

An Emissions Trading Scheme for New Zealand

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Journalists Trading Organisation training forum
on sustainability, in conjunction with the Ministry
for the Environment and PricewaterhouseCoopers

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Good morning

It's a pleasure to participate in such a constructive event.

This time last year I covered climate change issues in a speech to a business audience about future economic challenges. A few people patted me on the back at the time for being bold – confronting the economic implications of climate change for New Zealand, and making a strong call for action.

Fast-forward a year, and the landscape has changed. I've given two speeches on the economic impacts of climate change in the last two months. Elements of those speeches would be considered by some as provocative – and indeed, they have prompted a spectrum of responses. That's good – we welcome a lively dialogue. But neither speech has caused a furore, as might have been the case in the not too distant past.

That's because in the space of just a year, climate change and sustainability have reached into the national consciousness.

No longer do we characterise climate change as simply an environmental issue. At the Treasury, we're acutely aware of the important economic implications. A changing climate will impact on households and firms, as well as governments – now, and in the future. It will change behaviours and will increasingly inform domestic and foreign policy, for New Zealand and most other countries. It is a defining issue, worldwide.

Today I will discuss briefly the nature of the climate change issue for New Zealand, and emphasise some of our unique characteristics which must be considered as we develop an appropriate policy response. Against that background, I will go on to discuss a major element of the Government's proposed policy response: an emissions trading scheme which, in time, would encompass all gases and all sectors.

The Treasury's role

But very quickly, why me – why the Treasury? The Treasury is the Government's lead adviser on economic and financial policy, and our ultimate goal is a higher standard of living for all New Zealanders.

The Prime Minister has confirmed that sustainability headlines the Government's agenda and will be a core part of its approach to policy. Climate change is at the heart of that agenda, and it's central to the Treasury's own objectives – particularly economic growth. Higher living standards cannot be achieved if our environment or our economy is compromised by climate change.

The Treasury is part of the Emissions Trading Group – a dedicated cross-government team charged with the policy design work for an economy wide emissions trading scheme. The Group is made up of representatives from all departments with a direct stake in emissions-related policy work: the Ministry for the Environment, the Treasury, and the Ministries of Economic Development, Transport, and Agriculture and Forestry.

Contrary to some recent media reports, the Emissions Trading Group is being led by the Ministry for the Environment, and in my view is a really positive example of "joined-up Government". We have brought together the people with the right skills and experience to do a difficult job. I'm in no doubt that Treasury members of the Group are making a strong contribution – but developing the policy for emissions trading in New Zealand is very much a team effort.

But more on emissions trading shortly...

Stern and the GDP effects of climate change

As the Government's lead economic advisor, the Treasury follows the economics of climate change closely. At the same time, we must consider climate change in a wide economic context – recognising that the implications encompass both direct and indirect costs to the economy.

Many of you will be aware of the Stern Review, released by Her Majesty's Treasury in October 2006. It drew on scientific evidence to predict the economic impacts and risks arising from uncontrolled climate change, and found that the costs could equate to as much as a 20% reduction in GDP per head, now and in the future – depending on assumptions regarding non-market impacts and the weighting of effects on the poor.

Many of you will also be aware that Stern's review has been criticised in some quarters. Bear in mind that such criticism is inevitable. Given the inherent uncertainty in long-term modelling, and the range of ethical positions that can be taken to valuing future generations or the environment, a variety of conclusions can be reached.

However, a majority of reports – including Stern's – reach a consistent conclusion: the benefits of early action considerably outweigh the costs. Action now will cost something, sure – but doing nothing may cost us more – perhaps a lot more. Notably, Stern and others also advocate strongly for an economic response in the form of carbon trading.

It is difficult to determine accurately the long term global effects of uncontrolled climate change or the costs of taking action to control it. However, the task is much easier if we focus on New Zealand's costs, in the short term.

The Government's 2005 Review of Climate Change modelled various scenarios to determine the effect different carbon prices could have on GDP. One, which priced carbon at 13 New Zealand dollars a tonne, predicted that GDP would decrease by 0.04% in 2010 compared to business as usual. Another scenario illustrated that a price of 51 New Zealand dollars would see GDP fall by 0.24% – again, against business as usual.

The "business as usual" bit is important. The figures I just quoted don't mean that the economy will be 0.04% smaller than it is today. What they mean is the economy will be 0.04% smaller than it would have otherwise been in 2010, if the price of carbon had not been increased. The Treasury is forecasting that over the coming few years, real GDP in New Zealand will grow by about two percentage points a year. This means that although emissions trading might reduce growth a bit, we would still be wealthier as a nation than we are now.

Against a benchmark of higher living standards, 0.04% and

0.24% are not large percentages. The higher figure, 0.24%, is roughly equivalent to a once-only one month pause in growth at the trend rate. These figures reinforce another clear message from Stern and other commentators: the cost of pricing emissions at levels consistent with our Kyoto commitments need not have a huge impact on GDP.

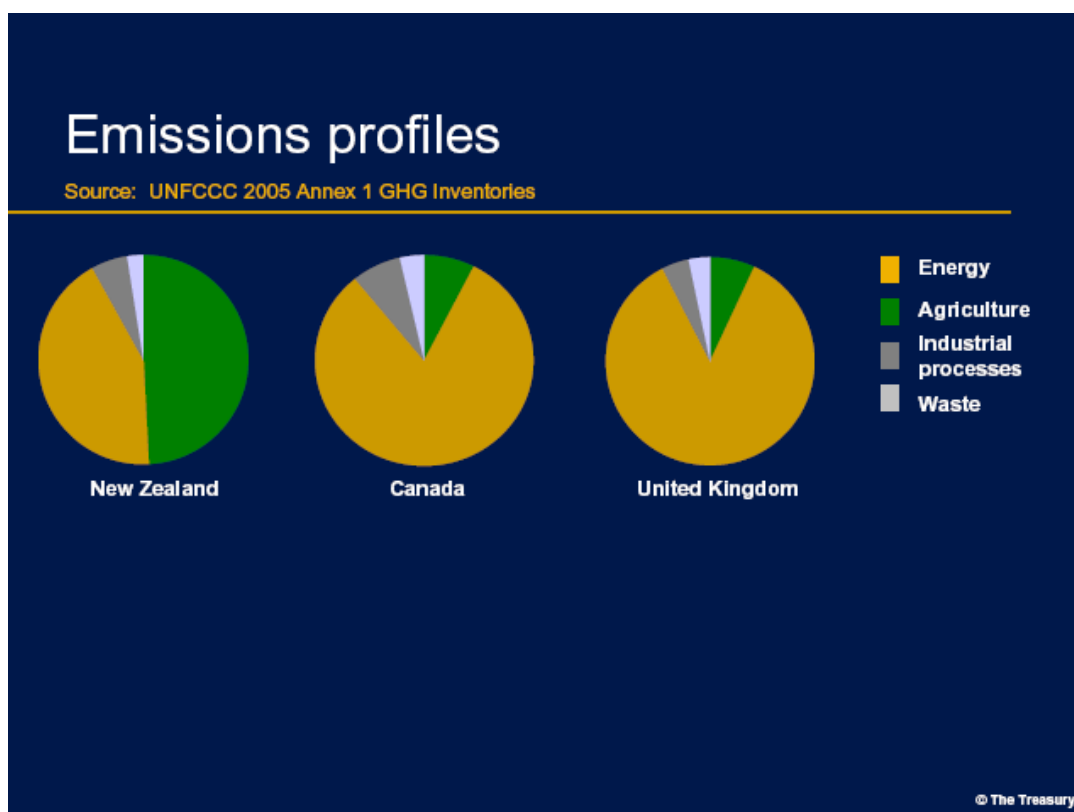
Still, the direct costs of reducing emissions must be considered alongside indirect costs, which are potentially wider. In formulating our policy responses on climate change, we must take that wide range of factors into account. Climate change and the world's reaction to it will bring risks, and it will bring opportunities. Successful New Zealanders will respond to both – and the Government is working to create an environment which encourages and assists them to do so.

New Zealand's particular characteristics

An emissions trading scheme is intended to be a major component of the Government's policy to deal with the climate change challenge. But before we discuss emissions trading in detail, it's important to consider briefly the environment we're operating in – New Zealand's particular characteristics in an emissions and climate change context.

Compared to fellow Kyoto ratifiers and other industrialised countries, New Zealand's emissions profile is unique. Because our economy depends heavily on agriculture, methane from ruminant animals and nitrous oxide from fertiliser and animal waste dominate our emissions profile.

[Slide one - emissions profiles]



The prominence of agriculture is shown by these graphs – which compare the emissions profiles of New Zealand, the UK and Canada. Fellow Kyoto ratifiers Canada and the UK are good comparisons, because sector categories and measurement methodologies are consistent with New Zealand's.

You can see that for New Zealand, agriculture – the green segment – contributes almost 50 per cent of our emissions. For Canada, agriculture is just 8 per cent of emissions and for the UK, even less at 6 and a half per cent.

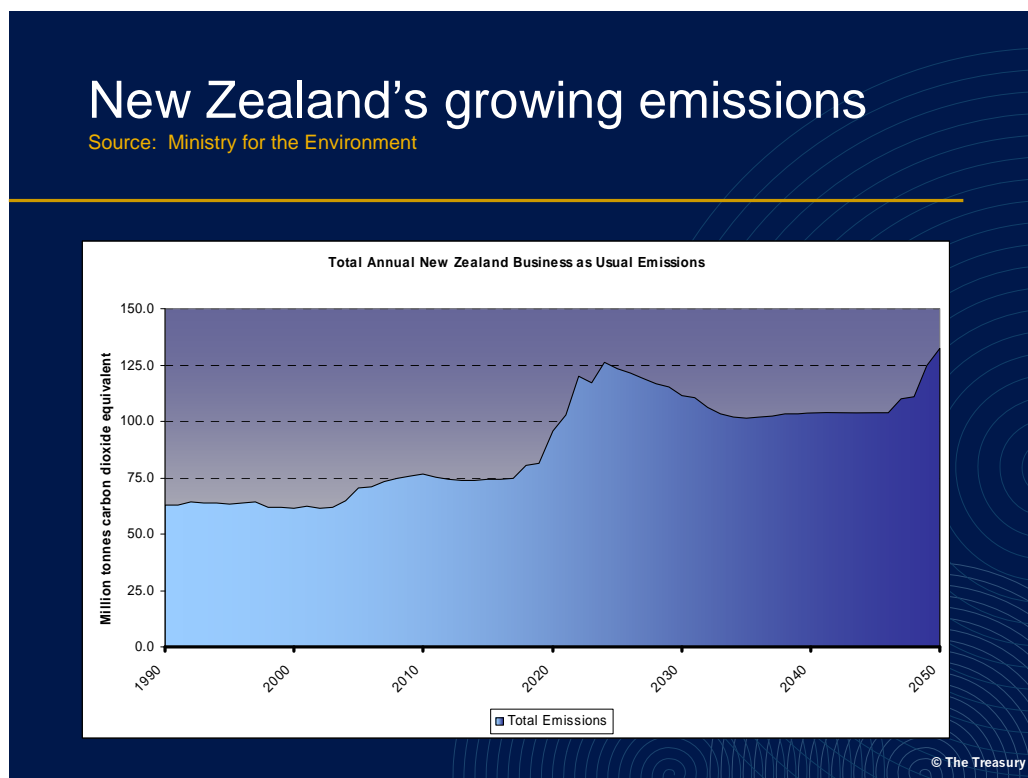
On the other hand, consider emissions from the energy sector – the yellow segment, which includes transport. For Canada and the UK, energy emissions make a massive contribution – 84 and 86 per cent respectively. For us, it's only 42 per cent.

Because we ratified the Kyoto Protocol, we must take responsibility for all emissions in excess of 1990 levels during the first commitment period. Currently that liability is held on the Government's books at about 540 million dollars.

It may be appropriate for taxpayers, through Government, to bear some of that cost. But for reasons of equity, efficiency and incentives, it's also appropriate for emitters and those benefiting economically from emissions to face some of the cost.

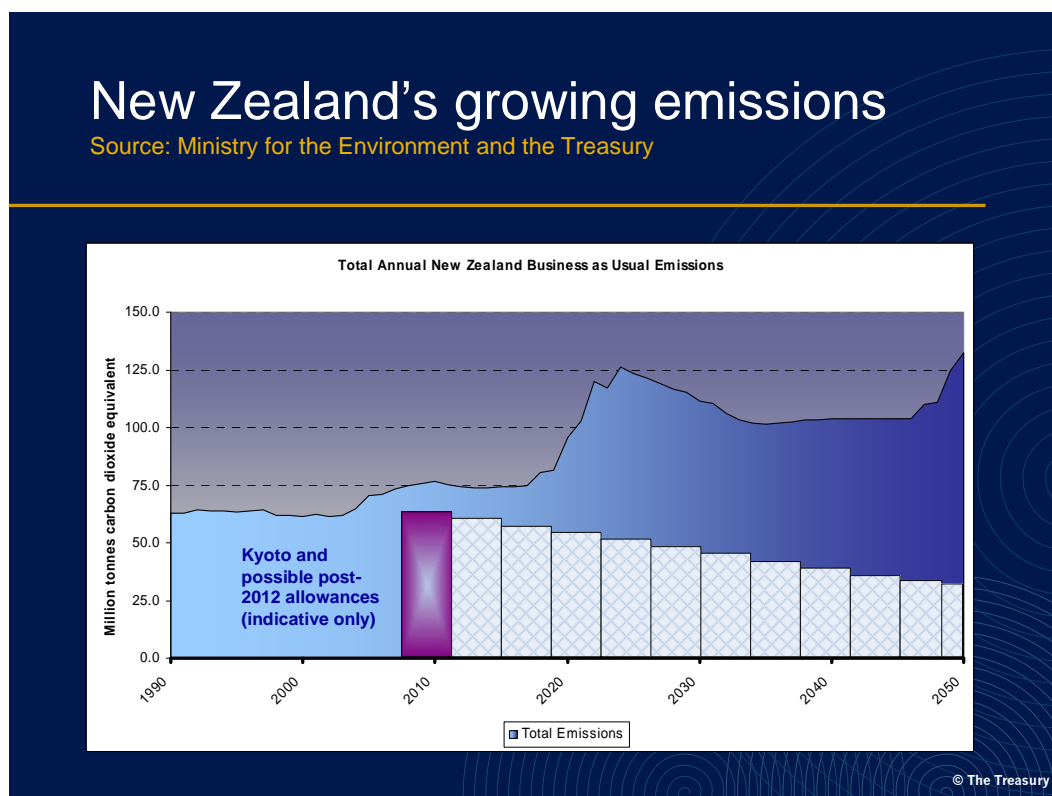
And it's not just all about Kyoto. The landscape post-2012 – the end of Kyoto's first commitment period – is still uncertain at this stage, but we are certain we'll be operating in a carbon-constrained world – and increasingly so. New Zealand's response now must be adaptable, and it must be enduring.

[Slide two - New Zealand's growing emissions]



Another important consideration is that without any policy intervention, New Zealand's business-as-usual emissions are set to increase steadily over the coming decades, to unsustainable levels – as this graph shows.

[Slide three - New Zealand's growing emissions]



And when you superimpose on this forecast emissions path our possible emissions allowances under Kyoto and its successors, the challenge is seen in sharp focus. Those allowances are very likely to decrease over time, possibly to as low as 50% of 1990 emissions by 2050 - as is shown by the indicative projections in this graph. The widening gap between the business-as-usual emissions path on the one hand, and indicative allowances on the other, represents a liability we as a country would need to account for.

Certainly, New Zealand's proportion of the world's emissions is not large. But other countries, including major emitters, are facing similar profiles of business-as-usual emissions growth. The consequences could be catastrophic.

“Emissions trading 101”

So let's talk about policy that can help reduce our domestic emissions and contribute to global efforts to curb climate change.

Climate change can be characterised as what economists refer to as a “tragedy of the commons”. Where a clear property right to a common resource does not exist, no individual has an incentive to manage the use of that resource – and over-exploitation will occur. The capacity of the atmosphere to absorb greenhouse gases is a good example.

To a large extent, emissions result from producing things that are valuable. But producers aren't facing the full costs of the production of those valuable things. The social costs, or

so-called “externalities” – namely, the damage caused to the atmosphere by greenhouse gas emissions – are left out of market pricing.

To address that gap and achieve a reduction in emissions, a government can follow two general approaches – regulation, or an economic instrument. All things being equal, a government will make a choice based on which approach (or combination of approaches) achieves the required level of emissions reductions at the lowest possible cost to the economy.

An economist will tell you that the least-cost response is where responsibility for emissions abatement is allocated in such a way that the marginal costs of abatement are equated across all the groups involved. In other words, those who can reduce their emissions cheaply should do a lot, and those for whom reduction is expensive should do less.

Turning first to a regulatory approach: designing regulation to insert a carbon price into every consumption and investment decision impacting on emissions in a low-cost way would be a daunting task. To set appropriate emissions targets, large volumes of high quality information from each emitter would be required.

That isn't to say, however, that targeted regulatory interventions in some circumstances aren't justified.

But an economic instrument has the advantage of automatically allocating responsibility according to the marginal abatement costs of emitters. It provides an incentive for those in the economy with the knowledge and ability to reduce emissions to do so. Emitters are likely to have much better knowledge of their emissions abatement costs than a regulator – but just as importantly, they are best placed to search out the best ways to reduce their emissions.

Accordingly, the Government has decided in principle that New Zealand should follow the economic instrument approach, and favours a cap-and-trade emissions trading scheme as its core price-based measure for reducing greenhouse gas emissions. The Emissions Trading Group I spoke about before is working intensively on options for such a scheme, and decisions are expected to be announced by Cabinet soon.

It would be premature for me to discuss design options in detail before those announcements. However, it's sensible to consider in general terms how an emissions trading scheme would operate, and some of the issues officials face in designing a scheme for New Zealand which recognises some of the unique characteristics I touched on earlier.

Currently in New Zealand, everyone has a right to emit greenhouse gases into the atmosphere, subject to some regulatory constraints like emissions standards for cars and the regulation of land use under the Resource Management Act.

An emissions trading regime would formalise the right to emit, and see those rights enforced. Recall that in a “tragedy of the commons” situation, it is the absence of such rights that leads to over-exploitation of resources.

But enough economic jargon – how would an emissions trading scheme work in practice?

The scheme would cover emissions from six greenhouse gases: methane, nitrous oxide, hydro-fluorocarbons, perfluorocarbons and sulphur hexafluoride, as well as carbon dioxide. Significantly, agricultural greenhouse gases would be captured, along with CO₂.

Under a cap-and-trade model, permitted emissions of those gases would be limited at a certain level – that’s the “cap”.

Participants in the scheme would be required to match all their emissions with a corresponding number of emissions units, administered by a central agency.

The number of units released into the market would, of course, be restricted to the same level as the prescribed cap. This would ensure that the pre-determined level of emissions was not exceeded.

Participants would purchase an initial allocation of emissions units, or receive them for free.

Participants would be required to monitor and record their emitting activities, and report them to the central registry.

Then, at the end of a defined commitment period, participants would surrender a number of units equal to their measured emissions.

The other key component of a “cap and trade” system is, of course, the “trade” bit: emissions units would be tradable. If a participant’s emissions exceeded their initial allocation, that participant would be forced to buy units from other participants. Participants who emitted less than their initial allocation could sell their excess units – to the overshooting participants, or even secondary market traders.

This is the beauty of a cap-and-trade based economic instrument: emitters who have low-cost alternatives to emitting will have a strong incentive to undertake them, because they can sell their units to emitters for whom reduction is more costly. A cap-and-trade system not only achieves emissions at a prescribed, desired level, but it arrives at that level in an efficient manner.

An emissions trading scheme in New Zealand would establish a market price for emissions, and that price would flow through the economy. Producers would have an incentive to reduce their emissions, and consumers would reduce their demand for emissions-intensive products, which would become relatively more expensive. Over time, an emissions trading scheme would affect all of us.

Let’s pause to consider a couple of examples.

In Europe, the effect of their emissions trading scheme has been to successfully encourage power companies to stop using lignite – a cheap but dirty form of coal – and use hard coal instead. The electricity produced by a power station burning lignite or coal sells at the same price, but hard coal produces much less CO₂, meaning that power

companies need to surrender fewer emissions units for each megawatt of power they sell. Lignite has become less economic as a result – the desired outcome.

And converting land from dairying to forestry is good for the environment: cows emit methane, while trees absorb carbon. An emissions trading scheme can give people who plant new forests emissions units that they can sell to others who keep doing things that cause emissions – like dairy farmers.

Emissions trading versus a carbon tax

The attractiveness of a trading scheme as a primary policy response is in little doubt amongst economists. An alternative economic instrument to emissions trading is a tax-based system – a carbon tax. But trading is currently preferred for a number of reasons.

First, a trading scheme is much more flexible than a tax – trading allows the price to adjust automatically, while taxes are inherently sticky. A given level of tax won't guarantee a desired quantity of emissions, and many factors can influence the nature and speed of any adjustment. Further, as I've just discussed, a trading scheme recognises that emissions reductions occur more cheaply in some sectors of the economy, and through trading, gives all participants access to those cheaper opportunities.

Second, it's becoming the norm internationally – other countries are developing trading schemes, and Kyoto itself is a cap-and-trade system. There are strong reasons to reflect international policy settings in a domestic context. An emissions trading scheme can be designed to link internationally, and can provide the flexibility to adapt to changing international circumstances.

Third, recent government consultation on domestic climate change policy demonstrated wide, although not universal, support for trading.

And fundamentally, the science is telling us to control the quantity of our emissions. An emissions trading scheme can give us certainty as to quantity – because we set the cap – while a carbon tax gives certainty only on price. From an environmental perspective, then, a quantity-based instrument is preferred.

ETS design issues

Agreement on an emissions trading scheme at a conceptual level, however, is only the first step.

We know that emissions trading schemes require a number of core features: an agreed cap or limit with an initial allocation of units to participants; effective monitoring and verification, and effective penalties for non-compliance; and, crucially, the ability to trade in a functional and liquid market.

However, within each of those features are a number of design options, and therefore a number of decisions for policy makers.

A high-profile issue for New Zealand is how different sectors would be integrated into the trading framework. Trading schemes that have been introduced or proposed in other countries typically include only a few sectors. Often they concentrate on stationary energy, because for many countries, that's the biggest source of emissions.

But as my pie graphs demonstrated, the agricultural sector contributes almost half of New Zealand's emissions. The Government could follow international models and focus on energy, but how could a carbon pricing regime in New Zealand equitably exclude agriculture, and how effective would it be?

For this reason, the Government is proposing an emissions trading scheme which, over time, will encompass all gases, all sectors. Broad sectoral coverage is more equitable, and it's more efficient. Still, accommodating agriculture and other sectors in an economy-wide scheme is a challenge.

The Government recognises that some sectors will be better placed to participate in a scheme earlier than others, and it's proposing a phased approach in order to achieve an orderly transition. The European Union has incorporated sectors into its emissions trading scheme in phases, and we propose doing so in a way that recognises the particular characteristics of our economy.

Upcoming announcements by the Government will provide more detail on these and other considerations, including the so-called "points of obligation" – those actors within the various sectors who would participate directly in the scheme and account for their emissions.

Another significant decision is how to allocate permits – free, or by auction? In either case, emissions will be reduced by broadly the same amount and at the same aggregate price. On the other hand, considerations of equity weigh heavily on the decision. Emitters may claim that they have made significant investments based on the previous state of the world, and should be gifted their current emissions. Gifting could also assist participants disproportionately affected by a scheme. Environmentalists would counter that allocating free permits rewards firms who pollute most. There is no simple answer to these issues.

I said earlier that the cost of reducing emissions, as a proportion of GDP, need not be large – and that the future costs of inaction likely outweigh savings now from doing little. But an emissions trading scheme would have a price tag, and it would affect different players in the economy differently.

Putting a price on carbon changes the relative competitiveness of firms – emissions-intensive firms become less competitive. When you think about it, that is the desired outcome – but the reality is that some firms reduce output as a result.

If the activities of a firm in New Zealand are rendered uneconomic by carbon pricing, it may not be in New Zealand's interests to attempt to retain that activity by subsidising the cost of emitting for that firm.

Similarly, if our competitors refuse to enter the international regime and face a carbon price, it may not be in our best interests to protect New Zealand firms competing with firms from those countries.

In contrast, a loss of production will be a concern where there are long-term regrets associated with firms closing or substantially reducing production levels. For example, if countries are expected to commit to reductions in an international framework within the foreseeable future, it may not be in our interests to allow a loss of production for New Zealand firms who could compete effectively in those markets when the playing field has levelled.

The Government must weigh these concerns when designing the scheme and complementary measures to sit alongside it. Broader national interests will be taken into account.

Finally, a crucial component of scheme design is its ability to link with trading schemes internationally.

Frankly, it is very unlikely that New Zealand can comply with its Kyoto commitments, at reasonable cost, without trading internationally. Earlier I outlined why economic instruments generate efficient, least-cost responses. The same argument applies equally to international trading – if emissions reductions are cheaper in other countries, an economist would argue that it's sensible to focus at least some reduction efforts in those countries. A scheme which linked internationally would recognise this principle, and would allow New Zealand emitters to engage to some extent in this “out-sourcing” of their emissions reductions.

Designing an effective emissions trading scheme for New Zealand will be complicated. But an efficient, economy-wide economic instrument is an essential element of New Zealand's response to climate change, and we think an emissions trading scheme is the least-cost mechanism for meeting our Kyoto obligations and provides the greatest certainty in meeting our broader environmental goals. Officials are working hard to make it a reality.

And it's important to note that our officials are not flying blind, by any means.

Economists have been exploring options to address these kinds of economic issues for decades, and there's a wealth of knowledge to draw on.

There's real-world experience: in 1990, for example, the United States established a cap-and-trade system to reduce acid rain-inducing emissions of sulphur dioxide and nitrogen oxide. That programme has been a huge success – dramatically cutting emissions, and the negative health and environmental effects which accompanied them.

And of course, the European Union has already implemented an emissions trading scheme as part of its response to climate change and meeting its Kyoto obligations.

Other countries, including the United States and Australia, are actively considering schemes of their own.

We are drawing from all these sources, and others. We're identifying what works best. We're learning the lessons. And we're analysing all of it through a New Zealand lens, which is important.

Complementary measures and foreign policy

An emissions trading scheme would not be the only policy response. More can be done – by firms and households, as well as by Government. My colleague Hugh Logan has already discussed some of those complementary responses, so I won't repeat them.

It's also crucial to be outward-looking. Our domestic responses are important, but climate change is a global problem requiring collective global actions and solutions. Those actions and solutions will have an impact on us, and it's essential that our policy settings can cope with an evolving international framework.

Again, I could talk at length about our foreign policy on climate change. I won't – I'm not an expert, and it's a speech in itself. But let me say that New Zealand's action on the world stage can make a difference, and that New Zealand's action and the world's perception of it can have very real consequences for our economy and our relationships. An emissions trading scheme can provide linkages with other countries, and can show the world that we mean business on climate change. A loud and credible voice in the international arena will encourage crucial action in the developed and developing world and, in turn, allow us to advance our own interests as global frameworks develop. On the other hand, although New Zealand's proportion of the world's emissions is small, burying our heads in the sand on climate change would hurt our reputation and interests, and, worse, would encourage others to do the same.

Conclusion

Climate change is a global problem – but it will have particular impacts for New Zealand, and particular implications for our economy. New Zealand is committed to be part of the solution – and we're committed to reducing our emissions.

An emissions trading scheme which covers all gases and all sectors is intended to be a major part of our response to climate change and our efforts to reduce emissions – in the short-term, and post 2012.

We must be realistic: emissions trading would, over time, affect the entire economy – producers and consumers, firms and households. And its effects would be felt differently by different players. Production and prices would adjust.

But we're confident that a properly designed emissions trading scheme would be efficient, equitable, and achieve the desired level of emissions reductions at least-cost.

It's ambitious – but New Zealand's economic initiatives have been ambitious before, and we've led the world. With an emissions trading scheme which encompasses all sectors and all gases, I believe we can do so again.

Thank you.