



ERCOT Monthly Operational Overview (July 2019)

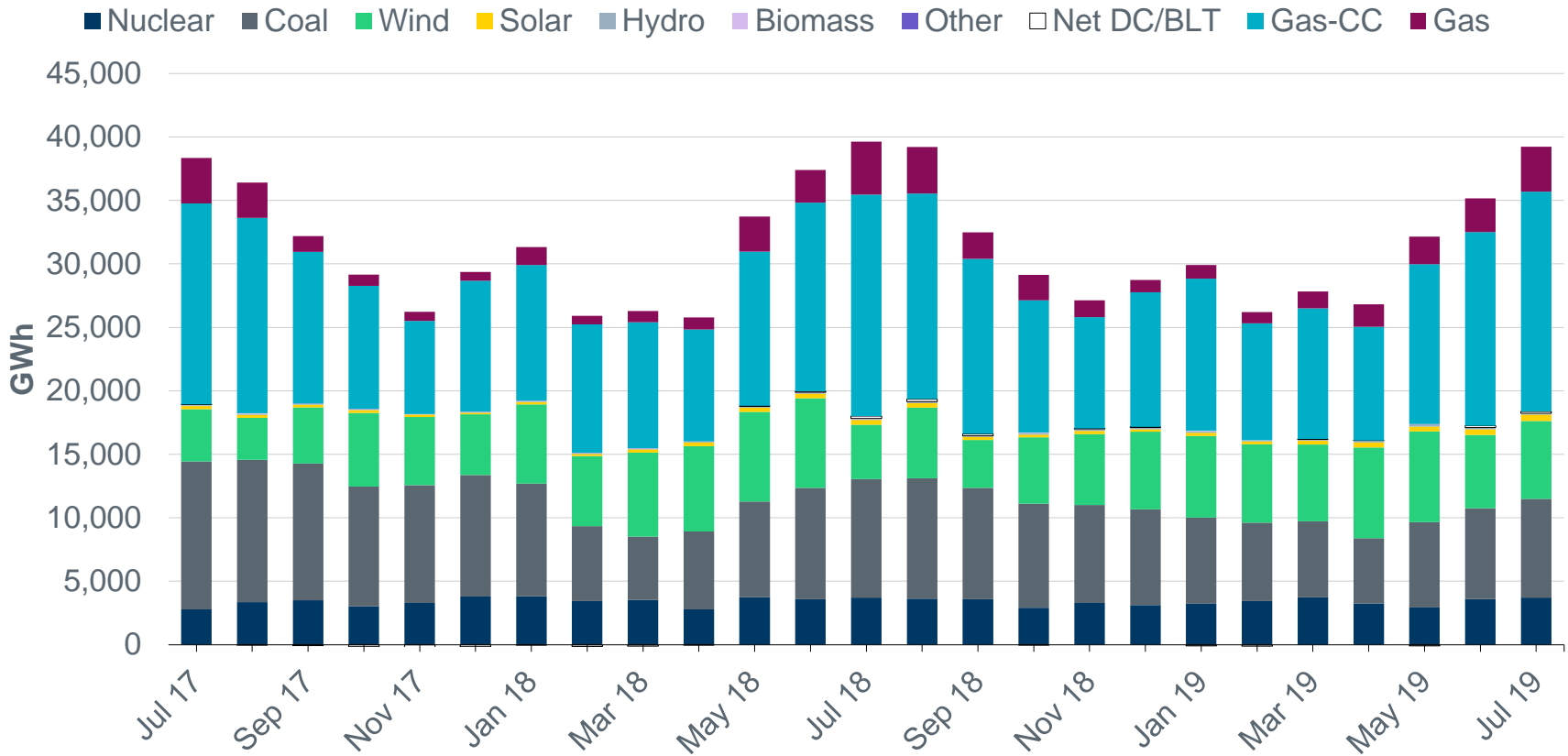
ERCOT Public
August 15, 2019

Monthly Highlights

- The maximum demand in July 2019 was 70,855 MW*, which was 2,618 MW less than the July 2018 demand of 73,473 MW.
- ERCOT issued 12 notifications:
 - 12 Advisories issued due to Physical Responsive Capability being below 3000 MW.
- Set a record for Real-Time Ancillary Service Imbalance Settlement
 - Total payments for July 2019 were \$6.6M, compared to average monthly payments for the previous two years of \$636k.
 - The increase is expected given the general upward trend during summer months, as well as changes made to the ORDC starting in March 2019.
 - The Real-Time Ancillary Service Imbalance Settlement is small relative to other monthly charges to load.

* Preliminary value from August release of Demand and Energy 2019 report.

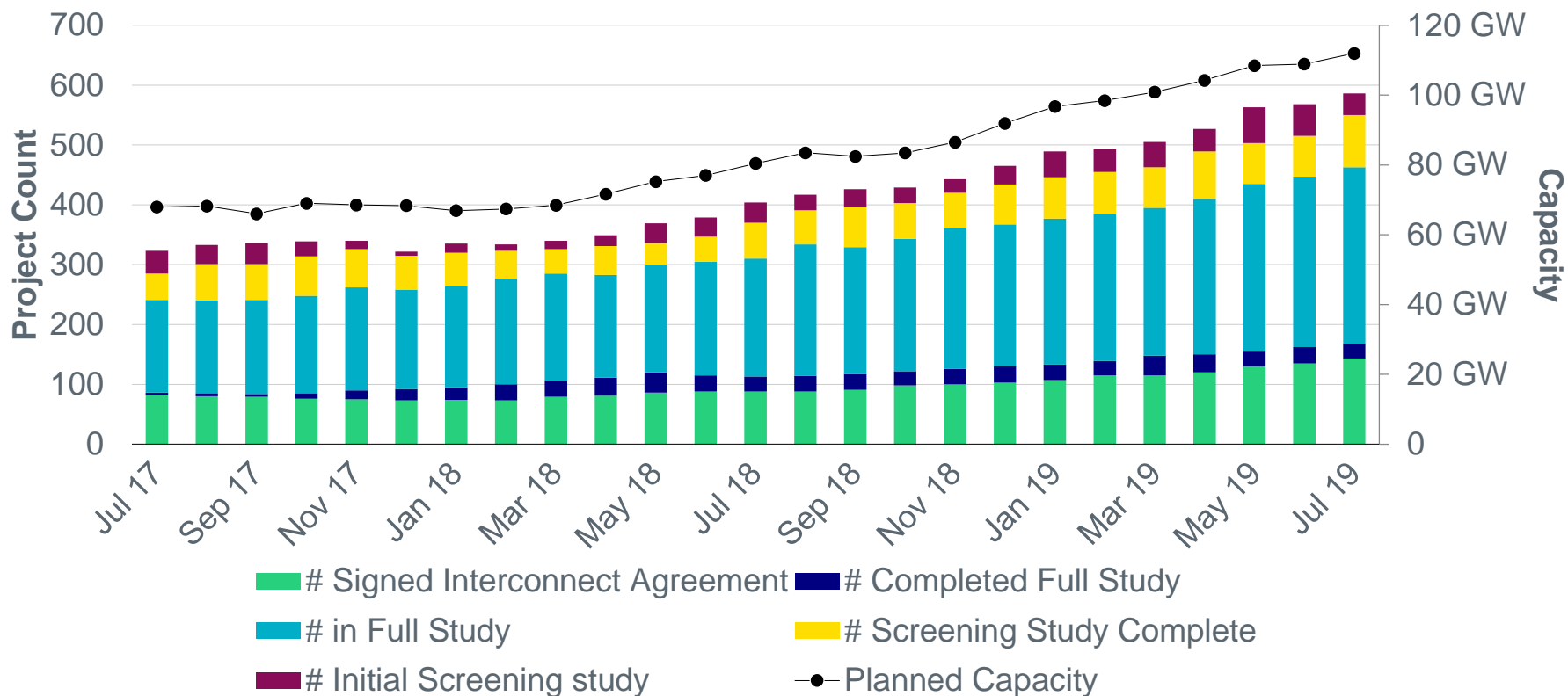
Monthly energy generation by fuel type



Data for latest two months are based on preliminary settlements.



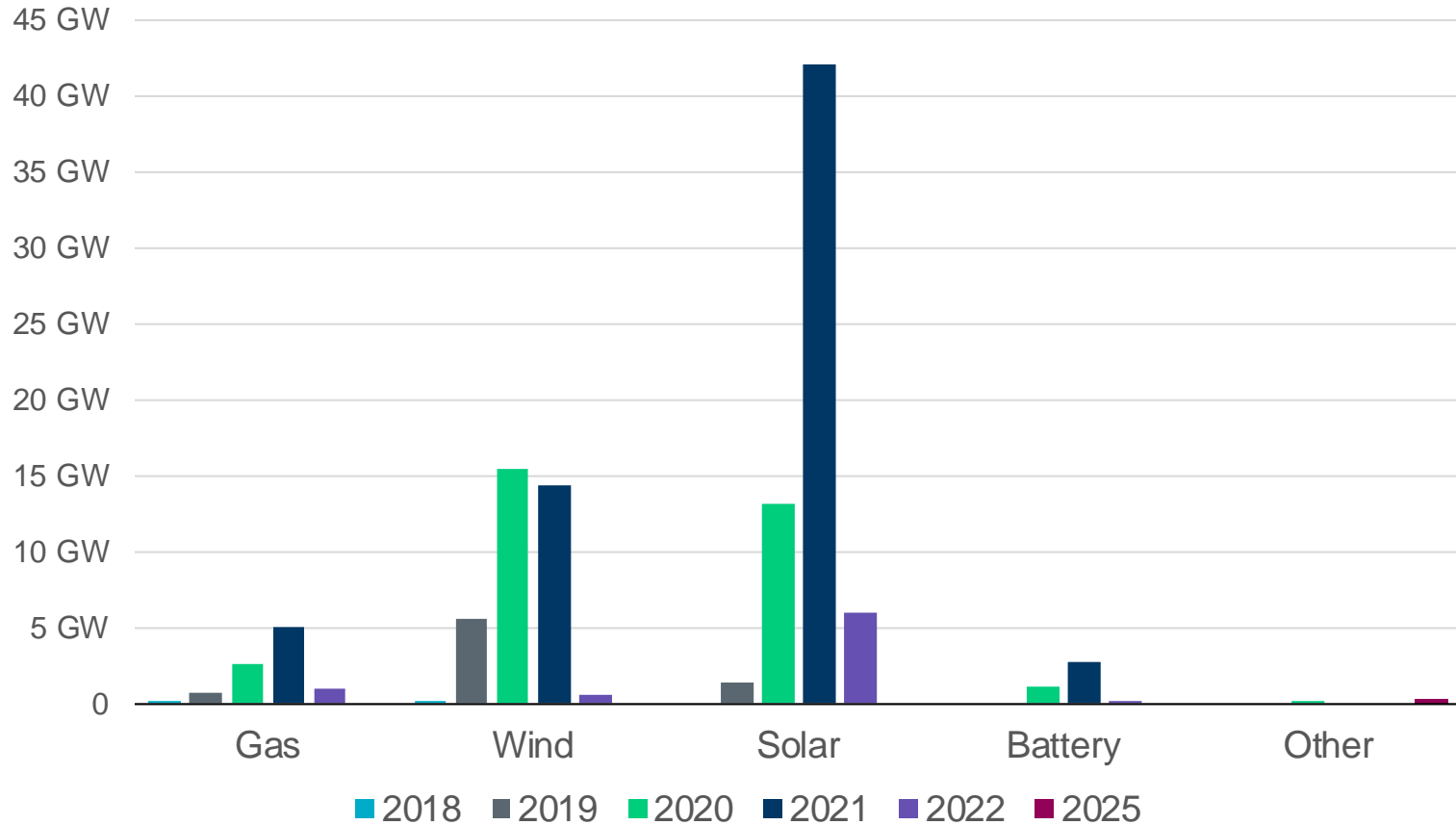
Generation Interconnection activity by project phase



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 63 GW (56%), Wind 36 GW (32%), Gas 9 GW (8%), Battery 4 GW (4%)

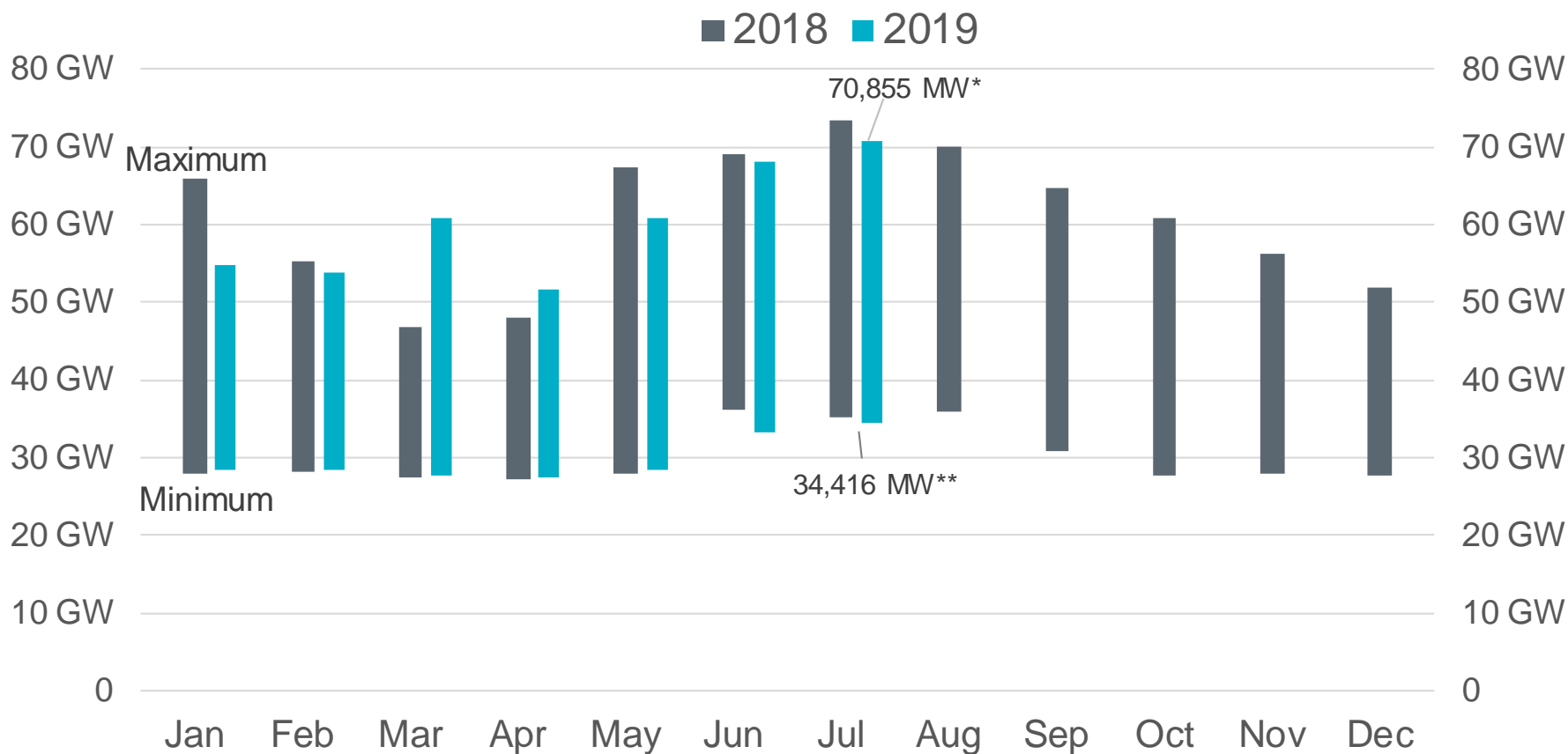


A break out by zone can be found in the monthly Generator Interconnection Status (GIS) reports available on the ERCOT Resource Adequacy Page: <http://www.ercot.com/gridinfo/resource>

Planning Summary

- ERCOT is currently tracking 586 active generation interconnection requests totaling 111,971 MW. This includes 62,356 MW of solar projects and 36,048 MW of wind projects as of July 31, 2019.
- ERCOT is currently reviewing proposed transmission improvements with a total estimated cost of \$1,019.2 Million as of July 31, 2019.
- Transmission Projects endorsed in 2019 total \$295.6 Million as of July 31, 2019.
- All projects (in engineering, routing, licensing and construction) total approximately \$3.86 Billion as of June 1, 2019.
- Transmission Projects energized in 2019 total about \$1.06 Billion as of June 1, 2019.

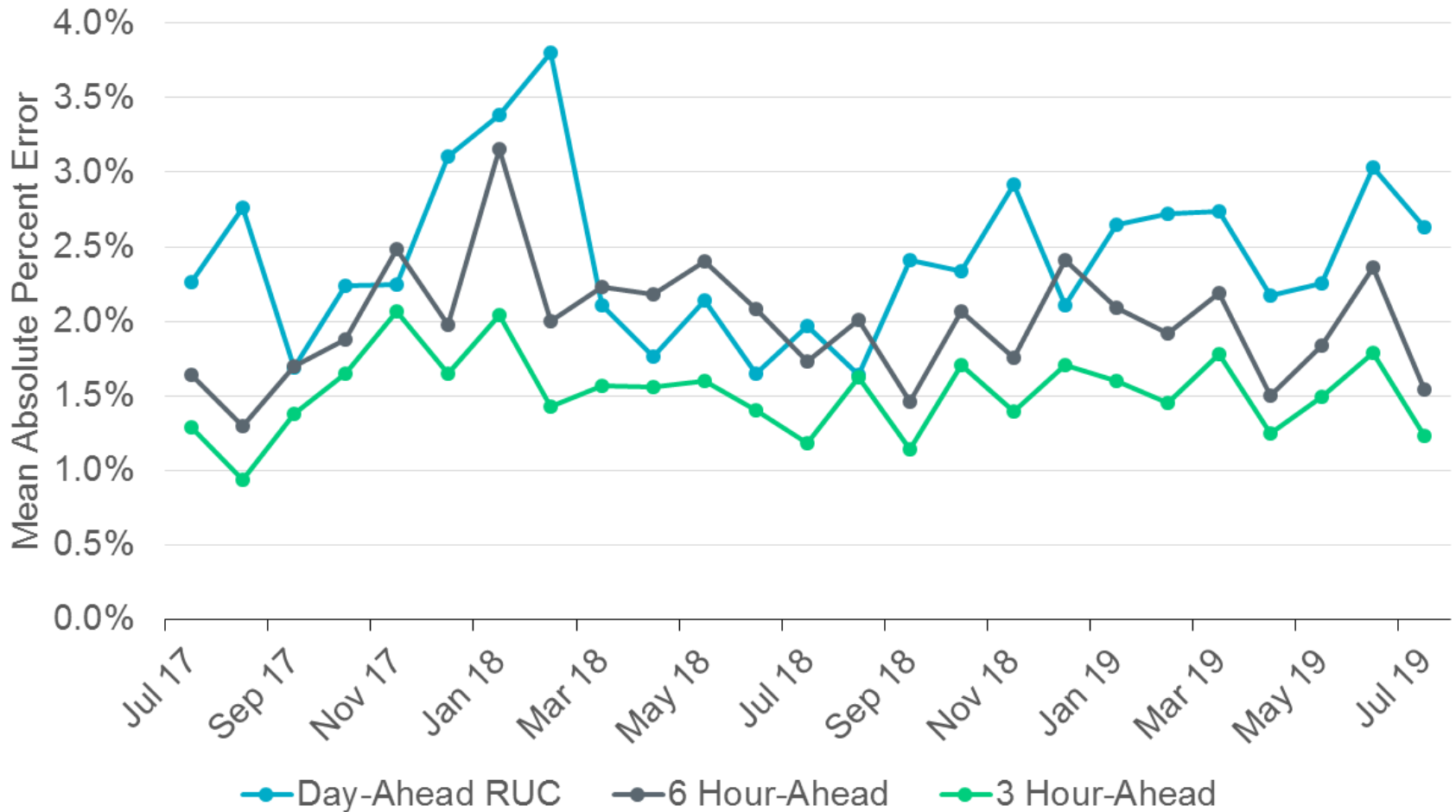
The maximum demand in July 2019 was 70,855 MW*, which was 2,618 MW less than the July 2018 demand of 73,473 MW



*Value based on net system hourly data from August release of Demand and Energy 2019 report.

**Value based on 15-minute metered data from August release of Demand and Energy 2019 report. Data for latest two months are based on preliminary settlements.

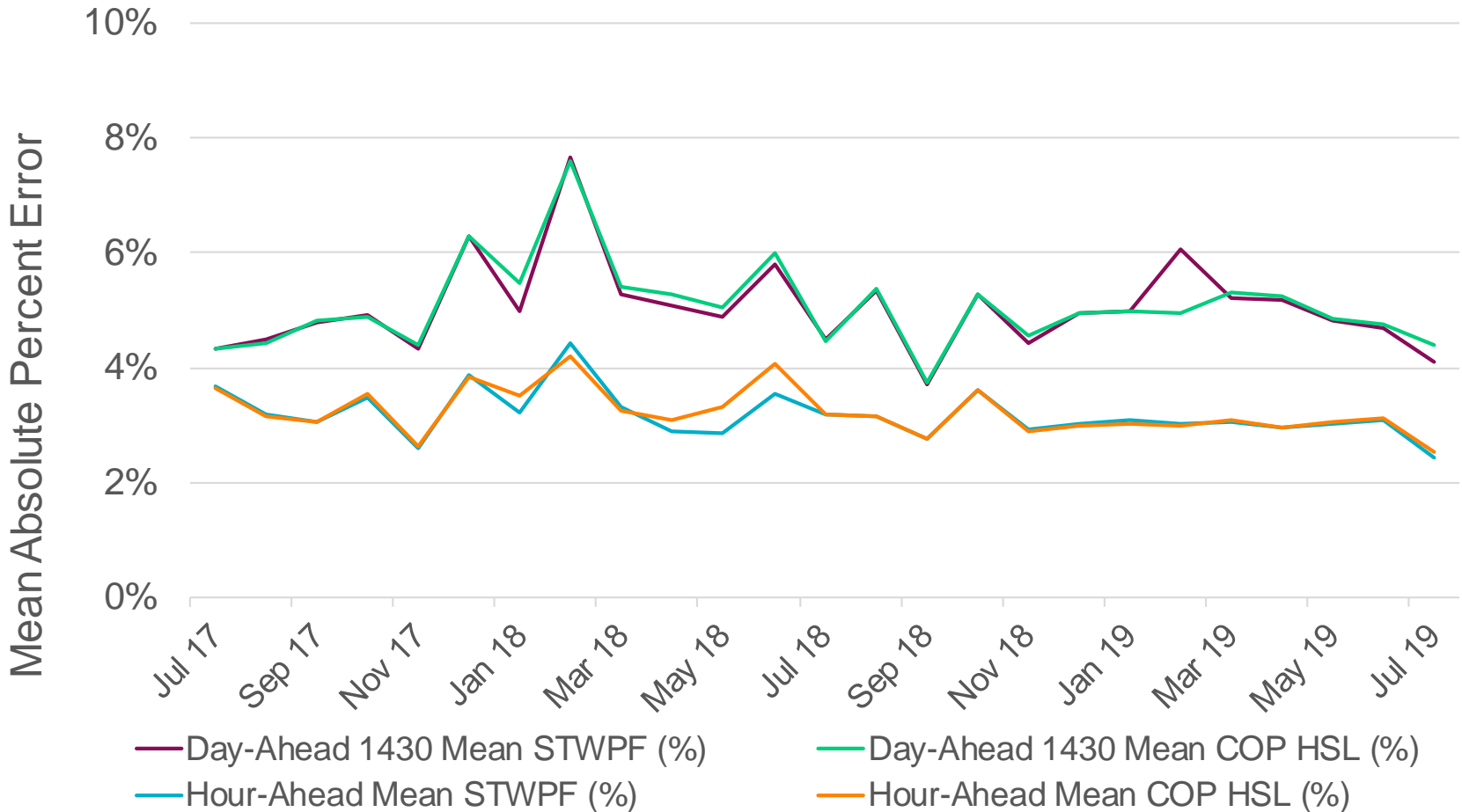
Mid-Term Load Forecast Performance



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



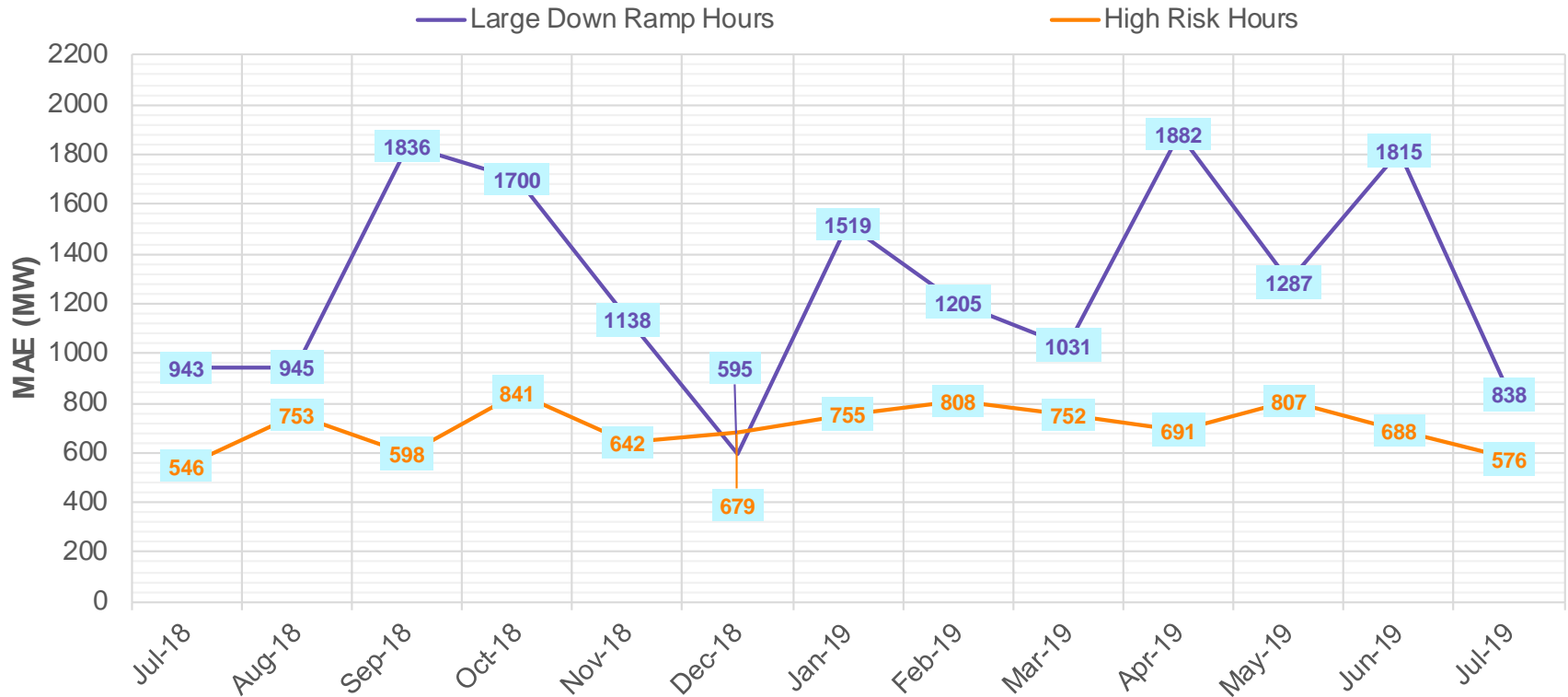
Wind Forecast Performance



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

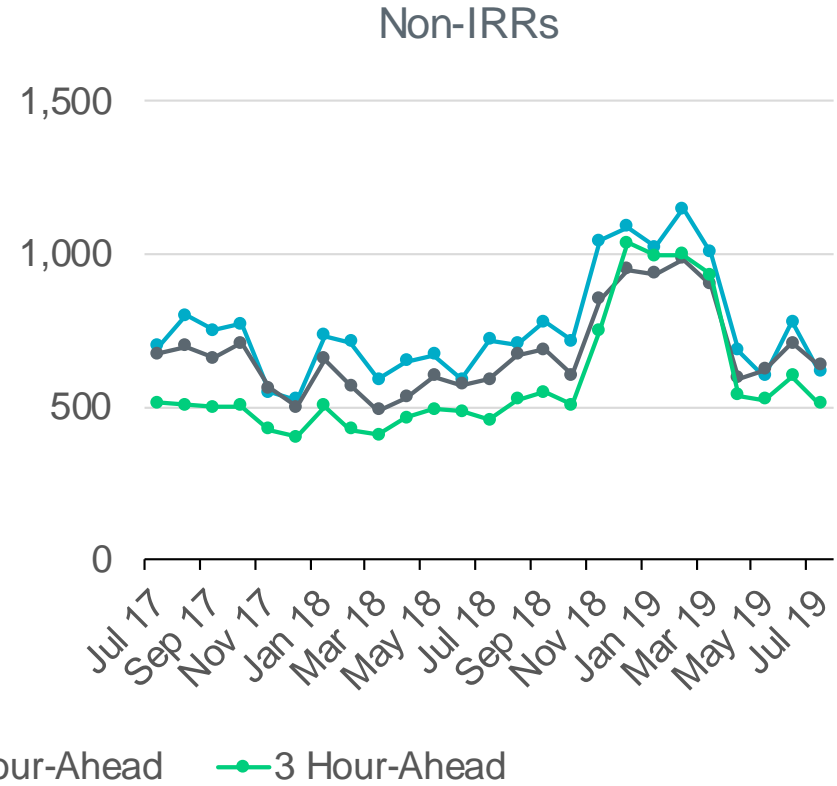
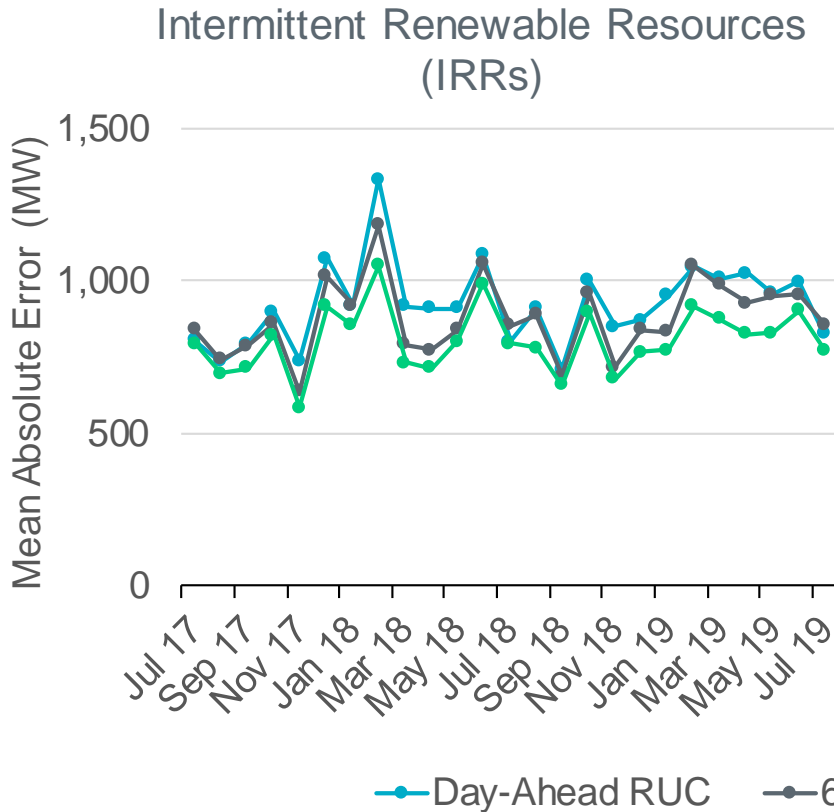
Hour-Ahead Mean Absolute Error (MAE) During Large Down Ramp (> 2000 MW) and High Risk Hours*



*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.

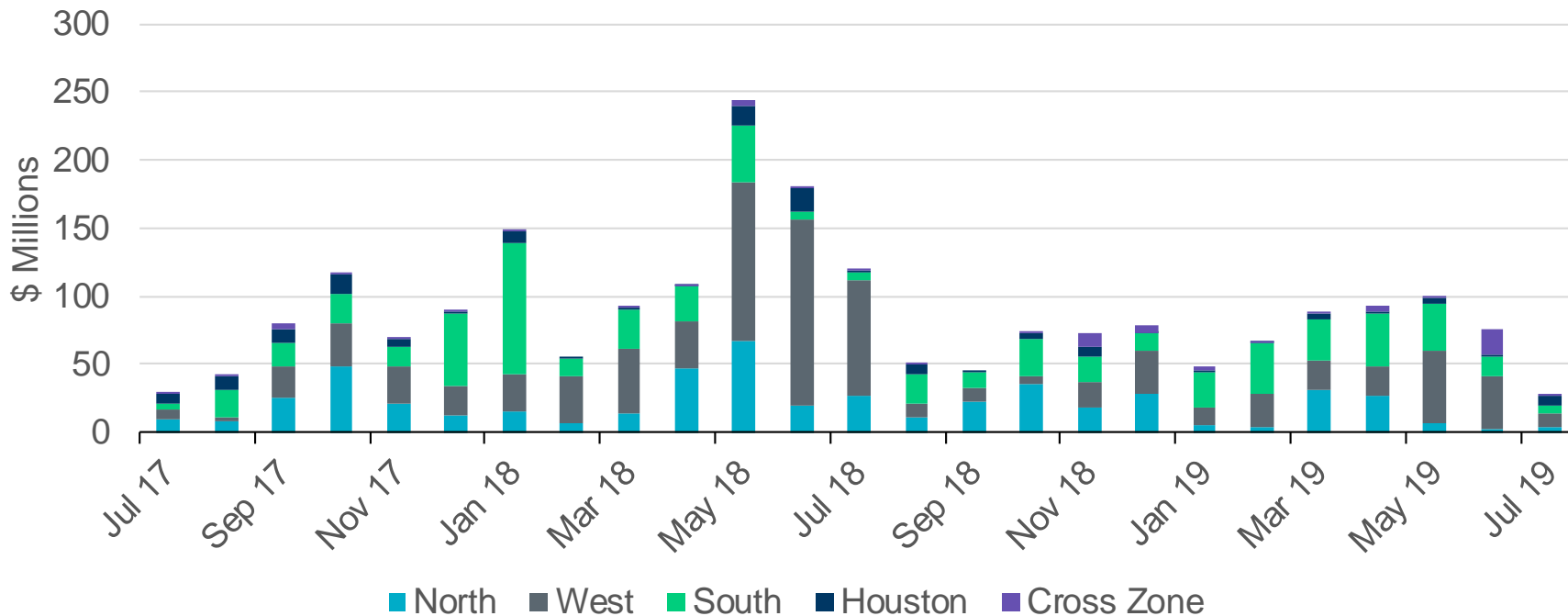
Forecast performance during large down ramp (wind ramp > 2000 MW) hours and high risk hours (historic risk of load ramping up and wind ramping down is high) is focused upon. Note that for the purposes of forecast performance measurement every hour in a month is classified as either a large down ramp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



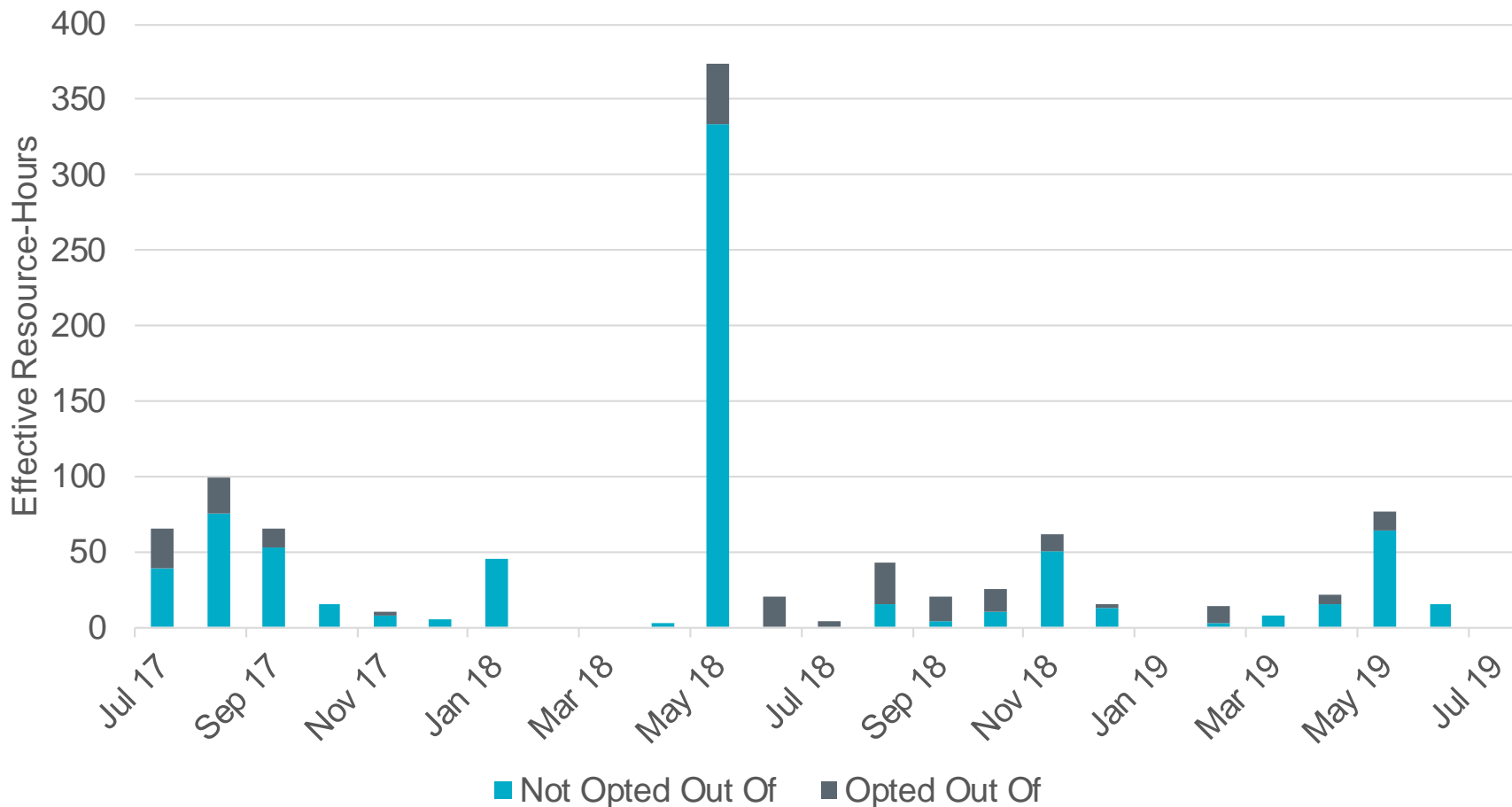
- COPs for IRRs are derived from wind and solar forecasts from ERCOT with any adjustments from Qualified Scheduling Entities.
- The installed capacity of approved IRRs is 24,405 MW (as of July 31, 2019).

Real-Time Congestion Rent by Zone



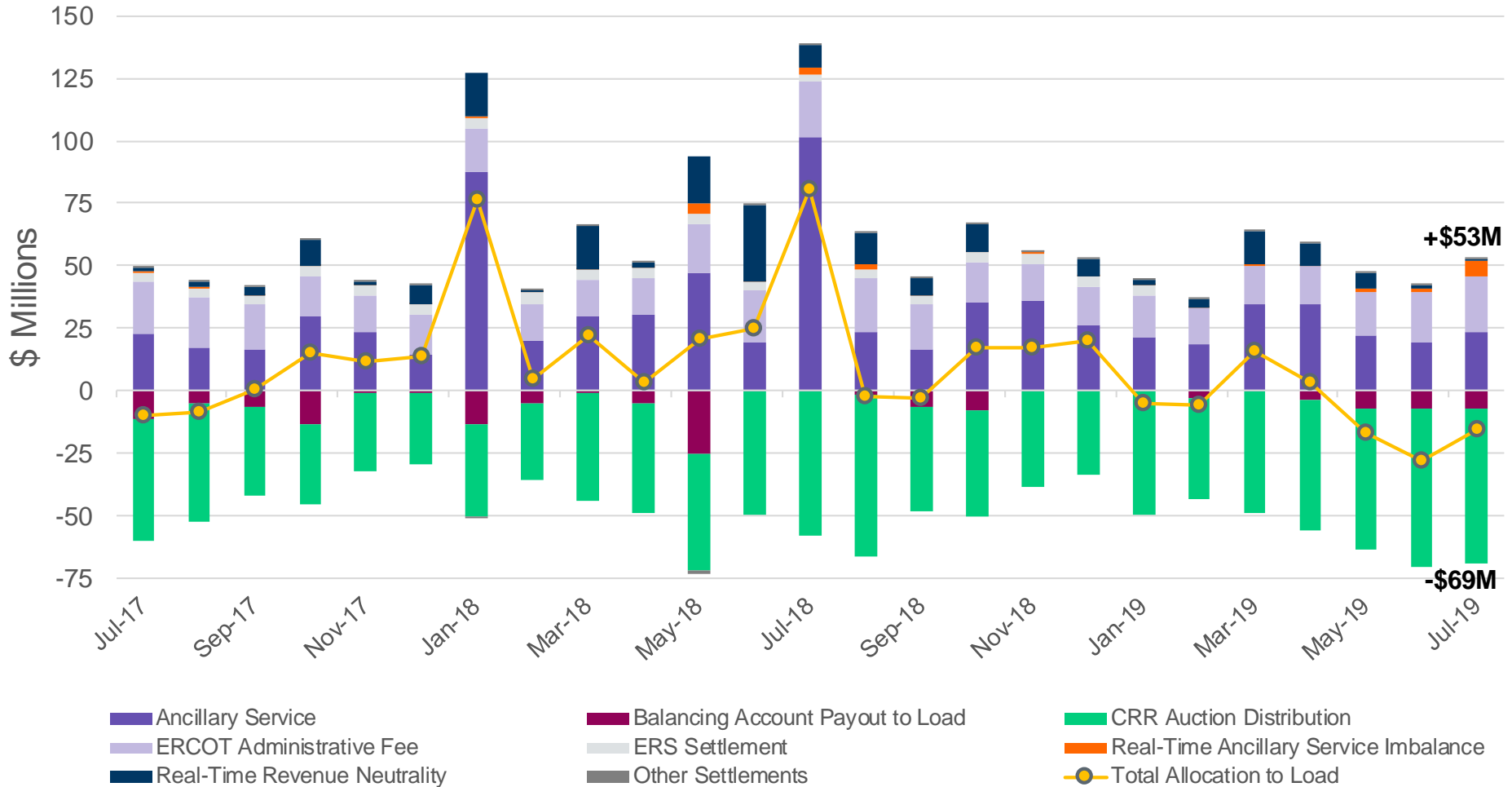
- The congestion rent in the West, South, and Cross Zone decreased in July compared to June.
- Congestion Rent is determined using the shadow prices and MW flows for individual constraints in SCED as well as the length in time of SCED intervals.
- The “Cross Zone” category consists of cases in which the substations on either end of the constraint are in different zones.

Zero Resources Committed in July



“Effective Resource-Hours” excludes any period during a Reliability Unit Commitment hour when the RUC-committed Resource was starting up, shutting down, or off-line.

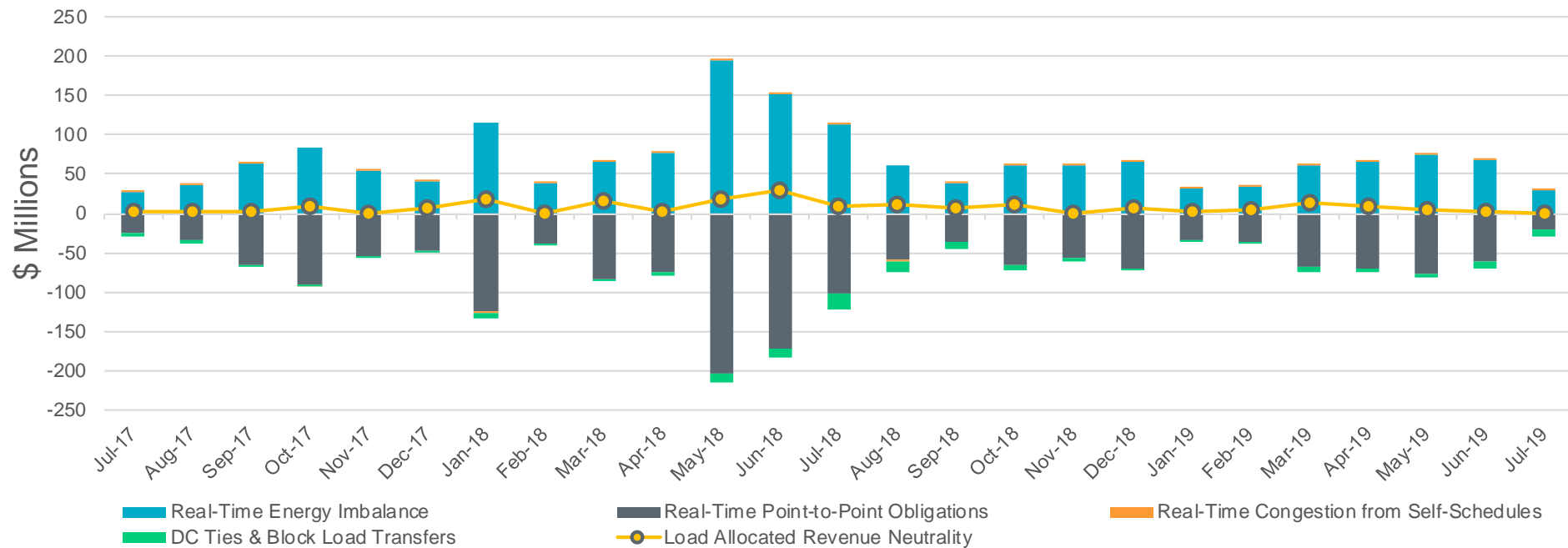
Net Allocation to Load in July 2019 was **-\$15.7 Million**



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



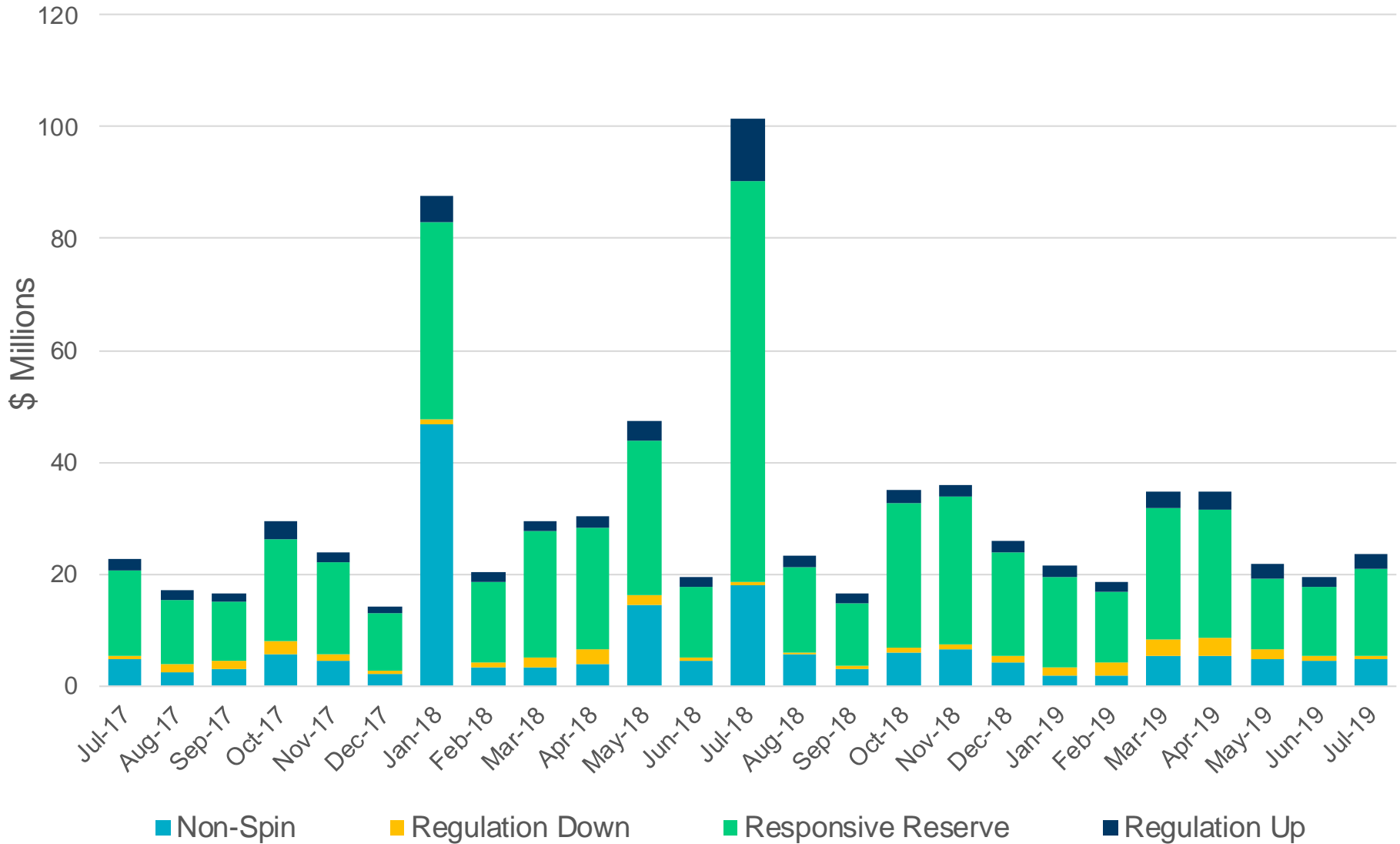
Real-Time Revenue Neutrality Allocated to Load was \$0.93M for July 2019



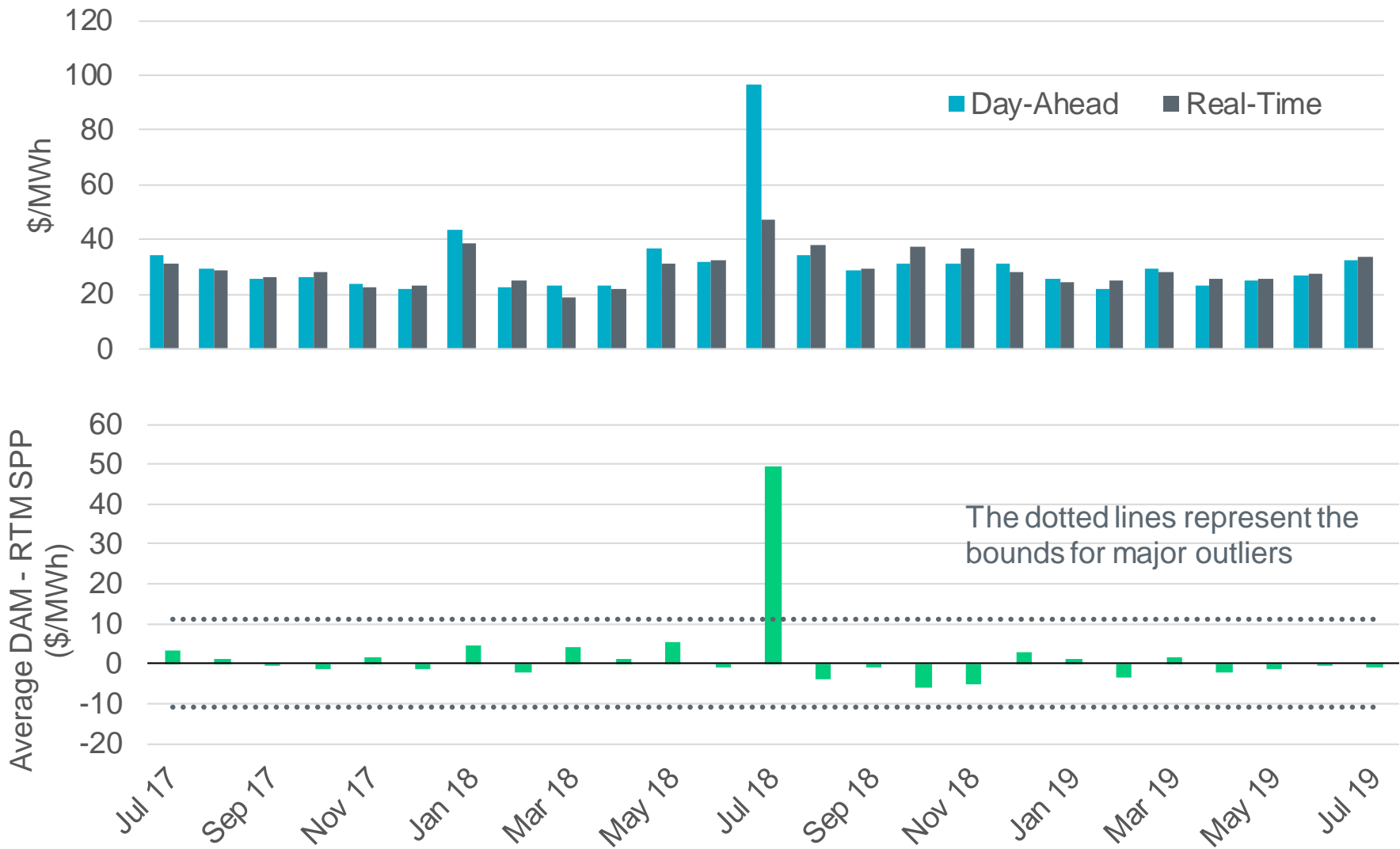
	July 2019 (\$M)
Real-Time Energy Imbalance	\$28.99
Real-Time Point-to-Point Obligation	(\$19.15)
Real-Time Congestion from Self-Schedules	\$0.06
DC Tie & Block Load Transfer	(\$10.83)
Load Allocated Revenue Neutrality	\$0.93



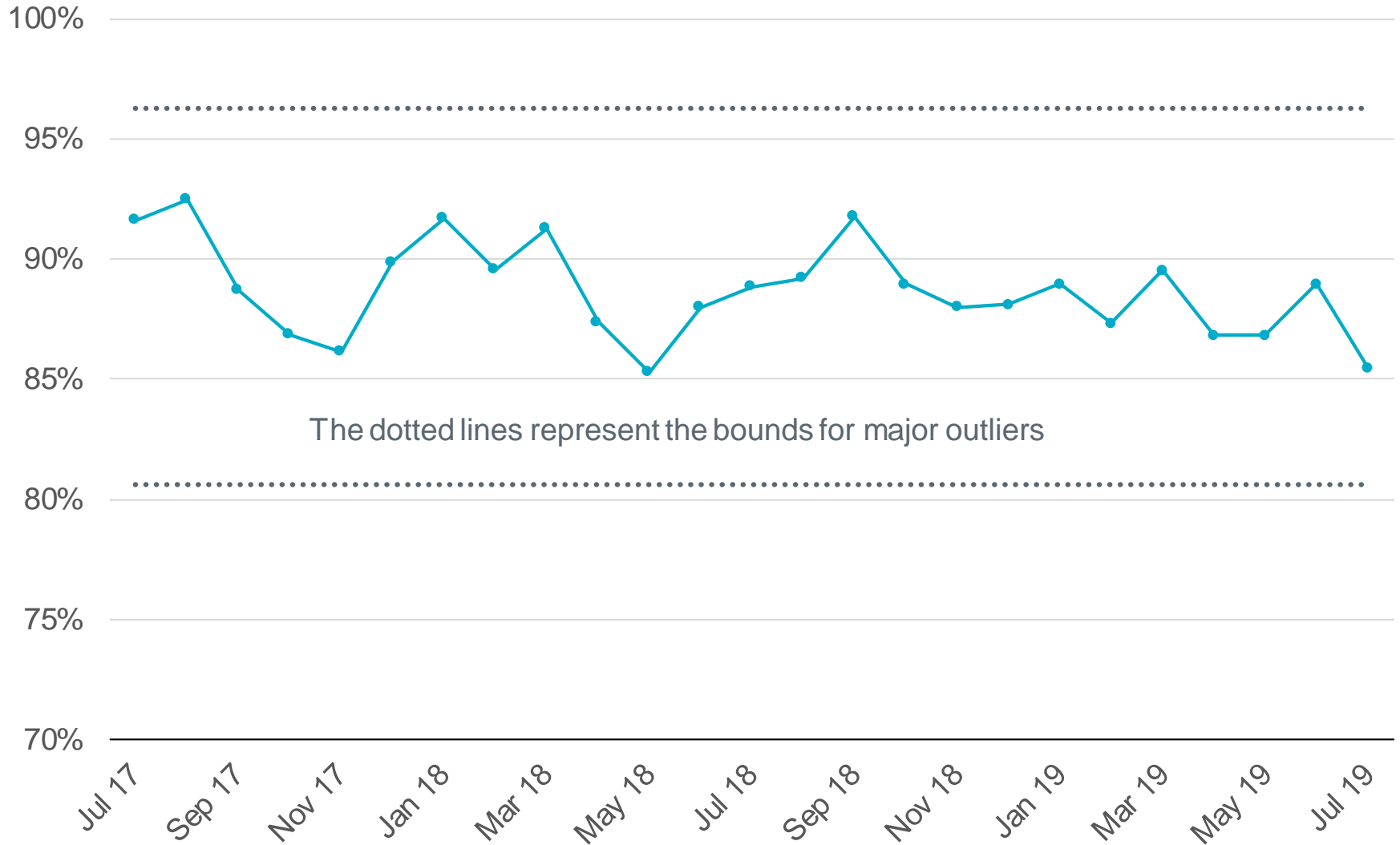
Ancillary Services for July 2019 totaled \$23.65M



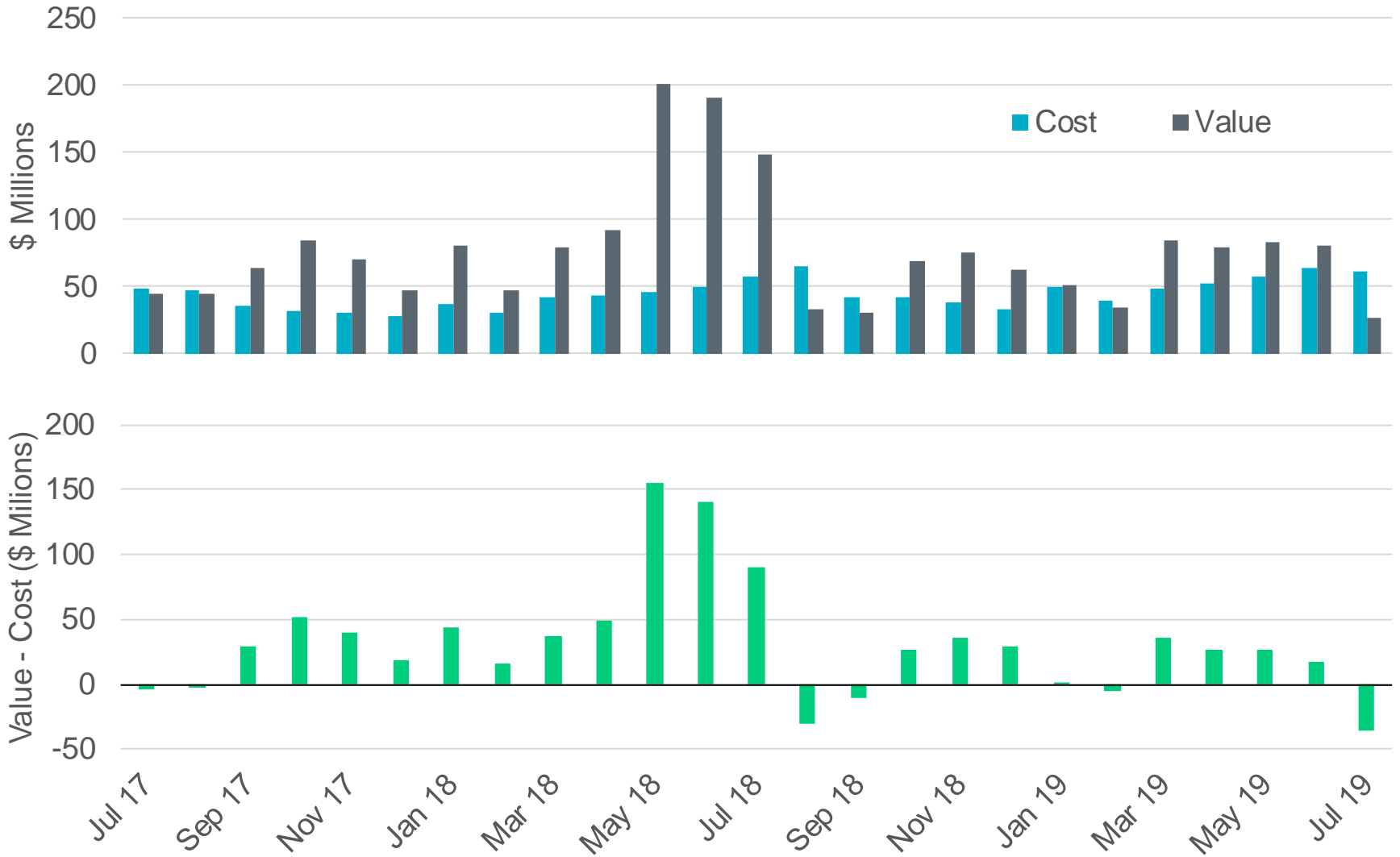
Day-Ahead and Real-Time Market Price Differences



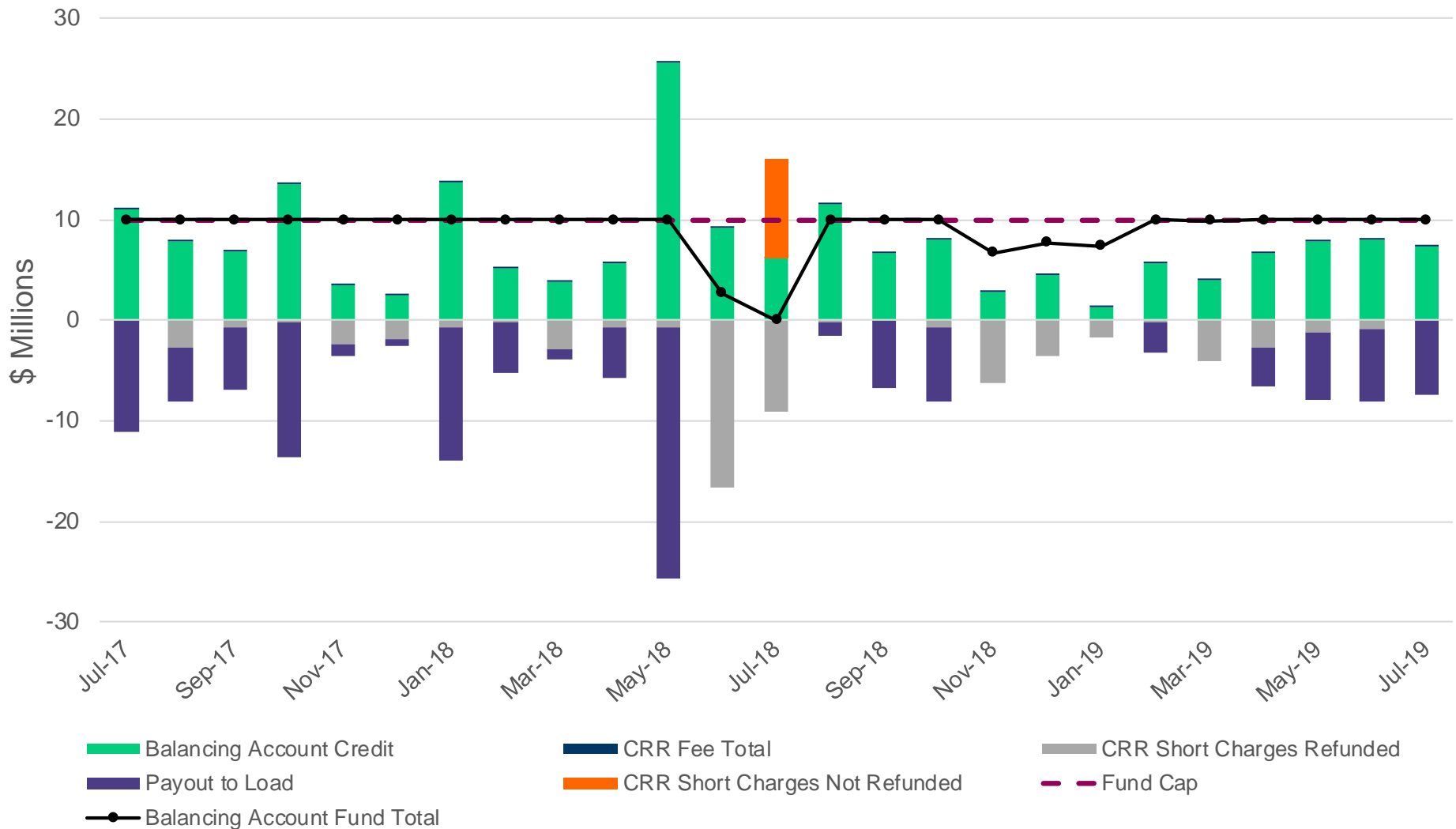
Percentage of Real-Time Load Transacted in the Day-Ahead Market



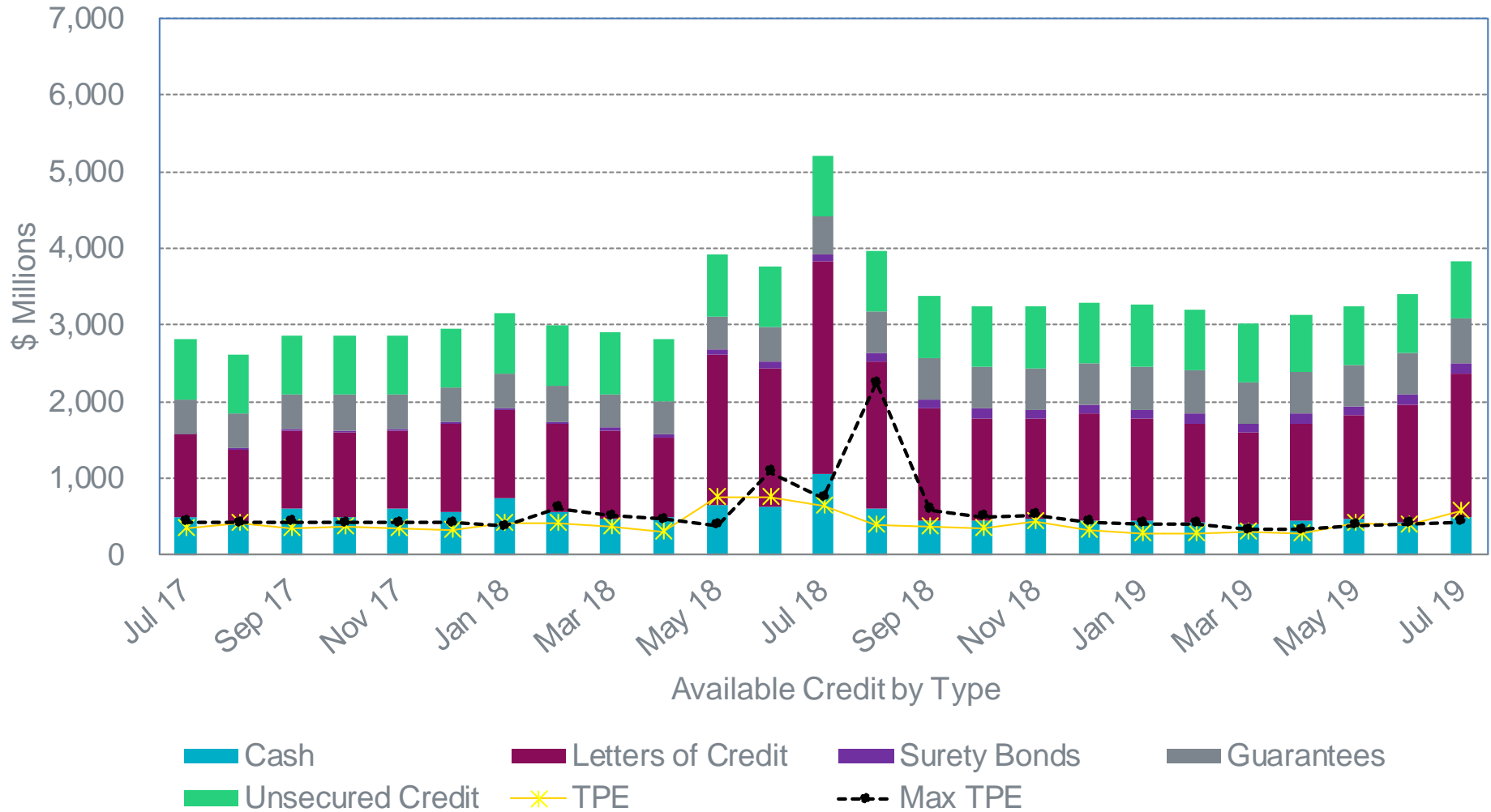
CRR Value and Cost Differences



The CRR Balancing Account was fully funded and excess amounts were allocated to Load



Available Credit by Type Compared to Total Potential Exposure (TPE)



Retail Transaction Volumes – Summary – July 2019

Transaction Type	Year-To-Date		Transactions Received	
	July 2019	July 2018	July 2019	July 2018
Switches	829,467	669,909	142,418	121,926
Acquisition	0	0	0	0
Move - Ins	1,727,199	1,667,037	288,116	270,122
Move - Outs	806,891	814,580	138,341	129,820
Continuous Service Agreements (CSA)	664,196	395,944	47,781	40,217
Mass Transitions	0	9,034	0	0
Total	4,027,753	3,556,504	616,656	562,085