Guinness Global Energy

Investment Commentary – August 2024

RISK

This is a marketing communication. Please refer to the prospectuses, supplements, KIDs and KIIDs for the Funds, which contain detailed information on their characteristics and objectives, before making any final investment decisions.

The Funds are equity funds. Investors should be willing and able to assume the risks of equity investing. The value of an investment and the income from it can fall as well as rise as a result of market and currency movement, and you may not get back the amount originally invested. Further details on the risk factors are included in the Funds' documentation, available on our website.

Past performance does not predict future returns.

ABOUT THE STRATEGY

Launch	31.12.1998
Index	MSCI World Energy
Sector	IA Commodity/Natural Resources
Managers	Will Riley Jonathan Waghorn Tim Guinness
EU Domiciled	Guinness Global Energy Fund
UK Domiciled	WS Guinness Global Energy Fund

INVESTMENT POLICY

The Guinness Global Energy Funds invest in listed equities of companies engaged in the exploration, production and distribution of oil, gas and other energy sources. We believe that over the next twenty years the combined effects of population growth, developing world industrialisation and diminishing fossil fuel supplies will force energy prices higher and generate growing profits for energy companies. The Funds are actively managed and use the MSCI World Energy Index as a comparator benchmark only.

CONTENTS

COMMENTARY

OIL

Prices fall in July, OPEC+ target a stable market

Brent and WTI spot oil prices ended weaker in July. WTI closed down $6/bl at $78/bl and Brent down $6/bl at $81/bl. Although the International Energy Agency (IEA) continues to expect global oil demand growth of 1m b/day in 2024, the mix has shifted a little, with weaker demand in China offset by stronger demand in the US. OPEC+ continues to watch the market closely, managing OECD inventories to match seasonal norms.

NATURAL GAS

US gas prices slide on high gas in storage

US natural gas prices fell from their June highs (which coincided with heatwaves), closing July just over $2/mcf (vs $2.60/mcf at the end of June). On a weather-adjusted basis, the market appeared to be undersupplied by 1 billion cubic feet (bcf)/day. Nonetheless, inventories remain at the top of the historic range. Asian and European gas prices (using UK national balancing point) were little changed.

EQUITIES

Energy performs in line with the broad market in July

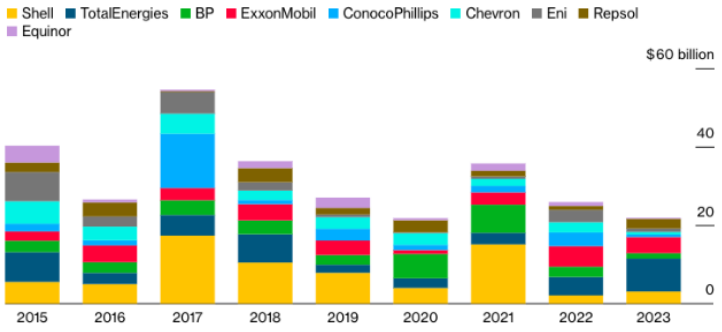
The MSCI World Energy Index (net return) increased by 1.8% in July, matching the MSCI World Index (net return) which also rose by 1.8% (all in USD). Year-to-date, the MSCI World Energy Index is up by 10.3% versus the MSCI World Index up by 13.2%.

CHART OF THE MONTH

Slowing divestments from large oily producers

Over the past several years, international oil companies have been investing and divesting to position themselves for the energy transition. 2023 saw divestment proceeds fall 15% year-on-year, with low-carbon investment falling and upstream capex growing for the first time since 2017, signalling a shift in expectations in the speed of the energy transition.

'Big oil' divestment proceeds ($bn)

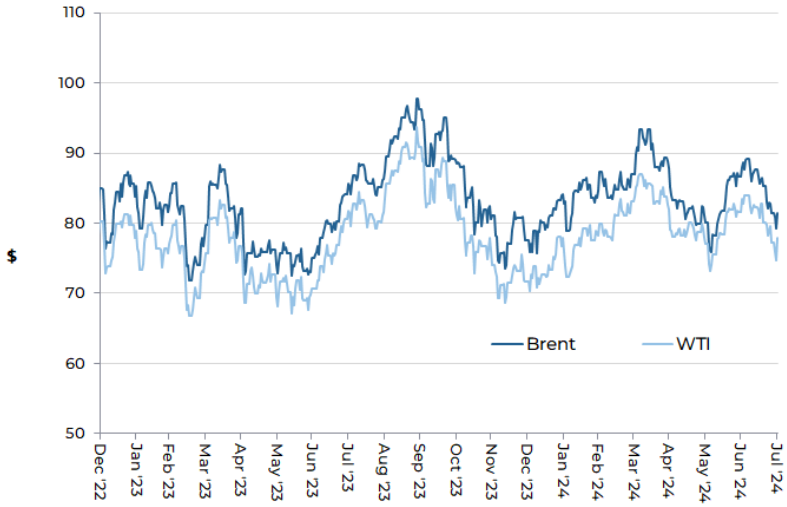


Source: BNEF, July 2024

JULY IN REVIEW

i) Oil market

Oil price (WTI and Brent $/barrel): December 2022 to July 2024



Source: Bloomberg; Guinness Global Investors

The West Texas Intermediate (WTI) oil price began July at $82/bl and trended lower over the month, reaching a low on July 30 of $75/bl, before rallying to close the month at 78/bl. WTI has averaged just over $79/bl so far this year, having averaged $78/bl in 2023 and $95/bl in 2022. Brent oil traded in a similar shape, opening at $87/bl, dropping to $79/bl, then rallying to close at $81/bl. Brent has averaged $84/bl so far in 2024, having averaged $83/bl in 2023 and $100/bl in 2022. The gap between the WTI and Brent benchmark oil prices narrowed over the month, ending July at $3.6/bl. The Brent-WTI spread has averaged $5/bl so far in 2024 after averaging a similar amount in 2023.

Factors which strengthened WTI and Brent oil prices in July:

- **Generally robust oil demand outlook**

In its July report, the IEA kept its forecast for 2024 oil demand growth flat at 1.0m b/day. While there are pockets of softer data coming through (e.g. China, see below), we note that the IEA has increased its 2024 oil demand growth estimate from the 0.8m b/day at the start of the year. For comparison, we note that a number of agencies are forecasting much higher demand growth: Energy Aspects (1.3m d/day), Argus (1.3m b/day), Morgan Stanley (1.5m b/day), S&P Global (1.7m b/day), Wood Mackenzie (1.8m b/day) and the OPEC secretariat (2.2m b/day). We expect a number between 1.0m b/day and 1.3m b/day.

- **Middle East conflict / Iranian sanction fears rising**

Middle East tensions escalated at the end of July, which helped stoke the political premium in current spot oil prices. On July 31, it was reported that Hamas political leader Ismael Haniyeh was killed during a visit to Iran, raising the risk of Iranian reprisal. Latest data suggests that Iran is producing around 3.2m b/day of oil, up significantly from 12 months ago. Any disruption to Iranian oil exports would clearly have a tightening effect on the world market.

Factors which weakened WTI and Brent oil prices in July:

- **Weaker Chinese demand data**

Chinese demand data for June suggests weakness in overall oil consumption, with diesel and jet fuel weak, somewhat offset by stronger gasoline demand. There have been some specific factors at play such as drought conditions in Henan and Shandong which have disrupted construction and agricultural activity. Chinese oil demand is currently forecast by the IEA to grow by 0.5m b/day in 2024 to 17.0m b/day.

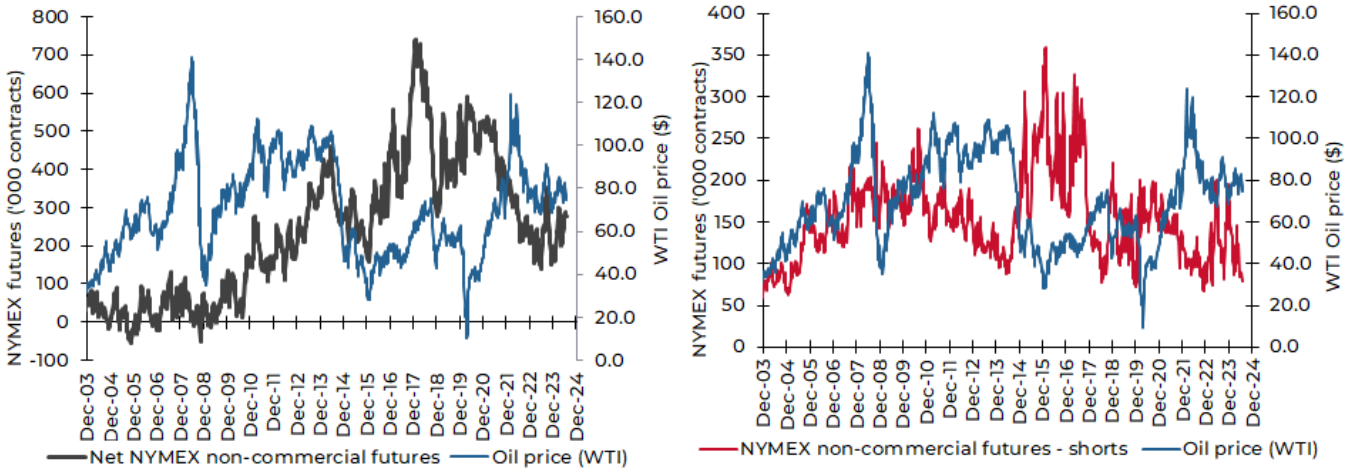
- **Solid non-OPEC supply growth**

Non-OPEC supply growth for 2024 is forecast by the IEA to be around 1.1m b/day. While this figure has been revised lower since the start of the year (notably with US shale production coming in lower), it still implies that the 'call on OPEC' to balance the market remains essentially flat versus 2023.

Speculative and investment flows

The New York Mercantile Exchange (NYMEX) net non-commercial crude oil futures open position was 276,000 contracts long at the end of July versus 271,000 contracts long at the end of June. The net position peaked in February 2018 at 739,000 contracts long. Typically, there is a positive correlation between the movement in net position and movement in the oil price. The gross short position decreased to 80,000 contracts at the end of July versus 90,000 at the end of the previous month.

NYMEX Non-commercial net and short futures contracts: WTI January 2004 – July 2024

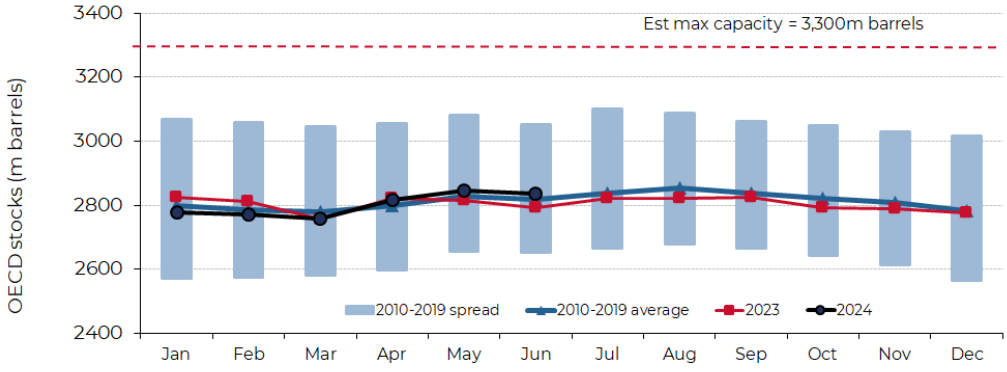


Source: Bloomberg LP/NYMEX/ICE (2024)

OECD stocks

OECD total product and crude inventories at the end of June (latest data point) were estimated by the IEA to be 2,835m barrels, down by 10m barrels versus the level reported for the previous month. The fall in June compares to a 10-year (pre-COVID) average decline of 17m barrels, implying that the OECD market was broadly in line with long-run seasonal averages. The significant oversupply situation in 2020 pushed OECD inventory levels close to maximum capacity in August 2020 (c.3.3bn barrels), with subsequent tightening taking inventories below normal levels.

OECD total product and crude inventories, monthly, 2010 to June 2024



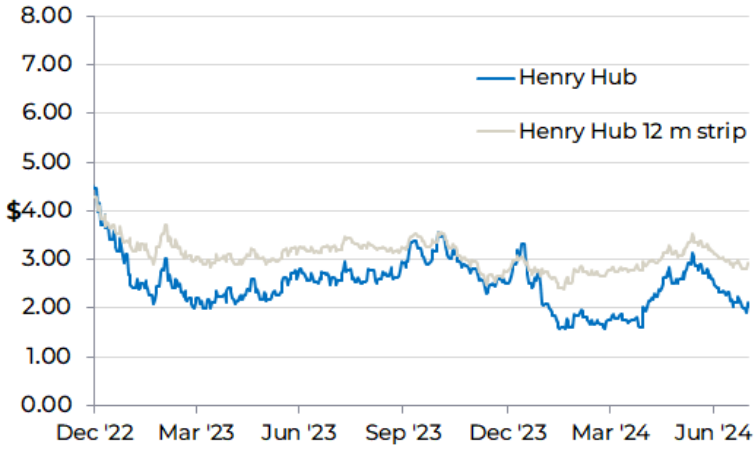
Source: IEA Oil Market Reports (July 2024 and older)

ii) Natural gas market

The US natural gas price (Henry Hub front month) opened July at $2.60/mcf (1,000 cubic feet) and traded down to a low on July 30 of $1.91, before settling slightly higher to close the month at $2.04/mcf. The spot gas price has averaged $2.22/mcf so far in 2024, having averaged $2.67/mcf in 2023 and $6.52/mcf in 2022.

The 12-month gas strip price (a simple average of settlement prices for the next 12 months' futures prices) traded in a similar pattern, opening at $3.26/mcf and trading down to $2.91/mcf. The strip price has averaged $2.90/mcf so far in 2024, having averaged $3.19 in 2023 and $5.90 in 2022.

Henry Hub gas spot price and 12m strip ($/Mcf): December 2022 to July 2024



Source: Bloomberg LP

Factors which strengthened the US gas price in July included:

- **Falling rig count**

The number of rigs drilling for natural gas in the US has fallen from 160 rigs in the middle of 2022 to 101 rigs at the end of July 2024. This has slowed gas production growth, though 'associated gas' production (a byproduct of shale oil) has continued to grow this year from the Permian basin.

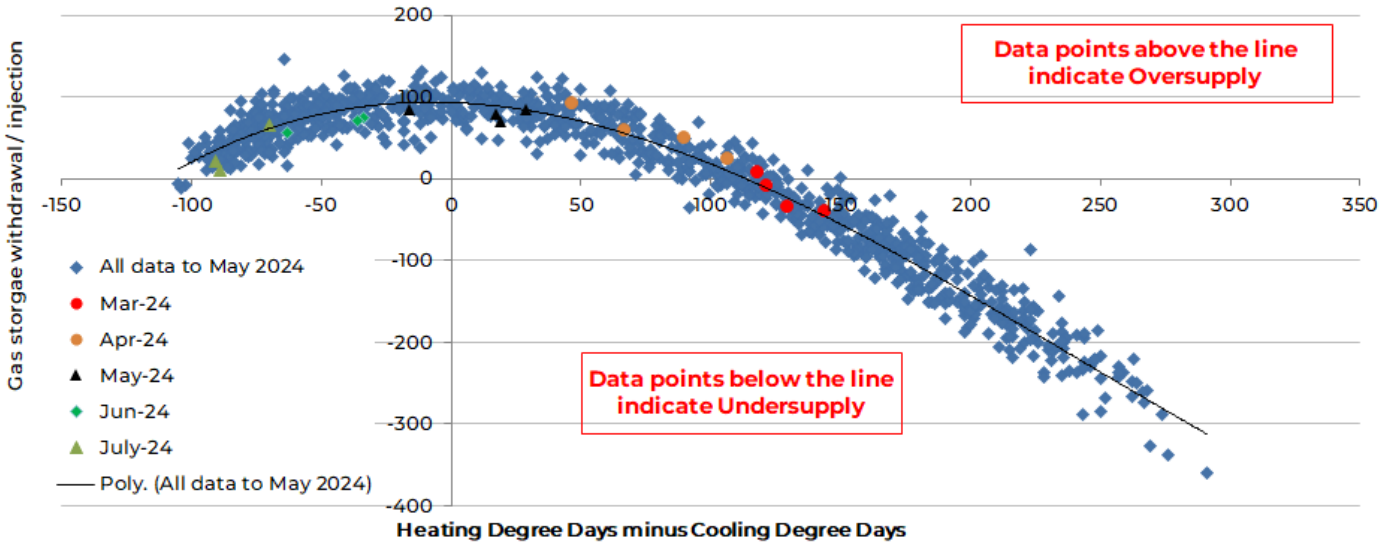
- **EU sanctions on Russian gas**

In late June, the EU approved new sanctions on Russia within the liquefied natural gas (LNG) market. The sanctions ban trans-shipments – transferring cargoes from one ship to another – off EU ports, and permit Sweden and Finland to cancel some long-term LNG supply agreements with Russia. The package also prohibits new investments and services to complete LNG projects under construction in Russia. These measures are expected to have some impact on Russian gas supply, serving to tighten the global market a little.

- **Market undersupplied (ex-weather effects)**

Adjusting for the impact of weather, the US gas market was, on average, around 1 bcf per day undersupplied during July.

Weather-adjusted US natural gas inventory injections and withdrawals



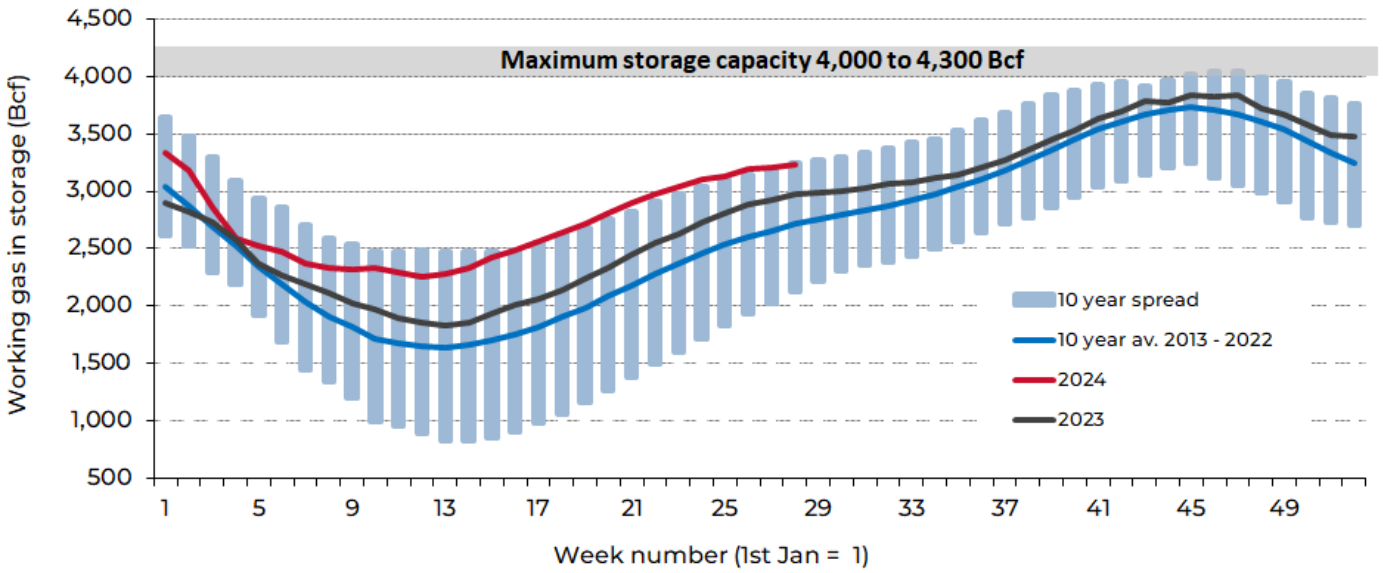
Source: Bloomberg LP; Guinness Global Investors, July 2024

Factors which weakened the US gas price in July included:

- **Natural gas in inventories at the top of the historic range**

US natural gas inventories have been running higher than seasonal norms, driven by a warmer-than-expected winter and early spring that has brought lower-than-expected heating demand. Inventories levels have moved to the top of the 5-year average, ending July at just over 3.2 trillion cubic feet (around 0.5 Tcf above the 10-year average).

Deviation from 10yr US gas storage norm



Source: Bloomberg; Energy Information Administration (EIA) (August 2024)

MANAGERS' COMMENTS

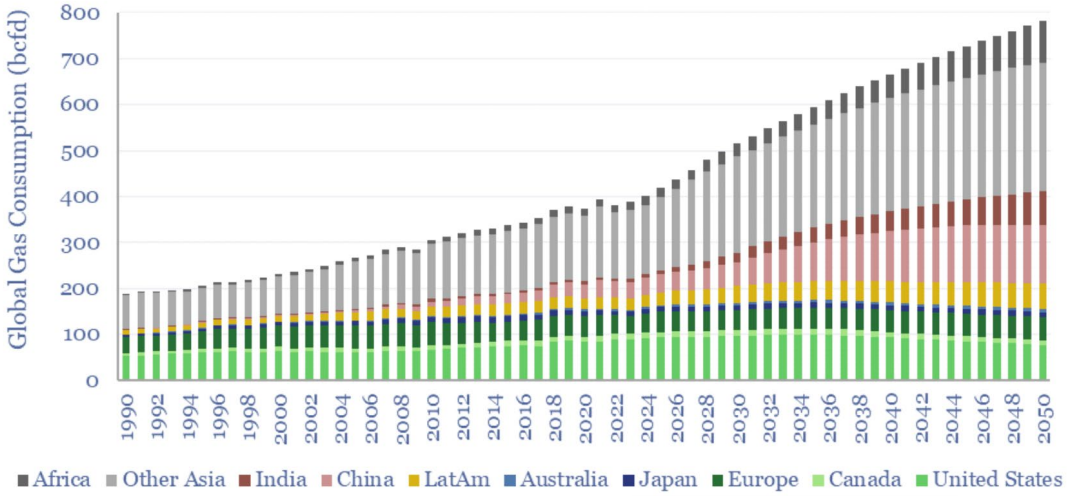
Update on global natural gas markets

We see a robust demand outlook for natural gas, as it provides less carbon-intensive power than coal together with flexibility and a back-up for intermittent renewables, providing grid stability. Liquefied natural gas (LNG) will become more dominant, and recent record prices have stimulated a new LNG construction cycle, led by the US and Qatar, with more contracts linked to the cheaper US Henry Hub gas price. We expect a finely balanced international gas market in the near term as the new supply comes online.

Demand

Global natural gas demand has grown at a rate of 1.2% per annum (pa) so far this decade, having grown at 2.1%pa in the 2010s and 2.8%pa in the 2000s. As a flexible, low-carbon source for power generation, the outlook for natural gas demand continues to look robust. A scenario from independent research consultancy Thunder Said Energy sees demand potentially reaching more than 500 bcf/d in 2030 and nearly 800 bcf/d in 2050, implying 3.6%pa and nearly 2.6%pa demand growth respectively. The Guinness base case sees a similar robust outlook demand outlook in the 2030s but is more conservative in the 2040s, with demand potentially flattening as energy efficiency improves and renewables take share.

Global natural gas demand (bcf/day)



Source: Thunder Said Energy, 2024

The broad theme of electrification, within the energy transition, will drive increasing demand for electricity generated from a range of sources, including natural gas. Structurally, natural gas should continue to replace coal in power generation as it has half the carbon intensity of coal and its greater use will tend to reduce the carbon intensity of power generation. A key attraction of natural gas supply and the power generated from natural gas is that they can be managed in a flexible manner. This will allow natural gas to act increasingly as a back-up to renewables both on a seasonal basis and also on an intra-day basis, helping to offset the natural intermittency of renewable supply and to ensure power grid stability.

As with oil, we see significant regional variation in the long-term demand outlook, with developed world demand likely to start flattening (as energy efficiency improves and renewables take a larger share of power generation) while developing world demand increases by 2-2.5 times (as economic growth drives stronger demand with gas displacing coal as a flexible power generation source).

The trend towards artificial intelligence and the greater use of data centres is likely to lead to a structurally higher electricity demand outlook than recently envisaged, especially in the United States. Analysis by gas midstream companies and utilities implies around 30 GW of incremental US power demand growth by 2030, which could lead to an additional 3-10% bump in US natural gas demand, depending on the role that gas plays in the power generation. While hyperscalers have committed to net zero targets, the practical reality is that renewables are unlikely to satisfy fully this demand surge in the short term

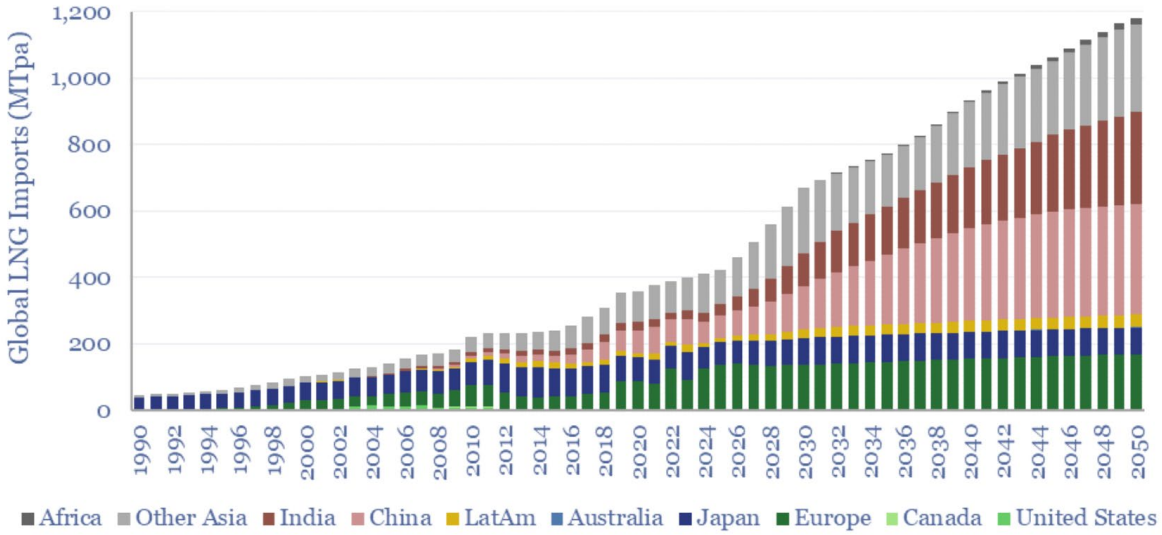
because of permitting and grid connection delays. In addition, natural gas capacity will be required to help stabilise the grid as renewables build out.

Supply

Historically, natural gas markets have evolved in a regional manner, with demand satisfied by pipeline gas supplies. Since the 1990s, liquefied natural gas (LNG) has grown, with LNG now representing around 13% of the global gas demand. These supplies have typically been developed using long-term fixed formula oil price linked contracts.

The flexibility of LNG means that it will play a role in satisfying the long-term natural gas demand growth outlined above. Within their scenario, Thunder Said Energy see potential for LNG supply to treble by 2050 relative to the current level of around 400mtpa, implying an annual growth rate of nearly 4.5%pa. Within that, the developing world's share of demand will grow from 55% to around 80%.

Global LNG imports (million tonnes per annum)



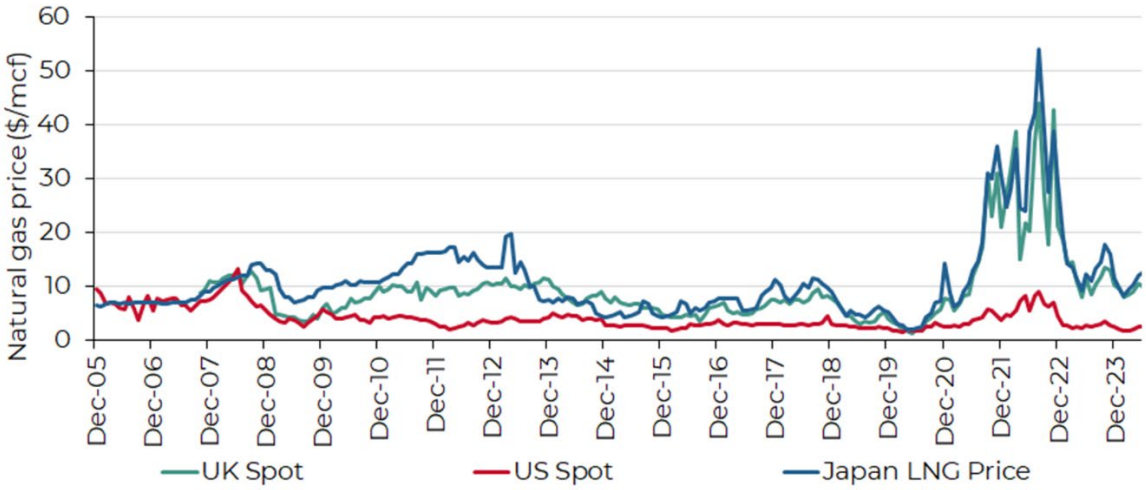
Source: Thunder Said Energy, 2024

LNG developments are megaprojects costing billions of dollars that are financed and developed once long-term supply contracts have been secured. Higher international gas prices have typically been the catalyst for new project developments and, as a result, LNG development has typically been quite cyclical in nature, as developers rush to sanction new projects when prices are high.

The arrival of COVID in 2020 brought lower international gas prices and slowed the LNG development cycle. This ended sharply with the Russia/Ukraine conflict in 2022 when Europe moved to switch off its natural gas pipeline supplies from Russia (representing nearly 40% of its natural gas supply) and the region's share of global LNG imports rose from 19% to over 30%. Gas prices moved sharply to record high levels to incentivise the near-term LNG supply into the region and thus a new LNG development cycle started.

Around 150mtpa of new LNG capacity is planned to start production before 2030 with the United States and Qatar representing around 65% of the total. Qatar is supplying gas to Asian and European customers on long-term contracts while the US is supplying LNG on contracts that are priced relative to the US domestic gas price, Henry Hub. Between 2021 and 2023, over half of all LNG contracts signed were tied to Henry Hub as international buyers sought contracts linked to the cheapest priced gas market in the world.

International gas prices to July 2024



Source: Bloomberg; Guinness Global Investors (July 2024)

This trend, fuelled by the presence of bountiful shale gas, has led the US to become the largest LNG exporter in the world, and it means that the global LNG market is increasingly being dominated by long-term Henry Hub-linked contracts with destination flexibility.

Impact on international gas prices

Understanding the supply and demand dynamics of the global LNG market helps us to understand the outlook for international gas prices.

Looking longer-term, we believe that European natural gas prices of around $10/mcf are required to incentivise the development of new LNG projects. This price is close to 50% higher than pre-invasion European gas prices.

Shorter-term pricing dynamics will be much more affected by variations in new project start-up times, weather, economic activity, maintenance activity and operational uptime. We note that international gas prices are up around 10% so far this year as a result of hotter weather in Asia, unplanned LNG maintenance in Australia and Malaysia, and expected delays to the startup of Golden Pass LNG (resulting from the main contractor, Zachary Industrial, filing for Chapter 11 bankruptcy).

The significance of project delays should not be underestimated. According to BNEF, should all LNG projects under construction be delayed between six and twelve months, then it would remove 15-25mtpa of export capacity in 2025 and 24-43mtpa of export capacity in 2026, representing 5% and 7% of total LNG supply respectively; enough to substantially change LNG supply/demand dynamics. On the other hand, if the projects are developed on time and demand is weaker than expected, there is potential for European gas prices to test the floor level implicit under Henry Hub contract dynamics, currently estimated to be around $6/mcf.

Putting it all together, we are left with the conclusion that the LNG market is going to be quite finely balanced over the next couple of years as the LNG development cycle arrives. Short-term oversupply could lead to European gas prices reaching a floor based on a premium to Henry Hub pricing (currently estimated at around $6/mcf), while 6-12 month project delays, stronger economic growth and a cold 2024/2025 winter could see them staying comfortably above $10-12/mcf. Longer-term, we continue to see around $10/mcf (representing the full-cycle cost of new supply) as being plausible.

PERFORMANCE

The main index of oil and gas equities, the MSCI World Energy Index (net return), increased by 1.8% in July, while the MSCI World Index (net return) also rose by 1.8% in USD.

Within the portfolio, July's strongest performers included Kinder Morgan Imperial Oil, Eni, Baker Hughes and Enbridge while the weakest performers included Conocophillips, BP, Equinor, OMV and Petrochina.

Past performance does not predict future returns.

Guinness Global Energy Fund
Performance (in USD) as at 31.07.2024

Cumulative returns	YTD	1 year	3 years ann.	5 years ann.	Launch of strategy* ann. (31.12.98)
Guinness Global Energy Fund	11.3%	11.0%	20.8%	7.7%	8.5%
MSCI World Energy NR Index	10.3%	10.5%	23.1%	10.0%	6.6%

Calendar year returns	2023	2022	2021	2020	2019	2018	2017
Guinness Global Energy Fund	2.6%	32.4%	44.5%	-34.7%	9.8%	-19.7%	-1.3%
MSCI World Energy NR Index	2.5%	46.0%	40.1%	-31.5%	11.4%	-15.8%	5.0%
	2016	**2015**	**2014**	**2013**	**2012**	**2011**	**2010**
Guinness Global Energy Fund	27.9%	-27.6%	-19.1%	24.4%	3.0%	-13.7%	15.3%
MSCI World Energy NR Index	26.6%	-22.8%	-11.6%	18.1%	1.9%	0.2%	11.9%
	2009	**2008***	**2007***	**2006***	**2005***	**2004***	**2003***
Guinness Global Energy Fund	61.8%	-48.2%	37.9%	10.0%	62.3%	41.0%	32.3%
MSCI World Energy NR Index	26.2%	-38.1%	29.8%	17.9%	28.7%	28.1%	25.9%
	2002*	**2001***	**2000***	**1999***			
Guinness Global Energy Fund	6.7%	-4.1%	39.6%	22.5%			
MSCI World Energy NR Index	-6.4%	-7.2%	6.0%	22.0%			

Source: FE fundinfo, Guinness Global Investors and Bloomberg, bid to bid, gross income reinvested, in US dollars

Calculation by Guinness Global Investors. *Simulated past performance prior to 31.03.2008, launch date of Guinness Global Energy Fund. The Guinness Global Energy investment team has been running global energy funds in accordance with the same methodology continuously since December 1998. These returns are calculated using a composite of the Investec GSF Global Energy Fund class A to 29.2.08 (managed by the Guinness team until this date); the Guinness Atkinson Global Energy Fund (sister US mutual fund) from 1.3.08 to 31.3.08 (launch date of this Fund), the Guinness Global Energy Fund class A (1.49% OCF) from launch to 02.09.08, and class Y (0.99% OCF) thereafter. Returns for share classes with a different OCF will vary accordingly.

Investors should note that fees and expenses are charged to the capital of the Fund. This reduces the return on your investment by an amount equivalent to the Ongoing Charges Figure (OCF). The fund performance shown has been reduced by the current OCF of 0.99% per annum. Returns for share classes with different OCFs will vary accordingly. Performance returns do not reflect any initial charge; any such charge will also reduce the return.

Past performance does not predict future returns.

WS Guinness Global Energy Fund
Performance (in GBP) as at 31.07.2024

Cumulative returns	YTD	1 year	3 years ann.	5 years ann.		
WS Guinness Global Energy Fund	10.8%	12.6%	24.8%	7.8%		
MSCI World Energy NR Index	9.5%	10.7%	26.4%	9.0%		

Calendar year returns		2023	2022	2021	2020	2019
WS Guinness Global Energy Fund		-3.2%	49.9%	45.7%	-35.7%	12.6%
MSCI World Energy NR Index		-3.3%	64.4%	41.4%	-33.6%	7.2%
	2018	2017	2016	2015	2013	2012
WS Guinness Global Energy Fund	-6.3%	-7.2%	65.2%	-29.6%	-26.6%	-4.7%
MSCI World Energy NR Index	-10.6%	-4.1%	51.0%	-18.3%	-6.1%	15.9%

Source: FE fundinfo, bid to bid, gross income reinvested, in GBP

Investors should note that fees and expenses are charged to the capital of the Fund. This reduces the return on your investment by an amount equivalent to the Ongoing Charges Figure (OCF). The fund performance shown has been reduced by the current OCF of 0.96% per annum. Returns for share classes with different OCFs will vary accordingly. Performance returns do not reflect any initial charge; any such charge will also reduce the return. Fund launched 21.04.2011.

PORTFOLIO

Buys/Sells

In July there were no buys or sells of full positions, but the portfolio was actively rebalanced.

Sector Breakdown

The following table shows the asset allocation of the Guinness Global Energy Fund at **July 31 2024**.

Asset allocation as %NAV	Current	*Change*	Last year end	Previous year ends							
	Jul-24		Dec-23	Dec-22	Dec-21	Dec-20	Dec-19	Dec-18	Dec-17	Dec-16	Dec-15	Dec-14
Oil & Gas	**99.0%**	***0.1%***	**98.9%**	**97.4%**	**96.9%**	**94.8%**	**98.3%**	**96.7%**	**98.4%**	**96.7%**	**95.1%**	**93.7%**
Integrated	57.4%	*2.6%*	54.7%	54.7%	57.7%	56.3%	51.1%	46.4%	42.9%	46.4%	41.5%	37.3%
Exploration & Production	19.6%	*-3.7%*	23.2%	23.1%	23.7%	22.2%	29.6%	35.8%	36.9%	35.8%	36.5%	36.2%
Drilling	0.0%	*0.0%*	0.0%	0.0%	0.0%	0.0%	0.1%	2.2%	1.9%	2.2%	1.5%	3.3%
Equipment & Services	10.1%	*0.1%*	10.0%	9.0%	4.0%	4.6%	9.6%	8.6%	9.5%	8.6%	11.4%	13.4%
Storage & Transportation	5.8%	*0.8%*	5.0%	4.8%	4.3%	4.4%	4.0%	0.0%	3.5%	0.0%	0.0%	0.0%
Refining & Marketing	6.2%	*0.2%*	6.0%	5.8%	7.2%	7.3%	3.8%	3.7%	3.7%	3.7%	4.2%	3.5%
Solar	0.0%	*-0.2%*	0.2%	0.7%	1.0%	1.8%	0.7%	0.9%	1.4%	0.9%	4.7%	3.7%
Coal & Consumable Fuels	0.0%	*0.0%*	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Construction & Engineering	0.0%	*0.0%*	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Cash	1.0%	*0.1%*	0.9%	1.9%	2.1%	3.3%	1.1%	2.4%	0.2%	2.4%	0.2%	2.6%

Source: Guinness Global Investors. Basis: Global Industry Classification Standard (GICS)

The Fund at end of July 2024 was on a price to earnings (PE) ratio for 2024/2025 of 9.8x/9.3x versus the MSCI World Index at 19.3x/17.3x as set out in the following table:

As at 31 July 2024	PE			EV/EBITDA		
	2023	2024E	2025E	2023	2024E	2025E
Guinness Global Energy Fund	9.7x	9.8x	9.3x	4.8x	4.8x	4.6x
MSCI World Index	18.8x	19.3x	17.3x	11.9x	12.8x	11.5x
Fund Premium/(Discount)	*-48%*	*-49%*	*-46%*	*-60%*	*-63%*	*-60%*

*Portfolio = median CFROI; Index data = Credit Suisse MSCI World ETF median CFROI

Source: Bloomberg; Guinness Global Investors

Portfolio holdings

Our integrated and similar stock exposure (c.57%) is comprised of a mix of mid-cap, mid/large-cap and large-cap stocks. Our five large-caps are Chevron, BP, ExxonMobil, Shell and TotalEnergies. Mid/large and mid-caps are ENI, Equinor, GALP, Repsol and OMV. At July 31 2024 the median PE ratio of this group was 7.9x 2024 earnings. We also have three Canadian integrated holdings, Suncor, Cenovus and Imperial Oil. All three companies have significant exposure to oil sands in addition to downstream assets.

Our exploration and production holdings (c.20%) give us exposure most directly to rising oil and natural gas prices. We include in this category non-integrated oil sands companies, as this is the GICS approach. The stock here with oil sands exposure is Canadian Natural Resources. The pure E&P stocks have a bias towards the US (EOG, Diamondback and Devon), with one other name (ConocoPhillips) having a mix of US and international production. One of the key metrics behind a number of the E&P stocks held is low enterprise value / proven reserves.

We have exposure to two emerging market stocks, Petrochina and Sinopec, which in total represent around 4% of the portfolio.

The portfolio contains two midstream holdings, Enbridge and Kinder Morgan, two of North America's largest pipeline companies. With the growth of hydrocarbon demand expected in the US and Canada over the next five years, we believe both companies are well placed to execute their pipeline expansion plans.

We have reasonable exposure to oil service stocks, which comprise over 9% of the portfolio. The stocks we own provide exposure to both North American and international oil and natural gas development.

Our independent refining exposure is currently in the US in Valero, the largest of the US refiners. Valero has a reasonably large presence on the US Gulf Coast and is benefitting from a recovery in refining margins.

Portfolio at June 30 2024 (for compliance reasons disclosed one month in arrears)

Guinness Global Energy Fund (30 June 2024)			P/E			EV/EBITDA			Price/Book		
Stock	**ISIN**	**% of NAV**	**2023**	**2024E**	**2025E**	**2023**	**2024E**	**2025E**	**2023**	**2024E**	**2025E**
Integrated Oil & Gas											
Exxon Mobil Corp	US30231G1022	5.6%	12.1x	12.2x	11.4x	7.7x	6.7x	6.2x	2.2x	2.0x	1.9x
Chevron Corp	US1667641005	5.5%	12.4x	12.2x	10.8x	6.3x	6.1x	5.3x	1.8x	1.7x	1.7x
Shell PLC	GB00BP6MXD84	5.6%	8.9x	8.7x	8.6x	4.3x	4.1x	4.3x	1.3x	1.2x	1.1x
Total SA	FR0000120271	5.3%	6.9x	7.4x	7.2x	3.8x	4.2x	4.2x	1.3x	1.3x	1.2x
BP PLC	GB0007980591	5.0%	8.6x	7.5x	6.7x	3.8x	3.5x	3.6x	1.4x	1.4x	1.2x
Equinor ASA	NO0010096985	3.5%	7.1x	8.4x	8.2x	1.5x	1.9x	1.9x	1.7x	1.7x	1.6x
ENI SpA	IT0003132476	3.3%	5.8x	6.6x	6.6x	3.2x	3.5x	3.5x	0.8x	0.8x	0.8x
Repsol SA	ES0173516115	3.5%	4.7x	4.6x	5.0x	3.7x	3.1x	3.2x	0.7x	0.6x	0.6x
Galp Energia SGPS SA	PTGAL0AM0009	3.8%	13.1x	15.4x	16.0x	5.3x	5.7x	5.8x	3.3x	3.2x	3.0x
OMV AG	AT0000743059	2.6%	6.5x	5.7x	6.2x	2.9x	3.2x	3.3x	0.8x	0.7x	0.7x
		43.6%									
Integrated / Oil & Gas E&P - Canada											
Suncor Energy Inc	CA8672241079	3.8%	11.5x	9.3x	9.1x	5.5x	4.8x	4.8x	1.5x	1.4x	1.4x
Canadian Natural Resources Ltd	CA1363851017	3.7%	12.8x	13.2x	10.9x	6.7x	6.7x	6.0x	2.5x	2.6x	2.5x
Cenovus Energy Inc	CA15135U1093	3.4%	10.6x	9.5x	9.0x	5.2x	4.7x	4.6x	1.7x	1.6x	1.5x
Imperial Oil Ltd	CA4530384086	3.9%	11.0x	9.8x	10.0x	6.4x	6.1x	6.5x	2.2x	2.1x	1.9x
		14.8%									
Integrated Oil & Gas - Emerging market											
PetroChina Co Ltd	CNE1000003W8	2.6%	7.0x	8.0x	7.6x	4.1x	4.4x	4.4x	0.9x	0.9x	0.8x
		2.6%									
Oil & Gas E&P											
ConocoPhillips	US20825C1045	4.8%	13.0x	12.8x	11.7x	6.2x	5.5x	4.8x	2.7x	2.6x	2.3x
EOG Resources Inc	US26875P1012	3.5%	12.4x	10.4x	10.1x	6.3x	5.4x	5.4x	2.6x	2.3x	2.0x
Diamondback Energy Co	US25278X1090	3.9%	11.0x	10.5x	9.8x	6.9x	6.2x	3.8x	2.2x	1.8x	1.7x
Devon Energy Corp	US25179M1036	3.2%	8.3x	9.0x	8.3x	4.8x	4.7x	4.6x	2.5x	2.2x	1.9x
		15.3%									
International E&Ps											
Pharos Energy PLC	GB00B572ZV91	0.1%	n.m.	5.1x	3.4x	n.m.	1.5x	1.4x	0.4x	n.m.	n.m.
		0.1%									
Midstream											
Kinder Morgan Inc	US49456B1017	2.7%	18.7x	16.5x	15.9x	11.7x	9.5x	9.3x	1.5x	1.5x	1.4x
Enbridge Inc	CA29250N1050	2.7%	16.3x	15.2x	14.2x	14.3x	11.0x	10.4x	1.8x	1.8x	1.9x
		5.5%									
Equipment & Services											
Schlumberger Ltd	AN8068571086	3.4%	15.5x	13.4x	11.3x	8.2x	8.3x	7.1x	3.3x	2.9x	2.6x
Halliburton Co	US4062161017	3.1%	11.2x	10.1x	8.6x	6.7x	6.7x	6.1x	3.2x	2.7x	2.2x
Baker Hughes a GE Co	US05722G1004	2.1%	20.7x	16.8x	13.7x	9.6x	8.9x	7.7x	2.3x	2.2x	2.0x
Helix Energy Solutions Group Inc	US42330P1075	1.1%	34.6x	28.3x	14.3x	6.4x	7.4x	5.8x	1.2x	1.2x	1.1x
		9.7%									
Oil & Gas Refining & Marketing											
China Petroleum & Chemical Corp	CNE1000002Q2	1.6%	9.5x	8.4x	8.0x	5.9x	5.7x	5.5x	0.7x	0.7x	0.7x
Valero Energy Corp	US91913Y1001	4.4%	6.3x	10.5x	11.3x	4.0x	6.4x	6.8x	2.0x	1.9x	1.8x
		6.1%									
Research Portfolio											
Deltic Energy PLC	GB00BNTY2N01	0.0%	n.m.	n.m.	n.m.	n.m.	n.m.	n.m.	6.2x	n.m.	n.m.
EnQuest PLC	GB00B635TG28	0.2%	13.9x	1.3x	1.3x	1.6x	1.4x	1.4x	0.7x	0.6x	0.4x
Reabold Resources PLC	GB00B95L0551	0.0%	n.m.	n.m.	n.m.	n.m.	n.m.	n.m.	0.2x	n.m.	n.m.
Diversified Energy Company	GB00BQHP5P93	0.2%	n.m.	6.4x	9.8x	5.9x	4.2x	4.4x	1.1x	1.0x	0.8x
		0.5%									
Cash	**Cash**	**1.9%**									
Portfolio	Total	**100.0%**	**9.7x**	**9.6x**	**9.2x**	**4.9x**	**4.8x**	**4.7x**	**1.6x**	**1.5x**	**1.4x**

The Fund's portfolio may change significantly over a short period of time; no recommendation is made for the purchase or sale of any particular stock.

OUTLOOK

i) Oil market

The table below illustrates the difference between the growth in world oil demand and non-OPEC supply since 2015:

	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024E
										IEA
World Demand	***95.3***	***96.4***	***98.2***	***99.5***	***100.7***	***91.8***	***97.4***	***100.0***	***102.1***	***103.1***
Non-OPEC supply (inc NGLs)	*62.1*	*61.5*	*62.5*	*65.0*	*67.0*	*64.4*	*65.0*	*66.8*	*69.2*	*70.3*
OPEC NGLs	*5.2*	*5.3*	*5.4*	*5.5*	*5.3*	*5.2*	*5.3*	*5.4*	*5.5*	*5.6*
Non-OPEC supply plus OPEC NGLs	**67.3**	**66.8**	**67.9**	**70.5**	**72.3**	**69.6**	**70.3**	**72.2**	**74.7**	**75.9**
Call on OPEC (crude oil)	**28.0**	**29.6**	**30.3**	**29.0**	**28.4**	**22.2**	**27.1**	**27.8**	**27.4**	**27.2**
Congo supply adjustment	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3
Gabon supply adjustment	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2
Eq Guinea supply adjustment	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1
Call on OPEC-9 (crude oil)	**27.4**	**29.0**	**29.7**	**28.4**	**27.8**	**21.6**	**26.5**	**27.2**	**26.8**	**26.6**

Source: Bloomberg; IEA; Guinness Global Investors, August 2024

Global oil demand in 2019 was 13m b/day higher than the pre-financial crisis (2007) peak. The demand picture for 2020, down by around 9m b/day, was heavily clouded by the impact of the COVID-19 virus and efforts to mitigate its spread. Demand rebounded between 2021 and 2023 by over 10m b/day, leaving overall consumption in 2023 over 1m b/day higher than the 2019 peak.

OPEC

The last few years have proved testing for OPEC. They have tried to keep prices strong enough that OPEC economies are not running excessive deficits, whilst not pushing the price too high and over-stimulating non-OPEC supply.

The effect of $100+/bl oil, enjoyed for most of the 2011-2014 period, emerged in 2014 in the form of an acceleration in US shale oil production and an acceleration in the number of large non-OPEC (ex US onshore) projects reaching production. OPEC met in late 2014 and responded to rising non-OPEC supply with a significant change in strategy to one that prioritised market share over price. Post the November 2014 meeting, OPEC not only maintained their quota but also raised production significantly, up by 2.5m b/day over the subsequent 18 months. This contributed to an oversupplied market in 2015 and 2016.

In late 2016, faced with sharply lower oil prices, OPEC stepped back from their market share stance, announcing plans for the first production cut since 2008. The announcement included a cut in production from Russia (a non-OPEC country), creating for the first time the concept of an OPEC+ group.

OPEC-9 oil production to June 2024

('000 b/day)	31-Dec-19	31-May-24	30-Jun-24	Current vs Dec 2019	Current vs last month
Saudi	9,730	9,010	**8,990**	-740	-20
Iran	2,080	3,240	**3,240**	1,160	0
Iraq	4,610	4,280	**4,250**	-360	-30
UAE	3,040	3,170	**3,170**	130	0
Kuwait	2,710	2,460	**2,440**	-270	-20
Nigeria	1,820	1,460	**1,430**	-390	-30
Venezuela	730	860	**890**	160	30
Libya	1,110	1,160	**1,160**	50	0
Algeria	1,010	900	**900**	-110	0
OPEC-9	**26,840**	**26,540**	**26,470**	**-370**	**-70**

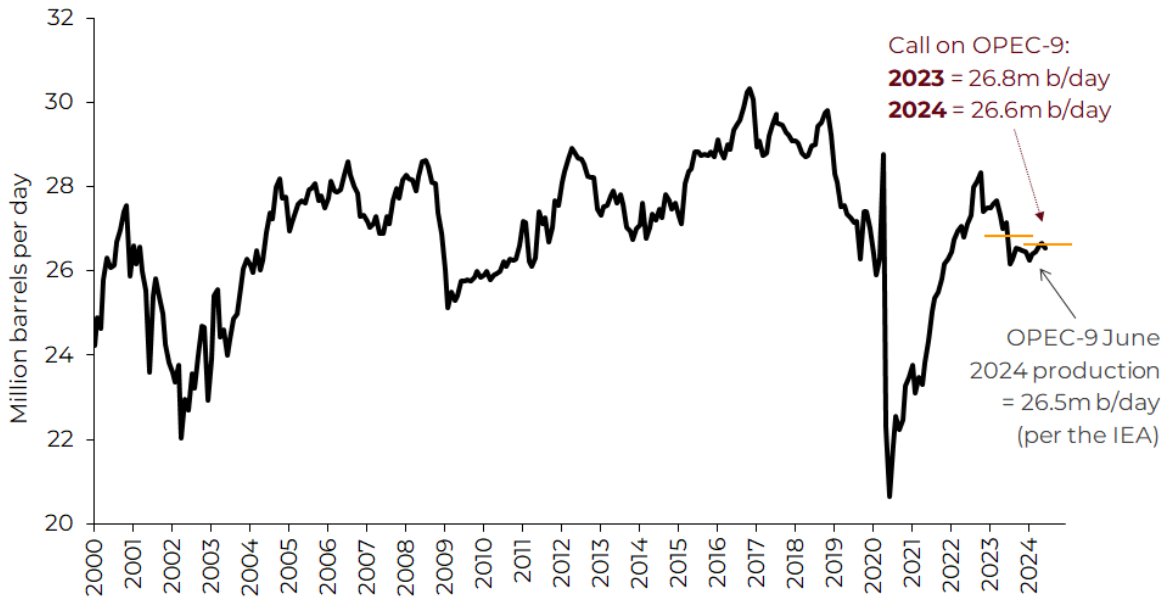
Source: Bloomberg; Guinness Global Investors

The 2017-19 period continued to be volatile for OPEC, with further production cuts necessary to balance ongoing non-OPEC supply growth.

The challenge for OPEC+ then ballooned in 2020 with the onset of COVID around the world. Initially, OPEC and their non-OPEC partners failed to reach agreement around their response to demand from the spread of the virus, precipitating a fall-out between participants and a short-lived price war. In light of extreme oil market oversupply, OPEC and non-OPEC partners reconvened in April 2020 and confirmed a deal to cut their production by nearly 10m b/day.

In July 2021, with demand largely recovered after COVID, the OPEC+ group agreed to taper their quota cuts at 0.4m b/day each month until September 2022. The actions of OPEC through the pandemic gave us confidence that OPEC was looking to do 'what it takes' to keep the market in balance, despite extreme challenges. Since the end of 2022, OPEC have adjusted their production to match closely the prevailing call on the group.

OPEC-9 apparent production vs call on OPEC 2000 – 2024



Source: IEA Oil Market Report (July 2024 and prior); Guinness estimates

OPEC's actions in recent years have generally demonstrated a commitment to delivering a reasonable oil price to satisfy their own economies but also to incentivise investment in long-term projects. Saudi's actions at the head of OPEC have been designed to achieve an oil price that to some extent closes their fiscal deficit (c.$95/bl is needed to close the gap fully), whilst not spiking the oil price too high and over-stimulating non-OPEC supply.

In the shorter term, the COVID-19 and Russia/Ukraine crises have created particularly challenging conditions, adding to oil price volatility. Longer-term, we believe that Saudi seek a 'good' oil price, one that satisfies their fiscal needs. Overall, we reiterate two important criteria for Saudi:

1. Saudi is interested in the average price of oil that they get; they have a longer investment horizon than most other market participants.

2. Saudi wants to maintain a balance between global oil supply and demand to maintain a price that is acceptable to both producers and consumers.

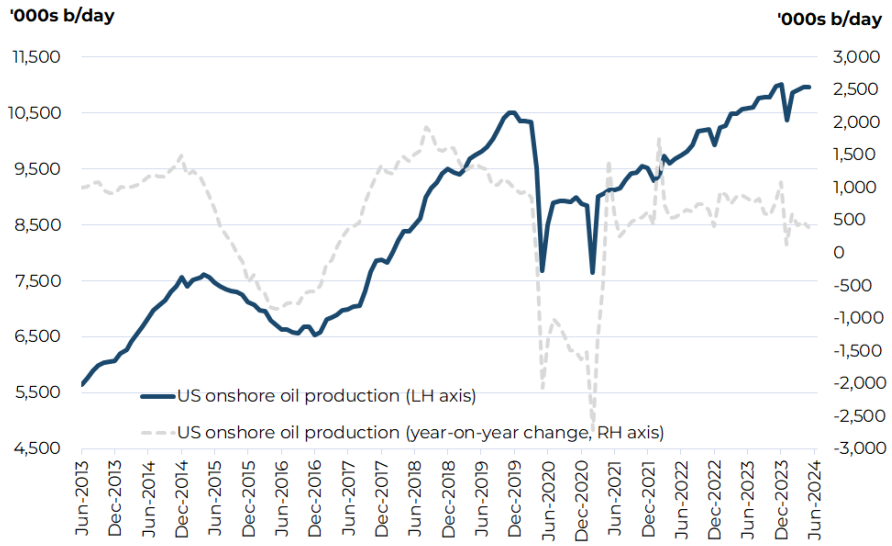
Nothing in the market in recent years has changed our view that OPEC can put a floor under the price – as they did in 2020, 2018, 2016, 2008, 2006, 2001 and 1998.

Supply looking forward

The non-OPEC world has, since the 2008 financial crisis, grown its production more meaningfully than in the period before 2008. The growth was 0.9% p.a. from 2001-2008, increasing to 1.6% p.a. from 2009-2023.

Growth in the non-OPEC region since the start of the last decade has been dominated by the development of shale oil and oil sands in North America (up around 8m b/day between since 2010), implying that the rest of the non-OPEC region has barely grown over this period, despite the sustained high oil price until mid-2014.

US onshore oil production



Source: EIA; Guinness Global Investors, July 2024

The growth in US shale oil production, especially the Permian Basin, raises the question of how much more there is to come and at what price. Our assessment is that US shale oil is capital-intensive but some growth is viable, on average, at around $70 oil prices. In particular, there appears to be ample inventory in the Permian Basin to allow growth into the mid-2020s. The rate of development is heavily dependent on the cashflow available to producing companies, which tends to be recycled immediately into new wells, and the underlying cost of services to drill and fracture the wells. Since 2019, we have seen increased shareholder pressure applied to US E&P companies to improve their capital discipline and to cut their reinvestment rates.

The collapse in oil prices at the start of 2020 to a level well below $50/bl changed the landscape, with US E&P companies reducing capital spending further as they attempted to live within their cashflows. Shale oil production dropped by nearly 3m b/day in 2020 (peak to trough) and took nearly three years to recover to the previous peak of late 2019.

Non-OPEC supply growth outside the US has been sustained in recent years, by a handful major project additions, notably in Guyana and Brazil. Net growth remains sluggish, however, as much of the new oil has been required to offset natural declines in more mature basins.

Future demand

The IEA estimate that 2024 oil demand will rise by around 1.0m b/day to 103.1m b/day, around 2.5m b/day ahead of the 2019 pre-COVID peak.

Post the COVID demand recovery and assuming typical economic growth, we expect the world to settle back into annual oil demand growth of plus or minus 1m b/day, led by increased use in the non-OECD region. China has been, and continues to be, the most important component of this growth, although signs are emerging that India will also grow rapidly.

The trajectory of global oil demand over the next few years will be a function of global GDP, the pace of the 'consumerisation' of developing economies, the development of alternative fuels, and price. At $80/bl, the world oil bill as a percentage of GDP is around 2.8%, and this will still be a stimulant of further demand growth. If oil prices were in a higher range (say around $110/bl, representing 3.8% of GDP), we would probably return to the pattern established over the past five years, with a flatter picture in the OECD more than offset by growth in the non-OECD area. Flatter OECD demand reflects improving oil efficiency over time, dampened by economic, population and vehicle growth. Within the non-OECD, population growth and rising oil use per capita will both play a significant part.

We keep a close eye on developments in the 'new energy' vehicle fleet (electric vehicles; hybrids etc). Sales of electric vehicles (pure electric and plug-in hybrid electrics) globally were around 14m in 2023, up from 10m in 2022. We expect to see strong EV sales growth again in 2024, up to over 16m, around 20% of total global sales. Even applying an aggressive growth rate to EV sales, we see EVs comprising only around 5-6% of the global car fleet by the end of 2025. Looking further ahead, we expect the penetration of EVs to accelerate, causing global gasoline demand to peak at some point in the middle of the 2020s. However, owing to the weight of oil demand that comes from sources other than passenger vehicles (around 75%), which we expect to continue growing linked to GDP, we expect total oil demand not to peak until around 2030.

Conclusions about oil

The table below summarises our view by showing our oil price forecasts for WTI and Brent in 2024 versus recent history.

Average WTI & Brent yearly prices, and changes

Oil price																		*Est*
12 month MAV	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024
WTI	72	100	62	80	95	94	98	93	49	43	51	65	57	39	68	94	78	79
Brent	73	99	63	80	111	112	109	99	54	45	55	72	64	43	71	99	83	83
Brent/WTI (12m MAV)	**73**	**99**	**62**	**80**	**103**	**103**	**103**	**96**	**51**	**44**	**53**	**68**	**61**	**41**	**70**	**97**	**80**	**81**
Brent/WTI y-on-y change	-3%	37%	-37%	28%	29%	0%	0%	-7%	-47%	-13%	19%	29%	-11%	-32%	68%	39%	-17%	1%
Brent/WTI (5yr MAV)	59	72	75	78	83	89	90	97	91	80	70	63	55	53	58	67	70	74

Source: Guinness Global Investors estimates, Bloomberg, January 2024

We believe that Saudi's long-term objective remains to maintain a 'good' oil price, something north of $80/bl. The world oil bill at around $80/bl represents 2.8% of 2024 global GDP, well under the average of the 1970 – 2021 period (3.4%).

ii) Natural gas market

US gas demand

On the demand side for the US, industrial gas demand and power generation gas demand (each about 25-35% of total US gas demand) are key. Commercial and residential demand, which make up a further quarter, have been fairly constant on average over the last decade – although yearly fluctuations due to the severity of winter weather can be marked.

US natural gas demand

Bcf/day	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024E	2025E
US natural gas demand:														
Residential/commercial	19.2	22.4	23.4	21.4	20.5	20.9	23.4	23.5	21.5	21.5	23.2	21.3	21.4	22.4
Power generation	24.9	22.3	22.3	26.5	27.3	25.3	29.0	30.9	31.7	30.9	33.1	35.3	36.0	33.7
Industrial	19.7	20.3	20.9	20.6	21.1	21.6	23.0	23.1	22.3	22.5	23.2	23.3	23.4	24.2
Pipeline exports (Mexico)	1.8	1.9	1.9	2.7	3.8	4.0	4.6	5.1	5.4	5.9	5.7	6.1	6.5	6.9
LNG exports	-	-	-	0.1	1.0	2.6	2.8	4.8	6.4	9.7	12.0	13.0	13.3	15.9
Pipeline/plant/other	6.1	6.7	6.3	6.5	6.4	6.5	7.0	7.8	7.7	7.8	7.4	7.7	7.7	7.8
Total demand	**71.7**	**73.6**	**74.8**	**77.8**	**80.1**	**80.9**	**89.8**	**95.2**	**95.0**	**98.3**	**104.6**	**106.7**	**108.3**	**110.9**
Demand growth	**3.1**	**1.9**	**1.2**	**3.0**	**2.3**	**0.8**	**8.9**	**5.4**	**- 0.2**	**3.3**	**6.3**	**2.1**	**1.6**	**2.6**

Source: EIA; GS; Guinness estimates, July 2024

Industrial demand (of which around 35% comes from petrochemicals) trends up and down depending on the strength of the economy and the differential between US and international gas prices. Electricity gas demand (i.e. power generation) is affected by weather, in particular by warm summers, which drive demand for air conditioning, but the underlying trend depends on GDP growth and the proportion of incremental new power generation each year that goes to natural gas versus the alternatives of coal, nuclear and renewables. Gas has been taking market share in this sector: in 2022 38% of electricity generation was powered by gas, up from 22% in 2007. The big loser here is coal, which has consistently given up market share.

Total gas demand in 2023 (including Mexican and LNG exports) was around 106.7 Bcf/day, up by 2.1 Bcf/day versus 2022 and 7 Bcf/day (7%) higher than the 5-year average. The biggest contributors to the growth in demand in 2023 were LNG exports and power generation.

We expect US demand growth in 2024 of 1.6 Bcf/day versus average growth of nearly 4 Bcf/day between 2021 and 2023. Growth is expected to be driven by higher LNG exports and a strong US economy lifting residential, commercial and industrial demand. Beyond 2024, we expect to see a material increase in US LNG export capacity as higher international gas prices incentivise new LNG export investment. Proposed projects imply capacity growth of around 3 Bcf/day by the end of 2025 and a further 5-6 Bcf/day in 2026-2028, bringing total export capacity to over 20 Bcf/day by 2028.

US gas supply

Overall, whilst gas demand in the US has been strong over the past five years, it has been overshadowed by a rise in onshore supply, holding the gas price lower.

The supply side fundamentals for natural gas in the US are driven by three main moving parts: onshore and offshore domestic production, pipeline imports of gas from Canada, and LNG imports. Of these, onshore supply is the biggest component, making up over 90% of total supply.

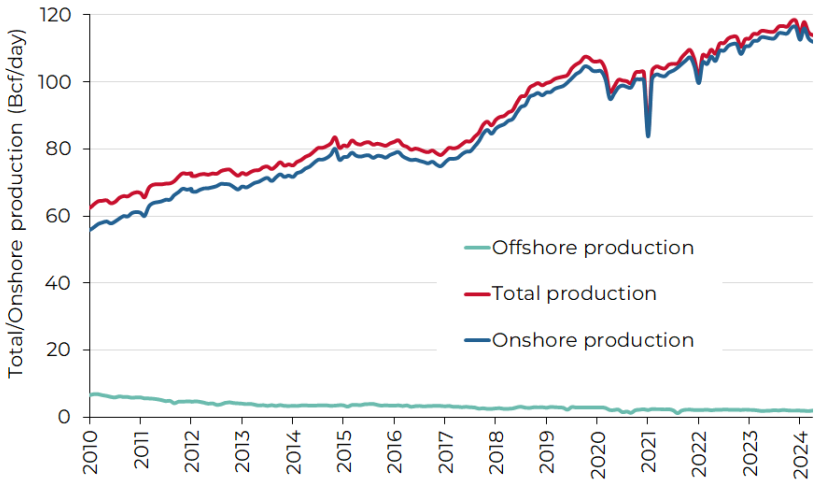
US natural gas supply

Bcf/day	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024E	2025E
US natural gas supply:														
US (onshore & offshore)	65.7	66.3	70.9	74.2	73.4	73.6	84.3	91.4	91.1	91.8	97.4	102.3	101.6	104.2
Net imports (Canada)	5.4	5.0	4.9	4.9	5.5	5.8	5.4	4.7	4.4	5.1	5.6	5.2	5.7	5.7
LNG imports & other	0.8	0.6	0.5	0.5	0.4	0.3	0.1	0.1	-	-	0.1	-	-	-
Total supply	**71.9**	**71.9**	**76.3**	**79.6**	**79.3**	**79.7**	**89.8**	**96.2**	**95.5**	**96.9**	**103.1**	**107.5**	**107.3**	**109.9**
Supply growth	**2.4**	**-**	**4.4**	**3.3**	**- 0.3**	**0.4**	**10.1**	**6.4**	**- 0.7**	**1.4**	**6.2**	**4.4**	**- 0.2**	**2.6**
(Supply)/demand balance	**- 0.2**	**1.7**	**- 1.5**	**- 1.8**	**0.8**	**1.2**	**-**	**- 1.0**	**- 0.5**	**1.4**	**1.5**	**- 0.8**	**1.0**	**1.0**

Source: EIA; GS; Guinness estimates, July 2024

Since 2010, the weaker gas price in the US reflects growing onshore US production driven by rising shale gas and associated gas production (a by-product of growing onshore US oil production). Interestingly, the overall rise in onshore production has come despite a collapse in the number of rigs drilling for gas, which has dropped from a 1,606 peak in September 2008 to a trough of 68 in July 2020, before recovering to around 100 at the end of July 2024. However, offsetting the fall, the average productivity per rig has risen dramatically as producers focus their attention on the most prolific shale basins, whilst associated gas from oil production has grown handsomely.

US natural gross gas production 2010 – 2024 (Lower 48 States)



Source: EIA 914 data (July 2024 data)

The outlook for gas production in the US depends on three key factors: the rise of associated gas (gas produced from wells classified as oil wells); expansion of the newer shale basins, principally the Marcellus/Utica, and the decline profile of legacy gas fields.

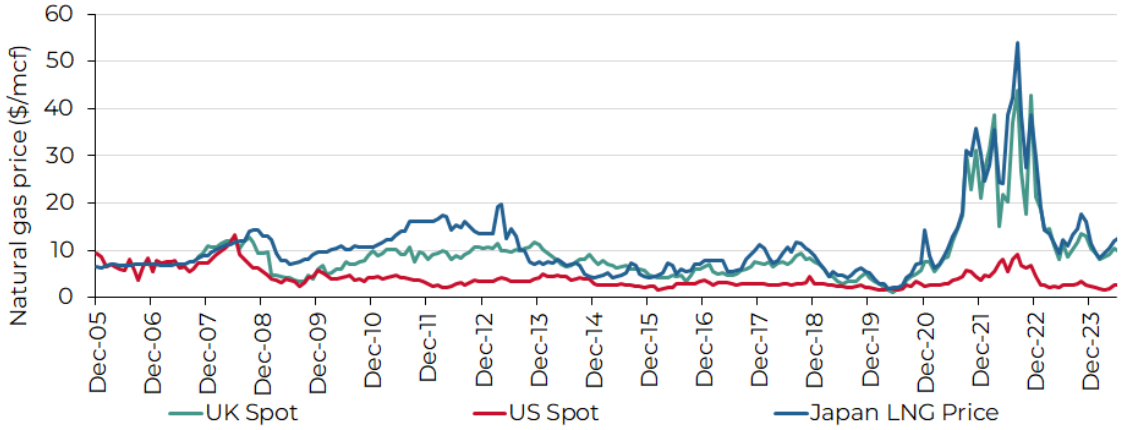
Associated gas production is expected to rise again in 2024 albeit at a slower pace (+0.8 Bcf/day) than in 2022 (+5.5 Bcf/day) and 2023 (+3.6 Bcf/day). Lower supply growth is expected from onshore properties as weaker natural gas prices have brought a lower rig count and lower investment.

Outlook for US LNG exports – global gas arbitrage

We expect the LNG market is going to be quite finely balanced over the next couple of years. In the event of moderate Chinese LNG demand and "normal" European winters, LNG supply and demand appear to be roughly in balance and global LNG prices appear to be fairly priced at around $10/mcf. However, stronger Asian demand (including South Korea and Japan as well as China) or a colder than expected European winter could easily see LNG in tight supply and cause international gas prices spike, although it is unlikely that they revert to the $40-$50 levels seen in winter 2022/2023.

Looking further ahead, we see international gas prices settling in a $9-11/mcf range. This price range should be sufficient to incentivise new US LNG supply to come online from 2025. It would also allow Europe to displace permanently almost all its Russian gas imports. An international gas price in the $9-11/mcf is well down on the highs seen in 2022, but would leave the market at a higher price point than that seen in the few years prior to COVID and the Russian invasion of Ukraine.

International gas prices to July 2024

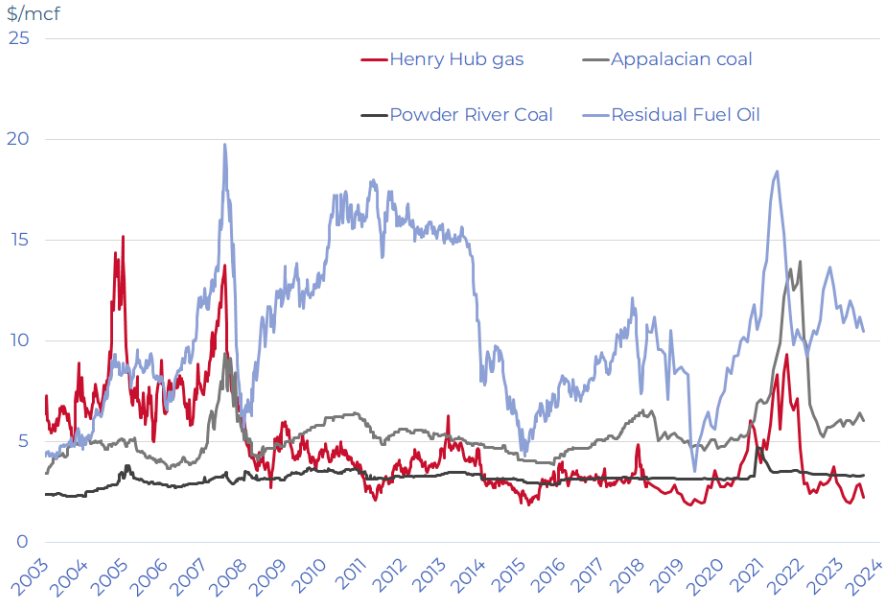


Source: Bloomberg; Guinness Global Investors (July 2024)

Relationship with oil and coal

The following chart of the front month US natural gas price against heating oil (No 2), residual fuel oil (No 6) and coal (Sandy Barge adjusted for transport and environmental costs) seeks to illustrate how coal and residual fuel oil switching provide a floor and heating oil a ceiling to the natural gas price. When the gas price has traded below the coal price support level (2012 and 2016), resulting coal-to-gas switching for power generation was significant.

Natural gas versus substitutes (fuel oil and coal) - Henry Hub vs residual fuel oil, heating oil, Sandy Barge (adjusted) and Powder River coal (adjusted)



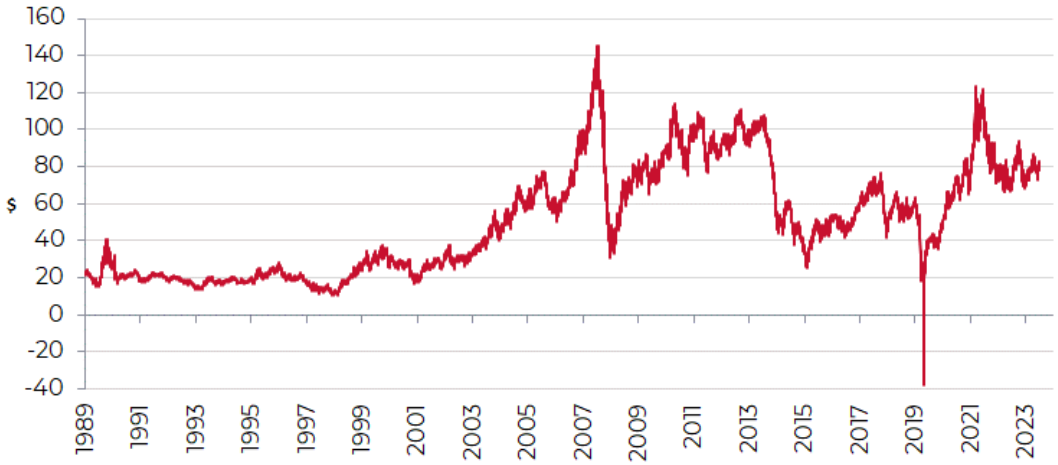
Source: Bloomberg; Guinness Global Investors (August 2024)

Conclusions about US natural gas

The US natural gas price since 2010 has mainly fluctuated between $2 and $4/mcf. The extremes of this range have tended to coincide with warm and cold winters, and any sustained recovery over $3.50/mcf has generally been muted by strength in gas supply. With inflationary pressures, we estimate that new onshore supply has an incentive price of around $3.50/mcf. Assuming normal weather in 2024, we expect a Henry Hub price at around this level.

APPENDIX: Oil and gas markets historical context

Oil price (WTI $) since 1989



Source: Bloomberg, August 2024

For the oil market, the period since the Iraq/Kuwait war (1990/91) can be divided into four distinct periods:

1) **1990-1998:** broadly characterized by decline. The oil price steadily weakened 1991 – 1993, rallied between 1994 – 1996, and then sold off sharply, to test 20-year lows in late 1998. This latter decline was partly induced by a sharp contraction in demand growth from Asia, associated with the Asian crisis, partly by a rapid recovery in Iraq exports after the UN Oil for food deal, and partly by a perceived lack of discipline at OPEC in coping with these developments.

2) **1998-2014:** a much stronger price and upward trend. There was a very strong rally between 1999 and 2000 as OPEC implemented 4m b/day of production cuts. It was followed by a period of weakness caused by the rollback of these cuts, coinciding with the world economic slowdown, which reduced demand growth and a recovery in Russian exports from depressed levels in the mid 90's that increased supply. OPEC responded rapidly to this during 2001 and reintroduced production cuts that stabilized the market relatively quickly by the end of 2001.

   Then, in late 2002 early 2003, war in Iraq and a general strike in Venezuela caused the price to spike upward. This was quickly followed by a sharp sell-off due to the swift capture of Iraq's Southern oil fields by Allied Forces and expectation that they would win easily. Then higher prices were generated when the anticipated recovery in Iraq production was slow to materialise. This was in mid to end 2003 followed by a much more normal phase with positive factors (China demand; Venezuelan production difficulties; strong world economy) balanced against negative ones (Iraq back to 2.5 m b/day; 2Q seasonal demand weakness) with stock levels and speculative activity needing to be monitored closely. OPEC's management skills appeared likely to be the critical determinant in this environment.

   By mid-2004 the market had become unsettled by the deteriorating security situation in Iraq and Saudi Arabia and increasingly impressed by the regular upgrades in IEA forecasts of near record world oil demand growth in 2004 caused by a triple demand shock from strong demand simultaneously from China; the developed world (esp. USA) and Asia ex China. Higher production by OPEC has been one response and there was for a period some worry that this, if not curbed, together with demand and supply responses to higher prices, would cause an oil price sell off. Offsetting this has been an opposite worry that non-OPEC production could be within a decade of peaking; a growing view that OPEC would defend $50 oil vigorously; upwards pressure on inventory levels from a move from JIT (just in time) to JIC (just in case); and pressure on futures markets from commodity fund investors.

   Continued expectations of a supply crunch by the end of the decade, coupled with increased speculative activity in oil markets, contributed to the oil price surging past $90 in the final months of 2007 and as high as $147 by the middle of 2008. This spike was brought to an abrupt end by the collapse of Lehman Brothers and the financial crisis and recession that followed, all of which contributed to the oil price falling back by early 2009 to just above $30. OPEC responded

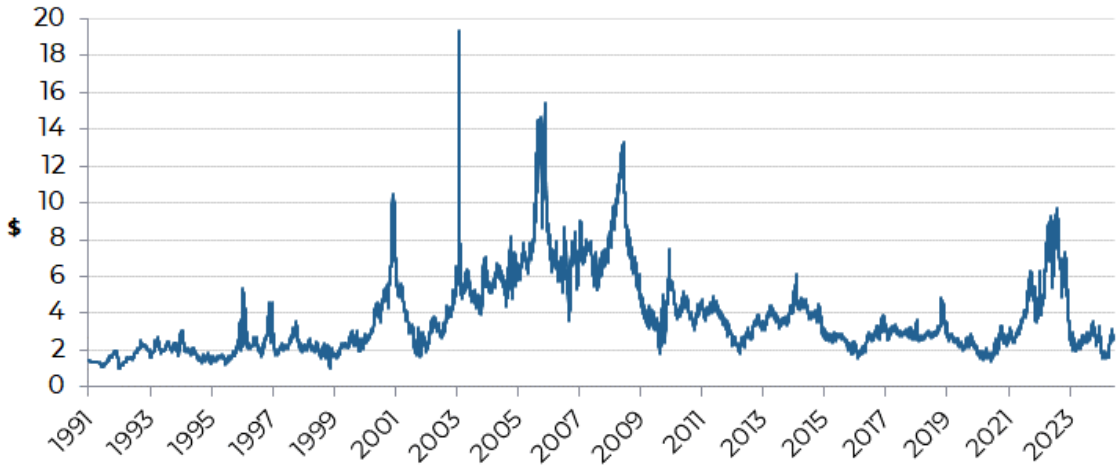
decisively and reduced output, helping the price to recover in 2009 and stabilise in the $70-95 range where it remained for two years.

Prices during 2011-2014 moved higher, averaging around $100, though WTI generally traded lower than Brent oil benchmarks due to US domestic oversupply affecting WTI. During this period, US unconventional oil supply grew strongly, but was offset by the pressures of rising non-OECD demand and supply tensions in the Middle East/North Africa.

3) **2014-2020:** a further downcycle in oil. Ten years of high prices leading up to 2014 catalysed a wall of new non-OPEC supply, sufficient that OPEC saw no choice but to stop supporting price and re-set the investment cycle. Oil prices found a bottom in 2016 (as a result of OPEC and non-OPEC partners cutting production again), but its recovery was capped by the volume of new supply still coming into the market from projects sanctioned pre the 2014 price crash. Average prices were pinned 2017-19 in the $50-70/bl range, with prices at the top end of this rang stimulating oversupply from US shale. The alliance between OPEC and non-OPEC partners fell apart briefly in March 2020 and, coupled with an unprecedented collapse in demand owing to the COVID-19 crisis, oil prices dropped back below $30/bl, before recovering to around $50/bl by the end of 2020 thanks to renewed OPEC+ action.

4) **2021 onwards:** Underinvestment in new oil capacity in the 2015-2020 period catalysed the start of a new cycle in 2021, pushing prices above $75/bl.

North American gas price since 1991 (Henry Hub $/Mcf)



Source: Bloomberg, July 2024

With regard to the US natural gas market, the price traded between $1.50 and $3/Mcf for the period 1991 - 1999. The 2000s were a more volatile period for the gas price, with several spikes over $8/mcf, but each lasting less than 12 months. On each occasion, the price spike induced a spurt of drilling which brought the price back down. Excepting these spikes, from 2004 to 2008, the price generally traded in the $5-8 range. Since 2008, the price has averaged below $4 as progress achieved in 2007-8 in developing shale plays boosted supply while the 2008-09 recession cut demand. Demand has been extremely strong over the last decade but this has been outpaced by continued growth in onshore production, driven by the prolific Marcellus/Utica field and associated gas as a by-product of shale oil production.

North American gas prices are important to many E&P companies. In the short term, they do not necessarily move in line with the oil price, as the gas market is essentially a local one. (In theory 6 Mcf of gas is equivalent to 1 barrel of oil so $60 per barrel equals $10/Mcf gas). It remains a regional market more than a global market, though the development of the LNG industry is creating a greater linkage.

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GUINNESS GLOBAL ENERGY FUND

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