



March 11, 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 March 11, 2024

- ▶ **U.S. economic indicators were stable this week.** The Bureau of Labor Statistics reported a rise in the unemployment rate, despite strong non-farm payroll gains of 275,000 in February. Consumer sentiment remained robust, as evidenced by the University of Michigan's survey's final February reading. The Aruoba-Diebold-Scotti (ADS) Business Conditions Index, from the Federal Reserve Bank of Philadelphia, indicated continued favorable conditions, aligning with economic expansion in Q1 2024. High-yield corporate bond yields dropped by 0.3% week-over-week (w/w) as of March 8, reaching a low not seen since December 2023.
- ▶ **Oil market dynamics were mixed.** Ongoing geopolitical tensions in the Middle East, particularly affecting maritime routes in the Red Sea, kept oil prices near \$78 per barrel as of March 8. U.S. petroleum consumption rose to 20.3 million barrels per day (mb/d) for the week ended March 1, a 0.8 mb/d w/w increase, based on data from the Energy Information Administration (EIA). However, net petroleum exports decreased by 2.9 mb/d from the previous week to 1.1 md/b, and crude oil inventories increased for the 6th consecutive week. Texas observed a reduction in drilling activity as of March 8, according to Baker Hughes. Additionally, as highlighted in the [Chart of the Week](#), the Texas Oil & Gas Association (TXOGA) estimates show a pullback in Texas crude oil and natural gas production in January and February from the December record highs.
- ▶ **Natural gas storage levels have continued to decrease but are still above the five-year average.** High production rates have mostly balanced out consumption and exports, leading to the lowest rate of storage withdrawals (1.7% w/w) for this time of the year since 2010. Natural gas futures prices rise progressively starting in May 2024. Confidence intervals, based on historical price patterns, suggest a higher probability of price increases than decreases.

TXOGA Chart of the Week: Texas Crude Oil and Natural Gas Production

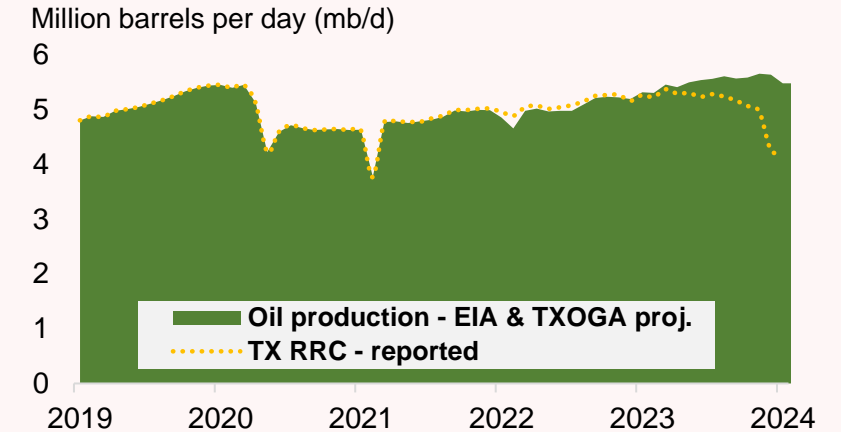
- **Oil production slipped from record highs.** Texas' oil production of 5.6 mb/d in December was just below the record high set in Nov. per EIA.

TXOGA estimates that Texas crude oil production eased further to 5.5 mb/d in January and February.

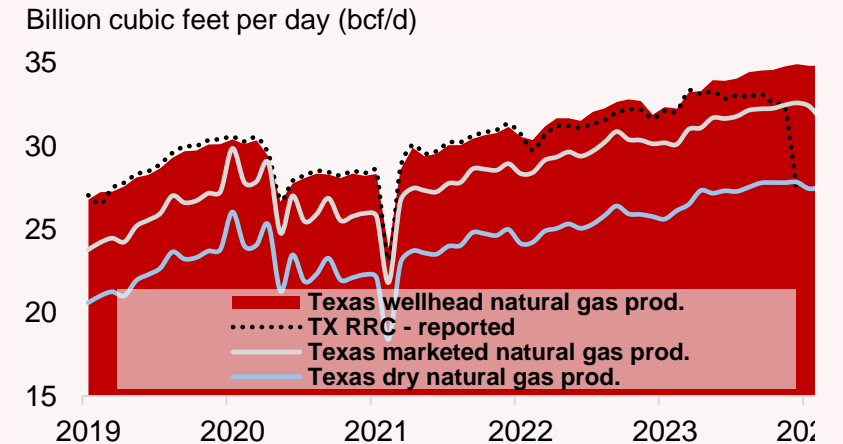
- **Natural gas production records in December.** Texas' natural gas production of 34.9 bcf/d of gross withdrawals and 32.6 bcf/d of marketed production in December were record highs per EIA.

TXOGA estimates that Texas' natural gas production decreased in February to 34.8 bcf/d of gross withdrawals, 32.4 bcf/d of marketed production, and 27.5 bcf/d of dry gas production.

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

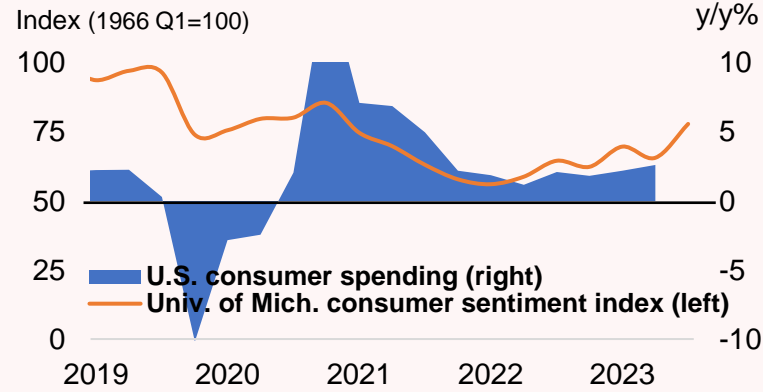


Texas natural gas production, Jan. 2019 – Feb. 2024



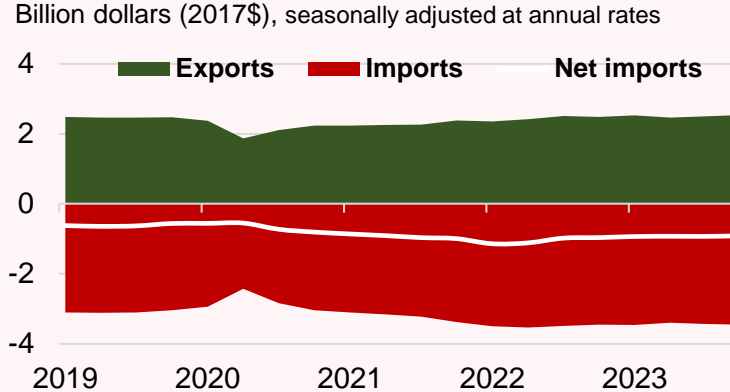
U.S. economic indicators

Consumer sentiment vs. spending



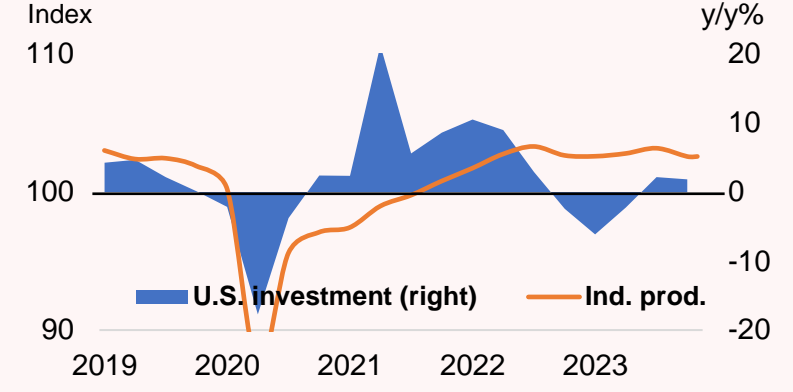
Consumer spending was revised upwards by 0.1% y/y to 2.7% y/y for Q4 2023 in the Feb. revision by BEA. The increased spending was consistent with improvement in the Univ. of Michigan's consumer sentiment index rose, which has since risen to 76.9 in the initial February reading and suggests further spending growth.

Real net exports of goods and services



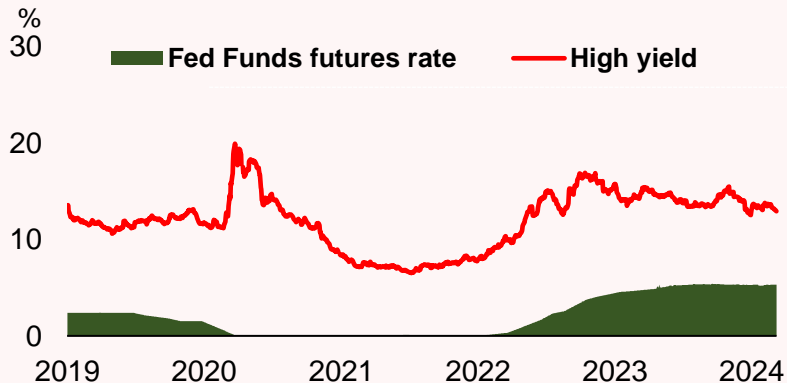
The U.S. trade deficit narrowed in Q4 2023. The U.S. real trade deficit ran at an annualized rate of \$908 billion in Q4 2023, down from \$931 billion in Q3 per the U.S. Bureau of Economic Analysis. On a nominal basis, the trade surplus for petroleum and products ran at annualized rate of \$16 billion in Q4 2023, down from \$29.1 billion in Q3.

Industrial production and investment growth



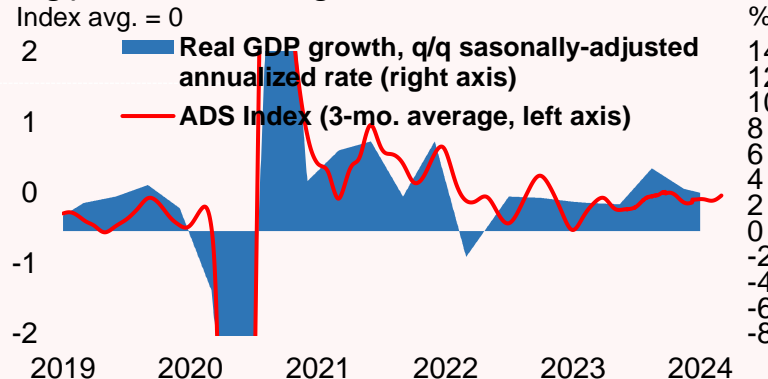
Industrial production remained flat in Jan. 2024 and consistent with slow economy-side investment growth in Q1. Investment rose by 1.5% y/y in Q4, which was revised downwards by 0.3% y/y, in the Bureau of Economic Analysis' February revision.

Fed Funds rate and CCC and lower corporate bond yields



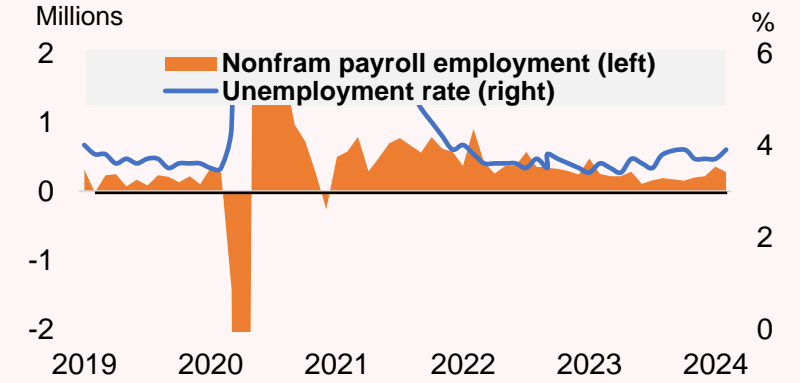
Lower bond premium for low credit quality. High yield (HY) rates reflect debt costs for firms with below-investment grade credit quality. For the week ended Mar. 8, HY rates fell to 12.9% (from a high of 13.7% on Feb. 21) while the Fed Funds futures held steady at 5.3%, yielding the lowest risk spread since December.

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



Business conditions show Q1 2024 real 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 accurately reflected the increase in Q4 2023 real GDP and remains consistent with continued GDP growth so far in Q1 2024.

Nonfarm payroll employment & unemployment rate

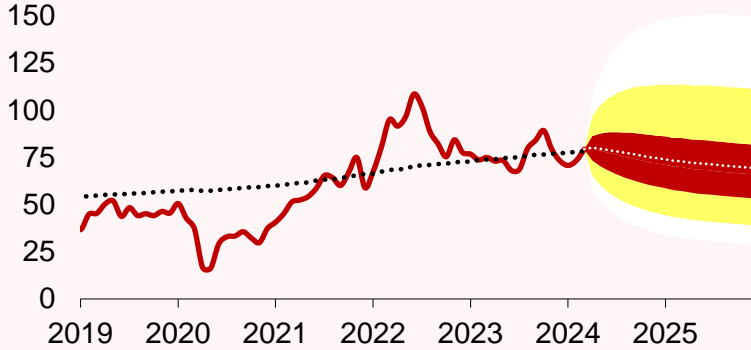


Higher unemployment rate despite payroll increases. The employment situation is a lagging indicator of GDP growth. The U.S. unemployment rate rose to by 0.2% m/m to 3.9% in February per BLS, while non-farm payrolls rose by 275,000.

U.S. oil market indicators

WTI crude oil price mean reversion analysis

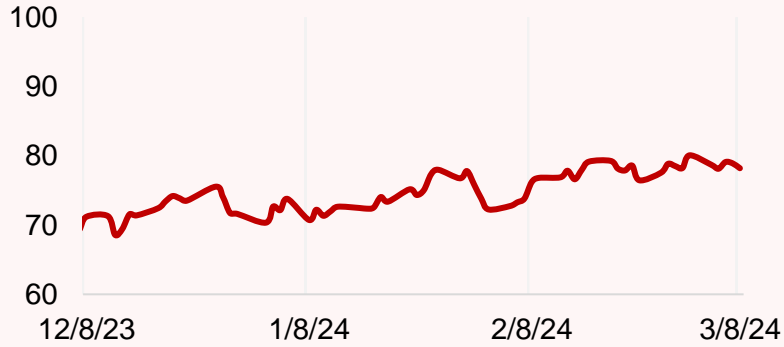
Dollars per barrel (2024\$)



Futures prices have aligned with their historical mean. The futures strip remained 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

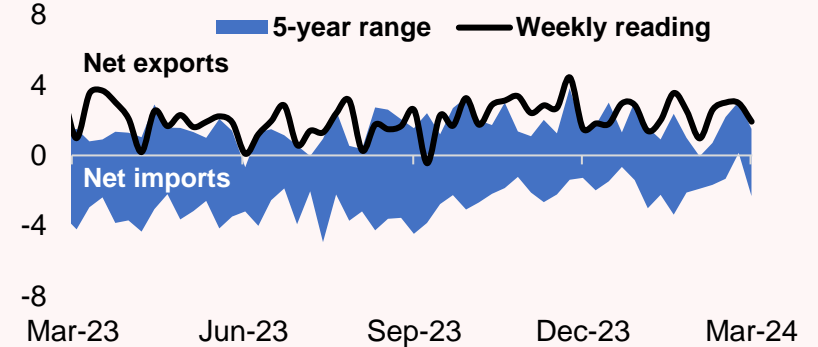
Dollars per barrel



WTI crude oil prices slipped to around \$78 per barrel for the week ended Mar. 8, as mixed fundamentals offset the Middle East geopolitical premium.

U.S. petroleum net exports (imports)

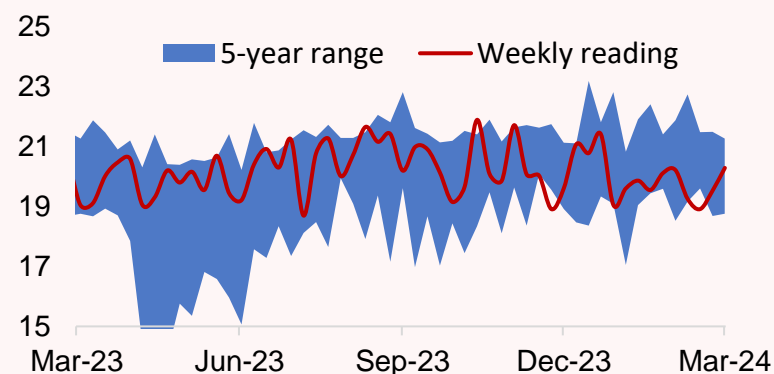
Million barrels per day, mb/d



Petroleum net exports fell. The U.S. was a petroleum net exporter of 1.9 mb/d for the week ended Mar. 1, down by 1.1 mb/d from the prior week but still a record level for this time of the year.

U.S. petroleum demand

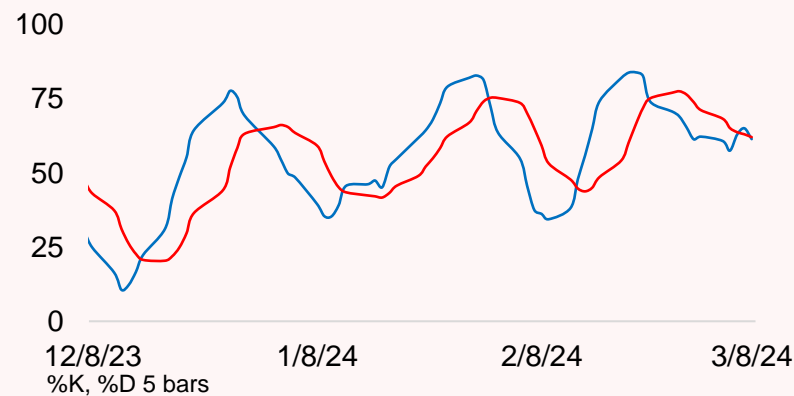
Million barrels per day (mb/d)



Petroleum demand decreased. U.S. petroleum demand, as measured by deliveries, rose by 0.8 mb/d w/w to 20.3 mb/d for the week ended Mar. 1.

WTI crude prompt month futures slow stochastic

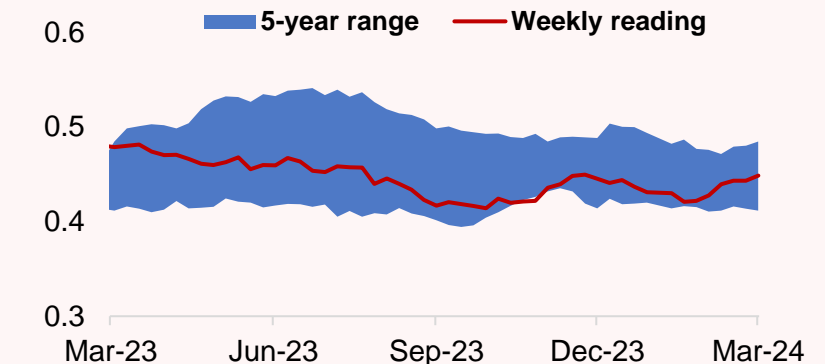
Index level



Price momentum paused for the week ended Mar. 8.

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

Billion barrels (mb)

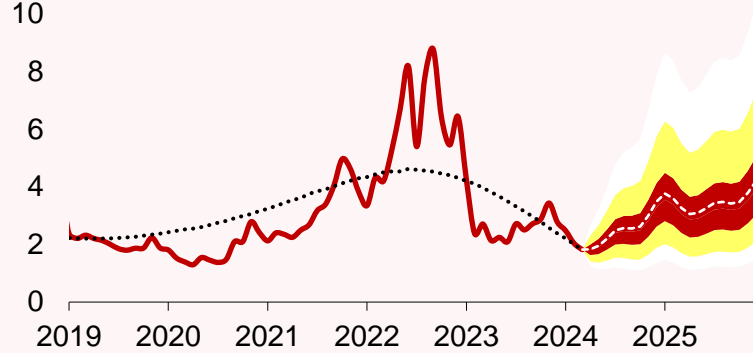


Inventories increased. U.S. ending stocks of crude oil excluding the Strategic Petroleum Reserve (SPR) increased by 5.6 million barrels (mb) for the week ended Mar. 1- the 6th straight weekly increase.

U.S. natural gas market indicators

Natural gas price mean reversion analysis

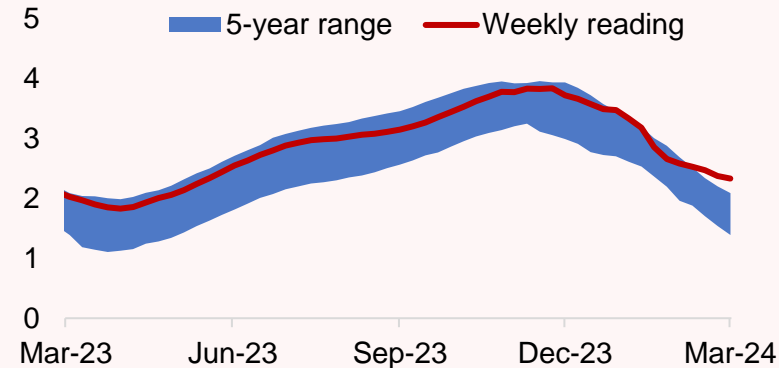
Dollars per mMBtu (2024\$)



Natural gas futures prices fell below their historical mean. Natural gas futures prices through May 2024 are below the historical mean reversion target, and futures prices rise progressively beginning in April 2024. Confidence intervals based on past prices show the potential for greater upside than downside.

U.S. weekly working gas storage

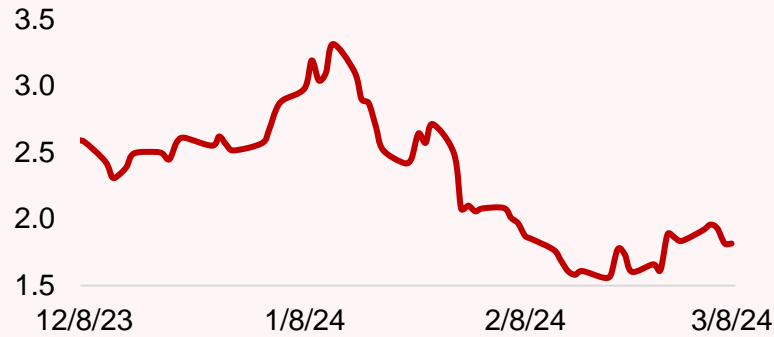
Trillion cubic feet (tcf)



Working gas in underground storage fell by 1.7% w/w to 2.33 tcf as of Mar. 1 but remained above the 5-year range.

Natural gas prompt month futures prices

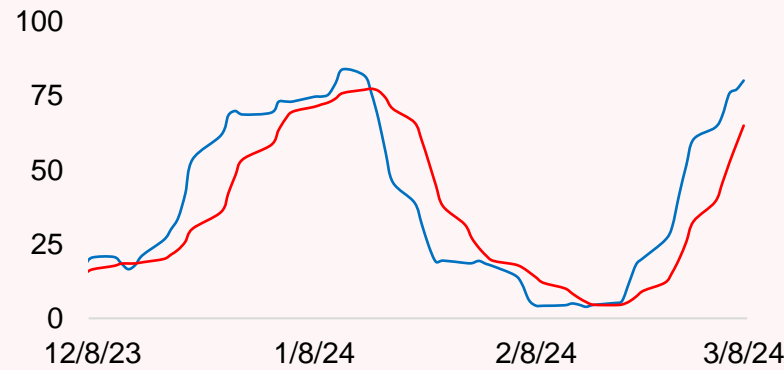
Dollars per million Btu



Natural gas prices at Henry Hub held above \$1.80 per million Btu for the week ended Mar. 8 despite storage levels exceeded the 5-year range.

Natural gas futures slow stochastic

Index level

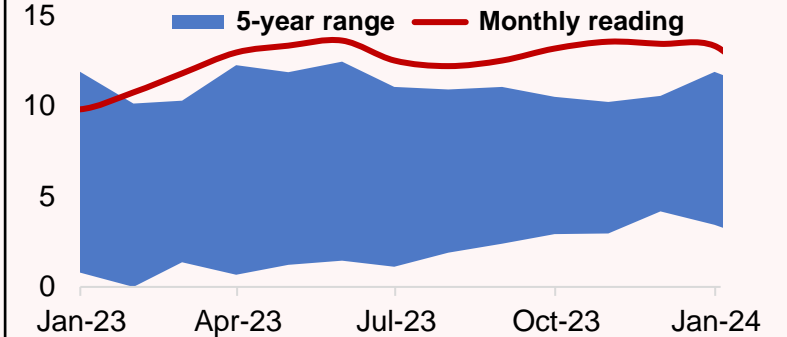


%K, %D 5 bars

Natural gas price momentum remained positive during the week ended Mar 8.

U.S. natural gas net exports

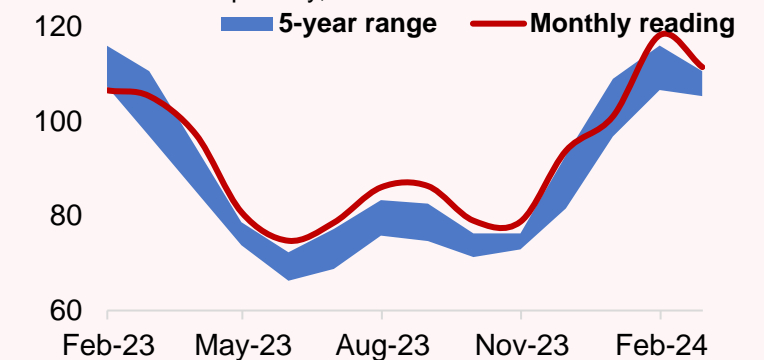
Billion cubic feet per day, bcf/d



Strong net exports have continued. U.S. natural gas net exports in February are estimated at 12.4 bcf/d, up from 11.8 bcf/d a year ago and above the 5-year range, per the EIA.

U.S. natural gas consumption

Billion cubic feet per day, bcf/d

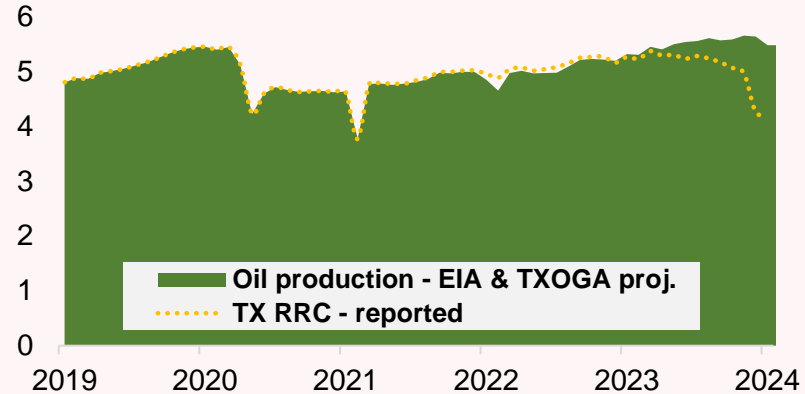


Record high consumption has continued. EIA estimates that natural gas consumption has eased from a record monthly high of 118 bcf/d in January to 111 bcf/d in February -- the highest U.S. consumption on record for the month of February.

Texas' oil and natural gas production

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

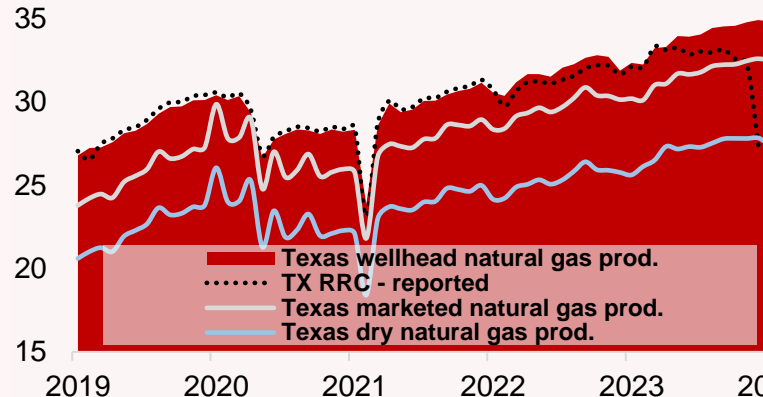
Million barrels per day (mb/d)



Oil production slipped from record highs. Texas' oil production of 5.6 mb/d in December was just below the record high set in Nov. per EIA. TXOGA estimates that Texas crude oil production eased further to 5.5 mb/d in January and February.

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

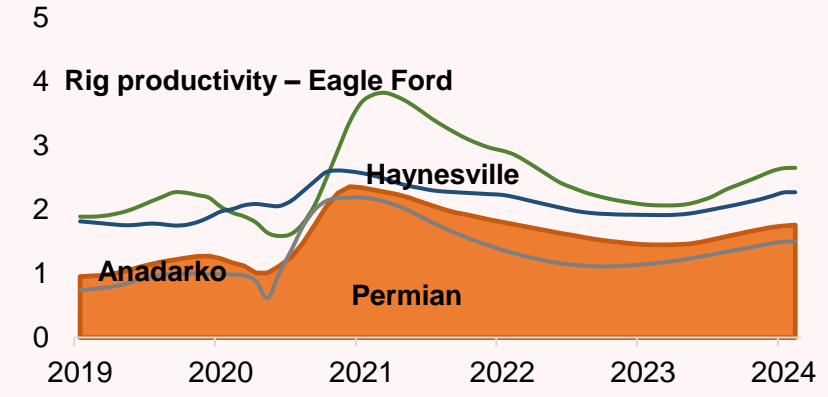
Billion cubic feet per day (bcf/d)



December production records. Texas' natural gas production of 34.9 bcf/d of gross withdrawals and 32.6 bcf/d of marketed production in December were record highs per EIA. TXOGA estimates that production decreased in February to 34.8 bcf/d of gross withdrawals, 32.4 bcf/d of marketed production, and 27.5 bcf/d of dry gas production.

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

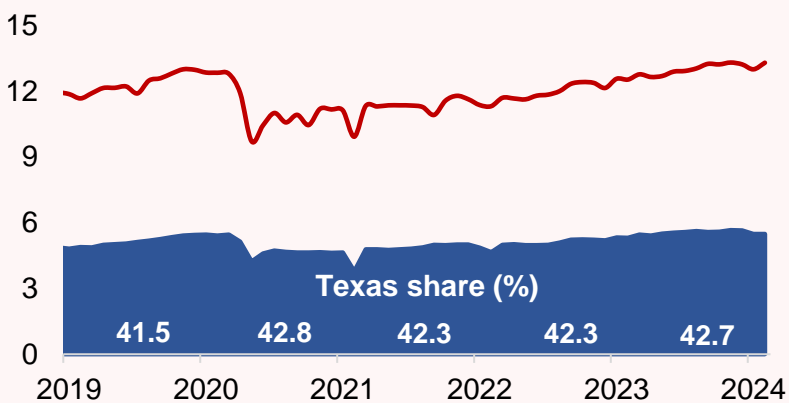
Thousand barrels per day oil-equivalent, kb/dae



Strong productivity to start the year. EIA estimates of rig productivity for February 2024 show continued increases year-over-year across the major Texas basins, including the Anadarko (+29.6% y/y), Eagle Ford (+28.2% y/y), Permian (+21.4% y/y), and Haynesville (+18.6% y/y).

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

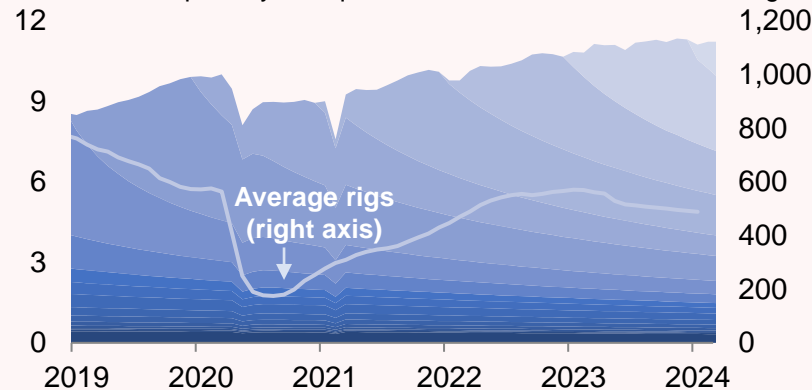
Million barrels per day (mb/d)



Texas' share rose. In 2023, Texas accounted for 42.7% of U.S. crude oil production, the highest share since 2020.

Texas shale basin wellhead oil & natural gas production

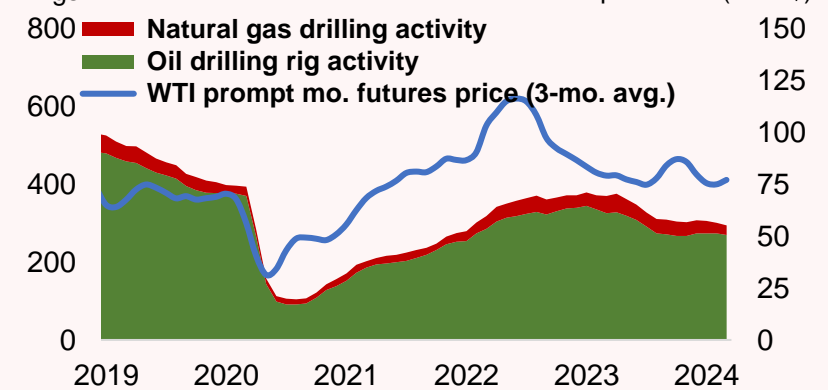
Million barrels per day oil-equivalent



EIA estimates Feb 2024 production growth across Texas shale basins has been mixed, with increases year-over-year in the Permian (+6.3% y/y) and Eagle Ford (+3.6% y/y) but decreases in the Haynesville (-0.2% y/y) and Anadarko (-1.2% y/y) regions.

Texas drilling activity and WTI crude oil futures prices

Rigs Dollars per barrel (2024\$)



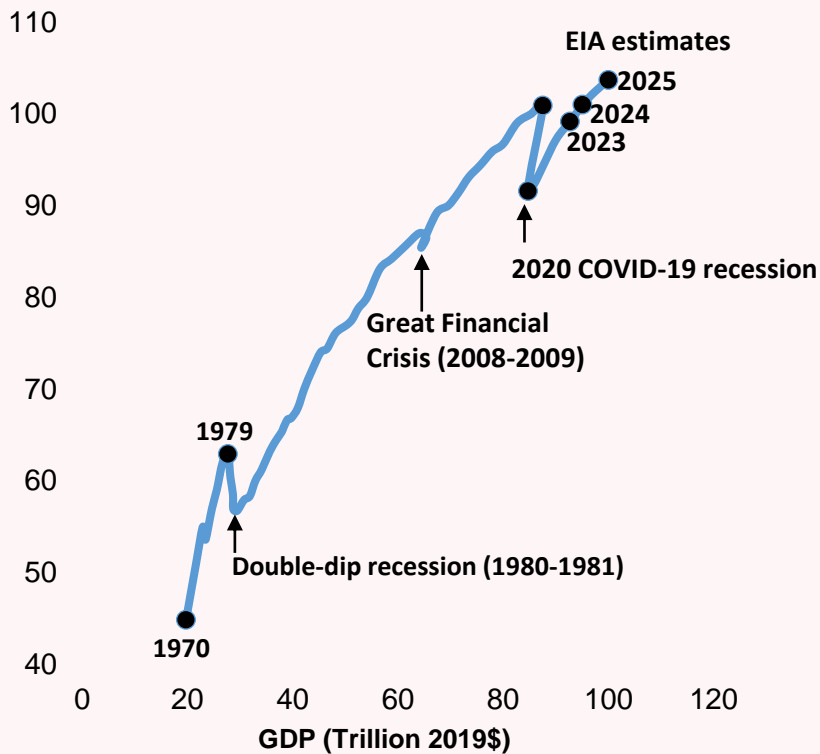
Texas' drilling rig activity decreased for the week ended Mar. 8 per Baker Hughes. Texas had 267 oil-directed rigs (down by 6 rigs w/w) and 24 natural gas-directed rigs (down by 2 rigs w/w).

Global Oil Market Balance Projections to 2025 by EIA

- Record-high demand. Global oil demand is expected by the EIA rise from a record 101.0 mb/d in 2023 to 102.4 mb/d in 2024 and 103.7 mb/d in 2025.
- Supply shift. As global oil supply is projected to rise 2.4 mb/d by 2025, EIA expects the U.S. to supply about one-third of global production growth over the next two years, compared with over 60% in 2023.
- For oil inventories, the EIA projects global stock withdrawals with a deficit of 0.8 mb/d in Q1 2024, corresponding with Brent crude oil prices of \$82.42 in 2024, compared with \$81.62 per barrel currently.

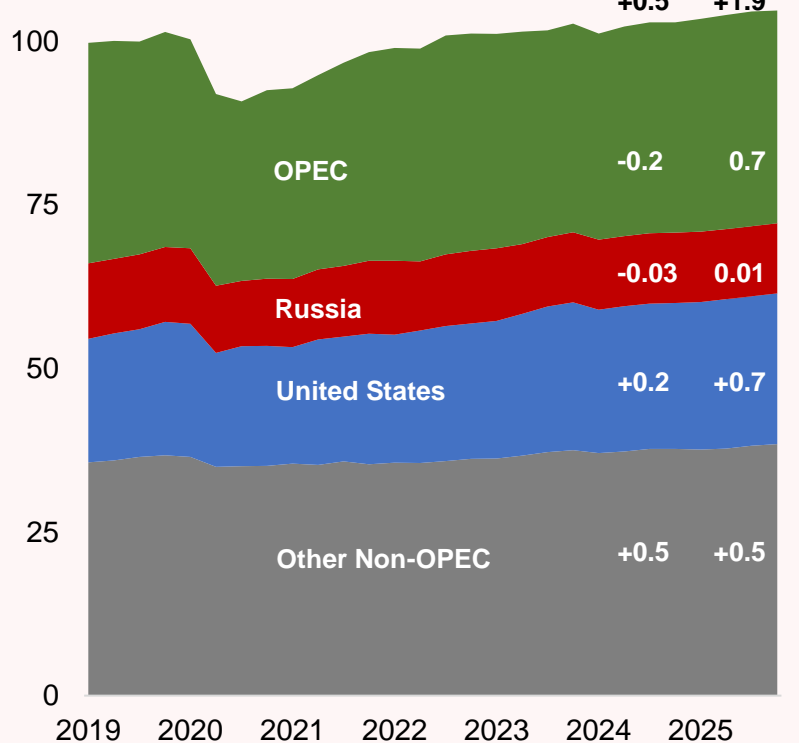
Global oil demand and GDP

Million barrels per day (mb/d)



Oil production by country/region

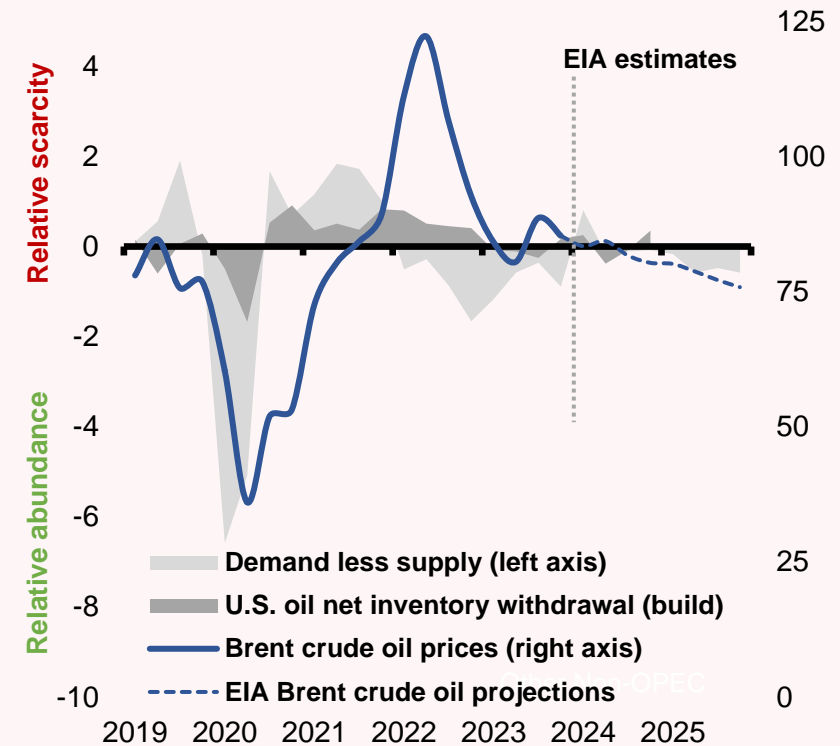
Million barrels per day, mb/d



Global demand/supply & Brent prices

Million barrels per day (mb/d)

2024\$/Bbl



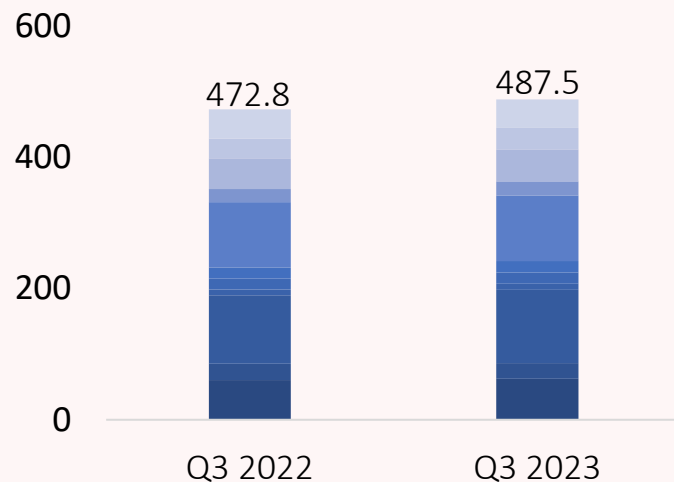
Texas' oil and natural gas industry's jobs and wages have continued to grow



- ▶ Texas' oil and natural gas industry employment rose by 3.1% y/y in Q3 2023 with half of the job growth in upstream support services and another nearly 20% in oil & gas field machinery and equipment manufacturing, per data the latest data (released on Feb. 21, 2024) from the U.S. Census Bureau and Texas Workforce Commission
- ▶ Q3 2023 industry wage growth of 3.6% y/y was nearly on par with job growth of 3.1% y/y, which reflected an easing of inflationary pressures

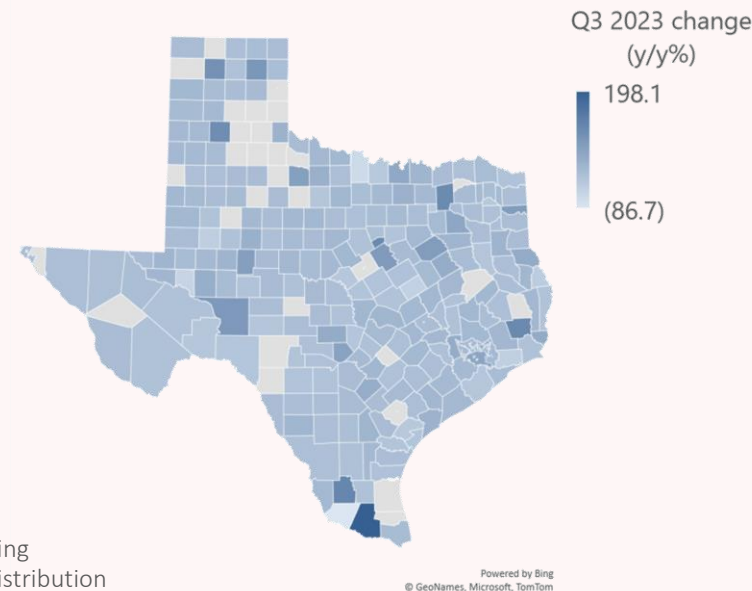
Texas oil and natural gas industry direct employment rose by +3.1% y/y in Q3 2023

Thousand Jobs



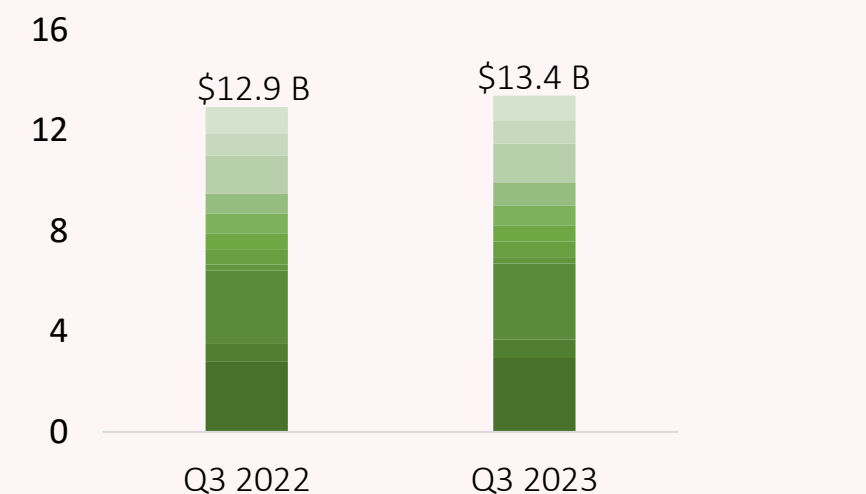
- Oil & gas extraction
- Support activities for o&g ops.
- Petroleum refineries
- Gas stations & fuel dealers
- All other*
- Pipeline construction
- Oil & gas drilling
- Natural gas distribution
- Petrochemical mfg.
- Pipeline transportation
- Oil & gas field mach. and eq. mfg.

* 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 +3.6% y/y in Q3 2023

Billion dollars



- Pipeline construction
- All other*
- Gas stations & fuel dealers
- Petroleum refineries
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