origin

12 March 2015

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Climate Change Authority

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Dear Anthea,

Submission on draft report on future emissions reduction goals

Origin Energy Limited (Origin) welcomes the opportunity to make a submission to the Climate Change Authority's draft report on future emissions reduction goals, which forms part of a broader special review into emissions trading and international action. As you are aware, we have previously made submissions to the Targets and Progress Review in 2013.

Origin recognises that climate change is a global challenge and unequivocally supports measures to progressively reduce carbon emissions. We support Australia making an equitable contribution to this global effort, that the level of this effort be comparable to our most relevant trading partners and that it take account of the nature of the Australian economy.

Key points

Origin has the following key points to highlight:

- ***Australia's role in international negotiations*** - whilst responsible for a relatively small share of global emissions, Australia is an advanced and wealthy economy and has an important role to play in promoting effective global action on climate change.
- ***Deloitte Access Economics report into emission metrics*** - this report focuses on the use of carbon dioxide equivalent (CO_2-e) per unit of gross domestic product (GDP) as a key measure when comparing the relative "effort" of national emission reduction targets.
- ***2020 targets*** - the use of the CO_2-e/GDP metric shows that Australia's existing 2020 pledge is generally in the range of comparable G20 nations.
- ***The United States' 2025 target as a benchmark*** - applying this concept of comparable effort based on a reduction of emissions intensity to the announced US 2025 target, we have estimated an equivalent range for Australia.
- ***Other factors*** - consideration of the above range should also include reference to the nature of the Australian economy and its contribution to reducing global emissions, for example through the export of low emissions fuels.
- ***International units*** - we support access to genuine international emission reductions as a cost effective means of meeting national targets.

Announced post 2020 targets

Since the Targets and Progress Review Final Report in early 2014, a number of significant announcements have been made relating to longer term emission reduction pledges. Importantly, this includes announcements from the "big three" emitters:

- China intends to peak emissions by 2030 (or earlier);
- the United States has announced a 26-28% reduction on 2005 levels by 2025; and
- the European Union has pledged a 40% reduction on 1990 levels by 2030.

At the Lima UNFCCC meeting at the end of 2014 the Australian Government indicated that it would conduct a review in 2015 to consider Australia's post 2020 emission reduction target. This would be completed by mid-year so that a target could be pledged at the key UNFCCC meeting in Paris at the end of the year.

Authority approach to target setting

In the Targets and Progress Review Final Report 2014 the Authority outlined a principled approach to estimating a carbon budget for Australia, and an associated range of targets for the post 2020 period. Essentially, this approach is to start with the commonly accepted target of keeping warming to two degrees Celsius above pre-industrial levels and estimate a worldwide budget over a given time period to have a reasonable chance of meeting this target. The Authority then allocated a portion of this global budget to Australia (which can be done in a number of different ways) to arrive at a budget for Australia over the period to 2050 and a range of targets consistent with this budget. The relevant 2030 target was a minimum reduction of 40% on 2000 levels.

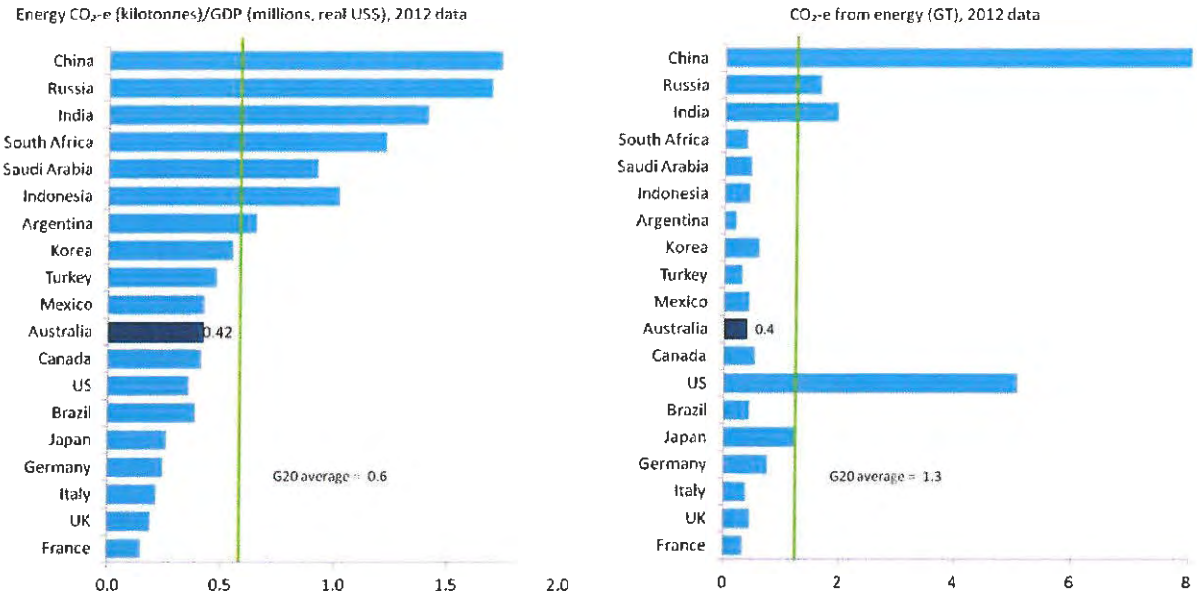
Whilst Origin agrees in principle with a logical top-down approach, we would call your attention to the more pragmatic, bottom-up, and potentially less-aspirational national target setting of the international negotiation process. We believe it is important for the Authority to take this into account when recommending emission reduction targets for Australia as part of this review, and not lock Australia into an excessive target that is inconsistent with broader international action. A more appropriate approach would be to reference Australia's target setting to actions by other countries, noting that all economies are different, and that emissions reductions must also be balanced with ongoing growth and social development.

Deloitte report into emissions metrics

In 2014, Origin commissioned Deloitte Access Economics (DAE) to compare Australia's greenhouse gas emissions against other nations in the G20. DAE's report - *Emissions metrics: Australia's carbon footprint in the G20* - has been separately provided to the Authority. It stated that national emissions comparisons are commonly cited on the basis of a carbon dioxide equivalent (CO_2-e) per capita metric, which has the benefit of being a simple and easy to understand scaled measure. However, this measure has some shortcomings and the report examined the use of CO_2-e per unit of Gross Domestic Product (GDP) as the normalising factor when making comparisons between countries. Ideally, countries should seek to reduce carbon emissions while maintaining economic growth, by reducing the emissions intensity of their economies. Historically, there has been a close link between GDP and emissions, however, in some countries this link is in the early stages of decoupling.

The report compared Australia's CO_2-e to other G20 countries. The G20 countries represent 66% of the global population, 85% of global GDP and 76% of global carbon emissions and therefore represent a substantial benchmark sample. The report shows that Australia's performance as measured in carbon emissions per unit of GDP is better than the G20 average. Subsequent to the publishing of the report, Deloitte updated the analysis with 2012 data, shown below.

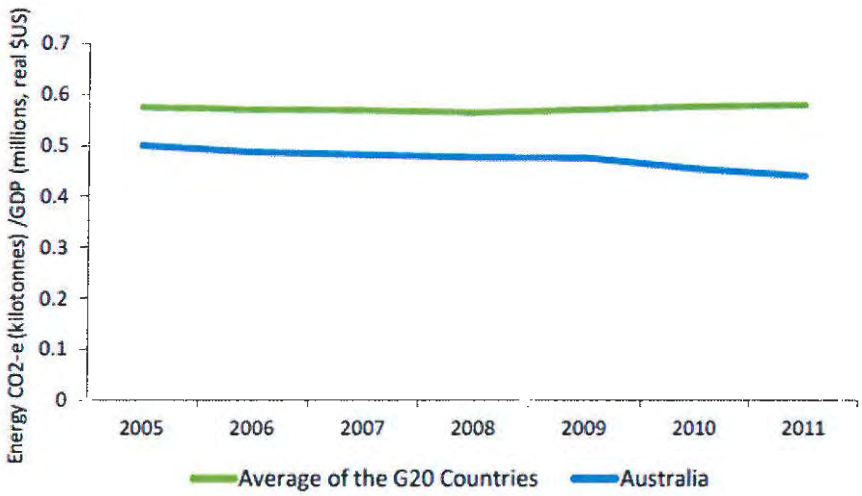
Carbon emissions per unit of GDP – where Australia sits in the G20



Source: World Resources Institute data, IEA data, Deloitte analysis.

Further, over time, Australia's emissions intensity has reduced, and at a faster rate than the G20 average.

Energy carbon emissions per unit of GDP over time



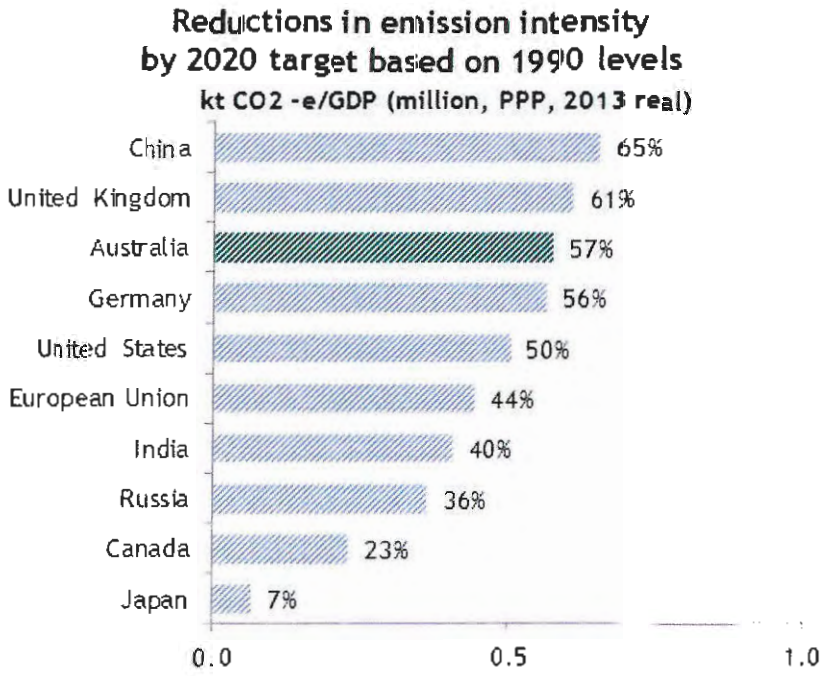
Source: IEA data, Deloitte analysis

Applying emissions metrics to national 2020 targets

As stated above, countries should seek to reduce carbon emissions while maintaining economic growth, by reducing the emissions intensity of their economies. This reduction in carbon intensity can be considered as a key indicator of the level of comparative "effort" implied by various targets. For example, Origin has applied the Deloitte analysis to a sub-group of G20 and other nations to estimate the reduction in emission intensity required to reach their respective national 2020 emission reduction targets.

The chart below indicates that Australia's target is slightly more onerous than that of the US for 2020, when considering this metric. This is despite the fact that the US target is expressed as a 17% reduction on 2005 levels; whilst a similar baseline of 2005 levels equates to a 12% reduction by 2020 for Australia.

Whilst we acknowledge that emissions per unit of GDP is unlikely to be accepted as the only measure of comparative effort, it could be used as one of a number of key comparators in order to articulate a given absolute emission reduction target for Australia for the post 2020 period. Assumptions would need to be made about economic indicators such as economic growth and exchange rates.



Source: Deloitte, Origin analysis

Comparing to the US 2025 target

Of the recently announced "big three" pledges, it is the United States which is most directly relevant to Australia. The US is a developed and wealthy nation with large energy resources and large potential energy exports. By comparison - China's target is to peak emissions rather than reduce them, whilst the EU is a collection of nations with many different types of economic structures and varying rates of growth - these factors make meaningful comparisons on long term emissions reductions targets more difficult.

The US pledge for 2025 is a 26-28% reduction on 2005 levels. What improvement in emissions intensity does this target imply?

There are different ways to estimate the reduction in carbon intensity required. For example, in the comparisons of 2020 targets above, 1990 has been used as the common base year in order to compare all the countries involved, particularly the EU which uses a 1990 baseline. If an effort baseline of 2005 is used for the US then we estimate this would require an improvement in emissions intensity over the period 2005-25 of about 50%. If however, the effort is measured from today (using 2014 data) then an improvement of 40% is required, over the 2014-2025 period for the US.

A similar level of "effort" for Australia implies absolute targets of:

- about a 15% reduction on 2005 levels, if effort is compared from 2005 (Scenario 1); or
- about a 23% reduction on 2005 levels, if effort is compared from today's (2014) levels (Scenario 2).

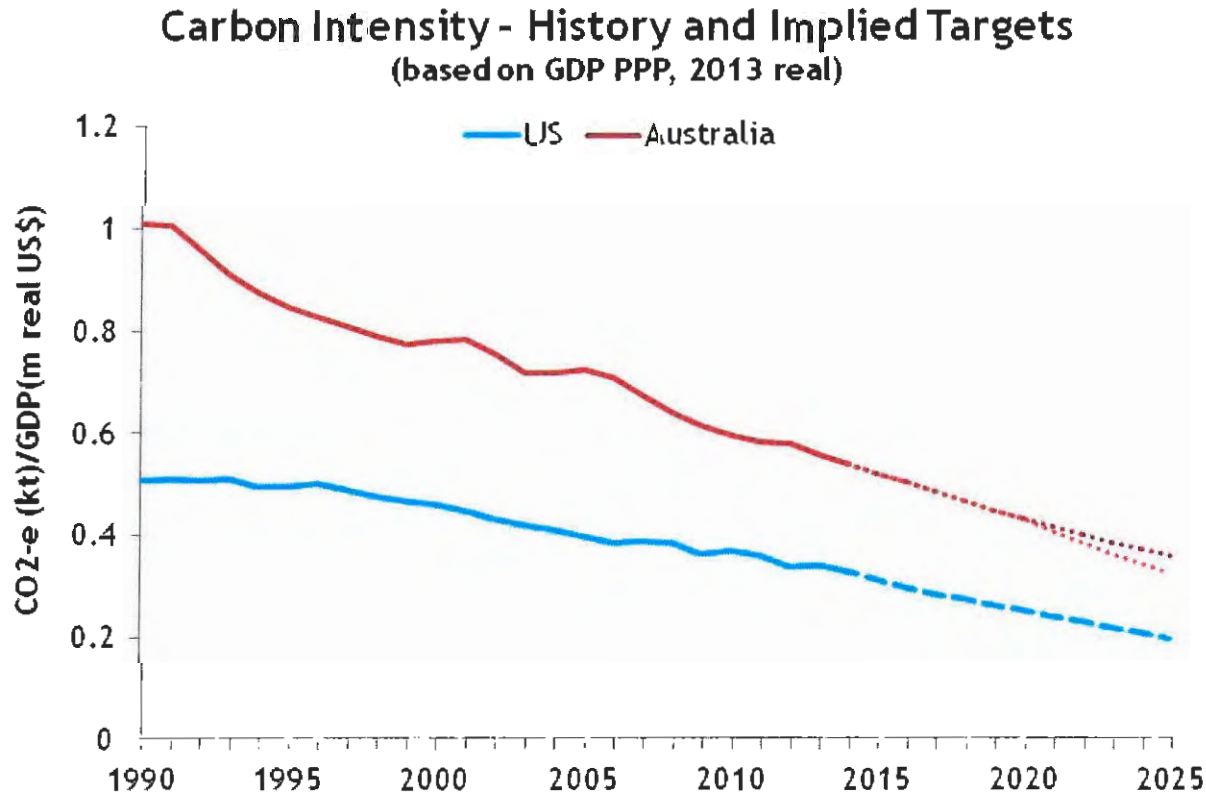
The approximate absolute targets that this represents are estimated in the table below and the change in carbon intensity is shown in the chart further below.

The US and Australia: Historical emissions, 2020 and 2025 targets (Mt CO_2-e)

	2000	*2005*	*2020*	*2025*
US	6415	6223	5165 (pledged)	4605 (announced)
Australia	586	635	557 (pledged)	*542-489 (estimate)*

Note:

- 2020 targets as pledged through UNFCCC process (US target of a 17% reduction on 2005 levels; Australian target of a 5% reduction on 2000 levels, which is approximately a 12% reduction on 2005 levels).
- US 2025 target of a 26% reduction on 2005 levels.



Source: Origin analysis using data from Department of Environment (Australia), US Environmental Protection Authority and International Monetary Fund.

Key assumptions used in these estimations include:

- a 26% reduction on 2005 levels by 2025 as the US target;
- emissions data includes emissions from the land use, land use change and forestry sector;
- economic growth projections based on International Monetary Fund data (2013 dollars, PPP) to the period 2020 and then extrapolated until 2025.

One relevant question from the range portrayed above is why the effort for Australia is higher under Scenario 2, compared to Scenario 1. The explanation is that the implied emission intensity cut of the new US target is about 50% by 2025, on the 2005 levels. By the CO_2-e/GDP measure, Australia appears to outperform the US in the period between 2005 and 2014, achieving about a 25% reduction in intensity compared to about 18% for the US (largely due to higher GDP growth). So taking this historical outperformance into account, the remaining task for Australia will be relatively easier to match the 50% intensity reduction target to 2025 in Scenario 1; and comparably more difficult in Scenario 2 which ignores the performance difference between 2005 and 2014.

We believe this analysis provides a useful starting point or guide for a potential target range for Australia to consider for a 2025 target. However, we must emphasise that this is a guide only - as can be seen from above, the estimated targets can vary depending on a range of factors such as the base year chosen and assumptions about economic growth. Further, we have only compared Australia against one relevant nation, and only on one metric. There are other relevant factors that should be taken into account, including the nature of the Australian economy and its role as a significant exporter of energy products. These factors will influence the cost that the nation faces when trying to achieve a given emission reduction target.

Other relevant considerations

There are different ways to consider the importance of Australia's role in reducing greenhouse gas emissions in a global context. On one hand, Australia is an advanced, wealthy economy with relatively high carbon intensity if measured on the basis of emissions per capita. So it has a responsibility to play its part in putting forward credible targets which promote strong global action on climate change.

On the other hand:

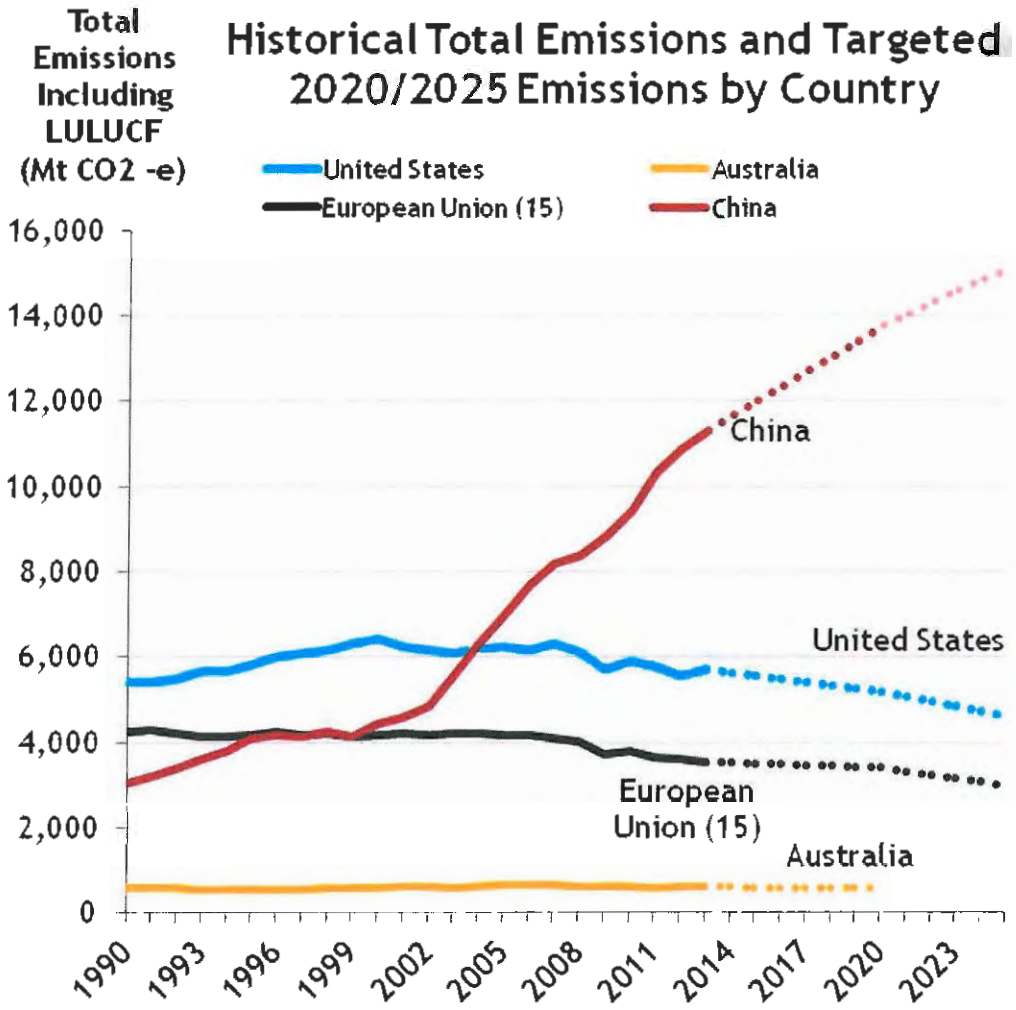
- Australia makes up less than 1.5% of world emissions;
- is relatively efficient when carbon intensity per unit of GDP is compared;
- has a relatively small domestic market and is generally a technology taker; and
- is a major exporter of low emissions energy sources.

Origin encourages the Authority to consider these qualitative factors when investigating what is an appropriate range of emission reduction targets for Australia. For example, when considering the chart above it is clear that Australia's emission intensity, whilst improving, is coming off a higher base than the US. This is largely due to the structure of the Australian economy.

Australia's targets have generally been expressed as net targets which take into account imports (and exports if they occur) of units of international emissions reductions. Whilst this has generally been limited to consideration of clearly defined imports such as Kyoto units, Origin suggests the Authority to consider other ways Australia contributes to emissions reductions internationally. For example, when Australia produces LNG it increases emissions in Australia but generally abates carbon emissions in the country that imports the LNG, when the fuel is used to replace coal for electricity generation.

The chart below puts in context the absolute emissions levels of Australia, compared to the "big three" emitters. As can be seen, Australia's emission levels are relatively small when compared to the other three, and it follows that a given reduction in Australia's 2025 target (or longer term targets) will have little significance for overall global emissions. In contrast, Australia can make a

difference to overall global emissions by exporting low emissions fuel sources to rapidly growing economies like China, and potentially India and other nations as well.

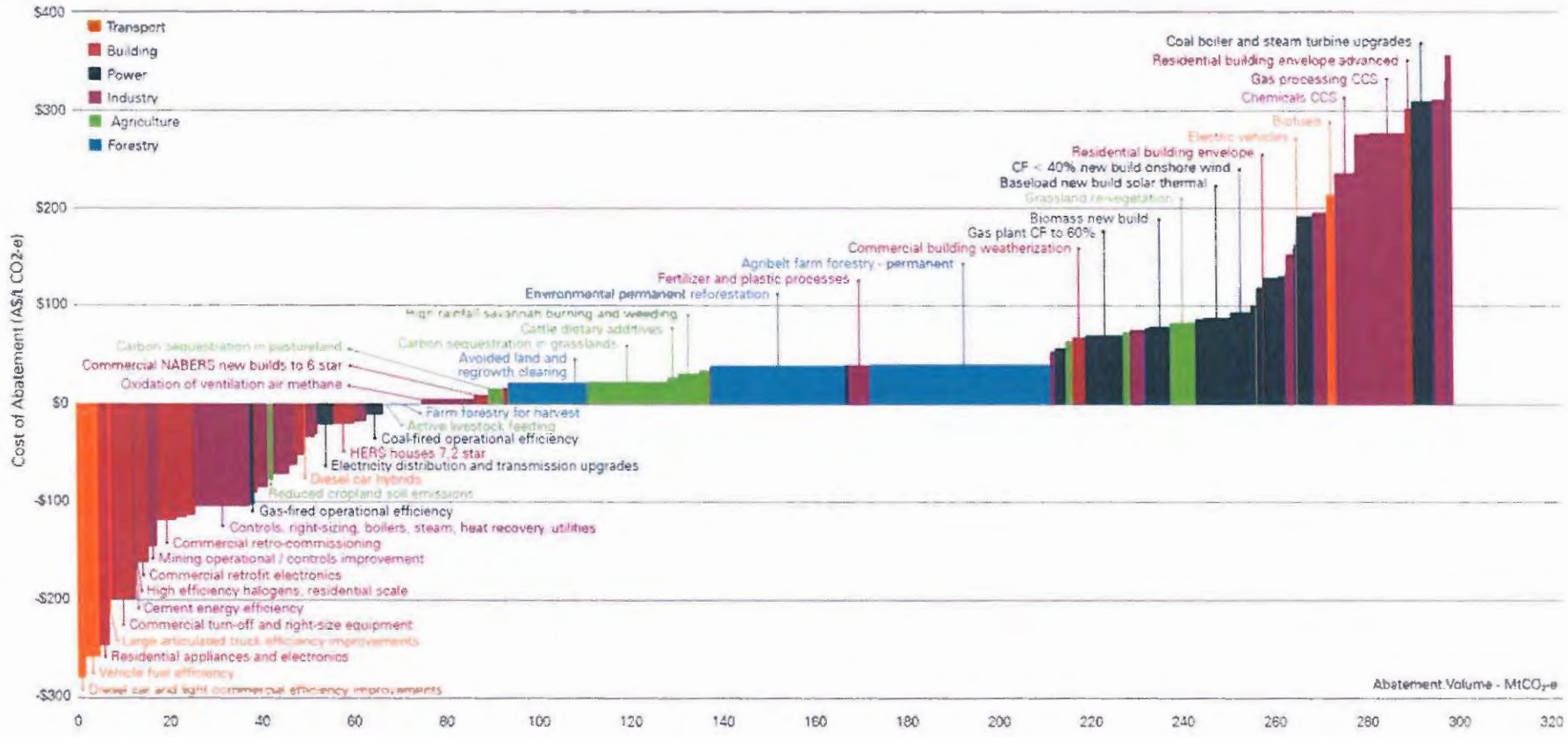


Source: Origin analysis using data from Department of Environment (Australia), US Environmental Protection Authority, European Environment Agency and World Resources Institute.

Further, the practical domestic polices required to meet a given target, and their associated costs are a highly relevant factor when comparing emission reduction targets across nations. Taking the US as an example, some may argue that the US is already on a trend to achieve their 2025 target with US emissions having already fallen about 10% from 2005 levels. This is largely due to technological development which has caused a shift to lower emissions fuel sources for electricity generation. Similarly, China's 2030 target to peak emissions could be considered as a business-as-usual scenario.

However, when policies required to achieve deep cuts in Australian emissions are analysed, such as structural reform of the electricity sector, it is generally acknowledged that this involves relatively high abatement costs. A recent estimate of the abatement cost curve for Australia for the period to 2030 is shown below. In summary, in order to confidentially set national emission reduction targets it is important that policymakers understand the potential costs of the domestic policies required to achieve these targets.

Figure 2 – Australian 2030 carbon abatement cost curve



Source: Reputex (2015)

International emission reductions

In the Targets and Progress Review Final Report 2014 the Authority made a strong recommendation to allow access to genuine international emission reductions as a cost effective means of meeting national targets. Whether this involves the Government setting up a fund to purchase such units or more direct access by Australian firms, we believe it is prudent to retain the flexibility provided by using international permits.

To counter concerns around the credibility of international offset projects strict qualitative criteria could be placed on the types of units that could be allowed for Australian purposes. Quantitative limits on the amount of permits purchased could also be used as a further safeguard, and as a way of limiting concerns about the outflow of Australian funds. Direct links with other schemes would not be necessary in the first instance. Rather, international units could be a form of third party offset. This would mitigate the policy risk faced by Australian purchasers of international units.

If you have any questions regarding this submission please contact Matthew Kaspura (Manager Carbon Policy) on (02) 8345 5287.

Yours sincerely,

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