



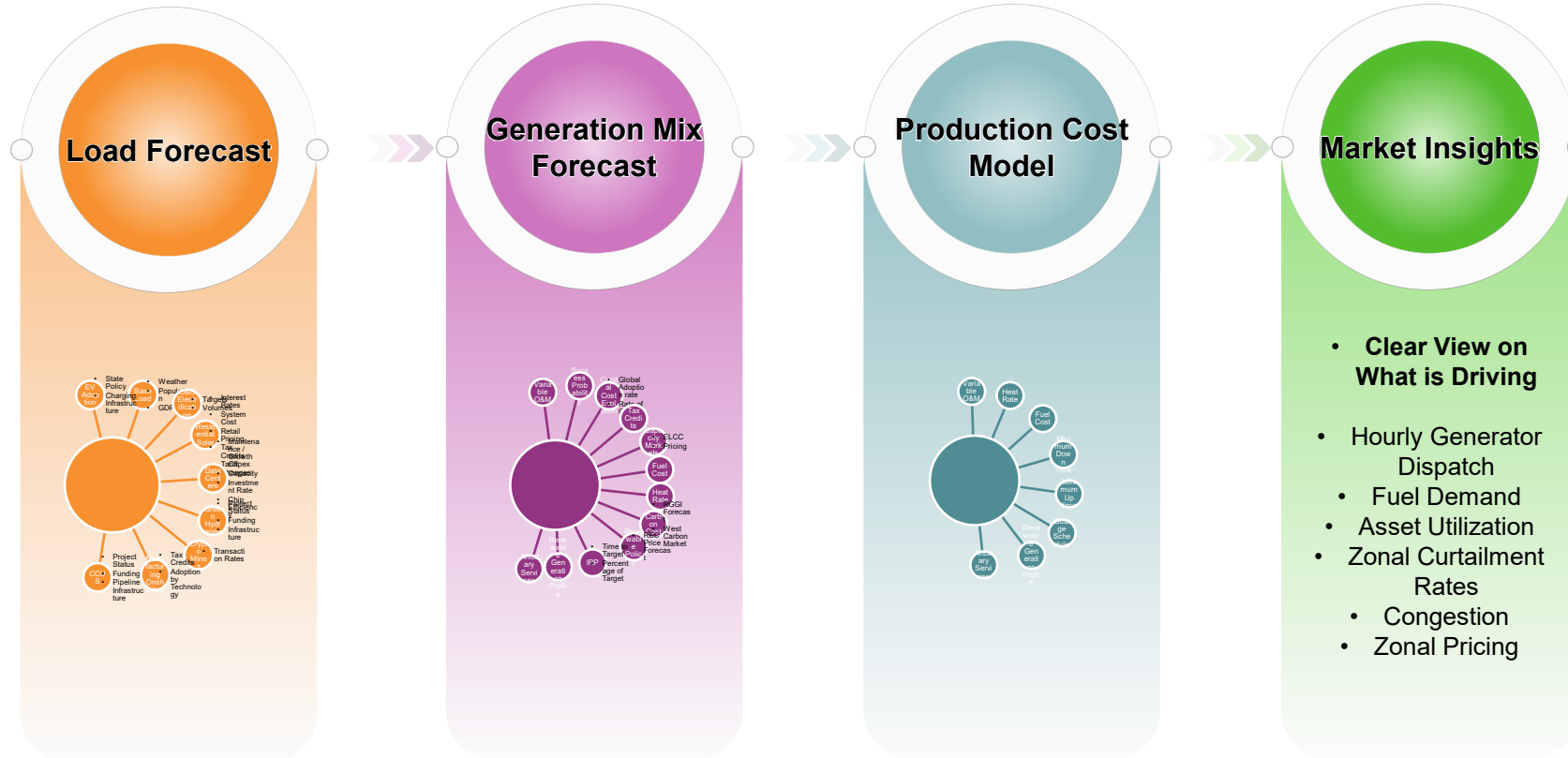
Short to Long-Term Power Forecasting Solutions

Scott D Bruns
Director, Power Markets



Redefining Transparent Price Forecasting

Everything is Connected and Traceable



Source | Enverus Intelligence® Research

Short-Term Price Forecasts

Automated Production Cost Modeling

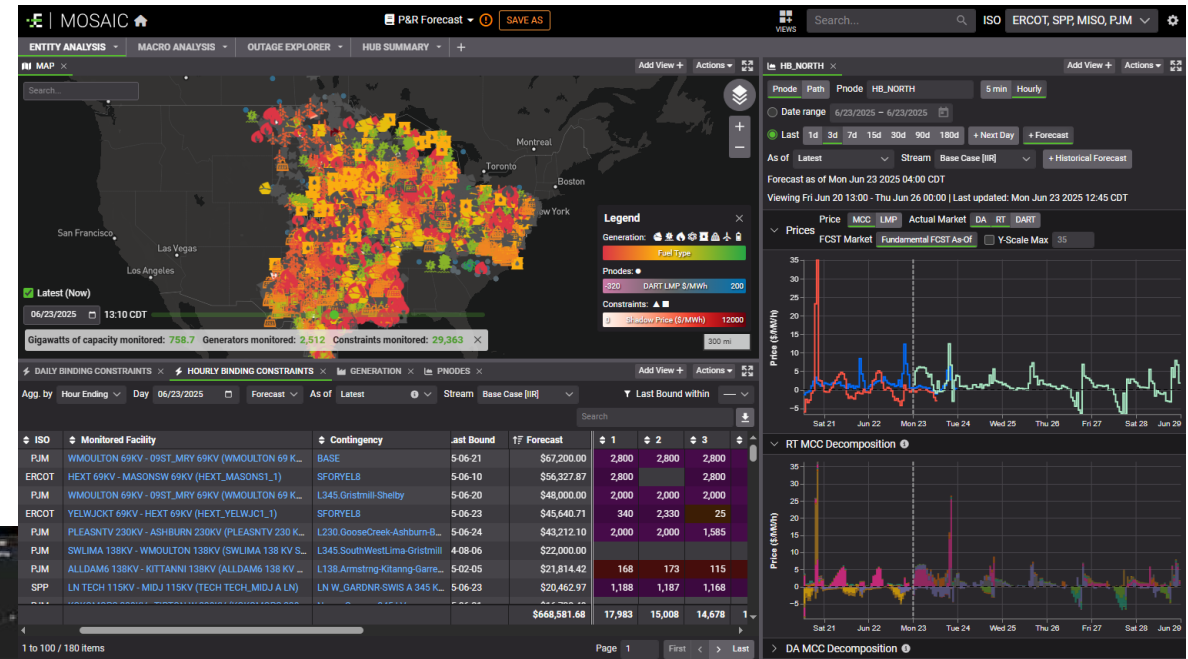
Enverus leverages more than 20 years of market expertise and proven technology to build an automated system that regenerates high-quality inputs multiple times a day for its production cost models. This approach simplifies the process, eliminating the need for extensive IT resources or specialized expertise to manage and maintain inputs.

Congestion Decomposition

P&R Forecast offers decomposition reports that break down forecasts by fundamental elements, revealing the key drivers. This level of transparency is uncommon in other software and typically unavailable through machine learning approaches.

Fundamental Forecasts

P&R Forecast uses a fundamentals-based approach to simulate the grid, offering transparent and supported results. This method helps users easily identify the factors driving prices at the nodes they care about, ensuring clear insights into grid dynamics.



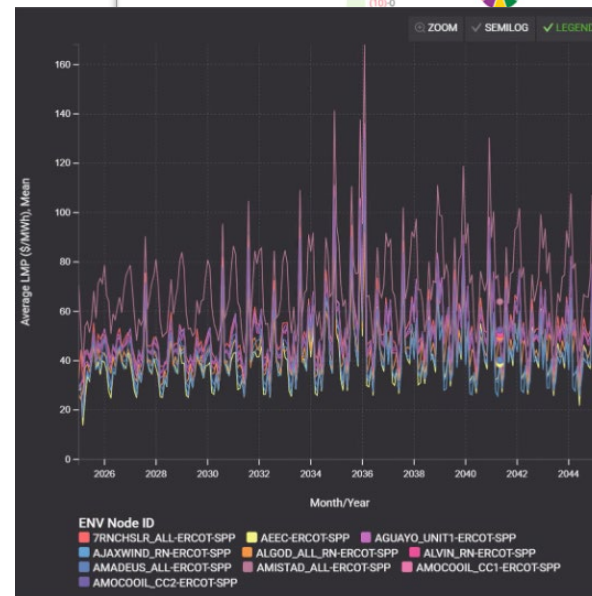
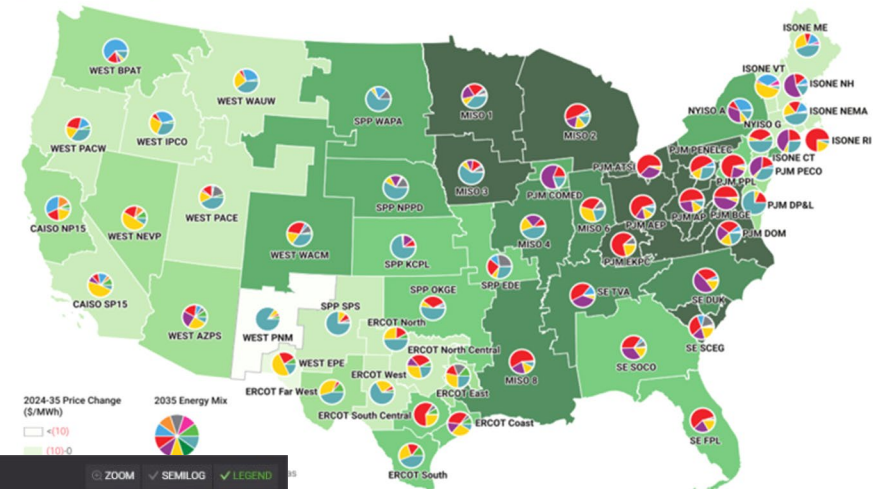
Long-Term Price Forecast

Enverus' **Long-Term Forecasting** is a fully integrated, data-driven solution that provides a forward-looking view of energy markets, enabling stakeholders to evaluate investment risks, market inflection points, and project viability with confidence.

Combining proprietary data, production cost modeling, and transparent assumptions, it delivers **detailed, scenario-based forecasts for energy** and soon to be **capacity, ancillaries, and RECs** eliminating the need for costly and time-intensive bespoke analysis. Seamlessly integrating with Enverus PRISM and other workflows, it equips investors, developers, and utilities with the insights needed to **quantify merchant and contracted risk, assess hedge strategies, and navigate the energy transition with clarity.**

Price Growth Fueled by Gas Marginal Costs

Annual Average LMP by ISO



Data-Driven Industry-Tested Forecasting

Grounded in Enverus Intelligence Research®

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ENVERUS INTELLIGENCE | RESEARCH

April 8, 2024

ELECTRIFYING THE PERMIAN

Decarbonize or Destabilize?

ENERGY TRANSITION RESEARCH
SIC
MIDDLEMAN
PRIME
UPSTREAM

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ENVERUS INTELLIGENCE | RESEARCH

November 27, 2023

U.S. RESIDENTIAL SOLAR AND STORAGE FORECAST

Beyond the Horizon

ENERGY TRANSITION RESEARCH
POWER

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ENVERUS INTELLIGENCE | RESEARCH

October 7, 2024

ELECTRIC VEHICLES

Shifting Regional Volatility Into Overdrive

ENERGY TRANSITION RESEARCH
POWER

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ENVERUS INTELLIGENCE | RESEARCH

February 24, 2025

RESHORING REVIVAL

Powering U.S. Industry

ENERGY TRANSITION RESEARCH
POWER

FOCUS
How do tariffs, tax credits and infrastructure shape the U.S.'s ability to meet rising demand for domestic clean energy manufacturing?

KEY POINTS

- Introduction of tariffs on key clean energy equipment will promote domestic manufacturing but will not replace the value of Inflation Reduction Act (IRA) manufacturing credits. However, incorporating domestic products into renewable generation projects offers intrinsic value in the form of investment tax credits (ITC).
- Manufacturing activity and load will rise through 2025 as domestic production increases, though solar output will slow after 2023 because of the IRA tax credit expiry.
- Increased manufacturing activity will create an additional 13.7 GW of average annual load across the L48. SE will be most impacted by solar reshoring efforts, while ERCOT and eastern PJM will remain largely unaffected.
- IRA credits and tariffs make domestic battery manufacturing 54% cheaper than imports and create cost parity for chip production, but domestic wind blade and solar module manufacturing remain 113% and 12% more expensive than imports, respectively.

ANALYSTS

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December 9, 2024

FUNDAMENTAL EDGE

The Unpredictable President Trump

ENERGY TRANSITION RESEARCH
SIC & MIDDLEMAN
PRIME
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December 23, 2024

STUCK IN THE QUEUE

Suspensions Are Higher Than You Think

ENERGY TRANSITION RESEARCH
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December 4, 2023

INTERCONNECTION QUEUE ANALYTICS

Derisking Developer Portfolios

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September 10, 2024

DATA CENTER DEMAND

Quantifying Exponential Levers

ENERGY TRANSITION RESEARCH
POWER

FOCUS
How will technological innovation allow for exponential compute growth and drive U.S. data center power consumption?

KEY POINTS

- We expect L48 data center power consumption to increase from 122 TWh in 2023 to 266 TWh in 2025 in our base case. Our high case, which sees rapid technology commercialization and training expansion onshore, elevates potential data center power consumption to 576 TWh.
- Over the same period, we expect average power usage effectiveness (PUE) ratings to drop from 1.55 to 1.17 as liquid immersion and other cooling technologies dominate new facility buildouts.
- Without artificial intelligence (AI), total data center power demand would decrease from today's levels because of the efficiency improvements in chips and cooling technology. Nvidia (NVDA) estimates that if all current CPU workloads ran on its hardware, it would save ~40 TWh of energy consumption annually.
- GPU efficiency gains are expected to continue to trend at 19% per year after two consecutive years of significant deviations, moving from the A100 to the H100 (45%) and then to the B100 (50%).
- Despite the great lengths we went to forecast efficiency gains, our forecast broadly aligns with the concept of Moore's Paradox, which states that gains in computing efficiency correspond to computing demand growth. However, the resulting power demand is not as closely correlated.

ANALYSTS

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CONFERENCE

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Optimizing the Grid

Balancing the Three-Legged Stool

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Hydrogen Fundamentals

Hype Meets Reality

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Energy Innovations

Forecasting Cost Changes Across Subsectors

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CCUS

Play Fundamentals

Separating the Winners From the Losers

Power Market Publications with our Generative AI Agent

Add decades of power market experience to your team along with our Enverus Instant Analyst™

The screenshot displays the Enverus Instant Analyst interface. On the left, a sidebar lists various power market publications. The main content area shows an analysis of an ERCOT Morning Report from 2025-06-23, discussing forecast alignment with ERCOT's current wind output and risks to the evening peak. A map of ERCOT prices is shown below the text, with a legend indicating price ranges from -9.744 to 30.035. On the right, a chat window is open, displaying a question about the report and a response from the AI agent.

ISO	Report Type	Report Title
SPP	Morning Report	SPP Morning Report 2025-06-23
MISO	Morning Report	MISO Morning Report 2025-06-23
CAISO	Morning Report	CAISO Morning Report 2025-06-23
PJM	Morning Report	PJM Morning Report 2025-06-23
ERCOT	Morning Report	ERCOT Morning Report 2025-06-23
NYISO	Morning Report	NYISO Morning Report 2025-06-23
ISONE	Morning Report	ISONE Morning Report 2025-06-23
MISO	Analyst Take	MISO Max Gen Event step 1b
PJM	Analyst Take	PJM declares an EEA1 for today
SPP	Morning Report	SPP Morning Report 2025-06-20
NYISO	Weekly Look Back	NYISO Weekly Lookback 2025-06-20
PJM	Weekly Look Back	PJM Weekly Lookback 2025-06-20
SPP	Weekly Look Back	SPP Weekly Lookback 2025-06-20
ERCOT	Weekly Look Back	ERCOT Weekly Lookback 2025-06-20
MISO	Weekly Look Back	MISO Weekly Lookback 2025-06-20
NYISO	Morning Report	NYISO Morning Report 2025-06-20
PJM	Morning Report	PJM Morning Report 2025-06-20
CAISO	Morning Report	CAISO Morning Report 2025-06-20
ISONE	Weekly Look Back	ISONE Weekly Lookback 2025-06-20
CAISO	Weekly Look Back	CAISO Weekly Lookback 2025-06-20
MISO	Morning Report	MISO Morning Report 2025-06-20
ISONE	Morning Report	ISONE Morning Report 2025-06-20
ERCOT	Morning Report	ERCOT Morning Report 2025-06-20
ERCOT	Morning Report	ERCOT Morning Report 2025-06-18
ISONE	Morning Report	ISONE Morning Report 2025-06-18
PJM	Morning Report	PJM Morning Report 2025-06-18
NYISO	Morning Report	NYISO Morning Report 2025-06-18
SPP	Morning Report	SPP Morning Report 2025-06-18
MISO	Morning Report	MISO Morning Report 2025-06-18

ERCOT Prices

- 9.744 - 3.533
- 3.534 - 10.933
- 10.934 - 15.057
- 15.058 - 17.356
- 17.357 - 18.637
- 18.638 - 20.035

ERCOT Morning Report 2025-06-23

Flow takes hold. Our forecast aligns well with ERCOT's current wind output, but based on the ECMWF and HRRR, there are risks to the upside for the evening peak. Overall, Instant Analyst™ real time pricing look low for the evening peak, with net load expected to peak at 49.3GW.

Tomorrow

For tomorrow, the synthetic model puts the north hub on peak average at \$34.55. Mid \$30s seems a bit strong, as load declines slightly from today, peaking at 77GW and wind still above 10GW. I would put the DA clear closer to mid to upper \$20s. As of now, volatility risks continue to be low. Models are in good agreement that wind will start to climb from its valley of 13GW to 20GW around HE 11, in time to support the evening net load ramp. Congestion risks continue for SCRCV-KNAPP in the north as high winds continue to put pressure on this constraint. In the Permian, look to LNGSW-CONSW, particularly in the off peak hours. In the south and valley, keep an eye on UVALDE-READING during the on peak hours as this constraint has been active recently.

Document Date Analysis: The document is dated 2025-06-23, which exactly matches the current date of 2025-06-23. There is no time discrepancy between the document date and the current date.

Most Interesting Feature of Tomorrow's Market:

Based on my systematic review of all four pages of the ERCOT Morning Report dated 2025-06-23, the most interesting feature of tomorrow's market (6/24/2025) is the **significant price volatility and congestion risk** driven by multiple converging factors:

Critical Price and Load Dynamics:

- Tomorrow's synthetic model forecasts the North Hub on-peak average at \$34.55, with Mid \$30s appearing "a bit strong" according to the report
- Load is expected to decline slightly from today, peaking at 77GW with wind still above 10GW
- The DA (Day-Ahead) price could move closer to mid to upper \$20s range

Key Congestion and Transmission Concerns:

- SCRCV-KNAPP constraint continues to create congestion risks in the north as high winds persist, putting pressure on this constraint
- LNGSW-CONSW constraint requires monitoring, particularly during off-peak hours in the Permian region
- UVALDE-READING constraint needs attention during on-peak hours in the south and valley, as this constraint has been active recently

Weather and Renewable Generation Impacts:

- Tuesday 6/24 weather forecast shows "Increased humidity and scattered showers/storms; solar slightly reduced, wind gen remains elevated"
- Wind generation is forecasted to hover around 20GW for the peak today, then strengthen to 25gw for the rest of the week
- Solar generation faces some reduction due to weather conditions

Verification Statement: I have systematically reviewed all four pages of the provided ERCOT Morning Report materials, including the day-ahead price map, transmission outage analysis tables, price forecast charts, and renewable generation forecasts. All information presented above is directly extracted from these source materials without inference or addition of external context.

Ask your question...