



March 18, 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 18, 2024

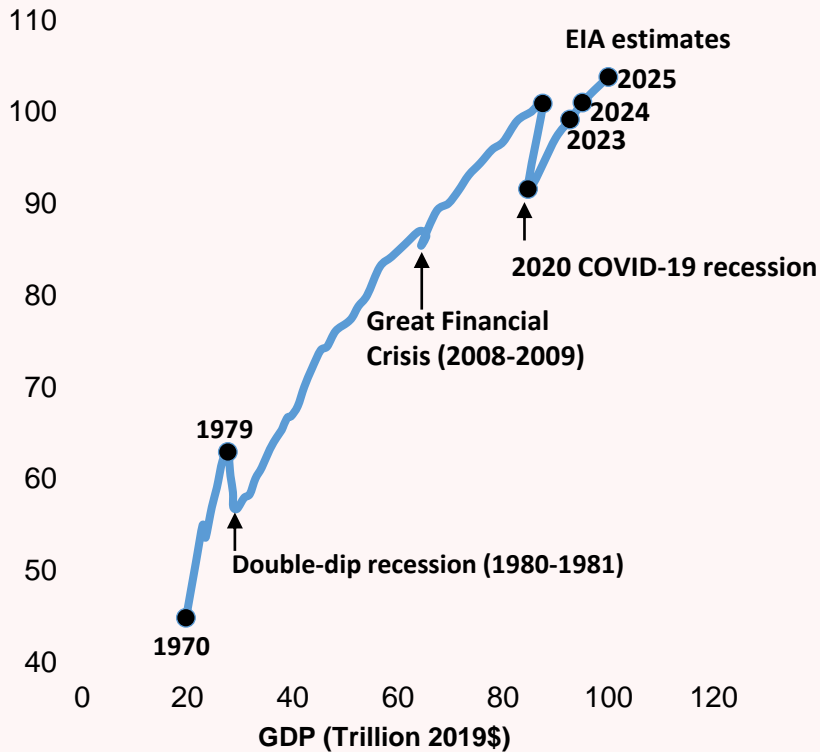
- ▶ **U.S. economic indicators show strength.** Industrial production saw a modest increase of 0.1% in February compared to January, aligning with consistent investment growth across the economy in Q1 2024. The corporate bond yield premium for lower-credit-quality bonds dropped to its lowest point since December 2023. Consumer sentiment remains strong, according to the University of Michigan's survey, while the ADS Index from the Philadelphia Federal Reserve signals robust GDP growth in Q1 2024.
- ▶ **Oil market fundamentals tighten.** As highlighted in the [Chart of the Week](#), the Energy Information Administration's (EIA) March outlook anticipates a sustained global oil market deficit, with demand outstripping supply through June 2024, leading to an upward revision in price forecasts. For the week ended March 8, U.S. oil demand increased by 0.5 million barrels per day (mb/d) week-over-week (w/w) to 20.8 mb/d, U.S. petroleum net exports maintained at 1.7 mb/d, and crude oil inventories decreased by 1.5 million barrels.
- ▶ **Record-high natural gas exports, yet strong storage levels.** According to EIA projections, U.S. natural gas net exports may reach a new high of 14 billion cubic feet per day (bcf/d) in March. Despite this, robust production levels—estimated at 104 bcf/d—have led to natural gas storage levels exceeding the 5-year range. This has contributed to keeping prices down, with March seeing the lowest real prices since 1994 at approximately \$1.70 per million British thermal units (Btu).

TXOGA Chart of the Week: Global Oil Market Balance Projections to 2025 by EIA

- **Upgraded 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 103.8 mb/d in 2025.
- **Supply changes.** EIA downgraded global supply growth in 2024 and upgraded it in 2025, to 0.4 mb/d and 2.0 mb/d, respectively. The changes show a decline/OPEC+ discipline by Russia in 2024 that previously was not assumed.
- **For oil inventories, EIA projects global stock withdrawals with a deficit of 0.9 mb/d in Q2 2024,** which is a shift from their prior assumption of market balance, supporting Brent crude oil prices of \$87 per barrel in 2024 in their upward-revised view.

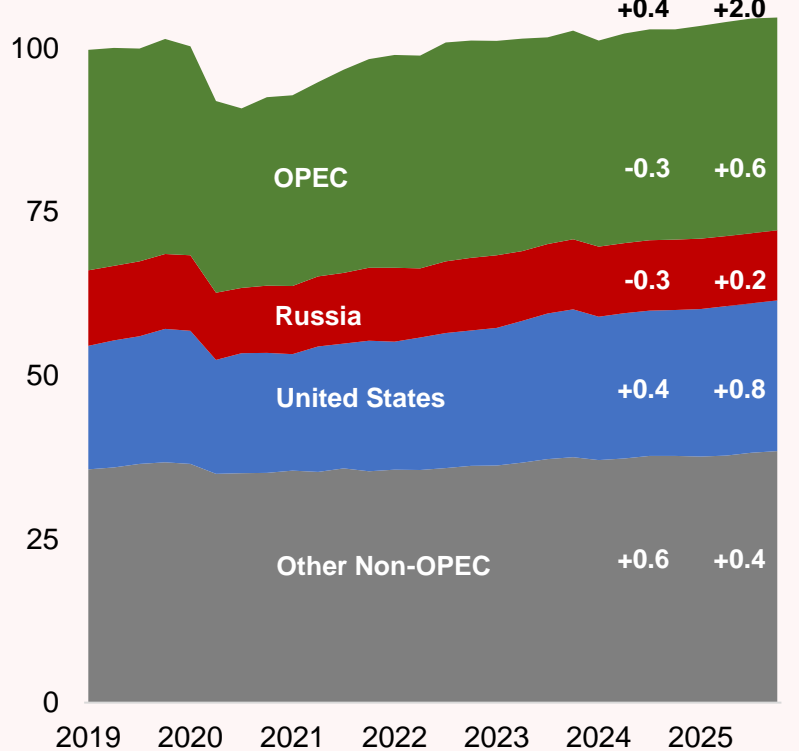
Global oil demand and GDP

Million barrels per day (mb/d)



Oil production by country/region

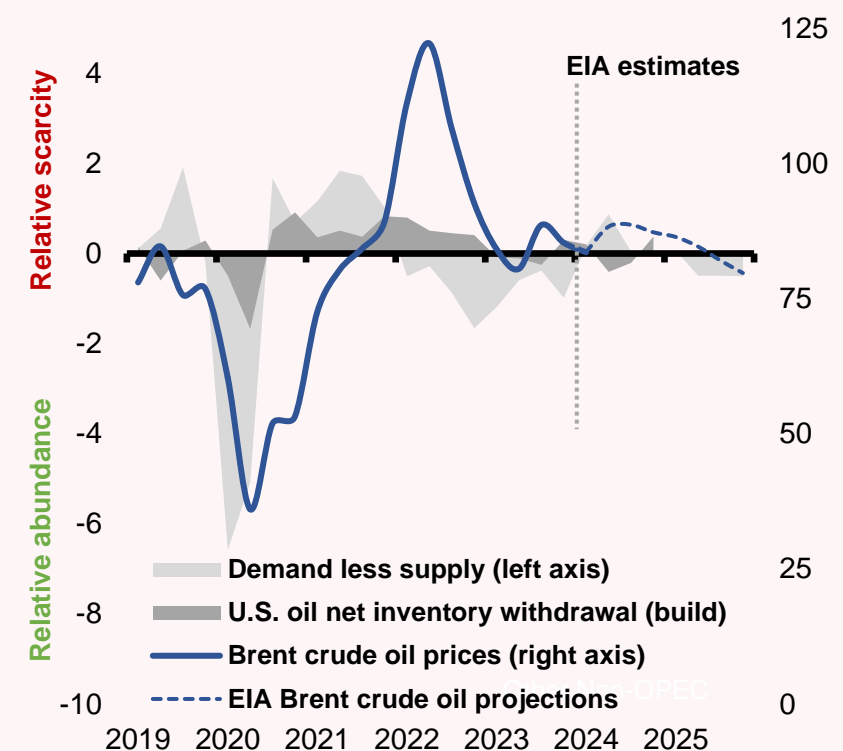
Million barrels per day, mb/d



Global demand/supply & Brent prices

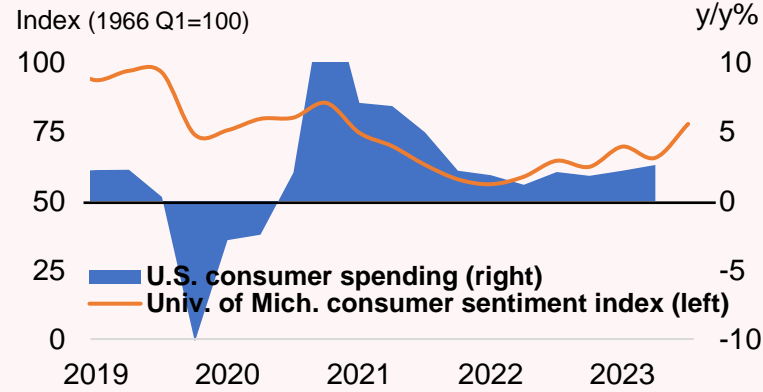
Million barrels per day (mb/d)

2024\$/Bbl



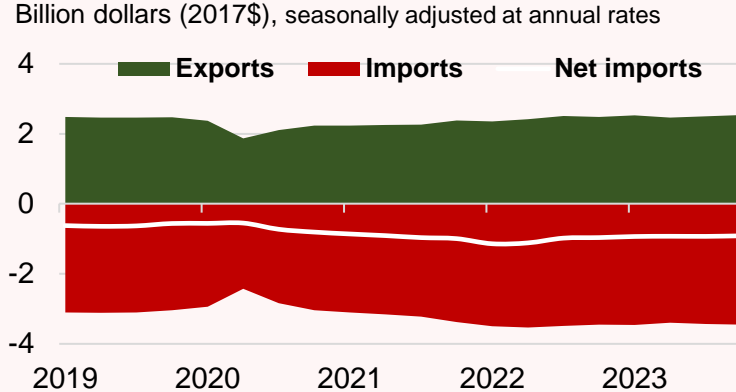
U.S. economic indicators

Consumer sentiment vs. spending



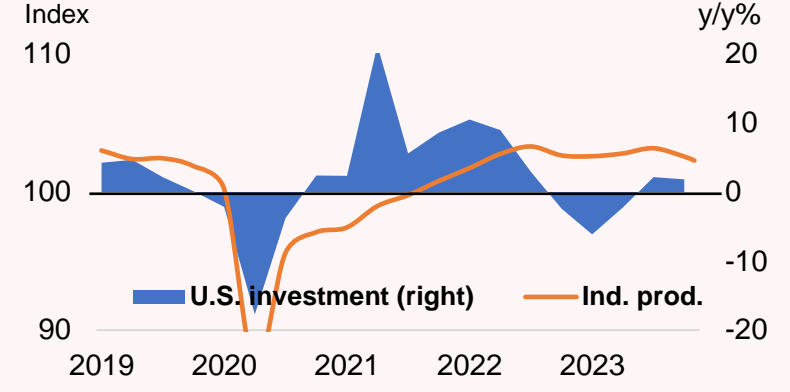
Consumer spending was revised upwards by 0.1% y/y to 2.7% y/y for Q4 2023 in the Feb. revision by BEA. The increased spending was consistent with improvement in the Univ. of Michigan's consumer sentiment index rose, which has since risen to 76.9 in the initial February reading and suggests further spending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

Real net exports of goods and services



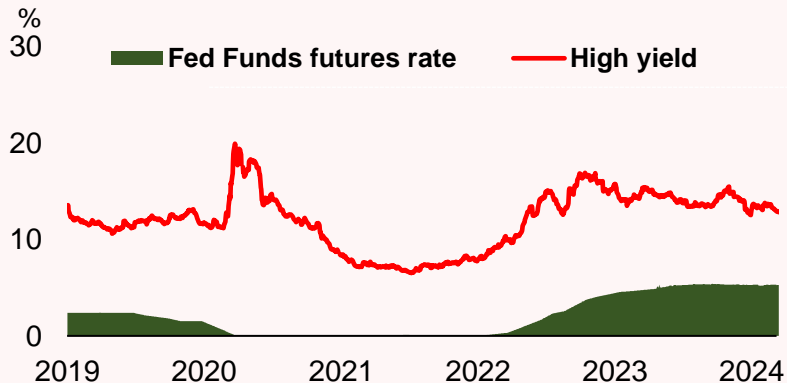
The U.S. trade deficit narrowed in Q4 2023. The U.S. real trade deficit ran at an annualized rate of \$908 billion in Q4 2023, down from \$931 billion in Q3 per the U.S. Bureau of Economic Analysis. On a nominal basis, the trade surplus for petroleum and products ran at annualized rate of \$16 billion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

Industrial production and investment growth



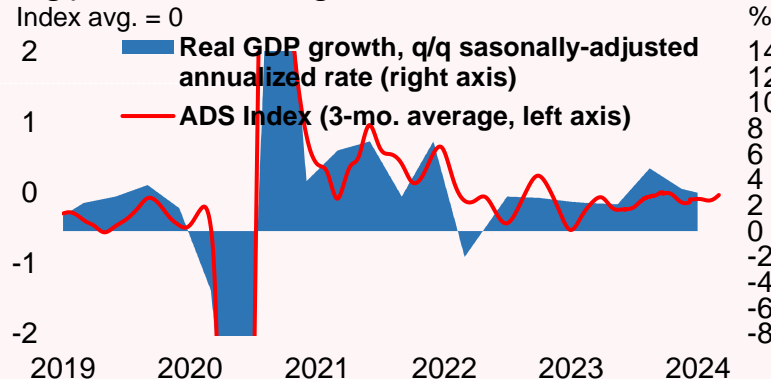
Industrial production edged up in Feb. 2024 and remained consistent with slow economy-side investment growth in Q1. Investment rose by 0.1% m/m in February per the Bureau of Economic Analysis.

Fed Funds rate and CCC and lower corporate bond yields



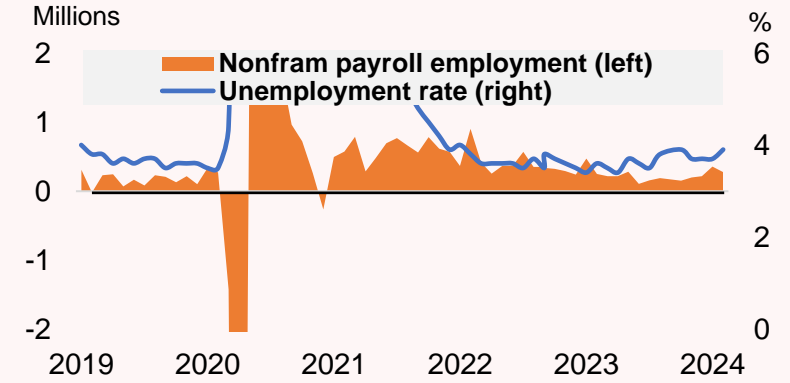
Decreased bond premium for low credit quality. High yield (HY) rates reflect debt costs for firms with below-investment grade credit quality. For the week ended Mar. 15, HY rates fell to 12.85% (from a high of 13.7% on Feb. 21) while the Fed Funds futures held steady at 5.3%, yielding the lowest risk 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

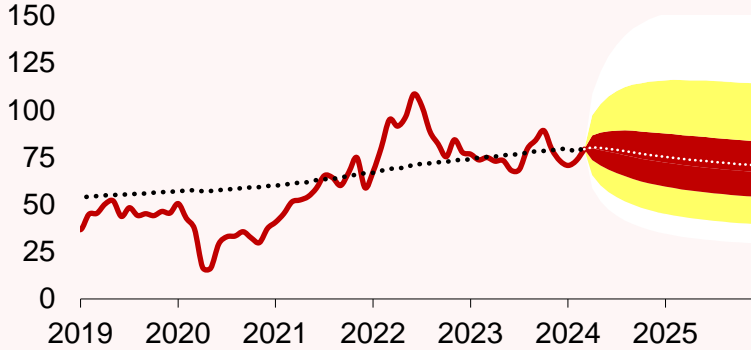


Higher unemployment rate despite payroll increases. The employment situation is a lagging indicator of GDP growth. The U.S. unemployment rate rose to by 0.2% m/m to 3.9% in February per BLS, while non-farm payrolls rose by 275,000.

U.S. oil market indicators

WTI crude oil price mean reversion analysis

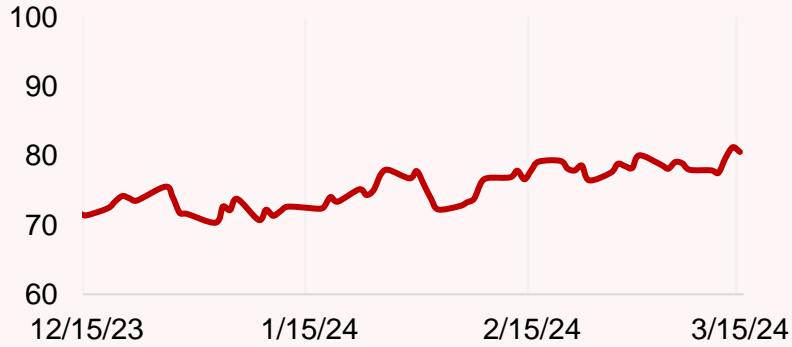
Dollars per barrel (2024\$)



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

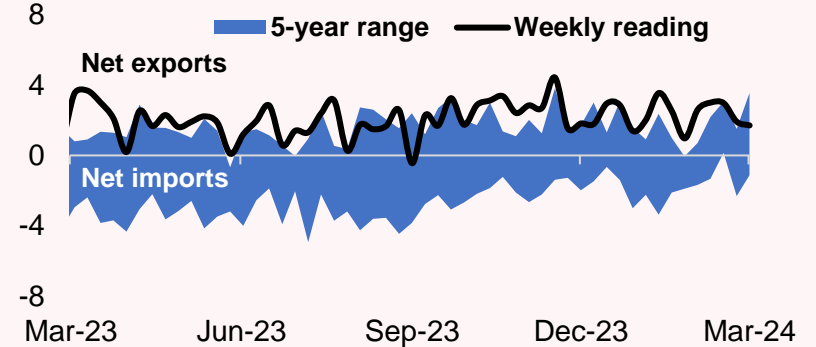
Dollars per barrel



WTI crude oil prices rose above \$80 per barrel for the week ended Mar. 15, supported by solid fundamentals and a Middle East geopolitical premium.

U.S. petroleum net exports (imports)

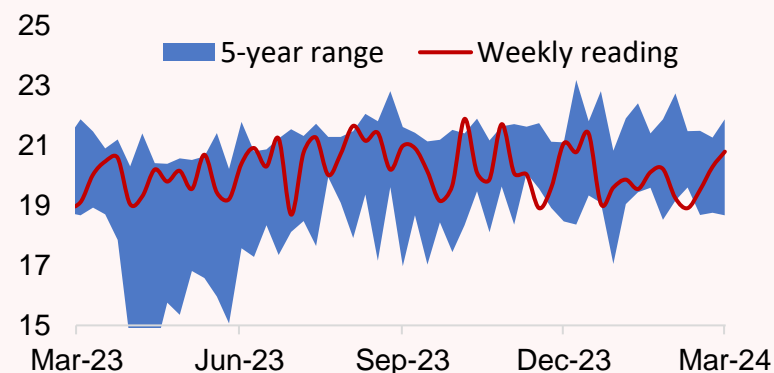
Million barrels per day, mb/d



Petroleum net exports slipped. The U.S. was a petroleum net exporter of 1.7 mb/d for the week ended Mar. 8, down by 0.2 mb/d from the prior week.

U.S. petroleum demand

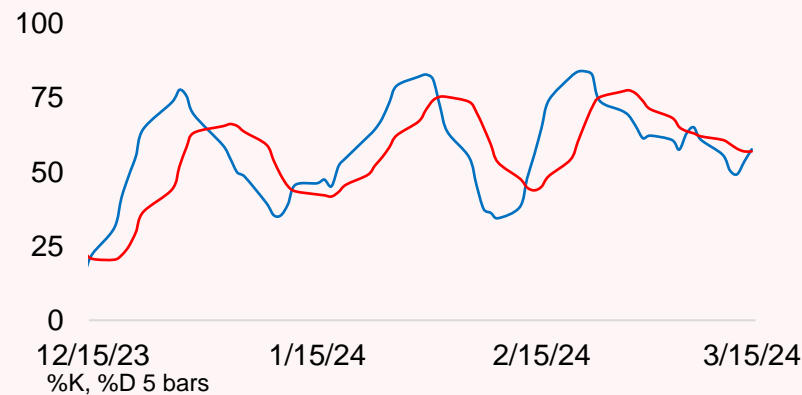
Million barrels per day (mb/d)



Petroleum demand increased. U.S. petroleum demand, as measured by deliveries, rose by 0.5 mb/d w/w to 20.8 mb/d for the week ended Mar. 8 – and towards the top of the 5-year range.

WTI crude prompt month futures slow stochastic

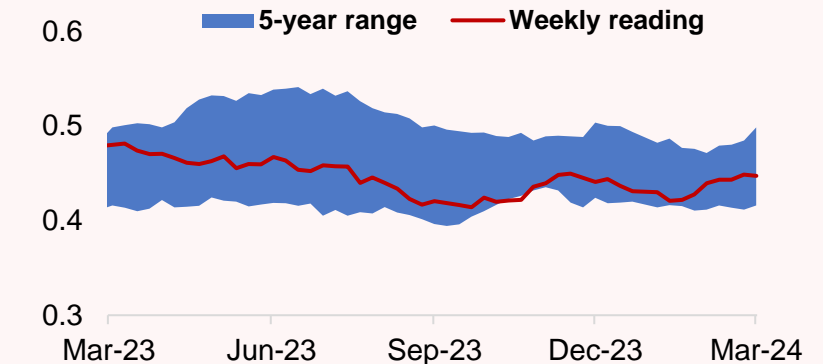
Index level



Price momentum neither increased nor decreased for the week ended Mar. 15.

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

Billion barrels (mb)

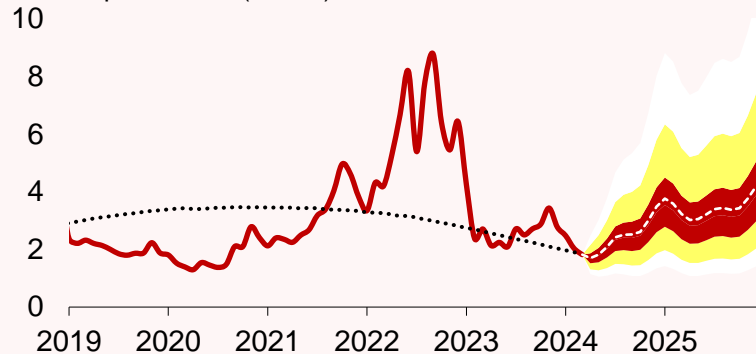


Inventories decreased. U.S. ending stocks of crude oil excluding the Strategic Petroleum Reserve (SPR) decreased by 1.5 million barrels (mb) for the week ended Mar. 8, the first decrease following 6 straight weekly increases.

U.S. natural gas market indicators

Natural gas price mean reversion analysis

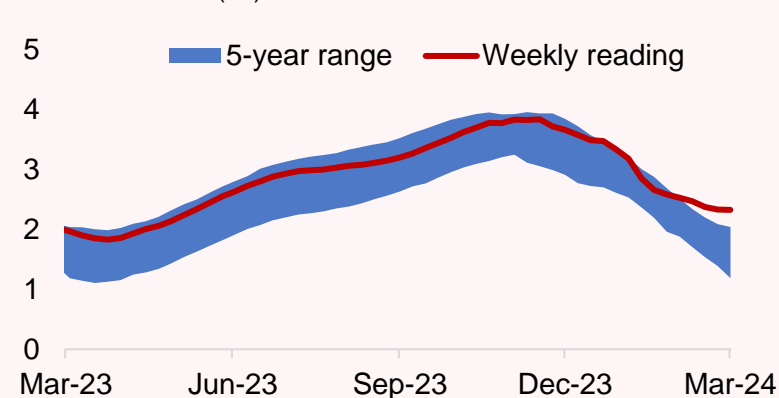
Dollars per mMBtu (2024\$)



The historical mean reversion target fell with recent low prices. Natural gas futures prices rise progressively beginning in May 2024. Confidence intervals based on past prices show the potential for greater upside than downside.

U.S. weekly working gas storage

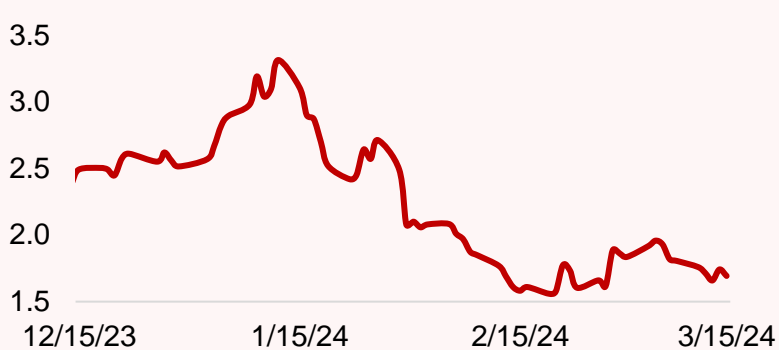
Trillion cubic feet (tcf)



Working gas in underground storage fell by 0.4% w/w to 2.325 tcf as of Mar. 8 but remained above the 5-year range.

Natural gas prompt month futures prices

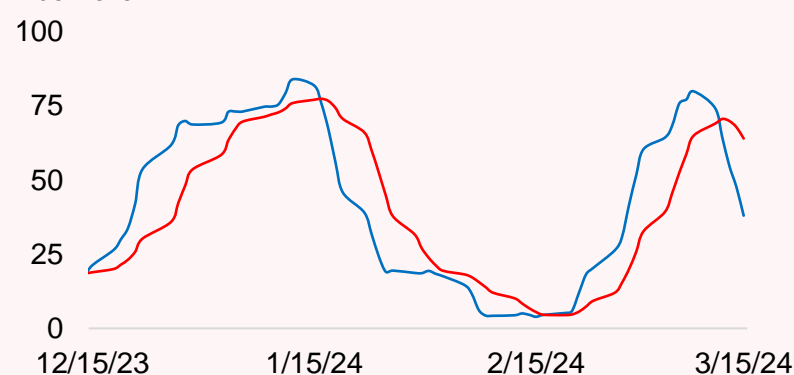
Dollars per million Btu



Natural gas prices at Henry Hub fell to around \$1.70 per million Btu for the week ended Mar. 15, thanks in part to storage levels that exceeded the 5-year range.

Natural gas futures slow stochastic

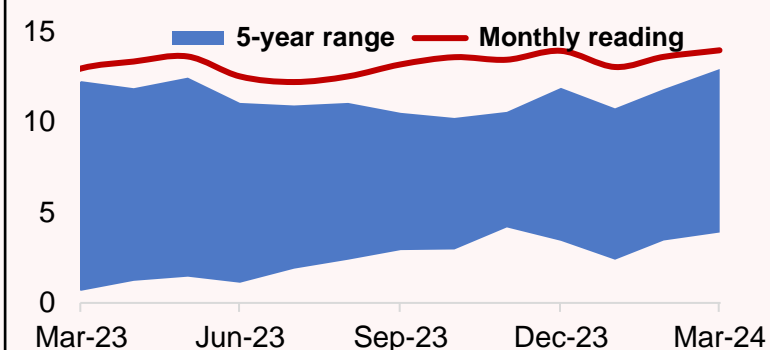
Index level



%K, %D 5 bars
Natural gas price momentum remained peaked and turned negative during the week ended Mar 15.

U.S. natural gas net exports

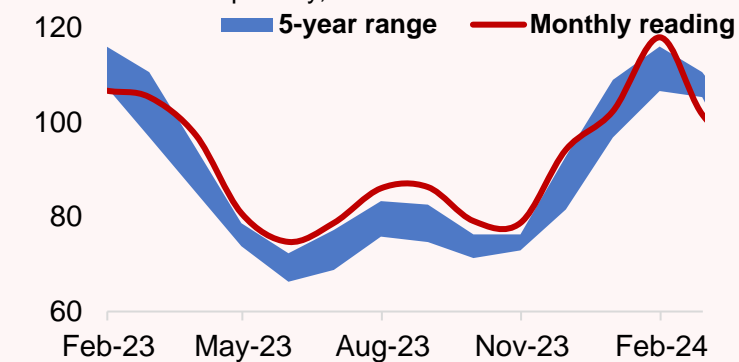
Billion cubic feet per day, bcf/d



Record-high exports. U.S. natural gas net exports in March are estimated at a record 14.0 bcf/d per EIA. Notably, LNG exports have held around 12 bcf/d, and the uplift to record levels has come from increased pipeline natural gas exports to Mexico and Canada, coupled with lower imports from Western Canada.

U.S. natural gas consumption

Billion cubic feet per day, bcf/d

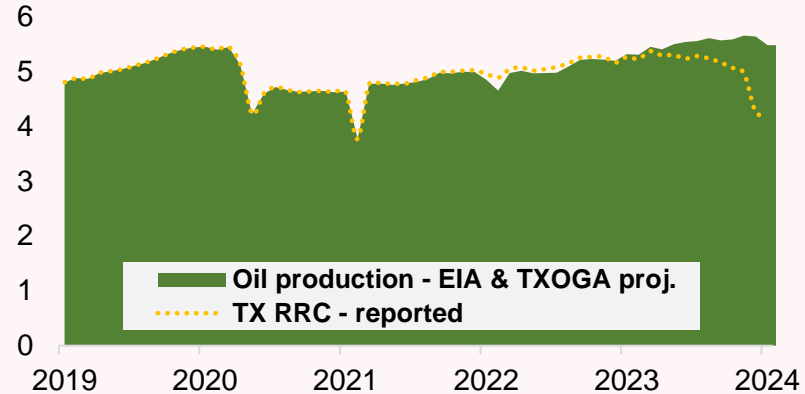


Consumption downgraded. EIA estimates that natural gas consumption fell from a record-high 118 bcf/d in January to 91.9 bcf/d in March, below the 5-year range with unseasonably warm weather.

Texas' oil and natural gas production

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

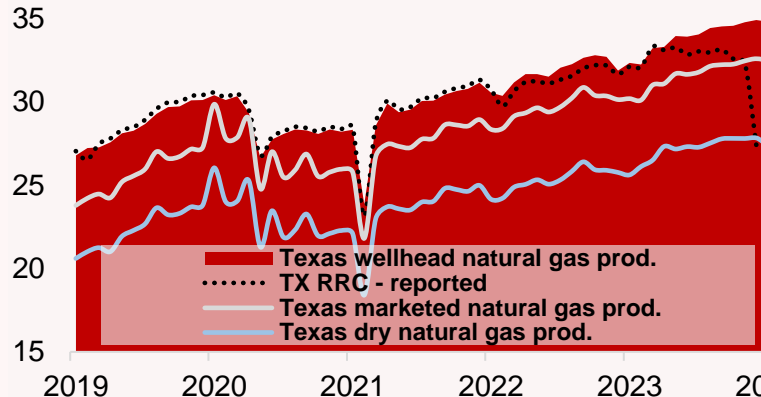
Million barrels per day (mb/d)



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

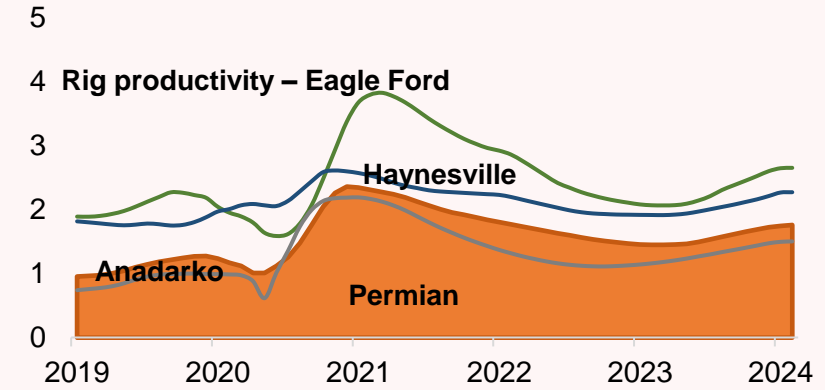
Billion cubic feet per day (bcf/d)



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

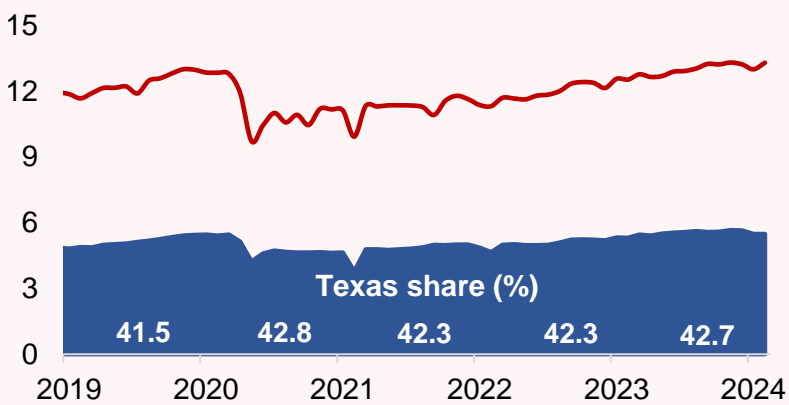
Thousand barrels per day oil-equivalent, kb/dae



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

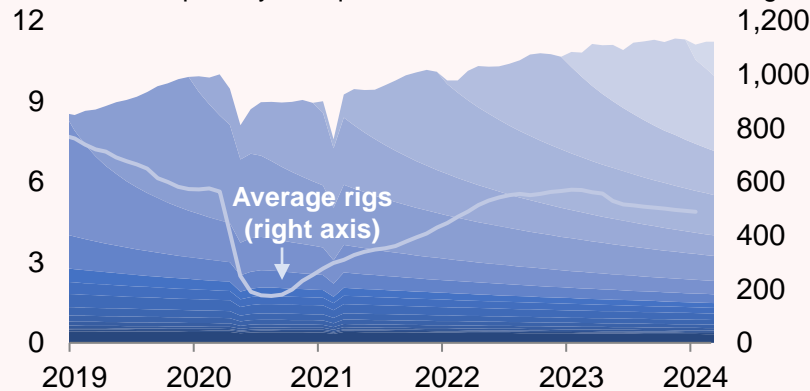
Million barrels per day (mb/d)



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

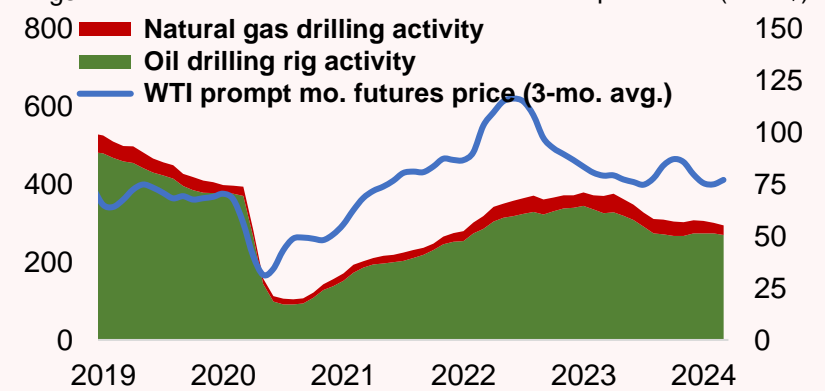
Million barrels per day oil-equivalent



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



Texas' drilling rig activity increased for the week ended Mar. 15 per Baker Hughes. Texas had 271 oil-directed rigs (up by 4 rigs w/w) and 23 natural gas-directed rigs (down by 1 rig w/w).

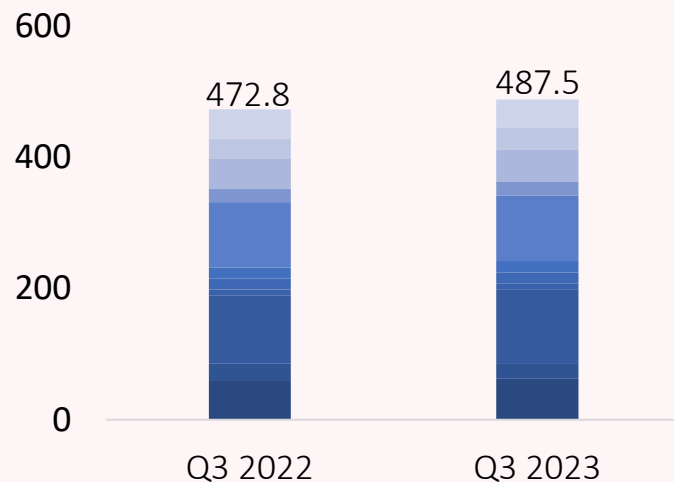
Texas' oil and natural gas industry's jobs and wages have continued to grow



- 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

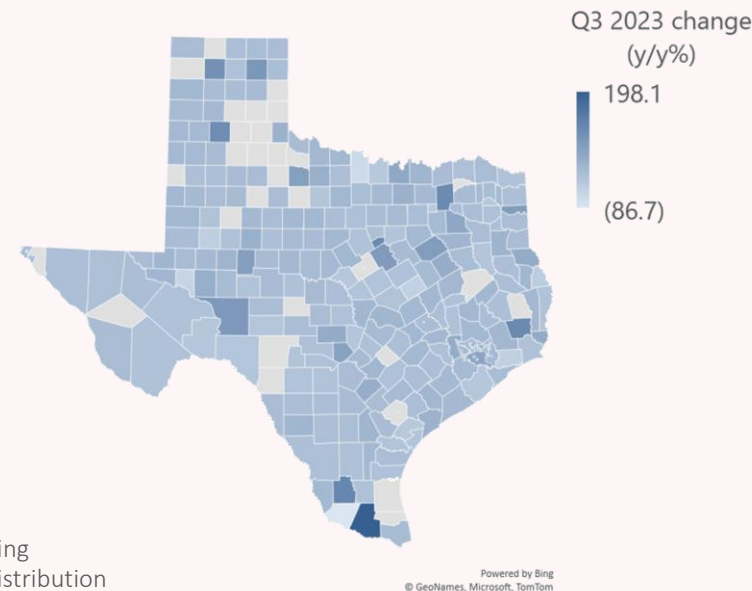
Texas oil and natural gas industry direct employment rose by +3.1% y/y in Q3 2023

Thousand Jobs



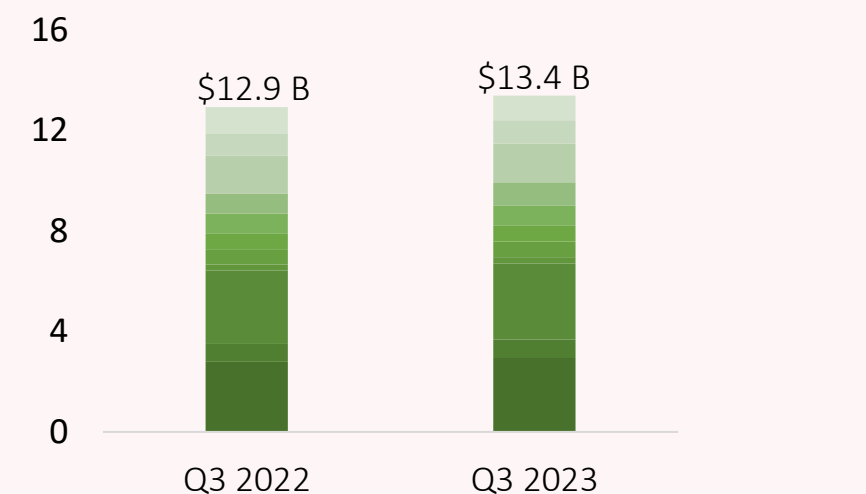
- Oil & gas extraction
- Support activities for o&g ops.
- Petroleum refineries
- Gas stations & fuel dealers
- All other*
- Pipeline construction
- Oil & gas drilling
- Natural gas distribution
- Petrochemical mfg.
- Pipeline transportation
- Oil & gas field mach. and eq. mfg.

* 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
- 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

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