CLIMATE AND HEALTH ALLIANCE

Submission to the Climate Change Authority

Review of emissions reduction targets for Australia

May 2013

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About the Climate and Health Alliance

The Climate and Health Alliance (CAHA) is a not-for-profit organisation that is a national alliance of organisations and people in the health sector working together to raise awareness about the health risks of climate change and the health benefits of emissions reductions.

CAHA's members recognise that health care stakeholders have a particular responsibility to the community in advocating for public policy that will promote and protect human health.

The membership of the Climate and Health Alliance includes a broad cross section of the health sector with 27 organisational members, representing health care professionals from a range of disciplines, health care service providers, institutions, academics, researchers, and health consumers.

For more information about the membership and governance of the Climate and Health Alliance, please see Appendix A. For further information see www.caha.org.au

Issues addressed in this submission

This submission will address:

- the health impacts of climate change;
- the global carbon 'budget' and Australia's fair share of emissions reductions;
- economic and security implications for high emitting nations;
- the immediate and direct health benefits of moving away from fossil fuels; and
- the economic costs of emissions on health in Australia and internationally.

Health impacts of climate change

There are serious implications for human health and wellbeing and safety from climate change.

Australians are already experiencing severe impacts from extremely dangerous and deadly weather events from relatively modest levels of global warming; warming that is anticipated to increase four-fold in the coming decades.

The unprecedented national heatwave of January 2013, floods of 2011, wild weather of 2012, and bushfires of 2009 give an insight into the weather of a warming world.

The international medical journal *The Lancet* in May 2009 described climate change as the biggest global health threat of the 21st century. Since then, it has become apparent that climate change is already posing serious and immediate threats to the health and wellbeing of the Australian and global population, with grave implications for the medium to long term.

Average global temperature has increased almost 1°C over the last century. The current global emissions trajectory is likely to deliver in excess of four degrees global average temperature rise by 2100, a scenario described in the 2012 World Bank report '*Turn Down the Heat'* as one that would "vastly exceed the consequences experienced to date and potentially exceed the adaptive capacities of many societies and natural systems".[1]

This would be a world of "unprecedented heatwaves, severe drought, and major floods in many regions, with serious impacts on human systems, ecosystems, and associated services" and "will likely lead to increased mortality and species extinction".[2]

Global average temperature rise of 4°C would also transition the world's ecosystems into "a state unknown in human experience", according to the producers of the World Bank's report, the Potsdam Institute for Climate Impact Research and Climate Analytics.

Even a 2°C global average temperature rise is considered to pose "unacceptable risks to key natural and human systems, including significant loss of species, major reductions in food-production capacity in developing countries, severe water stress for hundreds of millions of people, and significant sea-level rise and coastal flooding".[3]

Inaction on climate change is now a leading global cause of death, according to the DARA 2012 Climate Vulnerability Monitor report entitled "Cold Calculus for a Hot Planet". This report was commissioned by 20 governments and draws on peer-reviewed scientific literature and datasets released by the UN, World Bank and Intergovernmental Panel on Climate Change (IPCC).

The DARA report estimates that climate change is already costing the global economy $1.2 trillion annually and is responsible for 400,000 deaths each year.[4] These figures are expected to rise exponentially, with climate change costing $2.4 trillion annually, or 3.2% of GDP in net average global losses by 2030.

The DARA report says a continued pattern of the world's current carbon intensive energy use would cause 6 million deaths a year by 2030, with 700,000 of these attributable to climate change, and the remainder directly related to the harm caused by carbon intensive economies.

This report finds the world's poorest communities are being the hardest hit, with average GDP losses of 8% in 2030, but every country in the world is affected, or as the report says: "not one country in the world is left unharmed".

It is extremely important to note here, however, that while these numbers are shockingly high, the DARA report only includes *incremental impacts* as a result of climate change, and *does not*

[1] World Bank, Turn Down the Heat: Why a 4°C Warmer World Must be Avoided, A Report for the World Bank by the Potsdam Institute for Climate Impact Research and Climate Analytics, November 2012, p. xv.
[2] World Bank, ibid.
[3] W. L. Hare, leading author of the IPCC 2007 report, quoted in Worldwatch Institute, *State of the World 2009: Into a Warming World*, Washington.
[4] DARA 2012 Climate Vulnerability Monitor, A Guide to the Cold Calculus for a Hot Planet, 2012.

include in any way the *"catastrophic impacts that could occur due to more rapid climate change fuelled by feedbacks such as a release of Arctic methane deposits, more rapid sea-level rise that could result from the disintegration of the West Antarctic Ice Sheet or large-scale climatic disruptions such as the collapse of ocean circulation mechanisms.*

"Each of these threats are understood by climate scientists to pose significantly larger human, economic and ecological risks".[5]

The threats to human health and wellbeing are therefore most likely to be far worse even than those predicted in the DARA report.

The global carbon budget: Australia's fair share

In 2009, the world – including Australia – agreed to a two degrees target for global warming i.e. acting to ensure global average temperatures do not exceed 2°C above pre-industrial levels.

This is considered to be the maximum global average temperature that can be reached if we are to avoid precipitating catastrophic and non-linear changes to the global climate system.[6] It is also considered to be the upper limit for warming to which humans and ecosystems can adapt – beyond this it is anticipated that the capacity to adapt will rapidly decline and there will be an increasing risk of social disruption through health impacts, water shortages and food insecurity.[7,8]

The goal of two degrees is supported by more than 100 countries.[9]

Global and national emissions must be cut dramatically if the world is to avoid breaching this guardrail.

The two degrees target is itself a target not considered desirable or safe by many scientists. NASA climate scientist Jim Hansen described two degrees as a recipe for disaster, and said the world must reduce CO2 emissions by 6 percent **each year,** if atmospheric levels are return to the "safe" level of 350 ppm that he and others have long called for.[10]

However current emissions reductions pledges – including Australia's – will not be enough to even limit warming to two degrees.

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[5] DARA, ibid.
[6] http://www.pik-potsdam.de/news/press-releases/files/synthesis-report-web.pdf
[7] http://climatecommission.gov.au/wp-content/uploads/111129_FINAL-FOR-WEB.pdf
[8] http://ec.europa.eu/clima/policies/international/negotiations/future/docs/brochure_2c_en.pdf
[9] http://www.aph.gov.au/About_Parliament/Parliamentary_Departments/Parliamentary_Library/pubs/BriefingBook43p/copenhagen
[10] http://blogs.scientificamerican.com/observations/2011/12/06/two-degree-global-warming-limit-is-called-a-prescription-for-disaster/

How much can we safely emit?

Two important papers published in the journal *Nature* in 2009 by scientists Myles Allen and Malte Meinhausen and colleagues calculated the volume if greenhouse gas emissions that can be emitted into the atmosphere between now and 2050 to have a 75% chance of staying within the 2°C guardrail.[11]

This work to determine the 'global carbon budget' has allowed us to understand the volume of greenhouse gas emissions that can be emitted to avoid breaching the 2°C guardrail. It demonstrated that a maximum of one trillion tonnes of CO_2 could be emitted between 2000 and 2050 if we are to prevent warming beyond 2°C.[12]

Since 2000, human activities have added around 500 billion tonnes of CO_2 to the atmosphere. The means we have used almost half of the total carbon budget in just over a decade.

Atmospheric CO2 levels reached 400ppm last month, far earlier than was previously predicted.

A recent UNEP report on bridging the emissions gap suggests that emissions need to reduce to around 37 GtCO2 by 2030 – reducing global emissions to around the same level of emissions as 1990.[13] They emphasise, however, that the 2030 range depends on where emissions are in 2020 – the higher the emissions in 2020, the deeper the emissions cuts will need to be in 2030.

The report also suggests that there will need to be net negative CO2 emissions later this century i.e. we will need to reach a scenario in which more greenhouse gases are taken up from the atmosphere than are emitted by anthropogenic (human) sources.

Is it possible to achieve this level of emissions reductions?

A report from the German Advisory Council (WGBU) suggests they are cautiously optimistic this can be achieved and are working to facilitate that by offering a roadmap for a transformation to sustainability to any country or group of countries willing to take the lead.[14]

Their *Social Contract for Sustainability* offers willing leaders the opportunity to showcase how ambitious and committed actions can create a new 'social contract' for sustainability and demonstrate how breaking away from existing destructive pathways can deliver greater equity, social wellbeing, and economic security.

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[11] Meinshausen, M. et al. Greenhouse-gas emission targets for limiting global warming to 2 degrees Celsius, *Nature*, 30 April 2009.

[12] http://www.wbgu.de/fileadmin/templates/dateien/veroeffentlichungen/sondergutachten/sn2009/wbgu_sn2009_en.pdf

[13] http://www.unep.org/pdf/2012gapreport.pdf

[14] http://www.wbgu.de/fileadmin/templates/dateien/veroeffentlichungen/hauptgutachten/jg2011/wbgu_jg2011_kurz_en.pdf

The costs of inaction are much greater than the costs of action.

WGBU estimates the *global* cost of transformation would require $US 200-$1000 billion a year by 2030. This may seem a massive investment but it is one they consider manageable through innovative business and financing models. They warn if it is not made, the costs associated with the economic, environmental and social disruption that a wildly unstable climate would be much, much more.

To create a bit of perspective, we already spend $500 billion globally each year on fossil fuel subsidies - a source of finance that would be more usefully deployed in a renewable energy transformation than in driving dangerous climate change and causing millions of deaths each year from harmful air pollution.

The efforts required to meet the 2°C target are projected to cost at most 2.5% of global GDP in 2050.[15]

The failure to mitigate is expected to be much higher, with costs expected to double from the current $1.2 trillion per annum by 2030, reaching an estimated 2.5% of global GDP by 2030, and as high as 10% of global GDP before the end of this century, with “damages accelerating throughout the century”.[16]

In contrast, the estimated costs of shifting the world economy to a low-carbon footing are around 0.5% of GDP for the current decade.[17]

The costs of mitigation are also reduced significantly when co-benefits (i.e. reduction in air pollution health damage, air pollution control costs and energy security) are included.[18]

How much Australia should be doing?

Australia’s short term emissions reduction target is for emissions reductions of 5% by 2020, and 25% by 2020 in the event of a global agreement. It is widely understood that this goal can only be achieved if action is taken early and emission cuts are made. As above, the chances of reaching the longer term target are severely limited if emissions reductions are not undertaken early, and the costs of mitigation greatly increase the longer the delay in commencing the transition to low carbon systems.

Given the understanding about the total carbon budget that is available for the entire global community to 2050, it seems morally and ethically reasonable to divide the remaining 500 billion tonnes equitably among the global community.

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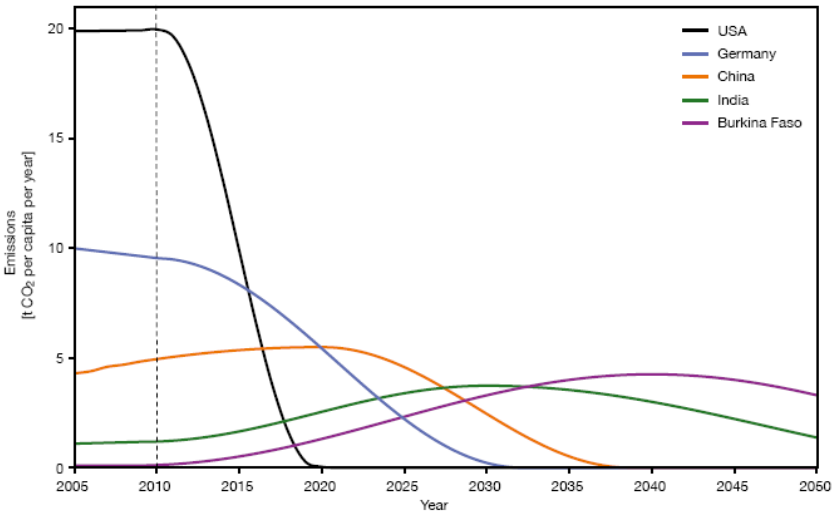
[15] http://ec.europa.eu/clima/policies/international/negotiations/future/docs/brochure_2c_en.pdf
[16] http://www.daraint.org/wp-content/uploads/2012/09/EXECUTIVE-AND-TECHNICAL-SUMMARY.pdf
[17] ibid
[18] http://ec.europa.eu/clima/policies/international/negotiations/future/docs/brochure_2c_en.pdf

This approach to a 'fair share' of the global budget would mean that all countries were allocated a per capita budget for emissions. This completely sets aside any emissions reduction obligations associated with historical emission for which developed countries like Australia are disproportionately responsible, and allows for the remaining allowable emissions to be divided equally.[19]



This graph demonstrates what the emissions trajectory would be for a number of countries if the world equally divided up the remaining global carbon budget. The black line for the US shows a very similar trajectory to that which would be required by Australia on the basis of current per capita emissions.

This would require Australia stopping any increase in emissions and getting to zero emissions in the next few years.

The current bipartisan national emissions reductions targets (e.g. 5% by 2020) mean that Australians will use four times as much of the global carbon budget as the average global citizen.

This is clearly a moral and ethical failure and makes us a nation of emissions 'bludgers'.[20] It may also put Australia at risk in terms of national security.

Recent analyses indicate that, for Australians to do our fair share, minimum national emissions reduction targets of 25 to 50% by 2020 and 80% by 2050 are required.[21,22]

Is Australia going to be an emissions 'bludger'? Or are we going to pull our weight in tackling this global risk to the biosphere, and to people, and their health and wellbeing that dwarfs any in human experience?

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[19] Schellnhuber, J. Four Degrees conference, Melbourne 2011
[20] http://theconversation.com/another-budget-in-massive-deficit-14407
[21] ibid
[22] http://www.climateinstitute.org.au/verve/_resources/TCI_OperatingInLimits_PolicyBrief.pdf

How are the fossil fuel and finance sectors responding?

The recent report Unburnable Carbon 2013 from Carbon Tracker and the Grantham Research Institute on Climate Change and the Environment at the London School of Economics reveals that despite a widespread understanding in the scientific community about the amount of carbon that can be safely burned in order to stay within two degrees, without sufficient disincentives, the finance and fossil fuel industries ignore these risks and continue to invest in and build new fossil fuel infrastructure that is fuelling global warming and climate change. [23]

Unburnable Carbon reveals that listed fossil fuel reserves already far exceed the carbon budget to avoid global warming of 2°C, but in spite of this, the industry spent $674 Billion last year to find and develop new assets that under a carbon budget are potentially 'stranded' or worthless.

Australian listed fossil fuel reserves, those already on the books, constitute 25 per cent of the total global carbon budget.[24] As much as 80% of the world's listed fossil fuel reserves **must stay in the ground** if even more dangerous global warming is to be avoided.[25]

These findings point to the need for strong national policy to prevent further emissions growth, supported by significant emissions reduction targets, if Australia is to accept its fair share of the global responsibility to reduce emissions.

Economic and security implications of high emissions pathways

A recent report from the University of Oxford and the University of Washington, published in the journal, *Nature*, has argued prospects for future economic growth rest on the ability of governments to wean societies off fossil fuels.[26]

And in contrast to the claims that Australia's economy is threatened by a carbon price, it is more likely that Australia faces serious economic risks by "persisting with an economy not structured for a carbon-constrained future", say analysts at Melbourne's Grattan Institute.[27]

A failure to cut emissions has also been identified as a potential international security threat, with nations that fail to mitigate likely to drive political tensions nationally and internationally.[28]

A paper for the European Commission on Climate Change and International Security describes the risks thus:

Climate change impacts will fuel the politics of resentment between those most responsible for climate change and those most affected by it. Impacts of climate mitigation policies (or policy failures) will thus drive political tension nationally and internationally.[29]

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[23] http://www.carbontracker.org/wastedcapital
[24] http://www.climateinstitute.org.au/unburnable-carbon.html
[25] http://www.carbontracker.org/wastedcapital
[26] Murray, J. and King, D. Climate policy: Oil's tipping point has passed, Nature, 2012, Vol: 481, pp.433–435.
[27] Daley, J. and Edis, T. Restructuring the Australian economy to emit less carbon, Grattan Institute, April 2010.
[28] European Council, Climate Change and International Security, Paper from the High Representative and the European Commission, 14 March 2008.

Energy scarcity associated with diminishing fossil fuel resources as well as a decline in the social licence of fossil fuel use may lead to national and international security problems associated with pressure on personal, state and national budgets.[30]

In a statement published in the *British Medical Journal*, medical and military experts have jointly called for urgent action on climate change as it poses an *"immediate, growing and grave threat to the health and security of people in both developed and developing countries around the globe."* [31]

Failure to reduce emissions according to our fair share may lead to Australia facing threats to national security.

There are also serious economic risks for Australia in failing to cut emissions and transition to low carbon systems.

At present Australia's energy policy assumes a continuation of the current reliance on coal fired power as well as an ongoing and expanding market for coal exports. However recent reports suggesting that China intends to cap coal energy consumption by 2015 have serious economic implications for Australia.[32] Along with the evidence of declining demand and likely economic impacts, the health and climate risks from coal requires that plans for this industry are reconsidered.

This has significant implications for Australian coal exports, for example.

The huge contribution of the emissions from coal-fired power generation makes it one of the main drivers of global warming. The substantive evidence of both its climate contribution as well as the significant detrimental effects on human health means the mining and burning of coal for power generation must rapidly decline.

However there are currently 107 new coal mines or mine expansions proposed for Australia that, if built, would extract 801Mtpa of coal per annum and a total of 22,476 Mt of coal over their lifetime.

Australian coal export expansion was listed as one of 14 "carbon bombs" potentially risking the lock-in of catastrophic and irreversible global warming in an Ecofys and Greenpeace report in January 2013. If the expected expansions of Australia's coal exports occur, global carbon dioxide emissions could rise by 1.2 billion tons a year.

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[29] ibid

[30] http://www.cfr.org/content/publications/attachments/Energy_Security_Workshop_Paper.pdf

[31] http://climatechange.bmj.com/statement/#_edn3

[32] Parkinson, G. *China threatens to pierce coal export bubble*, Reneweconomy, 12 March 2012. Available at http://shar.es/gLbjc

The report from the Carbon Tracker Initiative (CTI) referred to above suggests that the coal likely to be developed in Australia could account for 75% of the total that can safely be burned if the world is to stay under two degrees Celsius of global warming.

This suggests that a strong emissions reduction target is important for Australia in facilitating a rapid transition away from carbon intensive industries that face serious economic risks, as well as potentially putting Australia's security at risk.

Health costs of emissions intensive industries

As indicated in the DARA report mentioned above, carbon emissions intensive economies are causing significant direct harm to human health, aside from the contribution they make to climate change and the risks it poses to health.

Current emissions from fossil fuel industries in Australia pose serious risks to health as well as contributing to climate change.

Ill health and deaths associated with fossil fuel use is costing the community billions of dollars annually from respiratory, cardiovascular and nervous system diseases caused by exposure to the extraction, transportation and combustion of coal, oil and gas.

Air pollutants account for a huge proportion of the health costs, contributing to: respiratory diseases such as asthma and lung cancer; cardiovascular diseases which lead to heart attacks; while mercury from coal mining and combustion is associated with developmental delay and permanently reduced intellectual capacity in exposed children.[33]

Heavy metals and carcinogens released during the processing of coal also contaminate water and food sources which can lead to long term health problems. In addition, the mining of coal exposes workers and local communities to dangerous coal dust, and it is a dangerous occupation in terms of health and safety.

Research from Europe published in the medical journal *The Lancet* estimates that 24 people die for every TWh of coal combusted, from the harmful effects of the airborne particulates, nitrogen oxide, and toxic metals such as mercury and lead released.[34] The International Energy Agency estimates that more than 7,500TWh of coal was burnt for electricity generation in 2009.[35]

A recent study from the Harvard Medical School estimates the economic, health and environmental costs of the life cycle of coal is costing the US public a third to one half of a trillion dollars annually.[36]

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[33] Physicians for Social Responsibility, *Coal's Assault on Human Health*, November 2009.
[34] Markandya, A., and Wilkinson, P. Energy and Health 2: Electricity generation and health, The Lancet, Sep 15-Sep 21, 2007; 370, 9591.
[35] International Energy Agency, Emissions From Fuel Combustion, IEA Statistics, 2011 edition, page 122. Available at http://www.iea.org/co2highlights/co2highlights.pdf
[36] Epstein, P. Full cost accounting for the life cycle of coal, *Annals of New York Academy of Sciences*, 1219: 73-98.

The Harvard study looked at the lifecycle costs of coal, including mining, transport, processing and combustion. These costs are not accounted for by the coal industry and fall onto the rest of the community in increased health costs, injuries, illnesses and deaths.

This study found if the estimated health and environmental costs of coal were included in the price of coal-fired electricity it would double or triple its cost, and make safer renewable energy generation cost competitive.

A recent study published in *American Economic Review* found that the gross external damages (largely from increased deaths) caused by coal fired power generation in the US amounted to $53 billion annually. Even more significantly, it demonstrated coal is costing the US economy more than the industry generates.[37]

This latter study arrived at a lower estimate of the external costs of coal combustion than the Harvard study due to lower estimates of air pollution damages, as well as significant differences in their assumptions of the cost of climate impacts.[38] Despite this, both studies firmly conclude that due to the externalisation of health and climate costs, the true cost of coal is not reflected in its current price.

Somewhat outdated estimates put the health damage from Australian coal-fired power stations for the Australia community at $A2.6 billion annually. Together with estimates of health damage from fossil fuel powered transport emissions, this amounts to an annual health bill of almost $6 billion for Australian taxpayers as well as contributing to thousands of deaths each year.[39]

There are currently no mechanisms in place in Australia to evaluate and reflect the health and social costs of carbon emissions.

Stronger emissions reduction targets should lead to stricter regulation and a cost on emissions to reflect these damages. This would in turn benefit the economy through avoided ill-health and productivity gains.[40]

Health benefits of emissions reductions

The flip side of the risk to health from carbon intensive industries and economies is that there are significant benefits to public health effects from emissions reductions.

A significant body of research demonstrates that there are substantial health benefits associated with the implementation of strategies to reduce emissions in energy, transport, built environment, agriculture and land use sectors.[41]

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[37] Muller, N et al. Environmental Accounting for Pollution in the United States Economy, *American Economic Review,* August 2011, 101, pp.1649–1675

[38] Skeptical Science, *True Cost of Coal Power - Muller, Mendelsohn, and Nordhaus*, 7 October 2011.

[39] Biegler, T. *The hidden costs of electricity: Externalities of power generation in Australia*, Report for the Australian Academy of Technological Sciences and Engineering (ATSE), 2009.

[40] Skeptical Science, ibid.

[41] Armstrong, F. *Our Uncashed Dividend*, Climate and Health Alliance and The Climate Institute, 2011.

Strategies to reduce greenhouse gas emissions can also deliver cleaner air and less pollution through making our energy sources cleaner and safer, making our cities and towns more conducive to healthier transport options such as public transport, biking and walking, and create healthier living and working spaces in energy efficient buildings.[42] These initiatives can not only reduce emissions but can also improve health and reduce the incidence of many chronic illnesses, such as heart and lung disease, cancers, obesity, diabetes and depression.[43]

Reducing emissions through changes to land use and low carbon agricultural systems can support the health ecosystems on which humans depend, improving general health and psychological well-being, as well as lead to low carbon diets which contribute to better health by reducing cardiovascular disease, obesity, diabetes, and bowel cancer.[44]

Importantly, the avoided ill health and productivity gains can largely offset the costs of cutting emissions.

There can be substantial savings for healthcare budgets too. For example, as outlined above, coal-fired power in carries a human health cost—from lung, heart, and nervous system diseases—of $2.6 billion annually.[45]

Air pollution in Australia is estimated to kill more people every year than the road toll [46] and national estimates have put that cost to the community at $3.3 billion p.a.[47] However figures from NSW in 2009 indicate the annual health costs of air pollution from transport, power generation and industry in that state alone are A$4.7 billion.[48]

The costs for the whole of Australia are likely to be much higher.

These conservative estimates suggest the shift to clean energy and transport could save the Australian community billions of dollars annually in avoided health costs. Studies overseas indicate the potential savings are even greater. Moreover, the available evidence suggests that the health benefits from cutting emissions could in part offset the cost of emission reductions.[49,50,51]

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[42] http://climatecommission.gov.au/wp-content/uploads/111129_FINAL-FOR-WEB.pdf
[43] http://climatecommission.gov.au/report/the-critical-decade-climate-change-and-health/
[44] Armstrong, F. ibid.
[45] Beigler, T. ibid, 2009..
[46] Australian State of the Environment Committee, State of the Environment 2011 (SoE 2011), Independent report to the Australian Government Minister for Sustainability, Environment, Water, Population and Communities, 2011
[47] Bureau of Transport and Regional Economics, Health Impacts of Transport Emissions in Australia: Economic Costs, Working Paper 63, Commonwealth of Australia, 2005
[48] NSW Government, Air Pollution, www.health.nsw.gov.au/publichealth/environment/air/air_pollution.asp
[49] Markandya, A. et al. p. 41
[50] Intergovernmental Panel in Climate Change (IPCC), Climate Change 2007: Working Group III: Mitigation of Climate Change, Co-benefits of mitigation. Available at: http://www.ipcc.ch/publications_and_data/ar4/wg3/en/tssts-ts-11-5-co-benefits-of.html
[51] Health and Environment Alliance and Health Care Without Harm Europe, *Acting Now for Better Health*, Report, August 2010. Available at: http://www.env-health.org/IMG/pdf/HEAL_30_co-benefits_report_-_FULL.pdf

For example, moving to stronger emissions reductions in Europe has been demonstrated to lead to significant economic savings. A 2010 report from European Union found moving to an emission reduction targets of 30% by 2020 in the EU would save more than €82 billion (A$100 billion) each year by 2020 from avoided ill-health and productivity gains.[52]

The same study shows that early action yields bigger gains, with benefits 250% higher if action was taken immediately.

This evidence suggests we should be cutting emissions not only to reduce climate risk but because it's better for health.

While emissions reductions are important strategies to act on climate change, the benefits for health are significant and available immediately, while the climate benefits accumulate in the longer term.

Conclusion

The Climate and Health Alliance urges the Climate Change Authority to develop Australia's emissions reductions targets that reflect the climate science; what is known about the global carbon budget; and the economic, health, social, security and environmental implications of failing to reduce emissions.

This will mean Australia must develop much stronger targets that will ensure we reduce emissions according to our fair share of the global carbon budget. We must do this cognisant of the indications that the costs of acting now are less than if we delay, and that there are health, economic, social and environmental benefits from doing so.

We can afford to cut emissions, and we have a moral obligation to do so. Let us help lead the world in the urgent and inevitable low carbon transition, and be proud of doing so, while we reap the benefits both here and globally.

[52] Health and Environment Alliance and Health Care Without Harm, Acting Now for Better Health, 2010.

Appendices:

APPENDIX A

Climate and Health Alliance (CAHA) Committee of Management

Dr. Liz Hanna, CAHA President (Australian College of Nursing)
Fiona Armstrong, CAHA Convenor
Dr. Erica Bell (Australian Rural Health Education Network)
Dr. Brad Farrant (Australian Research Alliance for Children and Youth)
Dr Bret Hart (Alliance for Future Health)
Michael Moore (Public Health Association of Australia)
Julia Stewart (CRANA*plus*)
Kristine Olaris (Women's Health East)
Elizabeth Reale (Australian Nursing Federation)
Stephen Pannell (Australian Medical Students Association)

CAHA Organisational Members

Australian Association of Social Workers (AASW)
Australian College of Nursing (ACN)
Australian College of Rural and Remote Medicine (ACRRM)
Australian Council of Social Service (ACOSS)
Australian Hospitals and Healthcare Association (AHHA)
Australian Health Promotion Association (AHPA)
Australian Medical Students Association of Australia (AMSA)
Australian Physiotherapy Association (APA)
Australian Institute of Health Innovation (AIHI)
Australian Women's Health Network (AWHN)
Australian Nursing Federation (ANF)
Australian Psychological Society (APS)
Australian Research Council for Children and Youth (ARACY)
Australian Rural Health Education Network (ARHEN)
CRANA*plus*
Doctors Reform Society (DRS)
Friends of CAHA
Health Consumers' Network (Qld)
Health Issues Centre (HIC)
Kooweerup Regional Health Service (KRHS)
Public Health Association of Australia (PHAA)
North Yarra Community Health (NYCH)
School of Public Health and Community Medicine, University of NSW
Services for Australian Rural and Remote Allied Health (SARRAH)
Women's Health East
Women's Health in the North
World Vision

Expert Advisory Committee

Associate Professor Erica Bell, University Department of Rural Health, University of Tasmania
Associate Professor Grant Blashki, Nossal Institute for Global Health
Associate Professor Colin Butler, College of Medicine, Biology and Environment, Australian National University
Professor Garry Egger, School of Health & Human Sciences, Southern Cross University
Professor David Karoly, Federation Fellow in the School of Earth Sciences, University of Melbourne
Professor Stephan Lewandowsky, School of Psychology, University of Western Australia
Dr Peter Tait, FRACGP, MClimChng, FPHAA; General Practitioner of the Year 2007; Canberra
Professor Anthony Capon, National Centre for Epidemiology and Population Health, Australian National University
Professor Simon Chapman, Professor of Public Health, University of Sydney
Dr Susie Burke, Senior Psychologist, Public Interest, Environment & Disaster Response, Aust Psych Soc