



September 3, 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 September 3, 2024

- **U.S. economic indicators remained strong.** Real GDP growth for Q2 2024 was revised upwards, increasing by over 3% y/y and on a seasonally-adjusted annualized basis—solid by any measure. This reflects stronger consumer spending in Q2, with consumer sentiment suggesting continued growth in Q3 2024. Business conditions, as measured by the ADS Index from the Philadelphia Federal Reserve Bank, remained stable, consistent with GDP growth. Yields on high-yield corporate bonds fell by 0.1% w/w to 13.2%, while 30-day Fed Funds futures stayed steady at 5.0%.
- **Oil market fundamentals tightened, yet prices fell.** West Texas Intermediate (WTI) crude oil dropped by \$1 per barrel w/w to \$73 as of August 30, as potential OPEC+ supply increases outweighed geopolitical uncertainties, low domestic crude stocks, and a weaker U.S. dollar. U.S. demand (21.6 million barrels per day, mb/d) was in the top 25% of the 5-year range, while crude oil inventories (425 million barrels) were in the bottom 10%, per Energy Information Administration (EIA) data for the week ended August 23.
- **U.S. natural gas prices rose as storage levels fell within the 5-year range.** U.S. natural gas exports and domestic consumption remained historically strong, leading to a 5.2% w/w increase in prices to \$2.13 per mmBtu as of August 30. Near-term futures prices fell below their historical mean, while futures contracts for December 2024 delivery rise by 42% to \$3.03 per mmBtu.
- **As highlighted in the [Chart of the Week](#),** thermal and dispatchable sources of electricity have provided 90% or more of the Electric Reliability Council of Texas (ERCOT) region's power during nearly a full week so far this year, with natural gas contributing up to 70.9%. Despite low natural gas prices, Texas' retail electricity prices have risen and remain higher than those in Louisiana and New Mexico.

TXOGA Chart of the Week: Highlights of Texas' electricity analysis

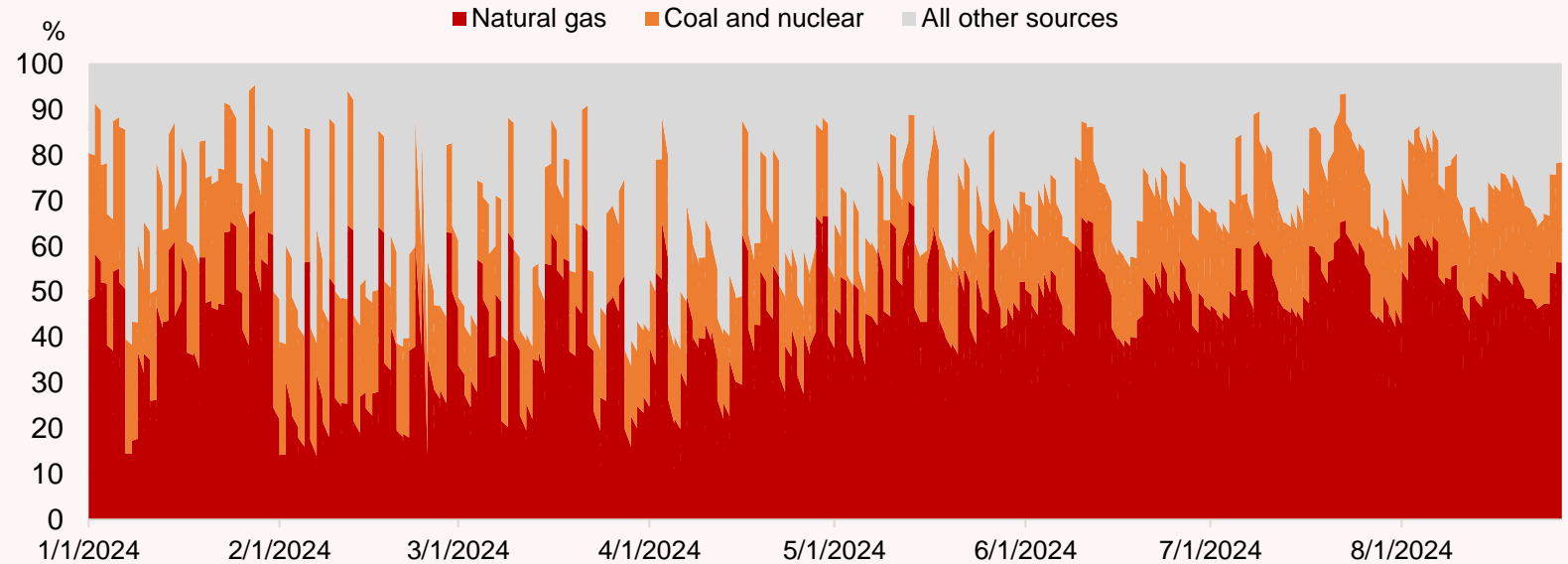


➤ The top chart shows the percent of ERCOT's generation by natural gas (red), other thermal/dispatchable sources (orange), and all other sources, mainly renewables (grey), year-to-date through August 28.

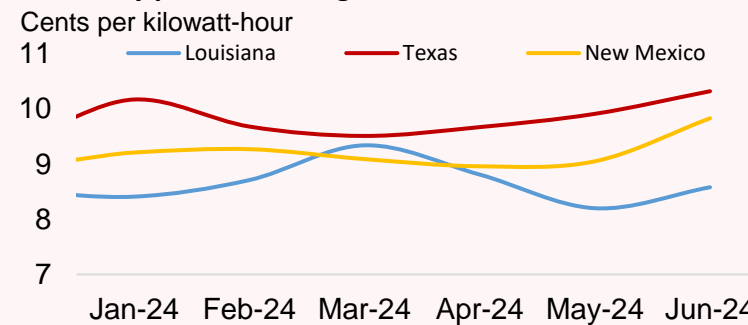
➤ **Thermal and dispatchable energy sources carry ERCOT's load.** For nearly seven full days of time so far this year, thermal and dispatchable sources provided 90% or more of the region's electricity. Natural gas has provided as much as 70.9% of ERCOT's generation.

➤ **Texas' electricity prices have risen.** The Energy Information Administration's (EIA) electricity price data through June 2024 show that, despite historically low natural gas prices, Texas' retail electricity prices have increased and remain above those of Louisiana and New Mexico.

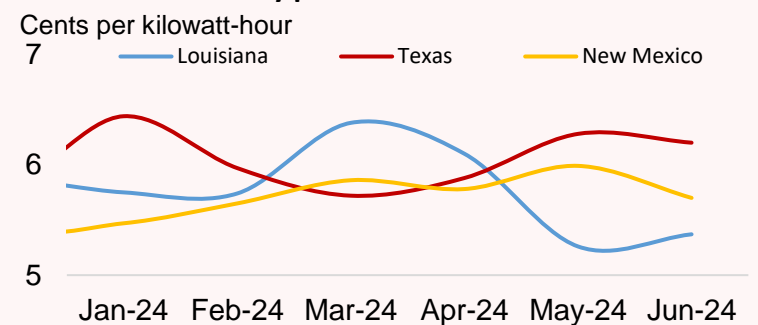
ERCOT share of generation contributed by thermal and dispatchable sources by hour – January 1 to August 28, 2024



Electricity prices – average across all end-use sectors

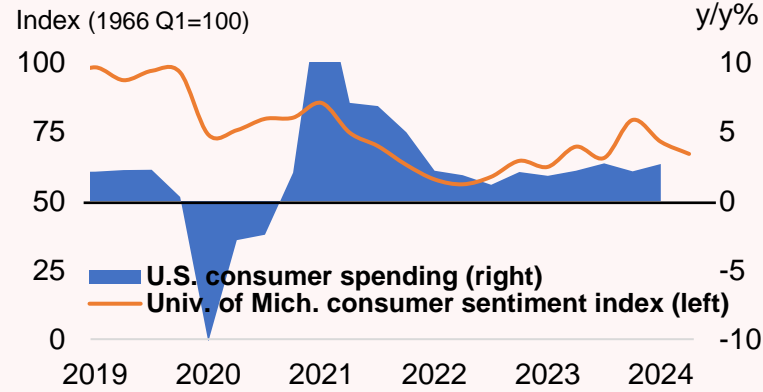


Industrial electricity prices



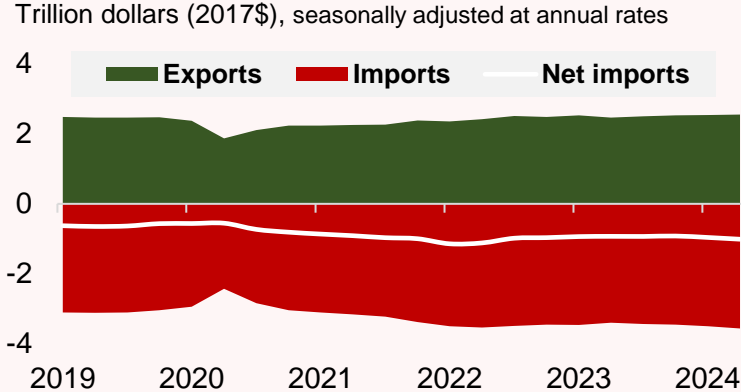
U.S. economic indicators

Consumer sentiment vs. spending



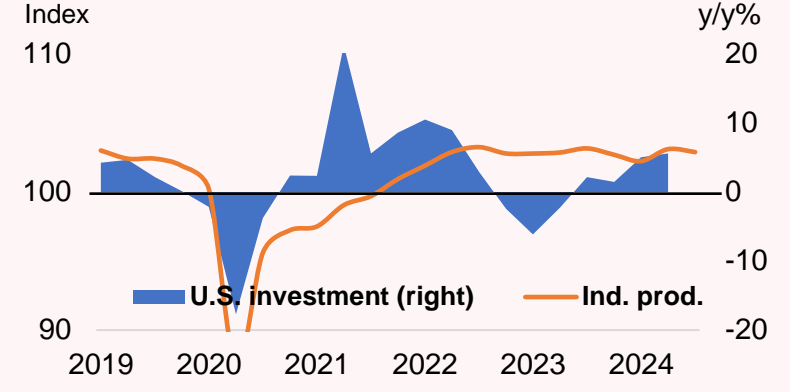
Consumer spending was revised upwards by 0.2% y/y to 2.7% y/y in Q2 2024 per the Bureau of Economic Analysis. Consumer sentiment rose in August by 2.1% m/m, according to the University of Michigan's survey. This historically implies consumer spending growth for Q3 2024.

Real net exports of goods and services



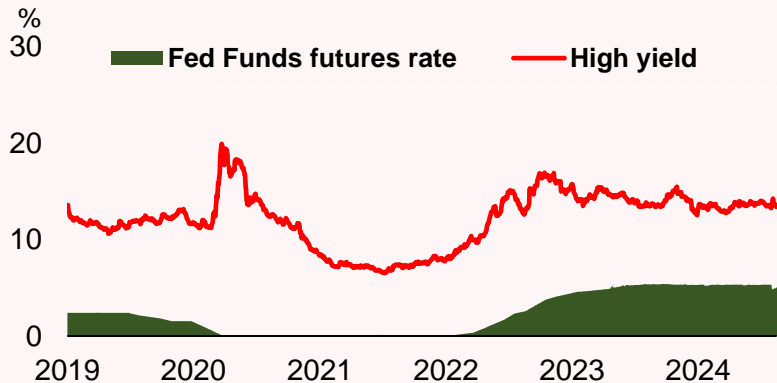
U.S. trade deficit was revised to be slightly wider in Q2 2024. The U.S. real trade deficit ran at an annualized rate of \$1.01 trillion in Q2 2024 per BEA. On a nominal basis, the trade surplus for petroleum and products was revised upwards by \$5.6 billion to \$32.6 billion Q2 2024, which was still below the \$52 billion surplus in Q1 2024.

Industrial production and investment growth



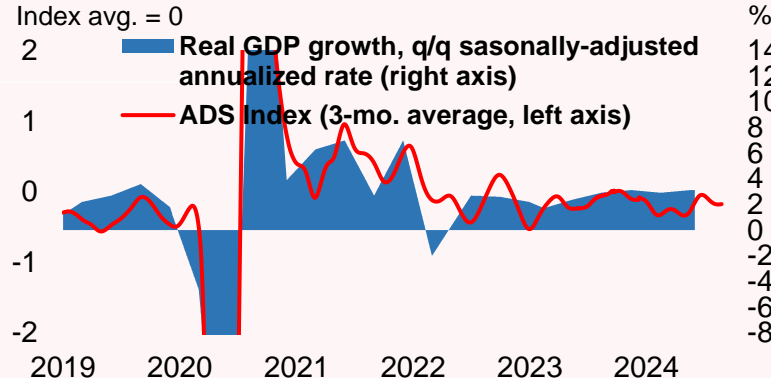
U.S. economywide investment growth was revised downwards by 0.8% y/y to 5.0% y/y for Q2 2024. This growth remained consistent U.S. industrial production, per the Federal Reserve Board – and continues to suggest investment growth in Q3 2024.

Fed Funds rate and CCC and lower corporate bond yields



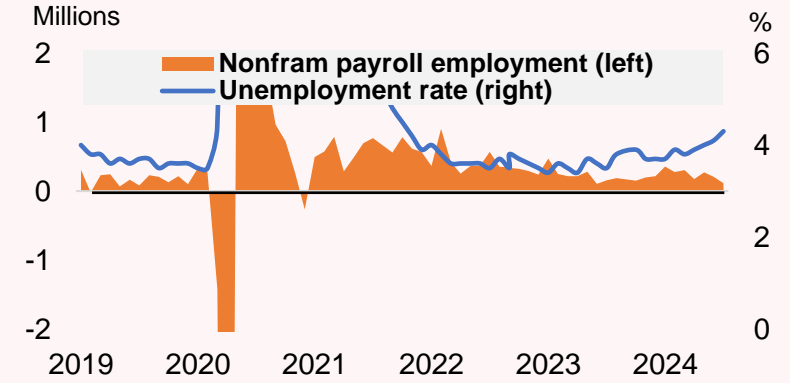
Decreased bond premium for low credit quality. High yield (HY) rates reflect debt costs for firms with below-investment grade credit quality. For the week ended Aug. 30, HY rates fell by 0.1% w/w to 13.2%, while Fed Funds futures rate held steady at 5.0%, resulting in a premium for low credit quality of 8.2%.

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 August 23, remained consistent with further growth in Q3 2024.

Nonfarm payroll employment & unemployment rate

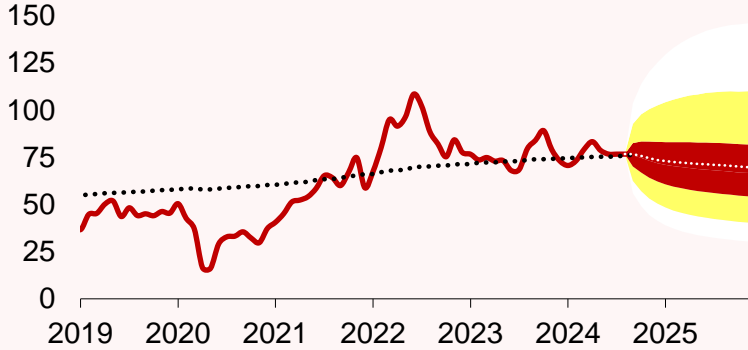


Labor market conditions weakened in July. The employment situation is a lagging indicator of GDP growth. The U.S. unemployment rate rose by 0.2% m/m to 4.3 in July per BLS, while non-farm payrolls increased by 114,000.

U.S. oil market indicators

WTI crude oil price mean reversion analysis

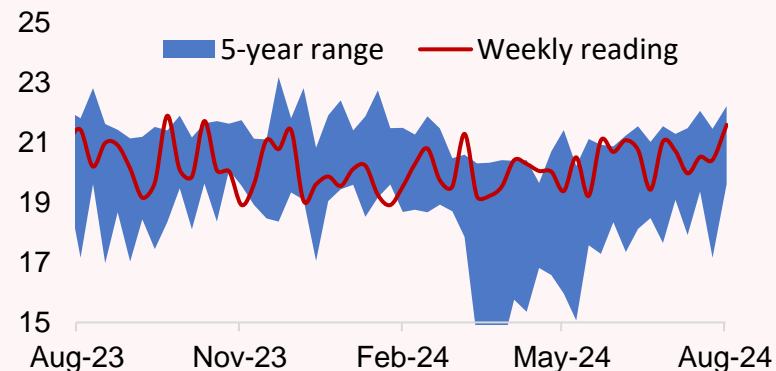
Dollars per barrel (2024\$)



Near-term futures prices have 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

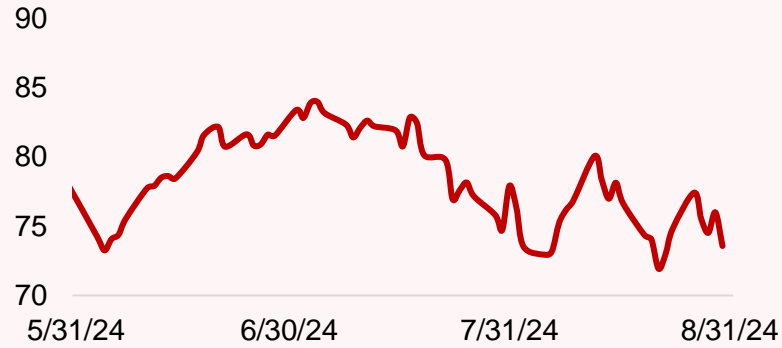
Million barrels per day (mb/d)



Petroleum demand increased. U.S. petroleum demand, as measured by deliveries, rose by 1.2 mb/d w/w to 21.6 mb/d for the week ended Aug. 23 – top 25% within the 5-year range.

WTI crude prompt month futures prices

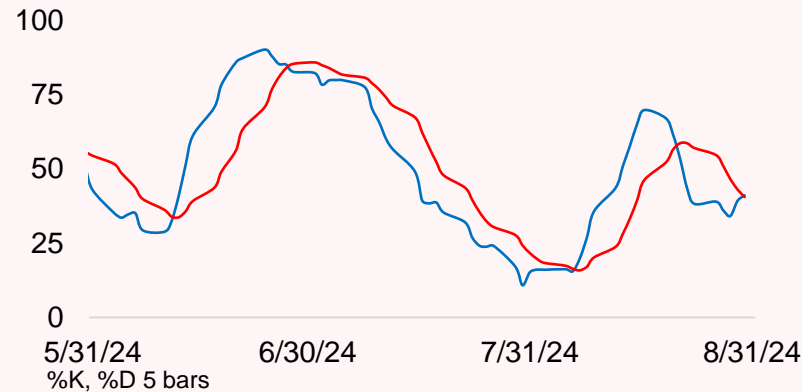
Dollars per barrel



WTI crude oil prices ended down by \$1 per barrel w/w at \$73 per barrel as of August 30, as reports that OPEC+ could increase its supply outweighed Middle East geopolitical uncertainties, a 1% w/w drop in the U.S. dollar's broad foreign exchange value, and historically low U.S. crude oil inventories.

WTI crude prompt month futures slow stochastic

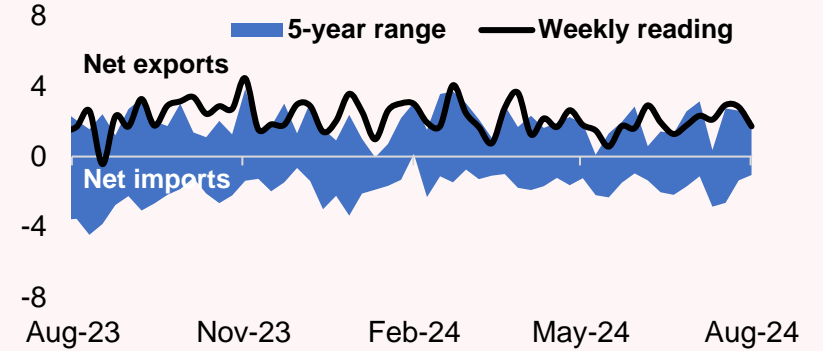
Index level



Price momentum fell during the week ended Aug. 30.

U.S. petroleum net exports (imports)

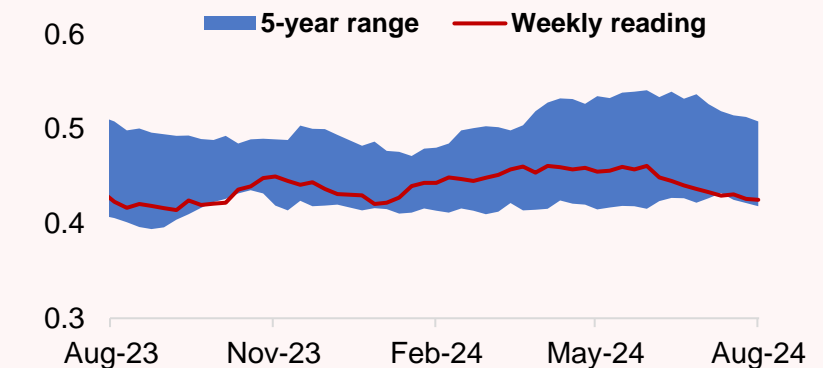
Million barrels per day, mb/d



Petroleum net exports fell. The U.S. was a petroleum net exporter of 1.8 mb/d for the week ended Aug. 23, down by 1.1 mb/d from the prior week.

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

Billion barrels

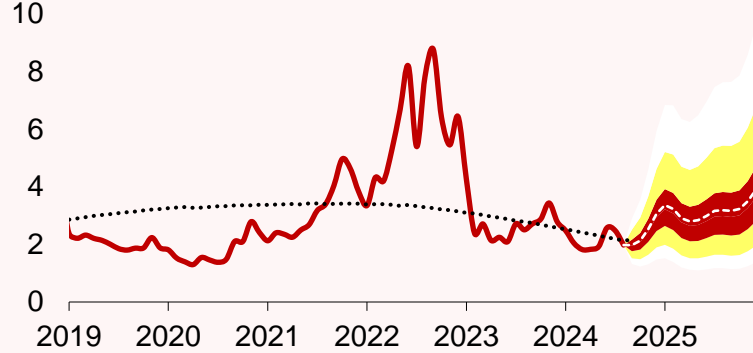


Inventories decreased. U.S. ending stocks of crude oil excluding the Strategic Petroleum Reserve (SPR) decreased by 0.8 million barrels (mb) for the week ended Aug. 23.

U.S. natural gas market indicators

Natural gas price mean reversion analysis

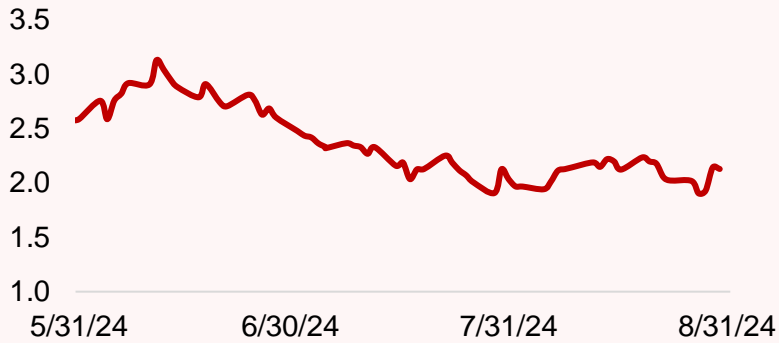
Dollars per mMBtu (2024\$)



Near-term natural gas futures prices have fallen below the historical mean reversion target and rise by 44¢ between the October and December contracts. Confidence intervals based on past prices show the potential for greater upside than downside.

Natural gas prompt month futures prices

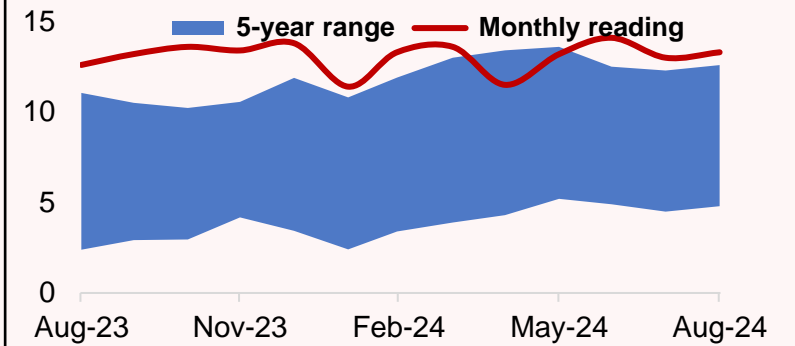
Dollars per million Btu



Natural gas prices at Henry Hub rose by 5.2% w/w to \$2.13 per million Btu for the week ended August 30.

U.S. natural gas net exports

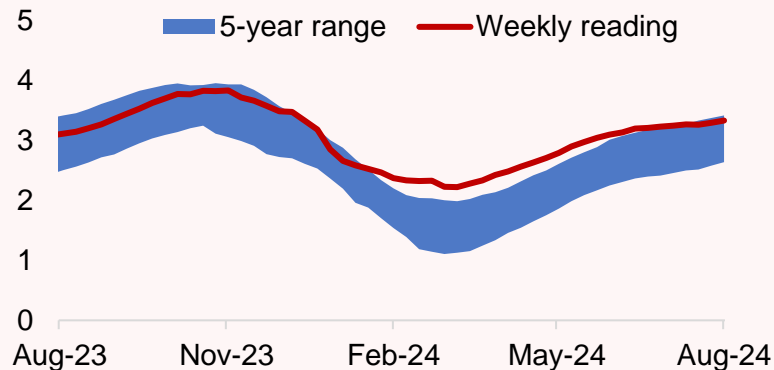
Billion cubic feet per day, bcf/d



Natural gas net exports of 13.3 bcf/d, as projected for August by EIA, slowed from a revised record-high 14.1 bcf/d in June.

U.S. weekly working gas storage

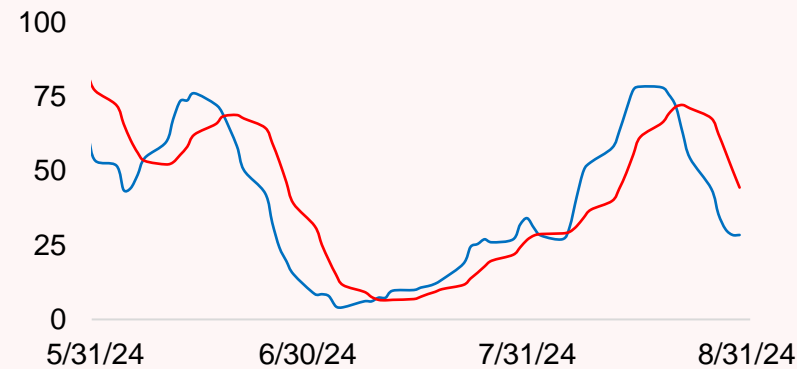
Trillion cubic feet (tcf)



Storage continued to recede into the 5-year range. Working gas in underground storage rose by 1.1% w/w to 3.33 tcf as of Aug. 23 but fell below the 90th percentile within the 5-year range, down from above the 5-year range four weeks ago.

Natural gas futures slow stochastic

Index level

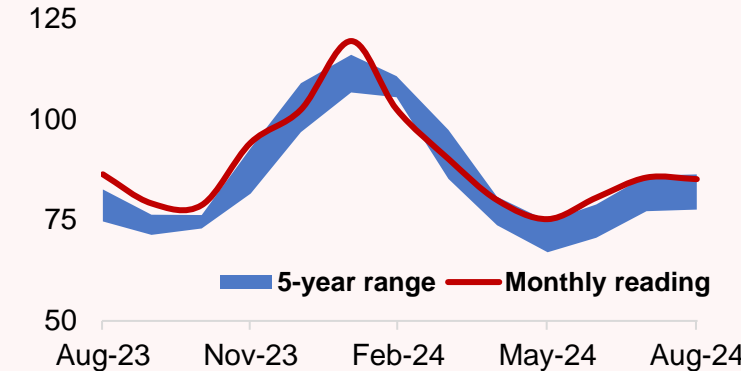


%K, %D 5 bars

Natural gas price momentum fell during the week ended Aug. 30.

U.S. natural gas consumption

Billion cubic feet per day, bcf/d

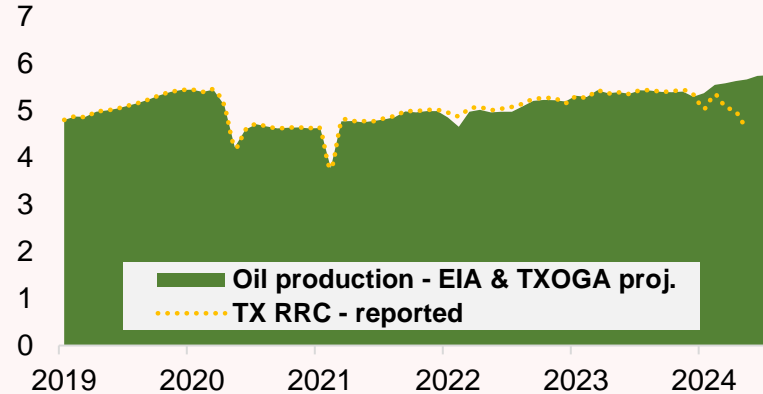


Consumption held steady. U.S. natural gas consumption fell by 0.4 bcf/d m/m to 85.1 bcf/d in August per EIA but remained near the top of the five-year range.

Texas' oil and natural gas production

Texas crude oil production, Jan. 2019 – July 2024

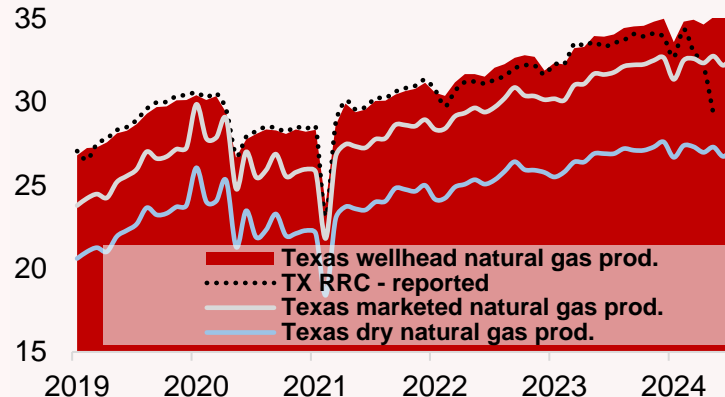
Million barrels per day (mb/d)



Record-high oil production. Texas' oil production rose to 5.67 mb/d in May per EIA, and TXOGA estimates that it exceeded 5.7 mb/d in July.

Texas natural gas production, Jan. 2019 – July 2024

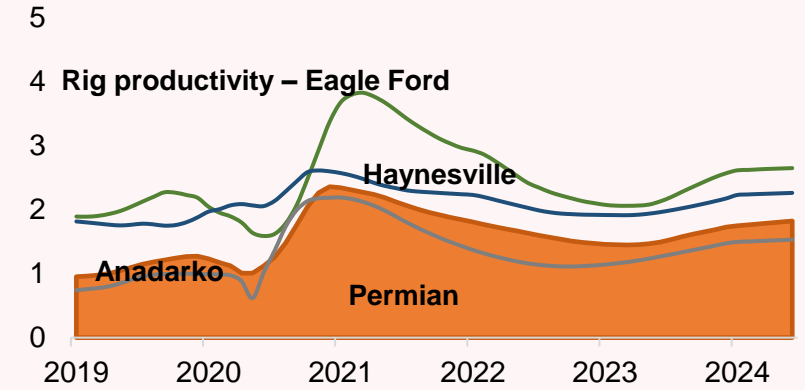
Billion cubic feet per day (bcf/d)



Record-high natural gas production. Texas produced record highs of 35.1 bcf/d of natural gas gross withdrawals and 32.7 bcf/d of marketed production in May per EIA. TXOGA estimates that Texas' marketed production fell to 32.2 bcf/d in July with 26.7 bcf/d of dry gas production.

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

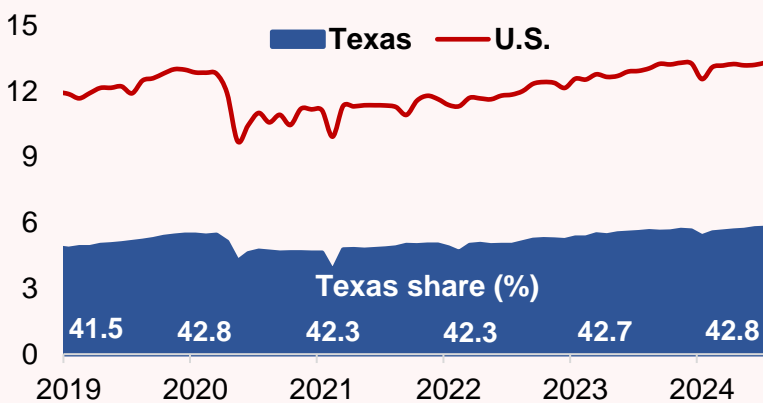
Thousand barrels per day oil-equivalent, kb/dae



Strong productivity to start the year. EIA estimates of rig productivity for June 2024 show continued increases year-over-year across the major Texas basins, including the Anadarko (+20.7% y/y), Eagle Ford (+24.5% y/y), Permian (+21.9% y/y), and Haynesville (+15.3% y/y).

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

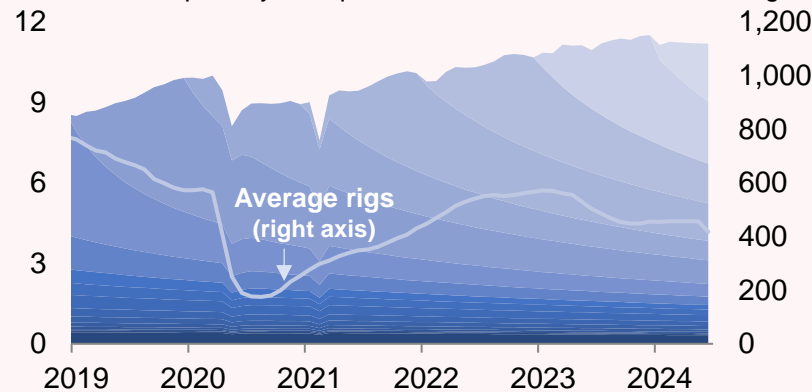
Million barrels per day (mb/d)



Texas' share increased. Texas accounted for an estimated 42.8% of U.S. crude oil production year-to-date through July by TXOGA's estimates.

Texas shale basin wellhead oil & natural gas production

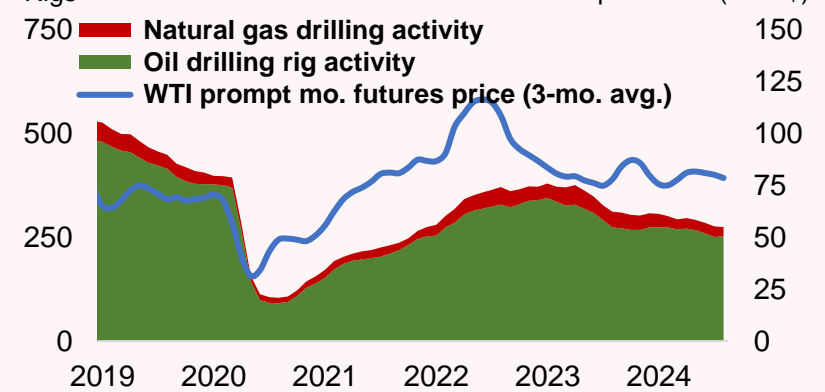
Million barrels per day oil-equivalent



EIA estimates June 2024 production growth across Texas shale basins has continued to grow year-over-year in the Permian (+9.2% y/y) but fallen in the Eagle Ford (-3.7% y/y), Haynesville (-6.8% y/y), and Anadarko (-1.8% y/y) regions.

Texas drilling activity and WTI crude oil futures prices

Rigs Dollars per barrel (2024\$)

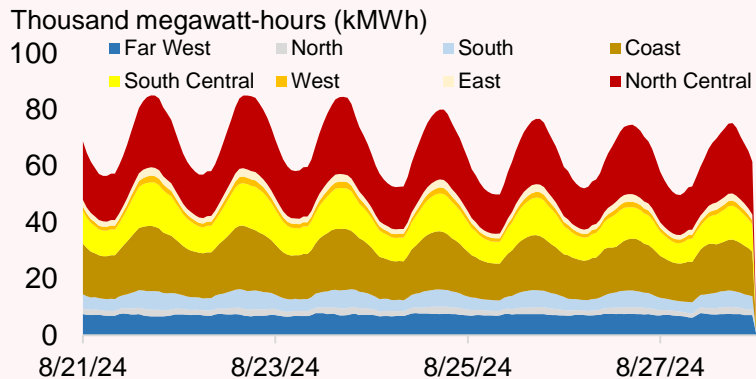


Texas' drilling rig activity held steady for the week ended August 30 per Baker Hughes. Texas had 251 oil-directed rigs and 23 natural gas-directed rigs, both unchanged from the prior week.

Texas Electricity Analysis

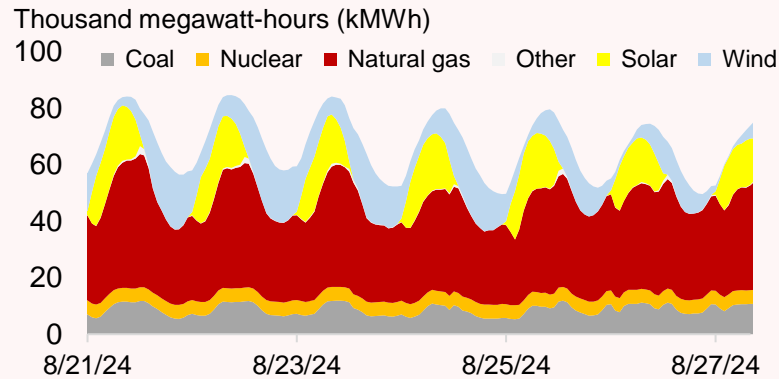


ERCOT electricity load by region



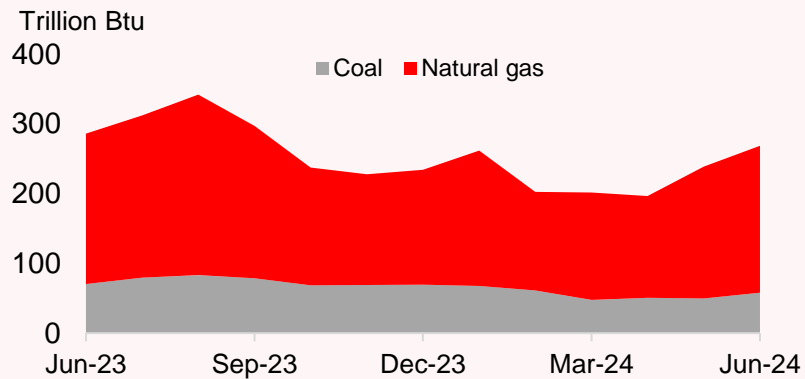
For Aug. 21 to 27, ERCOT's average hourly electricity load was 66.6 kMWh, down by 4.2% w/w, while the maximum load hourly load of 85.0 kMWh fell by 0.6% w/w. Variability was the highest in the South Central and North Central regions.

ERCOT hourly electricity generation by source



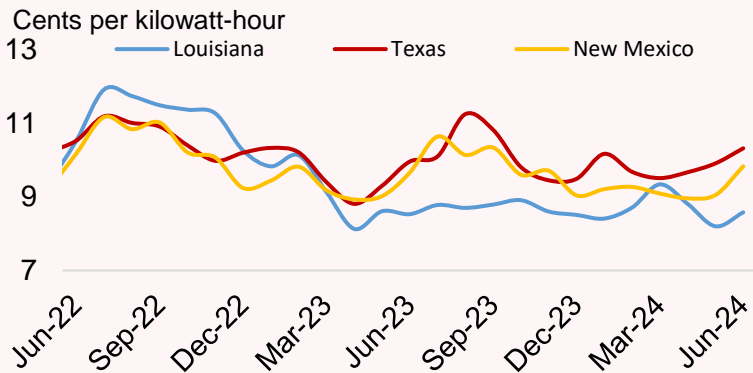
Thermal and dispatchable resources generated as much as 93.3% of ERCOT's electricity. ERCOT's hourly electricity generation for the period Aug. 21 to 27 ranged between 50 and 85 kMWh with a standard deviation of 10.3 kMWh, down by 1.5% w/w. Thermal and dispatchable sources generated 93.3% of the region's power in the morning of Aug. 27, including 64% from natural gas.

Texas electricity plant receipts of natural gas and coal



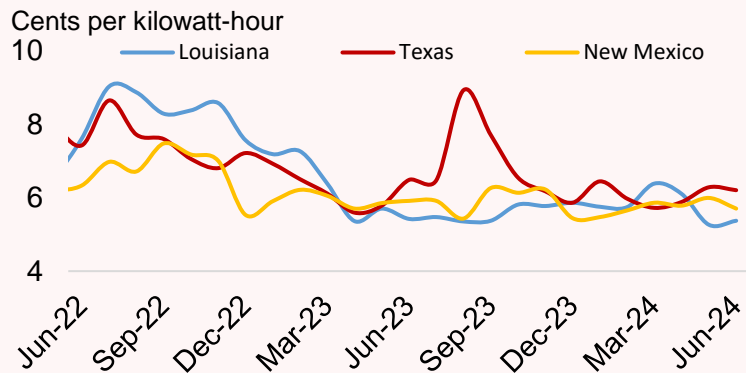
Texas electricity plant receipts of natural gas and coal increased seasonally but decreased year-over-year by 2.4% y/y and 17.7% y/y, respectively, in June 2024.

Electricity prices – average across all end-use sectors



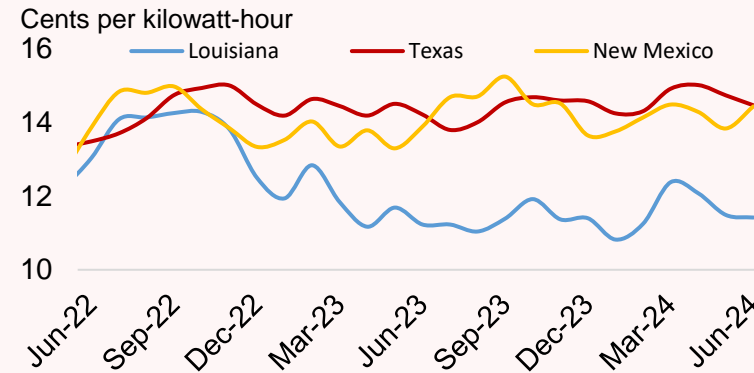
Texas' electricity prices rose in June. The average price of electricity in Texas increased by 3.6% y/y in June to 10.32 cents per kWh, compared with 8.58 cents per kWh in Louisiana and 9.83 cents per kWh in New Mexico.

Industrial electricity prices



Texas' industrial electricity prices decreased. Texas' industrial electricity prices averaged 6.20 cents per kWh in June, down by 1.3% m/m and by 4.3% y/y. Rates in New Mexico and Louisiana remained lower at 5.70 cents per kWh and 5.37 cents per kWh, respectively.

Residential electricity prices



Texas' residential electricity prices fell from May but rose versus last year. For Texas' residential consumers, the average price of electricity (14.47 cents per kWh) fell by 1.8% m/m from May but rose by 1.8% y/y from a year ago, remaining above rates in Louisiana (11.42 cents per kWh) and on par with New Mexico (14.44 cents per kWh).

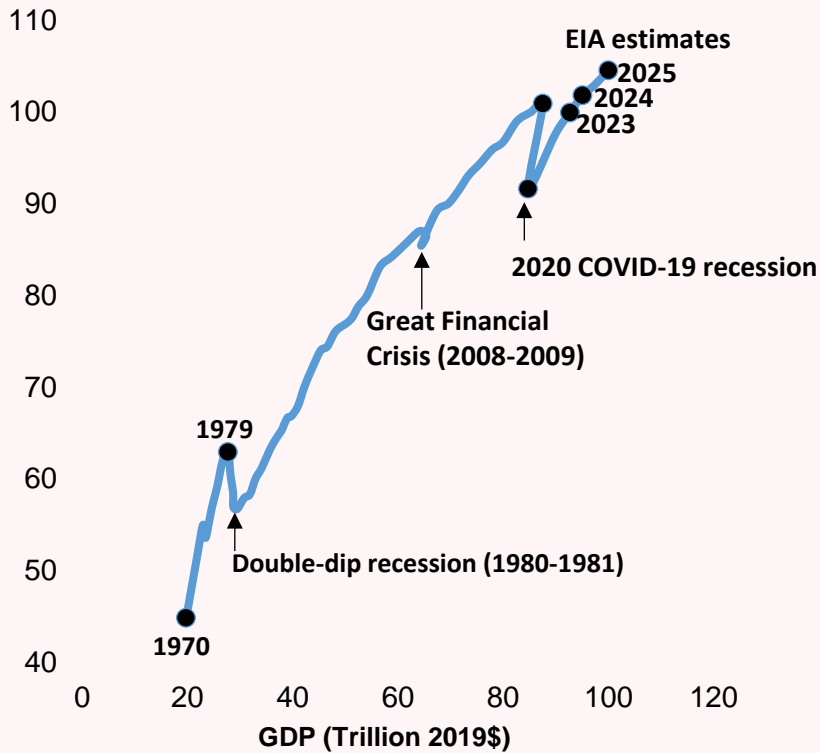
Global Oil Market Balance Projections to 2025



- **Solid demand and inventory drawdowns.** EIA's August 2024 Short-Term Energy Outlook projects global demand of 102.9 mb/d this year and 104.6 mb/d in 2025 – both record highs.
- **For oil inventories, EIA projects global stock withdrawals to continue through Q2 2025,** including 0.9 mb/d in Q3 2024 and as high as 1.0 mb/d in Q1 2025, corresponding with Brent crude oil prices of \$86 in Q4 2024 and on average in 2025, compared with \$81 per barrel currently.

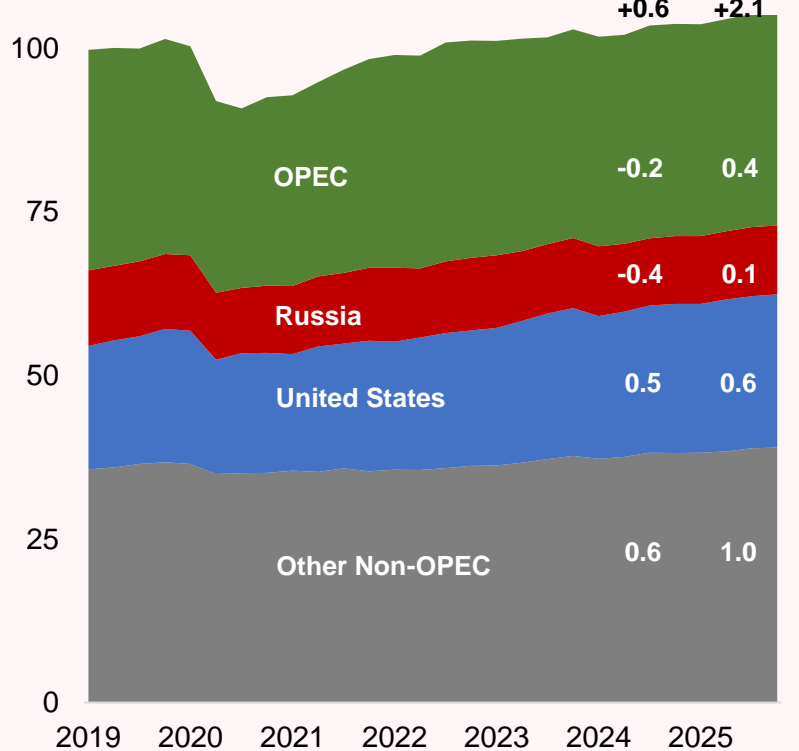
Global oil demand and GDP

Million barrels per day (mb/d)



Oil production by country/region

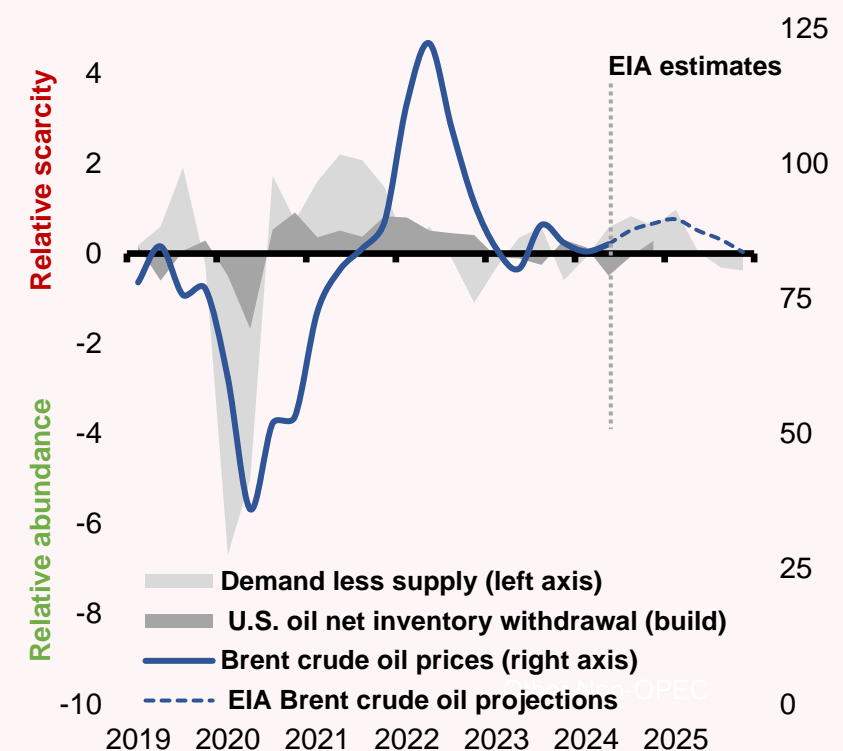
Million barrels per day, mb/d



Global demand/supply & Brent prices

Million barrels per day (mb/d)

2024\$/Bbl



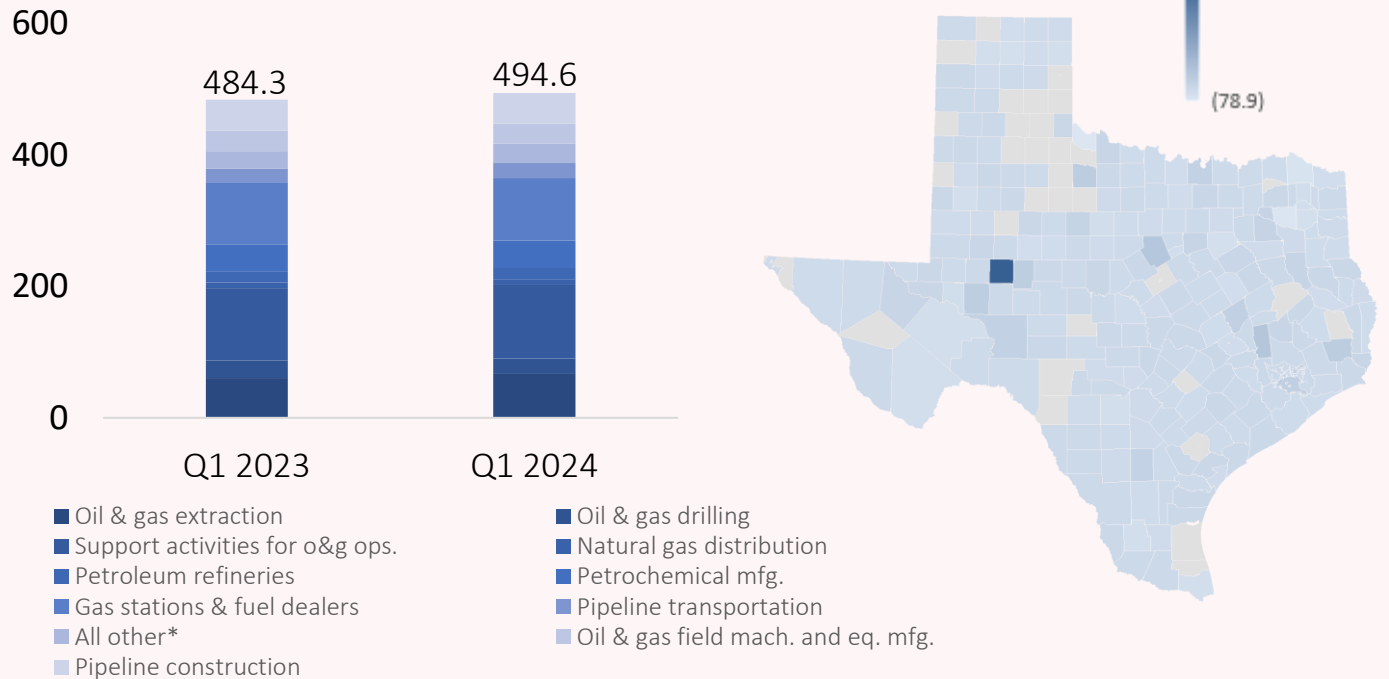
Texas' oil and natural gas industry wages eclipsed \$20.8 billion in Q1 2024



- ▶ 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

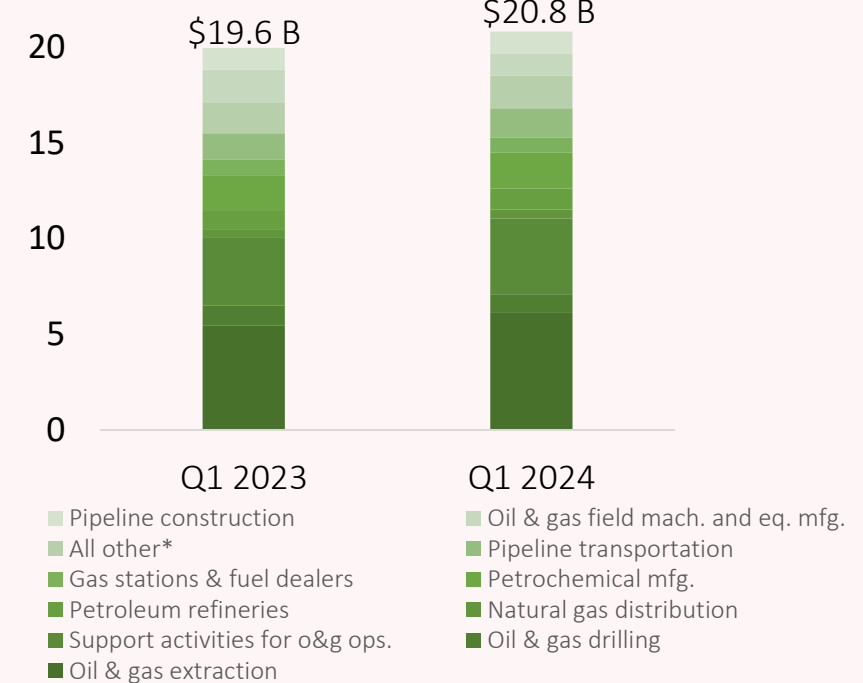
Thousand Jobs



* 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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