The Green Light Report

Resilient portfolios in an uncertain world
About ShareAction

ShareAction (formerly FairPensions) is a UK registered charity that exists to promote an investment system which serves savers, society and the environment. In particular, we work to encourage pension funds and other institutional investors to be active owners of listed companies, and to integrate long-term environmental, social and governance (ESG) risks into investment analysis and shareholder engagement. We also work to improve transparency and accountability to the savers whose money is invested in the capital markets.

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## Contents

Executive Summary ........................................... 2

Introduction .................................................. 8

Chapter 1: Setting the internal frameworks for managing climate risks .................................................. 16

Chapter 2: Addressing carbon intensive portfolios ................................................................. 27

Chapter 3: Investing in a low carbon future ................................................................................. 41

Chapter 4: The role of public policy ......................................................................................... 53

Conclusion & Recommendations ............................................................................................... 63

Appendices .......................................................................................................................... 67

References ............................................................................................................................ 71
Executive Summary

Climate change can be described as the greatest economic challenge of the 21st Century, with significant implications for pension funds under a range of different scenarios. In the case of effective regulation to tackle climate change, fossil fuel companies and other high carbon assets could suffer a substantial loss in value, with consequences for pension funds who track indices in which these companies are heavily over-represented. Conversely, if climate change is allowed to advance unchecked by regulation, the risks are even greater: extreme weather events and growing volatility of food and fuel prices are likely to hit returns across entire portfolios in ways that are both dramatic and unpredictable.

These risks are particularly significant for pension funds who are ‘universal owners’, with holdings across the economy. The impacts of climate change on their portfolios are likely to far outweigh any short-term benefits to fossil fuel companies and other high carbon industries from the continuation of ‘business as usual’. Moreover, the already strong financial case for managing these risks is reinforced by pension savers’ wider interest in avoiding the impacts of severe climate change – for example, because of its negative effect on the spending power of their pension pot. Both the financial and wider macroeconomic risks of climate change will hit younger savers particularly hard: fiduciary investors will wish to ensure that they are looking after these savers’ long-term best interests.

This report is designed to help pension funds – both defined benefit (DB) and defined contribution (DC), trust- and contract-based – to understand and limit their exposure to climate risks. We make recommendations for action which, in our view, can be implemented by all types of schemes – although we do not assume that all schemes will implement all recommendations. We aim to present a range of complementary options for managing climate risks and making the most of low carbon investment opportunities.

Setting internal frameworks for managing climate risks

Good governance is a vital first step to effective risk management, and climate risks is no exception. There are a number of steps pension funds can start taking to identify, monitor and manage climate risks and opportunities. Although we focus on trust-based governance, these steps are equally applicable to contract-based pension providers.

The first step will be to understand climate risks. For funds who have not considered this issue before, this is likely to require trustee training; more experienced funds can help by sharing their knowledge and expertise. Scheme boards should also consider and articulate their investment beliefs in relation to climate change and other environmental, social and governance (ESG) issues.

Next, a fund specific evaluation of risk should be undertaken to highlight key areas for action. Various tools are available to assist funds in doing this, including Mercer’s ‘TIP’ framework and the Asset Owners Disclosure Project’s (AODP) best practice methodology. Conducting a portfolio carbon footprint can help investors to identify where carbon risk is concentrated. Such assessments have been performed by Trucost for the equity holdings of the London Pensions Fund Authority, and for the Environment Agency Pension Fund. Although current footprinting methodologies have their limitations, footprinting can still be a useful tool provided that funds are mindful of these limitations, using the data to inform their judgements about climate risks rather than to mechanistically determine actions to reduce reported portfolio emissions.

Developing a climate policy – whether a stand-alone policy or part of a wider responsible investment policy – can help funds to identify priority areas for action and communicate those priorities to service providers and beneficiaries.
Funds looking for guidance in this area may wish to refer to the policies of existing leaders, such as BT Pension Scheme, or to the best practice template produced by the AODP.

Developing an action plan with clear goals against which progress can be measured can help to ensure that risk assessments and policies translate into action. In our view, this can most effectively be achieved by setting targets to reduce portfolio carbon risk, although we do not seek to prescribe exactly what these targets should be. Pension funds should ensure that their asset managers and consultants are instructed and incentivised to help them meet these goals. In particular, clear expectations about climate risk management could be incorporated into investment mandates: we suggest some possible wording to achieve this.

Finally, pension funds should also report regularly to members on how the fund is managing climate risks on their behalf. The Environment Agency Pension Fund’s Responsible Investment Review provides a particularly excellent example in this regard.

Addressing carbon intensive portfolios
One important way in which pension funds can address climate risks is to reduce their exposure to high carbon, high-risk activities. This can be done through engagement or stock selection, and applies to equity investments, bonds, and property portfolios.

Fossil fuel holdings
Major oil and gas companies are allocating increasing amounts of shareholder capital to high-cost, long-term exploration and extraction projects. This reflects an assumption that sustained high prices and continuing high demand will justify production costs. Yet these assumptions may no longer hold. Some analysts are now forecasting the price of oil to be within the range of $80-90 per barrel by the end of the decade, with demand to peak by 2020. Furthermore, as Carbon Tracker has argued, concerted regulatory action to meet globally agreed limits of 2°C could render up to 80% of the world’s known reserves of fossil fuels ‘unburnable’, resulting in sharp falls to fossil fuel companies’ valuations. Equity portfolios are particularly exposed to these risks, as the FTSE 100 and other global indices have relatively high proportions of their market capitalisation in carbon intensive stocks.

As prudent fiduciary investors, pension funds should request that their fund managers assess the ‘stranded asset’ risk in oil and gas companies’ project line-up. They should support calls for reduced capital allocation to high-cost/low-return projects in favour of returning money to shareholders or reallocation to less risky projects. Recent examples of shareholder activism in the US suggest this strategy can be successful.

For coal, where the market is already oversupplied, falling long-term demand projections, increasing regulation on utility emissions (in both Europe and the US) and a clampdown on international financing bring into question any prospects of recovery. Already inefficient power plants across Europe and the US have shut down, and major diversified mining companies are diverting capital away from coal. While some analysts argue that demand growth will be found in China, India, and South East Asia, these forecasts to a large extent depend on maintaining the recent economic growth path in China, which is itself increasingly being questioned. The risky outlook for coal assets, combined with the climate change implications of continued coal use (which will affect pension funds’ entire portfolios) bring into question their suitability as an investment for long-term universal owners. We suggest pension funds set a time frame in which their actively managed funds will no longer hold pure play coal.
Other carbon-intensive equity holdings
Investors should also be alert to carbon risks across their wider portfolios, where the main contributors to carbon footprints come from basic resources (including mining), construction and materials, and the food and beverage sectors. Funds can increase the resilience of their portfolios through:

• Stock selection. Funds with active mandates can ask their managers to integrate carbon risk criteria into stock selection; those with passive mandates can reduce risk by switching tracker funds to carbon tilted indices.

• Engagement. Industry initiatives such as CDP’s Carbon Action and CCLA’s ‘Aiming for A’ are already encouraging companies to take steps to reduce carbon risk and to provide their shareholders with information on their progress.

Bonds and property
The Principles for Responsible Investment’s Sovereign Fixed Income Working Group argues that issues such as climate change could directly impact traditional economic indicators such as fiscal performance, and therefore credit ratings. Corporate issuers could be impacted by carbon regulation. Yet investment managers are struggling to incorporate these risks into bond analysis and they are almost entirely off the radar screen of rating agencies (apart from one analysis by Standard and Poor’s looking at the implications of carbon constraints for the oil and gas sector). Asset owners should ask that bond managers and credit rating agencies analyse and evaluate these risks, particularly for longer duration bonds. Some pension funds are already making these demands.

In property, capital values and income yields are already changing as a result of tighter regulation of energy use, changes in demand for sustainable buildings, and the insurance costs associated with climate-sensitive changes to the physical environmental (i.e. flood risk). Pension funds should request that property managers integrate financially relevant environmental factors into their investment appraisals and development and refurbishment plans.

Investing in a low carbon future
Integrating climate change into investment strategies is not just about reducing exposure to carbon-related risks, but also about gaining exposure to low carbon investment opportunities. The OECD calculates that the cumulative investment required for decarbonising the global economy is US$2Tn a year, or 2% of global GDP annually. These investment opportunities cut across all sectors, spanning energy generation, transport, energy efficiency (in buildings, power grids, and industry), agriculture, water and waste management. They also cut across all asset classes.

The ‘why’: the case for climate-related investments
Investing in the creation of a low carbon, resource-efficient economy makes sense for pension funds on a number of levels:

• Low carbon investments provide a vital hedge against climate risks: Mercer recommends that in some scenarios, up to 40% of a portfolio should be allocated to low carbon assets for this reason.

• As the likely growth sectors of the future, they represent attractive investment prospects: the green economy accounted for a third of the UK’s GDP growth in 2011-12.

• As long-term ‘universal owners’, pension funds have an interest in helping to finance the transition to a low carbon, resource-efficient economy which is capable of delivering sustained economic growth and hence sustained returns to their beneficiaries.
The ‘how’: assessing the investment landscape

In equities, the opportunities are diverse. Green equities such as water and energy efficiency have performed particularly well over the last few years. Though the same has not been true of renewable energy stocks, this trend may be starting to reverse. Clean energy indices have started to recover in the past 12 months and there are good reasons — for example, growing demand for renewables in developing countries — to think that this could be the start of a more sustained recovery.

While integration of climate risks in fixed income investments is still far behind that of equities, green bonds are potentially attractive to pension funds because of their low risk, steady income streams. Although the market has historically lacked scale and liquidity, this is beginning to change: research from the Climate Bonds Initiative and HSBC estimates that the climate bond market almost doubled in 2012 (from $174bn to $346bn). The research screened bonds in the transport, energy, climate finance, buildings and industry, agriculture and forestry, waste, and water sectors. These presented generally low risk, low yield assets, and as such are relatively easy to place within pension funds existing asset allocations.

Further developing an investment grade green bond universe will require both demand and supply side solutions. On the supply side, initiatives such as The Climate Bond Standard and Certification Scheme — a screening tool for certifying climate bonds for investors and government — will help to increase the efficiency of the market and encourage the scaling up of issuances. On the demand side, pension funds should clearly signal to managers and consultants that they desire suitable fixed income products to gain exposure to the green economy.

Infrastructure as an asset class will play a critical role in the transition to a low carbon economy: infrastructure investment decisions made today could lock us into a high or low carbon growth path for decades to come. At the same time, given the appropriate policies, the structure of these investments could deliver low risk, steady income streams over long time horizons. While only the largest pension funds have the capacity to invest directly in infrastructure projects, smaller funds can find opportunities in pooling their assets — for example, through the recently-established Pensions Infrastructure Platform (PIP), led by the National Association of Pension Funds (NAPF). It is important that the PIP’s investments are consistent with pension savers’ interest in the transition to a low carbon economy.

Early stage investments are well suited to the new technologies required in a green economy, such as smart grids and energy storage systems. Pension funds should therefore consider green investment options as part of their allocations, if any, to private equity and venture capital.

Overcoming barriers

While green investments face barriers such as an uncertain policy environment, limited certified products, and limited scale, pension funds can help to overcome these by signalling their demand for these investment opportunities. Relatively few mainstream investment managers or consultants bring investment opportunities in the climate solutions space to their pension fund clients, and, as such, pension funds should invite ideas to be brought to them for consideration.
Good quality climate-related assets are already available across a wide range of asset classes and sectors. By making even a small allocation to climate-related assets, pension funds can provide a powerful, public signal of demand and help to overcome the issue of scale. This will go a long way in overcoming some of the remaining barriers to green investments.

**The Role of Public Policy**

Pension funds have a clear interest in a stable policy environment with clear commitments to tackle climate change. This will help investors to address the risks and opportunities discussed above by giving greater certainty over the likely effects of regulation on high carbon assets, as well as the investment outlook for emerging low carbon technologies.

Pension funds can seek to influence the outcome of key public policy decisions in the best interests of their beneficiaries. Yet the investor voice in the policy space remains muted. While the Institutional Investors Group on Climate Change (IIGCC), which engages with policymakers, has a strong European support base, it has more limited support from UK investors. The UK’s National Association of Pension Funds (NAPF) has a strong policy engagement function but has not yet exercised its voice on climate policy. Meanwhile, companies in carbon intensive industries pour significant resources into swaying policy decisions in their favour. In 2013 in the US alone, companies spent US$1.61bn on lobbying Congress, with many hiring specialised lobbying firms.26 This imbalance has potentially serious consequences for the long-term interests of pension funds and their beneficiaries.

**The policy landscape in 2014: an overview**

In 2015, global governments will meet in Paris to negotiate binding emissions cuts for all economies, which, if adopted, will lead to a global carbon budget for the period after 2020.27 The 2015 talks will also give impetus to the reform of energy subsidies which currently artificially prop up fossil fuels, reducing the incentive for investment in renewable energy.

Concurrently, national and regional policies around the world continue to evolve and are already having impacts on markets in which pension funds are invested. In the EU, reform of the Emissions Trading System is needed to create a clearer long-term carbon price signal.28 In the UK, investor confidence in climate policy has been somewhat undermined by the perceived hostility of the Treasury towards the green agenda, delay in setting a 2030 decarbonisation target (now due to be set in 2016), and the recently announced decrease in renewable energy subsidies.

Further to this, despite welcome advances on company reporting (such as the requirement for companies to report their greenhouse gas emissions annually from 1st October 201329) investors still lack rigorous integrated reports from companies which will allow the connection between company strategy and sustainability to be made.
**How can pension funds respond?**

Shaping these outcomes will require **more coordinated and better resourced engagement by pension funds**. By pooling resources through collective engagement, far-reaching changes that are in the interests of pension savers can be achieved in a targeted, cost-effective manner. Pension funds could strengthen the work already being done by the IIIGCC by committing technical and financial resources, and encouraging NAPF to allocate resources to engage effectively on climate policy.

An important corollary of this is the need to **discourage investee companies from using shareholder capital for lobbying activity which runs contrary to pension funds’ interests**, such as opposing new environmental standards or effective carbon price mechanisms. Investor groups are beginning to scrutinise corporate lobbying more closely. Pension funds should request that their investment managers support collaborative investor initiatives to ensure greater transparency and accountability from investee companies on their lobbying positions.

**Conclusion**

By developing internal policies to start understanding, assessing and managing climate risks, pension funds can start to create resilient portfolios. They can proactively mitigate the risks associated with high carbon assets as well as position themselves to take advantage of the growth industries of the emerging green economy. Finally, pension funds should play an active role in shaping the policy outcomes that will impact the markets they depend on and which will determine whether, and how smoothly, the transition to a low carbon economy can be achieved. In this report, we have sought to provide pension funds with some tools for thinking about this vital and urgent issue, and – most importantly – to move towards action to protect pension savers’ long-term interests.
Introduction

The Green Light Report
UK pension funds are facing a demanding period. Despite signs that the economy is beginning to recover from the biggest financial collapse in living memory, the investment outlook remains challenging. In this environment, as the difficulties of maintaining short-term returns dominate discussions about investment strategy, climate change may seem to many a less than pressing issue. Yet, as we will argue in this report, climate change represents a significant financial risk with enormous implications for the retirement outcomes of today’s savers. Indeed, it is perhaps the biggest systemic financial risk of our age. While understandably preoccupied with the fallout from the 2008 crisis, pension funds should not neglect to protect their beneficiaries from what could be the next crisis in the making.

Pension funds are inherently long-term investors. Even many closed defined benefit schemes have liabilities which stretch many decades into the future. Likewise, many of the savers currently being automatically enrolled into defined contribution schemes will not begin to draw their pensions for 40 or 50 years. Early figures suggest that employees too young to be auto-enrolled are the largest group voluntarily opting in to auto-enrolment schemes. Fiduciary investors will naturally want to give serious thought to how they are protecting their beneficiaries’ long-term best interests, which may not be well served by short-term returns achieved at the expense of the economy’s ability to generate sustainable returns in the future.

Although climate change certainly is a long-term risk, it would be a mistake to think that this means it can safely be ignored in the short term. Firstly, as we will explore later in this report, the risks and opportunities associated with climate change are already beginning to manifest themselves, although they will certainly grow in the future. Secondly, action now is required to prevent even greater risks from crystallising. As the landmark Stern Review demonstrated, the costs of climate change will rise the longer we fail to act. Indeed, without a step change in progress towards decarbonising our economies, we dramatically increase the chances of reaching ‘climate tipping points’ beyond which the economic and environmental impacts would be even more severe and unpredictable. Despite being a long-term consideration, climate change is nonetheless an urgent one.

This report aims to assist pension funds by guiding them through the financial implications of climate change and the steps that funds can take to position their portfolios for the risks and opportunities it presents.

The climate challenge
The newest scientific research from the International Panel on Climate Change (IPCC) has confirmed that warming in the climate system is unequivocal, and that it is extremely likely that human economic activity is the dominant cause. Depending on the scenario, global mean temperatures could rise by between 0.3°C - 4.8°C by the end of the century.

It is difficult to imagine what these temperatures will mean in practice. The World Bank has warned that there is no guarantee that humans can adapt to a 4°C warmer world. It is not the case that temperatures will rise equally everywhere and that the effects will stop there – the climate system is incredibly complex and sensitive to change. The frequency and intensity of extreme weather events will increase, rainfall patterns will affect the availability of water, and
many of the ecosystems whose services humans have historically taken for granted will be jeopardised. Higher levels of warming also increase the probability of reaching climate ‘tipping points’, where the state of the climate system would be pushed into an entirely different mode of operation.33

While governments around the world have agreed that a limit of 2°C warming is necessary, the IPCC has warned that current rates of emissions make this goal increasingly unlikely unless drastic action to decarbonise the economy is taken.34

Financial implications for pension funds
Climate change poses significant financial risks for investors under a range of different scenarios. Below we consider some of the key types of risk involved. As well as affecting schemes’ investments, in the case of defined benefit schemes these risks could also potentially affect the solvency of the sponsoring employer.

- **Regulatory risks of concerted action on climate change.** According to Grantham LSE/Vivid Economics, policy measures to tackle climate change could increase the cost of carbon emissions by $8tn by 2030.35 Regulation poses a particular risk to fossil fuel companies whose present valuations are heavily dependent on their reserves. Research by Carbon Tracker suggests that only 20% of the world’s total fossil fuel reserves can be burnt until 2050 if we are going to meet internationally agreed targets to limit warming to 2°C.36 Even a more generous carbon budget allowing for 3°C warming implies that current fossil fuel reserves cannot all be burnt – the already planned activities of listed fossil fuel companies alone are enough to go over a 50% chance of limiting warming to 3°C.

- **Physical risks of unmitigated climate change.** However, this does not mean that regulation to tackle climate change runs counter to investor interests – far from it. Indeed, the absence of regulation poses, if anything, greater long-term risks for pension savers. Climate change will have profound negative consequences for the economy as a whole, risking the stability of financial markets and the ability of pension funds to meet their liabilities. The Stern Review estimates that the total cost of climate change in the ‘business as usual’ scenario, including the direct impacts on the environment and human health, is likely to lie in the upper range of a 5-20% loss in global GDP.38 These costs will rise...
with delays in coordinated action; increasingly so after 2050. In other words, while regulation is likely to hit returns in carbon intensive holdings, unmitigated climate change is likely to hit returns across entire portfolios in ways that are unpredictable. Real assets (such as property) are likely to be particularly severely affected.

- **Risk of opportunity loss.** The transition, at whatever pace it happens, to a lower carbon global economy will create significant growth in certain industries. Climate-alert pension funds will gain from the growth of those industries; others risk losing out on opportunities. The OECD\(^{39}\) calculates that the cumulative investment in green infrastructure required for decarbonising the global economy is $36-42tn until 2030, or $2tn a year. There are significant investment needs across all sectors, spanning energy generation, transport, energy efficiency (in buildings, power grids, and industry), agriculture, water and waste management.\(^{40}\) The green economy already accounted for a third of the UK’s growth in 2011/12.\(^{41}\)

These risks are particularly significant for pension funds because they tend to be ‘universal owners’, meaning they have holdings across the economy. The performance of the economy as a whole matters more to such investors than the profitability of any individual asset in their portfolios.\(^{42}\) Thus, they have an interest in discouraging their investee companies from creating negative social or environmental ‘externalities’, the costs of which are borne by companies elsewhere in their portfolios – even if this strategy is profitable for the individual company concerned. In the case of climate change, as we have seen, there is a strong business case, even at the individual company level, for reorienting carbon intensive business models to avoid the costs of future regulation. However, there is also a strong case for universal owners to promote decarbonisation even if it is not in the short-term commercial interests of the individual companies concerned, since the economic impacts of climate change are likely to far outweigh any short-term benefits to fossil fuel companies and others from the continuation of ‘business as usual’.

**What does this mean for fiduciaries?**

It is therefore clear that climate change has serious implications for beneficiaries’ financial best interests, which fiduciary investors need to understand and manage. These climate risks are of particular relevance to pension funds with their inherently long-term horizons: many of the UK savers currently being auto-enrolled will be retiring decades from now. Of course, not all pension savers have identical time horizons; in fulfilling their fiduciary duty of impartiality, pension fund trustees and others should seek to ensure impartiality between younger and older savers. Given the numerous pressures to focus on maintaining short-term returns (as identified by the Kay Review\(^{43}\)), in most cases this will mean paying greater attention to long-term risks.

Some experts, such as US academic Keith Johnson, have even argued that neglect of such risks could amount to a breach of the duty of impartiality to younger members.\(^{44}\) For instance, in one survey of leading European pension funds, respondents estimated their ideal investment horizon at 23 years, and their actual horizon at 6 years.\(^{45}\) These funds are
The Green Light Report  

described by the researchers as ‘sustainability pioneers’, yet overcoming the bias towards short-termism and giving full weight to the interests of their younger members clearly remains a challenge for them. It is important that all pension funds are alert to this challenge and make active efforts to meet it. The growing popularity of target date funds offers opportunities to ensure that funds specifically designed for younger members are managed in a way which is fully consistent with those members’ long-term investment horizons, without any risk of affecting the interests of older members.

The already strong financial case for managing climate risks is reinforced by pension savers’ wider interest in avoiding the impacts of severe climate change. Firstly, it could significantly erode the spending power of their pensions: retirees spend a relatively high proportion of their income on food and fuel, both of which could become significantly more volatile and expensive in a climate-constrained world.46 Climate change could also have broader impacts on beneficiaries’ future economic wellbeing and quality of life. Research has suggested that the UK will be hit harder by the physical impacts of climate change than many other European countries, largely because of rising sea levels and flooding.47

The extent to which fiduciary investors can take account of such factors is controversial; the Law Commission has been asked to clarify this area of law and make recommendations to government, and is due to report in June 2014. ShareAction has long argued48 that case law does not prohibit pension funds from taking account of their beneficiaries’ wider social and economic interests provided that this is not detrimental to their financial interests. After all, a pension is not an end in itself, but a means to the end of a secure and prosperous retirement. Thus, in the same way that charities are permitted to have regard to their charitable objectives in setting investment policy, investment fiduciaries should be able to have regard to the underlying purpose of the fund. In the case of climate change, pension savers’ financial interests are aligned with their wider interests rather than conflicting, creating a particularly strong case for action.

An example of how this thinking can be applied in practice is provided by the Environment Agency Pension Fund, whose 2012 Responsible Investment Review characterises the issue as follows:

“Just to look after our current members, we will need to be able to pay retirement pensions well into the 21st century. Over such a long time frame, we expect future trends in global climate, population and economics to have a major effect on the financial value of our fund’s investments.”

“These issues also matter because we want our pensioners to live in a clean and healthy environment which is at least as good as the one we enjoy today. For many members, their pension will be their main source of income when they retire. We want them to have a happy retirement in a world where the environment is not deteriorating.”

Barriers to action

If the case for action to manage climate risk is so strong, then why aren’t more pension funds acting? There are a number of factors which have historically made this difficult. The general barriers to long-term and sustainable
investment, and the policy interventions that could help to address them, have received extensive treatment elsewhere and are not the focus of this report. However, we briefly summarise some of the key issues below:

- **Short-termism.** In the words of one respondent to our 2009 survey of investment managers’ attitudes to climate change, “the most significant barrier is the imbalance between the relatively short-term horizons of mainstream investment analysis and the relatively long-term nature of the material business impacts of climate change”. As the Kay Review noted, prevailing incentive structures and regulatory pressures exacerbate the natural human tendency to focus on short-term financial returns as a metric of longer term success. This disincentivises attention to climate risks: managers being judged on quarterly performance are unlikely to expend resources monitoring and managing a risk which could crystallise years into the future. This problem is exacerbated by flawed measures of risk which focus on deviation from a benchmark, ignoring the potential impacts of systemic risks such as climate change.

- **Confusion about fiduciary duties.** Despite the strong financial case for managing climate risks, there remains a lingering sense that climate change is an ‘ethical’ or ‘extra-financial’ issue and that such issues cannot be considered by fiduciary investors. The level of uncertainty is illustrated by pension funds’ responses to member queries about climate change sent via our website in March 2013. Around a quarter of the responses mentioned fiduciary duty – half as a reason for considering climate change, and the other half as a reason for ignoring it. ShareAction has called on government to explicitly clarify the scope of investors’ fiduciary duties, and hopes that the Law Commission’s report will herald some long-overdue progress in this area.

- **Lack of clarity about roles and responsibilities.** When we surveyed investment managers on their attitudes to climate change in 2009, 89% rated it as an ‘important’ or ‘very important’ investment issue, but only 29% said they integrated climate data into their analyses wherever possible. One of the biggest reasons given for this discrepancy was a lack of client demand. Yet, conversely, research by ACCA has found that many trustees assume that it is the investment manager’s job to factor in material risk factors such as climate change. The researchers concluded that “[trustees’] decision to delegate investment decisions to their fund managers has led to an impression that this frees them from a need to consider potentially material risk factors such as climate change”. This creates an impasse whereby climate change issues may not be considered by anybody in the investment chain. (In contract-based pensions, asset owners’ responsibility for overseeing investment managers is not universally accepted in the first place.)

Of course, it is right that investment managers take responsibility for the detailed implementation of investment strategy. However, asset owners retain responsibility for ensuring that this strategy serves the best interests of beneficiaries. Since fund managers’ incentive structures do not encourage proactive consideration of climate risks, it is important that asset owners set clear expectations in mandates and place value on managers’ performance in this regard when selecting and reviewing managers. Even where pension funds have high levels of confidence in their advisors and managers, they cannot afford to assume that climate risks are being managed unless they have actively instructed and incentivised their agents to do so.
their advisors and managers, they cannot afford to assume that climate risks are being managed unless they have actively instructed and incentivised their agents to do so.

- **Collective action problems.** Climate change is clearly an enormous macroeconomic and political challenge. This has sometimes led to a perception that individual investors ‘cannot make a difference’ and are better off investing for maximum short-term return irrespective of climate risks – even if their beneficiaries’ interests would be better served by effective collective action which could have an impact on the problem. However, this presumes that the steps required to mitigate climate risks are not justifiable at the individual portfolio level. As we shall see in the remainder of this report, this is far from being the case.

Leaders in the UK and abroad show that it is possible to reduce the carbon risk exposure of portfolios both through intelligent stock selection and effective shareholder engagement; to reap attractive returns whilst making positive investments in low carbon solutions; and to exert an influential voice in policy debates which will determine the future economic outlook for beneficiaries. Of course, the impact of engagement – whether with companies or policymakers – is magnified when investors act collectively; this reinforces the case for investors to support and participate in established forums such as the Institutional Investors’ Group on Climate Change (IIGCC), CDP and the Principles for Responsible Investment (PRI).

- **Lack of information and training.** Another factor identified in ACCA’s 2009 study of pension fund trustees was lack of awareness and education about the implications of climate change for investments. While guides have been produced by a range of bodies including the Carbon Trust, Mercer, Towers Watson and the Local Authority Pension Fund Forum (LAPFF), the study found that awareness of these resources remains low. Part of the aim of this report is to synthesise the existing research and guidance for trustees on managing climate risks. ShareAction is also developing a programme of trustee training on climate risks to complement this report, which we believe will fill an important gap in the market.

**Outline of the report**

This report is designed to help pension funds understand and limit their exposure to climate risks. It aims to be relevant to both defined benefit (DB) and defined contribution (DC) funds, and to both trust-based and contract-based pension schemes. We use the term ‘pension fund’ as a short-hand for all these differing types of schemes. Much of the report will also be relevant to other long-term investors, such as endowed charitable trusts. Throughout the report we highlight examples of best practice from the UK and overseas. Whilst the report is focused on the UK pensions industry, we hope that its recommendations will also be of use in a wider international context.

We make recommendations for action which in our view can be implemented by all types of scheme, although naturally the exact details will vary depending on each scheme’s particular characteristics – and, in particular, its size and resources. Although the recommendations form a coherent whole, we do not assume that all schemes will implement all recommendations – in particular, we recognise that smaller schemes with limited resources will wish to prioritise the actions which are most cost-effective and productive for their particular circumstances. We aim to present a range of complementary options for managing climate risks and making the most of green investment opportunities.
In the remainder of the report, we break this down into the following key areas:

- **Chapter 1 (Setting internal frameworks for managing climate risks)** looks at how pension funds can measure, monitor and report on their climate risk exposure – and what steps can be taken to ensure that these risks are managed, both by internal decision-makers and by investment managers and consultants acting on behalf of the fund.

- **Chapter 2 (Addressing carbon intensive portfolios)** examines the risks lying in carbon intensive portfolios and explores how funds can seek to reduce their carbon risk exposure, both through stock selection and through shareholder engagement with carbon intensive companies to reduce the risk of ‘stranded assets’ and to ensure their business models are well-positioned for the transition to a low carbon economy.

- **Chapter 3 (Investing in a low carbon future)** looks at the reverse side of this coin, exploring the positive investment opportunities which the low carbon transition will provide, and examining how funds can make the most of these opportunities whilst also helping to finance the transition to an economy capable of delivering sustainable long-term returns.

- **Chapter 4 (The role of public policy)** focuses on the role of public policy in facilitating climate-conscious investment, and on how investors can engage with policymakers – and with investee companies whose lobbying activities may be impeding effective political action on climate change – to promote a more supportive policy environment.
Chapter 1

Setting Internal Frameworks for Managing Climate Risks
Introduction

The regulatory and physical risks associated with climate change are altering the investment landscape in which pension funds must meet their liabilities and investment goals. There are excellent examples of asset owners who recognise that climate change poses a risk to their investments and are acting to mitigate those risks. Yet most are not. This ‘wait and see’ approach to understanding how climate risks may affect portfolios could serve members poorly.

This chapter addresses the governance of pension funds in light of the accumulating risks associated with climate change. We draw on the wealth of existing guidance produced by institutions such as the United Nations Environment Programme Finance Initiative (UNEP FI); consultants such as Mercer, Towers Watson, and Trucost; funds such as the Universities Superannuation Scheme; and not-for-profit organisations including the Local Authority Pension Fund Forum (LAPFF), the Asset Owners Disclosure Project (AODP), Carbon Tracker and the 2° Investing Initiative. We identify common themes which run through these contributions and synthesise them into a series of possible actions for funds seeking to achieve high quality oversight of climate risks. The actions that are most appropriate for a particular scheme will depend on its size and sophistication as well as the steps it has already taken to begin addressing climate risks.

Although this chapter and its recommendations are framed in terms of trust-based governance (whether defined benefit or defined contribution), the basic concepts are equally applicable to contract-based pension schemes. ShareAction takes the view that contract-based pension providers have a responsibility towards their policyholders to ensure that the investment options offered are capable of delivering sustainable long-term returns: this includes ensuring that managers are addressing climate risks. As asset owners, contract-based providers should also take responsibility for ongoing monitoring of investment managers’ activities to ensure that savers’ best interests are being well served.

Understanding and assessing climate risk exposure

Trustee training

Climate change presents pension funds with a relatively unfamiliar set of risks, to be discussed throughout this report. Trustees and other fiduciaries are likely to need training to build their understanding of how such climate risks could impact fund members over the time to their retirement and beyond. Training might be delivered online, to a particular trustee board or its investment committee, or be undertaken jointly with other pension funds.

Recommendation 1.1

Trustees and pension fund officers with responsibility for investment matters should undertake a minimum of two hours training on the financial materiality of climate change and environmental risk.

Joint training that brings different pension funds together may be particularly worthwhile. No fund can manage all of the climate-related risks facing its beneficiaries on its own: some collaboration between funds is essential and can greatly reduce the cost of being effective. Knowledge-sharing between funds should enable the pensions industry as a whole to better protect savers. A small number of funds in the UK have built a strong understanding not only of climate risks but of the pros, cons and practicalities of different strategies to reduce and hedge those risks.
Recommendation 1.2

Pension schemes with experience of strategies addressing climate risks should share their knowledge and insights with others in the industry.

Investment beliefs

In recent years a growing number of pension fund boards have taken the time to articulate their investment beliefs explicitly. There is some evidence that pension funds with well-developed and well-documented beliefs achieve superior outcomes for their members. Amongst funds that have articulated their investment beliefs, some — though not all — have addressed the materiality of environmental, social and governance (ESG) factors to investment success over the time horizons that are relevant to their beneficiaries.

A wide range of ESG factors influence corporate success and investment returns but none has greater potential to alter retirement outcomes for today’s savers than climate change. Nevertheless, trustees of pension funds will reach different conclusions about the risks posed by climate change in light of the evidence before them and the demographics of their membership base. Trustees’ fiduciary duties give them discretion to apply their best judgement.

Recommendation 1.3

Trustees should develop and articulate their investment beliefs in light of the evidence on the economics of climate change.

Most occupational and stakeholder pension schemes are required by law to draw up a written Statement of Investment Principles (SIP) and review it at least every three years. A scheme’s SIP must state “the extent (if at all) to which social, environmental or ethical considerations are taken into account in the selection, retention and realisation of investments.” Therefore, the SIP is one logical place for a pension fund to articulate its beliefs on climate risks. The National Association of Pension Funds (NAPF) has produced a helpful short Responsible Investment Guide, highlighting climate change as an example of a financially material environmental risk. The guide is available on the NAPF’s website.

Fund specific assessment of climate risks

Pension funds will have different exposure to climate risks depending on their asset allocation, the geographical spread of their investments, and stock selection. Despite these fund-specific differences in the level of risk exposure, key types of climate risk are common across the industry. These include:

- **Regulatory risk** for carbon intensive investments. The risk here is that policy measures locally, nationally and potentially globally put a material price on carbon emissions or restrict the burning of carbon.
- **Physical risks** to investors’ assets arising from the impacts of a changing climate, including extreme weather events, water stress and rising sea levels.
- **Risk of opportunity loss**. The transition, at whatever pace it happens, to a lower carbon global economy will create significant growth in certain industries. Climate-alert pension funds will gain from the growth of those industries; others risk losing out on the opportunities.

In addition to affecting schemes’ investments, these risks may also – in the case of defined benefit (DB) schemes – influence the strength of employer covenants.
More generally, as discussed in the Introduction, climate change could present more than a financial risk for savers: it also has serious implications for their economic interests and quality of life. In thinking about how to respond to climate risks in the best interests of their beneficiaries, trustees should be alert to who their members are and the ways in which climate change could impact their lives.

Questions which may be helpful when undertaking an evaluation of climate risk exposure include the following:

- How does the fund’s current asset allocation influence exposure to climate risks?
- How might different carbon cost and climate change scenarios impact the fund’s portfolio over time?62
- Are carbon intensive holdings hedged from a climate risk perspective by holdings in ‘green’ and low carbon industries? (Such holdings may be present without a pension fund being aware of owning them.)
- Is the fund’s equity and property exposure to carbon risk higher than the benchmark? If so, are these risks being adequately rewarded?63
- What level of future ‘locked in’ carbon emissions is the fund invested in? (This question is particularly relevant to long-term infrastructure that facilitates high emitting activities and to companies’ capital expenditure on bringing fossil fuels to market.)64
- What impact does securities selection have on carbon risk in the fund’s equity, private equity, property, bond, and infrastructure portfolios?

Given increasing regulation on carbon worldwide – the emergence of regional emissions trading schemes, carbon taxes, and performance standards – the cost of carbon is becoming a growing risk to the profitability and value of a wide range of investments in all asset classes. As argued by the United Nations Environment Programme Finance Initiative (UNEP FI), measuring the carbon intensity of portfolios is a necessary step to understanding and mitigating these risks. UNEP FI has produced an investor guide on measuring and managing the carbon intensity of investments and portfolios65 which sets out the role carbon footprinting can play in reducing unrewarded risk exposure.

Trucost has developed one of the most advanced methodologies for carbon footprinting of equity portfolios in the world. It has conducted portfolio footprints for the equity holdings of the London Pensions Fund Authority, Fonds de Réserve pour les Retraites (French State Pension Fund), Australian fund VicSuper, and the Environment Agency Pension Fund.66 Since 2012, VicSuper has extended its footprinting analysis to parts of its private equity and property investments.67 Carbon Tracker has also compared pension fund exposure to fossil fuel reserves relative to benchmarks for pension funds such as the Government Employees Pension Fund in South Africa.68

Portfolio footprints help investors to understand if their holdings are more exposed to carbon risk than the benchmark, as well as identifying where carbon risk is concentrated. One of the few funds in the UK to regularly undertake carbon footprinting is the Environment Agency Pension Fund (EAPF).69 The EAPF ascribes particular value to being able to identify their most carbon

**Quantifying the Risks: the role of carbon footprinting**

Understanding and managing these risks requires measurement. Carbon footprinting of equity portfolios is one tool available for quantitatively assessing carbon risk. Given increasing regulation on carbon worldwide – the emergence of regional emissions trading schemes, carbon taxes, and performance standards – the cost of carbon is becoming a growing risk to the profitability and value of a wide range of investments in all asset classes. As argued by the United Nations Environment Programme Finance Initiative (UNEP FI), measuring the carbon intensity of portfolios is a necessary step to understanding and mitigating these risks. UNEP FI has produced an investor guide on measuring and managing the carbon intensity of investments and portfolios65 which sets out the role carbon footprinting can play in reducing unrewarded risk exposure.

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intensive equity holdings per £ of revenue. Knowing which stocks are most exposed to carbon risk facilitates targeted engagement with particular companies and has led to decisions to sell stocks where the carbon risk appears to be financially unrewarded. The EAPF has also begun to analyse the environmental performance of the companies which issue its bonds.70

As of October 2013, reporting on carbon emissions is now mandatory for UK listed companies.71 Companies will have to report on direct emissions associated with operations (known as ‘scope 1’ following the Greenhouse Gas Protocol) and those associated with purchased energy (‘scope 2’).72 Given that the necessary data will be readily available, this should make it easier for pension funds to conduct portfolio footprints on the same basis, at least for their equity holdings.

However, pension funds should also be aware of the limitations of footprinting based solely on scope 1 and 2 emissions. For some companies, the emissions from their direct operations are dwarfed by those that occur upstream or downstream in their value chain (scope 3).73 This can be particularly important in sectors such as oil and gas, where the majority of the emissions associated with the company are in the use of the product. Given the carbon intensity of the construction of renewable energy plants, up to 90% of emissions can occur upstream of the plant itself74, while there are negligible downstream emissions. The UK government carbon reporting guidelines suggest companies report these scope 3 emissions for these reasons, but such reporting remains voluntary at present.75

More sophisticated methodologies are emerging which capture these sources of emissions. For example, BT has calculated its full (scope 1-3) corporate carbon emissions and compared it with its carbon abatement efforts to calculate its ‘net good’.76 The Carbon Trust verified the methodology and calculations. Similarly, Trucost undertook a review of operational and full supply chain emissions for Becker Underwood – an agricultural solutions provider — which aimed to be ‘net positive’ in its environmental impact.77

The UNEP FI and others have also suggested that we may need a new category of ‘scope 4’ emissions which is specific to fossil fuel companies: emissions embedded in fossil fuel reserves.78 This would allow investors to understand the extent to which their portfolios are exposed to the risk of stranded assets from ‘unburnable carbon’ — a topic we discuss in Chapter 2. The UNEP FI and GHG Protocol are in the midst of a consultative process to develop a credible and global methodology for measuring the emissions embedded in investments. The GHG Protocol Financial Sector Guidance will be released in 2014.79

As methodologies and data availability continue to improve, pension funds should seek to remain abreast of these developments to ensure footprinting exercises give an accurate picture of portfolio carbon exposure. In the meantime, footprinting exercises based on scope 1 and 2 emissions provide a useful, even if imperfect, way of measuring this exposure. What matters is that funds are clear on the purpose and limitations of undertaking a footprint – i.e. as one element of a wider assessment of climate risks, and not as a proxy for such an assessment – and do not apply its findings mechanically in a way which could create unintended consequences.

For example, utilities often account for a large proportion of portfolio carbon footprints. But this does not necessarily mean that the right
response to conducting a footprint would be to reduce exposure to utilities. Indeed, given that utilities will be a critical part of the transition to a low carbon economy, pension funds might decide that their interests as universal owners would be better served by engaging with utility companies to reorient their strategies for a low carbon world. In this case, footprinting would allow the fund to identify outliers within the sector where high carbon activity was not adequately rewarded, and to either prioritise these companies for engagement or sell out of them in favour of better-performing peers.

**Recommendation 1.4**

Pension funds should undertake an evaluation of their exposure to climate risks, quantifying those risks where possible.

**Qualitative assessments of risk exposure**

A second consideration is that measuring emissions is only the first step toward measuring risk. Emissions present risks in so far as they interact with regulation to cap emissions, or contribute to physical climate risks. Understanding how carbon emissions relate to risk must to some degree rely on judgments about how different scenarios may unfold and how these may affect investments – for example, how different market conditions may affect investee companies for a given level of emissions.80

A number of high quality free resources are available to pension funds for making such assessments.

- Mercer has made available a sophisticated tool (its TIP framework) that uses qualitative and quantitative inputs to estimate the rate of investment into low carbon and efficiency-related technologies (T), the impacts (I) on the physical environment, health and food security, and the implied cost of carbon resulting from global policy (P) developments (such as the implied cost of carbon due to regulatory measures and/or emissions trading schemes) under four climate scenarios.81 The framework can be used by institutional investors to identify and manage the systemic risks and investment opportunities arising from climate change. Results of portfolio reviews undertaken using the framework can be used to develop policies and processes that both capture opportunities and mitigate identified risks.

- For evaluating service provider risk, pension funds might like to use the Climate Change Investment Risk Audit developed by Railpen, HSBC and Linklaters.82 This provides a questionnaire that can be sent to a pension fund’s service providers to assess their understanding and management of climate risks.

- The AO DP’s Climate Change Best Practice Methodology is an alternative tool for comprehensive pension fund risk evaluation.83 It provides detailed guidance for funds on assessing their risk exposure, together with a ‘checklist’ of key steps and considerations.

**From measurement to management**

**Developing a climate policy**

The development of a policy – whether a stand-alone policy or part of a broader Responsible Investment policy – will assist pension funds in addressing the most financially material climate risks. A policy is helpful in selecting priority areas for action, and communicating those priorities to fund managers, consultants, and beneficiaries. It guides day-to-day decision-making and assists with appropriate reaction to relevant events and developments.
There are already useful tools available to funds looking for guidance in this area. For example, the AODP provides a sample best practice policy which can be drawn upon (See Appendix 1). We do not seek to prescribe which specific policies funds should adopt. However, drawing on this and other examples of best practice climate policies, we suggest that a pension fund climate policy might cover the following areas:

- Investment beliefs underpinning the policy
- Overall goals of the policy
- Who is responsible for agreeing, updating and implementing the policy
- How often the policy will be reviewed
- Priority activity areas arising from fund-specific risk evaluation
- Use of shareholder rights to manage climate risks
- Participation in collaborative initiatives to address climate risks
- Reporting to beneficiaries

**Recommendation 1.5**

Pensions funds should develop a policy (or sub-policy) that sets out fund-specific objectives and priorities for managing climate risks. The policy should be signed off at board level or by an investment committee of the main board.

**CASE STUDY 1 – BT Pension Scheme**

BT Pension Scheme (BTPS) published a Sustainability Policy in 2012 articulating the Trustees’ approach across the Scheme’s assets. As a long-term asset owner BTPS considers sustainable factors to improve long-term risk adjusted returns.

As part of its ongoing analysis of the potential risks from climate change, BTPS have been actively exploring ways to efficiently allocate capital to investments that could outperform as a result of policy moves towards a low carbon economy.

For example, in 2011 BTPS invested £100m in a carbon-tilted version of the FTSE All-Share Index (with carbon intensive companies underweighted. BTPS also invests in low carbon infrastructure, with £350m in a global renewable energy fund and £75m invested alongside the UK government in a UK-based environmental innovation fund.86

**Action plans and target-setting**

It is important that policies and climate risk assessments are translated into concrete steps to mitigate the risks identified. This does not always happen: of the 37 asset owners surveyed by the Global Investors’ Coalition on Climate Change (a network which includes the IIGCC) in 2013, 56% were conducting formal or informal risk assessments of their portfolios but only half of these had made changes to their investment processes. Further to this, it is unclear to what extent these changes in processes had led to changes in asset allocation. Given that respondents were by definition already climate-conscious investors, these figures are also likely to be overestimates of those that apply to the wider investment community.

A pension fund’s climate policy therefore needs translating into a plan of action. The content of this plan will depend on the fund’s circumstances. For funds which are only just beginning to think about climate risks, the steps discussed earlier in this chapter, such as training trustees and assessing climate risks, might themselves be the focus of an action plan. For funds who are more advanced on this journey, their plans might incorporate some of the more substantive steps discussed in the remainder of this report. Funds will necessarily
focus on a relatively small number of priority areas. These might be determined on the basis of risk analysis or simply with reference to where the fund believes it can most readily and cost-effectively achieve a positive impact.

The goal of all such strategies is ultimately to reduce climate risks, and we believe it is important to measure the extent to which this goal is being met. Here, investors can apply lessons from their engagement with listed companies to their own strategies. Successful investor initiatives such as the CDP’s Carbon Action project (see case study 2) show that setting clear targets can dramatically improve firms’ chances of making progress. Although we do not seek to prescribe exactly what these targets should be, we do believe it is best practice for pension funds to set their own targets to reduce portfolio carbon risk (comprising both operational emissions of investee companies and the future emissions locked into fossil reserves and infrastructure). For example:

- We aim to reduce the carbon intensity of our portfolios, relative to benchmarks for each asset class by X% in X years.
- We aim to increase our exposure to climate change solutions by X% in the next X years.

These are given as illustrative examples. As discussed above in relation to portfolio footprinting, funds may decide that portfolio carbon intensity based on scope 1 and 2 emissions is not a perfect proxy for portfolio climate risk, and that they can achieve better results by pursuing a programme of targeted engagement with carbon-intensive holdings in key sectors. In this case, setting clear targets for the outcomes of engagement activity remains just as important.

Those investors who are already signatories to CDP and to the Carbon Action project specifically (190 investors, of whom 41 are UK pension funds) will have the most insight into the value of setting achievable but stretching targets for emissions reduction. We suggest those investors lead the way by disclosing their own targets and reporting on progress in the same way they have called on investee companies to do so.

**Aligning the investment chain**

As discussed in the introduction, it cannot be taken for granted that pension funds’ key service providers (actuaries, investment consultants, investment managers) are taking climate risks into account. Service providers may not have the expertise or indeed the incentives to proactively manage climate risks. Thus, if objectives and targets are to be met, asset owners must ensure that their service providers (particularly external investment managers) are aware and supportive of those goals.

## CASE STUDY 2: CDP and Carbon Action

One of the best known investor initiatives focused on climate risk is CDP, a not-for-profit organisation that has the support of 722 institutional investors around the world. These investors champion disclosure by companies of their carbon emissions and use of other natural resources. Recently, CDP has established a project called Carbon Action which focuses on the business benefits of target setting and corporate investment in emissions reduction and energy efficiency projects. The results have been positive, with carbon reduction activities associated with the project delivering average return on investment of 33% or a payback in 3 years. Most strikingly, high emitting companies that set absolute emissions reduction targets achieved double the rate of improvement compared to companies without targets, with 10% higher firm-wide profitability.
Pension funds should make explicit their expectations on the measurement and management of climate risks and seek to ensure that their service providers have the skills and strategies to deliver on those expectations. The wording of investment management mandates (or appropriate side-letters) is a key opportunity to signal demand for the capabilities required to manage climate risks and to ensure that such capabilities are developed actively. The International Corporate Governance Network (ICGN) has developed a model mandate which sets out ‘model contract terms’ between asset owners and investment managers.\(^8\) The mandate focuses on alignment to long-term horizons and the integration of ESG factors into the investment chain. Asset owners could explicitly mention climate change as one of the factors that must be addressed by their investment managers.

Pension funds can highlight their beliefs and expectations regarding climate risks in their Statement of Investment Principles, requests for proposals for both investment managers and consultants, investment management agreements, and policies for voting and engagement. An example mandate can be found in the adjacent box.

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**Model mandate clause**

“As fiduciaries, we require fund managers to acknowledge long-term and systemic risks from climate change given the long-term investment horizon of our beneficiaries, and to take active steps to manage these risks. Relevant actions may relate to asset allocation, investment analysis, risk hedging, and shareholder voting and engagement.

We require that:

The manager provide a succinct annual overview of his/her assessment of the systemic risk of climate change (as manifested through regulatory as well as physical impacts) and of actions by the manager in response to such risks.”

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Ability to comply with these expectations also needs to be given genuine weight in manager selection decisions. In the same 2013 study by the Global Investor Coalition on Climate Change cited above,\(^9\) 83% of asset owners said they considered the extent to which managers integrate climate change into their processes and activities, but only 69% indicated that this had influenced their decision.

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**Recommendation 1.6**

Pension funds should prepare a practical action plan to deliver their climate policy with time-bound targets.
Reporting to Beneficiaries

As UNEP FI has noted, while companies are increasingly under pressure from investors to report on their emissions through platforms such as CDP, investors themselves do not currently face the same pressure to disclose emissions associated with the companies they are invested, or the associated risks. Yet, as the pensions industry shifts from a defined benefit (DB) world to a predominantly defined contribution (DC) world, expectations will inevitably change regarding the value and role of high quality reporting to fund members who bear the investment risk. Savers may begin to expect the same accountability from their pension funds that institutional investors expect from the companies in which they invest.91

Reporting on the management of climate risks can be one aspect of the information that pension funds provide to their members on overall investment strategy, performance and risk management. Some funds will choose to prepare more dedicated reporting on Responsible Investment. A particularly excellent example of this is the Environment Agency Pension Fund’s (EAPF) Responsible Investment Review (see case study).

Members will be interested not only in the risk-mitigation side of the equation, but also in the positive contribution made to the low carbon transition and emissions reduction through investments in green sectors and in technologies driving resource efficiency in the wider economy. Where a pension fund’s Action Plan includes targets for emissions reduction amongst particular sectors or companies, progress towards those targets should also be reported.

CASE STUDY 3: Environment Agency Pension Fund’s (EAPF) Responsible Investment Review92

The EAPF’s Responsible Investment Review is a document that communicates to members and stakeholders the fund’s goals, plans and progress in managing environmental, social and governance risks. It clearly sets out the board’s beliefs about the materiality of climate change, the fund’s environmental performance targets, and a roadmap for how these targets are being pursued. It explains how investment managers are selected and how expectations are set for these managers to integrate environmental risk in all asset classes.

Corporate reporting on climate and carbon risk has improved dramatically in recent years, supported by initiatives such as the Climate Disclosure Standards Board.93 These initiatives offer valuable examples of good practice and comparable reporting frameworks for pension funds to draw upon.

Recommendation 1.7

Pension funds should report regularly to members on the progress being made to reduce climate risks. Such reporting can be a stand-alone account or embedded in pension fund annual investment reports.
CHAPTER SUMMARY

In this chapter we discussed how pension funds can start understanding and managing climate risks. We have suggested steps which may help funds to measure their risk exposure and ultimately develop a credible action plan for reducing this exposure. We have also suggested that funds communicate with beneficiaries about how these risks are being managed on their behalf. We recommended the following actions, which fall into three broad areas:

Understanding and assessing climate risk exposure:

- Trustees and pension fund officers with responsibility for investment matters should undertake a minimum of two hours training on the financial materiality of climate change and environmental risk.
- Pension schemes with experience of strategies addressing climate risks should share their knowledge and insights with others in the industry.
- Trustees should develop and articulate their investment beliefs in light of the evidence on the economics of climate change.
- Pension funds should undertake an evaluation of their exposure to climate risks, quantifying those risks where possible.

Developing policies and plans to ensure effective management of climate risks:

- Pension funds should develop a policy (or sub-policy) that sets out fund-specific objectives and priorities for managing climate risks. The policy should be signed off at board level or by an investment committee of the main board.
- Pension funds should prepare a practical action plan to deliver their climate policy with time-bound targets.

Reporting on progress:

- Pension funds should report regularly to members on the progress being made to reduce climate risks. Such reporting can be a stand-alone account or embedded in pension fund annual investment reports.
Chapter 2

Addressing Carbon Intensive Portfolios
Introduction
Carbon intensive investments pose risks to investors under various climate scenarios. In a low carbon world, the energy, transport, built environment and infrastructure systems will be very different from the ones we have today. In this scenario, a limit on emissions will see fossil fuels lose value while related infrastructure such as transport, factories, buildings and power plants will have to be replaced or modified before the end of their expected economic lifetime. As the physical impacts of climate change become more apparent and market and regulatory pressures to limit emissions intensify, carbon intensive investments will be particularly at risk of devaluation. On the other hand, in a scenario with unconstrained carbon emissions, unrelenting investment in high carbon assets could jeopardise entire portfolios vulnerable to the economic impacts of climate change. Pension funds therefore have a wider interest in avoiding the physical damage of climate change by reducing the carbon intensity of their portfolios.

This chapter examines the main carbon risks facing pension funds. These include the impacts of regulation to curb carbon emissions and the doubts being cast on the demand and price assumptions underlying the current business as usual, high cost capital expenditure programmes of most oil majors. We explore the risk implications for equity investments, bonds, and property portfolios. We make a number of recommendations to assist pension funds in mitigating these risks in line with their fiduciary duties, taking account of how the approach of active and passive investors might differ.

Equities

UK Investors’ Exposure
Global equity markets continue to be significantly exposed to climate risks. Sector analysis of the MSCI World Index shows 12% of global market capitalisation attributable to fossil fuels. The FTSE 100 reflects a similar proportion, with 17% of market capitalisation attributable to just four oil and gas producers, and 9% to mining companies. The energy (oil and gas), utilities, and materials (mining and chemicals) sectors — comprising only 24 companies, were responsible for 87% of reported emissions in the Index in 2009.

The FTSE 100 companies made up 81.7% of value of the UK stock market at the end of 2010, with pension funds holding UK stocks in the same proportion – that is, around 81% in FTSE 100 companies, and the rest in smaller stocks. Though UK pension funds’ proportion of equity holdings has declined from 68% in 2003 to 39% in 2012, what remains is significantly exposed to climate risks due to the carbon intensity of the FTSE 100 and other major indices.

Investors are not only exposed to the risks associated with current emissions – i.e. those that are reported annually on a retrospective basis — but also to the risks posed by future, or embedded, emissions. These are locked into companies’ business models as a result of the capital investments they make today. Research by the 2°C Investing Initiative found that the creation of capital stock (equipment, buildings) by FTSE 100 companies is proportionally more concentrated in the mining, oil, and gas sectors than the capital formation of (1) listed companies

As the physical impacts of climate change become more apparent and market and regulatory pressures to limit emissions intensify, carbon intensive investments will be particularly at risk of devaluation.
in general, and (2) national economies. In 2011, almost 70% of the investment in new capital stock by FTSE 100 companies was made by the oil and gas, and mining sectors.

**Fossil Fuels - Unsustainable Capital Expenditures**

**Oil and Gas**

Current trends in capital expenditure threaten fossil fuel companies’ reliability as high income shares. Unprecedented levels of industry capital expenditure have been accompanied by flat share prices and declining returns on equity even through a period of sustained US$100/barrel oil prices. In this environment, Morgan Stanley has argued that reining in capital expenditure would have a positive effect on European oil majors’ share prices and allow dividend cover from cash flows to increase.100 Yet, in the oil and gas industry a continued focus on increasing capital expenditure — which is at an all-time high for listed companies101 — seems relentless. In the last year alone, the top 200 oil and gas companies spent $593bn on new exploration horizons and techniques,102 and an expected $2tn worth of oil and gas projects are planned for 2020.103

Many of the projects currently being funded with shareholder capital face high and escalating costs in an environment of uncertain commodity prices. As the era of ‘easy’ oil and gas reserves has passed, the proportion of capital expenditure spent on high cost, unconventional projects such as shale oil and gas, coal bed methane, gas to liquids, Arctic oil, and oil sands is rising.104 The size and complexity of capital expenditure projects has seen global costs of developing oil and gas infrastructure double in the past decade, and the number of companies with a capital expenditure budget of over $4bn rise from four in 2001 to over 30 in 2012.105 In allocating shareholder capital to high cost long-term projects, oil majors make assumptions that future market conditions will be such as to ensure an adequate return on investment: that sustained high prices will justify production costs; that production costs will not increase; and that current industry demand projections are accurate. However, analysts and investors106 are increasingly querying those assumptions, in particular those of continued strong demand and sustained high prices for oil.

**Demand**

The assumed inevitability of strong and growing demand for fossil fuels for several decades is increasingly being challenged by investment analysts. Citi points to the twin trends of gas switching and increasing energy efficiency in predicting a “plateau for global oil demand” by 2020. HSBC107 likewise predicts that “oil demand could be reduced relatively quickly” owing to fuel efficiency measures. In addition to efficiency, Generation Foundation108 highlights the “greater adoption of renewable energy sources” as a corroding factor for fossil fuel demand. It refers to projections that global renewable electricity will account for 25% of gross power generation in 2018, with growth being driven by developing nations109.

These more cautious demand projections are independent of any global deal on climate. Any such agreement would increase the risk further. Carbon Tracker’s analysis argues that only 20% of the world’s total fossil fuel reserves can be burnt by 2050 if we are going to limit warming to 2°C. Even a more generous carbon budget allowing for 3°C warming implies that current fossil fuel reserves cannot all be burnt – the already planned activities of listed fossil fuel companies alone are enough to go over a 50% chance of limiting warming to 3°C. In other words, if regulation is introduced to reduce carbon emissions, certain reserves will become ‘unburnable’ leading to stranded assets.
Sustained high oil prices
In line with its projections for peak demand by 2020, Citi is of the view that by the end of the decade Brent prices are likely to be within a range of $80-90. The absence of sustained high oil prices poses risks to the commercial viability of high cost capital intensive oil projects.

The absence of sustained high oil prices poses risks to the commercial viability of high cost capital intensive oil projects.

Citi places break-even prices for projects such as Canadian heavy oil, Russian oil, and Australian LNG projects near $90 per barrel. Goldman Sachs estimates that international oil majors need an oil price of $120 per barrel, with the highest cost producers needing over $130 per barrel. High oil prices can in fact suppress demand. An analysis by McKinsey quoted in the Office of Tony Blair report, Technology for a Low Carbon Future, estimates that a sustained oil price of $120 per barrel would reduce the incremental cost of additional investment in decarbonisation, and, as a result, alternatives to fossil fuels would become more attractive.

The developing consensus among analysts about peak demand, even without further climate change regulation, means prudent fiduciary investors should challenge allocation of shareholder capital based on a questionable assumption of strong oil demand.

It is not accurate to claim that all fossil fuel projects will lack profitability. While in the International Energy Agency (IEA)’s 450 Scenario more than two thirds of current fossil fuels are not commercialised before 2050, there will still be demand for fossil fuels going forward: more than 50% of oil and gas reserves will still be developed in this scenario, but only 20% of coal reserves. However, gas is the only fossil fuel for which there will be significant demand growth over this period. Indeed, any scenario would represent some fossil fuel demand to a greater or lesser extent.

In this context, how should investors evaluate which fossil fuel companies present the greatest investment risk? The relative risk of fossil fuel projects can be inferred by a project’s position on the industry cost curve: as long as there is demand, it will be filled by those who can deliver at least cost for given oil price. In an environment of falling demand, it will be the highest cost producers that fall away first. Accordingly, to assess the investment risk, “investors could usefully seek to develop a much clearer sense of companies’ aggregate cost curve position and what would happen to their cash flows in the event of lower oil prices or less gas demand...”

Recommendation 2.1
Pension funds should request that their fund managers assess the ‘stranded asset’ risk in fossil fuel companies’ project portfolios. Managers should request that investee companies disclose the cost curve position of their project portfolio and disclose their cash flows under different demand and price scenarios.

US investors are already actively questioning the profitability of oil and gas business models. Pressure to focus on profitability from activist hedge fund Elliot Management, which resulted in a year-long proxy battle, has seen integrated energy company Hess shed numerous international assets (including Russian oil) and return money to shareholders. Similarly, upstream oil company Apache agreed to divest $4bn in assets by the end of 2013 and return $2bn to shareholders. This includes the sale of Egyptian assets after shareholders urged the company to justify its presence in the politically risky area.
Yet European oil majors, who are trading below their US counterparts, seem determined to continue with upstream expansion plans despite the mixed market signals. Since the end of 2011, Europe’s oil majors have increased their 12-month forward capital expenditure expectations by 20%, while cash flow projections have remained flat. At the same time, a rising proportion of this capital expenditure is being spent on merely maintaining existing assets.

This continued growth in upstream spending, particularly on high cost projects, seems indefensible. Pension funds and their investment managers should engage with companies on misallocation of capital where companies continue to allocate to risky projects that find it difficult to recover costs. The recent examples of shareholder activism in the US suggest that this strategy can be successful.

**Recommendation 2.2**

Pension funds should support calls for reduced capital allocation to high cost/low return projects in favour of returning money to shareholders or reallocation to less risky projects.

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**CASE STUDY 1: Arctic oil exploration**

Confronted by the end of easily accessible oil from conventional sources and the simultaneous rise of resource sovereignty in the Middle East, Russia and Latin America, International Oil Companies (IOCs) have sought to maintain their profits by pursuing ever more extreme sources of oil in provinces such as the Arctic. The swift reduction in ice cover that has attended the onset of climate change has now opened up the theoretical possibility of exploiting newly discovered offshore resources in North America, Russia and Greenland. But any such extraction will be heavily dependent on a variety of market, technical and environmental factors. Extremely harsh climatic conditions, long distances and high technological demands mean extraction costs are likely to be very high. Bernstein Research excludes any Arctic oil and gas production from its supply predictions for the next decade, noting that “development costs will be at the high side of the industry range” and “development times are likely to disappoint.”

Results of an unpublished US Geological Survey (USGS) of the reserves of the East Greenland Rift Basin, show that commercially recoverable hydrocarbon reserves in the Arctic are likely to be far less than the purely technical estimates suggest. According to the USGS, the amount of oil that can actually be extracted at an exploitation cost of $100 per barrel is only 2.5bn barrels, with a 50% probability against the technical estimate of 7.5bn barrels. Under these conditions, as Bernstein Research points out, “fiscal takes will be crucial to make any Arctic developments viable” – that is, securing significant tax breaks or subsidies will be a necessary precondition for any extraction in the Arctic. This highlights the particular vulnerability of Arctic extraction to political risk – commercially viable extraction depends on the stable support of host governments. Russia, with its unpredictable political, regulatory and fiscal regime, is particularly challenging in this respect. Royal Dutch Shell is leading the move among IOCs to the North American Arctic with expenditure to date in excess of $6bn and their plans currently stalled. It has yet to disclose its total anticipated capital expenditure in the Chukchi and Beaufort Seas or its assumed break-even price.
Coal
For thermal coal, which is used for energy, the case against further expansion is arguably stronger. Growth in demand for coal is projected to fall to 1% between 2013-17, down from 7% in 2007-12, driven by environmental regulations, competition from cheaper gas and renewable energy, and energy efficiency gains which have led to lower consumption than business as usual projections. In short, the market is oversupplied, with debatable prospects for demand recovering. This has implications not only for upstream (mining) assets but for all related physical infrastructure. Across Europe and America, utilities and power stations are shutting down before the end of their expected lifetime. RWE announced the closure of 6% of its capacity in the face of competition from renewables – particularly solar – and suppressed power demand due to the recession with consequent low electricity prices. E.ON plans to close 11GW of capacity by 2015, and has already closed half that amount. In Europe, further plant closures are likely as the Large Combustion Plants Directive will result in the closure of the most polluting coal plants on environmental grounds by 2015. Emissions standards on new and existing coal-fired power stations in the US have already seen a fall in coal shares; while decisions by the World Bank, the US Import-Export Banks, and the European Investment Bank to stop financing new coal-fired plants (unless in exceptional circumstances) will make investments in these plants less attractive for private investors.

Some analysts argue that new investments in coal will be justified by continuing demand in China, and India, and South East Asia. While the current affordability of coal is not surprisingly seeing a resurgence of demand in the region, the longer-term structural drivers of coal demand look questionable. Specifically, the IEA’s central scenario, on which these projections are based, assumes continuing strong economic growth in China. This assumption is increasingly being questioned. Not only is China’s growth expected to slow well below current estimates according to some analysts, but the structure of the economy is changing from a heavy-industry based economy to a consumer based one, which is inherently less energy intensive. Secondly, even if demand projections for China do hold up, this will not necessarily underpin global demand. The country’s increasing coal production capacity could see it meet its own coal needs by 2015, and even there, high cost producers have shut down. The last and only frontier for significant demand is India. Yet, there is still enough global supply to last 100 years at current consumption rates.

These debates highlight the inherent uncertainty of coal as an investment. If projections of lower demand, oversupply, and lower price forecasts play out, earning returns on coal investments will become increasingly difficult. Indeed, many of the major diversified mining companies are already diverting capital away from thermal coal. In addition, pension funds should not overlook the macroeconomic consequences of continued coal use. As discussed in the Introduction, unmitigated climate change will lead to significant risks to pension funds’ entire portfolios. Combined with the risky outlook for

Pension funds and their investment managers should engage with companies on misallocation of capital where companies continue to allocate to risky projects that find it difficult to recover costs.
Resilient portfolios in an uncertain world

coal-specific investments, these wider risks put into question whether coal remains a suitable investment for long-term, universal owners.

As highlighted by the case studies above, investors can choose to engage with coal companies on these issues, or divest. Engagement will likely be the preferred approach with diversified mining companies, as investors may still want exposure to the other metals and minerals sectors these companies operate in. However, there is a strong case for divestment from pure play coal companies, where there is no hedge against the difficulties of earning returns in a declining market.

Recommendation 2.3

Pension funds should set a time frame to remove pure play coal assets from their actively managed portfolios.

CASE STUDY 2: CERES letter to coal companies

Based on the challenges facing coal discussed here, as well as the recognition that failing to successfully decarbonise the energy sector will cause crippling economic and social losses in the future, Ceres has drafted a letter for engagement with coal companies on these issues. Through this letter, investors will ask the following of relevant companies:

- To review both its exposure to these risks and its plans for managing them.
- To inform this review, to conduct a risk assessment under at least two main scenarios: (1) a business as usual scenario such as that used in the company’s current reporting and (2) a low carbon scenario consistent with reducing GHG emissions by 80% by 2050 to achieve the 2°C goal.

Ceres further recommends that this assessment evaluate:

- Capital expenditure plans for finding and developing new reserves, including consideration of payback periods and alternative uses of capital
- The potential GHG emissions associated with production of all unproduced reserves categorised by resource type, e.g., metallurgic or coking, thermal or steam, brown, etc
- The risks to assets, including both current operations and unproduced reserves, due to factors such as carbon pricing, pollution and efficiency standards, removal of subsidies and/or reduced demand
- The risks to assets, particularly coal mining operations, posed by the physical impacts of climate change, including extreme weather events, water stress, and rising sea levels
- The impacts of the above-referenced risks associated with climate policies and the physical impacts of climate change on the Company’s current and projected workforce.

CASE STUDY 3: Storebrand

The Swedish and Norwegian financial holding company, Storebrand, divested from 13 coal and six oil companies with large exposure to oil sands investments, based on the recognition that climate change regulation could render them worthless. The divestment choices were made on the basis of which companies were likely to be hit by these constraints on carbon. These join the ranks of 177 companies and 32 countries that have been excluded from Storebrand’s portfolio for not meeting minimum sustainability requirements.
Other carbon intensive equities

It is not only fossil fuel companies that may hold risks for investors but also other carbon intensive sectors. Trends such as rising energy costs and the decarbonisation of the energy sector will affect sectors and companies that depend on energy to greater or lesser extents. Investors should therefore be alert to carbon risks across their whole portfolios.

Mercer and Trucost\textsuperscript{136} analysed the carbon footprints of 118 UK-based equity funds, and found that along with oil and gas companies and utilities sectors (which together account for half of the emissions attributed to the equity funds), the main contributors to the carbon footprints came from basic resources (including mining), construction and materials, and the food and beverage sectors. The study applied two carbon prices to these funds — £12 and £57 — for each tonne of CO2-equivalent allocated to holdings and found that the costs would equate to 0.7% and 3.2% of combined revenues respectively.

In the FTSE 100, efforts to reduce carbon emissions are uneven. According to a 2009 study by CDP, the average rate of emissions reduction in the FTSE 100 was 2.5%, while 2.4% was required to meet the UK’s 2020 target of 34-42% reduction from 1990 levels. However, the energy, utilities, and materials sectors — responsible for 87% of reported emissions as noted above — have a reduction rate of only 1.2% annually. If targets are going to be met, these sectors will need to take more aggressive reduction measures.\textsuperscript{137}

As the costs and risks associated with carbon rise, investors exposed to carbon intensive sectors can increase the resilience of their portfolios by integrating climate factors into their investment activities. There are two ways in which this can be done — through engagement and through introducing carbon risk criteria into investment decisions.

Investors should request disclosure from companies on their actions to manage the various risks faced by carbon intensive industries today: deflated demand and prices, current and future carbon prices, and a changing physical environment. There are already tools and networks available to guide this engagement.

Carbon Action\textsuperscript{138} has identified 17 high emitting industries, including utilities, materials, industrials, automotive, and energy industries, all of which expose investors to carbon risks. The project asks companies in these industries to set publicly disclosed year-on-year emissions targets, and to invest in emissions savings projects with positive returns on investment. Feedback from companies shows that investing in carbon reduction activities such as energy efficiency generates positive returns – delivering a return on investment of 33% in 2012.\textsuperscript{139}

Investors can sign up to Carbon Action to encourage companies to take these steps, and to gain access to the project’s individual company analysis. Requests for action from investors - representing $10tn in assets in the case of Carbon Action - can signal a powerful message to companies regarding shareholder concerns about carbon performance (see case study 4 opposite).

\begin{quote}
investing in carbon reduction activities such as energy efficiency generates positive returns – delivering a return on investment of 33% in 2012.
\end{quote}
Recommendation 2.4

Pension funds should engage, or ask their fund managers to engage, with carbon intensive holdings on their emission reduction plans. This can be done by joining CDP’s Carbon Action and by supporting the ‘Aiming for A’ initiative.

As well as reducing risk at individual investee companies, such engagement will provide investors with information to feed into comparative carbon risk analysis and stock selection decisions.

The Mercer/Trucost research cited above showed that under different carbon price scenarios, the performance of funds is highly influenced by the choice of sectors and individual stocks. For example, Mercer has shown that if 118 analysed portfolios were not invested in just three highly intensive companies, their combined carbon footprint would fall by 8%. These are the utilities companies E.ON, RWE and International Power. Along with American Electric Power and BP, these are the highest contributors to the footprints of the funds in the study. Applying carbon prices of £12 and £57 to these high emitters would see carbon costs of £8.6bn and £40.9bn respectively.

In general, the portfolios analysed showed significant variation in exposure to carbon costs, due to both sector allocation and stock selection decisions. For example, top performing funds generally did not have high exposure to carbon intensive sectors such as utilities or food and beverages; or had picked relatively less carbon intensive stocks within a sector, such as a renewable power generator over a coal-fired power generator. The recommendation above will help arm investors with the information they need to make these choices effectively by a) providing them with emissions data and b) shedding light on progress and plans for emissions reduction.

CASE STUDY 4: Aiming for A

A coalition of mutual funds, faith investors, and pension funds is generating pressure and support for the UK’s top ten extractive and utilities companies (listed below). Coordinated by CCLA, Aiming for A asks the companies to aim for continuous inclusion in CDP’s Climate Performance Leadership Index (CPLI) by achieving and retaining an ‘A’ performance band. The aim is to signal to companies that are part of long-term investors’ portfolios that there is a demand for balancing short-term performance with long-term concerns.

<table>
<thead>
<tr>
<th>2012 Performance Band</th>
<th>Company</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>Anglo American (up from C in 2011)</td>
</tr>
<tr>
<td>B</td>
<td>BG Group (down from A)</td>
</tr>
<tr>
<td></td>
<td>BHP Billiton (no change)</td>
</tr>
<tr>
<td></td>
<td>Centrica (down from A-)</td>
</tr>
<tr>
<td></td>
<td>National Grid (up from D)</td>
</tr>
<tr>
<td></td>
<td>Royal Dutch Shell (down from A-)</td>
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<tr>
<td></td>
<td>SSE (no change)</td>
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<tr>
<td>C</td>
<td>BP (down from B)</td>
</tr>
<tr>
<td></td>
<td>Rio Tinto (down from B)</td>
</tr>
<tr>
<td></td>
<td>GlencoreXstrata (no change)</td>
</tr>
</tbody>
</table>
While active investors can choose which stocks to invest in, passive investors may want to consider using a benchmark index that takes this information into account in its design. Carbon tilted indices aim to reduce exposure to the risks of high carbon sectors while tracking the performance of underlying mainstream indices (see case study 5 below). It should be briefly noted that these approaches are different to actively investing in the opportunities associated with the transition to a low carbon economy, which are discussed in Chapter 3.

**Recommendation 2.5**

For active equity mandates, pension funds should request the use of information about company emissions intensity and reduction plans in stock selection decisions. For passive equity mandates, pension funds should consider tracking carbon tilted indices.

**CASE STUDY 5: FTSE CDP Carbon Strategy Index Series**

The FTSE CDP Carbon Strategy Index Series aims to support investors in incorporating climate change risks into their investment strategy. It features future risks, trends, and costs to assess the exposure of individual companies to higher future costs associated with greenhouse gas emissions. The indices are carbon risk tilted versions of FTSE’s established benchmark indices, where the constituent companies remain the same but their weightings are varied on the basis of exposure to carbon risk relative to sector peers. The overall weights of each sector are the same as for their benchmark indices, but some companies in each sector are over-weighted, while others are under-weighted. From 2010 the performance of the FTSE CDP Carbon Strategy All Share has perfectly tracked the FTSE All Share (that is, delivered identical returns).

**Bonds**

The integration of ESG considerations into fixed income investments is still at a relatively early stage compared to equities, yet the risks in this asset class could have a significant effect on the stability of the global financial system. In 2012, global outstanding debt on the bond markets reached $100tn; substantially more than the combined GDP of world economies at $72tn and the global equity markets at $53bn. At the same time, pension funds have historically relied upon bonds as low risk investments, and their exposure to this asset class has been growing. In the UK, the proportion of pension funds portfolios in bonds has grown from 31% in 2003 to 42% in 2012.

It is therefore important to question whether current investment practices adequately shed light on the range of relevant risks to both sovereign and corporate creditworthiness, including environmental risks. The Euro crisis has reminded investors that sovereign bonds are not risk free.

**Sovereign Bonds**

The Principles for Responsible Investment (PRI) has a working group of investors who focus on understanding the potential for ESG factors to influence (sovereign) credit risk.

> while environmental issues are now being shown to have important economic impacts, they are not being picked up in traditional risk analysis
The materiality of environmental factors

The PRI’s Sovereign Fixed Income Working Group\textsuperscript{145} examined how the use of ESG factors could enhance the robustness of traditional risk analysis based on financial and economic data and political risk. The framework argues that environmental factors such as climate change, water availability and pollution, natural disasters, and energy resources and management, directly impact more traditional economic indicators such as economic growth prospects or fiscal performance. These, in turn, influence credit ratings, bond yields, and bond prices. Yet empirically, while environmental issues are now being shown to have important economic impacts, they are not being picked up in traditional risk analysis.\textsuperscript{146} On the other hand, strong correlations have been proven between social and governance factors and sovereign bond performance.\textsuperscript{147}

The issue here is not that environmental risks are immaterial to bond performance. Rather, as the PRI notes, it suggests that these risks are material but that traditional risk analysis is failing to pick up on them.\textsuperscript{148}

To date no correlation has been found between countries’ sovereign bond performance and their environmental performance or exposure to environmental risk. In light of that, only a small minority of bond analysts and managers currently integrate environmental risk into their ratings. According to Mercer, investment managers in general are either not paying enough attention to ESG issues or struggling to incorporate them into their investment strategies.\textsuperscript{149} It has also been acknowledged by investors with a commitment to ESG integration that the big ratings agencies have done relatively little so far to integrate ESG risk analysis into bond ratings.\textsuperscript{150}

This may change. Water scarcity, the loss of biodiversity and climate change all pose risks to economic growth which ultimately may impact countries’ credit risk in the medium and longer term. With countries in different regions and with different geographies facing exposure to the physical impacts of climate change, asset owners should seek to understand whether and how their bond managers analyse and evaluate these risks, particularly for longer duration bonds. Some pension funds are already making these demands of their managers.\textsuperscript{151}

Corporate Bonds

Generation Foundation\textsuperscript{152} warns credit investors to “remember that until rating agencies update their metrics to incorporate embedded carbon risk, they should not have inflated confidence in a company’s credit rating.” In collaboration with Carbon Tracker, Standard & Poor looked at the implications of carbon constraints for the creditworthiness of the oil and gas sector and found that smaller companies could see a deterioration in their credit risk profile from 2014; larger companies could face negative outlooks or downgrades by 2016-2017; and companies with high development costs (including unconventional assets) or that are undiversified could face pressure in the next year or two.\textsuperscript{153} Unfortunately, studies such as the one by Standard & Poor have not been accompanied by the integration of carbon risk into individual companies’ credit ratings.

The potential exposure of a corporate issuer to the physical and economic impacts of unchecked climate change and the ability of an issuer to prosper in a low carbon economy should be integrated into credit ratings.\textsuperscript{154}

Asset owners investing in corporate bonds should request that their managers integrate ESG risk in general and climate risks in particular, into analysis and investment decisions. By applying an ESG screen, investors can assess...
the influence of future climate scenarios on the ability of a company to meet its bond liabilities. In a time of uncertainty, this will serve as an additional risk mitigation tool alongside use of more traditional, short-term financial indicators. Leading responsible investors such as The Royal London Asset Management (formerly The Co-operative Asset Management) argue that the practice of investor engagement on ESG issues is viable with bond issuers, and state that they undertake regular checks on corporate issuers’ ESG performance.

**Recommendation 2.6**

Pension funds should require fixed income managers and credit rating agencies to demonstrate how they integrate carbon and climate risks into credit analysis.

**Property**

Property capital values and income yields are at risk and already changing as a result of tighter regulation of energy use, changes in demand for sustainable buildings, and the insurance costs associated with flood risk and other climate-sensitive changes to the physical environment. As these factors intensify, investors in property increasingly recognise that sustainable, resource efficient buildings will enjoy lower operating costs, lower rates of depreciation, and smaller chances of losing value or competitiveness. A 2008 study of over 4000 buildings in the US found that buildings with strong green standards enjoyed 7.5% higher occupancy, 6-9% higher rents, and 16-17% higher selling prices. According to the UK’s Carbon Trust, efficiency measures can reduce energy bills by 5-25% with a payback period of less than two years.

In the UK, demand for property meeting high environmental standards is already on the rise, with tenants increasingly bound by corporate policies that require stretching standards. Properties which do not meet these standards may incur the cost of retrospective environmental improvements, or become obsolete. Already, poor energy efficiency ratings have been a contributing factor to the strategic early sale of industrial buildings in the UK.

By actively managing the environmental issues expected to affect property performance such as climate impacts, resource scarcity, tenant preferences and regulation, pension funds will be able to create more resilient portfolios. Sustainable property investment will become easier over time as performance benchmarks and certification standards are further developed and adopted (see Appendix 2).

As a starting point, pension funds with property holdings should ask their property managers how financially relevant environmental factors, such as those cited above, are being taken into account in their property portfolio. Possible actions include embedding environmental considerations into standard property investment appraisals and in the development and refurbishment of properties, and action to reduce the environmental footprint of existing property portfolios.

"A 2008 study of over 4000 buildings in the US found that buildings with strong green standards enjoyed 7.5% higher occupancy, 6-9% higher rents, and 16-17% higher selling prices."

Buildings account for 40% of global energy use, 25% of water use and are responsible for a third of global emissions. As such, they provide the greatest potential for transforming the resource and carbon intensity of the economy. This asset class is therefore likely to face increasing regulatory pressure to reduce its environmental footprint. Pension funds can play an important role in smoothing the pathway to a more climate-resilient built environment by...
requesting that property fund managers adopt a strategy for reducing emissions and integrating water and waste issues into their investment decisions.

**Recommendation 2.7**

Pension funds should require property managers to integrate environmental considerations into standard property investment appraisals, and into the development and refurbishment of properties. Pension funds should request that property managers outline what targets have been set for improving energy, waste and water efficiency.

**CASE STUDY 6: Universities Superannuation Scheme (USS)**

In 2010, USS appointed a Sustainability Manager to the Property Team to specifically focus on ensuring that the fund addresses environmental and social issues associated with the fund’s property portfolio. The move was driven by a belief that a sustainable approach to property will increase the value of its investments and lead to higher returns.

One of the first actions by the fund was ensuring compliance with the Carbon Reduction Commitment (a mandatory energy efficiency and carbon reduction scheme). USS is collecting the energy consumption data associated with all of its properties, and also establishing processes and systems for reducing energy use and therefore emissions. The fund has also undertaken flood risk assessments for key infrastructure, such as power substations.

USS was also instrumental in establishing the Global Real Estate Sustainability Benchmark in 2009.

**Conclusion**

In this chapter we have seen that the financial performance of carbon intensive investments across a range of asset classes is threatened by changing market conditions and regulatory measures (including energy efficiency measures), to curb carbon emissions.

The continuing strong income profile of fossil fuel companies is under threat from an unrelenting industry commitment to high cost, high risk marginal oil projects such as Arctic exploration, without sufficient disclosure of anticipated and break-even costs amidst analyst predictions of shifting market conditions. Beyond fossil fuel holdings, carbon intensive sectors such as utilities, construction, and food and beverages present risks for many pension fund portfolios. Trends such as rising insurance costs associated with flood risk and other changes to the physical environment mean that sustainable, resource efficient buildings will enjoy lower operating costs, lower rates of depreciation, and less chance of losing value.

We have recommended that pension funds ensure that their active investment managers undertake an assessment of the vulnerability of their investments to carbon and climate risks, and integrate such risks into both securities selection and on-going engagement with investee company strategy. In selecting passive managers, we recommend that pension funds consider tracking low carbon tilted indices. We believe that pension funds will benefit from taking steps to create more resilient, efficient portfolios in the face of changing market conditions.
CHAPTER SUMMARY

In this chapter we discussed the risks inherent in carbon intensive portfolios, for both fossil fuel and other high carbon assets. We suggested that by integrating these risks into either focussed engagement efforts or stock selection decisions, pension funds will be better able to protect their returns across all asset classes. We recommended the following steps:

• Pension funds should request that their fund managers assess the ‘stranded asset’ risk in fossil fuel companies’ project portfolios. Managers should request that investee companies disclose the cost curve position of their project portfolio and their cash flows under different demand and price scenarios.

• Pension funds should support calls for reduced capital allocation to high cost/low return projects in favour of returning money to shareholders or reallocation to less risky projects.

• Pension funds should set a time frame to remove pure play coal assets from their actively managed portfolios.

• Pension funds should engage, or ask their fund managers to engage, with carbon intensive holdings on their emission reduction plans. This can be done by joining CDP’s Carbon Action and by supporting the ‘Aiming for A’ initiative.

• For active equity mandates, pension funds should request the use of information about company emissions intensity and reduction plans in stock selection decisions. For passive equity mandates, pension funds should consider tracking carbon tilted indices.

• Pension funds should require their fixed income managers to demonstrate how they integrate carbon and climate risks into credit analysis.

• Pension funds should require property managers to integrate environmental considerations into standard property investment appraisals, and into the development and refurbishment of properties.

• Pension funds should request that property managers outline what targets have been set for improving energy, waste and water efficiency.
Integrating climate change into investment strategies is not just about reducing exposure to carbon-related risks (as discussed in Chapter 2), but also about gaining exposure to the low carbon investment opportunities of the future. Such investments have the potential to offer pension funds attractive returns whilst providing a valuable hedge against climate-related risks. They also serve pension savers’ broader financial interest in a successful transition to a low carbon economy capable of providing stable and sustainable returns. Yet pension funds’ allocation to green investments remains relatively low.166

In this chapter we set out the business case for investment in low carbon solutions, before exploring the current investment landscape, the barriers to further growth of the green investment market, and the steps pension funds can take to begin taking advantage of green investment opportunities.

What is the ‘green economy’?

As the UK government’s 2011 strategy document argues, “A green economy is not a sub-set of the economy at large – our whole economy needs to be green. A green economy will maximise value and growth across the whole economy, while managing natural assets sustainably.”167 The investment opportunities associated with the green economy—collectively referred to here as climate-related assets—are correspondingly diverse. They include all low carbon goods and services, as well as processes and technologies that allow energy and resources to be used more efficiently.168 These opportunities cut across all sectors, spanning energy generation, transport, energy efficiency (in buildings, power grids, and industry), agriculture, forestry, water, waste management, and recycling.169 They also cut across all asset classes—not only the better known listed equity and property opportunities, but also a growing climate-related private equity and infrastructure space, as well as a small but growing climate-related bonds universe.170

At its broadest level, the green economy is characterised by what the International Energy Agency (IEA) calls a technological transformation of the global energy system.171 The energy supply will consist of a balanced, geographically diverse suite of energy technologies, while smart grids and demand response technologies allow energy to be used more efficiently, reducing the need for surplus generation capacity.172

Greater efficiency is the defining feature of this green economy. Technological advances that allow our wired and wireless devices and systems to communicate with each other, have the potential to increase the resource-, energy-, and time-efficiency of economic activity—not only in the energy sector, but across all sectors with a high environmental footprint.173 In the built environment, ventilation, heating, and cooling systems, as well as the use of appliances are optimised; and in agriculture, technological advances allow fertiliser, water use and harvesting practices to grow more food with fewer resources.174 Increasing fuel economy in the transport sector is eventually followed by a replacement of oil by electricity, biofuels, and hydrogen.175

This efficiency characterises new systems of production and consumption. As populations and economies grow and the pressure on resources mounts, economies adopt new systems of recycling, reusing, and remanufacturing goods and materials as part of standard business processes.176 Countries are significantly less reliant on imports to fuel their economies.
The case for investing in low carbon solutions
Achieving the transition to a low carbon economy will require a significant mobilisation of private capital. The OECD calculates that the cumulative investment in green infrastructure required for decarbonising the global economy is $36-42tn until 2030, or $2tn a year (2% of global GDP annually). According to this analysis the current level of investment stands at $1tn, which implies the need for additional annual investment of $1tn. Investments in the clean energy sector alone need to reach $500bn a year in the IEA’s 2°C scenario, and while they have grown from $50bn a year to over $250bn a year in the past decade, there is still a long way to go.

Financing the transition: the case for universal owners
Pension funds, with their inherently long time horizons, are well placed to step into this ‘green investment gap’. As ‘universal owners’ with holdings across the economy, they have a significant interest in the long-term performance of the economy itself. Research suggests that the transition to a green economy is vital to this long-term economic performance and therefore to the maintenance of long-term investment returns.

For example, the United Nations Environment Programme (UNEP) modelled the economy-wide effects of investing 2% of global GDP into collectively transforming the energy, manufacturing, transport, buildings, waste, agriculture, fishing, forestry and water sectors (including in research and development in these sectors). The study showed that in this green scenario, the use of fossil fuels would be cut by 40% and the demand for water by 20%, compared to a business as usual scenario in which no significant changes to the global economy’s fossil fuel and energy dependence are made. Global energy intensity would reduce by 36% by 2030. By doing this, the green scenario achieves growth while preserving natural capital. Conversely, in a business as usual scenario, short-term economic growth comes at the expense of depleting the natural capital on which long-term growth depends. Economic growth in the green scenario therefore proceeds faster over time and outstrips business as usual by 2020.

Taken together, the elements of a climate-resilient economy significantly reduce the raw material price volatility and insecure supply experienced today. An economy based on clean energy, as well as resource and energy efficiency, is also a more stable, resilient, and autonomous economy. It has a higher potential to create more inclusive wealth and sustain it, and significantly reduces the risks associated with an economy based on finite resources with volatile prices. In short, it is an economy better capable of serving the interests of pension savers – both their financial interest in stable long-term returns, and their wider interest in a secure and prosperous retirement.

Positioning portfolios: opportunities in green investment
Investing in the green economy to achieve these wider macroeconomic goals does not require sacrificing fund performance. The appeal of green investments lies not just in their contribution to building the economy of tomorrow; they are also driving growth today. As the Confederation of British Industry (CBI) has noted, the green economy accounted for a third of the UK’s growth in 2011-12, and could boost the UK economy by almost £20bn by 2014-15 if investors, business, and government work to smooth out its path. Moreover, improving resource and energy efficiency brings obvious
benefits to companies and investors. A new report by WWF and CDP\textsuperscript{183} shows that improved energy efficiency and deployment of low carbon technologies could result in net savings for the US corporate sector (excluding utilities) of up to $190bn by 2020 alone. The IEA\textsuperscript{184} suggests that the $36tn spent on greening the power, buildings, transport and industrial sectors from now to 2050 would be matched by fuel savings by 2025 and result in a potential $100tn in fuel and energy savings by 2050.

Experts such as Mercer also argue that green investments make sense at the level of portfolio analysis, as they provide a vital hedge against climate risks.\textsuperscript{185} As mentioned in Chapter 1, Mercer’s TIP framework looked at different scenarios that estimate the rate of investment in new technologies (T), physical climate impacts (I), and carbon prices from policy developments (P) to 2030, and asked what implications these scenarios would have for strategic asset allocation. Under some scenarios, managing climate risks would require increasing allocation to assets which are sensitive to these ‘TIP’ risk factors. Such assets include real estate, infrastructure, private equity, sustainable equities (listed and unlisted), renewable energy and commodities (including agricultural land and timberland). Of these ‘climate sensitive’ assets, sustainable assets such as sustainable-themed equities, renewable energy, timberland and agricultural land perform comparatively well compared to non-sustainability-related climate sensitive assets in all scenarios, except where no further action is taken to address climate change (the least likely scenario). As such, Mercer has suggested that under some scenarios, which include even modest mitigation efforts, up to 40% of a portfolio be allocated to these sustainable assets as a ‘hedge’ against climate risk factors.

Taken together, there is a compelling case – at the company level, the portfolio level and the macroeconomic level – for pension funds to seek out investment opportunities in the green economy. In the remainder of this chapter we explore some of these opportunities, examine the barriers to pension funds taking advantage of them, and make recommendations for action.

### Asset classes – realising the opportunities

In this section we examine the opportunities to gain exposure to the green economy through various asset classes — equities, fixed income, infrastructure, and private equity — examining the particular advantages and challenges of each.\textsuperscript{186}

#### Equities

In public equity markets tools for low carbon thematic investment, such as sustainability-themed indices, are starting to emerge. However, they are still relatively uncommon compared to the integration of ESG considerations into mainstream portfolios.\textsuperscript{187} This can likely be attributed to doubts about financial performance. While the financial case for ESG integration has almost unquestionably been made\textsuperscript{\textsuperscript{‡}},\textsuperscript{188} investors will be quick to point out that investments in clean energy in particular have not performed well in recent years (although, as we will see, this is not true of all climate-related assets).

The past five years have seen an almost continuous fall in renewable energy share prices in the face of difficult market and policy circumstances. Solar and wind manufacturers have been under pressure from an oversupplied market, falling prices, competition from Asia\textsuperscript{,\textsuperscript{189}} and, in the US, low gas prices.\textsuperscript{190} Many of them have gone bankrupt.\textsuperscript{191} Investor confidence in these markets has further deteriorated with decreased policy support and bank finance in Europe.\textsuperscript{192}

The WilderHill New Energy Global Innovation Index (NEX), which tracks the performance of 97 global clean energy shares, fell 40% in

\textsuperscript{‡} According to a 2012 meta-study by Deutsche Bank 100% of studies looking at the link between ESG and company performance agree that companies with high ESG scores have lower costs of debt and equity, and 89% of studies agree that these companies outperform in the markets.
2011. It fell a further 6% in 2012, and in July that year was 78% below its record in 2007. However, while this admittedly dismal performance of renewable energy stocks is often cited as a deterrent to green investing, there are two important reasons to consider the investment opportunities in sustainable equities.

The first reason is that the recent performance of clean energy stocks is not necessarily a sign of things to come. In the 12 months following its July 2012 low, the NEX saw a steep recovery, rising 57% over the period. While this is still far off its peak, some of the individual stocks in the Index have achieved what Bloomberg New Energy Finance (BNEF) called “truly eye-watering returns” in the past year, even despite the trying market circumstances. Furthermore, there are reasons to believe this has the potential to be the start of a more sustained recovery.

In March 2013, BNEF predicted a recovery in clean energy markets given a rebalancing of supply and demand in the solar industry, the bottoming out of gas prices, growing demand for projects in Africa and South America, and a policy environment which is slowly proving to be more supportive (see Chapter 4). In the longer term, according to BNEF Chief Executive Michael Liebreich, “the drivers propelling the world to a cleaner energy system are…almost limitless. Coal and oil producers may have captured for the moment the economic high ground – profitability supported by the ability to externalise their costs and cement their position through political action… [but] the fragility of the fossil fuel system is likely to become more, not less, evident”. In this sense, while the growth pains associated with new markets have taken their toll, clean energy has the ability to deliver, and in some cases is already delivering, robust financial returns.

The second reason is that there is a difference between renewable energy stocks and green stocks in general, which are, for better or worse, generally conflated. While it is true that broad green indices, such as the UK FTSE’s Environmental Technologies 50 (ET50), have been underperforming their benchmarks, this has only been a result of poor performance of the renewable and alternative energy subsector. Companies in the FTSE’s ET series are drawn from a range of sectors including energy efficiency, water and waste management, pollution control and environmental support services. In many of these sectors, the story has been vastly different to that of clean energy.

Water has performed particularly well. In the three years to December 2012, water indices such as the FTSE’s Environmental Opportunities Water Technology Index have continually outperformed the MSCI World Index. Impax Asset Management, an investment expert in resource efficiency and environmental markets, predicts that the concurrent trends of population growth, ageing infrastructure, water regulation, and changing physical water patterns will see significant investment needs in all water-related sectors, including water infrastructure, treatment technologies, and utilities.

* Between 25 July 2012 and 11 July 2013, US Solar manufacturers SunPower and SunEdison rose 540% and 389% respectively; Spanish Wind Turbine maker Gamsea rose 341%, and US electric car manufacturers Tesla rose 312%. Numerous other clean energy companies showed gains between 150-300%.
Energy efficiency-related stocks have also performed well, and continue to have strong outlooks as the drive for industrial energy efficiency grows.\(^{204}\) In the 12 months to October 2013, the NYSE Bloomberg Global Energy Smart Technologies Index gained 53%, outperforming the 13.2% gain of the FTSE All Share Index, according to Bloomberg equity indices data.\(^{205}\) The Smart Technologies Index includes advanced transportation, digital energy, energy efficiency and energy storage sectors.

Thus, thematic green equities not only have the potential for shorter term recovery, but predicted strong longer term performance on the basis of more structural drivers. Some investors are already choosing to allocate a portion of their portfolio to thematic green equities. The Environmental Agency Pension Fund has been a leader in green investing, with an already impressive 12-13% of its portfolio invested in the green economy, and a focus on sustainability-themed equities.\(^{206}\) Since 2009, the New York State Common Retirement Fund has benchmarked $100m to the ET50 as part of its allocation to clean technology.\(^{207}\) In April 2013, FTSE launched its ET100 Environmental Technologies Index, which Jupiter Asset Management is adopting as the benchmark for one of its funds.\(^{208}\) We believe it would be relatively easy for most pension funds to allocate a portion of their equity exposure to green indices or funds.

**Fixed Income**

While integration of climate risks in fixed income investments is still far behind that of equities, green bonds are potentially attractive to pension funds because of their low risk, steady income streams (see box, page 47). The Climate Bonds Initiative – an investor and climate focused not-for-profit – argues defined benefit (DB) pension funds’ need to match long-term liabilities is well met by the structure of long-term environmental infrastructure, which often has high upfront costs, but lower operating costs, particularly in the building, energy, industrial and transport sectors.\(^{209}\) Furthermore, bonds already account for 50% of assets under management for most OECD pension funds\(^{210}\), so they match current asset allocation appetites.

What the market is lacking, however, is suitable vehicles for institutional investors who need to see issuances of sufficient size. One of the main areas of concern highlighted by the IIGCC is that pension funds have a perceived fiduciary duty to invest in the most commercially competitive bonds, but have so far struggled to source green bonds with the required return and liquidity requirements.\(^{211}\) Their position is that green bonds would have to compete with conventional types of bonds on the basis of risk, return, and liquidity characteristics, because it is unlikely that a premium will be placed on a bond being ‘green’. Pension funds are therefore struggling to place green bonds within existing asset allocation strategies.\(^{212}\) The OECD\(^{213}\) has echoed these concerns, mentioning a lack of liquidity and common ratings standards — including certainty that funds are used for green purposes – as significant barriers.

“the climate bond market almost doubled in 2012 from $174bn to $346bn”
GREEN BONDS

Borrowing a typology from the OECD\(^{214}\), green bonds can be broadly classified as follows:

- Bonds issued by development, financial or other institutions to raise capital for green projects. Examples include those issued by the World Bank and International Finance Corporation.
- Asset-backed bonds which are tied to specific projects such as infrastructure.
- Corporate bonds issued by a company with 100% green assets, or where a company earmarks the proceeds to green projects or assets.
- Sovereign or municipal bonds where the funds are earmarked for green projects or assets.

Since 2008, the World Bank has issued around $3.5bn in AAA rated green bonds.\(^{215}\) More recently, in September 2013, the European Bank for Reconstruction and Development (EBRD) issued a $250m ‘environmental sustainability’ bond to grow the bank’s environmental investment portfolio.\(^{216}\) This already includes renewable energy, fuel efficient public transport, the greening of buildings, and sustainable forest management. To date, these and similar bonds from other development banks have been the main source of issuances.

The market is still new, however, and its developments and opportunities are promising. If barriers can be overcome, pension funds will have access to a broad range of fixed income instruments linked to all growth areas of a low carbon economy.

Recent research from the Climate Bonds Initiative and HSBC\(^{217}\) estimates that the climate bond market almost doubled in 2012 (from $174bn to $346bn). This universe is broader than investors may typically associate with a climate bond: many of them are not specifically labelled ‘green’,\(^{218}\) but nonetheless contribute to a low carbon world (such as rail transport in China). The research screened bonds in the transport, energy, climate finance, buildings and industry, agriculture and forestry, waste, and water sectors. Of this $346bn, $163bn (or 47%) offered investment grade ratings, were in currencies eligible on benchmark indices, and had issuance sizes of over $100m. The majority of these rated products have been issued by corporates (83%) and financial institutions (13%), and are focused on transport, climate finance, and energy themes. These are generally low risk, low yield assets, and as such are relatively easy to replace within pension funds existing asset allocations.

Further developing an investment grade bond universe, with opportunities across all bond types will require both demand and supply side solutions. As think tank Climate Change Capital has noted, the current small size of the market creates something of a vicious circle: “without liquidity few investors will want to buy green infrastructure bonds and without buyers, few will want to issue them, which will in turn result in little liquidity.”\(^{219}\)

On the supply side, the Climate Bonds Initiative is working on tools to increase the efficiency of the market. To be attractive to investors it should run like any commodities market, i.e. have certified standards and be liquid. The Climate Bond Standard and Certification Scheme — a screening tool for certifying climate bonds for investors and governments — is one tool which will help to support the market as it matures, and encourage the scaling of issuances.\(^{220}\)

On the demand side, pension funds should clearly state that they desire suitable fixed income products to gain exposure to the green economy.\(^{221}\) This could easily be done by collaborating with the IIGCC, for example, who have already presented a position paper on green bonds.
Infrastructure

While green infrastructure bonds are a subset of climate bonds, green infrastructure itself is an important asset class. It will play a critical role in the transition to a low carbon economy, as infrastructure investment decisions we make today will determine the nature of our economy for decades to come. Without a step change in the carbon intensity of the world’s energy infrastructure, the IEA has warned that the world would be ‘locked in’ to a high carbon growth path.\(^{222}\)

At the same time, there is an important potential synergy between massive infrastructural deficits on the one hand, and the need for pension funds to invest to better align long-term assets and liabilities while diversifying their portfolios.\(^{223}\,^{224}\) Given the appropriate policies, the structure of green investments could deliver low risk, steady income streams over long time horizons.\(^{225}\)

While only the largest UK pension funds may have the skills and capacity to directly invest in infrastructure projects, smaller and medium sized pension funds could find opportunities in pooled funds. Pooling resources is likely to allow pension funds to gain expertise, lower fees, and scale up investments.\(^{226}\) Creating new models for the pooling of assets should therefore be seen as a priority.

UK pension funds are already taking the lead in this regard. The recent creation of the Pensions Infrastructure Platform (PIP), led by the National Association of Pension Funds (NAPF), may serve as one possible model for the pooling of assets.\(^{227}\) The platform aims to raise £2bn worth of pension assets. It has already catalysed £1bn worth of pledges from its ten founding investors.\(^{**}\,^{228}\) One of these founders, the Pension Protection Fund, sees infrastructure as “a less risky investment than government bonds”, that offers a natural supply of assets and provides the opportunity to own whole projects with income linked to inflation.\(^{229}\)

The PIP will see UK pension funds making financially sound investments that will at the same time help to regenerate the UK economy. This will clearly benefit pension savers. However, in our view, a critical third criterion is that these investments are consistent with a low carbon growth pathway. Not only is the creation of a low carbon economy critical to pension savers’ long-term interests; ‘climate-proofing’ infrastructure investments now will also protect pension funds from climate policy risks in the future, including the risk that high carbon infrastructure being built now will be replaced before the end of its expected economic lifetime. The addition of this criterion should not be too cumbersome, as 71% of the UK’s infrastructure pipeline can already be classified as low carbon (including public transport).\(^{230}\)

** Recommendation 3.1 **

Pension funds should pool funds to create the required scale for low carbon infrastructure investments, as well as build climate security considerations into the assessments they make of potential infrastructure investments. If the Pensions Infrastructure Platform is to be used as a pooling vehicle, pension funds should explicitly ask that these infrastructure investments be in line with the needs of a low carbon economy.

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\(^{**}\) These are: British Airways Pension pension schemes, BAE Systems Pension Funds, BT Pension Scheme, Lloyds TSB pension schemes, London Pension Fund Authority, the Pension Protection Fund, the Railways Pension Scheme, Strathclyde Pension Fund, and the West Midlands Pension Fund.
Private Equity/Venture Capital
Much like infrastructure, private equity and venture capital form a small part of pension funds’ asset allocation, yet are important tools for thematic climate investments. Early stage investments are well suited to the new technologies required in a green economy. Energy storage systems and smart grids are particularly important emerging markets and are ripe for early stage capital. However, the returns for green funds have shown a wide range of performance. Where pension funds already have an appetite for this asset class, green options that provide the same risk/return characteristics should be considered if available.

Overcoming barriers
Underpinning the asset specific barriers discussed above are three broad issues which pension funds can help to overcome. First, the current policy environment is not providing adequate long-term signals to underpin green investment – a topic which will be dealt with in depth in Chapter 4. In view of the financial interest pension funds have in being able to invest in sustainable, long-term assets, we believe that it would be helpful for pension funds to signal their demand for these assets, along with their concerns about the policies that undermine them.

The second issue lies in the hurdles associated with new and unfamiliar markets. Unfamiliar technologies are often more risky as they have yet to prove themselves and cement a market. There is uncertainty about construction, operation, and maintenance performance, as well as associated costs. These relatively new markets also require the adoption of common standards, definitions (of green), and certified products, all of which have been slow to develop.

Lastly, even for those investors who would otherwise look to invest in climate-related assets, in practice there is too little financial analysis specifically looking at these opportunities. Relatively few mainstream investment managers or consultants bring investment opportunities in the climate solutions space to their pension funds clients. There is

CASE STUDY 1: PensionDanmark

PensionDanmark – Denmark’s seventh largest pension fund – plans to allocate 10% of its $25bn in assets under management to direct investments in renewable energy. The fund has already committed $1.5bn to solar and offshore wind projects. In May 2013, it concluded a deal which provided half of the debt financing of the largest offshore wind farm in the Nordic region – the €336m Jadraas wind farm. The other half of the €210m debt came from the Norwegian and Swedish banks DNB and SEB.

PensionDanmark is the first pension fund to be involved in a renewables project in this way. As a direct commercial lender to the project, the funding and liquidity risk is taken on by the fund, but Denmark’s export credit agency will shoulder the political, commercial, and documentation risks. Importantly, the arrangement helped to overcome the lack of long-term funding in the market, and has served as a guiding example for others to do the same: according to Emma Collins, a managing partner at Platina Partners, which took on half of the required equity, this is “a model which allows pension funds to invest in this asset class with confidence, and we have now seen other pension funds enter the market using similar structures.”
currently a stand-off which sees investment advisors waiting to be asked to research these types of solutions, whilst clients expect new ideas to be introduced by their advisors. Both sides can help to break this deadlock but, ultimately, clients are in the driving seat and should invite ideas to be brought to them for consideration. Simply signalling demand to investment managers and consultants will be the first step in pushing the market to mature.

**Recommendation 3.2**

Pension funds should signal their commitment to and demand for green investment opportunities. For example, pension funds should request more climate-related information and graded products from their consultants and investment managers.

Furthermore, pension funds can collectively create the necessary scale by committing just a portion of their portfolio to climate-related assets that are already available across the wide range of asset classes and sectors discussed in this report.

An allocation to climate-related assets, however small, would have both fund level and macroeconomic benefits. On a fund level, this allocation will serve as a hedge against the physical, technological, and policy risks associated with carbon intensive assets. On a macro level, it will serve to actively channel capital to the needs of a stable, sustainable economy; to create scale, and by doing so, to increase the attractiveness of these asset classes. Leading pension funds such as the Environment Agency Pension Fund have already taken this step, and serve as an example to peers that the green economy offers financial returns.

**CASE STUDY 2: Investing4Growth**

An example of pension funds proactively seeking investment opportunities that meet their required financial criteria whilst also delivering wider positive impact is Investing4Growth, a project run by PIRC on behalf of five local government pension funds.

Specifically, the project aims to attract investment opportunities that would deliver:

- Risk/return characteristics appropriate for the institutional investment market, and;
- Underlying UK investments that have positive and measurable economic, social and environmental impacts at a local, national and regional level, as to benefit the economic wellbeing of beneficiaries and taxpayers.

The founding funds have committed £250m contingent on suitable investment opportunities being found. The initiative has asked for proposals from investment managers with appropriate experience, who can also offer investment opportunities exceeding $25m, and has already received encouraging proposals from investment managers, many of which have strong green credentials. This is a compelling demonstration of the change pension funds can stimulate when they ask for solutions to be brought to them.

†† Greater Manchester Pension Fund, West Yorkshire Pension Fund, West Midlands Pension Fund, South Yorkshire Pensions Authority and Merseyside Pension Fund
Recommendation 3.3

Pension funds should adopt an internal target for allocations to climate-related sectors such as clean energy, low carbon transport, energy efficiency, agriculture, forestry, water, waste, and recycling. The allocation could span the full range of asset classes held by the fund.

CASE STUDY 3: Environment Agency Pension Fund (active fund)

The EAPF already has 12-13% of its portfolio allocated to the green economy. Further, the fund has increased its allocation to sustainable property, infrastructure, and farmland/forestry, which are seen as a hedge against both inflation and climate change. Recognising the importance of commercial real estate in achieving the UK government’s carbon emission reduction targets, the fund has made a recent investment of £15m in the Threadneedle Low Carbon Workplace Fund.

The fund will maintain its focus on ESG integration and sustainability-themed equities and has recently launched an initiative to engage the investment industry to develop best practice for investing in sustainable equities. The fund states that some of its best performing managers since inception are those who have integrated ESG issues including climate risk at a systemic level.

Conclusion

In this chapter we have seen that there are significant investment opportunities in the low carbon economy despite a range of challenges. In our view, as the external costs of fossil fuels are internalised and pressure builds on a range of natural resources, the sectors that can drive productivity through efficiency will be those whose profitability will last. It is therefore in pension savers’ best interests for their pension funds to gain exposure to these sectors. We have recommended that pension funds take steps to articulate their demand for green investment opportunities that match the fund’s risk/return requirements to both policymakers and their investment agents. We have suggested that adopting a target for green asset allocation is both viable and desirable on two fronts. Firstly, it creates a hedge against climate risks associated with carbon intensive assets; and secondly, it provides a powerful and public signal for pension funds’ demand for these climate-related assets. Such demand will go a long way in overcoming some of the remaining barriers to green investments.
CHAPTER SUMMARY

In this chapter we argued that a low carbon, sustainable economy is one which is more capable of delivering long-term returns, and thus that pension funds have an interest in guiding the transition to such an economy. We showed that the opportunities for low carbon investments span all sectors and asset classes and are already strong drivers of growth in the UK. We suggested the following steps which would unlock the investment opportunities of a low carbon world:

• Pension funds should signal their commitment to and demand for green investment opportunities. For example, pension funds should request more climate-related information and graded products from their consultants and investment managers.

• Pension funds should pool funds to create the required scale for low carbon infrastructure investments, as well as build climate security considerations into the assessments they make of potential infrastructure investments. If the PIP is to be used as a pooling vehicle, pension funds should explicitly ask that these infrastructure investments be in line with the needs of a low carbon economy.

• Pension funds should adopt an internal target for allocations to climate-related sectors such as clean energy, low carbon transport, energy efficiency, agriculture, forestry, water, waste, and recycling. The allocation could span the full range of asset classes held by the fund.
Chapter 4

The Role of Public Policy
Introduction
UK pension savers have a financial interest in the outcome of a range of national, European and global policy development processes that will play out in the next two to three years. These policies will impact the relative competitiveness of high and low carbon assets, and therefore the risk/reward structure of the markets that pension funds are invested in. The lack of policy certainty in this regard has often been cited as a major barrier to green investment.

Given their financial interest in these outcomes, pension funds need not be passive observers of these processes but, in collaboration with other long-term fiduciary investors, can seek to influence the outcome of key public policy decisions in the best interests of their beneficiaries. Despite this potential, the investor voice has been almost entirely absent, barring a few notable exceptions. Companies in carbon intensive industries, on the other hand, have long realised the power of policy engagement, and have poured significant resources into swaying policy decisions in their favour.

The problem: investor vs. company engagement efforts
Pension funds’ engagement with policymakers is often undertaken through investor networks and associations, where the resources of individual funds can be pooled and shared. In Europe, the Institutional Investors’ Group on Climate Change (IIGCC), representing €7.3tn of assets, has described its mission as to “provide investors with a collaborative platform to encourage public policies, investment practices, and corporate behaviour that address long-term risks and opportunities associated with climate change.”

Institutional investors also engage with policymakers, through the Principles for Responsible Investment (PRI), CDP, the UK Sustainable Investment and Finance Association (UKSIF), and the Corporate Sustainability Reporting Coalition (CSRC).

As we will see, the IIGCC and other groups have articulated positions on many of the topics covered in this chapter. The mechanisms for this are often statements or letters, for which member investors can show their support. IIGCC engages on its policy positions through face to face meetings between investors and policymakers. It uses the collective influence of its network of 85 members from across Europe to communicate its policy positions more widely and has built up some significant relationships both at national and EU level. Whilst the IIGCC’s membership includes many of the largest pension funds in Europe, its UK-based members number 12 occupational pension funds and two insurers offering pension products. This compares to the 6000-plus UK pension funds and several dozen insurance companies whose members and customers are exposed to investment risks associated with climate change. The IIGCC runs its efforts though a paid team of only two people, although its membership is actively involved in all activities.

“in collaboration with other long-term fiduciary investors, pension funds can seek to influence the outcome of key public policy decisions in the best interests of their beneficiaries.”
The IIGCC’s voice is increasingly being heard, but a greater number of pension investors supporting these initiatives is critical if they are to make a stand against corporate lobbying efforts — which have historically been much more vocal and well-resourced. In 2013 in the US alone, companies spent US$1.61bn on lobbying Congress, with many hiring specialised lobbying firms. The oil and gas industry spent $71.1m on lobbying efforts, with electric utilities’ spending $67.5m – the third and fifth highest lobbying outlays by sector respectively. These well-resourced positions often, though not always, run counter to the long-term interests of pension savers and the needs of a sustainable economy.

### The Policy Landscape

Throughout this report we have seen that both effectively managing risk and seizing opportunities requires appropriate public policy. In this sense, policy can tip the risk/reward structure of markets. As investors often point out, effective integration of climate risks is more difficult in the absence of ‘Long, Loud, and Legal’ policy signals which create the necessary certainty about commitments to curb carbon emissions. This allows investors both to take into account the likely effects of regulation on high-carbon assets, and to invest with greater confidence in emerging low-carbon technologies. To date, such policy certainty has been lacking.

In theory, a global price on carbon – either through taxes or carbon trading – is the least costly way to guide the transition to a low carbon economy. Such a price internalises the, environmental and social cost of economic activity, thereby encouraging business to innovate away from polluting technologies, and enabling investors to allocate capital accordingly. This transfers the significant costs associated with carbon to the polluter rather than the pension saver.

Importantly, fossil fuels still enjoy the bulk of energy subsidies (see below). As such, not only does the damage to health, ecosystems, water availability, and the climate all remain external to energy generation costs, it is actively subsidised and thus incentivised. At the same time, policy support for renewable energy and energy efficiency remains lukewarm and in some cases unreliable. Spain’s retroactive changes to renewable energy contracts served to both undermine the local industry and create an added perception of policy risk.

The consequences of this imbalance are pervasive. As long as energy market incentives are skewed in favour of fossil fuels, progress in renewable energies will be undermined. It is important that the full costs and benefits of various energy sources are priced into markets so that capital can more naturally be allocated to where it is most efficiently used, both economically and environmentally.

The policy environment is evolving – to greater or lesser extents – around the world. In exploring this landscape, it is important to remember that while the nature and content of the policy debates may change over time, the importance of public policy engagement will not. Nonetheless, what follows is a brief summary of the main policy debates that will unfold in the next two to three years. We focus here on policies specific to climate change and green investment. Broader policy interventions are also needed to make the investment system itself more capable of responding to climate change – for instance, by tackling wider problems such as short-termism (as discussed in the Introduction to this report). However, these are outside the scope of this chapter.
Paris 2015
A global deal
In 2015, global governments will meet in Paris to negotiate binding emissions cuts for all economies, which, if adopted, will lead to a global carbon budget for the period after 2020. The size and division of this global budget will have a significant impact on regional and national policies, with implications for fossil fuel companies and their investors if ambitious targets for emissions reductions are codified in international law.

Given that the economic impacts of climate change are likely to outweigh the economic impacts of this regulation, we believe it is in pension savers’ best interests, particularly those under 50 years of age, to ensure that clear and manageable regulation guides a smooth transition to a low carbon future. This will help to avoid more sudden (and disruptive) policy measures in the future: as the physical impacts of climate change intensify, so will the stringency of climate policy.

Rethinking subsidies
The reform of energy subsidies is one agenda with particularly significant implications for institutional investors. According to the IMF, worldwide subsidies for petroleum products, natural gas, and electricity totalled $480bn in 2011, or 0.7% of global GDP. UK subsidies to coal, natural gas and petroleum totalled £4.3bn in 2011, up £510m from 2010, with natural gas receiving the bulk of this support (£3.6bn) as well as the majority of the annual increase. Beyond the direct fiscal costs of these subsidies, they artificially sustain the attractiveness of fossil fuel investments and encourage energy consumption. The IMF argues that the removal of global subsidies could reduce CO2 emissions by 13%.

Mobilising private capital
Paris 2015 will also include discussions on how to mobilise capital to fund global climate mitigation and adaptation measures. Leading up to 2015, work has already started on the rules and mechanisms of the Green Climate Fund (GCF), an operating entity of the UNFCCC, which aims to raise $100bn a year by 2020 to aid developing countries affected by climate change. Ad hoc pledges are currently being collected from developed nations, with the aim of completing initial capital raising by the third quarter of 2014.

In addition to these government pledges, the Fund aims to catalyse private sector investors who “hold the key to supplementing government cash” in transforming the economy. The Fund is currently discussing the possible institutional models for a private sector arm and the financial instruments that could be used. It has asked for private investors to share their ideas on how barriers to green investing (discussed in Chapter 3) may be overcome.

The IIGCC has suggested that the design of the Fund makes use of mechanisms such as concessional loans to projects, climate risk reduction mechanisms, subsidies to projects that produce verified emissions reduction, or aggregating smaller projects to enhance their attractiveness as investments. Setting up public-private partnership funding models with the Fund as a partner, or the issuance of green bonds by the Fund, have also been suggested as possible solutions.

Regional and national policies
Running parallel to the international negotiations, regional, national, and subnational policies with financial impacts for investors are being implemented globally.
EU Policy
A long-term signal
In Europe, one of the major uncertainties facing investors is what the post-2020 policy architecture will look like. The IIGCC267 has urged that a 2030 emissions reduction target be set to allow for long-term planning, and it supports a 40% reduction over 1990 emissions levels. The group argues that institutional investors need a running 15-year time horizon in which policy is certain, and would welcome even longer-term targets to 2040.268 The UK’s Secretary of State for Energy and Climate Change, Ed Davey, has also called for a 40% emissions reduction in Europe over 1990 levels by 2030, rising to 50% if a global deal is reached.269

A price on carbon
A target for emissions reduction must be complemented by a long-term price signal to guide investment accordingly. To date, the EU ETS has been tasked with delivering this signal but has been unsuccessful in sustaining carbon prices at the level required to incentivise a shift to low carbon investment. Structural weaknesses such as the free allocation of original allowances and an oversupply of permits, coupled with lower demand for energy during the economic crisis, resulted in carbon prices too low to stimulate low carbon innovation.270 The structural reform of the EU ETS is at the core of a stable EU climate policy and 2013 has already seen some important decisions in this regard.

In July 2013, the EU Parliament voted in favour of a proposal to ‘back-load’, or delay, the action of 900 million new carbon allowances, which, if approved by the Council, would limit supply and support prices.271 This came after the rejection of a similar proposal in April272, before which the IIGCC had argued that “a properly functioning Emissions Trading Scheme is essential to the financing of Europe’s low carbon future and critical to tackling the dangers of climate change”.273 The impact of policy becomes clear when we consider carbon prices increased by 9% on the day of the announcement.274 However, the IIGCC sees this only as a crucial first step in restructuring the ETS.275 The 900 million permits to be withheld account for only half the surplus, suggesting further structural changes could be needed.276 Accordingly, further investor action will be needed to push for a long-term, stable price on carbon.

A wider suite of vehicles
New technologies and markets come with specific risks, and investors will not commit significant capital to green investments until they have a suitable risk/return profile. The IIGCC has argued for the creation of more helpful instruments that meet the risk/return requirements of institutional investors, such as Real Estate Investment Trusts and Master Limited Partnerships. These legal structures allow investors to pool capital and to avoid double taxation, but to date, have not been applicable to clean energies.277

Other regional policies
Apart from the well-known regional EU ETS, national trading systems are emerging in Australia, Switzerland, New Zealand, South Korea, and Kazakhstan, and at the sub-national level in Canada, the US, Japan, and China.278 Globally, 35 jurisdictions have already implemented or are in the process of implementing a carbon price either through a tax or a trading system.279 In the US, President Obama’s new Climate Action Plan280 also has the potential to create a strong signal for emissions reduction. If the plan passes through the political process, the US will impose a number of measures, including carbon pollution standards...
on all current and future power plants (a command and control instrument, as opposed to the market-based approach of a carbon price); a significant scaling up of renewable energy; clean energy research and development funding; and an elimination of fossil fuel tax subsidies in the 2014 fiscal year. These policy developments are significant to pension funds as they suggest that even in absence of a top-down, global deal on climate change, bottom-up policies could create a de facto carbon price which will impact markets.281

**UK Policy**

Many of these discussions filter down to the national level. The UK’s energy transition will be guided by the Electricity Market Reform (EMR), a draft of which was published in July 2013. The EMR aims to balance the attainment of security of supply, climate change mitigation, and affordability, and will require an investment of £110bn in electricity generation and transmission to 2020.282 One of the main avenues for achieving the aims of the reform is to incentivise the diversification of energy supply (including to renewables). In its current form the EMR will see contracted, guaranteed prices – essentially subsidies — for renewable energy developers; as well as a carbon price floor in the form of a tax.‡‡

Pension fund investment in low carbon industries is held back by a number of concerns, most notably a lack of certainty around government’s energy policy. In particular, the perceived hostility of the Treasury towards the green agenda, under successive governments, has undermined confidence in climate policy. Investor sentiment is influenced by rhetoric as well as substantive policy: for instance, George Osborne’s 2011 speech to Conservative conference, which blamed environmental regulations for driving up energy bills and stressed that “we’re not going to save the planet by putting our country out of business”, was widely interpreted as an endorsement of the view that ‘green is bad for growth’.283

‡‡ When the carbon price falls below a certain level, a tax on emissions will automatically take its place, effectively creating a ‘floor’ below which the price of carbon cannot drop.

This environment has influenced investors’ response to policy developments such as the delay in setting a 2030 decarbonisation target (now due to be set in 2016), and the recently announced decrease in renewable energy subsidies.284 A group of investors led by the Aldersgate Group recently wrote to the Chancellor calling for a decarbonisation target to be included in the Energy Bill currently before parliament, arguing that its absence “exacerbat[es] policy risk and investor uncertainty”.285

Further to this, UKSIF286 has argued for the granting of borrowing powers to the newly established Green Investment Bank, a government organisation tasked with ‘crowding in’ private investment for decarbonising the energy sector.

**Policies to underpin sustainable investment**

While reform of energy subsidies can help green investments to compete on the basis of investors’ current risk/return requirements, there is also debate over whether investors should be developing new ways of measuring and conceptualising risk. Prevailing risk measures tend to be focussed on deviation from benchmarks and do not adequately capture the potential impacts of systemic risks such as climate change. In a speech to the UK pensions community on the 27th June 2013, the Prince of Wales asked investors: “might you widen the scope of existing risk analysis in order to capture some of the systemic links between risks?” This wider conception of risk, by better accounting for the externalities associated with climate change, could help to give a more accurate picture of the attractiveness of green investments.287
To facilitate this widening of risk analysis, investors will require relevant information. A welcome move in this regard is that listed companies have been required to report their greenhouse gas emissions (scopes 1 and 2) annually since 1st October 2013. However, in Chapter 1 we noted that annual emissions data do not give investors all the necessary information they need to assess the long-term risks faced by companies and to perform robust climate risk analysis. Investors should therefore be vocal about the type of information they need from investee companies in order to gain a clear understanding of their position in relation to climate risks. CDP has expressed concerns that the UK’s reporting guidelines are not comparable with those in other jurisdictions such as the US or Australia, and that the organisational boundaries within which companies have to report may not match the geographical emissions for which they are responsible. CDP suggests that in order to achieve global consistency, all national legislation on carbon reporting should be aligned to the international standards of the Climate Disclosure Standards Board, a global organisation working to mainstream carbon reporting.

The IIGCC has articulated its expectations for reporting in sectors where standard reporting requirements do not adequately address climate risk factors. In 2010, it published guidelines for the oil and gas industry suggesting that companies disclose: emissions for each stage of the value chain; emissions associated with production history and proven reserves; the extent to which the business model is vulnerable to national and international climate regulation; and the impact of demand for fossil fuel products. These calls have more recently been reinvigorated by Carbon Tracker, which argues that regulators should require companies to disclose the potential emissions embedded in fossil fuel reserves and to explain how their business models would hold up under different demand and price scenarios. The IIGCC has also published expectations for the automotive and electric utility sectors.

Sustained, coordinated investor demand for corporate disclosure can be a powerful force for change. Historically, this has certainly been the case, with investors playing an important catalysing role in changes to reporting requirements. The US-based Ceres (formerly known as the Coalition for Environmentally Responsible Economies) developed stringent environmental reporting standards after the 1989 Exxon Valdez disaster, and later, in 1997, launched the Global Reporting Initiative (GRI) in partnership with UNEP, which aims to bring sustainability reporting standards to the rigorous level of financial reporting. The GRI is now used by many companies, either voluntarily or under mandatory integrated reporting schemes such as those in South Africa and Denmark.

In the UK, the Prince’s Accounting for Sustainability Project (A4S) is the institutional catalyst for integrated reporting, driven by the idea that integrated reporting "will allow the connection between strategic direction, financial performance, and sustainability impacts to be made." The UK’s Department of Business, Innovation and Skills recently released its narrative reporting regulations which are currently before Parliament for approval. The regulations will see all major companies producing a strategic report which links their business models to risks; and all listed companies reporting on greenhouse gas emissions. In our view, however, these new regulations represent a missed opportunity to follow leaders like South Africa in promoting integrated reporting. Pension funds were almost absent from the debate in narrative reporting, with exceptions such as the pension fund NEST and the investor groups IIGCC and UKSIF.
Pension fund engagement
How can pension funds lend their voice to policy debates that will affect their future? An engagement programme could be initiated relatively simply by joining and contributing to existing efforts in this space. The good work already being done by the IIGCC, for example, could be significantly strengthened by a wider pool of members willing to contribute either technical or financial resources.

Recommendation 4.1
Pension funds should become active members of the Institutional Investors Group on Climate Change (IIGCC) and should encourage their investment managers to support this investor initiative.

Recommendation 4.2
Pension funds should request that NAPF dedicates some resources (and at least one policy officer) to representing the interests of UK pension funds and their members in domestic and international climate policy talks and forums.

In the UK, while the National Association of Pension Funds (NAPF) has a strong policy engagement function, it has not yet exercised its voice on climate policy. Pension fund members of the NAPF could encourage the Association to invest in the resources required to engage effectively on climate risks.

The NAPF should work closely with the IIGCC to ensure cooperation, thereby avoiding duplication of efforts. Pension funds and investment managers who belong to both organisations may consider forming an informal committee to ensure that this cooperation is achieved.

Addressing lobbying by investee companies
A critical part of any engagement policy is aligning the lobbying efforts of investors with those of their investee companies, as currently investors’ efforts are being undermined by the lobbying positions of carbon intensive industries. Put differently, companies are using shareholder capital to lobby for policies that are often against pension savers’ long-term best interests.

The various lobbying positions on the reform of the EU ETS illustrates this issue. Energy and environment ministers from 12 EU states (including the UK) supported the limiting of new

CASE STUDY 1: Investor Network on Climate Risk
The US-based Investor Network on Climate Risk, representing 100 institutional investors with $11tn in assets, sent petitions for three years to the US Securities Exchange Commission (SEC), calling for it to issue formal guidance for company disclosure on climate risks and opportunities. The consistent and comparable data that such guidance would help to achieve is a necessary ingredient for investors wanting to integrate climate risks into their investment decision-making.

In 2010, the SEC issued guidance which set out what publicly listed companies were to disclose to their shareholders in terms of climate risks and opportunities in the future. This included the impacts of physical and regulatory risks and business opportunities.
allowances and the introduction of longer-term structural reforms. This support was backed by 42 businesses and trade associations, including some carbon intensive companies such as E.ON, SSE, and EDF. On the other hand, Business Europe, a business lobby group constituted of listed companies including ArcelorMittal and Lafarge (companies which enjoyed significant windfall profits from the free allowances in the first two phases of the ETS) expressed a “strong concern” for the back-loading proposal, arguing that it would “interfere with a more constructive discussion on how to achieve a systemic solution” involving coherence between climate and industrial policies. Business Europe has been criticised for claiming a unanimous business voice against the back-loading proposal when, conversely, some high emitting companies had actively voiced their approval.

If we see this as a situation in which a minority of companies are effectively undermining investors’ own interests and engagement efforts, there is a compelling case for investor dialogue with investee companies on their lobbying positions and how they use shareholder capital to this end.

To address the risks that (1) companies are using shareholder funds to lobby against climate change mitigation measures and/or (2) that companies are funding third party organisations who are lobbying in opposition to those companies, investors should encourage greater accountability and transparency to shareholders on this issue.

Investor groups are beginning to scrutinise corporate lobbying more closely.

- CDP included questions on corporate lobbying for the first time in its 2013 annual survey.
- In the US, the 2013 AGM season saw investors file shareholder resolutions seeking greater transparency at 38 companies with an average vote in favour of 26%. A group of investors led by Boston Common Asset Management and Sarasin & Partners wrote to over 40 FTSE 100 companies asking for annual disclosures on memberships in and payments to third-party organisations, and the criteria used to assess the compatibility of the company’s stated policies, principles, and codes of conduct with each funded third party organisation.
- Co-ordinated through IIGCC’s corporate programme, members discuss with company management their views of climate risks and opportunities and their strategies for responding to them. Currently IIGCC members are engaging with European energy intensive industries on EU policy including the EU ETS.

Leaked information showing corporate financial support for certain organisations opposed to climate change science was one of the motivating factors for these investor initiatives.

While a number of companies in the UK and US have reacted positively to these calls for greater transparency and accountability to shareholders, much work remains to be done to ensure investor efforts in the policy arena are not undermined by their own investee companies.
**Recommendation 4.3**

Pension funds should request their investment managers to support collaborative investor initiatives (including voting in favour of shareholder resolutions) to secure greater transparency and accountability from investee companies on their direct and indirect (via third party organisations) lobbying positions.

**Conclusion**

In this chapter we have seen that both policy and a lack of policy can have a significant effect on the ability of even the most concerned pension funds to adequately address climate risks. In the coming years, public policy decisions at every level will shape the investment landscape in which pension funds must carry out their fiduciary duties. Given the right policy environment, pension funds could gain the certainty and the risk adjusted returns they need to invest in a low carbon, resilient economy, or gain access to comparable and consistent information regarding the future risks facing companies. Shaping these outcomes will require more coordinated and better resourced engagement by pension funds, particularly in the face of powerful corporate lobbying by carbon intensive industries. By pooling resources through collective engagement, far-reaching changes that are in the interests of pension savers can be achieved in a targeted, cost-effective manner.

**CHAPTER SUMMARY**

In this chapter we discussed the importance of public policy in determining the long term investment landscape. We suggested that coordinated public policy engagement from the pensions industry can help to shape policy outcomes in the best interest of beneficiaries. This would also help to counteract strong business lobbying positions. We recommended the following actions:

- Pension funds should become active members of the Institutional Investors Group on Climate Change (IIGCC) and should encourage their investment managers to support this investor initiative.
- Pension funds should request that NAPF dedicates some resources (and at least one policy officer) to representing the interests of UK pension funds and their members in domestic and international climate policy talks and forums.
- Pension funds should request their investment managers to support collaborative investor initiatives (including voting in favour of shareholder resolutions) to secure greater transparency and accountability from investee companies on their direct and indirect (via third party organisations) lobbying positions.
Conclusions and Recommendations
Climate change poses a significant financial risk to the retirement outcomes of today’s savers. Not only will it impact the ability of pension funds to meet their liabilities and investment goals, but also the wider interests of retirees by eroding their spending power and creating an increasingly volatile world. As universal owners with holdings across the economy, pension funds are unavoidably vulnerable to these risks. But they also have influence on how various climate scenarios will play out. In particular, they collectively have the ability to mobilise the capital required to mitigate the worst effects of climate change.

By developing internal policies to start understanding, assessing, and ultimately managing climate risk, pension funds can start to create more resilient portfolios. They can proactively mitigate the risks associated with high carbon assets and position themselves to take advantage of the growth industries of the new, green economy. Finally, pension funds can play an active role in shaping the policy outcomes that will impact the markets they depend on and which will determine whether, and how smoothly, the transition to a low carbon economy can be achieved.

In this report, we have sought to provide pension funds with tools for thinking about this vital and urgent issue, and – most importantly – to start taking action to protect pension savers’ long-term interests. Below we summarise our recommended actions. Although the recommendations form a coherent whole, we do not assume that all schemes will implement all recommendations. We recognise that smaller schemes with limited resources will wish to prioritise the actions which are most cost-effective and productive for their particular circumstances.

Recommendations for setting the general frameworks for managing climate risks

1.1 Trustees and pension fund officers with responsibility for investment matters should undertake a minimum of two hours training on the financial materiality of climate change and environmental risk.

1.2 Pension schemes with experience of strategies addressing climate risks should share their knowledge and insights with others in the industry.

1.3 Trustees should develop and articulate their investment beliefs in light of the evidence on the economics of climate change.

1.4 Pension funds should undertake an evaluation of their exposure to climate risks, quantifying those risks where possible.

1.5 Pension funds should develop a policy (or sub-policy) that sets out fund-specific objectives and priorities for managing climate risks. The policy should be signed off at board level or by an investment committee of the main board.

1.6 Pension funds should prepare a practical action plan to deliver their climate policy with time-bound targets.

1.7 Pension funds should report regularly to members on the progress being made to reduce climate risks. Such reporting can be a stand-alone account or embedded in pension fund annual investment reports.
**Recommendations for addressing carbon intensive portfolios**

2.1 Pension funds should request that their fund managers assess the ‘stranded asset’ risk in fossil fuel companies’ project portfolios. Managers should request that investee companies disclose the cost curve position of their project portfolio and disclose their cash flows under different demand and price scenarios.

2.2 Pension funds should support calls for reduced capital allocation to high cost/low return projects in favour of returning money to shareholders or reallocation to less risky projects.

2.3 Pension funds should set a time frame to remove pure play coal assets from their actively managed portfolios.

2.4 Pension funds should engage, or ask their fund managers to engage, with carbon intensive holdings on their emission reduction plans. This can be done by joining CDP’s Carbon Action and by supporting the ‘Aiming for A’ initiative.

2.5 For active equity mandates, pension funds should request the use of information about company emissions intensity and reduction plans in stock selection decisions. For passive equity mandates, pension funds should consider tracking carbon tilted indices.

2.6 Pension funds should require their fixed income managers to demonstrate how they integrate carbon and climate risks into credit analysis.

2.7 Pension funds should require property managers to integrate environmental considerations into standard property investment appraisals, and into the development and refurbishment of properties.

2.8 Pension funds should request that property managers outline what targets have been set for improving energy, waste and water efficiency.

**Recommendations for investing in a low carbon future**

3.1 Pension funds should signal their commitment to and demand for green investment opportunities. For example, pension funds should request more climate-related information and graded products from their consultants and investment managers.

3.2 Pension funds should pool funds to create the required scale for low carbon infrastructure investments, as well as build climate security considerations into the assessments they make of potential infrastructure investments. If the PIP is to be used as a pooling vehicle, pension funds should explicitly ask that these infrastructure investments be in line with the needs of a low carbon economy.

3.3 Pension funds should adopt an internal target for allocations to climate-related sectors such as clean energy, low carbon transport, energy efficiency, agriculture, forestry, water, waste, and recycling. The allocation could span the full range of asset classes held by the fund.
Recommendations for influencing public policy.

4.1 Pension funds should become active members of the Institutional Investors Group on Climate Change (IIGCC) and should encourage their investment managers to support this investor initiative.

4.2 Pension funds should request that NAPF dedicates some resources (and at least one policy officer) to representing the interests of UK pension funds and their members in domestic and international climate policy talks and forums.

4.3 Pension funds should request their investment managers to support collaborative investor initiatives (including voting in favour of shareholder resolutions) to secure greater transparency and accountability from investee companies on their direct and indirect (via third party organisations) lobbying positions.
AODP Sample Climate Change Policy i

Aim and Purpose of Policy

The Board of the [INSERT FUND NAME] (the fund) acknowledges that the impact of climate change represents a significant risk to members superannuation. This policy aims to formalise the Fund’s approach in managing climate risks.

We acknowledge the scientific consensus and aim to build an ongoing capability around managing the risks and opportunities associated with climate change. We acknowledge that such a programme will encompass almost every aspect of our operations, ranging from asset allocation to active ownership.

These processes will be governed by a secure project governance framework and managed under a specific subcommittee, [INSERT COMMITTEE NAME], formed for this purpose. This subcommittee will serve to form a plan, implement and report on the activities related to this project and held under the responsibility of the Chief Investment Officer.

As the fund is committed towards keeping members informed regarding this issue, we will seek to provide updates to members and stakeholders regarding our progress on managing climate change issues.

Scope

This policy covers all the operations and investments of the Fund

Voluntary participation in collaborative initiatives

In relation to collaborative initiatives involving climate change issues, the Fund is a signatory of the United Nations Principles for Responsible Investment (UNPRI), the Carbon Disclosure Project (CDP) and ongoing participant of the AIST/TCI Asset Owner’s Climate Change Initiative.

Internal fund climate change management

The Fund will measure the emissions resulting from our operations and seek to establish targets on reducing our carbon footprint. Our progress on this matter will be updated annually and reported publically via our Annual Report.

i The Climate Institute & Asset Owners Disclosure Project. 2010. ‘Climate Change Best Practice Methodology: Improving the management of climate change risks and opportunities in investment portfolios through superior implementation of best practice.’
APPENDIX 2

Platforms available to help pension funds become sustainable property investors:

**Global Real Estate Sustainability Benchmark (GRESB):**
This is an industry driven organization that monitors the sustainability performance of property portfolios. By using data submitted by companies and fund, GRESB is able to benchmark the performance of the global real estate sector. Funds are able to see results on seven sustainability aspects – including energy management, water management, and GHG management - which are benchmarked against peer groups.

**Eco-Portfolio Analysis Service (EcoPAS):**
EcoPAS – also a benchmarking service – collects data on environmental variables in real estate portfolios with the aim of identifying where the risks to investors lie, and how these compare to peers. The system was launched by IPD, a real estate performance analytics firm.

**The IIGCC and Investment Property Forum Sustainability Interest Group (SIG):**
Both these group individually aim to promote understanding in the investment community of the impacts of climate change for property holdings, and have established a link. SIG has developed a set of Environmental Best Practice Investment Management Policies aimed at providing investors with best practice examples in this area, and provides a range of useful materials on climate change and property investments on its website (www.ipf.org.uk)

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During the summer of 2013, ShareAction hosted 4 workshops discussing the issues covered in each of the chapters of this report, attended by the following:

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| Organizational affiliations are given for information only. All participants attended in a personal capacity and the event was held under Chatham House Rules. The opinions expressed in this paper are those of ShareAction and are not necessarily endorsed by the roundtable participants.
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