

## **Australia's post-2020 emissions commitment: considerations and comparisons**

---

Frank Jotzo<sup>1</sup>

Director, Centre for Climate Economics and Policy

Crawford School of Public Policy, Australian National University

Submission to the review of Australia's post-2020 emissions reductions target  
(task force coordinated by Department of Prime Minister and Cabinet)

24 April 2015

### **1. Introduction**

All countries are called on to submit their commitments for post-2020 emissions target or 'intended nationally determined contributions' (iNDC). Several countries and groups of countries have already submitted their iNDCs or have indicated what their commitments will be, among them the United States, the European Union and China.

The Australian government's process for deciding Australia's post-2020 greenhouse gas emissions target is underway, and this short paper is intended as a contribution to these deliberations. I welcome the opportunity to provide input.

This submission first sets out some considerations for Australia in setting a post-2020 emissions target; provides some comparisons with the US and EU targets; and briefly discusses the opportunities, costs and benefits of cutting Australia's emissions; and concludes with some high-level observations on policy instruments.

### **2. National interest in strong global climate action**

The overriding consideration for setting Australia's post-2020 emissions target should be Australia's national interest in strong global climate change mitigation. As spelt out in the issues paper by the government's UNFCCC task force, "a strong and effective global agreement, that addresses carbon leakage and delivers environmental benefit, is in Australia's national interest."

The context is the goal to limit global temperature increase to two degrees, a goal supported by the world community and re-iterated by the Australian government.

The view that strong global climate action is in Australia's national interest goes back to earlier analyses, including the Garnaut Climate Change Review of 2008. The Review established that Australia is among – or perhaps the – most vulnerable to climate change among developed countries, and thus has most to gain from global action that will limit climate change.

Australia has proportionately much greater influence on global climate change policy decisions than the size of Australia's population, economy or emissions might

---

<sup>1</sup> The views in this submission are those of the author, not the institution.

Suggested citation: Jotzo, F. (2015), Australia's post-2020 emissions commitment: considerations and comparisons, Submission to the review of Australia's post-2020 emissions reductions target.

suggest. Australia is one of only a few major developed countries, and our country is disproportionately visible in the global climate change debate. Furthermore, Australia is seen as a rich country with very high per capita emissions, and with an interest in existing fossil fuel energy systems as well as an interest in strong global climate action. Recent changes in domestic policy settings, in particular the abolition of the carbon pricing scheme, were noted internationally.

Meaningful commitments and action by Australia can effectively encourage others to do more. Perceived lack of action by Australia can become a ready excuse for others to do less.

### **3. Considerations for Australia's post-2020 emissions target**

The key aspect of an adequate climate commitment for Australia in the context of the 2015 climate change negotiations is Australia's pledged emissions target for the post-2020 period. For the purpose of this paper, it is assumed that this target is for the year 2025.

#### **Principled approaches**

The adequacy of such a target can be judged in many different dimensions. There is strong justification for deriving it from principles. A principled approach can consist of defining a global carbon budget, then apportioning Australia's share of the global carbon budget on the basis of considerations such as equity and capacity, and defining a trajectory of emissions through time that is in line with the budget.

This approach was taken by the Climate Change Authority (2014). In a related approach, the Garnaut Review (2008) defined global emissions trajectories and used a convergence model of per capita emissions to define a trajectory for Australia's emissions.

Any such method shows very deep reductions in Australia's emissions over coming decades, with remaining levels – possibly net of some international trading in emissions units – between zero and about 20% of today's emissions levels by 2050. The precise number depends on the strength of the global action and the parameters chosen to determine Australia's share.

#### **International comparisons**

In deciding a 2025 target, more pragmatic considerations may play an important role. In particular, international interest will focus on the comparison of emissions targets between comparable countries, in this case high-income and high-emissions economies. The question then is whether Australia is seen to be 'with the pack' or lagging behind.

In such considerations, the emphasis will be on comparisons with the United States, and to some extent also with the European Union. China's climate change actions and commitments are of paramount importance for the overall global effort, however it is not possible to directly compare China's emissions trajectory with Australia's or that of other developed countries.

#### **United States and European Union**

The comparison with the United States' emissions target is of particular relevance: both countries have among the highest per capita incomes in the world; both are high emitters in per capita terms (Australia's being higher); both have relatively high population and expected GDP growth in the context of other developed countries; and both have good opportunities for climate change mitigation, including by switching from coal to other energy sources and improving energy productivity.

The existing emissions targets for the United States, EU and Australia are listed in Table 1, while Table 2 shows targeted annual average changes in emissions implicit in the target, and for the period 2005 to 2012.

The key observation about these numbers is that both the US and EU targets imply a sharp acceleration in the speed of emissions reductions in the 2020s. The targeted annual change for the United States is 2.5%pa from 2020-25, while for the EU it is 2.8%pa from 2020 to 2030.

This compares to targeted reductions of 1.2%pa and 0.8%pa for 2005 to 2020, and actual achieved reductions of 1.4% and 1.7% during 2005 to 2012. Australia's targeted reduction from 2005 to 2020 is 0.8%pa.

## **China**

China has committed to stop growing its carbon dioxide emissions around 2030 or earlier if possible. This represents a significant commitment. It is accompanied by manifold policy efforts and is in harmony with China's broader objectives of modernizing the economy, reducing local air pollution and improving energy security (Teng and Jotzo 2014).

The most recent data show a drastic reduction in the rate of growth in China's carbon dioxide emissions, driven by stabilizing demand for coal, connected to a slowdown in energy intensive industries, rising energy efficiency, and rapid investment in alternative energy sources.

There is no longer an argument that China is 'not pulling its weight' on climate change action.

## **Implications for Australia's target**

A credible emissions target for Australia will need to stand the test of comparison with the US target in particular. Such a comparison may be done directly on nominal reductions, using a common base year, eg as in the US commitment of a 26% to 28% reduction at 2025 compared to 2005.

The comparison may also be usefully framed with regard to annual reduction rates in the 2020s. For illustration, we can apply a 2.5% annual reduction rate during 2020 to 2025 to a 19% reduction at 2020 relative to the year 2000, the 2020 target recommended by the Climate Change Authority (2014). This yields a 33% reduction at 2025 compared to 2005.

If the existing 5% reduction target at 2020 is used as a starting point, and applying a 2.5% annual reduction rate during 2020 to 2025, this results in a 21% reduction at 2025 compared to 2005.

It must be noted that the existing 5% target for 2020 is widely considered inadequate, given Australia's circumstances and also the fact that it is likely to be easily achieved on account of external circumstances, as detailed in Australia's latest official emissions projections (Australian Government 2015b).

Fundamentally, it would be difficult to argue for an Australian 2025 target that is weaker in nominal terms than the US target.

Whatever the particular target chosen for 2025, to be a credible contribution to a global effort it must signal that Australia is aiming to embark on a trajectory of significant reductions in emissions levels.

There needs to be a marked departure from the more or less flatlining net emissions trajectory over the last decade, with a view to deep reductions over coming decades.

### **Possibilities for additional pledges**

The INDC process also provides an opportunity to make commitments and flag actions beyond the single headline number. Australia could make a commitment to invest in activities that, if successful, could make strong contributions to future reductions in global emissions, without these effects now being certain or fully predictable.

This could include commitments to invest in R&D in low-emissions technologies where Australia is likely to have a comparative advantage, for example certain types of renewable energy, as well as land-based and geological carbon sequestration.

Additional commitments could also include support for climate change action in developing countries in Australia's region, for example support for deforestation avoidance and better land management in Indonesia and other countries, and climate change adaptation in the Pacific and Asian countries.

### **4. Options, costs and benefits of emissions reductions**

The domestic opportunities to cut emissions, their likely costs as well as benefits beyond climate change are another important consideration in setting emissions targets, in particular in considering the longer term.

A large body of analysis and modelling exists on emissions reductions options and costs for Australia. The picture that emerges is one of ample opportunities to move to a low-emissions economy, of the economic costs of such action being moderate if suitable policy approaches are used, and the transition processes being manageable.

A companion submission (Jotzo and Kemp 2015) provides a review and synthesis of existing evidence.

An analysis by ClimateWorks Australia and ANU (Denis et al 2014), with new modelling by CSIRO and Victoria University, shows how Australia could achieve net zero emissions by 2050 while maintaining strong economic growth and with minimal change in the overall structure of Australia's economy.

Less research has been undertaken on co-benefits of mitigation action. It stands to reason that there may be significant benefits in addition to less future climate change. The global co-benefit perspective is analysed in depth in the 'New Climate Economy' report by the Global Commission on the Economy (2014).

There is also the possibility of new sources of economic advantage arising for Australia in a low-emissions global economy, including through Australia's abundant potential for relatively cheap renewable energy supply.

### **5. Policy frameworks and instruments**

For a post-2020 emissions reductions target to be taken seriously, there needs to be a suitable policy framework and policy instruments that are likely to be effective and sustainable. The situation in Australia in recent years has been characterized by policy uncertainty that stymied investment (Jotzo, Jordan and Fabian 2012).

This submissions does not focus on policy instruments, beyond making the following high-level observations.

Carbon pricing – through emissions trading or carbon taxes, whatever their design – is universally seen as the centerpiece of economically sensible climate change mitigation policy, as evident in the academic literature and reports by major international organisations including the OECD, World Bank and IMF.

The carbon pricing mechanism in place from mid-2012 to mid-2014 was effective in reducing emissions from Australia's electricity sector, in particular through pronounced changes in the emissions intensity of the national electricity grid brought about by a shift away from the most carbon intensive generators (O'Gorman and Jotzo 2014).

Approaches that seek to subsidize business for emissions reductions, such as the Emissions Reductions Fund, have decisive shortcomings. These include the narrowness of the approach which is confined to projects and unavoidably excludes many abatement options; the lack of certainty about contracted emissions reductions on account of the risk of inflated baselines or projects that would have happened anyway; and the fiscal cost which necessitates raising taxes on other economic activities, in stark contrast to emissions pricing which can raise revenue for government (Jotzo and Burke 2014).

Domestic offset mechanisms or other approaches that make payments for emissions reductions projects can be justified and useful in particular circumstances where more broad-based approaches are not practical, but they are no suitable basis for a long-term, comprehensive climate policy.

Regulatory instruments, such as performance standards for production processes and product standards such as building codes, can be effective. If well designed, their economic costs can be acceptable. If emissions pricing is politically not feasible, then direct regulation is likely to bring better outcomes than a subsidy-based approach.

Support for R&D in emerging low-emissions technologies is a necessary part of a portfolio of emissions reductions policies. In Australia, such efforts should focus on technologies that are of particular promise in our country, such as some emerging forms of renewable energy generation, use of renewable energy in energy intensive industries, and some forms of carbon sequestration.

Finally, trade in international emissions units may be useful as an auxiliary component of an overall emissions reductions strategy, provided purchased emissions units represent real investments in emissions reductions in other countries. The main useful role for trading in international emissions units is as a transitional measure, as well as possibly to make up for domestic emissions from production for export, especially mining, minerals processing and agriculture. International emissions trading should not replace domestic action to put the economy on a lower-emissions footing.

## References

- Australian Government (2015a), Setting Australia's post-2020 target for greenhouse gas emissions, Issues Paper, Department of Prime Minister and Cabinet, March.
- Australian Government (2015b), Australia's emissions projections 2014–15, Department of Environment, March.
- Climate Change Authority (2014), 'Reducing Australia's greenhouse gas emissions: targets and progress review'.
- Denis, A., Jotzo, F., Ferraro, S. et al (2014), 'Pathways to deep decarbonisation in 2050: how Australia can prosper in a low carbon world', ClimateWorks Australia and ANU.
- Garnaut, R. (2008), Garnaut Climate Change Review, Cambridge University Press.
- Global Commission on the Economy and Climate (2014), 'Better growth, better climate', New Climate Economy project.
- Jotzo, F. and Kemp, L. (2015), 'Australia can cut emissions deeply and the cost is low', Centre for Climate Economics and Policy, ANU Crawford School of Public Policy.
- Jotzo, F., Jordan, T. and Fabian, N. (2012), 'Policy Uncertainty about Australia's Carbon Price: Expert Survey Results and Implications for Investment', *Australian Economic Review* 45(4): 395–409.
- O'Gorman, M. Jotzo, F. (2014), 'Impact of the carbon price on Australia's electricity demand, supply and emissions' CCEP Working Paper 1411, ANU Crawford School of Public Policy.
- Teng, F. and Jotzo, F. (2014), 'Reaping the Economic Benefits of Decarbonization for China', *China & World Economy*, 22(5): 37-54. Also available as CCEP working paper.

**Table 1: Absolute emissions targets, for a common 2005 base year**

|              | USA  | EU   | Australia           |
|--------------|--|--|---------------------|
|              | -17% at 2020 cf 2005<br>-26% to -28% at 2025 cf 2005 | -20% at 2020 cf 1990<br>-40% at 2030 cf 1990 | -5% at 2020 cf 2000 |
| 2005 to 2020 | -17%   | -12%   | -11%                |
| 2005 to 2025 | -27%   |  |                     |
| 2005 to 2030 |  | -34%   |                     |

Source: UNFCCC data on total emissions incl LULUCF, own calculations.

**Table 2: Target annual average change in emissions**

|                       | USA      | EU       | Australia |
|-----------------------|----------|----------|-----------|
| 2005 to 2012 (actual) | -1.4% pa | -1.7% pa | +0.2% pa  |
| 2005 to 2020          | -1.2% pa | -0.8% pa | -0.8% pa  |
| 2020 to 2025          | -2.5% pa |          |           |
| 2020 to 2030          |          | -2.8% pa |           |

Source: UNFCCC data on total emissions incl LULUCF, own calculations.