ERCOT Monthly Operational Overview
(April 2022)

ERCOT Public
May 23, 2022

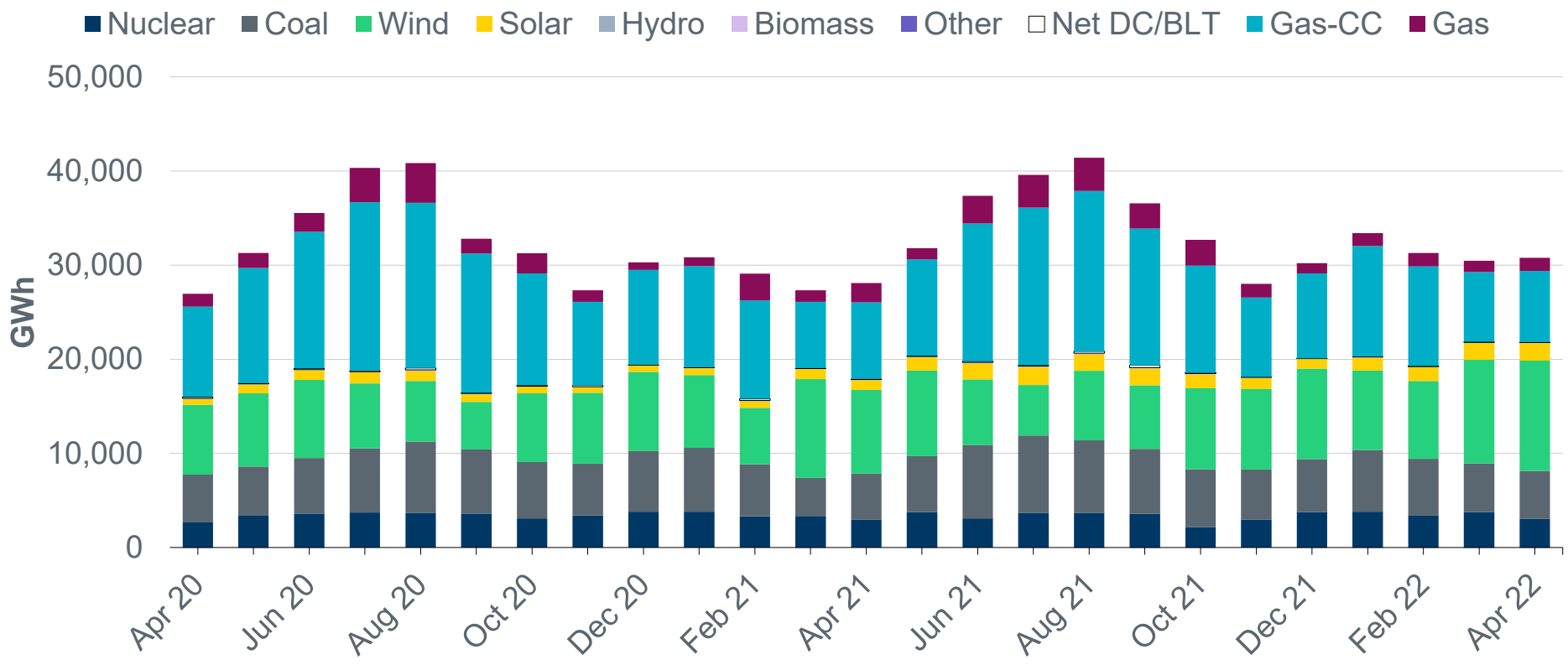
Highlights, Records and Notifications

- ERCOT set an all-time maximum peak demand of 58,362 MW* for the month of April on 4/5/2022, which is 5,548 MW more than the April 2021 demand of 52,814 MW.

- ERCOT issued 9 notifications:
  - 1 Watch due to the failure of the SCED process.
  - 1 Advisory for postponing the deadline for the posting of the DAM solution, due to delay in clearing DAM.
  - 1 Advisory for a geomagnetic disturbance.
  - 1 AAN for possible future emergency condition.
  - 3 OCNs issued for taking manual action on IROLs due to a topology change.
  - 2 DC Tie Curtailment Notices for DC_L (Laredo) DC Tie due to a planned or unplanned outage.

* Preliminary value from May release of Demand and Energy 2022 report.

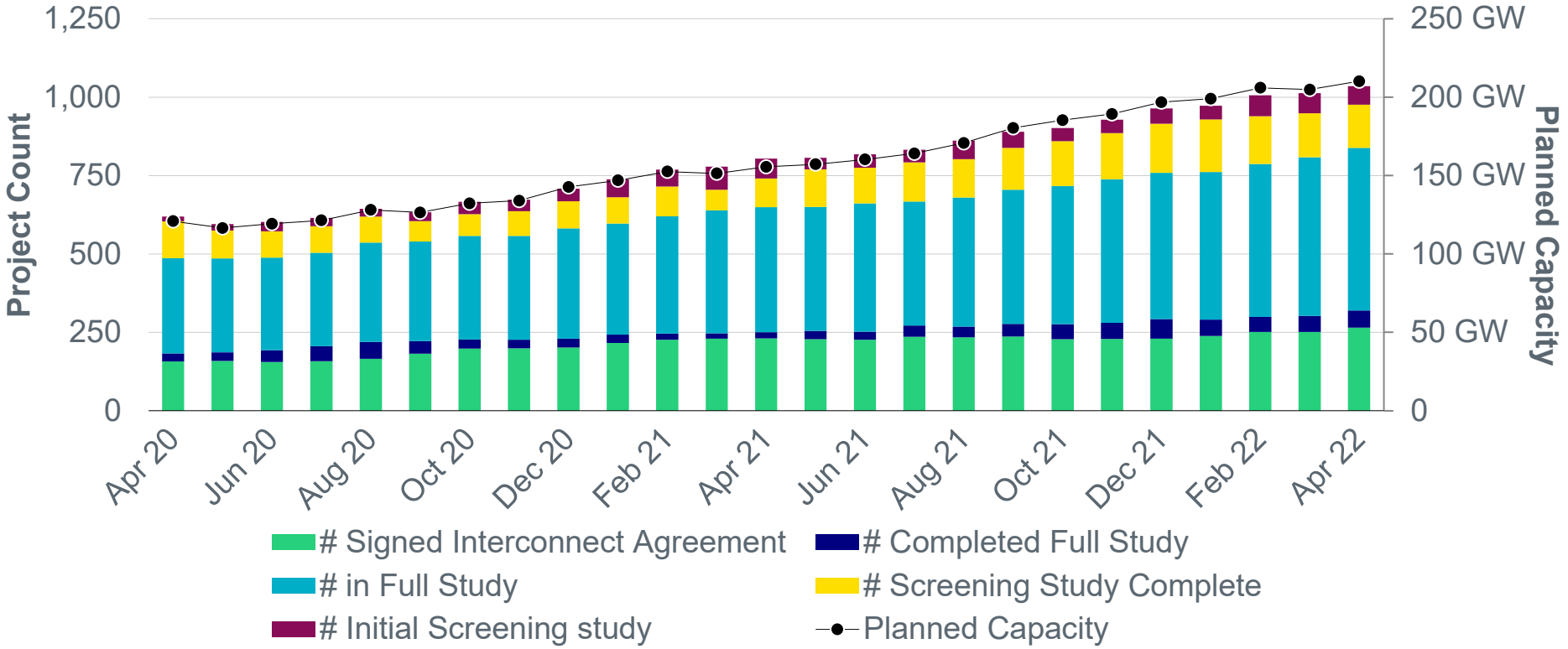
Monthly energy generation increased by 9.6% year-over-year to 30,779 GWh in April 2022, compared to 28,090 GWh in April 2021



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)

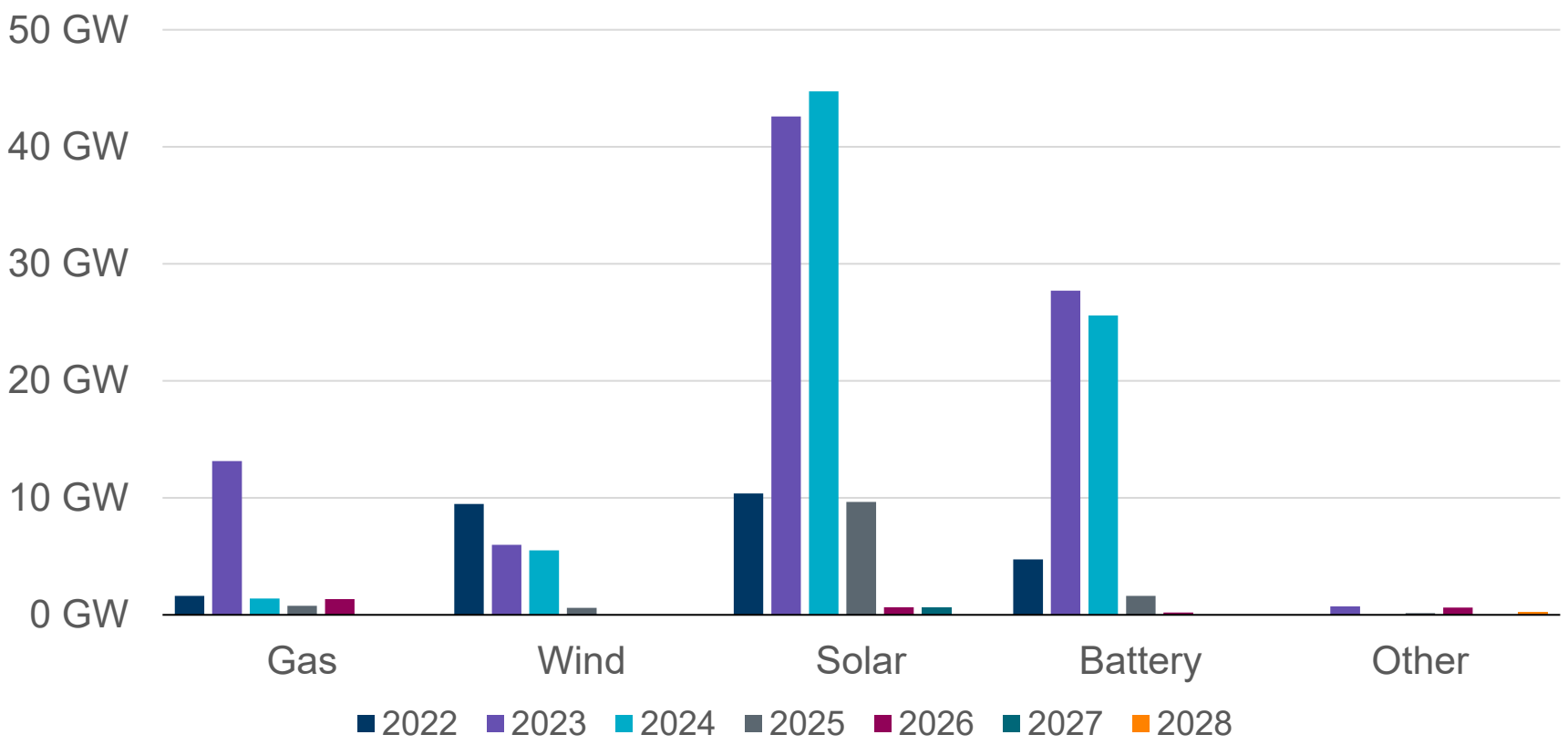


- There is an additional 10 “Small Generator” projects (100 MW) that go through a simplified interconnection process.

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 109 GW (51.7%), Wind 22 GW (10.3%), Gas 18 GW (8.7%), Battery 60 GW (28.5%)
(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 tracking 1,047 active generation interconnection requests totaling 210,116 MW as of April 30. This includes 108,667 MW of solar, 21,566 MW of wind, 59,874 MW of battery, and 18,288 MW of gas projects; 57 projects were categorized as inactive, down from 60 inactive projects in March 2022.

- ERCOT is currently reviewing proposed transmission improvements with a total estimated cost of $1,297.11 Million as of April 30, 2022.

- Transmission Projects endorsed in 2022 total $606.26 Million as of April 30, 2022.

- All projects (in engineering, routing, licensing and construction) total approximately $8.00 Billion as of October 1, 2021.

- Transmission Projects energized in 2021 total about $1.438 Billion as of October 1, 2021.

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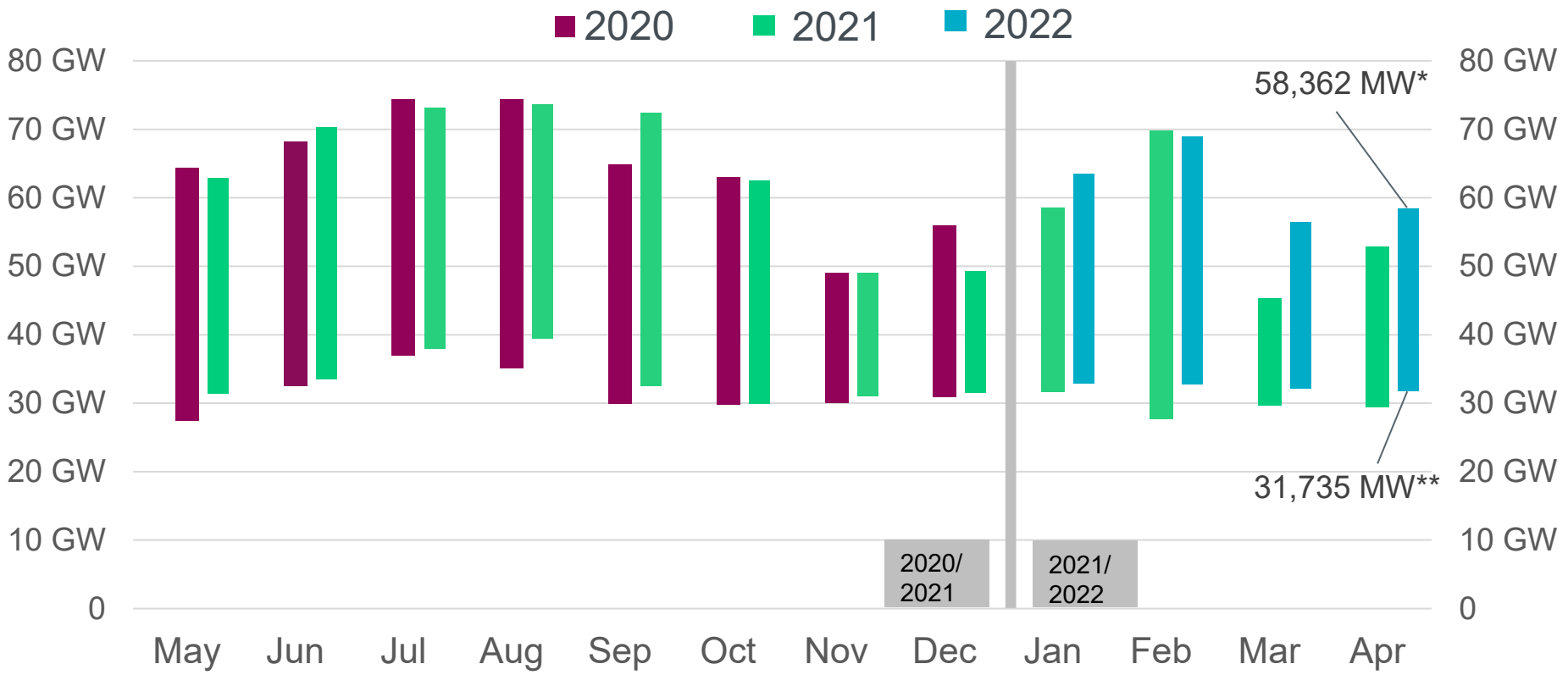
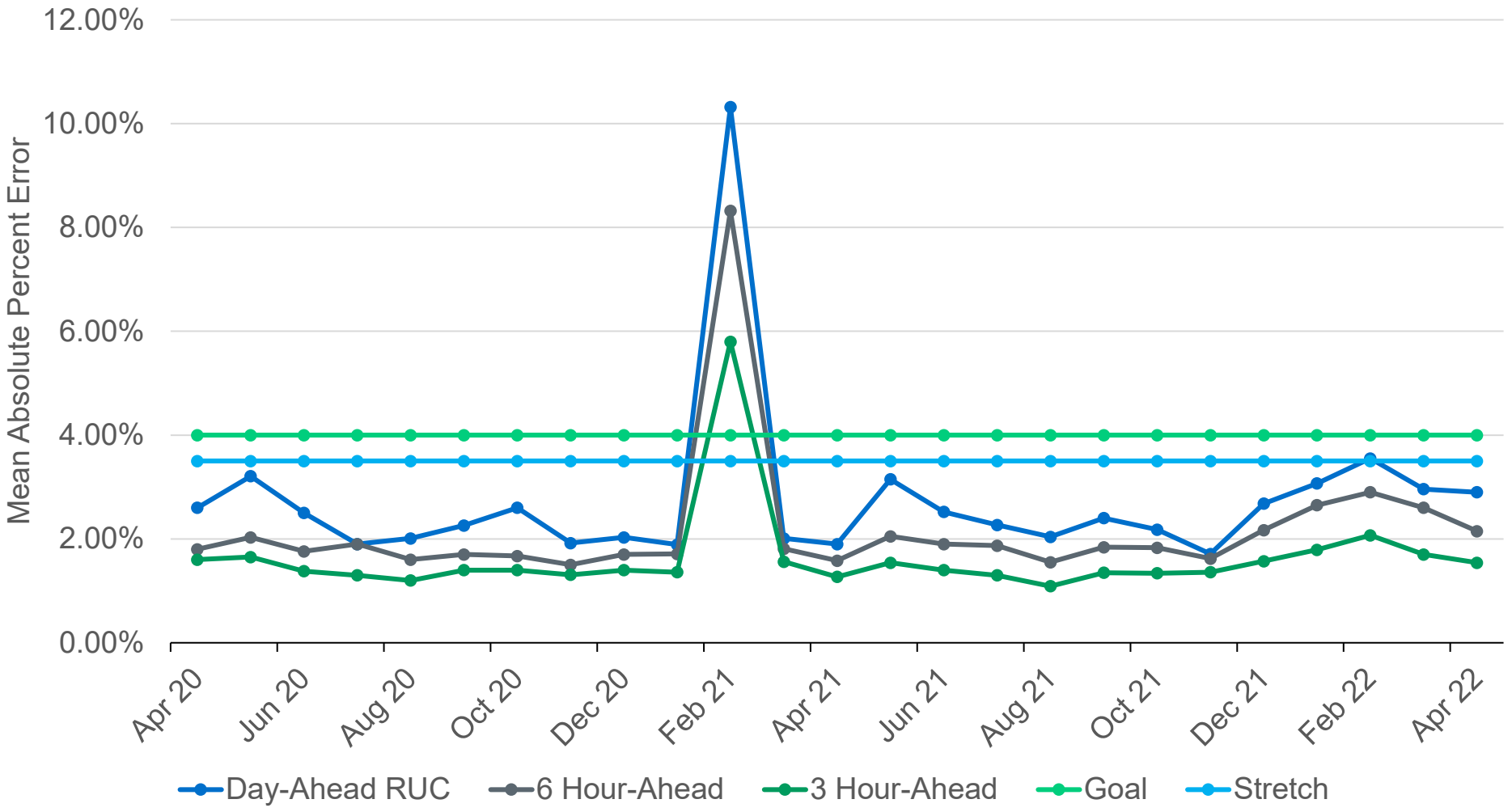


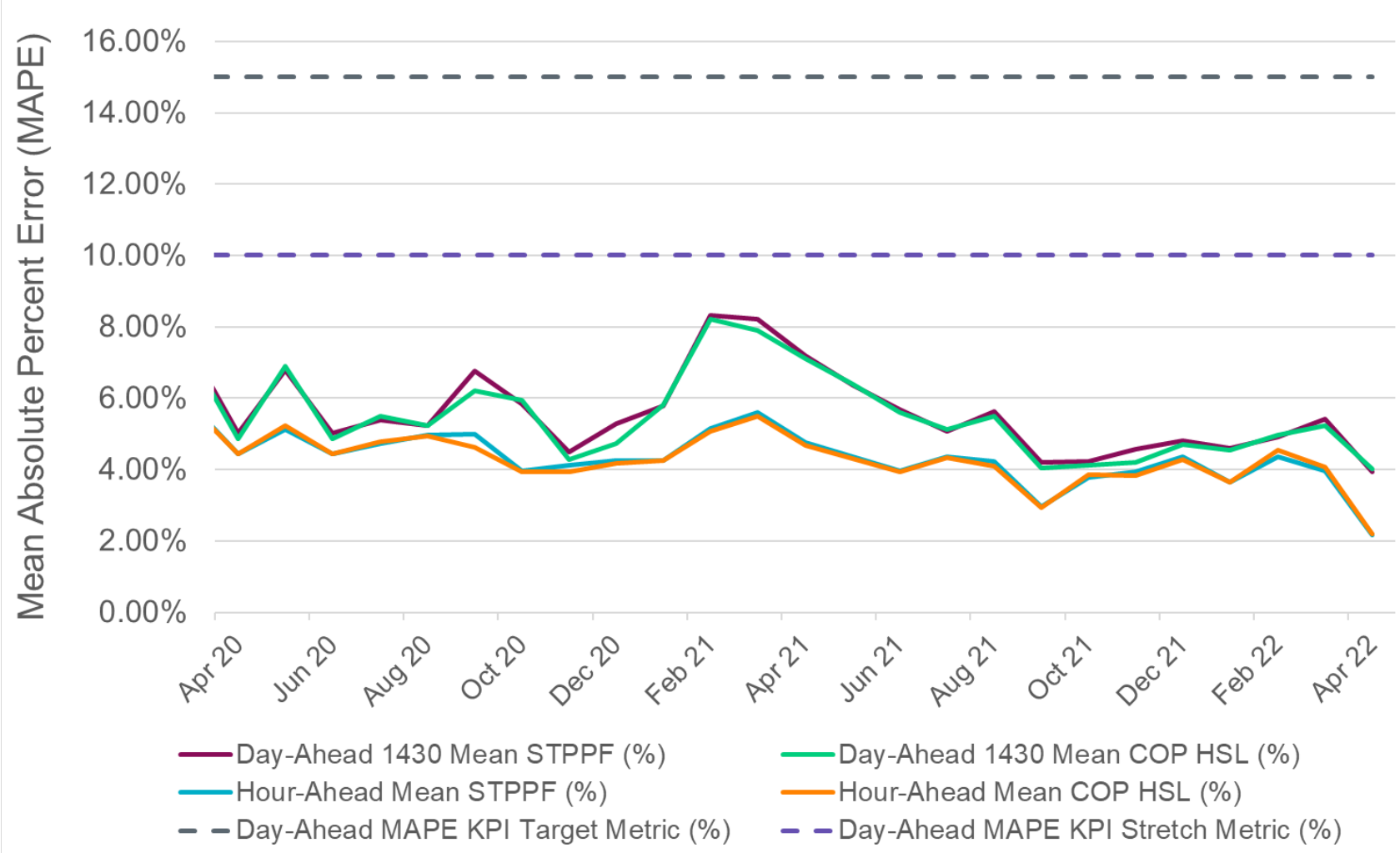
*Based on the maximum net system hourly value from April release of Demand and Energy 2022 report.
**Based on the minimum net system 15-minute interval value from April release of Demand and Energy 2022 report.
Data for latest two months are based on preliminary settlements.

Mid-Term Load Forecast Performance



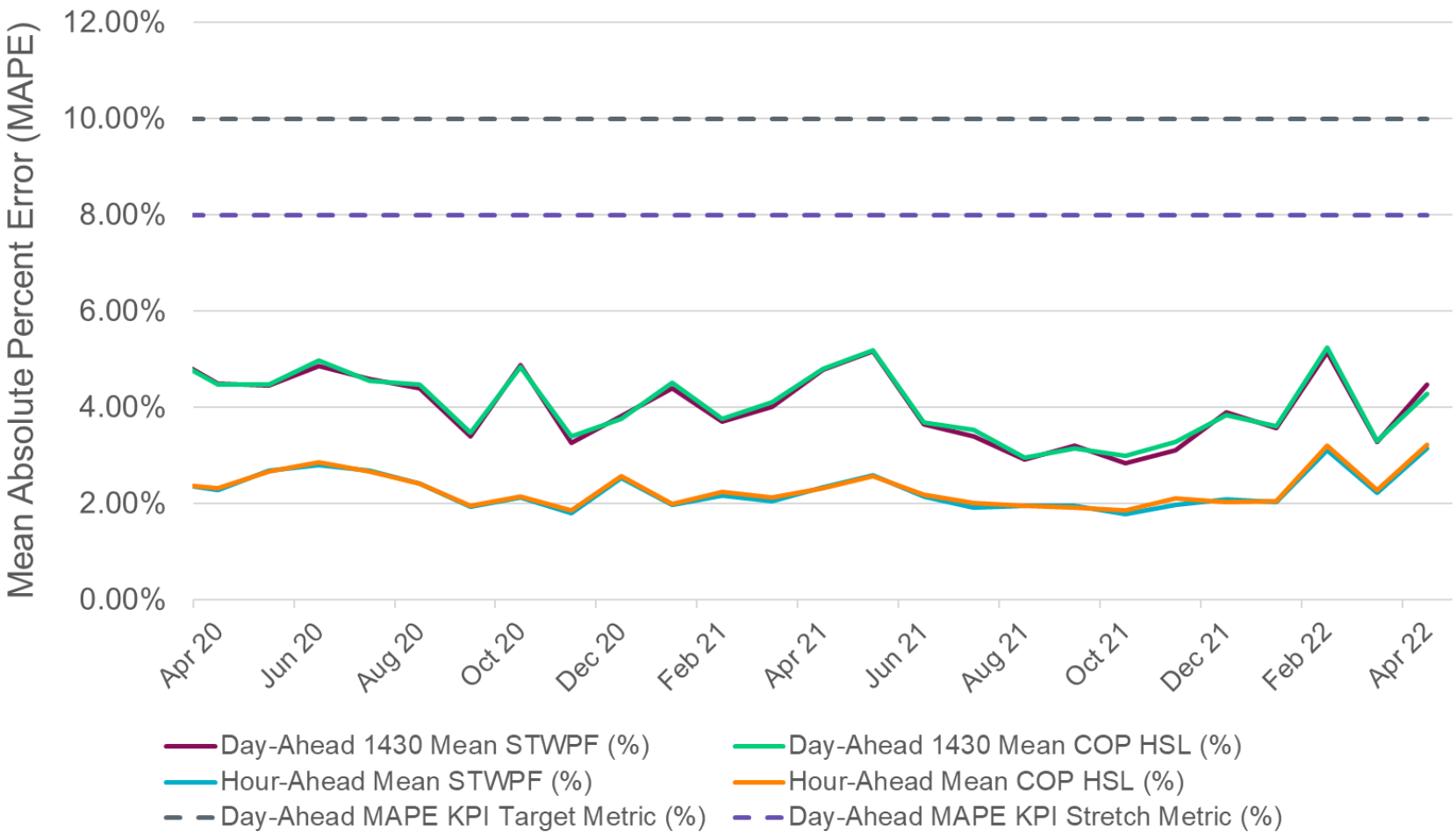
The Mid-Term Load Forecast is an hourly forecast that looks 7 days into the future

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.

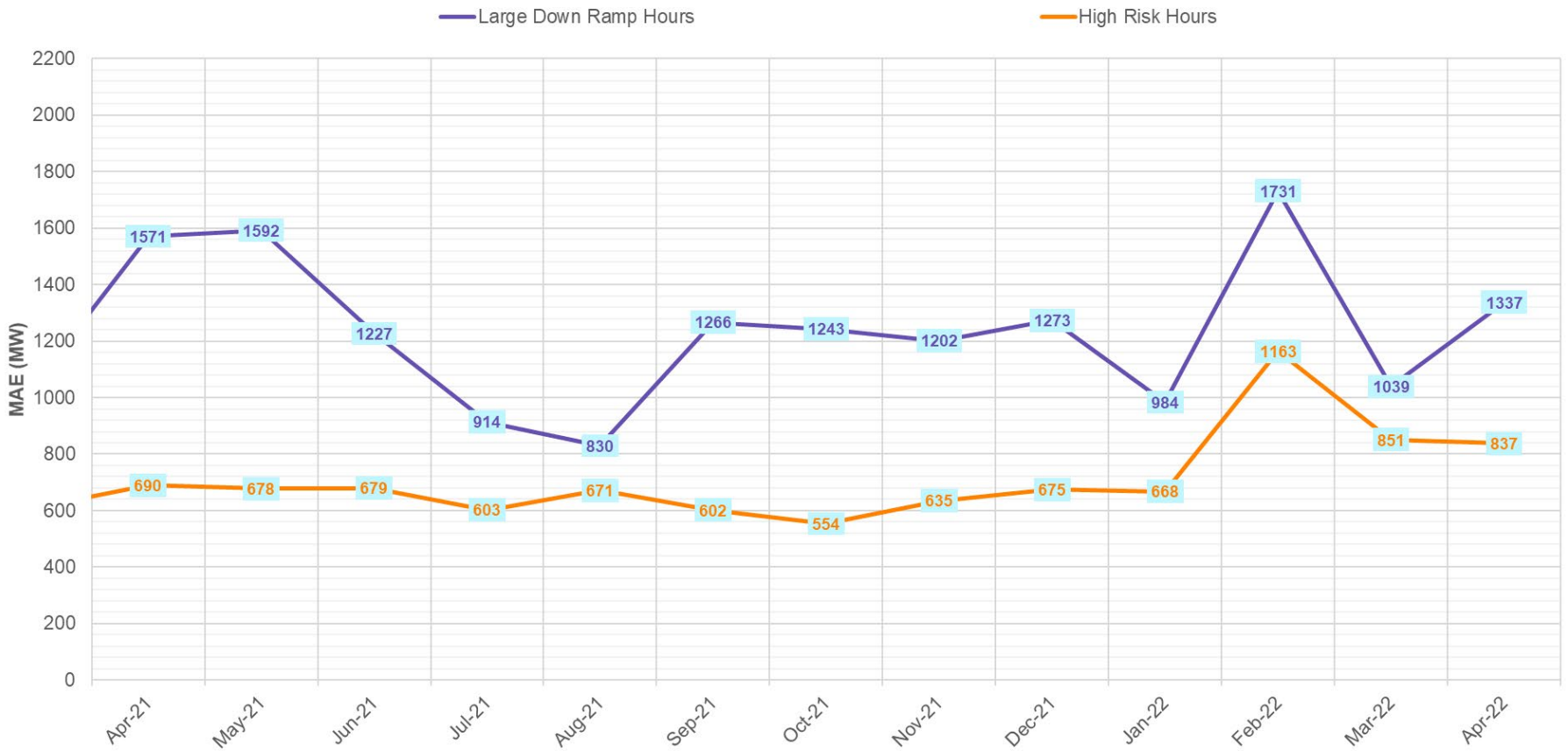
Wind Forecast Performance



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

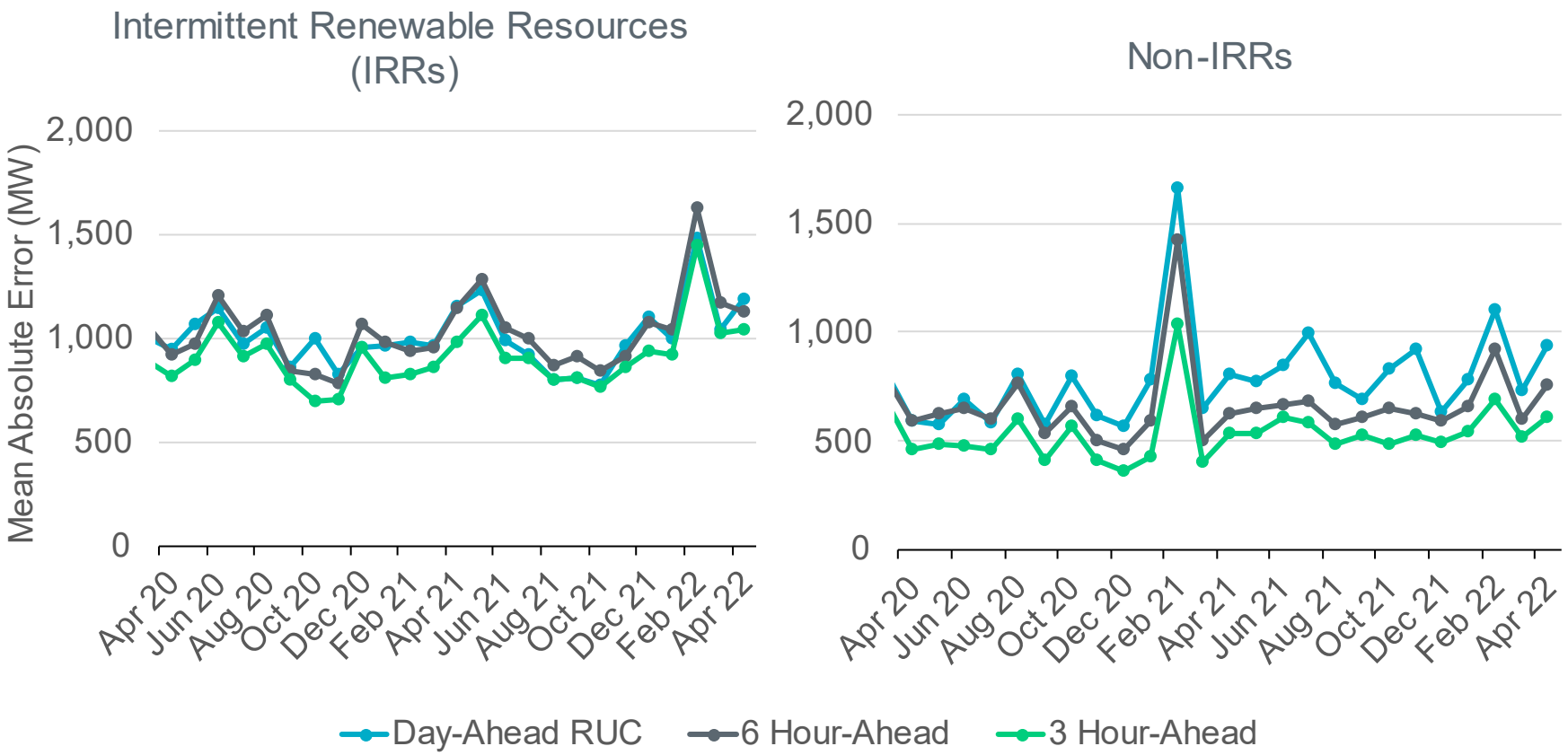
Hour-Ahead Mean Absolute Error (MAE) During Large Down Ramp (> 2000 MW) and High Risk Hours*



**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.*

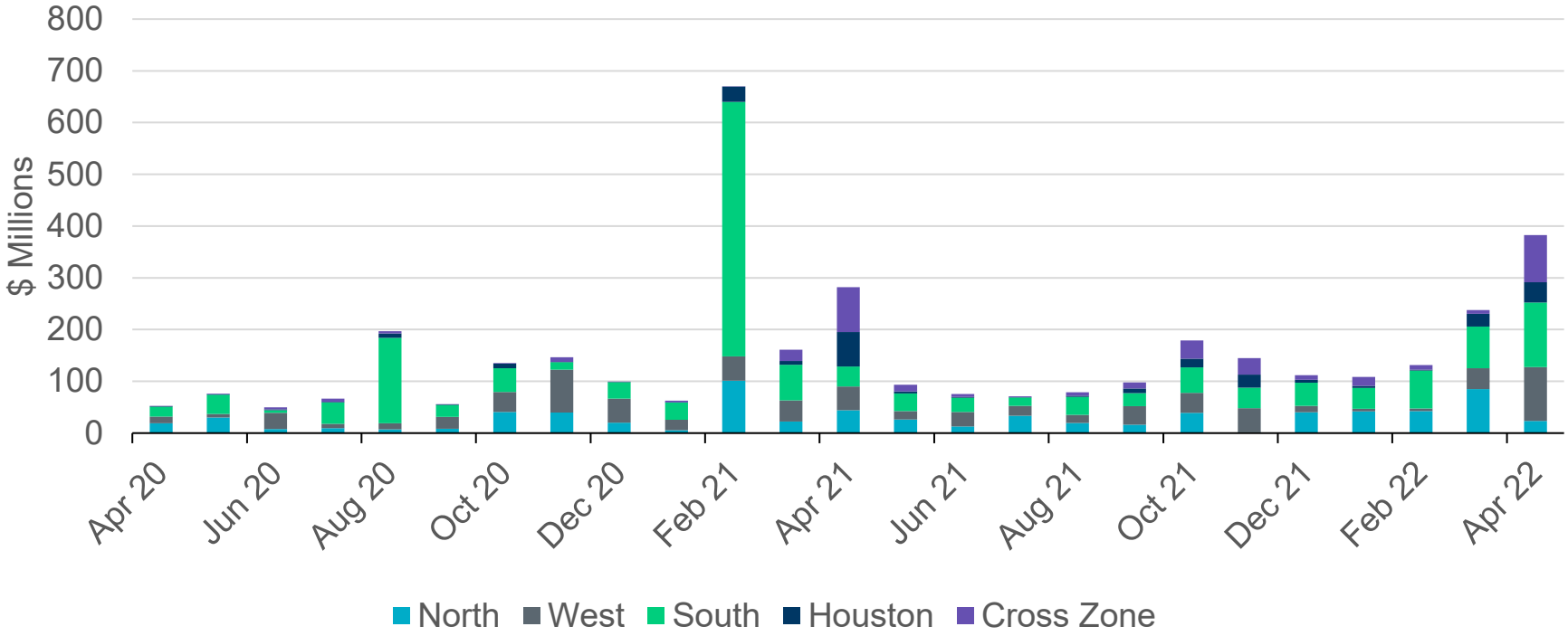
Forecast performance during large down ramp (wind ramp > 2000 MW) hours and high risk hours (historic risk of load ramping up and wind ramping down is high) is focused upon. Note that for the purposes of forecast performance measurement every hour in a month is classified as either a large down ramp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



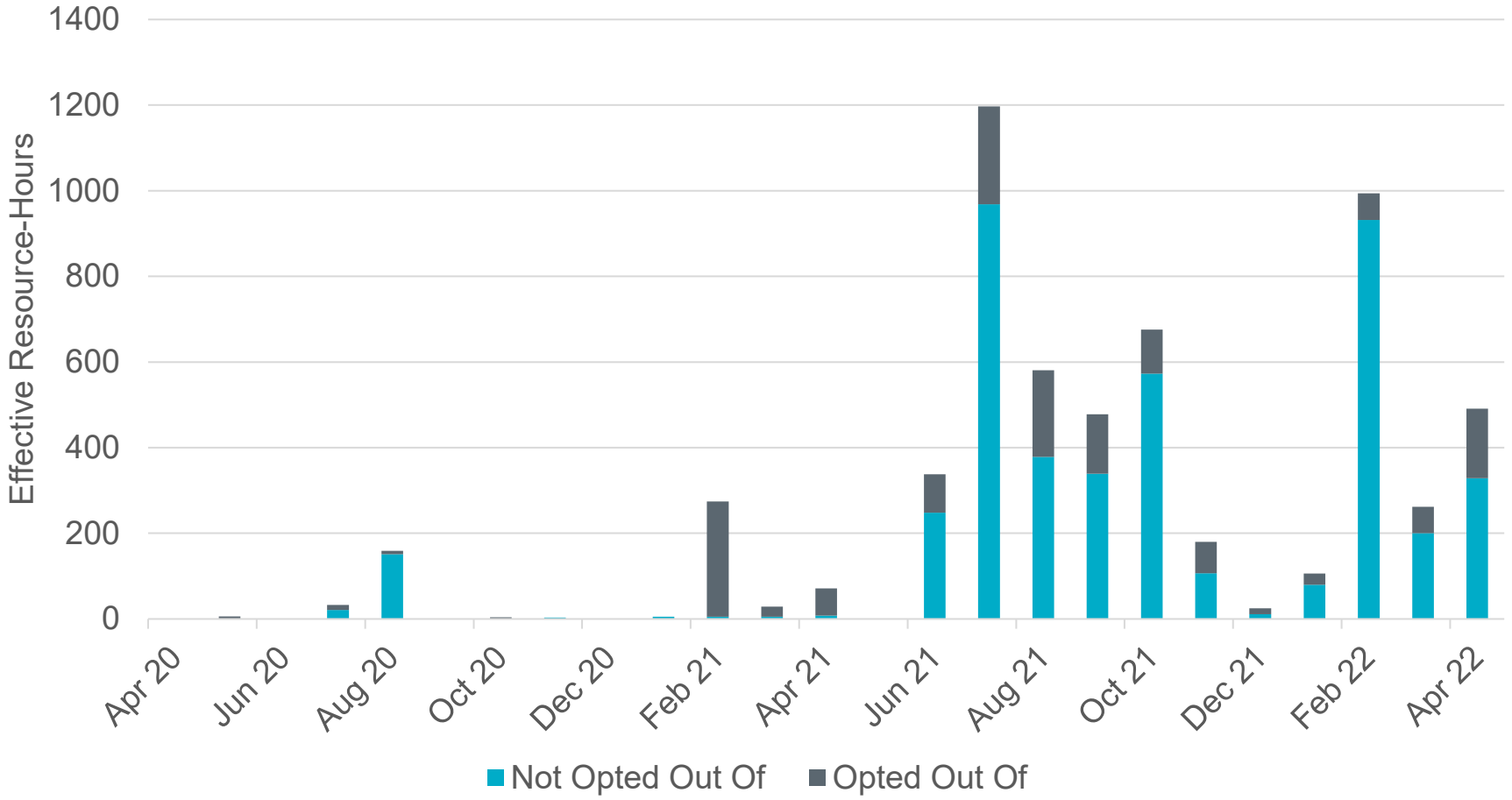
- COPs for IRRs are derived from wind and solar forecasts from ERCOT with any adjustments from Qualified Scheduling Entities.
- The installed capacity of approved Wind Units is 35,644 MW (as of April 30, 2022).
- The installed capacity of approved Solar Units is 10,668 MW (as of April 30, 2022).

Real-Time Congestion Rent by Zone



- Congestion rent in the West, South, Houston, and Cross Zones increased in April 2022 compared to March 2022.
- Congestion rent in the Cross Zone was primarily driven by the constraint BASE CASE: WESTEX. Congestion rent in the Houston Zone was primarily driven by the constraint SMDOPHR5: G138_10B_1.
- 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.

Forty Resources were Committed in April for Capacity, Minimum Run Time, and Congestion

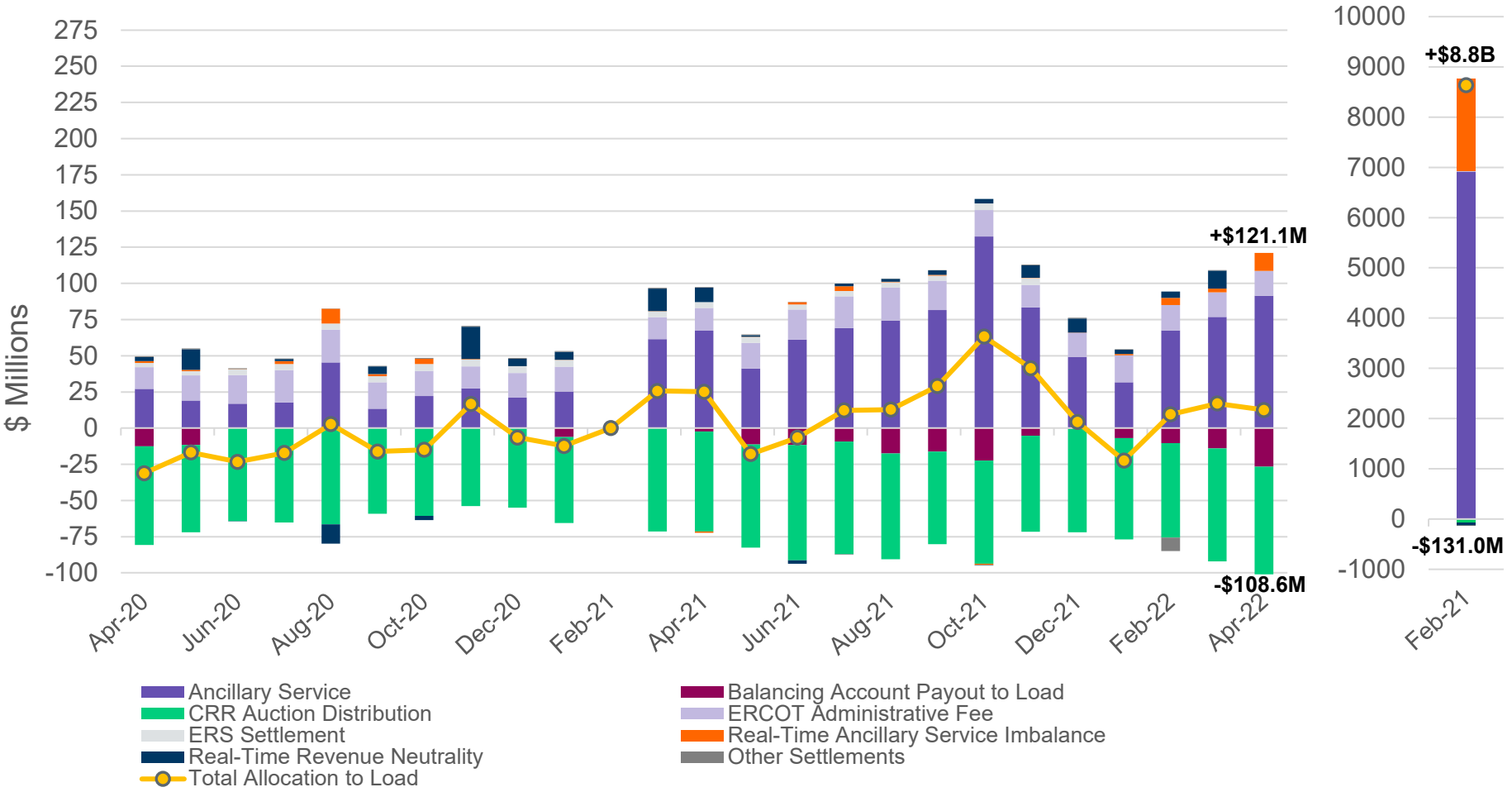


"Effective Resource-Hours" excludes any period during a Reliability Unit Commitment hour when the RUC-committed Resource was starting up, shutting down, off-line, or otherwise not available for dispatch by SCED.

Forty Resources were Committed in April for Capacity, Minimum Run Time, and Congestion

Resource #	Effective Resource-hours	Non Opt Out (Effective Hours)	Opt Out (Effective Hours)
1	5.9	5.9	0.0
2	10.0	0.0	10.0
3	6.0	0.0	6.0
4	20.0	14.0	6.0
5	12.0	12.0	0.0
6	15.9	15.9	0.0
7	3.9	3.9	0.0
8	9.0	9.0	0.0
9	7.0	0.0	7.0
10	5.0	5.0	0.0
11	13.0	6.0	7.0
12	2.0	0.0	2.0
13	5.6	5.6	0.0
14	6.0	6.0	0.0
15	9.6	9.6	0.0
16	9.0	9.0	0.0
17	15.0	8.0	7.0
18	41.3	25.6	15.7
19	39.6	30.6	9.0
20	3.0	0.0	3.0
21	6.0	6.0	0.0
22	5.0	5.0	0.0
23	41.0	36.1	4.9
24	15.6	10.7	4.9
25	25.9	13.0	12.9
26	6.0	6.0	0.0
27	14.6	14.6	0.0
28	0.9	0.9	0.0
29	12.0	12.0	0.0
30	3.0	3.0	0.0
31	4.9	4.9	0.0
32	13.3	13.3	0.0
33	15.2	7.2	8.0
34	8.0	5.0	3.0
35	23.0	6.0	17.0
36	11.0	4.0	7.0
37	21.0	0.0	21.0
38	11.0	0.0	11.0
39	6.6	6.6	0.0
40	8.2	8.0	0.2
Total	491.0	328.4	162.6

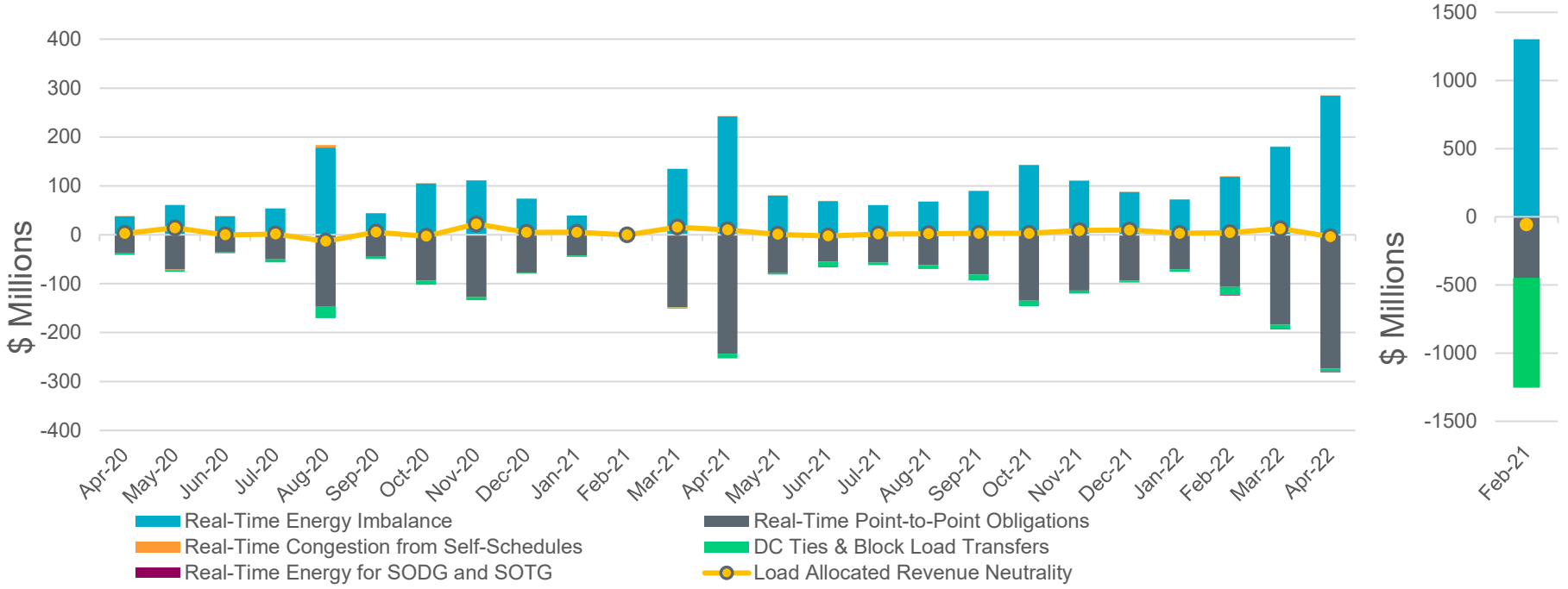
Net Allocation to Load in April 2022 was $12.5 Million



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.

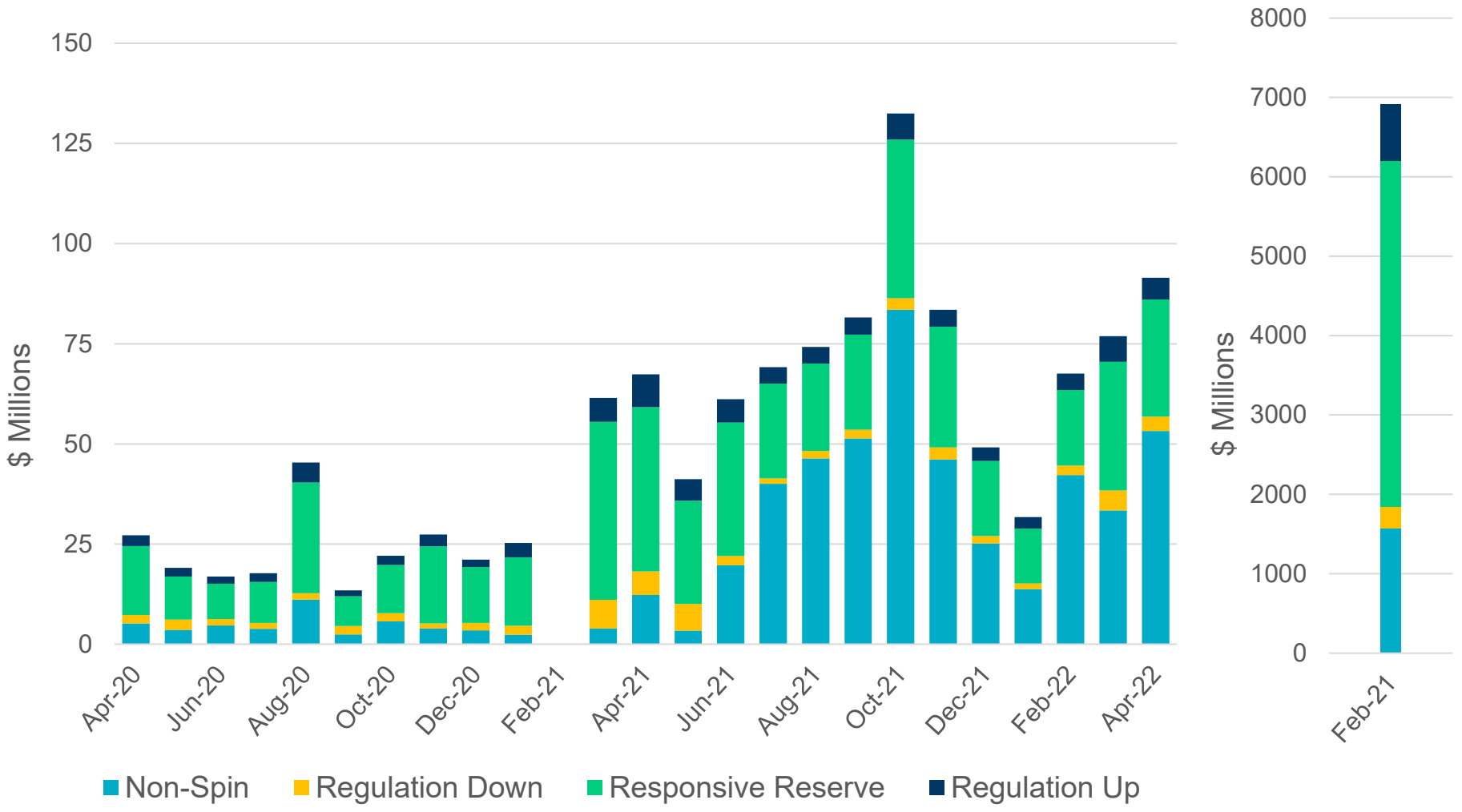
Real-Time Revenue Neutrality Allocated to Load was ($3.77M) for April 2022



	April 2022 ($M)
Real-Time Energy Imbalance	$284.30
Real-Time Point-to-Point Obligation	($273.76)
Real-Time Congestion from Self-Schedules	$0.52
DC Tie & Block Load Transfer	($5.50)
Real-Time Energy for SODG and SOTG	($1.79)
Load Allocated Revenue Neutrality	**($3.77)**

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 April 2022 totaled $91.46M



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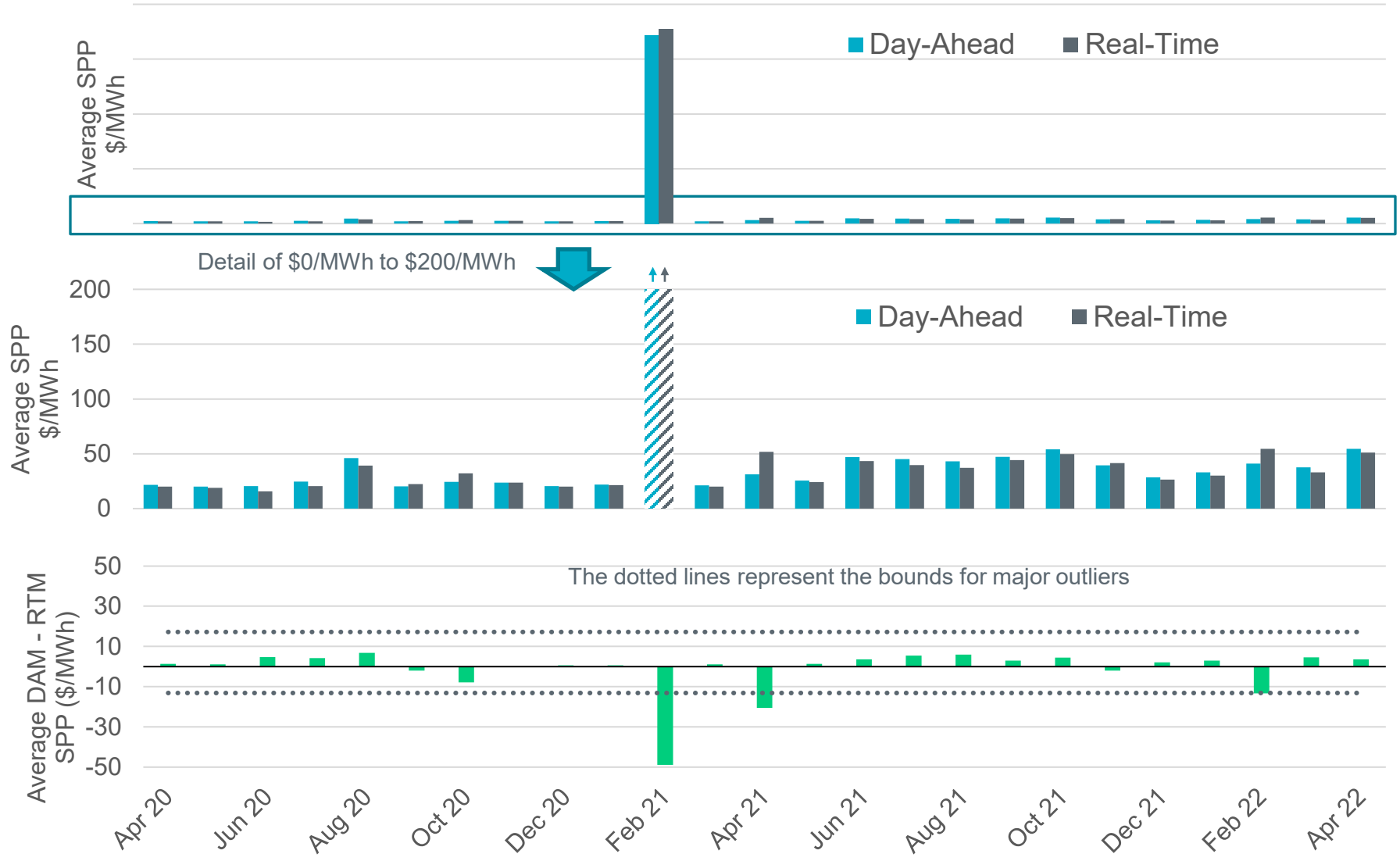
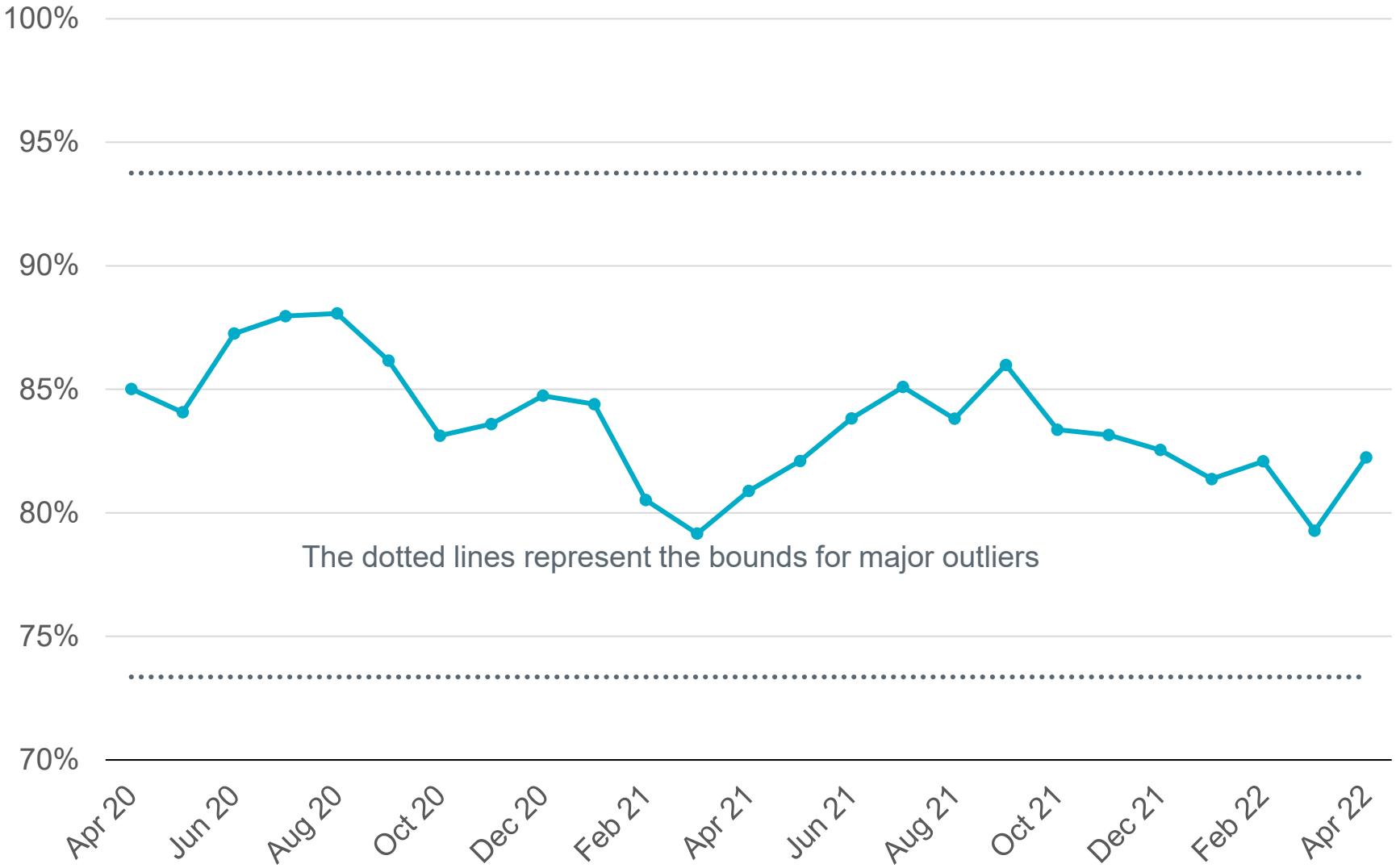
Day-Ahead and Real-Time Market Price Differences

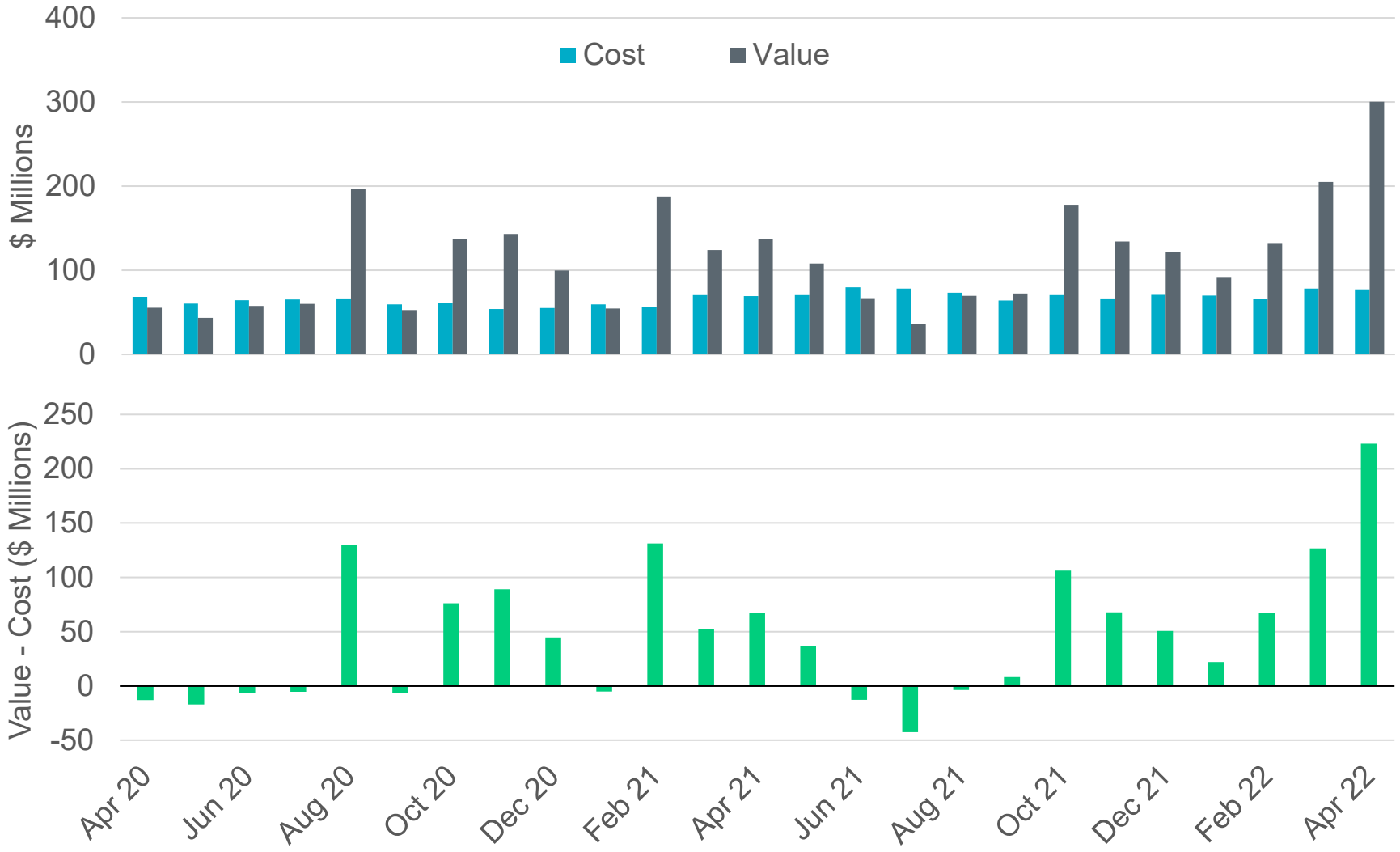


*Averages are weighted by Real-Time Market Load

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



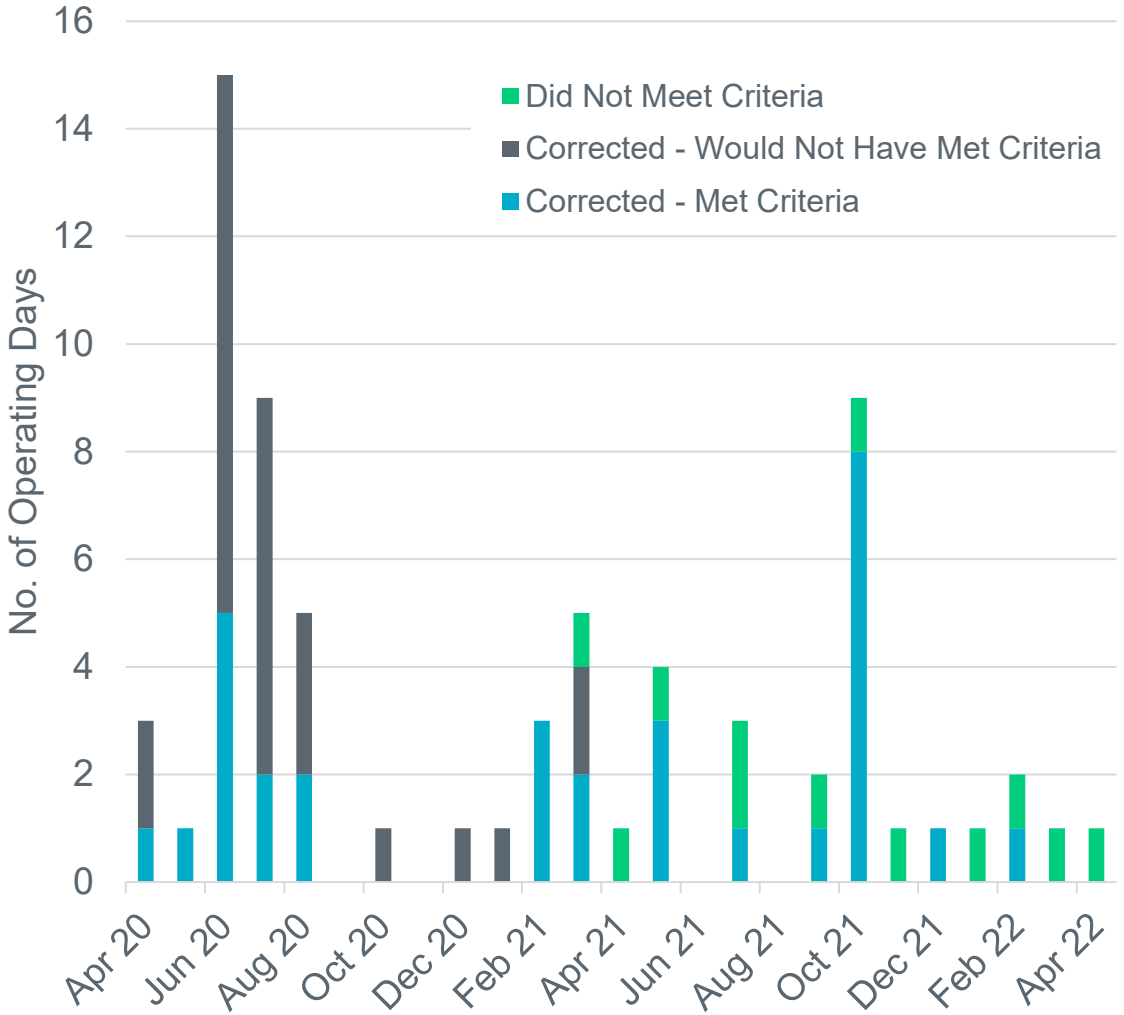
CRR Value and Cost Differences



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.



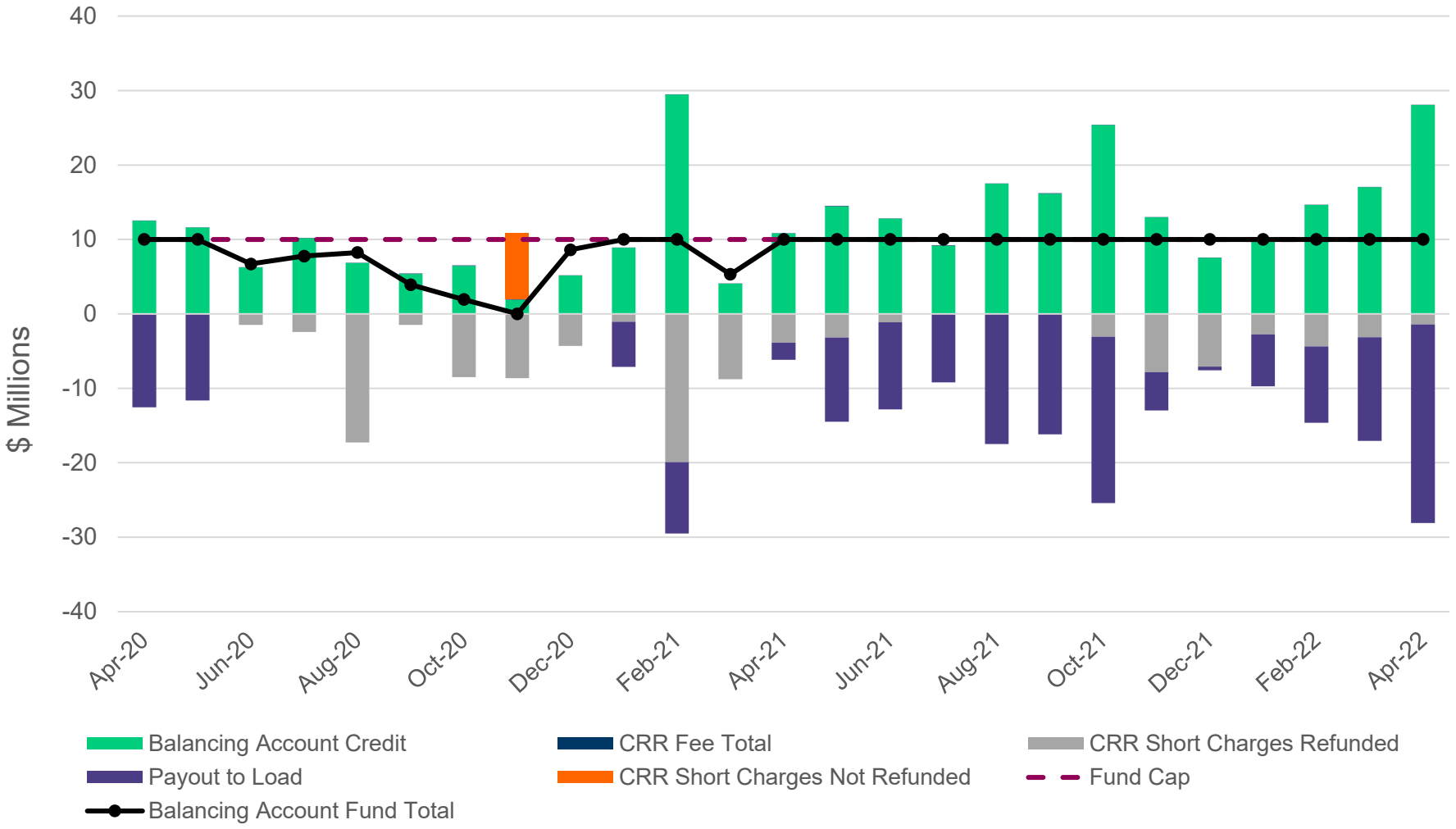
Details on Price Issues not Meeting the Criteria for Significance

Operating Day April 3, 2022

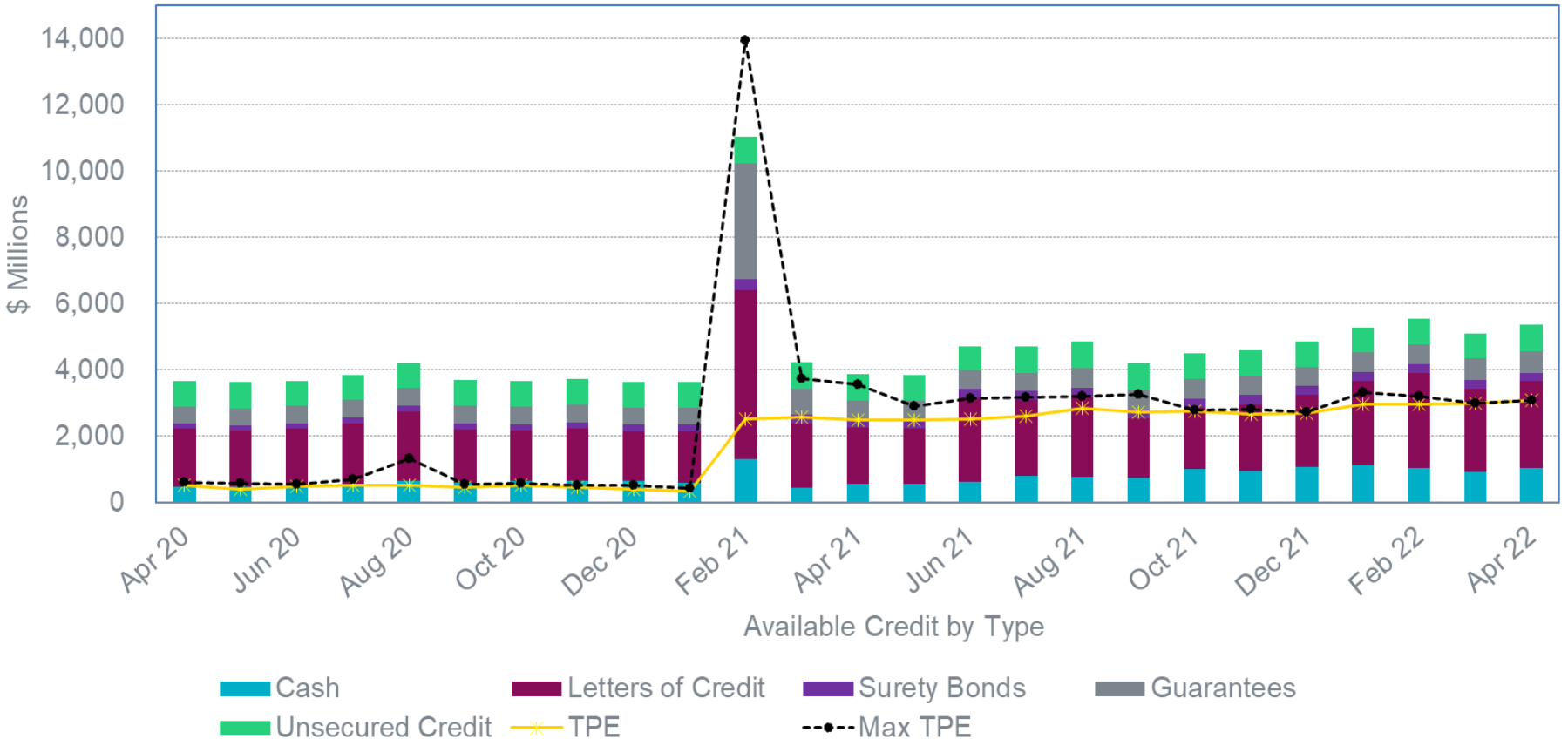
- The price issue was driven by a software issue which caused multiple SCED runs delayed.

- Impacts were minor and specific to Real-Time Prices for Energy Metered for Resources (RTRMPRs).
  - The total dollar impact was estimated as around $411 which was less than the required $500 threshold for price correction.

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 – April 2022

	Year-To-Date		Transactions Received	
Transaction Type	April 2022	April 2021	April 2022	April 2021
Switches	450,938	550,063	128,697	132,428
Acquisitions	0	48,862	0	0
Move - Ins	947,134	869,284	247,896	220,732
Move - Outs	415,638	399,272	109,452	101,903
Continuous Service Agreements (CSA)	198,926	266,550	46,895	57,719
Mass Transitions	0	20,412	0	0
Total	2,012,636	2,154,443	532,940	512,782