Guinness Global Energy

Investment Commentary – August 2023

RISK

This is a marketing communication. Please refer to the prospectuses, 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
Irish Domiciled	Guinness Global Energy Fund
UK Domiciled	TB 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 Fund is actively managed and uses the MSCI World Energy Index as a comparator benchmark only.

CONTENTS

COMMENTARY

OIL

Brent/WTI up as OPEC+ cuts show up in market

Brent and WTI spot oil prices were up $10/bl and $11/bl over July, as strong demand in the US and India combined with lower Saudi and Russia production to drive prices higher. Brent and WTI closed the month at $85/bl and $82/bl, towards the top of the YTD range. Five-year forward prices also moved higher with Brent closing July at $69/bl and WTI at $63/bl.

NATURAL GAS

European gas prices decline as inventories stay high

Asian and European gas prices (using UK national balancing point) ended July around $3/mcf and $1/mcf lower at $11 and $9/mcf respectively, while the US spot price (Henry Hub) fell from $2.8/mcf to $2.6/mcf. In Europe, gas demand for gas remains weak, while Norwegian production has recovered from maintenance. High production keeps the US price depressed.

EQUITIES

Energy outperforms the broad market in July

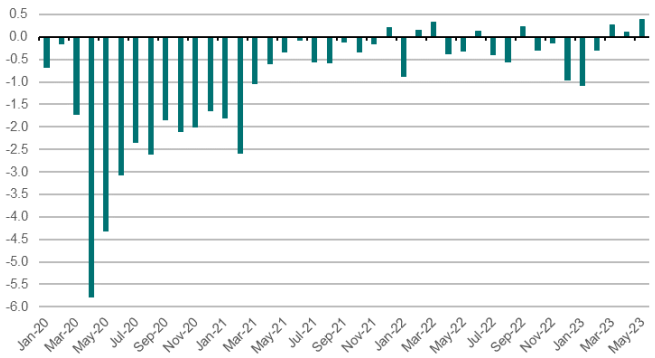
The MSCI World Energy Index (net return) rose by 6.5% in July, outperforming the MSCI World Index (net return) which rose by 3.4% over the month (all in US dollar terms).

CHART OF THE MONTH

US oil demand reaches new post-COVID high

At the start of August, the US Energy Information Administration published its official demand data for May, which showed a 0.7m b/day increase year-on-year. Demand from the petrochemical sector saw the strongest growth. US oil demand in May was 0.4m b/day above 2019 levels – and significantly higher than preliminary data suggested.

US oil demand vs 2019 (m b/day)

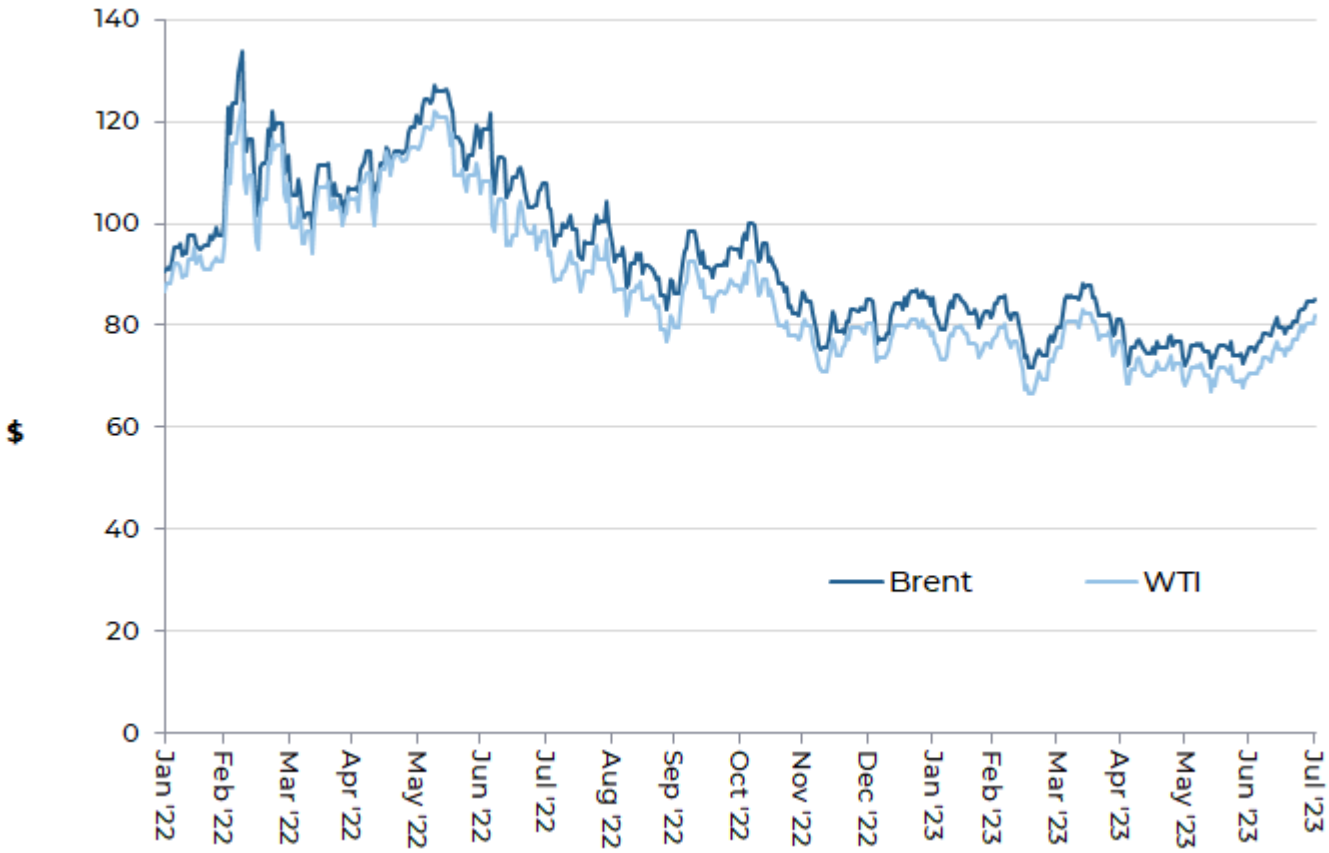


Source: DNB

JULY IN REVIEW

i) Oil market

Oil price (WTI and Brent $/barrel): January 2022 to July 2023



Source: Bloomberg; Guinness Global Investors

The West Texas Intermediate (WTI) oil price started July at $71/bl and traded steadily higher over the month before closing at $82/bl. WTI has averaged $75/bl so far this year, having averaged $95/bl in 2022 and $68/bl in 2021.

Brent oil traded in a similar shape, opening at $76/bl and trading up to $85/bl. Brent has averaged $80/bl so far in 2023, having averaged $100/bl in 2022 and $70/bl in 2021. The gap between the WTI and Brent benchmark oil prices closed over the month, ending July at $3.3/bl. The Brent-WTI spread has averaged $4.8/bl so far in 2023.

Factors which strengthened WTI and Brent oil prices in July:

- **Continued evidence of demand strength**

Whilst the International Energy Agency (IEA) revised its 2023 global demand estimate downwards by 0.2m b/day in July (from 102.5m b/day to 102.3m b/day), this still represents growth of 2.2m b/day from 2022 levels, up from the IEA's original forecast of 1.7m b/day made at the end of last year. Non-OECD countries account for 90% of expected growth this year, with China making up 60% of gains thanks to post-COVID recoveries in transport and petrochemicals. It also appears, however, that US demand is growing more than first thought. In particular, we note comments made in late July from the CEO of large US refiner Valero: "We believe that the US Dept of Energy is understating gasoline demand… we're seeing gasoline sales up 14% year-on-year and up 20% from pre-pandemic levels." If Valero's observations are representative of the US as a whole, they would imply a meaningful upgrade to the IEA's current US oil demand numbers.

- **Saudi Arabia carrying out voluntary production cut, backed by Russia**

At the start of June, Saudi Arabia announced a voluntary production cut of 1.0m b/day, initially for July, then extended to August. Preliminary production numbers for July suggest that Saudi have followed through with the cut. Saudi have been supported by Russia, where production looks to be down by at least 0.5m b/day, with potentially more to come. Our assumption is that the new Russian cut in oil exports is largely voluntary (i.e. part of OPEC+'s strategy) rather than induced by sanctions.

Signs of slowing supply from US shale

The US crude rotary rig count has fallen by nearly 100 rigs since its recent peak of 627 in December 2022 and is currently running more than 20% below pre-pandemic levels. US shale oil supply growth has been running at 0.8m – 1.0m b/day year-on-year, but we expect this growth rate to drop sharply as the fall in rig count kicks in (typically there is a six to nine-month lag between change in rig count and production). At the current rig count, forward 12-month growth of around 0.1-0.3m b/day is likely.

Factors which weakened WTI and Brent oil prices in July:

- **Inflation and broader macro concerns temper demand expectations**

The persistence of inflation and the hawkish response of central banks to combat the lingering effects of excess money supply continued to pressure developed world economic growth expectations. This month, the US Federal Reserve indicated further monetary tightening in the second half of the year and European macroeconomic data continued to signal an economic slowdown. Some commentators therefore have been pointing to slower growth in oil demand in the second half of the year, and a shallower oil deficit than had previously been expected. Nonetheless, the IEA increased its oil demand expectations in the middle of the month, forecasting a rise of 2.4m b/day and total consumption of 102.3m b/day in 2023.

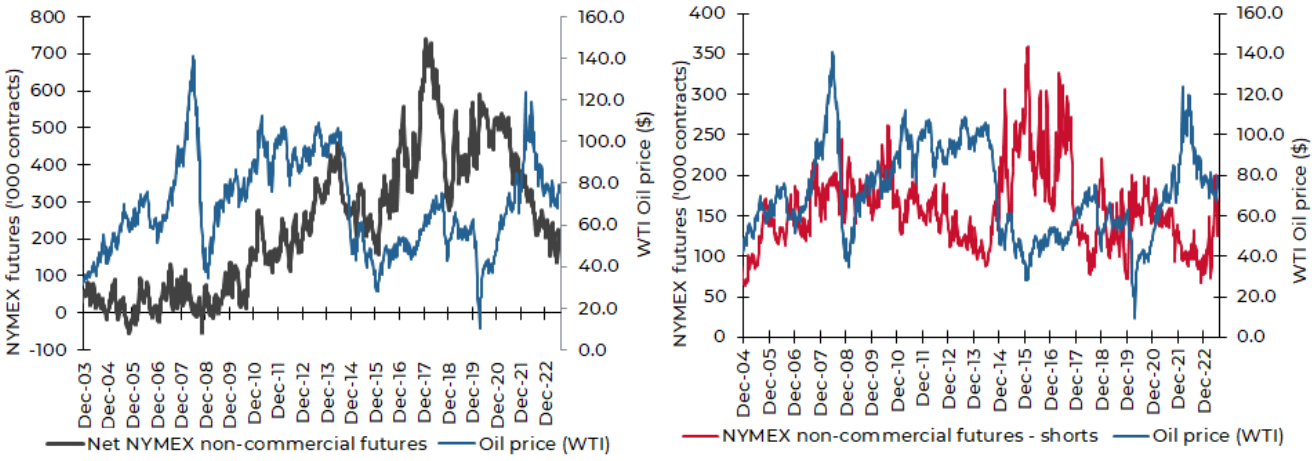
- **Growth in Iranian production**

Iran claims to have boosted its crude output to around 3.1m b/day in July, the highest monthly rate since President Trump imposed sanctions on the nation in 2018. Whilst Iran is still under US sanctions regarding its nuclear programme, it is thought that a significant portion of Iranian oil exports are being 'washed' through other countries before reaching market.

Speculative and investment flows

The New York Mercantile Exchange (NYMEX) net non-commercial crude oil futures open position was 225,000 contracts long at the end of July versus 138,000 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 declined to 125,000 contracts at the end of July versus 200,000 at the end of the previous month.

NYMEX Non-commercial net and short futures contracts: WTI January 2004 – July 2023

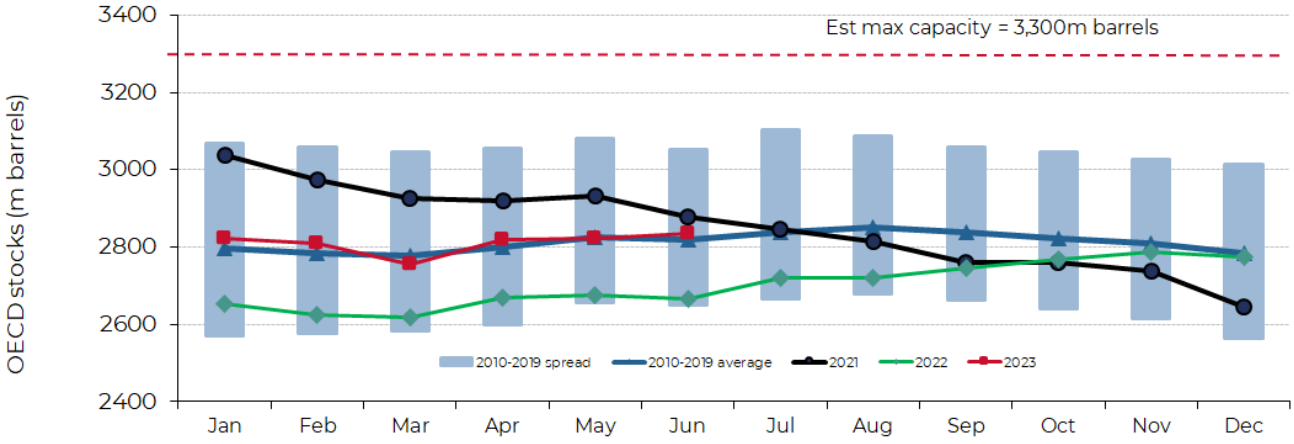


Source: Bloomberg LP/NYMEX/ICE (2023)

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, up 11m barrels versus the level reported for May. This compares to a 10-year average decline for June of 8m barrels, implying that the OECD market was oversupplied. The significant oversupply situation in 2020 pushed OECD inventory levels close to maximum capacity in August 2020 (c3.3bn barrels), with subsequent tightening taking inventories below normal levels. Despite remaining flat for the first half of 2022, inventories began to build again from June onwards, leading to levels currently sitting close to the 10-year average.

OECD total product and crude inventories, monthly, 2010 to 2023



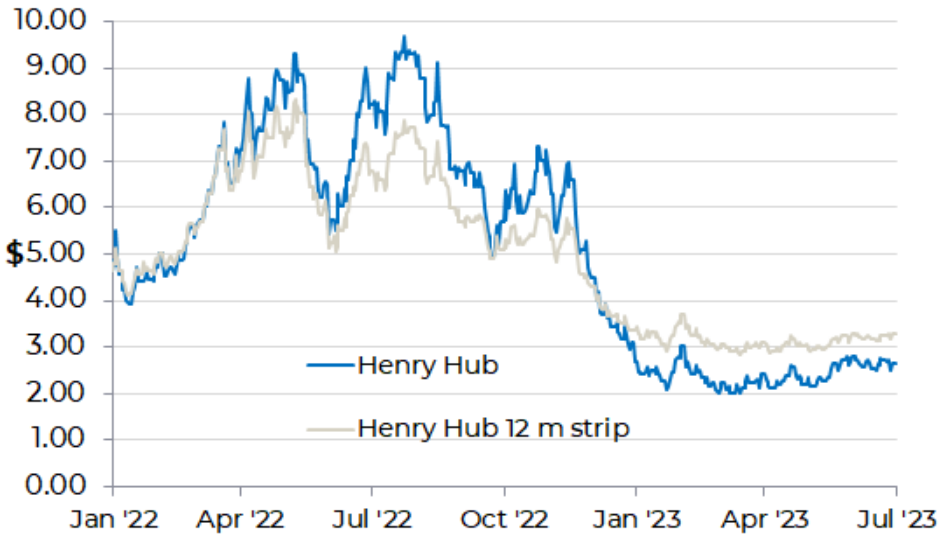
Source: IEA Oil Market Reports (July 2023 and older)

ii) Natural gas market

The US natural gas price (Henry Hub front month) opened July at $2.80/mcf (1,000 cubic feet) and dropped to a low on July 17 of $2.51, before rallying to close the month at $2.63/mcf. The spot gas price has averaged $2.57/mcf so far in 2023, having averaged $6.52/mcf in 2022 and $3.71/mcf in 2021.

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 $3.27/mcf, falling through the first half of the month before closing higher at $3.28/mcf. The strip price has averaged $3.21/mcf so far in 2023, having averaged $5.90 in 2022 and $3.52 in 2021.

Henry Hub gas spot price and 12m strip ($/Mcf): January 2022 to July 2023



Source: Bloomberg LP

Factors which strengthened the US gas price in July included:

- **Texas heatwave**

Extreme temperatures across the south of the US, particularly Texas, has led to high demand for gas for power as air conditioning usage spiked.

- **Falling rig count**

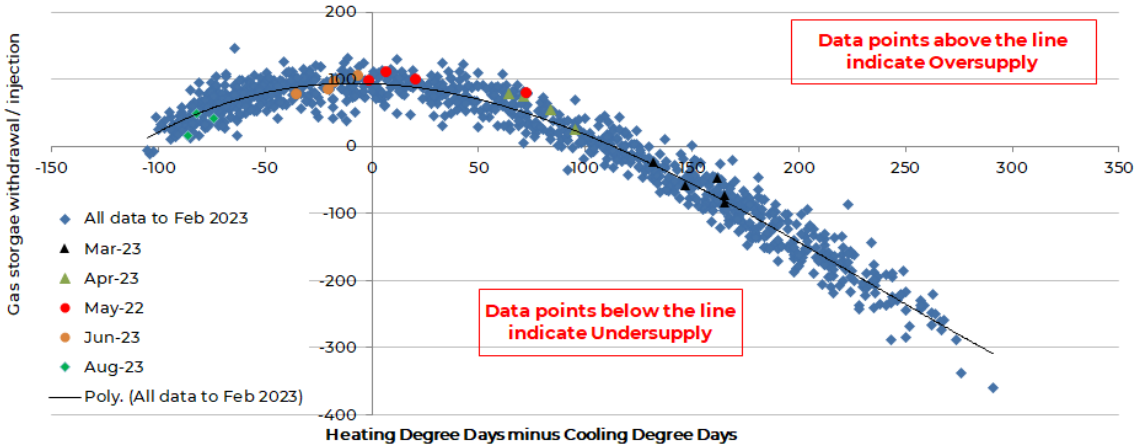
The number of rigs drilling for natural gas in the US has fallen from 161 at the start of the year to 130 rigs at the end of July. This has increased confidence in the market that the US will not suffer too much oversupply, with production rising in most key basins (Marcellus; Haynesville; Permian).

Factors which weakened the US gas price in July included:

- **Coal to gas switching starting to reverse**

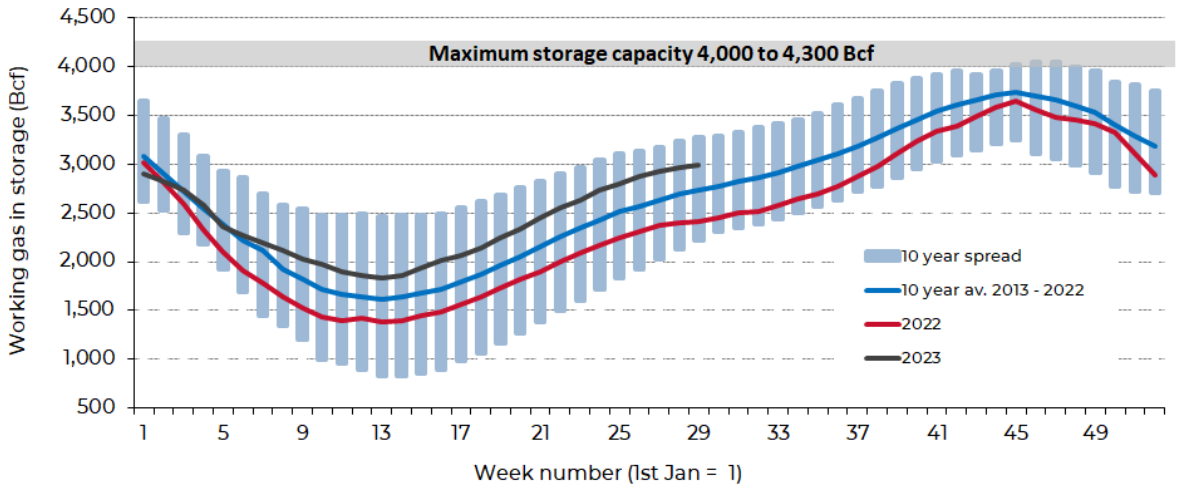
With the spread between US gas prices and coal prices having widened materially since the start of the year, we had seen signs of power producers switching from coal-based electricity generation to gas-based. Goldman Sachs estimate that summer switching in the US power sector might average 1.2 Bcf/day. However, with the increase in Henry Hub pricing back towards $3/mcf, plus declines in Appalacian coal prices, some of the switching will now be reversing.

Weather-adjusted US natural gas inventory injections and withdrawals



Source: Bloomberg LP; Guinness Global Investors

Deviation from 10yr US gas storage norm



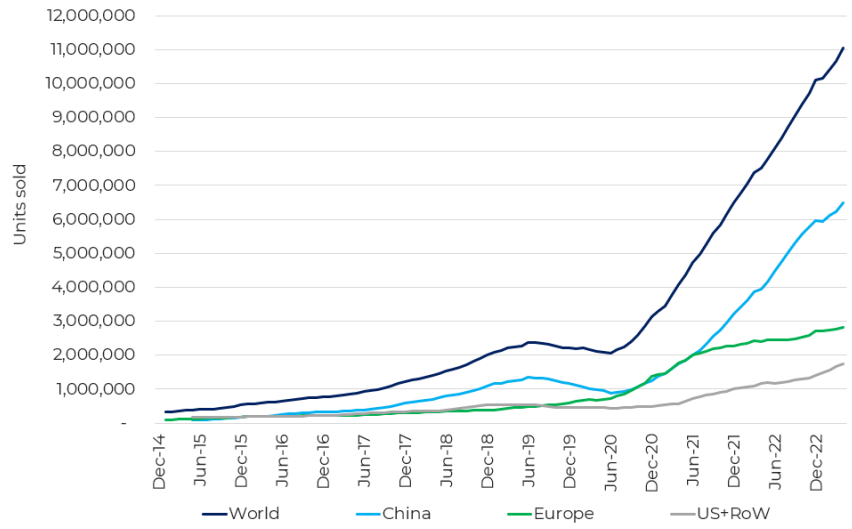
Source: Bloomberg; EIA (July 2023)

MANAGERS' COMMENTS

Electric vehicle (EV) sales growth has continued apace over the last 18 months. In 2022, around 10m EVs were sold, representing around 12% penetration of the light autos market. This year, it looks like the world is on track for around 14m units, taking sales penetration up to around 18%. Here, in the context of our global energy strategy, we focus on the implications for oil demand brought about by the growing importance of EVs.

Global EV sales are on track to be up around 40% this year, taking EV market share as a proportion of the total light auto sales mix up to around 18%. In many ways, this level of market penetration is remarkable, given it was only 4% in 2020. China has significantly extended its lead over the rest of the world, despite the removal of subsidies at the start of 2023. Around a decade ago, China's 12th Five-Year Plan (2011-2015) identified the alternative fuel industry as a strategic emerging industry, deserving of government support to help combat dangerous levels of air pollution. Ten years later, not only is China the largest car market in the world (purchasing around 26m of the 81m new cars sold worldwide), but also the largest EV market, accounting for over 55% of world demand and home to over 400 EV manufacturers.

EV sales by region (rolling 12-month basis)



Source: EV-Sales, Cleantechnica, Guinness Global Investors, August 2023

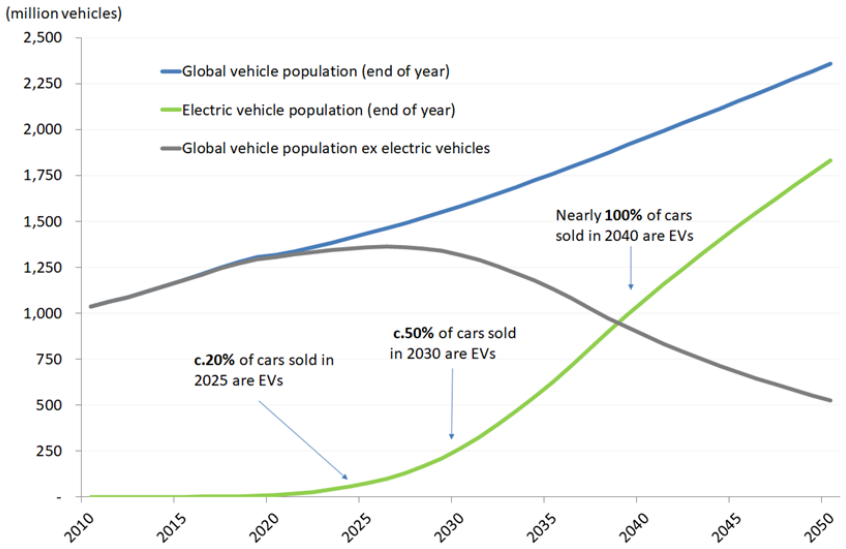
The European market is now in a distant second place with around one quarter of global EV sales. The US lags further, making up just under 15% of global EV sales, but has seen a recent acceleration in sales growth.

The journey towards an EV-dominated car population will continue to be supported by government incentives such as the tax breaks in the Inflation Reduction Act in the US and disincentives such as the EU's restrictive tailpipe emissions standards. The key to accelerating EV adoption is reaching parity with internal combustion engine (ICE) vehicles for both ownership costs and function (for which range and the availability of charging infrastructure are the primary considerations). We expect EVs to reach cost parity with passenger ICE vehicles in 2027 thanks to falling battery costs – two years later than we previously forecast, owing to rising battery metal prices. As catalysts for accelerating sales penetration, we expect EVs will achieve greater range, whilst enough chargers will be built in China and most developed economies to support higher EV sales. However, EV sales in other emerging economies will continue to lag in 2030 owing principally to a lack of charging infrastructure.

Despite the rapid growth in EV sales since 2020, the world EV fleet by the end of 2023 will still represent only around 2.5% of the total fleet of passenger vehicles. We expect EV sales penetration to reach at least 20% by 2025, rising to around 50% by the end of this decade, then increasing to over 90% by 2040. By 2030, this implies a passenger EV fleet of 210-200m vehicles, but still representing only around 15% of the total fleet of passenger vehicles. The penetration rate of EVs in the world fleet accelerates markedly in the 2030s, meaning the vehicle population is fairly evenly split between EVs and ICE vehicles by 2040.

We note that the Guinness forecasts for EV penetration are generally towards the higher end compared to those of other market commentators. We are content with this since, given the objective is to assess the impact of EV penetration on oil demand, we prefer to pitch ourselves at the 'aggressive' end of the spectrum.

Global auto, ICE and EV population to 2050



Source: US DoE; Guinness Global Investors estimates, August 2023

What are the implications for the ICE fleet and oil demand? Despite our relatively bullish assumptions on EV adoption, the offsetting impact of global vehicle population growth implies that the population of ICE vehicles peaks in the mid to late 2020s at around 1.3bn vehicles. And after peaking, the population of ICE vehicles moves into relatively shallow decline, such that there are still around 1bn ICE vehicles on the roads globally in the mid-2030s, similar to 2010.

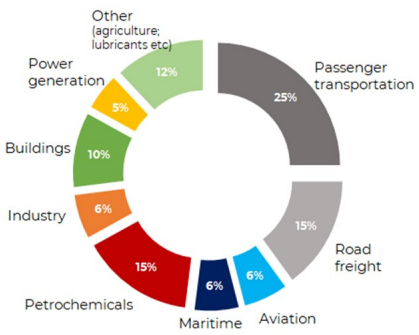
Also relevant is the fuel efficiency of the ICE portion of the market, which will improve, and will put further pressure on oil demand growth from the ICE fleet. In the US, for example, at the end of July 2023, the National Highways Administration proposed new fuel economy standards for passenger cars and light trucks built 2027-2032. If finalised, the proposals would require a fleet-wide average of around 58 miles per gallon in 2032, implying a 2% annual improvement in fuel economy for passenger cars and a 4% annual improvement for light trucks.

Taken together, we continue to believe a growing global auto fleet, improving fuel efficiency and EV penetration points to oil demand from cars and other light vehicles peaking around 2024 or 2025.

How important is oil demand from road transport in the context of total oil demand?

With the amount EVs are talked about, there is a danger of overestimating the impact of road transport electrification on global oil demand. Cars and light trucks account for around 25% of global oil usage, with heavy vehicles accounting for around 15%.

Structure of global oil demand



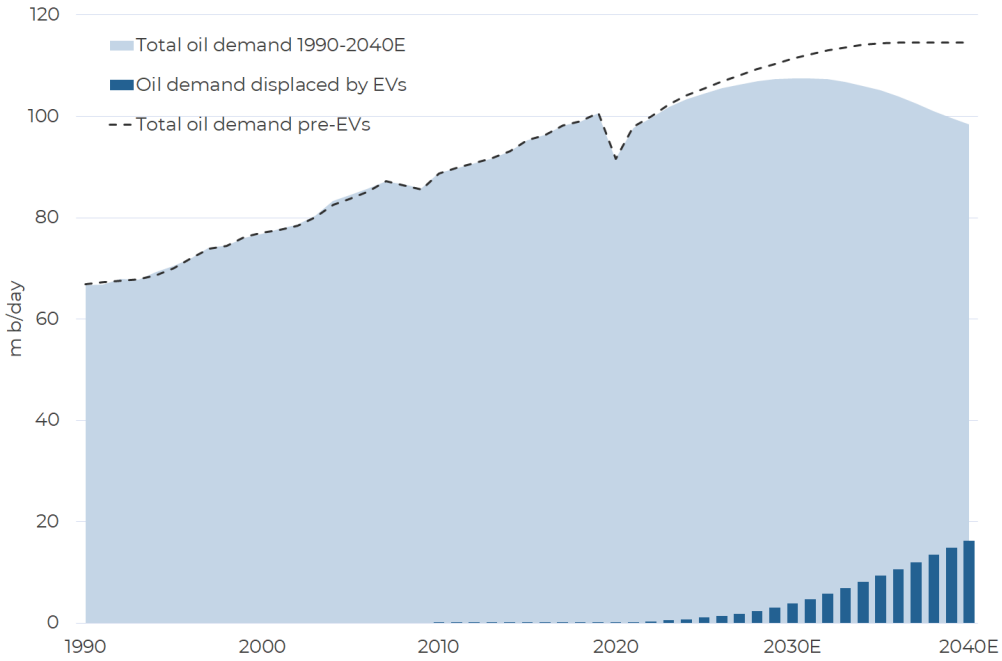
Source: OPEC; Bernstein; Guinness estimates as of 31.07.2023

We expect oil demand from road freight to continue to grow this decade, peaking around 2030 (so around 5-6 years later than light auto demand) then moving into steady decline. Here, the electrification of the truck fleet is offset by road freight ton-miles around the world more than doubling over the next 25 years.

Meanwhile, other key categories of oil use, in particular those with no electric alternatives on the horizon such as aviation and petrochemicals, will continue to put upward pressure on oil demand. Credible forecasts suggest jet fuel demand rising from around 8m b/day currently to around 18m b/day by 2050, as aviation miles per person double globally over that timeframe. In the plastics sector (a subset of petrochemicals), demand of 10m b/day may also double by 2050. According to Thunder Said Energy, average per capita consumption of plastics in the OECD is 170kg per year, while the number in the non-OECD is around 75% less. By 2050, it is expected that average consumption in the non-OECD is around 50% less than the OECD, which in aggregate points to a doubling of consumption.

Putting the key moving parts for oil demand together, when will oil demand peak? Our assumptions for EV adoption see around 4-5m b/day of oil demand displaced globally by 2030, growing to 13-15m b/day of oil demand displaced by 2040. But other key oil uses continue to grow. Taken together, the most likely scenario for peak oil demand would be sometime around 2030, reaching a peak of somewhere between 105-110m b/day.

World oil demand 1990 – 2040E versus oil demand pre-EVs



Source BP; Guinness Global Investors estimates as of 31.07.2023

And despite rapid EV adoption around the world in the 2030s, oil will continue to be consumed at significant volume well beyond the 2030 peak. We expect oil demand in 2040 at 95-100m b/day, the level of demand in the late 2010s. The signs still point, therefore, to significant new oil resources being required to balance natural production declines and match the volume of oil that will be consumed.

PERFORMANCE – Guinness Global Energy Fund

Past performance is not a guide to future returns.

The main index of oil and gas equities, the MSCI World Energy Index (net return), increased by 6.5% in July, while the MSCI World Index (net return) rose by 3.4% in USD.

Within the Fund, July's strongest performers included Helix, Halliburton, Schlumberger, Baker Hughes and EOG Resources while the weakest performers included Sinopec, Exxon, Enbridge and Shell.

Performance (in USD) as at 31.07.2023

Cumulative returns	YTD	1 year	3 years ann.	5 years ann.	Launch of strategy* ann. (31.12.98)		
Guinness Global Energy Fund (Class Y, 0.99% OCF)	2.9%	15.1%	0.4%	-0.5%	7.7%		
MSCI World Energy NR Index	2.3%	12.8%	4.5%	2.9%	6.2%		
Calendar year returns	**2022**	**2021**	**2020**	**2019**	**2018**	**2017**	**2016**
Guinness Global Energy Fund (Class Y, 0.99% OCF)	32.4%	44.5%	-34.7%	9.8%	-19.7%	-1.3%	27.9%
MSCI World Energy NR Index	46.0%	40.1%	-31.5%	11.4%	-15.8%	5.0%	26.6%
	2015	**2014**	**2013**	**2012**	**2011**	**2010**	**2009**
Guinness Global Energy Fund (Class Y, 0.99% OCF)	-27.6%	-19.1%	24.4%	3.0%	-13.7%	15.3%	61.8%
MSCI World Energy NR Index	-22.8%	-11.6%	18.1%	1.9%	0.2%	11.9%	26.2%
	2008*	**2007***	**2006***	**2005***	**2004***	**2003***	**2002***
Guinness Global Energy Fund (Class Y, 0.99% OCF)	-48.2%	37.9%	10.0%	62.3%	41.0%	32.3%	6.7%
MSCI World Energy NR Index	-38.1%	29.8%	17.9%	28.7%	28.1%	25.9%	-6.4%
	2001*	**2000***	**1999***				
Guinness Global Energy Fund (Class Y, 0.99% OCF)	-4.1%	39.6%	22.5%				
MSCI World Energy NR Index	-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 31.3.08, 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.

PORTFOLIO Guinness Global Energy Fund

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 Fund at **July 31 2023**.

Asset allocation as %NAV	Current	*Change*	Last year end	Last year end	Previous year ends					
	Jul-23		Dec-22	Dec-21	Dec-20	Dec-19	Dec-18	Dec-17	Dec-16	Dec-15	Dec-14
Oil & Gas	**98.7%**	***1.4%***	**97.4%**	**96.9%**	**94.8%**	**98.3%**	**96.7%**	**98.4%**	**96.7%**	**95.1%**	**93.7%**
Integrated	53.5%	*-1.2%*	54.7%	57.7%	56.3%	51.1%	46.4%	42.9%	46.4%	41.5%	37.3%
Exploration & Production	23.1%	*0.0%*	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%	0.1%	2.2%	1.9%	2.2%	1.5%	3.3%
Equipment & Services	11.2%	*2.1%*	9.0%	4.0%	4.6%	9.6%	8.6%	9.5%	8.6%	11.4%	13.4%
Storage & Transportation	4.7%	*-0.2%*	4.8%	4.3%	4.4%	4.0%	0.0%	3.5%	0.0%	0.0%	0.0%
Refining & Marketing	6.3%	*0.5%*	5.8%	7.2%	7.3%	3.8%	3.7%	3.7%	3.7%	4.2%	3.5%
Solar	0.5%	*-0.3%*	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%
Construction & Engineering	0.0%	*0.0%*	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Cash	0.8%	*-1.1%*	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 2023 was on a price to earnings ratio (P/E) for 2023/2024 of 8.7x/8.7x versus the MSCI World Index at 18.4x/16.9x as set out in the following table:

As at 31 July 2023	P/E		
	2022	2023E	2024E
Guinness Global Energy Fund	6.4x	8.7x	8.7x
MSCI World Index	16.0x	18.4x	16.9x
Fund Premium/(Discount)	*-60%*	*-53%*	*-49%*

Source: Bloomberg; Guinness Global Investors

Portfolio holdings

Our integrated and similar stock exposure (c.54%) 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 2023 the median P/E ratio of this group was 6.7x 2023 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.23%) 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, Pioneer 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 around 10% 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 2023 (for compliance reasons disclosed one month in arrears)

Guinness Global Energy Fund (30 June 2023)			P/E			EV/EBITDA			Price/Book			Dividend Yield		
Stock	**ISIN**	**% of NAV**	**2022**	**2023E**	**2024E**	**2022**	**2023E**	**2024E**	**2022**	**2023E**	**2024E**	**2022**	**2023E**	**2024E**
Integrated Oil & Gas														
Exxon Mobil Corp	US30231G1022	5.9%	7.7x	11.2x	11.8x	4.3x	5.9x	6.2x	2.3x	2.1x	2.0x	3.3%	3.4%	3.5%
Chevron Corp	US1667641005	5.1%	8.2x	11.6x	11.1x	4.5x	5.9x	5.9x	1.9x	1.8x	1.8x	3.6%	3.8%	4.0%
Shell PLC	GB00BP6MXD	5.1%	5.7x	6.8x	6.9x	2.9x	3.4x	3.6x	1.1x	1.0x	0.9x	3.5%	4.2%	4.6%
Total SA	FR0000120271	5.3%	4.1x	5.6x	5.9x	2.5x	3.0x	3.3x	1.2x	1.2x	1.0x	7.0%	5.7%	5.9%
BP PLC	GB0007980591	4.9%	4.0x	6.0x	6.2x	2.3x	3.0x	3.2x	1.6x	1.3x	1.2x	4.0%	4.6%	4.9%
Equinor ASA	NO0010096985	3.4%	4.3x	6.6x	6.6x	1.0x	1.6x	1.6x	2.1x	1.7x	1.6x	8.5%	11.5%	8.7%
ENI SpA	IT0003132476	3.0%	3.6x	5.2x	5.7x	2.2x	2.8x	3.0x	0.8x	0.8x	0.7x	6.5%	7.1%	7.2%
Repsol SA	ES0173516115	3.6%	3.1x	4.0x	5.2x	1.8x	2.3x	2.6x	0.7x	0.6x	0.6x	4.9%	5.3%	5.7%
Galp Energia SGPS SA	PTGAL0AM00	2.9%	10.6x	9.0x	9.0x	3.0x	3.5x	3.5x	2.3x	2.0x	1.9x	4.7%	5.0%	5.2%
OMV AG	AT0000743059	2.8%	2.8x	4.0x	4.7x	1.7x	2.5x	2.7x	0.6x	0.7x	0.6x	12.1%	10.9%	10.0%
		42.0%												
Integrated / Oil & Gas E&P - Canada														
Suncor Energy Inc	CA8672241079	3.2%	4.8x	6.9x	6.5x	2.8x	3.6x	3.5x	1.4x	1.2x	1.1x	4.8%	5.5%	5.8%
Canadian Natural Resources Ltd	CA1363851017	3.4%	6.7x	10.6x	9.1x	4.0x	5.4x	4.7x	2.2x	2.1x	1.9x	4.9%	4.8%	5.0%
Cenovus Energy Inc	CA15135U1093	3.4%	6.6x	8.8x	6.8x	3.3x	4.1x	3.7x	1.6x	1.4x	1.3x	1.8%	2.3%	2.6%
Imperial Oil Ltd	CA4530384086	3.6%	6.2x	8.1x	7.7x	3.9x	5.0x	5.0x	1.9x	1.6x	1.4x	2.1%	2.8%	3.0%
		13.5%												
Integrated Oil & Gas - Emerging market														
PetroChina Co Ltd	CNE1000003W	2.0%	6.0x	6.6x	6.8x	3.4x	3.7x	3.7x	0.6x	0.6x	0.6x	7.7%	7.4%	6.9%
		2.0%												
Oil & Gas E&P														
ConocoPhillips	US20825C1045	4.3%	7.5x	11.4x	10.3x	3.7x	5.1x	4.9x	2.7x	2.6x	2.4x	1.8%	2.0%	2.1%
EOG Resources Inc	US26875P1012	3.5%	8.3x	10.1x	9.3x	4.4x	5.2x	4.8x	2.7x	2.3x	2.1x	5.8%	4.5%	5.0%
Diamondback Energy Co	US25278X1090	3.6%	5.4x	7.3x	6.7x	4.3x	5.0x	4.7x	1.6x	1.4x	1.2x	3.9%	4.7%	4.2%
Pioneer Natural Resources Co	US7237871071	3.2%	6.7x	10.2x	9.5x	4.1x	5.5x	5.2x	2.2x	2.2x	2.0x	2.6%	2.3%	3.4%
Devon Energy Corp	US25179M1036	3.1%	5.7x	8.2x	7.5x	3.7x	4.6x	4.4x	2.9x	2.5x	2.2x	2.8%	2.0%	3.1%
		17.7%												
International E&Ps														
Pharos Energy PLC	GB00B572ZV9	0.1%	3.0x	8.2x	3.5x	0.6x	1.0x	1.0x	n/a	n/a	n/a	n/a	2.5%	2.9%
		0.1%												
Midstream														
Kinder Morgan Inc	US49456B1017	2.3%	14.9x	15.5x	14.4x	9.5x	9.3x	9.0x	1.3x	1.3x	1.3x	6.4%	6.6%	6.7%
Enbridge Inc	CA29250N1050	2.6%	17.4x	17.0x	16.8x	12.5x	11.6x	11.5x	1.7x	1.8x	1.9x	6.9%	7.3%	7.5%
		5.0%												
Equipment & Services														
Schlumberger Ltd	AN8068571086	3.8%	22.6x	16.3x	13.2x	12.2x	9.7x	8.4x	3.9x	3.5x	3.1x	1.3%	2.0%	2.1%
Halliburton Co	US4062161017	3.4%	16.2x	10.6x	9.1x	8.8x	6.8x	6.0x	3.7x	3.0x	2.5x	1.4%	1.9%	2.1%
Baker Hughes a GE Co	US05722G1004	1.7%	35.6x	20.5x	15.7x	12.1x	9.6x	8.1x	2.2x	2.1x	2.0x	2.3%	2.4%	2.5%
Helix Energy Solutions Group Inc	US42330P1075	1.1%	n/a	18.8x	12.6x	9.7x	4.5x	4.0x	0.8x	0.7x	0.7x	n/a	n/a	n/a
		10.0%												
Oil & Gas Refining & Marketing														
China Petroleum & Chemical Corp	CNE1000002Q	1.7%	7.0x	6.6x	6.3x	4.0x	4.3x	4.0x	0.6x	0.6x	0.6x	9.0%	9.4%	9.2%
Valero Energy Corp	US91913Y1001	4.7%	4.2x	5.4x	8.8x	2.7x	3.5x	5.2x	1.9x	1.6x	1.4x	3.4%	3.5%	3.6%
		6.4%												
Research Portfolio														
Deltic Energy PLC	GB00BNTY2N0	0.1%	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
EnQuest PLC	GB00B635TG2	0.3%	1.1x	1.3x	1.1x	1.0x	1.2x	1.2x	0.5x	0.4x	0.3x	n/a	2.6%	5.3%
Reabold Resources PLC	GB00B95L0557	0.0%	n/a	n/a	n/a	n/a	n/a	n/a	0.0x	n/a	n/a	n/a	384.6%	833.3%
Sunpower Corp	US8676524064	0.4%	31.5x	29.8x	17.4x	16.0x	12.0x	8.1x	3.0x	2.8x	2.3x	n/a	n/a	n/a
Maxeon Solar Technologies Ltd	SGXZ25336314	0.1%	n/a	343.4x	654.9x	n/a	15.3x	11.1x	14.7x	n/a	n/a	n/a	n/a	n/a
Diversified Energy Company	GB00BYX7JT7	0.4%	7.1x	6.9x	13.9x	4.7x	4.7x	5.6x	3.0x	n/a	n/a	15.2%	16.0%	16.0%
		1.3%												
Cash	Cash	1.9%												
		100.0%	**6.0x**	**7.8x**	**8.0x**	**3.2x**	**4.0x**	**4.1x**	**1.3x**	**1.4x**	**1.3x**	**4.3%**	**4.7%**	**4.9%**

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	2023E	2024E
								IEA	*IEA*	*IEA*
World Demand	***95.3***	***96.4***	***98.2***	***99.5***	***100.7***	***91.8***	***97.6***	***99.9***	***102.1***	***103.2***
Non-OPEC supply (inc NGLs)	*60.3*	*59.8*	*60.8*	*63.5*	*65.6*	*63.1*	*63.7*	*65.5*	*67.3*	*68.5*
OPEC NGLs	*5.2*	*5.3*	*5.4*	*5.5*	*5.3*	*5.2*	*5.2*	*5.4*	*5.5*	*5.5*
Non-OPEC supply plus OPEC NGLs	**65.5**	**65.1**	**66.2**	**69.0**	**70.9**	**68.3**	**68.9**	**70.9**	**72.8**	**74.0**
Call on OPEC (crude oil)	**29.8**	**31.3**	**32.0**	**30.5**	**29.8**	**23.5**	**28.7**	**29.0**	**29.3**	**29.2**
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-10 (crude oil)	**29.2**	**30.7**	**31.4**	**29.9**	**29.2**	**22.9**	**28.1**	**28.4**	**28.7**	**28.6**

Source: Bloomberg; IEA; Guinness Global Investors, August 2023

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 recovered in 2021 and 2022 by around 6 and 2m b/day respectively, leaving overall consumption in 2022 still around 1m b/day below 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, opting for a new production limit of 32.5m b/day. 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-10 oil production to June 2023

'000 b/day	31-Dec-19	31-May-23	30-Jun-23	Current vs Dec 2019	Current vs last month
Saudi	9,730	9,960	**9,960**	230	0
Iran	2,080	2,890	**2,830**	750	-60
Iraq	4,610	4,140	**4,180**	-430	40
UAE	3,040	3,130	**3,070**	30	-60
Kuwait	2,710	2,550	**2,570**	-140	20
Nigeria	1,820	1,380	**1,420**	-400	40
Venezuela	730	740	**780**	50	40
Angola	1,390	1,110	**1,110**	-280	0
Libya	1,110	1,120	**1,150**	40	30
Algeria	1,010	970	**960**	-50	-10
OPEC-10	**28,230**	**27,990**	**28,030**	**-200**	**40**

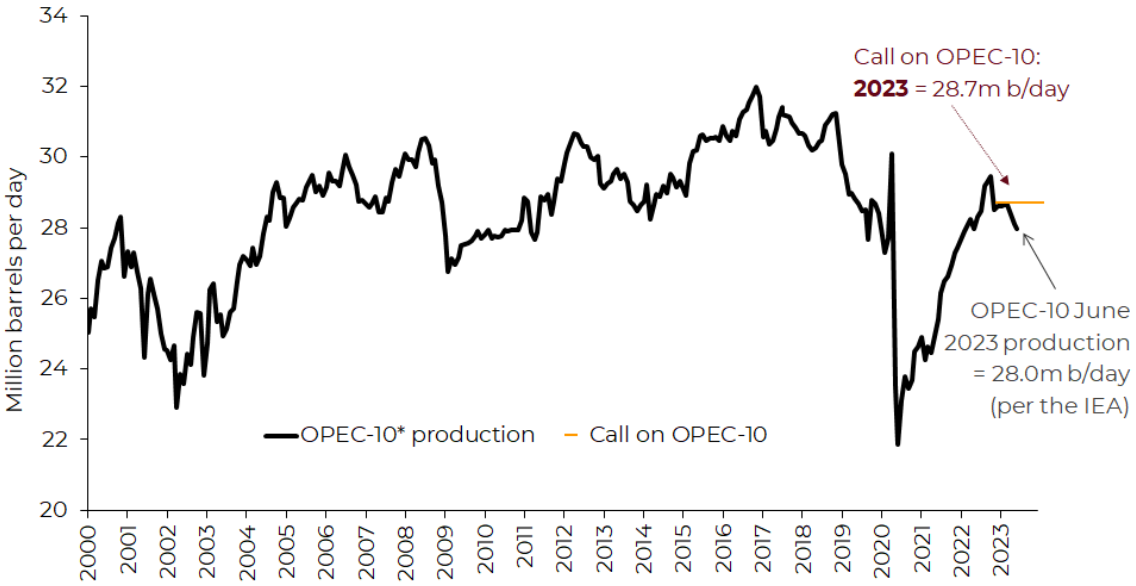
Source: Bloomberg; Guinness Global Investors

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.

OPEC-10 apparent production vs call on OPEC 2000 – 2023



Source: IEA Oil Market Report (July 2023 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.$80/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.

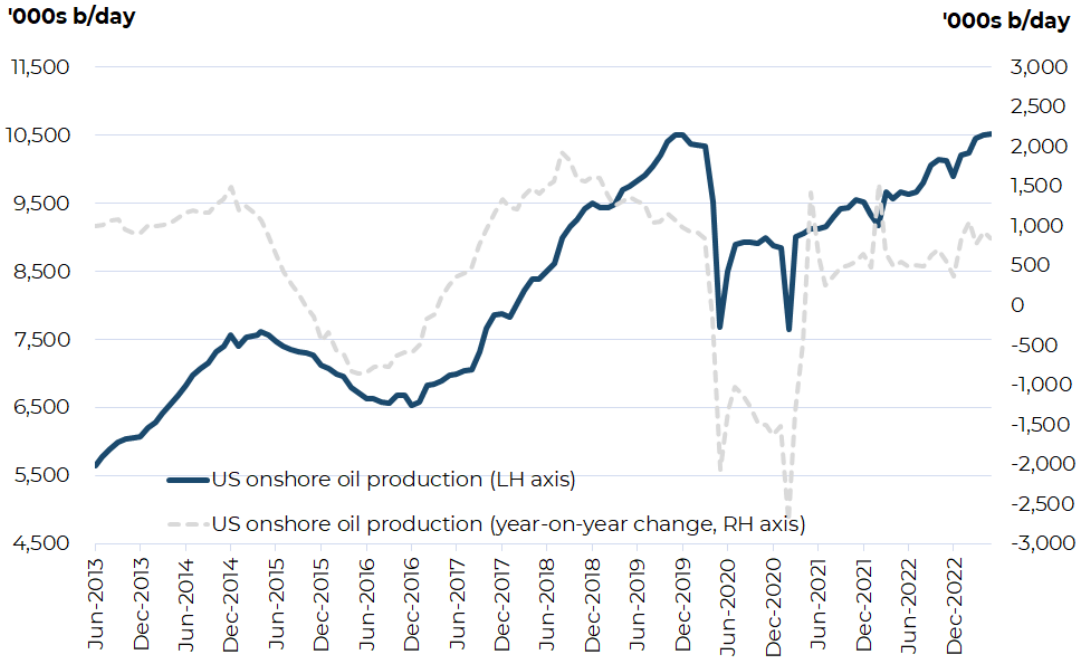
Nothing in the market in recent years has changed our view that OPEC can put a floor under the price – as they did in 2020, 2018, 2016, 2008, 2006, 2001 and 1998.

Supply looking forward

The non-OPEC world has, since the 2008 Financial Crisis, grown its production more meaningfully than in the seven years before 2008. The growth was 0.9% p.a. from 2001-2008, increasing to 1.8% p.a. from 2008-2021.

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

The growth in US shale oil production, in particular from 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 a capital-intensive source of oil but one where 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 has taken 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, despite lower oil prices, with projects that were sanctioned before 2014 (when oil was $100/bl+) continuing to come onstream. However, with a lack of major project additions post 2020, new supply is only strong enough to offset the decline profiles of existing production, causing overall supply to stagnate.

Demand looking forward

The IEA estimate that 2023 oil demand will rise by 2.2m b/day to 102.1m b/day, around 1.4m b/day ahead of the 2019 pre-COVID peak. The spread of the COVID virus globally initiated major restrictions on the movement of people which have now been largely reversed, but slower economic growth and the switch to passenger EVs is curtailing demand growth in certain sectors.

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 across 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 a $75/bl oil price, the world oil bill as a percentage of GDP is around 3% and this will still be a stimulant of further demand growth. If oil prices were in a higher range (say around $100/bl, representing 4% 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 10m in 2022, up from 6.1m in 2021 and 3.1m in 2020. We expect to see strong EV sales growth again in 2023, up to around 14m, or 18% of total global sales. Even applying an aggressive growth rate to EV sales, we see EVs comprising only around 3% of the global car fleet by the end of 2023. 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 2023 versus recent history.

Average WTI & Brent yearly prices, and changes

Oil price (inflation adjusted)																	*Est*
12 month MAV	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023
WTI	82	104	68	84	99	94	98	93	49	45	51	65	57	40	68	95	77
Brent	82	103	67	84	115	112	108	99	52	45	54	72	60	42	70	100	80
Brent/WTI (12m MAV)	**82**	**104**	**68**	**84**	**107**	**103**	**103**	**96**	**51**	**45**	**53**	**68**	**59**	**41**	**69**	**98**	**79**
Brent/WTI y-on-y change	9%	26%	-35%	24%	27%	-4%	0%	-7%	-47%	-11%	17%	30%	-14%	-30%	68%	41%	-19%
Brent/WTI (5yr MAV)	61	75	79	82	89	93	93	99	92	80	69	63	55	53	58	67	69

Source: Guinness Global Investors estimates, Bloomberg, August 2023

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 3.2% of 2023 Global GDP, 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 coldness of winter weather can be marked.

US natural gas demand

Bcf/day	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023E	2024E
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	23.3	21.8	22.6
Power generation	24.9	22.3	22.3	26.5	27.3	25.3	29.0	30.9	31.7	30.9	33.1	34.0	31.8
Industrial	19.7	20.3	20.9	20.6	21.1	21.6	23.0	23.1	22.3	22.5	23.0	23.1	23.7
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	6.0	6.5
LNG exports	-	-	-	0.1	1.0	2.6	2.8	4.8	6.4	9.7	11.8	13.0	13.7
Pipeline/plant/other	6.1	6.7	6.3	6.5	6.4	6.5	7.0	7.8	7.7	7.8	8.8	9.0	9.1
Total demand	**71.7**	**73.6**	**74.8**	**77.8**	**80.1**	**80.9**	**89.8**	**95.2**	**95.0**	**98.3**	**105.7**	**106.9**	**107.4**
Demand growth	**3.1**	**1.9**	**1.2**	**3.0**	**2.3**	**0.8**	**8.9**	**5.4**	**- 0.2**	**3.3**	**7.4**	**1.2**	**0.5**

Source: EIA; GS; Guinness estimates, August 2023

Industrial demand (of which around 35% comes from petrochemicals) tends to trend 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 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 2022 (including Mexican and LNG exports) was around 105.7 Bcf/day, up by 7.4 Bcf/day versus 2021 and 13 Bcf/day (15%) higher than the 5-year average. The biggest contributors to the growth in demand in 2022 were Power Generation and Residential/Commercial. LNG exports were also a large contributor but were hampered by operational issues at some key export facilities.

We expect US demand in 2023, assuming prices average around $3/mcf, to be up by around 1.2 Bcf/day. Looking further ahead to 2025, we believe that gas will take a good share of incremental power generation growth in the US and continue to take market share from coal. Our working assumption is for gas fired power generation to grow 0.8-1.2 Bcf/day per year, although this will be affected by actual gas prices. Beyond the mid-2020s, we expect power generation from gas to face stronger competition from renewables.

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.

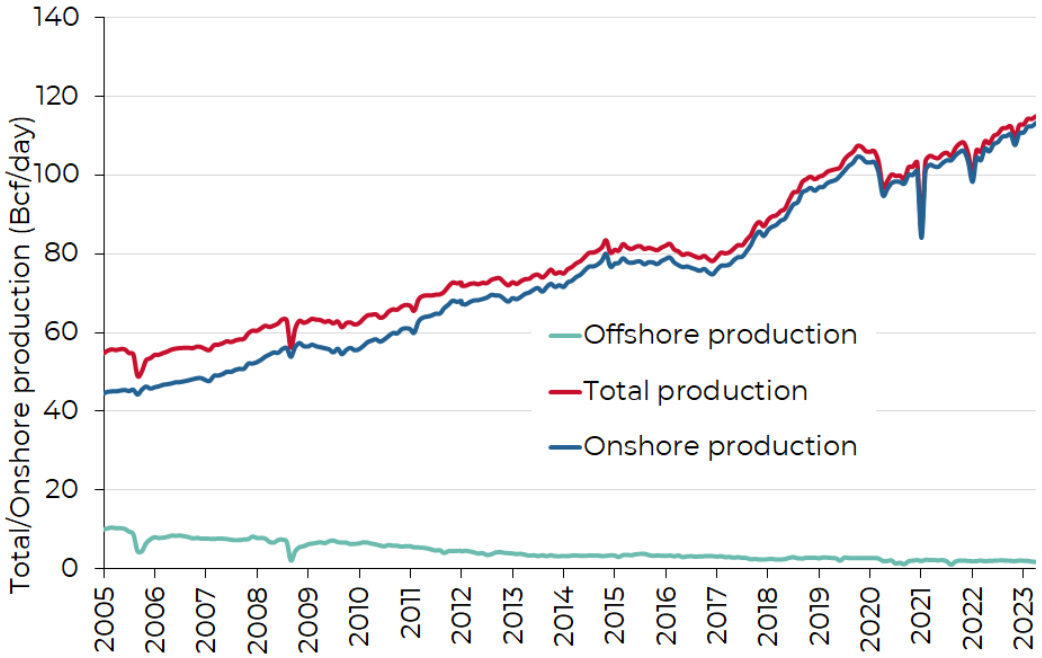
US natural gas supply

Bcf/day	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023E	2023E
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	97.3	100.9	101.7
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	5.2
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**	**103.0**	**106.1**	**106.9**
Supply growth	**2.4**	**-**	**4.4**	**3.3**	**- 0.3**	**0.4**	**10.1**	**6.4**	**- 0.7**	**1.4**	**6.1**	**3.1**	**0.8**
(Supply)/demand balance	**- 0.2**	**1.7**	**- 1.5**	**- 1.8**	**0.8**	**1.2**	**-**	**- 1.0**	**- 0.5**	**1.4**	**2.7**	**0.8**	**0.5**

Source: EIA; GS; Guinness estimates, August 2023

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 130 at the end of July 2023. 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 2005 – 2023 (Lower 48 States)



Source: EIA 914 data (August 2023 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.

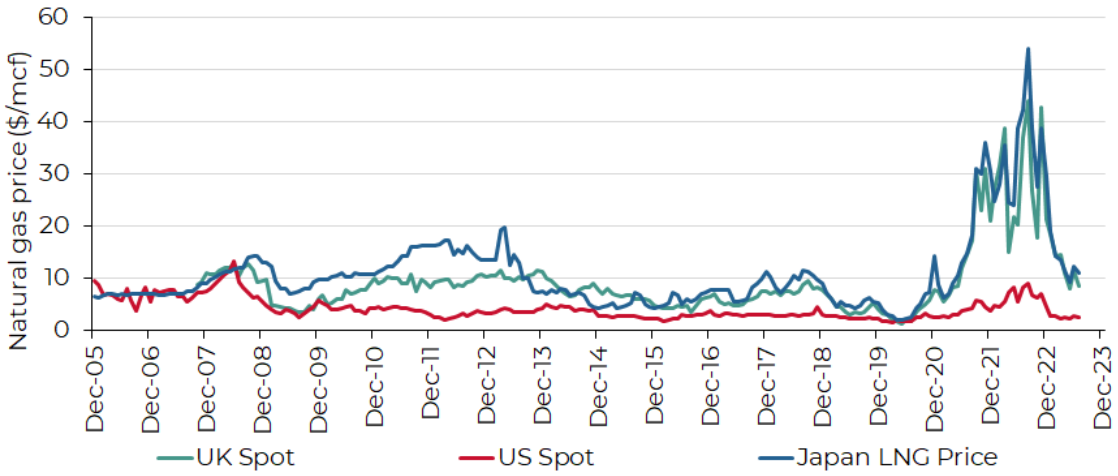
Associated gas production rebounded in 2022 and will rise again in 2023 as shale oil continues to grow. Generally, we expect to see rates of around 2-3 Bcf/day of associated gas per 1m b/day of oil production growth. The Marcellus/Utica region, which includes the largest producing gas field in the US and the surrounding region, reached production of around 29 Bcf/day in 2022. Moderate growth is likely in 2023.

Overall, if the price averages in the $3-4/mcf range, we expect a rise in average onshore gas supply in 2023, up by around 3 Bcf/day versus 2022.

Outlook for US LNG exports – global gas arbitrage

The prospects for US LNG exports depend on the differentials to European and Asian gas prices, and whether the economic incentive exists to carry out the trade. The UK national balancing point (NBP) gas price – which serves as a proxy to the European traded gas price – has moved to a significant premium to the US gas price (c.$10/mcf versus c.$2-3/mcf). Asian spot LNG prices have also been extraordinarily strong, averaging over $34/mcf in 2022 and over $16/mcf on a spot basis at the end of December 2022. There have been many factors at play, in particular the strong post-COVID demand recovery, and a shortage of Russian imports into Europe. The implied economics for US LNG exports into Europe and Asia are attractive assuming international prices are at least $5/mcf higher than Henry Hub.

International gas prices to July 2023

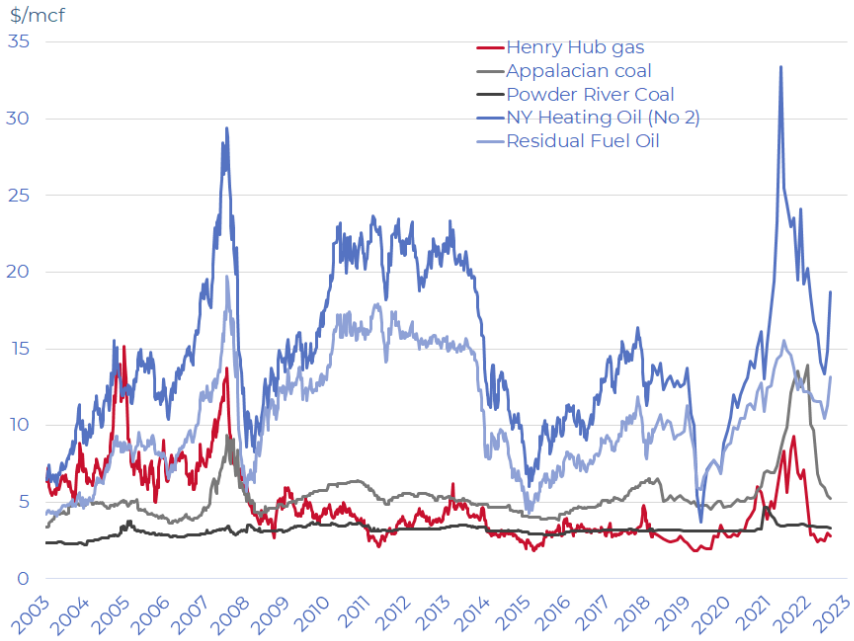


Source: Bloomberg; Guinness Global Investors (August 2023)

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)



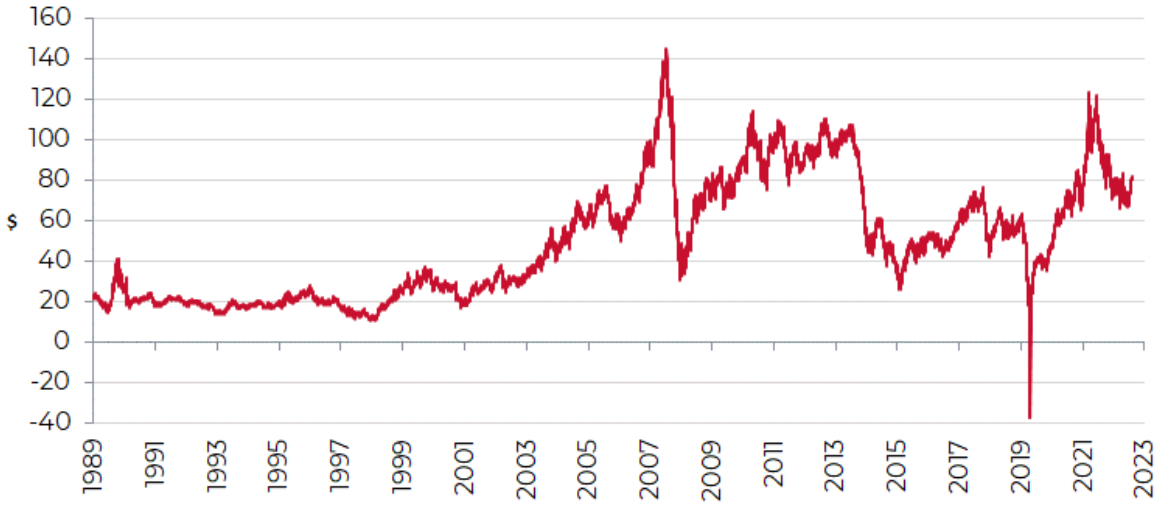
Source: Bloomberg; Guinness Global Investors (July 2023)

Conclusions about US natural gas

The US natural gas price was held back in the 2010s by continued strength in gas supply, particularly from the Marcellus/Utica and from gas produced as a by-product of shale oil. Natural gas prices averaged $6.52/mcf in 2022, up from $3.71/mcf in 2021, and we suspect that the (full cycle) marginal cost of supply is now around $3.50-4/mcf. More controlled growth in associated gas supply over the next couple of years should allow gas prices to stay closer to the full cycle cost level.

APPENDIX: Oil and gas markets historical context

Oil price (WTI $) since 1989



Source: Bloomberg, August 2023

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

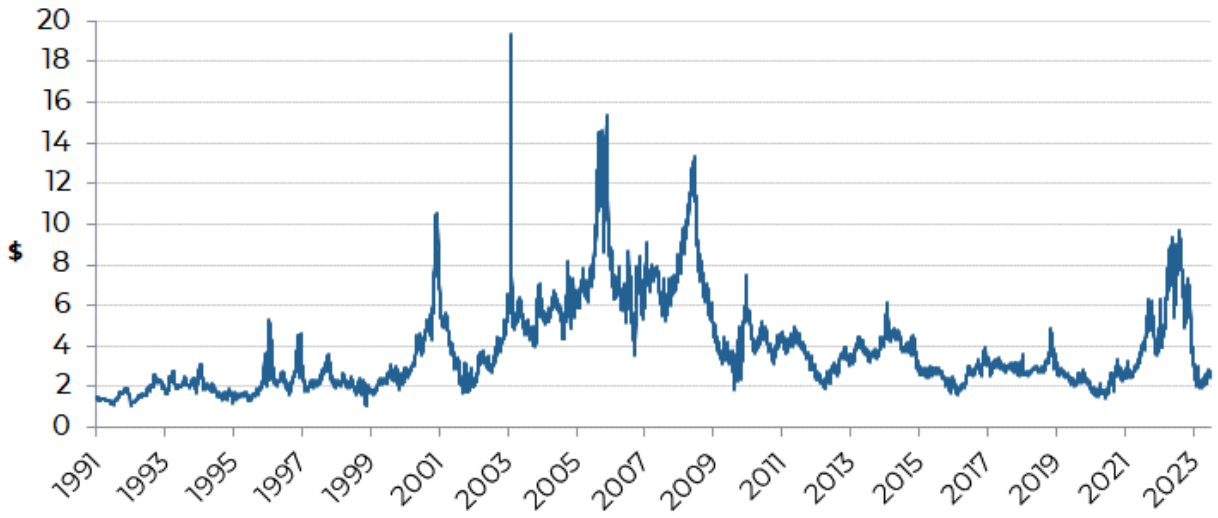
2008. This spike was brought to an abrupt end by the collapse of Lehman Brothers and the financial crisis and recession that followed, all of which contributed to the oil price falling back by early 2009 to just above $30. OPEC responded decisively and reduced output, helping the price to recover in 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, August 2023

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 recovering since 2009 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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TB GUINNESS GLOBAL ENERGY FUND

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