Chapter 2

The need for action

A changing climate

2.1 The evidence that the world is getting warmer is unequivocal. Over the later part of the 19th century the global mean surface temperature has increased.[1] Each of the past three decades has been warmer than all the previous decades, and the decade of the 2000s has been the warmest.[2] In Australia, average temperatures have increased by 0.9˚C since 1950, with significant regional variations.[3]

2.2 It is extremely likely that human influence has been the dominant cause of the observed warming since the mid-20th century.[4] Anthropogenic increases in greenhouse gas concentrations (such as carbon dioxide, CO_2) have largely contributed in the warming of the atmosphere and the ocean.[5] Without action to reduce carbon pollution, the world risks serious effects from climate change.

2.3 If emissions continue to grow at current rates, it is likely that over the next century, global mean surface temperatures will increase by more than 2˚C.[6] It is virtually certain that there will be more frequent hot, and fewer cold, temperature extremes over most land areas on daily and seasonal timescales.[7]

2.4 Under a worst-case scenario, by 2100 average temperatures in Australia's north are projected to rise by almost 5˚C (and potentially up to 7˚C) from a 1986–2005 baseline and by 4˚C (to as much as 6˚C) in the south.[8] Australia will also

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1 Intergovernmental Panel on Climate Change (IPCC), *Working Group 1 contribution to the IPCC fifth assessment report, Climate change 2013: The physical science basis, Summary for policy makers*, October 2013, p. 3, http://www.climatechange2013.org/images/uploads/WGI_AR5_SPM_brochure.pdf (accessed 8 January 2014).

2 IPCC, *Fifth assessment report, Summary for policy makers*, October 2013, p. 3.

3 Commonwealth Scientific and Industrial Research Organisation (CSIRO) and Bureau of Meteorology (BOM), *Climate change in Australia: Technical report 2007*, 2007, p. 6, http://www.climatechangeinaustralia.gov.au/documents/resources/TR_Web_FrontmatterExecSumm.pdf (accessed 8 January 2014).

4 IPCC, *Fifth assessment report, Summary for policy makers*, October 2013, October 2013, p. 15.

5 IPCC, *Fifth assessment report, Summary for policy makers*, October 2013, October 2013, p. 15.

6 IPCC, *Fifth assessment report, Summary for policy makers*, October 2013, October 2013, p. 18.

7 IPCC, *Fifth assessment report, Summary for policy makers*, October 2013, October 2013, p. 18.

8 IPCC, *Working Group 1 contribution to the IPCC fifth assessment report, Climate change 2013: The physical science basis, Final draft underlying scientific-technical assessment*, 30 September 2013, http://www.climatechange2013.org/images/uploads/WGIAR5_WGI-12Doc2b_FinalDraft_All.pdf (accessed 10 January 2014). See also A. Talberg and S. Power, 'What the latest IPCC report says about Australia', *FlagPost*, Commonwealth Parliamentary Library, 8 October 2013, http://www.climatechange2013.org/images/uploads/WGIAR5_WGI-12Doc2b_FinalDraft_All.pdf (accessed 10 January 2013).

experience more warm days and nights and fewer cold ones. Extreme weather events in Australia have become more frequent and/or severe and will continue to do so. Winter rain in southern Australia is likely to decrease and drought will be more common.[9]

2.5 The Climate Change Authority, an independent statutory agency tasked with providing expert advice to the Government on climate change, has underscored the impacts on Australia's climate of inaction in reducing greenhouse gas emissions. In its 2013 draft report, *Reducing Australia's greenhouse gas emissions – Targets and progress review*, the Climate Change Authority warned:

> Higher temperatures are projected to bring more severe impacts, including inundation of low-lying coastal areas, climate-induced migration of millions of people, growing risks to human health from many source, and the collapse of many vulnerable ecosystems, including the Great Barrier Reef and the Kakadu wetlands. Temperature increases above 2 degrees also heighten the risk of triggering several highly disruptive climate feedbacks, which could amplify the initial warming caused by greenhouse gases and increase the severity of climate change impacts. These impacts would be highly disruptive, impose a heavy financial burden and, in many cases, would prove to be beyond Australia's capacity to adapt.
>
> Australia has a clear national interest in limiting global warming to no more than 2 degrees.[10]

International action

2.6 Governments around the world have agreed to limit carbon pollution in an attempt to try to hold the average global temperature rise below 2˚C above pre-industrial levels. As a signatory to many of these international conventions, Australia has committed to reducing anthropogenic greenhouse gas emissions.

Intergovernmental Panel on Climate Change

2.7 In 1988 the United Nations Environment Programme and the World Meteorological Organisation established the Intergovernmental Panel on Climate Change (IPCC). The IPCC is a scientific body under the auspices of the United Nations created to 'provide the world with a clear scientific view on the current state of knowledge in climate change and its potential environmental and socio-economic impacts'.[11] It reviews and assesses the most recent scientific and technical information

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9 A. Talberg and S. Power, 'What the latest IPCC report says about Australia', *FlagPost*, Commonwealth Parliamentary Library, 8 October 2013.

10 Climate Change Authority, *Reducing Australia's greenhouse gas emissions – Targets and progress review*, Draft report, Climate Change Authority, Canberra, October 2013, p. 25, http://climatechangeauthority.gov.au/sites/climatechangeauthority.gov.au/files/files/Target-Progress-Review/Climate Change Authority-targets-and-progress-report.pdf (accessed 9 January 2014).

11 IPCC, *Organization*, http://www.ipcc.ch/organization/organization.shtml (accessed 24 February 2014).

produced worldwide relevant to the understanding of climate change. It does not conduct any research nor does it monitor climate related data or parameters.

2.8 In 1990, the IPCC released its first assessment report, underlining the importance of climate change as a challenge requiring international cooperation to tackle its consequences.[12] The findings of the IPCC's first report lead to the international community taking coordinated action through the United Nations to combat global warming.

United Nations Framework Convention on Climate Change

2.9 In 1992, the United Nations General Assembly adopted the *United Nations Framework Convention on Climate Change* (UNFCCC). The UNFCC provides an overall framework for intergovernmental efforts on climate change. The convention is aimed at stabilising greenhouse gas concentrations in the atmosphere at a level that would prevent dangerous anthropogenic interference with climate systems.[13] The UNFCCC commits parties to:

- formulate and implement national programs to mitigate climate change;
- report on their emissions and national action through inventories and national communications; and
- provide support to assist developing countries take action to address climate change and adapt to it.[14]

2.10 The UNFCCC came into force on 21 March 1994. There are currently 195 countries, including Australia, that have ratified the convention giving it 'one of the most universal memberships of any international treaty'.[15]

Kyoto Protocol

2.11 In 1995, the IPCC released its second assessment report which found that greenhouse gas emissions could cause changes to the climate unprecedented in human history and that climate change would be virtually irreversible.[16] The international community realised that emission reductions provisions in the UNFCCC were inadequate. In 1995 the United Nations commenced negotiations to strengthen the

12 IPCC, *Reports*, http://www.ipcc.ch/publications_and_data/publications_and_data_reports.shtml#1 (accessed 24 February 2014).

13 United Nations Framework Convention on Climate Change (UNFCCC), *Background on the UNFCCC: The international response to climate change*, http://unfccc.int/essential_background/items/6031.php (accessed 9 January 2014).

14 United Nations, *UNFCC*, 1992, http://unfccc.int/files/essential_background/background_publications_htmlpdf/application/pdf/conveng.pdf (accessed 10 January 2014).

15 Climate Change Authority, *Targets and progress review*, Draft report, October 2013, p. 48.

16 IPCC, *Second assessment report*, 1995, p. 3, http://www.ipcc.ch/pdf/climate-changes-1995/ipcc-2nd-assessment/2nd-assessment-en.pdf (accessed 10 January 2014).

global response to climate change, and, two years later, adopted the *Kyoto Protocol to the United Nations Framework Convention on Climate Change* (Kyoto Protocol).[17]

2.12 The Kyoto Protocol legally binds developed countries to emission reduction targets (as opposed to the UNFCCC which only encourages countries to reduce emissions). Overall, emission reduction targets for 37 industrialised countries and the European community added up to an average 5% emissions reduction compared to 1990 levels over the five-year period 2008 to 2012 (the first commitment period).[18] The second commitment period began on 1 January 2013 and will end in 2020.

Revising Kyoto Protocol targets

2.13 In 2007, the IPCC's fourth assessment report concluded that the climate was changing faster than previously predicted.[19] This report was closely followed by the 2007 Bali Action Plan under the UNFCCC, which began a new negotiating process to discuss ways to mitigate greenhouse gas emissions by all countries, including developing countries.

2.14 Negotiations on new targets were expected to be completed at the 2009 Copenhagen Conference of the Parties, however, parties were unable to come to a final agreement, instead noting targets set in the Copenhagen Accord. These new targets were formally agreed by the parties in 2010 at the Cancun Conference.[20] The Cancun Conference also reaffirmed the global pledge to hold the increase in global temperatures below 2˚C.

2.15 At the 2012 Doha Conference, amendments were formally adopted to the Kyoto Protocol to create a second commitment period from 2013 to 2020.[21] Thirty-seven parties agreed to take on a target, including Australia.[22]

2.16 Countries are currently reviewing the level of global action, both in the context of increasing the strength of the emissions reduction targets in the Kyoto Protocol and more broadly under the UNFCCC.[23] These reviews, in addition to the

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17 United Nations, *Kyoto Protocol*, 1998, http://unfccc.int/resource/docs/convkp/kpeng.pdf (accessed 9 January 2014).

18 UNFCCC, *Making those first steps count: An introduction to the Kyoto Protocol*, http://unfccc.int/essential_background/kyoto_protocol/items/6034.php (accessed 9 January 2014).

19 IPCC, *Fourth assessment report*, 2007, http://www.ipcc.ch/pdf/assessment-report/ar4/wg1/ar4_wg1_full_report.pdf (accessed 10 January 2014).

20 UNFCCC, *Cancun Conference – November 2010*, https://unfccc.int/meetings/cancun_nov_2010/meeting/6266.php (accessed 24 February 2014).

21 UNFCCC, *Doha Conference – November 2012*, https://unfccc.int/meetings/doha_nov_2012/meeting/6815.php (accessed 24 February 2014).

22 Department of the Environment, *Kyoto Protocol*, http://www.climatechange.gov.au/international/negotiations/history-negotiations/kyoto-protocol (accessed 24 February 2014).

23 Climate Change Authority, *Targets and progress review*, Draft report, October 2013, p. 49.

IPCC's fifth assessment report to be released in October 2014, will form the basis for negotiations to create a post-2020 agreement.

Table 2.1: Emissions reduction targets of key countries[24]

Country	International 2020 emissions reduction targets
Australia	5%, up to 15% or 25% relative to 2000.
China	Lower carbon dioxide emissions per unit of GDP by 40–45% relative to 2005.
United States	In the range of 17% relative to 2005.
European Union	20% relative to 1990. Conditional target of 30% relative to 1990.
India	Reduction in emissions intensity (emissions per unit of GDP) by 20-25% relative to 2005 (excluding agriculture).
Japan	25% relative to 1990.
Canada	17% relative to 2005 (Canada has withdrawn from the Kyoto Protocol but maintains this target under the UNFCC).
Republic of Korea	20% relative to business as usual.
United Kingdom	20% relative to 1990, as part of EU targets.
South Africa	34% relative to business as usual and 42% relative to business as usual by 2025.
New Zealand	Unconditional target of 5% relative to 1990. Conditional target of 10-20% relative to 1990.

Australia's commitments under international agreements

2.17 On 30 December 1992, Australia ratified the UNFCCC, which obliged Australia to:

> …adopt national policies and take corresponding measures on the mitigation of climate change, by limiting anthropogenic emissions of greenhouse gases and protecting and enhancing its greenhouse gas sinks and reservoirs.[25]

2.18 On 3 December 2007, Australia formally ratified the Kyoto Protocol and the ratification entered into force on 11 March 2008. Under the Kyoto Protocol, Australia

24 Climate Change Authority, *Targets and progress review*, Draft report, October 2013, p. 50.

25 United Nations, *UNFCCC*, 1992, Article 4.2(a), http://unfccc.int/files/essential_background/background_publications_htmlpdf/application/pdf/conveng.pdf (accessed 9 January 2014).

committed to restraining its national emissions to an average of 108% of 1990 levels over the first commencement period (2008 to 2012).[26] Australia's emissions were below this level, averaging 105% of 1990 emissions over the period.[27]

2.19 Australia has made an international undertaking as part of the second commitment period of the Kyoto Protocol (2013 to 2020). Australia has committed to reducing its greenhouse gas emissions by 25% on 2000 levels by 2020 if the world agrees to an ambitious global deal capable of stabilising levels of greenhouse gases in the atmosphere at 450ppm CO_2 equivalent.[28] Australia also committed to unconditionally reducing emissions by 5% below 2000 levels by 2020, and by up to 15% by 2020, if there is a global agreement which falls short of securing atmospheric stabilisation at 450ppm CO_2 equivalent and under which major developing economies commit to substantially restrain emissions and advanced economies take on commitments comparable to Australia's.[29]

Australian action in a global context

2.20 Australia's carbon pollution levels are very high in absolute and per person terms. Australia has the highest emissions per person of all developed countries, and is responsible for about 1.3% of the world's emissions of greenhouse gases.[30] Australia is the 15th highest emitter of greenhouses gases in the world.[31] Our annual carbon pollution is roughly the same as that of countries like France, Canada, South Korea and the United Kingdom.[32]

26 United Nations, *Kyoto Protocol*, 1998, Annex B, p. 20.

27 Climate Change Authority, *Targets and progress review*, Draft report, October 2013, p. 74.

28 UNFCCC, *Report on the Conference of the Parties on its fifteenth session, held in Copenhagen from 7 to 19 December 2009*, Appendix 1 – Quantified economy-wide emissions targets for 2020, Australia, 2009, http://unfccc.int/files/meetings/cop_15/copenhagen_accord/application/pdf/australiacphaccord_app1.pdf (accessed 9 January 2014).

29 UNFCCC, *Report on the Conference of the Parties on its fifteenth session*, Appendix 1 – Quantified economy-wide emissions targets for 2020, Australia, 2009.

30 Climate Change Authority, *Targets and progress review*, Draft report, October 2013, p. 57.

31 Climate Change Authority, *Targets and progress review*, Draft report, October 2013, p. 57.

32 Climate Change Authority, *Targets and progress review*, Draft report, October 2013, p. 47.

Table 2.3: Key countries' emissions and development[33]

Country	Per cent of global emissions (%)	Emissions per person (tCO_2-e)	Human Development Index (Rank)
Australia	1.3	25.1	2nd
China	22.1	7.1	101st
United States	15.3	21.2	3rd
European Union	10.9	9.2	From 4th (Netherlands) to 57th (Bulgaria)
India	5.5	1.9	136th
Japan	2.8	9.5	10th
Germany	2.1	10.9	5th
Indonesia	1.9	3.3	121st
Canada	1.6	19.9	11th
Republic of Korea	1.4	12.5	12th
United Kingdom	1.4	9.3	26th
South Africa	1.3	11.2	121st
New Zealand	0.2	16.6	6th
Norway	0.1	11.2	1st

2.21 Reflecting the availability of cheap and abundant coal, electricity generation is Australia's largest source of carbon pollution.[34] Electricity generation is responsible for approximately 35% of Australia's total carbon pollution.[35] Direct fuel combustion (the use of gas and other fuels in industry and homes) accounts for another 16%.[36]

33 Climate Change Authority, *Targets and progress review*, Draft report, October 2013, p. 47.

34 Climate Change Authority, *Targets and progress review*, Draft report, October 2013, p. 57.

35 Department of Climate Change and Energy Efficiency (DCCEE), *Stationary energy emissions projections: 2012*, DCEE, Canberra, October 2012, p. 6, http://www.climatechange.gov.au/sites/climatechange/files/files/climate-change/projections/aep-stationary-energy.pdf (accessed 10 January 2014).

36 DCCEE, *Stationary energy emissions projections: 2012*, DCEE, Canberra, October 2012, p. 6.

Transport and agriculture each contribute around another 15%.[37] The remaining sources are fugitive emissions (7%)—mainly the methane and carbon dioxide which escapes in to the atmosphere when coal is mined and gas is extracted—along with pollution from industrial processes (5%) and decomposition of waste in landfills and elsewhere (2%).[38]

Climate Change Authority's assessment of Australia's targets

2.22 The Climate Change Authority is required under existing legislation to conduct a review of Australia's greenhouse gas emissions reduction goals. As part of its targets and progress review, the Climate Change Authority released the draft report *Reducing Australia's greenhouse gas emissions* in October 2013. In the draft report the Climate Change Authority noted that 'the scale and pace of international action suggests that Australia should be pursuing a stronger target'.[39] The Climate Change Authority explained that:

> Taken as a whole, the Government's own conditions for moving beyond 5 per cent appear to have been met. More broadly, a 5 per cent target would put Australia at the lower end of effort compared with other developed countries. This position sits uncomfortably with Australia's relative prosperity and high per person emissions.[40]

2.23 On 27 February 2014, the Climate Change Authority released its final report and recommendations on reducing Australia's greenhouse gas emissions.[41] The Authority found that the conditions for Australia moving beyond a 5% target have been met and that more ambitious action needs to be taken.[42] According to the Climate Change Authority, in light of the international community making a commitment to limit global warming below 2˚C, Australia 'must also be prepared to do its part to meet the global goal'.[43]

2.24 The Climate Change Authority recommended that:

- Australia's minimum 2020 emissions reduction target be set at 15% below 2000 levels;

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37 DCEE, *Australia's emissions projections 2012*, DCEE, Canberra, 2012, p. 3, http://www.climatechange.gov.au/sites/climatechange/files/files/climate-change/projections/aep-factsheet.pdf (accessed 10 January 2014).

38 DCEE, *Australia's emissions projections 2012*, DCEE, Canberra, 2012, p. 3.

39 Climate Change Authority, *Targets and progress review*, Draft report, October 2013, p. 11.

40 Climate Change Authority, *Targets and progress review*, Draft report, October 2013, p. 11.

41 Climate Change Authority, *Reducing Australia's greenhouse gas emissions – Targets and progress review*, Final report, February 2014, http://climatechangeauthority.gov.au/sites/climatechangeauthority.gov.au/files/files/Target-Progress-Review/Targets%20and%20Progress%20Review%20Final%20Report.pdf (accessed 17 March 2014).

42 Climate Change Authority, *Targets and progress review*, Final report, February 2014, p. 7.

43 Climate Change Authority, *Targets and progress review*, Final report, February 2014, p. 7.

- Australia's carryover from the first commitment period of the Kyoto Protocol be used to raise the 2020 emissions reduction target by 4%, giving a 2020 target of 19%; and
- beyond 2020, Australia continue to reduce emissions within a trajectory range bounded by the paths to 40% and 60% below 2000 levels in 2030.[44]

2.25 The Climate Change Authority also adopted a budget approach to 'develop emissions reduction goals for the short, medium and long term'.[45] The Climate Change Authority noted that 'setting a budget for emissions through to 2050 highlights the trade-offs involved between actions taken now and those made necessary later'.[46] The Climate Change Authority argued, 'weaker action now imposes a greater emissions reduction task on future generations'.[47] The Climate Change Authority recommended that:

- Australia commit to a national carbon budget for the period 2013–2020 of 4,193 Mt CO_2-e; and
- Australia commit to a national carbon budget form the period 2013–2050 of 10.1 Gt CO_2-e.[48]

2.26 The Climate Change Authority outlined three key reasons for making its recommendations. First, a 5% target for 2020 was not seen to be 'a credible start by Australia towards achieving the below 2 degree goal'. The Climate Change Authority stated:

> 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.[49]

2.27 Secondly, the Climate Change Authority found that the scale and pace of global action suggests Australia should be moving beyond a 5% target.[50] The Climate Change Authority noted that the world's two largest emitters, China and the United States, are stepping up their efforts on climate change and both countries are investing heavily in renewable energy.[51] Australia's 5% target was viewed as being 'weaker than

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44 Climate Change Authority, *Targets and progress review*, Final report, February 2014, p. 15.

45 Climate Change Authority, *Targets and progress review*, Final report, February 2014, p. 9.

46 Climate Change Authority, *Targets and progress review*, Final report, February 2014, p. 9.

47 Climate Change Authority, *Targets and progress review*, Final report, February 2014, p. 9.

48 Climate Change Authority, *Targets and progress review*, Final report, February 2014, p. 15.

49 Climate Change Authority, *Targets and progress review*, Final report, February 2014, p. 10.

50 Climate Change Authority, *Targets and progress review*, Final report, February 2014, p. 10.

51 Climate Change Authority, *Targets and progress review*, Final report, February 2014, p. 10.

many comparable countries' such as the United States, the United Kingdom and Norway.[52]

2.28 Thirdly, the Climate Change Authority believed the costs of meeting the recommended target would be manageable.[53] Economic modelling based on the current legislation estimated that adopting a 2020 target of 15% plus the carryover would 'slow annual growth in average per person by income by 0.02 per cent, compared with meeting the 5% target'.[54] The Climate Change Authority argued that the current policy allows suitable flexibility and international linkages:

> 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 emissions reductions.[55]

Assessment of Australia's international targets

2.29 The current unconditional commitment to reduce greenhouse gas emissions by 5% of 2000 levels by 2020 is supported under the Clean Energy Package, which is currently in place, and the Direct Action Plan which is set to replace it.[56]

2.30 However, many submitters criticised this emissions reductions target as 'far too low'.[57] Given the compelling case for action on climate change, numerous submissions and witnesses expressed support for more ambitious emissions cuts.[58]

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52 Climate Change Authority, *Targets and progress review*, Final report, February 2014, p. 11.

53 Climate Change Authority, *Targets and progress review*, Final report, February 2014, p. 11.

54 Climate Change Authority, *Targets and progress review*, Final report, February 2014, p. 11.

55 Climate Change Authority, *Targets and progress review*, Final report, February 2014, p. 11.

56 Department of the Environment, *Emissions Reduction Fund Green Paper* (Green Paper), December 2013, p. 1, http://www.environment.gov.au/topics/cleaner-environment/clean-air/emissions-reduction-fund/green-paper (accessed 9 February 2014).

57 See, for example, Australian Conservation Foundation (ACF), *Submission 14*, p. 2; Conservation Council of South Australia, *Submission 44*, p. 4; Ms Tania Maxted, *Submission 43*, p. 4.

58 See, for example, Ms Kirsten Rose, Chief Executive, Sustainable Energy Association, *Committee Hansard*, 31 January 2014, pp 1–2; Dr George Crisp, Doctors for the Environment Australia, *Committee Hansard*, 31 January 2014, p. 24; Mr Benjamin Rose, Sustainable Energy Now, *Committee Hansard*, 31 January 2014, p. 27; Reverend Evan Pederick, Deputy Chair, Anglican EcoCare Commission, *Committee Hansard*, 31 January 2014, p. 60; Doctors for the Environment Australia, *Submission 13*, p. 6; 350 Australia, *Submission 33*, pp 1–2; Sustainable Energy Now, *Submission 34*, pp 1 and 6; Greenpeace Australia, *Submission 85*, p. 4; Friends of the Earth Australia, *Submission 66*, p. 3; Mr Jamie Hanson, Climate Change Campaigner, ACF, *Committee Hansard*, 5 February 2014, p. 34; Ms Kellie Caught, National Manager, Climate Change, WWF-Australia, *Committee Hansard*, 5 February 2014, p. 59; GetUp Action for Australia, *Submission 47*, p. 4; Professor David Karoly, *Submission 72*, p. 2.

Many suggested a reduction target similar to the Climate Change Authority's recommendation of at least 19% by 2020.[59]

2.31 Submitters also indicated that failure to commit to robust emissions reduction targets would damage Australia's international standing in relation to climate action and limit its influence on other nations to undertake global action.

Weak targets

2.32 It was argued that Australia's unconditional 5% emissions reduction target relative to 2000 levels was inadequate.[60] WWF-Australia noted that scientific studies have shown that Australia's minimum target 'cannot be considered a credible contribution from Australia towards the global goal of limiting global warming to 2˚C'.[61]

2.33 ClimateWorks Australia argued that 'it is likely that, before 2020, the Government's own criteria for increasing our national target to 15% reductions will be met'.[62]

2.34 GetUp! believed that Australia's existing targets 'are insufficient and out-of-line with the pollution cuts that the authoritative science tells us are required if Australia is to play an equitable role in global pollution cuts required to ensure a safe climate future'.[63] GetUp! submitted that of its membership base of 650 000, approximately 97.5% would like to see Australia have a more ambitious target.

2.35 It was also argued that Australia's history as an industrialised polluter and current high per capita emissions means that a stronger national carbon reduction target should be set. For example, Friends of the Earth urged that Australia do more to make up for past emissions:

> It is imperative that the wealthy nations, with long histories of high per capita emissions and those whose economy has benefitted from prolonged use of fossil fuels, demonstrate leadership in terms of reducing emissions. In spite of our relatively small gross contribution to global emissions, leadership by Australia is essential in terms of other (developing) nations being prepared to commit to reducing their emissions through international agreements. The demand that the "Rich go first" has long been a narrative

59 Doctors for the Environment Australia, *Submission 13*, p. 6; Ms Anna Skarbek, Executive Director, ClimateWorks Australia, *Committee Hansard*, 5 February 2014, p. 25; Ms Kellie Caught, National Manager, Climate Change, WWF-Australia, *Committee Hansard*, 5 February 2014, p. 59; Climate Action Network Australia, *Submission 73*, p. 2.

60 See, for example, ClimateWorks Australia, *Submission 14*, p. 6; GetUp!, *Submission 47*, p. 4; and WWF-Australia, *Submission 67*, p. 9.

61 WWF-Australia, *Submission 67*, p. 9.

62 ClimateWorks Australia, *Submission 14*, p. 6.

63 GetUp!, *Submission 47*, p. 4.

> in the international climate negotiations. Accordingly, our climate change policies must commit us to deep emission reduction targets.[64]

2.36 350 Australia, an organisation dedicated to reducing CO_2 emissions in the atmosphere to below 350ppm, likewise stated that the 5% target for emissions reductions is 'set far too low' and declared that:

> Australia is currently an irresponsible laggard in global climate change efforts and is increasingly becoming an international embarrassment and obstruction. Our historical emissions mean that we are more responsible for climate change than 94% of all the countries in the world and our per-capita CO_2 emissions are still enormous.[65]

2.37 The Australian Religious Response to Climate Change (ARRCC), a multi-faith network concerned about climate change, reasoned that 'Australia has contributed disproportionately to the global problem of carbon pollution' and, as one of the world's most economically prosperous countries and a world leader in relevant technologies, 'has a moral responsibility to make a more robust contribution to the solution'.[66]

Recommended targets

2.38 Submitters recommended that Australia should adopt a more rigorous target to reduce carbon emissions.[67] Support was given to the work and recommendations undertaken by the Climate Change Authority in the area of emissions targets.[68]

2.39 ClimateWorks Australia argued that 'the least cost approach is to aim for a 25 per cent target for 2020', and that 'the less you achieve this decade means the more you have left for a later decade', which would involve higher costs and more disruption 'because of investments that might be locked in this decade'.[69]

2.40 WWF-Australia, using recent modelling data, suggested that Australia should increase its targets to 25% of 2000 levels by 2020 to better share the burden of reducing carbon emissions.[70] WWF-Australia stated:

> Recent analysis by European consultants, Ecofys, and the Climate Change Authority shows that if Australia's response is to be credible, Australia

64 Friends of the Earth, *Submission 66*, p. 2.

65 350 Australia, *Submission 33*, p. 5.

66 Australian Religious Response to Climate Change (ARRCC), *Submission 21*, p. 1.

67 See, for example, ClimateWorks Australia, *Submission 24*, pp 1–2; WWF-Australia, *Submission 67*, p. 2; ACF, *Submission 14*, p. 1; and Greenbank Environmental, *Submission 63*, p. 3.

68 See, for example, Wentworth Group of Concerned Scientists, *Submission 95*, p. 3; ACF, *Submission 14*, pp 6–7, Climate Action Network Australia, *Submission 73*, p. 3; Sunshine Coast Environment Council, *Submission 78*, p. 2.

69 Ms Anna Skarbek, Executive Director, ClimateWorks Australia, *Committee Hansard*, 5 February 2014, pp 25 and 28; see also ClimateWorks Australia, *Submission 24*, pp 1–2.

70 WWF-Australia, *Submission 67*, p. 2.

> should increase its unconditional 5 per cent emission reduction target and commit to a target of at least 25 per cent off 2000 levels by 2020. A shift to 25 per cent is consistent with many of our trading partners. For example, China's 2020 target is consistent with the conditions for Australia moving to its 25 per cent target and the US 2020 target is equivalent to Australia taking a 21 per cent target for 2020.[71]

2.41 The Climate Action Network Australia (CANA) urged Australia to increase its target to 25% by 2020 'to encourage action by other countries'.[72] Such a target, according to CANA, would ensure Australia contributes to its fair share of global reductions and ensure transformation of the entire economy.[73]

2.42 Others proposed even more ambitious targets, such as a reduction of 40% by 2020.[74] The Australian Youth Climate Coalition (AYCC) suggested this target 'is both achievable and in line with our fair share of the global carbon budget'.[75]

2.43 Many submissions also indicated that targets are needed beyond 2020, and some of these suggested that an overall target of zero emissions by 2050 should be the aim.[76] For example, 350 Australia submitted that:

> Targets closer to 30-40% reductions in total climate pollutants emitted in Australia based on pre-2000 levels by 2020 are required in order to transition the nation to the low-carbon economy required. By 2030 this target would need to be raised to 50-60% reduction in emissions, and to 100% by 2050 in order to reach a zero emission economy in time if we are to have any chance of preventing catastrophic and irreversible Climate Change.[77]

2.44 The Australian Conservation Foundation (ACF) similarly recommended that Australia aim for pollution reduction targets of 40% below 1990 levels by 2020, 60% by 2030, with net zero pollution achieved by 2050.[78]

Carbon budgets

2.45 Submitters also expressed support for Australia adopting a carbon budget approach to climate action.[79] A carbon budget would establish the amount of

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71 WWF-Australia, *Submission 67*, p. 2.

72 CANA, *Submission 73*, p. 3.

73 CANA, *Submission 73*, p. 3.

74 ACF, *Submission* 14, p. 1; Anglican EcoCare Commission, *Submission 40*, pp 2 and 4; ARRCC, *Submission 21*, p. 5; Alliance for Future Health, *Submission 26*, p. 1; Australian Youth Climate Coalition (AYCC), *Submission 32*, p. 3; Oxfam Australia, *Submission 31*, p. 5.

75 AYCC, *Submission 32*, p. 3.

76 ClimateWorks Australia, *Submission 24*, pp 1–2; see also GetUp Action for Australia, *Submission 47*, p. 7.

77 350 Australia, *Submission 33*, p. 7.

78 ACF, *Submission 14*, p. 1.

greenhouse gas emission Australia could emit over a specified period of time. Such an approach was seen to be a logical and equitable way for Australia to reduce its fair share of global carbon emissions.[80]

2.46 Using a carbon budget approach to emissions reductions, the Wentworth Group of Concerned Scientists observed that if global warming is to be limited to less than a 2˚C rise in temperature, the global emissions budget is being quickly consumed:

> For the world to have a 67 per cent chance of reaching this target and thus avoiding dangerous climate change, the global carbon budget is 1,700,000 million tonnes of carbon dioxide equivalent (Mt CO2-e) between 2000 and 2050. Approximately 35 per cent of this budget has already been used between 2000 and 2012.[81]

2.47 Noting the evidence and targets set by the Climate Change Authority, the Wentworth Group declared that 'Australia's contribution to such a target would require a reduction of well in excess of 80 per cent by 2050'.[82]

2.48 The Climate Institute were also supportive of establishing an Australia carbon budget:

> Carbon budgets are an important concept in climate policy. The magnitude of climate change is not determined by emissions in any given year, but the cumulative total level of emissions released over time.
>
> The word "budget" is used deliberately. If we save less now we have to save more later and vice versa. The longer you delay action the more you pay to catch up.
>
> …
>
> The principal strength of setting a long-term carbon budget to 2050 for Australia is that it provides a transparent and direct link to a desired climate outcome such as avoiding a 2˚C increase in global temperature.[83]

2.49 In analysing a carbon budget for Australia, WWF-Australia found that Australia's 'fair share' of the global carbon budget is 18 billion tonnes.[84] WWF-Australia further observed that of this budget, Australia has already used between 66% and 84%, depending on the effort sharing approach applied.[85]

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79 See, for example, The Climate Institute, *Submission 2*, p. 2; WWF-Australia, *Submission 67*, p. 8; and Wentworth Group of Concerned Scientists, *Submission 95*, p. 3.

80 Climate Change Authority, *Targets and progress review*, Final report, February 2014, p. 15.

81 Wentworth Group of Concerned Scientists, *Submission 95*, p. 3.

82 Wentworth Group of Concerned Scientists, *Submission 95*, p. 3.

83 The Climate Institute, *Submission 2*, p. 2.

84 WWF-Australia, *Submission 67*, p. 8.

85 WWF-Australia, *Submission 67*, p. 8.

A greater contribution to international action

2.50 In light of comprehensive international action of carbon emissions, it was argued that Australia must do more to contribute to the global effort. For example, the ACF argued that Australia is falling behind international targets:

> A very recent example of a very large economic bloc that has made significantly more ambitious commitments that Australia's is the EU. Just last week they announced a 2030 target of 40 per cent emissions reduction with the potential to scale it up to 55 per cent based on international action. I think that that places Australia's commitments in a fairly harsh light.[86]

2.51 The Australian Council of Trade Unions (ACTU) noted that 'Australia's top 5 trading partners (China, Japan, the United States, South Korea and Singapore) and another 8 of our top 20 trading partners (New Zealand, the United Kingdom, Germany, Italy, France, Netherlands, Switzerland and Canada) have implemented or a piloting carbon trading or taxation schemes at varying levels of their economy'.[87]

2.52 CANA similarly stated that Australia's 'most important trading partners will expect Australia to do our fair share of a successful effort to tackle climate change'.[88]

2.53 It was also noted by Professor Ray Wills that China, the world's largest emitter is undertaking significant action to stem its carbon pollution.[89] Professor Wills observed:

> China is huge, and whenever you talk about figures for China they are enormous, but they are turning on a dime. Citigroup, a very respected global financial forecasting group, have indicated that China will have a peak in its coal use in 2015. From that point forward China will reduce its coal use. The projections we have from the International Energy Agency and other agencies that suggest that coal growth in China will continue on past 2020 are nonsense. You see that they are nonsense when you look at the technology adoption rates that are going on. China adds about 80 gigawatts of energy generation capacity each year. To put that into perspective, Australia's total energy generation capacity is about 60 gigawatts. But last year, 30 gigawatts of the 80 gigawatts China added, was in renewables. For the first time, the growth in energy generation from renewables is exceeding the growth in energy generation from coal.[90]

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86 Mr Jamie Hanson, Climate Change Campaigner, ACF, *Committee Hansard*, 5 February 2014, p. 34.

87 Australian Council of Trade Unions (ACTU), *Submission 30*, p. 3.

88 CANA, *Submission 73*, p. 2.

89 Professor Ray Wills, *Committee Hansard*, 31 January 2014, p. 46.

90 Professor Ray Wills, *Committee Hansard*, 31 January 2014, p. 46.

2.54 It was also argued that failure on Australia's behalf to implement a genuine and responsible emissions reduction target would impact on our ability to influence the future design of international agreements that address climate change.[91]

2.55 Professor Frank Jotzo informed the committee that as a developed economy, Australia should set an example for other countries to follow on address climate change. Professor Jotzo stated:

> In terms of the signalling effect that it has for the broader decarbonisation objective…the sense is that Australia needs to pull its weight in the global effort. There is great visibility on what Australia does, because we are one of a relatively small number of identifiable, developed, rich countries and of course we are seen as one of the highest per-capita emitters in the world as well. Observers in other countries are keenly aware of our position as a fossil fuel exporter, and so the previous policy, with a country with a very large coal base taking the road of economically sensible and reasonably ambitious climate change policy action, was generally regarded as a very positive signal. We are at risk of losing this positive international signalling altogether, and we as a nation are at risk of being perceived to be sitting on the brake as far as global climate change action goes.[92]

2.56 The ACF further stated that Australia is at risk of being left out of influential international negotiations which form the basis of future international action:

> …Australia is currently engaging the international community on these issues. There are frequent talks internationally. Ban Ki-moon has spent a great deal of his personal capital pulling together leaders at a summit at the end of this year. There will be another meeting towards the end of this year, in which international leaders will attempt to lay the foundations for an agreement in 2015. The way in which Australia is acting at the moment means that we simply cannot constructively contribute to that process. We have set an inflexible target, five per cent, which is too low. It undercuts commitments we have made internationally. We are very concerned that the position that the Australian government has taken actually undermines the ability of Australia to contribute to those processes and in fact may actively undermine negotiations internationally.[93]

2.57 ClimateWorks Australia argued that 'Australia has an important role in international negotiations on emissions reductions'.[94] It warned policy makers that

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91 See, for example, Professor Frank Jotzo, *Committee Hansard*, 28 February 2014, p. 34 and Mr Jamie Hanson, Climate Change Campaigner, ACF, *Committee Hansard*, 5 February 2014, p. 36.

92 Professor Frank Jotzo, *Committee Hansard*, 28 February 2014, p. 34.

93 Mr Jamie Hanson, Climate Change Campaigner, ACF, *Committee Hansard*, 5 February 2014, p. 36.

94 ClimateWorks Australia, *Submission 24*, p. 3.

retreating from robust action on climate change will impact on Australia's reputation and ability to influence other nations regarding future emission reduction goals.[95]

2.58 Oxfam likewise advised that Australia has a significant role to play in designing international agreements as a middle power:

> In addition to being a significant source of emissions in our own right, Australia is an important 'middle power' that enjoys close relationships with many of the world's largest economies, and a major action in the Pacific region. Australia has the ability to be a positive force in international negotiations, and equally the potential to become an unwelcome drag on progress towards a fair and effective outcome, thereby jeopardizing our own national interest.[96]

Committee comment

2.59 There is overwhelming evidence indicating that the world must act now, and act urgently, to address the catastrophic consequences of climate change. A global average temperature rise beyond 2˚C will have calamitous effects for the world. Alarmingly, Australia is acutely vulnerable to climatic changes. As so many reports have indicated, extreme weather events will become more frequent and severe. Australia will have more intense warmer periods and fewer cold periods. Winter rain in southern Australia will decrease and drought will be more common. Climate change poses a real and significant threat to all aspects of Australian life: the health of Australians; the Australian environment; and the Australian economy.

2.60 The international community is moving towards reducing carbon emissions. The United States and China, the world's two largest emitters, are taking action to reduce their carbon pollution. Australia's top trading partners including New Zealand, the United Kingdom, Germany, Italy, France, South Korea and South Africa are all taking robust action to address climate change and capitalising on the emergent clean energy sector.

2.61 Australia has a responsibility as the world's highest per capita emitter to contribute its fair share of the global effort. The committee agrees with the evidence provided by academics, climate experts, the independent Climate Change Authority, environmental organisations and industry that Australia must substantially reduce its carbon emissions. Failure by Australia to undertake meaningful action will reduce our ability to influence other countries to take action. Furthermore, any recalcitrance on Australia's behalf to meaningfully engage with the international community to reduce emissions will limit our ability to have input into any future international agreements.

2.62 The Climate Change Authority, an independent, expert advisory body, has conducted a thorough review of Australia's level of commitment to address climate change. The committee agrees with the Climate Change Authority's assessment that Australia's 5% target is inadequate and a stronger emissions reduction target is necessary. The committee recommends that the Australian Government immediately

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95 ClimateWorks Australia, *Submission 24*, p. 3.

96 Oxfam Australia, *Submission 31*, p. 6.

adopt the new targets set out by the Climate Change Authority that Australia reduces its carbon emissions by 19% below 2000 levels by 2020, comprising an emissions reduction target of 15% and 4% carryover from the first commitment period of the Kyoto Protocol.

Recommendation 1

2.63 The committee recommends that the Australian Government immediately adopt the emissions reduction targets outlined by the Climate Change Authority in its final report released on 27 February 2014. Namely that Australia's 2020 minimum emissions reduction target be set at 15% below 2000 levels and that Australia's carryover from the first commitment period of the Kyoto Protocol be used to raise the 2020 emissions reduction target by 4%, giving a total 2020 target of 19%.

2.64 The committee acknowledges the Climate Change Authority's further recommendation that Australia adopt a carbon budget for short, medium and long-term planning. A carbon budget will help communicate to policy makers, industry and the public that early action on abating carbon emissions will be cheaper and more effective than delayed action. The longer Australia delays responsible action on climate change the more it will cost in the future. The committee recommends that the Australian Government immediately adopt the carbon budgets outlined by the Climate Change Authority.

Recommendation 2

2.65 The committee recommends that the Australian Government immediately adopt the carbon budgets outlined by the Climate Change Authority in its final report released on 27 February 2014. Namely that Australia set a national carbon budget for the period 2013–2020 of 4,193 Mt CO_2-e and a carbon budget for the period of 2013–2050 of 101.1 Gt CO_2-e.

2.66 The committee also welcomes the Climate Change Authority's recommendation for long term emissions reductions. The challenge of climate change is not a short-term problem. Australia needs to commit to a long term strategy to reduce carbon emissions that will give businesses certainty and move the economy towards clean energy. The committee recommends that the Australian Government immediately adopt the Climate Change Authority's findings for longer term planning to reduce carbon emissions and set an emissions reduction target within a trajectory range bounded by the paths of 40% to 60% below 2000 levels in 2030.

Recommendation 3

2.67 The committee recommends that the Australian Government immediately adopt the longer term targets outlined by the Climate Change Authority in its final report released on 27 February 2014. Namely, that beyond 2020 Australia continues to reduce emissions within a trajectory range bounded by the paths to 40% and 60% below 2000 levels in 2030.