

Regulatory Impact Statement

ETS Review 2011: Proposed amendments to the Climate Change Response Act 2002 – Part 1

Agency Disclosure Statement

This Regulatory Impact Statement (RIS) has been prepared by the Ministry for the Environment with input from the Ministry for Agriculture and Forestry.

Under current legislation, a number of changes to the New Zealand Emissions Trading Scheme (ETS) will come into force on 1 January 2013, such as an end to the transition measures. If the Government wants to make changes to these ETS settings then legislative amendments need to be made before the end of 2012.

The RIS provides an analysis of numerous problems identified with the ETS as currently legislated and a range of policy options that could address these problems. Where possible a preferred option has been identified. These preferred options require legislative amendments to implement.

The analysis conducted is underpinned by a range of assumptions, not least the assumed carbon price to 2020. In addition, some of the ETS cost estimates presented depend on emission projections produced by various models which in turn depend on a range of assumptions. Furthermore the analysis has been conducted in the context of significant uncertainty, such as how the international carbon market will evolve and the level of any emission reduction target New Zealand may set for the period to 2020. While substantial consultation has taken place, further work and consultation is recommended for some problems in order to test the policy options further or to assist in the implementation of the preferred option.

Many of the proposals would benefit business by reducing their costs either by providing them more options and flexibility (e.g. the introduction of offsetting for pre-1990 forest owners) or reducing risks they would otherwise face (e.g. the introduction of auctioning). Some preferred options would increase costs (e.g. using revised global warming potentials) and reduce flexibility (e.g. extending the ban on exporting New Zealand Units for the non-forestry sectors).

[Withheld under s9(2)(g)(i)]. [Withheld under s9(2)(g)(i) and s9(2)(h)].

None of the proposals would impair market competition, or the incentives on businesses to innovate and invest. Nor would they override fundamental common law principles.

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Signature of person

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Executive summary

1. This Regulatory Impact Statement (RIS) is part one of a series of three and summarises the regulatory impact analysis of a range of problems identified with the Emissions Trading Scheme (ETS) as currently legislated. These problems have been identified from a number of sources, such as:
 - the 2011 ETS Review Panel's (the Panel) recommendations for specific changes to the ETS and for the Government to consider certain issues further
 - stakeholders' submissions during the Panel's consultation
 - Government agencies' experiences from implementing the ETS to date.
2. For each problem a number of alternative policy options have been considered against an assessment criteria. This assessment criteria is based on three high level objectives agreed by Cabinet for the Panel's review, namely:
 - helps New Zealand to deliver its 'fair share' of international action to reduce emissions, including meeting any international obligations
 - delivers emission reductions in the most cost effective manner
 - supports efforts to maximise the long term economic resilience of the New Zealand economy at least cost.
3. Based on this assessment, officials recommend a number of changes to the ETS. These changes required legislative amendments to the Climate Change Response Act 2002 (the Act). Under current legislation, a number of changes to the ETS will come into force on 1 January 2013, such as an end to the transition phase measures. If the Government wants to make changes to these ETS settings then legislative amendments need to be made before the end of 2012.

Global warming potential

4. The global warming potentials (GWPs) used to estimate emissions will change in 2013 for the purposes of reporting New Zealand's international emissions. However, under current legislation, the ETS will continue to be based on the old GWPs. This will lead to inconsistencies in the reporting of emissions. The new GWPs will however result in higher costs for some ETS participants. On balance, officials recommend that the new GWPs are used under the ETS.

Auctioning

5. The ETS as currently legislated is estimated to achieve excessive emission reductions when the number of overseas units surrendered by ETS participants is taken into account. Overseas purchasing is also likely to reduce domestic economic welfare. In order to introduce more flexibility into the ETS over the level of emission reductions it achieves, officials recommend that a fixed amount of New Zealand Units (NZUs) are auctioned (over and above those that are allocated). This would reduce the number of overseas emission units bought and surrendered. It is proposed that auctioning is introduced in 2015, as this would allow more time to develop and test (e.g. through a pilot auction) the auction design. Auctioning encompasses a broad spectrum of options. Further work and consultation is required before decision on the final auction design can be made.

Backing NZUs with Kyoto units

6. Under current policy, all NZUs issued should be backed with units created under the Kyoto Protocol (i.e. Kyoto units). The backing policy ensures that the Crown could meet its Kyoto Protocol obligations and supports the environmental integrity of the ETS by constraining the Crown from issuing an unlimited amount of NZUs. It is estimated that the Government will need to buy 25m Kyoto units¹ in the first commitment period of the Kyoto Protocol (CP1) to achieve its backing policy. This entails a significant fiscal cost.
7. In any case, New Zealand is expected to exceed its Kyoto Protocol obligations. This means the benefits of the backing policy, in terms of meeting the Kyoto Protocol obligations and environmental integrity, are negligible. Officials recommend that the backing requirement during CP1 be removed.
8. Whether a backing policy is required after CP1 depends on whether a cap on the amount of NZUs issued is introduced. If so, then this would provide environmental integrity for the ETS and backing after CP1 would not be required.

Transition phase

9. Under the ETS as currently legislated, the transition phase measures stop at the end of 2012. Extending the one-for-two surrender beyond 2012 would reduce costs to business and households in the short term, although this would come at a fiscal cost. Similarly, extending the price cap beyond 2015 would mitigate the risks of price shocks given international market uncertainty. This would however create a fiscal risk.
10. If a price cap is extended beyond 2012 then this creates an arbitrage risk if the price of overseas units is above the price cap. Under the current transition phase, there is a ban on the sale of NZUs overseas from the non-forestry sectors. Officials recommend that, if the price cap is extended beyond 2012, the ban on exports from the non-forestry sectors is also extended beyond 2012.

Pre-1990 forestry

11. Under the ETS as legislated, and consistent with the rules under the Kyoto Protocol for the first commitment period, pre-1990 forest owners face a liability if they cut down their forest and convert to an alternative land use (i.e. deforestation). This limits the ability of forest owners to convert their land for a more productive use. A flexible land use rule for pre-1990 forests was agreed in Durban, to apply in a second commitment period of the Kyoto Protocol from 2013. This means forest owners can convert their pre-1990 forest land to an alternative use without incurring a deforestation liability by planting an 'offsetting' forest elsewhere. While officials recommend that pre-1990 forestry offsetting be introduced from 2013, further work and consultation is required on the precise rules.
12. A one-off allocation of NZUs will be received by pre-1990 forest owners as compensation for the land use restriction that arises from the deforestation liabilities under the ETS. The one-off allocation will be transferred in two tranches, the first before the end of 2012 and the second during 2013. Arguably the introduction of offsetting reduces the cost of deforestation and would remove the need for compensation. However, additional costs would be incurred such as the cost of purchasing the land used for offsetting. **[Withheld under s9(2)(h)]**. Officials

¹ Note that the Government may receive additional international units if a large amount of CERs are surrendered by ETS participants. However these will be surrendered in place of an NZU so this will not change the Government's total emission unit position.

recommend further work and consultation before reaching a decision on cancelling all or part of the second tranche.

Consultation

13. There has been consultation on many of these issues through the Panel's consultation. However, further consultation is required for some issues, as noted above, where there are more detailed implementation issues or where the issue has not previously been consulted on (e.g. the introduction of auctioning and cancellation of the second tranche to pre-1990 forest owners).

Implementation, monitoring and evaluation

14. These proposals will be implemented through amendments to the Act and supporting regulations.
15. The amendments made will be monitored and evaluated to ensure they effectively address the problems identified. Monitoring and evaluation plans will be developed once these proposals have been approved by Cabinet. The Act requires five-yearly reviews of the ETS (the first occurred in 2011). The review in 2016 will provide an opportunity to reassess the effectiveness of the proposed amendments and the ETS more broadly. The monitoring and evaluation plans will ensure that the review has the information available to it to make this assessment.

Glossary of terms

AAU	Assigned Amount Unit. An AAU is an internationally tradable emission unit or carbon credit issued as part of the Kyoto Protocol to allow countries to meet their emission obligations and is equal to one metric tonne of carbon dioxide equivalent emissions.
the Act	Climate Change Response Act 2002.
Afforestation	The direct human-induced conversion of non-forested land to forested land through planting, seeding and/or the human-induced promotion of natural seed sources.
CER	Certified Emission Reduction. A CER is a tradable emission unit or carbon credit issued by the Clean Development Mechanism (CDM) Registry for emission reductions achieved by CDM projects and verified by the rules of the Kyoto Protocol. CERs can be used by countries that have ratified the Kyoto Protocol to meet their emissions limitation or reduction commitments.
CO ₂ -e	Carbon dioxide equivalent. The quantity of a given greenhouse gas multiplied by its global warming potential, which equates its global warming impact relative to carbon dioxide (CO ₂).
Cost of emissions	This is also referred to as the price of carbon. A cost faced by emitters for the release of greenhouse gas emissions into the atmosphere.
Deforestation	The conversion of indigenous and exotic forest land to another use, such as grazing. Deforestation involves clearing forest and not replanting within four years after clearing. It does not include harvesting where a forest is replanted as this is part of normal plantation forestry activities.
Eligible emission units	Certain types of emission units that can be surrendered by ETS participants to meet their obligations. These include NZUs and certain types of emission units created under the Kyoto Protocol.
Emissions	The release of greenhouse gases into the atmosphere from human activity.
the ETS	the New Zealand Emissions Trading Scheme. Under the ETS certain emitters of greenhouse gases have an obligation to report their emission and surrender eligible emission units to cover their emissions.
ETS participants	Emitters of greenhouse gases or people engaged in removal activities such as forestry that have obligations under the ETS to report on their greenhouse gas emissions, and to surrender eligible emission units to cover these emissions or earn units under the Act.
First commitment period	The period from 2008 to 2012 under which the countries ratifying the Kyoto Protocol have to meet their emission limitation or reduction commitments.
Fixed price option	During the transition phase to 31 December 2012, certain ETS participants have the option to buy New Zealand emission units (NZUs) from the Government for a fixed price of \$25.
Forests	Forest land is an area of land of at least one hectare with forest species that has, or is likely to have, tree cover of more than 30 per cent in each hectare. Forest land does not include land that has, or is

	likely to have, tree crown cover with an average width of less than 30 metres. Forest species are trees capable of reaching five metres in height at maturity in the place they are growing, excluding tree species grown for the production of fruit and nut crops.
Greenhouse gases	Greenhouse gases are constituents of the atmosphere, both natural and anthropogenic, that absorb and re-emit infrared radiation. The gases covered under the first commitment period of the Kyoto Protocol are carbon dioxide (CO ₂), methane (CH ₄), nitrous oxide (N ₂ O), hydrofluorocarbons (HFCs), perfluorocarbons (PFCs) and sulphur hexafluoride (SF ₆).
GWP	Global warming potential. See CO ₂ -e above.
Kyoto Protocol	A protocol to the UNFCCC that includes emissions limitation or reduction commitments for ratifying developed countries.
the Minister	Minister for Climate Change Issues.
MAF	Ministry of Agriculture and Forestry
NZUs	New Zealand emission units created by the Government. These are either allocated or sold to certain ETS participants. They are the main unit of trade in the ETS and can be surrendered by ETS participants to meet their ETS obligations. In certain circumstances, NZUs can be converted to AAUs and sold overseas.
One-for-two obligation	During the transition phase to 31 December 2012, certain ETS participants have to surrender one eligible emissions unit for every two tonnes of emissions. This is also referred to as the 50 per cent progressive obligation.
Pre-1990 forests	Forest established before 1 January 1990 on land that remained in forest and was predominantly exotic species on 31 December 2007. See section 4 of the Act.
Price of carbon	See cost of emissions.
Post-1989 forests	New forest established after 31 December 1989 on land that was not forest at that date. These forests are eligible to earn carbon units (or carbon credits) from 1 January 2008. See section 4 of the Act.
Transition phase	Under the Act, the period up to the end of 2012 during which there is an option to buy New Zealand emission units (NZUs) from the Government for a fixed price of \$25, a one-for-two surrender obligation and there are restrictions on the export of NZUs.

Status quo

16. The Emissions Trading Scheme (ETS) is currently New Zealand's primary tool to achieve its international climate change commitments and to transition to a low carbon economy. The ETS was designed in the context of the international framework established under the Kyoto Protocol. For example, the ETS allows participants to sell New Zealand Units (NZUs) overseas² and to buy and surrender eligible overseas units to meet their ETS obligations. For the purposes of this regulatory impact analysis (RIA), in the status quo it is assumed that the ETS will be implemented as currently legislated. In addition, a carbon price of \$10.41 has been used to estimate the value of emission units.³
17. The agreement reached in December 2011 at the United Nations Conference of the Parties in Durban provides more certainty about the potential international framework after 2012, when the first commitment period (CP1) under the Kyoto Protocol ends. The key features of the Durban agreement are:
 - a new agreement with 'legal force' covering developed and developing countries will be agreed by 2015 and will come into force by 2020
 - a second commitment period (CP2) under the Kyoto Protocol from 2013 to 2017 (or 2020) covering the European Union, other European countries and any other country who decides to join in 2012⁴
 - confirmation of the continuation of the Clean Development Mechanism (CDM) after 2012 and the development of new market mechanisms
 - in relation to forestry, the inclusion of rules in the Kyoto Protocol on flexible land use (FLU), harvested wood products and reference level accounting approach for forest management, and the removal of the Afforestation-Reforestation Debit-Credit rule.
18. The Government has indicated that it will sign up to the new agreement from 2020, although it has not yet decided whether to join CP2. **[Withheld under s9(2)(j)]**.
19. While the Durban agreement provides certainty that the CDM will continue after 2012, such that Certified Emission Reduction units (CERs) will be available, there remains considerable international market uncertainty in terms of the likely levels of supply, demand and price. In recent months the price of overseas units has fallen considerably due to over-supply. This has impacted the price of NZUs. It is likely that the price of overseas units will remain low in the period to 2015. Beyond 2015 (when the true-up period under CP1 ends) there is greater price uncertainty.
20. This uncertainty creates risks for the Government and for ETS participants. This is because ETS participants are likely to buy significant amounts of overseas units (about **[Withheld under s9(2)(j)]** between 2015 and 2020)⁵ to meet their ETS obligations.⁶

² Under current legislation there is a restriction on the non-forestry sectors from exporting NZUs overseas during the transition phase (until the end of 2012). NZUs are first converted to AAUs before export.

³ This is the prevailing carbon price for January 2012 based on the average premium CER price as calculated by Point Carbon.

⁴ The USA, Canada, Japan and Russia have already decided not to join. Australia and New Zealand have not yet indicated whether they will join.

⁵ These estimates are illustrative only as they are based on a range of assumptions, including emission projections based on a \$25 carbon price and the use of the AR2 GWPs, and on the ETS as currently

These units will be surrendered to the Government. This purchasing would represent an overseas cash flow (worth about **[Withheld under s9(2)(j)]**) and a loss of domestic economic welfare.⁷

21. **[Withheld under s 9(2)(j)]**.⁸⁹
22. It is expected that existing emission trading schemes will continue (e.g. Europe, California) and others are likely to emerge (e.g. Australia) or may emerge (e.g. China, Japan, South Korea) after 2012. Officials are exploring the benefits and costs of linking with the Australian Carbon Pricing Mechanism from 2015. The prospect of linking with other schemes is uncertain.
23. The Climate Change Response Act 2002 (the Act) required a review of the ETS to be completed before the end of 2011. The Act required the Minister for Climate Change Issues (the Minister) to appoint a panel (the Panel) to conduct the review and specify its terms of reference. The Minister appointed a Panel in December 2010 and its final report was provided to the Minister on 30 June 2011.¹⁰ The report contained 61 recommendations, a number of which, if accepted, would require amendments to the Act and/or regulations.

Objectives

24. The Panel's terms of reference were agreed by Cabinet in 2010.¹¹ These stated that the objective of the review is to ensure that the ETS beyond 2012:
 - helps New Zealand to deliver its 'fair share' of international action to reduce emissions, including meeting any international obligations (referred to subsequently as 'delivering fair share')

legislated. Note that overseas units have been valued at the prevailing price of \$10.41. One key assumption is that all NZUs allocated in a particular year are also surrendered in that same year. However, if this is not the case (i.e. some people hold on to their allocations) then more overseas units need to be purchased by ETS participants. For example, if all post-1989 forestry owners keep their allocation then **[Withheld under s9(2)(j)]** overseas units will be surrendered instead (worth about **[Withheld under s9(2)(j)]** and equivalent to a **[Withheld under s9(2)(j)]** emission reduction on 1990 levels in 2020). Another key assumption is the ETS settings that apply. For example if the agriculture sector does not join the ETS, then fewer (i.e. **[Withheld under s9(2)(j)]**) overseas units will be surrendered (worth about **[Withheld under s9(2)(j)]** and equivalent to a **[Withheld under s9(2)(j)]** emission reduction on 1990 levels). Other assumptions that also affect the level of overseas purchasing include the carbon price (this affects the level of domestic emissions) and the assumed levels of afforestation and deforestation.

⁶ If the AR4 GWPs are used instead, then these estimates would change. If it is assumed that all NZUs allocated in a particular year are also surrendered then the amount of overseas units surrendered is estimated at **[Withheld under s9(2)(j)]** (worth about **[Withheld under s9(2)(j)]**) and equivalent to a **[Withheld under s9(2)(j)]** emission reduction on 1990 levels in 2020. If all post-1989 forestry owners keep their allocation then 203m overseas units will be surrendered instead (worth about \$2.1bn) and equivalent to a **[Withheld under s9(2)(j)]** emission reduction on 1990 levels in 2020. If the agriculture sector does not join the ETS then **[Withheld under s9(2)(j)]** overseas units will be surrendered (worth about **[Withheld under s9(2)(j)]**) and equivalent to a **[Withheld under s9(2)(j)]** emission reduction on 1990 levels.

⁷ Overseas purchasing is reflected as a loss to New Zealand's real gross national disposable income (GNDI), a measure of economic welfare. The impact on real GNDI varies according to the level of overseas purchasing and the prevailing carbon price. See NZIER and Infometrics, *Macroeconomic impacts of climate change policy*, July 2009 and *Macroeconomic Impacts of the New Zealand Emissions Trading Scheme*, March 2011. Both reports were prepared for the Ministry for the Environment.

⁸ This is similar to the increase based on AR4 GWPs. **[Withheld under s9(2)(j)]**.

⁹ See caveats in footnote 5.

¹⁰ *Doing New Zealand's fair Share, ETS Review 2011: Final report*, ETS Review Panel, 30 June 2011. Further details of the Panel's review and its final report is available at: <http://www.climatechange.govt.nz/emissions-trading-scheme/ets-review-2011/index.html>

¹¹ See CAB Min (10) 44/11.

- delivers emission reductions in the most cost effective manner (referred to subsequently as 'delivering cost-effective emission reductions'), and
- supports efforts to maximise the long term economic resilience of the New Zealand economy at least cost (referred to subsequently as 'long-term economic resilience').

25. For the purposes of carrying out this RIA, these three high level objectives have been used to develop a number of sub-objectives and assessment criteria. These sub-objectives and criteria are set out in full in Annex 1. Table 1 below provides a summary.

Table 1: Assessment criteria under each of the high level objectives

High level objective	<u>Delivering fair share</u>	<u>Delivering cost-effective emission reductions</u>	<u>Long-term economic resilience</u>
Criteria	Facilitate international efforts	Minimise short-term negative economic impacts	Minimise long-term negative economic impacts
	Contribute to NZ international obligations	Minimise costs to businesses	Maintain long-term international competitiveness
	Enhance NZ's international credibility	Minimise market distortions	Provide incentives for the long-term development of low cost emission abatement technologies
	Contribute to achieving NZ's fair share	Minimise risks of trade sanctions	Maximise equity between sectors and socio-economic groups
	Provide incentives to abate	Minimise Government's administrative and implementation costs	Promote intertemporal equity
	Contribute to meeting NZ's 2050 target	Minimise ETS participants' compliance and transaction costs	Ensure appropriate risk-sharing between emitters and Government
		Promote understanding of ETS	Appropriately reflect the Crown's responsibilities as a Treaty partner
		Minimise fiscal costs/maximise fiscal savings	Support the development of the Māori economy consistent with their environmental values
		Maximise market liquidity and transparency	Minimise negative/maximise positive wider environmental impacts
	Facilitate links with other schemes	Ensure the environmental integrity of overseas emission units surrendered in the ETS	

Approach to options analysis

26. For consistency, the assessment criteria above has been used for the analysis of all the policy problems identified. A scoring approach was used, whereby each policy option was scored against each criterion compared to the status quo. A positive score meant the policy option was better at achieving a particular criterion than the status quo; a negative value meant it was worse. Where possible, quantitative analysis was used to determine the order of magnitude of the score. Where this was not possible then judgement was used instead.

27. This approach identified the criteria which were most relevant for assessing the policy options, i.e. where there were material differences in the scores between the policy options and the status quo. Policy conclusions were based upon this analysis, without the need to apply weights to the criteria.
28. In the interests of brevity, this RIS presents the assessment against the high level objectives rather than the full criteria. This assessment is also presented in a summary table in the sections below. A tick shows that the policy option is better at achieving a high level objective than the status quo; a cross shows it is worse. A dash shows it is no different to the status quo. The number of ticks or crosses indicates the scale of how much better or worse it is. This reflects the scoring approach explained above.

Problem definition and regulatory impact analysis

29. The scope of this RIS is those policy problems where the preferred policy option arising from the RIA would require an amendment to the Act and/or regulations to implement. All other policy problems are out of scope of this RIS.
30. The policy problems identified are based on:
 - the Panel's recommendations for specific changes to the ETS and for the Government to consider certain issues further
 - stakeholders' submissions during the Panel's consultation
 - Government agencies' experiences from implementing the ETS to date.
31. In this context, the RIS considers the policy problems with the ETS after 2012 set out below and each is considered in more detail in the following section.
 - A. Global warming potential
 - B. Lack of flexibility over the level of ambition achieved by the ETS
 - i. timing of the introduction of auctioning
 - C. Backing NZUs issued with overseas units
 - D. Transition phase measures
 - i. the phase-out of the one-for-two surrender obligation
 - ii. the fixed price option
 - iii. the ban on exports of units from the non-forestry sectors
 - E. Pre-1990 forestry
 - i. introduction of pre-1990 forestry offsetting
 - ii. cancellation of the second tranche of allocation

A. *Global warming potential*

Status quo

32. The Act defines 'carbon dioxide (CO₂) equivalent' according to the global warming potentials (GWPs) determined under Article 5.3 of the Kyoto Protocol.
33. GWPs assign the relative impact of each gas, to enable non-CO₂ gases to be converted into CO₂-equivalent quantities for common accounting and reporting purposes under the ETS, the United Nations Framework Convention on Climate Change (the Convention) and Kyoto Protocol. At present, under the Convention and during CP1, countries' emissions are calculated using the GWPs from the IPCC¹² 2nd Assessment Report (AR2).
34. At the recent Durban conference, signatory countries to the Convention and the Kyoto Protocol agreed that from 1 January 2013, the accounting of greenhouse gas (GHG) emissions will use the updated GWPs from the IPCC's 4th Assessment Report (AR4). The primary changes involve a significant increase in GWP for methane (by approximately 19 per cent), as well as smaller changes in the GWPs for nitrous oxide and synthetic greenhouse gases.
35. Under current legislation, the definition of 'carbon dioxide equivalent' means that the GWPs used for ETS accounting purposes may only be changed if they are amended under Article 5.3 of the Kyoto Protocol, and New Zealand is bound by the amended Protocol.
36. Until and unless New Zealand elects to sign up to CP2 the Act will continue to require that the ETS use the AR2 GWPs, as specified under the Kyoto Protocol for CP1.

Problem definition

37. As a result, the reporting and accounting of ETS participant's GHG emissions and surrender obligations under the ETS will be inconsistent with the reporting and accounting of New Zealand's GHG emissions under its international obligations after 2012.¹³
38. There are a number of impacts under the status quo. First, from 2013, the accounting of emissions under the ETS will no longer be consistent with internationally-agreed rules and scientific methodology, as determined under the Convention and Kyoto Protocol. The overall discrepancy would be in the order of around 8 per cent of New Zealand's total net emissions over 2013 to 2020. This reduces the environmental integrity and therefore credibility of the ETS as an emissions reduction policy measure. This inconsistency could have a negative economic impact on New Zealand by making any target to reduce emissions harder to achieve, because emissions might be higher than if they had been correctly accounted for.
39. Second, fiscal risks could arise if New Zealand takes a commitment outside of the Protocol between 2013 and 2020. This is because any target set and progress towards meeting it will be based on the inventory figures. As there will be a discrepancy between the emissions covered by the ETS and the emissions reported in New

¹² Intergovernmental Panel on Climate Change.

¹³ New Zealand is obliged to produce an annual GHG inventory report under the Convention and the Kyoto Protocol. The national inventory is able to use updated GWPs, as a separate section of the Act (Part 3) links the inventory directly to the Convention. For further information on the inventory see: <http://www.climatechange.govt.nz/carbon-reports/>

Zealand's national GHG inventory, then this could result in a shortfall in the number of units surrendered to the Government relative to any target, requiring the Government to purchase additional units to meet its target.

Options analysis

40. Besides the status quo (i.e. continue to use AR2 GWPs), one option has been identified, which is to amend the Act to bring the ETS in line with the international accounting after 2012 (i.e. use AR4 GWPs). A summary of the impacts under the status quo and option 1 is presented in the table below.

Status quo (AR2 GWPs)	FISCAL: Fiscal risk from the inconsistent reporting of emissions ENVIRONMENTAL: Inconsistency in reporting emissions
Option 1 (AR4 GWPs)	ECONOMIC: Increased costs for some ETS participants, a proportion of which are likely to be passed on to households and other businesses FISCAL: Additional fiscal revenue ENVIRONMENTAL: Consistency in reporting emissions and incentive to reduce emissions COMPLIANCE: No additional compliance costs (compared to status quo)

41. In terms of delivering fair share, option 1 (AR4 GWPs) is preferred. Unlike the status quo, option 1 ensures consistency in emissions reporting between New Zealand's international obligations and ETS participants.
42. In terms of delivering cost-effective emission reductions, option 1 (AR4 GWPs) is preferred. Option 1 will increase costs for some ETS participants (primarily for agriculture processors, waste landfill operators and synthetic greenhouse gas importers) by about \$20.6 million¹⁴ in total over 2012/13 to 2016/17, through higher surrender obligations.¹⁵ A proportion of these additional costs are likely to be passed on to households and other businesses. For example, this could increase the fees to use a waste landfill by up to \$2.50.¹⁶ Similarly, for synthetic greenhouse gases, this would increase the cost of a car by about \$1 and have a negligible cost impact on the price of a fridge.¹⁷ However, using the AR4 GWPs, which are based on the latest scientific understanding on the global warming impacts of different GHGs, should provide additional incentives to make cost-effective emissions reductions.
43. In terms of long term economic resilience, option 1 is preferred as it ensures all of the emissions that New Zealand is obliged to report on internationally face the incentive to reduce emissions in the long term. This will avoid the risk that arises under the status quo that emissions are higher than if they had been correctly accounted for.

Recommendation

¹⁴ Based on the difference between New Zealand's net ETS positions using the AR2 GWPs and AR4 GWPs, and a carbon price of \$10.41.

¹⁵ This reflects a transfer to the Government through the surrender of additional emission units by ETS participants.

¹⁶ This estimate is based on a small waste landfill with no methane gas collection facilities, a \$10.41 carbon price and assumes full cost pass-through. Larger waste landfills are likely to have methane gas collection facilities and therefore the cost increase will be less.

¹⁷ These estimates are based on a \$10.41 carbon price and full cost pass-through.

44. On balance, option 1 is preferred as this will bring the ETS into line with the new prescribed GWPs for international GHG accounting after 2012.

B Lack of flexibility over the level of ambition achieved by the ETS

Status quo

45. As noted above (see *Status quo* section) the ETS as currently legislated is estimated to result in ETS participants purchasing significant amounts of overseas units to meet their ETS obligations. This purchasing represents an overseas cash flow and a loss of domestic economic welfare.
46. These overseas units will be surrendered to the Government. **[Withheld under s9(2)(j)]**.¹⁸

Problem definition

47. **[Withheld under ss6(a) and 9(2)(j)]**¹⁹. Overseas purchasing is also likely to reduce domestic economic welfare. The uncertain international market also means ETS participants face risks of a lack of supply and/or price volatility of overseas units.
48. The Government could in theory sell surplus overseas units to **[Withheld under s9(2)(j)]** lessen the impact on economic welfare. In practice however this is not possible as the Act currently prohibits the Government from selling CERs surrendered to it by ETS participants. This means the Government cannot currently reduce **[Withheld under s9(2)(j)]** the loss of economic welfare by selling surplus CERs. Even if this restriction was removed, the Government may not be able to sell surplus CERs due to international perception and environmental integrity concerns, or due to the risk that an uncertain international market means there are no buyers and/or price volatility. **[Withheld under s9(2)(j)]** and the loss of economic welfare in the long term.
49. Given these difficulties, the ETS as legislated provides limited flexibility over the level of ambition it achieves. Flexibility is important because the level of ambition is likely to change over time to reflect changing circumstances, such as future international commitments or other ETS design settings (e.g. the entry of agriculture).

Options analysis

50. Two options have been identified that could provide greater flexibility for the level of ambition the ETS achieves. An outline of these options is set out in the table below.

¹⁸ This changes to **[Withheld under s9(2)(j)]** when based on the AR4 GWPs.

¹⁹ Under the Cancun Agreements, New Zealand made a pledge to reduce emissions by between 10 to 20 per cent on 1990 levels by 2020. This is conditional on a number of factors, in particular comparable action by other developed countries. For details of all the conditions see <http://www.mfe.govt.nz/issues/climate/emissions-target-2020/>

Option	Status quo	1: Auctioning	2: Fixed price
Key features	<ul style="list-style-type: none"> no limit on the amount of international units permitted price of NZUs 'capped' by international price NZUs allocated domestic trading of NZUs allocated only 	<ul style="list-style-type: none"> fixed amount (i.e. a cap) of NZUs auctioned international units permitted (with or without a cap) auction price likely to depend on international price and on whether there is a cap on amount of overseas units permitted and/or a cap on domestic prices NZUs allocated (as status quo) domestic trading of NZUs allocated and auctioned 	<ul style="list-style-type: none"> Government sells NZUs at a fixed price international units not permitted price set by Government NZUs allocated (as status quo) domestic trading of NZUs allocated only

51. Auctioning (option 1) encompasses a broad spectrum of options. At one extreme a small number of NZUs could be auctioned with no limit on the amount of international units permitted. This would be similar to the status quo. At the other extreme, enough NZUs could be auctioned to achieve the domestic level of ambition with no international units permitted.²⁰ This would then be similar to the fixed price option (option 2).²¹
52. A summary of the impacts under the status quo and the policy options is presented in the table below.

²⁰ A variation of this option would be auction an amount of NZUs above the domestic level of ambition and the Government buys overseas units to make up the difference.

²¹ Under auctioning the Government fixes the quantity of NZUs sold and the market determines the price. Under the fixed price option the Government fixes the price and the market determines the number of NZUs sold. Theoretically, the same price and quantity outcomes would arise under both options to achieve the same level of ambition.

Status quo	ECONOMIC: Reduced domestic economic welfare and exposure to risks of an uncertain international market ENVIRONMENTAL: Lack of flexibility over the level of ambition
Option 1 (Auctioning)	ECONOMIC: Higher economic welfare. Reduced exposure to risks of an uncertain international market compared to the status quo ENVIRONMENTAL: More flexibility over the level of ambition achieved (by adjusting the number of units sold) compared to the status quo FISCAL: No additional fiscal revenues COMPLIANCE: Additional implementation and administrative costs compared to status quo and option 2
Option 2 (fixed price)	ECONOMIC: Higher economic welfare. Reduced exposure to risks of an uncertain international market compared to the status quo. ETS participants have less flexibility over meeting the ETS obligations potentially resulting in higher costs compare to status quo and option 1. Loss of market certainty and continuity compared to the status quo and option1. ENVIRONMENTAL: More flexibility over the level of ambition achieved (by adjusting the price) compared to the status quo. FISCAL: Impact on fiscal revenues depends on the level of the price fixed relative to the international price COMPLIANCE: Additional implementation and administrative costs compared to status quo (but less than option 1)

53. In terms of delivering fair share, both options provide greater flexibility than the status quo. Option 1 (auctioning) achieves this as the amount of NZUs auctioned can be adjusted, which would adjust the amount of overseas units ETS participants purchase and hence the level of ambition the ETS achieves. Option 2 (fixed price) achieves this as the Government could either adjust the fixed price to achieve the appropriate level of ambition or, if the price fixed does not achieve this level of ambition domestically, it could purchase overseas units to make up the shortfall. In option 1, the NZU price would be linked to the overseas unit price depending on the stringency of any cap on the level of overseas units permitted. Similarly, the fixed price under option 2 could be linked to the overseas unit price albeit based on an average over time or a price at a certain point in time.
54. In terms of delivering cost-effective emission reductions, option 1 is preferred. Both options reduce ETS participants' exposure to the risks of an uncertain international market (i.e. lack of supply) as they increase the supply of NZUs, compared to the status quo. In addition, both options reduce the loss in economic welfare arising from overseas purchasing compared to the status quo.
55. Implementation and administration costs for both options are likely to be higher than the status quo, although these costs are likely to be lower under option 2 than option 1 as it could build on existing systems and processes.

- 56. However, there are a number of drawbacks with option 2 (fixed price). First, ETS participants would have to meet their ETS obligations at the fixed price. They would lose the flexibility to meet their obligations at a lower cost through buying overseas units if these were below the fixed price. This would occur even if the fixed price was set based on the international price as this is likely to be based on an average over time or a price at a certain point in time. Second, it is likely to be in New Zealand’s interests to be linked to the proposed future international framework, which will include market-based mechanisms, or to other overseas emission trading schemes. Option 1 and the status quo maintain a link to existing international carbon markets and would allow for links to the future international framework and to other schemes over time if this was desirable. Option 2 does not. Therefore if it would be necessary to revert back to an open ETS (such as option 1 or the status quo) if such links were desirable. There are likely to be risks and costs associated with changing the way the ETS operates over time. For example, this would not provide market certainty or continuity to ETS participants. In addition, option 2 could be perceived as akin to a domestic carbon tax.
- 57. Auctioning would provide the Government with cash at the point of auction, rather than eligible overseas units at the point of obligation. This would have an impact on debt, but not on the operating balance. As a result auctioning would not count as additional fiscal revenue.
- 58. In terms of long-term economic resilience, both options are likely to achieve the same outcome as the status quo as this will be determined by the level of ambition set and the prevailing carbon price.

Recommendation

- 59. Given the drawbacks with option 2 and the lack of flexibility of the status quo, option 1 (auctioning) is preferred. This assessment is summarised in the table below.

Summary assessment of the policy options against the high level objectives relative to the status quo			
	Status quo	Option 1 (auctioning)	Option 2 (fixed price)
Delivering fair share	-	✓	✓
Delivering cost-effective emission reductions	-	✓	-
Long-term economic resilience	-	-	-

- 60. As noted above, auctioning encompasses a broad spectrum of options. Further work and consultation is required before a final decision on the detailed auction design can be taken. Some of the key auction design features that will need further consideration are:
 - the amount of NZUs issued each year and hence the amount of NZUs auctioned issued (i.e. over and above those allocated). This will indirectly determine the amount of overseas units surrendered and hence the level of ambition achieved by the ETS
 - whether there is a need for, and if so the level of, a cap on the amount of overseas units permitted. This may be necessary if there are concerns that ETS participants will continue to buy overseas units rather than NZUs at the auction and/or to provide environmental integrity of the ETS (see *Backing NZUs with overseas units* below).

i. Timing of the introduction of auctioning

Problem definition

61. If auctioning is introduced then there is a related issue of timing. The problems that the introduction of auctioning is trying to address are likely to be more significant from 2015. This is because from 2015:
- the number of international units surrendered is estimated to increase significantly²²
 - the uncertainty in the international market increases significantly due to the end of the true-up period under CP1. This has risks for both ETS participants (who need to buy overseas) and the Government (who may wish to sell surplus units).
62. In addition, if the Panel’s recommendation on the progressive phase-out of the one-for-two surrender obligation to 2015 is accepted then the level of ambition achieved would be reduced in 2013 and 2014, further reducing the scale of the problem in these years.²³

Options analysis

63. The two options for the introduction of auctioning are 2013 (option 1) or 2015 (option 2). A summary of the impacts for these policy options is presented in the table below.

Option 1 (2013)	ENVIRONMENTAL: Flexibility over the level of ambition achieved earlier than option 2 COMPLIANCE: Substantial risks arise if insufficient time is given to design, develop and test auction before introduction
Option 2 (2015)	ENVIRONMENTAL: Loss of flexibility in 2013 and 2014 although level of ambition achieved is less in these years compared to that from 2015 COMPLIANCE: Reduced risks as more time to design, develop and test the auction and align with the Australian approach (if necessary)

64. In terms of delivering fair share, option 1 (2013) is preferred because it would introduce greater flexibility over the level of fair share achieved sooner and immediately after the end of CP1. This would allow (if necessary) the Government to achieve a lower level of ambition in 2013 and 2014 to that achieved in the status quo²⁴ and to that achieved if

²² It is estimated in 2013 and 2014 that about **[Withheld under s9(2)(j)]** overseas units will be surrendered per annum. This increases to about **[Withheld under s9(2)(j)]** per annum on average between 2015 and 2020. Note caveats in footnote 5. If AR4 GWPs are used instead then these estimates change to **[Withheld under s9(2)(j)]** and **[Withheld under s9(2)(j)]** respectively.

²³ If the Panel’s recommendation was applied to the liquid fossil fuel, stationary energy and industrial process sectors only then the ETS is estimated to achieve about a **[Withheld under s9(2)(j)]** and **[Withheld under s9(2)(j)]** reduction in emissions on 1990 levels in 2013 and 2014 respectively, based on the amount of overseas purchasing. Adding synthetic gases and the waste sector would reduce these estimates to **[Withheld under s9(2)(j)]** and **[Withheld under s9(2)(j)]** respectively. Note caveats in footnote 5. If the AR4 GWPs are used instead then these estimates change to **[Withheld under s9(2)(j)]** and **[Withheld under s9(2)(j)]** respectively if the Panel’s recommendation was applied to the liquid fossil fuel, stationary energy and industrial process sectors only, and **[Withheld under s9(2)(j)]** and **[Withheld under s9(2)(j)]** if the synthetic gases and the waste sectors were included.

²⁴ Under current legislation the ETS is estimated to achieve about a **[Withheld under s9(2)(j)]** reduction in emissions on 1990 levels in 2013 and 2014, based on the estimated amount of overseas purchasing. Note caveats in footnote 5. If the AR4 GWPs are used instead, then the ETS is estimated to achieve a **[Withheld under s9(2)(j)]** reduction in emissions.

the Panel's recommendation on the phase-out of the one-for-two surrender obligation is accepted. The benefits of option 1 are therefore greater than option 2.

65. In terms of delivering cost-effective emission reductions, option 2 is preferred because it would allow more time to design, develop and test auction design. Significant risks could arise if auctioning is poorly implemented. For example, a lack of understanding of the auction by ETS participants may mean they decide not to take part, undermining the purpose of auctioning. Consultation on the auction design could reduce implementation, administration and compliance costs. As part of the testing phase, one or more pilot auctions could be held in 2014, in advance of full auctioning taking place in 2015. Option 2 is consistent with the Australian Carbon Pricing mechanism proposal to hold the first auction in 2014 and would allow the two approaches to be aligned, if necessary.

Recommendation

66. On balance, option 2 (2015) is preferred as while there are additional benefits from the introduction of auctioning in 2013, there are substantial risks if auctioning is introduced without sufficient time to design, develop and test the required systems and processes.

C. Backing NZUs with overseas units

Status quo

67. The ETS as currently legislated does not have a cap on the amount of units that can be surrendered by ETS participants in any period (i.e. it does not limit the total emissions produced in New Zealand).
68. In 2007, Cabinet decided that all NZUs issued should be backed with overseas units created under the Kyoto Protocol (i.e. Kyoto units such as Assigned Amount Units (AAUs) and CERs) held in Crown accounts.²⁵ The backing policy ensures that the Crown could meet its Kyoto Protocol obligations and to support the environmental integrity of the ETS by constraining the Crown from issuing an unlimited number of NZUs. Currently, backing is the only mechanism that provides controls over the overall emissions outcomes from the ETS, since the Government must either allocate NZUs within its Kyoto cap or purchase additional overseas units to make up the difference.
69. Section 86F of the Act requires the Crown to hold a number of Kyoto units equal to the number of NZUs in circulation in CP1 at the end of the true-up period. The intention of this section was to give effect to the policy to back NZUs with Kyoto units. However, the Act does not enforce a feasible backing requirement due to a drafting error.
70. It is projected that the Government will not have sufficient Kyoto units to back all of the NZUs issued during CP1. It is estimated (see table below) that the Government it will have to buy 25m Kyoto units (worth about \$260m based on a carbon price of \$10.41 per unit)²⁶ before the end of the true-up period even though it is expected to have enough Kyoto units to meet its Kyoto Protocol obligations. The deficit is mostly due to a large number of NZUs being allocated to post-1989 forest landowners, who will not be required to surrender them until they harvest their forests at some point in the future.

Government unit position over 2008 to 2012 (CP1)	Units (m) using AR2 GWPs	Units (m) using AR4 GWPs
Projected net national (Kyoto) position (international units)	19.6	19.6
Net balance of units received and allocated by Government under ETS	-44.6	-44.7
Projected Government unit position	-25.0	-25.1

71. After CP1, the Government position is forecast to be in surplus of approximately 94.2 million units over the period 2013 to 2020 under current policy settings. This surplus will be reduced if the entry of the agriculture sector is deferred or if the one-for-two surrender obligation is phased out progressively. However even under these policy settings, the government position is still forecast to be in surplus over the period 2013 to 2020. The table below shows the Government's forecasted position to achieve the backing position policy over the period 2013 to 2020 under various scenarios.

²⁵ See CBC Minute (07) 24/1.

²⁶ The actual cost of these units may be less as the Government could purchase lower valued AAUs rather than higher valued CERs, which the carbon price used is based on. This estimate could therefore be considered as an upper bound.

Estimated number of overseas units the Government would need to buy to achieve an effective backing policy between 2013 and 2020 under various scenarios

	Units (m)
Status quo	94.2
If agriculture does not join the ETS in 2015	65.4
If gradual phase-out of the one-for-two obligation is in place	79.2

72. Backing also ensures that the Crown has sufficient units to allow ETS participants (restricted to foresters during the transition phase) to convert NZUs into AAUs for sale overseas. However full backing is not necessarily required to facilitate exports. The Government could purchase units when and if required so that forestry NZUs can be converted and sold offshore.

Problem definition

73. The problem that arises is whether the original intention for the backing policy remains relevant.

Options analysis

74. Two options have been identified for amending the backing provision:
- option 1: amend the Act to give effect to the original policy intention of backing (i.e. correct the drafting error)
 - option 2: remove the backing provision.
75. A different option could be chosen for CP1 (i.e. the period to 2012) and beyond CP1 (i.e. 2013 and beyond). A summary of the impacts for the status quo and policy options is presented in the table below.

	During CP1	Beyond CP1 (from 2013)
Status quo	ENVIRONMENTAL: Drafting error means backing policy does not achieve its purpose (environmental integrity)	
Option 1 (effective backing)	ECONOMIC: Government would have to buy overseas units, reducing domestic economic welfare ENVIRONMENTAL: Negligible environmental benefits from having an effective backing policy as New Zealand is likely to meet its Kyoto Protocol obligations FISCAL: Fiscal cost from buying overseas units	ECONOMIC: Government would have to buy overseas units, reducing domestic economic welfare ENVIRONMENTAL: Whether environmental integrity is achieved by an effective backing depends on whether the ETS has a cap on the number of NZUs issued FISCAL: Fiscal cost from buying overseas units
Option 2 (no backing)	ECONOMIC: No loss of domestic economic welfare ENVIRONMENTAL: Environmental integrity of the ETS achieved through meeting Kyoto Protocol obligations FISCAL: No fiscal cost	ECONOMIC: No loss of domestic economic welfare ENVIRONMENTAL: Loss of environmental integrity from not backing depends on whether the ETS has a cap FISCAL: No fiscal cost

During CP1

76. In terms of delivering cost-effective emission reductions, option 2 (no backing) is preferred as it entails no fiscal cost. Option 1 (effective backing) will have a significant fiscal cost (up to \$260m) during CP1 as an effective backing policy would require the Government to purchase overseas units. As noted above (see section B), buying overseas units would reduce domestic economic welfare. It is also uncertain whether, if the Government bought these overseas units, that they could be used to meet its obligations under any future international agreement.
77. In terms of delivering fair share, option 2 is preferred as the benefits of option 1, in terms of environmental integrity, are negligible given that New Zealand is expected to exceed its Kyoto Protocol obligations for CP1.
78. Option 1 (backing) ensures that the Crown has sufficient units to allow ETS participants (restricted to foresters during the transition phase) to convert NZUs into AAUs for sale overseas. However backing of all NZUs issued is not required to facilitate exports as the Government could purchase overseas units when and if required so that forestry NZUs can be converted and sold offshore.

Recommendation

79. Option 2 (no backing) is preferred as the benefits in terms of environmental integrity of an effective backing policy during CP1 (option 1) do not outweigh the economic and fiscal costs.

2013 and beyond

80. A key consideration in relation to retaining a backing policy from 2013 depends on future ETS design. As discussed above in relation to auctioning (see section B), if auctioning is introduced then a cap on the number of NZUs issued, and possibly a cap on the amount of overseas units permitted, would also be introduced. If both caps are introduced then this would provide environmental integrity of the ETS. Even if only a cap on the amount of NZUs issued is introduced, this would still provide some environmental integrity (although less than having both caps). If neither cap was introduced then the environmental integrity of the ETS could be undermined.
81. If one or both caps are in place then in terms of delivering fair share, option 1 (effective backing) would have limited additional benefits for environmental integrity. Accordingly option 2 (no backing) would be preferred. If neither cap is in place then option 1 (effective backing) would be preferred as this would provide environmental integrity.
82. However, in terms of delivering cost-effective emission reductions, option 1 (effective backing) would entail additional fiscal and economic costs compared to option 2 as the Government would need to buy additional overseas units (see table above). If auctioning was introduced, then this fiscal cost would vary according to the amount of NZUs issued (i.e. would depend on the level of the cap on NZUs). However, if New Zealand joins CP2 and surplus Kyoto units can be carried over from CP1, then this could reduce the fiscal and economic cost to New Zealand as these units could be used to meet its CP2 obligations.²⁷ It is currently uncertain whether New Zealand will join CP2 and, if so, whether Kyoto units can be carried over from CP1 to CP2.

Recommendation

83. The preferred option depends upon the decisions made in relation to whether there is a cap on the amount of NZUs issued in place. If such a cap is in place then there is likely to be little benefit for backing. However, if such a cap is not in place then backing may be required.

²⁷ Whether New Zealand would need to use these surplus units during CP2 would depend on the level of emissions reductions it commits to.

D. Transition phase measures

i. Phase-out of the one-for-two surrender obligation

Status quo

84. Under the status quo, participants in the liquid fossil fuels, stationary energy and industrial processes sectors are required to surrender only one eligible emission unit for every two tonnes of carbon dioxide equivalent (tCO₂-e) produced until the end of 2012; they will assume full surrender obligation from 2013. The one-for-two surrender obligation was introduced to smooth the transition into the ETS by mitigating the impact of the ETS on business and household costs in the early years of the scheme.

Problem definition

85. Some stakeholders expressed concerns that the impact of the ETS on household and business costs would increase significantly in 2013 following the expiry of the one-for-two surrender obligation.
86. The current carbon price is low and is likely to remain so (i.e. below \$25 per unit) in the period to 2015. This is primarily due to the weak global economy. The price of NZUs ranged from \$17 to \$21 between July 2010 and July 2011. However, this has fallen significantly to \$10.41 by January 2012. Taking the one-for-two surrender obligation into account means the current effective price of carbon is currently below \$6 per tonne. This is significantly below the effective price of \$12.50 expected at the time the energy sector joined the ETS in July 2010, based on the \$25 price cap and one-for-two surrender obligation.
87. Despite the expiry of the one-for-two surrender obligation at the end of 2012, the impact of the ETS on business and household expenditure on fuels and electricity²⁸ in 2013 is expected to be similar to that between July 2010 and July 2011. Assuming that the carbon price is \$10.41 in 2013, it is estimated that the ETS will increase the national average household expenditure on fuels and electricity by \$111 per year (or 0.1 per cent of the average annual gross household income) in 2013, while the ETS will increase the total business expenditure on fuels and electricity by \$293 million (or 0.2 per cent of Gross Domestic Product).²⁹

Options analysis

88. One option has been considered, phasing out the one-for-two surrender obligation from 2013 to 2015. This means the one-for-two surrender obligation will be scaled up to a 67

²⁸ Increases in electricity and fuel prices are the main components of the impact of the ETS on household and business expenditure.

²⁹ The estimates for the impacts of the ETS on household and business expenditure on fuels and electricity are based on:

- a \$10.41 carbon price
- energy data from the Ministry of Economic Development's New Zealand Energy Data File 2010
- emissions factors from the Ministry for the Environment's Voluntary Greenhouse Gas Reporting Guidance Document
- EMC (Energy Modelling Consultants Ltd) 2008, SDDP Modelling of Carbon Dioxide Emissions from Electricity Generation, Report to the Ministry for the Environment, Wellington
- Statistics New Zealand (2009), Supply and use tables in the New Zealand System of National Accounts – year ended March 2007.
- Statistics New Zealand (2010), Tailored household expenditure survey data.

per cent surrender obligation³⁰ in 2013, an 83 per cent surrender obligation³¹ in 2014, and full surrender obligation from 2015. It is proposed that the discounted surrender obligation in 2013 and 2014 will apply to the waste, synthetic greenhouse gases, liquid fossil fuels, stationary energy and industrial processes sectors.

89. A summary of the impacts for the status quo and policy option is presented in the table below.

Status quo (full surrender obligation for 2013)	ECONOMIC: Increase in costs for ETS participants, a proportion of which are likely to be passed on to households and other businesses (e.g. though higher fuel and electricity prices ENVIRONMENTAL: Business face the full incentive to reduce emissions
Option 1 (gradual phase-out of surrender obligation)	ECONOMIC: ETS participants face lower costs compared to status quo ENVIRONMENTAL: Undermine incentives to reduce emissions compared to the status quo COMPLIANCE: Additional administrative costs compared to the status quo FISCAL: Additional fiscal costs compared to status quo

90. In terms of delivering fair share, the status quo (full surrender obligation from 2013) is slightly preferred as option 1 (gradual phase-out of the surrender obligation) would slightly reduce the effective carbon price in 2013 and 2014. This would slightly undermine the incentives to reduce emissions in New Zealand in the short term.
91. In terms of delivering cost-effective emission reductions, option 1 (gradual phase-out of the surrender obligation) is slightly preferred, as it would slightly mitigate the impact of the ETS on business and household costs in the 2013 and 2014. Assuming that the carbon price is \$10.41 per unit, under the status quo (full surrender obligation from 2013), it is estimated that the ETS would lead to a 0.5 cent increase in electricity prices and a 2.7 cent increase in average petroleum prices in 2013. Under option 1, it would lead to a 0.4 cent increase in electricity prices and a 1.8 cent increase in average petroleum prices in 2013. The estimated impacts of the ETS on average annual household expenditure on electricity and fuels under the status quo and under option 1 are shown in the table below.³²

³⁰ A 67 per cent surrender obligation means that ETS participants have to surrender only two eligible emission units for every three tCO₂-e produced.

³¹ An 83 per cent surrender obligation means that ETS participants have to surrender only five eligible emissions for every six tCO₂-e produced.

³² The estimates in the table and the estimates for the price impacts of the ETS are based on:

- a \$10.41 carbon price
- energy data from the Ministry of Economic Development's New Zealand Energy Data File 2010
- emissions factors from the Ministry for the Environment's Voluntary Greenhouse Gas Reporting Guidance Document
- EMC (Energy Modeling Consultants Ltd) 2008, SDDP Modelling of Carbon Dioxide Emissions from Electricity Generation, Report to the Ministry for the Environment, Wellington
- Statistics New Zealand (2009), Supply and use tables in the New Zealand System of National Accounts – year ended March 2007.
- Statistics New Zealand (2010), Tailored household expenditure survey data.

	Status quo (full surrender obligation from 2013)	Option 1 (gradual phase-out of the surrender obligation)
Impact on average household expenditure on electricity and fuels \$ per annum (% gross income)		
2012	\$55 (0.1%)	\$55 (0.1%)
2013	\$111 (0.1%)	\$74 (0.1%)
2014	\$111 (0.1%)	\$92 (0.1%)
2015	\$111 (0.1%)	\$111 (0.1%)

92. Option 1 would, however result in significant fiscal costs and administrative costs to the Government. The fiscal cost associated with option 1 is estimated to be 14 million units or \$148 million in total between the financial years 2012/13 and 2014/15. In addition, the Government would incur a total cost of \$50,000 for updating the system for calculating surrender obligations and allocations, and there are extra costs associated with updating guidance and providing education on the changed rules. ETS participants would also incur additional compliance costs, as they would have to update their systems for calculating their surrender obligations.
93. In terms of long-term economic resilience, the status quo (full obligation from 2013) is slightly preferred. By limiting the carbon price in New Zealand in the short term, option 1 could delay the development or adoption of emission abatement technologies and would be slightly inequitable to future generations. These impacts are however likely to be small.

Recommendation

94. Officials do not have a preferred option as there are costs and benefits with maintaining the status quo and the proposed policy option.

ii. Fixed price cap

Status quo

95. In the status quo, the \$25 fixed price option (or price cap) will expire at the end of 2012. This means that ETS participants do not have to pay more than \$25 per unit to meet their surrender obligations in the period up to 31 December 2012. From 2013, they will pay the prevailing market price for units, even if it is above \$25.

Problem definition

96. As noted before, NZU and overseas unit prices are likely to remain low (i.e. below \$25 per unit) in the short term. However, sudden and unexpected spikes in unit prices remain possible, given international market uncertainty. Such price spikes could make it more difficult for businesses to manage carbon costs.

Options analysis

97. Three options have been identified that could mitigate carbon price volatility. An outline of these options is set out in the table below.

Option	Status quo	1: Price cap increasing by \$5 per annum from 2013	2: Aligning price cap with that in Australia	3: \$25 price cap until at least 2015
Key features	<ul style="list-style-type: none"> • No price cap after 2012 • ETS participants pay market price for units. 	<ul style="list-style-type: none"> • Retain a price cap in the ETS after 2012. • Price cap rising to \$30 in 2013, \$35 in 2014, \$40 in 2015, \$45 in 2016 and reaching \$50 in 2017 • Allow for the price cap to be changed to align with the Australian scheme should linking proceed 	<ul style="list-style-type: none"> • Retain a price cap in the ETS after 2012. • The price cap will be fixed at AUS\$23 (about NZ\$30) in the 2012/13 financial year and will rise at 2.5 per cent per annum in real terms in the two subsequent financial years • In the 2015/16 financial year, the price cap will be set at AUS\$20 (about NZ\$26) above the expected international price as at 1 July 2015. The price ceiling will then rise by 5 per cent in real terms per annum in the two subsequent financial years (the 2016/17 and 2017/18 financial years) • The exact level of the price cap in the ETS will depend on the NZ\$/AUS\$ exchange rates and the inflation rates at the beginning of each of the financial years concerned, and the Australian Government's assessment of the expected international carbon price as at 1 July 2015 	<ul style="list-style-type: none"> • Retain a price cap in the ETS after 2012. • Price cap of \$25 per emission unit at least 2015

98. A summary of the impacts for the status quo and policy options is presented in the table below.

Status quo (no cap)	ECONOMIC: Business exposed to risk of carbon price spikes (i.e. face excessive costs) FISCAL: No fiscal cost COMPLIANCE: No compliance costs ENVIRONMENTAL: Business face the prevailing carbon price and hence incentive to reduce emissions
Option 1 (price cap increasing by \$5 per annum)	ECONOMIC: Business exposed to less risk compared to status quo due to price cap FISCAL: Least fiscal cost if international price is above price cap compared to status quo and other options COMPLIANCE: Additional administrative costs compared to status quo but less than option 3. Transaction costs saving for ETS participants if cheaper for them to buy from the Government ENVIRONMENTAL: Prevailing carbon price expected to be below cap so same incentive to reduce emissions as status quo
Option 2 (aligning price cap with Australia)	ECONOMIC: Business exposed to less risk compared to status quo due to price cap FISCAL: Fiscal cost if international price is above price cap compared to status quo COMPLIANCE: Additional administrative costs compared to status quo but less than option 3. Transaction costs saving for ETS participants if cheaper for them to buy from the Government ENVIRONMENTAL: Prevailing carbon price expected to be below cap so same incentive to reduce emissions as status quo
Option 3 (\$25 price cap)	ECONOMIC: Business exposed to least risk compared to status quo and other options due to price cap FISCAL: Greatest fiscal cost if international price is above price cap compared to status quo and other options COMPLIANCE: Additional administrative costs compared to status quo and other options. Transaction costs saving for ETS participants if cheaper for them to buy from the Government ENVIRONMENTAL: Prevailing carbon price expected to be below cap so same incentive to reduce emissions as status quo

99. In terms of delivering fair share, the status quo and the other options would have similar impacts. In the period to 2015, as price caps under all the options considered are expected to be above market price, ETS participants are likely to pay similar carbon prices under the status quo and all the other options considered. Therefore, the status quo and all the other options are likely to have similar impacts on emissions reduction.
100. In terms of delivering cost-effective emission reductions, option 3 (\$25 price cap) and option 1 (price cap increasing by \$5 per annum) would have similar impacts and would be preferred to the status quo and option 2 (aligning price cap with Australia).
101. In terms of protecting businesses from carbon price volatilities in the short term, option 3 is better than the status quo and the other options considered. Also, option 3, like options 1 and 2, would lead to a reduction in ETS participants' transaction costs as the

participants would have the option to purchase NZUs directly from the Government without incurring brokerage fees.

102. However, option 1 (price cap increasing by \$5 per annum) is better than option 3 (\$25 price cap) in several respects. As the price cap under option 1 would be relatively close to the price ceiling in Australia, it would facilitate linking the ETS with the Australian Carbon Trading Mechanism, should linking be deemed desirable.
103. Option 1 (price cap increasing by \$5 per annum) is also better than option 3 (\$25 price cap) in terms of managing potential fiscal costs. Retaining a price cap (including options 1, 2 and 3) would not result in any fiscal cost if the international carbon price were below the price cap until 2015. Since the international carbon price is expected to remain below \$25 in the period to 2015, it is likely that options 1, 2 and 3 will not result in any fiscal costs. However, the Government would incur a significant fiscal cost if the international carbon price rose above a price cap, and the Government was subject to an international obligation or the Government backed NZUs with overseas units. This fiscal cost would arise in such scenarios because the Government might need to purchase international emissions units at a price higher than the price cap. The fiscal risk associated with option 1 is lower than that associated with option 3, as the likelihood of the international carbon price exceeding the price cap under option 1 is lower.
104. Option 1 (price cap increasing by \$5 per annum) is also better than option 3 (\$25 price cap) in terms of managing potential administrative costs. The administrative costs associated with retaining a price cap (including options 1, 2 and 3) depends on the number of participants purchasing NZUs directly from the Government through the price cap and the administrative complexity. If the international carbon price were below the price cap until 2015 and the price cap were set in an administratively simple way, the administrative costs associated with retaining a price cap would be small because not many ETS participants would purchase NZUs directly from the Government through the price cap, which would be more expensive than purchasing units from international carbon markets. Since the international carbon price is expected to remain below \$25 in the period to 2015, it is likely that the administrative costs associated with options 1 and 3 will be small.³³ However, if the international carbon price were above the price cap for an extended period, the administrative costs associated with retaining a price cap could potentially be significant (up to \$250,000³⁴ per annum). Since the price cap under option 1 is higher than the price cap under option 3, the risk of the international carbon price exceeding the price cap is lower under option 1 than under option 3. This means that potentially fewer participants would purchase NZUs directly through the price cap under option 1 than under option

³³ It is estimated that the annual administrative costs associated with a price cap is between \$400 and \$1,000 if the international carbon price is below the price cap. The estimate is based on the following statistics:

- In the financial year ended 30 June 2011, the international carbon price was below the \$25 price cap, and only two NZ ETS participants have purchased NZUs from the Government through the fixed price option.
- It is estimated that the administration cost associated with issuing NZUs through the fixed price option is in the range of \$200 – \$500 per transaction.

³⁴ This estimate is based on the assumptions that:

- The administration cost associated with issuing NZUs through the fixed price option is \$500 per transaction.
- Five hundred ETS participants would purchase NZUs directly through the price cap if the international carbon price was above the \$25 price cap.

3. The administration cost associated with option 1 is therefore potentially smaller than that associated with option 3.
105. The status quo is worse than option 1 (price cap increasing by \$5 per annum) and option 3 (\$25 price cap) in terms of delivering cost-effective emission reductions mainly because businesses would not be protected from carbon price volatilities after 2012 under the status quo.
106. Option 2 (aligning price cap with Australia) is worse than option 1 (price cap increasing by \$5 per annum) in terms of delivering cost-effective emission reductions, even though the price cap under option 2 is likely to be similar to that under option 1. The reason is that option 2 is more administratively complex. To set the price cap under option 2, officials would have to liaise with Australian officials about their carbon price ceiling and find out the NZ\$/AUD\$ exchange rates and the inflation rates at the beginning of each financial year.
107. Option 2 (aligning price cap with Australia) is worse than option 3 (\$25 price cap) in terms of delivering cost-effective emission reductions mainly because option 2 is not as good as option 3 at protecting businesses from carbon price volatilities.
108. In terms of long-term economic resilience, the status quo, option 1 (price cap increasing by \$5 per annum) and option 2 (aligning price cap with Australia) would have similar effects, and would be preferred to option 3 (\$25 price cap). This is because option 3 is potentially more likely to cause significant delay in the development or adoption of emission abatement technologies in New Zealand, given that it could create the perception that the Government will continue to keep carbon price low (below \$25) in the longer term. In contrast, under the status quo and the other two options, the Government would provide a signal to the public that carbon price will not be kept at an artificially low level.

Recommendation

109. Officials do not have a preferred option as there are costs and benefits with maintaining the status quo and the proposed policy options.

iii. Ban on exports of NZUs

Status quo

110. There is a ban on export of NZUs from the non-forestry sectors until the end of 2012. The ban operates by forbidding non-forestry sectors to convert their NZUs into AAUs. This ban is intended to mitigate the arbitrage risk associated with the \$25 price cap.

Problem definition

111. If the price cap was extended beyond 2012, in the absence of the ban, there would be arbitrage opportunities for ETS participants from non-forestry sectors if the price of overseas units were above the price cap. **[Withheld under s9(2)(k)].**
112. Allowing such arbitrage opportunities could create a significant fiscal risk for Government, as ETS participants receiving free allocation would be able to meet their surrender obligation through purchasing NZUs at the price cap and sell their allocated units for higher prices overseas. It is estimated that the fiscal cost associated with

allowing these arbitrage opportunities would be about \$50–60 million per annum, if the price cap remained at \$25 per NZU and the AAU price were \$30 per unit.³⁵

113. For some ETS participants, particularly those receiving large amounts of allocations, the profits from these arbitrage opportunities could potentially be high enough to offset the costs associated with fulfilling ETS surrender obligations. This would undermine the integrity of the ETS and weaken incentives to reduce emissions.
114. These arbitrage opportunities could also threaten the liquidity of the domestic carbon market, as ETS participants receiving allocation from the Government would rather sell their units overseas than domestically if the overseas unit prices were higher than the NZU price cap.
115. If the price cap expires at the end of 2012 as scheduled, such arbitrage opportunities will not arise. However, if the price cap is extended beyond 2012, such arbitrage opportunities will arise. They will arise even if auctioning of NZUs is introduced because the bidding prices for NZUs are expected to be below the price cap.

Options analysis

116. Regarding whether the export ban should be extended beyond 2012, two options have been considered:
 - option 1: remove the ban on NZU exports from non-forestry sectors when the price cap is removed, or sooner if the price cap is significantly above the international carbon price
 - option 2: no ban on NZU exports from non-forestry sectors after 2012 even if the price cap remains in place.
117. These two options arise in the context of the Government’s decision to extend the \$25 price cap until at least 2015. If the price cap expires at the end of 2012 (as under the status quo), the export ban should also expire at the end of 2012 (as under the status quo) because the arbitrage risk associated with a price cap would not exist after 2012.
118. A summary of the impacts for the policy options is presented in the table below.

Option 1 (ban if price cap in place)	ECONOMIC: Improve domestic market liquidity. No arbitrage risk. Obstacle to linking with other schemes if desirable. FISCAL: No fiscal risk ENVIRONMENTAL: Maintain incentives to reduce emissions.
Option 2 (no ban if price cap in place)	ECONOMIC: Arbitrage risk FISCAL: Fiscal risk due to risk of arbitrage COMPLIANCE: Risk of additional administrative costs due to risk of arbitrage ENVIRONMENTAL: Damage credibility of the ETS and undermine incentives to reduce emissions

119. In terms of delivering fair share, option 1 is preferred. Option 1 would not undermine New Zealand’s ability to deliver its fair share of emissions reduction. In contrast, by allowing arbitrage opportunities, option 2 could damage the international credibility of

³⁵ This estimate is based on the assumption that the export ban applies to the all businesses receiving allocation (other than forestry and agriculture allocation), and all these businesses take advantage of the arbitrage opportunities.

the ETS and could significantly undermine incentives to reduce emissions in New Zealand.

120. In terms of delivering cost-effective emission reductions, option 1 is preferred. Option 1 would retain a significant proportion of NZUs in the ETS after 2012, improving the market liquidity in New Zealand. However, option 1 would restrict the transferability of units between the ETS and other schemes and could therefore create an obstacle to linking the ETS with other schemes. This would be a disadvantage, if linking is deemed desirable.
121. Option 2 is worse than option 1 and the status quo in many respects. Option 2 could create a significant fiscal risk for the Government by allowing arbitrage opportunities, where ETS participants benefit at the Crown's expense. Assuming that the international unit price is \$30 and the NZU price cap is set at \$25 in 2013, Option 2 could also add significant administrative costs to the Government because the arbitrage opportunities created by this option would encourage ETS participants to purchase more units directly from the Government through the fixed price option.
122. In terms of long-term economic resilience, option 1 is preferred. Option 1 would mitigate arbitrage risk, while option 2 would not. The arbitrage opportunities created by option 2 could in effect be a significant subsidy to emitters. This would be inequitable to taxpayers and would delay the transition to a low-carbon economy.

Recommendation

123. Option 1 is preferred if the \$25 price cap is extended beyond 2012. This is because it would mitigate the arbitrage opportunities associated with the \$25 price cap, thereby mitigating fiscal risks and preventing the incentives to reduce domestic emissions from being undermined significantly.

E. Pre-1990 forestry

i. Introduction of pre-1990 forestry offsetting

Status quo

124. The forestry rules in the ETS are largely based on Kyoto Protocol rules for CP1 which make New Zealand liable for deforestation emissions occurring between 2008 and 2012. Only deforestation of exotic forest is subject to liabilities in the ETS.³⁶ Land owners are liable for deforestation emissions if they harvest their forest and do not replant within 4 years.
125. A flexible land use³⁷ (FLU) rule for pre-1990 forests was agreed at international negotiations in Durban.³⁸ The FLU rule enables countries that sign up to CP2 to avoid deforestation liabilities following harvest pre-1990 forest and conversion to a non-forestry land use, as long as a new forest is established elsewhere. There will be no liabilities if the total net emissions from all the pre-1990 forest estate including FLU emissions are below a projected level of business as usual (BAU) emissions (or reference level).
126. The FLU rule has the following requirements:
- only pre-1990 exotic forests cleared from 2013 are eligible for offsetting
 - the offset planting (i.e. the new forest) must be established in 2013 or later on post-1989 forest land (i.e. land that did not contain forest in 1990)
 - the offset planting must be established by direct planting activities (i.e. human induced promotion of natural forest regeneration is not permitted)
 - the offset planting needs to be at least the same area as the cleared forest and achieve the same carbon stock level as the cleared forest at the time of harvest within a usual rotation length
 - the harvested forest must have been planted after 1960
 - the offset planting would be considered as pre-1990 forest
 - all forest lands shall be monitored and verified, reporting the location and the year of conversion.
127. The Government has not yet decided to sign up to CP2. The domestic policy design should follow the FLU rule agreed in Durban to avoid fiscal costs should New Zealand sign-up to CP2. If New Zealand decided not to sign up to CP2, following the FLU rule would ensure the domestic offsetting design gives the ETS credibility with our trading partners.
128. New Zealand's BAU net emissions projection (or reference level) include pre-1990 exotic forests only, as currently the indigenous forest is assumed to be in a steady

³⁶ Indigenous forest deforestation is subject to the restrictions under the Forest Act 1993.

³⁷ The FLU rule is the way the offsetting forestry is known in the climate change negotiations.

³⁸ Paragraphs 37 to 39 on the report for the Land Use, Land Use Change and Forestry rules for CP2 decided at Durban. See: <http://unfccc.int/resource/docs/2011/awg16/eng/l03a02.pdf>

state.³⁹ The reference level was estimated at 10.78 Mt CO₂/year (2013-2017) or 11.15 Mt CO₂/year (2013-2020). The projections assume a total pre-1990 forest harvest greater than around 57,000 hectares/year (at 28 years average) or 29 million m³ will create a liability in the reference level.

129. Current harvest levels are around 43,000 hectares/year at an average age of 28 years (or 24 million m³), and have been increasing due to high demand and increasing log prices. Offsetting may encourage higher levels of harvesting in addition to BAU from 2013 should the costs of conversion be favourable in the future. Based on the pre-1990 age class distribution, any additional harvest to BAU will be from younger trees.
130. The harvest of young trees as part of offsetting will reduce the level of sequestration achieved within BAU projections, and could have an impact in the fiscal liabilities. This however depends on a few variables such as the level of offsetting uptake or the harvest demand in the future, which are difficult to predict.

Problem definition

131. Landowners' deforestation liabilities under current ETS rules could be significant and effectively limit their ability to convert pre-1990 forest land to a potentially more productive and profitable land use. For a mature forest, deforestation liabilities are on average \$20,000/ha (at \$25/t carbon price) to \$8,300/ha (at \$10.41/t carbon price).
132. Based on land characteristics⁴⁰ there are approximately 70,000 hectares of pre-1990 forest on private land that could be better suited on pastoral land uses.⁴¹ Most of this area is on the Central North Island (33 per cent), Otago and Southland (20 per cent) and Canterbury (18 per cent).
133. From the 70,000 hectares, about 9,000 hectares include best land for pastoral farming (i.e. flat to very gently rolling land with limited erosion risk, best suited for cultivation). The remaining 61,000 hectares are still suitable for pastoral farming but have moderate physical limitations for cultivation. In some cases poorer land might still be suitable for conversion (e.g. lifestyle blocks, wind farms) depending on the situation and attributes of the land.
134. A pre-1990 offset planting regime in the ETS would reduce the cost of deforestation by allowing forest land owners to convert pre-1990 forest to a more productive and profitable land use without deforestation liabilities provided an alternative area of forest is established elsewhere.
135. One of the key requirements for the new forest is the equivalence definition. The new forest could be as an area equivalent forest (same area as deforested), or a carbon equivalent forest (forest area will achieve the same carbon stocks as the forest deforested). The main difference between these is that an area equivalent forest may not mitigate all the deforestation emissions if the new forest is established in a lower quality site (lower carbon stocks achieved).

³⁹ As described in New Zealand's Greenhouse Gas Inventory report, natural forests require the full set of plot re-measurement data to quantify carbon stock changes. The reference level will be updated once the re-measurement is completed.

⁴⁰ Land Resources Inventory classification based on physical characteristics for optimal land use.

⁴¹ Estimates based on Geographical Information Systems analysis.

136. Forest owners have stated intentions⁴² to undertake deforestation and conversion under pre-1990 offsetting policy if this was part of the ETS. Forest owners were considering conversion to: dairy (87 per cent), sheep and beef (5 per cent) and lifestyle blocks (8 per cent). Most of the deforestation intentions with offsetting are in the Central North Island (74 per cent).

137. The cost of conversion with offsetting includes the cost of purchasing land, establishing and maintaining a new forest, and the costs of setting up the new land use (i.e. dairy farm). These costs are countered by potential benefits from the agricultural production in the area currently under pre-1990 forest and the offset planting.

Options analysis

138. Three options have been identified for the ETS implementation of offsetting, based on the FLU rules. These options are described in the table below.

Option	Status quo	1: Harvest at any age	2: Harvest at any age with offset planting required to remain on the ground for full rotation	3: Harvest mature trees only
Key features	<ul style="list-style-type: none"> • Deforestation liabilities apply when pre-1990 forest land is converted to a non-forest land use (s181 of the Act) (subject to some limited exemptions) • The liabilities also apply if after 4 years of harvest, the landowner hasn't replanted or the land has not naturally regenerated to at least 500 stems per hectare (s179) • Deforestation of <2 hectares in a 5 year period is exempt of liabilities. (Part 1 Schedule 3) • In addition, some land owners may have applied for an exemption if they own <50 hectares (s183) 	Policy applies to trees harvested at any age	Policy applies to trees harvested at any age. Landowners must maintain the offset planting (i.e. new planting) for a full rotation.	Policy restricted to harvest of mature trees within the usual rotation length (i.e. 26-28 years for radiata pine)
<p><u>Common to all options</u></p> <ul style="list-style-type: none"> • No deforestation liabilities apply when landowner plants elsewhere at least an area equivalent that achieves same carbon stock loss at time of harvest. • Any species can be used for the new planting, and only direct planting is permitted (i.e. not natural forest regeneration). • Offset planting should be at least the same area as deforested, and achieve carbon equivalency of the forest harvested within the same rotation length as forest deforested (i.e. around 28 years for radiata). • Offset planting (i.e. new forest) is subject to the same obligations of a pre-1990 forest as in the current ETS settings. • Implementation to build on existing ETS operational processes and systems 				

139. Any option should be implemented building on existing ETS operational processes and systems to minimise administrative costs and burdens for the Crown and participants.

⁴² Deforestation survey undertaken yearly by the University of Canterbury.

This will also enable implementation as early as practicable. Some of the key aspects of offsetting implementation following existing ETS operational processes are:

- the decision to deforest and take up offsetting will rest with the landowner.
- use of pre-1990 forest land look-up tables to estimate deforestation emissions of the cleared forest.
- use of post-1989 forest land look-up tables to estimate carbon sequestration of the offset forest (this is to keep consistency in the methodologies used to estimate emissions and sequestration).

140. To balance the risks of non-compliance with the costs of monitoring and enforcement, the following is proposed:

- the landowner will be responsible for self-assessing and declaring non-compliance with his or her offsetting obligations, with MAF conducting risk-based audit as necessary to monitor and enforce compliance.
- if a landowner does not establish an offset forest of sufficient area or carbon equivalence, they will be required to file an emissions return and must surrender NZUs (or other eligible units) to meet any carbon shortfall. After this, offsetting obligations from the participant are completed.
- any subsequent deforestation of the offset planting will be subject to the normal ETS deforestation liability.

141. A summary of the impacts for the policy options is presented in the table below.

Status quo	ECONOMIC: Deforestation liabilities deter forest owners from converting their forest land to more productive uses ENVIRONMENTAL: Any forest land conversion is subject to deforestation liabilities in the current ETS settings
Option 1 (harvest at any age)	ECONOMIC: More flexibility for forest conversion for land owners compared to status quo and option 3 FISCALS: Some fiscal costs and risks compared to the status quo ENVIRONMENTAL: Consistent with future international framework
Option 2 (harvest at any age with offset planting required to stay on the ground for full rotation)	ECONOMIC: More flexibility for land owners compared to status quo and option 3 FISCAL: Some fiscal costs and risks compared to the status quo ENVIRONMENTAL: Consistent with future international framework
Option 3 (harvest mature trees)	ECONOMIC: More flexibility for land owners compared to status quo but to a lesser extent than options 1 and 2 FISCAL: Better manages fiscal costs and risks compared to the other options ENVIRONMENTAL: Consistent with future international framework. Better manages the flow of emissions compared to the other options. Minimises negative environmental impacts by preventing emissions compared to other options.

142. In terms of delivering fair share, all options have common elements that are consistent with a possible international accounting framework (if New Zealand opts-in a CP2) and therefore to meet international obligations.
143. In addition, option 3 (harvest mature trees) is preferred in terms of helping New Zealand meet its international obligations and emissions target. It also contributes the most to New Zealand's international credibility. While all options ensure the emissions generated are offset, option 3 prevents the conversion of younger forests which helps manage the flow of emissions by keeping the harvest within business as usual practices. **[Withheld under s9(2)(j)]**. Option 2 (harvest at any age with offset planting required to remain on the ground for a full rotation) is the second most preferred option as it ensures offset planting to achieve a full rotation and contribute to sequestration. Option 1 (harvest at any age) is the least preferred. This allows landowners to harvest and convert younger trees with no restrictions on the future harvest of the offset forest (note the landowner will face a deforestation liability if they harvest and convert the offset forest).
144. In terms of delivering cost effective emission reductions, all options minimise the costs of forest conversion to the most profitable land use for landowners. Also it is proposed that all options are built on current ETS processes to minimise implementation costs to the Government.
145. In addition, option 3 (harvest mature trees) manages fiscal costs and risks from 2013. This is achieved by encouraging the harvest within usual rotation lengths and the net emissions will be below the reference level. This will avoid all liabilities for the Crown (if it signs up to CP2) or take an emissions reduction target for the period to 2020 based on CP2 accounting rules.
146. In addition, option 3 (harvest mature trees) ensures long term economic resilience by minimising negative environmental impacts by preventing emissions, and ensures environmental integrity of ETS emission units by avoiding the conversion of young forests to non-forestry land uses.
147. On the other hand, option 3 (harvest mature trees) may limit conversion plans for some participants or the ability to respond to price signals for land use change, as they may not be able to deforest the area planned if it includes young trees. This option therefore reduces the land-use flexibility that offsetting is intended to provide. Therefore option 2 (harvest at any age with offset planting required to remain on the ground for a full rotation) or option 1 (harvest at any age) would be more attractive for landowners as it offers more flexibility for land use change. However option 2 (harvest at any age with offset planting required to remain on the ground for a full rotation) imposes management obligations for the full rotation length on landowners who harvest younger trees, while not completely managing the fiscal risk, and option 1 (harvest at any age) does not manage any fiscal risks.
148. It is unknown how any of these options may or may not affect owners that intend to convert forest using this policy. From an economic return perspective, owners would maximise their returns if they convert at forest maturity, with an estimated net benefit for the land owner⁴³ of around \$32,000/hectare if converting forest to dairy at 28 years

⁴³ Based on a cost benefit analysis from the land owners perspective that includes all costs and revenues linked to forest conversion to dairy. The costs are based on average values. Deforestation liabilities were estimated at \$25 carbon price

and \$15,000/hectare converting at 16 years. It may also be more viable for owners that intend to deforest young trees to pay the deforestation liabilities as the costs are lower than undertaking offsetting.

149. Consultation on this policy change is required. This is a major policy amendment which has been requested by stakeholders through time. In addition, this policy is closely linked to the policy change on the forestry allocation (second tranche) for which consultation is also recommended (see *Cancellation of the second tranche of allocation* section below).
150. Officials will have better information to assess the risks from offsetting once final decisions are made about other ETS policy settings, particularly those that may affect the future carbon price, such as the proposal to limit the amount of overseas units permitted in the ETS. Consulting landowners on offsetting policy design may also give officials the opportunity to seek clarity about landowners' offsetting intentions and whether steps to mitigate any fiscal risk are required.

Recommendation

151. All policy options (i.e. introduce offsetting) are better than the status quo however officials have not reached a view on which of the alternative policy options is preferred. Further work and consultation is required in order to identify which is the preferred option.

ii. Cancellation of the second tranche of allocation

Status quo

152. Pre-1990 forest owners receive a one-off free allocation of NZUs in partial compensation for the land use restriction placed on this land by deforestation liabilities. The number of NZUs depends on whether land was acquired (bought or transferred) before or after 1 November 2002, when the government announced its intentions to introduce deforestation restrictions. Other factors include how the land was acquired and how it is owned (e.g. company, trust etc).
153. The allocation will be transferred in two parts: a first tranche of around 38 per cent before 31 December 2012, and a second tranche of the remaining 62 per cent during 2013. The current estimated forecast value of the second tranche is 30.9 million NZUs.⁴⁴
154. Through the development of the forestry allocation plan (FAP), government decided to devolve the credits corresponding to Crown Forest Licence (CFL) land to successful Treaty claims after 1 January 2008 (18 NZUs) in discussion with the Māori Reference Group Executive (MRGE) and Iwi Leadership Group (ILG). The rationale was that these claimants were also disadvantaged by the ETS, as the settlements were not completed. A lower allocation was justified as the impact is not as great as for other forest owners.
155. The FAP was consulted on three times in 2008, 2009 and 2010. The decision to consult in 2010 was to give effect to the Crown's commitments under the Treaty of Waitangi (section 3A of the Act).

⁴⁴ The final estimate of the value of the second tranche depends on the final determinations made to all applications. These are still in process.

156. The Act provides for a possible cancellation of transfer or recovery of the second tranche (Section 30F) if the deforestation activity (Part 1 Schedule 3) is repealed. Pre-1990 forest land owners who have been granted an allocation have been advised of the possibility that all or part of the second tranche of NZUs may be recovered from any holding account or the transfer cancelled if the Act was amended as in Section 30F.
157. The Panel recommended that the second tranche be cancelled if offsetting is introduced and taken-up by a landowner.

Problem definition

158. The rationale for cancelling the allocation is based on the reduction of the cost of deforestation that offsetting could provide. The offsetting policy provides greater land-use flexibility for pre-1990 forest land thereby reducing the impact of the ETS on land value.
159. At a carbon price of \$25, offsetting provides a comparative net benefit of \$15,000 per hectare for pre-1990 forest landowners whose land is suitable for conversion to a higher value land use, compared with current ETS settings. At a lower carbon price, the comparative net benefit of conversion to dairy with offsetting or with ETS liabilities is estimated on around \$4,400 per hectare (at a \$10.41/t carbon price for a 28 year old forest).
160. Large landowners in the central North Island, Canterbury and Otago/Southland are most likely to take up offsetting and obtain this benefit. Smaller landowners, landowners whose land is best suited to forestry, and landowners who have sold long-term cutting rights to third parties are less likely to obtain any short-term benefits from the introduction of offsetting. Māori-owned pre-1990 forest land is likely to fall into the latter category and unlikely to benefit from offsetting. Landowners who are less likely to take up offsetting are more likely to oppose any cancellation of the second tranche.
161. The offsetting policy however still represents a cost for forest owners who want to deforest. The costs of offsetting include the cost of the land for the offset planting, and establishing and maintaining a new forest. At low carbon prices the benefits of offsetting are marginal as the liabilities are reduced. For instance at \$6/t carbon price the cost of deforestation (for a 28 year old forest) this net comparative benefit is reduced to \$1,000 per hectare. Landowners confirmed that this is their intention in the most recent Deforestation Intentions Survey (2011).
162. An additional argument for the cancellation of the second tranche is that many landowners have no intention of deforesting because forestry is the highest value land use. It is estimated that around 74 per cent of pre-1990 forest land (940,000 hectares) is best suited to forestry. Arguably, these landowners have already been over-compensated by receiving the first tranche, since the ETS would have had negligible impact on their land value. The forestry allocation policy has always recognised the potential to over-compensate landowners, but found no effective or efficient way to target compensation to those with a higher value land use. Accordingly, a pro-rata approach that did not take into account the value of possible land uses was adopted for all landowners within the three allocation categories.
163. Any limitation on the availability of offsetting (i.e. offsetting option 3 - harvest mature trees only) will impact on the strength of the argument that offsetting obviates the need for compensation.

Options analysis

164. Three options have been identified for the possible cancellation of the second tranche due to the ETS implementation of offsetting. These options are described in the table below.

Option	Status quo	1: Panel's recommendation	2: Pro-rata partial cancellation	3: Total cancellation
Key features	<ul style="list-style-type: none"> • A one-off allocation of NZUs is provided to pre-1990 landowner (s72) • The allocation categories are as follows: <ul style="list-style-type: none"> ○ 60 NZUs/ha (land acquired prior to 1 Nov. 2002; ○ 39 NZUs/ha (land acquired after 1 Nov.2002; or ○ 18 NZUs/ha (eligible pre-1990 forest land that was Crown forest licence land on 1 Jan. 2008 that was or will be transferred to iwi under a Treaty settlement after that date⁴⁵. 	<ul style="list-style-type: none"> • Cancel second tranche only for those electing to offset. • Estimated potential savings range from 0.2-2.6 million NZUs, and are dependent on the uptake of offsetting (assumed range 16,000 to 70,000 hectares in 2013-2020). 	<ul style="list-style-type: none"> • Cancel a proportion of the allocation for all pre-1990 owners, and all the allocation if they uptake offsetting. • Estimated potential savings of around 18.5 million NZUs from cancelling 60 per cent of the second tranche. 	<ul style="list-style-type: none"> • Cancel all the second tranche for all forest owners. • Estimated potential savings of around 30.9 million NZUs.

⁴⁵ These units are compensation for iwi for the restrictions on future land use decisions placed on Treaty of Waitangi settlements with forestry ETS obligations starting on 1 January 2008. Crown forest licensed land transferred to Ngati Awa and Te Uri o Hau under Treaty of Waitangi Settlements receives 60 NZUs per hectare, as this settlement was agreed prior 1 November 2002.

165. A summary of the impacts for the policy options is presented in the table below.

Status quo (no cancellation)	ECONOMIC: Maximises market liquidity with allocation units flow, making it easier for ETS participants to buy units FISCAL: Significant fiscal cost ENVIRONMENTAL: No impact on the level of emissions
Option 1 (Panel's recommendation)	ECONOMIC: Least impact on market liquidity compared to other options FISCAL: Minimal fiscal savings compared to other options ENVIRONMENTAL: No change from status quo
Option 2 (pro-rata partial cancellation)	ECONOMIC: Some impact on market liquidity FISCAL: Some fiscal savings (more than option 1 but less than option 3) ENVIRONMENTAL: No change from status quo
Option 3 (total cancellation)	ECONOMIC: Greatest impact on market liquidity compared to other options FISCAL: Maximises fiscal savings compared to other options ENVIRONMENTAL: No change from status quo

166. The outcomes from these options vary within the spectrum of ETS objectives and criteria. No decisions have been made in terms of which option is preferable.
167. In terms of delivering fair share, this change in policy does not impact on our international obligations or level of emissions.
168. In terms of delivering cost-effective emission reductions, option 3 (total cancellation) maximises fiscal savings. However, carbon market liquidity is affected as the flow of NZUs for trade is removed from the domestic market. The outcome from option 1 (Panel's recommendation) will create minimum fiscal savings and have less impact on market liquidity.
169. In terms of long-term economic resilience, options 2 (pro-rata partial cancellation) and 3 (total cancellation) are likely to have greater equity impacts than option 1 (Panel's recommendation). For example, as noted above, some landowners are less likely to be able to take advantage of offsetting and therefore likely to oppose any mandatory cancellation. Some landowners could also perceive options 2 and 3 as a wealth transfer from the forestry sector to other sectors.
170. **[Withheld under s9(2)(h)].**
171. Some landowners may also have the expectation to receive the second tranche of NZUs once a final determination was made on their application for an allocation. These owners are likely to perceive these units as akin to a property right and any mandatory cancellation as affecting their property rights.
172. Consultation of this policy change is advised based on the Treaty of Waitangi principles to consult iwi on policy changes.

Recommendation

173. Officials do not have a preferred option. Given the risks identified, further work and consultation is required before the preferred option can be determined.

Consultation

174. In March 2011, the Panel published its *Issues statement and call for written submissions*.⁴⁶ The Panel received 162 written submissions. In addition, the Panel met with a number of stakeholders. Annex 2 of the Panel's final report provides further details.⁴⁷ In addition the Panel published a comprehensive summary of submissions.⁴⁸ The consultation covered specific issues and possible policy options. The concerns raised by submitters have been reflected in the analysis set out above.
175. In terms of the transition phase, environmental groups and forest owners argued in their submissions to the Panel that the transition phase should end in 2012 as scheduled because the carbon price is currently too low to stimulate long-term behaviour change. Others however, such as business groups, argued the transition phase should be extended beyond 2012 because of the weak economy and the impact on international competitiveness. These points have been reflected in the assessment on the transition phase measures (see section D).
176. In terms of pre-1990 forestry offsetting, forest owners argued in their submissions to the Panel that this should be introduced in the ETS. Offsetting was seen as a way of paying for their deforestation liabilities and would allow land use flexibility. They recommended this should be introduced irrespective of whether this was permitted under the international rules. These points have been reflected in the assessment on offsetting (see section E).
177. However not all of the policy problems and/or specific policy options covered in this RIS were considered by the Panel because they were not specified in the terms of reference and/or submitters did not raise them during consultation. These are:
- detailed auction design
 - the introduction of offsetting for pre-1990 forest owners
 - the cancellation of the second tranche of allocation to pre-1990 forest owners
178. Accordingly officials recommend further consultation on these issues. A lack of consultation could result in policy and implementation risks, such as a misspecification of the policy problem and more effective policy design options being overlooked.
179. There has also been substantial departmental consultation during the course of this RIA. In addition, MAF conducted the RIA, and wrote the relevant RIS sections, of the issues in relation to pre-1990 forestry.

Conclusions and recommendations

180. In summary, the following conclusions and recommendations are reached:
- the AR4 GWPs should be used for the purposes of reporting and surrender obligations under the ETS
 - auctioning of NZUs should be introduced from 2015 in the ETS subject to consultation on auction design

⁴⁶ See: <http://www.climatechange.govt.nz/emissions-trading-scheme/ets-review-2011/consultation/>

⁴⁷ See: <http://www.climatechange.govt.nz/emissions-trading-scheme/ets-review-2011/index.html>

⁴⁸ See: <http://www.climatechange.govt.nz/emissions-trading-scheme/ets-review-2011/consultation/>

- the provision for the Crown to back all NZUs issued during CP1 with Kyoto units should be removed
- officials have not made a specific recommendation in relation to the surrender obligation and the price cap
- a ban on the export of NZUs from non-forestry sectors should be extended beyond 2012, if the price cap is extended
- the introduction of offsetting for pre-1990 forests
- officials have not made a recommendation in relation to the cancellation of the second tranche.

Implementation

181. All of the proposals will be implemented through amendments to the Act and/or through regulations.
182. In terms of the introduction of auctioning, this will be implemented following further work and consultation, and final policy decisions. Some implementation decisions still need to be taken, such as the design and implementation of the supporting administrative systems and processes.
183. In terms of the transition phase measures, any changes will be implemented through changes to existing administrative systems and process operated by the EPA. No specific risks have been identified.
184. In terms of the recommended change to introduce pre-1990 forestry offsetting, any option will be implemented building on existing ETS operational processes and systems to minimise administrative costs and burdens for the Crown and participants.

Monitoring, evaluation and review

185. The Act requires the Minister to conduct regular reviews of the operation and effectiveness of the ETS (s160). The first review occurred in 2011 and will occur every five years thereafter. The Act (s160(5)) also specifies what the review must cover, although the review is not limited to these matters. Under the Act, the Minister sets the terms of reference and appoints a panel to conduct any review (s160(6)). The Minister is required to publish the panel's report on the review.
186. The Act also requires the Minister to publish an annual report on the ETS. This contains details of the number of ETS participants, the number and types of emission units surrendered and the amount of NZUs allocated each year.⁴⁹
187. A substantial amount of information and data on the ETS is already collected. For example, ETS participants are required to report on their emissions annually. In addition, data are collected each year to assist New Zealand to complete its national inventory. Survey data are collected periodically from the industry⁵⁰ and forestry

⁴⁹ See: <http://www.climatechange.govt.nz/emissions-trading-scheme/building/reports/ets-report/>

⁵⁰ See for example: Ministry of Economic Development Occasion Paper 11/04, *Business responses to the introduction of the New Zealand emissions trading scheme. Part I: Baseline*. Available at: <http://www.med.govt.nz/about-us/publications/publications-by-topic/occasional-papers>

sectors.⁵¹ Data are also collected for use in a number of sector models to produce emission projections, such as the energy sector.⁵²

188. There is close liaison between policy and implementation officials that ensures early identification of any problems arising. Officials also meet regularly with businesses and groups, including Māori, most affected by the ETS.
189. There may however be a need to collect data that is not currently collected for monitoring and evaluation purposes. A Ministry for the Environment monitoring and evaluation plan will be completed for each policy proposal once approved by Cabinet.

⁵¹ See, for example: <http://www.maf.govt.nz/news-resources/publications?title=Deforestation%20Survey>

⁵² See, for example, Ministry of Economic Development, *Energy Outlook*. Available at: <http://www.med.govt.nz/sectors-industries/energy/energy-modelling/modelling/new-zealands-energy-outlook>

Annex 1: Objectives, sub-objectives and criteria used in the regulatory impact analysis

b. The table below shows the top level objectives, sub-objectives and assessment criteria used in the analysis.

Top level objectives	1. Help New Zealand to deliver its 'fair share' of international action to reduce emissions, including meeting any international obligations		2. Deliver emission reductions in the most cost-effective manner					3. Support efforts to maximise the long-term resilience of the New Zealand economy at least cost			
Sub-objectives	1A. Meet international obligations	1B. Achieve a level of emissions consistent with New Zealand's 'fair share'	2A. Minimise negative economic impacts in the short term	2B. Maintain international competitiveness of New Zealand businesses in the short term	2C. Ensure administrative efficiency and effectiveness	2D. Minimise fiscal costs	2E. Ensure efficiency of carbon market	3A. Maximise long term economic resilience	3B. Maximise equity between sectors and groups	3C. Ensure the Crown-iwi relationship under the Treaty of Waitangi is appropriately reflected in ETS legislation, regulation, policy and implementation	3D. Minimise negative environmental impacts and promote positive environmental impacts
Assessment criteria	a) Facilitate progress of international efforts to address climate change	a) Contribute to meeting New Zealand's 'fair share' by 2020	a) Minimise short term negative impacts on economic welfare (e.g. GDP, National Disposable Income, etc)	a) Minimise carbon cost differentials between New Zealand's trade exposed businesses and its trading competitors and partners	a) Minimise administrative and implementation costs to Government	a) Minimise fiscal costs	a) Maximise market liquidity	a) Minimise negative economic impacts in the long term	a) Maximise equity between sectors of the economy	a) Appropriately reflect the Crown's responsibilities as a Treaty partner and deliver on any relevant Treaty settlement obligations	a) Minimise negative (wider) environmental impacts
	b) Contribute to meeting New Zealand's existing international obligations	b) Provide incentives for businesses to adopt existing emission abatement opportunities	b) Minimise costs to non-trade exposed businesses	b) Minimise risks of trade sanctions or harm to New Zealand's clean and green reputation for New Zealand's exporters	b) Minimise compliance costs to ETS participants	b) Maximise fiscal savings	b) Maximise market transparency	b) Maintain international competitiveness of New Zealand's businesses in the long term	b) Maximise socio-economic equity, e.g. between high- and low-income households	b) Support the development by Māori of their natural resources in ways that contribute to the development of the Māori economy, and which are consistent with their environmental values	b) Maximise positive (wider) environmental impacts
	c) Enhance	c) Provide	c) Minimise		c) Minimise		c) Facilitate	c) Provide	c) Promote		c) Ensure

	New Zealand's international credibility to influence the outcome of international climate change negotiations.	incentives for consumers to buy low-emission products	competition distortions within and between sectors of the New Zealand economy		transaction costs to ETS participants buying or selling emission units		future links with overseas emissions trading schemes	incentives for the development of new emission abatement opportunities at least cost and businesses' ability to meet future demand for low-carbon products	inter-temporal equity, namely equity between present generation and future generations		environmental integrity of international emission units surrendered in the ETS
		d) Contribute to meeting New Zealand's 2050 domestic emission reduction target			d) Promote understanding of the ETS				d) Ensure appropriate risk-sharing between emitters and Government/taxpayers		