

ClimateWorks Australia Submission to the Climate Change Authority regarding Australia's Climate Policy Options

19 February 2016

Summary

ClimateWorks Australia is an independent, evidence-based think tank, a partnership between Monash University and The Myer Foundation. This submission draws on ClimateWorks Australia's research, particularly the *'Pathways to Deep Decarbonisation in 2050: How Australia can prosper in a low carbon world'* report, the *'Low Carbon Growth Plan for Australia'* report, and the *'Tracking Progress'* report series, as well as current unpublished research.

Key points in this submission:

1. The COP21 agreement in December 2015 in Paris has reset the climate change debate and established a new benchmark for action.
2. A zero net emissions trajectory should form the basis of all policy decisions.
3. Australia will need a suite of new policy initiatives to meet its 2030 emissions reduction target of 26-28 per cent, and to support the country to transition to a low carbon economy.
4. There are criteria which should be considered beyond cost effectiveness, environmental effectiveness and equity when assessing policies, to ensure they set Australia on course to achieve a zero net emissions trajectory in a flexible, least-cost and timely way.
5. A combination of policies will be important to effectively address barriers to action.

Explanation

1. The COP21 agreement in December 2015 in Paris has reset the climate change debate and established the new benchmark for action.

Long-term target - More than 190 countries - including the world's largest emitters, China and the US - signed the agreement committing them to limit global warming to well below 2 degrees and to pursue efforts to limit increase in temperature to 1.5 degrees.

2 degrees not enough - It also acknowledged that 2 degrees is simply not enough and we have to limit global temperature increases to 1.5 degrees if we are to avoid the worst impacts of climate change (ie loss of coral reefs, some Pacific Islands states disappearing, loss of biodiversity, negative health outcomes etc).

This means net zero emissions - The target requires most countries, including Australia, to reduce emissions to net zero by about 2050.

Transitioning to a low carbon world is the new normal – The agreement signals the world has agreed to move towards a low carbon future and that this is inevitable and irreversible.

2. A zero net emissions target should form the basis of all policy decisions.

The Australian Government has joined the call for mid-century, long-term low greenhouse gas emission development strategies. Developing a long-term plan will help identify new policy measures that are needed now.

ClimateWorks, with ANU and CSIRO, modelled decarbonisation pathways for Australia focusing on the largest emissions reductions for the lowest cost, within a four pillars approach. *'Pathways to Deep Decarbonisation in 2050: How Australia can prosper in a low carbon world'* shows it is possible for Australia to achieve zero emissions by 2050 while still growing the economy, using technology that is already proven.

ClimateWorks research shows Australia can achieve net zero emissions by 2050 through these four pillars:

Ambitious energy efficiency – undertake ambitious energy efficiency across all sectors of the economy. Catalyse action through vehicle emissions standards, building standards upgrade and industrial energy efficiency best practice.

Low Carbon Electricity - phase out coal power and switch to low carbon electricity. Our research shows low carbon electricity can be supplied by renewable energy or a mix of renewable energy and CCS or nuclear power at similar costs.

Electrification and fuel switching – Increase electrification across transport, buildings and industry. As electricity generation switches to low carbon energy sources it becomes the least emissions intensive energy source. Eg. EVs are with us, the first solar powered flight has been trialled and PV solar is powering many homes. In addition we need to switch from fossil fuels to bioenergy and gas for freight and commercial aircraft.

Non-Energy Emissions – reduce emissions from non-energy sources through process improvements and Carbon Capture Storage in industry, farm improvements and increase carbon forestry to offset remaining emissions.

Australian policy should address all four pillars and show how Australia can thrive as a zero net emissions economy.

3. Australia will need a suite of new policy initiatives to meet its 2030 emissions reduction target of 26-28 per cent, and to support the country to transition to a low carbon economy.

There is some progress but we need to do more.

To develop a long-term plan, we must identify new policy measures that are needed now. Countries that focus only on measures to reduce emissions in the short term risk locking their economies into high levels of emissions that will make it much more difficult to achieve zero net emissions in the longer term.

Set long-term goals - We need a long-term view with immediate actions to progress towards zero. Government needs to set long-term signals that we are heading towards zero emissions.

Accelerate action - Business and Government have to accelerate the implementation of energy efficiency and other profitable opportunities. This reduces long term costs and provides greater options for achieving zero net emissions.

Avoid lock in - Take the long-term into account for investment decisions to avoid lock-in of carbon intensive assets and long-lived assets such as buildings, industrial plant and infrastructure.

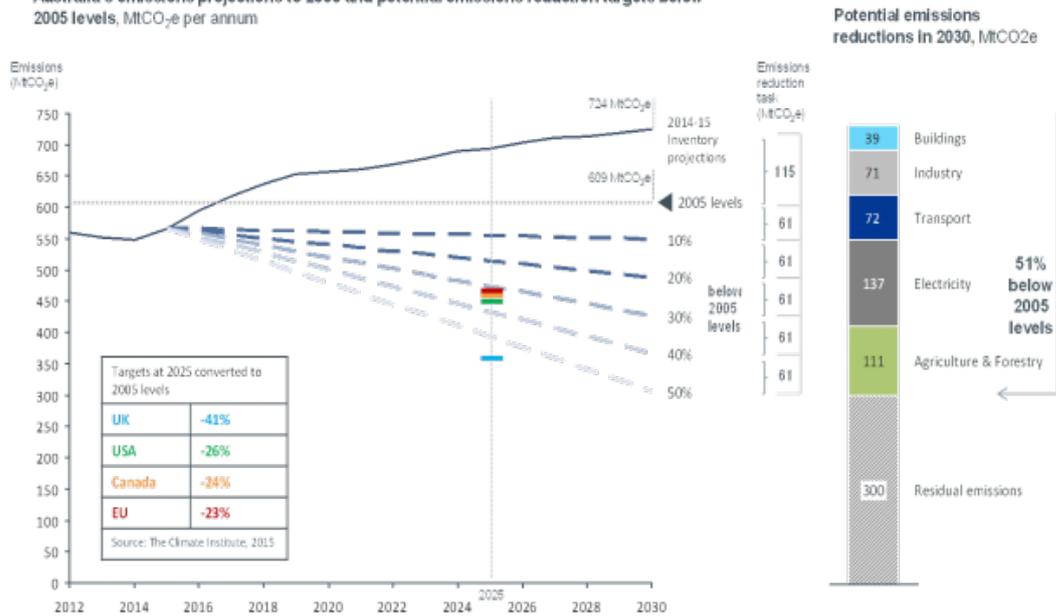
Prepare for the future - Accelerate investment in research and development of technology that will be needed in the future to make deeper emissions reductions – through energy productivity, zero carbon electricity, fuel switching from diesel, oil and gas to electricity biofuels and sequestration with afforestation and CCS in industry. Use economic instruments such as tax breaks for innovation and grants for pilot projects. Build supply chains, skills and capabilities and add government provisions to plan the transition. This step comes at cost and does not deliver short term environmental benefits, but is critical to achieve the long term objective in the most cost-effective way and develop Australia's capacity to prosper in a low carbon future.

In the short and medium term, our analysis shows potential in several key areas.

A portfolio of actions is needed if the Government is to meet current emissions reduction targets. Our research shows there are many pathways for Australia to substantially reduce emissions. All include greatly improved energy efficiency across the economy, near-zero emissions electricity, switching to lower carbon energy sources in transport, building and industry, and improving agricultural emissions and carbon forestry. ClimateWorks research has mapped these options by emissions savings volume and sector (see table and chart below).

ClimateWorks research results:

Australia's emissions projections to 2030 and potential emissions reduction targets below 2005 levels, MtCO₂e per annum



Source: data extracted from Pathways to Deep Decarbonisation in 2050: How Australia can prosper in a low carbon world, ClimateWorks & ANU, 2014

Sector (MtCO ₂ e abatement in 2030)	Technologies	Abatement by technology (MtCO ₂ e)	
		2025	2030
Buildings (39)	Energy efficiency in new builds, retrofits, appliances and equipment	25	35
	Electrification of building equipment	1	3
Industry (71)	Energy efficiency of industrial practices, assets and equipment	29	44
	Electrification of industrial equipment and processes	4	14
	Switch to cleaner fuels	1	4
	Develop carbon capture and storage and implement best practice to reduce industrial process and fugitive emissions (oil & gas, metals, cement, refrigerants)	7	8
Transport (72)	Energy efficiency in new passenger and freight vehicles	31	51
	Increased uptake of electric vehicles , plug in hybrids, fuel cell vehicles	1	9
	Switch to gas and bioenergy for freight transport	8	12
Agriculture & Forestry (111)	Afforestation and avoided deforestation	44	79
	Best practice agriculture	18	29
Electricity (137)	Solar PV and solar thermal	51	101
	Wind and other renewables	31	24
	Improvement in fossil fuel generation	3	13
Totals (includes other small categories)		256	430
Residual emissions (after implementation of all abatement opportunities)		415	300
% reduction in emissions on 2005 levels		-32%	-51%
% reduction in emissions on 2000 levels		-26%	-46%

Some key points:

- The light vehicle and freight transport sectors provide the greatest energy efficiency potential across the economy out to 2030, and can be achieved using technologies readily available today. These represent some of the lowest cost opportunities across the economy, and can deliver significant co-benefits in terms of providing cost savings to consumers and businesses, and enhancing Australia's fuel security. Capturing this potential in the short term is vital to avoiding lock-in, reducing the long term cost of the transition and achieving short term emission reduction targets.
- Maximising cost effective energy efficiency in buildings, industry and transport is necessary to keep Australia's emissions from growing

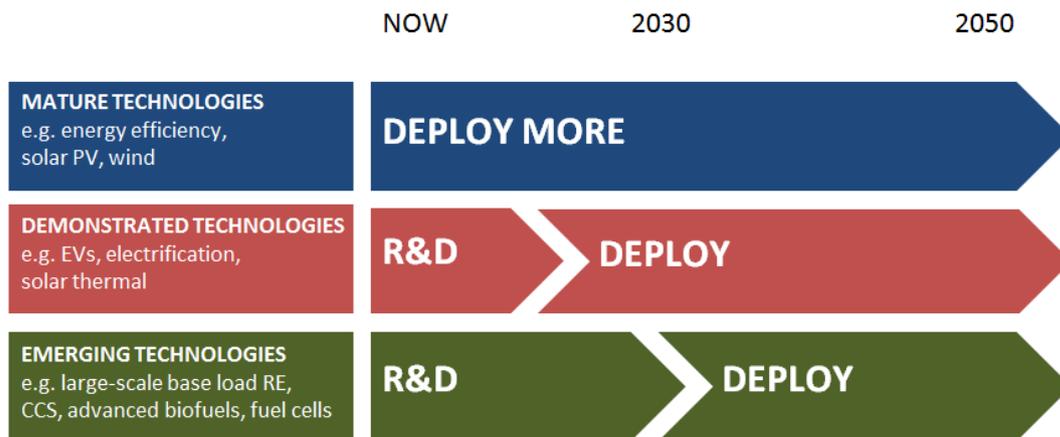
- Switching to majority renewable energy in the electricity sector and using this low emissions electricity to replace fossil fuels in cars, buildings and some industries would help reduce emissions to 25 per cent below 2005 levels
- Carbon forestry and agricultural improvements can bring emissions down further to around 45 per cent below 2005 levels, while switching to bioenergy and gas, and reducing industrial non-energy emissions can bring Australia's emissions down to 50 percent below 2005 levels by 2030.

4. There are criteria which should be considered beyond cost effectiveness, environmental effectiveness and equity when assessing policies, to ensure they set Australia on course to achieve a zero net emissions trajectory in a flexible, least-cost and timely way.

Additional criteria which may need to be considered include:

- **Whether policies are supporting the long term emissions goals of the country.** If we do not work with a longer time horizon, we are likely to adopt strategies that fall far short of what is needed to stay below the 2 degree limit. For example, some policies could deliver large emissions reductions in the short term and help us meet intermediary carbon targets, but create lock-in for further emissions reductions in the future. An example of this would be to switch a large share of power generation from coal to gas generation. Some policies could also support a transition in the right direction but not fast enough to achieve long term goals, for example building codes.
- **Whether policies are flexible enough to adapt to a changing environment.** The many unknowns around energy transition highlight the need for policies to remain flexible. Unknowns include which technologies will be most cost effective in the future and whether more ambitious reductions will be needed to meet decarbonisation targets along the way. Policies must therefore be designed to give priority to components that will make the policies more robust and resilient. This emphasis on robust strategies means giving preference to policies and measures that will hold up under a wide range of environments, domestically and at the international level.
- **Whether a policy can be reviewed along the way.** This will allow us to decide whether to keep it, speed it up, or reframe it in line with adjusted targets. Preference should be given to policies which preserve future freedom of choice, yielding high option-value.

- Does the policy fit into a technological deployment timeframe?



It should also be considered that policies might not succeed against other criteria but are required over the longer term to unlock emissions reductions potential. eg. policies focused on building capacity and market-readiness, or reducing other barriers to emissions reductions.

5. A combination of policies will be important to effectively address barriers to action.

Emissions reductions are often inhibited by a range of barriers, and there is rarely a ‘silver bullet’ policy which can address all these barriers. A combination of policies is therefore typically required, which may include upgrading minimum standards, structuring regulatory obligations, providing more funding and information, pricing and other sector-specific programs to align incentives that bring forward newer technologies. Policies should address structural issues as well as barriers for investors around project attractiveness, motivation and capability. They can be broadly grouped as follows:

Measures to improve project attractiveness:

- Broad price signals such as a carbon price or emissions trading scheme
- Targeted incentives or disincentives, e.g. renewable energy targets, white certificate schemes, energy efficiency or renewable energy project or product subsidies, rewards for high performance or penalties for poor performance e.g. differential council rates
- Funding for research, development, innovation, pilots

These address barriers including:

- **Capital constraints:** As businesses only have access to a finite amount of capital, they face capacity constraints on the amount of capital they can access from lenders and therefore take a strategic view of how they deploy that capital.
- **Investment priorities:** Profitable emissions reduction opportunities may also not occur where the rate of return is less than alternative investments, or where the emissions reduction activity is not considered core business.
- **Long pay-back periods:** Investors with a short term profit focus are unlikely to view such opportunities as attractive.

- **Capability:** Lack of access to data, information, skills, services, products, capital or finance.

Measures to motivate:

- Financial incentives e.g. white certificate schemes
- Information, e.g. consumer information about benefits, rating and labelling tools, benchmarking of performance, disclosure or reporting of performance
- Regulation, e.g. minimum standards for new buildings and industrial plant, land clearing regulations

These address barriers including:

- **Market structure and supply:** Market barriers include transaction costs, split incentives, and contract structures.
- **Information gaps and stalled/delayed decision process:** Access to adequate and accurate information is vital to achieving the full energy savings potential outlined in the energy reduction cost curve. Even when an opportunity is profitable, it will not be captured if decision-makers are not aware of it, or are not convinced of its impact.

Measures to ensure capability:

- Training and education of consumers and the supply chain
- Support development of appropriate financing
- Programs for most vulnerable

These address barriers including:

- **The least equipped consumers face additional barriers.** Requires targeted policy intervention with a strong consumer protection justification for doing so.

Measures to ensure a supportive environment:

- Clear policy goals
- Transparent processes for review and adjustment
- Co-ordination of different areas, e.g. carbon policy, energy market policy, industry policy

These address barriers including:

- **Uncertainty drag:** There is less evidence that activities to reduce emissions will take place in the future in areas that have higher upfront costs and rely on an expectation of stable and sufficient policy drivers or incentives over the longer term for their financial return on investment.
- **Motivation:** Regardless of financial attractiveness and capability, internal and external factors can have a strong influence on motivation for a decision maker, eg. energy efficiency 'split incentives' between tenants and landlords.
- **Lack of attractiveness:** Some technologies may not yet be commercially attractive compared to less efficient alternatives. Alternatively, the financial return may exist but be less attractive than the return offered by other investments available to the decision maker. This can be amplified by market distortions such as discounted energy pricing.

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