ERCOT Monthly Operational Overview
(January 2020)

ERCOT Public
February 17, 2020

Monthly Highlights

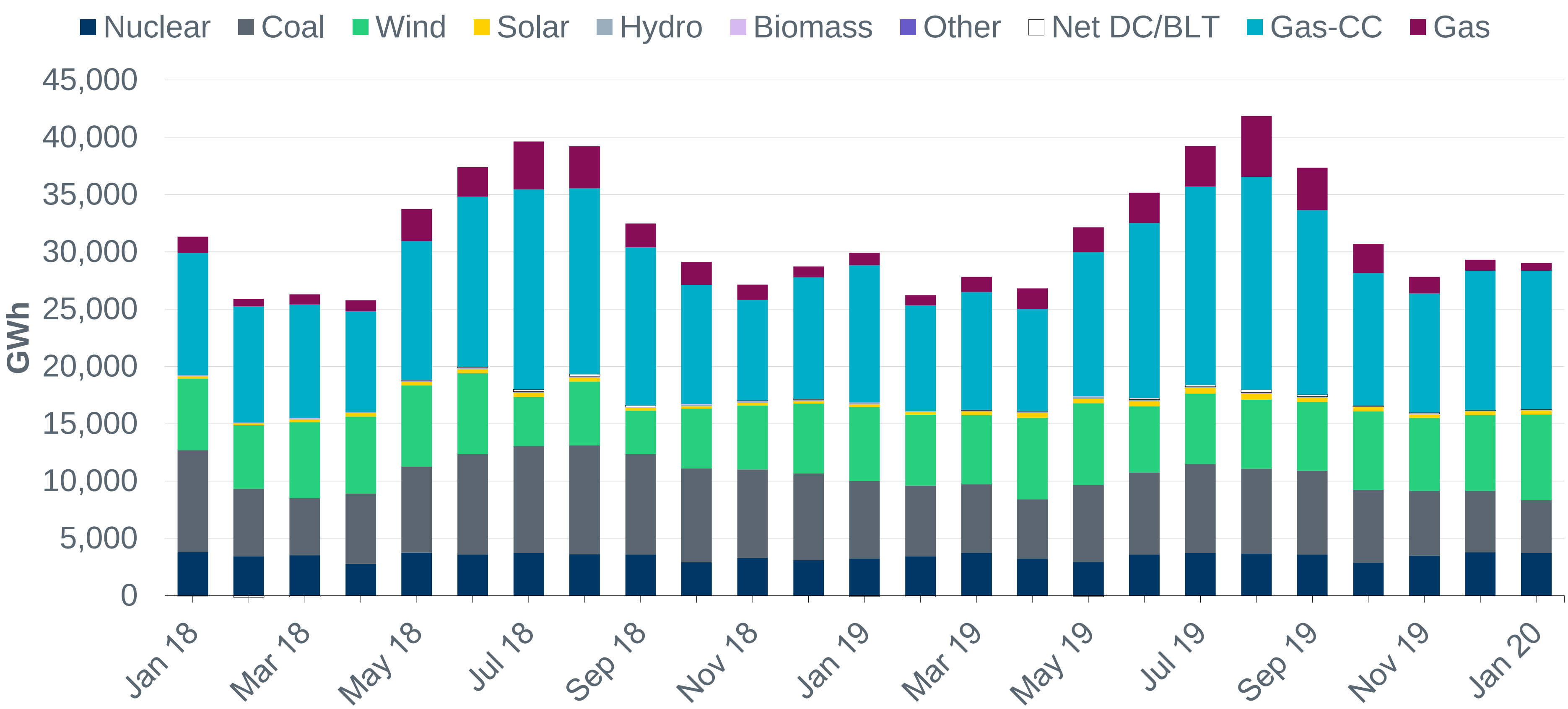
- ERCOT set a maximum peak demand of 49,057 MW* in January 2020, which is 5,636 MW less than the January 2019 demand of 54,693 MW.

- ERCOT issued 2 notifications:
  - 1 Advisory issued for postponement of the DAM solution posting deadline due to long running solution.
  - 1 Advisory issued due to ERCOTs State Estimator/RTCA not solving during 30 minute time period.

- The percentage of Real-Time Load transacted in the Day-Ahead Market dropped from 88% in December to 81% in January. The metric compares the total Day-Ahead Market activity to the Real-Time Load for Counterparties that represent Real-Time Load. The decrease in January is due to certain market participants reducing the amount of Day-Ahead Market activity that exceeded their Real-Time Load or no longer representing Real-Time Load and therefore no longer being included in the calculation of the metric.

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

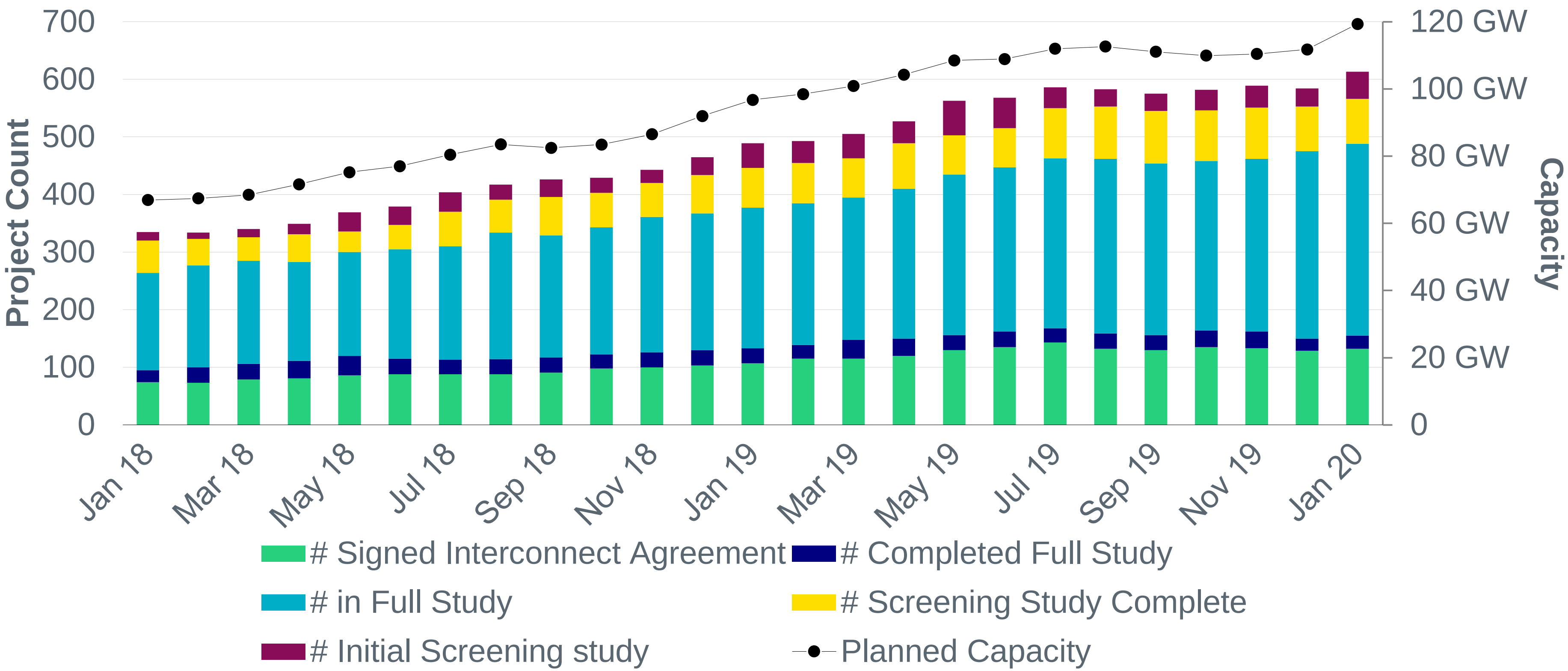
Monthly energy generation decreased 3% year-over-year to 29,034 GWh in January 2020, compared to 29,830 GWh in January 2019



Data for latest two months are based on preliminary settlements.

Generation Interconnection activity by project phase

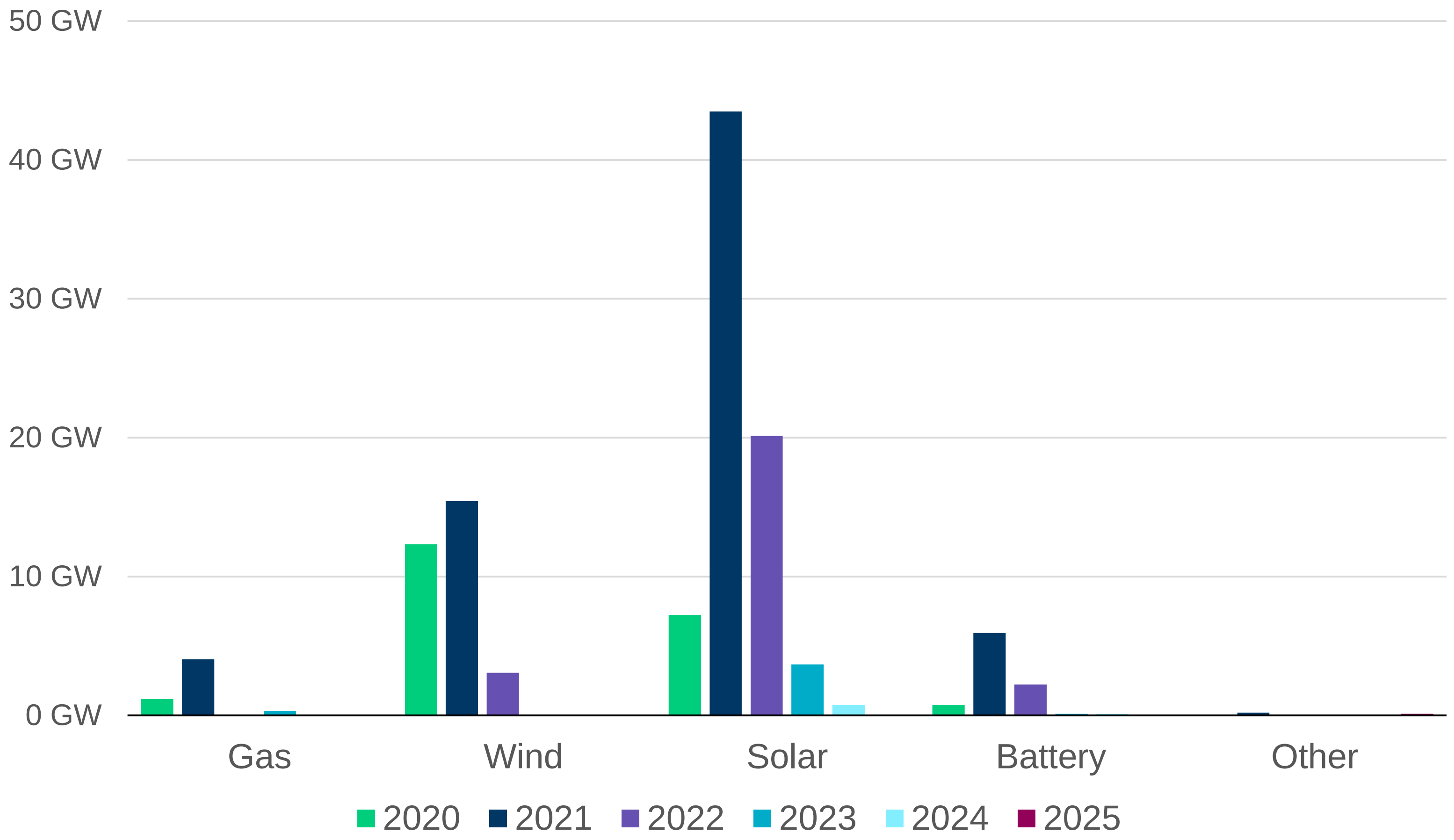
(excludes capacity associated with Projects designated as Inactive per Planning Guide Section 5.7.6)



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 75 GW (62%), Wind 31 GW (25%), Gas 6 GW (5%), Battery 9 GW (8%)
(excludes capacity associated with Projects designated as Inactive per Planning Guide Section 5.7.6)

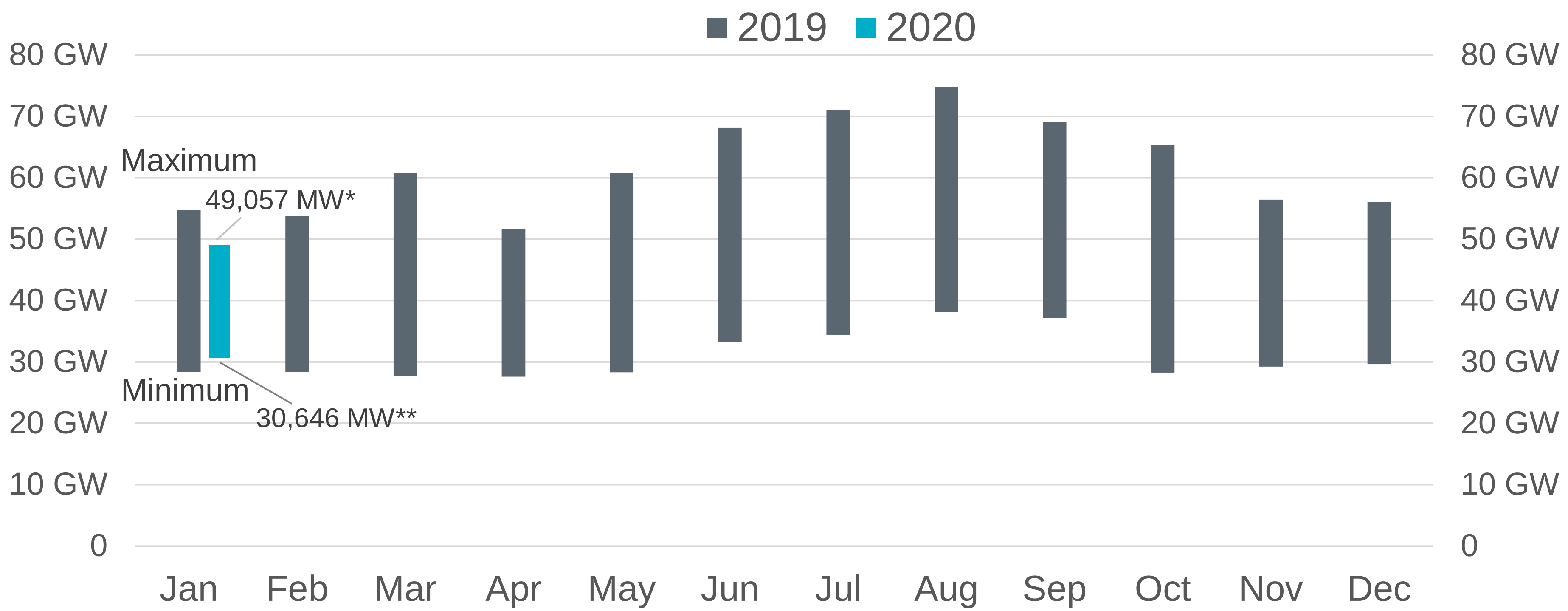


A break out by zone can be found in the monthly Generator Interconnection Status (GIS) reports available on the ERCOT Resource Adequacy Page: http://www.ercot.com/gridinfo/resource

Planning Summary

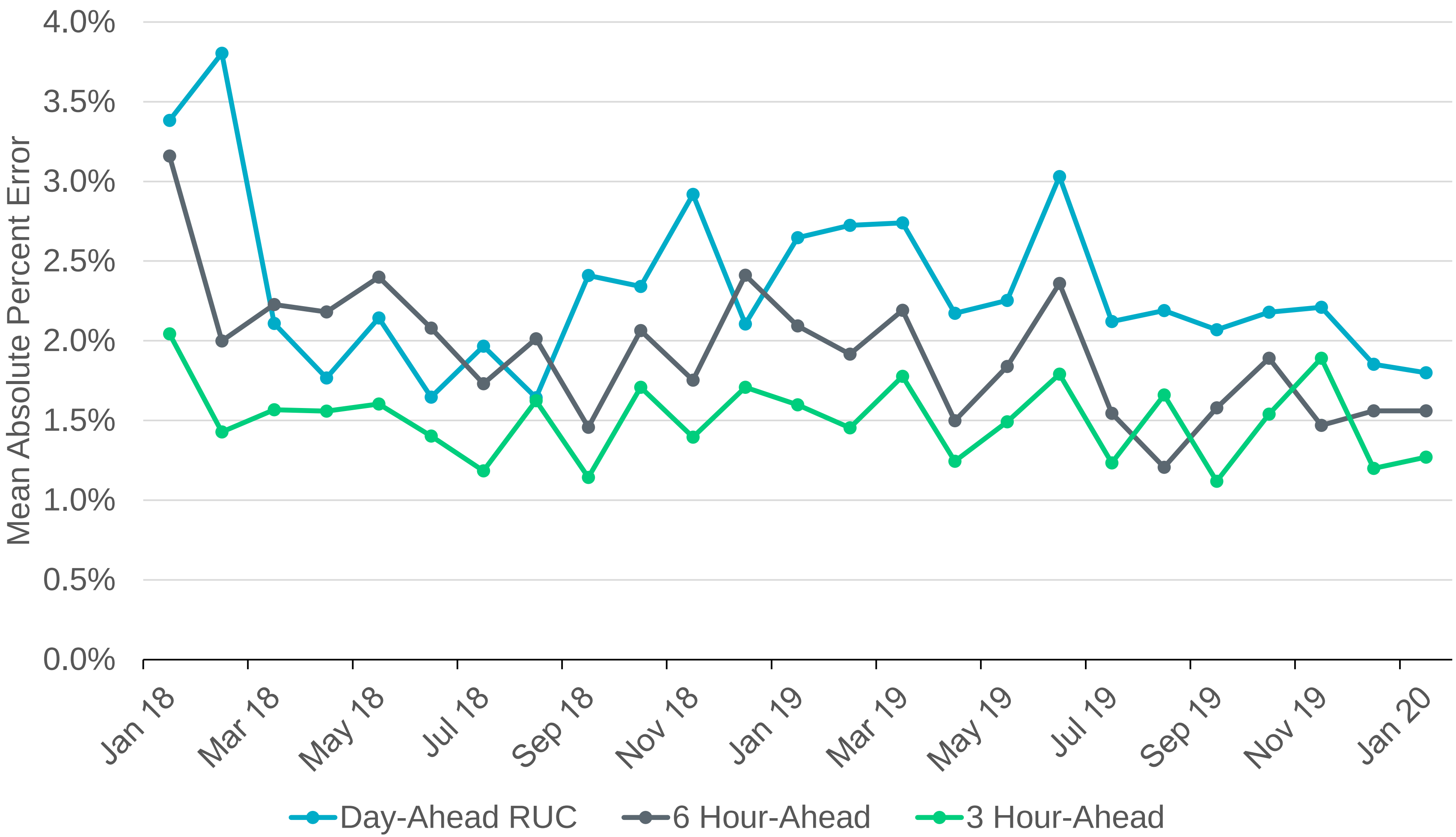
- ERCOT is currently tracking 613 active generation interconnection requests totaling 119,355 MW. This includes 73,637 MW of solar, 30,573 MW of wind, and 8,966 MW of battery projects as of January 2020.
- ERCOT is currently reviewing proposed transmission improvements with a total estimated cost of $1,258.54 Million as of January 31, 2020.
- Transmission Projects endorsed in 2019 total $50.77 Million as of January 31, 2020.
- All projects (in engineering, routing, licensing and construction) total approximately $3.41 Billion as of October 1, 2019.
- Transmission Projects energized in 2019 total about $1.30 Billion as of October 1, 2019.

ERCOT set a maximum peak demand of 49,057 MW* in January 2020, which is 5,636 MW less than the January 2019 demand of 54,693 MW



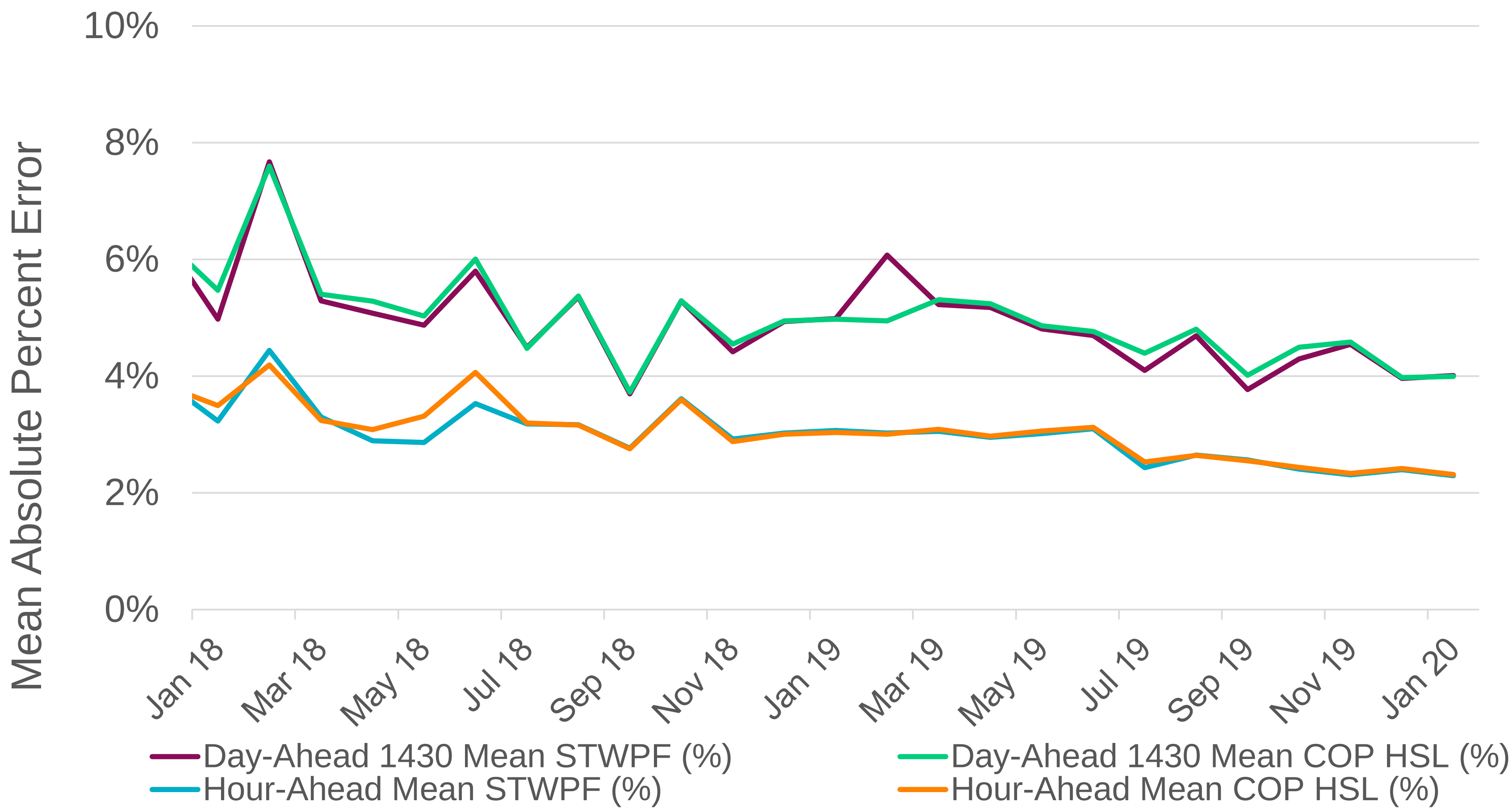
*Based on the maximum net system hourly value from February release of Demand and Energy 2020 report.
**Based on the minimum net system 15-minute interval value from February release of Demand and Energy 2020 report.
Data for latest two months are based on preliminary settlements.

Mid-Term Load Forecast Performance



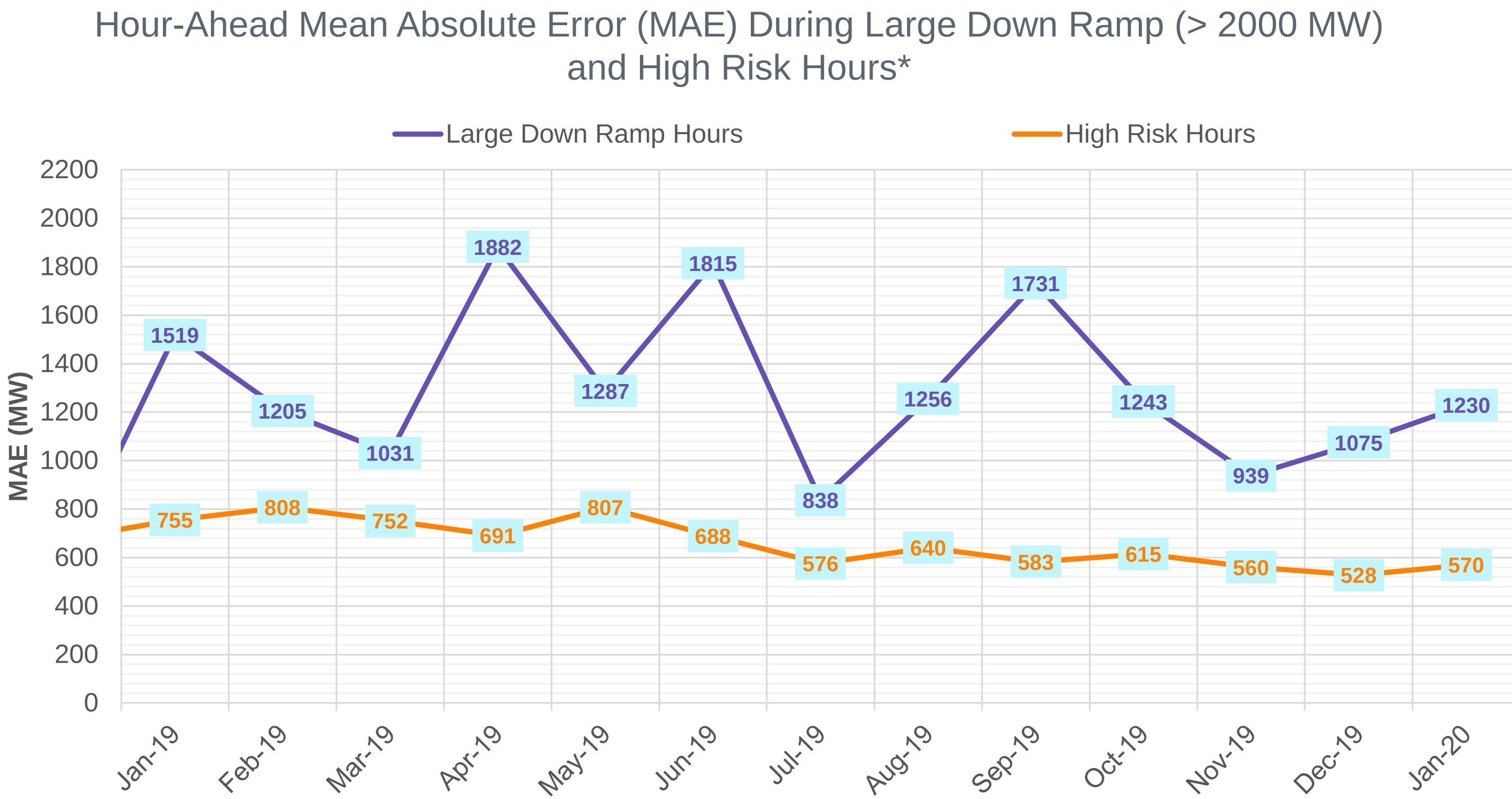
The Mid-Term Load Forecast is an hourly forecast that looks 7 days into the future

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.

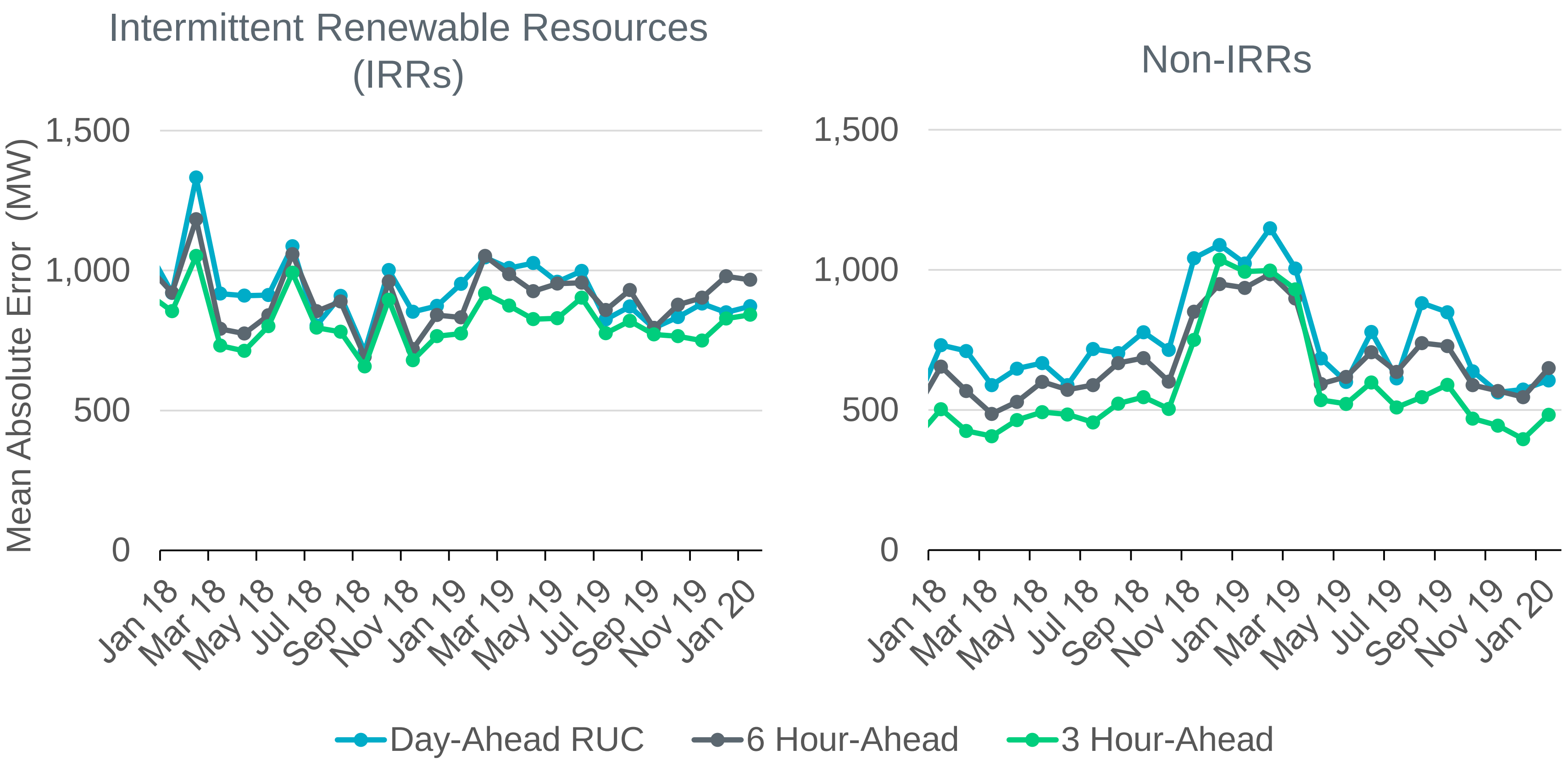
Hour-Ahead Wind Forecast Performance



**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.*

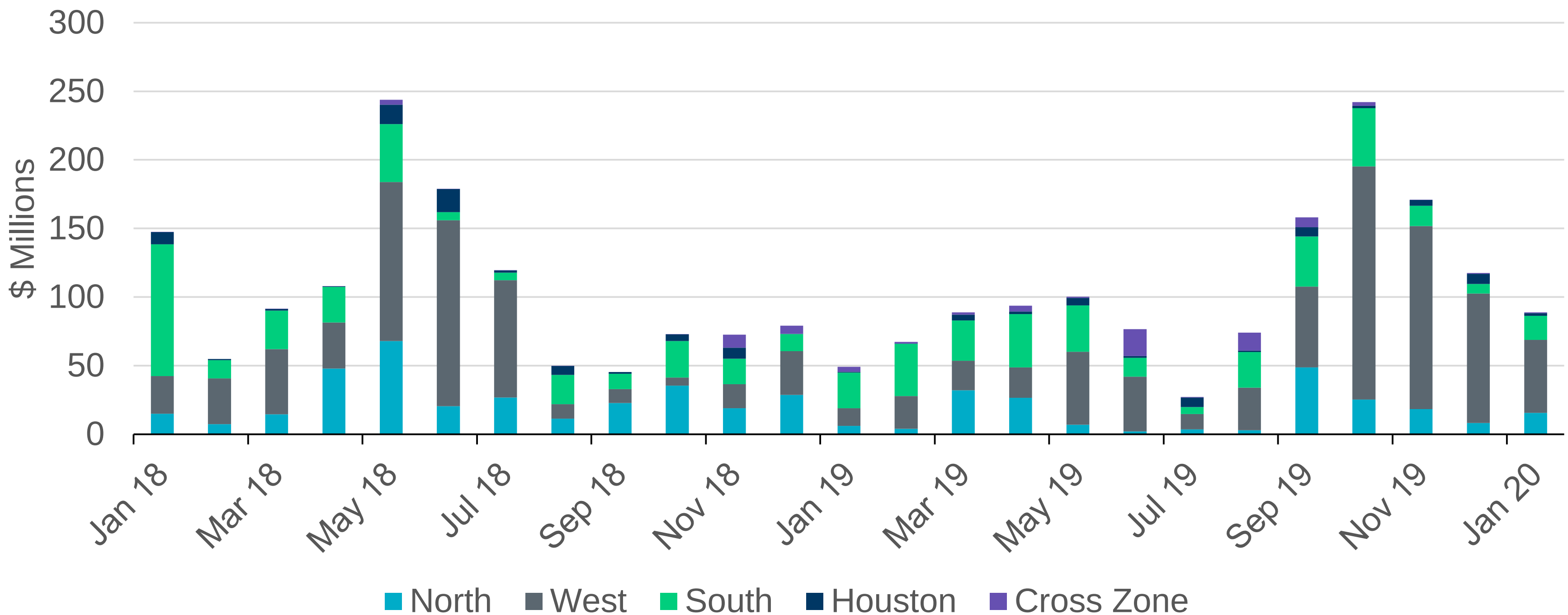
Forecast performance during large down ramp (wind ramp > 2000 MW) hours and high risk hours (historic risk of load ramping up and wind ramping down is high) is focused upon. Note that for the purposes of forecast performance measurement every hour in a month is classified as either a large down ramp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



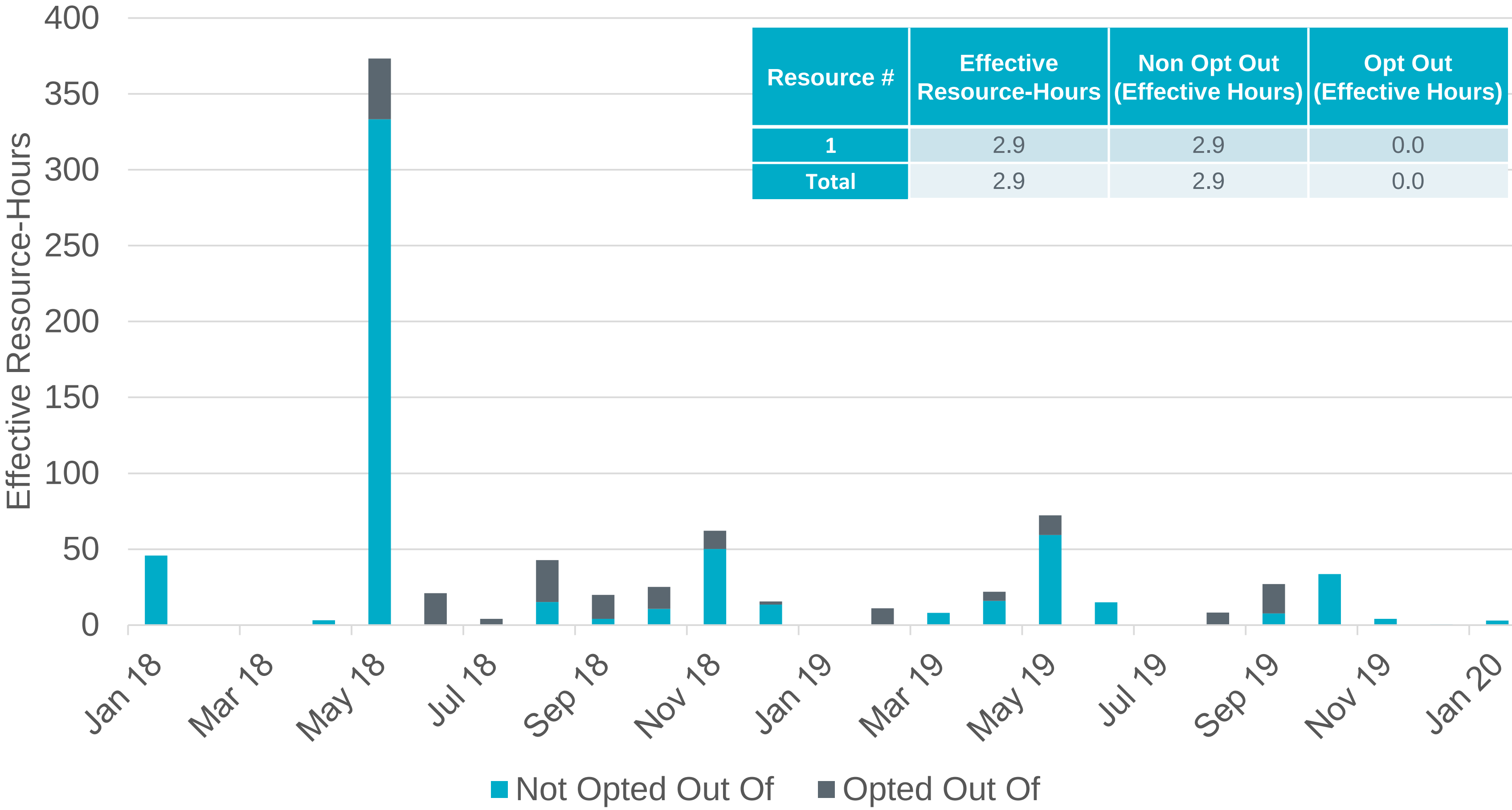
- COPs for IRRs are derived from wind and solar forecasts from ERCOT with any adjustments from Qualified Scheduling Entities.
- The installed capacity of approved IRRs is 27,251 MW (as of January 31, 2020).

Real-Time Congestion Rent by Zone



- The congestion rent in the West zone remained high for January, in part due to planned transmission outages. The most significant West zone constraints for January include BASE CASE: PNHNDL, SECNMO28: 6100__F 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.

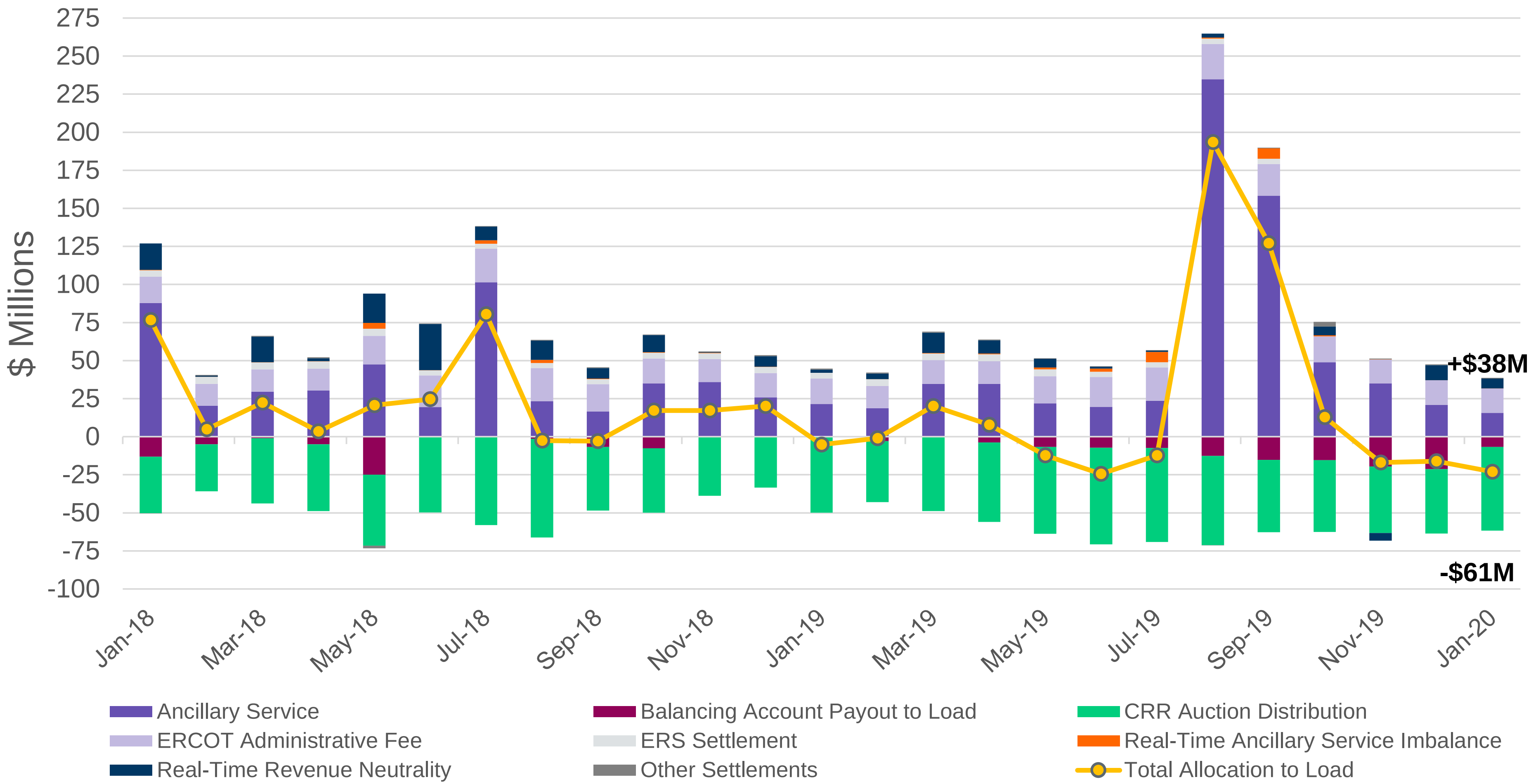
One Resource was Committed in January for Congestion



Resource #	Effective Resource-Hours	Non Opt Out (Effective Hours)	Opt Out (Effective Hours)
1	2.9	2.9	0.0
Total	2.9	2.9	0.0

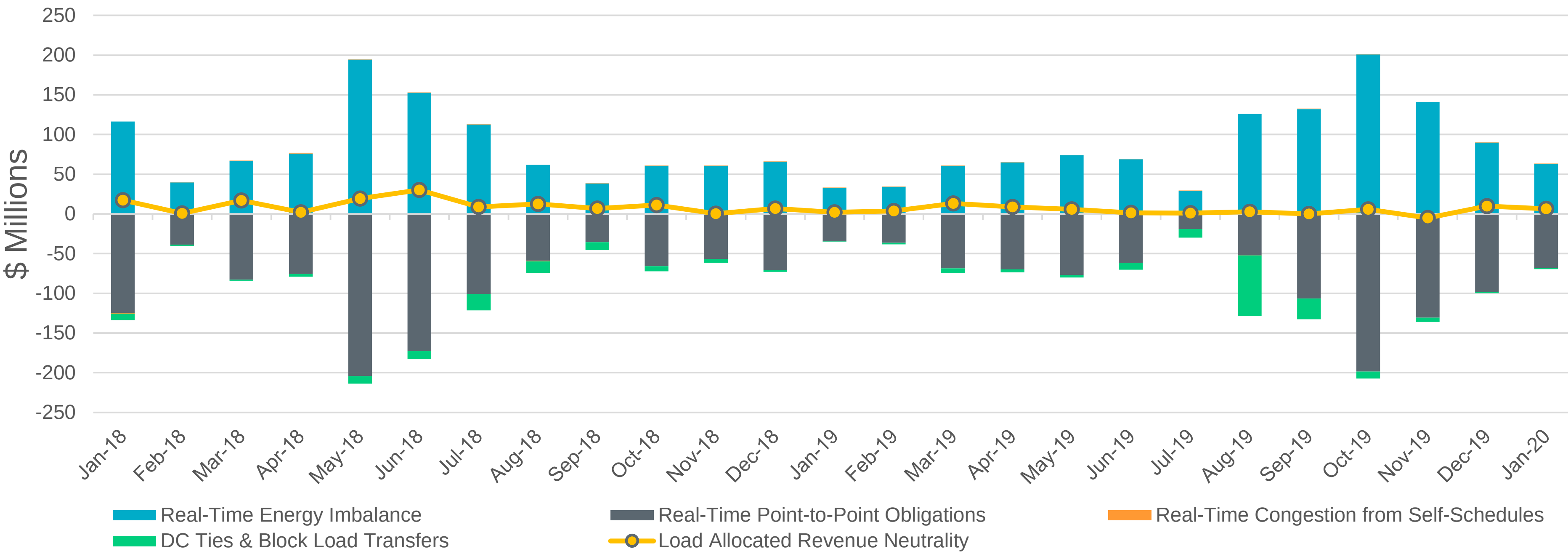
"Effective Resource-hours" excludes any period during a Reliability Unit Commitment hour when the RUC-committed Resource was starting up, shutting down, off-line, or otherwise not available for dispatch by SCED.

Net Allocation to Load in January 2020 was $-22.9 Million



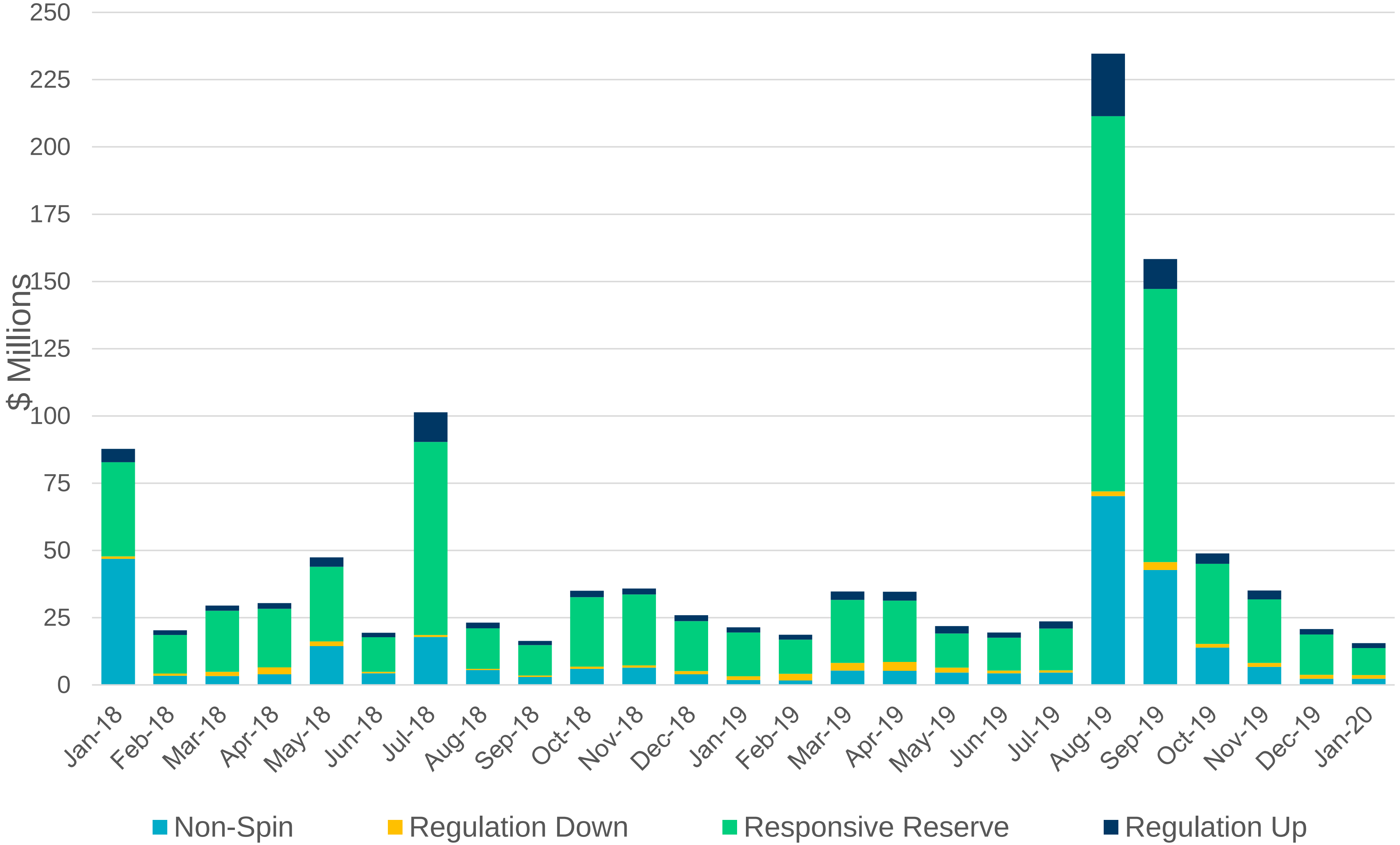
This information is available in tabular form in the Settlement Stability Report presented quarterly to the [Market Settlement Working Group]and [Wholesale Market Subcommittee]

Real-Time Revenue Neutrality Allocated to Load was $6.37M for January 2020

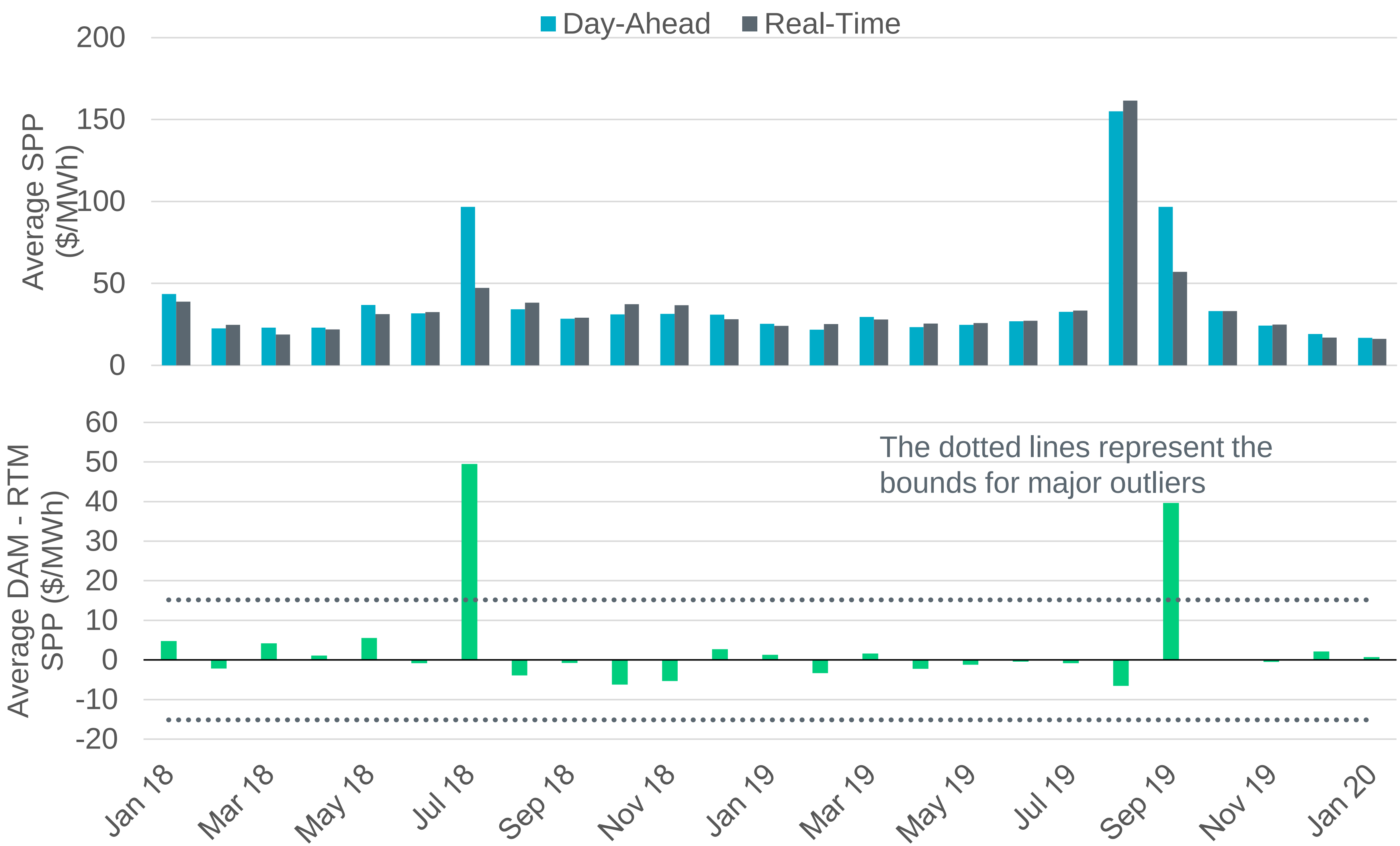


	January 2020 ($M)
Real-Time Energy Imbalance	$63.19
Real-Time Point-to-Point Obligation	($68.27)
Real-Time Congestion from Self-Schedules	$0.16
DC Tie & Block Load Transfer	($1.45)
Load Allocated Revenue Neutrality	**$6.37**

Ancillary Services for January 2020 totaled $15.60M

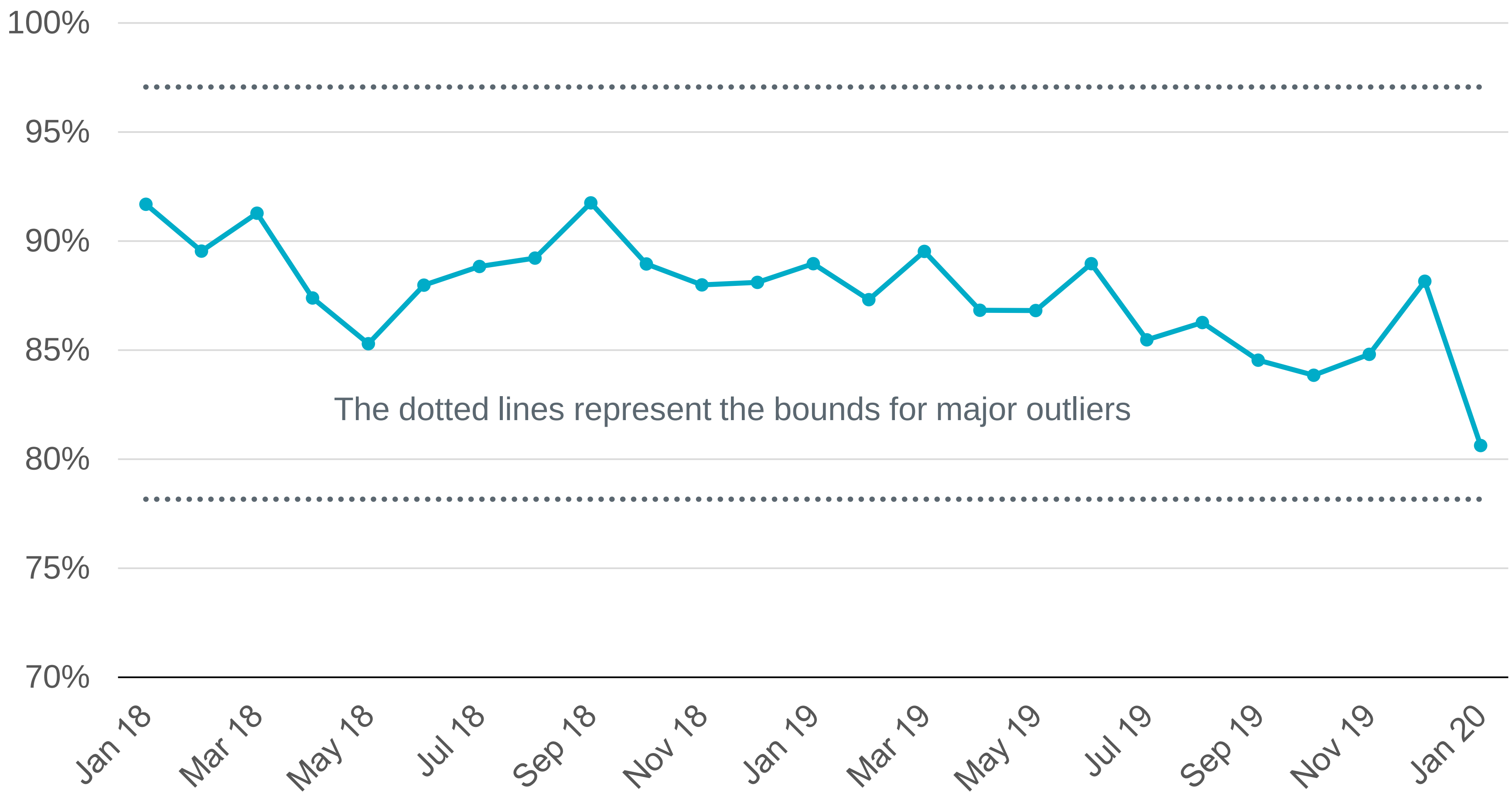


Day-Ahead and Real-Time Market Price Differences



*Averages are weighted by Real-Time Market Load

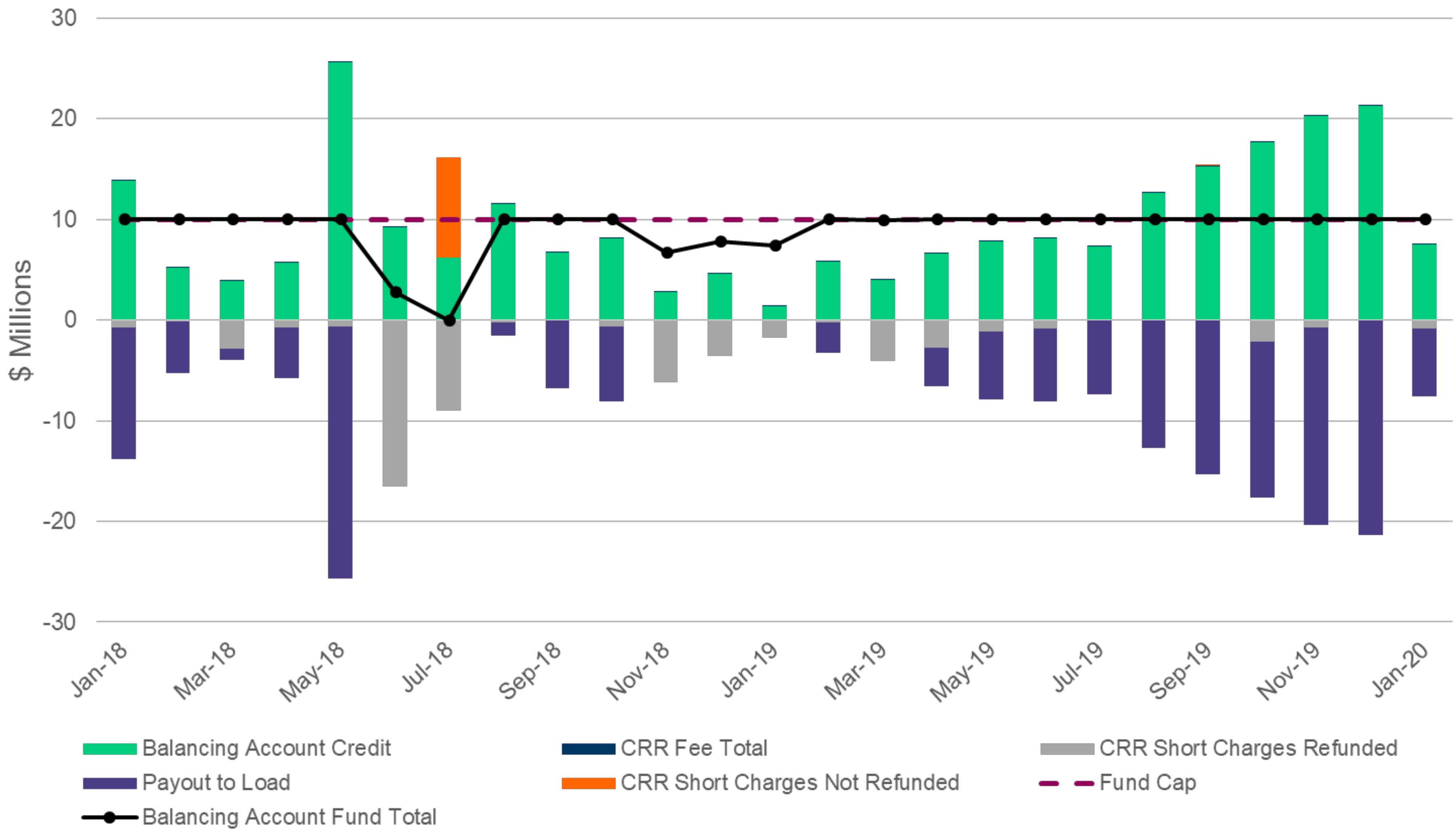
Percentage of Real-Time Load Transacted in the Day-Ahead Market



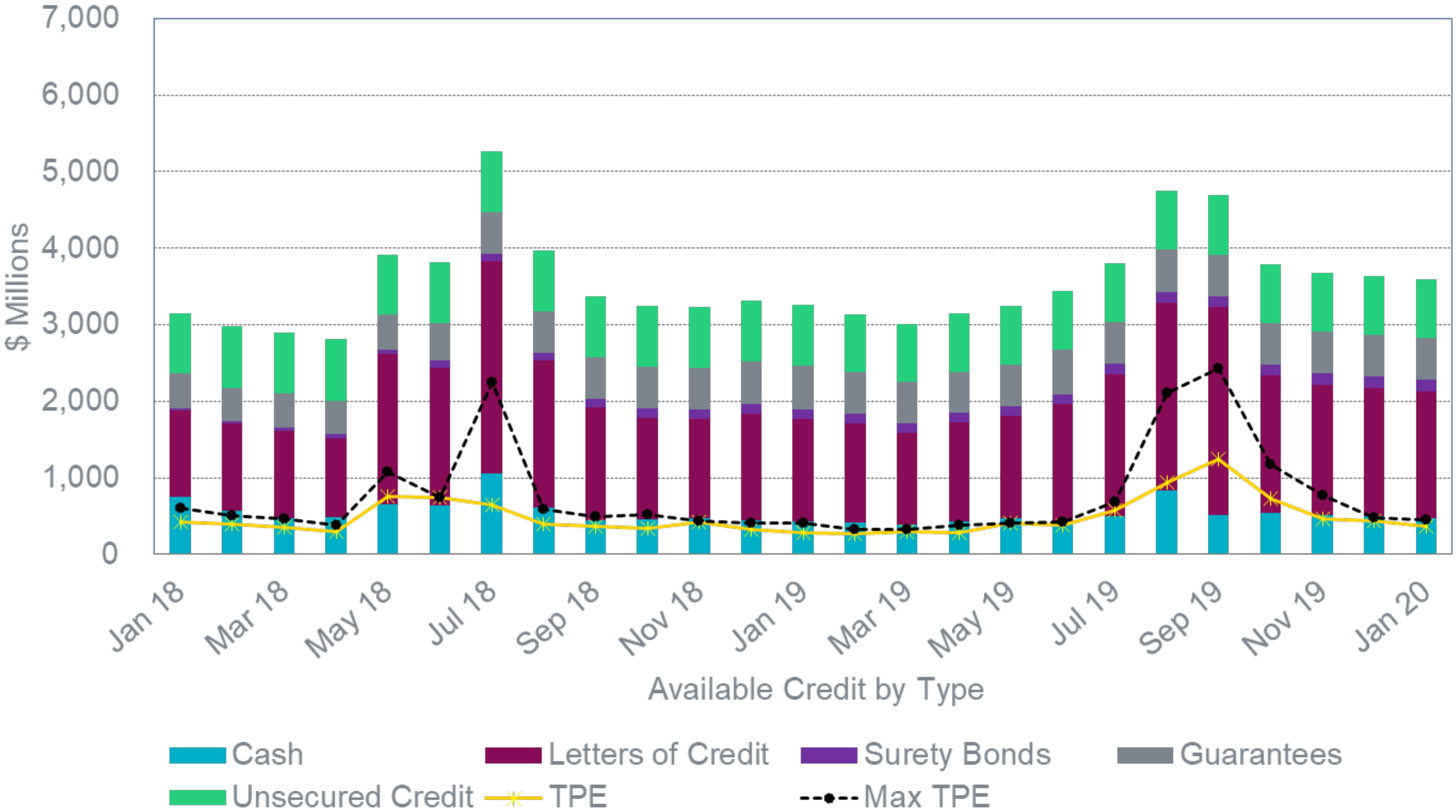
- The decrease in January is due to certain market participants reducing the amount of Day-Ahead Market activity that exceeded their Real-Time Load or no longer representing Real-Time Load and therefore no longer being included in the calculation of the metric.

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 – January 2020

	Year-To-Date		Transactions Received	
Transaction Type	January 2020	January 2019	January 2020	January 2019
Switches	78,720	108,941	78,720	108,941
Acquisition	0	0	0	0
Move - Ins	227,645	236,129	227,645	236,129
Move - Outs	106,727	106,685	106,727	106,685
Continuous Service Agreements (CSA)	60,894	235,409	60,894	235,409
Mass Transitions	0	0	0	0
Total	**473,986**	**687,164**	**473,986**	**687,164**