

API Industry Outlook

First Quarter 2023

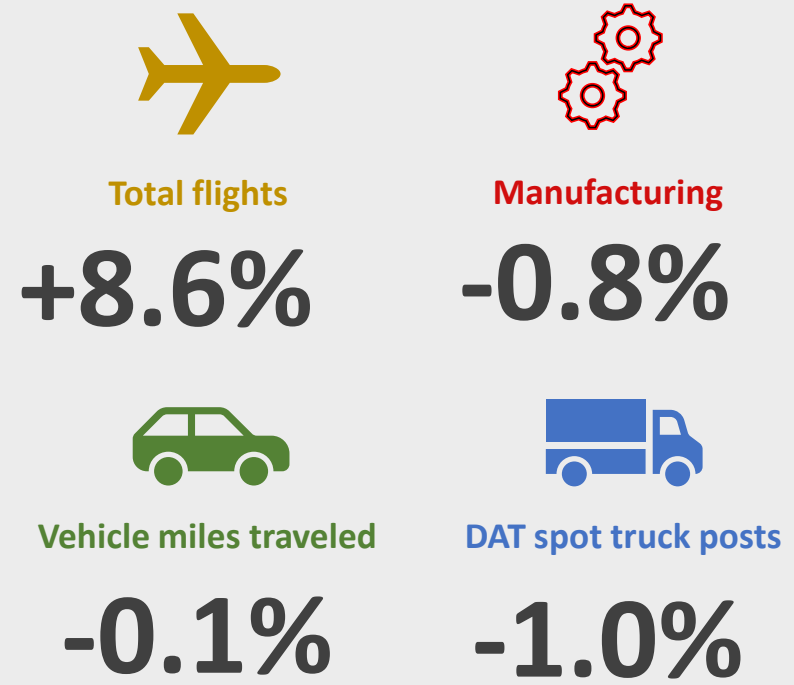
Office of the Chief Economist
June 15, 2023



U.S. Demand: Liquid Petroleum Products

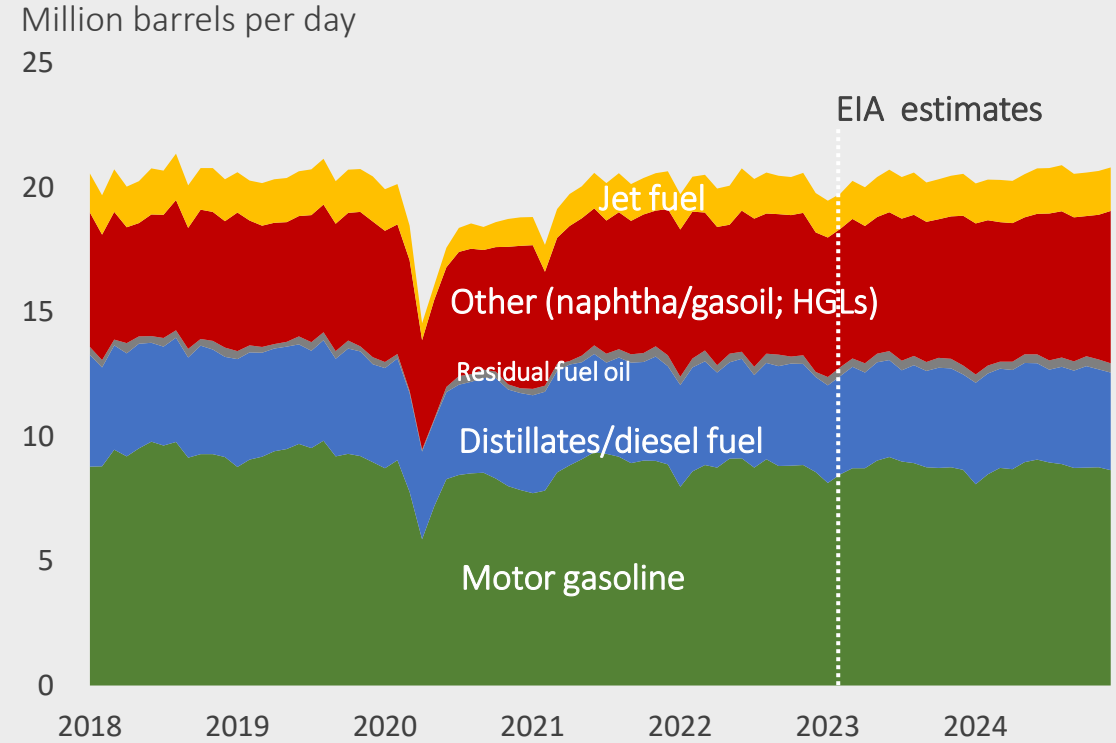
- Demand indicators of transportation and broad manufacturing activity showed continued growth.
- EIA projects U.S. annual oil consumption growth of 0.9% y/y in 2023 and 1.6% y/y in 2024.
- Liquid fuel consumption is expected to be at or above pre-Covid 2019 levels.

U.S. demand indicators, Q1 2023 vs. Q1 2019



sources: [FlightRadar24](#); [FRB](#); [FHA](#); [DAT Trendlines](#)

U.S. liquid fuel consumption by fuel

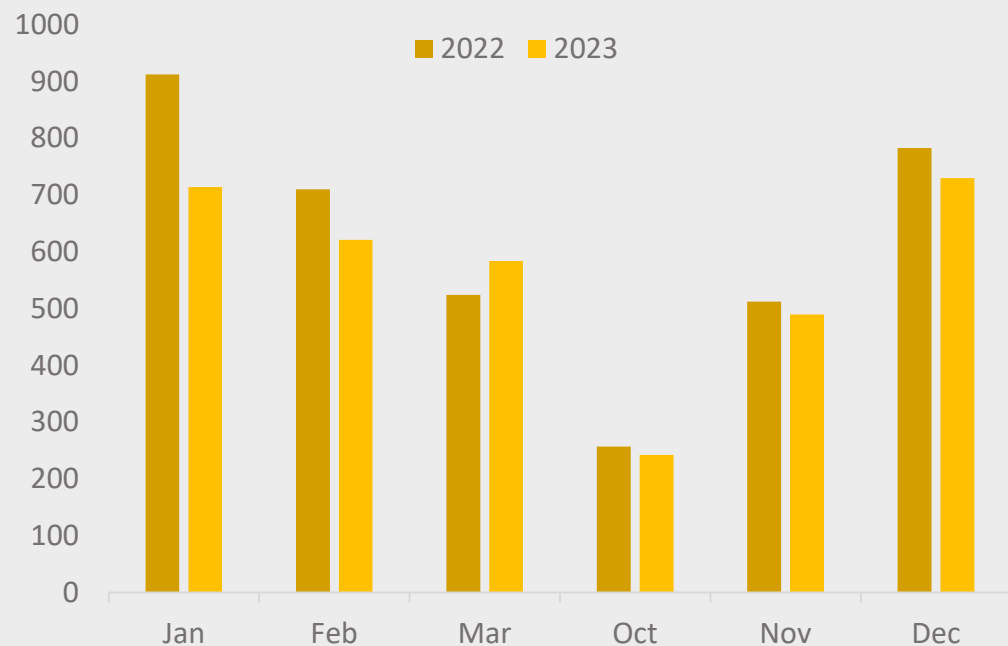


sources: EIA; API

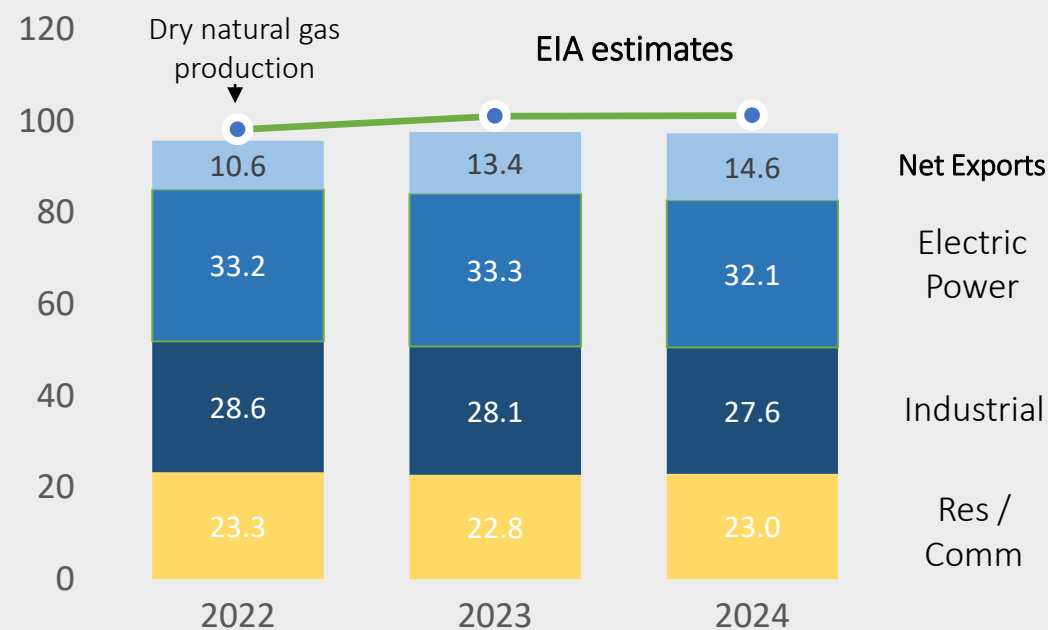
U.S. Natural gas consumption this summer to be the second most on record

- ▶ January and February 2023 were one of the warmest months on record, reducing residential and commercial demand.
- ▶ Natural gas power demand this summer is anticipated to be greater due to lower prices relative to 2022.
- ▶ Assuming normal weather, 2023 residential and commercial gas consumption to fall by 0.8 Bcf per day relative to 2022.

Monthly winter U.S. heating degree days



U.S. natural gas consumption and production by sector, Billion cubic feet per day



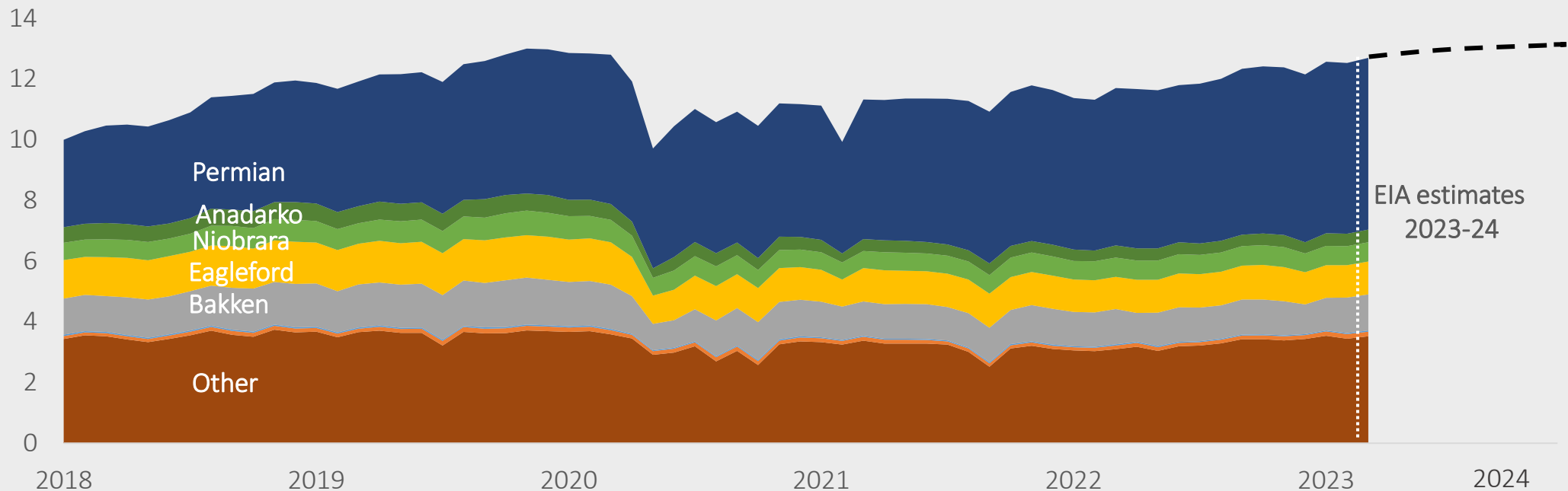
source: EIA STEO (May 2023)

U.S. oil production has sustained solid levels despite historically low drilling activity

- ▶ U.S. crude production in March 2023 remained 2.3% lower than its pre-pandemic peak level in November 2019.
- ▶ If NGLs are included (not illustrated), the U.S. has already exceeded all time record highs in liquid production.
- ▶ EIA projects that by the end of 2024, U.S. crude oil production will be at all time highs, exceeding pre-Covid levels.

U.S. crude oil production

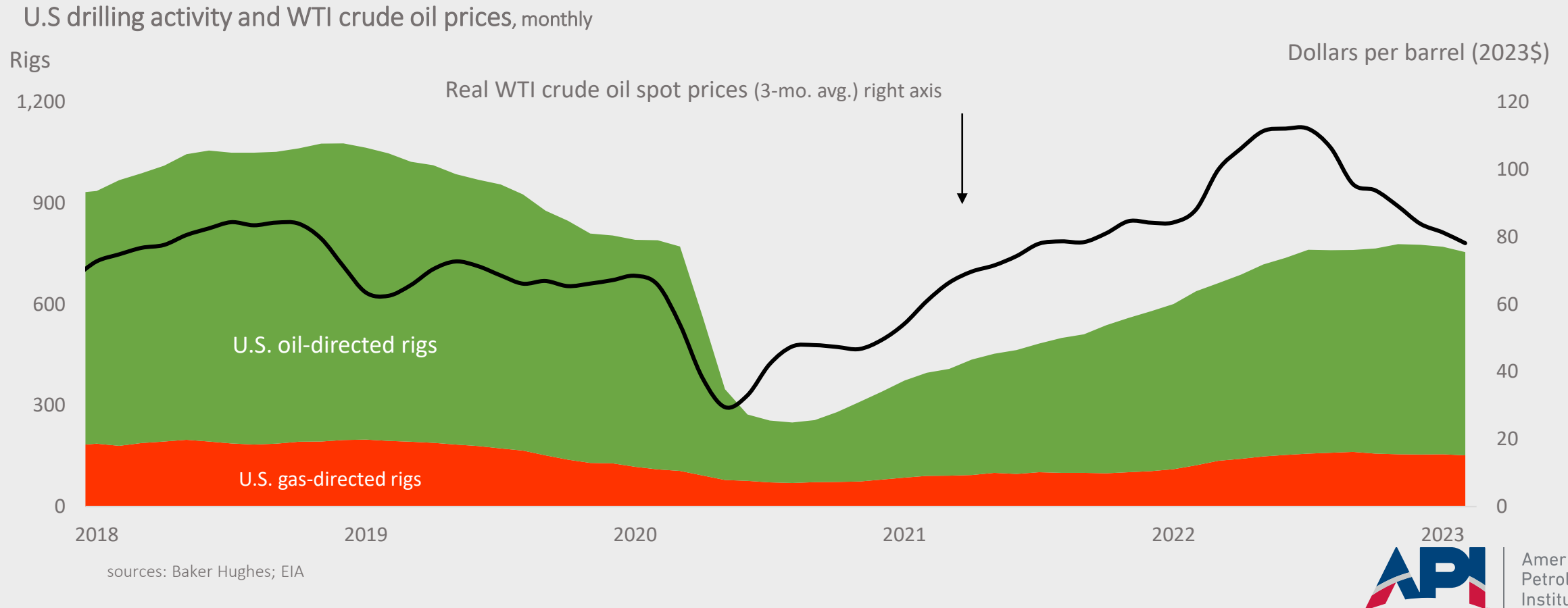
Million barrels per day



sources: EIA

Snapshot: US Drilling Activity

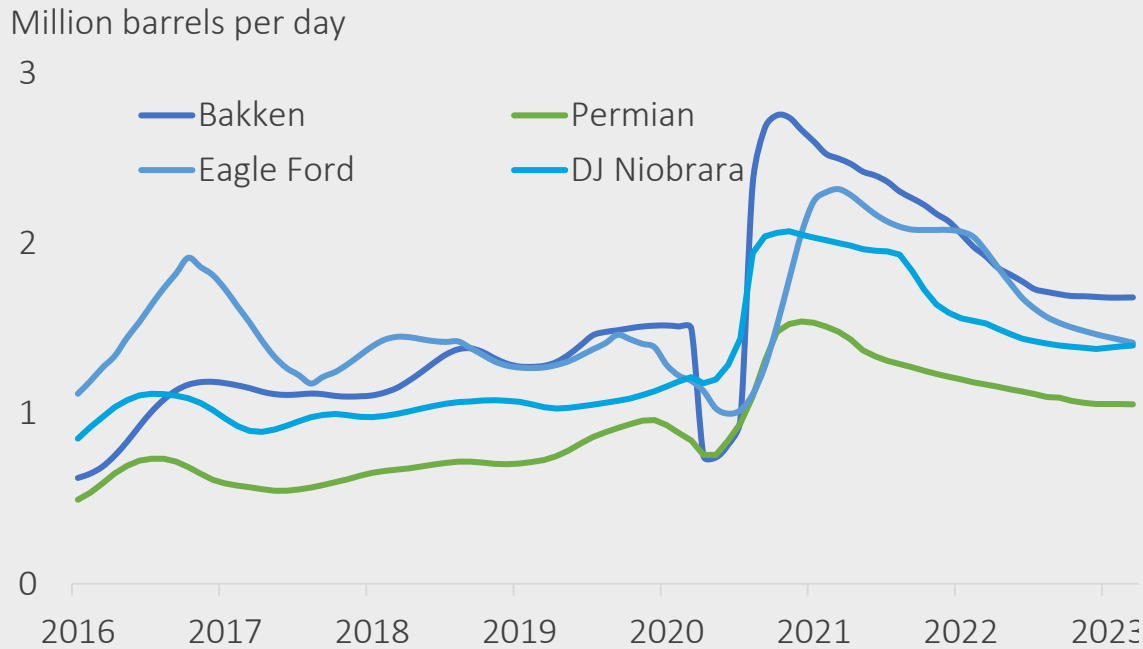
- ▶ U.S. oil drilling in March 2023 remained nearly 24% lower than its level at the same point in 2019.
- ▶ Drilled but uncompleted wells are showing signs of marginal decline along with slowness in drilling activities.



Estimated average breakeven prices have risen as operating costs have gone up

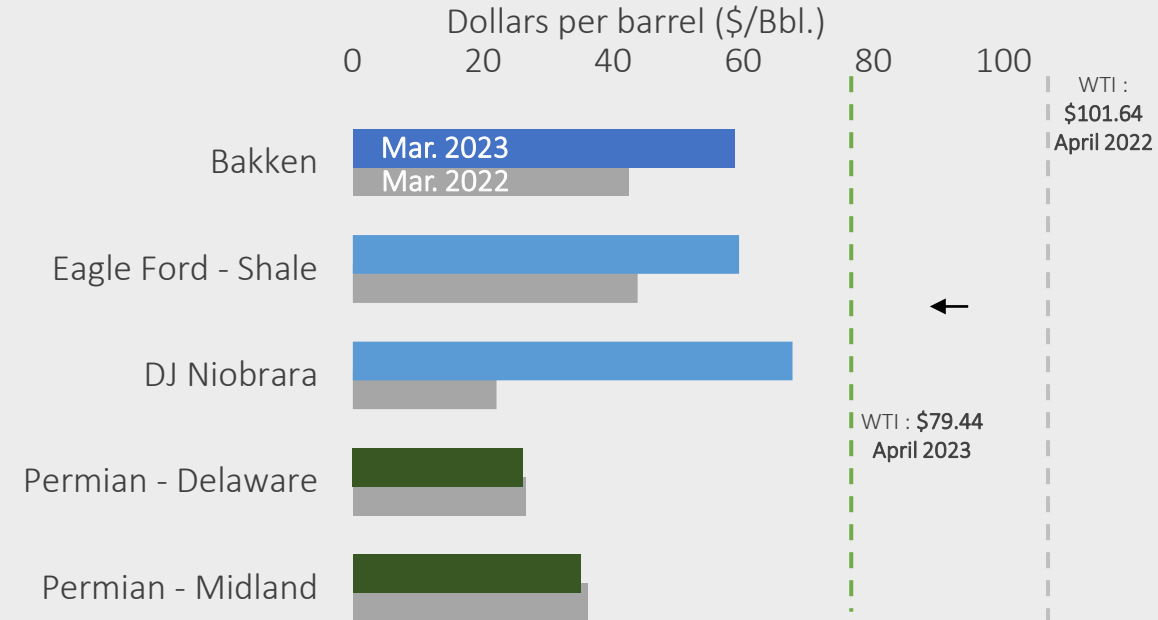
- ▶ Drilling productivity is higher than pre-Covid levels.
- ▶ 2021 level drilling rig productivity level occurred during extremely low rig counts.
- ▶ Occasionally, estimated breakeven prices exceeded recent market prices among some U.S. oil producing basins.

U.S. oil well productivity – new production per rig



source: EIA Drilling Productivity Report

Oil estimated breakeven prices*



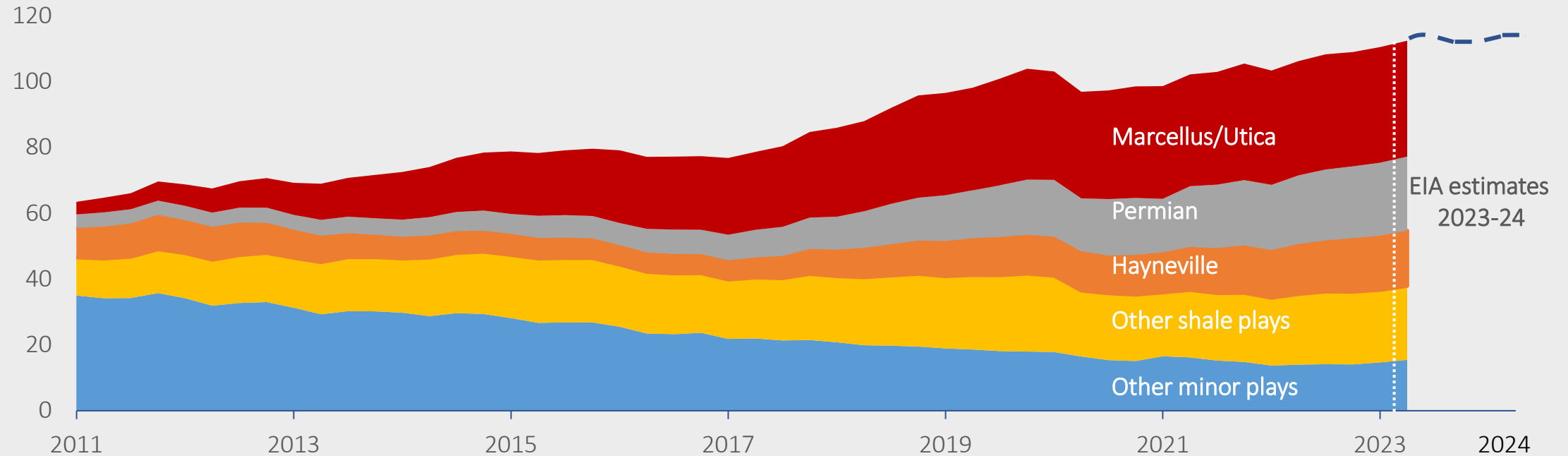
*Full cycle breakevens assuming 10% discount factor. sources: Rystad Energy

U.S. natural gas production is at all-time highs and projected to increase

U.S. natural gas marketed production rose by 7.0% (7.2 bcf/d) y/y to 110.5 bcf/d in Q1 2023 and is expected by EIA to grow in 2023 and 2024 despite a slowing of drilling activity.

U.S. natural gas production

Billion cubic feet per day



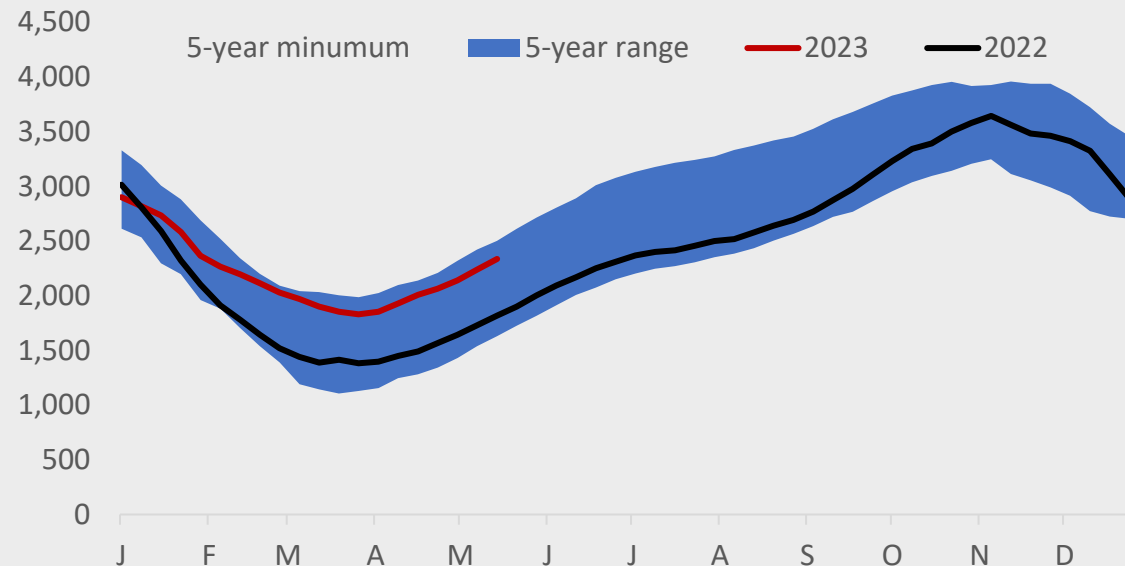
sources: EIA; Baker Hughes

U.S. Natural Gas Inventories are 19% greater than the 5-year average

- High storage levels should reduce summer injection demand relative to last year allowing for more supply for power generation.
- With ample storage levels and increased natural gas production, EIA projects relatively moderate prices through the end of 2024.

U.S. working gas in underground storage

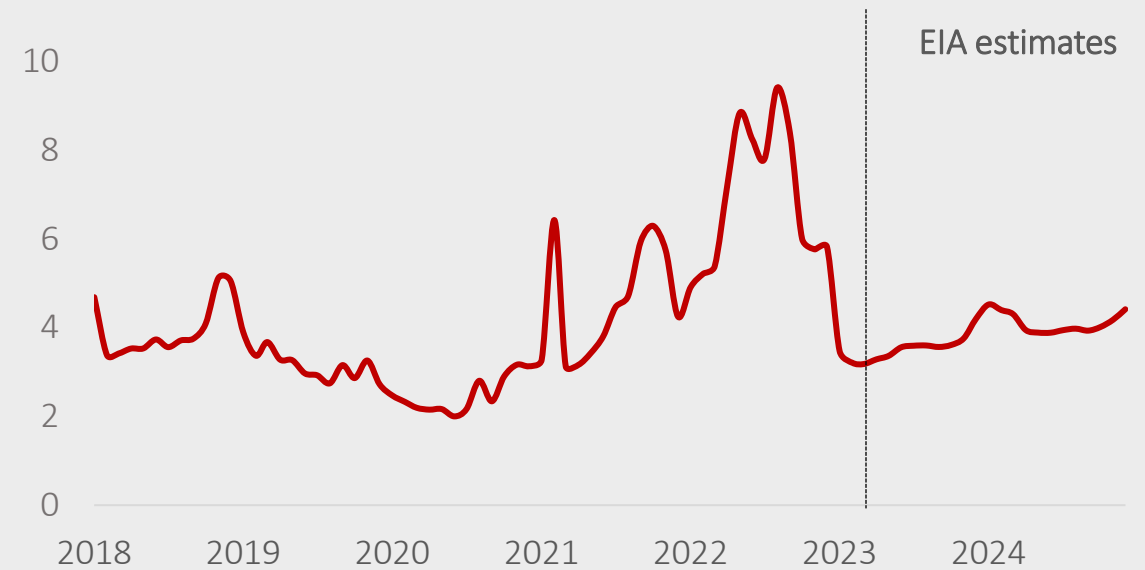
Billion cubic feet



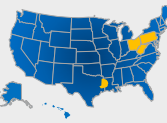
source: EIA (May 2023)

EIA Henry Hub natural gas spot prices

Dollars per thousand cubic feet (2023\$)

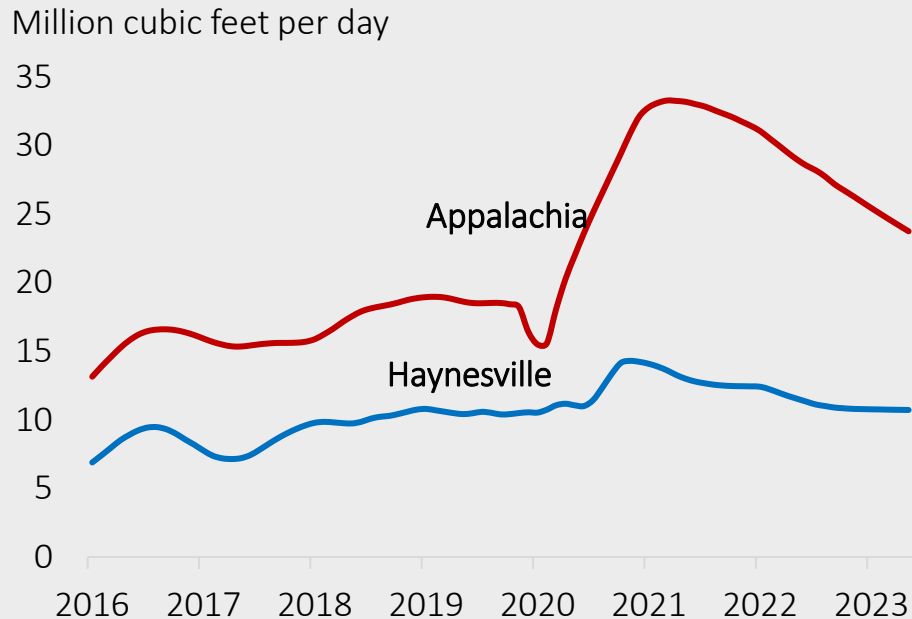


Natural gas-dedicated drilling has sustained strong productivity



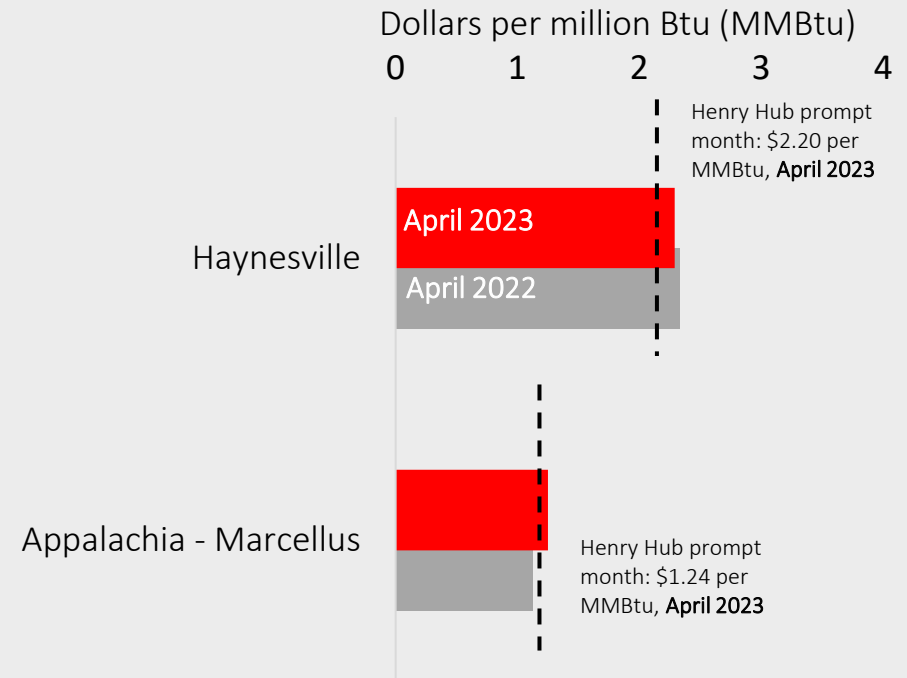
- ▶ Drilling rig productivity is above pre-Covid levels.
- ▶ Estimated natural gas breakeven prices remained above recent natural gas futures prices.
- ▶ Appalachia prices are approximately \$1/MMBtu below Henry Hub prices.

Natural gas well productivity – production per rig



source: EIA Drilling Productivity Report

Natural gas estimated breakeven prices



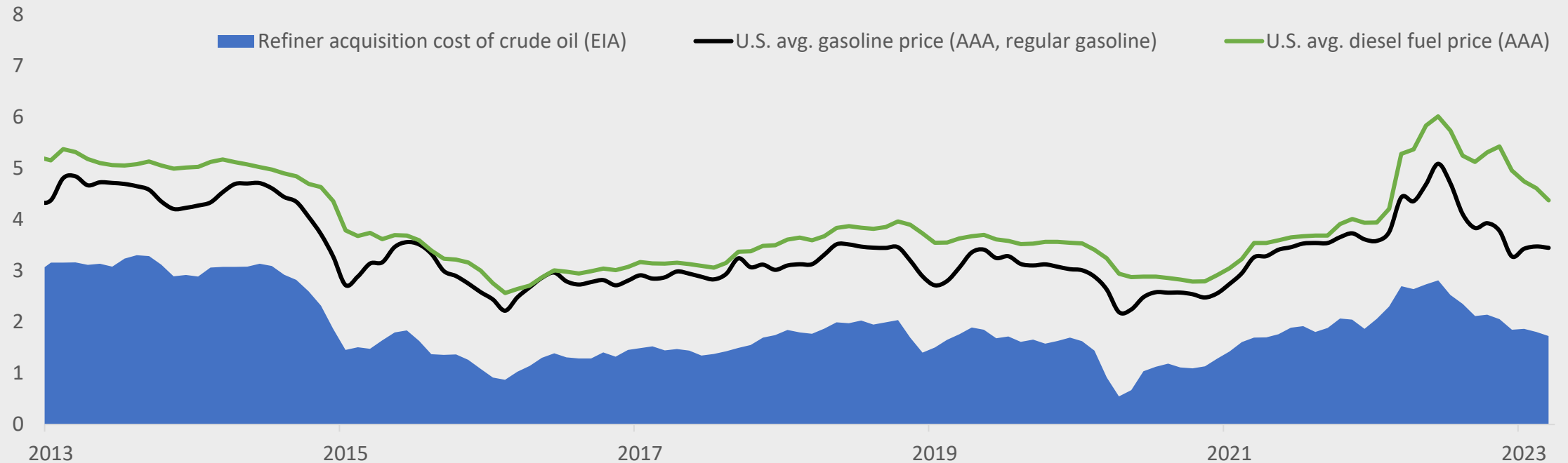
*Full cycle breakevens assuming 10% discount factor and play-specific costs
sources: Rystad Energy

Snapshot: U.S. Crude and Transportation Prices

- ▶ The price decline of oil and the benchmark crude, West Texas Intermediate, is driving down diesel prices and holding gas prices stable as the summer driving season begins.

Refiner acquisition cost of crude oil prices versus U.S. average gasoline prices, adjusted for price inflation

Dollars per gallon (2023\$)



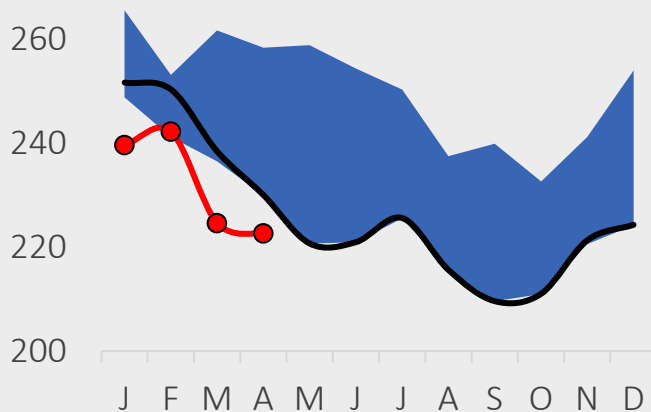
sources: EIA; AAA; API Team analysis

U.S. Inventories of motor gasoline and distillates have been below or near historic 5-year lows

Inventories of motor gasoline and distillates have been the main point of concern, and nationwide days of supply – currently 29.0 days as of May.

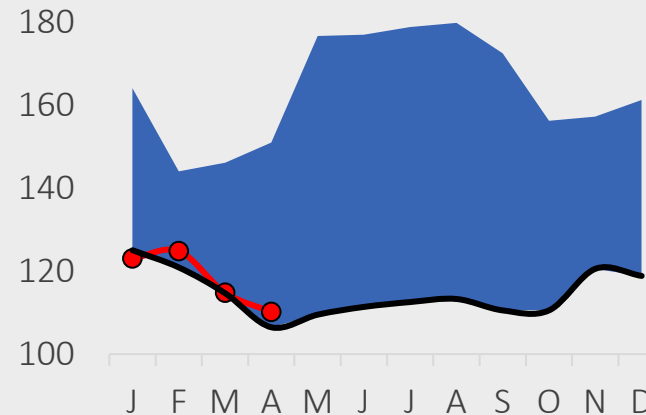
Motor gasoline inventories

Million barrels
280 ■ 5-year range ● 2023 — 2022



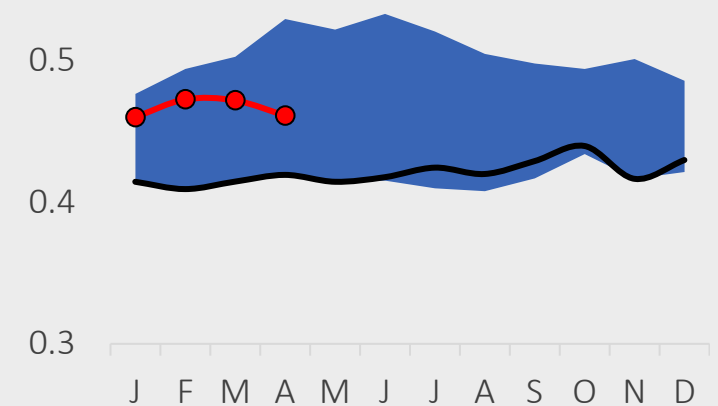
Distillates inventories

Million barrels
200 ■ 5-year range ● 2023 — 2022



U.S. commercial crude oil inventories

Billion barrels
0.6 ■ 5-year range ● 2023 — 2022



sources: EIA; API MSR™

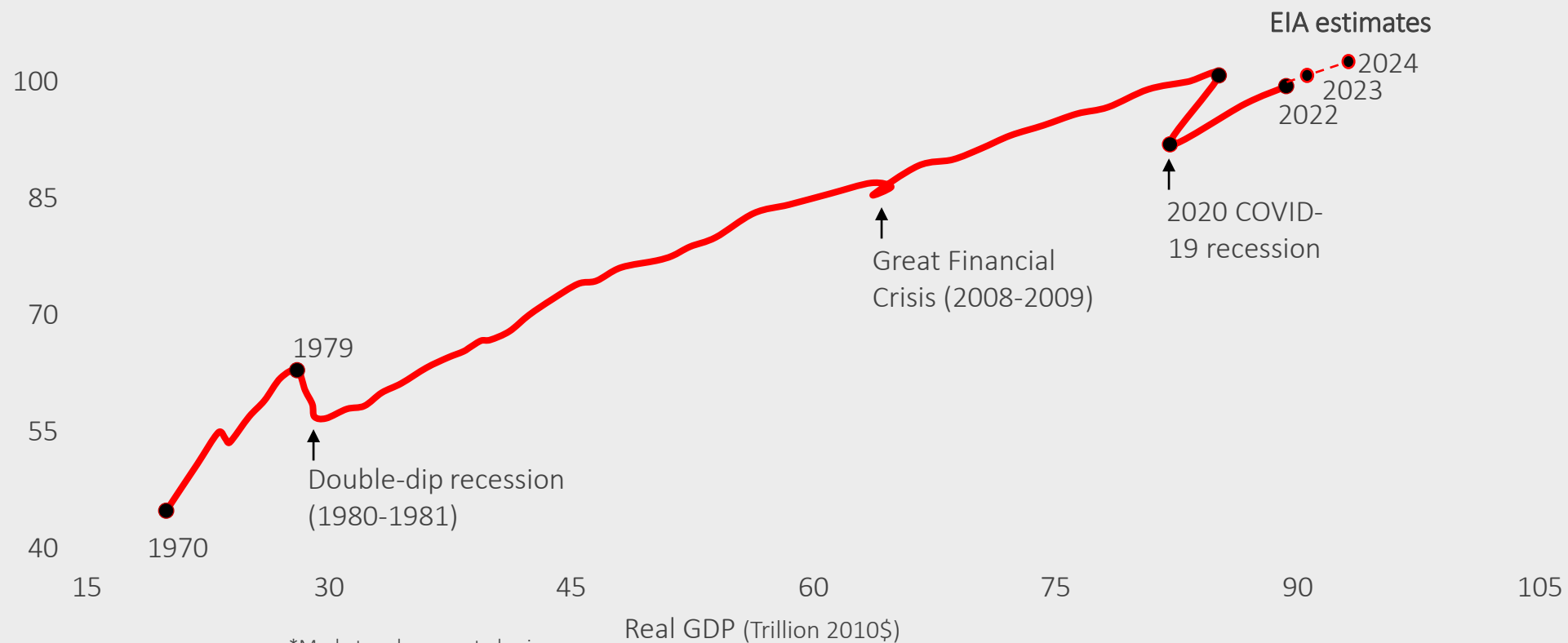


Global Oil Demand and GDP

▶ Global demand is expected to be at all time highs in 2023 (101.0 Mb/d) and 2024 (102.7 Mb/d), despite a protraction in global economic growth.

Million barrels per day

115

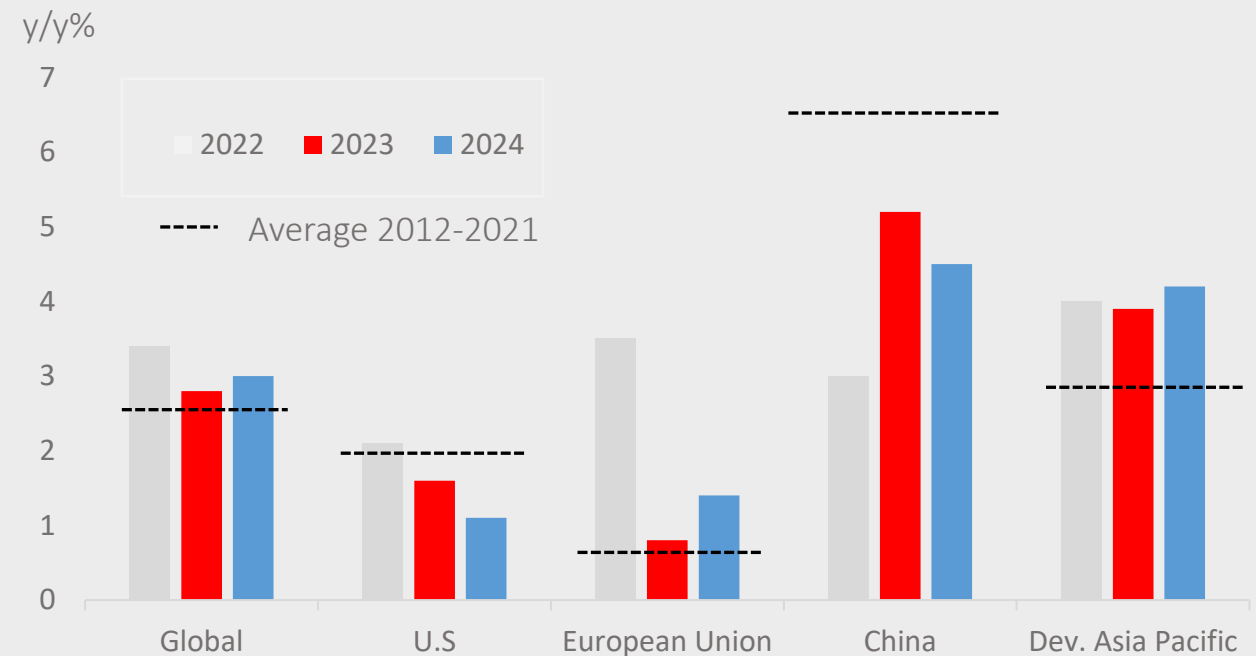


*Market exchange rate basis
sources: EIA; IMF; API Team calculations

Snapshot: Global GDP Consensus Expectations

- ▶ Global GDP growth expectations at 2.8% y/y for 2023, as the global economy continues to recover from the global pandemic and China's economic reopening.
- ▶ A contraction in growth in 2023 is expected largely due to elevated inflation, tighter monetary policies, high sovereign debt levels, geoeconomic trade shifts due to Russia's war in Ukraine.
- ▶ U.S. GDP growth of 1.6% y/y is below its 20-year average for 2023 and next year is expected to grow slower than this year.
- ▶ Chinese growth, while high, is significantly below its 20-year average.

Real GDP growth by region



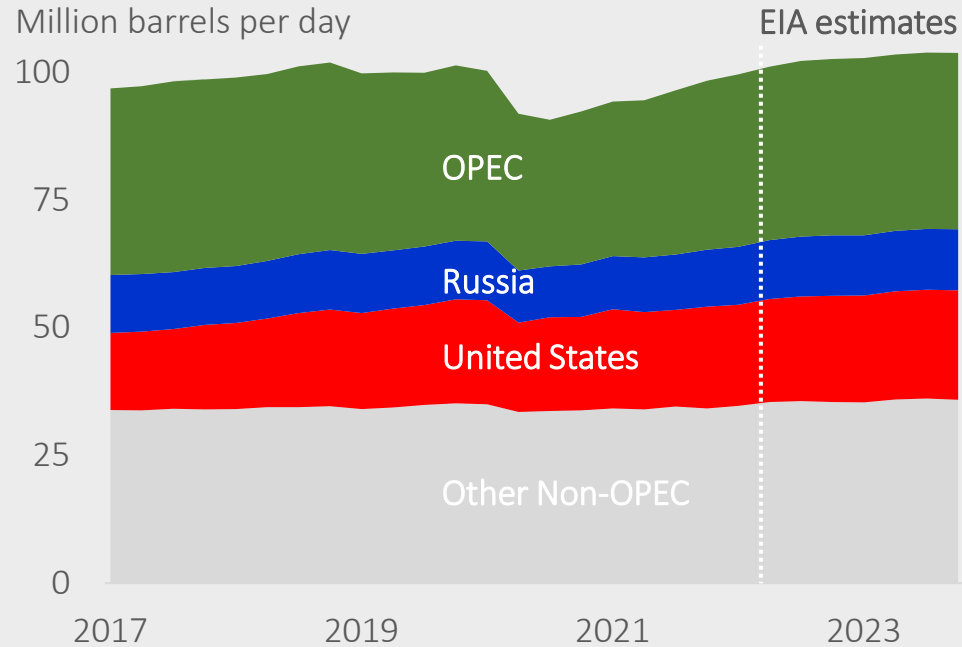
source: IMF

EIA expects global oil production to sustain record high levels over 101 mb/d beginning in 2023, rising as high as 103 mb/d in 2024



- ▶ The supply projections by EIA should be interpreted as amounts needed to balance global markets in their view.
- ▶ With production cuts from Russia and OPEC, the world is to add 0.7 Mb/d in 2023, per EIA.

Global oil production



EIA global oil supply/demand annual changes

y/y Δ	Global Demand	Production			
		Global	U.S.	Non-OPEC*	OPEC
2022	2.3	4.2	0.6	1.7	2.5
2023	1.6	1.5	0.7	1.9	(0.4)
2024	1.7	1.7	0.2	1.0	0.7

*Non-OPEC growth includes Guyana, Brazil, Norway, Canada

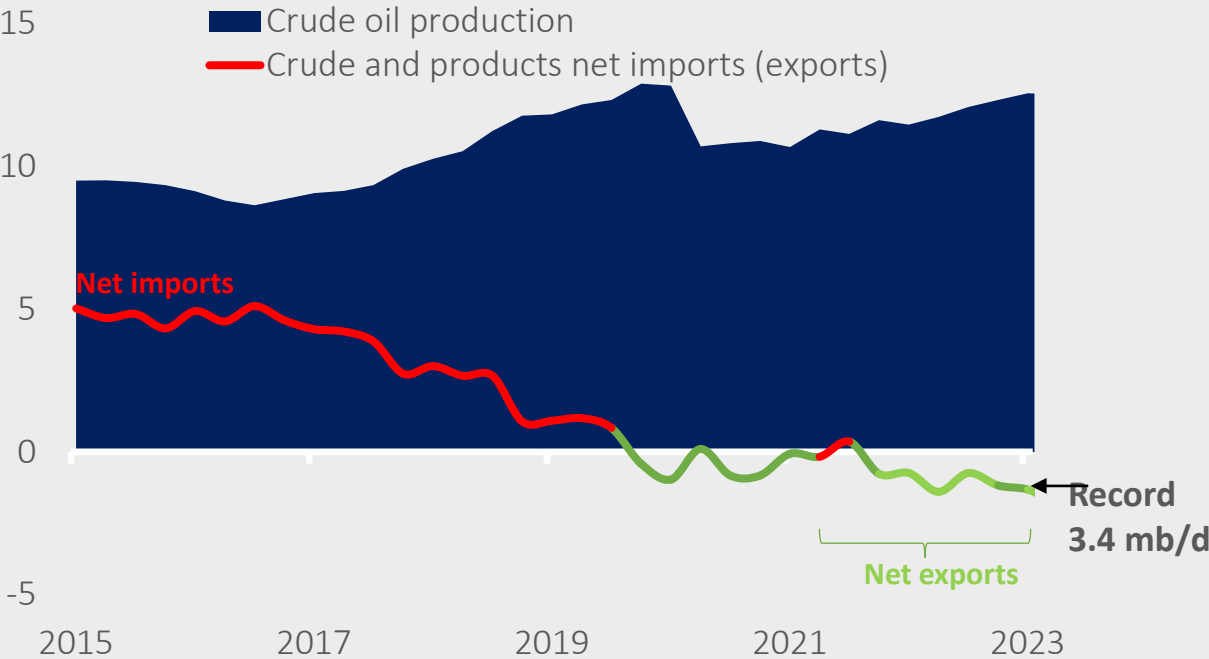
source: EIA STEO (May, 2023)

Crude and petroleum product exports ended the 1st quarter at record level

- ▶ The global response to Russia’s war on Ukraine increased the demand for U.S. petroleum net exports a record 3.4 mb/d in March 2023 per EIA – the largest exported volume for any month since 1997.
- ▶ Exports in the 1st quarter of 2023 rose 9.8% y/y and exceeded all volumes of the same period in the previous 5 years.

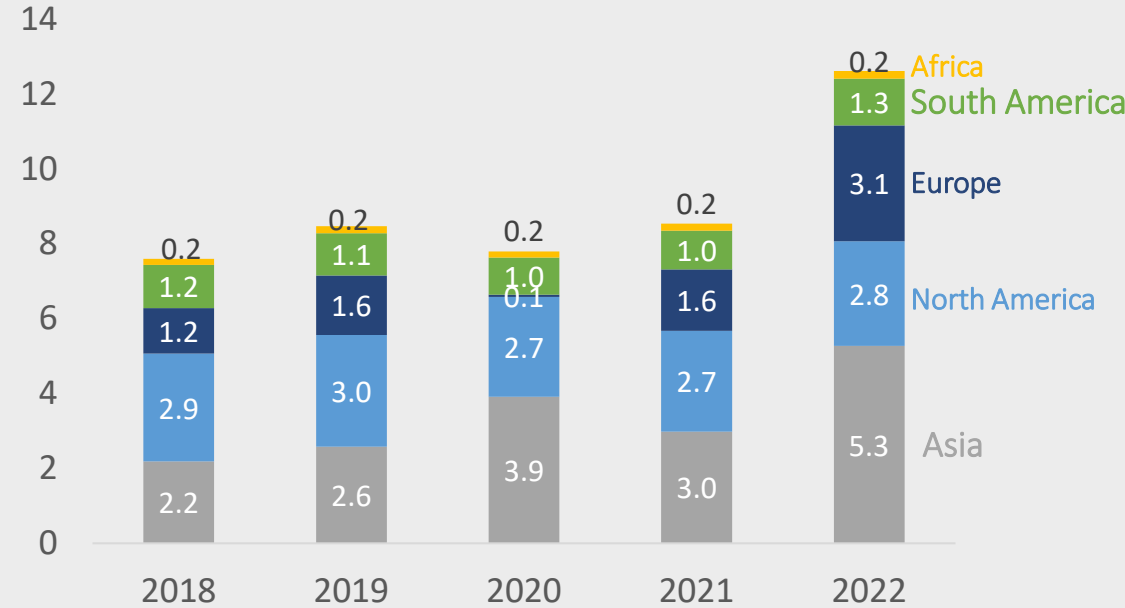
U.S crude oil production and net imports (exports)

Million barrels per day



U.S. crude and product export destinations

Million barrels per day



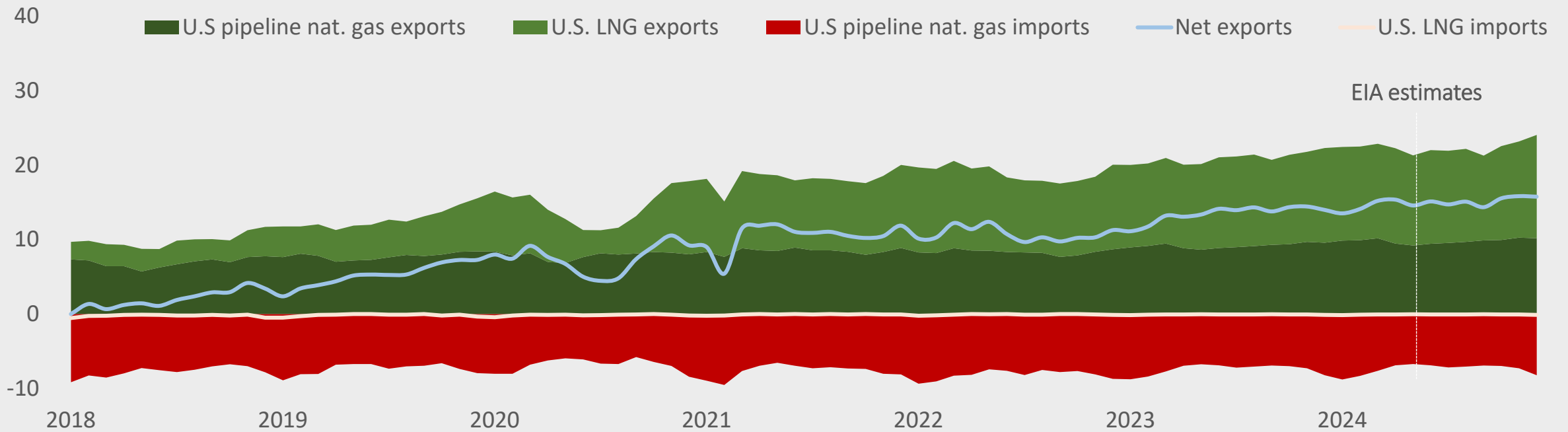
sources: EIA

U.S. Natural Gas Imports/Exports

- ▶ EIA projects U.S. LNG export volumes in 2023 to grow 1.5 Bcf/d y/y and 0.7 Bcf/d in 2024.
- ▶ Natural gas net exports to increase 25.5% (2.7 Bcf/d) y/y in 2023 and by 11.0% (1.5 Bcf/d) in 2024.

U.S. natural gas exports and imports

Billion cubic feet per day



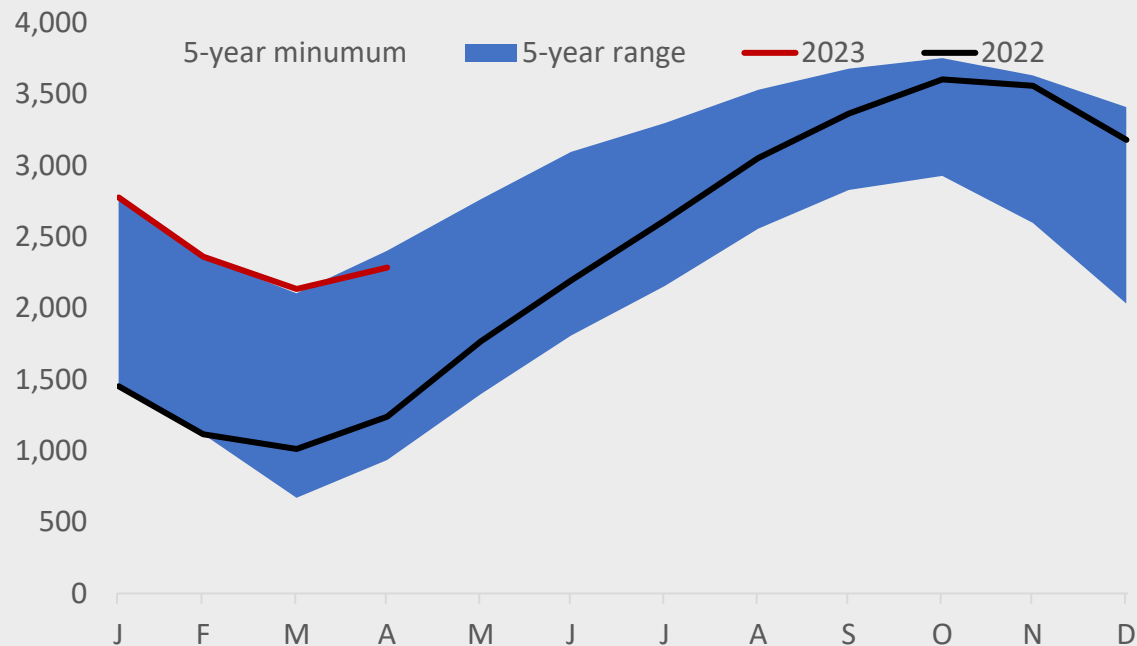
source: EIA

U.S. Natural Gas Imports/Exports

- ▶ EU gas stocks are close to a seasonal record high at 2,284 bcf - the second-highest on record for the time of year - and 934.9 (+63%) above the 10-year average.
- ▶ Global natural gas prices have receded from their 2022 highs.
- ▶ Asia and European natural gas prices are still significantly greater than Henry Hub prices.

European gas in underground storage

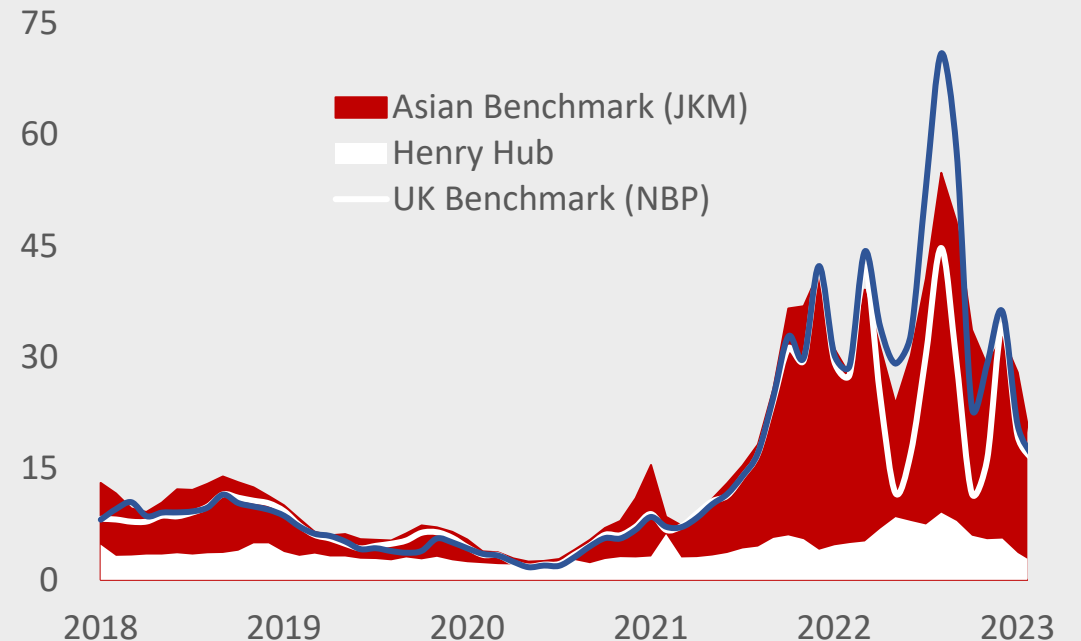
Billion cubic feet



source: Gas Infrastructure Europe, Aggregated Gas Storage Inventory ([AGSI+](#))

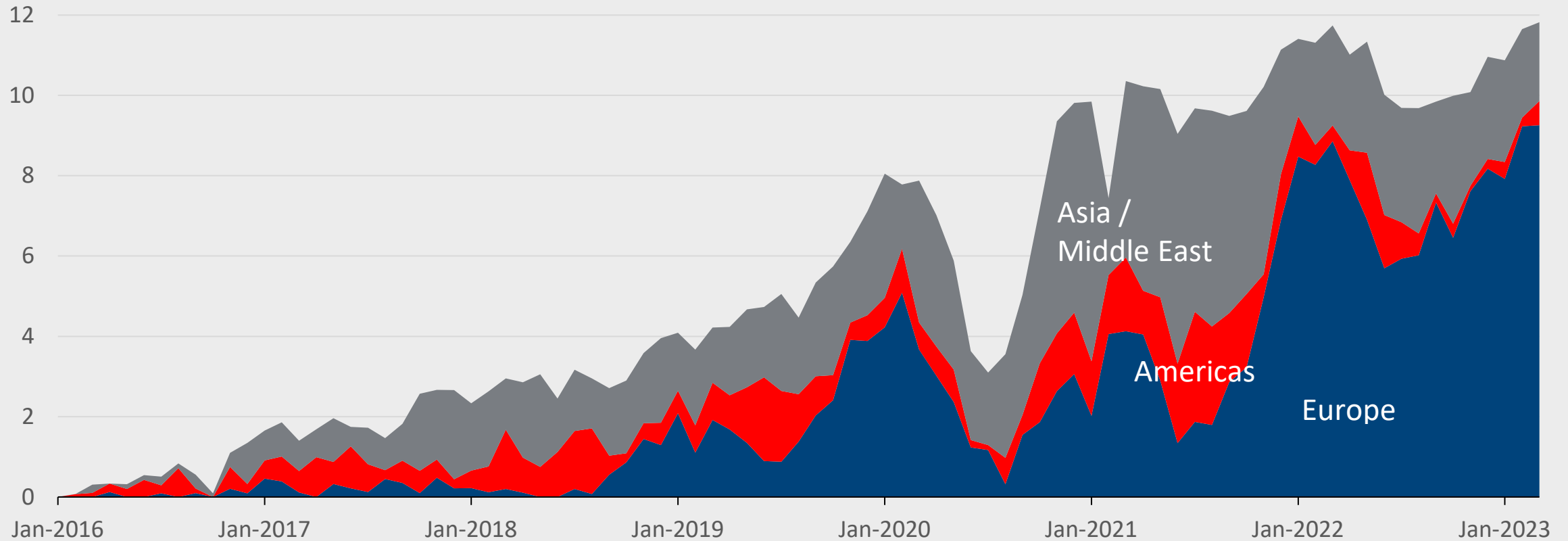
Global natural gas prices

\$2023 per mmBtu, monthly



U.S. LNG Exports by Destination

- ▶ Most U.S. LNG Exports went to Europe in 2022 and so far in 2023.
- ▶ In 2023 – EIA projects that the U.S. will be the largest global LNG exporter.



source: EIA