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2026 Biennial Report on the ORDC and Initial Report on ASDC

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Briefing to the Technical Advisory Committee (TAC)

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Executive Summary

Both the Operating Reserve Demand Curve (ORDC) and Ancillary Service Demand Curves (ASDCs) operated consistently with design expectations in a period of low scarcity.

1 **Context.** ERCOT provides this report on operating reserves in accordance with the Texas Administrative Code. The report covers two periods: ORDC from Oct 2024 to Dec 2025 and the ASDCs from Dec 2025 to Sep 2026. The report analyzes four elements: efficacy, utilization, cost, and contribution to reliability.

2 **Main outcomes.** The ORDC adder rose as conditions tightened, and the ASDCs applied shortages to products in the intended order in almost all cases. Scarcity was less frequent in both periods, consistent with larger on-line reserves from solar and storage growth, less extreme weather, and price-responsive load.

3 **Looking forward.** ERCOT recommends considering alternative methods to derive ASDCs based on the marginal reliability value of each product. ERCOT plans to use the Triennial Reliability Standard Assessment to inform future market design decisions.

This briefing is informational and no TAC action is requested.

Source: ERCOT 2026 Biennial Report on the ORDC and Initial Report on ASDC

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The report answers four key questions about scarcity pricing

One rule

16 Texas Administrative Code §25.505(e). Publish a bi-annual report on the efficacy, utilization, related costs, and contribution to grid reliability of the ORDC

The rule covers the ORDC. ERCOT also analyzes the ASDCs because they replaced the ORDC

Two periods

ORDC period from October 1st, 2024 to December 4th, 2025 (about 14 months)

RTC+B: December 5th, 2025. Real-Time Co-optimization Plus Battery implementation

ASDC period from December 5th, 2025 to September 30th, 2026 (about 10 months)

Four elements of the analysis

Efficacy. Did scarcity pricing trigger during tight conditions and allocate shortages across products as designed?

Utilization. How often was scarcity reflected in prices?

Related costs. What did scarcity pricing cost?

Contribution to reliability. Did scarcity pricing encourage self-commitment (ORDC) or support reliable operation (ASDC)?

Source: ERCOT 2026 Biennial Report on the ORDC and Initial Report on ASDC, and §1.3; 16 Texas Administrative Code §25.505(e).

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RTC+B moved scarcity pricing from a price adder to an input of dispatch

ORDC, to December 4, 2025

- Ancillary Services (AS) were procured day-ahead and held fixed through the operating day
- SCED set energy dispatch first; ERCOT then calculated the RTORPA from the resulting reserves and added it to the energy price
- The scarcity signal could not change AS procurement
- Price floors of $10 and $20/MWh applied when on-line reserves fell to 7,000 and 6,500 MW

ASDC, from December 5, 2025

- SCED optimizes energy and AS together every five minutes
- Curves for Reg-Up, Reg-Down, RRS, ECRS, and Non-Spin are direct inputs to dispatch
- The Reg-Up, RRS, ECRS, and Non-Spin curves derive from one aggregate curve (AORDC), ranked by priority
- A $15 per MW per hour shortage floor applies to ECRS and Non-Spin, and a proxy offer floor applies to resources that submit no AS offer

How to read the results

- Metrics differ by period: RTORPA and Peaker Net Margin attribution exist only for the ORDC, while shortage volume and floors exist only for the ASDCs
- The periods are therefore shown separately, not on a common metric

Implication. Under the ASDCs, scarcity pricing influences dispatch and AS procurement directly, so ASDC outcomes cannot be compared one-to-one with ORDC price adders.

Source: ERCOT 2026 Biennial Report on ORDC and ASDC, Sections 1.1, 1.2 and Appendix.

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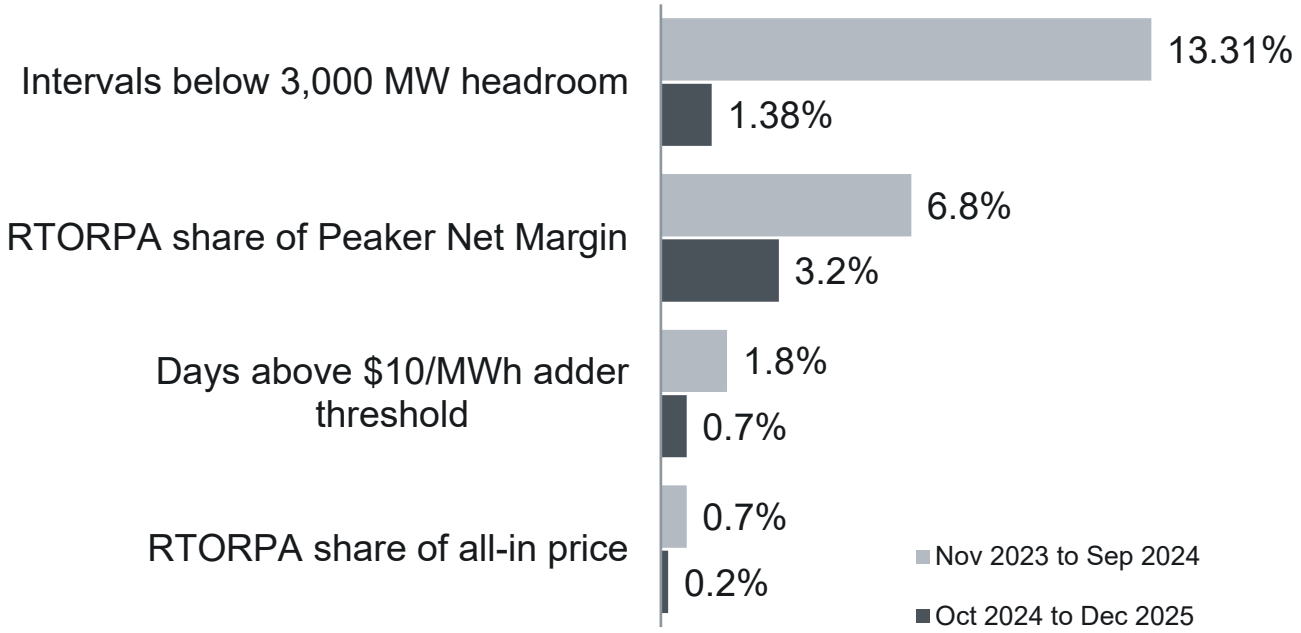
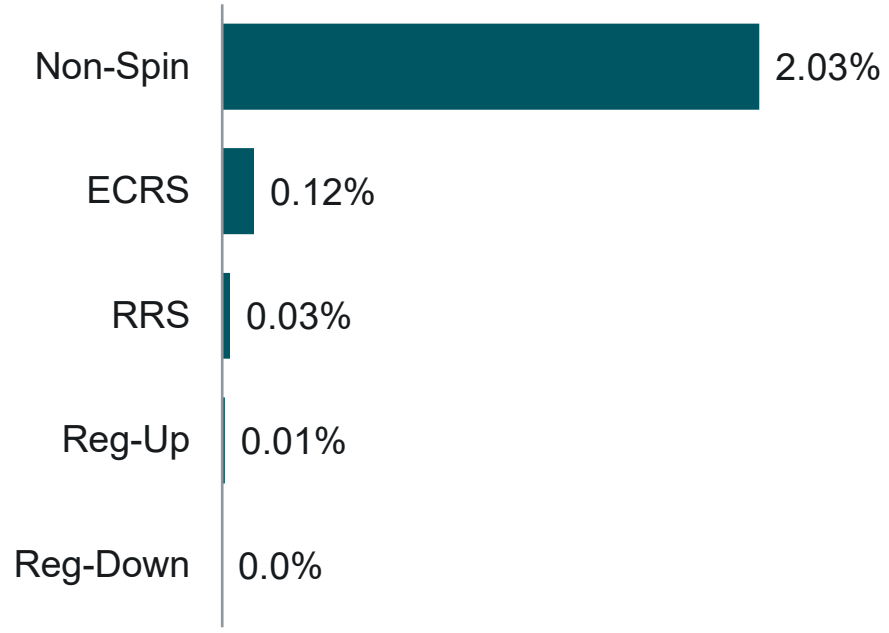
Scarcity became rare in both periods, but tight intervals were similar in severity

ORDC period versus prior report period



ASDC period: intervals below plan



Factors consistent with the decline. Solar and ESR capacity up about 20 and 16 GW, respectively (Oct 2024 to Dec 2025); fewer days with peak demand above 80 GW (49 in 2023, 22 in 2024, 24 in 2025); and more price-responsive cryptocurrency mining load (about 2,300 MW in late 2023 to over 4,300 MW in 2025). These trends continued into 2026.

Severity. When intervals below 3,000 MW did occur in the ORDC period, average headroom was nearly unchanged at 2,334 MW versus 2,335 MW.

Source: ERCOT 2026 Biennial Report on ORDC and ASDC, Sections 2.1 to 2.3 and 3.2 (Table 23); footnotes 10 to 12.

ORDC period

October 1, 2024 to December 4, 2025

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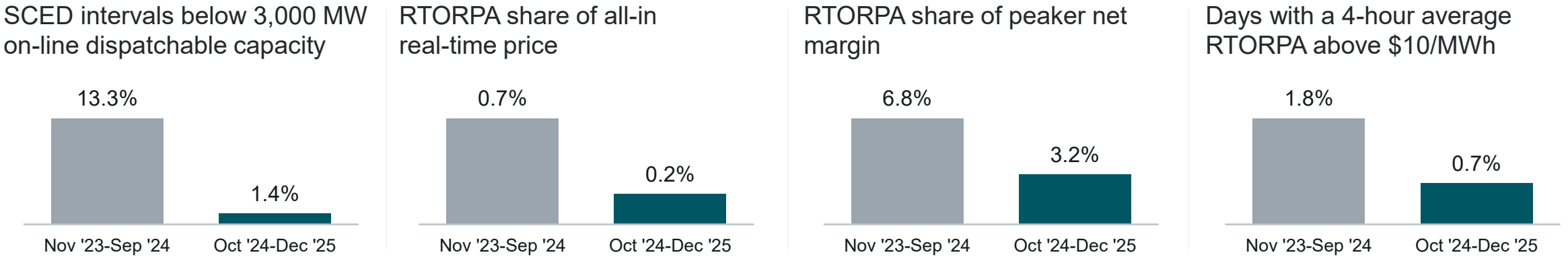
Scarcity declined further in the final ORDC period across four indicators

Scarcity occurred less frequently, and RTORPA contributed less to real-time prices and peaker net margin, continuing the trend from the 2024 ORDC Report.

Scarcity indicators



When tight conditions did occur, adders still rose as headroom fell, and average headroom was unchanged at about 2,335 MW. The $10 and $20/MWh floors affected 250 and 134 intervals and added about $18.3 million of cumulative revenue across both periods.

Reported contributing factors

Supply and demand

- Solar and ESR capacity increased by 20 and 16 GW, resp. (Oct 2024 to Dec 2025)
- Price-sensitive cryptocurrency mining load reduced demand during tight conditions

Weather

- Less extreme summer and winter weather, per the report

Source: ERCOT 2026 Biennial Report on the ORDC and Initial Report on ASDC.

ASDC period

December 5, 2025 to September 30, 2026

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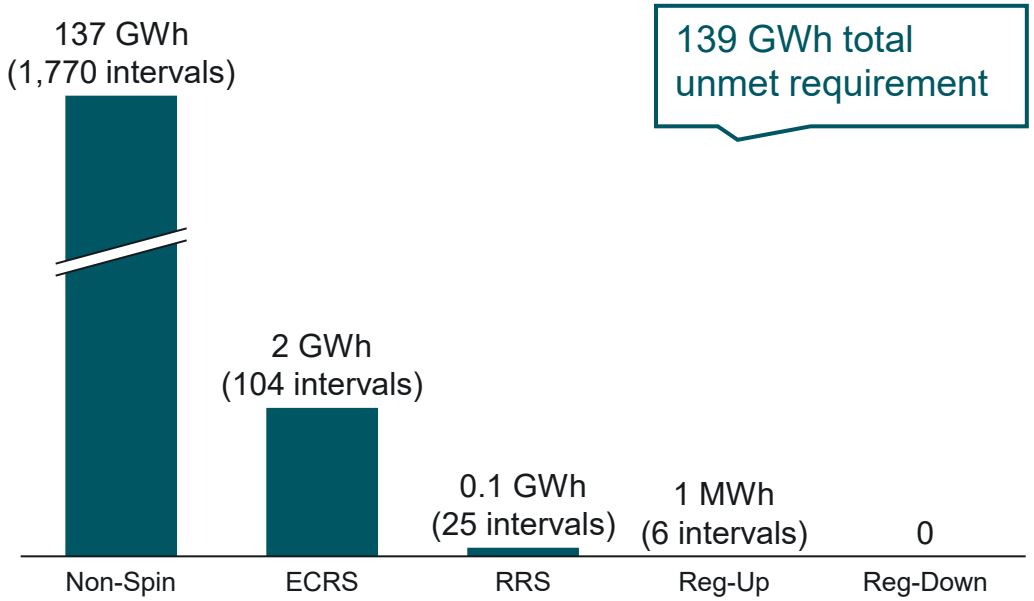
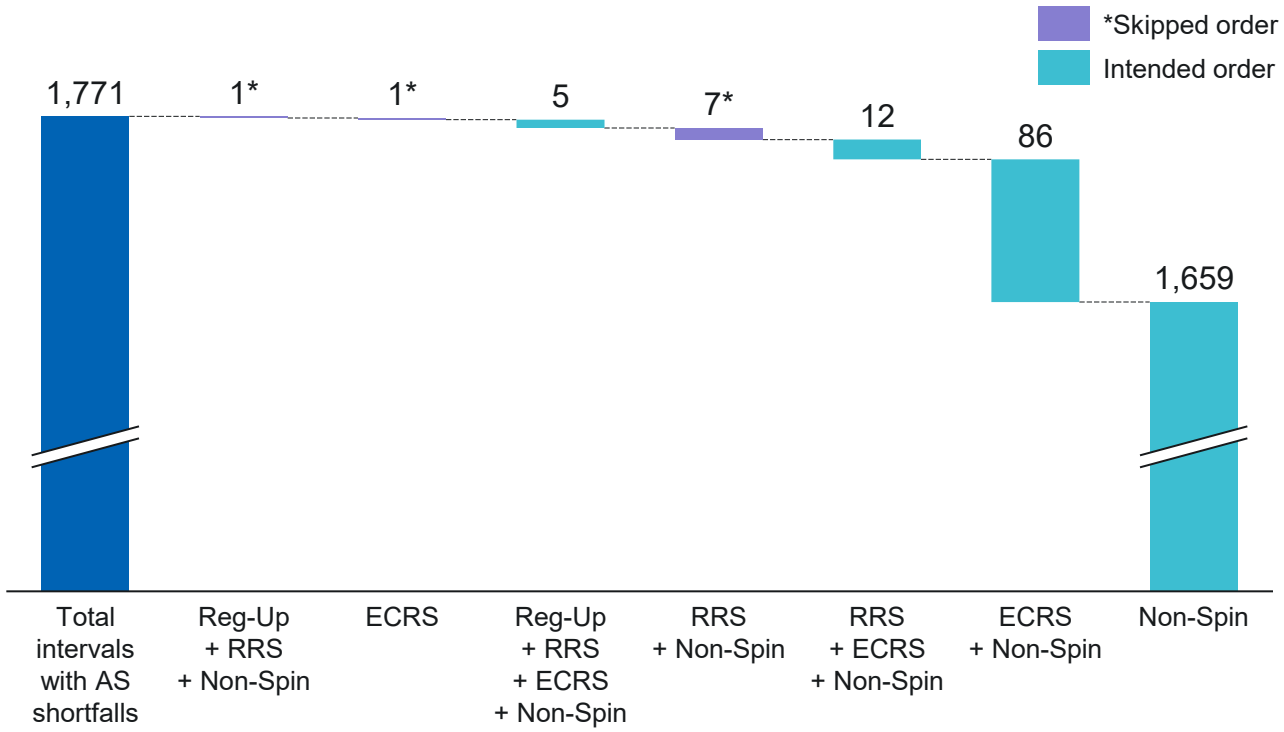
ASDC shortages followed the product hierarchy in 99.5% of shortage intervals

Real-time AS shortage volume, by product



Real-time AS shortage intervals, by product combination



Unmet requirement represented 0.2% of total AS requirement volume in GWh over the period.

ASDC shortfalls were allocated to products as intended.

1,762 of 1,771 shortfall intervals (99.5%) followed the intended product order.

Non-Spin only shortages accounted for most shortfall intervals (94%).

Source: §3.1 of ERCOT's 2026 Biennial Report on the ORDC and Initial Report on ASDC.

Four products cleared at their requirement, while Non-Spin cleared mostly above plan

AS procurement relative to AS Plan, by product

Product	Median procurement, % of plan MW	At plan	Above plan	Below plan	Median clearing price, $/MWh
Reg-Up	100%	100%	0%	0.01%	$0.62
Reg-Down	100%	100%	0%	0%	$0.45
RRS	100%	99.8%	0%	0.03%	$0.03
ECRS	100%	99.7%	0%	0.12%	$0.05
Non-Spin	148%	6.7%	91%	2.03%	$0.25

How the ASDCs performed

Non-Spin vs plan. Non-Spin cleared above its AS Plan in 91% of intervals (median 148% of plan) and below plan in 2%.

By design. The Non-Spin curve extends past the AS Plan. When reserves are high and energy prices are low, SCED buys extra Non-Spin at a very low price. As conditions tighten, procurement falls back toward the requirement.

Only Non-Spin exceeds its plan. The other four products cleared at plan in 99.7% to 100% of intervals and never above it, by design.

Source: ERCOT 2026 Biennial Report on the ORDC and Initial Report on ASDC, §3.2 (Table 23). Awards above the published requirement should not necessarily be read as procurement above the corrected methodology's quantity (report footnotes 18 and 19).

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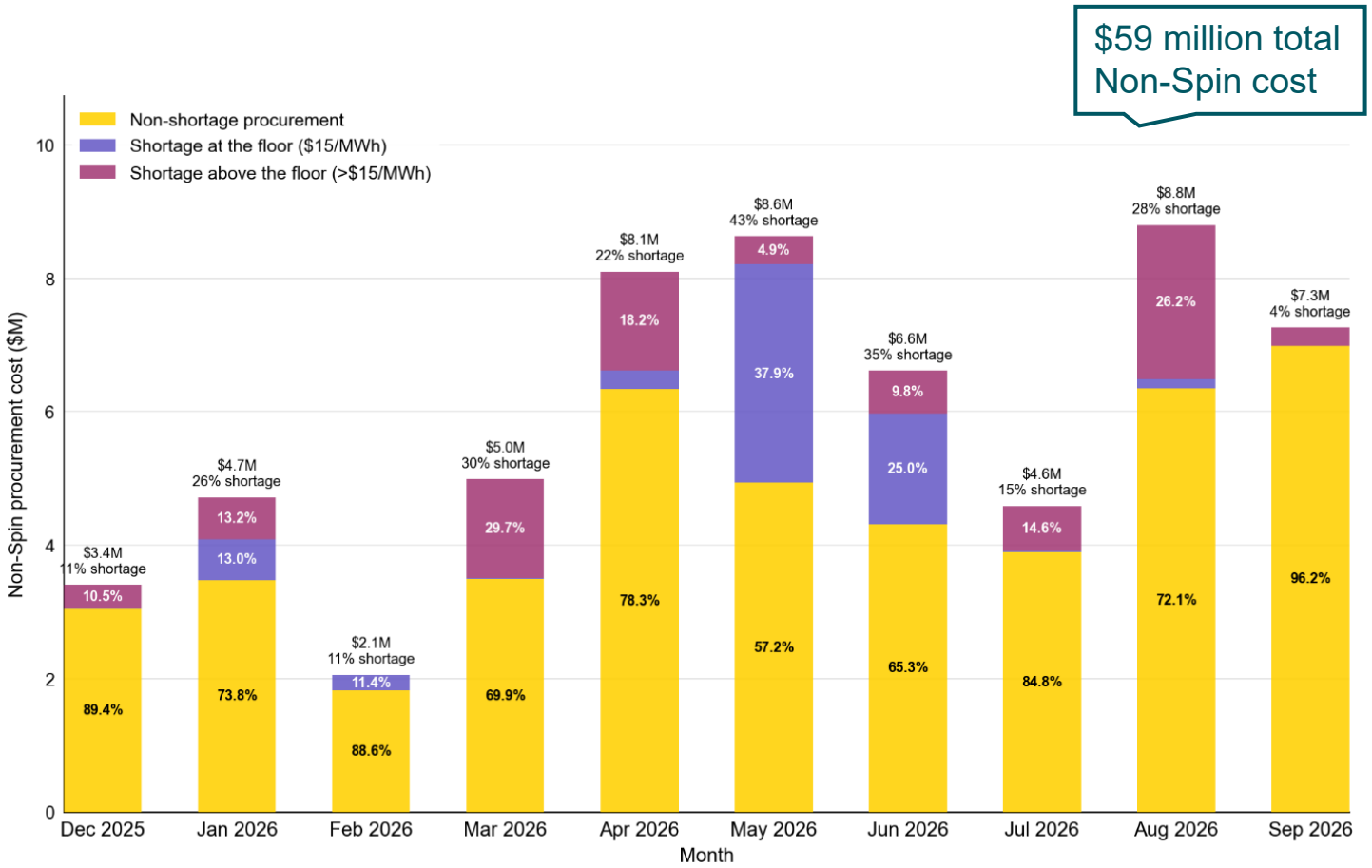
ASDC cost analysis focuses on Non-Spin, the majority of Ancillary Service cost

Real-time Non-Spin procurement cost, by month and pricing condition



How the ASDCs performed

Monthly variation. Shortfall-related cost ranged from 4% of monthly Non-Spin cost in September to 43% in May (non-shortage cost was the remaining 57% to 96%). Floor-priced shortage dominated in May and June, and above-floor shortage in March and April.

Plan size drove floor pricing. May and June carried the largest evening Non-Spin plans and accounted for 74 of the 86 GWh priced at the floor (86%).

Floor mechanics. A large requirement sits on the low-priced tail of the aggregate curve, where the curve value falls below $15. The $15 floor therefore sets the price whenever Non-Spin is short.

Source: ERCOT 2026 Biennial Report on the ORDC and Initial Report on ASDC, §3.3 (Figure 27) and §3.1.4. Cost = cleared AS quantity × MCPC × interval duration. For Dec 2025 and Jan 2026 see footnote 18 in report.

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ASDCs contribute to reliability, but cannot be tied to PNM as directly as for the ORDC

How the ASDCs performed

Scarcity priced inside SCED. Because the ASDCs are inputs to SCED, scarcity is priced within the optimization instead of added afterward. The ASDC contribution to Peaker Net Margin therefore cannot be isolated as directly as for the ORDC.

Gains come from co-optimization. Five-minute co-optimization of energy and Ancillary Services lets SCED award AS dynamically, based on system conditions and economics, and manage congestion. ERCOT plans to assess realized RTC+B benefits for the Board in February 2027.

Product priorities: Individual ASDCs let the optimization distinguish and prioritize between AS products. In this period, shortages fell first on Non-Spin, the least critical product, and 99.5% of shortage intervals followed the intended order.

ERCOT recommends two actions and expects to propose ASDC improvements in 2027

Conclusion

Frameworks performed as designed. Both the ORDC and the ASDCs operated consistently with design expectations when scarcity occurred.

Scarcity was rare. Intervals below 3,000 MW of headroom fell from 13.31% to 1.38% under the ORDC, and only 0.22% of ASDC requirement volume went unmet.

Shortages were concentrated. In about 10 months of ASDC operation, shortages fell almost entirely on Non-Spin, and the $15/MWh floor set most Non-Spin shortage prices, mainly in May and June evenings.

Recommendations

1. Use the Triennial Reliability Standard Assessment to inform resource-adequacy and market-design decisions.

2. Consider alternatives to the current derivation of ASDCs from the AORDC, including reflecting the marginal reliability value.

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Appendix

General information

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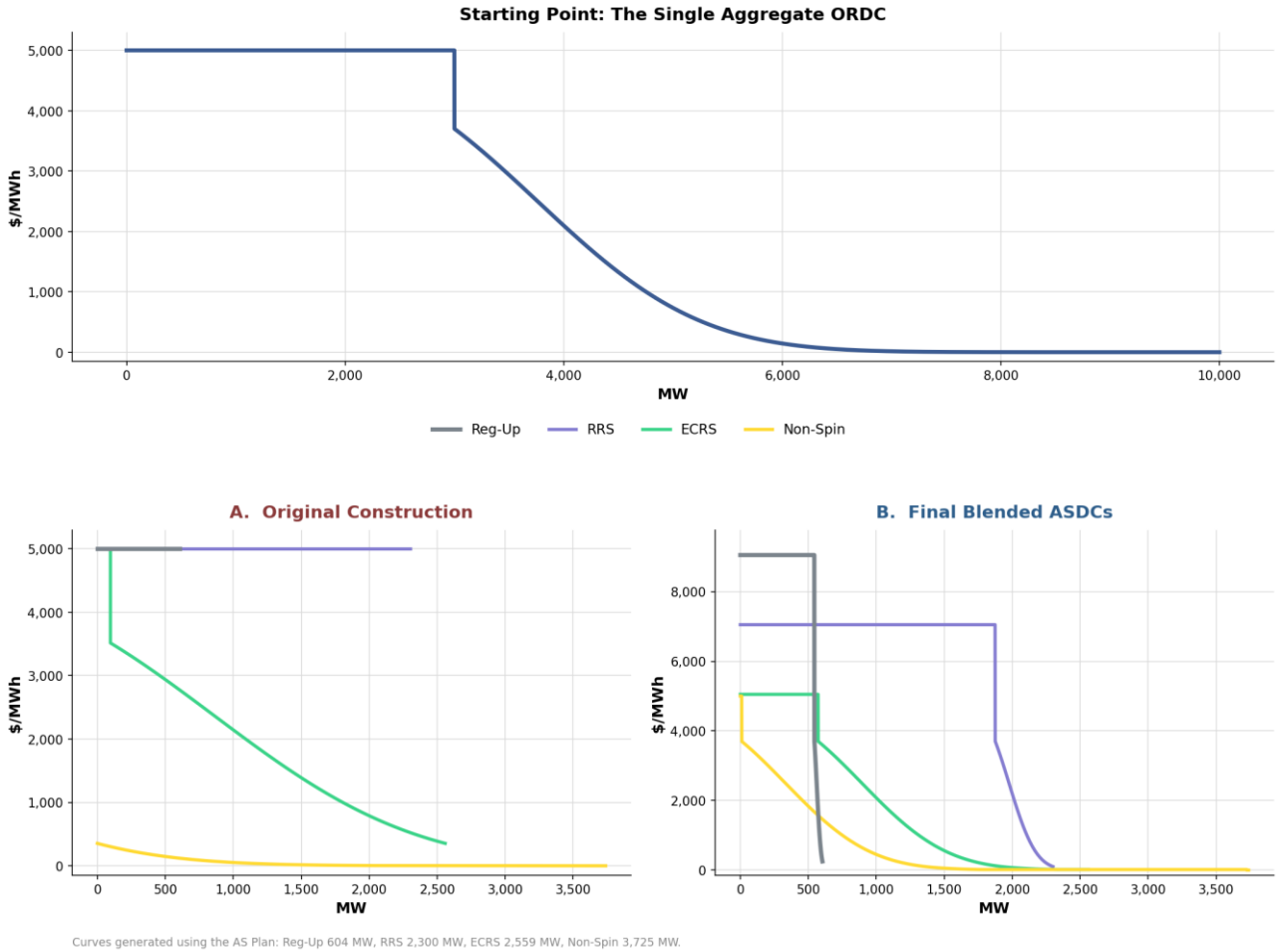
The AS product curves are slices of one aggregate curve, blended so they overlap

Original and final ASDC construction



Construction and pricing mechanisms

- **Original design:** vertical slices of the AORDC assigned in fixed order to Reg-Up, RRS, ECRS, then Non-Spin
- **Final design (NPRR 1268):** proposed by the IMM and approved by the PUCT in May 2025; curves overlap while preserving relative price order
- **Shortage floor (NPRR 1269):** $15 per MW per hour on the ECRS and Non-Spin curves
- **Proxy Offer Floor:** the lesser of $2,000 per MW per hour or the ASDC price at 95% of the AS Plan quantity

Source: ERCOT 2026 Biennial Report on ORDC and ASDC, Section 1.2 and Appendix 5.2 (Figure 1; NPRR 1268 and 1269).

Definitions to keep in mind when reading the results

Key definitions

- **On-line dispatchable capacity:** High Dispatch Limits of on-line resources minus Generation To Be Dispatched
- **3,000 MW screen:** an analytical threshold for tight conditions, not an ERCOT operational threshold
- **Surplus dispatchable capacity:** aggregate HDL of on-line SCED-dispatchable resources minus estimated demand for the coming five minutes
- **AS cost:** cleared quantity times Market Clearing Price for Capacity (MCPC) times interval duration
- **$10/MWh threshold:** covers start-up cost of a marginal combustion turbine with a four-hour minimum run time

Source: ERCOT 2026 Biennial Report on ORDC and ASDC, Sections 2.1.4, 3.1, 3.3 and footnotes 1, 3, 15, 17, 18, 19, 20.

Glossary of terms and acronyms

Term	Definition
AORDC	Aggregate Operating Reserve Demand Curve
AS	Ancillary Service
ASDC	Ancillary Service Demand Curve
DRRS	Dispatchable Reliability Reserve Service
ECRS	ERCOT Contingency Reserve Service
ESR	Energy Storage Resource
GTBD	Generation To Be Dispatched
HDL	High Dispatch Limit
IMM	Independent Market Monitor
MCL	Minimum Contingency Level
NPRR	Nodal Protocol Revision Request
Non-Spin	Non-Spinning Reserve Service

Term	Definition
ORDC	Operating Reserve Demand Curve
PNM	Peaker Net Margin
QSE	Qualified Scheduling Entity
Reg-Up, Reg-Down	Regulation Up, Regulation Down
RRS	Responsive Reserve Service
RTC+B	Real-Time Co-optimization Plus Batteries
RTOLCAP	Real-Time On-Line Capacity
RTORPA	Real-Time On-Line Reserve Price Adder
RUC	Reliability Unit Commitment
SCED	Security-Constrained Economic Dispatch
VOLL	Value of Lost Load
TAC	Technical Advisory Committee

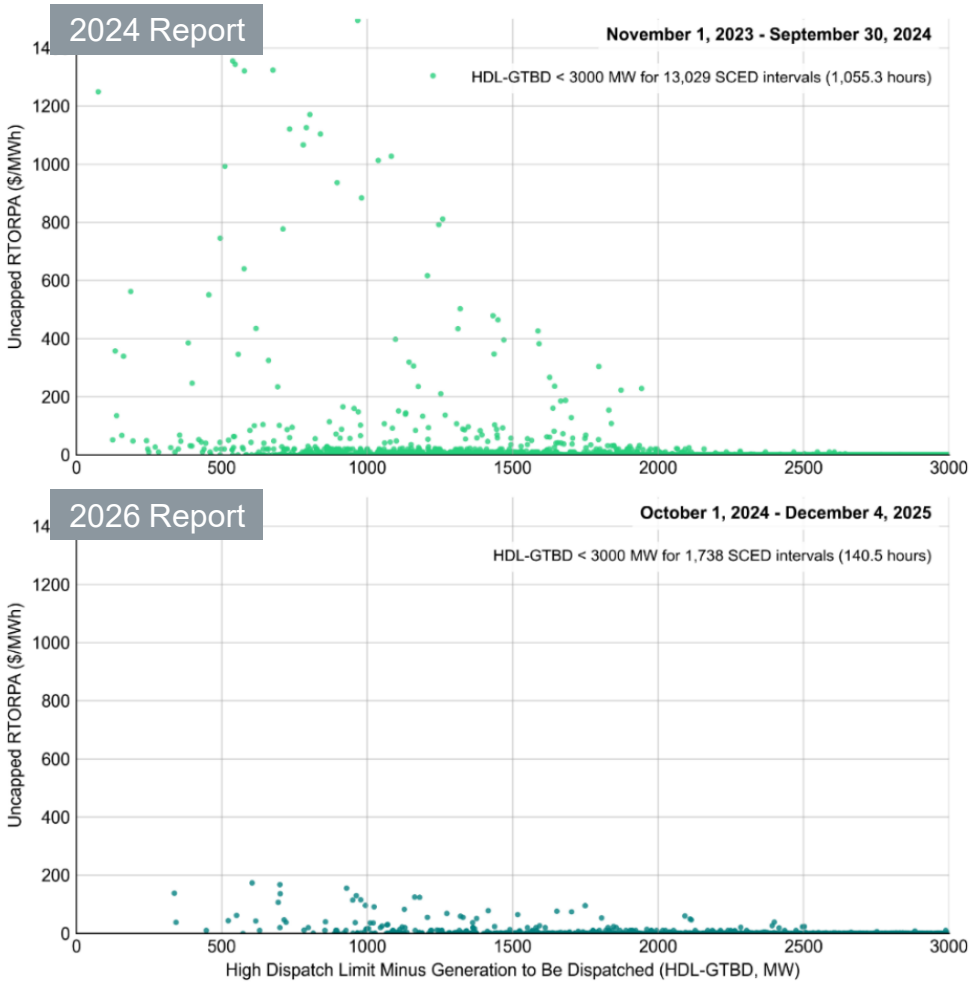
Source: ERCOT 2026 Biennial Report on ORDC and ASDC, List of Acronyms.

Additional detail on the ORDC period

October 1, 2024 to December 4, 2025

ORDC adders rose as headroom fell, at lower magnitudes than in the prior report

Uncapped RTORPA vs on-line dispatchable capacity



How the ORDC performed

Direction held. Higher RTORPA values corresponded with lower on-line dispatchable capacity (HDL minus GTBD).

Lower magnitude. Average RTORPA in intervals below 3,000 MW fell from $4.17 to $2.69/MWh.

Same average tightness. Average headroom in those intervals was 2,334 MW versus 2,335 MW, while the minimum rose from 75 MW to 337 MW.

Measurement change. Physical Responsive Capability fell below 5,500 MW in under 0.1% of intervals, and ESR state of charge limits its usefulness, so the report uses on-line dispatchable capacity as an interim headroom measure.

Source: ERCOT 2026 Biennial Report on ORDC and ASDC, Sections 2.1.1 and 2.1.4 (Figure 6, Table 7).

Scarcity pricing applied less often and contributed less to prices in this ORDC period

Intervals below 3,000 MW of headroom

Summary statistics for SCED intervals with on-line dispatchable capacity below 3,000 MW. “Average” and “Minimum” capacity refer to the average and minimum on-line dispatchable capacity of the data set.

Study period	Number of intervals	Share of all SCED intervals	Average capacity	Minimum capacity
Nov 2023 to Sep 2024 (prior report)	13,029	13.31%	2,334 MW	75 MW
Oct 2024 to Dec 2025 (this report)	1,738	1.38%	2,335 MW	337 MW

How the ORDC performed

Less frequent. Intervals with under 3,000 MW of on-line dispatchable capacity fell from 13,029 (13.31% of SCED intervals) to 1,738 (1.38%).

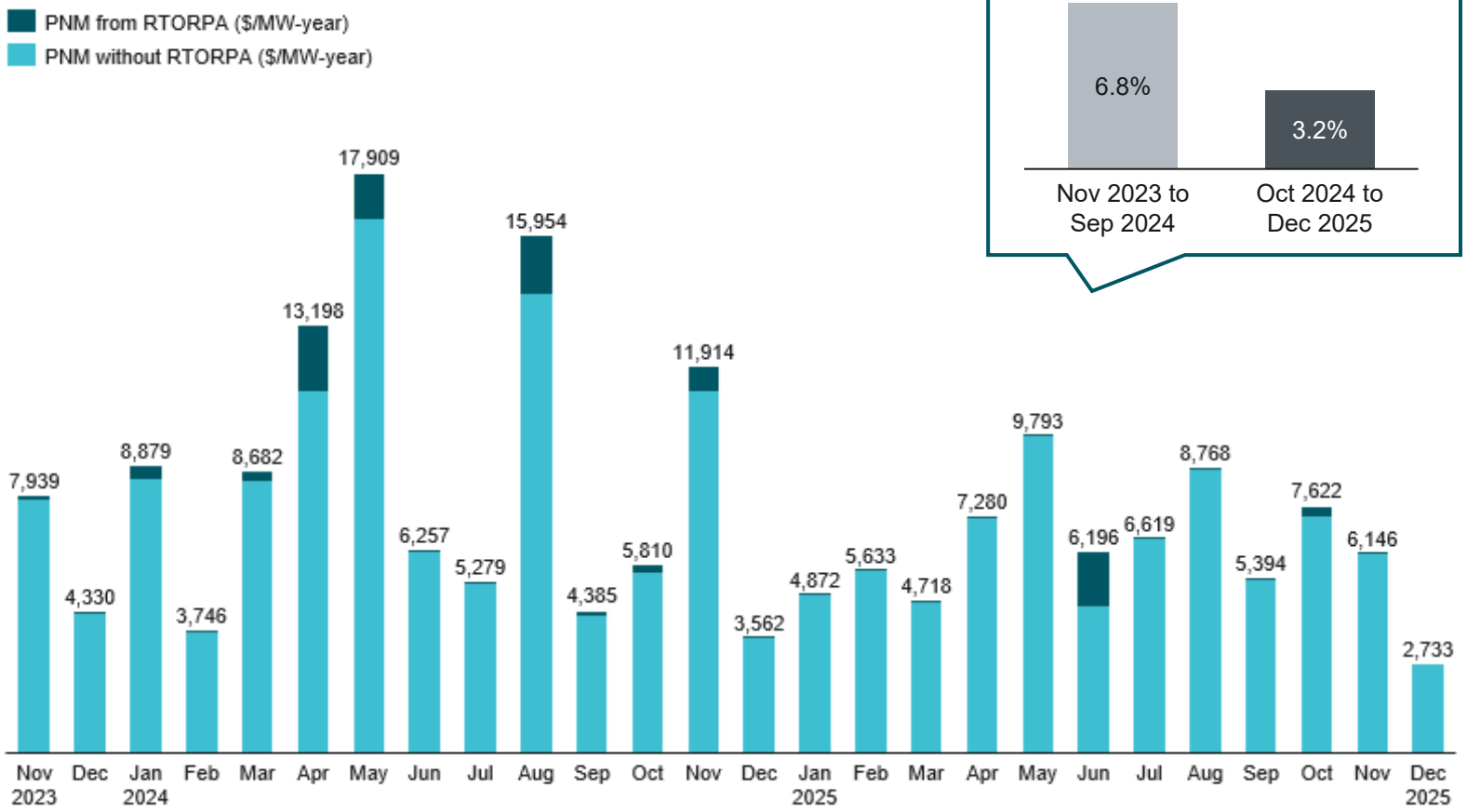
Contributing factors. New capacity additions (about 20 GW of solar and 16 GW of ESRs), less extreme weather, and price-responsive load are consistent with fewer scarcity intervals.

Source: ERCOT 2026 Biennial Report on ORDC and ASDC, Sections 2.1.4 (Table 7) and 2.2 (Figures 8 and 9).

ORDC costs were limited: RTORPA was 3.2% of PNM and floors added about $18.3 M

Peaker net margin (PNM)

PNM including ORDC price adder



How the ORDC performed

Small share of PNM. RTORPA made up 3.2% of Peaker Net Margin, down from 6.8%. Monthly PNM totals were lower overall in 2025 than in 2024.

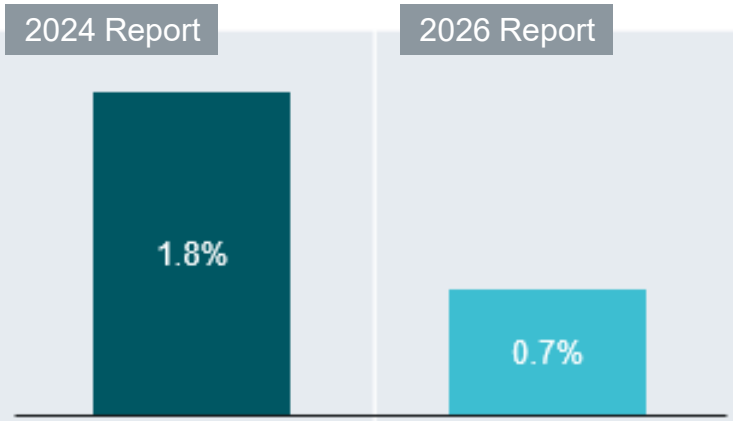
Limited floor impact. The $10/MWh floor affected 250 intervals (RTOLCAP below 7,000 MW) and the $20/MWh floor affected 134 (below 6,500 MW). Together they added about $18.3 million of cumulative revenue to resources across both periods.

Source: ERCOT 2026 Biennial Report on the ORDC and Initial Report on ASDC, §2.1.4 (Table 7, for the average adder) and §2.3 (Figure 10-15).

Decreased ORDC adders reduced incentives for thermal units to self-commit

ORDC adder vs start-up costs

Fraction of days where the 4-hour rolling average RTORPA exceeded the $10/MWh adder threshold



Fraction of Days where 4-hour Rolling Average RTORPA>$10/MWh:	2024 Report	2026 Report
Interval:	11/01/23 - 09/30/24	10/01/24 - 12/04/25
Days above Threshold:	6	3
Total Days	335	430

How the ORDC performed

ORDC adders rarely covered the start-up cost of a marginal combustion turbine.

A $10/MWh ORDC adder over four hours approximates the start-up cost of a marginal combustion turbine. Only 3 of 430 days (0.7%) met this criterion in the last year of the ORDC period

Reduced incentives were expected. Capacity additions, mild weather, and price responsive load reduced the need for peaking plants to self-commit.

Source: ERCOT 2026 Biennial Report on the ORDC and Initial Report on ASDC, §2.1.3 (Figure 5) and §2.4.