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In recognition of the economic, social, political and geo-political importance of climate change, this CEDA report revisits the theme of an earlier one, *Climate Change – Getting it Right* (2007), but within a new context.

executive summary



The issues have advanced rapidly since 2007. Back then, climate change was on the international agenda but domestic public opinion in Australia was just mobilising. The CEDA collection brought together papers from Australian and international experts including Dr Robert J Shapiro, Ronald Prinn (MIT) and Graham Pearman (Monash University). Some chapters dealt directly with climate science. Others reviewed economic perspectives, particularly in the context of the Stern report, and possible policy responses, including the role of technology.

At the time of writing, Australia is poised to make choices that may lock it in to a particular set of responses for a considerable period ahead. In addition, the UN Climate Change Conference in Copenhagen, scheduled for December this year, intends to craft a post-Kyoto international policy settlement.

Responding to this context, this collection addresses two specific issues, one domestic and one global:

- What is an appropriate policy response for Australia?
- What are the likely approaches of a variety of countries whose collaboration will be essential to any durable post-Kyoto arrangement?

For nearly 50 years CEDA has informed, influenced and raised the standard of discussion about the issues shaping Australia's economic development. It does this by providing forums and publishing independent research. In the former, politicians, policy makers, business leaders and experts explain and debate different perspectives. In the latter, alternative policy options are explored with more depth and analysis, exposing deeper complexities in ways that are not possible in shorter addresses.

The Economist magazine has described climate change as perhaps the most demanding issue of our time. It is not hard to see the reasons. Climate change invites us to imagine and anticipate developments that are of extraordinary duration. Mitigating action now is unlikely to deliver results until the end of this century. Not only are the scientific models used to forecast climate change extraordinarily complex, but technologies yet to be imagined will have substantial, maybe definitive, impacts. These uncertainties and possibilities need to figure in present deliberations and decisions.

Moreover, if pessimistic forecasts are half-correct, we may not be able to avoid climate change that is already

set to occur. This will require a program of adaptation that is quite separate from, and no less significant than, any mitigation effort.

Finally, this is a truly global issue. Ultimately, if concerted global action cannot be orchestrated, action by any single country or group of countries is futile. This is the general context in which choices of very long term significance for business, society and individuals are now being made.

Public deliberation about climate change in Australia occurred under the shadow of the 2007 election. By contrast, it is instructive to compare these processes (as described in the paper by David Pearce and Warwick McKibbin) with those that have been simultaneously occurring in the US (see the paper by Adele Morris).

In Australia, as the McKibbin/Pearce paper makes clear, these issues have engaged the bureaucratic system at least since the Kyoto Treaty in 1997. The Howard government established a Greenhouse Office in 1998 and initiated a variety of activities to evaluate climate change policy. But until 2006 it adopted a largely reactive approach, at least in relation to public opinion.

The Stern Report and Al Gore's documentary film, *An Inconvenient Truth*, were also released in 2006 and these events, and other developments, lifted climate change to a new level of public awareness.

Thereafter in Australia climate change became a federal election issue. This culminated in the establishment of a taskforce by the Howard government in November 2007. In early 2008, the taskforce recommended adoption of a 'cap and trade' scheme, which was accepted by the government. There was immediate bipartisan consensus around critical strategic questions. Just before the election, the Howard government took a further step, adopting a mandatory target for renewable energy, conceding another important policy choice to electoral pressure.

After the election in November 2007, the Rudd government elevated the Garnaut Climate Change Review to centre stage. Its substantial final report, published in September 2008, is 617 pages long. Writing in *Climate Change – Getting it Right* (CEDA 2007), Robert Mendelsohn of Yale University posed these challenges for the Garnaut Review:

1. It should compare plausible alternative policies so governments can see what their choices are.
2. The discount rate should be realistic – it should follow the same rate used for other public investment.
3. The representation of uncertainty needs to be carefully handled – citing the best case and the worst case do not advance understanding.
4. The Garnaut Review should discuss both adaptation and mitigation.
5. Australia has distinctive interests (eg in relation to coal) which need to be properly assessed.

While the Garnaut Report dealt in depth with the last two issues, its handling of the first three was arguably less than adequate.

After the release of the Garnaut Review's final report, there was no time or machinery in which conceptual or strategic issues could be exposed to wider scrutiny and engagement. Yet assessments of the significance, implications and choice of policy options should precede discussion of solutions for adapting to and mitigating against climate change.

The government released its White Paper in December 2008, only three months after Garnaut presented his final report. This shifted discussion to immediate choices and actions. It also locked the government into a particular position. It was soon followed by draft legislation in April 2009, which was introduced to parliament in May 2009. That debate is still proceeding.

As the McKibbin/Pearce paper in this collection argues, broader public understanding has not been cultivated sufficiently. Ultimately, policy choices and public consent are interdependent. A decision now that raises expectations inappropriately, that misleads the public about what can be achieved in the short term (or indeed achieved at all) and ultimately produces backlash, is arguably worse than no decision or a delayed decision.

A number of complex issues needed (and deserve) to be communicated clearly and broadly.

Informed public discussion would have exposed and encouraged understanding of issues such as:

- the right approach to intergenerational equity
- the discount rate appropriate to value longer term benefits and relate these to present costly actions
- the imperative of concerted international action
- the likely effectiveness of alternative incentives as means of influencing behaviour (eg taxes on production or consumption versus cap and trade versus a hybrid regime)
- the level of emissions needed to stabilise carbon in the atmosphere at tolerable levels (Prinn 2007)
- other actions necessary to facilitate interim adaptation (ie over the next 60 or so years).

As noted above, the stakes – not just for the business community but for everyone – are very large. Choices are now being made that, for good or ill, will bind actions for the next century. The public is owed a discussion on the stakes involved in these choices. This collection explores emerging policy choices. At one level, this involves Australia's response. But this cannot be separated from a second level, which involves international responses.

Chapter summaries

The report leads with a policy perspective from CEDA's Director of Research and Policy, Dr Michael Porter.

Part 1 of the report reviews issues currently being debated in the Australian parliament and broader perspectives relevant to domestic policy choices.

Part 2 contains international perspectives and experience relevant to Copenhagen deliberations and beyond.

Michael Porter

Michael Porter argues that a carbon tax is workable based around the GST. The revenue can cut taxes elsewhere, subsidise R&D and provide assistance to major polluting countries.

The 'carbon price' in an ETS comes from trade in emissions *debits and credits*. ETS prices in Europe are really *derivative* prices, based on political allocations. These prices are volatile, offer no guarantee of reduced emissions, and promote a potential carbon finance bubble.

Most people don't understand the complexities of an ETS. But a carbon tax, like the GST or a tobacco tax, is readily understood. The world's leaders have 'sold' a solution on the basis of no observable tax or price changes, and with 'negotiated' exemptions amounting to protectionism. Customers favouring reduced emissions deserve better than an ETS which hits exporters and import competitors.

This failure to focus on consumers and prices disregards increasing access to smart devices (eg phones) for monitoring prices and taxes on environmental products such as emissions, electricity, cars and water.

A carbon tax can deliver certainty, retention of competitive advantage, consumer engagement, and avoid the rent-seeking and corruption of an ETS. A carbon tax also avoids a carbon finance bubble. Jurisdictions attracted to issuance of tradeable credits and debits are far more financially vulnerable and open to corruption than those who gave us the current financial crisis.

Part 1: Policy perspectives

1.1 Warwick McKibbin and David Pearce

Warwick McKibbin and David Pearce summarise domestic and international developments. They observe, "Australian climate policy is both well developed and still in its infancy. It's well developed in the sense that since negotiation of the Kyoto Protocol in

1997, a considerable amount of work has been done in designing policy alternatives." But engagement with the practical implications of the proposed ETS is in its infancy.

The chapter emphasises the important distinction between adaptation and mitigation. In essence, mitigation in the medium term will have no impact on climate change already foreshadowed. Adaptation, by contrast, is about learning to minimise the costs of any climate change that occurs. It brings benefits today (potentially benefits even if there is no further climate change. A price on carbon is essential.

But the proposed ETS has two problems. One concerns the potential for permit price volatility and the other short to medium-term adjustment costs. Australia's approach must also be aligned with that of other countries. Emphasising the long-term implications of the ETS, McKibbin and Pearce observe, "When Australia's climate policy starts to bear fruit, today's political leaders will be distinguished elder statespeople, and the prime minister will be someone who hasn't been born yet.... Based on the typical life cycle of large firms, the current big players in the market won't exist."

They conclude by suggesting any arrangement must be capable of assimilating nasty surprises, and should be based on more than best and worst scenarios.

1.2 Geoff Carmody

Geoff Carmody calls Australia's CPRS "the GST from hell" for several reasons: it affects exports, exempts imports and reduces competitiveness. It is more likely to drive emissions (and jobs) overseas than reduce emissions globally. It has also been poorly received across the board. He calls for a more globally acceptable policy model and notes that, crucially, China has signaled its support for a consumption-based approach.

He says the debate about climate policy design is not over, and three major issues are unresolved:

- whether an emissions trading scheme (ETS) is better than a carbon tax
- whether national emissions production or national emissions consumption is the best national emissions base for policy
- the setting of global emissions abatement targets and their allocation among countries.

A national emissions consumption-based carbon tax best delivers all of these outcomes and is a viable path to where we started: the original vision of a uniform global response.

1.3 Gary Sampson

Gary Sampson's background as the highest-placed Australian to have worked at the GATT and its successor, the WTO, provides a valuable perspective on the links between climate policy, trade and competitiveness.

The serious economic problem for countries adopting ambitious emissions reduction targets ahead of others is the adverse impact on their most emissions-intensive industries. With this in mind, Sampson's paper examines WTO provisions in order to gain an insight into concerns surrounding competitiveness.

WTO rules were conceived to create a stable and predictable rules-based trading system and promote the negotiated reduction of trade barriers. A coherent international agreement on climate change will need to address different concerns to the WTO, but in a mutually supportive and consistent manner. He also makes the point that WTO rules should not be viewed as an "inconvenience" to be worked around in order to achieve emission reduction policies.

Sampson's conclusion is that the challenge at Copenhagen is to set in motion a process for the negotiation of a treaty that will permit a level playing field for countries wanting to move head at different speeds in enforcing their emission reduction targets. This will require international agreement on dealing with competitiveness in a manner that is rational, equitable and coherent.

1.4 William Nordhaus

In a reprint of a chapter from his well-known book, *A Question of Balance: Weighing the Options on Global Warming Policies* (2008), prominent Yale economist William D Nordhaus looks at the relative merits of quantity-based and price-based mechanisms. The ETS is a quantity based approach, while a carbon tax is a price-based approach. Nordhaus catalogues the difficulties, both practical and conceptual, associated with an ETS and illustrates the results by modeling the likely impacts of the alternatives on global emissions. He presents the case for a tax-based alternative.

1.5 W David Montgomery, Lee Lane and Anne Smith

W David Montgomery and his co-authors focus on R&D policy. The century-long lead times in tackling climate change and the chronic uncertainties create fundamental problems. Montgomery's chapter is written in a US context, but the analysis is applicable to Australia.

After making the case for extensive government engagement in R&D, Montgomery turns to appropriate policy design. The conception of research as linear – from boffins to practice – has long been discounted in innovation literatures. But translating this into a climate change context multiplies design problems. Not only must varied motivations be accommodated (commercial, scholarly, prestige, political), but positive network effects need to be realised:

The difficulties may be especially acute for government-funded R&D intended for private sector adoption. In this case, government-funded basic research might have to address problems that arise at the "later" stages of the R&D process. These reverse flows may involve the private sector trying to get the attention of government funding and perhaps university researchers for basic research problems that arise in development or commercialisation phases. . . This feature of the process would appear to imply that support (subsidies, demand pull from carbon pricing) for technology demonstration is likely to be prone to failure, unless there are also mechanisms to provide adequate incentives for all the linked research efforts that may be needed to overcome obstacles.

The chapter continues to explore additional complexities arising from the international character of the problem and the need to encourage international technology transfer.

Part 2: Towards an international system

2.1 Alan Oxley and Bill Bowen

Alan Oxley and Bill Bowen summarise the overall challenge of climate change in the following way:

Development of a successful global strategy to address climate change requires reflection of consensus among the major emitters, a common long-term aspirational goal, room to recognise different strategies to reduce emissions, a dynamic structure which can be reviewed and adjusted every decade as economic conditions adjust, technical understanding of the process of global warming improves and technologies to address it are developed and progressively deployed. Above all, the strategy must give the leading developing country economies confidence that the strategy will not impede their plans to raise living standards and reduce poverty. . . None of this is apparent in the work to date by negotiators on a successor instrument.

They argue there is no justification for rushing to negotiate to design a successor instrument to the Kyoto Protocol. They suggest that the Kyoto Protocol weaknesses must be addressed in the design of a successor instrument if it is to succeed. The authors state that unless the fundamental economic interests that currently divide attitudes on how to tackle climate change are recognised in an agreement, no global consensus is possible.

The paper suggests effective global strategy should:

- establish consensus among countries which account for a substantial majority of global greenhouse gas emissions
- set a common goal
- support national development objectives
- foster or recognise strategies to reduce emissions
- demonstrate tangible short-term results
- perceptibly spread costs equitably
- facilitate adaptation and mitigation
- provide for flexibility and revision.

Finally, the paper argues that the only way to build global consensus on climate change is to aim for a global EMG (a treaty which is Evolutionary, Multi-Track and reflects Global consensus) not a global ETS (a treaty which seeks to tackle climate change with a ‘take it or leave it’ global Emissions Trading System).

2.2 Adele Morris

Adele Morris of the Brookings Institution reviews the development of climate policy in the US. While the Obama administration has reversed the climate scepticism of its predecessor, the problems of progressing legislation through Congress remain. The interests of coal producing and manufacturing states need to be accommodated. Mid-term elections next year compound these pressures. She suggests that the challenge for the Obama administration is to promote an approach that solidifies and preserves the consensus for domestic action over the long term and leverages US action into greater greenhouse gas emissions abatement abroad.

Morris includes observations on the outlook for Copenhagen. Success needs to be defined “creatively and dynamically” and not yoked to agreement on an ETS. If US consideration of legislation is incomplete, Morris believes “it would be better to craft an agreement that recognises US energy spending from the stimulus package, crafts a technology cooperation agreement, for example, and promises further talks when US legislation is more developed.” Morris outlines the ingredients for a successful conclusion at Copenhagen as:

- all parties sticking to commitments that are feasible and sustainable domestically
- creative and dynamic definitions of success
- allowing countries the flexibility to set price signals instead of hard caps
- using of commitments by major developing countries to avert protectionism.

2.3 Yin Zhongyi

Presenting a Chinese perspective, Yin Zhongyi from the China Institute for Reform and Development, suggests developed countries that are responsible for the bulk of emissions in the atmosphere now must take prime responsibility. He writes that the Chinese government has already introduced a variety of mitigation and adaptation measures and will not be party to any approach that diminishes its capacity to grow its economy. Any remedy that does not recognise this position will be unacceptable. The Chinese government also believes a tax-based solution may be preferable to quantity-based regimes, such as an ETS.

2.4 Prodipto Ghosh

Dr Prodipto Ghosh, former Indian Secretary to the Ministry of Environment and Forests, and distinguished fellow at The Energy and Resources Institute (TERI) in India, picks up similar themes in his discussion of India’s approach to the UN Climate Change Conference in Copenhagen meeting. He notes the debate between developed and developing countries – notably India and China – has polarised. Western nations are responsible for the accumulation of GHG emissions and should bear the largest share of the burden of cuts to future emissions, as it will be impossible for developing countries to grow without expanded energy production.

Developing countries are nevertheless fully alive to the dangers of climate change and to their own responsibilities. Ghosh enumerates the various measures being taken by India to curb emissions.

He concludes that a global agreement is unlikely unless developed countries recognise their responsibilities and that mitigation actions need to be designed in the context of the needs of individual states. Adaptation also needs to be given higher priority. India also opposes sectoral targets which would privilege particular technologies. Rather, western countries need to finance the global R&D effort.

2.5 Hubertus Bardt

With the EU and individual European governments at the forefront of international advocacy of an ETS, Dr Hubertus Bardt from Germany’s IDW provides a European perspective. Dr Bardt explores the essential features for a new international agreement. To include developing countries, Kyoto Protocol measures that allow offsets for investments in mitigation projects need to be extended. Any agreement must also include the 15 largest emitters of greenhouse gases.

Conclusion

This collection underlines the many uncertainties and complexities that surround the development of climate change policy but also raises the issue of how we can best deal with the long-term nature of the issue.

To manage on-going policy development in Australia, the Federal Government has announced the formation of an Australian Climate Change Regulatory Authority. As now conceived, this is purely a bureaucratic and technical body. Yet in the light of the many administrative complexities identified in these papers, climate change regulation will likely become a technical nightmare. Arrangements for appeals and for transparent dealing are unclear.

Moreover, the proposed authority is limited to a regulatory role. More is surely required. The complexities identified in this collection underline this. Emerging issues will concern the substance of policy, not just the administrative details. The development of bipartisanship and public opinion must also be considered.

Elsewhere, Warwick McKibbin has suggested the establishment of a standing body along the lines of the Reserve Bank. The autonomy and authority of the Reserve Bank rests on a consensus between the major parties and indeed in the community more broadly. This is its license to adjudicate monetary policy. A political consensus on climate change is still remote. In its absence, no forum can attain 'neutral' status. The Productivity Commission may represent another possibility. But it may also founder on a lack of political consensus. Is the structure surrounding the Auditor-General a better configuration? This involves a technical agency undertaking professional analysis and a political arm (perhaps in the form of a joint parliamentary committee) to provide a springboard for broader public and interest engagement.

Whatever the remedy, authoritative institutional capacity will be surely required. This is needed to host on-going resolution of major issues about targets or taxes, prices or tax levels, adaptation, mitigation aims and progress, the contribution of technology and needed research, international factors etc. Ideally, such an institution should also be able to mediate bipartisanship and inform public opinion.

Climate change remains a work-in-progress.