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MARTIN CURRIE

Climate change *opportunities*

David Sheasby, Head of Stewardship & ESG, explores how efforts to limit climate change and the transition to a lower-carbon economy present a range of opportunities for investors.

LONG-TERM INVESTMENT INSTITUTE

INTRODUCTION

As we have outlined in our previous paper (*Climate change - an inevitable risk*), the impacts of climate change and the transition to a lower-carbon economy present significant social, economic and investment challenges. In this short paper we look at the other side of the coin, exploring some of the potential opportunities which are now being presented across a wide range of industries. These include: the recasting of the energy system; the increasing focus on efficiency; new products and technologies; and infrastructure and real estate. We investigate the need for companies to build resilience, but also highlight the barriers that are standing in the way of these opportunities being embraced.

ABOUT DAVID SHEASBY



David joined Martin Currie in 2004 as a portfolio manager in our global team. He is now fully dedicated to his role as Head of Stewardship and ESG, overseeing the integration of ESG and active ownership into our process, working with our investment teams to ensure continued best practice and has ownership of our policies, strategy and execution in this key area. Before coming to Martin Currie, David was a portfolio manager for Aegon Asset Management (formerly Scottish Equitable) for 16 years. From 2002 he was a senior portfolio manager for global equities, developing and directing Aegon's global strategy. During his time with Aegon, David headed its global equity, emerging markets and European teams. He was also a European portfolio manager from 1987 to 1994.



ACHIEVING TRANSFORMATION

In order to address climate change, our economic system effectively needs to be rewired, with an enormous transformation required to move from our present, carbon-based energy model. Inevitably this change needs to focus on electrification, with an increasing reliance on renewable energy as a source of electric power.

Consumption patterns will also need to be modified, resilience to the physical impacts of climate change will require substantial investment and companies themselves will need to adapt and innovate. In response, a new wave of investment from the private sector is being channelled into cutting-edge technologies that help address climate change. These range from improving energy efficiency and renewable storage solutions to areas as diverse as alternative meat products and smart cities.

Achieving this transformation will require a significant increase in low-carbon investment. At the global level, the Intergovernmental Panel on Climate Change (IPCC) estimates an immediate investment requirement of US\$2.4 trillion per year in the energy system. This currently implies an annual funding shortfall of more than US\$500 billion¹. CDP, a not-for-profit organisation which promotes disclosure of environmental reporting, estimate that in Europe, for example, corporate annual spending on low-carbon investment needs to double from current levels to US\$122 billion in order to align with the goals of the Paris Agreement². However, companies are increasingly making low-carbon investments, not only to reduce emissions and costs, but also to realise new revenue opportunities from low-carbon goods and services.

RECASTING THE ENERGY SYSTEM

A move towards electrification and an increasing reliance on low-carbon energy is clearly going to require significant capital expenditure on both the energy-generation assets (renewables in particular) and the infrastructure that will need to support this, including transmission, distribution and storage.

The most obvious investment plays are therefore those focused on solar and wind generation and the beneficiaries of these technologies along the supply chain. From an investment perspective, though, we have been more interested in some of the storage solutions. In particular, the battery value chain, which will play a key role in this new energy distribution process.

Demand for lithium-ion (Li-ion) batteries for example, is expected to grow substantially over the next 10 years as demand for use in transport (electric cars, trucks, and buses) and for power storage rises sharply. This will require both investment in large-scale factories to produce battery cells but also will sharply increase demand for the required raw materials. Alongside this there will be an increasing focus on building circularity into the system with a recycling refurbishment infrastructure necessary to support this demand. In the power sector, batteries could play a key role in balancing the power grid as it becomes more dependent on intermittent (wind and solar) power. It will also increase the grid's resilience, allowing power to be generated, stored, and distributed locally.

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¹Source: Intergovernmental Panel on Climate Change (IPCC) 'Global Warming of 1.5°C: Summary for Policymakers' (2018) and International Energy Agency (IEA) 'World Energy Investment 2019' (2019).

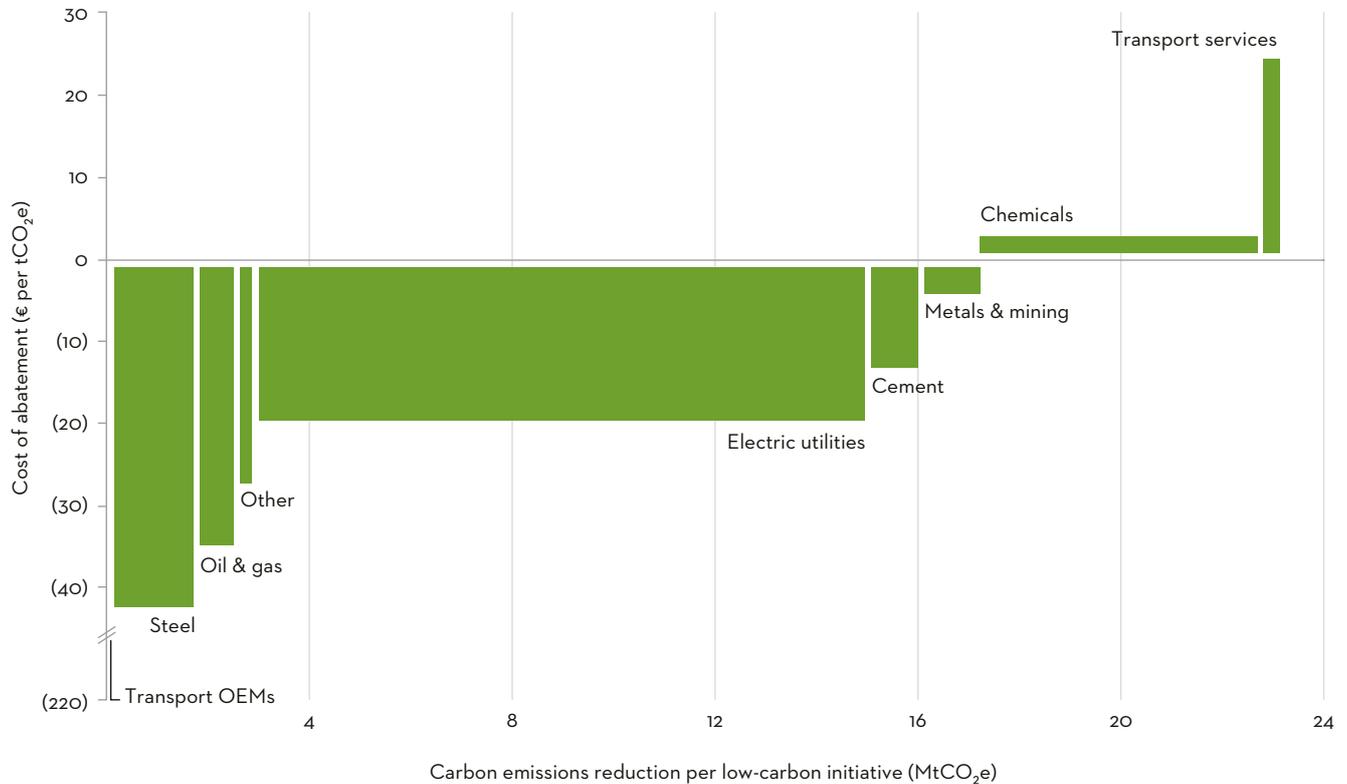
²Source: CDP, Doubling Down Europe's low-carbon Investment Opportunity, February 2020.

THE FOCUS ON EFFICIENCY

Improving energy efficiency for cost-reduction purposes has been a key focus for many companies for some time already. There is, however, now a new benefit from investing in abatement of emissions as demonstrated by the chart below from a recent CDP report:

Average sub-sector emissions reduction initiatives

By marginal abatement cost and amount of emissions reduction, 2019



Note: Only low-carbon investment-related emissions reduction initiatives were included in the calculation.

Source: CDP, Doubling Down Europe's low-carbon Investment Opportunity, February 2020.

This indicates that for many industries (in Europe where there is a carbon price established) the efficiency benefits exceed the marginal abatement costs (investment required to avoid a tonne of CO₂ net of monetary savings). And while efficiency improvements on their own are not a route to complete decarbonisation, there are now an increasing amount of industrial firms which offer solutions to help improve this further. These include products to drive automation, more efficient lighting alongside other emerging building technologies and products, as well as technology that can also make the energy system itself more efficient through initiatives such as smart grids.

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NEW PRODUCTS AND TECHNOLOGIES

We know that reaching net-zero emissions is going to require the development and deployment of many low-carbon technologies.

Some of these that we have highlighted focus on boosting efficiency, but others focus more on radically changing processes through the development of new technologies such as Carbon Capture, Utilisation, and Storage (CCUS) or alternative energy carriers such as hydrogen. In reality, both elements of technological innovation are needed and as such, both are factored into the pathways to reach net-zero emissions by 2050 – as is the case with the European Commission modelling. The difficulties of decarbonisation also vary by industry. The materials sector, in particular, includes some of the biggest challenges because of some inherently energy intensive processes. Cement production for instance, cannot be easily electrified and there is a lack of alternative low-carbon substitutes. One area that could prove to be very interesting is hydrogen. Here there is an opportunity to address the challenges in sectors such as steel, chemicals or long-haul transport. Hydrogen produced from renewable energy ('green hydrogen') is likely to play a significant role in a 1.5oC aligned pathway. 'Blue hydrogen', which is created using natural gas (with the associated CO₂ emissions stored via carbon capture and storage), will also play a role.

CCUS will also be critical to aligning with a 1.5oC pathway. CCUS aims to prevent emissions from entering the atmosphere in the first place by capturing, compressing, transporting, and either storing the carbon dioxide underground or using it as an input for other products. One step further up the chain is Direct Air Carbon Capture and Storage (DACCS). There are some highly innovative companies operating in this space focusing on ideas which have huge potential. For example, looking at processes which emulate trees to process excess carbon. These technologies are, however, nascent and high cost but equally could present some compelling opportunities given the vital role they are likely to play.

INFRASTRUCTURE, REAL ESTATE AND SMART CITIES

Increasing physical risks from climate change are now inevitable whichever pathway is taken, given the latency of global warming.

As such, there will be a huge requirement for expenditure to protect existing infrastructure while planning carefully to ensure that future infrastructure is resilient to the effects of the inevitable higher frequency of extreme weather events. In different regions of the world, authorities are already focused on projects to defend against rising sea levels and extreme weather events. With notable examples including Singapore, Shanghai, New York and Boston.

Cities are the lifeblood of the global economy with an estimated 4.2 billion people living in urban centres across the world. This is set to rise to 5.2 billion by 2030 and 6.7 billion by 2050 according to the UN³. Planning for smarter cities which involve less congestion, less pollution and more technology presents another opportunity set. Related to this are buildings which, together with construction, account for 36% of global energy use and 39% of energy-related carbon dioxide (CO₂) emissions when upstream power generation is included. The energy intensity per square meter (m²) of the global buildings sector needs to improve on average by 30% by 2030 (compared with 2015)⁴ to be on track to meet the global climate ambitions set out in the Paris Agreement. As such, the greening of buildings through retrofitting existing building stock as well as setting green requirements for new builds presents huge opportunities and it has been interesting to see elements of this surface in the COVID-19 recovery plans that have been announced, specifically in Europe.

³Source: United Nations. World Urbanization Prospects, 2018 Revision.

⁴Source: UN Status Report 2017.

BUILDING CORPORATE RESILIENCE

An increasing number of companies are looking to build climate resilience into their strategy, leading the way as they build their understanding of the potential role they can play in the transition to a lower-carbon economy.

The ambitions of the Paris Agreement mean that globally we need to get to net zero emissions by 2050 in order to limit temperature rises to no more than 1.5°C. Non-state actors including cities and companies across a broad range of sectors, including some of the European oil majors, are setting out how they are aligning themselves to this ambition. The new European Commission's Green Deal is a recent example of a policy framework that sets out an agenda to place the European Union (EU) on track for 'climate neutrality' – net-zero greenhouse gas emissions – by 2050. This includes legislation to set this into law.

THE CURRENT BARRIERS

Many low-carbon investment opportunities may be technologically proven but not (yet) economically viable. Immature low-carbon solutions may be expensive compared with the existing technology because they lack economies of scale and technological learning processes have yet to drive down production costs.

A sufficiently high and stable carbon price is critical to addressing the cost disadvantage of new low-carbon technologies, for example for CCUS and hydrogen. Transformational technologies may also threaten existing revenue streams for many companies, as is the case for electric drivetrains in heavy duty vehicles, presenting adaptation risk. However, low-carbon standards that tighten over time can help companies transition their business models and manage the disruption from transition. In addition, from an investors' perspective, many low-carbon technologies have long time horizons, so face considerable uncertainty about the future – for example price or demand uncertainty.

CONCLUSION

Climate change presents a broad array of risks but the transition to a lower-carbon economy and the adaptation required to address the physical effects of climate change present many opportunities.

Some of these will require policy support and initiatives like the Green Deal in Europe will serve to accelerate some of these investment trends. Undoubtedly the companies investing and preparing to become climate resilient will put themselves in a strong position to embrace the inevitable changes that are to come.

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