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Item 12: Summer 2025 Operational and Market Review

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Board of Directors Meeting

September 22-23, 2025

- **Purpose**
  Provide an Operational and Market review of Summer 2025

- **Voting Items / Questions for the Board**
  No action is requested of the ERCOT Board; for discussion

Key Takeaways

- Milder weather paired with solar growth outpacing large load additions helped make the daytime hours this summer uneventful.
- There was a consistently high volume of forced thermal outages which led to a larger discharge of Energy Storage Resources (ESRs) during some evenings.
- Both Energy and Ancillary Service costs were close to Summer 2024 and much lower than Summer 2023, due to a combination of higher supply from ESRs and lower temperatures.
- Overall, Operations and Market outcomes met reliability needs.

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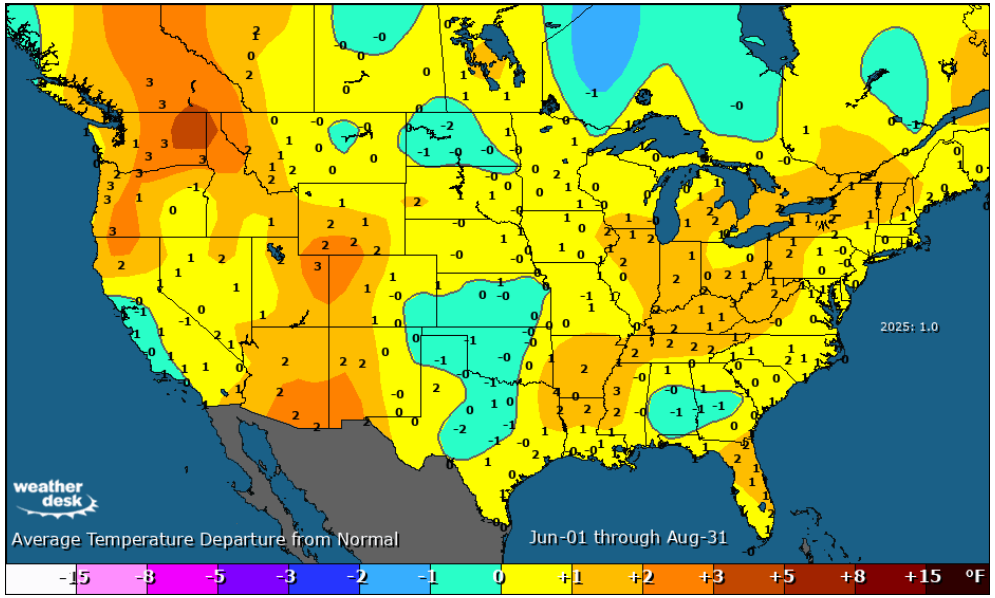
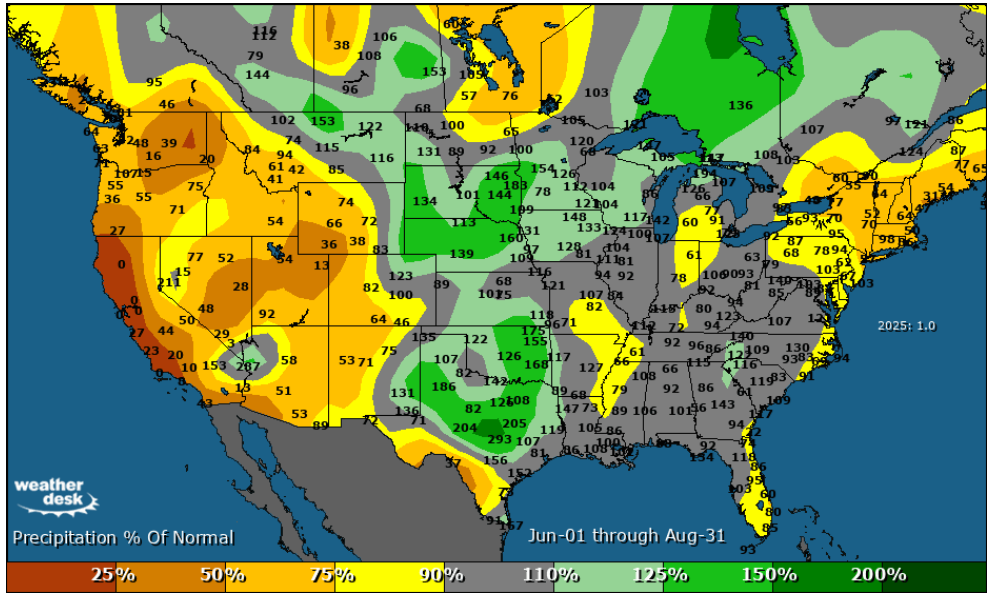
Summer 2025 Weather

- The June-July 2025 period ranked as the 43rd hottest June-July period out of 131 historical years (mean temperatures, 1895-2025).
- The average rainfall across Texas during the June-July period was 7.54”, which ranked as the 15th wettest out of 131 historical June-July periods.
- June 2025 was the 28th hottest on record for Texas, while a very mild July ranked as only the 72nd hottest since 1895.



Average Temperature Departure from Normal



Precipitation % of Normal

Key Takeaway: Summer 2025 temperatures were mild, primarily due to the above average rainfall.

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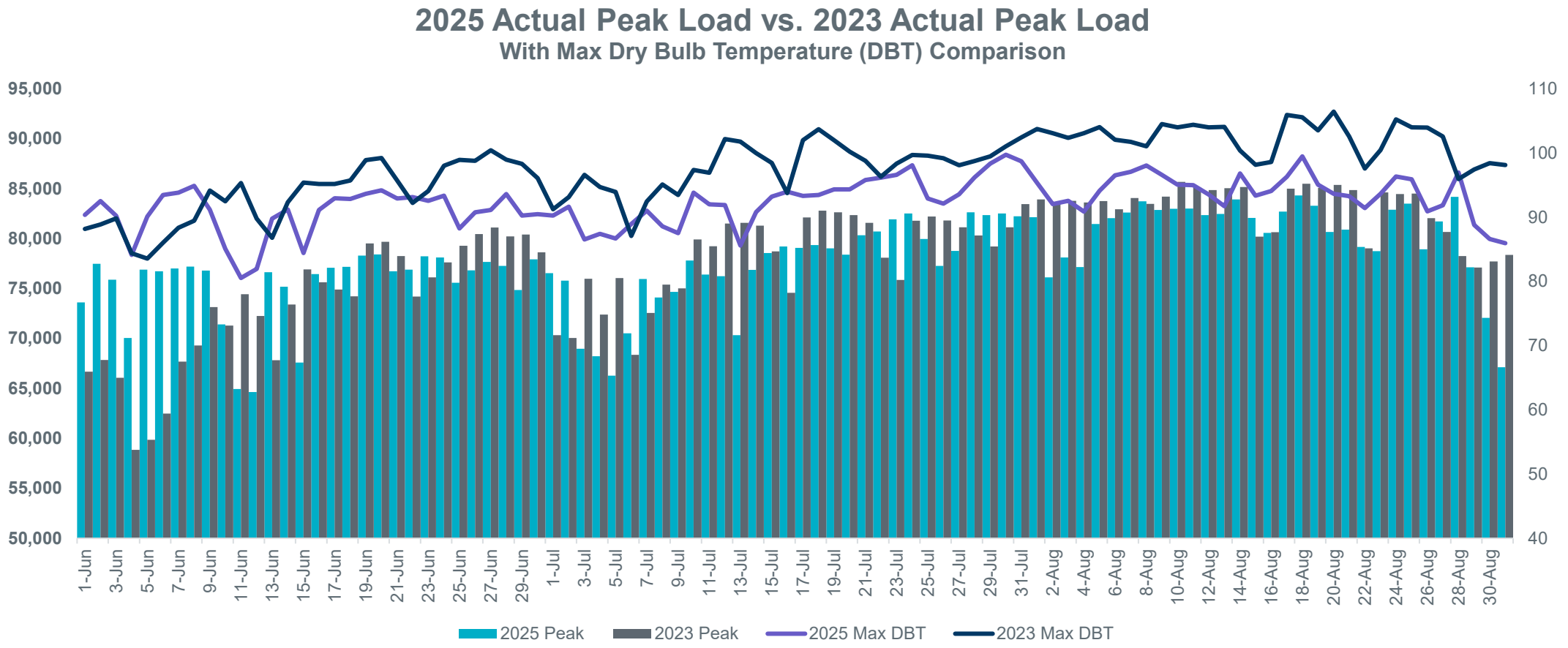
Summer 2023 vs. Summer 2025



Key Takeaway: Despite lower summer temperatures in 2025, load levels remained similar to 2023, indicating increased demand on the Texas grid.

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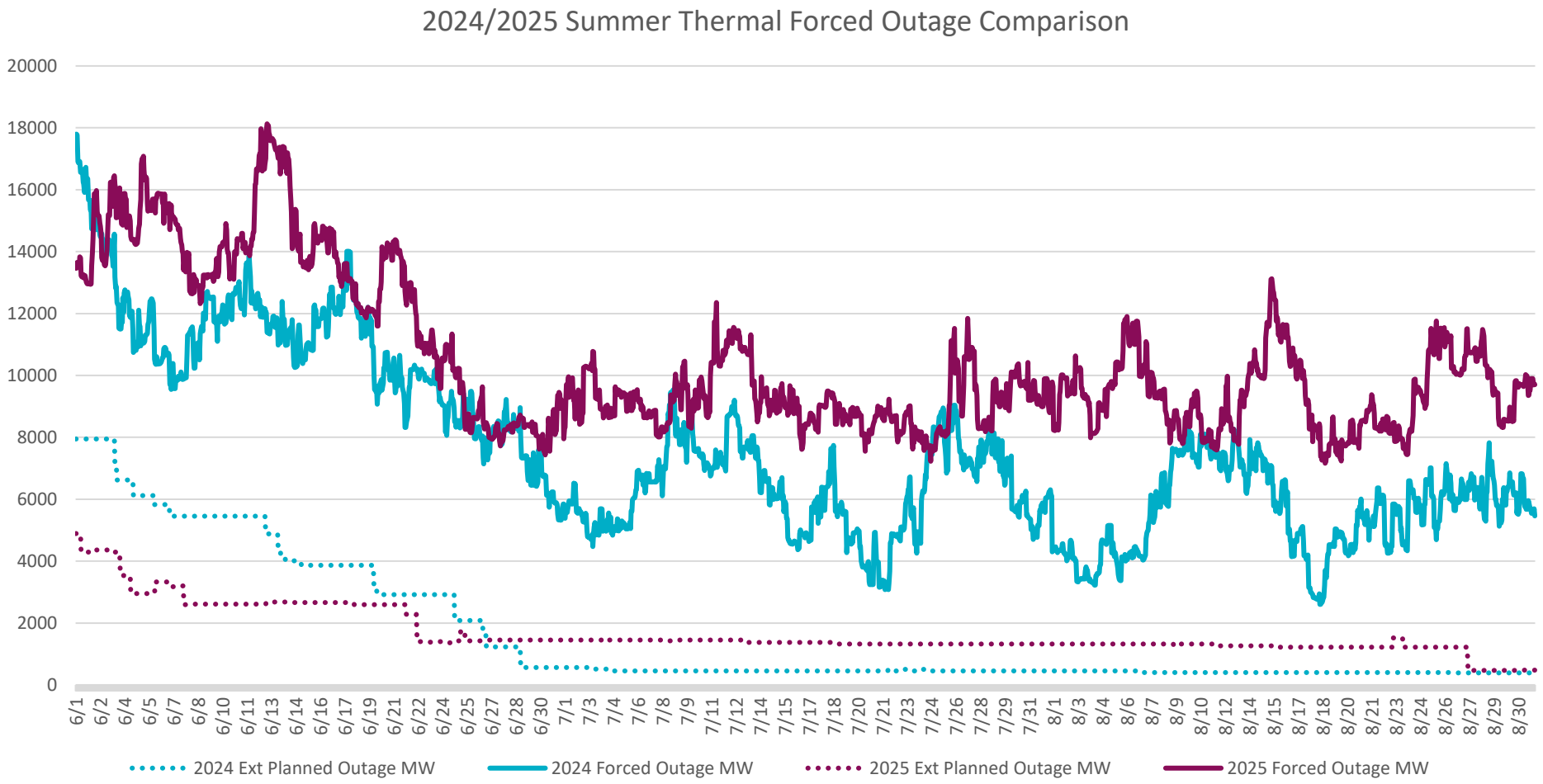
Summer Non-IRR Forced Outage Comparison



Key Takeaway: Summer 2025 had more forced outages than summer 2024.

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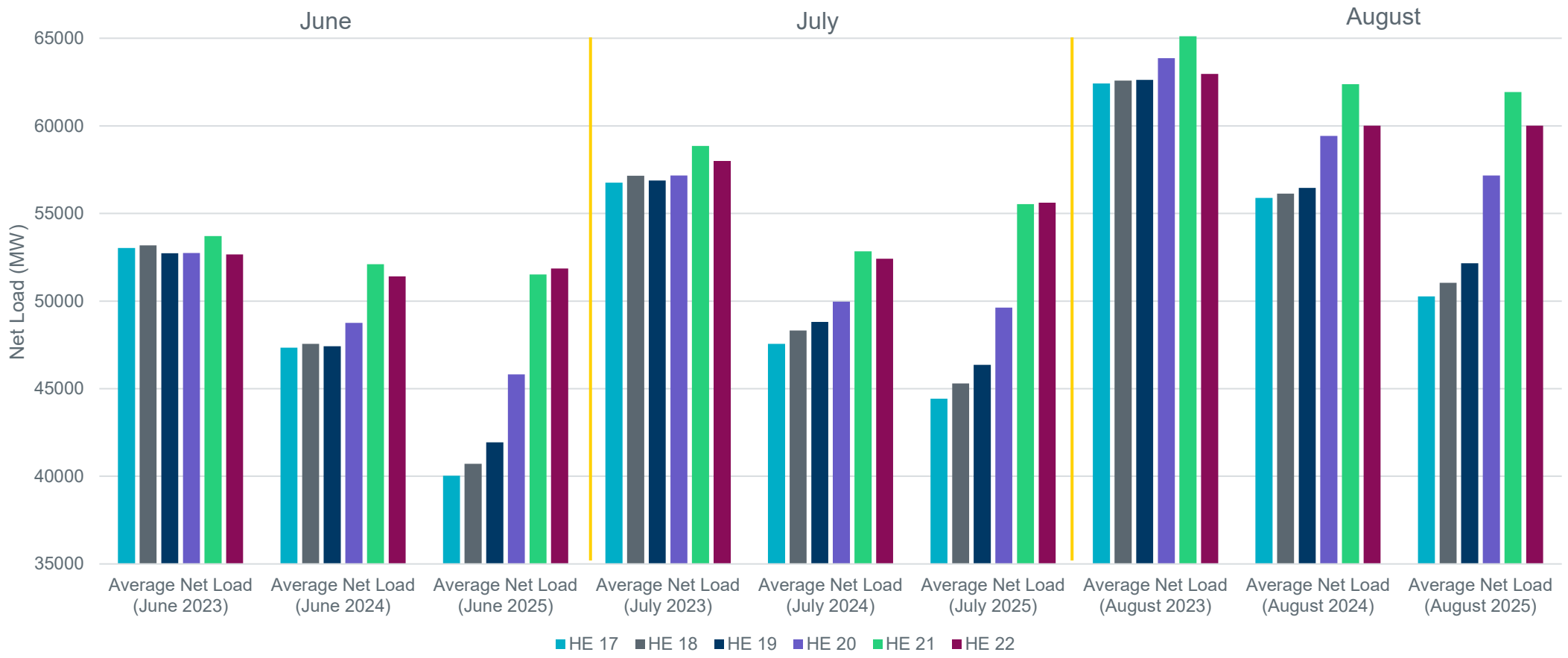
Net Load HE 17-22 for Summers 2023-2025



Key Takeaway: Due to increasing solar and load, the net load hour has shifted from HE 21 to HE 22 in the months of June and July.

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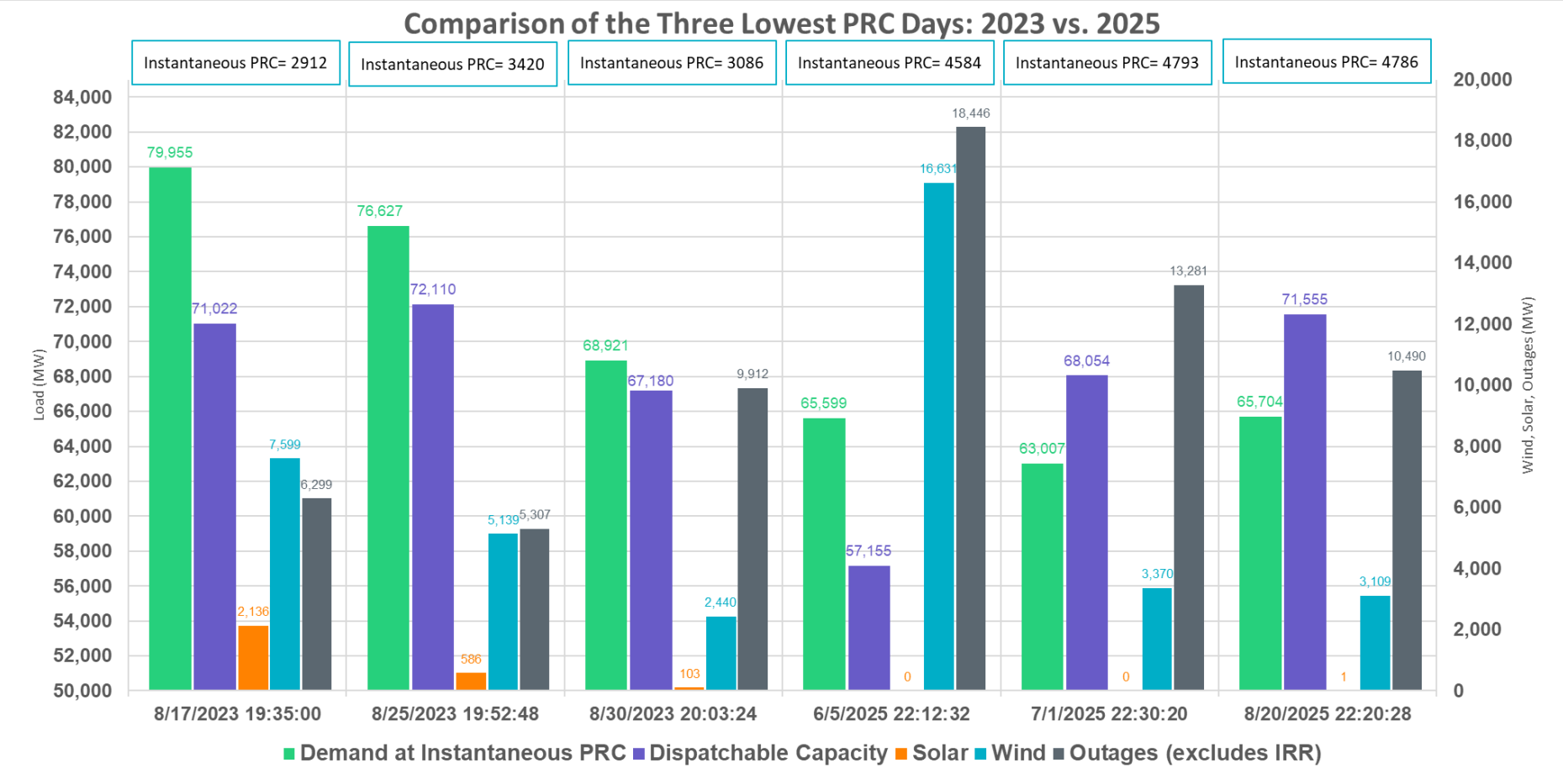
Three Lowest PRC Days 2023 vs 2025



Key Takeaway: The lowest PRC times have moved to HE 23, when there is no solar available.

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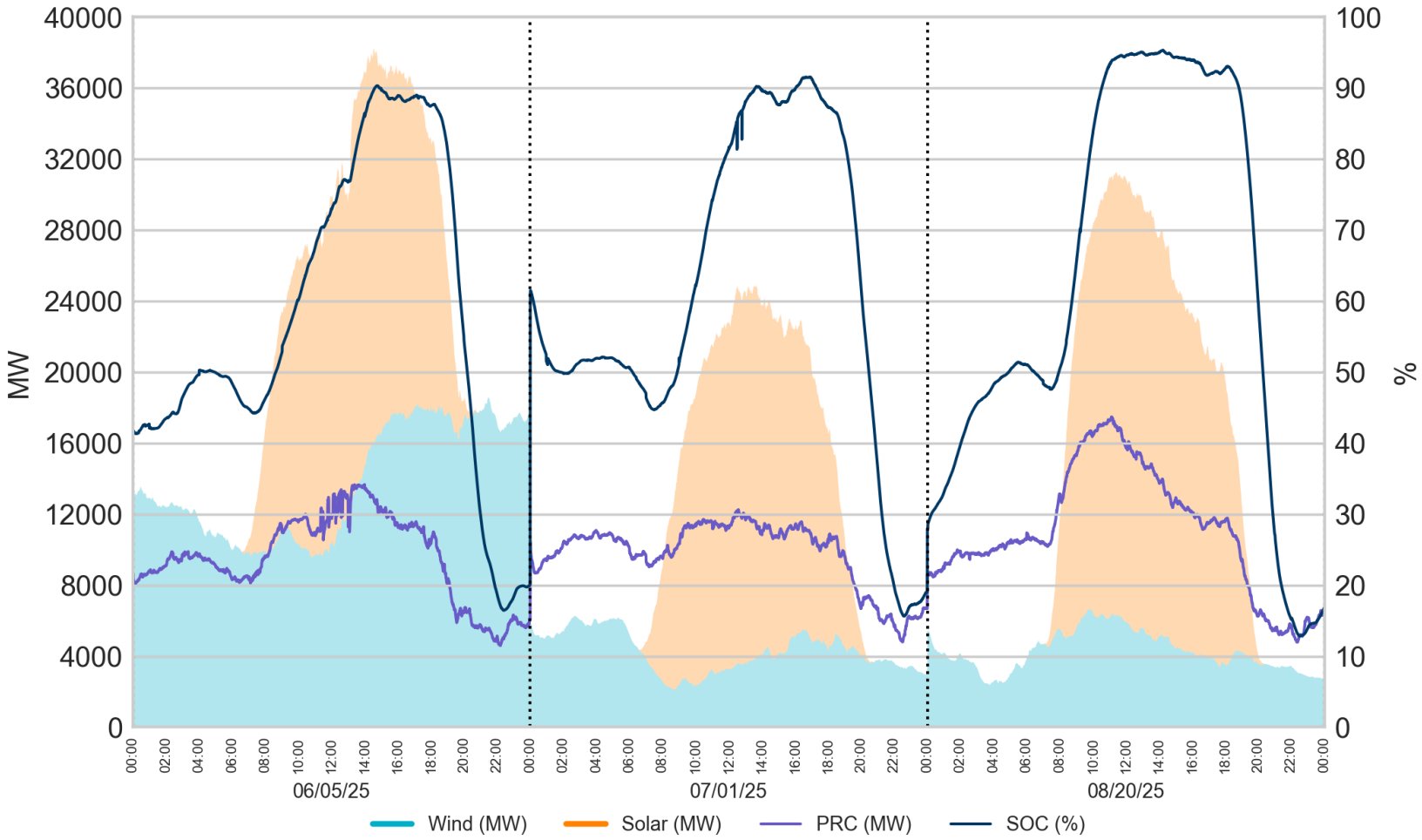
ESR SOC, Solar & Wind Generation on Lowest PRC Days



Key Takeaway: On days with the lowest instantaneous PRC, ESRs were charging during high solar generation and discharging during the solar ramp down. On 07/01/2025 and 08/20/2025 wind generation during solar ramp down was low compared to an average day.

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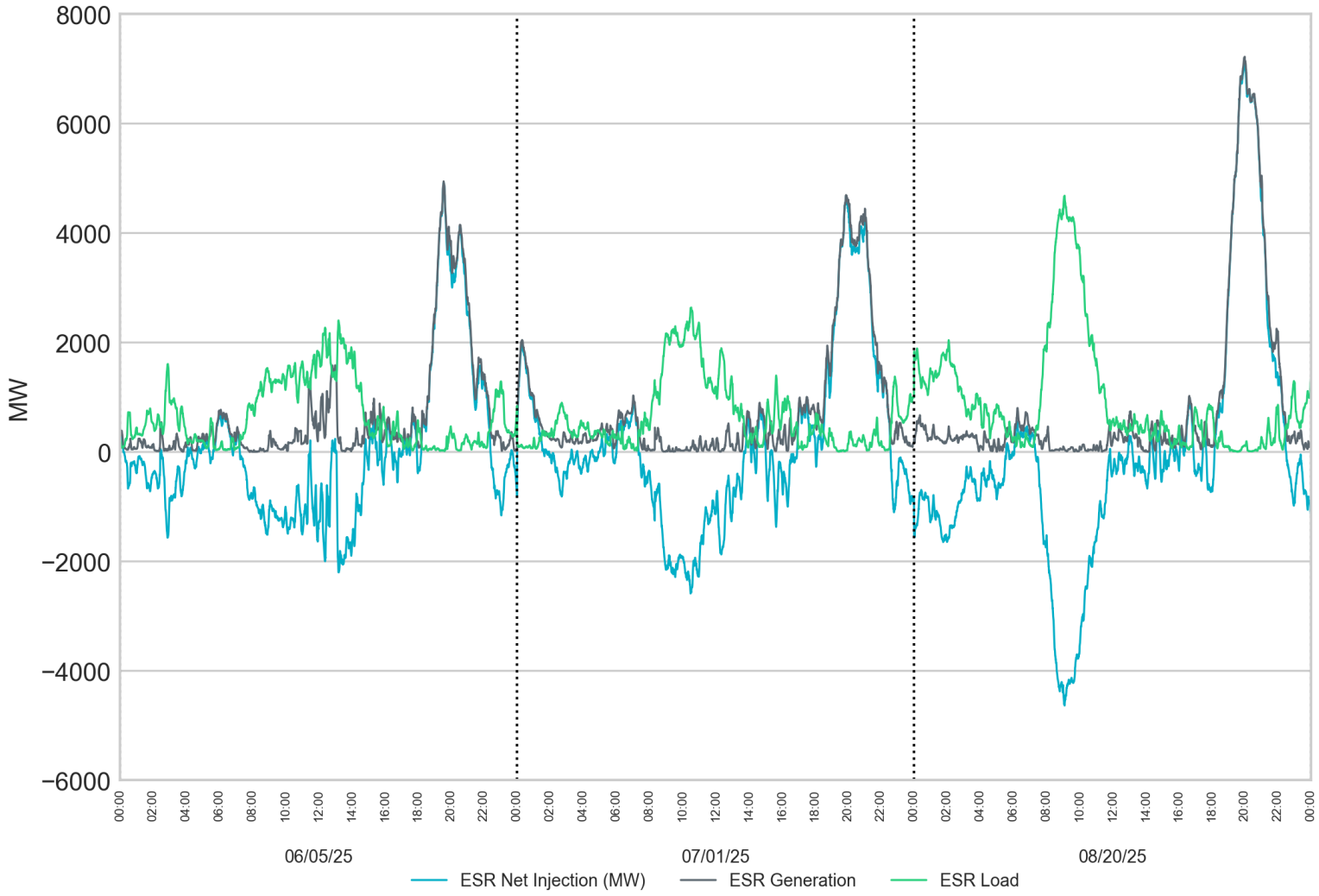
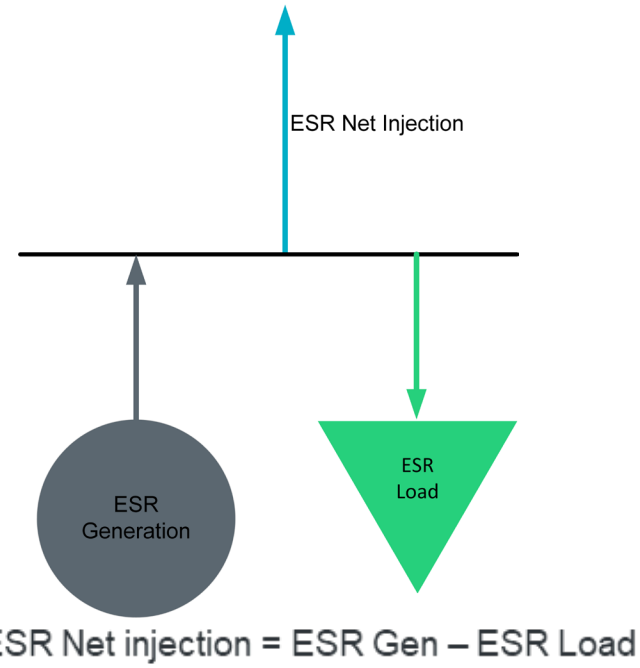
ESR Behavior on days with Lowest Instantaneous PRC





Key Takeaway: ESRs are mostly discharging around solar ramp down, and charging during the night and during periods of high solar generation.

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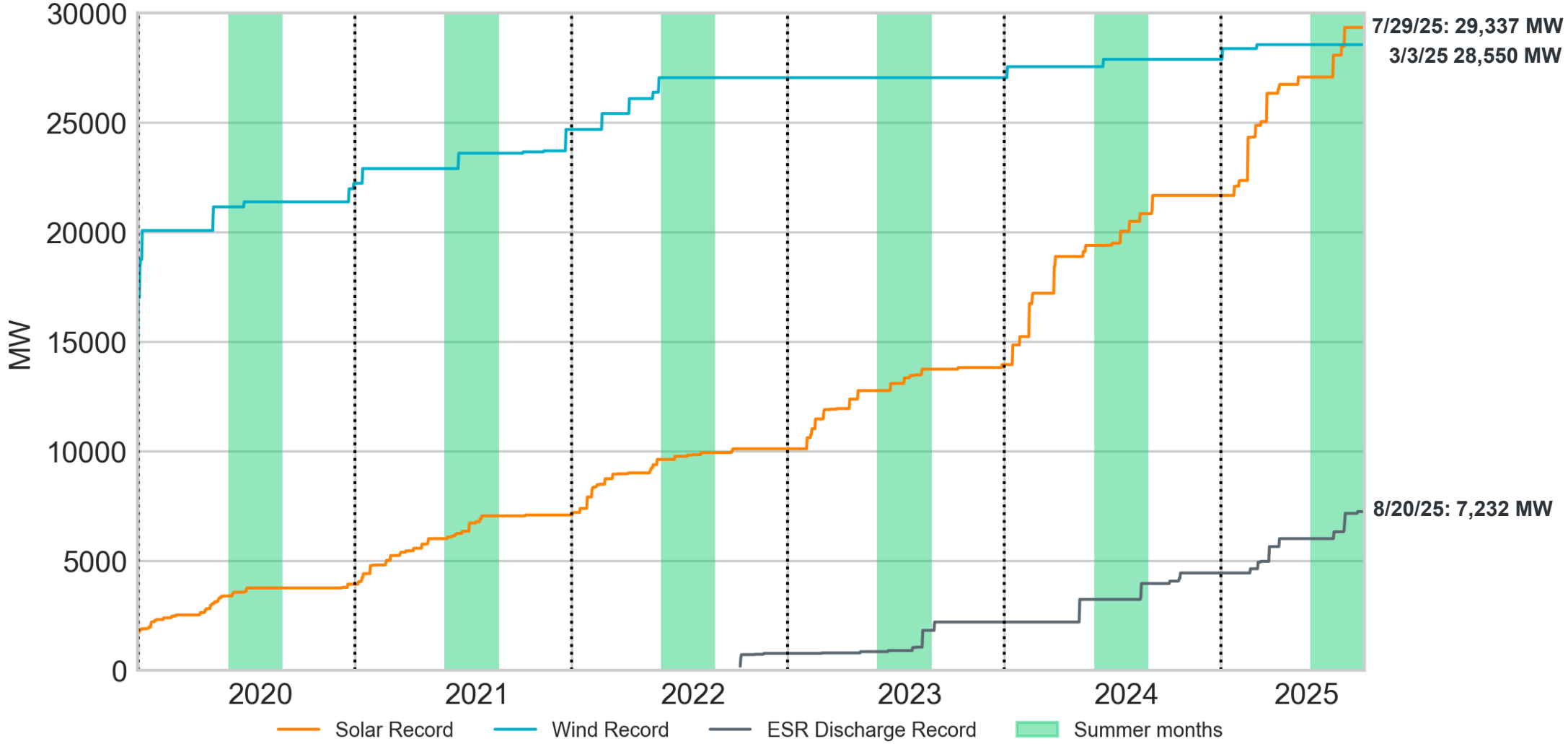
Solar, Wind, and ESR Records



Key Takeaway: On 7/29/25 the solar generation record was set with 29,337 MW, surpassing ERCOT's wind generation record of 28,550 MW. ESR generation has grown in the last few years, and a record was set on 8/20/25 with 7,232 MW.

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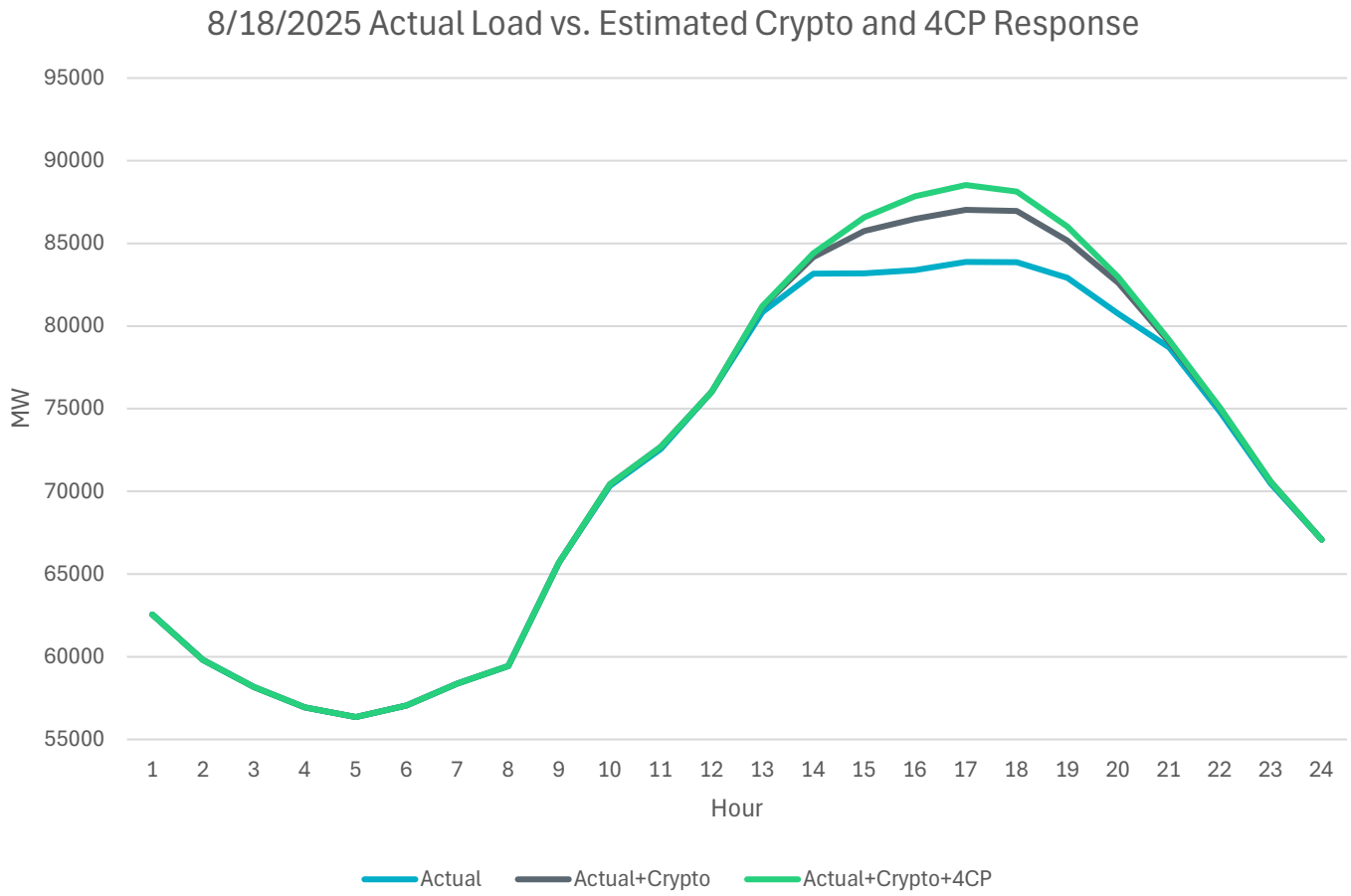
Demand Response



Key Takeaway: On 8/18/2025, ERCOT set the maximum demand of Summer 2025 at 83,878 MW during HE17. Demand response was observed during the peak hours. The maximum reduction from cryptomining loads was about 3,151 MW and the maximum Four Coincident Peak (4CP) reduction was about 1,501 MW. ERCOT estimates that the peak load would have been 88,530MW if there was no reduction.

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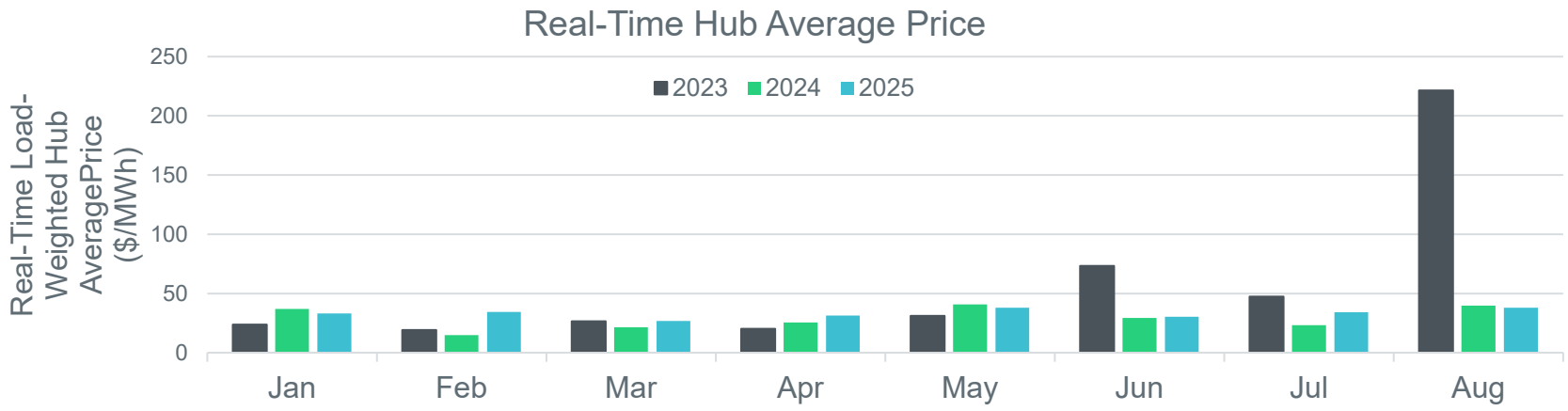
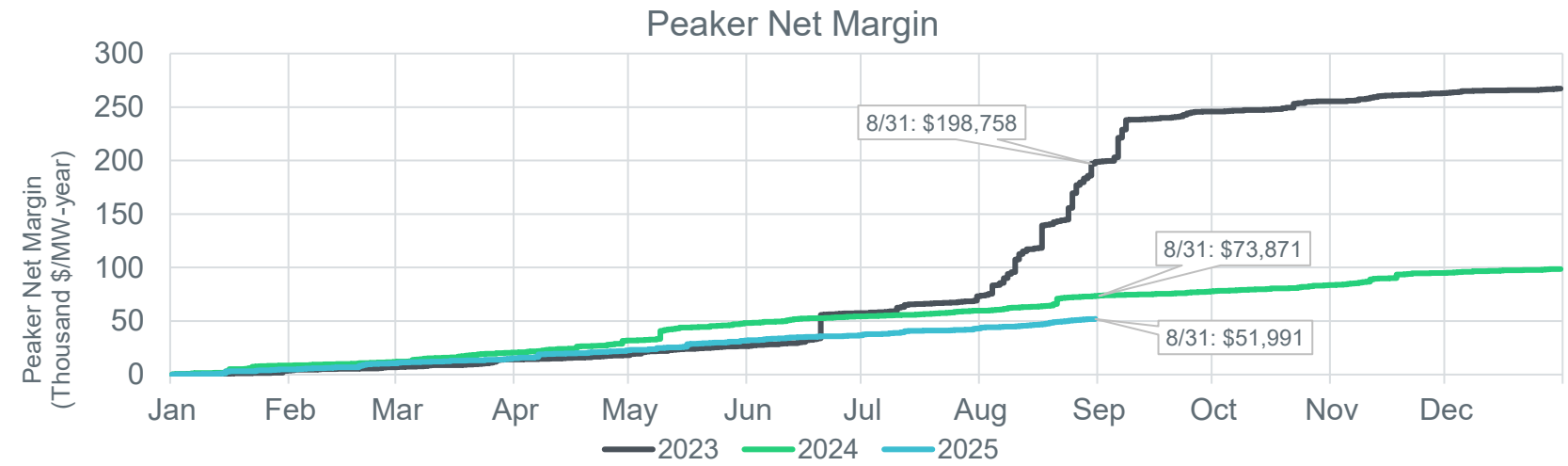
Real-Time Hub Price and Peaker Net Margin





Key Takeaway: Real-Time prices were lower in summer 2025 than summer 2023 due to higher supply and lower temperatures, and were slightly higher than summer 2024 due to higher natural gas prices. Lower electricity prices than summer 2023 and higher gas prices relative to summer 2024 also mean that the Peaker Net Margin was lower in 2025 relative to the previous two years.

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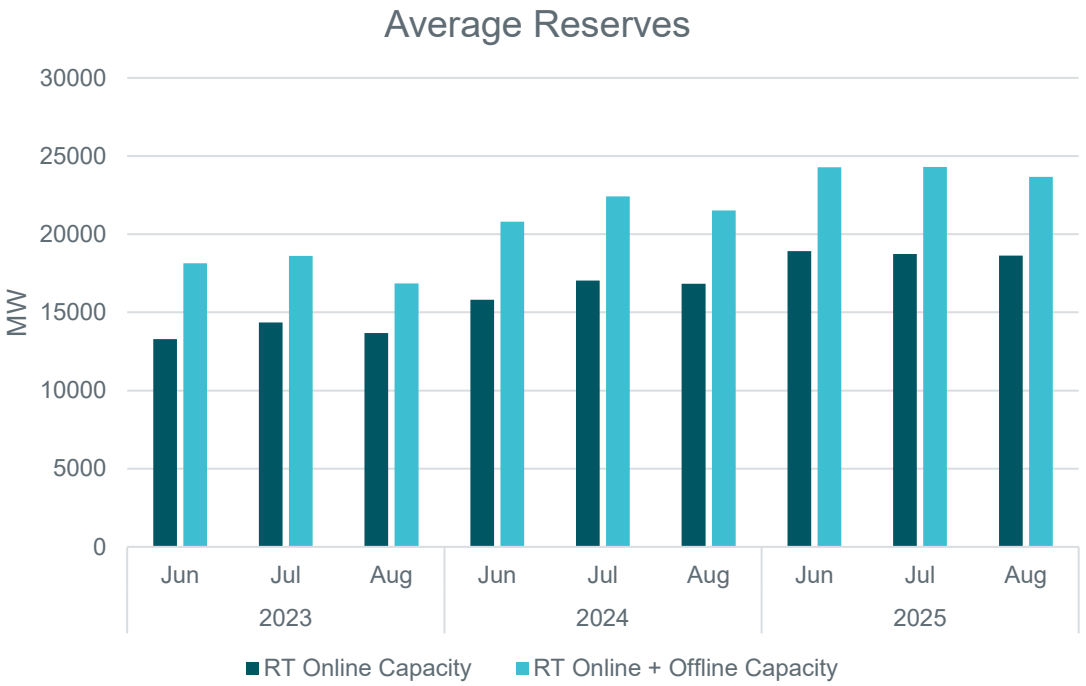
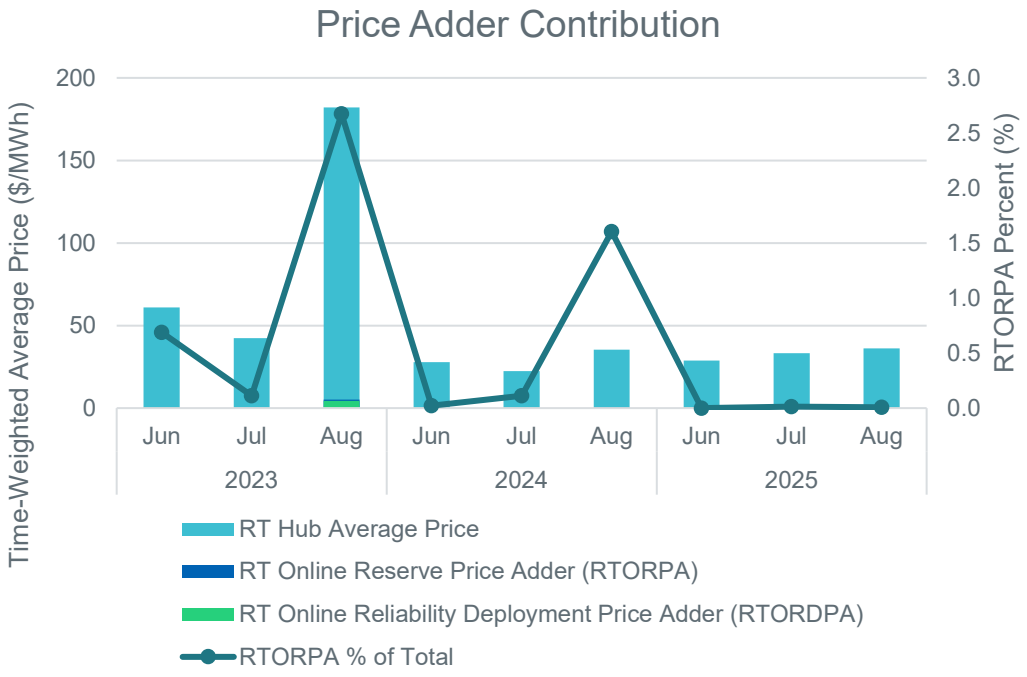
Operating Reserve Demand Curve (ORDC) Capacity and Contribution to Real-Time Prices





Key Takeaway: Online and offline reserves were greater in summer 2025 than in 2023 and 2024, due to factors related both to supply and demand. Price adders had a low contribution to the market price relative to previous two summers.

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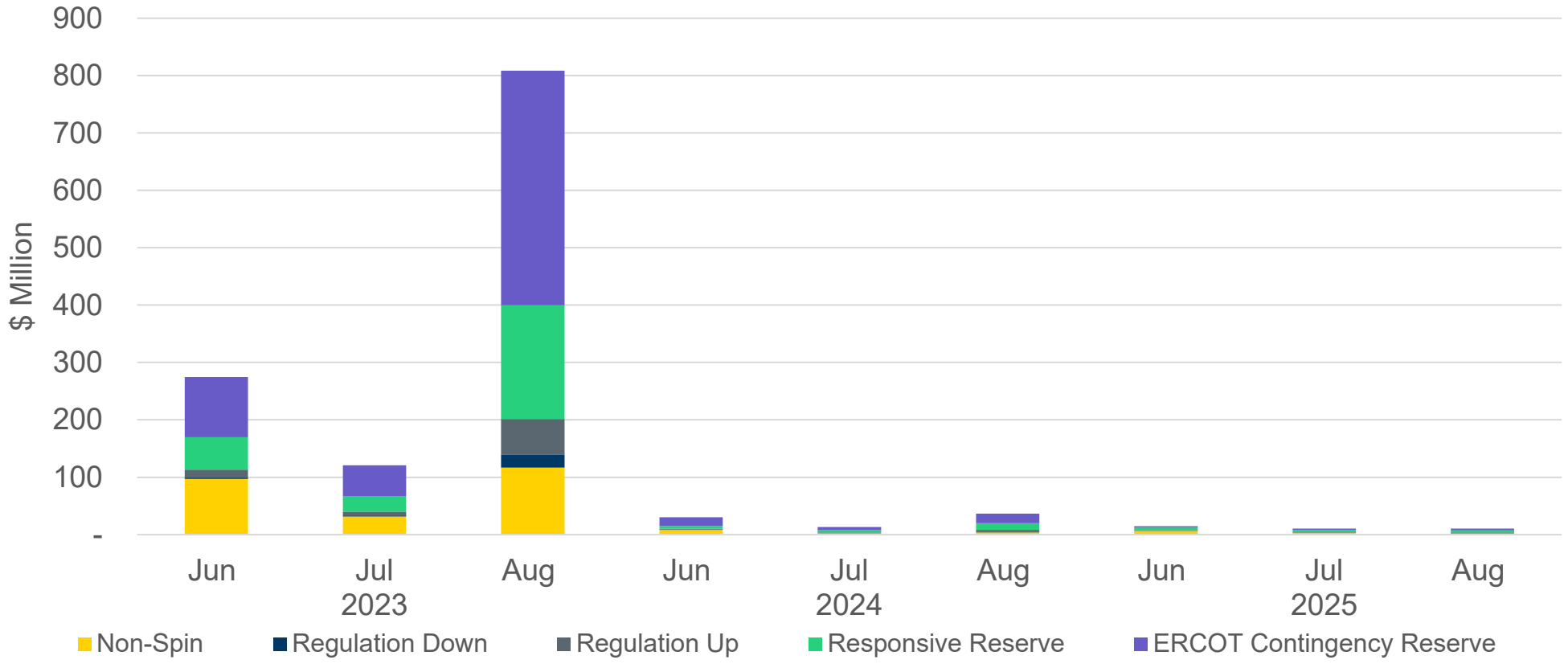
Cost of Ancillary Services



Values represent the payments to QSEs for AS procured in DAM and do not account for self-arrangement or bilateral trades.

Key Takeaway: Generally, higher available capacity and lower demand leading to reduced energy prices, especially in August, resulted in the cost of Ancillary Services being lower in the summer 2025 compared to the previous summer.

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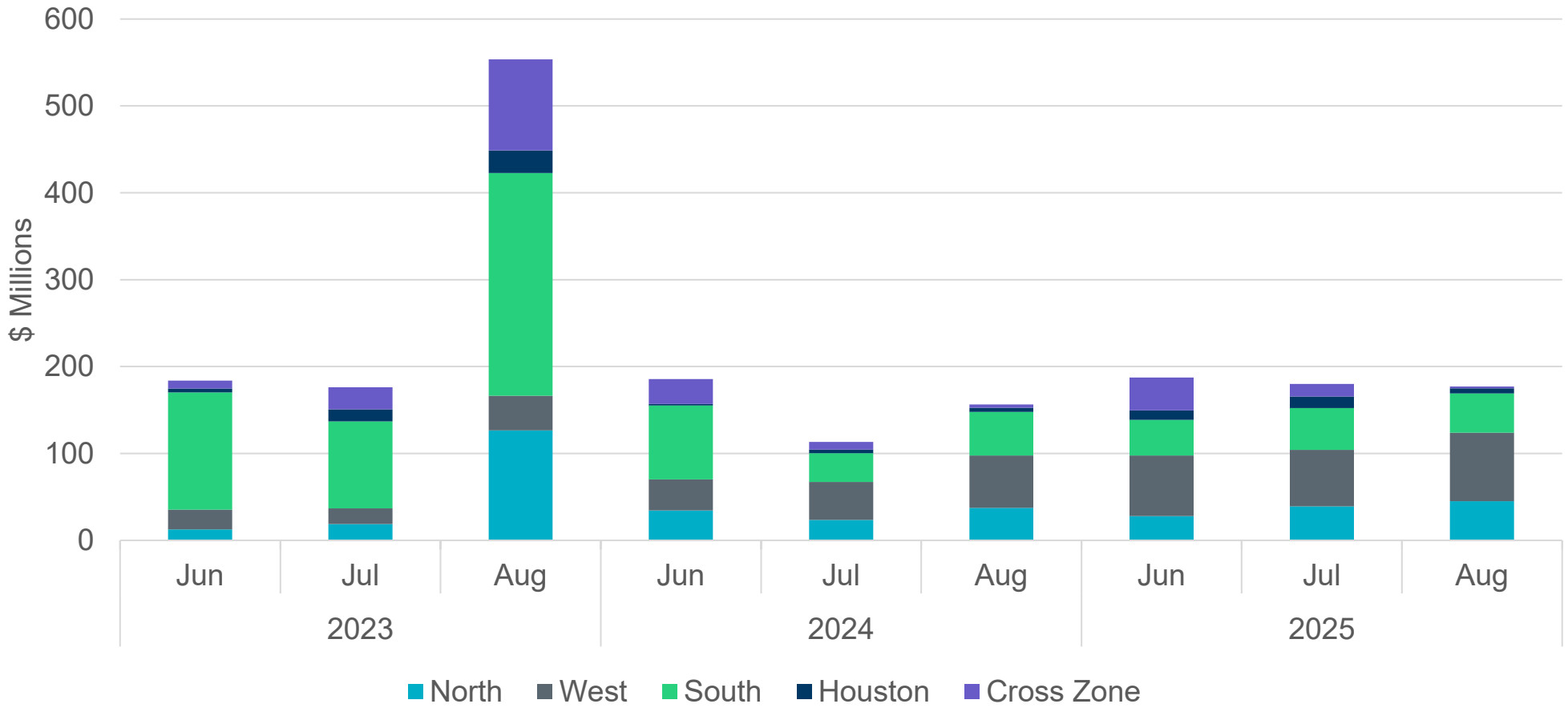
Real-Time Congestion Rent by Zone



Key Takeaway: In the summer of 2025, Real-Time Congestion Rent saw an increase of almost 20% compared to summer 2024, largely driven by a greater frequency of sustained congestion in the West Zone. These congestion trends are influenced by system conditions that occur during periods of either excessively high **or** low wind generation output.

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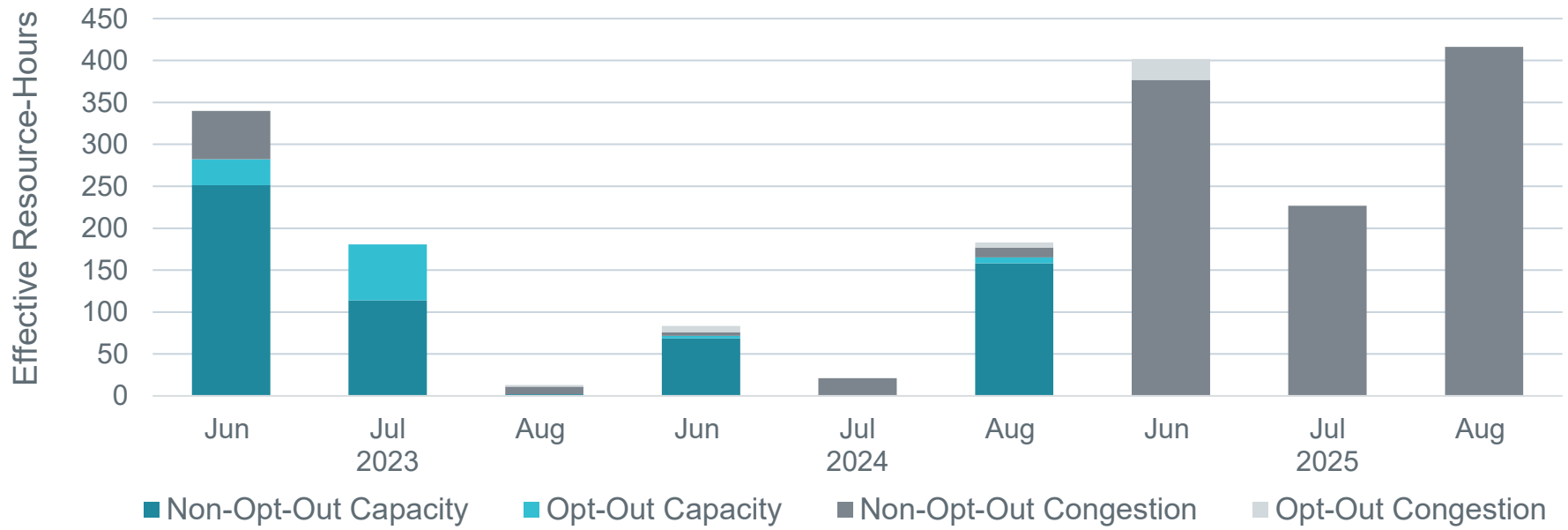
RUC Effective Resource-Hours

There were 1,045 total Reliability Unit Commitment (RUC) effective Resource-hours in summer 2025. This was a substantial increase from the 288 effective Resource-hours in summer 2024 and the 534 effective Resource-hours in summer 2023.

In summer 2025, 100% of RUC effective Resource-hours were nominally attributed to congestion, particularly on the South Texas Export limits. Only 18% and 13% of effective Resource-hours were for congestion in summer 2024 and summer 2023.



"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.

Key Takeaway: RUC activity in summer 2025 was substantially higher than to the previous two summers and was entirely attributed to managing congestion related to South Texas Export limits.

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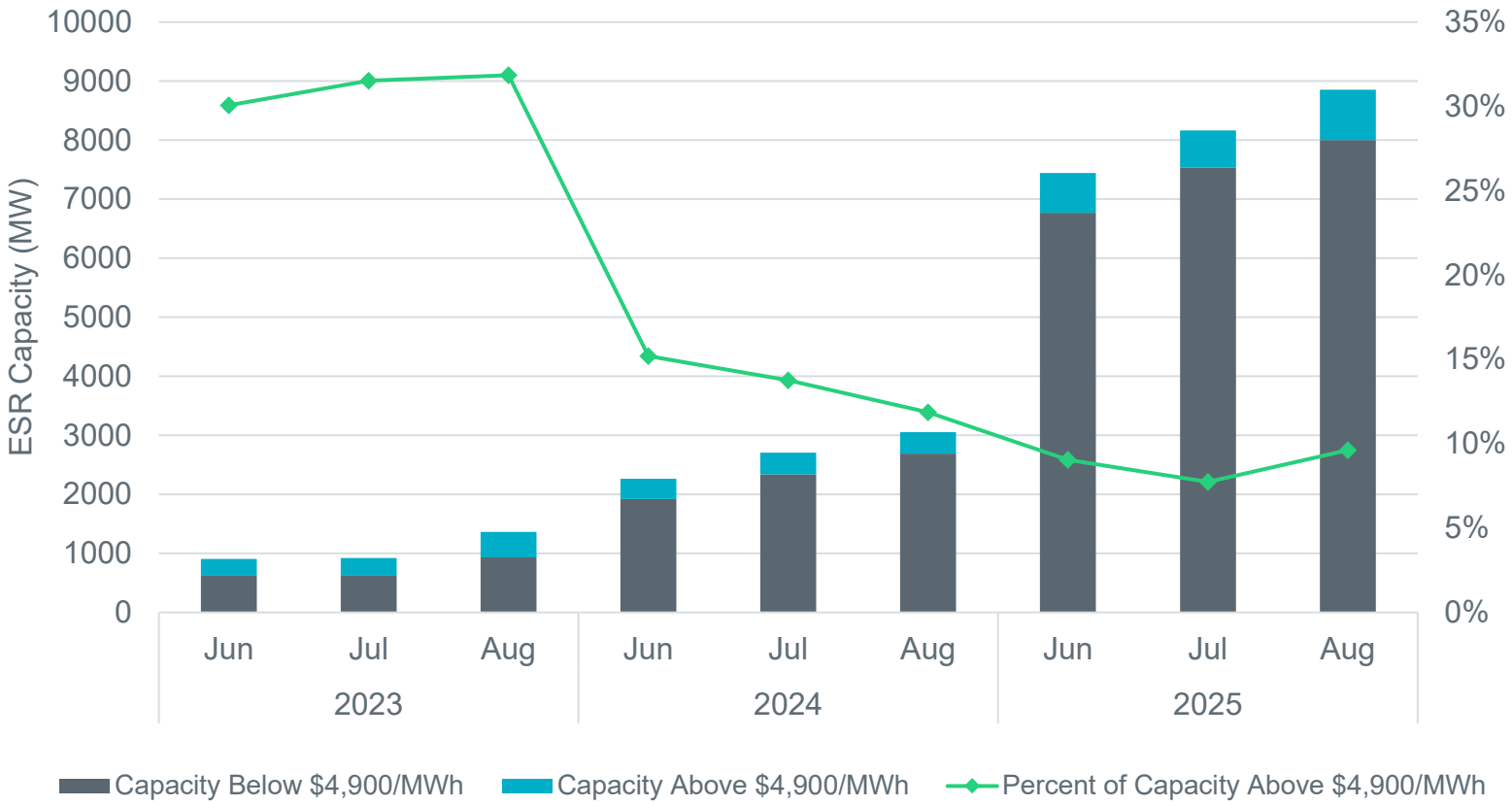
Energy Storage Capacity Offered in Real-Time Market Continues to Increase



Note: The data is based on the 20:00 SCED interval snapshot

Key Takeaway: The total amount of Energy Storage Resource (ESR) capacity offered into the market increased substantially in 2025. An increasing proportion of ESR capacity is being offered at price levels below the System Wide Offer Cap of $5,000/MWh.

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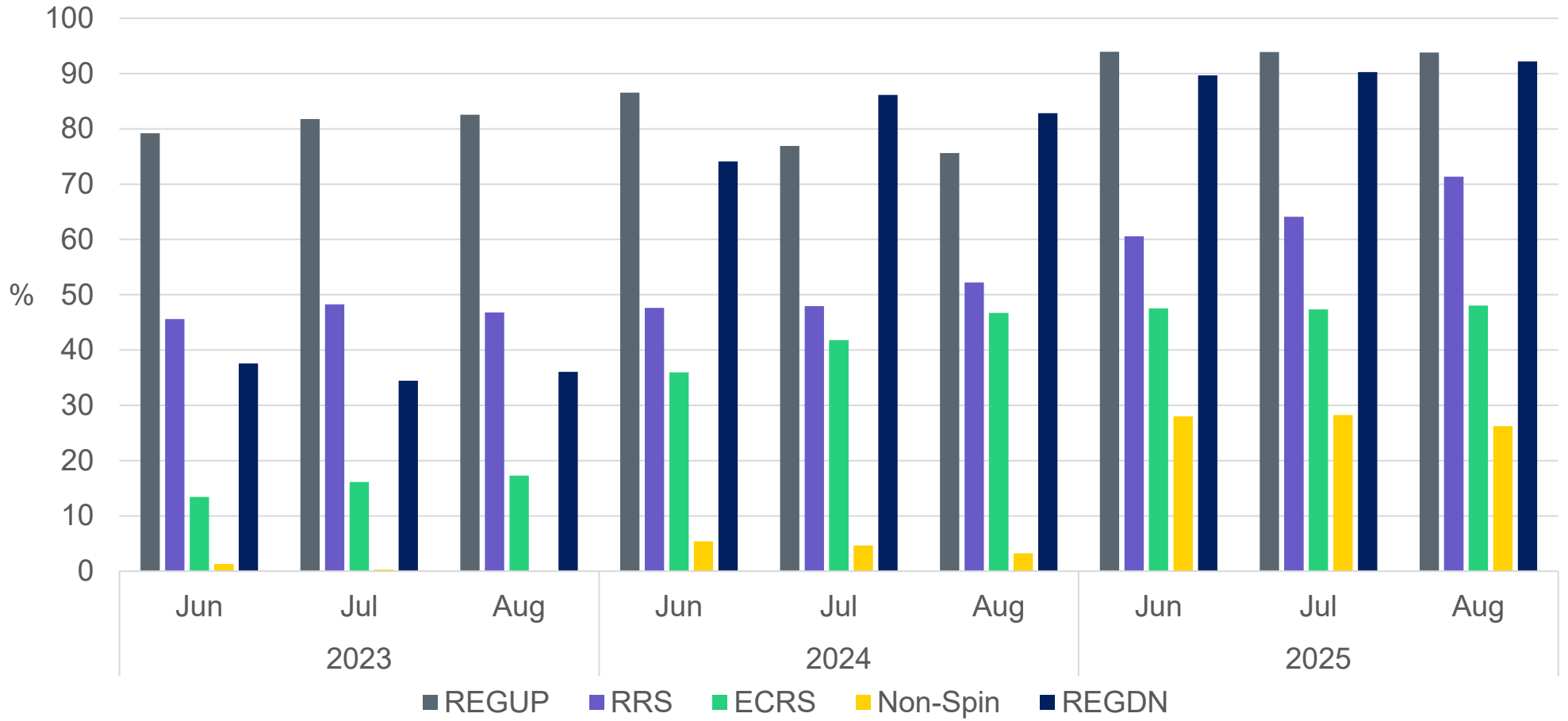
ESR Contribution to Ancillary Services is Also Increasing



Key Takeaway: With increasing ESR capacity on the system, they continue to dominate Ancillary Service awards, especially for regulation services. The most notable increase from summer 2024 is in Non-Spin. The net effect is downward pressure on Ancillary Service prices.