LONGREACH ENERGY

Monthly Report

October 2022

Longreach Energy Holdings LLC

FIRM INFORMATION

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1. Market and Macro Industry Commentary

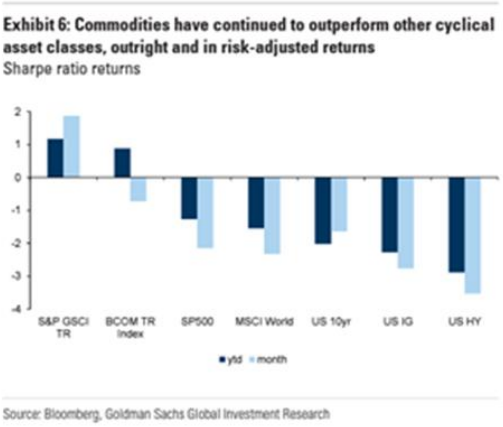
General Market Commentary

US Henry Hub gas prices fell slightly in October as weather remained mild and gas production relatively strong. The prompt contract fell from $6.77/mmbtu at close of business on 30 September to $6.36/mmbtu at close on 31 October. Calendar 2022 fell from $6.96/mmbtu to $6.31/mmbtu over the same period.

Oil prices rose after OPEC+ announced a 2mmbbl/d quota reduction. Fears of recession, China's zero covid policy and a strong US dollar remain selling pressures that are currently roughly equal to the buying support from tight global oil supply. The prompt opened October at $79.49/bbl and closed the month at $86.53/bbl. Calendar 2022 rose from $78.99/bbl to $85.58/bbl.

While commodity prices have been relatively weak over recent months, driven by a strong USD, rising recession risks and declining liquidity, this year commodities have continued to outperform other cyclical asset classes, both outright and in risk-adjusted returns (LHS Figure 1). Goldman Sachs expects that the positive correlation of commodities to other assets that has been evident in the last few weeks will not last as fundamental supply and demand factors reassert themselves as sector drivers.

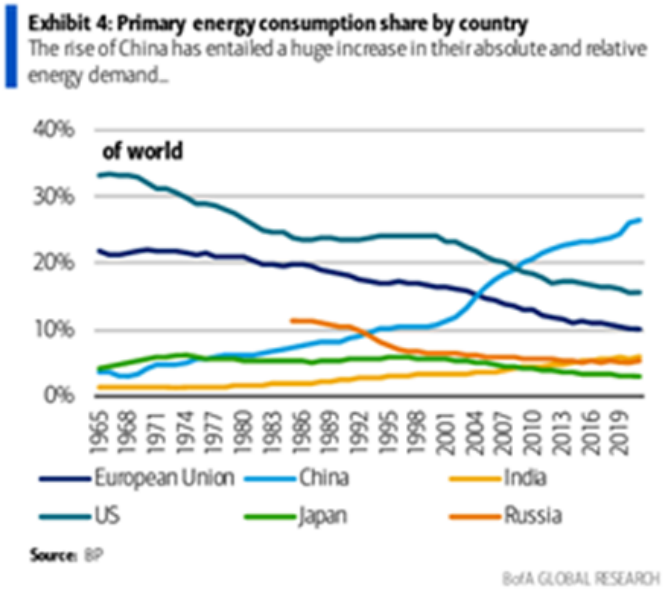
Figure 1: Sector Returns and Correlations (Source: various, via GS)



Geopolitics have been driving global energy prices as of late. In turn, energy prices have led inflation and financial markets from rates to FX and even equities. While GDP, trade and military spending all help project power, energy will likely sustain the US's leading international geopolitical position for a long time. Shale made America energy independent. Russia is losing (maybe has already lost lost?) its reputation as a reliable energy supplier and the recent Inflation Reduction Act (IRA) is likely to free up US fossil fuels for export in the decades ahead. Together these factors could turn the US once again into the world's dominant energy player.

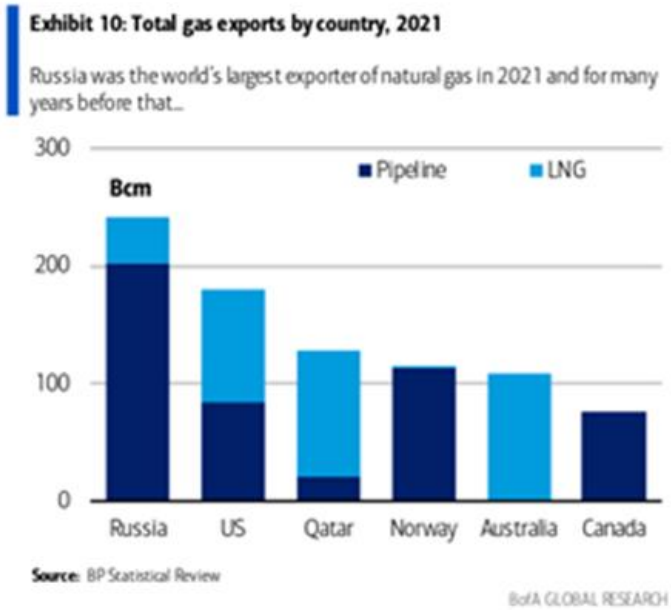
The rise of China has delivered a huge increase in China's absolute and relative energy demand (LHS Figure 2). The US economy has also continued to grow and with recent Chinese GDP declines it is no longer when (and if) the Chinese economy will surpass the US at market exchange rates (RHS Figure 2).

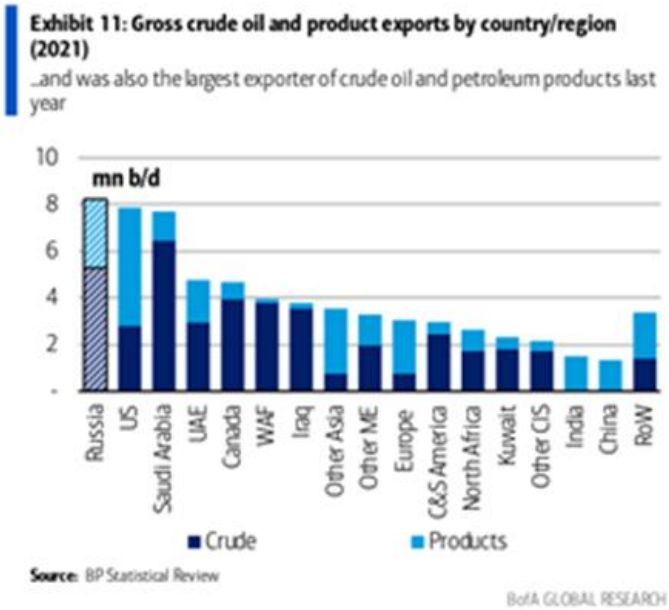
Figure 2: Primary Energy Consumption Share by Country and US and Chinas GDP (Source: BP, IMF, via BofA)



The gap left by Russia's lost energy supply reliability is large. Russia was the world's largest exported of natural gas in 2021 and for many years before that (LHS Figure 3). Russia was also the world's largest exporter of crude oil and petroleum products last year (RHS Figure 3).

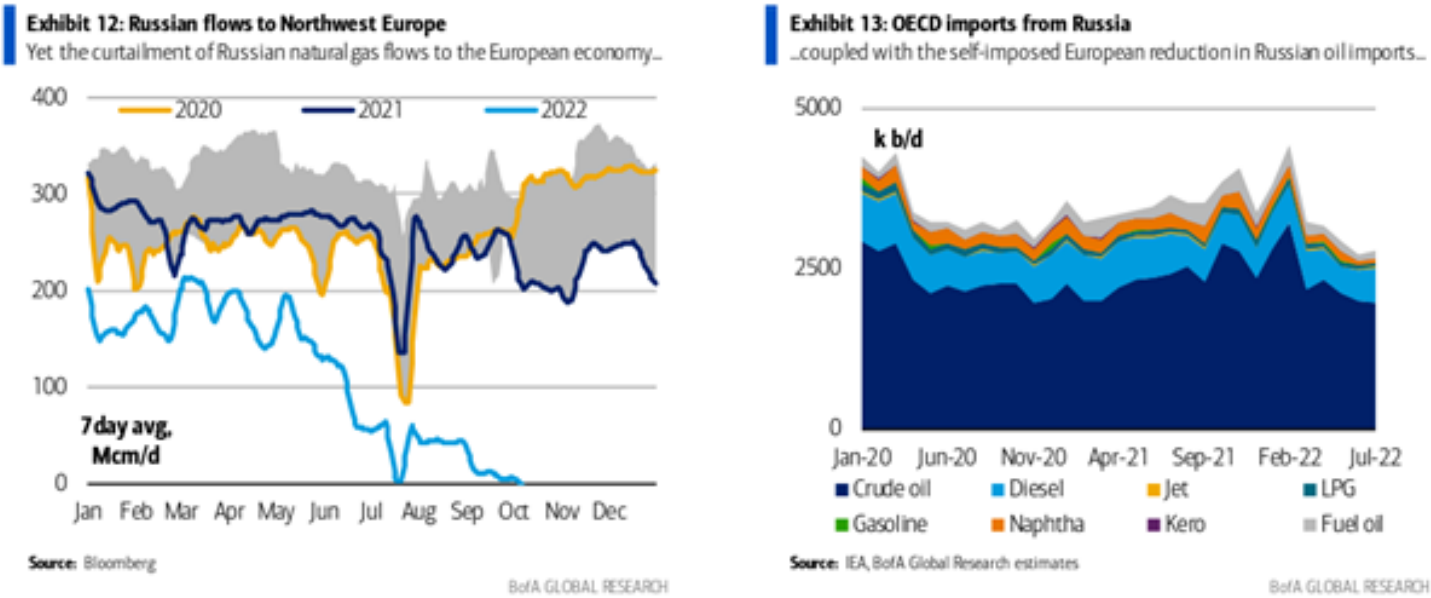
Figure 3: Natural Gas and Crude and Product Exports (Source: BP via BofA)





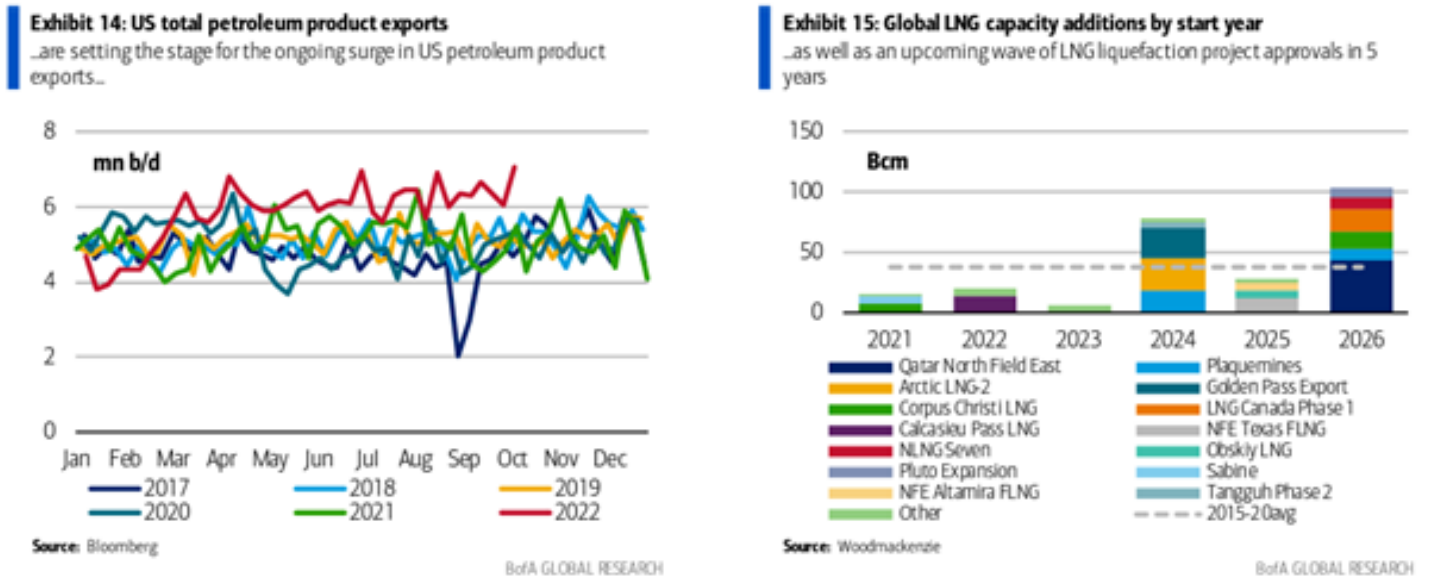
Russia has not delivered any gas to Europe since early October (LHS Figure 4). The decline in supply of Russian crude and products to the OECD (primarily European countries) has been less dramatic but still pronounced (RHS Figure 4).

Figure 4: Russian Gas and Oil and Product Exports (Source: various, via BofA)



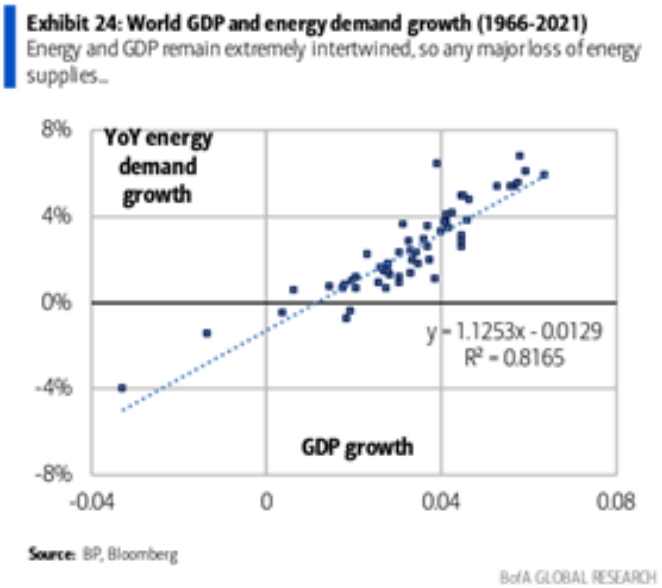
In response, US petroleum product exports have surged (LHS Figure 5), and a wave of new global LNG export facilities will come on-line over the next 5 years, many of which are in the US (RHS Figure 5).

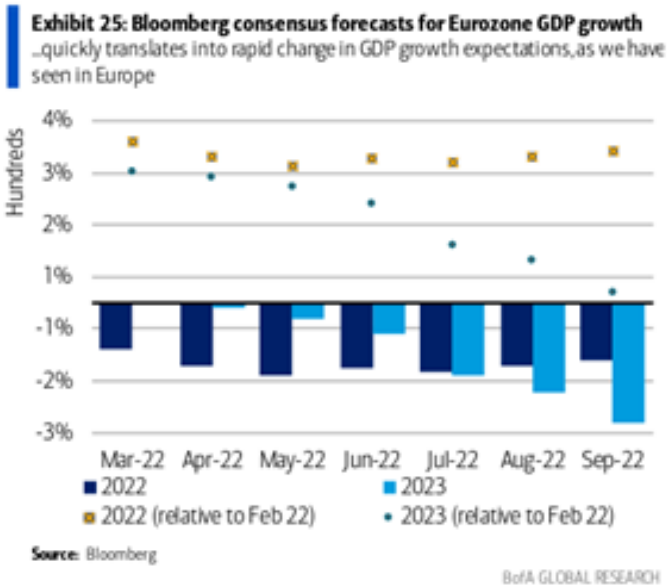
Figure 5: US Product Exports and Global LNG Capacity Additions (Source: various, via BofA)



Energy and GDP remain deeply intertwined (LHS Figure 6). This means that any major loss of energy supplies is rapidly reflected in GDP growth expectations, as we have seen in Europe (RHS Figure 6)

Figure 6: World GDP and Energy Demand Growth and European GDP Growth Expectations (Source: various, via BofA)





The latest Baker Hughes rig count data follows. In October US total rigs rose by 6 from 762 to 768. Oil rigs rose by 8 from 602 to 610 while gas rigs fell by 2 from 158 to 156.

Baker Hughes rig count

Baker Hughes

Rotary Rig Count

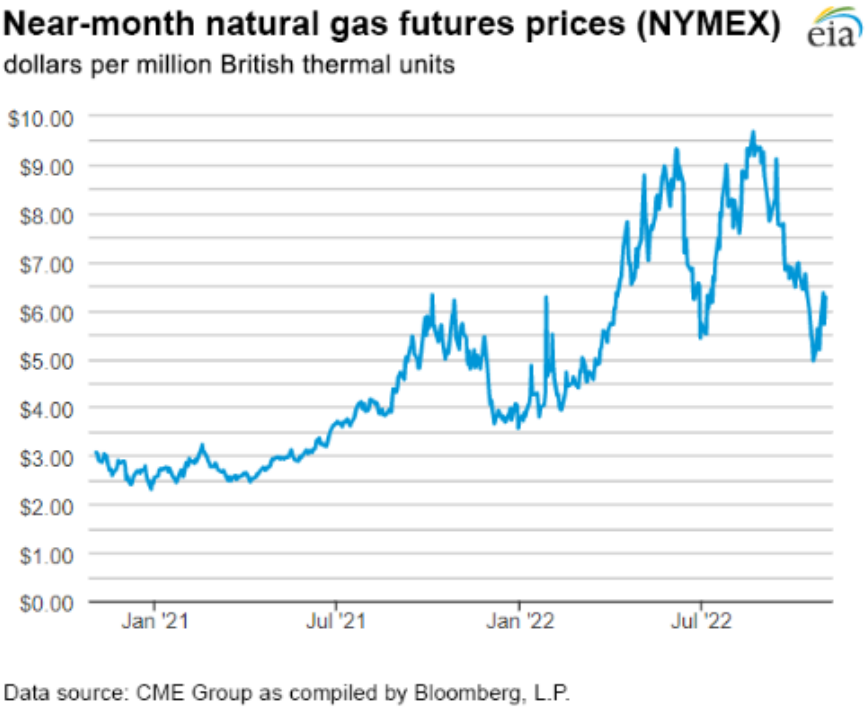
10/28/22

Location	Week	+/-	Week Ago	+/-	Year Ago
Land	752	-1	753	223	529
Inland Waters	2	-1	3	0	2
Offshore	14	-1	15	1	13
United States Total	768	-3	771	224	544
Gulf Of Mexico	13	-1	14	0	13
Canada	212	2	210	46	166
North America	980	-1	981	270	710
U.S. Breakout Information	**This Week**	**+/-**	**Last Week**	**+/-**	**Year Ago**
Oil	610	-2	612	166	444
Gas	156	-1	157	56	100
Miscellaneous	2	0	2	2	0
Directional	43	2	41	11	32
Horizontal	703	-5	708	220	483
Vertical	22	0	22	-7	29

Gas Market

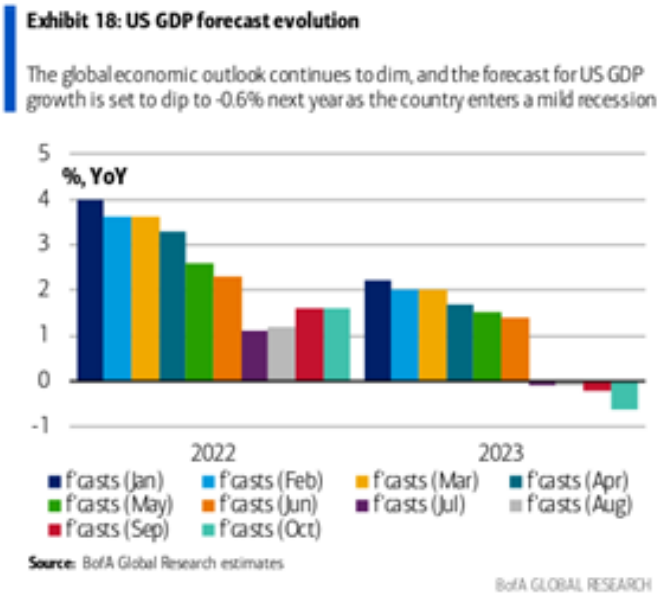
Prompt Henry Hub gas futures were down slightly over the course of October also there was high volatility intra-month as the market reacted to changes in near-term weather forecasts (Figure 7).

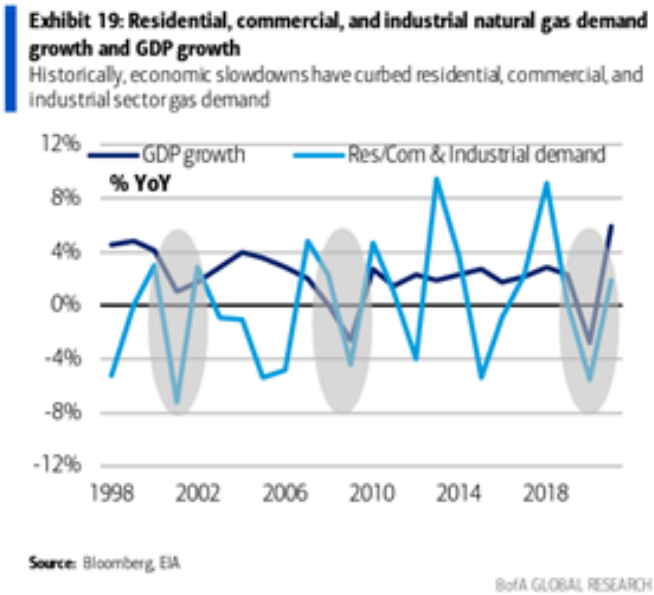
Figure 7: Near Month Henry Hub Futures (Source: EIA)



The global economic outlook continues to dim (LHS Figure 8), and it is likely that next year the US will enter a mild recession. While weather remains the main driver for marginal gas demand, GDP contraction will likely negatively affect gas demand across industrial, residential, and commercial sectors and should lead to lower demand for power too (RHS Figure 8).

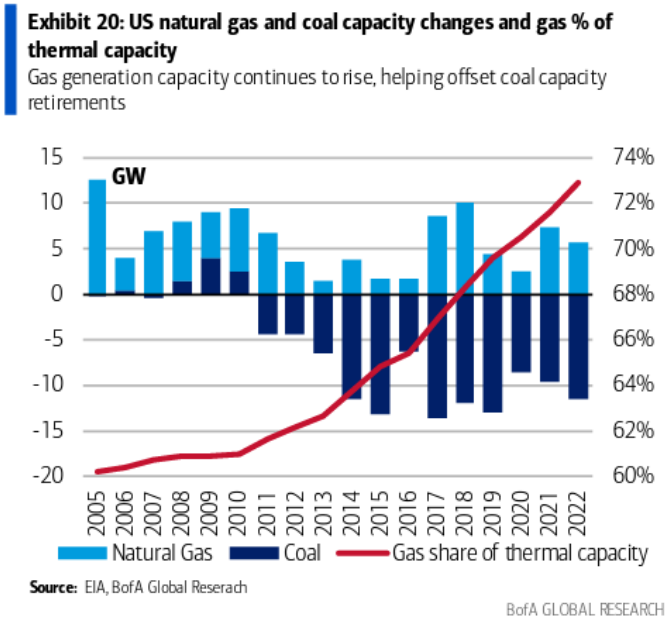
Figure 8: US Gas Prices and Ranges to Encourage Coal Substitution (Source: Platts, CME via GS)

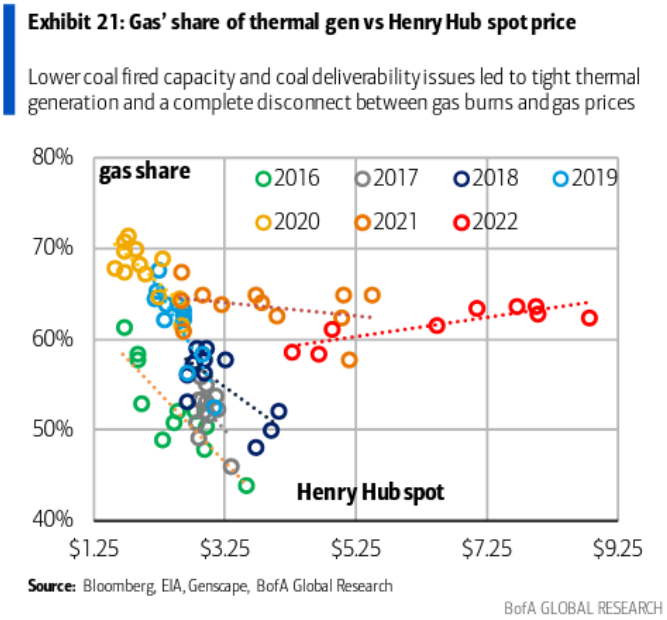




From 2005 to 2022 gas' share of thermal power generation capacity has increased from about 60% to 73%. This has been driven by the retirement of coal fired power plants (LHS Figure 9). Historically many thermal power generators could switch fuel between coal and gas based on price. Shrinking coal fired capacity and coal shortages have broken this relationship in 2022 (RHS Figure 9).

Figure 9: US Gas and Coal Generation and Gas Generation vs Henry Hub (Source: various via BofA)

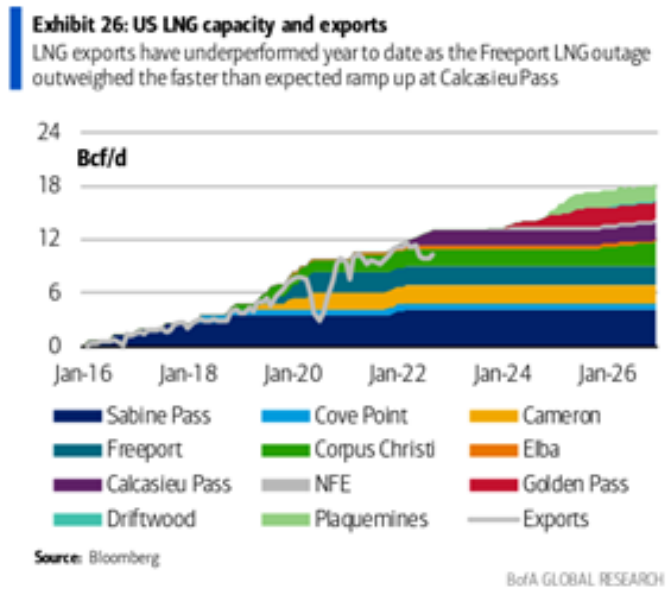


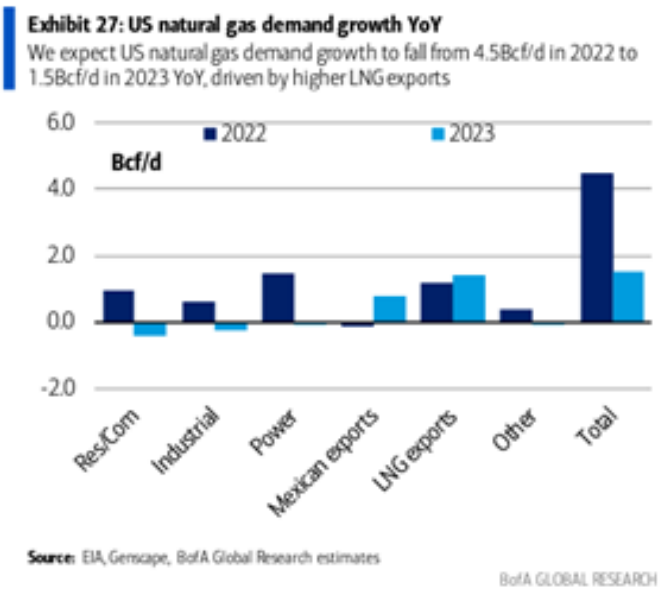


While the coal retirements will continue, the logistical issues with coal supply should be temporary and we would expect some of the historic negative correlation to return – at least to the levels of 2020 and 2021. This will moderately reduce gas power demand.

The extended Freeport LNG outage has kept LNG export demand running about 2bcf/d below normal since June, but this should pick up again in November as the plant starts to ramp up operations. The Freeport LNG restart will contribute to LNG demand growth next year (LHS Figure 10), while other sources of US natural gas demand are expected to be flat year-on-year (RHS Figure 10). BofA expects 1.5bcf/d of US natural demand growth next year, after a 4.5bcf/d increase from 2021 to 2022.

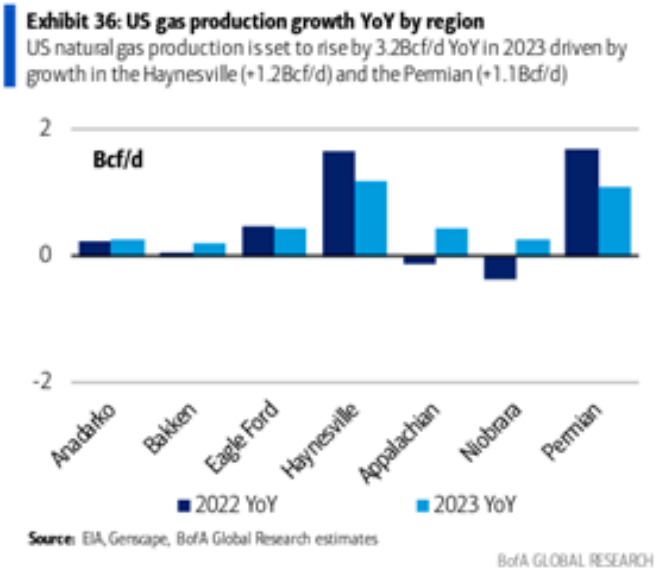
Figure 10: US LNG Exports and US Nat Gas Demand Growth YoY Facilities (Source: various, via BofA)

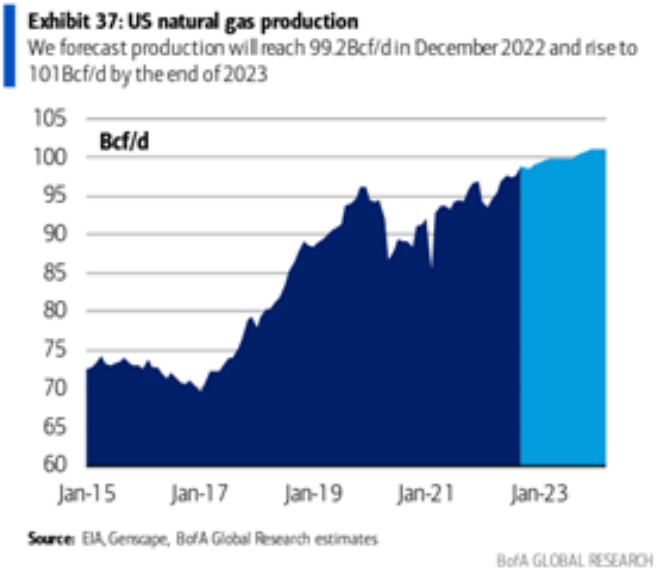




US natural gas production has grown steadily post-COVID, increasing 4.5bcf/d from 2021 to 2022. BofA expects a further 3.1bcf/d increase next year, mostly from the Haynesville and Permian Basin (LHS Figure 11). BofA forecasts total US gas production will reach 99.2bcf/d in December 2022 and rise to 101bcf/d by the end of 2023 (RHS Figure 11).

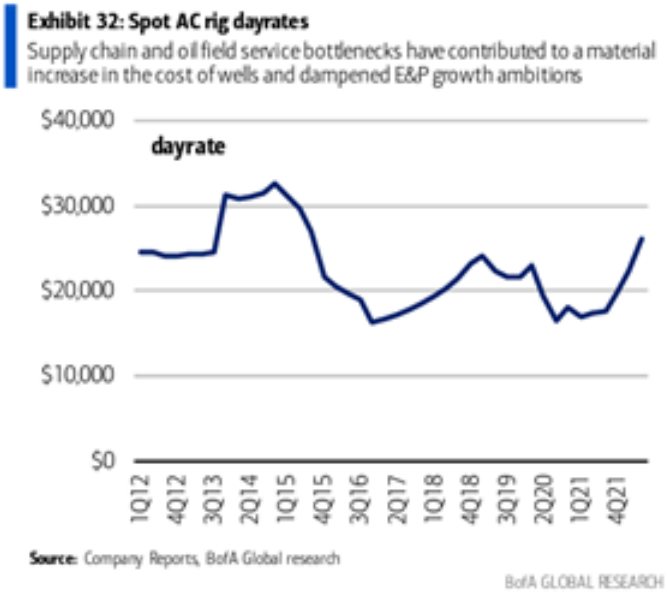
Figure 11: US Gas Production (Source: various, via BofA)

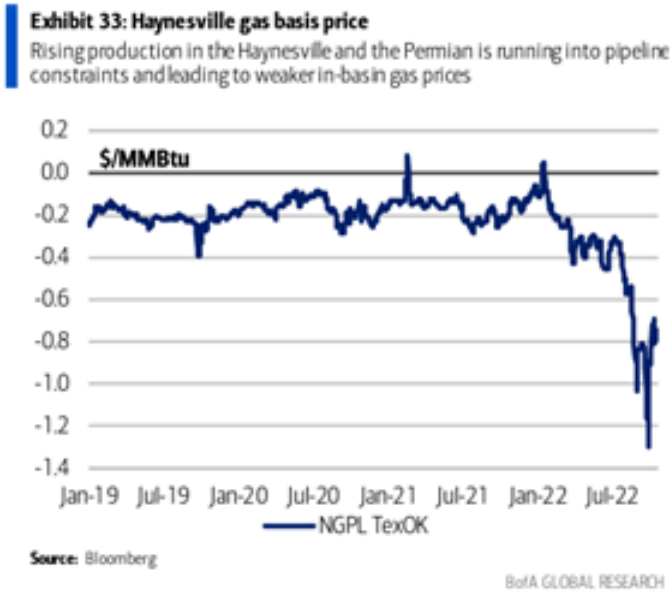




While the recoveries in oil and gas prices have encouraged producers to start to grow production, supply chain and field service bottlenecks have contributed to a material well cost inflation, dampening interest in quickly increasing production. Average rig day rates have increased by nearly 50% YoY through 2Q22 (LHS Figure 12) and have increased further in 3Q. Cost per frac stage has increased by 30% over the same period and materials like steel pipe have increased by over 300% since the start of Covid. As input costs have climbed higher, gas producers in the Permian and Haynesville have also felt pressure from transport pipeline capacity constraints. Inter alia this depresses location basis pricing (RHS Figure 12), this reduces the price incentive to increase production.

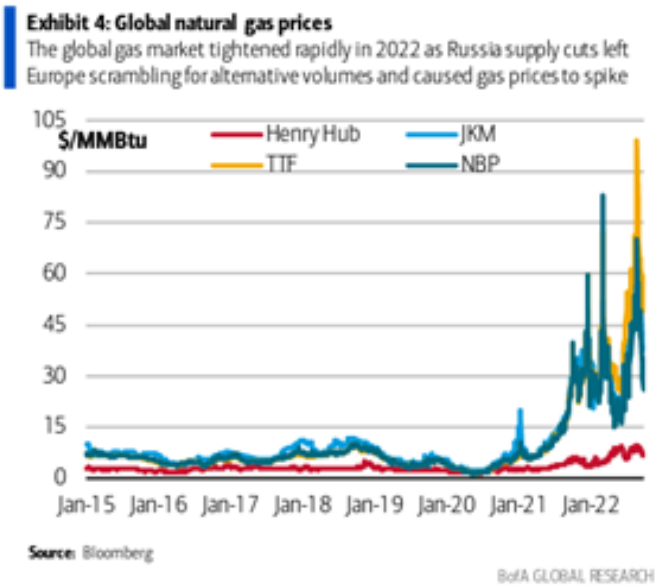
Figure 12: Rig Day Rates and Haynesville Gas Basis (Source: various, via BofA)





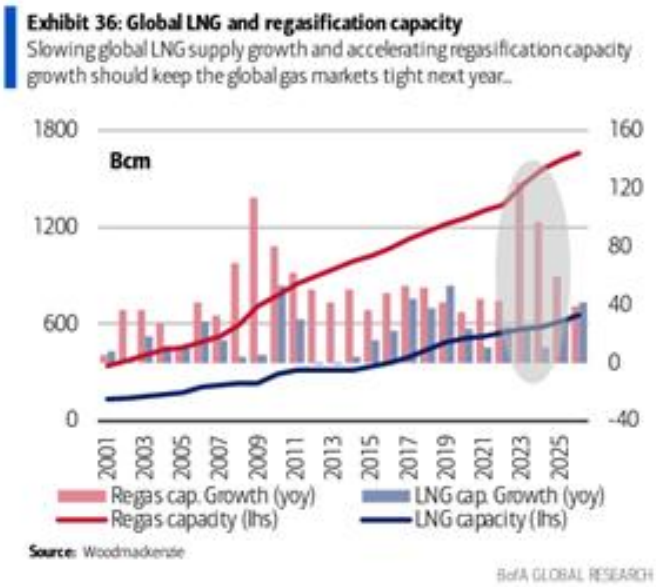
Global spot natural gas prices remain well ahead of those in the US (LHS Figure 13). The market now believes that Russian gas supply to Europe will not be restored, this has lifted the back end of global gas forward curves (RHS Figure 13 and RHS Figure 14).

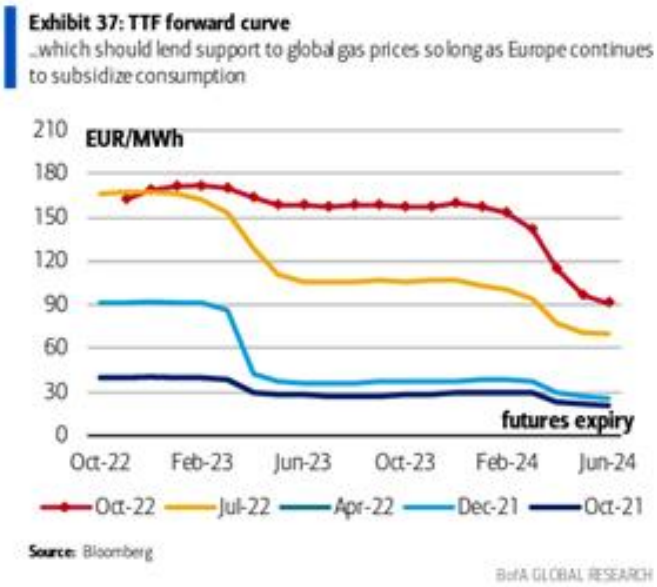
Figure 13: Global Gas Prices (Source: Bloomberg, via BofA)



Global LNG supply growth will slow for the next two years until new facilities developed post-Covid enter service. Meanwhile LNG import (regas) facilities are growing quickly, driven by urgent demand from Europe (LHS Figure 14). The excess of LNG demand over supply will keep global gas prices elevated.

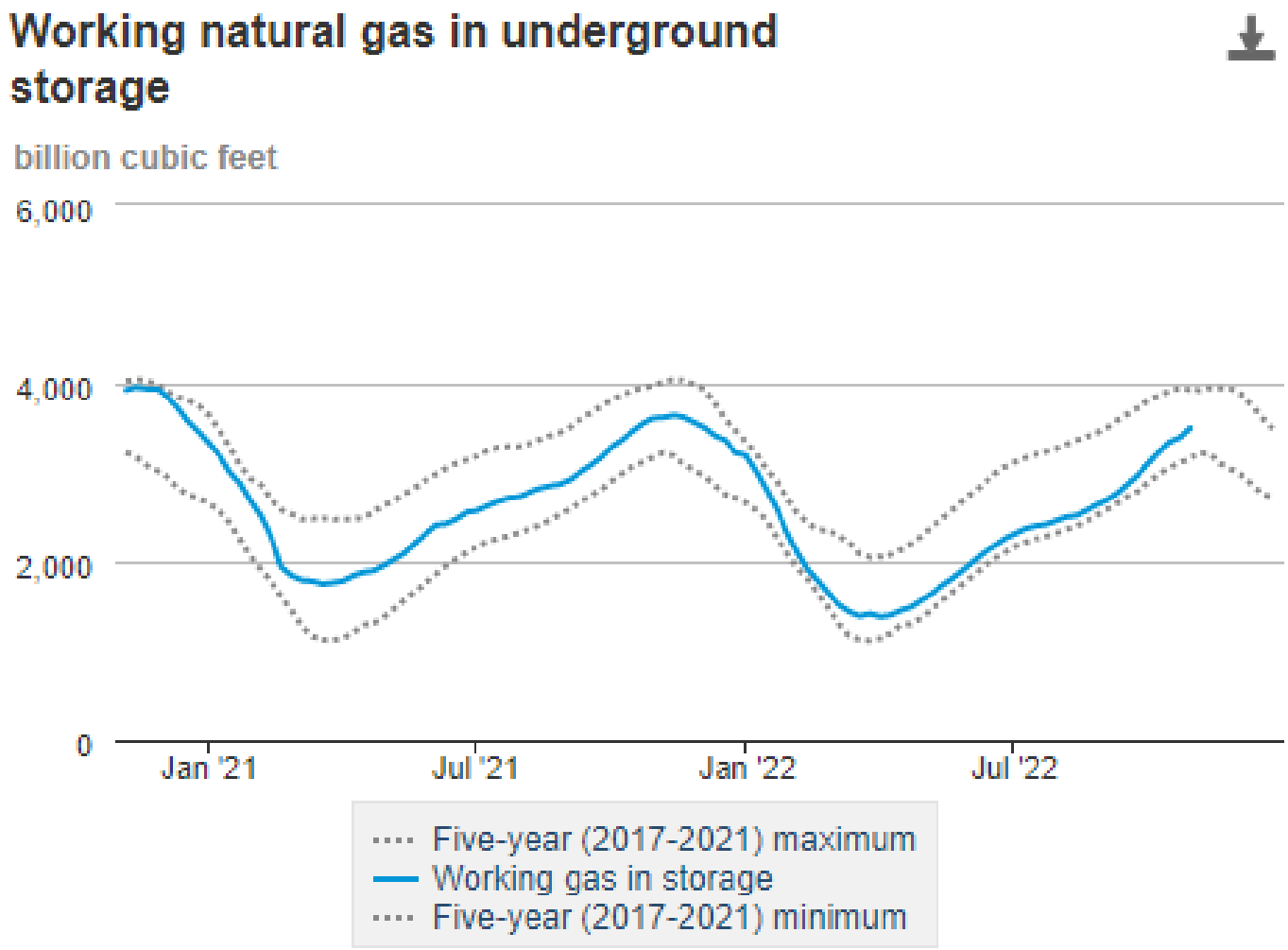
Figure 14: LNG Export and Import Facilities and TTF Forward Curves (Source: various, via BofA)





Working gas in storage as of 28 October totalled 3,501 bcf, this is 135 bcf (4%) lower than the five-year average and 101 bcf (3%) lower than last year at this time (Figure 15).

Figure 15: Working Gas in Storage (Source: EIA)



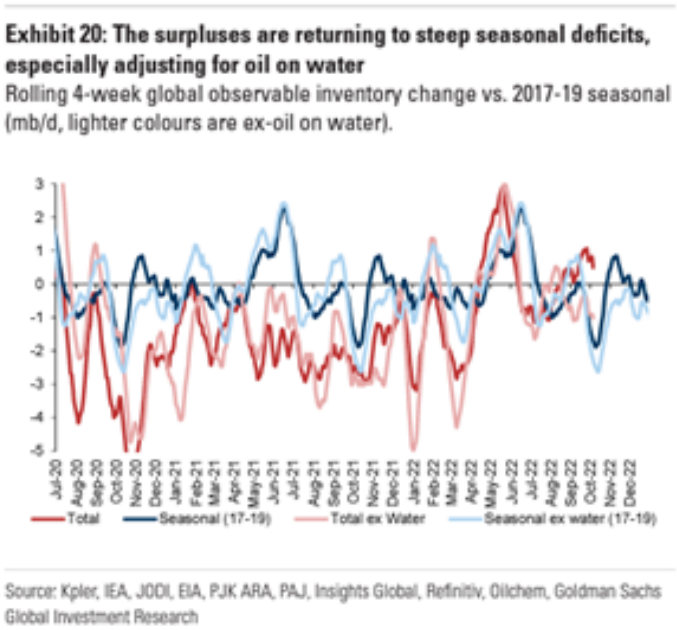
Data source: U.S. Energy Information Administration Form EIA-912, *Weekly Underground Natural Gas Storage Report*

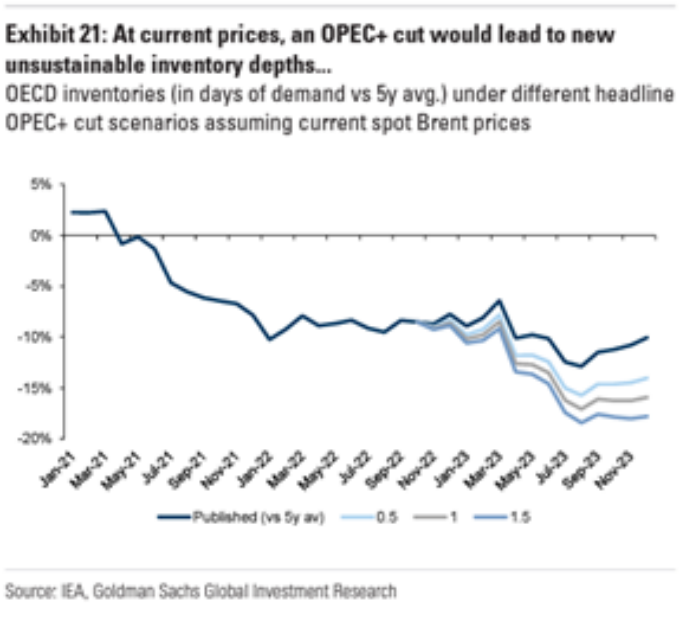
Oil Market

On 5 October OPEC+ formally agreed to a 2mmbbld reduction to production quotas from November onward. Because some members are already struggling to produce at their baseline quota, the effective cut is estimated to be approximately 1.2mmbbld. Since the announcement, global oil prices have moved higher although remain volatile with bullish supply and demand vying with selling pressure from strong USD, recession fears and the impact of China's Covid-zero policy.

Oil inventories are lower than the two years immediately preceding Covid (LHS Figure 16). At current oil prices, the announced OPEC+ cut is predicted to send OECD oil inventories to levels approximately 20% below the 5-year average (RHS Figure 16).

Figure 16: Oil Inventory Changes 2017-19 Average and OECD Inventories in Days Demand vs 5yr Av (Source: various, via GS)

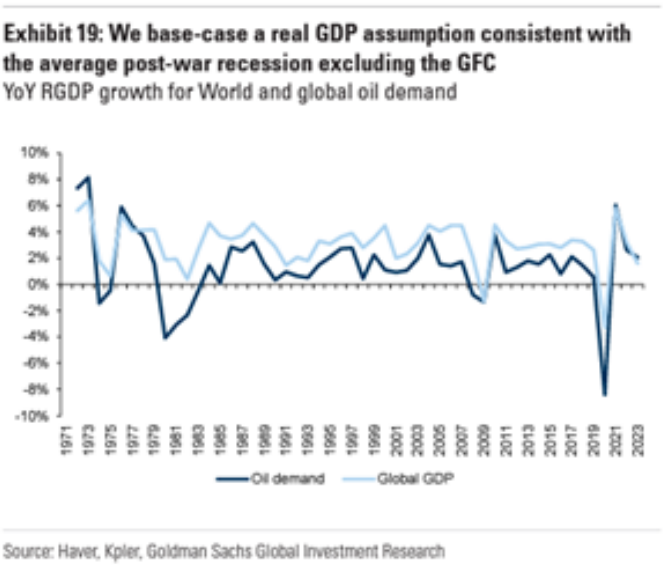




Increased recessionary fears, a generally weaker macroeconomic outlook and strength in the US dollar put downward pressure on oil during September. These near-term factors have not changed the structural bullish supply set-up for oil caused by lack of investment, low spare production capacity and low inventories (RHS Figure 17).

Goldman Sachs' updated supply and demand balance forecasts suggest that current global oil prices reflect negative real global GDP growth outside China and range-bound Chinese oil demand for the coming year, more than 1.5% below consensus expectations of global GDP (LHS Figure 17).

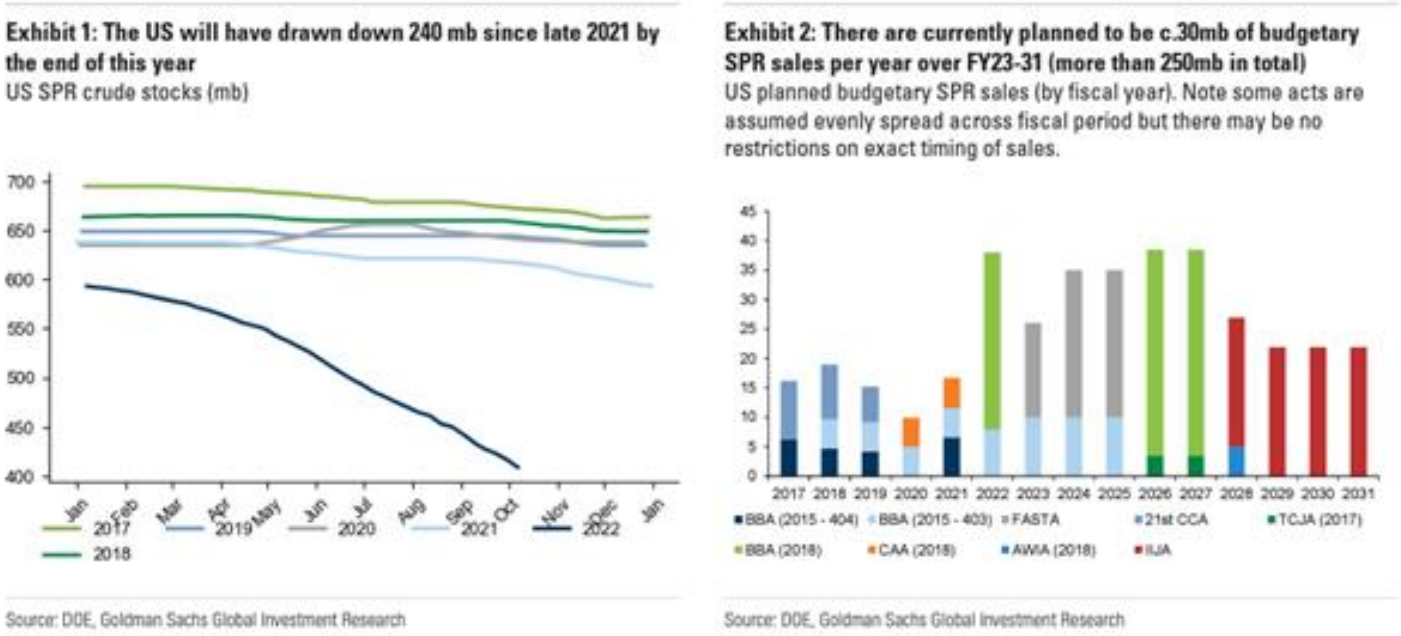
Figure 17: Real GDP Growth for World and Global Oil Demand (Source: GS)



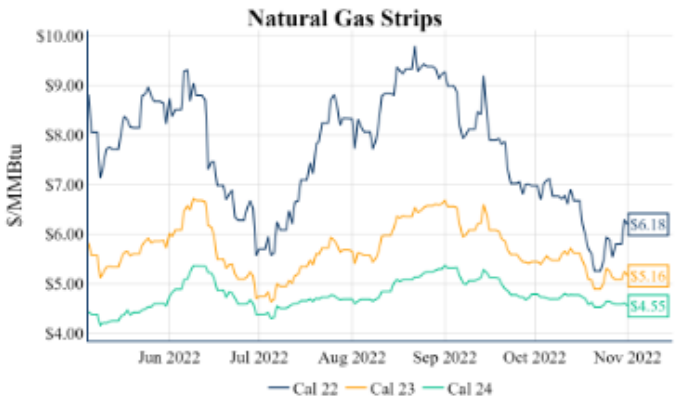
In response to the OPEC+ cut, the US Administration announced a 15mmbbl release from the US strategic petroleum reserve (SPR). This is the final tranche of the 180mmbbl release announced in the US Spring. Looking forward, perhaps the most interesting aspect of the announcement was the plan to refill the SPR at fixed prices for future delivery "at or below about $67-72/bbl".

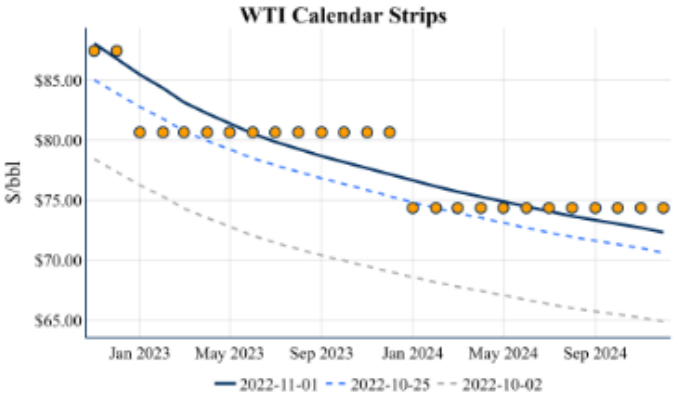
This should provide a high-confidence floor price for WTI until the SPR is restored to full volume. By the end of this year the US will have drawn down the SPR by a cumulative 240mmbbl (LHS Figure 18). The current plan is to sell 30mmbbl per year from 2023 to 2031 (RHS Figure 18). Effectively the Administration's policy is to use the SPR to try and keep WTI under about $90/bbl.

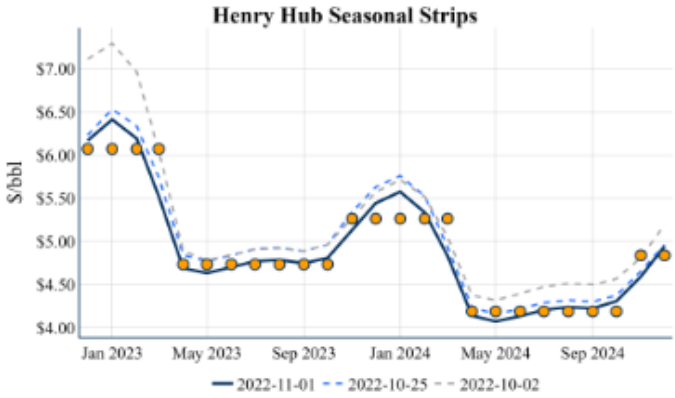
Figure 18: US Strategic Petroleum Reserve (Source: DOE via GS)



Gas and Oil Prices 1 November 2022



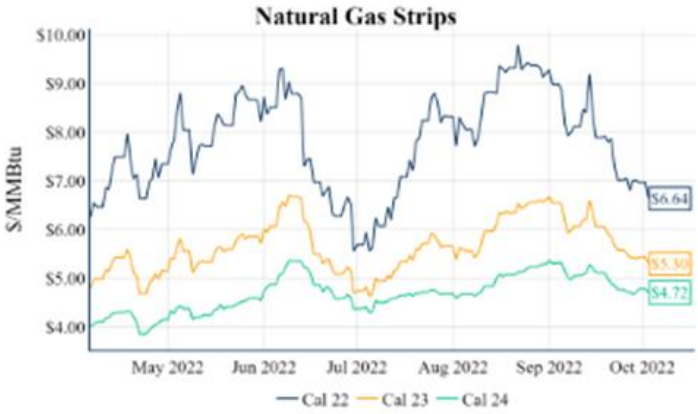


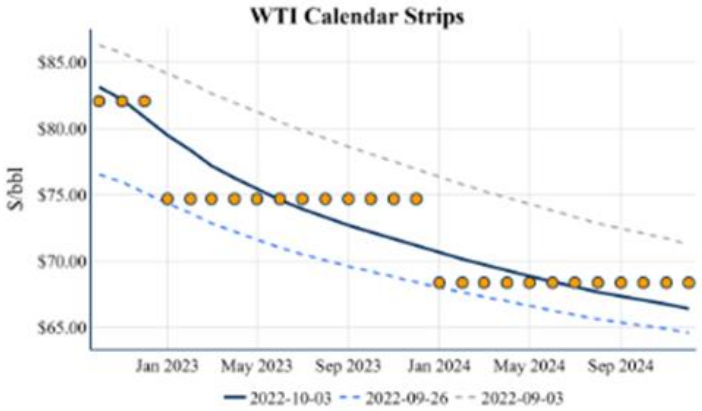


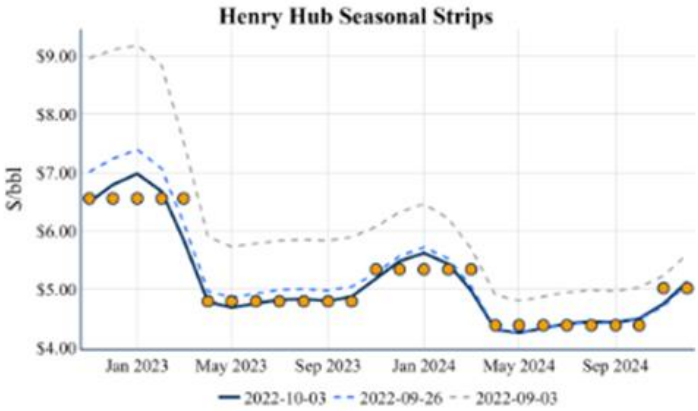
Swap Pricing	Bal 22	Cal 23	Cal 24	Cal 25
NYMEX WTI	$87.45	$80.66	$74.36	$70.46
ICE Brent	$93.66	$86.05	$79.71	$75.94
LLS	$89.12	$83.32	$77.02	$73.11
Mars	$82.60	$77.73	$72.11	$68.23
Western Canadian Crude (WCC)	$60.16	$58.90	$53.27	$55.36
West TX Sour (WTS)	$86.44	$80.16	$73.68	$69.78

Swap Pricing	Month 1	Summer 22	Winter 22/23	Summer 23	Winter 23/24
Henry Hub Fixed	$6.175	$0.000	$6.077	$4.740	$5.262
Eastern Gas South	-$0.905	$0.000	-$0.773	-$1.152	-$0.719
Waha	-$1.559	$0.000	-$1.503	-$2.609	-$1.227
TETCO M3	$1.862	$0.000	$3.936	-$0.898	$2.692
Houston Ship Channel	-$0.259	$0.000	$0.057	-$0.257	-$0.224
Columbia Gulf Mainline	-$0.478	$0.000	-$0.342	-$0.414	-$0.278
Panhandle East	-$0.319	$0.000	$0.038	-$0.686	-$0.088
NGPL MidCon	-$0.262	$0.000	$0.069	-$0.320	$0.046
SoCal	$1.693	$0.000	$1.290	$0.342	$0.866
AECO	-$1.550	$0.000	-$1.604	-$1.720	-$1.649
Chicago City-Gates	$0.117	$0.000	$0.506	-$0.247	$0.304

Gas and Oil Prices 3 October 2022







Swap Pricing	Bal 22	Cal 23	Cal 24	Cal 25
NYMEX WTI	$82.05	$74.70	$68.38	$64.57
ICE Brent	$86.96	$79.30	$73.54	$70.34
LLS	$84.35	$76.90	$70.57	$66.77
Mars	$79.81	$72.89	$66.91	$63.09
Western Canadian Crude (WCC)	$60.38	$56.55	$50.63	$49.48
West TX Sour (WTS)	$81.79	$74.56	$68.13	$64.32

Swap Pricing	Month 1	Summer 22	Winter 22/23	Summer 23	Winter 23/24
Henry Hub Fixed	$6.500	$6.878	$6.562	$4.798	$5.339
Eastern Gas South	-$1.190	-$2.326	-$0.872	-$1.251	-$0.686
Waha	-$2.737	-$2.915	-$1.903	-$2.439	-$0.767
TETCO M3	-$0.793	-$2.276	$3.711	-$0.942	$2.806
Houston Ship Channel	-$0.311	-$1.498	-$0.194	-$0.270	-$0.154
Columbia Gulf Mainline	-$0.792	-$1.296	-$0.429	-$0.397	-$0.242
Panhandle East	-$1.002	-$1.675	-$0.207	-$0.684	-$0.047
NGPL MidCon	-$0.875	-$1.379	-$0.189	-$0.577	-$0.077
SoCal	-$0.196	-$0.541	$0.773	$0.054	$0.760
AECO	-$2.513	-$3.555	-$2.398	-$1.649	-$1.510
Chicago City-Gates	-$0.541	-$1.206	$0.266	-$0.266	$0.271