

## SUMMARY

*This is the final report of the Climate Change Authority on its Targets and Progress Review.*

The Climate Change Authority is required by legislation to review Australia's greenhouse gas emissions reduction goals and report on progress towards them. The Targets and Progress Review fulfils these requirements and recommends emissions reduction goals that would provide a clear course for action to 2020, and guidance beyond.

The Authority was established as an independent statutory agency to provide advice to government and parliament. In developing this report, the Authority has assessed an extensive evidence base, along with significant input from stakeholders.

### WHY IS THIS REVIEW IMPORTANT?

*Climate change science indicates the world is warming and human activities are the dominant cause.*

Climate change science is clear—the world is warming and human activities are the dominant cause.

Climate change poses major risks for Australia's people, economy and environment. A warmer climate is predicted to increase the frequency and intensity of weather extremes, such as heatwaves, droughts, floods and bushfires, and to cause rises in sea levels. Australia is likely to better adapt to projected impacts if global warming is limited to less than 2 degrees above pre-industrial levels. With larger increases, adaptation can be expected to become increasingly costly and challenging.

*Global action to limit warming to below 2 degrees will benefit Australia.*

The international community has made a commitment to keeping global warming below 2 degrees. To meet this shared goal, Australia and other countries need to strengthen their emissions reduction efforts.

Australia stands to benefit from stronger global action, but it must also be prepared to do its part to meet the global goal. In this Review, the Authority outlines its views on what a reasonable contribution from Australia would be.

*This Review is timely as Australia considers its emissions reduction goals ...*

A review of Australia's emissions reduction goals is especially relevant at this time.

Australia has a formal international undertaking to reduce emissions by at least 5 per cent by 2020, compared with 2000 levels, and has indicated it might do more under certain circumstances. As part of international negotiations, Australia has committed to reviewing its minimum 5 per cent offer and to advising, by 30 April 2014, whether it proposes to increase its 2020 target. (This is not the last opportunity—governments can strengthen their targets at any time.)

A new international agreement, covering emissions reduction goals beyond 2020, is scheduled to be negotiated by the end of 2015. This agreement is intended to cover all major emitting economies; Australia will be expected to indicate its post-2020 targets by the first quarter of 2015.

*... and develops its climate policies.*

The government is currently revising Australia's climate policies. The Authority's Review examines the latest evidence on climate science and the impacts of climate change, international action to reduce emissions, and economic and social implications for Australia. It also reports on where Australia has successfully reduced emissions, where there are gaps and opportunities for greater reductions, and how a suite of policies might help to realise those opportunities in a cost-effective way.

## WHERE ARE WE NOW?

*Australia's emissions intensity has halved since 1990 ...*

Australian governments—Commonwealth, state and local—have implemented a range of policies to reduce greenhouse gas emissions over the past two decades.

Australia's emissions were broadly the same in 2012 as in 1990, notwithstanding a doubling in the size of the economy. This means that the emissions intensity of the economy has halved over that period. While broader economic forces have accounted for some of this reduction in emissions intensity, policy has also contributed.

Further, Australia's emissions over the period 2008–2012 averaged 104 per cent of 1990 levels, less than its 108 per cent target under the Kyoto Protocol. As a result, Australia has 116 Mt CO<sub>2</sub>-e of emissions rights to carryover to its 2013–2020 Kyoto commitment.

*... but more needs to be done.*

Further efforts are, however, necessary to achieve absolute reductions in emissions. In 2012, Australia's greenhouse gas emissions totalled 600 Mt CO<sub>2</sub>-e, 2.5 per cent above 2000 levels. In the absence of a carbon price or other effective policies, emissions are projected to grow to 685 Mt CO<sub>2</sub>-e in 2020, 17 per cent above 2000 levels.

**WHAT DOES THE AUTHORITY RECOMMEND?**

*The Authority recommends a coordinated set of goals that would manageably spread future efforts over time ...*

*... comprising 2020 goals, a trajectory range to 2030 and a budget to 2050.*

In this report, the Authority adopts a budget approach to develop emissions reduction goals for the short, medium and long term (Chapter 7). Setting a budget for emissions through to 2050 highlights the trade-offs involved between actions taken now and those made necessary later. In short, weaker action now imposes a greater emissions reduction task on future generations.

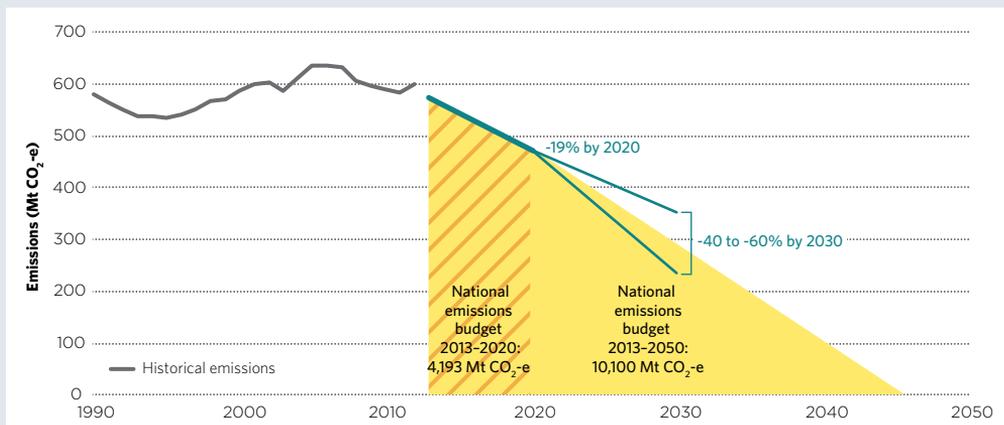
Setting longer term emissions reduction goals, in addition to shorter term goals, is especially significant for investors (and their financiers) in long-lived assets.

The Authority recommends a coordinated set of goals for Australia:

- 2020 goals, providing a clear course for short-term action:
  - a minimum 2020 target of 15 per cent below 2000 levels
  - using Australia’s carryover under the Kyoto Protocol to raise the 2020 target by 4 percentage points, giving an effective target of 19 per cent
  - an indicative national trajectory consistent with 19 per cent and an emissions budget of 4,193 Mt CO<sub>2</sub>-e for the period 2013–2020.
- Beyond 2020, guidance for longer term planning and investment, subject to frequent review in light of new information:
  - a trajectory range for emissions reductions of between 40 and 60 per cent below 2000 levels by 2030
  - a national emissions budget for 2013–2050 of 10,100 Mt CO<sub>2</sub>-e, based on what might be considered Australia’s fair share of a global emissions budget.

While different goals were canvassed and assessed, the Authority believes its recommendations provide a credible set of goals for Australia at this time.

**FIGURE 1: RECOMMENDED EMISSIONS REDUCTION GOALS**



Source: Climate Change Authority

*Australia needs strong and lasting policies to reduce domestic emissions.*

Targeted and sustained emissions reduction policies, including market-based and complementary measures, are needed now to drive a steady transformation of the Australian economy. These can help Australia stay competitive as the world moves to a low-emissions future. Climate change policies should have regard to their distributional consequences and, as appropriate, be coordinated with industry, trade and other objectives.

*International emissions reductions should complement domestic efforts.*

International emissions reductions can provide an environmentally sound and cost-effective complement to domestic actions. The Authority recommends that Australia draw upon international emissions reductions to help meet the proposed 2020 target, and that the government establish a fund to purchase those reductions.

## THE REASONING UNDERLYING THE AUTHORITY'S RECOMMENDED GOALS

*The Authority recommends a minimum 2020 target of 15 per cent, rising to 19 per cent with carryover.*

Based on all the evidence available to it, the Authority concludes that Australia's 5 per cent target is inadequate (Chapter 9) and recommends a minimum target of 15 per cent, rising to 19 per cent with the carryover from the Kyoto Protocol.

There are three key reasons why the Authority makes these recommendations.

*A 5 per cent target is inconsistent with the below 2 degree goal.*

First, a 5 per cent target for 2020 would not be a credible start by Australia towards achieving the below 2 degree goal. It would leave an improbably large task for future Australians to make a fair contribution to global efforts.

A target of 15 per cent (plus carryover) represents a more appropriate response to the latest science and a more manageable spread of efforts over the decades ahead. While emissions reduction efforts would still have to accelerate in the future, significantly more of the projected budget to 2050 would be available for future years compared with a 5 per cent target.

*The pace of international action justifies Australia going further ...*

Second, the scale and pace of global action suggests Australia should be moving beyond 5 per cent (Chapter 4).

*... with China and the United States stepping up their efforts.*

The world's two largest emitters, China and the United States, are stepping up their efforts on climate change. Both countries have emissions reduction targets and are investing heavily in renewable energy—estimated at more than US\$100 billion in 2012. China is tightening its vehicle emissions standards, replacing inefficient coal-fired power plants with more efficient plants, and has established five sub-national pilot emissions trading schemes. In the United States, a 2013 presidential action plan on climate change includes new restrictions on emissions from coal-fired power plants, stronger vehicle emission standards and additional energy efficiency measures. These are intended to complement existing state-based market initiatives to reduce emissions and increase the use of renewable energy.

*A 2020 target of 15 per cent plus carryover is more in line with other countries.*

Australia's 5 per cent target is weaker than that of many comparable countries. For example, the United States has a 2020 target of 17 per cent below 2005 levels; the UK has a target of 34 per cent below 1990 levels; Norway has a target of 30–40 per cent below 1990 levels. A target of 15 per cent plus carryover for Australia would be more in line with the targets being pursued by such countries.

*Stronger targets can be achieved at a manageable cost.*

Third, the Authority believes the costs of meeting the recommended target would be manageable.

The costs of delivering the recommended target depend very much on the policies used to pursue it. At this time, the government is still in the process of developing its policies and the Authority could not therefore assess the costs of pursuing the recommended target with such policies.

In these circumstances, the Authority has drawn on economic modelling based on the current legislation to estimate the incremental costs of moving from 5 per cent to a stronger target (Chapter 10). This modelling suggests that adopting a 2020 target of 15 per cent plus carryover would slow annual growth in average per person income by 0.02 per cent, compared with meeting the 5 per cent target.

One reason why the incremental costs are so low is that the current legislation allows a mix of domestic and international reductions to achieve the target. Australia could meet the whole of the incremental emissions reduction task associated with moving from 5 per cent to the recommended target through the carryover and the use of additional international emissions reductions.

The government intends to implement different policies to achieve the 5 per cent target; these will have different costs from the approach envisaged in the current legislation. The issue of costs (and their distribution) will need to be revisited when the government finalises its policies. The *incremental* costs of moving to a stronger target would, however, be comparable to those estimated under the current legislation so long as the stronger target was achieved through the use of international emissions reductions.

*The government's conditions for moving beyond 5 per cent have been met.*

In 2009, the government set conditions for when Australia might move beyond the unconditional 5 per cent target to a 15 or 25 per cent target. In the Authority's view, the conditions for moving beyond 5 per cent have been met. Whether the conditions for 15 per cent have been met is unclear—some elements have been met; others are marginal. The conditions for a 25 per cent target have not been met.

The Authority's charter requires it to examine considerations beyond those accounted for in the conditions, including climate science, international actions, economic impacts and equity. Taken together, these broader considerations are believed to justify the Authority's recommended goals, including a minimum 2020 target of 15 per cent.

*The Authority recommends a medium-term trajectory range of 40–60 per cent reductions by 2030 ...*

The Authority recommends a trajectory range for emissions reductions from the 2020 target to a level between 40 and 60 per cent below 2000 levels in 2030. This range should be reviewed periodically as new information emerges.

The middle of the trajectory range is consistent (on a straight-line basis) with the recommended national emissions budget to 2050. Over time, developments in climate science, international action and economic factors can be expected to affect Australia's appropriate medium- and long-term goals. A trajectory range would give Australia the flexibility to adjust its emissions reduction trajectory in response to changing circumstances.

Climate change science suggests that to have a reasonable chance of achieving the below 2 degree goal, global greenhouse gas emissions need to be reduced substantially (Chapter 3). Keeping within a global emissions budget of 1,700 Gt CO<sub>2</sub>-e between 2000 and 2050 is calculated to give at least a likely (two-thirds) chance of staying below 2 degrees—emitting less would improve the odds; emitting more would reduce them. A significant proportion of this global budget has been used already.

*... and a long-term emissions budget of 10.1 Gt CO<sub>2</sub>-e to 2050.*

The Authority believes an emissions budget of 10.1 Gt CO<sub>2</sub>-e for the period 2013 to 2050 (or about one per cent of the remaining estimated global budget) would represent an equitable share for Australia (Chapter 8). Again, this budget should be kept under review and adjusted for relevant developments.

## WHAT ARE THE NEXT PRACTICAL STEPS FOR AUSTRALIA?

*Action can help Australia stay competitive as the world acts to reduce the risks of climate change.*

A strong and coordinated suite of policies is essential for Australia to achieve the recommended goals.

A continuing global trend towards stronger climate action and a lower emissions global economy could make it difficult for Australia to remain competitive as a high-emissions economy. To head off this risk, Australia needs policies now to drive reductions in domestic emissions, promote a steady transformation of the domestic economy, capture low-emissions growth opportunities, encourage innovation and stimulate new low-emissions investment.

Many of these initiatives have long lead times. In the meantime, international emissions reductions can be used to complement domestic efforts and assist Australia to make its contribution to global action in a cost-effective way.

*Australia can achieve substantial domestic emissions reductions ...*

Substantial emissions reductions are available domestically (Chapter 11). The Authority has identified low- to medium-cost emissions reduction opportunities across all sectors of the economy, such as:

- using less emissions-intensive energy sources such as renewables, particularly for electricity generation
- reducing fugitive emissions from energy resource extraction, particularly the development of relatively lower emissions mines and uptake of existing and new technologies to capture methane
- modifying industrial processes; for example, using nitrous oxide abatement technology
- improving the efficiency of buildings, equipment and vehicles
- increasing reforestation and afforestation, lowering rates of deforestation and improving land management.

The electricity sector could offer the single largest opportunity for emissions reductions in response to price incentives, through both a reduction in the emissions intensity of generation and energy efficiency.

*... if policies are put in place now.*

There can be lags between designing and implementing a policy to reduce emissions and seeing tangible results—many of the potential actions and investments have extended lead times, and long-lived capital stock turns over slowly. If sustained and cost-effective policies are put in place in the next few years, emissions can be reduced substantially over the period to 2030.

Energy efficiency will be particularly important in the near term. Policies that drive the transition to low-emissions technologies, buildings and vehicles will contribute more to emissions reductions beyond 2020 as equipment and infrastructure is replaced. To be in line with other developed countries and China, Australia should consider light vehicle CO<sub>2</sub> emissions standards. They are likely to be an effective complement to a carbon price or baseline and credit scheme, and could deliver significant, cost-effective emissions reductions and other benefits.

*International emissions reductions are a cost-effective and environmentally sound way to help meet Australia's goals ...*

Although it is important to drive domestic reductions, climate change is a global phenomenon. As long as international reductions are real, they have the same effect on climate outcomes as domestic reductions.

Over-reliance on international emissions reductions could delay Australia's domestic transition, increasing the risk of disruptive and costly adjustment in future decades. Particularly in the period to 2020, however, using international reductions to complement domestic efforts could help Australia meet its emissions reduction goals at lower cost and support broader trade and foreign policy objectives. In turn, these benefits could encourage more ambitious action, both in Australia and overseas.

*... complementing domestic action.*

*The government should establish a fund to purchase genuine international emissions reductions to move from 5 per cent to the recommended 2020 goals.*

The Authority recommends Australia use international emissions reductions to bridge gaps between domestic reductions and the recommended goals. The government has indicated it will achieve the minimum 5 per cent target through domestic emissions reductions, but the Authority believes international reductions could also have a role to play in meeting that target.

There is currently a large supply of genuine emissions reductions available in the global market at historically low prices. Moving from 5 per cent to the Authority's recommended target of 15 per cent plus carryover would require an additional 427 Mt CO<sub>2</sub>-e of emissions reductions over the period to 2020. The cost of purchasing all these reductions internationally is between \$200 million and \$900 million, assuming average unit prices of between \$0.50 and \$2 per tonne (current prices are less than \$1).

The Authority recommends a government fund be established to purchase sufficient genuine international emissions reductions to close any gap between domestic reductions and the recommended 2020 target. This would provide time to implement policies for efficient domestic emissions reductions, while enabling Australia to make a reasonable contribution to global efforts in a cost-effective way.