



**Sequent Energy
Management**

A WILLIAMS COMPANY

22 42

47 35

22 42

47 35

■■■■■■■■■■

A Gas Marketer's Perspective on Gas-Electric Coordination

Prepared for PJM Electric Gas Coordination Subcommittee (EGCS).

July 28, 2025

Today's Discussion

- Introduction to Sequent Energy Management (SEM)
- Gas and Electric Day Coordination – A Gas Marketer's Perspective
 - SEM Activity Across PJM
 - Summer and Winter Peak Day Growth
 - Extreme Weather Events and Managing Gas Pipeline Nomination Deadlines
 - Electric Load Growth / Data Center Loads
 - Growing Need for Infrastructure Investment
 - Gas Storage Intrinsic Values on the Rise
 - Incremental Benefits from Unlocking the Appalachian Supply Region



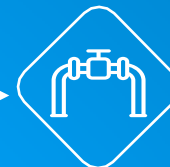
Sequent Energy Management

A WILLIAMS COMPANY



OUR HISTORY

Founded in 1908 as a construction company



PRESENT

Premier natural gas infrastructure company

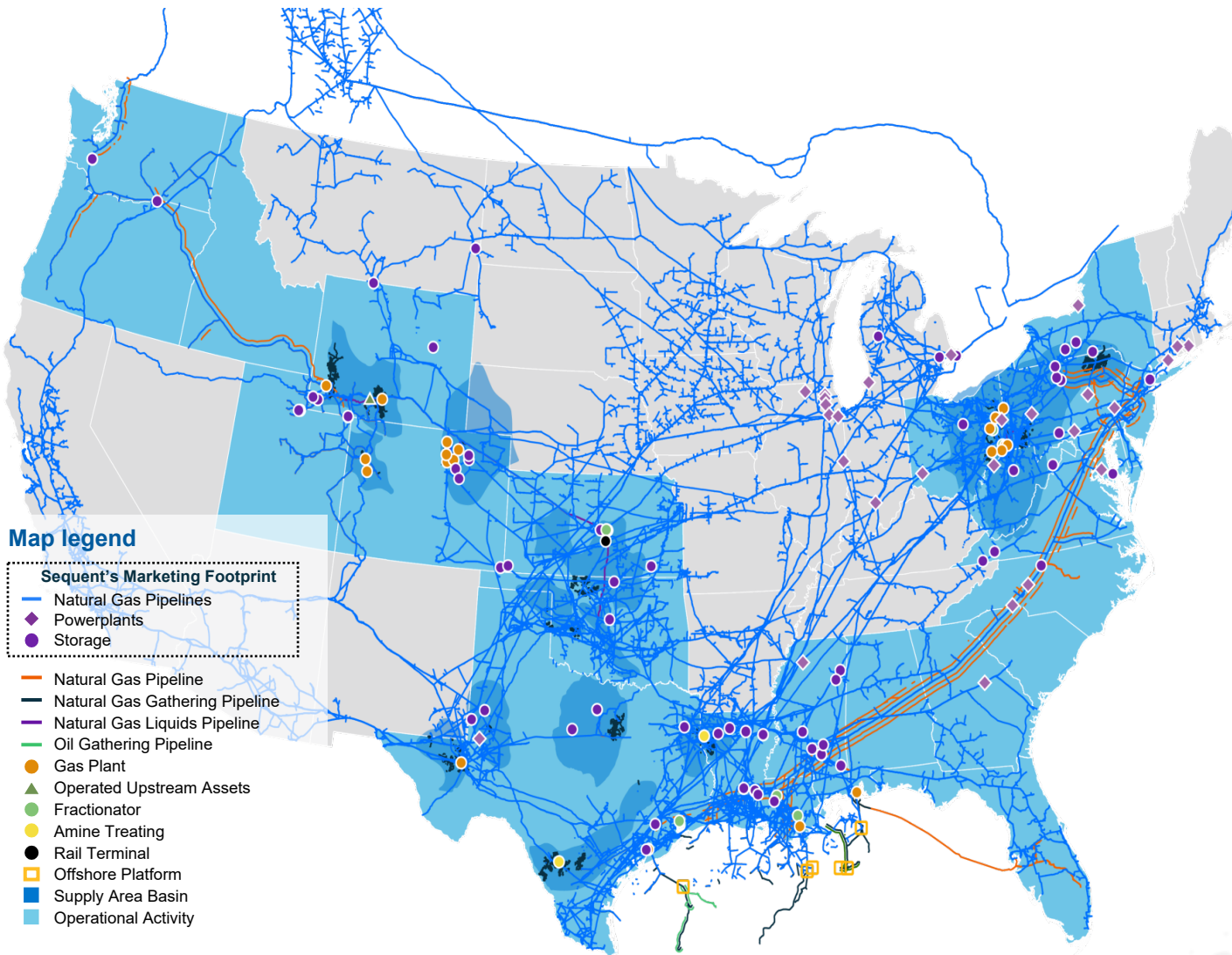


OUR FUTURE

Reliably deliver clean energy

Williams has been powering America with clean natural gas for more than a century, providing infrastructure and services to serve growing markets and safely delivering natural gas products to reliably fuel the clean energy economy. The path to clean, reliable and sustainable energy will be powered by experience —
and experience powers us.

Enhancing Core Business through Sequent



Driving value to business by **increasing utilization** of assets



Managing downside risk and acting as natural hedge for G&P price exposure



Providing extensive **market intelligence**, prompting accretive M&A



Expanding into new markets with NextGen Gas deliveries

• Map as of February 2025

WILLIAMS © 2025 The Williams Companies, Inc. All rights reserved

Sequent Energy Management

Core Business of Asset Management and Reliably Supplying Natural Gas to All Types of Customers



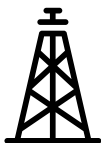
**7.3 Bcf/d Average Daily
Volume**

**~5.5 Bcf/d Transport
Managed**

~ 94 Bcf Storage Managed

- 25-year-old company with proven experience in all aspects of natural gas supply and marketing, wholly owned by Williams Companies.
- Active across the entire North American pipeline grid.
- Enabling agreements with nearly 2,000 counterparties in the US and Canada.
- Over 50 asset management agreements with utilities, power generators, industrials, producers and LNG exporters across the nation.
- Proven business model with sound risk management controls and state of the art Energy Trade Risk Management (ETRM) systems.
- Manage natural gas fuel supply for approximately 24,000 MW of power generation.
- Over 70 logistics experts – traders and schedulers are available 24/7.

Key platforms of Sequent Energy Management



Producers

Sequent manages transportation and delivers producer gas to premium markets

Producer AMA clients represent over 20% of Sequent's transportation portfolio



Utilities

Sequent provides full requirements supply and optimization services

Utility AMAs formed the foundation for Sequent's beginning, and today represent over 25% of our transportation portfolio

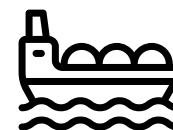


Power Plants

Sequent provides full requirements feedstock gas supply for over 24,000 MW of gas fired power generation

Active in most major ISOs:

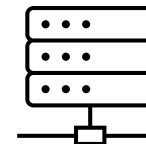
- PJM
- MISO
- SERC
- NYISO
- ERCOT



LNG Exports

Sequent provides full requirements feedstock gas supply for Gulf Coast LNG exporter

Sequent serves additional volumes to the LNG market on a spot basis



Data Center

Sequent will be providing firm supply and transportation to over 400 MW of data center load

Active in Data Center Development:

- PJM
- MISO
- ERCOT
- WECC
- SERC

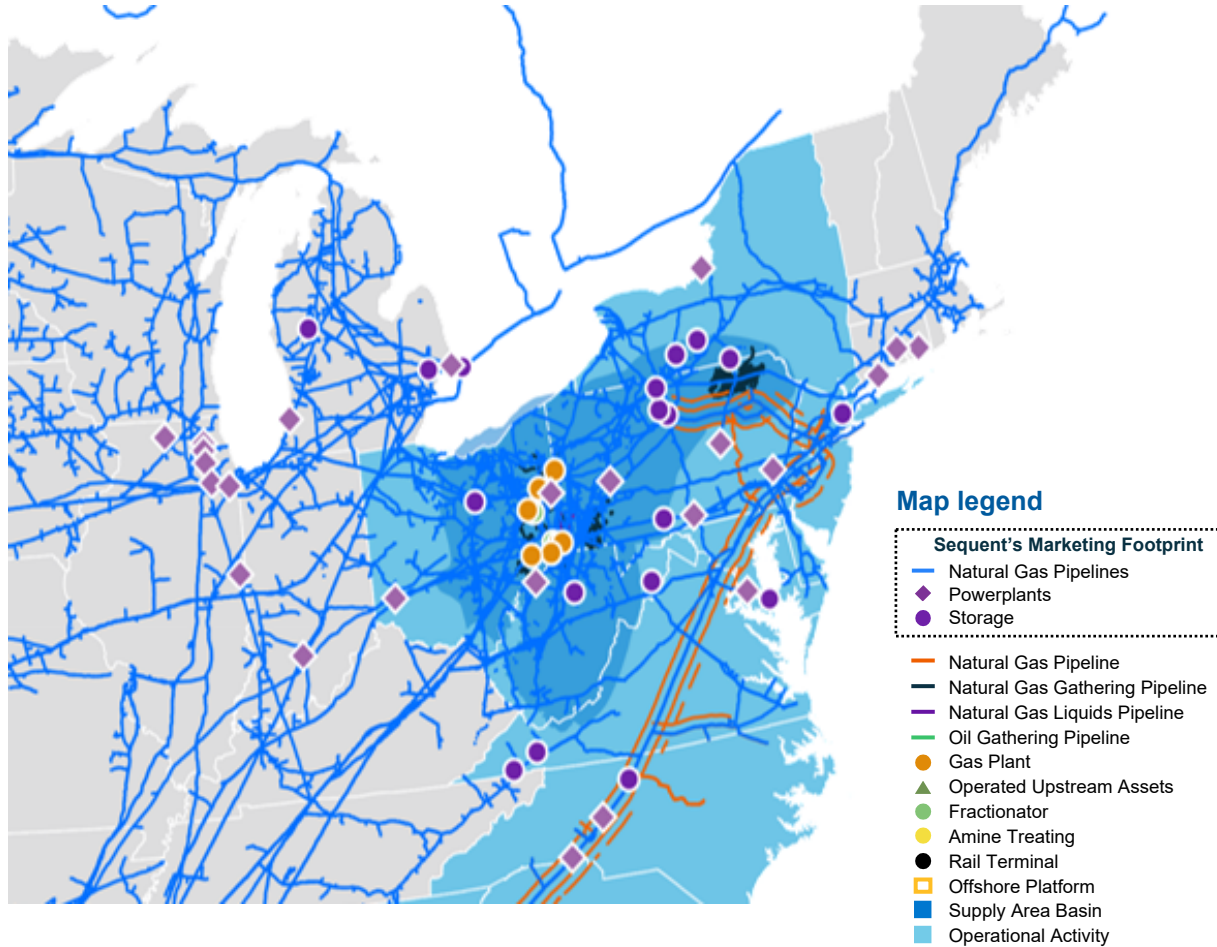


**Sequent Energy
Management**

A WILLIAMS COMPANY

Gas and Electric Day Coordination – A Gas Marketer's Perspective

Sequent gas marketing services with pipeline and storage positions across PJM



A diverse portfolio of assets across the Northeast and Mid-Atlantic, with transportation assets exceeding **2.5 Bcf/d** and storage assets exceeding **40 Bcf/d**



Provide full requirements natural gas supply for approximately **14,000 MW** of gas fired power generation across PJM



Deliver Proven success in meeting the demands of the power market during peak utilization periods

- Map as of February 2025

Summer and winter peak day power generation needs continue to grow at record pace

The need for reliability

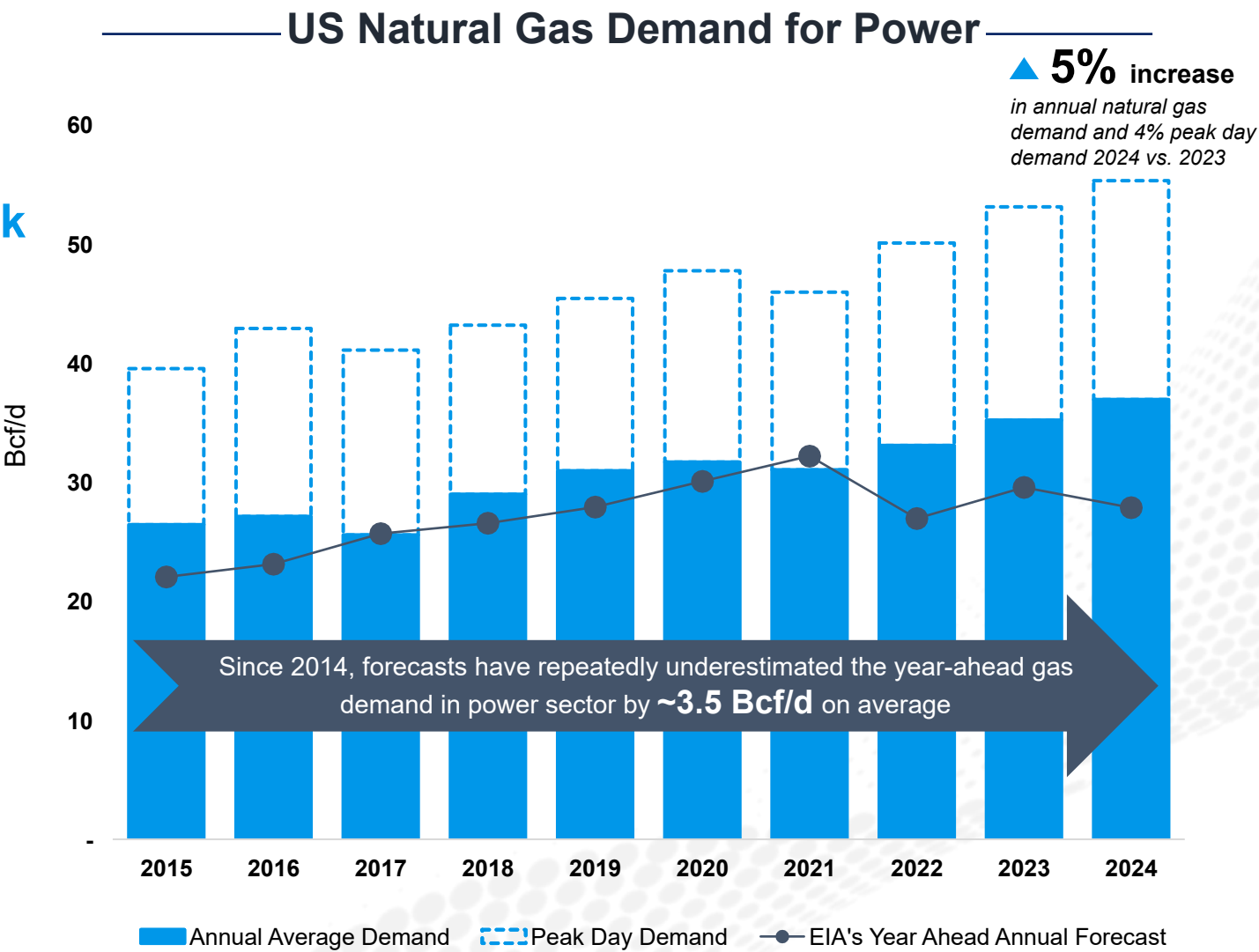
Natural gas pipeline capacity is critical to ensure electric grid reliability on peak days

 **Growing demand for natural gas**
Annual demand for natural gas has steadily grown with a ~4% CAGR since 2015

 **Setting new peak day records**
Hit record day demand for natural gas in August 2024 of 55 Bcf/d

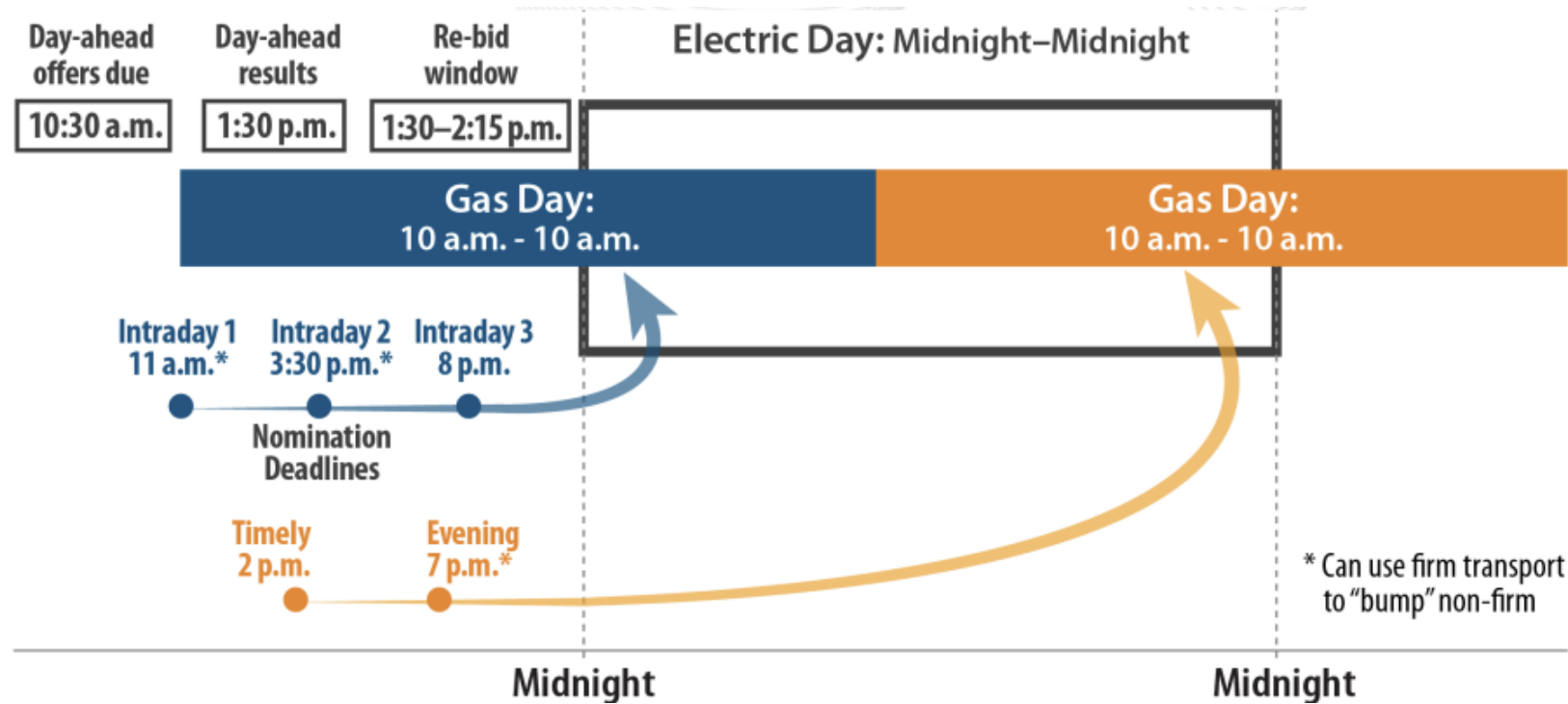
 **Forecasters underestimating the need for gas**
Year ahead forecasts historically underestimate gas demand and dramatically missed 2024 annual demand by 25%

Accurate planning is vital to ensure sufficient pipeline transportation will be available when and where it is needed.



• Source: S&P Global Commodity Insights © 2024 and U.S. Energy Information Administration (EIA).
WILLIAMS © 2025 The Williams Companies, Inc. All rights reserved

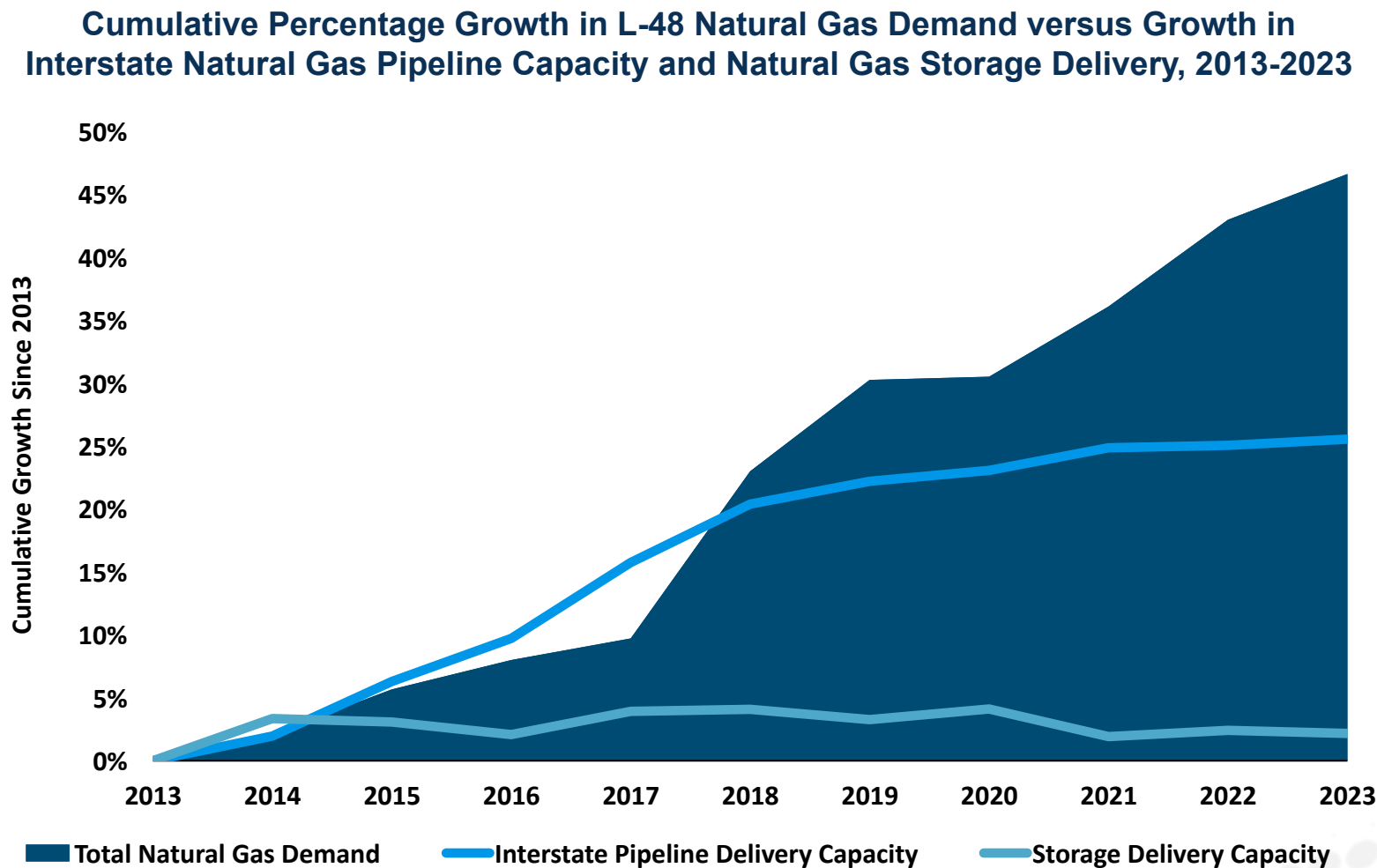
Gas and Electric Day Overlap



Marketers provide solutions during extreme weather events

- The challenge for the power gens to predict the volume of gas they will need due to overnight burns vs gas deadlines.
- During an extreme cold weekend or extended holiday period (i.e. Elliot, MLK weekends '24&'25), power gens need to make a call on whether they need the gas when it's uncertain what volume they will be dispatched.
- Marketers also need to consider the additional credit risk that an extreme event may create and how it might add to liquidity issues and price volatility for power gens.
- Marketers need to adequately staff traders and schedulers to handle all cycles of the gas nomination day to provide the flexibility to power gens described above.

Gas pipeline and storage deliverability have not kept pace with demand growth



Since 2013 demand for gas has grown by
▲ 47%

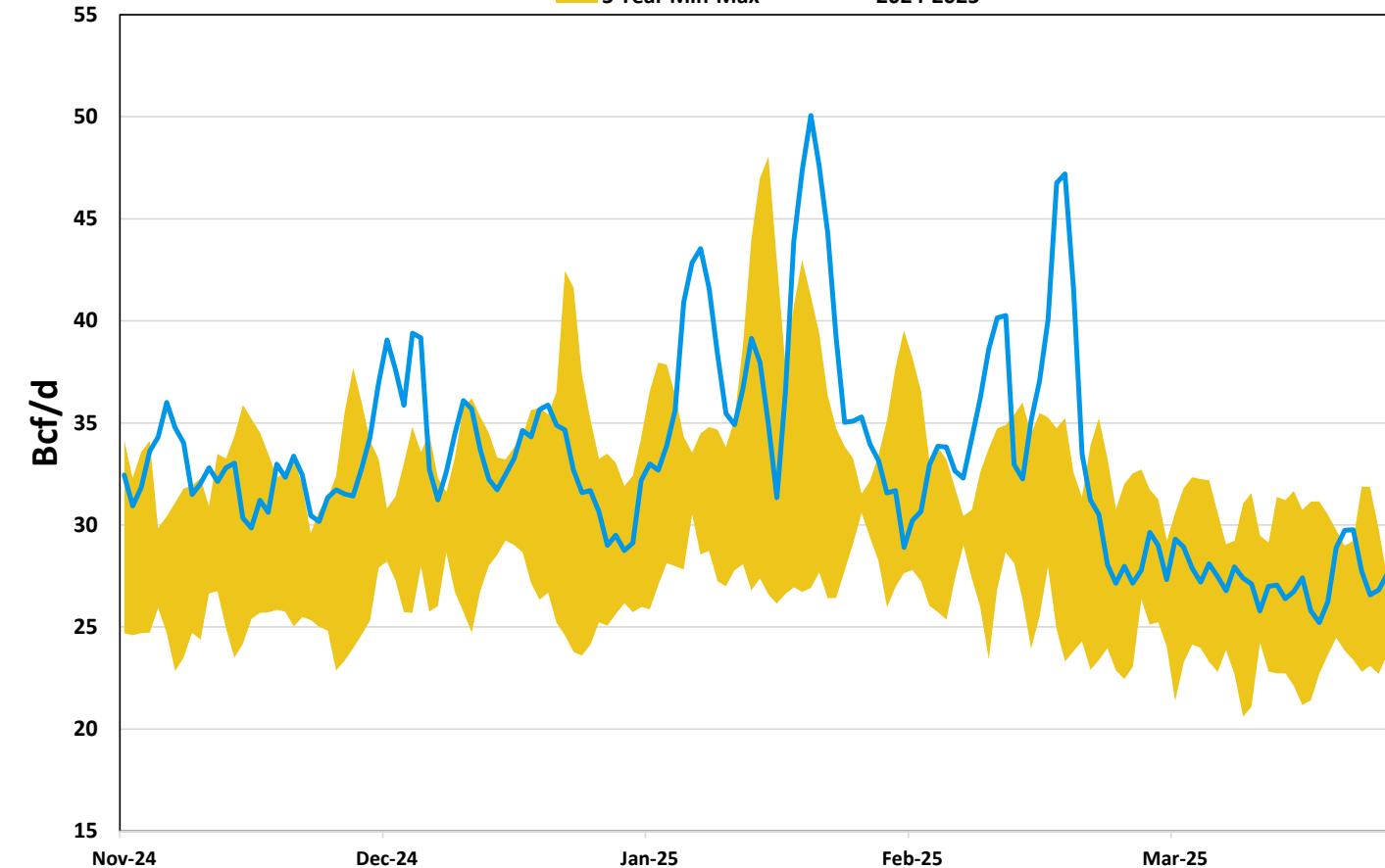
while infrastructure to deliver gas has increased by
▲ 26%

and storage delivery capacity has grown by
▲ 2%

Lower 48 winter gas-fired generation peak day continues to grow

Historical Daily Winter Gas Burn

5 Year Min-Max 2024-2025

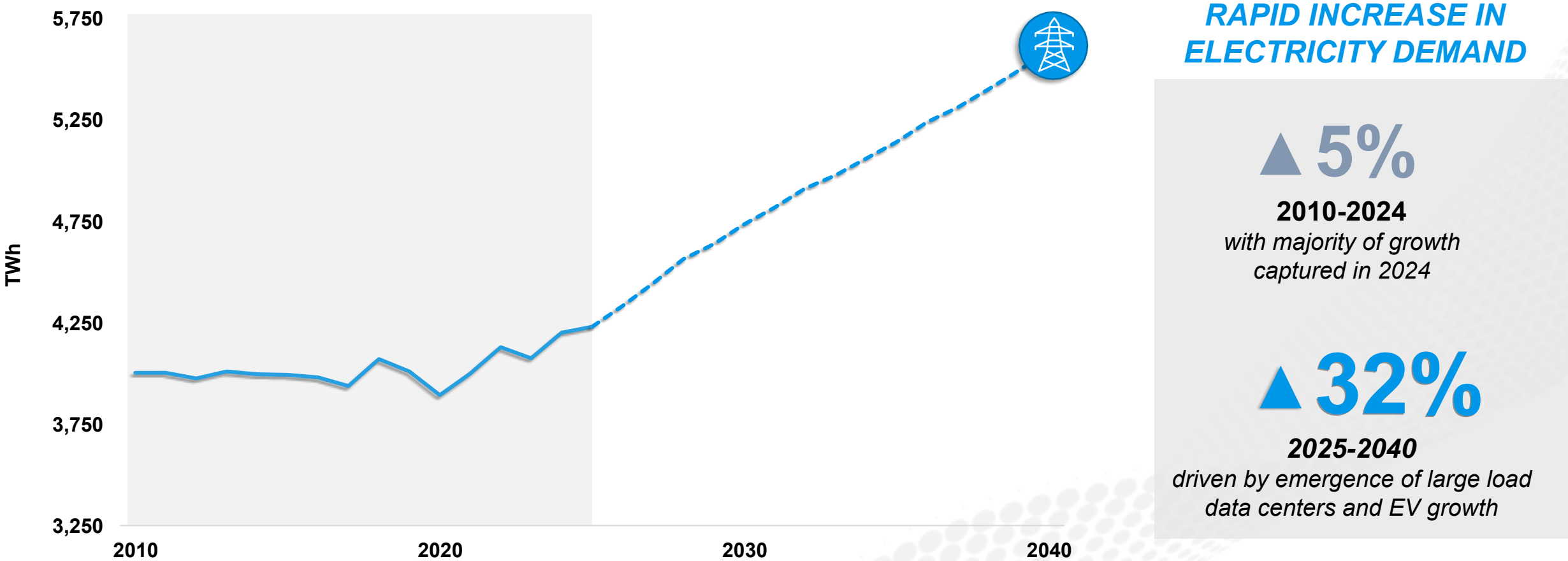


- Lower 48 observed a new winter power generation peak on Jan 21, 2025
 - Gas Consumption: 50.4 Bcf/d
 - Total Load (TWh): 15.2 (7% Higher than 2024)
 - Natural Gas Share: 41.4%
- Previous Winter Peak Day
 - Jan 16, 2024: 48.0 Bcf/d
 - Total Load (TWh): 14.2
 - Natural Gas Share: 39.9%

More natural gas is required to feed growing electricity demand

Electrification of heating and transport, data centers and AI-driven future will create unprecedented growth in power demand

U.S. Net On-Grid Power Demand



• Source: S&P Global Commodity Insights, ©2024 by S&P Global Inc. December 2024 Planning Case.
WILLIAMS © 2025 The Williams Companies, Inc. All rights reserved

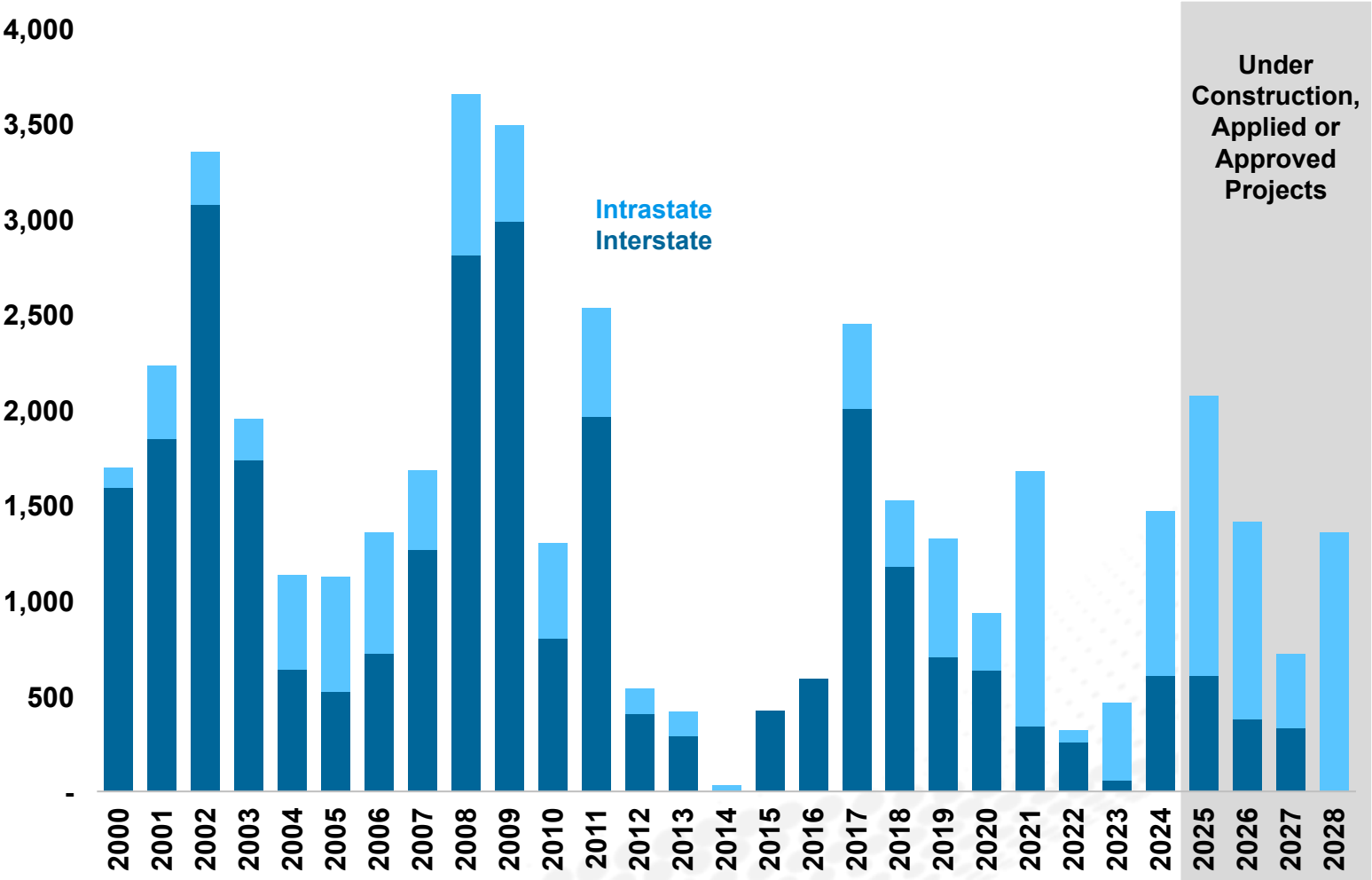
There is a growing need for reliable infrastructure investment

Miles of U.S. Natural Gas Pipelines Added Since 2000

Natural gas pipeline capacity additions have been decreasing from their peak in 2008

Over 4,000 miles of projects in progress to enable capacity growth to meet expanding demand for natural gas

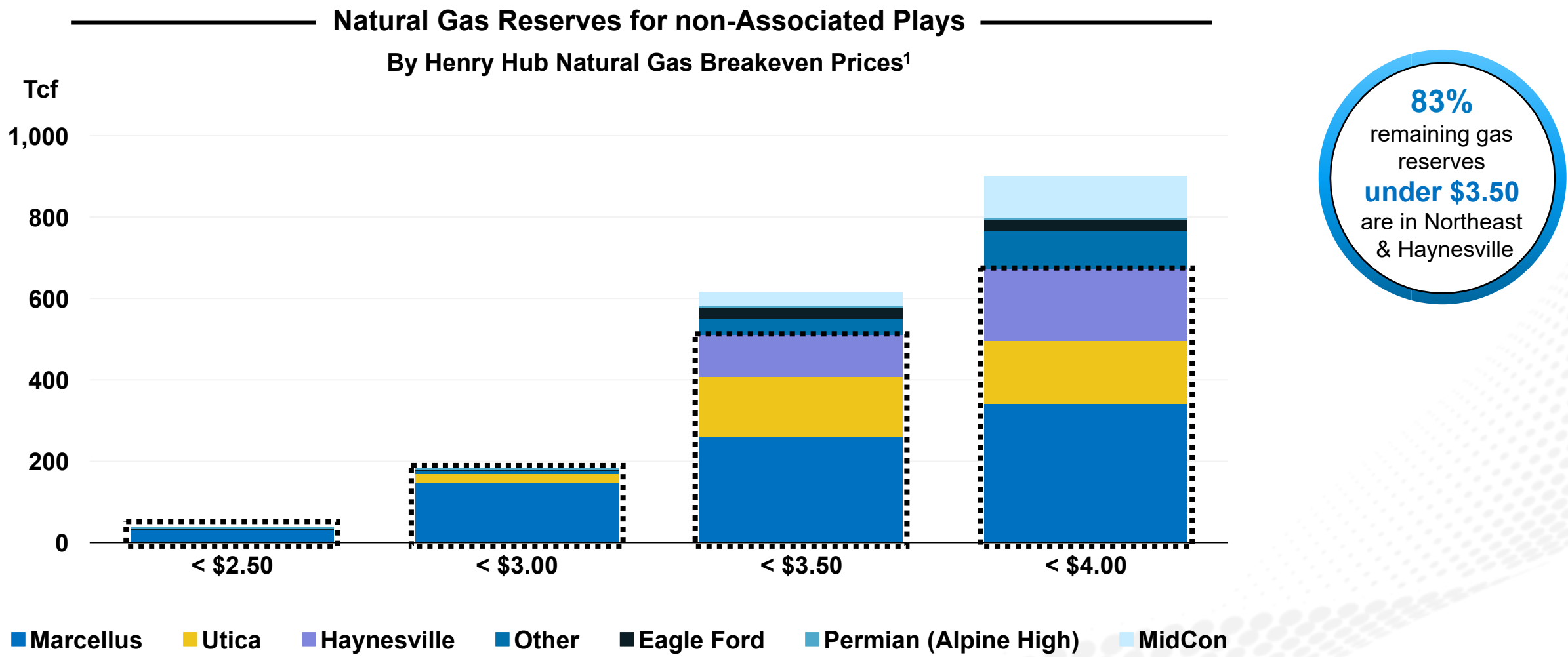
Permitting reform legislation needed to ensure these critical pipelines get built



Source: U.S. Energy Information Administration (EIA)

Note: 2025 – 2028 natural gas pipeline projects shown in above chart with project status: under construction, applied with FERC or received approval from federal or state regulatory body.

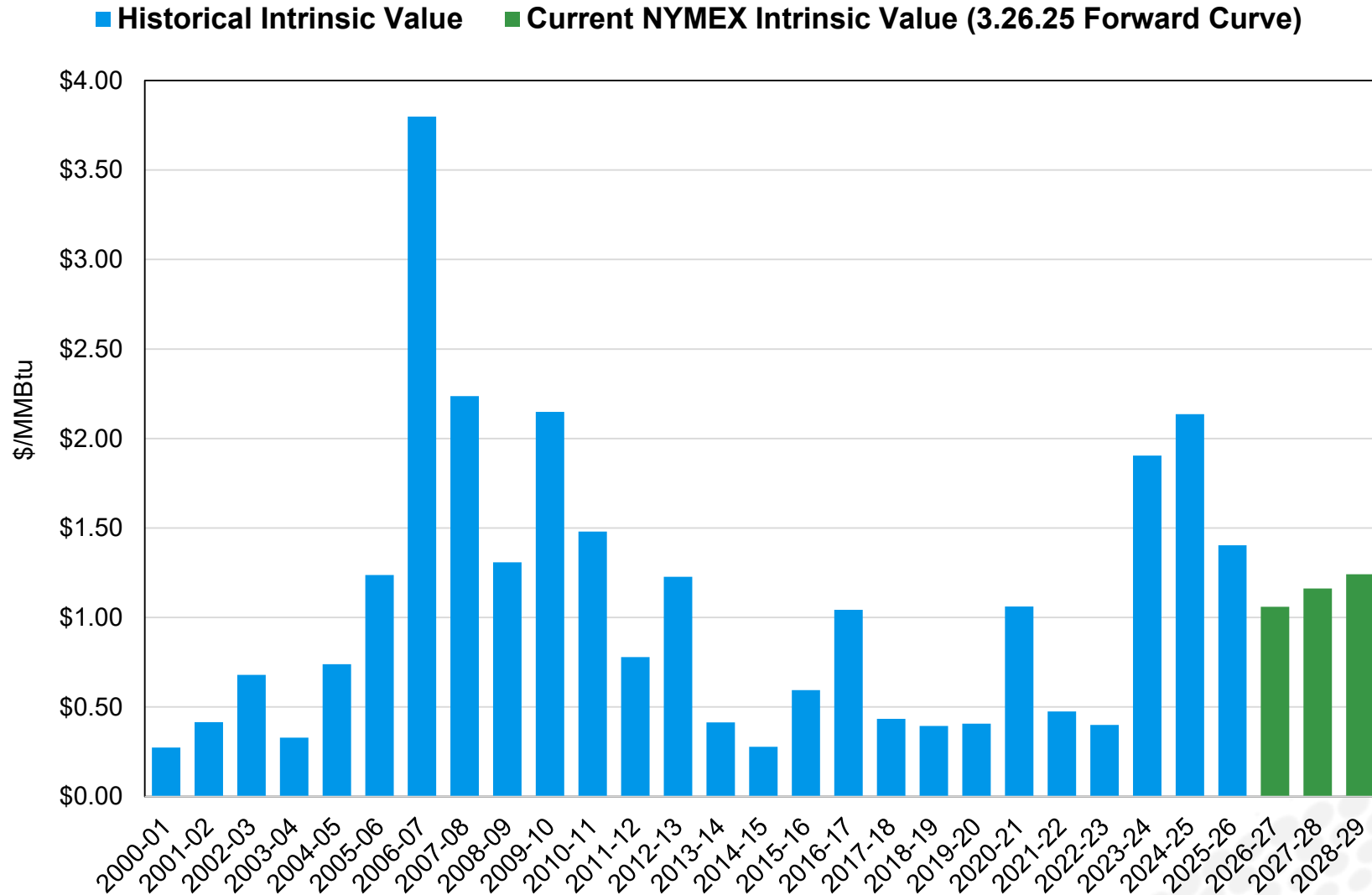
Additional northeast infrastructure is needed to take advantage of low-cost molecules



Source: Wood Mackenzie North America Gas, Investment Horizon Outlook 2024. The data and information provided by Wood Mackenzie should not be interpreted as advice, and you should not rely on it for any purpose. You may not copy or use this data and information except as expressly permitted by Wood Mackenzie in writing. To the fullest extent permitted by law, Wood Mackenzie accepts no responsibility for your use of this data and information. ¹Type well Henry Hub natural gas breakeven price (\$/mcf) at 15% discount rate.

NYMEX intrinsic spreads have been on the rise, supporting the market value of firm storage deliverability

Intrinsic Storage Value at the Start of Each Gas Year



- Over the past few years, NYMEX intrinsic values have risen, supporting incremental brownfield and greenfield storage projects
- Storage services are needed for seasonal and hourly balancing needs for power plants
- While current forward spreads have narrowed by 10-20% from 2025-26 levels, sufficient price volatility exists to spur additional investments

Unlocking Appalachia shale gas through additional pipeline capacity could lead to lower prices and consumer savings



Abundant, low-cost resource in Appalachia

Marcellus and Utica shales represent **1/3** of U.S. Lower-48 total production in 2024; the region has more than **620** Tcf of commercial gas resources, or enough to supply Northeast region for **77** years at current demand levels



Pipeline constraints contribute to rising electricity prices

Lack of access to low-cost gas has pushed gas prices at Boston, Chicago and New York up to **160%** higher than Henry Hub since 2010 in peak months, feeding into higher electricity prices to consumers



New capacity allows for Henry Hub gas price declines

Per S&P Study, expanding Northeast exit capacity by **6.1** Bcf/d could reduce gas prices across the entire U.S. Lower-48, leading to a Henry Hub price reduction of **4%** (\$0.20/MMBtu) on average in 2028 – 2040



Gas – Electric Coordination

Gas markets generally, trade before economic electric dispatch decisions occur. Gas Day-ahead alignment can reduce some of the mis-match, however additional hourly balancing will be needed



Consumer savings greater than pipeline capital cost

Per S&P Study – “Cumulative savings through 2040 reach \$76 billion, far exceeding the estimated \$14 billion in capital costs necessary for the 6.1 Bcf/d of pipeline expansions”



Sequent Energy
Management

A WILLIAMS COMPANY

A strategy fueled by **natural gas**

