Office Of The Convenor, Ministerial Group On Climate Change

The Chair
CABINET POLICY COMMITTEE

CLIMATE CHANGE II: NEW POLICIES

PURPOSE

1 This is the second paper in a series of five on policies for New Zealand to meet its obligations under the Kyoto Protocol, once it comes into force. It seeks Cabinet agreement to a preferred new climate change policy package for managing greenhouse gas emissions and land use and forest sinks from now to the end of the first commitment period and beyond.

2 This package will be the basis of an upcoming round of consultation prior to final decisions on ratification and the domestic policy package being taken in July.

3 This paper is laid out in the following way:

EXECUTIVE SUMMARY

4 This is the second paper in a series of five on policies for New Zealand to meet its obligations under the Kyoto Protocol, once it comes into force. It seeks Cabinet agreement to preferred new climate change policies for managing greenhouse gas emissions and land use and forest sinks from now to the end of the first commitment period and beyond.

5 New Zealand is likely to generate excess emissions of around 50 million tonnes of carbon dioxide equivalent over its 1990 base allowance in the first commitment period even after all existing strategies and policies (such as NEECs, waste strategy, transport policies, and education) are adequately funded and implemented.

6 New policies need to be implemented over time to ensure that New Zealand takes responsibility for these excess emissions. These policies could include:

- measures to encourage further reductions
- use of sink credits to cover emissions
- measures that ensure that New Zealand can pay for its excess emissions using the mechanisms allowed under the Protocol
- a combination of the above.

7 Policies must be driven by the goal and principles set in CAB Min (02) 4/3, which indicated that a balance should be maintained between emissions reductions, and the need to ensure that the economy and society can move to a lower emissions future at a pace which allows people to adjust. The policy framework will develop, change and evolve over time, having regard to international events and Protocol dynamics - in that sense it will be similar to other public policy such as health and law and order.

8 The paper discusses the key issues that need to be addressed when deciding on policy, and then sets out the policies that should be put in place to meet Kyoto Protocol obligations. The key points from the paper, including the policies, are as follows:

Issue One - The adequacy of the existing policy foundations for meeting New Zealand's commitments

9 As indicated in Paper I, the policy foundations will result in approximately one third of the emissions reductions required for New Zealand to meet its target. This is heavily dependent on the adequacy of funding provided by Government for the foundation policies. Given the reductions that foundation policies can achieve, the case for imposing a price measure in the pre-commitment period is not persuasive.

In addition, targeted mechanisms such as Projects and negotiated greenhouse agreements can be used to provide further early incentives to make reductions. Accordingly, no emissions charge is proposed before 2007.

Issue Two - The timing and nature of a price on emissions

10 Key questions that are fundamental to the policy approach for New Zealand are: when should the Zealand economy be exposed to a price on emissions, what form would the price take, and at what level would it be set?

11 The discussion in paragraphs 34 – 36 below indicates that there is no need to introduce a price on emissions before 2007.

12 There are a number of broad pathways for introducing an emissions price beyond 2007. These are discussed in paragraphs 37 – 50.

13 The Government's preferred policy for the first commitment period is an emissions charge, approximating the international price of carbon, with a price cap of $25 per tonne of CO_2. The Government will retain the option of moving to private sector emissions trading if the international market is functional[1] and the international price of carbon is reliably below the price cap.

Issue Three - The level (if any) of protection afforded to business and consumers generally, in different parts of the economy

14 A further related issue is whether or not different parts of the economy should be treated differently. There is an argument that subjecting all emitters to the same emissions price avoids potential distortions in investment across the economy. But the paper concludes that in reality, different sectors of the economy have different adjustment costs, risk and investment profiles. Imposing one price across the economy may have very different effects on different firms and sectors in the short term. These short term costs need to be recognised and appropriate mechanisms put in place when designing climate change policy.

15 The parts of the economy that should be treated differently are listed below, along with the preferred policies for both the pre-commitment period and from 2008:

- *The "at-risk" group*.
  Firms that can show that they would be significantly affected by the adjustment costs they will face if they were exposed to an international price of emissions will be eligible for Negotiated Greenhouse Agreements. Draft eligibility criteria are described in Annex 2.

- *The on-farm agriculture sector*
  This sector has measurement issues and no available technologies to use to reduce emissions. Agriculture will be asked to invest in research into emissions reductions.

- *The waste sector*
  This sector will be significantly under its 1990 levels by the first commitment period partly as a result of the New Zealand Waste Strategy. The policy for the waste sector will be reviewed in 2005, at the same time as the Waste Strategy.

[1] Refer to Annex 2 of Climate Change1: Overview

- *The synthetic gases*
  PFCs, HFCs and SF_6 only contribute a small amount to New Zealand's total greenhouse gas emissions. Handling standards or negotiated agreements are proposed for this group, depending on the gas involved.

16 The remainder of the economy (termed the 'not-at-risk' group) will face an emissions charge in the first commitment period with that charge capped at $25/tonne CO_2. This group largely comprises the energy and transport sectors, some industrial and business processes, and households. It represents only about one quarter of total emissions, but about two-thirds of all CO_2 emissions.

Issue Four - The role that New Zealand's sink credits have in meeting obligations under the Protocol

17 New Zealand will be a net seller of emission units in the first commitment period. New Zealand could simply rely on sink credits to cover all excess emissions. Sinks are a temporary offset not a permanent solution. Under this scenario, no incentive, other than existing strategies, would be provided to emitters to reduce their emissions. This would mean that New Zealand would have a much more difficult task in future commitment periods.

18 The paper proposes that sink credits, and their associated liabilities, be retained by Government at least in the first commitment period.

19 There are many uses for sink credits. They include covering deforestation liabilities (capped nationally at 5% of the area of forest expected to be harvested over the first commitment period), saving for future commitment periods, selling them and recycling the revenue back into the economy, using revenue generated from sinks to fund Projects and programmes for emissions reductions, incentivising forestry planting or indigenous forestry regeneration, and shielding some sectors of the economy from liability for excess emissions.

20 As with any asset, an assessment will need to be made to determine the best value for the use of sink credits in the longer term. A clearer understanding will emerge closer to the first commitment period.

Assessment of the preferred policies

21 An assessment of the economic, social, trade and fiscal implications is set out at the end of the paper. This assessment depends, to a certain extent, on the future broad pathway chosen to introduce an emissions price. However, it is expected that as there will be excess revenue available for recycling back into the economy, a positive net economic effect will be created. How individual businesses or households are affected will depend on the design of the policy and of the revenue recycling. In addition, the design of the policy ensures that those sectors that may be exempted from direct price measures will still have obligations other than a price. For example, at-risk companies are able to use Negotiated Greenhouse Agreements, but obligations to move to international best practice for emissions management will arise. Similarly, the proposal to shield agricultural emissions is coupled with an obligation for the sector to undertake research.

22 There are some potential WTO issues arising from this proposed policy. In particular, policy for at-risk firms will need to be carefully designed having regard to

WTO obligations, as will incentives to reduce emissions and enhance sinks. This issue is not unique to New Zealand.

23 The policy described in this paper will change and evolve over time as there is more information about what other countries are doing, and what the international emissions price is - in that sense it will be similar to other public policy such as health and law and order. Policies will be reviewed regularly as more information comes to hand.

BACKGROUND

Cabinet Decisions

24 On 11 February Cabinet agreed in principle to ratify the Kyoto Protocol prior to the World Summit on Sustainable Development. This decision was subject to:

- consideration by Select Committee of the National Interest Analysis
- the passing of necessary legislation for ratification
- final policy decisions on a preferred policy outline.

25 At the same time, Cabinet set out a goal and a number of principles that would need to be followed when developing policy [CAB Min (02) 4/3 refers]. These were:

- Goal
  - New Zealand should have made significant greenhouse gas reductions on business as usual and be set toward a permanent downward path for total gross emissions by 2012.

- Principles
  - Policies must result in permanent reductions over the long term
  - Policies need to be responsive to the changing international context
  - Policies need to be consistent with a growing and sustainable economy
  - Policies will not disadvantage the vulnerable in our society.

INTRODUCTION

Emissions profile and New Zealand's task

26 The Kyoto Protocol affects developed countries in the first commitment period (2008-2012). New Zealand's target under the Protocol is to either reduce emissions to 1990 levels or to take responsibility for any excess emissions.

27 As indicated in Paper I of this series, New Zealand is likely to generate excess emissions of around 50 million tonnes over its 1990 base allowance in the first commitment period even if all existing strategies are implemented in full and achieve their target objectives.

28 New policies need to be implemented over time to ensure that New Zealand takes responsibility for these excess emissions. These policies could include:

- policies to encourage further reductions
- use of sink credits to cover emissions

- policies that ensure that New Zealand can pay for its excess emissions using the mechanisms allowed under the Protocol
- a combination of the above.

Approach to Policy Development

29 In an ideal world all nations, developed and developing, would be moving on the same date to Kyoto obligations. That is not the case for the first commitment period. The Kyoto Protocol as it currently stands represents the first stage of what will be an evolving process. The expectation is that as it develops beyond the first commitment period it will become a more global agreement.

30 As a result, the following factors have influenced this paper and its recommendations.

Uncertainty – Policy design is being undertaken in a dynamic international and domestic environment. We do not have perfect information – nor will we. It is therefore important to take on a long term view and not focus exclusively on the first commitment period. It is also important to recognise that it would be prudent to decide some policies at a time when there is better information about the international environment.

Risk management – Because of uncertainty, policy design must reflect a prudent risk management approach that allows New Zealand to achieve a phased transition and be well positioned for subsequent commitment periods.

Emissions trading – Kyoto is predicated on the recognition of a cost of carbon. Policy design must therefore recognise and value it. The international emissions price will not be fully revealed until the first commitment period, although we can be more certain about the price as the first commitment period gets closer and a market in emission units develops.

Flexibility – The Protocol does not impose restrictions on our domestic policy. We have the ability to implement and phase policy at any time according to our own preferences and risk profile. In addition, New Zealand is in credit because we are expected to have more sink credits than our excess emissions for the first commitment period. This allows us added flexibility when designing policy.

Contradictions – there are competing interests and objectives within the policy design. For instance there is a need to maintain flexibility with respect to changing international circumstances, while providing certainty for business.

Contributions – collective action is required. It is assumed that all sectors of the economy will, in one way or another, contribute.

31 Tradeoffs are required. Balance between objectives must be achieved as we move through to the end of the first commitment period and beyond. Positioning for and compliance with the Protocol is complex. It will occur over several years, if not decades. Indeed, it is not yet clear whether Kyoto will evolve into a global agreement.

32 This means that the policy framework will develop, change and evolve over time, having regard to international events and Protocol dynamics - in that sense it will be similar to other public policy such as health and law and order. The nature of international uncertainty is described in further detail in *Climate Change I: Overview*.

KEY POLICY ISSUES AND IMPLICATIONS FOR POLICY

33 The four key issues arising in a policy development sense relate to:

- **Issue One** - The adequacy of the existing policy foundations for meeting New Zealand's commitments
- **Issue Two** - The timing of introduction of a price on emissions
- **Issue Three** - The level of protection afforded to business and consumers generally, in different parts of the economy
- **Issue Four** - The role that New Zealand's sink credits have in meeting obligations under the Protocol

Issue One: The adequacy of the policy foundations for meeting New Zealand's commitments

34 The policy foundations described and discussed in Paper I are:

- NEECS
- Transport Strategy
- New Zealand Waste Strategy
- Public Awareness Programme
- Research
- Involvement of Local Government
- Growth and innovation framework
- Business opportunities
- Adaptation
- Resource Management Act Guidelines
- Adaptation

35 As indicated in Paper I, the policy foundations will result in approximately one third of the emissions reductions required for New Zealand to meet its target. This is heavily dependent on the adequacy of funding provided now and through the first commitment period by Government for the foundation policies. However, raising the necessary funding through taxation may be more efficient than through a low level emissions charge. Furthermore, a low level emissions charge would provide a minimal price signal.

36 Given the reductions that foundation policies can achieve, the case for imposing a price measure in the pre-commitment period is not persuasive. In addition, targeted mechanisms such as Projects and Negotiated Greenhouse Agreements can be used to provide further early incentives to make reductions. Accordingly, no emissions charge is proposed before 2007.

Issue Two - The timing and nature of a price on emissions

37 The policy principles assume that the Kyoto Protocol will come into force and will ultimately become a more global agreement. The Protocol was negotiated in 1997 following a realisation that the voluntary targets under the United Nations Framework Convention on Climate Change (UNFCCC) had not been effective. It was recognised that a legally binding regime was needed but one that did not restrict

how or where emissions could be reduced. If the Kyoto Protocol comes into effect, from 2008 there will be an international price on emissions. The Protocol establishes the rules for an international market in emissions that will determine this price. This price will be reflected in part or in whole into the New Zealand economy. For reasons of efficiency and practicality it would most likely be applied on carbon inputs into the economy (e.g. on fuels) rather than on actual greenhouse gas emissions.

38 Key questions that are fundamental to the policy approach for New Zealand are:

- when should the Zealand economy be exposed to a price on emissions?
- what form would the price take?
- at what level would it be set?

39 The broad pathways available are:

A Full exposure to the international price of emissions through either:
- private sector emissions trading if the international market is functional; or
- an emissions charge that approximates the "international price" if the market is initially assessed to not meet the criteria for a functional market[2];

B partial exposure to the international price through either:
- a flat rate emissions charge, capped below the international price; or
- an escalating charge, which increases to full price (and therefore emissions trading) by a specific date

40 In a perfect world, where all countries are participating in Kyoto Protocol obligations, all parts of the economy would be exposed to the full price. This would lead to the economy facing the correct marginal price, in concert with the rest of the world. It would have the effect of realigning energy and product prices to reflect the true cost of emissions on the climate, leading to efficient investment decisions over the long term, and driving technologies that lower emissions. Emissions trading would be the most effective mechanism for implementing a full price.

41 We already know that in the first commitment period, the Kyoto Protocol will not be a global agreement, and there is significant international uncertainty regarding the likely future character of the international trading environment. In addition, it has to be recognised that there are potentially significant adjustment costs for parts of the economy in moving to a full emissions price – depending on what the international emissions price is. Policy decisions on coverage, timing and level of any price measure need to take into account concerns about adjustment costs and efficiency. A partial price means that the correct marginal price will not be applied to emissions, so some decisions may be made that are not efficient in the long term. An emissions charge may be the best means to implement a partial price.

42 Table 1 sets out the changes in energy prices resulting from an emissions price of $10, $25, and $50/tonne of CO_2 equivalent in the first commitment period. The effects of any price increases will, of course, be offset by revenue recycling.

[2] Refer to Annex 2 of *Climate Change I: Overview* for criteria that might be used for determining whether an emissions trading system will provide an efficient price.

Table 1: Estimated price increases resulting from emissions prices						
	$10/tCO$_{2z}$		$25/t CO$_2$		$50/t CO$_2$	
	Res.	Ind.	Res.	Ind.	Res.	Ind.
Petrol	3c/l (2%)	na	6c/l (6%)	na	13c/l (12%)	na
Diesel	3c/l (5%)	Na	7c/l (12%)	na	13c/l (23%)	na
Electricity	4%	6%	9%	16%	15%	- 26%
Gas	3%	9%	8%	24%	16%	47%
Coal	8%	17%	19%	44%	38%	87%

43 Prevailing international estimates suggest that, especially with the withdrawal of the United States, the international CO_2 price in the first commitment period is likely to be low, potentially in the range of $10-$30 per tonne CO_2, and possibly at the lower end of this range. This would suggest that the transition to an emissions price would not impact significantly on the not-at-risk sector, particularly with targeted revenue recycling.

44 However, significant international uncertainty still exists. The nature of this uncertainty is described in *Climate Change I: Overview*. It is possible that the behaviour of some nations in a future market will either inflate the price initially or cause significant volatility or both.

45 Business values certainty. As noted above, current predictions of an emissions price in the international trading market during the first commitment period lie in the range of $10-30 per tonne of CO_2. However, it is possible that in the short term there may be considerable price volatility. Accordingly, it seems appropriate to limit the exposure of the New Zealand economy to an uncertain and potentially unreliable market. The best mechanism to address this uncertainty is to initially impose a domestic price through an emissions charge rather than expecting firms to participate in the market. Such a charge would be set at a level approximating the international market price, but would be capped so that the risk to business was minimised. Residual business uncertainty would therefore relate to how far the price might fall, rather than how much it would rise.

46 The use of an emissions charge would be seen as a transitional measure. If the international trading market is operating efficiently and effectively then New Zealand business will gain most, in terms of commercial opportunities and the promotion of innovative responses, by being able to fully participate in that market. For this reason it will be important to set the level of the emissions charge at a rate that will not hinder later market participation.

47 The introduction of any emissions charge will cause short-term adjustment costs. Therefore, the upper limit of an emissions charge should not be set so high as to potentially impose undue costs. This is a consideration, even though business has a five–year notice period and those businesses or sectors whose competitiveness may be put at risk will have the option of a negotiated greenhouse agreement instead of facing the charge.

48 On the other hand, if the emissions charge is capped too low, so that it bears little relationship to the international price, the economy would face significant adjustment costs in later moving to the market.

49 Weighing these factors, the Government proposes that the maximum level of any emissions charge be set at $25 per tonne CO_2 for 2008-12.

50 The Government's preferred policy for the first commitment period is therefore an emissions charge, approximating the international price of carbon, with a price cap of $25 per tonne CO_2, but retaining the option of the Government moving to private sector emissions trading if the international market is functional and the international price of carbon is reliably below the price cap. In practice, the reliability of the carbon price will be determined by the availability of futures trading and other financial derivatives.

Issue Three : Different treatment for different parts of the economy

51 There is a separate question about whether different emitters should be treated differently. While there is an argument that subjecting all emitters to the same emissions price avoids potential distortions in investment and business growth across the economy, in reality the different sectors of the economy have different levels of emissions, adjustment costs, risk and investment profiles. At the time a price is applied, different sectors will be affected in a range of ways in the short term. These short term effects need to be recognised when selecting the pace at which these different groups are exposed to a price on emissions.

52 For the purposes of climate change policy in the first commitment period, the economy can be separated into three distinct groups:

> **The "not-at-risk" group**. There are a large number of entities in the not-at-risk group. It comprises the energy and transport sectors, industrial and business processes, operations and households. It does not necessarily include industries that are big energy users. As a group it represents about one quarter of New Zealand's greenhouse gas emissions but about two-thirds of its CO_2 emissions.
>
> **The "at-risk" group** – These are sectors of the economy and particular industries that will find adjustment difficult if they are expected to transition to a full cost on emissions in the first commitment period. For these companies it may be a choice of closure, changed location to a country with no controls on emissions, or reduced staff or production to compensate for the increased costs in the short term. Where this results in decreased production in New Zealand offset by increased production offshore this is referred to as "carbon leakage". These companies may wish to seek Negotiated Greenhouse Agreements (NGAs). Draft criteria for eligibility for at-risk status and NGAs are set out in Annex 2.

[3] Petrol/diesel cost increases are based on 120 litres consumed per month. Electricity cost increases are based on a household that consumes 750kWh per month. Gas cost increases are based on a household that has mains supply and consumes 200kwh per month.

[4] The effects on individual households will vary dependent upon the level of energy demand and the fuel types used.

"Other" groups - These are sectors accounting for around half of New Zealand's GHG emissions where factors such as a lack of cost effective abatement options and/or emission measurement difficulties affect their ability to cope with a full cost on emissions in the short term. It includes the waste sector and the synthetic gases[5] sector. Importantly, it also includes agriculture because that sector is not able to mitigate emissions (other than by reducing stock numbers), it is sensitive to international competition particularly by countries that do not have Kyoto obligations and there are also emission measurement difficulties.

53 The number of firms that would fall into the at-risk and not-at-risk groups is influenced in part by the ability of firms to absorb and/or respond to the international emissions price, recognising of course the proposal to introduce a price cap of $25/tonne of CO_2.

54 The converse, of using one group rather than three is not credible, practical or environmentally sustainable.

55 It is therefore proposed that the economy be separated into three groups: the not-at-risk group, the at-risk group and the 'other' group (which includes the agricultural sector), and that different policy be applied to according to their specific needs.

56 However, even though we propose to separate the economy into different groups, the policy package needs to ensure that there is a reasonable level of equity between sectors so that each sector must do something to contribute to emissions reductions and be exposed to the opportunities that Kyoto Protocol represents.

Issue Four: The role of carbon sinks in meeting Kyoto Protocol obligations

57 Sink credits create both assets and liabilities. They represent a significant risk management tool as the country makes the transition through the first commitment period and beyond. It is important that sinks be managed to maximise their value to New Zealand.

58 Sinks should be seen as a temporary offset rather than a permanent solution, with fewer sink credits likely to be available in the long term because:

- continuing production of sink credits relies on continuing forestry expansion
- sink credits available in the second commitment period and beyond are likely to be significantly reduced if Kyoto negotiations lead to New Zealand being obliged to account for all land use activities and not just post 1990 Kyoto forests
- sink credits could be reduced due to a biosecurity event or other major incident.

59 It is proposed that sink credits, and their associated (capped) liabilities, be retained by Government at least in the first commitment period. This proposal derives from a consideration of equity issues between pre- and post-1990 forest owners, transaction costs, maximising the value of the credits, and in particular the

[5] Synthetic gases are HFCs, PFCs and SF_6.

impact of deforestation liabilities on harvesting decisions and on the flexibility of land use. These issues are considered in further depth in Annex 1.

60 There are many uses for sink credits. These include: shielding some sectors of the economy from liability for excess emissions, for example for at-risk industries, new entrants, or agriculture; swapping with emission units and saving for future commitment periods or against the possibility of a biosecurity event or other major incident; funding Projects and programmes for emission reductions; incentivising forestry planting or indigenous forestry regeneration; covering deforestation liabilities (capped nationally at 5% of the area of forest expected to be harvested over the first commitment period); selling them and recycling the revenue back into the economy.

61 In addition to known sink credits, New Zealand may receive an unknown amount of sink credits for non-planted afforestation since 1990. These areas are known variously as shrublands or scrublands. Officials will report further as research data comes to hand.

62 Sinks allow New Zealand the flexibility to assist emitters with the transition to a price on emissions. Sinks should only be seen as a temporary and partial off-set rather than a permanent solution to New Zealand's emissions reductions task.

POLICY TECHNIQUES AND TOOLS

63 The nature of the policy development involves a range of techniques and tools. The principal ones are outlined below:

> ***Projects*** – A specific activity aimed at delivering defined reductions in greenhouse gas emissions. These could be from new technologies and practices, or enhancement of sinks, in return for provision by the Government of an incentive. This could be via funds or emissions units. Projects would not be economic without payment of an incentive. A more detailed explanation is set out in Annex 3.
>
> ***Negotiated Greenhouse Agreements (NGAs)*** – A contractual agreement between the Government and an at-risk firm or sector to reduce greenhouse gas emissions in return for partial or full exemption from a price instrument such as a levy or emissions charge. The agreed emissions path would be consistent with each firm's individual circumstances and have the overall objective of achieving world best practice on emissions per unit of production. Criteria, including meeting a positive net benefit test, would be applied to determine eligibility for an NGA. A more detailed description of NGAs is provided in Annex 2.
>
> ***Emissions charge*** – A charge applied to every tonne of CO_2 (or equivalent greenhouse gas) emitted.
>
> ***Revenue Recycling*** – The return to the economy of revenue derived from an emissions charge or from the selling of emissions units or sink credits. For the purposes of this paper it reflects the net revenue after the funding of policies such as Projects, NGAs and NEECS with the balance being available for recycling back into the economy, for example through the tax system.
>
> ***Emissions Trading*** – a mechanism to allow firms to take on and manage an emission obligation and their price exposure directly with the potential to reduce

their costs or add value through trading emission units, either domestically or internationally.

64 In formulating policy, judgements have to be made as to the sequencing, weighting ascribed and packaging of these tools.

PROPOSED POLICIES

65 Full details of the analysis and assessment supporting the preferred policies for each group are set out in Annex 1. A summary of the specific policies proposed for the different groups within the economy is set out below:

Pre-commitment period policy – all groups

66 As discussed in paragraphs 34 – 36 above, the primary and initial focus in the pre commitment period is the foundation policies. These will position New Zealand well for the first commitment period, provided they are fully funded.

67 Additional measures to prepare for the first commitment period are proposed:

- implement Projects for all groups, including perhaps sink incentivisation Projects
- implement NGAs for the at-risk group
- rapidly increase research in the agricultural sector
- encourage voluntary handling standards for HFCs
- discuss solutions for SF_6 with industry

68 These measures will contribute to the goal of getting participants on a downwards emissions path and assist in introducing new emission-efficient technologies. They will also allow a targeted approach to emissions reductions, and allow Government to encourage specific long term investment decisions that may not have otherwise occurred. They may also have significant funding implications.

Policies for the first commitment period

69 Foundation policies will continue to apply to all groups in the first commitment period. New policies for each group are outlined below.

"Not-at-risk" group

70 It is proposed that the not-at-risk group face an emissions charge in the first commitment period, capped at $25 per tonne CO_2, with any revenue gathered recycled back into the economy. A decision on whether emissions trading might be possible would be made when the conditions set out in paragraph 50 have been met, ie: a functional international market and an emissions price reliably below the price cap.

Policy for the "*at-risk*" group

71 For the at-risk group it is proposed to provide some form of sheltering and to use NGAs. In the first commitment period, negotiation may lead to gratis allocation of emission units to eligible firms. The draft criteria and diagram that explain the process and relevant details for NGAs for both the pre-2008 and post-2008 period are set out in Annex 2. The criteria by which firms become eligible for NGAs are the

ones that determine at-risk status as well. If a firm meets the at-risk criteria but fails to negotiate an NGA, it would revert to not-at-risk status as the default option. Officials will report back on refined criteria, process and guidance for content (including allocation issues) in July 2002 after consultation.

Policy for the "*other* "group

The waste sector – non CO_2 emissions

72 There are no additional policies currently proposed for the waste sector in the first commitment period. Waste contributes about 4% of the total greenhouse gas emissions, mostly from methane generated by landfills. However, in contrast to all other sectors, greenhouse gas emissions from the waste sector are likely to be around 36% lower than 1990 levels in the first commitment period, particularly if the New Zealand Waste Strategy that was recently released by Government, is effectively implemented. A review of the success of the Waste Strategy will be undertaken in 2005. At this time, an assessment can be made about whether new policies will be required for the waste sector.

The synthetic gases

73 There are three synthetic greenhouse gases in New Zealand: Hydrofluorocarbons (HFCs), Sulphur hexafluoride (SF_6) and Perfluorocarbons (PFCs)[6]. All are present in reasonably minor amounts, but use is increasing, mainly due to substitution for ozone depleting substances

74 The proposed approach for these gases is as follows:

HFCs: to work with industry to put in place a voluntary regime for handling and recovery standards. This regime will be assessed prior to the first commitment period and if necessary a mandatory regime will be developed for the first commitment period.

SF_6 : to apply a price measure (at time of importation) as for the not-at-risk group but offer industry the opportunity to negotiate with the Government to develop an alternative approach to manage these emissions.

PFCs: not to apply a price measure because the majority of PFC emitters are likely to be at-risk, meaning these emissions will be managed within the NGA process.

On-farm agriculture

75 Agriculture is a major contributor to the New Zealand economy, and also contributes more than 50% of New Zealand's greenhouse gas profile through the emissions of methane and nitrous oxide. While agriculture would generally meet the criteria for being at-risk, there are other factors that make it different to other at-risk sectors, and that influence the selection of policy, including:

[6] **HFCs** are used directly as a refrigerant, in aerosols and metered dose inhalers, and as a foaming agent in insulation. **SF_6** is leaked from electrical switch-gear and also has minor uses in the production of magnesium, some medical uses and as a trace gas in some scientific studies. Due to its relative insignificance, monitoring the importation of SF_6 may be costly. **PFCs** are emitted mostly in aluminium production and a small amount is also imported for use in the refrigeration industry. The aluminium sector is likely to be considered at-risk.

- there are no clear options currently available to farmers to reduce these emissions, other than through reducing stock numbers
- there are significant technical difficulties in measuring and monitoring non-CO_2 greenhouse gases (methane and nitrous oxide) from agriculture on farm.

76 It is proposed that the agriculture sector will be exempt from any price measure during the first commitment period at least, so long as an adequate research effort is undertaken. A sustained research effort is needed to identify emission reduction options. Much of the funding and management of this research should come from the sector. If the sector is unwilling to work with Government to invest in research then a levy could be imposed on the sector for the purpose in the first commitment period. It should be noted that the on-farm exemption does not extend to CO_2 emissions from vehicles or electricity use.

77 This means that the Government would be shielding well over half of New Zealand's greenhouse gas emissions.

Detail on Projects

78 Projects are proposed as the key cross-economy new measure in the pre commitment period. A Project is a specific activity aimed at delivering defined reductions in greenhouse gas emissions. These could be from new technologies and practices, or enhancement of sinks, in return for provision by the Government of an incentive. Typical examples of mitigation Projects could include: efficiency upgrades in energy using plant, replacement of a fossil fuel with bio-fuels in a boiler, the on-farm update of proven methane reduction techniques, and perhaps forest establishment. Projects could be incentivised via funds or emissions units.

79 Projects signal future emission prices, ensure abatement measures are in place at the beginning of the first commitment period, as well as providing "learning by doing" during this transition period. The Projects mechanism is recommended for use in both the pre commitment period and the first commitment period and across all sectors of the economy.

- Projects will focus on sectors where an efficient price signal is absent or muted.

- Where the full price on emissions exists, Projects will only be used in circumstances where there is market failure and where other responses are not superior and the use of a Project provides a net benefit. A contestable bid-in approach will be applied to accessing Project support where feasible.

- Criteria will be provided, including additionality criteria, to avoid supporting Projects that would have occurred anyway.

80 Further details on Projects are outlined in annex 3.

Staged policy reviews

81 A key element of the policy principles is that policy will be implemented in a transitional manner, in close consultation with stakeholders. Policy will develop and change as knowledge and certainty increase, as countries without emissions targets take on targets, and as the state of the international emissions trading market becomes apparent.

82 Regular reviews of the policies will need to be undertaken. It is proposed that there will be annual report backs to Cabinet setting out progress with existing policy, current and projected emissions and sinks and new information relevant to New Zealand's overall position. In addition there are some key dates where more comprehensive reviews will be needed:

2005 in line with the requirement to report demonstrable progress to the international community under the Kyoto Protocol, and also to confirm that New Zealand's policies will ensure we are positioned to meet our commitments

2007 just prior to the first commitment period, to review the success of pre-2008 policies and assess the possible implications of the first commitment period policies given new information to hand

2010 to prepare for the second commitment period, to trace progress with first commitment period policies, to assess effects on the economy of the policies and to identify the extent to which New Zealand is likely to meet its obligations for the first commitment period without purchases of emissions units by the Crown

ECONOMIC, SOCIAL AND TRADE ASSESSMENT OF THE NEW POLICY

83 Each of the factors considered in this section will require further work and analysis prior to the decision being taken on ratification. Further report backs will be required from officials.

Economic Impacts

84 Modelling undertaken to date by ABARE indicates that the economic impact of Kyoto would be an increase in gross national income (ie GDP plus net transfers from abroad) as a result of international sales of sink credits offset by a small reduction in GDP (ie less than 0.10%). In general, however, this modelling does not reflect the policy package outlined in this paper.

85 Further modelling work will be undertaken on this policy package under various emissions price assumptions, and on the economic implications of an emissions price in the first commitment period for the not-at-risk group at the time the Government assesses the level and form of this price.

86 The costs of establishing the infrastructure for a price measure, monitoring and reporting, NGAs, Projects and organisational arrangements within the public sector are unlikely to be material in terms of overall economic impact.

Social Implications

87 Sheltering and transitional provisions for those firms considered at-risk will remove the most significant potential adjustment costs for business. The nature and timing of other adjustment costs will be influenced by the option chosen for not-at-risk businesses discussed previously.

88 Officials have considered the social implications for a range of price options. Even where the whole economy would be exposed to the full international price of emissions, initial studies of regional employment indicate that the effects are slight, as long as the price is on CO_2 only and revenue recycling occurs. In those instances where regional employment effects are prospectively greater, they concern industries or sectors that will not be exposed to the full price because they are considered at-risk.

89 As it is proposed that the agricultural sector is exempt from paying a price on non-CO_2 emissions, there are unlikely to be significant regional employment effects in the agricultural sector.

90 Table 2 shows the additional cost for the average household by fuel type. For example, a household with typical energy demands and using only electricity and petrol could face a monthly cost increase of $6.70 at $10/tonne CO_2. At higher emissions prices the flow-on effect for consumers will be greater[7]. This means the effects of full exposure to the international price (and partial exposure) will depend on the price level. Depending on revenue recycling policies adopted, consumers would be compensated through reduced costs in other areas of the economy. Greater levels of revenue could be available for recycling the higher the price applied.

Table 2: Estimated typical household monthly cost increase by fuel type[8]

Price/tonne CO_2	Petrol	Diesel	Gas	Electricity
$10	$4.10	$4.70	$0.40	$3.60
$25	$10.30	$11.80	$1.10	$9.10
$50	$20.60	$23.60	$2.10	$18.10

Trade Policy Implications

91 The policy outline gives rise to a range of possible issues regarding the conduct of trade under WTO rules, ……
……

92 Accordingly, policies will need to be carefully designed, having regard to our international trade obligations. These issues are ones that other WTO members are facing, as well as New Zealand.

Next Steps

93 Consultation on the preferred policy package will be undertaken in May and June 2002. A final decision on the package, as well as on ratification of the Kyoto Protocol, can then be made by late July 2002.

[7] The effects on individual households will vary dependent upon the level of energy demand and the fuel types used.

[8] Petrol/diesel cost increases are based on 160 litres consumed per month. Electricity cost increases are based on a household that consumes 750kWh per month. Gas cost increases are based on a household that has mains supply and consumes 200kwh per month.

Consultation

94 The following departments have been consulted and their comments incorporated in the paper: the Ministries of Transport, Environment, Research, Science and Technology, Foreign Affairs and Trade, Economic Development, Agriculture and Forestry, Defence, Internal Affairs, Fisheries, Consumer Affairs, Education, Health, Social Development, Te Puni Kökiri, Treasury, the Department of Conservation, and Statistics New Zealand.

95 EECA and Local Government New Zealand have also been consulted.

Specific Mäori /Treaty of Waitangi Issues

96 Treaty of Waitangi issues relating to the policy package, including the proposals for new policy are discussed in paper I of this series.

Fiscal Implications

97 The new policies described in this paper will have fiscal implications. It is difficult to estimate the exact fiscal cost of policies until more work is undertaken. Officials will report back with further details on the fiscal implications of the chosen policy option in July 2002 after consultation:

- *Fiscal implications from sheltering:* There will be fiscal implications arising from sheltering in excess of $170 million[9], excluding potential revenue from sinks:
  - Sheltering of the Agricultural sector will cost around $120 million per annum (assuming Agricultural emissions are 5% over 1990 levels)
  - Liability from the 5% deforestation cap will cost up to $55 million per annum
  - Fiscal implications from sheltering the at-risk group will be determined after negotiation with individual firms
- *Revenue from price on emissions*: the fiscal implications of a price on emissions and a price cap will be assessed prior to confirmation of the policy package in late July
- *Funding and/or emission units for Projects:* Officials have been using a working assumption of up to …….. to fund Projects
- *Incentivising planting*: Preliminary analysis indicates that …….. ……would provide some incentive for further forest planting
- *Carry forward of emission units for Kyoto forest liabilities*: Assuming the Government elects to retain sink credits and associated liabilities the Government may, on further advice, wish to “carry forward” emission units to cover harvesting liabilities for Kyoto forests. The fiscal costs of doing this are not possible to quantify
- *Infrastructure of the policy development and delivery*
- *Emissions trading infrastructure:* The financial implications of establishing the inventory and registry requirements needed for emissions trading and/or an emissions charge and Crown trading of emission units were discussed in POL (01) 338
- *Disclosures of the assets and liabilities associated with carbon sinks*: The Crown accounts will need to be modified to include reference to and

[9] Figures quoted in this section assume $25 per tonne of carbon dioxide equivalent and current projections under current policy settings

disclosure of the assets and liabilities arising from the retention of carbon sinks.

98 *Revenue recycling:* A significant amount of revenue could be generated if an emissions price is imposed during the first commitment period on the sectors that are not-at-risk. The focus of the use of this revenue should not be only to offset the economic effects of an emissions charge on carbon-dependent industries or consumers. Rather, it provides the opportunity to examine the overall mix of taxes and expenditure.

99 The tax system is complex, with important inter-relationships and linkages. The Government will need to consider these linkages carefully in deciding its final approach.

100 At this stage it is too early to make detailed decisions on any tax issues. The Government should, however, make clear in public statements that:

- Any additional revenue raised will be recycled
- Revenue recycling is not just about offsetting the effects of an emissions charge on affected industries or individuals: it is also about looking at the tax system as a whole
- Any decisions will be consistent with the Government's overall revenue strategy, which is directed at raising the required revenue at least cost to New Zealand as a whole.

Legislative Implications

101 Some of the policy options set out in this paper may require an amendment to the Climate Change Response Bill to be passed. Officials will report back on the legislation required in July 2002 after consultation is completed.

Recommendations

It is recommended that the Committee:

1. **note** that existing policy foundations will result in approximately one third of the emissions reductions required for New Zealand to meet its Kyoto Protocol target. However, New Zealand will still be required to account for around 50 million tonnes of excess emissions over 1990 levels during the first commitment period

2. **note** that the success of existing policy foundations is dependant on funding being made available for them

3. **note** that new policies need to be implemented over time, in addition to existing policies, to ensure that New Zealand takes responsibility for these excess emissions. These policies could include:

    - measures to encourage further reductions
    - use of sink credits to cover emissions
    - measures that ensure that New Zealand can pay for its excess emissions using the mechanisms allowed under the Protocol
    - a combination of the above.

4. **agree** that these new climate change policies for the first commitment period will not be implemented until the Kyoto Protocol comes into force

5. **agree** that for the purposes of climate change policy, the economy should be separated into three groups: the not-at-risk group, the at-risk group and the 'other' group (which includes the agricultural sector, the waste sector and the synthetic gases sector), and that different policy be applied to according to each group's specific needs

6. **agree** that the policy package needs to ensure that each group contributes to emissions reductions and is exposed to the opportunities that Kyoto represents

Regarding the not-at-risk industries and companies

7. **agree** that, given the emission reductions that the foundation policies plus Projects and Negotiated Greenhouse Agreements can achieve assuming that they are adequately funded, there will be no price measure before 2007

8. **note** that the broad pathways available for the first commitment period (2008-12) are:

   A full exposure to the international price of emissions through either (i) private sector emissions trading if the international market is functional, or (ii) an emissions charge that approximates the "international price", if the market is initially assessed to meet the criteria for a functional market outlined in Annex 2 of *Climate Change I: Overview*

   B partial exposure to the international price of emissions via (i) a flat rate emissions charge, capped below the international price; or (ii) an escalating charge, which increases to full price (and therefore emissions trading) by a specific date

9. **agree** that the Government's preferred position for the first commitment period is a an emissions charge, approximating the international price of carbon, with a price cap of $25 per tonne of CO2, but retaining the option of private sector emissions trading if the international market is functional and the international price of carbon is reliably below the price cap.

Regarding at-risk industry and companies

10. **agree** that Negotiated Greenhouse Agreements (NGAs) with Government be offered to the at-risk group

11. **agree** that
    a. the primary issue for negotiation with each emitter seeking an NGA will be the pathway and timeline to achieve international best practice in emissions management in return for a full exemption from emissions charges
    b. in the event that negotiations do not result in an agreement that reaches best practice within an acceptable timeframe, a partial charge may be negotiated

c. in the event that emitters in the at-risk category fail to negotiate an NGA they will revert to the not-at-risk category

12. **agree** that officials will report back on criteria, process and guidance for content of NGAs in July 2002 after consultation

Regarding Agricultural non-CO_2 emissions

13. **agree** that given the current inability of the sector to make reductions in emissions without further technology development, increased agriculture sector research will be implemented through a negotiated partnership approach with sector groups

14. **agree** that if the sector is unwilling to work with Government to invest in a sustained research effort aimed at identifying and developing technologies to reduce agricultural emissions, and encouraging their uptake, a levy will be imposed on the agriculture sector for research into emission reductions

15. **agree** that so long as an adequate research effort is undertaken, the non-CO_2 emissions from the sector will not face any additional price measures prior to or during the first commitment period

Regarding the Waste sector

16. **agree** that in the immediate future policy will rely on the waste strategy and will be reviewed coincident with a review of the performance of the Waste Strategy that will be taking place in 2005

Regarding the Synthetic Gases sector

17. **agree** that for pre-2008 and for the first commitment period, the policy for non-process PFCs and HFCs be initially voluntary containment and handling standards

18. **agree** that for the first commitment period, the policy for SF_6 emissions is to apply a price measure, but offer industry the opportunity to negotiate with Government on an alternative approach to manage these emissions

19. **agree** that in addition for both HFCs and SF_6, Projects are proposed to further incentivise improved management practice

20. **agree** that because the majority of PFC emitters are likely to be at-risk industries, these emissions will be managed within the NGA process and a price measure will not be applied

Regarding carbon sinks

21. **note** that in July 2000 Cabinet agreed in principle that "all or most of the additional assigned amount units derived from specified sink activities will be tradeable within an international emissions trading system under the Kyoto Protocol, expected to be operating for the first commitment period 2008-2012 and that some proportion of the additional units should accrue to those

undertaking the specified activities" [CAB (00) M25/4C refers]

22. **agree** not to confirm the decision in principle noted in recommendation 21 above

23. **agree** that the policy for managing Kyoto Forests is that the Government retain all sink credits and their associated liabilities, at least for the first commitment period

24. **agree** that the Government retain deforestation liabilities, provided these remain within a cap equal to the carbon that would be released by the deforestation of 5% of the area of forest reaching maturity during the first commitment period

25. **agree** that the Government assign a proportion of the credits (or an equivalent value) to incentivise the establishment and enhancement of sinks

26. **agree** that Government provide mechanisms to encourage the creation of new protection (non harvest) forest sinks

27. **agree** that New Zealand should use the upper limit of each of the allowable ranges provided under the Kyoto Protocol to set the definition of a “forest”

28. **agree** in principle that with respect to accounting for activities under Article 3.4, New Zealand should not account for forest management or for other land use activities

29. **agree** that officials will report back in July 2002 after consultation with further details on the process and means for the mechanism to incentivise forest sinks.

Regarding the use of Projects in general

30. **agree** that Projects:

    30.1 are a key cross economy measure that will be used in both pre-2008 and 2008-2012 in support of the other elements of the preferred policy outline
    30.2 will focus during the first commitment period on sectors where an efficient price signal is absent or blunted
    30.3 where the full price exists, will only be used in circumstances where market failure exists, where other responses are not superior and the use of a Project provides a net benefit;
    30.4 will utilise a contestable approach to accessing Project support where feasible;
    30.5 will include additionality criteria so as to avoid supporting Projects that would have occurred anyway.

31. **agree** that officials will report back in July 2002 after consultation with further details on the process and means for implementing Projects.

Regarding implications of the policy package

32. **direct** officials to report back to Cabinet for final decisions in July 2002 on the outcome of consultation on the Government's preferred policy package to meet New Zealand's Kyoto Protocol obligations, and on further work undertaken on the fiscal and legislative implications of implementing the preferred policies

33. **direct** officials to consider the impact on New Zealand's WTO rights and obligations in developing design details for assistance to the at-risk group and on-farm agriculture, and any incentives to abate emissions or enhance sinks;

34. **agree** that there be annual report-backs to Cabinet setting out progress with existing policy, assessment of new information to date, and assessment of the relevance of the policy proposed and that, in addition, there are some key dates where more comprehensive reviews might be needed:

2005	in line with the requirement to report demonstrable progress to the international community under the Kyoto Protocol and to confirm that New Zealand's policies will ensure we are positioned to meet our commitments
2007	just prior to the first commitment period, to review the success of pre-2008 policies and assess the possible implications of the first commitment period policies given new information to hand
2010	to prepare for the next commitment period, to trace progress with commitment period policies, to assess effects on the economy of the policies and to identify the extent to which New Zealand is likely to meet its obligations for the first commitment period without purchases of emissions units by the Crown

Hon Pete Hodgson
Convenor, Ministerial Group on Climate Change

Annex 1: Further information concerning some sectors of the economy, and some gases

The on-farm agriculture sector

Agriculture is a major contributor to the New Zealand economy, and also contributes more than 50% of New Zealand's greenhouse gas profile through the emissions of methane and nitrous oxide. Agriculture meets key criteria for being at-risk described in Annex 2. There are two additional factors that influence the selection of policy for this sector:

- there are no clear options currently available to farmers to reduce these emissions, other than through reducing stock numbers
- there are significant technical difficulties in measuring and monitoring non-carbon dioxide greenhouse gases (methane and nitrous oxide) from agriculture on farm;

Options considered for the on-farm agriculture sector

Three options were considered for agriculture for both the pre-commitment period and during the first commitment period:

- an emissions charge on all emissions
- a mandatory levy to cover excess emissions from the sector over its 1990 levels during the first commitment period. If emissions reduce below the projected level, then rebates could also be available to the sector
- research aimed at finding technical solutions for reducing agricultural greenhouse gas emissions, funded by either:
    - the agriculture sector agreeing to invest in a research programme. This could be implemented through negotiated research agreements between the sector (or sector groups) and the government; or
    - a mandatory levy applied prior to and during the first commitment period;

Assessment of options

Emissions Charge: Economic modelling indicates that an emissions charge on all emissions in the agriculture sector would have significant negative effects. Unlike other sectors, at this stage there are no opportunities to abate emissions other than reduction in stock levels.

Levy on excess emissions: The agricultural sector may be around 25 million tonnes CO_2 equivalent over its 1990 emission levels during the first commitment period. This would cost in the order of $125 million per annum (assuming a price of $25/tonne CO_2 equivalent), or around $1.25 per stock unit per year if a levy were applied on stock numbers to fund this cost.

A mandatory levy/rebate system during the first commitment period would explicitly link costs of agricultural greenhouse gas emissions to the sector. It would also provide certainty for the government about costs of paying for excess emissions from this sector. However, while it would impose a cost on the sector it would fail to

incentivise reductions directly. As noted earlier, there are no clear options currently available to farmers to reduce these emissions, other than through reducing stock numbers.

Research into emissions reductions: The preferred option is investment in research as the best way to move the agricultural sector to the point where it would not need to reduce stock units to reduce emissions. Moreover, research that reduces methane emissions is likely to increase on-farm productivity through increased efficiency in food conversion. Similarly, reductions in nitrous oxide may have productivity benefits or environmental benefits such as improved water quality. In this sense, research should pay for itself if appropriate technical solutions are found.

The most direct, and probably the most certain way to ensure that adequate funding is made available for research would be a levy imposed on the sector to fund research in the first commitment period. A levy of 20 cents per stock unit per year would raise $20m for research annually. This is likely to approximate or exceed the research effort needed though work is still being done to size the research programme.

However, there is no need to impose a levy if the agricultural sector is prepared to work with Government to implement the research needed. A voluntary, research-based approach recognises the circumstances for the agriculture sector and focuses on developing technical solutions for reducing non-CO_2 emissions over the medium term. It provides for sectoral engagement with the issue, and for the sector to take a leadership role in addressing emissions prior to and during the first commitment period. If practical solutions emerge from the research, then project-based incentives can be used to encourage reduction of emissions during the first commitment period.

There are some transaction/negotiation costs associated with this approach and some parts of the sector may not participate. However, it provides assurance to the industry about the policy approach during the first commitment period. In addition, there are incentives for participating in the research effort, in that participants stand to benefit from intellectual property associated with technical solutions developed through research.

Proposed policy approach for on-farm agriculture group

The policy approach to the agriculture sector is to exempt the Agricultural sector from a price on emissions prior to and during the first commitment period at least, while further research is being carried out. A levy will be imposed on agriculture for research into emissions reductions, unless the sector is willing to work in partnership with Government to invest in a sustained research effort aimed at identifying and developing technologies to reduce agricultural emissions, and encouraging their uptake.

The waste sector

Waste contributes about 4% of the total greenhouse gas emissions, mostly from methane generated by landfills. However, in contrast to all other sectors, greenhouse gases emissions from the waste sector are likely to be around 36% lower than 1990 levels in the first commitment period, particularly if the New Zealand Waste Strategy is effectively implemented.

While the waste sector is not-at-risk, there are a number of factors that suggest it should be treated differently from other not-at-risk emitters, including:

- the ability to monitor and manage greenhouse gas emissions varies considerably from facility to facility across the country
- there are hundreds of closed landfills still emitting methane and CO_2
- care needs to be taken to avoid disincentivising new waste treatment technologies that would be beneficial to the environment in other ways.

Options considered for the waste sector

A range of options for the waste sector has been considered for both the pre-commitment period and the first commitment period, including:

- relying fully on the waste strategy
- low emissions charge
- requiring the sector to pay for all emissions through an auctioned emissions trading regime or full price emissions charge.

Assessment of options

As discussed above, the waste strategy provides a significant incentive for emissions reductions of up to 36% by 2010. In addition, the possibility of a levy on waste will be examined under the waste strategy in 2003. The imposition of further price incentives to reduce emissions from the waste sector should be considered within the framework of the waste strategy.

Preferred policy for the waste sector

In the pre-commitment period, the waste strategy will provide the incentives needed to reduce emissions and will work to improve the variability across the country's waste facilities. A review of the success of the waste strategy will be taking place in 2005. The climate change policy for the waste sector in the first commitment period will be reviewed at the same time. The option of a full price on the waste sector remains open, and is dependent on the success of the waste strategy in reducing emissions.

The synthetic gases

There are three synthetic greenhouse gases in New Zealand: HFCs, SF_6 and PFCs. All are present in reasonably minor amounts, but use is increasing, mainly due to substitution for ozone depleting substances.

Options considered for synthetic gas emissions

Options were considered for synthetic gas emissions include:

HFCs	SF6	PFC
Inclusion in an emissions trading regime (or charge)	Inclusion in an emissions trading regime (or charge)	Inclusion in an emissions trading regime (or charge)
The development of a handling and recovery regime	Levies on specific uses to cover excess emissions	The development of a handling and recovery regime
Deposit and refund regime Levies on specific uses to cover excess emissions	An industry solution	Inclusion in NGAs

Assessment of options

HFCs are used directly as a refrigerant, in aerosols and metered dose inhalers, and as a foaming agent in insulation. The leakage of HFC emissions depends on how the products are used and eventually disposed of. Many products containing HFCs are durable with productive lives of around 15 years. The other difficulty is the measurement of the quantity of embodied gas in imported products.

A handling and recovery regime that requires HFCs to be recovered and disposed of appropriately has been developed by IRHACE New Zealand, in conjunction with the Ministry for the Environment. The program involves training and certification for handling refrigerants, and a public information campaign to encourage the use of firms who have demonstrated knowledge in the correct handling of refrigerants. This scheme may be sufficient to address HFC emissions.

SF_6 is leaked from electrical switch-gear and also has minor uses in the production of magnesium, some medical uses and as a trace gas in some scientific studies. In the case of SF_6, except for the gas in new switch-gear, it is likely that most SF_6 imported into New Zealand will be emitted either because it is used to refill leaky switch-gear or it is used for minor emitting purposes. However, it may not be practical to monitor the importation of SF_6 due to its relative insignificance. A lower cost alternative could be for industry, in partnership with government, to develop a solution.

PFCs are emitted in aluminium production and a small amount is imported for use in the refrigeration industry. The majority of PFC emissions come from aluminium smelting. The aluminium sector is likely to be considered at-risk. The use of PFCs in the refrigeration industry would be subject to the same concerns as for HFC use and could be incorporated in the same scheme.

Preferred policy approach for synthetic gas emissions

The preferred approach for HFCs emissions is to work with industry to put in place a voluntary regime for the handling and recovery built on the IRHACE code of practice, training and certification program and public information campaign. This regime would be assessed prior to the first commitment period and if necessary a mandatory regime could be developed.

The preferred approach for SF6 emissions is to apply a price measure as for the rest of the not-at-risk group (applied at point of importation), but offer industry the opportunity to develop an alternative solution.

In addition for both HFCs and SF6, Projects are proposed to further incentivise improved management practice.

The preferred approach for PFC is not to apply a price measure. Because the majority of PFC emitters are likely to be at-risk industries, these emissions will be managed within the NGA process.

Transport Policy

Transport sector emissions fall within the not-at-risk group and so will be subject to the policies for this group. In addition, there are a range of transport-specific initiatives that will further assist in reducing emissions from this sector. This includes transport initiatives under the National Energy Efficiency and Conservation Strategy (NEECS) and policies under the New Zealand Transport Strategy (NZTS), which is currently under development.

Measures to address greenhouse gas emissions from transport aim to improve vehicle efficiency, increase the use of more energy efficient modes of transport and manage the demand for travel.

NEECS initiatives that will reduce emissions include Energy Efficiency and Conservation Authority (EECA) programmes such as Rideshare, school walking buses and Green Travel Plan. Energy sustainability in transport is being led by overseas vehicle manufacturers but renewables policy under the NEECS will help signal the expectation that long term these new energy technologies will eventually transform the NZ vehicle fleet. Other work includes an investigation into sustainable urban form and the development of a fuel efficiency labelling regime for vehicles.

Elements of the emerging NZTS that will lead to emission reductions include:

- funding for more energy efficient modes of transport, ie passenger transport, alternatives to roading, walking and cycling.
- Changing the principal purposes of Transfund NZ and Transit NZ to require these agencies to allocate resources to achieve the objectives of the transport strategy.
- an additional $94 million for roading, which will be used to complete key motorway links. In the short term this will ease traffic congestion and make a contribution to energy efficiency. However, in the long term new roads generate additional traffic. If no other changes occur, the long-term energy impact of this expenditure could eventually be counter to climate change goals.
- Approval in principle of the development of Electronic Road User Charges as well as further work on congestion pricing. This would seek to ensure people face the real cost of their road use, which should encourage the uptake of more energy efficient modes such as public transport, walking and cycling.

……
……

The Minister of Transport has recently released a document analysing the health impacts of road transport emissions. If adopted, many of these measures will simultaneously promote energy efficiency and a reduction of greenhouse gas emissions.

The Ministry of Transport is also addressing issues arising from emissions and energy efficiency in the maritime and aviation sectors, though the international nature of these sectors means that the greatest potential for CO_2 equivalent reductions is in the land transport sector.

Carbon sinks policy

Under the Kyoto Protocol forests first established after 31 December 1989 are designated Kyoto forests. Forests first established before this date are designated non-Kyoto forests. Under Article 3.3 of the Protocol, Kyoto forests will be eligible to receive sink credits throughout the first commitment period. However, linked to the receipt of credits is a liability for the carbon released, if and when the forest is harvested.

Non-Kyoto forest will not be eligible to receive sink credits in the first commitment period unless New Zealand elects to account for forest management activities under Article 3.4 of the Protocol. It is recommended that New Zealand not account for these activities. The rationale for this recommendation is discussed later in this section.

Emission liabilities are also incurred when a non-Kyoto forest is deforested (i.e. harvested and converted to some other land use).

Options for the management of plantation forest sink credits

Two fundamentally different approaches were considered for management of sink credits from plantation forestry:

i *Devolving sink credit assets and liabilities to the forestry sector.*

This approach would place the management of forest sink credits from plantation forests with the private sector. This creates a direct financial incentive to retain existing forest sinks and create additional ones.

However it would create a distortionary effect through the different treatment of forests created before 1990 (so-called non-Kyoto forests) and those created subsequently (Kyoto forests). This distortion is likely to have significant effects on land use choices. It may have particular impacts on Maori land owners, in the situation where land has been leased to the private forestry sector for plantation forestry prior to 1990 (i.e. there may be an incentive to move forestry operations to other land to gain sink credits).

A devolved system for management of sink credits is also likely to have significant transaction costs for owners and the Government as the accuracy of measurement, and accounting for harvest cycles, would need to be high.

ii *Retaining sink credit assets and liabilities by the government;*

This approach provides for the Government to manage sink credits flexibly for the benefit of the country as a whole. It would provide the opportunity to use sinks credits to assist in the transition of the economy to the international price of carbon.

It involves minimal transaction costs because various harvest cycles, and measurement of unders and overs, could be averaged across the country. In practice this would mean satellite technology rather than exhaustive on the ground measurement. It also avoids the distortionary effects of a devolved system.

The preferred policy is for the Government to retain all plantation forest sink credits and their associated liabilities, at least for the first commitment period.

Continuing forestry expansion in New Zealand is needed if forests sinks are going to continue to be used to help offset future emissions from other sectors and to cover future harvesting liabilities from Kyoto forests after the first commitment period. It is recommended therefore that the Government assign a proportion of the credits (or an equivalent value) to incentivise the establishment and enhancement of plantation sinks. Indicative budgets prepared thus far suggest that around …….. might be set-aside for this purpose, though analysis has yet to be completed.

Government retention of sink credits raises issues about how the sink credits should be used. A proportion of the sink credits could be used to shelter the at-risk group and agriculture sector should Government decide not to use the consolidated fund to cover for the excess emissions from these emitters.

Other than sheltering, there is a range of other uses for sink credits, including:

- Covering liabilities arising from permanent deforestation
- covering deforestation liabilities and potential liabilities due to catastrophic loss of new forests (including biosecurity events and fires)
- covering potential future commitment period obligations
- recycling the revenue from sink sales back into the economy
- incentivising permanent non-industrial forest sinks including indigenous forests and regeneration
- the use of revenue from sinks to fund projects (including forest sink projects) and programmes for emission reductions.

As with any asset, an assessment will need to be made to determine the best value for the use of the sinks. A clearer understanding of the best use will be known closer to the first commitment period, when more information is known about the value of the sinks, the amount of sinks that can be freed up for use and the need for sheltering.

Management of protection forest sink credits

A useful addition to the overall policy described above would be to provide a direct financial incentive for creation of new protection forests that provide a permanent (non-harvest) sink. Such forests would contribute to a wider range of objectives beyond addressing climate change including:

- biodiversity enhancement
- water quality improvement
- erosion control
- providing an alternative economic opportunity for marginal Maori land
- providing an opportunity for New Zealand companies to invest in sink projects and earn credits to offset their emissions liabilities.

A proposal along these lines will be presented for public consideration. Officials will report back on its viability in July.

Deforestation liability

Under Article 3.3 of the Protocol all deforestation, that is removal of trees and conversion to some alternative land use, must be accounted for as an emission of carbon. It is recommended that the Government assume responsibility for this provided the total liabilities to the Crown stayed within a 5% deforestation cap. If it became apparent that the cap might be reached during the first commitment period, the Government would have the option to either increase the cap or develop policy to allocate deforestation activity within the proposed cap.

There are two other significant but second-order forestry issues that must also be considered by Government, namely:

- forest definition
- accounting for activities under article 3.4 of the Protocol.

Forest Definition

Under the Kyoto Protocol countries may choose the levels of three parameters used to define "forest" for the purpose of accounting for carbon under Articles 3.3 and 3.4 of the Protocol. The levels must be selected from within specified ranges, namely: minimum area (0.05 – 1.0 hectares); canopy cover (10 – 30%); and minimum tree height (2 – 5 metres).

It is recommended that New Zealand adopt the forest definition at the upper limit of each of the allowable ranges provided under the Protocol. This is because such a definition is likely to minimise the amount of land deemed 'non-Kyoto forest' and therefore ruled ineligible for sink credits and subject to deforestation liabilities if farmers or land developers removed small pockets of scrub.

Accounting for activities under Article 3.4

Under Article 3.4 of the Kyoto Protocol, New Zealand has until 2007 to elect which additional Article 3.4 land use, land use change and forestry (LULUCF) activities, if any, it wishes to account for in the first commitment period. Options include forest management of pre-1990 forests, grazing land management, cropland management and revegetation.

- Forest Management - Current estimates are that New Zealand would have a net loss of carbon from forest management activities in non-Kyoto pre-1990 forests over the first commitment period. Given the likely large extra liabilities, it is recommended that the Government agree in principle not to account for forest management under Article 3.4 of the Kyoto Protocol. New Zealand may be obliged to account for forest management in subsequent commitment periods.

- For the other three land use activities under article 3.4 there is considerable uncertainty in the data on carbon stocks and carbon stock changes. Such data that exist for cropland and grazing land suggest that carbon stocks are likely to be in a steady state or a slight decline. It is therefore recommended that the government agree in principle not to account for these activities in the first commitment period.

Annex 2: Criteria for Negotiated Greenhouse Agreements and at-risk status

Draft criteria

Eligibility for categorisation as at-risk and for NGAs will be determined against criteria. It is likely to involve New Zealand's energy intensive exporters as well as some key import substitution firms. In addition, some of these firms will have significant (non-energy) emissions associated with industrial processes, such as the calcination of lime in cement manufacture, which by their nature are more difficult to reduce. These firms are likely to be responsible for up to a third for New Zealand's CO_2 emissions.

The following high level key criteria are proposed:

- there is a significant risk of industry output and emissions shifting to another country that does not impose emissions costs (i.e. leakage); and
- there is significant risk to the firm's competitiveness in export markets; and/or
- there is significant risk of imports displacing domestic production.

These criteria will be further developed in consultation with other key departments and stakeholders and officials will report back on them in July 2002.

The criteria are most likely to include firms in:

- export industries (or sectors), where a significant proportion of their output is in direct competition with international firms (or countries) which may not be subject to Kyoto emissions management in their own country (e.g. some resource processing industries); and
- import substitution industries where local production faces significant competition from imports from countries without emissions costs.

While most industries are affected by costs from their direct emissions, for a few firms indirect cost increases (especially via electricity use) may also be significant.

Identifying which firms and sectors may <u>not</u> be at-risk assists in understanding the criteria. These firms and sectors include:

- Sectors of the domestic economy where it is considered desirable to let a climate change price signal flow (e.g. sectors like electricity, transport and general energy use) where they would not meet international competitiveness criteria;
- Sectors and firms with the ability to pass increased costs down (and up) the supply chain so that output prices reflect the new relative prices and the cost is largely borne by the end user (supplier); and
- Sectors and firms where the costs can be easily mitigated through other means than sheltering (for example, through revenue recycling into the tax system)
- Sectors and firms that are at-risk but where the costs of providing ongoing protection are greater than the benefit of avoided costs of adjustment[10]

It is expected that the number of firms categorised as at-risk will be small and will reduce over time as more and more countries become involved in the Protocol. In

[10] Government may still shelter in these circumstances because avoiding emissions leakage is given high priority.

addition, it is expected that firms in New Zealand will become more emissions-efficient as they switch to more efficient capital stock and production processes. That is, special treatment for such firms should be seen in the context of NGAs, which require tangible movement towards world best practice. Should emissions trading be applied during 2008-2012, then participation in emissions trading with a level of gratis allocation may be an alternative response to extending NGAs (see following NGA decision tree).

Process issues for determining at-risk

Many firms are likely to seek at-risk status, and determining those that qualify is likely to be a complex process. From British experience, one way to manage this would be for the Government to publish the criteria and the firms or sectors could negotiate a greenhouse agreement. An exercise of judgement will need to occur to assess firms on a case by case basis. There are a range of options for who is best placed to make this kind of decision, including Ministers, government departments or some statutorily established independent body.

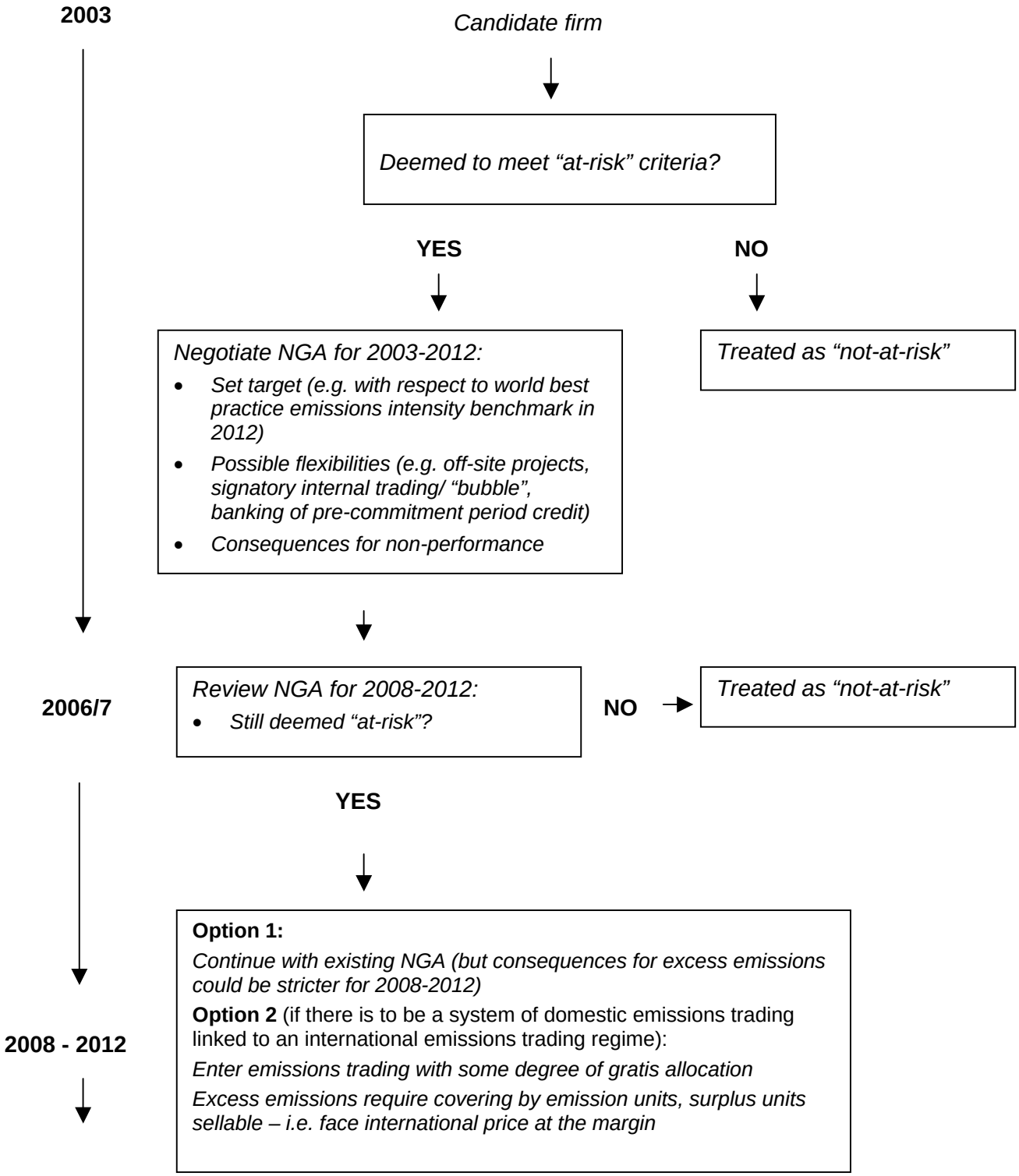
For major industries one-on-one discussions are feasible, certainly for information exchange leading to some sort of "constrained negotiation" against the criteria. However, competitiveness analysis will also require supplemental financial analysis to justify thresholds, verify claims and understand elasticity effects. This would need to take into account the long-term efficiency of the firms under assessment (especially relevant for import substitution firms).

Further work will need to be undertaken to determine the best means to assess firms. Officials will report back on this issue when they report back on the final policy outline after consultation in July.

Decision tree for Negotiated Greenhouse Agreements

The diagram below illustrates the process for decision-making and likely broad content for NGAs.

Negotiated Greenhouse Agreement (NGA) decision tree for at-risk firms



Annex 3: Policy for Projects

What are Projects?

Greenhouse gas mitigation occurs via actions taken to reduce emissions or enhance sinks and reservoirs. A climate change mitigation *Project* implies an investor receiving an incentive linked to the climate change benefits of the Project. The incentive is generally either via funds or emissions units and is for benefits beyond what would have occurred anyway. Typical examples of mitigation Projects could include: efficiency upgrades in energy using plant, replacement of a fossil fuel with bio-fuels in a boiler, and perhaps forest establishment.

By contrast, a climate change *programme* also involves funding measures that seek to reduce emissions, but the level of funding provided does not directly relate to the expected abatement, the abatement actions may be widely dispersed and the emission outcomes emerge over longer time periods.

The problems that the use of Projects seeks to address?

There are two issues that the use of Projects seeks to address.

The first is the general pre-commitment period objective of beginning to reduce emissions so as to reduce trends below "business as usual" levels. Investments in energy infrastructure by firms and households made during this pre-commitment period will have consequences that extend into and well beyond the first commitment period. Projects are a direct means of addressing this problem. If emission units are provided to incentivise Projects, Projects signal future emission prices. Projects also ensure abatement measures are in place at the beginning of the first commitment period and provide "learning by doing" during this period.

The second issue is the role of Projects during the first commitment period where some sectors will face a full price but other sectors may not. This will mean that the incentive to reduce emissions varies across the economy and the consequential emissions profile will be higher than the "efficient" level. Using Projects to create an incentive (by generating an opportunity cost of emission reductions) is a means of partially correcting this problem.

Even where a sector is covered by an full international price the effect of an emissions price may be distorted because of market failures (e.g. situations where despite the presence of a price signal a landlord may face no incentive for energy efficiency investments). Projects may be applicable here also.

Options for Projects in the preferred policy option

Whether, where, and at what level a price instrument is applied in the economy will influence the use of Projects as part of a climate change response. The key choices for the use of Projects are:

- "the where": i.e. their application across the economy, from no use to the entire economy;
- "the when": e.g. pre-2008, 2008-2012;
- "the how to": i.e. the form of the incentive - funds or emission units; and
- "the how much", i.e. the level of resources applied to Projects.

Assessment of the role of Projects

Projects provide:

- a direct way of changing emission trends
- a means of creating a desired opportunity cost for emission reductions where no efficient price exists
- a means of securing "learning by doing" in emissions abatement international emissions trading
- a gradual transition to an international emissions price
- a clear example of "demonstrable progress" highlighting the Government's commitment to actual emission reductions.

However:

- they can involve high transaction costs
- there are technical challenges associated with just rewarding additional actions and not "business as usual" (additionality)
- if additionality is not addressed effectively, the use of Projects could effectively become a direct subsidy, potentially making the reductions purchased more expensive.

Proposed Projects policy approach

To maximise the benefits of Projects and to minimise the associated risks it is proposed that the Project framework:

- includes Projects in both pre-2008 and 2008-2012, applied consistently with and in support of the other elements of the preferred policy outline
- focuses on sectors where an efficient price signal is absent
- where the full price exists, only be used in circumstances where market failure exists and where other responses are not superior and the use of Project provides a net benefit
- facilitates broad access to a Projects mechanism so as to elicit an overall least cost response
- utilises a contestable approach to accessing Project support where feasible
- includes additionality criteria so as to avoid supporting Projects that would have occurred anyway
- focuses on low transaction costs so Project benefits are maximised.

And in particular for pre-2008:

- be widely available to reduce emissions below "business as usual" across the economy (without "double-dipping" opportunities)
- involve funds or emission units as the incentive, consistent with other pre-2008 measures and the sector involved
- have a finite cap, whether involving emission units or funds (probably equivalent to only a few percent of New Zealand's initial assigned amount, noting that what opportunities exist and at what cost will not be clear until proposals are submitted)
- be consistent with the NEECS renewable energy implementation
- focus on having a prompt start to reduce investment uncertainty

- when Projects involve overseas investment and an incentive denominated in emission units, favour trading out the units via emissions trading mechanisms rather than formally hosting Joint Implementation Projects
- be reviewed in 2005 to reflect experience to date and the expected 2008-2012 policy.

In 2008-2012: (subject to review findings)

- be less widely applied than for pre-2008, having a lesser role in sectors subject to an international emissions price; and
- have a potentially greater role in the agriculture sector, as abatement options move from research to implementation and Projects become feasible, and in other sectors not exposed to an international emissions price.