

Ensuring business and industry are ready for climate change

The business and industry sector is exposed to risk associated with the effects of climate change. It is important that the sector is made aware of the risks, and assisted to manage the risk appropriately.



Key Points

- The Australian private sector is not at present engaged with climate change risks and adaptation, although exemplars exist, especially in the resource and agriculture sectors. Government has a role to play by building engagement through education and recognising and promoting good practice.
- Carbon issues (greenhouse gas mitigation) dominate the climate change discussions in the private sector and cause some confusion around the role and purpose of adaptation.
- Many private sector businesses, with planning cycles of just a few years, do not recognise the need to adapt.
- Industry has the capacity to respond to the challenge of climate change (both risks and opportunities) but requires leadership and support from all levels of government.
- There is a need for tailored information about the risks to various business sectors associated with climate change, and on approaches to deal with those risks. This includes the need to consider supply chains, and customer and staffing issues.
- There is a need for a harmonisation of adaptation methods across state jurisdictions.
- Adaptation policy/regulation can be seen as a threat to the private sector (leading to, for example, increased transaction costs and stranded assets). Failure to identify and address the potential trade-offs associated with adaptation policy (i.e. negative impacts of businesses) early can undermine policy implementation. Efforts should be made to reduce transaction costs by streamlining policies and regulation wherever possible.
- Consumers should be empowered to drive adaptation responses from business and industry.



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NCCARF's evidence-based Policy Guidance Briefs address key challenges to effectively adapting Australia to a variable and changing climate. They provide high-level policy advice designed for use by policy makers at Commonwealth and State level. This Guidance Brief deals with ensuring business and industry are ready for climate change.

The climate context

Australia already has a highly variable climate, and under climate change some extremes, such as heatwaves and bushfires, are likely to become more severe and more frequent. Some changes can already be observed: annual mean temperatures have increased by 0.75°C since 1910; the frequency of extreme (record) hot days has been more than double the frequency of extreme cold days during the past ten years (CSIRO and BOM, 2012).

Projected future changes to the Australian climate include (Whetton, 2011):

- Annual average warming by 2030 (above 1990 temperatures) of about 1.0°C across Australia, with warming of 0.7 to 0.9°C in coastal areas and 1 to 1.2°C inland.
- A drier climate in southern areas of Australia, especially in winter, and in southern and eastern areas in spring.
- Sea level around Australia is expected to rise. The most recent global estimate from the Intergovernmental Panel on Climate Change (IPCC, 2007) is for an increase of 18-59 cm by 2090-99 compared to 1990. In a more recent paper (Church et al., 2011), models estimate a rise of 80 cm by 2100 compared to 1990. Australia's sea levels will vary on a regional scale, with parts of the east coast projected to be above the global projections (CSIRO & ACE CRC, 2011)

Drought frequency is expected to increase, particularly in southern and south-western Australia. There is less agreement amongst models about future trends in intense rainfall.

The highly diverse business and industry sector in Australia will be strongly influenced by the changing climate. Perhaps more than any other sector, business and industry will be exposed to climate change elsewhere in the world, affecting international trade flow volumes and the prices of internationally traded goods.

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Current effects, impacts and issues

Climate change effects on businesses will depend on the nature of the enterprise and the degree of exposure. Businesses with a short-term outlook are more exposed to issues associated with climate variability than climate change (although in the short term they may be affected by climate change adaptation regulation). Others, particularly in the infrastructure-related sector or those with longer-term investment horizons are more likely to be exposed to the effects of climate change. The Bangkok floods in 2011 sent ripples of impacts through the Australian private sector supply chain and were a stark reminder about the interconnected risks from a global marketplace. Whether dealing with climate variability or climate change, there are opportunities to adapt and therefore reduce exposure and/or take advantage of opportunities.

Impacts from a variable climate can be direct (e.g. flooding of business premises, impacts on workers from heat stress) or indirect (e.g. impact on supply chains or customer bases) (Table 1).

Insurance

At present the commentary from the insurance industry is mixed. Global reinsurers are increasingly recognising their exposure to climate-related risks (Swiss Re, 2013) whereas the Australian sector anticipates minimal impact over the coming decades. Australian businesses have expressed concern about insurance certainty. Already some Australian insurers have increased premiums and withdrawn from some locations after recent extreme events (Suncorp, 2012). As so many organisations transfer their climate-related risks to the insurance industry, any shift in insurance availability and affordability is likely to have cascading effects through the private sector (especially in real estate, property development and lending).





Future effects, impacts and issues ... continued

- **Agriculture and food industries.** A warming climate is likely to affect the potential to grow certain crops in some places, especially if there are changes to the rainfall regime. The industry may be required to make transformational changes to manage these impacts, growing new crops and moving into new locations. This may in turn affect wholesale and retail prices, as well as transport and trading patterns. The impacts along the supply chain will come not only from the Australian farming industry, but also from impacts on global agriculture.
- **Financial services.** If insurance becomes unavailable or unaffordable in certain locations then the portfolio of a lender may be affected. Responses (e.g. calling in mortgages) may affect asset value and organisational reputation, whereas failing to respond may expose a listed company to shareholder litigation.

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Adaptation: what this means for managing the private sector

For the private sector, adaptation is about three key elements:

1. maintaining economic viability;
2. managing climate legal risk and responding to adaptation regulations; and
3. positioning to identify opportunities.

As forecasting for 5-10 years is often challenging for the private sector, considering even longer timescales is almost prohibitive. The level to which businesses are prepared for climate change varies considerably. A recent NCCARF research report found that most enterprises are only vaguely aware of the breadth of adaptation that may be required (West and Brereton, 2013). However, the authors found that existing risk management procedures and approaches could be used to support effective strategic climate change adaptation.

Around 96% of the Australian private sector consists of small-medium enterprises (SMEs) (Kuruppu et al., 2013), and so its capacity to plan for longer-term risks and adaptation is limited. Kuruppu et al., reported that many SMEs exposed to extreme events were left vulnerable because of the:

- short-term nature of government-led business recovery programs;
- limited support available to indirectly impacted SMEs;
- limited support and recognition given to the psychological impacts;
- rigid and inflexible eligibility criteria for government recovery funds; and
- reactive recovery processes rather than prevention and preparedness.

For SMEs, peak bodies will play an important role in implementation of adaptation (SME Australia, 2013).

The business sector is also challenged by the language of climate change. Terms such as 'mitigation' have traditionally been used to describe risk reduction, but are now used to describe carbon reduction.

Incentivising adaptation by the private sector is important for economic sustainability. Australia is often described as the developed country most exposed to the effects of climate change – this being the case, it is vital that effort is devoted to ensuring that businesses and their supporting infrastructure are resilient to anticipated impacts.

Climate change can offer opportunity to many businesses. Businesses can position themselves to make the most of new situations, for example by developing new products to support customers to adapt. Business opportunities associated with climate change are already emerging in Tasmania, especially in the wine and dairy industry. For example investors in the Tasmanian wine industry (e.g. Brown Brothers and Shaw & Smith) have expressed that "climate change was a key driver for their investment in Tasmania" (Tasmanian Government, 2013).

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Implications for policy

Governments will need to provide leadership to business through: first, leading by example by ensuring that their own assets have reduced exposure to effects of climate change and in requiring adaptation to be considered by their business partners; second, ensuring that regulations and standards do not distort the market or provide disincentives; third, ensuring that any market failures are addressed (Productivity Commission, 2012).

Getting the right balance between market-based mechanisms and government intervention is imperative. Adaptation policy/regulation can often be seen as a threat to the private sector (e.g. increased transaction costs, stranded assets) and failure to identify and manage the trade-offs at an early stage may undermine policy implementation or effectiveness. However, lack of government intervention in adaptation may see market-based adaptation causing externalities and/or maladaptation (e.g. private flood defences may affect environmental flows or increase flood risk to neighbouring properties).



Current effects, impacts and issues ... continued

Table 1: Examples of climate risks and impacts on different sectors of the economy. (based on Smith, 2013a,b,c; Johnston, 2013; West & Brereton, 2013).

Sector	Climate change variable	Risks	Opportunities
Construction	Rainfall changes	Construction delays due to increased rainfall Increased cost due to the need for flood mitigation measures	Potential for reduced construction delays if there are longer gaps between rain events
Construction	Increasing and sustained high temperatures	Impacts on productivity while work ceases because of heat	Warmer winters may improve working conditions in some areas
Property	More intense rainfall (floods)	Higher insurance costs	
	Sea-level rise	Reduced land values	
Mining	Reduced water availability	Increased costs Competition for water	Increased commodity price if flooding affects competitors
	Increased flooding	Flooded mines Supply chains impacted	
Aviation	Increased extreme temperature days	Reduced cargo/passenger load	
	Sea-level rise	Closure of runways during surge events	
Energy transmission	Increased extreme temperature days	Increased legal risks from lines causing bushfires Temperatures exceeding operating limits of plant	
Agri-business	Increased temperatures	Reduced crop yield	Ability to grow in areas previously prohibited by climate
	Changes in hydrological cycle	Yield changes	
Listed corporations	All climate variables	Potential for litigation associated with disclosure failings in impacts are arguably foreseeable	Opportunities to diversify portfolio in emerging markets

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Future effects, impacts and issues

The principal direct risks to business from future climate change, especially in the shorter term up to mid-century, are likely to come from changes in frequency and severity of climate extremes domestically and overseas. These extremes include flood, hail, windstorm, storm surge, drought, heatwave and, indirectly, occurrence of bushfire linked to higher temperature and lower humidity. These direct risks can affect the labour force and markets. Businesses also face indirect risks through the cascading of impacts from supply chain interruptions, poorly designed adaptation regulation, litigation and shifting insurance responses.

Changing patterns of extremes; for example multiple, possibly different, extreme events over a short period of time, and/or the confluence of extreme events with other risks (e.g. financial crises, fuel security); present large risks to business and industry. NCCARF has funded a project on the effects of extreme events on the mining industry in the Bowen Basin in Queensland highlighting the complexities of managing the effects of drought followed by a large flood. The complexity was exacerbated by the need to consider the effects of adaptation approaches on the environment and communities downstream of mining operations (Sharma et al., 2012).

In this era of globalisation, there is poor understanding of the extent of Australia's exposure to indirect effects of climate change due to overseas impacts, particularly in the areas of international trade and national security. The Russian Government's ban on wheat exports in response to their 2010 drought, and the effect on global grain prices, is a good example of the potential long-range impacts of climate change.

It is not only impacts of changes in the occurrence of extreme events that create risks and opportunities; other changes that can have substantial implications include to:

- **Tourism.** Areas attractive for sun seekers and beach holidays at present may become too warm in future, while areas too cold at present may benefit from a warming climate. Ocean acidification is expected to have negative impacts on coral growth, with implications for the tourist trade to the Great Barrier and Ningaloo reefs. Ski resorts are likely to move to higher altitudes and, on longer timescales, may no longer be viable in Australia.

Industry groups have suggested that the following government-led activities may support climate change adaptation in the sector.

- Better information about the potential effects of climate change on aspects of concern to business, such as impacts of flooding on supply chains, effects of heatwaves on workers and clients, should be provided to business to support accurate business-led risk assessments and responses. This could be in the form of industry-specific scenarios and case studies.
- Education and training programs can support the sector to understand its exposure to climate-associated risk and to deal with the risk in an appropriate manner.
- Harmonisation of adaptation activities and frameworks (e.g. sea-level rise benchmarking) across state boundaries is needed. This will help to increase certainty for business and enhance the likelihood of coordinated and well-informed responses.
- The development of relevant key performance indicators and rating tools to support performance measurement will enable internal decision making, disclosure to shareholders and ultimately long-term improvement in performance.
- There is a need for government support for divestment and investment strategies and approaches (e.g. assisting industry with mechanisms to effectively disclose their climate change risks and their responses to manage risk; incentives that reward early adopters of adaptation actions).
- Enabling independent peak bodies to become trusted disseminators of information and knowledge.
- Actions to streamline red tape, not to reduce the requirements that need to be addressed, but to remove overlaps and apparent contradictions.
- Provision of financial incentives for adaptation planning, possibly funded from carbon tax revenue (or an equivalent mitigation fund).

Stakeholder engagement is critical when developing adaptation policies that may affect the private sector. As an example, early attempts at land-use planning controls in adaptation in Queensland and New South Wales have been rescinded because of a failure to understand and manage potential trade-offs (e.g. fear of property price impacts, insurance affordability and stranded assets).

Governments seeking to provide information on climate change to business and industry should consider their delivery mechanisms carefully, ensuring that the messenger is seen as an 'honest broker'. This may require the use of intermediaries.

Case Study: Extractive resource development in a changing climate: learning the lessons from recent weather events in Queensland, Australia: Implications for the resources industry (Sharma et al., 2013).

Australia's national and regional economic structures are highly dependent on mining-led export earnings. A study of coal mining operations in Queensland examined drought (water quantity) and flooding (water quality) challenges relevant to the future viability of the industry and local communities. Key findings included:

- There is a lack of preparedness to deal with sudden intense changes in the natural climate due in part to short-lived industry memory caused by high staff turnover, reliance on contractors, short-sightedness, and production-driven planning agendas.
- Short-term planning cycles affect decision-making. Decisions are largely driven by production imperatives rather than long-term risk management. Organisations need to implement measures that are highly flexible and responsive to climate variability and change. These include being able to shift from drought preparedness to flood preparedness very rapidly, and not being locked into measures to protect against a single extreme.
- Industry will benefit from using seasonal and short-term climate forecast knowledge to plan ahead of the wet season.
- Inadequate internal and external communication can be a barrier. Early and timely collaboration between all stakeholders can help address the potential tension between the competing objectives of economic development and high environmental quality. It can also help to understand and manage downstream impacts from mines on other users.
- Intra-organisation communication channels can be ineffective and effort should be made to overcome lack of understanding of technical issues by senior management, and time lost in gaining internal approvals.
- Inter-company collaboration is useful but difficult, as organisations are fundamentally 'competitors', and therefore consider sharing commercially sensitive data both risky and inappropriate.



Approach

The policy guidance provided in this brief was developed at a workshop held in Sydney. The workshop was attended by representatives from the business and industry sector, the Commonwealth Government, Sydney University and NCCARF staff.

NCCARF's research programs have delivered over 140 reports on climate change adaptation, many of which address the topics of the Policy Guidance Briefs. For more information, see: www.nccarf.edu.au/publications

NCCARF is producing a portfolio of twelve Policy Guidance Briefs in 2012–13 on critical climate change adaptation topics. For a complete list of available Policy Guidance Briefs, please go to: www.nccarf.edu.au/publications/policy-guidance-briefs



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