



Item 6: Summer 2022 Operational and Market Review

Dan Woodfin

Vice President, System Operations

Kenan Ögelman

Vice President, Commercial Operations

Board of Directors Meeting

ERCOT Public

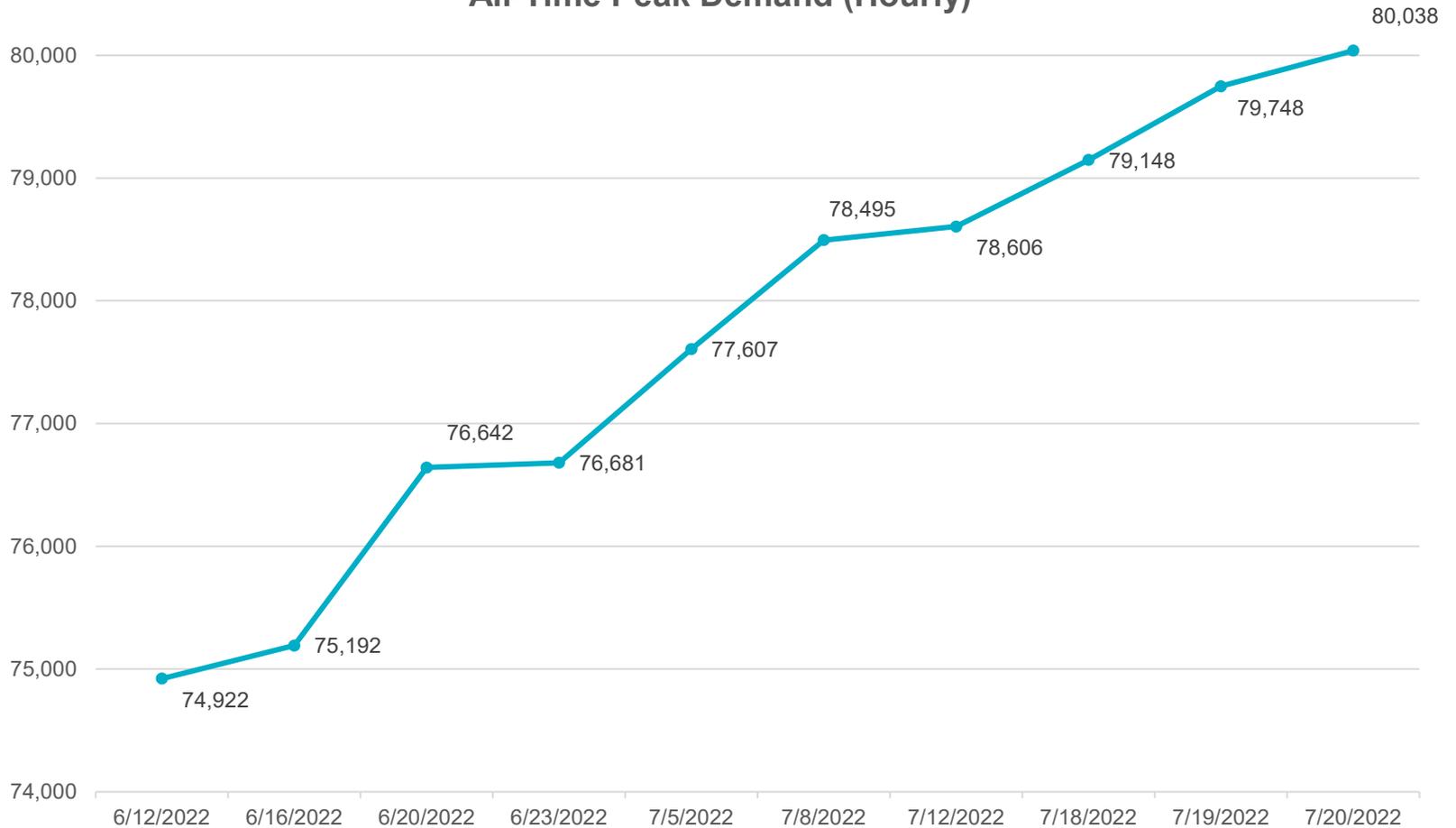
October 18, 2022

Key Observations for Summer 2022

- Weather
 - June-August 2022 was the second hottest on record for the state of Texas, with only 2011 being hotter (Period of record: 1895-current). The average Texas temperature for the June-August 2022 period was 84.8°. 2011 saw an average temperature of 86.8° over Texas.
 - The June-August period was the 39th driest on record. 2011 was the 1st driest. June-August 2022 ranks as the 5th driest this century. An average of 6.58 inches of rainfall fell over Texas during this period, compared to 2.46 inches in June-August 2011.
- The current all-time peak demand record of 80,038 MW was set on July 20 between 4 and 5 p.m.
 - New unofficial weekend peak demand record of 77,359 MW occurred on July 9 (Saturday) between 5 and 6 p.m.
- Wind and solar outputs were higher than in 2021 including the impact of additional installed capacity.
- There were several days with tight conditions, but no Energy Emergency Alerts (EEAs) were declared.

All-Time Peak Demands

All-Time Peak Demand (Hourly)



Daily Peak Hour Demands

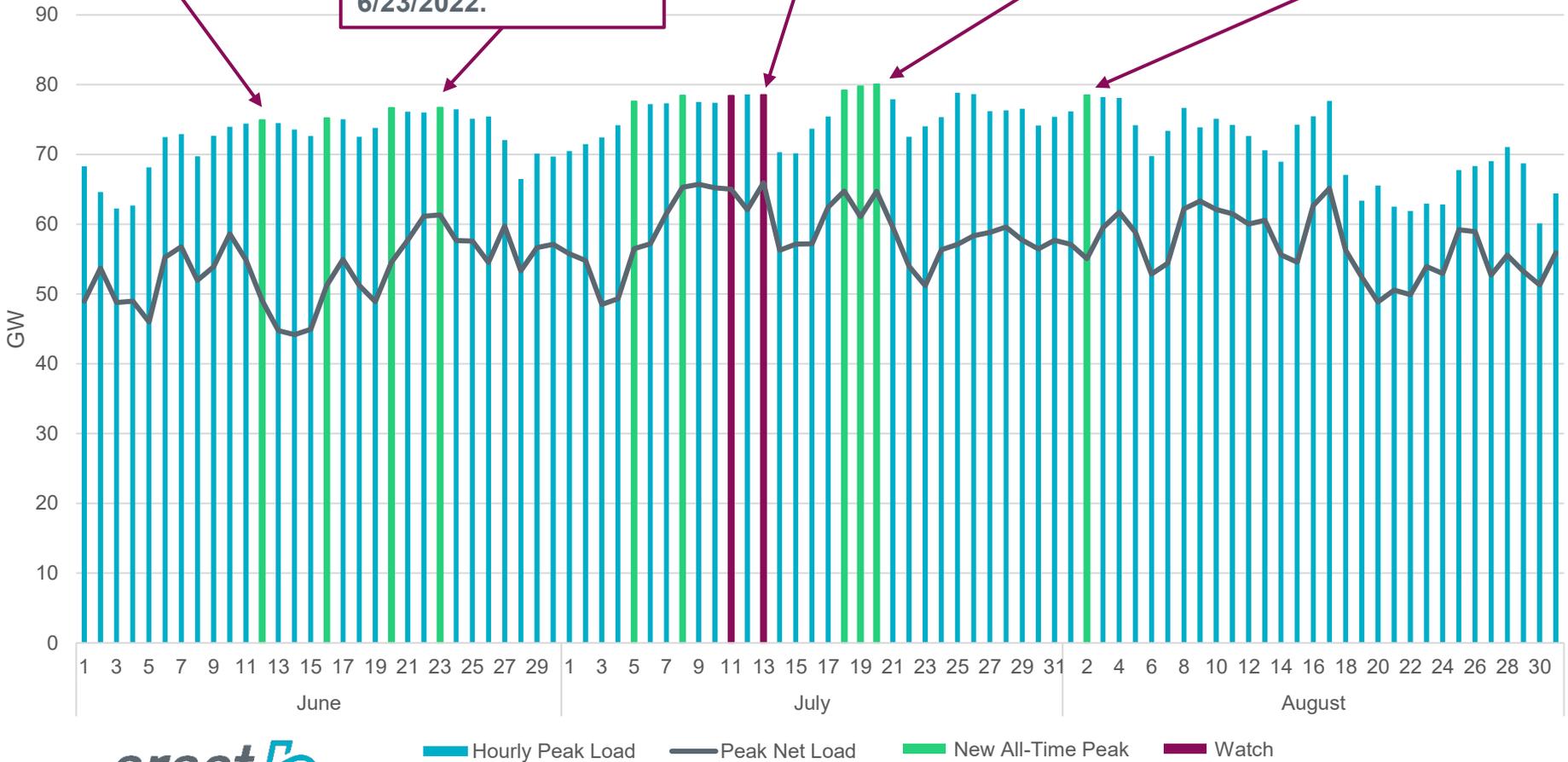
June hit a first new all-time peak demand record of 74.9 GW on 6/12/2022

June continued to hit new peak demands, having the highest record for the month with 76.7 GW on 6/23/2022.

7/13/2022 was the tightest day during Summer 2022

7/20/2022 hit an all-time peak demand record of 80 GW

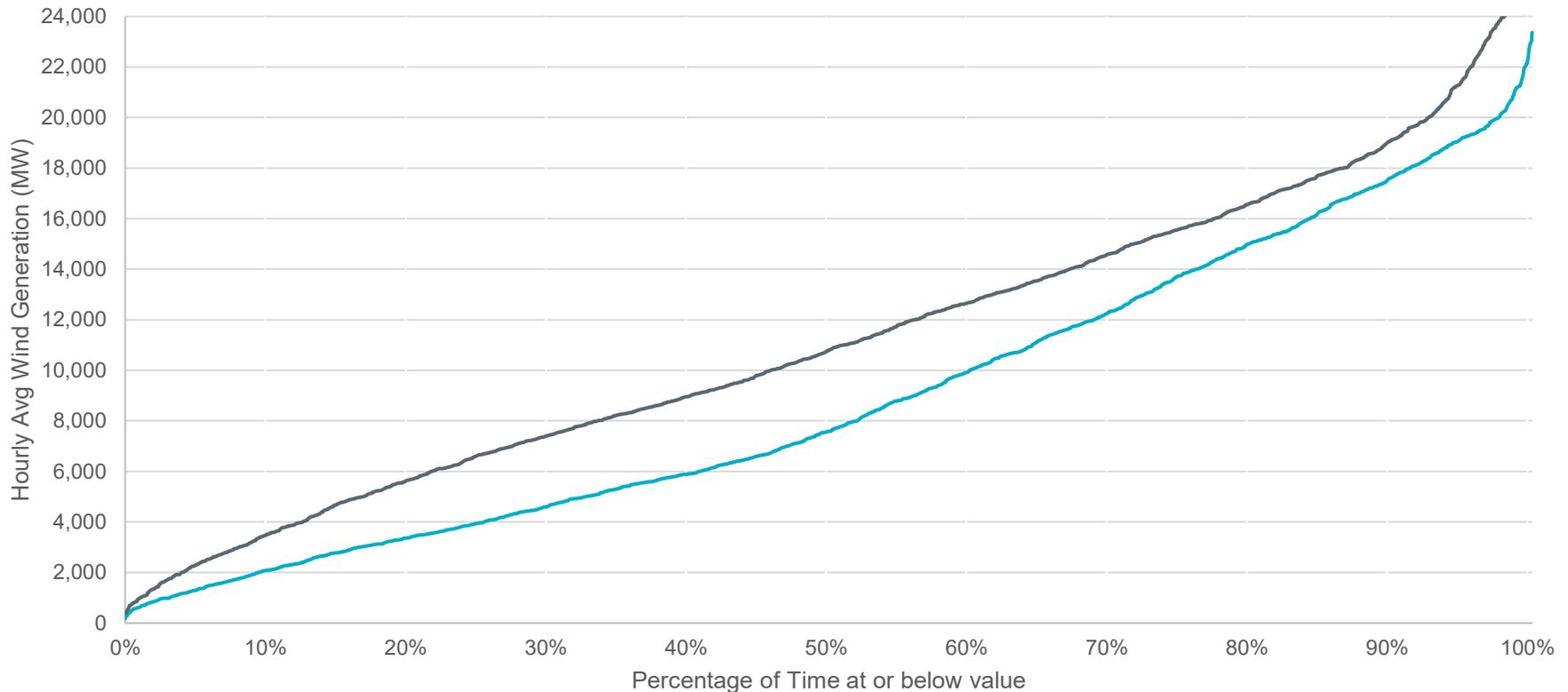
August peak demand occurred on 8/2/2022 with 78.5 GW



Hourly Peak Load Peak Net Load New All-Time Peak Watch

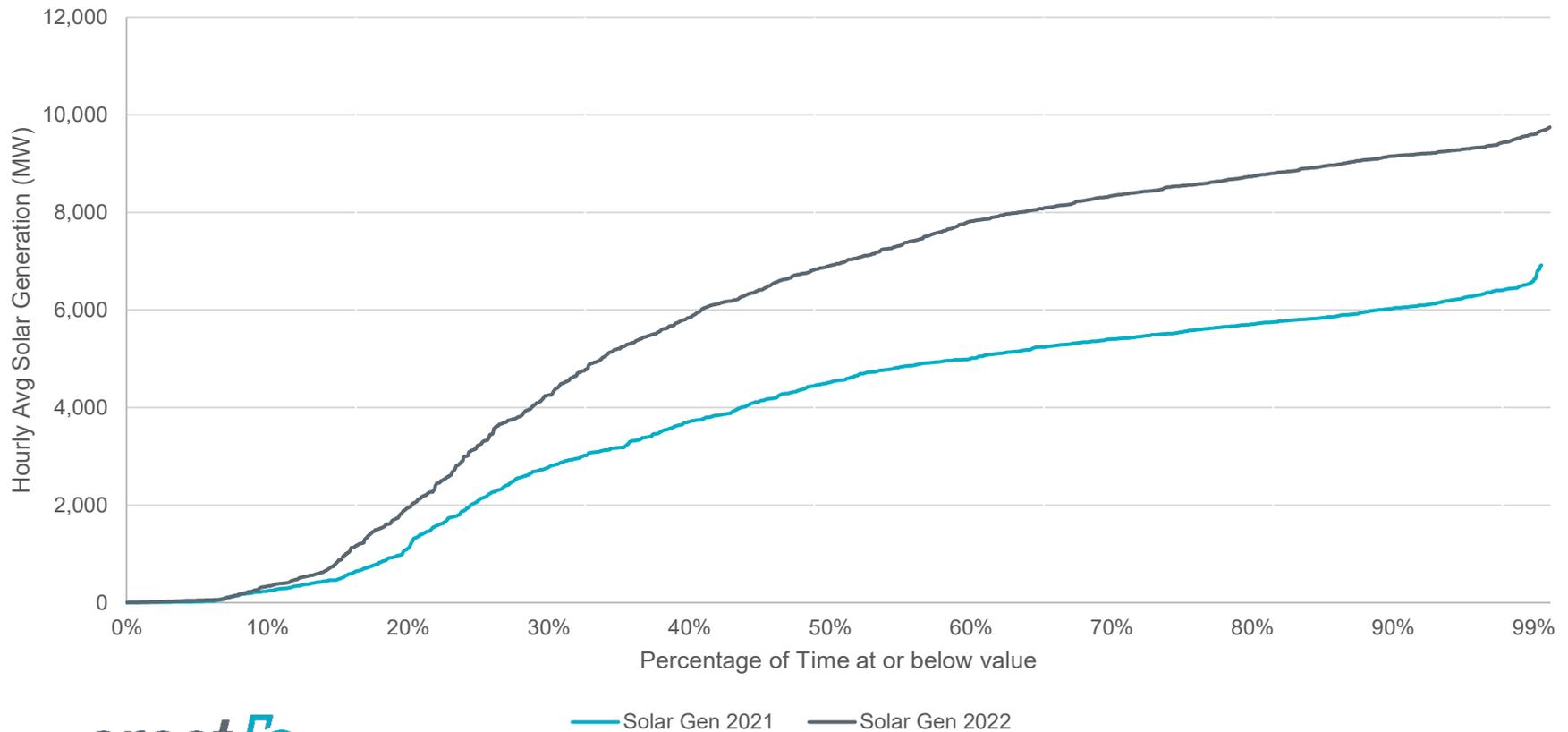
Hourly Average Wind Generation

- ERCOT had approximately 3,750 MW of additional installed wind capacity going into summer 2022 compared to 2021.
- Hourly wind generation in summer 2022 was higher than in summer 2021 for all percentiles.



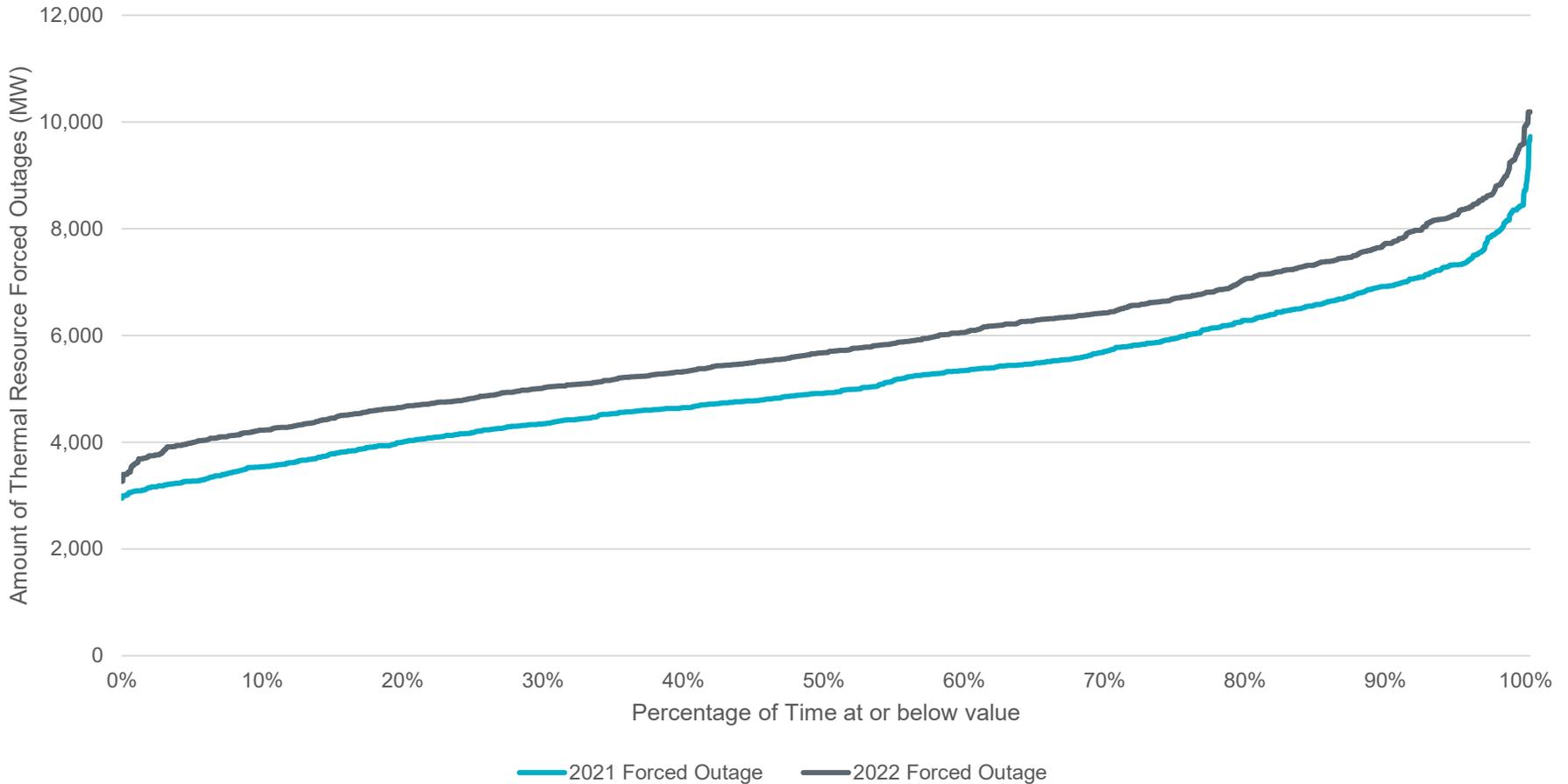
Hourly Average Solar Generation

- ERCOT had approximately 4,100 MW of additional installed solar capacity going into summer 2022 compared to 2021.
- Hourly solar generation in summer 2022 was higher than in summer 2021 for nearly all percentiles.



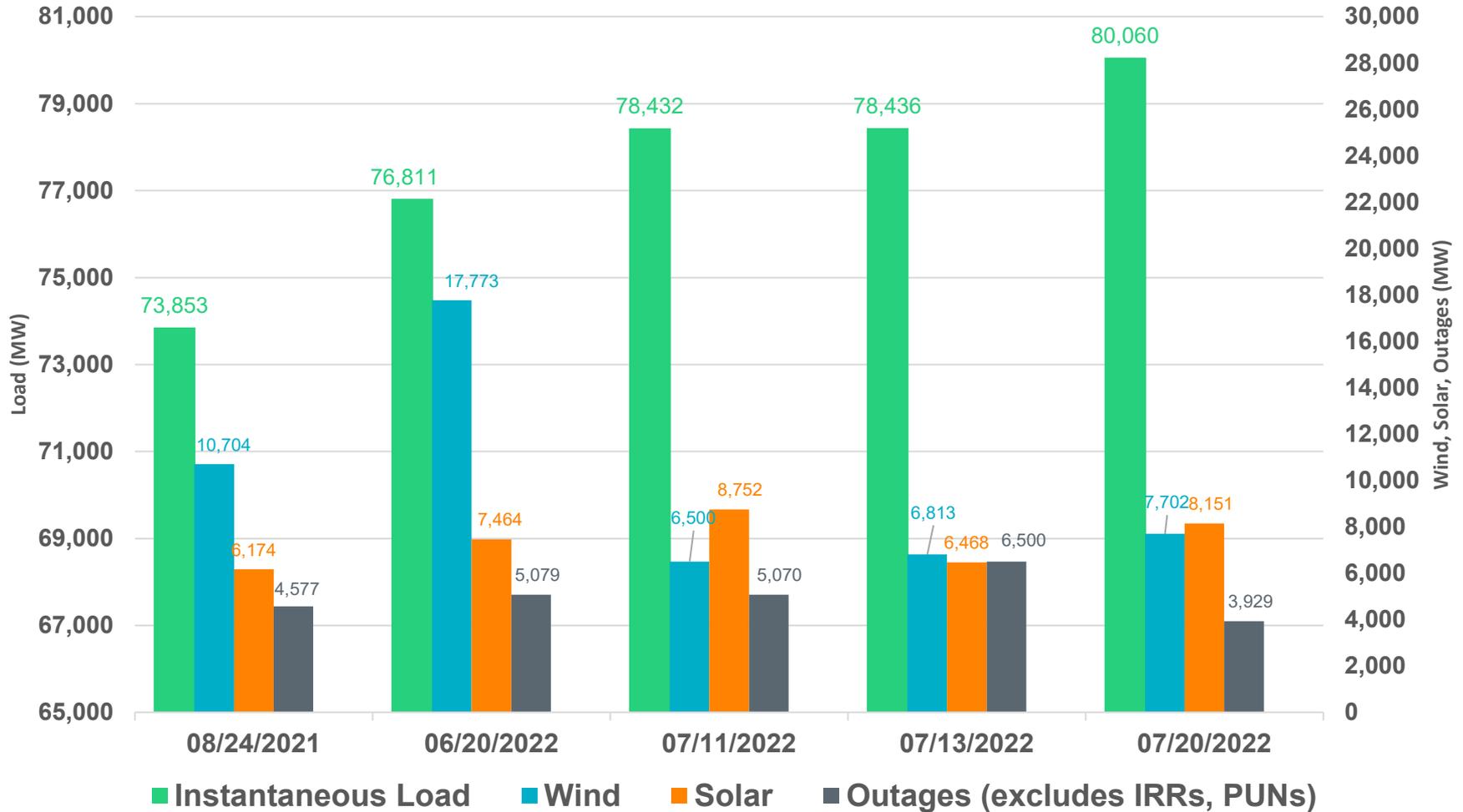
Thermal Capacity Unavailable Due to Forced Outages

- The cumulative amount of thermal resource capacity that was unavailable due to a forced outage in summer 2022 was higher than in summer 2021.



Instantaneous Load, Wind, Solar and Outages at Peak

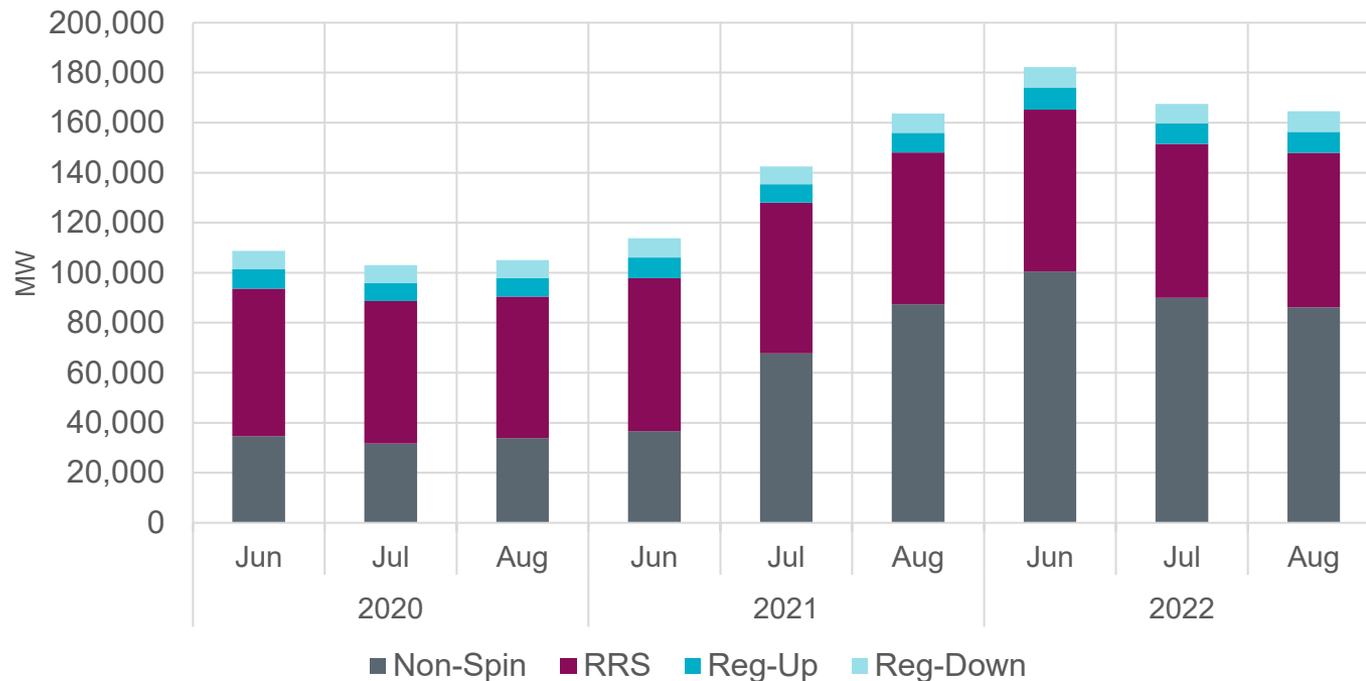
2021 Peak New June Peak Issued Watch Day Tightest Day in 2022 2022 Peak



Increase in Ancillary Service quantities

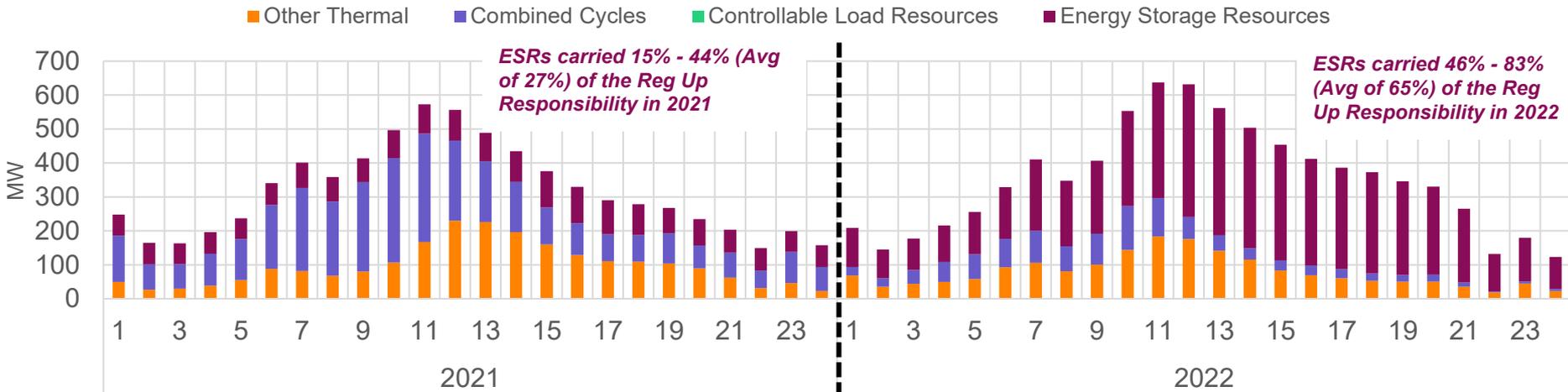
- Beginning July 12, 2021, Ancillary Service quantities were increased to better capture the risk associated with expected operating conditions. This practice continued going into summer 2022.

Daily Average Ancillary Services Quantities in Summer

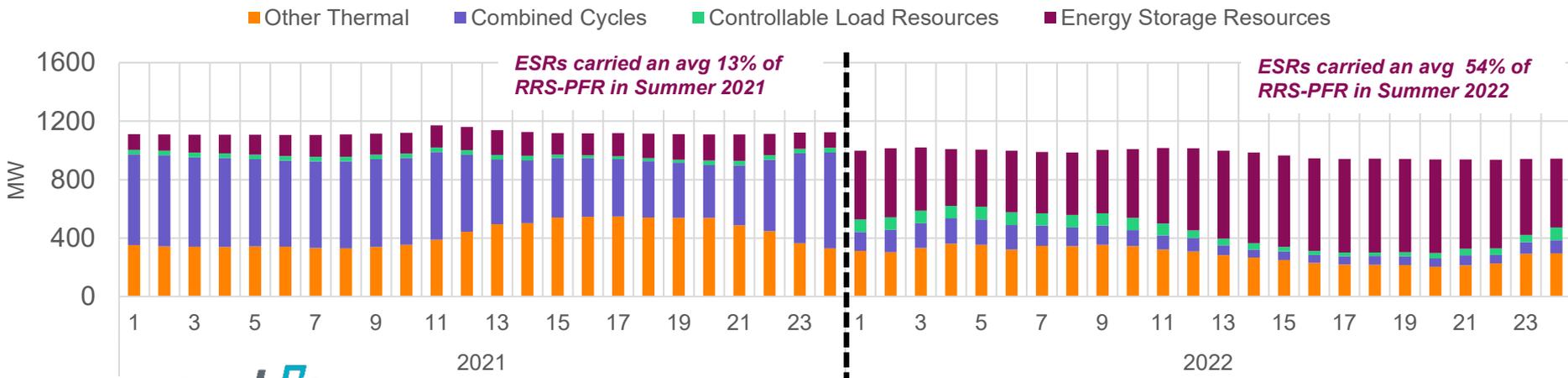


Regulation Up and Responsive Reserves provided by Energy Storage Resources in Summer Months (June through August)

Average Regulation Up Responsibility in Summer Months by Resource Type

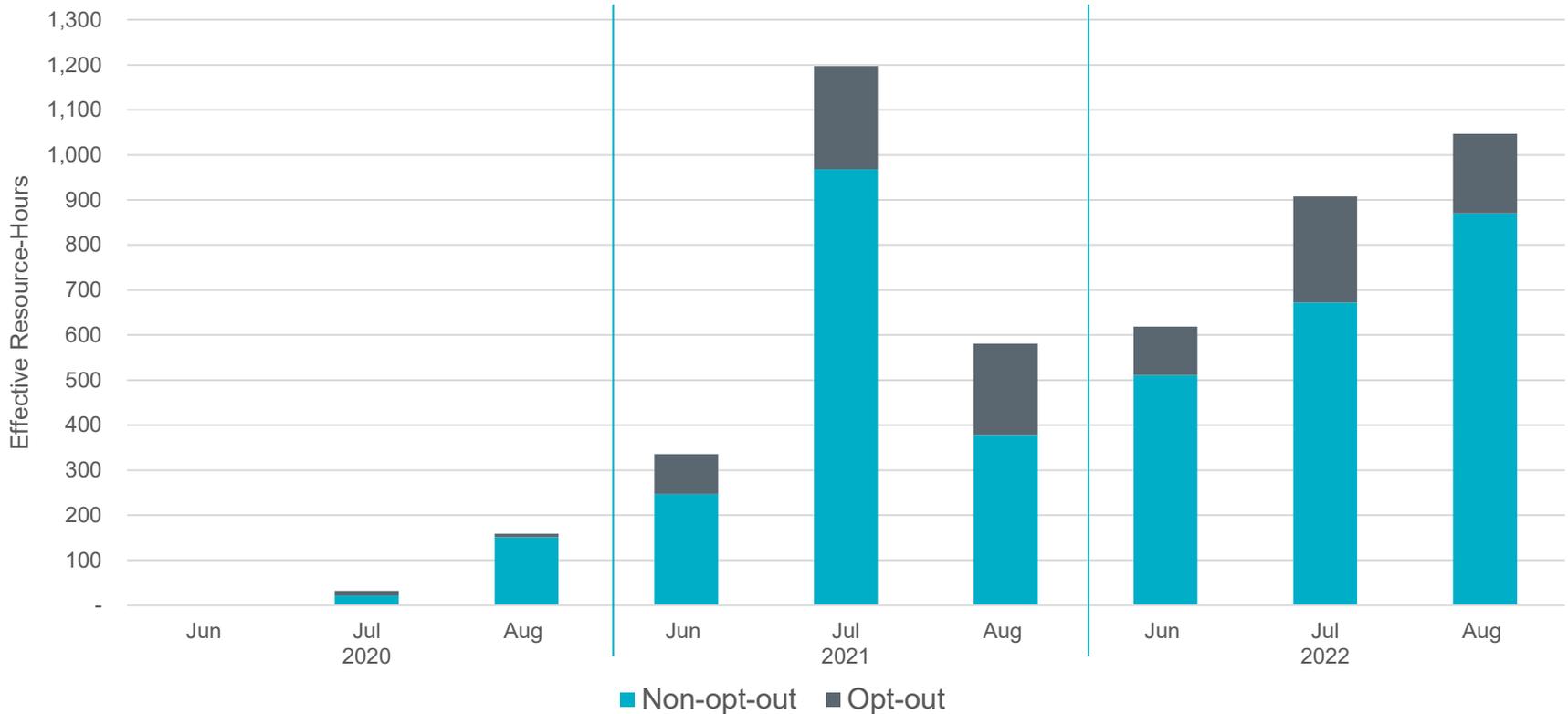


Responsive Reserve Service (RRS) from Primary Frequency Response (PFR) Responsibility in Summer by Resource Type



Resources Committed Through RUC

- There were 2,573 total RUC effective Resource-hours in summer 2022, which was higher than the 2,114 Resource-hours during summer 2021.
- 42 unique Resources were committed through Reliability Unit Commitment (RUC) from June to August 2022. This was slightly fewer than the 51 unique Resources committed during summer 2021.

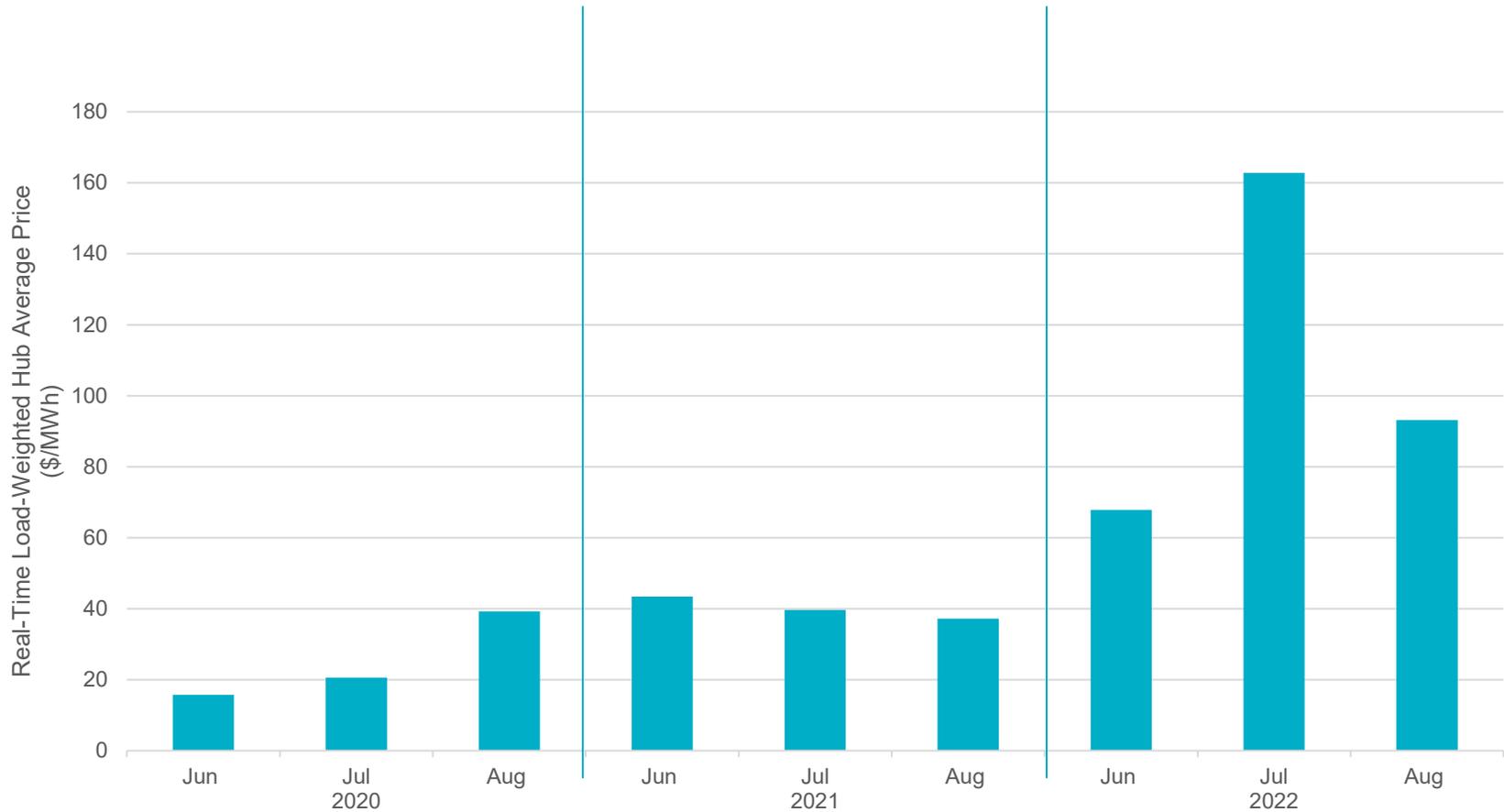


“Effective Resource-hours” excludes any period during a RUC-instructed hour when the committed Resource was starting up, shutting down, off-line, or otherwise not available for dispatch by SCED.



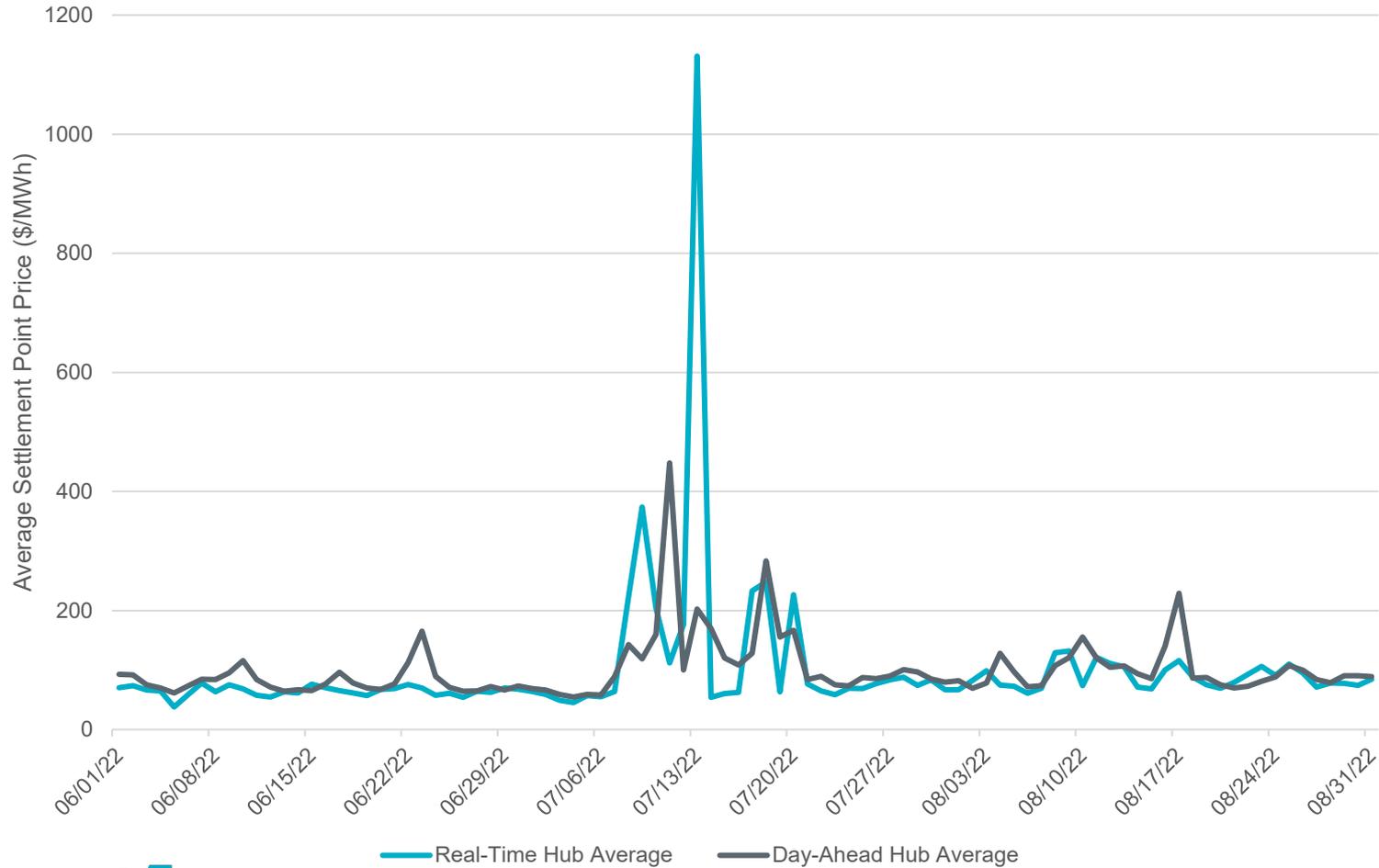
Real-Time Hub Price

- Real-Time Load-Weighted Hub Average prices in summer 2022 were higher than during the previous two summers.



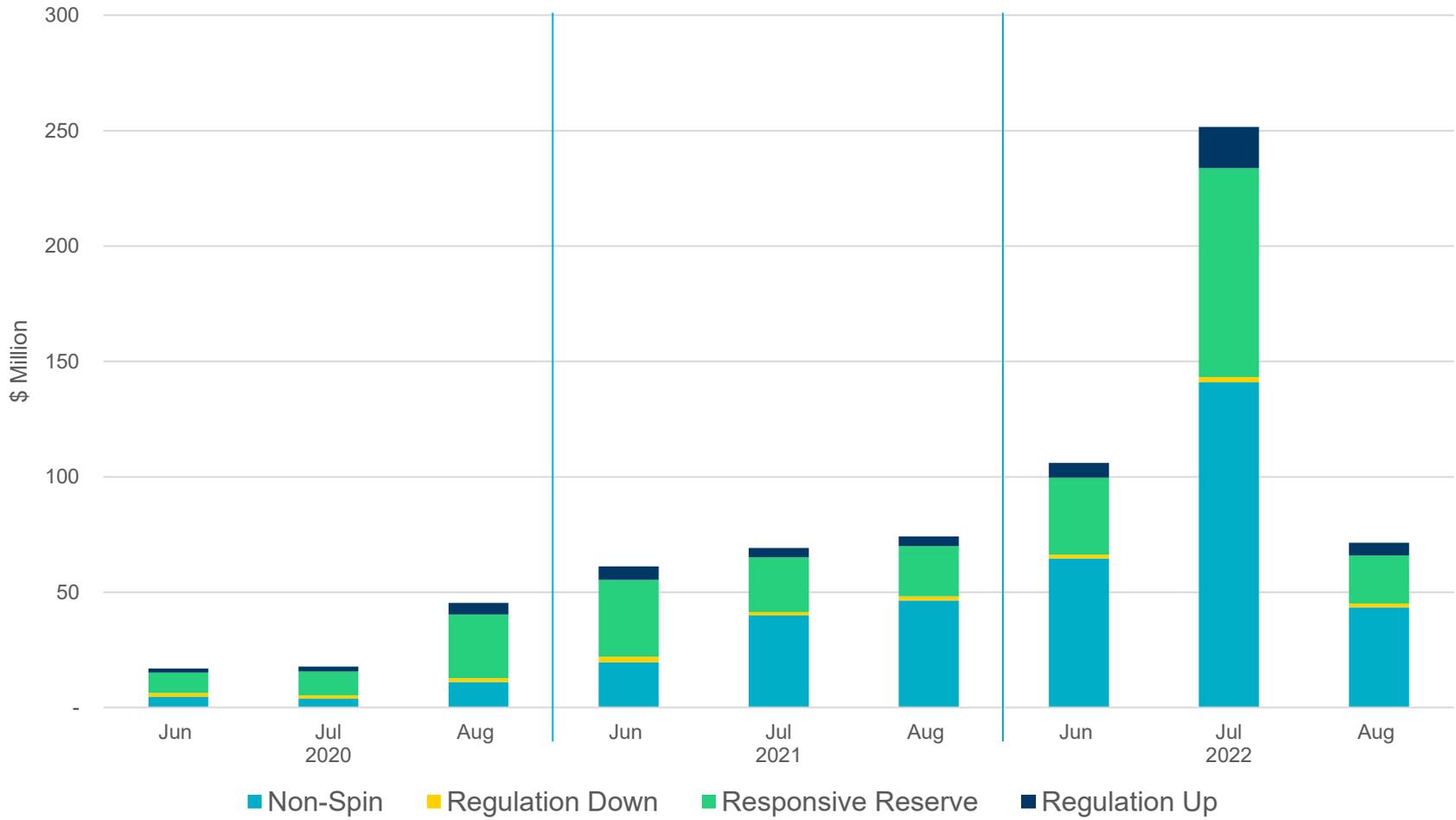
Daily Unweighted Average DAM and RTM Prices

- Day-Ahead and Real-Time Market price convergence remained within a normal range during summer 2021.

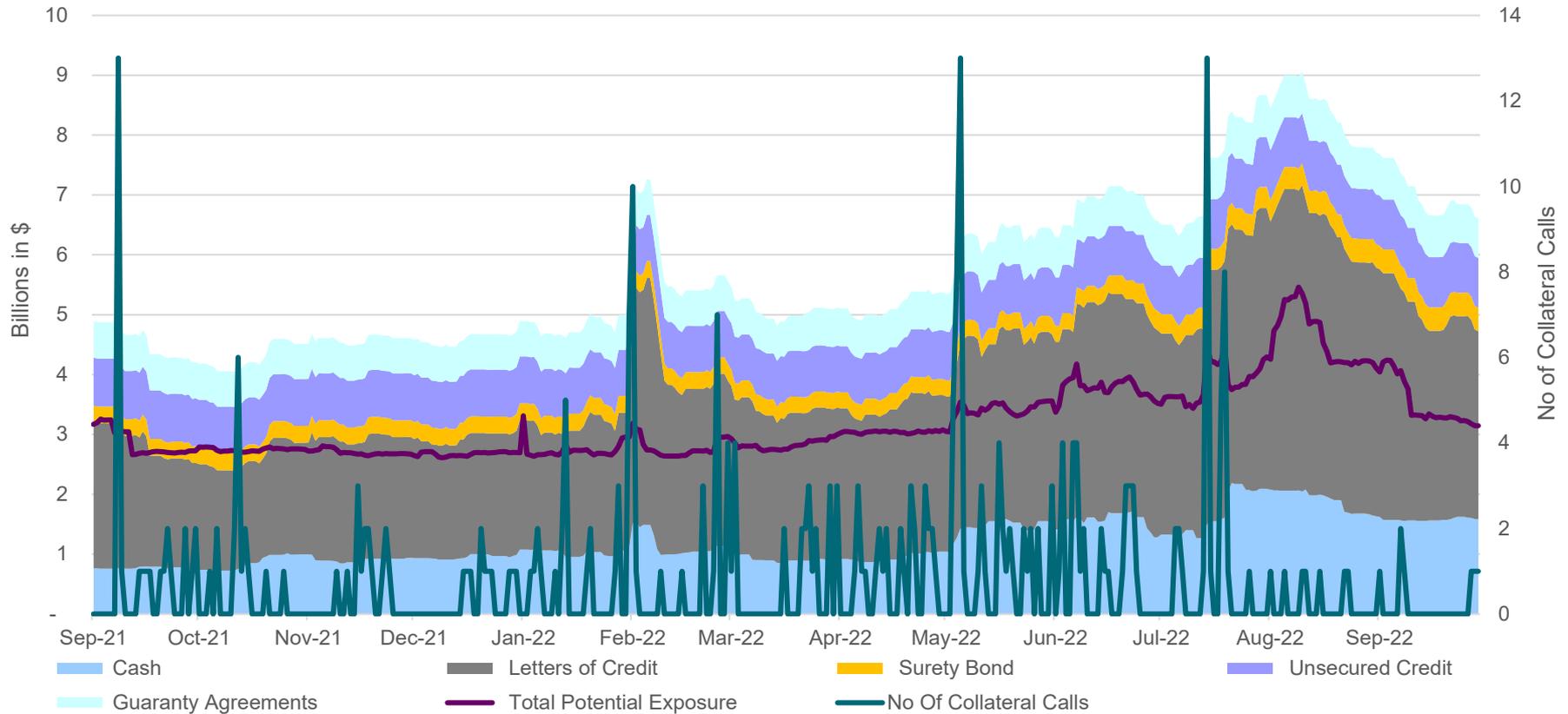


Cost for Ancillary Services

- Ancillary Service costs in summer 2022 were higher than for the previous two summers.



Total Potential Exposure, Collateral and Collateral Calls September 2021 – September 2022



Appendix

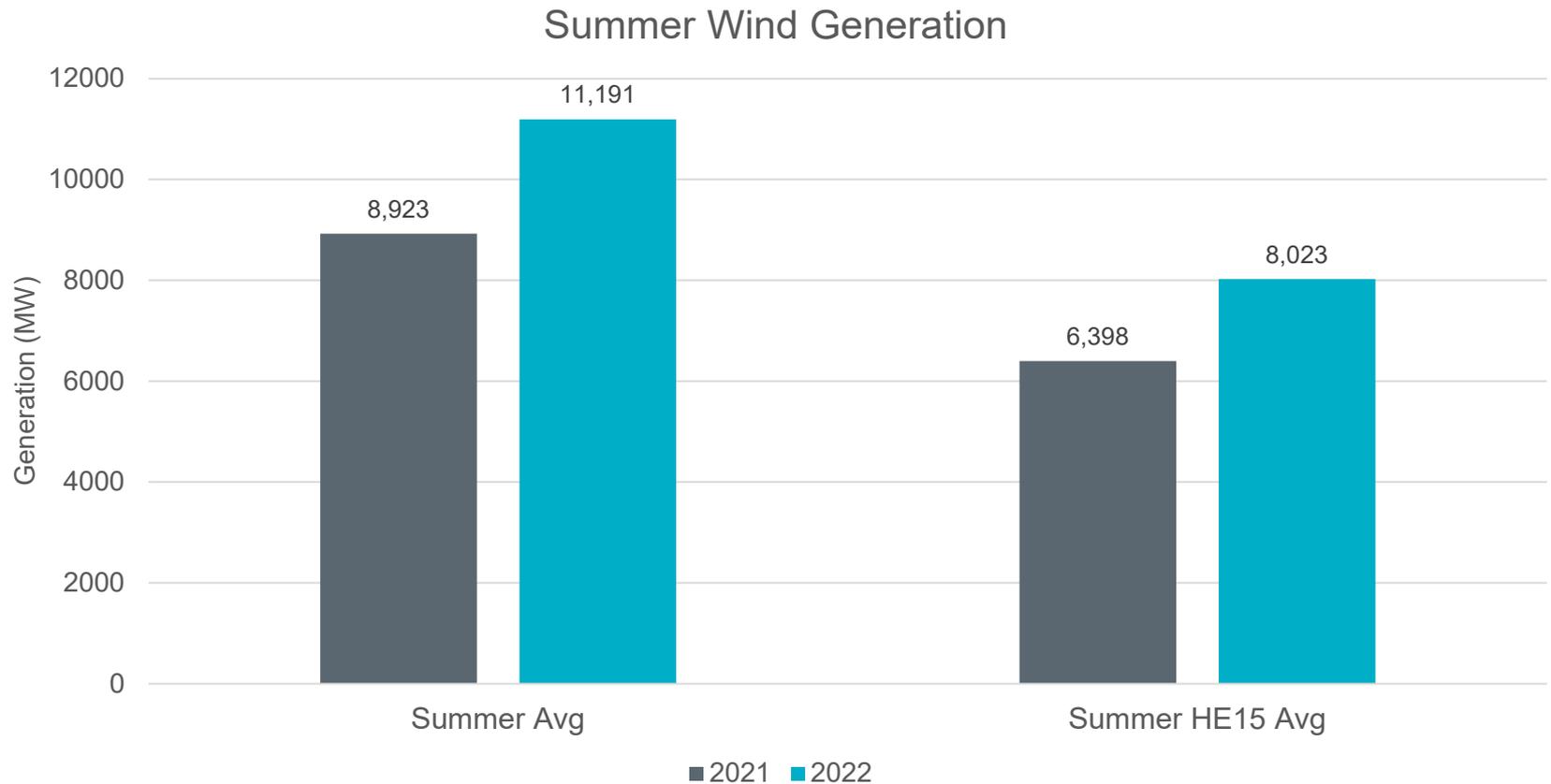
Preliminary Estimate of Aggregate Demand Response (DR)

Date	7/12	7/13	7/19	7/20	7/21
Aggregate DR Impact	2300	2700	2400	2750	2750

- Estimate based on comparison of load shape to non-DR day load shape and load forecast model backcast
- This DR would include 4CP, price response, other load management programs, voluntary conservation, deployment of ERS and distribution voltage reduction
- Impact of Freeport LNG outage is removed

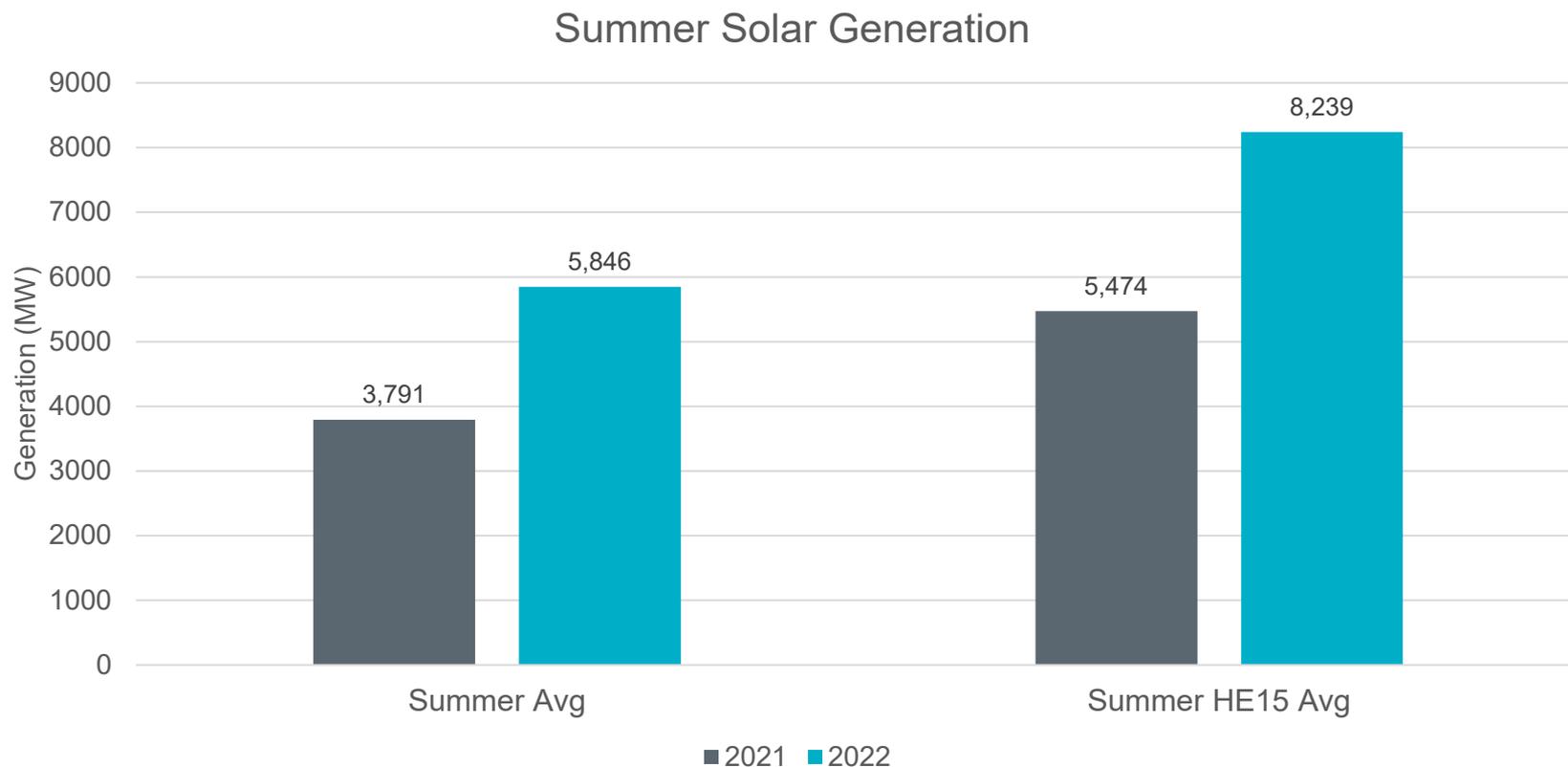
Hourly Average Wind Generation

- ERCOT had approximately 3,750 MW of additional installed wind capacity going into summer 2022 compared to summer 2021.
- During peak net load hour (HE 15), wind generation averaged 8,023 MW in summer 2022 as compared to 6,398 MW in summer 2021.



Hourly Average Solar Generation

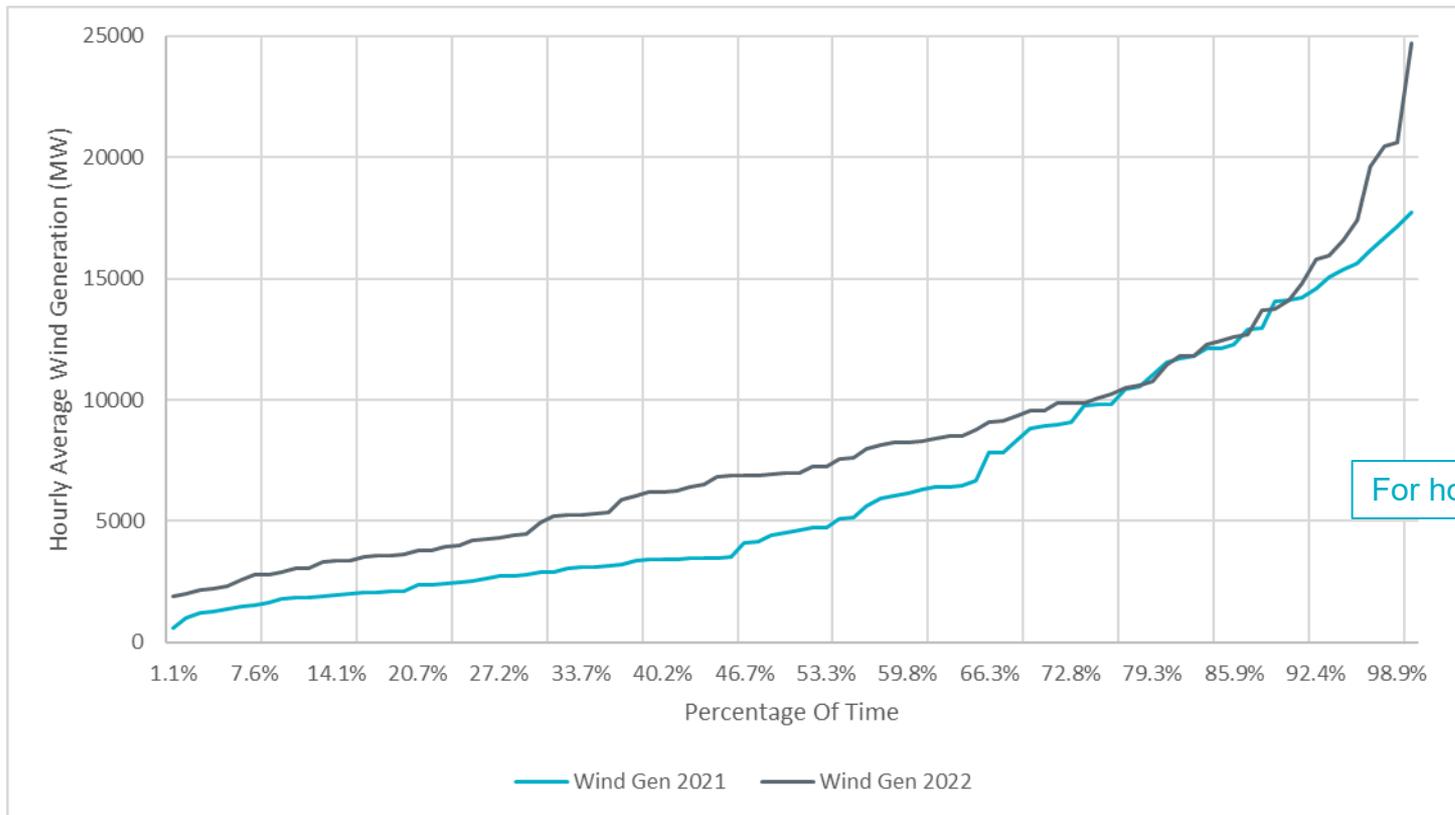
- ERCOT had approximately 4,100 MW of additional installed solar capacity going into summer 2022 compared to summer 2021.
- During peak net load hour (HE 15), solar generation averaged 8,239 MW in summer 2022 as compared to 5,474 MW in summer 2021.



Averages only include hours with >5MW solar generation

Hourly Average Wind Generation – Hour Ending 15

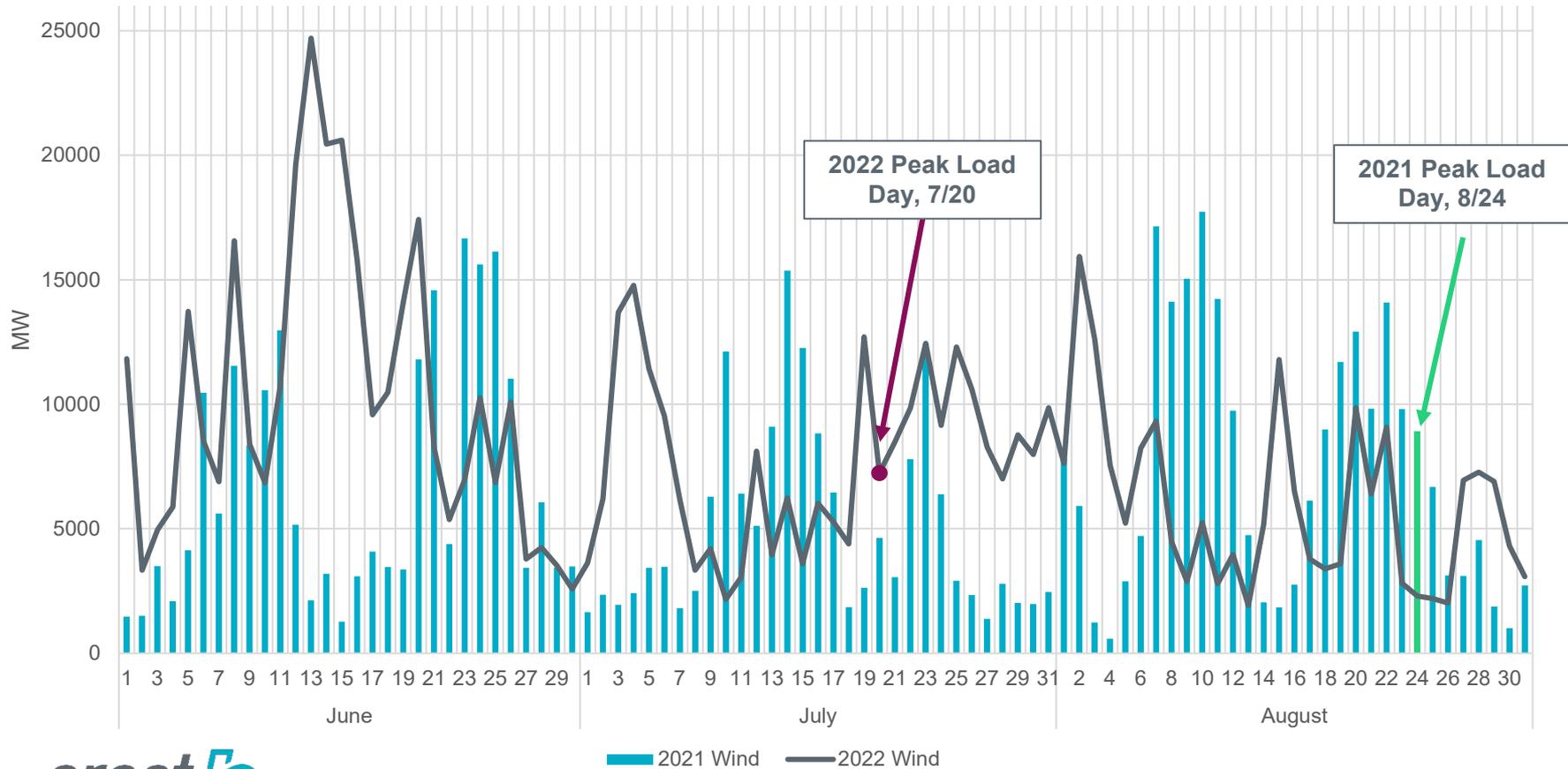
- Hourly wind generation in summer 2022 was larger than in summer 2021 for low-medium and high percentiles (during HE 15).



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- ERCOT had approximately 3,750 MW of additional installed wind capacity going into summer 2022 compared to 2021.
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For hour ending 15:00



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