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Hon Bill English

ORIGINAL

THE TREASURY
Kaitohutohu Kaupapa Rawa

Treasury Report: Copenhagen International Climate Change Agreement: Potential Economic and Fiscal Impacts

Date:	17 July 2009	Report No:	T2009/1695

Action Sought

	Action Sought	Deadline
Minister of Finance (Hon Bill English)	**Note** the contents of this report **Forward** a copy to the Prime Minister and Associate Ministers of Finance	**Before** officials meet you on Tuesday 21 July

Contact for Telephone Discussion (if required)

Name	Position	Telephone	1st Contact
Andrew Blazey	Manager: Climate Change, Energy and Commercial Operations	*[information deleted in order to protect the privacy of natural persons, including deceased people]*	✓
[free and frank]	Analyst		

Minister of Finance's Office Actions (if required)

Forward a copy of the report to the Ministers identified	✓

Enclosure: No

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Treasury Report: Copenhagen International Climate Change Agreement: Potential Economic and Fiscal Impacts

Executive Summary

International negotiations on a climate change agreement to follow the Kyoto Protocol are due to conclude in Copenhagen in December. The economic and fiscal implications for New Zealand will be significant, and will be largely determined by decisions made by Cabinet in the next 4 months. These decisions include New Zealand's 2020 emission reduction target, and the financial support we provide to global efforts on mitigation and adaptation.

A decision on a 2020 target is due to be made by Cabinet in early August. It will form the basis from which legally binding commitments will be negotiated. There is pressure, both domestically and internationally, for New Zealand to announce an ambitious 2020 target, in the range of 15 to 40% below 1990 levels.

The analysis in this report presents a challenging point of difference from these views.

The approach used by Treasury, in estimating what would represent a fair target for New Zealand, is based on the internationally recognised principle that the first-order costs of meeting a target (as a % of GDP) should be relatively similar for all countries. Using this approach, and taking into account the targets that other countries have pledged to date (about 15% below 1990 on average), the modelling indicates that New Zealand should accept a target of about 15% above 1990 levels.

A target of 15% above 1990 would still impose costs on New Zealand. Assuming a $50/tonne price of carbon, modelling indicates that conservative estimates of first-order costs are around 0.05% of GDP in 2020. At $100/tonne they are around 0.1%. In analysis conducted by NZIER and Infometrics, which includes second-order costs, the 2020 impact on GDP is estimated at about 2%. More ambitious targets will impose additional costs.

Over the period 2013-2022 Treasury estimates that the additional costs for New Zealand are approximately $6 billion for every 15 percentage point movement in the target. Accepting a target of 15% below 1990 rather than 15% above 1990 will impose additional costs on New Zealand of approximately $12 billion.

A Cabinet paper by the Minister of Climate Change Issues will be prepared by the end of July, seeking agreement on a target. Treasury will provide you further advice on the specific recommendations contained within that paper, once it is available.

In addition to the costs of meeting a future emission reduction target, there is an international expectation that individual countries will contribute financial support to the global effort on mitigation and adaptation. International studies estimate that US$100-200 billion will be required globally by 2020.

[information deleted in order to maintain the current constitutional conventions protecting the confidentiality of advice tendered by ministers and officials; and to enable the Crown to carry on negotiations without prejudice or disadvantage]

Recommended Action

We recommend that you:

a **note** the contents of this report, before officials will meet you on Tuesday 21 July.

Agree/disagree.

b **refer** this report to the Prime Minister, and Associate Ministers of Finance, for their information.

Agree/disagree.

Andrew Blazey
Manager, Climate Change, Energy and Commercial Operations
for Secretary to the Treasury

Hon Bill English
Minister of Finance

Treasury Report: Copenhagen International Climate Change Agreement: Potential Economic and Fiscal Impacts

Purpose of Report

1. This report briefs you on the two key decisions that need to be made by Cabinet over the next 4 months with respect to international climate change negotiations. It draws attention to the significant economic and fiscal consequences associated with these decisions.

Introduction

2. New Zealand ratified the Kyoto Protocol in 2003, and in doing so agreed to an emission reduction target of 1990 levels for the first commitment period (2008-2012).

3. Over the last two years New Zealand has been participating in negotiations on a 'post-2012' international climate change agreement. These negotiations are due to conclude in Copenhagen in December this year.

4. A central part of the agreement will be the emission reduction targets that countries commit to from 2012. As a first step, many developed countries have pledged a 2020 emission reduction target, or target ranges conditional on other countries' efforts.

Country	Announced target	Relative to 1990 levels
European Union	20-30% below 1990	20-30% below 1990
Australia	5-25% below 2000	4-24% below 1990
USA	14% below 2005	0% below 1990
Japan	15% below 2005	8% below 1990

Table 1: targets which other countries have pledged

5. New Zealand has stated it will announce a 2020 target at the 10-16 August negotiating session. A Cabinet paper will be prepared by the end of July, seeking agreement on the target or target range. Treasury will provide you further advice on the specific recommendations contained within that paper, once it is available.

6. The Minister for Climate Change Issues has just finished an intensive two-week public consultation on New Zealand's 2020 target. *[information deleted in order to maintain the effective conduct of public affairs through the free and frank expression of opinions]*

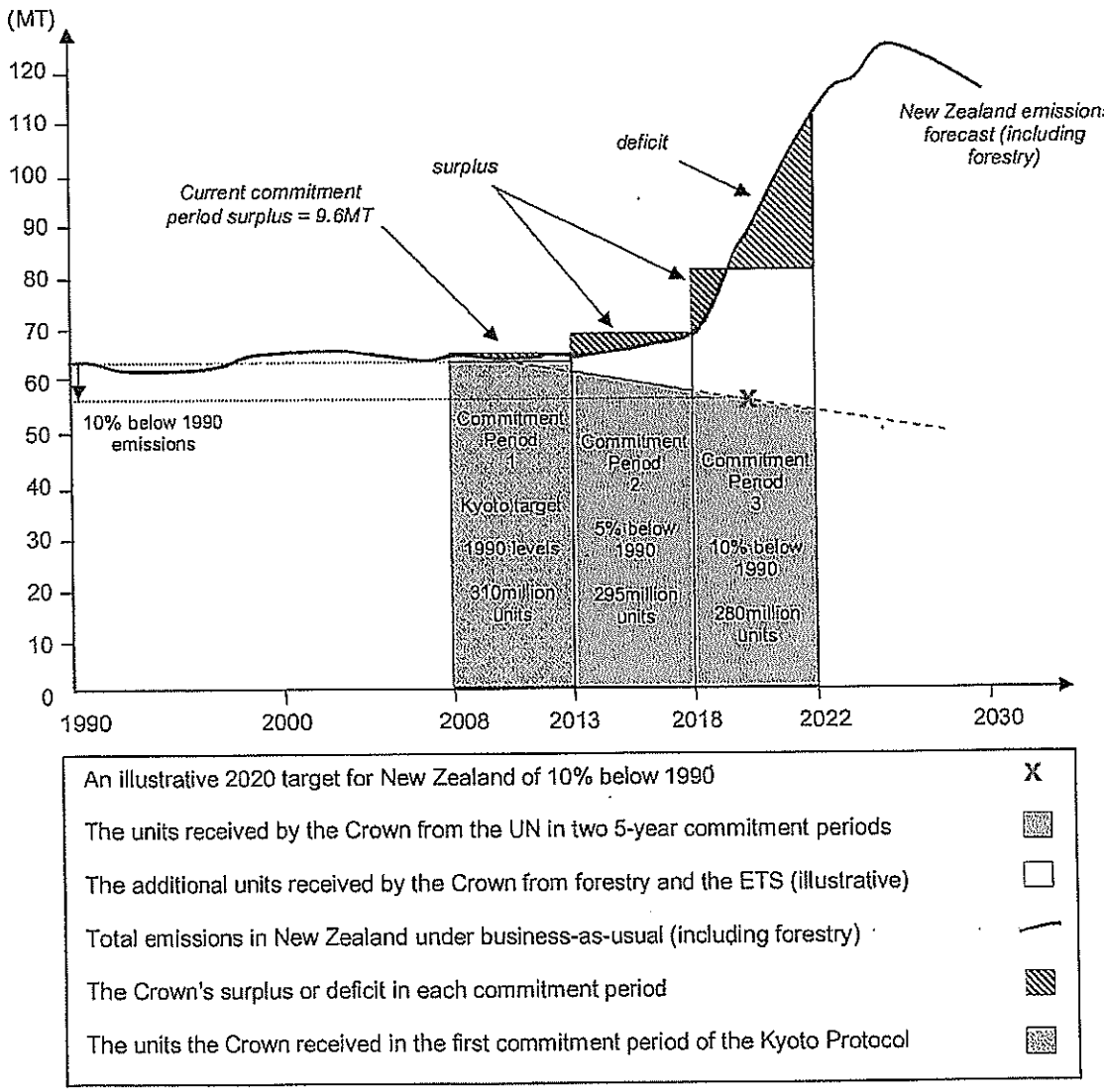
7. Further, there is an expectation from other countries that the New Zealand Government will make a financial commitment to support global efforts on mitigation and adaptation. *[information deleted in order to maintain the current constitutional conventions protecting the confidentiality of advice tendered by ministers and officials; and to enable the Crown to carry on negotiations without prejudice or disadvantage]*

New Zealand's 2020 Emission Reduction Target

8. New Zealand's 2020 target will form the basis from which legally binding commitments will be negotiated. Figure 1 uses an illustrative 2020 target of 10% below 1990 levels to show how binding commitments for the two 5-year periods following the Kyoto Protocol could be calculated. The two commitments determine the overall level of units the Crown is freely allocated by the United Nations (UN) over the 10 year period. In addition to these units, the Crown also receives units from the domestic emissions trading scheme (ETS) and the forestry sector.

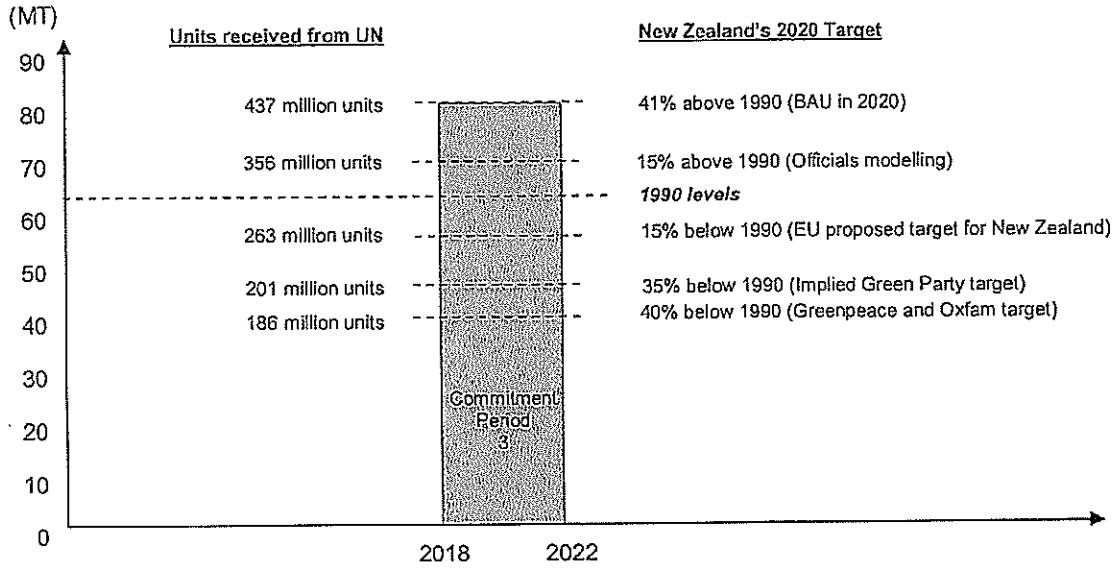
9. At the end of a commitment period, the Crown provides the UN with one unit for every tonne of emissions that occurred during the period. If there is a surplus or deficit it can sell and buy units on the international market. By reducing levels of free allocation in the ETS, the Crown will have more units; however, this is only transferring the cost from the Crown to domestic emitters. The level of deficit/surplus, and the overall cost to the economy, is primarily determined by the number of units allocated by the UN. A more ambitious target would lead to less units, greater deficits and higher overall costs to New Zealand.

Figure 1: an illustrative example of the factors which determine the Crown's deficit/surplus



10. There is considerable pressure, both domestically and internationally, for New Zealand to announce an ambitious 2020 target. Officials have been conducting extensive analysis on what would represent a fair target for New Zealand. The approach is based on the internationally recognised principle that the first-order costs of meeting a target (as a % of GDP) should be similar for all countries. The first-order costs include the direct costs of reducing emissions domestically and the costs of purchasing units on the international market. Using this approach, and taking into account the targets that other countries have pledged (about 15% below 1990 on average), the modelling indicates that New Zealand should accept a target of about 15% above 1990 levels. Figure 2 shows the relationship between proposed targets and the amount of units the Crown would be allocated by the UN.

Figure 2: Units allocated by UN in 5 year period under proposed 2020 targets



11. The additional first-order costs of accepting a target of 40% below 1990 rather than 15% above 1990 is equal to the difference in the amount of units allocated, multiplied by the value of these units. Using a reasonably conservative value of NZ$50/unit, a target of 40% below 1990 compared to 15% above 1990 would result in 170 million fewer units, at a cost of NZ$8.5 billion over a third commitment period (2018-2022).

12. As illustrated in figure 1, New Zealand's 2020 target is also likely to determine the level of units allocated in a second commitment period (2013-2018). The impact that different 2020 targets could have on the number of units allocated to the Crown over these two 5-year commitment periods is presented in table 2. For every 15 percentage point movement in the target there is approximately $3.5 billion worth of units at stake over the 10year period.

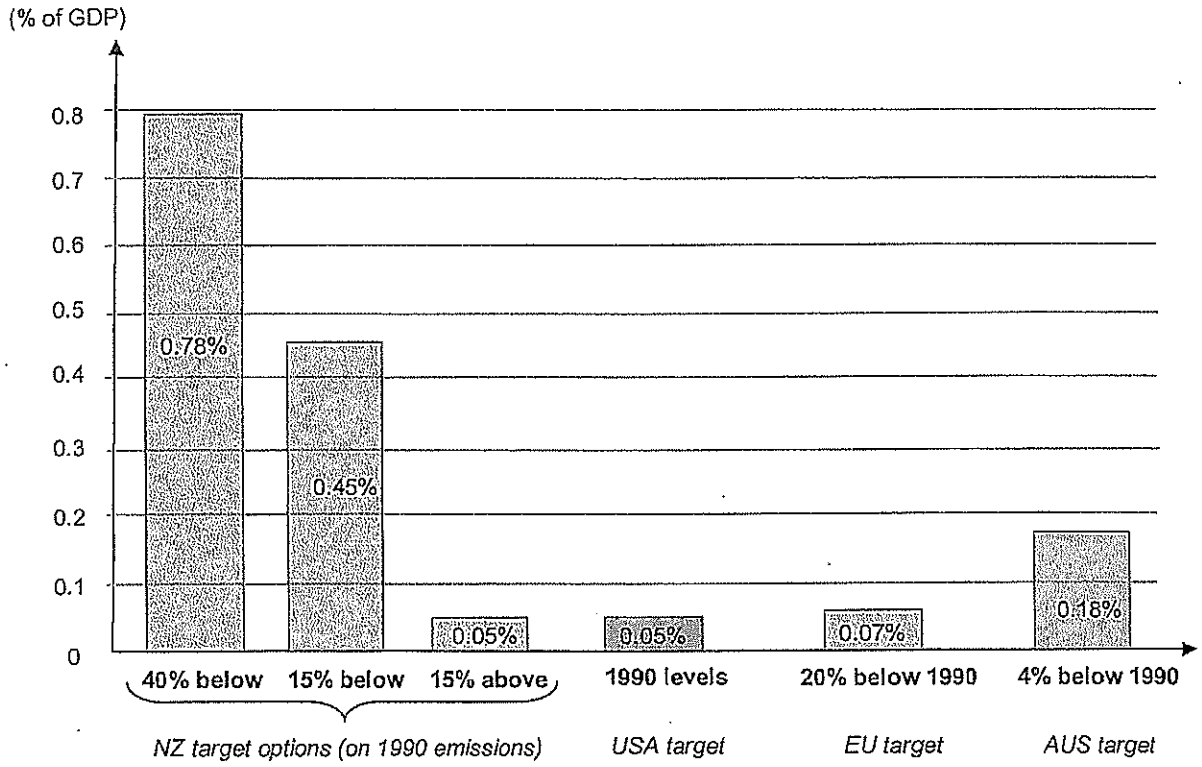
Target choice	Difference in units	Value of units	First-order costs over 10 years
40% below 1990 *vs* 15% above 1990	256 million	$50/unit	**$12.8 billion**
15% below 1990 *vs* 15% above 1990	140 million	$50/unit	**$7.0 billion**
0% below 1990 *vs* 15% above 1990	70 million	$50/unit	**$3.5 billion**

Table 2: first-order costs for New Zealand by choosing different targets

Comparable cost approach to setting targets

13. A target of 15% above 1990 is economically fair for New Zealand, as it imposes similar first-order costs (as a % of GDP) as the targets announced by other countries. However, given the expectation from both domestic and international audiences for much more ambitious targets, it will be difficult to sell. Figure 3 illustrates the costs of three New Zealand targets, and compares them with the costs that other countries would face in meeting their own announced targets. These costs are calculated by comparing the technical potential that exists in each country to reduce emissions, and are therefore conservative estimates.

Figure 3: First-order costs of meeting targets (as a % of GDP in 2020) with a price of $50/unit



14. There are three key reasons why a target for New Zealand of 15% above 1990 is comparable, in terms of first-order costs, to the targets announced by other developed countries:

    i. high population (and associated emission) growth between 1990 and 2020 in New Zealand compared to other developed countries;

    ii. limited opportunities to reduce emissions, due to high emissions from pastoral agriculture and low emissions from electricity generation; and

    iii. New Zealand is relatively poor, which means our ability to pay for emission reductions is less than other developed countries.

Other factors to consider when choosing a target

15. There are a number of other issues that you need to consider when making a decision on what target to announce in August. Table 3 outlines these issues and provides you with a brief commentary on their potential significance.

Issue	Treasury comment
Conditionality	A number of countries have chosen to announce more than one target, or a target range. The targets are often stated as being conditional on different levels of effort from other countries. New Zealand could announce a more ambitious target conditional on other countries making more effort. This could be presented as a target range i.e. 15% above 1990 to 5% below 1990. Although this would make New Zealand's target look better, there is a risk that if the conditions are not met it may be difficult to choose the less ambitious target.
Base-year	Countries have also chosen to reference different base-years when announcing targets. For example, a target of 15% above 1990 for New Zealand is equal to 9% below 2006. Treasury would recommend using a 2006 base-year, as it more accurately reflects the effort being made by countries.
Other criteria	Criteria other than 'equal costs' have been used by countries when choosing targets, for example relative emissions per capita. Treasury recommends an equal cost approach should be the key criterion, but recognises that it will be necessary to understand what a fair target for New Zealand would be under other approaches.
Forestry	As the international accounting rules for forestry are yet to be finalised, the 2020 targets for New Zealand presented in this paper do not include this sector. Under the current Kyoto rules, including this sector is unlikely to have major implications for the target. However, there is a proposal to move from gross-net to net-net accounting, which would considerably reduce the level of units we are allocated by the UN, (net emissions in 1990 were much less than gross). Given the uncertainty in future rules. Treasury recommends announcing either a forestry exclusive target or a target based on the current Kyoto rules.
Split target	The Government could announce separate targets for different gases or sectors. Treasury does not recommend such an approach, as it is not credible internationally nor in keeping with a least-cost approach – where emissions are reduced in the sectors or gases where it is most efficient to do so.

Table 3: issues to consider when choosing a 2020 target

Macro-economic impacts

16. Infometrics and NZIER were commissioned by the Ministry for the Environment to estimate the wider impacts on the economy associated with different targets, using Computable General Equilibrium (CGE) modelling. These estimates include the first-order costs of meeting targets as well as second-order effects, such as the associated exchange rate movements, which also impact on GDP. Their analysis concluded that if New Zealand accepted a target of 15% above 1990, there would be about a 2% reduction in GDP in 2020.

17. To estimate the additional costs associated with more ambitious targets, the report concluded that *the impact of an extra AAU allocation on national economic welfare is around 1.7 times the value of the unit.* This is primarily because lowering the allocation of units is expected to result in a depreciation in New Zealand's exchange rate, which

would reduce purchasing power and private consumption. When this rule is incorporated in the earlier analysis, contained in table 2, the additional costs over a 10-year period are approximately $6 billion for every 15 percentage point movement in the target. Accepting 15% below 1990 rather than 15% above 1990 will impose additional costs on New Zealand of approximately $12 billion over the period 2013-2022.

Financial support for global action

18. In addition to the costs of meeting a future emission reduction target, there is an international expectation that individual countries will contribute financial support to the global effort on mitigation and adaptation.

19. A number of studies have been undertaken to quantify the amount of finance that will be required globally. The World Bank has recently published a report which estimates that around US$120 billion could be required per annum, to support developing countries adapt to the physical impacts of climate change. A further US$100 billion of financial support will be required for mitigation in developing countries, although a portion of this will be enabled through the carbon markets. These figures are consistent with a United Nations report, which estimates about $250-300 billion will be required in 2030 globally to support countries adaptation and mitigation efforts. They are also reasonably consistent with a recent public announcement by the UK Prime Minister, in which he proposed an international fund be to established - requiring contributions of US$100 billion per annum by 2020.

20. *[information deleted in order to maintain the current constitutional conventions protecting the confidentiality of advice tendered by ministers and officials; and to enable the Crown to carry on negotiations without prejudice or disadvantage]*

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