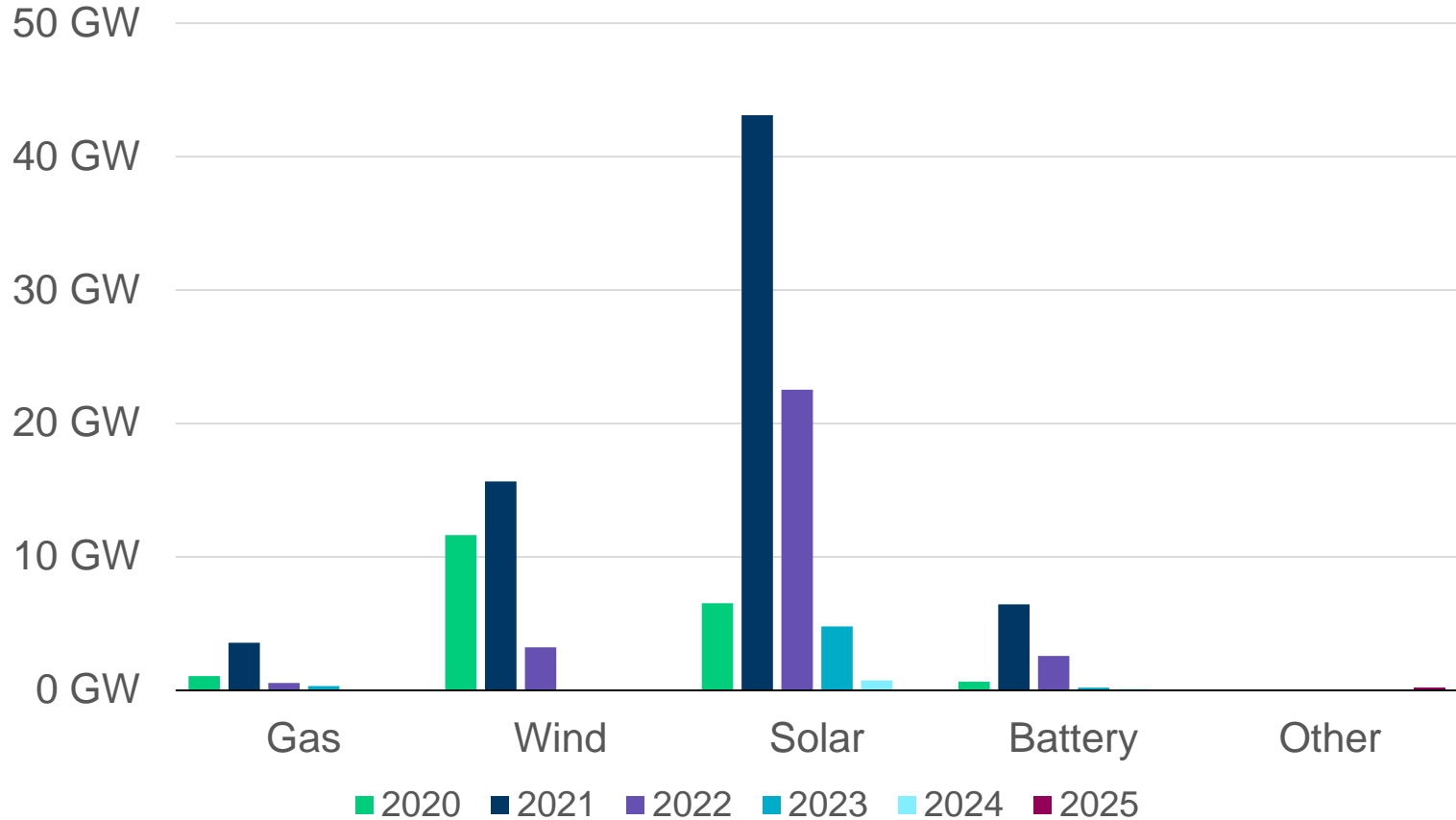


A break out by fuel type can be found in the monthly Generator Interconnection Status (GIS) reports available on the ERCOT Resource Adequacy Page: <http://www.ercot.com/gridinfo/resource>



Interconnection Queue Capacity by Fuel Type

Queue totals: Solar 78 GW (63%), Wind 31 GW (25%), Gas 6 GW (4%), Battery 10 GW (8%)
(excludes capacity associated with Projects designated as Inactive per Planning Guide Section 5.7.6)

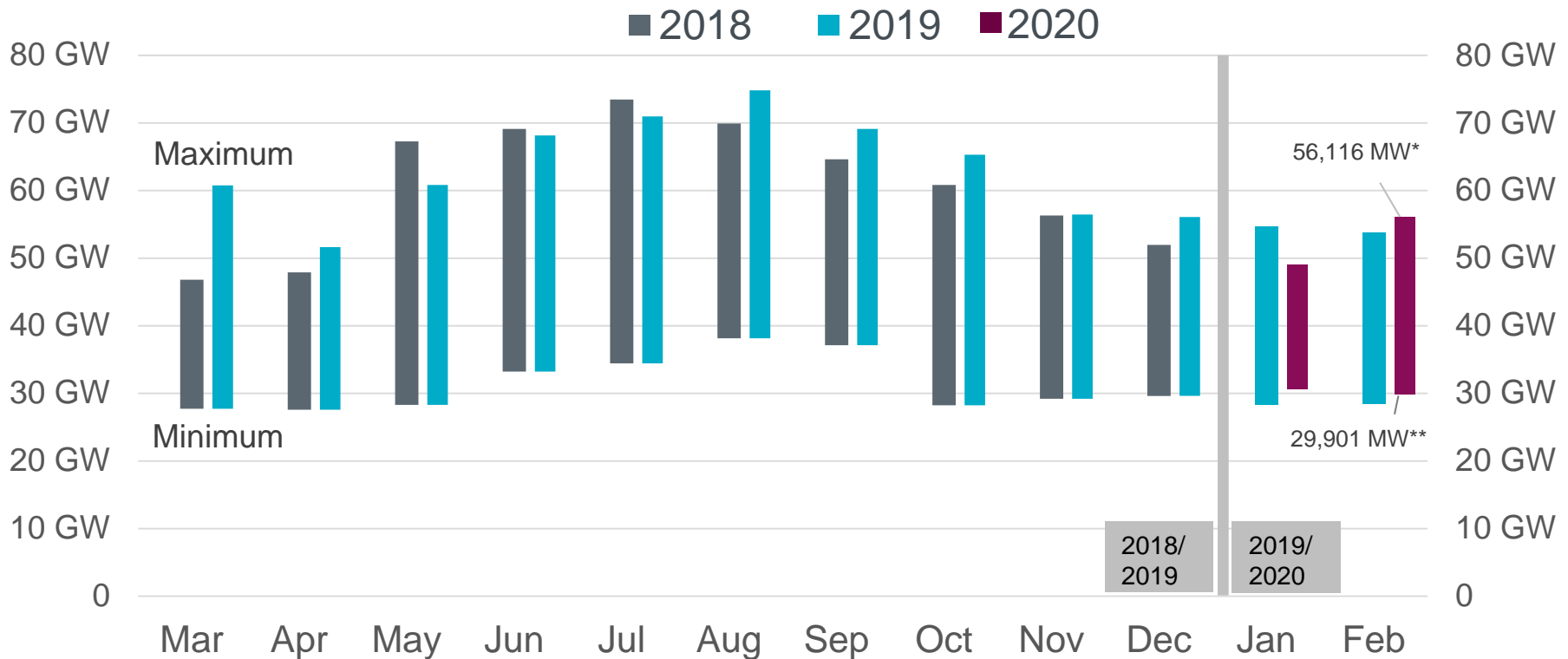


A break out by zone can be found in the monthly Generator Interconnection Status (GIS) reports available on the ERCOT Resource Adequacy Page: <http://www.ercot.com/gridinfo/resource>

Planning Summary

- ERCOT is currently tracking 633 active generation interconnection requests totaling 124,062 MW. This includes 77,699 MW of solar, 30,515 MW of wind, and 9,979 MW of battery projects as of February 2020.
- ERCOT is currently reviewing proposed transmission improvements with a total estimated cost of \$1,296.54 Million as of February 29, 2020.
- Transmission Projects endorsed in 2020 total \$50.77 Million as of February 29, 2020.
- All projects (in engineering, routing, licensing and construction) total approximately \$7.45 Billion as of February 1, 2020.
- Transmission Projects energized in 2020 total about \$122 Million as of February 1, 2020.

ERCOT set a maximum peak demand of 56,116 MW* in February 2020, which is 2,364 MW more than the February 2019 demand of 53,752 MW



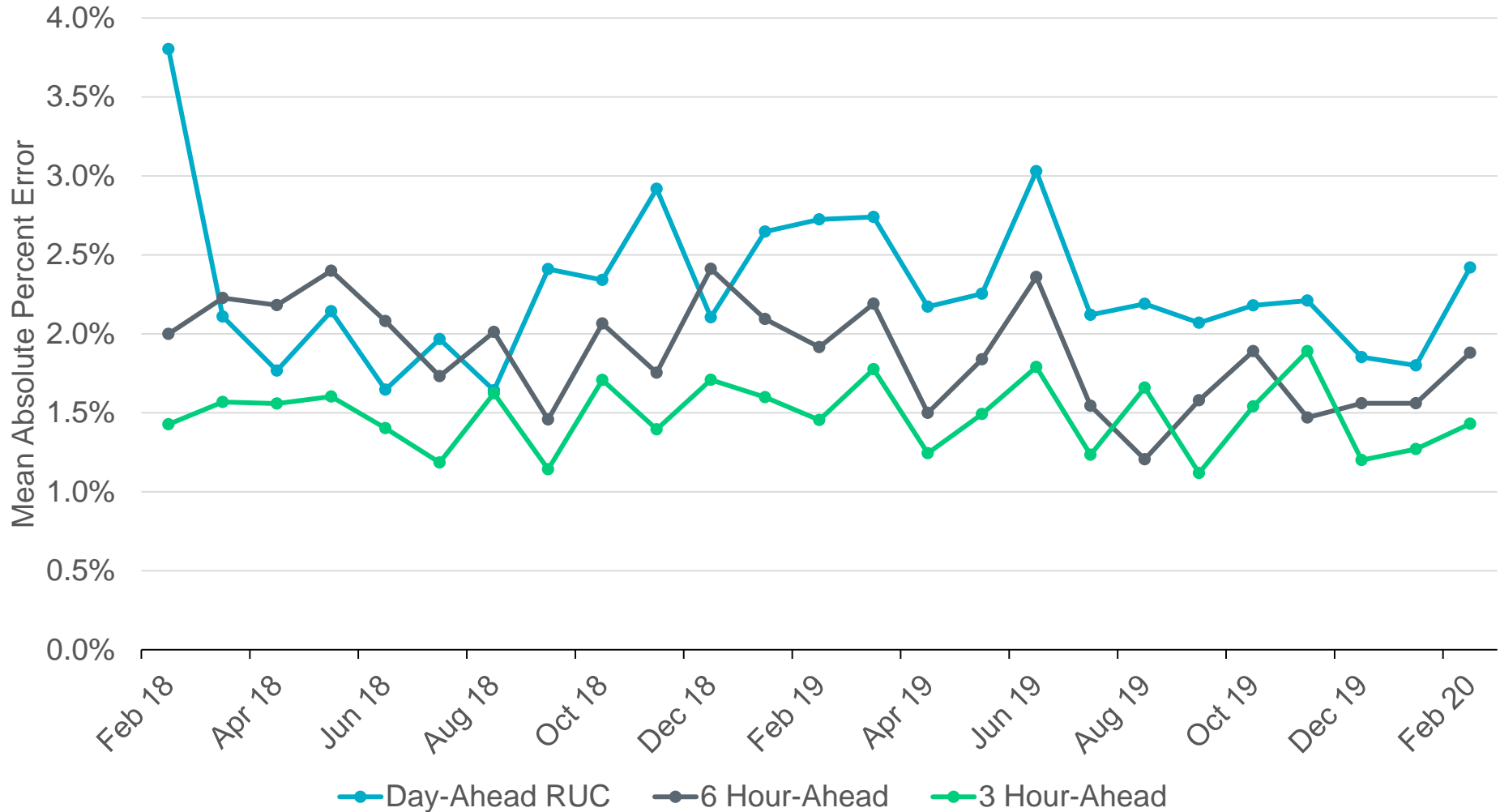
*Based on the maximum net system hourly value from March release of Demand and Energy 2020 report.

**Based on the minimum net system 15-minute interval value from March release of Demand and Energy 2020 report.

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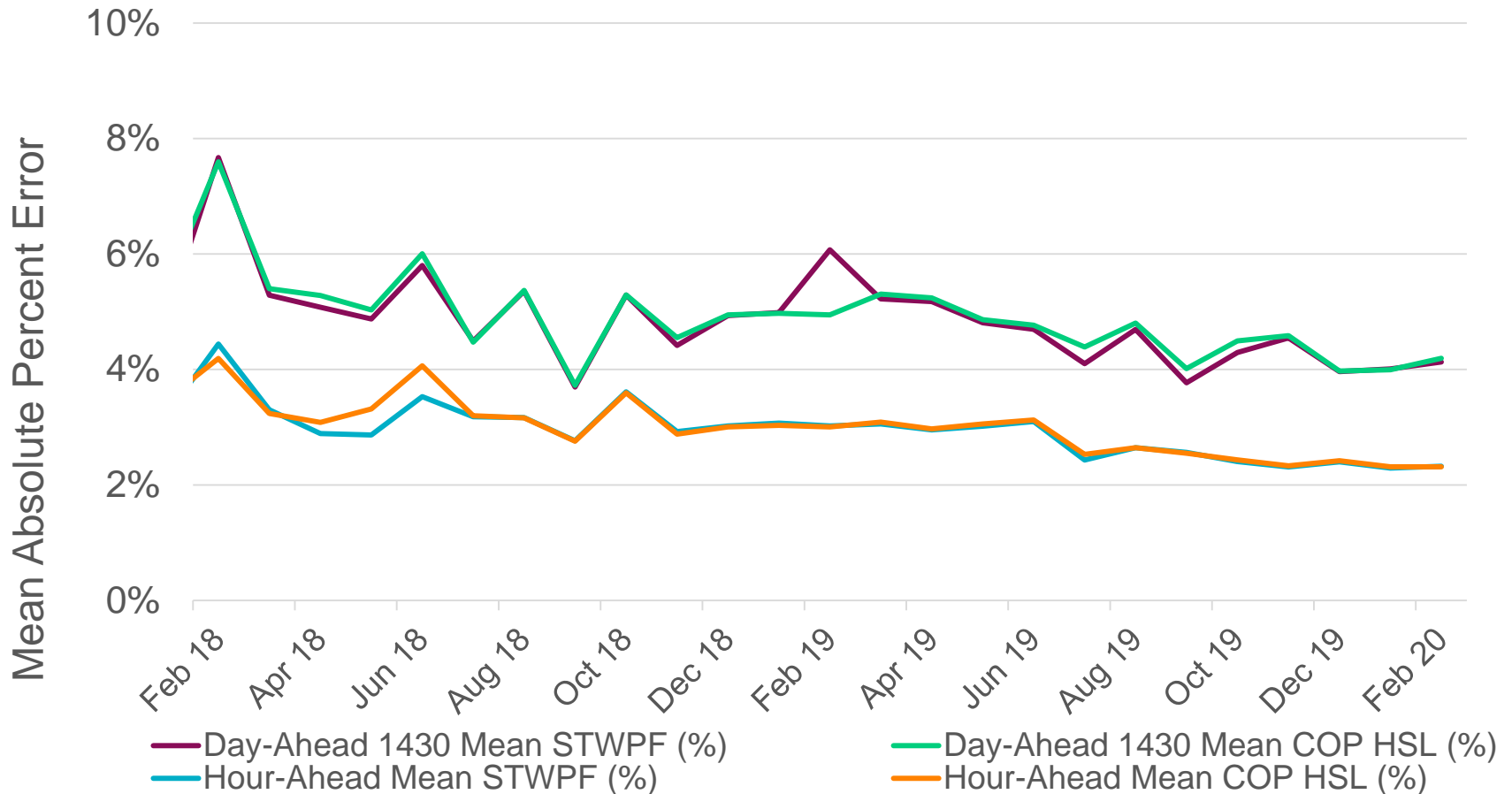
Mid-Term Load Forecast Performance



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



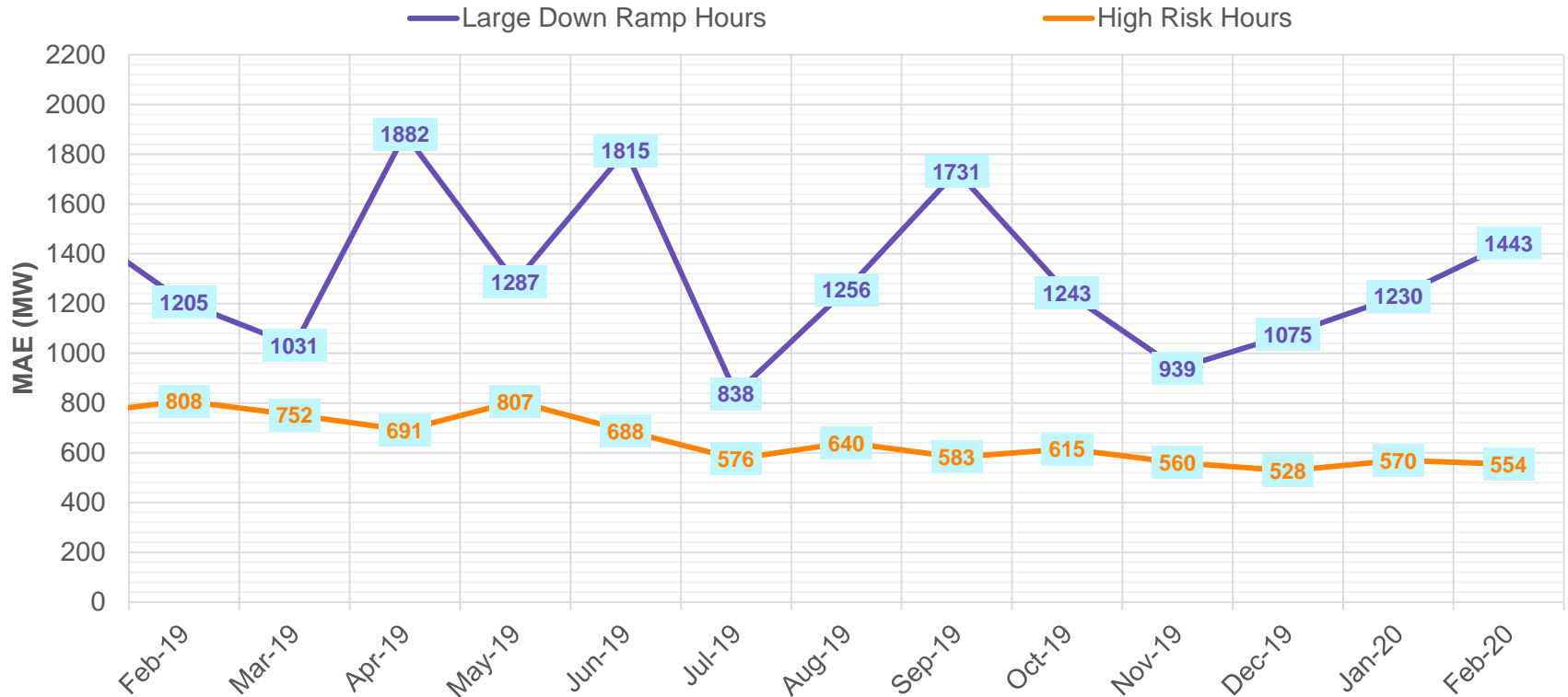
Wind Forecast Performance



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

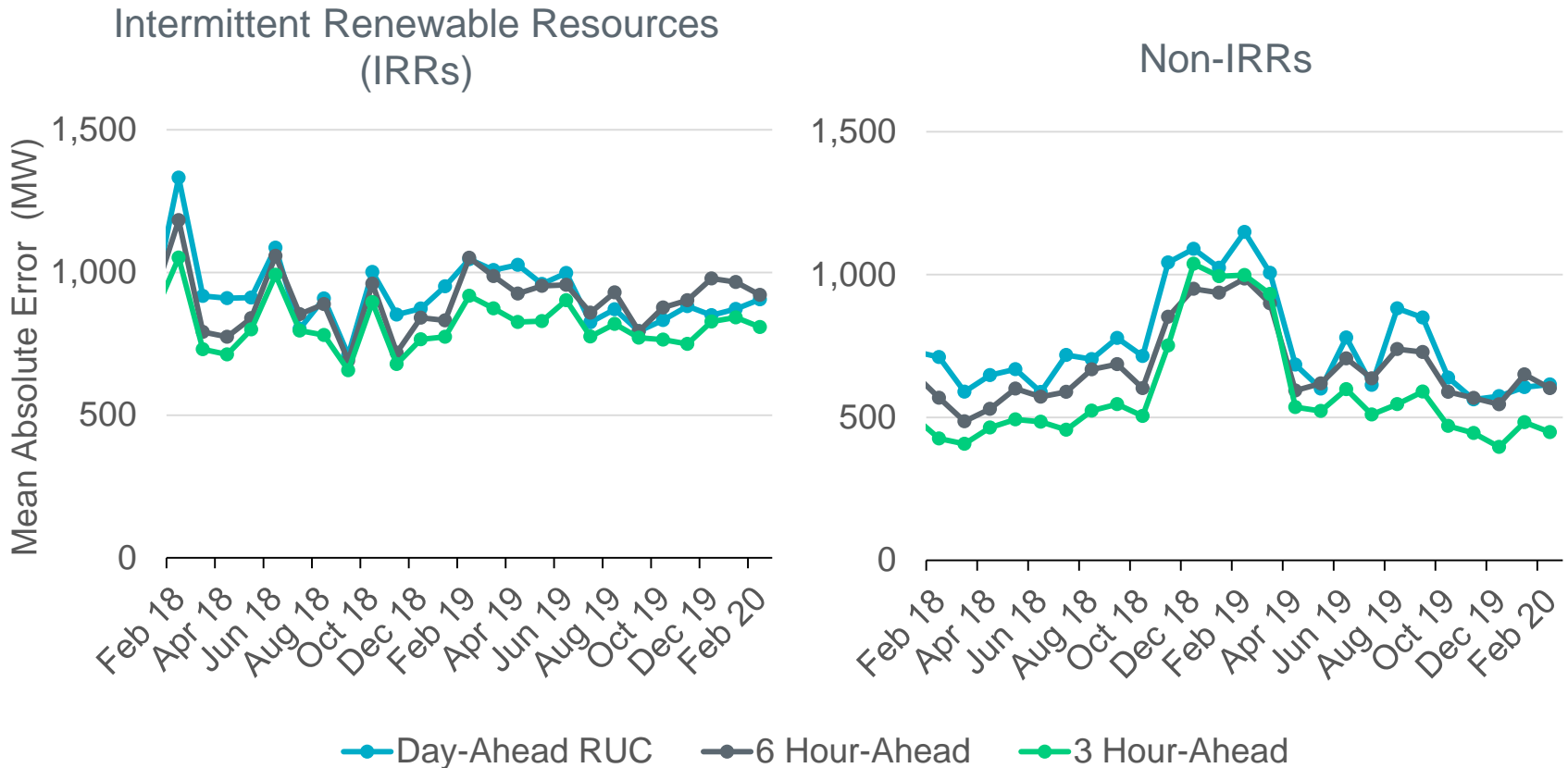
Hour-Ahead Mean Absolute Error (MAE) During Large Down Ramp (> 2000 MW) and High Risk Hours*



*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.

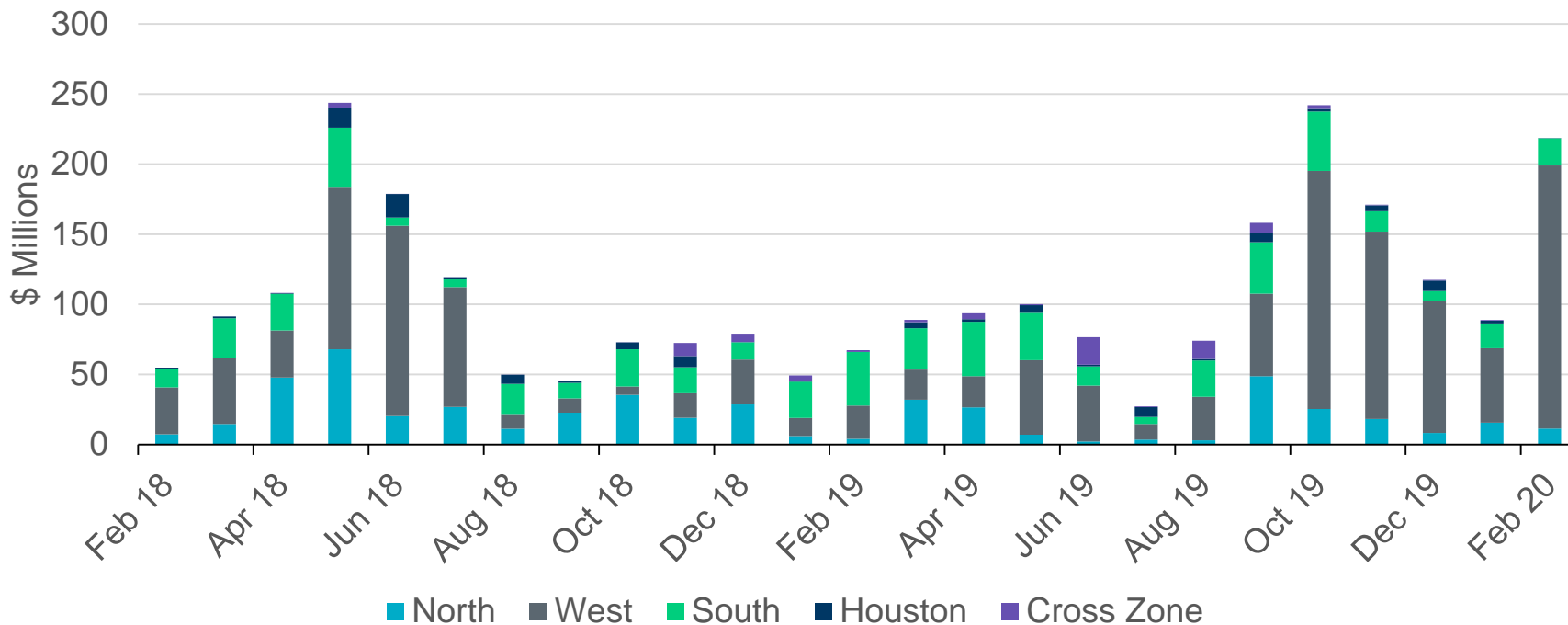
Forecast performance during large down ramp (wind ramp > 2000 MW) hours and high risk hours (historic risk of load ramping up and wind ramping down is high) is focused upon. Note that for the purposes of forecast performance measurement every hour in a month is classified as either a large down ramp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



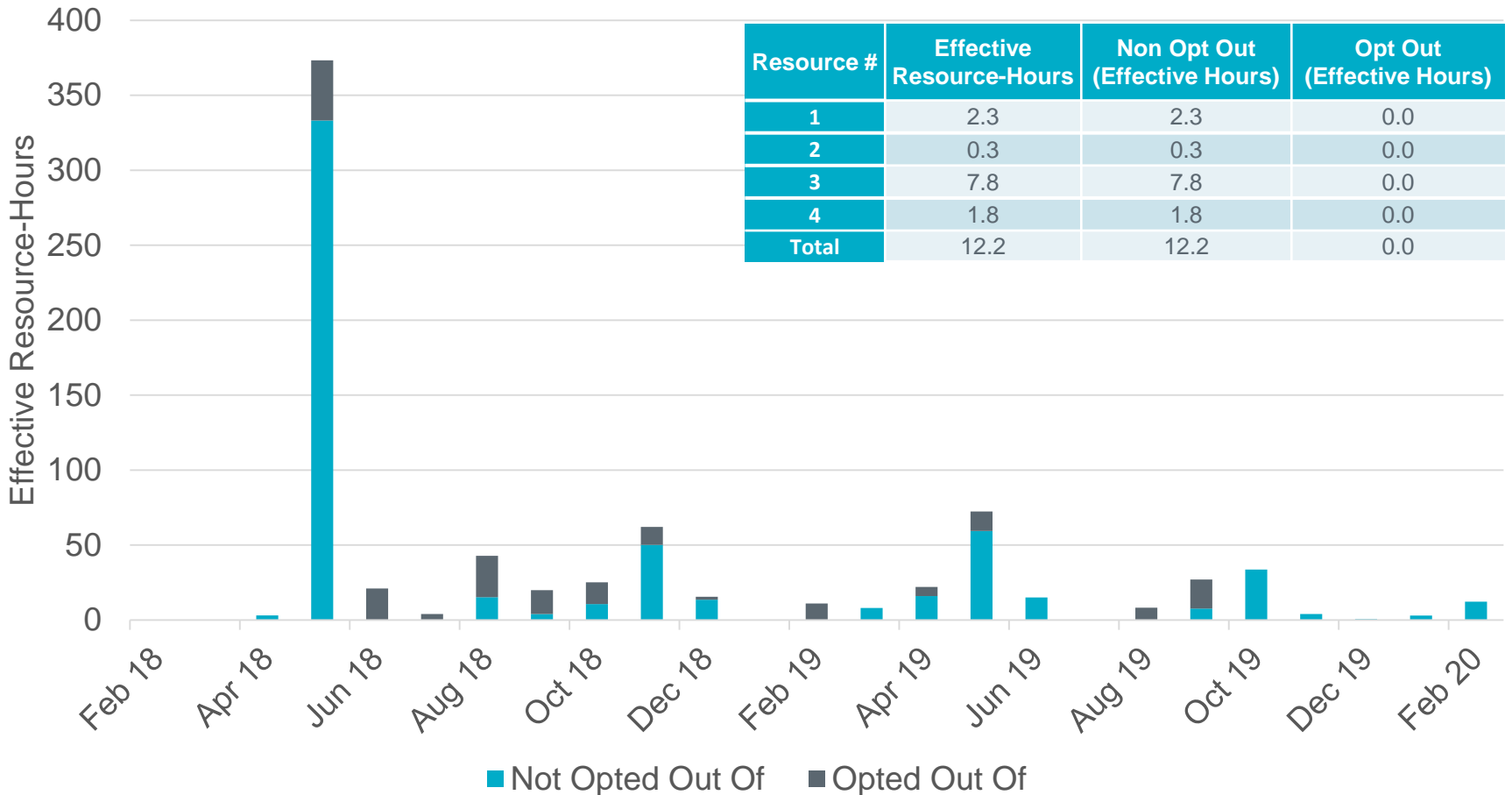
- COPs for IRRs are derived from wind and solar forecasts from ERCOT with any adjustments from Qualified Scheduling Entities.
- The installed capacity of approved IRRs is 27,429 MW (as of February 29, 2020).

Real-Time Congestion Rent by Zone



- The congestion rent in the West zone increased significantly in February, in part due to planned transmission outages. The most significant West zone constraints for February include SECNMO28: 6100__F, MMDS58: 6475__C, and DWINDUN8: 6100__F in the Odessa – Midland area.
- 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.

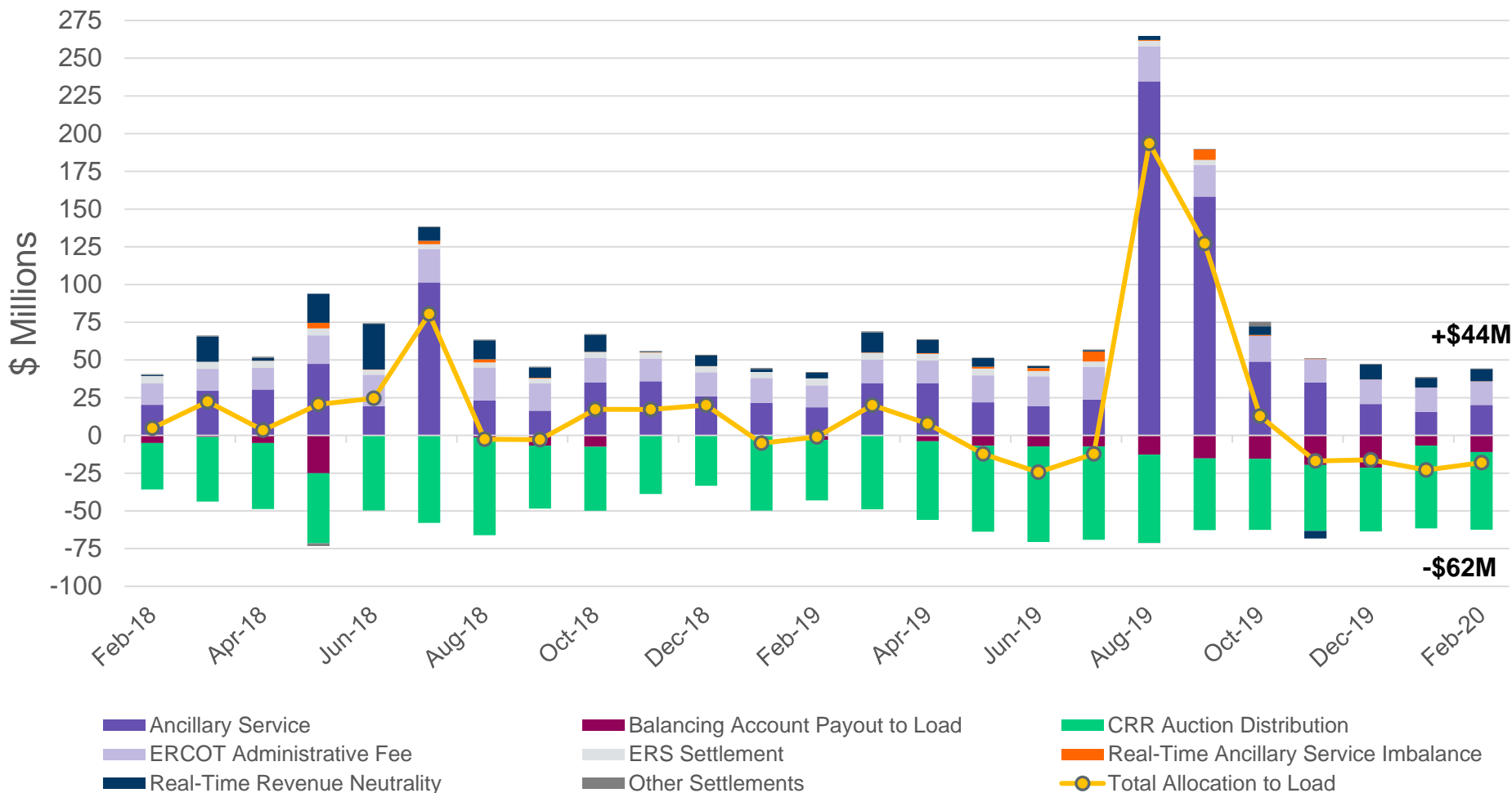
Four Resources were Committed in February for Congestion



“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.



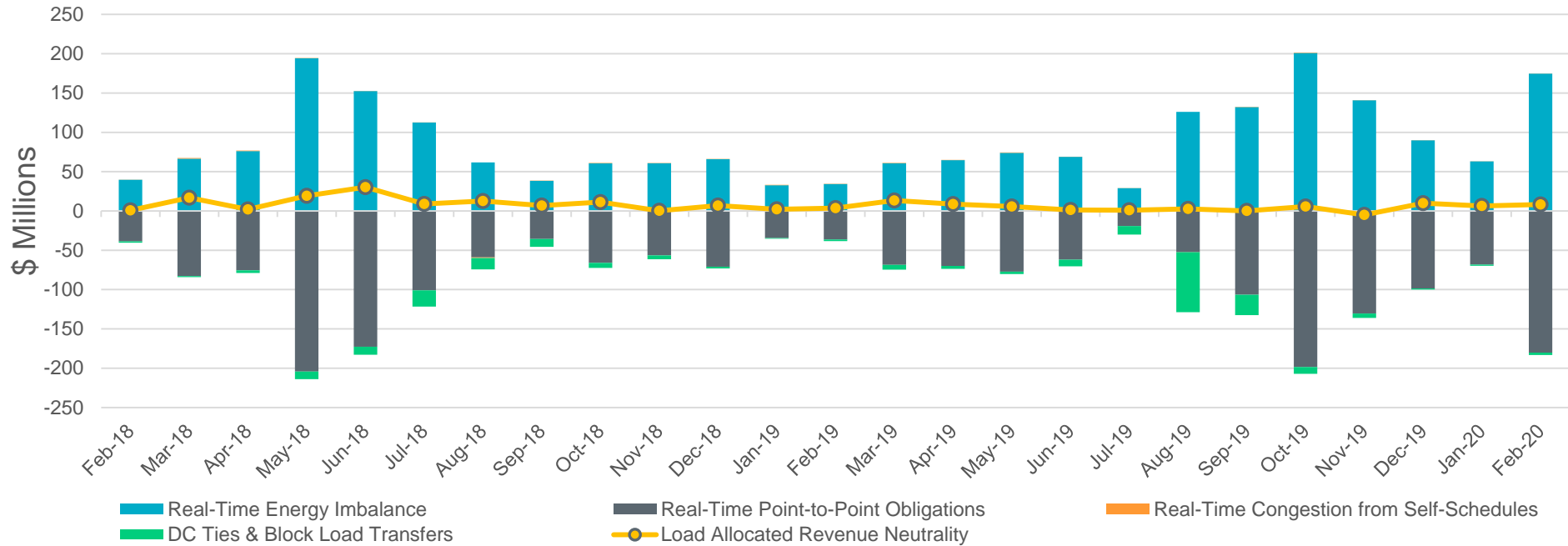
Net Allocation to Load in February 2020 was \$-18 Million



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

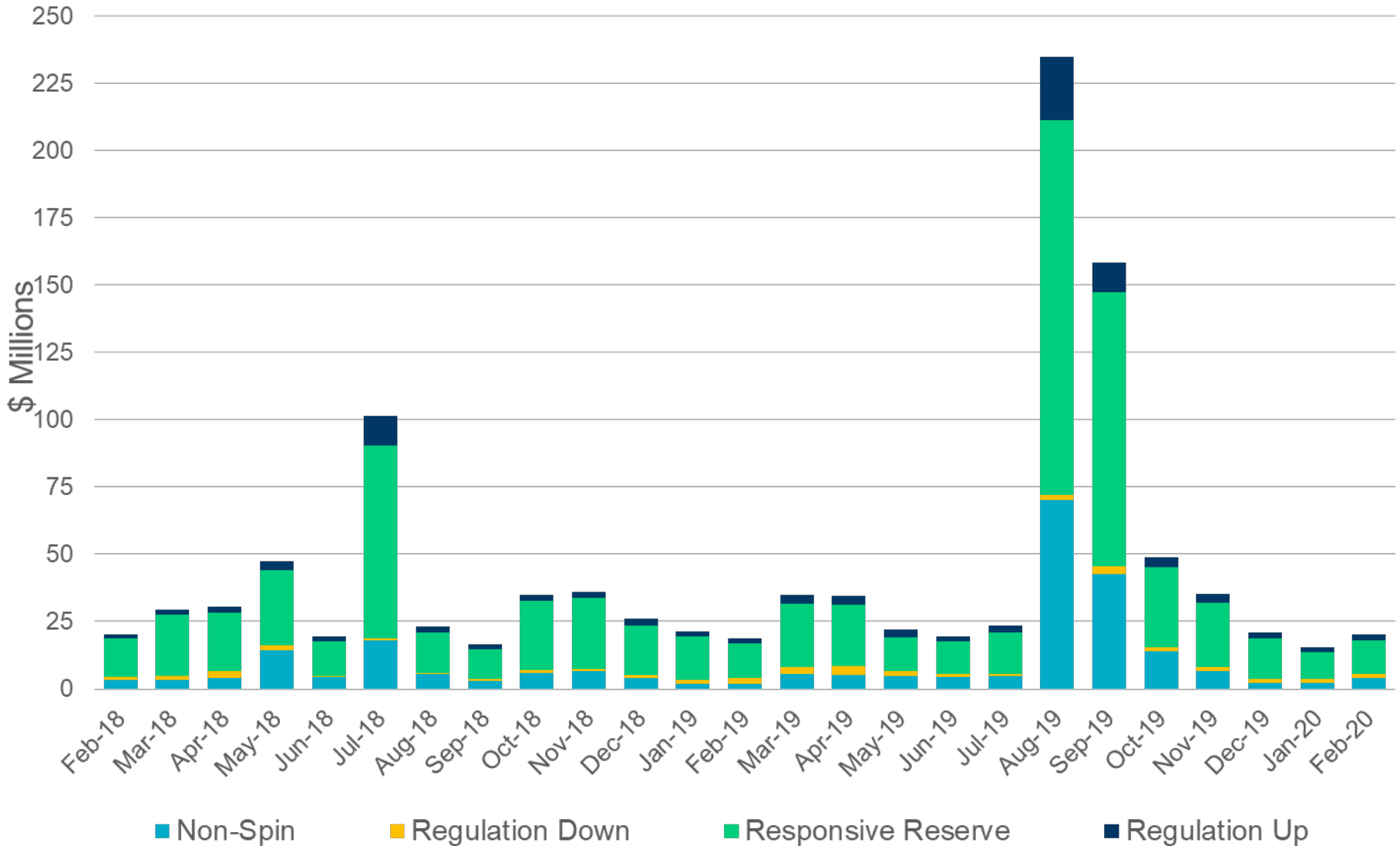


Real-Time Revenue Neutrality Allocated to Load was \$8.19M for February 2020



	February 2020 (\$M)
Real-Time Energy Imbalance	\$174.76
Real-Time Point-to-Point Obligation	(\$180.24)
Real-Time Congestion from Self-Schedules	\$0.22
DC Tie & Block Load Transfer	(\$2.93)
Load Allocated Revenue Neutrality	\$8.19

Ancillary Services for February 2020 totaled \$20.19M



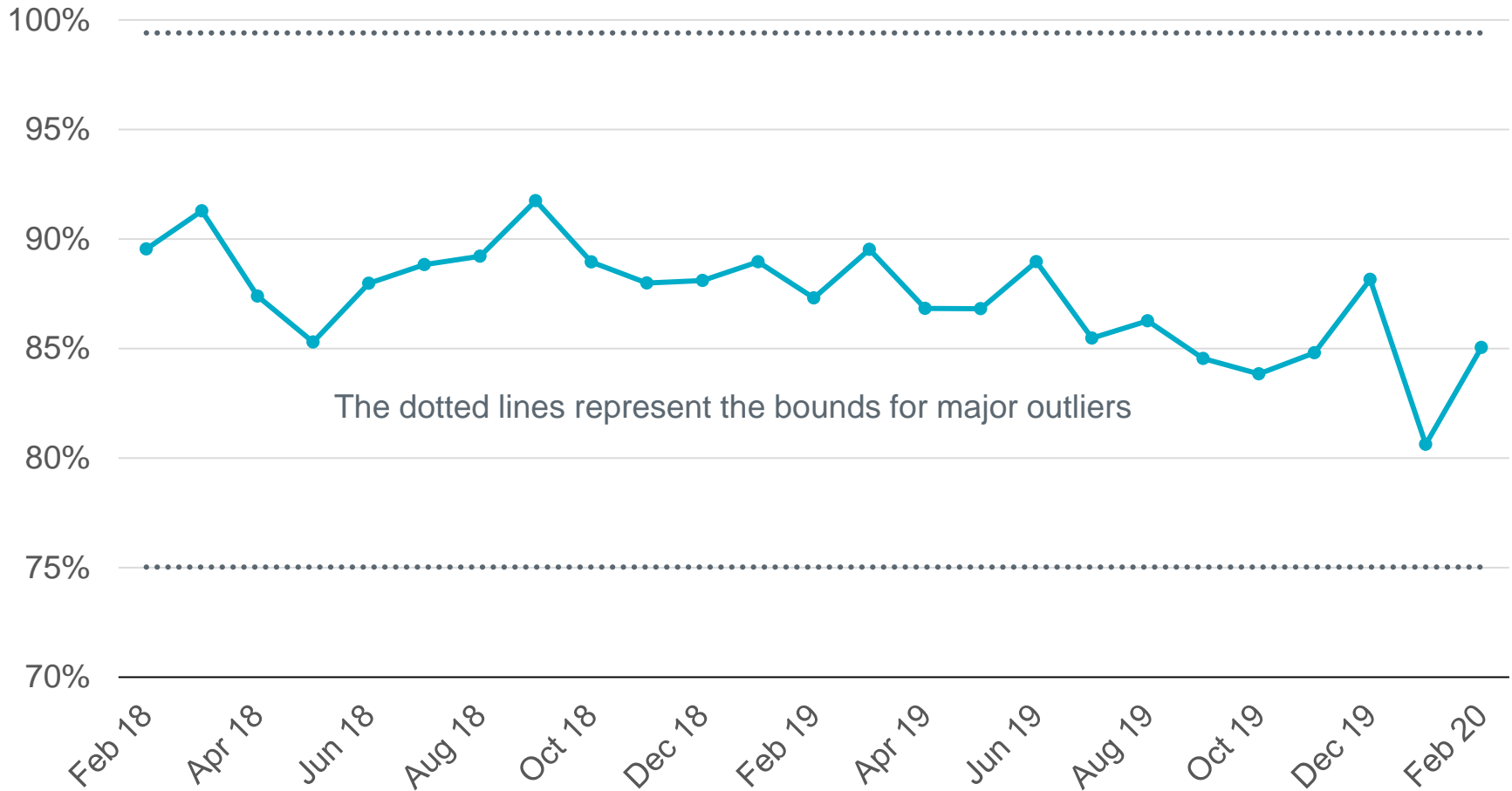
Day-Ahead and Real-Time Market Price Differences



*Averages are weighted by Real-Time Market Load



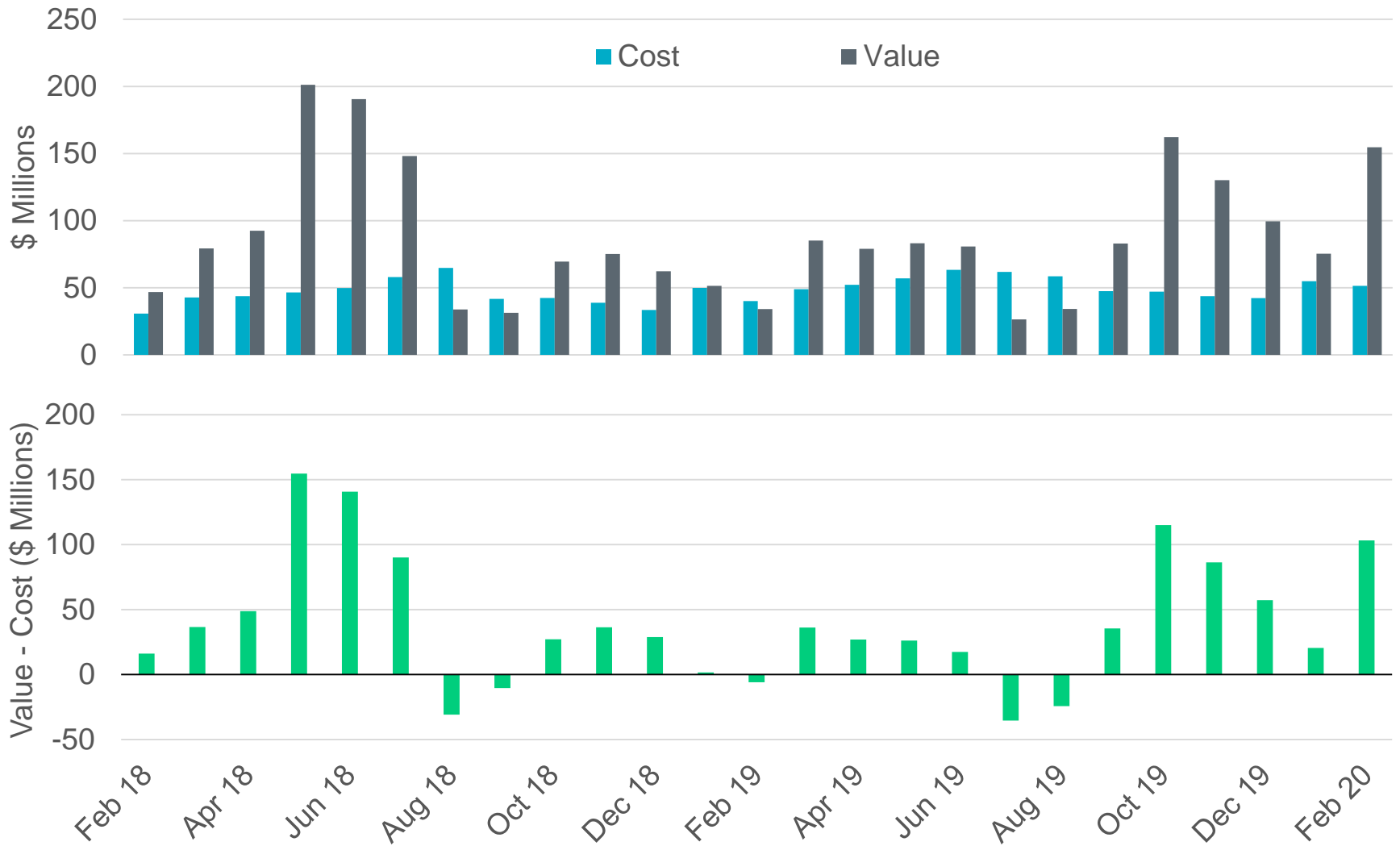
Percentage of Real-Time Load Transacted in the Day-Ahead Market



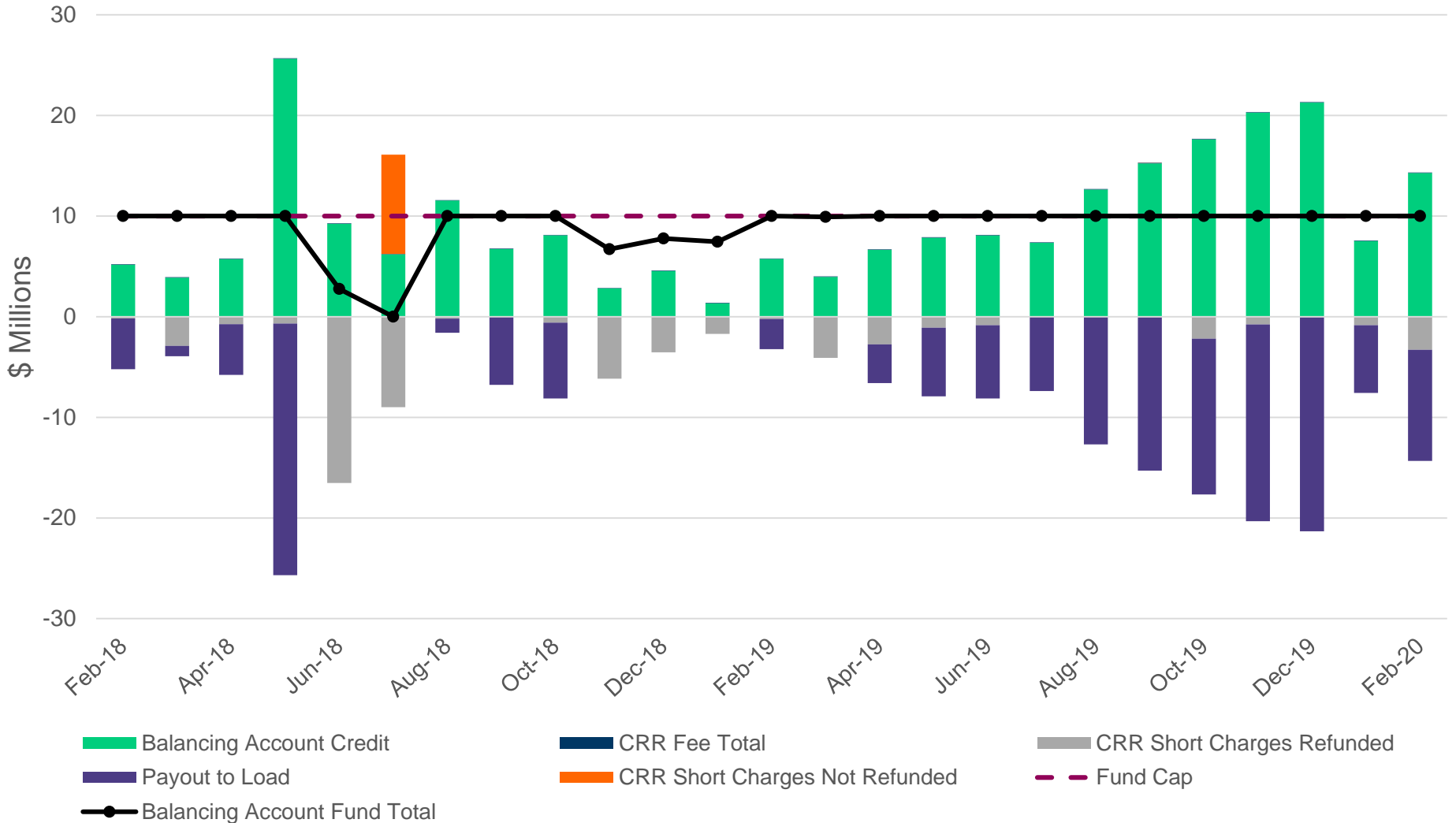
- The increase in this metric in February compared to January is due to certain market participants increasing the amount of Day-Ahead Market activity to cover Real-Time Load that was not previously covered and other market participants increasing the amount of Day-Ahead Market activity that exceeded their Real-Time Load.



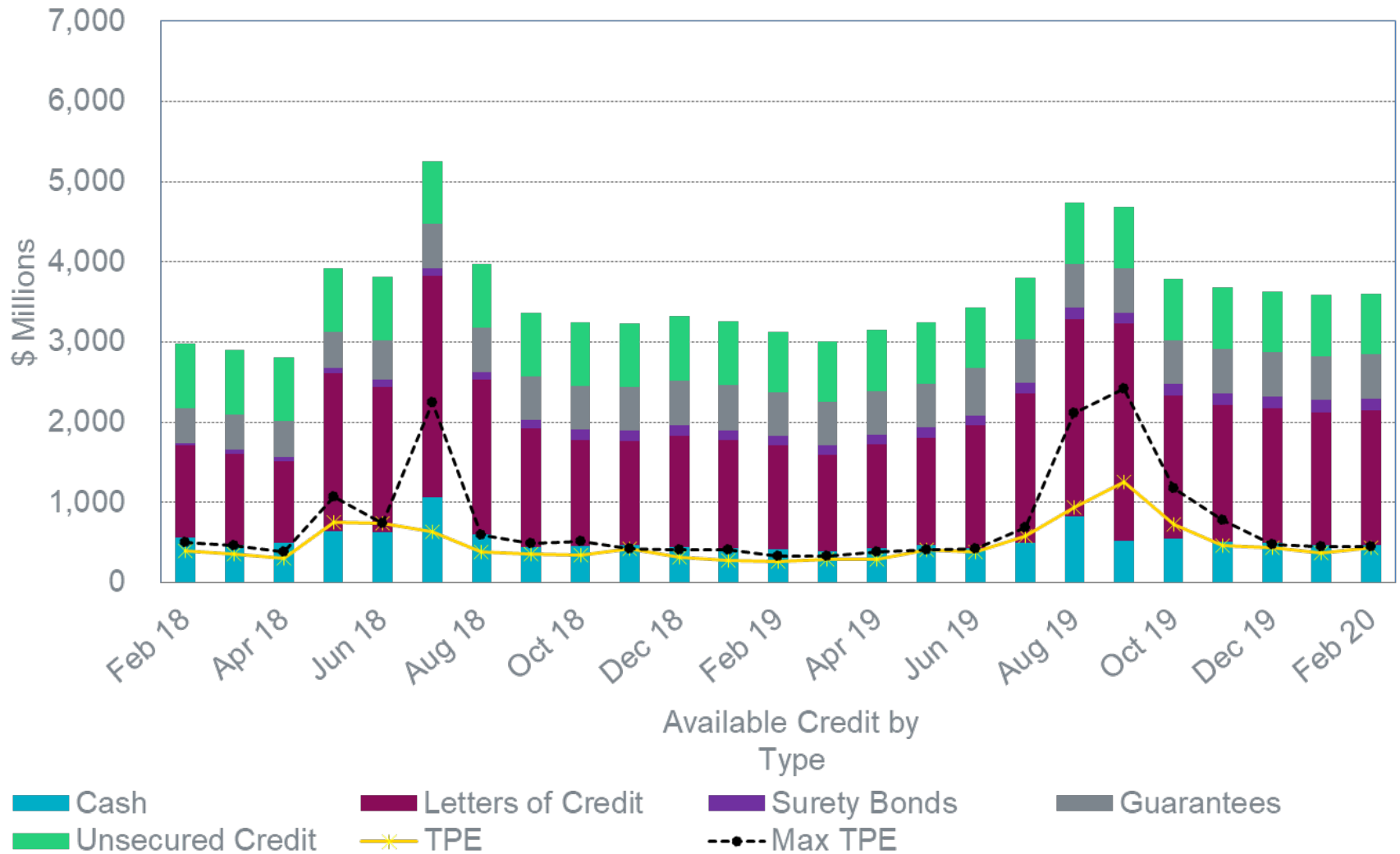
CRR Value and Cost Differences



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 – February 2020

Transaction Type	Year-To-Date		Transactions Received	
	February 2020	February 2019	February 2020	February 2019
Switches	153,081	196,914	74,361	87,973
Acquisition	0	0	0	0
Move - Ins	441,596	454,596	213,951	218,467
Move - Outs	205,680	205,336	98,953	98,651
Continuous Service Agreements (CSA)	85,606	343,265	24,712	107,856
Mass Transitions	0	0	0	0
Total	885,963	1,200,111	411,977	512,947