Emissions trading in New Zealand: Introduction and context

Authors: Suzi Kerr(Motu) and Murray Ward (GtripleC)
Paper prepared for New Zealand Climate Change Policy Dialogue[1]
20 September, 2007

Key messages

- NZ Inc. will bear costs from compliance with or without emissions trading
- Our Kyoto target,together with any supplementary domestic controls, determines how NZ affects the global environment. Emissions trading does not alter this.
- Comprehensive all sources, all gases emissions trading is feasible.
- Emissions trading provides a lot of flexibility in how we control GHG emissions.
- A price-based regulation that causes emitters to be faced with the opportunity cost of their decisions is needed to efficiently control greenhouse gases (GHGs) because there are so many different responses by different people at different times.
- Emissions trading should be complemented by other policies.
- Emissions trading is very different from a 'projects' approach.
- We need to separate discussions about technical design of the system, which are important for overall impact on NZ Inc., from aspects that affect distributional considerations, which have different impacts on specific sectors and interests.

[1] We would like to thank the funders of this dialogue: The New Zealand Foundation for Research Science and Technology, The Morgan Family Charitable Foundation, Fletcher Building, Meridian Energy, and the Tindall Foundation. Thanks also to participants in the process who have had material impacts on the materials in the papers in this series, and to Glen Lauder for his expert facilitation. All opinions in these papers are those of the authors; they do not necessarily reflect the views of the funders or the participants. The dialogue group is not a consensus process. Similarly all errors and omissions are the responsibility of the authors.

What is the international context for New Zealand's programme?

We assume that New Zealand will be part of an international regime to address climate change, as it is now under the Kyoto Protocol, and the regime post-2012 will be an enhanced version of the current Kyoto framework.We also assume that New Zealand will meet whatever international commitments it takes on. New Zealand will therefore face an international cost of carbon from 1 January 2008, the beginning of the Kyoto first period. Each extra tonne of 'carbon' emissions that can be avoided, and each extra tonne of carbon sequestered by qualifying forests, will save the Crown, and hence the New Zealand taxpayer, the value of this 'cost of carbon'.

Having taken on a commitment within an international policy framework that has set an overall emissions 'cap' and allows international emissions trading, New Zealand's emissions, or the emissions of any sector within New Zealand, are not prescribed by such a commitment. New Zealand's 'target' can be seen as an initial allocation of emission units in the international system. Its commitment is to ensure it has enough units, including those from international emissions trading and carbon sequestration, to match its emissions.

Some countries already have emissions trading systems (e.g. the EU ETS) and some limited international trading already occurs. It is unclear how and at what speed the international market will evolve. It is also unclear how quickly other countries that are not currently in Kyoto will join the international agreement and whether the form of that agreement will change in significant ways. Future targets for New Zealand and other countries in the next commitment period are unknown. This means that the international market could be highly volatile, our firms could be competing with unregulated firms, and international carbon prices are highly uncertain. New Zealand will need to decide how closely to link to international emissions trading markets to maximise the benefits from trading and participating in a more liquid market while avoiding damage from inappropriate prices or excessive volatility in the international market.

New Zealand does not have a large impact on the global environment but our policy design could have a disproportionate impact on the evolution of the international agreement. We should be mindful of how we would like the international agreement to evolve as we develop our policies as well as being wary of international developments that could adversely affect us.

What is emissions trading?

Domestic climate change policy should not be driven by desired specific environmental outcomes at a sectoral level, but by the economics of meeting commitments. The use of economic instruments for climate change policy is not simply about "polluter pays". Importantly, it is also about economic efficiency, i.e. aiming to meet commitments at least cost. This means you can use sticks in some areas and carrots in others.

Emissions trading maximises the flexibility with which New Zealand complies with its international commitments. This should minimise the costs in the short and long term. It provides flexibility in how the burden of cost is shared within the economy and society.

Emissions trading requires **defining** the units that are to be traded, issuing **and allocating** units that match the cap for all activities covered by the trading system, **monitoring and verifying** emissions, **tracking** units in a registry system and **ensuring** that all emissions at each **point of obligation** are covered by sufficient units surrendered each year.

Fundamental to acceptance by business and the general public, and hence long term success, is an understanding and acceptance that solid core principles underpin the policies. The three key principles for emissions trading in New Zealand are:

1. Low cost to NZ Inc.
2. No individuals should suffer disproportionately large personal losses
3. Robust – credible, feasible, durable

Efficiently reducing New Zealand GHG emissions requires that everyone in the economy takes into account the climate change implications of all actions they take. For example, companies need to decide what technology to install, investors and government choose what research to invest in, companies and households choose what fuel to use, companies decide where to locate a manufacturing plant, companies and households decide what products to buy, households decide where to buy a house, local government decides whether to build a new road, landowners decide whether to buy an extra dairy cow and whether plant a forest. The GHG implications of each of these decisions are complex and individuals are generally unable to estimate the implications of their actions even if they were willing to take the time. Governments are unable to make these decisions because they do not have all the information an individual has. An effective price-based mechanism conveys information about the emissions implications through the price of products, wages in different locations, capital etc. Controlling the cost of emissions reductions is critical to political acceptability now and to minimise the potentially large economic impacts if we need to make more drastic cuts over the next 50 years or more.

Managing the equity implications of the distribution of the costs of domestic action is critical to the successful implementation of policy. Companies do not ultimately bear costs – only those individuals who are associated with the companies: employees, owners; suppliers; consumers. A policy that inflicts disproportionate cost on some individuals is likely to seem ‘unfair’ to many people and encounter fierce resistence. We also need to avoid any sense that policies are uneven, or that outcomes have been the result of successful pressure by specific interest groups. In particular, confidence in, and support for, the policies can be expected to quickly erode if windfall profits fall to a narrow group of industries, at the expense of taxpayers or energy consumers.

Robustness and credibility is critical both to facilitate efficient, relatively low risk investment decisions, and also to ensure the sustainability of the key aspects of the policy in the face of inevitable political challenge and needs to reform aspect of it. If people believe the policy will endure, they will focus their efforts on responding effectively to it rather than pressuring to change or abandon it.

Assumptions (to be tested) about system design:

1. 'Units' have a specific vintage (date after which they can be used), are defined in tonnes of CO2 equivalent (defined using global warming potentials) once their vintage date has passed, are infinitely divisible and are bankable.
2. The 'initial cap' or sum of units issued during the commitment period is less than or equal to the New Zealand holdings of Assigned Amount Units (AAUs). If not all sources or gases are involved in the system it will be less. Units generated through carbon sequestration or purchased from legitimate international sources can supplement these.
3. Units are defined as NZAAUs but, except in specific circumstances discussed later, are convertible to AAUs.[2]
4. There are no limitations on the secondary market.
5. Some units will be issued in advance of their vintage date.

Emissions trading, while central to an effective domestic policy, must be complemented by other policies. Emissions trading addresses the problem that while GHGs are costly to New Zealand, they are not costly to those who make the decisions that determine emissions. Another market failure arises in the technology market. Because those who develop technologies cannot capture all the benefits from them, and because research and development is a highly investment that is difficult to finance there is generally underinvestment in invention and adaptation of new technologies and in adoption of existing one. Technology specific policies will enhance the response to the carbon price and vice versa.

Education and public engagement will make people accept the policy, and will also increase their responsiveness to the price measures whether they provide 'sticks' or offer 'carrots'. Voluntary policies alone have not significantly affected GHG emission trajectories but when people's willingness to help is reinforced with an economic incentive, both are more effective. In some cases, the information required to make efficient decisions, even when a carbon price exists, is too complex for the actors involved, or the transaction costs of making efficient decisions is too high. In these cases (for example energy efficient light bulbs or home insulation) performance standards can be effective.

Emissions trading is not simply an extension of existing grey or offsets markets, which are based on project-level activities. Grey markets depend entirely on the altruism of their buyers and honesty of their sellers (and associated accreditation systems) and are not covered by a fixed cap. They do not produce environmental

[2] Murray Ward has some strong reservations about the creation of a New Zealand unit rather than simply using AAUs directly.

gains above Kyoto targets but may serve a role in starting people thinking about how to reduce GHG emissions.

Offsets can occur within Kyoto and contribute to the efficiency of the global effort. Offsets require estimation of a baseline, 'what would have happened otherwise' which is inherently challenging and imperfect. Project-based schemes can face emitters or sequesters with the opportunity costs of emissions but they affect only those who volunteer to participate. Those who would like to do the activity that creates the offset anyway are likely to be rewarded with credits because of the difficulty of estimating baselines. A New Zealand emissions trading system would have the same benefits as offsets and projects but with lower transaction costs, greater coverage and greater environmental integrity.

Outline of structure for other papers in this series

The next five papers in this series address in more depth issues central to the design of emissions trading.

1. *What is the best point of obligation for each source of greenhouse gases and how should greenhouse gases be reported at each of these points?*

Points of obligation are the firms that are required to report emissions as defined by the monitoring rules for the gases/sectors they are involved with and surrender units to match those emissions each year.

New Zealand has a National Inventory, updated each year and produced in accordance with international guidelines, that is the basis for how New Zealand's compliance with its Kyoto commitments is assessed. However, the methods and data used to produce this are for a nationally aggregated inventory. In choosing methods to estimate emissions from data at the sub-national level of points of obligation, we need to ensure that all emissions that are reported in the Inventory and covered by the emissions trading system are matched by units.

2. *How do we effectively address the problem of 'leakage'?*

Because the international agreement is incomplete, some New Zealand firms will be competing with unregulated international firms. If New Zealand production falls simply because of this unequal treatment and emissions move offshore there is economic and environmental loss. This 'leakage' issue needs to be considered.

3. *What do we know about the distributional impacts of emissions trading, the options for allocating tradable units and their effects?*

The units summing to the initial cap need to be allocated to private actors who can trade, bank and ultimately surrender them. This can be done by auctioning, free allocation, or output-based allocation to firms whose products are vulnerable to leakage if that option is chosen. These options have efficiency and distributional effects.

4. *How can we manage economic risk to actors within the New Zealand economy?*

We need to decide how to address the risks and uncertainties that arise in the market to minimise the impact on NZ Inc. and disproportionate impacts on individuals and communities.

5. *How can we most effectively transition into an emissions trading system and ensure that it evolves in a way that is robust to international and domestic changes?*

Because of uncertainties in the international negotiations and in key aspects of the science as well as the unusual challenges associated with including some sectors in emissions trading we cannot immediately create the emissions trading system in the long term. This paper considers how we should manage the transition. We also need to design the policy in such a way that it is robust and credible so that investors can have confidence in a reasonably stable regulatory environment and respond in the most efficient ways possible, including investment in development and adoption of new technology.

Finally, we know that whatever policy we implement now will not be the best policy in future. We need to design institutions that allow the system to evolve in a way that minimises risk and transitional costs and is perceived to be fair so that the system is robust to change. To the extent that we can anticipate the need to change aspects of the policy we should define rules and processes to do that now.

Aims of the dialogue process

- Provide technical solutions to technical problems: definition of tradable units; managing risk; point of obligation; reporting requirements; timing of issuing of units
- Combine knowledge of economic experts in emissions markets with the expertise and experience of private sector participants from a range of perspectives
- Inform primarily political debates that involve significant distribution issues: Timing of transition; free allocation – how large should it be and who should get it; exact form and extent of protection for competitiveness at risk activities. For each of these issues technical information and data can inform the debate but there is no one clear technically correct solution.

Further reading

Fischer, Caroline, Suzi Kerr and Michael Toman (1998) “Emissions Trading to Regulate U.S. Greenhouse Gas Emissions: Basic Policy Design and Implementation Issues: Parts 1 and 2” Resources for the Future Climate Issue Briefs #10 and #11 www.rff.org/environment/climate.htm

Kerr, Suzi C. ed. (2000) *Global Emissions Trading: Key Issues for Industrialized Countries* (Edward Elgar: Glos. UK) – available from Motu

Kerr, Suzi (2006) ‘The political economy of structural reform in natural resource use: observations from New Zealand’ Paper prepared for National Economic Research Organisations meeting, Paris, June 2006 www.oecd.org

Kerr, Suzi, Brian White, Brian Cox and John Rutherford, (2002) "Renewable Energy and the Efficient Implementation of New Zealand’s Current and Potential Future Greenhouse Gas Commitments" Report for the NZ Ministry of the Environment.

NZIER (2007) *Emissions trading Scheme for New Zealand* Report produced for Business New Zealand

Ward, Murray (2007) *A Ten Point Guide to Effective and Credible Climate Change Policy*

Ward, Murray (2006) ‘Briefing Paper on The Role of Economic Instruments in New Zealand’s Domestic Climate Change Policy’ Report for WWF New Zealand