

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.

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COMMENTARY

OIL

Brent/WTI up slightly over the month

Brent and WTI spot oil prices were up slightly over the month, with the positives of rising Chinese demand and OPEC production cuts being offset by concerns around the US banking sector and the strength of the global economy. Brent and WTI closed the month at \$81/bl and \$77/bl, both up \$1/bl. Five-year forward prices traded a little higher, Brent closing at \$67/bl and WTI at \$62/bl.

NATURAL GAS

US gas price rises; European and Asian prices fall

Asian and European gas prices (using UK national balancing point) closed April \$2 and \$4 lower at \$12 and \$11/mcf respectively, whilst the US spot price (Henry Hub) rose from \$2.2/mcf to \$2.4/mcf. European gas inventories have exited the winter close to record high levels, thanks to unseasonably warm weather and efforts to reduce consumption. In the US, oversupply, combined with a similarly mild winter, has also led to higher gas inventories, with low prices starting to catalyse greater coal-to-gas switching in the power sector.

EQUITIES

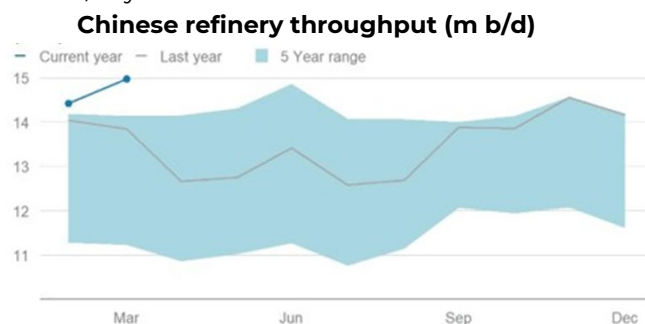
Energy outperforms the broad market in April

The MSCI World Energy Index (net return) rose by 3.8% in April, outperforming the MSCI World Index (net return) which rose by 1.8% over the month (all in US dollar terms).

CHART OF THE MONTH

Chinese refinery utilisation at record levels

Further confirmation of Chinese reopening is apparent in reported refinery utilisation data for March 2023, showing that China refined a record 14.97m b/d in the month. With a full reopening, we think Chinese oil demand could rise by 1.5m – 2m b/day.

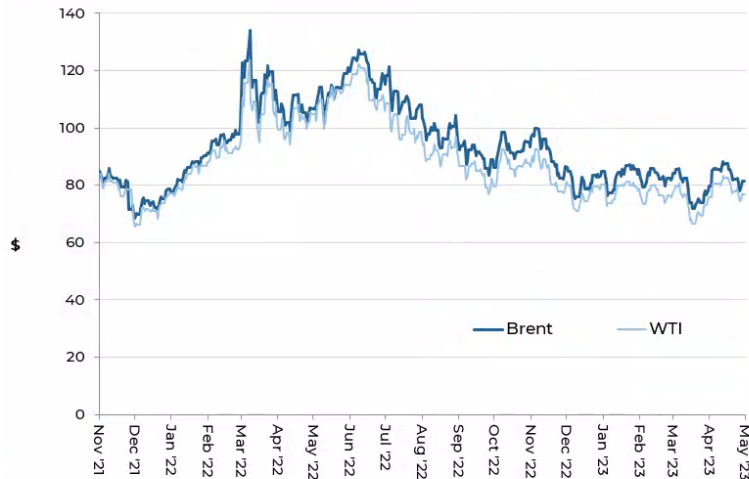


Source: Morgan Stanley

APRIL IN REVIEW

i) Oil market

Oil price (WTI and Brent \$/barrel): Nov 2021 to April 2023



Source: Bloomberg; Guinness Global Investors

The West Texas Intermediate (WTI) oil price started April at \$76/bl and strengthened over the month to reach a high of \$83/bl, before closing lower at \$77/bl. WTI has averaged \$77/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 \$80/bl, peaking at \$88/bl and closing the month back at \$81/bl. Brent has averaged \$82/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 increased slightly over the month, ending April at \$5.0/bl. The Brent-WTI spread has averaged \$5.1/bl so far in 2023.

Factors which strengthened WTI and Brent oil prices in April:

- **Continued evidence of Chinese demand recovery**

After nearly three years of closed borders, China finally reopened its economy in January, leading to hopes of a recovery in global oil demand. During the month, Chinese refinery throughput reached a record 14.97m b/d (see Chart of the Month and Sinopec reported i) that apparent refined fuel consumption had expanded 6.7%yoy in 1Q2023 and ii) that growth was expected to accelerate in the second quarter. As a reminder, China consumed around 15m b/day in 2022, which was the first year of negative demand growth in over 30 years. Should Chinese consumption revert to its pre-COVID trend we see scope for 1.5m - 2m b/day positive swing in global oil demand.

- **OPEC announce unexpected voluntary production cuts**

On April 2, a group of OPEC+ members announced a voluntary production cut of 1.15m b/day between May 2023 and the end of the year. The cut is distributed between Saudi (-500k b/day), Iraq (-211k b/day), UAE (-144k b/day), Kuwait (-128k b/day), Kazakhstan (-78k b/day), Algeria (-48k b/day), and Oman (40k b/day). In addition, Russia announced that it will extend its already announced cut of -500k b/day to the year-end. This takes the total voluntary cut to 1.65m b/day.

The voluntary production cuts were ratified on April 3 at OPEC's Joint Ministerial Monitoring Committee meeting, with the rationale provided being a "precautionary measure aimed at supporting the stability of the oil market".

Factors which weakened WTI and Brent oil prices in April:

- **Inflation, banking sector and broader macro concerns temper demand expectations**

The lingering presence 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. In recent weeks, these issues have been compounded by the collapse of Silicon Valley Bank, the takeover of Credit Suisse by UBS and the sale of troubled US regional bank First Republic to JP Morgan. Some commentators therefore have been pointing to slower than expected growth in oil demand in the second half of the year, and a less deep oil deficit than had previously been expected.

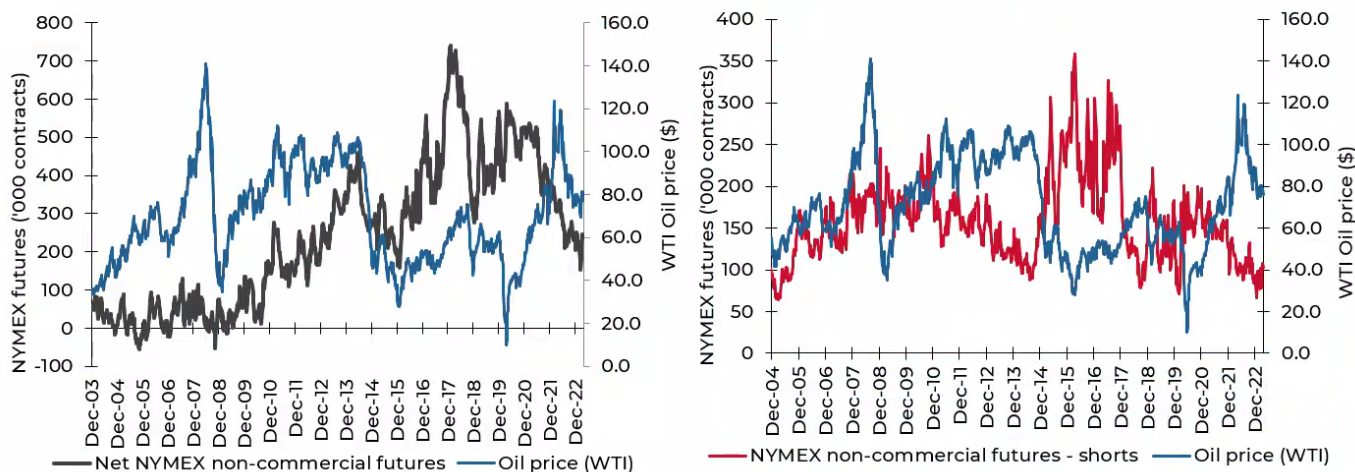
- **Non-OPEC supply resilient, no sign of cuts from Russia yet**

According to the IEA, Russian crude oil and oil products exports increased to 8.1m b/d in March, the highest level since April 2021. While some of this remains ‘on water’ it is not yet possible to find support to Russia’s claim of reduced production during the month. Reflecting this, the IEA increased its outlook for 2023 non-OPEC oil supply by 0.1m b/d in its most recent report.

Speculative and investment flows

The New York Mercantile Exchange (NYMEX) net non-commercial crude oil futures open position was 236,400 contracts long at the end of April versus 181,000 contracts long at the end of March. 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 87,000 contracts at the end of April versus 109,000 at the end of the previous month.

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

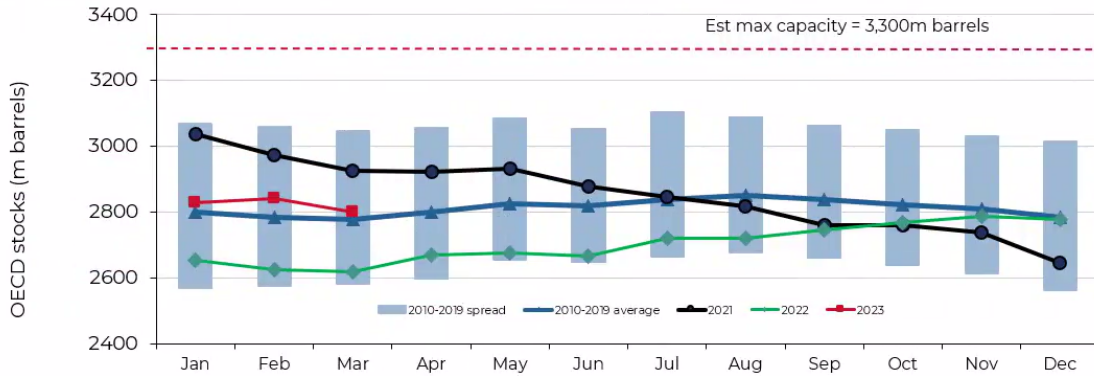


Source: Bloomberg LP/NYMEX/ICE (2023)

OECD stocks

OECD total product and crude inventories at the end of March (latest data point) were estimated by the IEA to be 2,800m barrels, down by 40m barrels versus the level reported for February. This compares to a 10-year average build for March of 3m barrels, implying that the OECD market was undersupplied. 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



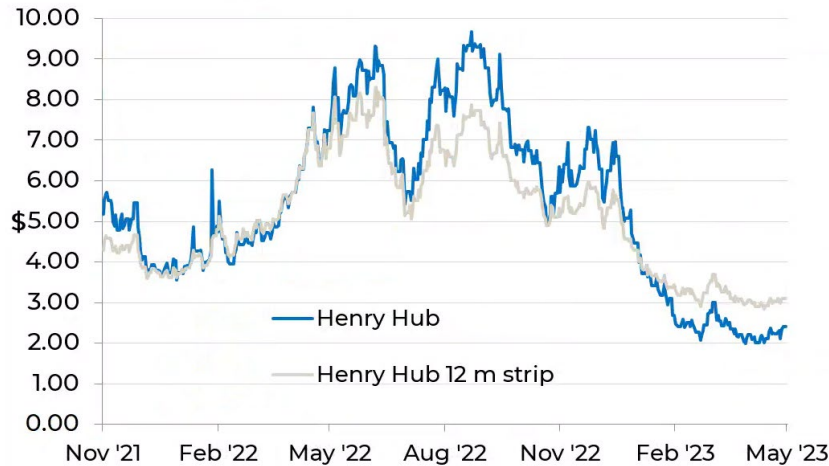
Source: IEA Oil Market Reports (April 2023 and older)

ii) Natural gas market

The US natural gas price (Henry Hub front month) opened April at \$2.20/mcf (1,000 cubic feet) and traded in a tight range over the month, closing at \$2.40/mcf. The spot gas price has averaged \$2.64/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) also traded tightly over the month, opening at \$3.06/mcf and closing at \$3.10/mcf. The strip price has averaged \$3.29/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): November 2021 to April 2023



Source: Bloomberg LP

Factors which strengthened the US gas price in April included:

- **Record US LNG exports**

US LNG exports continued to increase in April, as a result of the return of the Freeport LNG export terminal and the low domestic Henry Hub natural gas price. According to Bloomberg data, US LNG exports reached a new daily peak of 14.9

Bcf/day on April 16 and reached a new monthly average record of 14.1 Bcf/day in April (up sharply from the 11.8 Bcf/day averaged in December 2022). With Henry Hub natural gas at less than \$2.50/mcf, the arbitrage for exporting LNG to Asian and European markets is particularly attractive and is only constrained by the availability of LNG export facilities.

- **Coal-to-gas switching economics**

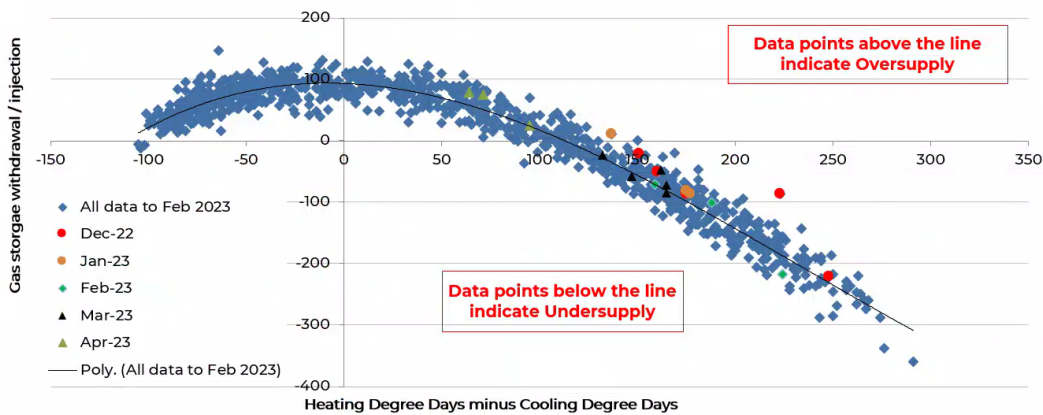
With the spread between US gas prices and coal prices having widened materially since the start of the year, we are starting to see the first signs of power producers switching from coal-based electricity generation to gas-based. Goldman Sachs expects gas demand from the US power sector to rise by 1.2 Bcf/day on average this summer due to switching.

Factors which weakened the US gas price in April included:

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

The injection season commenced in the US gas market during April. Adjusting for the impact of weather, the inventory builds implied that the US gas market was, on average, around 1-1.5 Bcf/day oversupplied.

Weather-adjusted US natural gas inventory injections and withdrawals



Source: Bloomberg LP; Guinness Global Investors

- **Excess gas in inventories in the US and Europe**

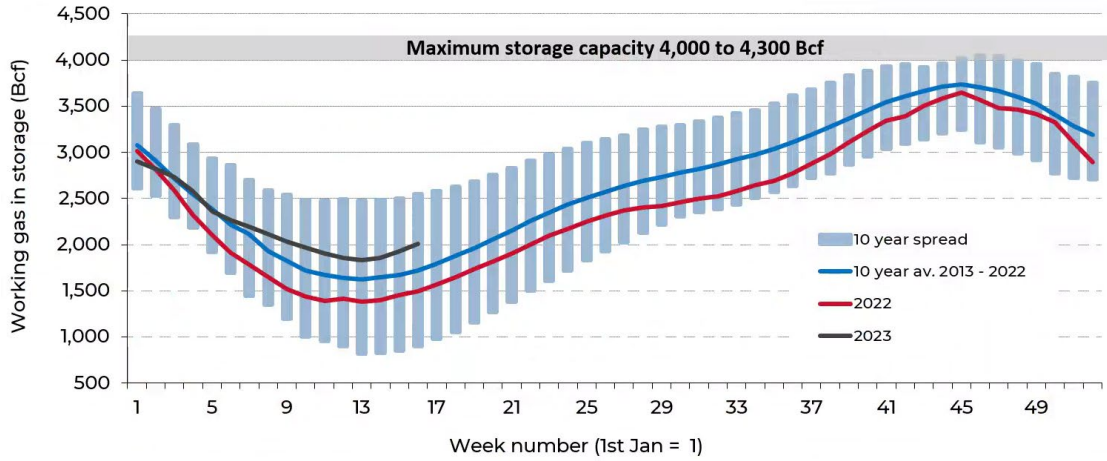
Oversupply through the winter has boosted gas in storage in the United States. Inventories at the end of April are reported to be around 2.0 Tcf, which is 0.3 Tcf higher than the five-year average, assuaged by a mild winter. In Europe, a mild winter (the second-warmest winter on record) combined with region-wide efforts to reduce consumption of natural gas has allowed European inventories to end the winter season at a record level of 2.02 Tcf (around 56% full).

Natural gas inventories

Swings in the balance for US natural gas should, in theory, show up in movements in gas storage data. Natural gas inventories at the end of April were reported by the EIA to be 2.0 Tcf, nearly 0.3 Tcf above the 10-year average.

Guinness Global Energy

Deviation from 10yr gas storage norm



Source: Bloomberg; EIA (April 2023)

MANAGERS' COMMENTS

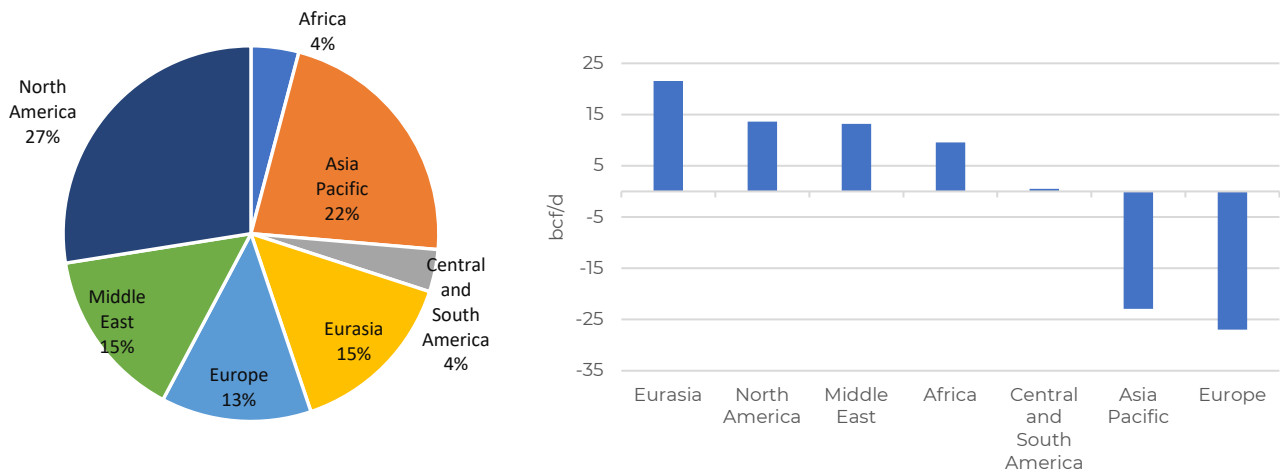
Outlook for international gas prices

With global gas prices down significantly from their highs, no end in sight for the war in Ukraine and the Chinese reopening continuing apace, this month we consider the supply and demand outlook for liquified natural gas (LNG) and the outlook for international gas prices.

Background

According to the IEA, the global gas market sits at around 390 bcf/day, with Asia and North America each accounting for roughly a quarter of the market and Europe accounting for about 15%. Historically, the global gas market has tended to be regional in nature, with most geographies producing sufficient gas to comfortably meet domestic demand, due to the complexity of transporting gas over long distances.

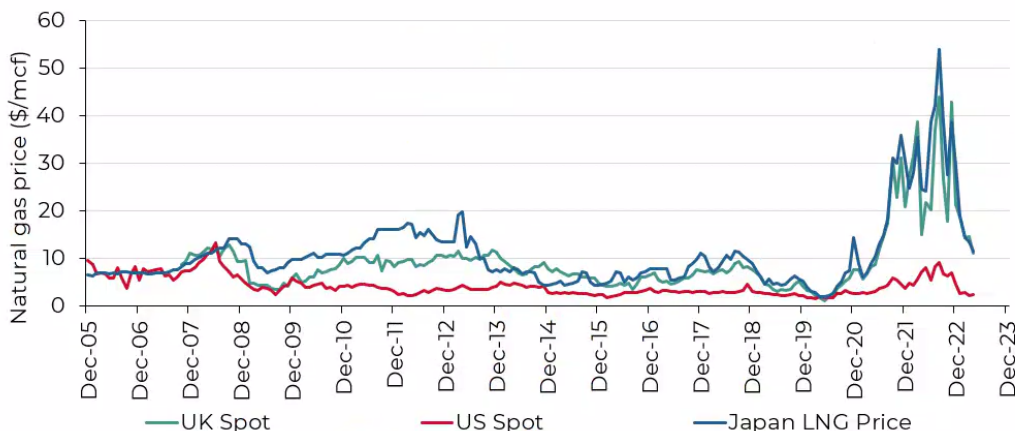
Global gas demand and regional gas supply/demand imbalances (2023e)



Source: IEA estimates April 2023

The two notable exceptions to this are Europe and Asia, where marginal demand growth has increasingly been met by Russian pipeline imports and by liquefied natural gas (LNG) imports respectively. Following the invasion of Ukraine in February 2022, Europe has moved to reduce its heavy reliance on Russian pipeline imports, inexorably and perhaps permanently changing the market dynamic. The increased demand for LNG from Europe is where the marginal international gas price is increasingly being set and is a key factor in driving the higher international gas prices of the last two years.

International gas prices to April 2023



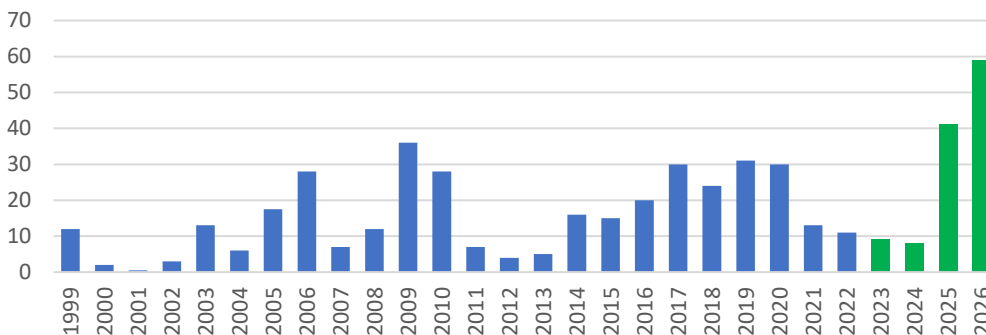
Source: Bloomberg; Guinness Global Investors (April 2023)

The outlook for LNG supply and demand

Understanding the supply and demand dynamics of the global LNG market, which currently represents around 53bcf/day (or 403mtpa) or roughly 13% of the global gas market, helps us to understand the outlook for international gas prices.

On the **supply** side, given the lead times in construction of new LNG facilities, we have reasonably strong visibility on incremental new liquefaction capacity and thus we can say with reasonable conviction that supply growth over the next couple of years should be very subdued (1-2%) until we start to see the ramp up of the next phase of Qatar LNG and various new US LNG facilities from 2025.

Global liquefaction capacity installed by year (mtpa)

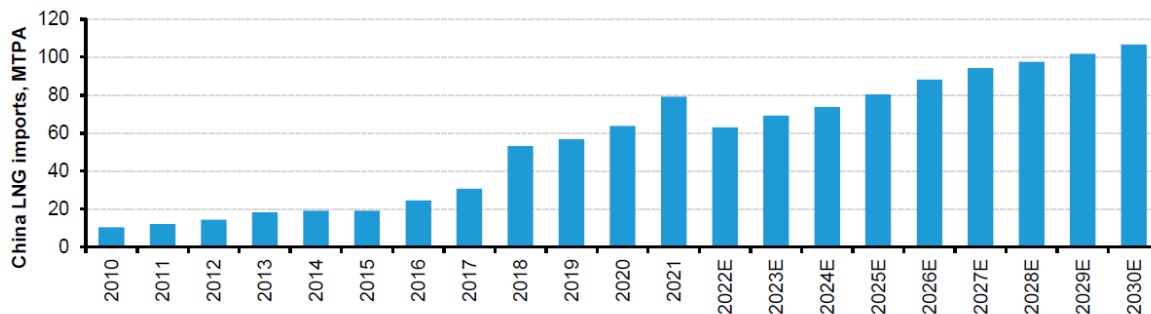


Source: Bernstein estimates, April 2023

On the **demand** side there are essentially three key factors: i) the re-opening of the Chinese economy, ii) the restart of Japanese and South Korean nuclear facilities and iii) the evolution of European natural gas demand.

- **China** imported 79mtpa of LNG in 2021 but only 63mtpa in 2022 as a result of COVID lockdowns and higher global LNG prices. The re-opening of the Chinese economy and the moderation of LNG prices should see LNG imports rebound to more normalised levels (75-80mtpa in the near term) with growth continuing thereafter as China continues to reduce its reliance on coal in power generation. We note that the IEA “high case” for Chinese LNG demand growth in 2023 is 25mtpa, implying demand ahead of 2021 levels.

Chinese LNG demand (mtpa)



Source: Bernstein estimates, April 2023

- Offsetting the potential for Chinese demand growth, **Japan** has used the war in the Ukraine as a catalyst to reverse its post-Fukushima trend of mothballing nuclear facilities and has started to re-open them. In 2022, Japan imported 72mtpa of LNG and we would expect demand in 2023 to fall around 63mtpa. A similar trend (but to a lesser degree) is happening in **South Korea** which, together with growing renewable generation capacity, will likely reduce broader Asian LNG imports by around 13mtpa in 2023.
- Lastly, **Europe**, which delivered a record 19% reduction in natural gas demand in 2022 in order to maintain high levels of natural gas inventories in the absence of Russian pipeline imports (which used to represent 45% of the supply mix). We see this transition as being one of the most remarkable elements of global energy markets in the last couple of years and the evolution of European gas demand will be pivotal for LNG demand and international gas prices in coming years, since Europe has little opportunity to increase its own domestic supply.

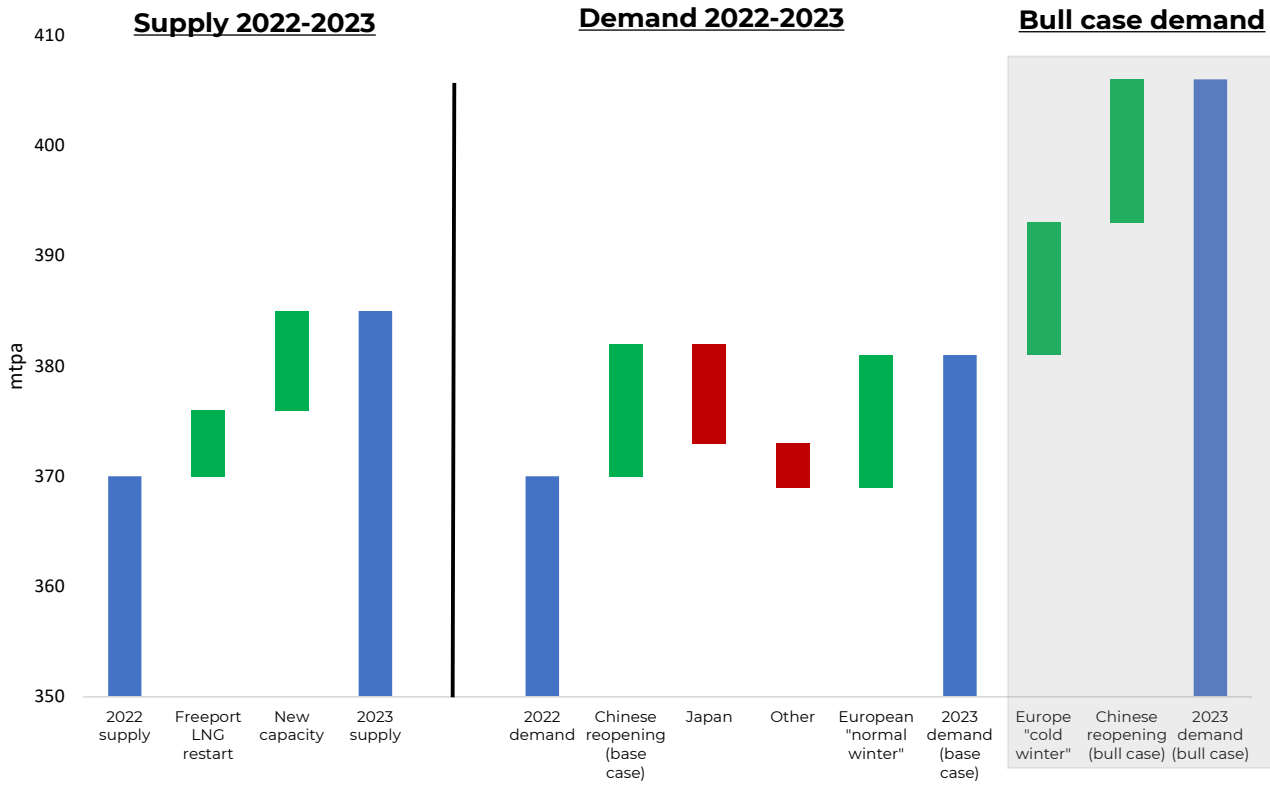
Digging into the constituent parts of the demand reduction, we find that approximately half of it came from reduced heating while a third came from lower industrial demand, caused by higher gas prices. The reduction in **heating demand** was due to benign weather (2022 was the second warmest winter in Europe since records began) and there is scope for this to revert in a “normalised” winter scenario (adding 12mtpa to LNG demand) or as much as 25mtpa in the event of a cold winter. Around half of the reduction in **industrial demand** came from “production curtailment” – disproportionately from the ammonia and fertiliser sector – and we think that these activities require a gas price of lower than \$9/mcf to restart production. With European LNG prices still in excess of \$12/mcf, we expect minimal additional LNG demand rebound from industrial activities in the near term.

Supply and demand outlook

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. In the event of a moderate Chinese reopening and a “normal” European winter, LNG supply and demand appear to be roughly in balance and global LNG prices appear to be fairly priced at around \$12/mcf. However, a delay in the Japanese nuclear ramp up or a colder than expected European winter could easily see LNG in tight supply and cause international gas prices spike this winter, although it is unlikely that they revert to the \$40-\$50 levels seen in winter 2022/2023.

Guinness Global Energy

Global LNG supply and demand balance (2022 and 2023)



Source: IEA, Morgan Stanley, Guinness Global Investors estimates, to 30.04.2023

Looking further ahead, we see international gas prices settling in a \$10-14/mcf range. This price range should be sufficient to incentivise new US and Qatari LNG supply sources 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 \$10-14/mcf is well down on the highs seen in 2022, but would leave the market at a c.50% higher price point than that seen in the few years prior to COVID and the Russian invasion of Ukraine.

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 3.8% in April, while the MSCI World Index (net return) rose by 1.8% in USD.

Within the Fund, April's strongest performers included PetroChina, Sinopec, Canadian Natural Resources, TotalEnergies and Shell while the weakest performers included Valero, Helix, Repsol, SunPower and Cenovus.

Performance (in USD) as at 30.04.2023

Cumulative returns	YTD	1 year	3 years ann.	5 years ann.	Launch of strategy* ann. (31.12.98)		
Guinness Global Energy Fund¹ (Class Y, 0.99% OCF)	-1.3%	8.6%	28.1%	0.4%	8.1%		
MSCI World Energy NR Index	0.3%	13.7%	29.8%	5.0%	6.4%		
Calendar year returns	2022	2021	2020	2019	2018	2017	2016
Guinness Global Energy Fund¹ (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 Fund¹ (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*	2007*	2005*	2004*	2003*	2002*
Guinness Global Energy Fund¹ (Class Y, 0.99% OCF)	-48.2%	37.9%	37.9%	62.3%	41.0%	32.3%	6.7%
MSCI World Energy NR Index	-38.1%	29.8%	29.8%	28.7%	28.1%	25.9%	-6.4%
	2001*	2000*	1999*				
Guinness Global Energy Fund¹ (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 April 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 **April 30 2023**.

Asset allocation as %NAV	Current	Change	Last	Last	Previous year ends						
	Apr-23		year end	year end	Dec-20	Dec-19	Dec-18	Dec-17	Dec-16	Dec-15	Dec-14
Oil & Gas	97.6%	0.2%	97.4%	96.9%	94.8%	98.3%	96.7%	98.4%	96.7%	95.1%	93.7%
Integrated	56.1%	1.5%	54.7%	57.7%	56.3%	51.1%	46.4%	42.9%	46.4%	41.5%	37.3%
Exploration & Production	22.3%	-0.8%	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	8.5%	-0.6%	9.0%	4.0%	4.6%	9.6%	8.6%	9.5%	8.6%	11.4%	13.4%
Storage & Transportation	4.8%	0.0%	4.8%	4.3%	4.4%	4.0%	0.0%	3.5%	0.0%	0.0%	0.0%
Refining & Marketing	5.9%	0.1%	5.8%	7.2%	7.3%	3.8%	3.7%	3.7%	3.7%	4.2%	3.5%
Solar	0.6%	-0.1%	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	1.8%	-0.1%	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 April 2023 was on a price to earnings ratio (P/E) for 2022/2023 of 6.3x/8.0x versus the MSCI World Index at 15.9x/16.9x as set out in the following table:

As at 30 April 2023	P/E		
	2022	2023E	2024E
Guinness Global Energy Fund	6.3x	8.0x	8.1x
MSCI World Index	15.9x	16.9x	15.7x
Fund Premium/(Discount)	-60%	-53%	-48%

Source: Bloomberg; Guinness Global Investors

Portfolio holdings

Our integrated and similar stock exposure (c.56%) 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 April 30 2023 the median P/E ratio of this group was 6.4x 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.22%) 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.

Guinness Global Energy

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 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 March 31 2023 (for compliance reasons disclosed one month in arrears)

Guinness Global Energy Fund (31 March 2023)			P/E			EV/EBITDA		
Stock	ISIN	% of NAV	2022	2023E	2024E	2022	2023E	2024E
Integrated Oil & Gas								
Exxon Mobil Corp	US30231G1022	6.1%	7.9x	10.8x	11.3x	4.4x	5.6x	5.9x
Chevron Corp	US1667641005	5.1%	8.5x	11.1x	11.2x	4.6x	5.6x	5.8x
Shell PLC	GB00BP6MXDB8	5.0%	5.5x	6.2x	6.0x	2.8x	3.3x	3.5x
Total SA	FR0000120271	5.6%	4.2x	5.4x	6.1x	2.5x	3.0x	3.3x
BP PLC	GB0007980591	5.6%	4.3x	6.0x	6.3x	2.5x	3.1x	3.4x
Equinor ASA	NO0010096985	3.4%	4.2x	5.8x	6.2x	1.0x	1.3x	1.5x
ENI SpA	IT0003132476	2.9%	3.5x	4.7x	5.4x	2.1x	2.5x	2.8x
Repsol SA	ES0173516115	4.0%	3.3x	4.4x	5.4x	1.8x	2.2x	2.5x
Galp Energia SGPS SA	PTGAL0AM0005	2.9%	10.3x	8.8x	8.8x	2.9x	3.2x	3.4x
OMV AG	AT0000743059	2.7%	3.0x	4.3x	4.9x	1.7x	2.3x	2.6x
		43.2%						
Integrated / Oil & Gas E&P - Canada								
Suncor Energy Inc	CA8672241079	3.0%	5.1x	6.9x	6.6x	2.8x	3.6x	3.6x
Canadian Natural Resources Ltd	CA1363851017	3.2%	6.6x	9.5x	8.7x	3.9x	5.0x	4.7x
Cenovus Energy Inc	CA15135U1093	3.1%	6.7x	7.7x	6.7x	3.3x	3.9x	3.8x
Imperial Oil Ltd	CA4530384086	3.6%	6.2x	8.3x	7.5x	3.8x	5.5x	4.7x
		12.9%						
Integrated Oil & Gas - Emerging market								
PetroChina Co Ltd	CNE1000003W8	1.9%	5.1x	6.0x	6.4x	3.2x	3.4x	3.4x
		1.9%						
Oil & Gas E&P								
ConocoPhillips	US20825C1045	4.2%	7.2x	9.8x	9.6x	3.5x	4.5x	4.7x
EOG Resources Inc	US26875P1012	3.3%	8.3x	9.3x	9.0x	4.4x	4.9x	4.6x
Diamondback Energy Co	US25278X1090	3.6%	5.6x	6.5x	6.2x	4.4x	4.7x	4.6x
Pioneer Natural Resources Co	US7237871071	3.0%	6.6x	9.3x	9.0x	4.1x	5.2x	5.1x
Devon Energy Corp	US25179M1036	3.2%	6.0x	7.4x	7.2x	3.8x	4.3x	4.2x
		17.3%						
International E&Ps								
Pharos Energy PLC	GB00B572ZV91	0.1%	3.0x	4.9x	3.9x	0.5x	0.8x	0.9x
		0.1%						
Midstream								
Kinder Morgan Inc	US49456B1017	2.3%	15.2x	15.8x	14.7x	9.6x	9.3x	9.1x
Enbridge Inc	CA29250N1050	2.6%	17.9x	17.4x	17.2x	12.8x	12.3x	12.1x
		4.9%						
Equipment & Services								
Schlumberger Ltd	AN8068571086	4.2%	22.6x	16.2x	13.1x	12.1x	9.7x	8.4x
Halliburton Co	US4062161017	1.6%	15.5x	10.4x	8.6x	8.4x	6.5x	5.7x
Baker Hughes a GE Co	US05722G1004	1.6%	32.5x	18.5x	13.8x	11.3x	9.0x	7.6x
Helix Energy Solutions Group Inc	US42330P1075	1.1%	n/a	19.3x	13.1x	10.2x	4.9x	4.3x
		8.6%						
Oil & Gas Refining & Marketing								
China Petroleum & Chemical Corp	CNE1000002Q2	1.4%	7.0x	7.0x	6.6x	3.7x	3.6x	3.6x
Valero Energy Corp	US91913Y1001	5.4%	5.0x	6.0x	8.7x	3.2x	3.9x	5.4x
		6.8%						
Research Portfolio								
Deltic Energy PLC	GB00B6SYKF01	0.1%	n/a	n/a	n/a	n/a	n/a	n/a
EnQuest PLC	GB00B635TG28	0.3%	1.3x	1.5x	1.3x	1.1x	1.3x	1.2x
Reabold Resources PLC	GB00B95L0551	0.0%	n/a	n/a	n/a	n/a	n/a	n/a
Sunpower Corp	US8676524064	0.6%	44.5x	36.7x	17.9x	22.6x	16.2x	11.0x
Maxon Solar Technologies Ltd	SGXZ25336314	0.1%	n/a	n/a	n/a	n/a	17.5x	10.0x
Diversified Energy Company	GB00BYX7JT74	0.4%	7.4x	64.9x	10.9x	4.6x	4.5x	5.1x
		1.4%						

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
								IEA	IEA
World Demand	95.3	96.4	98.2	99.5	100.5	91.5	97.7	99.9	101.9
Non-OPEC supply (inc NGLs)	60.3	59.8	60.8	63.5	65.6	63.0	63.8	65.5	67.1
OPEC NGLs	5.2	5.3	5.4	5.5	5.3	5.1	5.1	5.3	5.4
Non-OPEC supply plus OPEC NGLs	65.5	65.1	66.2	69.0	70.9	68.1	68.9	70.8	72.5
Call on OPEC (crude oil)	29.8	31.3	32.0	30.5	29.6	23.4	28.8	29.1	29.4
Congo supply adjustment	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
Eq Guinea supply adjustment	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	29.0	22.8	28.2	28.5	28.8

Source: 2006 - 2014: IEA oil market reports; 2015 - 20: Mar 2023 Oil market Report
OPEC-11 = Algeria; Angola; Iran; Iraq; Kuwait; Libya; Nigeria; Saudi Arabia; UAE; Venezuela

Source: Bloomberg; IEA; Guinness Global Investors, as of 30.04.2023

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 8.5m b/day, leaving overall consumption in 2022 still around 0.5m 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 April 2023

'000 b/day	31-Dec-19	31-Mar-23	30-Apr-23	Current vs Dec 2019	Current vs last month
Saudi	9,730	10,400	10,470	740	70
Iran	2,080	2,580	2,600	520	20
Iraq	4,610	4,380	4,130	-480	-250
UAE	3,040	3,250	3,180	140	-70
Kuwait	2,710	2,680	2,680	-30	0
Nigeria	1,820	1,440	1,320	-500	-120
Venezuela	730	720	730	0	10
Angola	1,390	990	1,050	-340	60
Libya	1,110	1,130	1,100	-10	-30
Algeria	1,010	1,020	1,010	0	-10
OPEC-10	28,230	28,590	28,270	40	-320

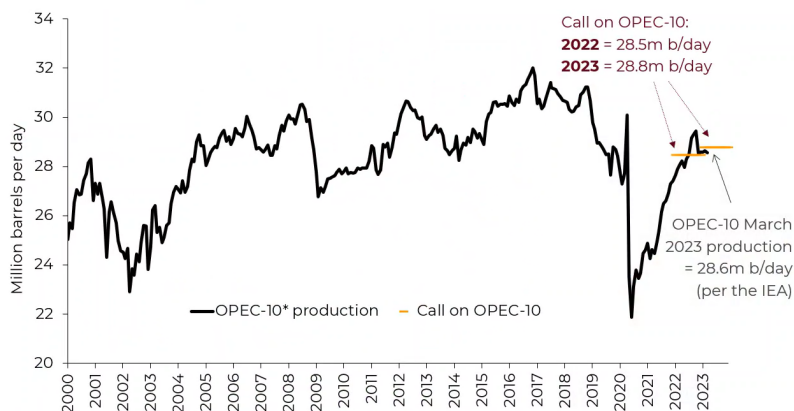
Source: Bloomberg; Guinness Global Investors

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 9.7m b/day, relative to their 'baseline' production level of October 2018.

In July 2021, the OPEC+ group agreed to taper their quota cuts at 0.4m b/day each month until September 2022, whilst still meeting monthly to ratify each production increase in light of the prevailing conditions. The agreement 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 (March 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.\$75/bl is needed to close the gap fully), whilst not spiking the oil price too high and over-stimulating non-OPEC supply.

Guinness Global Energy

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.

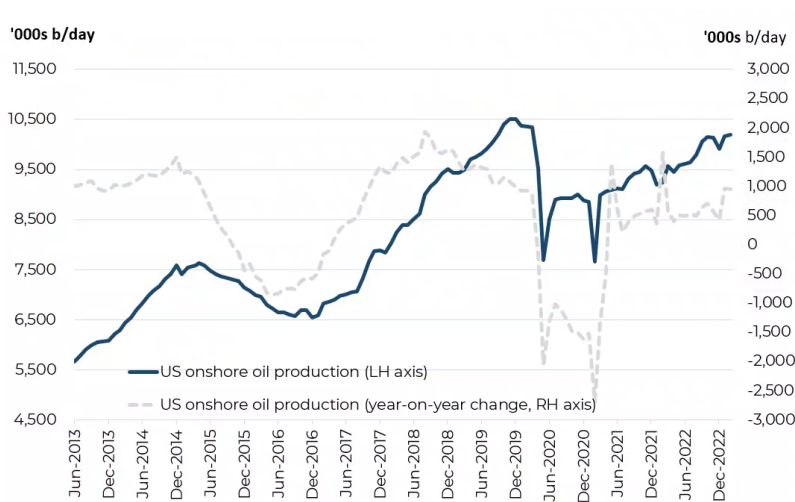
Nothing in the market in recent years has changed our view that OPEC can put a floor under the price – as they did in 2020, 2018, 2016, 2008, 2006, 2001 and 1998.

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 2008-2019.

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 7m b/day between since 2010), implying that the rest of 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 \$50 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. Despite a stronger oil price since then, the overall reduction in activity caused average US shale supply to decline in 2021. Production growth returned in 2022, albeit

slower than the previous cycle, as the Russia/Ukraine crisis creates greater space temporarily for US shale barrels in the world market.

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 around 2m b/day to just under 102m b/day, around 1.5m 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 higher oil prices and slower economic growth are 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 in Asia. Historically, 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) but see little that makes a significant dent on the consumption of gasoline and diesel in the next few years. 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 12.5m, or 16% 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, as of 30.04.2023

We believe that Saudi's long-term objective remains to maintain a 'good' oil price, something north of \$75/bl. The world oil bill at around \$75/bl represents 3.0% of 2022 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 25-30% 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
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	23.1	23.1
Power generation	24.9	22.3	22.3	26.5	27.3	25.3	29.0	30.9	31.7	30.9	32.6	31.0
Industrial	19.7	20.3	20.9	20.6	21.1	21.6	23.0	23.1	22.3	22.5	23.0	23.8
Pipeline exports (Mexico)	1.8	1.9	1.9	2.7	3.8	4.0	4.6	5.1	5.4	5.9	5.8	6.0
LNG exports	-	-	-	0.1	1.0	2.6	2.8	4.8	6.4	9.7	11.1	12.9
Pipeline/plant/other	6.1	6.7	6.3	6.5	6.4	6.5	7.0	7.8	7.7	7.8	8.1	8.5
Total demand	71.7	73.6	74.8	77.8	80.1	80.9	89.8	95.2	95.0	98.3	103.7	105.3
Demand growth	3.1	1.9	1.2	3.0	2.3	0.8	8.9	5.4	- 0.2	3.3	5.4	1.6

Source: Guinness estimates; MS (March 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 103.7 Bcf/day, up by 5.4 Bcf/day versus 2021 and 12 Bcf/day (13%) 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 \$3-4/mcf, to be up by around 1.6 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.

Guinness Global Energy

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.

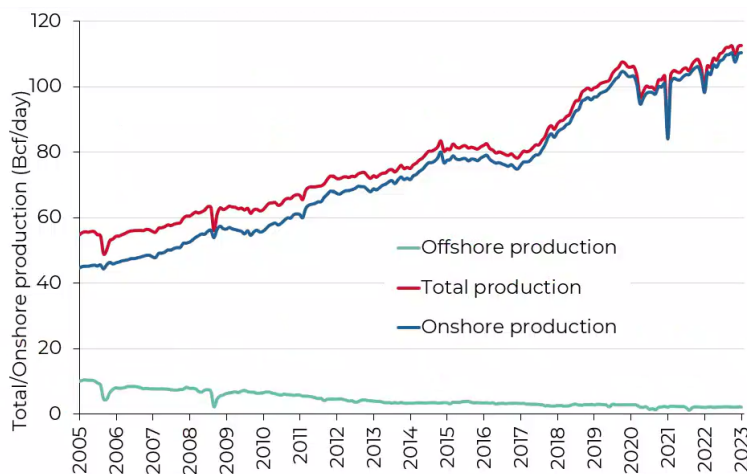
US natural gas supply

Bcf/day	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023E
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	101.1
Net imports (Canada)	5.4	5.0	4.9	4.9	5.5	5.8	5.4	4.7	4.4	5.1	5.5	5.5
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	102.9	106.6
Supply growth	2.4	-	4.4	3.3	- 0.3	0.4	10.1	6.4	- 0.7	1.4	6.0	3.7

Source: EIA; MS; Guinness estimates, as of 30.04.2023

Over the last 14 years or so, 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 160 at the end of April 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 (March 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

Guinness Global Energy

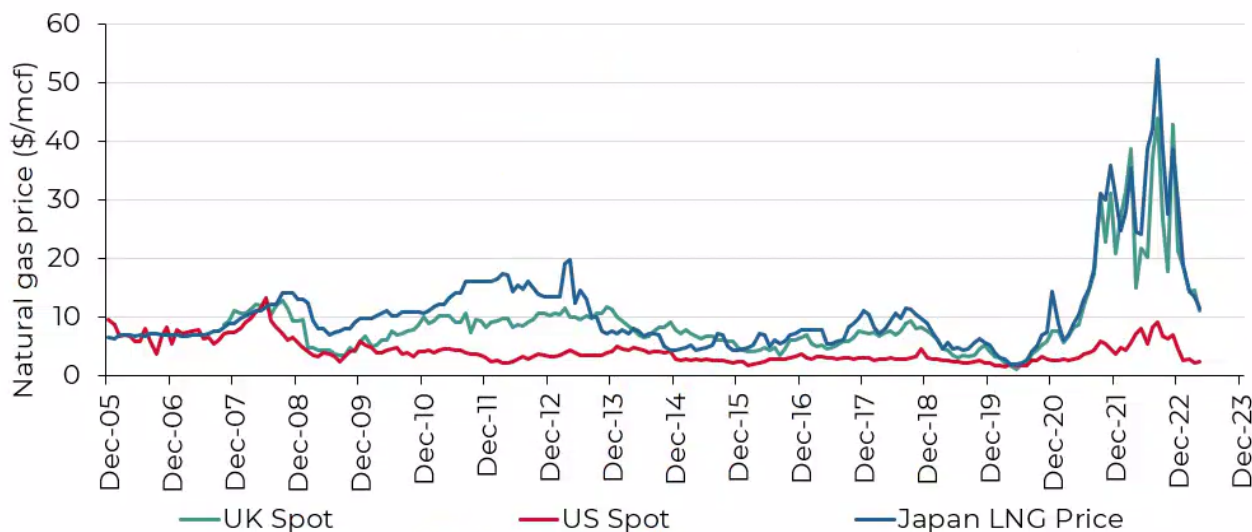
includes the largest producing gas field in the US and the surrounding region, reached production of around 29 Bcf/day in 2022. Moderate growth is likely in 2023.

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 4 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.\$15-30/mcf versus c.\$2-7/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 April 2023

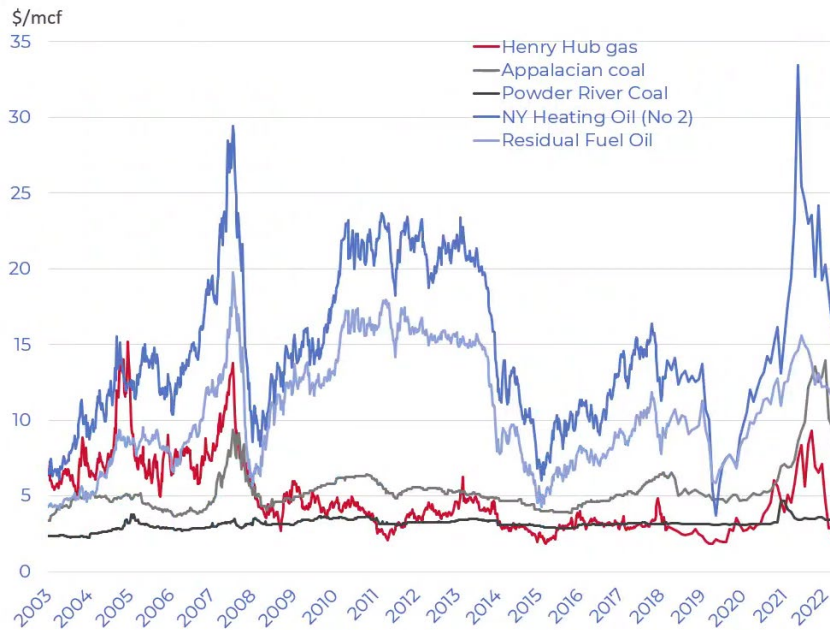


Source: Bloomberg; Guinness Global Investors (April 2023)

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 (April 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 LP

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.

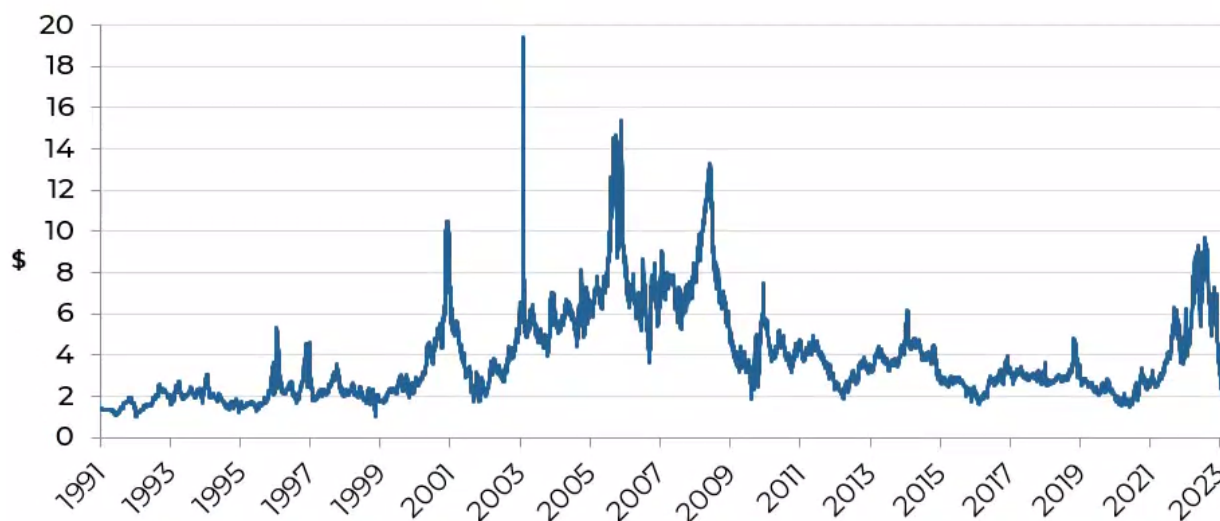
By mid-2004 the market had become unsettled by the deteriorating security situation in Iraq and Saudi Arabia and increasingly impressed by the regular upgrades in IEA forecasts of near record world oil demand growth in 2004 caused by a triple demand shock from strong demand simultaneously from China; 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 range 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 LP

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.

Guinness Global Energy

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.

IMPORTANT INFORMATION

Issued by Guinness Global Investors which is a trading name of Guinness Asset Management Limited which is authorised and regulated by the Financial Conduct Authority.

This report is primarily designed to inform you about the Guinness Global Energy Fund and the TB Guinness Global Energy Fund. It may provide information about the Funds' portfolios, including recent activity and performance. It contains facts relating to the equity markets and our own interpretation. Any investment decision should take account of the subjectivity of the comments contained in the report.

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GUINNESS GLOBAL ENERGY FUND

Documentation

The documentation needed to make an investment, including the Prospectus, the Key Investor Information Document (KIID), Key Information Document (KID) and the Application Form, is available in English from www.guinnessgi.com or free of charge from the Manager: Link Fund Manager Solutions (Ireland) Ltd (LFMSI), 2 Grand Canal Square, Grand Canal Harbour, Dublin 2, Ireland; or the Promoter and Investment Manager: Guinness Asset Management Ltd, 18 Smith Square, London SW1P 3HZ.

LFMSI, as UCITS Man Co, has the right to terminate the arrangements made for the marketing of funds in accordance with the UCITS Directive.

Investor Rights

A summary of investor rights in English is available here: <https://www.linkgroup.eu/policy-statements/irish-management-company>

Residency

In countries where the Fund is not registered for sale or in any other circumstances where its distribution is not authorised or is unlawful, the Fund should not be distributed to resident Retail Clients. **NOTE: THIS INVESTMENT IS NOT FOR SALE TO U.S. PERSONS.**

Structure & regulation

The Fund is a sub-fund of Guinness Asset Management Funds PLC (the "Company"), an open-ended umbrella-type investment company, incorporated in Ireland and

authorised and supervised by the Central Bank of Ireland, which operates under EU legislation. If you are in any doubt about the suitability of investing in this Fund, please consult your investment or other professional adviser.

Switzerland

This is an advertising document. The prospectus and KID for Switzerland, the articles of association, and the annual and semi-annual reports can be obtained free of charge from the representative in Switzerland, Carnegie Fund Services S.A., 11, rue du Général-Dufour, 1204 Geneva, Switzerland, Tel. +41 22 705 11 77, www.carnegie-fund-services.ch. The paying agent is Banque Cantonale de Genève, 17 Quai de l'Île, 1204 Geneva, Switzerland.

Singapore

The Fund is not authorised or recognised by the Monetary Authority of Singapore ("MAS") and shares are not allowed to be offered to the retail public. The Fund is registered with the MAS as a Restricted Foreign Scheme. Shares of the Fund may only be offered to institutional and accredited investors (as defined in the Securities and Futures Act (Cap.289)) ('SFA') and this material is limited to the investors in those categories.

TB GUINNESS GLOBAL ENERGY FUND

Documentation

The documentation needed to make an investment, including the Prospectus, the Key Investor Information Document (KIID) and the Application Form, is available in English from www.tbaileyfs.co.uk or free of charge from T. Bailey Fund Services Limited ("TBFS"), 64 St James's Street, Nottingham, NG1 6FJ.

General enquiries: 0115 988 8200.

Dealing Line: 0115 988 8285.

E-Mail: clientservices@tbailey.co.uk

T. Bailey Fund Services Limited is authorised and regulated by the Financial Conduct Authority.

Residency

In countries where the Fund is not registered for sale or in any other circumstances where its distribution is not authorised or is unlawful, the Fund should not be distributed to resident Retail Clients.

Structure & regulation

The Fund is an Authorised Unit Trust authorised by the Financial Conduct Authority.

Telephone calls will be recorded and monitored.