



August 5, 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 August 5, 2024

- ▶ **U.S. economic indicators show industrial strength but labor weakness and consumer pressures.** Industrial production grew 1.6% year-over-year in June, its strongest since November 2022, and improved business conditions per the ADS Index from the Philadelphia Federal Reserve Bank align with GDP growth in Q3 2024. Conversely, consumer sentiment, measured by the University of Michigan's final July reading, was revised upwards but still showed weakness compared to the prior month and year. Non-farm payrolls increased by 114,000 while June payrolls were revised downwards, and the unemployment rate rose by 0.2% in July to 4.3%, likely supporting a Federal Reserve rate cut in September.
- ▶ **Oil market fundamentals tightened, but economic concerns pushed oil prices down** by 4% week-over-week (w/w) to \$74 per barrel as of August 2. In weekly U.S. petroleum data as of July 26, strong consumption and exports outweighed record-high domestic crude oil production of 13.3 million barrels per day (mb/d), resulting in a 3.4 million barrels (mb) drawdown of crude oil inventories (excluding the Strategic Petroleum Reserve). Domestic crude oil inventories have fallen by 27.6 mb (6.0%) over the past five weeks to the bottom of their 5-year range.
- ▶ **Texas crude oil, natural gas, and natural gas liquids (NGL) production achieved new record highs** in May 2024, and Texas crude oil production rose further in July by TXOGA's estimates, as highlighted in the [Chart of the Week](#).
- ▶ **U.S. natural gas seasonal inventory building continued to slow.** Although U.S. natural gas production and exports remained strong in July, according to EIA estimates, natural gas inventories have remained historically high and exerted downward pressure on prices. However, the pace of seasonal inventory building has slowed, with natural gas storage shifting from being 25% above the top of its 5-year range a month ago to being within 1% of it as of July 26. The natural gas futures contract for delivery in December 2024 is priced at \$3.13 per million Btu (mmBtu), 58% higher than the prompt month contract for September delivery (\$1.98 per mmBtu) as of August 2.

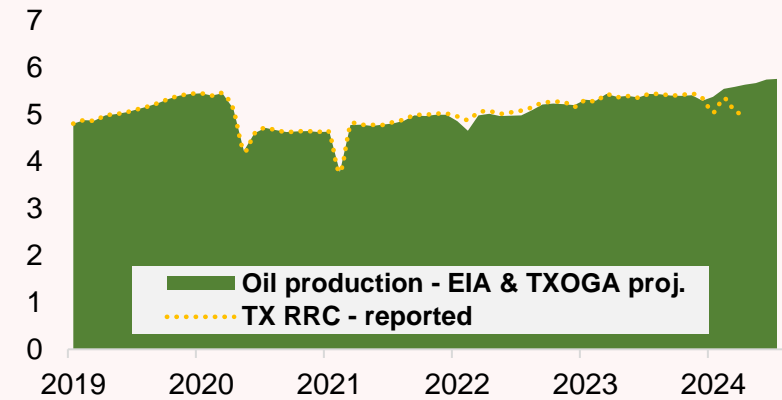
TXOGA Chart of the Week: Record Highs for Texas crude oil, natural gas, and NGL production



- ▶ **Record-high oil production.** Texas' oil production rose to 5.67 mb/d in May 2024 per EIA, confirming TXOGA's forecast as published in the [May/June 2024 Monthly Energy Economics Review](#). Our current estimate is that production exceeded 5.7 mb/d in July and achieved another record level.
- ▶ **Record-highs for natural gas and NGL production.** In May, Texas produced 32.7 billion cubic feet per day (bcf/d) of natural gas marketed production per the EIA, within 0.6% of TXOGA's May/June projection of 32.5 bcf/d, confirming the projected record high. Texas also produced 3.80 mb/d of NGLs in May 2024, according to the EIA, marking a record high.
- ▶ For July 2024, TXOGA estimates that Texas' marketed natural gas production fell to 32.2 bcf/d, including 3.8 mb/d of natural gas liquids (NGL) field production and 26.7 bcf/d of dry natural gas.
- ▶ These production records are particularly notable since they occurred despite drilling activity year-to-date through July falling by 8.4% for oil and 24.6% for natural gas per Baker Hughes. Consequently, estimated rig productivity gains have exceeded 20% year-over-year in the Permian, Eagle Ford, and Anadarko basins, according to the EIA.

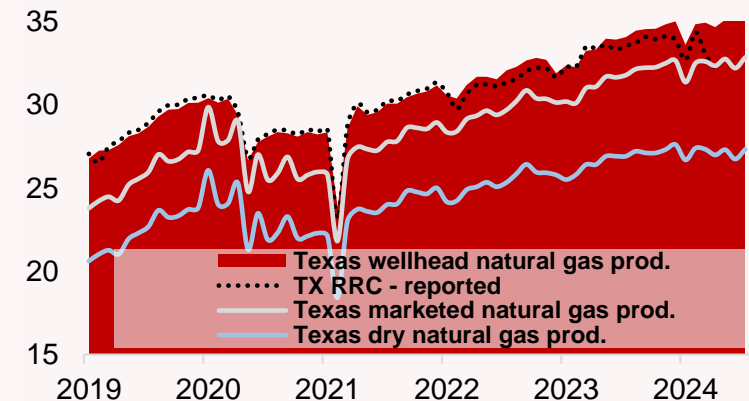
Texas crude oil production, Jan. 2019 – July 2024

Million barrels per day (mb/d)



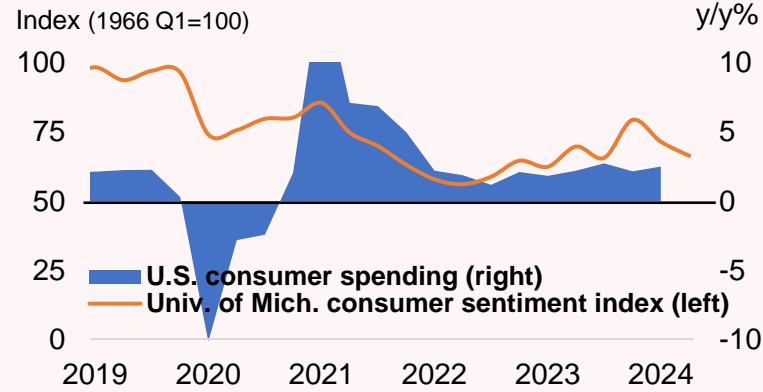
Texas natural gas production, Jan. 2019 – July 2024

Billion cubic feet per day (bcf/d)



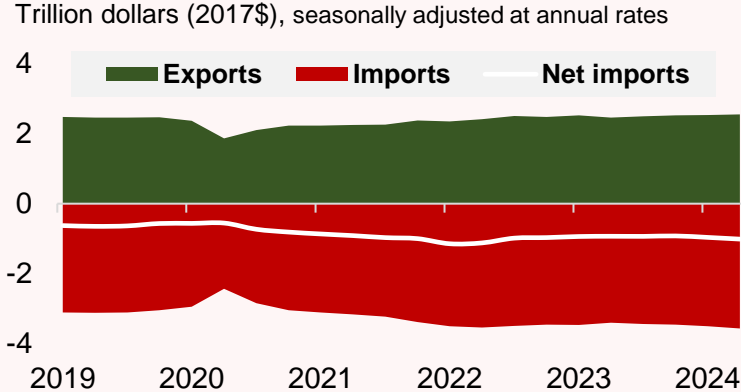
U.S. economic indicators

Consumer sentiment vs. spending



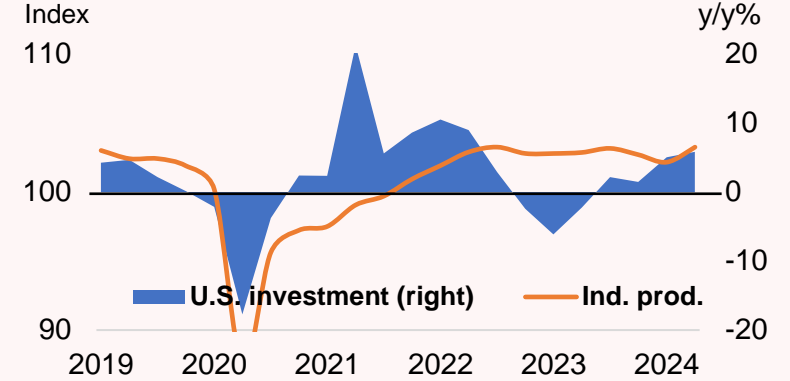
Consumer sentiment was revised upwards by 0.6% m/m for July, but still reflected decreases from the prior month (-2.6%) and prior year (-7.1%), according to the University of Michigan's survey. This historically implies slower consumer spending growth for Q3 2024.

Real net exports of goods and services



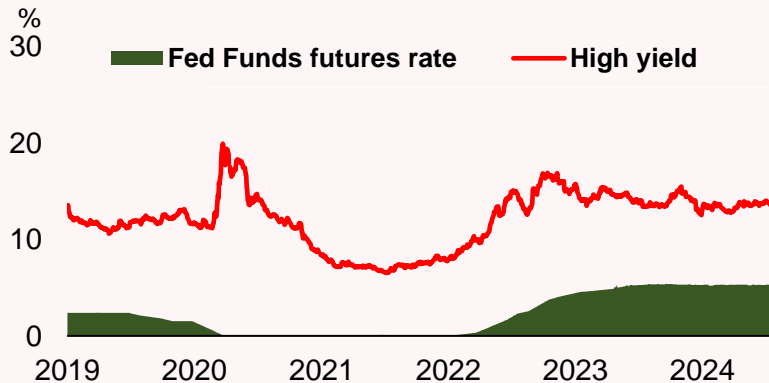
U.S. trade deficit widened in Q2 2024. The U.S. real trade deficit ran at an annualized rate of \$1.0 trillion in Q2 2024 per BEA, up from \$960B in Q1 2024. On a nominal basis, the trade surplus for petroleum and products fell to an annualized rate of \$27 billion in Q2 2024 (vs. \$52 billion in Q1).

Industrial production and investment growth



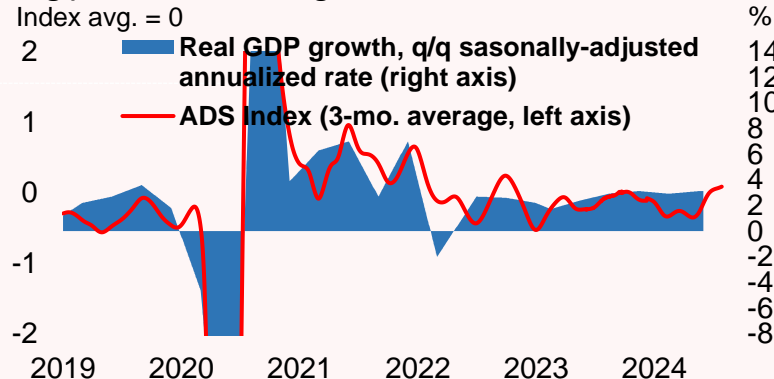
U.S. economywide investment grew by 5.8% y/y in Q2 2024, per the Bureau of Economic Analysis. The correlation with industrial production, which rose by 1.6% y/y in June per the Federal Reserve Board, remains consistent with further investment growth.

Fed Funds rate and CCC and lower corporate bond yields



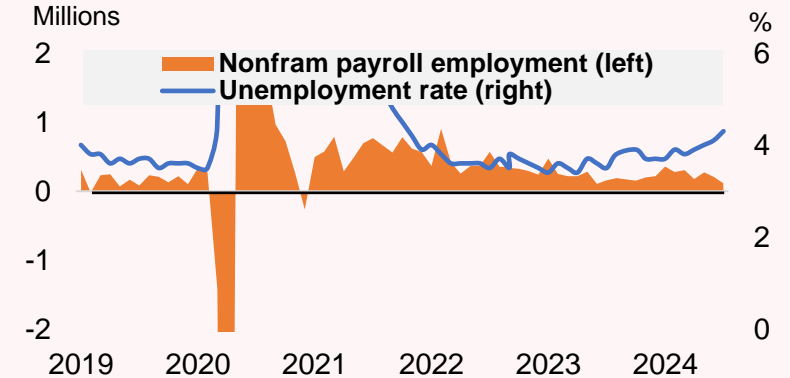
Bond premium for low credit quality decreased. High yield (HY) rates reflect debt costs for firms with below-investment grade credit quality. For the week ended Aug. 2, HY rates fell by 0.1% w/w to 13.4%, while Fed Funds futures rates held steady around 5.3%, resulting in a premium for low credit quality of 8.1%.

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



The ADS index has strengthened in July, suggesting solid GDP 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 has accurately reflected real GDP growth and with recent increases remains consistent with further growth in Q3.

Nonfarm payroll employment & unemployment rate

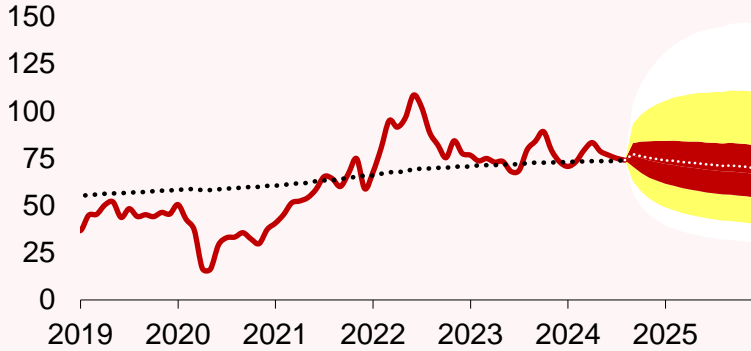


Solid labor market growth continued in June. The employment situation is a lagging indicator of GDP growth. The U.S. unemployment rate rose by 0.2% m/m to 4.3 in July per BLS, while non-farm payrolls increased by 114,000.

U.S. oil market indicators

WTI crude oil price mean reversion analysis

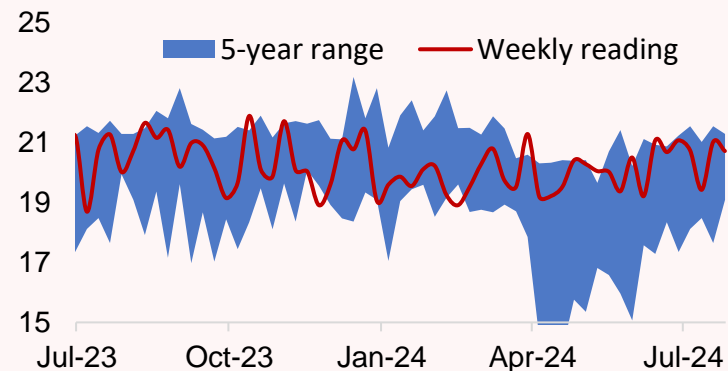
Dollars per barrel (2024\$)



Near-term futures prices slightly exceed 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

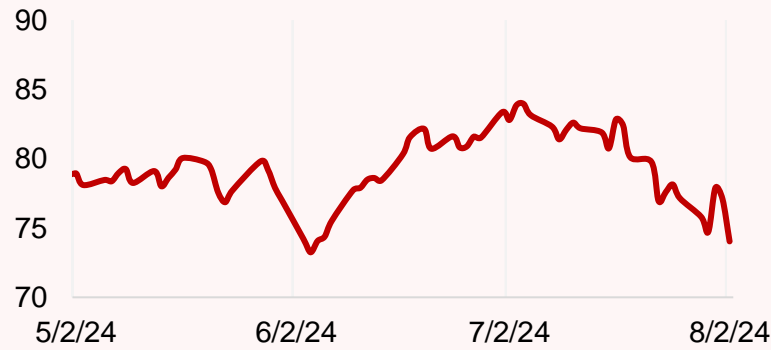
Million barrels per day (mb/d)



Petroleum demand decreased. U.S. petroleum demand, as measured by deliveries, fell by 0.3 mb/d w/w to 20.7 mb/d for the week ended July 26.

WTI crude prompt month futures prices

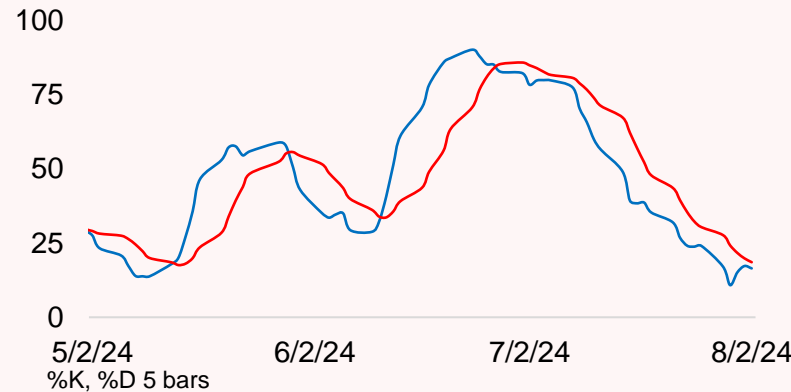
Dollars per barrel



WTI crude oil prices fell to \$74 per barrel for the week ended August 2, as broader economic concerns weighed against tightened fundamentals and a Middle East geopolitical premium.

WTI crude prompt month futures slow stochastic

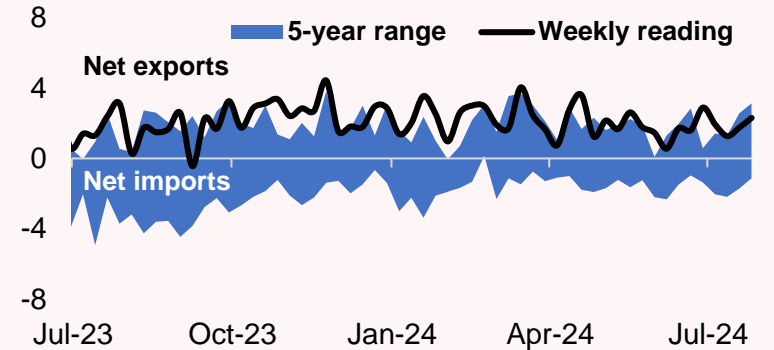
Index level



Price momentum weakened during the week ended Aug. 2.

U.S. petroleum net exports (imports)

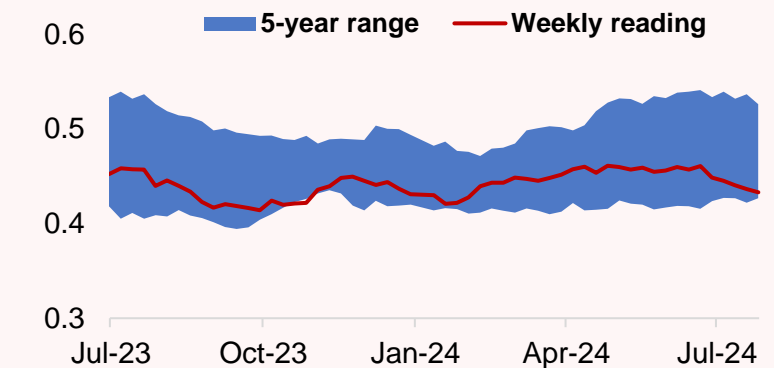
Million barrels per day, mb/d



Petroleum net exports rose. The U.S. was a petroleum net exporter of 2.3 mb/d for the week ended July 26, up by 0.5 mb/d from the prior week.

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

Billion barrels

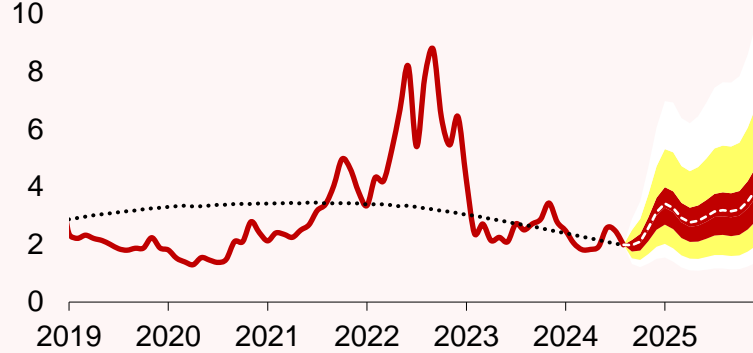


Inventories decreased. U.S. ending stocks of crude oil excluding the Strategic Petroleum Reserve (SPR) decreased by 3.4 million barrels (mb) for the week ended July 26 and have fallen by 27.6 mb (6.0%) over the past five weeks to the bottom of the 5-year range.

U.S. natural gas market indicators

Natural gas price mean reversion analysis

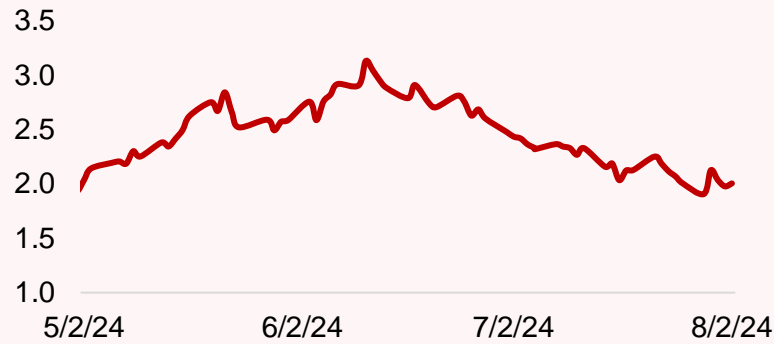
Dollars per mmbtu (2024\$)



Near-term natural gas futures prices have aligned the historical mean reversion target but rise by 58% between the September and December contracts. Confidence intervals based on past prices show the potential for greater upside than downside.

Natural gas prompt month futures prices

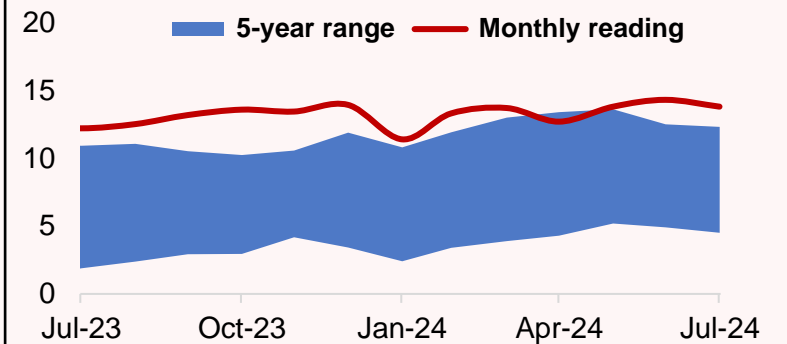
Dollars per million Btu



Natural gas prices at Henry Hub remained near \$2.00 per million Btu for the week ended August 2, due to historically strong inventory levels.

U.S. natural gas net exports

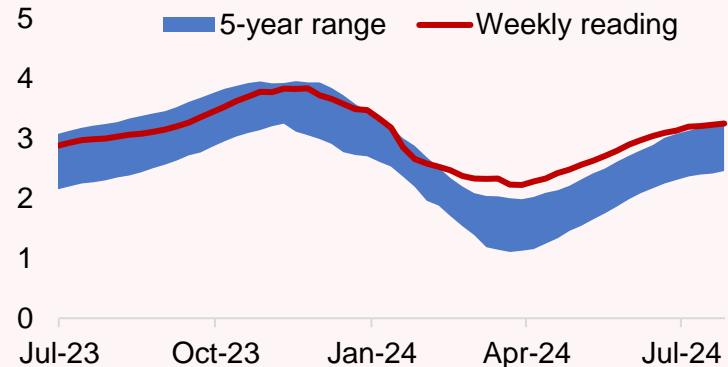
Billion cubic feet per day, bcf/d



Strong natural gas net exports of 13.8 bcf/d projected in July by EIA, easing from a record-high 14.3 bcf/d in June.

U.S. weekly working gas storage

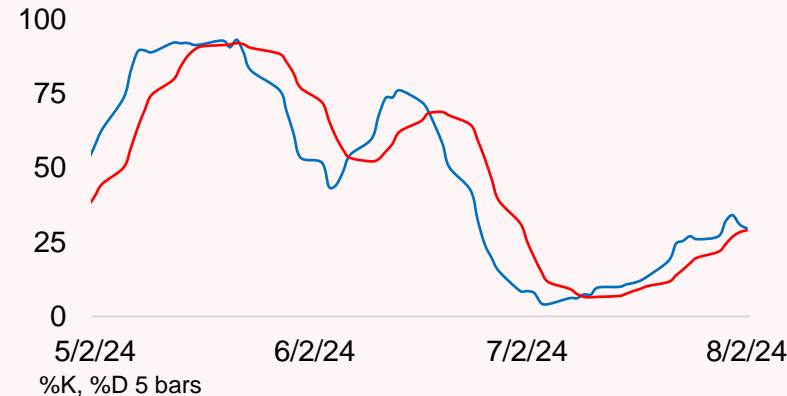
Trillion cubic feet (tcf)



Storage injections continued to slow. Working gas in underground storage rose by 0.6% w/w to 3.25 tcf as of July 26 but fell to 1% above the top of its 5-year range (vs. 2% above the 5-year range during the prior week).

Natural gas futures slow stochastic

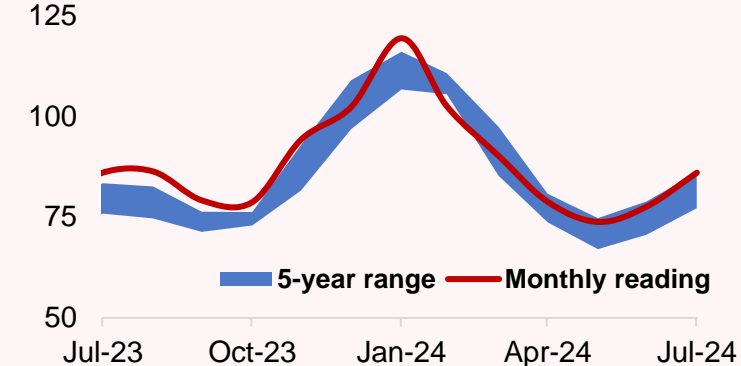
Index level



Natural gas price momentum slowed during the week ended Aug. 2.

U.S. natural gas consumption

Billion cubic feet per day, bcf/d

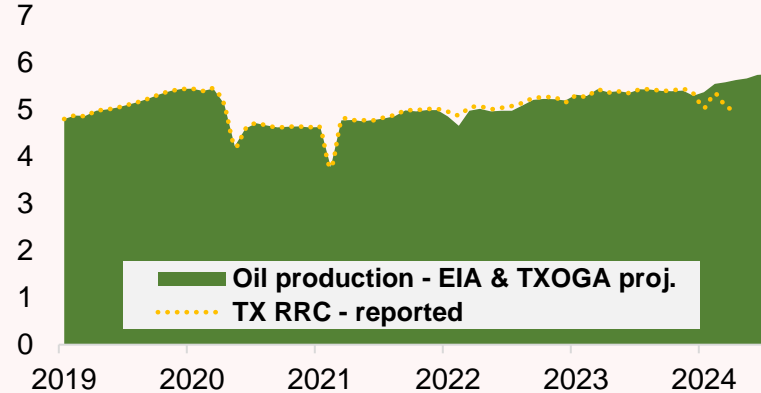


Consumption increased. U.S. natural gas consumption rose by 7.9 bcf/d m/m to 85.5 bcf/d in July per EIA, which represents a decrease of 0.6% y/y.

Texas' oil and natural gas production

Texas crude oil production, Jan. 2019 – July 2024

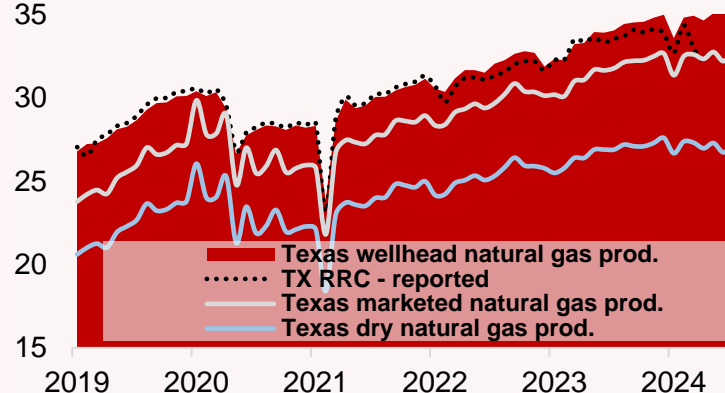
Million barrels per day (mb/d)



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

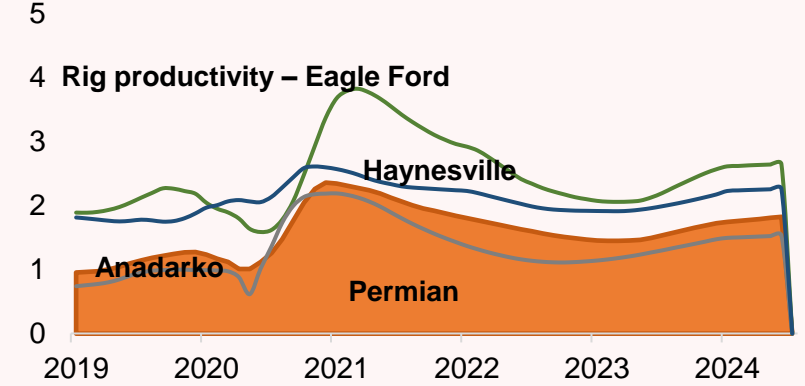
Billion cubic feet per day (bcf/d)



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

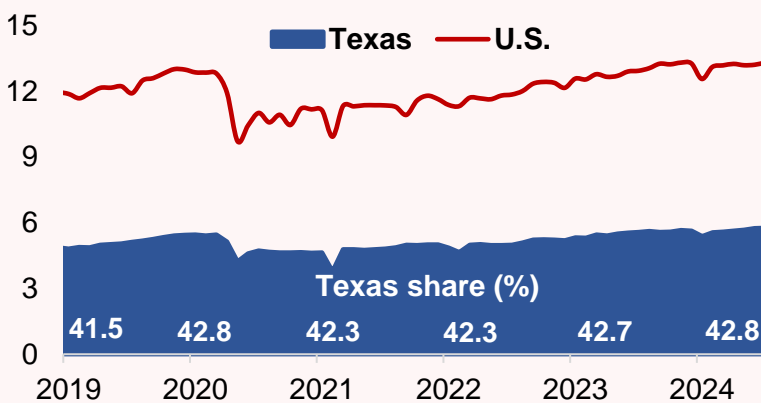
Thousand barrels per day oil-equivalent, kb/dae



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

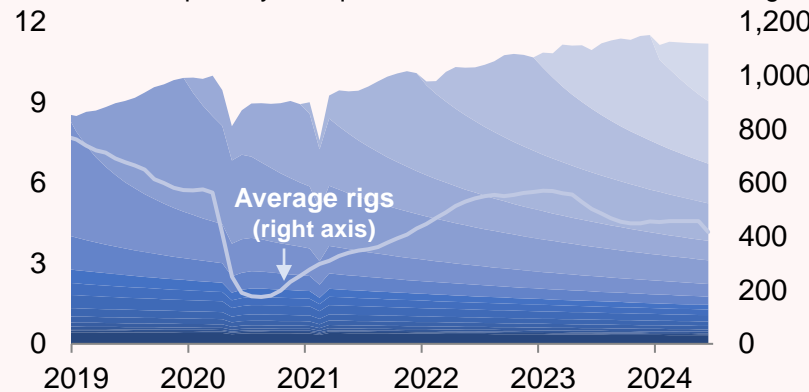
Million barrels per day (mb/d)



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

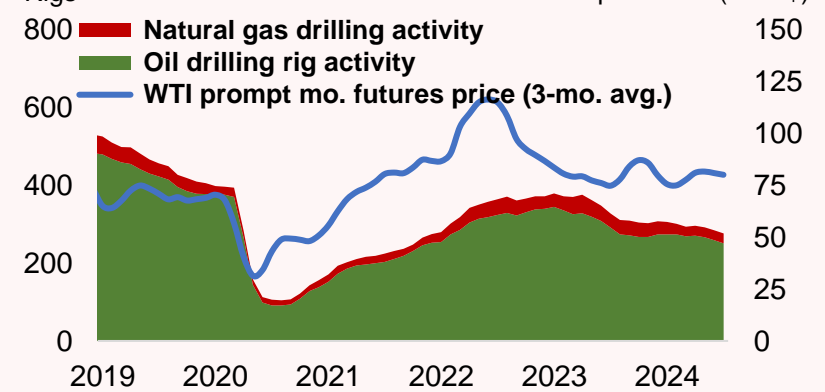
Million barrels per day oil-equivalent



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

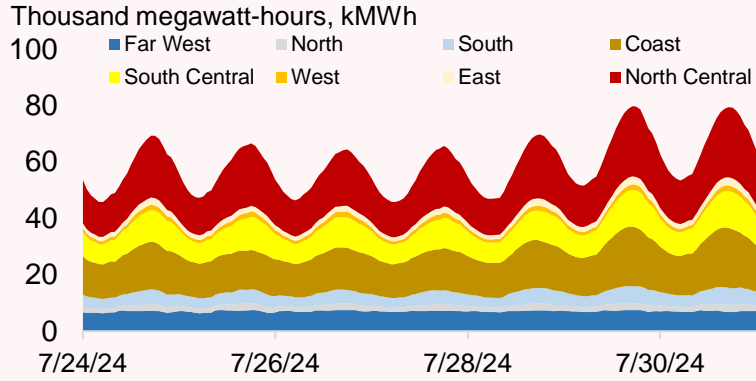


Texas' drilling rig activity fell for the week ended August 2 per Baker Hughes. Texas had 251 oil-directed rigs (unchanged w/w) and 23 natural gas-directed rigs (down by 2 rigs w/w).

Texas Electricity Analysis

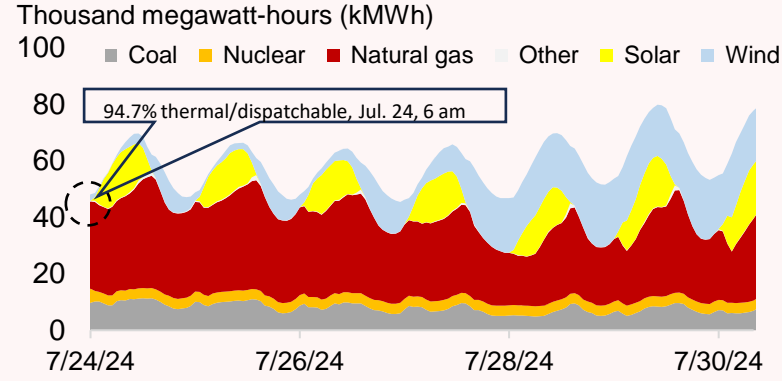


ERCOT electricity load by region



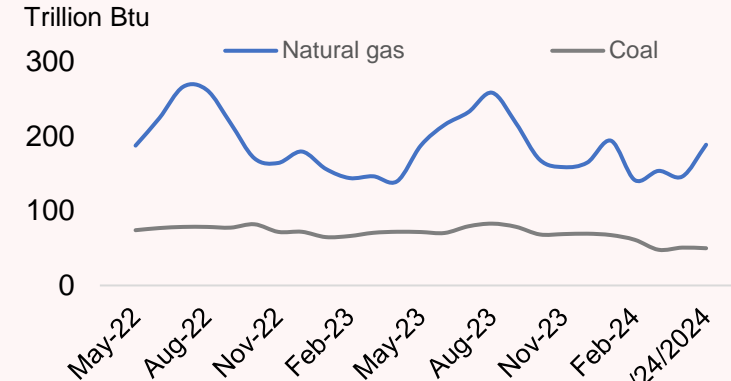
For July 24-31, ERCOT's average hourly electricity load was 59.4 kMWh, steady versus the prior week, while the maximum load hourly load of 79.8 kMWh rose by 7.2 w/w. Variability was the highest in the East and North Central regions.

ERCOT hourly electricity generation by source



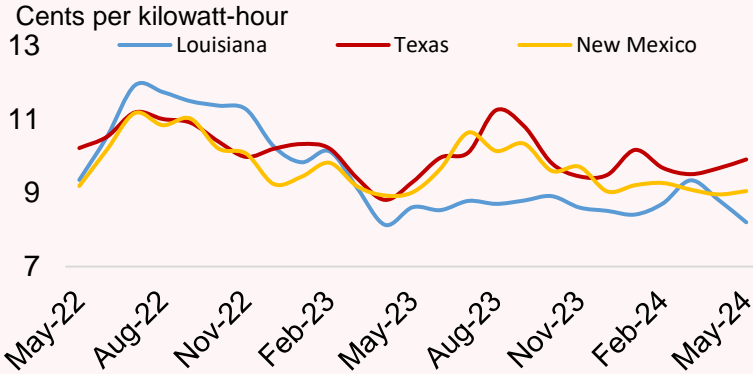
Thermal and dispatchable resources generated as much as 94.7% of ERCOT's electricity. ERCOT's hourly electricity generation for the period July 24-31 ranged between 46 and 80 kMWh with a standard deviation of 9.2 kMWh. Thermal and dispatchable sources generated as much as 94.7% of the region's power during the period in the morning of July 24.

Electricity plant receipts of natural gas and coal



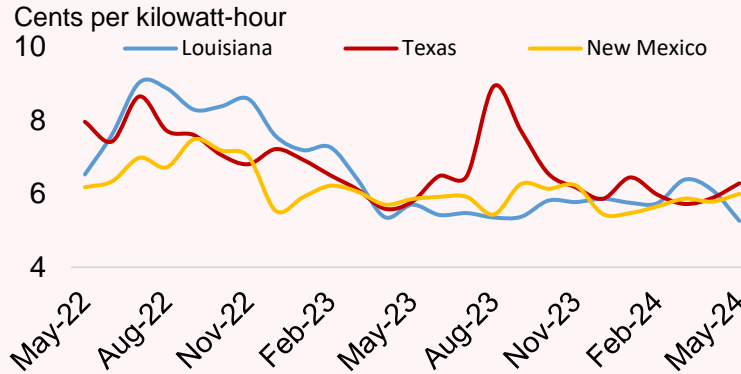
Texas electricity plant receipts of natural gas and coal decreased by 12.5% y/y and 29.4% y/y, respectively, in May 2024, despite strong contributions from thermal and dispatchable sources.

Electricity prices – average across all end-use sectors



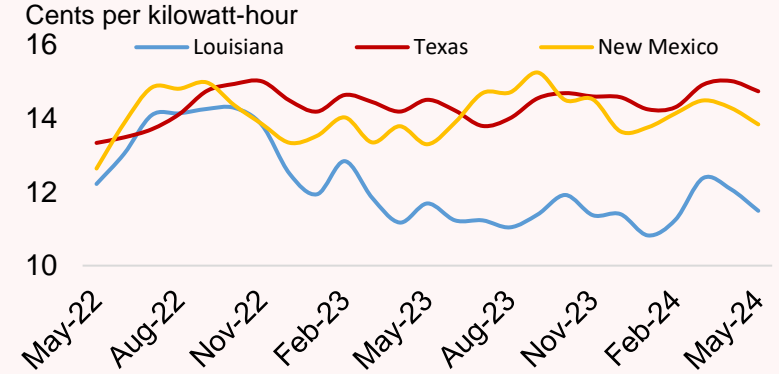
Texas' electricity prices rose in May. The average price of electricity in Texas (9.91 cents per kWh) increased by 6.6% y/y in May to 9.91 cents per kWh, compared with 8.2 cents per kWh in Louisiana and 9.05 cents per kWh in New Mexico..

Industrial electricity prices



Texas' industrial electricity prices increased. Texas' industrial electricity prices averaged 6.28 cents per kWh in May, up by 8.7% y/y, compared with 5.99 cents per kWh in New Mexico (up by 2.4% y/y) and 5.26 cents per kWh in Louisiana (down by 7.7% y/y).

Residential electricity prices



Texas' residential electricity remained above those of Louisiana and New Mexico. For Texas' residential consumers, the average price of electricity (14.74 cents per kWh) rose by 1.6% y/y in May and remained above those in Louisiana (11.49 cents per kWh) and New Mexico (13.84 cents per kWh).

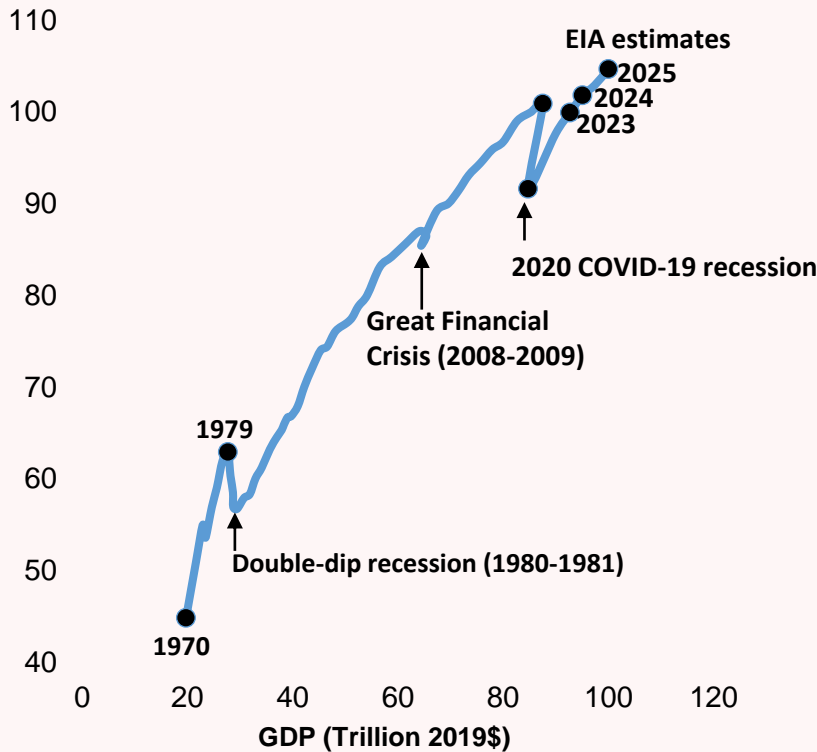
Global Oil Market Balance Projections to 2025



- **Solid demand and inventory drawdowns.** EIA's July 2024 Short-Term Energy Outlook essentially moved 0.1 mb/d of demand growth from 2024 into 2025, resulting in global demand of 102.9 mb/d this year and 104.6 mb/d next year – both record highs.
- **For oil inventories, EIA projects global stock withdrawals to continue through Q1 2025,** including 0.8 mb/d in Q3 2024 and as high as 1.0 mb/d in Q1 2025, corresponding with Brent crude oil prices of \$86.37 in 2024, compared with \$85.50 per barrel currently.

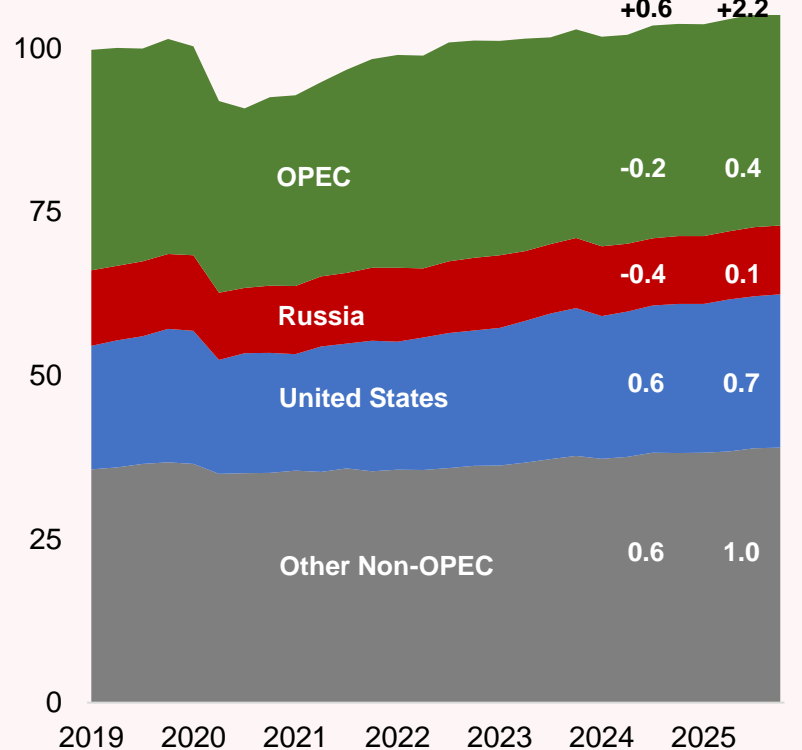
Global oil demand and GDP

Million barrels per day (mb/d)



Oil production by country/region

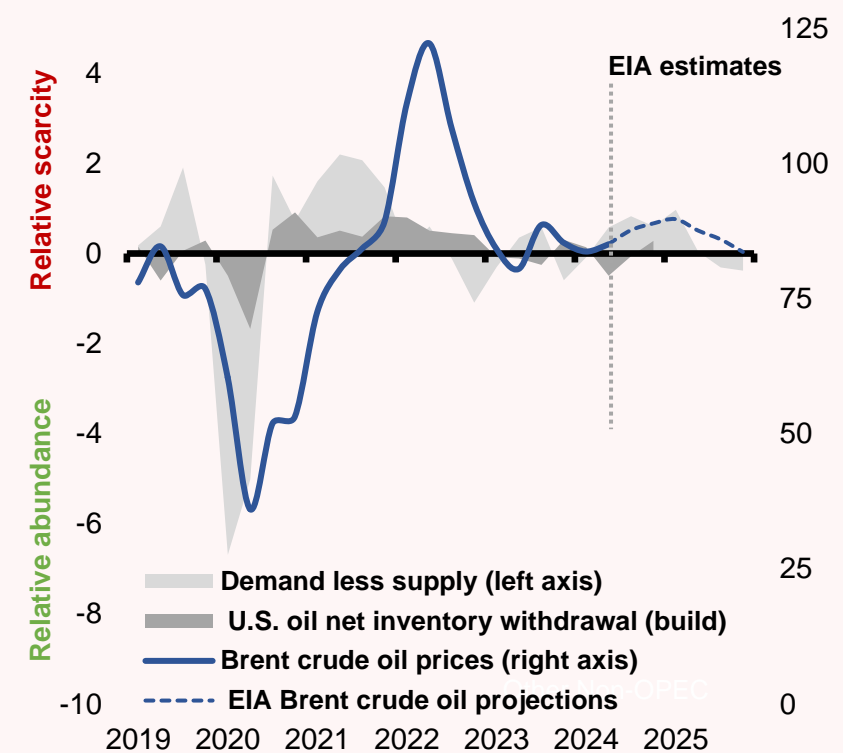
Million barrels per day, mb/d



Global demand/supply & Brent prices

Million barrels per day (mb/d)

2024\$/Bbl



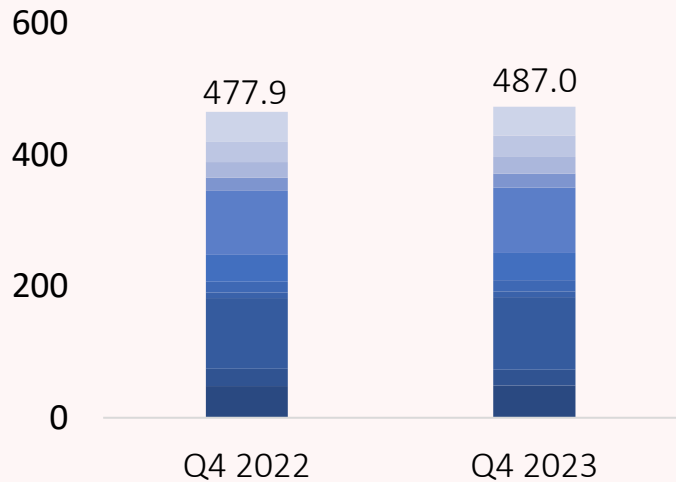
Texas' oil and natural gas industry wages reached \$14.6 billion in Q4 2023



- ▶ Texas' oil and natural gas industry employment and wages grew by 1.9% y/y and 5.8% y/y, respectively, in Q4 2023, raising the totals to over 487,000 jobs and \$14.6 billion in wages – the highest fourth quarter wages on record.
- ▶ Over 40% of the job growth occurred in the upstream and supporting services, 25% in petroleum wholesale and retail trade, and 20% in oil & gas field machinery and equipment manufacturing per data the latest data (released on May 16, 2024) from the U.S. Census Bureau and Texas Workforce Commission.

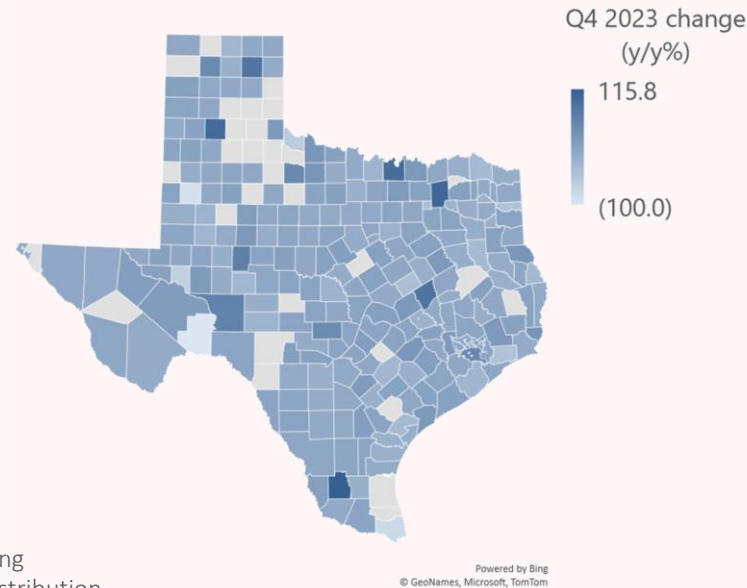
Texas oil and natural gas industry direct employment rose by +1.9% y/y in Q4 2023

Thousand Jobs



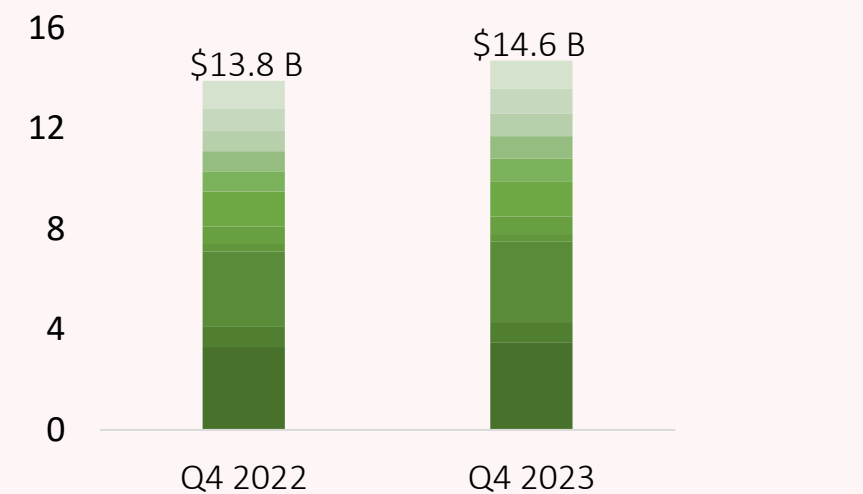
- Oil & gas extraction
- Support activities for o&g ops.
- Petroleum refineries
- Gas stations & fuel dealers
- All other*
- Pipeline construction
- Oil & gas drilling
- Natural gas distribution
- Petrochemical mfg.
- Pipeline transportation
- Oil & gas field mach. and eq. mfg.

* 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 +5.8% y/y in Q4 2023

Billion dollars



- Pipeline construction
- All other*
- Gas stations & fuel dealers
- Petroleum refineries
- Support activities for o&g ops.
- Oil & gas extraction
- Oil & gas field mach. and eq. mfg.
- Pipeline transportation
- Petrochemical mfg.
- Natural gas distribution
- Oil & gas drilling

R. Dean Foreman, Ph.D.
dforeman@txoga.org

