Longreach Energy Holdings LLC

December 2022

Monthly Report

FIRM INFORMATION

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1. Market and Macro Industry Commentary

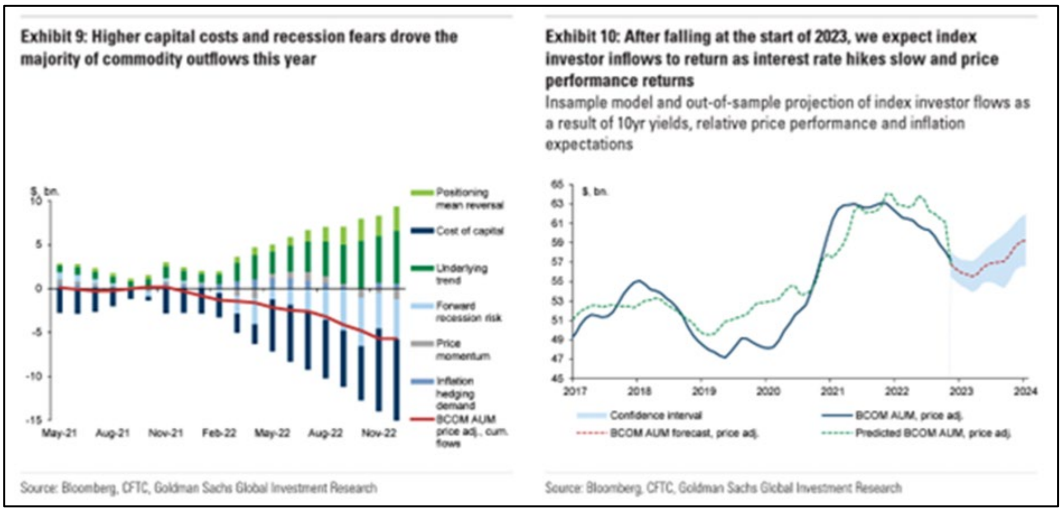
General Market Commentary

US Henry Hub gas prices fell in December as the market looked beyond December's cold weather to warm forecasts for January and further delays in the restart of the largest single US LNG export facility, Freeport LNG with capacity of 2bcf/d. The prompt contract fell from $6.93/mmbtu at close of business on 30 November to $4.48/mmbtu at close on 30 December. Calendar 2023 fell from $5.741/mmbtu to $4.215/mmbtu over the same period.

Oil prices were steady. The prompt opened December at $80.55/bbl and closed the month at $80.26/bbl. Calendar 2023 started the month at $79.50/bbl and closed at $79.11/bbl.

Research opinion from Goldman Sachs is that the recent falls in commodity prices have been driven by central bankers raising the cost of capital and draining market liquidity, in both physical and financial markets (Figure 1). Long term, without sufficient capex to create spare supply capacity, commodities will remain stuck in a state of long run shortages, with higher and more volatile prices.

Figure 1: Impact of Capital Costs and Recession Fears on Commodity FUM (Source: various via GS)

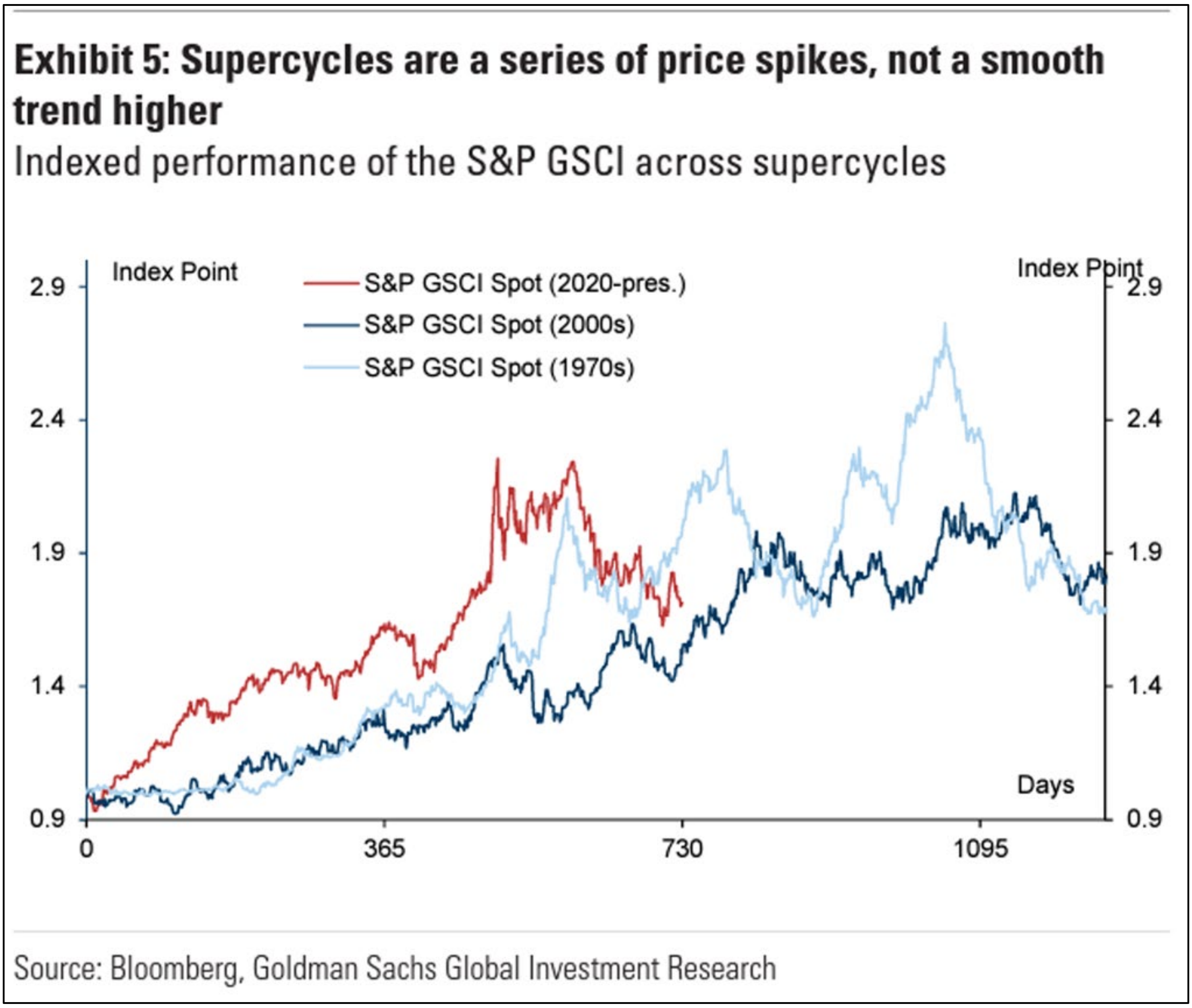


Goldman adds:

"While investors remain concerned with the 2023 growth outlook – a large driver of the latest sell off – the global business cycle is far from over. Our economists argue that global economic growth is set to rebound with China seeing the reopening happening today. Europe improving its energy efficiency in a one-off decline in industrial activity and a slowing of the aggressive Fed rate hikes in the US. These underpin our expectation that commodities (S&P GSCI TR) will return 43% in 2023."

Commodities markets have long exhibited high levels of short-term volatility. Commodity prices, unlike financial markets, perform an economics function of balancing supply and demand, so once high prices have rebalanced the market in the short term, the high prices are no longer needed, and prices come crashing down as witnessed in late 2022 (Figure 2). But ending one spike doesn't mean the end of the cycle – long-run supply issues take years to resolve. Commodities, while short-run unpredictable, are long-run predictable.

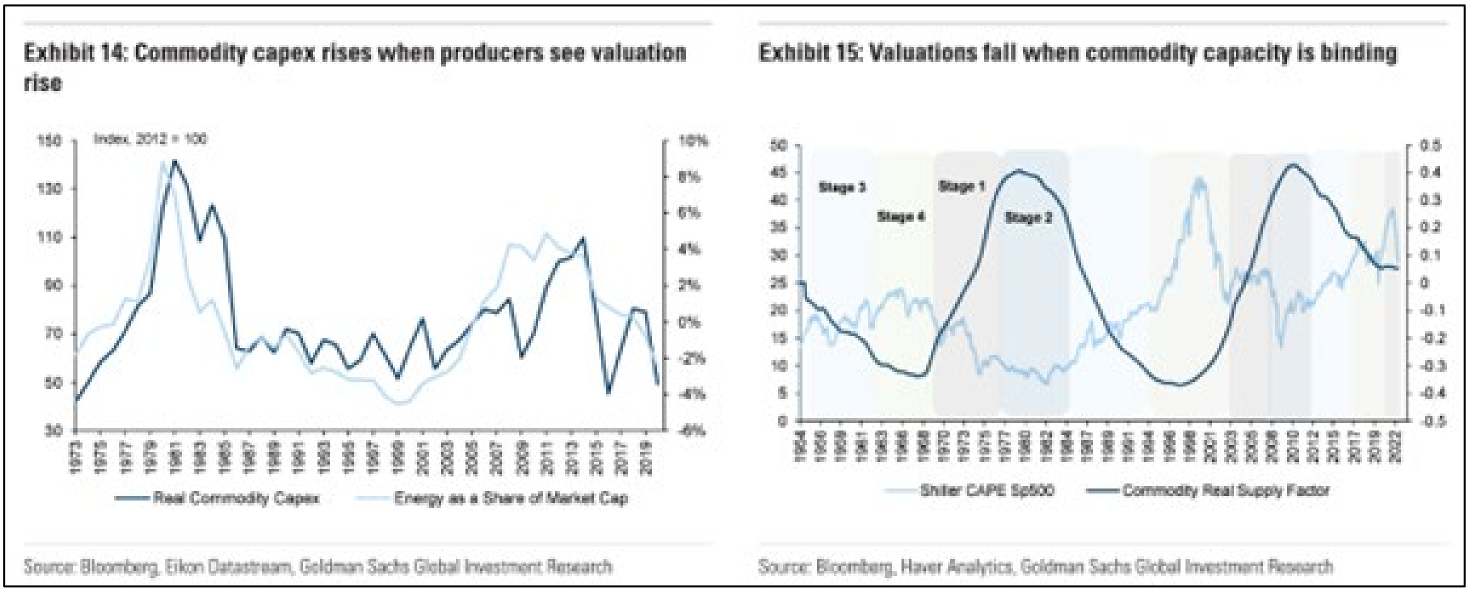
Figure 2: Indexed Performance of the S&P GSCI Across Supercycles (Source: Bloomberg, via GS)



In previous monthly reports we have highlighted the lack of capital investment response to current supply shortages. To see persistent capex, management must be rewarded by investors for expansionary plans, generally delivered by asset book value greater than that implied by the spot price – a signal that investors are expecting growth (Figure 3).

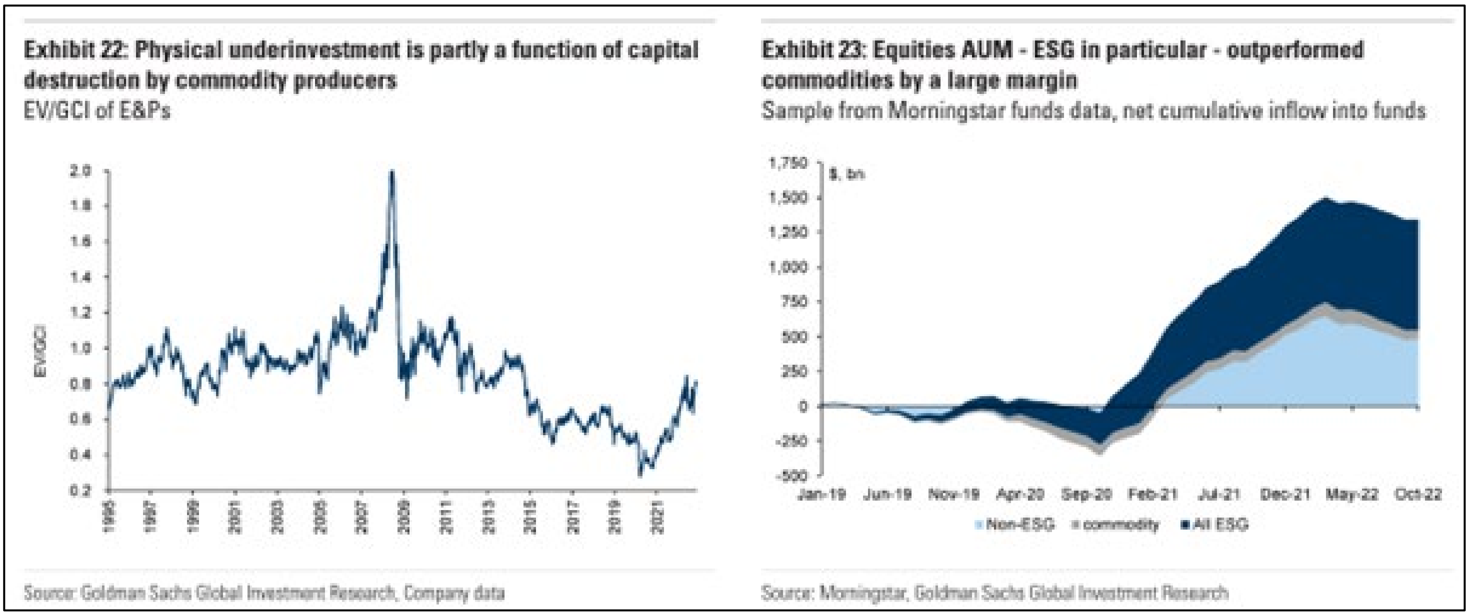
Goldman believes that this rotation is likely to begin in earnest in 2023 as, without it, global growth will begin to struggle in 2024. Note that this cycle is likely to be far more disorderly and prolonged than those prior as ESG investing influences the capital flows needed to stimulate the next round of investment. With 81% of global energy coming from fossil fuels, the world still needs investment in these fuels.

Figure 3: Commodity Capex and Valuation (Source: various, via GS)



Listed E&P companies have, since 2011, consistently destroyed capital (LHS Figure 4). Together with ESG flows (RHS Figure 4) these factors have been key to investors' reluctance to invest in the oil and gas industry. A medium to long-term supply shortfall is the result.

Figure 4: US E&P Enterprise Value / Gross Capital Invested and Equities AUM (Source: various, via GS)



The latest Baker Hughes rig count data follows. In December US total rigs fell by 12 from 784 to 772. Oil rigs fell by 9 from 627 to 618 while gas rigs fell by 3 from 155 to 152.

Baker Hughes rig count

Baker Hughes

Rotary Rig Count

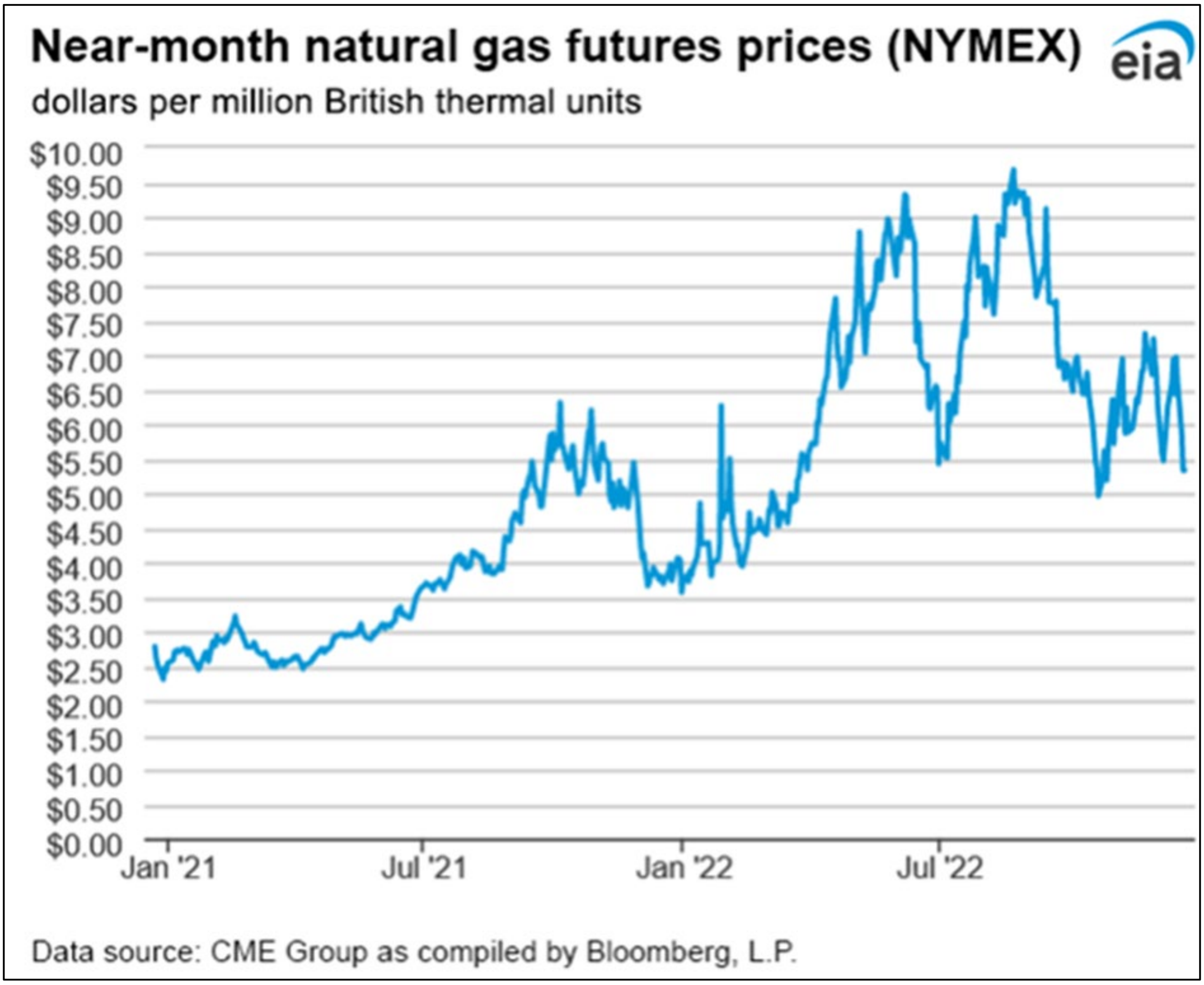
1/6/23

Location	Week	+/-	Week Ago	+/-	Year Ago
Land	754	-8	762	184	570
Inland Waters	2	0	2	0	2
Offshore	16	1	15	0	16
United States Total	772	-7	779	184	588
Gulf Of Mexico	16	1	15	0	16
Canada	189	105	84	48	141
North America	961	98	863	232	729
U.S. Breakout Information	**This Week**	**+/-**	**Last Week**	**+/-**	**Year Ago**
Oil	618	-3	621	137	481
Gas	152	-4	156	45	107
Miscellaneous	2	0	2	2	0
Directional	46	0	46	13	33
Horizontal	700	-6	706	168	532
Vertical	26	-1	27	3	23

Gas Market

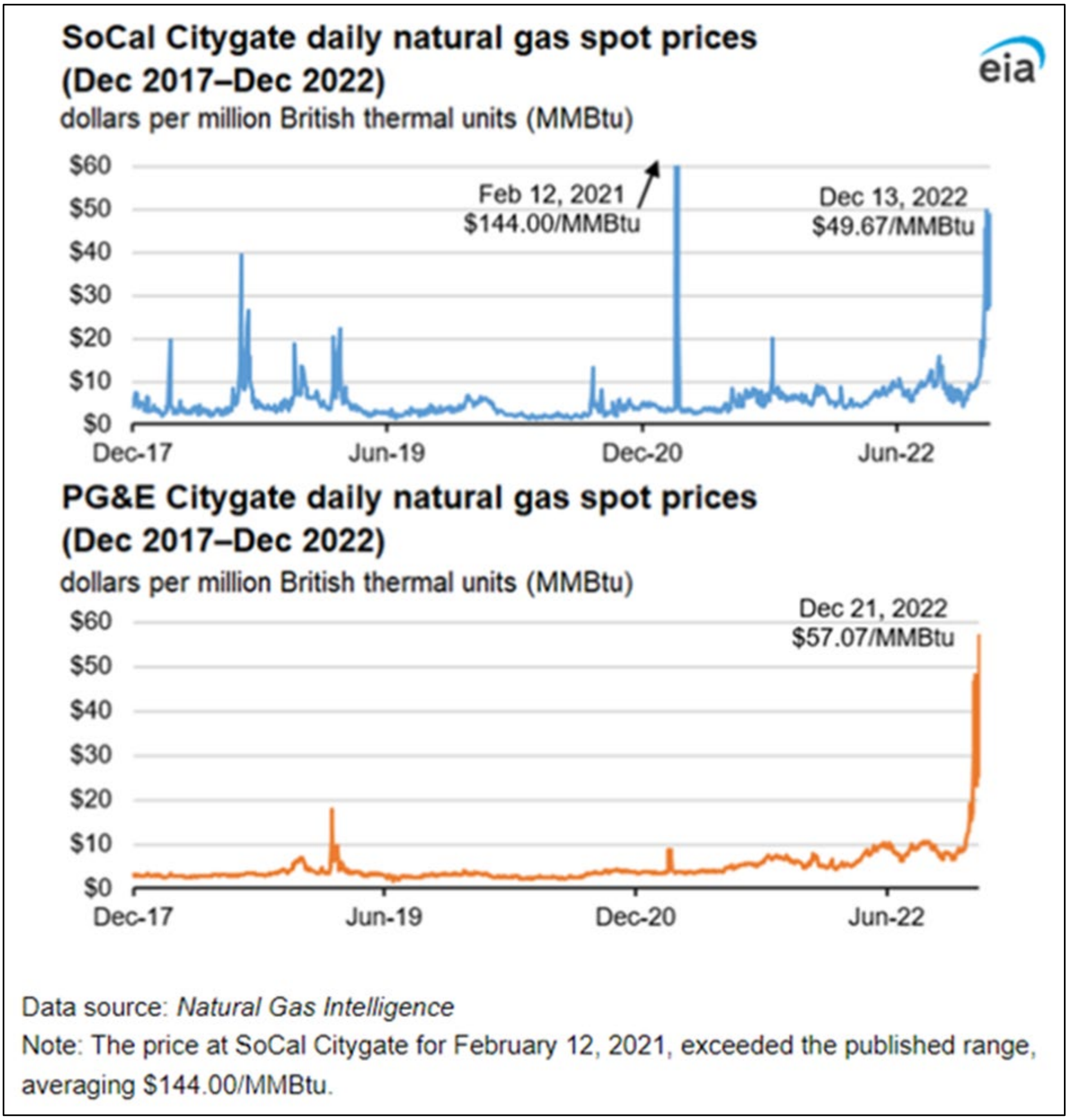
Prompt Henry Hub gas futures fell over the course of December with continued high intra-month volatility (Figure 5).

Figure 5: Near Month Henry Hub Futures (Source: EIA)



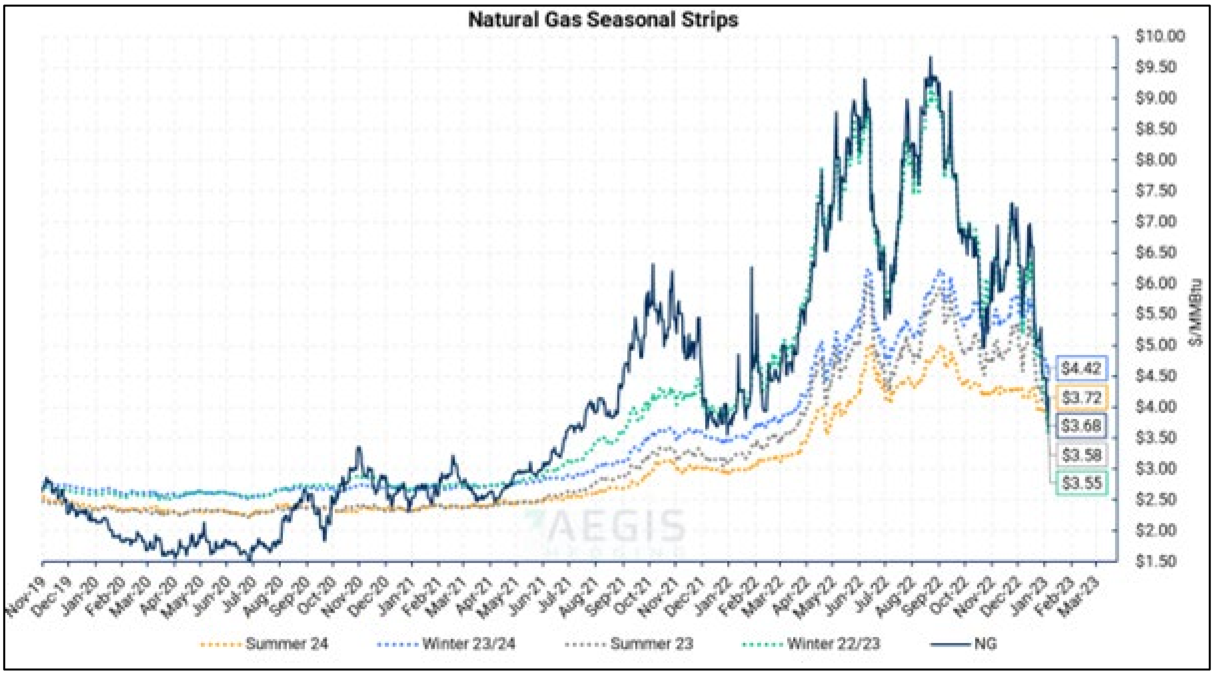
While NYMEX Henry Hub was weak in December gas prices in California and the Pacific Northwest, which are markets that have only limited pipeline connection with the rest of the US, rose to almost $50/mmcf mid-month (Figure 6) as the cold weather delivered very high gas demand and low storage and pipeline issues limited supply.

Figure 6: California Natural Gas Prices (source: EIA)



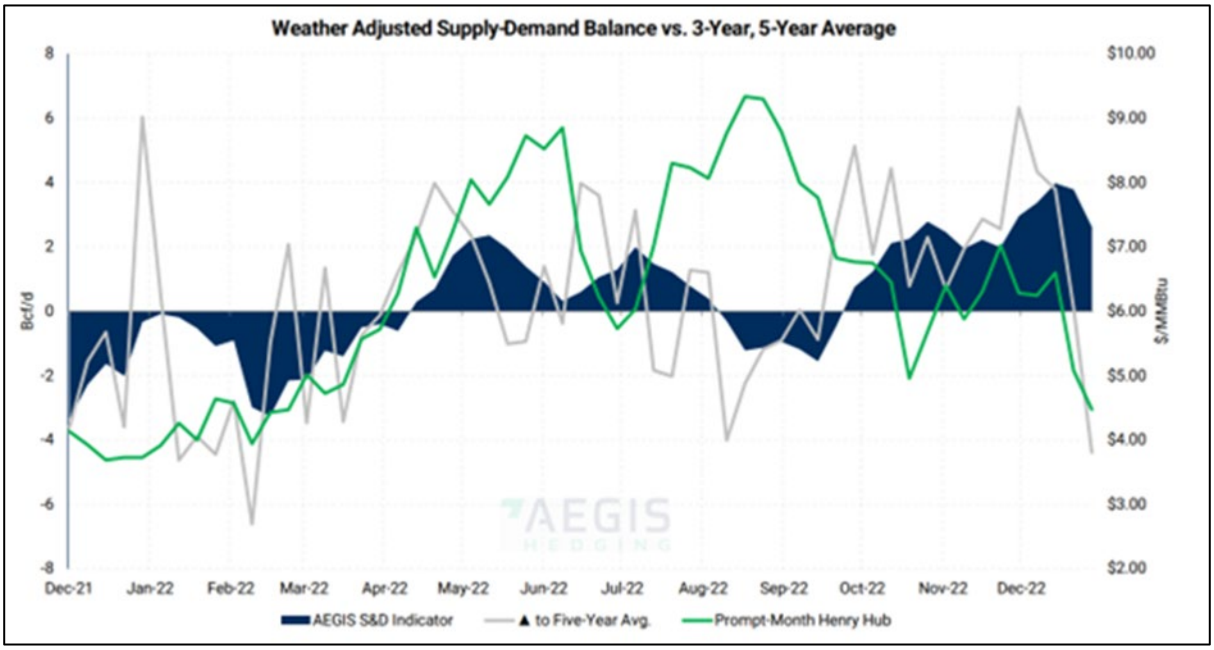
The evolution of future Henry Hub gas prices since end of 2019 can be seen in Figure 7. The prompt contract and Winter 22/23 have responded most to Russia's invasion of the Ukraine and the resulting global supply squeeze, although all tenors have fallen with the warm weather forecast for January and resulting likely US supply strength through 2023.

Figure 7: Natural Gas Seasonal Strips (Source: Aegis)



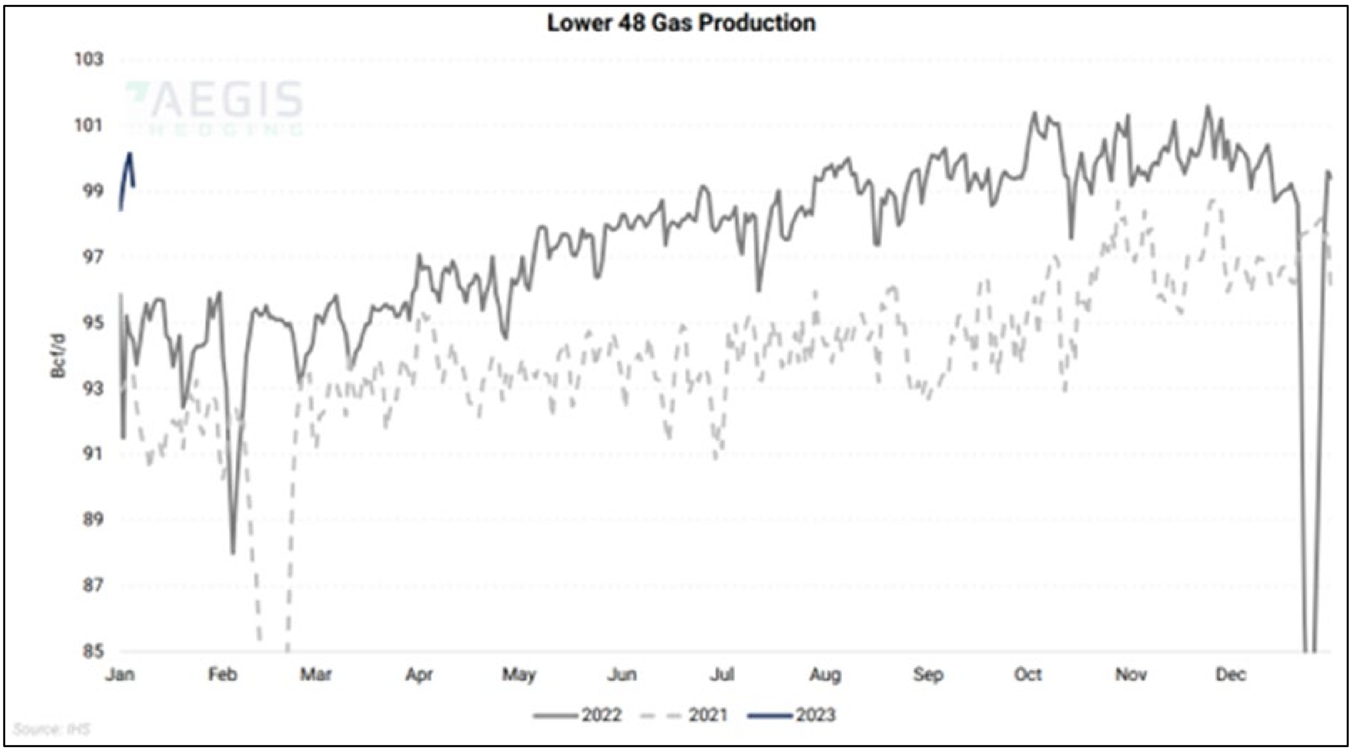
The weather adjusted supply-demand balance shows that, notwithstanding the very cold December and resulting large withdrawal from storage, the underlying market is well supplied with gas (Figure 8).

Figure 8: Weather Adjusted Nat Gas Supply-Demand Balance (Source: Aegis)



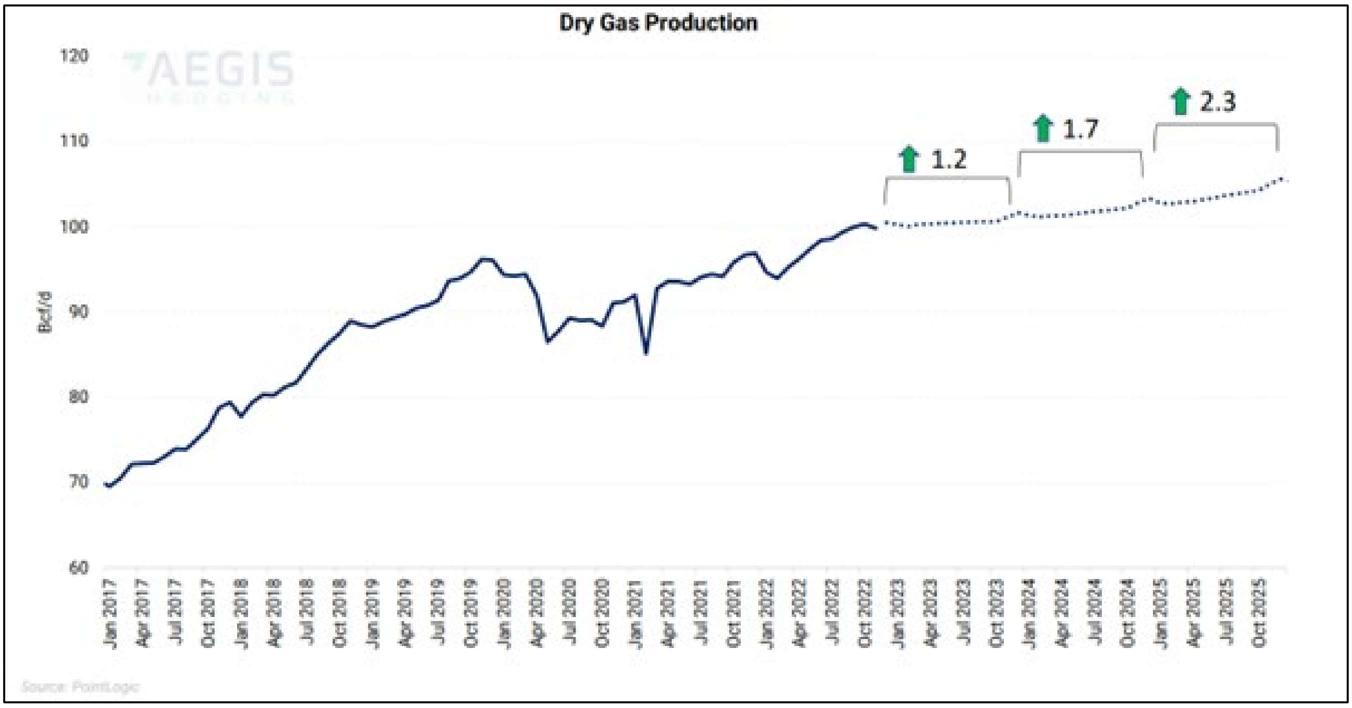
Lower 48 natural gas production is currently about 99bcf/d (Figure 9).

Figure 9: Lower 48 Gas Production (Source: IHS via Aegis)



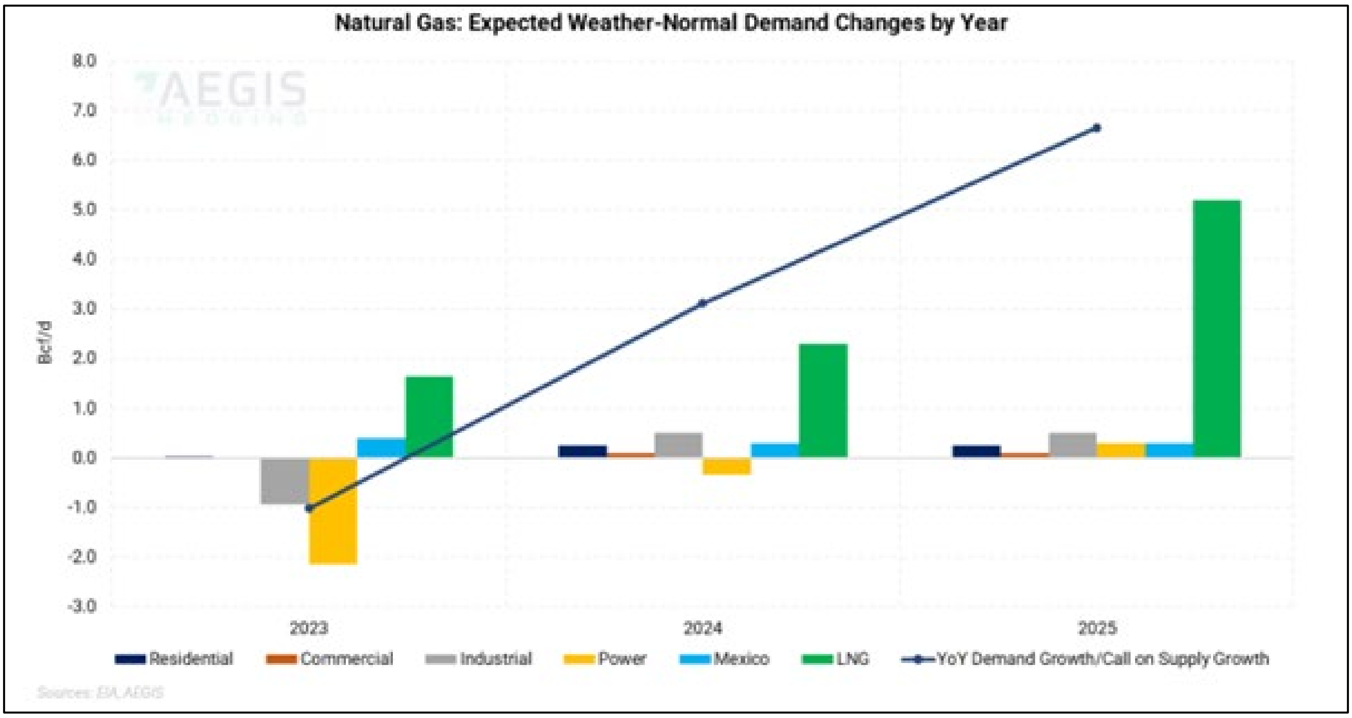
While projections vary, market consensus is that US lower 48 production will likely increase 1.2bcf/d in 2023, 1.7bcf/d in 2024 and 2.3bcf/d in 2025 (Figure 10).

Figure 10: US Lower 48 Projected Production (Source: PointLogic, Aegis)



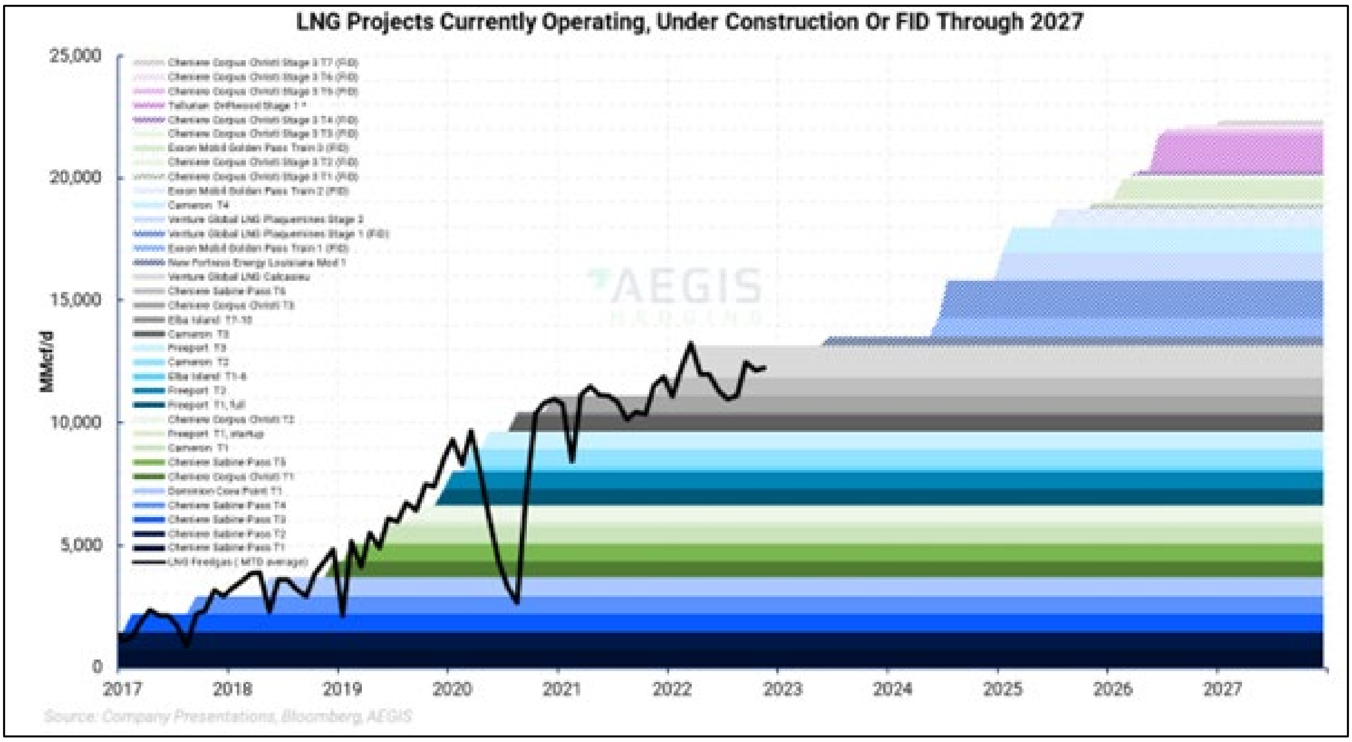
The EIA's demand forecast published in early December expects a 1bcf/d decline in natural gas demand for 2023. This is driven by a fall in power demand that may not eventuate with lower gas prices. 2024 and 2025 see demand increases of 2.2bcf/d and 5.1bcf/d respectively, both driven by new LNG facilities that will begin to come online in 4Q24 (Figure 11)

Figure 11: Natural Gas Demand Forecasts (Source: EIA, Aegis)



The oncoming wave of LNG is clearly illustrated in Figure 12.

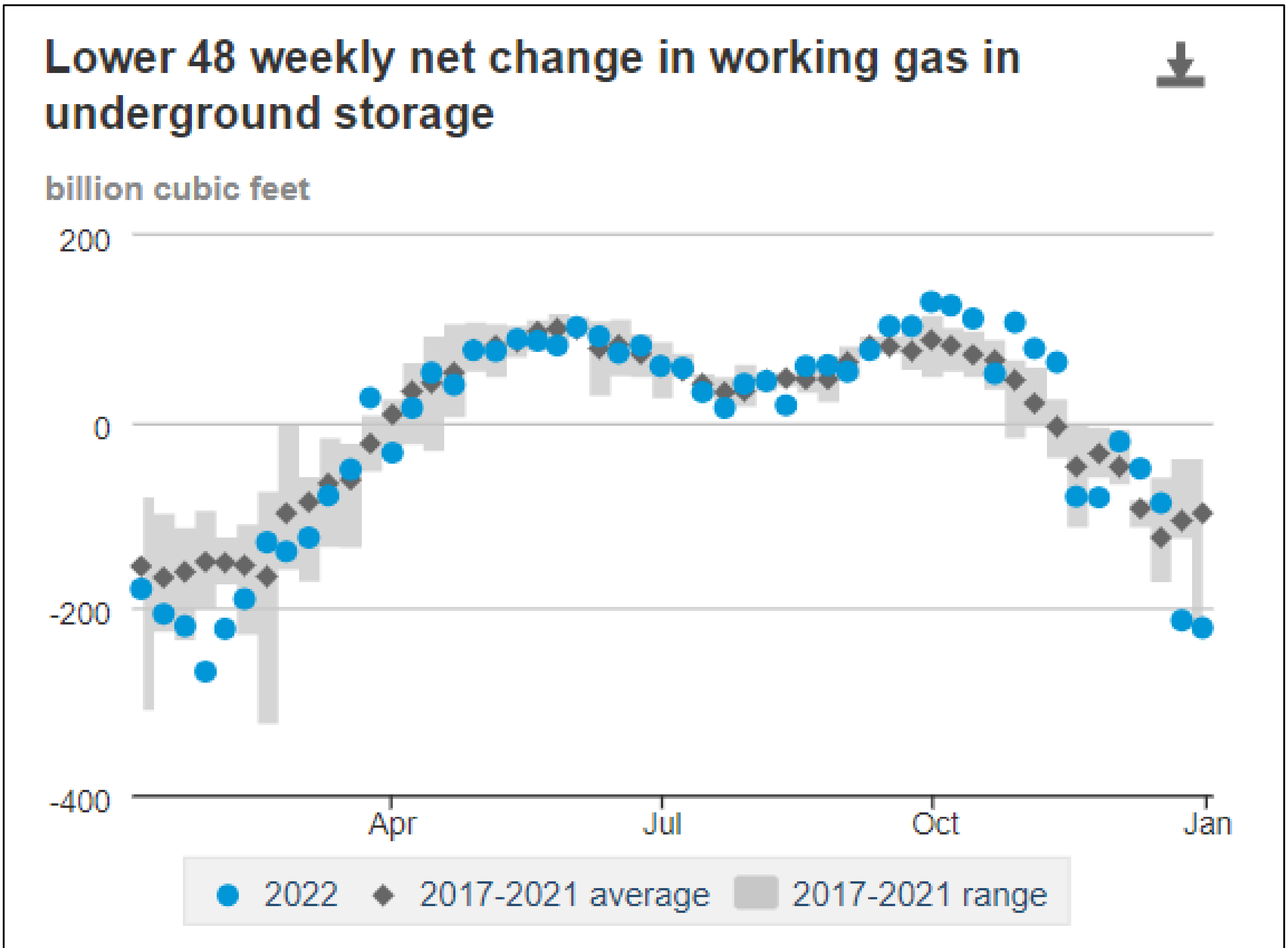
Figure 12: LNG Projects and Gas Demand (Source: various, via Aegis)



In summary, we are likely to see a market well supplied with gas in 2023 and first half of 2024 with serious supply shortfalls thereafter due to strong growth in demand from the new LNG export facilities.

Working gas in storage as of 30 December totalled 2,891 bcf. The last week of December saw a withdrawal of 221 bcf, the largest of the season and over 100bcf larger than the five-year average (Figure 13).

Figure 13: Change in Working Gas in Storage (Source: EIA)



Oil Market

Oil market volatility in late 2022 reached levels not seen since 2008 (Figure 14, and in tabular form, Figure 15).

Figure 14: WTI Crude Prompt Daily Price Changes (Source: CME, Aegis)

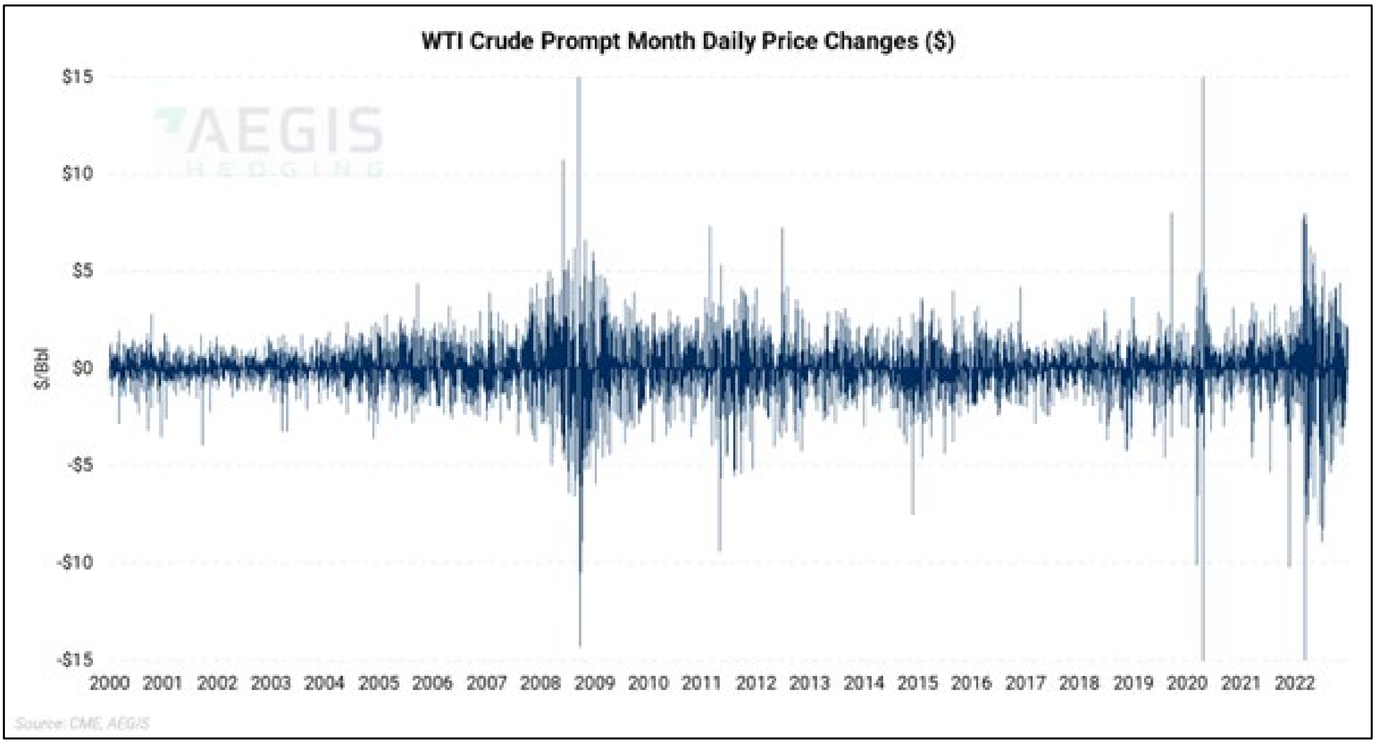
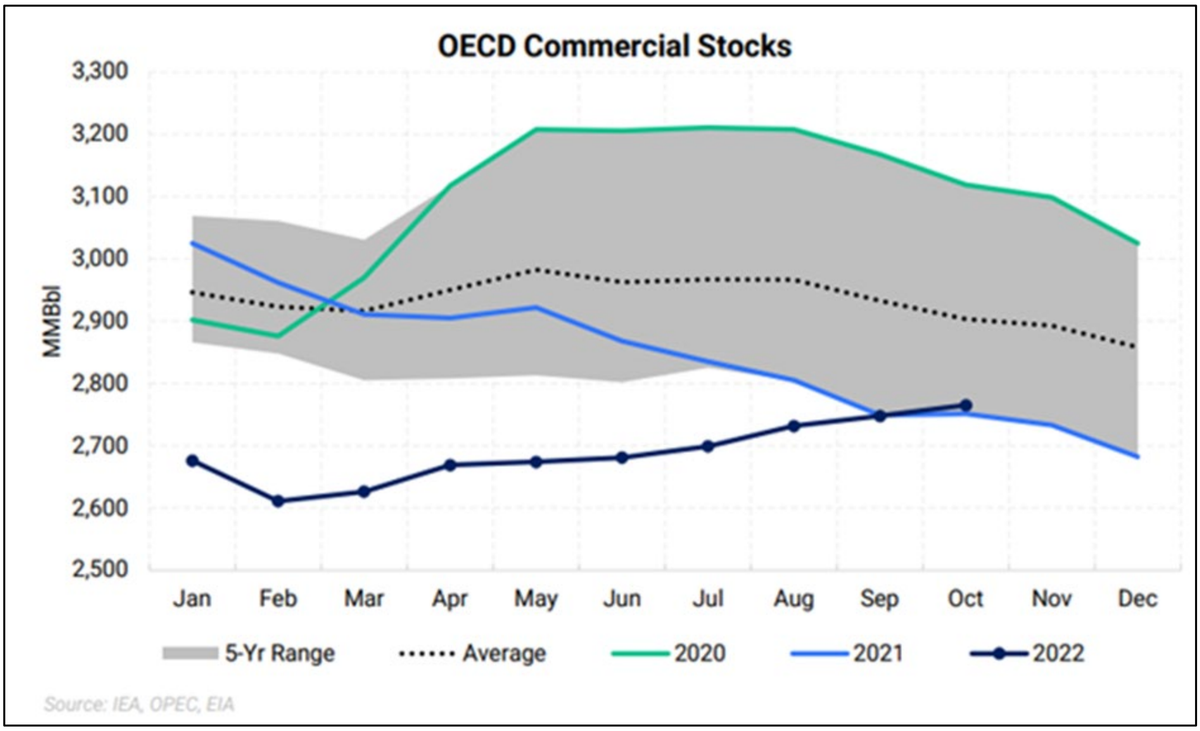


Figure 15: WTI Crude Prompt Daily Price Changes (Source: CME, Aegis)

	% Change > 5%	Price change > $5
2023	1	0
2022	26	22
2021	7	2
2020	39	5
2019	8	1
2018	7	0
2017	2	0
2016	21	0
2015	22	0
2014	1	1
2013	0	0
2012	1	1
2011	11	9
2010	0	0
2009	29	1
2008	39	24
2007	3	0
2006	1	0
2005	5	0
2004	6	0
2003	13	0
2002	7	0
2001	14	0
2000	15	0

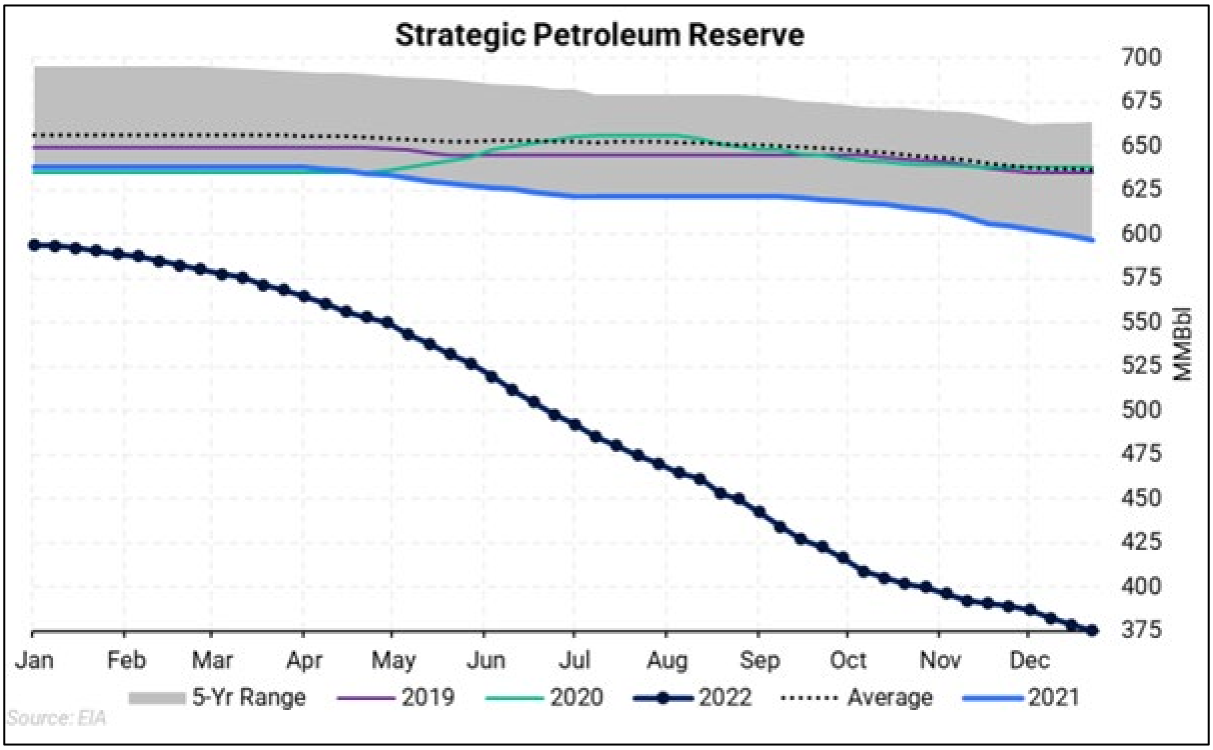
OECD commercial oil stocks have risen by about 200 mmbbl since Russia invaded Ukraine in February (Figure 16).

Figure 16: OECD Commercial Oil Stocks (Source: IEA, OPEC, EIA via Aegis)



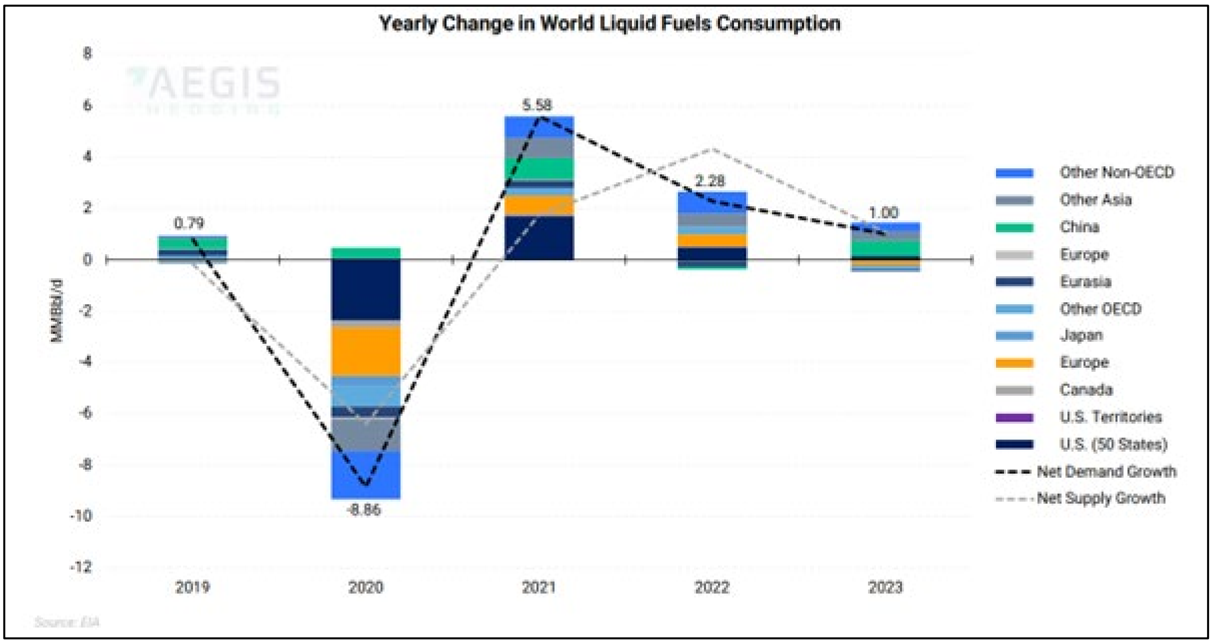
Those stocks have not come from increased supply relative to demand, but rather from releases of Strategic Petroleum Reserves. The US alone has released about 200mmbl since January 2022 (Figure 17). The US is but one of the OECD countries who have released strategic reserves to reduce oil prices through 2022. Importantly, these reserves need to be refilled adding to future demand.

Figure 17: US Strategic Petroleum Reserve (Source: EIA, via Aegis)



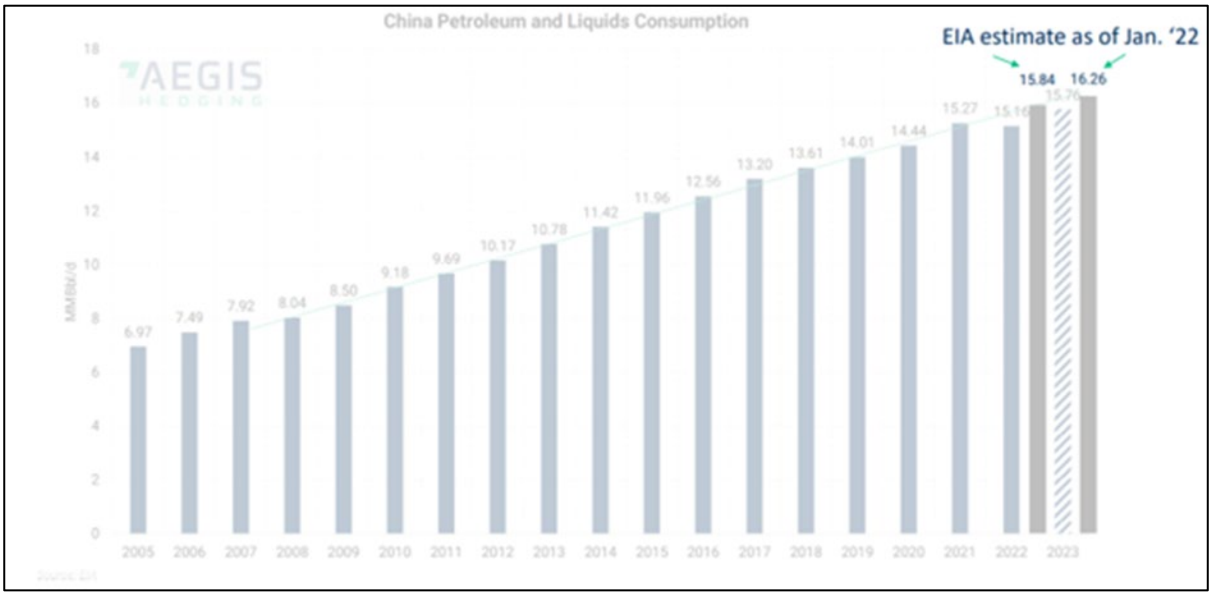
The EIA expects global oil consumption to increase by an aggregate 1mmbbld in 2023 (Figure 18).

Figure 18: Yearly Change in World Oil Consumption (Source: EIA, via Aegis)



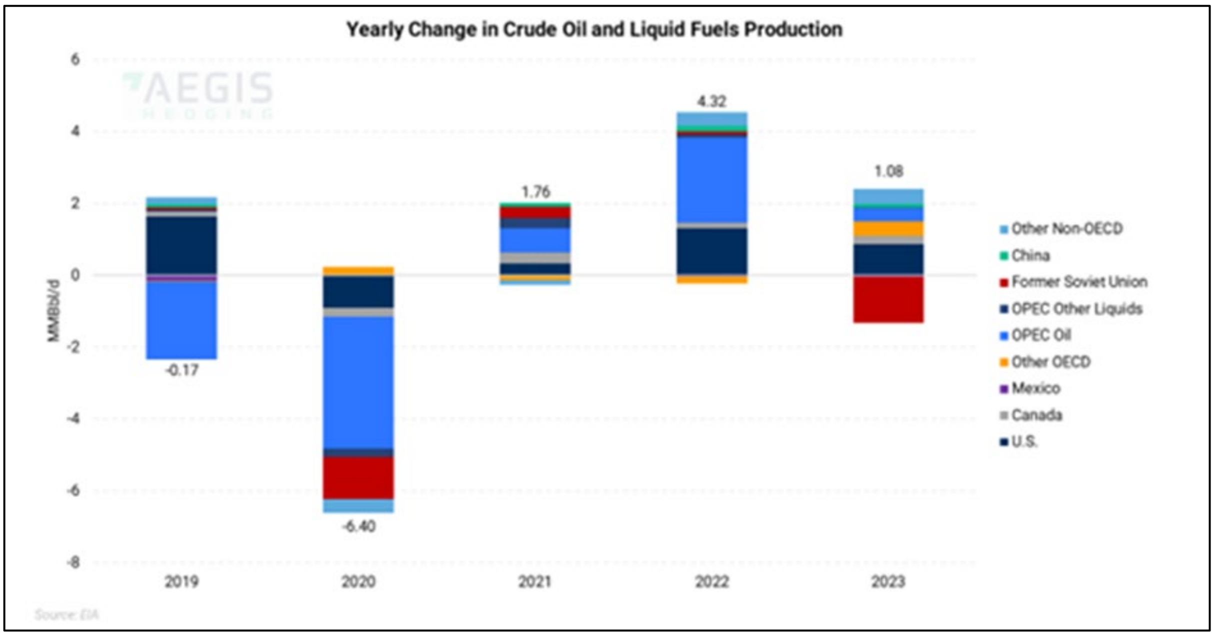
This growth is primarily driven by China which is projected by the EIA to grow its demand by 0.6mmbbld. The EIA's December projection for China oil demand is 0.5mmbbld less that it was in Jan '22 (Figure 19).

Figure 19: China Oil Consumption (Source: EIA, via Aegis)



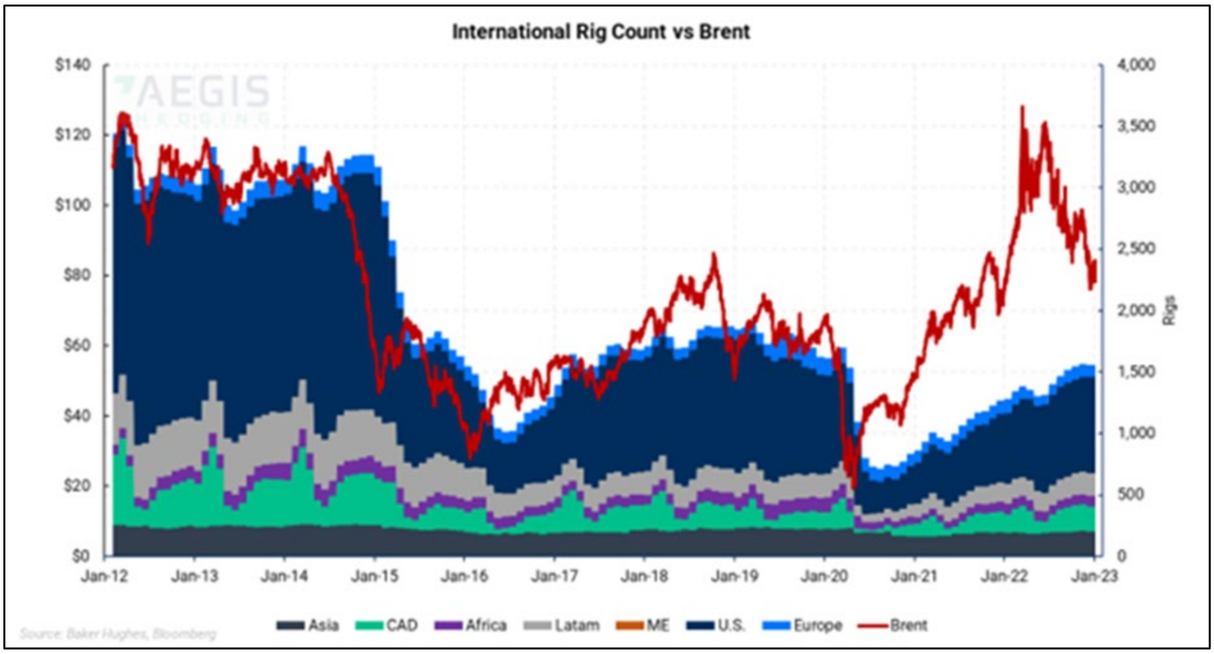
World oil supply is also forecast to increase by a net 1mmbbld in 2023 – a 1mmbbld reduction in Russian oil production netting a 2mmbbld increase across the rest of the world (Figure 20).

Figure 20: Annual Change in Oil Production (Source: EIA, via Aegis)

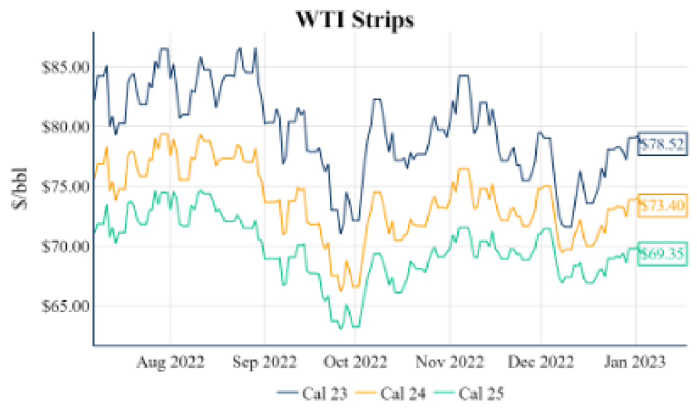


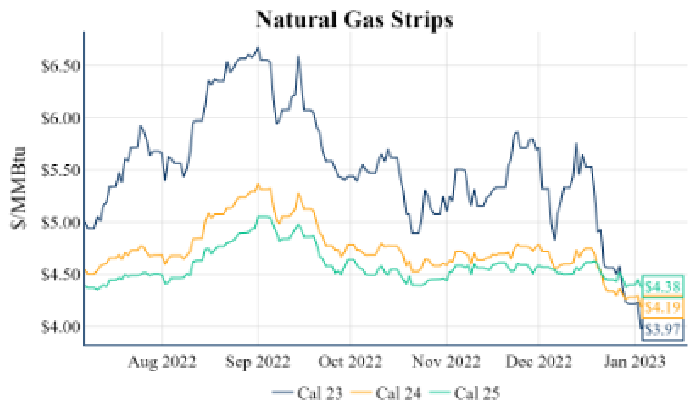
The structural shortage of world oil supply endures. The break in correlation between oil prices and capital investment in new production has been much commented upon in this and prior months' reports. Further evidence is provided in Figure 21. Note the importance of US rig count in supply responses and also the substantial quantum of US rigs against the rest of the world.

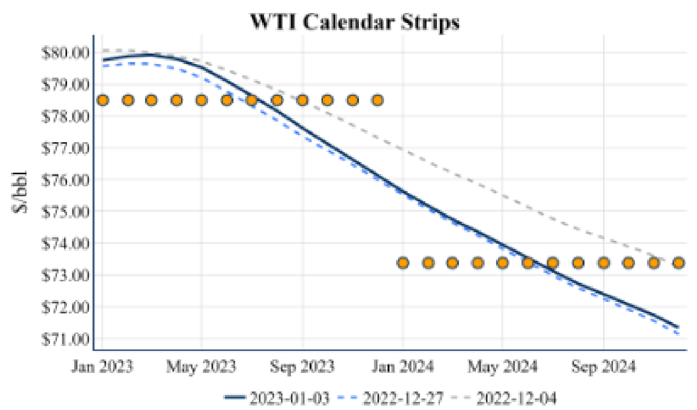
Figure 21: International Rig Count vs Brent (Source: Baker Hughes, Bloomberg, via Aegis)

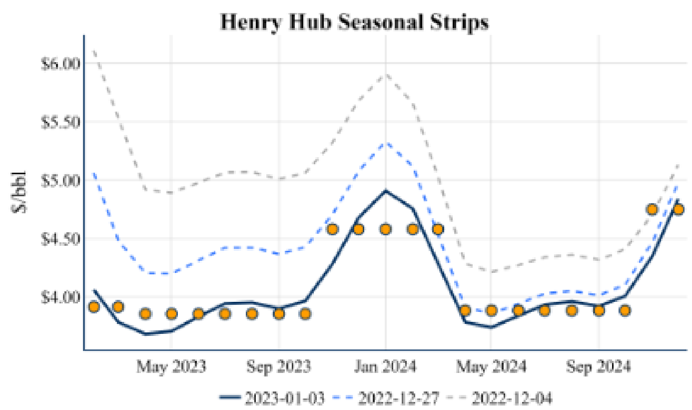


Gas and Oil Prices 3 January 2023





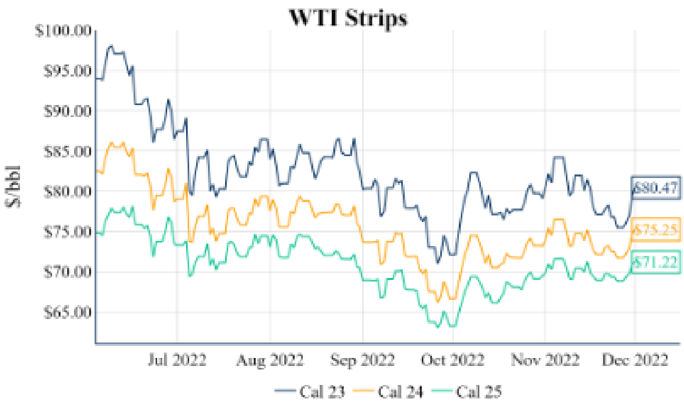


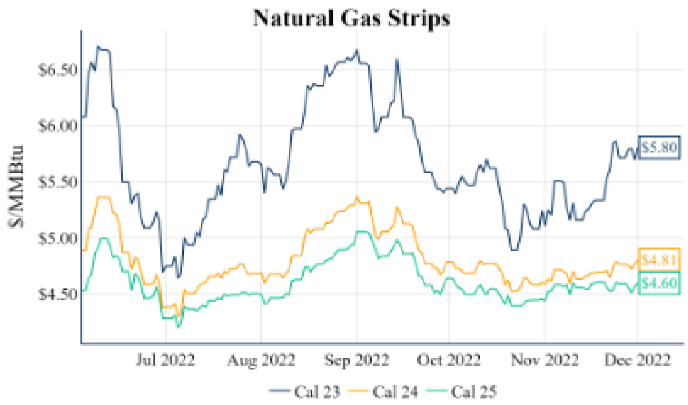


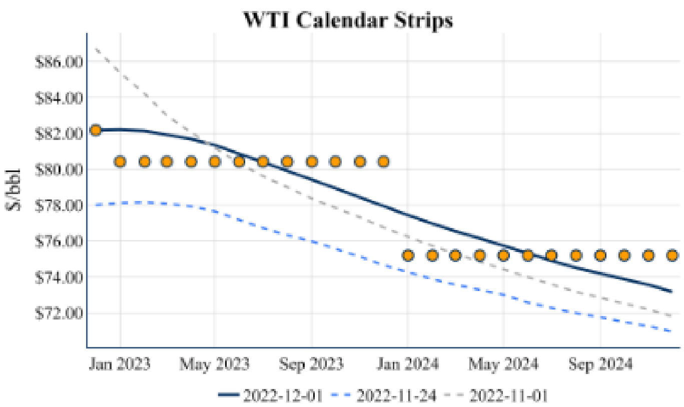
Swap Pricing	Cal 23	Cal 24	Cal 25	Cal 26
NYMEX WTI	$78.50	$73.38	$69.35	$66.18
ICE Brent	$82.80	$77.70	$74.05	$71.32
LLS	$79.83	$74.91	$71.48	$68.35
Mars	$74.51	$70.86	$66.97	$63.96
West TX Sour (WTS)	$77.37	$72.51	$68.49	$65.31

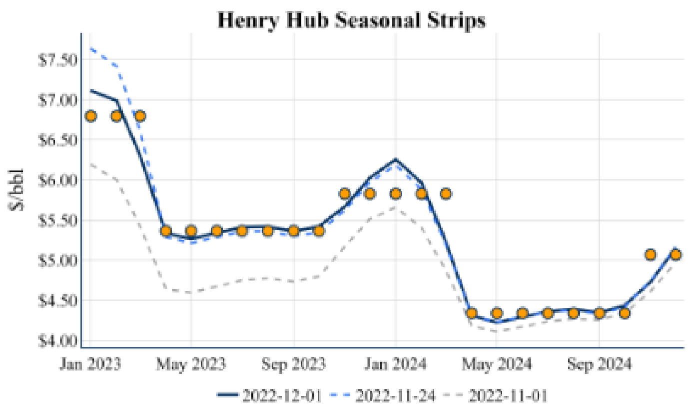
Swap Pricing	Month 1	Winter 22/23	Summer 23	Winter 23/24	Summer 24
Henry Hub Fixed	$4.083	$3.930	$3.865	$4.587	$3.894
Eastern Gas South	-$0.861	-$0.761	-$1.107	-$0.796	-$1.180
Waha	-$0.873	-$1.927	-$2.963	-$1.219	-$2.477
TETCO M3	$6.035	$3.240	-$0.881	$3.123	-$1.288
Houston Ship Channel	-$0.252	-$0.486	-$0.535	-$0.454	-$0.658
Columbia Gulf Mainline	-$0.384	-$0.454	-$0.536	-$0.250	-$0.307
Panhandle East	$0.789	$0.167	-$0.760	-$0.112	-$1.011
NGPL MidCon	$0.499	-$0.024	-$0.708	-$0.236	-$0.772
SoCal	$14.461	$8.864	$1.221	$2.079	$0.404
AECO	-$0.860	-$0.880	-$1.687	-$1.435	-$1.415
Chicago City-Gates	$0.843	$0.347	-$0.313	$0.352	-$0.400

Gas and Oil Prices 1 December 2022









Swap Pricing	Cal 23	Cal 24	Cal 25	Cal 26
NYMEX WTI	$80.42	$75.20	$71.18	$68.05
ICE Brent	$85.86	$80.61	$77.01	$74.47
LLS	$82.62	$77.50	$73.47	$70.35
Mars	$77.47	$73.18	$69.03	$65.90
Western Canadian Crude (WCC)	$59.07	$52.99	$55.19	$52.51
West TX Sour (WTS)	$79.42	$74.35	$70.32	$67.19

Swap Pricing	Month 1	Winter 22/23	Summer 23	Winter 23/24	Summer 24
Henry Hub Fixed	$7.129	$6.804	$5.369	$5.825	$4.340
Eastern Gas South	-$0.820	-$0.742	-$1.121	-$0.731	-$1.143
Waha	-$0.962	-$1.438	-$2.285	-$1.419	-$1.718
TETCO M3	$8.958	$5.837	-$0.810	$3.225	-$0.858
Houston Ship Channel	$0.183	$0.037	-$0.397	-$0.234	-$0.481
Columbia Gulf Mainline	-$0.369	-$0.355	-$0.413	-$0.291	-$0.364
Panhandle East	$0.430	$0.082	-$0.384	-$0.211	-$0.839
NGPL MidCon	$0.338	$0.060	-$0.376	-$0.228	-$0.702
SoCal	$4.530	$2.635	$0.941	$1.066	$0.155
AECO	-$2.370	-$2.187	-$2.156	-$1.674	-$1.484
Chicago City-Gates	$0.887	$0.508	$0.049	$0.149	-$0.374