Office of the Convenor, Ministerial Group on Climate Change

The Chair
**CABINET POLICY COMMITTEE**

**CLIMATE CHANGE: DOMESTIC POLICY OPTIONS**

## Executive Summary

1 This paper is the second in a series of four papers directed at the ratification of the Kyoto Protocol. It sets out the policy options and issues that will be the subject of the first round of consultation on New Zealand's domestic response to climate change between October and December 2001. Market-based policy options will be the main focus of the upcoming rounds of consultation and policy development and are the focus of this paper. The term "market-based" covers a group of policy instruments that encourage changes in behaviour through the use of economic incentives. Non-price and regulatory approaches are covered under other work streams, such as the National Energy Efficiency and Conservation Strategy (NEECS), the New Zealand Transport Strategy, and the Waste Minimisation and Management Strategy, although the interaction of market-based climate change policies and other work streams will need to be covered during the consultation process.

2 New Zealand's obligation under the Kyoto Protocol is to reduce its emissions to 1990 levels on average over the 2008-2012 commitment period or to take responsibility for any emissions over these levels. Given projected growth in emissions and in the absence of technological breakthroughs or use of sink credits, it is likely that New Zealand will need to purchase emission units on the international market to meet its Kyoto commitments in a cost effective way. However, early engagement by New Zealand in climate change responses will increase the chance of there being more sellers of emission units during the first commitment period, and the need to purchase units should be reduced.

3 The paper suggests five dimensions for evaluating policy options. These are environmental integrity, economic efficiency, equity, competitiveness and feasibility. There are also a range of cross-cutting issues and questions that will need to be discussed during the consultation phase before a final policy package is chosen.

- who will take responsibility for emissions under the Kyoto framework - who is required to make the decisions to "abate or buy" or "abate and sell" – the Government or private sector entities?
- how, and on what basis, is the emissions management task divided between sectors (or sub-sectors) - sometimes referred to as "broad sectoral allocation of responsibility". Such decisions are important, particularly if the Government decides to take responsibility for some sectors and not others. A related issue is the extent to which the crown will retain units in order to reduce its risks.
- whether the Government should introduce market-based measures, such as a carbon charge or emissions trading, to add to non-price policies prior to 2008, since there are benefits and costs in pre-2008 action by emitters. A long lead time for research into mitigation/abatement options in some sectors, particularly agriculture, would suggest there might be large potential benefits for investment in research prior to the commitment period.

4 There are a range of market-based policy instruments that should be considered, including:

- government retaining full responsibility for emissions
- charges on all emissions or activities leading to all emissions
- emissions trading
- levies on activities that are not directly related to (all) emissions
- project-based initiatives including project-based trading
- hybrids of the above, or the above plus other programmes, e.g. negotiated greenhouse agreements (NGAs) to address emissions

5 Issues and options for sink credits and debits from land use and forestry are also proposed for consultation.

6 These instruments are described at a summary level in the paper, including the extent to which they address the comparable incentives and other dimensions of the Government's objectives. A table summarising key characteristics of different emission sectors and the possible applicability of policy options given these characteristics is included at Annex 1.

7 The issues and questions in this paper are elaborated in greater detail in a policy options consultation document proposed to be released for a first round of consultation to be completed by mid-December. A copy of this document is provided in conjunction with the cabinet paper "Climate Change: Plan for Consultation and Release of Discussion Documents". Following this first round of consultation, officials will summarise the submissions received.

8 Early next year Cabinet will need to revisit these issues and questions and make a decision on a preferred package of market-based climate change policy options.

## Purpose

9 The purpose of this paper is to set out the policy options, and issues that will be the subject of the first round of consultation on New Zealand's domestic response to climate change between 15 October and 15 December 2001.

## Background

10 On 3 September Cabinet considered the paper "Climate Change: Next Steps for Ratification of the Kyoto Protocol". It is expected that legislation necessary for ratification (Act I) will be passed by September 2002. By this date, decisions will be announced on the domestic policy package but legislation on the policy package (Act II) will not be passed until 2003. Between now and then at least two rounds of consultation on domestic policy will take place. The first will occur before Christmas on a range of market-based policy options that New Zealand can use to meet its Kyoto Protocol obligations. The second will occur early next year on a preferred policy package, taking into account the outcomes of the first round.

## Introduction

### Scope of issues for consultation

11 **Market-based policy options** will be the main focus of the upcoming rounds of consultation and policy development and are the focus of this paper. The term "market-based" covers a group of policy instruments that encourage changes in behaviour through the use of economic incentives. Market-based policies are the main focus because non-price and some regulatory approaches are covered under other work streams. The question of

ratification and the minimum legislation required for New Zealand to proceed is addressed in the accompanying cabinet paper “Climate Change: Policy Issues for “Act I” Ratification Legislation.”

12 The regulatory and **non-price options**, under other work streams include elements of the National Energy Efficiency and Conservation Strategy (NEECS), the New Zealand Transport Strategy, the Waste Minimisation and Management Strategy and the “Transforming New Zealand” work on research and development. A decision made on non-price policy options within the Climate Change Programme relates to negotiated greenhouse agreements (NGAs) with industry. This, however, has direct linkages with market-based policy options.

- The NEECS makes a leading contribution to New Zealand’s climate change response. It sets out the Government’s policies in relation to the promotion of energy efficiency, energy conservation and the use of renewable sources of energy. These policies are an elaboration of key parts of the Government’s Energy Policy Framework. NEECS contains an energy efficiency and conservation target of at least a 20% improvement in economy-wide energy efficiency by 2012. Energy efficiency measures in NEECS are predominantly voluntary, but regulatory approaches being utilised include Minimum Energy Performance Standards. Further work is to be undertaken over the next 9 months to determine a final renewable energy target and the most appropriate mechanisms to implement it, including a possible mandatory mechanism (which could be market-based).
- The Government is developing a New Zealand Transport Strategy (NZTS) which will provide a clear high level statement of the Government's transport policy. The NZTS will include all modes and transport users; include broad social, economic and environmental objectives; and reflect New Zealand's direction in transport policy. The final Strategy will identify ways in which transport can reduce its contribution to greenhouse gases. These may include land transport policy proposals, vehicle technology measures, and the promotion of sustainable forms of transport.
- Climate change policy also links into the National Waste Minimisation and Management Strategy that is likely to be made public by the end of 2001. The creation of waste can be an indicator of inefficient resource use. A more efficient use of materials will also contribute to reductions in energy use and, therefore, reductions in greenhouse gas emissions. Part 1 of the Strategy will establish the vision, goals, principles and objectives as well as detailing a range of specific measures, including current work and new actions to be pursued through to 2004. Part 2 of the Strategy will discuss the "larger" policy issues that will require further analysis and consultation before decisions are taken.
- Cabinet has previously agreed that Negotiated Greenhouse Agreements (NGAs) aimed at limited emissions of greenhouse gases will form part of the pre-2008 package. Officials have initiated discussions with industry on draft Heads of Agreement which will set out the content of, and process for negotiating, final agreements with firms and/or groups of firms. Final agreements are likely to be closely linked to development of possible market-based policies such as carbon charges. NGAs could also be an option for the commitment period. This is discussed in the consultation document.

13 There has been no decision on the role of the Resource Management Act (RMA) to address greenhouse gas emissions for climate change reasons. It is proposed that the Government clearly signal that the use of RMA controls and mechanisms is not seen as cost-effective for managing greenhouse gas emissions. The RMA consenting and planning process means that there will be a risk of inconsistent treatment and costs of implementing and managing requirements for different regions. Climate change is an international issue, and should therefore be dealt with consistently on a national level. The national instruments under the RMA, including National Policy Statements and National Environmental Standards, are also not seen as cost effective for controlling greenhouse gases because of the time involved

in implementing them. However, in light of the above signal, consultation will include examining the options for providing guidance to local government on the appropriate use of the RMA. NEECS contains measures to improve implementation of the RMA with respect to energy efficiency (especially in new buildings and urban infrastructure), and development of renewable sources of energy. These are expected to contribute to reducing carbon dioxide emissions. Councils will also continue to use the RMA for infrastructure planning to manage the effects of climate change itself.

14 In addition, this paper does not focus on business opportunities, such as the development of new technologies related to climate change. However, the opportunities arising from climate change and from the policies required for New Zealand to meet its obligations under the Kyoto Protocol are addressed in the accompanying Cabinet paper "Climate Change: Business Development Opportunities". These will be the subject of consultation from mid-October along with policy options and the development of the Government's preferred policy package.

15 The interaction of market-based climate change policies and other work streams will need to be covered during the consultation process. Any decisions on market based policy options will need to be considered alongside decisions on non-price measures, and vice versa, when decisions are considered on the overall policy package. For example, under NEECS, there will be further consideration of the renewables target and possible mechanisms, to achieve it. Market based measures for climate change would contribute towards achieving a renewables target.

## New Zealand's Obligations under The Kyoto Protocol Challenges, and Opportunities

### International requirements

16 New Zealand's obligation under the Kyoto Protocol is to reduce its emissions to 1990 levels on average over the five-year commitment period 2008-2012 or to take responsibility for any emissions over these levels. In practise, "taking responsibility" means acquiring emission units[1] on the international market under the Protocol's "flexibility mechanisms" or using sink credits to offset emissions above 1990 levels. Following COP6.5 in July in Bonn, rules for the "flexibility mechanisms" are now clear. These allow countries to make use of international emissions trading, domestic sink credits, joint implementation (JI) and the clean development mechanism (CDM). The Protocol also allows countries to authorise the private sector (so called "legal entities") to participate directly in these mechanisms. New Zealand has been a strong advocate of "flexibility mechanisms" because of their potential to reduce the costs of meeting targets.

### Domestic circumstances

17 There are four key aspects of domestic circumstances that affect the way New Zealand might meet its Kyoto obligations:

- New Zealand's emissions are projected to be about 14 -20% above 1990 levels over the commitment period (totalling 50-75 million tonnes $CO_2$ equivalent over the five years). New Zealand's 1990 levels were about 73 million tonnes $C0_2$ equivalent, which equates to a total emission allowance of 365 million tonnes $C0_2$ equivalent over the five-year commitment period. Of the projected growth in emissions above 1990 levels, 50 million

[1] Emission unit is the term used to describe countries' initial assigned amount of emission units derived from their targets under the Protocol. It also encompasses the units derived from the Protocol's project-based flexibility mechanisms. A sink credit is equivalent to having created an additional emission unit.

tonnes is projected to come from the energy and industrial sectors, with 0-25 million tonnes[2] projected to come from our agricultural sector. Even though the largest growth is from the energy and industrial sector (from transport and electricity generation), agriculture remains the largest total contributor to emissions. Some of the excess emissions can be reduced by measures already under development, such as NEECS, which may reduce up to a quarter of the excess emissions (15-20 million tonnes $CO_2$ equivalent).

- In many cases, emissions and growth in emissions come from sectors that are key to New Zealand's economy and are vulnerable to international competitiveness pressures. Many of New Zealand's resource processing exports are emissions intensive.

- New Zealand is likely to face higher costs than other countries for reductions in the excess emissions remaining after measures taken through programmes such as NEECS, as we do not have as many options for easy reductions. Most of our electricity already comes from renewable sources, and the share is declining. Although there are some opportunities in emerging technologies, known cost-effective options for reduction of emissions in the agricultural and transport sectors are limited at this time.

- It is projected that forest planting since 1990 will generate a substantial quantity of sink credits (about 110 million tonnes over 2008-2012). This amount is larger than projected excess emissions. However, New Zealand has taken the position internationally that it would not seek to avoid meeting its commitments through retention of emission units generated from Kyoto forest sinks, and Cabinet has already:

  - agreed in principle that *all or most* of the sink credits would be tradable within an international emissions trading system and that some proportion of the credits would go to those undertaking sink activities

  - noted that making sink credits tradable internationally *would reduce the risk of such sink credits being used to shield emitters from having to face the cost of their emission reduction responsibility*, and this would enhance New Zealand's credibility [CAB (00) M 25/4c refers].

18 The discussion above indicates that given projected growth in emissions and in the absence of technological breakthroughs that reduce New Zealand's task (or even reduce our emissions below 1990 levels) or use of sink credits, it is likely that New Zealand will need to purchase emission units on the international market to meet its Kyoto commitments in a cost effective way[3]. However, early engagement by New Zealand in climate change responses will increase the chance of there being more sellers of emission units during the first commitment period, and the need to purchase units should be reduced.

## Objectives for a Domestic Climate Change Policy Package

19 There have been some previous decisions to guide what an appropriate policy package for New Zealand might look like. Cabinet has already agreed that:

- New Zealand's domestic policy should strive to achieve a practical programme to meet our international obligations *(CAB (00) M 15/12A refers);*

[2] The range reflects the uncertainties of data and projections in the agriculture sector.
[3] Currently, the estimated cost of carbon is between NZ$15-100 per tonne of $CO_2$ equivalent, although this range has become somewhat speculative with the US choosing to remain outside the Protocol.

- policies be developed that aim to broadly establish comparable incentives to reduce emissions across different sectors *(CAB (00) M 25/4A refers);* and
- the specific objective for the 2008-2012 commitment period to limit greenhouse gas emissions be to ensure achievement of New Zealand's Kyoto Protocol obligations in a manner that demonstrates environmental integrity and leadership while keeping as low as practicable the social and economic costs of measures to achieve those obligations *(CBC Min (01) 1/7 refers).*

**Dimensions for evaluating policy options**

20 The above decisions suggest five dimensions for evaluating policy options. These are environmental integrity, economic efficiency, equity, competitiveness and feasibility. These dimensions are also reflected in the concept of sustainable development and are discussed with respect to climate change below.

21 The choice of measures involves a balancing of these dimensions, between implementing measures that create incentives for emission abatement and moderating impacts created by the measures. The incentive issues focus on the efficiency and effectiveness of the measures; the impacts issues reflect more on competitiveness and equity concerns.

22 **Environmental integrity** refers to the effectiveness of policy in contributing to a reduction in global greenhouse gas emissions, compared to what they would have been in the absence of policy. It will be undermined if domestic policies result in relocation of emitting activities to countries without emission obligations, an effect known as "carbon leakage". The prior decision relating to not shielding emitters by taking advantage of sinks, as noted above in paragraph 17**,** is also relevant.

23 **Economic efficiency** is about minimising the cost and maximising the benefits *to the economy as a whole and over the long term* of meeting New Zealand's Kyoto Protocol obligations. Minimising costs includes minimising all costs (such as transaction costs), while maximising the benefits includes benefits that may accrue to other areas of the economy (for example, to the environment, for business and economic development and/or regional economic welfare). This definition also recognises the likelihood of commitments beyond 2012 that are likely to get progressively more stringent over time. A further aspect of economic efficiency is the degree of assurance that different policy options give of whether New Zealand will meet its target and the implications this has for the level of risk assumed by the Government (in terms of potentially having to purchase units on the market).

24 The key economic efficiency objective Cabinet has earlier agreed is that policies be developed that aim to broadly establish comparable incentives to reduce emissions across different sectors. In this context comparable incentives means that everyone faces at the margin a similar encouragement to reduce emissions or enhance sinks[4].

25 **Equity** will be at the root of most stakeholder groups' concerns, which are likely to reflect their perception of whether policy measures are *fair* to them. In discussions to date with some key sectors, phrases such as "equality of sacrifice" and "equitable spread of burden" have been used. In general, equity concerns are likely to hinge around the distribution of costs and opportunities, including sectoral, regional, and social (including intergenerational) distribution.

[4] An alternative way of describing comparable incentives is "*equalised opportunity cost*".

26 **Competitiveness** is a key issue for an open trading economy like New Zealand. If climate change policies raise the costs of production for some of our key businesses, and these costs cannot be passed on downstream, their competitiveness in international and domestic markets may be reduced relative to competitors from countries that do not have these costs. This may be because other countries do not have obligations or they choose not to impose costs on particular sectors. Uncertainty about the effects of domestic climate change policies on production costs is also likely to raise concerns about attracting new investment in export sectors, particularly energy-intensive activities.

27 Given the nature of competitiveness concerns in international and domestic markets arising from the potential application of market-based policies, including how these concerns affect potential new investments in export sectors, further approaches should be considered for addressing these concerns while aiming to maintain broadly comparable incentives. In addition, policy measures to address competitiveness concerns should have regard to New Zealand's obligations under the World Trade Organisation rules (WTO).

28 Because some countries do not have obligations in the first commitment period, some competitiveness effects are unavoidable. Also the nature of any relative competitiveness effects with countries that have obligations will not be known until those countries' policies are known.

29 **Feasibility** has dimensions of the above issues and is about the ability to implement an option. For example an important aspect of economic efficiency is transaction costs. Policies that would have unreasonably high transaction costs are unlikely to be seen as feasible. Feasibility also has other aspects to it around what is practical or pragmatic. Some of these are technical in nature, such as measurement limitations. Another aspect is whether there is a constituency of support among affected industries and groups.

## Cross-Cutting Issues Affecting Policy Choice

30 There are a range of cross-cutting issues and questions that will need to be discussed during the consultation phase before a final policy package is chosen.

### Responsibility for emissions

31 A key issue is who will take responsibility for emissions under the Kyoto framework. Essentially, the issue revolves around who is required to make the decisions to "abate or buy" or "abate and sell". Should the Government take on all the responsibility for these decisions or should it devolve some of this responsibility directly to the private sector?

32 On the one hand, the Government could devolve 100% of this responsibility to the private sector. This could be done through the use of a comprehensive market-based system of domestic emissions trading fully linked to the international market. In this scenario, points of obligation would be established for all emissions and they would have the legal responsibility to match their emissions over 2008-2012 with emission units or credits. Emission trading would allow firms to make decisions appropriate to their circumstances based on information known only to themselves. While Cabinet has earlier agreed that domestic emissions trading will be a central policy measure, it also noted that it may not be feasible to include all sectors [CBC Min (01) 1/1 refers]. The complexities of emissions trading have challenged countries such as Australia and Canada during their consultation and design efforts in recent years. However they are not insurmountable. The European Union is well advanced in designing an emissions trading system, which they propose could be implemented within a few years - well before the 2008 start of the commitment period.

33 On the other hand, the Government could decide to be the sole "abate or buy" / "abate and sell" decision maker and back itself to make the right set of choices to deliver long-term "least cost" abatement for the whole economy. This would have the benefit of avoiding the complexities of selecting points of obligation and making the allocation decisions that a domestic system of emissions trading entails. The Tax Review noted the potential difficulties of this kind in its interim report, which did not favour a domestic emissions trading approach.

34 At this stage while neither of these policy extremes should be totally dismissed for the purposes of the first stage of consultation, it is likely that in balancing the dimensions of the policy choices, the eventual preferred policy mix will need to incorporate a range of policy responses and reflect the circumstances of emission sectors (and sub sectors).

**Division of the emissions management task**

35 A second issue is the division of the emissions management task between sectors (or sub-sectors) -sometimes referred to as "broad sectoral allocation of responsibility". At the highest level, this could simply involve the government deciding how much it would allocate to sectors of the economy where it intended to devolve responsibility for emissions and how much it might keep for sectors it would to take responsibility for their emissions. In addition the Government may wish to set aside some units in a reserve as a contingency. The government may decide to divide the task between different sectors in a number of ways. The decision could be made on the basis of each sector's 1990 emissions levels (or some other base year). Alternatively it could be set by some other measure, such as the extent of possible cost-effective abatement available to the sector, the degree of competitiveness risk or regional or social "special circumstances", including, for example, the extent of "new entrant" industry.

36 In effect, this would mean that New Zealand's abate or buy/abate or sell decisions would be based around sectoral obligations rather than a national one. A division of emission units amongst sectors is one means to address equity issues in climate change policy, because it could establish the size of the challenge or starting point for the sectors concerned and hence indicate the magnitude of future costs. Such decisions are important, particularly if the Government decides to take responsibility for some sectors and not others.

- Where Government takes responsibility for the emissions of a sector (or for a sub-group of emissions within a sector) and devolves responsibility to other sectors, it would need to decide how many emission *units should be retained for itself to cover emissions from that sector and how many should be allocated to the other sectors.*

- This is a separate issue from the *means* used to allocate emissions units under emissions trading, such as grand-parenting or auctioning.

37 A related issue concerning the division of emissions units is the extent to which the crown will retain units in order to reduce its risks, i.e. it would set aside a reserve and not fully allocate emissions units to those sectors bearing responsibility for their own emissions.

**Timing and transitions for implementing policies**

38 Policy choices are made more complex by the fact that the official commitment period does not start until 2008. Furthermore, the assessment of New Zealand's compliance for the first commitment period will not be until 2014 or 2015 – when all the inventory, reporting and review processes have run their course. A key timing question is whether the Government should introduce market-based measures prior to 2008, such as a carbon charge or emissions trading to add to non-price policies, and if so, when.

39 There are benefits and costs in pre-2008 action by emitters. Prior to 2008, actions taken in capital stock investment decisions will have emission reduction benefits, and hence economic benefits, throughout the life of this capital stock. Of particular importance therefore are decisions involving long-lived capital stock. In addition, actions taken on the consumer (demand) side that provide signals to capital stock decision-makers (e.g. regarding building design or electricity system infrastructure) can also be important. The benefits of such actions will need to weighed against the costs of introducing market-based measures before the commitment period. In essence, this comes down to whether there should be a carbon charge or pilot emissions trading implemented prior to 2008. A key consideration will be whether certainty that a regime for emissions will apply during the commitment period provides the market with sufficient information about the future cost of carbon to allow informed decisions to be made.

40 A long lead time for research into mitigation/abatement options in some sectors, particularly agriculture, would suggest there are large potential benefits from investment prior to the commitment period.

## Description of Market-Based Policy Options

41 There are a range of market-based policy instruments. These include:

- government retains full responsibility for emissions
- charges on all emissions or activities leading to all emissions, i.e. a carbon charge
- emissions trading
- levies on activities that are not directly related to (all) emissions
- project-based initiatives including project-based trading
- hybrids of the above, or the above plus other programmes, e.g. negotiated greenhouse agreements (NGAs) to address emissions

42 These instruments are described at a summary level below including the extent to which they address the comparable incentives and other dimensions of the Government's objectives. In each case, the evaluation focuses only on the individual market-based instrument, as if it were applied to all emissions, without reference to non-price measures or other instruments in place.

### Government retains full responsibility for emissions

43 This option would involve the Government retaining full responsibility for emissions and being the sole "abate or buy" / "abate and sell" decision-maker. The Government could make such decisions and rely on raising any required revenue to fund its purchase of emission units through general taxation (i.e. GST). This option is effectively the default option already contained in the legislation proposed for ratification (Act I), although officials are unlikely to recommend it.

44 *Efficiency*: This option would not provide any incentives on domestic emissions or activities, except through existing non-price measures. Such measures are not aimed at providing comparable incentives but rather addressing specific barriers or issues. Not seeking any domestic emission reductions is likely to increase the costs of meeting New Zealand's obligations. The potential fiscal liability could be significant, depending on the treatment of sink credits. In the long term emissions would likely continue to increase meaning potentially higher future liability in subsequent commitment periods, in the absence of technological breakthroughs.

45 *Equity:* Such an option would not be equitable to the extent that taxpayers (in the case of GST, final consumers) potentially bear the liability for the emissions of others and can not avoid the tax through reducing their use or production of emitting activities.

46 *Feasibility:* If required, raising the rate of an existing general tax would be relatively simple.

47 *Environmental integrity*: Ratification based only on this option will raise significant concerns internationally and domestically about the environmental credibility of the Government's policy response.

48 *Competitiveness:* If required, raising general taxation is unlikely to give rise to competitiveness concerns, as the increase in costs to final consumers is unlikely to significantly affect the costs in sectors exposed to international competitors. However, it may affect overall competitiveness of all economic actors. New Zealand's longer-term competitiveness could be affected by delaying adjustment or technology uptake if there are no incentives to reduce emissions.

**Emissions charges**

49 This option would involve applying a charge on each tonne of emissions, or activities that lead to emissions. The cost of the charge would provide incentives to reduce emissions. The Government would need to take responsibility for acquiring any emission units in the event that there are still excess emissions once the charge has been imposed.

50 *Efficiency:* Because an equivalent cost would be applied to every tonne of emissions, this option would, in general, provide comparable incentives for abatement across sectors and activities. However, where the cost of the charge is imposed on a "proxy" activity[5] rather than at the point of emissions, the extent to which emitters face comparable incentives will depend on the extent to which the price signal is transmitted to the point of emissions. There may be circumstances, such as monopoly, where incentives exist not to pass on the charge. These would need to be taken into account in the design of a charge. The rate of emissions charge would need ongoing adjustment to reflect accurately the international market price for emission units to ensure that the level of abatement was efficient.

51 *Equity:* An emissions charge, if applied at an equivalent rate to all emissions, would ensure all emitters were treated equally. However, some regions, firms and social groups would bear a disproportionate amount of the burden of a carbon charge, because of the emissions intensity of their activities. Such burdens could be reduced through partial exemptions and/or revenue recycling.

52 *Feasibility:* An emissions charge is feasible in energy and industrial inputs sectors where emissions or activities can be accurately monitored but may be more problematic in sectors with measurement problems, including agricultural methane and waste, though a proxy rate could be applied in these sectors. Some farming groups have explicitly rejected application of an emissions charge to agricultural emissions and major industrial emitters have sought to avoid a carbon charge prior to 2008.

53 *Environmental Integrity*: An emissions charge would give rise to environmental integrity concerns if the cost resulted in production moving to another country with no emissions obligations.

[5] A "proxy" activity is one that is directly related to emissions elsewhere in the economy.

54 Competitiveness: An emissions charge would give rise to competitiveness concerns in sectors where international competitors did not face measures that imposed equivalent costs on their emissions. Competitiveness concerns could be addressed through some form of transitional assistance possibly involving revenue recycling. Alternatively, other policy instruments could be applied to those at risk but this may raise efficiency and equity concerns.

55 The most common emissions charge discussed to date in the New Zealand policy context has been a low level carbon charge. This has mostly been discussed in a pre-2008 context but could also be used in the commitment period instead of a domestic system of emissions trading (e.g. as proposed by the Tax Review). A carbon charge has generally been proposed as being a fiscally neutral instrument – i.e. no net fiscal benefit to the Government.

**Emissions trading**

56 Under domestic emissions trading the Government devolves responsibility for the "abate or buy" / "abate and sell" decision to firms or sector bodies. In simple terms it works as follows:

- Responsible parties are identified for a certain group of emissions. These may be emitters or those whose activities can be measured and relate to actual emissions elsewhere in the economy. Examples of the latter are oil refiners, fertiliser companies or coal producers.

- Responsible parties are called "points of obligation" and must have emission units sufficient to cover emissions over a given compliance period. Emissions, or the activities leading to emissions, must be monitored and reported.

- Initial allocation of emissions units can be by auction, sale or supplied without charge by the Government. Responsible parties can then either reduce their emissions or purchase more units, depending on which is most cost effective. If they hold more units than they need, they can sell units to others.

- At the end of the compliance period, a quantity of emission units equal to the measured and reported emissions must be retired to the Government and can not be reused. There would be penalties for points of obligation that did not retire sufficient units. Any excess emission units can be banked for use in the following compliance period.

57 *Efficiency:* Emissions trading would, in general, provide comparable incentives across sectors and activities because incentives for abatement are directly related to the international market price of emission units. This is true irrespective of the method of initial allocation of emission units. However, where the cost of the charge is imposed on a "proxy" activity rather than at the point of emissions, the extent to which the emitter will face comparable incentives will depend on the extent to which the price signal is transmitted to the point of emissions

58 *Equity:* To the extent that there is effective price transmission, all emissions would face an equivalent cost at the margin and therefore all emitters would be treated equally. The extent to which this option would be considered equitable would depend on whether emitters under comparable circumstances were treated the same. However, some regions, firms and social groups could bear a disproportionate amount of the burden, because of the emissions intensity of their activities. Such burdens could be reduced through the method of allocation

or recycling of revenue, if any[6]. Emission trading, therefore offers greater scope to address equity, carbon leakage, and competitiveness concerns than a charge.

59 *Feasibility:* Emissions trading is feasible in the energy and industrial inputs sectors where emissions can be accurately monitored but implementation will probably be more difficult in sectors with measurement problems, including agricultural methane and waste. The feasibility of emissions trading will also depend on the acceptability of the initial allocation method to responsible parties. Transactions costs of implementation of emissions trading will depend on where the point of obligation is placed in the supply chain (e.g. car owners versus the oil refinery and importers).

60 *Environmental Integrity:* Emissions trading would give rise to environmental integrity concerns if the cost resulted in production moving to another country with no emissions obligations.

61 *Competitiveness:* Emissions trading would give rise to competitiveness concerns in sectors where international competitors did not face measures that imposed equivalent costs on their emissions.

**Levies/Rebates**

62 This option would involve the Government or a sectoral body[7] levying activities not directly related to all emissions (rather than a charge for each tonne of emissions or proxy for emissions as in a carbon charge). The intention would be to recoup the cost of acquiring emission units on the international market for emissions from these activities. An example might be a levy imposed on a sector (or sub-sector) equal to the cost of any excess emissions over and above some sectoral target, e.g. 1990 levels of emissions. Where a sector has reduced emissions below their target, a rebate could be given on the same basis as the levy. However, the issues that apply to a levy would also apply to a rebate. Recouping the cost of acquiring emission units on the international market is not the only purpose for which a levy can be applied. Levies could also be used in the pre-commitment period to fund research in the sector that could result in reduced emissions in the commitment period.

63 *Efficiency*: This option would not ensure comparable incentives as the cost per unit of emissions would vary between sectors depending on how much it cost to acquire sufficient emission units to cover emissions from each sector. Because a levy is not levied directly on emissions, there is no direct incentive on emitters to reduce emissions (as there would be under a charge) because a reduction in emissions is not rewarded with a reduction in the cost of the levy. A levy may therefore lead to activities that avoid the cost of the levy but do not reduce emissions, which would be inefficient. A levy also introduces the risk of emitters who do not take abatement actions free-riding on the actions of those that do.

64 *Equity:* Emitters that are undertaking abatement actions would be treated in the same way as emitters doing nothing, and hence a levy would not ensure fairness of treatment. Because this option cannot ensure comparable incentives, it may raise equity concerns. Some regions, firms and social groups could bear a disproportionate amount of the burden of a levy, depending on the level of the sectoral target and growth in emissions.

65 *Feasibility:* By definition, a levy would be relatively simple to apply, as it would be based on known costs and activities.

[6] If auctioning or fixed-price sale is the method of allocation.
[7] Where the sectoral body has been devolved responsibility for the sector's emissions (i.e. under emissions trading) or for the cost of the sector's emissions.

66 *Environmental integrity:* A levy would give rise to environmental integrity concerns if the cost resulted in production moving to another country with no emissions obligations.

67 *Competitiveness:* A levy could give rise to competitiveness concerns in sectors where international competitors did not face measures that imposed equivalent costs on their emissions. These effects would be lower than an emission charge, because sectors would not face the levy on all emissions (leaving aside the impact of possible revenue recycling).

**Project-based initiatives including project-based trading**

68 Project-based initiatives and project trading involve the Government giving emission units or financial assistance to entities in reward for emission reductions or possibly enhancement of sinks. Rewards would be given against an agreed baseline i.e. emission reductions or enhancements of sinks must be additional to what would have occurred in the absence of the project.

69 *Efficiency*: The extent to which projects provide comparable incentives depends on the accuracy of the baseline, equivalence of baselines between projects, and the relationship of the rewards to the market price for emissions. Unless a project based programme is incorporated in a broader programme (e.g., it is paired with a charge or a levy), emitters have no obligation to address the cost of their emissions. However, those who choose not to take up project opportunities would forgo the potential rewards. Under a comprehensive market mechanism, such as a charge, giving rewards for projects would be in addition to any savings they may receive through emission reductions already achieved.

*70* *Equity:* Ensuring equity would suggest a consistent approach to establishing baselines across different projects and equal opportunity by all emitters to derive benefit from projects. Because this option cannot ensure comparable incentives, it may raise equity concerns.

71 *Feasibility:* The ease with which baselines can be established will determine feasibility and this will depend on how straightforward it is to assess what would have happened if the project did not occur. Project-based programmes may involve high transactions costs. However, in some sectors the total transaction costs may be less than a sector-wide measure that requires measurement of all emission activities.

72 *Environmental Integrity:* Where a projects programme was part of pre-2008 policy, this would depend on the extent to which a project reward did not lead to the expected level of abatement. It is unlikely that projects would result in leakage, because of their voluntary nature.

73 *Competitiveness*: Because participation in projects is voluntary, projects should not harm competitiveness.

**Hybrids**

74 Hybrid policy instruments are also possible that combine the above approaches. Hybrids can seek to address multiple policy objectives such as making sectors responsible for the cost of excess emissions and aiming to provide comparable incentives. A project-based element, for example, could help address concerns in situations where price signals might not be adequately transmitted to emitters.

75 Programmes combining non-price measures with market based policy elements are also possible. One example could be combining a negotiated greenhouse agreements (NGAs) programme where firms agree to certain constraints on their emissions with the flexibility of

their being able to trade these constraints among the covered firms and/or get credit for external projects.

## Issues and Options for Land Use and Forests

76 There are also a set of distinct characteristics surrounding carbon sink credits and debits from land use and forestry which raise policy issues that will be subject to consultation and further decisions:

### Characteristics

77 *Forestry Sink credits:* the ability of only a subset of forests ("Kyoto forests" established since 1990) to generate substantial sink credits (as a result of the sequestration of emissions) that could be used to offset New Zealand emissions and/or generate income through sale on the international emission trading market;

78 *Other sink credits:* the possibility that other activities, including changes in land management on agricultural soils could generate some credits in the first commitment period if New Zealand elects to account for these activities.

79 *Forestry emissions:* New Zealand's obligations for emissions from forests are limited by the Kyoto Protocol to only a small subset of total forest harvesting emissions. These involve either land conversion to a non-forestry use such as dairy production or the eventual harvesting of Kyoto forests that have generated sink credits. (Use of energy in this sector is treated the same as other sectors of the economy.)

### Issues

80 *Forestry Sink Credits*: The principal sinks credit issue is ownership. There are three possible options:

> Option 1: The Government could retain 100% of the sink credits from Kyoto forests;
> Option 2: The Government could devolve a proportion of the sink credits and related obligations and retain a proportion to hold or sell;
> Option 3: Land/forest owners could receive all sink credits and related obligations.

81 However as noted in paragraphs 17 and 22 above, Cabinet has already agreed in principle that all or most of the 'sink credits' derived from sink activities would be tradable within an international emissions trading market and has noted that some proportion of the sink credits would go to those undertaking the sink activities. The proportion of credits retained by Government would depend on the reason for retention e.g. to meet verification /auditing costs, to cover liabilities for some/all eligible forestry emissions, to manage sink risks arising from fire/biosecurity, or for "public good" reasons. Assuming some devolution to the private sector, questions arise about whether participation in the sinks credit system is mandatory or voluntary and whether the owners of the sink credits should be the landowner or forestry cutting rights owner.

82 *Other sink credits*: A further issue for consultation is whether it will be practical and in New Zealand's national interest to elect to account for sink credits and debits arising from agricultural soil management in the first commitment period. New Zealand would only be eligible for sink credits from agricultural soils if it had robust scientific information on the carbon status of those soils in 1990. Officials currently do not have this information, and there are questions whether we would able to compile it. In addition, we would need to demonstrate that the carbon content of our soils had increased over the commitment period in comparison with 1990.

83 *Forestry Emissions*: Only a subset of forests can generate sink credits but any forest[8] could potentially generate an emission liability for the Government due to land conversion. The point of responsibility for these emissions could be the government, the landowner or forestry rights owner. Further issues for Government are how incentives to reduce these emissions compare with incentives in other emissions sectors. One example is whether there should be any differential treatment between types of forest clearance, such as scrub clearance (where the scrub meets the definition of a forest).

## Application and Issues For Market-Based Policies in Different Emission Sectors

84 A table summarising key characteristics of different emission sectors and the possible applicability of policy options given these characteristics is included at Annex 1.

## Conclusions and Next Steps

85 This paper has laid out a large number of issues and questions for consultation. It has examined the main policy options on the basis of five key dimensions: economic efficiency, equity, feasibility, environmental integrity and competitiveness. The issues and questions in this paper are elaborated in greater detail in a policy options consultation document proposed to be released for a first round of consultation to be completed by mid-December. A copy of this document is provided in conjunction with the Cabinet paper "Climate Change: Plan for Consultation and Release of Discussion Documents".

86 Following this first round of consultation, officials will summarise the submissions received. Early next year Cabinet will need to revisit these issues and questions and make a decision on a preferred package of market-based climate change policy options (noting that this will augment core policies under the NEECS, transport and waste minimisation strategies).

## Consultation

87 The following departments have been consulted and support the recommendations in this paper: the Ministries of Environment, Economic Development, Research, Science and Technology, Agriculture and Forestry, Transport, Foreign Affairs and Trade and the Treasury. The Department of the Prime Minister and Cabinet and Te Puni Kokiri were also consulted in the preparation of this paper**.**

## Specific Mäori /Treaty of Waitangi Issues

88 Mäori have a special relationship with the land and the natural environment. Some principles of the Treaty may be relevant to further climate change policy development and subsequent Act II legislation.

89 Land is the predominant Mäori asset base. Mäori have extensive forestry and farming interests and therefore are likely to have significant interest in the policy mix. In particular, climate change policies may affect the way in which Mäori-owned land is utilised. It is also expected that there may be issues about the manner in which Mäori are able to participate in the policies outlined in this paper. For example, the unique statutory land tenure system that governs Mäori land is one matter that may be relevant to the development of policy for emission units or credits or other matters included in Act II legislation. It is possible that some of these options will have consequences for Mäori that are not felt by other affected parties.

[8] A forest is defined internationally and potentially includes stands of manuka/kanuka scrub predominantly on Maori land.

Mäori ability to absorb any additional costs created (either directly or indirectly) through the policy mix selected to meet New Zealand's climate change obligations is another matter that may be relevant to the development of policy for Act II.

90 These issues will be the subject of the consultation process.

## Fiscal Implications

91 The ongoing policy work described in this paper can be met within existing baselines. The future implementation of policy and the options themselves will have fiscal implications that will be further elaborated at the time decisions on a preferred policy package are sought in March 2002. The fiscal implications of the option where the Government takes sole responsibility for acquisition of emission units on the international market are elaborated in the accompanying paper "Climate Change: Policy issues for "Act I" ratification legislation". The fiscal implications of consultation are considered in the accompanying Cabinet paper "Climate Change: Plan for Consultation and Release of Discussion Document".

## Legislative Implications

92 It is expected that the type of policy measures described in this paper will require new legislation. This was described in an earlier Cabinet paper on the process for ratification of the Kyoto Protocol as the second stage (Act II) legislation. Issues regarding this second stage legislation, including its likely timing, will be further elaborated at the time decisions on a preferred policy package are sought in March 2002.

### Recommendations

93 It is recommended that the Committee:

a) **note** that as part of the timeline for ratification of the Kyoto Protocol that Cabinet has previously agreed [CAB Min (01) 27/5A refers] there are two rounds of consultation on domestic policy, the first before Christmas on policy options and the second early next year on a preferred policy package, taking into account the outcomes of the first round;

### Scope of consultation and linkage to non-price measures

b) **note** that, because regulatory and non-price measures are primarily covered under different work streams such as the National Energy Efficiency and Conservation Strategy, market-based policy options will be the primary focus of upcoming consultation and policy development on climate change;

c) **note** that any decisions on market-based policy options will need to be considered alongside decisions on regulatory and non-price measures, and vice versa, when decisions are considered on the overall policy package;

### Use of Resource Management Act

d) **note** that controls or mechanisms under the Resource Management Act (RMA) are not seen by officials as cost-effective for the control of greenhouse gases because of the risk of inconsistencies and the time and cost of implementing and managing requirements set under them;

e) **agree** that the Government clearly signal that the RMA is not viewed as a vehicle for managing greenhouse gases for climate change reasons and that consultation will include

examining the options for providing guidance to local government on the appropriate use of the RMA;

**New Zealand's circumstances**

f) **note** that New Zealand's obligation under the Kyoto Protocol is to reduce its emissions to 1990 levels on average over the 2008-2012 commitment period or to take responsibility for any emissions over these levels;

g) **note** that given the projected growth in emissions and in the absence of technological breakthroughs or use of sink credits, it is likely that New Zealand will need to purchase emission units on the international market to meet its Kyoto commitments in a cost effective way;

**Objectives and dimensions for evaluating policy options**

h) **note** Cabinet's earlier decision that *policies be developed that aim to broadly establish comparable incentives to reduce emissions across different sectors* and that, in context of considering policy options, comparable incentives means that everyone faces at the margin a similar encouragement to reduce emissions or enhance sinks;

i) **note** that previous Cabinet decisions on aims and objectives for climate change policy suggest five dimensions for evaluating policy options: environmental integrity, economic efficiency, equity, competitiveness and feasibility;

j) **agree** that the five dimensions set out in recommendation 9 be incorporated into the policy options consultation document and guide future policy development;

**Key issues for consultation and policy options**

k) **agree** that the key policy issues for consultation include:

i) who will take responsibility for emissions under the Kyoto framework, including whether the Government should take on all or part of the responsibility for "abate or buy/abate and sell" decisions, or whether it should devolve all or some of this responsibility directly to private firms or sectoral bodies;

ii) the division of the emissions management task between sectors (or sub-sectors) - sometimes referred to as "broad sectoral allocation of responsibility" – particularly where the Government decides to take responsibility for some sectors and not others or chooses to set aside a reserve;

iii) the nature of competitiveness concerns in international and domestic markets arising from the potential application of market based policies, including how these concerns affect potential new investments in export sectors, and the further approaches that need to be considered for addressing these concerns while aiming to maintain broadly comparable incentives;

iv) the applicability and feasibility of the market based policy options in sectors;

v) the linkages between market-based policies and regulatory and non-price measures, as part of an overall package;

vi) whether the Government should introduce any market-based measures prior to 2008, such as a carbon charge or emissions trading, to add to non-price policies, and the costs and benefits of implementing incentives for abatement action prior to 2008;

l) **note** that officials will consult with the agriculture sector in particular on the long lead times required for research into abatement options and appropriate levels of investment in such research;

m) **agree** that the range of market-based policy options that will be consulted on, include:

i) government retaining full responsibility for emissions;
ii) charges on all emissions or activities leading to all emissions;
iii) emissions trading (where responsibility is devolved;
iv) levies on activities that are not directly related to (all) emissions;
v) project-based initiatives including project-based trading;
vi) hybrids of the above, or the above plus other programmes, e.g. negotiated greenhouse agreements (NGAs), levies for research;

n) **agree** that issues and options for sink credits and debits from land use and forestry also be consulted on, including allocation of sink credits, treatment of deforestation emissions and treatment of agricultural soils;

o) **agree** that a preliminary evaluation of the market-based policy options and key issues will be described in a consultation document; and

p) **note** that the accompanying paper titled "*Climate Change: Plan for Consultation and Release of Discussion Document*" seeks release of a discussion document as the basis for consultation.

Hon Pete Hodgson
Convenor, Ministerial Group on Climate Change

## ANNEX 1: Sectoral Application of Policy Options

| **Sectors and gases % of NZ emissions in 1999** | 1 Characteristics of sectors | 2 Potential applicability of market-based policy options |
|---|---|---|
| **Energy (oil, coal, gas and geothermal)….38%**<br>• carbon dioxide | • Primarily combustion of fossil fuel<br>• Diversity of emission sources – industrial point sources (e.g. fossil-based electricity generators, wood processing plants, dairy factories); commercial buildings; freight and passenger transport; individual houses and cars<br>• Some sources represent businesses that are important to the economy and are "competitiveness-at-risk"<br>• Diversity in the scale and growth of emissions – emissions from transport and electricity generation, for example, are both large in scale and continue to have high annual growth rates<br>• Measurements of emissions or "proxy" activities leading to emissions can be relatively certain (but "firm level" inventory systems need to be further developed) | **Options for the commitment period**<br>• Govt responsibility for the full sector plus a carbon charge with revenue recycling (potentially with an alternative programme of NGAs or with assistance for competitiveness at risk firms)<br>• Emissions trading (potentially with allocation or revenue recycling for competitiveness at risk firms)<br>• Projects – in addition to the above if applicable and compatible<br>**Options for the pre-commitment period (noting that just forward signalling of commitment period costs, as Cabinet has previously agreed, is also an option)**<br>• NGAs (alternative programme to a carbon charge)<br>• Low level carbon charge with revenue recycling<br>• Early (pilot) emissions trading<br>• Projects – in addition to the above if applicable and compatible |

| | | |
|---|---|---|
| **Agriculture….54%**<br><br>• methane<br><br>• nitrous oxide | • Emissions of ruminant methane from livestock and nitrous oxide from livestock waste deposition onto pastures – use of energy in this sector is covered in the above discussion.<br>• A key economic sector that is also "competitiveness-at-risk"<br>• In aggregate, emissions today estimated to be about at 1990 levels with decreases from sheep since 1990 offset by increases from dairy<br>• In aggregate, emissions likely to grow by 2008 (largely due to continued growth in dairying and improved animal performance)<br>• Technologies for reducing emissions still largely at the developmental stage<br>• Significant technical difficulties in measurement whether at farm (emitter) level or higher up the value chain (proxy activity level) – data still highly uncertain | **Options for the commitment period**<br><br>• Govt responsibility for the full sector plus levy/rebate<br>• Govt responsibility for part(s) of the sector plus levy/rebate. Other part(s) covered by an emissions trading system. Point(s) of obligation could be sector body or closer to the farm level.<br>• Emissions trading for the full sector. Point(s) of obligation could be sector body or closer to the farm level.<br>• Projects – in addition to the above if applicable and compatible<br><br>**Options for the pre-commitment period (noting that just forward signalling of commitment period costs, as Cabinet has previously agreed, is also an option)**<br><br>• Industry agreements (e.g. R&D)<br>• Early (pilot) emissions trading<br>• Projects – in addition to the above if applicable and compatible |

| | | |
|---|---|---|
| **Industrial Processes….4%**<br>• carbon dioxide<br>• perfluorocarbons<br>• hydrofluorocarbons<br>• sulphur hexafluoride | • Material transformations (e.g. cement, steel, aluminium, and petro-chemicals) and inert synthetic gases (electrical switchgear, refrigerants)<br>• Majority of emissions from a few large sources – these are generally "competitiveness-at-risk"<br>• Some major sources have reduced emissions since 1990<br>• Measurements for large sources can be relatively certain | **Options for the commitment period**<br>• Govt responsibility for the full sector plus a carbon charge with revenue recycling (potentially with an alternative programme of NGAs or with assistance for competitiveness at risk firms)<br>• Emissions trading (potentially with allocation or revenue recycling for competitiveness at risk firms)<br>• Projects – in addition to the above if applicable and compatible<br>**Options for the pre-commitment period (noting that just forward signalling of commitment period costs, as Cabinet has previously agreed, is also an option)**<br>• NGAs (alternative programme to a carbon charge)<br>• Low level carbon charge with revenue recycling<br>• Early (pilot) emissions trading<br>• Projects – in addition to the above if applicable and compatible |

| | | |
|---|---|---|
| **Waste….4%**<br>• Methane<br>• Nitrous oxide | • Primarily emissions of methane from landfills; also small amounts of methane and nitrous oxide emissions from wastewater treatment<br>• In aggregate, levels in 2008 expected to be lower than 1990 levels because of the installation of methane recovery systems at landfills | **Options for the commitment period**<br>• Govt responsibility plus levy/rebate<br>• Govt responsibility plus an emission charge with revenue recycling<br>• Emissions trading<br>• Projects – in addition to the above if applicable and compatible<br>**Options for the pre-commitment period (noting that just forward signalling of commitment period costs, as Cabinet has previously agreed, is also an option)**<br>• Industry agreements<br>• Early (pilot) emissions trading<br>• Projects – in addition to the above if applicable and compatible |
| **Land use and Forestry**<br>• Carbon dioxide<br>• Methane<br>• Nitrous oxide | • Emissions (i.e. sink debit) arising from forest clearance and conversion to non-forest land use.<br>• Emissions (i.e. sink debit) arising from harvesting of "Kyoto forests" (mainly a second commitment period issue).<br>• Removal of greenhouse gases (i.e. a sink credit) from forests planted sink 1990 ("Kyoto forests") and other eligible activities.<br>• Removal of greenhouse gases (i.e. a sink credit) from management of agricultural soils. | **Options for the commitment period**<br>• Govt responsibility plus an emission charge/rebate for some or all eligible emissions or removals<br>• Emissions trading obligations for some or all eligible emissions or removals<br>• Projects – in addition to the above if applicable and compatible |