Sir Nicholas Stern FBA
Head of the Stern Review on
the Economics of Climate Change
and Development
HM Treasury
1 Horse Guards Road
London SW1A 2HQ

Dear Sir Nicholas

Insurance Australia Group (IAG) welcomes the opportunity to provide a submission to the Review on the Economics of Climate Change and Development and I would like to thank you for your request for information from IAG.

I enclose a copy of our submission. One of the key sources of information that underpins this submission is economic modelling research that has been commissioned by a coalition of Australian business leaders and the Australian Conservation Foundation, an environmental NGO, on the economic costs of significant cuts to Australia's greenhouse gas emissions by 2050.

This research has not been publicly released in Australia and while permission to quote this research has been obtained from Roundtable members, IAG requests that this submission remain confidential until the public release of the report in Australia, scheduled for March 2006. Once the report has been released, we will make available to the Review a copy of the detailed analysis report.

IAG would be happy to discuss any of the issues raised in our submission or to make a formal presentation to the Review.

Should you require further information on any of the issues raised in this submission please do not hesitate to contact either Ms Sam Mostyn, Group Executive, Culture and Reputation (sam.mostyn@iag.com.au) or Mr Tony Coleman, Group Actuary and Chief Risk Officer (tony.coleman@iag.com.au).

Yours sincerely

Michael Hawker
CEO

Who is Insurance Australia Group?

IAG, a publicly listed and Australian owned company, is the parent company of the largest general insurance group in Australia and New Zealand. It provides personal and commercial insurance products under a variety of retail brands.

We insure more than $850 billion worth of assets and receive annual gross written premium of more than $6.6 billion, holding the number one position in six major general insurance markets in Australia. We have a market capitalization of more than $8 billion, ranking us among the largest 25 Australian listed companies.

IAG's international operations consist primarily of operations in New Zealand, as well as the Group's Asian interests and captive reinsurer (IAG Re). IAG New Zealand Limited is the leading insurance provider in New Zealand, holding approximately 37% of the total general insurance market in New Zealand as recorded by the Insurance Council of New Zealand, as at 30 June 2005.

In addition, IAG has interests in three businesses in Asia – 100% ownership of China Automobile Association Limited, a roadside assistance operation and insurance agent based in Beijing, China, a 20% shareholding in Safety Insurance Limited in Thailand and ownership of a small general insurance operation in Thailand, formerly part of the Royal & SunAlliance Group.

IAG's interest in climate policy and emissions trading

As an insurer with one in three households in Australia and New Zealand relying on IAG to protect them and their assets, we believe our purpose is to deliver value in four ways:

- *Paying Claims* – the very reason our customers pay premiums is peace of mind that comes with knowing that in times of loss, IAG will cover legitimate claims;
- *Understanding and Pricing Risk*- we do not underprice risk, putting our ability to pay claims into question, nor overprice risk, putting the affordability of insurance into question;
- *Managing our costs* - being as efficient as possible helps to reduce the costs of insuring risk; and
- *Reducing risk in the Community* – one of the greatest benefits IAG can provide to our customers and the broader community is to identify the very risks being insured and help to reduce them. Risks in this context covers road safety, crime, the environment (and climate change in particular), emergency services and workplace health and safety.

It is the imperative to reduce risk that provides IAG with a strategic interest in the Australian debate on the economic impacts of climate change. Weather and climate are "core business" for the insurance industry, which underwrites weather related catastrophes by calculating, pricing and spreading the risk and then meeting claims when they arise. IAG has a business imperative to work with government, business and the community to reduce climate change risk.

Climate change will lead to significant changes to Australia, and with all change comes risk. Particular risks for Australia include water availability, impact on ecosystems and extreme weather events. Unless these changes are managed well

they pose considerable danger to the health and welfare of the community and environment as well as to the stability of the economy.

IAG is supportive of any action that encourages substantial reductions in greenhouse gas emissions (GHG). In Australia, IAG plays a proactive role in understanding the impact of climate change on the economy and community. We continue to encourage the development of strategies aimed at reducing GHG and improving community understanding of the potential effects of climate change. IAG believes that:

- climate change is likely to bring serious economic, social, environmental and health risks, with Australia likely to be one of the most severely affected developed countries;
- climate change is expected to bring an increase in the frequency and severity of extreme weather events. This will affect the insurance industry's ability to underwrite weather related risk, which could have serious ramifications for communities and businesses across Australia;
- a carbon emissions trading scheme is an important step in achieving deep cuts in emissions at the lowest economic cost;
- the financial services sector has a key role to play in assisting with the development and implementation of an effective emissions trading scheme; and
- an effective, nationally co-ordinated emissions trading scheme has the potential to provide an alternative asset class to Australian investors – both institutional and retail.

IAG's approach also acknowledges the importance of adaptation in the management of future climate risk. IAG believes that the social and economic impacts of climate change can be reduced in a society that has greater resilience to changed climate conditions. Work being undertaken in this context within IAG is at an interim stage but will become a central feature of our strategy to reduce risk in the community. One example of such an approach will be to improve weather resistance of homes to more extreme weather events. This could be introduced in the claims process where rebuild or repair work could be influenced by IAG. It is in IAG's interests to reduce this risk from a bottom line perspective while at the same time improving society's adaptation to weather events.

For the purposes of this submission, IAG has limited its comments to economic and social imperatives in the Australian marketplace. Our market presence in Asia is currently relatively small and recent and therefore we have not yet undertaken economic analyses of climate change issues in the region beyond Australia and New Zealand. Nevertheless, as climate change is a global issue that needs global solutions, the Australian perspective may be of assistance to the Review.

TERMS OF REFERENCE

1. The implications for energy demand and emissions of the prospects for economic growth over the coming decades, including the composition and energy intensity of growth in developed and developing countries

While the Australian Government has not ratified the Kyoto Protocol, it has committed to meeting the Australian Kyoto target of 108% of 1990 emissions by 2012. Current indications are that the Kyoto target will be met, largely as a result of reductions realised in the land use and forestry sectors in Australia where emissions are projected to be cut by 85%.

However, by 2020, national emissions are projected to increase by 23% compared with the 1990 level, even with current measures delivering significant abatement, with the majority of the increase coming from the stationary energy sector.

The production and consumption of energy for electricity and transport currently accounts for 68% of Australia's GHG. Coal plays a major role in providing Australia with low energy prices and security of supply. In 2003, it accounted for 77% of all electricity generation[1].

There will therefore be an imperative for Australia to focus on reducing the GHG intensity of its stationary energy supply and improve the efficiency of energy use from all sources if significant emission reduction goals are to be achieved. IAG is a founding partner of the Australian Climate Group (a coalition of leading Australian scientists, WWF and IAG represented by Chief Risk Officer Tony Coleman), which in 2004 proposed that Australia's government, business and community must take immediate action to cut GHG emissions by 60% by 2050.

Key drivers of stationary energy emissions growth are economic growth, lifestyle, energy efficiency improvements and the fuel mix used in electricity generation. These factors affect the demand for electricity and its emissions intensity, as well as the demand for fuel for direct combustion. The long life of energy infrastructure means that long term investment in infrastructure, plant and equipment will be affected by near term decisions. Plant and equipment built in 2006 will no doubt be installed on the basis it will still be operating in 2050 and beyond and so will be contributing to Australia's emissions profile over that period.

While stationary energy, which accounts for almost half of net national emissions, is the obvious focus in Australia for future abatement, other energy emissions should be considered. Transport in particular, accounts for 15% of national greenhouse emissions[2] and includes emissions from direct combustion of fuels from road, rail, domestic air transport and domestic shipping. Road transport is the largest source of emissions in this sector, contributing to 88% of transport emissions.

In addition to energy, agriculture accounts for 18% of net national emissions[3]. Methane from livestock contributes over 60% of agricultural emissions, with savannah burning being the next most important source of emissions.

Clearly, Australia's GHG emissions will increase significantly if action is not taken by the stationary energy sector now. Demand for energy in Australia is projected to increase by 50% by 2020 (from 1990), and on current projections, demand will in fact exceed existing supply. The energy industry has estimated that at least $37 billion in energy investments will be required by 2020 to meet the nation's energy needs[4]. The challenge for the Australian economy and indeed our future growth and living standards, is to meet the increased demand while moving to a low emissions future[5].

This presents a variety of economic opportunities on the proviso that there are appropriate frameworks (both regulatory and market based) to enable a low emissions supply source to address the increased demand. If the increased demand

[1] *Energy Policies of IEA Countries – Australia 2005 Review*, International Energy Agency, 2005
[2] *National Greenhouse Gas Inventory 2003,* Australian Greenhouse Office
[3] Op Cit
[4] *Securing Australia's Energy Future*, Department of the Prime Minister and Cabinet, Australian Government, 2004 (http://www.dpmc.gov.au/publications/energy_future/docs/energy_preliminaries.pdf)
[5] Op Cit

is not met from appropriate sources, there is the potential to impede economic growth. Currently, there is significant investment uncertainty due to a lack of a broad carbon framework which is inhibiting new investment in energy infrastructure. The risk of not addressing these issues could potentially include blackouts due to the lack of supply, or the early retirement of assets due to their high carbon intensity.

IAG considers that the potential costs of future adjustments and the long life of energy assets makes it prudent to take action now to prepare for the future.

2. The economic, social and environmental consequences of climate change in both developed and developing countries, taking into account the risks of increased climate volatility and major irreversible impacts, and the climatic interaction with other air pollutants, as well as possible actions to adapt to the changing climate and the costs associated with them

Australia is a dry continent that has always experienced large climate variability. It is also a continent extremely vulnerable to the effects of climate change, which include:

- Increasing frequency and intensity of **extreme weather events** with the effect of increasing risk to lives and property;
- **Rainfall reductions** further stressing Australia's water resources through:
    - o populated areas with further water restrictions and costly infrastructure changes; as well as
    - o agricultural community through the increasing occurrence and length of droughts;
- Possible extinction or significant deterioration of many of the World Heritage listed **ecosystems** including Great Barrier reef corals, Alpine Regions, rainforests and tropical wetlands. This could significantly impact both tourism and their supporting communities.

Climate change is expected to bring even further climate variability. The insurance industry has been dealing with the concept of variability and events occurring over long return periods for many years. Increased variability has a cost - it means that additional capital needs to be set aside to ensure that insurers continue to be able to pay claims during the 'hard times'.

In assessing the economic and social consequences of climate change, adaptation will become a relevant factor in future considerations but work to quantify this is preliminary. In Australia, The Allen Consulting Group was commissioned by the Australian Greenhouse Office to provide a high level strategic risk and vulnerability assessment of climate change impacts in Australia, to identify and prioritise risk management approaches for government, industry and regional communities[6]. However, at this stage, there is little research to quantify the potential economic costs and benefits to be derived from an adaptation strategy.

We will now examine the economic, social and environmental consequences of some of the expected impacts of climate change in turn.

Extreme weather events

Australia is exposed to many extreme weather events such as cyclones, flood, severe storms, hailstorms, landslides and bushfires; all of which are predicted to increase in frequency and/or intensity, at least regionally, under climate change.

[6] *Climate Change Risk and Vulnerability, Promoting an efficient adaptation response in Australia.* Report to the Australian Greenhouse Office by the Allen Consulting Group, Final Report, March 2005

Natural disasters have many different impacts – social and economic - lives are thrown into chaos, houses, businesses and community infrastructure get damaged or destroyed, people's livelihoods are temporarily or permanently disrupted and people can get hurt or killed. These impacts can all be devastating to individuals and communities.

It must also be recognised that a number of other factors are also contributing to the increased threat of climate change. For example more than 80% of Australia's population resides within 50 km of the coast with 25% of Australia's population growth occurring within 3 km of the coastline between 1991 and 1996[7]. Thus, there is an increasing number of communities exposed to extreme events such as tropical cyclones, storm surges and flooding of coastal rivers. Of course, the occurrence of extreme weather events does not only impact the countries they occur in but it also has implications for the global reinsurance market where these risks are pooled.

Australia has $1,500 billion invested in homes, commercial buildings, ports and other physical assets, equivalent to nine times the current national budget or twice our gross domestic product[8].The impact of natural disasters in Australia varies considerably from year to year. There have been 265 natural disasters costing more than $10 million each during the period 1967 to 1999. Nineteen out of the top 20 most costly natural disasters in terms of property insurance losses have been weather related with the following table illustrating some of the largest extreme weather event costs in terms of insured losses.

Table 1: Costs of extreme weather events

Event		Year	Insured loss ($m)*
Sydney hailstorms		1999	2,202
		1990	616
Tropical Cyclones	*Tracy*	1974	1,343
	Wanda	1974	526
Bushfires	*Ash Wed*	1983	409
	Canberra	2003	381
Sydney floods[9]		1984	212
		1974	157

* restated to 2005 Aus $ equivalent costs

The total economic costs for natural disasters are not collected and can be difficult to determine. However, in the Bureau of Transport economics report on "Economic costs of natural disasters in Australia" total economic losses were estimated to be three times greater than insurance costs for hailstorms and bushfires, five times greater for tropical cyclones and ten times greater for flood. Although, it is acknowledged that these factors undoubtedly contain large error bands it does emphasise that total economic costs can be considerably greater than insured losses.

[7] *Climate Change and Australia's Coastal Communities*. CSIRO Atmospheric Research, Aspendale Victoria, 2002.

[8] .Australian System of National Accounts 2001-2002, ABS (Australian Bureau of Statistics) Nov 2002

[9] Insurance coverage for floods is very limited in Australia, thus insurance loss data significantly understates the economic impacts of flood

Changes in hazard resulting from increasing temperature

From the table below, we see that only small changes to mean climate conditions can have disproportionate changes to hazards and damages, all of which are of considerable concern to the insurance industry.

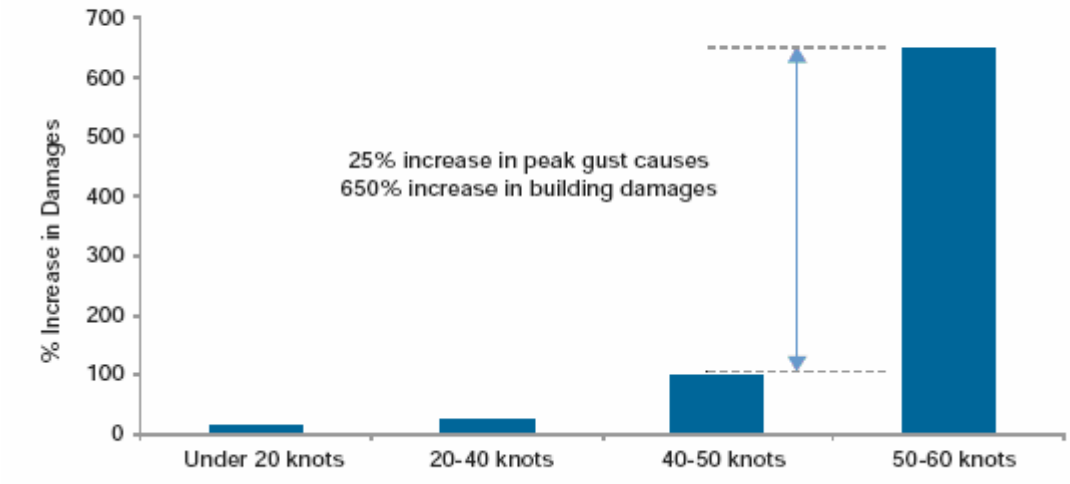
Table 2: Changes in extremes as a result of changes in hazards[10]

Hazard	Change in climate	Resulting Change in Damage Loss
Windstorm	2.2ºC mean temperature increase	Increase of 5-10% in hurricane wind speeds
Windstorm	Doubling of wind speed	Fourfold increase in damages
Floods	25% increase in 30 minute precipitation	Flooding return period reduced from 100 years to 17 years
Bushfire	1ºC mean summer temperature increase	17 - 28% increase wildfires

Example: 1°C mean summer temperature increase could lead to a 17- 28% increase in bushfires.

Insurance Australia Group's experience shows that a 25% increase in peak wind gust strength (from 40 -50 knots to 50 to 60 knots) can generate a 6.5-fold increase in building claims (Figure 1).

Figure 1 IAG Building claims versus peak gust speed showing disproportionate increase in claims cost from small increases in peak gust speed.



IAG conducts weather research in order to better understand the weather risk today and how quickly and how much we expect it to change. We also sponsor research at Oklahoma University using cutting-edge global climate models, taking many months

[10] Mills E, Lecomte E and Peara A, *US Insurance Industry Perspectives on Climate Change,* US Department of Energy, Berkeley, California, 2001

to run in order to understand how weather may change at regional levels under enhanced greenhouse conditions.

Cyclone

Our preliminary research shows that under a medium range greenhouse gas environment, it is expected there will be a small but steady increase in the frequency of tropical cyclones over the Australian region. The tropical cyclone season is also expected to be extended by over 2 weeks with a spread of generation and propagation further south by almost 2 degrees of latitude. This has serious implications for the heavily populated areas of coastal south east Queensland and northern NSW as it implies that return periods of severe tropical cyclones (Cat 3+) could be halved on average over the 2000 – 2050 period equating to a 3 – 5 fold increase in cyclone wind related damage. The analysis also shows that the risk increases as the concentration of greenhouse gases increases.[11]

Hail

Hail damage was involved in ten of the top 20 property insurance losses since 1967. Work commissioned by Insurance Australia Group shows that in a future medium range greenhouse gas scenario between 2000 and 2050, a hailstorm of the magnitude that occurred in Sydney in April 1999 (hail size 9 cm) could become twice as frequent in the greater Sydney region. This will have consequential impacts on personal safety, disaster relief management and the local and national economy through business disruption. The analysis also shows that the risk increases as the concentration of greenhouse gases increases.[12]

Storms/Floods

The projected increases in extreme daily rainfall would enhance the potential for flooding and landslides in some areas. An intense low-pressure system affecting the east coast of Australia with flooding rains and damaging winds, has been shown to increase in intensity with climate change modeling studies. The return period for a 1 in 100 year flood event reduced to a 1 in 36 year event in a study on the Hawkesbury/Nepean Catchment Area with an estimated 35,000 properties at risk from flooding under projected changes to climate (Schreider et al, 2000)[13].

Bushfire

Bushfires are a regular feature of the Australian environment often occurring in times of drought. Williams et al. (2001)[14] study found that a doubling of atmospheric CO_2 concentrations increased fire danger at all sites studied, by raising the number of days of very high and extreme fire danger.

Extreme heat

Climate change is also expected to impact on people's health and lifestyles through heatwaves. Increasing temperatures are expected to increase the risk of heat related deaths as well as increasing risks of vector-borne, food-borne and water-borne diseases. The Australian Medical Association estimates that the number of annual heat-related deaths as a result of uncontrolled greenhouse gas emissions could be

[11] *Tropical Cyclone Characteristics in a Future Climate Scenario over the Australian Region: a High Resolution Coupled Ocean Atmosphere Climate Model Study Paper*, Lance M Leslie, DJ Karoly and M Leplastrier 2005

[12] *An Investigation into the Future Hail Climate of the Australian East Coast - a High Resolution Modelling Study.* Submitted for publication to the International Journal of Climatology, November 2005, Lance M Leslie, Mark Leplastrier and Bruce W Buckley

[13] *Climate Change Impacts on Urban Flooding*, Climatic Change, 2000. Schreider SY, Smith DI and Jakeman AJ

[14] *The Sensitivity of Australian Fire Danger to Climate Change,* Williams A, Karoly D and Tapper N, Climatic Change, 49, 171 – 191, 2001

between 8,000 and 15,000 per year in 2100, compared with about half that (4,000 to 8,000) if effective action is taken to reduce greenhouse gas emissions.[15]

Rainfall reductions
Australia currently experiences high variability of rainfall leading to large variations of agricultural output. Climate change is expected to bring more severe and longer droughts. The widespread drought of 2002 reduced national GDP by 1.6%, rural GDP by up to 20%; and a reduction in Australia's agricultural outputs by 30%. In south Western Australia, there has been a sustained drop in rainfall of about 10-15% since the 1970's leading to a fifty percent reduction in inflows into Perth's dam with significant implications for local industry.

Under greenhouse scenarios Australia is expected to dry out further thereby:

- putting even further stress on water management systems in the major cities;
- reducing water quality and increasing salinity stress and degradation of ecosystems;
- reducing water for agriculture, leading to shortfalls and transformation of agricultural activities; and
- reducing water availability for industries such as mining, manufacturing, and electricity and gas supply.

Ecosystems
Tourism currently contributes $32 billion or 4.2% of total GDP and is particularly vulnerable to the threat of climate change. Australia is home to 16 World Heritage listed ecosystems and areas that have properties of uniqueness and ecological importance confirmed against an international yardstick. Many of these World Heritage listed ecosystems are in significant danger of extinction under climate change. These include coral reefs on the Great Barrier Reef, the Alpine Region of south eastern Australia and World Heritage rainforests and tropical wetlands. This will greatly affect tourism in these areas.

3. The costs and benefits of actions to reduce the net global balance of GHG from energy use and other sources, including the role of land use changes and forestry, taking into account the potential impact of technological advances and future costs

IAG is a member of the Australian Business Leaders' Roundtable on Climate Change (the Roundtable), a newly formed coalition of Australian business leaders and the Australian Conservation Foundation, an environmental NGO. The members of the Roundtable wanted to gain a better understanding of the economic impacts that significant cuts in emissions would have on the Australian economy and the impact on longer term business decisions.

Accordingly, the Roundtable commissioned economic modelling research to analyse the economic cost of two alternative pathways to achieve the equivalent of cuts in GHG emissions of 60% below year 2000 emissions by 2050, in the context of a global agreement to implement significant cuts in emissions.

[15] *Climate Change Health Impacts in Australia: effects of dramatic CO2 emissions reductions*. Report prepared for the Australian Medical Association and the Australian Conservation Foundation, Woodruff R, Hales S, Butler C, McMichael A (2005)

This research has not been publicly released in Australia and while permission to quote this research has been obtained from Roundtable members, IAG requests that this submission remain confidential until the public release of the report in Australia, scheduled for March 2006. Once the report has been released, we will make available to the Review a copy of the detailed analysis report.

It is important to note that the modelling result considers the cost of mitigation measures in isolation and does not incorporate the economic benefits of reducing GHG emissions e.g. reduced extreme weather events and more favourable agriculture conditions. As such it is a ***cost effectiveness assessment***, indicating the economic costs of reducing a quantity of emissions, rather than a cost benefit analysis, which would seek to value the benefit of the foregone emissions.

The modelling analysis relied on a very detailed dynamic, multi-sectoral, multi regional model of Australia, known as the Monash MMRF-Green model, which includes 49 industries, nine separate electricity sectors, eight States/Territories and 56 sub-state regions in order to estimate the economic impacts.

The MMRF-Green reference case is a **no additional action** scenario i.e. Australia and the world continue to debate the merits of major action to curb GHG emissions, but nothing is implemented. In this reference scenario, GHG emissions in Australia grow at just below 1.0% per annum on average between now and 2050.

Two emission trajectories were specified as alternative pathways to meeting the 60 per cent target:

Early action **scenario:**	***Delayed action*** **scenario:**
Australia acts with the rest of world to meet a target of reducing greenhouse gas emissions by 60% relative to 2000 levels by 2050. This target is reached in a linear fashion, with a carbon price introduced in 2013 for developed countries and 2030 for developing countries.	Assumes a carbon price for developed countries is delayed until 2022, after which emissions would be reduced more rapidly to reach the same overall emissions reduction target by 2050 as under the early action scenario. Developing countries begin action in 2030.

Key drivers of results

In order to reach the emissions reduction target, a carbon price is introduced as the "policy shock" that induces economic changes in the model. Most of the economy wide changes in response to the carbon price are driven by changes in the energy sector. There are three major impacts in this sector - fuel mix changes, electricity prices increase and energy use falls relative to output.

It should be noted that the analysis did not incorporate international emissions trading, a policy instrument that, all other things being equal, is likely to lower the costs for individual countries in achieving a global emissions target. Other positive externalities not captured by this modelling include new business opportunities, new technologies, reduced threat of climate change through extreme weather events, improved urban air quality, reduced road congestion and reduced air pollution in areas of intensive electricity generation activity.

Previous experience of major energy “price shocks”, such as the two oil shocks in the 1970s, reveal that economies often have a much greater capacity to adjust to major changes than can be forecast by economic models.

Key findings

(i) Early action can be achieved at modest cost

The key finding is that the challenging target of a 60% reduction from year 2000 emission levels by 2050 is achievable at moderate economic cost to Australia.

Real GDP is projected to increase at an average annual rate of 2.1% under the **early action** scenario compared with 2.2% under the **no additional action** projection case. This delivers a GDP of $2 trillion in 2050 for the **early action** scenario around 2.5 years later than the **no additional action** scenario i.e. under the early action scenario GDP in 2050 would be 6% lower than under the no additional action scenario allowing for none of the benefits associated with the reduced threat of climate change.

In the nearer term, it is important to note that in 2020, there is a small difference between GDP output from the **early action** scenario and **no additional action** reference, for example $1.110 trillion in the reference case and $1.095 trillion in the early action scenario. The real benefit for the Australian economy is that the early introduction of a carbon price builds resilience and in policy and investment terms, **early action** buys flexibility with little downside. In the event that scientific evidence demands that action to reduce GHG emissions is accelerated, Australia will be better positioned as a result of the early action taken.

(ii) Delayed action would be expensive

Delayed action has a significantly higher economic cost and results in a major disruptive shock to the economy. Under the **delayed action** scenario, GDP in 2050 would be 7% lower than under the **early action** scenario, illustrating that the lower initial costs are substantially outweighed by the significantly greater costs of the disruptive shock post-2022.

Real GDP increases between 2002 and 2050 at an average annual rate of 1.9% under the **delayed action** scenario compared with 2.1% in the **early action** scenario.

The difference in economic impact is disproportionate to the nine year delay embodied in the “delayed action” scenario. In particular:

- With abatement action commencing in 2013, a 60% reduction in emissions can be achieved with a loss in average annual GDP growth of 0.1% and a ‘delay’ in GDP of 2.5 years. When action is delayed by just 9 years, the impact on GDP is considerably and disproportionately larger — average annual growth falls by 0.3 per cent and the delay in GDP increases to 6 years.

4. The impact and effectiveness of national and international policies and arrangements in reducing net emissions in a cost effective way and promoting a dynamic, equitable and sustainable global economy, including distributional effects and impacts on incentives for investment in cleaner technologies.

IAG considers that the seriousness of the threat of climate change warrants further action at the local, national and international level. Climate change is a global issue and it must therefore be addressed globally – national governments, communities and business must work together to deliver policy, markets and community action to achieve deep cuts in GHG emissions.

IAG notes and commends the UK Government's leadership through the commitment to reduce CO2 emissions by 60% by 2050. As a member of the Australian Climate Group, IAG has called on Australia to do the same.

In order to achieve such deep and necessary cuts, a suite of policy and market based instruments will be essential. These must extend well beyond normal commercial and political horizons to ensure long term effective action and they must be pursued with vigour.

IAG believes that a carbon emissions trading scheme must be the central component in achieving emission cuts at the lowest economic cost. Greatest impact and emission reductions could be achieved through a global mechanism and the EU Trading scheme presents an ideal starting point as the basis for a global scheme. It should be noted that Australia does not currently have a Federal carbon emissions trading scheme although State governments are currently considering introducing a nationally consistent scheme.

However, IAG considers that there is now a growing and significant need for greater certainty beyond current measures that will only be effective until 2012. In particular, IAG believes that business needs greater certainty about the long term frameworks for emissions trading and policy dimensions that better reflect business planning and infrastructure horizons, which extend well towards 2050.

A solution that follows a single path will not be sufficient to achieve significant reductions in emissions. IAG considers that a multi faceted approach is needed and that all levels of government and industry will need to[16]:

- Aggressively pursue fuel switching – shifting to the full range of cleaner energy technologies;
- Aggressively pursue energy conservation – stopping the waste of energy
- Encourage innovation – new technologies and business practices that can provide our energy and transport without emitting carbon dioxide to the atmosphere.

[16] Climate Change Solutions for Australia, Australian Climate Group, 2004. (http://www.iag.com.au/pub/iag/sustainability/publications/climatechange.shtml)

The policy frameworks required to deliver this approach are crucial. IAG notes the statements of The Corporate Leaders Group on Climate Change[17] and endorses the Group's view that an effective policy framework needs to:

- create greater certainty about the long term value of emission reductions beyond 2012;
- Provide incentives and support in the development and application of a very broad range of new low carbon technologies;
- Eliminate policy inconsistencies and incentives that undermine climate policy;
- Stimulate markets for new and existing low carbon technologies

IAG believes the challenge lies not only in the application of these frameworks across national boundaries and across markets but in how business and government own the challenge and engage the community on the imperative to reduce emissions.

[17] The Corporate Leaders Group on Climate Change, HRH The Prince of Wales's Business and the Environment Programme, Letter to the Prime Minister, 27 May 2005