WHITEPAPER

The importance of being active on climate change

by Rick Stathers

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For today's investor

AVIVA INVESTORS

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Main responsibilities

Rick joined the Aviva Investors Global Responsible Investment team in 2018 with a primary focus on climate change and responsibility for ESG coverage of the industrials sector.

Experience and qualifications

Rick has almost 20 years' experience in responsible investment. He was Head of Responsible Investment at Schroders for 16 years and a Global Director at the CDP (formerly known as the Carbon Disclosure Project) for two years. He has a Bachelors in Agriculture and Food Science and a Masters in Environmental Technology. Rick has a particular interest in syntropic agriculture and the dual role of forests in building resilience in the food system and combating climate change.

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Executive summary

As well as being the greatest long-term threat to the planet, climate change presents huge risks to investment portfolios. Here, we explain why being passive against these risks is not an option.

Global warming is the greatest challenge of the modern world. Under current global emissions trajectories, the planet is on track for approximately 3°C of warming by 2100—a path expected to result in temperatures not seen in three million years.

This degree of heating will exact a staggering toll on global economic output. Oxford Economics projects its impacts could suppress global GDP by 20 per cent, and in some developing countries by as much as 90 per cent.[1] McKinsey forecasts that 2°C of warming by 2050 would trigger lethal heatwaves in Asia, impacting labour and costing the region between seven and 13 per cent of GDP.[2]

The 2015 Paris Agreement was supposed to mark an historic turning point for combating climate change, setting forth ambitious limits on global temperature increases. But to stay within these limits, countries must set equally ambitious global greenhouse gas (GHG) emissions targets—aligning with these pathways requires unprecedented and urgent change.

The change needed to transition to a low-carbon and climate-resilient world will impact every company around the globe. While for some companies the impact is clear, for others it is less apparent. As such, we believe that financial markets are not efficiently pricing the move towards decarbonisation—or the phasing out of fossil fuels—nor are they reflecting the physical risks from climate change. This underscores the importance of taking an active approach to identifying those companies that are best orientating their business models for a lower carbon, warmer world—and mitigating the associated risks.

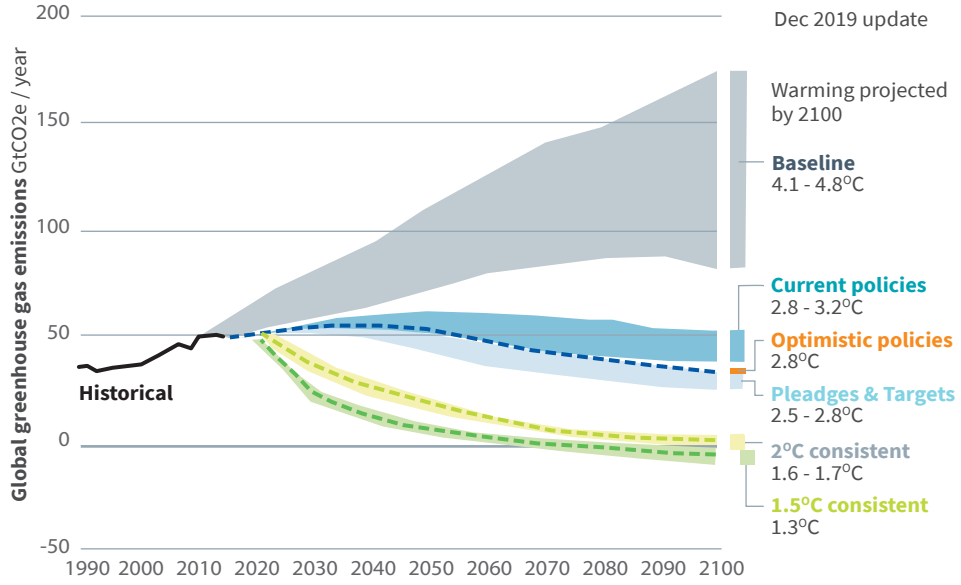
1. Source: Oxford economics, The Economic Impact of Global Warming, November 2019
2. Source: McKinsey Global Institute: Climate risk and response: physical hazards and socioeconomic impacts, January 2020

GHG emissions: Where we are now and where we need to be

Climate science has clearly linked the role of greenhouse gases to global heating. Most countries and companies look to the 2015 Paris Agreement when setting GHG emissions targets, as it sets forth clear limits on global temperature increases. The Agreement seeks to limit the increase in global temperature this century to well below 2°C above pre-industrial levels, and to pursue efforts to limit the increase even further to 1.5°C. After the Intergovernmental Panel on Climate Change (IPCC) released a 2018 report on the impacts of global warming of 1.5°C above pre-industrial levels, most are now focusing on this pathway when setting emissions targets.

However, in light of the current warming trajectory, closing the gap between where emissions are and where they should be will be a monumental undertaking. Current emissions commitments put the planet on track for a 2.8-3.2°C of heating by 2100—well above the 1.5°C target.

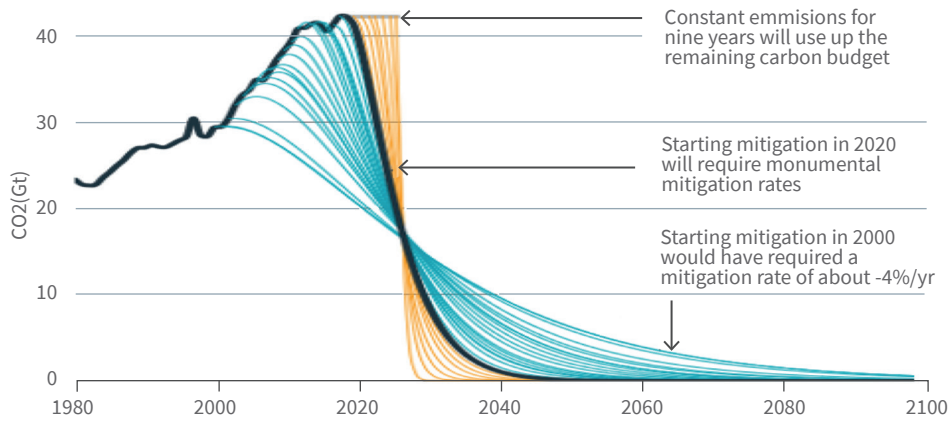
Figure 1. **2100 Warming projections** (emissions and expected warming based on pledges and current policies)



Source: Climate Action Tracker December 2019

The effort required to align with emission targets is not only great in scale, but also in urgency. Achieving a 1.5°C pathway means that emissions must peak immediately and then decline by seven per cent per year or 50 per cent each decade to reach net zero by around 2050. Mitigation curves demonstrate that taking action earlier could have made a material difference. As shown below, had emission mitigation efforts started 20 years ago, emission rates would only be required to decline by about four per cent per year. In short, the current policy environment is not nearly enough to set the planet on a 1.5°C emissions pathway, which is why immediate action is imperative.

Figure 2. **CO_2 mitigation curves: 1.5°C scenario**



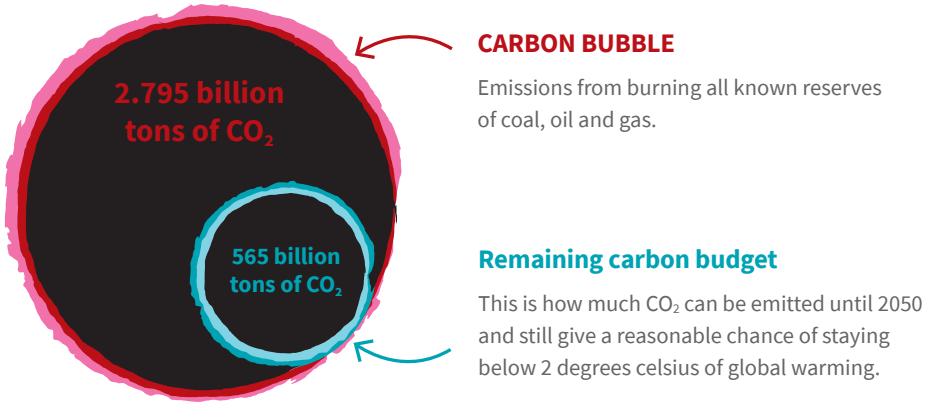
Source: Cicero, Andrew Robbens. CO_2 mitigation curves to limit global heating to 1.5°C above pre-industrial levels 2019.

Global shift to renewables results in decarbonisation risks

The key to achieving these emissions goals is decarbonising the global energy system with a significant shift in the energy mix towards renewable sources. As it currently stands, the use and combustion of fossil fuels contribute to around 75 per cent of GHG emissions, with the remaining 25 per cent coming from agriculture and land use change.

This required shift introduces significant asset stranding risks. In essence, existing fossil fuel reserves cannot all be burned if emission targets are to be met. When determining the extent to which fossil fuels should remain buried, it is important to note the three main types of fossil fuels—coal, oil, and gas—have varying carbon intensities. Coal has the highest by a wide margin, with coal-fired power stations emitting around double the carbon per unit of electricity that natural gas plants do. As such, a 2015 study in Nature concluded one third of oil reserves, half of gas reserves, and more than 80 percent of known coal reserves should remain buried to meet the temperature targets set under the Paris Agreement.[3]

Figure 3. **Carbon Budget to align with 1.5°C warming objective**



Source Cicero, Andrew Robbens. CO2 mitigation curves to limit global heating to 1.5°C above pre-industrial levels, 2019

Positively, the global shift to renewable energy sources is already well underway. The US Energy Information Administration (EIA) recently reported that energy consumption from renewables in 2019 surpassed coal consumption for the first time since 1885.[4] And, in some instances, renewables are now a cheaper form of electricity than traditional fossil fuel sources. In fact, more than two-thirds of the global population lives in a country where either onshore wind or utility-scale solar PV is the cheapest option for new bulk electricity generation.[5]

Further progress in the global shift to green energy will require sizable government investment and accommodative policies. The European Union's Green Deal, developed by the European Commission, aims for climate neutrality by 2050: it proposes using 25 per cent of the long-term EU budget for related initiatives.

Some governments and regional bodies have also incorporated green initiatives into their COVID-19 recovery plans and relief packages. The European Union is one such example, dedicating about 30 per cent of its €750 billion ($891 billion) EU-wide stimulus plan to green investments. The United Kingdom in July announced plans for a £3 billion green investment package, with a specific focus on boosting the energy efficiency of buildings.

In addition, US president-elect Joe Biden's victory marks renewed US commitment to green initiatives. Whilst the US has already begun its shift to renewables, the pace is expected to accelerate under Biden's presidency. Biden has pledged that the US will re-join the Paris Agreement and spend at least $2 trillion on climate-related actions. The president-elect has also unveiled plans to decarbonise US power by 2035.

Carbon pricing initiatives are another key to decarbonising the global economy. While a total of 57 initiatives have either been implemented or are scheduled for implementation, they only succeed in covering 20 per cent of GHGs.[6] In order to meet emissions targets, carbon pricing initiatives must accelerate materially.

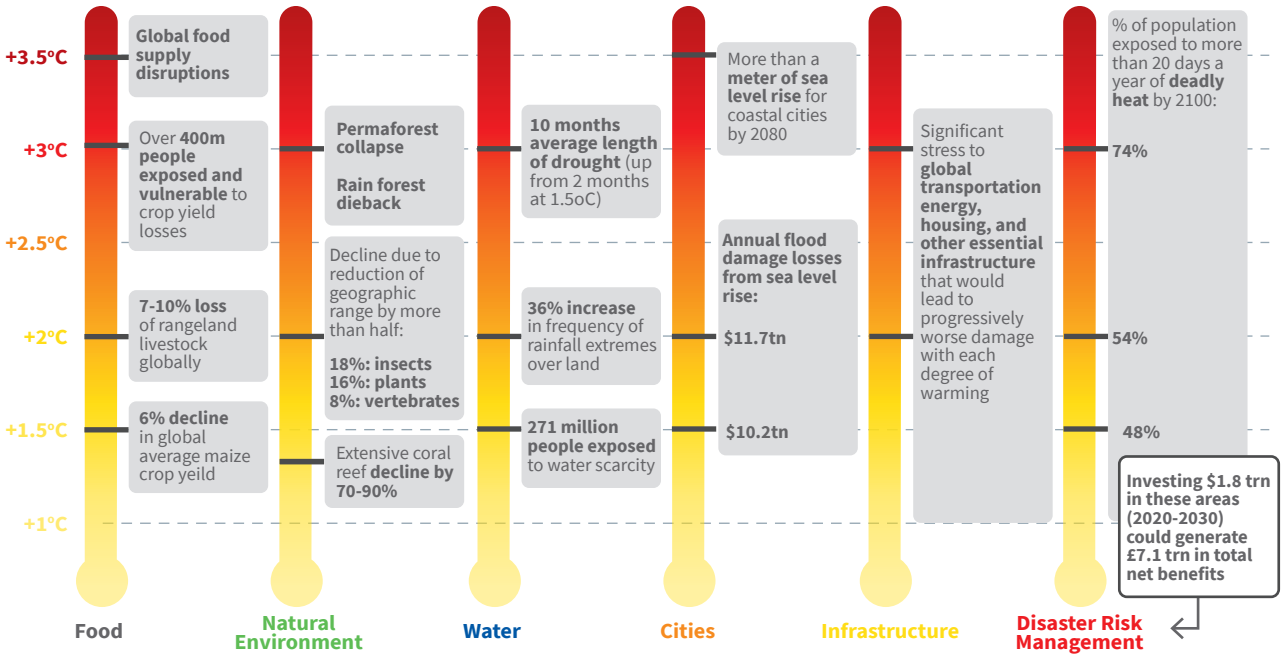
In essence, significant progress has already been made in the global shift toward green energy. And while there is still much to be done to meet GHG emissions targets, governments around the globe are poised to accelerate the trend with their commitments to green initiatives. As the shift to green energy becomes more widespread, so too will decarbonisation risks: we believe the magnitude and scope of these risks have not been efficiently priced into the market.

3. Christophe McGlade and Paul Elkins, The geographical distribution of fossil fuels unused when limiting global warming to 2°C, Nature 517, 187-190, 2015
4. https://oilprice.com/Latest-Energy-News/World-news/US-Renewable-Energy-Consumption-Beats-Coal-For-First-Time-In-130-years.html
5. Source: Bloomberg NEF
6. World bank, State and Trends of Carbon Pricing 2019

Climate change physical impact risks are far-reaching

In addition to decarbonisation risks, it is important to consider the physical impact risks from climate change. A warming planet can have numerous and dire consequences, including productivity loss, water shortages, food supply chain disruptions, and increasing extreme weather events. As shown below, the risk of such catastrophic events is a direct function of temperature increases.

Figure 4. **The risk of catastrophic events increases with temperature**



Source: World Resources Institute, adapted from the IPCC and others. Net cost/benefit analysis from Global commission on adaptation report September 2019.

For example, a warming trajectory of 3°C would leave over 400 million people around the globe exposed and vulnerable to crop yield losses, introducing the potential for a humanitarian crisis of unprecedented proportions. The reality of rising temperatures can also take a grim and staggering human toll—the number of people exposed to deadly heat would increase from 48 per cent on a 1.5°C pathway to 74 per cent on a 3°C trajectory. Examples such as these illustrate how physical impact risks from climate change can have devastating and far-reaching impacts across companies and sectors, many of which markets have yet to effectively measure.

Risks impact every company —including less obvious ones

It is difficult for markets to efficiently price in risks where they are not obviously apparent. There are some areas of the market—such as fossil fuel companies and the necessary shift to renewables —where the impacts of the transition to a low-carbon world are clear. In reality, the shares of oil companies are not the only assets influenced by climate change—the effects can be felt across a broad range of equities, bonds and real assets.

For example, when massive flooding due to an unusually rainy monsoon season devastated Thailand in 2011, the impact reached far beyond local companies. Thailand is home to several large semiconductor manufacturing facilities, many of which sustained substantial damage during the flooding. The resulting loss in manufacturing productivity caused significant disruption in global supply chains, ultimately impacting the bottom line for an extensive list of electronics companies and their customers (for example Japanese auto makers) - and the performance of their securities.

A more recent example was the 2018 heatwave in northern Europe, which triggered severe droughts that brought Rhine River water levels to historic lows. As a result, Germany's most important waterway for transporting goods became impassable, cutting off supplies for scores of companies. In addition, the low water levels forced some German power plants to halt power generation, demonstrating the vulnerability of power supplies to climate change.

As the planet continues on its warming trajectory, weather anomalies such as these are expected to become even more prevalent. With interconnected supply chains that span the globe, the ripple effect of these events can be felt across countless companies, securities and assets.

Being active in the face of climate change

The global transformation required to align with emissions targets will be monumental in its scope and complexity, necessitating an urgent need to reallocate investments to reduce global warming and in turn address climate change risks. Financial markets do not appear to fully grasp the climate transition risks or the implications of mitigating and adapting to climate change.

Being an active investor means thinking beyond fossil fuel exclusion or optimising a portfolio to focus solely on companies with low GHG emissions. Climate change will impact every actor in the global economy; a holistic approach is needed to understand both the risks and opportunities arising from the physical and policy impacts. We believe this is best achieved through a forward-looking, fundamental investment approach, one that assesses risks and opportunities across corporate value chains whilst also incorporating environmental, social and governance (ESG) considerations.

The risks to fossil fuel companies and the opportunities in areas such as electrification, renewable energy and energy efficiency are evident. However, risks and opportunities in other areas of the market might be less clear. For example, carbon pricing can have a knock-on effect to the raw material input costs of many industries. Similarly, the physical effects of climate change, such as water scarcity, temperature rises, flooding to agricultural land, and the need to reduce our meat consumption will be felt throughout the food chain.

We believe companies orientating their business models for a lower-carbon, warmer world are best positioned to outperform the broader market over the long term. Our Climate Transition investment approach seeks to identify these companies, and is based on three pillars:

1. **Fossil fuel exclusions:** Almost three quarters of emissions arise from the combustion of fossil fuels. As such, the first step in our process is assessing the broad universe of global stocks and avoiding fossil fuel companies with the most material revenue exposure to carbon intense fossil fuels.
2. **Solutions:** We then identify companies that meet "solutions" criteria, where at least 20 per cent of their revenue is derived from themes related to mitigating or adapting to climate change.
3. **Transitions:** Eligible companies must also satisfy specific "transitions" criteria, where they are determined to have orientated their business models to be resilient in a warmer climate and low-carbon economy.

Taking an active approach to climate change also involves company engagement. We believe changing the behaviours of companies on climate change means reducing climate risk in our investments. Our philosophy is to be direct and visible in representing our views on ESG issues across all of our investments, spanning every asset class.

For example, we recently engaged with a major German automotive company and outlined recommendations to bring its governance practices in line with industry best practices. Our engagement efforts resulted in their adoption of targets in line with the Science Based Targets Initiative. We will continue our dialogue with this company and urge it to disclose a clear transition roadmap to deliver net zero emissions by 2050.

This is just one example of our proactive company engagement. Throughout 2020, we have increasingly engaged with companies we invest in across sectors—beyond fossil fuels—to understand their strategies for climate change. We aim to hold them accountable for reporting under the Task Force for Climate Related Financial Disclosures (TCFD) framework and setting science-based targets that align with a 1.5°C pathway.

We will explain how we identify eligible companies through our proprietary transition risk model in an upcoming article.

Key Risks

The value of an investment and any income from it can go down as well as up and can fluctuate in response to changes in currency and exchange rates. Investors may not get back the original amount invested. Some investments could be hard to value or to sell at a desired time, or at a price considered to be fair (especially in large quantities), and as a result their prices can be volatile.

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