



**April 15, 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 15, 2024**

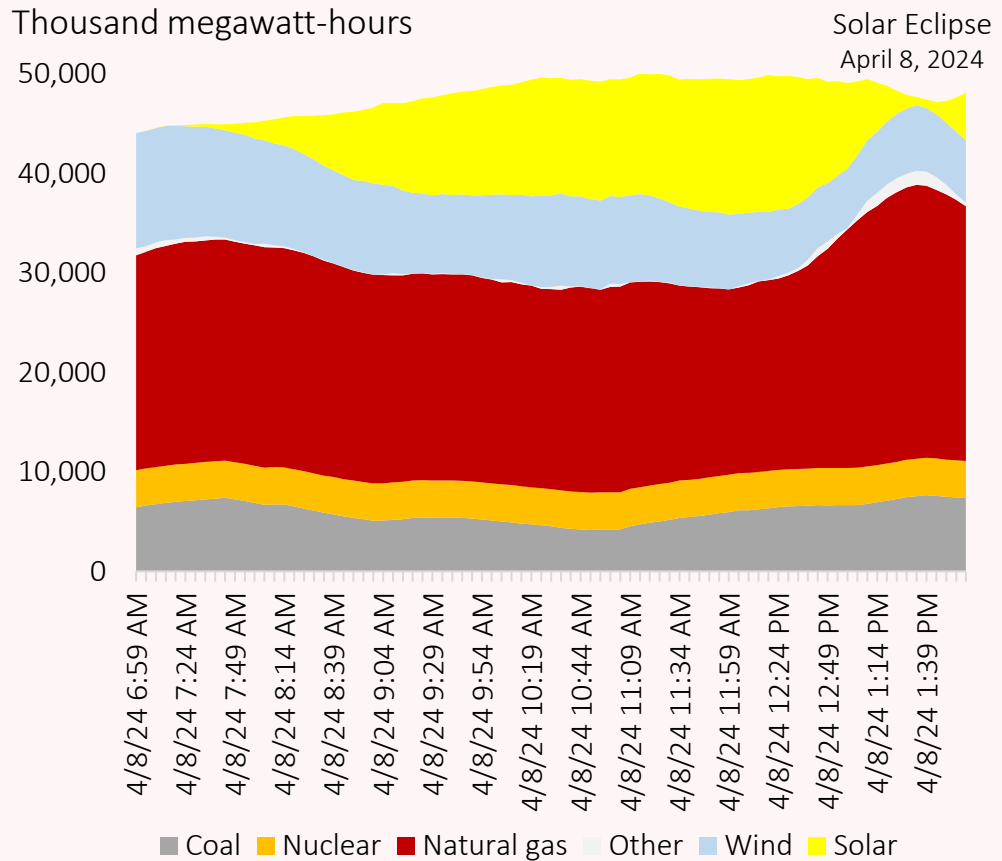
- **U.S. economic indicators remained stable** despite consumer price inflation (CPI) rising to 3.5% year-over-year (y/y), according to the Bureau of Labor Statistics. Contrary to previous expectations of a rate cut, Federal Funds futures rates edged up in response, alongside an increase in high-yield corporate bond yields. This sustained a consistent premium for lower credit quality. The Aruoba-Diebold-Scotti (ADS) Business Conditions Index, from the Federal Reserve Bank of Philadelphia, showed ongoing favorable conditions, suggesting economic growth so far in 2024.
- **Global oil demand and supply forecasts were revised upwards in the Energy Information Administration's (EIA) April 2024 Short-Term Energy Outlook (STEO).** Estimates of global demand from 2023 were increased by 1%, and growth was also accelerated bringing consumption to a record 102.9 million barrels per day (mb/d) in 2024 and 104.3 mb/d for 2025. Despite the anticipated rise in global demand, weekly U.S. domestic petroleum demand and net exports decreased, with crude oil inventories increasing by 5.8 million barrels as of April 5—the largest weekly rise since mid-February. Amid ongoing geopolitical tensions, oil prices have remained above \$80 per barrel for the fourth consecutive week.
- **Natural gas inventories are still above the 5-year average, keeping Henry Hub prices around \$1.80 per million Btu.** Despite EIA's downward revision of U.S. natural gas consumption and exports for March 2024, natural gas futures prices begin rising in June 2024, reaching to nearly \$3.80 per million Btu for delivery next winter.
- **ERCOT's natural gas generators doubled their output to stabilize the grid.** For the Electricity Reliability Council of Texas (ERCOT), the [Chart of the Week](#) highlights that natural gas-based generators doubled their output during the solar eclipse on April 8.

# TXOGA Chart of the Week: ERCOT's natural gas-based electricity generators more than doubled their output during the solar eclipse on April 8, 2024

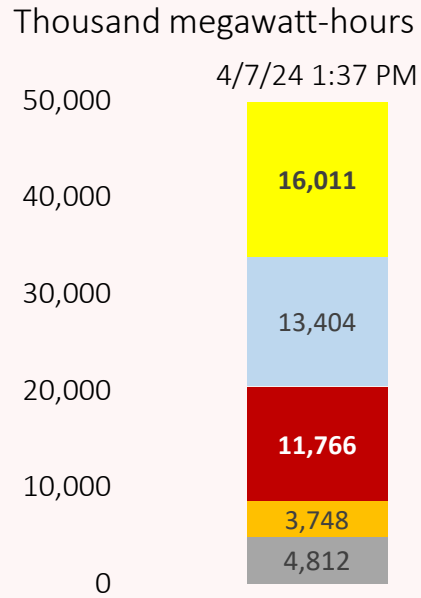


- Maintaining grid reliability with intermittency is only made possible by thermal and dispatchable generation sources that flexibly ramp up or down

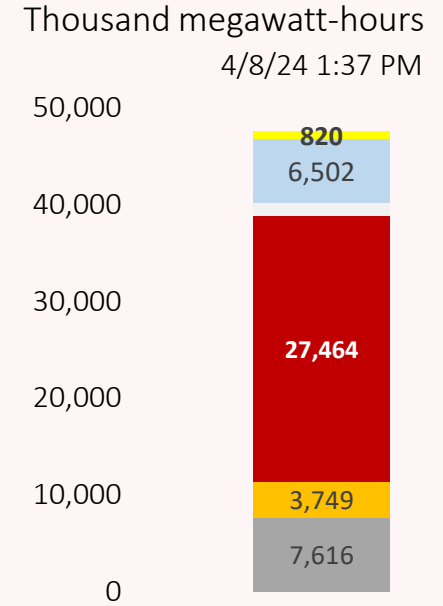
ERCOT hourly electricity generation by source, April 8, 2024



One day before the Solar Eclipse

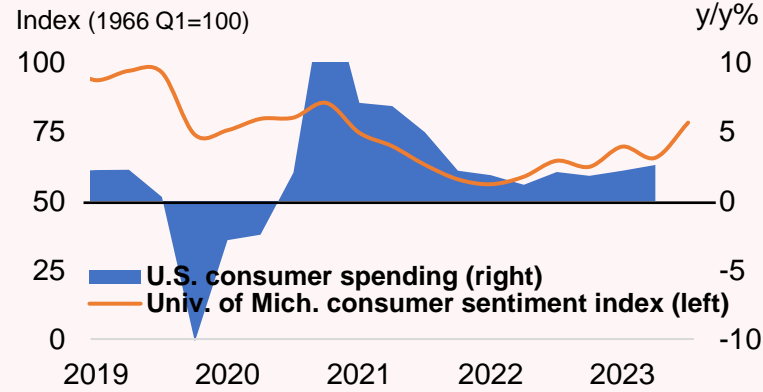


Solar Eclipse, April 8, 2024



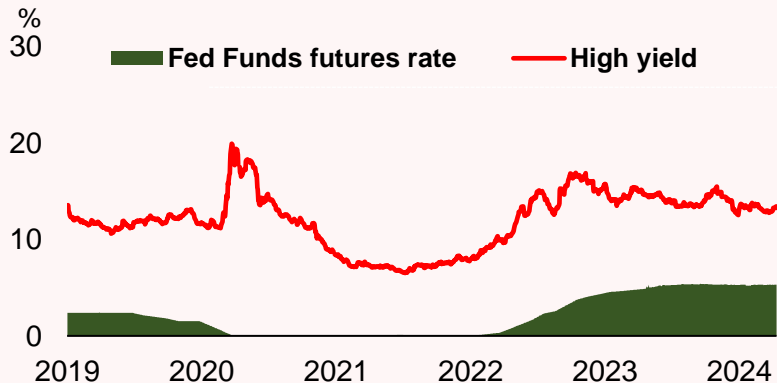
# U.S. economic indicators

## Consumer sentiment vs. spending



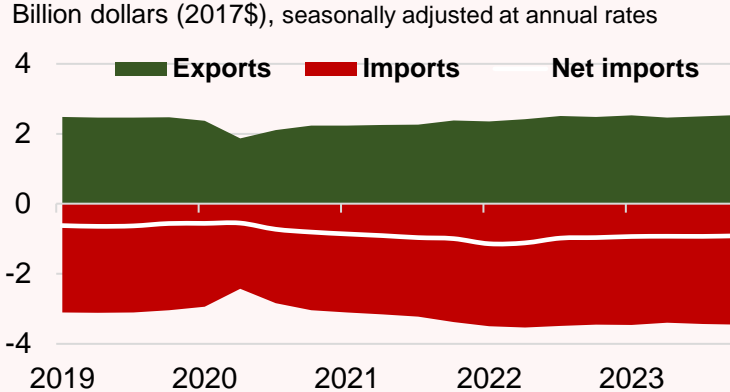
**Consumer sentiment was revised upwards** by 3.7% to an index reading of 79.4 in Univ. of Michigan's final March 2024 survey. Improved consumer sentiment has corresponded with consumer spending growth, which rose by 2.7% y/y in the final revision of GDP for Q4 2023 per BEA. The continued improvement of consumer sentiment is historically consistent with further spending growth.

## Fed Funds rate and CCC and lower corporate bond yields



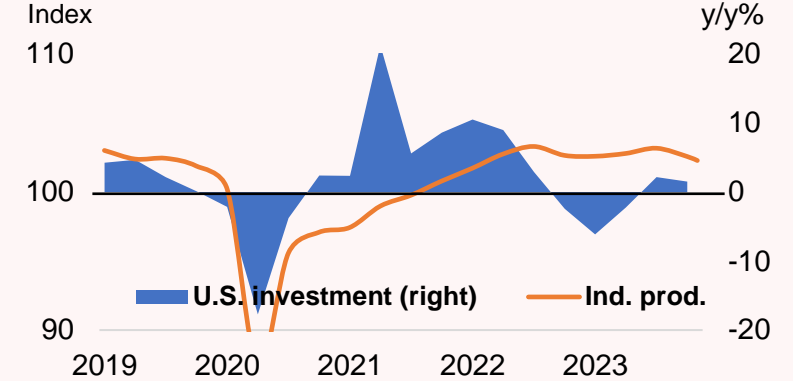
**Steady bond premium for low credit quality.** High yield (HY) rates reflect debt costs for firms with below-investment grade credit quality. For the week ended Apr. 12, HY rates rose by 0.1% w/w to 13.4% while the Fed Funds futures rate edged up to 5.33%, resulting in little change to the premium for low credit quality.

## Real net exports of goods and services



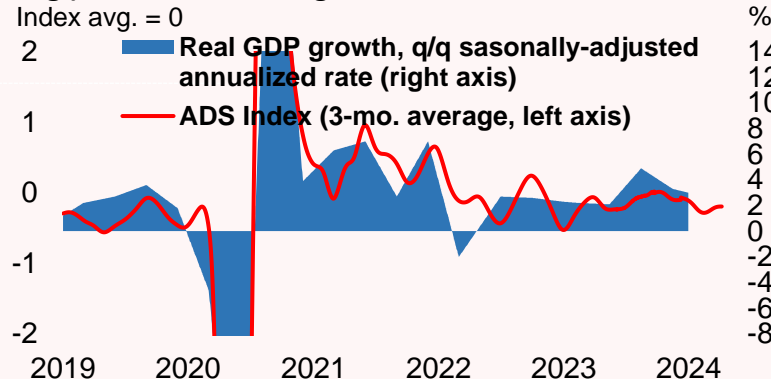
**U.S. trade deficit revised to be larger.** The U.S. real trade deficit ran at an annualized rate of \$919 billion in Q4 2023 per BEA's revised estimates. On a nominal basis, the trade surplus for petroleum and products ran at annualized rate of \$31 billion in Q4 2023.

## Industrial production and investment growth



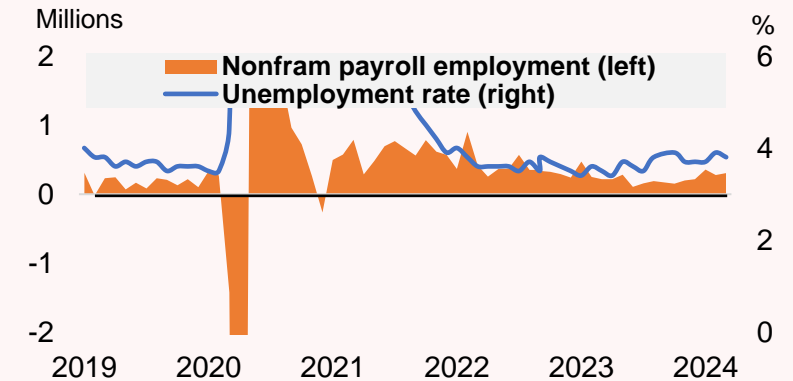
**Industrial production edged up in Feb. 2024** and remained consistent with slow economy-side investment growth in Q1. Investment rose by 0.1% m/m in February per the Bureau of Economic Analysis.

## 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 GDP growth so far in 2024.

## Nonfarm payroll employment & unemployment rate

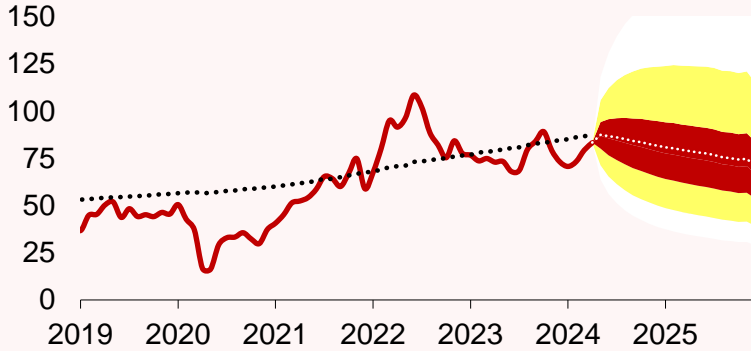


**Higher unemployment rate despite payroll increases.** The employment situation is a lagging indicator of GDP growth. The U.S. unemployment rate fell by 0.1% m/m to 3.8% in March per BLS, while non-farm payrolls rose by 303,000.

# U.S. oil market indicators

## WTI crude oil price mean reversion analysis

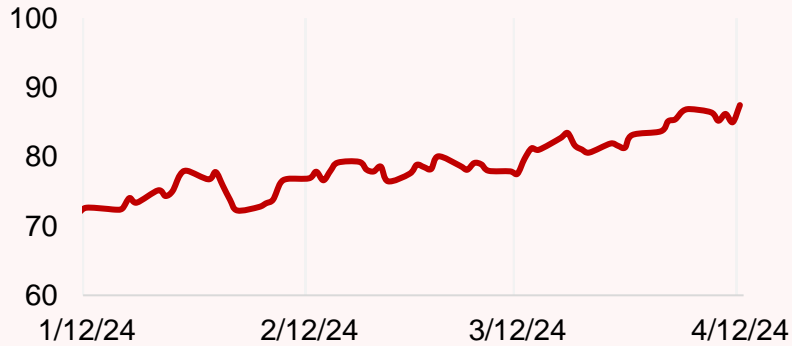
Dollars per barrel (2024\$)



The historical mean reversion target has risen and currently exceeds near-term futures prices. 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

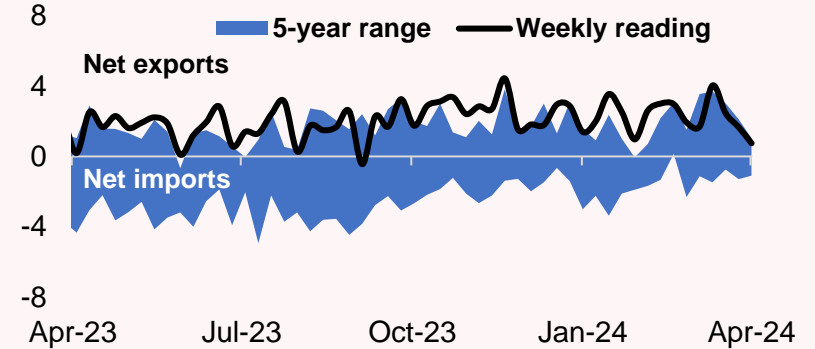
Dollars per barrel



WTI crude oil prices held above \$87 per barrel for the week ended Apr. 12, supported by a Middle East geopolitical premium and solid economic readings.

## U.S. petroleum net exports (imports)

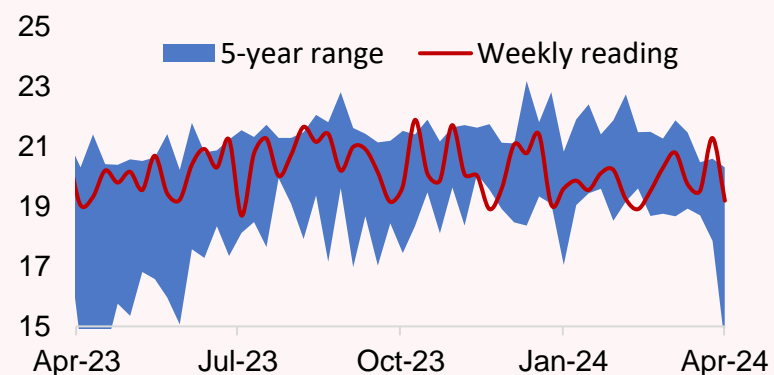
Million barrels per day, mb/d



Petroleum net exports fell. The U.S. was a petroleum net exporter of 0.8 mb/d for the week ended Apr. 5, down by 0.9 mb/d from the prior week.

## U.S. petroleum demand

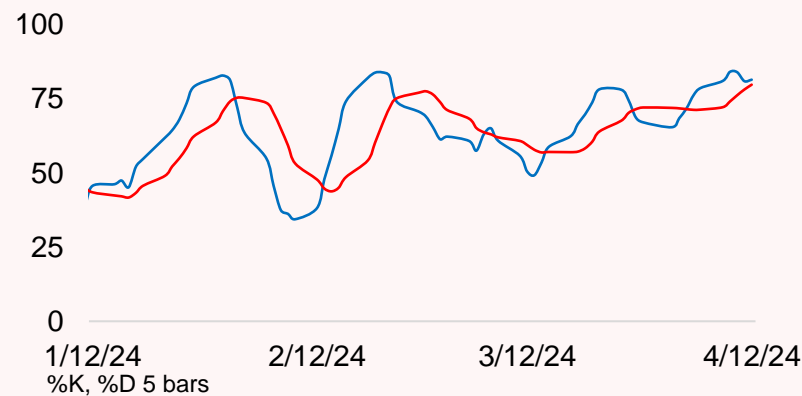
Million barrels per day (mb/d)



Petroleum demand decreased. U.S. petroleum demand, as measured by deliveries, fell by 2.1 mb/d w/w to 19.2 mb/d for the week ended Apr. 5.

## WTI crude prompt month futures slow stochastic

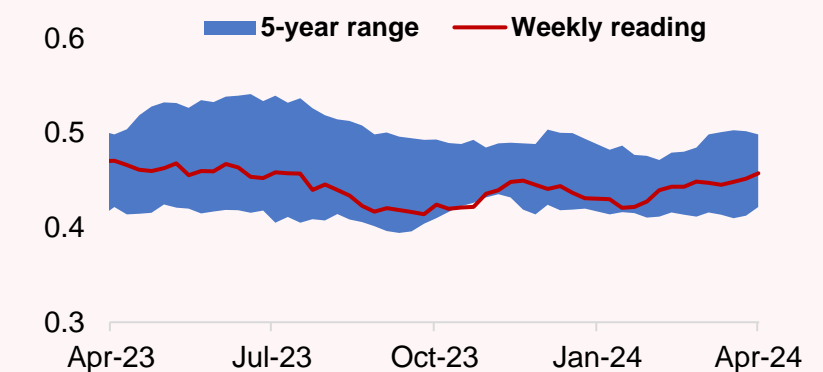
Index level



Price momentum continued to increase during the week ended Apr. 12.

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

Billion barrels

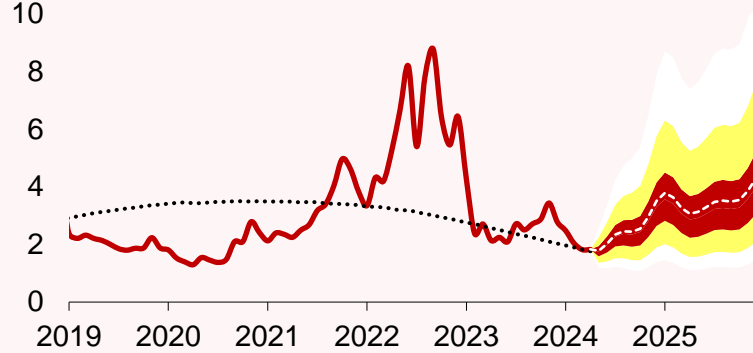


Inventories increased. U.S. ending stocks of crude oil excluding the Strategic Petroleum Reserve (SPR) increased by 5.8 million barrels (mb) for the week ended Apr 5.

# U.S. natural gas market indicators

## Natural gas price mean reversion analysis

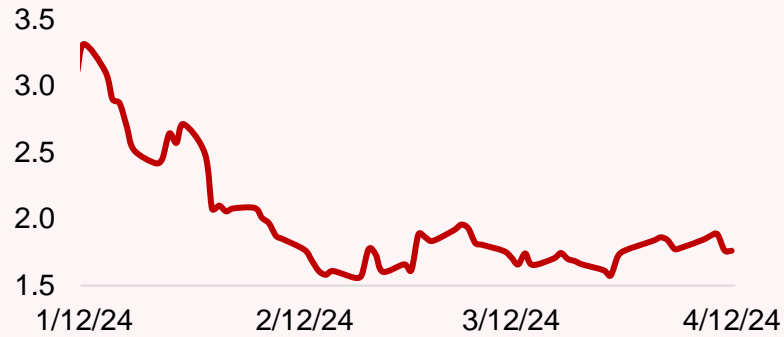
Dollars per mmBtu (2024\$)



**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

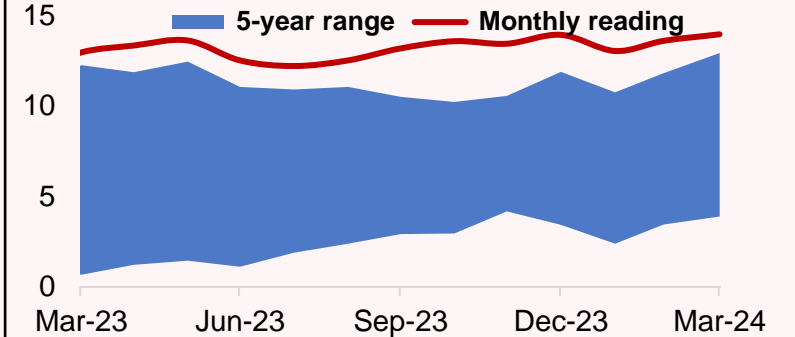
Dollars per million Btu



Natural gas prices at Henry Hub hovered near \$1.80 per million Btu for the week ended Apr. 12.

## U.S. natural gas net exports

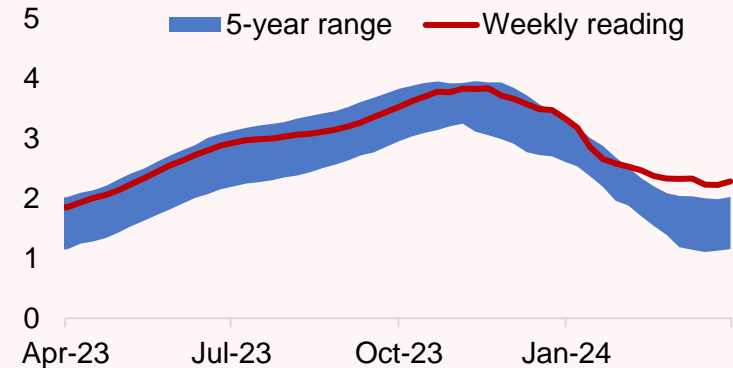
Billion cubic feet per day, bcf/d



**Natural gas exports revised downwards.** U.S. natural gas net exports in March were revised to 13.5 bcf/d per EIA, just below the record 13.6 bcf/d that was set in Oct. 2023.

## U.S. weekly working gas storage

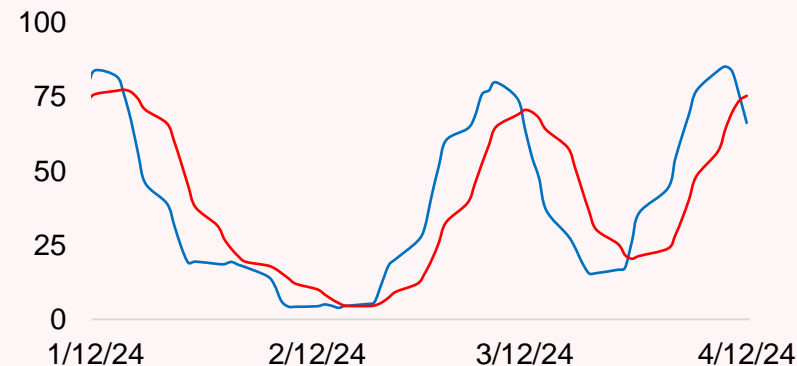
Trillion cubic feet (tcf)



Working gas in underground storage rose by 1.1% w/w to 2.28 tcf as of Apr. 5 and remained above the 5-year range.

## Natural gas futures slow stochastic

Index level

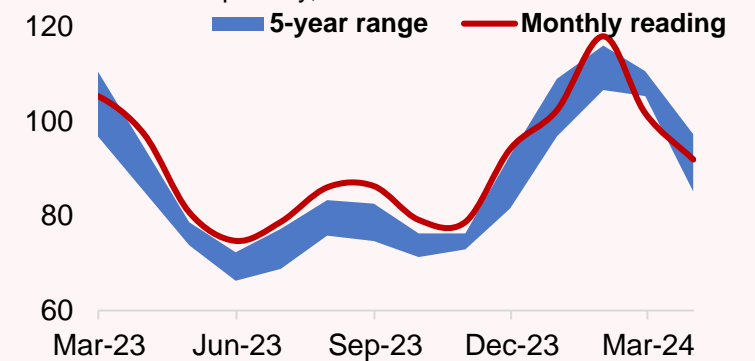


%K, %D 5 bars

Natural gas price momentum rose and then paused during the week ended Apr. 12.

## U.S. natural gas consumption

Billion cubic feet per day, bcf/d

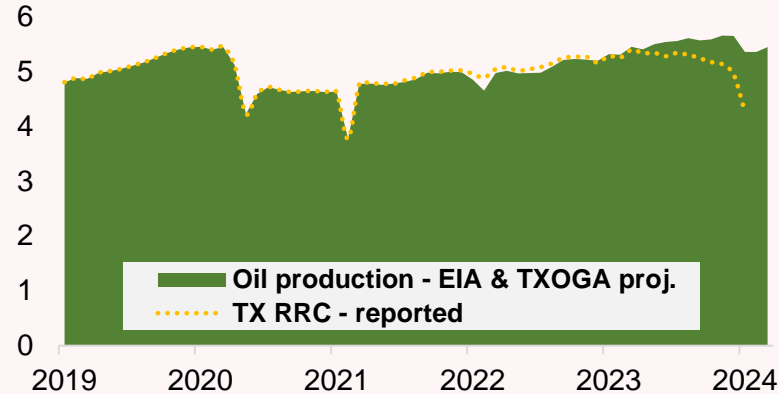


**Consumption downgraded.** EIA estimates that natural gas consumption fell from a record-high 118 bcf/d in January to a revised report of 91.3 bcf/d in March.

# Texas' oil and natural gas production

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

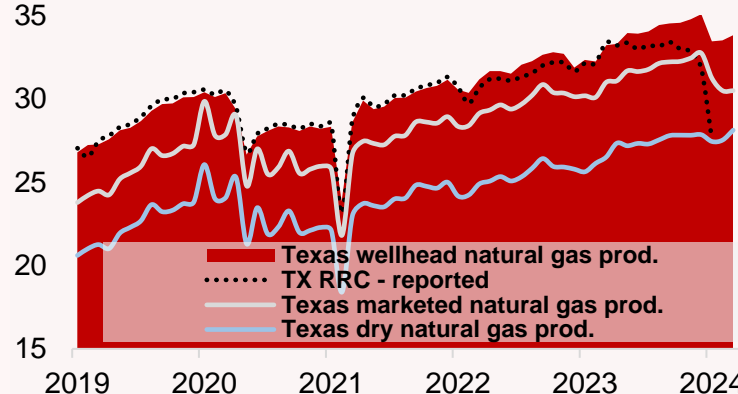
Million barrels per day (mb/d)



**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

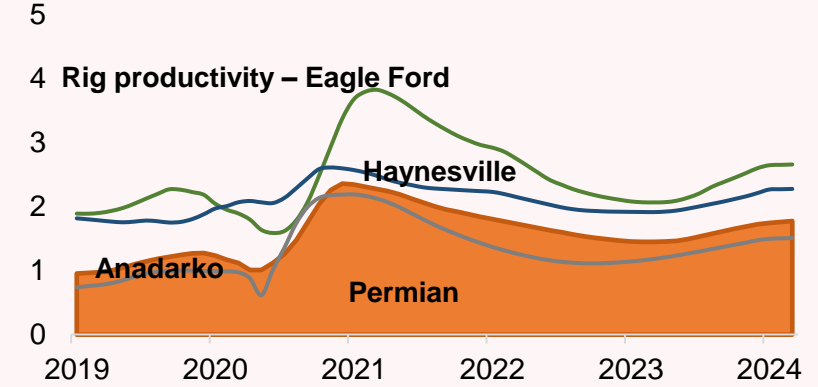
Billion cubic feet per day (bcf/d)



**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

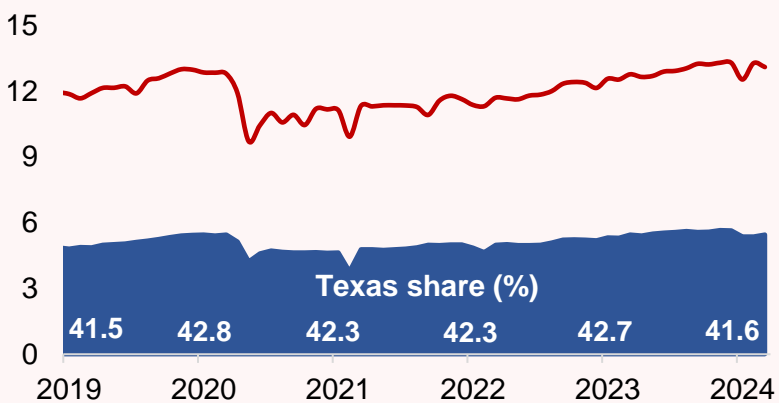
Thousand barrels per day oil-equivalent, kb/dae



**Strong productivity to start the year.** EIA estimates of rig productivity for March 2024 show continued increases year-over-year across the major Texas basins, including the Anadarko (+27.8% y/y), Eagle Ford (+28.7% y/y), Permian (+22.6% y/y), and Haynesville (+19.0% y/y).

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

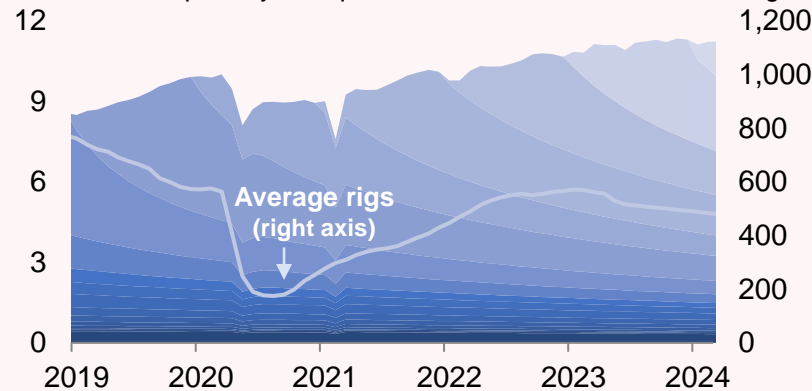
Million barrels per day (mb/d)



**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

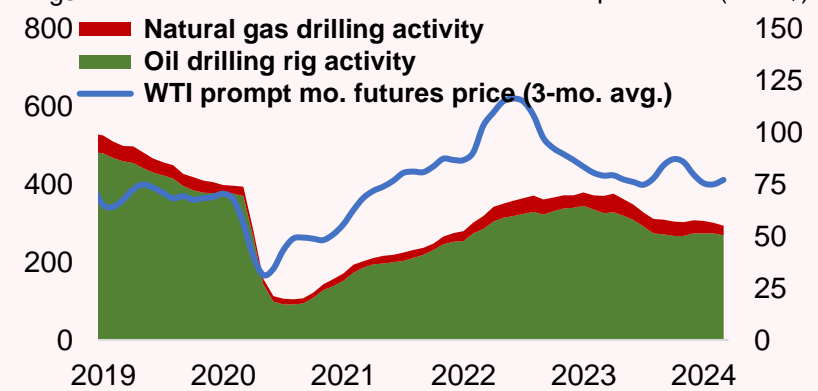
Million barrels per day oil-equivalent



EIA estimates Mar. 2024 production growth across Texas shale basins has continued to grow year-over-year in the Permian (+5.6% y/y) but fallen in the Eagle Ford (-1.7% y/y), Haynesville (-0.8% y/y), and Anadarko (-1.3% 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 decreased for the week ended Apr. 12 per Baker Hughes. Texas had 269 oil-directed rigs (down by 3 rigs w/w) and 25 natural gas-directed rigs (unchanged w/w).

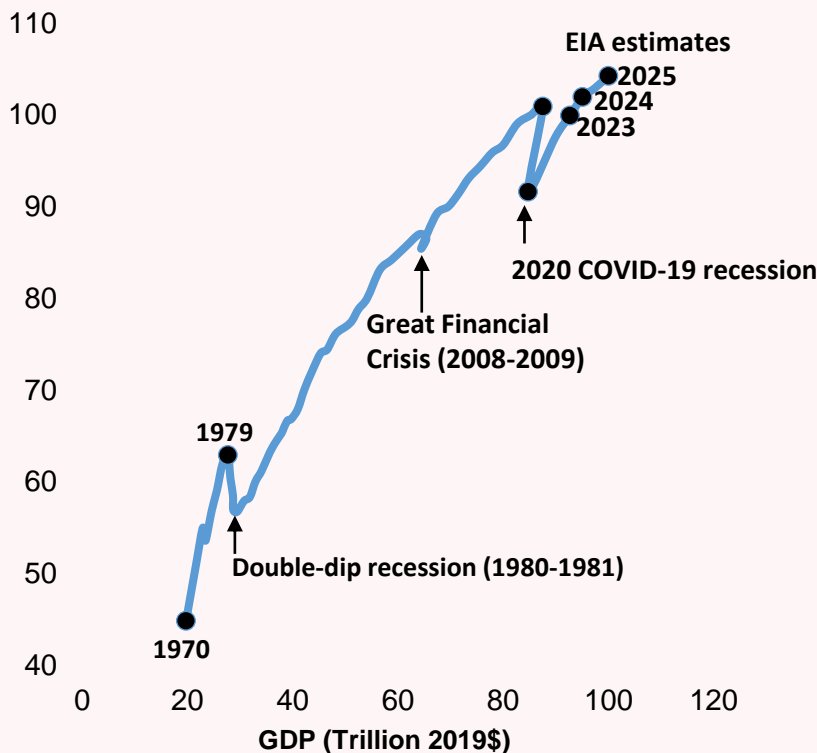
# Global Oil Market Balance Projections to 2025 by EIA



- 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.

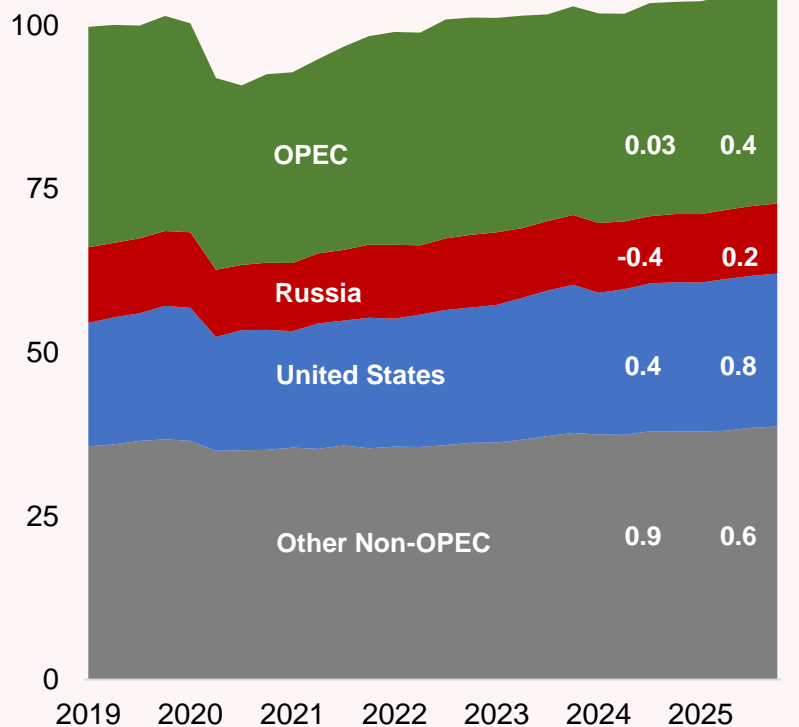
## Global oil demand and GDP

Million barrels per day (mb/d)



## Oil production by country/region

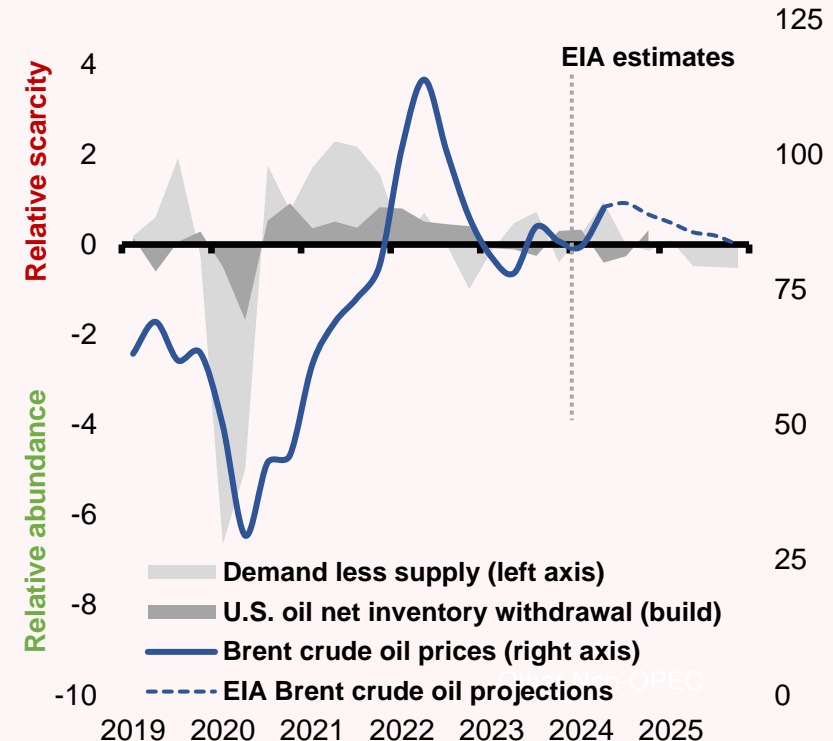
Million barrels per day, mb/d



## Global demand/supply & Brent prices

Million barrels per day (mb/d)

2024\$/Bbl





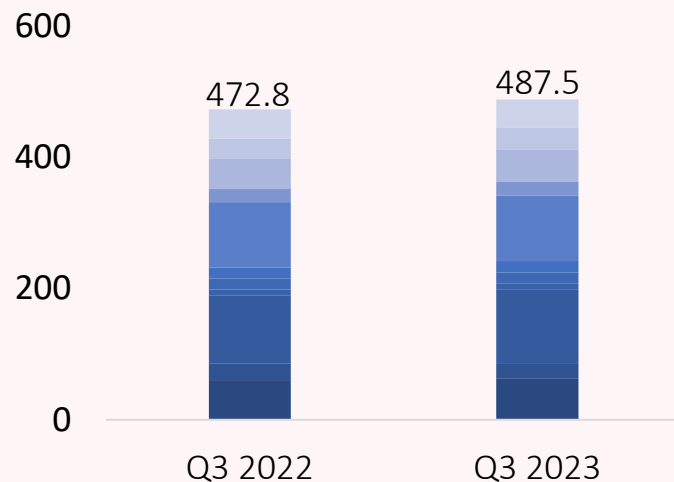
# Texas' oil and natural gas industry's jobs and wages have continued to grow



- ▶ 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

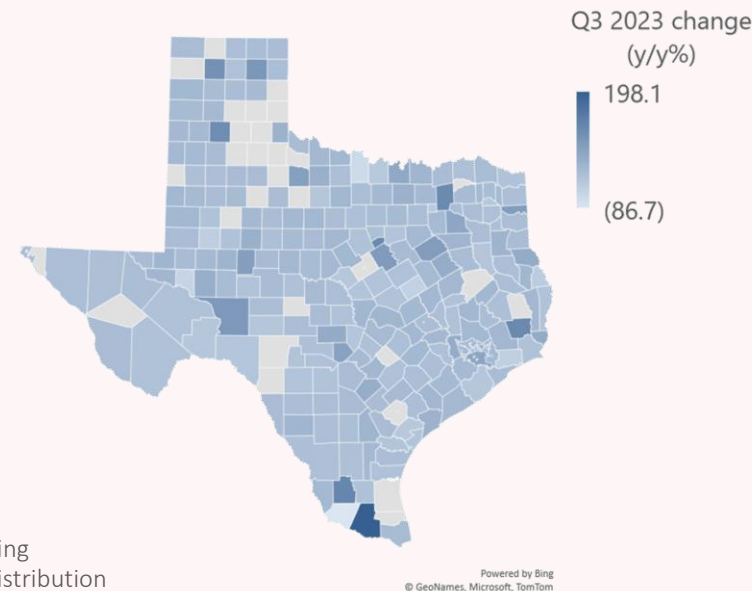
## Texas oil and natural gas industry direct employment rose by +3.1% y/y in Q3 2023

Thousand Jobs



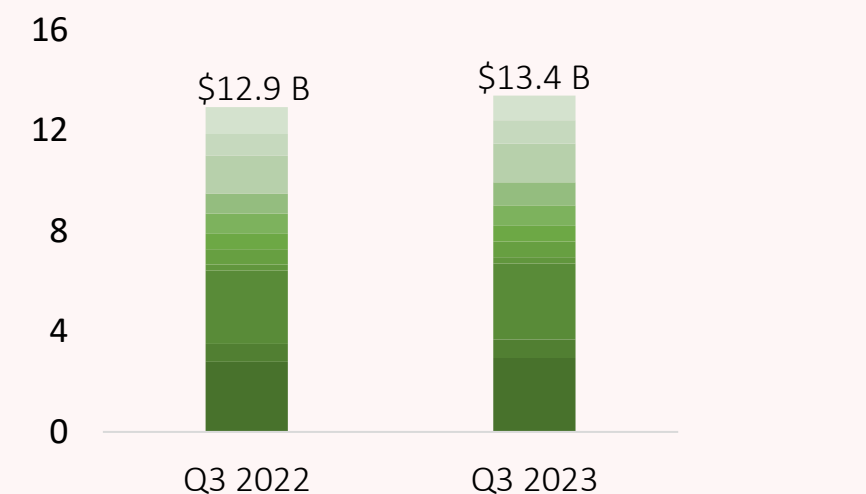
- Oil & gas extraction
- Support activities for o&g ops.
- Petroleum refineries
- Gas stations & fuel dealers
- All other\*
- Pipeline construction
- Oil & gas drilling
- Natural gas distribution
- Petrochemical mfg.
- Pipeline transportation
- Oil & gas field mach. and eq. mfg.

\* 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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