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 17, 2023

- A rebound in U.S. consumer sentiment – to it most favorable reading since Sep. 2021 – fueled optimism for the week ended July 14, which is remarkable given the Fed Reserve’s recent interest rate hikes. Consumer sentiment has historically driven changes in consumer spending that represents about 70% of the U.S. economy.

- Oil market fundamentals continued to tighten. At the same time as U.S. ending stocks of crude oil remained historically low, the U.S. Energy Information Administration (EIA) materially revised its global oil market projections in its July edition of the Short-Term Energy Outlook. Key changes:
  - A shift from a projected market balance in Q3 2023 to global oil inventory net withdrawals of 1.0 million barrels per day (mb/d), supporting Brent prices near $80 per barrel in their view;
  - 2023 global oil production revised down by 0.2 mb/d to 1.3 mb/d; and
  - Global oil demand revised upwards to 101.2 mb/d in 2023 and a record-high 102.8 mb/d in 2023.

- Natural gas prices have reflected a well-supplied market. Although U.S. natural gas net exports have reached a record-high 13.9 billion cubic feet per day (bcf/d) in July per EIA, strong production and above-average storage levels continued to exert downward pressure on prices, which stood at $2.54 per mmBtu for Aug. 2023 delivery rising to $3.49 per mmBtu for Jan. 2024 delivery.
Crude oil inventories are generally seen as a summary statistic of how supply and demand have changed in relation to one another. When demand outpaces supply, inventories are drawn down, and this has historically supported prices as markets experienced through most of 2021 and 2022.

Through the second half of 2022, unprecedently large releases from the U.S. Strategic Petroleum Reserve (SPR) resulted in the lowest SPR stock levels since 1983 and the lowest U.S. ending stocks of crude oil since 1986.

Consequently, U.S. oil inventories fell in 2022 and so far in 2023, as shown by the dark grey-shaded area. Meanwhile, global oil inventories accumulated in late 2022 and early 2023 (light grey area), per the U.S. Energy Information Administration (EIA).

EIA’s estimates evolved from showing the global market being in balance in Q3 2023 to inventory net withdrawals of 1.0 million barrels per day (mb/d) in their July outlook. This represents is a market deficit of about 1% which supports Brent prices near $80 per barrel in their view.

The basis for the changes reflects a combination of higher demand and lower supply. EIA currently projects global oil demand of 101.2 mb/d in 2023, growing to a record-high of 102.8 mb/d in 2023.

sources: EIA; TXOGA analysis
Consumer sentiment rebounded in July to its strongest level since Sep. 2021. The Univ. of Michigan survey of consumers has historically corresponded with the changes in U.S. consumer spending, which represents 68% of GDP. The improved sentiment has historically corresponded with positive spending growth.

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.

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 pub positive production growth could enable some recovery in investment.

The premium for low credit quality fell to its lowest since Jan. 2022. High yield (HY) rates reflect debt costs for firms with below-investment grade credit quality. HY rates fell to 13.5% as of Jul. 13 from 14.6% on Jun. 1, while Fed Funds futures rose to 5.3%.

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.

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.
Led by resurgent emerging markets, global oil demand is expected to reach a record 102.8 mb/d in 2024 per EIA.

EIA reduced its oil production 2023 projection by 0.2 mb/d to 1.3 mb/d but raised its 2024 estimate by the same amount to 1.5 mb/d. 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's shifted from projecting a balanced market in Q3 2023 to net stock draws of 1.0 mb/d, corresponding with Brent crude oil prices nearly $80 per barrel in Q3 rising to $85 per barrel in 2024 per their view.

Global oil market balance at-a-glance

- Global oil demand and GDP
- Oil production by country/region
- Global demand/supply & Brent prices (July 2023)

EIA estimates

- 2024:
  - Oil production: 1.3 mb/d
  - Brent crude oil prices: $80 per barrel

2023:
- Oil production: 0.2 mb/d rise to 1.3 mb/d
- Brent crude oil prices: $80 per barrel rise to $85 per barrel

Sources: EIA; BLS
**Mean reversion analysis can be useful in assessing short-term market actions. The historical mean reversion target is aligned with futures prices as of July 14. Futures prices remain slightly backwardated, and confidence intervals based on past prices show the potential for greater upside than downside.**

**U.S. petroleum demand**

**U.S. oil market indicators**

**WTI crude oil price mean reversion analysis**

Dollars per barrel (2023$)

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**WTI crude prompt month futures prices**

Dollars per barrel

With solid economic reports—notably the higher consumer sentiment since 2021 per the Univ. of Michigan’s survey—and OPEC’s continued cuts, oil prices eclipsed $75 per barrel as of July 14.

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

Million barrels per day, mb/d

Global demand for U.S. oil picked up. Petroleum net exports were 1.4 million barrels per day (mb/d) for the week ended July 6. In 2023 so far, there has only been one week (Feb. 3) with petroleum net imports, so 2023 has remained on track to set a U.S. exports’ record.

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

Million barrels (mb)

Lowest inventories since Jan. 1986. Crude oil ending stocks rose by 5.5 mb for the week ended July 6, 2023, but remained historically low.

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**Sources:** EIA; BLS; TXOGA analysis

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**Seasonal holiday impact.** U.S. petroleum demand, as measured by deliveries, was 18.7 mb/d for the week ended July 6 and appeared to be heavily impacted by the fourth of July holiday falling on a Tuesday.

**Oil price momentum slowed but did not break down despite prices having risen more than 10% over the past week.**

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**Crude oil ending stocks rose by 5.5 mb for the week ended July 6, 2023, but remained historically low.**
Natural gas futures prices of $2.54 per mmBtu for Aug. 2023 delivery rising to $3.49 per mmBtu for Jan. 2024 delivery came into line with their mean reversion target. Historical variation has continued to show more potential upside than downside.

After rising by 22.7% m/m in June, natural gas prices at Henry Hub receded by 6.2% to $2.62 per mmBtu as of July 7.

Natural gas net exports have reached a record high of 13.9 bcf/d in July per EIA.

Natural gas price momentum decreased during the week ended July 14.

Natural gas total consumption has exceeded its five-year historical range each month since March 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.

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.

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

Oil & Gas Consumption in Quadrillion Btu: 2010: 5.3, 2020: 5.6, 2023e: 6.5

Petroleum prod. total cons.: 2010: 3.9, 2020: 4.2, 2023e: 4.9

Nat. gas. total cons.: 2010: 1.4, 2020: 1.4, 2023e: 1.6

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**

Sources: EIA; BEA; LLNL
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