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Where Did All the ERCOT Wind Interest Go?

Wind Economics in ERCOT's Evolving Market

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Introduction

This market update summarizes:

- Recent shifts in ERCOT's resource mix, including rapid solar and storage growth and comparatively modest wind and gas additions;
- The market drivers behind these trends, including shifts in net load, sharper evening ramps, and evolving capture price dynamics; and
- E3's perspective on how these forces shape the forward outlook for wind and solar economics.

This update also examines whether changing system conditions could renew development interest in wind, drawing on historical performance, interconnection queue data, and insights from E3's latest off-the-shelf ERCOT market forecast.

E3 is also exploring scenarios where wind development remains at its current run rate to investigate a world where development constraints limit the resource – changing the long-run balance of the ERCOT grid. Please contact marketprices@ethree.com for more details.

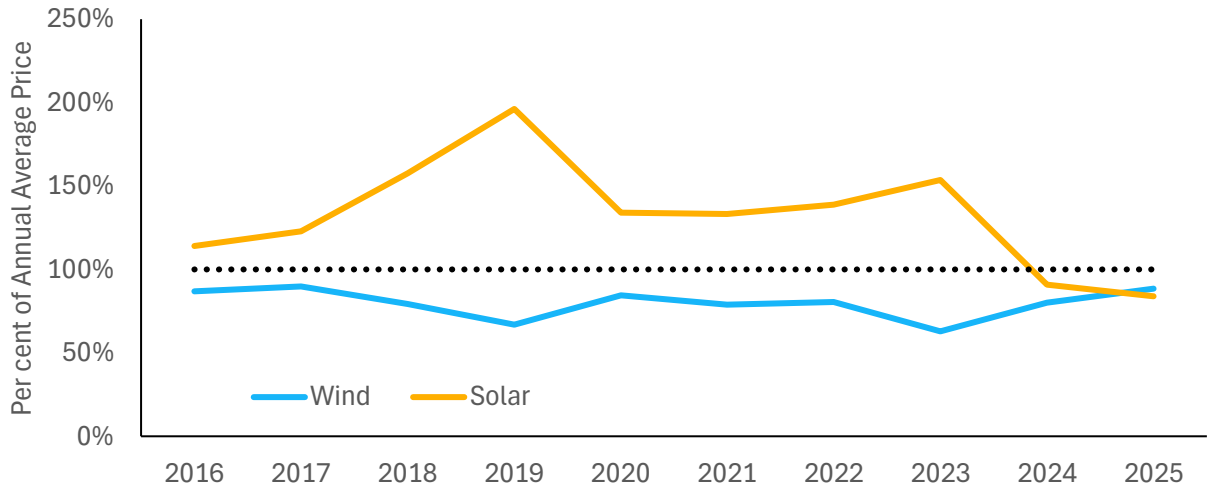
Executive Summary

ERCOT's generation mix has undergone a profound shift over the past decade. While wind defined ERCOT's renewable growth from the mid-2000s through the early 2020s, recent resource additions have been dominated by solar and battery storage. In 2025 alone, ERCOT energized roughly 6 GW of solar and 6 GW of storage, compared to only ~1 GW of wind and essentially no new gas-fired generation. This shift reflects both technology cost trends and the structure of public policy incentives, but it also highlights a potential divergence between ERCOT's development pipeline and ERCOT's evolving market fundamentals.

E3's ongoing analysis for our off-the-shelf (OTS) ERCOT market forecast reveals that wind's value proposition is strengthening, even as its deployments and development pipeline remain flat. Large-scale solar additions are now fully reshaping net load patterns, pushing peak prices later into the evening after sunset. As solar approaches saturation, its captured prices have begun to deteriorate, falling below the annual average market price for the first time in 2024 and, in our modeling, declining further by 2030. Continued solar growth supports wind generation becoming increasingly aligned with high-priced evening periods, positioning wind to see strong capture prices in ERCOT's energy-only market.

Historical trends reinforce this shift. Solar has rapidly transitioned from a premium resource to a discounted one, while wind capture prices have converged upward. In 2025, wind capture prices exceeded solar capture prices for the first time in ERCOT's history. This crossover underscores a fundamental market signal: solar is saturating, and wind's economic role is re-emerging. E3 has been forecasting this swap for multiple years now as the solar buildout increased pace.

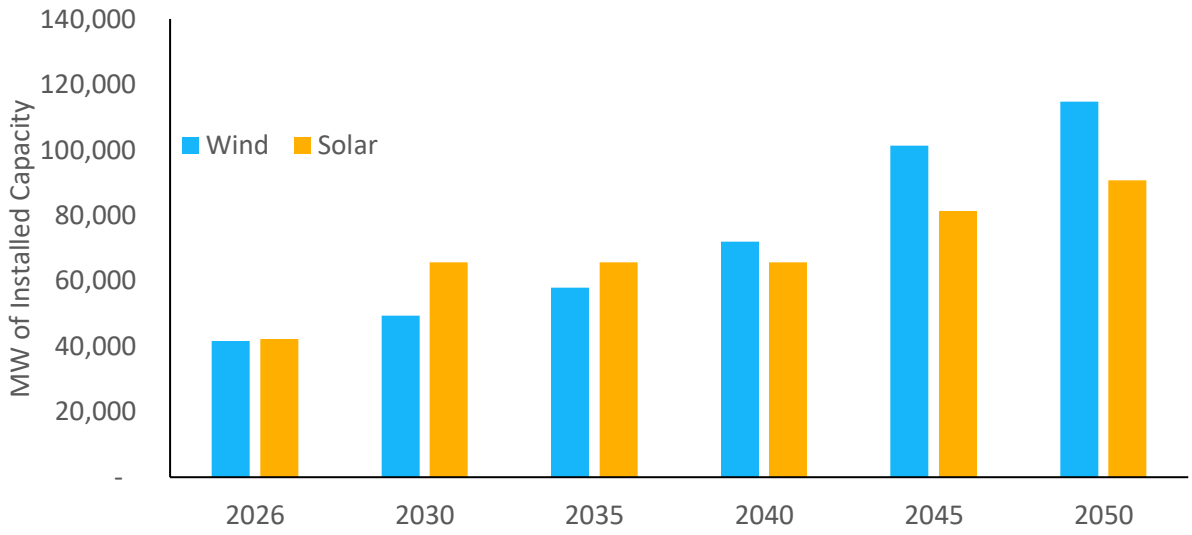
Figure 1: Historic Solar and Wind Discounts



Looking forward, the interconnection queue continues to be dominated by solar (over ~160 GW of interest) and storage (~180 GW), while wind shows only ~45 GW of interest, including ~6 GW with executed interconnection agreements. Based on this near-term pipeline, E3 expects solar to continue outpacing wind through 2030, with approximately 7 GW of wind and 26 GW of solar additions by decade's end. With continued solar growth, capture price divergence between the two resources is expected to widen through 2030, strengthening wind's competitiveness.

Beyond 2030, our long-term market modeling suggests the resource mix will shift back to wind domination. As solar saturation deepens and wind becomes increasingly valuable in non-daylight hours, we project the market will gradually re-calibrate; solar development will slow, wind additions will increase, and capture prices will converge as ERCOT's supply stack rebalances.

Figure 2: E3's Wind and Solar Outlook



Taken together, these findings suggest a clear conclusion: ERCOT's queue does not yet reflect the structural changes underway in energy market value. If the market responds to fundamentals—as it has historically—ERCOT is poised for a renewed phase of wind development.

E3 Background

E3 is a market-leading consulting firm focused exclusively on the energy industry, completing over 350 projects per year across a diverse client base, producing studies in resource and transmission planning, market advisory and design, strategy and procurement, policymaking, and rates and utility programs—including DERs and load management. This 360-view gives us a holistic understanding of electricity markets and systems from policy and planning to regulation and operations.

As a part of E3's advisory services, we produce market price forecasts (MPF) for every major electricity market across North America.[1] As a part of each MPF, we produce day-ahead (DA) energy prices, real-time (RT) energy prices, ancillary services (AS) prices, resource adequacy (RA)/capacity prices, and renewable attribute (REC) prices. E3 also does extensive work forecasting the long-term build in each market as well as the operations of each asset class, including energy storage. E3 uses

[1] See the release note here: New Electricity Price Forecasts – Now Available for 2024 in Every North American Market - E3

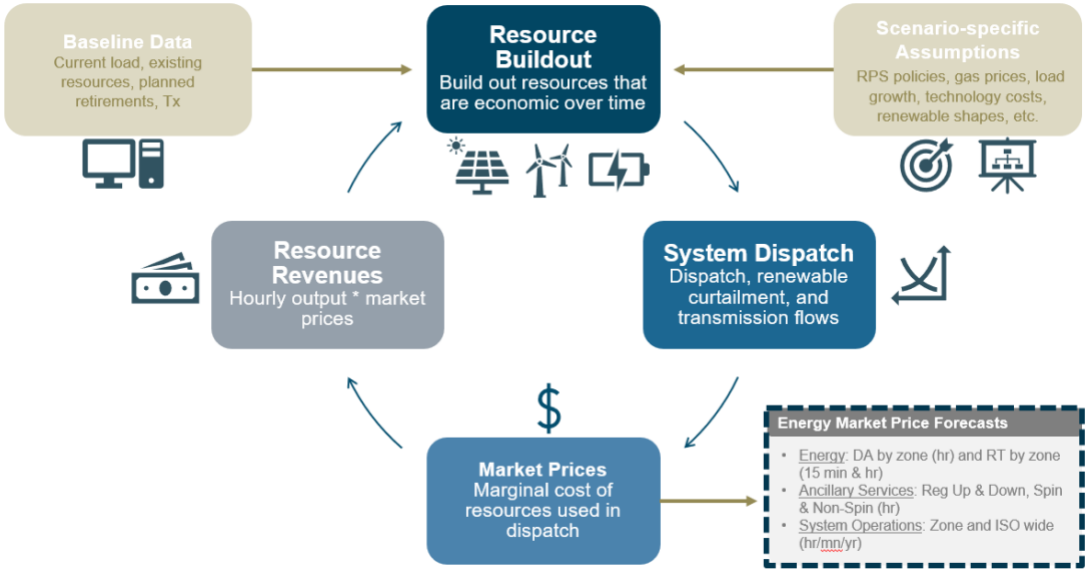
its RESTORE energy storage optimization model to gain insight into the economics and operations of energy storage in each market.

To create an MPF for each market, we leverage thought leadership across all practice areas, including resource planning, market design, distributed energy resources, climate pathways, electrification, and asset valuation. The input from the resource planning and electrification groups are important as they provide the forecasting process with generation technology costs and capabilities and expected load increases, respectively.

E3 Approach to Market Price Forecasting: Market Fundamentals Drive Price

E3 uses a fundamentals approach to market price forecasting. E3 does not rely exclusively on statistics from historical data to forecast future prices but instead uses a "bottom-up" approach based on costs and operations of the grid, which enables us to reflect the dynamic structural changes that are transforming many power markets across North America. To achieve this, we project a long-term resource build that is derived from an initial multi-year capacity expansion that incorporates expected loads, resource costs, fuel costs, policy, and transmission assumptions. This process starts with our demand forecast. For ERCOT, E3 relies heavily on the latest load forecast produced by ERCOT as a baseline. We then adjust this to reflect the E3 view of building and transportation electrification, data center growth, and other large industrial loads. E3's Climate Pathways & Electrification group provides the outlook and shapes of charging based on decarbonization work done by that group.

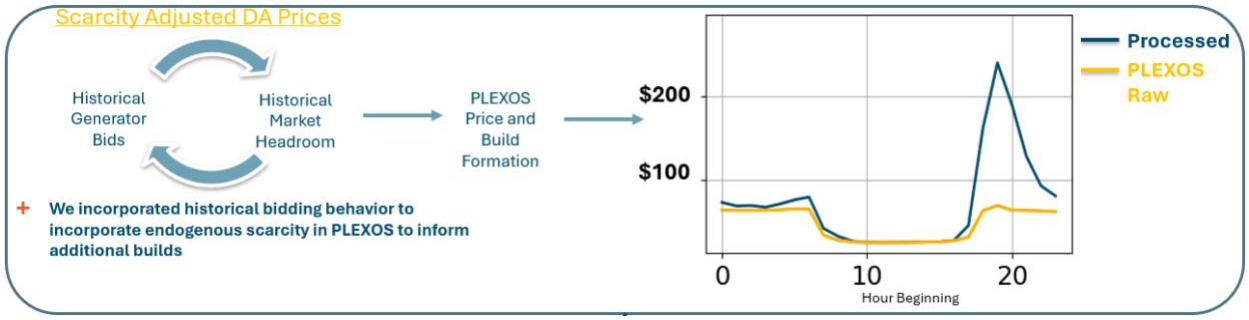
Figure 3: Long-term Resource Build Process



Once the resource build is determined, we utilize production cost modeling to generate hourly dispatch for the market with a security-constrained economic dispatch for the forecast load and long-term generation build. We augment the production cost model with market scarcity to derive

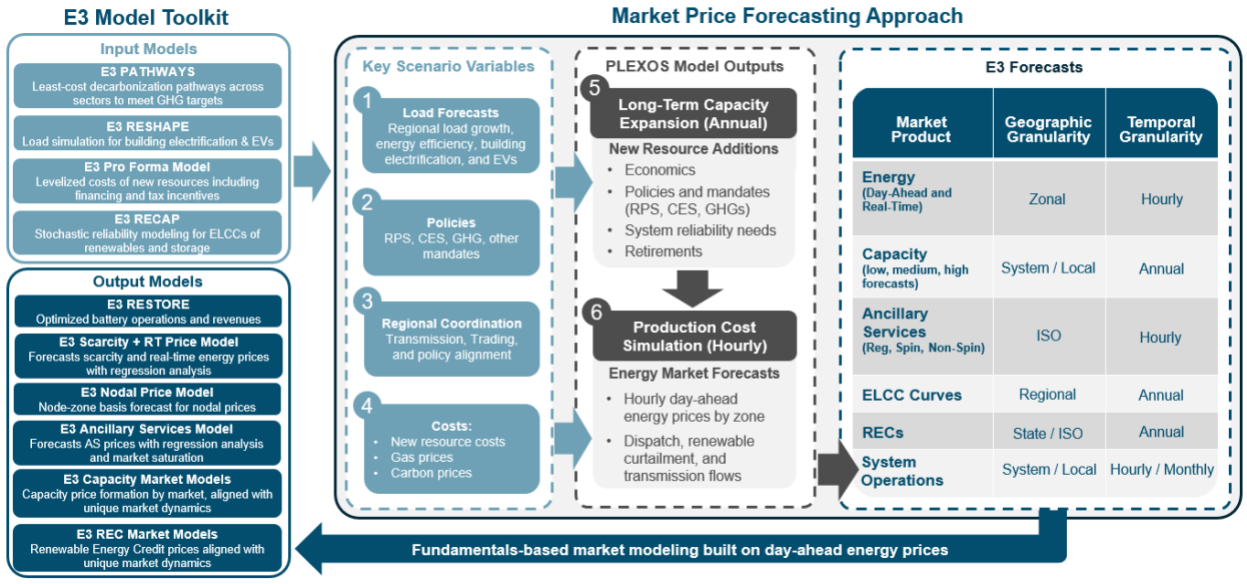
the final forecast by analyzing historical relationships between scarcity pricing and available generation vs. load, and then projecting these scarcity premiums on top of the model's 'raw' marginal cost-based prices.

Figure 4: Scarcity Pricing Process



With our final energy market forecast, we then calculate prices for Ancillary Services, Capacity Costs, RECs, and other market outcomes. E3 uses the energy forecast to derive these other market outcomes.

Figure 5: E3's Full Model Framework



E3's approach is designed to be able to anticipate fundamental changes in the market based on pace of load growth and builds, long-term cost trajectories, and policy.

ERCOT Development Trends

Gas Growth (1999-2004)

In the late 90s and early 2000s, ERCOT saw a large buildout in its gas-fired generation fleet. This build out is largely in response to several factors, including local natural gas prices, large decreases in heat rates especially in combined cycle, market deregulation via SB 7, strong turbine supply from manufactures, load growth, and capital markets that were interested in merchant exposure. This build out has served as a strong backbone as thermal additions have been flat since then.

Wind Growth (2000–2020)

ERCOT's first major phase of renewable growth began with wind in the 2000s. Multiple forces drove rapid adoption: the federal Production Tax Credit (PTC), ERCOT's deregulated market structure, Texas's Renewable Portfolio Standard, the construction of the Competitive Renewable Energy Zone (CREZ) transmission corridors, falling turbine costs, and world-class wind resources. Wind deployment grew steadily and consistently for nearly two decades, establishing ERCOT as the largest wind market in the U.S.

Solar Growth (2018–present)

Solar adoption accelerated much later. By the late 2010s, solar costs had declined sharply and ERCOT's solar resource quality—combined with rapid permitting and interconnection processes—made the market attractive. The Inflation Reduction Act (IRA) extended and expanded federal incentives, allowing developers to elect either the ITC or PTC for solar projects. These factors created unprecedented momentum: solar additions have grown exponentially since 2018, making ERCOT the fastest-growing solar market in the country.

Storage Growth (2020–present)

Battery storage has followed a similar trajectory to solar. Cost declines, the standalone ITC under the IRA, large solar mix, and ERCOT's high price cap and energy-only market design have made the region a leading storage market, second only to CAISO. Storage additions closely track solar buildout and are increasingly instrumental in shaping net-load patterns and peak price formation.

Figure 6 and Figure 7 illustrate these trends, highlighting wind's early steady growth compared to the more recent exponential rise of solar and storage.

Figure 6: ERCOT Historic Gas, Wind, Solar, and Storage Build

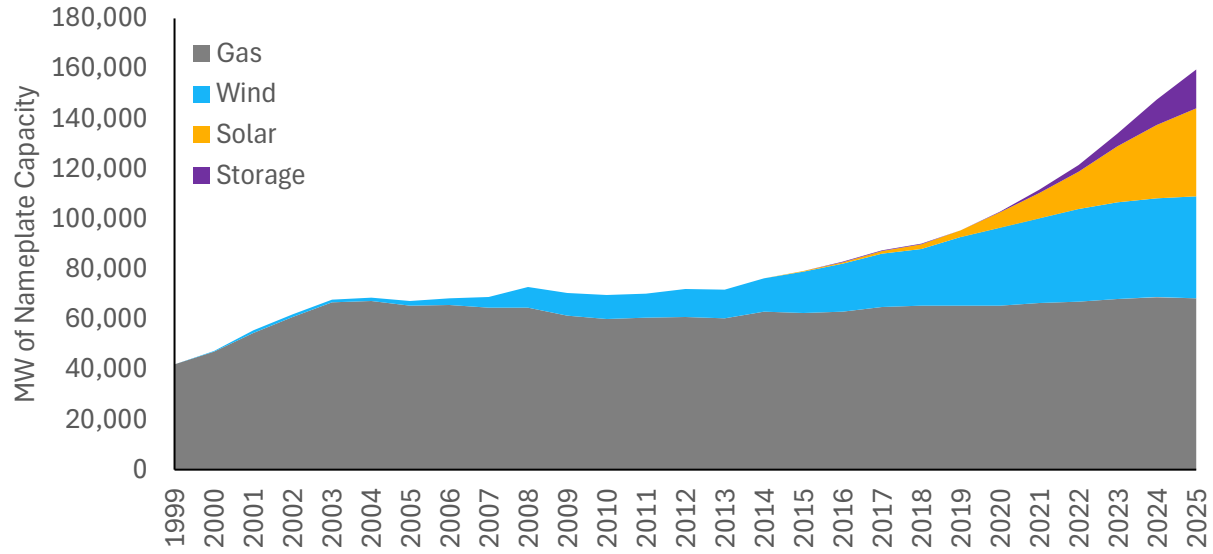


Figure 7 charts annual additions in installed capacity for wind, solar, and storage. The chart demonstrates that wind had a much longer and regularly paced deployment, while solar and storage are currently seeing unprecedented speed to market. It also shows that since 2019, wind additions have been declining each year to 2024/25.

Figure 7: ERCOT Historic Wind, Solar, and Storage Additions

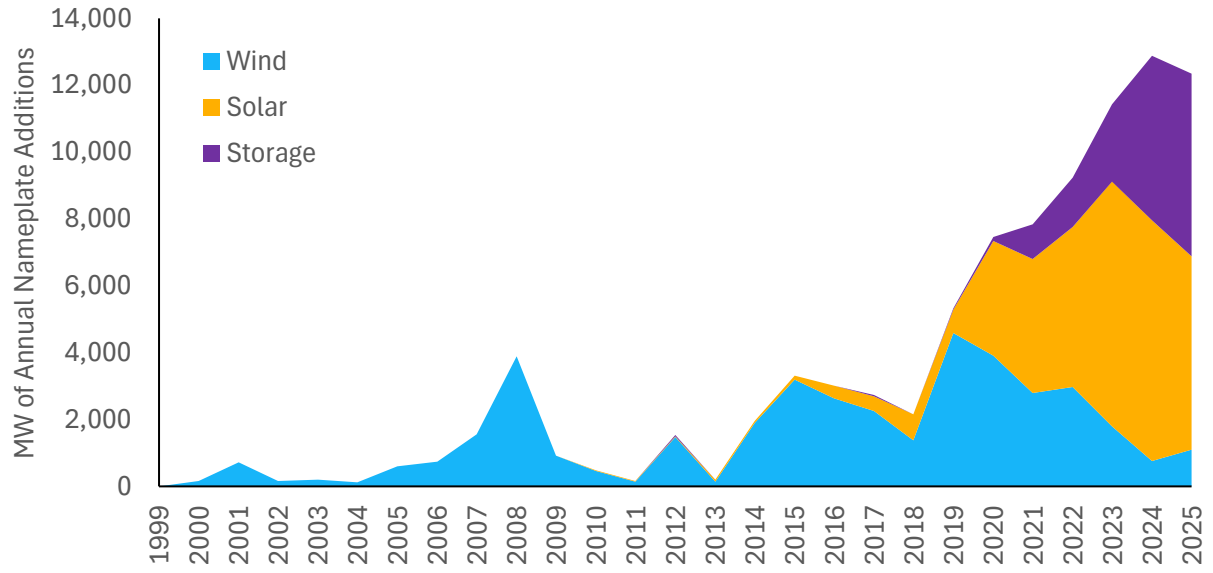


Figure 8 charts the cumulative MW additions in each technology, since the first year of installed MW of the technology. The chart demonstrates that wind has had much steadier adoption and started rather quickly. Solar and storage conversely had very slow adoption since their initial MW's, but then have exponentially increased capacity after roughly 7-10 years. Solar is now 7 years ahead of wind's

adoption speed reaching 35 GW in 17 years compared to the 24 GW of wind. Storage similarly is about 2 years ahead of wind, reaching 15 GW in 15 years, and the pace is expected to continue.

Figure 8: Wind, Solar, and Storage Adoption Speed

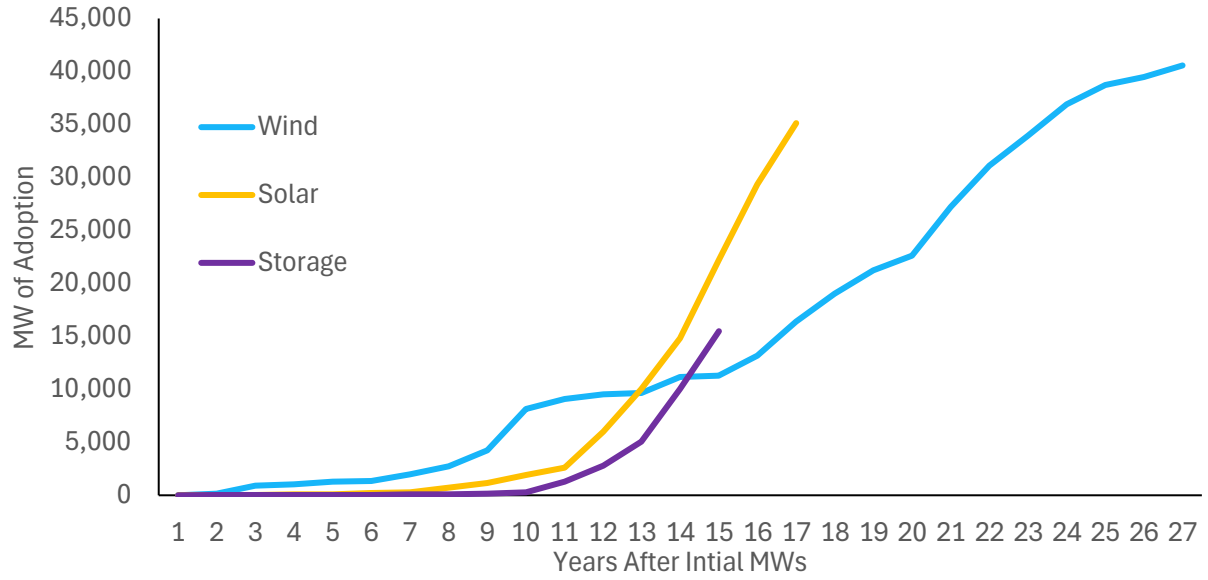


Figure 9, Figure 10, and Figure 11 show the evolution of ERCOT's interconnection queue. Solar and storage exhibit explosive growth in interest since 2018, while wind shows a smaller but more mature pipeline:

- Wind: ~45 GW of interest; ~6 GW with executed interconnection agreements.
- Solar: ~160 GW of interest; ~27 GW with interconnection agreements.
- Storage: ~180 GW of interest; ~20 GW with interconnection agreements.

Solar and storage dominate the near-term pipeline, suggesting that they will continue to outpace wind through the end of the decade.

Figure 9: Wind Interconnection Queue Over Time

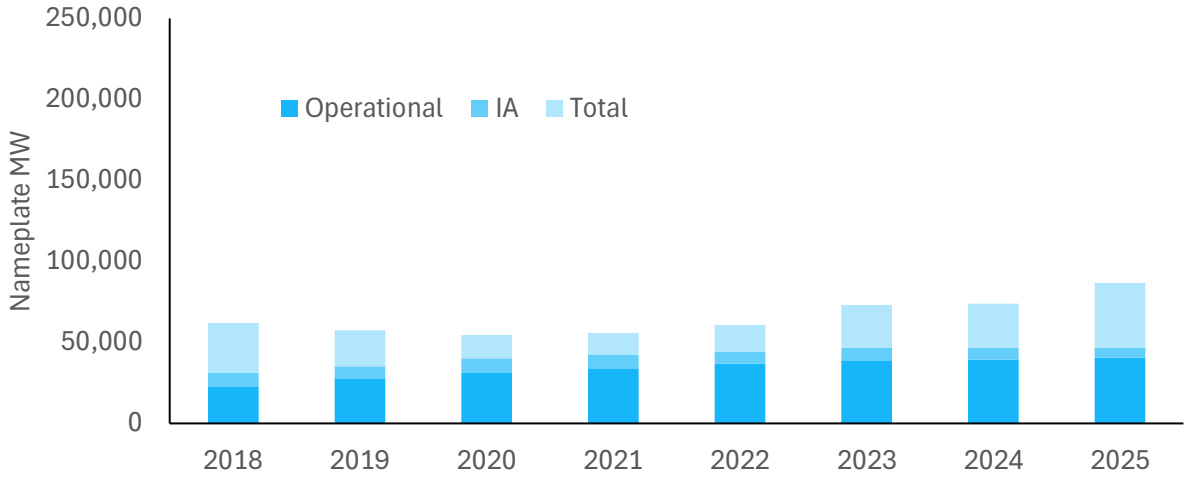


Figure 10: Solar Interconnection Queue Over Time

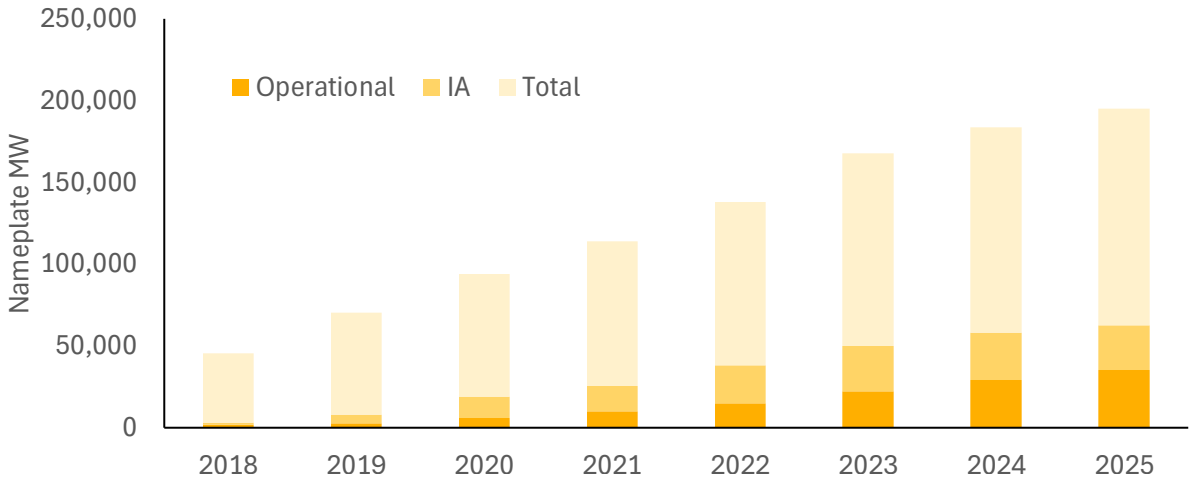
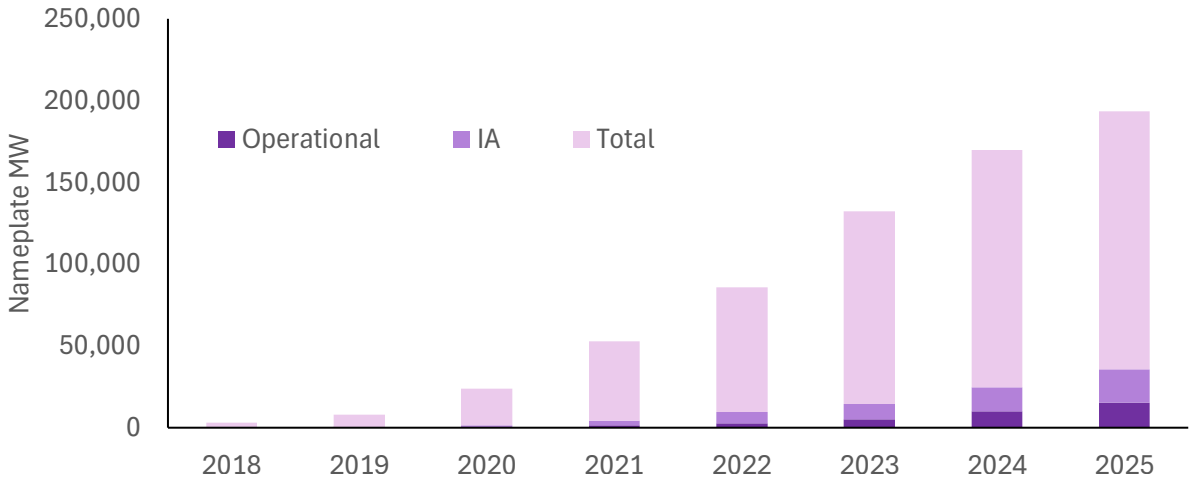


Figure 11: BESS Interconnection Queue Over Time



Wind and Solar Performance

Figure 12 presents ERCOT's 2024 wind, solar, and load profiles. Solar generation closely aligns with daylight peak demand, historically supporting strong solar capture prices. Wind production, by contrast, is more variable but tends to peak in the evening and overnight hours. Historically, this profile left wind at a capture price disadvantage.

Figure 12: Annual ERCOT Wind, Solar, and Load Profiles

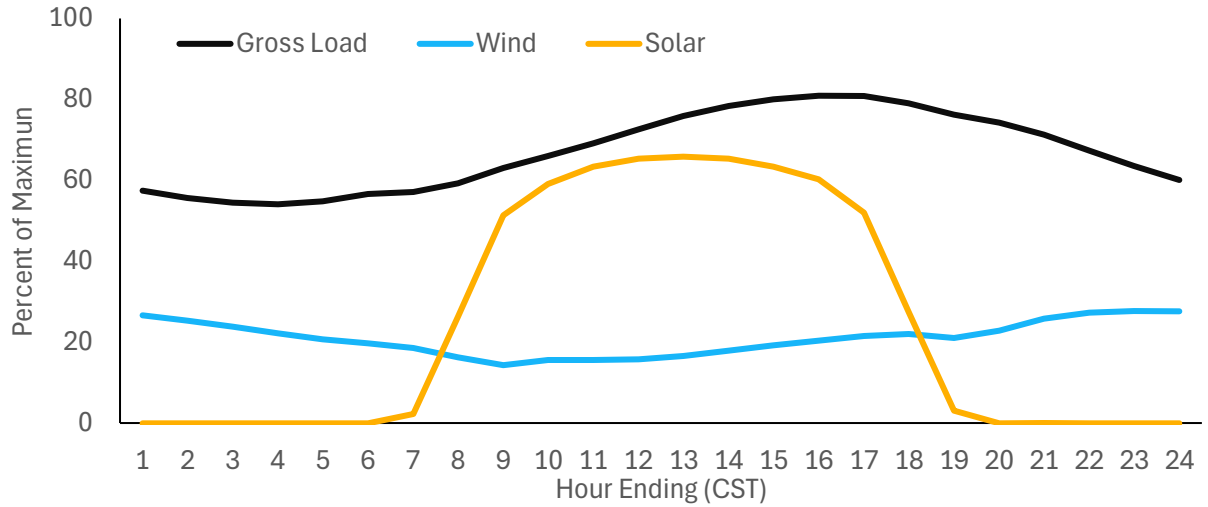


Figure 13 below shows that from 2016 through 2024, wind capture prices lagged solar and frequently fell below the annual average market price, reflecting both profile effects and wind saturation. Solar, with only ~700 MW installed in 2016, earned substantial premiums due to its alignment with peak loads and scarcity conditions.

Figure 13: Wind and Solar Generation Weighted Prices (ERCOT North)

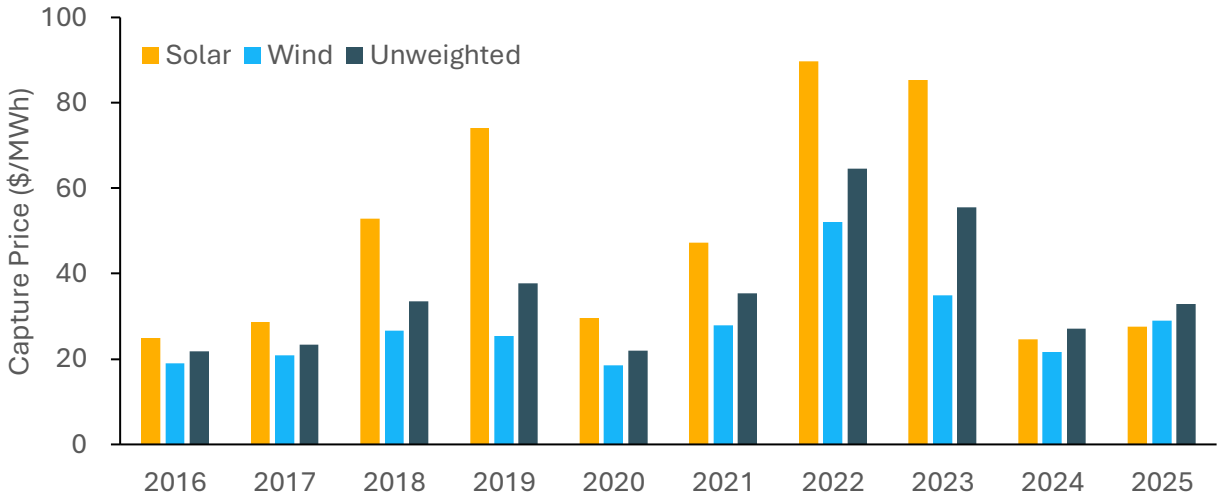


Figure 14 charts wind and solar capture prices divided by the flat average or unweighted price. This demonstrates the data above but relative to the annual average. Figure 9 reveals how dramatic the reversal of solar premium has been beginning in 2024:

- Solar capture prices fell below the annual average for the first time.
- Wind capture prices exceeded solar capture prices in 2025.

This crossover reflects rapid solar saturation. As solar pushes prices down during the day, peak pricing shifts later into the evening—now aligning more closely with wind production.

Figure 14: Wind and Solar Premium to Annual Average Price

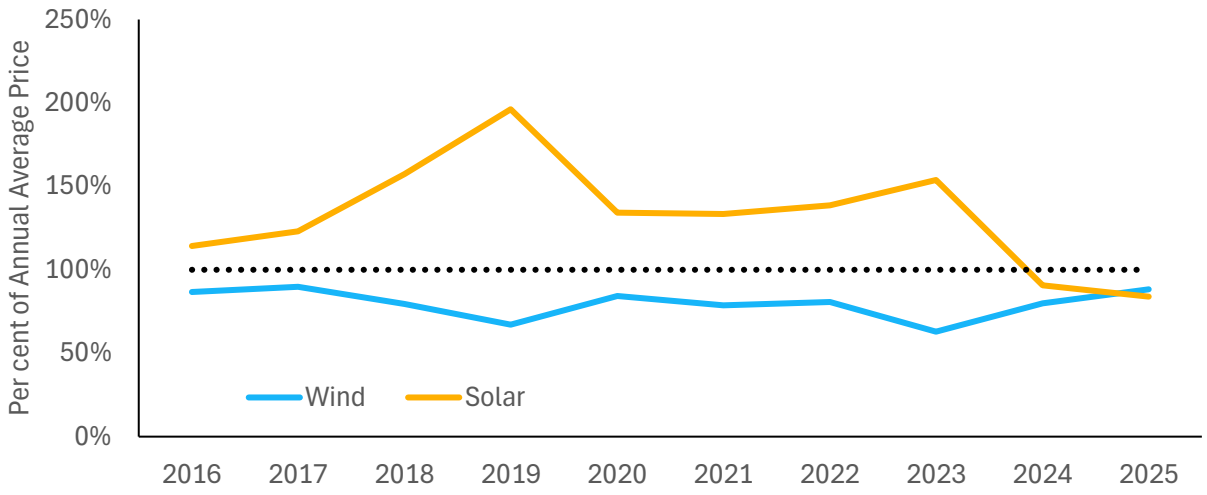
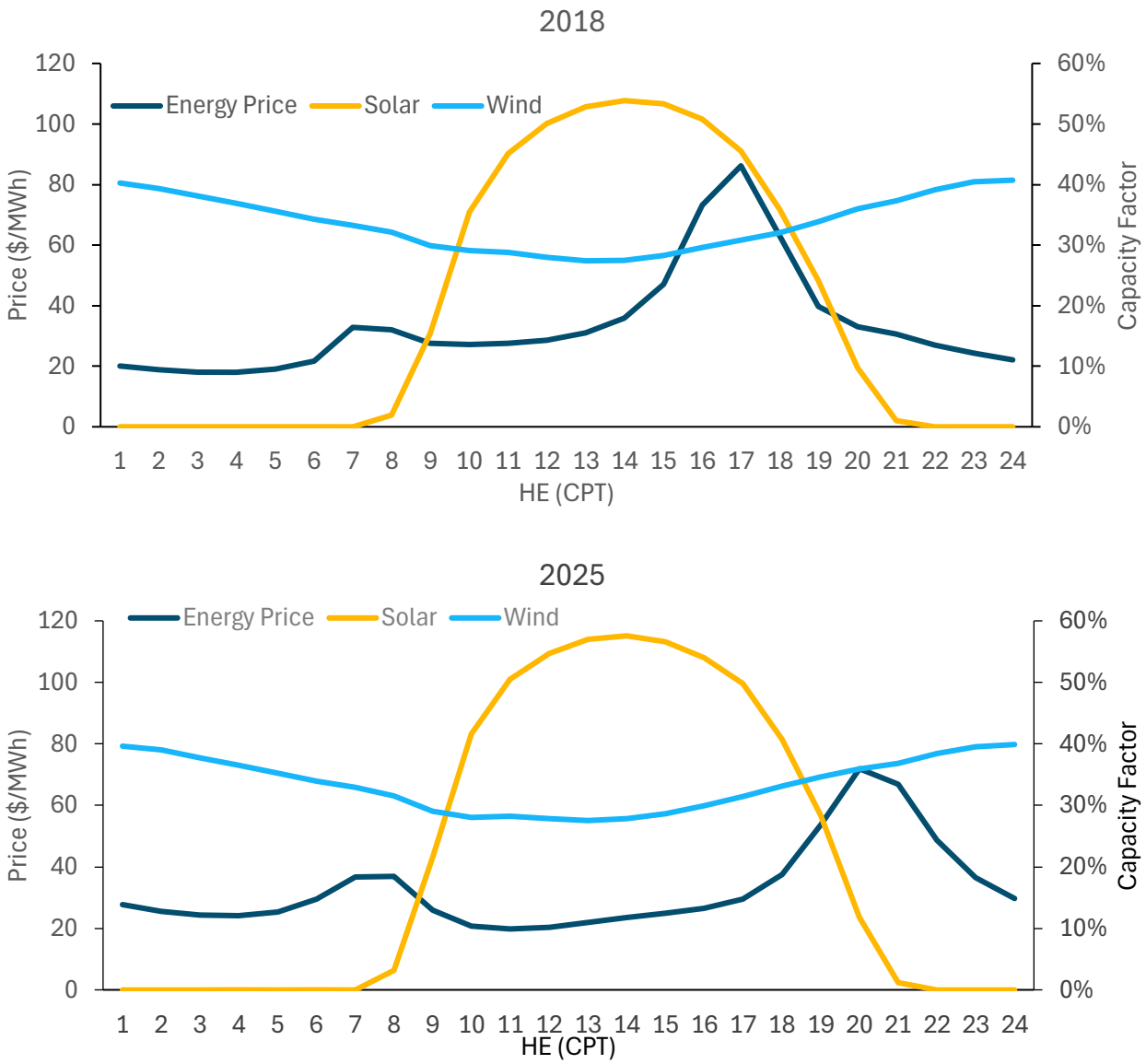


Figure 15 further illustrates this shift: the net-load and price peak that occurred around HE16–19 in 2018 now occurs around HE20–21 in 2025, after sunset.

Wind's evening production profile now increasingly complements ERCOT's evolving price shape, heightening its relative value.

Figure 15: Comparison of 2018 and 2025 Wind and Solar Shapes vs Price



E3's Wind and Solar Outlook

Figure 16 charts E3's planned ERCOT build based on the queue. Given the dominance of solar and storage in late-stage projects, E3 projects solar and storage to outpace wind through 2030:

- **Wind capacity in 2030:** 7 GW
- **Solar capacity in 2030:** 26 GW

Figure 16: E3's Planned ERCOT Build

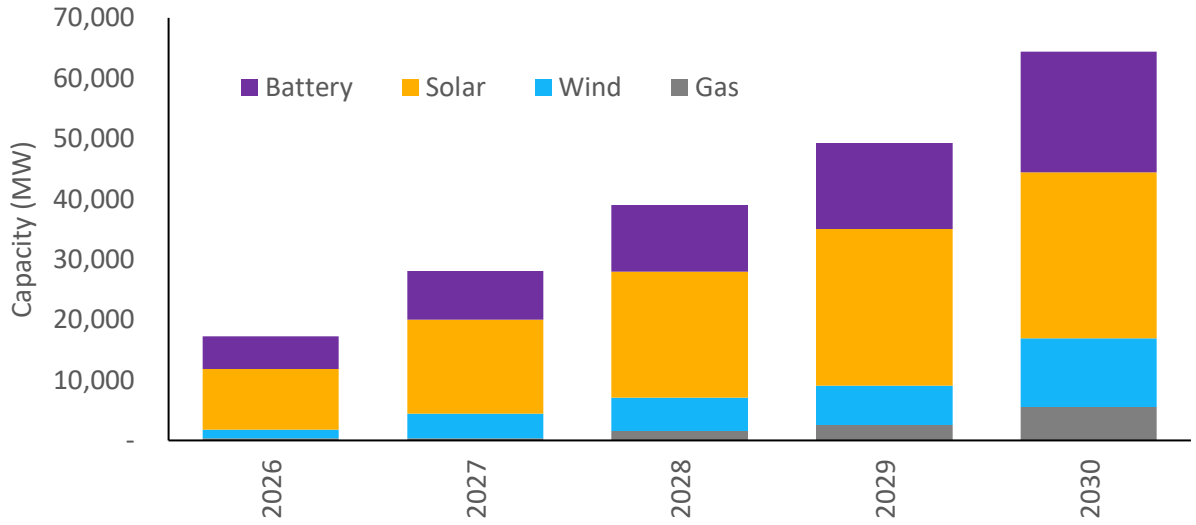
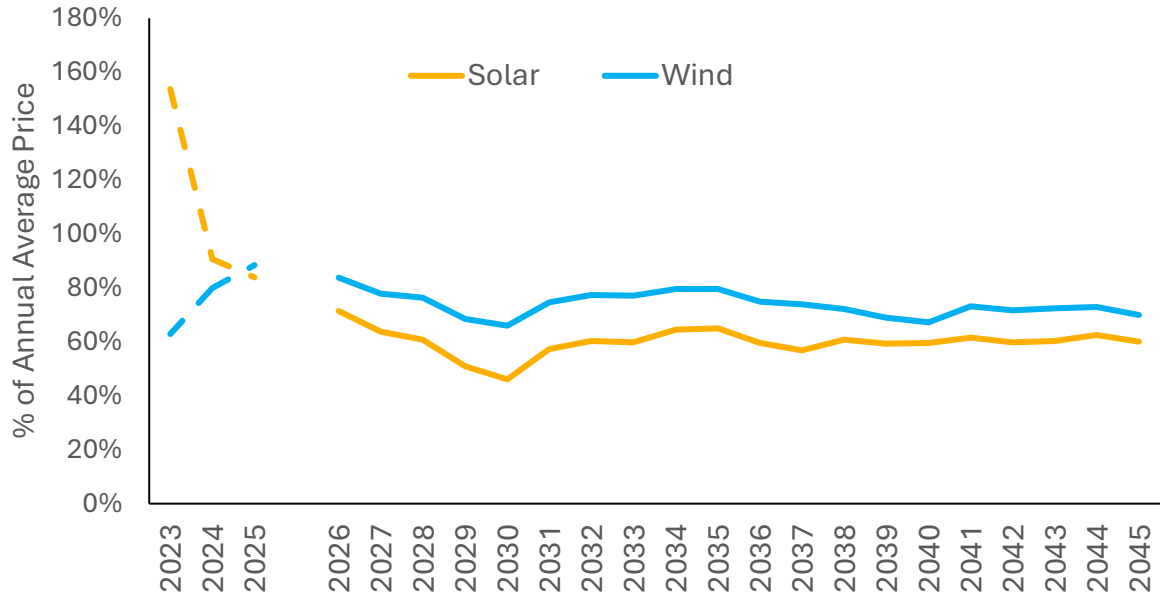


Figure 17 presents E3's projected capture prices from our latest OTS market price forecast. With substantial incremental solar expected throughout the decade, we project:

- **Solar capture prices will remain constant as saturation deepens**.
- **Wind capture prices will maintain their premium throughout**.
- **The premium of wind over solar peaks around 2030**, then stays relatively constant thereafter.

Figure 17: E3 Projected Annual Average and Wind and Solar Capture Prices



This dynamic occurs because solar additions concentrate value in non-daylight hours. Figure 18 demonstrates that in 2030, midday prices are expected to be far below evening prices during periods of system tightness—precisely when wind tends to generate.

Figure 18: 2030 ERCOT Price vs Wind and Solar

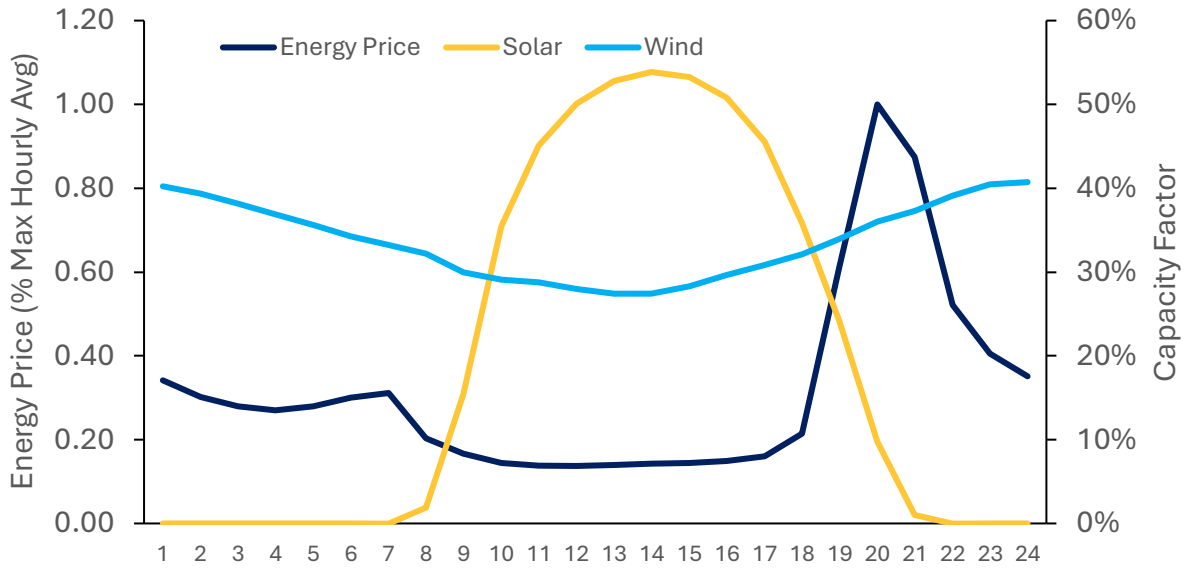
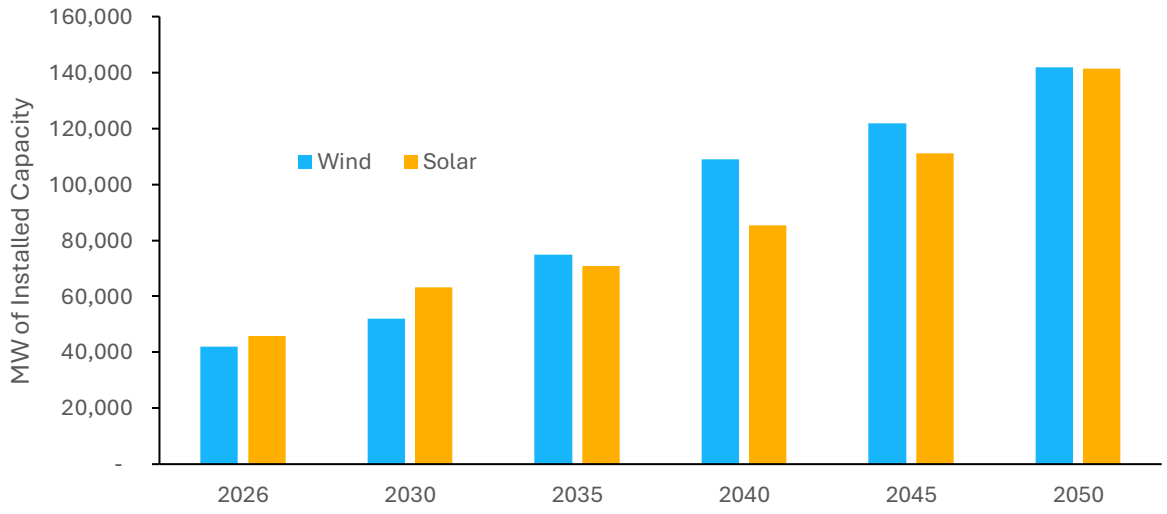


Figure 19 summarizes E3's long-term capacity outlook for ERCOT. Due to queue dynamics, solar overtakes wind capacity in 2026 and maintains a lead through 2030. Beyond 2030, E3 forecasts the market adjusting: solar development slows, wind development accelerates, and capture prices converge as both technologies operate at a discount to average energy prices.

Figure 19: Projected Wind and Solar Capacity



Conclusion

ERCOT's resource mix is undergoing rapid change, and market fundamentals are shifting just as quickly. Solar and storage currently dominate the development pipeline, but saturation effects are eroding solar capture price advantage. Wind, long discounted, is now increasingly aligned with high-value evening hours.

E3's long-term fundamentals-based modeling suggests that the market will eventually respond to these price signals. As solar saturation deepens and wind's value grows, ERCOT is poised for a renewed phase of wind development—one that restores balance to a rapidly evolving resource mix.