

ClimateWorks Australia Submission to the Climate Change Authority regarding the Targets and Progress Review

29 November 2013

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 *Low Carbon Growth Plan for Australia* and *Tracking Progress Towards a Low Carbon Economy*.

1. ClimateWorks welcomes the evidence presented in this Draft Report that an achievable trajectory to deep decarbonisation in 2050 will require deeper emissions reductions than 5 per cent by 2020.

Australia's 2020 target should enable ongoing emissions reductions beyond 2020 to be consistent with the internationally agreed commitment to limit global warming to 2° Celsius, which requires deep decarbonisation of the global economy by 2050, and will likely require deep decarbonisation of Australia's economy within the same timeframe.

ClimateWorks notes that the Climate Change Authority's Draft Report finds that the most cost-effective pathway for achieving deep decarbonisation of the Australian economy requires a 2020 target substantially greater than 5 per cent – according to the Draft Report, “a 5 per cent target would leave such large reductions for later that future Australians would either face a very large emissions reduction task or have to abandon the long term national emissions budget.” The Draft Report advises that a 25 per cent target by 2020 is the only one which provides a trajectory to 2050 that does not need to be sharply accelerated after 2020.

ClimateWorks' own research demonstrates that this task is achievable. The *Low Carbon Growth Plan for Australia* demonstrated that a 25 per cent target by 2020 is achievable through technologically proven and commercially viable technologies that require no change to lifestyle. However, any delay in capturing abatement will increase the costs of achieving emissions reductions (see section 4 below).

2. Looking further ahead, the global carbon budget suggests that all major economies will need to undertake deep decarbonisation by 2050.

The Draft Report finds that in order to have a 65 per cent chance of keeping warming within the internationally agreed 2 degree limit, a global emissions budget of 1,700 Gt of carbon equivalent is available over the period 2000 - 2050¹. Approximately 35% of this budget has already been used between 2000 to 2012, and this suggests that all major economies will need to largely decarbonise domestically by 2050.

The scale of the emissions reductions required in each country means that there may not be a significant 'surplus' of abatement to sell as international credits, and as such it may not be possible to rely heavily on purchasing international offsets to achieve Australia's domestic target. Leaving open the possibility of achieving deep decarbonisation through mostly domestic measures would provide some protection against this possible outcome.

3. In Australia, deep domestic decarbonisation is likely to require a high volume of land-based abatement, electrification of most transportation, and decarbonisation of the electricity sector by 2050.

In order to decarbonise the Australian economy by 2050, significant reductions would be required in all sectors. In some sectors, the Draft Report provides an illustration of what this may look like. However, in other sectors the modelling does not currently consider a deep decarbonisation scenario.

For **electricity generation**, the high carbon price scenario modelled in the Draft Report sees the electricity sector reducing emissions to 142 MtCO₂e in 2020, 70 MtCO₂e in 2030 and 34 MtCO₂e in 2050.² In order to achieve reductions on this scale, the model indicates that all coal would be removed from the energy mix except where carbon capture and storage technology is used, with the majority of electricity instead generated by renewables such as geothermal, solar, wind. This is an important finding and ClimateWorks suggests it could be more prominently articulated in the body of the report.

For the **land and transport sectors**, the current 2030 modelling in the Draft Report sees limited abatement or emissions increases by 2050. However, the *Low Carbon Growth Plan for Australia* demonstrates that there are already significant low and moderate cost opportunities for abatement in these sectors. Both sectors are a significant contributor to Australia's emissions, with transport one of the fastest-growing emitters, and emissions from land-based activity expected to increase in future. As such, it is important to consider the

¹ Climate Change Authority, *Reducing Australia's Greenhouse Gas Emissions: Targets and Progress Review Draft Report* (CCA Draft Report), November 2013, Chapter 3 page 1

² CCA Draft Report, Chapter 12 page 9

abatement opportunities for these sectors, the contribution they could make to deep decarbonisation in 2050, and the pathways and corresponding enabling measures that would be needed by 2020 and 2030 to enable these opportunities to be captured at reasonable cost. This will help avoid lock-in of high emissions activities, as well as helping to minimise the cost of transitioning to lower emissions activities – generally, a gradual ramp-up of activity to reduce emissions is less costly than the fast ramp up that may be required if the transition does not begin until after 2020 or 2030 (see further detail on the costs of delay under point 4 below). As noted above, this will also reduce the risk of over-reliance on international permits which could be in short supply and therefore come at a high price.

ClimateWorks is jointly leading the Australian component of the 2050 Deep Decarbonisation Pathways Project, an initiative led by the United Nations Sustainable Development Solutions Network and involving 12 major economies worldwide, who collectively represent about 70 per cent of global emissions. This project will see the development of national deep decarbonisation pathways to 2050, and crucially provide an indication of the enabling measures that may be required by 2020 or 2030 in order to keep open the option of decarbonising these sectors by 2050.

4. ClimateWorks' research shows that opportunities exist to substantially reduce emissions, but delay will increase the cost of implementing them.

ClimateWorks' *Low Carbon Growth Plan for Australia* found that Australia has the potential to achieve a 25 per cent reduction on 2000 levels by 2020³ through least-cost opportunities to reduce emissions across all sectors. However, the 2011 update to the *Low Carbon Growth Plan*⁴ shows that delay increases the cost of meeting targets.

Delay may lock in certain emissions that cannot be reduced by 2020. For example, the most cost effective opportunity to reduce emissions identified in the *Low Carbon Growth Plan* is an improvement to the fuel efficiency of new vehicles. If this is delayed, most new cars will be purchased with lower fuel efficiency than required to deliver the abatement potential identified in the *Low Carbon Growth Plan*. Given that new cars will stay on the roads for 10 years on average, potential emissions savings for 2020 from new, more efficient vehicles are lost without a regulatory driver. In fact, approximately 25 per cent of this abatement potential has already been lost through a delay in introducing standards. In these cases extra emissions are locked-in, and finding this lost abatement potential elsewhere comes at a higher cost.

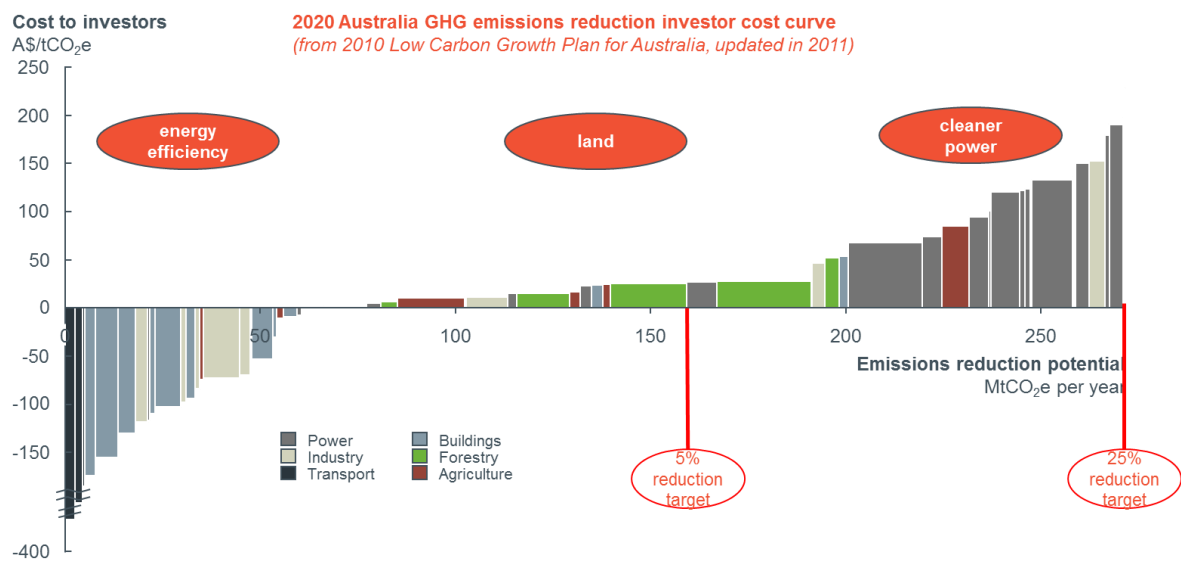
³ ClimateWorks, *Low Carbon Growth Plan for Australia*, March 2010, page 2

⁴ ClimateWorks, *Low Carbon Growth Plan for Australia 2011 update*

More generally, many emissions reduction opportunities rely on improving technology, products and infrastructure at lowest cost—which typically occurs when existing stock is retired, replaced or overhauled. Emissions are considered to be ‘locked-in’ if the cost of remedial measures is prohibitive once this favourable time has passed. Examples include replacing heating and cooling systems in buildings, replacing long-life industrial equipment such as boilers, and electronics upgrades. Similarly, if an area of land is cleared, the opportunity to reduce emissions from avoiding deforestation on that area of land is completely lost.

Delay has the effect of “shrinking” most of the abatement opportunities a bit more every year. To achieve a target, this means that after a year of delay, opportunities that were originally situated to the “right” of the abatement target will need to be brought in to catch up for the loss (see diagram below). These opportunities are higher cost opportunities, increasing the overall cost of achieving the target.

Simplified 2020 GHG emissions reduction investor cost curve⁵



This demonstrates the importance of early action to reduce future emissions reduction costs. In particular, delaying the transition to a deep decarbonisation pathway until after 2030 is expected to prove substantially more costly for the Australian economy than beginning the transition before 2020.

⁵ This diagram is taken from the August 2011 update to ClimateWorks’ *Low Carbon Growth Plan for Australia*, available via www.climateworksaustralia.org/sites/default/files/documents/publications/climateworks_lcgp_impact_of_the_carbon_price_package_revised_edition_aug2011.pdf.

5. The CCA has an important role to help the community begin to discuss how Australia's economy may evolve to achieve a long term deep decarbonisation scenario.

ClimateWorks recognises that the focus of the Draft Report is on developing recommendations for a 2020 target and 2030 trajectory, in line with domestic and international reporting milestones.⁶ However, the Report also begins an important dialogue regarding longer-term emissions reductions to 2050, and in particular how “a responsible long term budget will influence Australia’s short term choices.”⁷

While it is difficult to predict how Australia’s economy will change over this longer time period, there is value in exploring and illustrating the possibilities for how Australia could achieve deep emissions reductions by 2050, including how Australia could achieve deep decarbonisation domestically (rather than relying heavily on international offsets). This will help begin a dialogue within the community regarding what steps need to be taken now to keep our options open for a deep decarbonisation scenario in 2050.

The Draft Report already contains modelling for projected emissions under the high scenario in Appendix D, including sector-specific emissions projections to 2050 in Appendices D3, D4 and D8. We suggest that this scenario, accompanied by discussion and analysis, be given greater prominence to help illustrate what deep decarbonisation may look like in Australia and facilitate discussions around how it could be achieved. A number of graphs in particular that ClimateWorks would recommend be considered for incorporating into the main body of the report are identified in Appendix 1 of this submission.

⁶ CCA Draft Report, Chapter 1 page 18

⁷ CCA Draft Report, Chapter 9 page 10

Appendix 1

The element of Appendix D that could help stimulate discussion about pathways to 2050 deep decarbonisation include:

- Figure D.12: Contributors to Electricity Sector Emissions, 1990-2050
- Figure D.15: Share of Electricity Generation by Fuel Type, 2012 – 2050
- Box D.2: A Zero-Emissions Supply Mix by 2050?
- Figure D.19: Passenger Road Transport Activity and Emissions Intensity – Modelled Range, 1990-2050
- Figure D.21: Transport Emissions Outcomes and Contributors, 1990 – 2050
- Figure D:36: Agriculture Emissions, 1990 – 2050
- Figure D:37: Agriculture Emissions Outcomes and Contributors, 1990 – 2050
- Figure D.39: LULUCF Emissions Share of Australian Emissions, 1990 – 2030