A climate for change II

A trustee's guide to addressing climate risk

Investor Group on Climate Change

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Serving Super. Protecting Futures.

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Introduction

In January 2005, the Carbon Trust and the Institutional Investors Group on Climate Change (IIGCC) jointly commissioned Mercer Investment Consulting to produce a guide for UK pension trustees on climate change. The Carbon Trust and IIGCC kindly made that guide available to the Australian and New Zealand Investor Group on Climate Change (IGCC) for adaptation to the local market in 2005.

A climate for change II — A trustee's guide to addressing climate risk (2009) is an updated version of the 2005 paper. It recognises that the investment issue of climate change should now be a part of mainstream investment decision-making. The Australian Institute of Superannuation Trustees and the members of the Investor Group on Climate Change in Australia and New Zealand have reviewed and updated this guide. Special thanks go to IGCC members from ARIA (Australian Investment Reward Alliance), CBus Super, Mercer Australia and VicSuper, who contributed to the review.

'It is clear that we can't go on warming the planet indefinitely — we need to modify the way we do things. Change always invites detractors and debate. No more so than when the issues are as complex as climate change and impinge on something fundamental to our way of life — our use of energy'.

Graeme Pearman, Former Chief Scientist at CSIRO Atmospheric Research.
Currently an Honorary Senior Research Fellow at Monash University.

1. Executive summary

Addressing climate change is the defining economic challenge of our time. Long-held assumptions of benign human interaction with the earth's climate — assumptions that were a basis for economic development and investment decision making — no longer hold true. If we are to avoid the worst consequences of climate change, we must rapidly transition our economies to a 'low-carbon' footing.

Evidence of a warming world and resulting regulation to address its causes and consequences are expected to influence all economic and investment decision making from now on. For superannuation trustees with a duty to maximise the retirement income of their members, and the ability to direct invested funds to any area of economic endeavour, the consequences of every investment decision will be significant.

A climate for change II — A trustee's guide to addressing climate risk, explores the economic phenomenon of climate change from an investment perspective. It outlines the response trustees can take to meet their duties to their members over the long term and, in doing so, responsibly address their role as economic actors.

Physical and market impacts

The physical impacts of climate change are already being felt globally through damage to biodiversity, land productivity, property, human health, and water supplies. These impacts will, according to the international scientific community, become more severe over time. The weight of international scientific evidence confirms that emissions of greenhouse gases will have to be reduced by as much as 80 per cent by 2050 in order to limit the extent of warming to two degrees Celsius and avoid the worst consequences of climate change.[1]

As economies attempt to mitigate the contributing factors to climate change, emerging policy frameworks will affect all economic sectors. The energy, transport, resources, built environment and agriculture sectors will ultimately be significantly affected in Australia. Whether by physical or market impacts, the effects of climate change are already being felt in economies and are expected to intensify.

A fundamental investment consideration

The duty of trustees to generate investment returns for members over the long term places them in the pilot's seat on investment decision making — the private investment levers are in trustees' hands. It is only following instructions from trustees that other actors in the investment supply chain will substantially integrate climate change considerations into investment decision making. Moreover, it is only through the most far-sighted and rigorous application of the duties of the trustee that superannuation funds can hope to adequately address climate change as a material investment consideration. There is not a moment for trustees to lose in preparing to treat climate change as a core investment consideration.

1 IPCC Fourth Assessment Report (AR4): Climate Change 2007, available at http://www.ipcc.ch

What trustees can do

To respond to the climate change investment challenge, it is essential that trustees have clear sight of the steps they can take. This guide helps trustees traverse this challenging terrain. It provides superannuation fund trustees with:

- Information on the potential for climate change to impact financial risk and returns;
- An exploration of the roles and responsibilities of fiduciaries in light of this; and,
- Three steps to address climate risk in investment processes:
    - Step 1: Assess understanding, determine associated investment position and policies;
    - Step 2: Assess the current approach of the fund, and that of external service providers;
    - Step 3: Select and execute implementation options.

A climate for change II is a call to action for superannuation trustees, a source of valuable investment information on climate change, and a tool kit for taking the next steps on integrating climate change into investment decision making.

2. Climate change — a primer

Since the beginning of the industrial revolution, humans have increased the concentration of carbon dioxide (CO_2) and other greenhouse gases in the atmosphere through the burning of fossil fuels and deforestation. Simply put, these emissions have thickened the greenhouse blanket that covers the earth, causing heat to be trapped and the surface temperature of the earth to rise slightly.

At first glance, climate change may not seem a major problem: temperature increases to date seem relatively low and in some regions, prospects of a warmer summer might initially seem attractive. Unfortunately, the situation is much more complex.

The Intergovernmental Panel on Climate Change (IPCC) was established in 1989 to assess scientific, technical and socio-economic information relevant to the understanding of climate change. The main estimates of global temperature change produced to date from a wide set of scenarios by the IPCC forecast that global temperatures will increase by 1.5 to 5.8 degrees Celcius by the end of the century.[2]

The IPCC report included the following in the list of observed changes related to increased temperatures caused by climate change:

> 'the thawing of permafrost, later freezing and earlier break-up of ice on rivers and lakes, lengthening of mid to high-latitude growing seasons, poleward and altitudinal shifts of plant and animal ranges, declines of some plant and animal populations, and earlier flowering of trees, emergence of insects, and egg-laying in birds'.

As temperatures rise these changes will intensify, with direct consequences such as rising sea levels (threatening coastal communities, fisheries and coastal ecosystems) and more extreme weather events, including droughts, floods, and storms (threatening widespread impacts). Underlying precipitation (rainfall) patterns are also predicted to change and will have agricultural, operational and broader humanitarian implications.

Many of these effects are now evident and will worsen dramatically unless action is taken globally to reduce emissions of greenhouse gasses. That is why governments in Australia and around the globe are now seeking to control and reduce the emissions of greenhouse gases by individuals, businesses and governments. These mitigation strategies have serious consequences and entail some significant changes: the impact of many of these policies will be felt acutely by businesses, with potential profitability and competitive positioning implications. However, it is not all bad news: the challenge clearly introduces new opportunities. Nevertheless, climate change action is needed and is happening now — companies that do not recognise this are putting themselves at increased financial risk.

2 IPCC Fourth Assessment Report (AR4): Climate Change 2007, available at http://www.ipcc.ch

Both the physical and policy impacts of climate change will influence the ability of companies to create and maintain wealth for shareholders (in the short and long term). Superannuation fund trustees will therefore want to ensure that these risks (and associated opportunities) are being addressed in relation to the funds in their care.

'… climate change policy is not just about the Green Paper and the Carbon Pollution Reduction Scheme. It is not just about who wins and who loses from an emissions trading scheme. It is one of the most significant economic and environmental reforms of our time both domestically and globally. As leaders of Australian business, we have an obligation to ensure that our companies are preparing for the challenges and the risks.'

Kevin McCann Origin Energy Chairman, August 2008

'There is little doubt that climate change is one of the defining issues of our time. The science is telling us that in our lifetime we are going to face sweeping climatic changes with environmental, economic, health and social impacts that will change the way we live our lives. In many ways these changes can be for the better. A low-carbon future means a smarter, cleaner and more resource-efficient economy, and the emerging policy and market frameworks will provide plenty of incentives for the innovation required.'

Gail Kelly Westpac CEO, December 2008

3. The Economics of Climate Change

Internalising the externalities

Environmental considerations once fell outside economic calculations. The disruptive effect that climate change will have on society demonstrates that internalising the cost of human contribution to climate change on the economy is now critical. What was once free, that is, emitting green houses gases (GHG) such as carbon, must now be costed and accounted for if market-based economies are to address the threat of climate change.

Universal ownership

The concept of universal ownership describes the investment exposure of institutional investors to most sectors of the economy for the long-term. Large investors are holders of a broad selection of different companies and other assets, and therefore are often tied to the performance of markets or economies as a whole as much as they are to the performance of individual companies. This is particularly evident in funds that employ index or passive investing strategies. As a result of their broad ownership, these investors have a specific interest in the long-term health of the economy as a whole, making cross-market issues such as climate change particularly relevant.

Policy measures to address greenhouse gas emissions

The cap-and-trade approach to reducing emissions has been endorsed as the favoured policy response by major economies including the European Union and the United States. Australia's proposed Carbon Pollution Reduction Scheme (CPRS) is a cap-and-trade scheme.

Under a cap-and-trade scheme, economy-wide emissions are capped at a predetermined level. The very nature of the cap creates a limited supply of emission permits in the economy; this is in contrast to the theoretically unlimited demand for permits from the participating companies in the scheme. The result is a price on carbon, which will either be absorbed by the polluting company, reducing profitability, or will find its way into the final prices of products produced by the company. The price signal in turn makes less emissions-intensive industries more price competitive. This alters consumer behaviour and pressures companies to seek to reduce their emissions intensity in order to increase their products' competitiveness. The net result is that economy-wide emissions are reduced. A consequence of the cap-and-trade approach is that the cost to emit could increase rapidly if the emissions caps are reduced due to escalating concerns over warming of the globe.

Alternative approaches to reducing emissions include directly taxing carbon emissions and a baseline and credit scheme. Under a carbon tax, a fixed cost would be imposed on each unit of GHG emissions generated in the development of a product or service. Proponents of a carbon tax argue that it offers more certainty to business over a market-based price that may fluctuate. The obvious limitation is that a direct tax does not incorporate a cap for economy-wide emissions and therefore may not target a specific environmental outcome. The revenue raised by the carbon tax can be used to invest in abatement technologies or alternatively reduce other taxes within the economy. The perverse outcome of a carbon tax may be that as the policy achieves its objective over time the government's revenue base will shrink, leading to pressure to increase taxes elsewhere in the economy.

A baseline and credit scheme aims to curb economy-wide emissions by rewarding emissions reductions at the individual entity level. The scheme establishes a baseline for each participating entity and then rewards that entity with emissions credits for reductions below the baseline. Entities that exceed their baseline will need to purchase credits from the entities that have been able to reduce their emissions relative to their baseline.
A controversial aspect of the baseline and credit scheme revolves around the establishment of the official baseline and the evolution of that baseline over time. The nature of the scheme also results in a relatively smaller price signal being sent through to the final products, as only increases in emissions above the baseline are subject to an additional cost. As a result, it is difficult to ensure that the cost of GHG emissions have been fully internalised and that the desired environmental outcome can be achieved.

A market-based policy response that sends an appropriate price signal for the economic cost of GHG emissions is favoured in Australian and internationally.

Complimentary policy measures

In order to provide direction for the economic response to the threat of climate change, governments may use a range of complimentary measures. The following list contains examples of the Australian Government's initiatives:

- Measures to increase the production of renewable energy, other than by price changes, e.g. renewable energy target (RET);
- Measures to support research into emerging technologies, e.g. solar energy or carbon capture and storage (CCS);
- Measures to improve the transparency of companies' efforts to abate, e.g. energy efficiency opportunities (EEO);
- Measures to subsidise the adoption of low emissions technologies or reduced energy use by households and businesses, e.g. solar panel rebates or home insulation rebates; and,
- Measures to support the function of a carbon market, e.g. National Greenhouse and Energy Reporting Act (NGER).

The Renewable Energy Target Bill and related Bills were passed by the Federal Parliament in August, 2009. The RET extends the former Mandatory Renewable Energy Target (MRET) scheme. Both schemes encourage additional generation of electricity from renewable energy sources. The RET places a legal liability on wholesale purchasers of electricity to source 20 per cent of their energy from renewable sources by 2020. The scheme also sets the framework for both the supply and demand of renewable energy certificates (RECs) in a REC market.

Policies to support commercialisation of CCS technology are a priority for the Australian Government. This is due to Australia's current reliance on coal for domestic energy generation and the export revenues that Australia earns from coal. The technology is intended to capture CO_2 emissions, liquefy them, and then transfer the liquefied CO_2 underground in depleted oil fields. There is currently no commercial application of CCS technology in Australia for coal-fired energy generation. In total, the Australian Government has invested in excess of $2 billion towards the technology.

The Energy Efficiency Opportunities (EEO) Act 2006 places legal obligations on companies that consume more than 0.5 petajoules (PJ) of energy per year. The aim of the program is to encourage large energy users to improve their energy efficiency through identification, evaluation and public reporting of cost-effective, energy-saving opportunities.

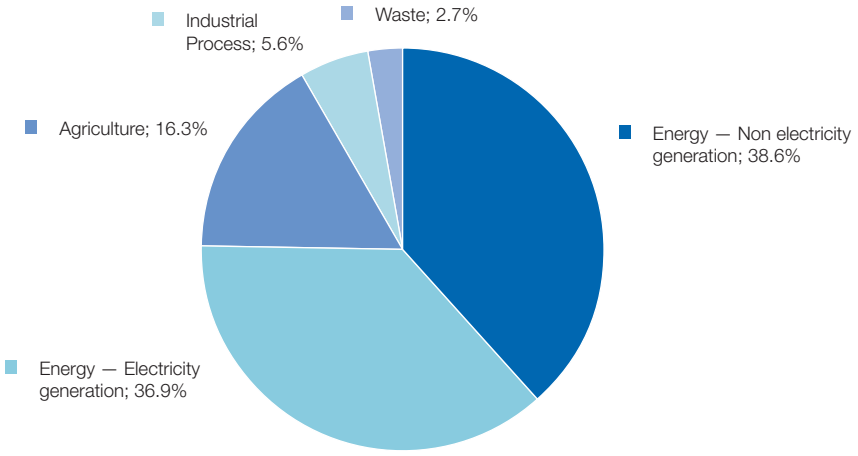
The program's desired result is that the legislated requirement to evaluate and report on achievable energy efficiencies will compel companies to implement energy efficiency opportunities that may not have been implemented otherwise. However, there are a variety of views on the effectiveness of the scheme.

The National Greenhouse and Energy Reporting Act (NGER) established a requirement for companies to report their emissions and energy use to the Federal Government. The NGER came into effect on 29 September 2007 and the first annual reporting period commenced on 1 July 2008. The NGER creates the basis for a set of national GHG accounts and the functioning of the CPRS. At this stage companies are not required to fully disclose their reporting to the market under the NGER.

Carbon emissions and the Australian economy

When discussing the relationship between the Australian economy and carbon emissions it is important to firstly quantify the carbon intensity of the economy as a whole, and then assess the sectoral attribution to the economy's overall inventory. The information in the following section is taken from Australia's national greenhouse accounts, which have been calculated in accordance with the Kyoto Protocol. 'Under the Kyoto Protocol, the national inventory comprises four sources of emissions — the IPCC classifications Energy, Industrial Processes, Agriculture and Waste.'[3] The graph below is an overview of Australia's national inventory by sector.

2007 National Greenhouse Gas Inventory



National Greenhouse Gas Inventory accounting for the KYOTO target — Published May 2009

This chart clearly shows that electricity generation is the largest single contributor to Australia's inventory, representing 36.9% of our total emissions in 2007. Consider the energy sector as a whole and the statistic increases to 75.5% of our total emissions. This includes emissions from transportation.

3 Australian Government — Department of Climate Change, "National Greenhouse Gas Inventory accounting for the KYOTO target", for 2007, published May 2009, p. 1

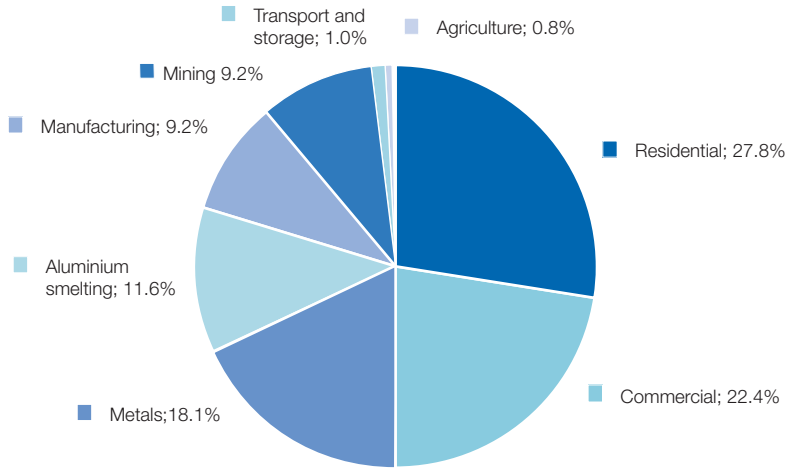
A closer inspection of sectoral attribution reveals that the top three most emissions-intensive activities in the energy sector account for more than half of our total emissions: 54.5% in 2007. These activities are electricity generation (36.9%), road transport (12.7%), and fugitive emissions from solid fuels (5%).

The importance of energy efficiency

In 2007 (updated in 2009), McKinsey and Company released analysis on the cost of global GHG abatement. Referred to as the McKinsey cost curve, the analysis explored numerous abatement opportunities that exist globally for companies and individuals in preparation for a carbon-constrained world. The documentation and associated cost estimations for each of the abatement opportunities create what is known as the marginal abatement cost curve. Importantly, the analysis concluded that the bulk of the negative-cost abatement opportunities centred on energy efficiency.[4] Furthermore, the McKinsey curve identifies a raft of opportunities that exhibit a negative cost, meaning that if each of these opportunities was implemented, the cost savings achieved would outweigh the costs of implementation.

Having identified that electricity generation is the largest single contributor to Australia's emissions inventory, the next graph details Australia's electricity consumption by sector.

Electricity Consumption by Sector



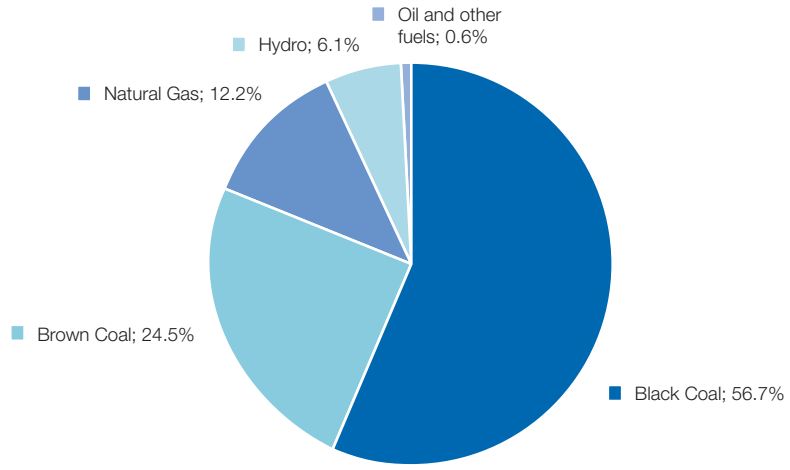
Energy Supply Association of Australia – The Energy Industry Facts in Brief

The above graph shows that 50.2% of our electricity consumption is concentrated in commercial and residential energy use. A notable study in this area that has received little attention is the report by the Centre for International Economics, prepared for the Australian Sustainable Built Environment Council (ASBEC) Climate Change Task Group, which claims that 'Electricity demand in residential and commercial buildings can be halved by 2030, and reduced by more than 70 per cent by 2050 through energy efficiency.'[5]

4 McKinsey and Company, "Pathways to a low-carbon economy", January 2007 (updated and re-released in January 2009).
5 Centre for International Economics — Capitalising on the building sector's potential to lessen the costs of a broad based GHG emissions cut

Turning to the composition of electricity generation in Australia, the following graph shows that 81.2% of electricity generation is coal fired and 24.5% of total electricity production uses brown coal. Brown coal-fired energy generation is currently the most GHG-intensive process. Globally, there is a heavy reliance on coal for electricity generation. In the absence of economically viable carbon capture and storage technology, global demand for coal will decline in the future whilst gas may experience a surge in demand due to its lower emissions per unit of energy.

Composition of Electricity Generation 2006–07



Energy Supply Association of Australia — The Energy Industry Facts in Brief

Other sectors needing to address emissions intensity

While coal-fired electricity generation is the largest sectoral GHG emitter, it is by no means the only industry that needs to address its emissions intensity. Other sectors include:

Steel — steel production uses large quantities of coal, and generates significant GHG emissions. Integrated Gasification Combined Cycle processes are now providing abatement opportunities in this sector.

Aluminium — aluminium production uses large amounts of electricity. While it is possible for aluminium smelters to use renewable energy, the current cost of most renewable energy sources would render their activities uneconomical, particularly in light of the fact that smelters already receive some subsidies for their electricity consumption.

Cement — the manufacture of cement is another carbon-intensive industry for which there are presently few abatement opportunities as the chemical processes required to create cement result in significant GHG emissions.

Airlines — aircraft use large quantities of fuel. Both the introduction of a carbon cost and the likely rising price of oil will have significant effects on airlines.

Agriculture — as well as the potential physical risks to agriculture, such as drought, agriculture creates significant emissions, both through the operation of agricultural machinery and enteric emissions (methane) from the digestive tracts of farm animals. However, agricultural industries may also be able to access carbon sequestration through biochar, forestry and other mechanisms.

4. Australia's Carbon Pollution Reduction Scheme

The Garnaut Climate Change Review, announced in April 2007 by then opposition leader Kevin Rudd and state premiers, examined the impacts of climate change on the Australian economy and recommended policy frameworks to improve the prospects of sustainable prosperity.[6] Following the draft report in June 2008, the Australian government issued a Carbon Pollution Reduction Scheme (CPRS) Green Paper in July 2008. The Green Paper set out the Government's proposed design for an Australian national emissions trading scheme (the CPRS).

Following extensive consultation and lobbying by emissions-intensive sectors and community groups, the Government released its White Paper on 15 December 2008. The paper outlined the proposed final design of the CPRS and the medium-term target range for reducing carbon pollution. Subsequent to the release of the White Paper, and in recognition of the tight time frames and global financial crisis, the Government issued amendments to the original White Paper on 4 May 2009. The changes postponed the proposed start date for the scheme to 1 July 2011 and increased the conditional emissions reduction target. It is likely that further changes will be made to the scheme's design before it is implemented.

Proposed Australian CPRS

The following summarises the key design features of the CPRS:

Start date — the scheme, originally proposed to commence on 1 July 2010, has been deferred to 1 July 2011.

Targets — the scheme proposed the following targets: an unconditional 5% reduction on 2000 levels, increasing up to 15% conditional on a global agreement being achieved at Copenhagen in December 2009. Should agreement be reached internationally to ensure global emissions do not exceed 450ppm of $CO_{2\text{-}e}$ by 2050, Australia will consider a domestic 25% emissions reduction target.

Coverage — the scheme covers around 75% of Australia's emissions and is likely to cover around 1000 entities. There is broad sectoral coverage, including emissions-intensive stationary energy, transport[7], industrial processes, waste, emissions of synthetic greenhouse gases and fugitive emissions during the production, processing, transport, storage and distribution of coal, oil and gas. The threshold for coverage is equal to or greater than 25,000 tonnes of $CO_{2\text{-}e}$ per year. Landfill sites under certain circumstances have a lower trigger of 10,000 tonnes of $CO_{2\text{-}e}$ per year and while legacy emissions (emissions from waste deposited in landfill facilities before 1 July 2011) will count towards this threshold, they will not attract liability to surrender emissions units. Emissions and emissions offsets from agriculture are excluded from the scheme until 2015.

6 The Garnaut Climate Change Review final report, October 2008, Preface p. xiii

7 Note that fuel price increases due to the CPRS are to be offset by reductions in fuel excise.

Trajectories — scheme caps will be announced five years in advance. Gateways (a target range for the ultimate scheme cap in a given year) will be announced with 10 years notice. Gateways will be extended by five years, in five-year increments.

Price caps — The May 2009 scheme amendments introduced a $10 cap for the first year of the scheme. During the first five years the price of emissions permits is capped at $40 increasing by 5% real per annum.

Emissions Intensive Trade Exposed industries (EITE) — in recognition that EITEs would be competitively disadvantaged in the absence of emissions-reduction schemes by Australia's trading partners, the scheme allocates a percentage of free permits to these industries. The scheme proposes a two-tier approach: 90% free permits for activities with at least 2,000 tonnes of $CO_{2\text{-}e}$ per $million of revenue or 6,000 $CO_{2\text{-}e}$ per $million of value-add; 60% free permits for activities with at least 1,000–1,999 tonnes of $CO_{2\text{-}e}$ per $million of revenue, or 3,000-5,999 $CO_{2\text{-}e}$ per $million of value-add. The May 2009 amendments introduced a global recession buffer equal to an additional 5% for the 90% rate and an additional 10% for the 60% rate.

Strongly affected industries — the scheme identifies coal-fired electricity generators as a strongly affected industry. The strongly affected industries are allocated a one-off grant of permits for the first five years. Furthermore, to guard against the risk of the generators earning windfall profits (as occurred in the European Union (EU) ETS scheme), the Australian scheme mandates a review process before further allocations in years three to five.

Compensation — the scheme establishes a climate change action fund that will, over the course of five years, help smooth the transition for businesses and communities impacted by the scheme. The scheme also offers a range of assistance to households that are expected to be impacted by the predicted rises in electricity and gas prices. The scheme also compensates motorists with a cent-for-cent reduction in fuel tax for three years.

International linking — the scheme has no limits on the amount of Kyoto units purchased off shore that are acceptable for compliance purposes.

Banking and borrowing of credits — beyond credits issued at the fixed price of $10 in the first year of the scheme, emissions permits may be indefinitely banked for use in later years or borrowed in the secondary market. It is this aspect of the scheme that will help companies manage any potential price volatility for emissions permits in future years.

The Australian Carbon Trust — the May 2009 amendments announced a proposed body called the Australian Carbon Trust, which will further support individual action by households and businesses. It is anticipated that the Australian Carbon Trust will provide information and tools for households and businesses to effectively participate in Australia's climate change response, and will use contributions from the public to purchase and retire permits.

5. Understanding climate risks and opportunities for superannuation funds

Superannuation funds are substantial owners of assets. Figures from the Australian Prudential Regulation Authority (APRA) show that superannuation funds held assets of $1.03 trillion as at March 2009. As at June 2008, Funds' default investment strategies had 29.3% of assets invested in Australian shares and a further 22.7% in international shares together will smaller investments in unlisted equities (private equity).[8] Nonetheless, these figures indicate that superannuation funds held Australian share investments in the region of $300 billion and international shares in the region of $230 billion. At 30 June, 2008, the capitalisation of the Australian stock market was $1.4 trillion[9].

Smaller investments were also held in corporate bonds, both domestically and globally. Hence, with such a significant exposure, any impact from climate change on these underlying companies will have a significant effect on the performance of Australian superannuation funds.

This is not to say that the remaining assets are sheltered from the storm. Other assets are also vulnerable to climate change impacts. Property investments, for example, can be impacted negatively by the physical impacts of climate change (such as increased wind speeds or storms, or rising sea levels and coastal erosion), by increasing electricity costs or by the emissions mitigation strategies (e.g. energy efficiency, carbon price, or transportation policies).

The specific risks funds face in this area depend on their sector and the geographic location of their various assets (including facilities held by companies in their portfolios). These risks may be classified into five broad categories:

1. **Regulatory risk**: efforts by governments at the international, national and state levels to regulate GHG emissions will have direct implications for the industry sectors and businesses with the highest emissions. The ratification of the Kyoto Protocol, as well as the advent of the EU ETS in January 2005 makes this the most potent risk faced by investors both in Australia and internationally. Australia has now ratified the Kyoto Protocol and the Federal Government is implementing a number of regulatory measures aimed at curbing greenhouse emissions that potentially impact business (see section on the economics of climate change for further discussion). The regulatory risk has two aspects. Firstly, companies will have to pay for their emissions by purchasing carbon permits. Secondly, there is the compliance cost of the regulation itself. Both these aspects potentially impact the bottom-line.
2. **Physical risk**: some sectors and businesses will face direct consequences from the physical impacts of climate change, including droughts, floods, storms, and rising sea levels. Sectors such as agriculture, fisheries, forestry, health care, insurance, real estate, tourism and water may be particularly exposed because of their dependence on the physical environment, human health, water and weather — all of which are now less predictable.

8 APRA annual statistics, June 2008, available at: http://www.apra.gov.au/Statistics/upload/June-2008-revised-Annual-Superannuation-Bulletin1.pdf

9 See http://www.asx.com.au/research/market_info/historical_equity_data.htm#End_of_month_values

3. **Competitiveness risk**: companies that take positive and proactive measures to mitigate climate risk may create a competitive advantage for themselves relative to the rest of their sector. These advantages may take the form of lower costs and higher profit margins and/or enhanced reputation and customer loyalty.
4. **Reputational risk**: companies that are slow to respond to climate change risks may face a backlash from consumers in markets where the public is concerned about climate change. Recent analysis by Lippincott Mercer for the Carbon Trust shows that the implications for individual sectors could be substantial.
5. **Litigation risk**: companies could face lawsuits. Whilst this is more common in the United States, companies in our region should not ignore this risk. Company directors and trustees alike have been on notice about the risks of climate change for some time. On 30 July 2003, Maurice Blackburn Cashman, on behalf of Climate Action Network Australia (CANA), wrote to the directors of the top 200 Australian companies regarding the financial risks that climate change presents to their businesses and of their legal obligations to deal with those risks appropriately. Major emitters and facilitators were notified that they are particularly exposed to risks posed by regulation of greenhouse gases and the potential for climate litigation. Directors were then informed that it would be prudent for them to assess and, if necessary, address climate risk. Correspondence was also issued to companies not classified as major greenhouse emitters or facilitators, informing them that climate change has implications for the operations of all Australian companies.

> 'Given the sweeping nature of climate change, climate risks are embedded in every investment portfolio. As fiduciaries entrusted with trillions of dollars of fund assets, we remain firmly convinced that climate change presents both material risks and significant opportunities for investment portfolios.'
>
> *Statement by CERES members: California Public Employees' Retirement System (CalPERS), California State Teachers' Retirement System (Cal STRS), Connecticut Retirement Plans and Trust Funds, Florida's Chief Financial Officer, Illinois State Board of Investment, New York City Comptroller, and Pennsylvania Treasury Department on December 3, 2008.*

Although climate change creates risks, it also presents opportunities. For example, the need to mitigate climate change will result in increased renewable energy development and deployment, as well as demand (and potentially fiscal support) for new energy efficient technologies.

The Clean Energy Council reports that renewable energy made up only 8% of Australia's energy mix in 2007 (including large hydro-electric power) and forecasts that $20 billion of investment will be needed to meet a minimum of 20% renewable energy sources by 2020.[10]

Analysts look at many factors associated with a company or asset when assessing investment potential. Long-term investors are exposed if investment analysts are not yet measuring and accounting for the risks brought to companies by climate change when assessing investment opportunities in general.

10 'Making the Switch to clean Energy' The Climate Institute, www.climateinstitute.org.au/images/reports/mtspb.pdf

6. Climate risk and asset classes

'We are clearly embarking on a transition to a low carbon economy, the question now is how fast do we need to get there? As part-owners in every sector of the economy, superannuation funds must understand their exposure to emissions intensive businesses, understand the potential physical impacts from climate change and the opportunities and prepare to re-allocate capital as appropriate.'

Frank Pegan, Chair, Investor Group on Climate Change

Listed Equities

The physical impacts of climate change on corporate performance may be difficult to quantify, but the prospect of a cap-and-trade emissions trading scheme in Australia and similar schemes internationally will mean that the financial impacts of emissions can be measured.

On a company level, when assessing the impacts of the CPRS, it is important to investigate all of a company's potential exposures. As an example, a steel mill will have exposures through its direct combustion of coal in blast furnaces, through electricity consumption, and also through emissions embedded in the inputs it purchases, chiefly fugitive emissions from coal mining.

While industry sectors will be impacted based on their level of carbon intensity and their underlying industrial processes, there are also likely to be significant differences between companies within sectors, as leading companies adopt lower emissions technologies faster than their peers. In this circumstance, overweighting investment exposure to lower emissions companies is a likely strategy for superannuation funds, even in relatively high-emissions sectors. This may create tighter capital availability for relatively high emitters, providing an incentive to adopt lower emissions technologies.

Steel mills sell products chiefly to other businesses, or on commodity markets, and are unlikely to be directly impacted by negative consumer sentiment. However, other businesses could face risks from changes in consumer attitudes. For example, a whitegoods manufacturer that adopts more efficient technologies ahead of its peers may succeed more than might be expected purely on the basis of its customers' reduced electricity bills, as consumers respond to its green image.

Property

The impacts of climate change on the property sector are both direct and indirect. Direct effects come through the physical impacts of climate change, and indirect through regulatory developments and market demand. The potential impacts are something long-term superannuation investors should consider given their exposure to property. APRA data shows that in the financial year ending 30 June 2008 Australian superannuation funds had invested $105.2 billion in property with $67.3 million in unlisted and $37.9 million in the listed sector.[11]

11 APRA (2009), Superannuation Fund-Level Profiles and Financial Performance publication.

Property has a high level of exposure to the physical impacts of climate change. The main risks include increased incidence of flooding, coastal erosion, wind and storm damage and subsidence. Extensive analysis of location and physical construction will be important aspects of climate-proofing property investments. Technologies are now emerging that can map climatic forecasts down to 10km grids, offering the opportunity to assess the impact of physical risks to property well into the future.

The frequency of storm events is predicted to increase fivefold with a wind speed increase of 25% leading to a 650% increase in building-related damage.[12] With the expectation of a fifty-year life span, this issue is particularly problematic to the commercial building stock. Queensland presents particular risks due to 'rapid urbanisation in low lying coastal areas where there are rapidly-increasing population densities and investment in the built environment will be exposed to greater coastal climatic extremes such as tropical cyclones and resulting inundation'.[13]

Climate change and regulatory responses such as the CPRS will mean that 'green' buildings may well have lower relative risks and higher relative income growth, thereby proving to be superior investments. Commercial tenants from all sectors will increasingly demand green buildings. For example, HSBC, ABN Amro and Swiss Re have committed to making their global businesses carbon neutral meaning they will demand more energy efficient buildings.

Meeting demands for building comforts (such as increased air conditioning under warmer conditions) will complicate the situation still further. These demands might have to be met through innovative building techniques and thermally efficient properties, rather than energy dependent devices such as air-conditioners. As high users of energy, properties are also vulnerable to rising energy prices. All of the above should impact the evaluation of property assets both today and in the future.

12 IAG, 2003.
13 IPCC Third Assessment Report, 2001, p13

Similarly, any trend in transport policy towards encouraging greater use of public transport would impact on the relative attractiveness of building locations, potentially weakening the utility of car-borne destinations and reinforcing those well-serviced by public transport.

'The question that you may be asking is why should a pension fund be interested in a long-term issue like climate change, when many of us live or die by quarterly or yearly performance data? Given that this is the case, why does USS as a pension fund believe that we should be addressing climate change as an issue for our fund? There are two reasons: firstly, we are universal owners; secondly, we need to meet the real needs of our members and beneficiaries.'

Professor Sir Graeme Davies, Chairman, Universities Superannuation Scheme Ltd

Fixed income securities

Government securities are affected by public borrowing and such borrowing can be driven by climate-related events. That said, OECD countries should be able to absorb any public costs associated with climate damage more easily than developing countries. There is the potential for climate change to have dramatic physical impacts in low-lying countries and islands, many of which are part of developing countries, where local economies and governments have relatively limited capacity to respond. This precarious situation could result in quite significant impacts on currency markets as well as on government finances.

Corporate bonds issued by listed companies are subject to exposures similar to those of equity investments. However the impact of those risks is likely to be more muted through debt exposures than equity exposures.

Adapting our economy to a low-carbon future will require enormous investments in renewable energy and transport infrastructure. New classes of debt instruments may emerge in response to this financing need, which will provide opportunities to fixed interest investors.

Infrastructure

Like property, infrastructure features large and immobile fixed assets that are highly exposed to physical risks. However, unlike property, they can be geographically dispersed and the physical risk may be more complicated as a result.

Changes in climate can also affect the operating efficiency of infrastructure assets. For example, slight increases in ambient temperature reduce the efficiency of electricity distribution grids[14]. Increased intensity of precipitation, storm events and rising sea levels impact on transport infrastructure such as rail and roads[15]. Given infrastructure investments' heavy reliance on stable revenues, such impacts could be very damaging to returns.

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14 This statement is supported by the transcend report text [https://www.transend.com.au/files/D09-69841.PDF] page 17 (of 130), However, NO specific quantitative details are provided :- "Real-time, or dynamic rating allows Transend to make more efficient use of the transmission infrastructure by taking advantage of the **cooling effects of lower ambient temperatures and higher wind speeds**. This **enables** transmission lines to be loaded, most of the time, at higher throughputs than would be possible if static ratings were used. This has a positive effect on the NEM operation in that more transmission capacity is released".

15 This is supported by statements on page xiv of executive summary of **Impact of climate change on road infrastructure, Austroads 2004** and pages 86 and 89 respectively of **Potential Impacts of Climate Change on US Transportation — Special Report 290: Transport Research Board** (www.trb.org/climatechange).

Because of its deleterious effects on natural assets such as the Great Barrier Reef, changes in climate also pose a threat to the viability of Australia's tourism industry, which in turn may affect asset revenues in this sector.[16]

Some infrastructure assets will also be exposed to changing consumer behaviours as carbon costs increase emission-intensive products and services. Toll roads and airports could potentially suffer as fuel becomes more expensive through both rising oil prices and carbon costs.

However, infrastructure also offers unique opportunities, through the likely increased investment in renewable energy projects, smart electricity grids, gas distribution networks, public transport, and rail freight assets. This expansion will allow investors greater volume, but could also increase the diversity of infrastructure investment, enabling more sophisticated portfolio construction within the infrastructure space.

Private equity and venture capital

Major investments in renewable energy and related technologies will need to be financed over the coming years, and this will present an opportunity within the private equity and venture capital asset classes. In 2007 there were nearly 500 private equity and venture capital deals in climate change, up 46 per cent from 2006. This represented investments of around $13.5 billion.[17]

Technology will be a key driver of the success of private equity investments related to climate change. These technologies could appear in a variety of fields: bio-fuels; materials; energy efficient lighting and motors; building insulation; smart grids and metering; transport planning and routing; water recycling and harvesting; electric batteries; agricultural adaptation, to name a few.

> 'There are few certainties surrounding our investment landscape but one certainty is that the management of climate change risk and the opportunities that will follow will grow rapidly over the coming years. No one can have failed to notice that climate change has emerged as one of the cornerstone issues relating to real material returns from all asset classes. It's a natural progression that the structures, processes and skills for managing climate change are elevated further up the chain to us, the asset owners, who are ultimately responsible for the impacts on returns.'
>
> *Fiona Reynolds, CEO, the Australian Institute of Superannuation Trustees, 2008*

16 Great Barrier Reef Marine Authority, Outlook Report 2009

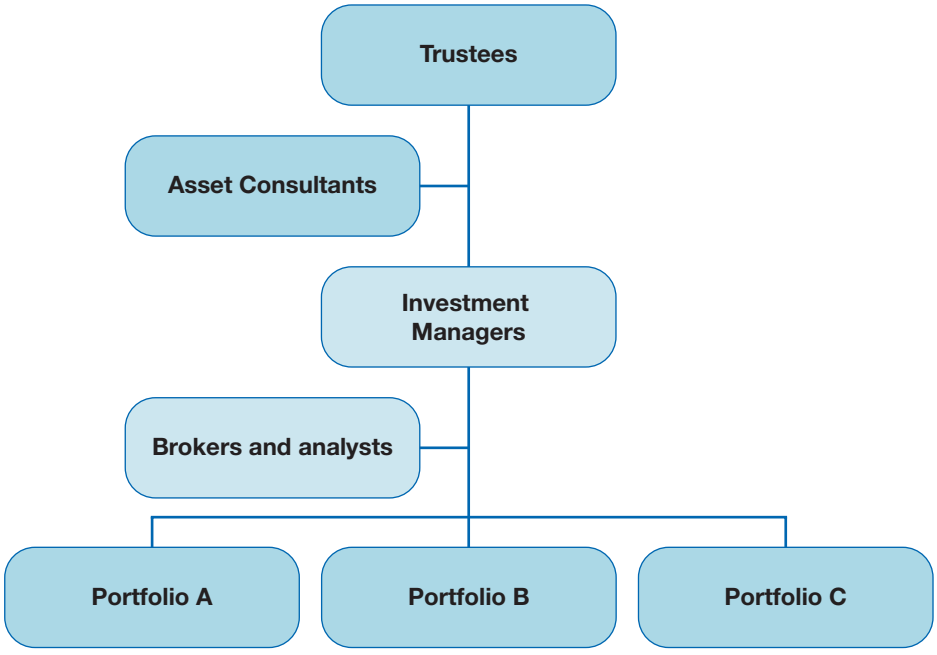
17 DB Advisors, 'Investing in Climate Change 2009: necessity and opportunity in turbulent times', October 2008, available at http://dbadvisors.com/climatechange

7. Climate change and the investment community – hot or cold?

Earlier sections of this guide have explained that climate change will have consequences for investors both through its direct physical impacts and via the policies implemented to mitigate it, and this translates into risks and opportunities for investors across a range of asset classes.

In order to appreciate the relationship between climate change and the investment community, it is important to understand all aspects of the investment supply chain. Superannuation trustees rely greatly on other actors in the capital markets. The climate change and investment picture is not complete without an understanding of who the other players are, their roles, and their approaches to climate change — both now and in the future.

From a trustee's perspective, the Australian investment chain includes the following players: trustees, asset consultants, investment managers, investment brokers and analysts. Trustees rely heavily on skilled staff at all stages of the investment process.



The respective roles of these actors with respect to climate change can be described as follows:[18]

- Trustees need to investigate the links between climate change and their fiduciary duties with respect to safeguarding the interests of beneficiaries over the long term.
- Trustees need to re-evaluate opportunities for collaborative investments, particularly in relation to large-scale infrastructure investments.
- Trustees and asset consultants need to re-evaluate the application of economic theory and portfolio theory to investment practice in light of climate change risks.
- All institutional investors need to continue to engage actively with the climate policy process to protect the interests of their beneficiaries, and collaborate internationally to achieve this aim.
- Asset consultants need to integrate climate change into the advice they provide to superannuation funds, and their evaluations of investment managers.
- Investment managers need to evaluate how climate change affects investment decision-making. This includes evaluation of the information sources they utilise in the analysis they receive from the sell side.
- Sell-side brokers need to embed climate change into their macro-economic and company analysis.

While there has been progress by Australian investors on integrating climate change considerations, it is clear that there are still important activities yet to be performed by funds and others in the investment sector.

In 2008, AIST and the Climate Institute conducted a survey of Australian superannuation funds' assets to gauge the state of preparation for climate risk among the trustee community. The key findings of the survey include[19]:

- 83% of funds consider that integrating climate risks and opportunities are part of their trustee responsibilities and consistent with their fiduciary responsibility and/or the sole purpose test.
- 95% of funds are prepared to engage collectively with either government or other funds for large-scale investments
- 64% of funds have altered or plan to alter their asset consulting mandates to reflect items such as climate change issues and longer investment horizons
- 85% of funds plan to increase their climate change capability in some way through measures such as hiring additional staff or external consultants and training
- Only 9% of funds have taken steps to measure their portfolio level exposure to climate change risks
- 95% of funds have altered or plan to alter mandates for investment managers to reflect climate change issues and longer investment horizons
- 70% of funds do not have a method for calculating exposure to carbon prices
- 78% of funds do not know the value of the low-carbon assets they own

These findings indicate areas of opportunity for trustees and their suppliers.

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18 These roles were articulated at the 2003 London Climate Change and Institutional Investors' conference that was organised by the UK IIGCC and sponsored by the Carbon Trust.

19 AIST/Climate Institute — Asset Owners Climate Change Initiative Update, March 2009

In preparing to make substantive progress on integrating climate change into investment processes, it is necessary to understand some of the barriers trustees and their suppliers face. Four such barriers are identified in the table below, as defined by the Climate Change Working Group of the United Nations Environment Program Finance Initiative (UNEPFI):

Barriers that may prevent the financial sector from earlier engagement with climate change and must be overcome by trustees and their suppliers

Cognitive	Political	Analytical	Market operational
• Issue is seen as being marginal to companies' financial performance. • Sense of shared responsibility deters any one group from taking the initiative. • Financial sector cannot see any monetary value in climate action as it doesn't see the connection between climate change and financial risk.	• Delay in creating favourable political conditions for regulation and monitoring. • Uncertainty about regulators' commitment to the issue and about regulations for emissions trading systems. • Various local restrictions on foreign financial institutions.	• Insufficient analysis and information from key finance and insurance sector advisors. • Little understanding of the financial benefits. • Poor data availability makes analysis of potential company risks difficult.	• Lack of market mechanisms to give the technology commercial advantage. • Inefficiencies and complexity in present GHG emissions trading markets. • Initial investment required can be disproportionate to project size, and appear to have high overhead and transaction costs.

Source: Summary of UNEP Finance Initiative analysis, 2008.[20]

Additional barriers to the financial sector's consideration of climate-related risks and opportunities might include time frames within which some stocks are being assessed. If stocks are being traded to optimise portfolio performance over short time horizons, the risks that companies face as a result of climate change become less relevant, as many of their consequences will emerge over the longer term.

Most Australian funds recognise the importance of long-term performance in meeting their fiduciary responsibilities to members. However, there remains a focus on short-term performance, not least because as the retail superannuation marketplace becomes more competitive, trustees are anxious to ensure their fund is represented well in performance rating agencies' league tables, which tend to focus on short-term returns. Trustees will need to reconsider the way superannuation returns are communicated to the public in order to redress this increasing focus on short-term returns.

An additional barrier is that the industry does not usually reward a focus on climate risk. Climate change is now readily identified by ordinary members of the public as a major concern for the future. Clearly there is scope for funds to utilise their efforts to address climate risk as a positive message to their members.

20 UNEP analysis, available at http://www.unep.org/civil_society/GCSF10/pdfs/Climate-Change-Strategy.pdf

Structurally, trustees need to embed their focus on climate change in their contractual relationships with others in the investment chain. For example, fund managers may not be incentivised to address these risks in the mandates they receive from superannuation funds unless expressly identified as a requirement. Similarly, sell-side analysts may not be rewarded in broking fees for producing research notes, which include analysis of the implications of longer-term risks such as climate change.

The presence of these barriers impacts all the key parties with roles to play in relation to climate change and the capital markets. In sum, while there may be good reasons for each party to act, it is unlikely that each group will proactively decide to do so without incentive.

The good news, however, is that control over the short-term focus of investment portfolios, the structure of mandates and the way in which managers are rewarded rests with trustees. With ultimate responsibility for where and how major pools of assets are invested, superannuation fund trustees play a pivotal role in the investment chain. As clients, trustees can demand that other market players take up their appropriate roles and responsibilities with regard to managing climate issues.

8. A trustee's perspective — addressing climate change as a fiduciary issue

We have now learned that if capital markets are to react more proactively to climate change developments, trustees of superannuation funds will need to play an active role. As the AIST-Climate Institute survey shows, most Australian trustees now believe that addressing climate risk is part of their fiduciary duty. However, some trustees are yet to embrace the investment implications of climate change. The following are the most common misconceptions in relation to trustees' duties and climate change.

'I'm too busy to worry about climate change'

While there is no doubt trusteeship is a challenging role (and never more so than in light of the global financial crisis), climate change is a risk that requires urgent attention. Unlike many other issues that commonly confront trustees, climate change is a long-term issue, which will remain relevant to trustees' roles well into the future.

Therefore, while it may seem too much to learn about climate change and take action now, the good news is that building climate change capability is itself an investment that will benefit your fund, and potentially individual trustees, far into the future.

'Taking action on climate change will reduce my fund's returns'

As we saw in the section on climate risk and asset classes, superannuation fund investments now broadly reflect the spread of assets in the economy as a whole. In fact, as trustees seek to diversify their investments further and develop new asset classes, it is likely that the universal owner thesis will become more rather than less relevant to superannuation fund portfolios.

In light of the universal owner thesis, and the now widespread agreement on the systemic effects on the global economy likely from uncontrolled climate change, taking action to assess and mitigate exposure to climate change impacts will protect long-term returns, rather than reduce them.

'Taking action on climate change will expose me to actions for breach of fiduciary duty'

Rather than causing a breach of duties, consideration of climate change issues is more likely to prevent a breach of duties by the trustee.

In July 2009, the Asset Management Working Group of UNEPFI reported on the fiduciary responsibilities of institutional investors. The report re-stated the position that environmental, social and governance (ESG) information enhanced investment decision making. Importantly, the report went on to state that clear contractual arrangements on integrating ESG into investment processes were necessary for asset owners and investment managers, especially those who had purported to take ESG seriously by signing the United Nations Principles on Responsible Investment (UNPRI). This is important for trustees in deciding what steps to take on the integration of climate change considerations into investment processes.

> 'There is no reason in law why trustees cannot consider social and moral criteria in addition to their usual criteria of financial returns, security and diversification. This applies to trustees of all pension funds. It is an obligation on pension fund trustees not simply a right or option to state in their Statement of Investment Principles what the fund's guidelines are on responsible investment and to what extent social, environmental or ethical considerations are taken into account.'
>
> *Lord McKenzie during the passage of the United Kingdom Pensions Bill in 2008 in relation to pension fund considerations and the duty to have regard for ESG considerations.*[21]

The Fiduciary II report builds on the 2005 Freshfields Bruckhaus Deringer report, which found that:

> *'…integrating ESG considerations into an investment analysis so as to more reliably predict financial performance is clearly permissible and is arguably required in all jurisdictions.'* [22]

In relation to climate change, there is a duty to understand the investment risks it may present. Even if trustees and their service providers are unable to identify investment consequences in the short term, they should still, by virtue of the highly likely long-term financial impacts of climate change, assess the risks and opportunities so that they are ready to incorporate them at the right time. This interpretation of trustee duties fits within obligations for Australian trustees.

Investment activities of Australian superannuation funds are governed by the Superannuation Industry (Supervision) Act 1993 (as amended) (SIS), the Corporations Act 2001 (as amended) and by the common law in relation to trusts. Under SIS, trustees must develop and implement an investment strategy, which takes account of the risk of assets, as well as return, diversification, liquidity and relevant factors.

Australian trustees, who by virtue of their signing statements about what the risk of assets entails, such as ESG considerations in the UNPRI, are clearly holding themselves out to have properly incorporated ESG analysis into their investment management processes — including climate change considerations.

'Climate change is just too complex to understand'

Although it is not practical for trustees to gain detailed scientific knowledge on climate change, in light of the fact that climate risk can have a real impact on portfolio holdings, it would seem that there is a growing case for trustees to attain some level of knowledge around these issues and to take steps to mitigate any negative consequences of not taking action. The case for trustees understanding likely market impacts are even greater.

In particular, it is important for trustees to have some understanding of:

- How carbon costs and other climate risks will impact company valuations, so that they can assess the capabilities of fund managers when making manager selection decisions;
- How various climate related technologies may be deployed, and the economic factors that will impact that deployment, when investigating infrastructure developments;
- How physical risks will develop, and how they will impact fixed assets, so they can assess the long-term risks to property investments.

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21 Lord McKenzie was referenced in the Fiduciary II report of UNEPFI, www.unepfi.org/fileadmin/documents/fiduciaryII.pdf

22 Freshfields Bruckhaus Deringer, A legal framework for the integration of environmental, social and governance issues into institutional investment, 2005

9. Addressing climate risk — a trustee's toolkit

It is one thing to say 'I can see that climate change has the potential to materially affect the assets held in our fund's investment portfolios'; it is quite another to be able to add 'and I know what to do about it', or 'I'm doing it'. To assist trustees, this toolkit provides:

- questions to ask to determine whether trustees are currently addressing climate change risks;
- direct actions trustees can take in relation to those risks.

Three steps trustees can take to address climate risk are:

Step 1: assess understanding; determine associated investment position and policies

You must first be knowledgeable about the issues facing the funds in your care and then develop associated investment positions and policies to address these — thus setting the stage for appropriate outcomes. To this end, the Toolkit begins with an overview of the questions that you can ask yourself about climate risk, and explores how associated investment policies can be developed.

Step 2: assess the current approach of the fund, and that of your external service providers

You should then ask whether these policies are reflected in the way funds are invested, and whether external service providers are addressing the issues. This step outlines the process for considering the approach of the fund, and includes questions for your service providers.

Step 3: select and execute implementation options

Finally, you need to consider options to address climate change. The options provided in this Toolkit are appropriate for trustees who determine that their current practices do not properly address the issues, and also serve as a continuum of options for trustees that have taken the first step and are ready to go further. This step of the toolkit also outlines the benefits and challenges of each action. You can regard these actions as an ongoing process. Don't worry; no one would expect this to be done all at once!

Step 1

A: questions you can ask yourself

Before embarking on conversations with others, you should first take stock of how your fund(s) manages climate risk. Questions to ask are:

- Is there the potential that climate change could have a material impact on the assets in our care? Do we know which assets or asset classes will be most affected?
- How significant is the impact of climate change likely to be on our portfolio?
- Are we providing incentives (via our mandates and fees spent) for the risks associated with climate change to be addressed?
- How are we working with other investors to understand or address the risks and opportunities related to climate change?
- What resources are dedicated to this issue in our fund?
- Should we identify an individual to have responsibility for keeping us abreast of climate change? Is there an appropriate person?

The outcome of this discussion should help you determine which of the steps on the following pages may be most suitable for you, and identify an individual or group to take responsibility for this issue.

Many trustee groups will likely find that, if there is consensus that climate risk could materially impact the assets under their care, they do not yet have a formal statement in place about this view, nor have they reflected it in their investment policy.

It may be that the trustee board does not have the tools in place to be able to answer these questions. If this is the case, then external advice could be sought (from your investment consultant or specialist groups).

B: determine your investment position

Investment positions (or investment beliefs) form the foundation of investment decision making. To determine your investment position with respect to climate change, you should have a discussion at the board/committee level. Such a discussion would ideally lead to the development of a formal statement, for example:

> 'We believe that climate change poses a real and material risk to the financial performance of our investments (particularly over the long term), and therefore the returns that the fund will achieve.'

Having a position around climate change is important, as it provides the framework for further decisions and actions.

C: consider your time horizon

By nature, many institutional investors are long-term investors, typically with a time horizon of more than five years. Impacts of climate change will be felt most acutely over the long term, so the management of the assets that are being invested over this term should take account of this. Associated performance-monitoring frameworks, evaluation criteria and manager fee structures should be clearly defined to align the interests between trustee groups and investment managers.

D: enhance your investment policy

Once an investment position on climate change has been developed and a time horizon determined, you should review your investment policies to ensure that both issues are appropriately addressed.

It is important to explicitly address the importance of climate change as a material issue and outline the approaches that will be taken to address it. Your enhanced policy can be made public and shared with relevant parties.

Both the nature of each fund's investment policy (how thorough it is) and its investment approach will influence what a revised investment policy might look like. A plan that is 100% externally managed, with an oversight committee that does not have ample time or resource, may want to add policy aims such as:

'We will request that our external investment managers assess the climate change risks in our investment portfolio, and ask for timely updates on steps taken to monitor these risks'

Alternatively, a more active route could involve a policy position such as:

'We will request our investment managers ensure that they address the potential risks stemming from climate change in our investment portfolio. To ensure this, we will:

- Ask our managers to include updates on their ongoing management of climate issues in their regular monitoring reports.
- Use stock-level research to conduct periodic audits of our portfolio, to highlight any stocks of specific concern, and discuss with our investment managers to assess and ensure their awareness of these issues.
- Ask our investment consultant to incorporate the above two points as an element in our regular monitoring reports.
- We will seek to use the weight of our assets to promote climate change risk management and mitigation within the market as a whole.'

(See Step 3 for discussion about how these policies can be enacted).

The investment policy can also go on to address proxy voting and any portfolio-specific items being pursued in relation to climate change, such as specific investments or investment guidelines that are developed.

The following table outlines the benefits and challenges of this first step:

Action	Benefits	Potential challenges
A: assess your understanding	Provides focus and starting point	Knowledge gap amongst trustees
B: develop your position	Lays foundation for other activities, enhances clarity	Diverging views amongst trustees
C: consider time horizon	Provides context for decision making	Requires strategic discussion
D: enhance your investment policy	Provides framework for decision making	Requires strategic discussion and broad consensus

Step 2

A: assess current situation

Entering Step 2, trustees should now have:

- considered their own understanding of the issues and identified someone in their organisation to oversee this issue going forward
- considered their investment beliefs and their investment horizon
- revised their investment policy, or confirmed that their current policy appropriately reflects their beliefs and time horizon.

At this stage, trustees should review their current investment approach to explore whether it appropriately reflects their policy regarding management of climate change risks and opportunities. If it does not, the remainder of Step 2 and Step 3 can help.

Having a dialogue with investment consultants and investment managers in relation to this issue should be relatively straightforward and can:

- Inform you about the perspectives and capabilities of your service providers on this issue
- Help you to further your own understanding of the issues and opportunities, and how they are or can be managed
- Lead the broader investment community to understand that this is an issue of importance to the end-owners of assets, thereby encouraging them to develop appropriate capabilities to manage the implications of climate change going forward.

B: questions you can ask your investment consultant

Investment consultants assist trustees in many stages of the investment decision-making and monitoring process, such as helping to determine strategic asset allocations, and selecting and monitoring investment managers. In this role, it is fitting for investment consultants to be able to advise trustees on the long-term implications of issues such as climate change, and help to incorporate these into the various stages of the investment process. Such involvement will mandate a certain level of awareness of the issues at hand, and ideally some tools that can help trustees to implement any specific approaches. Having a dialogue with your consultant will also provide a useful check that the consultant is at least having regard to these issues when formulating advice in more general areas.

Specific questions you can ask of your investment consultant:

- What is your demonstrated expertise in the area of climate change? How many of your consultants and actuaries have demonstrated experience in assessing the potential for climate change issues to impact financial risk and return?
- What are the implications of climate change regarding the short, medium and long-term performance of assets within our funds (and therefore our ability to address liabilities)?
- How did (and will) climate change considerations influence your advice to our fund on asset allocation and investment mandates?
- Do our current mandates expose the fund to longer-term risks like climate change by driving a shorter-term focus amongst our fund managers?
- Are we benchmarking our fund managers correctly and against the correct time frame to allow them to incorporate climate change considerations?
- Have you evaluated the capabilities of investment managers in relation to their management of climate change issues?
- If climate change is not being thoroughly addressed by your investment managers, what incentives can be provided to rectify this?
- What aspects of your consulting advice services incorporate specific analysis on climate risk?

C: questions you can ask your investment managers

Investment managers are key players in terms of bringing climate change related analysis into the investment management process. No matter what other proactive steps trustees take to address climate change, if the associated risks to underlying assets are not being managed, real loss of value could occur and no amount of after-thought can recover it.

Through the use of services of external investment managers, you effectively delegate the management of climate change risk. Nonetheless, trustees can (and should) still ensure that managers are taking proper action in this area. This is similar to monitoring managers in other areas, such as ensuring investment guidelines are not being breached.

The following questions can be posed to investment managers to thoroughly assess the extent to which climate change considerations are incorporated into investment processes:

- What is your level of internal expertise on climate change?
- How many of your investment analysts and portfolio managers (across different asset classes) understand the impacts and opportunities that climate change will have on our portfolio?
- Do you have any individual or group with a dedicated focus on climate change? If yes, how does that group relate or report to your traditional operations?
- Have you separately assessed the likely market and physical impacts of climate change on our portfolio? What are the risks and opportunities?
- Have you made any public statements about climate change as a financial risk? To what asset classes does this extend?
- How often are climate change issues discussed with company management? Are these issues addressed during specific meetings between environmental specialists and management, or as part of your mainstream analyst meetings with management?
- What are some of the climate change related discussions you've had with company managements in the past 12 months?
- What is your process for integrating climate change information into investment practices?
    - Do you purchase any external research, or participate in any external networks on this issue?
- How do you reward research brokers to include analysis of climate change in their research notes?
- Do you participate in ESG Research Australia or any other mechanism to incentivise brokers to integrate climate change factors into company analysis?
- Are there mandate features or particular benchmarks that would encourage you to include climate change issues in your investment decision making?
- Do you collaborate with others to address climate change risks and opportunities (e.g. the Investor Group on Climate Change, the Carbon Disclosure Project)?
- Can you incorporate a regular discussion of climate change analysis into our fund's monitoring reports?

The following table outlines the potential benefits and challenges of this second step:

Action	Benefits	Potential challenges
A: assess current situation	Provides information	Requires resource
B: assess your investment consultant's capabilities and practices on climate change	Understand consultant capabilities, learn what help is available in addressing other actions	Resistance; lack of consultant's commitment/ knowledge on climate change investment risks
C: assess your investment managers' capabilities and practices on climate change	Understand the level of portfolio risk and how the risks are being managed	Outcome may lead to further necessary actions such as changes to future investment mandates

Step 3

Outlined below are the various actions trustees can take to address climate change. Typically, a fund would start with a consideration of their investment time horizon and policy, as covered in Step 1.

The approaches below provide opportunities for trustees to address risks that arise when climate change is not properly managed by their fund managers, as well as opportunities to engage with companies themselves.

Many of these options could be undertaken simultaneously, consecutively, or in place of each other. Remember, addressing climate risk is an ongoing process: take one step at a time.

A: be an active owner

Globally, the end-owners of assets are behaving as active owners of capital. In 2002, the UK Institutional Shareholders' Committee (ISC), which is made up of key industry groups, published a Statement of Principles, known as the ISC Code. This Code is designed to guide both fund managers and pension scheme trustees when determining how to approach their shareholder rights (in particular, voting shares and engaging with investee companies). It states that fund managers and trustees should:

- Set out their policy on how they will discharge their responsibilities as active owners
- Monitor the performance of investee companies in order to identify problems in their early stages
- Intervene in their investee companies when necessary, including voting their shares whenever it is practical to do so
- Evaluate the effectiveness of their activism and, in the case of fund managers, report to their clients on their activities and the effectiveness of these activities.

In Australia, the Australian Council of Super Investors (ACSI) has issued papers setting out corporate governance policy options for trustees and guidelines according to which trustees can monitor listed companies. The Investment and Financial Services Association (IFSA) has also re-issued its 'Blue Book', which is a corporate governance guide for fund managers and corporations as well as a separate standard on proxy voting.

Actions that could be taken by trustees to address these policies from a climate change perspective include:

1. Develop proxy voting guidelines (either directly or with an advisor) that reflect an active approach towards addressing climate change and related risks. Consider optimal ways for your fund to implement its proxy voting guidelines (via fund managers, or external proxy voting services). Participate in voting decisions and/or monitor that votes are effectively cast per your approach. Publish your voting record.
2. Participate in shareholder engagement activities. This could be:
    - Directly with companies as an individual shareholder
    - In conjunction with other shareholders (eg via IGCC)
    - Indirectly as a signatory to multi-party initiatives (eg the Carbon Disclosure Project).

3. Encourage engagement: ask your fund managers to undertake engagement on climate change risks and opportunities on your behalf. If your fund managers are unable to provide engagement services directly, you may wish to seek an overlay service that directly engages companies on climate change risks and opportunities.

4. Participate in the public policy debate. Trustees are responsible for protecting the assets of their beneficiaries and, essentially, for ensuring the long-term security provided by these assets. In this role, it is valid for trustees to consider participating in the public policy debate around climate change. Many climate-related policies (increased corporate disclosure, emissions reduction targets and the CPRS) have ramifications for long-term asset owners. Trustees could engage with policy-makers to encourage policies that best meet the long-term interests of the economy and hence the long-term mandates in their care. While it is challenging for many funds to participate directly, they can encourage their main trade bodies (such as AIST or ACSI) to undertake work in this area, and/or join specialist climate change membership organisations such as the IGCC.

5. Encourage the sell side. Discuss with your fund managers the possibility of allocating a proportion of your broker commissions to encourage the inclusion of extra financial issues in broker analysis and better research on issues like climate change.

6. Shareholder resolutions on climate change are often used in the US as a way to communicate investor expectations about climate change disclosure and abatement activities. Depending on the response of Australian companies to climate change risks, this is a method that trustees should consider in Australia.

B: review your portfolio holdings

For equities and corporate bond portfolios, trustees could use company-level research to determine the extent to which their assets are exposed to climate change risks. This process can be insightful in allowing you to learn what the existing risks in equity portfolios are (at the individual company level), and whether your managers are aware of those risks through follow-up discussions. Action can follow, depending on the findings.

For example, if there were one or two risks discovered during the research process of which your managers were not aware, you could ask them to develop systems to measure and manage these risks better in the future. If, over time, you still feel these risks are not being properly factored in, you may wish to select an investment manager with superior capabilities in this area.

The information needed to undertake such a review could come from mainstream broker research or specialist environmental research providers. This process could be undertaken directly, or in conjunction with your investment consultant.

In other assets, it is possible to assess the exposure of property portfolios to flood risk or opportunities arising from energy efficient refits, for example. A manager of a portfolio of unlisted property could be asked to report on the climate risks faced by the various assets in the portfolio.

C: consider your investment mandates and monitoring process

During Step 2 of this process, you may have explored the capabilities of your investment consultant and managers in relation to climate change. Whilst asking service providers about their capabilities may encourage action, trustees also need to ensure that any structured agreements with these parties properly encourage and reward the incorporation of climate risks.

1. Structure investment mandates to effectively address climate risk. Investment mandates could:
    - request that investment managers include a rigorous analysis of climate risks and opportunities as part of their ongoing investment management process
    - request that these issues be covered in regular monitoring reports, so that you can ensure that the appropriate analysis is undertaken
    - align reward structures so that investment management performance over the long-term is directly related to fees
    - request that fund managers appropriately encourage and reward brokers
    - produce research that analyses climate risk to companies
    - suggest that fund managers behave as active investors with regard to climate change.
2. Investment manager monitoring reports: regular monitoring reports provide trustees with the means to track the performance and management of their assets, so asking your service providers to include a discussion of climate risks is a reasonable way to ensure that you and your providers stay on top of the issue.

    If an investment manager is undertaking climate change analysis and is aware of these issues, they should be able to discuss the role that they play in broader investment decision making over time. As well, if managers are investing for the long-term, they should be able to comment on activities and decisions taken in this context.

    Climate risk may not warrant pages of discussion every quarter. It would not be unreasonable, however, to request that managers report on their analysis and on the position of the portfolio at least annually or produce a few lay figures on a quarterly basis. In addition, analysis of climate risk may impact particular buy and sell decisions and it is reasonable that managers provide relevant commentary when this is the case.
3. Investment consultant monitoring reports: if an investment consultant is engaged to provide regular monitoring across all of a fund's investments, they could aggregate individual investment manager commentary on climate risk into a consolidated report for trustees. In addition, consultants could be asked to provide independent insight into managers' ongoing management of climate-related risks as an extension of their manager research program.

D: consider climate change related investments

Investors also have the option of investing a portion of their assets in strategies that specifically address climate change risks or opportunities. Such investments might include:

1. Property: invest in energy or climate efficient buildings, or traditional real estate portfolios in which climate risks and opportunities are actively managed.
2. Equity products: invest in funds that weight investment decisions on climate risk (possibly along with other ESG issues), or explicitly require inclusion of the impact of climate change into the risk management strategies of more mainstream portfolios.
3. Fixed income products: invest in fixed income products that take climate risk and opportunities into consideration (of particular relevance for corporate bonds).
4. Alternative investments: allocate a portion of assets to new markets such as emissions trading, where climate-themed funds are now available.
5. Private equity/clean technology: invest in new technologies either directly or through fund-of-fund arrangements.
6. Directly invest in projects that generate carbon credits for sale to emissions-intensive industries, e.g. clean development mechanism (CDM) projects in emerging markets.
7. Infrastructure: look for products where projects such as renewable energy, rail projects, water infrastructure, and smart grids play a role.

The following table outlines the benefits and potential challenges of this third step:

Action	Benefits	Potential challenges
A: behave as an active owner	Meets fiduciary obligations	Varying degrees of time/ dedication needed
B: review portfolio holdings	Facilitates learning, identifies actual issues to discuss with managers, can inform engagement strategy	Some commitment of time and money
C: consider your investment mandates and monitoring process	Can address steps in holistic fashion. Sends signal to market	Requires strategic discussion
D: consider climate change related investments	Creates a hedge against carbon exposure in the portfolio Sends a clear signal, the market on investment priorities	Accessing information on the investment alternatives

Choosing an approach: benefits and challenges of each

There are clearly many actions that you can take to address climate risk. That said, not every approach will suit every group of trustees. A number of factors will need to be taken into account in determining which approach is right for you, both in the short and longer term. Some relevant factors are:

- The characteristics of the trustees (shared position on this issue, decision making process and governance structure)
- The characteristics of the fund in question (asset size, liability structure, maturity, asset allocation and investment approach, internal vs. external management and monitoring)
- The priorities of plan members and alignment with members' views.

As a first step, the chair of the trustee group should put the issue of climate change on the agenda of the trustees. Once trustees have familiarised themselves with the issues, they can sit down and determine which steps to take first, and formally allocate the appropriate time and budget (up front and ongoing) to meet their needs in addressing this important issue.

Concluding thoughts for trustees

You now have some high-level information about how climate change can impact financial risk and returns, and a trustee's toolkit for addressing this issue. The aim has been to equip you to embark on a discussion about climate change with your trustee board and, in so doing, fulfil your fiduciary responsibilities in this area.

To continue successfully on this path, trustees will need to engage in ongoing learning. Undertaking discussions on climate change risk, joining relevant groups, challenging the status quo, and reading the relevant press are all activities you should consider.

Within Australia and New Zealand, further support on climate change issues as they affect institutional investors can be accessed through the IGCC.

Membership of the IGCC provides opportunities for learning, opportunities for joint engagement and the opportunity to support a group promoting improved management and analysis of climate risk.

Climate change and your day job

Many of you have other functional roles and responsibilities in the organisations that sponsor the superannuation funds of which you are a trustee. In that functional capacity, you also have the opportunity to address how your organisation is handling climate change issues. This opportunity to be a 'climate change educator' could help to ensure that your organisation is:

- Effectively managing any key business risks associated with climate change
- Protecting its assets (physical and financial) from climate risk
- Providing any related education necessary to ensure the above
- Supporting employees and employee-sponsored trustees who seek to be aware and proactive about these issues.

See www.igcc.org.au for more information.

Similar groups exist in the UK and US, respectively called the Institutional Investors Group on Climate Change (IIGCC: www.iigcc.org) and the Investor Network for Climate Risk (INCR www.incr.com).

The Australian Carbon Trust is an excellent source for further information. The Australian Carbon Trust is based on the Carbon Trust UK - part of the UK's climate change program, specifically mandated to work with businesses and the public sector. It is a source of expertise on low carbon technologies and carbon reduction opportunities in business. It runs an active investor engagement program. Further information is available through the general website, www.thecarbontrust.co.uk, or by emailing investors@thecarbontrust.co.uk.

While climate change risk is just one of the many issues you face in your role as trustee of a superannuation fund, it is an increasingly important one. We hope this publication will assist you in addressing the climate related risks and opportunities that are relevant to the funds in your care (see the appendix for a one-page sheet that can be used to facilitate trustee group discussions).

Appendix A: one-page overview for trustee meetings

Step 1 — Assess understanding; determine associated beliefs and policies

Action	Benefits	Potential challenges
A: assess your understanding	Provides focus and starting point	Knowledge gap amongst trustees
B: develop your position	Lays foundation for other activities, enhances clarity	Diverging views amongst trustees
C: consider time horizon	Provides context for decision making	Requires strategic discussion
D: enhance your investment policy	Provides framework for decision making	Requires strategic discussion and broad consensus

Step 2 — Assess the current approach of your fund, and your external service providers

Action	Benefits	Potential challenges
A: assess current situation	Provides information	Requires resource
B: assess your investment consultant's capabilities and practices on climate change	Understand consultant capabilities, learn what help is available in addressing other actions	Resistance; lack of consultant's commitment/ knowledge on climate change investment risks
C: assess your investment managers' capabilities and practices on climate change	Understand the level of portfolio risk and how the risks are being managed	Outcome may lead to further necessary actions such as changes to future investment mandates

Step 3 — Select and execute implementation options

Action	Benefits	Potential challenges
A: behave as an active owner	Meets fiduciary obligations	Varying degrees of time/ dedication needed
B: review portfolio holdings	Facilitates learning, identifies actual issues to discuss with managers, can inform engagement strategy	Some commitment of time and money
C: consider your investment mandates and monitoring process	Can address steps in holistic fashion. Sends signal to market	Requires strategic discussion
D: consider climate change related investments	Creates a hedge against carbon exposure in the portfolio Sends a clear signal, the market on investment priorities	Accessing information on the investment alternatives

Acknowledgements

The Carbon Trust

The Carbon Trust is an independent not for profit company set up in 2001 by the UK Government to take the lead in low carbon technology innovation and development within the public and private sector in the UK. It is funded by the Department for Environment, Food and Rural Affairs, the Scottish Executive, the National Assembly for Wales and Invest Northern Ireland. Full information on the organisation's activities can be found on the Carbon Trust website: www.thecarbontrust.co.uk.

The Carbon Trust engages directly with UK companies, including through its Carbon Management programme. This offers wide support on energy efficiency and other low carbon issues, and enables companies to take a broad view of the implications of climate change on their activities. In addition to its work with UK companies, the Carbon Trust also engages with the financial community, through its Investor Engagement programme. The company has also produced a wide variety of publications which are available on line, free of charge.

For further information, please visit the website or email Emma Johnson, Head of Investor Engagement, through investors@thecarbontrust.co.uk.

Investor Group on Climate Change

The Investor Group on Climate Change Australia and New Zealand (IGCC) is Australia / New Zealand (IGCC) a collaboration of Australian and New Zealand investors focussing on the impact that climate change has on the financial value of investments. The IGCC recognise that the financial return of an investment is impacted by climate change. As such, the IGCC aims to ensure that the risks and opportunities associated with climate change are incorporated into investment decisions for the ultimate benefit of individual investors.

The IGCC will achieve this by building a forum through which it will: Raise awareness of the potential impacts, both positive and negative, resulting from climate change to the investment industry, corporate, government and community sectors; Encourage best practices approaches to facilitate the inclusion of the impacts of climate change in investment analysis by the investment industry; and Provide information to assist the investment industry to understand and incorporate climate change into the investment decision.

The Institutional Investors Group on Climate Change (IIGCC)

The IIGCC is a forum for collaboration between pension funds and other institutional investors on issues related to climate change. It seeks to (a) promote better understanding of the implications of climate change amongst its member and other institutional investors, and (b) encourage companies and markets in which IIGCC members invest to address any material risks and opportunities to their businesses associated with climate change and a shift to a lower carbon economy.

In May 2005, the IIGCC was incorporated as a semi-autonomous unit into The Climate Group, a membership organisation composed of corporations and governments acting as leaders to solve climate change issues.

For further information, please visit www.iigcc.org or email contact@iigcc.org. A set of pension trustee training presentation slides, is available for use by third parties, free of charge, under licence from the Carbon Trust. Please visit www.thecarbontrust.co.uk/trustees for further information.

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Australian Institute of Superannuation Trustees (AIST)

The Australian Institute of Superannuation Trustees is a national not-for-profit organisation whose mission is to promote and protect the interests of Australia's $450 billion not-for-profit superannuation sector. AIST's membership includes the trustee directors and staff of industry, corporate and public-sector funds, who manage the superannuation accounts of nearly two-thirds of the Australian workforce.

As the principal advocate and peak representative body for the not-for-profit superannuation sector, AIST plays a key role in policy development and is a leading provider of research.

AIST provides professional training, consulting services and support for trustees and fund staff to help them meet the challenges of managing superannuation funds and advancing the interests of their fund members. Each year, AIST hosts the Conference of Major Superannuation.

The Climate Institute

Established in late 2005, The Climate Institute is a non-partisan, independent research organisation that works with community, business and government to drive innovative and effective climate change solutions.

The Climate Institute's vision is for an Australia leading the world in clean technology use and innovation, with clean and low carbon solutions a part of everyday life throughout the community, government and business.

The Climate Institute works with the Australian Institute of Superannuation Trustees (AIST) to research and promote the adoption of climate risk management strategies by Australian superannuation fund trustees.

The Climate Institute is primarily funded by a donation from the Poola Foundation (Tom Kantor Fund).

ESG Research Australia

ESG Research Australia (ESG RA) is a collaboration of asset owners and funds managers aiming to reward investment brokers for research on Environmental, Social and Governance factors in investments.

ESG RA will achieve this by establishing 'ESG' as a separate category within panel structures whereby brokers are assessed and paid, while seeking to continually raising the profile for ESG inclusive research.

ESG RA is also committed to collect data to track long-term performance of its research, and work closely with the United Nations Principles of Responsible Investment Research Database.

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