



REVIEW OF CLIMATE CHANGE POLICIES

Submission by 350.org Australia
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WHO WE ARE

350 Australia is part of a global movement which is acting to halt the climate crisis. We work with a network of campaigners and local groups across Australia in online campaigns, grassroots organising, and mass public actions to keep fossil fuels in the ground and support a transition to a cleaner and fairer economy.

The number 350 means climate safety: to preserve a liveable planet, and to protect our own and future generations from dangerous climate change, scientists tell us we must reduce the amount of CO₂ in the atmosphere from its current level of 407 parts per million (ppm) to below 350 ppm^{1,2}.

EXECUTIVE SUMMARY

Action on climate change is more urgent than ever. This is clear from the surge in global temperatures over the past two years, the bleaching events that have severely damaged the Great Barrier Reef, and the increasing frequency and severity of natural disasters, including four major cyclone events in Australia since 2011.

The overwhelming climate science consensus is that these changes are due to the level of carbon dioxide in the atmosphere, which now stands at 407 parts per million (ppm), compared to less than 350 ppm just 30 years ago, and that this rapid rise is due to the combustion of fossil fuels in electricity generation, transport and other sectors of the global economy.

We submit that Australia must do its fair share to limit global warming to well below 2°C and preferably no more than 1.5°C, as required under the Paris Agreement, and aim to return carbon in the atmosphere to 350 ppm.

We cite analysis showing that Australia's fair share of the world's remaining carbon budget to limit warming to 1.5°C is 2.5 Gigatons of CO₂ from 2015. At the current rate of emissions, this budget will be exhausted by 2021. The need for urgent action is obvious.

The Discussion Paper sets out the Government's eight current emission reduction policies but it makes no attempt to assess their effectiveness. That Australia's emissions have risen since July 2014 and climate impacts are intensifying is evidence that these policies fall well short of an effective response to the climate imperative.

The Government's targets are consistent with a global warming outcome well above 2°C and its policies, in the view of independent experts, will be unable to achieve even these inadequate targets. Our submission provides an analysis of the shortcomings of all eight policies. We contrast Australia's performance, and its policies, with those of the United Kingdom, which has a robust carbon tax and an objective of closing all coal power stations by 2025. The UK's emissions are now at their lowest level since 1894, and 36% below the reference year of 1990. By contrast, Australia's emissions have fallen by less than 4% since 1990.

¹ James Hansen et al. Assessing dangerous climate change. <http://journals.plos.org/plosone/article?id=10.1371/journal.pone.0081648>

² James Hansen et al. Target atmospheric CO₂: where should humanity aim? <https://arxiv.org/abs/0804.1126>

We recommend additional policy measures that would provide more effective reduction outcomes for each of the sectors addressed in the discussion paper.

In relation to electricity generation, we argue that the need to reduce emissions is paramount, while recognising that Australia must also maintain stability and affordability.

Australia is currently powered by highly emissions-intensive electricity, as coal still plays a major role. With no carbon price and no plan for the retirement of Australia's coal-fired power stations, it is not surprising that the Interim Report of the Finkel Review stated: "current policy settings do not provide a clear pathway to the level of reduction required to meet Australia's Paris commitments".

We urge a more balanced national electricity objective, with a climate objective linked to the Paris Agreement goal. We urge the Government to adopt a vision in which, by 2030, the Australian electricity generation system has no fossil fuel generators, but only renewable sources and storage (and balancing) facilities.

For this reason, we urge the Government to establish a clear policy framework that would ensure the orderly retirement of all major coal power stations by no later than 2030. This framework should include consultation with affected communities, workers and their unions to develop a transition plan to support those affected. Similarly, we advocate a clear plan for the closure of existing thermal coal mines, and an end to the use of public funds to support fossil fuel projects.

We cite research showing that a goal of 100% renewable electricity is both achievable and affordable.

The Discussion Paper also sought comments on opportunities for improving the efficiency of energy consumption in households and businesses. While appreciating the existence of the National Energy Productivity Plan (NEPP), we cite the views of experts that the NEPP target is not ambitious enough, lacks funding to support the transition to more efficient technologies, and could benefit from stronger leadership.

We draw attention to the need for a strategy to transition away from the use of gas and oil for space heating, including incentives for consumers to switch to renewable-sourced electricity.

We urge the Department of Industry, Innovation and Science to examine policy mechanisms to reduce emissions from heavy industry as part of an industry innovation program.

Noting the methane emissions which arise when organic waste is sent to landfill, we urge the Department of Environment and Energy, and its state counterparts, to identify examples of world best practice in this area, with California's "75 Percent Initiative" being one candidate.

In relation to transport, we draw attention to our earlier submission made to the Ministerial Forum on Vehicle Emissions, in which we noted the opportunities to:

- introduce strong fuel efficiency standards to reduce emissions from petrol vehicles;
- create incentives for the take-up of plug-in electric vehicles; and
- further reduce emissions by taking advantage of new modes of vehicle sharing as autonomous vehicles become a reality.

In relation to aviation, we note that technological changes to reduce emissions will occur slowly, and conclude that carbon offsetting is the only available option in the short term. We propose that a mandatory Carbon Offset charge be imposed on domestic air travel at a level sufficient to offset Australia's 8 Mt of domestic aviation emissions, and suggest that these funds be allocated to ARENA for the delivery of new renewable energy facilities.

In discussing land and agriculture, we note that the Government has spent around \$670 million buying permits to stop land clearing emissions, whilst state governments are issuing more permits, so that Queensland alone will have negated the Federal spending in just 18 months of land clearing. We urge state and territory governments to strengthen and enforce their land clearing regulations, to terminate the logging of all old growth and high conservation value native forest, and to ensure the revegetation of some cleared land, as recommended by the Zero Carbon Australia plan.

We note the significant methane emissions created by enteric fermentation in cattle, and we urge the continued funding of research into livestock feeds that promise to reduce such emissions. We also note the opportunity of encouraging graziers to modify livestock feeds based on this research.

In relation to climate research more broadly, we urge the Government to ensure that the current level of funding is at least maintained.

The Discussion Paper asked for comment on the use of International Units for carbon offsetting. We urge the Government to avoid the use of such units unless there are no practicable avenues for domestic action to reduce emissions in particular sectors.

LIST OF RECOMMENDATIONS

Australia's Emissions Reduction Policies

[1] As current climate change policies are not achieving the emission reductions required for Australia to meet our Paris Agreement goal, the Government should strengthen these policies and add a new toolkit of policies

[1a] That, should the Government decide to retain the Emissions Reduction Fund as the centrepiece of its climate policy, it publish an objective analysis of the cost to the taxpayer of meeting the Government's targets over the period 2017/18 to 2029/2030

[1b] That, should the Safeguard Mechanism continue to be a component of the Government's climate policy, its baselines be adjusted so that they actually compel emissions reductions

[1c] That the National Carbon Offset Standard and the Carbon Neutral Program be re-designed so that voluntary emissions reduction initiatives do not create room for other parties to increase their emissions

[1d] That the Government develop a climate change strategy for Australia's international aid program, taking account of the needs of our region and the need to build community resilience

[1e] That, in the light of the experience of other countries, including the United Kingdom, the Government explain the rationale for its stated position that an economy-wide carbon price signal would seriously damage the Australian economy

Australia's Paris Target

[2] Australia's emission reduction targets should be strengthened to align with a goal of reducing carbon in the atmosphere to 350 ppm, and at least with the Paris Agreement goal of limiting warming to well below 2 degrees.

[2a] That the Government adopt an approach that provides emission reductions in line with a fair share of the remaining global carbon budget, to restrict global warming to well under 2C

[2b] That the Government join with the states and territories in developing a national plan for Australia to achieve Zero Net Emissions by 2040 at the latest

[3] In setting emission reduction goals and climate policies, additional factors should be considered including:

- the most effective and efficient ways to achieve outcomes,
- that households are not disadvantaged,
- the rights of first nations people should be respected and the native title legal framework and the broader legal system should be reformed to ensure Traditional Owners have the power to reject harmful projects on their country and are supported to meaningfully decide what happens on their land,

[4] That the Government develops policy that rapidly ends fossil fuel exports

[5] In implementing Australia's Paris commitment to review targets, any review process should include analysis of whether policy has actually been effective in achieving outcomes and reducing emissions, and targets should be reviewed with respect to the remaining carbon budget to limit warming to 1.5 degrees and Australia's fair share of that target

Electricity Generation

[6] That the Government review the National Electricity Objective so that it includes a climate objective linked to our Paris Agreement goal

[7] That the Government embrace a vision and plan for the Australian electricity system to have no fossil fuel generation by 2030

[8] That the Government phase out existing fossil fuel subsidies, as recommended internationally, and ensure that externalities are accounted for by fossil fuel projects and services

[9] The Government should establish a framework to ensure the orderly and incremental retirement of all major Australian coal power stations by 2030

[9a] The Government should develop a transition plan for workers and communities to move beyond fossil fuel centric economies to cleaner alternatives.

Households, SMEs and the Built Environment

[10] That the COAG Energy Council convene a summit of relevant experts and organisations to review the National Energy Productivity Plan, to identify measures that would strengthen it, and to recommend priorities for action

[11] That the Government join with state and territory governments in developing a strategy to transition from the use of gas and oil for space heating, including incentives for consumers to switch to renewable-sourced electricity

Resources, Manufacturing and Waste

[12] That the Department of Industry, Innovation and Science examine policy mechanisms to reduce emissions from heavy industry as part of an industry innovation program

[13] That the Department of Environment and Energy, and its state counterparts, identify and publicise examples of world best practice in waste management, including strategies for reducing organic waste going to landfill

Transport

[14] That the Ministerial Forum on Vehicle Emissions

- set a target date to achieve zero emissions from passenger vehicles;
- set an initial legislated fuel efficiency standard of 105g/km of carbon emissions to be achieved by 2022;
- aim to align with the EU fuel efficiency standard by 2026;
- develop a national roadmap for the take-up of plug-in electric vehicles (EVs);
- encourage state and territory governments to implement a uniform, time-limited incentive for the purchase of EVs in their jurisdictions; and
- encourage state and territory governments to monitor developments in autonomous vehicles and to ensure that their traffic regulations do not inhibit trials of autonomous vehicles on Australian roads.

[15] That, given the absence of an economy-wide carbon price signal, the Government legislate for a mandatory Carbon Offset charge on domestic aviation travel, and allocate the funds raised from this charge to ARENA, to fund the development of additional renewable energy facilities.

[16] That Australia work within the International Civil Aviation Organization to actively support the introduction of a mandatory global carbon offset scheme for international air travel.

Land and Agriculture

[17] That Federal, state and territory governments

- strengthen and enforce their land clearing regulations in order to reduce the substantial emissions caused by clearing;
- ensure that the logging of all old growth and high conservation value native forest be terminated;
- exclude the burning of native forests from the renewable energy target; develop a strategy to abate greenhouse gases in natural landscapes, and to ensure biodiversity conservation; and
- act to ensure the revegetation of at least 13% of cleared land.

[18] That the Government ensure the continued funding of research into livestock feeds that will reduce emissions caused by enteric fermentation; and examine methods of encouraging graziers to modify livestock feeds based on this research.

Research, Development, Innovation and Technology

[19] That the Government ensure that the level of funding for climate research is maintained

International Units

[20] That the Government should avoid the use of International Units to offset Australia's emissions unless there are no practicable avenues for domestic action to reduce emissions in particular sectors.

THE CLIMATE IMPERATIVE

As climate change impacts intensify, the window in which to reduce carbon emissions and prevent further devastating impacts narrows. We submit that Australia must do its fair share to limit global warming to 1.5°C and return atmospheric carbon to a safe level of 350 ppm³. This will require a robust response across all of the sectors set out in the Discussion Paper.

The need for urgent climate action has never been clearer. The Bureau of Meteorology has documented the extreme heat experienced in southeast Australia during summer 2016–17, which included the highest recorded monthly temperatures for Sydney and Brisbane⁴. In Sydney, which saw its hottest summer (for both days and nights) ever recorded, temperatures were 2.8°C above the long term average⁵.

The surge in global temperatures during the past two years⁶ has already generated serious consequences for Australia, such as the massive bleaching events over successive summers that have damaged the northern half of the Great Barrier Reef. Experts fear that the Reef may never recover⁷. There has been an increase in the frequency and severity of natural disasters, with Cyclone Debbie (March 2017) providing another major example following Cyclone Yasi in 2011, Cyclone Oswald in 2013 and Cyclone Marcia in 2015⁸. According to the Asian Development Bank, “in the last 4 decades the frequency of natural disasters recorded in the Emergency Events Database has increased almost three-fold”⁹.

To add to these impacts, many health professionals have drawn attention to the serious health threats resulting from climate change¹⁰.

Even prior to these clear signals of climate change, the Climate Council reported¹¹ that:

- It is beyond doubt that human activities, primarily the emission of greenhouse gases from the combustion of fossil fuels, are driving the dramatic changes of the climate system;
- Climate change is increasing the frequency and severity of extreme weather events, including heatwaves and extreme bushfire conditions; and

³ James Hansen et al. Target atmospheric CO₂: where should humanity aim?

⁴ Bureau of Meteorology. Special climate statement 61 - exceptional heat in Southeast Australia in early 2017. 24 February 2017.

<http://www.bom.gov.au/climate/current/statements/scs61.pdf>

⁵ Bureau of Meteorology. Sydney in summer 2016-17: Warmest summer on record.

<http://www.bom.gov.au/climate/current/season/nsw/sydney.shtml>

⁶ Andrea Thompson. Streak of record hot temps adds another month. Climate Central, 20 September 2016.

<http://www.climatecentral.org/news/record-hot-temps-another-month-2015>

⁷ Peter Hannam. Sad truth: Great Barrier Reef may never rebound to previous health: scientists. Sydney Morning Herald, 30 May 2016.

<http://www.smh.com.au/environment/climate-change/sad-truth-great-barrier-reef-may-never-rebound-to-previous-health-scientists-20160530-gp76wl.html>

⁸ How will Cyclone Debbie compare to Australia's worst cyclones in history?

<http://www.australiangeographic.com.au/topics/science-environment/2017/03/how-will-cyclone-debbie-compare-to-australias-worst-cyclones-in-history>

⁹ Asian Development Bank. Global increase in climate-related disasters.

<https://www.adb.org/sites/default/files/publication/176899/ewp-466.pdf>

¹⁰ Climate Council. The silent killer: climate change and the health impacts of extreme heat.

<https://www.climatecouncil.org.au/silentkillerreport>

¹¹ Climate Council. Climate change 2015: growing risks, critical choices.

<https://www.climatecouncil.org.au/climate-change-2015-growing-risks-critical-choices>

- Hot days have doubled in the last 50 years, while heatwaves have become hotter, more long-lasting and more frequent.

This analysis is supported by multiple lines of evidence and thousands of research sources¹², as summarised by the Intergovernmental Panel on Climate Change (IPCC)¹³.

To protect our climate, fossil fuel emissions must be urgently constrained. This conclusion flows from the landmark paper by leading climate scientist James Hansen and his colleagues, who state: “continuation of high fossil fuel emissions, given current knowledge of the consequences, would be an act of extraordinary witting intergenerational injustice.”

Indeed, the Paris Agreement, ratified by 130 countries including Australia, commits to:

- an overarching goal to hold global average temperature increase to well below 2 degrees and pursue efforts to keep warming below 1.5 degrees above pre-industrial levels
- aim to reach global peaking of greenhouse gas emissions as soon as possible and rapid reductions thereafter to achieve a balance between emissions and removals of greenhouse gases in the second half of this century.¹⁴

The strong advice from scientists and other experts is that policies should aim to reduce emissions to zero as soon as possible, and then draw carbon out of the atmosphere¹⁵.

In fact, to have just a 50% chance of staying within the aspirational Paris guardrail of 1.5°C of warming, the world can emit only 353 Gt of CO₂ from now on. The carbon reserves in currently operating coalfields and oil wells total 942 Gt¹⁶. This mathematical reality underscores our position that we cannot embark on new fossil fuel projects, and certainly not Adani’s proposed Carmichael coal mine in Queensland.

To preserve a safe climate long term, scientists tell us we must do even more, and reduce the amount of CO₂ in the atmosphere to below 350 ppm¹⁷ from its current level of 407. The longer we wait, the harder it gets¹⁸.

AUSTRALIA’S EMISSIONS REDUCTION POLICIES

(Discussion Paper, pages 5-7)

The Discussion Paper sets out the Government’s current eight emissions reduction policies but makes no attempt to assess their effectiveness - it merely lists them. It makes no attempt to demonstrate how these policies will achieve Australia’s Paris targets, weak as these targets are.

We will cite evidence to demonstrate that these policies are falling well short of what is needed to drive down emissions and to respond effectively to the climate imperative set out

¹² IPCC Factsheet: What literature does the IPCC assess?

https://www.ipcc.ch/news_and_events/docs/factsheets/FS_ipcc_assess.pdf

¹³ Intergovernmental Panel on Climate Change. Fifth Assessment report (AR5). <https://www.ipcc.ch/report/ar5/>

¹⁴ United Nations Framework Convention on Climate Change. The Paris Agreement.

http://unfccc.int/paris_agreement/items/9485.php

¹⁵ Intergovernmental Panel on Climate Change. Climate change 2014. Synthesis report, page 101.

<https://www.ipcc.ch/report/ar5/syr/>

¹⁶ Bill McKibben. Recalculating the climate math. New Republic, 22 September 2016.

<https://newrepublic.com/article/136987/recalculating-climate-math>

¹⁷ James Hansen et al. Target atmospheric CO₂: where should humanity aim? <https://arxiv.org/abs/0804.1126>

¹⁸ David Roberts. The ludicrous gulf between our climate change goals and reality, in one chart.

<https://www.vox.com/2016/8/18/12520344/climate-change-goals-reality-one-chart>

above. We also provide an example of where climate policy has been effective in reducing emissions.

In our view, the policy responses of the Australian Government are extraordinarily complacent and perfunctory. To begin with, the Government has adopted a set of targets (in the context of the Paris Agreement) which are consistent with a global warming outcome of 3.5°C. As Climate Action Tracker noted “if most other countries were to follow the Australian approach, global warming would exceed 3-4°C”¹⁹. The Government appears entirely unconcerned about this, despite it running contrary to the Paris Agreement goals.

Furthermore, Australia’s emissions have continued to rise steadily since July 2014²⁰. Data released under the National Greenhouse & Energy Reporting (NGER) Scheme²¹ shows that greenhouse emissions in Australia increased by 3.4% during the past year and by 7.5% since the carbon price was repealed in July 2014²².

Recommendation: As current climate change policies are not achieving the emission reductions required for Australia to meet our Paris Agreement goal, the Government should strengthen these policies and add a new toolkit of policies.

Emissions Reduction Fund

The Emissions Reduction Fund (ERF) is the Government’s primary mechanism to drive emission reductions. The Climate Institute analysed the ERF, and concluded that “the ERF cannot meet reductions consistent with Australia’s fair share of the 2°C limit. Nor can the ERF achieve the government’s inadequate 2030 emission reduction target of a 26-28 per cent reduction below 2005 levels”²³. It found that the ERF will be able to purchase just 3% of Australia’s projected emissions during the period 2015-2030. Among the further weaknesses identified by the Climate Institute were “reliance on federal funding and exposure to annual budget risks; lack of broad incentives to reduce emissions; and transfer of responsibility for reducing emissions from polluters to taxpayers”.

Even industry representatives such as the Energy Supply Association have criticised both the targets and the mechanism, commenting that “we won’t be able to buy our way to 26-28% and beyond”²⁴. Reputex questioned whether the ERF would be effective in delivering Australia’s 2020 target of a 5% emissions reduction, saying “at this point we think the Emissions Reduction Fund falls short of achieving that [2020] emissions reduction target, and falls short by quite some way”²⁵.

¹⁹ Carbon Action Tracker. Australia. <http://climateactiontracker.org/countries/australia.html>

²⁰ Australia’s greenhouse gas emissions rising, Government figures show. ABC news, 23 December 2016. <http://www.abc.net.au/news/2016-12-22/australia-greenhouse-gas-emissions-increasing-environment-report/8143110#report1>

²¹ 2015–16 national greenhouse and energy information is now available <http://www.cleanenergyregulator.gov.au/NGER/Pages/News%20and%20updates/NewsItem.aspx?ListId=19b4efbb-6f5d-4637-94c4-121c1f96fcfe&ItemId=352>

²² Matthew Rose and Suzanne Harter. Renew Economy, 1 March 2017. <http://reneweconomy.com.au/climate-pollution-rising-turnbull-frydenberg-failing-15377/>

²³ Climate Institute. Policy brief, November 2015: How much can the Emission Reduction Fund really achieve? <http://www.climateinstitute.org.au/verve/resources/ERF-PolicyBrief-WEB.pdf>

²⁴ Australia’s emissions target criticised by industry as not credible. Sydney Morning Herald, 11 August 2015. <http://www.smh.com.au/business/energy/emissions-target-criticised-by-industry-as-not-credible-20150811-giwbry.html>

²⁵ ABC news. Direct Action: Government’s \$2B carbon scheme likely to fall short as first auctions approach, analysts say. <http://www.abc.net.au/news/2015-04-12/analysts-say-direct-action-auction-is-likely-to-fall-short/6383822>

The Australian Industry Group said that “if the Emissions Reduction Fund was the sole method used to reach the target, this would cost between \$100 billion and \$250 billion in nominal terms in the decade to 2030”²⁶.

Recommendation 1a: That, should the Government decide to retain the Emissions Reduction Fund as the centrepiece of its climate policy, it publish an objective analysis of the cost to the taxpayer of meeting the Government’s targets over the period 2017/18 to 2029/2030

Safeguard mechanism

The Safeguard Mechanism is supposed to ensure that emissions reductions under the ERF are not offset by increases elsewhere. However, an analysis undertaken by Reputex concluded that “with minimal compliance obligations on companies, we project emissions covered by the safeguard scheme will grow by around 20 per cent through to 2030”²⁷.

In his preliminary report on the Future Security of the National Electricity Market, Dr Alan Finkel highlighted that “the electricity sector’s baseline under the Safeguard Mechanism is set ... well above the current level of emissions from the sector”²⁸.

We can only conclude from the extraordinarily lax baselines set under the Safeguard Mechanism that the Government is not serious about driving down greenhouse gas emissions.

Recommendation 1b: That, should the Safeguard Mechanism continue to be a component of the Government’s climate policy, its baselines be adjusted so that they actually compel emissions reductions

Renewable Energy Target

The Discussion Paper notes that the Renewable Energy Target is intended to provide a financial incentive for investment in new renewable energy projects.

In our view, Government encouragement for such investment is an essential part of climate change policy. We draw a distinction between delivering this encouragement through subsidies and delivering it through Government leadership in creating a pathway to Zero Net Emissions. We note the recent report by Reputex which found that the rising price of gas, coupled with the falling cost of energy storage, has now made renewable energy the cheapest form of reliable electricity supply in Australia²⁹. But we also assert that the renewable energy goals of state and territory governments have an important role to play in maintaining investor confidence in the renewable energy industry.

The Australian Capital Territory has demonstrated what can be achieved with its strong goal of 100% renewable electricity by 2020. The Territory is on track to achieve this goal, which is supported by all sides of politics in the ACT Legislative Assembly. It has secured \$400M in

²⁶ Climate experts warn Government will spend billions to meet pollution cuts pledge. Sydney Morning Herald, 20 August 2015. <http://www.smh.com.au/federal-politics/political-news/climate-experts-warn-government-will-spend-billions-to-meet-pollution-cuts-pledge-20150811-qiw5z.html>

²⁷ Reputex. Analyst update: Safeguard leniency to dilute ACCU demand. <http://www.reputex.com/research-insights/analyst-update-safeguard-leniency-to-dilute-accu-compliance-demand/>

²⁸ Independent Review into the Future Security of the National Electricity Market. Preliminary report, December 2016. Pages 20-21. <http://www.environment.gov.au/energy/publications/energy-market-preliminary-report>

²⁹ Reputex media release, 8 March 2017. <http://www.reputex.com/media-releases/rising-gas-price-falling-storage-costs-makes-renewables-cheapest-for-reliable-power-in-australia/>

local investment, and has still seen the ACT with the lowest electricity prices in Australia³⁰. We recommend that the Federal Government, instead of criticising states and territories which have such strong goals, should welcome those goals as a means of delivering national emission outcomes, and as a means of strengthening investment, employment and growth in the renewable energy sector.

National Energy Productivity Plan (NEPP)

We comment on this policy in the section “Households, SMEs and the Built Environment”.

Clean energy innovation: ARENA, CEFC, etc.

In March 2016 the Federal Government substantially reduced the funding of the Australian Renewable Energy Agency, under the guise of establishing a new “Clean Energy Innovation Fund”. The latter was funded by re-allocating money already allocated to the CEFC, reducing the overall funds by more than \$1.3 billion.

According to the former chair of ARENA (Greg Bourne) these Government’s actions could see Australian innovation (and its associated economic activity, including jobs) move overseas in conflict with the Government’s aspirations for Australian innovation³¹.

National Carbon Offset Standard and the Carbon Neutral Program

The Carbon Neutral Program (CNP) and the National Carbon Offset Standard (NCOS) have the potential to encourage and recognise voluntary emissions reduction initiatives. However, these programs are not well designed to deliver strong outcomes.

We endorse the comments by Alan Pears AM in his submission to the 2015 review of these programs³². He pointed out that these programs do not ensure “additionality” is achieved. In practice “the vast majority of voluntary abatement is not just ignored, but actually creates more room under the fixed 2020 emission cap for others to emit more”. He added that “voluntary action under NCOS and the CNP ... is meant to provide a mechanism for Australian individuals and organisations to ‘make a difference’ to global emissions. We need a method to ensure this outcome is achieved.”

Recommendation 1c: That the National Carbon Offset Standard and the Carbon Neutral Program be re-designed so that voluntary emissions reduction initiatives do not create room for other parties to increase their emissions

Solar Communities

The Solar Communities program provides a mere \$5 million in grant funding for community groups in selected regions across Australia to install rooftop solar PV, solar hot water and solar-connected battery systems. This program could be effective if it were scaled up as part of a national plan to achieve 100% renewable energy by 2030. As it stands, it appears to have little significance beyond appealing to particular marginal electorates.

³⁰ Giles Parkinson. ACT lifts 2020 target to 100% renewable energy as Australia stalls. <http://reneweconomy.com.au/act-lifts-2020-target-to-100-renewable-energy-as-australia-stalls-86177/>

³¹ Giles Parkinson. Ex ARENA chair says Turnbull risks pushing clean energy innovation overseas. <http://reneweconomy.com.au/ex-arena-chair-says-turnbull-risks-pushing-clean-energy-innovation-overseas-33494/>

³² Review of the National Carbon Offset Standard, 2015. Submission by RMIT University (Alan Pears). <http://www.environment.gov.au/climate-change/carbon-neutral/ncos/review>

Australia's international climate policies

The Discussion Paper notes that “Australia plays a leading role in global efforts to reduce emissions”. It was welcome that Australia pledged \$200M to the Green Climate Fund, but in our view Australia, as a developed and wealthy nation, could have done more to support less wealthy nations to transition to renewable energy and adapt to a rapidly changing climate. Australia should strengthen this leadership and contribute its fair share, which research suggests is 2.4% of the global commitment³³. We also note that in 2010, developed countries committed to mobilise US\$100 billion a year to be invested in developing countries by 2020.

For example, Bamsey and Jotzo have suggested that Australia could assist Indonesia to prevent forest fires and provide greater targeted assistance to Pacific Island countries³⁴.

We urge the Government to develop a comprehensive climate change strategy for Australia's aid program, with an emphasis on building community resilience and supporting the adoption of renewable energy technologies and strategies in our region.

Recommendation 1d: That the Government develop a climate change strategy for Australia's international aid program, taking account of the needs of our region and the need to build community resilience

An example of a better emissions reduction outcome

The policies in place to reduce Australia's emissions are not working, but there are examples around the world where policy is working to reduce emissions. If the Government wished to benchmark Australia's emissions reduction outcome against that of more successful countries, it could consider the United Kingdom. In 2016, the UK's carbon dioxide emissions fell by 6%, bringing them to the lowest level since 1894, and 36% below the reference year of 1990³⁵. By contrast, Australia's emissions have fallen by less than 4% since 1990 (see the chart below)³⁶.

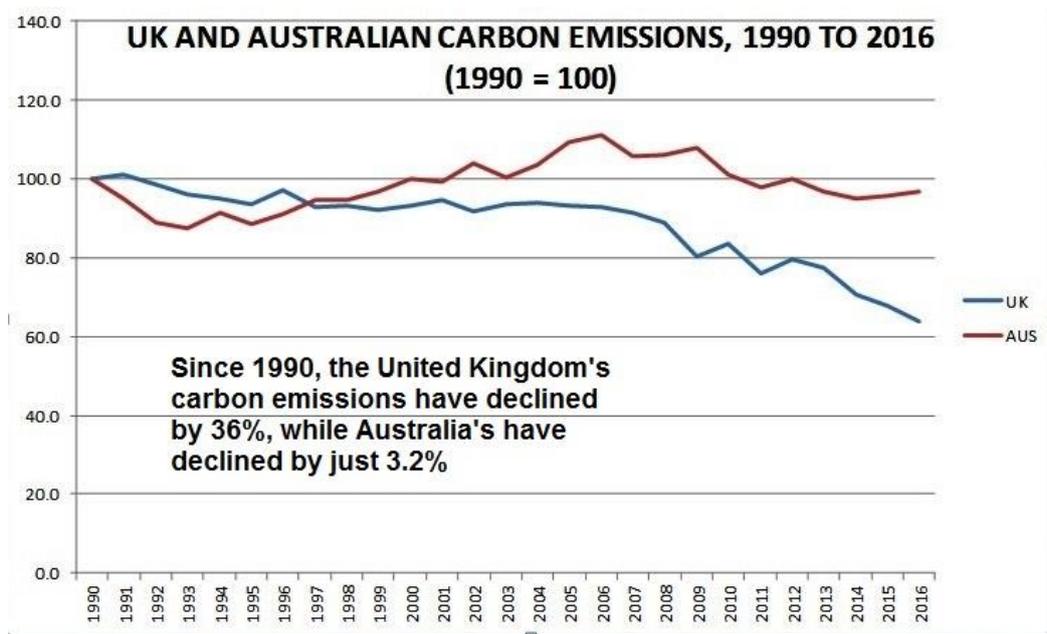
³³ Frank Jotzo et al. Fulfilling Australia's international climate finance commitments. <http://ccep.anu.edu.au/data/2011/pdf/wpapers/CCEP1115Jotzo.pdf>

³⁴ Finance for developing countries will help Australia in climate talks. The Conversation, 17 November 2015. <https://theconversation.com/finance-for-developing-countries-will-help-australia-in-climate-talks-50701>

³⁵ UK's CO₂ emissions lowest since 19th century as coal use falls. New Scientist, 6 March 2017.

<https://www.newscientist.com/article/2123593-uks-co2-emissions-lowest-since-19th-century-as-coal-use-falls/>

³⁶ The data sources for this chart were (a) the UK greenhouse gas emissions national statistics data tables 1990 to 2015; (b) media articles on UK 2016 emissions; (c) the Australian Greenhouse Emissions Information System; and (d) Australia's emissions projections 2016.



The reasons for the UK's far superior outcome included the strong UK carbon price, the displacement of coal by gas (due in part to the carbon price), the UK policy of coal power station retirement, the general fall in energy demand (due to improved energy productivity) and the expansion of renewable energy³⁷.

The UK has a carbon tax of £18 per tonne, called the Carbon Price Floor, which was introduced in 2013³⁸. Since its introduction, the UK has achieved an average quarterly GDP growth of 0.75% (ie 3.3% per year)³⁹ so the carbon tax does not appear to have damaged (let alone "clobbered"⁴⁰) the UK economy.

Another factor contributing to the UK's more successful outcome is its coal retirement policy. In November 2016, the UK Dept. for Business, Energy and Industrial Strategy announced a policy of phasing out all coal power stations in the UK by 2025⁴¹. On 21 April 2017 the UK went a full day without using coal to generate electricity for the first time in 135 years⁴².

In addition, the sales of plug-in electric vehicles are growing strongly in the UK, partly in response to purchase incentives⁴³.

³⁷ Financial Times (UK). UK carbon emissions fall to late 19th century levels. <https://www.ft.com/content/2bc62cb8-004f-11e7-8d8e-a5e3738f9ae4>

³⁸ House of Commons Library. Research briefing: Carbon price floor.

<http://researchbriefings.parliament.uk/ResearchBriefing/Summary/SN05927>

³⁹ UK Office for National Statistics. Gross Domestic Product, quarter on quarter.

<https://www.ons.gov.uk/economy/grossdomesticproductgdp/timeseries/ihyq/pgdp>

⁴⁰ David Holmes. "Clobbered": does Tony Abbott care about Australia's international standing on climate action? The Conversation, 12 June 2014. <https://theconversation.com/clobbered-does-abbott-care-about-australias-international-standing-on-climate-action-27934>

⁴¹ Carbon Brief, 9 November 2016. UK plans to close last coal plant by 2025. <https://www.carbonbrief.org/uk-plans-to-close-last-coal-plant-by-2025>

⁴² BBC news. First coal-free day in Britain since Industrial Revolution. <http://www.bbc.com/news/uk-39675418>

⁴³ Plug-in electric vehicles in the United Kingdom (Wikipedia article). https://en.wikipedia.org/wiki/Plug-in_electric_vehicles_in_the_United_Kingdom#cite_note-Global2mi-8

Recommendation 1e: That, in the light of the experience of other countries, including the United Kingdom, the Government explain the rationale for its stated position that an economy-wide carbon price signal would seriously damage the Australian economy

What effective policy options exist?

In the light of the UK's experience, we submit that the following measures would provide more effective emissions reduction outcomes:

- A strong carbon price signal - one which impacts all of the sectors addressed by the Discussion Paper, not just electricity
- A national plan, administered by an empowered Federal agency in partnership with the states and territories, to reach Zero Net Emissions by 2040 at the latest
- Reforming of the National Energy Market, National Energy Objective, and Australian Energy Market Operator to include a climate imperative and appropriate regulation for the transition to 100% renewables
- This plan to include the phase-out of all coal power stations in the 2020s
- A more ambitious National Energy Productivity Plan, with a goal of doubling productivity by 2030
- Elimination of all fossil fuel subsidies
- A moratorium on all new coal, oil and gas projects
- Measures, in collaboration with the states and territories, to reduce vehicle emissions, including incentives for the take-up of electric vehicles
- A mandatory Carbon Offset charge for domestic air travel (In the absence of an economy-wide carbon price)
- Stronger regulation of land clearing.

We shall elaborate on these proposals in subsequent sections.

AUSTRALIA'S PARIS TARGET

(Discussion Paper, pages 8-9)

The Discussion Paper notes that the Paris Agreement has an overarching goal of holding the global average temperature increase to *well below 2* degrees and to pursue efforts to keep warming under 1.5 degrees below pre-industrial levels.

Although the window to keep warming below 1.5 degrees is closing rapidly, 350 Australia strongly urges the Australian Government to take this goal seriously. There are 4.5 million Australians who are under the age of 15 and have a fundamental stake in this outcome. Their needs and rights must be reflected in Federal Government policy.

Research by the Stockholm Environment Institute has demonstrated that Australia's fair share of the world's remaining carbon budget to limit warming to 1.5 degrees is 2.5 Gigatons of CO₂ from 2015. At the current rate of emissions (0.4 Gt from fossil fuel combustion alone) this budget would be exhausted by 2021⁴⁴.

In its report on Australia's targets, the Climate Change Authority suggests that "to move the world closer to a sustainable path towards the 2 degree goal" Australia needs a 30%

⁴⁴ Sivan Kartha, Implications for Australia of a 1.5C Future, Stockholm Environment Institute Working Paper No. 2016-09, https://dbqvwii2zcv14h.cloudfront.net/images/SEI_Report_Final.pdf.

reduction on 2000 emission by 2025, and a 40-60% reduction by 2030⁴⁵.

This statement underscores the inadequacy of Australia's target. The Authority wanted 30% by 2025: the Government's target is not only lower (26-28%) but is five years later and uses a base of 2005 which appears designed to coincide with Australia's emissions peak. The Authority's target was based on the 2 degree goal, but what is needed is a goal of *well below* 2 degrees, with efforts to achieve 1.5 degrees – the language of the Paris Agreement.

Recommendation 2: Australia's emission reduction targets should be strengthened to align with a goal of reducing carbon in the atmosphere to 350 ppm, and at least with the Paris Agreement goal of limiting warming to well below 2 degrees.

Recommendation 2a: That the Government adopt an approach that provides emission reductions in line with a fair share of the remaining global carbon budget, to restrict global warming to well under 2C

Recommendation 2b: That the Government join with the states and territories in developing a national plan for Australia to achieve Zero Net Emissions by 2040 at the latest

Discussion Question: *Australia has committed to considering a potential long-term emissions reduction goal for Australia beyond 2030. What factors should be considered in this process?*

Policy and targets should be informed by the evidence of what is needed, and ambition for what is possible. They should consider the most effective and efficient way to achieve emission reductions, without ruling out options for ideological reasons. Policy should be created that ensures households, especially low income and vulnerable households, are not disadvantaged, so that those with more resources would pay more. Policy should respect the rights of first nations people. Climate change policy, and all policy, should be created to include these factors, while simultaneously aiming for ambitious outcomes based on evidence – these are not opposing forces, but complementary ones. Further, as an issue that affects every aspect of the environment, economy and society, climate change should be a factor in all policy.

Recommendation 3: In setting emission reduction goals and climate policies, additional factors should be considered including:

- the most effective and efficient ways to achieve outcomes,
- that households are not disadvantaged,
- the rights of first nations people should be respected and the native title legal framework and the broader legal system should be reformed to ensure Traditional Owners have the power to reject harmful projects on their country and are supported to meaningfully decide what happens on their land,

Climate policy should specifically consider climate science, including the findings of the IPCC and modelling by climate scientists of emissions reduction targets consistent with getting Australia to Zero Net Emissions by 2040 in order to hold global warming to well under 2 degrees. As such, Australian climate policy should be in keeping with Australia's fair share of the world's remaining carbon budget. (For example, Australia's GDP compared to global

⁴⁵ Climate Change Authority. Final report on Australia's future emissions reduction targets, 2 July 2015. <http://www.climatechangeauthority.gov.au/sites/prod.climatechangeauthority.gov.au/files/Final-report-Australias-future-emissions-reduction-targets.pdf>

GDP). Considering that global warming is a global problem (no country can solve its own climate problem by itself), and considering the risks and opportunities that climate change poses – addressing climate change should be a “race to the top”. In reviewing its emission reduction targets, Australia should compare the targets of all other countries and aim to join the group that is at or near the lead. As the Australian Climate Change Authority (2014) states: “It is clearly in Australia’s interest to persuade and encourage other nations to strengthen their contributions to international action. Australia is likely to be more persuasive and encouraging if its own goals are viewed as a fair contribution by others.”

Although emissions from exported fossil fuels are not counted in Australia’s emissions targets, they are the “elephant in the room” when it comes to tackling dangerous climate change. Emissions from coal exports alone are more than double that of Australia’s domestic emissions. As a wealthy industrialised country, Australia cannot morally justify driving and profiting from this level of climate change. It is already devastating vulnerable and developing countries, particularly our Pacific neighbours. As such, 350 Australia calls for Government policy which rapidly ends fossil fuel exports.

Recommendation 4: That the Government develops policy that rapidly ends fossil fuel exports

We have referenced many sources of evidence in this submission to support significant improvements to Australia’s climate policy, that would address the factors listed above.

Discussion Question: *What process could Australia use to implement its Paris commitment to review targets every five years?*

Any review process should include analysis of whether policy has actually been effective in achieving the target outcomes. For climate change targets and policy, this includes a review of how effective policy has been in reducing emissions. Any review of climate policy should also review targets with respect to the carbon budget remaining to limit warming to 1.5 degrees, and be adjusted accordingly.

Recommendation 5: In implementing Australia’s Paris commitment to review targets, any review process should include analysis of whether policy has actually been effective in achieving outcomes and reducing emissions, and targets should be reviewed with respect to the remaining carbon budget to limit warming to 1.5 degrees and Australia’s fair share of that target

Discussion Question: *What are the issues in the transition to a lower emissions economy with respect to jobs, investment, trade competitiveness, households (including low income and vulnerable households) and regional Australia?*

The idea that the environment is at odds with the economy is a fallacy. Climate change action will benefit the economy and society. This can be illustrated for all the sectors mentioned in the discussion paper.

Australia has the opportunity to be a leader and innovator and to manage and inspire the transition to a better future. Australians want this - for ourselves, our children, and our grandchildren ⁴⁶.

The solutions and technology for a lower emissions economy are available, and provide

⁴⁶ CSIRO. Annual surveys of Australian attitudes to climate change. <https://www.csiro.au/en/Research/LWF/Areas/Social-economic/Climate-change/Climate-attitudes-survey>

many benefits in addition to averting the risks of climate change: cleaner air, better health, less health costs, more energy security with distributed networked grids, lower energy costs, more jobs, cleaner water, and preserved ecosystems⁴⁷.

Key issues that will need to be navigated in the transition include:

- **climate impacts:** avoidance of risks caused by the disruptive effects of climate change (such as spiralling insurance premiums caused by the increased frequency and severity of bushfires, floods, sea level rise, health impacts) and this should take priority
- **job creation:** opportunities for significant job creation in renewables-related industries, while jobs are also lost in certain regions due to decline in fossil fuel industries, a transition which must be fair and planned
- **financial risks:** the growing financial risks posed by climate change, for example the Australian Prudential Regulation Authority warns that climate risks are financial risks which are “foreseeable, material and actionable now”⁴⁸
- **trade competitiveness:** competitiveness in the economy of the future depends on low carbon economies (as evidenced by China’s rapid push to decarbonise)
- **economy-wide impacts:** modelling by The Australia Institute which has shown that Australia’s economy would be barely affected by a moratorium on approval of new coal mines and mine expansions⁴⁹
- **fairness:** low-income and vulnerable populations suffer more from fossil fuel sacrifice zones and costs
- **regional Australia:** regional populations suffer disproportionately more from climate change than metropolitan areas, with agriculture taking a major toll from the climate changes already underway

ELECTRICITY GENERATION

(Discussion Paper, pages 11-13)

Notwithstanding the upsurge in wind and solar generation during the past decade, the electricity sector remains Australia’s largest source of carbon emissions. Most of Australia’s electricity is still produced using coal power stations. This sector should therefore receive priority focus in Australia’s efforts to drive down emissions.

350 Australia has commented on this sector in two previous submissions:

- our submission⁵⁰ to the Senate Inquiry into the Retirement of Coal Fired Power Stations
- our submission⁵¹ to the Finkel review of Energy Security in the National Electricity Market.

We summarise the key points of those submissions below.

The Discussion Paper states (page 11) that “The Government’s approach to energy policy is

⁴⁷ For example, see: International Renewable Energy Agency. Renewable energy benefits: measuring the economics. http://www.irena.org/DocumentDownloads/Publications/IRENA_Measuring-the-Economics_2016.pdf

⁴⁸ Geoff Summerhayes. Australia’s new horizon: climate change challenges and prudential risk. February 2017. <http://www.apra.gov.au/Speeches/Pages/Australias-new-horizon.aspx>

⁴⁹ Australia Institute. A coal moratorium and the Australian economy. <http://www.tai.org.au/content/coal-moratorium-and-australian-economy>

⁵⁰ 350 Australia. Coal retirement submission, November 2016. <http://world.350.org/canberra/coal-retirement-submission-november-2016/>

⁵¹ 350 Australia. Finkel review submission, March 2017. <http://world.350.org/canberra/finkel-review-submission-march-2017/>

to take a technology neutral approach to deliver the trifecta of secure and affordable power as Australia transitions to a lower emissions future.” We doubt this, given that Government Ministers constantly attack renewable energy in their public statements.

In any case, we suggest that the Government’s approach should be to: "achieve the lowest emissions possible, while maintaining stability and affordability".

Discussion Question: *What are the opportunities and challenges of reducing emissions from the electricity sector? Are there any implications for policy?*

Discussion Question: *How can energy and climate policy be better integrated, including the impact of state-based policies on achieving an effective national approach?*

Our summary of recommendations below are in response to these discussion questions.

The National Electricity Market (NEM)

Australia's National Electricity Market (NEM) emissions, at about 800 grams of CO₂ per kilowatt hour of electricity produced, are almost double the OECD average⁵². This figure will need to fall rapidly if Australia is to contribute its fair share towards limiting the global temperature increase.

For the reasons set out above under “The Climate Imperative” we believe that the need to reduce carbon emissions is paramount. To this end, we recommend that the national electricity objective (NEO) include a climate objective, and one linked to the Paris Agreement goal of holding “the global average temperature increase to *well below* 2 degrees and to pursue efforts to keep warming below 1.5 degrees below pre-industrial levels”.

Recommendation 6: That the Government review the National Electricity Objective so that it includes a climate objective linked to our Paris Agreement goal

Even the Interim Report of the Finkel Review stated: "current policy settings do not provide a clear pathway to the level of reduction required to meet Australia's Paris commitments"⁵³

We note that a price on carbon would have allowed the NEM to make market-based decisions aimed at meeting the climate imperative alongside the needs of the various stakeholders. We deplore the fact that this mechanism was taken off the table for political and ideological reasons.

We support the goal of reforming the NEM so that it is more resilient and capable of accommodating new energy sources. We urge the Government to adopt a vision in which, by 2030, the Australian electricity generation system has no fossil fuel generators, but only renewable sources and storage (and balancing) facilities.

Recommendation 7: That the Government embrace a vision and plan for the Australian electricity system to have no fossil fuel generation by 2030

Research indicates that a goal of 100% renewable electricity is both achievable and affordable. Recent research by Professor Andrew Blakers and his colleagues found that a 100% renewable energy electricity grid (a mix of solar PV and wind, backed up by pumped hydro) would be a significantly cheaper future option than a coal or gas-fired network in

⁵² Dylan McConnell. The Conversation, 24 February 2017

<https://theconversation.com/our-power-grid-is-crying-out-for-capacity-but-should-we-open-the-gas-valves-72355>

⁵³ Dr Alan Finkel et al, Independent Review into the Future Security of the National Electricity Market Preliminary Report, December 2016, 23.

Australia, even with integration costs taken into account. In other words, when Australia's coal power stations retire over the next 15 years, it will be cheaper to replace them with renewable energy⁵⁴.

Such a model is also the most affordable option, as demonstrated by several recent reports. One paper found the lowest cost scenarios to be dominated by wind power, with smaller contributions from photovoltaics, solar thermal, hydro and gas turbines⁵⁵. We also note the recent report by Reputex which found that the rising price of gas, coupled with the falling cost of energy storage, has now made renewable energy the cheapest form of reliable baseload electricity supply in Australia⁵⁶.

Renewables are now cheaper than any other new build electricity options, but they are also , rapidly on their way to becoming cheaper than old fossil fuel electricity⁵⁷. This is so even without a price on carbon (or accounting for the externalities that fossil fuels cause) and while fossil fuels are subsidised. To level the playing field even further, we should remove the free ride fossil fuels get. This means ending the subsidisation of fossil fuels, and charging for externalities – the fossil fuel impacts that are currently borne by taxpayers⁵⁸.

Recommendation 8: That the Government ends the subsidisation of fossil fuel projects and charges fossil fuel producers for externalities

Before renewable grid-scale storage facilities are in place, existing gas power stations could play a minimal and short-term role in balancing the intermittency of renewable energy, but we are strongly opposed to the building of any new gas fired power stations because of the volume of emissions, including fugitive methane emissions, which would occur during the lengthy write-off timeframe.

In terms of affordability for consumers, we note that, under the existing NEM rules, companies are deliberately avoiding measures which would lower costs for consumers, in order to maximise their profits. In our Finkel Review submission, we cited two examples to illustrate this, and we asked the Finkel Review to examine how the NEM rules can be changed to ensure that affordability for consumers has priority over increased profitability of the generators.

The Finkel Review's Interim Report noted that the electricity sector's baseline under the present Safeguard Mechanism is set 11% above the current level of emissions from the sector. This is an absurd state of affairs and it should be rectified urgently by reducing the baseline to below the current level of emissions.

Retirement of coal power stations

We have already noted that Australia is powered by highly emissions intensive electricity, as coal still plays a major role.

Now that Hazelwood has closed, there are 23 remaining coal fired power stations in

⁵⁴ Giles Parkinson (summarising research by Andrew Blakers). Renew Economy, 27 February 2017. <http://reneweconomy.com.au/anu-wind-solar-hydro-grid-cheapest-option-australia-87796/>

⁵⁵ Ben Elliston, Iain MacGill and Mark Diesendorf. Least cost 100% renewable electricity scenarios in the Australian National Electricity Market. http://www.ies.unsw.edu.au/sites/all/files/profile_file_attachments/LeastCostElectricityScenariosInPress2013.pdf

⁵⁶ Reputex media release, 8 March 2017.. <http://www.reputex.com/media-releases/rising-gas-price-falling-storage-costs-makes-renewables-cheapest-for-reliable-power-in-australia/>

⁵⁷ The Climate Council. State of Solar 2016 Report. <https://www.climatecouncil.org.au/solar-report>

⁵⁸ International Monetary Fund, IMF Survey: Counting the Cost of Energy Subsidies. <http://www.imf.org/external/pubs/ft/survey/so/2015/NEW070215A.htm>

Australia. Seven of these⁵⁹ are due to retire by 2025. Of those scheduled to retire after 2025, eight⁶⁰ have emissions greater than 1000 tons/hr and should be priority candidates for early closure⁶¹.

Our key recommendations are:

- That the Federal Government establish a clear policy framework that would ensure the orderly and incremental retirement of all major coal power stations by 2030
- That there be proper rehabilitation of all affected sites, with power station owners held responsible for funding full rehabilitation costs.
- That the Federal and state governments consult with affected communities, workers and their unions to develop principles for a just transition, and look for best practice methods of supporting workers and communities during the transition
- Develop a clear plan and timeline for the closure of existing thermal coal mines, including adequately resourced transition plans to stimulate diversified, low-pollution economies with opportunities for impacted communities and workers. Gas and oil mines should also be phased out over time in accordance with reaching the 1.5 degrees goal.
- Halt the use of public funds (including all grants, concessional loans, direct investments, tax concessions and other subsidies) that support fossil fuel projects, while providing appropriate transitional arrangements for affected small businesses.

Recommendation 9: The Government should establish a framework to ensure the orderly and incremental retirement of all major Australian coal power stations by 2030

Discussion Question: *Are there particular concerns or opportunities with respect to jobs, investment, trade competitiveness, households and regional Australia that should be considered when reducing emissions in the electricity sector?*

Jobs

The renewable energy sector will employ more people than fossil fuels⁶². Renewable energy jobs don't pose the risks that fossil fuel jobs do⁶³. Australia should develop a transition plan for workers and communities to move beyond fossil fuel centric economies to cleaner alternatives.

Recommendation 9a: The Government should develop a transition plan for workers and communities to move beyond fossil fuel centric economies to cleaner alternatives.

Investment

Global investment is shifting from fossil fuels to renewables: "We see a broad shift of spending toward cleaner energy, often as a result of government policies," said IEA Executive Director Fatih Birol⁶⁴. "Our report clearly shows that such government measures

⁵⁹ Liddell, Yallourn W, Swanbank E, Muja A to D

⁶⁰ In order of emission volumes, these are: Loy Yang A, Bayswater, Eraring, Gladstone, Stanwell, Mt. Piper, Vales Point and Loy Yang B.

⁶¹ 350 Australia. Submission to the Senate Inquiry into the Retirement of Coal Fired Power Stations. Appendixes A and B.

⁶² The Climate Council, Renewables Report. <https://www.climatecouncil.org.au/renewablesreport>

⁶³ Union of Concerned Scientists, Hidden Costs of Fossil <http://www.ucsusa.org/clean-energy/coal-and-other-fossil-fuels/hidden-cost-of-fossils#.WQAPzFOGNqc>

⁶⁴ International Energy Agency, World Energy Investment 2016. <https://www.iea.org/newsroom/news/2016/september/world-energy-investment-2016.html>

can work, and are key to a successful energy transition. But while some progress has been achieved, investors need clarity and certainty from policy makers. Governments must not only maintain but heighten their commitment to achieve energy security and climate goals.”

Trade Competitiveness

Australia has a comparative advantage to be trade competitive as a renewable energy superpower. As countries shift from fossil fuels to renewables a huge opportunity exists to supply renewable solutions, but this window will close as the replacement of fossil fuels with renewables nears completion⁶⁵. To benefit from the energy transition, businesses and nations must invest in this wave of change, and Australia is well placed with plentiful access to renewable energy resources.

Households

Households will benefit from the lower cost of renewables, and increased security that renewables can provide through distributed networks and microgrids. Australians will benefit from the safer jobs, and from the environmental and health benefits of cleaner air and water. These benefits will also flow to vulnerable and low income households. However policy should explicitly ensure that these households are not further disadvantaged, particularly as people experiencing disadvantage will be first and worst impacted by climate change⁶⁶ – another reason why effective climate change policy is necessary and provides many co-benefits.

Regional Australia

Rural and regional areas receive a high proportion, 30-40%, of the investment in renewables, and these projects bring jobs to the area and offer farmers additional revenue streams⁶⁷. The transition to clean energy will also reduce the health burden of burning fossil fuels, which is primarily borne by rural and regional areas. Renewables can also provide more distributed and therefore reliable energy, with lower costs for rural and remote communities, who traditionally pay much higher prices than their urban counterparts. Further, climate change disproportionately affects rural and regional communities with extreme weather stress and agricultural impacts. Mitigating climate change will reduce the impacts rural communities based on agriculture face.

HOUSEHOLDS, SMEs AND THE BUILT ENVIRONMENT

(Discussion Paper, pages 14-19)

Discussion Question: *What are the opportunities and challenges of reducing emissions for households, SMEs and the built environment? Are there any implications for policy?*

Discussion Question: *Are there particular concerns or opportunities with respect to jobs, investment, trade competitiveness and regional Australia that should be considered for households, SMEs and the built environment?*

Our comments below respond to both of these discussion questions.

⁶⁵ Beyond Zero Emissions, Super Power Report. <http://bze.org.au/renewable-energy-superpower/>

⁶⁶ ACOSS. Disasters, climate change and disadvantage. <http://resilience.acoss.org.au/the-six-steps/introduction/disasters-climate-change-and-disadvantage>

⁶⁷ Climate Council. On the frontline: climate change and rural communities. <https://www.climatecouncil.org.au/ruralreport>

In this section, the Discussion Paper seeks comments on the opportunities and challenges of reducing emissions by improving the efficiency of energy consumption in households, businesses and commercial buildings. It notes that the National Energy Productivity Plan (NEPP) is an important policy instrument in this area.

This is a complex area, where other stakeholders may be better placed to respond. For example, building research and plans by Beyond Zero Emissions⁶⁸ and the Victorian Government⁶⁹ have shown that retrofits to existing building stock can significantly reduce energy use, emissions and produce cost savings and other benefits for households, implementing the Beyond Zero Emissions building plan would result in:

- tens of thousands of jobs from retrofit projects alone;
- household savings of \$40 billion over the next 30 years;
- reducing the residential energy sector's annual energy use by 53%, and;
- reducing energy use in the non-residential sector by 44%⁷⁰.

For our submission we will confine our comments to two opportunities:

- strengthen the NEPP; and
- support the transition of space heating from gas (and oil) to modern, efficient electric appliances.

Strengthen the NEPP

We draw attention to these comments by Alan Pears AM of RMIT University⁷¹:

- Australia's energy productivity target is about 20% weaker than that of the United States, when compared to an equivalent baseline
- It is disappointing that the Government in 2014 repealed the Energy Efficiency Opportunities Act, which had required 190 companies with large energy inputs to publicly report on where savings could be made to their energy use
- No funding exists under NEPP to support incentives and transition assistance
- What is needed is a powerful, well-resourced lead agency with strong ministerial leadership to implement the NEPP.

We also draw attention to a report by Climateworks which found that the potential exists to nearly double the energy productivity of the Australian economy by 2030 by investing in the modernisation of our energy system and taking advantage of recent technological developments⁷². This suggests that the NEPP productivity improvement target may be insufficiently ambitious.

In response to the Discussion Paper's call for suggestions, we recommend that the COAG Energy Council convene a summit of relevant experts and organisations (including the Energy Efficiency Council, the Australian Alliance for Energy Productivity, academics working on the Australian component of the international [Deep Decarbonisation Pathways](#) project, and business groups such as the AIG and Business Council of Australia) to review the

⁶⁸ Beyond Zero Emissions, Buildings Plan. http://media.bze.org.au/bp/bze_buildings_plan.pdf

⁶⁹ Sustainability Victoria, Victorian Households Energy Report. <http://www.sustainability.vic.gov.au/services-and-advice/households/energy-efficiency/toolbox/reports>

⁷⁰ Beyond Zero Emissions, Buildings Plan. Ibid.

⁷¹ Alan Pears. Australia's energy productivity plan promises more bang for our buck, but lacks commitment. The Conversation, 29 January 2016. <https://theconversation.com/australias-energy-productivity-plan-promises-more-bang-for-our-buck-but-lacks-commitment-53734>

⁷² Climateworks. Australia's energy productivity potential. http://climateworks.com.au/sites/default/files/documents/publications/climateworks_energy_productivity_report_20150310_0.pdf

NEPP, to identify measures which would strengthen it, and to recommend priorities for action.

Recommendation 10: That the COAG Energy Council convene a summit of relevant experts and organisations to review the National Energy Productivity Plan, to identify measures that would strengthen it, and to recommend priorities for action

Transition space heating from gas and oil

If Australia is to achieve Zero Net Emissions by 2040, it must transition from the use of gas (or oil, in some cases) for heating homes and commercial buildings.

Beyond Zero Emissions has pointed out the many shortcomings of gas as a fuel for reducing greenhouse gas emissions, including the emissions from gas combustion being too high to make a useful contribution to climate change mitigation, the potency of methane as a greenhouse gas, the high risk of fugitive emissions, and local environmental impacts⁷³. The BZE Buildings Plan also points out the opportunities to transition to modern, highly efficient electric appliances for heating and cooking.

The Melbourne Energy Institute examined the future of domestic gas in southeast Australia⁷⁴ and suggested that the Federal, state & territory and local governments have opportunities such as:

- informing gas consumers of the advantages of switching to other energy sources
- removing subsidies that encourage uneconomic use of gas and those that encourage uneconomic expansion of the gas grid
- providing incentives for households to switch
- strengthening the regulatory oversight of the marketing of gas and gas appliances

We commend these opportunities.

Recommendation 11: That the Government join with state and territory governments in developing a strategy to transition from the use of gas and oil for space heating, including incentives for consumers to switch to renewable-sourced electricity

RESOURCES, MANUFACTURING AND WASTE

(Discussion Paper, Pages 20-22)

Discussion Question: *What are the opportunities and challenges of reducing emissions from the resource, manufacturing and waste sectors? Are there any implications for policy?*

Discussion Question: *Are there particular concerns or opportunities with respect to jobs, investment, trade competitiveness, households and regional Australia that should be considered when reducing emissions in the industrial sector?*

Our comments below are in response to both of these questions, separated by sector.

Manufacturing and heavy industry

The manufacturing sector is a challenging one, where there has been little research on how to reduce emissions. This is understandable considering the sector accounted for a small

⁷³ Beyond Zero Emissions, Buildings Plan, p 12. http://media.bze.org.au/bp/bze_buildings_plan.pdf

⁷⁴ Melbourne Energy Institute. Switching off gas, August 2015. http://energy.unimelb.edu.au/data/assets/pdf_file/0007/1993309/switching-off-gas-an-examination-of-declining-gas-demand-in-eastern-australia.pdf

portion of Australia's emissions in 2015 (36 Mt CO₂-e out of 527 Mt)⁷⁵. There has however been some research into how to reduce these emissions.

The Grantham Institute for Climate Change in the UK published a comprehensive briefing paper on reducing emissions from heavy industry⁷⁶. They noted that this area is "very challenging and more deserving of policy attention" and their recommendations included:

- a focussed effort to improve emissions measurements and benchmarking
- a requirement that all newly built plants should be at Best Available Technology (BAT) and for existing plants to move to BAT as quickly as possible
- identification of barriers, including social and organisational barriers, to the adoption of energy efficiency improvements
- incentives to substitution of fuels and raw materials with biomass and waste (this is one example of where a price on carbon would provide the incentive).

In the US the Rocky Mountain Institute has provided analysis and a national roadmap for industry. Their Reinventing Fire⁷⁷ analysis predicts that energy savings from increased focus on cogeneration ("combined heat and power" or CHP), energy efficiency technologies, and changes in the electricity and transportation sector (such as the shift from oil-based fuels to electricity and biofuels) would cut industry's 2050 energy needs by about 30 percent below projections or 9–13 percent below actual 2010 use, despite 84 percent higher industrial output. Their research also suggests that further emission reductions and energy savings could be gained from other means, notably fuel-switching, process redesign, and dematerialization.

While there appears to be no research into Australia-specific industry emission reductions, Beyond Zero Emissions is currently working on an Industry Plan that will illustrate how this sector can reduce emissions, which will fill an important gap in the roadmap to a low and zero emissions economy⁷⁸.

We recommend that the Department of Industry, Innovation and Science examine policy mechanisms for implementing such proposals as part of an industry innovation program.

Recommendation 12: That the Department of Industry, Innovation and Science examine policy mechanisms to reduce emissions from heavy industry as part of an industry innovation program

Waste

We note the the National Waste Policy includes food waste⁷⁹, and "an estimated 6.8 million tonnes of carbon dioxide [equivalent] was released as a result of sending organic waste to landfill in 2011".

We also note the aim of "significantly reducing methane emissions to the atmosphere" and that the Emissions Reduction Fund is able to support this aim. It would be interesting to see

⁷⁵ Department of the Environment and Energy, Australia's Emissions Projections 2016. <https://www.environment.gov.au/system/files/resources/9437fe27-64f4-4d16-b3f1-4e03c2f7b0d7/files/aust-emissions-projections-2016.pdf>

⁷⁶ Grantham Institute for Climate Change. Briefing Paper no. 7. Reducing CO₂ emissions from heavy industry: a review of technologies and considerations for policy makers. <https://www.imperial.ac.uk/media/imperial-college/grantham-institute/public/publications/briefing-papers/Reducing-CO2-emissions-from-heavy-industry--Grantham-BP-7.pdf>

⁷⁷ Rocky Mountain Institute, Reinventing Fire. <https://www.rmi.org/insights/reinventing-fire/reinventing-fire-industry/>

⁷⁸ Beyond Zero Emissions, Forthcoming Industry Plan. <http://bze.org.au/industrial-processes-plan/>

⁷⁹ Dept. of the Environment and Energy (Australia). Working together to reduce food waste in Australia. <http://www.environment.gov.au/protection/national-waste-policy/food-waste>

some data on what projects, if any, have been funded under this program, as it may represent a rare instance in which the ERF is actually useful.

We recommend that the Dept. of Environment and Energy, and its state counterparts, identify and/or publicise examples of world best practice in this area, and adopt policies based on them. A possible example is California's "75 Percent Initiative", a robust program to achieve a 75% reduction in the amount of waste going to landfills by the year 2020, compared to the base year of 2013. It aims to achieve this goal through source reduction, recycling, and composting⁸⁰.

Recommendation 13: That the Department of Environment and Energy, and its state counterparts, identify and publicise examples of world best practice in waste management, including strategies for reducing organic waste going to landfill

TRANSPORT

(Discussion Paper, Pages 23-25)

Discussion Question: *What are the opportunities and challenges of reducing emissions in the transport sector?*

Discussion Question: *Are there particular concerns or opportunities with respect to jobs, investment, trade competitiveness, households and regional Australia associated with policies to reduce emissions in the transport sector?*

As Australia's electricity sector is progressively transformed, the decarbonisation of the transport sector (which already accounts for 18% of Australia's emissions) will emerge as a major priority for meeting our commitments under the Paris Agreement and for taking the further actions required if Australia is to contribute its fair share to limiting global warming to 2°C and preferably less. But with challenge comes opportunity, as Dr Faith Birol, Executive Director of the International Energy Agency states, "The next frontier for the renewable story is to expand their use in the industrial, building and transportation sectors where enormous potential for growth exists."

Our comments below are in response to both discussion questions, focusing on the two primary sources of transport emissions: passenger vehicles and aviation.

Passenger vehicles

350.org has commented on the passenger vehicle sector in our response⁸¹ to the Draft Regulation Impact Statement (hereafter called the *Draft RIS*) issued by the Ministerial Forum on Vehicle Emissions (MFVE). We support the core aim of the Ministerial Forum and Discussion Paper— to achieve a reduction in greenhouse emissions from Australia's road transport sector - and commend that review as a positive step. We refer the Review to our arguments in that submission which (in terms of opportunities and challenges) addressed:

- the opportunity to introduce strong fuel efficiency standards (comparable with those being planned in the EU and South Korea) to reduce emissions from petrol vehicles;
- the opportunity to create incentives (comparable with those in many overseas jurisdictions) for the take-up of plug-in electric vehicles; and
- the opportunity to further reduce emissions by taking advantage of new modes of vehicle sharing as autonomous vehicles become a reality.

⁸⁰ California's 75 Percent Initiative: Defining the Future. <http://www.calrecycle.ca.gov/75Percent/>

⁸¹ 350 Australia. Submission to the Ministerial Forum on Vehicle Emissions. <http://world.350.org/canberra/ministerial-forum-on-vehicle-emissions-submission-march-2017/>

Our key recommendations to the MFVE were as follows.

Recommendation 14: That the Ministerial Forum on Vehicle Emissions

- set a target date to achieve zero emissions from passenger vehicles;
- set an initial legislated fuel efficiency standard of 105g/km of carbon emissions to be achieved by 2022;
- aim to align with the EU fuel efficiency standard by 2026;
- develop a national roadmap for the take-up of plug-in electric vehicles (EVs);
- encourage state and territory governments to implement a uniform, time-limited incentive for the purchase of EVs in their jurisdictions; and
- encourage state and territory governments to monitor developments in autonomous vehicles and to ensure that their traffic regulations do not inhibit trials of autonomous vehicles on Australian roads.

These disruptive shifts could provide significant benefits, including reducing the traffic and congestion costs Australia faces⁸².

Aviation

Aviation contributes about 2% to global carbon emissions, and aviation emissions are growing at about 3% per year. For Australia, domestic aviation represents about 8 Mt of emissions annually, while international aviation (not counted officially in Australia's inventory) amounts to an additional 12 Mt. Drivers of aviation emissions reductions include technological improvements to aircraft, fleet renewal, improved air traffic management, the potential for low carbon fuels, and mode shifting (eg use of fast trains to displace shorter journeys)⁸³. For example, building High Speed Rail on the east coast corridor, as per Beyond Zero Emissions' HSR Plan, could save 3.5 million tonnes of CO₂-e per year and reduce regional travel emissions by 28%⁸⁴.

The International Civil Aviation Organisation is making slow progress towards a global approach to tackling, or at least offsetting, aviation emissions⁸⁵.

Given that technological changes to reduce aviation emissions are likely to occur slowly, it seems that carbon offsetting will be required in the short-term as other reduction strategies are developed and deployed. Recognising carbon emissions from international aviation are managed through ICAO, we propose that a mandatory Carbon Offset charge be imposed on tickets at a level sufficient to offset Australia's 8 Mt of domestic aviation emissions at a reasonable value for the Social Cost of Carbon. These funds could be used for offsets within Australia: for example, they could be allocated to ARENA for the delivery of new renewable energy facilities.

Recommendation 15: That, given the absence of an economy-wide carbon price signal, the Government legislate for a mandatory Carbon Offset charge on domestic aviation travel, and allocate the funds raised from this charge to ARENA, to fund the development of additional renewable energy facilities.

Given that the cost of air travel for passengers has declined markedly in the past 20 years, a

⁸² Department of Infrastructure and Regional Development, Traffic and congestion cost trends for Australian capital cities. https://bitre.gov.au/publications/2015/is_074.aspx

⁸³ Dave Southgate (expert in aviation emissions). Private communication, 1 May 2017.

⁸⁴ Beyond Zero Emissions, High Speed Rail Plan. http://media.bze.org.au/hsr/HSR_web_01_medium.pdf

⁸⁵ Rebecca Johnston and David Hodgkinson. It's time for a global tax on aviation emissions. The Conversation, 14 January 2015. <https://theconversation.com/its-time-for-a-global-tax-on-aviation-emissions-36020>

carbon charge at this level is in our view an affordable and reasonable measure. We point out that between July 2012 and July 2014, when the carbon tax was applied to domestic air travel, there was no material impact on passenger numbers or on the profitability of airlines. Of course, if Australia had an economy-wide carbon price signal, our proposal for a domestic aviation carbon offset charge would be unnecessary.

With respect to international aviation, we propose that Australia work within the ICAO to actively support the introduction of a mandatory global carbon offset scheme.

Recommendation 16: That Australia work within the International Civil Aviation Organization to actively support the introduction of a mandatory global carbon offset scheme for international air travel.

LAND AND AGRICULTURE

(Discussion Paper, Pages 26-27)

Discussion Question: *What are the opportunities and challenges of reducing emissions from the land and agriculture sectors? Are there any implications for policy?*

Discussion Question: *What can be done to realise further benefits from emissions reduction activities beyond carbon abatement?*

Discussion Question: *Are there particular concerns or opportunities with respect to jobs, investment, trade competitiveness, households and regional Australia associated with policies to reduce emissions in the land and agriculture sectors?*

In its report (the ZCA report) on land use, Zero Carbon Australia (Beyond Zero Emissions) analysed the total emissions from the land use sector and identified that current reporting conventions underestimate the emissions from this sector⁸⁶. It recalculated Australia's average annual emissions from agricultural production as follows:

SECTOR	CATEGORIES	EMISSIONS (Mt CO ₂ -e)
Agriculture	Enteric fermentation (methane emissions from livestock), manure management, rice cultivation, savanna burning, burning of agricultural residues	85.3
Land use, land use change and forestry (LULUCF)	Land clearing to cropland and grassland, agricultural liming, nitrous oxide from soil disturbance	99.6
Energy	On-farm energy	4.6
TOTAL		189.5

The figure of 189.5 represents one third of Australia's total emissions, which underscores the importance of strong policy action to reduce agricultural emissions.

The national inventory records agriculture as emitting 85.3 Mt CO₂-e per year, but this quantity more than doubles (to 189.5 Mt CO₂-e per year) when emissions from land clearing

⁸⁶ Zero Carbon Australia. Land use: agriculture and forestry. Discussion paper, 2014. <http://media.bze.org.au/lur/BZE%20Zero%20Carbon%20Australia%20Land%20Use%20report.pdf>

are included (ZCA report, p42).

In the light of these figures, we comment on two major opportunity areas: land clearing, and enteric fermentation (methane emissions from livestock).

Land clearing

The ZCA report notes that, between 1988 and 2009, an average of 410,000 hectares per year was cleared in Queensland, mostly to establish pasture for livestock grazing. The Wilderness Society notes that the Federal Government has spent around \$670 million on 51 million tonnes of carbon abatement buying tree-clearing permits to stop emissions, while at the same time state governments are issuing more permits, thus creating more clearing. It notes that Queensland alone will have negated the Federal spending in just 18 months of land clearing⁸⁷.

McAlpine and his colleagues have analysed the impact of land clearing on emissions in Australia⁸⁸. They comment on the high rates of land clearing, particularly in Queensland, during the past four years. They note that land clearing, in addition to raising net carbon emissions, reduces the creation of moist, turbulent layers in the lower atmosphere and reduces evaporation due to differences in root structure between trees and crops.

Beyond the emissions implications, land clearing has serious destructive effects such as habitat destruction. For example, Bush Heritage Australia estimates that over 5 million birds die each year as a result of land clearing⁸⁹.

Recommendation 17: That Federal, state and territory governments

- **strengthen and enforce their land clearing regulations in order to reduce the substantial emissions caused by clearing;**
- **ensure that the logging of all old growth and high conservation value native forest be terminated;**
- **exclude the burning of native forests from the renewable energy target;**
- **develop a strategy to abate greenhouse gases in natural landscapes, and to ensure biodiversity conservation; and**
- **act to ensure the revegetation of at least 13% of cleared land.**

Enteric fermentation (methane emissions from livestock)

Enteric fermentation produces around 5% of total greenhouse gas emissions. A number of sources have identified the opportunity of reducing these emissions by modifying the diet of livestock⁹⁰. For example, CSIRO is undertaking research into the potential use of certain species of seaweed as a component of cattle feed. So far, it has found that one species of seaweed (*Asparagopsis taxiformis*) reduces methane production through cattle burps by more than 99% in laboratory conditions. There are potential opportunities for positive

⁸⁷ Stephanie Smail, ABC news, 29 February 2016. <http://www.abc.net.au/news/2016-02-29/land-clearing-threats-climate-change-targets-wilderness-society/7207730>

⁸⁸ Clive McAlpine et al. Stopping land clearing and replanting trees could help keep Australia cool in a warmer future. The Conversation, 11 August 2016. <https://theconversation.com/stopping-land-clearing-and-replanting-trees-could-help-keep-australia-cool-in-a-warmer-future-63654>

⁸⁹ Bush Heritage Australia. Land clearing. <https://www.bushheritage.org.au/about/about-us/our-challenge/land-clearing>

⁹⁰ The Washington Post. Meet the “clean cow” technology that could help fight climate change. https://www.washingtonpost.com/news/energy-environment/wp/2015/07/31/scientists-say-this-clean-cow-technology-could-help-fight-climate-change/?utm_term=.f55e6ef224ea

outcomes in both agricultural production and emissions abatement through seaweed farming and through encouraging graziers to modify livestock feeds⁹¹.

Recommendation 18: That the Government ensure the continued funding of research into livestock feeds that will reduce emissions caused by enteric fermentation; and examine methods of encouraging graziers to modify livestock feeds based on this research.

RESEARCH, DEVELOPMENT, INNOVATION AND TECHNOLOGY

(Discussion Paper, Pages 28-30)

Discussion Question: What is the role of research, development, innovation and technology in reducing Australia's emissions?

Discussion Question: Are there any implications for policy? Are there particular concerns or opportunities with respect to jobs, investment, trade competitiveness, households and regional Australia that should be considered in relation to research, development, innovation and technology?

Research, development and technology have played an important factor in reducing emissions. It is thanks to renewable technology development that we have zero emission sources of energy and can reduce our emissions while maintaining our lifestyles. Further, as most of the 2 degree scenarios in the IPCC reports require untested technology⁹², research and technology will become even more important.

We welcome the establishment of the Climate Science Centre and the Earth Systems and Climate Change Hub, a partnership between the CSIRO, Bureau of Meteorology, and five universities.

Climate change research in Australia is fundamental in guiding our emission reduction and adaptation policies, and in guiding Australia's contribution to a global solution. It plays a vital role in gathering and analysing climate data pertaining to the southern hemisphere.

This research can refine the models which predict the future trajectories of greenhouse gases; regional rainfall patterns, impacts on coasts and oceans, impact on agriculture, and the frequency and intensity of extreme weather events. Research will also play a continuing role in developing technological and other innovative solutions to the sectors listed above. Key to all of these areas is consistent, sufficient funding. Cuts to CSIRO⁹³ and ARENA⁹⁴ run counter to the discussion paper's claim that "Innovation is central to meeting the ambition of the Paris Agreement." Funding for these institutions should be reinstated, and expanded. There is analysis that suggests that research spending has a high benefit-cost ration and positive impact on the economy⁹⁵.

⁹¹ Michael Battaglia. Seaweed could hold the key to cutting methane emissions from cow burps. The Conversation, 13 October 2016. <https://theconversation.com/seaweed-could-hold-the-key-to-cutting-methane-emissions-from-cow-burps-66498>

⁹² Kevin Anderson, Duality in Climate Science, Nature, 12 October 2015.. http://www.nature.com/ngeo/journal/v8/n12/full/ngeo2559.html?WT.ec_id=NGEO-201512&spMailingID=50120355&spUserID=MTc2NDc4MDQ2MAS2&spJobID=803666114&spReportId=ODAzNjY2MTE0S0

⁹³ Chris Turney, CSIRO cuts: as redundancies are announced, the real cost is revealed, The Conversation, 26 May 2016. <https://theconversation.com/csiro-cuts-as-redundancies-are-announced-the-real-cost-is-revealed-59895>

⁹⁴ Australian Renewable Energy Agency saved but with reduced funding – experts react, The Conversation, 13 September 2016. <https://theconversation.com/australian-renewable-energy-agency-saved-but-with-reduced-funding-experts-react-65334>

⁹⁵ CSIRO's Impact and Value, December 2014. http://www.acilallen.com.au/cms_files/ACILAllen_CSIROAssessment_2014.pdf

Recommendation 19: That the Government ensure that the level of funding for climate research is maintained

INTERNATIONAL UNITS

(Discussion Paper, Pages 31-32)

Discussion Question: *What is the potential role of credible international units in meeting Australia's emissions targets? Are there any implications for policy?*

Discussion Question: *How can the quality of international units be ensured?*

The Climate Change Authority in 2014 issued a Research Paper on the use of International Units⁹⁶. That paper commented on the benefits and risks of using these units. The benefits included:

- providing access to a wider range of cost-effective emissions reduction opportunities, thus lowering the overall cost of meeting Australia's targets
- supporting other trade, foreign policy and development objectives
- helping to address competitiveness concerns for industry by levelling out prices of emissions reductions across countries
- facilitating domestic emissions reduction policies in developing countries.

The risks included:

- purchasing non-genuine emissions reductions
- market fraud
- delaying the transition to a low-emissions economy through desirable domestic structural adjustment.

The Authority's view was that these risks can be managed, and it recommended certain categories of units to be avoided.

Our view is more cautious than that of the Authority. Our over-riding concern focuses on the Authority's third risk: that the use of these units can easily become a substitute for Australian domestic action to achieve our own Net Zero Emissions by the earliest possible date.

Australia should do whatever it can to assist developing countries to drive down their own emissions, but we can and should do this without counting international units as a substitute for our own robust policies. This is also an important equity issue. Some countries have been responsible for far more carbon emissions than others, and have enjoyed a higher level of material comfort for it. It is inequitable to deny developing nations the same opportunities, and the Green Climate Fund is available to balance the inequity. Australia's commitment of \$200 million to the Green Climate Fund from 2015-2018 is a positive step however Australia should strengthen this leadership and contribute its fair share, which research suggests is 2.4% of the global commitment⁹⁷.

⁹⁶ Climate Change Authority. Using International Units to help meet Australia's emissions reduction targets. Research paper, July 2014. http://climatechangeauthority.gov.au/files/files/UIUHAERT/report_2.pdf

⁹⁷ Jotzo, Pickering and Wood, Fulfilling Australia's International Climate Finance Commitments: Which Sources of Financing are Promising and How Much Could They Raise?, October 2011. <http://ccep.anu.edu.au/data/2011/pdf/wpapers/CCEP1115Jotzo.pdf>

Recommendation 20: That the Government should avoid the use of International Units to offset Australia's emissions unless there are no practicable avenues for domestic action to reduce emissions in particular sectors.

Discussion Question: *Are there particular concerns or opportunities with respect to jobs, investment, trade competitiveness, households and regional Australia that should be considered in relation to international units?*

International Units should be a last resort, so that Australia can experience the benefits to jobs, investment, trade, households and regional communities that will come with action to reduce emissions.

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