

Energy transition: Beyond renewables

What you are about to read is not another 2024 outlook, one offering you our pearls of wisdom on how to position for the next 12 months. We have all read enough outlooks for 2024, all of which may have to change by March.

Our Q1 2024 Outlook is the result of a brainstorming exercise across our Equities and Multi Asset investment teams to uncover areas of the market where we still find significant potential upside.

The opportunities that we uncovered are at the crossroads of our three favoured structural themes: infrastructure, innovation, and the low-carbon ecosystem. They all stem from one underlying transformative force: energy transition.

We discuss cable companies from France to China, the critical role that some Japanese companies play in a lower-carbon world, the emerging opportunity in off-grid renewables in the mining industry, and the double-sided impact of Artificial Intelligence in energy transition.

Not another outlook

What you are about to read is not another 2024 outlook, one offering you our pearls of wisdom on how to position for the next 12 months. Firstly, given breadth and speed of the price moves we've seen in the past months (just think of the reversal we saw in November), I believe we may have to revise our outlook a few times during 2024. Secondly, M&G Investments published its 2024 Outlook last December (Peak views: what lies ahead in 2024), to which the Equities and Multi Asset teams also contributed by discussing their positioning into year end. Thirdly, we have all read enough outlooks for 2024, all of which may have to change by March.

Rather, our Q1 2024 Outlook is the result of a brainstorming exercise across our Investment teams that uncovered one area of markets where we find significant potential upside. As you know, the desk heads of our Multi Asset and Equities teams at M&G Investments get together regularly to exchange thoughts on markets and discuss where they and their teams have been finding opportunities. Technology helps, as our colleagues in Asia, Europe, the US and Africa can also join in the conversation.

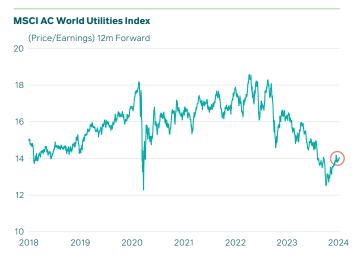
Following the severe underperformance of stocks perceived to be 'interest sensitives' in the third quarter of 2023, in our Quarterly Equities and Multi Asset Outlook released in October 2023 (Landing in the dark), we shared our belief that there was a timely prospect to add to the infrastructure space as the fears of 'higher for longer' had brought companies in the utilities and real estate sectors to multi-year valuation lows. For a number of those companies it was a case of the 'baby being thrown out with the bathwater' in the panic around so-called 'bond proxies'. However, many of those companies had solid balance sheets, with fixed rate debt, long-term maturities, cost pass-through in their pricing agreements, and many pay attractive dividends. As always, selection is key, we added.

Importantly, infrastructure is one of those long-term structural themes, together with innovation and a low-carbon economy, that we believe will continue to prevail supported by long-term capital, independent of near-term macroeconomic uncertainty.

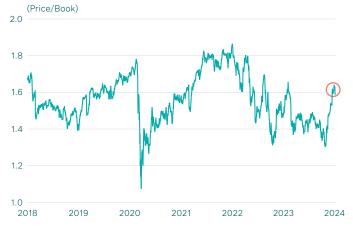
Eventually, as the fear over interest rates peaked, many of those underperforming stocks started to rebound. The MSCI All Country World Utilities and Real Estate Indices, after dropping by c.15% and 11% from January to October, rebounded 15% and 19% from their trough into year-end¹.

¹ Source: Refinitiv DataStream, Price returns of quoted indices. Return periods: 1 January 2023 to 3 October 2023, 4 October 2023 to 29 December 2023.

Fig 1. Distressed valuations in the utilities and real estate sectors



MSCI AC World Real Estate Index



Source: Bloomberg, 3 January 2024.

Within the infrastructure space, 2023 was particularly difficult for stocks linked to energy transition, such as renewables companies. Higher interest rates triggered concerns about profitability, already threatened by supply-chain bottlenecks and inflationary pressure on costs. At the same time, we saw authorities around the world, notably Germany and the UK, appearing to waver on their decarbonisation commitments and, in the US, pushing back on higher offtake prices to offset higher costs. In some cases, such concerns were justified, as we saw news of high-profile offshore wind projects being called off in the US and offtake contracts² being cancelled.

Eventually, as concerns on interest rates and inflation abated, we saw a recovery also in this space, as the iShares Global Clean Energy Index rose by 17.3% into year-end after having fallen by 35% in 2023 until rates peaked in October.

And while some projects and companies will need time to recover, the structural change brought about by energy transition has not stalled. As noted recently in the press, the UK government increased the maximum price for offshore wind farms' output by 66% to £73 MW/h in November⁴, and the New York State Energy Research and Development Authority has fast-tracked a process through which developers can try to negotiate higher prices^{5,6}. And while we know better than to trust the press releases stemming from the latest global political gathering, the fact that the latest COP 28, held in the United Arab Emirates last December, closed with an unprecedented agreement to reduce fossil fuels in order to fight climate change, is a surprising step in the right direction.

And if we don't believe intentions, we should trust the numbers. Data on global renewables is rising rapidly. The International Energy Agency (IEA) estimates 2024 will see a record 450GW in renewable capacity added globally. That follows 2023 where the IEA estimates additions of 440GW or +25% YoY. China alone is projected to invest US\$140 billion adding 230GW of that (by comparison, the estimate for China in 2023 is 180GW), and in 2024 the US and Europe are expected to add just 40GW and 75GW respectively, according to Wood Mackenzie. For context, global renewables capacity in 2022 was 3,372GW⁷.

 $^{^2}$ An offtake contract is one under which a third party (the offtaker) agrees to buy a certain amount of a product produced by a project at an agreed price.

 $^{^{\}rm 3}$ Data through 2 January 2024.

⁴ Source: Offshore wind should recover from its annus horribilis (ft.com).

⁵ Source: Expedited Renewable Energy Solicitations Launched As Part of Governor Hochul's 10-Point Action Plan, NYSERDA.

 $^{^{\}rm 6}$ Source: NY launches offshore wind solicitation as it strives to meet green goals, Reuters.

⁷ Source: IRENA, Renewable capacity highlights, March 2023.

Admittedly, there is less value in the space than in October, but as some of these stocks were getting bid up, we kept on digging deeper and uncovered areas where we believe there remains untapped potential outperformance.

The opportunities that we uncovered are at the crossroads of our three favoured structural themes: infrastructure, innovation, and the low-carbon ecosystem. They all stem from one underlying transformative force: energy transition. Importantly, they are not in one specific sector or one specific country, but can be found globally and across different industries. Importantly, these are companies for which, despite the vagaries of the market, fundamentals have either remained solid, or the decline in price far more than discounts what we believe is a short-term impact on fundamentals.

Over the following pages, all of M&G Investments' Equities and Multi Asset desks share the opportunities they are finding within the context of their specific investment universes. These include opportunities in cable companies from France to China, the critical role that some Japanese companies play in providing crucial building blocks to a lower-carbon world, the emerging opportunity in off-grid renewables in the mining industry, and the double-sided impact that we expect Artificial Intelligence (AI) to play in energy transition.

As our Impact team reminds us, from a fundamental standpoint we do not have to look far to see that the energy transition is in full swing and that records which were barely conceivable only a few years ago are now being surpassed with pace. The path is not straight, it never is, but is punctuated with opportunities which are ours to pick. We just have to dig deeper and broaden our thinking.

We wish you an enjoyable and - hopefully - interesting read, and a successful year ahead.



Fabiana Fedeli Chief Investment Officer, Equities, Multi Asset and Sustainability







Impact

Mike Rae
Fund Manager, Climate Solutions



Clean Technology: Can structural drivers re-assert themselves in 2024?

The clean technology space can look forward to a better year in 2024, in part because it is hard to imagine how 2023 could have been much worse.

The rising cost of money was at the heart of much of the sector's pain. Items dependent on consumer financing and retail sentiment, such as Electric Vehicle (EV) charge-points, home solar equipment and batteries saw a pause in demand, leading to a brutal phase of industry de-stocking. Long-cycle offshore wind projects stalled as record-low power prices, committed to through 2019-20, met higher borrowing costs, inflationary raw material inputs and supply-chain bottlenecks. Policy support, too, has wavered with key details of the clean technology incentives

within the US Inflation Reduction Act (US IRA) being left unclarified for much of the year and, in December, Germany electing to end generous consumer subsidies for EVs as part of a wider effort to achieve fiscal balance.

Higher global interest rates also posed a more direct question for equity valuations in a sector which is capital hungry and, in the case of many companies, free cashflow negative. This 'double whammy' of a fundamental negative effect on operations from higher interest rates, combined with a knock-on effect to valuation helps explain why the iShares Global Clean Energy Index fell by 35% in 2023 until rates peaked in October – before staging a partial recovery thereafter, rebounding by 17.3%⁸.

Energy transition continues at pace

Despite last year's set back, from a fundamental standpoint, we do not have to look far to see that the energy transition is in full swing and that records which were barely conceivable only a few years ago are now being surpassed with pace.

In 2023, China is expected to have added over 180GW (gigawatts) of solar capacity⁹. This is a truly eye-watering number, representing by far the highest capacity added by any country in a single year and roughly equal to the efforts of the entire world in 2021. Notably, this activity has been broad-based, spanning the large-scale utility, rooftop residential and commercial sectors. This is a neat reminder that well over half of global energy transition spend occurs in the Asia-Pacific region.

North American EV sales likely exceeded 1.5 million in 2023¹⁰, breaching 10% penetration of new car sales for the first time. Much of the newsflow has focused on auto Original Engine Manufacturers (OEMs) scaling back or delaying their expansion plans, but it is important to note that absolute EV sales globally have grown by more than 300% in the past three years¹¹, and that 2024 is expected to see affordability continue to improve with the launch of lower-priced models from the likes of Hyundai and Volvo.

For the first time in several years, equity valuations in broad terms have reset to an attractive level

⁸ Data through 2 January 2024.

⁹ Source: Bloomberg New Energy Finance or 'BNEF', December 2023.

¹⁰ Source: Bloomberg New Energy Finance or 'BNEF', December 2023.

¹¹ Source: Bloomberg New Energy Finance or 'BNEF', December 2023 – includes BEVs and PHEVs.



Further, companies at the coal-face of energy management, which are enacting the net-zero ambitions of their customers via electrification and digitisation, continue to report strong results. Schneider Electric's Chief Financial Officer noted on the company's third-quarter results call "the vast majority of our portfolio remains positioned in what we consider to be strong secular demand trends, perhaps accelerating in various places", while Infineon noted "unabated structural demand" for automotive semiconductors.

Taken together, we believe these points are part of growing evidence that 2023 has been a year of industry-specific mini-cycles masking much stronger over-arching structural trends.

We expect policy to once again be in focus in 2024

The pace of the energy transition is set to become a central campaign issue in the US, and, while we cannot predict the future, it seems reasonable to believe that some on-the-ground investments will take a back seat until the political backdrop is clearer. This raises the possibility of the initiative shifting back in Europe's favour. Formulation of the EU's Net Zero Industry Act is now in its final phase, with the headline goal of procuring 40% of Europe's annual deployment needs in clean technology by 2030 (and a target of 25% global market share in these technologies) having been adopted in November. We should also keep at the back of our minds that the timing of China's five-year planning cycles have not yet allowed it to fully show its hand in responding to the US IRA.

Perhaps the most compelling opportunity for the clean technology space at this moment in time though is offered by valuations. For the first time in several years, equity valuations in broad terms have reset to an attractive level. The chart below compares Enterprise Value (EV)/Revenue multiples of the global clean energy sector with the MSCI World Index. The data is shown on a trailing basis, to remove forecast risk. Of course, the higher weight of technology in the MSCI benchmark (skewing EV/Revenue upwards) must be borne in mind, as well as the fact that revenue does not always signify profit.

The basic picture is clear, however. The 'green premium' has evaporated, setting the stage for outperformance for those companies with strong moats, proven track records and balance sheets which afford flexibility in a year where we expect structural drivers to eventually re-assert themselves over cyclical drivers.





Global

Nicholas Cunningham

Deputy Fund Manager, Global Equities

Going off-grid: drilling down to uncover lesser-known energy transition opportunities

The underperformance of stocks with perceived interest rate sensitivity in 2023, coupled with significant expected increase in renewables capacity over the coming years, has created opportunities in another area benefiting from structural growth tailwinds: infrastructure linked to decarbonisation.

For example, we are seeing an emerging opportunity in off-grid renewables due to the mining industry's efforts to transition from diesel and decarbonise operations.

Off-grid is independent of the main grid and typically used in remote areas for mining, agriculture and remote communities. In Australia, mining alone is 41.3% of off-grid demand¹³.

Mining transitioning from diesel is important given the industry is responsible for 4-7% of global greenhouse gas emissions (Scope 1 and 2 basis)14. Diesel is key to this. For example, the Australian Renewable Energy Agency (ARENA) suggests diesel accounts for 41% of mining energy consumption¹⁵ from electricity and fuel (equipment, haulage, rail and port operations).

Australian mining company BHP (the world's largest by market capitalisation) suggests electrification is their preferred pathway to eliminate diesel¹⁶. We expect companies to look to existing utilities rather than seeking in-house solutions given the expertise required, high capital costs and risk, and synergy benefits from sharing grid assets across mining regions.

A recent Australian transaction hints that the off-grid mining renewables opportunity could be big. In November 2023, Australian energy infrastructure business APA acquired Alinta Energy Pilbara. Alinta has renewable generation, storage and transmission assets in the Pilbara, Australia's premier mining region. What excites us are the electricity projections behind this transaction.

The Pilbara is forecast to nearly triple off-grid capacity to 7.6GW by 2040, replacing 2.5 billion litres of annual diesel demand. The investment required is estimated at US\$10 billion¹⁷. Extrapolating this globally is difficult given the range of variables – for example, estimating global mining diesel consumption and noting Australia is more diesel intensive than, say, North America with less gas infrastructure. However, Alinta could imply that 330GW in renewables (and US\$450 billion in investment) is needed globally if we assume 10% of global diesel demand is mining related.

Major utility companies are investing in this opportunity. Italian utility ENEL, for example, is commencing a 75MW wind project for BHP's Western Australian nickel operations in 2024. ENEL is active globally with infrastructure projects ranging from a 50MW Spanish solar facility for Atalaya Mining to Chilean E-bus charging infrastructure for Anglo-American. US utility AES is, likewise, active in Chile contracting in 2023 to supply copper company Codelco the equivalent of 980MW of renewable energy.

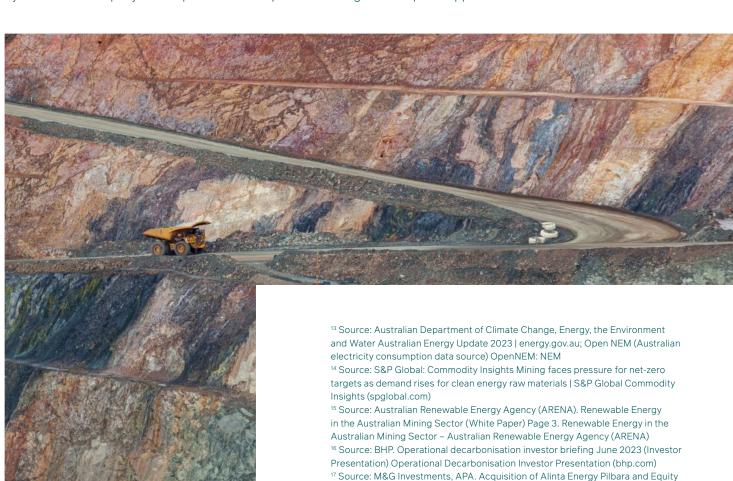
Mining transitioning from diesel is important given the industry is responsible for 4-7% of global greenhouse gas emissions 💵

Opportunities for infrastructure enablers and services companies

Besides benefiting utilities, we expect these trends to also support the growth of related infrastructure enablers and infrastructure services companies. Infrastructure enablers such as Alfin (which manufactures smart grid and energy storage equipment and sells EV charging equipment to infrastructure owners) and Vestas Wind Systems (which manufactures and sells wind turbines to utilities and renewables developers) provide products and solutions to support infrastructure owners and operators. Other key players that support utilities are companies like Japanese Toray (via subsidiary Zoltek) which provides 50% of the global composite material used to manufacture wind blades, and France's Nexans, one of the dominant three high voltage cable manufacturers in Europe. High voltage cables and investment in the electricity grid are widely acknowledged as one of the key bottlenecks in the energy transition. With utilities and renewables developers scrambling to secure orders, we expect pricing power to be very much in the hands of the cable manufacturers.

For enablers, the manufacturing of products and the development of solutions drives value. Infrastructure services companies, on the other hand, provide services to asset owners and operators as well as to enablers. For these companies, human capital, expertise and intellectual property tends to drive value.

Undoubtedly, there are challenges ahead. For one, questions remain around whether electrification alone, or in tandem with hydrogen for example, is the solution to decarbonise mining. Regardless, we believe that energy transition will underpin significant growth in infrastructure over the next decade. Some of the most compelling investment opportunities are not always immediately evident. Taking a research-driven, active approach and drilling down to fully understand the industry dynamics and company level exposures can help to uncover significant upside opportunities.



Raising August 2023 (Investor Presentation) Acquisition of Alinta Energy Pilbara

and \$750 million equity raising | APA Group





Rory Alexander Fund Manager, UK Equities



UK energy transition: despite setbacks, some notable positives

The past year has brought a mix of frustration and optimism for the UK's energy transition. Inflationary pressures and political manoeuvres ahead of the next general election have led the UK to push back its deadlines to phase out gas boilers and petrol and diesel vehicles, while plans have also been announced to grant new licences for North Sea oil and gas exploration.

However, there have been some notable positives too – namely, the introduction of favourable pricing for UK offshore wind; a comprehensive new hydrogen strategy; and the publication of the FCA's much-anticipated Sustainability Disclosure Requirements (SDR).

Offshore wind is a bright spot for the UK's climate strategy, as 23% of the world's capacity sits off the country's shores¹⁸. But the industry has increasingly suffered from input cost inflation, supply-chain shortages and high interest rates. In September, we witnessed a failed UK auction, as the low pricing on offer for electricity generated from offshore wind projects had made the economics unpalatable for developers. Thankfully, in November, the government responded by increasing the offer price by 66% to £73 MW/h. This regulatory support is vital if the UK is to hit its target of 50GW of installed capacity by 2030 from c.14GW today¹⁹.

The UK is also fortunate to have market-leading hydrogen electrolyser manufacturers. Despite high expectations for hydrogen's role in the world's future energy mix, 2023 saw a disappointingly low level of commercial progression. Neither RePowerEU nor the US IRA legislation provide clarity on subsidy support frameworks. It is therefore encouraging to see the UK reinforcing its commitments in this area. As well as offering upfront investment support, the government is potentially offering billions of pounds in price guarantees for hydrogen production to ensure long-term commerciality. The 2014 introduction of Contracts for Difference is largely credited with propelling the UK's offshore wind success, so fingers crossed that a similar pricing support mechanism has an equally positive impact on the domestic hydrogen industry.

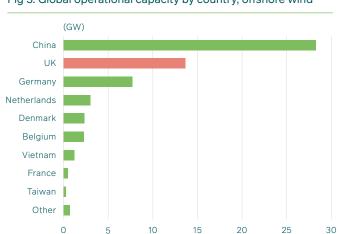


Fig 3. Global operational capacity by country, offshore wind

Source: RenewableUK, February 2023.

¹⁸ UK offshore wind pipeline reaches nearly 100 gigawatts – while global pipeline hits over 1,100GW – RenewableUK

¹⁹ Source: Offshore Wind Net Zero Investment Roadmap (publishing.service.gov.uk)

We also expect the upcoming regulatory framework for the investment industry to benefit the UK energy transition. In managing M&G's UK Paris-aligned strategy, we have been eagerly awaiting the final publication of the FCA's SDR regulations. One of SDR's key aims is to provide investors with clear marketing labels for sustainability funds, setting a high bar to minimise the risks of greenwashing. Qualifying funds must have a clear, formal sustainability objective with measurable corresponding KPIs. Investment managers can begin using the labels from 31 July 2024, and we look forward to seeing the positive developments this will hopefully bring to our industry.





Japan



Carl Vine Co-Head of Asia Pacific Equities

Structural rather than cyclical as confusing macroeconomic backdrop persists

It's funny how things turn out. As we exited 2021, equity market sentiment was running hot, not just in Japan, but globally. In fact, this was the right time to be worrying about recession risk. We now know that 2022 went on to deliver negative equity returns. One year later, with investor sentiment bloodied, the market's attention exiting 2022 was firmly focused on inflation and recession dynamics. As it turned out, this presaged a very strong year for equities in 2023. Indeed, for Japan, 2023 was the strongest year in a decade for the equity market. Let us be reminded of how the circadian rhythms of price and fundamentals often differ violently.

As we ponder 2024 for Japanese equities, macroeconomic fundamentals remain confusing, as ever. The myriad of possible positive and negative forces to consider are readily available on your large-language-model of choice. Like the market, we too worry about the yen, about China, about both domestic and global politics amongst other issues. However, we sense no euphoria in Japanese equity valuations or expectations. As such, we are resisting the temptation to be preemptively 'tactical' ahead of potential macroeconomic outcomes, and instead sticking to the longterm 'structural' opportunity.

As we have discussed many times, we believe Japanese equities represent a compelling long-term opportunity in a global context. We continue to believe that structural earnings growth, principally derived from corporate self-help, will be a strong driver of market returns. Taking into consideration a strong dividend and buyback story in Japan, it's not unrealistic to expect the Japanese equity asset class to deliver a mid-teen total compound return in the decade ahead, even without an uplift in valuations. Compared to the underlying risk of ownership, this feels attractive to us.



Japanese firms well placed for energy transition

When it comes to energy transition, Japan is perhaps something of an overlooked market. We estimate that approximately one-third of the large-cap benchmark in Japan, excluding financials, has energy transition as a key underlying business thematic. As it happens, in 2023, this cohort of stocks outperformed the broader market, on average, by around 600 basis points²⁰.

We are invested in names such as Hitachi, Orix and Toyota; all companies with important roles to play in energytransition. For its part, Hitachi is a technology leader when it comes to power grids and is well placed to accelerate the clean energy transition globally. Orix is one of Japan's largest investors in renewable energy assets, notably solar and wind related. Toyota, on the other hand, is leading the global technology race toward solid-state-batteries, which should drive broader adoption of EVs in the years ahead.

These companies are of course not alone. Japan boasts leading Intellectual Property in several areas that will be critical to the global energy transition. Lightweighting²¹ of various products is unlikely to happen without the involvement of Japanese materials science companies like Toray. Japanese heavy industrial companies have their fingerprints all over various aspects of the hydrogen economy and, in the start-up innovation space, Japan occupies essential positions in nuclear fusion technologies. As businesses pursue the means with which to contribute, and adapt, to energy transition, Japanese companies across a range of industries are providing opportunities for active investors to take advantage of the innovation and technologies being developed.

When it comes to energy transition, Japan is perhaps something of an overlooked market ,,



²¹ Lightweighting is the process of removing weight from a component or assembly to improve performance and expand functionality while reducing material volumes and waste. As manufacturers attempt to create both greener and more economical products, lightweighting has become increasingly relevant.



Asia Pacific ex Japan

Dave PerrettCo-Head of Asia Pacific Equities

Seek high barriers to entry, scale, or tangential beneficiaries to the energy transition

Looking into 2024 we remain constructive on many Asian markets, especially China. For the most part, Asian economies adopted monetary policies, which they deemed appropriate for their own domestic economic circumstances through 2023, choosing not to follow the US Federal Reserve hike-for-interest rate-hike. As a result, the 2024 Asia-ex-Japan outlook is one of relatively low inflation, low interest rates and gradual economic growth. This is typically a positive backdrop for financial markets, especially taking into account undemanding equity valuations and competitive currencies. Chinese markets stand out as especially attractively valued and, while there remain stress points in some parts of the Chinese real estate market and banking system, there are also exciting areas of structural growth; not least industries tied to energy transition.

Indeed, when we think about the impediments to arresting climate change and achieving net zero, it is easy to conjure up images of polluting developing Asian metropolises and associated industrial landscapes emitting carbon through large chimneys. As always, there is an element of truth to such popular images, but with this comes the underlying reality that if the world is going to succeed in combating climate change, Asia will be the key battleground.

Very encouragingly, the world's largest emitter China, in 2020 pledged a net-zero goal by 2060. The end result of this pledge has been truly staggering as China now leads the world in both the installation of wind and – especially – solar energy²². It is also the world leader in existing installed EV fleet and production. Ironically, after an initial wave of positive flows in Chinese, and for that matter Asian, energy transition stocks, this portion of the equity market has become increasingly treacherous. Huge increases in capacity for commodity renewable items like polysilicon has ultimately outstripped demand and led to falling prices, and an incredibly competitive environment where only the fittest survive, and returns on invested capital have been crushed lower.

Navigating the current environment

Against such a backdrop, we are adopting three broad approaches to navigate this difficult environment, while still identifying stocks that should benefit structurally from the energy transition megatrend.

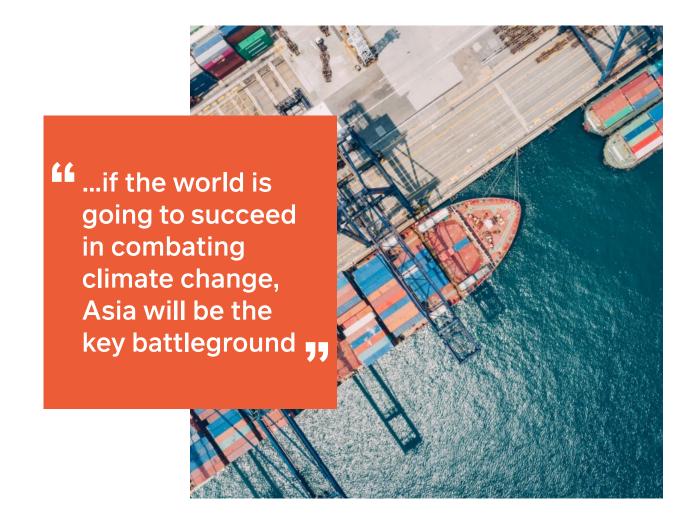
The first is in identifying those parts of the renewable supply chain that enjoy high barriers to entry, either through technology or regulation. We own stocks in this category which are well-positioned to benefit from decent top-line growth, while maintaining steady margins. A good example is Jiangsu Zhongtian, a niche cable maker listed in the Chinese A share market. Zhongtian specialises in both making the cables and then providing the engineering services, which connect offshore wind farms to the onshore power grid. The service it provides is both complex and critical in nature and, as a result, there are only three certified players in China, of which Zhongtian is one. The scale of the offshore build out in Chinese wind farms mean that these three cable and engineering companies are the largest in the world, which is allowing them to win lucrative export orders in an industry that is increasingly facing ever tougher capacity constraints on a global basis.

²² Source: BloombergNEF (BNEF), 2023

The second approach focuses on those more commodity-based producers that either have the scale, vertical integration (supply their own key components at a low cost) or both, and thus have a structurally competitive cost advantage, which will allow them to remain profitable through this period of intense competition. Importantly, with general negative sentiment towards all things China at present, both groups of stocks can be bought at undemanding valuation levels.

The final approach is to identify sectors or industries that will benefit tangentially from the energy transition. Shipping and shipbuilding are two such sectors. Shipping is a cyclical sector that experienced 10 very lean years from 2010, as a boom turned to bust, with ships ordered in peak demand years arriving in a depressed market sometime later. Looking forward, shipping (especially bulk shipping) now has a much healthier demand supply balance. Importantly, due to uncertainty about what will be the new climate-friendly fuel standard – methanol, ammonia or hydrogen – ship owners have been reluctant to order new ships fearing any deliveries may become obsolete before their 20 years' useful life has expired. This is instilling an enforced supply discipline in bulk shipping that we have not seen in the past.

Similarly, ship yards are also benefiting from energy transition. During the last decade, many yards were forced to close due to a lack of orders. This has reduced both physical and human capacity for building ships. As a result, remaining yards are in a strong position to cherry pick the most lucrative of orders, given full order books out to late 2026 or even 2027. With literally thousands and thousands of ships that need to transition in the next 20 years, it is very plausible that an historically-cyclical industry like shipbuilding will resemble, for a prolonged period, a structural growth story. In the shipping and shipbuilding stocks that we own, such a positive, structural outcome is by no means discounted by current valuations.





Emerging Markets

Michael Bourke
Head of Emerging Market Equities

The energy transition offers divergent opportunities in Emerging Markets

Energy transition and climate change pose one of the greatest challenges for investors – how to think about the investment implications, how to assess risks and opportunities, and how best to incorporate within one's investment process. Our sensitivity toward valuations and focus on returns on invested capital offers a robust framework within which to embed such considerations.

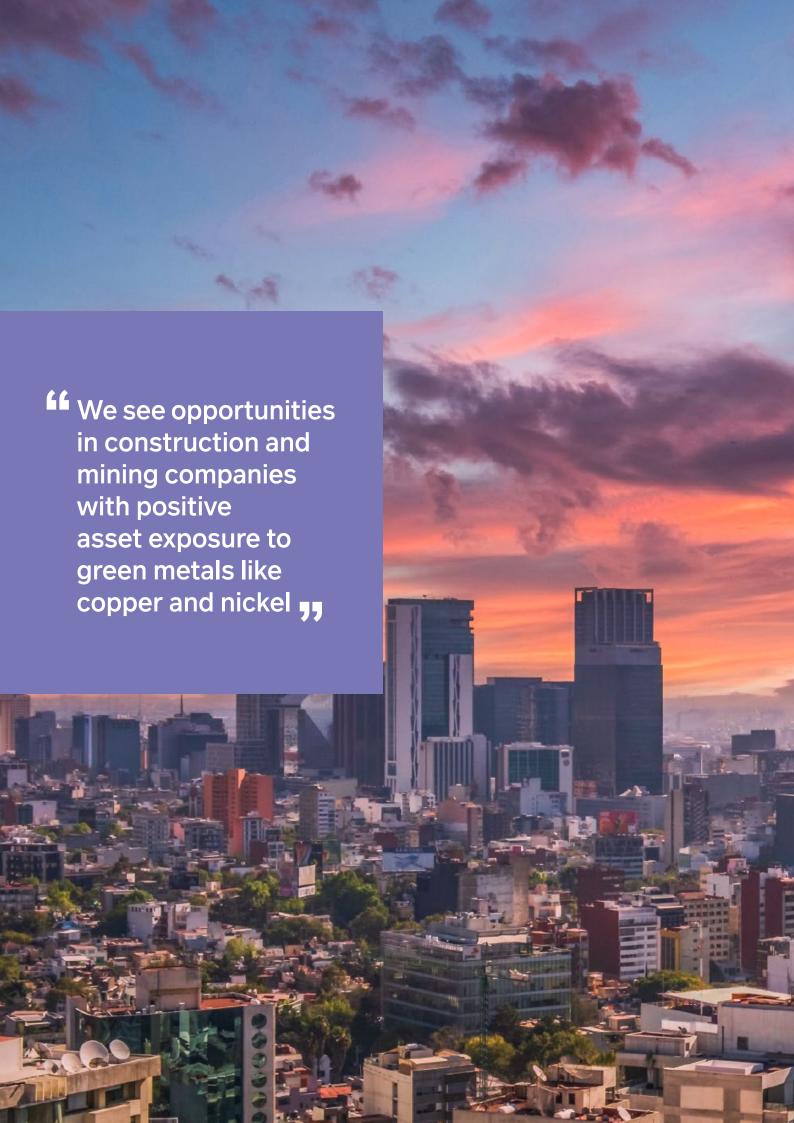
Emerging Markets (EM), as ever with the asset class, offer divergent opportunities with regards to energy transition. As mentioned in the previous section on Asia, China is a key facilitator of the energy transition, as heavy investments in solar and battery manufacturing have brought enormous scale and driven down the cost of transition. While such capital intensity has led to poor returns on capital and shareholder outcomes in these segments, it has yielded benefits across other parts of the world, as it has lowered the cost of energy transition.

In fact, across EM, we find attractive investment opportunities beyond China's renewable supply chain. For example, we see many legacy utility operators, especially those with large renewable operations, in a good position to benefit from such exposures as the cost of carbon inevitably rises via taxation or other policy measures. Such companies also avoid the risk of stranded assets, for example in Romania and Brazil.

Along the same lines, we see opportunities in businesses that are the 'picks and shovels' for large energy transition projects – for example, construction companies and mining companies with positive asset exposure to green metals like copper and nickel. The flipside of the coin is that there is still a bill to be paid by many other industrial segments to decarbonise – such as pulp and paper, and chemicals manufacturing. As such, we remain wary of these areas.

The priorities and actions driven by a global focus on climate change investments also have a broader impact as some countries have to shift their entire economic model. This is particularly prevalent in the Middle East with, for example, Saudi Arabia's hugely ambitious Vision 2030 plan focused on diversifying the economy away from dependence on oilfields and into new economic areas. These go beyond new energy sources and include the service industry such as leisure and tourism, potentially providing further investment opportunities.

Overall, the investment winners and losers from the energy transition are neither obvious nor static. We take a multi-disciplinary approach across the Equities team globally to find ideas for investment where energy transition has the potential to bring opportunity and positive economic impact for us as shareholders.





Thematic Technology

Jeffrey LinHead of Thematic Technology Equities

The two opposing impacts of AI on energy transition

As managers of the M&G Global AI strategy, it is not surprising that we believe Artificial Intelligence (AI) will remain a strong force for growth in 2024, not only within technology but also across other sectors. The increased adoption of AI will require additional physical datacentre infrastructure, which includes buildings and associated power and cooling, and hence increased electricity consumption. This is likely to create further demand for renewable energy as we move ahead.

It is likely that we are only at the initial stage of such growth. The massive increase in data centre products from enablers such as Nvidia is just starting to be commercialised and is growing at tremendous speed. Nvidia's datacentre quarterly revenue run rate has quadrupled in the last 12 months, as the company sees strong demand across hyperscale public cloud companies (such as Amazon, Microsoft and Google), consumer internet and corporate enterprise²³.

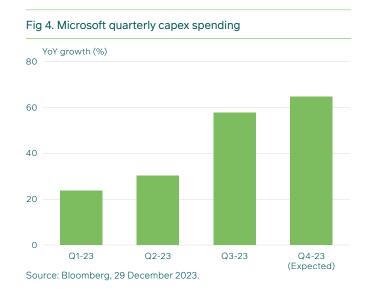
Microsoft has significantly increased its quarterly capital expenditure (capex) since its investment in OpenAI in early 2023. Undoubtedly, the increase in capex is related to increased AI capacity in Microsoft's Azure Cloud.

Microsoft believes that in its fiscal year (FY) 2022 ending June, it consumed 18,153,454MWh of electricity, up 33% versus FY 2021²⁴. While the company has not yet disclosed its electricity

consumption for FY 2023, we do believe the growth in Generative AI computing will continue to accelerate the rise in electricity consumption.

Likewise, Oracle is also increasing capacity for Alrelated workloads. On a recent earnings call, Oracle said that it currently has 66 datacentres, for which it plans to increase capacity, while also looking to create an additional 100 datacentres to build out capacity for Al.

The capability of AI increases as datasets used to train AI systems increase. Training capacity increases with more processors, computer memory, data storage and high-speed networking. As these training systems become more powerful, AI becomes more powerful. For example, Tesla believes that increased training capacity is the key to developing fully self-driving cars and, while it has developed its own AI training processor called



Dojo, it remains a customer of Nvidia for training because they need as much capacity as they can get. Tesla's approach to developing software for fully self-driving cars is to feed the system an extreme amount of training data that is primarily video to 'teach' the neural network how to drive like a human. As more data is sent to the system for training, the performance improves. The power consumption of a single Dojo system is two megawatts which is approximately 8x more power than a Tesla Supercharger.

²³ Source: Nvidia, company earnings reports, 2023

²⁴ Microsoft, 2022 Environmental Sustainability Report, 2022 Factsheet

Hardware and semiconductor companies believe Generative Al will be a tremendous tailwind over the next decade. For example, Cisco mentioned on a recent quarterly earnings call that it has "line of sight to over \$1 billion in orders for Al infrastructure from major cloud providers in fiscal year 2025". While Micron also gave very bullish commentary, calling Generative Al its biggest demand driver: "We are in the very early stages of a multi-year growth phase catalysed and driven by Generative Al, and this disruptive technology will eventually transform every aspect of business and society".

Efficiency improvements from AI offset AI energy consumption

While we expect AI to be a significant driver of electricity consumption over the next decades, we believe it will also play a key role in managing the supply and demand of electricity. As electricity generation moves to renewable sources from carbon-based ones, the supply of electricity will become more fragmented, distributed and less predictable. Homes are likely to become local sources of solar energy, power may come from long distances where there is wind, sun, or hydroelectric power, and storage of excess power will require stationary or mobile (including EVs) batteries.

However, wind and solar energy is not always available, either because of the time of day or the weather. Al will be needed to balance electricity consumption with production. For example, based on weather predictions, and hence available power, non-critical electrical loads can be 'shifted' to more favourable times. Al can recommend reducing power consumption and storing excess power in batteries ahead of adverse weather that could reduce available power. Companies such as Schneider Electric and Microsoft are working together to transform grid management with the goal of maintaining grid reliability and accelerating customer adoption of distributed energy storage resources, including EVs and rooftop solar²⁵.



We believe
[AI] will play
a key role in
managing supply
and demand...
as electricity
generation moves
to renewable
sources
from carbonbased ones

Al can also be used to reduce energy consumption. Today, data from trucks is analysed and used to optimise drivers' habits. Data such as idle time, throttle position, and speed is being used to train drivers to minimise fuel consumption. In the future, autonomous transportation with fully electric vehicles will help minimise energy consumption because of optimised routing, reduced traffic, and better asset utilisation. While AI will increase datacentre energy consumption, the capabilities of AI will be needed to manage the transition to fully renewable electricity sources.

²⁵ Source: Schneider Electric capital markets day



Global Research



Sylvia Baxter Global Materials Analyst

The energy transition: what is the outlook for commodities?

Within the mining sector, there's a demand dichotomy at the moment where, in the short term there are macroeconomic concerns, but medium-to-long term a number of metals have a structural tailwind as they are key enablers of the energy transition. So how do we approach the sector in 2024 in this context? A good place to start, we think, is to look at 'cost curve'26 support.

Electricity transmission, distribution networks and renewable energy generation infrastructure will require significant amounts of copper and aluminium.

Copper is one critical material where we've seen countless headlines about the coming shortage, and we are starting to see volume guidance cuts at key assets, which could mean we are more likely to hit a deficit in 2024. Still, in 2023 the price fell from a high of \$9,356 per tonne in January 2023 to c.\$8,500 per tonne at year end, and it actually dipped below \$8,000 in October. Despite that fall, it's still trading above the 90th percentile (with cost of production at c.\$7,000-7,500 per tonne). And there are seen to be strategic physical buyers such as China that are likely to step in around those levels. So whilst copper is trading above the cost curve, there is theoretically around 10% downside risk from here. The other point to make on copper is that the longer prices stay at these lower levels, the less likely it is that new projects get approved. Yet, we still face a potential copper shortage longer term. Meeting rising demand in the longer term will require continued new project development.

...a number of metals have a structural tailwind as they are key enablers of the energy transition

Meanwhile, aluminium might not be a commodity that comes to mind when thinking about the energy transition, but producers will be long-term beneficiaries both directly (with demand from EVs and wind turbines, for instance), and also indirectly (with potential substitution-related demand as and when we hit a copper shortage). Near term, the market has been affected by macroeconomic-related headwinds, particularly in Europe. Given the relative difficulty in flexing capacity within aluminium, it has likely reached, or is near, a floor in our opinion. However, it's worth noting that if we witness a material decline in power prices, then the cost curve for aluminium producers is likely to shift down as well.

²⁶ Cost curves look at the costs of production as a function of production capacity or total quantity produced for a particular industry. Investors can overlay the current price of a commodity on to the cost curve to judge which producers are/aren't economic. They can also be used to estimate price support levels and where the high-cost producer sits in a given industry. Beyond the 90th percentile are the projects that produce the 10% of global output at the highest cost. They are generally considered the 'marginal producers'. If prices fall below the cost of production for these higher-cost producers for a sustained period, the theory is that they should stop producing and so bring supply and demand back into balance. In that way, the 90th percentile can be seen as offering a measure of price support and a rough idea of the break-even price. More information here: Cost curves (ft.com)

Notably, it would be remiss to speak to energy transition tailwinds without mentioning lithium, crucial for the production of high-performance rechargeable lithium-ion batteries used in, for example, EVs and solar energy storage. This is arguably where we saw the most volatility in 2023. Volumes need to grow around 15-20% a year from now until 2030 to meet forecast demand. As that supply comes online, it's unlikely to perfectly match demand. There will inevitably be periods of surplus. This, combined with recent destocking within the value chain, has weighed on prices. In terms of where we expect prices to find a floor, it's a more complex picture for lithium versus copper and aluminium, given the additional mining of lower grade lithium where costs remain opaque with widely varying estimates.

Overall, both copper and aluminium have limited downside risk from here in our opinion, but finding a floor for lithium is more challenging given the larger range of outcomes for a relatively immature and fast-growing commodity.





Convertibles

David RomaniFund Manager, Convertibles

Energy transition: opportunities within convertibles

To understand the energy transition opportunity set, we identify four segments within the convertibles universe:

- A 'core' or 'narrow' group of issuers directly engaged in the production of renewable energy
- Enablers and suppliers (eg of raw materials, battery components, and cables) to producers
- Traditional utilities, who have plans to gradually decarbonise and reduce emissions
- EV manufacturers, as electric cars are also part of the transition

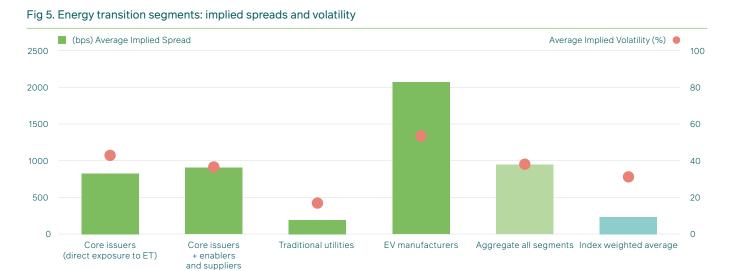
Collectively, these segments account for 69 of the 735 names in our universe, or about 9%. In terms of weight, they represent around 14% of the Refinitiv Global Focus Index, driven to a large extent by a 7% weighting in US utilities, themselves all relative latecomers to the convertibles universe (6% were issued during 2023).

For the 'core' renewables and their enablers/suppliers, there is a mix of established firms with good credit quality along with some fledging, new-technology firms with unproven business models, high capex needs and intense cash burn. As such, they average high implied spreads of c.800-910 basis points (bps) and high volatility in the 36-43% range, with notable differences between the more established and the newer business models.

By contrast, and unsurprisingly, traditional utilities are generally good-quality investment grade businesses with low volatility, high dividend yields (often 4-5%), and mid-single digit dividend growth. They necessitate large amounts of capex to gradually decarbonise their installed base and to meet growing demand. Favourable market and regulatory dynamics ensure adequate returns for the investments needed, but the structure of most bonds (relatively short-dated, no dividend passthrough for the existing dividend yield, deltas on the low side, and high effective conversion premia) offers slim chances of conversion and leads to a reliance on coupon income for returns. As a consequence, we do not currently find attractive investment opportunities in this segment.

The final segment, independent EV makers, are mostly new standalone companies with immense capex and cash burn plans, limited scale, and sometimes with little more than a prototype to their name. As very high-risk operations, they imply an average of c.2,070 bps credit spread and c.53% volatility. It is worth noting that Tesla, the poster child of EVs, used to be a prolific convertible bond issuer but is no longer in the convertibles market, while the more successful Chinese EV makers (eg BYD) are not convertible issuers either.

As we enter 2024, energy transition stocks are far more reasonably priced... offering greater opportunities for stock pickers



Source: M&G Investments, December 2023

When looking at opportunities to invest in convertibles with exposure to the energy transition, we prefer firms with idiosyncratic, company-specific drivers, rather than those relying on external developments or government incentives. Therefore, we are sceptical of firms with grandiose capacity expansion plans dependent on hitting highly-optimistic sales forecasts years into the future. It is also important to focus on valuations, as many 'new solutions' energy transition firms have seen investor enthusiasm pushing their valuations up to potentially unstainable levels, in contrast to more established businesses.

As such, we have avoided companies in the US such as rooftop solar panel installers that are heavily reliant on subsidies, or very early-stage EV makers. Instead, we have invested, for example, in a manufacturer of power transmission cables, and in a miner of rare earths used in magnets for electric motors.

As we enter 2024, energy transition stocks are far more reasonably priced than in 2021-22, offering greater opportunities for stock pickers. Given the substantial amount of investment needed, we expect to see significant convertible issuance at attractive terms for investors. As ever, we will follow a highly-selective approach, focusing on strong businesses, good credit quality, attractive equity valuations and favourable technical risk-reward characteristics.





Multi Asset

Maria Municchi Fund Manager, Multi Asset

COP 28, selectivity in equities and tactical asset allocation opportunities

The latest Conference of the Parties (COP), held in the United Arab Emirates last December, has been one of the most controversial, yet potentially one of the most significant for investors and asset allocators. Hosted by one of the largest oil-producing countries and characterised by the usual challenges of negotiations across almost 200 parties, it closed with an unprecedented agreement to reduce fossil fuels in order to fight climate change. To some, this can look like stating the obvious, but as the UN Climate Change Executive Secretary Simon Stiell described it, "the agreement is a floor, not a ceiling".

For investors and asset allocators, the implications of the interpretation and implementation of the agreement by various countries could be significant, given the role of fossil fuels in our economies and its influence over macroeconomic factors.

Over the longer term, meaningfully reducing the reliance on fossil fuel energy might lead to lower and less volatile inflation, while the expected reduced cost of solar and wind energy might suggest higher household disposable income potentially leading to an increase in consumption. While the macroeconomic effects of the energy transition are difficult to predict and might vary over time, they are certainly something investors and asset allocators need to be aware of: as the last few years have demonstrated, increased volatility in macroeconomic fundamentals can lead to increased volatility in financial markets.

Inflation and rates variability remained a key focus for investors in 2023, leading to elevated volatility in bonds. In particular, the last quarter of the year saw significant shifts in investors' beliefs regarding the path of interest rates, as represented by the extreme price shifts in sovereign bonds markets which provided attractive opportunities for tactical asset allocation. For example, 30-year German bund yields moved from 3.2% to 2.2% generating a capital gain close to +25% in just a few weeks.

Fig 6. 30-year sovereign bond yields

5

4

WK
US

Germany

Feb-23 Apr-23 Jun-23 Aug-23 Oct-23 Dec-23

Source: Bloomberg, 29 December 2023. Past performance is not a guide for future performance.

Looking ahead, monetary policy is likely to remain centre stage. However, with inflation numbers now looking more benign, investors might start to focus more on the growth environment.

In equities, we maintain a preference for more attractively-valued markets such as Europe, within our current neutral stance. European companies are also, in our opinion, more competitivelypositioned towards decarbonisation, with more advanced frameworks in place for the measuring, monitoring and targeting of carbon emission intensity. We also find opportunities globally in companies exposed to the energy transition, an area that struggled in 2023 in an environment of higher rates and continued supply-chain driven cost pressure, but where we are starting to see these headwinds abating.

In fixed income, we might continue to see higher-than-normal volatility bringing opportunities for tactical asset allocation. However, current levels of yields are attractive on a longer-term basis, in our view, especially if growth was to decelerate in the coming months. More recently, we have found renewed opportunities in developed market sovereign bonds and taken exposure via different instruments, including use-of-proceeds green bonds of Italy, the UK and Germany, bringing together asset allocation and sustainable investing.

In 2024, macroeconomic events and price behaviour are likely to continue to surprise investors and provide tactical asset allocation opportunities. Current elevated real yields across asset classes should be supportive for Multi Asset investors as a potential source of longer-term returns (capital appreciation and income) and improved diversification characteristics in risk-off environments. Investors with longer time horizons might also choose to take advantage of specific allocations related to longer-term themes such as the transition to a low-carbon ecosystem, areas benefiting from structural tailwinds and where we expect capital to continue to flow. The road to make the COP 28 agreement a reality is still long but we believe opportunities are set to arise along the way.

> The road to make the COP 28 agreement a reality is long but we believe opportunities are set to arise along the way





For Investment Professionals only. Not for onward distribution. No other persons should rely on any information contained within. This guide reflects M&G's present opinions reflecting current market conditions. They are subject to change without notice and involve a number of assumptions which may not prove valid. The distribution of this guide does not constitute an offer of, or solicitation for, a purchase or sale of any investment product or class of investment products, or to provide discretionary investment management services. These materials are not, and under no circumstances are to be construed as, an advertisement or a public offering of any securities or a solicitation of any offer to buy securities. It has been written for informational and educational purposes only and should not be considered as investment advice, a forecast or guarantee of future results, or as a recommendation of any security, strategy or investment product. Reference in this document to individual companies is included solely for the purpose of illustration and should not be construed as a recommendation to buy or sell the same. Information is derived from proprietary and non-proprietary sources which have not been independently verified for accuracy or completeness. While M&G Investments believes the information to be accurate and reliable, we do not claim or have responsibility for its completeness, accuracy, or reliability. Statements of future expectations, estimates, projections, and other forward-looking statements are based on available information and management's view as of the time of these statements. Accordingly, such statements are inherently speculative as they are based on assumptions which may involve known and unknown risks and uncertainties. Actual results, performance or events may differ materially from those expressed or implied in such statements. All forms of investments carry risks. Such investments may not be suitable for everyone. Canada: Upon receipt of these materials, each Canadian recipient will be

Japan: M&G Investments Japan Co., Ltd., Investment Management Business Operator, Investment Advisory and Agency Business Operator, Type II Financial Instruments Business Operator, Director-General of the Kanto Local Finance Bureau (Kinsho) No. 2942, Membership to Associations: Japan Investment Advisors Association, Type II Financial Instruments Firms Association. US / Latin America: For Investment Professionals only and Institutional Investors. Not for onward distribution. No other persons should rely on any information contained within. The views expressed represent the opinions of M&G Investments which are subject to change and are not intended as investment advice or a forecast or guarantee of future

The views expressed represent the opinions of M&G Investments which are subject to change and are not intended as investment advice or a forecast or guarantee of future results. Stated information is provided for informational purposes only. It is derived from proprietary and non-proprietary sources which have not been independently verified for accuracy or completeness. While M&G Investments believes the information to be accurate and reliable, we do not claim or have responsibility for its completeness, accuracy, or reliability. Statements of future expectations, estimates, projections, and other forward-looking statements are based on available information and management's view as of the time of these statements. Accordingly, such statements are inherently speculative as they are based on assumptions which may involve known and unknown risks and uncertainties. Actual results, performance or events may differ materially from those expressed or implied in such statements. This financial promotion is issued by M&G Luxembourg S.A. The registered office is 16, boulevard Royal, L-2449, Luxembourg. This document is provided to you for the purpose of providing information with respect to investment management by Company's offshore group affiliates and neither provided for the purpose of solicitation of any securities nor intended for such solicitation of any securities. Pursuant to such the registrations above, the Company may: (1) provide agency and intermediary services for clients to enter into a discretionary investment management agreement or investment advisory agreement with any of the Offshore Group Affiliates; (2) directly enter into a discretionary investment management agreement or investment advisory agreement with any of the Offshore Group Affiliates; (2) directly enter into a discretionary investment with clients; or (3) solicit clients for investment and the investment scheme(s). The Company will not charge any fees to clients with respect to '(1) and '(3) above. M&G Investments is a direct subsidiary