Alternative energy versus fossil fuel equities

March 2024

Frontier Advisors

Summary

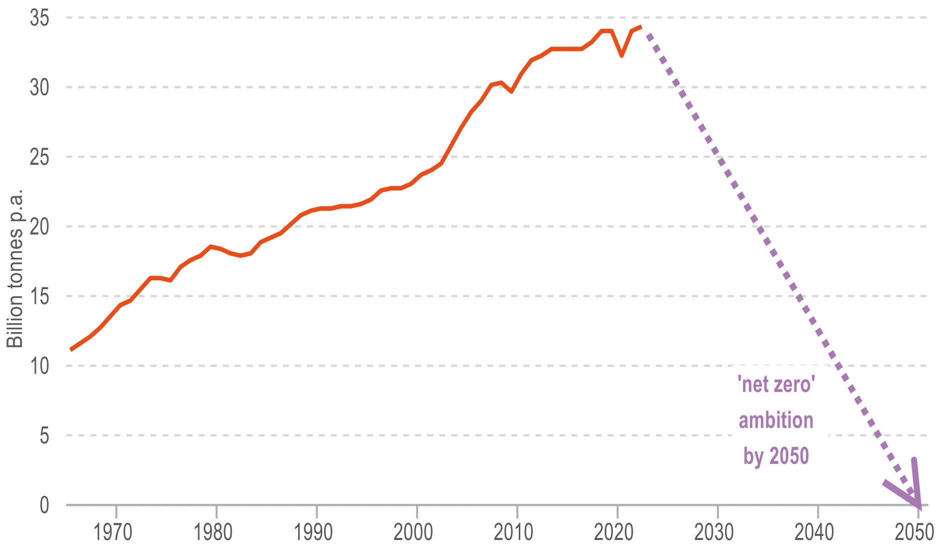
Current valuations are more supportive to implement carbon reduction equity strategies

- Climate change is the highest-priority ESG issue facing investors and we believe it is critical to incorporate consideration of the investment risks and potential opportunities from the transition to a low-carbon economy. The underlying trend of real-world decarbonisation at an accelerated pace will have major impacts on the economy and investment markets.
- However, the process of decarbonisation of the economy will not be linear. There may be significant volatility through the journey. Government policy can swing dramatically from supportive to destructive. The valuation of alternative energy companies could become excessively overbought or depressed. While the demand for oil will decline over time, the oil price is likely to be particularly volatile and there could potentially be periods of significant upward pressure on the oil price as supply/demand becomes unbalanced.
- We recommend reducing carbon exposures in portfolios and increasing allocations to climate solutions over time. It is very difficult to determine optimal times to implement these portfolio changes. However, given the expected volatility of markets during the transition, there will likely be periods that are more and less advantageous to be implementing these investment decisions.
- In early 2021, Frontier published an overseas equities research paper on the risks of decarbonisation investment. It noted extreme momentum and elevated valuations in ‘green’ stocks and that the risks should be front of mind for investors with the entry point at that time exposed to high valuation risk.
- Since that time there has been a major readjustment in energy markets. Alternative energy stocks (which includes renewable generation, alternative fuels and battery storage companies) have significantly underperformed, re-rating from the previously identified excessive valuation levels, while fossil fuel equities have significantly outperformed as oil prices rose and much of the valuation discount has closed.
- Energy market outlooks are particularly uncertain with current geopolitical tensions, and it is very conceivable that fossil fuel prices could rise from here. However, compared to three years ago alternative energy is trading at more reasonable valuation multiples and fossil fuel equities are no longer trading at large discounted valuations. There is long-term secular support for climate aligned investments and the current cyclical view is far more supportive compared to the high valuation risk we identified a few years ago. We encourage clients to implement carbon reduction strategies at this time.

Carbon emissions

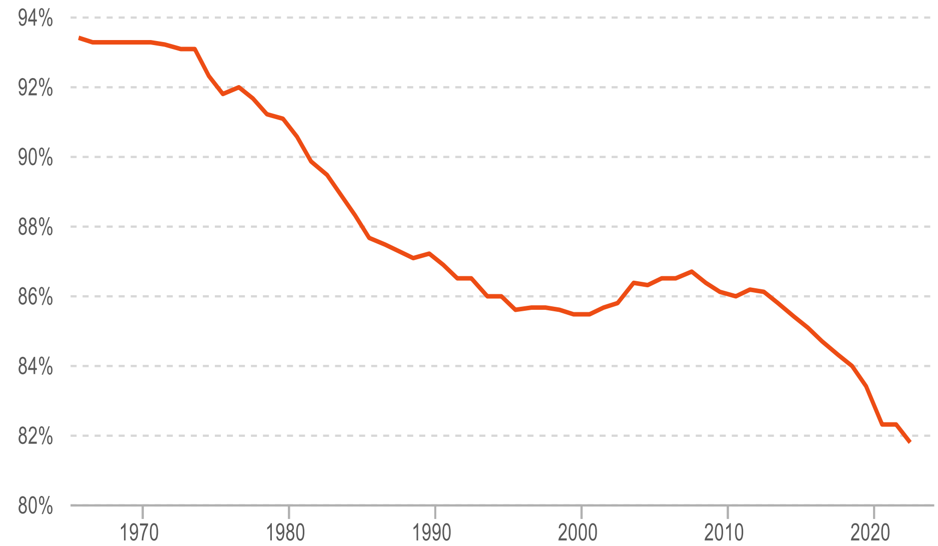
Disorderly transition and heightened market volatility are increasingly likely

Chart 1: Global carbon dioxide emissions



Source: LSEG Datastream

Chart 2: World energy consumption proportion fossil fuels



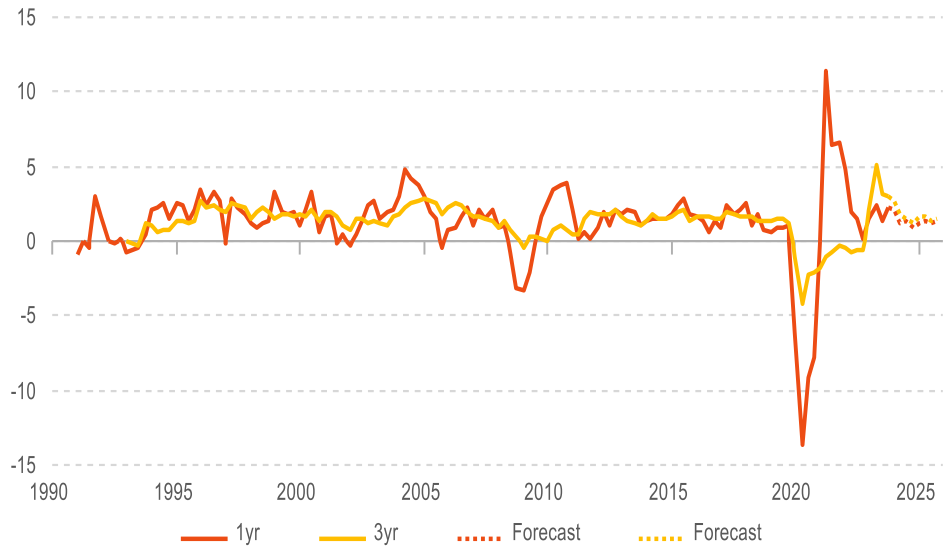
Source: LSEG Datastream

- The renewables proportion of world energy consumption is increasing, while fossil fuels proportion is going down.
- However, net zero by 2050 is a very challenging target. Whatever is achieved on what time scale, carbon emissions will reduce over coming decades.
- Slower pace of decarbonisation of the economy increases the likelihood of a disorderly transition and increased volatility in markets.

Oil consumption and production

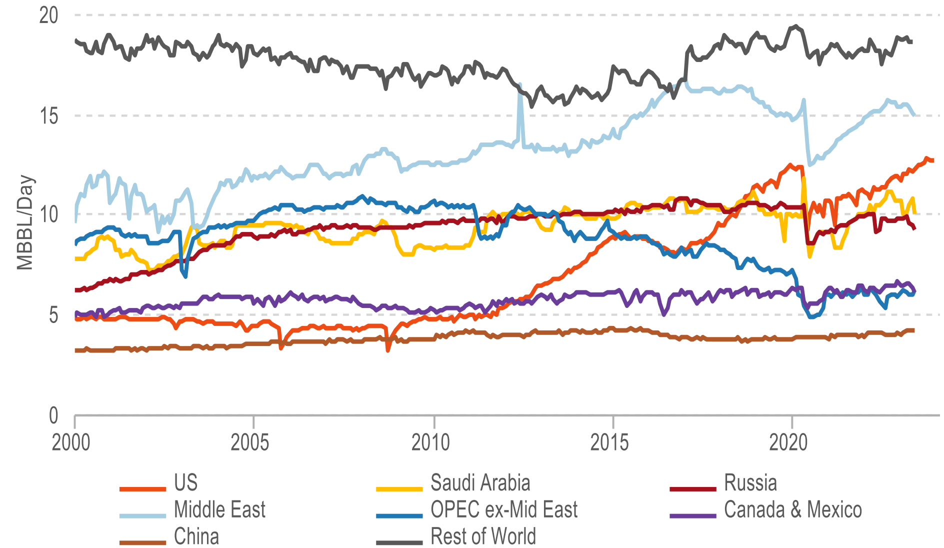
Long term demand for oil will decline but near-term production remains strong

Chart 3: World oil consumption growth p.a.



Source: LSEG Datastream

Chart 4: Key oil producers



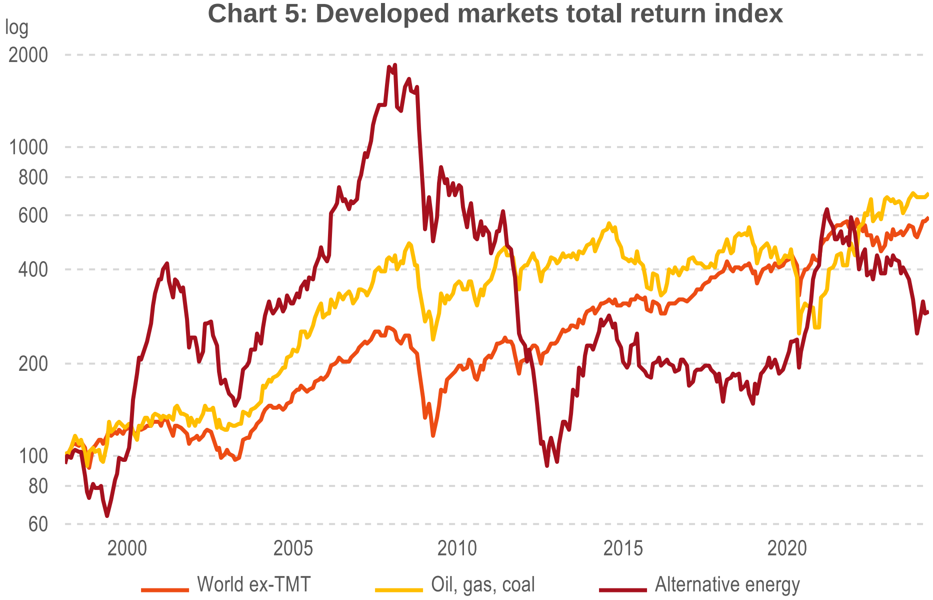
Source: LSEG Datastream

- Aggregate world energy demand is increasing, and it is continuing on the medium-term trend path of growth.
- Long-term, structural demand for oil will fall as the proportion of vehicles that are electric compared to internal combustion engine (ICE) increases. The proportion of new car sales represented by electric vehicles reached a record of one-in-five in 2023.
- However, oil consumption continues to grow and no slowdown in oil demand growth is forecast in the near-term.
- Oil production remains strong. There has been some dampening of Russian production, but it is still producing significant volumes, particularly with growth in consumption from China and India.
- US oil production continues to grow. The biggest change in global oil market dynamics over the last twenty years has been the growth in output from the US linked to shale expansion, shifting the US from a net oil importer to an oil exporting country.

Energy equities performance

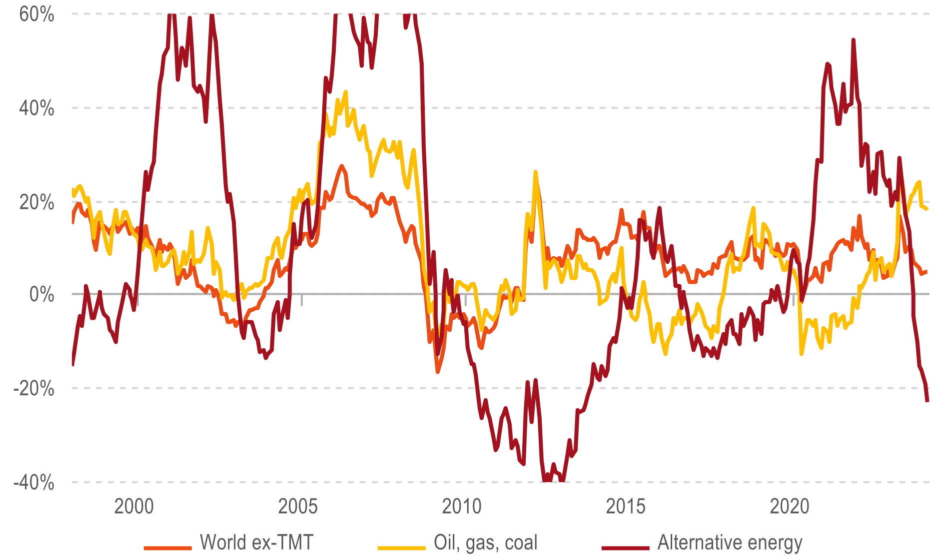
Recent large negative returns in alternative energy and strong positive performance from fossil fuels

Chart 5: Developed markets total return index



Source: LSEG Datastream

Chart 6: Developed markets total return three-year p.a.



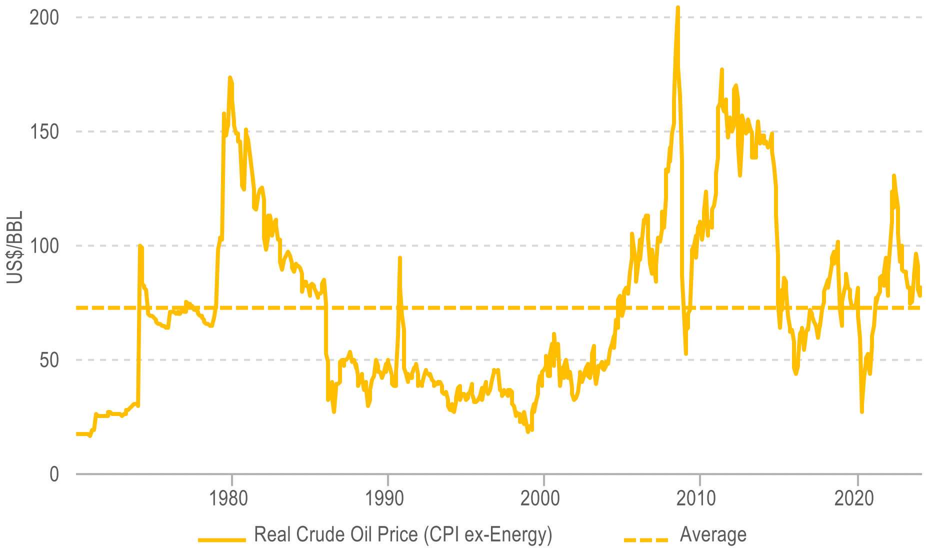
Source: LSEG Datastream

- The last three years has seen strong performance from fossil fuel equities and large negative returns from alternative energy equities.
- This was a reversal of previously very high returns from alternative energy and negative returns from fossil fuel equities.

Oil price

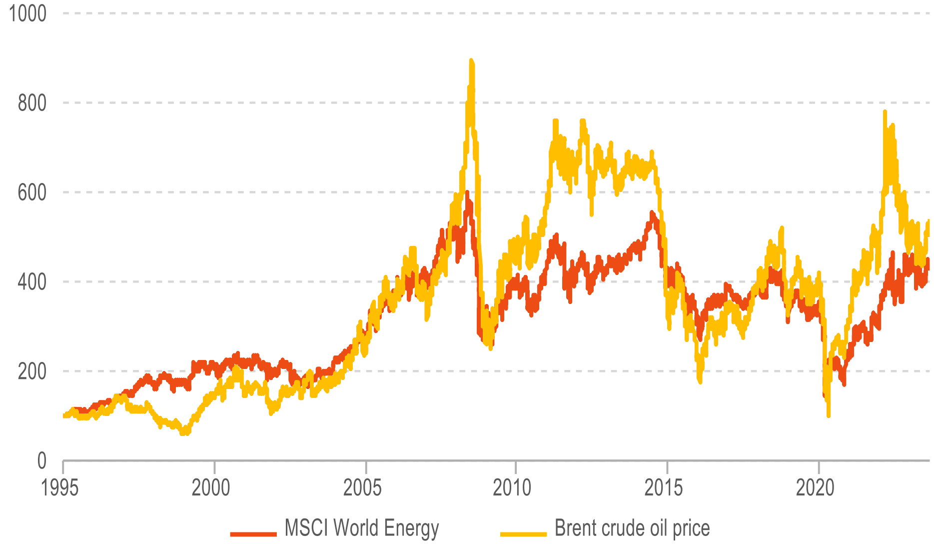
Real oil price currently around long-term average level

Chart 7: Real crude oil price



Source: LSEG Datastream

Chart 8: MSCI Energy price return versus oil price (index 1995)



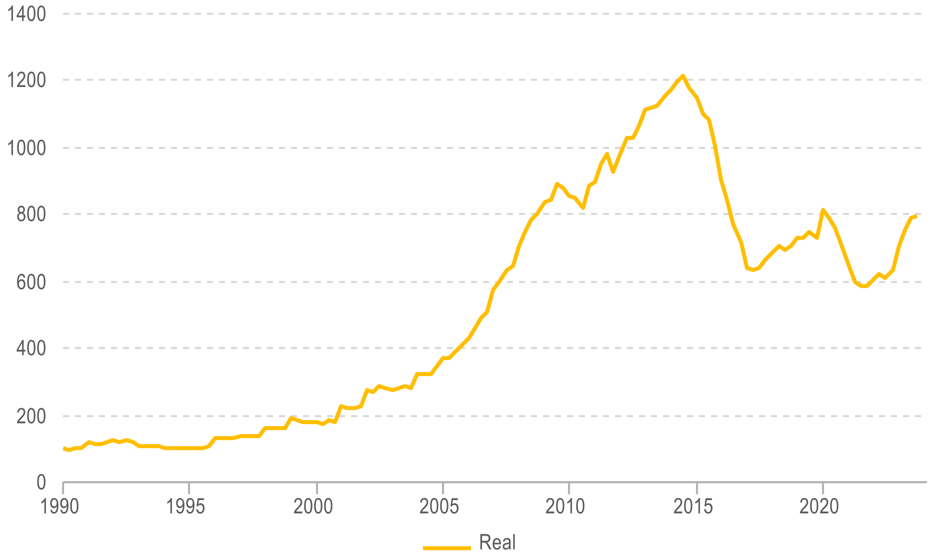
Source: LSEG Datastream

- The oil price is elevated, but well down, around one-third from the peak price in May 2022.
- The oil price, as expected, is the key driver of fossil fuel equities' returns.
- At times in the past (including in 2022) the oil price moved ahead of equities' returns for periods, but it appears broadly aligned currently.

Fossil fuel capital expenditure

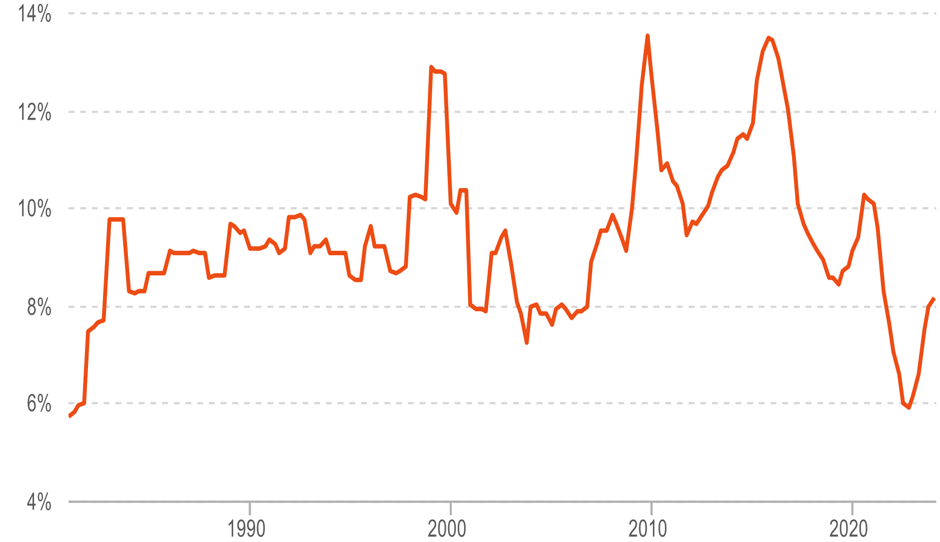
Structural decline in CAPEX could lead to periods of supply squeeze

Chart 9: World oil, gas, coal CAPEX index



Source: LSEG Datastream

Chart 10: World oil, gas, coal CAPEX proportion of sales



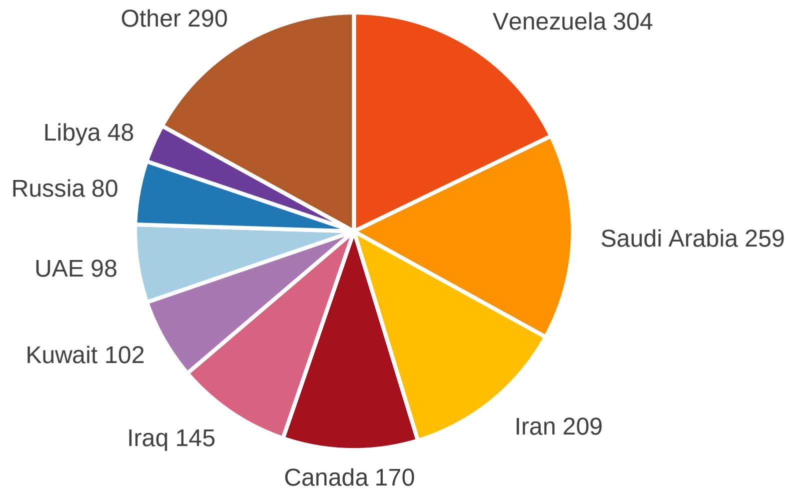
Source: LSEG Datastream

- Capital expenditure (CAPEX) on fossil fuel production has picked up recently.
- It is at much lower levels than in the mid-2010s although this was a cyclically high peak period.
- CAPEX as a proportion of revenue is at relatively low levels. It suggests an increased focus on capital management by fossil fuel companies and that CAPEX to produce future supply is likely to be more limited.
- A long-term structural decline in CAPEX will impact production output and that could lead to periods of supply squeeze in the future and trigger oil price spikes.

Oil reserves

Significant reserves of oil available, unlikely to be fully extracted

Chart 11: Proven oil reserves (billions of barrels)



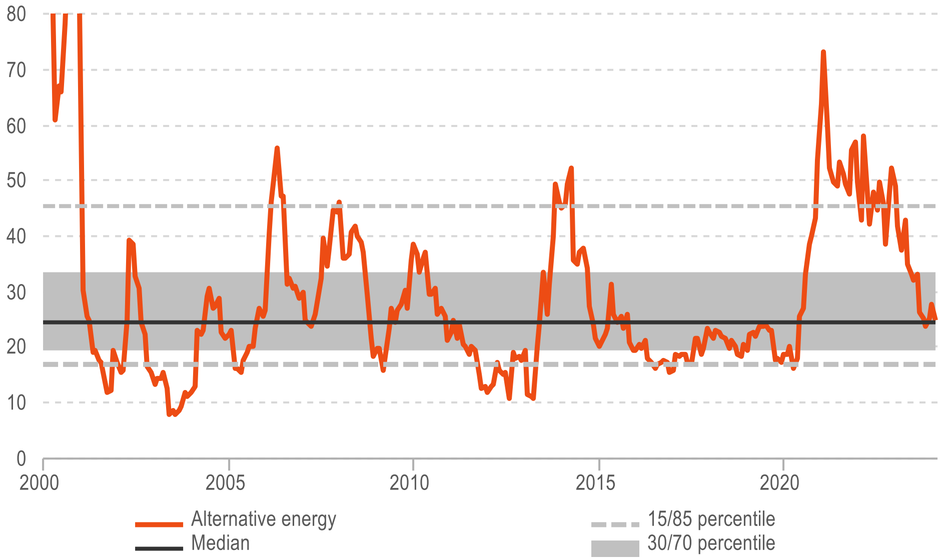
Source: EIA

- There is significant reserves of oil available and a large proportion of that is accessible through relatively low-cost production, but also a meaningful proportion is in challenging jurisdictions, e.g. Venezuela, Iran, Iraq.
- Proven oil reserves in 2022 were reported at around 1.7 trillion barrels. This is equivalent to around 50 years of current annual oil consumption. The definition of proved reserves is typically 90% probability of successful extraction, dependent on current economic conditions.
- The data for proved reserves generally does not include ‘unconventional’ sources such as shale gas, even though the majority of oil currently being produced in the US is from shale. Some estimates are that US shale oil reserves are some of the largest proven resources globally.
- Medium term forecasts of oil consumption are that they will increase by 9% to 2028. If there is no additional proven reserves, proven reserves will equate to roughly 40 years of oil consumption at that time.
- It is expected that the decline in demand with decarbonisation likely means that not all of the proven reserves will be extracted, resulting in stranded assets.

Valuations

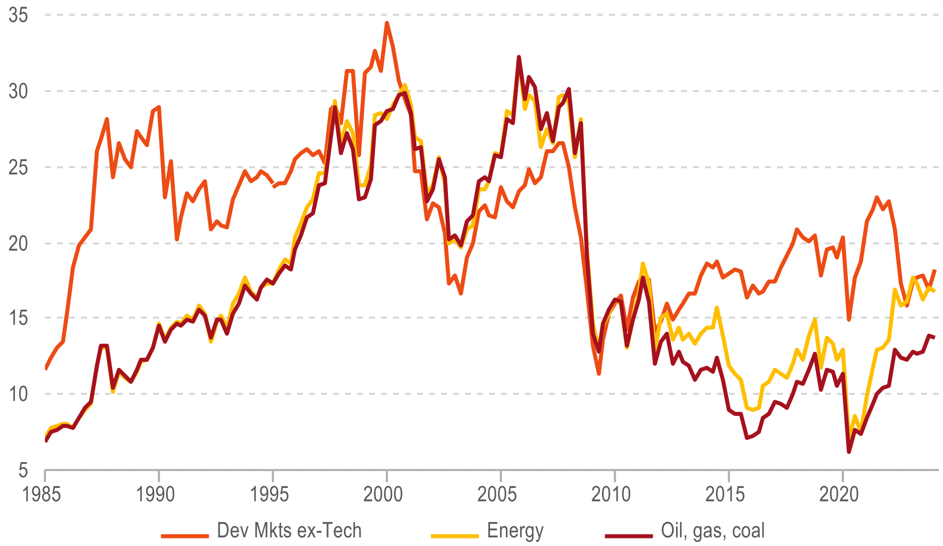
Fossil fuel valuations increased, while alternative energy valuations down to long-term average

Chart 12: World alternative energy price/earnings (P/E)



Source: LSEG Datastream

Chart 13: Cyclically adjusted P/E (CAPE)



Source: LSEG Datastream

- Recent large negative returns have significantly repriced alternative energy equities. Alternative energy equities were trading at more than 50x P/E, now at around 25x P/E.
- The current valuation multiple for alternative energy equities is around the historic median level. This is still at a premium to the rest of the market although a premium would be expected for a sector with strong growth potential.
- A valuation discount for fossil fuel equities started opening up in 2012 and reached a significant level to the rest of the market with the impact of COVID-19. The recent strong performance of fossil fuel energy stocks has significantly increased the valuation of fossil fuel equities. On a cyclically adjusted P/E basis fossil fuel equities are back trading at valuations around the levels of 2012. Developed market equities valuations have risen (specifically US technology stocks) and are still at a premium to longer-term averages.

Earnings

Secular earnings growth in alternative energy but with meaningful cyclicality

Chart 14: World alternative energy EBITDA

Source: LSEG Datastream

Chart 15: World oil, gas and coal EBITDA

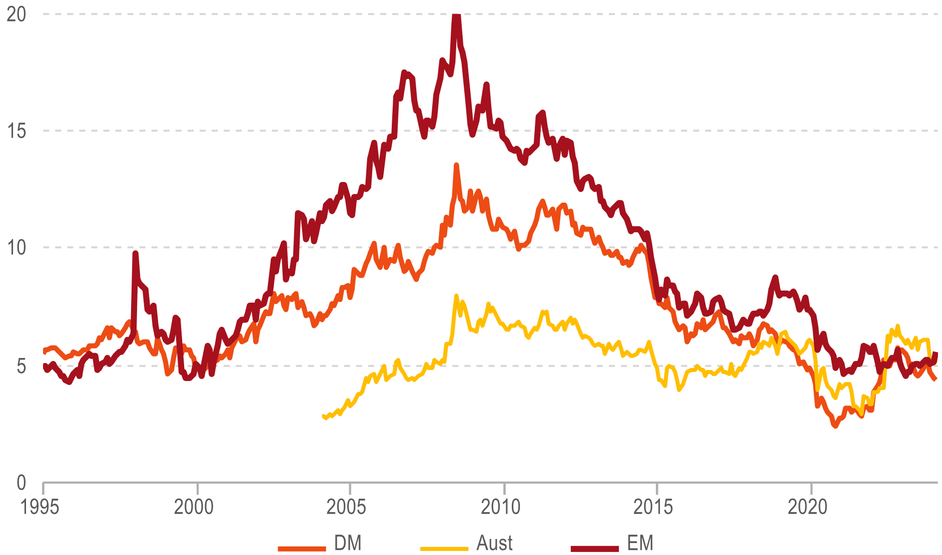
Source: LSEG Datastream

- Alternative energy equities have produced strong earnings growth, EBITDA is growing in excess of 10% p.a., albeit with meaningful cyclicality.
- Fossil fuel earnings had been broadly flat for ten to fifteen years but increased significantly in recent years with the rise in commodity prices. However, with oil prices down from the peak in May 2022, earnings are now falling.

Energy proportion of equity market

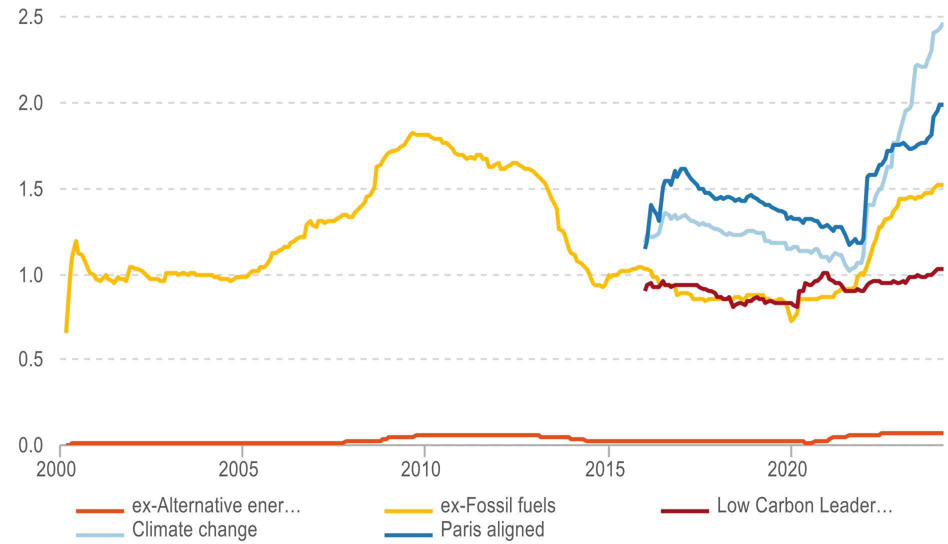
Modest index exposure limits tracking error risk

Chart 16: MSCI Energy market value proportion of index



Source: LSEG Datastream

Chart 17: Tracking error (five-year rolling)



Source: LSEG Datastream

- Energy's proportion of equity markets has declined significantly from the peaks of around 2010.
- Energy is now roughly around 5% of each of the developed markets, Australian and emerging markets' indices.
- The tracking error from investing in an ex-fossil fuels world equity index has generally been around 1.0% p.a. but has increased up to 1.5% p.a. at times, including over the last five years. This is a not insignificant but is a generally manageable benchmark variance.
- The smaller allocation to fossil fuels in the index should reduce the tracking error but higher volatility of energy prices will increase the tracking error.
- Tracking error for MSCI Low Carbon Leaders Index is actively targeted and has remained at around 1.0%, while the tracking error for MSCI Climate Change and Paris Aligned indices, which incorporates a broader investment mandate, including allocations to technology stocks, has increased to 2.0%-to-2.5% p.a. over the recent period.

MSCI climate change indices

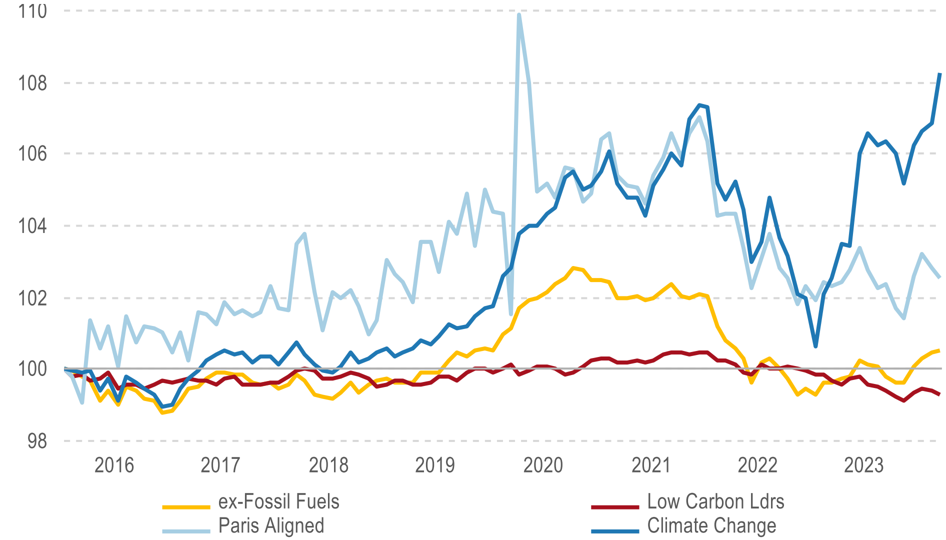
Notably differentiated performance across climate change indices

Chart 18: MSCI factors daily excess return correlations 20 years to February 2024

	Alternative Energy	Fossil Fuels	MSCI Low Carbon Ldrs	MSCI Climate Change	MSCI Paris Aligned
Value	-0.1	0.4	0.1	-0.6	-0.1
Min Vol	-0.3	-0.2	0.0	-0.3	0.4
Quality	-0.1	-0.2	-0.4	0.3	0.0
High Div	0.0	0.2	0.0	-0.5	0.2
Momentum	0.0	-0.1	-0.1	0.1	0.0
S&P Pure Growth	0.2	-0.1	0.2	0.3	-0.1
Small	0.1	0.1	0.7	0.1	0.0
World	0.2	0.1	0.0	0.2	-0.6
10Yr bond yield	0.0	0.2	0.0	-0.2	-0.2
Oil price	0.2	0.5	0.0	-0.3	-0.2

Source: LSEG Datastream

Chart 19: Climate change cumulative excess performance (index Jan 2016 to 7 Mar 2024)



Source: LSEG Datastream

- Reviewing, alternative energy is more correlated with ‘growth’ and also some positive correlation with the oil price. Fossil fuels is more correlated with ‘value’ and obviously also a positive correlation with the oil price.
- Historical data for the MSCI climate indices is more limited and therefore true correlation characteristics are more uncertain.
- MSCI Low Carbon Leaders Index has shown a negative correlation with quality but positive correlation with small caps and growth. MSCI Climate Change has been negatively correlated to value, positively correlated to growth and shows a material negative correlation to the oil price and bond yield. MSCI Paris Aligned has shown a positive correlation to minimum volatility and a negative correlation to world equities and the oil price and bond yield.
- The performance of the MSCI climate indices has been negatively impacted by the outperformance of fossil fuels in 2021/22, but it has only been the MSCI Climate Change Index that has rebounded most recently.

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