S&P GLOBAL NODAL TRADER CONFERENCE 2025

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# GET REAL: CAN POLICY APPROACHES CLARIFY LOAD FORECASTS?

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# SUMMARY

- AI's capital spending is extraordinary, but the electricity demand growth projections around the sector are unbelievable
- The consequences of an unbelievable load forecast are not good!
  - Less confidence and possible *underinvestment* in power generation that relies on market forwards
  - Possible *overspending* on regulated-grid investments because of moral hazard of utilities who don't have to wear the risk of rate-base spending
  - A 'crisis' for politicians who are not necessarily known to make sound policy under this kind of pressure
- Realizing the United States needs to compete and win in AI, what kind of regulatory policies can be employed to clarify this moment and "get real" about this possible AI bubble?
- But first…let's review the projections

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# ERCOT LOAD GROWTH PROJECTIONS

ERCOT All-Time Peak Demand

**85,508 MW**

(Aug 10, 2023)

ERCOT's 2025 Bottom-Up Load Forecast for 2027

**138,000 MW**

(a 61% increase in 2 years)

ERCOT's "More Reasonable" Adjusted Load Forecast for 2027

**103,725 MW**

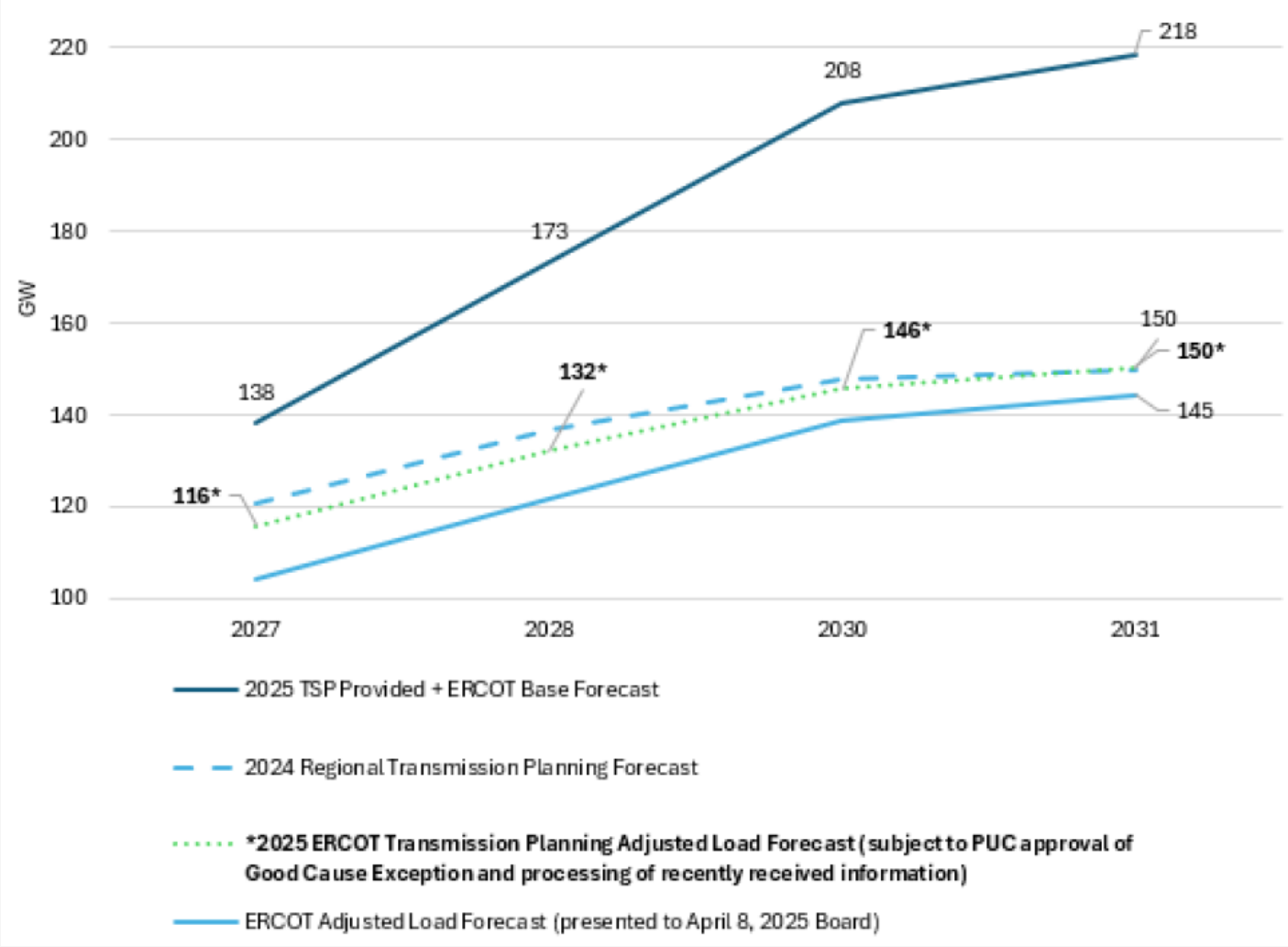
(a 23% increase in 2 years)

ERCOT's "More Reasonable" Adjusted Load Forecast for 2031

**145,000 MW**

(a CAGR of 6.8% per year)

## ERCOT Load Forecasts, 2024-2025

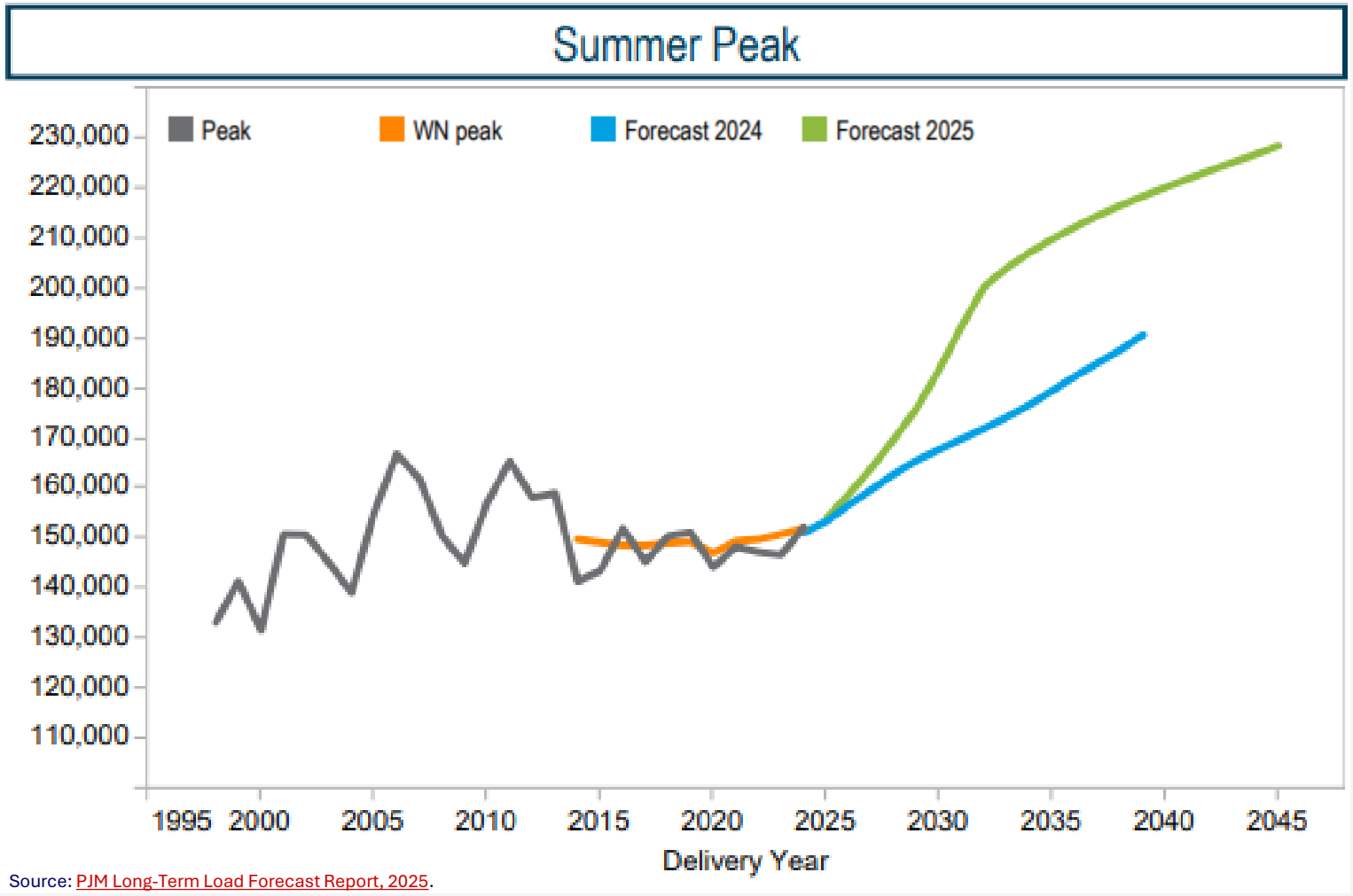



Source: ERCOT's Revisions to Adjusted Load Forecasts and Amended Draft Proposed Order.

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# PJM LOAD GROWTH PROJECTIONS

## PJM Load Forecast from January 2025




Source: PJM Long-Term Load Forecast Report, 2025.

PJM's All-Time Peak Demand

**165,563 MW**

(Aug 2, 2006)

PJM's 2025 Peak Demand

**160,526 MW**

(Jun 23, 2025)

PJM's 2025 Load Forecast for 2032

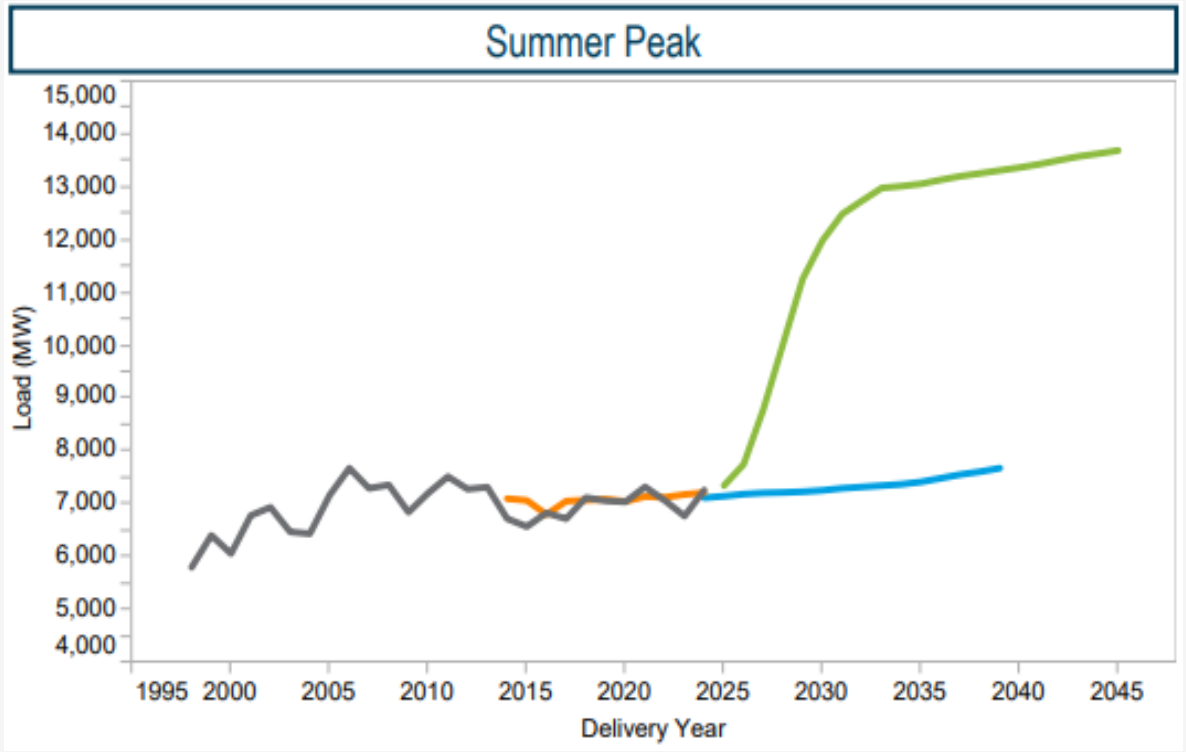
**197,302 MW**

(a CAGR of 3.0% per year)

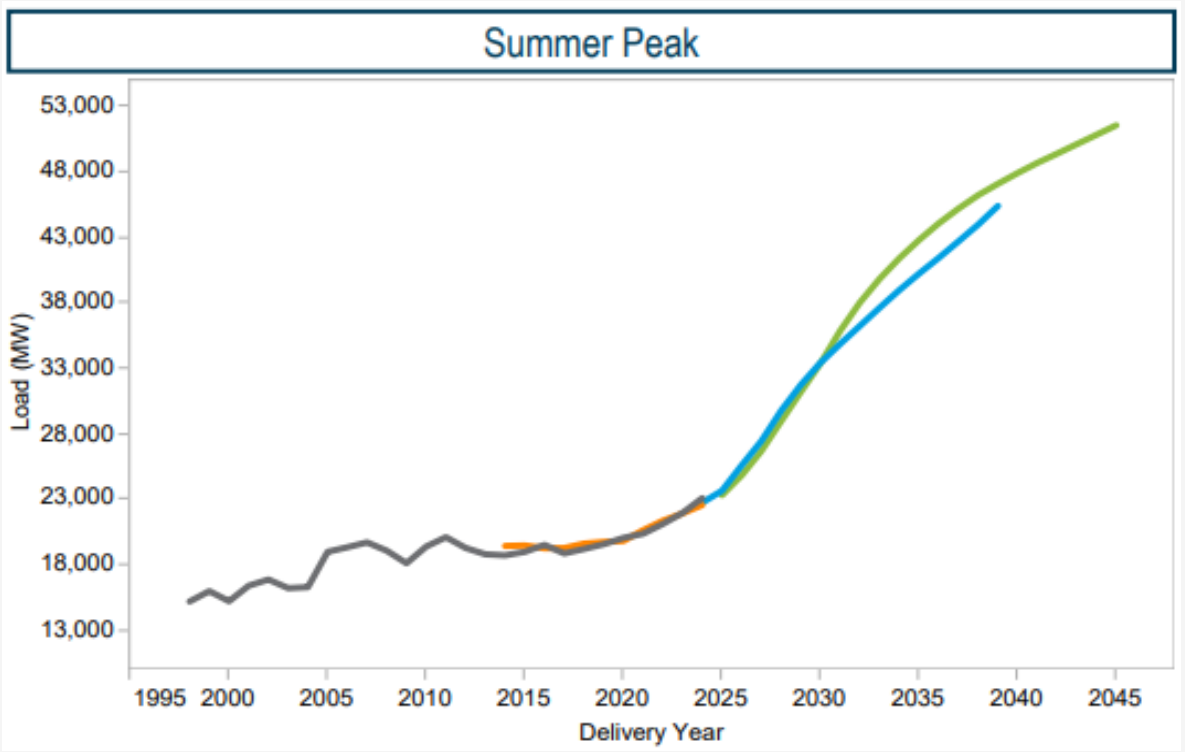
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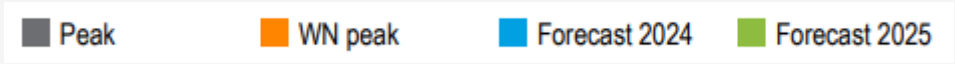
# PJM'S FORECAST DRIVEN BY AGGRESSIVE AND MORE GUARDED UTILITY TERRITORY FORECASTS

## PPL Electric Utilities




## Dominion



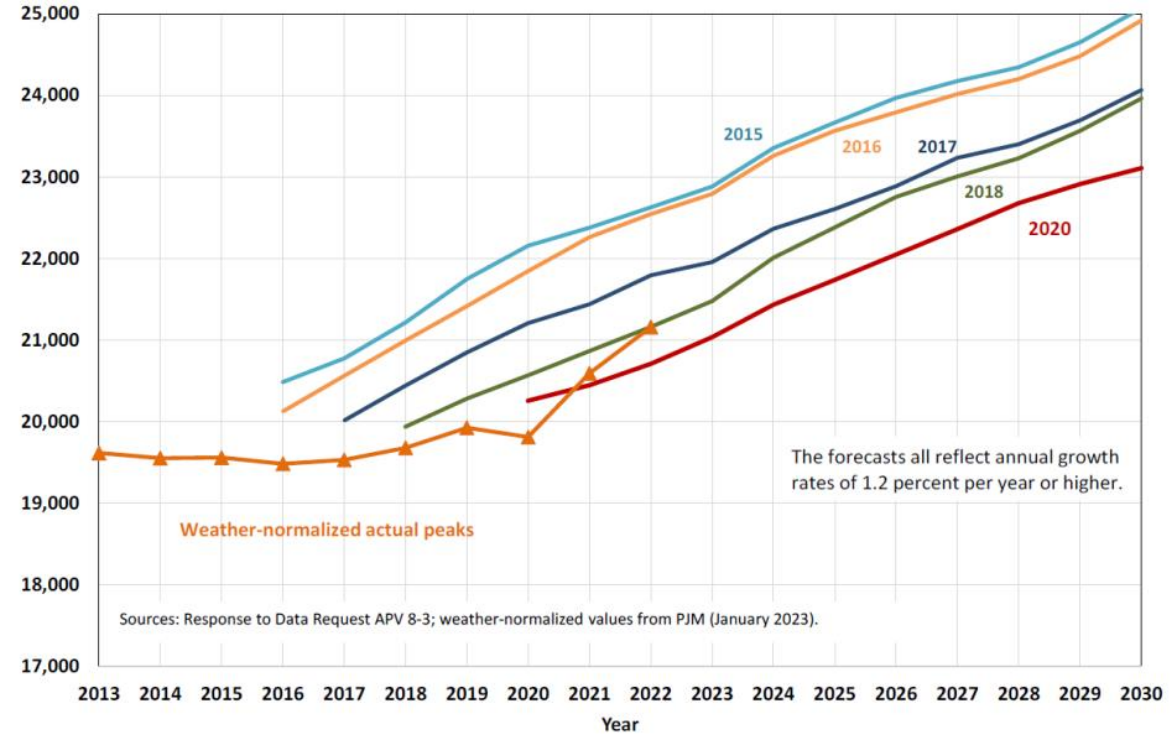




Source: PJM Long-Term Load Forecast Report, 2025.

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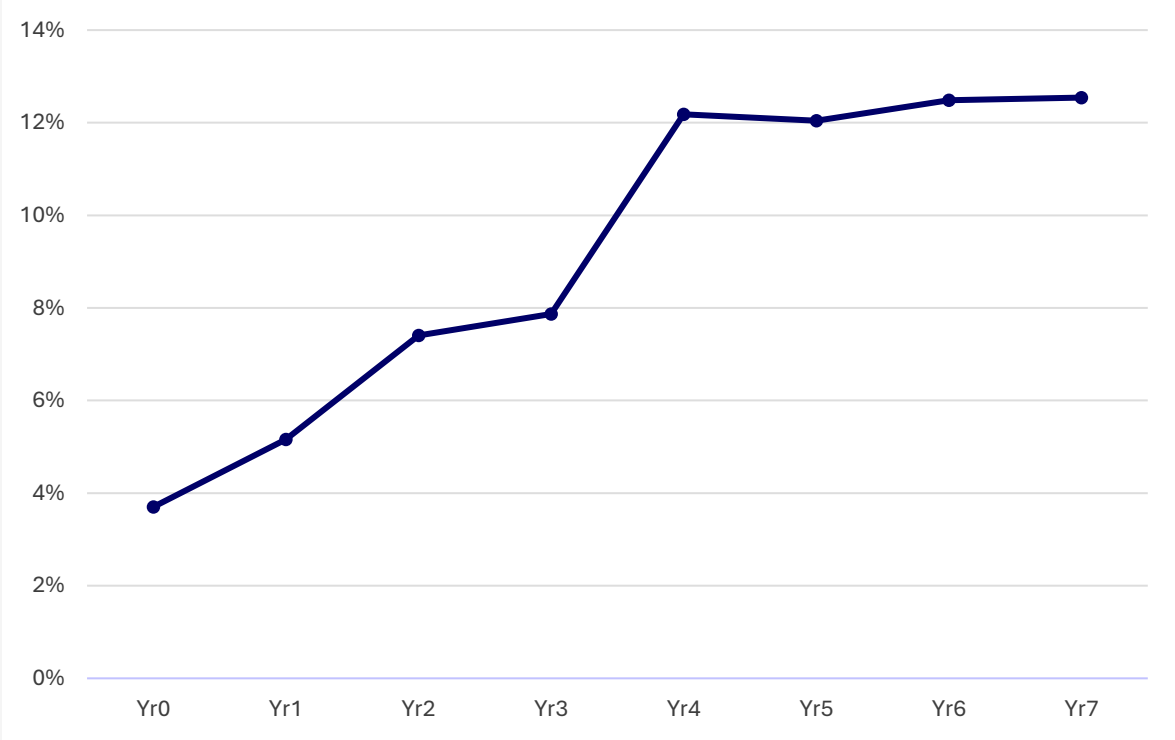
# THIS HAS ALL BEEN WRONG BEFORE

## Dominion's Forecasts of Dominion Zone Summer Peak Load Growth from Past IRPs




Source: Application/Petition of Virginia Elec. & Power Co. In re: Virginia Elec. & Power Co. Integrated Resource Plan Filing Pursuant to Va. Code § 56-597 et seq., Case No. PUR-2023-00066, Direct Testimony of James F. Wilson on Behalf of Appalachian Voices at 16 (Aug. 8, 2023).

## Average Dominion Error Rate in Load Forecasting by Year Removed from IRP Publish Year




Source: Internal analysis of Summer Peak Load Adjusted Forecasts presented in DOM IRPs for the years 2015-2018 and 2020-2024 (no IRP was produced in 2019).

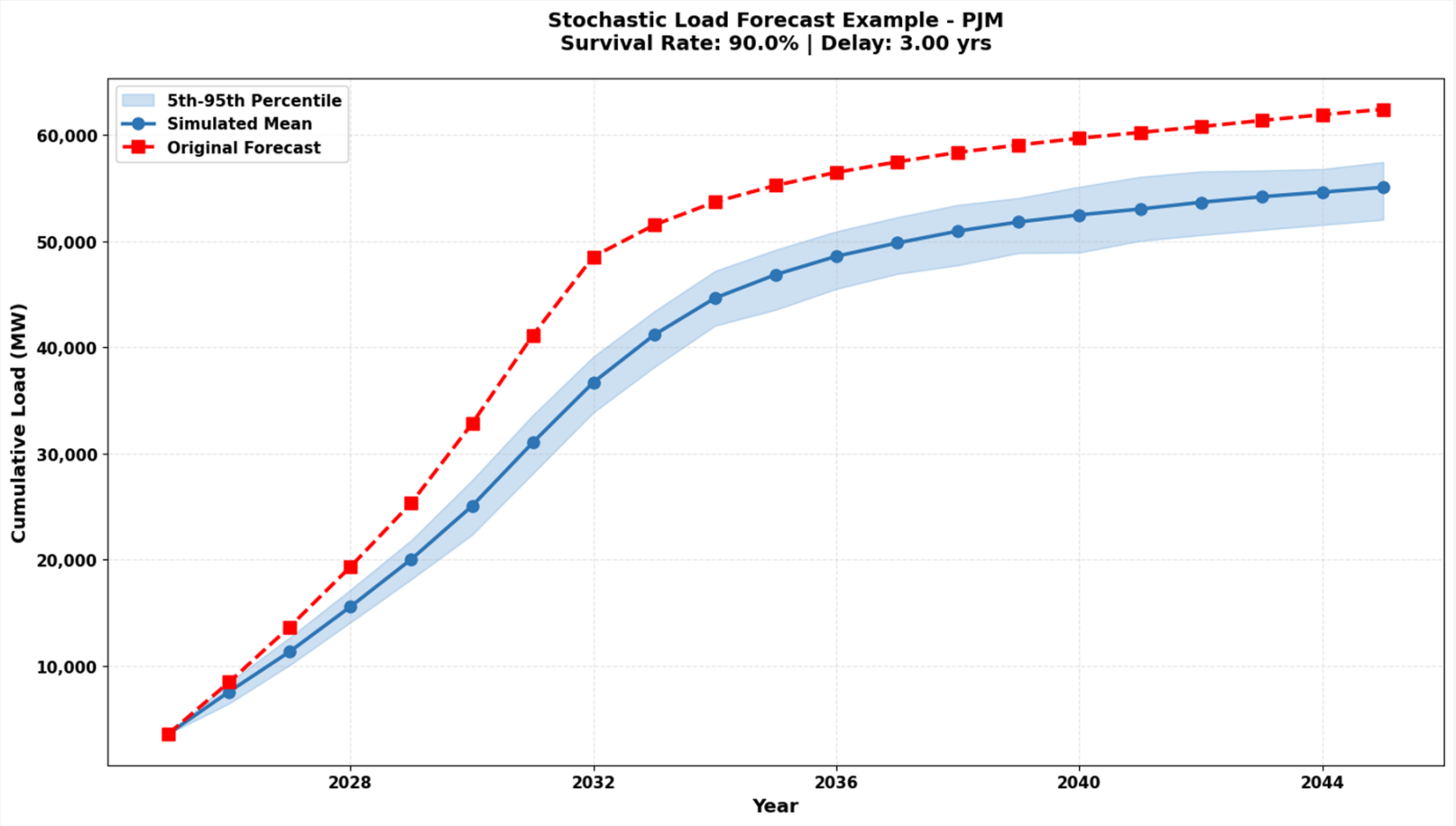
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# CHARLES RIVER ASSOCIATES APPLIED A STOCHASTIC ANALYSIS TO PJM LOAD FORECASTING

**3 Year Delay**

**100% Survival**

**100 Simulations**



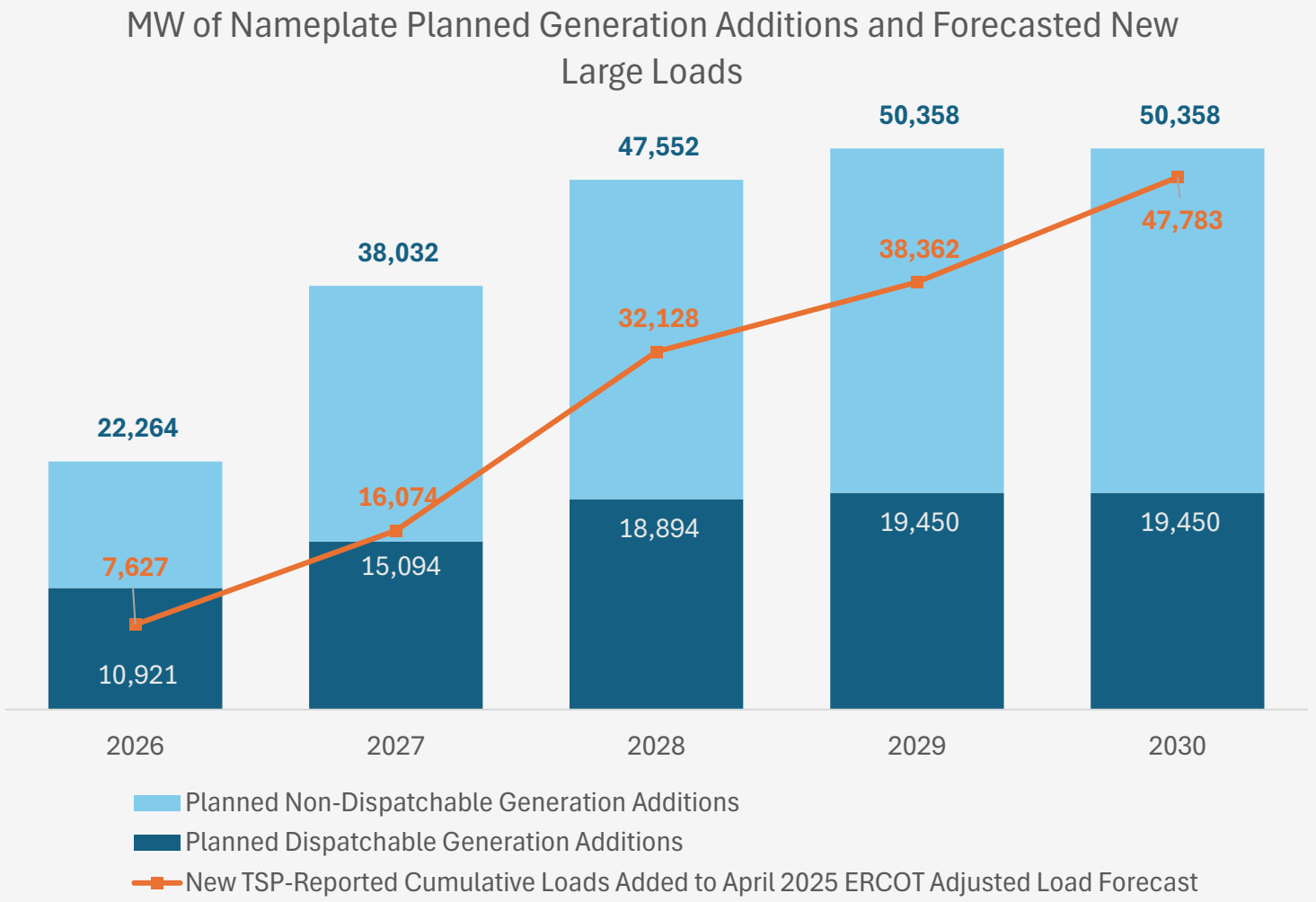

Even modest changes to assumptions of project cancellation or delay can have large effects on the forecast

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# RESOURCE ADDITIONS

Generation additions in ERCOT cannot keep pace with the large load demand forecast

- Cumulative Loads includes only Large Loads (Contracted and TSP Officer Letter)
- Most of the Planned Generation is non-dispatchable Solar, while data center loads have very high load factors
- Even within the block of dispatchable generation, most of it is battery energy storage




Source: ERCOT CDR, 2026-2030.

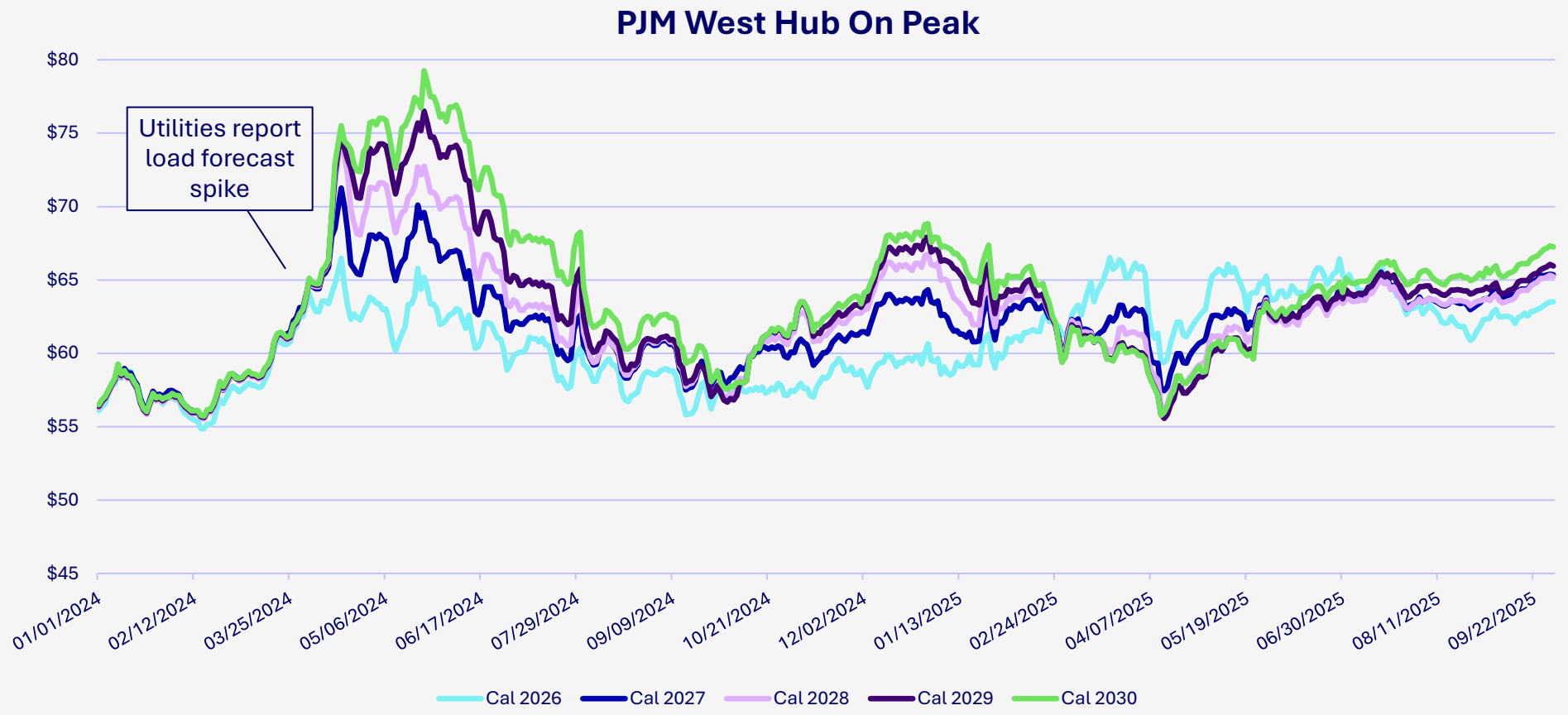
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# IMPACT OF PROJECTIONS




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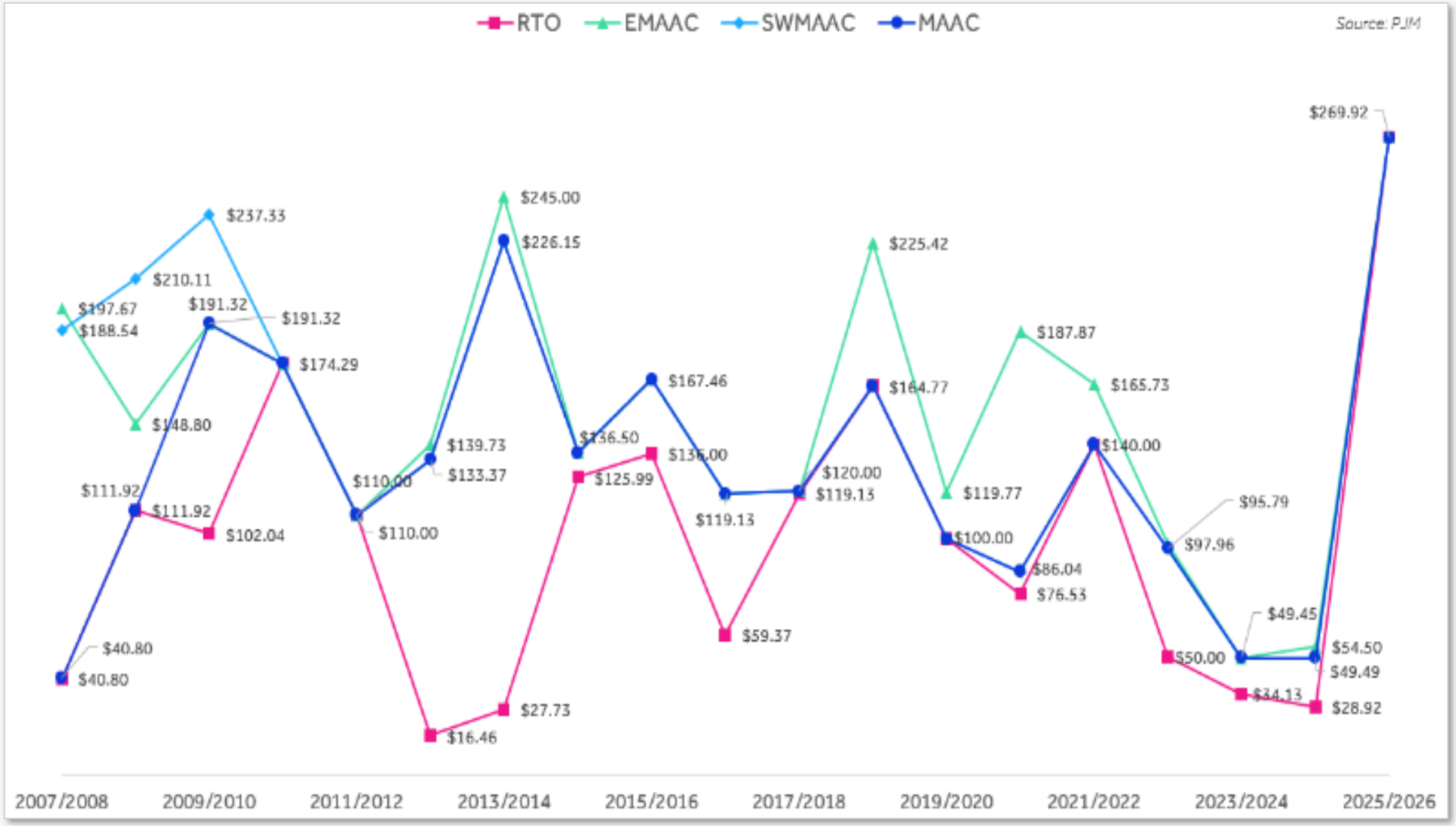
# ENERGY MARKETS ARE NOT REFLECTING THE LOAD FORECASTS




Trading for forward years doesn't suggest the scarcity indicated by administrative projections of demand/supply

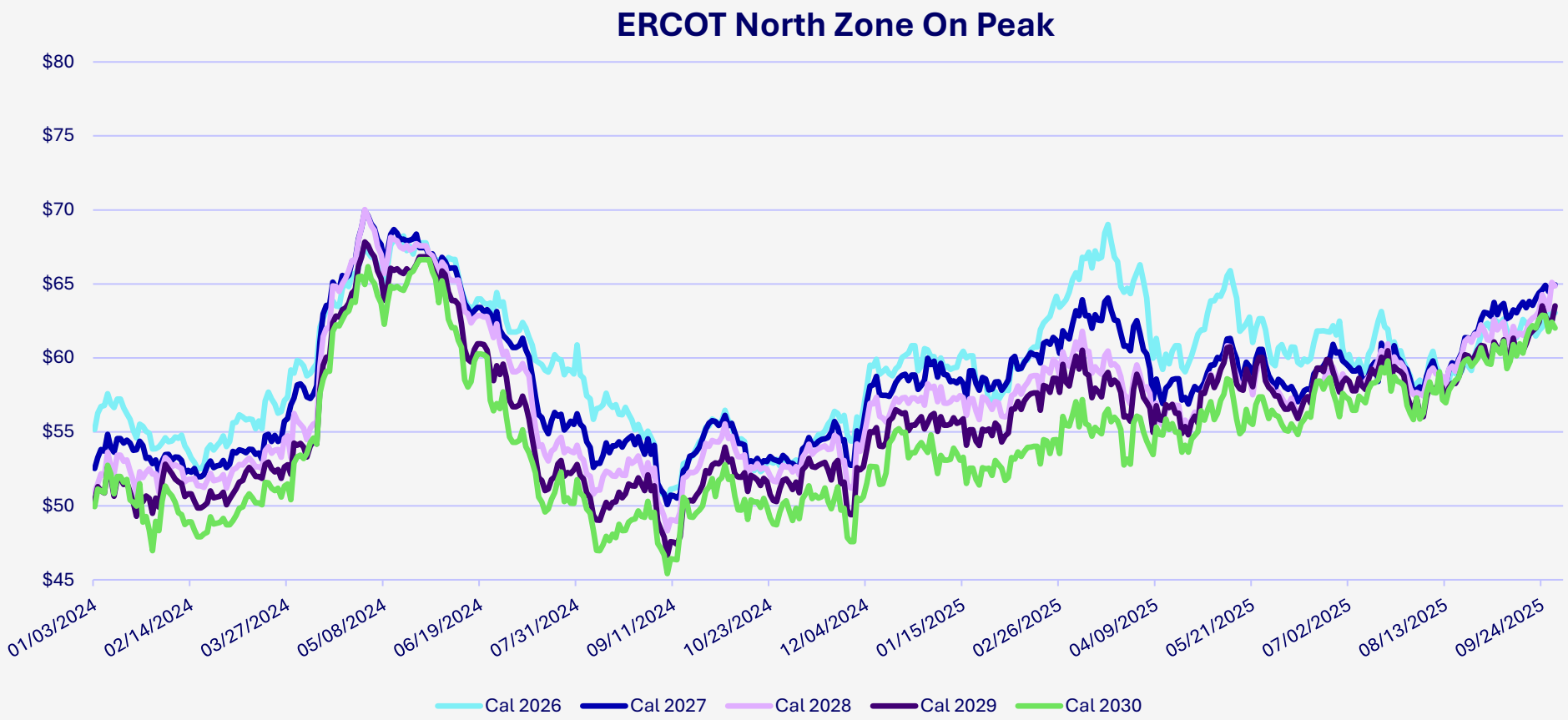
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# PJM CAPACITY: A MONOPSONY FORWARD MARKET BASED ON ADMINISTRATIVE GUESSES OF FUTURE LOAD




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# ENERGY MARKETS ARE NOT REFLECTING THE LOAD FORECASTS




Trading for forward years doesn't suggest the scarcity indicated by ***administrative*** projections of demand/supply

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# ALBERTA CREATES A FEEDBACK LOOP THROUGH POLICY

- Rather than working through data-center load growth on an inbound basis, AESO turned the exercise on its head
- AESO estimated an amount of residual system headroom that could be taken up by large loads, then announced an RFP-like process to determine which projects would receive demand transmission service (DTS) contracts.
- Forward prices reacted as the plan was formed and disseminated:
  - **HLD:** High-Level Design (HLD) outlining guiding principles, connection-study standards, and cost-allocation methods for large loads.
  - **REM Info Session:** Restructured Electricity Market (REM) Information Session, explaining how the HLD integrates with the broader REM reforms.
  - **Data Center Session:** "Data Center and Large Load Session" to brief stakeholders on how the HLD applies to data centers.

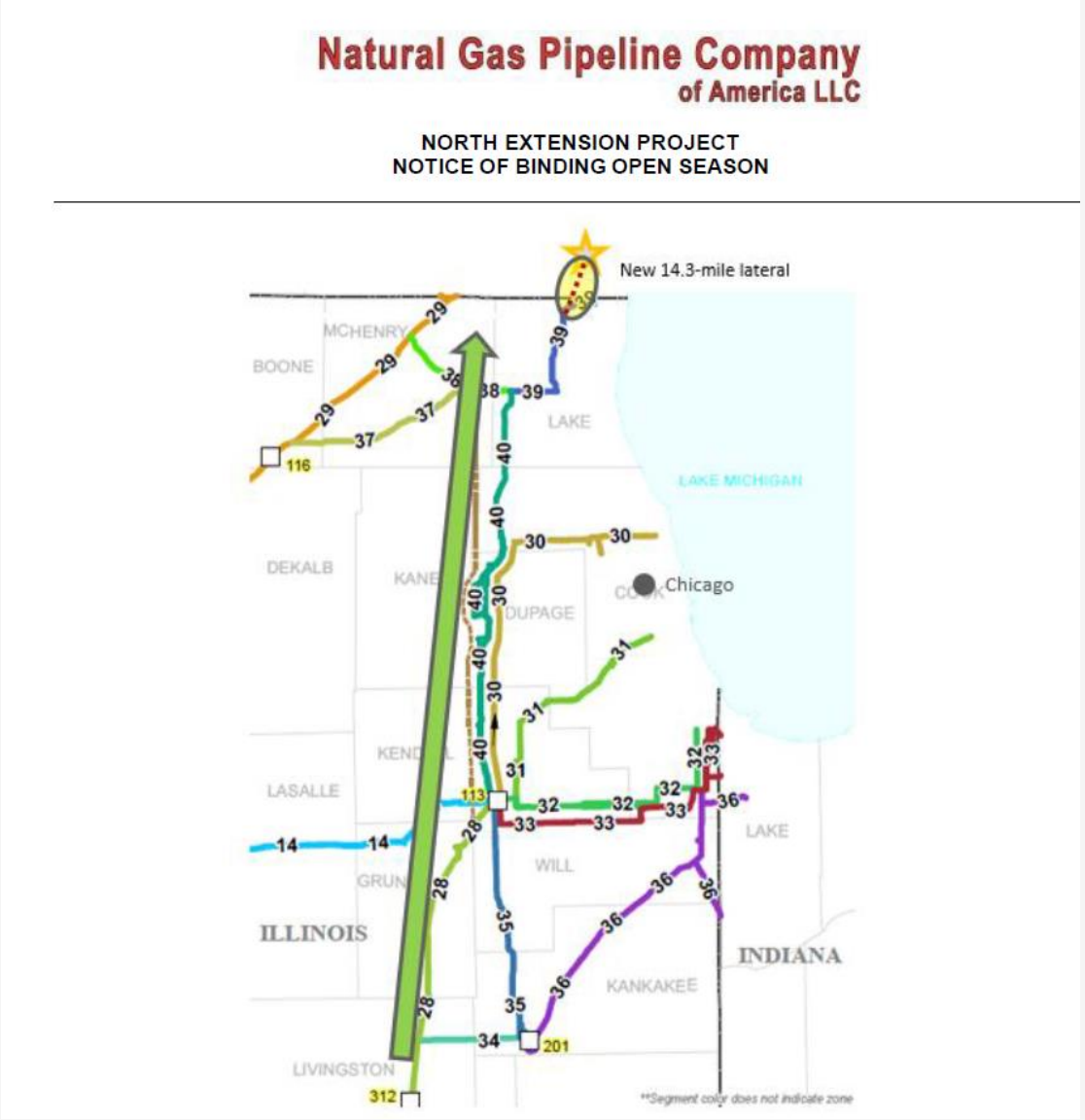
Cal 28 Prices




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# NATURAL GAS PIPELINES' OPEN SEASONS ALSO CREATE A CLEAR FEEDBACK LOOP

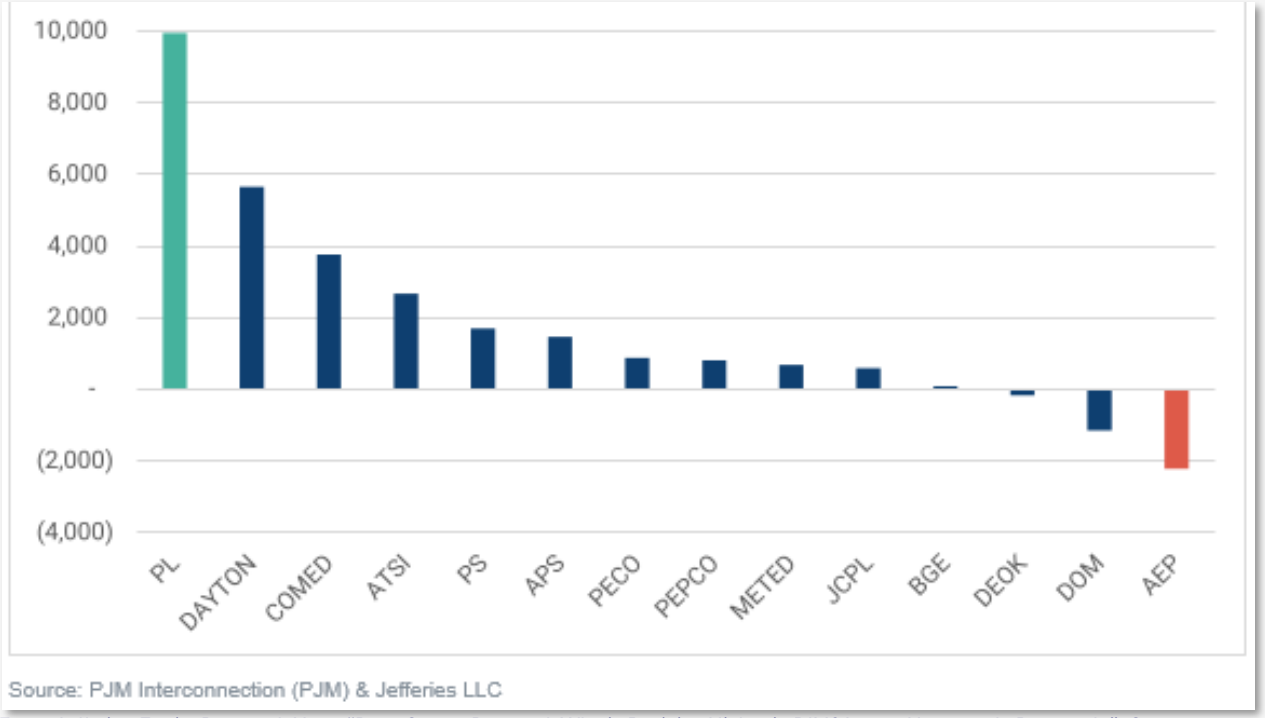
- Since FERC Order No. 636 in 1992, pipelines (and gas storage facilities) act entrepreneurially in forecasting potential demand to size expansion
- Unlike electric utilities, pipelines have to prove out that demand in the open market by holding an open season
- The open season allows demand to sign on the dotted line for a price term, which then feeds into a precedent agreement
- These precedent agreements then are used in the regulatory process to certificate the need for and siting of the pipeline
- Once the pipeline is constructed, these anchor tenants have first right to make use of the capacity they have subscribed, with a robust secondary market for that property right




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# LET'S TAKE A LOOK AT THE LATEST IN PJM…

## PJM 2026 Utility Requests vs 2025 PJM Approved Large Load Adjustment Requests (MW): 2026-2031




From: Jefferies *Equity Research Note*, "Data Center Demand: Who is Revising Higher in PJM? Latest Hyperscale Proposals", Oct 14, 2025.

### The Case of AEP

- **Mar 2023:** Temporary moratorium on new service requests.
- **May 2024:** With requests for more than 30,000 MW from 50 customers at 90 sites, AEP files an Application for a Data Center Tariff with the PUCO
- **Jul 2025:** Data Center Tariff approved. Includes:
  - Take-or-pay requirements including a minimum demand charge not to exceed 85% of total contract capacity;
  - Contract term limits and exit fees of 3 years' minimums.
  - A 45-day window to submit a request and pay a one-time fee to AEP Ohio to "conduct a formal study of their prospective load."

From May 2024 to Sep 2025, AEP Ohio reduced the number of potential data center sites from 90 to 36 and reduced its projected data center load from more than 30,000 MW to 13,023 MW.

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# IT'S TIME TO GET REAL

We can consider a handful of regulatory policies that could be employed to clarify the load forecasts and, more importantly, foster confidence in long-term investment decisions

- A Network Open Season for Grid Expansion
- A 'Speed to Power' Interconnection for Load / Generation Pairs
- A Nudge (or Requirement) for Longer-Term Bilateral Capacity Contracting
- A 'Minimum Commitments' Framework for Large Loads
- Better Energy Price Formation

Find out more on all these concepts by clicking through NRG's writings at https://www.nrg.com/energy-policy.html

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