



Ministry for the  
**Environment**  
*Manatū Mō Te Taiao*

## Final updated report on modelling the economic impacts of different 2020 target scenarios

<b>Date:</b>	22 July 2009	<b>MfE Priority:</b>	Non-Urgent
<b>Security Level:</b>		<b>Number of Attachments:</b>	Two
		<b>MfE Ref No:</b>	09-B-02067

	<b>Description</b>	<b>Relevant dates</b>
Minister for Climate Change issues Hon Dr Nick Smith	Note the attached final report on the macroeconomic impact of different 2020 targets  Note the attached outline of a report being prepared on impacts of 2020 targets on the Māori economy.	None
Associate Minister for Climate Change Issues (International Negotiations)	None	None

## Ministry for the Environment Contacts

<b>Name</b>	<b>Position</b>	<b>Telephone</b>		<b>1st Contact</b>
		<b>(cell)</b>	<b>(work)</b>	
Daniel Twaddle	Analyst, Climate Change		439 7507	
John Scott	Acting Manager, Climate Change	<b>[Withheld]</b>	439 7573	✓
Stuart Calman	Director, Climate Change and Risk Directorate	<b>[Withheld]</b>	439 7571	

## Background

---

We recently provided you with a report on the macro-economic impacts of different 2020 target scenarios modelled by consultancies Infometrics and NZIER (09-B-01970 refers). That report has now been revised and updated, and a copy of the final report is attached.

We have also engaged NZIER to undertake further work to analyse and report on the impact of 2020 targets on the Māori economy. That report is due to be completed on 31 July. The outline of this report is attached.

## New content in the report

---

The Infometrics/NZIER report previously sent has been updated to:

- Clearly identify for each scenario the amount of the target that is met through domestic reductions, and the amount of emission units that must be purchased internationally
- Include a discussion of the impact that emission pricing on forestry could have in helping to meet a 2020 target, and the economic implications of this
- Compare how different allocation policies change the modelling results.

The final report is attached as Appendix One. Major changes from the previous version of the report are highlighted in the report, and are discussed briefly below.

### *Separating domestic reductions from taking responsibility for reductions internationally*

In the previous version of the report there was no explicit break-down of the extent to which targets were met domestically or through purchases of emission units internationally. In this version all target scenarios clearly display the amount of reductions that occur domestically and the amount of emission permits purchased internationally.

### *Effect of different allocation policies*

The previous version of the report assumed a domestic Emissions Trading Scheme (ETS) with no free allocation in comparing different targets for New Zealand. An appendix has now been added to illustrate how free allocation is expected to alter the results. This compares the following scenarios:

- A reduction to 1990 levels with no free allocation; and
- A reduction to 1990 levels with free allocation based on 90% of production to agriculture, dairy processing, wood and paper, chemicals, cement and base metals.

The results indicate that:

- Free allocation reduces the amount of emission reductions achieved domestically, and therefore increases the amount of emission units that must be purchased internationally to meet a given target
- Free allocation results in about half the GDP impact of no free allocation, but the change to Real Gross National Disposable Income (RGNDI) is only marginal. This difference reflects the fact that firms will be under less of a competitive disadvantage with free allocation (smaller effect on GDP) but that more units will need to be purchased internationally (RGNDI relatively unchanged).

APPROVED FOR RELEASE

These results confirm that there is a tradeoff: increasing free allocation dampens the negative impact on GDP, but results in lower domestic emission reductions (there are minimal effects on welfare).

*Inclusion of forestry*

The previous version of the report did not include the effect of emission pricing on forestry, because the economic models used by the consultants cannot reliably predict this. Because emissions pricing could have a significant impact on forestry, a section that discusses how forestry could alter the modelling results has now been included.

MAF analysis indicates that emission prices of as low as \$20 could lead to significant reductions in 2020 net emissions, in the order of up to about 30 million tonnes. This is due to the financial incentive that emission pricing provides to increase forest planting (up to 100,000 hectares annually) and extend forest rotation lengths<sup>1</sup>. The paper notes that this is very difficult to predict.

Reduced net emissions through the impact of an emissions price on forestry lowers the amount of Assigned Amount Units (AAUs) required to be purchased internationally. This is comparable to an increase in New Zealand's allocation of AAUs of a less stringent target. As a result, the reduction in RGNDI under a given target is expected to be lower when there are larger forestry responses.

The MAF estimates of possible forestry responses to emissions pricing are only theoretical estimates based on the financial incentives that emission pricing provides, and should be treated as an upper range estimate. There are a number of additional factors that complicate estimates of the forestry response and may limit it. You will be briefed on these shortly.

---

<sup>1</sup> It should be noted that both of these responses will result in increased emissions later if/when those forests are subsequently harvested.

## **Recommended Action**

---

We recommend that you:

- (a) **Note** the attached final report on the macroeconomic impact of different 2020 target scenarios
- (b) **Note** the attached outline of a report being prepared on impacts of 2020 targets on the Māori economy.

John Scott

**Acting Manager, Climate Change**