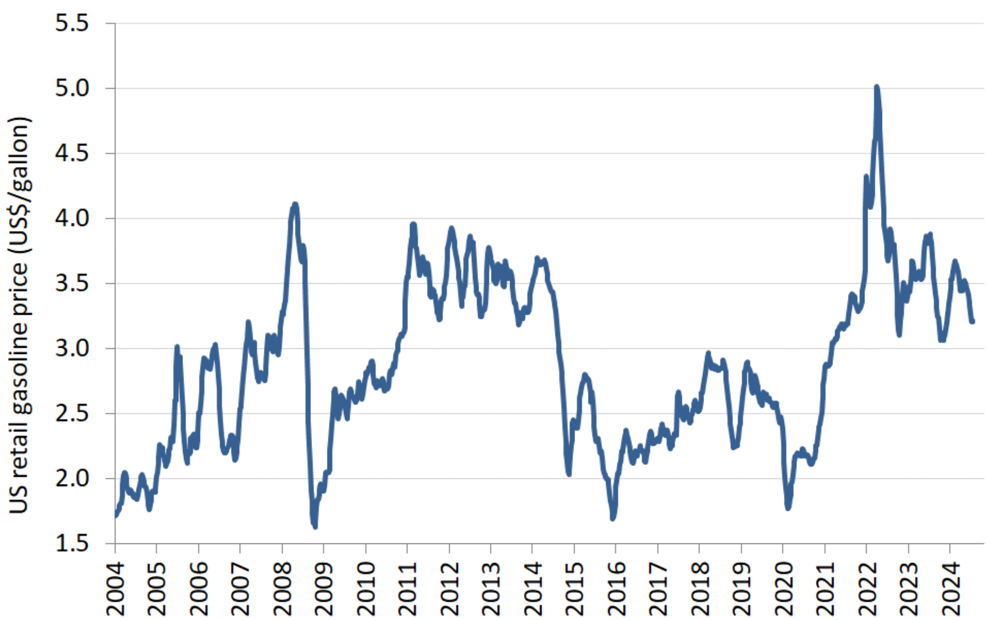
CHART OF THE MONTH
US gasoline prices at a comfortable level for democrats

Retail gasoline prices in the US are averaging around $3.15/gallon, in line with long-term averages. It is a much-watched figure politically, and in the run up to the US presidential election in early November, we see this as a comfortable level for the Democrats. That said, with escalation of conflict in the Middle East, there is risk of a spike in gasoline prices in the coming weeks.

US Retail Gasoline Prices



Source: Bloomberg, Guinness Atkinson Funds. Data as of October 2024.

OIL
Spot prices fall in September, longer-dated prices stable

Brent and WTI spot oil prices ended weaker in September. WTI closed down $6 at $68/barrel (bl) and Brent down $7/bl at $73/bl. The International Energy Agency (IEA) expects global oil demand growth of 0.9m b/day in 2024, with weaker demand growth in China offset by stronger demand in the US. OPEC+ are considering adding 0.2m b/day back into the market in December, but in their words, are "continually assessing market conditions".

NATURAL GAS
US, European, & Asian gas prices up

US natural gas prices rose, closing September just over $2.9/mcf (one thousand cubic feet) (vs $2.1/mcf last month). On a weather-adjusted basis, the market appeared to be undersupplied by 3 billion cubic feet (bcf)/day. Asian and European gas prices (using UK national balancing point) were up again on a tighter liquefied natural gas (LNG) market and concerns that the remaining portion of Russian gas coming into NW Europe will soon terminate.

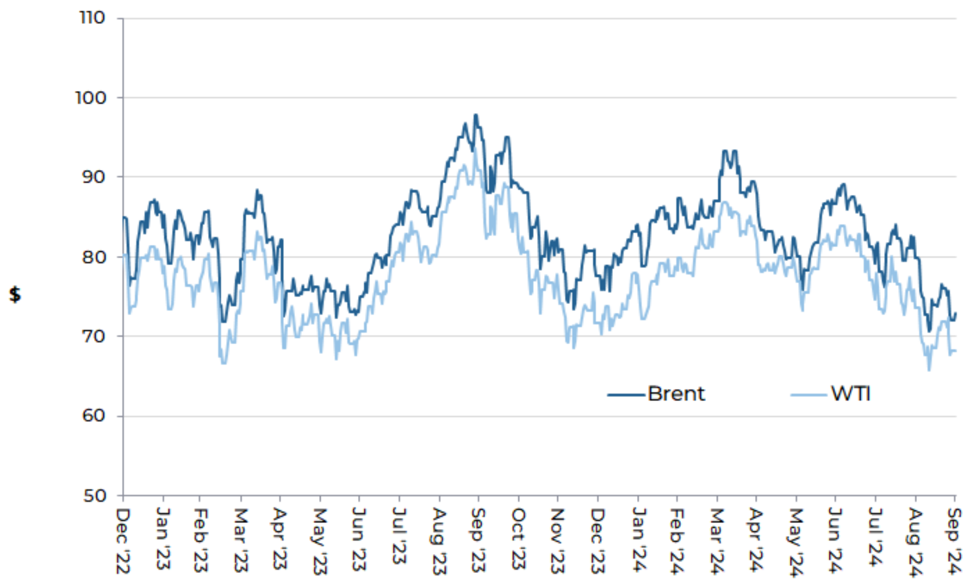
EQUITIES
Energy underperforms the broad market in September

The MSCI World Energy Index (net return) fell by -3.28% in September, underperforming the MSCI World Index (net return) which rose by 1.83% (all in USD). Year-to-date, the MSCI World Energy Index is up by 5.68% versus the MSCI World Index up by 18.86%.

September in Review

OIL MARKET

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



Source: Bloomberg, Guinness Atkinson Funds. Data as of September 2024.

The West Texas Intermediate (WTI) oil price began September at $74/bl, fell to a low of $66/bl on September 10, before closing slightly higher at $68/bl. WTI has averaged just around $78/bl so far this year, having averaged $78/bl in 2023 and $95/bl in 2022. Brent oil traded in a similar shape, opening at $80/bl, trading down to $71/bl, before closing at $73/bl. Brent has averaged $83/bl so far in 2024, having averaged $83/bl in 2023 and $100/bl in 2022. The gap between the WTI and Brent benchmark oil prices narrowed over the month, ending September at $5/bl. The Brent-WTI spread has averaged $5/bl so far in 2024 after averaging a similar amount in 2023.

Factors which strengthened WTI and Brent oil prices in September:

- Political unrest in Libya
  Since late August, Libyan oil production (c.1.1m b/day) has been disrupted, and exports halted at several ports, owing to a standoff between rival political factions. Specifically, the country's eastern and western administrations have clashed over who should be governor of the Central

Bank of Libya. In late September, the rival factions reached an agreement in UN-mediated talks over the election of the Central Bank's leadership, paving the way to restoring oil production and exports.

- Middle East conflict / Iranian sanction fears rising
  Since late July, there has been an escalation of Middle East tensions. On July 31st, it was reported that Hamas political leader Ismael Haniyeh was killed during a visit to Iran, raising the risk of Iranian reprisal. And on September 27th, Israel announced the death via airstrike of Hassan Nasrallah, leader of the Iran-backed militant group Hezbollah. Latest data suggests that Iran is producing around 3.3m b/day of oil, up significantly from 12 months ago. Any disruption to Iranian oil exports would clearly have a tightening effect on the world market (please see the manager's comments section for further detail). Despite these issues, we believe there was close to no geopolitical premium in the oil price at the end of September ($72/bl).

Factors which weakened WTI and Brent oil prices in September:

- OPEC hinting at returning barrels to the market in December
  At the end of September, key members of OPEC+ hinted that they were ready to increase their supply by 0.2m b/day in December, initially swapping barrels in for pledged cuts from other OPEC+ countries that had been overproducing versus quotas.

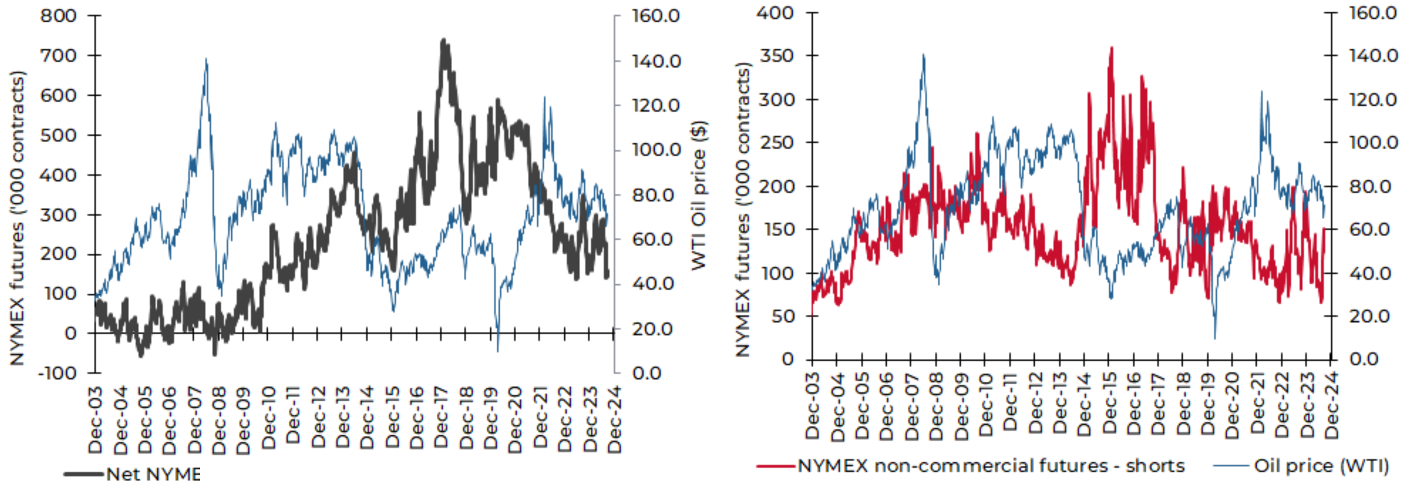
- Weaker Chinese demand data
  Chinese demand data for August suggests weakness in overall oil consumption. The main culprit here has been lower-than-expected diesel demand (-4% year-on-year YTD), reflecting a slowdown in industrial and construction activities). Despite electric vehicle (EV) sales penetration of approaching 50%, gasoline demand has remained strong, up 7% YTD, while aviation fuel demand has surpassed expectations, up by 19% YTD. Chinese oil demand is currently forecast by the IEA to grow by 0.2m b/day in 2024 to 16.7m b/day.

- Solid non-OPEC supply growth
  Non-OPEC supply growth for 2024 is forecast by the IEA to be around 1.0m b/day. While this figure has been revised lower since the start of the year (esp. US shale production coming in lower), it still implies that the "call on OPEC" to balance the market remains essentially flat versus 2023.

Speculative and Investment Flows

The New York Mercantile Exchange (NYMEX) net non-commercial crude oil futures open position was 159,000 contracts long at the end of September versus 227,000 contracts long at the end of August. 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 increased to 133,000 contracts at the end of September versus 77,000 at the end of the previous month.

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

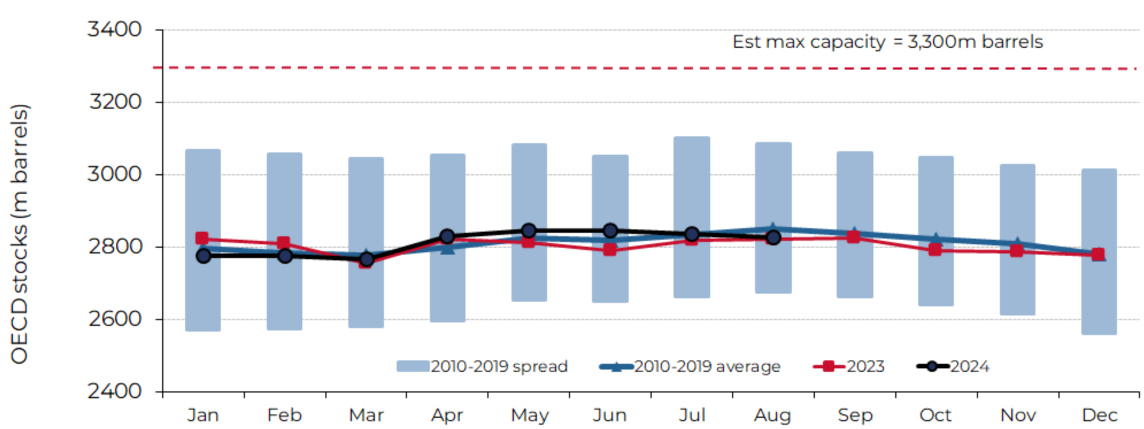


Source: Bloomberg LP/NYMEX/ICE (2024)

OECD Stocks

The Organization for Economic Cooperation and Development (OECD) total product and crude inventories at the end of August (latest data point) were estimated by the IEA to be 2,829m barrels, down by 7m barrels versus the level reported for the previous month. The fall in August compares to a 10-year average (pre COVID) increase of 9m barrels, implying that the OECD market was tighter than normal. The significant oversupply situation in 2020 pushed OECD inventory levels close to maximum capacity in August 2020 (c.3.3bn barrels), with subsequent tightening taking inventories below normal levels.

**OECD Total Product & Crude Inventories
Monthly, 2010 to August 2024**



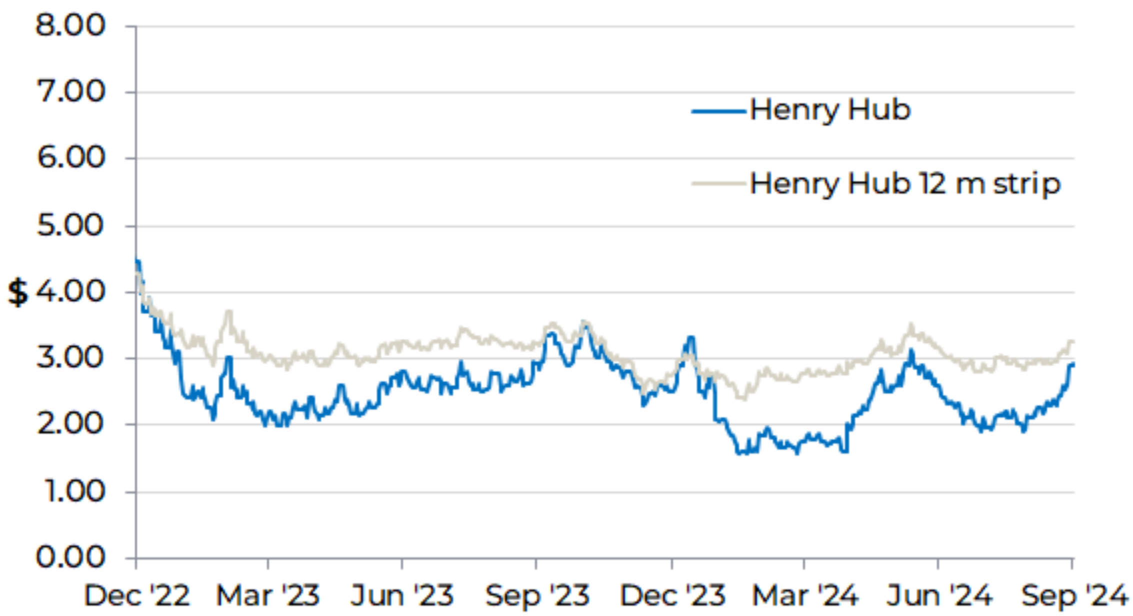
Source: IEA Oil Market Reports (September 2024 and older)

NATURAL GAS MARKET

The US natural gas price (Henry Hub front month) opened September at $2.13/mcf (1,000 cubic feet) and traded steadily higher over the month, closing at $2.92/mcf. The spot gas price has averaged $2.22/mcf so far in 2024, having averaged $2.67/mcf in 2023 and $6.52/mcf in 2022.

The 12-month gas strip price (a simple average of settlement prices for the next 12 months' futures prices) traded in a similar pattern, opening at $2.85/mcf and trading up to $3.26/mcf. The strip price has averaged $2.92/mcf so far in 2024, having averaged $3.19 in 2023 and $5.90 in 2022.

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



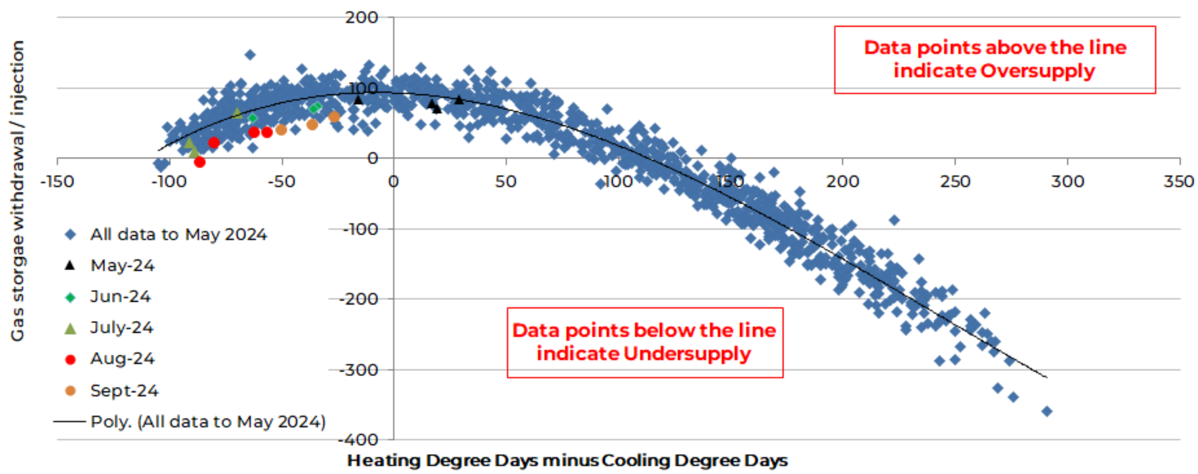
Source: Bloomberg LP. Data as of September 2024.

Factors which strengthened the US gas price in September included:

- Falling rig count
  The number of rigs drilling for natural gas in the US has fallen from 160 rigs in the middle of 2022 to 99 rigs at the end of September 2024. This has slowed gas production growth, though "associated gas" production (a byproduct of shale oil) has continued to grow this year from the Permian basin.

- Market undersupplied (ex-weather effects)
  Adjusting for the impact of weather, the US gas market was, on average, around 4 Bcf per day undersupplied during September. This is a material level of undersupply, as illustrated in the chart below.

Weather-adjusted US natural gas inventory injections and withdrawals

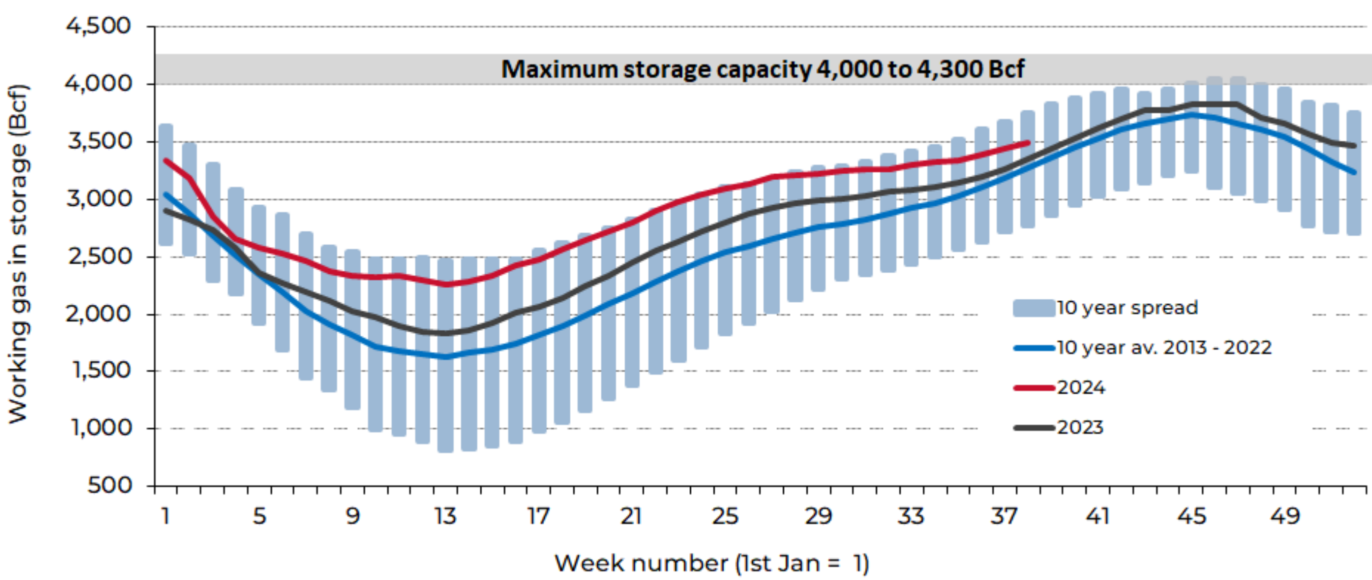


Source: Bloomberg LP, Guinness Atkinson Funds. Data as of September 2024.

Factors which weakened the US gas price in September included:

- Natural gas in inventories towards the top of the historic range
  US natural gas inventories have been running higher than seasonal norms, driven by a warmer-than-expected winter and early spring that has brought lower-than-expected heating demand. Inventories levels moved to the top of the 5-year average, but are now tightening, ending September at around 3.5 trillion cubic feet (around 0.2 Tcf above the 10-year average).

Deviation from 10yr US gas storage norm



Source: Bloomberg LP, EIA. Data as of October 2024.

Manager's Comments

This month, we comment on the escalation of conflict in the Middle East, OPEC strategy, and we update our energy equity valuation summary in light of moves in September.

Middle Eastern Conflict

Geopolitical concerns have returned to the fore in recent days with an escalation of conflict in the Middle East. In retaliation for aggression in Lebanon, where Israel killed the Hezbollah leader, Hassan Nasrallah, Iran fired around 200 ballistic missiles on October 1st towards Israel. While damage from the attack was limited, Israel has indicated that it is prepared to escalate attacks against Iran, and in particular that it may target strategically important Iranian infrastructure. The theme of Israeli strikes on Iranian energy infrastructure remains the most common denominator at this time, with reports suggesting the attack will "cause significant financial damage" (23% of Iran's GDP is derived from the oil sector).

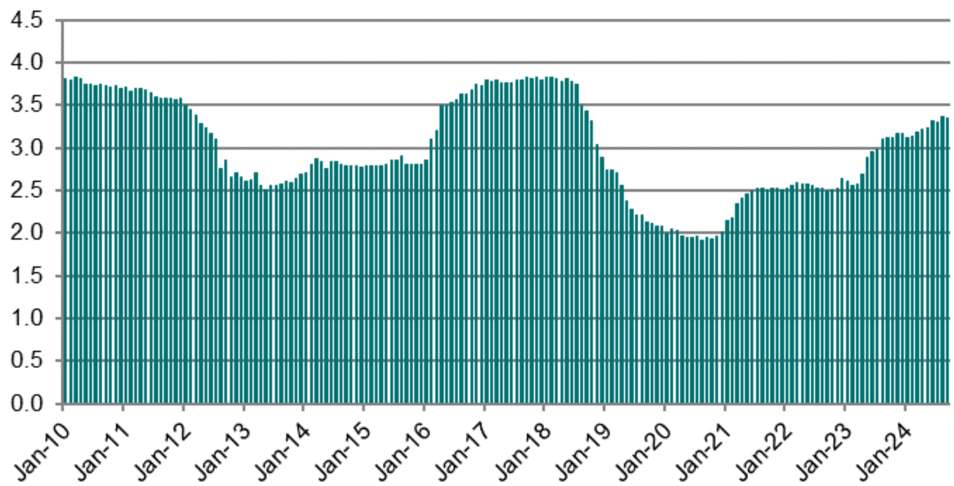
Iranian Oil Infrastructure

Source: S&P Global, Guinness Atkinson Funds. Data as of October 2024.

Options are plentiful for a response of this nature, with domestic refineries, oil production, and export facilities all possibilities. Examples of higher impact targets are highlighted on the map, with the Persian Gulf Star Refinery responsible for 0.45m b/day of oil refining each day, while the Kharg Island Export terminal handles over 90% of Iran's daily oil exports. In the scenario that Iranian oil production/export capacity is impacted by military activity, other members of OPEC would be capable of filling the gap, but would also likely take their time over it, assuming oil prices do not spike too high.

The current conflict in the Middle East may also result in the US enforcing existing sanctions against Iranian oil exports. As a reminder, President Trump reinstated sanctions against Iran in 2018, in protest against Iran's nuclear program, leading to curtailed Iranian oil supply. Over the last 18 months, the US has turned a blind eye to Iranian supply re-entering the world market, with production rising from 2.5m b/day to around 3.4m b/day. We suspect that the current US administration would prefer to see Iranian oil continuing to flow until the US elections in early November, helping depress US gasoline prices, but after that date, regardless of the outcome of the election, we expect a more hawkish stance.

Iranian Oil Production (m b/day)



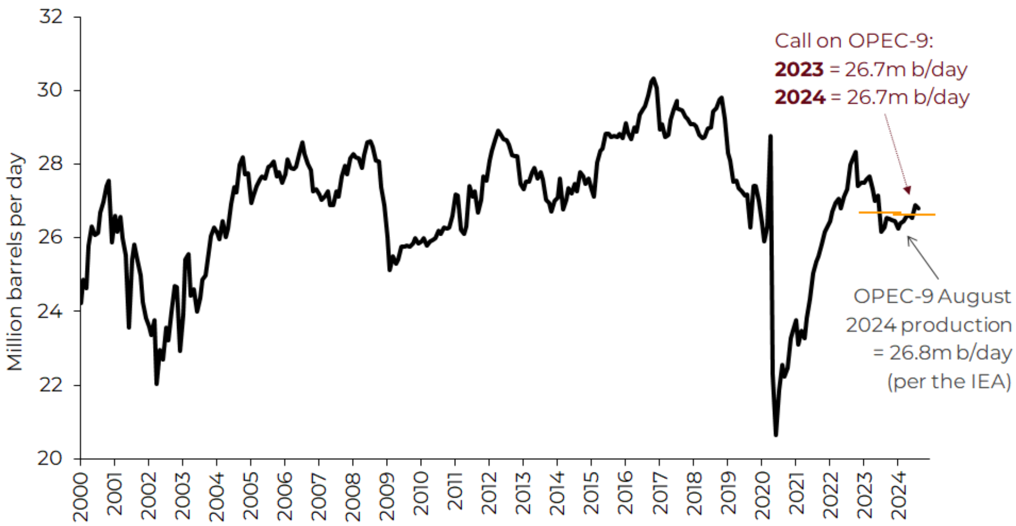
Source: DNB. Data as of October 2024.

With Israeli/Iranian tensions remaining high, there is also concern around the accessibility of the Strait of Hormuz, a 21-mile-wide stretch of water separating Iran from the UAE and Oman. Since typically around 20m b/day (20%) of world oil supply passes through the Strait each day, any closure would bring significant disruption to the world oil balance. Closure of the Strait of Hormuz would also cause major disruption to the liquified natural gas (LNG) market, given around 20% of global LNG flows flow through this area.

OPEC Strategy

The "core" nine members of the OPEC (OPEC-9: United Arab Emirates, Saudi Arabia, Nigeria, Kuwait, Iraq, Iran, Libya, Venezuela, and Algeria) are currently producing around 26.8m b/day, which is towards the lower end of their range of production (ex-COVID) over the past ten years. With the "call" on OPEC-9 in 2024 (i.e. the amount of oil OPEC-9 needs to produce for a balanced global oil market) at an estimated 26.7m b/day, it seems clear that 2024 has been another year of careful oil market micromanagement by OPEC.

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



Source: IEA Oil Market Report (Sept 2024 and prior); Guinness Atkinson estimates.

Over the summer, the OPEC+ group confirmed their aspiration to add withheld production back into the market during late 2024 and 2025. The announcement stated the intention to "achieve and sustain a stable oil market, and to provide long-term guidance and transparency for the market".

And towards the end of September, OPEC+ hinted that they are ready to increase their supply by 0.2m b/day in December, initially swapping barrels in for pledged cuts from other overproducing OPEC+ nations (e.g. Iraq and Khazakstan) and following with similar further monthly increases for the early part of 2025. When OPEC met most recently on October 1st, the group added: "the [Joint Ministerial Monitoring] Committee will continuously assess market conditions".

Whether or not the OPEC+ group follows through with additional supply remains to be seen, but where the group must be vigilant is on the balance between global oil demand growth and non-OPEC supply growth over the next twelve months. Global oil demand is due to grow in 2025 by around 0.9m b/day, while non-OPEC supply looks likely to expand by at least a similar amount.

OPEC's actions in recent years have demonstrated a commitment to delivering a reasonable oil price to satisfy their own economies but also to incentivize 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 twelve 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 incentivizes sufficient oil supply over the next few years, while being "good enough" for OPEC+ balance sheets. The world oil bill at around $80/bl represents 2.7% of 2025 Global GDP, well under the average of the 1970 – 2021 period (3.4%).

GUINNESS ATKINSON FUNDS

Performance

as of 09/30/2024	YTD	1 Year	3 Years	5 Years	10 Years
GAGEX	3.64%	-1.53%	13.98%	7.44%	-1.51%
MSCI World Energy Index NR	5.68%	1.36%	18.22%	9.78%	2.28%

All returns after 1 year annualized.

Inception 06.30.2004 Expense ratio* 1.47% (net); 2.13% (gross)

Performance data quoted represents past performance; past performance does not guarantee future results. The investment return and principal value of an investment will fluctuate so that an investor's shares, when redeemed, may be worth more or less than their original cost. Current performance of the Fund may be lower or higher than the performance quoted. Performance data current to the most recent month end may be obtained by visiting www.gafunds.com or calling 800-915-6566.

* The Advisor has contractually agreed to reduce its fees and/or pay Fund expenses (excluding Acquired Fund Fees and Expenses, interest, taxes, dividends on short positions and extraordinary expenses) in order to limit the Fund's Total Annual Operating Expenses to 1.45% through June 30, 2027. To the extent that the Advisor absorbs expenses to satisfy this cap, it may recoup a portion or all of such amounts absorbed at any time within three fiscal years after the fiscal year in which such amounts were waived or absorbed, subject to the expense cap in place at the time recoupment is sought, which cannot exceed the expense cap at the time of the waiver. The expense limitation agreement may be terminated by the Board of the Fund at any time without penalty upon 60 days' notice.

MSCI World Energy Index is designed to capture the large and mid cap segments across 23 Developed Markets countries. All securities in the index are classified in the Energy sector as per the Global Industry Classification Standard.

MSCI World Index captures large and mid cap representation across 23 Developed Markets countries. With 1,546 constituents, the index covers approximately 85% of the free float-adjusted market capitalization in each country.

Brent Crude is the price benchmark used for the light oil market in Europe, Africa, and the Middle East, originating from oil fields in the North Sea between the Shetland Islands and Norway.

West Texas Intermediate (WTI) is the price benchmark for the US light oil market and is sourced from US oil fields.

Long futures position in oil is when a trader buys an oil futures contract in the belief that the price of oil will increase.

Short futures position in oil is when a trader sells an oils future contract in the belief that the price of oil will decrease before the contract expires.

Organization for Economic Cooperation and Development (OECD) is an intergovernmental organization with 38 member countries meant to stimulate economic progress and world trade.

Fund holdings and/or sector allocations are subject to change at any time and are not recommendations to buy or sell any security.

One cannot invest directly in an index.

Earnings Growth is not a measure of future performance.

Opinions expressed are subject to change, are not guaranteed and should not be considered investment advice.

The Guinness Atkinson Global Energy Fund's investment objectives, risks, charges and expenses must be considered carefully before investing. The statutory and summary prospectuses contain this and other important information and can be obtained by calling 800- 915-6565 or visiting www.gafunds.com. Read and consider it carefully before investing.

The Fund invests in foreign securities which will involve greater volatility and political, economic and currency risks and difference in accounting methods. The risks are greater for investments in emerging markets. The Fund also invests in smaller and mid-cap companies, which will involve additional risks such as limited liquidity and greater volatility than larger companies. The Fund's focus on the energy sector to the exclusion of other sectors exposes the Fund to greater market risk and potential monetary losses than if the Fund's assets were diversified among various sectors.

Distributed by Foreside Fund Services, LLC