



CAMRADATA

Low Carbon Roundtable

Planning long-term investments
in a low carbon world

November 2017



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In the investment world, low carbon does not have to mean low returns. Turning opportunity into action continues to be a challenging predicament for investors and low carbon investment is no different. Carbon footprints are reducing in magnitude, but a U-turn from across the pond on climate goals have led to an uneasy environment. On the other hand, changes by some of the biggest sovereign wealth funds are making a mark and ensuring a more resilient backbone towards potential risks such as stranded assets.

Recent trends suggest the global economy is on the pathway to decarbonisation, with China along with other major economies changing its tune on carbon intensity. These transitions present high impact risks to asset managers; nevertheless, low carbon footprints have been firmly placed on the agenda. There is a consensus amongst financial institutions that the economic consequences of climate change to their business are proving to be difficult to quantify and measure. The lack of a government backed framework in setting out how to tackle greenhouse gas emissions is becoming a burden for institutional investors.

Therefore, how do investors go about planning long-term investments in the low carbon economy? What returns might they be faced with? Such concerns were raised by Mark Carney, Governor of the Bank of England and FSB chair, last year during his speech on climate change and what it meant for financial stability.

So what's changed? Carbon emission levels have not, well at least not of note. Achieving a 40% low carbon portfolio is one initiative which can perhaps set future trends. Reducing exposure to carbon is a step in the right direction and in accepting the inevitable; it is a low-cost insurance policy.

It has now become a point in time where if institutional investors do not adjust their portfolios in accordance with the Task Force on Climate-related Financial Disclosures (TCFD) guidelines they are at risk of being left behind. Greater disclosure from companies and investors will be vital in ensuring that strategic issues regarding managing the risks and opportunities associated with climate change can be dealt with openly. Innovation inevitably leads to opportunity, and this will continue to be a driving force in changing the financial institutional landscape in what climate experts are calling the Anthropocene .

CAMRADATA'S Roundtable sought to unlock the potential that the low carbon world holds for those investing now and for the future. In addition to, exploring the need for a clear channel of communication between different parties involved in defining and disclosing the investment process, enabling a smooth transition towards a low carbon portfolio.

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HSBC Global Asset Management
Company profile

HSBC Global Asset Management, the investment management business of the HSBC Group, invests on behalf of HSBC's worldwide customer base of retail and private clients, intermediaries, corporates and institutions through both segregated accounts and pooled funds. HSBC Global Asset Management connects HSBC's clients with investment opportunities around the world through an international network of offices in around 30 countries, delivering global capabilities with local market insight. As at 30th June 2017, HSBC Global Asset Management managed assets totalling US\$447bn on behalf of its clients. For more information see www.global.assetmanagement.hsbc.com



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Magellan Asset Management Limited
Company profile

Magellan Asset Management Limited, doing business as MFG Asset Management in jurisdictions outside of Australia and New Zealand, is a Sydney based investment management firm that oversees over £30 billion in global equity, low carbon and listed infrastructure assets on behalf of clients around the world. The company is a wholly owned subsidiary of Magellan Financial Group Limited, which is listed on the Australian Securities Exchange. MFG Asset Management was formed in 2006 by Hamish Douglass and Chris Mackay, two of Australia's leading investment professionals. MFG Asset Management has offices across Australia and New Zealand and in the United States and employs over 100 people globally including 36 highly regarded and experienced investment professionals.



Melissa McDonald
Global Head of Product, Equities and Responsible Investment

Melissa has nearly 30 years experience in the fund management industry across a variety of roles and locations. Melissa joined HSBC Global Asset Management in 2010 as Global Head of Product - Equities and Head of Responsible Investment. Previously she held a number of positions within AXA Investment Managers, including Head of Business Development Asia Pacific and Global Head of Responsible Investment. At HSBC, Melissa is responsible for its equity capability globally including developing the passive and ETF business. She oversees HSBC's responsible investment strategy across all asset classes and works with clients across all segments to ensure that their specific needs are met. Melissa is also a Director on the HSBC ETF Plc Board and a Director on the UKSIF Board.



Domenico Giuliano
Deputy Chief Investment Officer and Portfolio Manager

Dom Giuliano joined MFG Asset Management in March 2007 with responsibility for research coverage of the Financials sector. In 2011 Dom was promoted to Portfolio Manager, working closely with the CEO/CIO on investment strategy and portfolio management of the Global Equity strategies. In December 2014, Dom was promoted to Deputy Chief Investment Officer. In this expanded role, Dom has primary responsibility for coverage, investment strategy and product development while continuing to cover financial stocks. In October 2016, Dom started managing the Global Low Carbon Strategy. Prior to MFG Asset Management, Dom spent 11 years in a variety of investment and actuarial roles. Dom joined MFG Asset Management from Morgan Stanley, where he was an Executive Director with responsibility for leading sector coverage of Insurance companies for the Asia-Pacific region. Dom has also worked as a Consultant with Tillinghast Towers Perrin, working across a wide span of assignments through posts in its Melbourne, Milan and Sydney offices. Dom holds a Master of Business Administration from the Australian Graduate School of Management and a Bachelor of Economics from Macquarie University, and is a Fellow of the Institute of Actuaries of Australia. Dom is a member of MFG Asset Management's Investment Committee.

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UBS Asset Management
Company profile

UBS Asset Management offers a comprehensive range of active and passive investment styles and capabilities, across both traditional and alternative asset classes. We take a connected approach to find the answers to our clients' investment challenges. Our global capabilities include equity, fixed income, currency, hedge funds, real estate, infrastructure and private equity investment capabilities that can also be combined into customized solutions and multi asset strategies. Complementing our investment offering, our fund services business provides professional white labeling services including fund set-up, accounting and reporting for traditional and alternative funds.

Invested assets totaled GBP 562 billion as of 30 June 2017. We are a leading fund house in Europe, the third largest international asset manager in Asia, the largest mutual fund manager in Switzerland¹ and one of the largest fund of hedge funds and real estate investment managers in the world.

We have around 3,600 employees located in 23 countries. Our main offices are in Chicago, Frankfurt, Hartford, Hong Kong, London, New York, Singapore, Sydney, Tokyo and Zurich.



Participants



Joseph Dutton
Policy Adviser
E3G

Joseph Dutton is a Policy Adviser at climate change think-tank E3G. He works across EU and UK energy, infrastructure, and climate change policy, as well as the consequences of Brexit for UK-EU energy, and potential future cooperation models.

He joined E3G from the Energy Policy Group at the University of Exeter, where he was an Associate Research Fellow working on the politics of UK and European energy policy interaction, EU renewable energy development, and market integration policies. Prior to this, he worked at price reporting agency Argus Media, covering the UK and northwest European wholesale natural gas markets, and previously was a Research Associate on the Global Gas Security Project at the University of Leicester, analysing the globalisation of UK gas supply, and the development of shale gas in the UK, US and Europe. Joseph started his career working for upstream oil and gas consultancy Douglas-Westwood.

Joseph holds an MA in 'International Relations and European Studies' and a BA in 'Conflict, Peace and Security' from the University of Kent.



Rodrigo Dupleich Ulloa, PhD
Senior Quantitative Analyst
Director

Years of investment industry experience: 10
Education: University of Manchester (UK), MSc; University of Warwick (UK), PhD

Rodrigo is member of the Systematic Investment Group. The team focuses on developing and implementing systematic investment products. He is based in London. Prior to joining UBS Asset Management in 2016, he held a number of positions as researcher and portfolio manager at Citi, Tower Research Capital and Barings Asset Management where he developed and implemented systematic long/short and long-only trading strategies.

Before the financial industry, he worked as a researcher for University of Cambridge and for the Ministry of Finance of Bolivia. He has various academic publications in statistics and finance.



Ross Wigg
Head of Renewables - UK & Ireland
Lloyd's Register EMEA

Ross Wigg is Head of Renewable Energy at Lloyd's Register. Working at LR for 20 years gaining experience in the Marine and Offshore Industries and since 2010 has lead the development of Lloyds Register's Renewable Energy business. Ross has held positions on International Renewable Energy Standard committees, and currently sits on Advisory Boards for the joint Oxford & Cranfield University Offshore Renewables REMS PhD scheme, and the EPSRC UK funded SuperGen fundamental research programme.



Participants



Kate Brett
Principal, Responsible Investment
Mercer

Kate Brett is a senior investment consultant in Mercer's Responsible Investment (RI) team, based in London. Kate is responsible for advising institutional investors on sustainable investment strategies and provides advice to a broad range of clients, including pension funds, endowments and insurers on integrating Environmental, Social and Corporate Governance (ESG) issues throughout their investment processes.

In addition, Kate is responsible for developing intellectual capital across a range of responsible investment topics and has been the author and co-author of a number of recent reports and papers, including *Investing in a Time of Climate Change* (2015), a collaborative study between Mercer and 18 industry partners, *Fossil Fuel Investments Under the Spotlight* (2015) and *How Low Can You Go? An Introduction to Low Carbon and Fossil Free Passive Equity* (2016).

Before joining Mercer's RI team in 2011, Kate was a consultant within Mercer's investment consulting business. Prior to joining Mercer in January 2009, Kate spent over three years working for a UK pension fund as part of its in-house investment team.

Kate holds a Master's degree in Theoretical Physics & Mathematics from the University of St Andrews and is a CFA Charterholder.



Brendan Maton
Freelance Journalist

A highly experienced financial journalist with an expansive network of contacts in the UK and across Europe. Brendan has written about pension schemes and national welfare systems from Finland to Greece for 18 years and understands the retirement savings industry in each European country.

Brendan has interviewed EU commissioners and national ministers; central bankers; pension scheme heads; insurance chief executives; chief investment officers; actuaries; union officials; professional and lay trustees. He worked at Financial Times Business for eight years, finally as editor-in-chief of all international pensions titles. Brendan has spent the last ten years as a freelancer for a number of publications, including Financial Times, Responsible Investor, Nordic region pensions news and IPE. He is also Chief webcast host for IPE.

Brendan has acted as conference chair for Financial News, the UK National Association of Pension Funds, Dutch Investment Professionals Association (VBA), Corestone, Insight Investment, Marcus Evans, Robeco Asset Management, Sustainable Asset Management (SAM), Towers Watson.



Planning long-term investments in a low carbon world



Humankind is not doing enough to mitigate climate change. The scientific evidence is there to prove the case. Sixteen of the seventeen warmest years since records began have been this century. Sea levels have risen by almost seven inches in the last 100 years.

Panellists at CAMRADATA's Low Carbon Roundtable in London in September accepted that climatic catastrophe in our lifetime is a real possibility. There was also recognition by the panellists, however, that a whole swathe of actors is engaging in the fight to restrict manmade problems.

"I would not say there is one particular group leading the way to a Low Carbon world. To an extent, regulators, politicians, social activists and investors are all playing their part," said Melissa McDonald, head of global equities product for HSBC Global Asset Management. McDonald herself sits on HSBC's Climate Business Council, which assesses how the bank's commercial practices should reflect climate change.

But among investors, only a minority seem concerned enough to put climate change on their agenda. Kate Brett, RI consultant at investment advisory firm, Mercer, said that in a recent poll of pension fund clients across Europe, just 5% said they factored in climate change into their holdings. "Europe is usually considered as leading on responsible investment so the finding that 95% of our clients don't consider climate change is striking," said Brett.

The question then to be asked is what would make "the 95%" will alter their attitude. This is a very difficult forecast. But one anecdote from Mercer's collaboration with institutional investors who are considering fossil fuel risk demonstrates how rapidly change can occur.

In June 2015, ahead of the Paris climate meeting, Mercer published a study on the impact of different climate change scenarios on investment returns, undertaken in partnership with eighteen major institutional investors and stakeholders globally¹. Brett recalls that at that time, even among this vanguard group, there were questions raised about modelling risks and returns based on a restriction in the rise in average temperatures of 2 degrees by 2050. Ahead of the Paris negotiations, there were concerns that this scenario could be off the table. Yet just six months later, by the end of the same year, the leaders of the world's biggest economies, the G20, said they would adopt the very same target, with all the implications for "stranded assets".

¹ See the Mercer report: [Investing in a Time of Climate Change \(2015\)](#)

“Panellists at CAMRADATA's Low Carbon Roundtable in London in September accepted that climatic catastrophe in our lifetime is a real possibility”



If we peel back just a few years earlier, it was only in 2012 that Carbon Tracker enumerated the concept of stranded fossil fuel assets; it was only in 2005 that the European Union introduced a Carbon Emissions Trading Scheme.

“We are changing from a 150-year-old paradigm predicated on coal, gas and oil to something new,” says Dom Giuliano, deputy CIO of Magellan Financial Group in Sydney. He added that because the “something new” is not yet fully formed, it is understandable that many asset owners are reluctant to engage in Low Carbon commitments. It is not yet clear who the Exxon and BPs of the coming paradigm will be. Given that BP last decade branded itself ‘Beyond Petroleum’, set up an Alternative Energy division and then under new management proceeded to divest from these areas as much as possible, it is no wonder that most investors want to wait to see champions of renewable energy prove themselves on a more permanent basis (the CAMRADATA panel did note that Exxon’s shareholders finally passed a motion this summer demanding the company share more data on how it is planning for a lower carbon world. This campaign was covered in our previous [Responsible Investment whitepaper](#)).

In the meantime, there are various investment strategies to suit asset owners convinced that Lower Carbon is coming, but are not sure how. One such strategy is the Climate Aware World Equity Fund from UBS, created for the UK’s National Employment Savings Trust (NEST) but now available to all. Rodrigo Dupleich, co-portfolio manager of the Strategy, explained that the UBS Fund aims for similar returns to a global equity benchmark, holding a similar number of stocks (c.2,000) but aiming for 50% lower carbon emissions relative to the benchmark among other climate aware tilts. This is an index-like product with a relatively low tracking error that has been designed to capture the world’s transformation to a Low Carbon economy.

Dupleich told the CAMRADATA panel that if any equity strategy takes an exclusionary policy – for example by not holding the top 20 carbon emitters – other biases materialise. These don’t make sense if an asset owner’s strategic policy is to obtain index-like returns from its equity portfolio and manage all risks including carbon risk. He added that there could also be times when oil and gas majors perform strongest as a sector: investors adopting an exclusionary strategy had to be wary of how they would explain such performance to their members.

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Brett asked how the UBS Fund treated a major company such as Exxon (at times this century the largest company by market capitalisation in the world). Dupleich replied that it was one of the largest underweights in the entire portfolio – but was still a holding. “We want to keep the dialogue and retain influence as a shareholder,” he said. In fact, the maximum underweight for any stock in carbon-related groups is 20bps less than the index weight. The maximum overweight for such companies is likewise 20bps over the benchmark.

There is no other theme or intentional risk premia tilt to this UBS strategy, but their approach is flexible enough to consider risk premia strategies. But there are several underlying components to its Low Carbon theme. Dupleich explained that his team does not just look at carbon emissions but also to the future and rewards by overweighting those stocks embracing Low Carbon by means of technological innovation or a greener corporate policy. Iberdrola is a good example of such an overweight. The strategy thus aims for exposure to renewables 35% higher than the benchmark index.

All in all, the UBS Fund could be a way for investors to enjoy returns in line with global equities while reducing their exposure to fossil fuels and giving a reasonable and ubiquitous incentive to all public companies to be greener.

HSBC Global Asset Management has launched a systematic global equity strategy that tilts on a number of factors. Instead of using only Low Carbon to decide tilts above or below each stock’s index weight, HSBC GAM will combine inputs on companies’ carbon emissions with other risk premia such as value, size and momentum. HSBC GIF Global Lower Carbon Equity will aim for an annualised tracking of 300bps versus the standard global equity index, according to McDonald.

She made the point that factoring in carbon risk is far from a precise art because there is no set price or determination of how to measure the risk (contrast the price of a barrel of oil). Joseph Dutton, an energy policy advisor at think-tank, E3G, agreed: “Carbon risk is very much tied up with national energy policy.” While countries such as Belgium phased out coal last year and the UK plans to do so by 2025, countries in Central and Eastern Europe produce coal and rely on it for both domestic usage and export wealth. So long as nations have the power to endorse and even subsidize fossil fuel industries (and there are numerous legal means of so doing), market forces in carbon pricing and subsequently carbon risk estimates will be affected. To give a sense of how incomplete the market currently is: of the companies that disclose a carbon price under the Carbon Disclosure Project, a voluntary exercise, the price ranges from \$1 to over \$800 per ton of carbon dioxide emitted.



“Factoring in carbon risk is far from a precise art because there is no set price or determination of how to measure the risk (contrast the price of a barrel of oil)”



So while the direction of travel to Low Carbon is without question, the path itself is not straightforward. Dutton and the rest of the CAMRADATA panel agreed that coal, for example, was on the way out in many regions of the world – E3G has a very useful Coal Phase Out information stream tracking these developments globally. However, not only has Germany imported more coal since deciding to give up nuclear energy (itself a Low Carbon option) but an abundance of solar energy in Germany has displaced gas rather than coal in the energy mix. Dutton explained that gas may be a cleaner fossil fuel than coal, but coal is cheaper.

The panel then approached carbon risk evaluation from another perspective: reporting greenhouse gas emissions. These are divided into emissions arising from a company's own activities (Scope I); emissions generated by purchased energy (Scope II); and emissions arising as an indirect result of the business (Scope III). While the calibration is well established, reporting remains a voluntary exercise. Moreover, the ambit of Scope III emissions is not clear, according to Giuliano. He gave the examples of Lloyds Bank in the UK and Toronto Dominion Bank in Canada. "These are sound companies whose biggest business is mortgages. Does that mean they are responsible or should account for emissions from the homes of millions of their mortgagors? The weakness of Scope III is that it can be taken to include emissions by everyone because the global economy is interconnected."

Giuliano's concerns are shared by many others. Measuring emissions, however, is yet another practice whose importance is on the increase. The international Financial Stability Board, established after the Great Financial Crisis, created a Task Force on Climate-Related Financial Disclosure, which has put forth recommendations this year on how companies and asset owners ought to report on emissions. Brett's colleague at Mercer, Jane Ambachtsheer is on the Task Force. Brett made the point that while these recommendations remain voluntary – as under the Greenhouse Gas Protocol - the fact they have been published under the aegis of an international body of the stature of the FSB suggests that disclosure of climate-related risks is edging closer from good practice by some to a regulatory obligation for all. That will reduce price ambiguity and boost carbon markets.

“ The panel then approached carbon risk evaluation from another perspective: reporting greenhouse gas emissions. These are divided into emissions arising from a company's own activities ”

In the meantime, Magellan has an approach to Low Carbon quite different to the systematic strategies of UBS and HSBC. Giuliano recounts that it was born almost by serendipity, when US clients of Magellan's existing global equity strategy noticed that it had low exposure to high-carbon-emitting stocks. These clients encouraged the Australian asset manager to make this characteristic explicit and the MFG Global Low Carbon Strategy was born.

Magellan looks for “quality” companies that can grow their revenues predictably and with substantial and sustainable excess returns over their cost of capital. “We find that strongly pro-cyclical stocks, which typically include those in the energy and materials sectors, cannot do that,” said Giuliano. Magellan's definition of quality, on the other hand, leads to less-capital-intensive companies and these companies tend to have low carbon emissions intensity.

Magellan's global equity strategy has achieved outperformance with a low beta to its MSCI World benchmark. The Magellan strategy holds rarely holds more than 25 stocks.

One possibility then aired at the CAMRADATA roundtable was whether the Magellan strategy could be placed alongside an index-like strategy as a complement. Brett said that generally speaking, Mercer clients were looking first at adopting an index-like Low Carbon strategy, particularly where a client has existing passive equity exposure. This was for a variety of reasons, depending on the nature of the client. Some faced cost restrictions in the UK defined contribution market. She said index-like strategies appealed to those who wanted to maintain equity returns broadly in line with the market whilst lowering carbon exposure. Some investors are going further and re-assessing the role of certain “smart beta” strategies, especially those that had a bias towards Value stocks, given these are typically more carbon-intensive than market cap strategies.

None of these reasons meant active managers such as Magellan are being left on the bench. Indeed, some pension funds and university foundations are under considerable pressure from members to divest from fossil fuel companies entirely. Brett suggested that many asset owners use active management with a focus on sustainability, including more sophisticated clients with a strong policy of responsible investing, such as The Environment Agency Pension Fund in the UK, where climate change considerations are integrated throughout their investment processes.

Ross Wigg, Head of Renewables at Lloyds Register then asked whether pension funds invested into renewables technology outside public equities. Brett replied that sophisticated clients were investing in renewable energy such as wind farms via infrastructure specialists, on top of their equities holdings (Magellan also invests in infrastructure, although not exclusively in renewables or explicitly on a Low Carbon basis).

“ Many asset owners use active management with a focus on sustainability, including more sophisticated clients with a strong policy of responsible investing ”





Giuliano distinguished between organisations such as pension funds and the likes of the Gates Foundation, established to benefit the world as impact investors with no financial liabilities. He noted the riskiness of much renewables technology and suggested that impact investors rather than pension funds were designed to finance this area. The Lloyds Register Foundation is a perfect example of an impact investor. As the UK's largest corporate charity foundation, specialising in advancing science and engineering-related education, it disbursed £34.6m in 2016 into pure research and safety education which ultimately might solve global problems. A recent example is a pilot project investigating energy storage. No financial return is expected from the grant holders to the Foundation.

The panel agreed that along this chain from scientific research, through discovery, development, funding and ultimately widespread adoption, many different types of investor played their part, not least nations themselves – the ultimate impact investors. “If you ask a company to do something itself, without regulatory or support mechanisms in place, it will never get done,” declared Wigg.

This brought the conversation back to the debate's beginning and how a swathe of organisations are working together to restrict climate change. The debate grew positive once more. Wigg noted that even major wind power manufacturers such as Siemens had underestimated how powerful turbines would become. “At the start of the century it was questionable whether commercial wind turbines would go beyond 1 to 2 MW; now it is more like 10 MW with talk of 20MW, generated from towers taller than London's Gherkin building,” he said.

Such technological development in part explains why predictions for the percentage of world energy supplied by renewables has been consistently underestimated this century. Carbon Tracker, a think-tank, claims the errors in forecasting by the International Energy Agency have been vast. The IEA's 2007 forecast for wind energy was almost 85% lower than the reality by 2014. For solar over the same period, the estimation gap between what was expected and what was delivered was 41.5%. So even the IEA cannot be accurate about the global energy mix a decade ahead.

Dutton noted that on the ground another set of actors, local councils and municipalities, have a role to play. The Mayor's office in London is updating its policy on supporting

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transport powered by renewables (from next January, all new black taxicabs will have to be able to run on electric power).

These kind of policies recognising the prevalence of renewable energy will in turn affect both commuters and companies. Dutton said that Shell was looking at adding electric recharging docks at their petrol stations because the standard recharging process for electric vehicles lasts a minimum thirty minutes in the UK, far more than for petrol refuelling. This forces electric vehicle owners to spend more time – and hopefully more money – in the forecourt shop.

From an engineer's point of view, Wigg noted that if battery storage improved, future recharging stops would be fewer. But if the UK's distribution network is not updated as fast as people buy electric vehicles, the stops might grow longer than 30 minutes due to waiting times. He was not sure which scenario Shell would prefer. He did add that power distributors were definitely going to be affected by innovation as more energy is created and distributed in local hubs.

Giuliano gave the example of Cummins, a world leader in large diesel engines (although not the kind currently popular in London's black cabs). He said that while Cummins is an admirably run, successful enterprise, he was not sure that it was ready for a low carbon world. More significantly, Giuliano worried that Cummins' shareholders were not looking to the future and factoring in technological disruption to expected returns from the company over the longer term.

As a final insight into how big business views renewables, Wigg cited the Lloyds Register Technology Radar, which polls energy executives. When asked their firm's primary driver for investing in renewable technology, the two most popular responses were to improve operational efficiency and to reduce costs. Environmental impact was some way behind in third, almost on a par with competitive advantage and increasing the lifespan of assets².

It is evident from these results that the switch to renewables is being conducted on commercial principles.

In conclusion, the CAMRADATA Low Carbon roundtable believed that the world is moving to renewable energy inexorably if not in an entirely clear or consistent manner. Pension funds, insurers and other institutional investors would do well to envisage how all their assets get affected by the transition: which assets might prosper and which, like the horse and cart, lose their utility and end up with only sentimental value.

² <http://www.lr.org/en/low-carbon-power/technology-radar.aspx>



“ When asked their firm's primary driver for investing in renewable technology, the two most popular responses were to improve operational efficiency and to reduce costs ”



Climate change represents an urgent threat to corporations, economies, society and the planet. The imperative to transition to a lower-carbon economy is a core investment consideration and effectively climate-proofing portfolios requires an informed approach.

Why climate change matters

In December 2015, 197 countries came together in Paris to strengthen the global response to the threat of climate change. The Paris Agreement commits Parties to limit the increase in the global average temperature to well below 2°C above pre-industrial levels and pursue efforts to limit the temperature increase to 1.5°C above pre-industrial levels. This is the level identified by climate scientists (the International Panel on Climate Change) as the level which would significantly reduce the risks and impacts of climate change.

Our current trajectory is closer to 4°C above pre-industrial levels by 2100 if no further action is taken. The physical impacts of climate change associated with this temperature increase are severe – in both social and economic terms. An increase in the frequency and severity of extreme weather events such as droughts, floods and storms, in addition to longer-term shifts in climate patterns such as changes in rainfall and temperature will all contribute to negative impacts on human health, ecosystems and the economy.

Examples of global impacts projected for changes in climate (and sea level and atmospheric CO₂ where relevant) associated with different amounts of increase in global average surface temperature in the 21st century.

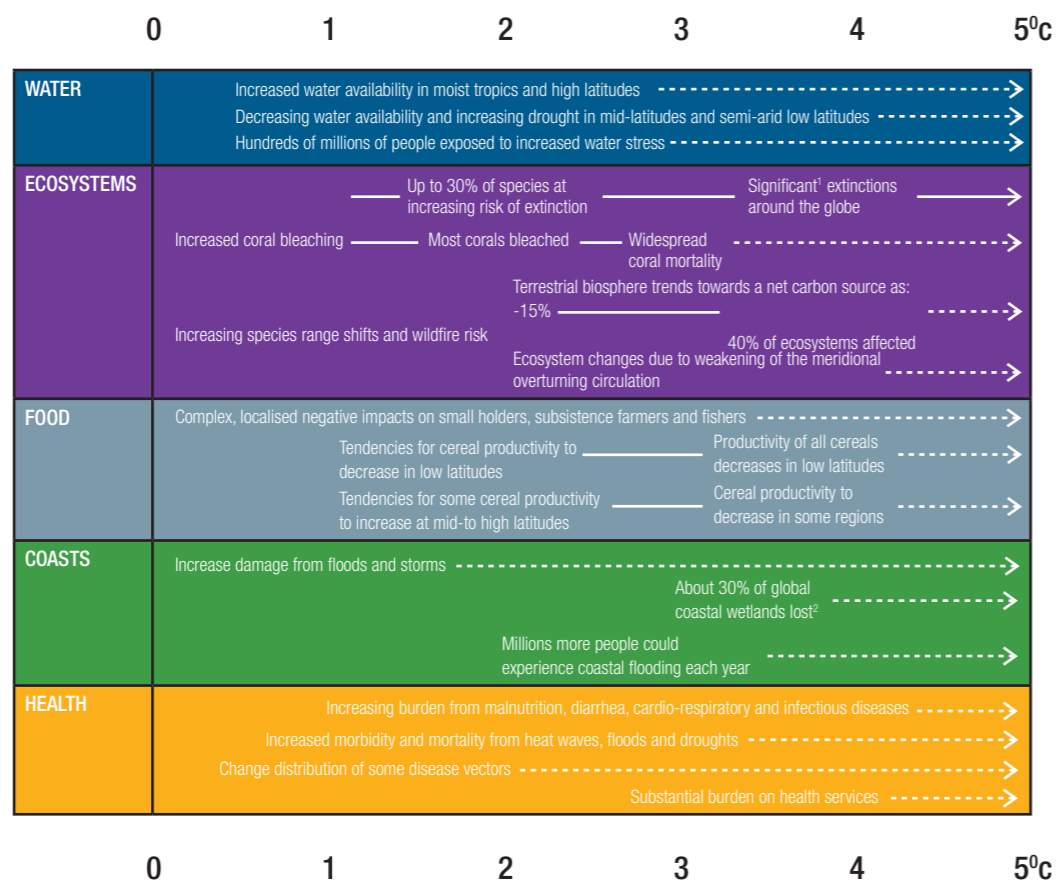


Fig 1: Global average annual temperature change relative to 1980-1999 (°C)
Source: Intergovernmental Panel on Climate Change (IPCC) Fourth Assessment Report (AR4) Synthesis Report
Note:

1. Significant is defined here as more than 40%
2. Based on average rate of sea level rise of 4.2mm/year from 2000 to 2080

“ Our current trajectory is closer to 4°C above pre-industrial levels by 2100 if no further action is taken. The physical impacts of climate change associated with this temperature increase are severe ”



Written by
Stephanie Maier
Director, Responsible
Investment Specialist

The financial consequences of these physical changes are no less severe. An Economist Intelligence Unit report calculated the value at risk to global manageable assets from climate change to be USD4.2 trillion, in present value terms¹. In many cases the regional impacts will be more severe. A recent report from the Asian Development Bank (ADB) highlighted economic impacts across agriculture, industry and investments; estimated a reduction in the average global per capita income level by 4.4% and average developing Asia per capita income loss of at least 10% by 2100 relative to business as usual growth². At a security level, risks can translate to real income, cash flow, balance sheet and credit rating impacts.

Winners and losers in the low-carbon transition

The Financial Stability Board (FSB) backed Taskforce on Climate-related Financial Disclosures (TCFD) was launched by Bank of England Governor and FSB Chair Mark Carney in December 2015. The final report classified climate-related risks into two major categories – physical risks (linked to the impacts outlined above) and transition risks³.

Transitioning to an economy which is consistent with the 2 degrees target requires further policy action by governments and significant changes to carbon-intensive sectors of the economy, such as energy, transport and agriculture. The impact of policy, legal, technology and market changes will result in a higher price associated with carbon emissions (either direct or indirect). Formal carbon pricing is already in place in over 42 national jurisdictions and standards around energy efficiency, fuel economy and the phasing out of fossil fuel subsidies will drive further carbon costs. How companies respond and adapt their business strategies and models will be critical – the low-carbon transition presents risks, but also opportunities. There will be winners and losers. However, the consequences of a failure to transition are far greater.

“ Low-carbon transition presents risks, but also opportunities. There will be winners and losers. However, the consequences of a failure to transition are far greater ”

Carbon-conscious and climate-aware investing

As a global investor, we are committed to playing our full part in addressing the issue of climate change. We focus on building climate-resilient portfolios for our clients as well as contributing towards financing the transition to a lower-carbon economy. We see this as consistent with our fiduciary duty to our clients.

ESG research and analysis

As early signatories to the Principles for Responsible Investment, we are committed to integrating environmental, social and governance (ESG) considerations into our investment process. Climate change is key amongst these considerations – we source climate-related data, including carbon footprint data, from multiple providers and integrate this into our in-house ESG investment tool across equities and bonds. This enables us to consider a security's carbon intensity as part of our investment decision-making. We also leverage research from the HSBC Climate Change Centre of Excellence, established 10 years ago with research specialists in London and Hong Kong and voted by Extel as

Active ownership

We take our stewardship responsibilities seriously – we engage with carbon-intensive companies on climate strategy and disclosure both directly and collaboratively through the Institutional Investor Group on Climate Change (IIGCC). In 2017, we wrote to over 400 companies, encouraging climate-related disclosure as part of the climate change programme of CDP (formerly the Carbon Disclosure Project).

1 Source: Economist Intelligence Unit – The cost of inaction: recognising the value at risk from climate change (2015)
2 Source: Effects of temperature shocks on economic growth and welfare in Asia. Mandaluyong City, Philippines: Asian Development Bank, December 2016.
3 Source: Recommendations of the Task Force on Climate-related Financial Disclosures, June 2017

We support and, where appropriate, co-file meaningful shareholder resolutions in line with our focus on climate strategy and disclosure. In 2016 we supported climate-related shareholder resolutions at over 40 companies in 8 countries. These resolutions included reporting on climate-related risks, 2-degree portfolio alignment and setting greenhouse gas (GHG) emissions reduction targets.

Transparency & disclosure

We believe that transparency and disclosure on sustainability issues are key to making markets more efficient. Climate-related disclosure is a particular area of focus. In June 2017, the Financial Stability Board's Task Force on Climate-related Financial Disclosure (TCFD) published its recommendations for voluntary, consistent climate-related disclosures for use by companies. HSBC Global Asset Management, jointly with HSBC Group, actively contributed to the development of these recommendations. Thanks to former Chief Accounting Officer Russell Picot, and through the industry leadership of Stuart Gulliver (via the World Economic Forum CEO Alliance of Climate Leaders), HSBC has been at the vanguard of advocating for better disclosure on climate-related financial risk and opportunity.

In September 2015 we signed the Montreal Carbon Pledge. The Pledge commits us to provide an annual carbon footprint of our global equity portfolios.

Policy & advocacy

As part of the HSBC Group, we actively engage with regulators and policymakers on strategic sustainability and sustainable finance issues. With its extensive global footprint and systemic importance, HSBC has an important role to play in helping to develop and protect a properly functioning financial system that is critical to secure the current and future prosperity of communities around the world. We have taken a clear and progressive position on climate change.

In May 2017, HSBC Global Asset Management was one of the 389 long-term institutional investors to collectively write to G7 heads of state urging governments to stand by their commitments to the Paris Agreement before their Summit in Taormina, Italy. We actively engage with leading groups including New Climate Economy, the Energy Transitions Commission and the Carbon Pricing Leadership Coalition – all of which aim to ensure finance is part of the solution to the sustainability challenge.

Conclusion

The implications of climate change and transitioning to a lower-carbon economy are core investment considerations – today and for the coming decades. At HSBC Global Asset Management, we are committed to playing our full part in addressing the issue of climate change. Our carbon-conscious and climate-aware approach to investing is designed to build more climate-resilient portfolios for our clients and to contribute towards financing the transition to a low-carbon economy.

“ We focus on building climate-resilient portfolios for our clients as well as contributing towards financing the transition to a lower-carbon economy. We see this as consistent with our fiduciary duty to our clients ”



Upcoming conferences



Investor Conference Incorporating Change, Driving Potential

Grocers' Hall, Princes Street, London EC2R 8AD

**30 November 2017
9.00 - 16:00: Including lunch and drinks**

CAMRADATA's Investor Conference will highlight how institutional investors can adapt to ongoing changes in the financial markets and investigate opportunities that offer potential for maintaining and generating return for the future.

**To enquire about this event
or to find out more about
other exciting events planned
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Tel: +44 (0)20 3327 5600
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**All our events are free to institutional
investors and investment consultants.**

**To register please contact us at
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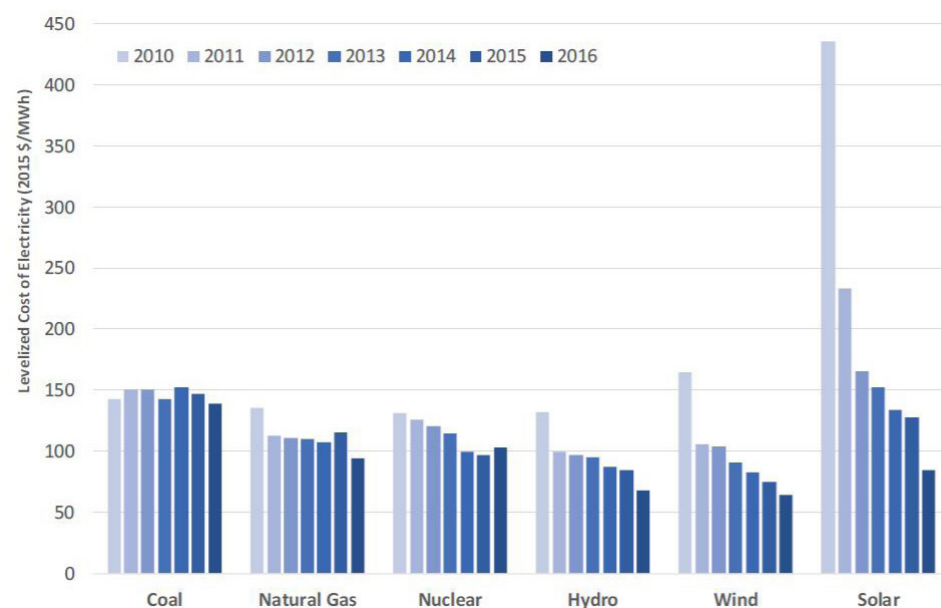
in a world focused on carbon risks



No matter their views on the science, large investors are under pressure to manage climate risks. More disclosure of carbon exposure, government forced or otherwise, will publicise the carbon risks incurred by large investors and those taking on the most risk could face a public backlash that will force portfolio changes.

The risks go well beyond government fiat and politics anyway because technological innovation will be an increasingly disruptive force into coming decades that it will drive portfolio returns and risk. As Chart 1 shows, the improvements in the cost and effectiveness of key technologies such as renewables power generation and energy storage are progressing to such an extent they are likely to swamp societal actions, or inactions, on climate change. Large swathes of the post-industrialisation global economy are inextricably linked to fossil-fuel production and consumption. Industries and businesses with these linkages are likely to be materially disrupted over time. It will become riskier for investors to presume the world's future carbon dependency will look like that of the past 150 years.

Chart 1: Cost of generating a megawatt-hour of electricity since 2010 by different means



Source: US Energy Information Administration – Annual Energy Outlook 2017.
Notes: Chart shows advanced coal with carbon capture and storage, advanced combined cycle natural gas with carbon capture and storage, hydroelectric, advanced nuclear, solar photovoltaic and onshore wind.

Going beyond just managing reputational risk, in our view there are four primary ways investors can reduce carbon risk.

These are:

- i) Overlay of screens, negative and/or positive, to existing strategies,
- ii) Quant-based indexing,
- iii) Purchase of carbon offsets,
- iv) Index-agnostic active.

Table 1 contains a summary of the advantages and disadvantages of each option.

Table 1: The benefits of drawbacks of the main low-carbon approaches

Methodology	Advantages	Disadvantages
Negative/positive Screen/ overlay at fund level	- Tailored to fund needs - No constraints on manager & strategy choice	- Complex to implement - Compromises manager portfolio construction and therefore investment outcomes
Indexation/quantitative	- Inexpensive to implement - Transparent & objective	- Crude rules-based definition exposes portfolio to material carbon risk (eg ExxonMobil, features in some Low Carbon indices) - Absence of "common sense" overlay may preclude investment in advantaged businesses
Purchase of carbon offsets	- Relatively simple to implement, once carbon footprint is known - Zero net carbon footprint	- Expensive - Efficacy of offset programmes questionable - Unchanged economic exposure
Index-agnostic active	- Analytical rigour around carbon impact - No alpha dilution	- More expensive than index - Caution warranted around track records

Source: MFG Asset Management.

Investors, to date, have focused mostly on the first two approaches, namely screens and indexing. Carbon divestment is a negative screen that became more mainstream when the fossil-fuel-divestment movement took shape about three years before the Paris agreement.

Indexing's advantages include that this option provides a ready solution when fiduciaries are under pressure to act. Index-based approaches are necessarily 'quant' based, which can result in stock inclusions to oil and gas exposures that are contrary to reasonable expectations of fiduciaries and underlying asset owners.

Mitigating carbon exposures by purchasing carbon offsets is problematic in our view because the availability of credible offsets at a transparent price is limited. In any event, offsets do not mitigate carbon risk arising from disruption to business models and valuations.

Investors may wish to consider an index-agnostic active approach that has been designed to reduce carbon risk. This is our approach to providing long-term investors with a thoughtful and transparent solution to managing carbon risk.

Thoughtful low-carbon investing

Interestingly, our flagship Global Strategy, which was launched on 1 July 2007, has been intrinsically very low carbon from the outset, as Chart 2 shows. This is a result of its benchmark-unaware investment objectives and process, which screen highly pro-cyclical stocks out of its universe – the very stocks that tend to be heavy carbon emitters (materials and energy sectors). The strategy also has an integrated ESG process. Interestingly, Chart 3 shows that this strategy has produced very satisfactory returns together with unusually low market risk and downside capture.

Taken together, these outcomes provide a compelling learning for long-term investors – it is possible to have attractive risk-return characteristics from a benchmark-unaware, high-quality, concentrated portfolio, which integrates environmental, social and governance considerations, and has unusually low-carbon intensity.

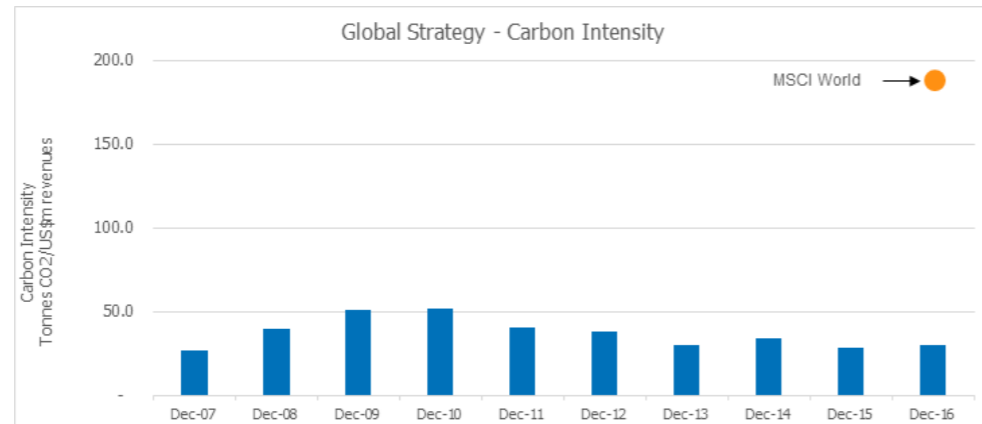
“ The risks go well beyond government fiat and politics anyway because technological innovation will be an increasingly disruptive force into coming decades ”



Written by
Dom Giuliano
Deputy Chief Investment
Officer and Portfolio Manager

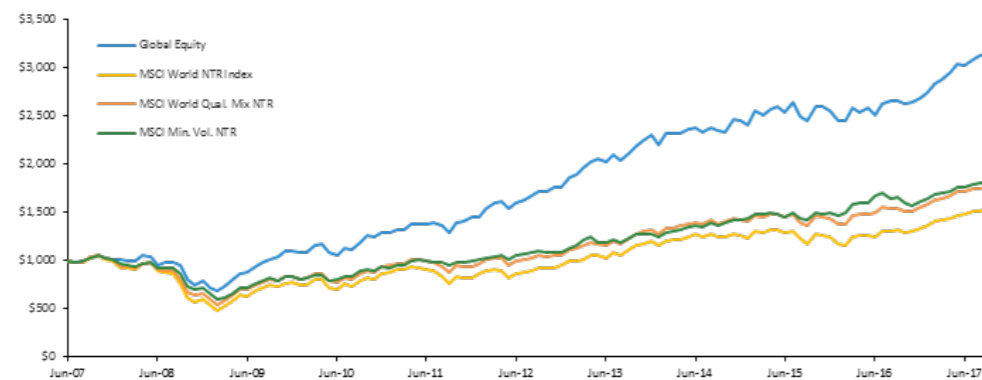
“ Index-based approaches are necessarily 'quant' based, which can result in stock inclusions to oil and gas exposures that are contrary to reasonable expectations ”

Chart 2: Global Strategy carbon intensity versus MSCI World carbon intensity



Note: Emissions intensity calculated using the weighted average intensity method, which is a weighted average of the emissions intensity of all companies in the portfolio.
Source: Trucost; MSCI; MFG Asset Management.

Chart 3: MFG Global Equity Strategy USD performance as at 30 September 2017



Source: MFG Asset Management. Gross returns are for the Global Equity Composite which represents the investment strategy and denoted in USD. Performance would vary if returns were denominated in a currency other than USD.

Based on this experience, MFG Asset Management launched the Global Low Carbon strategy on 1 October 2016. The strategy extends the flagship strategy and introduces explicit proprietary processes to reduce carbon risk. The strategy uses the same investment research, macroeconomic considerations and portfolio-construction process as the global strategy.

The Global Low Carbon strategy, which operates within our robust ESG framework, adopts a three-tiered approach to assessing company carbon risks arising from what is known as Scope 1, 2 and 3 emissions. Scope 1 emissions are directly emitted by companies. Scope 2 emissions are indirect emissions from energy suppliers used by a company. Scope 3 emissions are other indirect emissions from non-energy suppliers or the use of products sold.

The strategy employs a proprietary three-tiered framework to cap emissions, within a low-carbon portfolio of about 40 stocks.

1. Portfolio emissions:

The first-tier caps emissions for the total portfolio. This ceiling is set at 60 tonnes of emissions per US\$1 million of revenue (weighted by portfolio stocks) and includes Scope 1 and 2 emissions. This limit for the portfolio is less than 33% of the MSCI World average carbon emissions intensity, and 15% of the emissions intensity of the world economy.

2. Company emissions:

The second-tier limits emissions at the stock level, to screen stocks out from the available investment universe. This cap is aligned with emissions-reduction targets of the Paris Agreement and estimated carbon budget based on modelling by the Intergovernmental Panel on Climate Change. This is a forward-looking cap, equal to the emissions intensity (Scope 1 and 2) that the world economy needs to reach by 2022 to meet globally agreed climate goals. The cap will fall over time as the global carbon budget declines. We review each stock's carbon disclosure to assess the veracity of the disclosures and make adjustments, where required, to achieve like-for-like emission comparisons across the stock universe.

3. Fossil fuels exclusions:

The third-tier excludes fossil-fuel companies and is where Scope 3 emissions are assessed. The strategy excludes companies that:

- i) extract coal, oil or gas;
- ii) earn 10% or more of revenue generating energy using coal, oil or gas;
- iii) earn up to 10% of revenue generating energy using coal, oil or gas and do not have material offsetting exposures of low-carbon energy generation or other offsets¹;
- iv) earn 33% or more of revenue from transporting and storing coal, oil or gas; or
- v) whose core produce is inextricably linked to fossil fuels, generates 33% or more of revenue, and face an existential threat from decarbonisation. Exclusions extend beyond the obvious companies operating in energy and materials sectors into the industrials and financials sectors.

This framework is stringent. Over time, our aim for the strategy is to produce attractive risk-adjusted returns, while integrating ESG considerations and delivering relatively low carbon risk in a world where such risks will be under greater scrutiny.

“ The strategy provides an integrated and thoughtful ESG Low Carbon solution within a proven process that targets attractive risk-adjusted returns ”

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1. Material offsetting exposures must be at least as large as any fossil fuel energy generation. Carbon credits or offsets must be genuine and additive.



“This generation has altered the composition of the atmosphere on a global scale through...a steady increase in carbon dioxide from the burning of fossil fuels.”

Special Message to the Congress on Conservation and Restoration of Natural Beauty

President Lyndon B. Johnson, 1965

...the tide turns

In the half-century since President Johnson’s observation, human activity has markedly degraded the environment. But growing pressure from governments, shareholders and the public, combined with disruptive new technologies, is starting to turn the tide toward better climate stewardship.

Investors made their concern about climate change risk clear at ExxonMobil Corp.’s May 2017 annual meeting when an astounding 62.3% of shareholders voted in favour of a resolution calling on the oil company to analyze and disclose the financial risks related to its reserves and resources under a demand reduction scenario aligned with the 2°C warming limit agreed to in Paris. UBS Asset Management cast its proxy votes in favour of the resolution as did several other large shareholders. Exxon’s scientists first warned company leadership of the risks posed to the climate from uninhibited fossil fuel combustion in the 1970s, but management chose instead to publicly undermine the science for decades.

Disruptive technologies are reaching critical mass

While the Paris Agreement focused regulatory attention on the need to reduce carbon emissions, widespread automaker diesel emissions fraud vastly accelerated regulatory commitments to limit the use of fossil fuels for transport. The scandal, which has engulfed all major German carmakers, along with Volvo, Renault, GM, Nissan and Chrysler, has been extremely costly to the industry, not only in fines, but in public trust. High levels of Nitrogen Oxide (NOx) emitted from diesel powered engines are responsible for respiratory and cardiovascular disease and premature death. According to a study published in Nature, an estimated 38,000 people die per year due to the excess NOx air pollution from diesel cars.

Urban air pollution and concern about diesel emissions are at the heart of ambitious announcements to decarbonize transport. In June 2017 New Delhi announced that by 2030 only electric vehicles may be sold in India. In July, Volvo committed to manufacturing only fully electric or hybrid cars after 2019. Within days, France and the UK announced that they would ban the sale of all diesel and petrol cars and vans by 2040. Austria, China, Denmark, Germany, Ireland, Japan, the Netherlands, Portugal, Korea and Spain have all set official targets for electric car sales, along with eight US states. In 2016 China accounted for more than 40% of the electric cars sold in the world, according to the IEA.

The race toward Electric Vehicles (EVs) and autonomous cars is on. The economics of EVs look increasingly promising for a good reason: the internal combustion engine has too many parts. The traditional internal combustion engine drivetrain is more prone to repairs and has a much shorter life-span. An EV can last for over 500,000 miles, compared with the average internal combustion engine, lasting 150,000 miles. Industry analysts are starting to proclaim that the end of the age of the internal combustion engine may arrive within the next 10-15 years.

Norway, which derives almost a quarter of its GDP from the oil & gas industry, erupted in a lively debate on the future of fossil fuels during the recent parliamentary election. Norway has aggressively pursued the switch to clean transport, and 40 percent of 2016 car sales were electric or hybrid vehicles. The legislature committed to permitting only sales of 100% electric or plug-in hybrid cars as of 2025. Norway’s approach may appear an anomaly, but it is conceivable that the perception that additional CAPEX for exploration may be uneconomic will take hold more widely.

Growing pressure from governments, shareholders and the public, combined with disruptive new technologies, is starting to turn the tide toward better climate stewardship



Written by **Rodrigo Dupleich**
Senior Quantitative Analyst and Co-Portfolio Manager of the UBS Climate Aware Strategy

AND **Dinah A. Koehler**,
ScD, Head of Research for UBS Sustainable Equities team

The economics are driving large scale change in power generation

Over the past seven years, in the geographical middle third of the US the cost of wind power has dropped from \$60-\$100 per megawatt-hour (MWh) to around \$15-\$25/MWh. By comparison a new natural-gas-fired plant has a generation cost of \$55-65/MWh. For large solar installations, it has declined from \$100-\$300 to \$40-\$70 per MWh. Wind and solar are the cheapest sources of power in many parts of the US without any subsidies. In the UK, National Grid announced that for Summer 2017 52% of electricity generation came from low carbon sources, up from 35% in 2013. The world may well be on the cusp of a major inflection point.

Dynamic fund management: UBS Life Climate Aware World Equity Fund

Whether it is shareholders pushing for corporate accountability, or disruptive technologies that create new opportunities, the climate change agenda will increasingly shape investment decisions across a broad swathe of industries as investors seek to manage both risk mitigation and the opportunities ahead.

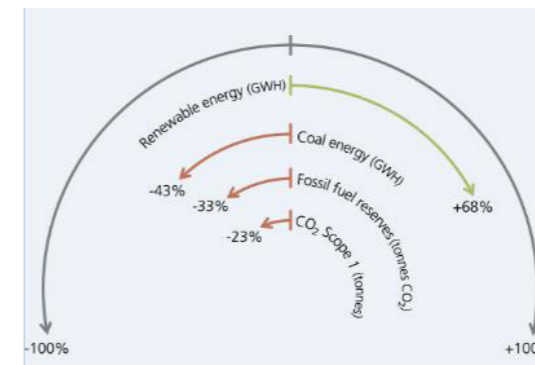
The UBS Life Climate Aware World Equity Fund, launched in February 2017, seeks to address both objectives by tilting investment away from companies with the worst carbon footprints and towards companies at the heart of this transition, as well as to those adapting their operating models to a low-carbon future. Tilts are determined based not only on historical carbon emissions trend, but also on a forward-looking assessment of company commitments to carbon reduction and disclosure. Both elements combined are used to assess our expectations of the likelihood that a company will achieve alignment with the 2°C warming limit.

UBS Asset Management’s approach differs from the standard approach of overweighting stocks of companies that are less dependent on fossil fuel, based primarily on historical or current carbon data. We believe that this approach misses the forward-looking aspirations of the global community under the Paris Agreement. A second problem with this backward-looking approach is that carbon emission data is subject to estimation errors by data providers.

The Fund is designed to enable investors who want to take concrete action to reduce exposure to identifiable financial and political risks associated with carbon emissions while giving them comfort that the expected returns on their public equity portfolio will not be diluted.

Performance results have been entirely in line with expectations, achieving significantly lower levels of exposure to key carbon risk measures while delivering returns modestly ahead of the broad market.

UBS Life Climate Aware World Equity Fund exposures relative to FTSE Developed Index



Source: UBS Asset Management as at 30 June 2017

Positive engagement with companies on their carbon strategies is a core philosophy of the management of the fund. The goal of engagement is to develop an objective, scientifically motivated, data-led dialogue with companies to best serve investors and society at large. The Fund is dynamic by design and will respond to opportunities as they present themselves. The journey has started!

The climate change agenda will increasingly shape investment decisions across a broad swathe of industries as investors seek to manage both risk mitigation and the opportunities ahead



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