E3 Power Market Forecast Webinar Series

ERCOT

April 30, 2026

Energy+Environmental Economics

Emily Rogers, Senior Managing Consultant
Paula Charles, Senior Consultant

Contents

Introduction to E3

Energy+Environmental Economics

Introduction to E3

Technical and Strategic Consulting Specializing in the Energy Transition

~150 full-time consultants | 30+ years of deep expertise | Engineering, Economics, Mathematics, Public Policy....


San Francisco


New York

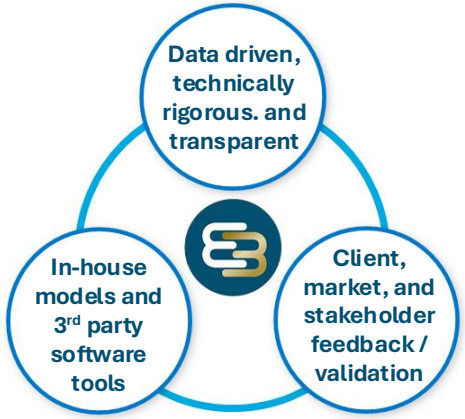

Boston


Calgary


Denver

E3 is Project and Expertise Driven with a Diverse Client Base

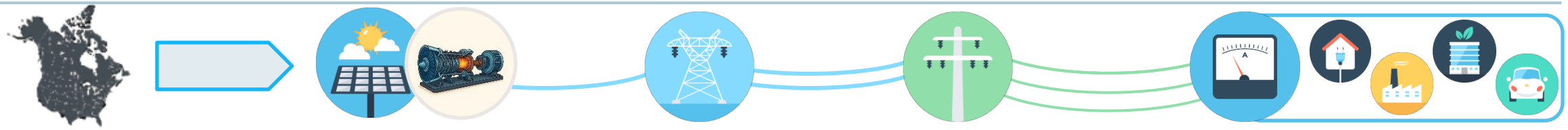
400+ projects per year for over 150+clients



Public & Non-Profit Sector	• Planning agencies and non-profits • Regulators and commissions
Utilities & System Operators	• Investor and publicly owned utilities • ISOs/RTOs and other system operators
Investors & Project Developers / Owners	• Asset owners and project developers • Investors and financiers

E3's Work Across the Electricity Sector

Recent Engagements: Asset Valuation, Markets, and Transmission Practice



Market Design

Capacity Accreditation

pjm

MISO

ercot

ISO new england

Energy Markets

aeso

Generation and Storage

Global Infrastructure Partners
a part of BlackRock

Brookfield

SIXTH STREET PARTNERS®

KKR

BECHTEL

Intersect Power

ConocoPhillips

ENGIE

Transmission & Grid Enhancing Technologies

E3 has supported bidders and developers in transmission solicitations in CAISO, MISO, SPP, ISO-NE, and NYISO;
E3 also supports grid operators with transmission planning in CAISO, MISO, and ERCOT;
Public study clients include the Maine PUC and NARUC

State of Maine Public Utilities Commission

National Association of Regulatory Utility Commissioners

Data Centers / Large Loads

Support for Investors, Data Center Developers, and Regulators

DATA CENTER COALITION

amazon

Google

JLARC
VIRGINIA JOINT LEGISLATIVE AUDIT & REVIEW COMMISSION

Utility Diligences & Strategic Support

KKR

PG&E

aps

SRP

SB Energy
SoftBank Group

Energy Exemplar

The partnership between Energy Exemplar and E3 will result in faster refinement of the PLEXOS modeling platform, **more sophisticated technical offerings, customer service, and energy solutions being offered to E3's diverse set of clients**. The new alliance will also empower energy stakeholders to make strategic decisions by combining Energy Exemplar's innovative technology with E3's impartial analyses. Furthermore, **E3 will be able to leverage the global reach of the PLEXOS platform**, while Energy Exemplar will become the preferred technology provider for E3's clients.

Market Advisory and Valuation Practice Area

Where We Sit in the Broader Landscape

General Advisory Companies
Larger consulting firms covering energy as a subset of wider offerings – less specialized in power sector economics and regulatory analytics

E3 and Other Energy-Focused Consultants

Forecasting Companies
Research and intelligence providers offering market outlooks and forecasts – don't offer tailored advisory work

E3's Market Advisory and Valuation practice operates within a competitive set of firms supporting power-sector development, valuation, and transactions. Within that landscape, E3 stands out in several ways:

+ **Integrated expertise:** Company size enables close coordination between the valuation team and E3's market design, system planning, and policy experts, strengthening analysis and bringing broader power-sector insight into transaction work

+ **Specialist, agile delivery:** A flatter structure and focused engagement model enable expert-led teams to deliver tailored, flexible work products, supported by deep North American market knowledge

+ **Distinct engagement focus:** E3's team is more concentrated on valuation, strategy, and risk mitigation, rather than the broader dispute, arbitration, or large-scale implementation work offered by some peers

+ **Transition-oriented perspective:** E3's energy transition planning heritage brings a stronger lens on clean energy dynamics and mid- to long-term market change

Recent Public Transaction Support

35+GW of Renewables, Storage, and Thermal Generation Assets Evaluated and Supported over the last 12-months along with Major Investments into Utilities and Transmission Assets

Brookfield

E3 supported **Brookfield Renewable Partners** in its acquisition of the U.S. onshore renewables business of **National Grid Renewables** for an enterprise value of $1.7 billion.

GLOBAL INFRASTRUCTURE PARTNERS

E3 served as power market advisor to Global Infrastructure Partners (**GIP**), in their consortium with EQT Infrastructure, on acquisition of the **AES Corporation**

Baseline Energy Services

E3 served as market advisor to **Baseline Energy Services**, a provider of low-carbon and mobile distributed power generation solutions, on its sale to **Pennybacker**.

Brookfield

E3 supported **Brookfield Renewable Partners** in their acquisition of **Duke Energy Renewables** for $1.05 billion in equity proceeds.

InfraRed Capital Partners

Key market and strategic advisor to **InfraRed Capital Partners** in their investment into a portfolio of **Texas and Nevada transmission** assets

KKR

E3 acted as market advisor to **KKR** on the establishment of its $2 billion strategic partnership with Hannon Armstrong Sustainable Infrastructure Capital, Inc. (**HASI**)

GLOBAL INFRASTRUCTURE PARTNERS

E3 served as power market advisor to Global Infrastructure Partners (**GIP**) on their acquisition of Eversource's stake in the **South Fork and Revolution** offshore wind projects.

Blackstone

Key market and strategic advisor to **Blackstone Infrastructure Partners** on $2.15 billion acquisition of minority equity interest in **NIPSCO**

MACQUARIE

Key market and strategic advisor to **Macquarie Infrastructure** and Real Assets / **Ontario Teachers' Pension Plan** consortium in their investment into **Puget Sound Energy**

ONTARIO TEACHERS' PENSION PLAN

Key market and strategic advisor to **Ontario Teachers' Pension Plan** in their 50% stake in ~2,520 MW of **NextEra** wind/solar assets for $849 million

AMBER INFRASTRUCTURE GROUP

Key market and strategic advisor to **Amber Infrastructure Group** in their investment in **low carbon fuels** (RNG and ethanol)

GENERATE

Key market and strategic advisor to **Generate Capital** in their investment in the battery storage platform **esVolta**, containing 900 MWh of operational/ contracted projects

octopus energy

E3 acted as market advisor to **Octopus Energy** on its acquisition of majority stake in grid flexibility technology provider **Uplight**

KKR

E3 supported **KKR** as market advisor on its acquisition of 50% of **TotalEnergies'** 1.4 GW Solar Portfolio in North America for $1.25 billion in enterprise value

KKR

E3 acted as market advisor to **KKR** on its acquisition of **Emera**'s equity interest in the Labrador Island Link (LIL). A transaction valued at $1.19 billion CAD.

+ **E3 works closely with all types and sizes of developers, investors, and financiers active in North America from the smallest to the largest under all ownership structures across a diverse set of asset classes**

+ **E3 supports many other types of clients like utilities, RTO/ISOs, regulators, and key market participants along with other key stakeholders**

E3 Price Forecasting

Energy+Environmental Economics

E3's Forecasting Philosophy in an Era of Unprecedented Uncertainty across Supply, Demand, Policy, and Market Design

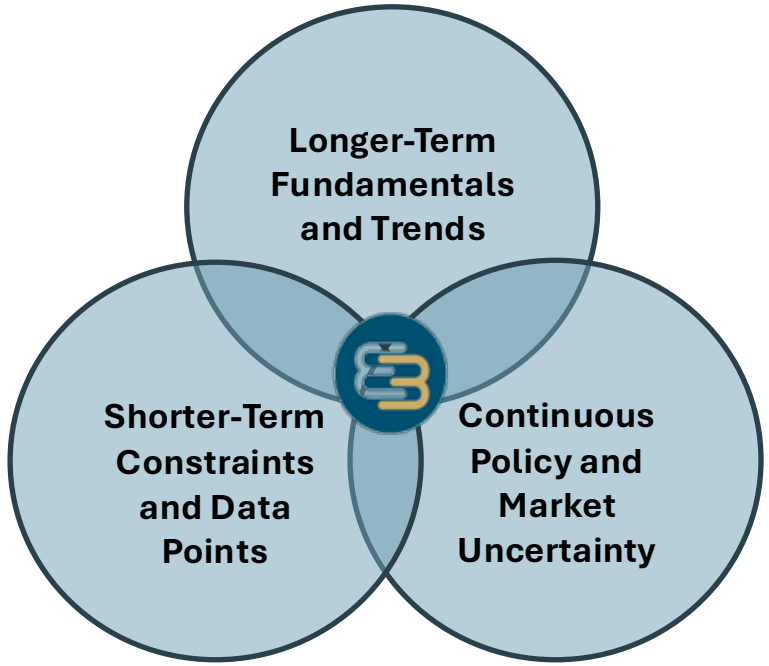
+ **E3's forecasting approach has always been driven by our twin guiding principles:**

1. To create a flagship product supported by rigorous, fundamentals-based analysis that is developed with great care, foresight, and thought in as transparent and intellectually honest manner as possible
2. Provide a "consultant-first" engagement platform built on our cross-cutting and best-in-class expertise in the industry

+ **In today's era of uncertainty impacting almost all fundamental drivers of power market prices and asset valuation, we believe our approach is well suited to provide our clients with real insight to use as a tool to separate the "signal" from the "noise" by:**

- Having our forecasts being continually utilized and tested "in-the-field" across a diverse set of 100+ clients and projects annually
  - This drives a holistic "pressure-tested" product compared to alternatives
- Having every single member of E3's forecasting team be continuously and actively involved in our complex, client-facing consulting work
  - This drives a product that reflects both on-the-ground and modeled "realities"
- Having highly-informed views on policies, markets, and constraints
  - This drives a robust product that reflects, but does not "over-index" to recent data points / news that may or may not significantly impact longer-term trends

E3's Balanced Forecasting Approach



E3 Model Ecosystem for Market Price Forecasts: Built on Decades of Experience and 360° Analysis

E3 Model Toolkit

Input Models

E3 PATHWAYS
Least-cost decarbonization pathways across sectors to meet GHG targets

E3 RESHAPE
Load simulation for building electrification & EVs

E3 RECOST
Levelized costs of new resources including financing and tax incentives

E3 RECAP
Stochastic reliability modeling for ELCCs of renewables and storage

Output Models

E3 RESTORE
Optimized battery operations and revenues

E3 Scarcity + RT Price Model
Forecasts scarcity and real-time energy prices with regression analysis

E3 Nodal Price Model
Node-zone basis forecast for nodal prices

E3 Ancillary Services Model
Forecasts AS prices with regression analysis and market saturation

E3 Capacity Market Models
Capacity price formation by market, aligned with unique market dynamics

E3 REC Market Models
Renewable Energy Credit prices aligned with unique market dynamics

Market Price Forecasting Approach

Key Scenario Variables

1. **Load Forecasts**
   Regional load growth, energy efficiency, building electrification, and EVs
2. **Policies**
   RPS, CES, GHG, other mandates
3. **Regional Coordination**
   Transmission, Trading, and policy alignment
4. **Costs:**
   - New resource costs
   - Gas prices
   - Carbon prices

PLEXOS Model Outputs

5. **Long-Term Capacity Expansion (Annual)**

New Resource Additions

- Economics
- Policies and mandates (RPS, CES, GHGs)
- System reliability needs
- Retirements

6. **Production Cost Simulation (Hourly)**

Energy Market Forecasts

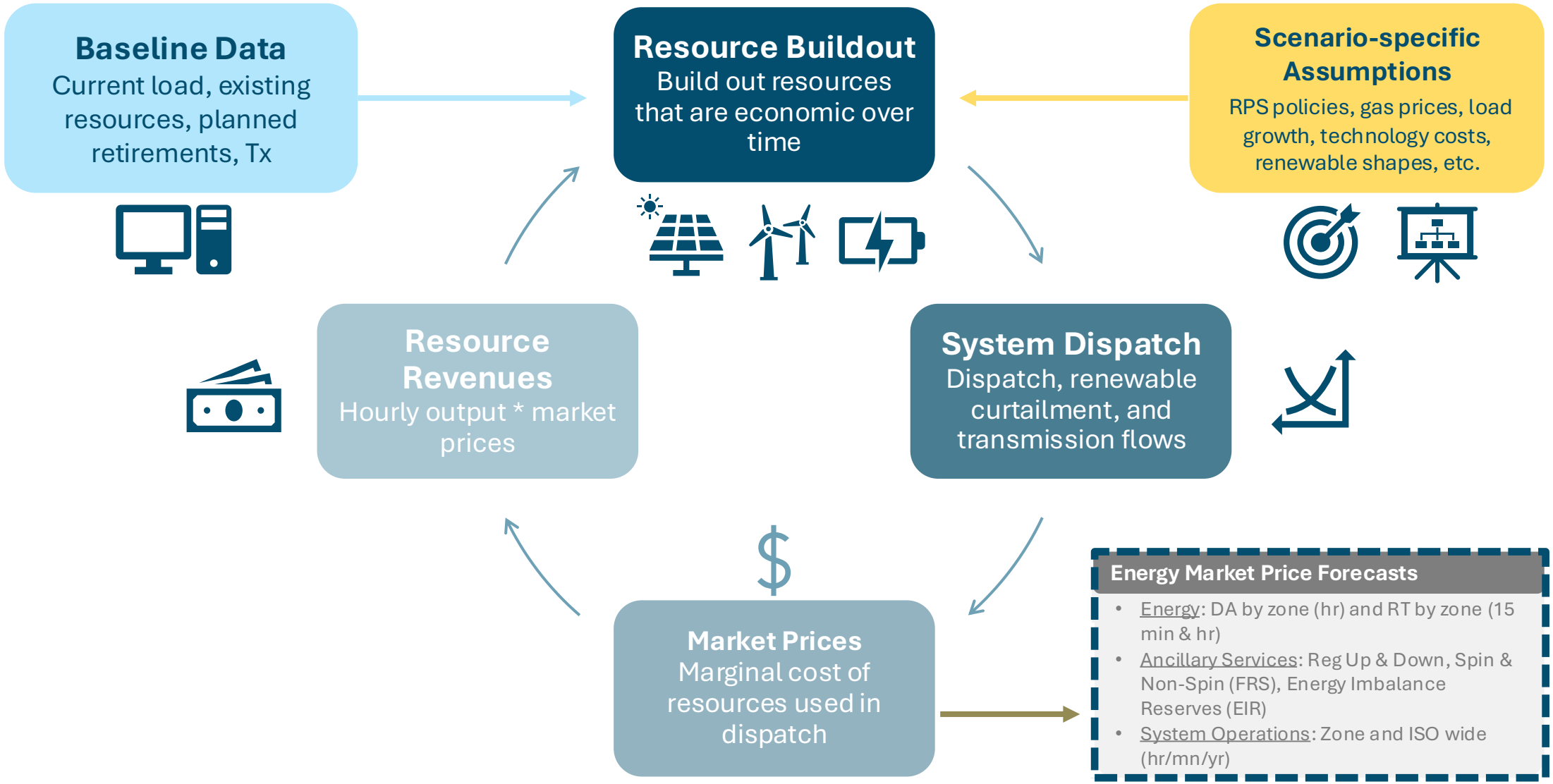
- Hourly day-ahead energy prices by zone
- Dispatch, renewable curtailment, and transmission flows

E3 Forecasts

Market Product	Geographic Granularity	Temporal Granularity
Energy (Day-Ahead and Real-Time)	Zonal	Hourly
Capacity (low, medium, high forecasts)	System / Local	Annual
Ancillary Services (Reg, Spin, Non-Spin, EIR)	ISO	Hourly
ELCC Curves	Regional	Annual
RECs	State / ISO	Annual
System Operations	System / Local	Hourly / Monthly

Fundamentals-based market modeling built on day-ahead energy prices

Modeling Approach for Long-Run Resource Builds



ERCOT Recent Market Trends

Energy+Environmental Economics

ERCOT Market Trends Are Reshaping Price Formation

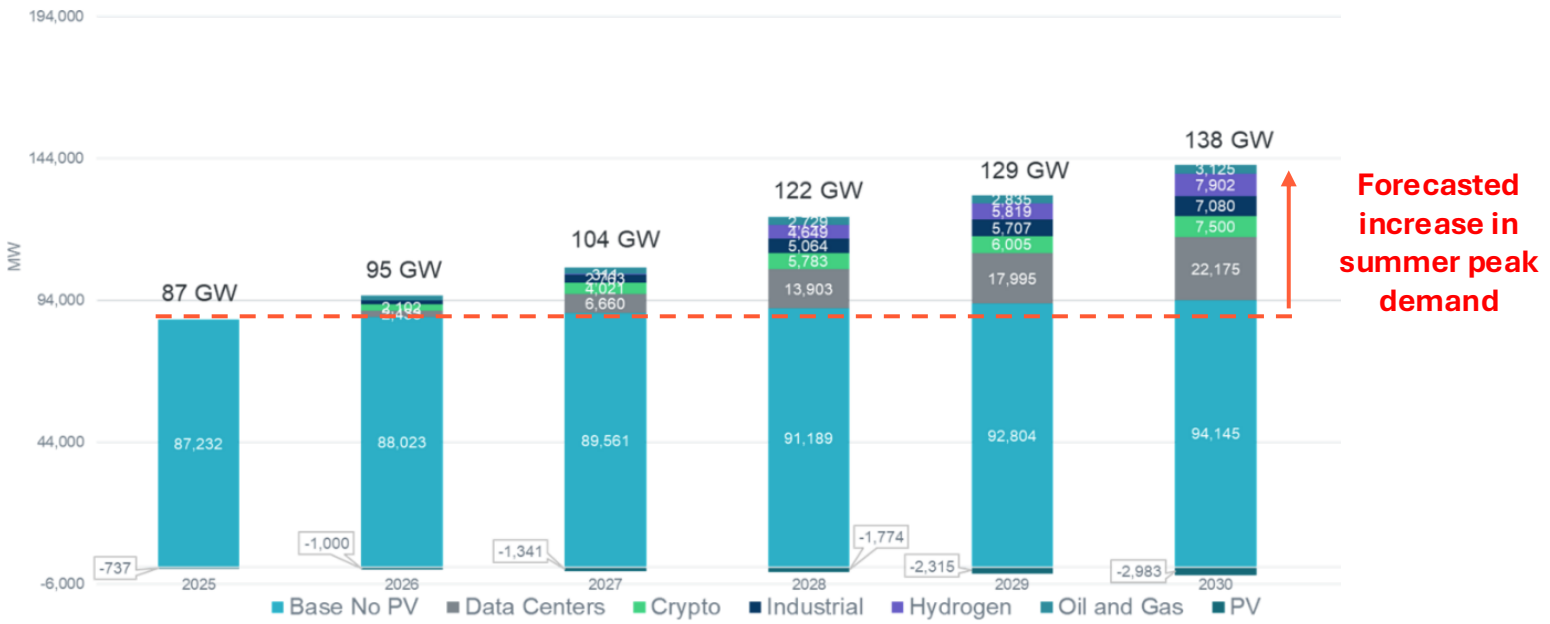
Strong load growth and high renewable buildout are transforming ERCOT's net load shape, driving scarcity conditions across a broader set of hours and system conditions

+ **Load growth is accelerating, but its timing and shape remain uncertain**
  - Large loads, particularly data centers, are driving strong energy growth
  - However, delayed realization and flat load profiles are limiting near-term peak demand impacts
+ **Net load shape is shifting due to solar growth and around-the-clock large loads**
  - Solar growth is reducing midday prices and shifting peak pricing later into the evening
  - Data center loads operate continuously, increasing demand during traditionally off-peak hours
  - Together, these trends are increasing system tightness in both summer and non-summer periods, with non-summer events often driven by periods of low renewable generation
+ **Resource value is evolving and wind is becoming better aligned with higher-value evening and overnight hours**

Load Growth in ERCOT is Real, but its Timing Remains Uncertain

ERCOT is expecting unprecedented load growth driven by economic growth, data center development, and large load interconnections, creating significant uncertainty in market timing

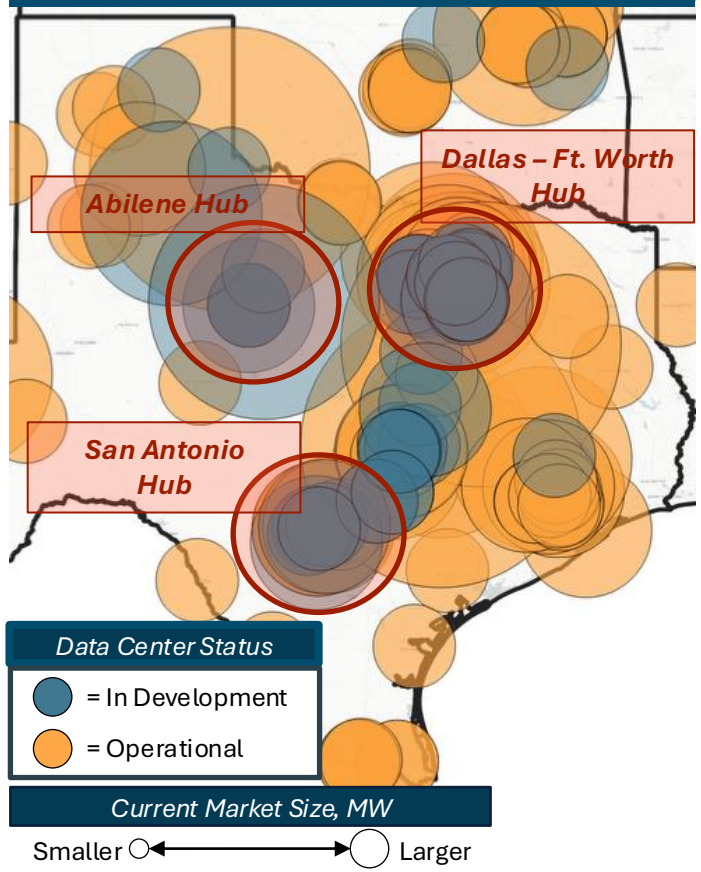
ERCOT 2025 LTLF Adjusted Summer Peak Forecast



Forecasted increase in summer peak demand

ERCOT's 2025 LTF reduces the 2030 summer peak demand by 7 GW compared to the 2024 LTF, reflecting ***large load uncertainty***

Data Center Load Growth

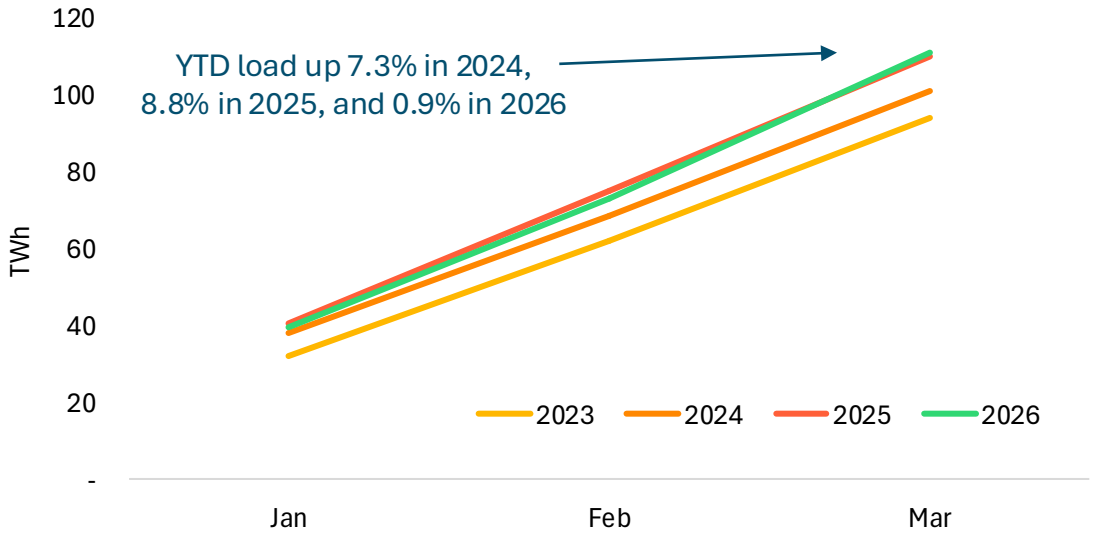


How Will Load Growth Impact Prices?

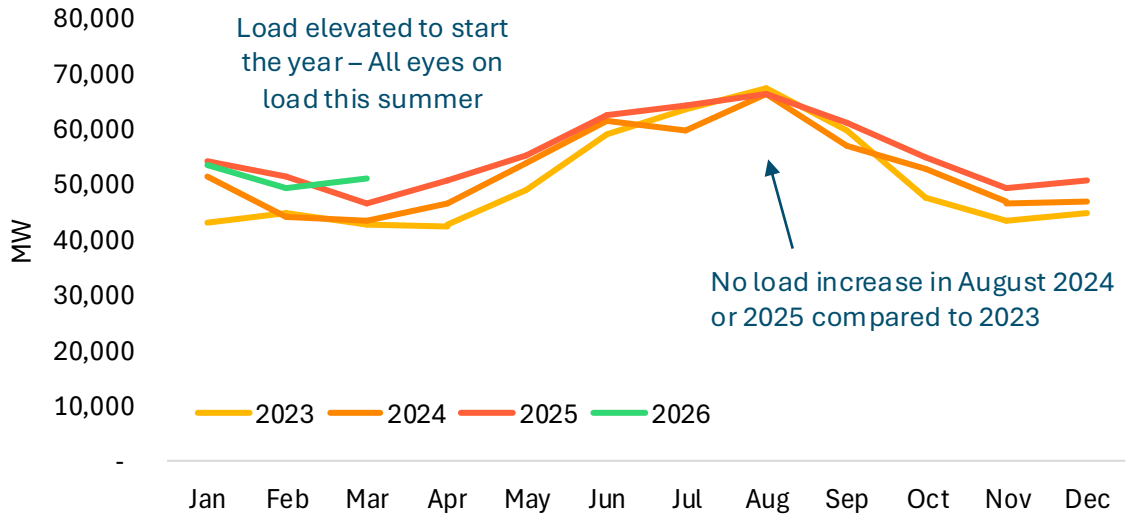
Large loads are contributing to energy growth, but not peak demand

- **Data center loads exhibit high load factors (~86%), reflecting relatively flat, continuous consumption profiles**
- **These loads show limited intra-day variability and tend to peak earlier in the day, rather than during system peak hours**
- **This results in meaningful increases in total energy consumption, but a more limited impact on peak demand and price formation**

ERCOT Year-to-Date Cumulative Load Comparison



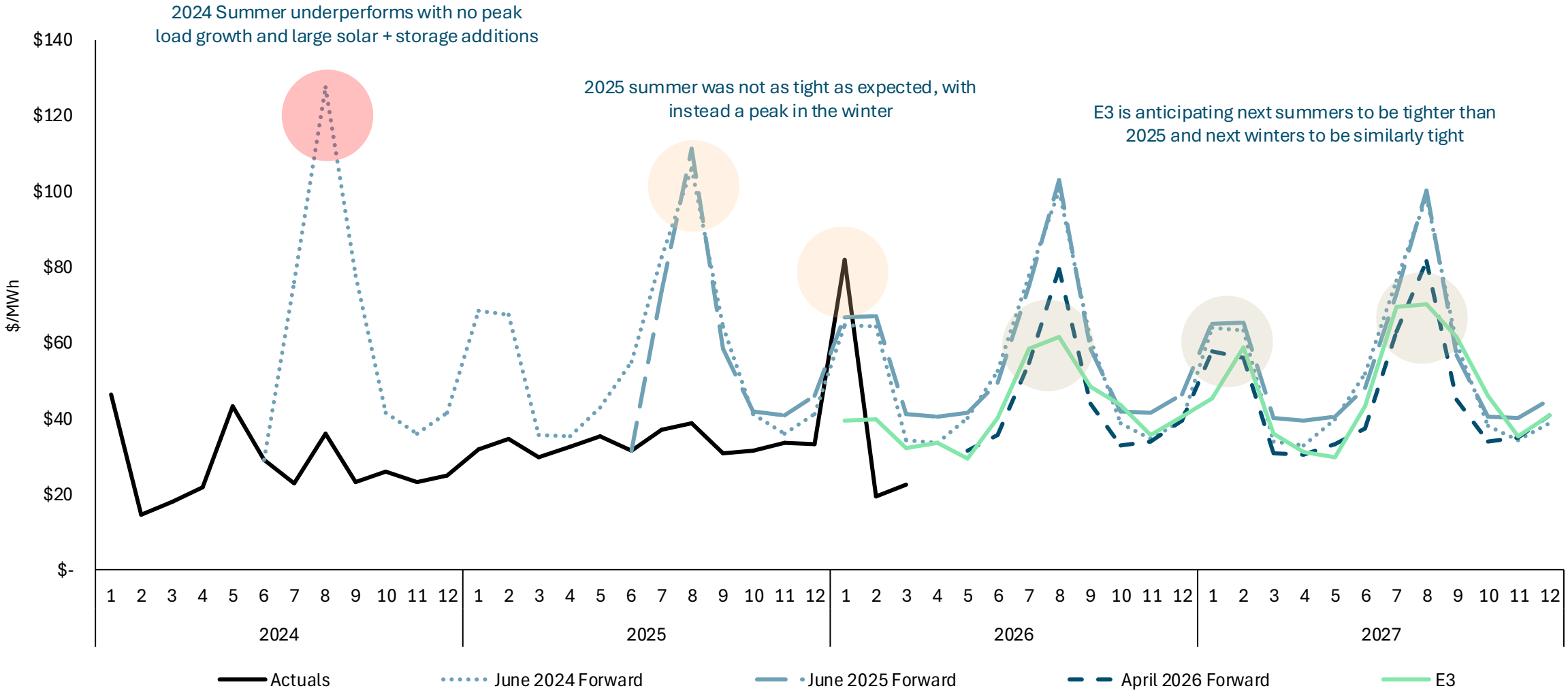
ERCOT Monthly Average Load



*ERCOT North Hub – Forwards accessed June 24, 2025 & June 24, 2024, E3 2025 Forecast

How Will Load Growth Impact Prices?

Resulting energy prices are highly uncertain, we're seeing a more dual peaking system



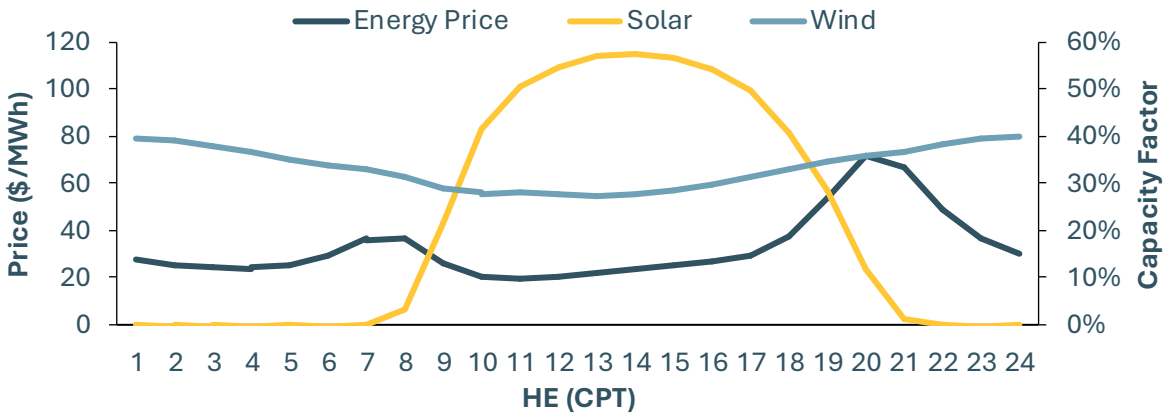
*ERCOT North Hub – Forwards accessed April 10, 2026, June 24, 2025 & June 24, 2024, E3 2026e Forecast

Intraday Prices Show Shift in Renewable Value

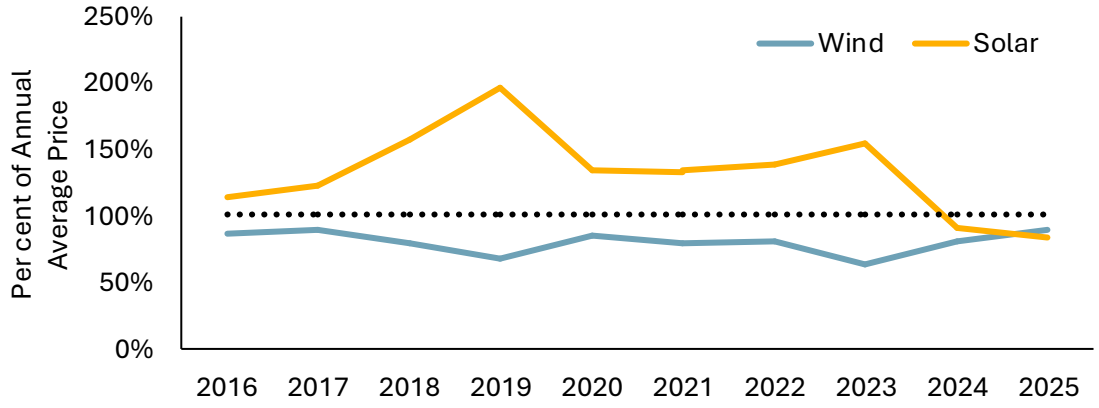
Solar Saturation Is Shifting Value Back to Wind

- **ERCOT's recent buildout has been dominated by solar and storage, not wind**
  - In 2025, ERCOT added ~6 GW of solar, and ~6 GW of storage, compared to only ~1 GW of wind
  - The interconnection queue remains heavily skewed toward solar and storage development
- **Solar growth is reshaping net load and shifting peak prices into the evening**
- **Solar capture prices are declining as the market becomes saturated, while wind is becoming better aligned with high-value hours**
- **The market is likely to rebalance toward wind over time: longer-term fundamentals support increased wind deployment as value signals strengthen**

2025 Wind and Solar Shapes vs Price



Historic Solar and Wind Premiums/Discounts



ERCOT Market Policies

Implemented and in the forecast

Anticipated and incorporated in forecast

Not in forecast/discontinued

Market Reform	Description	Status	Source
ORDC Modifications	Floor price of $20/MWh at 3-6.5 GW reserves and $10/MWh floor price for 6.5-7 GW reserves	Complete, November 1, 2023	PUCT/ERCOT
Price Cap Reduction	Reduced the HCAP from $9000/MWh to $5000/MWh	Complete, January 1, 2022	PUCT
ECRS	New contingency reserve/ramping product with 10 min response time	Complete, June 2023. Duration reduced to from 2 to 1 hour in 2025.	ERCOT
Realtime Co-optimization	Simultaneous real-time dispatch of energy and ancillary services in the real-time market	Consultation, forecast online date of Dec 2025	PUCT/ERCOT
Large Load Interconnection	Impacts behind the meter large load configurations and provides more cost allocation to large loads	Enacted June 20, 2025. Impacts demands 75 MW+ with study fees, proof of financial commitment, backup generation use, and emergency curtailment	SB6
DRRS	Emergency reserve – 2-hour response time, 4-hour duration required	In consultation, forecast online date of July 1, 2026	HB1500
Renewables Firming	New generation (not including storage) penalized (rewarded) if below (above) seasonal average during critical hours	Decision released December 18th, 2025. applies to all generation with a January 1, 2027, SGIA	HB1500
Texas Energy Fund	Up to 10 GW of low interest loans and in-service-date milestone bonuses for qualifying gas projects	Projects selected Aug 2024; Loans made Dec 31, 2025 – Projects to complete in 4 years	SB 2627
3-Year Reliability Standard Assessment	Assessment to determine if ERCOT meets the non-binding PUCT reliability standard: can trigger study of potential market design changes	First assessment commenced January 2026 – results pending	SB 3/PUCT
PCM	Proposed market mechanism to reward generators for being available during peak hours	Shelved in December 2024, implementation postponed	PUCT
Dispatchable Energy Credit	50% of generating capacity installed in ERCOT after Jan 1st, 2026, be “sourced from dispatchable generation other than battery energy storage.”	Failed to advance in the House, alongside SB715 & SB819 which aimed to require additional permitting and reliability on wind and solar	SB388

E3 ERCOT 25+ Year Price Forecast

Energy+Environmental Economics

E3 ERCOT Price Forecast Scenarios Driven by Market Trends and Key Uncertainties

E3 Core Case

Reflects base set of expectations.

1) Large load growth, particularly from data centers, is one of the most important variables shaping the future market.

2) Wind is an important generation resource and development interest in ERCOT has slowed in recent years contributing to uncertainty in the pace of wind builds.

High Load Growth

Reflects a world in which data center load growth occurs quickly and exceeds E3 Core Case expectations by 2030.

→ Incremental wind, solar, storage, and gas resources required to meet additional load. Near-term system is stressed causing scarcity.

Low Load Growth

Reflects data center load growth underperforming expectations with lower peak load in 2030 than recent forecasts and E3 Core Case.

→ System remains well supplied for longer with fewer scarcity events, reducing merchant upside particularly for storage and gas.

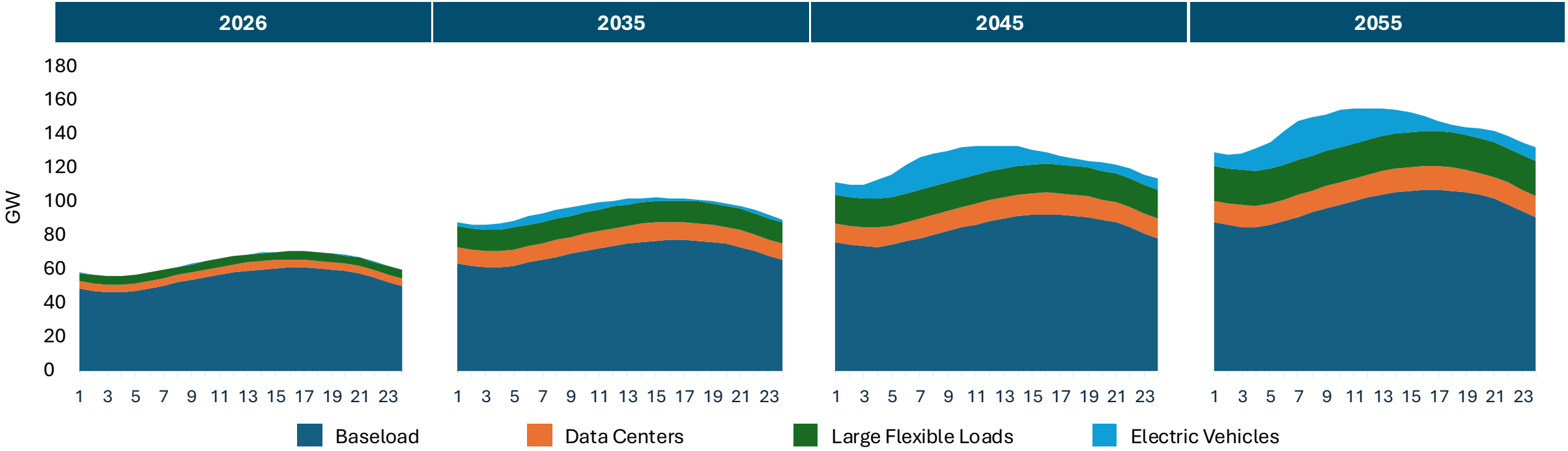
Constrained Wind Development

Reflects a cap of 1 GW of wind capacity build per year for full duration of the forecast.

→ Results in higher builds of gas, storage, and solar. Reduced winter scarcity from higher gas builds.

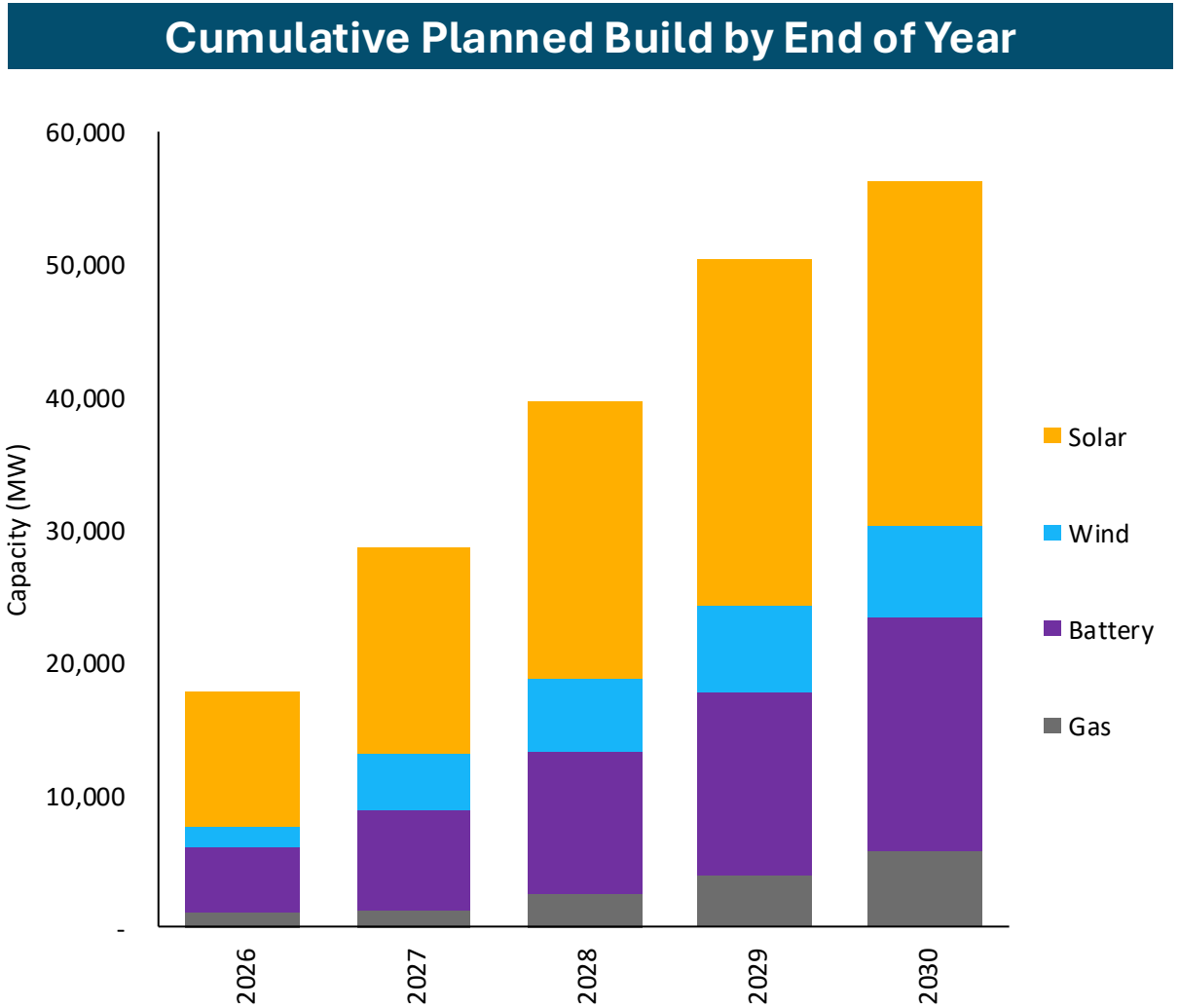
ERCOT Daily Load Shape with Load Components

- **By 2055, non-baseload becomes a large proportion of ERCOT total load**
- **Large flexible loads are forecast to grow significantly to 2035**
  - Both data centers and large flexible load shapes increase the load factor in ERCOT, adding more load in off-peak periods
- **EV's start to play a role later in the forecast, and ERCOT forecasts managed charging will shift EV charging impacts to solar-heavy hours**



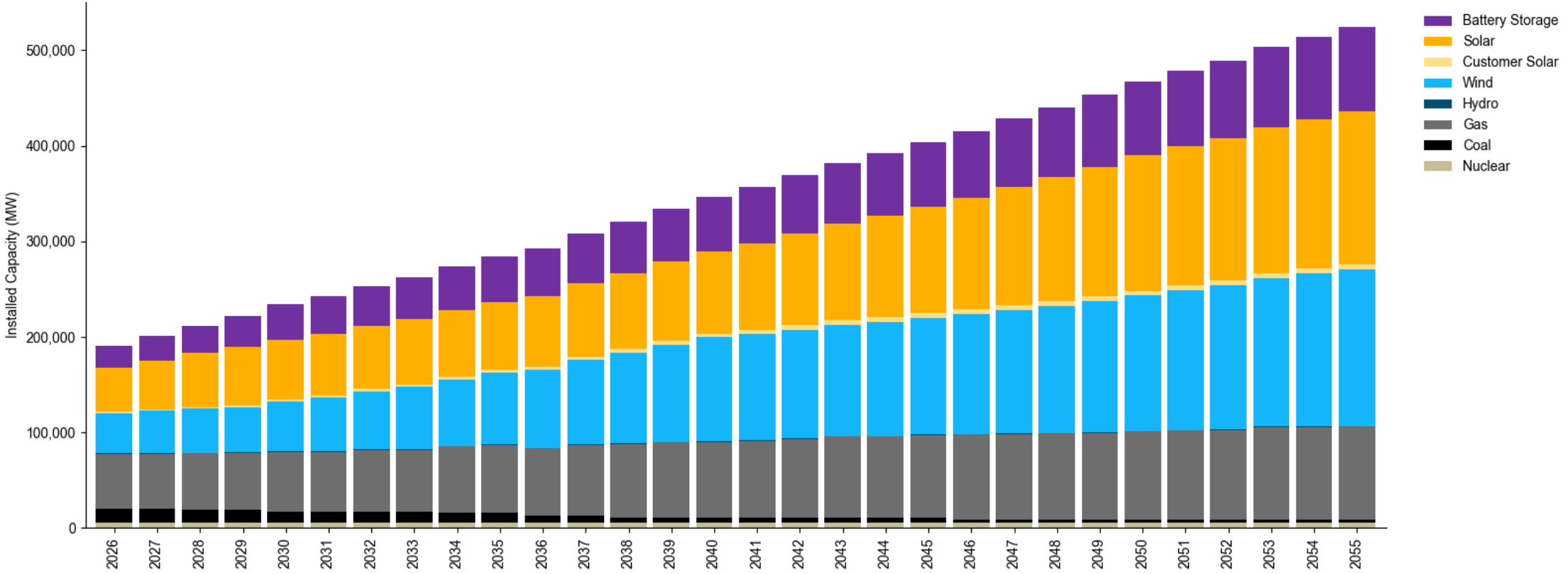
Planned Resource Additions

- **E3 utilizes ERCOT's CDR capacity, demand, interconnection queue, and project status to account for near term build**
  - Based on interconnection queue entries that have posted financial security and on historical growth trends, E3 expects 26 GW of planned solar and 7 GW of planned wind capacity to come online by 2030
  - Planned gas builds include all active projects from the TEF, and late-stage gas interconnections with approximately 5.7 GW expected to be added between 2026 and 2030
  - Approximately 17 GW of planned storage capacity is projected to come online by 2030, with all additions assumed to have a two-hour duration



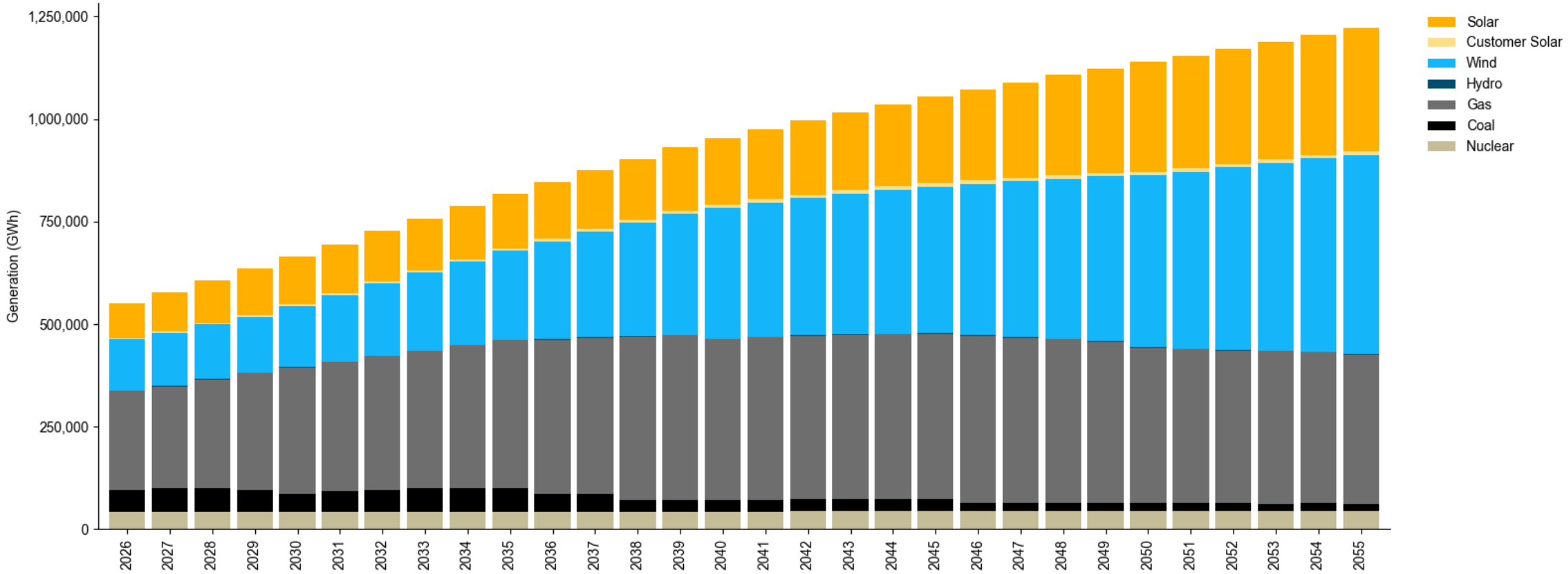
Nameplate Capacity

- Nameplate capacity is forecast to rapidly increase in the near-term, at pace with and above the GW of deployments seen in 2024. Meeting projected load growth will require a substantial build of all resources
- From 2030-2035 storage continues to deploy rapidly to capture ITC before its phase out
- Solar and wind build continues despite changes to ITC/PTC due to favorable economics in the ERCOT market
- Long-run a balanced mix of wind, solar, storage, and gas meet load growth

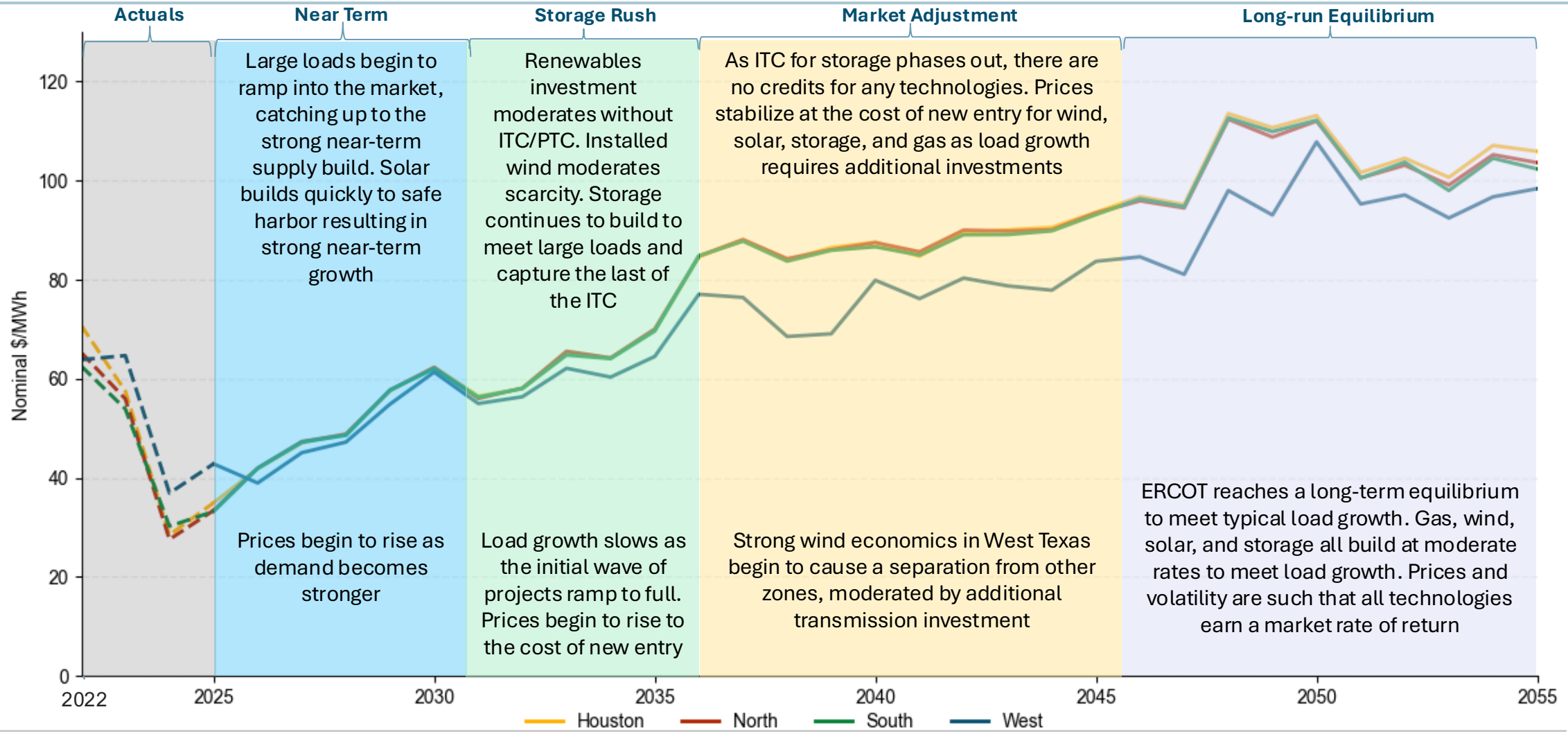


Total Generation Mix in ERCOT

- In the long-run, ERCOT reaches about 60% renewable generation driven by energy economics alone
- Gas generation contributes a critical part of the energy mix to meet load growth – and help me strong near-term energy growth

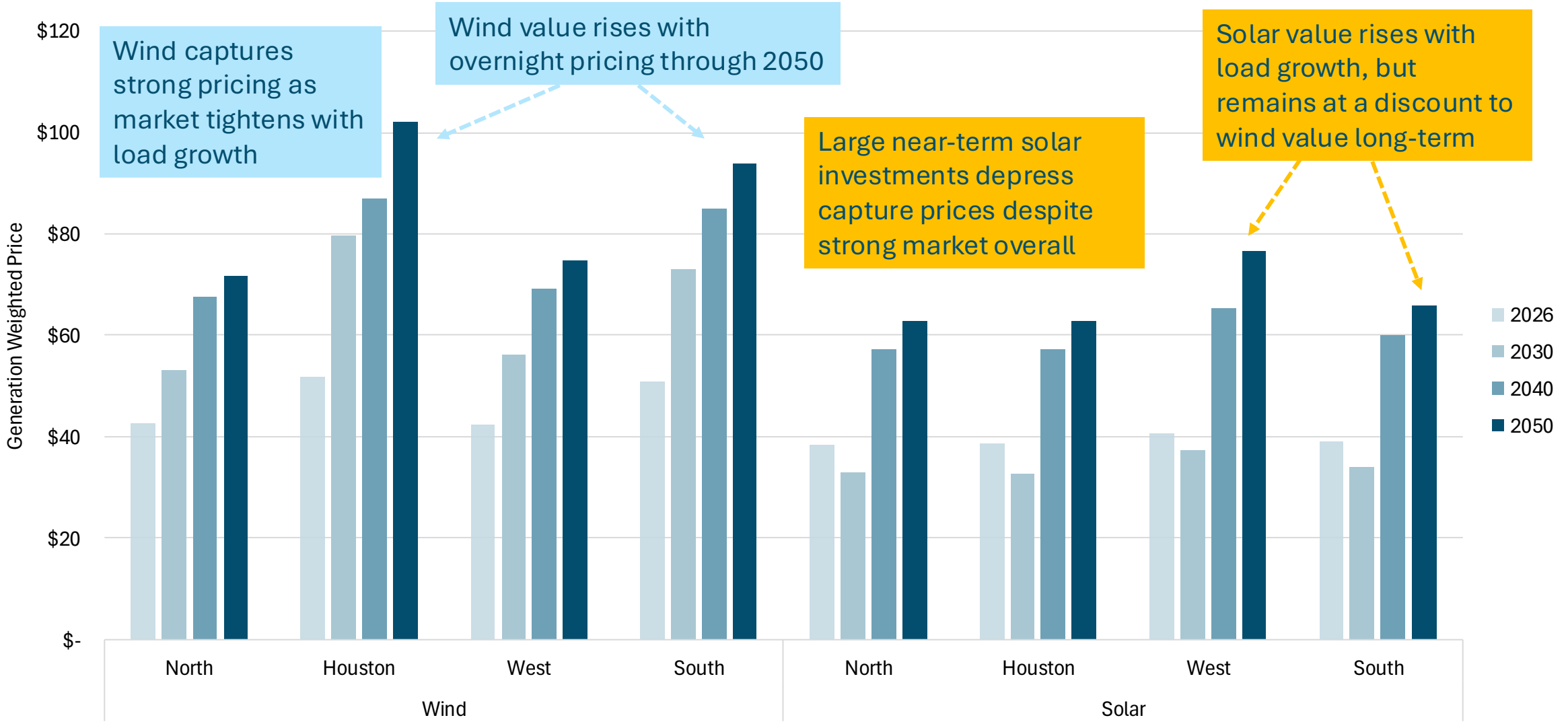


Annual Average Energy Price



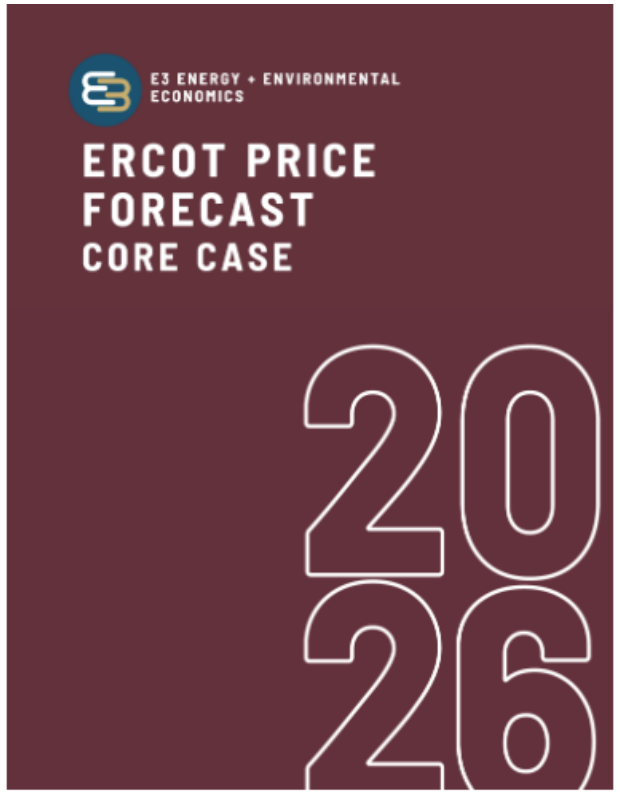
On average, ERCOT's main hubs are relatively identical on an annual average basis. This does not capture nodal level differences, nor truly illustrate the volatility of the West whose high penetration of renewables and constrained transmission leads to more volatile prices but ultimately balances out on average

Wind and Solar Generation-Weighted Energy Prices



Thank You for Joining

+ **E3 Market Price Forecasts including ERCOT Core Case, High Load Growth, Low Load Growth, and Constrained Wind Development scenarios are all available for purchase at: https://shop.ethree.com/**
  - Includes Excel assumptions book, market slide deck, and Excel hourly day ahead, real time, and ancillary services prices



+ **Reach out to us directly if you'd like to discuss any questions or custom engagements**
  - Paula Charles: Paula.Charles@ethree.com
  - Emily Rogers: Emily.Rogers@ethree.com
  - Grant Freudenthaler: Grant.Freudenthaler@ethree.com

+ **Follow E3 on LinkedIn for future insights: https://www.linkedin.com/company/energy-environmental-economics/posts/**

Q&A

Paula Charles: Paula.Charles@ethree.com

Emily Rogers: Emily.Rogers@ethree.com

Grant Freudenthaler: Grant.Freudenthaler@ethree.com

Energy+Environmental Economics