

Developments and trends for investors in the global energy sector

This is a marketing communication. Please refer to the prospectus and KID/KIID for the Fund before making any final investment decisions. Past performance does not predict future returns.

February 2023

GUINNESS GLOBAL ENERGY FUND

The Guinness Global Energy Fund invests 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.

The Fund is run by co-managers Will Riley, Jonathan Waghorn and Tim Guinness, supported by analysts Jamie Melrose and Dan Hobster. The investment philosophy, methodology and style which characterise the Guinness approach have been applied to the management of energy equity portfolios since 1998.

RISK

The Guinness Global Energy Fund is an equity fund. 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. The Fund invests only in companies involved in the energy sector; it is therefore susceptible to the performance of that one sector, and can be volatile. Further details on the risk factors are included in the Fund's documentation, available on our website.

HIGHLIGHTS FOR JANUARY

OIL

Brent/WTI fall as demand destruction concerns build

Brent and WTI spot oil prices remained roughly flat in January, with the positives of the Chinese re-opening and better European economic data being offset by continued weakness elsewhere and refinery outages in the US. Brent and WTI closed the month at \$85/bl and \$79/bl, flat and down \$1/bl respectively. Five-year forward prices traded similarly, Brent closing at \$68/bl and WTI at \$61/bl.

NATURAL GAS

US, European and Asian gas prices decline

The Asian and European gas prices (using UK NBP) closed January at \$19/\$19/mcf, whilst the US spot price (Henry Hub) dropped to \$2.7/mcf. European gas inventories have filled well over the past few weeks, largely thanks to unseasonably warm weather, and are now towards the top end of their five-year average. Against this, sabotage on the Nordstream gas pipelines in September last year reduces the prospect of Russian gas flows recovering to previous levels.

EQUITIES

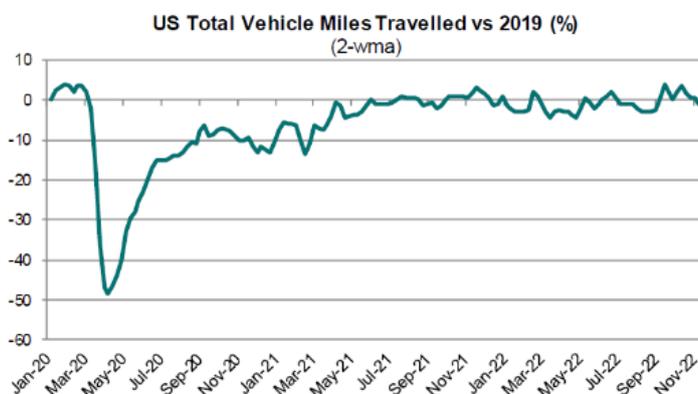
Energy underperforms the broad market in January

The MSCI World Energy Index (net return) rose by 3.1% in January, underperforming the MSCI World Index (net return) which rose 7.1% over the month (all in US dollar terms).

CHART OF THE MONTH

US Total Vehicle Miles Travelled vs 2019 (%)

Given concerns around a global recession and possible demand destruction from high commodity prices, it is interesting to note mobility data in the US, which continues to look robust:



Source: DNB, US Federal Highway Administration

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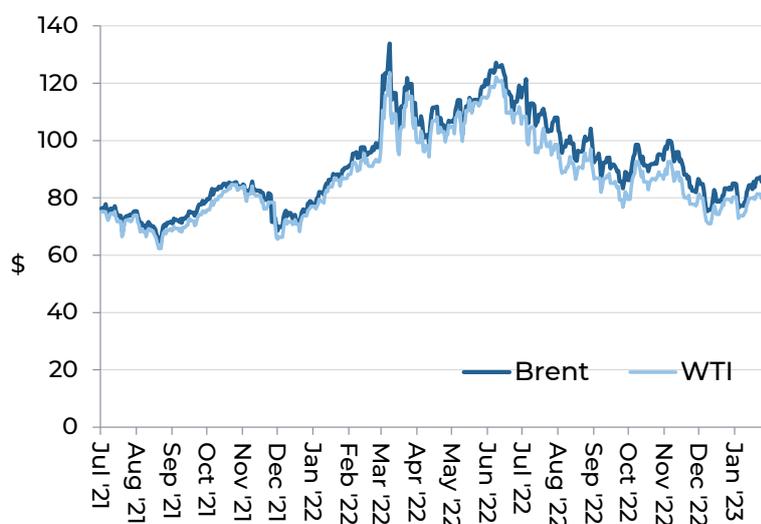
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1. JANUARY IN REVIEW

i) Oil market

Oil price (WTI and Brent \$/barrel): June 2021 to January 2023



Source: Bloomberg; Guinness Global Investors

The West Texas Intermediate (WTI) oil price started January at \$80/bl, declining over the month to reach a low of \$73/bl on January 4, before closing slightly higher at \$79/bl. WTI has averaged \$78/bl so far this year, having averaged \$96/bl in 2022 and \$68/bl in 2021 and \$40/bl.

Brent oil traded in a similar shape, opening at \$85/bl, troughing at \$76/bl and closing the month back at \$85/bl. Brent has averaged \$83/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 widened slightly over the month, ending January at \$6.5/bl. The Brent-WTI spread averaged \$5.4/bl in 2022.

Factors which strengthened WTI and Brent oil prices in January:

- **China re-opening**

After nearly three years of closed borders, China finally reopened its economy during the month, leading to hopes of a recovery in global oil demand. 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 2m b/day positive swing in global oil demand.

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- **Positive European economic data**

Following a decline in European gas prices (from very high levels) hopes were raised that Europe may avoid going into recession, with positive follow-on implications for oil demand. European PMIs (a measure of economic activity) bounced from a trough of 46 to 49 for the month of January, while the Citigroup European Economic Surprise index (which measures economic data surprises relative to market expectations) posted its highest reading in 18 months.

- **Signs of declining Russian production**

Despite surprising to the upside for much of last year, Russian oil production appeared to finally turn the corner in January, declining 0.3m b/day. While small, this may be the start of a more pronounced decline in Russian production driven by the delayed impact of sanctions on domestic supply chains as well as international caps on both crude and product.

Factors which weakened WTI and Brent oil prices in January:

- **Continued lacklustre economic data elsewhere**

Outside of China and Europe, leading indicators continued to be weak or deteriorate.; Both the Emerging Markets and Japanese PMIs remained flat month on month (in contractionary territory), while PMIs in the world’s largest economy, the US, deteriorated to a level of 47, the lowest reading since 2020.

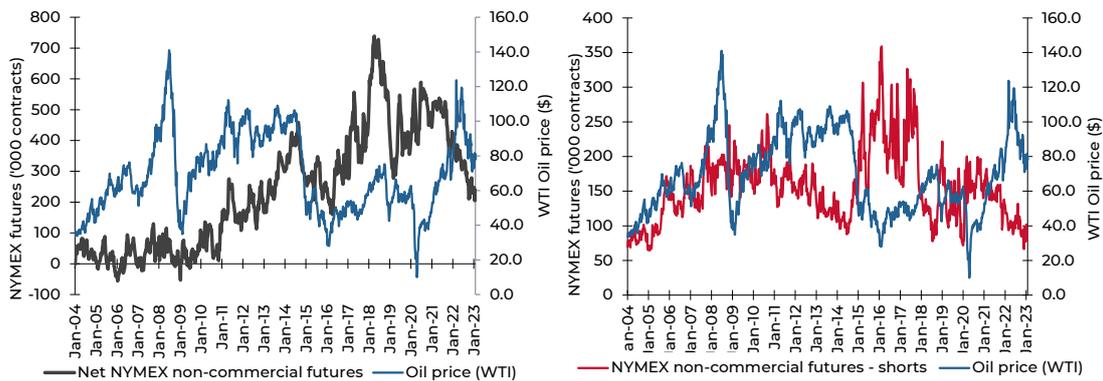
- **US refinery outages**

Following the “freeze off” in December of last year, many US refineries struggled to ramp back to full capacity in January, leading to reduced oil demand and lower levels of utilisation. According to data from the EIA, utilisation rates in the US dropped from an average of north of 90% in December, to just 85% throughout January. With refining margins still sat materially above long-term averages, we would anticipate this to be a fairly short-run dynamic.

Speculative and investment flows

The New York Mercantile Exchange (NYMEX) net non-commercial crude oil futures open position was 249,800 contracts long at the end of January versus 247,600 contracts long at the end of December. 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 rose to 78,800 contracts at the end of January versus 77,400 at the end of the previous month.

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



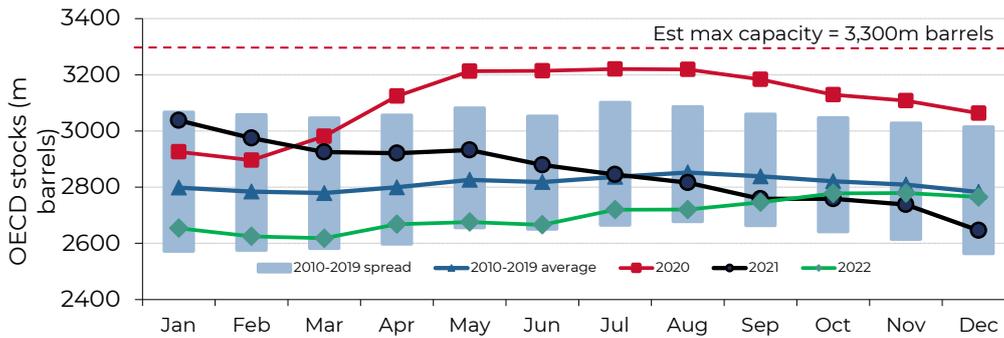
Source: Bloomberg LP/NYMEX/ICE (2023)

OECD stocks

OECD total product and crude inventories at the end of December (latest data point) were estimated by the IEA to be 2,765m barrels, down by 14m barrels versus the level reported for November. This compares to a 10-year average draw for December of 26m 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.

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OECD total product and crude inventories, monthly, 2004 to 2022



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

ii) Natural gas market

The US natural gas price (Henry Hub front month) opened January at \$4.48/mcf (1,000 cubic feet) and declined sharply over the month, closing at \$2.68/mcf. The spot gas price has averaged \$3.47/mcf so far in 2023, having averaged \$6.58/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 declined over the month, dropping from \$4.29/mcf to \$3.44/mcf. The strip price has averaged \$3.68/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): July 2021 to January 2023



Source: Bloomberg LP

Factors which strengthened the US gas price in January included:

- **Freeport LNG**

Given the ongoing energy crisis in Europe, there has been a concerted effort to export more LNG from the US, however, export volumes have been limited due to a fire at the Freeport export facility (which accounts for around 20% of US export capacity). During the month there was news that Freeport LNG have asked regulators for approval to reopen some of its export capacity, raising hopes of a resumption in LNG exports imminently.

- **Slightly lower US shale production**

The latest monthly data from the EIA showed a slight decline in US shale oil production – from 10.14k b/day in October to 10.12k b/day in November (latest available data) – a decline of 22k b/day. Given that shale oil is produced with associated gas, this would suggest a moderate decline in gas supply.

- **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 to electricity generation to gas based. We believe that if the current spread remains, that this is a trend that will continue prompting further gas demand.

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Factors which weakened the US gas price in January included:

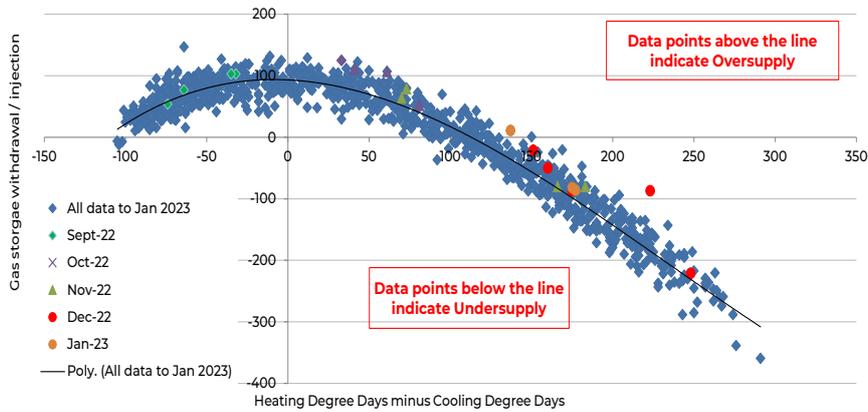
- **Unseasonably warm weather**

The weather in January in the US was the warmest in the last 15 years, more than offsetting the cold December, prompting lower than normal gas demand.

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

Draws from US natural gas inventories during January were lower than expected for the time of year. Indeed, even adjusting for the impact of weather, the draws implied that the US gas market was, on average, nearly 4 Bcf/day oversupplied.

Weather adjusted US natural gas inventory injections and withdrawals

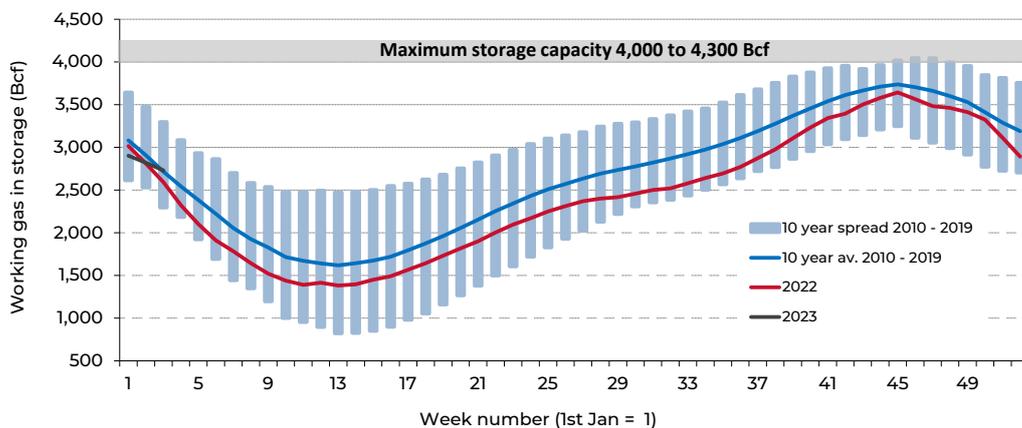


Source: Bloomberg LP; Guinness Global Investors

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 January were reported by the EIA to be 2.7 Tcf, in line with the 10-year average.

Deviation from 10yr gas storage norm



Source: Bloomberg; EIA (Jan 2023)

2. MANAGER'S COMMENTS

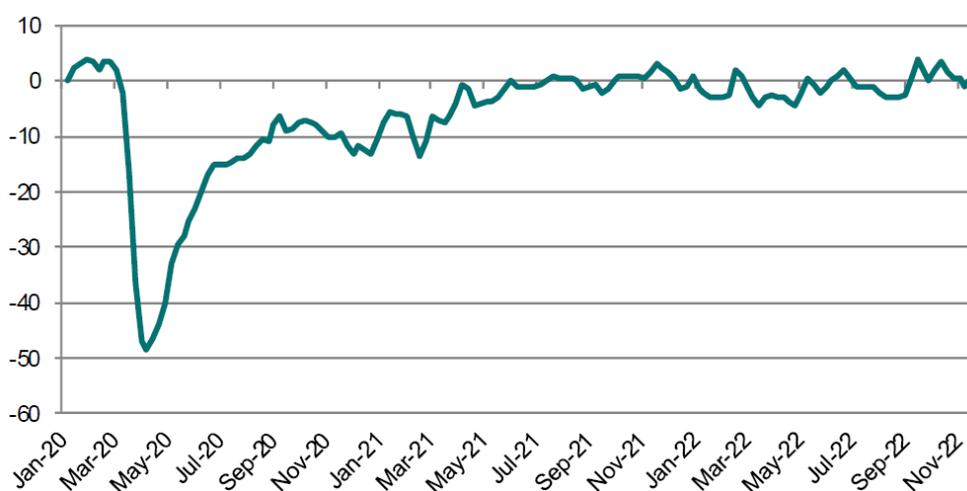
At the start of January we published an outlook piece for the year ahead. Here, we take the opportunity to provide updated comment on a number of the points made, in light of recent developments:

- **The path for oil demand** will depend on three key components: the trajectory for Chinese consumption as its economy reopens; the outlook for global aviation as flight activity normalises; and the resilience of demand to a global recession. Overall, the IEA forecast demand in 2023 of 101.6m b/day, up by 1.7m b/day versus 2022. This would put global oil demand around 1m b/day above its previous peak in 2019, though still 3m b/day below the pre-pandemic run rate. The IEA's forecasts imply that OECD demand will still be around 3% lower than in 2019, versus non-OECD demand 4% ahead of 2019.

In their January report, the IEA upgraded their estimate for global oil demand growth in 2023 from 1.7m b/day to 1.9m b/day. The main drivers of the upgrade were the acceleration in China reopening its economy after COVID, the prospect of a shallower recession in Europe and the US, partially offset by lower gas to oil switches after international gas prices moderated.

Road mobility, a key driver of oil demand, has been stronger than expected. In the US, vehicle miles travelled were strong in Q4 2022, averaging 1.7% above the 2019 level, and look strong again in January.

US total vehicle miles travelled vs 2019 (%)



Source: US Federal Highway Administration; DNB

The number of airline passengers in the US is also at the strongest level since the start of the pandemic.

Over in Europe, there are some softer areas of demand – in Germany, for example, the truck toll mileage index has looked softer over the last three months, a function of slower industry production. Nevertheless, overall mobility in Europe is also surprising positively.

- **OPEC continues to signal a high degree of flexibility** in 2023 to adjust their production, thereby attempting to put a 'soft' floor under oil prices should demand falter. We believe the oil price desired by OPEC is at around \$75-80/bl, though they will accept a higher outcome if it does not destabilise the global economy. Within the broader OPEC+ group, the trajectory for **Russian oil supply** will be critical. The range of outcomes from the EU embargo on Russian oil and oil products, plus the G7 price cap, is wide; we see good chance that around 1m b/day of Russian oil exports are lost due to these actions.

According to latest Bloomberg estimates, OPEC production decreased by 0.06m b/day in January, with a 0.1m b/day reduction in Saudi supply holding the group back. OPEC production remains behind quotas, with the group currently producing around 2m b/day less than planned. The shortfall highlights the issue within OPEC of dwindling spare capacity, particularly amongst African members (e.g. Algeria; Nigeria; Angola), which are suffering the effects of several years of underinvestment.

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At the latest OPEC+ meeting, hosted on February 1st, there was quick agreement to ratify quotas unchanged from the end of 2022.

Within the wider OPEC+ group, all eyes remain on Russia and, in particular, the impact of EU embargo on Russian oil (effective Dec 2022) and Russian oil products (effective February 2023). Russian seaborne crude oil exports have held up reasonably well so far, with India and China continuing to increase their intake, while volumes to Europe have dried up almost completely. That said, official reporting shows an increasing proportion of Russian crude exports ending in an “unknown” destination, which may indicate more Russian oil being stored at sea, or the end destination being masked.

It looks more challenging for Russia to divert oil products, which generally are exported using smaller vessels. The sailing time for these vessels to China is about 40 days versus 6 days in Europe, so unless many more vessels can be made available, suggestions upcoming friction to the system. Ultimately, we expect Russian oil and product volumes to drop by less than 1m b/day, versus the IEA which is expecting a drop of 1.7m b/day.

- We expect **moderate growth from US shale production**, with average production rising 0.5m-0.75m b/day versus 2022. Capital discipline and deteriorating capital efficiency are capping growth versus previous cycles. Non-OPEC (ex US shale) will see no major roll-out of large new projects, the cycle having peaked in 2020.

Latest data from the EIA for oil production indicates that US onshore production fell by 22,000 b/day in November, bringing the year-on-year increase to 0.56m b/day.

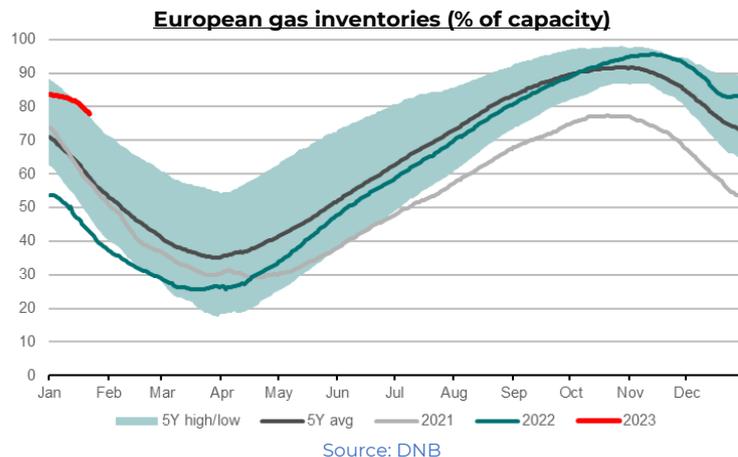
In addition to a maturing asset base, a shortage of service capacity available in the key basins is emerging as a constraint on production this year. In particular, the utilization of high-spec drilling rigs is now sufficiently high that boosting the rig count has become challenging. There is also the impact of accelerating base decline effects to be aware of, with base declines expected hit new highs in 2023 as the share of younger wells (with high decline rates) continues to grow.

We expect capital discipline to be maintained this year among US onshore producers, with a continued emphasis on dividends, buybacks and debt paydowns.

Overall, we continue to see average US onshore production rising by around 0.7m b/day, well below the annual growth rate seen in the previous cycle.

- **For natural gas, Chinese re-opening and European security of supply will keep international gas prices elevated**, relative to pre-invasion levels. With plentiful gas in storage, Europe is well placed to weather the 2022/23 winter, but the challenge will be refilling storage this summer, thanks to even lower Russian imports. Shortages will be addressed via expensive LNG imports and demand destruction. Looking further ahead, we see international gas prices deflating to a \$10-14/mcf range (vs \$7-9/ mcf pre-invasion) as new US and Qatari LNG supply comes online and allows Europe to displace almost all Russian gas imports.

Warmer weather has come to the rescue of European gas markets, lowering heating demand and keeping inventory levels well above the seasonal norm. Adjusting for higher temperatures, it appears that European gas demand is running about 15% below normal, as high prices cause fuel switching and curb consumption.



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European gas inventories are nearly 78% full, which will lead to significantly lower 'injection' needs during the coming summer. Against this, the opening up of the Chinese economy post COVID will intensify competition for LNG cargoes. Chinese LNG demand was down by 20% in 2022, and we expect a sharp rebound.

- **Despite the strength of the energy sector in 2022, energy equity valuations remain attractive.** The MSCI World Energy Index now trades on a price to book ratio of 2.0x, versus the S&P500 at 3.9x. The relative P/B of energy vs the S&P500 remains more than two standard deviations below the long-term relationship. Oil and gas companies have demonstrated a meaningful shift towards capital discipline, manifested in lower levels of reinvestment, lower levels of debt and a return of free cash to shareholders. Assuming a \$80/bl Brent oil price, we forecast an average free cashflow yield for our portfolio in 2023 of around 11%. Energy equities offer good upside if our oil price, profitability and free cashflow scenarios play out. We believe energy equities currently discount an oil price of around \$63/bl. Adopting \$75/bl Brent as a long-term oil price (consistent with the bottom end of OPEC's desired range), we see 25-35% upside across the energy complex.

The energy sector (MSCI World Energy Index) was up by 3.1% in USD in January, underperforming the MSCI World and S&P500 which were up by 7.1% and 6.3%. The performance over the month leaves the energy sector on a price to book ratio of 1.9x, versus the S&P500 at 4.2x. Initial fourth quarter earnings results are reinforcing the concept that free cashflow remains a priority for oil & gas companies, supporting strong cashflow yields. Chevron, for example, announced last week a new \$75bn share repurchase programme, equivalent to around 23% of the company's current market capitalisation.

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3. 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), rose by 3.1% in January, while the MSCI World Index (net return) rose by 7.1% in USD.

Within the Fund, January's strongest performers included PetroChina, Imperial Oil and Sinopec while the weakest performers included Equinor, OMV and Chevron.

Performance (in USD) as at 31.01.2023

The value of this investment and any income arising from it can fall as well as rise as a result of market and currency fluctuations as well as other factors. You may lose money in this investment.

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)	3.7%	42.6%	13.3%	1.8%	8.7%		
MSCI World Energy NR Index	3.1%	57.1%	16.7%	5.7%	6.6%		
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.

¹TB Guinness Global Energy Fund

UK investors should be aware that the Guinness Global Energy Fund is available as a UK-domiciled fund denominated in GBP. The TB Guinness Global Energy Fund is available from 0.95% OCF. The historical performance of this fund will differ from the Guinness Global Energy Fund as the TB Guinness Global Energy fund has only been recently brought into line with the Guinness Global Energy Fund. The documentation needed to make an investment, including the Prospectus, the Key Investor Information Document (KIID) and the Application Form, is available from the website www.guinnessgi.com Please contact info@guinnessgi.com or +44 (0) 20 7222 5703 for more details.

Returns stated above are in US dollars; returns in other currencies may be higher or lower as a result of currency fluctuations. Investors may be subject to tax on distributions. The Fund's Prospectus gives a full explanation of the characteristics of the Fund and is available at www.guinnessgi.com.

The Guinness Global Energy Report

4. PORTFOLIO Guinness Global Energy Fund

Buys/Sells

In January 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 **January 31 2023**.

Asset allocation as %NAV	Current	Change	Last year end	Last year end	Previous year ends				
	Jan-23		Dec-22	Dec-21	Dec-20	Dec-19	Dec-18	Dec-17	Dec-16
Oil & Gas	97.7%	0.4%	97.4%	96.9%	94.8%	98.3%	96.7%	98.4%	96.7%
Integrated	54.1%	-0.6%	54.7%	57.7%	56.3%	51.1%	46.4%	42.9%	46.4%
Exploration & Production	23.3%	0.3%	23.1%	23.7%	22.2%	29.6%	35.8%	36.9%	35.8%
Drilling	0.0%	0.0%	0.0%	0.0%	0.0%	0.1%	2.2%	1.9%	2.2%
Equipment & Services	9.3%	0.3%	9.0%	4.0%	4.6%	9.6%	8.6%	9.5%	8.6%
Storage & Transportation	4.8%	0.0%	4.8%	4.3%	4.4%	4.0%	0.0%	3.5%	0.0%
Refining & Marketing	6.2%	0.4%	5.8%	7.2%	7.3%	3.8%	3.7%	3.7%	3.7%
Solar	0.7%	0.0%	0.7%	1.0%	1.8%	0.7%	0.9%	1.4%	0.9%
Coal & Consumable Fuels	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%
Cash	1.6%	-0.3%	1.9%	2.1%	3.3%	1.1%	2.4%	0.2%	2.4%

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

The Fund at end of January 2023 was on a price to earnings ratio (P/E) for 2022/2023 of 5.8x/6.9x versus the MSCI World Index at 17.2x/16.6x as set out in the following table:

As at 31 January 2023	P/E		
	2022	2023E	2024E
Guinness Global Energy Fund	5.8x	6.9x	7.5x
MSCI World Index	17.2x	16.6x	15.4x
Fund Premium/(Discount)	-66%	-58%	-51%

Source: Bloomberg; Guinness Global Investors

Portfolio holdings

Our integrated and similar stock exposure (c.43%) is comprised of a mix of mid cap, mid/large cap and large cap stocks. Our five large caps are Chevron, BP, ExxonMobil, Royal Dutch Shell and Total. Mid/large and mid-caps are ENI, Equinor, GALP, Repsol and OMV. At January 31 2023 the median P/E ratio of this group was 5.5x 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.

We have exposure to two emerging market stocks, Petrochina and Sinopec, in the portfolio and in total represent around 3% 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.

The Guinness Global Energy Report

Portfolio at December 31 2022 (for compliance reasons disclosed one month in arrears)

Guinness Global Energy Fund (31 December 2022)			P/E			EV/EBITDA		
Stock	ISIN	% of NAV	2022	2023E	2024 E	2022	2023E	2024 E
Integrated Oil & Gas								
Exxon Mobil Corp	US30231G1022	5.9%	7.9x	9.8x	11.3x	4.5x	5.5x	6.4x
Chevron Corp	US1667641005	5.4%	9.4x	10.8x	12.1x	5.2x	5.8x	6.4x
Shell PLC	GB00BP6MXD	4.7%	5.3x	5.4x	6.2x	2.8x	3.2x	3.5x
Total SA	FR0000120271	5.7%	4.4x	5.4x	6.5x	2.7x	3.2x	3.7x
BP PLC	GB000798059	4.9%	3.9x	4.3x	5.9x	2.5x	3.0x	3.5x
Equinor ASA	NO0010096981	4.1%	5.1x	5.6x	7.5x	1.2x	1.4x	1.8x
ENI SpA	IT0003132476	2.8%	3.5x	4.7x	5.8x	2.1x	2.4x	2.7x
Repsol SA	ES0173516115	4.0%	3.6x	4.8x	5.8x	2.0x	2.5x	2.8x
Galp Energia SGPS SA	PTGALOAM0001	3.4%	11.4x	9.7x	9.9x	3.4x	3.6x	3.8x
OMV AG	AT0000743051	3.0%	3.3x	4.3x	5.2x	1.8x	2.3x	2.7x
		43.7%						
Integrated / Oil & Gas E&P - Canada								
Suncor Energy Inc	CA8672241079	2.9%	5.1x	6.8x	6.9x	3.0x	3.5x	3.7x
Canadian Natural Resources Ltd	CA1363851017	3.1%	6.4x	7.8x	8.3x	4.0x	4.5x	4.7x
Cenovus Energy Inc	CA15135U1093	3.3%	7.3x	7.2x	7.2x	3.7x	4.0x	4.6x
Imperial Oil Ltd	CA4530384081	3.3%	6.1x	7.5x	7.1x	3.7x	4.5x	4.6x
		12.7%						
Integrated Oil & Gas - Emerging market								
PetroChina Co Ltd	CNE1000003W	1.4%	4.1x	4.7x	5.4x	2.8x	2.9x	3.0x
		1.4%						
Oil & Gas E&P								
ConocoPhillips	US20825C1045	4.8%	8.4x	9.3x	10.9x	4.2x	4.9x	5.6x
EOG Resources Inc	US26875P1012	3.6%	9.1x	8.8x	9.8x	5.1x	4.9x	5.2x
Diamondback Energy Co	US25278X1090	3.5%	5.5x	5.7x	6.1x	4.3x	4.3x	4.6x
Pioneer Natural Resources Co	US7237871071	3.3%	7.3x	8.9x	9.7x	4.5x	5.3x	5.5x
Devon Energy Corp	US25179M1036	3.7%	7.1x	7.1x	7.8x	4.5x	4.6x	4.9x
		19.0%						
International E&Ps								
Pharos Energy PLC	GB00B572ZV9	0.1%	2.2x	2.5x	1.9x	1.0x	0.9x	1.0x
		0.1%						
Midstream								
Kinder Morgan Inc	US49456B1017	2.3%	15.7x	16.3x	15.6x	9.8x	9.6x	9.5x
Enbridge Inc	CA29250N105C	2.6%	18.7x	17.4x	17.2x	12.4x	11.9x	11.8x
		4.8%						
Equipment & Services								
Schlumberger Ltd	AN8068571081	4.5%	24.7x	17.9x	14.6x	13.2x	10.6x	9.3x
Halliburton Co	US4062161017	2.0%	19.6x	13.3x	11.1x	10.4x	8.2x	7.2x
Baker Hughes a GE Co	US05722G1004	1.6%	33.7x	17.7x	13.9x	11.3x	9.0x	7.8x
Helix Energy Solutions Group Inc	US42330P1075	1.0%	n/a	23.8x	15.4x	11.3x	5.7x	5.1x
		9.0%						
Oil & Gas Refining & Marketing								
China Petroleum & Chemical Corp	CNE1000002Q	1.1%	5.6x	5.8x	5.6x	2.9x	2.9x	2.9x
Valero Energy Corp	US91913Y1001	4.7%	4.6x	7.4x	11.1x	3.3x	5.0x	6.7x
		5.8%						
Research Portfolio								
Deltic Energy PLC	GB00B65YKFC	0.2%	n/a	n/a	n/a	n/a	n/a	n/a
EnQuest PLC	GB00B635TG2	0.3%	1.4x	1.5x	1.4x	1.3x	1.3x	1.5x
Reabold Resources PLC	GB00B95L0551	0.0%	n/a	n/a	n/a	n/a	n/a	n/a
Sunpower Corp	US8676524064	0.7%	54.6x	33.0x	21.8x	31.5x	19.1x	13.7x
Maxeon Solar Technologies Ltd	SGXZ25336314	0.0%	n/a	n/a	n/a	n/a	19.7x	13.9x
Diversified Energy Company	GB00BYX7JT7	0.4%	5.2x	n/a	6.3x	4.6x	4.6x	5.4x
		1.6%						
Cash	Cash	1.9%						

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.

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5. 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	101.7
Non-OPEC supply (inc NGLs)	60.3	59.8	60.8	63.5	65.6	63.0	63.8	65.7	66.4
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	71.0	71.8
Call on OPEC (crude oil)	29.8	31.3	32.0	30.5	29.6	23.4	28.8	28.9	29.9
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	28.3	29.3

Source: Bloomberg; IEA; Guinness Global Investors

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 8.4m b/day, leaving overall consumption still around 0.6m 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 over 18 months by 2.5m b/day. 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 December 2022

('000 b/day)	31-Dec-21	31-Dec-22	31-Jan-23	Current vs Dec 2019	Current vs last month
Saudi	10,030	10,480	10,380	350	-100
Iran	2,510	2,640	2,600	90	-40
Iraq	4,280	4,480	4,470	190	-10
UAE	2,890	3,170	3,190	300	20
Kuwait	2,550	2,670	2,690	140	20
Nigeria	1,420	1,330	1,360	-60	30
Venezuela	650	660	670	20	10
Angola	1,150	1,080	1,140	-10	60
Libya	1,060	1,170	1,100	40	-70
Algeria	960	1,020	1,010	50	-10
OPEC-10	27,500	28,700	28,610	1,110	-90

Source: Bloomberg; Guinness Global Investors

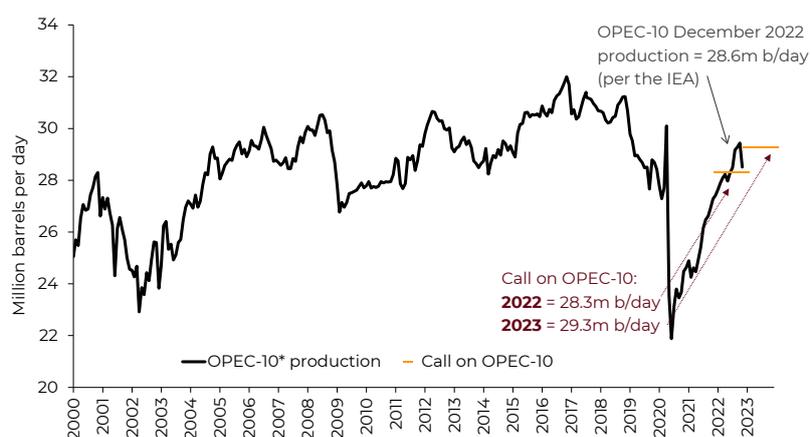
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The 2017-19 period continued to see a volatile time for OPEC with further production cuts necessary to balance ongoing non-OPEC supply growth.

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 (January 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.

In the shorter term, the COVID-19 and Russia 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.

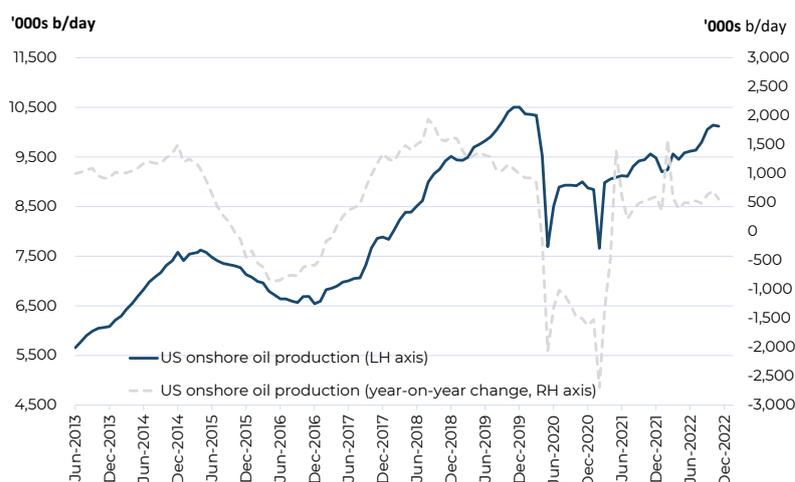
Supply looking forward

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.

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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 well into the 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 again 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 101.9m b/day, around 1m b/day ahead of the 2019 pre-COVID peak. The spread of the COVID virus globally caused major restrictions to the movement of people, which has now largely reversed, but high 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 oil demand growth of plus or minus 1m b/day, led by increased use in Asia. Historically, China has been the most important component of this growth and continues to be a major component, 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, 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 persist in a higher range (say around \$100/bl, representing 4% of GDP), we probably return to the pattern established over the past 5 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

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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 70%), 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, Bloomberg

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 (January 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 \$5-6/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.

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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.

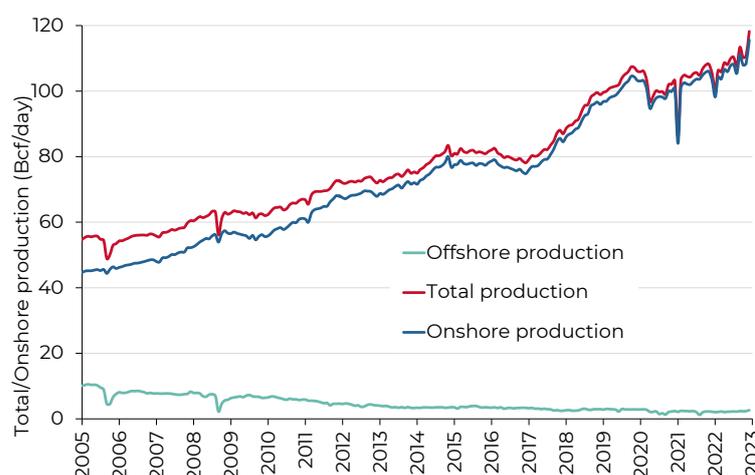
US natural gas supply

Bcf/day	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023E
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

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 160 at the end of January 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 (Jan 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.

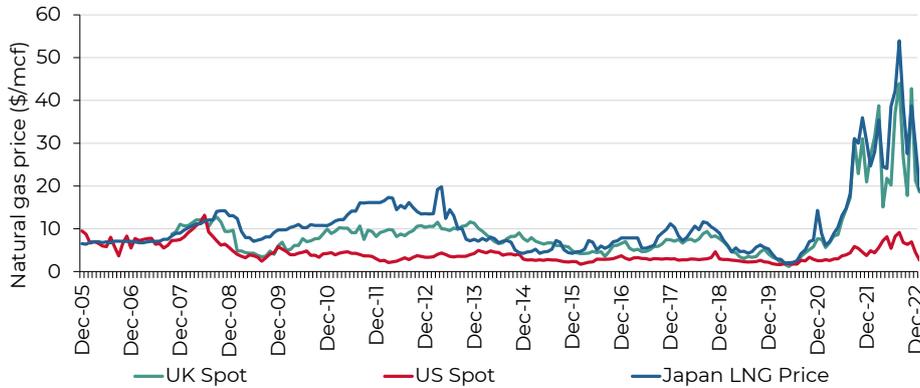
Overall, if the price averages in the \$6-7/mcf range, we expect a rise in average onshore gas supply in 2022, up by around 4 Bcf/day versus 2021.

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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.\$20-40/mcf versus c.\$3-8/mcf). Asian spot LNG prices have also been extraordinarily strong, averaging over \$34/mcf in 2022 and over \$30/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 January 2023

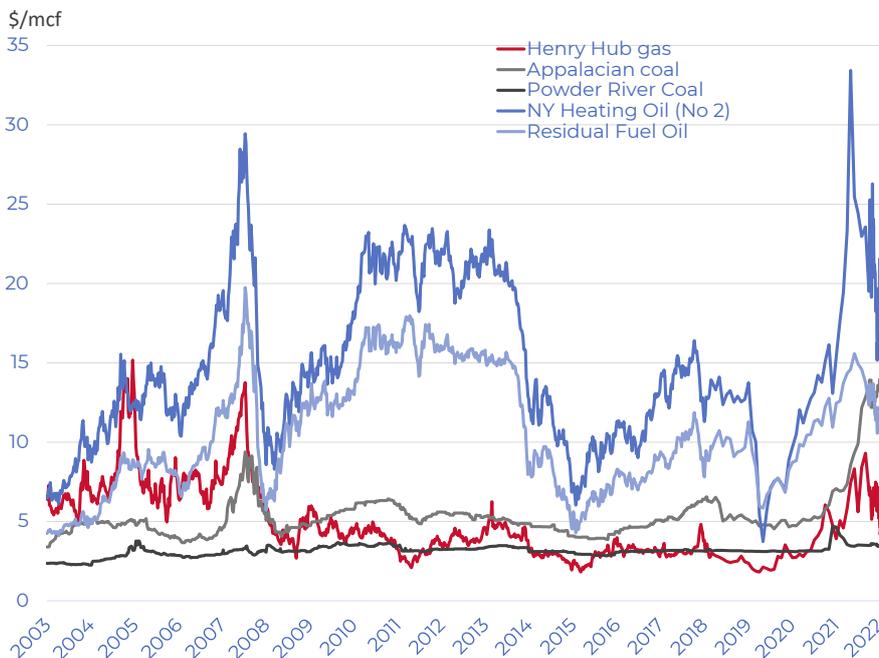


Source: Bloomberg; Guinness Global Investors (Jan 2023)

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 (Jan 2023)

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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 \$4-5/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.

6. 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.

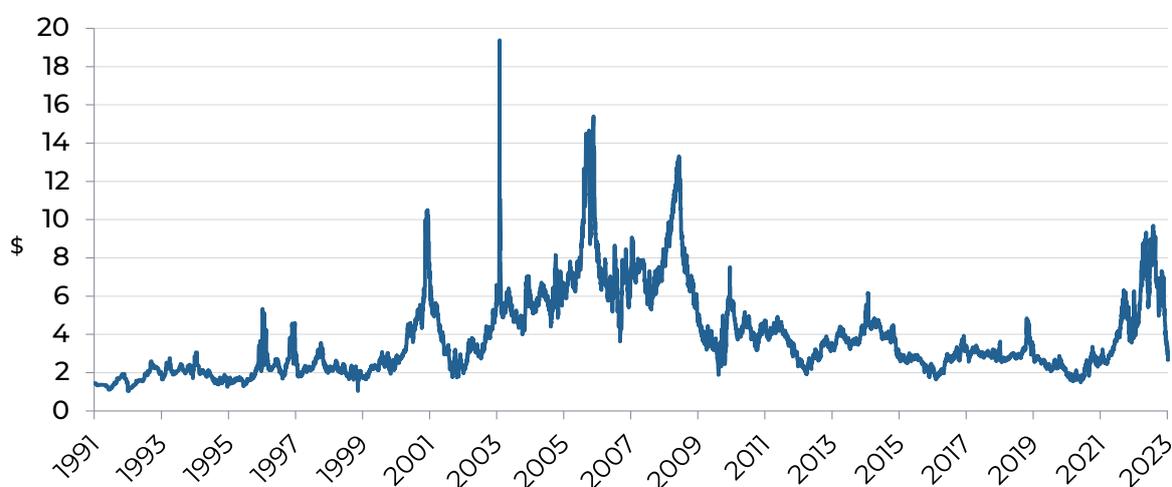
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Continued expectations of a supply crunch by the end of the decade, coupled with increased speculative activity in oil markets, contributed to the oil price surging past \$90 in the final months of 2007 and as high as \$147 by the middle of 2008. This 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's 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-:** 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.

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.

The Guinness Global Energy Report

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