



November 4, 2024



The TXOGA Chartbook serves as an essential resource for our members and those keen on comprehending the data that narrate ongoing developments within the economy and the oil and gas sectors, both internationally and domestically, including specific trends in Texas.

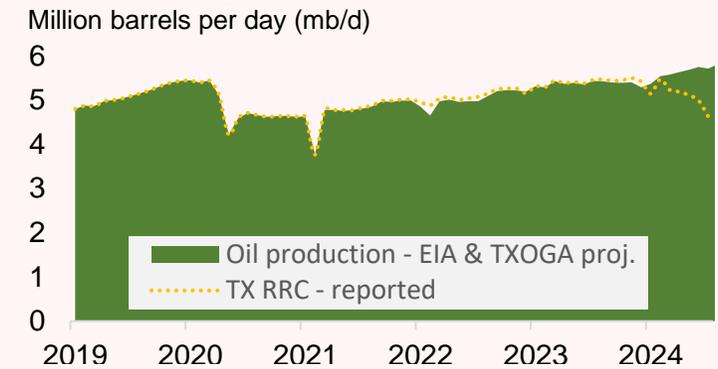
Key points for the week of November 4, 2024

- **U.S. economic indicators showed resilience, although uncertainties linger as the country awaits election results.** Financial markets are closely monitoring the presidential election's potential effects on inflation, interest rates, monetary policy, and the U.S. dollar. Meanwhile, consumer sentiment was revised upwards in the University of Michigan's final October survey, shifting to a 0.6% month-over-month (m/m) increase from an initial 1.7% m/m decrease. This reflects optimism that aligns with steady consumer spending growth, which rose by 3.0% year-over-year (y/y) in Q3, per the Bureau of Economic Analysis. Additionally, the yield premium on low-grade corporate bonds narrowed, and the Philadelphia Fed's ADS Index continued to indicate favorable business conditions, supporting GDP growth for Q4 2024.
- **Oil market fundamentals tightened, yet political and economic uncertainties tempered price movements.** Global oil prices lacked clear direction as stronger supply-demand fundamentals were overshadowed by election-related concerns. West Texas Intermediate (WTI) crude oil prices decreased by 2.8% week-over-week (w/w) to under \$70 per barrel as of November 1, despite the latest weekly data from the Energy Information Administration (EIA) showing strong U.S. demand (21.6 million barrels per day, mb/d), net petroleum exports of 3.2 mb/d, and lower crude oil inventories.
- **U.S. natural gas futures prices for winter delivery** fell by over 10% w/w due to increased inventories and warmer weather, erasing seasonal price effects. Natural gas inventories rose by 2.1% w/w to 3.86 trillion cubic feet (tcf) as of October 25, placing them in the top 20% of the five-year range.
- The [Chart of the Week](#) highlights record-breaking oil and natural gas production levels in EIA reports for August and TXOGA's estimation for October.

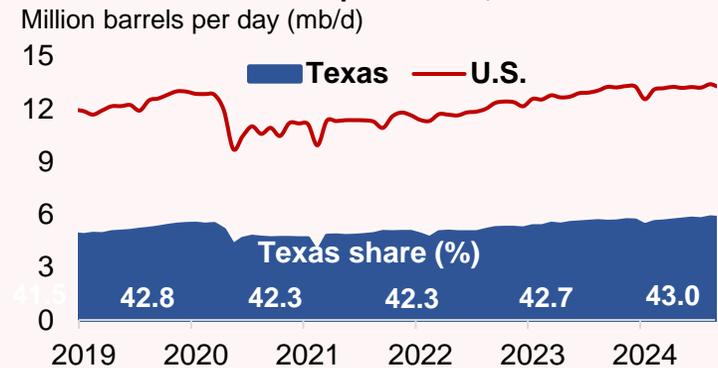
TXOGA Chart of the Week: New Texas oil and natural gas production records

- **Record-high oil production.** Texas' oil production set a record high of 5.8 mb/d in August per EIA, and TXOGA estimates that it eased to 5.74 mb/d in October.
- **Texas' share rose.** Texas accounted for an estimated 43.0% of U.S. crude oil production year-to-date through October by TXOGA's estimates.
- **Record-high natural gas production.** In August, Texas produced record highs of 36.1 bcf/d of natural gas gross withdrawals and 33.6 bcf/d of marketed production per EIA. TXOGA estimates that Texas' marketed production climbed to 33.8 bcf/d in October, which would represent another record high.

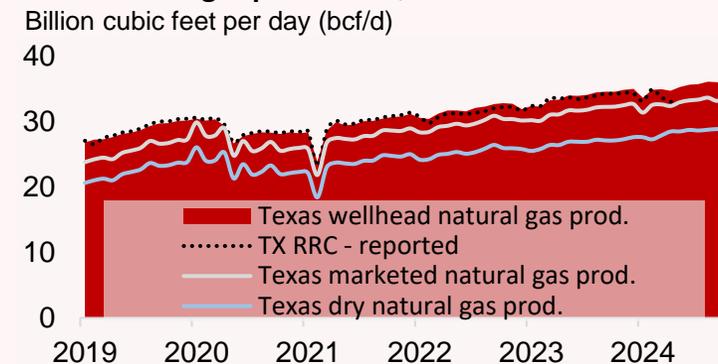
Texas crude oil production, Jan. 2019 – Oct. 2024



U.S. and Texas crude oil production, Jan. 2019 – Oct. 2024

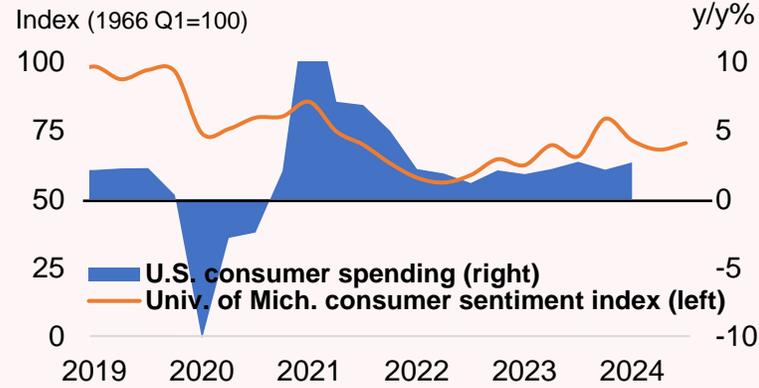


Texas natural gas production, Jan. 2019 – Oct. 2024



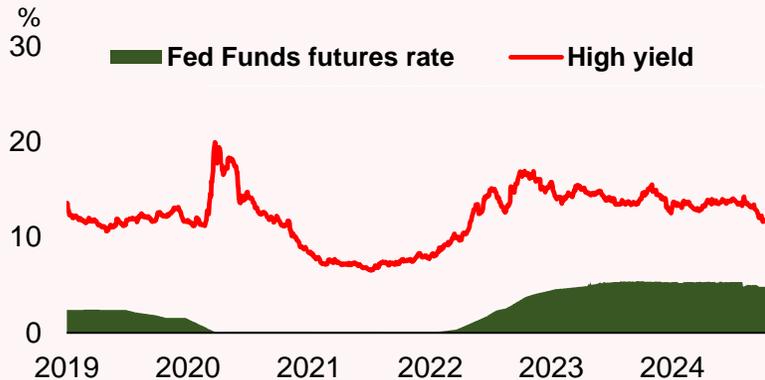
U.S. economic indicators

Consumer sentiment vs. spending



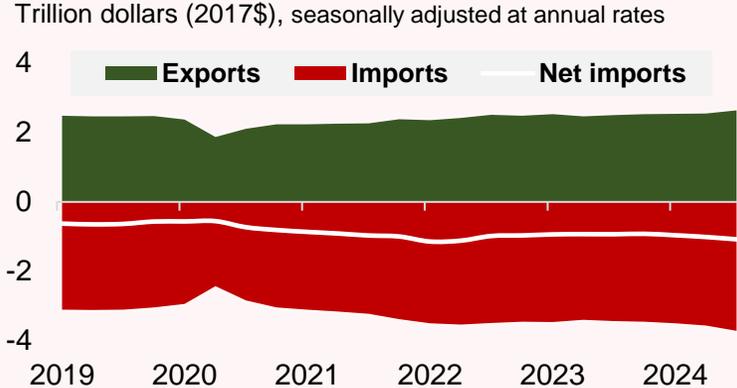
Consumer sentiment and spending rose. Consumer sentiment was revised upwards to by 2.3% to 0.6% m/m, according to the University of Michigan's final survey for October. The recent strength of sentiment historically implies consumer spending growth through Q4 2024. Consumer spending grew by 3.0% y/y in Q3 2024 (up from a 2.7% y/y in Q2) per the Bureau of Economic Analysis.

Fed Funds rate and CCC and lower corporate bond yields



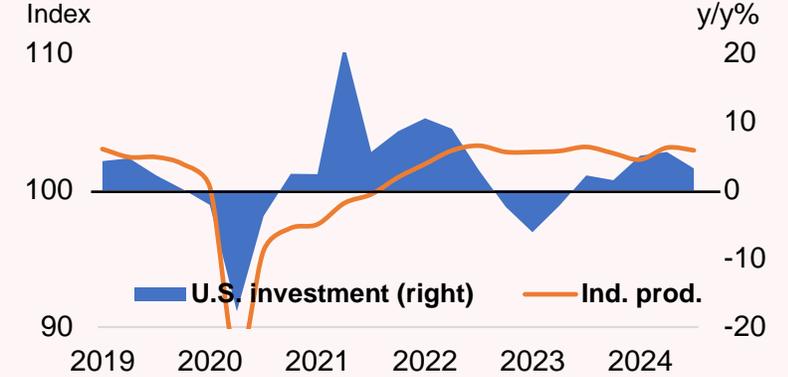
Decreased bond premium for low credit quality. High yield (HY) rates reflect debt costs for firms with below-investment grade credit quality. For the week ended Nov. 1, HY fell by 0.1% w/w to 11.6%, while Fed Funds futures rate was steady at 4.8%, resulting in a premium for low credit quality of 6.8%.

Real net exports of goods and services



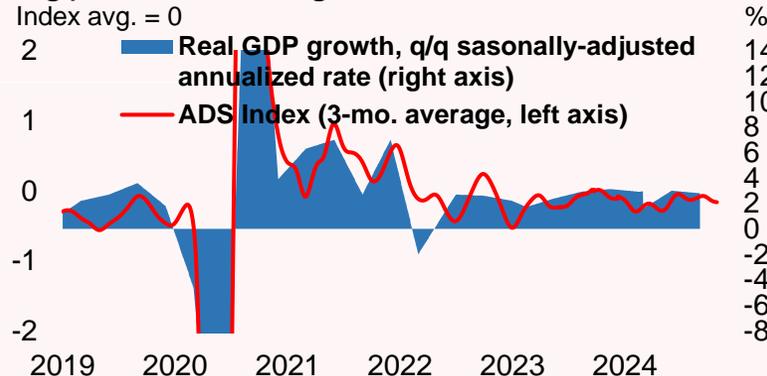
U.S. trade deficit widened in Q3 2024. The U.S. real trade deficit ran at an annualized rate of \$1.1 trillion in Q3 2024 (up from a revised \$1.0 trillion in Q2) per BEA. On a nominal basis, the trade surplus for petroleum and products grew by \$11.2 billion q/q to \$46.9 billion in Q3.

Industrial production and investment growth



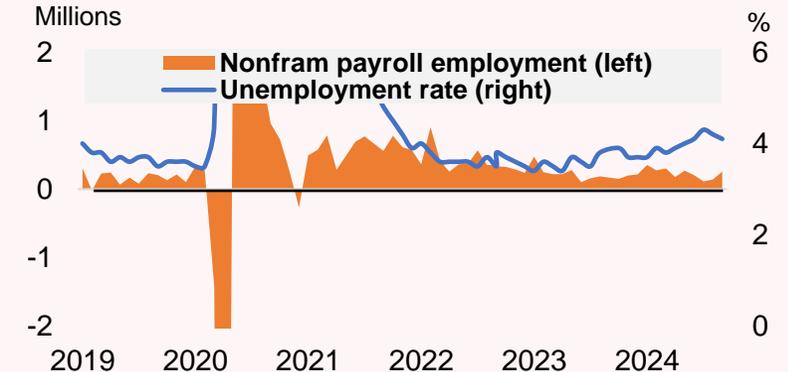
Solid investment growth. Initial GDP data for Q3 2024 show economy-wide investment grew by 3.2% y/y per BEA. U.S. industrial production edged down by 0.2% m/m in September, per the Federal Reserve Board – but remained consistent with the investment growth in Q3 2024.

Aruoba-Diebold-Scotti Business Conditions Index (qtr. avg.) vs. U.S. real GDP growth



The ADS index accurately anticipated growth. The ADS business conditions index, published by the Philadelphia Fed. Res. Bank, is a leading indicator of GDP growth. A rolling 3-month average of the ADS index accurately reflected real GDP growth in Q3 2023, and readings as of Nov. 1 remained consistent with further growth in Q4 2024.

Nonfarm payroll employment & unemployment rate

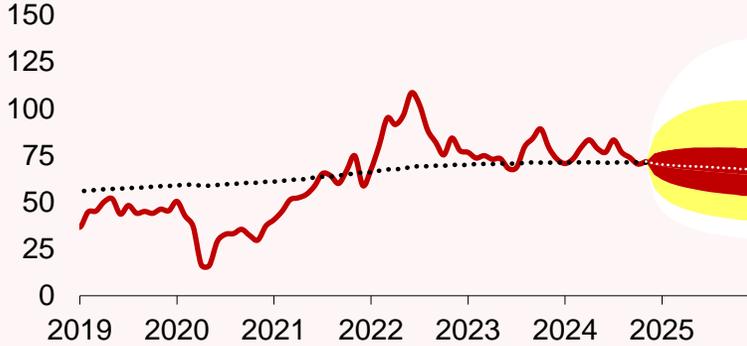


Labor market conditions strengthened in September. The employment situation is a lagging indicator of GDP growth. As non-farm payrolls rose by 254,000—the highest since March—the U.S. unemployment rate fell by 0.1% m/m to 4.1% in September per BLS.

U.S. oil market indicators

WTI crude oil price mean reversion analysis

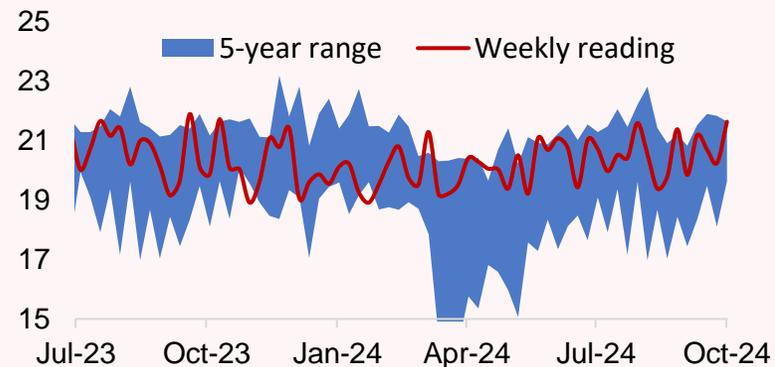
Dollars per barrel (2024\$)



Futures prices aligned with the historical mean reversion target. The futures strip remains backwardated (that is, futures prices currently are lower than spot prices). Confidence intervals based on past prices show the potential for greater upside than downside.

U.S. petroleum demand

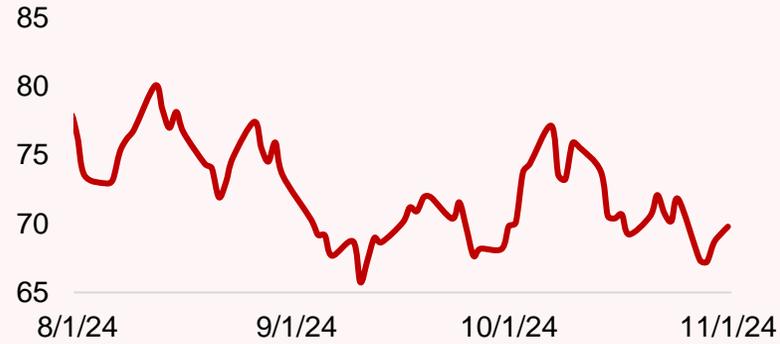
Million barrels per day (mb/d)



Petroleum demand increased. U.S. petroleum demand, as measured by deliveries, rose by 1.4 mb/d w/w to 21.6 mb/d for the week ended Oct. 25.

WTI crude prompt month futures prices

Dollars per barrel



WTI crude oil prices fell by 2.8% w/w to under \$70 per barrel as of November 1, as the market factored in lower political uncertainties against tighter fundamentals.

WTI crude prompt month futures slow stochastic

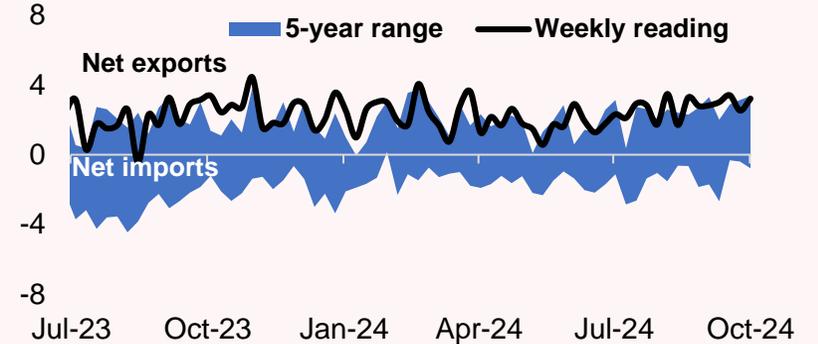
Index level



Price momentum decreased during the week ended Nov. 1.

U.S. petroleum net exports (imports)

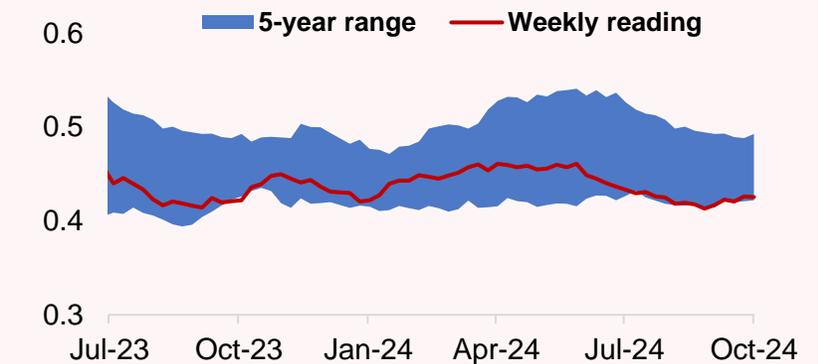
Million barrels per day, mb/d



Petroleum net exports rose. The U.S. was a petroleum net exporter of 3.2 mb/d for the week ended Oct. 25, up by 0.7 mb/d from the prior week.

U.S. ending stocks of crude oil (excluding the SPR)

Billion barrels



Inventories decreased. U.S. ending stocks of crude oil excluding the Strategic Petroleum Reserve (SPR) decreased by 0.5 million barrels (mb) for the week ended Oct. 25.

U.S. natural gas market indicators

Natural gas price mean reversion analysis

Dollars per mmBtu (2024\$)



Futures prices for the upcoming winter fell and aligned with the historical mean reversion target. Confidence intervals based on past prices show the potential for greater upside than downside.

Natural gas prompt month futures prices

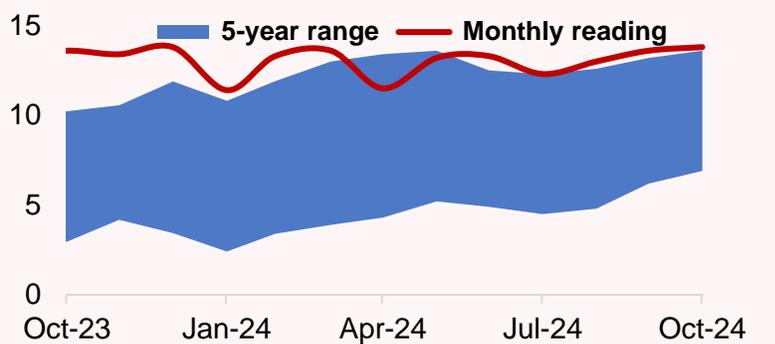
Dollars per million Btu



Natural gas prices at Henry Hub rose by 3.3% w/w to \$2.65 per million Btu for the week ended November 1.

U.S. natural gas net exports

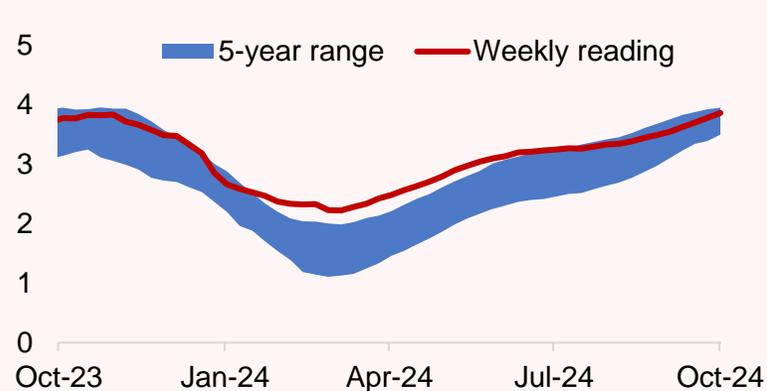
Billion cubic feet per day, bcf/d



Natural gas net exports of 13.8 bcf/d, as projected for October by EIA, rose above the 5-year range and to a record high for any month on record.

U.S. weekly working gas storage

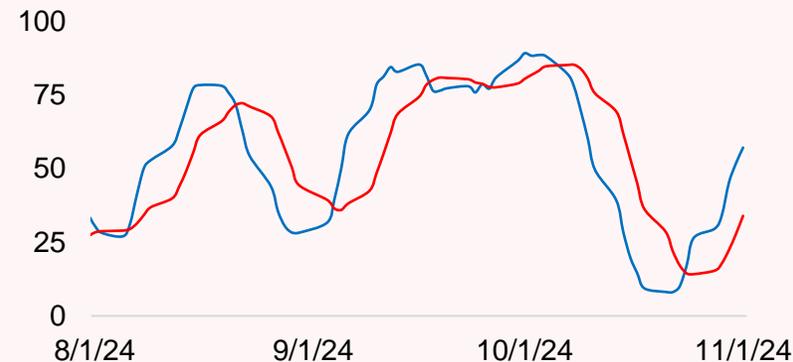
Trillion cubic feet (tcf)



Storage rose within the 5-year range. Working gas in underground storage rose by 2.1% w/w to 3.86 tcf as of Oct. 25 and to the top 20% of the 5-year range.

Natural gas futures slow stochastic

Index level

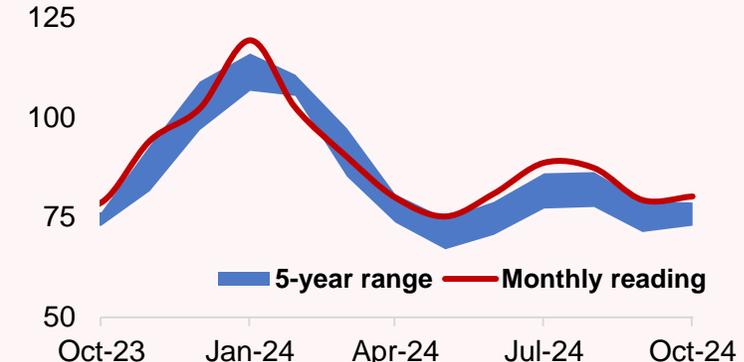


%K, %D 5 bars

Natural gas price momentum turned positive during the week ended November 1.

U.S. natural gas consumption

Billion cubic feet per day, bcf/d

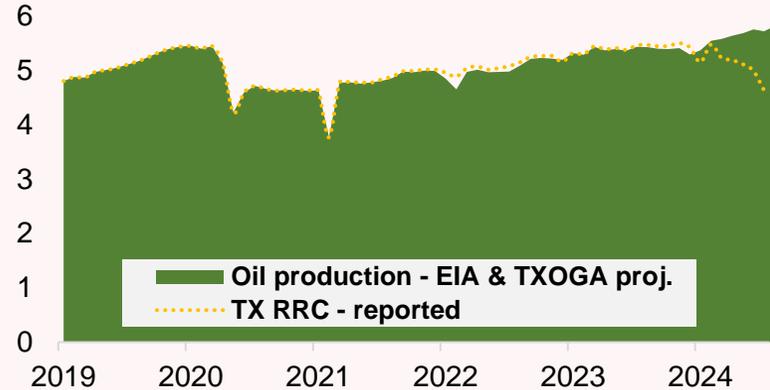


Consumption remained strong. U.S. natural gas consumption of 80.2 bcf/d in October per EIA remained above the top of the 5-year range.

Texas' oil and natural gas production

Texas crude oil production, Jan. 2019 – Oct. 2024

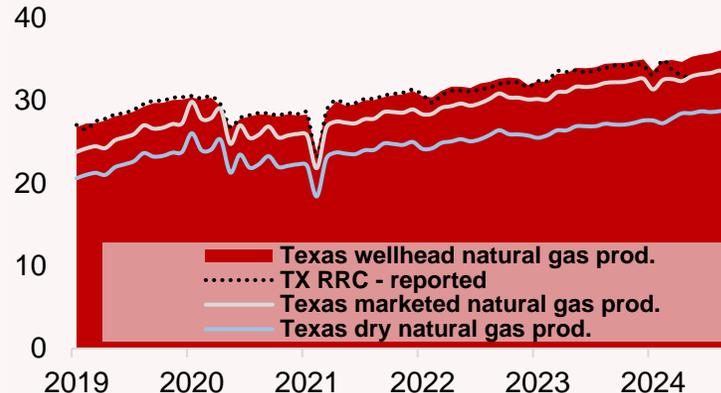
Million barrels per day (mb/d)



Record-high oil production. Texas' oil production set a record high of 5.8 mb/d in August per EIA, and TXOGA estimates that it eased to 5.74 mb/d in October.

Texas natural gas production, Jan. 2019 – Oct. 2024

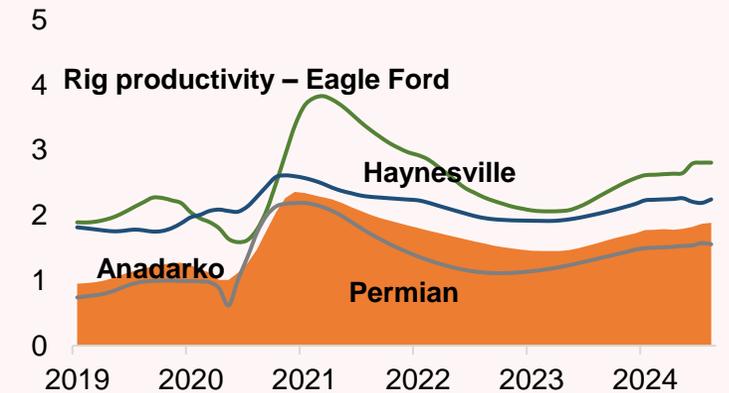
Billion cubic feet per day (bcf/d)



Record-high natural gas production. Texas produced record highs of 36.1 bcf/d of natural gas gross withdrawals and 33.6 bcf/d of marketed production in August per EIA. TXOGA estimates that Texas' marketed production climbed to another record of 33.8 bcf/d in October.

Texas rig productivity by basin – new monthly prod. per rig

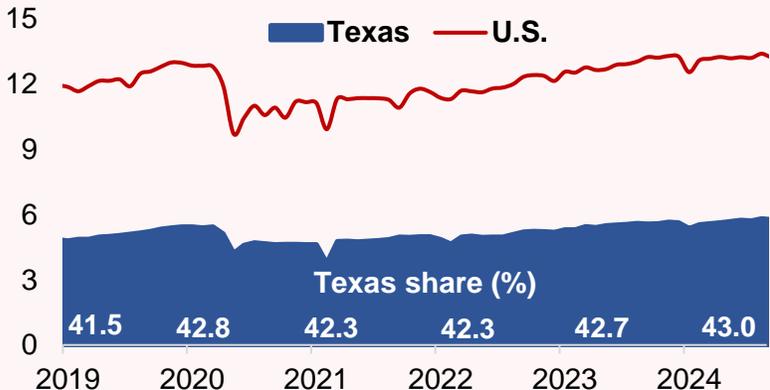
Thousand barrels per day oil-equivalent, kb/dae



Solid productivity. EIA estimates of rig productivity for September 2024 show continued increases year-over-year across the major Texas basins, including the Anadarko (+13.7% y/y), Eagle Ford (+19.0% y/y), Permian (+16.5% y/y), and Haynesville (+9.1% y/y).

U.S. and Texas crude oil production, Jan. 2019 – Oct. 2024

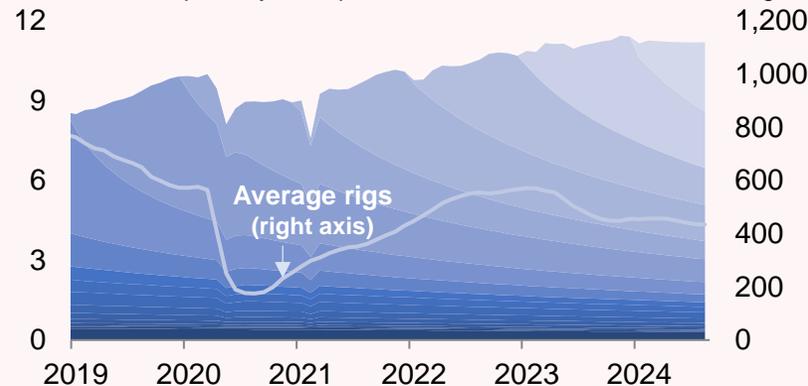
Million barrels per day (mb/d)



Texas' share rose. Texas accounted for an estimated 43.0% of U.S. crude oil production year-to-date through October by TXOGA's estimates.

Texas shale basin wellhead oil & natural gas production

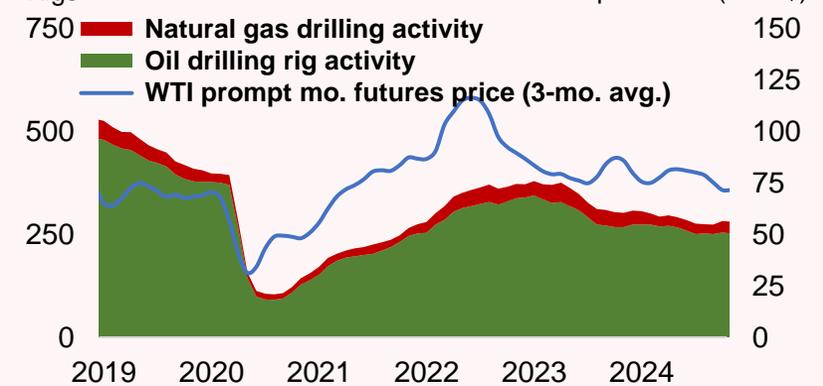
Million barrels per day oil-equivalent



EIA estimates show oil and natural gas production across Texas shale basins changes in September 2024: Permian (+5.2% y/y), Eagle Ford (-1.9% y/y), Anadarko (-3.5% y/y) and Haynesville (-11.0% y/y).

Texas drilling activity and WTI crude oil futures prices

Rigs (left axis), Dollars per barrel (2024\$) (right axis)

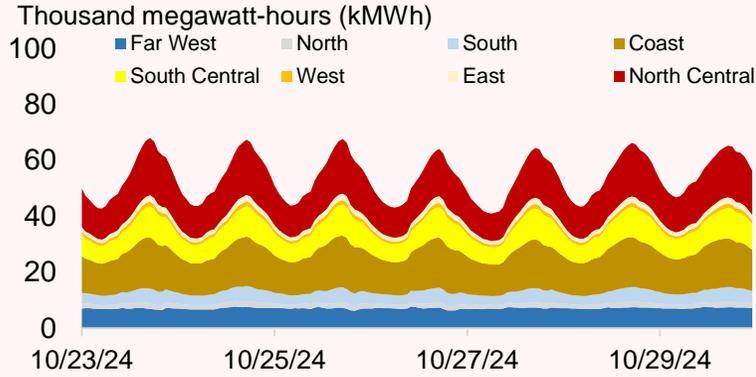


Texas' drilling rig activity fell for the week ended November 1 per Baker Hughes. Texas had 252 oil-directed rigs (down by 2 rigs w/w) and 29 natural gas-directed rigs (unchanged w/w).

Texas Electricity Analysis

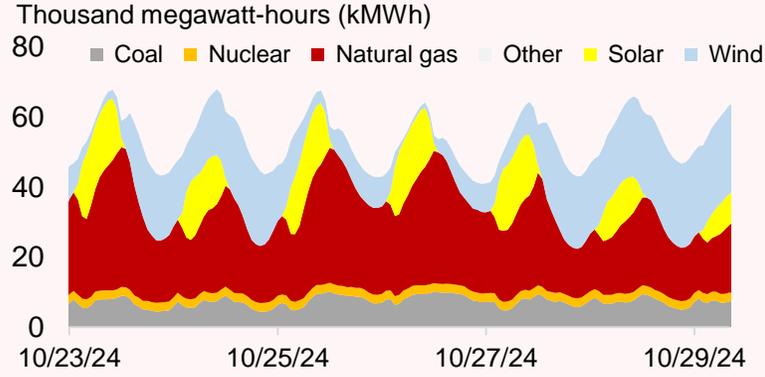


ERCOT electricity load by region



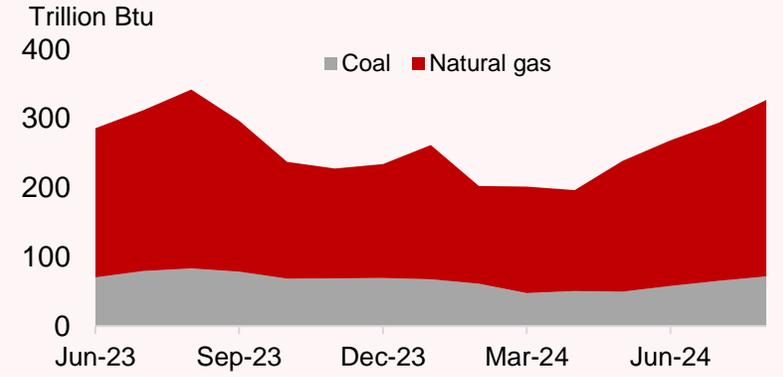
For Oct. 23-29, ERCOT's average hourly electricity load was 54.0 kMWh, down by 10.8% w/w, while the maximum load hourly load of 68.0 kMWh rose by 11.2% w/w. Variability was the highest in the South Central and North Central regions.

ERCOT hourly electricity generation by source



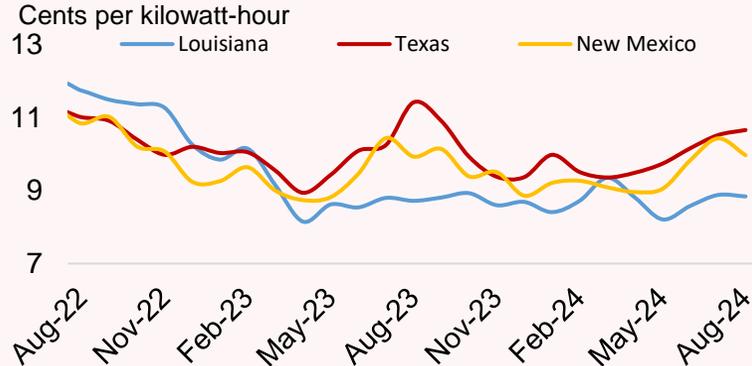
Thermal and dispatchable resources generated up to 85% of ERCOT's electricity. ERCOT's hourly electricity generation for the period Oct. 23-29 ranged between 41 and 68 kMWh with a standard deviation of 7.7 kMWh. Thermal and dispatchable sources generated 93.2% of the region's power on the night of Oct. 26, including 70.0% from natural gas.

Texas electricity plant receipts of natural gas and coal



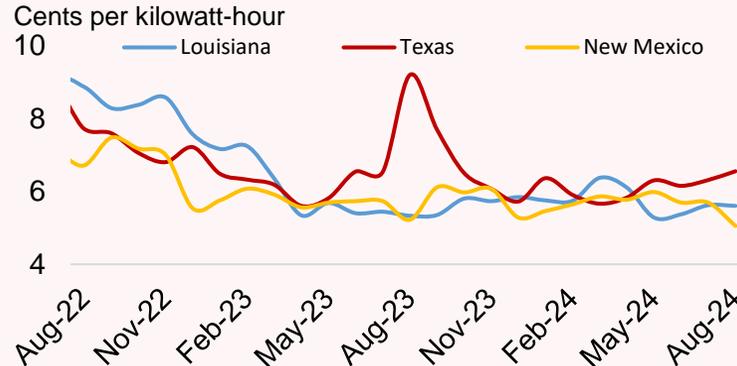
Texas electricity plant receipts of natural gas and coal increased by 11.7% m/m and 9.7% m/m, respectively, in August 2024.

Electricity prices – average across all end-use sectors



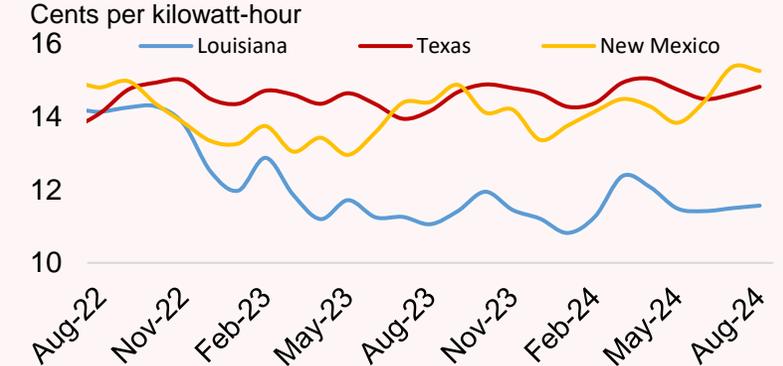
Texas' electricity prices rose in August. The average price of electricity in Texas increased by 1.3% m/m in August to 10.66 cents per kWh, compared with 8.84 cents per kWh in Louisiana and 9.97 cents per kWh in New Mexico.

Industrial electricity prices



Texas' industrial electricity prices increased. Texas' industrial electricity prices averaged 6.55 cents per kWh in August, up by 3.8% m/m. Rates in New Mexico and Louisiana remained lower at 5.05 cents per kWh and 5.60 cents per kWh, respectively.

Residential electricity prices



Texas' residential electricity prices rose. For Texas' residential consumers, the average price of electricity (14.83 cents per kWh) rose by 1.4% m/m in August, remaining above rates in Louisiana (11.57 cents per kWh) but lower than that in New Mexico (15.26 cents per kWh).

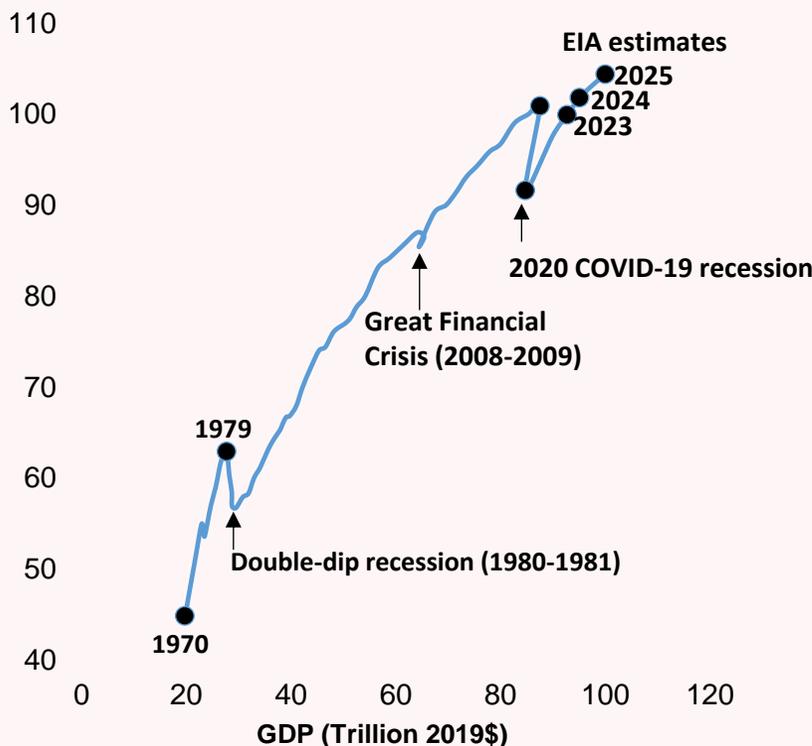
Global Oil Market Balance Projections to 2025



- **Record-high global demand.** EIA's October 2024 Short-Term Energy Outlook projects global demand of 103.1 mb/d this year and 104.4 mb/d in 2025 – both record highs.
- **Supply shifts.** In the latest forecast, EIA reflected relatively greater OPEC supplies and lower Russian output this year. The U.S. remains the largest source of supply growth in 2025.
- **For oil inventories, EIA projects global stock withdrawals to continue through Q2 2025,** including 0.6 mb/d in Q4 2024 and Q1 2025, corresponding with Brent crude oil prices of \$76 in Q4 2024 and \$78 on average in 2025, compared with \$79 per barrel currently.

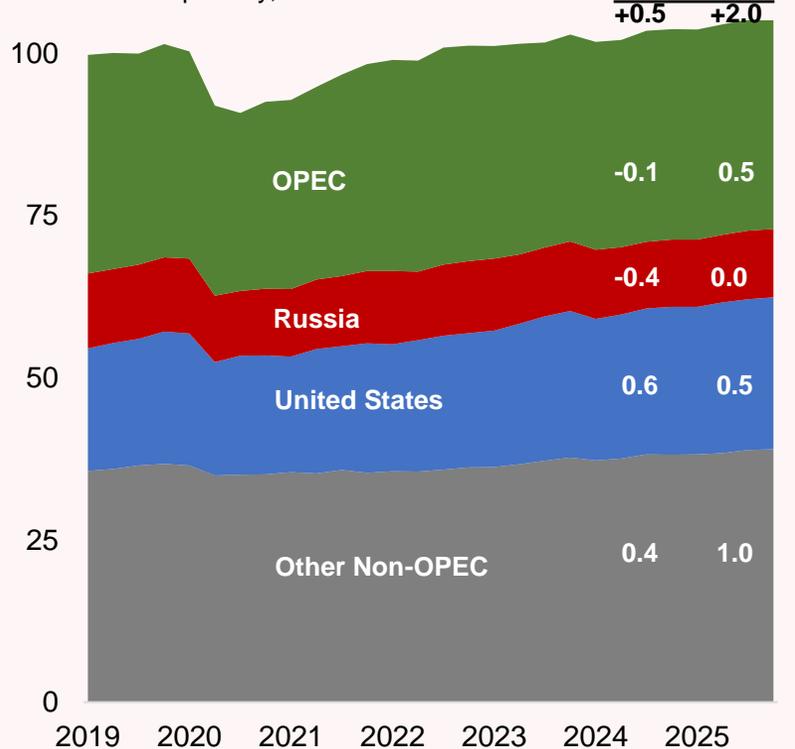
Global oil demand and GDP

Million barrels per day (mb/d)



Oil production by country/region

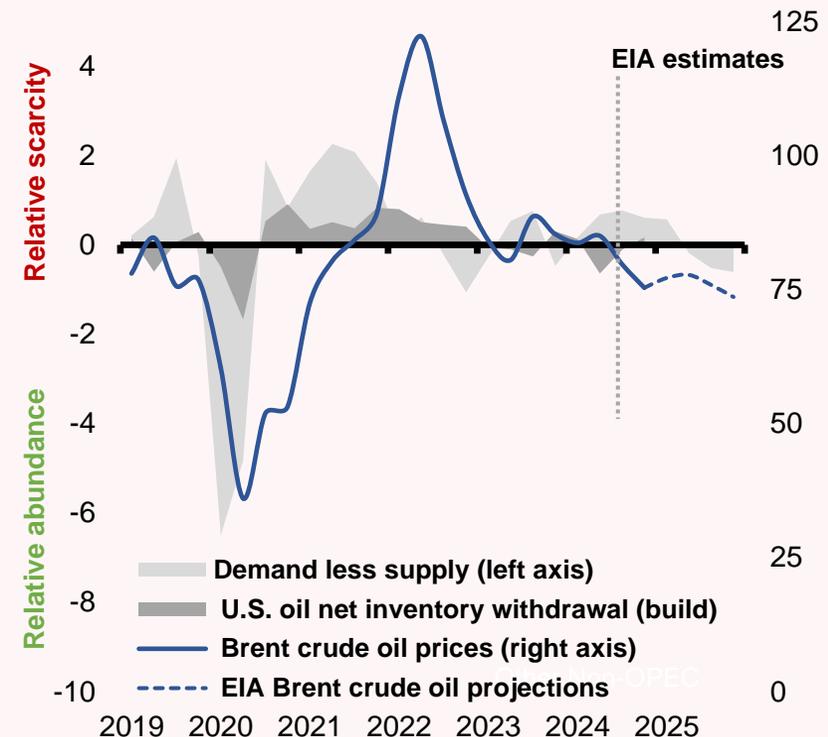
Million barrels per day, mb/d



Global demand/supply & Brent prices

Million barrels per day (mb/d)

2024\$/Bbl



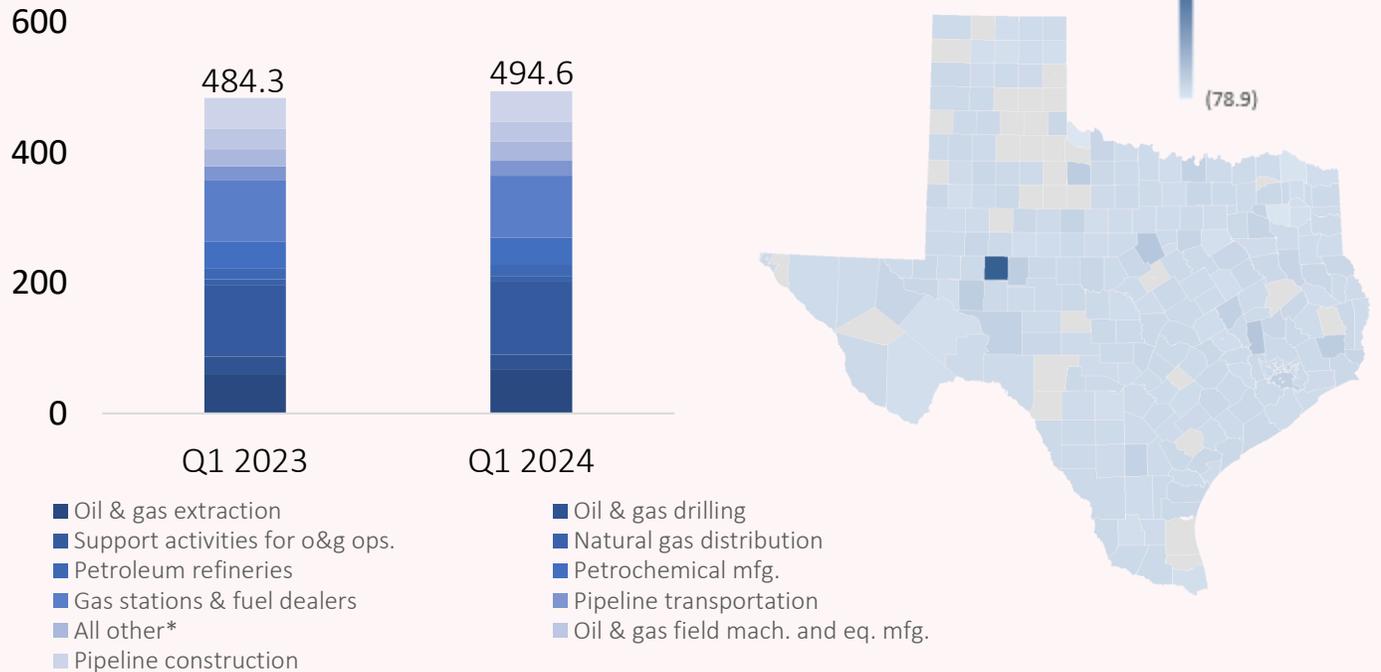
Texas' oil and natural gas industry wages eclipsed \$20.8 billion in Q1 2024



- ▶ Texas' oil and natural gas industry employment and wages grew by 2.1% y/y and 6.5% y/y, respectively, in Q1 2024, raising the totals to nearly 494,593 jobs and \$20.8 billion in wages – the highest wages since the 2020 pandemic.
- ▶ Two-thirds of the year-over-year job growth occurred in the upstream and supporting services, while another quarter of the job growth occurred in pipeline transportation per the latest data (released on August 20, 2024) from the U.S. Census Bureau and Texas Workforce Commission.

Texas oil and natural gas industry direct employment rose by +2.1% y/y in Q1 2024

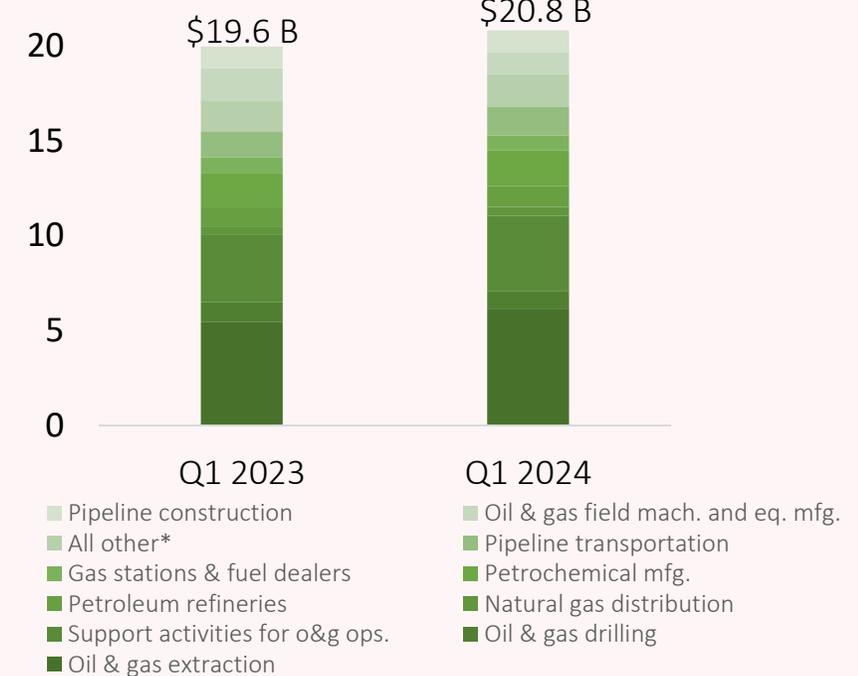
Thousand Jobs



* Other industry segments include petroleum and pet. product wholesalers, lubricant mfg., asphalt mfg., industrial sand mining, nitrogenous fertilizer mfg., basic organic chem. mfg., plastics and resin mfg.

Texas oil and natural gas industry direct wages rose by +6.5% y/y in Q1 2024

Billion dollars



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