ERCOT Monthly Operational Overview
(March 2020)

ERCOT Public
April 16, 2020

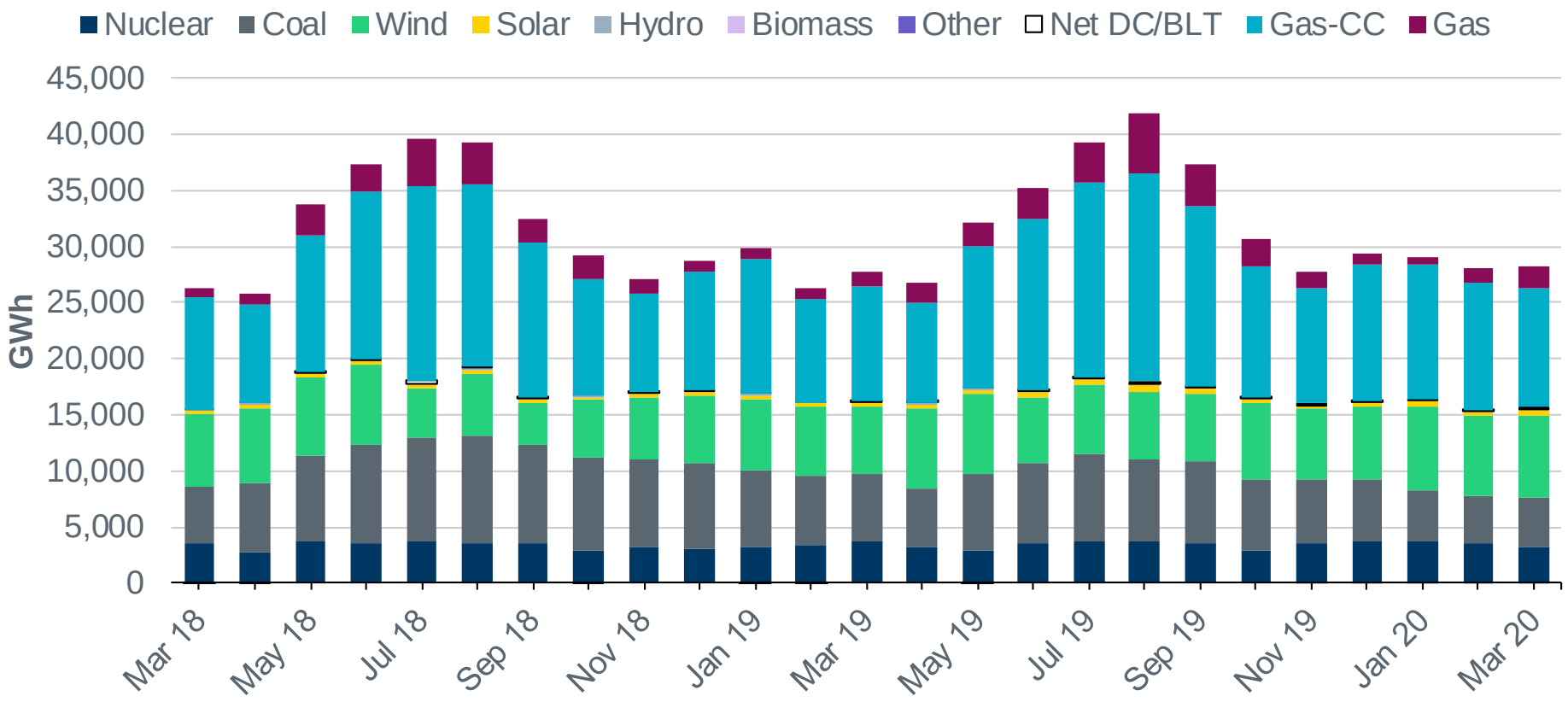
Monthly Highlights

- The maximum demand in March 2020 was 52,819 MW*, which was 7,938 MW less than the March 2019 demand of 60,756 MW.
- March 2020 had the largest month-to-month decrease in active generation interconnection requests over the 25-month period. The project count decreased by 12 (1.9%) and the total capacity under study went down by 1,950 MW (1.6%).

- ERCOT issued 6 notifications:
  - 2 Advisories issued for postponement of the DAM solution posting deadline due to long running solution.
  - 3 DC Tie Curtailments issued due to unplanned outages.
  - 1 Emergency Notice issued for Far West Texas area due to a contingency.

* Preliminary value from March release of Demand and Energy 2020 report.

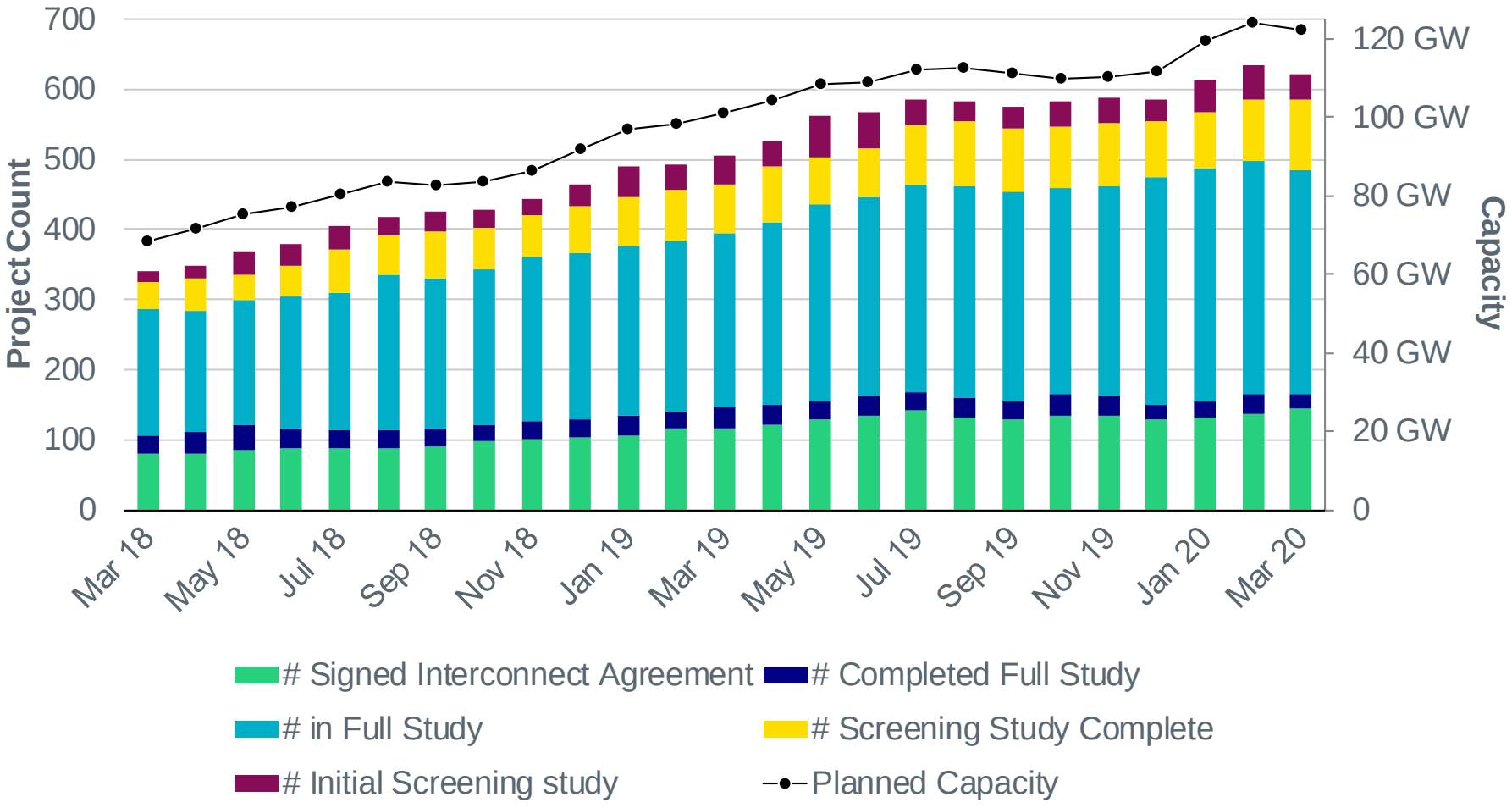
Monthly energy generation increased 1% year-over-year to 28,204 GWh in March 2020, compared to 27,821 GWh in March 2019



Data for latest two months are based on preliminary settlements.

Generation Interconnection activity by project phase

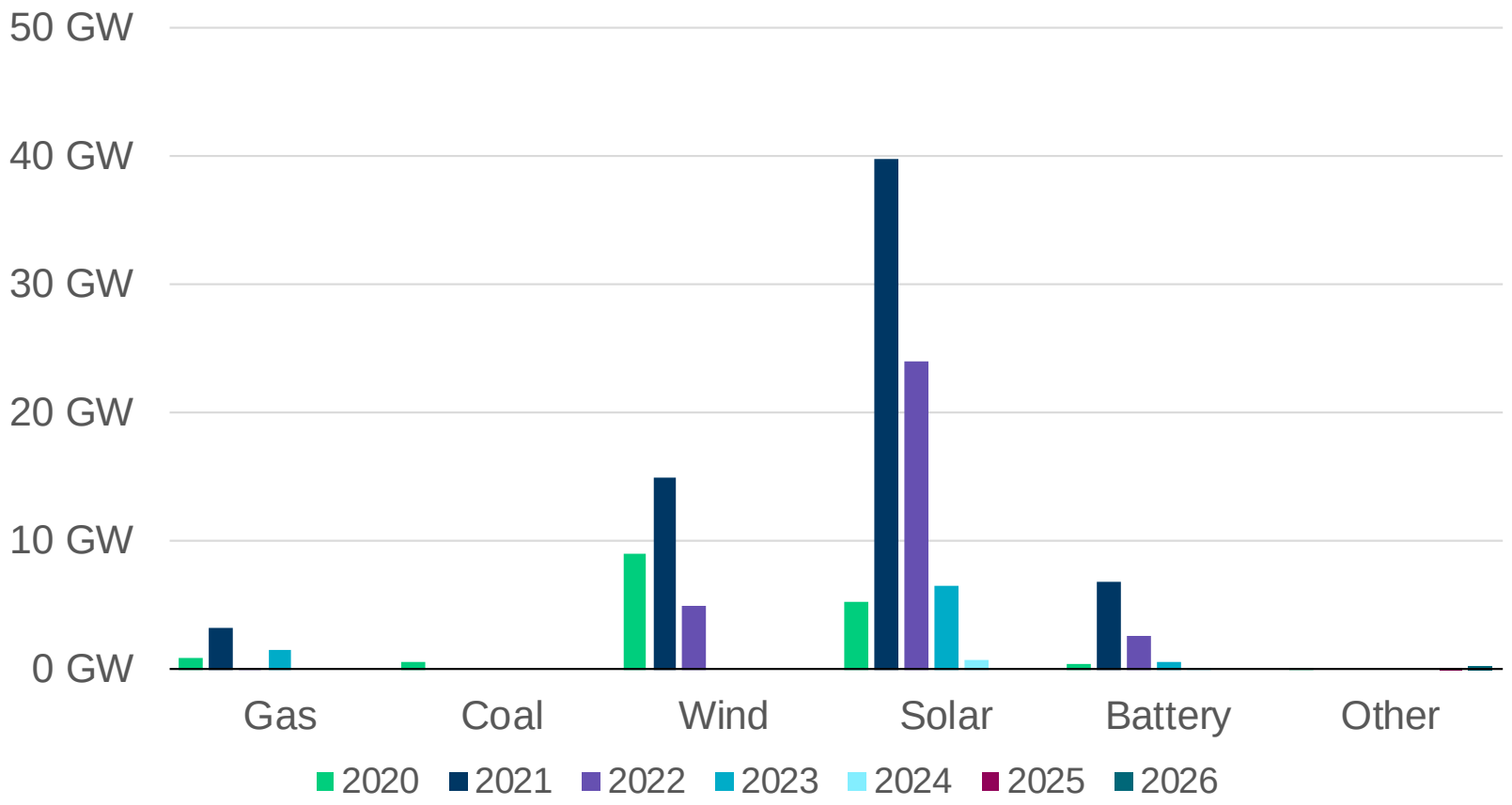
(excludes capacity associated with Projects designated as Inactive per Planning Guide Section 5.7.6)



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 76 GW (62%), Wind 29 GW (24%), Gas 6 GW (5%), Battery 10 GW (9%)
(excludes capacity associated with Projects designated as Inactive per Planning Guide Section 5.7.6)

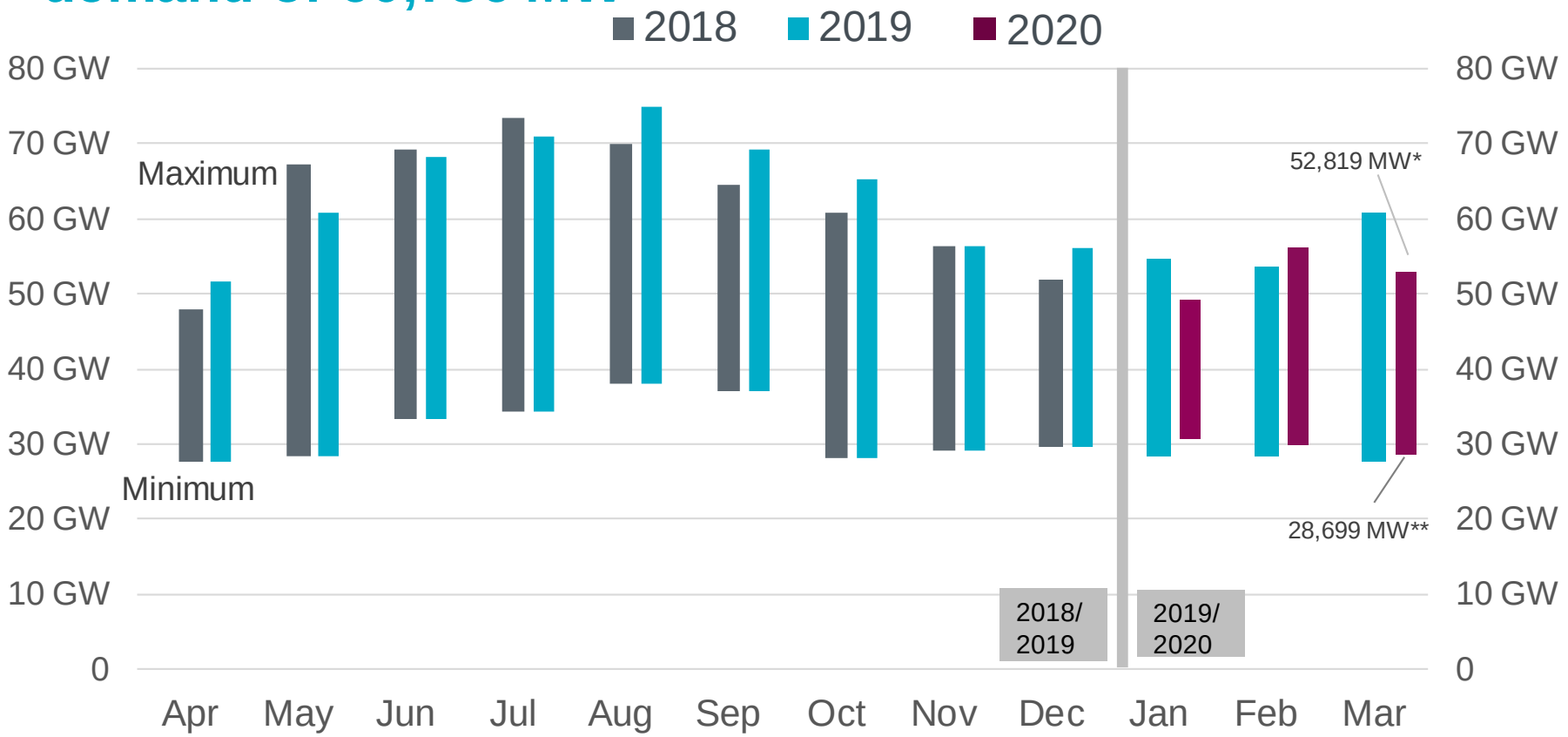


A break out by zone can be found in the monthly Generator Interconnection Status (GIS) reports available on the ERCOT Resource Adequacy Page: http://www.ercot.com/gridinfo/resource

Planning Summary

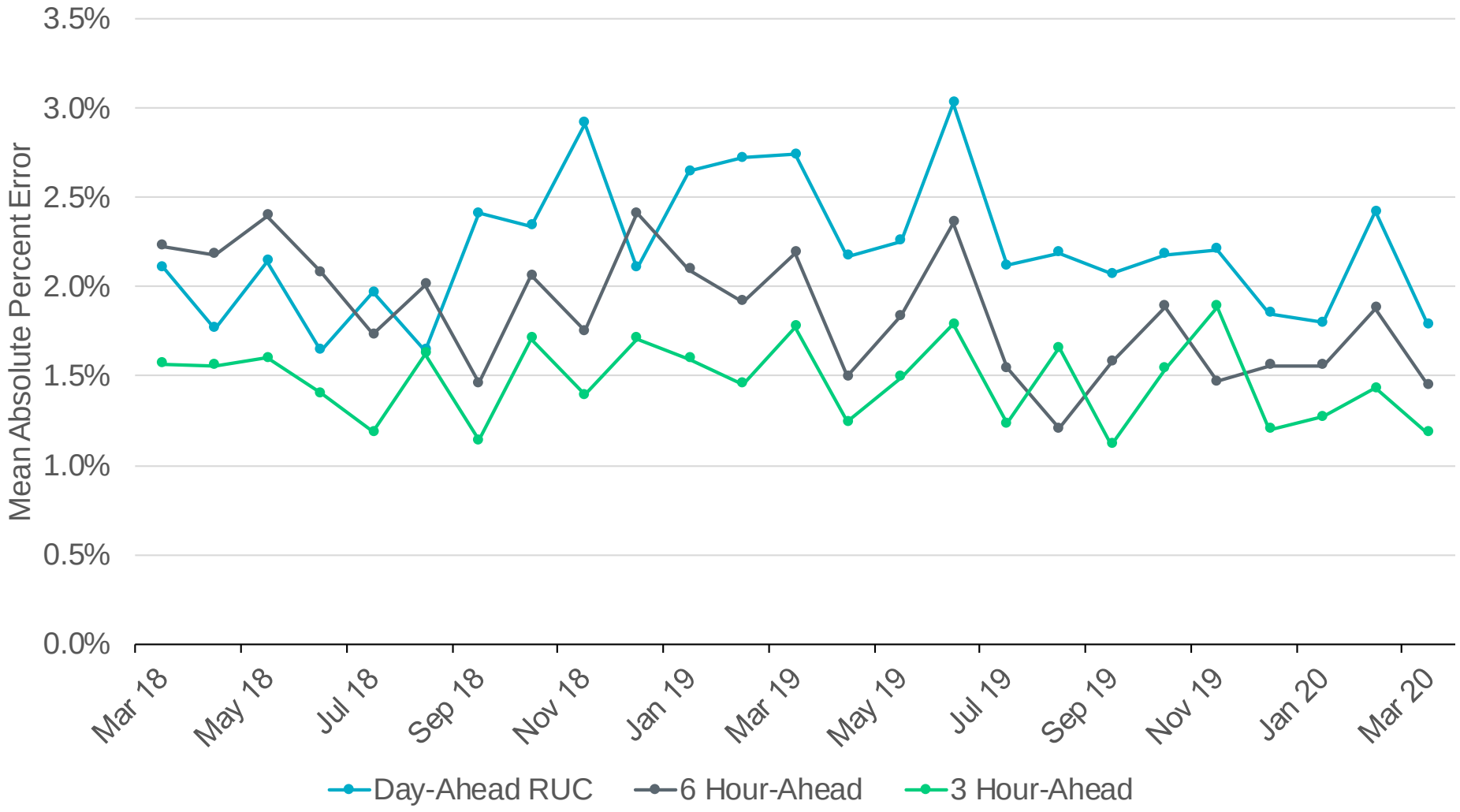
- ERCOT is currently tracking 621 active generation interconnection requests totaling 122,113 MW. This includes 76,238 MW of solar, 28,888 MW of wind, and 10,381 MW of battery projects as of March 2020.
- ERCOT is currently reviewing proposed transmission improvements with a total estimated cost of $1,364.74 Million as of March 31, 2020.
- Transmission Projects endorsed in 2020 total $100.07 Million as of March 31, 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 52,819 MW* in March 2020, which is 7,938 MW less than the March 2019 demand of 60,756 MW



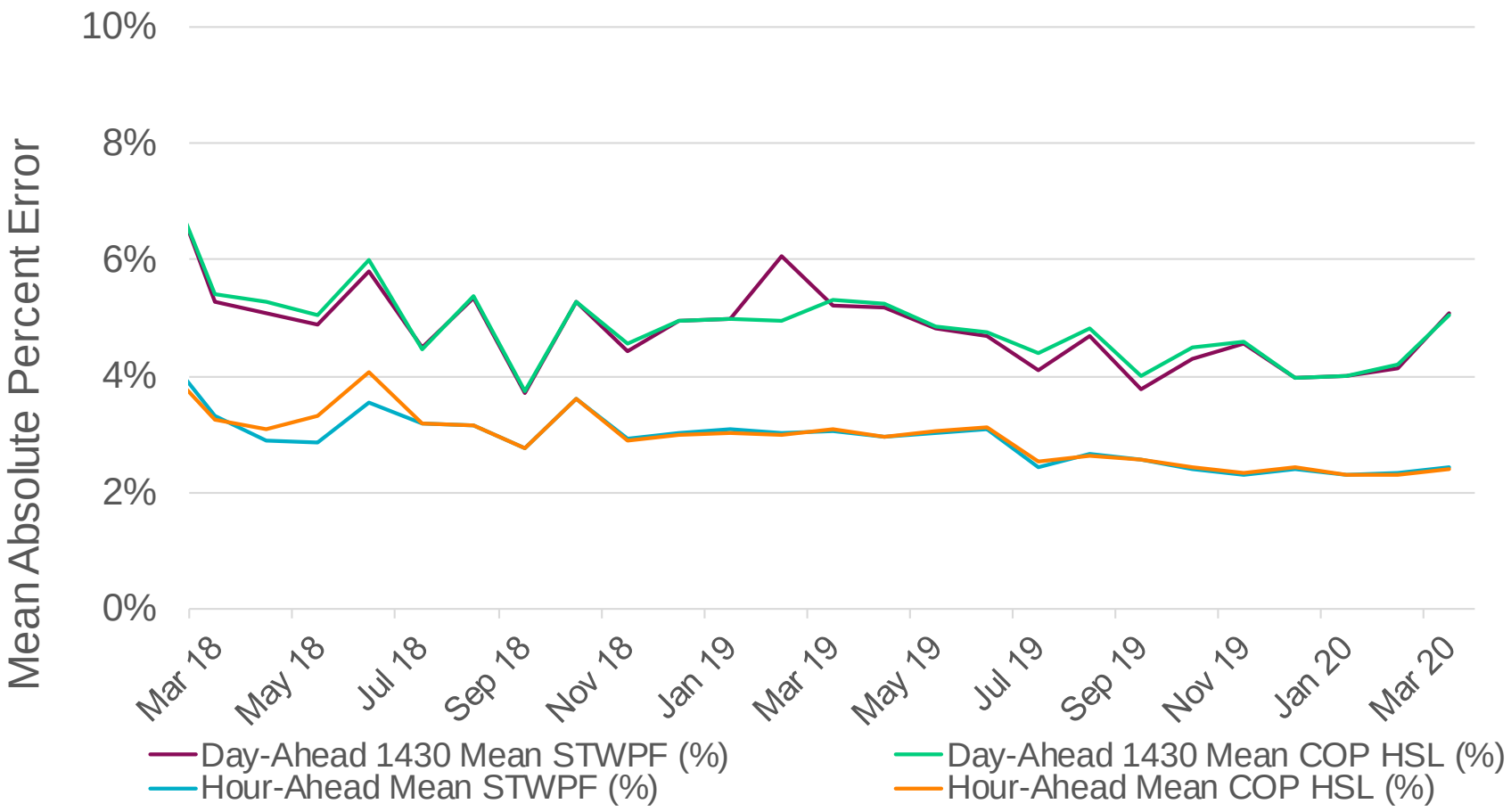
*Based on the maximum net system hourly value from April release of Demand and Energy 2020 report.
**Based on the minimum net system 15-minute interval value from April release of Demand and Energy 2020 report.
Data for latest two months are based on preliminary settlements.

Mid-Term Load Forecast Performance



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

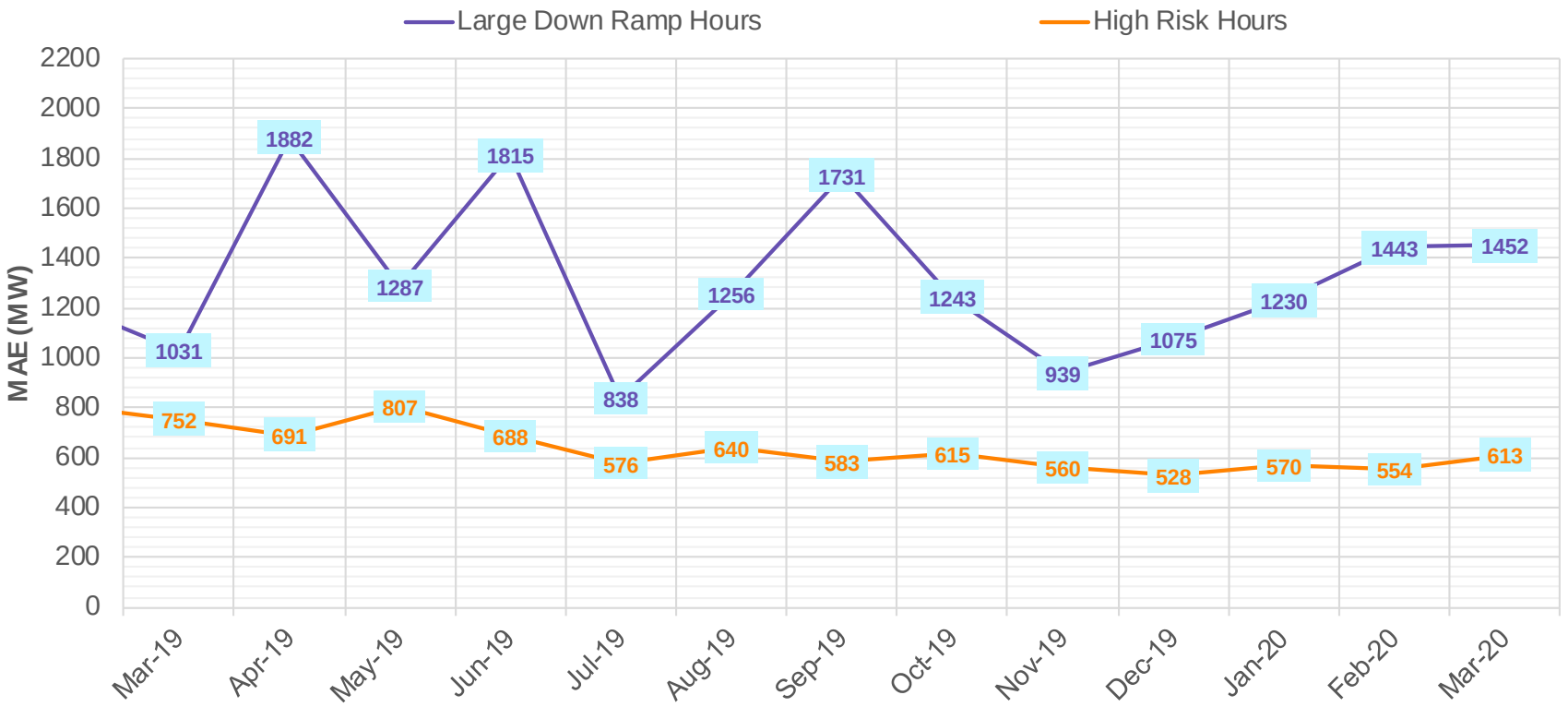
Wind Forecast Performance



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

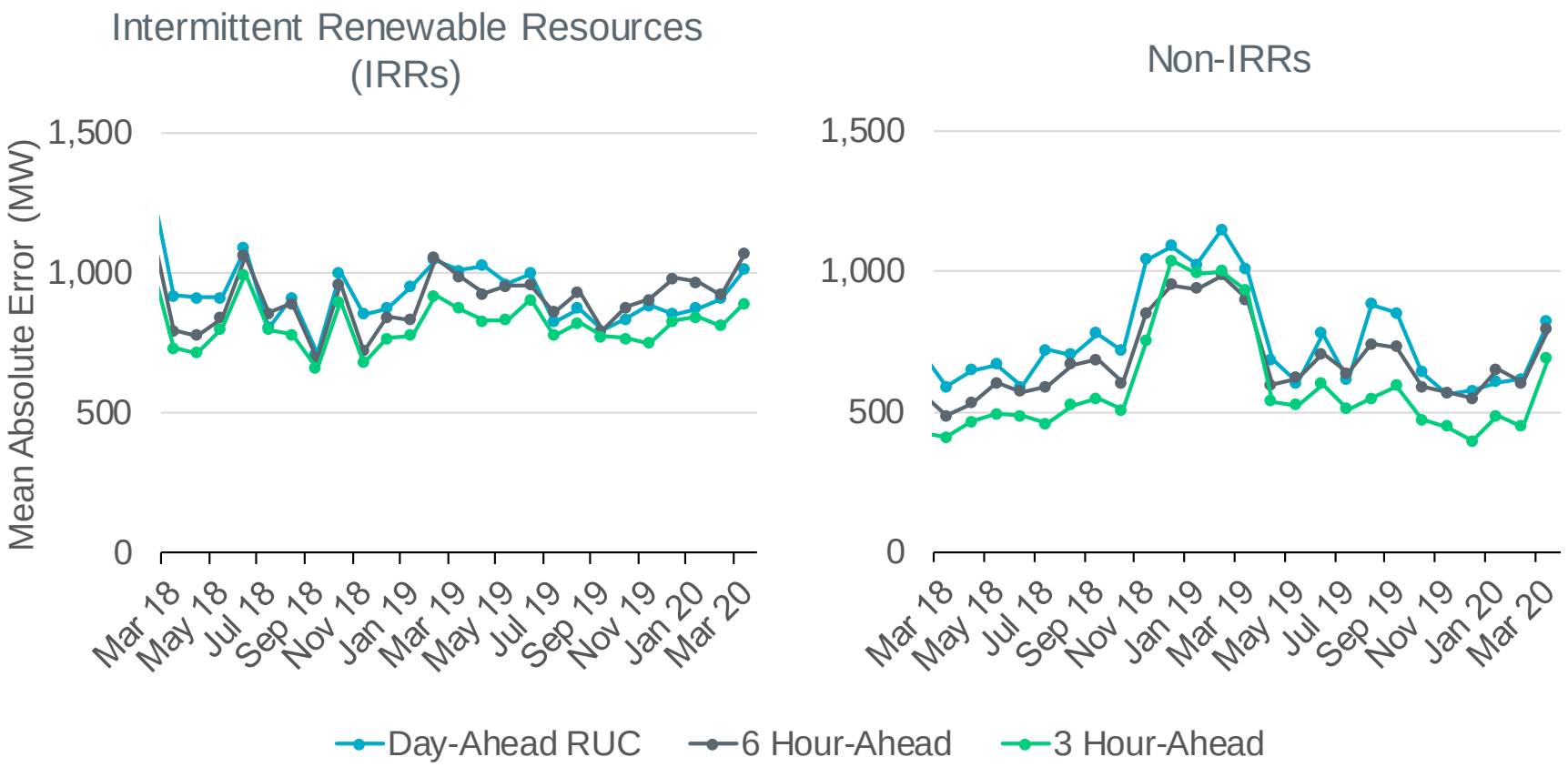
Hour-Ahead Mean Absolute Error (MAE) During Large Down Ramp (> 2000 MW) and High Risk Hours*



**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.*

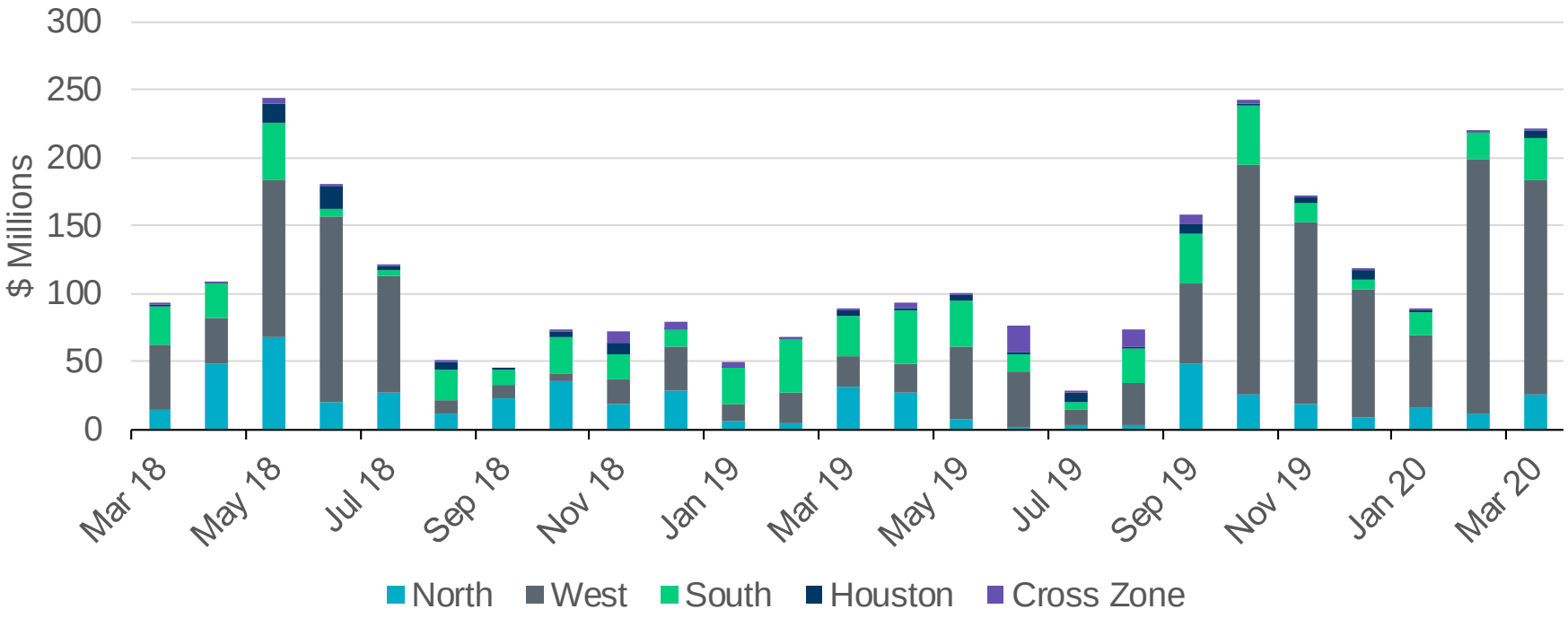
Forecast performance during large down ramp (wind ramp > 2000 MW) hours and high risk hours (historic risk of load ramping up and wind ramping down is high) is focused upon. Note that for the purposes of forecast performance measurement every hour in a month is classified as either a large down ramp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



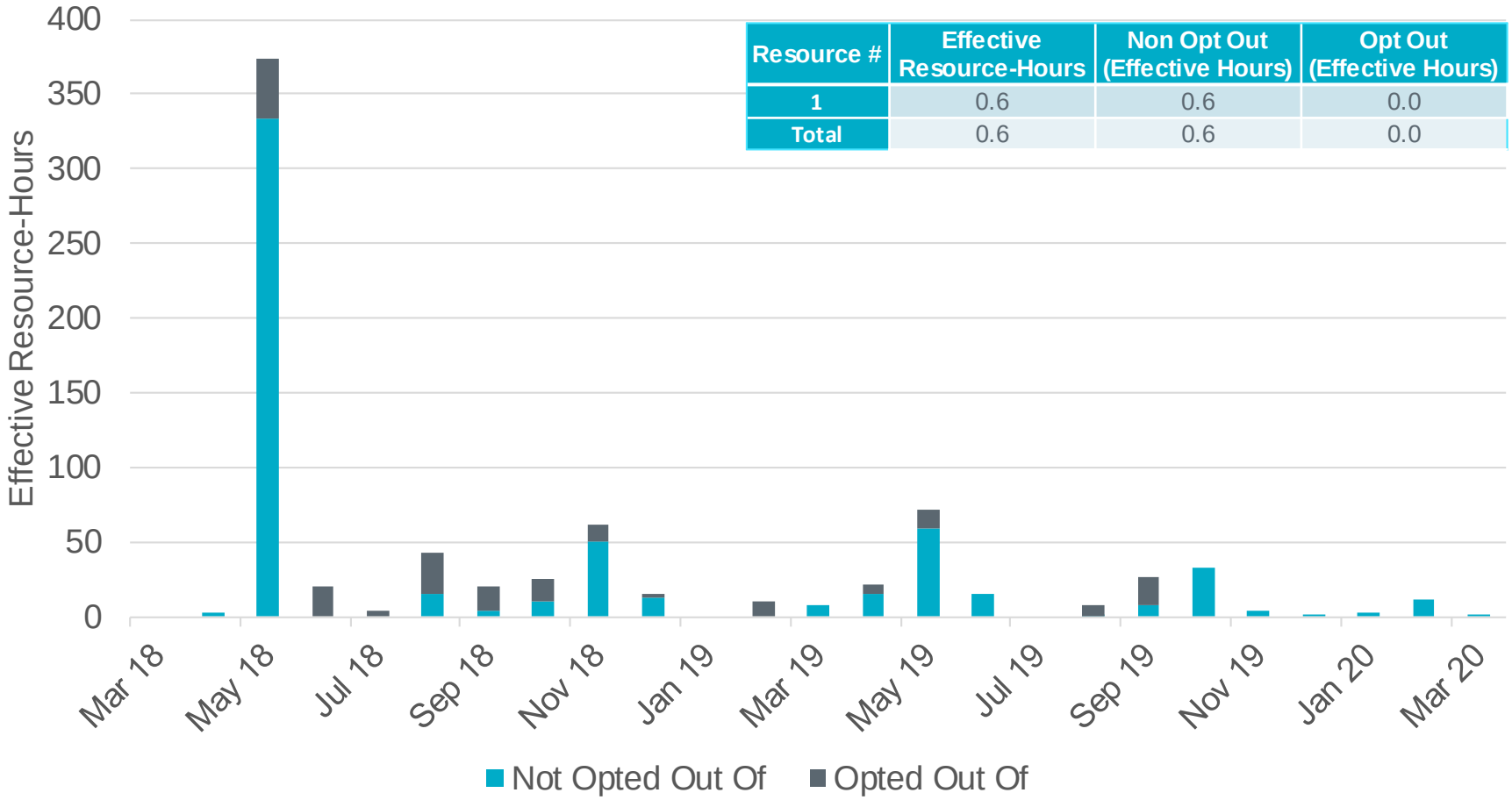
- COPs for IRRs are derived from wind and solar forecasts from ERCOT with any adjustments from Qualified Scheduling Entities.
- The installed capacity of approved IRRs is 27,479 MW (as of March 31, 2020).

Real-Time Congestion Rent by Zone



- The congestion rent in the West zone remained high in March, primarily due to transmission outages. The most significant West zone constraints for February include SECNMO28: 6100__F, SECNMO28: 6100__G, DWINDUN8: 6100__F, and DWINDUN8: 6100__G 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.

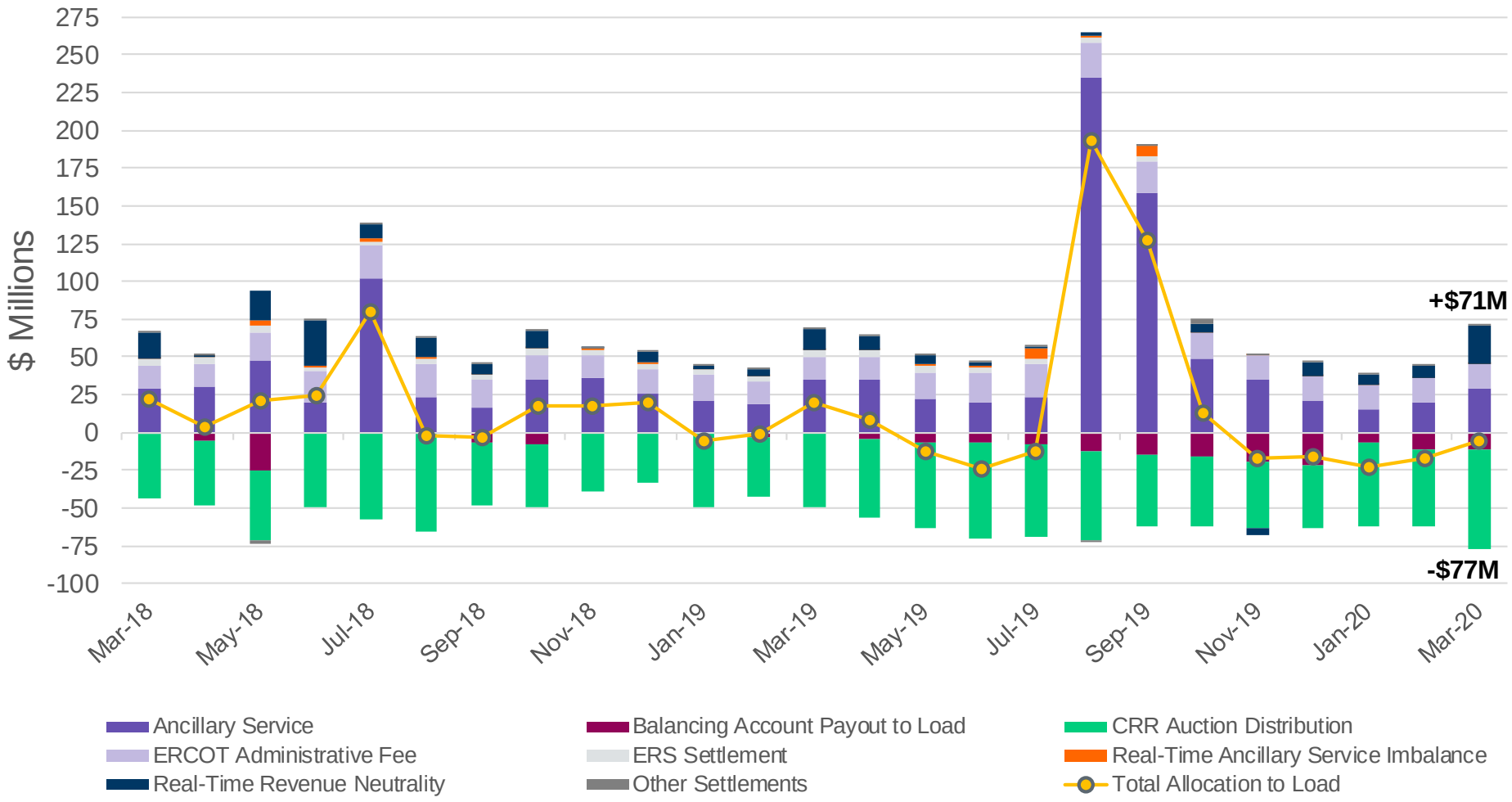
One Resource was Committed in March for Congestion



Resource #	Effective Resource-Hours	Non Opt Out (Effective Hours)	Opt Out (Effective Hours)
1	0.6	0.6	0.0
Total	0.6	0.6	0.0

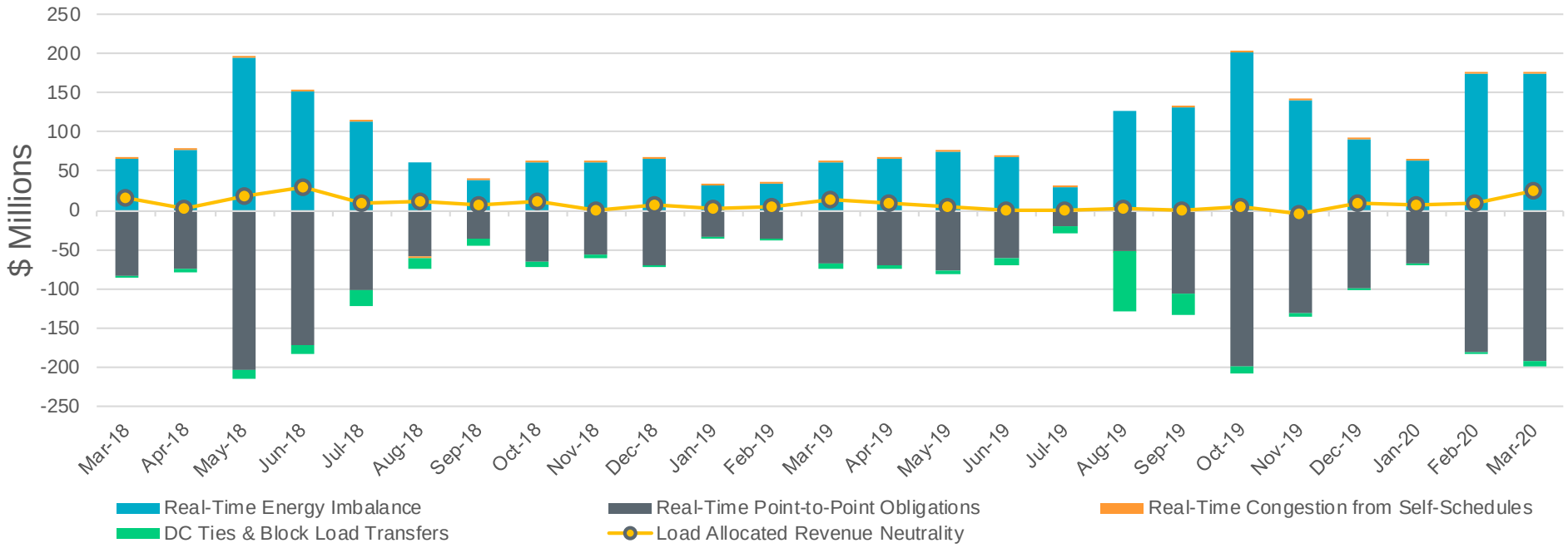
"Effective Resource-hours" excludes any period during a Reliability Unit Commitment hour when the RUC-committed Resource was starting up, shutting down, off-line, or otherwise not available for dispatch by SCED.

Net Allocation to Load in March 2020 was $-5.8 Million



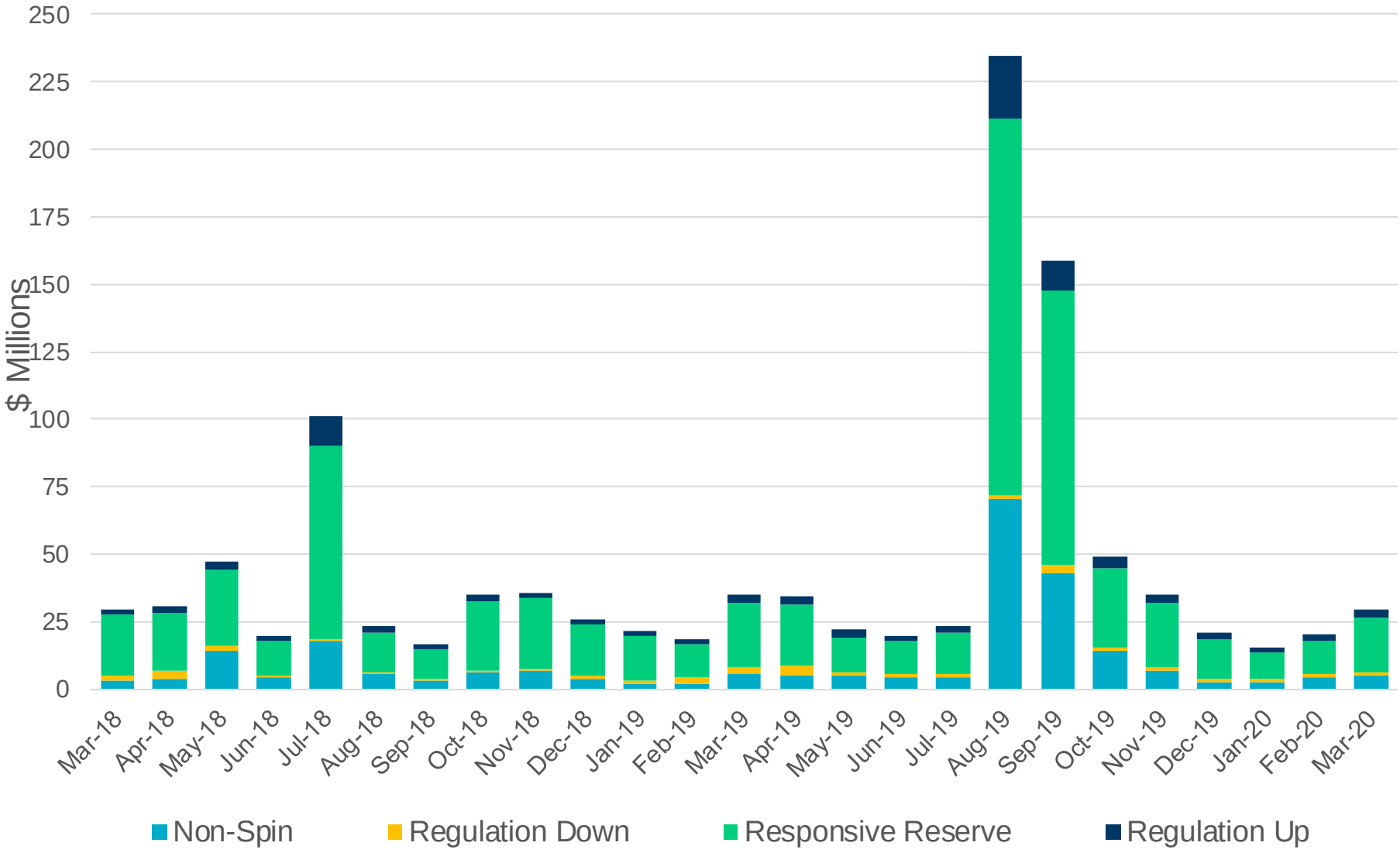
This information is available in tabular form in the Settlement Stability Report presented quarterly to the Wholesale Market Subcommittee

Real-Time Revenue Neutrality Allocated to Load was $25.68M for March 2020

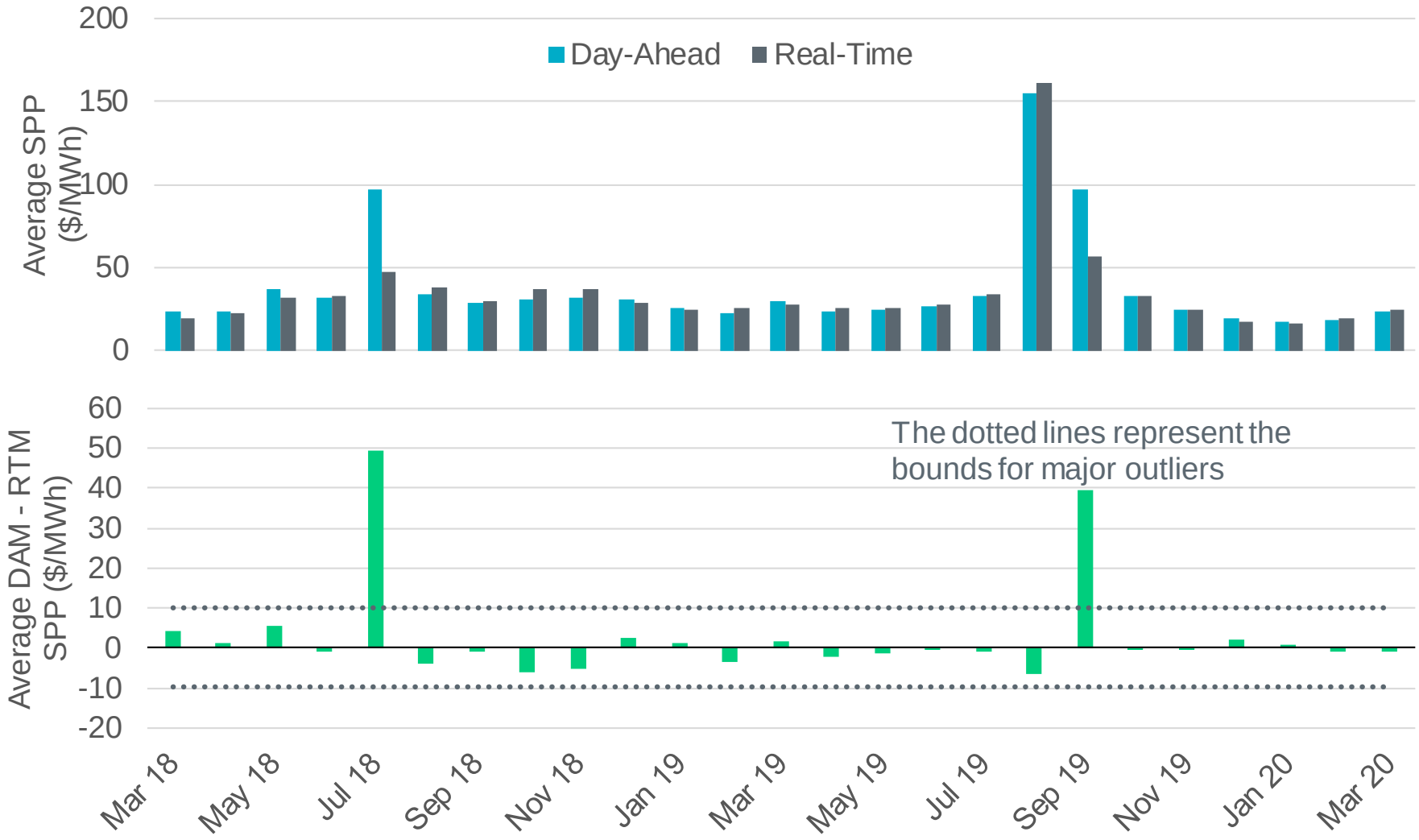


	March 2020 ($M)
Real-Time Energy Imbalance	$173.61
Real-Time Point-to-Point Obligation	($192.29)
Real-Time Congestion from Self-Schedules	$0.47
DC Tie & Block Load Transfer	($7.48)
Load Allocated Revenue Neutrality	**$25.68**

Ancillary Services for March 2020 totaled $29.21M

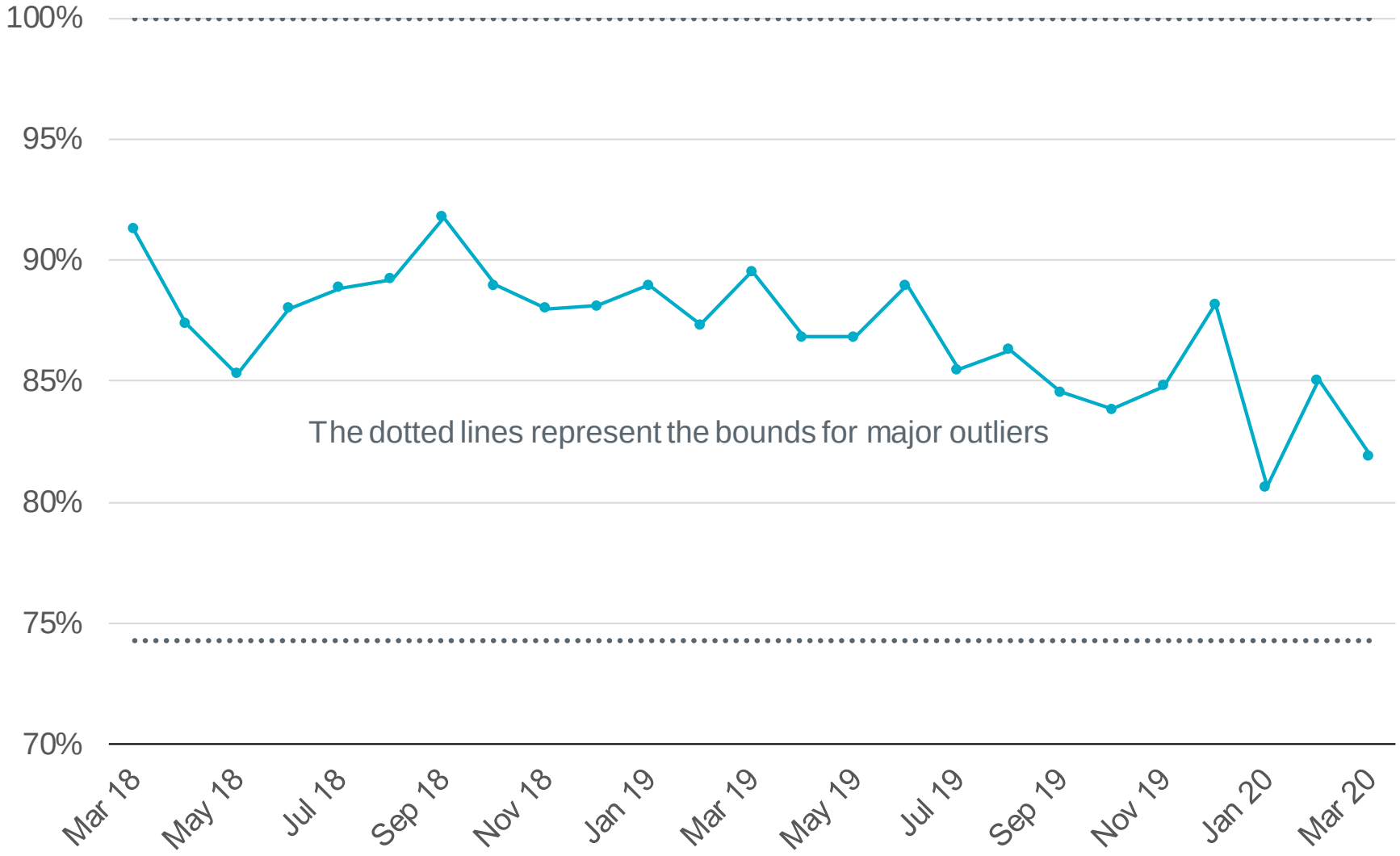


Day-Ahead and Real-Time Market Price Differences

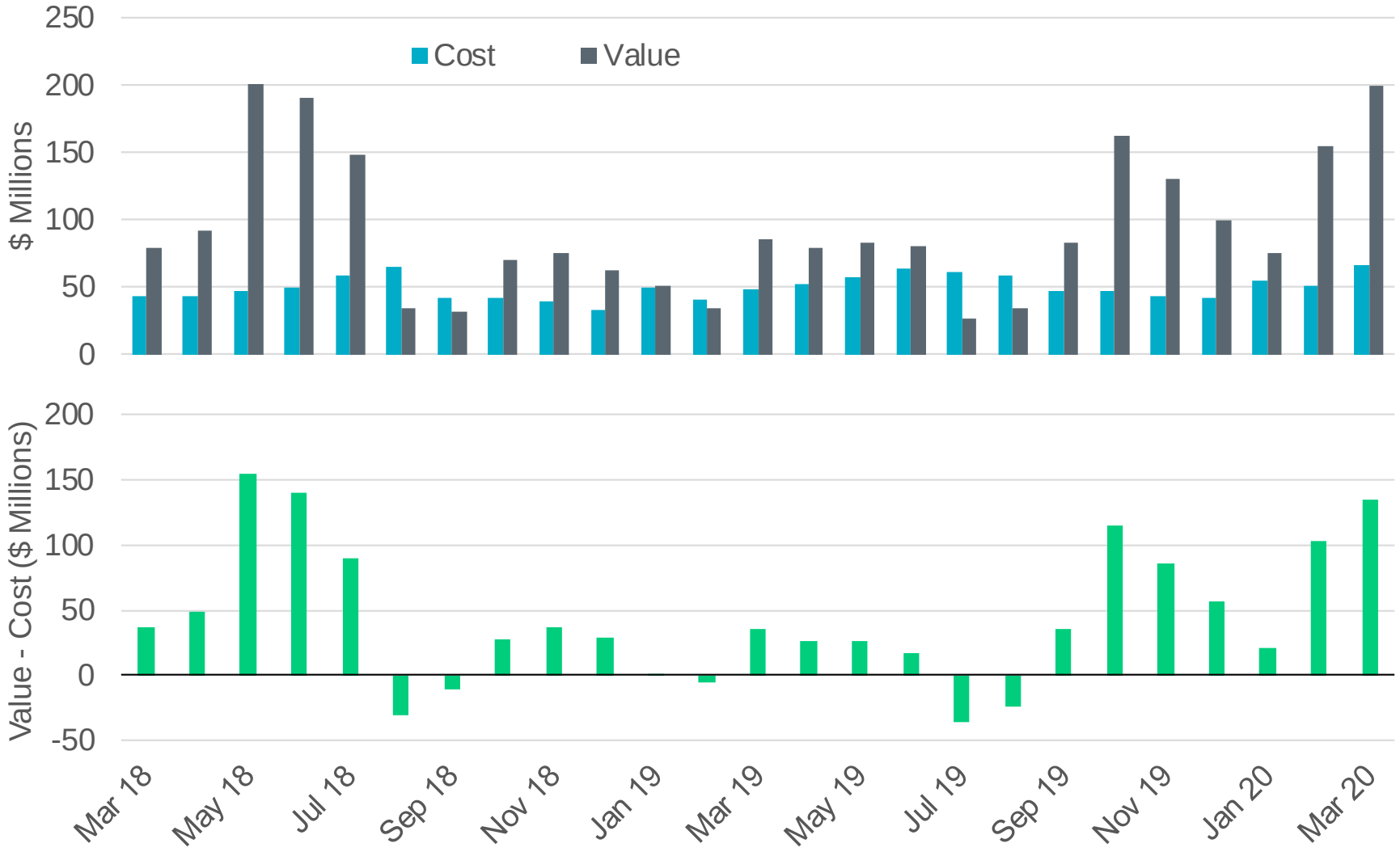


*Averages are weighted by Real-Time Market Load

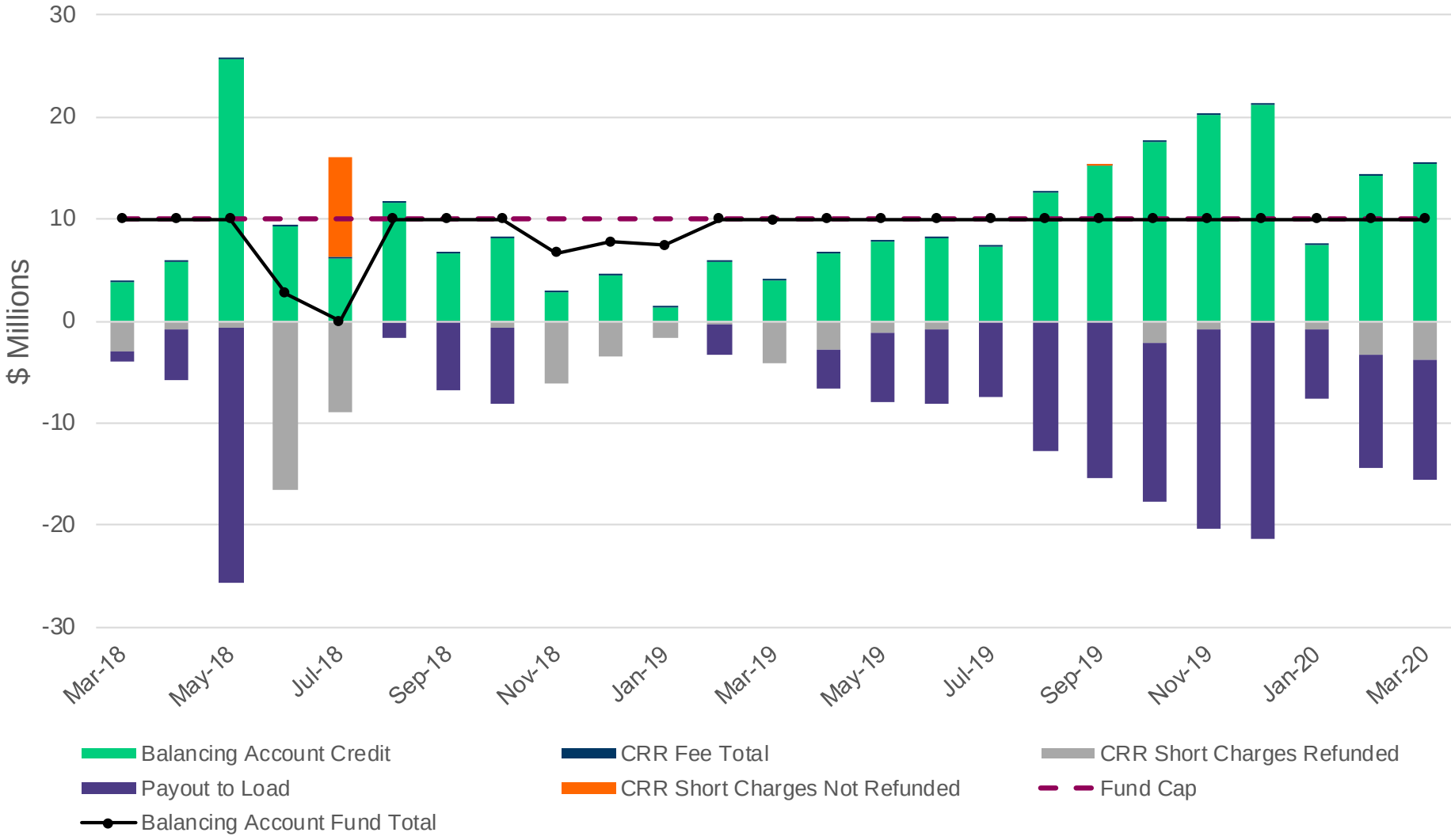
Percentage of Real-Time Load Transacted in the Day-Ahead Market



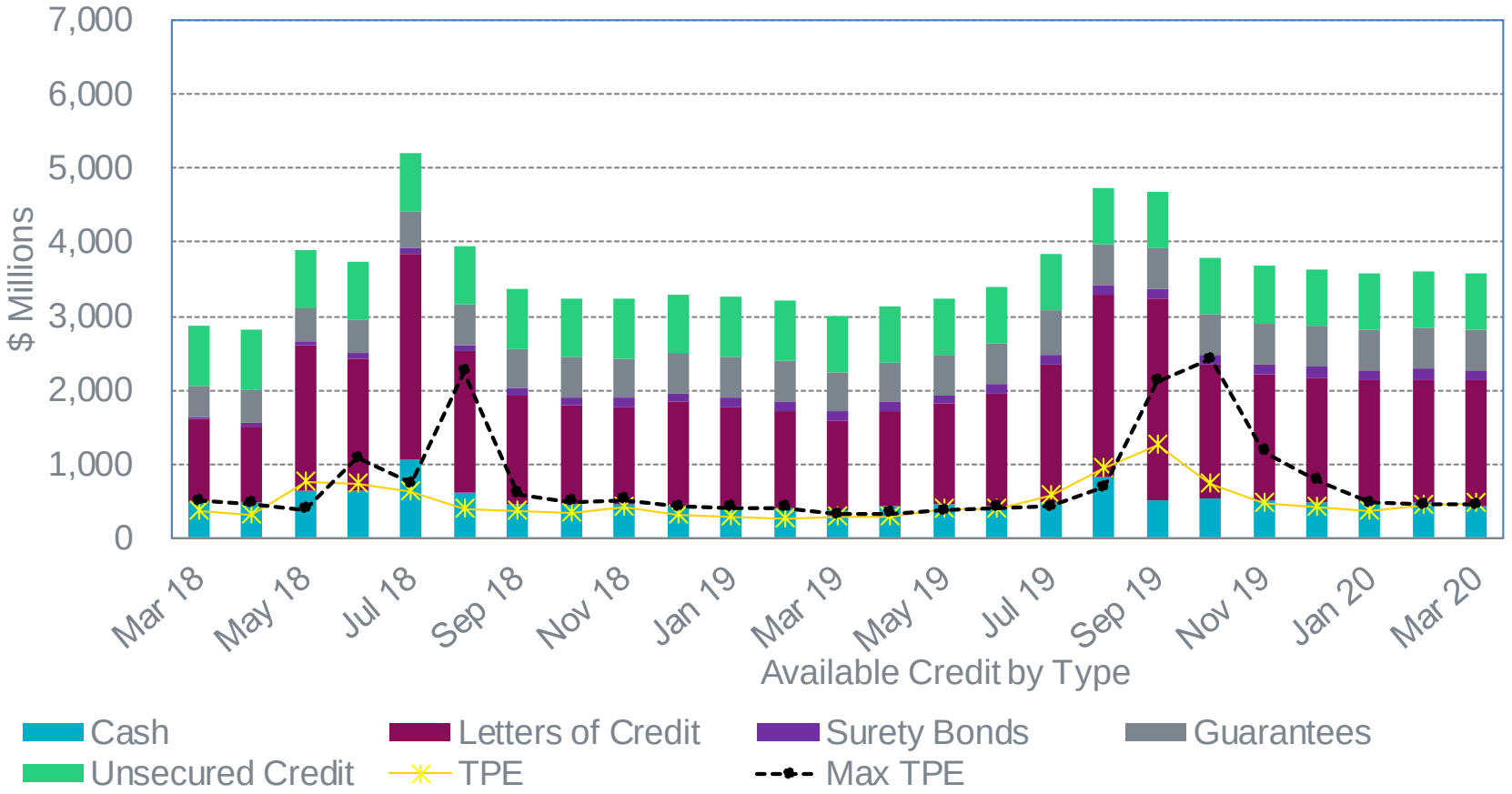
CRR Value and Cost Differences



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 – March 2020

	Year-To-Date		Transactions Received	
Transaction Type	March 2020	March 2019	March 2020	March 2019
Switches	241,938	294,062	88,857	97,148
Acquisition	0	0	0	0
Move - Ins	659,253	692,729	217,657	238,133
Move - Outs	313,835	311,800	108,155	106,464
Continuous Service Agreements (CSA)	126,354	400,476	40,748	57,211
Mass Transitions	0	0	0	0
Total	1,341,380	1,699,067	455,417	498,956