Climate Change

The Government's Preferred Policy Package

A Discussion Document

April 2002

New Zealand Climate Change Project
Te Hōtaka Rerekētanga Āhuarangi ō Aotearoa

Contents

Part One

Introducing the preferred policy package (and the thinking behind it)

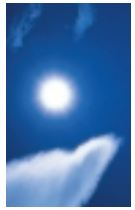
Consultation 2002: What is it about?

This is the second phase of the Climate Change Project's two-phase consultation process on New Zealand's response to climate change and the Kyoto Protocol. It is about what policies New Zealand will put in place to meet its international commitments to reduce greenhouse gas emissions.

The Government has made an in-principle decision to ratify the Kyoto Protocol. A final decision will be made in July. This means New Zealand will be able to ratify in August.

Before it does so, however, there are three actions to be completed:

- the Foreign Affairs, Defence and Trade Select Committee currently examining the National Interest Analysis (tabled in Parliament in mid-February) will report back to Parliament in mid-May. This Analysis looks at the economic, environmental and social implications of ratifying the Kyoto Protocol. It was informed by consultation feedback, as well as by research and policy work
- the Climate Change Response Bill, putting in place the constitutional arrangements to enable New Zealand to ratify, will be introduced into Parliament, also in mid-May
- final decisions on the policies needed to begin the process of meeting New Zealand's obligations under the Kyoto Protocol will be made in July 2002.



This consultation is about the third of the three actions. It presents the Government's **preferred** policy.

Something needs to be done

A clear message from contributors to the Phase 1 consultation was the recognition that something needed to be done about climate change. The issues that now arise are:

- what should be done?
- how should measures be applied to the New Zealand economy?
- over what timeframe?

The policy discussed in this document sets us on the path to answering all those questions. The graphic (Figure 1) on page 3 sets out the policy. The rest of the document explains how that policy was developed, and the rationale for the decisions behind it.

A word on timing

The climate change policy development process will continue for years to come.

The policy package presented in this document is designed to meet foreseeable needs – but it will be added to and adapted over time to meet changes in the international environment, and in the dynamics of the Kyoto Protocol.

New technologies, better understanding of climate processes, new energy sources, changing global political conditions – all of these and more will be taken into account as they arise.

The shape of some policies is clear already, while some will need to be decided later when there is better information available. In this way, climate change is no different to other areas of public policy such as health, law and order, education or a myriad of other areas in which the Government develops and evolves policy over time.

You can download a report on the results of the Phase 1 consultation, a copy of the National Interest Analysis, or further information about climate change or the policy package from www.climatechange.govt.nz

Policy definitions

A glossary of terms used in the preferred policy discussion appears at the back of this document.

Want to know more about…?

- global warming and climate change
- the effects of climate change
- the international response to climate change (UNFCCC and the Kyoto Protocol)
- greenhouse gases.

See Part Five: About climate change

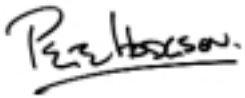
Our land, our climate, our people

There is a lot at stake in the business of climate change. Important economic, environmental, social and cultural impacts arise from the process of climate change and from New Zealand's commitment to the Kyoto Protocol. These need to be carefully factored into domestic policy development.

No other developed nation has such a heavy dependency on the land and therefore on the climate, as New Zealand. Our ability to use it productively and sustainably is amongst the best in the world. We often take our equable, reliable climate for granted. We do not have the challenges of extreme heat and cold of other countries; or the prolonged droughts that most other developed countries experience. What's more, the land and its climate forms an important part of our New Zealand identity; it helps make us who we are.

In effect, the essence of this country is our land, our climate and our people.

That makes climate change our responsibility.



Pete Hodgson

Convenor of the Ministerial Group on Climate Change

Overview of the preferred policy

There is a need to move forward on climate change. The Government has identified a mix of policy which is designed to position New Zealand for the first commitment period and beyond. Each component of the preferred policy package is discussed further in the document, as are the issues upon which we are looking for feedback.

Components of the preferred policy package

The mix of policies to manage the international and domestic challenges of responding to climate change differ in nature and timing depending on whether they are to be implemented prior to, or as part of, the first commitment period of the Kyoto Protocol.

Under the Government's preferred policy package, the policy instruments are applied in different combinations to the different groups within the economy.

Underlying all policies is the principle that everybody needs to do something to reduce New Zealand's greenhouse gas emissions.

These policies, and more of the rationale behind their application to each grouping, are explained more extensively in Part Two of the document.

The key points of the preferred policy package are:

- none of the new policies will be implemented for the first commitment period until the Kyoto Protocol comes into force
- building on the foundations of existing policies
- introduction of Projects
- introduction of Negotiated Greenhouse Agreements for Competitiveness-at-risk firms
- no price measures before 2007
- an emissions charge in the first commitment period will be capped at $25 per tonne of CO_2 equivalent
- the principle of revenue recycling is established
- retention of sink credits and their associated liabilities
- research for agriculture with exemption for the first commitment period for methane and nitrous oxide.

A fuller description of the policies is contained on pages 14-19. The policies have been developed as they apply to different groups within the economy. These groups are described on page 6.

Preferred policy at a glance

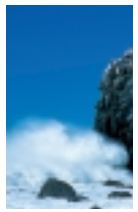
Figure 1 Policy Package Components

Pre-commitment period	First commitment period
	• Introduction of an emissions charge for CO_2 approximating the international price of emissions, but capped at $25 per tonne of CO_2 equivalent (except for Competitiveness-at-risk)
	• Retain option to introduce private sector emissions trading if conditions permit
	• Retain sink credit assets and liabilities
• Negotiated Greenhouse Agreements for Competitiveness-at-risk firms	• Negotiated Greenhouse Agreements for Competitiveness-at-risk firms
• Industry/Government funded research in the agriculture sector	• Industry/Government funded research in the agriculture sector
• Projects/funding to incentivise efficient emission reductions/sink creation	• Projects/funding to incentivise efficient emission reductions/sink creation
• Handling programme for HFCs	• Handling programme for HFCs
• For SF_6 – develop solution with industry	• For SF_6 – develop solution with industry

2002 → 2008 → 2012

Foundations

- Growth and Innovation Framework
- Public awareness
- National Energy Efficiency and Conservation Strategy
- New Zealand Transport Strategy
- Local Government
- Business Opportunities
- New Zealand Waste Strategy
- Research
- Adaptation
- Resource Management Act guidance



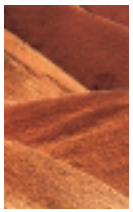
The context for the policy discussion

In this section we address issues dealing with:

1. Policy goal and principles.
2. External and internal factors influencing decisions.
3. Key issues for implementation.
4. The nature of the domestic economy.

The area of climate change is uncertain. We know the world has a problem. But it is unclear exactly what will happen with the climate, to whom, and over what time frame.

The Phase 1 consultation identified some important concerns about the approach the Government needed to take to meet its obligations under the Kyoto Protocol. These can be summarised as:



- ensuring that the competitiveness of New Zealand businesses is not impaired
- making a careful transition that does not place undue strain on the economy or on individual businesses
- being aware of what other nations are doing
- being fair – across sectors, businesses, and society; making sure that all organisations and people play their part, but that neither the economy as a whole, nor its constituent parts, bear undue cost.

The Government has listened to these concerns and used them to inform the development of its preferred policy.

The Government has also taken careful note of concerns expressed by Māori during the course of consultation.

Step 1: Policy goal and principles

The Government used the feedback from consultation to formulate a key goal and fundamental principles that were to be applied to policy development (see box).

Goal and key principles of climate change policy

The Government's goal is that New Zealand should have made significant greenhouse gas reductions on business as usual and be set towards a permanent downward path for total gross emissions by 2012.

The Government has also endorsed four principles that must be met by policies introduced to meet this goal:

1. **They must result in permanent reductions in worldwide emissions over the long term.** Because the Kyoto Protocol is predicated on stabilising concentrations of greenhouse gases in the atmosphere, future commitment periods will be likely to involve deeper targets. Prudent economic risk management suggests that, although we are in an advantageous position in the first commitment period because of sink credits, we must start creating incentives for reducing emissions below 1990 levels in subsequent commitment periods.
2. **They need to be responsive to the changing international context.** This means that policies must recognise uncertainties about the future, including changes in our emissions profile, in technology and in the international environment.
3. **They need to be consistent with a growing and sustainable economy**. This means that the importance of the competitiveness of our industries (including new entrants) must be reflected in policies. Achieving this means not imposing the full cost of emissions on New Zealand industries that are considered 'Competitiveness-at-risk' and ensuring that economic opportunities in climate change are promoted.
4. **They need to be designed not to disadvantage the vulnerable in our society.** Particularly to ensure that lower socio-economic groups should not bear the burden of change.

Step 2: External and internal factors influencing domestic policy development

Having agreed the underlying principles, the Government's next step was to examine issues arising out of the international environment in which the Kyoto Protocol would take effect.

First and foremost, the Government needed to consider the nature of the Kyoto Protocol itself. Ideally, all nations would be joining the Protocol and working together to slow down climate change. But the world is not ideal and, as it currently stands, the Kyoto Protocol represents only the first stage of an evolving process.

It is uncertain at this time when or if the Protocol will enter into force. With the rejection of the Protocol by the United States, entry into force hinges essentially on ratification by the countries of the European Union (EU), those eastern European countries seeking to join the EU, Japan and the Russian Federation. The EU will definitely ratify. The position of other countries, particularly the Russian Federation, is less clear.

A second key uncertainty is under what circumstances an international price will emerge that reliably signals market expectations of the near and longer term cost of carbon. At this time, an EU emissions market, beginning about 2005 and based around the proposed EU emissions trading system, is the market that could provide such a price signal. Other countries may connect with this system, or other markets may evolve and then progressively amalgamate as the first commitment period approaches.

All these factors have led the Government to recognise some realities in making policy decisions. These are:

Uncertainty

Policy design is taking place in a dynamic international and domestic environment. We do not have perfect information – nor will we. It is therefore important to take a long-term view and not focus exclusively on the first commitment period.

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 recognising 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 it will become more certain as the first commitment period gets closer and a market in emissions units develops.

Flexibility

The Protocol does not impose restrictions on our domestic policy. We have the ability to implement and phase in policy at any time according to our own preferences and risk profile. In addition, New Zealand is in credit because it is likely to have more forest sink[1] credits than 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. Everybody has to do something. A key principle underlying policy development is that, by the first commitment period, all sectors of the economy will, in one way or another, contribute to reducing New Zealand's greenhouse gas emissions.

Step 3: Key issues for implementation

The third step, after defining the goals, principles and factors influencing policy development, was to clarify issues around policy implementation; in particular, those around domestic price instruments (because, as noted above, a price for carbon is pivotal to the Protocol).

The key issues surrounding the implementation of price instruments have been defined as:

- the extent to which policy should incentivise and signal, in the pre-commitment period, the need for longer term adjustments
- the manner and extent to which the economy should be exposed to the world emissions price during the first commitment period, and the timing of the introduction of corresponding price instruments
- how measures would be applied to different parts of the New Zealand economy
- the extent to which the Government would retain sink credits and associated liabilities, or devolve them to private ownership.

1 Sinks are any natural or man-made systems that absorb and store greenhouse gases, mainly carbon dioxide (CO_2). A forest sink is a growing or expanding forest. Sinks are beneficial because CO_2 is removed from the atmosphere, where it would otherwise contribute to global warming.

Since phase one consultation, participants have accepted that there are a number of domestic policies already in existence that can, and should, go some way to help New Zealand meet its international obligations to reduce greenhouse gas emissions. We have a good base on which to build. In this document, these existing policies and strategies have been called foundation policies. They are outlined fully on pages 8-12.

However, it is also recognised that such policies – even at their most effective – will not on their own meet New Zealand's obligations. New policies are also necessary.

Step 4: The nature of the domestic economy

The New Zealand economy has specific characteristics. The development of the preferred policy package had to reflect and respond to those characteristics.

Therefore, for the purposes of climate change policy, the New Zealand economy has been separated into four distinct groups. They are categorised according to issues associated with:

- competitiveness
- ability to address and respond to a price
- specific characteristics of the sector
- the potential impact of revenue recycling.

1. Competitiveness-at-risk Group

This group comprises sectors of the economy and particular industries that would find adjustment difficult if they were expected to face a cost on emissions in the first commitment period. For these firms, it may be a choice of closing, changing location to a country with no controls on emissions (carbon leakage), or reducing staff or production in the short-term to compensate for the increased costs.

2. General Energy Users Group

This group reflects businesses, organisations, institutions and households for which energy (electricity, gas, coal or transport fuels) is a cost, but may not be a major cost in their operations. As a group, it represents about one quarter of New Zealand's greenhouse gas emissions but about two-thirds of its CO_2 emissions. Most New Zealanders are in this group. For the purposes of this policy discussion they are deemed to be "not-at-risk".

3. On-farm Agriculture

Agriculture is a major contributor to the New Zealand economy, and also contributes 55 percent of New Zealand's greenhouse gas profile through the emissions of methane and nitrous oxide. While agriculture meets the criteria for being in the Competitiveness-at-risk group, there are other factors that make it different, including:

- farmers currently have no clear way of reducing methane and nitrous oxide other than through reducing stock numbers
- measuring and monitoring methane and nitrous oxide greenhouse gas emissions from on-farm agriculture is technically very difficult.

4. 'Others' Group

These are sectors where factors such as a lack of cost-effective abatement options (synthetic gases[2] sector) and/or emission measurement difficulties (the waste sector) affect their ability to cope with a cost on emissions in the short term.

Feedback

Part Three of this document is the Feedback section. It outlines the questions and issues the Government will be using as a basis for discussion in its second round of public consultation on climate change policies.

These questions will guide discussion in consultation meetings held around the country.

They also form the basis for any written feedback New Zealanders might want to engage in, in response to the Government's preferred policy package.

In addition, each of the six working papers in Part Four of the document contains a list of sector-specific issues for discussion and feedback at consultation meetings.

The closing date for any written feedback is 14 June 2002.

2 Synthetic gases are HFCs, PFCs and SF_6. See glossary for more information.

Part Two

Policies and rationale

Introduction

In this section, we address issues dealing with:

- achieving New Zealand's Kyoto Protocol target
- the shape of the Government's preferred policy package, including:
  - foundation policies
  - new policies.

The challenge: achieving New Zealand's target

Under the Kyoto Protocol New Zealand has to reduce its emissions to 1990 levels or take responsibility for any excess emissions. New Zealand's assigned amount is 365 million tonnes of CO_2 equivalent for the first commitment period.

New Zealand's current emissions profile, illustrated in Table 1 overleaf, shows that under the Kyoto Protocol, emissions will be in excess of New Zealand's assigned amount of emissions units by an estimated 75 million tonnes of CO_2 equivalent in the first commitment period.

Existing policies, in place or about to be implemented, are expected to achieve savings of an estimated 25 million tonnes of CO_2 equivalent – about a third of the projected excess (see pages 8-12 'Foundation policies: what we're doing anyway' for more details).

As the table shows, this leaves an estimated shortfall of 50 million tonnes for which New Zealand will have to take responsibility.

There are several ways for New Zealand to cover the shortfall. These include:

- putting in place more policies to reduce emissions
- using sink credits to cover emissions
- putting in place policies to pay for the purchase of more emissions units.

Although there is an estimated shortfall of 50 million tonnes for which New Zealand will have to take responsibility, our sink credits exceed that figure. New Zealand will be a net seller in the first commitment period.

Table 1: Estimated impact of existing policy on greenhouse gas emissions in the first commitment period

	Estimated Mt CO_2 equivalent for 2008-2012
Projected emissions, business as usual	440
Assigned amount for 1990 emission levels	365
Net amount of excess emissions to be covered under business as usual in the first commitment period	-75
Existing policies	
• National Energy Efficiency and Conservation Strategy[3]	20
• The New Zealand Waste Strategy	5
• Research	not quantified
Estimated amount to be covered after existing policies	-50
Sinks Credits Generated	105
Estimated net positive position	55

3 Including elements of the anticipated New Zealand Transport Strategy.

The shape of the Government's preferred policy package

This section is divided into two parts:

- the **foundation policies** and their role in assisting New Zealand to meet its greenhouse gas emissions targets are covered on pages 8-12
- the **new policies** and the detailed thinking behind them are covered on pages 12-19.

Part 1: Foundation policies - what we're doing anyway

Innovation and business opportunities

The Government's Growth and Innovation Framework is designed to focus the Government and New Zealand business on an innovative, knowledge-driven approach to business development. This approach is critical for preparing New Zealand businesses to operate in a global market where greenhouse gas emissions have a cost and where world markets will increasingly demand new solutions, innovation and technologies to address emissions. This will create significant business opportunities. The Kyoto Protocol will also create a competitive advantage for those industries that have 'climate friendly' processes (building on New Zealand's brand of 'clean and green').

The New Zealand Business Council for Sustainable Development, in conjunction with the Ministry of Economic Development, is exploring business opportunities arising from climate change in two broad categories. The first is from the perspective of reducing emissions to reduce existing costs and to create other business value (for example, on-selling new technologies, marketing products and services as climate friendly, and enhancing product design). The second is around business opportunities resulting from changing domestic and international demand, and involves identifying, quantifying and communicating opportunities.

This project will be reporting back to the Government about the identified opportunities, and will be developing a set of practical tools and guidance to business on measuring and reducing greenhouse gases in a way that maximises the business benefit.

National Energy Efficiency and Conservation Strategy

Last year, the Government released the National Energy Efficiency and Conservation Strategy (NEECS). The Ministry for the Environment and the Energy Efficiency and Conservation Authority (EECA) estimate that, if all programmes were adequately funded, NEECS could contribute an emissions reduction totalling 20 million tonnes in the commitment period 2008 to 2012.

The NEECS has two high level targets – one relating to **energy efficiency** and the other to the level of energy supply from **renewable energy sources.**

The energy efficiency target is at least a 20 percent improvement in economy-wide energy efficiency by 2012. The strategy contains several programmes to achieve this target and, if implemented, could contribute emissions reductions of about 15 million tonnes in the commitment period. Achieving these reductions relies on additional funding for implementing the programmes.

The NEECS consists of a number of policy measures that address barriers and meet specified sector needs. For instance, in a relatively mature market, active information may be the main need. In a less developed market, a comprehensive market transformation process might be needed, involving education and training, institutional changes, research and development, trials, standards and incentives.

The NEECS policies include:

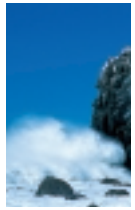
- developing educational resources and approaches to improve the understanding of energy issues and solutions by New Zealanders
- providing energy users and decision makers with timely and relevant information
- ensuring that energy industry personnel have the necessary skills and training to support sustainable energy outcomes
- developing and implementing appropriate financial assistance mechanisms
- developing and strengthening voluntary institutional commitments to energy savings and use of renewable energy sources
- incorporating sustainable energy principles and outcomes into policies and plans at a central and local government level
- developing and implementing energy performance standards on energy equipment and infrastructure.

The renewable energy target is currently expressed in the NEECS as a range of 25-55 more petajoules by 2012 compared to 2000 levels. The Government has just released its preferred target for renewable energy - an additional 30 petajoules by 2012 over 2000 levels. The preferred mechanisms to achieve this are an expanded renewables programme under the NEECS, and a Projects mechanism to bring near-commercial renewable energy projects to the market.

The operation of a fund that includes a renewables projects allocation will significantly influence investment in renewable energy activities. This will therefore increase the number of renewable energy installations that appear in New Zealand, with resulting CO_2 and other benefits.

The proposed renewable energy policy will achieve:

- further net CO_2 emissions reductions of five million tonnes over the 2008-12 period, principally from greater use of biomass as an energy source and renewable electricity generation
- improved management of the risks to the economy if emissions units prices turn out to be higher than generally expected
- economic benefits from business development and green branding of New Zealand products.



The Government is consulting on the renewable energy target and mechanisms in parallel with consultation on climate change. Copies of the renewable energy consultation document may be obtained from EECA at www.eeca.govt.nz or by emailing renewablefeedback@eeca.govt.nz

New Zealand Transport Strategy

The Government has recently released a package of land transport funding and policy measures, *Moving Forward.* These measures sit within the wider context of a New Zealand Transport Strategy (NZTS). Much of this policy is still in development.

The vision of the NZTS is that *'by 2010, New Zealand will have an affordable, integrated, safe, responsive and sustainable transport system'*. One of its aims is to ensure environmental sustainability.

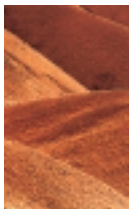
While roading will remain a key area of land transport funding, the Government has now widened the focus to put greater emphasis on alternatives to roading such as public transport, rail and the needs of pedestrians and cyclists, as well as road safety and

regional development. These policies will encourage usage of more energy efficient modes of transport and contribute to reducing greenhouse gas emissions from the transport sector.

New Zealand Waste Strategy

Current trends in waste management and the New Zealand Waste Strategy should make a major impact on the level of methane emissions from waste (four percent of New Zealand's overall emissions). Provided that central and local authorities take adequate action to ensure that waste reduction targets are met, these efforts could reduce excess emissions by five million tonnes during the commitment period.

See also the discussion of the preferred policy for the waste sector under new policies (pages 18).



Research

Research into understanding the underlying science of climate change, its impacts and adaptation options, and opportunities to reduce greenhouse gas emissions, including the commercialisation of the associated intellectual property, will form an important part of the Government's response to climate change. New Zealand currently invests around $23.5 million per annum in research relevant to climate change, of which $18.1 million is provided through the Foundation for Research, Science and Technology (FRST).

However, the Government recognises that there is not yet enough focus on solutions to reduce greenhouse gas emissions. The Government increased its funding by $1 million dollars this year for research into reducing ruminant methane emissions, bringing the total government spending on methane research to around $3 million per year. The Minister for Research, Science and Technology has also requested FRST to reprioritise $1 million of climate change research over the next three years to energy efficiency research and the reduction of greenhouse gas emissions from transport.

Nonetheless, a much larger research effort will need to be established through active participation and funding from the private sector, if New Zealand is to make full use of the existing opportunities in the area of energy efficiency and conservation, farm management, waste reduction, innovative urban and transport design, and power generation from renewable energy resources. Many of these opportunities would lead to other concrete benefits in the form of increased process efficiency, food conversion efficiency and the ability to export new products and intellectual property to other countries, as well as reductions in greenhouse gas emissions.

Public awareness

A key element of the climate change preferred policy package is the development and implementation of a public awareness programme on climate change. Building public awareness of global warming, the resulting climate change and the role of greenhouse gases will be a necessary first step towards building a broader, long-term programme of public education. Ultimately, the aim is to guide and assist New Zealanders to take actions to reduce their greenhouse gas emissions.

The public awareness programme will comprise advertising, promotion, community education and partnership programmes to build awareness and skills with other key climate change "messengers" – in particular local government organisations, educators and business groups. It will also co-ordinate programmes with public initiatives being undertaken by other government agencies which might have related benefits in the climate change area. Such programmes include the National Energy Efficiency and Conservation Strategy, the New Zealand Waste Strategy, and the New Zealand Transport Strategy.

The initial focus will be on raising public awareness and will change over time to educating and informing New Zealanders as to the actions they can take to reduce greenhouse gas emissions and make a difference.

Adaptation

Despite beginning global efforts to reduce greenhouse gas emissions, some degree of climate change will inevitably occur during the 21st century. Even at the lower end of plausible future emissions, the rate of warming over the next 100 years will very likely exceed any natural climate variability over the past several thousand years.

New Zealand needs to understand and adapt to the likely changes global warming will bring to our economy, environment and society. Management decisions made today can affect our ability to cope with future climate variability as well as long-term change. For example, housing and infrastructure put in place today have to be adequate for the risks posed by the potential increase in flooding, sea-level rise, erosion, and increased risk of drought in some areas. Similarly, agricultural production systems benefit from anticipating changes in growing conditions, but also from better understanding the way overseas markets are likely to respond to climatic events. The overarching objective of adaptation policies is to minimise damages and maximise opportunities by anticipating future changes, and by developing response options before the changes happen.

The Government is working on a partnership programme with local government to develop efficient ways of assessing the likely impacts and planning for future climate change. Research is also continuing to provide better regional climate change scenarios and estimate their environmental, economic and social impacts. Adaptation is a necessary component of a climate change response strategy, recognising that such strategies come at a cost and cannot avoid all damages from climate change. Adaptation therefore complements mitigation, which seeks to reduce greenhouse gas emissions under the Kyoto Protocol and thus to limit climate change itself.

The Cabinet Paper discussing adaptation to future impacts of climate change as a foundation policy in the Government's preferred policy package will be available on www.climatechange.govt.nz

Local government

Local government has a potentially significant role to play in New Zealand's climate change response, because of its size, its community governance role, its regulatory powers, its ownership of local infrastructure and the broad range of activities it undertakes in diverse local environments. In particular, local governments:

- undertake urban planning
- regulate activities with environmental effects
- manage local roads and fund passenger transport services
- manage waste
- administer building regulations
- facilitate economic development
- manage natural hazards.

Some local authorities are pursuing activities that will generate climate change co-benefits, for which they are seeking support and direction from central government. The Government recognises that it will be important to provide programmes to encourage local governments to engage in climate change and take a positive role in New Zealand's response.

The Government wishes to further pursue the development of a formalised partnership on climate change with local governments. This would involve developing and implementing a New Zealand version of the international Cities for Climate Protection model in partnership with the Energy Efficiency and Conservation Authority and Local Government New Zealand. Over an initial three-year period, such a partnership programme would assist local governments to produce local inventories, targets, action plans and monitoring programmes, and achieve further reductions of local greenhouse gas emissions. The proposed initiative would build on existing energy efficiency partnership programmes operated by EECA, and would also provide a vehicle to encourage and facilitate local government to implement the relevant parts of the National Energy Efficiency and Conservation Strategy, the New Zealand Waste Strategy and the New Zealand Transport Strategy.

The Cabinet Paper discussing the role of Local Government as a foundation policy in the Government's preferred policy package will be available on: www.climatechange.govt.nz

Resource Management Act

There have been many requests for a clarification of the role of the Resource Management Act (RMA) in mitigating greenhouse gas emissions at a local level. Currently, councils impose requirements on resource consent applicants (outside of monitoring requirements) in an ad hoc manner. There is potential for regionally inconsistent treatment of emitters through the possible use of the RMA in managing emissions. There is also a possibility of addressing emissions twice – once national climate change instruments are implemented and through the RMA.

The Government wishes to clarify the policy and legal situation by signalling that it intends to amend the RMA. The Government is seeking feedback on the timing and nature of amendments. The RMA could be amended once the Kyoto Protocol is in force.

The Government seeks feedback on whether it should develop interim national guidelines to assist local government to control greenhouse gas emissions. These guidelines would be available to councils until the amendments to the RMA are complete.

The actual content and nature of any amendment to the RMA is being analysed by Government officials and RMA legal experts, and is also part of this consultation. The Government is interested in feedback from the public.

The Government also has a work programme on urban form, which includes consideration of RMA issues, and a work programme aimed at ensuring that energy efficiency and renewables are effectively addressed in RMA processes and documents. Consultation feedback would be valuable in both those areas.

As referenced above, the Cabinet Paper which discusses the role of the Resource Management Act and Local Government as foundation policies within the Government's preferred policy package on climate change, will be available on www.climatechange.govt.nz

Part 2: New policies – what we're introducing for Kyoto and how we chose them

As noted above, new policies are required to begin the task of positioning the New Zealand economy towards a permanent downward path for greenhouse gas emissions. New policies for the first commitment period will come into effect only when, and if, the Kyoto Protocol comes into force.

In deciding what new policies would achieve the Government's goal and be true to the guiding principles for policy development, the Government recognised the need for a balance to be maintained between the requirement for emissions reductions, and the need to ensure that both the economy and society could move towards a lower emissions future at a pace that allowed time to adjust.

As outlined in Part One, there were four key issues around policy implementation that needed to be addressed, before the specifics of the preferred policy could be decided.

These were:

Issue 1: The contribution and adequacy of the foundation policies

It is anticipated that, once existing policies are fully funded, they will result in approximately one third of the emissions reductions required for New Zealand to meet its targets. New foundation policies, such as public awareness, will also contribute to these reductions.

There will therefore be no need for a price measure before 2007. New policy mechanisms such as Projects and Negotiated Greenhouse Agreements can be used to provide further early incentives to make reductions.

Issue 2: Different treatment for different parts of the economy

If the policy package treated every New Zealander and New Zealand enterprise in the same way, some would have to bear more of the impact than others. For example:

- farmers face a range of problems not faced by other businesses: they are competing with off-shore farmers in countries with different or no Kyoto obligations, they may not have the ability to measure their emissions (the technology does not yet exist) and they may not be able to reduce emissions without reducing production even if they could measure emissions (again, because appropriate technology does not yet exist).
- an industry whose offshore competitors do not face emissions costs might be unable to compete if required to pay the full or a significant part of the cost of emissions. It may therefore choose to slow down or close production, lay off staff, or move its plant offshore. As a consequence, New Zealand loses the business (with the associated economic and social costs), and there is no benefit to the environment because the emissions continue to take place elsewhere.

In essence these factors all come down to issues of competitiveness and the ability to adapt and respond.

The preferred policy package responds to this by identifying four groups in the economy, designing a policy package that meets the specific needs of each group, and providing specific incentives to change behaviour.

The four economic groups are called:

- Competitiveness-at-risk
- General Energy Users
- On-farm Agriculture
- Other (including the Waste and Synthetic Gases sector)

The groups are defined and characterised on page 6.
The policies are defined for each group on pages 15-19.

Issue 3: The timing and nature of a price on emissions

The Government does not intend to introduce a price on emissions before 2007. In its agreed policy principles, the Government indicated that New Zealand emitters will progressively be exposed to a price for emissions as knowledge and certainty increase

and as the Protocol becomes more global in reach. However, the principles also commit the Government to ensuring that the transition to a price should be handled in such a way that:

- emitters have time to adapt
- the economy is not negatively affected
- the socio-economically vulnerable are not disadvantaged.

Analysis shows that exposing most firms in the General Energy Users group to a price will not have a large impact, particularly if there is revenue recycling – refer Table 2 below.

If the percentage figures shown in Table 2 are translated into cost increases for a household with typical energy demands, and using only petrol and electricity, the weekly increases would be about $2 at a price of $10 per tonne of CO_2 equivalent and about $5 at a price of $25 per tonne of CO_2 equivalent[4].

Table 2: Estimated price increases resulting from emissions prices

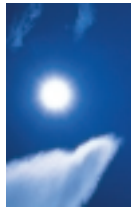
	NZ$10/t CO_2 equivalent		**NZ$25/t CO_2 equivalent**	
	Residential	Industrial	Residential	Industrial
Petrol	3c/l (3%)	na	6c/l (6%)	na
Diesel	3c/l (5%)	na	7c/l (12%)	na
Electricity	4%	6%	9%	16%
Gas	3%	9%	8%	24%
Coal	8%	17%	19%	44%

4 These figures assume 30 litres of petrol used per week and about 160 kilowatt-hours of electricity per week, which is considered an average household consumption.

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 of CO_2 equivalent, 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 General Energy Users sector, particularly with targeted revenue recycling.

Significant international uncertainty still exists. 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.

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 NZ$10-30 per tonne of CO_2 equivalent. 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.



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.

On issues of timing, the Government has decided:

1. The General Energy Users group will face in the first commitment period an emissions charge approximating the international price of carbon, capped at NZ$25 per tonne of CO_2 equivalent.

2. There will be no charge on emissions of non-CO_2 gases during the first commitment period.
3. There will be no price measure before 2007.

Issue 4: The use of carbon sinks

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.

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.

Preferred policy 2008-2012 for sinks

The preferred policy is that the Government retains sink credits and their associated (capped) liabilities, at least in the first commitment period. This will support equity between pre- and post-1990 forest owners, lower transaction costs, maximise the value of the credits, and minimise the impact of deforestation liabilities on harvesting decisions and on the flexibility of land use.

The Government could use sink credits to:

- shield some sectors of the economy, for example Competitiveness-at-risk industries, new entrants, or agriculture, from liability for excess emissions
- swap these with emissions units and save for future commitment periods, or against the possibility of a biosecurity event or other major incident
- cover deforestation liabilities (capped nationally at five percent of the area of forest expected to be harvested over the first commitment period)
- sell, and use the revenue to:
  - recycle back into the economy
  - fund Projects and programmes for emissions reductions
  - provide incentives for forestry planting or indigenous forestry regeneration.

Preferred policies for each group in the economy

Pre-commitment period policy

The foundation policies, provided they are fully funded during the pre-commitment period, will position New Zealand well for meeting its first commitment period targets. There is therefore no need to introduce any price measures before 2007.

In addition to the foundation policies, new policies proposed are:

- Projects to be widely implemented across the economy, perhaps including sink incentivisation projects
- NGAs for businesses in the Competitiveness-at-risk group
- increased research in the agricultural sector
- voluntary handling standards for HFCs
- industry solutions for SF_6 with industry.

These measures will provide targeted support to businesses to move towards emissions reduction, and assist in introducing new emission-efficient technologies. They will also allow Government to encourage specific long-term investment decisions that may not otherwise have occurred. These measures may have significant funding implications.

Further details on NGAs, increased research in the agricultural sector and voluntary handling standards for HFCs can be found in the commitment period policy section beginning on this page and also in the working papers.

Projects: A key new policy for all groups

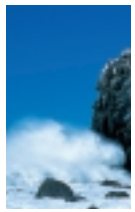
A Project is a specific activity aimed at delivering defined reductions in greenhouse gas emissions, in return for an incentive from the Government. The incentive involves the provision of funds or allocation of emissions units, which are of value to the firm directly if it has an obligation under emissions trading, or the units can be sold.

Reductions might come from the use of new technologies and practices, including energy efficiency and renewable energy, or the enhancement of sinks.

Projects are an important policy instrument where an efficient emissions price is either absent or muted. This is because the Project incentive creates a reward for emissions reduction; that is, provides an incentive to abate. In the pre-2008 context, use of Projects seeks to reduce emissions below business as usual levels as a means of managing New Zealand's future obligations under the Protocol. For 2008-2012, the focus of the use of Projects moves to managing emissions in sectors not directly facing an emissions price.

Projects can be used as a direct means of changing emission trends, in that the Government is effectively purchasing emissions reductions. They can also provide learning by doing in emissions abatement and international emissions trading. Projects can involve potentially high transaction costs. Ensuring that the actions rewarded are additional (that is, would not have proceeded anyway) is technically challenging. Both of these matters will be key design issues.

Significant development work is required to make a Projects framework operational, although international examples can be drawn upon. A contestable approach to securing support is favoured, and any climate change Projects framework will be closely linked to the NEECS renewable energy Project programme.



Commitment period policy

1. For the Competitiveness-at-risk group

Who is the Competitiveness-at-risk group?
See the description on page 6.

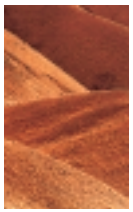
Factors in deciding our preferred policy:
The key question was whether emitters in the Competitiveness-at-risk group should be treated differently from each other and from the other groups in the economy.

We decided that, because Competitiveness-at-risk firms would have difficulty adjusting quickly to a direct price on emissions, some form of sheltering was required.

The main options considered for both the commitment period and the pre-commitment period for this group included:

- **Full or partial exemptions from the emissions price/emissions charge:** *Full exemptions* directly shelter firms from the cost effects of the price instrument, but generally provide weak incentives to reduce emissions. In addition, the Government, as bearer of the ultimate Kyoto liability, risks ending up with an increased liability if emissions continue to grow. *Partial exemptions* may provide a stronger incentive for emissions abatement; however, businesses would still need to pay something, and may find this hard.

- **Gratis allocation of emissions units (grandparenting) in an emissions trading environment:** allocating emissions units gratis directly shelters firms from the cost effects of the price on emissions units. However, there is a danger that firms may be overcompensated for competitiveness effects or that firms would simply sell the emissions units and move offshore anyway.
- **Negotiated Greenhouse Agreements** (NGAs): these can include both exemptions and gratis allocation (with measures to counter their negative effects), because they can be tailored to the individual circumstances of a Competitiveness-at-risk business. They therefore offer the greatest flexibility.



Preferred policy 2008-2012 for the Competitiveness-at-risk group

The Government proposes to use Negotiated Greenhouse Agreements as the primary policy approach for the Competitiveness-at-risk group. The criteria for businesses or industries who will be eligible for consideration of an NGA and the Government's intention for what might be delivered by an NGA, are discussed in the Working Paper on pages 30-33. Businesses in the Competitiveness-at-risk group could also benefit by entering into Projects, as discussed above.

2. For the General Energy Users group

Who is the General Energy Users group?
See the description on page 6.

Factors in deciding our preferred policy:
The preferred policy for this group was influenced by a number of factors:

- the primary sources of CO_2 emissions are domestic transport, direct energy use by industry, and electricity generation; these sources are emitting 30 percent more greenhouse gases than they were in 1990
- often, the infrastructure for sources in this group lasts a long time after the initial investment is made; this means that the current infrastructure will influence future emission levels and hence the cost of emissions for some time
- it is relatively easy to work out the level of emissions from this group
- businesses and individuals have many options for reducing their emission levels in an efficient and cost-effective way
- businesses in this group can pass on costs to the consumer, so policy changes are wide reaching – across the whole economy and society.

Businesses and individuals could reduce emissions by improving energy efficiency, switching to less-polluting fuels and/or reducing demand. Policies need to create incentives for reducing emissions efficiently, so as to reduce the cost to New Zealand of paying for excess emissions in the commitment period. These incentives need to be developed to have minimum negative impacts and maximum positive impacts on the economy and society as a whole.

While the outline of preferred policy below looks mainly at the new policy instruments, other measures, in particular the National Energy Efficiency and Conservation Strategy and the New Zealand Transport Strategy, will also act to reduce greenhouse gas emissions by the General Energy Users group.

Preferred policy 2008-2012 for the General Energy Users group

The Government proposes that, in the first commitment period, the General Energy Users group will be subject to a price on emissions with revenue raised used to fund emissions-reducing policies and/or be redistributed back through the economy, for example through the tax system.

Price measures will be aimed at shifting relative prices of goods and services and reducing emissions, not at improving the Government's fiscal position.

Specifically, this group will face an emissions charge approximating the international price of carbon, capped at NZ$25 per tonne of CO_2 equivalent, but retaining the option of the Government introducing emissions trading if the international market is 'functional'[5] and if the world price of carbon is reliably below NZ$25 per tonne of CO_2 equivalent. In practice, the issue of a reliable price will depend on the availability of future trading and other financial derivatives.

5 See glossary for a definition of a functional market.

3. For On-farm Agriculture

Who is On-farm Agriculture?
See the description on page 6.

Factors in deciding our preferred policy:
Three options were considered:

- **An emissions charge on all emissions:** economic modelling indicates that a carbon tax on all emissions in the agriculture sector would have significant negative effects. Unlike other sectors, at this stage there are no practical opportunities to abate methane and nitrous oxide emissions other than reducing stock levels.
- **A mandatory levy** to cover emissions from the sector in excess of its 1990 levels during the commitment period. If emissions reduce below 1990 levels, then rebates could also be available to the sector. The agricultural sector may be up to 25 million tonnes of 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 per 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.
- **Research** aimed at finding technical solutions for reducing agricultural greenhouse gas emissions, funded by either:

Preferred policy 2008-2012 for the On-farm Agriculture sector

The Government proposes to exempt the on-farm agriculture sector from a price on non-CO_2 emissions during the first commitment period, at least. A sustained research effort is needed to find out how the agriculture sector can reduce emissions. Much of the funding and management of this research should come from the sector. If the sector is unwilling to work with the Government to invest in research, then the Government will impose a research levy.

For further discussion of this preferred policy, see Part Four, Working Paper: The Agricultural Sector, on pages 43-46.

- 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 research levy applied prior to and during the first commitment period.

4. For the sectors in the 'Others' group

Waste

Who is the waste sector?

Waste contributes about four percent of 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 percent lower than 1990 levels in the first commitment period, particularly if the New Zealand Waste Strategy is effectively implemented.

Although the waste sector is not at-risk, it should be treated differently from emitters from the General Energy Users group because:

- the ability of different facilities across the country to monitor and manage greenhouse emissions varies considerably
- there are hundreds of closed landfills still emitting methane and carbon dioxide.

Factors in deciding our preferred policy for the waste sector:

We considered a range of options for the waste sector, including:

- relying fully on the Waste Strategy
- applying a low emissions charge
- requiring the sector to pay for all emissions through an auctioned emissions trading regime or a full-price emissions charge.

> **Preferred policy 2008-2012 for the waste sector**
>
> In the pre-commitment period, the Government proposes to rely on the Waste Strategy to create the incentives needed to reduce emissions and to reduce the variability across the country's waste facilities. A review of the success of the Waste Strategy will be undertaken in 2005. The climate change policy for the waste sector in the commitment period will be reviewed at the same time.

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

Synthetic gases

Who is the synthetic gases sector?

There are three synthetic greenhouse gases in New Zealand: HFCs, SF6 and PFCs[6]. All are present in reasonably minor amounts, but use is increasing, mainly because they are being substituted for ozone depleting substances:

- 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 switchgear and also has minor uses in the production of magnesium, some medical uses and use as a trace gas in some scientific studies
- PFCs are emitted mostly in aluminium production, and a small amount is also imported for use in the refrigeration industry.

Factors in deciding our preferred policy:

HFCs

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 products also tend to be high value with the gases making up only a small proportion of the cost of production. This means that there may not be a strong incentive effect from a price measure applied at the time of purchase to minimise leakage and recover the gas (unless the price was high). The other difficulty is measuring the quantity of embodied gas in imported products.

The Institute of Refrigeration, Heating and Air Conditioning Engineers (IRHACE New Zealand), in conjunction with the Ministry for the Environment, has developed a handling and recovery regime that requires HFCs to be recovered and disposed of appropriately. The regime 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.

6 HFCs: Hydrofluorocarbons; SF_6: Sulphur Hexafluoride; PFCs: Perfluorocarbons. See glossary for more information.

SF_6

It may not be practical to monitor the importation of SF_6 due to its relative insignificance. A lower cost alternative could be to allow industry to develop its own solution.

PFCs

The majority of PFC emissions come from aluminium smelting. 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 2008-2012 for the synthetic gases sector

The proposed approach for these gases is:

HFCs

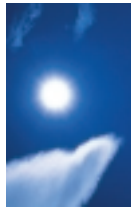
To work with industry to put in place a voluntary regime for handling and recovery standards. This regime will be assessed before the commitment period and, if necessary, a mandatory regime will be developed.

SF_6

To offer industry the opportunity to negotiate with the Government to develop an approach to manage emissions.

PFCs

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



Part Three

Feedback

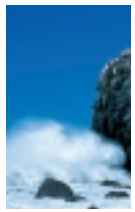
Giving us your feedback

There are two ways in which you can give the Government feedback on its preferred policy package.

1. Through participation at consultation meetings around the country

These meetings are the primary vehicle for feedback in consultation phase two. They are designed to give all interested parties the opportunity to engage directly with climate change policymakers and advisers on issues arising out of the preferred policy package. Issues raised in these forums will directly inform the next stage of the policy process, leading up to the Government's final decisions.

Dates, venues and times for consultation meetings are available on www.climatechange.govt.nz or by ringing the Climate Change recorded information line on 0800 WARMING (927 646).



Consultation meetings will include:

- national stakeholder forums in Auckland, Wellington and Christchurch
- primary sector meetings in 12 regional centres
- hui on issues of interest to Māori in eight centres
- regional meetings for businesses, interest groups and interested members of the public in 13 centres.

Questions designed to stimulate discussion and feedback in the consultation meetings for specific sectors are listed in each of the Working Papers in Part Four of the document.

2. By written feedback

People who wish to engage in written feedback may do so up to the closing date of Friday June 14.

Questions to guide this feedback are listed on the next page.

What do we want to know?

The Government's first phase of consultation on climate change focused on the Government's intention to ratify the Kyoto Protocol and the broad policy options arising from that.

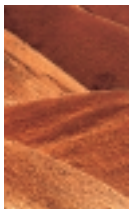
This second phase seeks your feedback specifically on more detailed policies, as discussed in the preferred policy package.

The package has been developed after careful consideration of all the issues explored during the first phase of consultation. These included issues around international competitiveness and the threat of 'carbon leakage'; uncertainty arising out of the nature of the Kyoto Protocol and the changing international situation; the need for a managed transition; and the need for more public information.

The Government recognises that responding to climate change is an economic issue. With this in mind, a range of policy tools and options were researched, discussed, and examined before the final shape of the preferred policy was decided.

Policy approach

The policies presented:



- aim, first and foremost, for long-term, permanent changes in New Zealand's greenhouse gas emissions
- are based on the principle that everyone, in every part of the economy, takes some responsibility for reducing emissions
- recognise that some sectors, businesses and people can change and adapt and bear a cost on their emissions more easily than others
- categorise the New Zealand economy into four distinct groups for the purpose of climate change, i.e.:
  - **Competitiveness-at-risk:** major emitters and energy users that would find it difficult to adjust to a cost on emissions and whose business might be affected to the extent that they were forced to reduce staff, close, or move offshore.
  - **General Energy Users:** businesses, organisations, institutions and households for which energy (electricity or transport fuels) is a cost, but not a major cost in their operations, who can adjust to new policies including price measures – taking into account the effect of revenue recycling. Most New Zealanders are in this group and they represent about two-thirds of New Zealand's CO_2 emissions.
  - **Agriculture:** produces 55% of New Zealand's greenhouse gas emissions, but cannot yet reduce emissions other than by reducing stock numbers, which is not an option given the importance of this sector to the New Zealand economy.
  - **Others:** a small group which includes the waste and synthetic gases sectors, where factors like a lack of cost-effective abatement options affect their ability to cope with a cost on emissions in the short term.
- are specifically designed for these different groups in the economy
- put a strong emphasis especially in the pre-commitment period of the Kyoto Protocol, on strengthening and building on existing policies that help reduce greenhouse gas emissions, on the expectation that about a third of reductions will come through these "foundation policies". (They include programmes and strategies such as energy efficiency, research, public education, local government partnerships, and improved transport management.)

Questions

Part 1 General Feedback

Considering the approach the Government has taken in formulating its policy package on climate change:

1. **Approach**
   Do you agree with the Government's preferred policy approach?
   If yes, why? If no, why not?
2. **Balance**
   Does the preferred policy package achieve the right balance between addressing climate change and keeping the New Zealand economy as strong as possible?
   If yes, why? If no, why not?
3. **Fairness**
   Do the policies in the package treat all parties in the New Zealand economy fairly?
   If yes, why? If no, why not?

Part 2 Sector Specific Feedback

Considering the preferred policy package and in particular the Questions outlined in the Working Papers relating to the treatment of specific groups:

4. **Do you support or oppose the proposed policy treatment** outlined in the preferred policy for the sectors and/or groupings of which you are a part? (e.g. Competitiveness-at-risk, General Energy Users, Māori, Agriculture, Forestry, Local Government, "Others" Group.)
   If support, why? If oppose, why?
   If oppose, what other suggestions do you have?

Responses

Send your written feedback to:

Email: info@climatechange.govt.nz
Mail: Consultation on Policy
New Zealand Climate Change Project
PO Box 55 Wellington

By the closing date of Friday 14 June 2002.

Organisational/Personal Details

When sending your feedback please send us the details below.

Name: _____

Company/Organisation: _____

Position: _____

Address: _____

_____

Email: _____

Phone: _____

The following additional information will help analyse your feedback for report back to the Government and the general public.

Responding as (please tick which applies):

☐ **An individual**

☐ **Private company/business.** Please also indicate your sector:

☐ Energy	☐ Forestry	☐ Agriculture
☐ Other land use	☐ Waste	☐ Transport
☐ Industrial	☐ Manufacturing	☐ Service industry
☐ Tourism	☐ Small Business	☐ Other (please specify):

_____

_____

The size of your business (please tick which applies):

☐ Large	☐ Medium	☐ Small
☐ Owner Operator	☐ Number of employees: _____	

☐ **Umbrella/Organisational/Interest Group.** Please indicate your sector:

☐ Business	☐ Environmental	☐ Social
☐ Māori	☐ Pacific Island	

☐ Other (please specify): _____

_____

_____

☐ **Government.** Please indicate:

☐ Central government

☐ Local government

☐ Other (please specify): _____

_____

_____

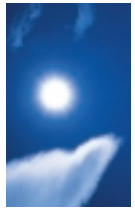
Please note: Submissions with no name and address will not be accepted.

Disclaimer: Any information you provide will be subject to the Official Information Act. Decisions on whether to release information will be made in accordance with that Act. The Act enables information that is confidential, for example because it is commercially sensitive or raises privacy issues, to be protected from release. Please indicate clearly if your submission includes confidential information.

Notes

Part Four

Working Papers



View the Cabinet Papers

The Government's Preferred Policy Package was approved by the Cabinet on Monday 29 April 2002.

A series of four cabinet papers record the thinking behind these preferred policy decisions, and have informed the writing of this discussion document.

They are:

- Climate Change I: Kyoto Protocol Preferred Policy Package: Overview
- Climate Change II: New Policies
- Climate Change III: The Role of Local Government
- Climate Change IV: Adapting to Climate Change

All four cabinet papers will be available on the Government's climate change website: www.climatechange.govt.nz

Working Paper

Māori and Treaty of Waitangi Issues

Introduction

The Government has already undertaken considerable consultation on climate change issues, including consultation specifically to ascertain the views of Māori.

Now that the Government has agreed a preferred policy package, further consultation is needed so that the Government can understand how the proposed policies might affect Māori. Final decisions will not be made until this consultation is completed.

Overview of the preferred policy package

The following is a summary of the features of the preferred policy package that are likely to be of most interest and relevance to Māori. The full policy package is discussed in detail in the body of the consultation document, as are specific areas of policy such as forestry and agriculture.

General

- no price measures will be imposed before 2007
- a price of emissions will apply during the first commitment period
- in any event, the price will not exceed $25 per tonne of CO_2 equivalent (for how this might affect energy prices see Table 2 on page 13)
- revenue collected through such a price will be recycled back to the economy
- firms that are at significant risk from competitors in countries without emission reduction targets can negotiate special agreements with the Government – see Negotiated Greenhouse Agreements (NGAs) below
- the Government will provide an incentives mechanism to encourage the adoption of climate-friendly technologies (see Projects, below)
- further education and public information initiatives will be undertaken, so all New Zealanders understand the ways they can reduce their impact on the climate
- existing strategies that will reduce emissions will be continued; these include the National Energy Efficiency and Conservation Strategy (NEECS), the Waste Strategy and the New Zealand Transport Strategy.

Agriculture

- no charge will be imposed on methane or nitrous oxide emissions during the first commitment period
- the agriculture sector will be expected to increase its research effort into solutions to reduce these greenhouse gases
- the Government would prefer a negotiated means, rather than an imposed means, to fund research
- any policies that affect fuel and energy costs will apply equally to the agriculture sector.

Forestry

- no deforestation liability will be imposed on owners of non-Kyoto forests (pre-1990) provided rates of deforestation remain at about historic levels
- the Government will retain all forest sink credits and responsibility for all harvest liabilities, at least for the first commitment period
- a mechanism will be developed to encourage the planting of Kyoto forest sinks
- a further mechanism will be considered to create incentives for permanent (non-harvest) or Kyoto forest sinks
- in principle, the Government will not account for changes in carbon levels in forests established before 1990 (that is, the forest management option available to New Zealand under Article 3.4 of the Protocol)
- under the Kyoto Protocol, New Zealand must select a definition of "forest". The definition proposed by the Government will have implications for forest owners, particularly owners of regenerating scrub. This is discussed in more detail in the working paper on the forestry sector (refer to pages 37-42).

See Working Paper: The Forestry Sector for further explanation of these issues.

Outcome of earlier Māori consultation

Consultation with Māori to date has identified significant concerns about the effect of possible emissions charges on the agricultural sector (methane and nitrous oxide) and the possible flow-on effects for the profitability and value of Māori-owned land currently in agricultural production.

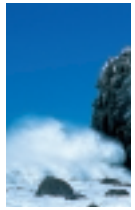
A further more general concern was expressed about the effect an emissions charge might have on industries processing primary produce, such as dairy factories, meat processors and fish processing.

Regarding the forestry sector, many Māori expressed strong concern over the arbitrary distinction in the Kyoto Protocol between non-Kyoto forests (pre-1990) and Kyoto forests (post-1990). Of particular concern was the possibility that non-Kyoto forests might face a deforestation liability and that this would restrict future land-use options.

Concern was also expressed at the effect of the non-Kyoto/Kyoto delineation on land values and the flow-on effects to land-use options. Some owners of Kyoto forests were concerned about possible compliance costs of accounting for carbon and the liabilities that would probably arise when their trees were harvested.

In addition to concerns over the effect of possible emissions charges, many Māori raised the issue of how the Crown would allocate any property rights that might be created as a result of the Protocol; in particular sink credits and assigned amount (emission) units.

A widely held view expressed by Māori was that the ownership of sink credits is inextricably linked to the ownership of the forest. Some Māori also expressed a view that, should the Crown decide to allocate emissions units (either gratis or by auction), then the Government would need to consider how to give effect to the Māori interest.



Finally, a concern that Māori share with other groups is the potential impact of any price on emissions that flows through into business and household costs, and how this is dealt with.

How does the package respond to these issues?

The Government has designed a package that addresses many of the commercial and social concerns raised by Māori and non-Māori alike, while still ensuring New Zealand takes meaningful steps towards lowering its greenhouse gas emissions.

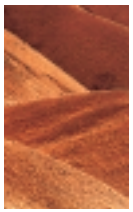
The approach seeks to ensure that New Zealand's ratification of the Kyoto Protocol does not impose unacceptable costs on the New Zealand economy or disproportionately harm one sector of society over another. To a large degree, the various components of the package are interdependent, and cannot be changed without affecting the balance of the rest of the package.

In light of these general comments, the following discussion examines some specific aspects of the package and how these relate to concerns raised by Māori during earlier consultation.

Agriculture

For policy on agriculture, see also page 17 and pages 43-46.

The proposed package does not recommend the imposition of a charge on either methane or nitrous oxide. Instead, the agricultural sector will be expected to make contributions to a sustained research effort to find practical and economic ways to reduce greenhouse gas emissions. This directly addresses the concern raised by many Māori that such charges would affect their ability to generate reasonable returns from their land. To make this commitment, the Government will need to assign more than half of its initial allocation of emissions units to cover projected emissions from the agricultural sector. **See Working Paper: The Agricultural Sector, for further explanation of these issues.**



In addition, the package makes provision for primary processors who can show that they meet Competitiveness-at-risk criteria to have access to the Negotiated Greenhouse Agreement (NGA) mechanism. This helps to address a concern expressed by some Māori that the imposition of emissions charges may affect the viability of primary processing in New Zealand. This policy will require the Government to set aside a significant, but as yet unquantified, volume of emissions units to cover some proportion of the emissions from processors under an NGA.

Forestry

For forestry issues, see also pages 37-42.

The Crown proposes to retain forest sink credits and any associated emissions liabilities (which may arise through deforestation, harvesting, fire or disease) for at least the first commitment period.

The Government's coverage of deforestation liabilities for non-Kyoto forests will be capped at five percent of the area of forest that would normally have been harvested in the first commitment period. This cap should be sufficient to allow deforestation and conversion to alternative land uses at the rate that has occurred historically. Around 10.5 million tonnes of emissions units will need to be allocated to cover the deforestation liabilities within the proposed cap. This should be sufficient to cover any deforestation and conversion on Māori land, particularly in light of the fact that no deforestation liabilities occur at all between now and the start of the first commitment period.

In addition, the proposed package includes the assignment of funds to provide incentives for the establishment and enhancement of forest sinks, including permanent (non-harvest) forests. Māori will have access to this mechanism, and this may assist Mā ori landowners to make better economic use of their land. It is important to note, however, that this mechanism is likely to be targeted at land that was not forest (including dense scrub) in 1990.

Government retention of forest sinks and emission liabilities will impose few if any compliance costs on landowners and no future harvest liabilities. It would also minimise distortions between land that qualifies for Kyoto forests and land that does not. This would deal with a further major concern of Māori.

The Government has also proposed that, in principle, New Zealand should not account for the management of forests established before 1990, including both older plantation forests and indigenous forests – the option available to New Zealand under Article 3.4 of the Protocol to account for activities relating to the management of non-Kyoto forests, grazing land, cropland and revegetation. While this option may be of interest to many Māori owners of indigenous forest and plantation forests planted before 1990, it is not considered to be in New Zealand's overall national interest at this stage. The reasons for the proposed policy are spelt out in the Working Paper: The Forestry Sector, in Part Four of this document.

The Government has also proposed a forest definition that will be of particular interest to Māori landowners with areas of regenerating scrub. The rationale for this is also outlined in the separate forestry working paper.

Price measures

For more details on price measures, see also pages 12-13.

The issue of the impact of any price measure on the energy costs of Māori businesses and households will be addressed through:

- Revenue recycling

  Increases in energy costs for firms and households would most likely be alleviated through:

  - energy efficiency programmes offered by the Energy Efficiency and Conservation Authority (EECA). See also National Energy Efficiency and Conservation Strategy: Towards a Sustainable Energy Future: www.eeca.govt.nz

- project-based incentives for energy efficiency measures or other means, for example through the tax system. Projects are explained and discussed on pages 16-17 and in the Working Paper: Projects.
- other recycling measures, for example through the tax system.

- Negotiated Greenhouse Agreements (NGAs)

Businesses that are particularly energy intensive and could be deemed to be Competitiveness-at-risk will be eligible for NGAs (NGAs are explained and discussed in the separate Working Paper: Competitiveness-at-risk Firms and Negotiated Greenhouse Agreements).

Issues for feedback at meetings

The Government welcomes the views of all Māori on all aspects of the proposed package.

The specific issues on which the Government is interested in gaining a Māori perspective, and which Māori may wish to discuss with Government representatives during consultation on policy, might be:

- do any of the proposed policies have a disproportionate impact on Maori, and if so, what solutions might be available to resolve such problems?
- what mechanism should be used to fund research into reducing agricultural emissions? Who should own the research and what are the best ways to get it adopted by farmers when the time comes?
- what mechanisms should be used to provide incentives for the planting of production forest sinks, and what are the implications for Māori of the proposed mechanism? What limits or criteria should apply to the mechanism?
- what mechanism should be used to provide incentives for permanent (non-harvest) forest sinks, and what are the implications of the proposed mechanism for Māori? What limits or criteria should apply to the mechanism?
- what issues, advantages, or disadvantages do you see arising from the proposed definition of 'forest'?
- what issues, advantages, or disadvantages do you see arising from the decision in principle not to account for forest management under Article 3.4?
- what particular issues arise for Māori in the context of revenue recycling under a price measure, and how should they be dealt with?

Working Paper

Competitiveness-at-risk Firms and Negotiated Greenhouse Agreements

Introduction

The first commitment period of the Kyoto Protocol represents a first step towards achieving global reductions in greenhouse gas emissions. For the first commitment period only developed countries and countries that were formerly in the Soviet Union and Eastern Europe have emissions reduction targets. It is expected that in future commitment periods, developing countries will also take on targets. In the interim, the absence of emission reduction targets for developing countries means that firms in developed countries with developing country competitors will be at a competitive disadvantage if they face a price measure in the commitment period.

Some firms will find transition to a cost on emissions in the first commitment period difficult. 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.

Because the Protocol's first commitment period is just one of what may be several commitment periods, and these are expected to involve wider participation and eventual deeper (but probably still differentiated) responsibilities, then it could be expected that competitiveness concerns will reduce over time. Consequently, policies that aim to protect at-risk firms and sectors from climate change policy measures should be of limited duration and periodically reviewed as the Protocol evolves.

Objectives of policies for Competitiveness-at-risk firms

The key objective is to temporarily protect firms and sectors facing competition from countries without Protocol obligations in the first commitment period, but which are expected to have obligations in subsequent commitment periods.

Any mechanism for Competitiveness-at-risk firms is designed as a transition mechanism to facilitate adjustment within the firms to a carbon-constrained world and to manage the effects on the workforce, shareholders and community. In addition, policies for Competitiveness-at-risk firms also recognise that where carbon leakage risks are significant, the benefits of domestic emissions reduction policies on the global atmosphere may not be realised.

What are the competitiveness issues of concern?

Three specific aspects of competitiveness have been identified:

- **economy-wide competitiveness** refers to the ability of firms in general to compete with firms in other countries, and is usually used in the context of macroeconomic policies or national productivity
- **international competitiveness of firms** refers to how specific firms or sectors compete with firms in other countries, influencing the distribution of production (location and output) and is reflected by the ability of local firms to hold and gain market share. This form of competitiveness covers the concerns expressed by industries and sectors during consultation
- **domestic competitiveness** refers to the ability of firms and sectors to compete for market share in the domestic economy, e.g. electricity supply options and farming or forestry choices. While at a firm level, changes to competitiveness will be similar to the international example, generally declines in one firm or sector are loosely matched by growth in other domestic firms and sectors.

Considering whether to temporarily protect firms and sectors must still be conditional upon benefits exceeding costs. A report to the Ministry of Economic Development[7] included a direct description of the problem: that there is substantial risk of industry output and emission shifting to another country without emission costs.

It is also important to ensure that protection for firms whose competitiveness is at risk from a climate change price measure is limited to the effects of the emissions price and not other price signals.

Proposed policy for Competitiveness-at-risk firms

Eligibility for categorisation as Competitiveness-at-risk[8] will be determined against criteria. High level criteria have been proposed (discussed below) and will be developed further during consultation and reported back to Cabinet in July 2002. Those firms that meet the criteria for at-risk will be eligible for a Negotiated Greenhouse Agreement (NGA).

7 Jim Sinner, "Addressing Competitiveness Impacts of Climate Change Policies", Report to the Ministry of Economic Development, January 2002.

8 For more detail see Cabinet paper "Climate Change II: New Policies". Competitiveness-at-risk firms are likely to be energy or emissions intensive and be sensitive to international competitiveness (with a significant risk of carbon leakage). The General Energy Users sector is likely to include many entities ranging from the transport sector and electricity utilities to smaller businesses and households, and the 'Others' group includes sectors currently without cost effective abatement options and some with emissions effectively limited by other means.

The on-farm agricultural sector is likely to fall into the Competitiveness-at-risk category but it is proposed to treat this sector differently because of the lack of options for addressing the major emissions from this sector, namely methane and nitrous oxide. For this sector, it is proposed to negotiate over funding for a sustained research effort to identify and develop technologies to reduce agricultural methane and nitrous oxide emissions and encourage their uptake. If the sector is unwilling to work with the Government to invest in research voluntarily, a research levy will be imposed on the sector for research into emissions reductions. Further information on the approach for the agricultural sector is provided in the working paper on that sector in Part Four.

Criteria for determining Competitiveness-at-risk status

The following high level criteria are proposed for determining Competitiveness-at-risk status:

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

These high-level criteria will require further development following consultation and prior to final policy decisions in July 2002.

Who might *not* be at-risk?

Consideration of firms and sectors that are likely to make up the General Energy Users group (which, for climate change policy purposes, are also considered the 'not-at-risk' group) will assist understanding of those who may be considered Competitiveness-at-risk. The General Energy Users/not-at-risk group includes:

- 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)
- sectors and firms where costs can be easily mitigated through means other 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[9].

9 The Government may still shelter in these circumstances because avoiding carbon leakage is given high priority.

Negotiated Greenhouse Agreements

An NGA is a non-mandatory regulatory instrument involving an agreement between the Government and a firm (or group of firms) in which the firm agrees to manage its greenhouse gas emissions towards an agreed and more emissions efficient baseline. NGAs could also be viewed as emissions abatement projects under a contractual framework.

An earlier industry agreement programme, the voluntary agreements scheme, operated in New Zealand from 1995 to the end of 2000. While conditional on an incentive structure, NGAs are intended to extend the gains achieved by the VA scheme and be more legally binding.

Industry agreements have been widely used internationally, and generally involve high emissions intensity industries agreeing to reduce emissions (or emissions per unit of output) in exchange for full or partial exemption from an emissions charge. Concerns about the international competitiveness of energy or emissions intensive industries and the need to reduce emissions, motivates governments to offer such programmes, and motivates firms to participate in them.

In addition to securing emissions reductions, the agreements are also a key means of focusing management attention on abatement opportunities in firms. An additional benefit is that they prepare firms to make purchase or abate decisions under any future emissions trading regime.

The Government has agreed that an NGA will be based around developing a pathway and timeline for the firms to achieve international best practice in emissions management. 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. It has also agreed that any Competitiveness-at-risk firms that fail to negotiate an NGA would be treated as part of the General Energy Users category.

These decisions recognise the concerns raised by the energy-intensive and emissions-intensive resource processing industries about their international competitiveness relative to competitors from countries with no emissions obligations. Similar concerns exist for emissions-intensive firms involved in domestic production that face a significant risk of import substitution.

The Government decisions indicate that it is prepared to shelter Competitiveness-at-risk firms at least up to 2012, in return for the agreement of those firms to meet international best practice in emissions intensity.

Incentives for participation in NGAs by at-risk firms prior to 2008

The long life of capital investments of firms likely to be at-risk means that investments made up until 2007 need to reflect the expectations of future costs that excess emissions would place on New Zealand. There are several ways that NGAs can be structured to produce an incentive to promptly address emissions abatement. Feedback is sought on options for this, especially from firms that have been involved in NGA heads-of-agreement discussions.

The following options appear worthy of consideration:

- make access to NGAs in 2008-2012 conditional upon having completed an NGA by, say, the end of 2004-2005
- enable NGA participants to access the Project mechanism incentives during the early part of the programme (this is also part of a wider discussion about the relationship between Projects and NGAs) and, if the bid is successful, adjust the NGA baseline in a pre-agreed way. That is, success in a project auction would enable the firm to undertake (mutually beneficial) deeper emissions reductions in its NGA
- enable early action under NGAs to receive some additional emissions units in the commitment period separate from the Projects mechanism
- use an NGA to negotiate an emissions baseline with the Government that would apply for the NGA and any subsequent policy like future gratis emission unit allocation up to an agreed future date (say 2012 or 2017). The incentive here for firms to participate in NGAs before 2004-2005 is to secure certainty about their baseline (a similar scheme is currently being promoted in the United States).

The proposed model for NGAs through to 2012

A decision tree that outlines the proposed process for NGAs is set out on page 33. An initial assessment would be made of at-risk status, which, if met, leads to the opportunity to negotiate an NGA applying until 2012.

The NGA would involve negotiating an emissions intensity baseline related to an international benchmark, and could also involve flexibility measures (e.g. the ability to do off-site Projects or inter NGA trading) to reduce costs. However, the NGA would also have consequences for non-performance.

A review of the NGA is proposed for around 2006 or 2007 where at-risk status would be reassessed, and if the firm were still at-risk then the NGA would continue but

possibly with stricter (emissions units related) consequences for excess emissions during 2008-2012.

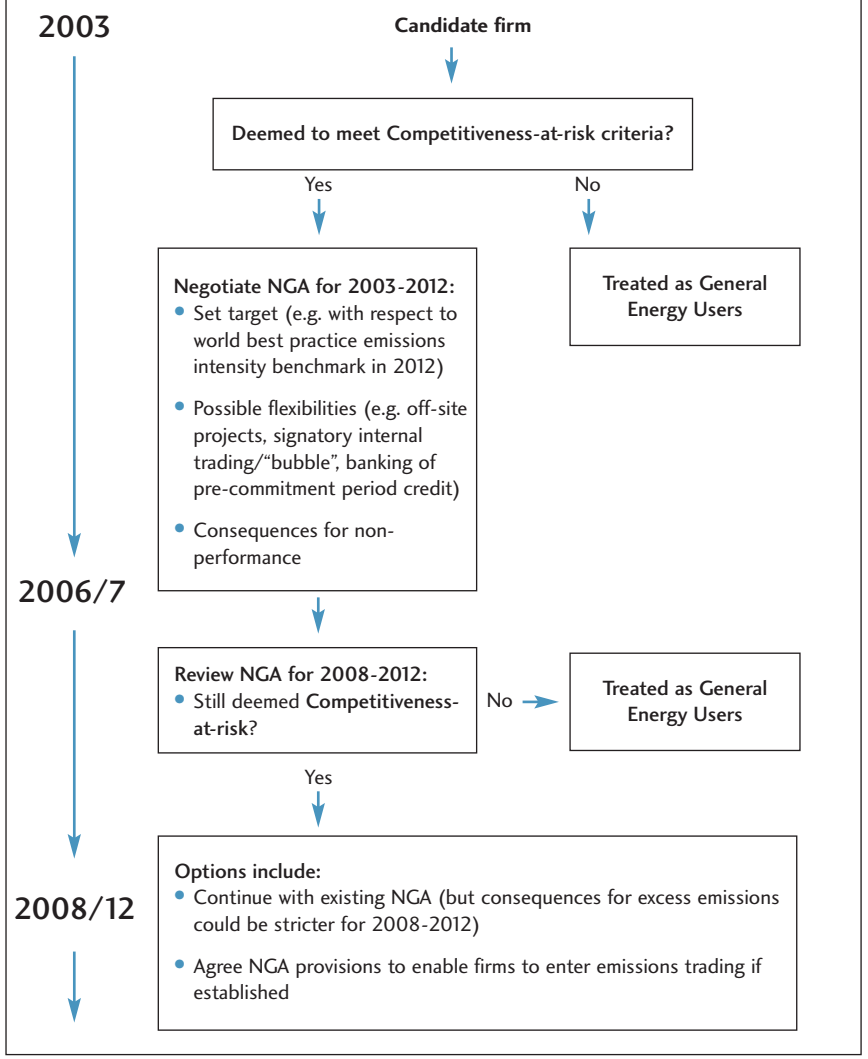
The 2008-2012 NGA could also contain provisions to enable the firm to enter emissions trading if established.

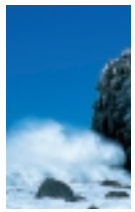
Issues for feedback in meetings

Feedback is sought in consultation meetings on the following questions:

- do you have any views on the criteria for Competitiveness-at-risk?
- do you have any views on how to incentivise participation in NGAs? (Refer previous section in this working paper entitled *Incentives for participation in NGAs by Competitiveness-at-risk firms prior to 2008*.)
- what should be the model for NGAs in the first commitment period? How should they be structured in relation to international benchmarking, flexibility measures and price instruments, e.g. possible emissions trading?

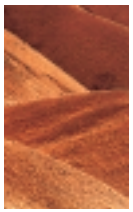
Negotiated Greenhouse Agreement (NGA) decision tree for at-risk firms





Working Paper

Projects



Preferred policy – summary of key features

The policy package proposes that Projects:

- should be a key cross-economy measure both pre-2008 and 2008-2012
- focus on sectors where a price signal is absent or blunted
- have a more limited role where a full price exists
- utilise a contestable approach to accessing support where feasible
- include additionality criteria so as to avoid supporting Projects that would have occurred anyway.

What are Projects?

A Project is a specific activity aimed at delivering defined reductions in greenhouse gas emissions in return for provision by the Government of an incentive. These could be from new technologies and practices, or enhancement of sinks. 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 uptake of proven methane reduction techniques, and perhaps forest establishment. Projects could be incentivised via funds or emissions units. The diversity of Project approaches is covered in more detail in an officials' working paper entitled *The Use of Projects, Negotiated Greenhouse Agreements and Levies to Reduce Greenhouse Gas Emissions* released as part of the initial climate change policy consultation in November 2001 [10].

Projects are different from programmes. 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.

Advantages and disadvantages of Projects

Projects have a number of advantages:

- they are a direct way of changing emission trends
- they are a means of creating a desired opportunity cost for emissions reductions where no efficient price exists
- they are a means of securing "learning by doing" in emissions abatement and international emissions trading
- they provide a gradual transition to an international emissions price

10 See the Government's climate change website www.climatechange.govt.nz and follow the link to the "consultation" page.

- they are a clear example of "demonstrable progress" highlighting the Government's commitment to actual emissions reductions
- they begin to reduce emissions below "business as usual" levels early
- if emission units are provided to incentivise Projects, they can help signal future emission prices
- they ensure abatement measures are in place at the beginning of the commitment period
- they can create balance where some sectors face an emissions price but other sectors may not
- Projects can help to correct market failure in sectors covered by an emissions price (e.g. situations where, despite the presence of a price signal, a landlord may face no incentive for energy efficiency investments).

Projects also have some disadvantages:

- they potentially involve high transaction costs
- they effectively become a direct subsidy if they are used to encourage emissions reductions that would have occurred anyway
- it is difficult to determine whether a project would have occurred anyway, so they present technical challenges associated with just rewarding additional actions and not business as usual.

Assessment

In the pre-2008 period it is unlikely that, in the absence of a price measure, significant early and permanent reductions beyond business as usual will be achieved without the use of Projects. Also, achieving significant levels of early abatement (i.e. pre-2008) would require the use of Projects in the energy supply sector, and is an underlying rationale for the renewable energy targets.

In the first commitment period (2008-2012), Projects will have a key role where there is no price measure in place and the Government wishes to create an incentive for emissions reductions so as to limit its excess emissions exposure. In sectors covered by a price instrument set at an efficient level, the role of Projects can be limited to cases of clear market failure and where other correcting options are less effective. In these cases the use of Projects would effectively be a fallback option.

In both periods, to ensure fair treatment across and within sectors and to manage uncertainty over abatement costs, Projects should be evaluated against each other using a contestable framework. The project framework will also need to be consistent with other elements of the policy outline, e.g. policies for Competitiveness-at-risk firms and sectors, carbon sinks, NEECS renewable energy policy.

Proposed policy approach

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 Projects would:

- 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 resource 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 NEECS renewable energy implementation
- focus on having a prompt start to reduce investment uncertainty
- when Projects involve overseas investment and an incentive denominated in emissions units, favour trading out the units via emissions trading mechanisms rather than formally hosting joint implementation (JI) Projects
- be reviewed in 2005 to reflect experience to date and the expected 2008-2012 policy.

In 2008-2012 (subject to review findings) Projects would:

- be less widely applied than for pre-2008, having a lesser role in sectors subject to an international emissions price
- 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.

Issues for feedback at meetings

Considerable development work is required to produce a workable Project framework. Initial decisions are required on the policy framework supporting Projects and this consultation round will be an important input for this. Once the policy framework is finalised then operational issues become the focus.

- What are your views on the proposed approach for Projects described above?
- Should the Government use funds or emissions units to incentivise Projects?
- Do you think firms that have NGAs should be eligible for Projects?
- Do you have any ideas about how to avoid funding Projects that would have occurred anyway?
- How would a bid-in system for Projects work best?

Working Paper

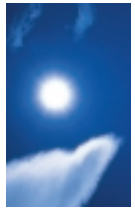
The Forestry Sector

Introduction

In developing this preferred policy package, the Government has sought to balance the interests of the New Zealand forestry sector with the interests of New Zealand as a whole.

Preferred policy package – summary of key features

- Government retains all sink credits and harvest/deforestation liabilities arising from post-1990 ('Kyoto') forests
- deforestation liabilities are **not** devolved to owners of non-Kyoto forests (pre-1990)
- in principle, New Zealand will not account for forest management under Article 3.4 of the Protocol
- a mechanism will be developed to encourage the establishment and enhancement of Kyoto forest sinks (note, this may be part of the general Projects mechanism)
- a further mechanism will be considered to encourage the establishment and enhancement of permanent (non-harvest) forest sinks
- wood processors and potential new investors in wood processing who are Competitiveness-at-risk will have access to the negotiated greenhouse agreements mechanism
- all forestry sector participants will have access to the Projects mechanism
- under the Protocol, New Zealand must determine its definition of forest by specifying values for certain key parameters from within set limits; New Zealand will select parameters at the upper limit of each of the allowable ranges.



Background

The Kyoto Protocol establishes two categories of forest on the basis of when the forest was established. Forests first established before 31 December 1989 are designated non-Kyoto forests. Forests first established after this date are designated Kyoto forests. New Zealand will be eligible to receive sink credits from Kyoto forests.

The designation of a forest as Kyoto or non-Kyoto has the following critical effects on sink credits and emission liabilities in the first commitment period.

Table 3: Sink credits and emission liabilities over the first commitment period for Kyoto and non-Kyoto forests, assuming New Zealand does not account for forest management under Article 3.4

	Sink credits earned	Liability on harvest with replanting	Liability on deforestation
Kyoto forest	Equal to tonnes of CO_2 equivalent sequestered over the first commitment period	Equal to tonnes of CO_2 equivalent 'released' through harvesting BUT not more than tonnes of credits received	Equal to tonnes of CO_2 equivalent 'released' through harvesting BUT not more than tonnes of credits received
Non-Kyoto forest	Nil	Nil	Equal to tonnes of CO_2 equivalent released through 'deforestation'

Options considered for management of Kyoto forest sink credits and liabilities

The Government considered two very different approaches for management of sink credits and liabilities from Kyoto forests: devolution to the forest sector and Government retention.

Devolving sink credits and liabilities to the forest sector

This approach would place the management of sink credits and liabilities from Kyoto forests with the private sector, creating a direct financial incentive to retain existing forest sinks and create new ones. Under a devolved system, forest owners would receive sink credits, but would also be liable for the carbon released when the forest was harvested.

Such a system might result in a windfall gain for some forest owners, if the value of selling the sink credits was greater than:

- any inventory and compliance costs incurred in receiving them; plus
- the costs of buying any necessary emissions units when the trees are harvested.

Public consultation in late 2001 indicated that many Kyoto forest owners did not feel that receiving sink credits would be beneficial for them, while others suggested it should be voluntary.

A devolved system could create significant distortions in land values and uses, because it might create incentives to move forestry operations from non-Kyoto land to Kyoto land in order to gain sink credits. This would be detrimental to many landowners currently leasing land for forestry, including the owners of large areas of Māori land. Devolution would also tend to artificially encourage the deforestation of land under non-Kyoto forests (as these forest owners would be encouraged to move their forestry operations to Kyoto land where they could earn sink credits), possibly increasing New Zealand's total emission liabilities in the first few commitment periods.

A devolved system would be likely to have significant transaction costs for owners and the Government, as the accuracy of forest measurement and the level of accounting for forest harvesting and other forestry operations would need to be high. Devolving these responsibilities to forest owners would require an Act of Parliament.

Government retaining sink credits and liabilities

This approach would allow the Government to flexibly manage sink credits and liabilities from Kyoto forests for the benefit of the country as a whole.

For example, sink credits could be used to fund a more staged transition to complying with the Kyoto Protocol, and to protect those firms – including some wood processing firms – and sectors at risk from competitors in countries without Kyoto Protocol obligations. Importantly, it allows the Government to retain deforestation liabilities for non-Kyoto forests, provided these liabilities remain manageable. This avoids creating distortions in values and uses between lands under Kyoto and non-Kyoto forests.

Government retention would involve minimal transaction costs, because various forestry operations and measurement of unders and overs could be averaged across the country. In practice, this would mean satellite technology and sampling rather than exhaustive on-the-ground measurement.

The major drawback of Government retention is that it does not create extra incentives to establish more sinks where it is profitable or environmentally beneficial to do so. To address this, the Government would put in place mechanisms to encourage the establishment and enhancement of extra sink activities (discussed below).

Deforestation liabilities

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 emissions of carbon. Fortunately, relatively little deforestation occurs in New Zealand. Most plantation forest is replanted almost immediately after harvest, and clearing of indigenous forest is now extremely uncommon.

Nevertheless, some small areas of plantation forest are converted to other land uses after harvest, especially in the central North Island where the land is sometimes suitable for intensive agricultural uses such as dairy farming. Even though the areas of land deforested are generally small, the amounts of carbon released can be quite large.

In the case of Kyoto forests, deforestation liabilities are limited to no more than the volume of sink credits received for a given area of forest. In the case of non-Kyoto forests there is no cap on deforestation liabilities.

The Government considers that it would not be fair to devolve deforestation liabilities where forest owners have not first received sink credits. Under the preferred policy, neither Kyoto nor non-Kyoto forest owners will receive sink credits. The Government has therefore decided to retain all deforestation liabilities, provided the rate of deforestation of non-Kyoto forest remains at about its historic levels and the total liabilities remain manageable.

No definitive statistics are available on rates of deforestation in New Zealand. However, based on survey information by the Ministry of Agriculture and Forestry, it is estimated that a deforestation cap set at five percent of the area of forest expected to be harvested over the first commitment period, should be sufficient to allow deforestation to occur at (or slightly above) its historic rate.

Initial estimates are that around 300,000 hectares of forest are expected to reach harvest age over the first commitment period. If five percent of these forests were not replanted, this would create a deforestation liability of 10.5 million tonnes CO_2 equivalent over the first commitment period.

Preferred policy

The preferred policy is for the Government to retain management of all Kyoto forest sink credits and their associated liabilities, at least for the first commitment period. In deciding this preferred policy, the Government recognises that some incentives to encourage the establishment of new forest sinks would be beneficial.

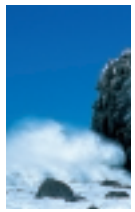
The preferred policy is for the Government to retain all deforestation liabilities for at least the first commitment period, provided the total liabilities to the Crown arising from deforestation remains within a cap of 10.5 million tonnes of CO_2 equivalent for the first commitment period.

Note that Kyoto forest can be deforested effectively without a net liability. This is because, for the first commitment period, the maximum liability for removing carbon from Kyoto forests is capped at the amount of sink credits generated from such forests.

If it became apparent the cap may be reached during the commitment period, the Government would have the option to either increase the cap or develop policy to allocate deforestation activity within the proposed cap.

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 non-Kyoto forests, grazing land management, cropland management and revegetation.



Accounting for LULUCF activities in the first commitment period is optional. Whether New Zealand will be obliged to account for such activities in subsequent commitment periods is a matter for future international negotiations.

Forest management

If a country elects to account for forest management under Article 3.4, it would need to specify and identify its managed forest estate. The definition of 'forest management' is quite broad and is defined by the Marrakech agreement as: 'a system or practices of stewardship and use of forest land aimed at fulfilling relevant ecological (including biological diversity), economic and social functions of the forest in a sustainable manner'.

This is interpreted to mean that changes in carbon stocks in all forests that are actively managed for either production or protection purposes would need to be accounted for by countries that elect to undertake forest management in the first commitment period. A country could not simply pick those forest types, carbon pools or forest areas that are increasing in carbon and account for these only.

If aggregate measurement of these forests shows a net loss of carbon stocks, due to harvesting, pest damage and fire exceeding forest growth, then instead of generating additional credit an additional (and uncapped) liability for emissions is generated for the country.

Current estimates are that New Zealand will probably have a net loss of carbon from forest management activities in non-Kyoto forests over the first commitment period. These estimates are summarised in Table 4 below[11].

Given the likely extra liabilities, the Government has agreed in principle not to account for forest management under Article 3.4 of the Kyoto Protocol. A final decision will not be made until closer to 2007, when further information will be available.

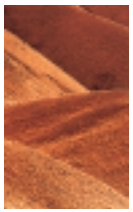


Table 4: Estimated changes in carbon from forest management activities in non-Kyoto forests over the first commitment period

Forest type and carbon pool	Net change in carbon ($MtCO_2$ over CP1)
Plantation forests – changes in above-ground carbon[1]	-57
Plantation forests – changes in below-ground carbon[2]	Unknown but probably negative
Scrub reversion[3]	11 to 62
Indigenous forest[4]	-46 to 6
Net Position	**-92 to 11**

Notes to the Table:

1 The estimate for carbon losses from plantation forests (excluding deforestation but including harvesting) over the first commitment period arises because the total carbon stock of pre-1990 plantation forests is projected to decline between 2008 and 2012 due to these forests becoming ready for harvesting. If the harvesting of these forests were delayed this would simply increase the harvest liability in the second commitment period.

11 Source: An Assessment of the Significance to New Zealand of Article 3.4 Activities under the Kyoto Protocol, A Report Prepared for the Ministry of Agriculture and Forestry, 8 June 2001.

2 Although there is general agreement that soil carbon under plantation forests is probably decreasing, the data on which this position is based are limited and further study is needed before an estimate can be provided.

3 The proportion of scrub reversion that is Kyoto versus non-Kyoto is unknown at this stage. The table assumes all scrub is non-Kyoto. If this were not the case – which it almost certainly is not – then the rate of accumulation of carbon in non-Kyoto scrubland would be less than that specified in the table. Consequently, the net position of accounting for forest management under Article 3.4 is likely to be worse than indicated.

4 There is considerable uncertainty regarding the effect of pests on indigenous forest carbon and the carbon likely to be sequestered in reverting scrubland. More accurate projections for the indigenous forest estate and scrubland reversion will be available when the results of further research currently underway are known.

Other land use activities under Article 3.4

There is considerable uncertainty in the data on carbon stocks and carbon stock changes for cropland and grazing land in New Zealand. Such data as exists suggest that carbon stocks are likely to be in a steady state or a slight decline. The Government has therefore agreed in principle not to account for these activities in the first commitment period. A final decision will not be made until closer to 2007, when further information will be available.

Encouraging Kyoto forest sinks

Continuing forestry expansion in New Zealand is needed if forest sinks are going to be available to help offset future emissions from other sectors and to cover future harvesting liabilities from Kyoto forests after the first commitment period.

In the absence of a devolved system of sink credits and liabilities, the Government is considering ways to encourage additional Kyoto forest sink activities where this is beneficial.

Encouraging forest sinks general mechanism

The Government proposes assigning a proportion of the sink credits (or an equivalent value) to funding incentives for establishing and enhancing Kyoto forest sinks. This mechanism will focus on establishing new planted forest sinks. The Government is also

considering a further mechanism to encourage the creation and enhancement of permanent (non-harvest) forest sinks (discussed below).

Over the next few months, a preferred mechanism for Kyoto forest sinks will be developed in consultation with the forestry sector. The Government will also consider indicative budgets.

Before deciding on a specific mechanism, the Government will also need to consider whether funds to provide incentives for forest sinks will stand alone, or whether they will be included in an economy-wide Projects mechanism (see discussion on Projects above).

Encouraging protection (non-harvest) forest sinks

A useful addition to a general mechanism to encourage Kyoto forest sinks may be to provide direct financial incentives for creating and managing **new** protection forests that provide a permanent (non-harvest) sink. It is expected that these would generally be indigenous forests that have regenerated since 1990.

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 Māori land
- providing an opportunity for New Zealand companies to invest in potentially low-cost sink activities.

A separate mechanism for encouraging permanent sink forests may be justified because of these additional benefits.

In addition, the nature of an incentive may be quite different for plantation forest sinks and permanent forest sinks. This is because rates of carbon sequestered in permanent/indigenous forests are far more variable than in plantation forests and are understood with much less precision. Further, certain management actions by landowners, such as stock grazing, are likely to affect carbon sequestration rates in these forests more than in plantation forests. Finally, permanent forest sinks will presumably rely on returns generated from sink activities to be profitable, whereas plantation forest sinks will have the alternative income stream from timber harvest.

These different characteristics suggest that, if a mechanism to provide incentives for creating and enhancing permanent forest sinks proceeds, the incentives provided would need to be directly related to the amount of carbon sequestered over a commitment period on a stand-by-stand basis. This implies a regime that utilises stand measurement and independent verification before incentive 'payments' are made to forest owners.

Over the next few months, a preferred incentives mechanism for permanent Kyoto forest sinks will be developed, which the Government will then consider.

Wood processors and NGAs

Some wood processors will have access to the Negotiated Greenhouse Agreement (NGA) mechanism which has been proposed by the Government to address Competitiveness-at-risk concerns.

The NGA mechanism is discussed in detail in the Working Paper: Competitiveness-at-risk Firms and Negotiated Greenhouse Agreements on pages 30-33. This paper outlines proposed criteria and principles for identifying which firms or activities may be eligible for an NGA. It also outlines the type of obligations that any firm entering an NGA would be expected to take on. The criteria and principles for NGAs will be applied uniformly across all sectors.

The NGA mechanism is likely to be of most interest to those wood processors and prospective wood processors with the following characteristics:

- energy is, or would be, a high proportion of their total costs
- they sell, or intend to sell, mainly to export markets
- they do not have alternative technologies available to reduce their dependence on externally generated energy
- they do not have economic options available to reduce energy consumption in other ways.

Projects

Wood processors and forest owners will have access to the Projects mechanism. Projects have been proposed by the Government to encourage the early introduction of energy efficiency, emissions mitigation and sink activities.

The Projects mechanism is discussed in detail in the Working Paper: Projects in this document. This section outlines proposed criteria and principles for identifying those

activities that may be eligible for Projects funding. It also outlines how a Projects mechanism may work in practice. One key feature of Projects is that they must involve activities that are additional to what would have occurred under business as usual.

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 Protocol defines 'forest' as follows (the figures shown are those ranges from which New Zealand must select a preferred value):

> 'Forest' is a minimum area of land of 0.05-1.0 hectares with tree crown cover (or equivalent stocking level) of more than 10-30 percent with trees which have the potential to reach a minimum height of 2-5 metres at maturity in situ. A forest may consist either of closed forest formations where trees of various storeys and undergrowth cover a high proportion of the ground or open forest. Young natural stands and all plantations which have yet to reach a crown density of 10-30 percent or a tree height of 2-5 metres are included under forest, as are areas normally forming part of the forest area which are temporarily unstocked as a result of human intervention such as harvesting or natural causes but which are expected to revert to forest.

Table 3 in this working paper (page 38) shows that, given New Zealand does not intend to account for forests under Article 3.4, then the only forests for which New Zealand can claim sink credits are those forests established since 1990 on land that was not forested as at 31 December 1989; that is, Kyoto forests.

This suggests that it is likely to be to New Zealand's advantage if a minimum amount of land is designated 'forest' as at 31 December 1989.

The Government therefore proposes specifying a forest definition at the upper limit of the allowable ranges under the Protocol. Such a definition would ensure that all indigenous forest, all plantation forest and most scrubland are included in the forest area. New Zealand would maximise the land from which it could potentially earn credits, while minimising the land that faces an uncapped liability if the land use is changed away from 'forest'. However, it would mean that isolated scrub, gorse and broom, and low scrub such as matagouri are excluded from the forest area.

While this definition does have some drawbacks, these appear only minor. For example, one negative consequence is the possible exclusion of some areas of recently regenerated gorse, broom or low scrub from receiving credits under Article 3.3 (or indeed under Article 3.4 if New Zealand accounts for forests under Article 3.4 at some stage). However, the sink value of gorse and low scrub is likely to be small to negligible once the associated costs of inventory and administration have been taken into account.

Issues for feedback at meetings

The Government welcomes the views of all interested parties on the proposed package. Some of the questions sector participants may wish to consider and discuss at upcoming consultation meetings round the country include:

- what mechanism should be used to provide incentives for planted forest sinks, and what are the implications of the proposed mechanism? What limits or criteria should apply to the mechanism and how much should be budgeted for it?
- what mechanism should be used to provide incentives for protection (non-harvest) forest sinks, and what are the implications of the proposed mechanism? What limits or criteria should apply to the mechanism and how much should be budgeted for it?
- what issues, advantages, or disadvantages do you see arising from the proposed definition of 'forest'?
- what issues, advantages, or disadvantages do you see arising from the decision in principle not to account for forests under Article 3.4?

Working paper

The Agricultural Sector

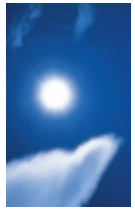
Introduction

Agriculture remains a key economic driver for New Zealand, generating more than half of New Zealand's merchandise exports.

New Zealand is also unique amongst developed countries, in that more than half (55 percent) of our greenhouse gas emissions are non-carbon dioxide emissions from agriculture (methane and nitrous oxide).

These two features mean climate change policy presents special challenges for New Zealand. On the one hand, we must take some action to address agricultural greenhouse gases or we risk ballooning emissions and consequent costs for the economy. On the other hand, we must not impose policies that damage the farming sector.

The Government's preferred policy for agriculture addresses both these objectives. Farmers, either directly or through their agents, will be expected to make contributions to a sustained research effort to find practical and economic ways to reduce greenhouse gas emissions. In return, the Government has agreed that no charges on methane or nitrous oxide emissions should be imposed on the farming sector during the first commitment period.



Preferred policy package – summary of key features:

- no emissions charge imposed on methane or nitrous oxide for at least the first commitment period
- increased research will be implemented through a negotiated partnership approach with sector groups
- the level of research funding will be established in discussion with the sector and experts in the field, and will be reviewed from time to time
- if the sector is unwilling to work with the Government to invest in a sustained research effort and encourage the uptake of findings, a research levy will be imposed on the agricultural sector to fund research
- energy used on-farm, such as fuel and electricity, will be subject to the emissions price that is applied generally to the New Zealand economy
- processors of agricultural products and potential new investors in processing who are Competitiveness-at-risk will have access to the Negotiated Greenhouse Agreements mechanism.

Background

The on-farm agriculture sector

In this discussion, 'agriculture' refers to methane and nitrous oxide emissions resulting from on-farm production. It does not include CO_2 emissions from using fossil fuels on-farm or emissions from electricity generation where that electricity is used on-farm. Agriculture also excludes processing of agricultural products.

A major driver of policy for agriculture is that it meets key criteria for being Competitiveness-at-risk, in that if a full cost of emissions were imposed, production would decline in New Zealand and shift to other countries without emissions costs. 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 1990 levels, 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 research levy applied prior to and during the first commitment period.

Discussion of options

1. Emissions charge:

Economic modelling[12] 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. This option was therefore rejected by the Government.

2. Levy on excess emissions:

The agricultural sector is likely to 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 $625 million over the first commitment period (assuming a price of $25 per tonne CO_2 equivalent), or around $1.25 per stock unit per year if a levy were applied on stock numbers to fund these excess emissions. If emissions were below 1990 levels then the sector would receive a rebate.

A mandatory levy/rebate system during the first commitment period would explicitly link costs of excess 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 provide direct incentives for reductions. As noted earlier, there are no clear options currently available to farmers to reduce these emissions, other than through reducing stock numbers. Therefore, this option was also rejected by the Government.

3. Research into emissions reduction:

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. It may also have significant commercial value, particularly if it could be applied in other countries looking to reduce greenhouse gas emissions. 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 research levy imposed on the sector to fund research in the first commitment period. A research levy of 20 cents per stock unit per year would raise $20 million for research annually. Further consultation with scientific experts and the sector is needed before an initial budget for research can be determined. However, the Government anticipates that funding in the order of $20 million per annum is likely to approximate or exceed the research effort needed.

12 See Assessment of the likely impacts on selected sectors of a domestic emissions trading regime, July 2001, Report to the Ministry of Economic Development, PA Consulting Group; and

Economic Outcomes of the Kyoto Protocol, November 2001, Report to the Ministry of Agriculture and Forestry, Australian Bureau for Agriculture and Resource Economics.

Importantly, there is no need to impose a research levy if the agricultural sector is prepared to work with the Government to implement the research needed. A voluntary, research-based approach recognises the circumstances of 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, these may be developed and adopted because they have benefits, such as increasing productivity, other than reducing greenhouse gas emissions. If research results are not adopted for other commercial reasons, then Project-based incentives might 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 be reluctant to participate voluntarily. However, it provides assurance to the agricultural sector about the policy approach during the first commitment period. In addition, there are incentives for participating in the research effort, since participants stand to benefit from intellectual property associated with technical solutions developed through research.

Preferred policy approach for on-farm agriculture group

The preferred policy approach to the agriculture sector is to exempt this sector from a price on emissions prior to and during the first commitment period at least, while further research is being carried out. We anticipate that the sector will be willing to work in partnership with the Government to invest in a sustained research effort aimed at identifying and developing technologies to reduce agricultural emissions, and encouraging their uptake. If not, a research levy will be imposed.

Current research projects

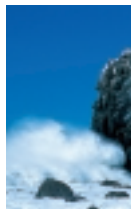
Some research is already underway. The proposed research will build on this. A number of agricultural sector organisations, including the Game Industry Board, Fonterra, Dairy Insight, the Wool Board, the Meat Board, AgResearch, Wrightsons Limited, and the Fertiliser Manufacturers Research Association, have formed a consortium to research methane mitigation technologies and practices.

Currently the Government provides around $23.5 million in funds for all forms of climate change research, from basic atmospheric chemistry to applied adaptation research. Approximately $1-$2 million is spent directly on agricultural greenhouse gas mitigation. The Government provided an additional $1 million in last year's budget to support agricultural methane greenhouse gas mitigation research. This funding forms part of the current FRST funding round.

Issues for feedback at meetings

The Government wants to work with the agricultural sector to agree the structure, governance and funding of a body to purchase research into the mitigation of agricultural greenhouse gases.

The discussion below highlights some of the issues sector participants may wish to think about and discuss at consultation meetings as they develop their views on funding agricultural emissions research.



Quantum of research

- What level of funding will be adequate to ensure the agricultural sector makes meaningful progress towards addressing its greenhouse gas emissions?
- When should this funding commence and should it be phased in? How should this quantum be set, agreed and reviewed?

Sector-wide or sector-specific research

Should research funding:

- be channelled to a single organisation that prioritises and purchases all research for all sectors; or
- be retained for specific sector research by specific sector groups such as dairy or sheep; or
- a combination of the two?

Corporate structure

What corporate structure should the research purchaser adopt? Some options include:

- a private or listed company
- a trust or incorporated society
- consortiums of investors brought together on a case-by-case basis under normal commercial contracts
- a privately owned statutory organisation
- a Crown entity.

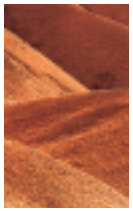
Each option has implications for the governance and ownership of the body.

Ownership of the research purchaser and the intellectual property

For corporate structures other than a Crown entity, the question arises as to who should own the research purchasing body and any intellectual property. Some options include:

- agricultural companies (such as dairy or meat processing co-operatives) and sector organisations (for example the Meat Board, Wool Board or Game Industry Board)
- farmers directly (in proportion to their contributions)
- equity investors, regardless of where these come from.

Funding the research



Funding needs to be adequate to ensure meaningful progress is made toward addressing agricultural greenhouse gas emissions. To achieve this, the research effort must be sustained over at least the medium term. Some options for funding include:

- voluntary contributions/equity investments by sector organisations and companies
- direct farmer contributions (if this option were selected these would most probably be through a compulsory research levy)
- equity investment on the basis of a public prospectus.

Governance

How should the research purchaser be governed, and who should establish research strategies and priorities? Some options include:

- a board of directors appointed in accordance with the Companies Act and the research purchaser's constitution
- a self-selected pan-industry group (with or without Government membership)
- a Government-appointed group
- for research priorities – a body of scientific experts including FRST.

Role of Government

What role should the Government take in the funding and directing of research? For example, the Government could:

- make some direct investment in the research purchaser. Such investment would be accompanied by the Government also taking a stake in setting the priorities for research and a share in any intellectual property
- fund FRST specifically for research into agriculture greenhouse gas mitigation where such research has a predominantly public good component. In such circumstances, the research purchaser would be free to bid for funds from FRST in the usual way. The Government would not necessarily have any direct influence on the purchaser
- appoint some proportion of members to the research purchaser's governing body (for example, its board of directors)
- make available expertise from within the Government to assist in setting research targets and priorities
- agree to legislate to establish funding levies or organisational structures
- review the effectiveness of the research funding mechanism
- work with the research purchaser to ensure the uptake of emissions reduction solutions identified through the research.

Working Paper

Local Government

Introduction

This paper outlines, in broad terms, two climate change work areas.

- the role of the Resource Management Act (RMA) in climate change
- a formal partnership between local authorities and central government on climate change.

The Resource Management Act

Background

The Government has received many requests to clarify the role of the Resource Management Act (RMA) in addressing greenhouse gas emissions. These have come in previous rounds of climate change consultation from individual local authorities, as well as from the Local Government and Environment Select Committee.

Local authorities have not applied particularly onerous consent conditions in the past, usually requiring monitoring of emissions and the provision of evidence that the applicant has attempted to reduce greenhouse gas emissions. There has been no real attempt to require applicants to avoid, remedy or mitigate the adverse environmental effects of greenhouse gas emissions, with the one exception of the Stratford Power Station which was called in by the then Minister for the Environment.

There are many complex issues involved with the role of the RMA in dealing with greenhouse gases. Such issues include:

- the emissions caused by future urban development
- local health effects of greenhouse gases
- the monitoring of emissions through resource consent conditions
- the potential for regionally inconsistent treatment of greenhouse gas emissions
- the potential for addressing emissions twice – once through national climate change instruments and once through the RMA.

The Government wishes to clarify the policy and legal situation by signalling that it intends to amend the RMA. Questions the Government has for this consultation refer to the timing and the nature of any amendment.

This consultation also includes a question about whether or not the Government should develop interim national guidelines to assist local government to control

greenhouse gas emissions. These guidelines would be available to councils until the amendments to the RMA are complete.

The actual content and nature of any amendment to the RMA is being analysed by Government officials and RMA legal experts, and is also part of this consultation. The Government is interested in feedback from the public.

Policy options

National Policy Statement

One approach to address those issues is to develop a National Policy Statement (NPS). However, the Government does not consider that an NPS is the most effective and efficient approach to clarifying the role of the RMA in managing greenhouse gas emissions. This is due to the large demands on finances and other resources (such as council and Ministerial time in consultation) from its preparation and monitoring. Mixed messages have been received from local government when explicitly questioned on the issue. Additionally, developing and implementing an NPS can take a long time, and outcomes can be uncertain.

National provisions

Recently there have been calls for the Government to use national provisions (such as a Ministerial call-in of a resource consent application) under the RMA to deal with the predicted greenhouse gas emissions from planned thermal electricity generation. However, Government has responded by stating that future national climate change policy instruments, combined with the mechanisms and targets of the National Energy Efficiency and Conservation Strategy (NEECS), are likely to provide signals and incentives that are more cost effective and dynamic than use of the RMA provisions.

Urban form

A distinction needs to be made between the effects of greenhouse gas emissions on the global environment and the effects of those same gases on the local environment. The former effects can lead to climate change and global warming; the latter effects can lead to local pollution as well as health and amenity impacts. While national climate change policy is expected to satisfactorily address most CO_2 emissions, it is unlikely that it will be effective in changing urban form and thereby the volume of emissions from transport in urban areas. It is clear that the RMA should be used to contribute to an urban form that improves energy efficiency and air quality and, as a result, reduces greenhouse gas emissions. This would require local and regional councils to take greenhouse gas implications of land use decisions, such as the location of infrastructure and development, into account in developing plans and granting consents. The Government has initiated a work programme on urban form that will include consideration of the RMA in this regard.

Energy Efficiency and Renewables

The Government also has a work programme aimed at ensuring that energy efficiency and renewables are effectively addressed in RMA processes and documents.

Amending the RMA

The Government intends amending the RMA in order to remove the ability of councils to control activities, via resource consents or rules in plans, for the purpose of reducing greenhouse gas emissions and their effects on climate change. It expects that in time, climate change price instruments will address greenhouse gas emissions in a more consistent and efficient manner than RMA controls on emissions to air.

The objective of any RMA amendment would be to avoid putting RMA resource consent applicants in the 'double jeopardy' position of being required to mitigate effects under the RMA framework, when they also have to meet obligations under the Government's national climate change policies.

National guidelines

Until the RMA is amended, the Government could develop national guidelines to assist local government when considering resource consents that involve greenhouse gas emissions. While these guidelines would have no statutory power, they would provide some assistance in the interim before an amendment to the RMA is enacted. They would also serve to provide consistency across the country in the treatment of consents, and in planning for the long-term effects of climate change.

Adapting to climate change

The Government is analysing the assistance and guidance needed by local government in adapting to the future impacts of climate change. The nature and extent of this assistance and guidance will become better understood as scientific knowledge improves.

A recent workshop on climate change impacts and adaptation options for local government agreed that increased networking and best practice examples would have immediate benefits.

Issues for feedback at meetings

The following issues will be discussed during consultation. Your feedback is sought.

RMA

- the Government's intention is to amend the RMA once the Kyoto Protocol is in force, and New Zealand has ratified. What is your view?
- how should the RMA be amended?

National Guidelines

- what is your view on the value of developing national guidelines for local government before the RMA is amended?

Adapting to climate change

- what assistance and guidance is most needed by your council?
- how can the Government encourage the use of best practice planning tools?

Partnership programme

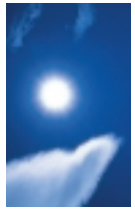
The Government intends developing a formal partnership programme on climate change with local government. Such a programme will include calculating greenhouse gas emissions inventories and emissions forecasts, as well as developing action plans and emissions targets.

Some local authorities are already developing climate change strategies, as well as inventories of their emissions. A formal partnership programme will provide a nationally consistent programme framework, help with information sharing between participants, and encourage participation and action. In short, it will establish an active partnership framework with associated tools and guidance mechanisms to help local government contribute to the delivery of New Zealand's future Kyoto Protocol obligations.

Cities for Climate Protection

It is the Government's intention to develop a New Zealand version of the Cities for Climate Protection programme operating in Australia. This successful programme involves more than 146 local governments, which in turn represent nearly 60 percent of the Australian population. Councils participating in the programme follow a five-milestone approach to reducing their greenhouse gas emissions:

1. Prepare base-line greenhouse gas emission inventories and forecasts for key sources such as council and community energy use, transportation, industry, buildings and waste management.
2. Establish local greenhouse gas emission reduction targets.
3. Prepare and adopt (at a political level) Local Climate Action Plans, specifying the measures to be taken to achieve targets.
4. Implement Local Climate Action Plans.
5. Periodically monitor and report on all major sources of greenhouse gas emissions and milestone implementation.



In New Zealand, an appropriate version of the international Cities for Climate Protection (CCP) model would be developed and implemented in partnership with the Energy Efficiency and Conservation Authority (EECA) and Local Government New Zealand (LGNZ). Work on this has already begun.

There are several advantages to developing a New Zealand CCP programme. It would:

- enable those councils that are already examining ways to make a positive contribution to reducing New Zealand's greenhouse gas emissions to systematically assess their own emissions, prioritise and implement actions to reduce them and measure their results
- provide for a framework for engaging non-participating councils
- facilitate councils to involve their communities in achieving emission reduction targets. This recognises the role of local government as leaders, environmental informers and advocates in the local community
- build on the existing foundations provided by successful and ongoing programmes implemented by EECA and LGNZ
- be organised to encourage and promote the local delivery of climate change components (and those local government actions with climate change co-benefits) of several Government strategies, including the National Energy Efficiency and Conservation Strategy (NEECS), the New Zealand Transport Strategy and the New Zealand Waste Strategy

- piggyback on the experience and expertise of member local governments in the programme in Australia and other countries.

The Government considers it a sensible requirement to make membership of the Energy Wise Councils Partnership (EWCP) a precondition for involvement in any local government climate change programme. EWCP will assist local authorities in meeting objectives within the climate change partnership programme, as well as with the delivery of the NEECS, and with transport policy goals. This would mean increasing funding for EWCP to support its expanded membership.

Issues for feedback at meetings: Partnership

The Government would like to hear from local government its views on the Cities for Climate Protection partnership programme, in particular:

- is it a good idea?
- would your council be interested in participating?

The Cabinet Paper that discusses the role of Local Government, the Resource Management Act, and adaptation policies within the Government's preferred policy package on climate change can be viewed on www.climatechange.govt.nz

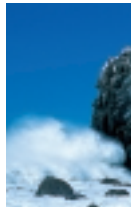
Part Five

About climate change

Global warming and climate change

The temperature of Earth's surface has risen over the past 100 years. A small part of this increase has probably been caused by natural climate variations, but there is strong evidence that most of the warming over the past 50 years is a result of greenhouse gas emissions caused by human activity.

Greenhouse gases got their name because they act like the outside covering of a greenhouse, letting the sun's warmth through to heat the ground, but preventing it from escaping back into space. Greenhouse gases absorb heat radiated or reflected from the ground, increasing the temperature of the atmosphere. Greenhouse gases that naturally occur in the atmosphere make life on earth possible. Without them, too much heat would escape, and the surface of the planet would freeze. However, in too high a concentration, they would hold in excessive heat and the planet's climate would become more and more unstable.



Climate models predict that greenhouse gas emissions will continue to increase atmospheric temperatures. The rise projected for the next 100 years is likely to be more rapid than any natural variations over the past 10,000 years. Because rising temperatures cause changes (often drastic changes) in the climate, the effect of global warming is often referred to by the more general term climate change.

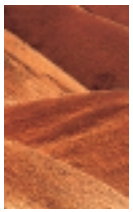
The effects of climate change

The effects of climate change are already measurable – the world's temperatures and sea levels are rising, and most glaciers are retreating. Changes in regional rainfall patterns have already been observed and are expected to alter more strongly as climate change continues. The frequency of some extreme weather and climate events such as heat waves, droughts and floods is also expected to increase. These changes are likely to influence native ecosystems, agriculture, coastlines, and our economy, infrastructure, health and security. For example, changing weather patterns could cause increases in the numbers of refugees seeking international support, as repeated droughts and floods drive people from their traditional homes.

Not all impacts will necessarily be negative and the severity of impacts will vary across the globe. But it is almost certain that, overall, more people will be harmed by climate change than will benefit from the changes. Adverse impacts will become ever more predominant, and beneficial effects are expected to diminish because of larger cumulative emissions of greenhouse gases and associated changes in Earth's climate. Because of the long life-time of some greenhouse gases in the atmosphere, there will be

time lags of decades to centuries between reductions in emissions and a corresponding halt to temperature increases.

As temperatures rise, insects and organisms that are not usually found in New Zealand because they prefer warmer climates, could become established.



Evidence for climate change

There is now clear evidence that Earth's climate system has demonstrably changed since pre-industrial time, and that most of the warming over the last 50 years has been caused by emissions of greenhouse gases that have been created by humans. The Third Assessment Report of the Intergovernmental Panel on Climate Change reports that warming is expected to continue, with an increase in globally averaged temperatures of between 1.4 and 5.8°C. This is two to ten times larger than observed warming in the 20th century. How high the temperatures go, how soon, and whether changes can be reversed, depend on human action. The greater the reduction in greenhouse gas emissions, and the earlier they are made, the smaller and slower the projected warming and rise in sea levels.

What are the greenhouse gases?

The main greenhouse gases are:

- methane from farm animals and waste
- carbon dioxide from burning of fossil fuels
- nitrous oxide from soil
- synthetic gases like sulphur hexafluoride, perfluorocarbons and hydrofluorocarbons.

The international response to climate change

The international community has recognised that the issue of climate change needs a global response and that it is sensible to start limiting the growth of greenhouse gas emissions now in order to reduce the negative impacts expected from future global warming. Countries have been working through the United Nations to achieve this.

Two important international agreements deal with the threat of global climate change: the United Nations Framework Convention on Climate Change (UNFCCC) was adopted at the Rio Earth Summit in 1992. The Kyoto Protocol, a further agreement negotiated in accordance with the UNFCCC, was finalised in December 1997.

The objective of the UNFCCC is to stabilise greenhouse gas concentrations at a level that avoids dangerous human interference with the climate system. As mentioned earlier, New Zealand is one of 180 countries that signed and ratified the UNFCCC. All developed countries that ratified the UNFCCC agreed to non-binding targets to reduce greenhouse gas emissions to 1990 levels by 2000. Only a few countries made appreciable progress towards achieving those targets.

The UNFCCC was designed so that it could be developed further by countries in response to new scientific knowledge. In 1997, the international community responded to new scientific evidence that suggested the objectives of the UNFCCC would not be met by voluntary reductions and that legally binding targets were required. They agreed to a further international agreement, the Kyoto Protocol.

The Protocol sets target levels of greenhouse gases for developed countries to achieve during 2008-2012 (the first commitment period). The Protocol is only the first step in the reduction of greenhouse gases worldwide, and it is expected that further, stricter targets will be set in future commitment periods. New Zealand signed the Protocol in 1998, and has been actively involved in negotiation of the detailed rules by which it will operate.

Since 1997, countries have been negotiating the working rules that will apply under the Kyoto Protocol. Although some of the detailed rules are still to be finalised, many of them were agreed at the most recent Conference of the Parties to the UNFCCC in Bonn in July this year (the Parties to the UNFCCC are those countries that have ratified it). We are now in a position to look at how these rules will affect New Zealand and how they can be applied to help us meet our obligations under the Protocol.

The Protocol will only enter into force for New Zealand if it ratifies the Protocol, and if at least 54 other countries also do so, including developed countries that were collectively responsible for at least 55 percent of developed-country carbon dioxide emissions in 1990.

Glossary

Article 3.3
An article in the Kyoto protocol which allows for sink credits to be earned over 2008-2012 for a limited set of sink activities (establishing new forests) that have occurred since 1 January 1990. Any loss of carbon over 2008-2012 from forests that are converted to a different land use after 1 January 1990 results in a loss of a country's emissions units.

Article 3.4
An article in the Kyoto Protocol that provides a basis for claiming further emissions units from additional sink activities associated with management of pre-1990 forests, cropland management, grazing land management and revegetation if New Zealand chooses to do so for the first commitment period 2008-2012.

Carbon leakage
The effect when an industry facing increased costs at home due to an emissions price, chooses to reduce production, close or relocate production to a country with no controls on emissions and therefore the industry's emissions take place outside the overall Kyoto limits. This situation could lead to increased emissions world-wide.

Climate-friendly
A general term for technology, actions or attitudes that do not contribute or contribute less than the norm, to the risks of climate charge (e.g. carbon free or low carbon intensive means for generating energy).

Commitment period
A range of years within which Parties to the Kyoto Protocol are required to meet their greenhouse gas emissions reduction target, which is averaged over the years of the commitment period. The first commitment period is 2008-2012.

Competitiveness-at-risk group
This group is comprised of sectors of the economy and particular industries that would find adjustment difficult if expected to make the transition to a direct price on emissions in the first commitment period. For these companies, it may be a choice of closing, changing location to a country with no controls on emissions ('carbon leakage'), or reducing staff or production in the short-term to compensate for the increased costs.

Developed countries
Typically described as (core) OECD countries; but for the purposes of this document, used to describe countries listed in Annex 1 of the UNFCCC which also includes countries in eastern Europe and the former Soviet Union (referred to as having 'economies in transition').

EECA
The Energy Efficiency and Conservation Authority.

Emissions charge
A tax applied to every tonne of CO_2 equivalent.

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 emissions units, either domestically or internationally.

Emissions units
A unit representing one tonne of CO_2 equivalent. For a country to be in compliance with its Kyoto Protocol commitment, it must have and retire units equal in number to its emissions over the commitment period. A country is initially assigned a number of units equal to its target (in New Zealand's case, five times its 1990 level of emissions).

Enter into force
When enough counties ratify the Kyoto Protocol, it will enter into force – which means that it will start operating and will be legally binding on countries that have ratified it.

Forest sinks
See Sinks.

Foundation policies
Actions that the Government is already taking, or has already approved, regardless of Kyoto. These will go ahead whether or not sufficient countries ratify to bring the Protocol into effect. They are important for New Zealand and New Zealanders, whether or not their impact on emissions is their primary purpose.

Functional market
Criteria for determining whether an emissions trading system will provide an efficient price are:

- the international emissions trading market is a well-functioning market where transaction costs are low and prices are determined competitively
- the situation regarding the participation in the international market of possible and likely major buyers, including the US, Japan and EU, is clear
- Russia and the Ukraine are able to use the Kyoto mechanisms (that is, they can sell their excess emissions units)
- second commitment period targets have been negotiated and likely second commitment period participants identified
- analysis of economic, social and competitiveness impacts has been undertaken and any outstanding concerns can be addressed.

General Energy Users group
Most New Zealanders are in the General Energy Users group. This includes the energy and transport sectors, industrial and business processes, operations and households, though not big energy users; in effect, all businesses, organisations, institutions and households for which energy (electricity, gas, coal or transport fuels) is a cost, but may not be the major cost in their operations. As a group, it represents about one quarter of New Zealand's greenhouse gas emissions but about two-thirds of its CO_2 emissions.

Hydrofluorcarbons (HFCs)
A group of greenhouse gases used in a range of industrial applications.

Kyoto forest
A forest planted since 1 January 1990 on land that was previously non-forest.

Kyoto Protocol
The international agreement under the UNFCCC that sets legally binding targets for greenhouse gas emissions on countries listed in its Annex B.

Methane
A greenhouse gas with emissions coming from ruminant livestock, landfills, coal mining and other sources.

National Interest Analysis
An analysis which by constitutional convention must be tabled in New Zealand's Parliament and subject to consideration by Parliamentary Select Committee; examines the implications of ratification of the Kyoto Protocol as an international treaty binding on New Zealand.

Negotiated Greenhouse Agreements (NGAs)
A contractual agreement between the Government and a Competitiveness-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 the Working Paper: Competitiveness-at-risk Firms and Negotiated Greenhouse Agreements.

NEECS
The National Energy Efficiency and Conservation Strategy (NEECS) developed by EECA and the Ministry for the Environment to encourage energy efficiency and a target for renewable energy.

'Others' group
This group includes sectors 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 and synthetic gases sectors.

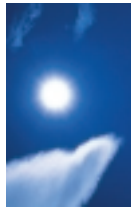
Perfluorocarbons (PFCs)
A group of greenhouse gases which are used in a range of industrial applications and are produced during aluminium smelting.

Programmes
Policies, measures and activities that will have an impact on greenhouse gas emissions or will address climate change issues, but where results generally cannot be accurately determined in advance. Programmes often involve building knowledge and experience, identifying and overcoming barriers and facilitating market transformation.

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, such as funds or emissions units. An activity could not be a project unless it would be uneconomic without payment of an incentive. A more detailed explanation is set out in Part Four of this document, Working Paper: Projects (pages 34-36).

Renewables
Energy sources that are constantly renewed by natural processes. These include non-carbon technologies such as solar energy, hydropower and wind as well as technologies based on biomass.

Revenue recycling
The return to the economy of revenue derived from an emissions charge or from the selling of emissions units or sink credits. In this paper, revenue recycling refers to using the balance of net revenue, after funding policies such as Projects, NGAs and NEECS, for recycling back into the economy, for example through the tax system.



Sinks
Any natural or man-made system that absorbs and stores greenhouse gases, including carbon dioxide, from the atmosphere. To be considered a sink, a system must be absorbing more CO_2 than it is releasing so that the store of carbon is expanding.

Sink credits
A unit representing one tonne of carbon dioxide equivalent absorbed after 1 January 2008. Sink credits would be equivalent to emissions units and could be used to meet emission obligations under the emissions trading system.

Sulphur Hexafluoride (SF_6)
A greenhouse gas used in electrical switchgear and other industrial applications.

UNFCCC
United Nations Framework Convention on Climate Change negotiated by the world's nations in 1992. It aims to stabilise greenhouse gas concentrations at a level that avoids dangerous human interference with the climate system.

New Zealand Climate Change Project
Te Hōtaka Rerekētanga Āhuarangi ō Aotearoa

Leve 1, 22 The Terrace PO Box 55 Wellington New Zealand
Phone 04 918 3129 **Info Line** 0800 WARMING **Fax** 04 918 3130 **Email** info@climatechange.govt.nz **www**.climatechange.govt.nz