



October 14, 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 October 14, 2024

- ▶ **U.S. economic indicators remained flat.** According to the Bureau of Labor Statistics, consumer price inflation increased by 2.4% year-over-year (y/y) in September, which could hinder potential cuts to the Federal Funds rate. Price increases were driven by housing (4.9% y/y), transportation services (8.5% y/y), electricity (3.7% y/y), and medical care (3.6% y/y). Yields on high-yield corporate bonds rose 0.1% week-over-week (w/w) to 11.8%, while 30-day Fed Funds futures held steady at 4.8%, increasing the risk premium for lower-credit-quality bonds to 7.0%.
- ▶ **Middle East geopolitical tensions supported oil prices, while market fundamentals remained mixed.** Oil prices fluctuated through October 11, influenced by geopolitical uncertainties, and hovered near \$75 per barrel. According to weekly U.S. petroleum market data from the Energy Information Administration (EIA) as of October 4, a return to record-high U.S. crude oil production (13.4 million barrels per day) more than offset rising exports and consumption. As highlighted in the [Chart of the Week](#), U.S. petroleum demand growth this year has been primarily driven by increased air travel and industrial and marine shipping use of residual fuel oil and petrochemical feedstocks.
- ▶ **U.S. natural gas markets eased as historically strong production more than offset increased consumption and exports.** U.S. inventories rose by 2.3% week-over-week (w/w) to 3.63 trillion cubic feet but fell to the 66th percentile within the 5-year range. Natural gas prices declined by 6.5% w/w as of October 11, after having risen by more than 33% over the previous four weeks. Near-term natural gas futures prices have reverted to the historical mean, but show a 26% increase between the contracts for delivery in November and January.

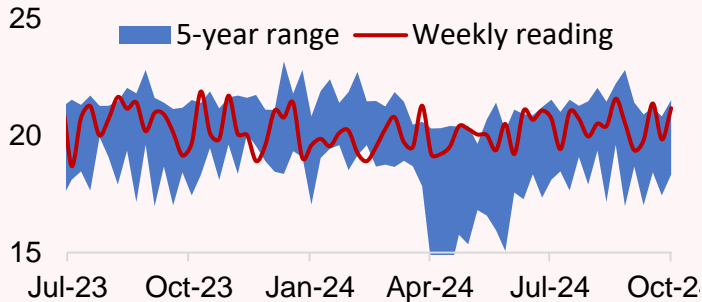
TXOGA Chart of the Week: U.S. petroleum fuels demand driven by industry, trade, and travel



- U.S. petroleum consumption reached the top of the 5-year range, according to EIA, with cumulative growth of 0.2% year-to-date as of October 4, compared to the same period in 2023.
- The largest increases this year have come from industrial and marine shipping use of residual fuel oil (up nearly 50,000 barrels per day (b/d), or 21.8% year-to-date, compared to last year), jet fuel (up 40,000 b/d, or 2.5% y/y), and petrochemical feedstocks (up 19,000 b/d, or 2.0% y/y).
- Motor gasoline consumption averaged 8.9 million barrels per day (mb/d), rising 0.3% y/y through October 4, while distillate (diesel fuel) consumption declined by 2.6% y/y compared to the same period in 2023.

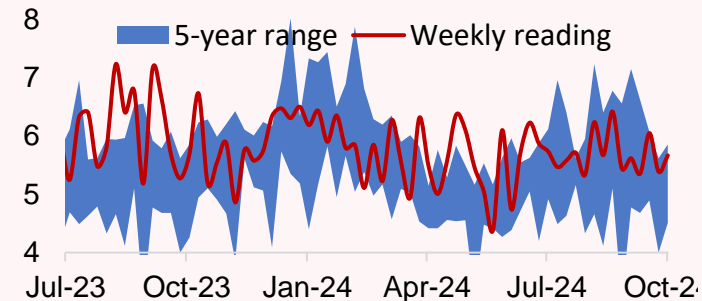
U.S. petroleum demand

Million barrels per day (mb/d)



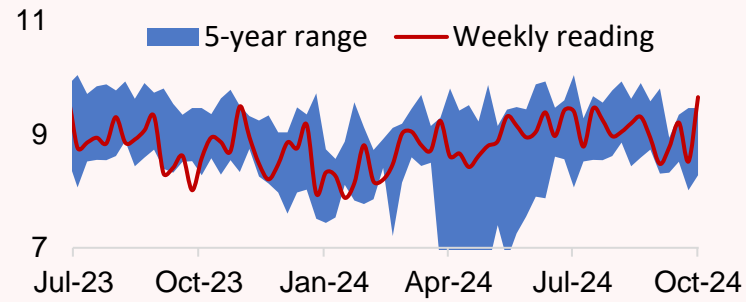
U.S. other oils' demand

Million barrels per day (mb/d)



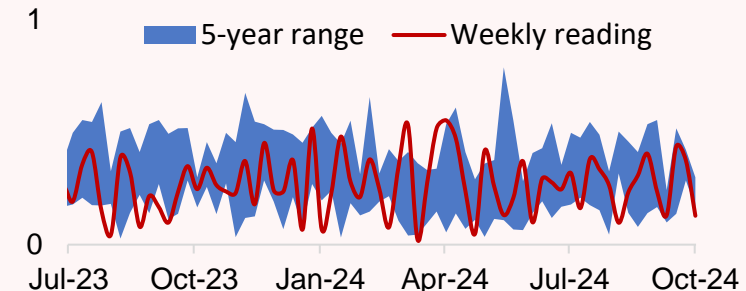
U.S. motor gasoline demand

Million barrels per day (mb/d)



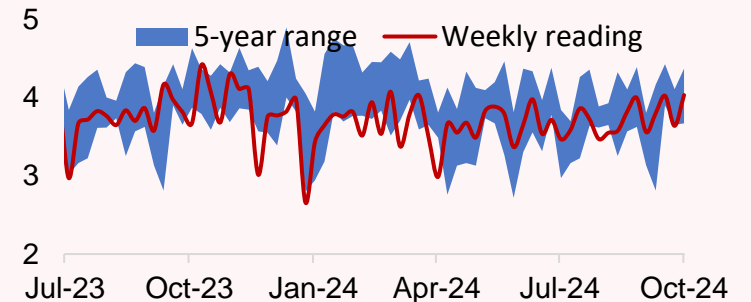
U.S. residual fuel oil demand

Million barrels per day (mb/d)



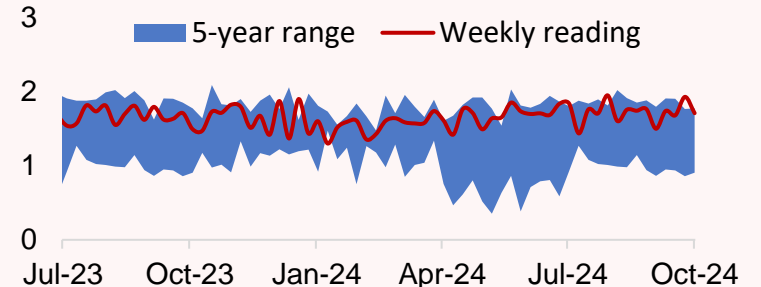
U.S. distillate (diesel fuel) demand

Million barrels per day (mb/d)



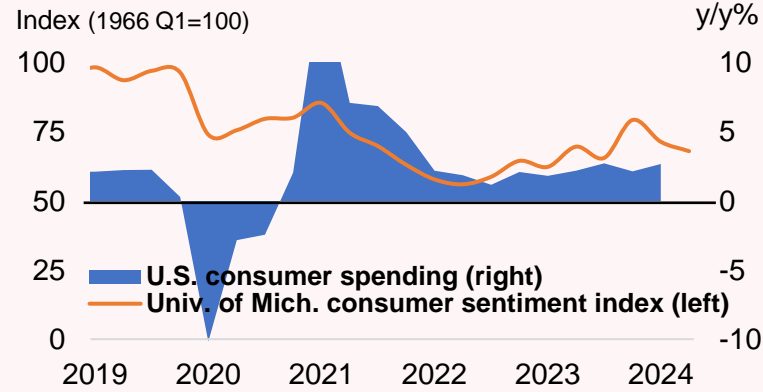
U.S. jet fuel demand

Million barrels per day (mb/d)



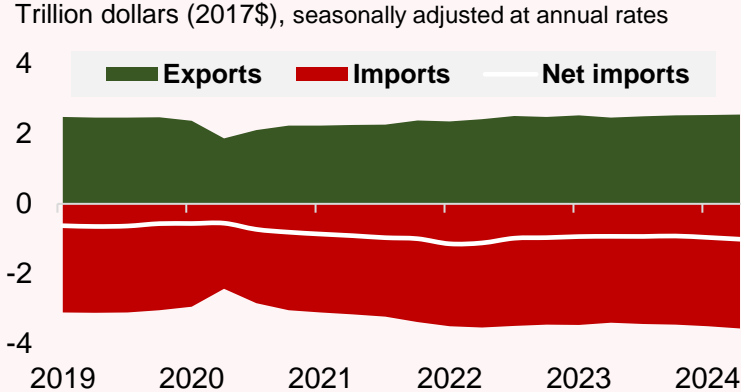
U.S. economic indicators

Consumer sentiment vs. spending



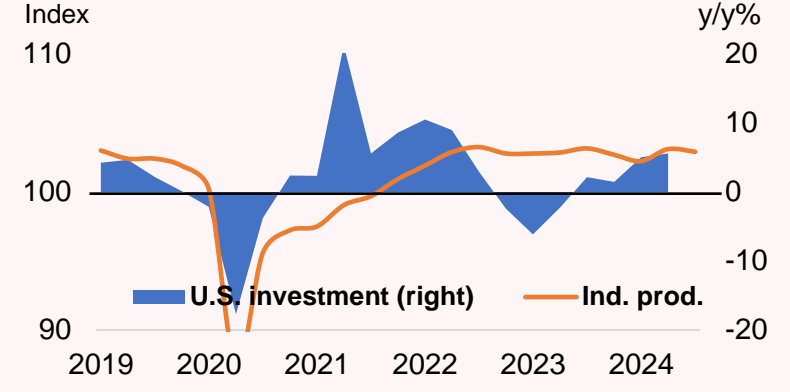
Consumer sentiment improved. Consumer sentiment rose by 3.4% m/m, according to the University of Michigan's final survey for September, which historically implies further consumer spending growth for Q3 2024. Consumer spending grew by 2.7% y/y in Q2 2024 per the Bureau of Economic Analysis.

Real net exports of goods and services



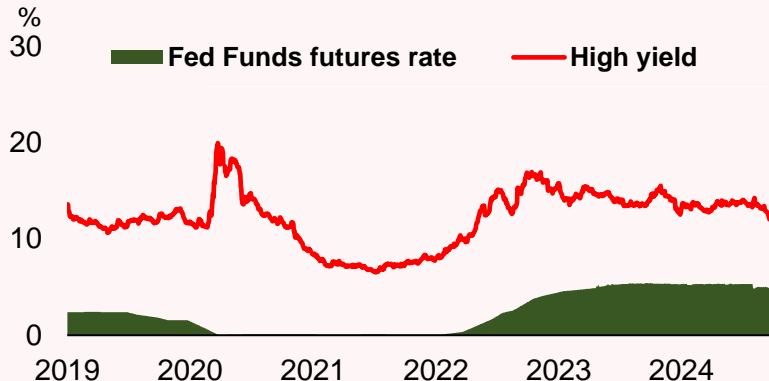
U.S. petroleum trade surplus revised up for Q2 2024. The U.S. real trade deficit ran at an annualized rate of \$1.04 trillion in Q2 2024 per BEA. On a nominal basis, the trade surplus for petroleum and products was revised upwards by \$3.1 billion to \$35.7 billion in Q2 2024.

Industrial production and investment growth



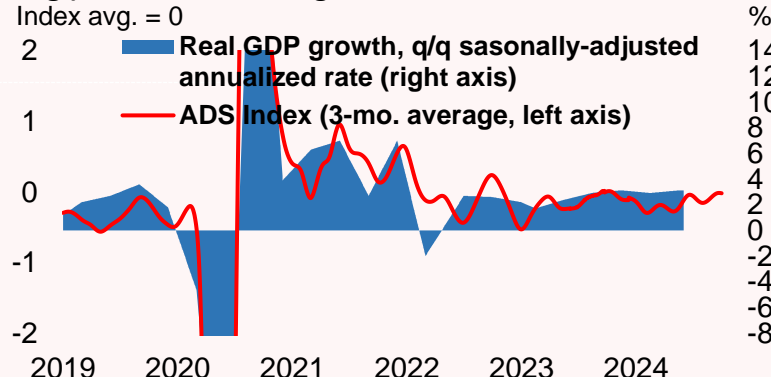
Solid investment growth. In updated GDP data for Q2 2024, economy-wide investment grew by 5.6% y/y per BEA. U.S. industrial production rose by 0.8% m/m in August, per the Federal Reserve Board – and continues to suggest investment growth in Q3 2024.

Fed Funds rate and CCC and lower corporate bond yields



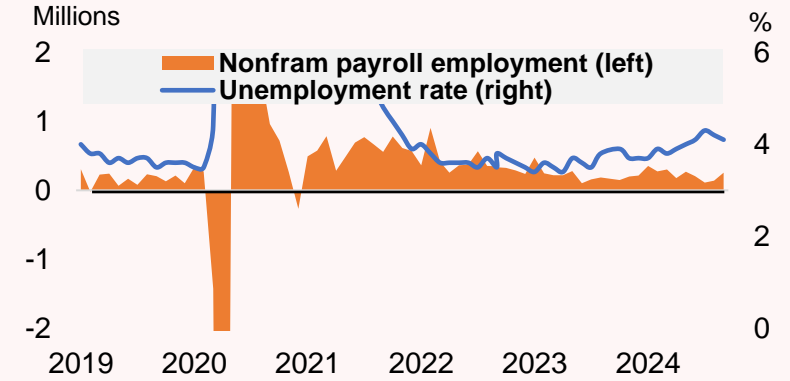
Increased bond premium for low credit quality. High yield (HY) rates reflect debt costs for firms with below-investment grade credit quality. For the week ended Oct. 10, HY rose fell by 0.1% w/w to 11.8%, while Fed Funds futures rate was steady at 4.8%, resulting in a premium for low credit quality of 7.0%.

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



The ADS index stabilized. 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 has accurately reflected real GDP growth and, with readings as of Oct. 10 remained consistent with further growth through Q4 2024.

Nonfarm payroll employment & unemployment rate

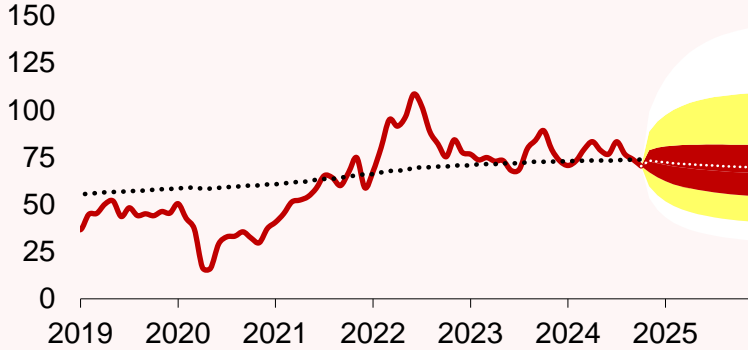


Labor market conditions strengthened in September. The employment situation is a lagging indicator of GDP growth. As nonfarm payrolls rose by 254,000—the highest since March—the U.S. unemployment rate fell by 0.1% m/m to 4.1% in September per BLS.

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.

WTI crude prompt month futures prices

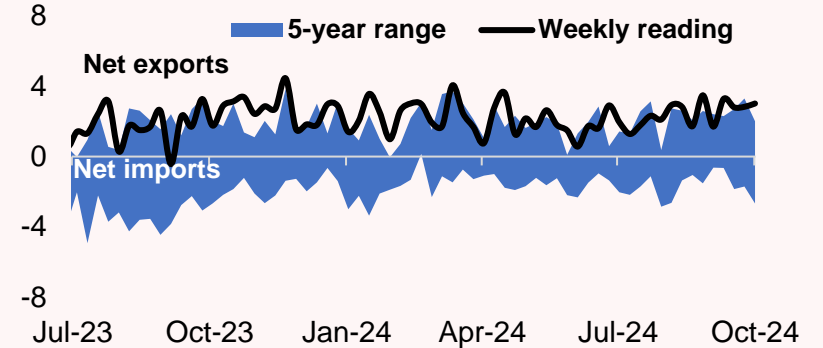
Dollars per barrel



WTI crude oil prices rose to as high as \$78 per barrel but ended the week unchanged, closing near \$75 per barrel as of October 11. Geopolitical tensions in the Middle East have been the primary influence.

U.S. petroleum net exports (imports)

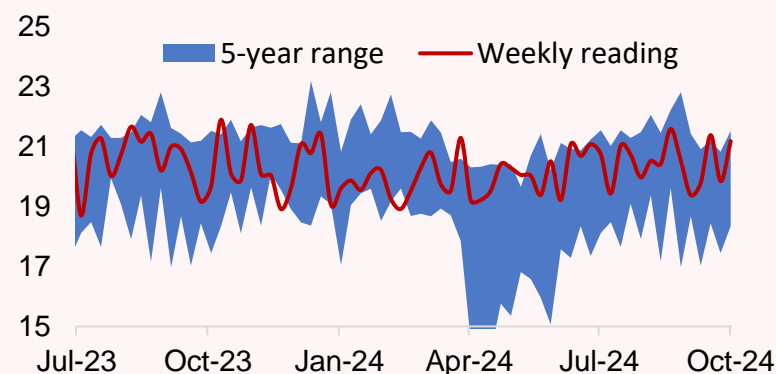
Million barrels per day, mb/d



Petroleum net exports rose. The U.S. was a petroleum net exporter of 3.0 mb/d for the week ended Oct. 4, up by 0.2 mb/d from the prior week.

U.S. petroleum demand

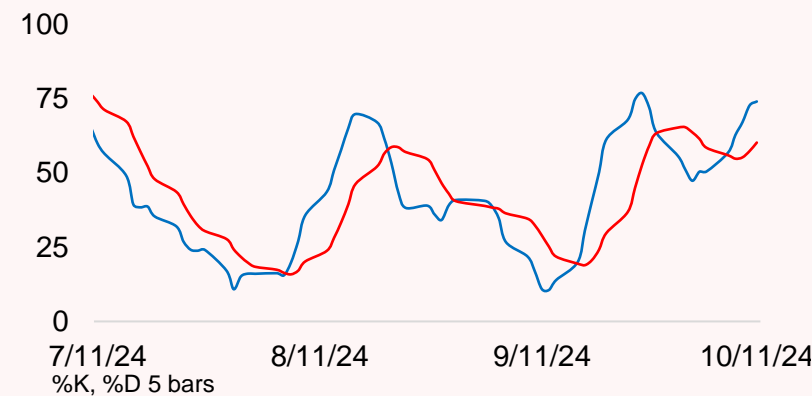
Million barrels per day (mb/d)



Petroleum demand increased. U.S. petroleum demand, as measured by deliveries, rose by 1.3 mb/d w/w to 21.2 mb/d for the week ended Oct. 4 and to the 90th percentile of the 5-year range.

WTI crude prompt month futures slow stochastic

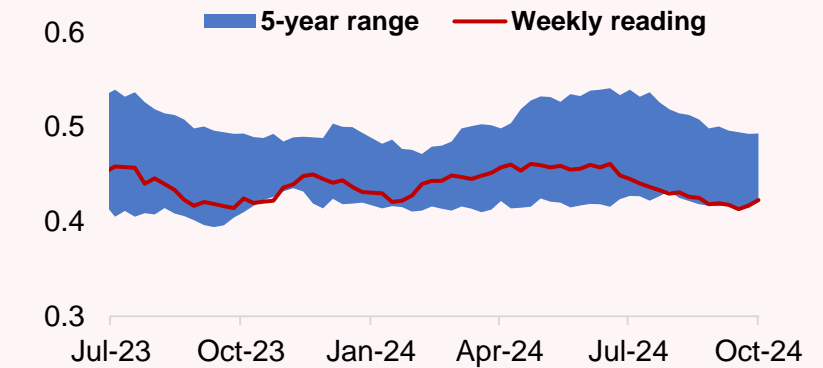
Index level



Price momentum was flat during the week ended Oct. 11.

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

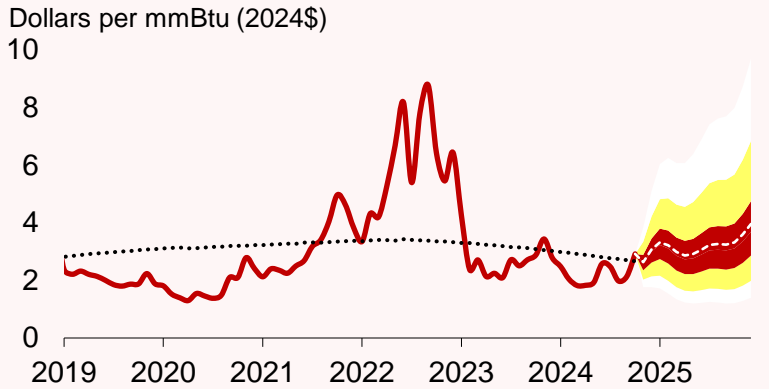
Billion barrels



Inventories increased. U.S. ending stocks of crude oil excluding the Strategic Petroleum Reserve (SPR) increased by 5.8 million barrels (mb) for the week ended Oct. 4 but remained at the bottom of the 5-year range.

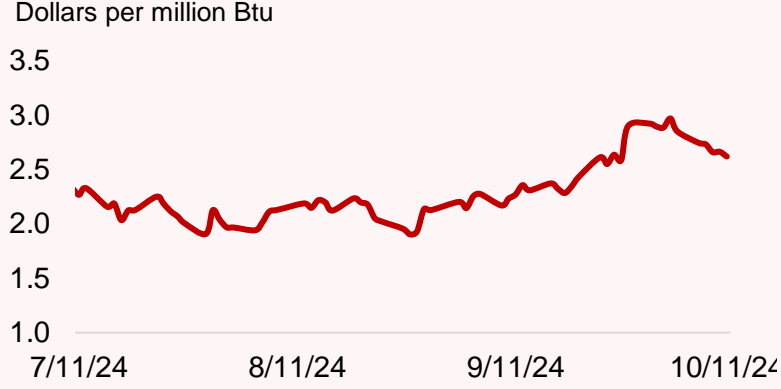
U.S. natural gas market indicators

Natural gas price mean reversion analysis



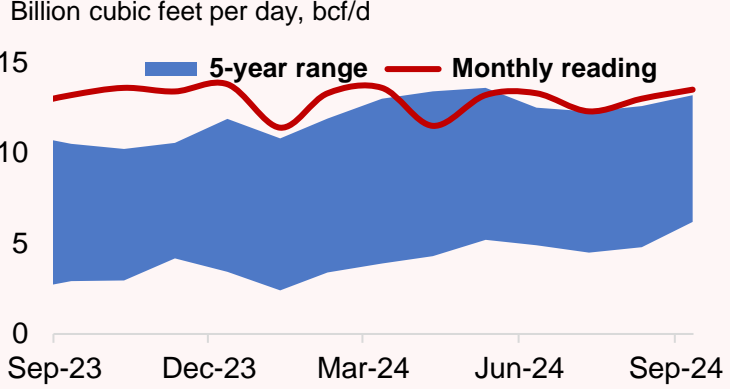
Near-term natural gas futures prices have aligned with the historical mean reversion target but rise by 26% between the contracts for delivery in November and January. Confidence intervals based on past prices show the potential for greater upside than downside.

Natural gas prompt month futures prices



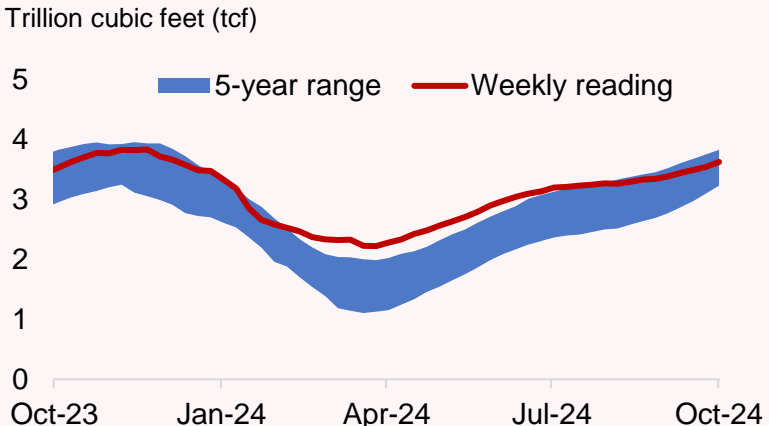
Natural gas prices at Henry Hub fell by 8.1% w/w to \$2.62 per million Btu for the week ended October 11.

U.S. natural gas net exports



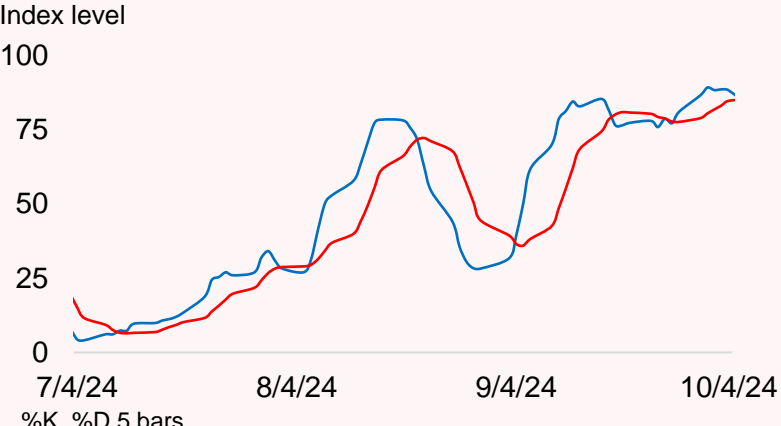
Natural gas net exports of 13.5 bcf/d, as projected for September by EIA, rose above the 5-year range and to a record high for the month of September.

U.S. weekly working gas storage



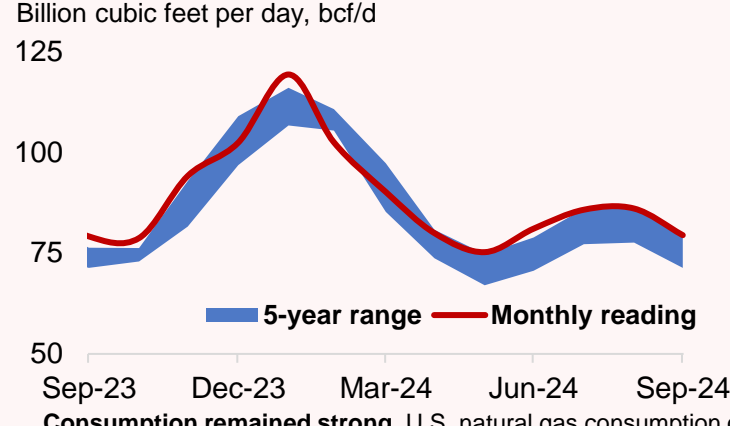
Storage recede further into the 5-year range. Working gas in underground storage rose by 2.3% w/w to 3.63 tcf as of Oct. 4 but fell to the 66th percentile within the 5-year range.

Natural gas futures slow stochastic



Natural gas price momentum was flat during the week ended October 11.

U.S. natural gas consumption



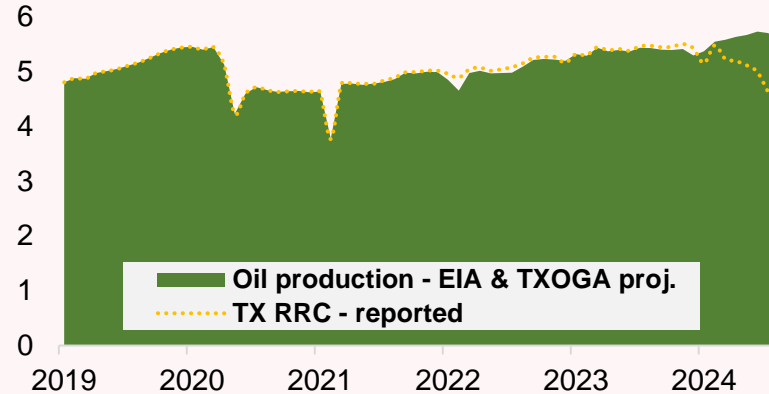
Consumption remained strong. U.S. natural gas consumption of 79.4 bcf/d in September per EIA remained at the top of the 5-year range.



Texas' oil and natural gas production

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

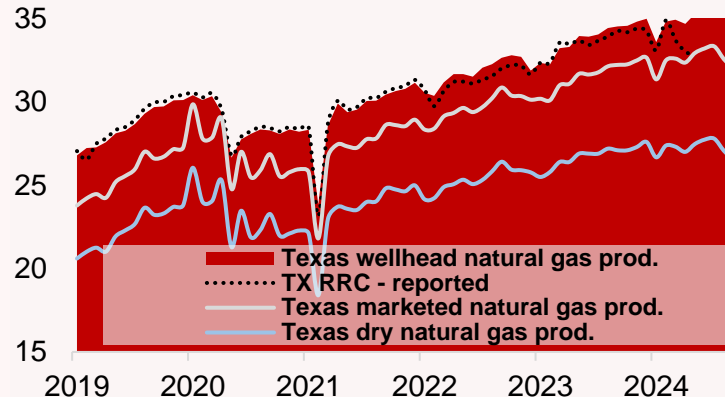
Million barrels per day (mb/d)



Near-record oil production. Texas' oil production remained above 5.7 mb/d in July per EIA, and TXOGA estimates that it slipped to 5.62 and 5.65 mb/d in August and September, respectively.

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

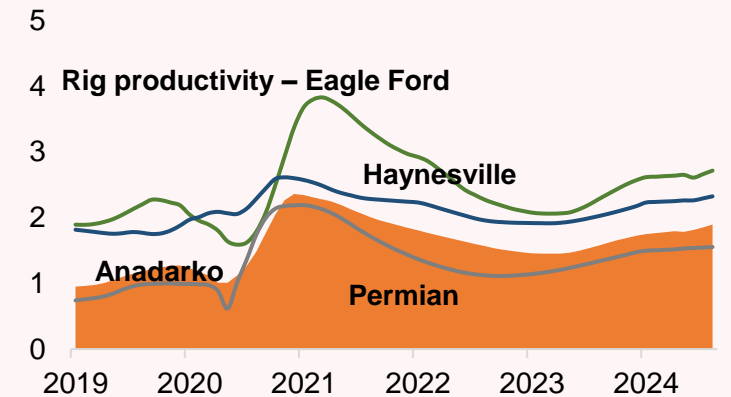
Billion cubic feet per day (bcf/d)



Record-high natural gas production. Texas produced record highs of 35.7 bcf/d of natural gas gross withdrawals and 33.3 bcf/d of marketed production in July per EIA. TXOGA estimates that Texas' marketed production was 32.0 bcf/d in September with 26.5 bcf/d of dry gas production.

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

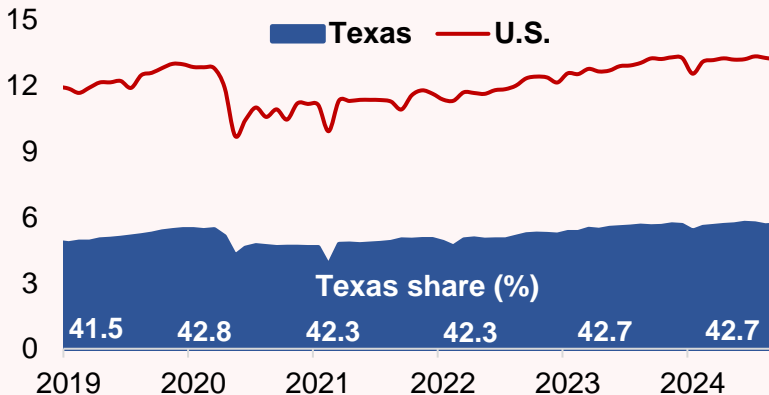
Thousand barrels per day oil-equivalent, kb/dae



Strong productivity gains. EIA estimates of rig productivity for August 2024 show continued increases year-over-year across the major Texas basins, including the Anadarko (+13.4% y/y), Eagle Ford (+15.1% y/y), Permian (+17.0% y/y), and Haynesville (+13.0% y/y).

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

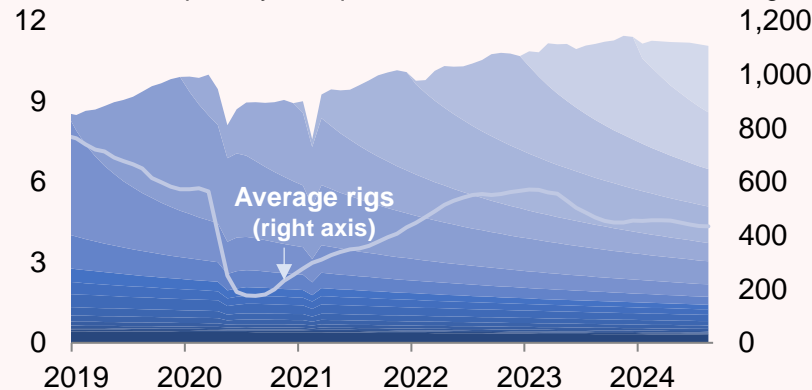
Million barrels per day (mb/d)



Texas' share remained strong. Texas accounted for an estimated 42.7% of U.S. crude oil production year-to-date through September by TXOGA's estimates.

Texas shale basin wellhead oil & natural gas production

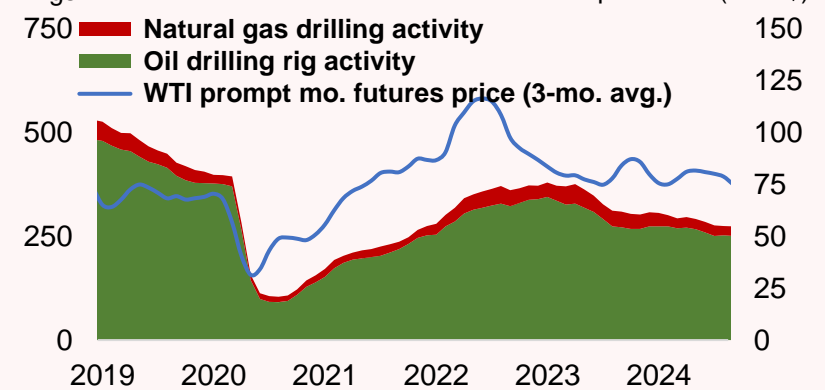
Million barrels per day oil-equivalent



EIA estimates show oil and natural gas production across Texas shale basins changes in August 2024 Permian (+6.6% y/y) but fallen in the Eagle Ford (-3.3% y/y), Haynesville (-13.7% y/y), and Anadarko (-0.8% y/y) regions.

Texas drilling activity and WTI crude oil futures prices

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

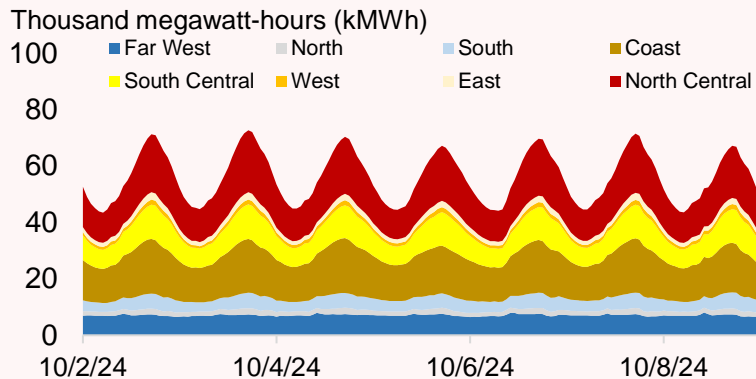


Texas' drilling rig activity rose for the week ended October 11 per Baker Hughes. Texas had 256 oil-directed rigs (up by 3 rigs w/w) and 29 natural gas-directed rigs (up by 3 rigs w/w).

Texas Electricity Analysis

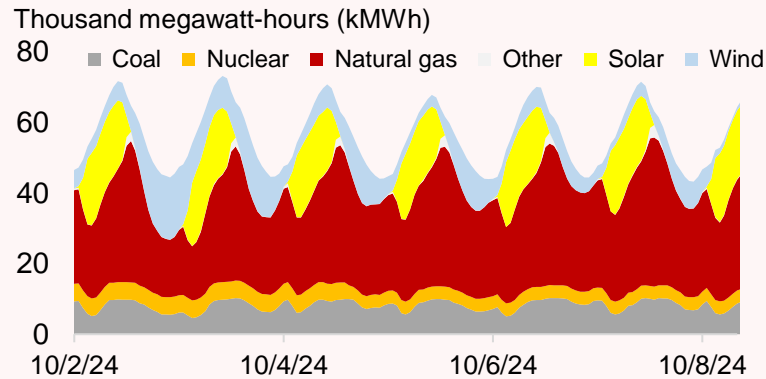


ERCOT electricity load by region



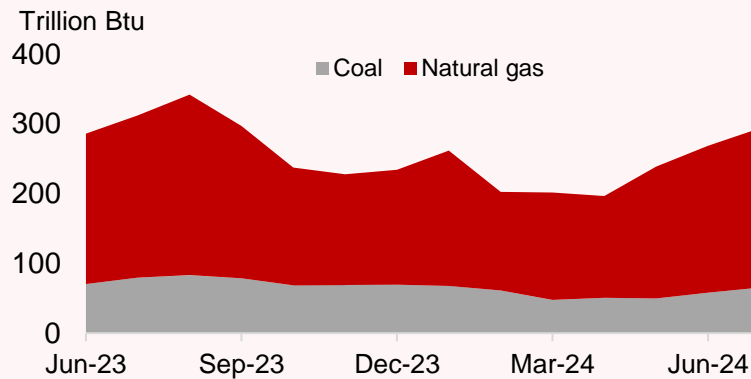
For Oct. 2-8, ERCOT's average hourly electricity load was 56.0 kMWh, up by 2.4% w/w, while the maximum load hourly load of 72.7 kMWh rose by 0.4% w/w. Variability was the highest in the North Central and South Central regions.

ERCOT hourly electricity generation by source



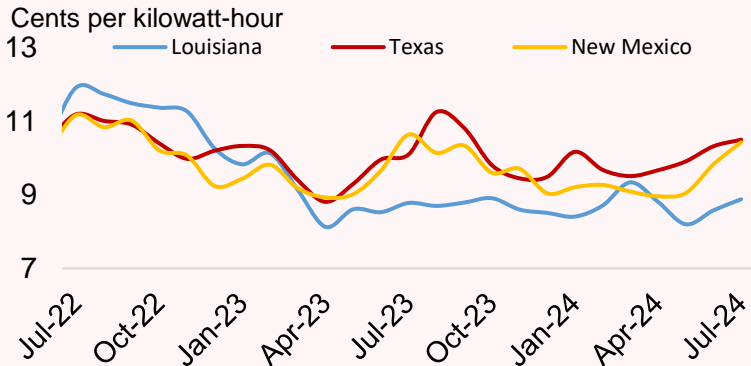
Thermal and dispatchable resources generated up to 92% of ERCOT's electricity. ERCOT's hourly electricity generation for the period Oct. 2-8 ranged between 43 and 73 kMWh with a standard deviation of 8.9 kMWh. Thermal and dispatchable sources generated 92.1% of the region's power on the morning of Oct. 7, including 63.5% from natural gas.

Texas electricity plant receipts of natural gas and coal



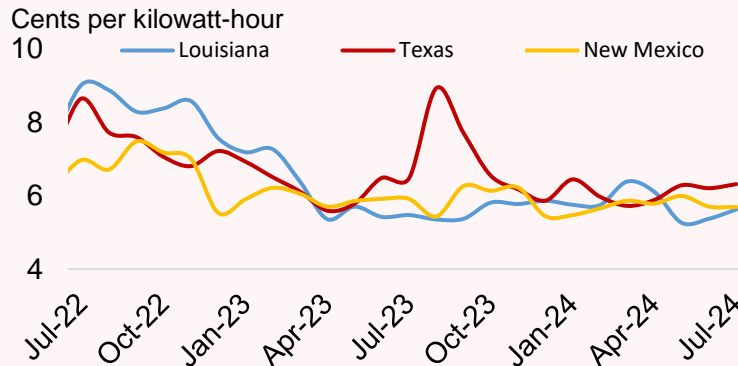
Texas electricity plant receipts of natural gas and coal increased seasonally but decreased year-over-year by 1.9% y/y and 17.4% y/y, respectively, in July 2024.

Electricity prices – average across all end-use sectors



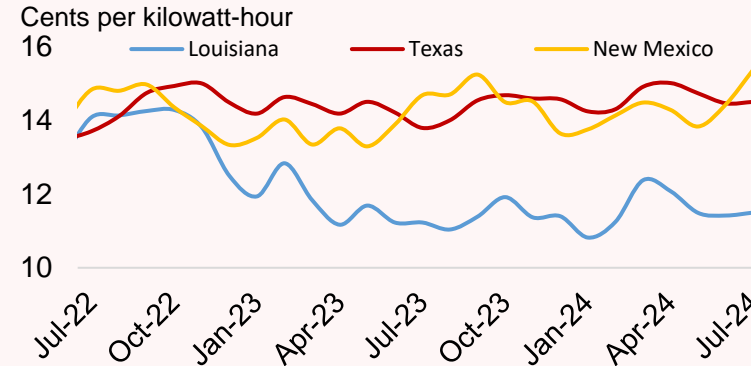
Texas' electricity prices rose in July. The average price of electricity in Texas increased by 1.7% m/m in July to 10.50 cents per kWh, compared with 8.88 cents per kWh in Louisiana and 10.43 cents per kWh in New Mexico.

Industrial electricity prices



Texas' industrial electricity prices decreased. Texas' industrial electricity prices averaged 6.31 cents per kWh in July, up by 1.8% m/m. Rates in New Mexico and Louisiana remained lower at 5.69 cents per kWh and 5.62 cents per kWh, respectively.

Residential electricity prices



Texas' residential electricity prices rose. For Texas' residential consumers, the average price of electricity (14.51 cents per kWh) rose by 0.3% m/m from June, remaining above rates in Louisiana (11.50 cents per kWh) but lower than that in New Mexico (15.39 cents per kWh).

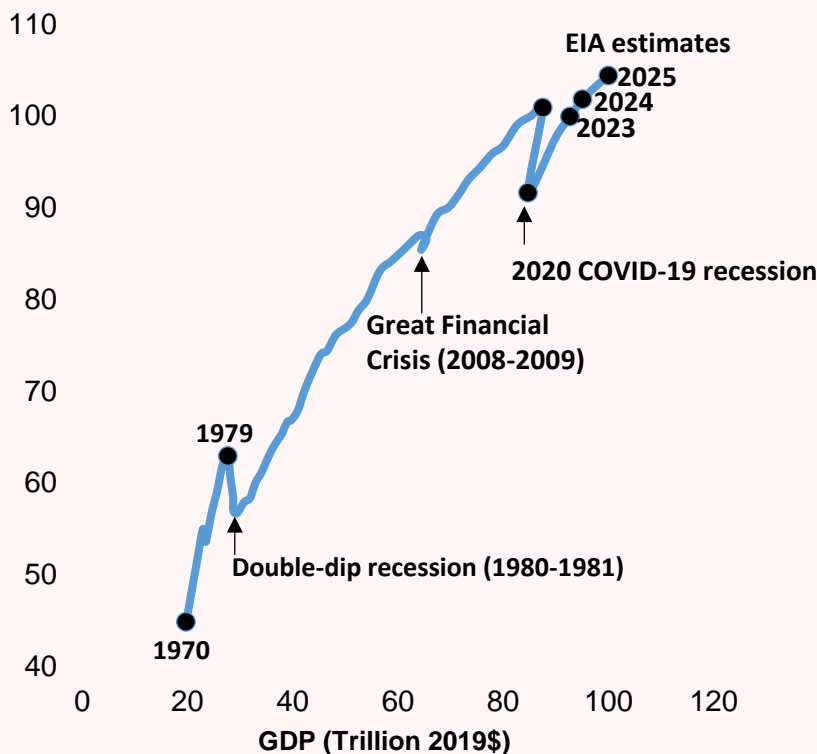
Global Oil Market Balance Projections to 2025



- **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.

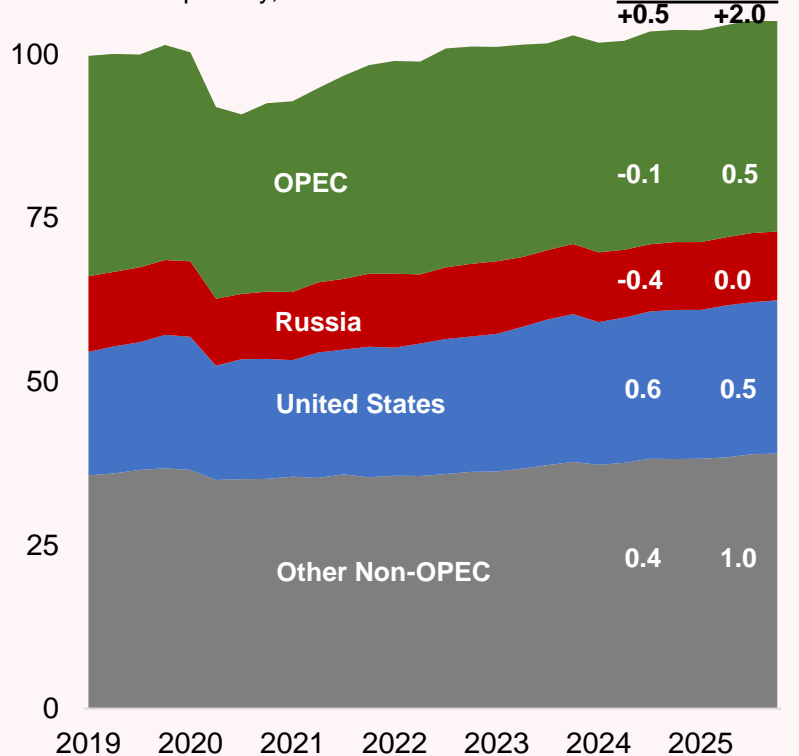
Global oil demand and GDP

Million barrels per day (mb/d)



Oil production by country/region

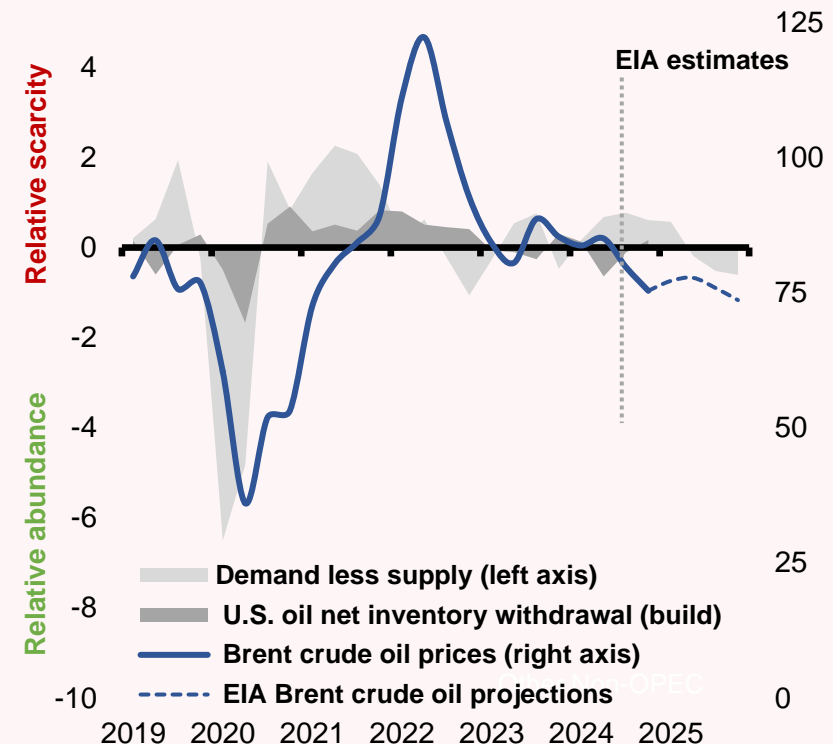
Million barrels per day, mb/d



Global demand/supply & Brent prices

Million barrels per day (mb/d)

2024\$/Bbl



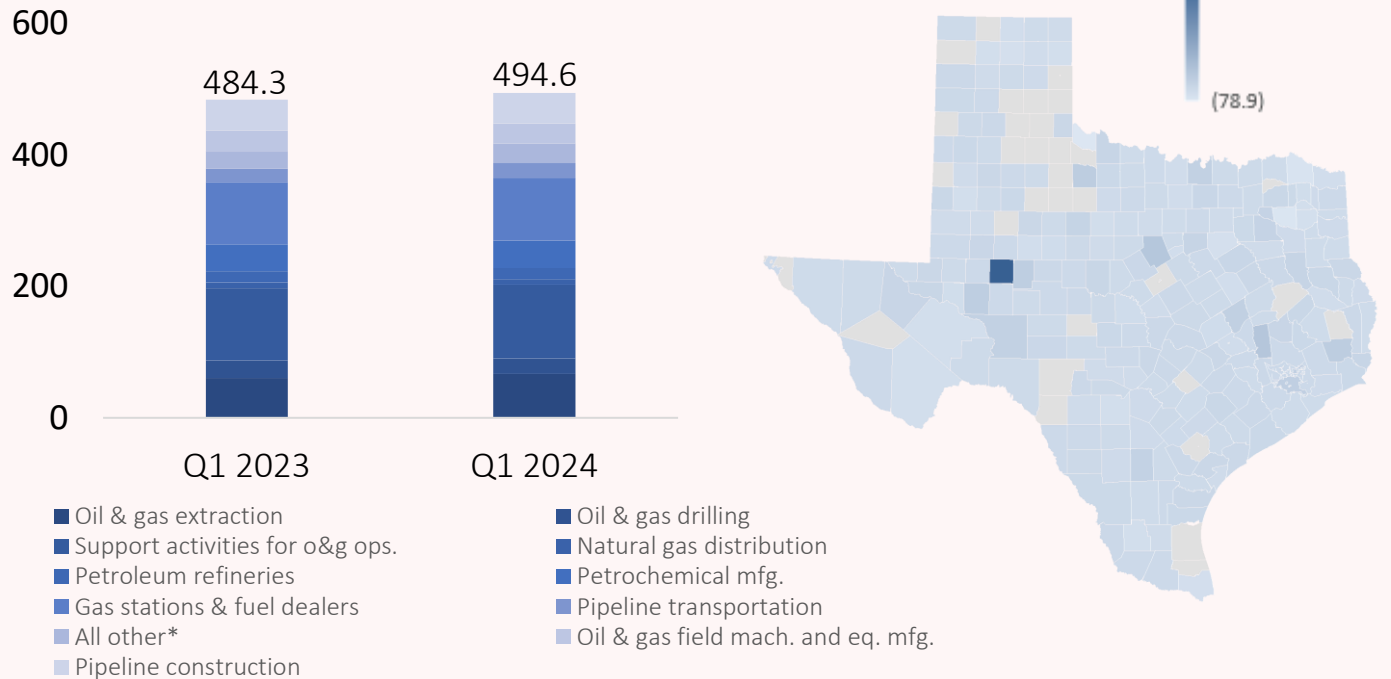
Texas' oil and natural gas industry wages eclipsed \$20.8 billion in Q1 2024



- ▶ 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

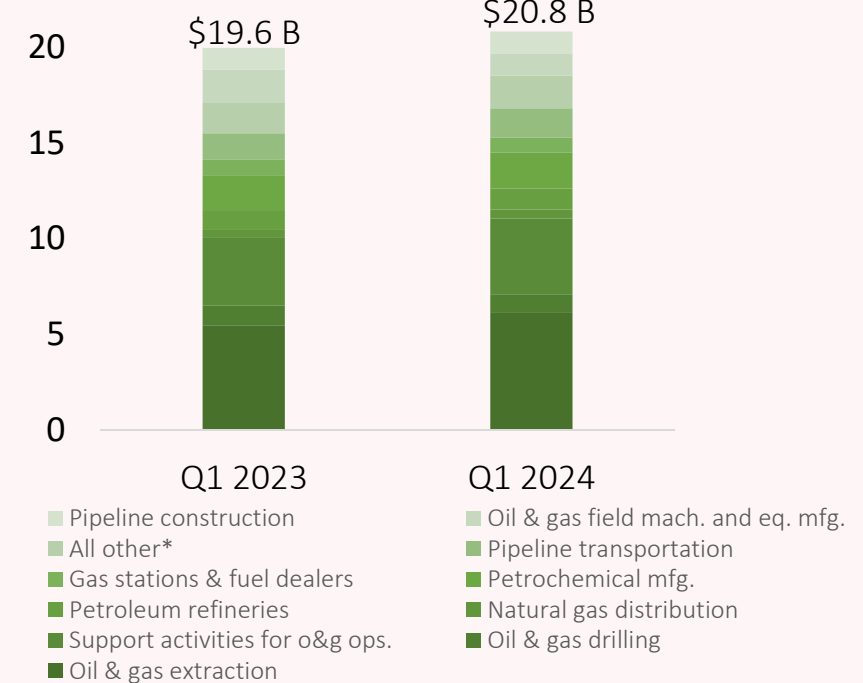
Thousand Jobs



* 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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