



North American Natural Gas Overview

November 19, 2025

The Leader in Energy Market Simulation Systems

Providing energy companies, consultants, and regulators advanced tools to support:

- Investment and M&A Strategy
- Environmental and Sustainability Goals
- Credible Risk Analysis
- Trading Strategy
- Policy Development and Assessment
- Energy Security

North American Natural Gas Overview

Highlights of GPCM 25Q3base Forecast

Robert Kachmar

Senior Natural Gas Analyst

robert.kachmar@rbac.com

Scott McKenna

Senior Market Analyst

David Brooks

Natural Gas Analyst

Grace Wheaton

Data Analyst

Oscar Tobar

Data Analyst



North American Natural Gas Overview

1. Henry Hub Price & Basis
2. Supply
3. Demand
4. LNG Exports
5. Storage
6. Infrastructure

Henry Hub Price

Near term Henry Hub price starts from a low base due to the continued storage overhang; largely an effect of strong production and record injections to start the season. The cooler than normal summer 2025 heat largely offset strong AI gas-for-power demand.

Storage levels near the 5-year high remain and are pressuring prices lower.

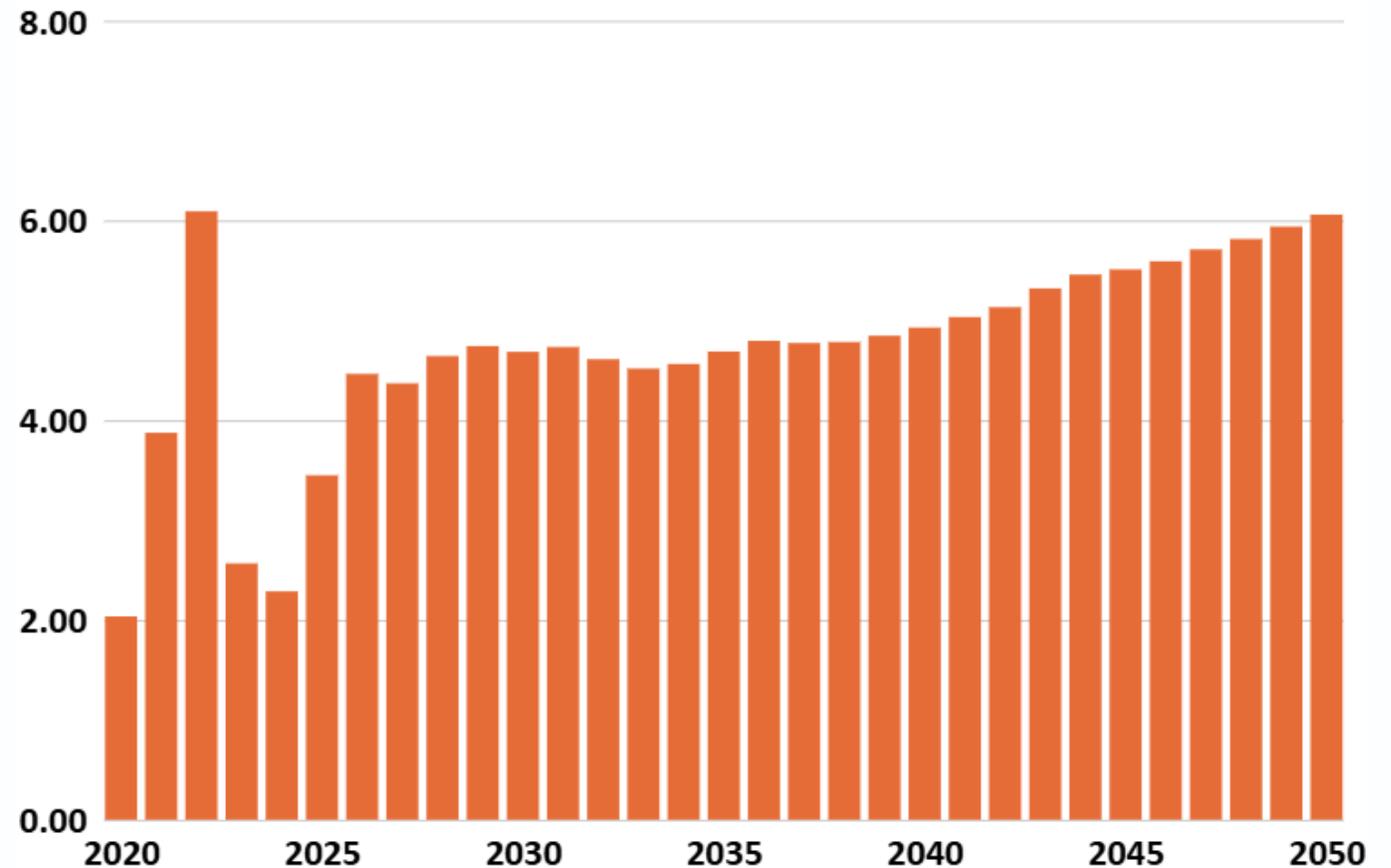
Prices remain lower than 25Q2base through 2028 as supply/demand balances skew to the loose side. Lower near term LNG exports are the driver for this near-term pricing pressure – lower by approximately 1.5 – 2.0 Bcf/d.

Gas Fired Electric Generation (ELC) demand runs higher during this period but not enough to offset lower LNG exports.

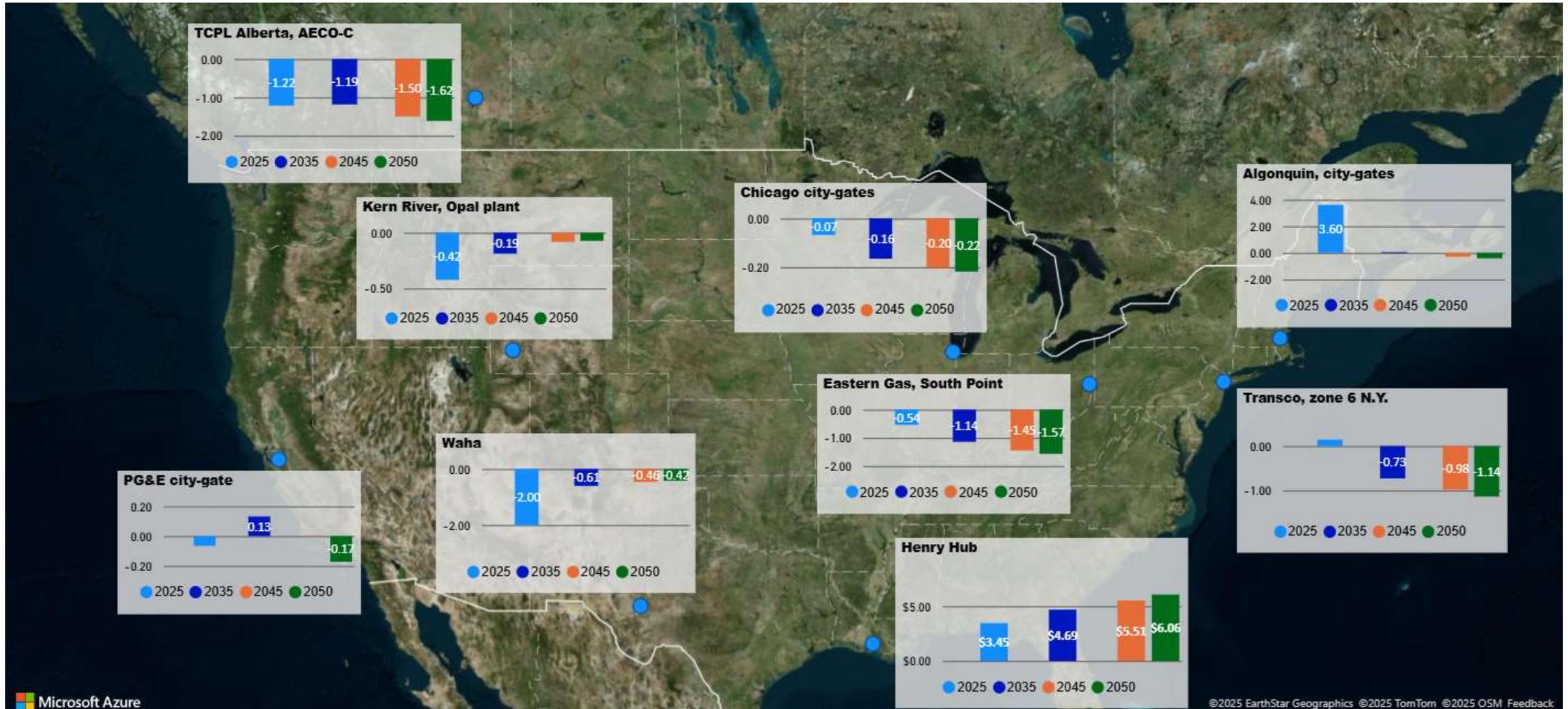
Mid-term Henry Hub price trend largely the same as 25Q2base from 2028 through the mid 2030s as higher as ELC demand offsets the drop in LNG Exports from increased competition abroad.

Long-term Henry Hub price trends higher than 25Q2 due to ELC consumer demand continued strength.

25Q3 Base Annual Henry Hub Price, 2020-2050 (\$/MMBtu)



Yearly Price and Basis Map -- 2025/2035/2045/2050





North American Natural Gas Overview

1. Henry Hub Price & Basis
2. **Supply**
3. Demand
4. LNG Exports
5. Storage
6. Infrastructure

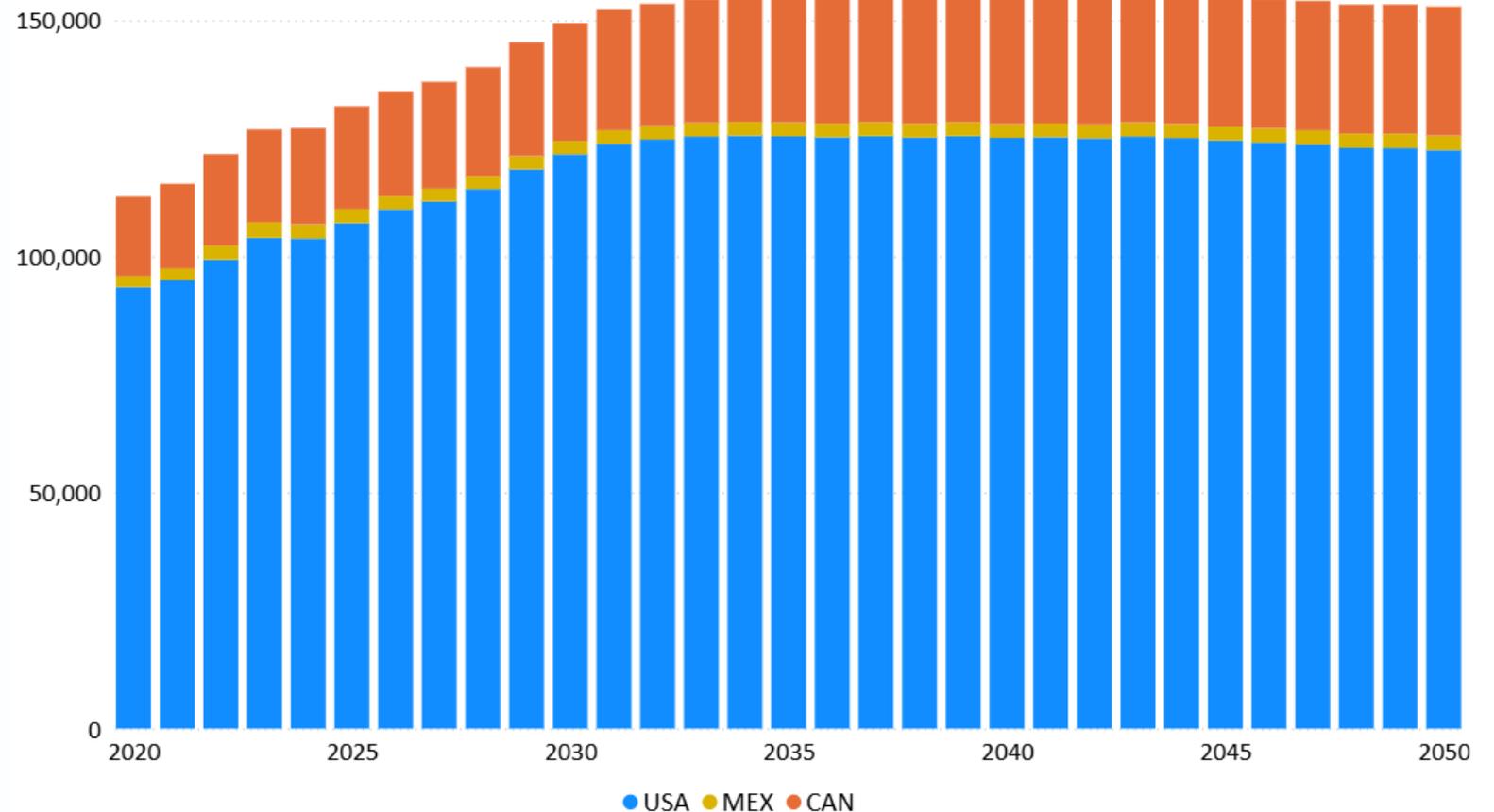
North American Supply

Total North American supply was robust through 2024 driven by strong Haynesville and Appalachia production.

After January winter storms spiked Henry Hub, prices have since stabilized around ~\$3.00/MMBtu. Allowing producers to thread the needle, as they ramp production back up to meet additional LNG demand coming on this year.

Haynesville is poised to supply additional supply through the forecast period as its proximity makes it the basin of choice for LNG Exports.

Annual North American Production by Country, 2020-2050 (MMcf/d)

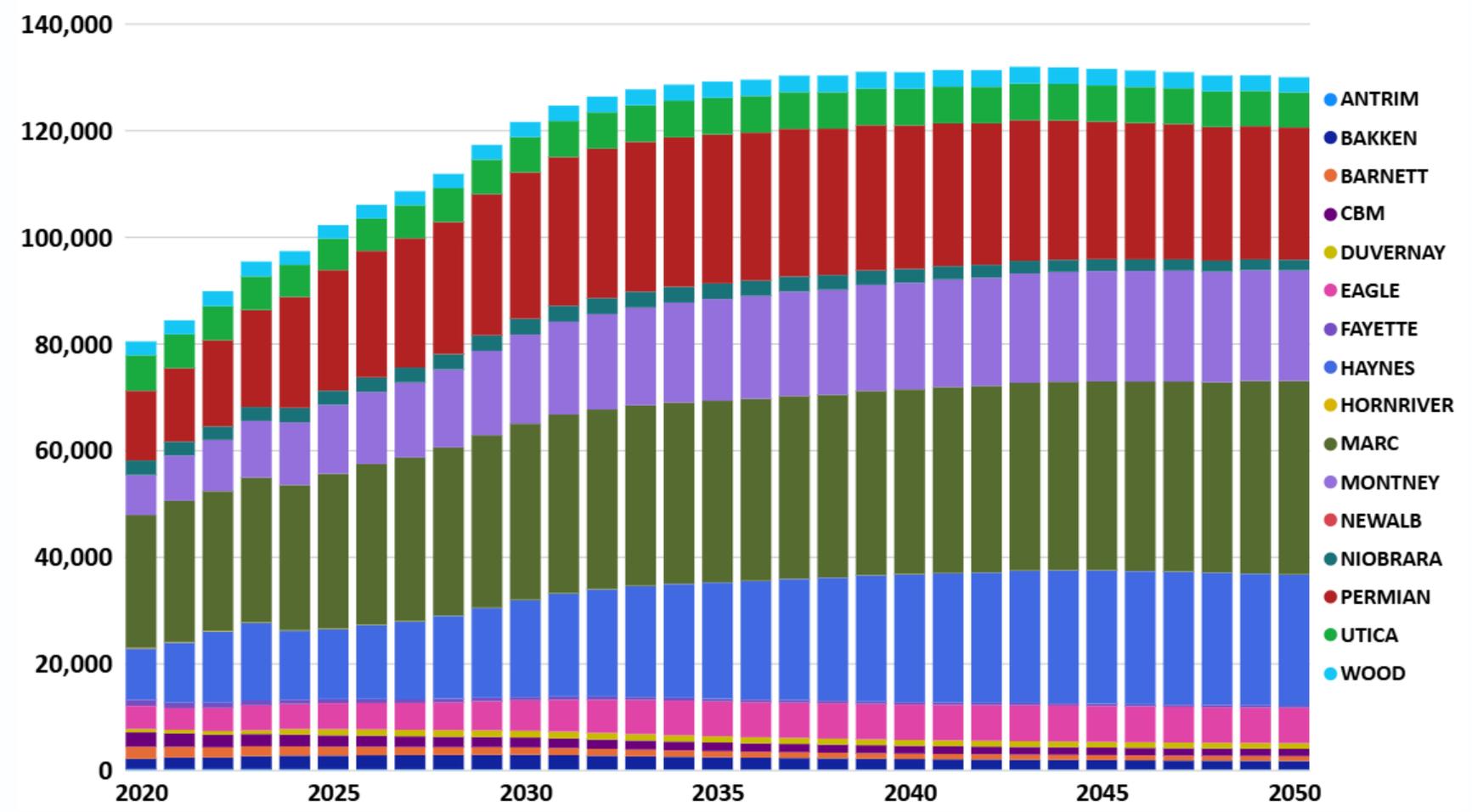


North American Supply by Selected Basins

Production growth is expected throughout the forecast period with gains coming faster than expected from the Haynesville as producers took advantage of higher prices and increased take-a-way capacity.

Low oil prices have dampened our Permian outlook; however, we are closely monitoring Data Center developments in that region, as its low gas cost make it ideally situated.

Annual North American Production by Select Play, 2020-2050 (MMcf/d)



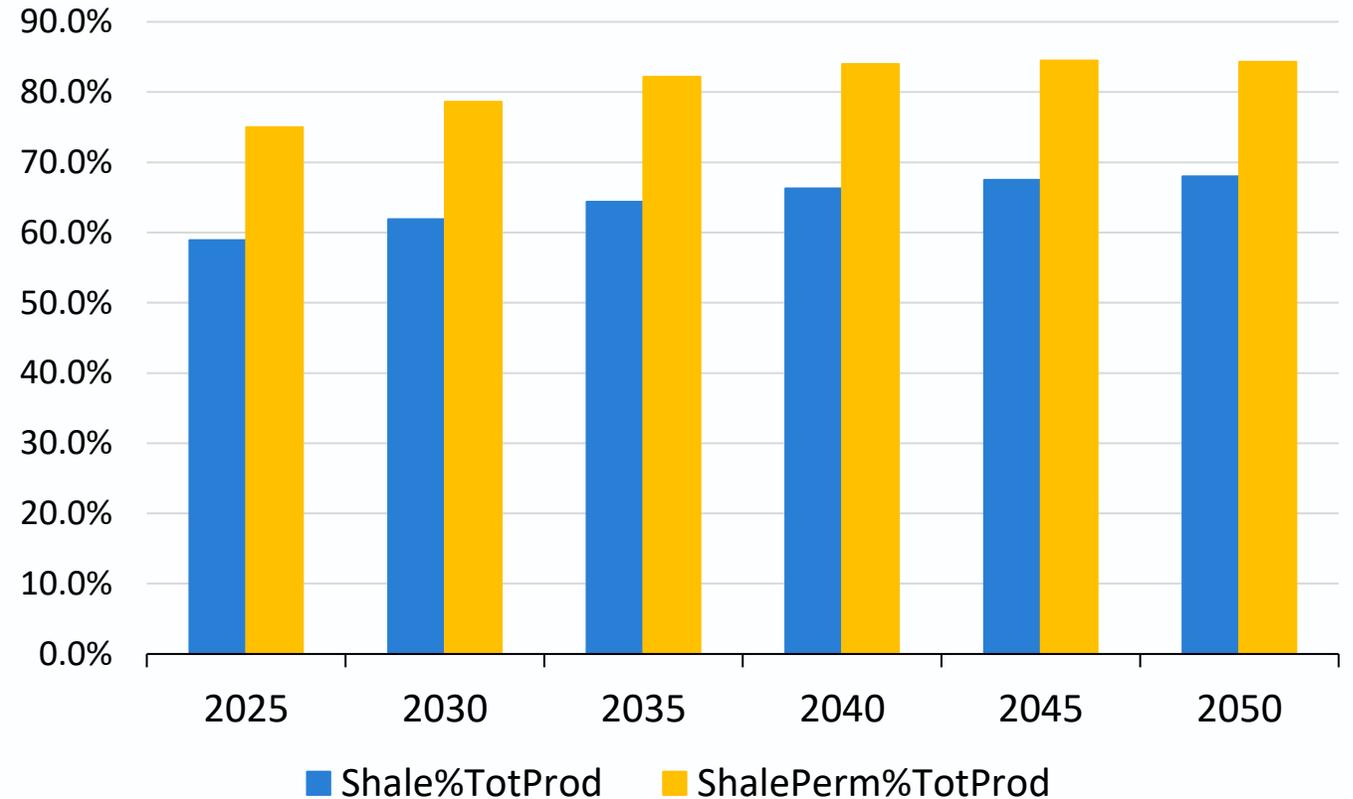
North American Supply by Type

Shale production represents **59%** of the total production by 2025.

Shale production grows to **68%** of the total production by 2050.

With Permian production included, the percentage increases to **84%** by 2050.

North American Shale & Permian Production 2020-2050 (% of Total Production)





North American Natural Gas Overview

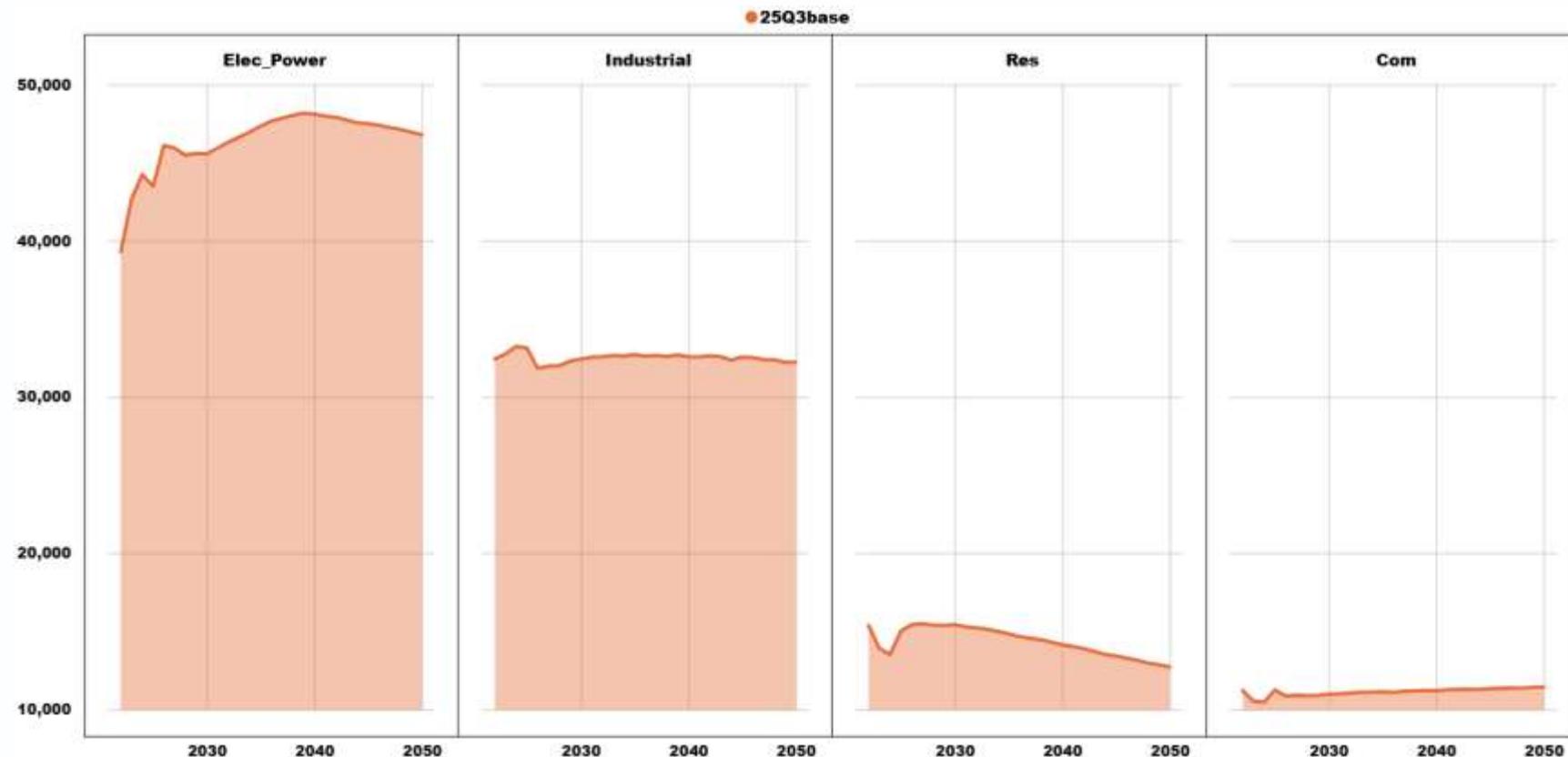
1. Henry Hub Price & Basis
2. Supply
- 3. Demand**
4. LNG Exports
5. Storage
6. Infrastructure

North American Demand by Sector

ELC gas demand is forecast to peak in 2039, with Datacenters driving near to mid-term growth before declining as electrification and renewables market share grows – the rate of this growth has been significantly increased vs previous base case releases to capture AI/Data Center demand in strategic locations such as Virginia and Texas.

IND demand remains relatively flat – increased USGC Petchem demand offsets other regional IND demand losses.

RES demand declines over time due to increased electrification and efficiency gains while **COM** demand sees modest increases.



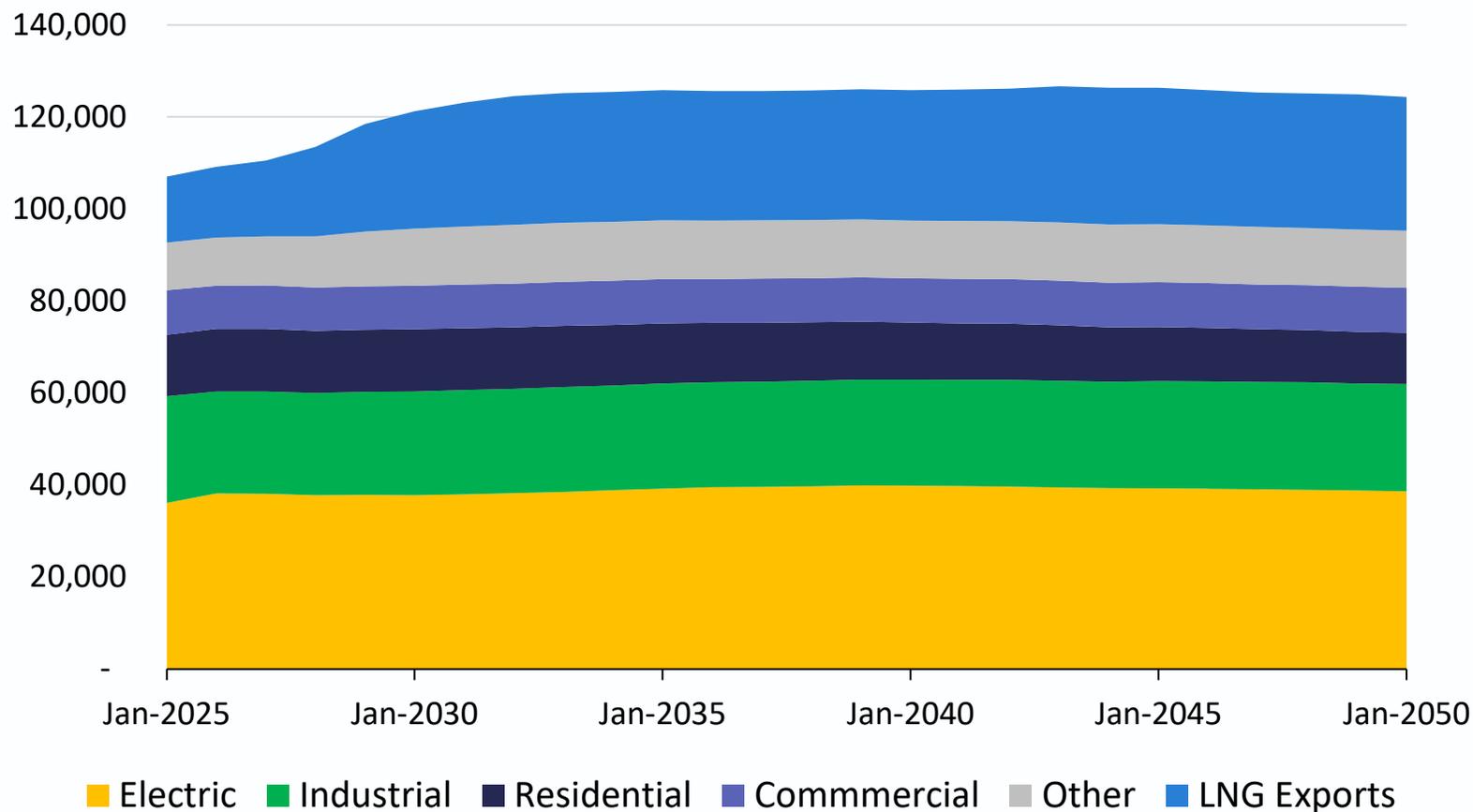
U.S. Demand by Sector

LNG Export demand becomes an increasingly important variable in the Supply/Demand balance equation.

As noted, traditional residential sectoral demand is forecast to decline throughout the forecast, but increased LNG export demand offsets these declines.

Annualized demand exceeds 120 Bcf/d beginning in 2028 and holds above this level throughout the forecast.

Annual U.S. Natural Gas Consumption by Sector, 2025-2050 (MMcf/d)



Data Center Research



Source: U.S. Department of Energy, NREL, [Accelerating Speed to Power Data Viewer](#) (2025)

RBAC continues to monitor development in data center activity, relying on multiple sources including but not limited to:

- National Energy Reliability Counsel (NERC)
- U.S Department of Energy
- Regional Transmission Organizations (PJM & ERCOT)
- Earnings calls from private companies

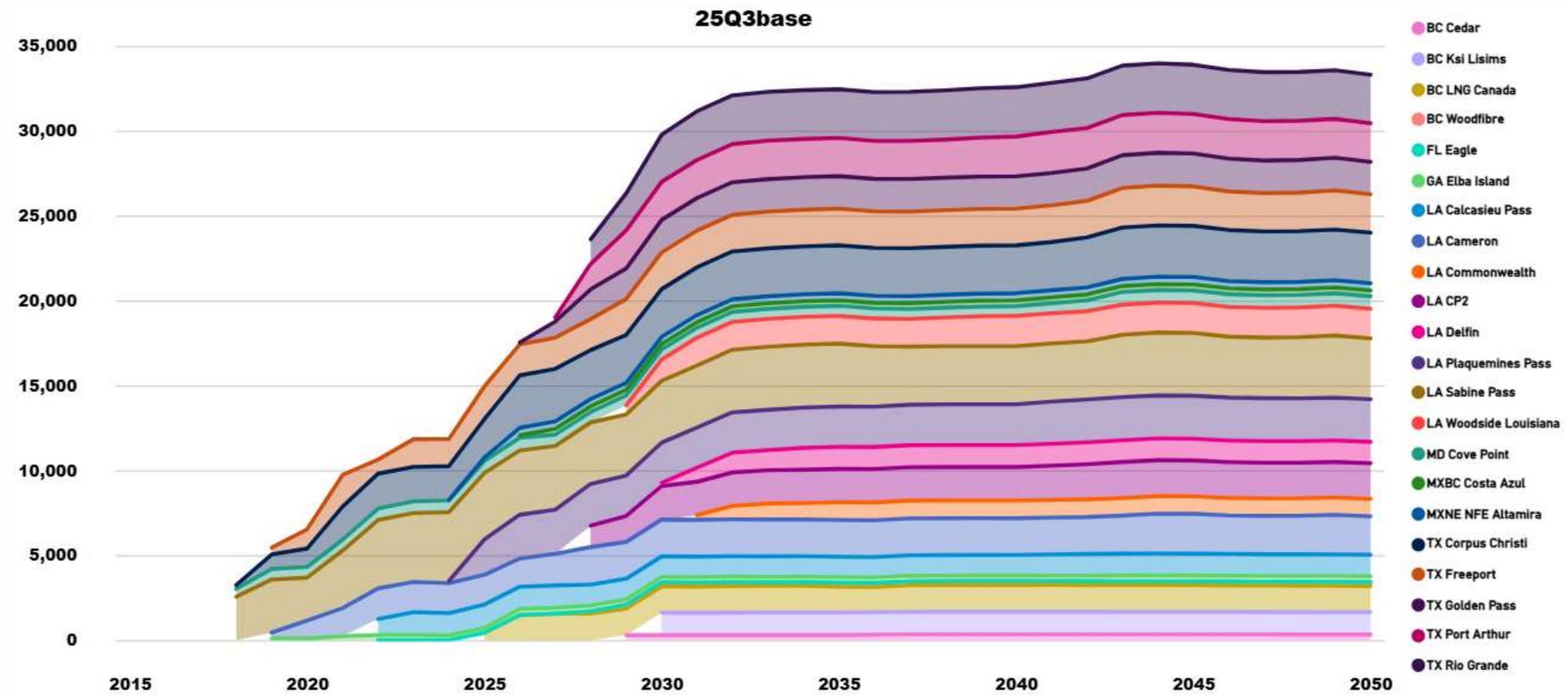
Given existing infrastructure and other factors, areas of focus have been Virginia and Texas, with continued research planned for Arizona, Ohio, and the Pacific Northwest.



North American Natural Gas Overview

1. Henry Hub Price & Basis
2. Supply
3. Demand
- 4. LNG Exports**
5. Storage
6. Infrastructure

North American LNG Exports

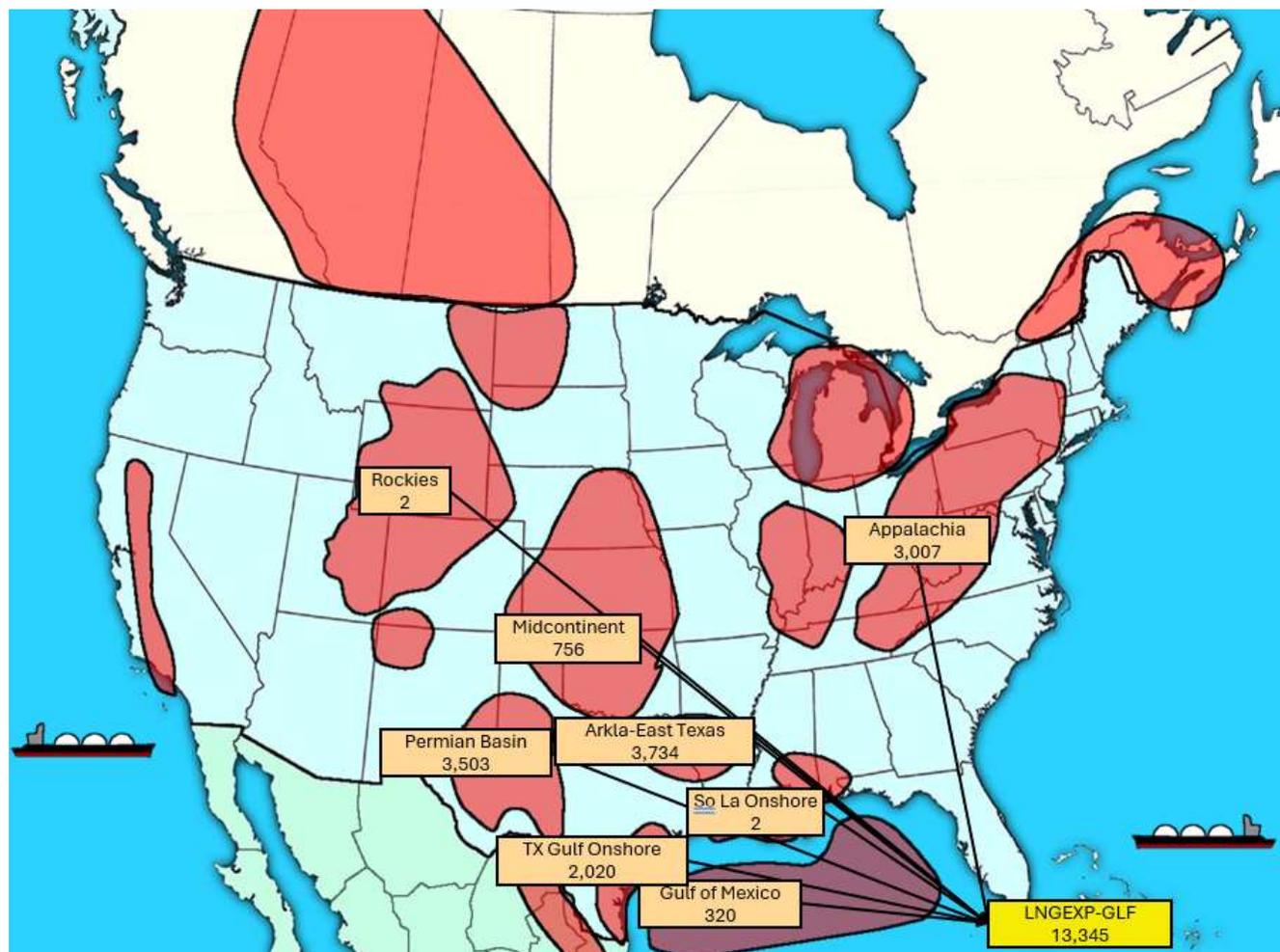


- 40+ North American LNG facilities built into our GPCM
- Adjusted dates for LNG Cedar, LNG Commonwealth, GP2, Ksi Lisims, and Rio Grande

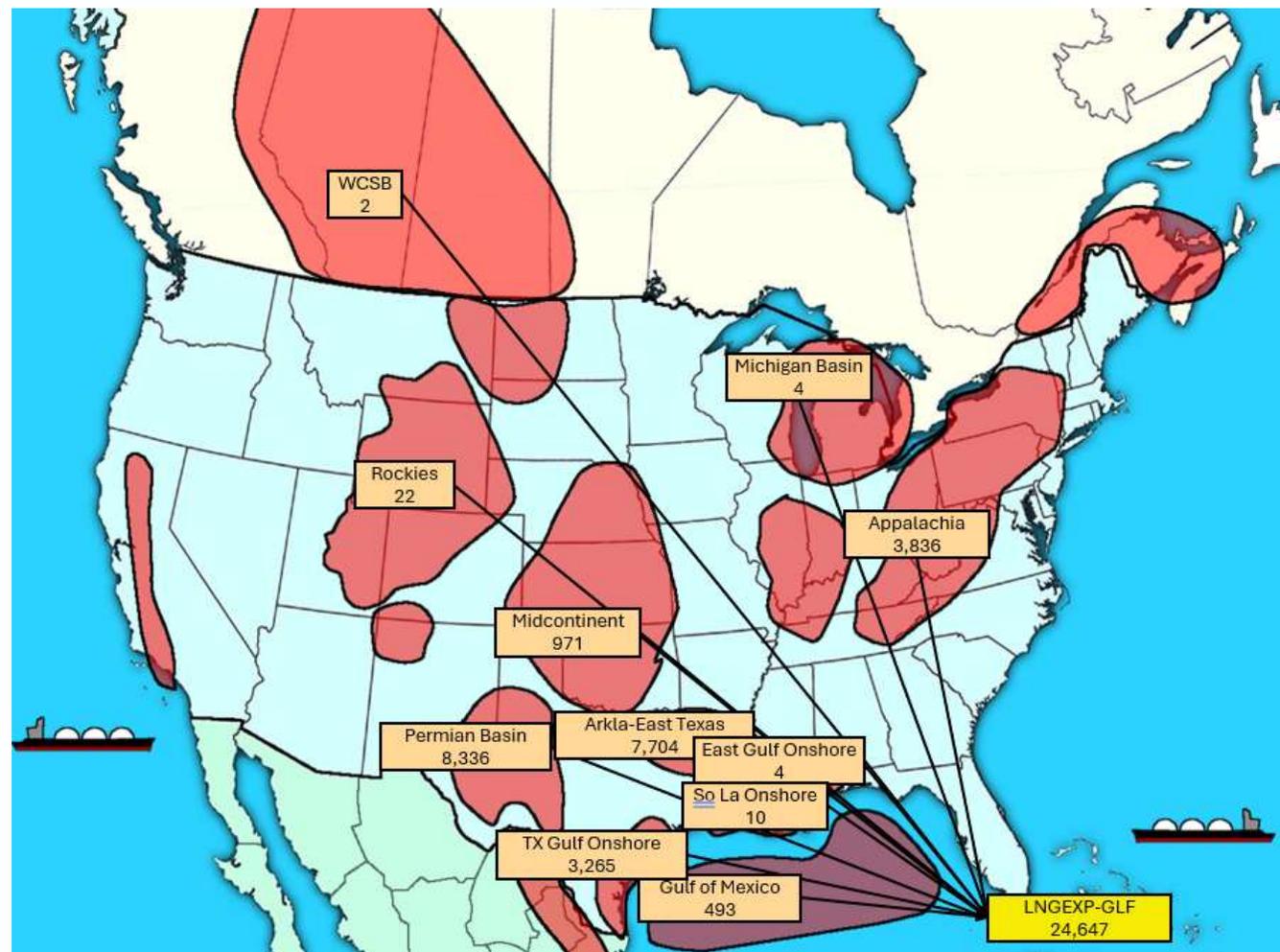
Future North American LNG Exports

Export Facility	Start Date
LNG Cedar	Nov-2028
LNG Commonwealth	Jun-2031
LNG Costa Azul	Jun-2026
LNG CP2	Jul-2028
LNG Delfin	Jun-2030
LNG Golden Pass	Dec-2026
LNG Ksi Lisims	Nov-2028
LNG Port Arthur	Dec-2027
LNG Rio Grande	Oct-2027
LNG Woodfibre	Jan-2028
LNG Woodside LA	Apr-2029

Supply Sources for Gulf LNG Exports - 2025



Supply Sources for Gulf LNG Exports - 2030

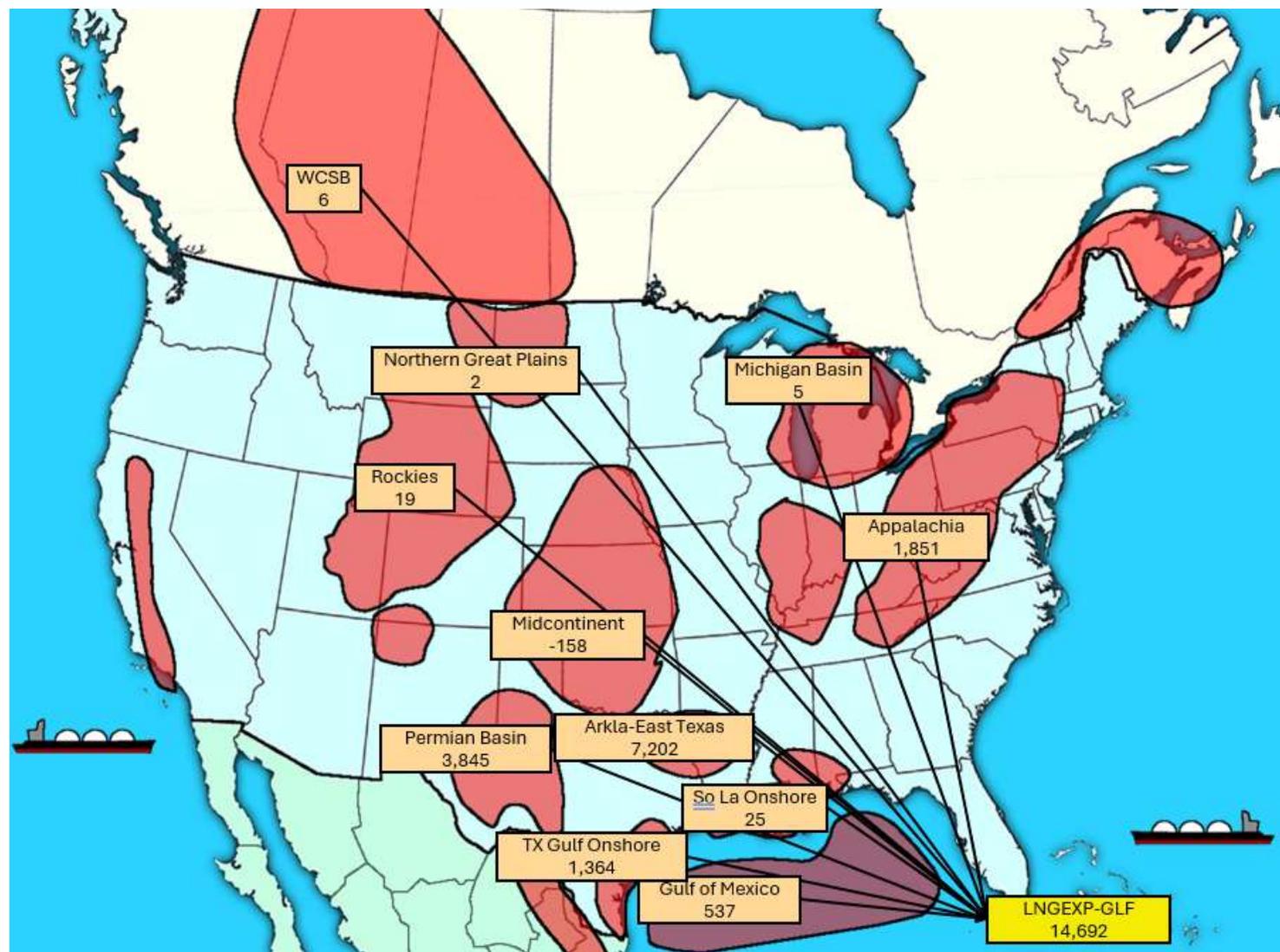


Supply Sources for Gulf LNG Exports - Delta

Proximity to the US Gulf Coast LNG terminals clearly benefits Haynesville, Eagle Ford, and Permian producers.

Appalachia (Marcellus) contributes significantly as well – due largely to GPCM's auto-expand feature which begins April 2029.

Alternative scenarios can easily be constructed to simulate more or less stringent regulatory burdens – e.g., turn off Mid-Atlantic auto-expand, increase or reduce the economic hurdles, etc.





North American Natural Gas Overview

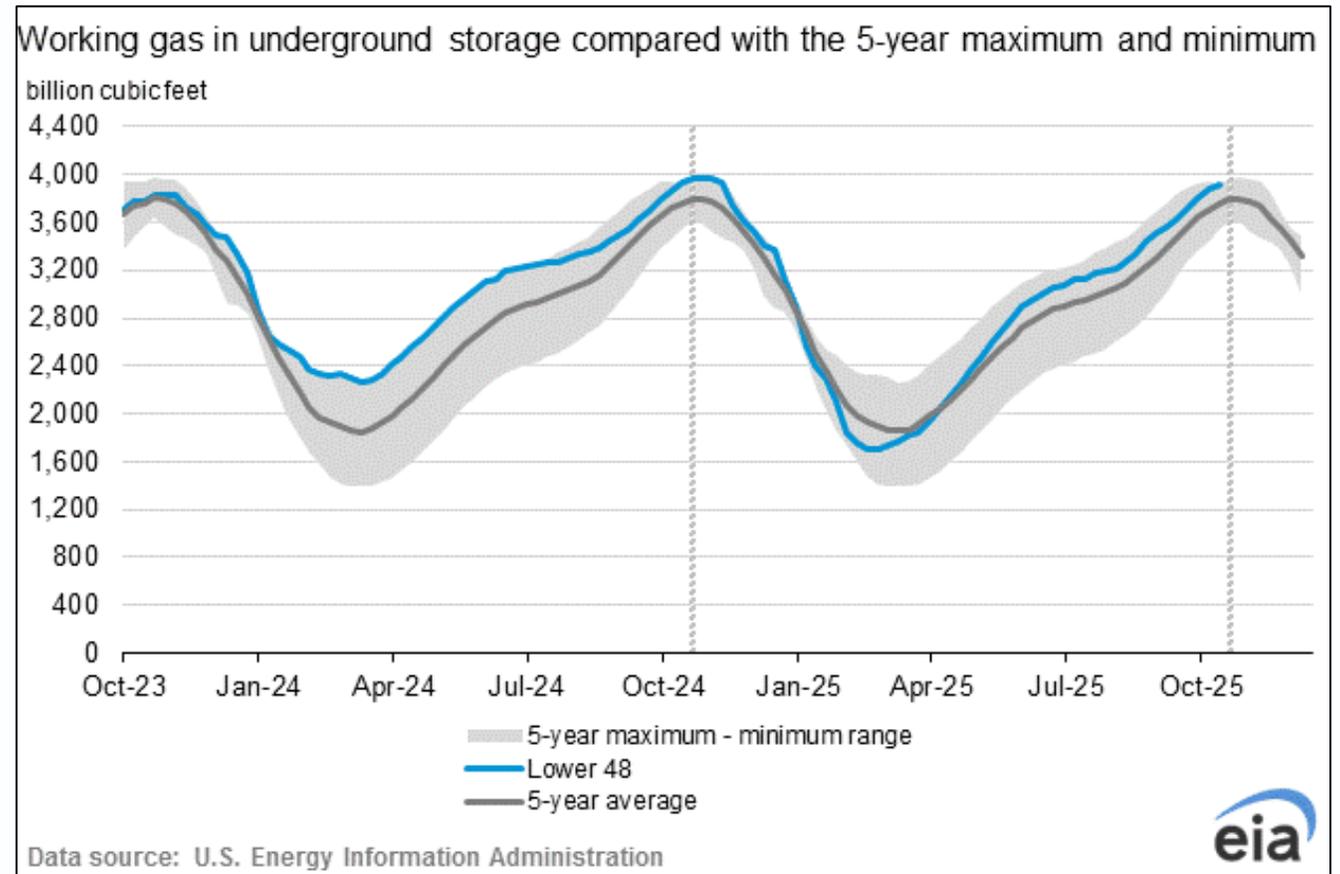
1. Henry Hub Price & Basis
2. Supply
3. Demand
4. LNG Exports
5. **Storage**
6. Infrastructure

Storage Levels vs 5-Year Average

High storage levels tend to put downward pressure on natural gas prices.

Strong production levels and a cooler than normal 2024-25 summer led to storage levels exceeding the 5-year average and nearing the 5-year max prior to the 2025-26 withdrawal season.

Weak summer ELC gas burns offset higher LNG export volumes as new Gulf facilities Plaquemines LNG ramped up and Golden Pass LNG scheduled to begin operation in December 2026.



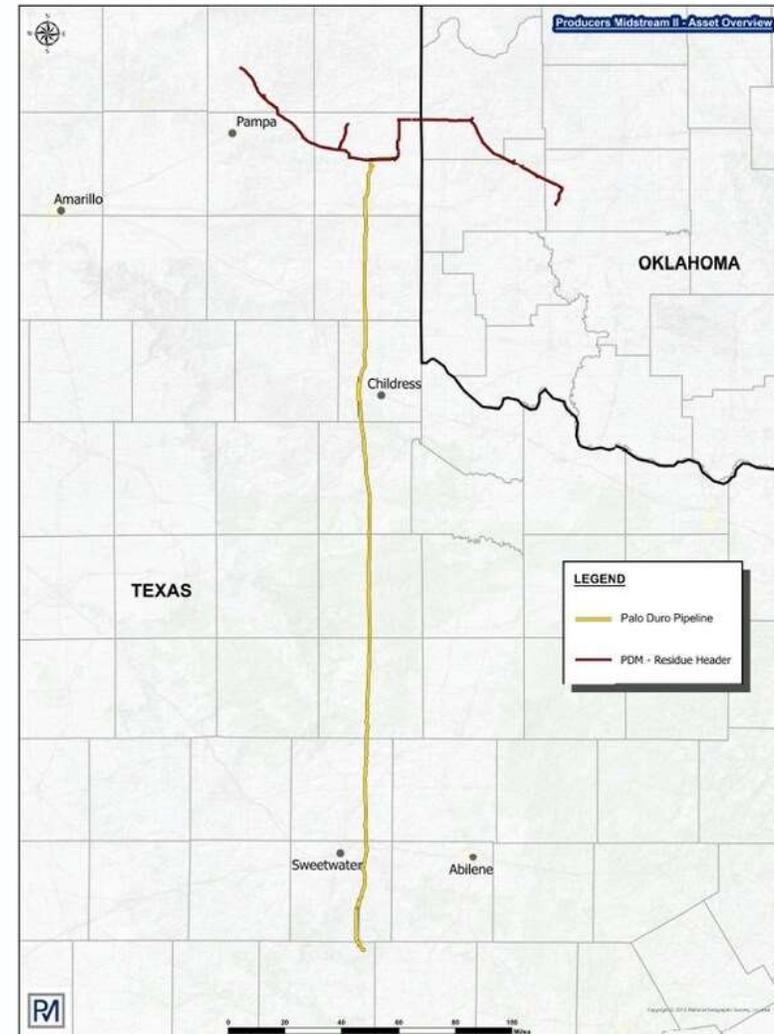


North American Natural Gas Overview

1. Henry Hub Price & Basis
2. Supply
3. Demand
4. LNG Exports
5. Storage
6. Infrastructure

Palo Duro Pipeline

- Palo Duro Pipeline
 - Capacity: 80 MMcf/d
 - Converts existing 275 mile/16 - inch intrastate pipe into an interstate pipeline
 - Intended to enhance Permian gas takeaway capacity to markets in Anadarko Basin
 - Interconnects Transwestern, NGPL, ANR, among others
 - In-service: 26Q1



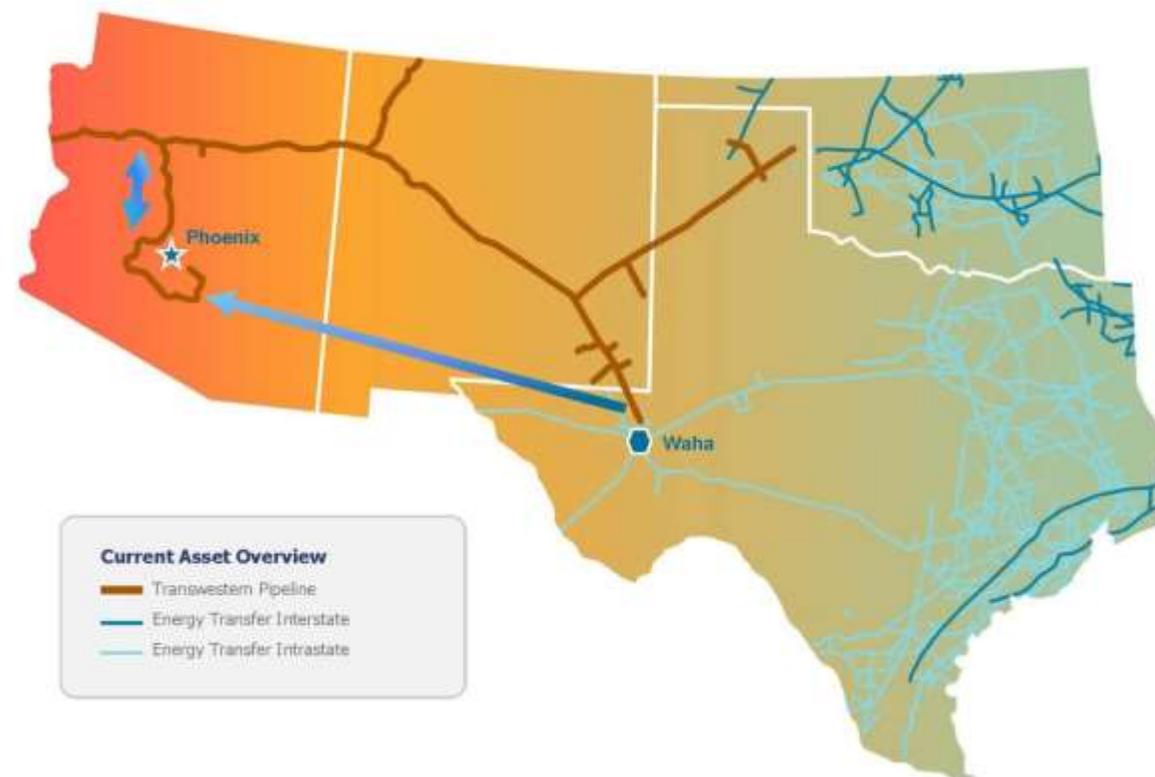
Mustang Express Pipeline

- Mustang Express Pipeline
 - Capacity: 2.5 Bcf/d
 - 236 mile, 42-inch pipeline comprised of three segments spanning from Colorado TX to Port Arthur TX
 - Increase transportation between TX natural gas production to Port Arthur LNG plant
 - In-service: late 2028 or early 2029



Transwestern Desert SW Pipeline

- Transwestern Desert SW Pipeline
 - Capacity: 1.5 Bcf/d
 - 516 mile, 42-inch pipeline originating in the Waha Basin and spanning to Phoenix AZ.
 - Increase gas takeaway from Permian to growing demand centers in NM and AZ.
 - In-service: 29Q4





Questions?



RBAC, Inc.

www.rbac.com

(281) 506-0588

contact@rbac.com

RBAC leads the market in global and regional gas and LNG market simulation and predictive analytics in support of corporate investment and M&A strategy, ESG, risk analysis, planning, and commodity trading. Our products and expertise help companies go beyond the narratives and hype to identify the opportunities and define the risks inherent in the uncertainties of energy transition using reality and fact-based fundamentals and analysis.

We continuously enhance our market simulation systems with the latest software and computer technology while applying the best of mathematical economics to assist our clients achieve their goals. This is especially needed as we see fundamental shifts taking place in the energy industry to achieve energy transition goals and meet increasingly demanding requirements of ESG. We provide regularly scheduled updates of our simulation systems and databases to keep our clients up-to-date with the most current market information. We enhance the functionality of our systems to enable our customers to simulate the effect of new regulations or industry requirements.

Our aim is to continue to lead the market in best practices which raise the standard of market simulation, enabling rapid and flexible scenario generation, sensitivity analysis, risk-assessment and forecasting, giving clients the edge in the rapidly changing energy market.

Those using RBAC's products and services include energy industry firms and consultants, as well as government agencies involved with energy, transportation, and the environment.

RBAC's principal products include:

- **GPCM® Market Simulator for North American Gas and LNG™** focused on the North American gas & LNG markets. GPCM is the industry standard market simulator for North American gas.
- **G2M2® Market Simulator for Global Gas and LNG™** for simulating increasingly integrated gas and LNG markets worldwide.
- **Gas4Power®** for integrating gas and power market fundamentals to produce credible forecasts for both.
- **NGL-NA®** Market Simulator for North American Natural Gas Liquids

With RBAC's advanced simulation systems, licensees can create and run scenarios involving bio-methane (Renewable Natural Gas – RNG) mixed with natural gas and to assess the implications of carbon taxes and markets on supply, demand, and prices. Future enhancements will include the ability to simulate the advent of a future hydrogen market with both pure hydrogen pipelines as well as mixtures with methane. The Energy Analyst of today and the future needs these kinds of tools to conduct realistic assessments and help develop realistic strategies and plans to achieve the goals of the energy transition.

Dr. Robert Brooks founded RBAC in 1987 based on experience developing several well-respected predictive models for government and industry. He designed the first gas transportation model while getting his PhD at MIT and has led the industry ever since.

RBAC's staff includes industry-trained experts in natural gas supply and demand, transportation, storage, marketing, and trading. Our team applies its world-class expertise in mathematical modeling, statistical analysis, mathematical algorithm development, software engineering, and database design to current and future challenges, risks and opportunities in energy.