

S&P Global

Commodity Insights

IECA: North American gas market update

Oct. 22, 2024

Nikolay Filchev / Director



Topics

- What's happening in the US Lower 48 gas market right now?
- How is winter 2024/25 shaping up?
- Short-term outlook through 2029:
 - What are the demand drivers? How does domestic demand fare? Timing of the LNG export ramp?
 - Where will production come from, and will there be enough infrastructure to get it where it needs to go?
 - How are the gas markets in Canada and Mexico evolving?

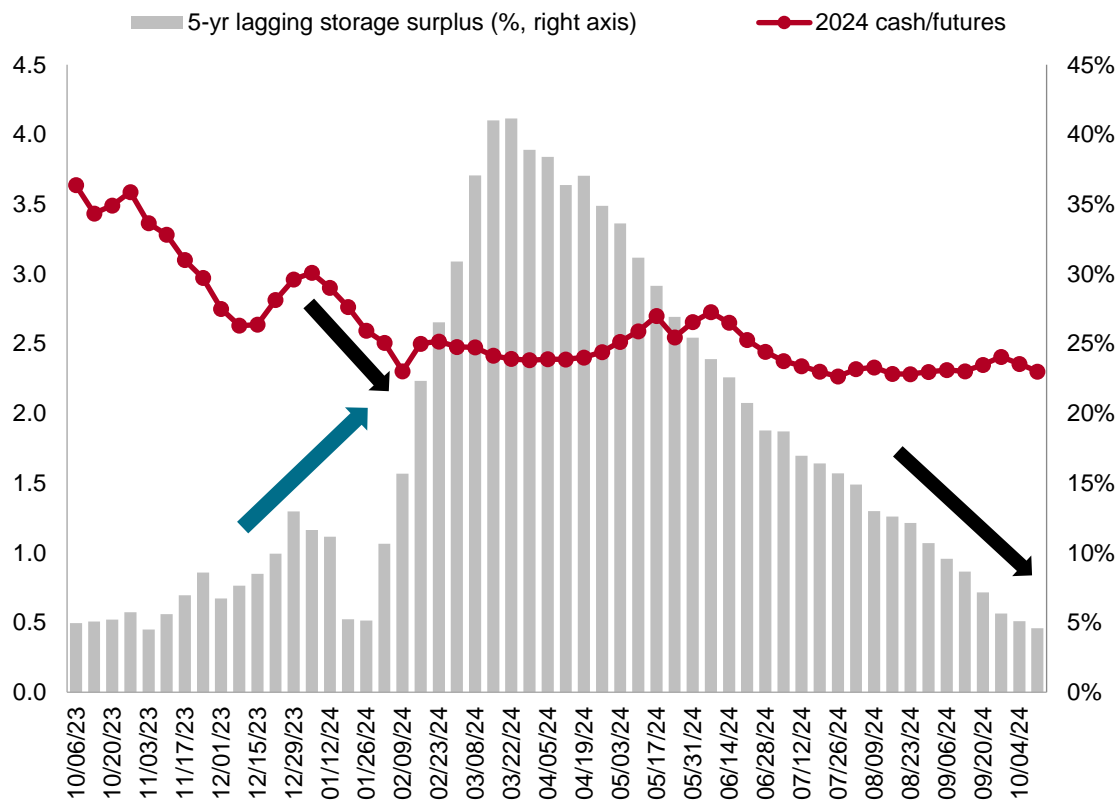
What's happening in
the US Lower 48 gas
market right now?

How is winter 2024/25
shaping up?

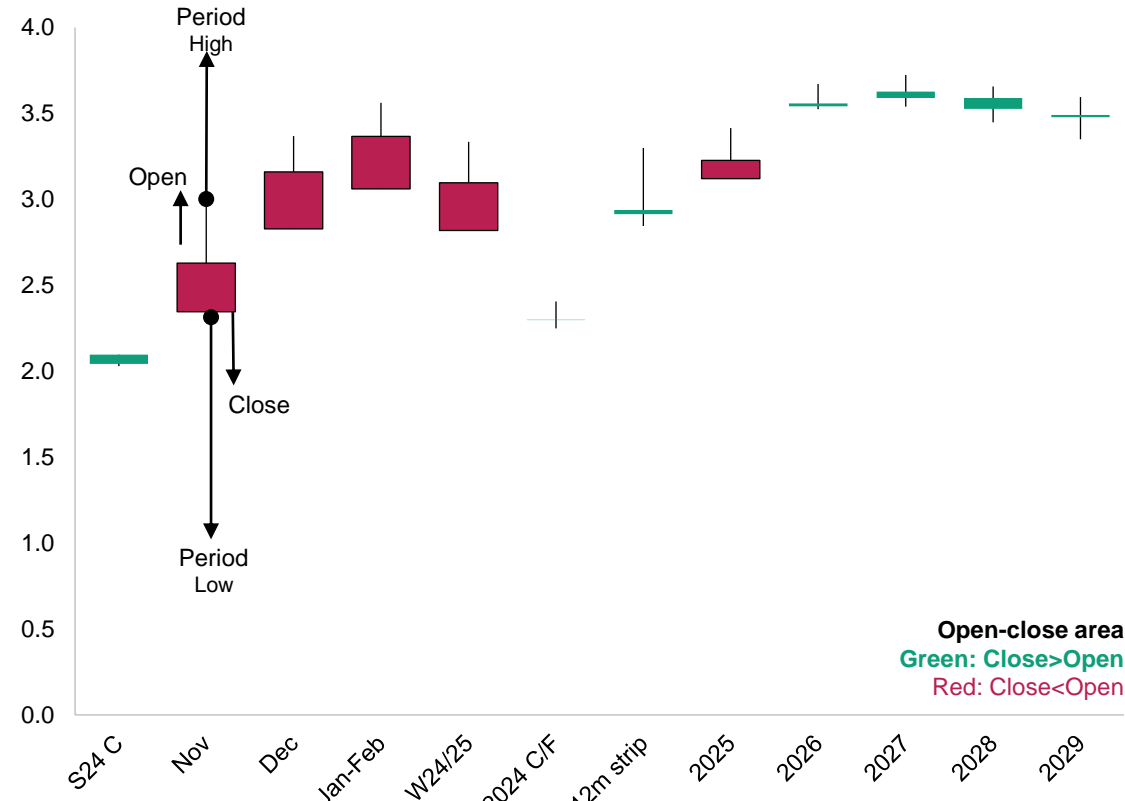


Another round of production curtailments and robust summer demand shrink the US Lower 48 storage surplus, providing an uplift to Henry Hub

Henry Hub cash/futures (\$/MMBtu) vs. USL48 storage surplus (%)



Henry Hub/NYMEX candlesticks on term from Aug 16–Oct 17 (\$/MMBtu)



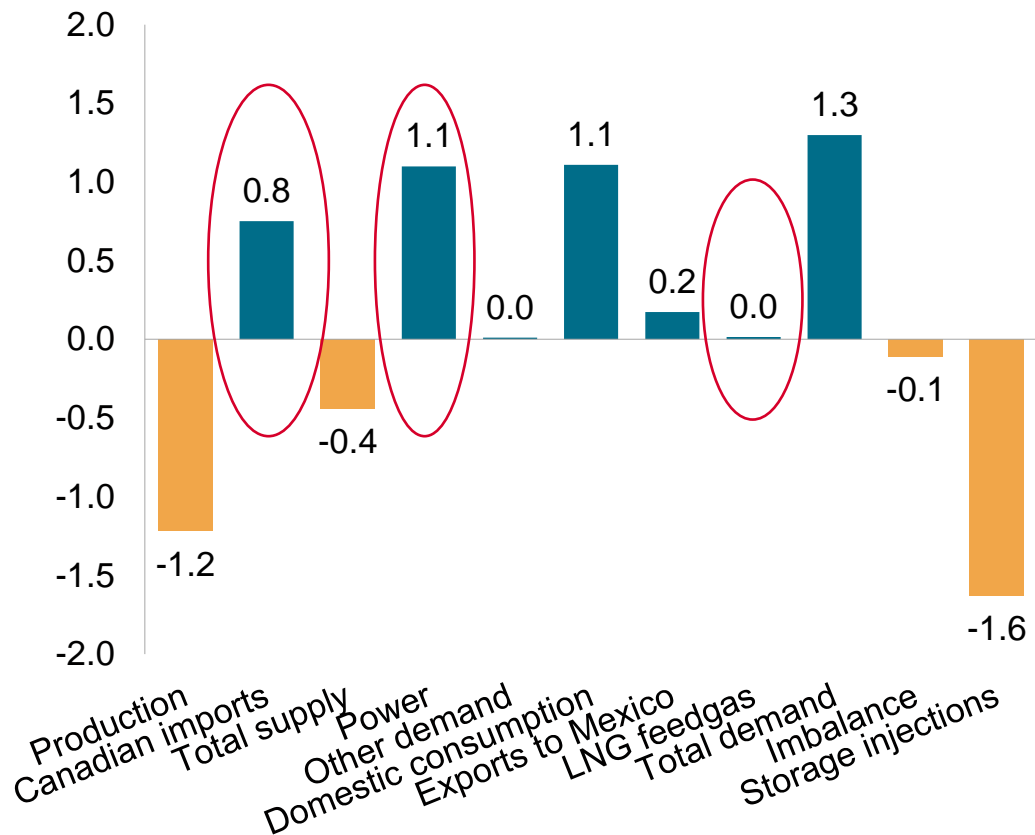
Data compiled Oct. 18, 2024.

US48 = US Lower 48. Futures values reflect the average of 2024 delivery contracts. Futures values use cash prices in averages where 2024 contracts have expired. Storage values from EIA 912 weekly storage report. S24 = summer 2024 (April–October); W24–25 = Winter 2024–25 (November–March); C = cash; F = futures; 12m strip = average of the next 12 futures months. Top/bottom of bars reflect values on open date (Aug. 16) and close date (Oct. 17); bars are green where close is higher and red where open is higher. Terminus of vertical lines reflect high/low values in period. S24 C prices based on summer-to-date Henry Hub cash average up to each respective date within the period. C/F values average realized cash and futures. Values reflect futures exclusively where "C" is not listed.

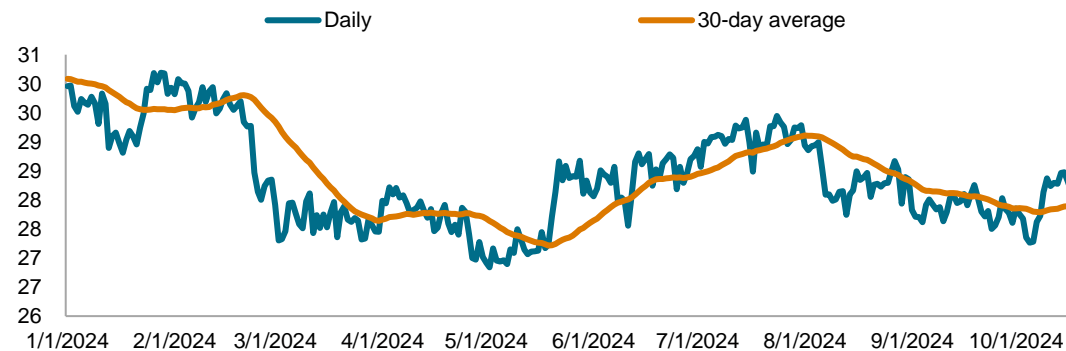
Sources: S&P Global Commodity Insights; CME Group.

Summer 2024: Curtailed US Lower 48 production and robust demand chipped away from, but not expected to eliminate, the storage surplus by end-October

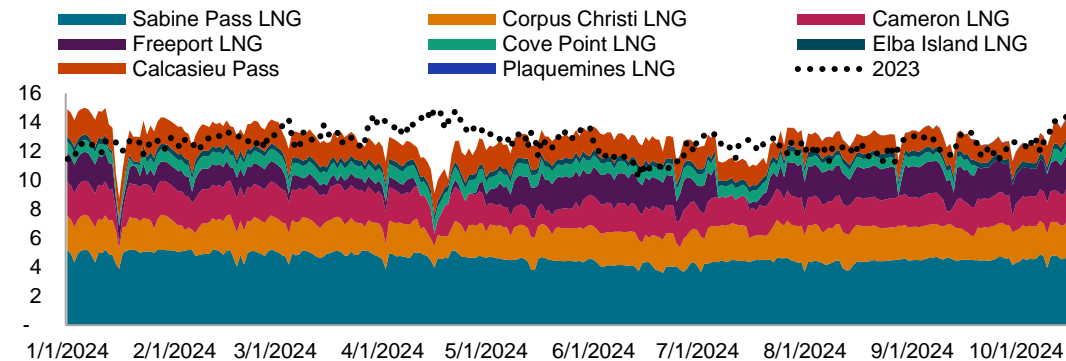
US Lower 48 summer 2024 versus 2023 (Bcf/d)



Marcellus gas production (Bcf/d)



US Lower 48 daily LNG feedgas by facility vs. 2023 (Bcf/d)



Data compiled Oct. 17, 2024.

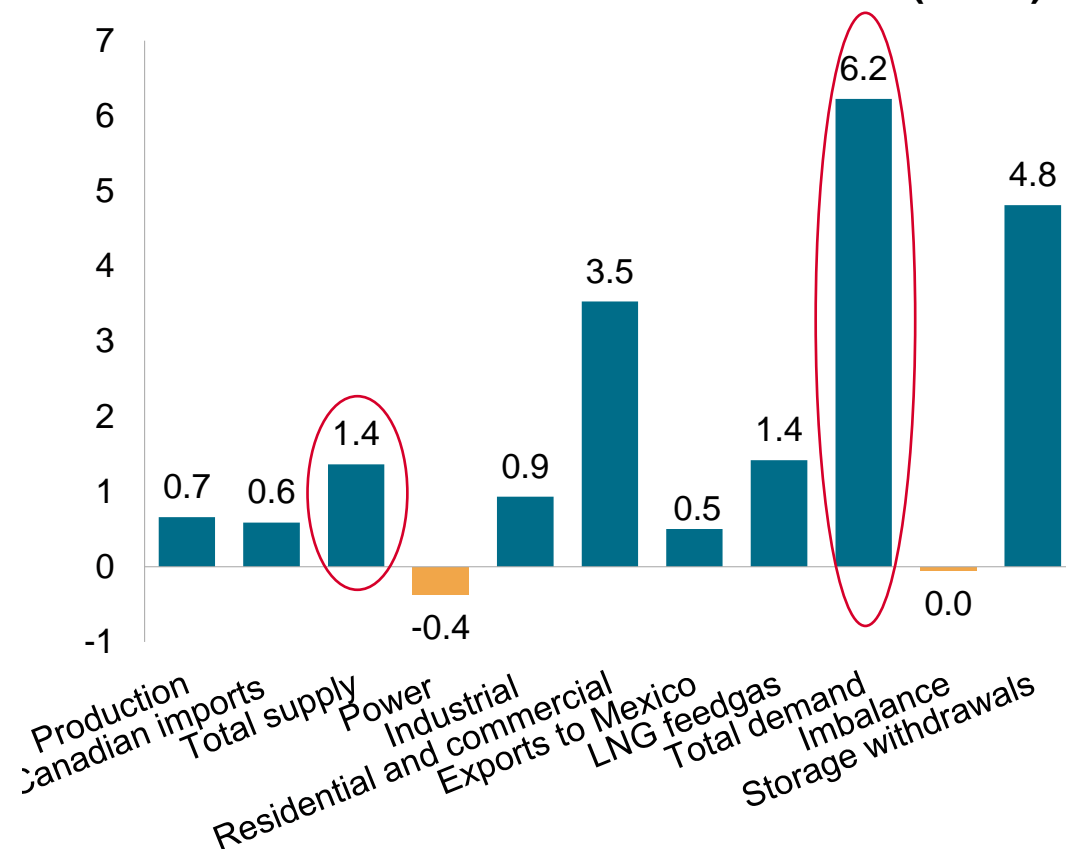
* There is an imbalance across EIA historical supply, demand and storage data.

** Totals and absolute changes may not reconcile fully with the composite data shown in this table because of rounding.

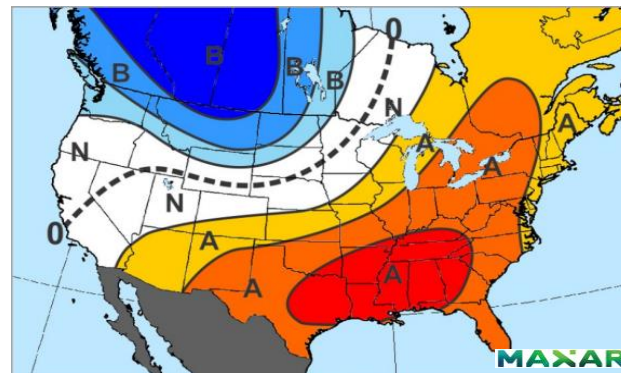
Sources: S&P Global Commodity Insights; EIA.

Winter 2024/25 projected to bring significant gas market tightening, even with the ~170 Bcf inventory surplus at end-October

US Lower 48 winter 2024/25 versus 2023/24 (Bcf/d)

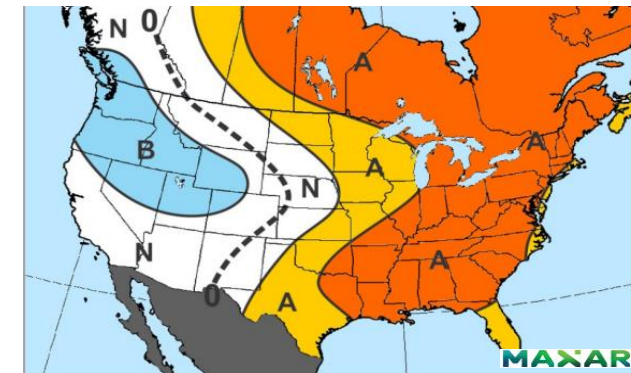


December 2024



- The current forecast for December is for PWHDDs about 2% above the 10-year normal, but 6% lower than the 30-year normal, with below-normal temperatures in the Pacific Northwest and much of Western Canada and above-normal readings from the South to the Northeast.

January 2025



- The current forecast for January is for PWHDDs about 2% below the 10-year normal, and 5% lower than the 30-year normal, with continued above-normal temperatures in the eastern half of the US Lower 48 and Canada.

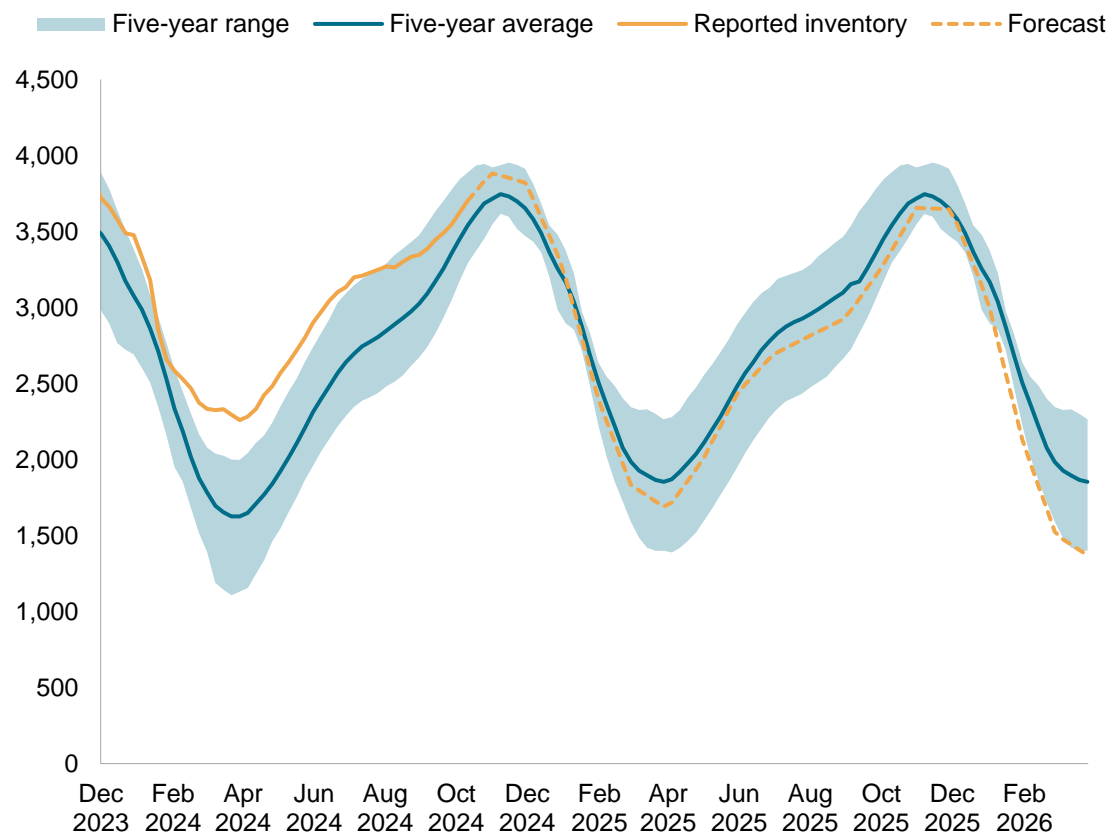
Data compiled Oct. 17, 2024.

Total supply also includes supplemental fuels and LNG imports. Total demand also includes vehicular end-use and pipeline, lease and plant fuel. PWHDDs = population-weighted heating degree-days.

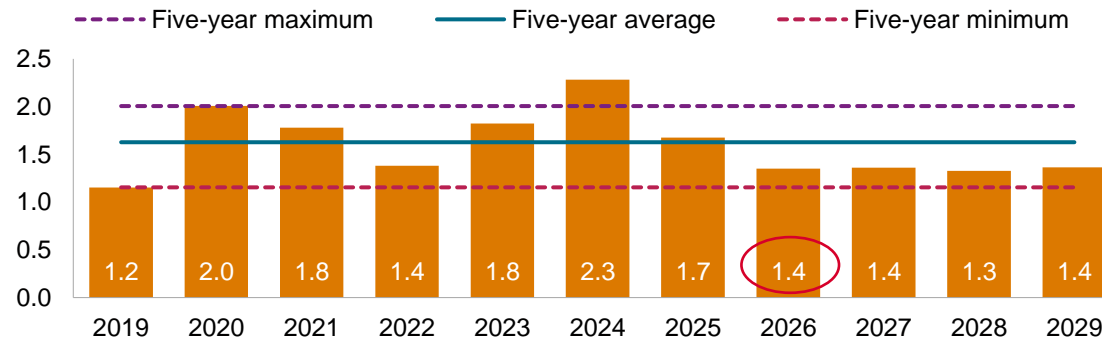
Sources: S&P Global Commodity Insights; EIA; Maxar.

Storage surplus erodes during winter 2024–25, with a material deficit developing in H2 2025 as LNG exports grow and production ramp-up lags

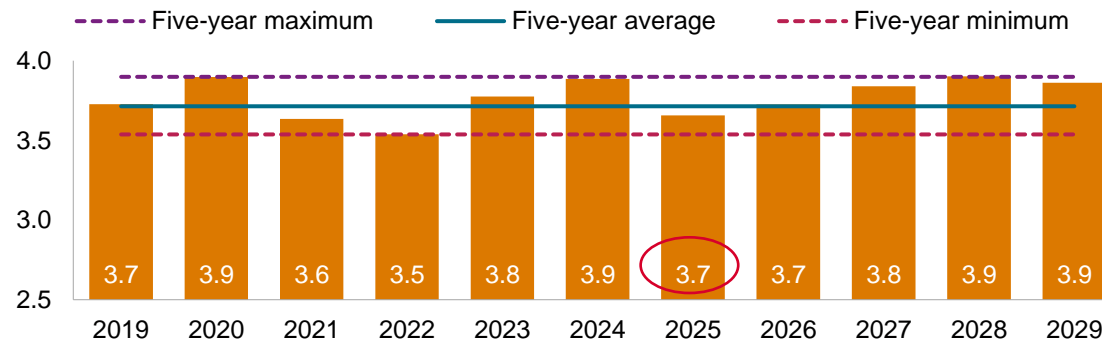
US Lower 48 storage inventory (Bcf)



US Lower 48 March inventories (Tcf)



US Lower 48 October inventories (Tcf)



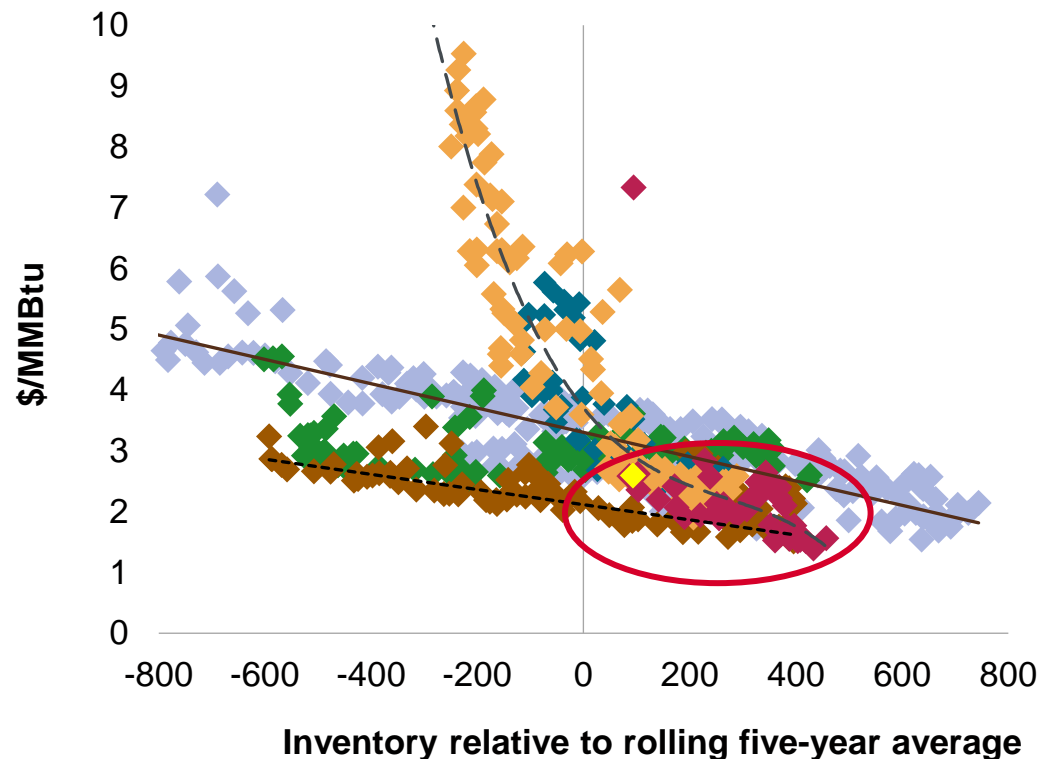
Data compiled Oct. 18, 2024.
 Five-year data is 2019–23.
 Sources: S&P Global Commodity Insights; EIA.

US Lower 48 storage remains above average, keeping a lid on Henry Hub

Oct. 11 inventories were at 93 Bcf surplus to the rolling five-year average, with Henry Hub at \$2.60/MMBtu

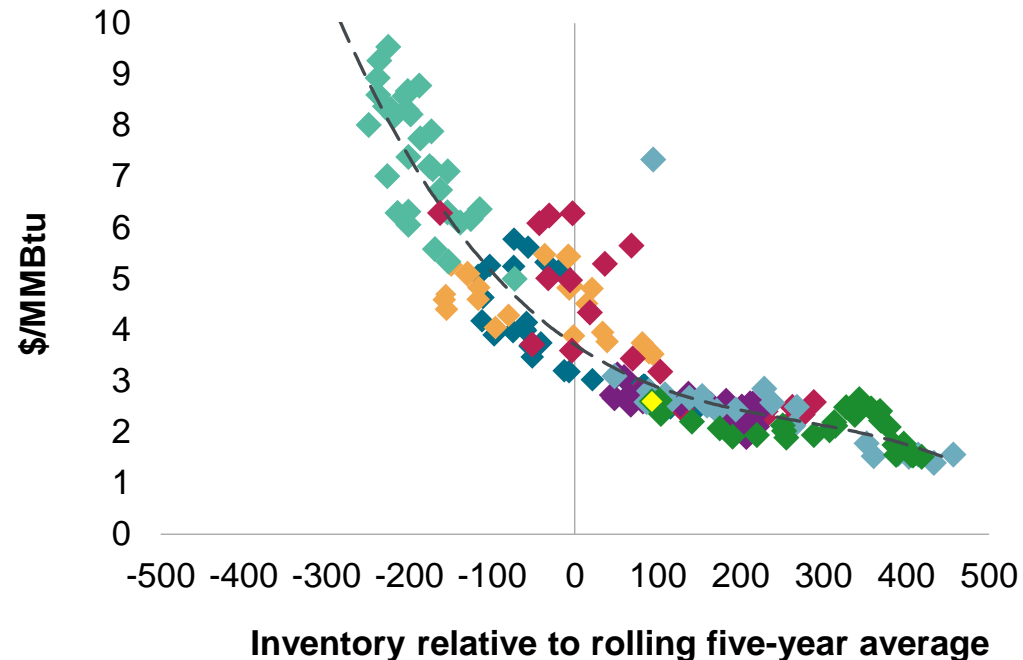
Henry Hub and natural gas storage yield curve

◆ 2012–16 ◆ 2017–18 ◆ 2019–20 ◆ 2021 ◆ 2022–23 ◆ 2024 ◆ Current



Henry Hub and natural gas storage yield curve (2021–present)

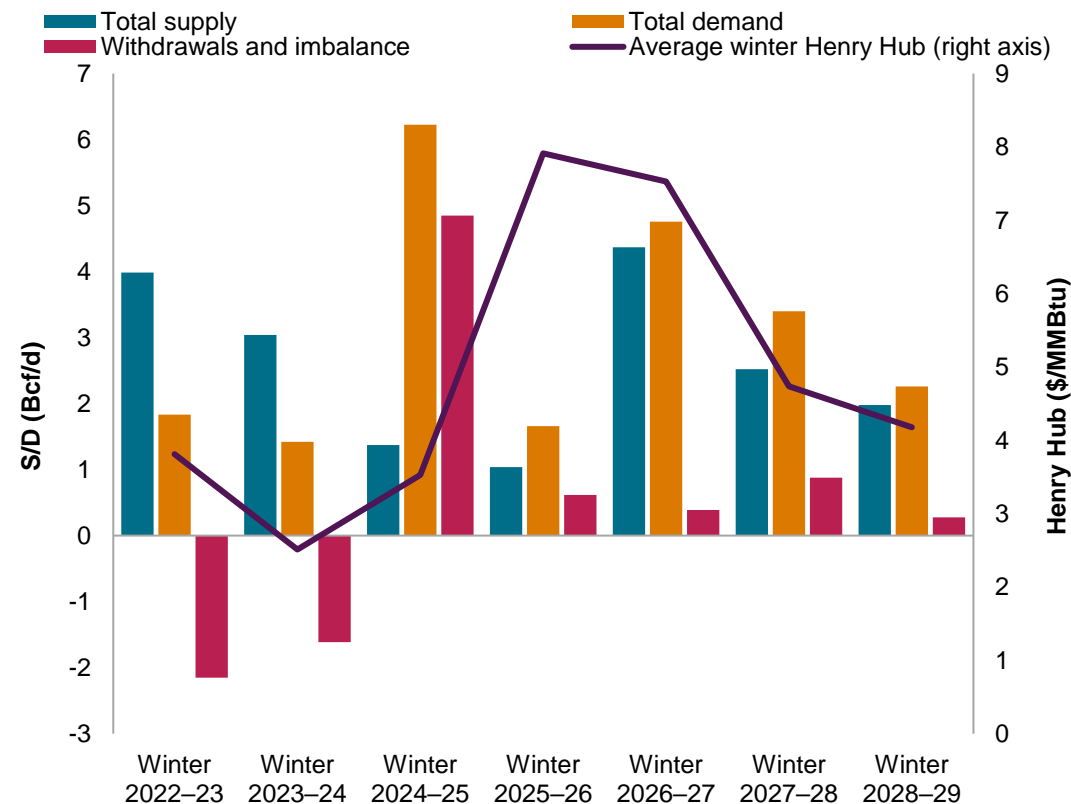
◆ Summer 2021 ◆ Winter 2021–22 ◆ Summer 2022
 ◆ Winter 2022–23 ◆ Summer 2023 ◆ Winter 2023–24
 ◆ Summer 2024 ◆ Current



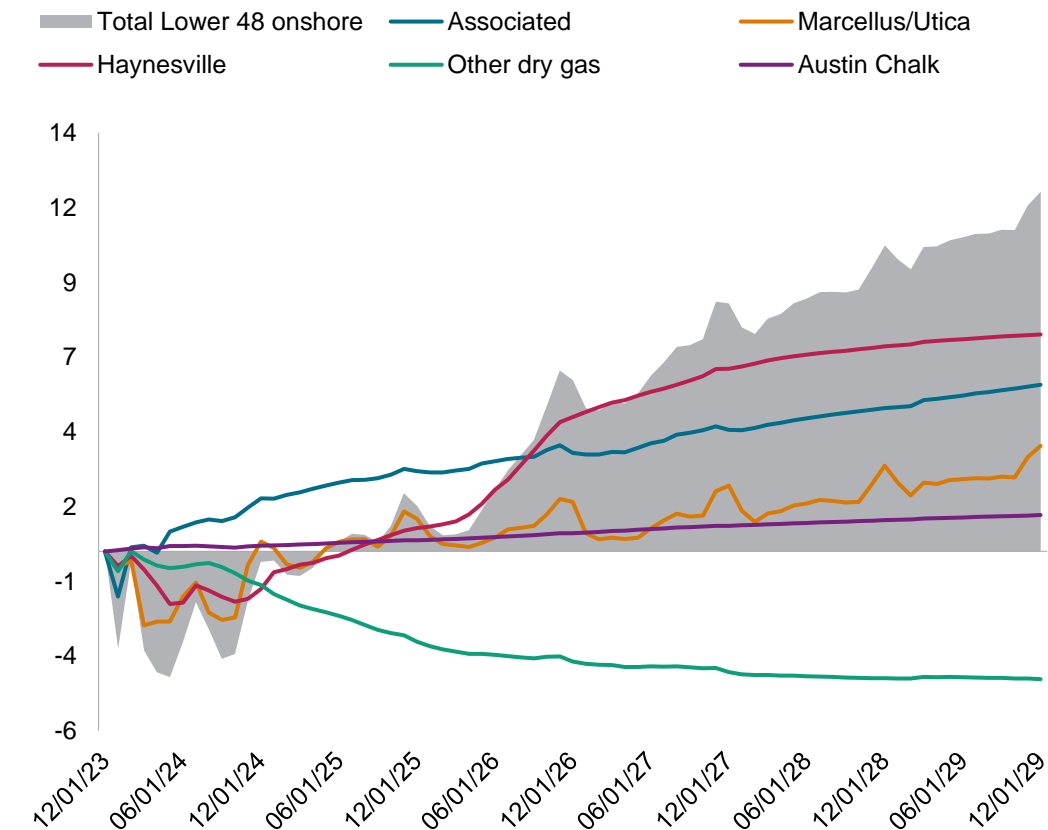
Data compiled Oct. 18, 2024.
 Sources: S&P Global Commodity Insights; EIA.

Winter 2025–26 price surge: Significant storage inventories deficit as US LNG exports' swift rise starting in H2 2024 precedes production response

US Lower 48 winter-over-winter gas balances and average winter Henry Hub price



Change in natural gas production since December 2023 peak (Bcf/d)

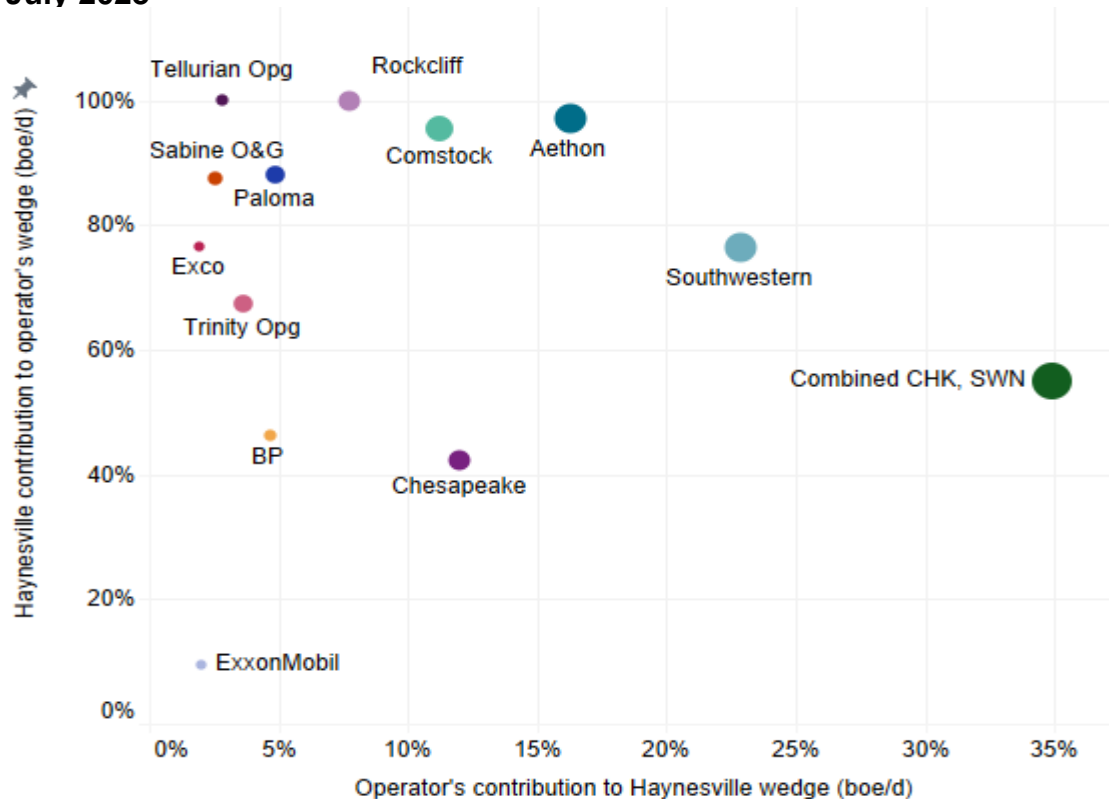


Data compiled Oct. 18, 2024.

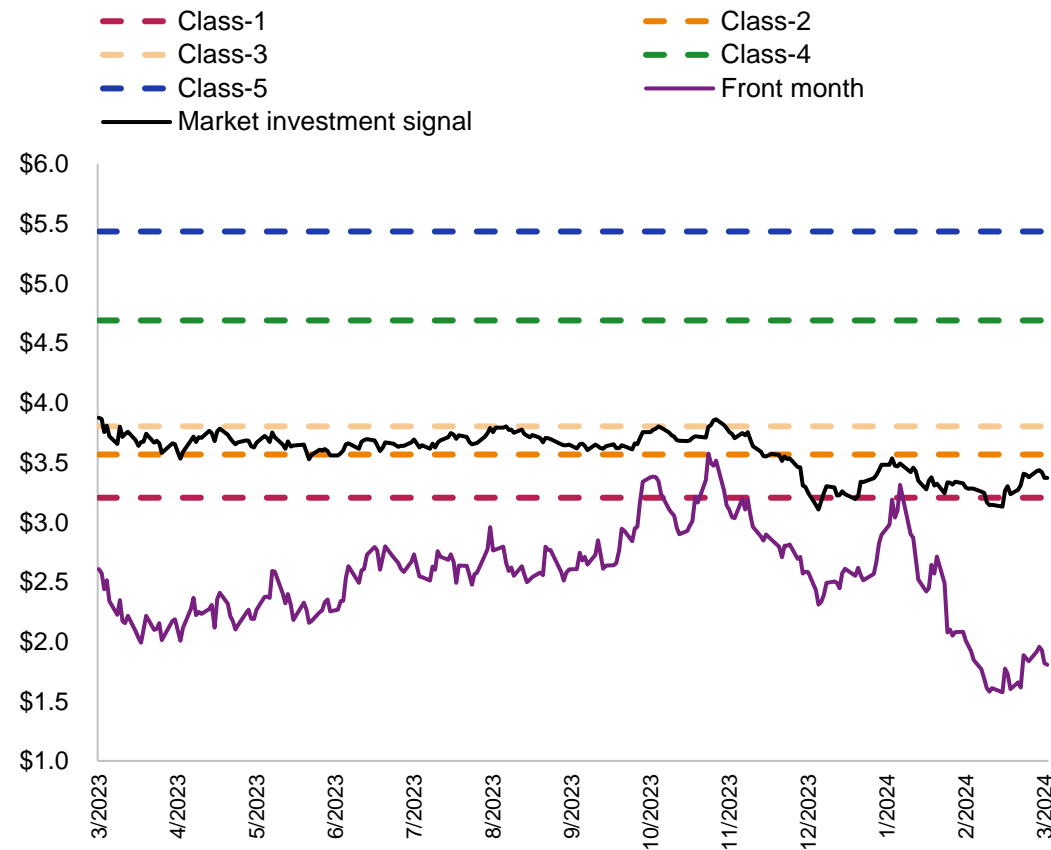
Sources: S&P Global Commodity Insights; EIA.

Full-cycle economics support activity, but operator concentration slows spending

Haynesville wedge production and operator concentration: July 2022–July 2023



Haynesville market investment signal and break-evens (\$/MMBtu)

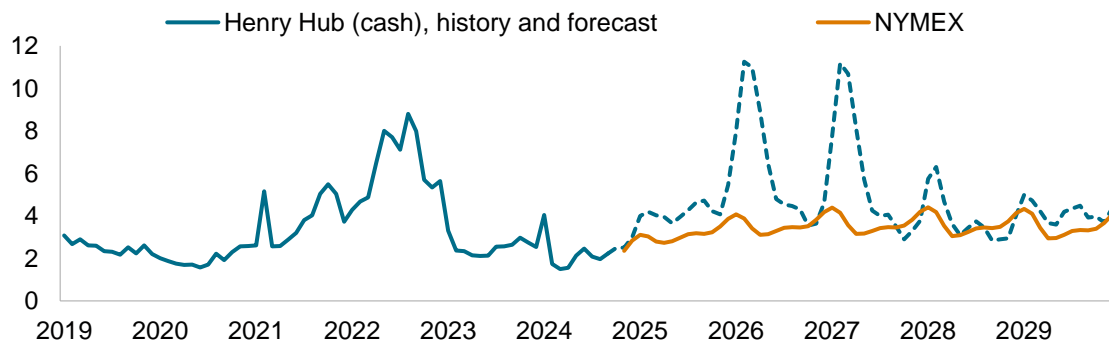


Data compiled Aug. 16, 2024.

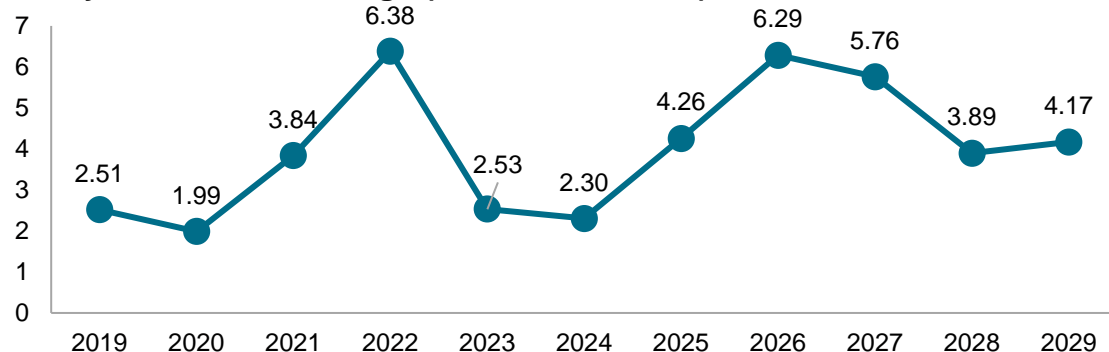
Sources: S&P Global Commodity Insights; EIA.

Henry Hub expected to average \$2.30/MMBtu in 2024, with a price rally starting in 2025

Henry Hub prices and NYMEX futures (nominal \$/MMBtu)



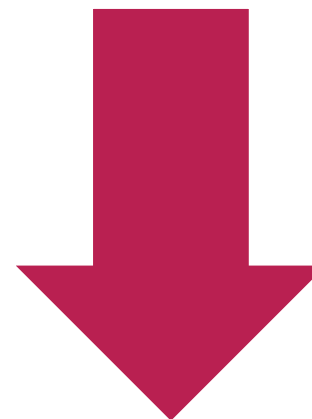
Henry Hub annual average (nominal \$/MMBtu)



Data compiled Oct. 18, 2024.

New York Mercantile Exchange (NYMEX) history is monthly settlement and futures as of Oct. 17, 2024. Historical pricing data through Sept. 30, 2024.

Sources: S&P Global Commodity Insights, CME Group.

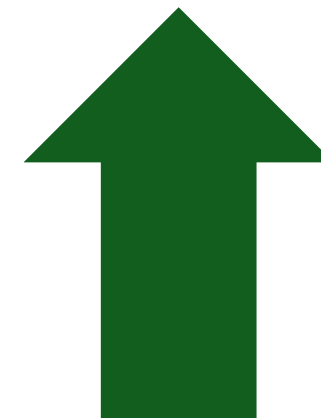


Bearish:

- Production growth precedes LNG/Mexico exports surge
- New pipeline takeaway capacity in any of the key producing basins filling before need.
- **LNG export capacity delayed**
- US Northeast production does not adapt to broader market realities and fills up takeaway space, exacerbating surplus conditions

Bullish:

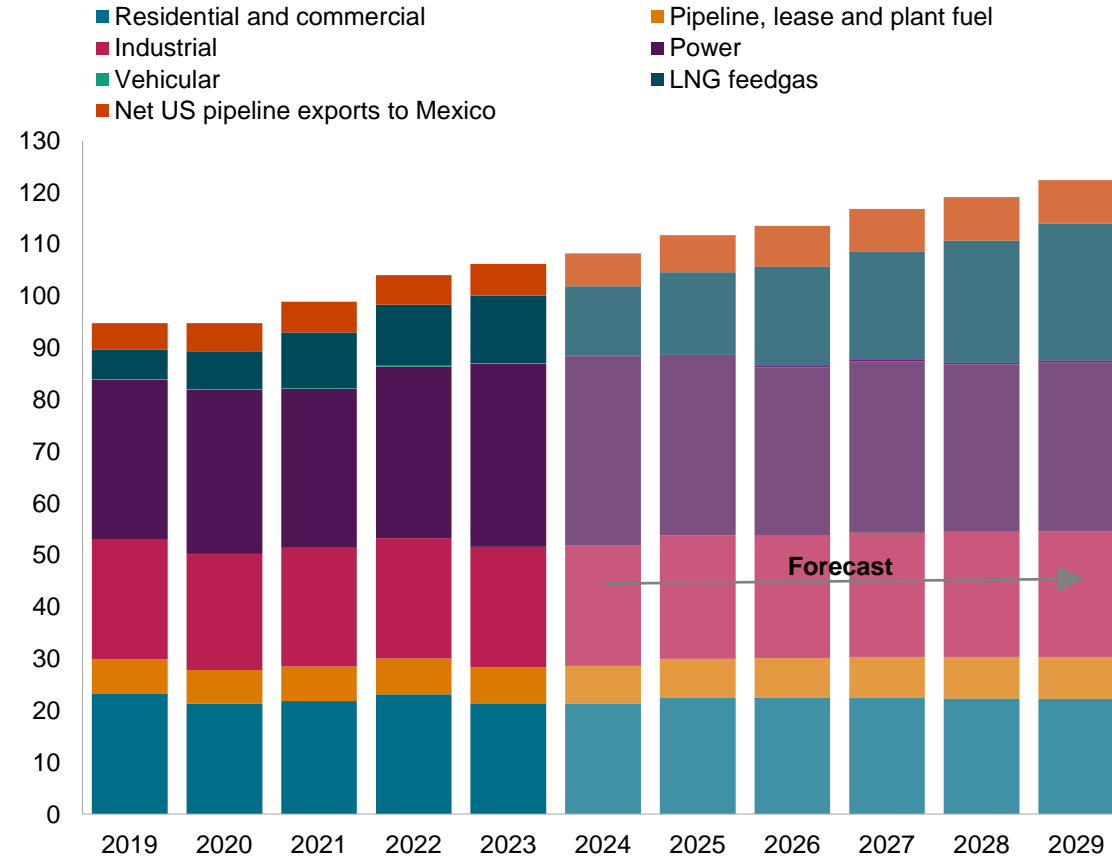
- **Production struggles to keep pace/timing with LNG/Mexico export growth**
- Domestic demand resilient and volatile amid an export surge
- Gas-fired generation serves a larger role in a fast-growing power sector
- Supply-enabling infrastructure challenged even on the intrastate level



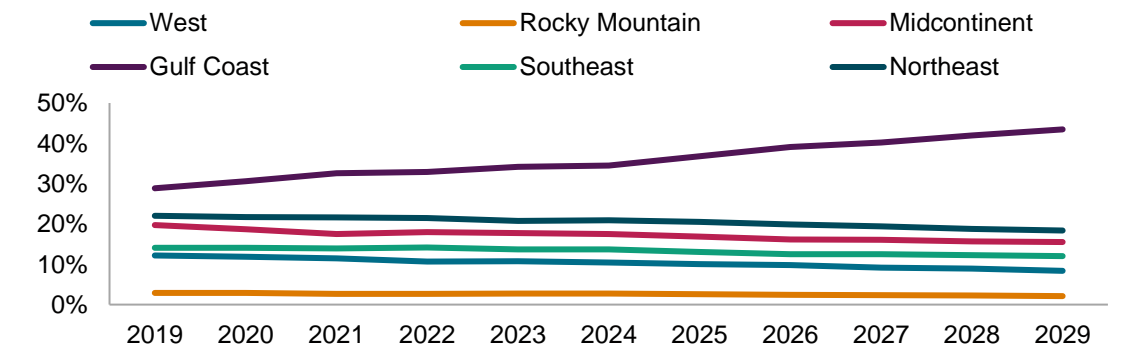
Outlook to 2029

US Lower 48 LNG exports fuel demand growth, while renewables limit gas's potential in the power sector

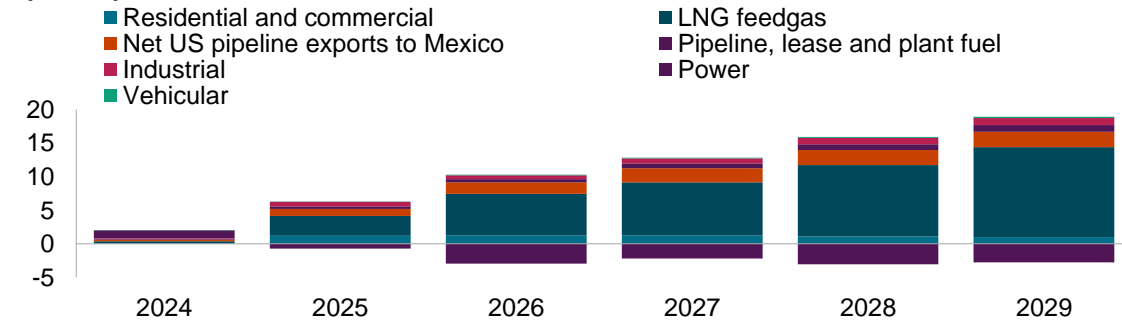
US Lower 48 natural gas domestic demand and exports (Bcf/d)



Regional share of total gas demand (percentage)



US Lower 48 domestic demand and export growth relative to 2023 (Bcf/d)

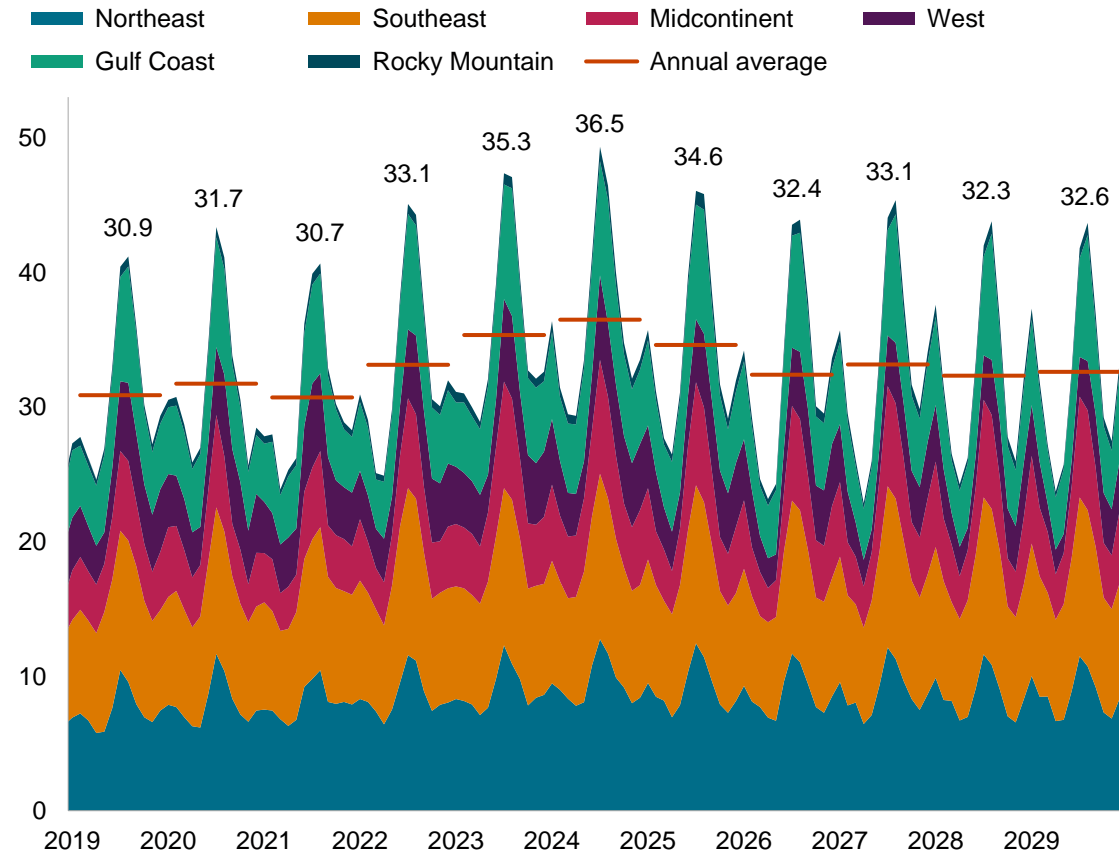


Data compiled Oct. 17, 2024.

Sources: S&P Global Commodity Insights; EIA.

Gas demand from the power sector is expected to decline in 2025 and beyond on higher prices and increased competition with renewables

US Lower 48 power sector gas demand by region (Bcf/d)



Data compiled Oct. 17, 2024.
 Data shown may reflect rounding.
 Sources: S&P Global Commodity Insights; EIA.

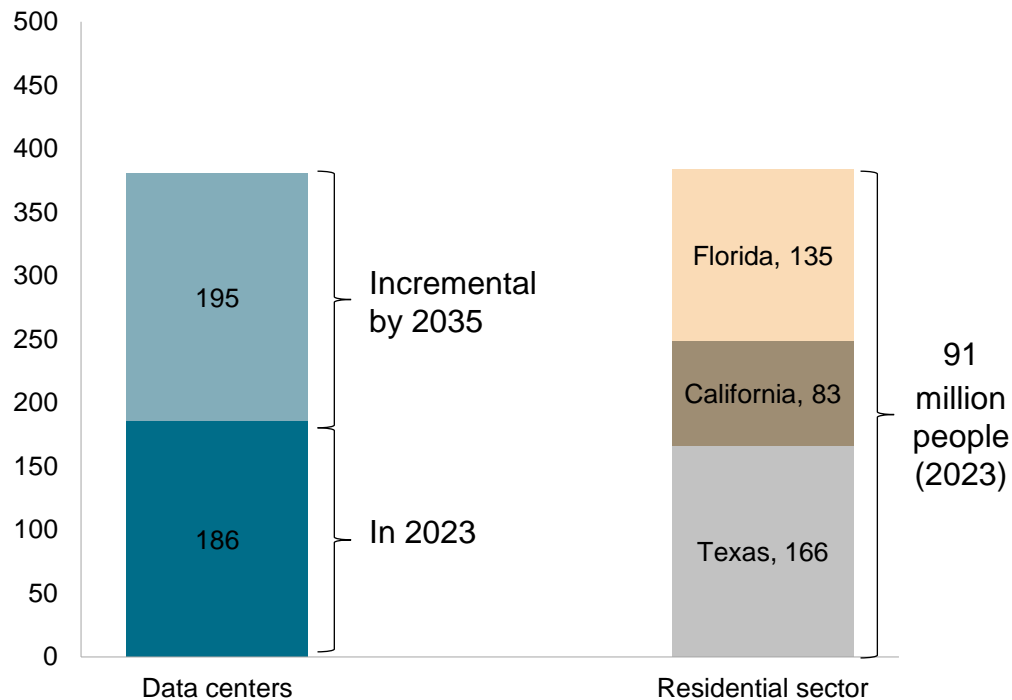
US Lower 48 power sector gas demand change (Bcf/d)

	2023	2029	Change	Percent change
Northeast	8.9	8.6	-0.3	-3%
Southeast	9.4	9.3	-0.1	-1%
Midcontinent	5.5	5.2	-0.2	-4%
West	4.5	3.0	-1.5	-33%
Gulf Coast	6.4	5.8	-0.6	-9%
Rocky Mountain	0.7	0.6	-0.0	-5%
Total	35.3	32.6	-2.7	-8%

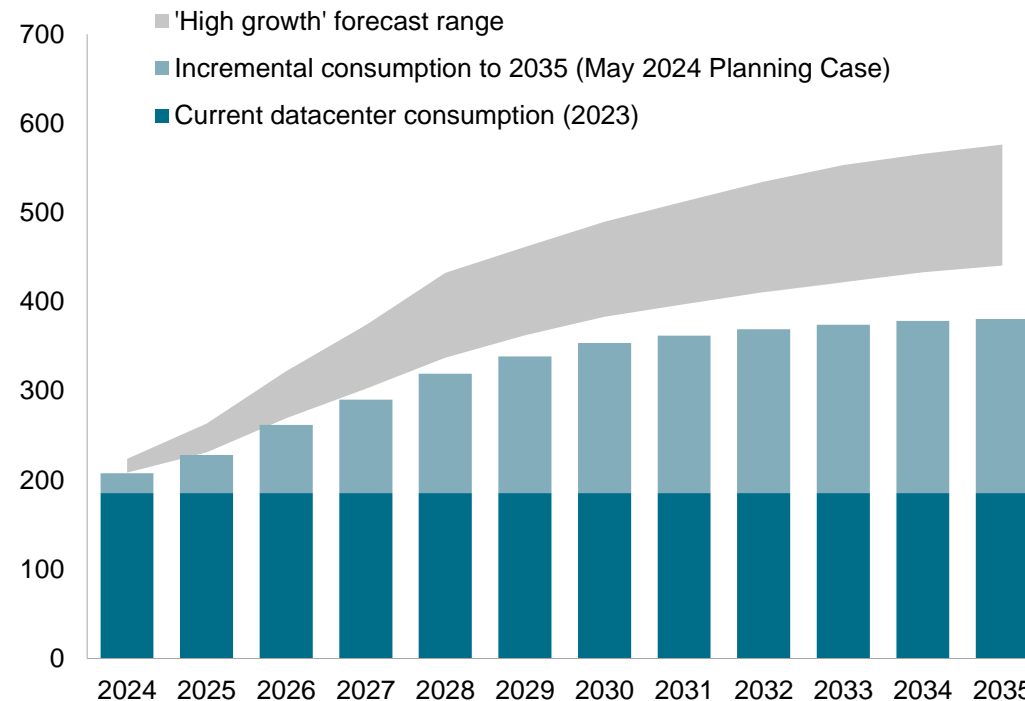
- Higher natural gas prices in 2025 and beyond lead to a reversal of the coal-to-gas switching happening in 2023–24, reducing gas burns in the power sector.
- Cumulative coal-fired fleet retirements, lower coal-fired plant capacity factors, and declining availability of coal production provide downside risk to gas-to-coal switching, boosting power burns in this outlook by 0.2 Bcf/d from 2024–29 compared to our previous monthly outlook.
- The robust pace of renewables additions is the primary driver for the declining share of gas-fired generation in the power sector.
- Increased electricity demand from datacenters is expected to lessen the short-term decline in gas demand from the power sector, with the latter projected to fall 2.7 Bcf/d by 2029 compared with the 2023 annual average.
- However, the interplay among the strength of electricity demand growth, the pace of coal-fired power plant retirements and the pace of renewable additions ultimately determines the level of gas-fired generation; upside potential exists.

US datacenters are projected to consume as much electricity as households in the three most populous states

US electricity demand from datacenters (May 2024 Planning Case) vs. residential sales, TWh



US electricity demand from datacenters, TWh



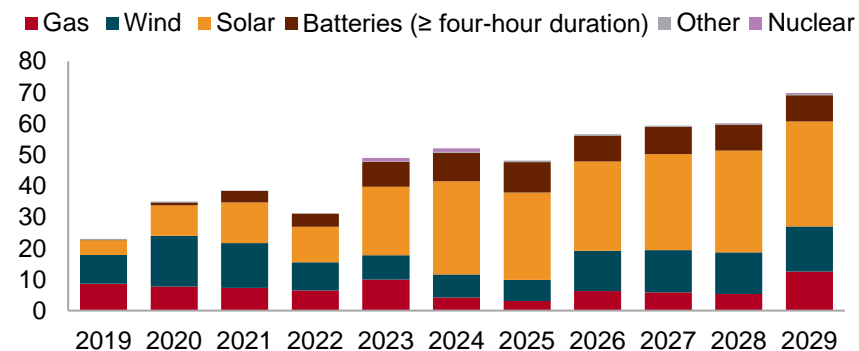
Data compiled Jun. 10, 2024.

Notes: The "High growth forecast range" is based on datacenter load forecasts aggregated across US utilities and grid operators (high-end) and third-party forecasts. Excludes cryptocurrency mining datacenters.

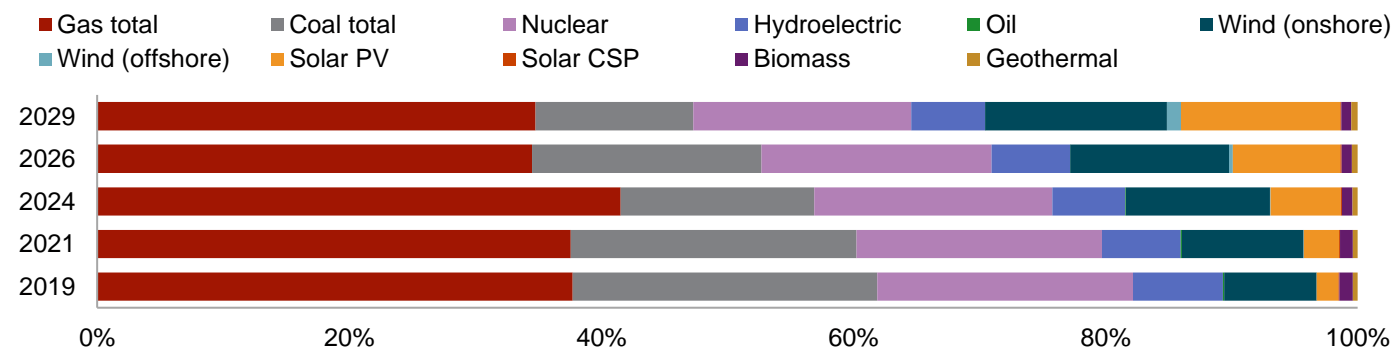
Sources: S&P Global Commodity Insights, EIA

Natural gas to maintain ~35% share in power generation in 2025–29 amid slower coal-fired plant retirements and strong renewables growth

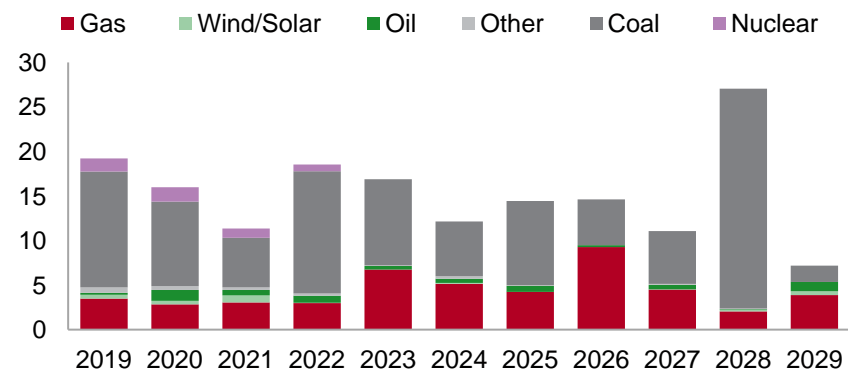
US Lower 48 power capacity additions (GW)



Percentage of total US power generation



US Lower 48 power capacity retirements (GW)



- **US Lower 48 net on-grid electricity demand is expected to grow by 2.1% (CAGR) for 2024–29, mostly owing to increases from large industrial loads (datacenters) and electric vehicles.** Despite this significant growth, natural gas's share of the overall generation is still projected to decrease across the outlook period, falling from a projected 42% in 2024 to 35% in 2029.
- **During 2024–29, we expect nearly 86 GW of generating capacity to be retired across the US Lower 48.** While much of the coal-fired fleet remains under economic pressure, strong electricity demand growth, coupled with reliability concerns regarding renewables and the grid, slows the pace of coal-fired power plant retirements. Only 24.2 GW of coal-fired power plants are expected to retire in 2024–27, but the pace picks up in 2028 and 2029 (with retirements also expected to amount to 24.2 GW).
- **For 2024–29, US power sector capacity additions will total 393 GW, peaking at 78 GW in 2029.** Solar PV capacity gains (both behind the meter [BTM] and grid-facing) surpass 230 GW, while onshore and offshore wind turbines are projected to add 68.3 GW combined. The gas-fired fleet is forecast to register about 37.6 GW of new capacity (across CCs and CTs), but also 32.0 GW of retirements (mostly less-efficient STs).

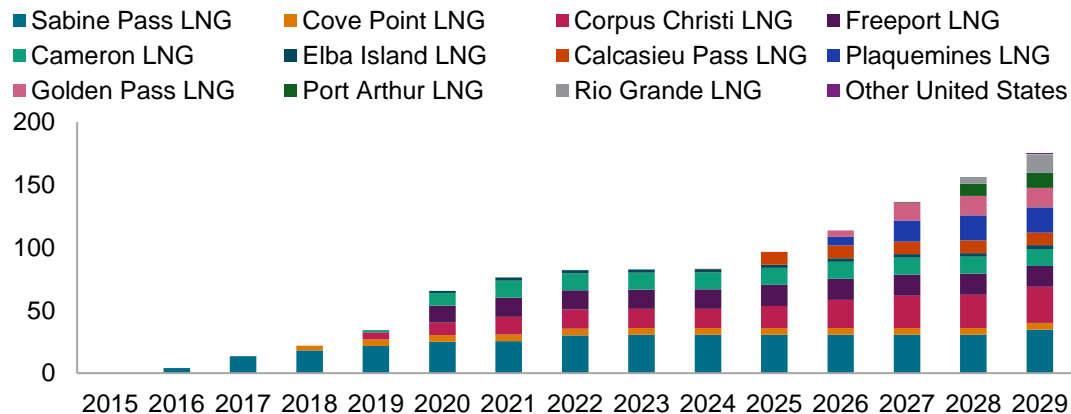
Data compiled Oct. 17, 2024.

CAGR = compound annual growth rate; CSP = concentrating solar power; PV = photovoltaic; CC = combined cycle; CT = combustion turbine; ST = steam turbine.

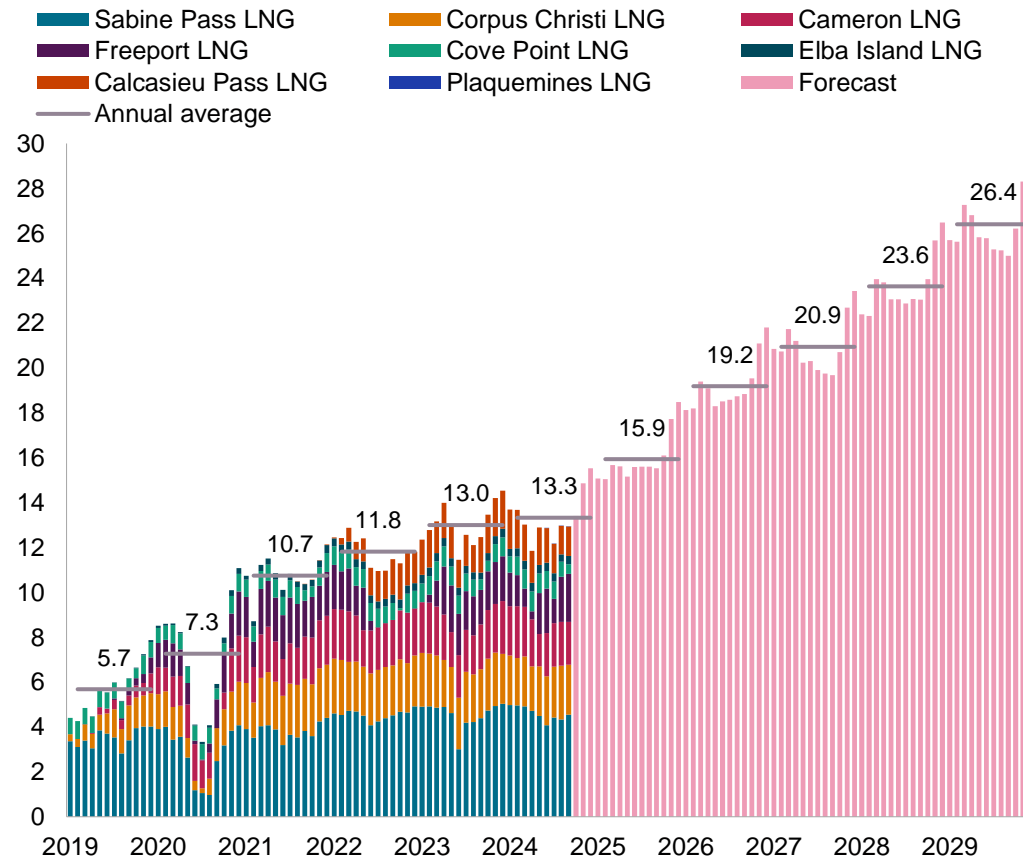
Sources: S&P Global Commodity Insights; EIA; North American Electric Reliability Corp.; ABB Velocity Suite.

US LNG feedgas projected to reach 26.4 Bcf/d in 2029, 103% growth over 2023 levels

US Lower 48 LNG export capacity by commercial start year (MMt)



US Lower 48 LNG feedgas (Bcf/d)

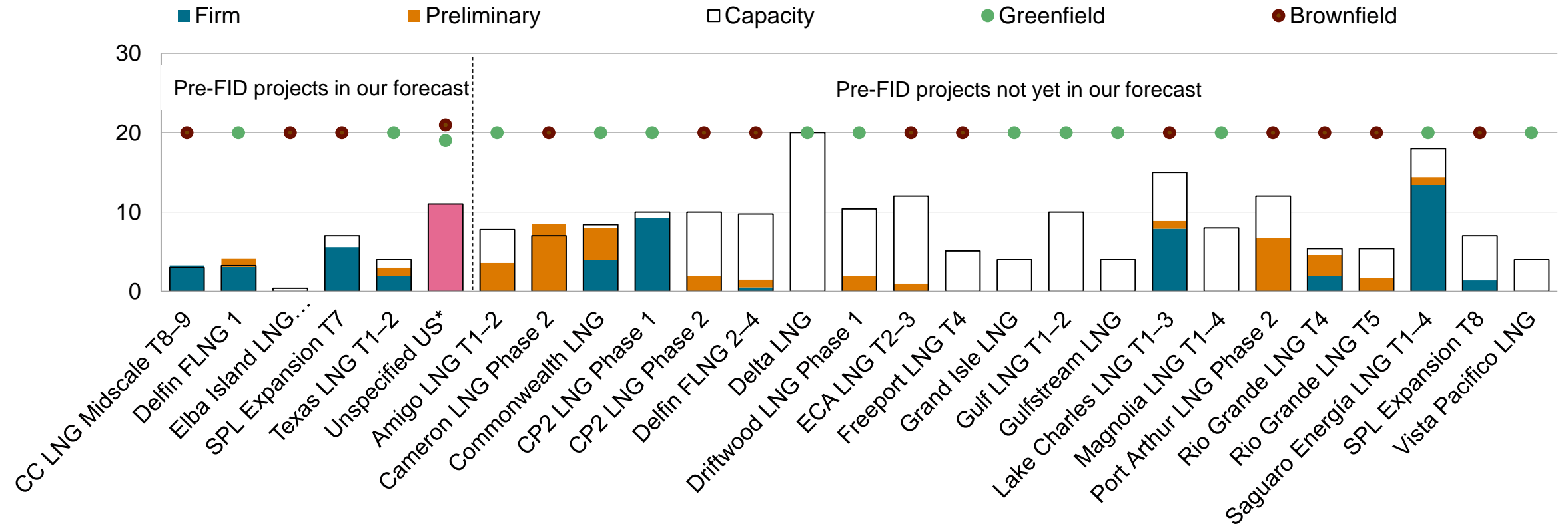


Project name	First cargo	Commercial start dates
Plaquemines LNG	Dec. 2024	July 2026–July 2027
Corpus Christi LNG Stage 3	Dec. 2024	March 2025–Dec. 2026
Golden Pass LNG	Dec. 2025	March 2026–March 2027
Port Arthur LNG	Sept. 2027	Dec. 2027–June 2028
Rio Grande LNG	Jan. 2028	April 2028–April 2029
Sabine Pass LNG T7	March 2029	June 2029
Corpus Christi LNG T8-9	April 2028	July–Dec. 2028
Texas LNG T1-2	Oct. 2029	Feb. 2030
Other US LNG	June 2029	Nov. 2029–March 2030

Data compiled Oct. 17, 2024.
Source: S&P Global Commodity Insights.

Post-2020 contracting for US and Mexican LNG highlights the supply side competition, but DOE permitting pause risks all pre-FID projects to a greater or lesser degree

LNG contracting progress at select pre-FID US and Mexican LNG projects (MMtpa)



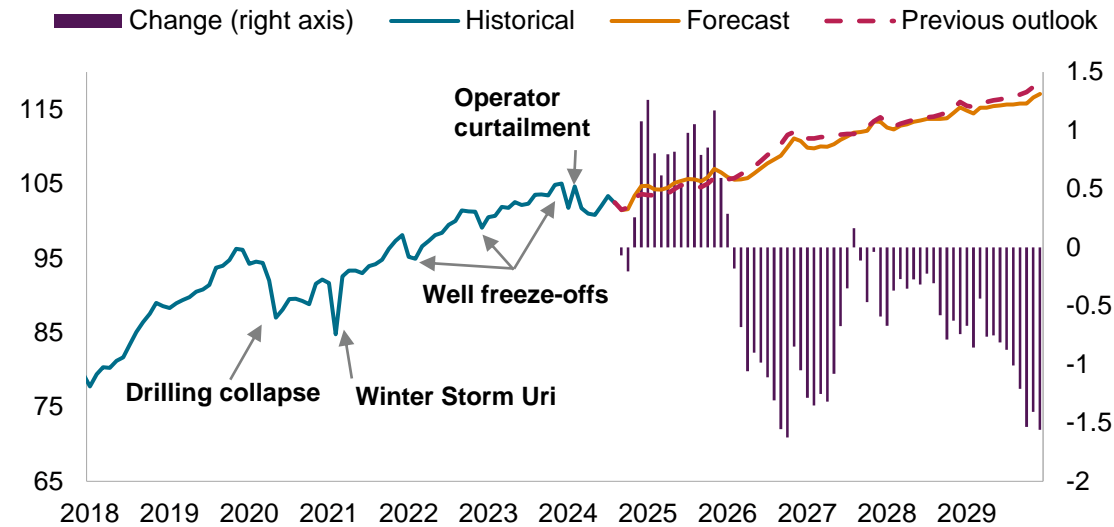
Data compiled Sept. 20, 2024.

CC = Corpus Christi. SPL = Sabine Pass LNG. Brownfield includes expansions at existing regasification facilities as well as subsequent phases of yet-to-constructed greenfield projects. Excludes gas feedstock supply/Integrated Production Marketing (IPM) deals. *Unspecified US represents pre-FID capacity in our US forecast based on our expectation that some of the pre-FID projects that are not yet in our forecast will progress to completion. Saguaro Energia LNG T4 capacity is estimated. Amigo LNG offtake deal with E&H Energy is assumed to be preliminary.

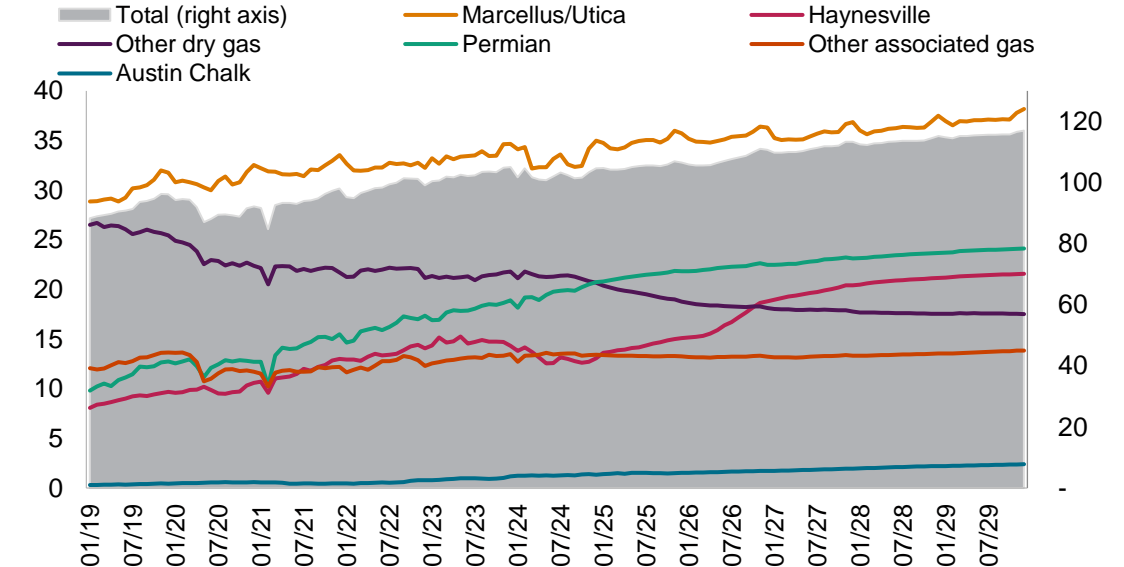
Source: S&P Global Commodity Insights.

US Lower 48 gas production recovery lags until prices strengthen and incremental feedgas demand arrives

US Lower 48 natural gas production (Bcf/d)



US Lower 48 natural gas production by source (Bcf/d)



- **We expect US Lower 48 gas production to grow by 12.9 Bcf/d between 2023 and 2029, reaching 115.6 Bcf/d in 2029.** Production growth will come from the Haynesville, Austin Chalk and associated gas plays, particularly in the Permian. The Appalachian Basin is limited by long-haul takeaway infrastructure until 2028, when an expansion on Transco unleashes the full potential of the Mountain Valley Pipeline. Strong Northeast gas demand from the power sector enables modest Marcellus growth.
- Downward adjustments to the 2026 forecast are primarily due to delays in LNG export volumes affecting production in the Haynesville, though increased production from the Marcellus/Utica partially offsets this decline.
- The anticipated ramp-up in associated gas production has been tempered by delays in LNG export projects, causing downward adjustments versus the prior outlook during 2027–29. Also, a steeper decline is expected in the other dry gas plays beginning in 2027 as we will see stronger growth in the lower cost Haynesville and Marcellus/Utica plays, reinforcing these downward changes.

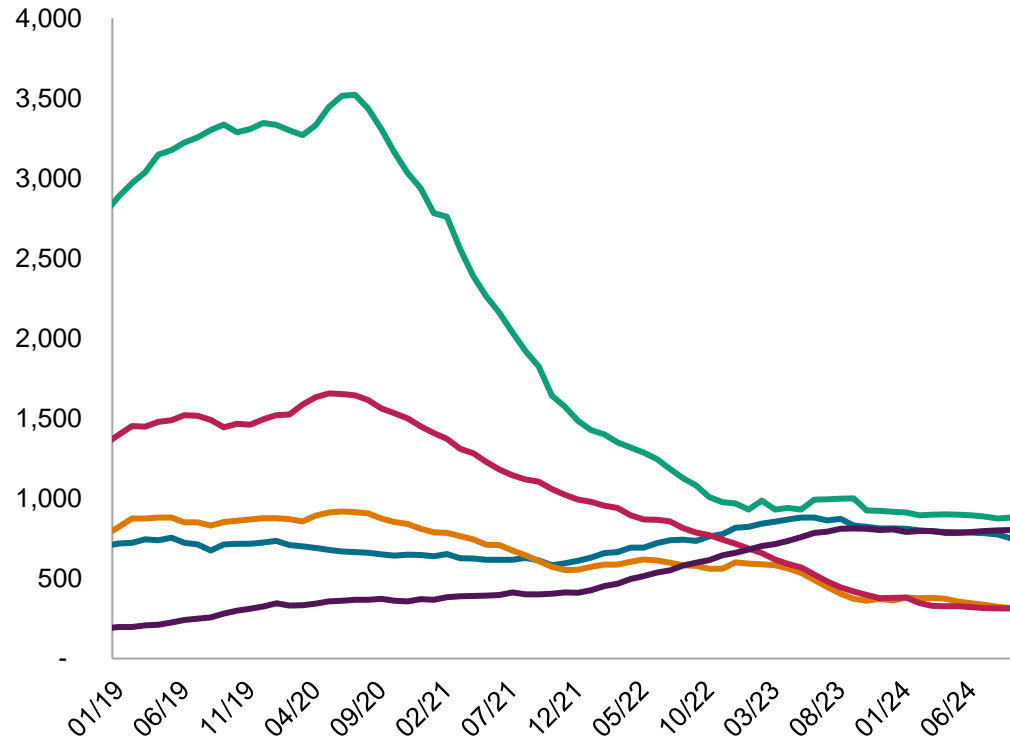
Data compiled Oct. 17, 2024.

Sources: S&P Global Commodity Insights; EIA.

The drawdown in DUC inventory came to a halt in late 2023, while the Haynesville play continues to add DUCs, albeit at a slower pace recently

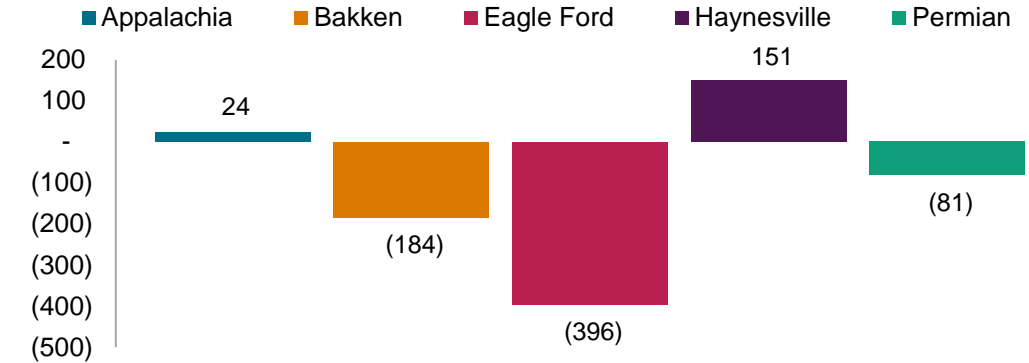
DUC well inventory for top five plays

Appalachia Bakken Eagle Ford Haynesville Permian

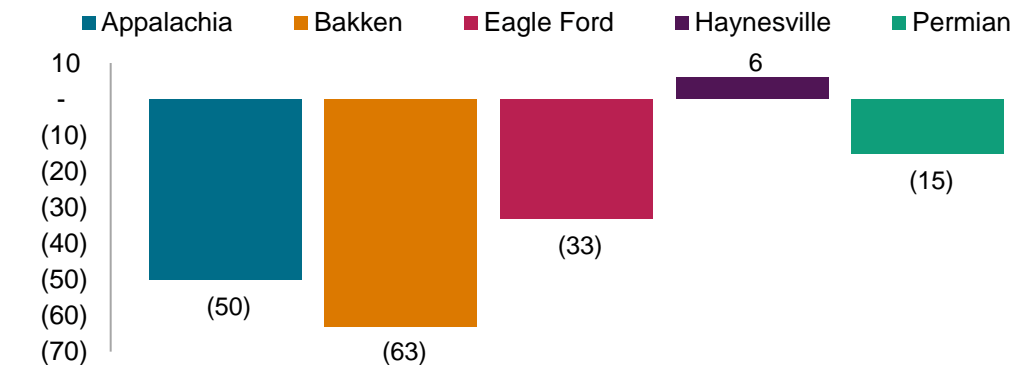


Data compiled Oct. 17, 2024.
 DUCs = drilled but uncompleted wells.
 Data includes all rig orientations (horizontal, vertical and directional wells).
 Sources: S&P Global Commodity Insights; EIA Drilling Productivity Report.

DUC inventory changes from November 2022 to February 2024

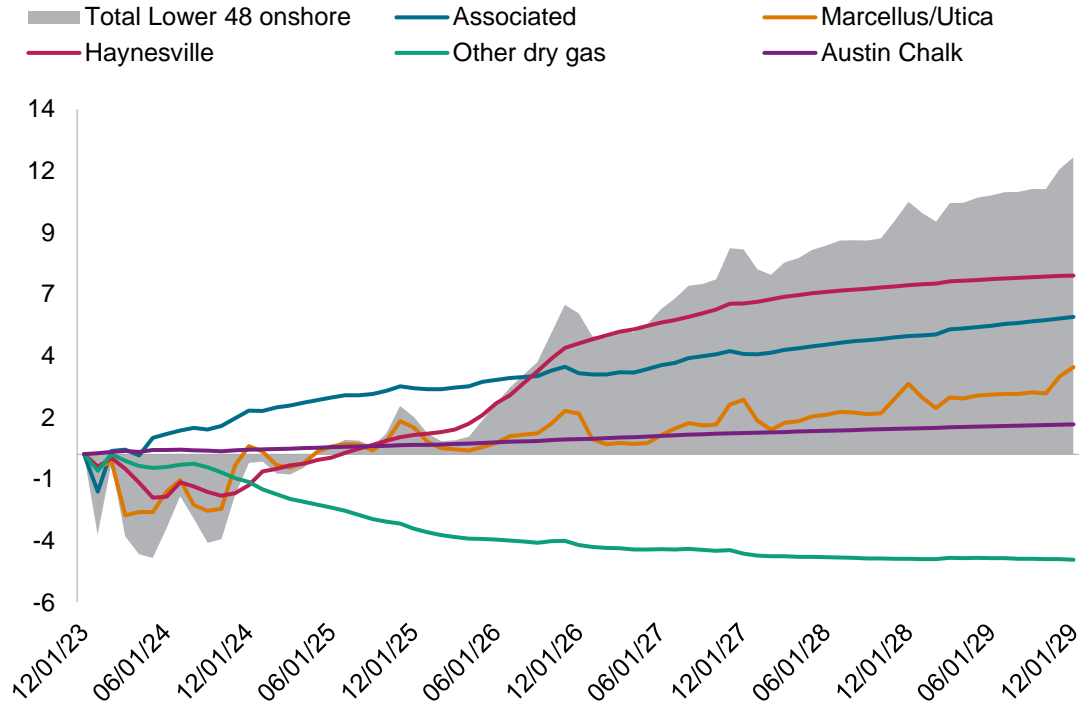


DUC inventory changes from February 2024 to September 2024

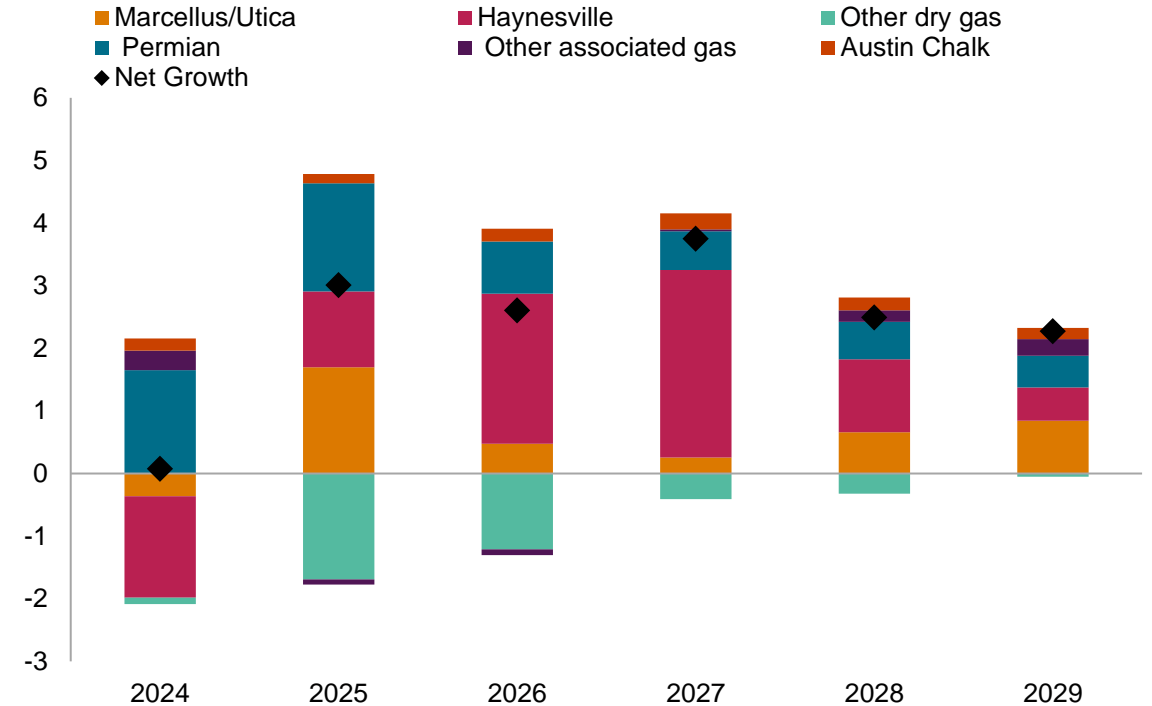


Production growth trajectory resumes in Q3 2025; Haynesville and Permian support supply increases in 2025–29

Change in natural gas production since December 2023 peak (Bcf/d)



US Lower 48 year-over-year gas production growth by source (Bcf/d)



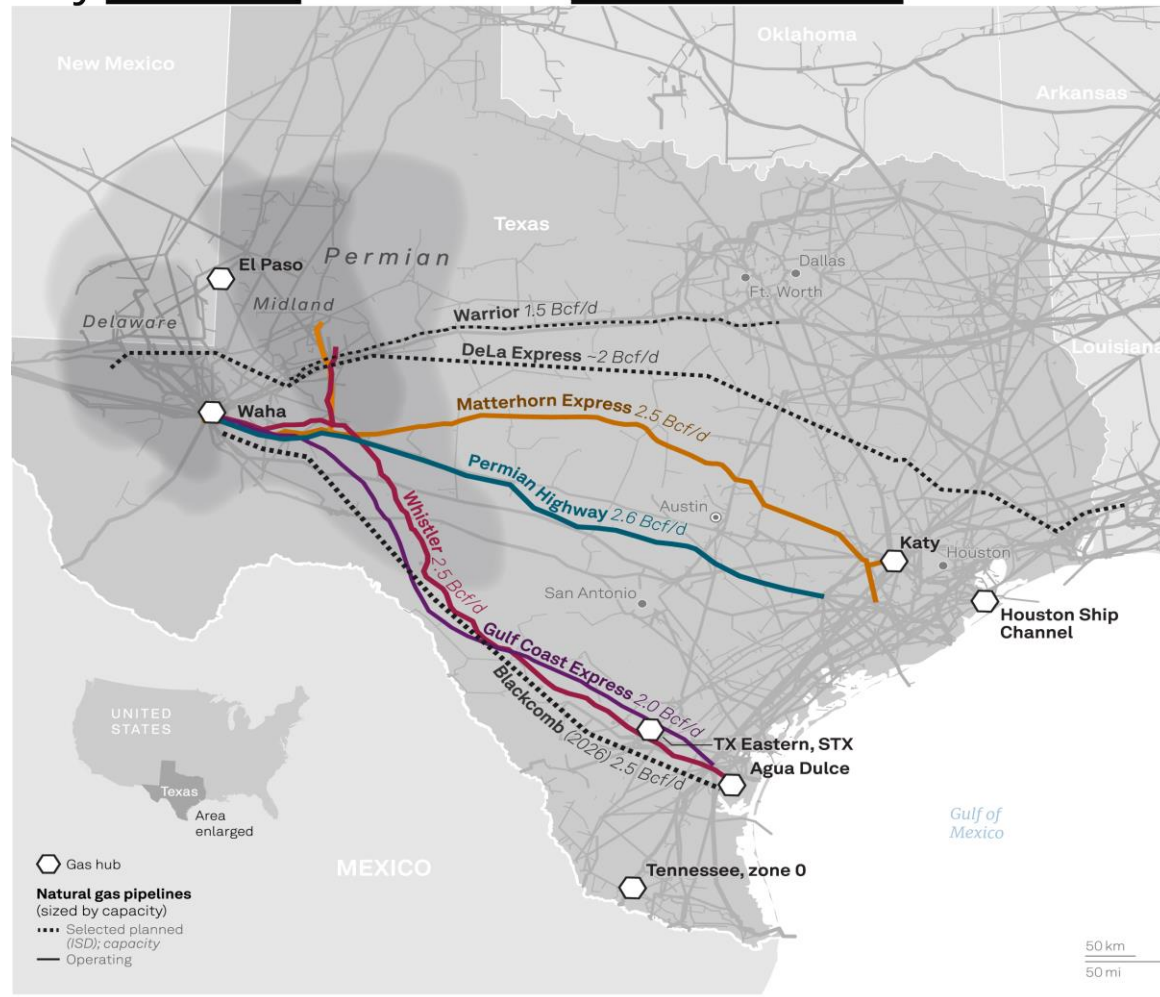
Since 2019, the Austin Chalk play has more than doubled in volume to 1.3 Bcf/d in 2023 and is expected to grow to 2.5 Bcf/d by 2029, supplementing growth from the major plays through 2029.

Data compiled Oct. 13, 2024.

Sources: S&P Global Commodity Insights; EIA.

Permian and Haynesville access spurs pipeline development in the Gulf Coast

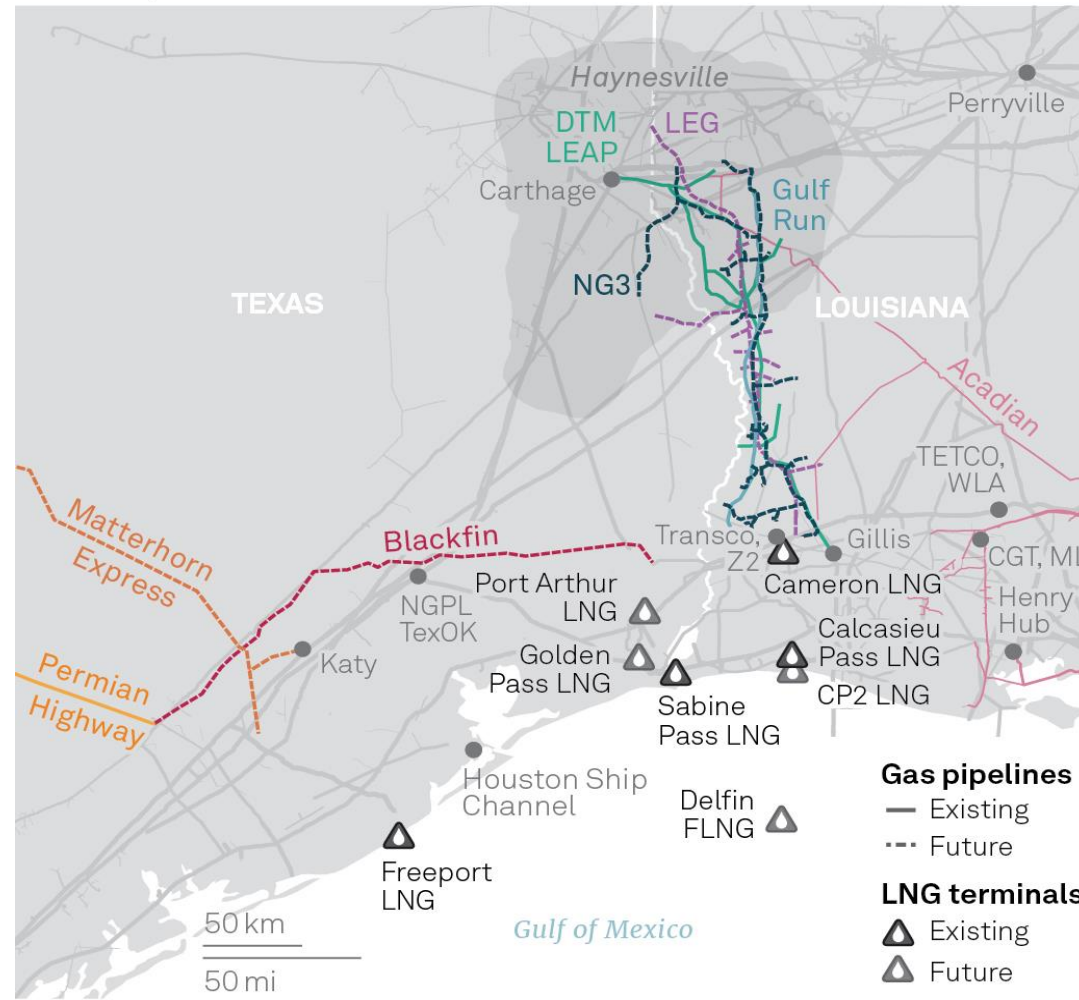
Key Permian eastbound infrastructure



S&P Global
Commodity Insights

Source: S&P Global Commodity Insights;
Credit: Felix Clevenger, CI Content Design. Copyright © 2024 by S&P Global Inc. All rights reserved.

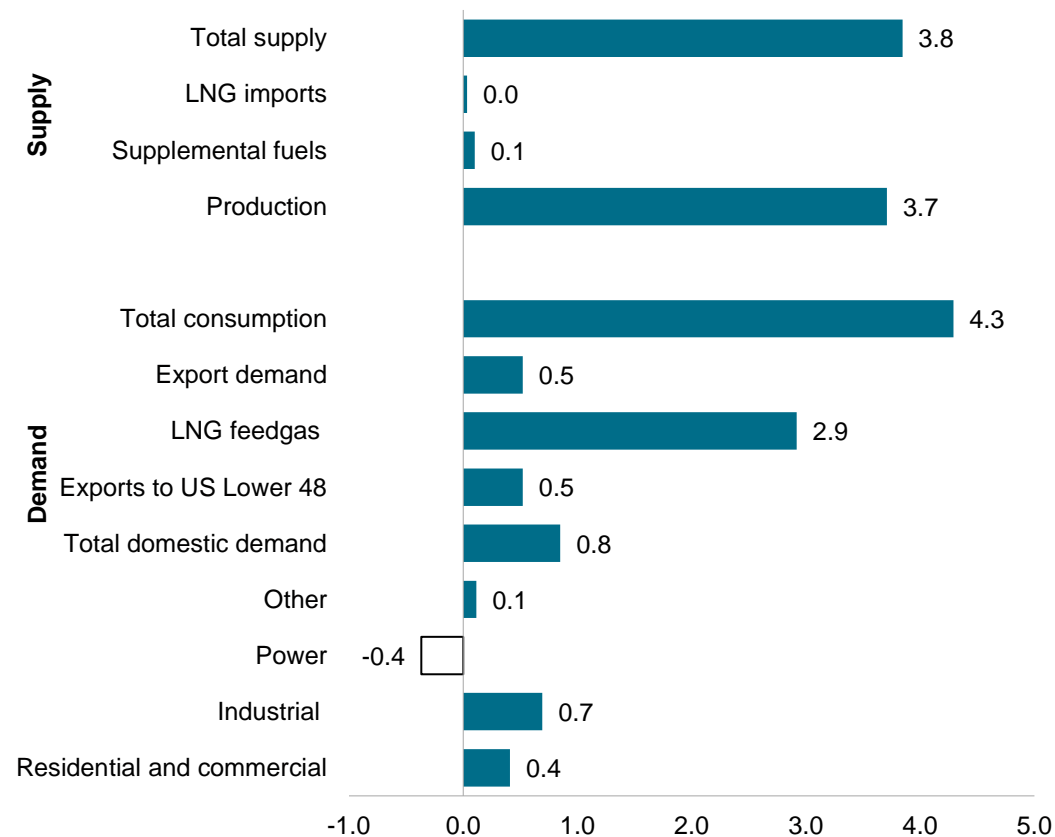
LNG export facilities near Louisiana/Texas border



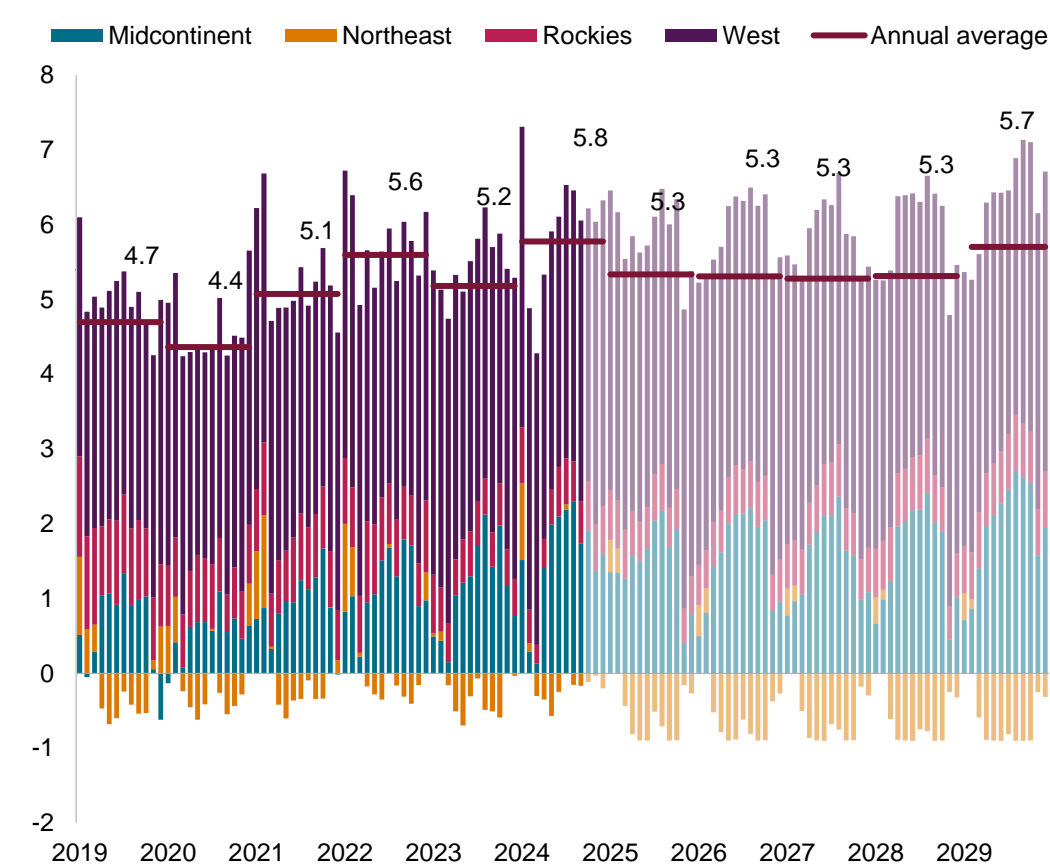
Source: S&P Global Commodity Insights

Canadian exports to the US Lower 48 decline in 2025–28 as the start of LNG Canada and stronger domestic demand outstrip production growth

Canadian supply and demand balance, 2029 versus 2023 (Bcf/d)



Net pipeline imports from Canada (Bcf/d)



Data compiled Oct. 18, 2024.

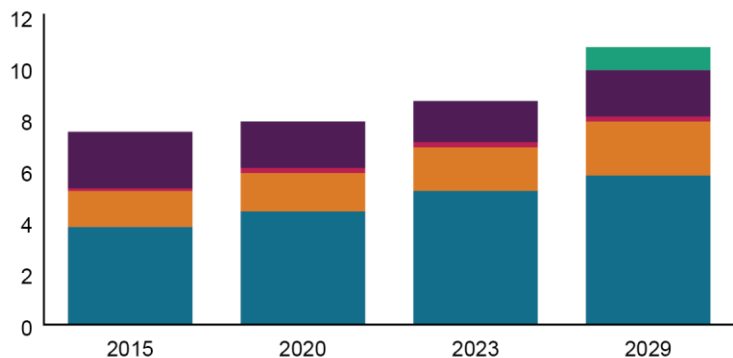
East Gate adjusted for effective capacity on Northern Border given downstream Bakken receipts.

Sources: S&P Global Commodity Insights; Statistics Canada; Canada Energy Regulator (CER).

The power sector continues to drive Mexico's natural gas demand, although LNG exports will propel growth as new terminals come online

Mexico's natural gas market fundamentals

Natural gas demand outlook (Bcf/d)



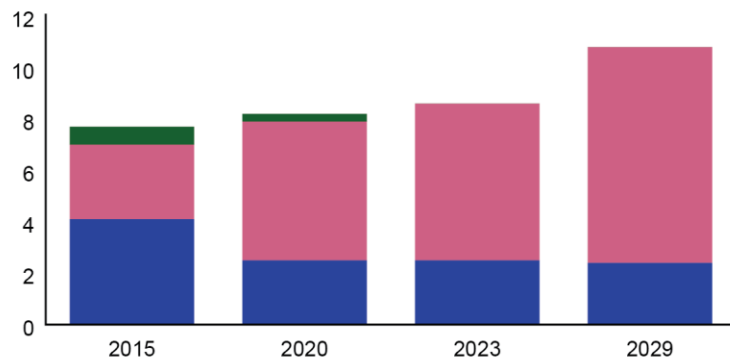
CAGR, 2023–29



Total domestic natural gas demand is expected to grow on average **3.8%** year over year.

As of Aug. 13, 2024.
 CAGR = compound annual growth rate.
 * Others include petroleum and transportation.
 ** Anticipated export feedgas volumes for 2029.
 Source: S&P Global Commodity Insights.
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Natural gas supply outlook (Bcf/d)

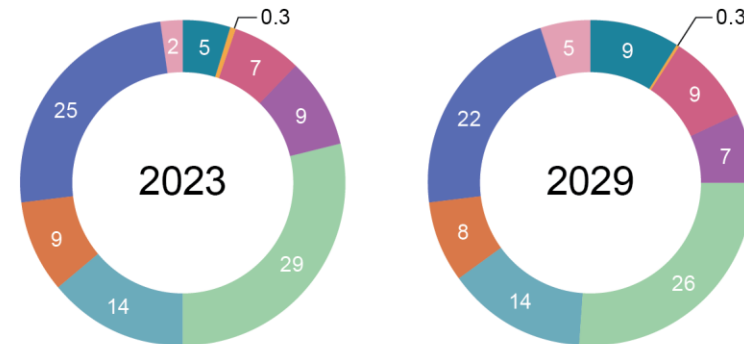


Change in volumes (Bcf/d), 2015–29



Marketed production is expected to decline to 2.1 Bcf/d in 2026 before climbing to 2.4 Bcf/d in 2029.

Natural gas demand share by region (%)



- Baja California
- Baja California Sur
- North
- Northeast
- East
- West
- Northwest
- Peninsular
- Central

By 2029, nearly **71%** of total gas demand will come from the West, Northeast, East and Northwest regions in Mexico.

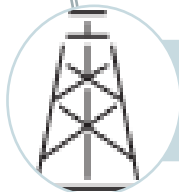
2026 gas price crunch: US LNG exports swift rise precedes production response



Storage surplus overhang following a warm winter led to low gas prices, production curtailments, and suppressed producers' market investment signal.



LNG feedgas demand expected to **increase by ~50% (~6.4 Bcf/d)** between Sept. 2024 and March 2026 as the next wave of LNG exports commences.



The Haynesville is the only price-responsive gas supply base, and most production there is controlled by only three operators (after Chesapeake acquired Southwestern).



Low prices during planning cycles, combined with 6-month cycle times between drilling and production push meaningful **supply growth to 2H 2026**.



Shrinking coal-gas switching flexibility as the coal-fired generating fleet retires, **eliminating a crucial demand-balancing mechanism** during market tightness.

Source: S&P Global Commodity Insights

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