

# TXOGA Chartbook



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July 10, 2023

**TXOGA**  
TEXAS OIL & GAS ASSOCIATION | SINCE 1919

## **TXOGA's chartbook provides a vital reference for our members as well as those who are interested in understanding data which tell the story of what's happening with the economy, oil and gas markets at the global, U.S. and Texas levels**

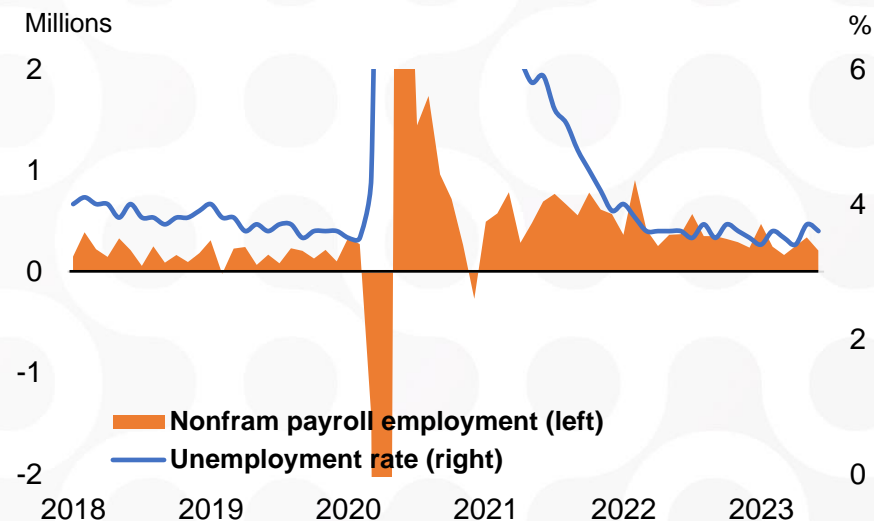
### **Key points for the week of July 10, 2023**

- **Positive economic news prevailed this week**, with a U.S. jobs report that showed continued payroll employment gains and a lower unemployment rate in June, detailed in the Chart of the Week. However, financial markets interpreted this report as bringing a higher likelihood of further Fed Funds' rate increases and consequently lower expectations for growth and the prices for oil and other commodities. Texas' employment gains equaled nearly a fifth of U.S. nonfarm payroll employment growth so far this year, and the state's work force has grown even faster.
- **Oil market fundamentals tightened further.** U.S. oil demand of 21.2 million barrels per day (mb/d) remained near the top of its five-year historical range, and U.S. ending stocks of crude oil fell by 3.0 mb for the week ended June 30 and were down by 41.8 mb (5.0%) in Q2 2023 to their lowest level since January 1986.
- **Natural gas markets appear to be waiting to see how the summer plays out.** Always a seasonal market, natural gas prices rose by 22.7% in June but receded by over 6% in the first week of July, apparently awaiting data showing the net impact of strong production, lower new drilling activity, and a hot start to the summer weather that increased the weekly use of natural gas in U.S. power generation in July 1-7 per the U.S. Energy Information Administration ([EIA](#)).

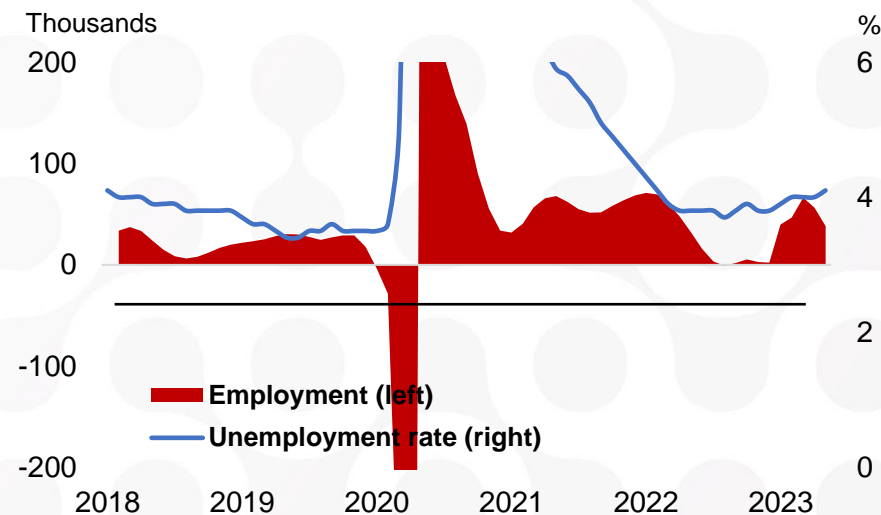
## TXOGA Chart of the Week: U.S. and Texas Employment Situations

- Since 2022, monetary policy has a material impact on broad expectations for prospective economic growth and, consequently, the prices of oil and other commodities. As interest rates have risen, expectations have been for less spending and growth as well as lower oil prices.
- Although the employment situation is a lagging indicator of economic growth, financial markets interpreted the June U.S. jobs report (released in the first week of July by the Bureau of Labor Statistics) as showing tight labor markets that could support further interest rate hikes by the Federal Reserve.
- In fact, that U.S. unemployment rate fell by 0.1% to 3.6% in June. Yet, payroll unemployment rose by 209,000, which for months in which payrolls have risen since the pandemic was the lowest increase since Dec. 2019, despite summer seasonal variation.
- Texas' employment has showed subtle differences from the national pattern. The state added nearly a quarter million jobs in the first five months of the year; that's equivalent to nearly one fifth of U.S. nonfarm payroll employment gains over the same period. While the U.S. unemployment rate remains unchanged from a year ago, Texas' unemployment rate rose by 0.3% to 4.1% as of May because the state's labor force grew year-on-year by more than its employment. In this case, higher unemployment appears to be good news that workers are available, which ultimately could help alleviate upward price inflation.

### U.S. nonfarm payroll employment & unemployment rate



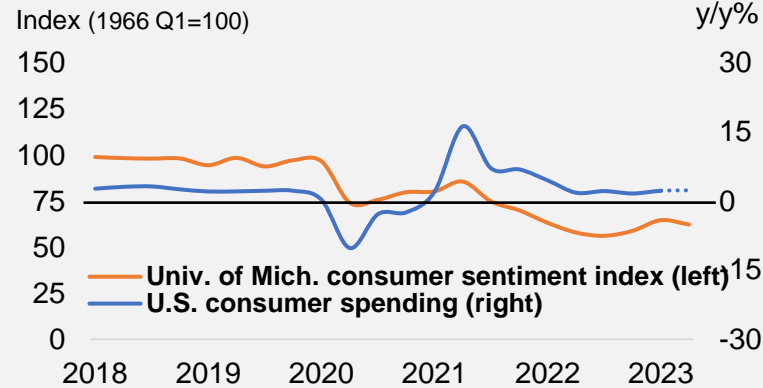
### Texas payroll employment & unemployment rate





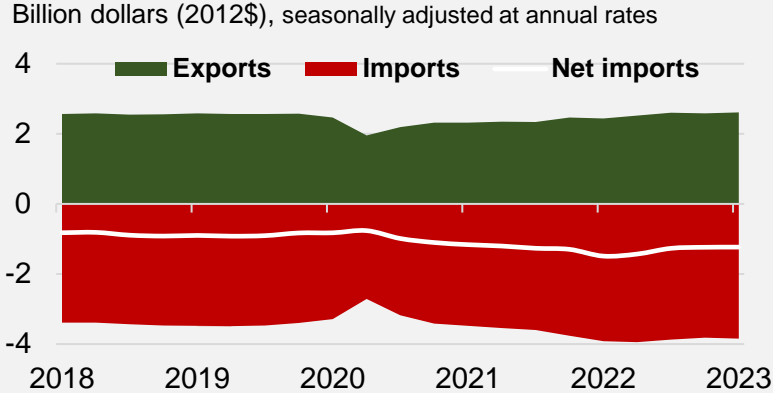
# U.S. economic indicators

## Consumer sentiment vs. spending



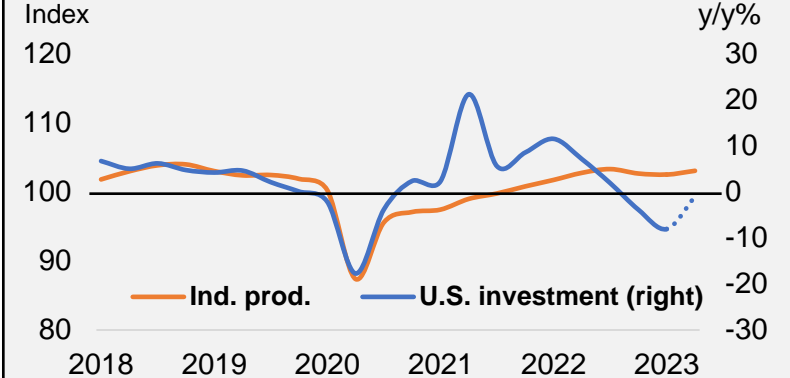
**As of mid-June, consumer sentiment rebounded to its strongest level in four months.** The Univ. of Michigan survey of consumers has historically corresponded with the changes in U.S. consumer spending, which represents 68% of GDP. Sentiment has remained historically weak, but consumer spending has continued to grow slowly.

## Real net exports of goods and services



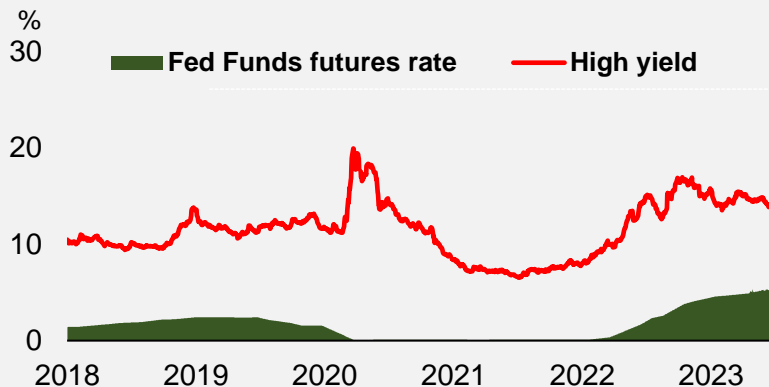
**The large U.S. trade deficit has dragged on growth.** The U.S. real trade deficit continued in Q1 2023 at an annualized rate of \$1.24 trillion, which if sustained would represent the second largest annual deficit in 94 years on record.

## Industrial production and investment growth



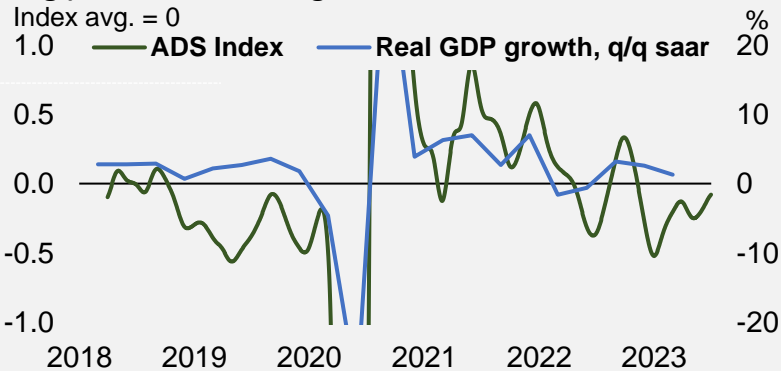
**Investment has decreased despite along with weak industrial production growth.** Industrial production growth (0.3% y/y in Q2) and capacity utilization (79.6% in May) historically correspond with U.S. investment changes. Weak positive production growth could enable some recovery in investment.

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



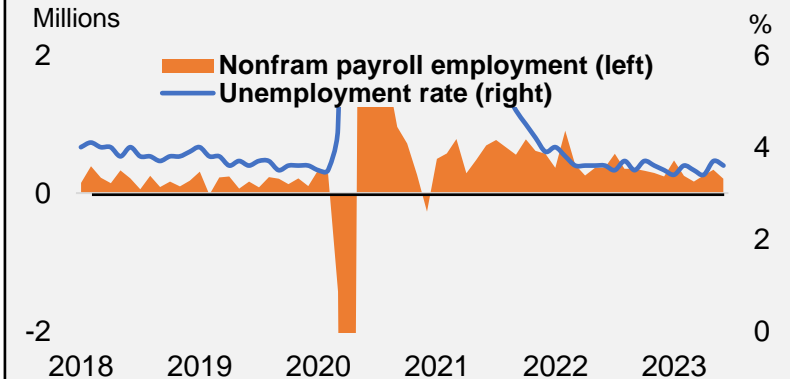
**The premium for low credit quality fell by nearly 1.0% between the first weeks of June and July.** High yield (HY) rates reflect debt costs for firms with below-investment grade credit quality. HY rates fell to 13.9% as of Jul. 7 from 14.6% on Jun. 1, while Fed Funds futures rose in expectation of another rate hike.

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



**Anemic (but improved) conditions for growth.** The ADS business conditions index, published by the Philadelphia Fed. Res. Bank, is a leading indicator of GDP growth. A quarterly average of the ADS index has risen from negative readings so far in 2023, which historically corresponds with slow but improved growth conditions.

## Nonfarm payroll employment & unemployment rate



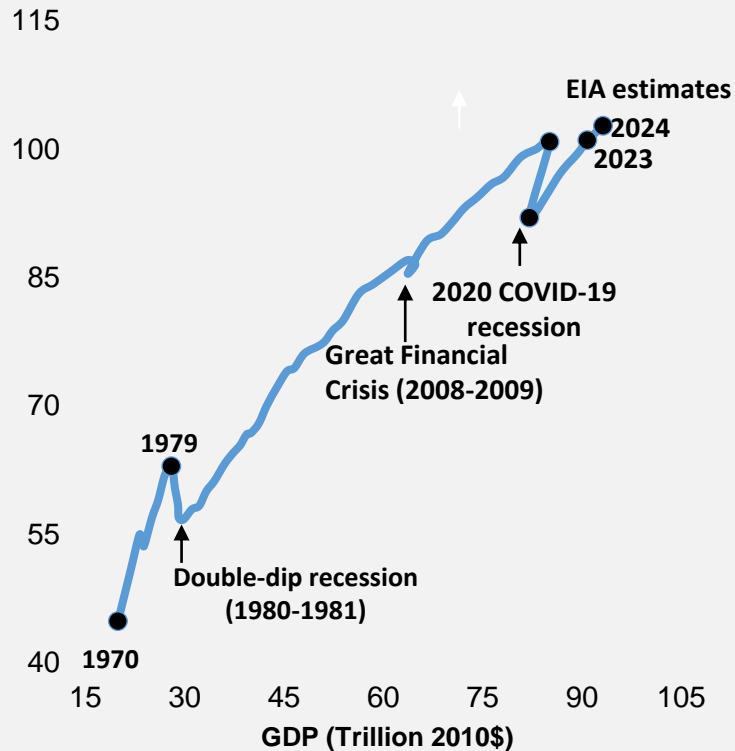
**The unemployment fell, but payroll growth slowed.** The employment situation is a lagging indicator of GDP growth. The U.S. unemployment rate fell to 3.6% in June per BLS, while non-farm payrolls rose by 209,000, which was the lowest monthly increase since Dec. 2019.

# Global oil market balance at-a-glance

- Led by resurgent emerging markets, global oil demand is expected to reach a record 102.7 mb/d in 2024 per EIA
- EIA's oil production estimates of 1.5 mb/d in 2023 and 1.3 mb/d in 2024 are volumes needed to balance global markets in their view. U.S. assumed to be largest single contributor this year, but could be impeded by activity and productivity levels
- Under these assumptions, EIA projects a balanced global oil market in Q3 2023 and Brent crude oil prices over \$80 per barrel

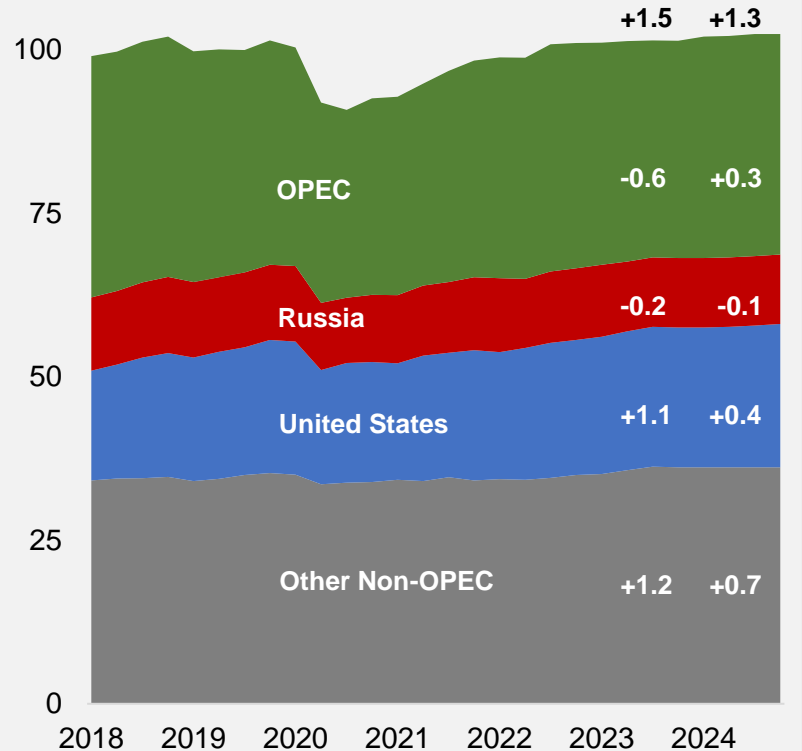
**Global oil demand and GDP**

Million barrels per day (mb/d)



**Oil production by country/region**

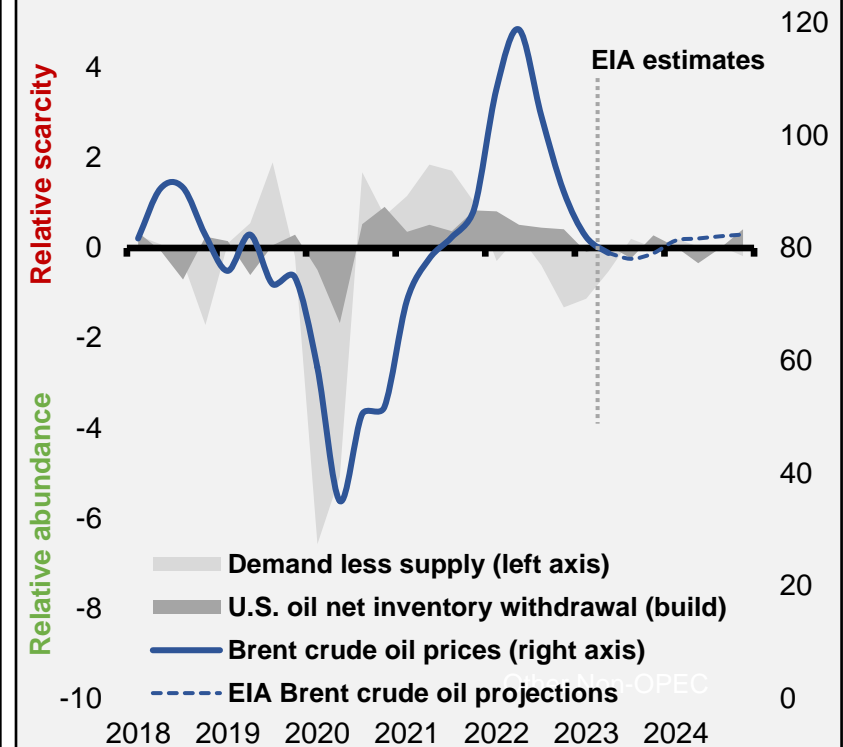
Million barrels per day, mb/d



**Global demand/supply & Brent prices (June 2023)**

Million barrels per day (mb/d)

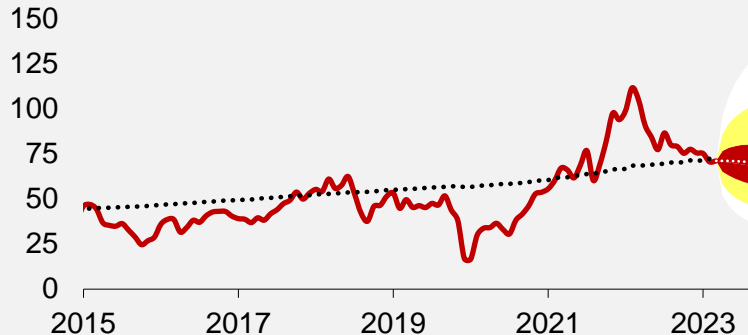
2023\$/Bbl



# U.S. oil market indicators

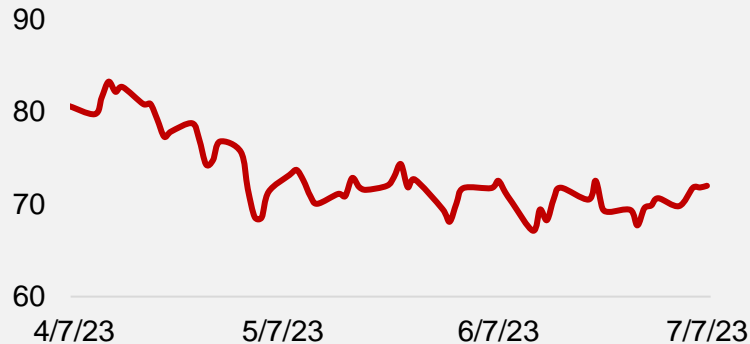
## WTI crude oil price mean reversion analysis

Dollars per barrel (2023\$)



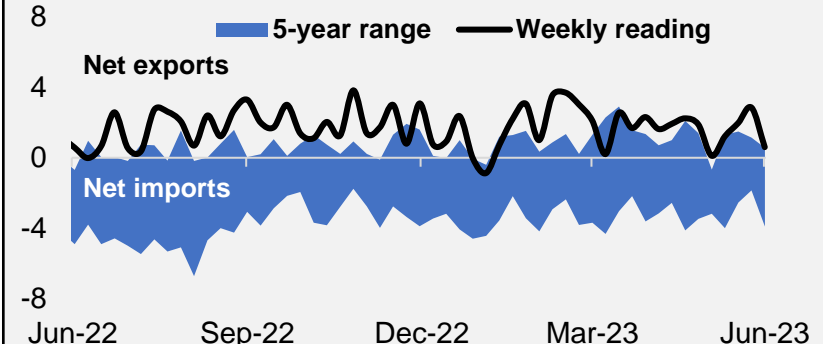
## WTI crude prompt month futures prices

Dollars per barrel



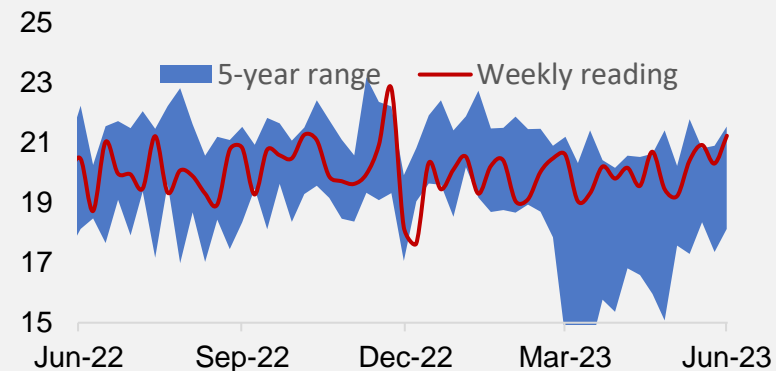
## U.S. petroleum net exports (imports)

Million barrels per day, mb/d



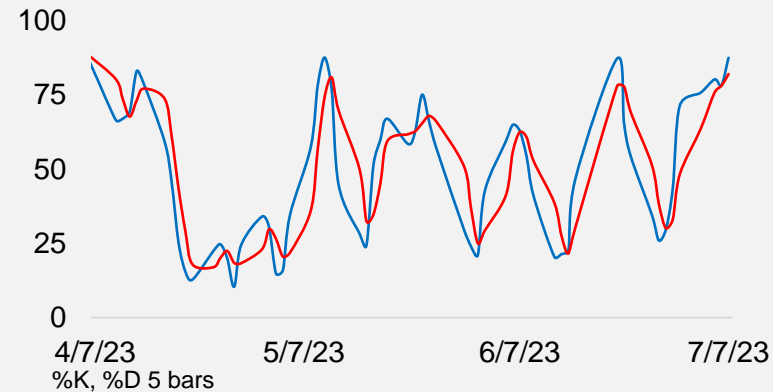
## U.S. petroleum demand

Million barrels per day (mb/d)



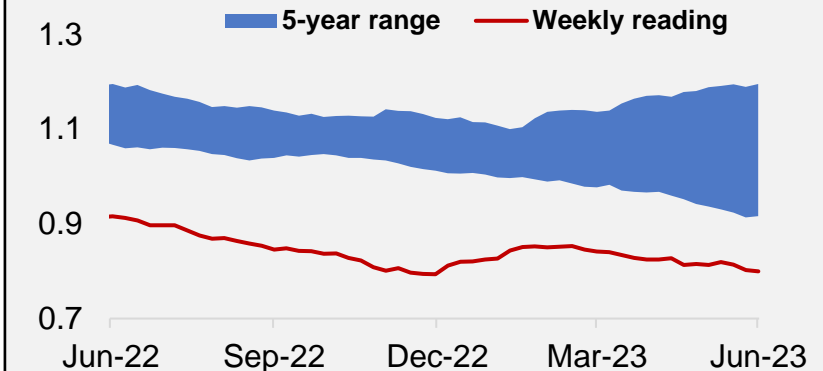
## WTI crude prompt month futures slow stochastic

Index level



## U.S. ending stocks of crude oil (commercial & SPR)

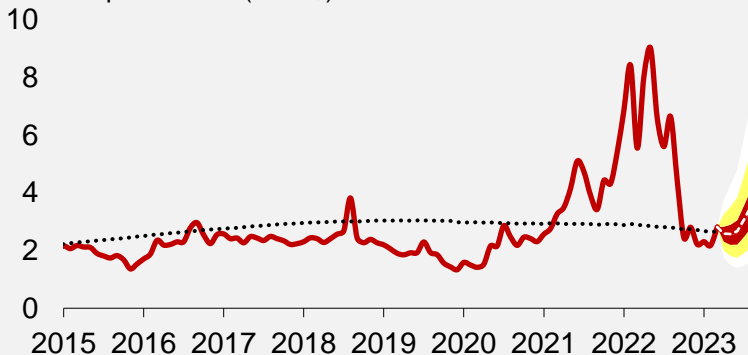
Million barrels (mb)



# U.S. natural gas market indicators

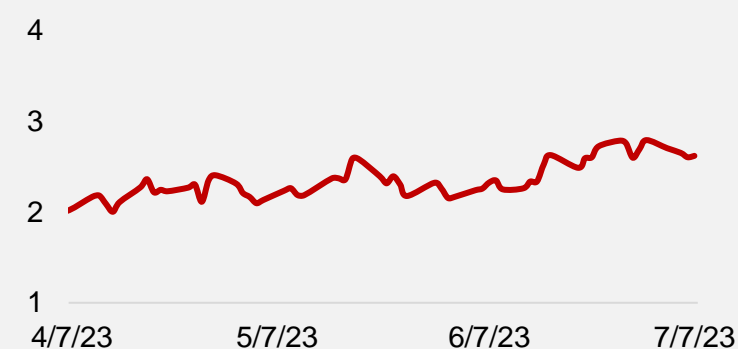
## Natural gas price mean reversion analysis

Dollars per mmBtu (2023\$)



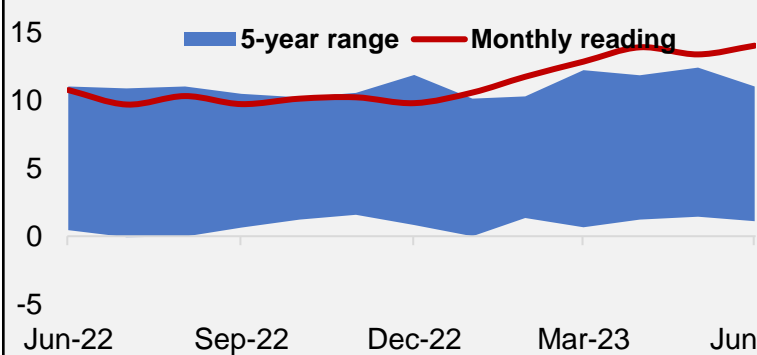
## Natural gas prompt month futures prices

Dollars per million Btu



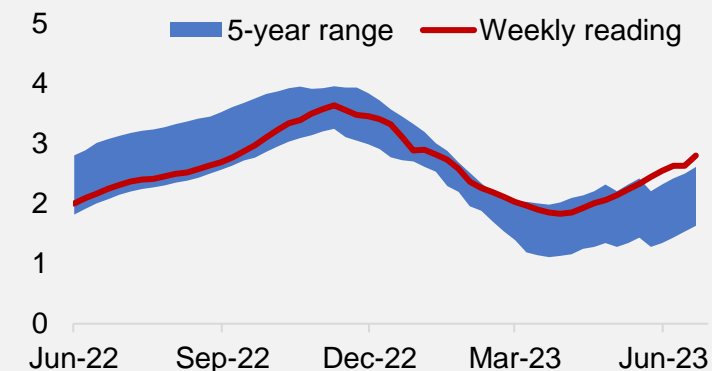
## U.S. natural gas net exports

Billion cubic feet per day, bcf/d



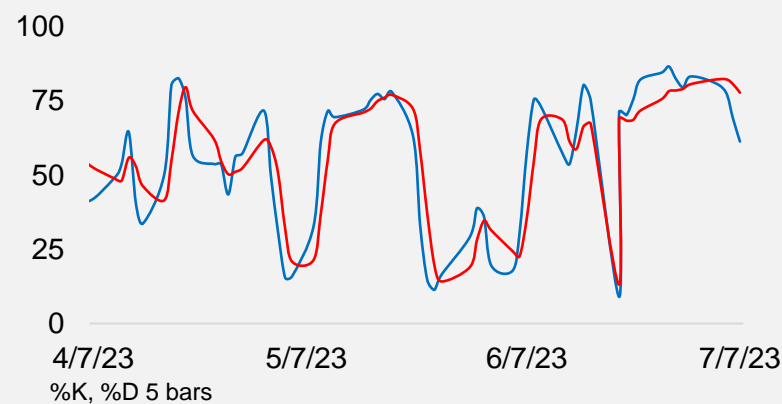
## U.S. weekly working gas storage

Trillion cubic feet (tcf)



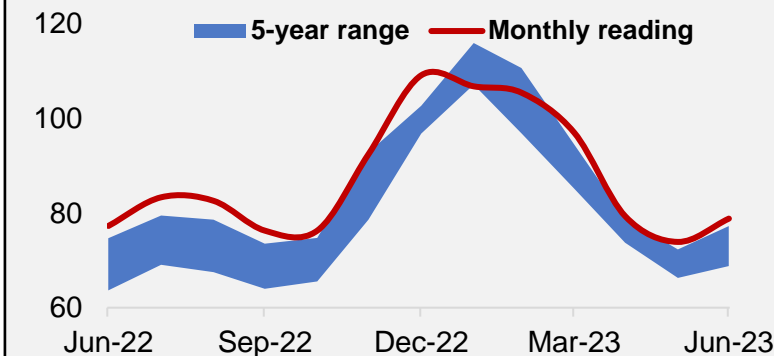
## Natural gas futures slow stochastic

Index level



## U.S. natural gas consumption

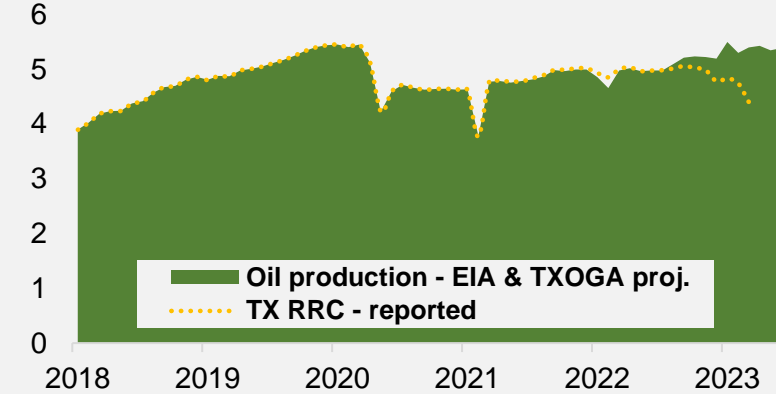
Billion cubic feet per day, bcf/d



# Texas' oil and natural gas production

**Texas crude oil production, Jan. 2018 – June 2023**

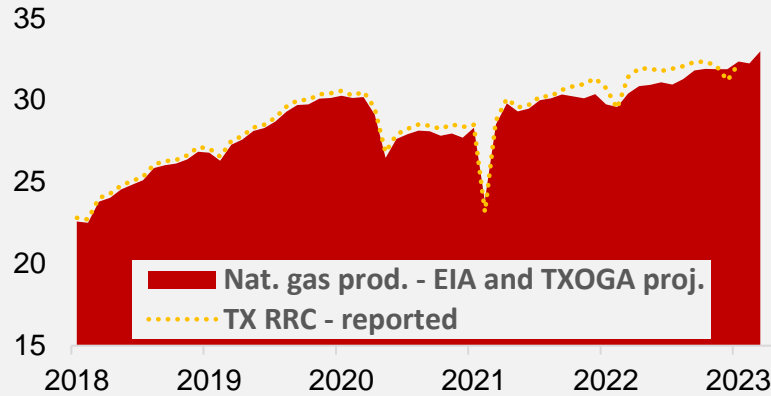
Million barrels per day (mb/d)



Following record high 5.86 mb/d of Texas crude oil production in Jan, production apparently slipped to 5.40 mb/d in March per EIA. Based on weekly Texas drilling activity and U.S. production, TXOGA estimates that Texas crude oil production has remained at 5.4 mb/d in June.

**Texas natural gas production, Jan. 2018 – June 2023**

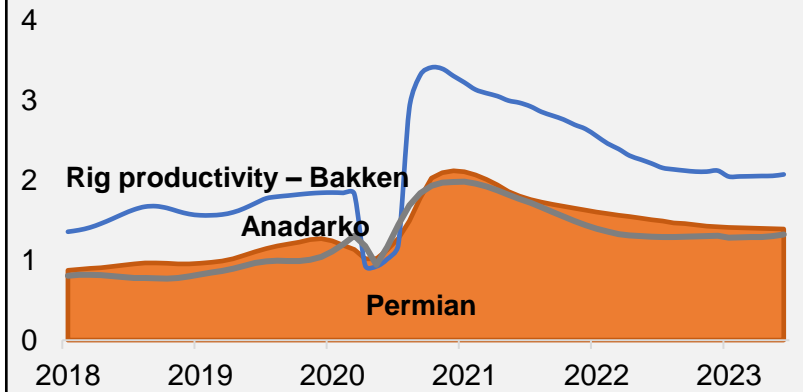
Billion cubic feet per day (bcf/d)



Texas natural gas production has remained near its record high levels. EIA reported Texas' production at 33.0 bcf/d of gross withdrawals and 30.5 bcf/d of marketed production. TXOGA estimates gross withdrawals rose to 33.1 bcf/d in June.

**Rig productivity by basin – new per prod. per month**

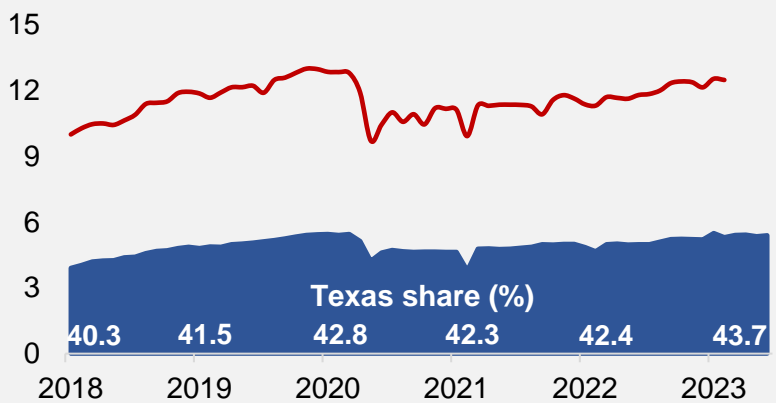
Thousand barrels per day oil-equivalent, kb/doe



EIA-estimated rig productivity decreased by about 5% y/y in May 2023 across oil-producing basins but remained 17% higher than it was in Dec. 2019.

**U.S. and Texas crude oil production, Jan. 2018 – June 2023**

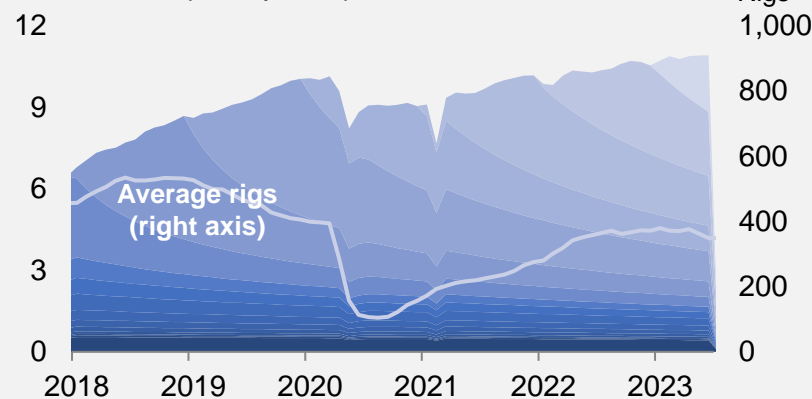
Million barrels per day (mb/d)



As of June 2023, Texas has driven 75% of U.S. crude oil production so far this year and accounted for an increased share of total U.S. oil production.

**Texas basin wellhead oil & natural gas production**

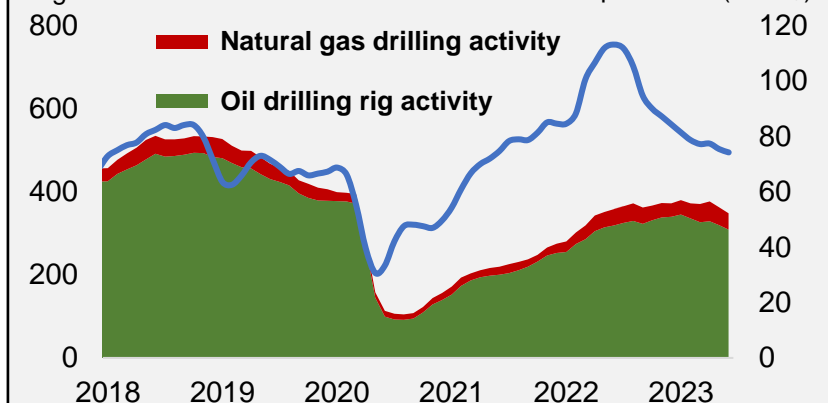
Million barrels per day oil-equivalent



EIA's drilling productivity report estimates that production across Texas shale basins -- Eagle Ford and parts of the Permian, Hayesville, and Anadarko -- have set a record high in Q2 2023.

**Texas drilling activity and WTI crude oil futures prices**

Rigs Dollars per barrel (2023\$)

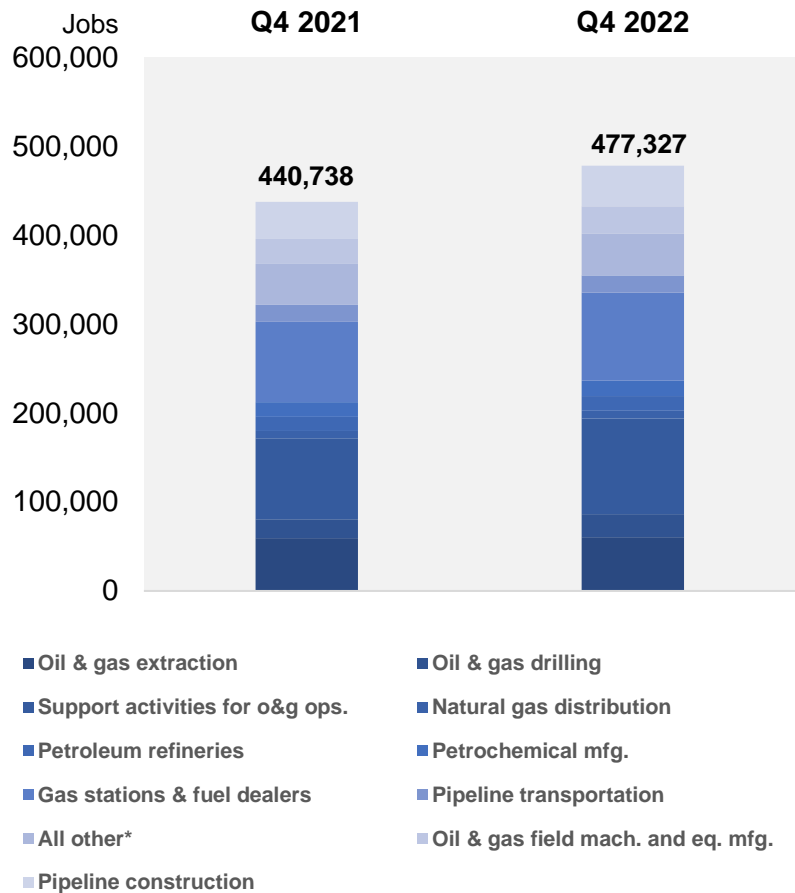


Lower prices have recently corresponded with less drilling activity in Texas, 306 oil-directed rigs and 39 gas-directed rigs as of June 23.

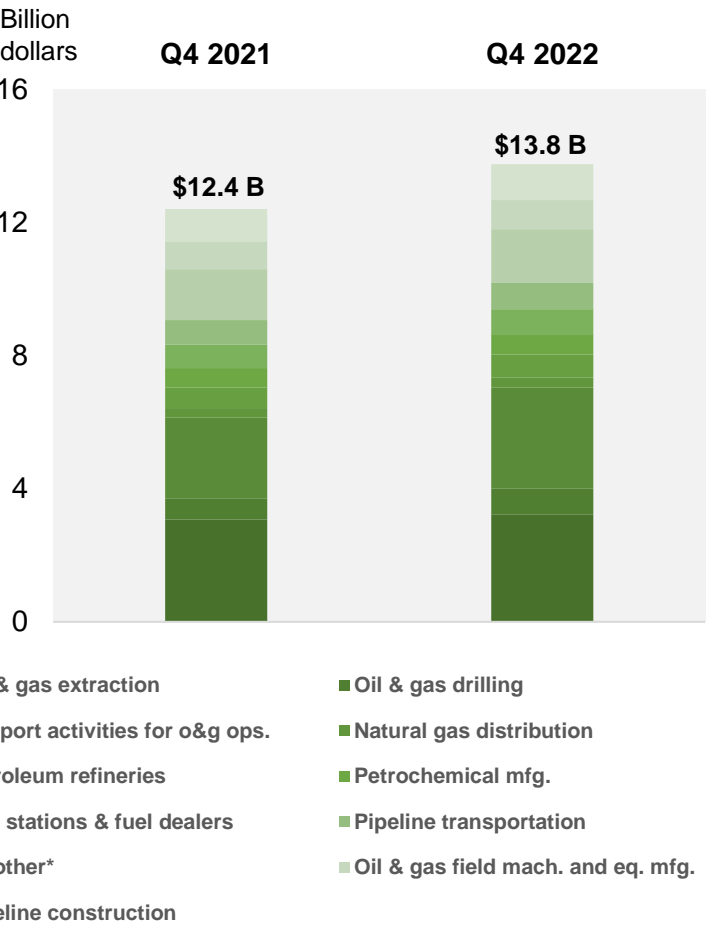


# Texas' oil and natural gas industry employment and wages have risen solidly

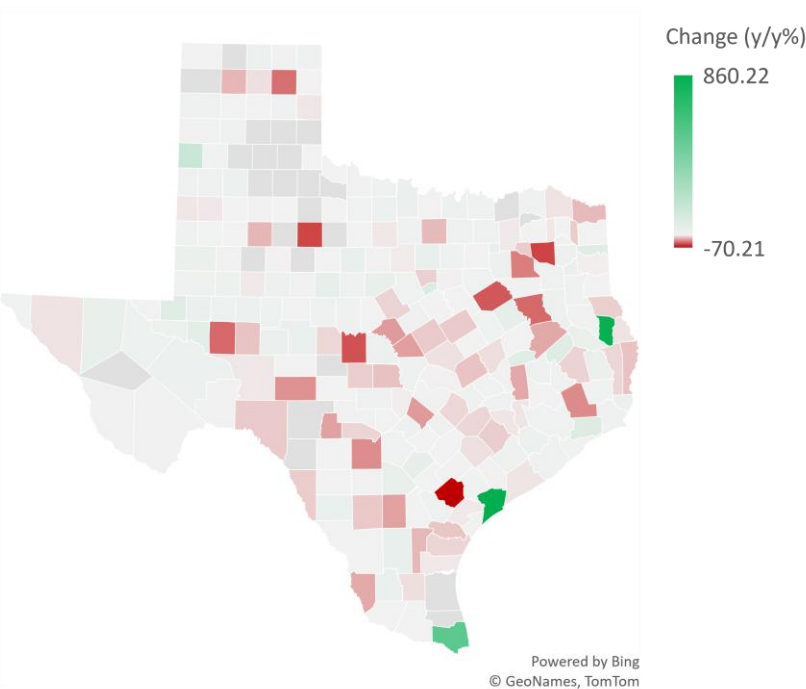
Texas Oil & Gas Industry Employment Rose by +8.3% y/y



Texas Oil & Gas Industry Wages Rose by +11.0% y/y



Heatmap of employment changes by county

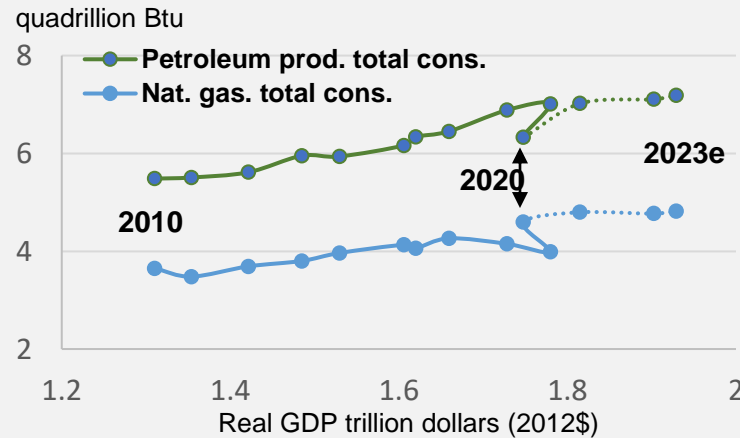


\* Other industry segments include petroleum and pet. product wholesalers, fuel dealers, lubricant mfg., asphalt mfg., industrial sand mining, nitrogenous fertilizer mfg., basic organic chem. mfg., plastics and resin mfg.

# Texas' energy consumption hinges on oil and natural gas

- **Oil & Gas Are Essential to Texas.** Since 2018, oil & natural gas supplied over 80% of the energy that powers Texas' economy and enables Texans' lives.
- **Texas Is The Heart of American Industry.** Nearly half of the primary energy consumed in Texas serves its industrial sector, which requires more than four times as much energy as California's industrial sector.
- **The Largest Electricity Generating State.** Texas generates the most electricity of any U.S. state – and more than twice as much as Florida.

**Texas oil and natural gas consumption vs. GDP, 2010-2023e**

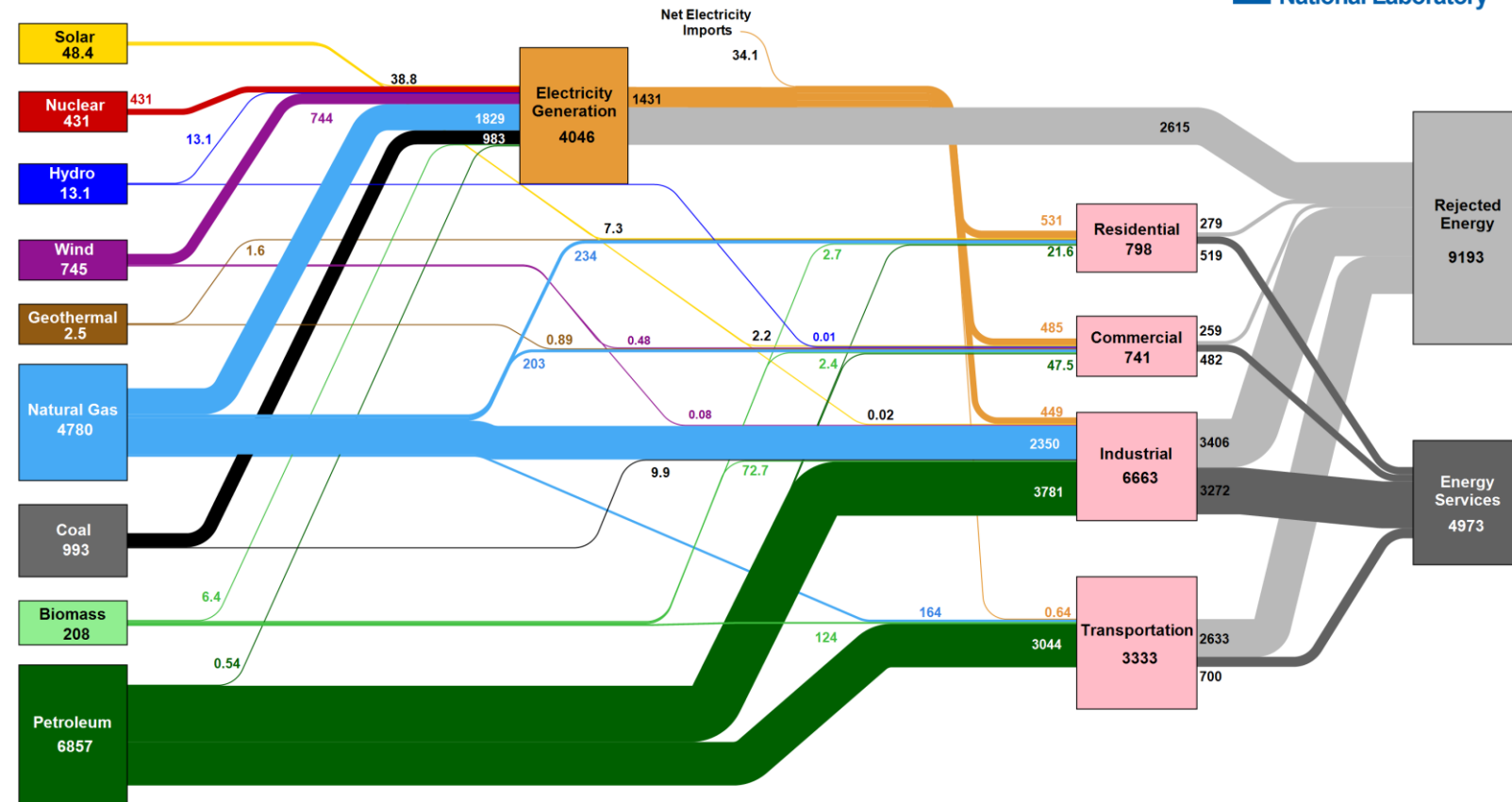


Texas' energy needs have continued to grow with its economy. Since 2010, Texans have increased their consumption of petroleum and natural gas each by about 30%, supporting consumers, industry including electricity generation, and transportation.

Although Texas' economy and petroleum consumption decreased during the 2020 pandemic, the state's natural gas consumption rose and offset 90% of the decrease, which underscores the essentiality of oil and natural gas to the state's economy.

The Texas State Comptroller estimates GDP growth of 1.4% in 2023, which could correspond with record-high state consumption of oil and natural gas in 2023.

**Texas Energy Consumption in 2019: 14165 Trillion BTU**



Source: LLNL August, 2021. Data is based on DOE/EIA SEDS (2019). If this information or a reproduction of it is used, credit must be given to the Lawrence Livermore National Laboratory and the Department of Energy, under whose auspices the work was performed. Distributed electricity represents only retail electricity sales and does not include self-generation. EIA reports consumption of renewable resources (i.e., hydro, wind, geothermal and solar) for electricity in BTU-equivalent values by assuming a typical fossil fuel plant heat rate. The efficiency of electricity production is calculated as the total retail electricity delivered divided by the primary energy input into electricity generation. End use efficiency is estimated as 0.65% for the residential sector, 0.65% for the commercial sector, 0.49% for the industrial sector, and 0.21% for the transportation sector. Totals may not equal sum of components due to independent rounding. LLNL-MI-410527

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