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 August 14, 2023

- **Economic outlook steady.** The preliminary August reading on U.S. consumer sentiment by the Univ. of Michigan survey held steady near its highest level since Oct. 2021. Indicators of business conditions remained solid.

- **Oil market tightness has become “official”.** The International Energy Agency’s (IEA) August report highlights record high global oil demand, sharp supply decreases, and lower inventories in July and so far in August. In its Short-Term Energy Outlook (STEO) for August, the U.S. Energy Information Administration (EIA) revised its projections of U.S. oil production upwards, as highlighted in the Chart of the Week, yet also now shows U.S. petroleum net stock withdrawals through year-end 2023 – and increased oil prices in their view.

- **Natural gas markets sought direction.** Natural gas futures prices at Henry Hub for September delivery rose to nearly $3.00 per million Btu (mmBtu) on August 9 but receded to $2.76 per mmBtu as of August 11. Supply has remained strong and storage levels were near the top of their 5-year range despite near-record exports.
With broad recognition of strong global and U.S. oil demand, OPEC+ supply cuts, and low inventories, the global market focus shifts to U.S. oil production that increasingly depends on Texas.

- **Strong U.S. production growth expected by EIA.** The U.S. Energy Information Administration (EIA) expects 2023 total liquids annual production growth of 1.3 mb/d, including 0.9 mb/d of crude oil growth. These estimates were revised up in the Short-Term Energy Outlook (STEO) for August. By comparison, U.S. crude oil production growth averaged 0.5 mb/d year-to-date through August 4.

- **Texas has driven U.S. growth.** Over the same period, Texas represented 43.3% of U.S. crude oil production, up by 1.0% from a year ago, and accounted for half of U.S. oil production growth year-to-date through July.

- **Texas drilling recently subsided.** Texas drilling activity, as reported by Baker Hughes, rose through April 2023 and supported Texas’ oil and natural gas production increases to record levels in June and July by TXOGA estimates. However, drilling activity fell by 17.2% between the end of April and August 11 per Baker Hughes.
The Univ. of Michigan’s survey of consumers has historically corresponded with changes in U.S. consumer spending, which represents 68% of GDP, and the index’s preliminary August reading of 71.2 was near its July level, which was the highest since Oct. 2021.

The U.S. trade deficit widened in Q2 2023. The U.S. real trade deficit ran at an annualized rate of $1.21 trillion, up from a revised $1.20 trillion in Q1. If sustained for the year, this represents the third straight year of trade deficits exceeding $1.2 trillion.

The unemployment fell in July, even as payroll growth slowed. The employment situation is a lagging indicator of GDP growth. The U.S. unemployment rate fell to 3.5% in July per BLS, while non-farm payrolls rose by 187,000, which was the lowest monthly increase since Dec. 2019.

Consistent with increased industrial production, initial Q2 GDP estimates showed 3.1% y/y growth in investment. Industrial production growth was flat y/y in Q2) and capacity utilization (78.9% in June) have historically corresponded with weak U.S. investment growth.

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

Stable growth conditions. 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 has risen from negative readings so far in 2023 to near zero, which historically corresponds with slow but stable growth conditions.
WTI crude oil price mean reversion analysis

Prices remained aligned with the MR historical target. Mean reversion analysis can be useful in to assess short-term market actions. Futures prices remain slightly backwardated, and confidence intervals based on past prices show the potential for greater upside than downside.

WTI crude prompt month futures prices

WTI crude oil prices rose as high as $84.40 per barrel on Aug. 9 as global markets digested solid economic news, official IEA and EIA reports of record demand, and OPEC+ production at its lowest since August 2021.

U.S. petroleum net exports (imports)

Decreased U.S. oil exports nearly eliminated the petroleum trade surplus. The weekly U.S. petroleum trade balance fell to net exports of 0.3 million barrels per day (mb/d) from 3.1 mb/d for the prior week. The change was mainly due to U.S. crude oil exports that fell by 2.9 mb/d w/w for the week ended Aug. 4.

U.S. petroleum demand

Summer driving increased demand. U.S. petroleum demand, as measured by deliveries, of 20.7 mb/d for the week ended Aug. 4 were towards the top of the 5-year range.

WTI crude prompt month futures slow stochastic

Despite recent price increases, oil price momentum held steady as futures prices rose above $84 per barrel for the first time since November 2022.

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

Inventories increased. Following last week’s report of the largest weekly stock draw on record, U.S. ending stocks of crude oil rose by 6.8 million barrels (mb) for the week ended Aug. 4. 5.8 mb due to commercial stocks and 1.0 mb added to the SPR.

Sources: EIA; BLS; TXOGA analysis
Natural gas futures prices of $2.56 per mmBtu for September 2023 delivery (rising to $3.72 per mmBtu for Jan. 2024 delivery) were in line with their mean reversion target. Historical variation has continued to show more potential upside than downside.

Historically strong July. Although EIA revised its estimates downward for July, natural gas net exports of 13.3 bcf/d remained near the record-high of 13.5 bcf/d that was set in May 2023.

Strong consumption. Natural gas total consumption exceeded its five-year historical range each month since March 2023 and has provided 44.6% of U.S. electricity generation so far this summer.

Sources: EIA; CME Group; BLS; TXOGA analysis.
Texas' oil and natural gas production

Texas crude oil production, Jan. 2018 – July 2023

Million barrels per day (mb/d)

EIA reported record-high Texas oil production of 5.5 mb/d in May. Based on weekly Texas drilling activity and U.S. production, TXOGA estimates that Texas crude oil production edged up but remained at 5.5 mb/d in June and July.

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

Million barrels per day (mb/d)

Through the first seven months of the year, Texas accounted for 43.3% of U.S. crude oil production. Based on TXOGA’s projection that Texas production grew to 5.5 mb/d in July, the state may have accounted for all U.S. crude oil production growth so far in 2023.


Billion cubic feet per day (bcf/d)

EIA reported record Texas’ production in May of 33.2 bcf/d (gross withdrawals) and 31.2 bcf/d of marketed production. TXOGA estimates wellhead production rose as high as 33.5 bcf/d in June and slipped to 33.3 bcf/d in July.

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, Hayensville, and Anadarko -- set a record high in Q2 2023.

Rig productivity by basin – new per prod. per month

Thousand barrels per day oil-equivalent, kb/doe

EIA-estimated rig productivity has steadied (decreased of 0.8% y/y in July 2023) across oil-producing basins at levels that are 18% higher above pre-pandemic productivity from Dec. 2019.

Texas drilling activity and WTI crude oil futures prices

Dollars per barrel (2023$)

Texa’s drilling rig activity decreased by 2 rigs for the week ended Aug. 11 per Baker Hughes – and fell by 65 rigs or 17.2% since the end of April. Last week, Texas had 274 oil-directed rigs and 38 natural gas-directed rigs.

sources: EIA; TX RRC; Baker Hughes; CME Group; TXOGA analysis
Global oil market balance at-a-glance

- **August demand projections held steady.** Global oil demand is expected by EIA to reach a record 101.2 mb/d in 2023 and 102.8 mb/d in 2024.
- **EIA raised its oil production growth** projections by +0.1 mb/d to 1.4 mb/d in 2023 and +0.2 mb/d to 1.7 mb/d in 2024. These are volumes needed to balance global markets in their view. The U.S. is assumed to be largest single contributor this year.
- **For global oil inventories, EIA revised its projections to show net stock draws through year-end 2023,** corresponding with Brent crude oil prices of $84 per barrel in Q3, $88 per barrel in Q4, and then easing in 2024 with a more balanced market in their view.
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.

sources: BEA; BLS