TEA

MARKETINSIGHTS™

POWER SUPPLY OUTLOOK: WHAT'S CHANGING AND WHAT'S NEXT

CHRIS KRALICH, PORTFOLIO MANAGER, THE ENERGY AUTHORITY

GREG LABBE, DIRECTOR, CORPORATE ANALYTICS, THE ENERGY AUTHORITY

TEA

MARKET INSIGHTS

CHRIS KRALICH
Portfolio Manager, TEA

GREG LABBE
Director, Corporate Analytics, TEA

Over Two Decades of Proven Experience

Why TEA Exists

TEA is wholly owned by publicly-owned entities, and created by public power to respond to our changing industry

Who TEA Is

TEA is a nonprofit portfolio management, energy trading, and advanced analytics firm that has operated in wholesale energy markets across the U.S. since August 1997

How TEA Operates

TEA is a trusted partner in helping its clients gain critical insights, manage risks, and optimize their resources

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The Strategic Partner for Public Power Utilities

Market Expertise

TEA serves over 1,200 communities across the United States by leveraging the experience built over 28 years of service. It actively trades in CAISO, ERCOT, ISO-NE, MISO, NYISO, PJM, and SPP, along with the bilateral market areas in the West and Southeast. TEA is owned and directed by seven public power entities, providing market expertise to its clients.

Deep Experience

With over 80 entities being served across the United States, TEA provides services that give us a deep understanding of the benefits and challenges of market design and participation. TEA actively participates in the Energy Management decisions for wholesale power entities across the US.

Client-Centric Approach

TEA provides a strategic and responsive client service approach that is:
(1) integrated across commodities and timelines,
(2) customized to your utility needs, and
(3) focused on the goals of YOUR utility.

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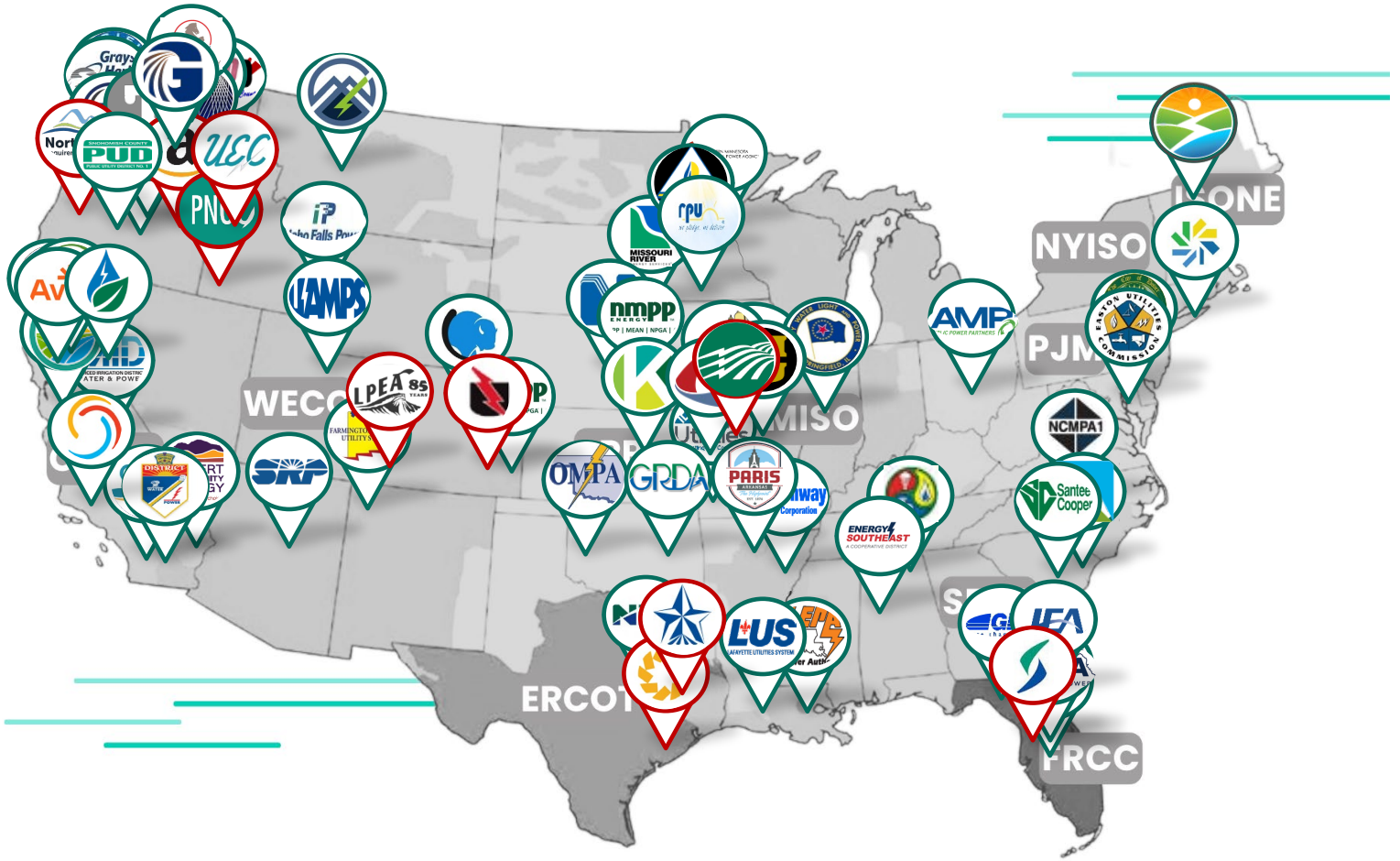
WHO WE SERVE

By partnering with TEA, our clients can achieve the scale and scope of operations needed to compete in the wholesale energy market. Our organization currently works with over 80 clients across the US. We represent over 35,000 MW of peak demand and 30,000 MW of installed generation capacity across the US.



TEA THE EnergyAuthority

TEA SOLUTIONS

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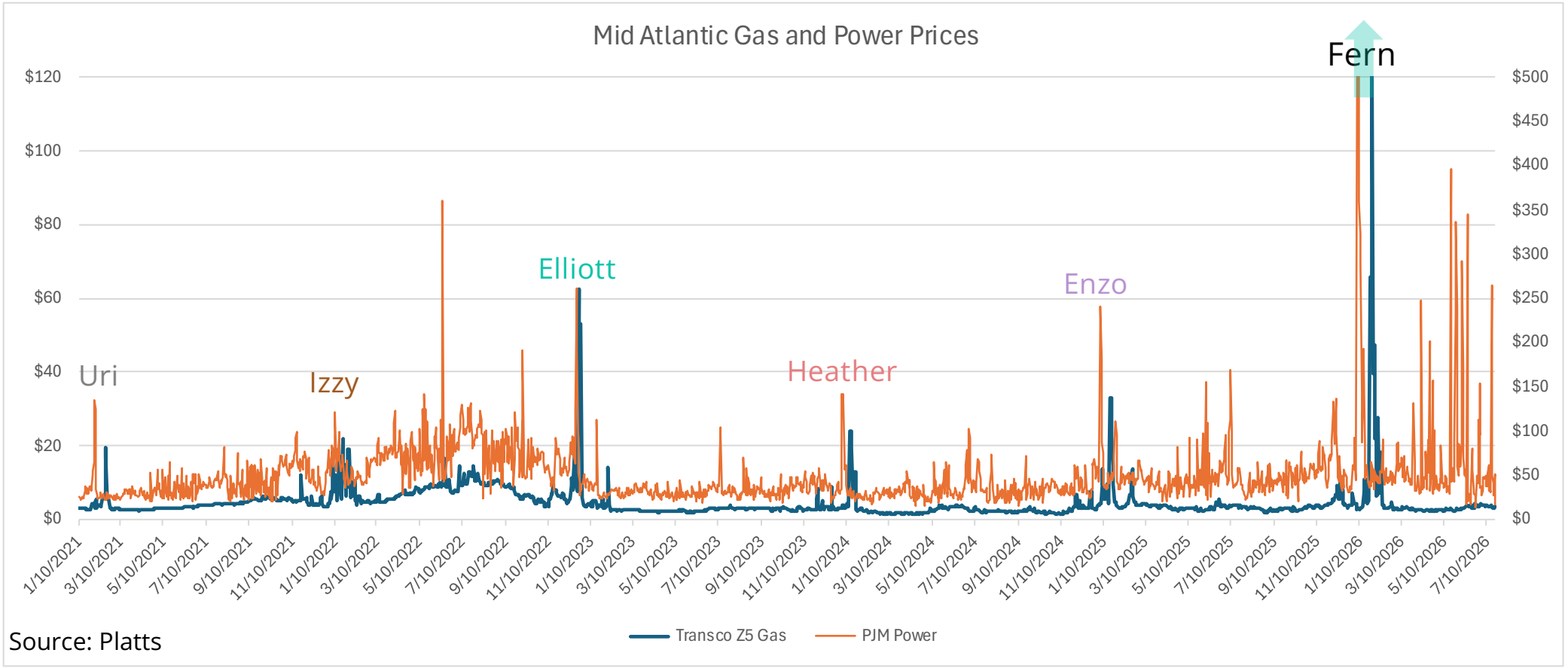
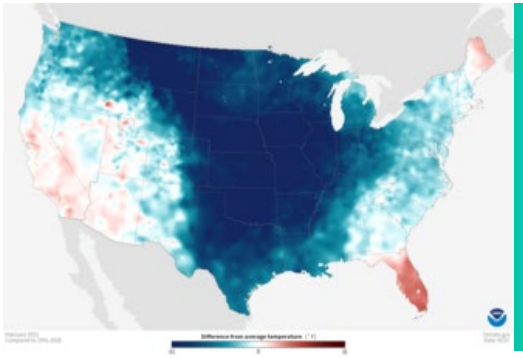
US AND GLOBAL ENERGY MARKETS

CHRIS KRALICH, PORTFOLIO MANAGER, THE ENERGY AUTHORITY



Source: Platts



JANUARY BIG EVENTS…ARE THINGS CHANGING?

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IT'S A COMPETITION

...FOR MOLECULES

THINGS KEEP CHANGING!... "I DON'T LIKE THIS"

CBS Sports Rankings

RANK	TEAM
1	Ohio State 12-2
2	Texas 10-3
3	Oregon 13-2
4	Notre Dame 10-2
5	Georgia 12-2
6	Indiana 16-0
7	Miami (Fla.) 13-3
8	Texas A&M 11-2
9	Texas Tech 12-2
10	Oklahoma 10-3

TEA Natural Gas Rankings

Rank	Team (bcf/day demand)
6	Industrial 20
7	Commercial 8
8	Pipeline Loss 2
9	Growth 1
10	Flaring 1

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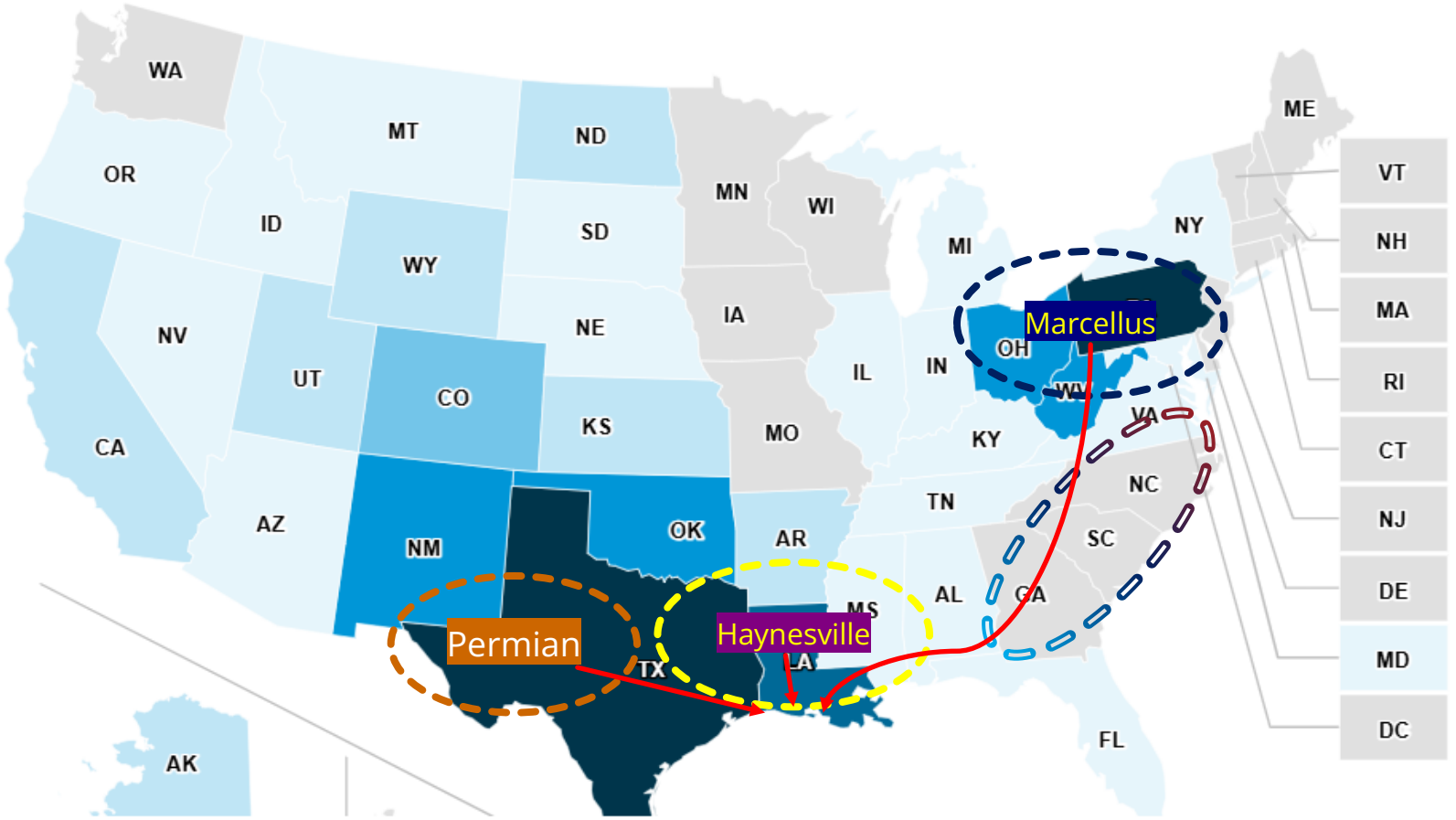

WHAT ARE THE MAJOR CONFERENCES AND WHERE IS THE NATIONAL CHAMPIONSHIP?

WHERE DOES THE ENERGY COME FROM AND WHERE IS IT HEADED?

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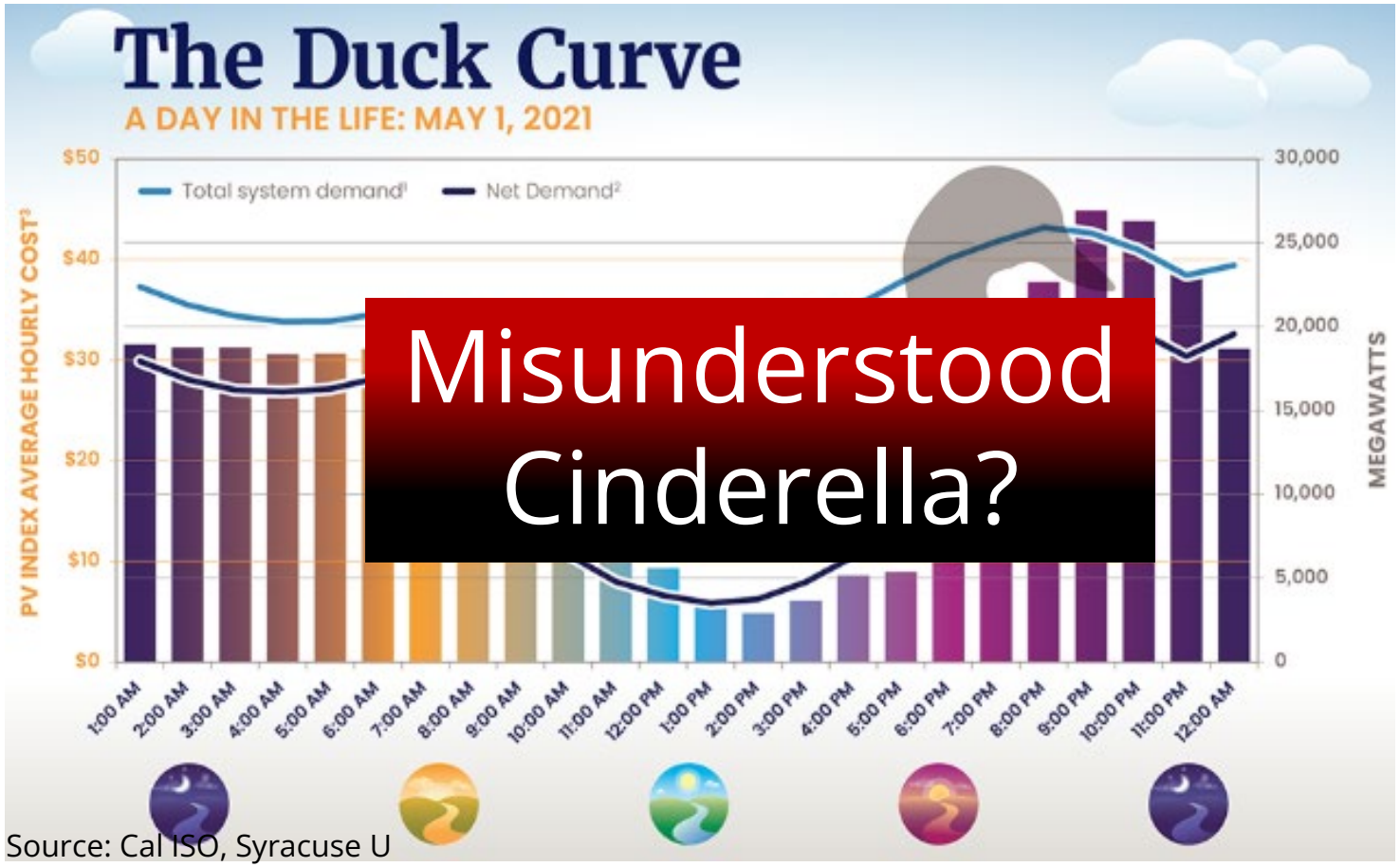
GAME DAY:
TOP FIVE INFLUENCERS



Misunderstood Cinderella?

Source: Cal ISO, Syracuse U

#5 RANKED – RENEWABLES

- POLITICAL STARTS AND STOPS
- IS IT WHERE IT NEEDS TO BE?
- INTRODUCING VARIABILITY

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#4 RANKED – GEOPOLITICS

- US INEXTRICABLY CONNECTED TO GLOBE
- CRUDE GETS THE HEADLINES
- HIGHER CRUDE LOWER GAS PRICES?
- GLOBAL LNG PRICE = WINTER RISK

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#3 RANKED – WEATHER

- NEW PARADIGM OF RISK
- TEMPERATURE IS “HOT” TOPIC
- HAS BECOME GLOBAL

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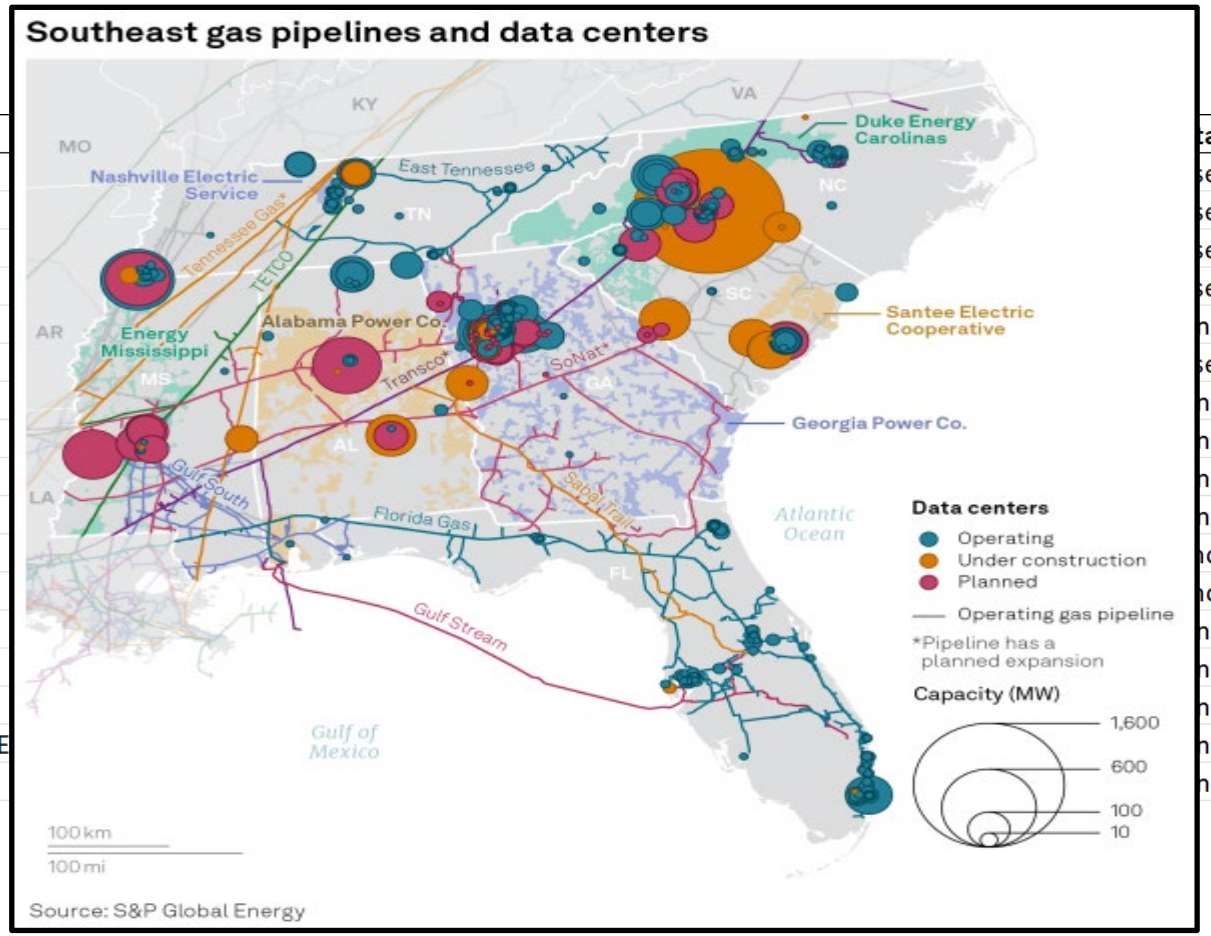
State	County	City	tatus	Likelihood	Est. Load	GasDemand
NORTH CAROLINA	CATAWBA	CONOVER	ervice	COMPLETED	207	13,104
NORTH CAROLINA	WAKE	RALEIGH	ervice	COMPLETED	6	383
NORTH CAROLINA	MECKLENBURG	CHARLOTTE	ervice	COMPLETED	3	214
NORTH CAROLINA	WAKE	RALEIGH	ervice	COMPLETED	5	342
NORTH CAROLINA	CABARRUS	HARRISBURG	nned	UNLIKELY	315	19,978
NORTH CAROLINA	GUILFORD	GREENSBORO	ervice	COMPLETED	20	1,268
NORTH CAROLINA	CATAWBA	MAIDEN	nned	LIKELY	58	9,261
NORTH CAROLINA	ROCKINGHAM	MADISON	nned	UNLIKELY	219	13,915
NORTH CAROLINA	MECKLENBURG	CHARLOTTE	nned	NEUTRAL	540	34,249
NORTH CAROLINA	MADISON	MADISON	nned	UNLIKELY	134	8,477
NORTH CAROLINA	IREDELL	MOORESVILLE	ncelled	CANCELLED	-	-
NORTH CAROLINA	MECKLENBURG	MATTHEWS	ncelled	COMPLETED	-	-
NORTH CAROLINA	IREDELL	STATESVILLE	nned	NEUTRAL	65	4,093
NORTH CAROLINA	MECKLENBURG	CHARLOTTE	nned	NEUTRAL	16	1,027
NORTH CAROLINA	RICHMOND	HAMLET	nned	NEUTRAL	39	2,483
NORTH CAROLINA	STOKES	WALNUT COVE	nned	VERY UNLIKELY	2,700	171,243
NORTH CAROLINA	FORSYTH	GREENSBORO	nned	VERY UNLIKELY	371	23,546



#2 RANKED – DATA CENTERS

- 6+ BCF/DAY OF DEMAND BY 2030
- TEXAS AND VIRGINIA HOST 40%+
- MOVING TO ONSITE GENERATION
- 20% OF US POWER BY 2035!?

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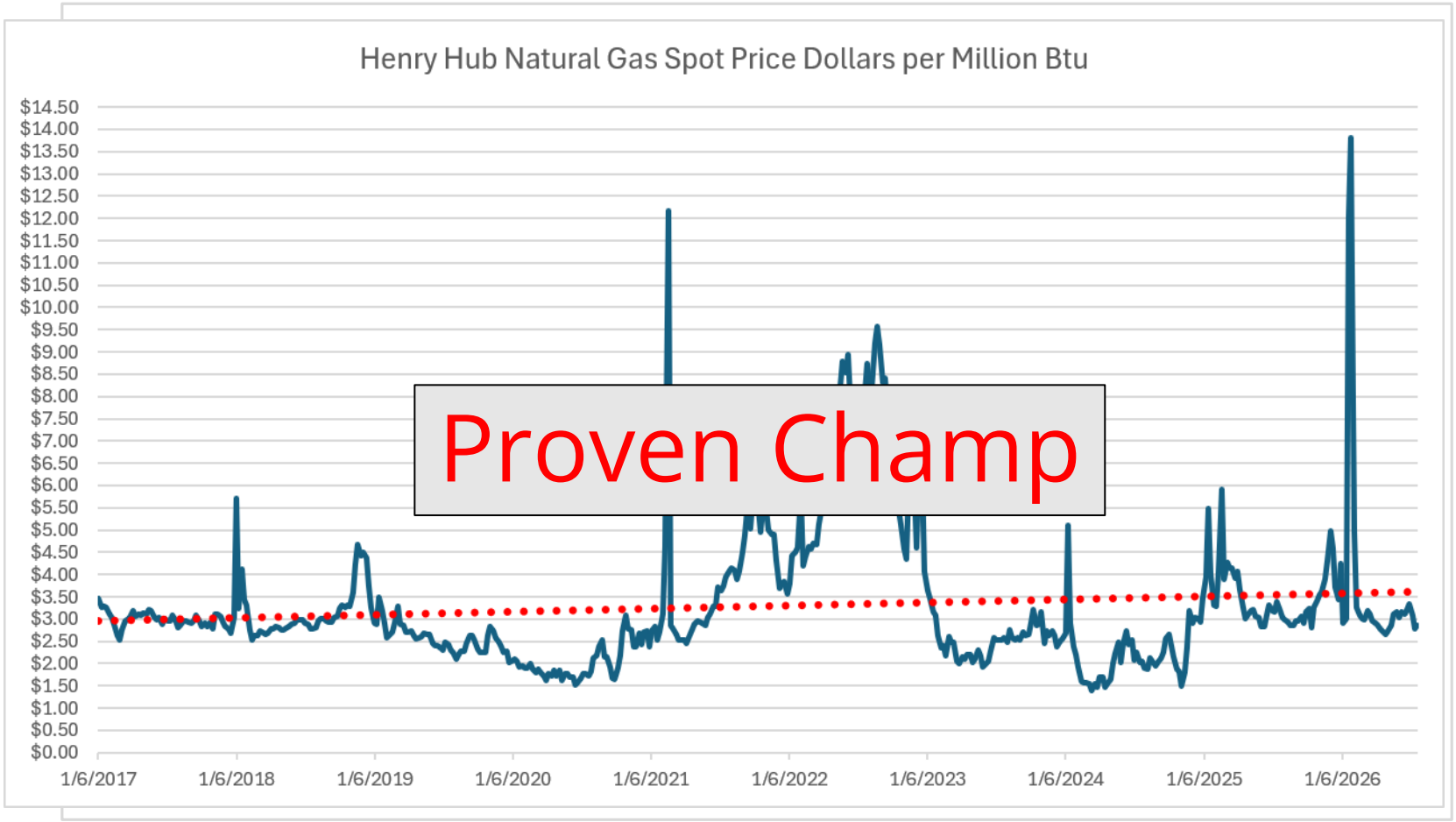

#1 RANKED – LNG SUPPLY

- MASSIVE CAPITAL PROJECTS
- BIG BASELOAD VOLUMES
- US GAS PRICES VS GLOBAL
- 35% OF GLOBAL SUPPLY BY 2030!

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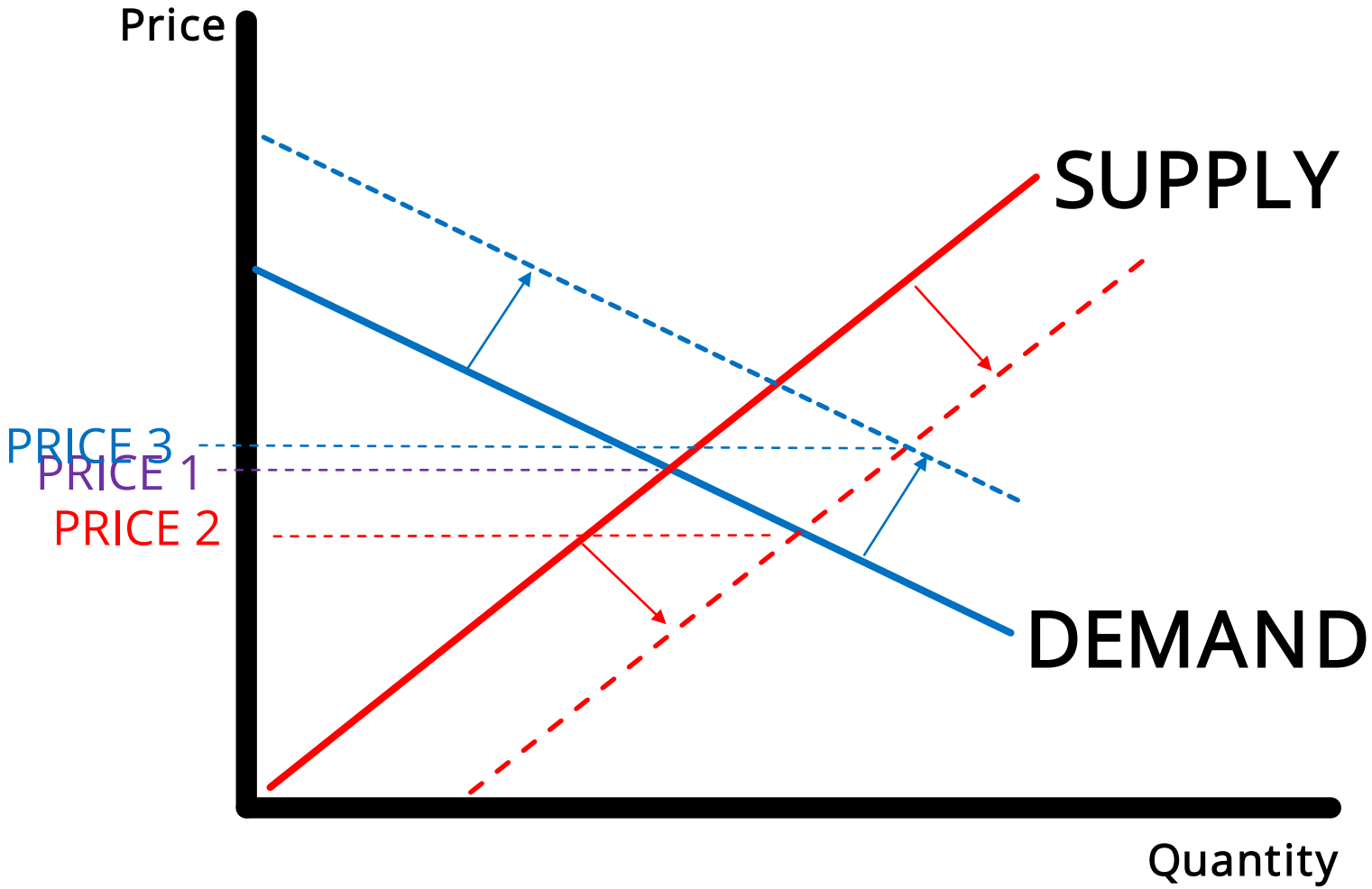
ENERGY COMPETITION

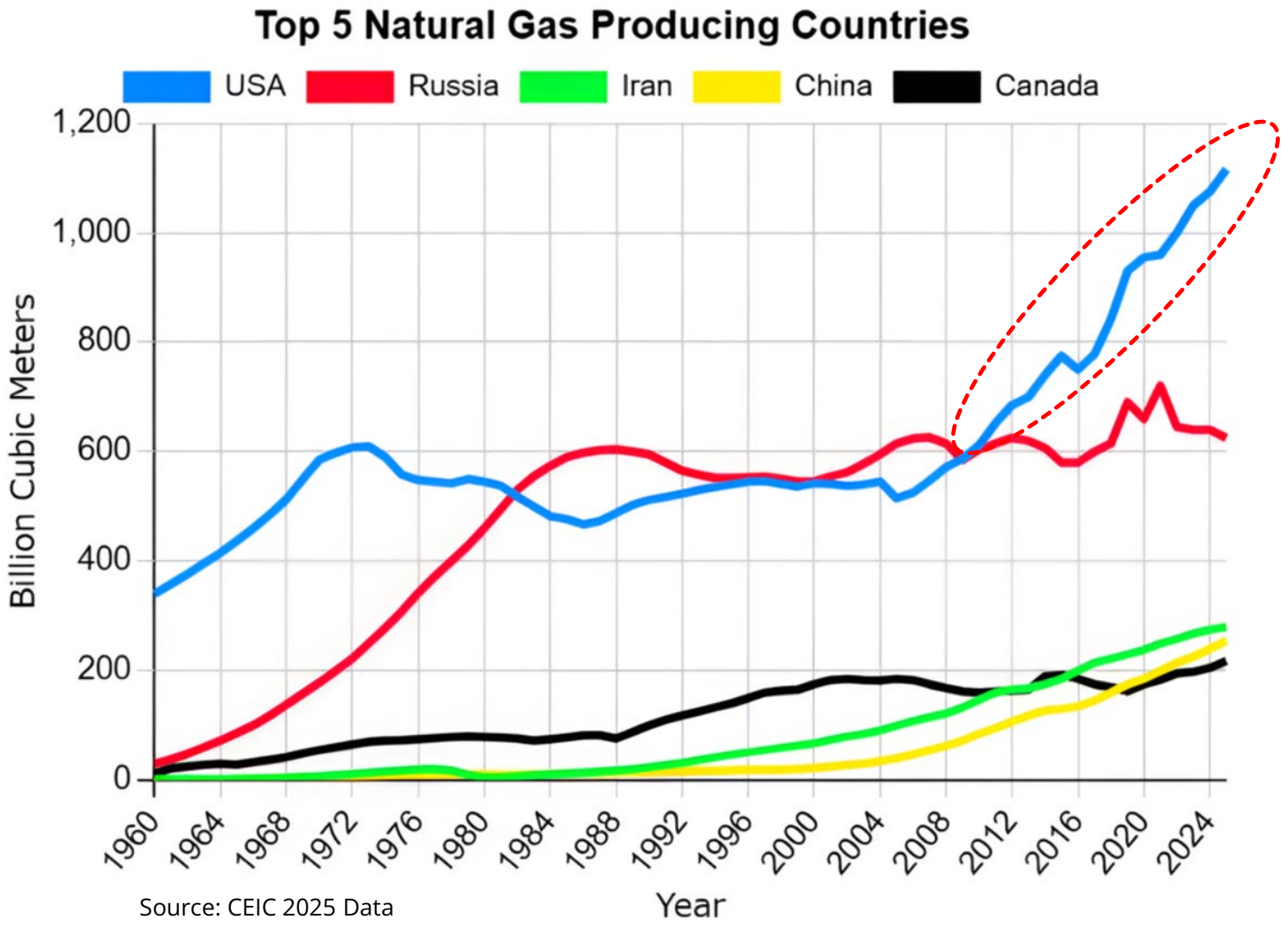
…WHERE IS THE BALANCE?



IS IT POPULAR?

NATURAL GAS PRODUCTION

U.S. natural gas production reaches record highs, outpacing the rest of the world, driven by key domestic shale plays and rising global LNG demand

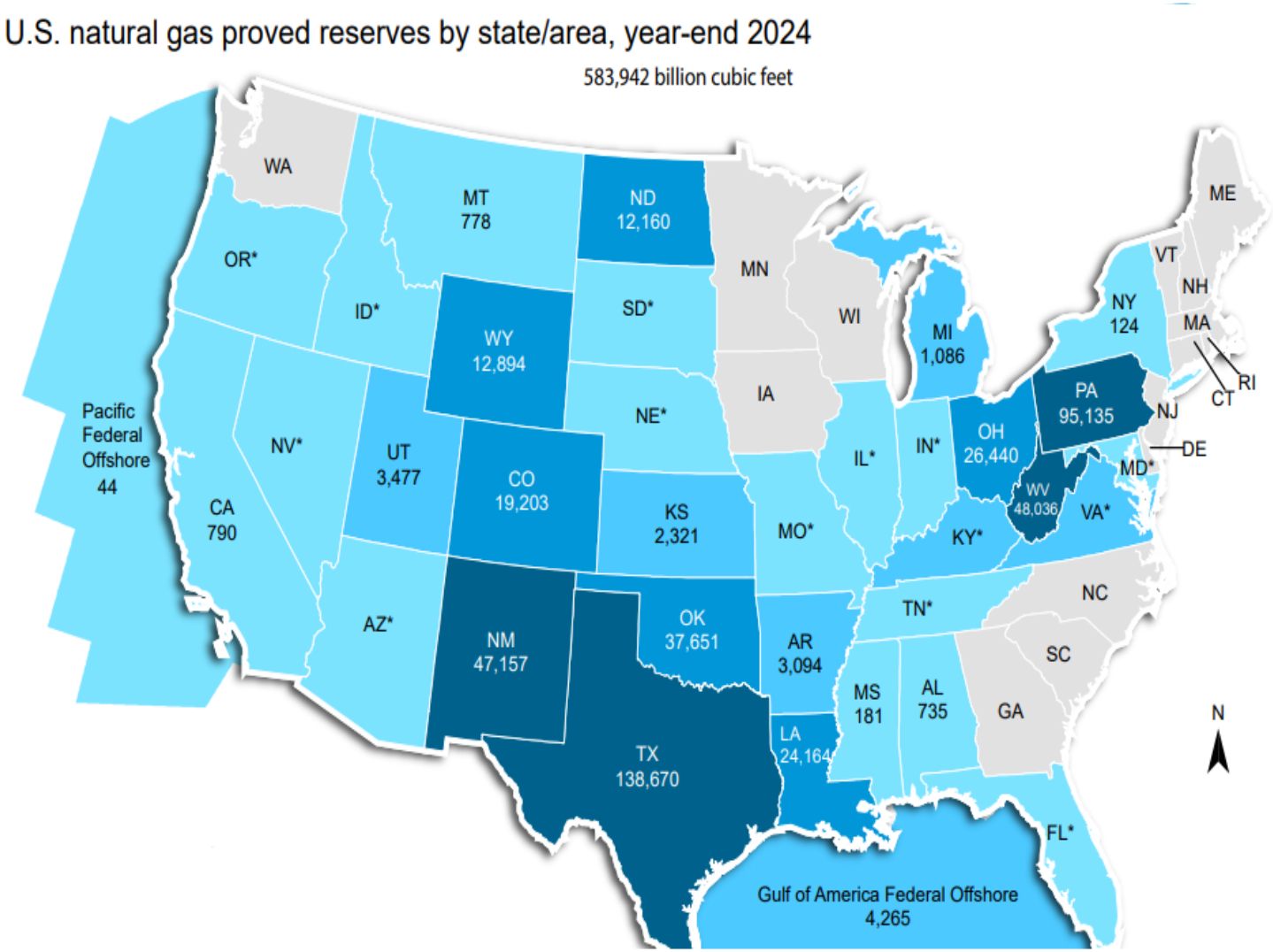


Source: CEIC 2025 Data

WILL THE SYSTEM LAST?

NATURAL GAS RESERVES

As of 2021, the world's total proven natural gas reserves were estimated to be approximately **196.7** trillion cubic meters (Tcm)



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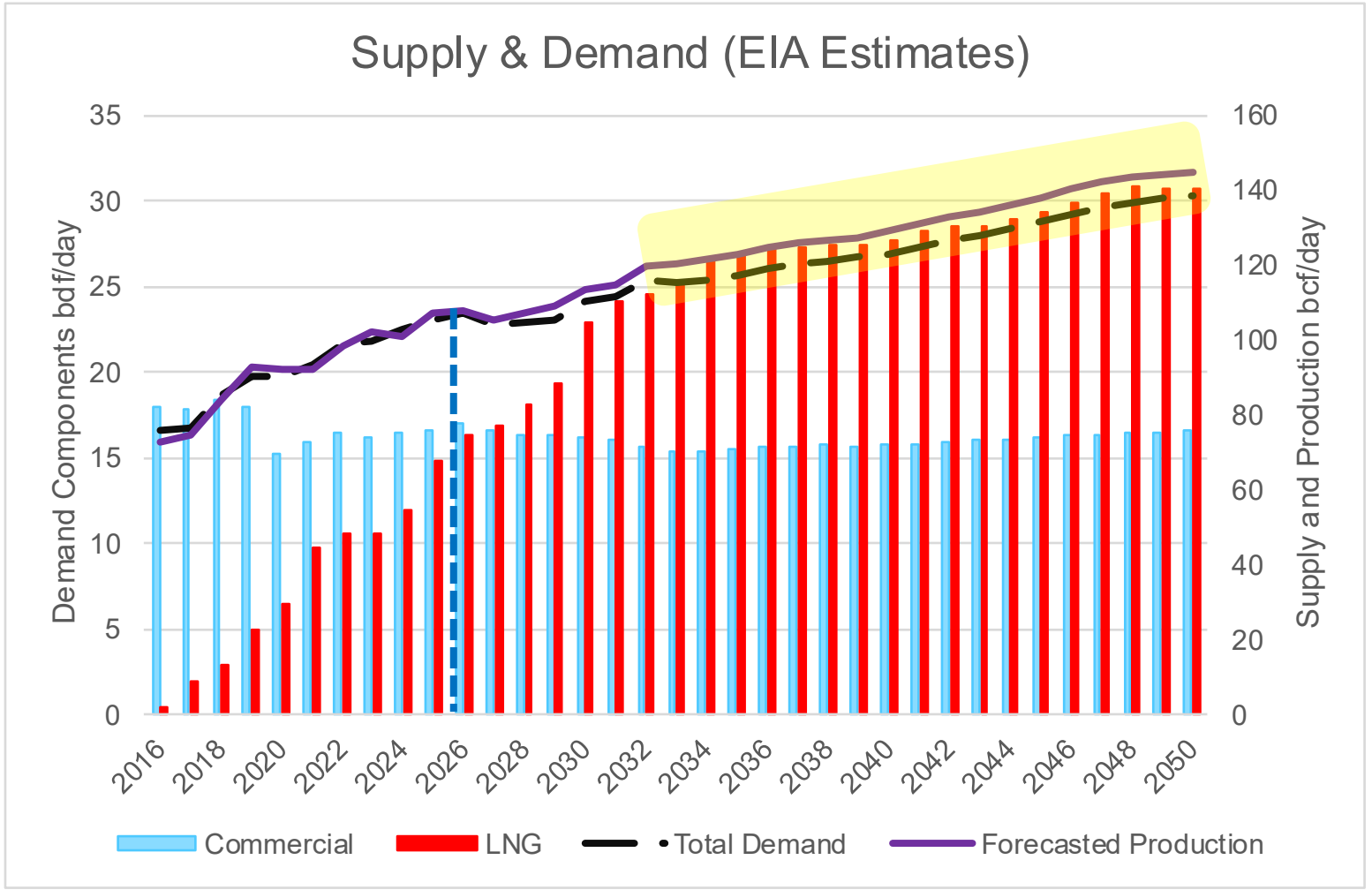
PLAYOFF TIME…

WILL THE GAME BE CLOSE?



Source: EIA Data

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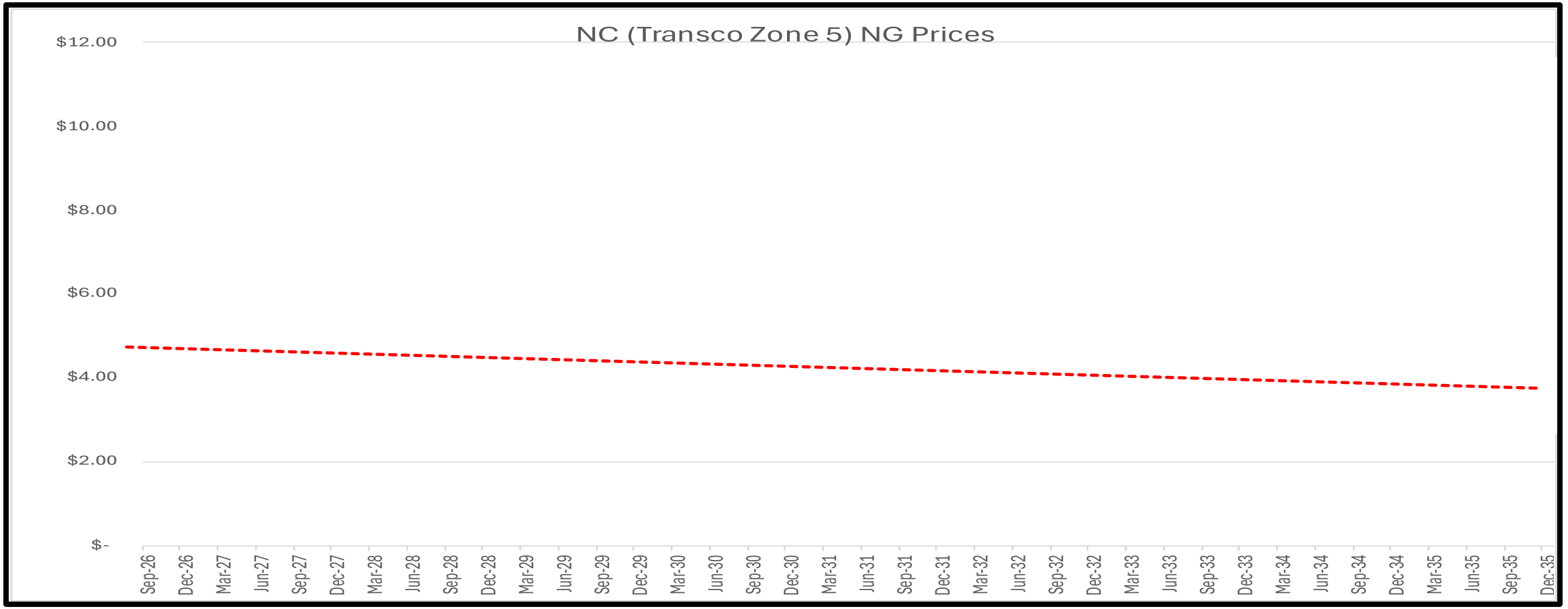

Source: CME

DELIVERABILITY VS. STOCK OUT

AND THE WINNER IS…

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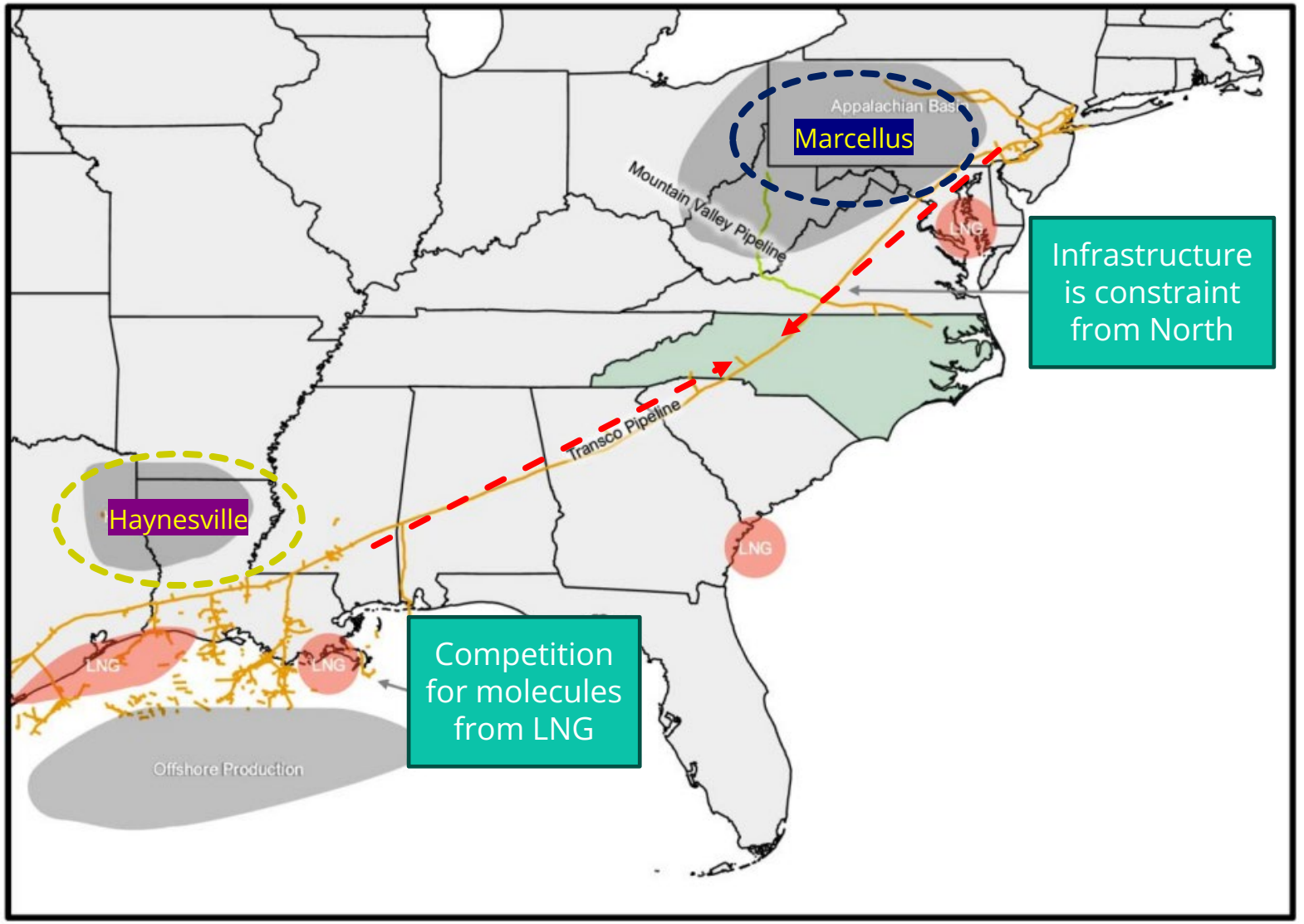
NORTH CAROLINA…

"POSITIONED" IN THE MIDDLE

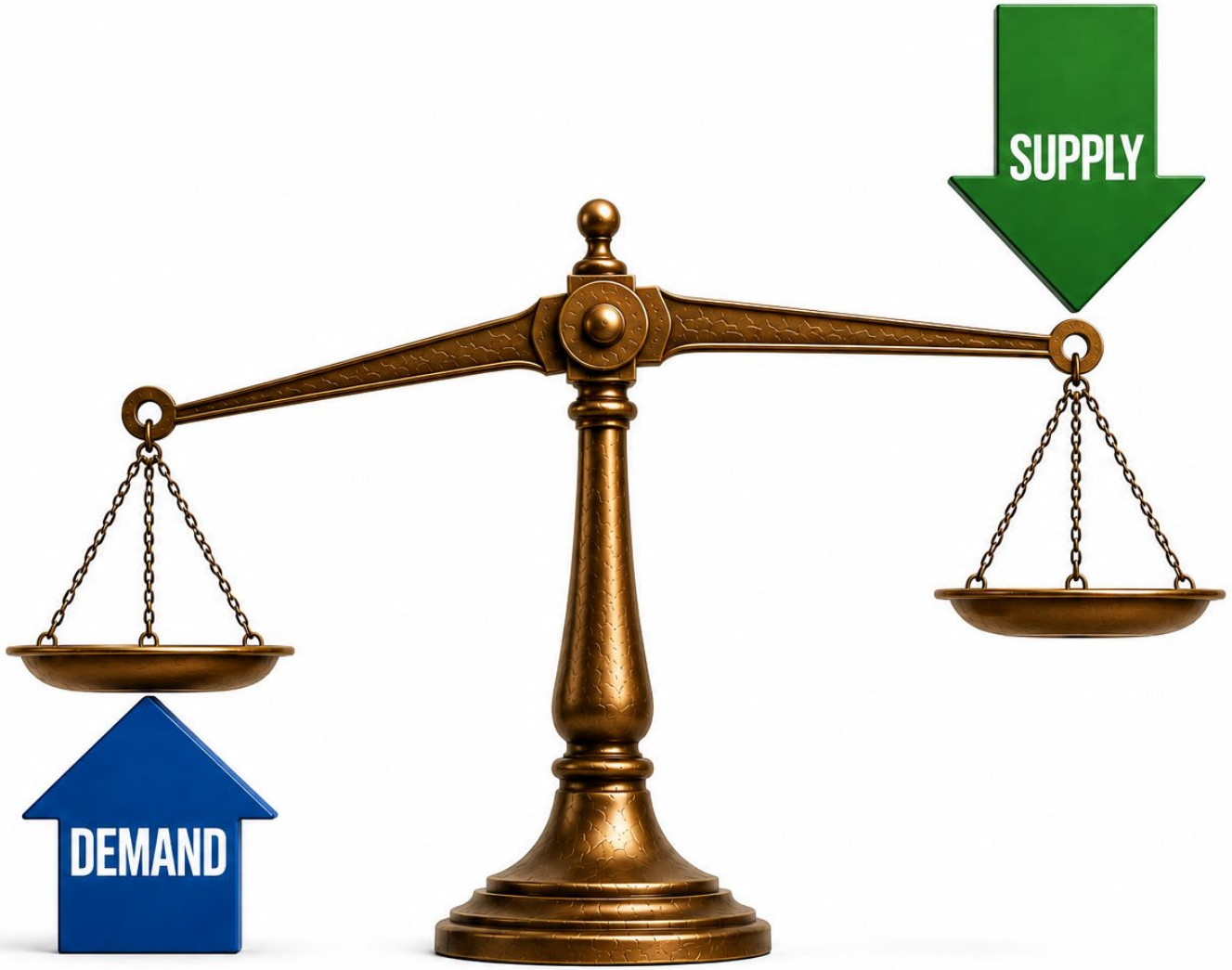


Source: NewEnergy Economics

POWER SUPPLY PLANNING

GREG LABBE, DIRECTOR, CORPORATE ANALYTICS, THE ENERGY AUTHORITY

The Balance Between Surging Demand vs. Supply Constraints



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THE DEMAND SIDE OF THE EQUATION

CHALLENGES ASSOCIATED WITH DEMAND SIDE FORECASTING

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TWO SIDES TO THE DEMAND FORECAST COIN:
REGIONAL GROWTH VS. UTILITY GROWTH

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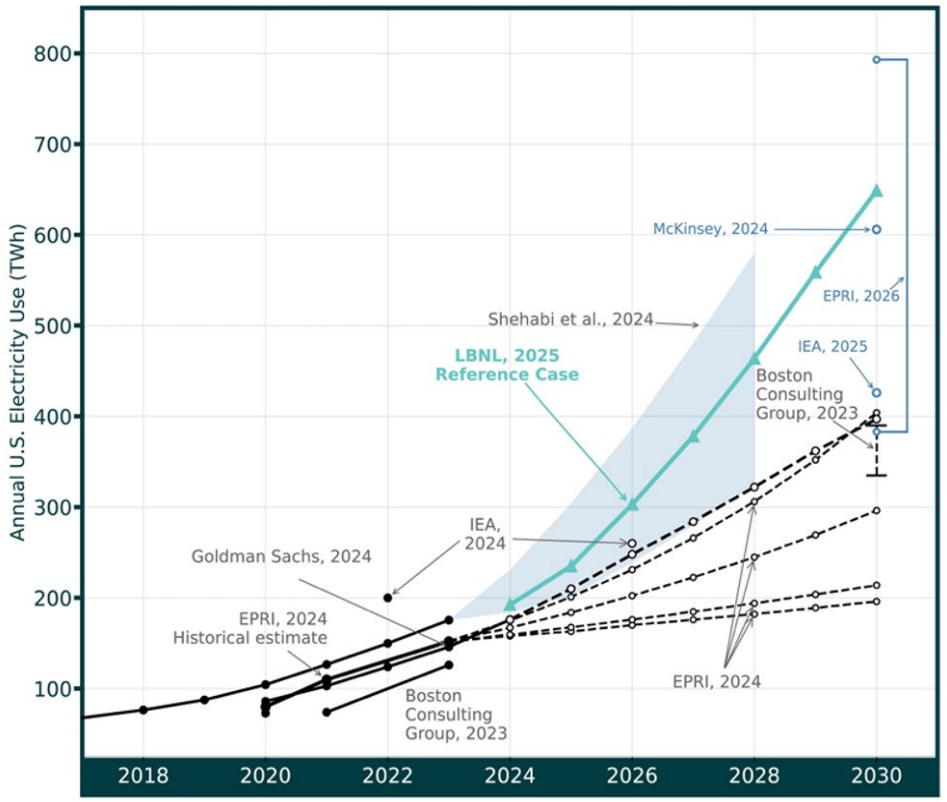
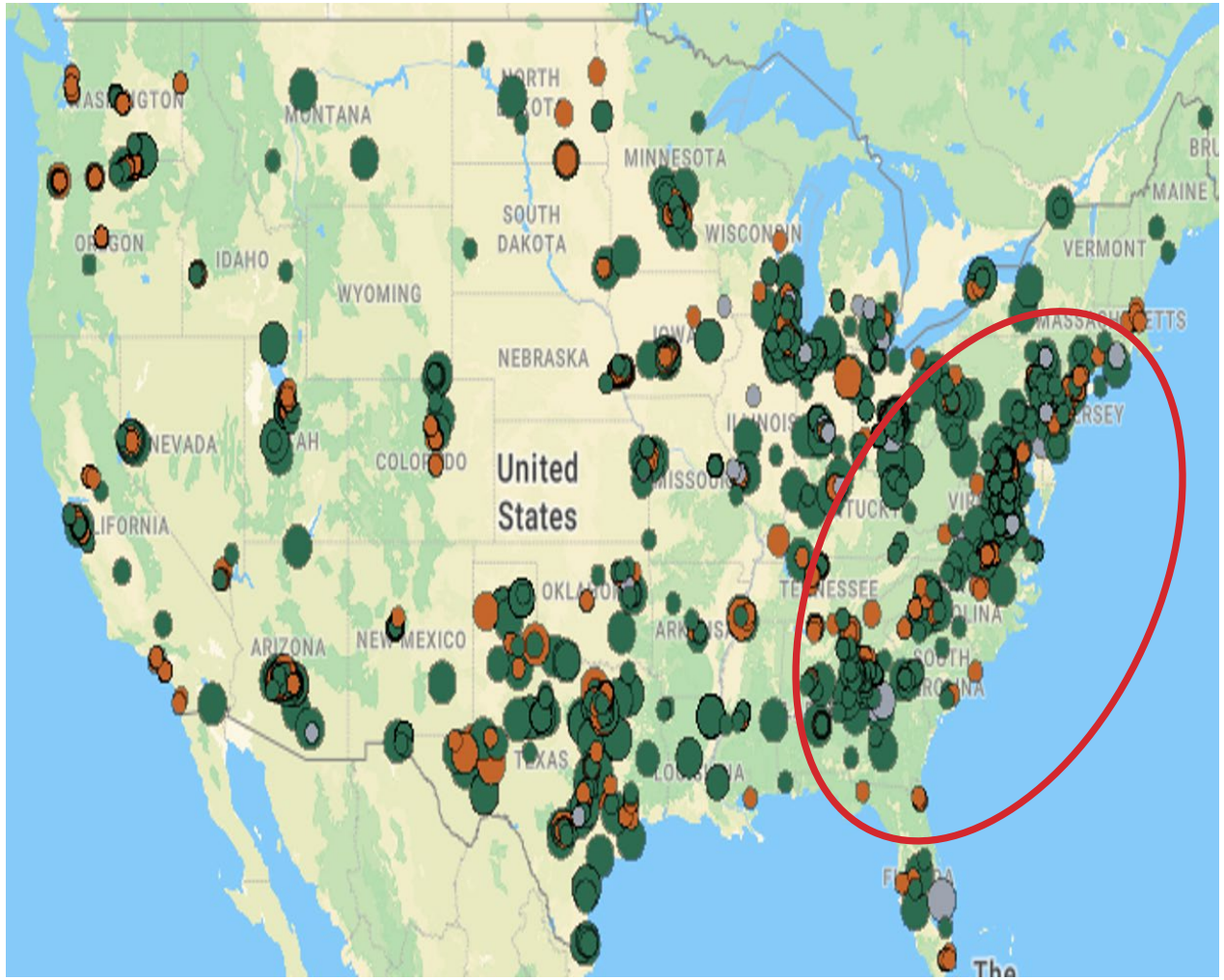


Figure 2. Updated academic and industry estimates of U.S. data center electricity use
This plot includes historical estimates (solid lines) and future projections (dashed lines) from multiple sources including LBNL's 2024 Report (Shehabi et al., 2024). The Reference Case from this 2025 Update is shown as a solid green line. Projections for calendar year 2030 from other sources developed after the publication of the 2024 Report are shown in blue.



Data Centers

- Current share of total U.S. electricity: ~4–5%
- Share of U.S. electricity demand growth through 2030: ~50%

*** Majority of forecasted demand associated with Hyperscale load

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What are regions/markets doing to account for Data Center Load?

PJM and most Eastern states have generally not proposed a hard regional cap on data centers.

Instead, the emerging policy is to make new data centers:

- bring or fund new generation,
- accept curtailment during reliability emergencies,
- make binding financial commitments, and
- pay the infrastructure costs attributable to their load.

*** A few states and localities have considered temporary moratoria or stricter siting restrictions

GOVERNOR GREG ABBOTT

For Immediate Distribution | July 23, 2026 | (512) 463-1826

East Texas Data Center Withdraws After Falling Short Of Governor Abbott's Standards

AUSTIN – Governor Greg Abbott today announced that Diode will not pursue a proposed data center near Cedar Creek Lake in Henderson County. In a notice to Henderson County officials, Diode determined the project did not meet the Governor's directives or community expectations.

"Data centers that want to do business in Texas must meet a clear standard. This project did not," said Governor Abbott. "Texas requires companies to put communities first, protect our natural resources and power grid, and respect the quality of life of our residents. Diode did the right thing by withdrawing their project. If other data center developments refuse to meet these standards, I expect them to do the same."

Governor Abbott's expectations were made clear in a June 10 directive to the Public Utilities Commission (PUC) and the Electric Reliability Council Of Texas (ERCOT). Those expectations include:

- Ensure that data centers' interconnections will result in reduced residential electrical bills
- Require data centers to pay for all of their electric infrastructure costs to ensure that no residential ratepayer is burdened by those costs
- Ensure data centers add to Texas' electric capacity, not just its electric demand
- Require that all new data centers be built with water-efficient technologies such as closed-loop cooling systems, so as not to drain local water resources
- Require data centers to reduce impacts on local communities by implementing best practices such as setbacks from neighborhoods, noise-reduction technology, and other measures that take into account the concerns of neighbors

The Governor will seek legislation to codify these expectations as well as:

- Require large data centers to annually report electricity and water usage data to the PUC
- Repeal sales tax exemptions and other outdated or unnecessary incentives for data centers

Governor Abbott will continue to advance policies that ensure data center growth does not come at the expense of Texas families or rural communities.

https://x.com/gregabbott_tx/status/2080387781520457912?s=12

What are regions/markets doing to account for Data Center Load?

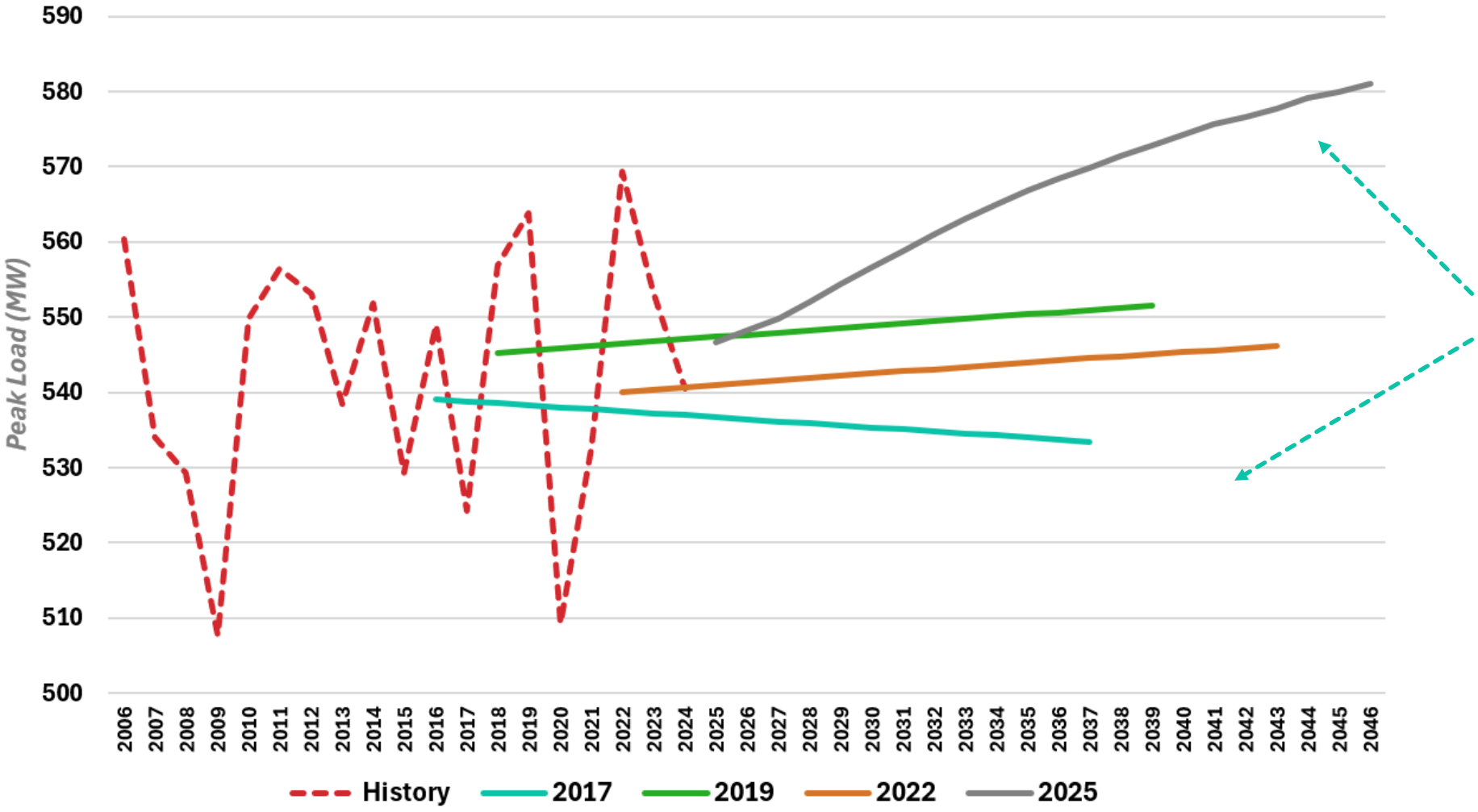
SPP Powering Progress

High Impact Large Load (HILL)	Conditional High Impact Large Load (CHILL)
Firm service	**Conditional service**
Wait for transmission upgrades	Earlier energization
No expected curtailment	Curtailment during system constraints
Higher certainty	Greater flexibility
Best for traditional industrial loads	Best for AI/data centers and other flexible large loads

Important development shift in utility planning: rather than assuming every large customer requires fully firm service from day one, SPP is creating service options that allow flexible loads—especially many AI data centers—to connect more quickly while helping maintain overall grid reliability.

TWO SIDES TO THE DEMAND FORECAST COIN:
REGIONAL GROWTH VS. UTILITY GROWTH

LOAD FORECASTING CHALLENGES AT THE UTILITY LEVEL



Load forecasts can be sporadic, being highly dependent on recent history and trends in projected demand drivers

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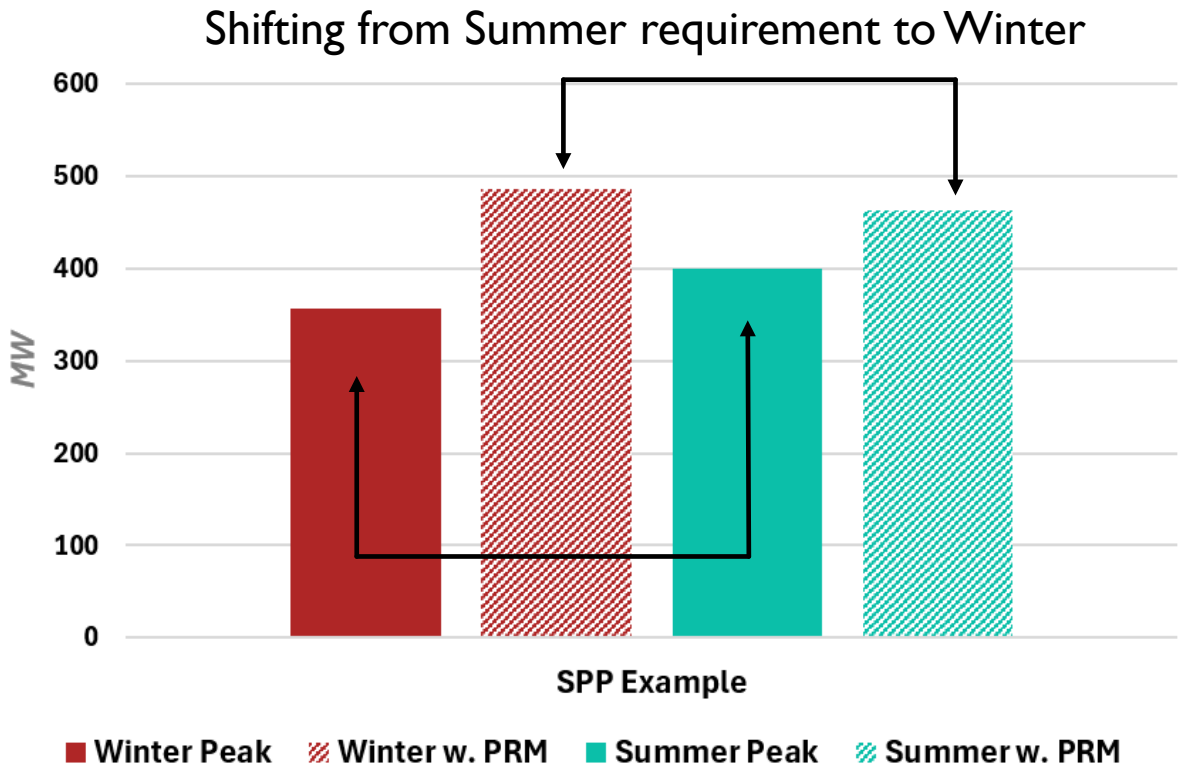
US Energy Markets: Planning Reserve Margin by Season

Key takeaway: seasonal reserve-margin requirements are not standardized. MISO and SPP publish explicit seasonal PRM values; most other markets use annual IRM/ICR, monthly RA, or non-binding seasonal reserve-margin projections.

Market	Summer	Fall	Winter	Spring
MISO PY 2026/27	7.9%	11.6%	18.9%	23.4%
SPP 2026+	16%	—	36%	—
PJM DY 2026/27	19.1%	19.1%	19.1%	19.1%
NYISO CY 2025/26	24.4%	24.4%	24.4%	24.4%
ISO-NE	ICR	ICR	ICR	ICR
ERCOT	Proj.	—	Proj.	—
CAISO / CPUC	Monthly	Monthly	Monthly	Monthly

Typical SE utility PRM is an annual target of 15%



IRP implication Compare reserve margins with accreditation assumptions; the same PRM can imply materially different capacity needs.

Seasonality signal Winter reliability is increasingly driving requirements in MISO, SPP and PJM.

Sources: MISO PY 2026–2027 LOLE Study; SPP PRM Recommendation / Board approval; PJM 2026/27 BRA planning parameters; NYSRC/NYISO 2025–2026 IRM/LCR materials; ISO-NE ICR materials; ERCOT CDR/MORA; CPUC/CAISO Resource Adequacy materials.

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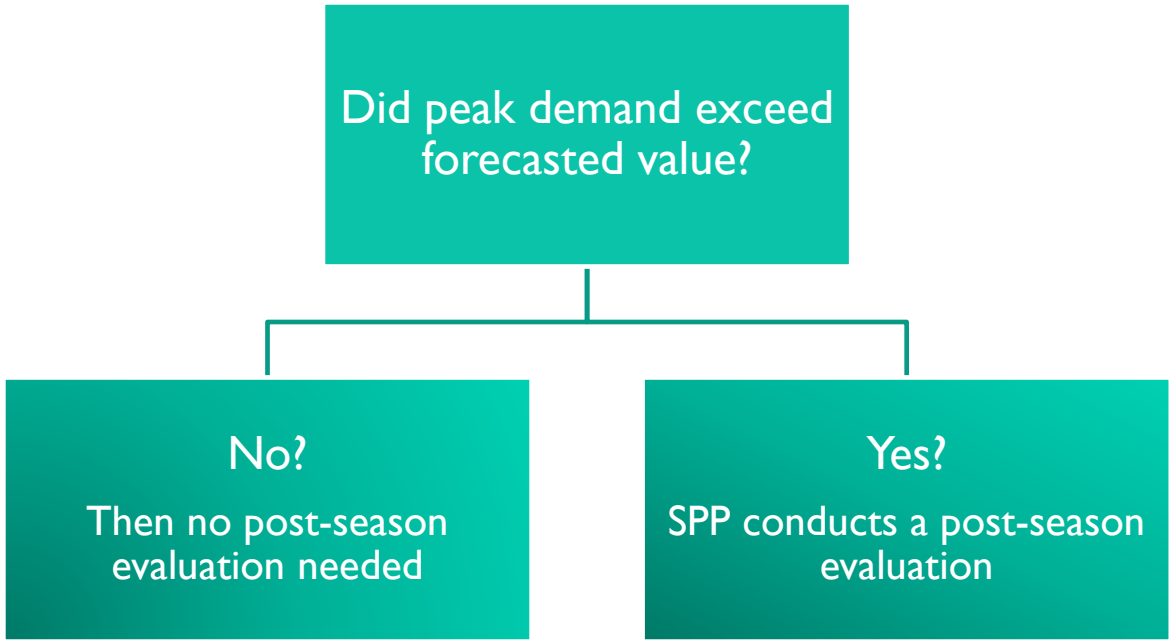
ADDITIONAL PRESSURES TO UTILITY LOAD FORECASTS

SPP's LRE Peak Demand Assessment



Post-Season Evaluation:

- SPP will use the submitted forecast and regression formula to weather-normalize the historical peak demand.
- Resource adequacy requirement for that LRE will then be based on the weather-normalized history minus 3%.

Penalties Starting Summer 2029 & Winter 2029/2030:

- 200% CONE, if regional capacity across SPP is less than or equal to ACAP PRM + 3%.
- 150% CONE, if regional capacity across SPP is between ACAP PRM + 3% and ACAP PRM + 8%.
- 125% CONE, if regional capacity across SPP is greater than or equal to ACAP PRM + 8%.

SPP Powering Progress

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THE SUPPLY SIDE OF THE EQUATION

PRESSURES IMPACTING GENERATION ASSETS AND THEIR IMPACTS

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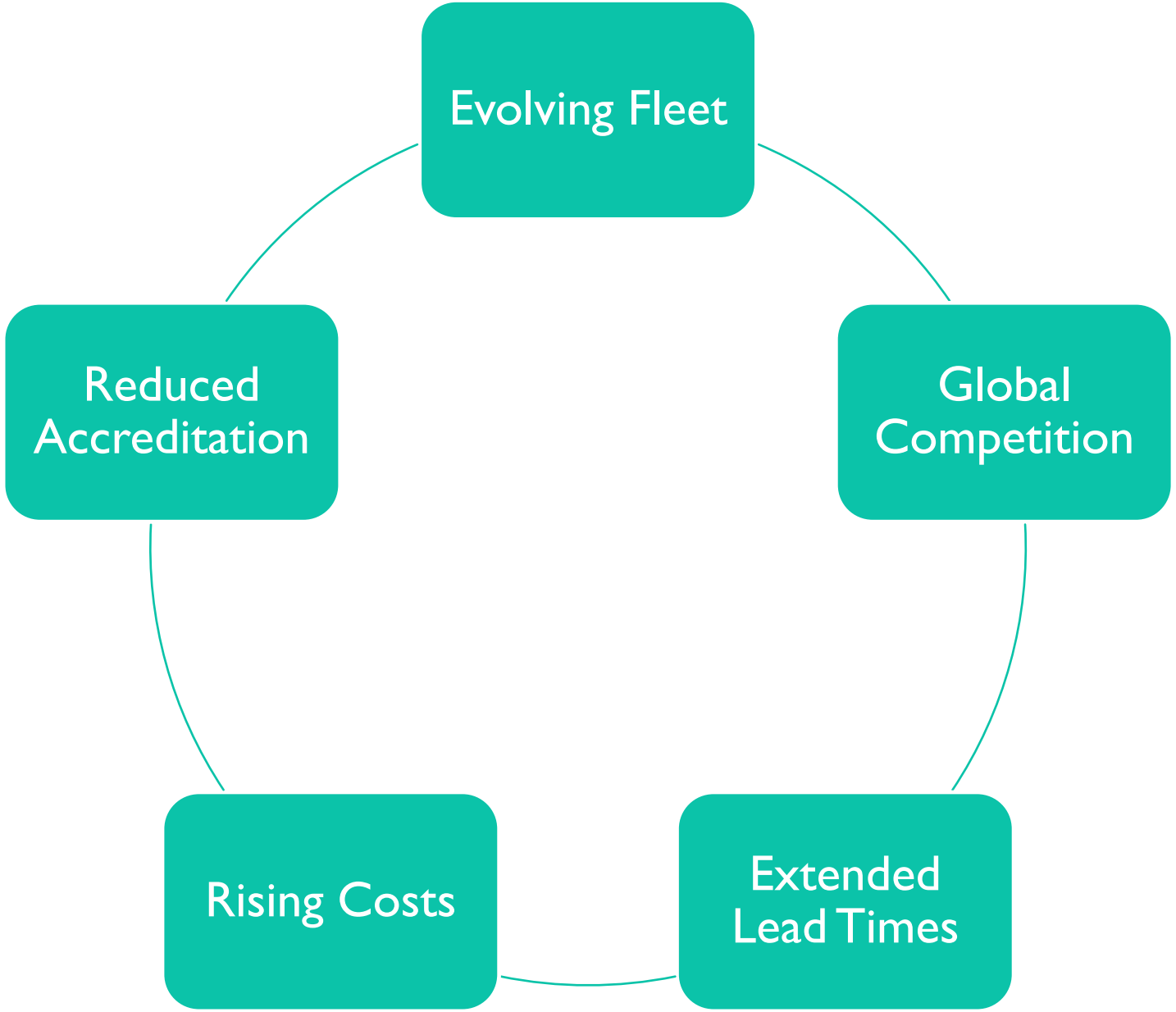
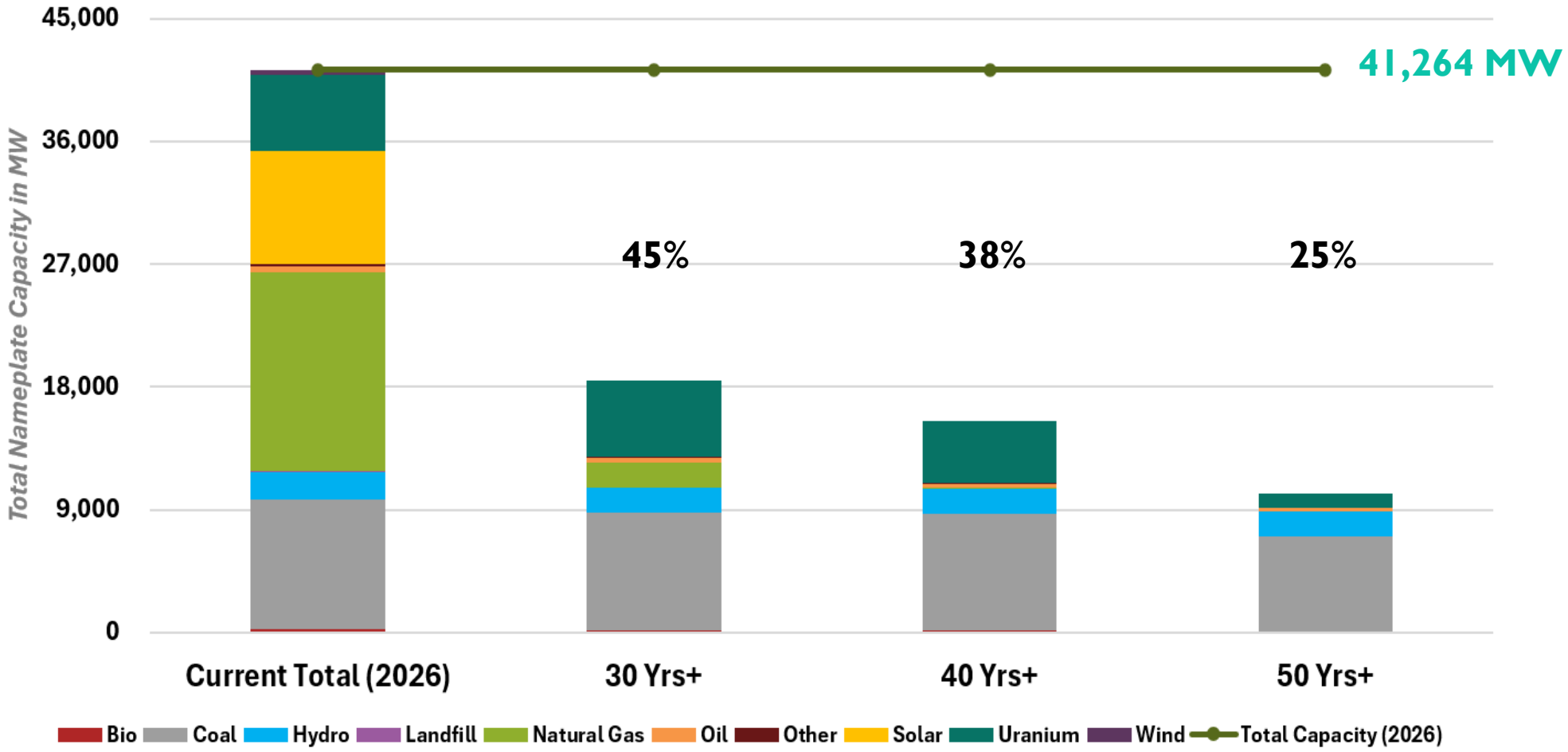
KEY DRIVERS


Evolving Fleet
Global Competition
Extended Lead Times
Rising Costs
Reduced Accreditation

CURRENT INSTALLED CAPACITY PORTFOLIO FOR STATE OF NORTH CAROLINA



Source: ABB/Hitachi's Velocity Suite

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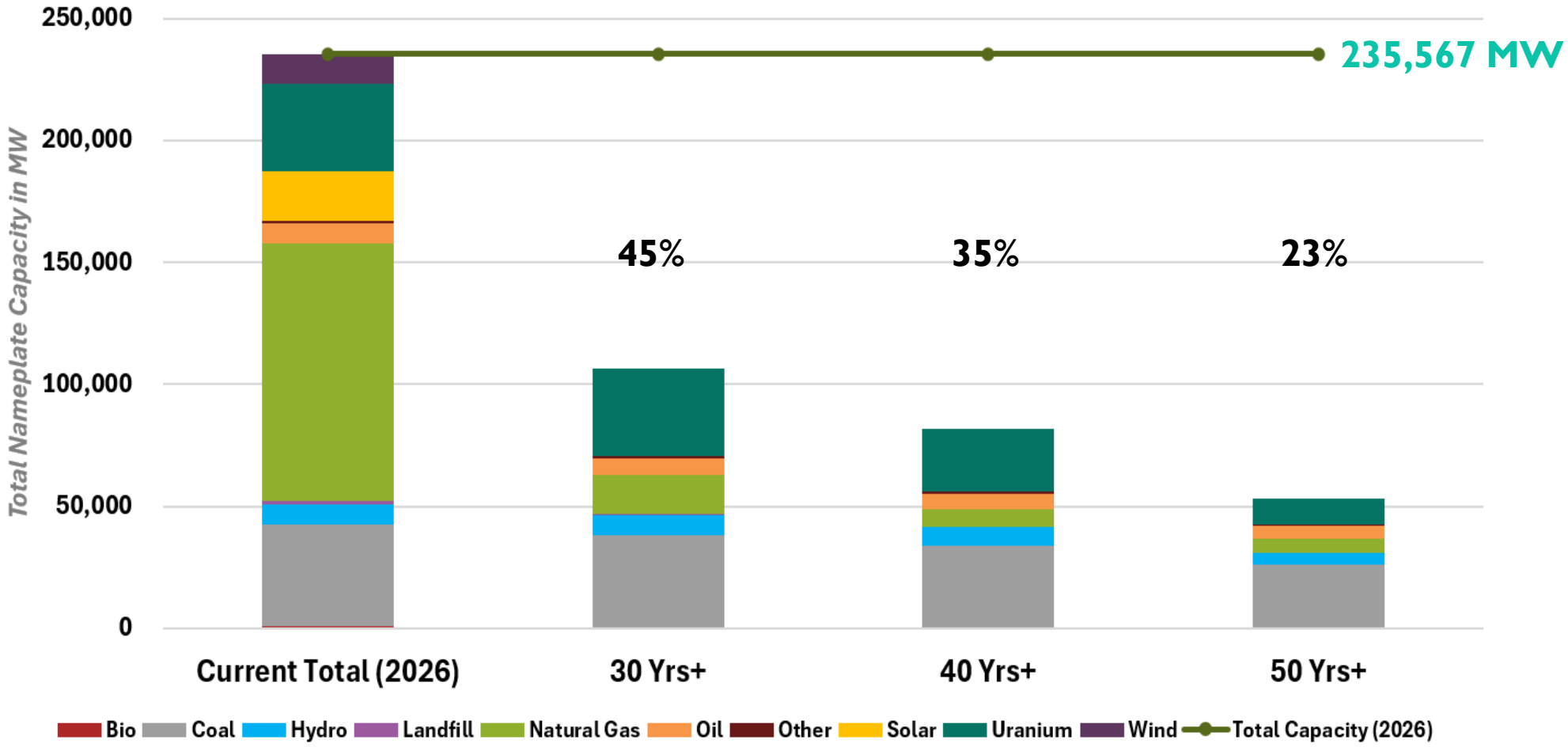
CURRENT INSTALLED CAPACITY PORTFOLIO FOR PJM ISO



Source: ABB/Hitachi's Velocity Suite

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Existing Generators Staying and Proposed Resources Going

Generators Extended by Federal Power Act Emergency Authority

Starting in 2025, the Department of Energy (DOE) issued emergency orders, pursuant to section 202(c) of the Federal Power Act, requiring that six different power plants maintain operational availability. Thermal generators with diverse fuel sources can be an important electricity resource, especially during winter when solar PV and battery resources are less capable compared to summer months. The DOE has since renewed those emergency orders, extending availability requirements into late May and early June (see Table 1). These plants and units were not incorporated into the anticipated resources of their corresponding assessment areas for Summer 2026 but may be called upon within the orders' time frames.

Table 1: Power Plants Impacted by Department of Energy 202(c) Orders in 2025 and 2026

Assessment Area	Plant Name	Nameplate Capacity (MW)	Summer Capacity (MW)	DOE 202(c) Order Expiration
MISO	J.H. Campbell	782	760	5/18/2026
MISO	F.B. Culley Generating Station	104	90	6/21/2026
MISO	Schahfer Generating Station	847	722	6/21/2026
PJM	Eddystone Generating Station	782	760	5/24/2026
WECC-NW	Centralia Generating Station	730	670	6/14/2026
WECC-RM	Craig Station	446	427	6/28/2026

MISO: unprecedented number of withdrawals from its generator interconnection queue in 2025 and early 2026

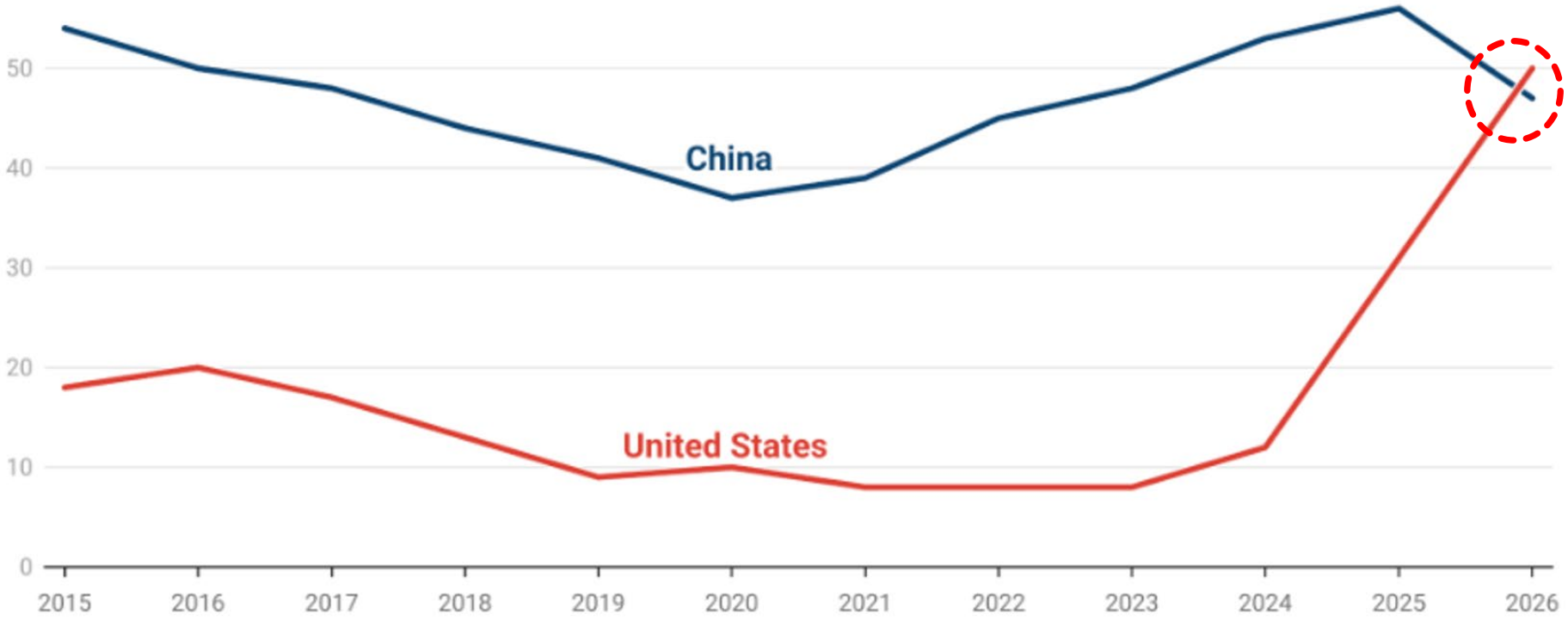
- The queue ***decreased*** from a peak of **300 GW in 2025** to 192 GW in early 2026
- Over 800 projects dropped out of the queue in January 2026 alone

What is the impact of all these withdrawals?

- MISO is required to repay more than ***$2 billion in deposits***, along with accrued interest, to interconnection customers who are leaving the queue
- If MISO were to settle all interest payments at once, as it typically does, it could lead to a significant spike in the rates it charges its members

AI boom means US is now 'investing more' in fossil-fuel power than China

Annual investment in fossil-fuel power by country, $bn



Source: IEA

Key US perspective

- **570 GW** currently operating
- **253 GW** in interconnection queues (announced or in development)
  - about **44%** of today's operating fleet
- **50–75 GW** is currently expected to be in service by 2030 because of turbine manufacturing constraints, permitting, transmission upgrades, pipeline availability, and project attrition.

GE Vernova gas turbine backlog climbs to 116 GW

GE Vernova is taking reservations for 2031 deliveries now, said CEO Scott Strazik. He spoke of an increasingly diverse customer base, including data centers.

Published July 23, 2026

By Brian Martucci

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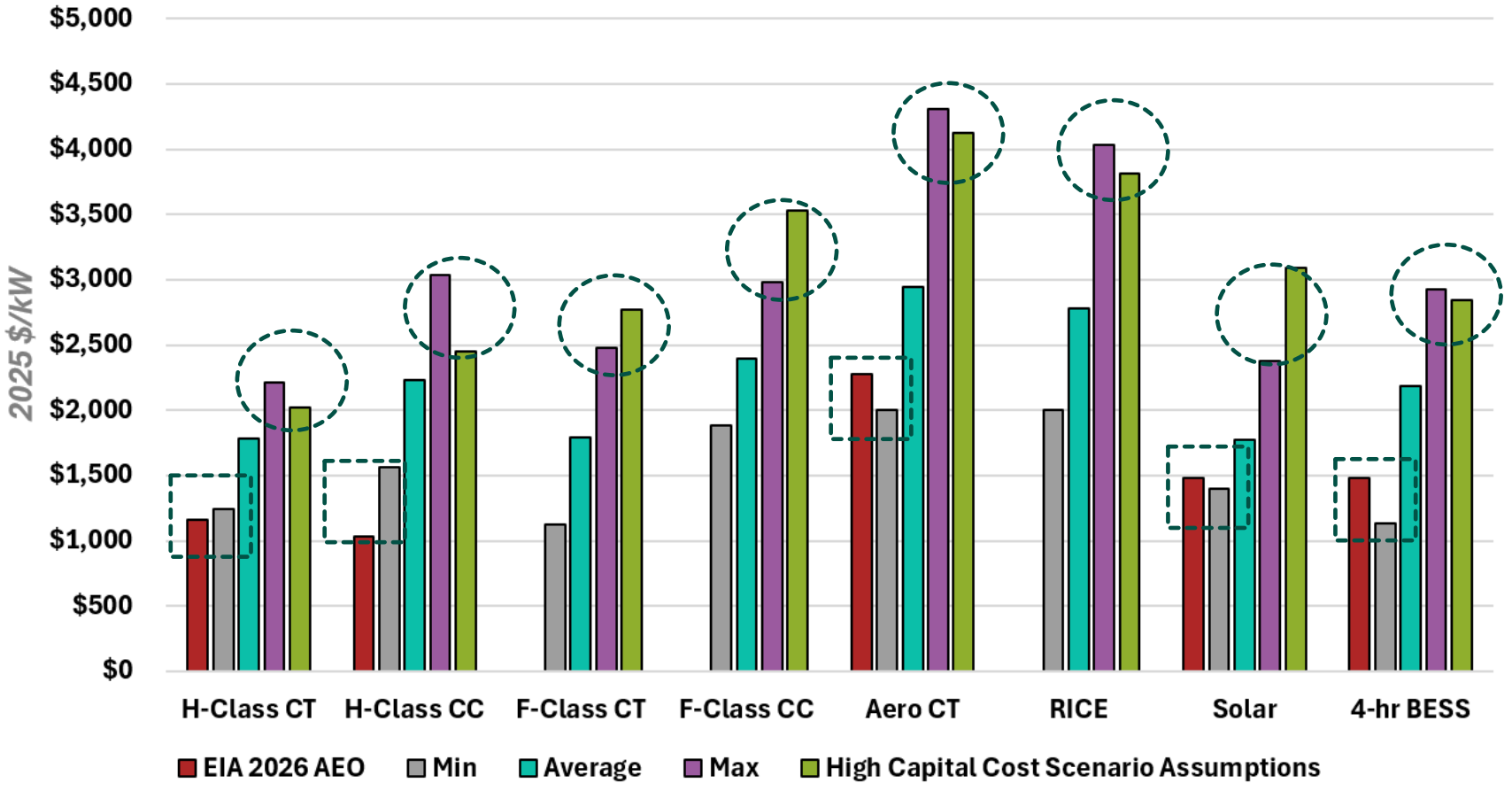
Dominion Energy's 52-MW Bushy Park power plant in South Carolina uses a GE Vernova gas turbine and generator. The manufacturer's gas turbine order backlog ended the the second quarter of 2026 at 116 GW, up from 100 GW in Q1 2026, GE Vernova said July 22, 2026. *Courtesy of GE Vernova*

Source: *https://www.utilitydive.com/news/ge-vernova-gas-turbine-backlog-climbs-to-116-gw/*

Overnight Capital Cost Assumptions are… complicated… and most likely undervalued

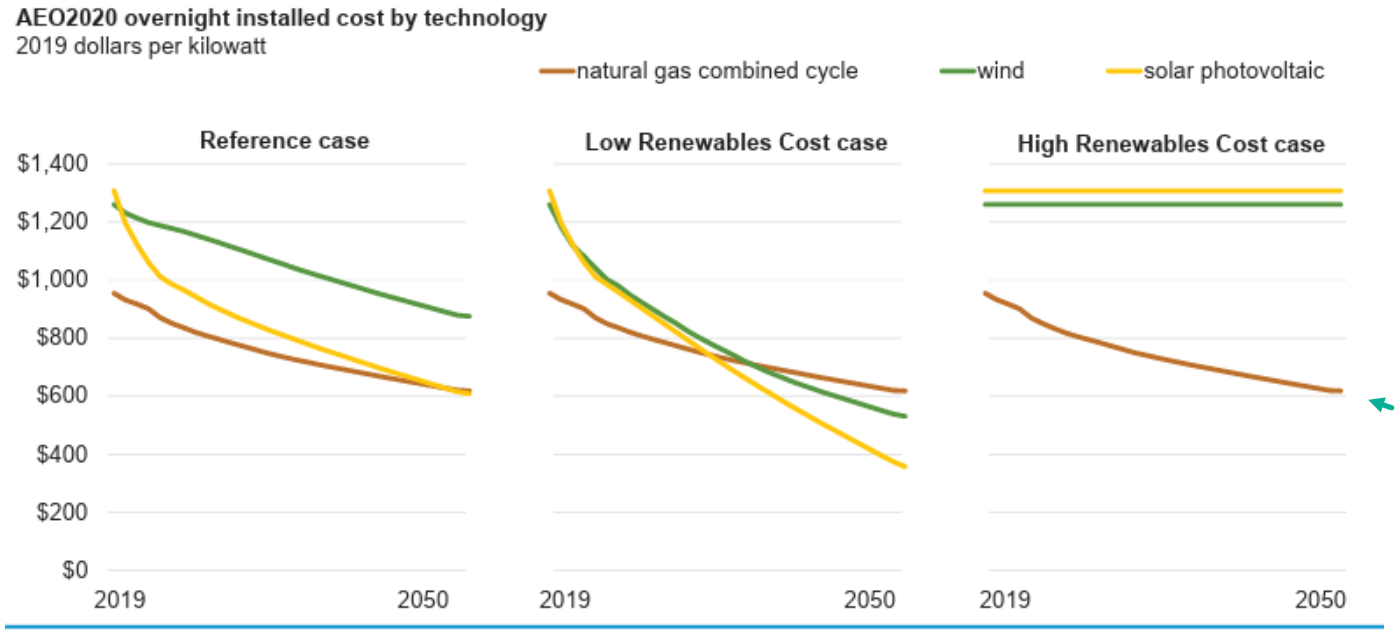


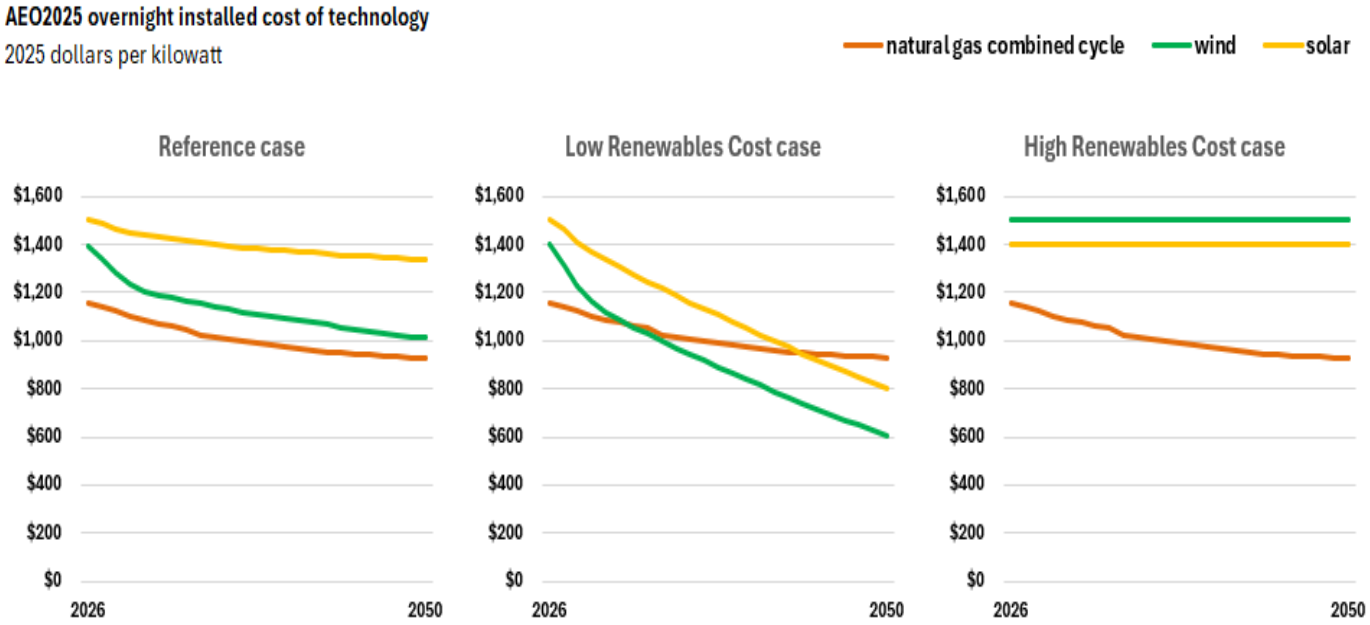
Minimum price assumption nearly match EIA

Max price assumptions nearly match previous High Capital Cost assumptions

Takeaways:
High-Cost Scenario assumptions should replace Base/Reference Case capital cost assumptions

Source: TEA and various 2026 public IRPs

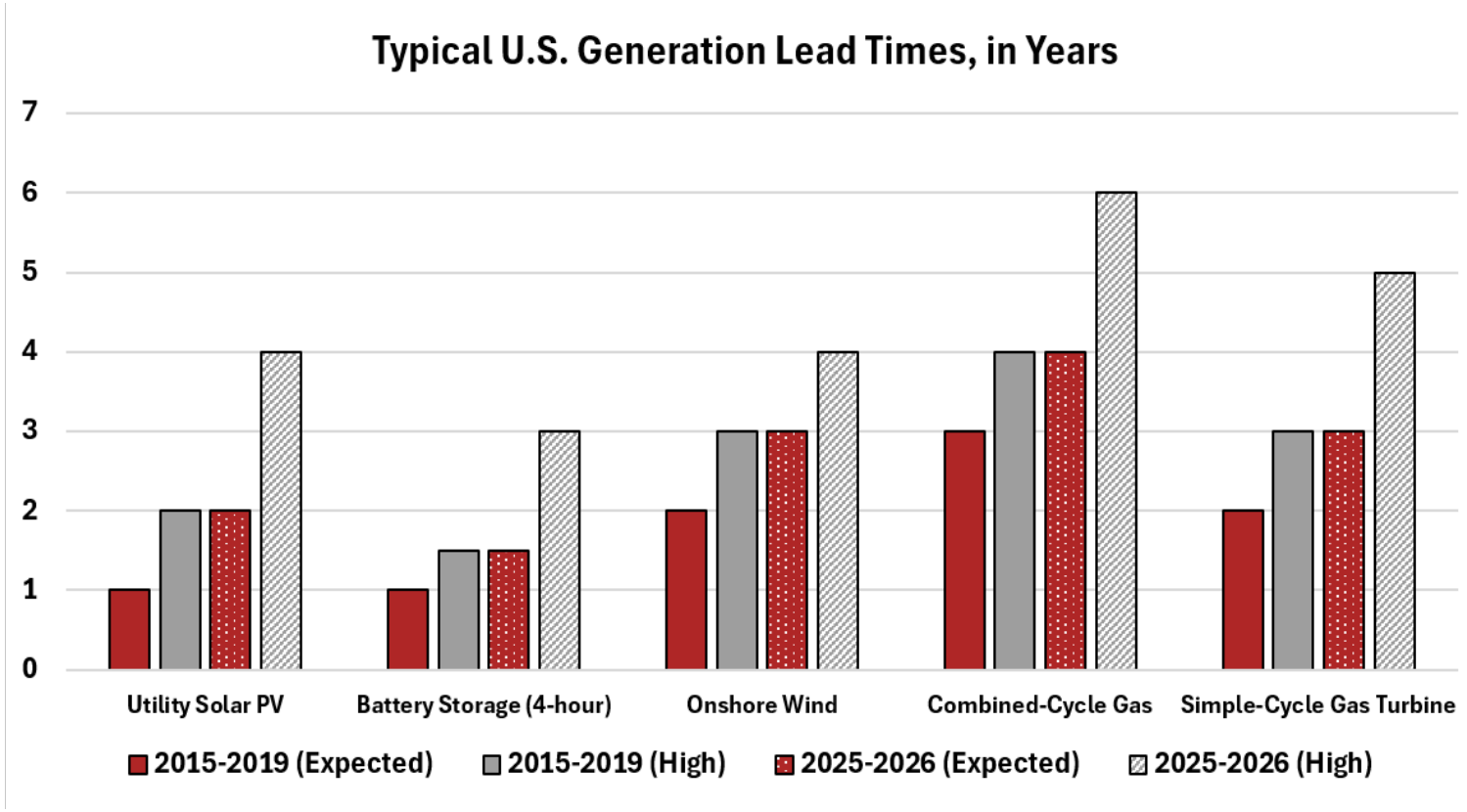




As seen in the previous slide, EIA tends to lag with respect to current market values.

But… EIA is now indicating they too are no longer anticipating notable reductions in costs over time.

Time it takes to bring new generation online has increased significantly



The largest change has been in dispatchable thermal generation.

Prior long lead time assumptions are now the norm

5-to-6-year lead times on natural gas plants could now be low

Resource	Pre-COVID (2015-2019)	Today (2025-2026)	Change
Utility Solar	12-24 months	24-48 months	+12-24 months
Battery Storage	12-18 months	18-36 months	+6-18 months
Onshore Wind	2-3 years	3-4 years	+1 year
Combined-Cycle Gas	3-4 years	4-6 years	1-2 years or more
Simple-Cycle Gas	2-3 years	3-5 years	+1-2 years

Key Resource Accreditation Concepts

Thermal-Based Accreditation

- Equivalent Forced Outage Rate Demand (EFORd): Measures the probability that a generating unit will be unavailable due to forced outages or unplanned deratings when needed to generate electricity.

- Equivalent Forced Outage Factor (EFOF): Measures the proportion of time a generating unit is unavailable due to forced outages or unplanned deratings, regardless of whether it is needed to generate electricity.

RA Value = Tested Capacity x (1 – EFORd % – EFOF %)

Ex. RA Value = 100 MW x (1 – 8% - 6%) = 86 MW

Renewable/Storage Accreditation

- Effective Load Carrying Capability (ELCC): Measures how much reliable capacity a resource contributes to periods of highest system risk, accounting for output variability and uncertainty.

RA Value = Test Capacity x ELCC %

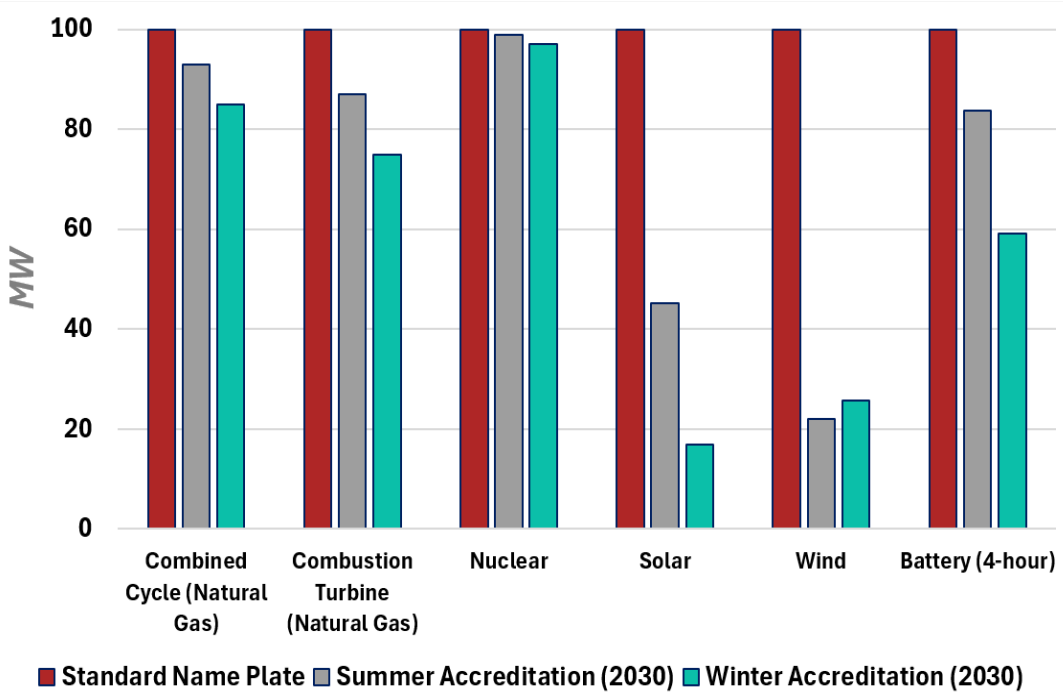
EX. RA Value = 100 MW x 36% = 36 MW

TEA MARKET INSIGHTS

US Energy Markets: Resource Accreditation Methods by Resource Type

Key takeaway: accreditation is becoming seasonal, class-based, and risk-based. Thermal capacity is increasingly adjusted for outage/fuel risk; wind, solar, and storage are moving toward ELCC or marginal-reliability methods.

Market	Thermal resources	Wind / solar	Storage
PJM	ELCC / AUCAP for all capacity resources	ELCC class ratings by risk hours	ELCC by duration and class
MISO	Seasonal availability / offered capability	Wind ELCC; solar seasonal profiles/defaults	Seasonal capability now; DLOL transition
SPP	Seasonal net capability and testing	Seasonal ELCC starting 2026	Seasonal ELCC starting 2026
NYISO	ICAP to UCAP plus class CAFs	Marginal reliability contribution CAFs	CAF by duration / operating class
ISO-NE	Qualified capacity today; RCA transition	MRI under capacity-market reforms	MRI models duration and recharge
ERCOT	Seasonal capability in planning reports	ELCC used in CDR planning	ELCC used in CDR planning
CAISO / CPUC	QC / NQC plus deliverability	Monthly/hourly RA profiles; ELCC defaults in some cases	Slice-of-Day duration and charging sufficiency



IRP implication Accredited capacity is no longer a fixed technology attribute; it depends on season, portfolio mix, risk hours, performance history, fuel risk, and storage duration.

Scenario signal Stress-test solar, storage, and gas accreditation assumptions before drawing resource-selection conclusions.

Sources: MISO PY 2026–2027 LOLE Study; SPP PRM Recommendation / Board approval; PJM 2026/27 BRA planning parameters; NYSRC/NYISO 2025–2026 IRM/LCR materials; ISO-NE ICR materials; ERCOT CDR/MORA; CPUC/CAISO Resource Adequacy materials.

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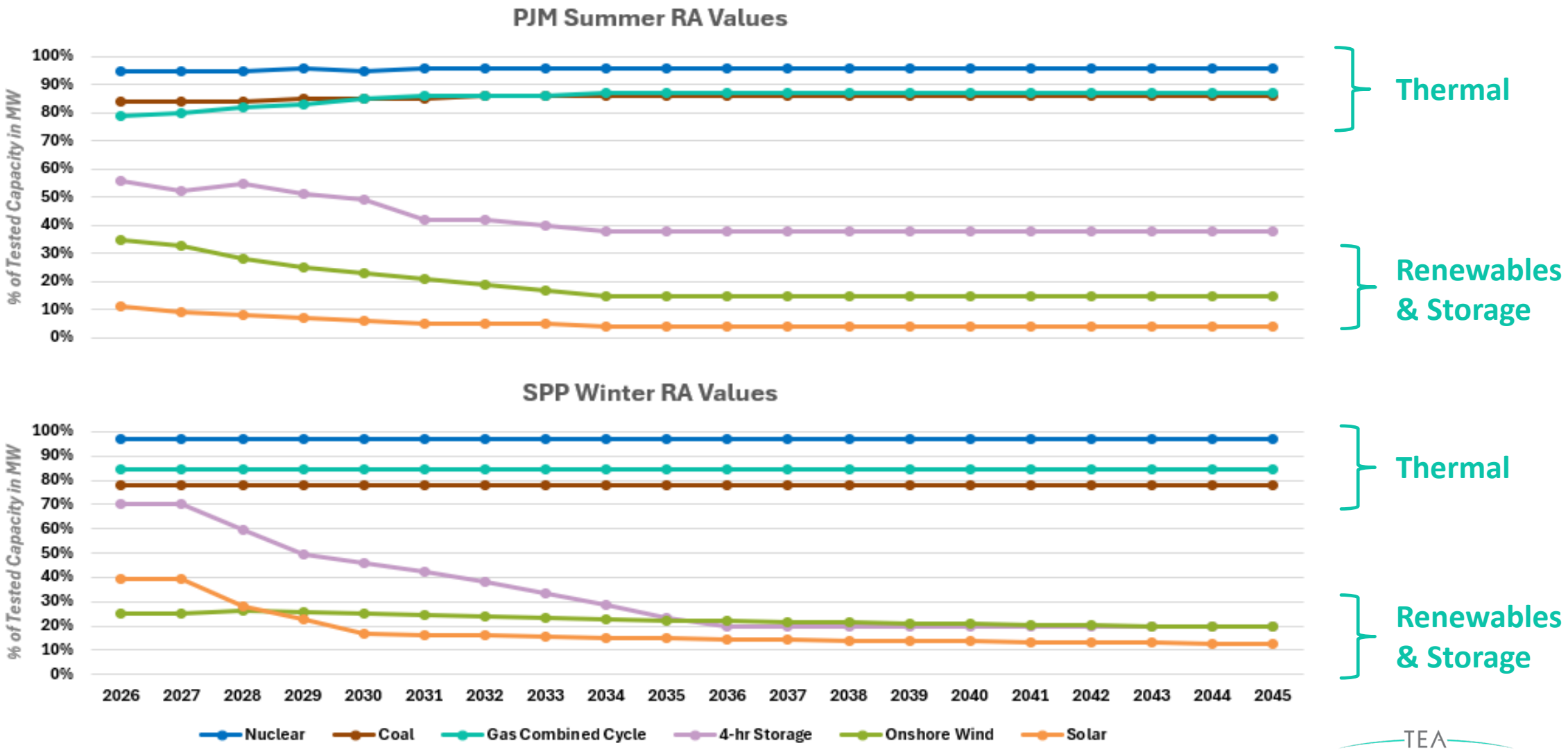
Future RA values are not static; they evolve over time with degradation being the expectation for renewables and storage



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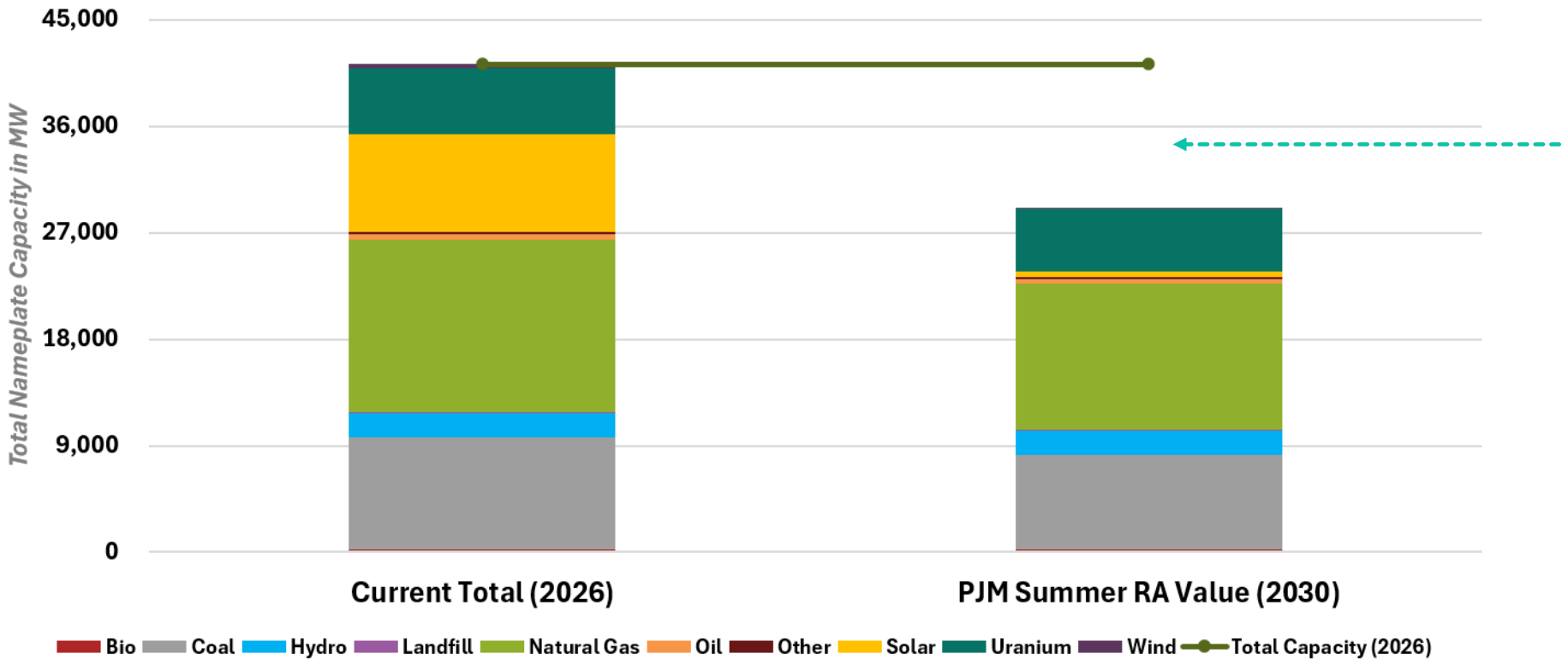
What if North Carolina joined PJM, how would its current generation fleet fair against PJM accreditation?



NC's capacity would be reduced by ~12,200 MW by 2030, based on current portfolio and PJM accreditation guidelines

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NOTABLE TAKEAWAYS

Yes, Data Center load growth is real, and more is expected…
but it is only part of the capacity shortfall problem…
and most markets/regions will adopt rules that require Data Centers to address their own capacity needs

Load forecasts developed by utilities are experiencing more scrutiny regarding their process and accuracy…
this will require the utility to meet more conservative planning metrics…
which could result in penalties when actual load exceeds forecasted values

Capacity resources are experiencing the most strain due to…
an already aging thermal fleet…
pressures on availability, costs, and lead times…
reduction in capacity value due to evolving accreditation methods


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