2025 Outlook for Global Energy

Guinness Global Energy Team

GUINNESS GLOBAL INVESTORS

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2024 saw OPEC+ carefully manage weaker demand growth in order to defend a reasonable oil price. Here, we would like to share our thoughts on 2024 and the outlook for 2025 and beyond.

HIGHLIGHTS

2024 IN REVIEW

Weaker global oil demand growth, particularly from China, required OPEC+ to continue its oil market micromanagement to maintain reasonable prices. Oil prices were fairly stable, trading in a $70-90/bl range and averaging $80/bl, a level which coincides with the long-term incentive price and the 'floor' which Saudi are seeking. Strong Asian gas demand and liquefied natural gas (LNG) supply disruptions kept the gas market tighter than expected, while the loss of further Russian gas meant Europe competed for global LNG in the second half, strengthening prices further. Oil and gas equities underperformed the broader market in 2024, despite attractive yields.

The dominant themes for global oil and gas markets last year were:

Weaker oil demand, up by 0.8m b/day vs 2023. Actual 2024 demand of 102.8m b/day was in line with initial expectations but growth of 0.8m b/day was lower than expected as historic 2023 demand data was revised upwards. Chinese demand grew by 0.2m b/day as weakness in gasoil, distillate and fuel oil (used in industrial activities and property construction, and reflective of the weakness in China's economy) was offset by strength in petrochemicals. Globally, within the demand mix, petrochemical feedstocks, including ethane and naphtha, are proving to be key growth drivers.

2024 was another year of careful oil market micromanagement by OPEC+ and the group twice delayed plans to add withheld oil back into the market. Within OPEC+, Iranian production grew around 0.4m b/day, Venezuela grew 0.1m b/day while Russia and Kuwait cut by 0.4m b/day and 0.1m b/day respectively. Towards the end of the year, Saudi pushed members for greater quota compliance. OPEC's actions appeared to be defending a Brent oil price of $80/bl+, a level which, in real terms, the group have defended several times before over the past twenty years.

Outside OPEC+, we saw supply growth from US (shale and non-shale), Guyana and Canada. US shale oil likely grew by around 0.4m b/day as the US exploration and production (E&P) industry persisted in its focus on free cashflow yields, deleveraging and increasing returns to shareholders. Guyana delivered new projects (+0.2m b/day) and Canada benefitted from new pipeline access (+0.2m b/day), but Brazil disappointed with flat annual output in 2024, much lower than the forecast 0.3m b/day of growth. Robust non-OPEC+ production in 2024 reflected high-quality execution of new projects and a slowdown in industry decline rates.

Natural gas markets tightened during the year after a weak start caused by a mild northern hemisphere winter. Weakness in prices (US Henry Hub below $2/mcf) catalysed a demand recovery with global LNG demand (ex-Europe) growing around 10% (more than the prior three years combined) while unplanned LNG maintenance, new project delays and Russian sanctions kept the global market tighter than anticipated. The loss of further Russian pipeline gas via Ukraine, low winds speeds and cold weather kept European prices strong into year end, ending at $15/mcf.

The generally muted oil and gas price environment combined with strength in other equity sectors **caused energy equities to underperform the broad market in 2024** despite high free cash flow and dividend yields. The sector (MSCI World Energy Index) finished +2.7%, behind the broad market (MSCI World +18.7%) in USD. The year saw outperformance from North American equities (especially large-cap integrateds, midstream and gassy-E&Ps), whilst European large-cap integrateds, were weaker, together with refiners and oil services.

HIGHLIGHTS

OUTLOOK FOR 2025

Another year of OPEC+ micromanagement of the oil market is expected in 2025. Global oil demand growth of around 1.1m b/day will be exceeded by a combination of US, Guyana, Brazil, Canada and other OPEC+ production growth, requiring OPEC+ to focus on quota compliance in order to achieve a balanced market. The arrival of President Trump and the threat of further Middle East tensions could easily reduce global oil supply and give room for OPEC to return withheld oil to the market, although likely later than 1Q 2025. We believe the oil price desired by OPEC is at around $80/bl and, just as in 2024, that they continue to be committed to providing a balanced market. By contrast, we see energy equities currently reflecting a long-term oil price of around $65/bl, implying good valuation upside.

- **Oil demand growth is likely to be around 1.1m b/day** (reaching 103.9m b/day) with the non-OECD +1.2m b/day and the OECD -0.1m b/day. Unlike previous years, China (at +0.2m b/day) will not be the key driver of demand growth. At $80/bl Brent, oil remains highly affordable, with it representing 2.7% of 2025 world GDP (well below the 3.8% seen in 2010 when oil last averaged $80/bl). Hence, we continue to see global oil demand growing until around 2030, reaching a peak around 105-110m b/day.

- **OPEC+ will focus on quota compliance and micro-management** to maintain a balanced market, allowing them room to start adding withheld oil back into the market if other supply disruptions occur. OPEC+ will keep a close eye on President Trump's policy proposals, from the impact on oil supply (caused by his approach to Iranian sanctions) through to the impact of proposed tariffs on China, Canada and Mexico. Overall, we believe that Saudi's long-term objective remains to maintain a 'good' oil price, as close to their fiscal breakeven of around $96/bl as possible. Defending an $80 oil price in 2025 would be broadly the same in real terms as the group's actions in 2006-2008 when they defended a nominal price of around $60/bl.

- **Non-OPEC+ growth to continue** although US shale production growth will slow to 0.3m b/day as capital discipline trumps any efforts from the new US President to increase supply growth. Brazil, Guyana, Canada and other non-US shale activities will be the key areas of other non-OPEC+ growth.

- **Global natural gas markets remain in fine balance** in 2025 US gas demand will grow around 4 Bcf/day in 2025 due to power generation demand and rising LNG exports but new supply is available and economic. Longer-term, more US gas will be needed to satisfy growing AI and data centre demand. Asian gas demand, the role of Russia and the delivery of new LNG projects will define the international gas market in 2025.

- **Energy equity valuations remain attractive** with the MSCI World Energy Index on a price to book ratio of 1.7x, versus the S&P500 at 5.1x. The relative P/B of energy vs the S&P500 remains more than two standard deviations below the long-term relationship.

- Most oil and gas companies continue to **promote capital discipline over organic growth**, manifested in 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 2025 of around 10.2%.

- **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 $65/bl. Adopting $80/bl Brent as a long-term oil price, we see around 40% upside across the energy complex, on a one year forward basis.

The Guinness Global Energy 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. The Funds invest in listed equities of companies engaged in the exploration, production and distribution of oil, gas and other energy sources. The Funds are actively managed and use the MSCI World Energy Index as a comparator benchmark only.

2024 IN REVIEW

The year of 2024 saw weaker global oil demand growth, particularly from China, requiring OPEC+ to continue its careful oil market micromanagement to maintain reasonable prices. Oil prices were fairly stable, trading in a $75-85/bl range and averaging $80/bl, a level which coincides with the long-term incentive price and the 'floor' which Saudi are seeking. Strong Asian gas demand and LNG supply disruptions kept the gas market tighter than expected while the loss of further Russian gas meant Europe competed for global LNG in the second half, strengthening prices further. Oil and gas equities underperformed the broader market in 2024, despite attractive yields. Here, we explore the key developments in energy markets over the period, the impact on energy equities and the fund, and consider the outlook.

Oil markets

The Brent oil price started 2024 at $77/bl and rose to over $90/bl by the end of the first quarter, before settling to average $83/bl in the first half. The strength reflected the evolution of a tightening oil market, driven by a mix of higher demand forecasts (oil demand growth expectations increased by 0.2m b/day), lower supply and heightened geopolitical tensions in the Middle East and Russia.

The second half of the year was weaker with the announcement by OPEC+ that the group planned to add 2.5m b/day of withheld production back into the market during late 2024 and 2025. This brought prices lower and remained a factor in weaker oil prices for the second half of the year. The stronger demand narrative of 1H24 weakened amidst weaker Chinese demand while geopolitical tensions in the Middle East and Russia brought shorter-term price spikes. Brent traded heavy, troughing at just below $70/bl in early September, before ending the year just under $75/bl. Brent averaged just over $80/bl for the year, in line with our expectations at the start of the year.

Brent oil price: spot vs five year forward ($/bl)

Source: Bloomberg; Guinness Global Investors. Data to 31.12.2024

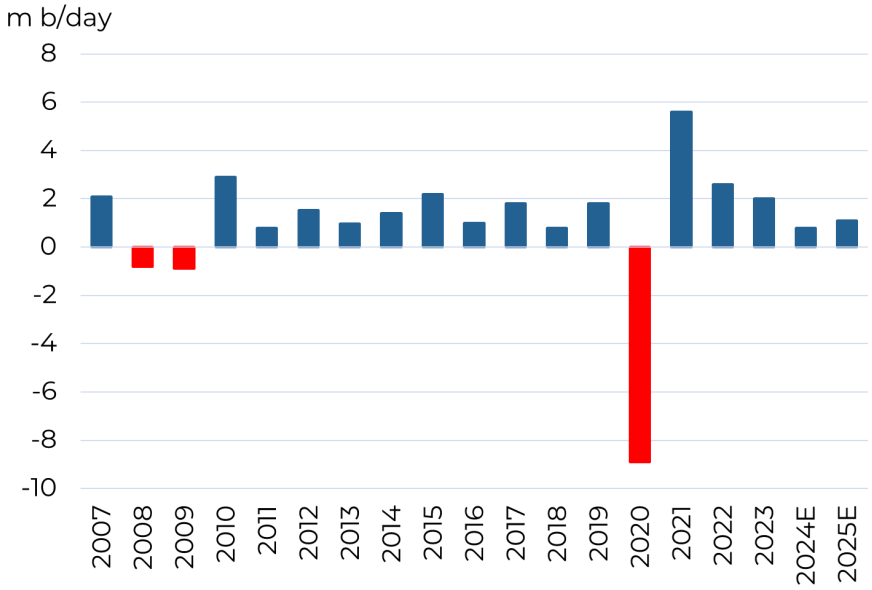
Global oil demand in 2024 was forecasted last January by the IEA to be 102.8m b/day, up 1.1m b/day (with the non-OECD up by 1.3m b/day and the OECD down by 0.2m b/day) versus 2023, putting demand around 2.1m b/day ahead of its previous peak in 2019. Today, the forecast for 2024 demand remains the same (102.8m b/day) although the growth in 2024 has been reduced to 0.8m b/day as a result of historic 2023 data being revised upwards by 0.3m b/day.

The key area of demand growth weakness has been China. Initial forecasts were for Chinese growth of 0.8m b/day but actual demand growth is now likely closer to 0.2m b/day due to weakness mid-year in gasoil, distillate and fuel oil (used in industrial

activities and property construction, and reflective of the weakness in China's economy as well as growing utilisation of LNG trucks) offset by strength in petrochemicals.

At the time of writing, momentum may be turning as Chinese fuel oil imports rallied hard in November 2024 to double the level seen in November 2023. Weakness was also spread across other parts of the non-OECD with Nigeria, Pakistan, Indonesia, South Africa and Argentina all seeing lower oil demand in 2024 vs 2023. Globally, within the demand mix, petrochemical feedstocks, including ethane and naphtha, are proving to be key growth drivers.

Global oil demand growth (m b/day)



Source: IEA; Guinness Global Investors

In light of the weaker demand growth, 2024 ended up being another year of careful oil market micromanagement by **OPEC+**. In June 2024, the group announced their plan to reverse existing production quota cuts, starting in September 2024, as their own internal forecasts of strong world demand growth implied a growing supply deficit. The plan to grow production was delayed twice, first in September, then in November as a result of oil price weakness and weaker demand. On December 5, OPEC+ met formally and announced a revised plan that delayed the start of the unwinding of 'voluntary' quota cuts (2.2m b/day), for a third time, to the end of Q1 2025 while also extending the time period for the unwind, from 12 months to 18 months. The approach of OPEC+ towards "supporting the stability and balance of the oil markets" remained unchanged and the group noted that the monthly production increases "can be paused or reversed subject to market conditions".

The decision reflected the fact that core 'OPEC-9' production (26.5m b/day in 2024) looks to be about in line with the average 'call on OPEC' for 2024 (26.4m b/day), implying a balanced market. However, the actual level of production is towards the lower end of their range (ex-COVID) over the past 10 years. Within the OPEC+ group, we saw Iranian production grow around 0.4m b/day, Venezuela grow by 0.1m b/day while Russia and Kuwait cut by 0.4m b/day and 0.1m b/day respectively. Towards the end of the year, Iraqi production started to fall back in line with its quota as Saudi pushed members for greater quota compliance. Angola left OPEC at the start of the year and Brazil joined mid-2024 as an observer; neither affected OPEC+ behaviour.

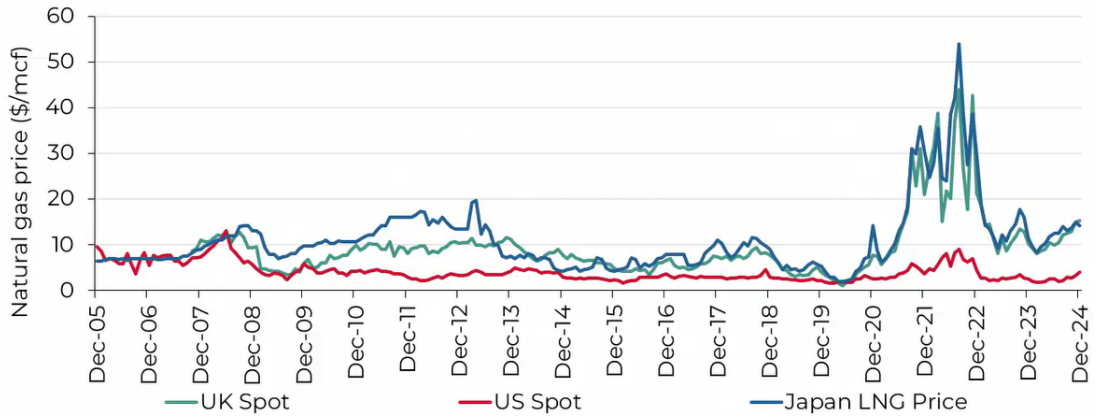
As expected, supply growth from **US shale oil** slowed in 2024, averaging around 0.4m b/day more than 2023. The bulk of the US E&P industry persisted in its focus on free cashflow yields, deleveraging, increasing returns to shareholders and delivering synergies from the recent round of consolidation. Growth in 2024 was lower than 2023 (c.0.8m b/day) and significantly less than the annual average from 2017-19.

We saw around 1.0m b/day of supply growth in 2024 from the remainder of non-OPEC+, broadly in line with expectations at the start of the year. The main contributors to growth were Canada (+0.2m b/day), Guyana (+0.2m b/day) and non-shale

operations in the United States (+0.3m b/day). Brazil disappointed with flat annual output in 2024, much lower than the forecast 0.3m b/day of growth. Robust non-OPEC+ production in 2024 reflected high-quality execution of new projects and a slowdown in industry decline rates.

International and US natural gas markets had a weak start to 2024, thanks largely to an exceptionally mild 23/24 winter that kept inventories in the US and Europe above seasonal averages, causing US spot prices to stay below $2/mcf for most of the first quarter. US natural gas prices recovered to close the year at $3.63/mcf and average $2.41 for the year. European prices started 2024 at around $10/mcf (down 50% versus the start of 2023) and weakened further as record pipeline gas supply from Norway, elevated LNG imports (early winter 2023/24) and depressed demand kept fundamentals in balance, despite the loss of some Russian gas.

Global natural gas prices (US$/mcf)

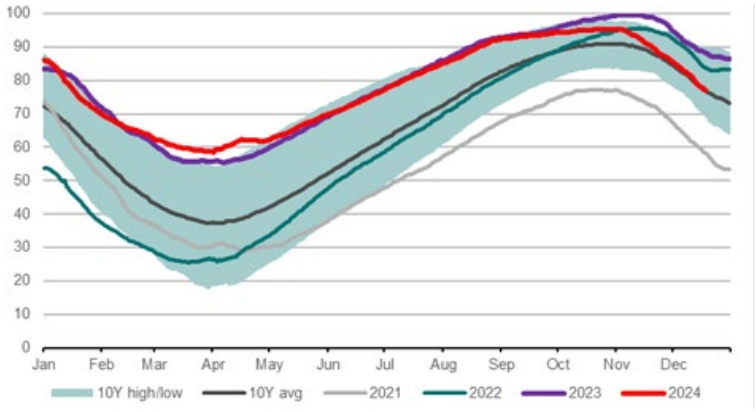


Source: Bloomberg; Guinness Global Investors

In contrast to the global oil market, international gas prices strengthened significantly in the second half of the year as the market tightened and Europe again competed to acquire global LNG volumes, just as it did in 2022. Global LNG demand (ex-Europe) rose around 10% (more than the prior three years combined, driven by China +9%, India +24% and SE Asia up more than 17%) due to lower prices and warmer Asian weather. On the supply side, unplanned LNG maintenance in Australia and Malaysia, Russian sanctions and slower ramp up in new project supply (Golden Pass LNG and the North Field East/South project in Qatar) helped to keep the market tighter than initially envisaged with only 4mtpa of new LNG capacity coming online, a 1% increase in supply.

The European market also struggled with low wind speeds and colder early winter weather (both causing greater natural gas demand) as well as the threat of lower Russian gas supplies coming into Europe. Inventories started to turn sharply lower at the start of the winter season while prices rose to around $15/mcf (up 50% year-on-year).

European natural gas inventories (% of capacity)



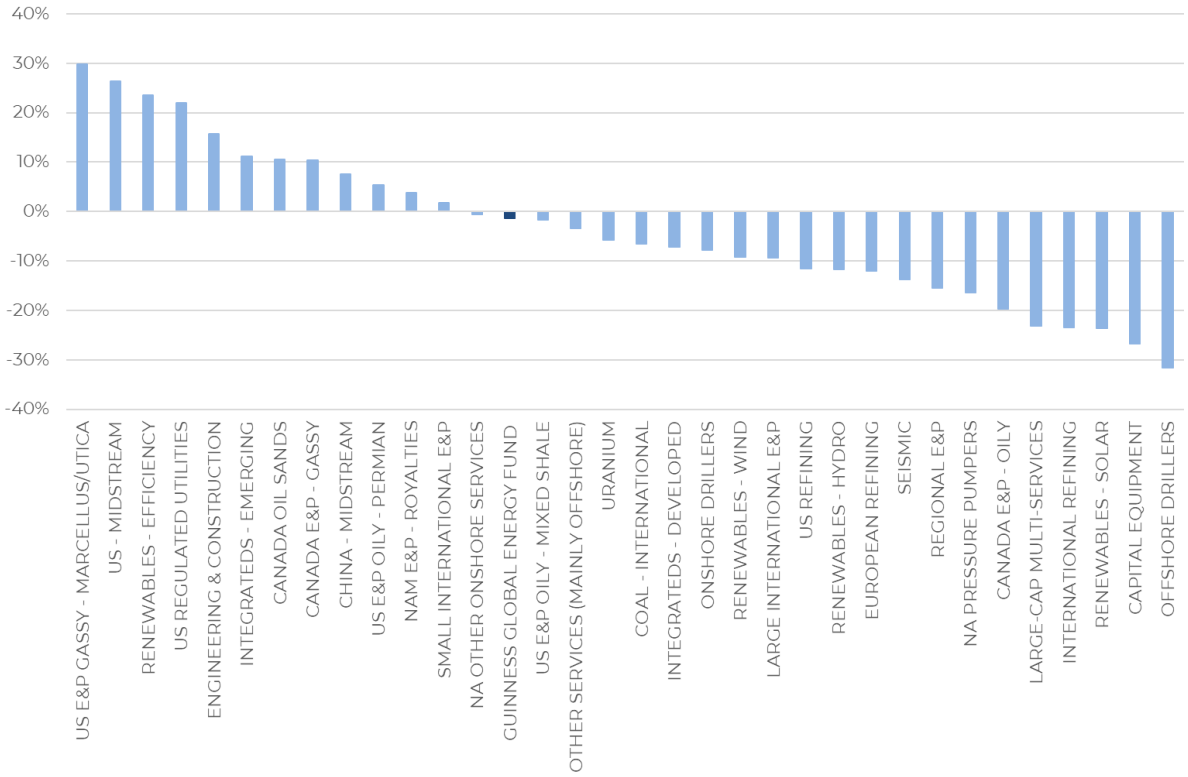
Source: DNB, Guinness Global Investors; data to 30.11.2024

Past performance does not predict future returns.

Given the generally muted oil and gas price environment, plus strength in other equity sectors, 2024 resulted in underperformance for energy equities. The sector (MSCI World Energy Index net return in USD) returned +2.7%, behind the broad market (MSCI World +18.7%). The Guinness Global Energy Fund produced a total return of -1.3% (in USD).

As ever, the performance of the MSCI World Energy Index was only part of the story, with 2024 seeing divergence between energy equity subsectors and geographies.

Global energy equity subsectors: median total return in 2024 (%)



Source: Bloomberg; Guinness Global Investors. Subsectors defined by Guinness Global Investors.

A quick tour of some of the main energy sub-sectors paints a picture for the overall performance of energy equities in 2024:

- **Oil & gas integrateds** were mixed, with the European majors (Total, Shell and BP) underperforming their US counterparts (Exxon and Chevron) by almost 20% on average. The US majors focussed on core oil and gas operations and delivered accretive M&A while the European Majors and mid-caps suffered from weaker domestic markets and less competitive operations. At the end of 2024, the European majors traded at around 60% of the P/E multiple of their US peers. Bucking the trend was Galp, as the company delivered potentially transformational exploration success in Namibia.

- **Exploration and production** also saw mixed results. US and Canadian gassy E&Ps outperformed as result of the anticipated lifting of the US LNG export ban and the tightening of global gas markets in the second half of the year. Large and small international E&Ps were generally weak as static oil prices and lower production growth limited underlying earnings growth, although Marathon Oil bucked the trend as it was acquired by Conoco. Canadian oil sands companies outperformed as the new Trans Mountain pipeline provided additional egress and improved regional oil pricing.

- **Oil refiners** were generally weak with US names outperforming Europe, and Asian refiners being the weakest. US refiners peaked in the first half of the year, coincident with the peak in refining margins caused by tighter refining capacity, caused by outages in Russia. European refiners saw a similar trend but suffered weaker margins as a result of higher costs and greater exposure to biofuels.

- **Midstream** was an outperformer over the year with every company in our midstream subsector delivering positive shareholder returns. The start of an interest rate easing cycle together with a focus on infrastructure build-out helped to drive share prices higher. Pipeline companies exposed to gas generally outperformed.

- **Energy services** were mixed. Service providers exposed to onshore US shale oil and gas markets (e.g. onshore drillers; pressure pumpers) underperformed, with activity contracting due to the flat drilling rig count. International, engineering/construction and gas-oriented services performed better due to of stronger activity levels, especially those focussed on LNG. Offshore drillers were weak and consolidation continued.

The **Guinness Global Energy Fund** in 2024 produced a total return of -1.3% (Y class, in USD). Within the portfolio over the period, the strongest performers included:

- **Canadian integrateds:** Holdings such as Suncor and Imperial Oil benefitted from their operational leverage and a narrowing of the differential between Canadian and US oil benchmarks

- **Midstream:** Pipeline companies Enbridge and Kinder Morgan performed strongly in the second half of the year as the interest rate easing cycle commenced

- **Galp:** exploration success offshore Namibia boosted expectations of a material uplift in Galp's proven oil and gas reserves in the coming years

- **North American large-caps:** Nine of the top ten contributors were North American listed, dominated by larger-cap companies, as domestic equity markets strengthened and the prospect of a Trump victory brought the potential for lower regulation. Both Exxon and its acquisition target Pioneer Natural Resources were in the top five contributors.

Sectors and companies in the portfolio that were relatively weaker over the period included:

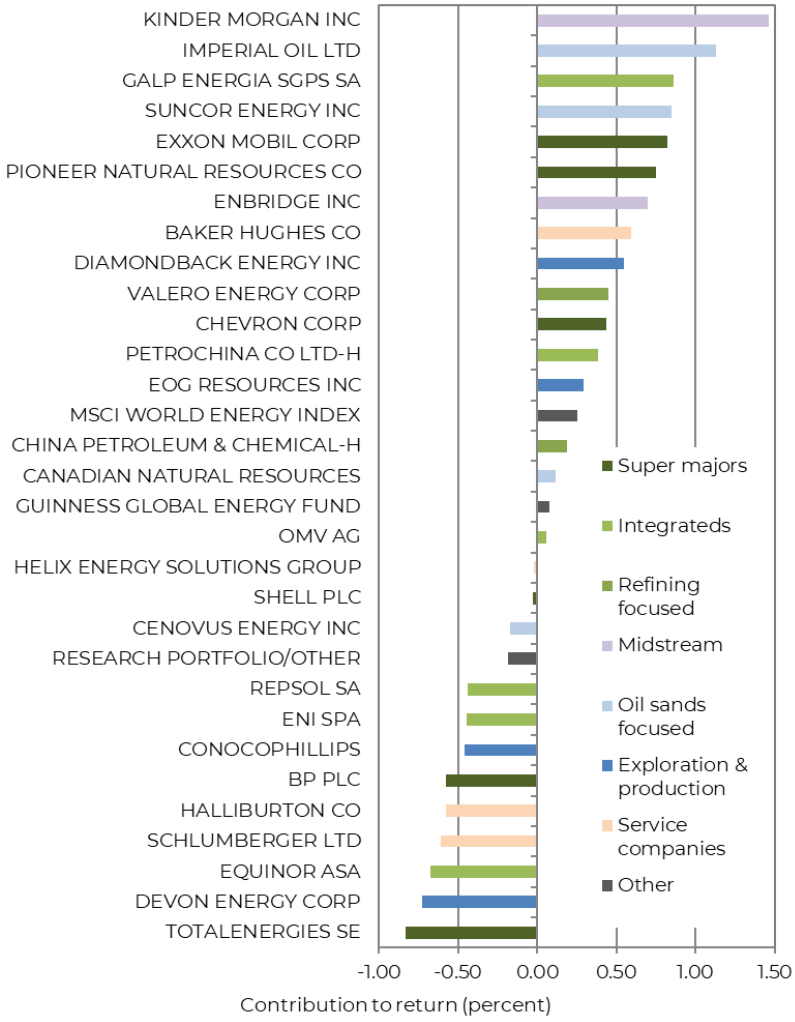
- **Exploration and production:** There was a spread within the group but lower quality E&Ps were weaker (Devon) while the oil-biased E&Ps (EOG/ Diamondback) delivered well. Conoco shares were weaker after the proposed acquisition of Marathon Oil.

- **Services:** Large-cap diversified service companies Schlumberger and Halliburton underperformed, driven by a pullback in longer-term oil spending in Saudi and a flat US oil/gas rig count. Baker Hughes delivered well due to growing expectations for natural gas turbines required in power generation to satisfy the surge in electricity demand coming from data centres and AI querying.

- **European integrateds:** The group suffered from weakening European refining margins, bottom of the cycle chemicals margins and investor concerns over energy transition risk. Political upheaval in France caused weakness for TotalEnergies in 4Q24 (leaving the shares at a 10% discount to European peers) while Equinor (which supplies around one third of Northwest Europe's gas needs) weakened further from its 2022 peak caused by European gas price strength.

The estimated contribution of each position held in the fund over the period (total return in USD) can be seen in the chart below.

Estimated contribution by position for Global Energy Fund in 2024 (in USD)



Source: Bloomberg; Guinness Global Investors

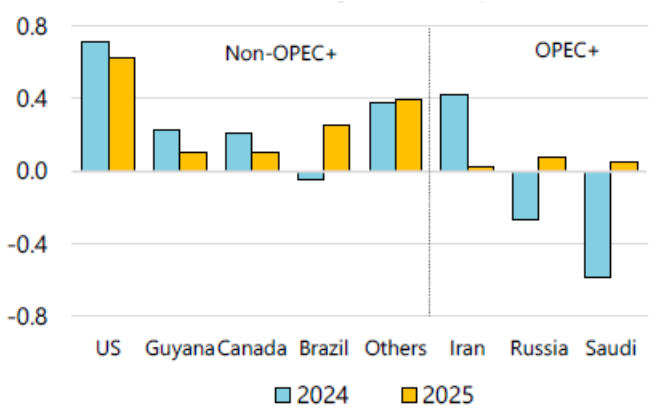
OUTLOOK FOR 2025

Another year of OPEC+ micromanagement of the oil market is expected in 2025. Global oil demand growth of around 1.1m b/day will be exceeded by a combination of US, Guyana, Brazil, Canada and other OPEC+ production growth, requiring OPEC+ to focus on quota compliance in order to achieve a balanced market. The arrival of President Trump and the threat of further Middle East tensions could easily reduce global oil supply and give room for OPEC to return withheld oil to the market, although likely later than 1Q 2025. We believe the oil price desired by OPEC is at around $80/bl and, just as in 2024, that they continue to be committed to providing a balanced market.

OIL SUPPLY

After a year of strong production growth in 2024 (0.6m b/day), the world's oil supply growth likely continues at an elevated level again in 2025, led by the US (both conventional and shale projects), Guyana, Canada and Norway as well as the start of new projects in Brazil that were delayed from 2024. Contribution from new facilities in OPEC+ countries will lead to OPEC+ focussing on compliance and maintaining its quota reductions beyond the end of 1Q 2025, thereby ceding market share, to sustain prices at a reasonable level. Stronger demand, project growth slippage or geopolitically-related supply issues would give room for OPEC+ to return some withheld oil back into the market.

Selected producer oil supply change 2025 vs 2024 (m b/day)



Source: IEA, assumes OPEC+ curbs remain in place

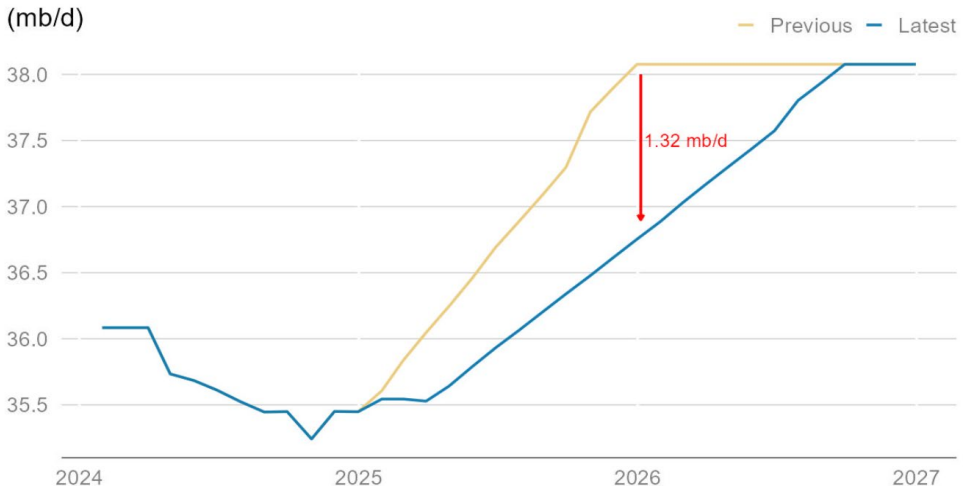
OPEC+ oil supply

OPEC+, led by Saudi, will continue their micromanagement of the oil market in 2025 trying to defend a reasonable price via supply discipline. The 5 December 2024 OPEC+ meeting confirmed this intention, when the group announced the following revised outcomes:

- The start of the unwinding of 'voluntary' quota cuts (2.2m b/day) from end of 1Q 2025
- The extension of the unwind period from 12 months to 18 months, meaning future production increases are slated to be in increments of 120k b/day per month rather than 180k b/day per month.
- The maintenance of any additional quota cuts in place (set in April 2023) until at least December 2026.
- A slower ramp-up of the 0.3m b/day quota increase agreed for the UAE.

The quota changes thereafter imply significantly less oil coming into the market than previously announced. The average OPEC+ quota is around 0.8m b/day lower than the previous plan, with the point of 'peak revision' coming at the end of 2025, when around 1.3m b/day of production is withheld versus the prior production schedule:

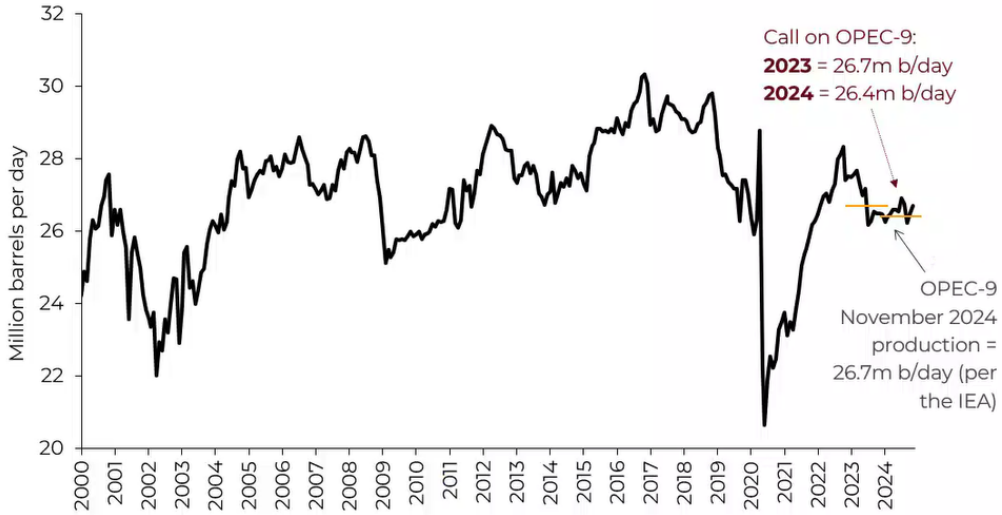
OPEC+ quota changes (announced December 2024)



Source: OPEC; Morgan Stanley; Guinness Global Investors

OPEC+ have acted in this way because the 'call on OPEC' for 2025 is 25.6m b/day, around 0.8m b/day lower than the 2024 level (as non-OPEC growth continues) and around 1.0m b/day lower than recent production levels.

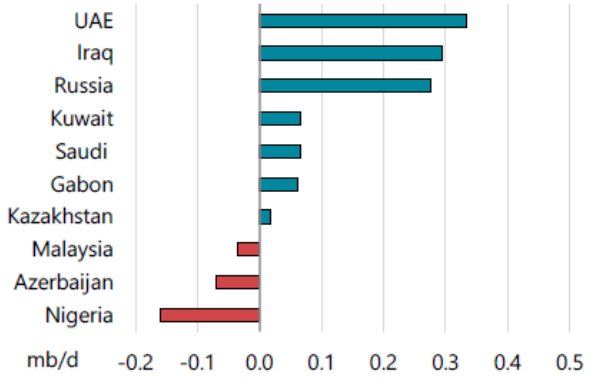
OPEC-9 production vs call on OPEC-9 according to the IEA (m b/day)



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

OPEC+ will need to deliver full quota compliance (reducing OPEC+ production by around 0.8m b/day in 2025) in order to deliver a fairly balanced market over the year. Maintaining quota compliance has caused some friction for OPEC+ over the past year. The UAE, Iraq and Russia continue to produce well in excess of their quotas although Russia (incl Kazakhstan) and Iraq were clearly reducing their production levels towards the end of 2024. To foster greater compliance, OPEC+ has chosen to extend the existing compensation scheme (requiring overproducing members to underproduce by an equivalent amount) from 12 to 18 months in duration.

Select OPEC+ members, November 2024 crude oil production versus targets



Source: IEA

Beyond their own operations, the group will also keep a close eye on President Trump's policy proposals, from the impact on oil supply (caused by his approach to Iranian sanctions) through to the impact of proposed tariffs on China, Canada and Mexico.

OPEC's actions in recent years have 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.$96/bl is needed to close the gap fully), whilst not spiking the oil price too high and over-stimulating non-OPEC supply.

The November 2024 decision indicates a desire from the group to maintain a balanced market, something that would have been challenging with the amount of supply previously slated to be returned in 2025. We also note the relative ease with which this agreement was reached between members, underscoring cohesion in the group.

We expect continued flexibility from OPEC+, particularly Saudi, in 2025 to adjust production and put a 'soft' floor under oil prices should oil demand falter. However, Saudi is producing at its lowest sustained level since 2018 and the market share of OPEC+ (51% in 2023) is at the lowest level since the group's inception in 2016, meaning it will be as challenging for the group in 2025 as it was in 2024.

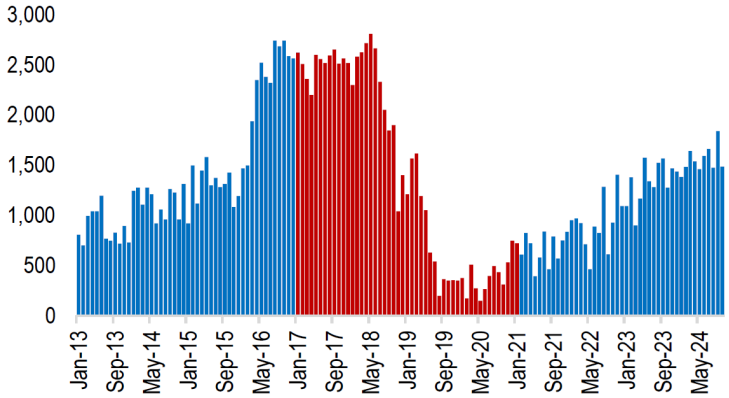
Like 2024, the key variables to OPEC+ production in 2025 and beyond are **Russia, Venezuela** and **Iran**. The actions of President Trump will impact supply from these areas in 2025, more than likely reducing potential supply growth in 2025 and allowing OPEC+ some room to return additional volumes to the market:

- **Russian** production fell 0.4m b/day in 2024 as the country appeared to fall into line with Saudi/OPEC+ pressure to help support prices. In 2025, broader Russian production is expected to grow by around 0.3m b/day, driven by the new 0.25m b/day Tengiz Expansion project in Kazakhstan. Thus, 2025 will be a year where Russia will have to carry more burden of quota reductions within OPEC+.

- Production from **Iran** could be affected by both foreign policy and the potential for the country to become embroiled in broader Middle East tensions. Production grew handsomely in 2024 (+0.4 mb/day) as President Biden turned a blind eye to increasing Iranian exports (nearly all of which went to China) but Trump has been clear in his hawkish stance towards Iran (his pick for national security advisor, Mike Waltz, has promised "maximum pressure" on Iran). During his last presidency, Iranian exports fell by around 2m b/day in less than 2 years. Iranian exports are currently around 1.5m b/day.

Iranian oil exports (m b/day)

Red denotes Trump Presidency and blue denotes Obama and then Biden



Source: JP Morgan, Kepler

Iran could also attempt to block the Straits of Hormuz (something that has happened in the past) thereby jeopardizing the flow of around 20m b/day of crude oil, condensate and refined products that pass through each day. We would also expect that the Bab al-Mandeb Strait in the Red Sea (through which nearly 10% of world oil and LNG are transported) will remain under threat in 2025 from Iran-backed rebels, thereby forcing world shipping to avoid the area and travel all the way around Cape Horn in South Africa.

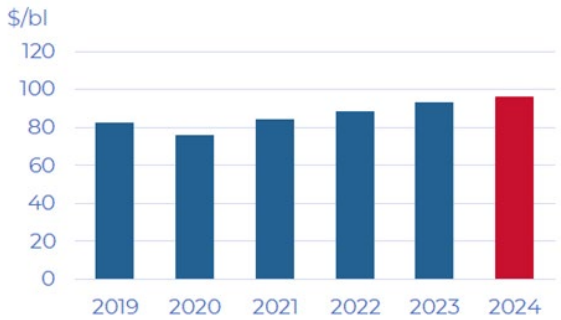
- **Venezuela** appears to have finally stemmed a long-running production decline, with crude oil production rising for a fourth straight year to reach nearly 0.8m b/day in 2024 (still down 70% on the 2014 levels of nearly 2.5m b/day).

Any supply loss from these, or from other countries, could be offset by the return of withheld OPEC+ capacity reasonably quickly. While difficult to be precise, we see OPEC+ spare capacity of around 5m b/day and believe that around 60% of this supply could enter the market within a 6-month timeframe.

Overall, we believe that Saudi's long-term objective remains to maintain a 'good' oil price, as close to their fiscal breakeven of around $96/bl as possible, without overstimulating non-OPEC supply. Allowing for inflation, the defending of $80/bl in 2025 is the broadly same in real terms as the group's actions in 2006-2008 when they defended a nominal price of around $60/bl.

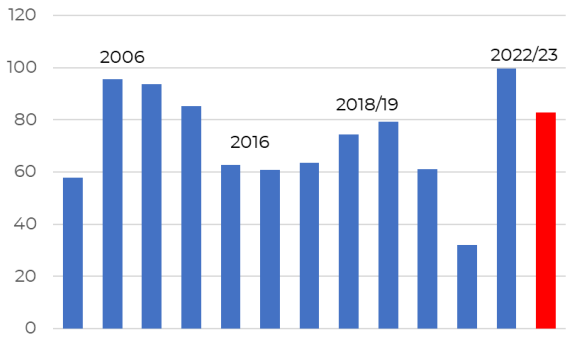
Saudi estimated fiscal breakeven oil prices

2019-24 ($/bl)



Real oil price defended by OPEC

($/bl, in 2024$)

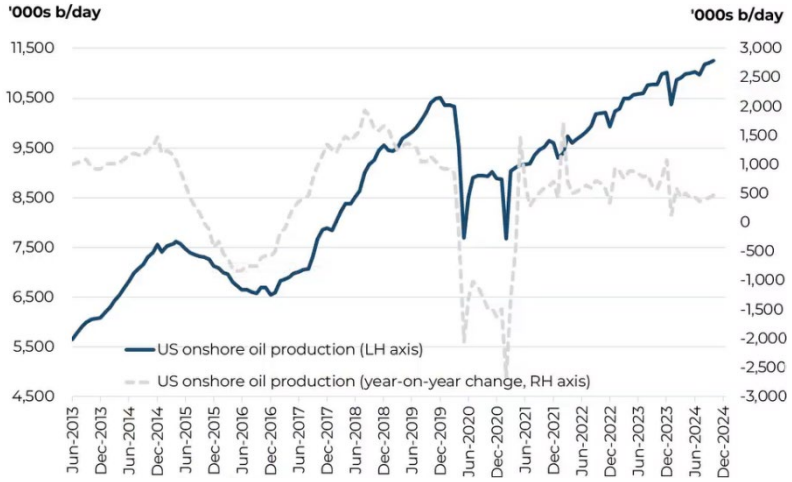


*Sources: IMF; DNB, Guinness Global Investors Dec 2024. *'Breakeven oil price' is defined as the oil price needed by Saudi to balance its fiscal budget.*

US onshore (shale) oil supply

For much of the last decade, growth in the US shale industry had been responsible for keeping global oil markets well supplied, forcing OPEC and other allies to hold some of their production back to achieve a stable market. Latest EIA data for October 2024 confirmed production of 11.3m b/day, surpassing the pre-COVID peak (November 2019) of 10.5m b/day and implying around 0.4m b/day growth on 2023 levels on average.

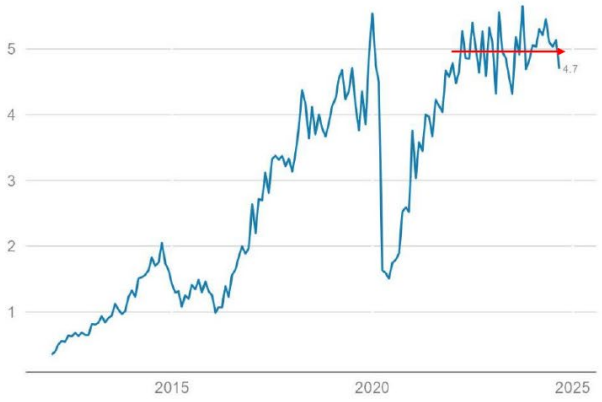
US onshore oil production 2013-2024 (m b/day)



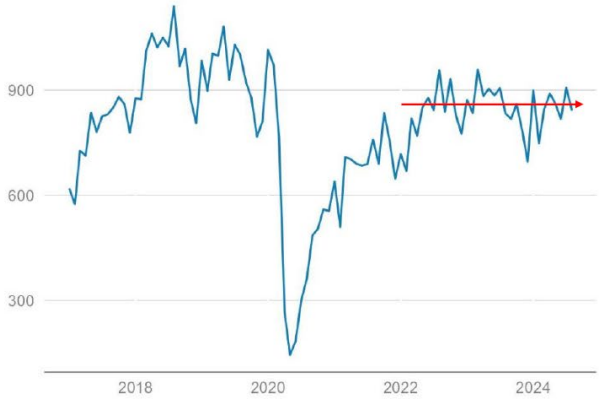
Source: EIA; Bloomberg; Guinness Global Investors

The previous cycle of production growth, between 2016 and 2019, was achieved thanks to near limitless funding from equity and debt markets, combined with a producer mentality that favoured growth over returns. By contrast the rebound in US shale oil production growth since 2020 has been more modest because of lower drilling activity (due to greater capital discipline from E&P companies, inflation and higher interest rates) and, in the last couple of years, flat drilling and fracking activity levels.

Permian – total lateral length of wells (million feet of well)



Started frac operations in Permian, Bakken, EagleFord and Niobrara

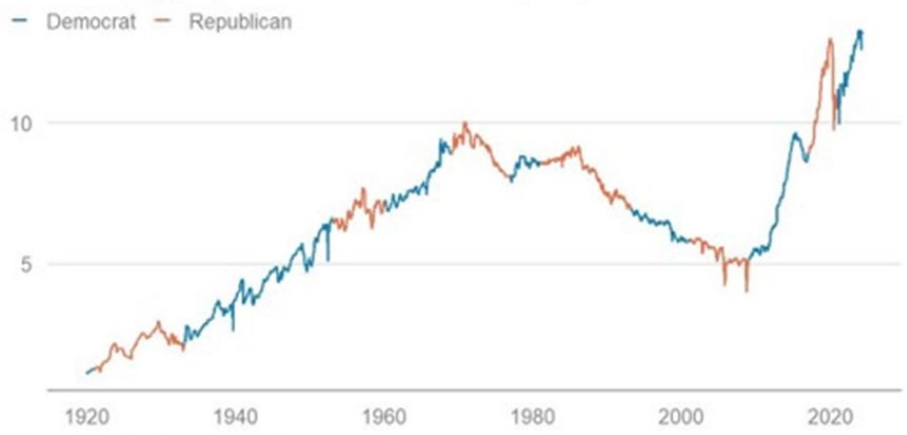


Source: Morgan Stanley

Capital discipline continues to be the main driver of lower activity levels, with around 65% of compensation incentives for E&P management teams now being driven by profitability, cash flow and operational metrics (such as cost reduction) versus only 44% in 2014. By contrast, growth in reserves and production now represent only 6% of incentives versus 26% back in 2014.

President Trump clearly plans to ease US oil field regulations and make federal lands available for development. This should help investment across the US onshore shale patch but we do not believe that it will derail the industry's focus on free cashflow over growth. Historically, the politics of the US President has not impacted US oil production levels.

US onshore oil production 1920-2024 (m b/day)



Source: Morgan Stanley

Total US shale supply in 2025 will be heavily impacted by the activity and performance of the Permian Basin which delivers nearly 6.5m b/day of oil production and 25 bcf/day of natural gas. For context, the Permian basin has grown oil production by nearly 4.5m b/day in the last eight years. Recent drilling activity (oil rig count at 300 rigs, down 15% from the mid 2023 peak) implies that the near-term growth outlook will continue to be more muted, reflecting the increased capital discipline of key acreage owners and the consolidation dynamics of the last 18 months.

The resource potential of the Permian is significant. As an illustration, Exxon (following its acquisition of Pioneer Natural Resources) increased its resource estimate by 2bn boe to 18bn boe and now expects production of 1.5m boe/day in 2025 (up 0.1m boe/day) and then 2.0m boe/day in 2027 and 2.3m boe/day in 2030. The concentration of the asset in the hands of larger developers (such as Exxon and Chevron) gives us confidence on a controlled near-term profile but reminds us that the asset has significant long-term potential, albeit increasingly in natural gas liquids and natural gas.

Overall, we see a continuation of the muted growth outlook for US shale oil, with around 0.3m b/day of growth in 2025 versus 2024. The bulk of the industry will persist in its focus on free cashflow yields, deleveraging, increasing returns to shareholders and consolidation. Our expectation for growth in 2025 is lower than our forecast for 2024 made 12 months ago (c.0.4m b/day) and significantly less than the annual average from 2017-19.

Ultimately, US supply will continue to be watched closely by OPEC but it is less of a risk than it was five or ten years ago. If shale oil grows at a manageable level - a level that does not exceed (normalised) global oil demand growth - then OPEC will feel they retain control of the market.

Non-OPEC+ (ex US onshore) oil supply

Non-OPEC+ (ex US shale) oil supply is likely to grow around 1.2m b/day in 2025 having grown by 0.6m b/day in 2024.

After a sustained period of underinvestment in the non-OPEC world (ex US shale), capital spending has picked up again, with money in particular being directed towards deepwater projects in Brazil and Guyana. This increase in investment follows the typical 12-18 month time lag between movements in the oil price and upstream investment, but the absolute level of investment still remains below historic trends. Efficiency gains being made by the offshore oil and gas industry allow more non-OPEC+ supply (ex US shale) than would otherwise have been expected.

However, based on work by Goldman Sachs, we understand that the industry's new oil and gas development projects have shrinking economic reserves with a steeper development cost curve (caused by industry inflation, higher taxes and an increasing cost of capital for hydrocarbon projects). In addition, the reserve life of these large projects (which are needed

long-term to replace exiting oil supply that is in natural decline) has fallen over the last decade by 55% to 21 years. As a result of these factors, an oil price of around $80/bl is required to incentivise the oil-oriented projects in their database. Recent growth in capital expenditure towards these projects is slowing, especially oil-oriented projects, and the peak of investment decision making is now behind us (peaked in 2023).

Regionally in 2025, we expect Canada, Guyana, Norway, non-shale US and Brazil to be the most significant areas of non-OPEC+ (ex US onshore) growth:

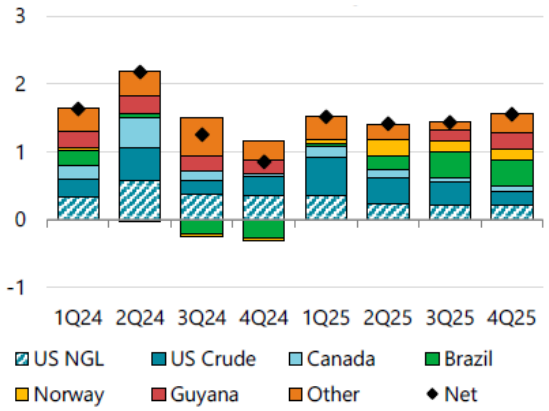
- **Canada** will continue to recover from its 2020 slump with growth coming from optimisation and debottlenecking of operations at oil sands projects rather than new capital projects. The new 0.6m b/day Trans Mountain Expansion Project (TMX) is providing greater egress for Canadian crude and should facilitate a further 0.1m b/day growth in 2025, having grown by 0.2m b/day in 2024.

- After disappointing in 2024, **Brazil** will likely grow a further 0.3m b/day to reach 3.7m b/day in 2025 as FPSO projects (delayed due to permitting and labour actions) start up at the turn of the year. Four new FPSOs are due to start up later in the year although the timing and the capacity utilisation of these vessels may also be delayed.

- The long-term growth trend from **Guyana** will also continue, potentially adding 0.1m b/day in 2025 as development of the 11 billion barrel Stabroek block continues. Three more phases are planned for over the next six years, bringing total capacity to approximately 1.2m b/day.

- **Non-shale US** should add 0.3m b/day in 2025 while **Norway** should see more than 0.1m b/day growth as a result of the start of 0.2m b/day Johan Castberg field.

Total non-OPEC+ supply annual change (m b/day)



Source: IEA

OIL DEMAND

Looking into 2025, the IEA estimate demand growth of 1.1m b/day (based on GDP growth of 3.2%) with the non-OECD up by 1.2m b/day and the OECD down by 0.1m b/day. This would be in line with the long-term trend and ahead of the 0.8m b/day growth seen in 2024. Oil demand in 2025 of 103.9m b/day will be around 3.2m b/day above its previous peak in 2019 but, unlike previous years, China is not expected to be the key driver of demand growth. At only 0.2m b/day, China's demand growth is in line with that expected from India, Other Asia and the Middle East.

The timing and size of the peak in Chinese oil demand remains a critical issue for the oil market in the coming years. Early in December, the Chinese government brought forward its expectation of peak oil demand to 17.9m b/day in 2025, around 1.1m b/day higher than the current IEA estimate for the year. We note that the Chinese forecast has not been particularly accurate in recent years but it does show that demand growth will slow and ultimately achieve a peak. Beyond China, we also see the prospect of an EU industrial recovery in 2026 acting as a driver of greater oil demand.

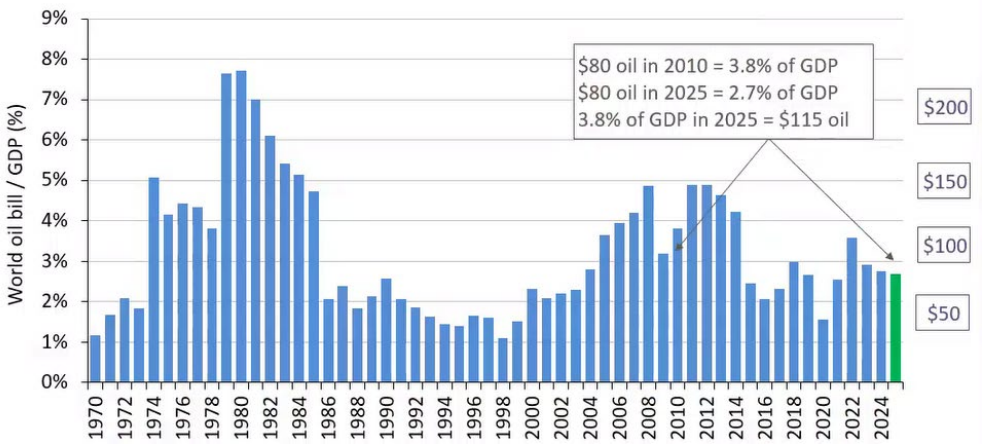
World oil demand 2007-25E

	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024E	2025E
OECD demand																		IEA	IEA
North America	25.8	24.5	23.7	24.1	24.0	23.6	24.2	24.2	24.6	24.9	25.1	25.4	25.4	22.5	24.0	24.7	25.0	25.0	25.0
Europe	15.6	15.5	14.7	14.7	14.3	13.8	13.6	13.5	13.8	14.0	14.4	14.3	14.3	12.4	13.2	13.6	13.4	13.5	13.4
Pacific	8.7	8.3	8.0	8.2	8.2	8.5	8.3	8.1	8.1	8.1	8.1	8.0	7.9	7.2	7.3	7.3	7.2	7.2	7.2
Total OECD	**50.1**	**48.3**	**46.4**	**47.0**	**46.5**	**45.9**	**46.1**	**45.8**	**46.5**	**47.1**	**47.7**	**47.7**	**47.7**	**42.0**	**44.5**	**45.6**	**45.6**	**45.7**	**45.6**
Change in OECD demand	*1.2*	*-1.8*	*-1.9*	*0.6*	*-0.5*	*-0.6*	*0.2*	*-0.3*	*0.7*	*0.6*	*0.6*	*0.0*	*0.0*	*-5.7*	*2.5*	*1.1*	*0.0*	*0.1*	*-0.1*
NON-OECD demand																			
FSU	4.0	4.2	4.0	4.1	4.4	4.6	4.5	4.6	4.6	4.4	4.7	4.7	4.7	4.6	4.9	4.9	5.0	5.0	5.1
Europe	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.8	0.8	0.8	0.7	0.8	0.8	0.8	0.8	0.8
China	7.6	7.7	7.9	8.9	9.3	9.9	10.4	10.8	11.6	12.0	12.5	13.0	14.1	14.3	15.1	15.1	16.4	16.6	16.8
India	2.9	3.1	3.2	3.3	3.5	3.7	3.7	3.8	4.2	4.4	4.8	5.0	5.1	4.7	4.9	5.2	5.4	5.6	5.8
Other Asia	6.9	6.8	7.1	7.5	7.6	7.6	7.9	8.0	8.3	8.8	8.9	9.0	9.0	8.3	8.7	8.8	9.0	9.3	9.5
Latin America	5.3	5.6	5.7	6.1	6.2	6.5	6.6	6.8	6.7	6.5	6.4	6.3	6.3	5.4	6.0	6.3	6.3	6.4	6.5
Middle East	6.4	6.7	7.1	7.3	7.5	7.9	8.0	8.4	8.5	8.4	8.3	8.2	8.8	8.0	8.4	8.9	9.1	9.2	9.4
Africa	3.3	3.3	3.4	3.5	3.5	3.8	3.8	3.9	4.2	4.2	4.2	4.2	4.1	3.8	4.2	4.3	4.3	4.3	4.4
Total Non-OECD	**37.1**	**38.1**	**39.1**	**41.4**	**42.7**	**44.8**	**45.6**	**47.4**	**48.8**	**49.3**	**50.4**	**51.1**	**53.0**	**49.8**	**53.0**	**54.5**	**56.3**	**57.1**	**58.3**
Change in non-OECD dem	*1.7*	*1.0*	*1.0*	*2.3*	*1.3*	*2.1*	*0.8*	*1.8*	*1.4*	*0.5*	*1.1*	*0.7*	*1.9*	*-3.2*	*3.2*	*1.5*	*1.8*	*0.8*	*1.2*
Total Demand	**87.2**	**86.4**	**85.5**	**88.4**	**89.2**	**90.7**	**91.7**	**93.1**	**95.3**	**96.3**	**98.1**	**98.9**	**100.7**	**91.8**	**97.4**	**100.0**	**102.0**	**102.8**	**103.9**
Change in demand	*2.1*	*-0.8*	*-0.9*	*2.9*	*0.8*	*1.5*	*1.0*	*1.4*	*2.2*	*1.0*	*1.8*	*0.8*	*1.8*	*-8.9*	*5.6*	*2.6*	*2.0*	*0.8*	*1.1*

Source: IEA; Guinness Global Investors

The "affordability" of oil is a driver of demand and globally, we believe that oil remains a 'good value' commodity. Based on Brent oil price of around $80/bl in 2025, we calculate that the world would spend around 2.7% of GDP on oil, below the 30-year average of around 3% and well below the 3.8% seen in 2010 when oil also averaged $80/bl. We believe that oil would need to increase to around $150/bl, reflecting 5% of world GDP in 2025, if it were to have a noticeable negative impact on the global economy.

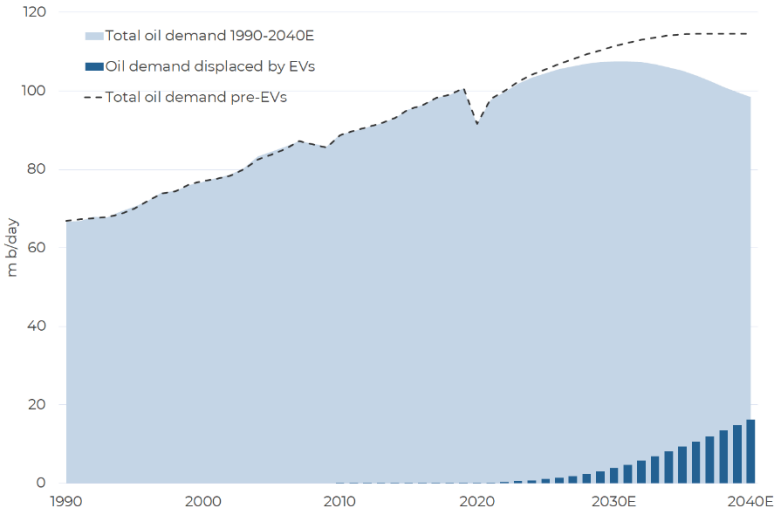
The world oil 'bill' as a percentage of GDP



Source: IEA; Bloomberg; Guinness Global Investors

Looking beyond 2025, when will oil demand peak? Our assumptions for EV adoption see around 4-5m b/day of oil demand displaced globally by 2030, growing to 13-15m b/day of oil demand displaced by 2040. However, our analysis of the other demand sources (for example aviation and the continued expansion of the petrochemical industry) implies continued growth in demand. Taken together, the most likely scenario for peak oil demand would be sometime around 2030, reaching a peak of somewhere between 105-110m b/day with Asia Pacific providing around 90% of the total demand growth until then. And despite rapid EV adoption around the world in the 2030s, oil will continue to be consumed at significant volume well beyond the 2030 peak. We expect oil demand in 2040 at 95-100m b/day, consistent with demand in the latter half of the last decade.

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



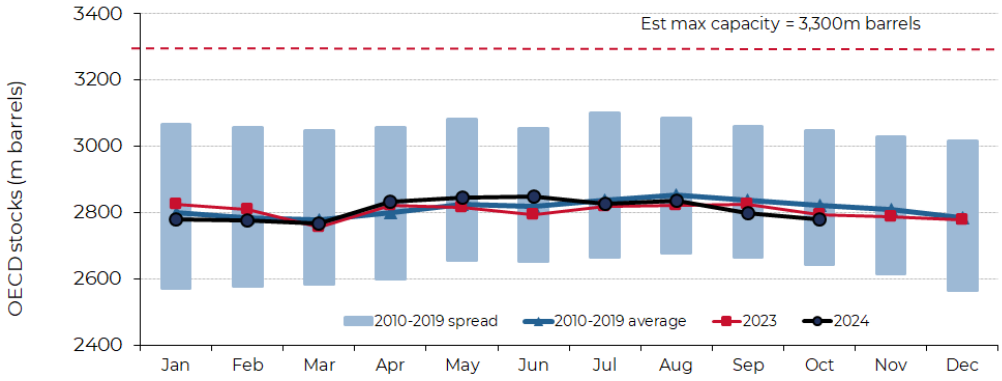
Source: BP Statistical Review for historic data; Guinness Global Investors estimates

Oil Inventories and Conclusions

At end October 2024, OECD oil and oil product inventories stood at an estimated 2.78bn barrels, around 20m barrels lower than October 2023 and around 43m barrels below the 10-year pre-COVID average, implying a balanced market.

The evolution of inventories in 2025 will be dynamic, depending on price, OPEC+ compliance, non-OPEC growth, corporate behaviour and macro-economic factors. Our base case for 2025, making assumptions for the key sensitivities discussed in this report, is that the world oil market will by kept roughly in balance by OPEC+, just as we forecast at the start of 2024.

OECD oil and oil product inventories



Source: IEA; Guinness Global Investors

Overall, we believe that the adjustments to OPEC+ policy announced in December indicate a desire from the group to maintain a balanced market in 2025, just as it desired for 2024. The group's actions in recent years have 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.$96/bl is needed to close the gap fully), whilst not spiking the oil price too high and over-stimulating non-OPEC+ supply.

As ever, spot oil prices over the next 12 months will be volatile, and with a good amount of non-OPEC+ supply next year, it is plausible that the spot oil price remains below $80/bl for a period. However, we maintain our long-term oil price average of $80/bl, being a price that incentivises sufficient oil supply and demand over the next few years, whilst being 'good enough' for OPEC+ balance sheets.

NATURAL GAS MARKETS

US natural gas

The outlook for natural gas prices in the US in 2025 is likely to be defined by two key demand factors:

- **Growth in gas demand for power generation** after a number of years of muted demand growth, a new cycle starts in 2025 resulting from onshoring, the broader trend of electrification and a sharp increase in demand for AI querying and associated data centres

- **LNG exports rising** from an estimated 12.2 Bcf/day in 2024 to 14.2 Bcf/day in 2025 as existing plants are more fully utilised and three significant new LNG schemes, (Corpus Christi Stage 3, Plaquemines and Golden Pass) enter service in 2025

Considering each in turn, natural gas demand for **power generation** is likely to grow to around 37 Bcf/day in 2025 and the outlook for longer-term power demand growth estimates continue to rise. Natural gas fired generation (based on $3.50/mcf Henry Hub gas prices) has attractive economics and we expect that an additional 5 Bcf/day or so of natural gas supply will be needed to satisfy electricity demand growth over the next 5 years. As a lead indicator of the appeal of natural gas for power generation, we see that US gas turbine orders are up 88% year-on-year for the first 9 months of 2024.

Although it is not necessarily the clean fuel that big tech may seek, any short to medium-term uplift in US electricity demand will rely somewhat on natural gas combustion. This can be achieved in the near term by higher utilisation of the existing gas power generation fleet (in 2023, capacity utilisation was nearly 59%) rather than new-builds (which are quick to build but which have faced permitting issues, that may well be relaxed under Trump). Natural gas is likely to be a part of a pragmatic solution and we note that Meta, as an example of a big tech company with high-profile net zero targets, is planning to develop a $10bn data centre campus near Monroe LA which has been linked a 1.5GW natural gas plant proposed nearby.

Surging electricity demand, as a result of the growth of AI searching and data centres as well as the wider trend of electrification, is a very critical energy issue for Donald Trump in January 2025. For him to win the “AI arms race”, he will need to oversee near-term growth in both renewable and natural gas-based power generation (as well as significant grid upgrades) because new nuclear is unlikely to play a part before the mid-2030s.

In terms of **LNG exports,** volume growth was disappointing in 2024, with actual exports of around 12.2 Bcf/day being materially lower than our 2024 estimate of 13.7 Bcf/day. A 12-month delay at the 18mtpa Golden Pass facility (around 2.1 bcf/day) was a significant component in the supply miss while Cheniere’s Corpus Christi III slipped back to 2025 for the start of commercial operations.

Early in 2024, the US Department of Energy (DoE) announced a ‘pause’; on issuing new LNG export permits, effectively delaying approvals until after the 2024 election cycle. In his campaigning, Donald Trump made it clear that he would lift this pause, by Executive Order, on his first day in office. This action could potentially be very significant as there are still >130 mtpa of US pre-sanction LNG export projects, representing 15-20 Bcf/day of potential natural gas demand, in various stages of development. Around 42 mtpa of this capacity has all the permits necessary to advance (and could therefore be approved very quickly) while nearly 50mtpa is awaiting approval to sell to non-FTA countries and nearly 30mtpa still requires initial DoE approvals.

As a result, beyond 2025, we expect to see a material increase in US LNG export capacity as higher international gas prices incentivise new LNG export investment. Proposed projects imply total export capacity growing to around 25 Bcf/day by 2028 (versus LNG exports of 12.2 Bcf/day in 2024) although this could we be biased higher longer-term.

In terms of domestic **natural gas supply**, the United States is well placed to deliver. Supply side fundamentals are driven by two main moving parts: onshore/offshore domestic production and pipeline imports of gas from Canada. Of these, onshore supply is the biggest component, making up over 90% of total supply, and is very sensitive to both natural gas prices as well as oil prices (for associated gas production). With $3.50/mcf Henry Hub natural gas and $80/bl Brent oil prices, we expect to see domestic production grow just over 3 Bcf/day in 2025. Key areas will be the Permian Basin (predominantly associated gas, representing more than half of the total supply growth) and then the Haynesville and the Eagle Ford. Production will

also be impacted by regulatory pressures (expected to be loosening in the year) as well as pipeline bottlenecks and, potentially, some signs of inventory exhaustion.

US natural gas inventories and conclusions

Pulling these factors together, we expect US demand growth in 2025 of over 4 Bcf/day, slightly above the annual average level since 2018. Higher LNG exports represent half the demand growth while stronger residential/commercial demand and increased power generation demand represent the rest. Overall, at this stage of the year, we foresee a slightly undersupplied natural gas market although we note that US natural gas prices are dynamic and that activity can change rapidly depending on the demand trajectory and underlying weather patterns.

US natural gas demand model (2012 – 2025E)

Bcf/day	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024E	2025E
US natural gas demand:														
Residential/commercial	19.2	22.4	23.4	21.4	20.5	20.9	23.4	23.5	21.5	21.5	23.2	21.3	20.7	21.7
Power generation	24.9	22.3	22.3	26.5	27.3	25.3	29.0	30.9	31.7	30.9	33.1	35.4	36.3	37.0
Industrial	19.7	20.3	20.9	20.6	21.1	21.6	23.0	23.1	22.3	22.5	23.2	23.4	23.1	23.0
Pipeline exports (Mexico)	1.8	1.9	1.9	2.7	3.8	4.0	4.6	5.1	5.4	5.9	5.7	6.1	6.2	6.4
LNG exports	-	-	-	0.1	1.0	2.6	2.8	4.8	6.4	9.7	12.0	11.9	12.2	14.4
Pipeline/plant/other	6.1	6.7	6.3	6.5	6.4	6.5	7.0	7.8	7.7	7.8	7.4	8.9	8.8	9.1
Total demand	**71.7**	**73.6**	**74.8**	**77.8**	**80.1**	**80.9**	**89.8**	**95.2**	**95.0**	**98.3**	**104.6**	**107.0**	**107.3**	**111.6**
Demand growth	**3.1**	**1.9**	**1.2**	**3.0**	**2.3**	**0.8**	**8.9**	**5.4**	**- 0.2**	**3.3**	**6.3**	**2.4**	**0.3**	**4.3**

Bcf/day	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024E	2025E
US natural gas supply:														
US (onshore & offshore)	65.7	66.3	70.9	74.2	73.4	73.6	84.3	91.4	91.1	91.8	97.4	102.5	101.8	105.2
Net imports (Canada)	5.4	5.0	4.9	4.9	5.5	5.8	5.4	4.7	4.4	5.1	5.6	5.3	5.8	6.0
LNG imports & other	0.8	0.6	0.5	0.5	0.4	0.3	0.1	0.1	-	-	0.1	-	-	-
Total supply	**71.9**	**71.9**	**76.3**	**79.6**	**79.3**	**79.7**	**89.8**	**96.2**	**95.5**	**96.9**	**103.1**	**107.8**	**107.6**	**111.2**
Supply growth	**2.4**	**-**	**4.4**	**3.3**	**- 0.3**	**0.4**	**10.1**	**6.4**	**- 0.7**	**1.4**	**6.2**	**4.7**	**- 0.2**	**3.6**
(Supply)/demand balance	**- 0.2**	**1.7**	**- 1.5**	**- 1.8**	**0.8**	**1.2**	**-**	**- 1.0**	**- 0.5**	**1.4**	**1.5**	**- 0.8**	**- 0.3**	**0.4**

Source: EIA; Bloomberg; Goldman Sachs; JP Morgan; Morgan Stanley; Guinness Global Investors

The US natural gas price since 2010 has mainly fluctuated between $2 and $4/mcf. The extremes of this range have tended to coincide with warm and cold winters, and any sustained recovery over $3.50/mcf has generally been muted by strength in gas supply. With inflationary pressures, we estimate that new onshore supply has an incentive price of around $3.50/mcf. Assuming normal weather in 2025, we expect a Henry Hub price at around this level, biased higher in future years as increasing LNG exports increasingly connect the US to higher priced international markets.

International natural gas

Historically, natural gas markets have evolved in a regional manner with demand satisfied by pipeline gas supplies. Since the 1990s, liquified natural gas (LNG) has grown, with LNG now representing around 13% of global gas demand. Understanding the supply and demand dynamics of the global LNG market helps us to understand the outlook for international gas prices.

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

Around 150mtpa of new LNG capacity is planned to start production before 2030 with the United States and Qatar representing around 65% of the total. Qatar is supplying gas to Asian and European customers on long-term contracts while the US is supplying LNG on contracts that are priced relative to the US domestic gas price, Henry Hub. Between 2021 and

2023, over half of all LNG contracts signed were Henry Hub linked as international buyers sought contracts linked to the cheapest priced gas market in the world.

Key factors in 2025 and beyond for the international gas markets are likely to be:

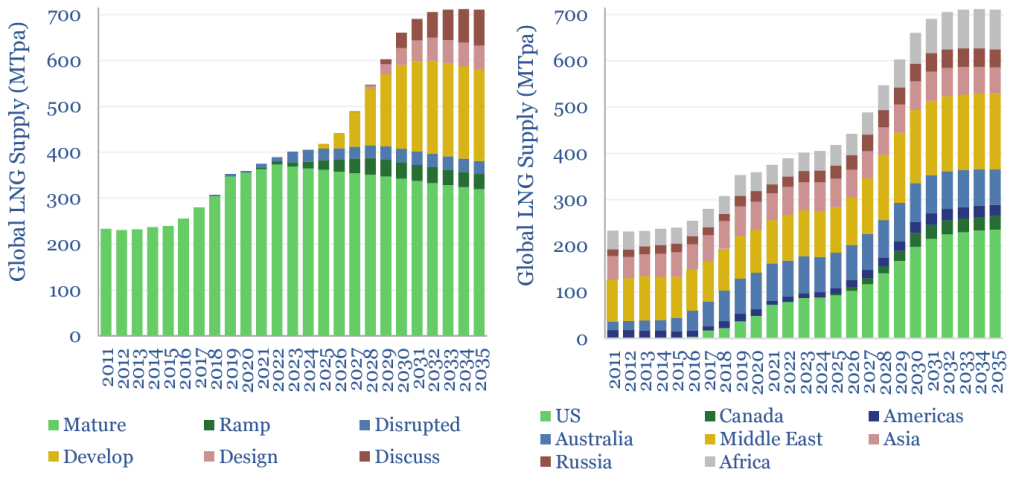
- **Chinese gas demand** which is likely to grow around 10%pa. Russian gas supply (through the Power of Siberia 1 pipeline which reaches max capacity of 3.7 Bcf/day in 2025) will help to offset LNG demand but the country will remain short of gas as domestic gas supply growth remains insufficient.

- **Asian LNG demand** which is likely to remain robust, as seen in 2024. Growth is likely to be around 8% in the 2025-2028 timeframe reflecting the combined impact of lower prices, better supply availability, and supportive policy.

- **The role of Russian gas in the European market** European demand for LNG will be further boosted in the new year as the Russia-Ukraine transit agreement expires on January 1, 2025, removing 1.4 Bcf/d and leaving the TurkStream pipeline as the only remaining Russian gas route to the EU. With limited other options in the short term for replacing this lost pipeline gas and with declining indigenous production, Europe will need to import more LNG to cover demand needs. A cease-fire in Ukraine could bring Russian gas back to the market but there is also potential for further declines in Russian gas supply, which would increase Europe's call on global LNG.

- **Project delays** The significance of project delays should not be under-rated. Project delays have helped to keep the LNG market in balance in 2024 and further delays could easily push back the projected oversupply beyond 2027-28. According to BNEF, should all LNG projects under construction be delayed between six and twelve months, then it would remove 15-25mtpa of export capacity in 2025 and 24-43mtpa of export capacity in 2026, representing 5% and 7% of total LNG supply respectively; enough to substantially change LNG supply/demand dynamics.

Global LNG market outlook by development status and by country



Source: Thunder Said Energy, 2024

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

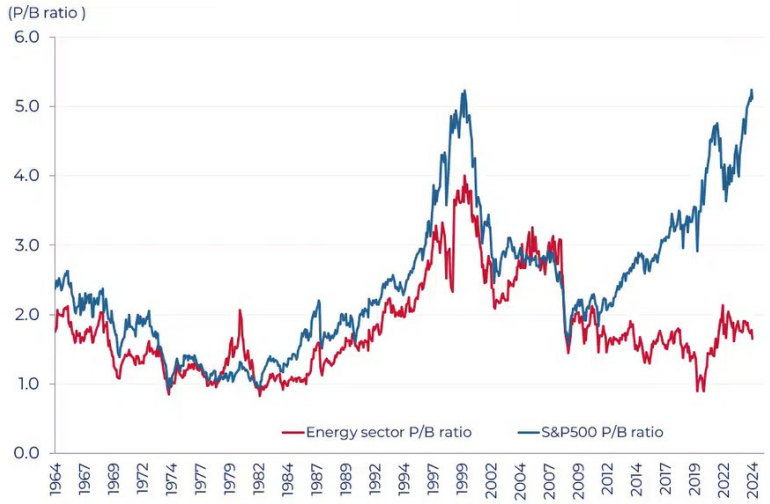
Beyond the next couple of years, the flexibility of LNG means that it will play a role in satisfying the long-term natural gas demand growth outlined above. Within their scenario, Thunder Said Energy see potential for LNG supply to treble by 2050 relative to the current level of around 400mtpa, implying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

ENERGY EQUITIES

In 2024, the MSCI World Energy Index finished +2.7% in USD, well behind the broad market (MSCI World +18.7% in USD). The relative valuation of energy improved over the year and still appears attractive relative to the return on capital employed from the sector that we expect in coming years.

Moves in energy equities last year caused the price-to-book (P/B) ratio for the energy sector at the end of December 2024 to fall to around 1.7x, versus the S&P 500 trading at 5.1x. On a relative P/B basis versus the S&P500, therefore, the valuation of energy equities now sits at around 0.32x (down from 0.39x at the end of 2023), and still more than two standard deviations below the long-term relationship.

P/B of energy sector versus S&P 500



Sources: Bernstein; Bloomberg; Guinness Global Investors, 31.12.2024

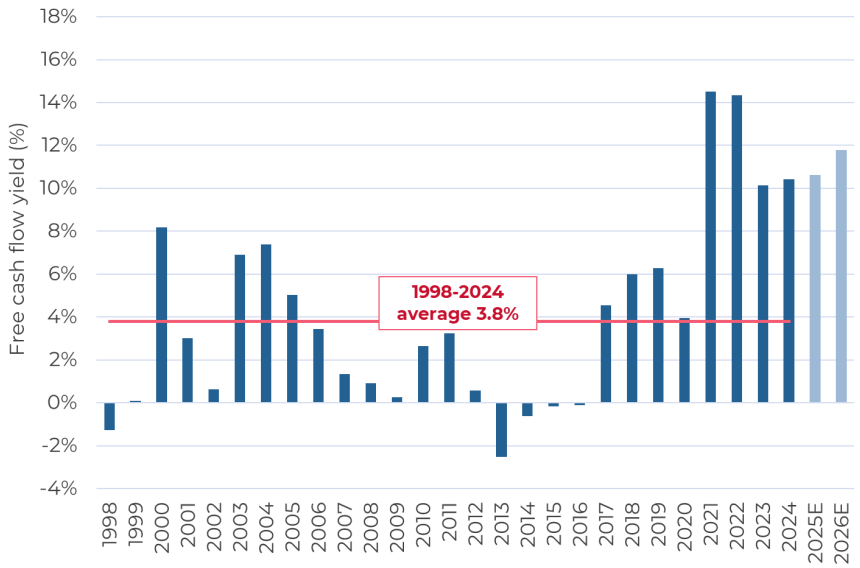
We keep a close eye on the relationship between the P/B ratio for the energy sector and return on capital employed (ROCE). Historically the two measures are closely correlated, a topic we return to later in this section.

Continued importance of free cashflow in the sector

The capital allocation framework for oil & gas companies structurally changed in 2020, shifting emphasis from production growth to free cash flow and shareholder returns. Conditions in 2024 delivered robust levels of free cash, and companies providing preliminary 2025 outlooks have generally messaged a continued focus on returns over growth. We see this bringing higher free cashflows this year (assuming $80/bl Brent), driven by the tailwinds of efficiency improvements, service cost deflation and the delivery of M&A-related synergies. Free cash flow yields are therefore likely to stay around the 2024 level of 10% again in 2025, and would still exceed 8% in 2025 if Brent oil prices averaged only $70/bl.

We note that free cash flows are always at risk from company-specific issues such as greater reinvestment levels, higher operating costs, higher inflation or M&A and also from external factors such as oil and natural gas prices. Current signs, however, are that free cash flow will be defended.

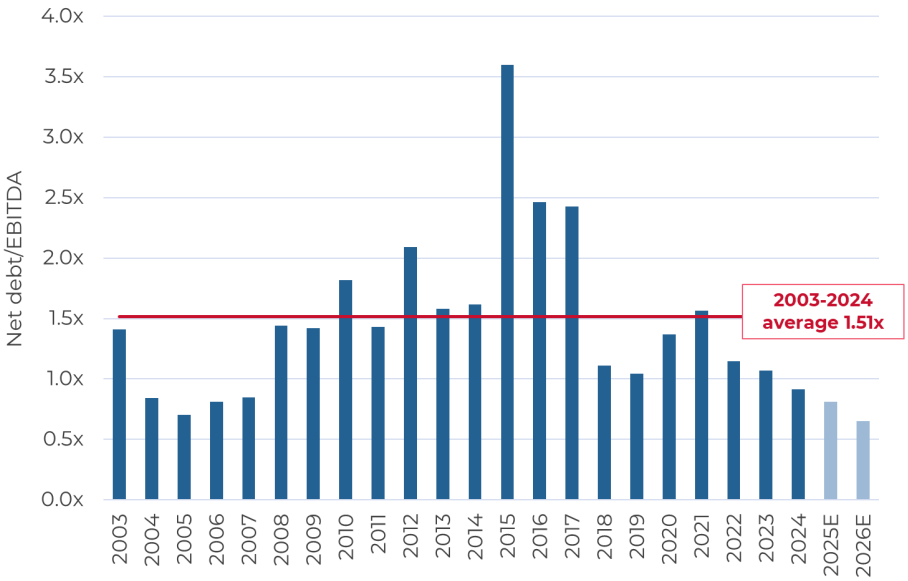
FCF yield for current Guinness Global Energy Fund holdings



Source: Guinness Global Investors, January 2025

The focus on operational efficiency, cost control and free cash generation transition has helped the industry to shrink its outstanding debt and turn towards higher shareholder distributions. The main holdings in the Guinness Global Energy Fund now have average net debt/EBITDA at around 0.8x in 2025, assuming $80/bl Brent. This is lower than the 1.5x average of the last 20 years, reflecting management focus on maintaining healthier balance sheets. In 2025, it would take a reduction in EBITDA of nearly 50% to see net debt/EBITDA levels to get back to the 20-year average and a reduction of 75% to get back to the peak net debt/EBITDA levels seen in 2015.

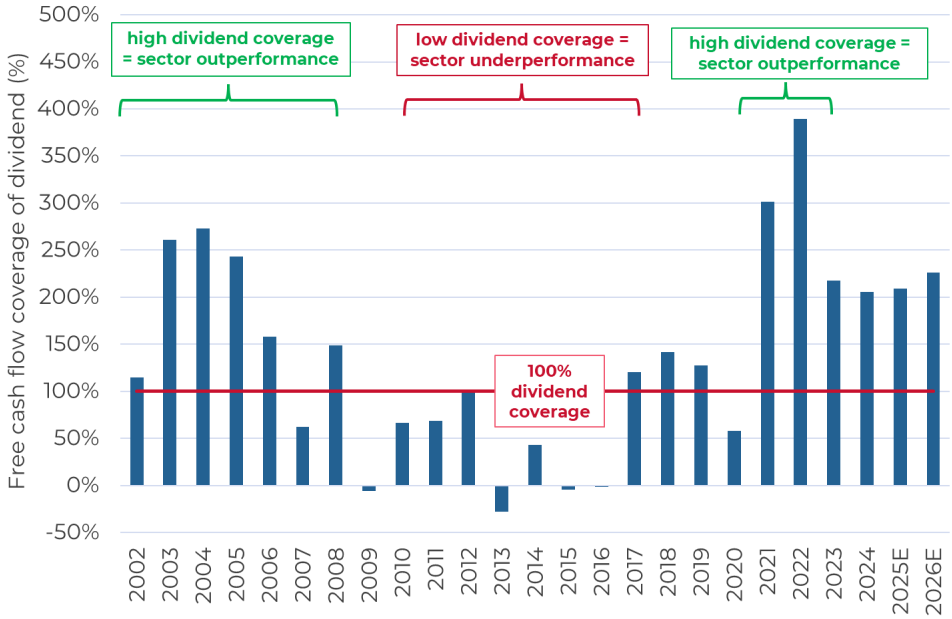
Net debt/EBITDA for current Guinness Global Energy Fund holdings



Source: Guinness Global Investors, January 2025

For integrated oil & gas companies, one of the consequences of high free cashflow is strong dividend cover. We note a continued preference from the companies in general to grow their dividends at acceptable rates and rely on share buybacks and special dividends to return cash to shareholders in a variable manner, rather than ramp dividend payout ratios to levels that are not sustainable with lower oil prices. Generally, we observe that periods of high dividend coverage in the energy sector coincide with outperformance versus broader equities. We saw this play out for much of the early to mid 2000s, when dividend coverage of 150%+ provided companies with the latitude to raise dividends consistently. By contrast, much of the relative bear market for energy equities post the Financial Crisis (i.e. the 2010s) coincided with dividend coverage at or below 100%, meaning dividends were only just covered or being paid for via the balance sheet. Since 2021, we have returned to a period of high dividend coverage, and assuming at least $80/bl Brent oil from 2024 onwards, we see coverage remaining at 200% or better. In these circumstances, we see good scope for continued dividend increases.

US & European integrateds: free cashflow coverage of dividends (%)



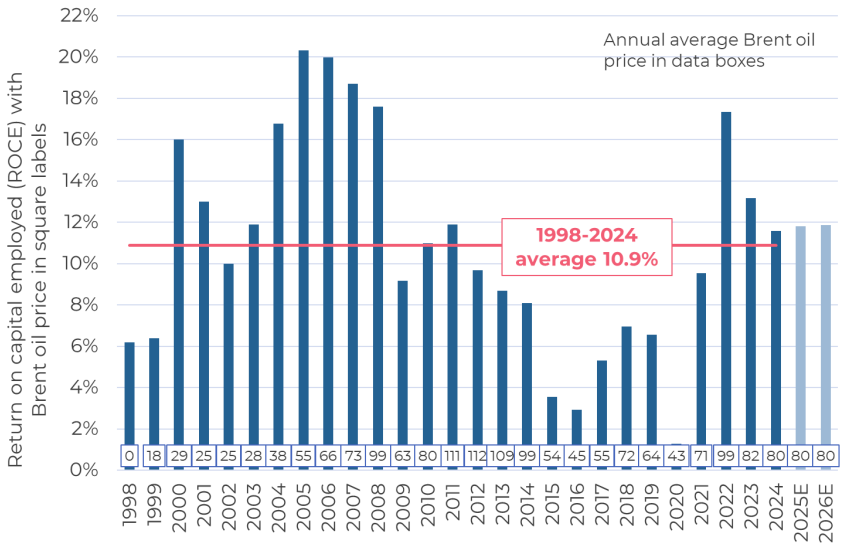
Source: Guinness Global Investors, January 2025

VALUATION OF THE GUINNESS ENERGY PORTFOLIO

Looking ahead, we make the following observations for the Guinness Global Energy portfolio:

- ROCE for the Guinness Global Energy portfolio in 2024 (with Brent oil averaging $80/bl) was around 11.6%, slightly higher than the mid-cycle ROCE which we peg at nearly 11%. With the Brent oil price averaging around $80/bl in 2025, we see ROCE at around 11.8%, a level that we expect to be maintained in 2026 with Brent at the same level.

Return on Average Capital Employed (ROCE) for Guinness Global Energy portfolio



Source: Guinness Global Investors

The stock market has historically valued energy companies based on their sustainable levels of profitability (generally a combination of both ROCE and FCF Return) whether it is delivered by self-help improvements or via increases in the long-term oil price.

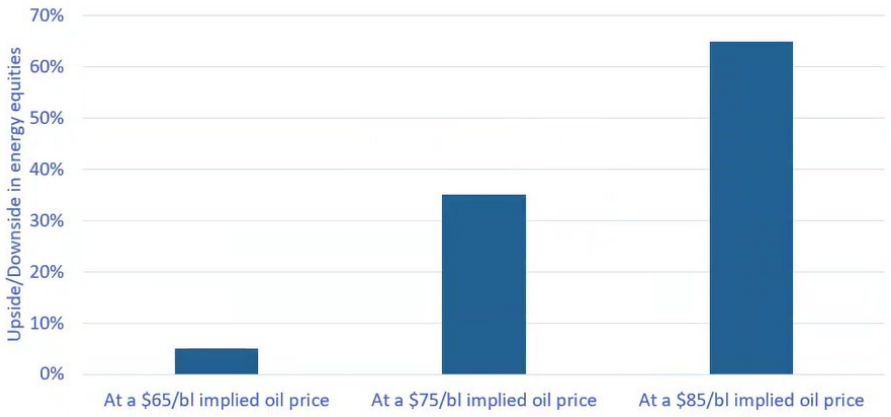
Current valuation implies that the long-term ROCE of our companies should average only around 3%, significantly below the mid cycle or long-term average level of nearly 11%. If ROCE remains at our 2025 forecast level of nearly 12%, and the market were to pay for it as it has done on average over the last 20 years, it would imply an increase in the equity valuation of over 40%.

ROCE vs P/B multiple for Guinness Global Energy portfolio

Source: Guinness Global Investors, January 2025

To put this another way, we are often asked what oil price is implied in the portfolio, as a barometer of the expectation priced into the equities. At the end of December, we estimate that the valuation of our portfolio of energy equities reflected a long-term Brent/WTI oil price of around $65/bl combined with a normalisation of global refining margins. If the market were to price in a long-term oil price of $75/bl, it would imply around 35% upside on a one-year forward basis while there would be around 65% upside at a long-term oil price of $85/bl Brent:

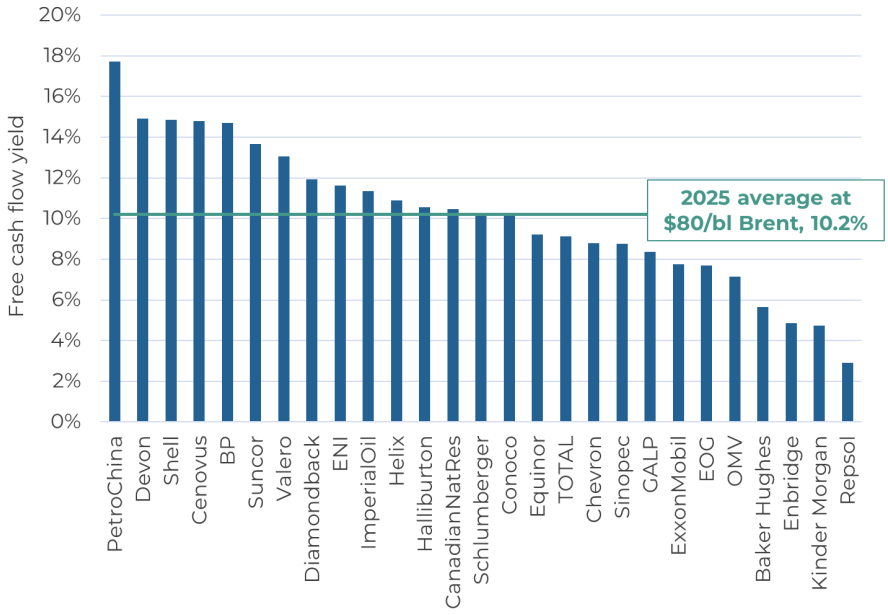
Upside/downside for Guinness Global Energy portfolio (1-year view)



Source: Guinness Global Investors, January 2025

We wrote earlier about the emergence of significantly stronger free cashflows in the sector, thanks to better commodity prices and greater capital discipline. Translating these thoughts to our portfolio, we see high free cashflow yields across most subsectors of the portfolio, and particularly for companies with upstream operations:

Guinness Global Energy portfolio: estimated FCF yield in 2025 (%) based on $80/bl Brent



Source: Guinness Global Investors, January 2025

In our portfolio, we currently combine the themes of attractive free cash flow for mid to large-caps, higher ROCE for the super majors, undervalued international gas exposure and tighter international service markets as key areas of exposure:

Key themes in the Guinness Global Energy portfolio

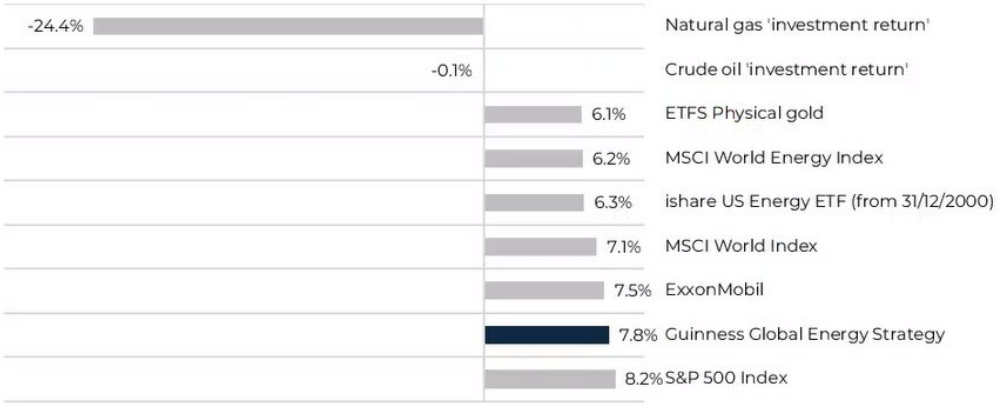
	Theme	Example holdings	Weighting (%)
1	Higher free cashflow generation	galp, ConocoPhillips, Canadian Natural	28.7%
2	Oil & gas majors	Chevron, Shell, Total	26.4%
3	North American shale exposure	EOG Resources, Diamondback Energy, devon	18.0%
4	Rising international oil & gas spending	Schlumberger, Baker Hughes	9.8%
5	Refining-focused	Valero, Sinopec	8.3%
6	Undervalued international natural gas	PetroChina, equinor	6.1%
7	Other (incl cash)		2.8%

Source: Bloomberg, Guinness Global Investors, 31.12.2024

Specialist global energy sector equity funds have historically provided the best exposure to an improving energy market. Finally, we are pleased to note that the Guinness Energy strategy outperformed the other potential energy investment 'routes' since inception in December 1998.

Past performance does not predict future returns.

Total return (annualised), in USD, Dec 1998 to end Dec 2024



Source: Bloomberg, Guinness Global Investors, 31.12.2024

Will Riley & Jonathan Waghorn

January 2025

PERFORMANCE

Past performance does not predict future returns.

Guinness Global Energy Fund
Performance (in USD) as at 31.12.2024

Cumulative returns	YTD	1 year	3 years ann.	5 years ann.	Launch of strategy* ann. (31.12.98)
Guinness Global Energy Fund	-1.3%	-1.3%	10.3%	4.8%	7.8%
MSCI World Energy NR Index	2.7%	2.7%	15.4%	8.1%	6.1%

Calendar year returns	2024	2023	2022	2021	2020	2019	2018
Guinness Global Energy Fund	-1.3%	2.6%	32.4%	44.5%	-34.7%	9.8%	-19.7%
MSCI World Energy NR Index	2.7%	2.5%	46.0%	40.1%	-31.5%	11.4%	-15.8%
	2017	**2016**	**2015**	**2014**	**2013**	**2012**	**2011**
Guinness Global Energy Fund	-1.3%	27.9%	-27.6%	-19.1%	24.4%	3.0%	-13.7%
MSCI World Energy NR Index	5.0%	26.6%	-22.8%	-11.6%	18.1%	1.9%	0.2%
	2010	**2009**	**2008***	**2007***	**2006***	**2005***	**2004***
Guinness Global Energy Fund	15.3%	61.8%	-48.2%	37.9%	10.0%	62.3%	41.0%
MSCI World Energy NR Index	11.9%	26.2%	-38.1%	29.8%	17.9%	28.7%	28.1%
	2003*	**2002***	**2001***	**2000***	**1999***		
Guinness Global Energy Fund	32.3%	6.7%	-4.1%	39.6%	22.5%		
MSCI World Energy NR Index	25.9%	-6.4%	-7.2%	6.0%	22.0%		

Source: FE fundinfo, Guinness Global Investors and Bloomberg, bid to bid, gross income reinvested, in US dollars. Fund launched 31.03.2008.

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

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

Past performance does not predict future returns.

WS Guinness Global Energy Fund
Performance (in GBP) as at 31.12.2024

Cumulative returns	YTD	1 year	3 years ann.	5 years ann.
WS Guinness Global Energy Fund	-0.8%	-0.8%	13.3%	6.4%
MSCI World Energy NR Index	4.5%	4.5%	18.5%	9.3%

Calendar year returns	2024	2023	2022	2021	2020	2019	2018
WS Guinness Global Energy Fund	-0.8%	-3.2%	49.9%	45.7%	-35.7%	12.6%	-6.3%
MSCI World Energy NR Index	4.5%	-3.3%	64.4%	41.4%	-33.6%	7.2%	-10.6%

	2017	2016	2015	2013	2012
WS Guinness Global Energy Fund	-7.2%	65.2%	-29.6%	-26.6%	-4.7%
MSCI World Energy NR Index	-4.1%	51.0%	-18.3%	-6.1%	15.9%

Source: FE fundinfo, bid to bid, gross income reinvested, in GBP. Fund launched 21.04.2011.

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

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 WS 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.

This document is provided for information only and all the information contained in it is believed to be reliable but may be inaccurate or incomplete; any opinions stated are honestly held at the time of writing but are not guaranteed. The contents of the document should not therefore be relied upon. It should not be taken as a recommendation to make an investment in the Funds or to buy or sell individual securities, nor does it constitute an offer for sale. OCFs for all share classes are available at www.guinnessgi.com.

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: Waystone Management Company (IE) Limited, 35 Shelbourne Rd, Ballsbridge, Dublin, D04 A4E0 Ireland; or the Promoter and Investment Manager: Guinness Asset Management Ltd, 18 Smith Square, London SW1P 3HZ.

Waystone IE is a company incorporated under the laws of Ireland having its registered office at 35 Shelbourne Rd, Ballsbridge, Dublin, D04 A4E0 Ireland, which is authorised by the Central Bank of Ireland, has appointed Guinness Asset Management Ltd as Investment Manager to this fund, and as Manager 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.waystone.com/waystone-policies/

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'Ile, 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.

WS 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.waystone.com/our-funds/waystone-fund-services-uk-limited/ or free of charge from Waystone Management (UK) Limited, PO Box 389, Darlington DL1 9UF.
General enquiries: 0345 922 0044
E-Mail: iwtas-investorservices@waystone.com

Waystone Fund Services (UK) 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.