LONGREACH ENERGY

Monthly Report

Longreach Energy Holdings LLC

November 2022

FIRM INFORMATION

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1. Market and Macro Industry Commentary

General Market Commentary

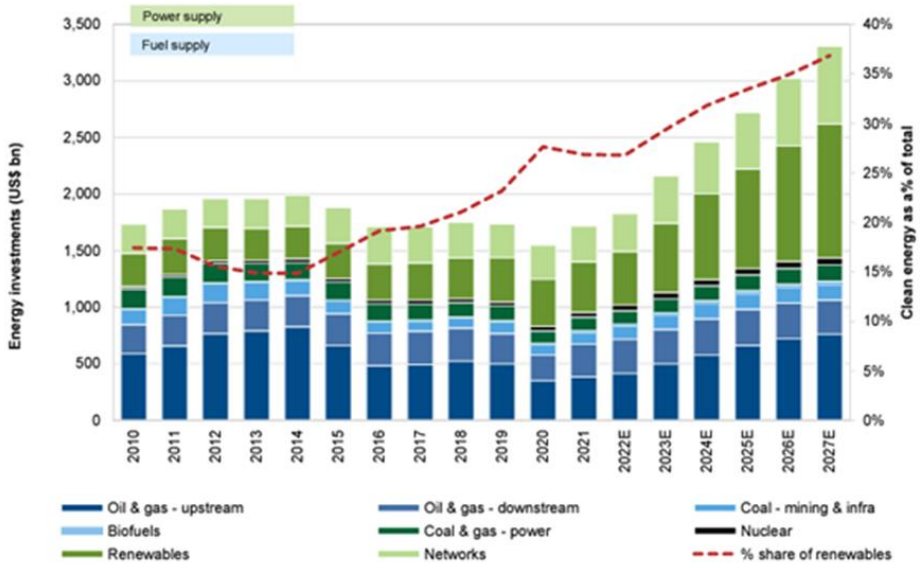
US Henry Hub gas prices rose in November as weather forecasts turned colder. The prompt contract increased from $6.36/mmbtu at close of business on 31 October to $6.93/mmbtu at close on 30 November. Calendar 2023 rose from $5.265/mmbtu to $5.741/mmbtu over the same period.

Oil prices fell modestly. The prompt opened November at $86.53/bbl and closed the month at $80.55/bbl. Calendar 2023 rose from $78.99/bbl to $79.50/bbl.

Goldman Sachs calculates that since a peak in 2014, investments in traditional energy (oil and gas upstream) have fallen 57%. Investment in other primary sources have not increased enough to make up the difference with aggregate global primary energy investment falling from $1.3 trillion in 2014 to $0.8 trillion in 2020. Similarly, total investment in energy (not just primary) have fallen from $2.0 trillion at the peak in 2014 to just $1.5 trillion in 2020, a 22% decline (Figure 1). For reasons that will be discussed further below, GS believes that to solve the challenges of energy affordability, security and sustainability, total annual energy investments must increase by $1 trillion p.a. by 2026. This is driven by a major increase in renewable power and network infrastructure capex and a revival of capex in traditional fuels, in particular LNG, required to facilitate a more resilient and affordable energy transition.

Figure 1: Total Energy Investments (Source: IEA, via GS)

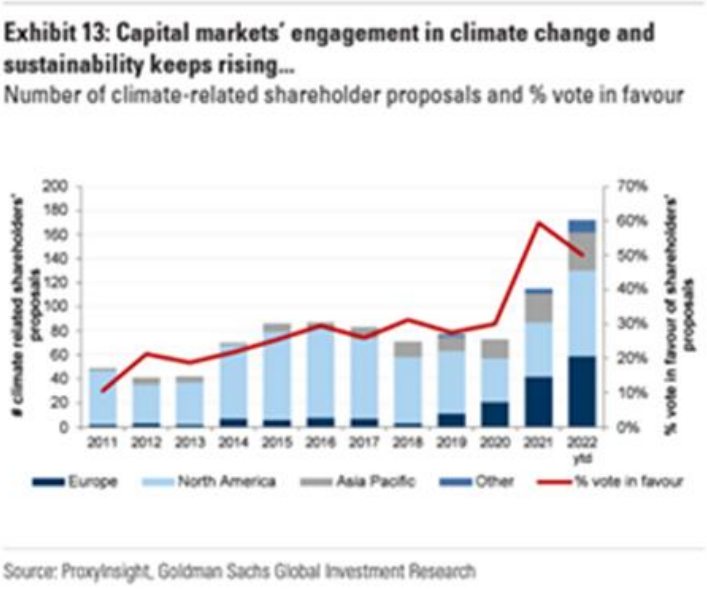
Exhibit 20: Total energy investments have fallen by >20% over the past decade, and we expect them to almost double by 2027E, reaching $3.3 trn (from $1.7 trn in 2021)
Global energy investments (US$ bn), split between power and fuel supply

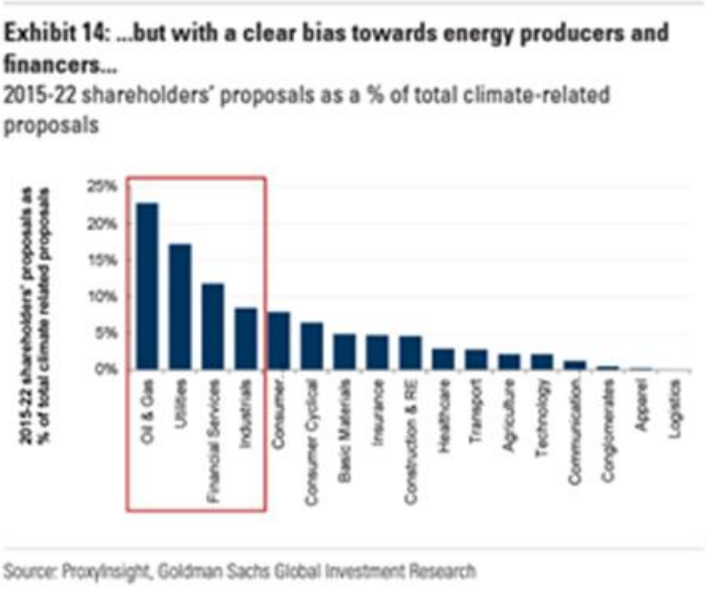


Source: IEA WEI, Goldman Sachs Global Investment Research

The fall in primary energy investment has been driven by capital markets' engagement in climate change and sustainability. Data from ProxyInsight (LHS Figure 2) show that the number of climate related shareholder proposals has increased four-fold since 2011 and the percentage of investors voting in favour has increased five-fold over the same period. This investor pressure, however, is not uniformly distributed across sectors and shows a clear bias towards energy producers vs energy consumers. Data since 2014 show over 50% of proposals targeted energy producers (oil & gas, utilities) while only 30% of the proposals targeted sectors that account for most of the final energy consumption (RHS Figure 2).

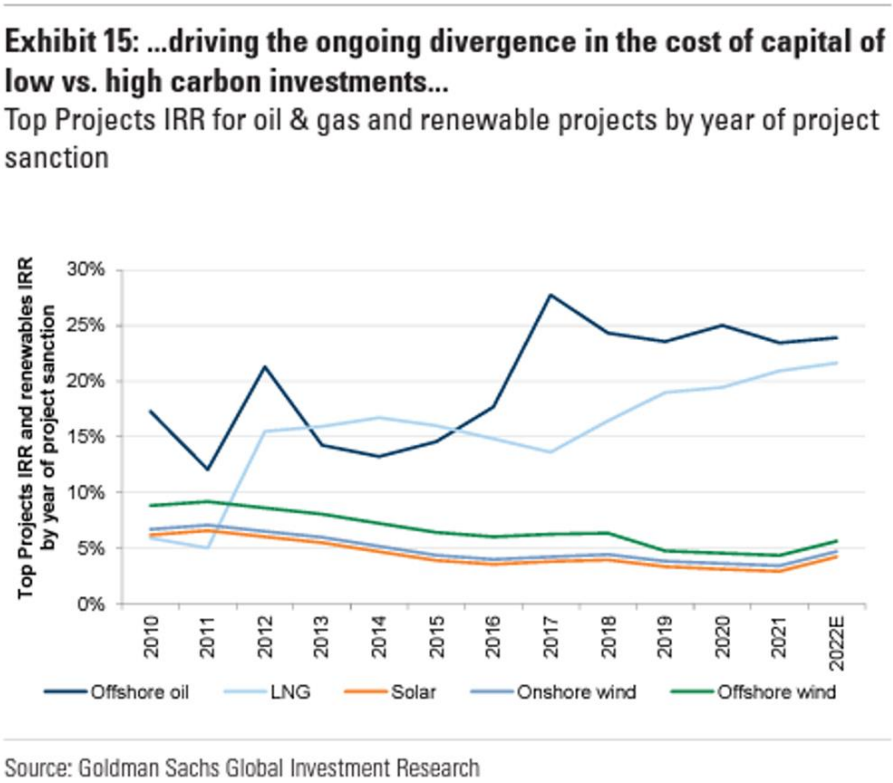
Figure 2: Investor Climate Change Proposals and Targeted Sectors (Source: ProxyInsight, via GS)





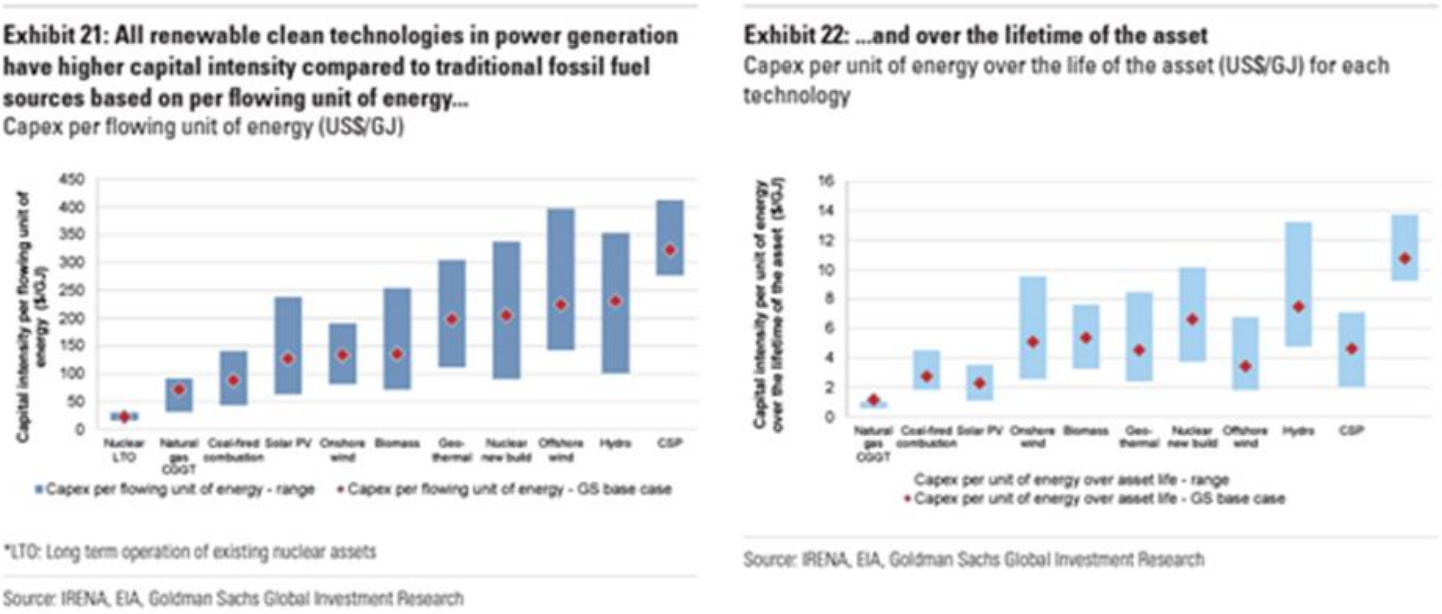
Investors' dislike of traditional energy sources has driven oil and gas returns higher and reduced returns from renewables (Figure 3).

Figure 3: Primary Energy Sector Returns (Source: GS)



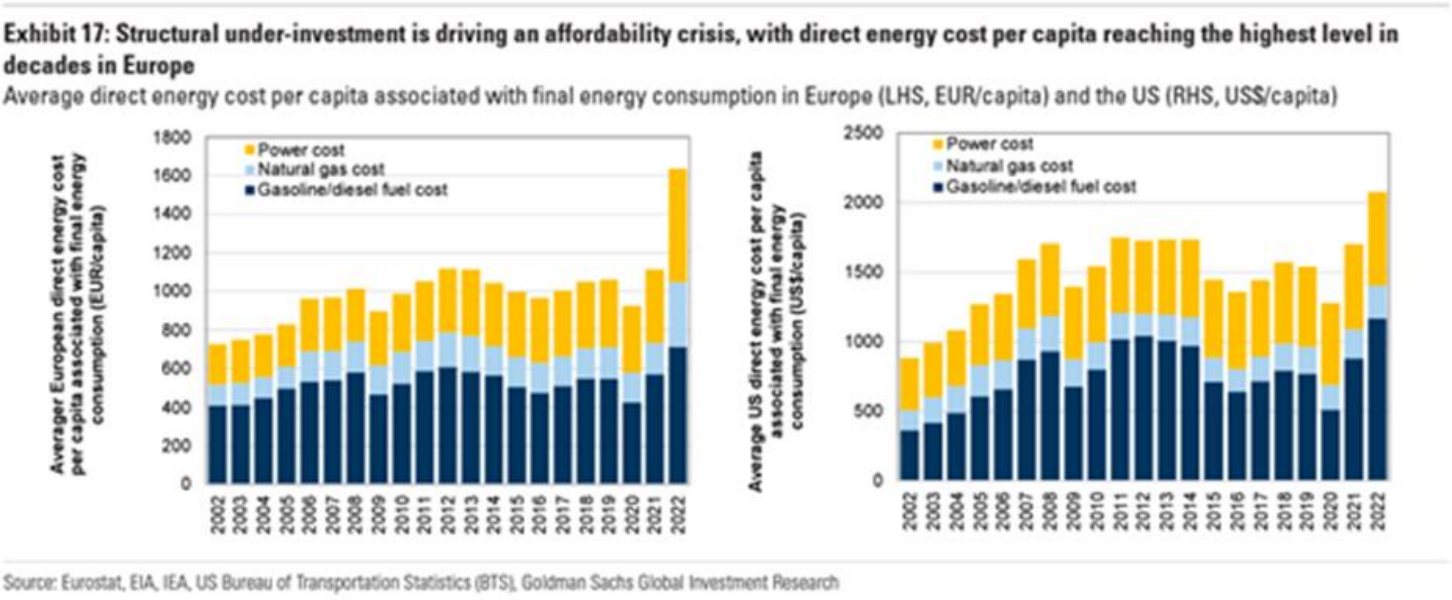
While investment in renewable primary energy sources has increased, the smaller scale and higher capital intensity per unit of energy output of these assets (Figure 4), markedly increases the capital required to replace the decline in traditional energy investment. Goldman estimates that, on average, clean technologies (renewables in power generation and electric mobility) require c. 2-3X the capex per unit of output energy compared to the traditional hydrocarbon sources and technologies they displace.

Figure 4: Primary Energy Capital Intensity (Source: various, via GS)



The structural underinvestment has driven an affordability crisis, with direct energy cost per capita reaching the highest level in decades in Europe and the US.

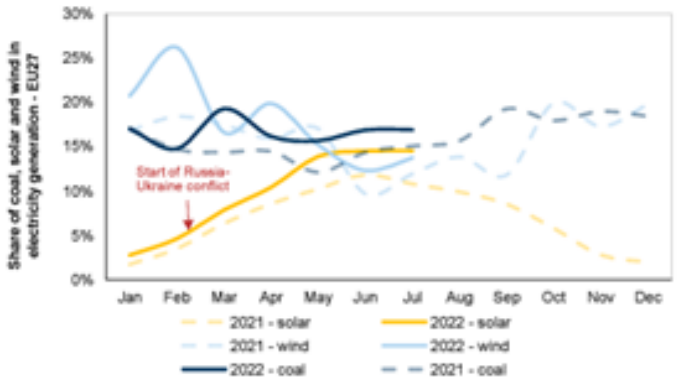
Figure 5: Energy Cost per Capita in Europe and US (Source: various, via GS)



The chronic under-investment in energy is also driving a disjointed carbon reduction process, as scarcity bites and interest rates rise, the trade-off between carbon and costs rises sharply. This year the global economy is demonstrating its unwillingness to pay for less carbon. Goldman analysis suggests that emissions from hydrocarbons are likely to rise by c.4.3% this year, 70% larger than the traditional energy consumed. Lost Russian gas only directly accounts for c.4% of this fall in global efficiency. The rest is the unintended consequence of restricted fossil fuel investment. Without traditional lower carbon intensive energy sources such as oil and natural gas, China, Germany and India have all switched to the lowest-cost shortest cycle energy sources – wood and coal – which emit far more CO2 (Figures 6, 7 and 8).

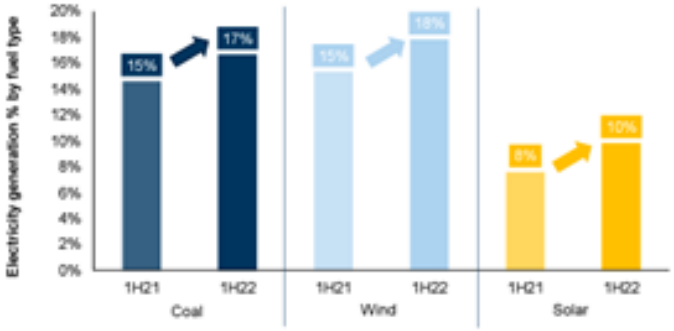
Figure 6: EU Coal, Wind and Solar Consumption (Source: Eurostat GS)

Exhibit 18: The energy affordability crisis is also leading to a dis-jointed de-carbonization process, with both the most carbon intensive (coal) and least carbon intensive fuels (renewables)...
Share of coal, solar and wind in power generation for 2022 ytd vs 2021



Source: Eurostat, Goldman Sachs Global Investment Research

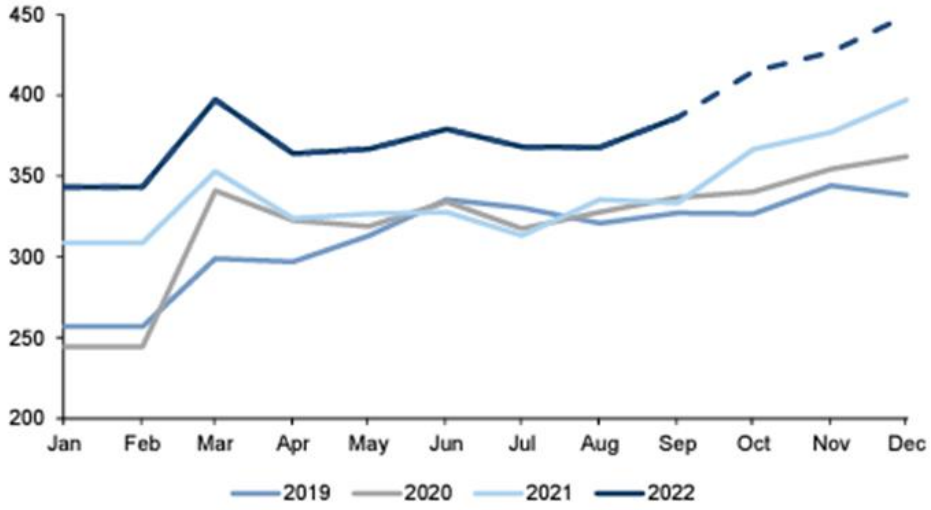
Exhibit 19: ...trending higher ytd, as evidenced by power generation data for the EU ytd
Power generation share by fuel, 1H22 vs 1H21



Source: Eurostat, Goldman Sachs Global Investment Research

Figure 7: China Coal Production (source: GS)

Exhibit 8: China coal production increased by 13.1% yoy
China coal production, mt/month

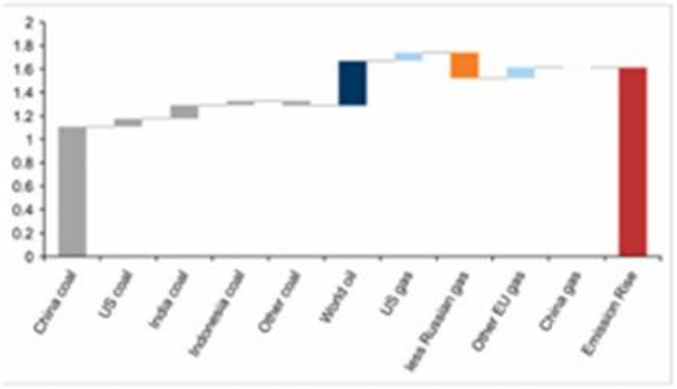


Source: Wind, Goldman Sachs Global Investment Research

Figure 8: China and Europe Emissions (source: various, via GS)

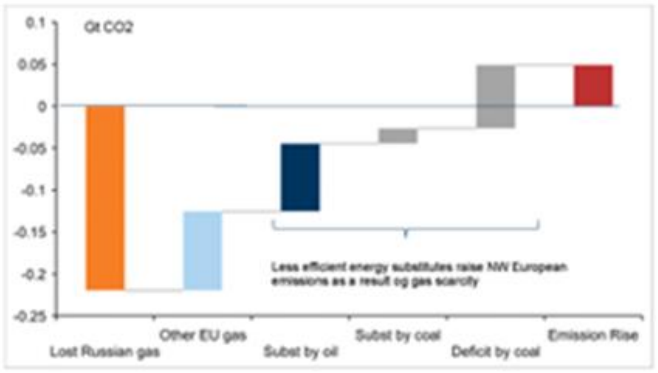
Exhibit 9: The majority of rise in emssions comes from increased Chinese coal

Change in global emissions from energy crisis, Gigatonnes



Source: Wind, Bloomberg, Reuters, WoodMackenzie, Goldman Sachs Global Investment Research

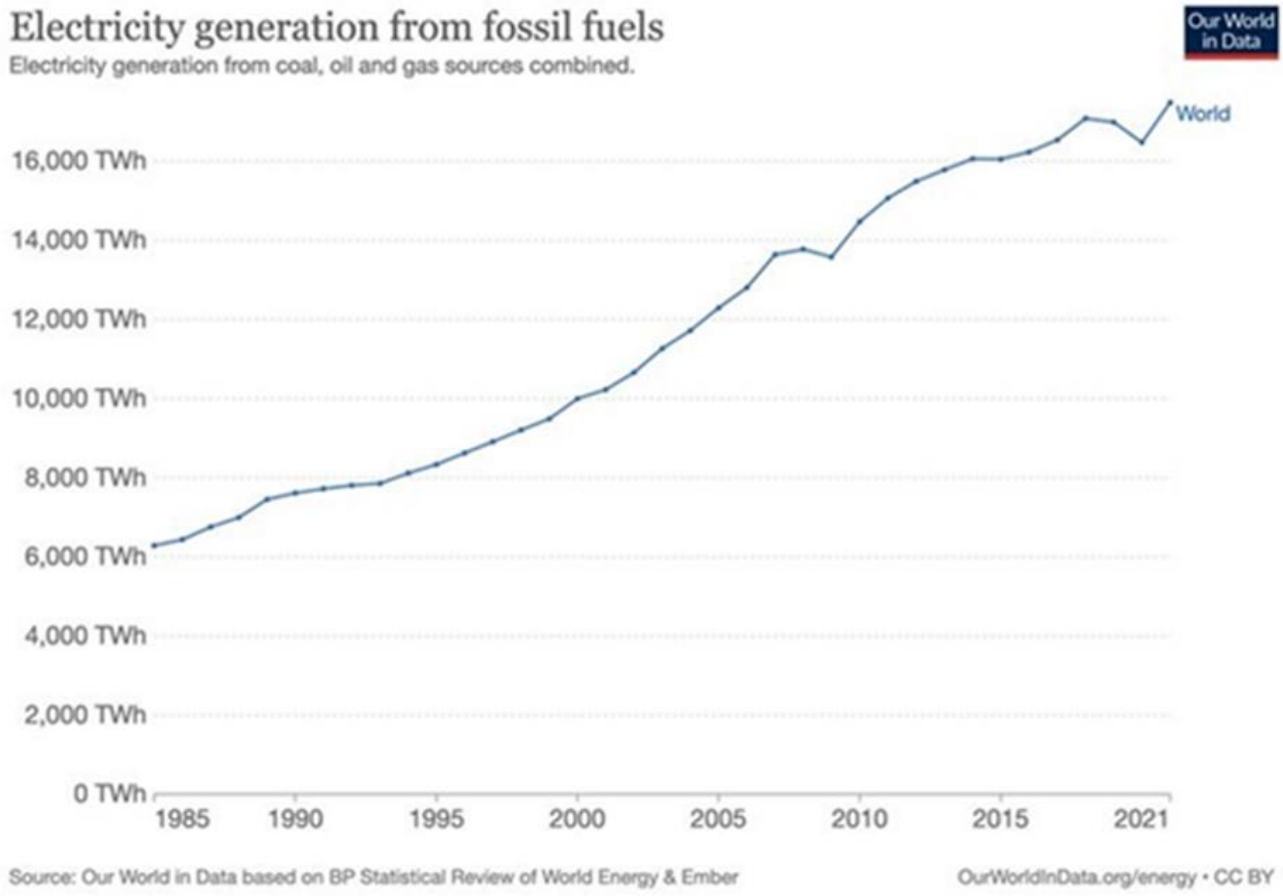
Exhibit 10: To sustain its energy consumption using less efficient resources, NW European emissions will have to rise



Source: Wind, Bloomberg, Reuters, WoodMackenzie, Goldman Sachs Global Investment Research

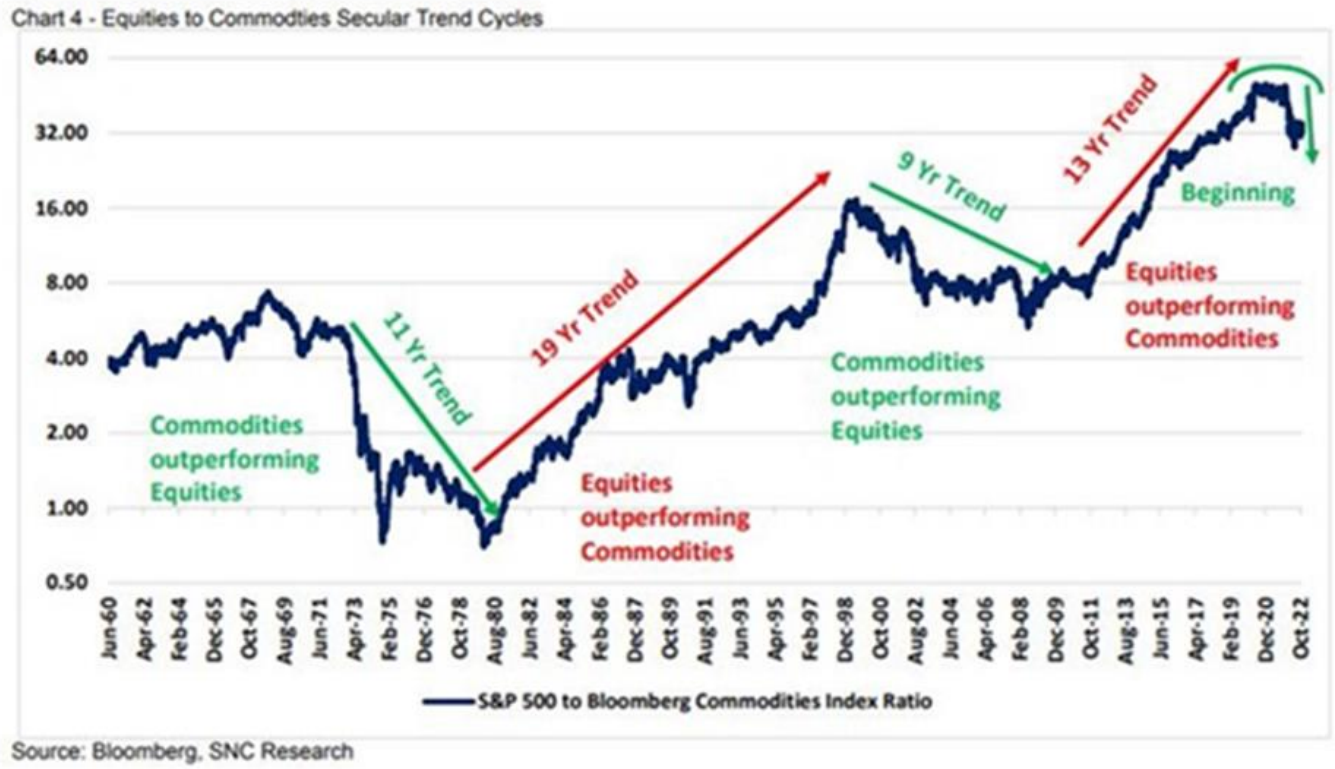
Global electricity generation from fossil fuels has increased 178% since 1985 and based on projected growth in the developing world the world will consume more fossil fuels in 2050 than today (Figure 9).

Figure 9: Electricity Generation from Fossil Fuels (Source: Our World in Data)



Both supply and demand fundamentals and history suggest that we are at the beginning of a sustained period of commodities outperforming equities (Figure 10).

Figure 10: Equities to Commodities Sector Trends (Source: Bloomberg, SNC Research)



The latest Baker Hughes rig count data follows. In November US total rigs rose by 16 from 768 to 784. Oil rigs rose by 17 from 610 to 627 while gas rigs fell by 1 from 156 to 155.

Baker Hughes rig count

Baker Hughes

Rotary Rig Count

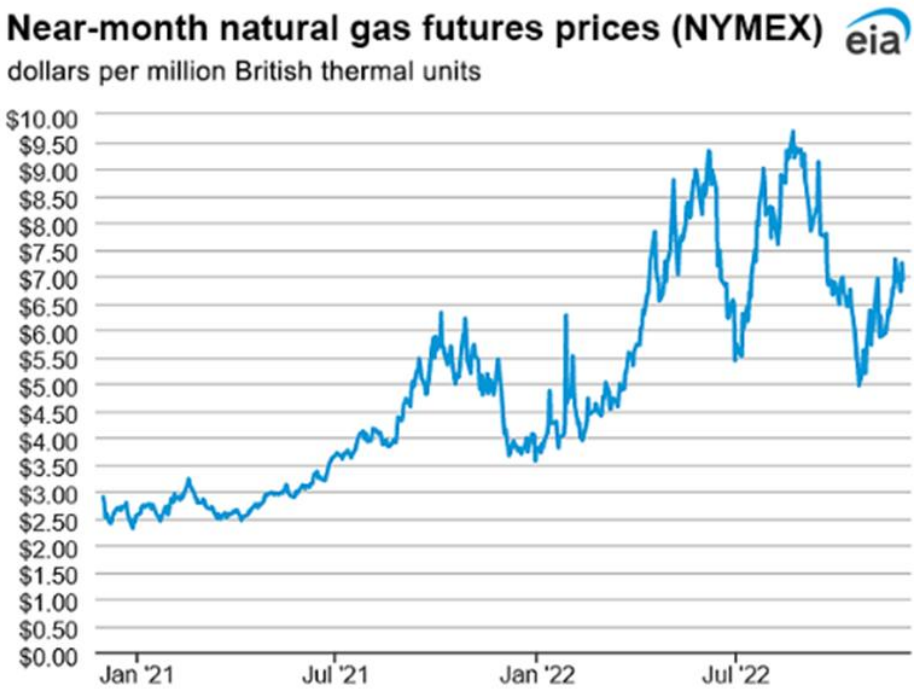
12/2/22

Location	Week	+/-	Week Ago	+/-	Year Ago
Land	763	-1	764	209	554
Inland Waters	3	0	3	1	2
Offshore	18	1	17	5	13
United States Total	784	0	784	215	569
Gulf Of Mexico	17	1	16	4	13
Canada	195	1	194	15	180
North America	979	1	978	230	749
U.S. Breakout Information	**This Week**	**+/-**	**Last Week**	**+/-**	**Year Ago**
Oil	627	0	627	160	467
Gas	155	0	155	53	102
Miscellaneous	2	0	2	2	0
Directional	48	1	47	17	31
Horizontal	711	-3	714	198	513
Vertical	25	2	23	0	25

Gas Market

Prompt Henry Hub gas futures increased over the course of November with continued high intra-month volatility (Figure 11).

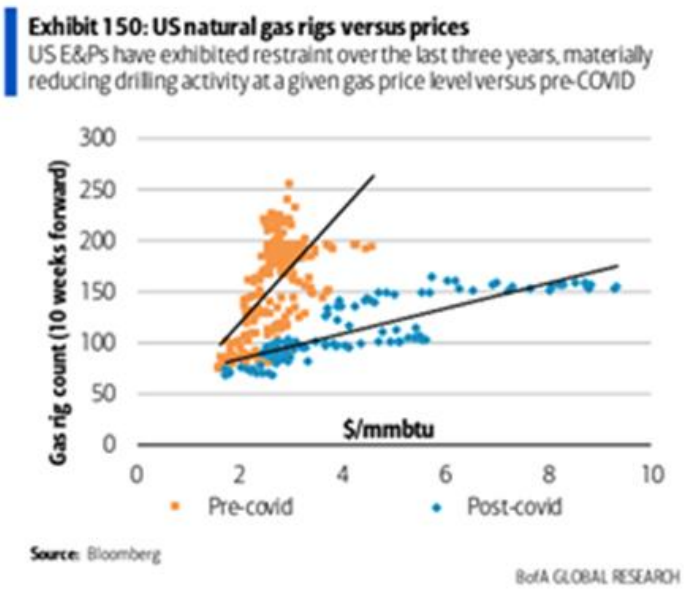
Figure 11: Near Month Henry Hub Futures (Source: EIA)

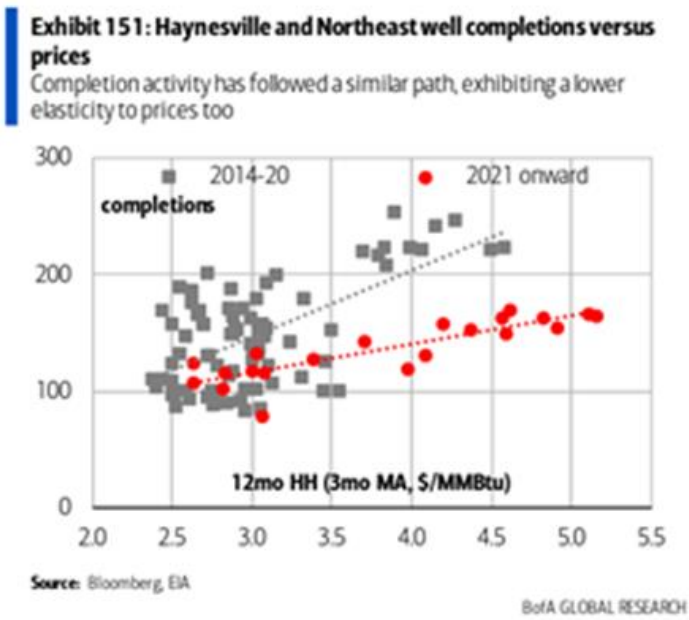


Data source: CME Group as compiled by Bloomberg, L.P.

US gas and oil producers have exhibited restraint over the last three years, a theme that is clearly visible in post-COVID upstream activity trends, where producers have noticeably cut their drilling and completion activity at a given natural gas price (Figure 12).

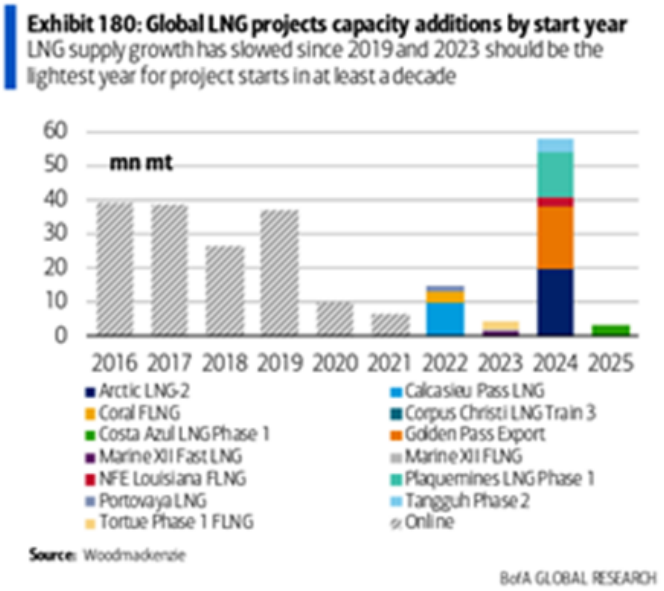
Figure 12: Rigs and Completions vs Gas Prices (Source: Bloomberg, EIA via BofA)

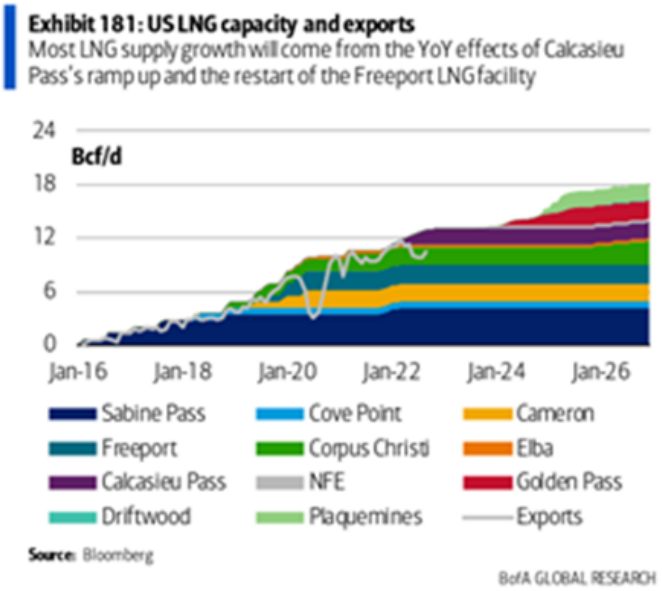




Under pressure from shareholders, cost inflation and limited transport capacity, producers have a handful of reasons to maintain discipline next year and keep to a low single digit growth trajectory until there is good visibility for a meaningful increase in demand. This growth is unlikely to arrive until 2025-26 when the next wave of US LNG export capacity starts to ramp up (Figure 13).

Figure 13: LNG Supply Projects (Source: various, via BofA)



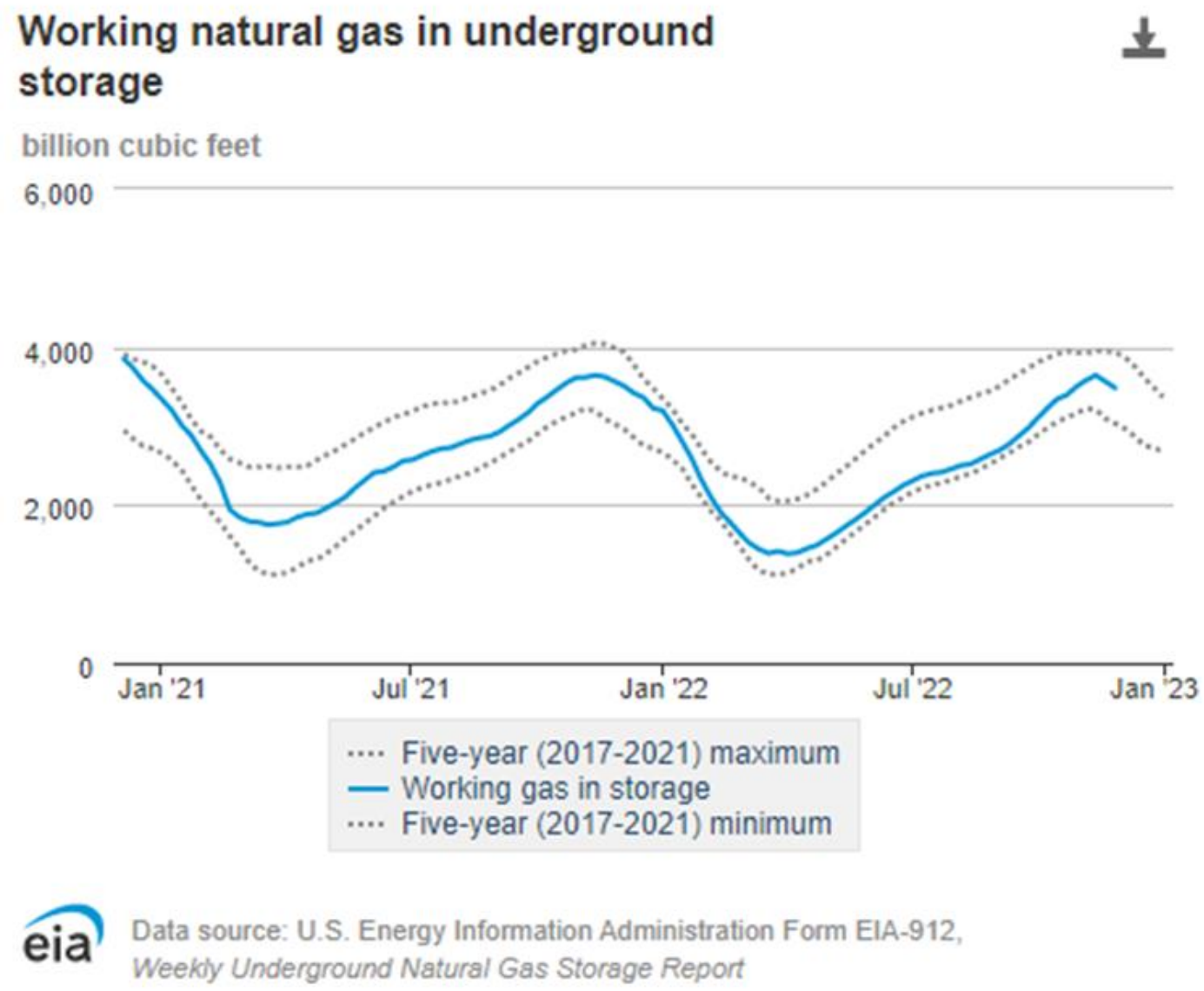


While LNG export capacity additions have slowed to multi-year lows this year, LNG regasification import capacity growth is expected to triple YoY (LHS Figure 14). China and Europe are driving LNG import demand growth, the later leaning on the waterborne market to replace lost Russian pipeline gas (RHS Figure 14)

Figure 14: LNG Import Regas Projects (Source: various, via BofA)

Working gas in storage as of 25 November totalled 3,483 bcf, which is 86 bcf (2%) lower than the five-year average and 89 bcf (2%) lower than this time last year(Figure 15).

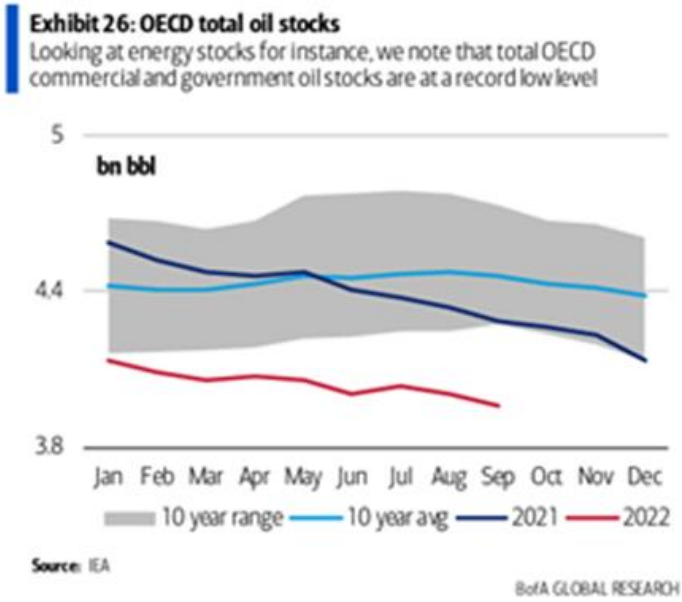
Figure 15: Working Gas in Storage (Source: EIA)



Oil Market

While recession fears are sending oil prices lower, total OECD commercial and government oil stocks are at a record low level (LHS Figure 16). Spare capacity across OPEC+ is also at a minimum (Figure 17). Similar to the position with natural gas, the responsiveness of oil producers to price changes has dropped dramatically (RHS Figure 16). The price elasticity of oil supply has halved in the past couple of years.

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



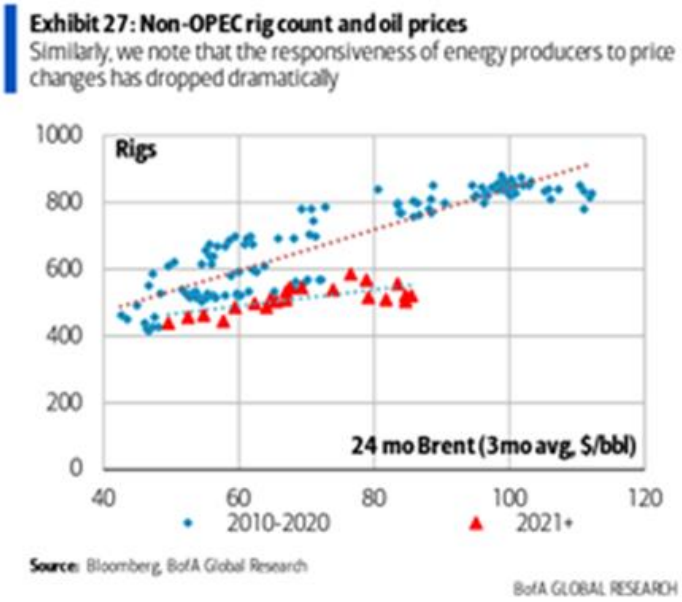
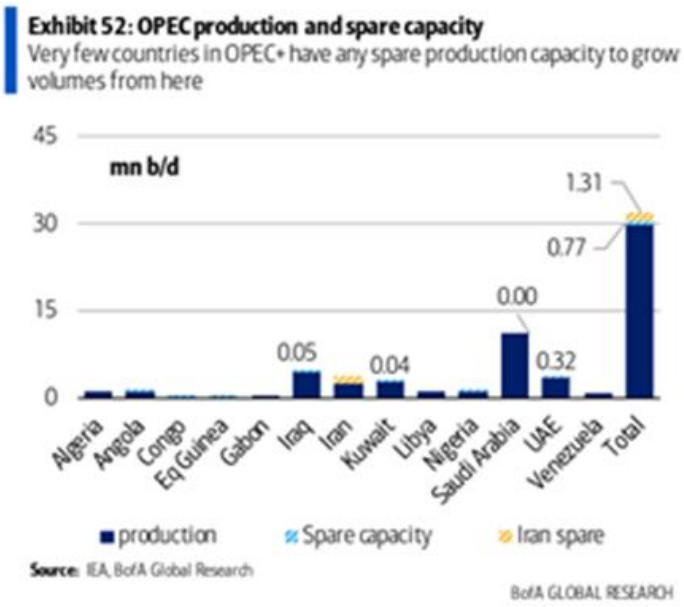
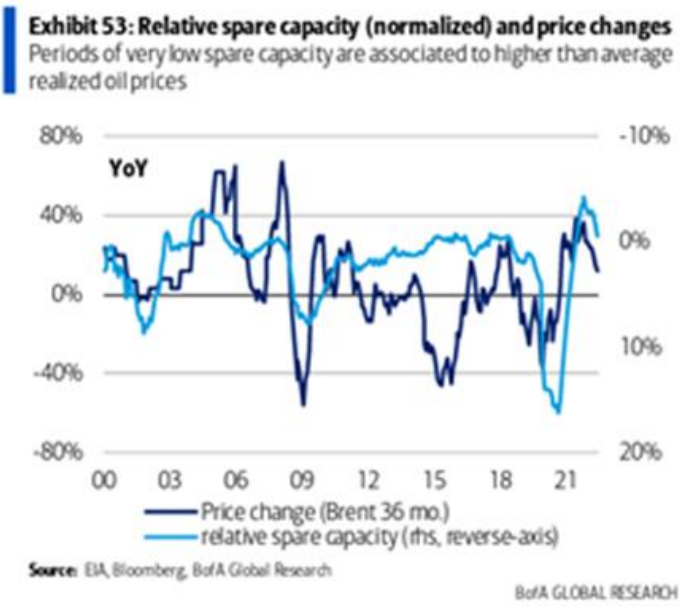


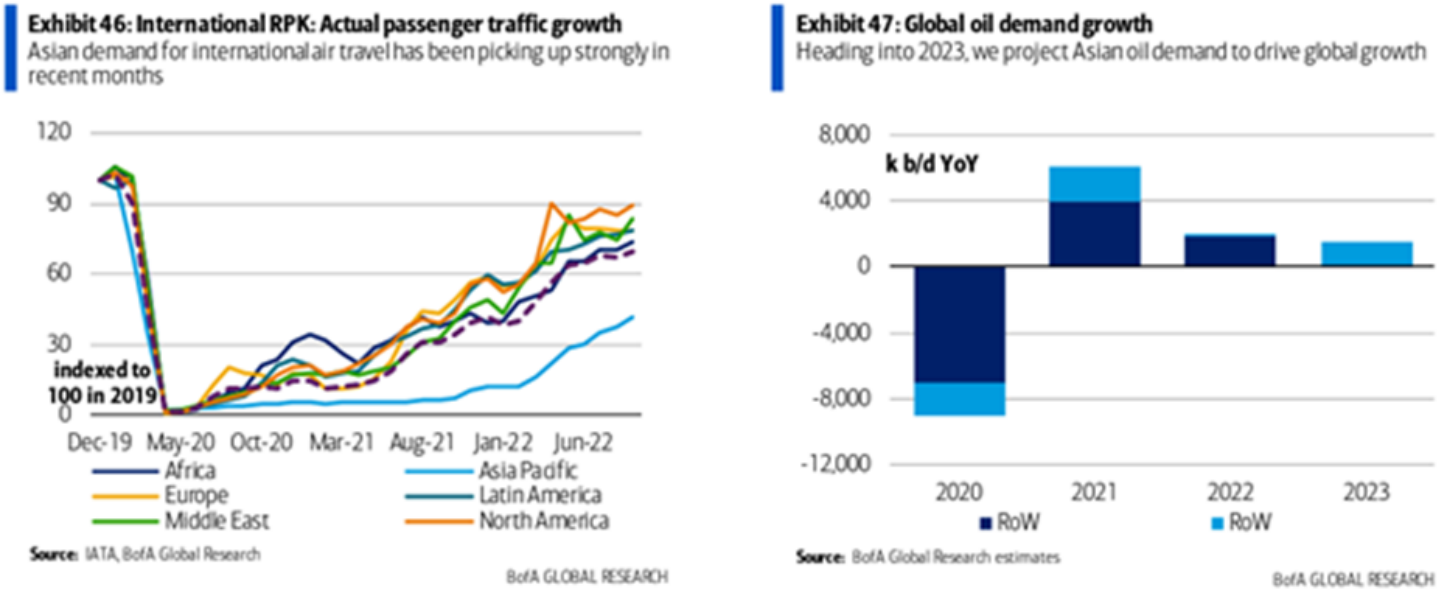
Figure 17: OPEC Production and Spare Capacity (Source: various, via BofA)





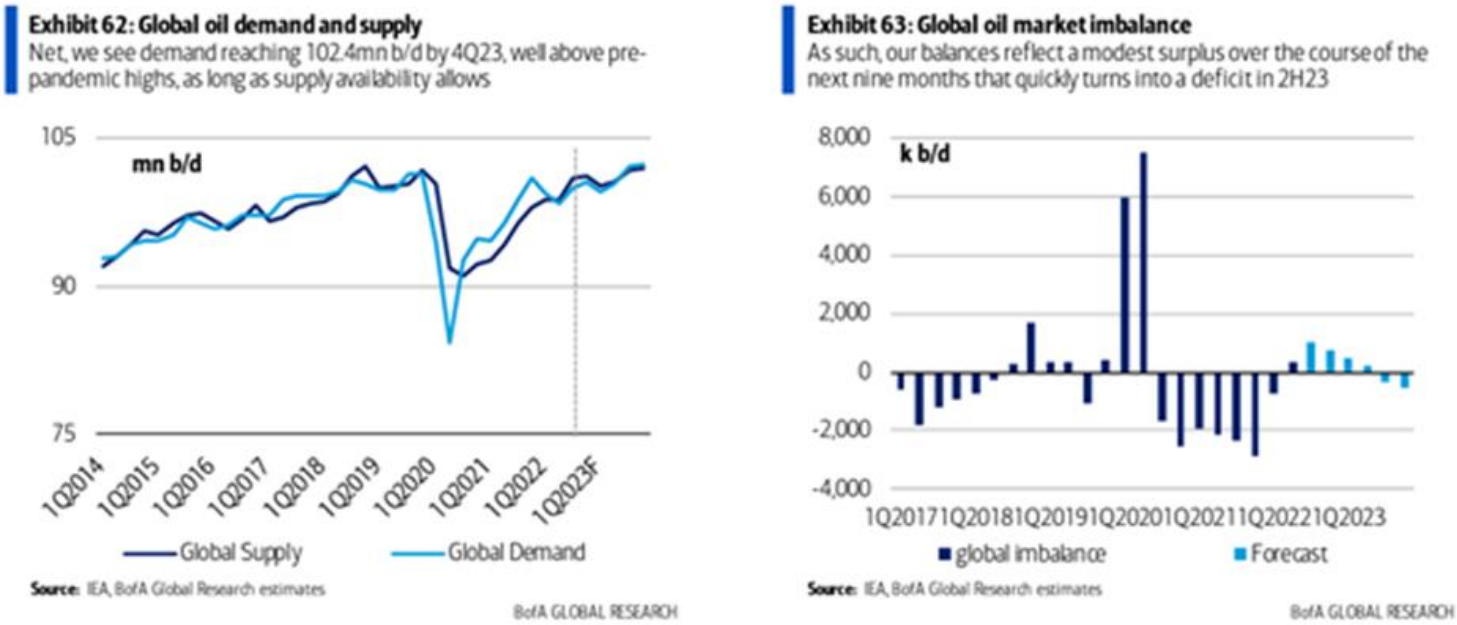
Asian demand for international air travel has risen strongly in recent months (LHS Figure 18). Asian oil demand is expected to drive global demand growth in 2023 (RHS Figure 18).

Figure 18: International Aid Passenger Traffic and Global Oil Demand Growth (Source: various via BofA)



BofA sees total global oil demand reaching 102.4mmbbld by 4Q23, well above pre-pandemic highs (LHS Figure 19). Oil balances reflect a modest surplus for the next nine months which turns into a deficit in 4Q23 (RHS Figure 19).

Figure 19: Global Oil Demand and Supply (Source: IEA, BofA)

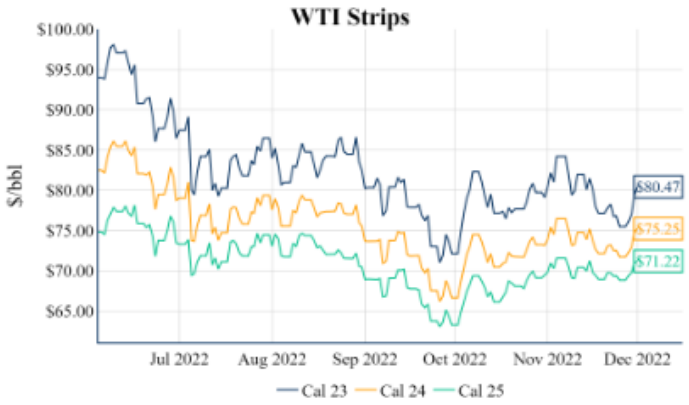


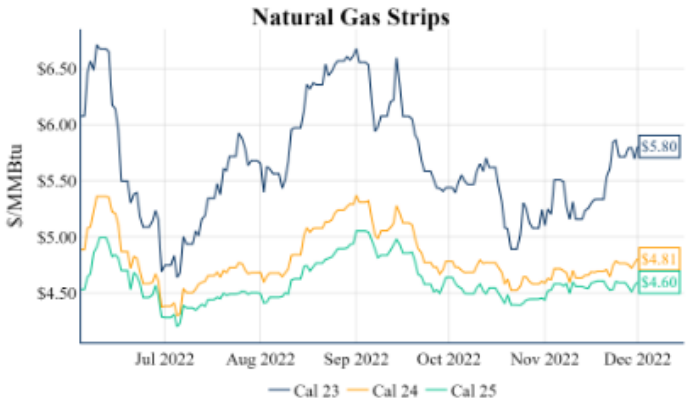
Longreach Energy Holdings LLC

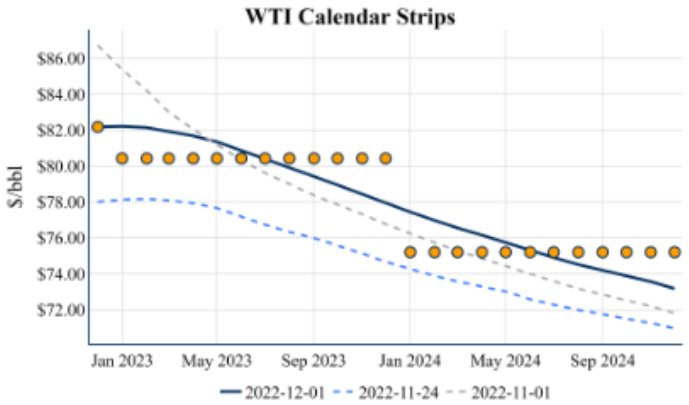
LONGREACH ENERGY

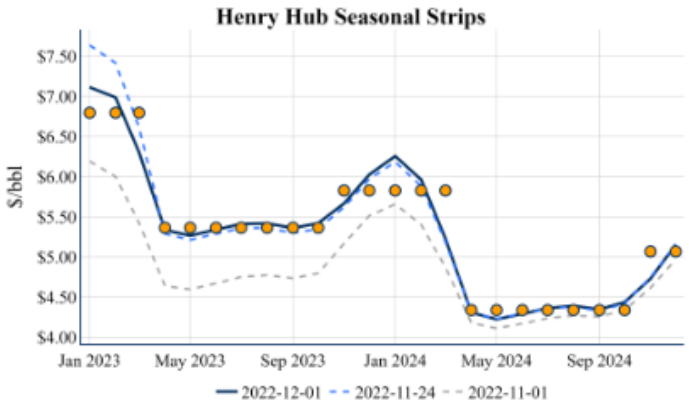
Monthly Report

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

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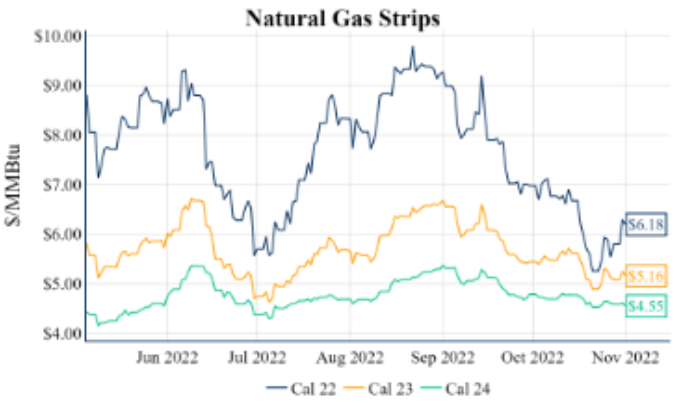

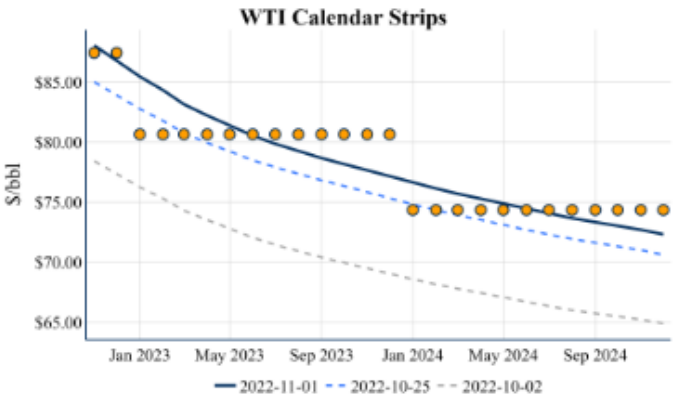

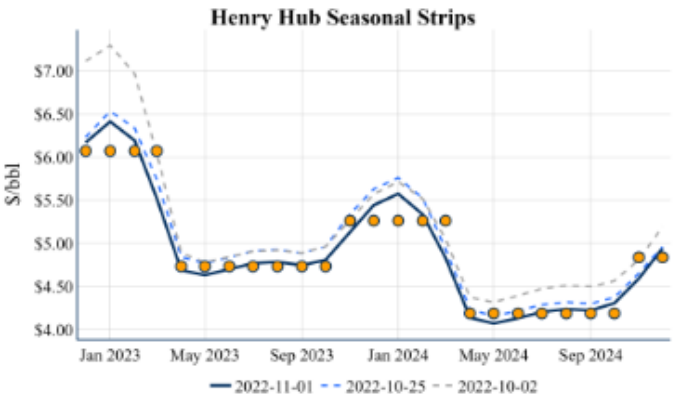

Swap Pricing	Bal 22	Cal 23	Cal 24	Cal 25
NYMEX WTI	$87.45	$80.66	$74.36	$70.46
ICE Brent	$93.66	$86.05	$79.71	$75.94
LLS	$89.12	$83.32	$77.02	$73.11
Mars	$82.60	$77.73	$72.11	$68.23
Western Canadian Crude (WCC)	$60.16	$58.90	$53.27	$55.36
West TX Sour (WTS)	$86.44	$80.16	$73.68	$69.78

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