



Longreach Energy Holdings LLC

FIRM INFORMATION

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1. Market and Macro Industry Commentary

General Market Commentary

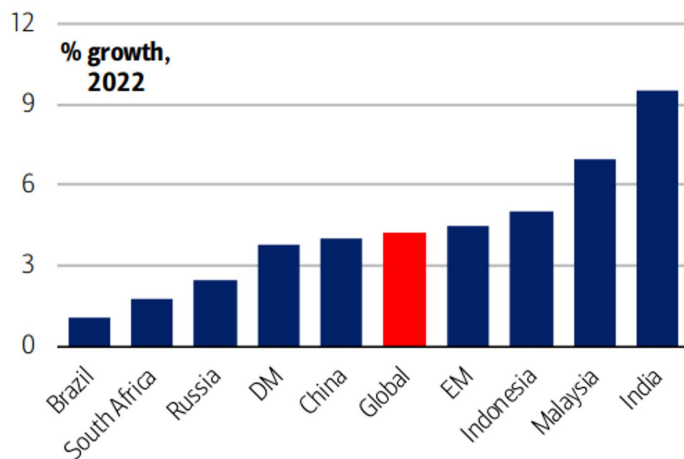
January saw the first widespread cold weather of the US winter. This delivered a very strong rally in US natural gas prices. On the 26th of January, the February '22 Henry Hub futures contract surged by around 72% to finish \$1.988/mmbtu higher at \$6.265. This was the largest daily move in the history of the Henry Hub contract which began trading in 1990. The month-end March '22 prompt contract closed the month at \$4.87/mmbtu, up 31% on the price at the end of December.

Oil markets enjoyed their best January in over 30 years as a combination of strong demand and supply disruptions further reduced global stockpiles. WTI oil closed December at \$88.15/bbl, up 17% on the December close. Prompt WTI has increased by 30% in the last two months.

Bank of America forecasts global GDP growth of 4.2% in 2022 with China, India and Indonesia expected to reach 4%, 9.5% and 5% respectively (Figure 1).

Figure 1: 2022 GDP Growth Forecast (Source: BofA)

Exhibit 6: GDP growth forecast for 2022
Our economics team forecasts global GDP growth of 4.2% in 2022, with China, India, and Indonesia expected to reach 4%, 9.5% and 5% respectively



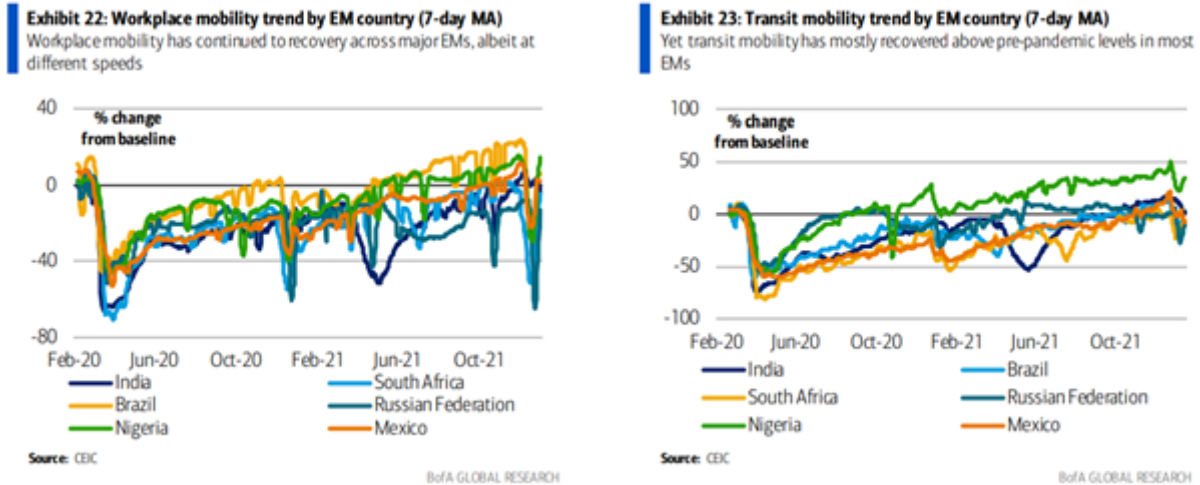
Source: BofA Global Research estimates

BofA GLOBAL RESEARCH



Emerging Market mobility continues to recover, with transit mobility is now mostly above pre-pandemic levels in most of the relevant countries. These markets are a key source of global energy demand growth (Figure 2).

Figure 2: Emerging Market Workplace and Transit Mobility (Source: CEIC via BofA)



New research from Goldman Sachs predicts a period of strong growth across the commodity complex. Energy is predicted to be a leader with higher prices of both oil and gas needed to deliver required global supply. The research paper makes three core points:

- i. The 1970's commodity super-cycle coincided with period of widespread wage growth and reduction of wealth inequality in the US. Subsequent stagnation in wage growth has been a factor in driving the outperformance of IP intensive new economy companies against those in the capital-intensive old economy (Figure 3 and Figure 4). A period of widespread wage growth will support higher commodity prices.
- ii. Reduced capital spending has constrained supply (Figure 5); and
- iii. ESG investing has drawn capital away from the old economy, contributing towards a break in the historic direct relationship between commodity prices and E&P equity valuations. Recent high prices have not (yet?) been recognised by equity investors (Figure 6).

Figure 3: US Wealth and Income Inequality (Source: Goldman Sachs)

Goldman Sachs **Inequality bottomed after the War on Poverty drove the 1970s commodity supercycle**

Ratio of top 1% wealthiest Americans' total wealth to bottom half total wealth
Ratio of average income of the top 1% highest American earners to median income

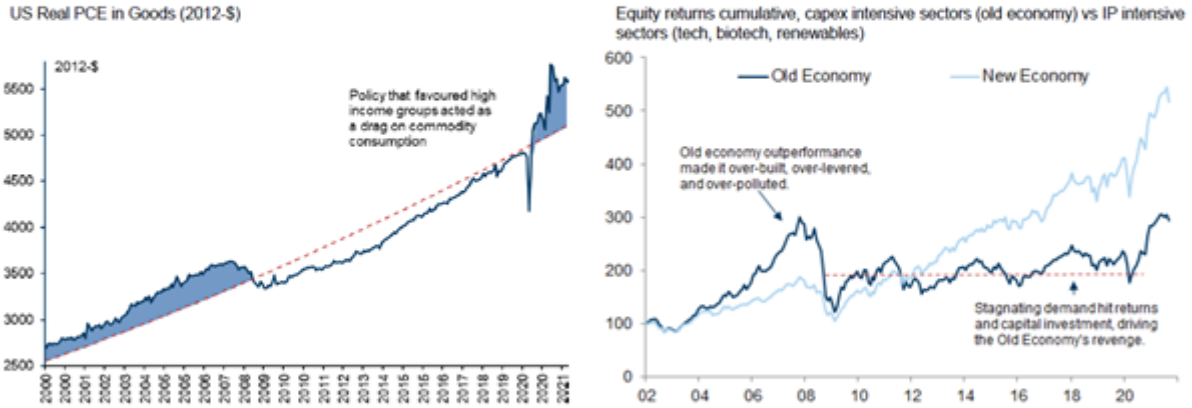


Source: Goldman Sachs Global Investment Research, Haver Analytics, IEA, EIA



Figure 4: Old Economy vs New Economy (Source Goldman Sachs)

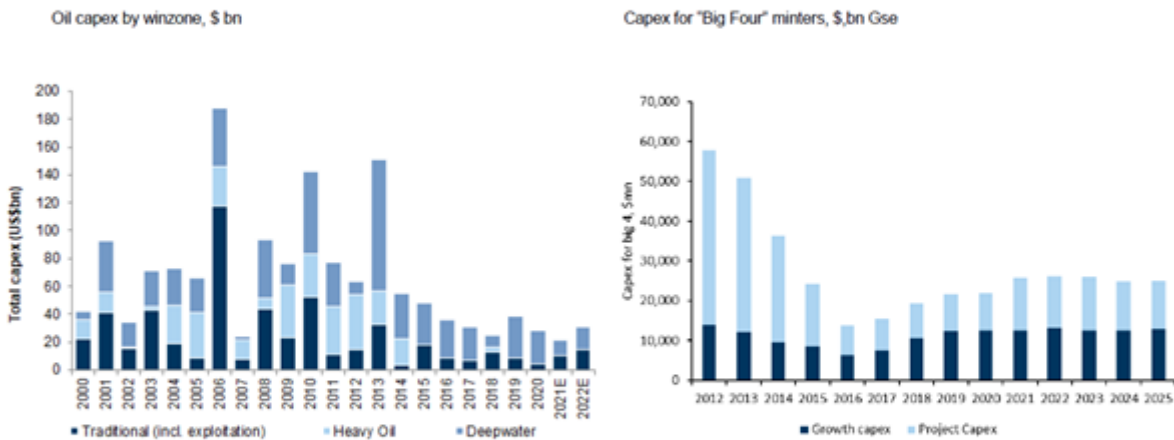
Goldman Sachs Lack of low income wage growth led the new economy to outperform the old economy for a decade



Source: Goldman Sachs Global Investment Research, DataStream

Figure 5: Commodities Capital Expenditure (Source Goldman Sachs)

Goldman Sachs Current supply constraints were created pre-pandemic



Source: Goldman Sachs Global Investment Research, Haver, Bloomberg, Company Reports

Figure 6: Actual vs Implied WTI Prices and ESG Flows (Source Goldman Sachs)



ESG investing has drawn capital away from the old economy



Source: Goldman Sachs Global Investment Research, Bloomberg, MorningStar

The latest Baker Hughes rig count data follows. In January US total rigs increased by 27 from 586 to 613. Oil rigs increased by 17 from 480 to 497 while gas rigs increased by 10 from 106 to 116.

Baker Hughes rig count



Rotary Rig Count

2/4/22

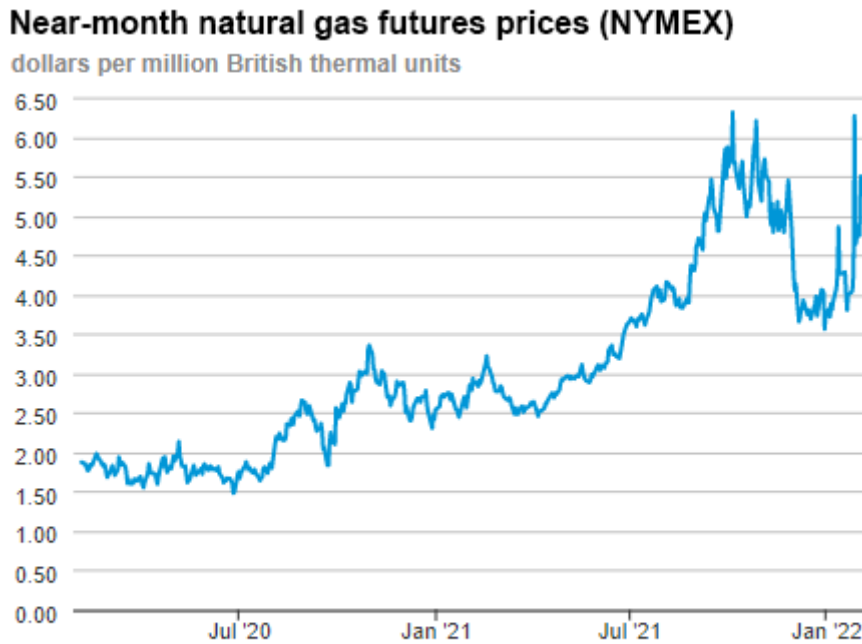
Location	Week	+/-	Week Ago	+/-	Year Ago
Land	595	5	590	220	375
Inland Waters	2	0	2	1	1
Offshore	16	-2	18	0	16
United States Total	613	3	610	221	392
Gulf Of Mexico	16	-2	18	0	16
Canada	218	1	217	47	171
North America	831	4	827	268	563
U.S. Breakout Information	This Week	+/-	Last Week	+/-	Year Ago
Oil	497	2	495	198	299
Gas	116	1	115	24	92
Miscellaneous	0	0	0	-1	1
Directional	34	-2	36	16	18
Horizontal	555	2	553	201	354
Vertical	24	3	21	4	20



Gas Market

Henry Hub gas futures rose by 72% in the last hours of February 2022 contract trading to settle at \$6.265/mmbtu (Figure 7).

Figure 7: Near Month Henry Hub Futures (Source EIA)



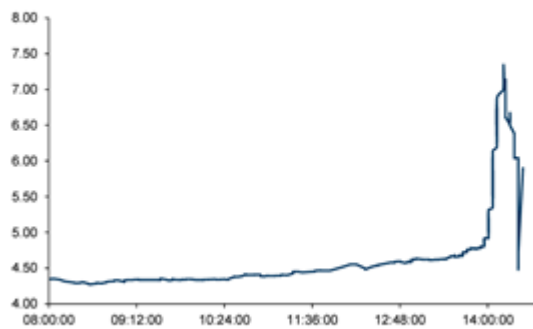
Source: Graph by the U.S. Energy Information Administration (EIA), based on data from CME Group as compiled by Bloomberg, L.P.

Hourly data (LHS Figure 8) more clearly illustrates the scale of the move in the final minutes of trading on 26 Feb. While January 2022 was significantly colder than average (RHS Figure 8), abnormally high Physical Open Interest the day (LHS Figure 9) and fact that NYMEX gas settled well above cash markets (RHS Figure 9) indicate that that the spike was driven by a short squeeze.

Figure 8: Prompt HH Gas on 26 Jan and January Heating Degree Days vs 10yr Average (Source Goldman Sachs)

Exhibit 1: Prompt NYMEX natural gas prices spiked near the close at the February contract expiration

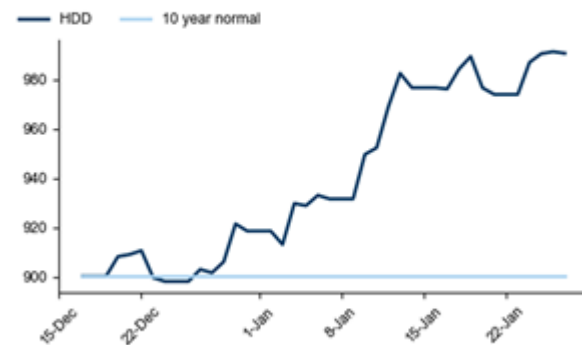
Intraday values of NYMEX gas Feb22 contract on Jan 27, \$/mmbtu



Source: Bloomberg

Exhibit 2: Jan22 has turned out significantly colder than average

Total Jan22 HDD forecast evolution; no. of HDDs for the month

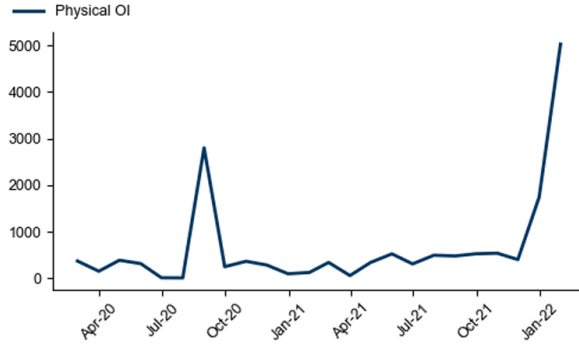


Source: Radiant Solutions

Figure 9: Physical Open Interest and NYMEX and Cash Settlements (Source Bloomberg via GS)

Exhibit 5: We think that the surge was caused by a short squeeze, as physical open interests were abnormally high for Feb 22 Henry Hub

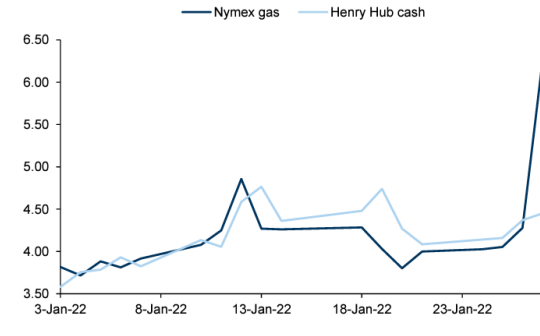
Physical open interest for the US natural gas contract expiring that month as of the last trading day of the contract



Source: Bloomberg

Exhibit 6: NYMEX gas settled well above cash markets, suggesting a disconnect to fundamentals

Nymex gas vs Henry Hub cash prices, \$/mmBtu

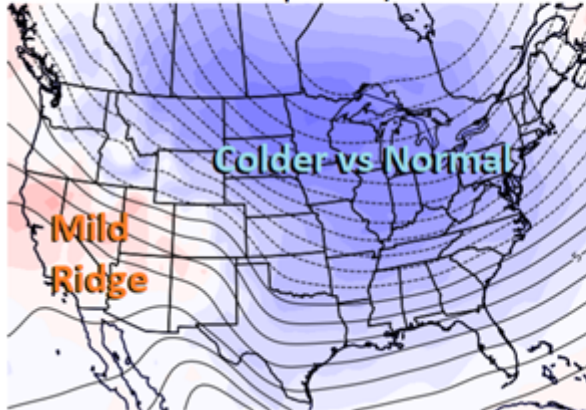


Source: Bloomberg

Cold weather (Figure 10) had the expected impact, significantly increasing gas consumption (Figure 11) and delivering large draws from storage (Figure 12).

Figure 10: US Temperatures January (Source Nat Gas Weather)

January 20-24th: Cold Air Favored to Advance Into Northern US for Strong Demand. Cool South & Southeast. Warmer Exception SW/California.



15-Day HDDs: EC Trends 20 HDDs Colder. GFS Loses 5 HDDs. Both Strong Demand Early This Week, Light Thu-Sat, Seasonal Jan 16-20th, Then Cold Jan 21-24th.

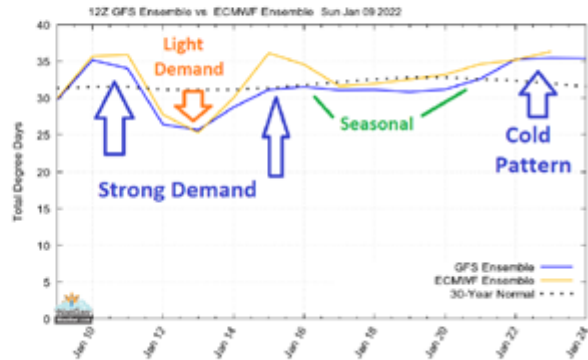
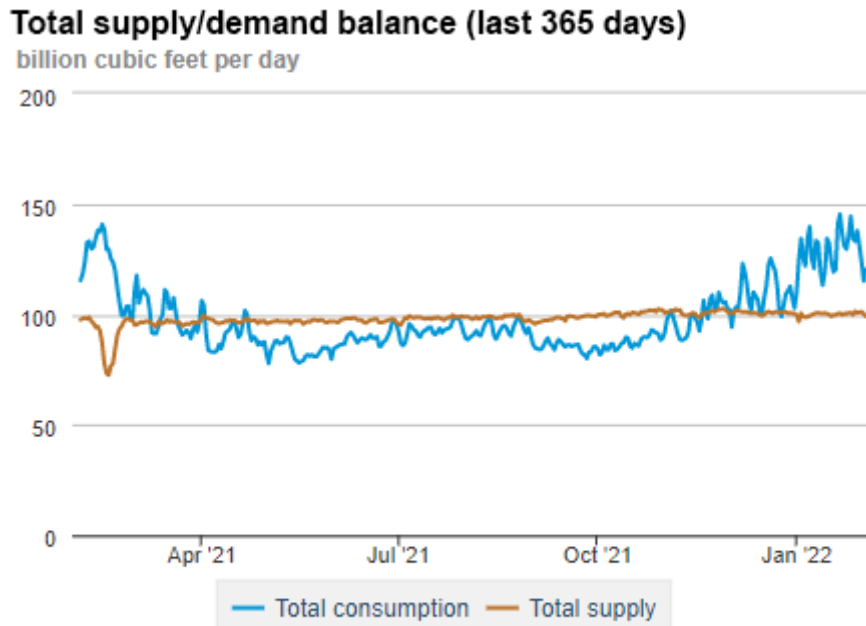


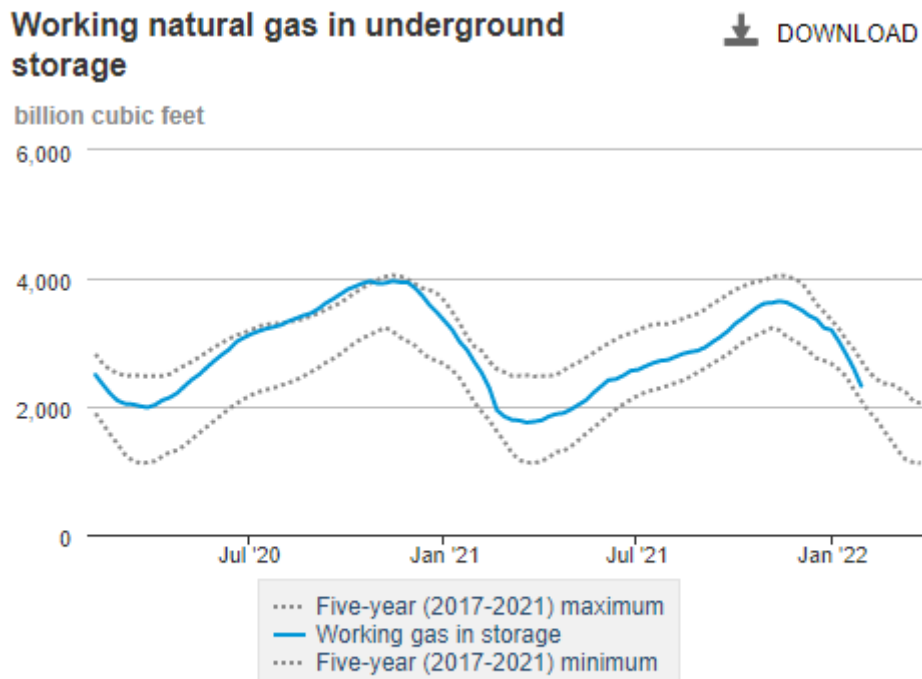


Figure 11: Natural Gas Supply/Demand (Source EIA)



Source: Graph by the U.S. Energy Information Administration (EIA), based on data from IHS Markit

Figure 12: Working Gas in Underground Storage (Source EIA)



Source: U.S. Energy Information Administration Form EIA-912, *Weekly Underground Natural Gas Storage Report*

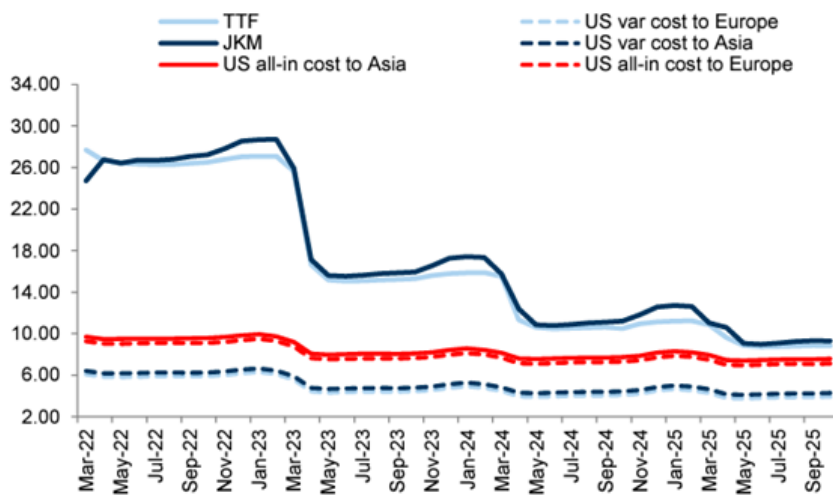


Future European and Asian natural gas prices continue to trade above the all-in costs of US LNG exports, encouraging not just signing of new long-term sales contracts, but also further investment in US LNG export facilities (Figure 13).

Figure 13: TTF, JKM and US LNG Costs (Source various via Goldman Sachs)

Exhibit 20: Global gas prices continue to cover long term US LNG contracts all-in costs, incentivizing the signing of incremental long-term agreements

TTF and JKM compared to US LNG export costs (variable and all-in), \$/mmBtu



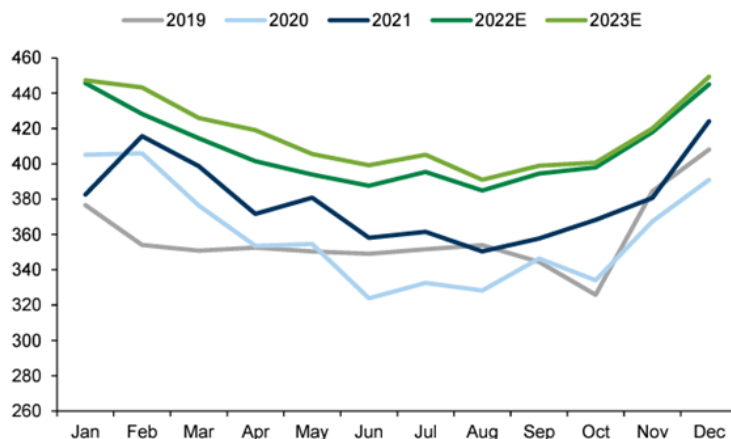
Source: Platts, ICE, CME, Goldman Sachs Global Investment Research

Demand has driven Global LNG volumes to record highs in January (Figure 14).

Figure 14: Global LNG Exports (Source Kpler, Goldman Sachs)

Exhibit 37: Global LNG exports reached record-high levels in January

Global LNG loadings, Mtpa



Source: Kpler, Goldman Sachs Global Investment Research

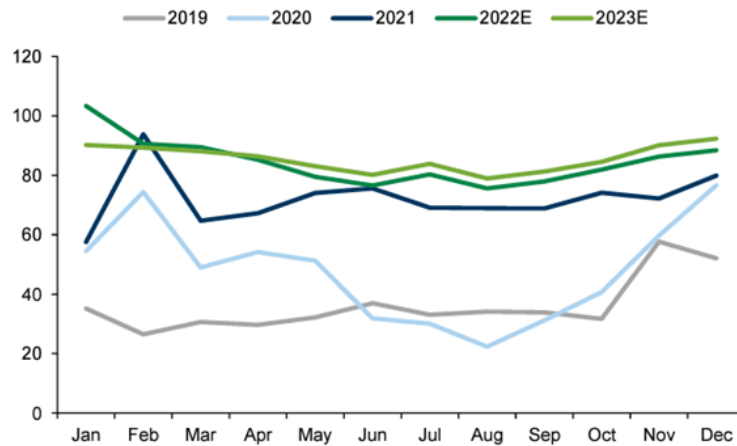


The US LNG export industry has grown in concert with the global market (Figure 15).

Figure 15: Global LNG Exports (Source Kpler, Goldman Sachs)

Exhibit 40: We expect US LNG exports to average 91 mtpa for balance of winter, up 11 mtpa yoy

US LNG loadings, mtpa

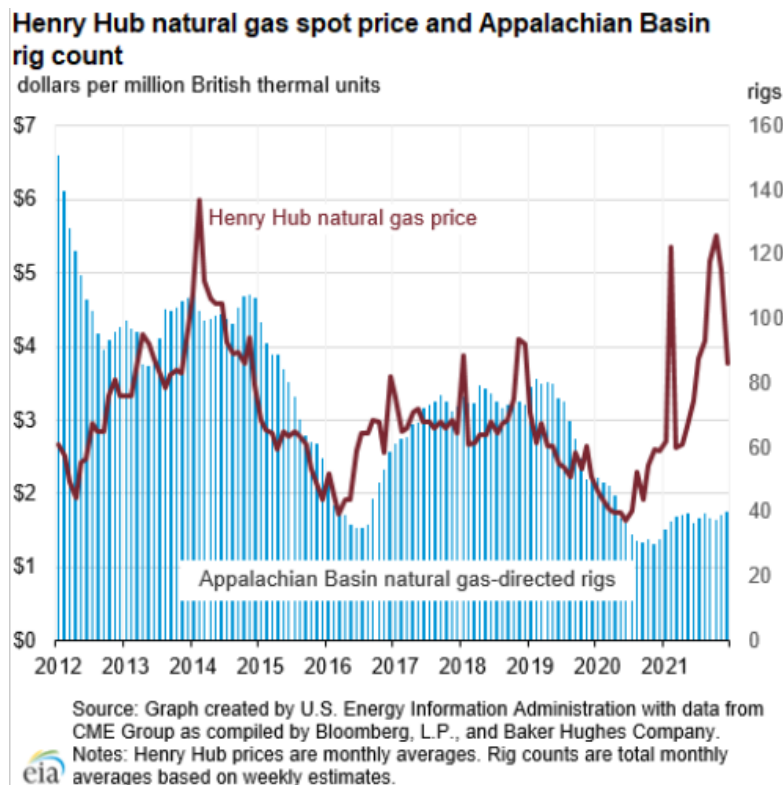


Source: Kpler, Goldman Sachs Global Investment Research

The US is now exporting approximately 13.5 bcf on its biggest volume days, a relatively new market that is consuming almost 15% of daily US production. We believe this export market will increase the effective sustainable floor for US natural gas prices.

The break in correlation between gas prices and drilling activity discussed in recent months is neatly captured by data from the EIA showing Henry Hub natural gas spot rise and Appalachian Basin rig count from 2012 to present (Figure 16).

Figure 16: Henry Hub Spot and Appalachian Rig Count (Source EIA)





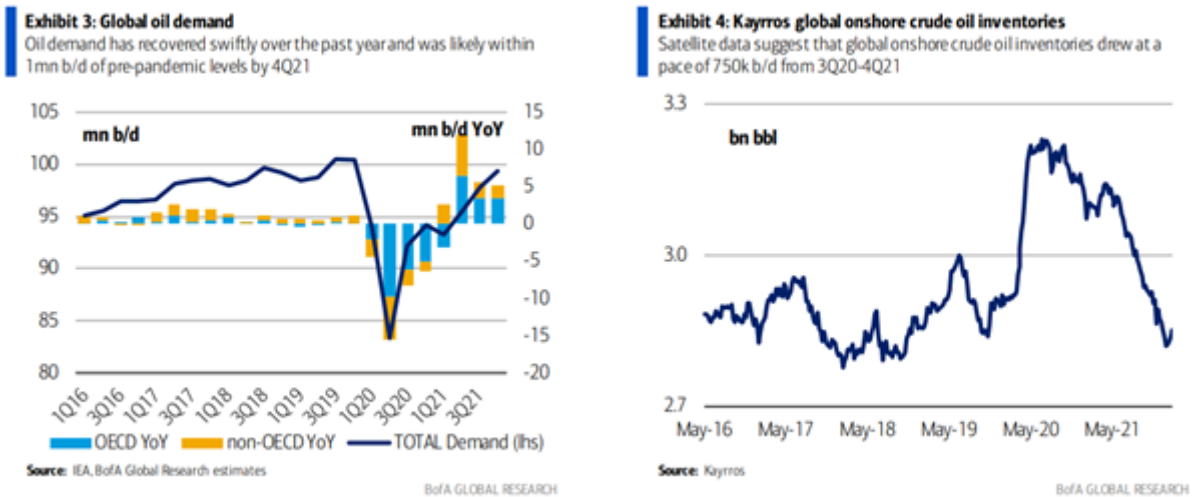
Historically, changes in gas price have led changes in the number of operating rigs with a lag of about four months. This relationship broke down in 2021. Over a period of seven months in 2021, as Henry Hub more than doubled from a monthly average of \$2.62/mmbtu in March to an average of \$5.51/mmbtu in October, the natural gas-directed rig count in the Appalachian Basin dropped from 39 to 37 rigs. Since then, it has risen slightly, up to 42 rigs in January 2022. The reasons include continued improvements in rig efficiency (faster drilling times and more gas from each well), but also pressure from investors to deliver profits rather than just business growth, and less market interest in funding fossil fuels. The cumulative result is lower production and therefore, we should expect, higher commodity prices.



Oil Market

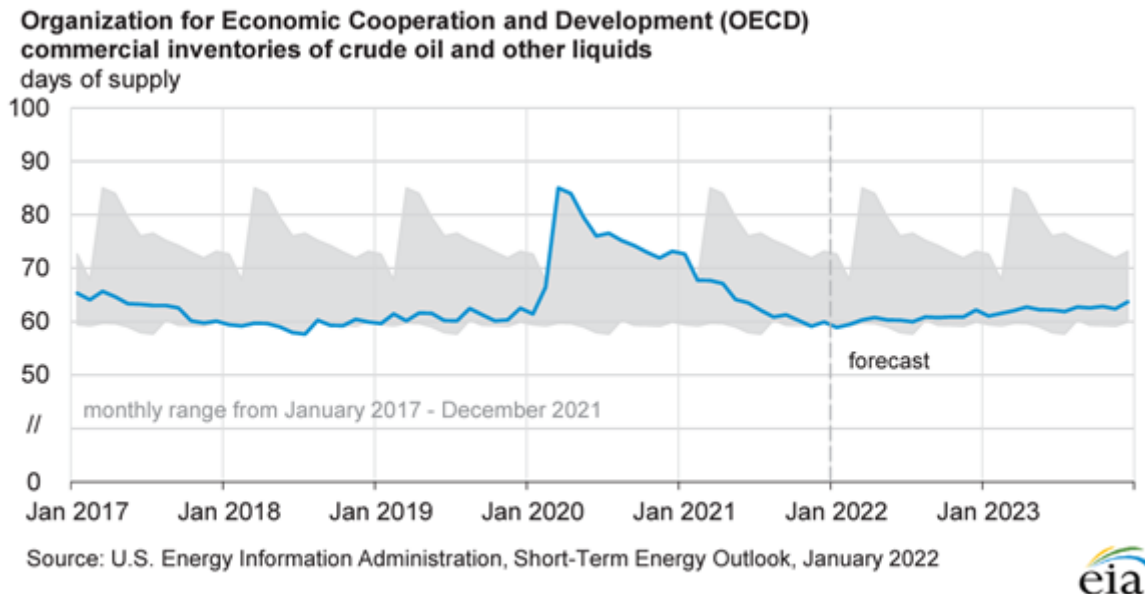
Oil demand has recovered swiftly over the last year and was likely within 1mmbbl/d of pre-pandemic levels by 4Q21 (LHS Figure 17). Satellite data suggest that global onshore crude inventories drew at a pace of 750kbb/d from 3Q20 to 4Q21 (RHS Figure 17).

Figure 17: Global Oil Demand and Onshore Inventories (Source EIA)



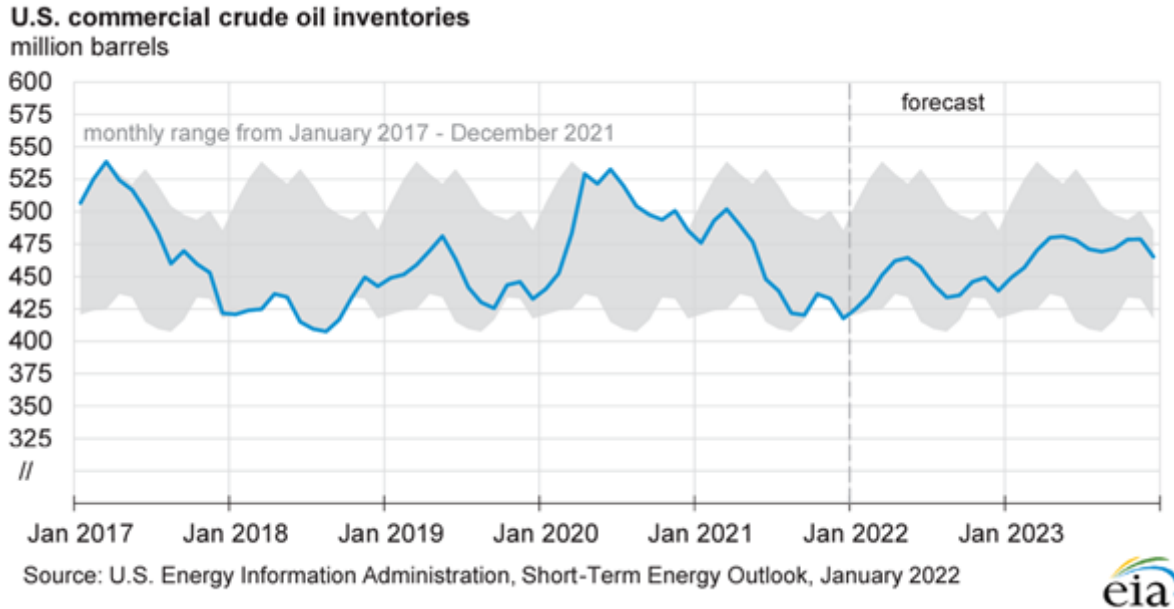
The International Energy Agency (IEA) reported at the end of January that global oil inventories have plunged over the last 12 months. According to IEA data, oil stocks are down by more than a billion barrels since the peak of May 2020 and are well below pre-pandemic levels. OECD commercial liquids inventories illustrate the decline (Figure 18).

Figure 18: OECD Petroleum Inventories (Source EIA)



US oil inventories have also fallen from the top to the bottom of the 5-year range over the last year (Figure 19).

Figure 19: US Petroleum Inventories (Source EIA)



The oil market remains in a surprisingly large deficit as the Omicron demand hit, excluding China, is so far smaller (and likely briefer) than that of Delta (LHS Figure 20). Supply has not yet responded to higher prices (RHS Figure 20).

Figure 20: Global Passenger Fuel Demand and Oil Supply (Source Various, via Goldman Sachs)

Exhibit 1: Mobility points to an only modest hit to demand from Omicron so far

Change in global passenger vehicle fuel demand (gasoline + diesel) over 2020/21 and 2021/22 winter (mb/d) vs. 15-Dec

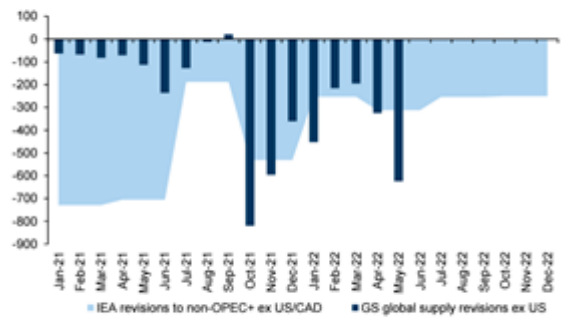


Google LLC "Google COVID-19 Community Mobility Reports", <https://www.google.com/covid19/mobility/> Accessed: 16-Jan-22

Source: Google COVID-19 Community Mobility Reports, Apple, IEA, JODI, Goldman Sachs Global Investment Research

Exhibit 2: Global supply continues to disappoint

GS global supply revisions (exc. US, through May-22) and IEA non-OPEC+ exc. US/CAD quarterly supply revisions (kb/d)

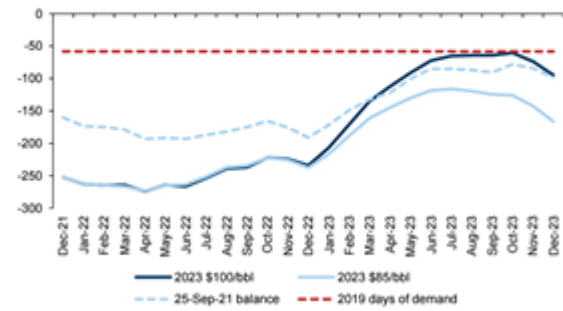


Source: IEA, Goldman Sachs Global Investment Research

High oil prices are required to generate sufficient supply to restore oil stocks to average levels (Figure 21).

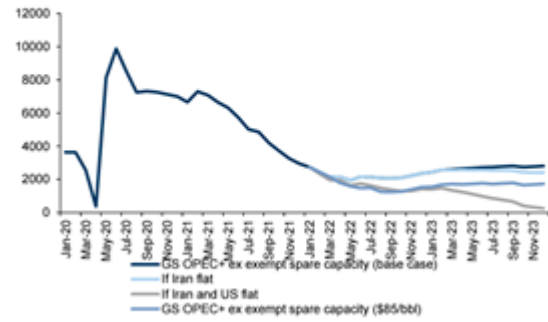
Figure 21: OECD Oil Stocks and Spare Production Capacity (Source IEA, via Goldman Sachs)

Exhibit 15: High oil prices will generate the supply (mostly shale) and demand responses necessary for stocks to build back towards average levels
 OECD stocks vs. Dec-19 (mb)



Source: IEA, Goldman Sachs Global Investment Research

Exhibit 16: Without higher prices, we will not have acceptable levels of global spare capacity
 Global short-term spare production capacity (kb/d)

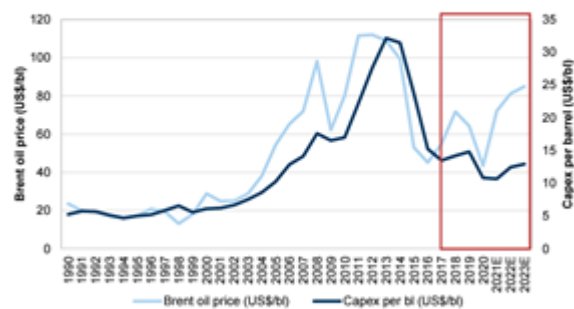


Source: OPEC, IEA, Goldman Sachs Global Investment Research

The impact of ESG investor allocation restraints is a significant factor for investment in oil supply (LHS Figure 22). With Final Investment Decisions (FIDs), discoveries and CAPEX all at cyclical lows (RHS Figure 22), oil prices need to be even higher to destroy demand and deliver balancing supply that the global consumer requires.

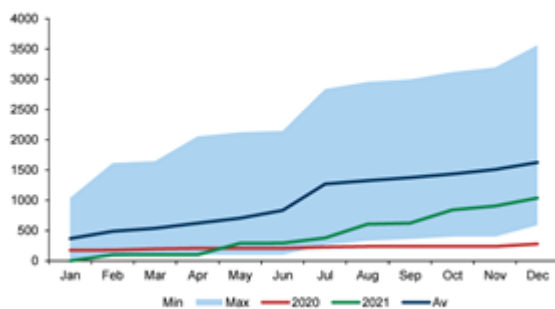
Figure 22: Oil Price vs Capex and FIDs (Source Woodmac, Goldman Sachs)

Exhibit 41: We believe that the transmission mechanism between commodity prices and capex has been broken by ESG investor allocation constraints
 Brent oil price vs. capex per barrel for oil & gas



Source: Company data, Goldman Sachs Global Investment Research

Exhibit 42: FIDs, discoveries, and CAPEX all remain near cycle lows
 FIDs by peak production by year (kb/d)



Source: Woodmac, Goldman Sachs Global Investment Research

Gas and Oil Prices 1 February 2022



Swap Pricing					
	Month 1	Cal 22	Cal 23	Cal 24	Cal 25
NYMEX WTI Crude	\$ 85.28	\$ 81.09	\$ 73.12	\$ 68.65	\$ 65.87
ICE Brent Crude	\$ 86.98	\$ 83.40	\$ 76.66	\$ 72.85	\$ 70.59
Light Louisiana Sweet	\$ 87.24	\$ 83.06	\$ 75.15	\$ 70.55	\$ 67.68
TM Midland Differential	\$ 1.11	\$ 0.78	\$ 0.67		
WCS Differential	\$ (12.06)	\$ (12.61)	\$ (14.20)		
NYMEX Natural Gas	\$ 4.66	\$ 4.61	\$ 3.77	\$ 3.30	\$ 3.16

Source: Bloomberg LP
Indicative only

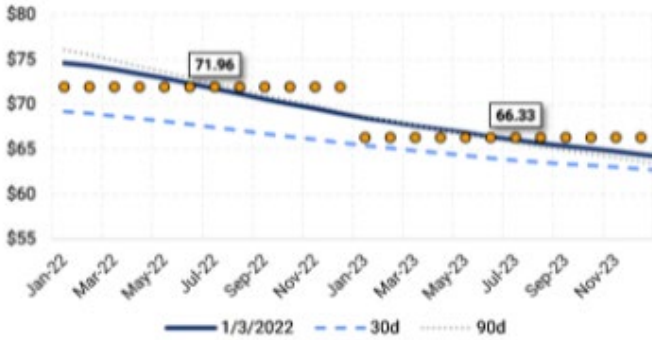
Natural Gas Basis					
Location	Spot	Winter 21/22	Summer 22	Winter 22/23	Summer 23
Henry Hub Fixed	5.56	4.66	4.71	4.84	4.84
TETCO MS	\$ 0.83	\$ 0.27	\$ (0.92)	\$ 1.71	\$ (0.84)
Opal	\$ (0.44)	\$ (0.26)	\$ (0.34)	\$ 0.63	\$ (0.36)
Sumas	\$ (0.45)	\$ (0.44)	\$ (0.44)	\$ 0.96	\$ (0.44)
Chicago CG	\$ (0.51)	\$ (0.07)	\$ (0.26)	\$ (0.22)	\$ (0.25)
Dominion S	\$ (0.60)	\$ (0.63)	\$ (1.09)	\$ (0.78)	\$ (0.98)
PEPL	\$ (0.69)	\$ (0.29)	\$ (0.45)	\$ 0.04	\$ (0.45)
Waha	\$ (0.88)	\$ (0.58)	\$ (0.81)	\$ (0.59)	\$ (1.42)
Main	\$ (0.89)	\$ (0.38)	\$ (0.22)	\$ 0.50	\$ (0.26)
AECO	\$ (1.46)	\$ (0.97)	\$ (1.24)	\$ (1.07)	\$ (1.04)

All prices as previous trading day close
Source: Bloomberg

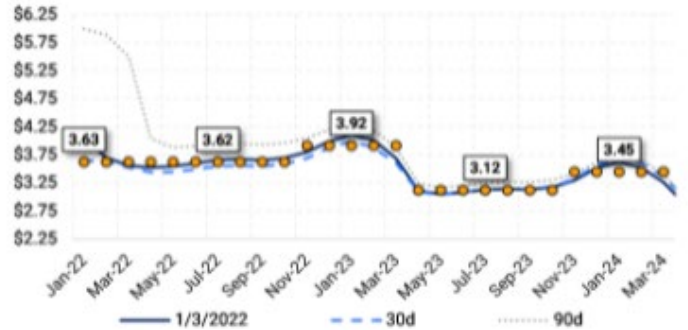


Gas and Oil Prices 3 January 2022

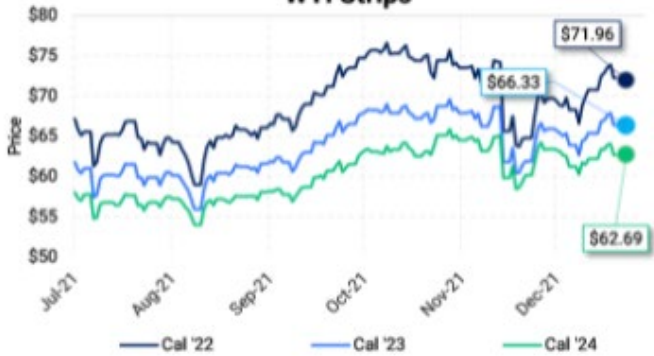
WTI Calendar Strips



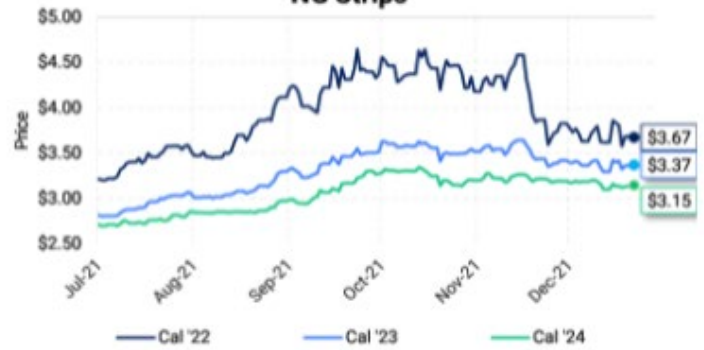
NG Seasonal Strips



WTI Strips



NG Strips



Swap Pricing

	Month 1	Cal 22	Cal 23	Cal 24	Cal 25
NYMEX WTI Crude	\$ 74.34	\$ 71.96	\$ 66.33	\$ 62.69	\$ 60.18
ICE Brent Crude	\$ 77.01	\$ 74.84	\$ 70.27	\$ 67.38	\$ 65.45
Light Louisiana Sweet	\$ 75.06	\$ 73.46	\$ 68.76	\$ 64.42	\$ 60.90
TM Midland Differential	\$ 0.67	\$ 0.53	\$ 0.48		
WCS Differential	\$ (13.11)	\$ (13.25)	\$ (15.20)		
NYMEX Natural Gas	\$ 3.70	\$ 3.68	\$ 3.37	\$ 3.15	\$ 3.08

Source: Bloomberg LP
Indicative only

Natural Gas Basis

Location	Spot	Winter '21/'22	Summer '22	Winter '22/'23	Summer '23
Henry Hub Fixed	3.66	3.63	3.60	3.90	3.90
Malin	\$ 3.58	\$ 0.73	\$(0.11)	\$ 0.40	\$ 0.40
Opal	\$ 3.45	\$ 0.75	\$(0.24)	\$ 0.46	\$ 0.46
Sumas	\$ 3.06	\$ 0.77	\$(0.24)	\$ 0.88	\$ 0.88
PEPL	\$(0.12)	\$ 0.05	\$(0.33)	\$(0.08)	\$(0.08)
Chicago CG	\$(0.19)	\$(0.14)	\$(0.22)	\$(0.22)	\$(0.22)
TETCO M3	\$(0.29)	\$ 1.09	\$(0.75)	\$ 1.47	\$ 1.47
Waha	\$(0.33)	\$(0.22)	\$(0.66)	\$(0.31)	\$(0.31)
AECO	\$(0.37)	\$(0.66)	\$(1.18)	\$(1.08)	\$(1.08)
Dominion S	\$(0.97)	\$(0.64)	\$(0.92)	\$(0.67)	\$(0.67)

All prices as previous trading day close
Source: Bloomberg



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