



April 22, 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 April 22, 2024

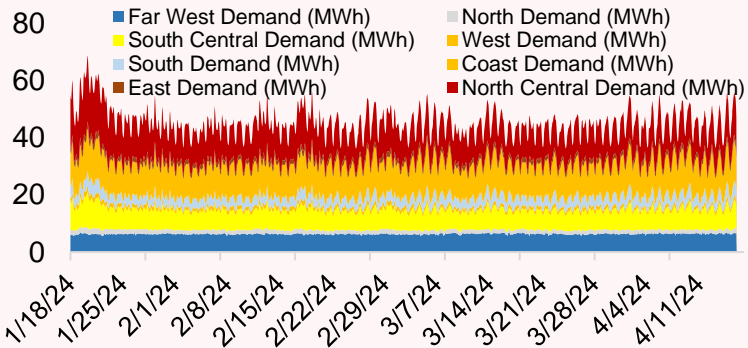
- **U.S. economic indicators softened.** The University of Michigan's consumer sentiment survey for April shows a 1.9% decline from the previous month, yet it aligns with ongoing growth in spending. Rising interest rates continue to pose risks to economic growth, impacting sectors like housing, as evidenced by a slowdown in home sales and new construction. Additionally, corporate debt costs have escalated, with premiums for low credit quality reaching their highest point since December 2023.
- **Despite weaker fundamentals, global geopolitics have supported oil prices.** With U.S. oil production maintaining levels above 13 million barrels per day (mb/d), crude oil inventories rose for a fourth consecutive week, even as domestic demand and petroleum net exports rebounded, according to data from the Energy Information Administration (EIA) for the week ended April 12. A relatively well-supplied market has kept West Texas Intermediate (WTI) crude prices in the low-\$80 per barrel range despite Middle East geopolitical tensions.
- **Strong natural gas inventories, weak prices.** For April 2024, the EIA projects domestic natural gas consumption near the top of the 5-year range but notes a decrease in net exports to 12.5 billion cubic feet per day (bcf/d) from 13.3 bcf/d a year ago. As drilling and production have been geared to support higher anticipated exports, the excess natural gas must be absorbed domestically, which has sustained historically high inventory levels and pressured prices downward.
- **Texas electricity prices: competitiveness challenged.** The [Chart of the Week](#) highlights new analysis of Texas electricity markets. Notably, Texas' electricity prices have risen by 15% over the past two years, while those in neighboring Louisiana and New Mexico have decreased. This price increase challenges Texas' competitiveness, given its status as the largest U.S. consumer of electricity across industrial, commercial, and residential sectors.

TXOGA Chart of the Week: New Texas Electricity Analysis



ERCOT electricity demand by region

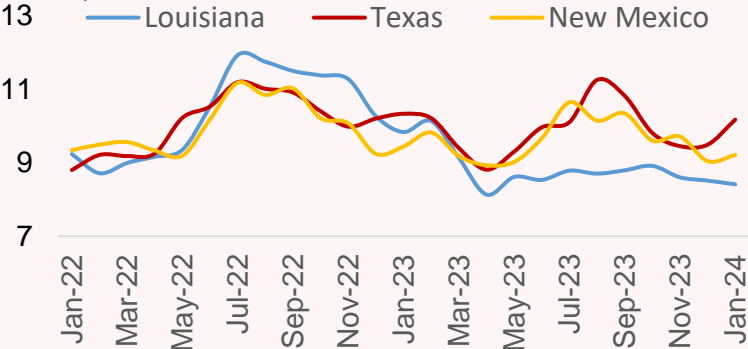
Thousand megawatt-hours



North and West Texas load increased. For April 11-17, 2024, ERCOT's average hourly electricity load of 45 kMWh fell by 0.5% w/w, while the maximum hourly load of 55.8 kMWh rose by 1.0% w/w. Despite having a combined load of only fifth that of ERCOT's North Central or Coast regions, the West and North regions drove the increased variability, where the maximum hourly load increased by 11% w/w.

Electricity prices – average across all end-use sectors

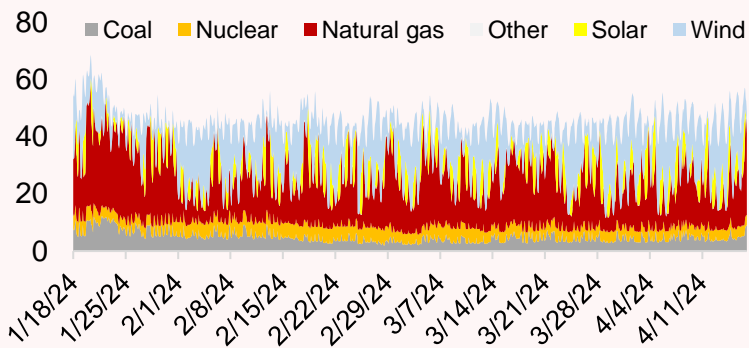
Cents per kilowatt-hour



Texas' electricity prices have risen, while those in LA, NM fell. The average price of electricity in Texas in January rose by 15.6% from two years ago. Importantly, neighboring Louisiana and New Mexico saw their rates decrease over the same period.

ERCOT hourly electricity generation by source

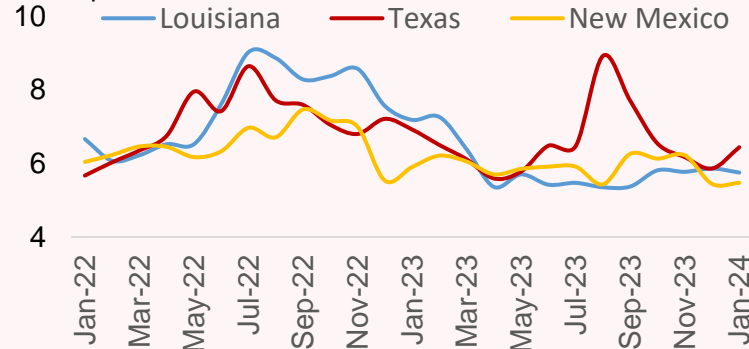
Thousand megawatt-hours



ERCOT thermal generation increased. For April 11-17, 2024, ERCOT's hourly electricity generation ranged between 37 and 57 kMWh with a percentage standard deviation of 12.4. Thermal sources contributed as much as 88% of the region's power (up by 10% w/w), and natural gas drove as much as 64% over the period, (up 9% w/w).

Industrial electricity prices

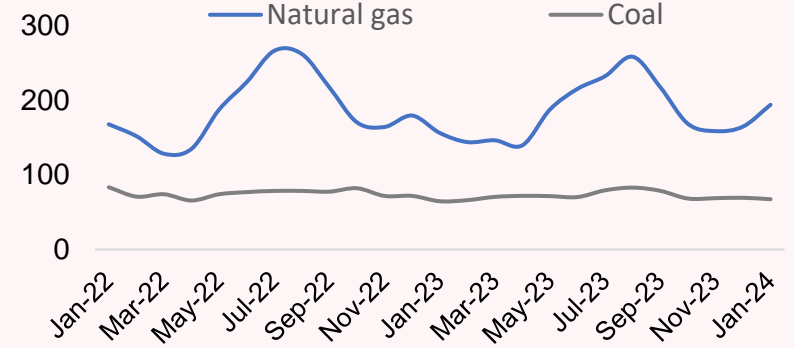
Cents per kilowatt-hour



Texas' industrial electricity prices rose. As Texas' industrial prices rose by 13.6% and those in New Mexico and Louisiana fell by 9.4% and 13.7%, respectively, over the past two years, Texas' rates became the highest among these states, which share oil and natural gas-focused economies.

Electricity plant receipts of natural gas and coal

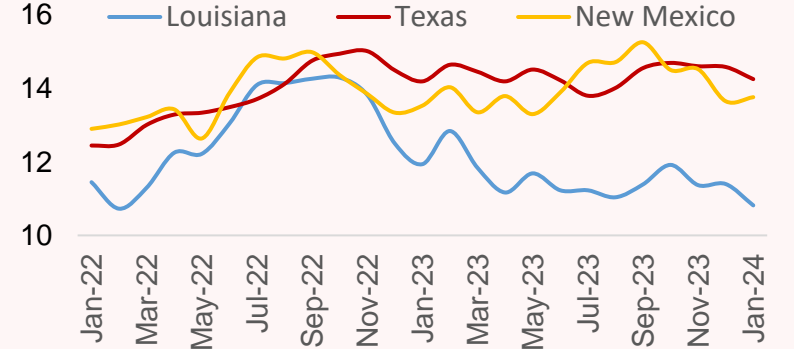
Trillion Btu



Texas' lower natural gas receipts enabled by higher inventories. Although Texas' thermal and dispatchable energy needs have continued to grow, the maximum monthly quantities of natural gas and coal that generators received have fallen over the past two years, thanks at least in part to greater inventories. Texas' natural gas storage of 675 bcf in Jan. 2024 rose by 50 bcf (8.0%) vs. its level in Jan. 2022.

Residential electricity prices

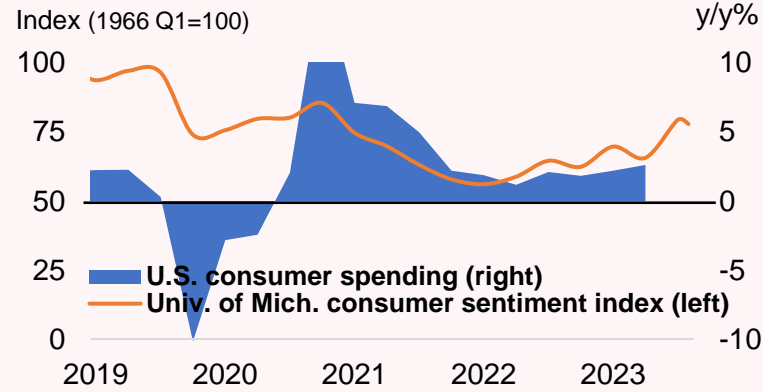
Cents per kilowatt-hour



Texas' residential electricity prices significantly exceed those in LA, NM. Louisiana and New Mexico have achieved lower residential electricity prices than those in Texas. In January, the average electricity price in Texas was 31.7% higher than that in New Mexico.

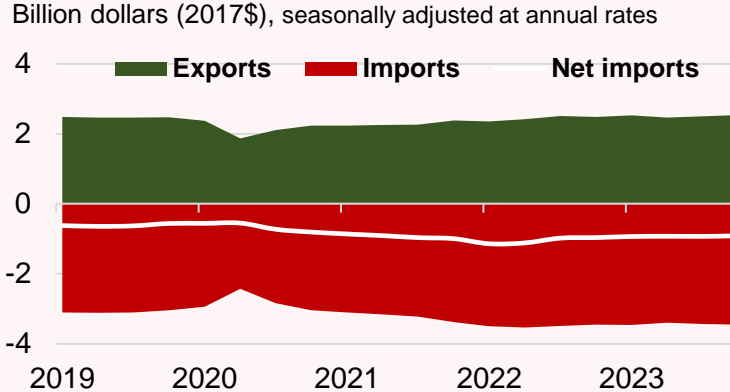
U.S. economic indicators

Consumer sentiment vs. spending



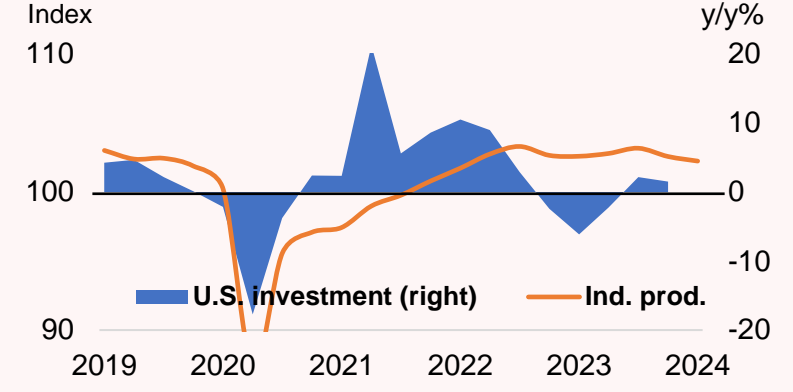
Consumer sentiment decreased to an index reading of 77.9 in Univ. of Michigan's initial April 2024 survey, down by 1.9% m/m from March. The overall improvement in consumer sentiment has historically remained consistent with further spending growth in 2024.

Real net exports of goods and services



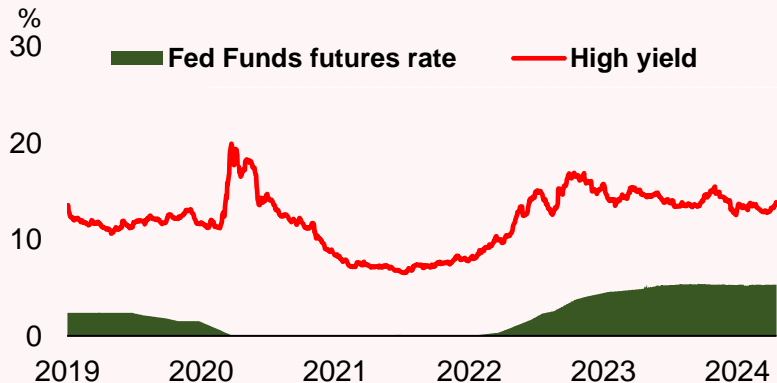
U.S. trade deficit revised to be larger. The U.S. real trade deficit ran at an annualized rate of \$919 billion in Q4 2023 per BEA's revised estimates. On a nominal basis, the trade surplus for petroleum and products ran at annualized rate of \$31 billion in Q4 2023.

Industrial production and investment growth



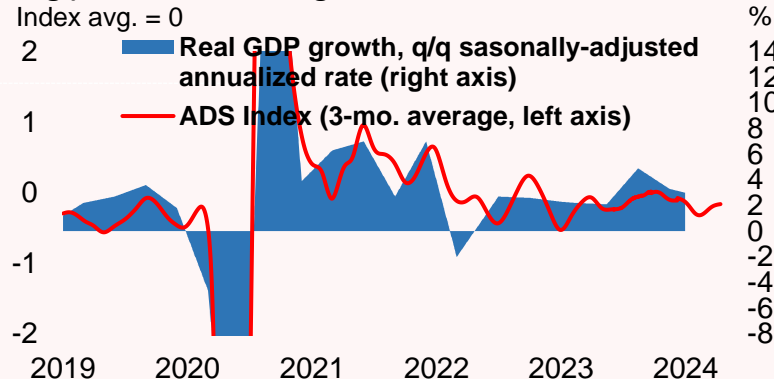
Industrial production rose by 0.4% m/m in March 2024 and remained consistent with slow economy-side investment growth in Q1 2024.

Fed Funds rate and CCC and lower corporate bond yields



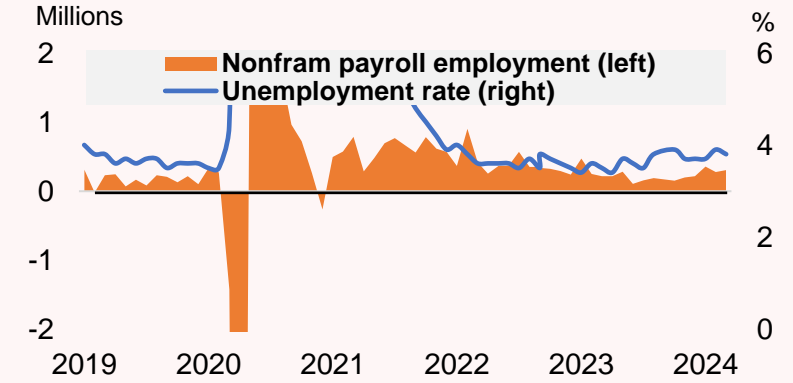
Increased bond premium for low credit quality. High yield (HY) rates reflect debt costs for firms with below-investment grade credit quality. For the week ended Apr. 19, HY rates rose by 0.4% w/w to 13.85% while the Fed Funds futures held steady at 5.33%, raising the premium for low credit quality to 8.5%, the highest since December 2023.

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



Business conditions support real GDP growth in 2024. 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 GDP growth so far in 2024.

Nonfarm payroll employment & unemployment rate

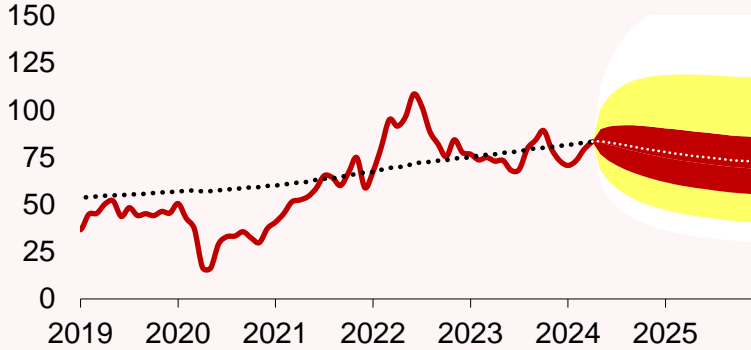


Higher unemployment rate despite payroll increases. The employment situation is a lagging indicator of GDP growth. The U.S. unemployment rate fell by 0.1% m/m to 3.8% in March per BLS, while non-farm payrolls rose by 303,000.

U.S. oil market indicators

WTI crude oil price mean reversion analysis

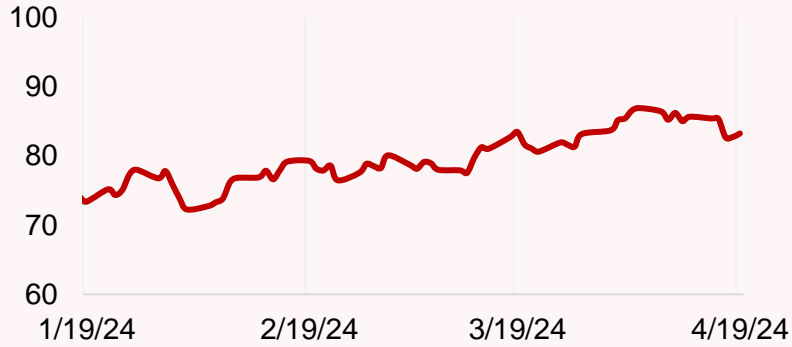
Dollars per barrel (2024\$)



Near-term futures prices currently align with the historical mean reversion target. 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

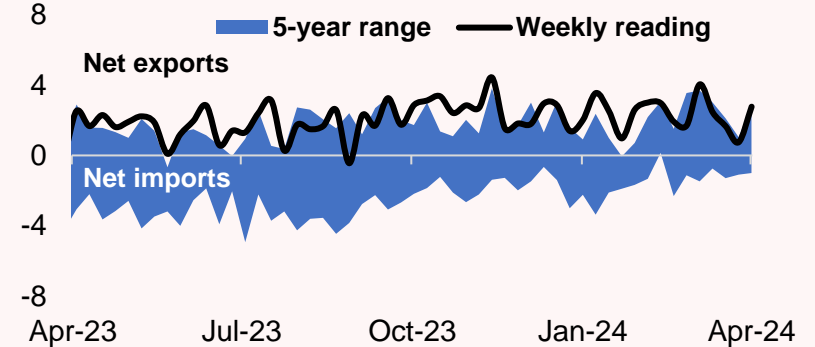
Dollars per barrel



WTI crude oil prices decreased by \$4 per barrel to \$83 per barrel for the week ended Apr. 19, supported by a Middle East geopolitical premium.

U.S. petroleum net exports (imports)

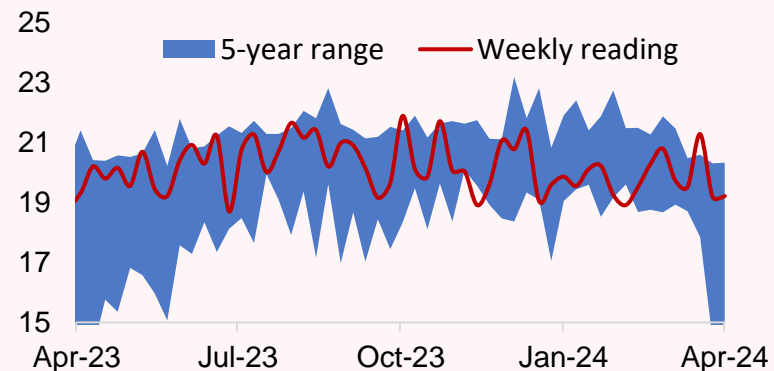
Million barrels per day, mb/d



Petroleum net exports rose. The U.S. was a petroleum net exporter of 2.8 mb/d for the week ended Apr. 12, up by 2.0 mb/d from the prior week.

U.S. petroleum demand

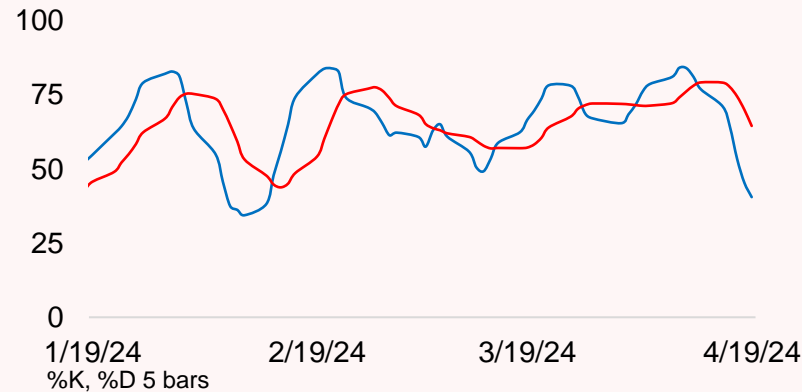
Million barrels per day (mb/d)



Petroleum demand remained steady. U.S. petroleum demand, as measured held steady at 19.2 mb/d for the week ended Apr. 12 and was in the top 20% of the five-year range.

WTI crude prompt month futures slow stochastic

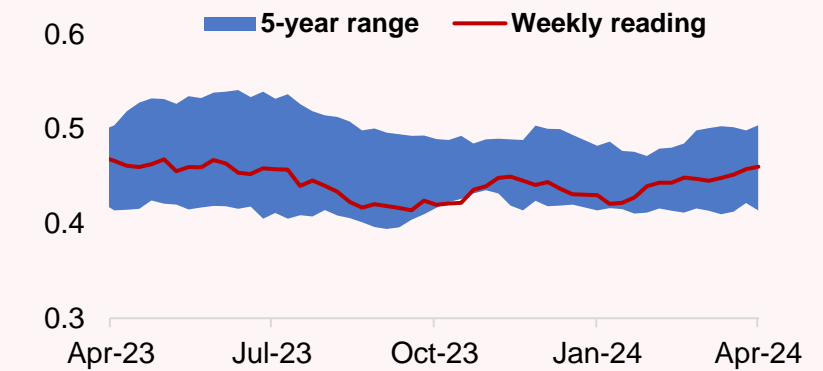
Index level



Price momentum waned during the week ended Apr. 19.

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

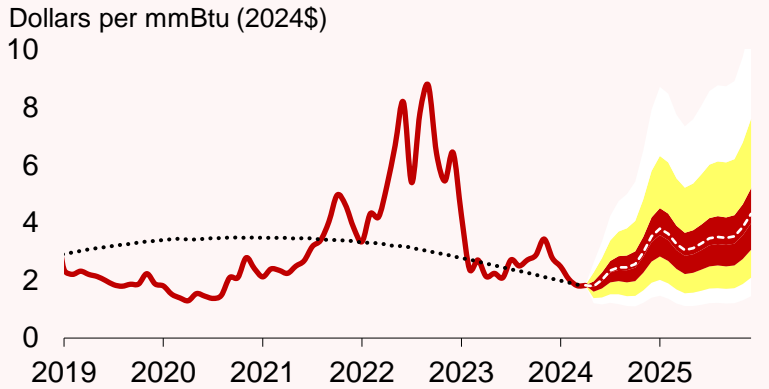
Billion barrels



Inventories increased. U.S. ending stocks of crude oil excluding the Strategic Petroleum Reserve (SPR) increased by 2.7 million barrels (mb) for the week ended Apr 12.

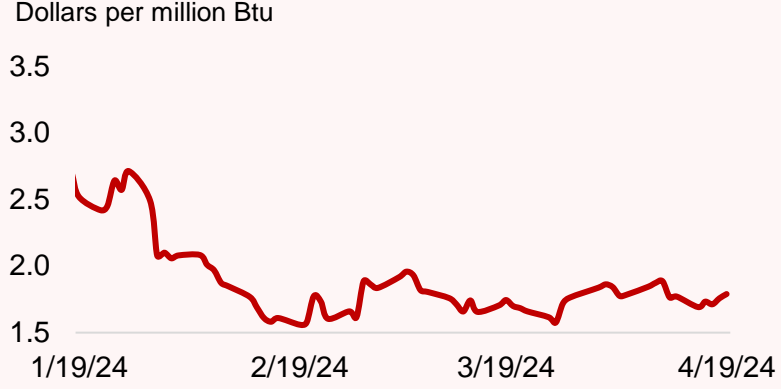
U.S. natural gas market indicators

Natural gas price mean reversion analysis



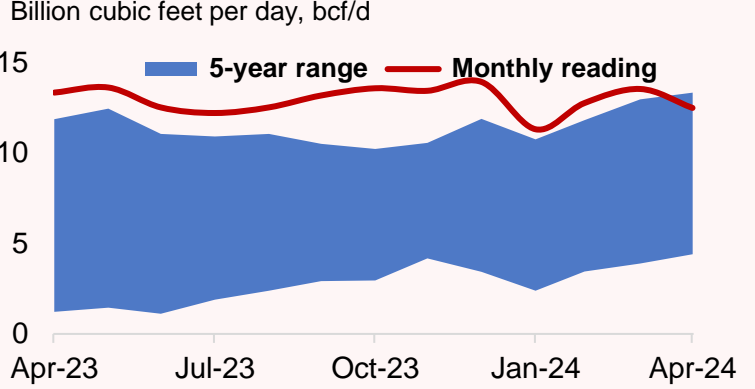
Natural gas futures prices progressively rise, despite low recent prices. Confidence intervals based on past prices show the potential for greater upside than downside.

Natural gas prompt month futures prices



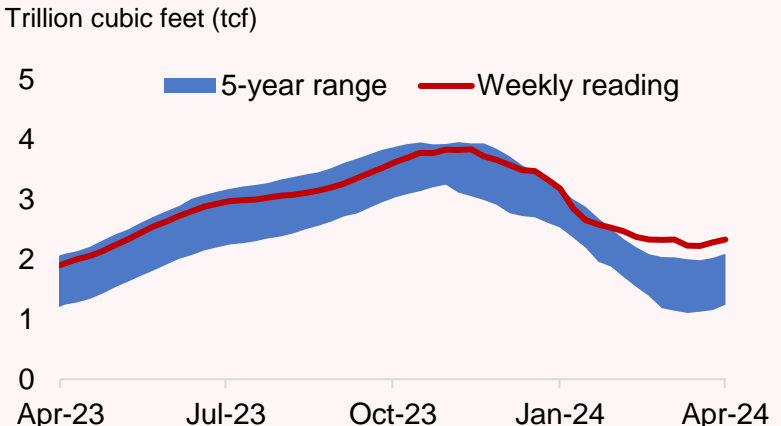
Natural gas prices at Henry Hub remained near \$1.80 per million Btu for the week ended Apr. 19.

U.S. natural gas net exports



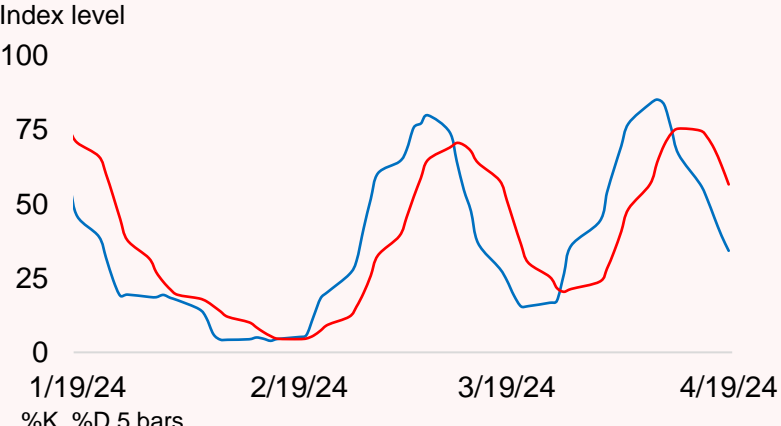
Natural gas exports slipped. U.S. natural gas net exports in April are projected at 12.5 bcf/d, down from 13.3 bcf/d one year ago, per EIA.

U.S. weekly working gas storage



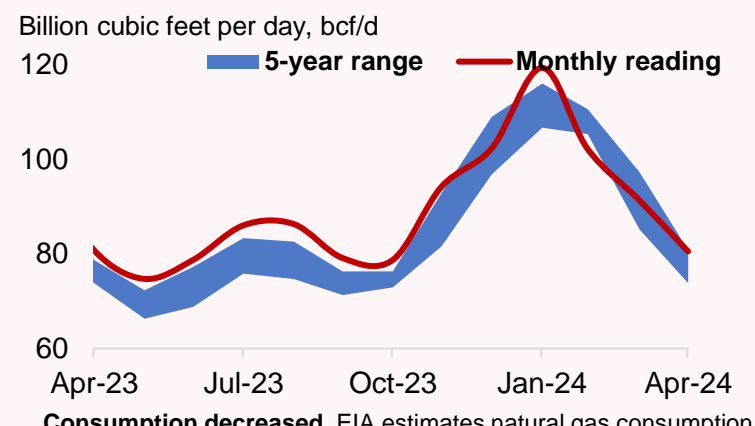
Working gas in underground storage rose by 2.2% w/w to 2.33 tcf as of Apr. 12 and remained above the 5-year range.

Natural gas futures slow stochastic



Natural gas price momentum fell during the week ended Apr. 19.

U.S. natural gas consumption



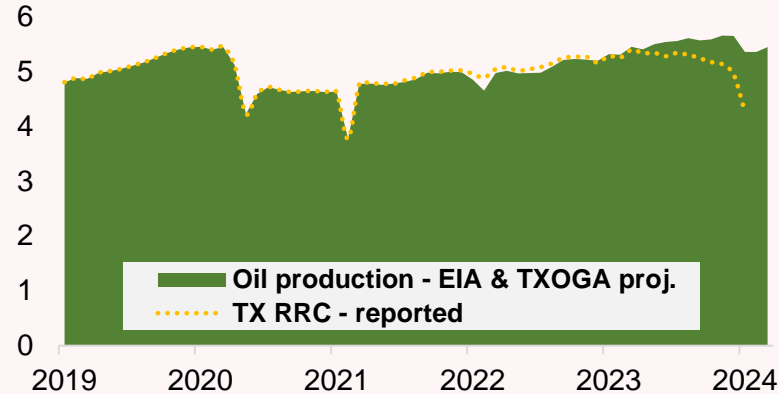
Consumption decreased. EIA estimates natural gas consumption to run at 80.5 bcf/d in April, compared with 80.7 bcf/d one year ago.



Texas' oil and natural gas production

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

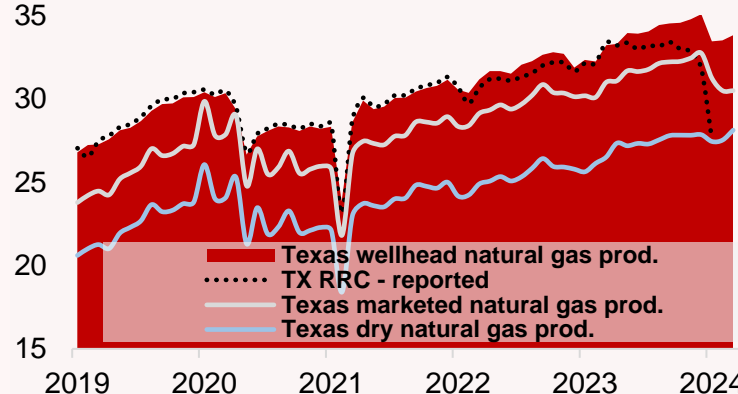
Million barrels per day (mb/d)



Oil production fell from record highs. Texas' oil production of 5.4 mb/d in January was impacted by Winter Storm Heather per EIA. TXOGA estimates that Texas crude oil production held steady at 5.4 mb/d in February and March 2024.

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

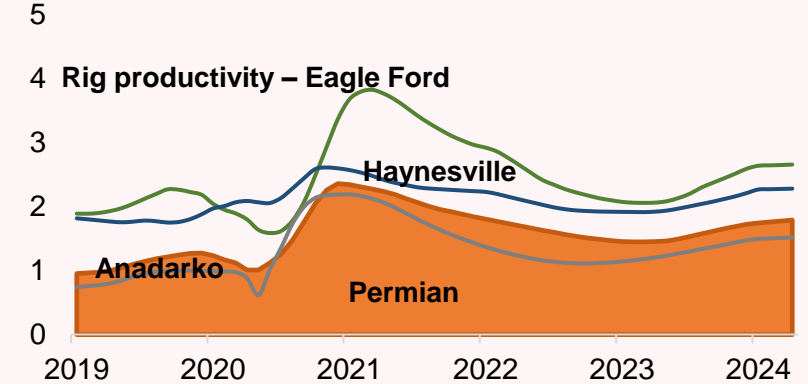
Billion cubic feet per day (bcf/d)



Natural gas production edged up. Texas' natural gas production of 33.5 bcf/d of gross withdrawals and 30.5 bcf/d of marketed production in Jan. were impacted by Winter Storm Heather per EIA. TXOGA estimates that production rose in March to 33.8 bcf/d of gross withdrawals, 30.5 bcf/d of marketed production, and 28.1 bcf/d of dry gas production.

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

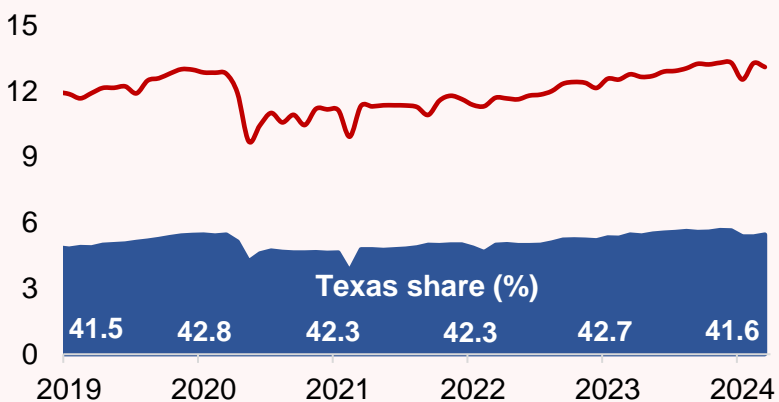
Thousand barrels per day oil-equivalent, kb/dae



Strong productivity to start the year. EIA estimates of rig productivity for April 2024 show continued increases year-over-year across the major Texas basins, including the Anadarko (+25.7% y/y), Eagle Ford (+28.8% y/y), Permian (+23.3% y/y), and Haynesville (+18.7% y/y).

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

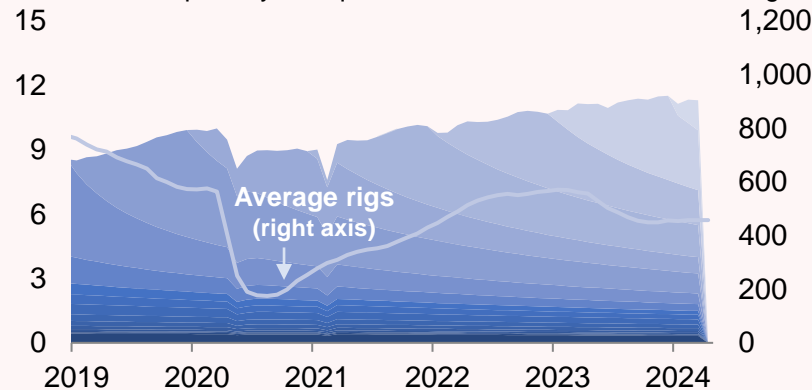
Million barrels per day (mb/d)



Texas' share fell. Texas accounted for an estimated 41.6% of U.S. crude oil production in Q1 2024.

Texas shale basin wellhead oil & natural gas production

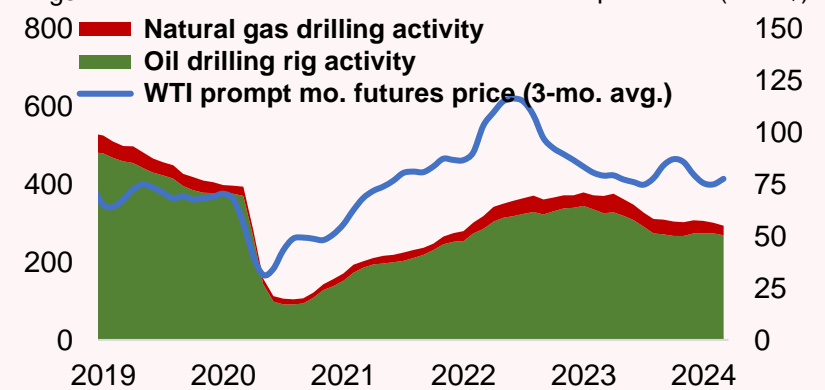
Million barrels per day oil-equivalent



EIA estimates Apr. 2024 production growth across Texas shale basins has continued to grow year-over-year in the Permian (+6.5% y/y) but fallen in the Eagle Ford (-0.1% y/y), Haynesville (-2.8% y/y), and Anadarko (-2.6% y/y) regions.

Texas drilling activity and WTI crude oil futures prices

Rigs Dollars per barrel (2024\$)



Texas' drilling rig activity increased for the week ended Apr. 19 per Baker Hughes. Texas had 271 oil-directed rigs (up by 2 rigs w/w) and 25 natural gas-directed rigs (unchanged w/w).

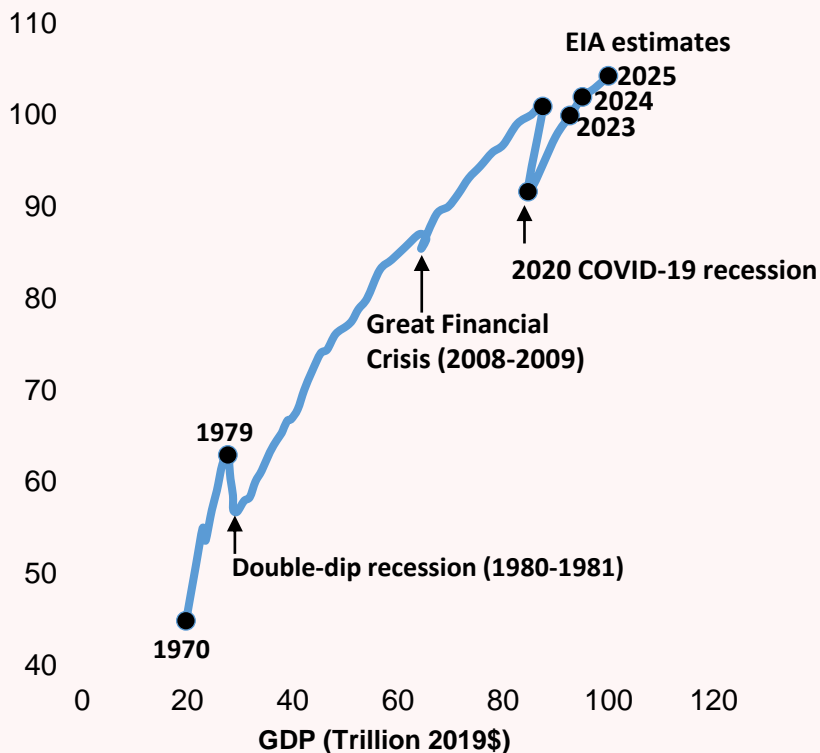
Global Oil Market Balance Projections to 2025 by EIA



- Further upgrades to record-high demand: eclipsing 104 mb/d by 2025.** EIA's outlook revisions included a material (1%) increase 2023 global consumption and advanced growth into this year that was not expected to occur until 2025.
 - As highlighted in [TXOGA's Quarterly Energy Economics Outlook for Q4 2023](#), EIA's global oil consumption estimates were below those of other major sources.
 - The April 2024 Short-term Energy Outlook ([STEO](#)) increased global oil consumption by 1.0 mb/d to 102.0 mb/d in 2023, by 0.5 mb/d to 102.9 mb/d in 2024, and by 0.6 mb/d to 104.3 mb/d in 2025.
- For oil inventories, the EIA projects global stock withdrawals with a deficit of 0.9 mb/d in Q2 2024,** corresponding with Brent crude oil prices of \$88.55 in 2024, compared with \$89.31 per barrel currently.

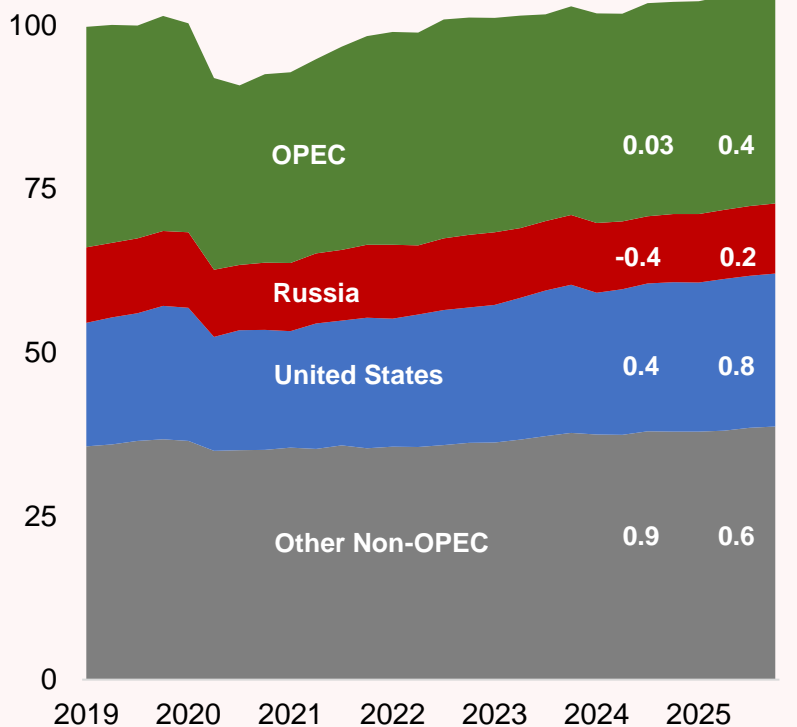
Global oil demand and GDP

Million barrels per day (mb/d)



Oil production by country/region

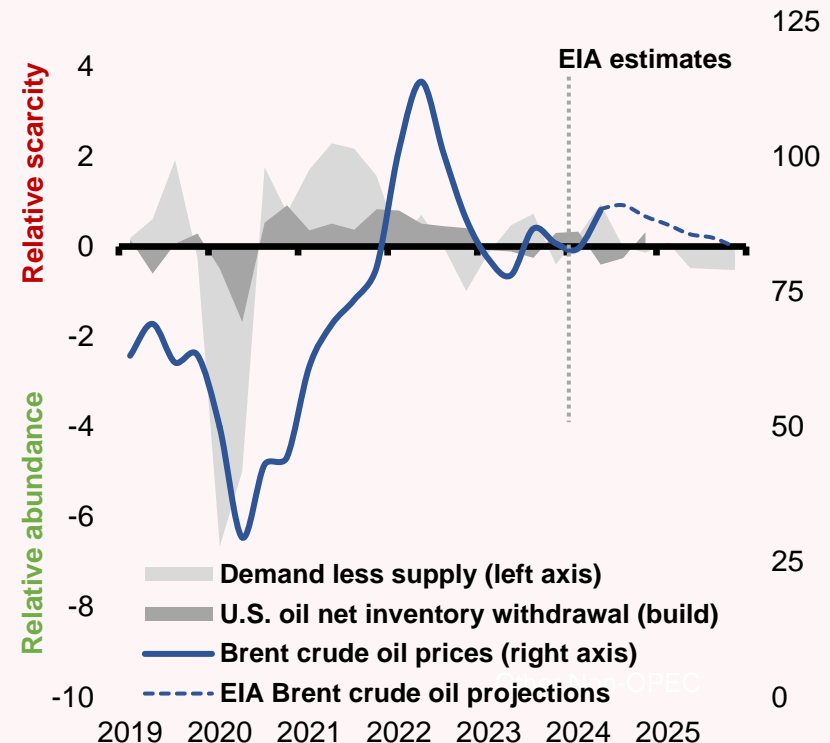
Million barrels per day, mb/d



Global demand/supply & Brent prices

Million barrels per day (mb/d)

2024\$/Bbl



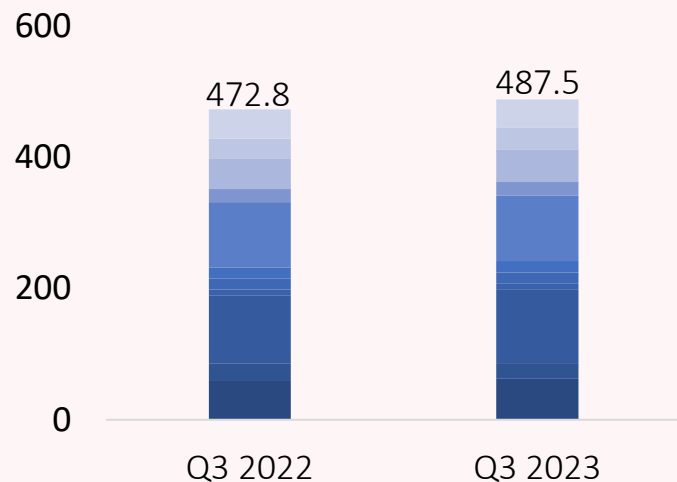
Texas' oil and natural gas industry's jobs and wages have continued to grow



- 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

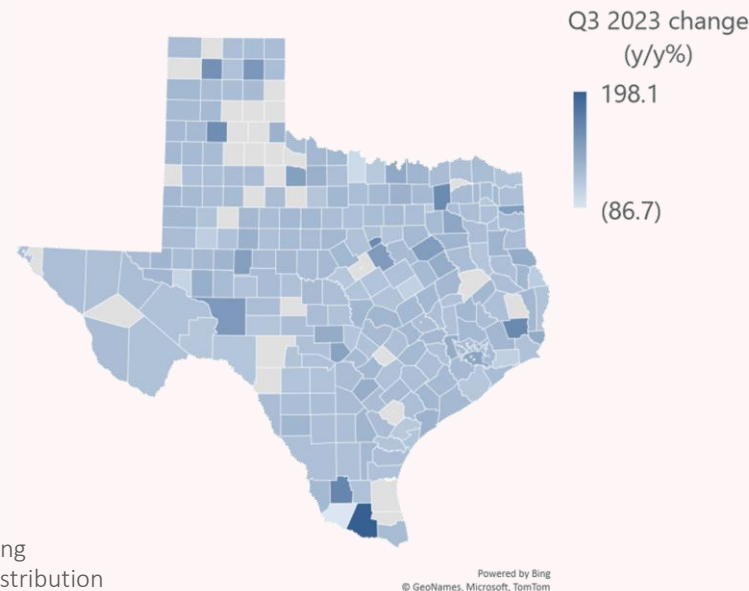
Texas oil and natural gas industry direct employment rose by +3.1% y/y in Q3 2023

Thousand Jobs



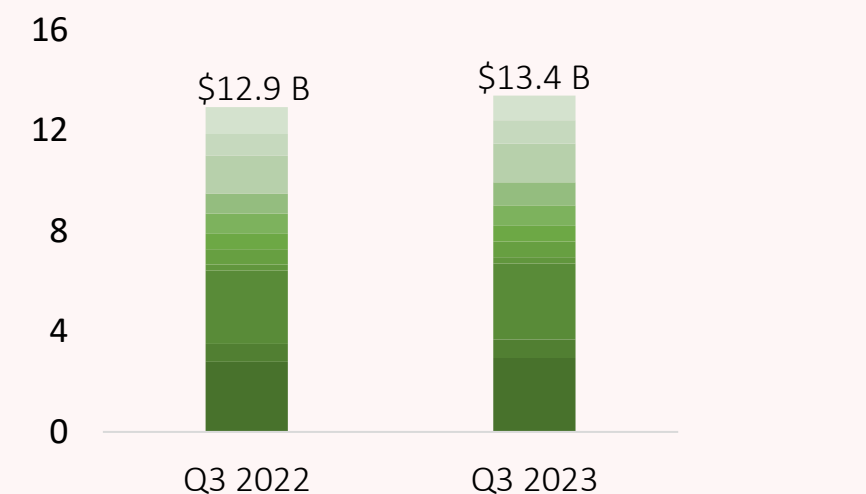
- Oil & gas extraction
- Support activities for o&g ops.
- Petroleum refineries
- Gas stations & fuel dealers
- All other*
- Pipeline construction
- Oil & gas drilling
- Natural gas distribution
- Petrochemical mfg.
- Pipeline transportation
- Oil & gas field mach. and eq. mfg.

* 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
- 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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