



Longreach Energy Holdings LLC

FIRM INFORMATION

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1. Market and Macro Industry Commentary

General Market Commentary

US Henry Hub gas prices rose again in August. The prompt contract increased from \$8.23/mmbtu at close of business on 29 July to \$9.13/mmbtu at close on 31 August. Calendar 2022 rose from \$8.35/mmbtu to \$8.25/mmbtu over the same period. With US demand and supply remaining tight and gas supply precarious in much of the world, particularly Europe, high near-term price volatility looks to have settled in for what could be a prolonged period.

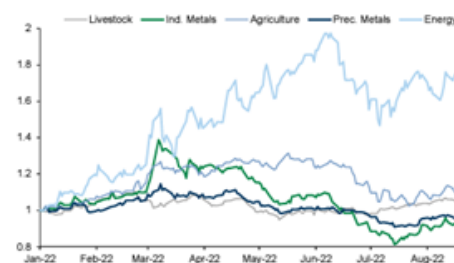
Oil prices continued to fall on Recession fears and the impact of zero-covid on the Chinese economy. The prompt opened August at \$98.62/bbl and closed the month at \$89.55/bbl. Calendar 2022 fell from \$95.35/bbl to \$88.09/bbl.

Goldman Sachs noted in a research note published on 29 August that “excessive inflation fears have gripped commodities markets, especially oil, in June, one of the worst monthly performances in 8 years. Since then major commodity indices have rebounded but oil, petroleum products, aluminium, wheat and corn prices, to name a few, remain well below previous highs while forward curves are weaker than one month ago.”

The exception to this trend is natural gas which has continued to strengthen on extreme supply disruption. Goldman continues “judging by recent price action, we find that commodities are pricing a recession more than any other asset class.” Goldman’s economists view the risk of a recession outside Europe in the next 12 months or so as relatively low and accordingly they conclude that this commodity soft patch provides a great entry point (Figure 1).

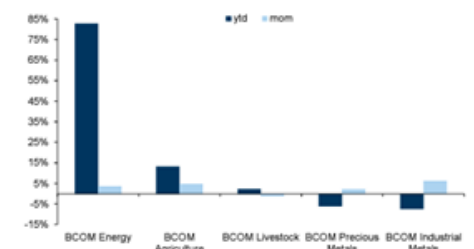
Figure 1: Commodities Performance as of 29 August (Source: GS)

Exhibit 18: We prefer to be overweight energy and agriculture over base and precious metals
BCOM total return indices



Source: Bloomberg, Goldman Sachs Global Investment Research

Exhibit 19: Commodities have also succumbed to rising macro concerns of late



Source: Goldman Sachs Global Investment Research, Bloomberg

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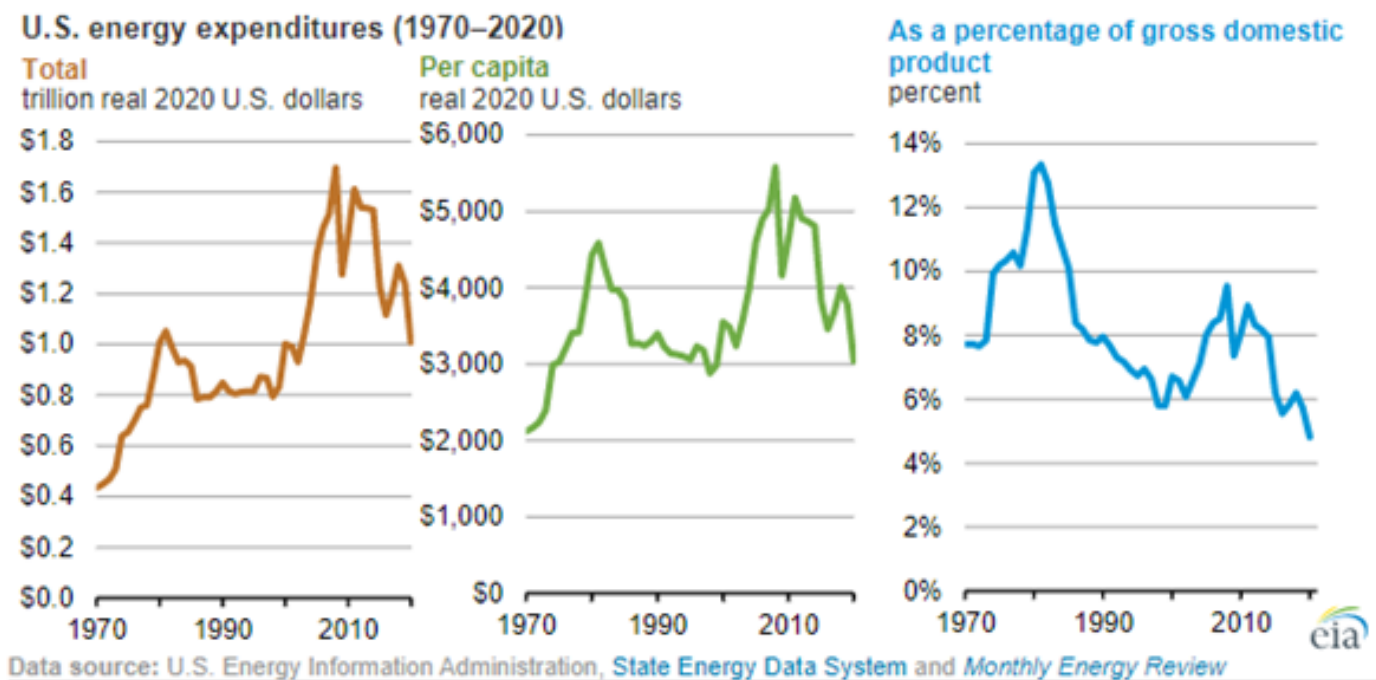
Contrary to the current trend across much of the world, the amount that U.S. consumers spend on energy continues to fall. Total energy spending by US consumers fell to \$1 trillion in 2020, the least amount since 2002 according to the US State Energy Data System (SEDS). Per capita US energy expenditures were \$3,039 per person in 2020, down 19% from 2019. This cost was the lowest per capita US energy expenditure since 1999.

US energy expenditures accounted for 4.8% of GDP in 2020, the lowest share in the US Energy Information Administration’s data series that starts in 1970. This metric compares the total amount of money spent on end-use energy in the United States to the value of all goods and services in the US economy (Figure 2).

The availability of abundant, relatively low-cost energy supply, particularly natural gas, is likely to see energy intensive industries and those that require fossil fuel feedstock, e.g. fertiliser production, move from low supply regions such as Europe and Asia, to the US.

Figure 2: US Energy Expenditures 1970 - 2020 (Source: EIA and SEDS)

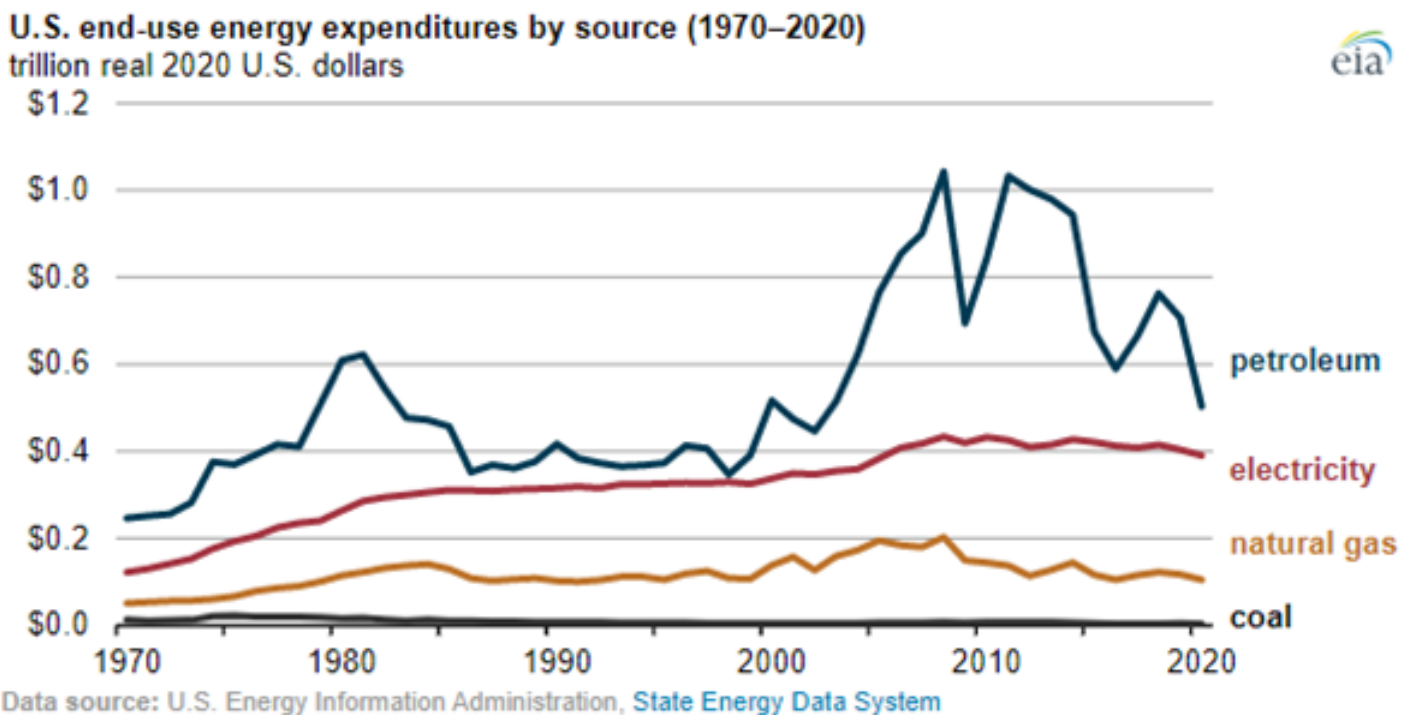
2020 inflation-adjusted U.S. energy expenditures lowest since 2002



Petroleum products, such as motor gasoline, diesel and jet fuel, made up \$503 billion of end-use energy expenditures in 2020, a 29% decrease from 2019 and the least amount since 2002 (Figure 3). Petroleum still comprised half of all end-use energy expenditures in 2020. The second highest end-use expenditures in the United States in 2020 were \$390 billion for electricity, about 39% of the nation's total energy expenditures.

The energy sources used to generate electricity (natural gas, coal, nuclear, renewables and petroleum) are removed from these data to avoid double counting. Natural gas used for purposes other than generating electricity, such as heating homes and buildings, accounted for about 11% (\$106 billion) of the nation's total.

Figure 3: US End-Use Energy Expenditures by Source (Source: EIA, SEDS)



The latest Baker Hughes rig count data follows. In August US total rigs fell by 7 from 767 to 760. Oil rigs fell by 9 from 605 to 596 while gas rigs increased by 5 from 157 to 162. Miscellaneous rigs fell from 5 to 2.

Baker Hughes rig count



Rotary Rig Count

9/2/22

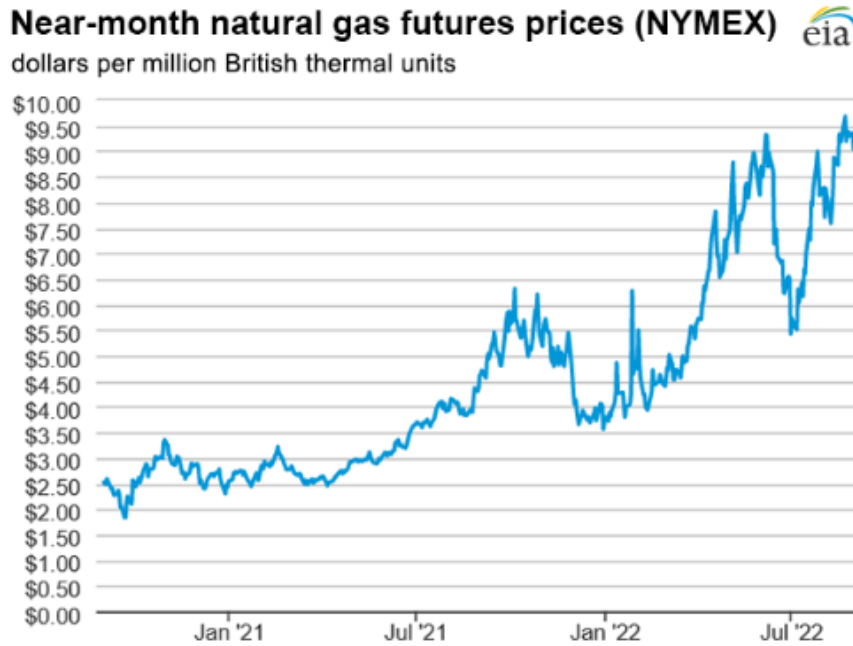
Location	Week	+/-	Week Ago	+/-	Year Ago
Land	741	-3	744	246	495
Inland Waters	3	0	3	3	0
Offshore	16	-2	18	14	2
United States Total	760	-5	765	263	497
Gulf Of Mexico	14	-2	16	14	0
Canada	208	7	201	56	152
North America	968	2	966	319	649
U.S. Breakout Information	This Week	+/-	Last Week	+/-	Year Ago
Oil	596	-9	605	202	394
Gas	162	4	158	60	102
Miscellaneous	2	0	2	1	1
Directional	39	-1	40	28	11
Horizontal	695	1	694	232	463
Vertical	26	-5	31	3	23

It is interesting to note that Baker Hughes data show that the rest of the world outside North America (including all OPEC countries but excluding Russia), has a total of 860 rigs running in August 2022, only 100 more than are running in the US alone.

Gas Market

Prompt Henry Hub gas futures fell early in August but then rallied to finish above July's close (Figure 4). The sell-off in early August was prompted by an announcement from Freeport that their LNG facility would commence operations by the end of October and build to full capacity over the following months. While this statement merely confirmed prior information, it led to a \$0.70/mmbtu intra-day move and a sharp sell-off in following days. We expect that this high volatility, exacerbated by low liquidity, will endure for some time.

Figure 4: Near Month Henry Hub Futures (Source: EIA)

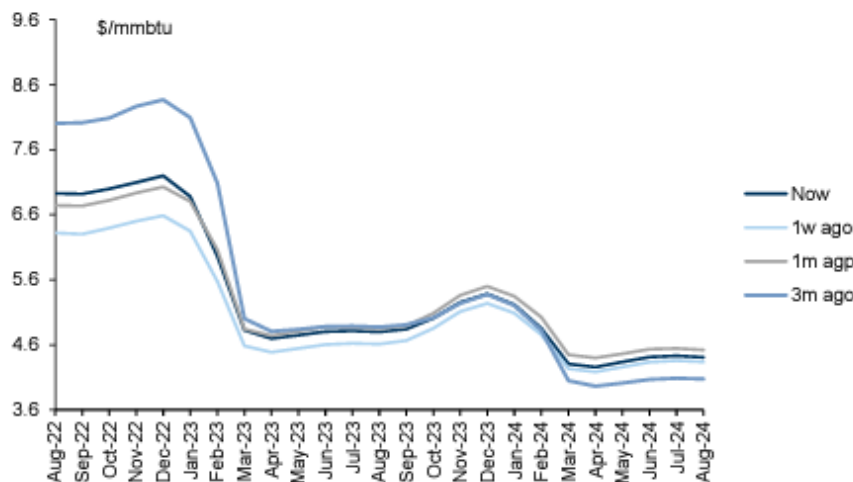


Data source: CME Group as compiled by Bloomberg, L.P.

The Henry Hub forward curve has moved significantly higher to March 2023 (the end of winter) but risen only modestly beyond that date (Figure 5).

Figure 5: Henry Hub Forward Curve (Source: Bloomberg via GS)

Exhibit 72: Henry Hub Natural Gas



Source: Bloomberg, Goldman Sachs Global Investment Research

Europe remains the key focus of international energy markets. In late August European gas and power prices soared to new levels of unaffordability (RHS Figure 6). The most recent leg higher in prices at the Title Transfer Facility (TTF) in the Netherlands and baseload power started with the announcement of more Nord Stream I (NS1, the main gas supply pipeline from Russia to Germany) pipeline maintenance and concern that the outage may be longer than expected (LHS Figure 6). This concern has now been confirmed with Russian authorities announcing that no gas will be supplied through the pipeline until all European sanctions on Russia have been removed.

Next, French nuclear generation slumped to new 10-year lows and EDF announced maintenance extensions at several nuclear facilities already off-line. These factors helped drive TTF prices to a record €340/MWh (\$98/mmbtu) on 26 August. Meanwhile, French baseload power prices for Nov 22 – Feb 23 hit €1,800/MWh or about \$3,000/boe, and FY2023 baseload power hit a record of €1,150/MWh, up from just €50/MWh at the beginning of 2021.

TTF has now fallen back a little and is currently trading around \$70/mmbtu while the Japan Korea Market (JKM) Asian LNG spot price is up about \$20/mmbtu over the month to trade around \$55/mmbtu.

Figure 6: Russian Gas Supply to Europe and European and UK Gas Prices (Source: Bloomberg via GS)

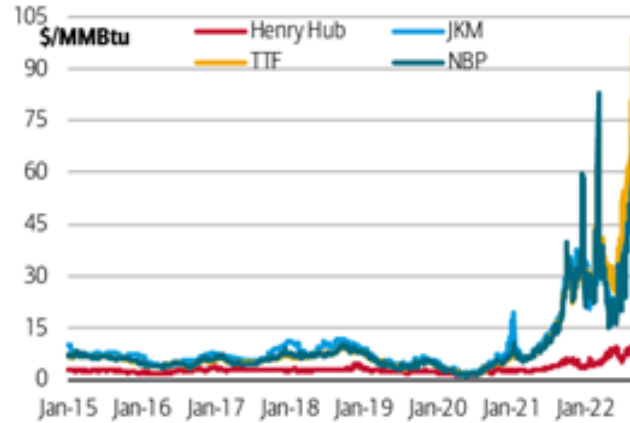


US gas remains cheap relative to primary international markets (LHS Figure 7). While increasing energy prices are starting to receive focus in Australia, relative to other markets Australian price increases have been modest. Power prices in France and Germany are about 12x January 2021 levels, Japanese power prices are about 4x January 2021 while Australia is (merely) 2.5x (RGS Figure 7).

Figure 7: Front Month Global Gas Prices and Global Power Prices (Source: Bloomberg via GS)

Exhibit 16: Front month global gas prices

TTF prices have led the charge since July, trading up towards \$100/mmbtu, while NBP and JKM prices trail about \$30/mmbtu behind

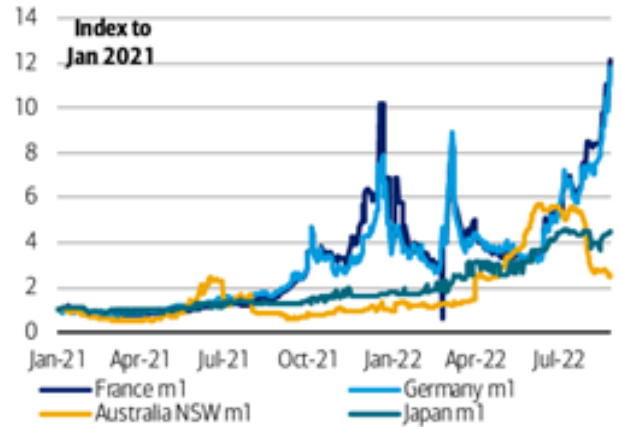


Source: Bloomberg

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Exhibit 17: Front month power prices

Power prices in France and Germany are trading about 12x January 2021 levels, while power prices in Australia and Japan have risen to just 2.5x and 4x



Source: Bloomberg

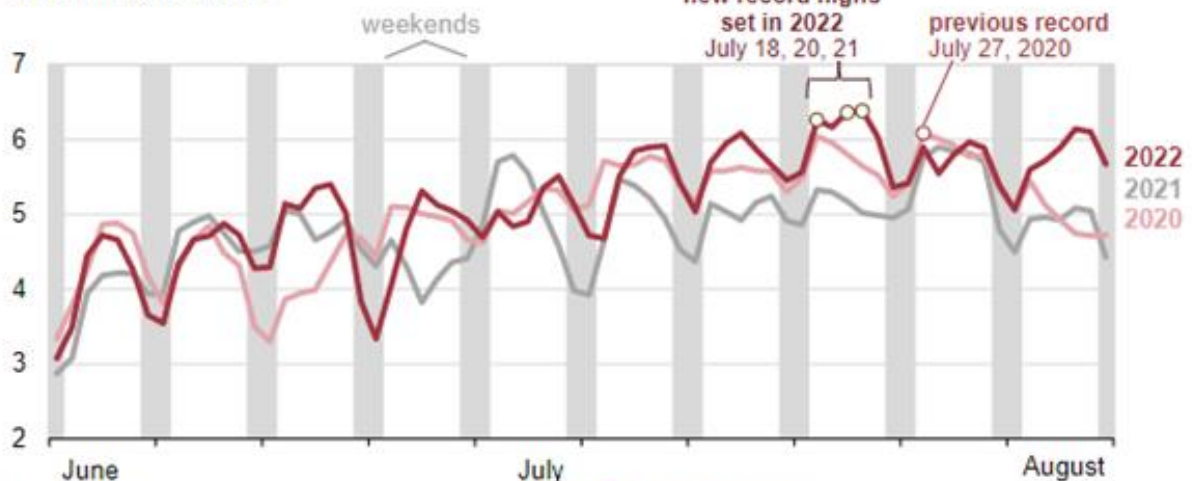
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Daily US electricity generation from natural gas hit a record in mid-July (Figure 8). Despite relatively high natural gas prices (Henry Hub in July averaged \$7.28/mmbtu vs \$1.77/mmbtu in July 2021), demand for natural gas for electricity generation was strong throughout July because of above normal temperatures, reduced coal-fired generation, and recent natural gas-fired capacity additions. US electricity demand usually peaks in summer because of demand for air conditioning.

Figure 8: Daily US Natural Gas-Fired Electricity Generation (Source: EIA)

Daily U.S. electricity generation from natural gas hit a record in mid-July

Daily U.S. natural gas-fired electricity generation (selected weeks in 2020–2022)
million megawatthours

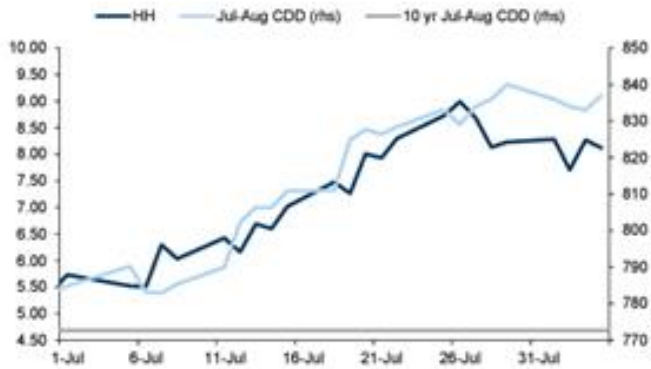


Data source: U.S. Energy Information Administration, *Hourly Electric Grid Monitor*
Note: We adjusted values for previous years to align weekdays and weekends.

Cooling Degree Days (CDD) is the measure of hot weather. The relationship between Henry Hub and CDD is shown LHS Figure 9. Demand is however responding, production is rising (RHS Figure 9) as the gas focused rig-count rises (Figure 10). The gas focused rig-count in March 2020 – around the start of the pandemic – was 106. By late July 2020 this had fallen to 68. Since then, the rig-count has steadily risen, the March 2020 value was reached in January 2022 and in August the average gas rig-count was 160.

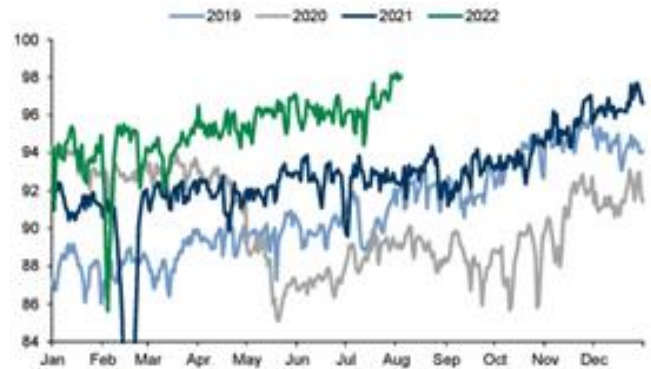
Figure 9: CDD vs Henry Hub and US Gas Production (Source: GS)

Exhibit 14: Hotter than average weather drove a large rally in US natural gas throughout July
HH and Cooling Degree Days, \$/mmBtu and CDDs



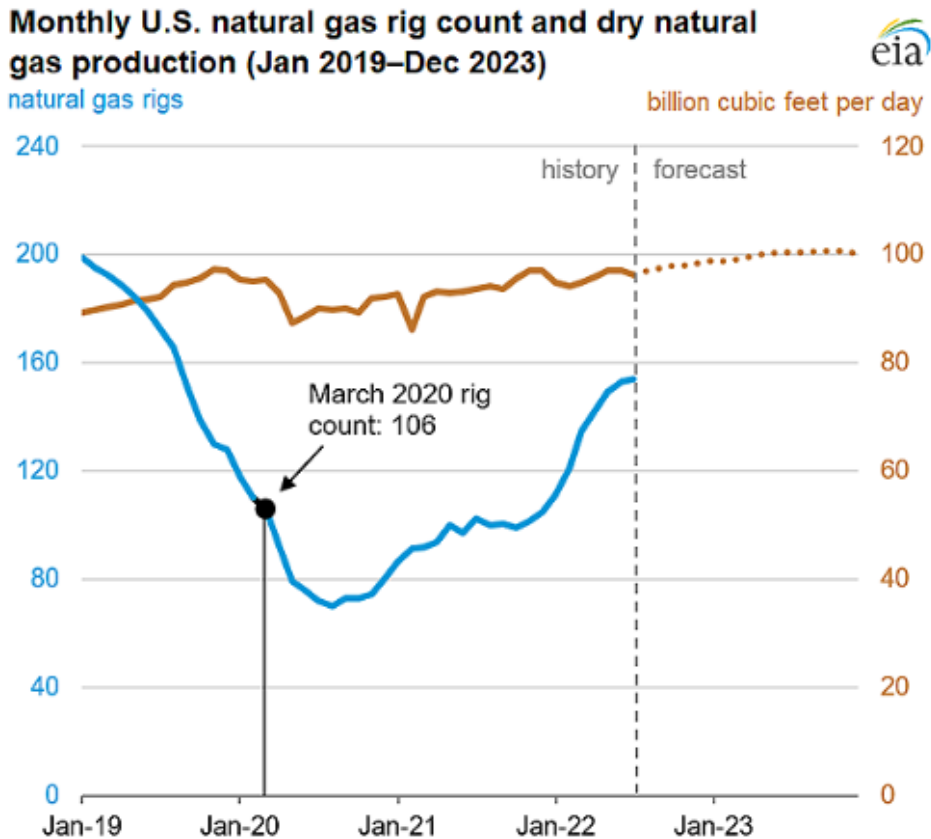
Source: Bloomberg, Goldman Sachs Global Investment Research

Exhibit 15: Rising US gas production should help offset draws from hotter weather
US dry gas production, Bcf/d



Source: Goldman Sachs Global Investment Research, Bloomberg

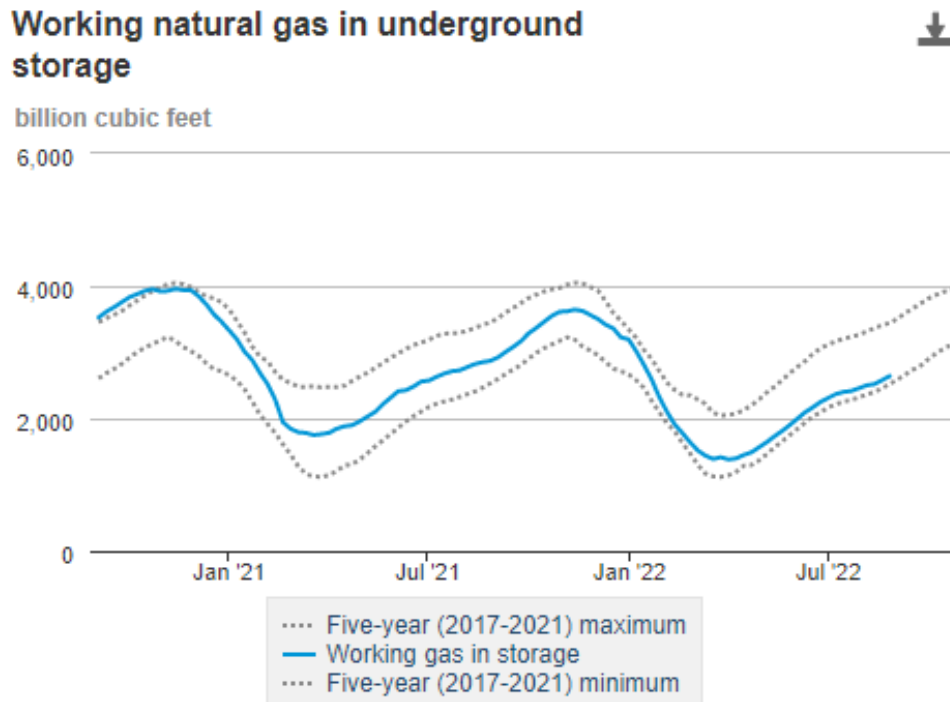
Figure 10: US Natural Gas Rig Count and Dry Gas Production (Source: EIA)



Data source: U.S. Energy Information Administration, *Short-Term Energy Outlook* (production), and Baker Hughes Company (rig count)

Working gas in storage as of 26 August totalled 2,540 bcf, this is 338 bcf (11%) lower than the five-year average and 228 bcf (8%) lower than last year at this time (Figure 11).

Figure 11: Working Gas in Storage (Source: EIA)



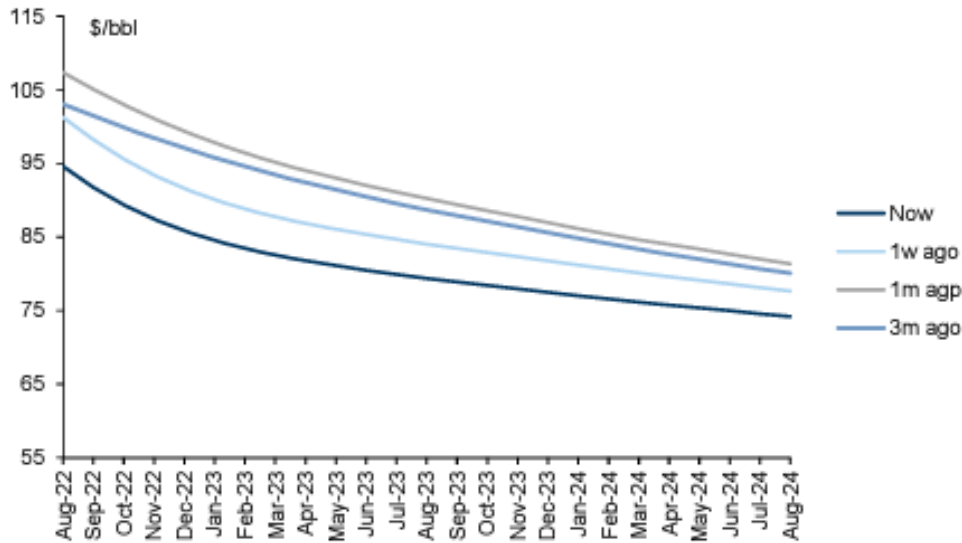
Data source: U.S. Energy Information Administration Form EIA-912, *Weekly Underground Natural Gas Storage Report*

Oil Market

Oil prices continued to drift lower in August (Figure 12) with interest rates rising and China's Covid-0 policy still causing economic costs and reduced demand.

Figure 12: WTI Crude Oil Forward Curves (Source: Bloomberg via GS)

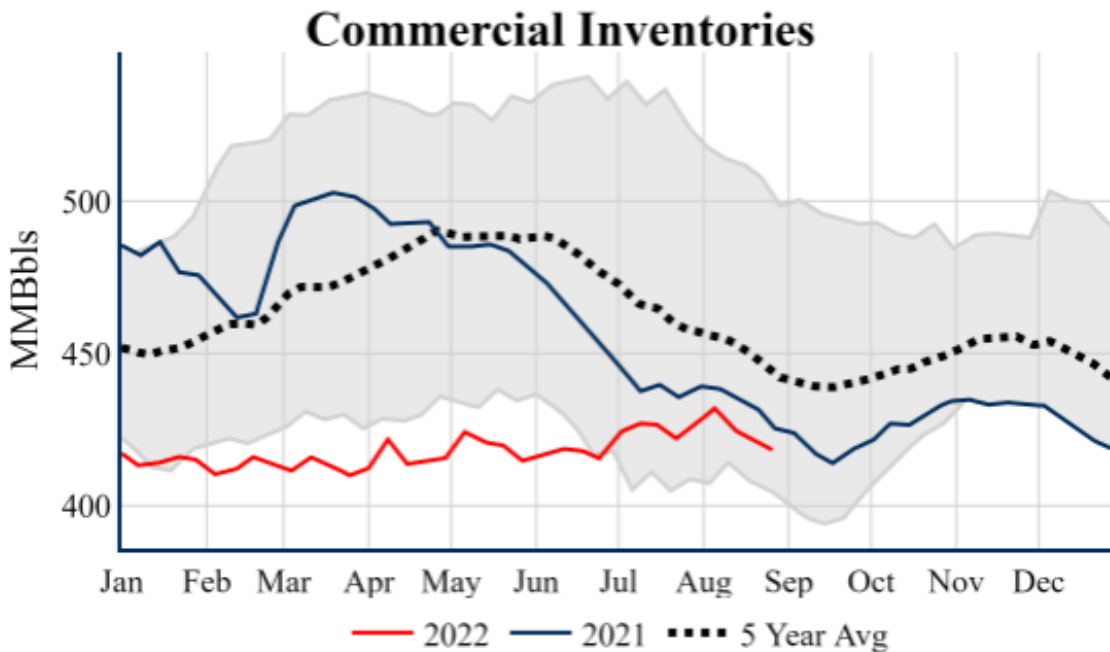
Exhibit 69: WTI Crude Oil



Source: Bloomberg, Goldman Sachs Global Investment Research

The structural shortfall in oil production will remain an issue for the oil market over coming years. US commercial oil inventories are now at a deficit of 8.10 mmbbls (-1.9%) to last year and a deficit of 25.20 mmbbls (-5.7%) to the five-year average (Figure 13).

Figure 13: US Commercial Oil Inventories (Source: EIA)

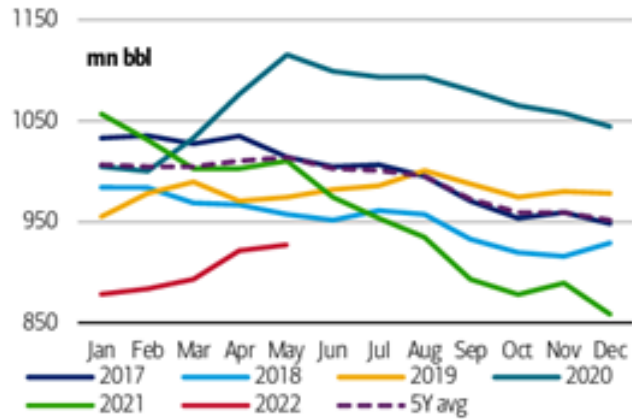


US oil stocks are much higher than Europe where inventories remain exceptionally low (Figure 14).

Figure 14: European and US Oil Inventories (Source: EIA, Bloomberg, via BofA)

Exhibit 6: OECD Europe total oil stocks (industry)

In Europe, inventories remain exceptionally low across the board and regional energy prices are soaring

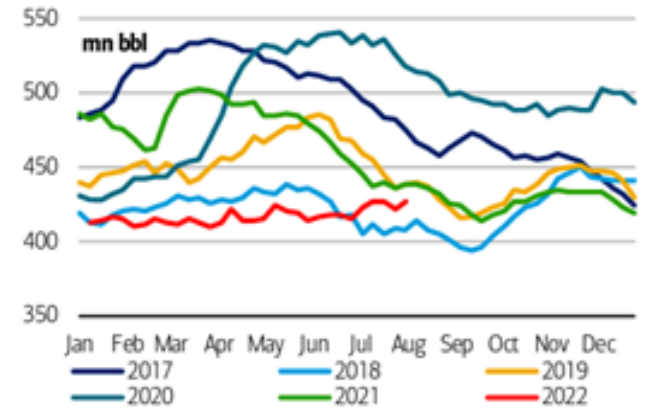


Source: IEA

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Exhibit 7: US crude oil inventories

In contrast, crude oil stocks in the US have increased during the past few weeks and eased pressures on WTI



Source: Bloomberg

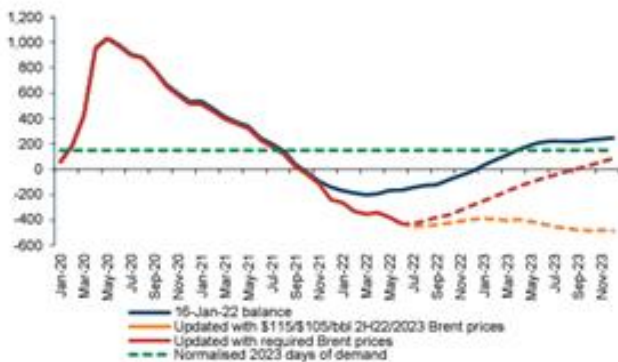
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Goldman Sachs' latest supply and demand expectations are unable to rebuild the inventory buffer that has historically been required for stable markets without increased prices causing demand destruction (LHS Figure 15). Global spare capacity remains tight (RHS Figure 15).

Figure 15: GS Supply Demand Model and Global Spare Oil Production Capacity (Source: various, via GS)

Exhibit 20: Our updated supply and demand expectations are unable to rebuild the required inventory buffer (without assuming additional price driven-demand destruction)

Global stocks vs Dec-19 levels at previous assumed Brent prices before marginal demand destruction and shale growth (mb)



Source: Kpler, Kayros, JODI, IEA, EIA, PAJ, PJK ARA, Dilchem, IE Singapore, Goldman Sachs Global Investment Research

Exhibit 21: Spare capacity is likely to remain at uncomfortable, historical lows

Global spare oil production capacity in mb/d (lhs) and % (rhs)



Source: IEA, EIA, Platts, Goldman Sachs Global Investment Research

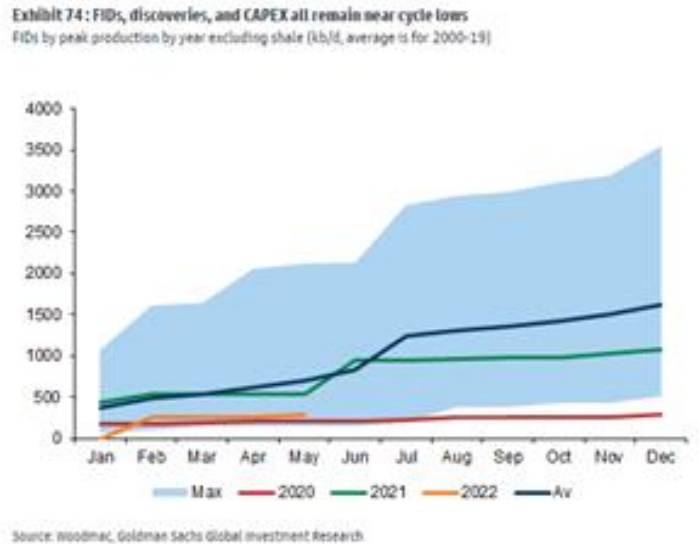
Increased investment is delivering an acceleration of US onshore production (LHS Figure 16) while in the Permian basin private drilling is starting to slow, as cost inflation and capacity constraints start to bite (RHS Figure 16).

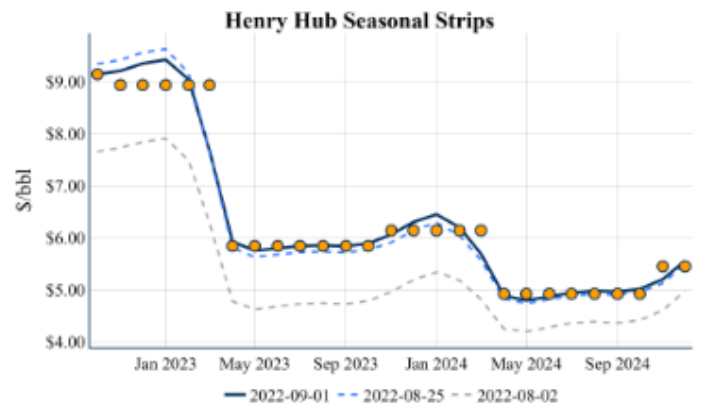
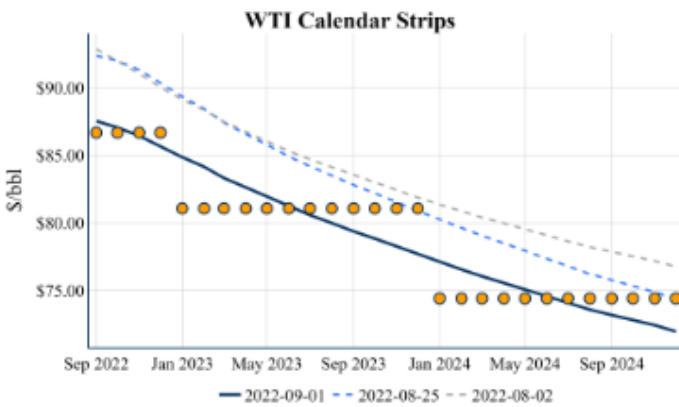
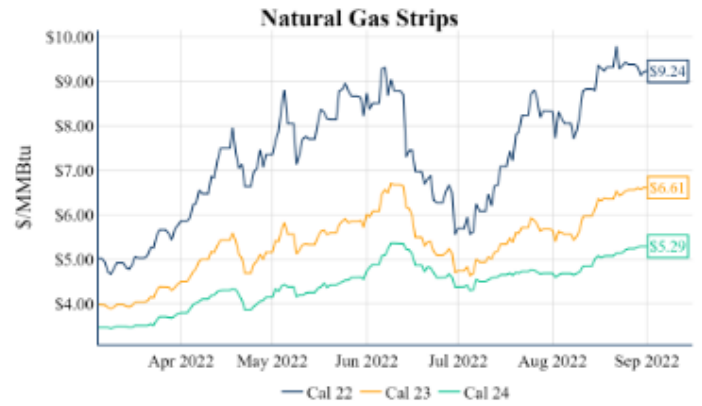
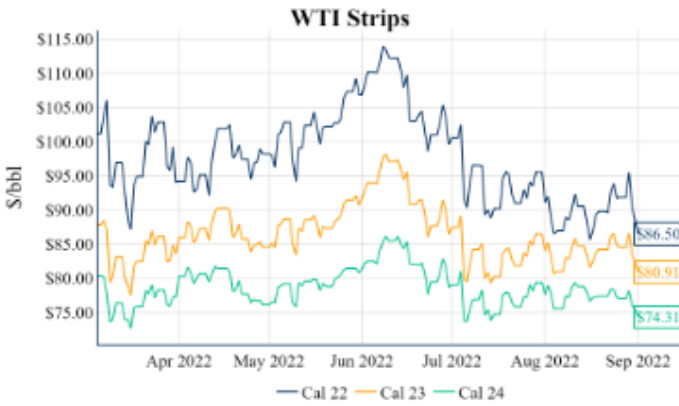
Figure 16: US Onshore Production and Permian Rig Count by Producer Capital Structure (Source: various, via GS)



Outside the US, rig counts are not increasing at the rate that would usually be expected with current oil prices (LHS Figure 17). Final Investment Decisions (FIDs), discoveries and Capex all remain near cycle lows (RHS Figure 17).

Figure 17: Non-US Rig Count and FIDs by Peak Production Per Year excluding Shale (Source: various, via GS)

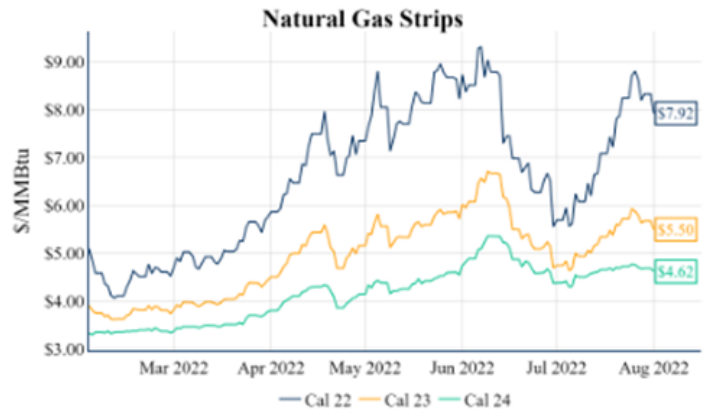
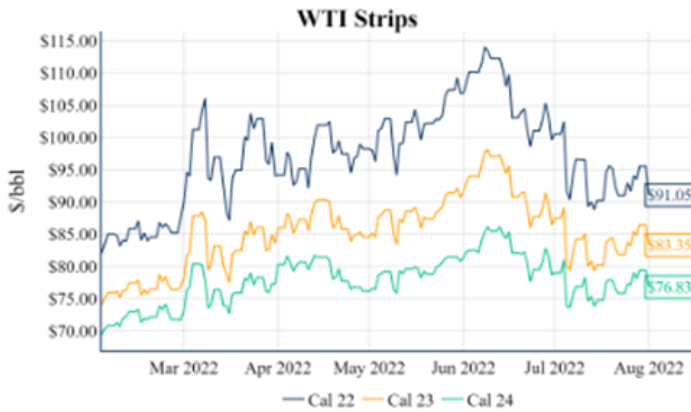
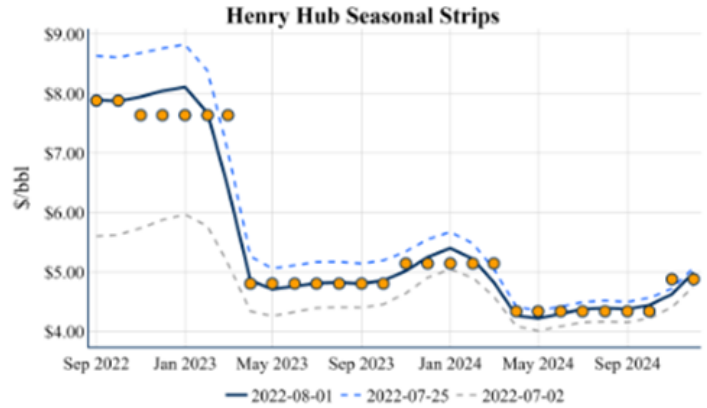
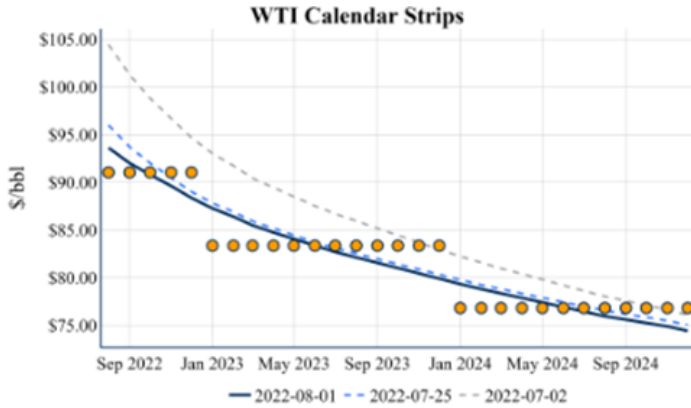


Gas and Oil Prices 1 September 2022


Swap Pricing	Bal 22	Cal 23	Cal 24	Cal 25
NYMEX WTI	\$86.67	\$81.06	\$74.41	\$69.51
ICE Brent	\$91.89	\$85.70	\$79.58	\$75.16
LLS	\$89.52	\$83.23	\$76.58	\$71.62
Mars	\$84.92	\$79.36	\$72.87	\$67.97
Western Canadian Crude (WCC)	\$66.90	\$63.73	\$56.67	\$54.41
West TX Sour (WTS)	\$87.10	\$81.22	\$74.47	\$69.58

Swap Pricing	Month 1	Summer 22	Winter 22/23	Summer 23	Winter 23/24
Henry Hub Fixed	\$9.149	\$9.149	\$8.941	\$5.846	\$6.138
Eastern Gas South	-\$1.495	-\$1.495	-\$0.814	-\$1.221	-\$0.686
Waha	-\$2.234	-\$2.234	-\$1.770	-\$2.192	-\$1.013
TETCO M3	-\$1.384	-\$1.384	\$4.933	-\$1.054	\$2.721
Houston Ship Channel	-\$0.807	-\$0.807	-\$0.106	-\$0.229	\$0.012
Columbia Gulf Mainline	-\$1.072	-\$1.072	-\$0.423	-\$0.419	-\$0.265
Panhandle East	-\$1.143	-\$1.143	-\$0.114	-\$0.656	\$0.027
NGPL MidCon	-\$0.880	-\$0.880	-\$0.113	-\$0.538	\$0.015
SoCal	-\$0.404	-\$0.404	\$0.876	\$0.166	\$0.830
AECO	-\$4.150	-\$4.150	-\$2.936	-\$1.759	-\$1.390
Chicago City-Gates	-\$0.628	-\$0.628	\$0.341	-\$0.244	\$0.344

Gas and Oil Prices 1 August 2022



Swap Pricing	Bal 22	Cal 23	Cal 24	Cal 25
NYMEX WTI	\$91.04	\$83.35	\$76.82	\$72.10
ICE Brent	\$96.40	\$88.70	\$82.51	\$78.23
LLS	\$95.78	\$87.34	\$80.42	\$75.77
Mars	\$89.22	\$81.64	\$75.29	\$70.71
Western Canadian Crude (WCC)	\$70.68	\$65.85	\$59.02	\$57.01
West TX Sour (WTS)	\$91.43	\$83.46	\$76.95	\$72.29

Swap Pricing	Month 1	Summer 22	Winter 22/23	Summer 23	Winter 23/24
Henry Hub Fixed	\$7.896	\$7.884	\$7.639	\$4.806	\$5.142
Eastern Gas South	-\$1.166	-\$1.274	-\$0.753	-\$1.282	-\$0.796
Waha	-\$0.918	-\$1.037	-\$0.968	-\$1.805	-\$0.774
TETCO M3	-\$1.005	-\$1.146	\$4.529	-\$0.980	\$2.620
Houston Ship Channel	-\$0.395	-\$0.398	-\$0.026	-\$0.188	\$0.034
Columbia Gulf Mainline	-\$0.726	-\$0.771	-\$0.339	-\$0.378	-\$0.247
Panhandle East	-\$0.577	-\$0.569	\$0.193	-\$0.530	\$0.080
NGPL MidCon	-\$0.505	-\$0.496	\$0.117	-\$0.453	\$0.014
SoCal	\$0.274	-\$0.067	\$0.891	\$0.059	\$0.765
AECO	-\$3.450	-\$3.390	-\$2.645	-\$1.365	-\$1.179
Chicago City-Gates	-\$0.291	-\$0.280	\$0.554	-\$0.194	\$0.382



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