

FRAZER LINDSTROM

CLIMATE CHANGE & ENERGY SECTOR STRATEGIC ADVICE

A paper presented at the

Climate Change & Business

2nd Australia-New Zealand Conference
20-21 February 2006, Adelaide Hilton, Australia

A New Zealand Market Update

Stuart Frazer
Frazer Lindstrom Limited

Climate Change & Business 2nd Australia-New Zealand Conference · 20-21 February 2006 · Adelaide, Australia



0 Abstract

Since the first Climate Change and Business Conference in November 2004, New Zealand's climate change policies have been through an extraordinary period.

This paper provides background on New Zealand's Kyoto Protocol obligations, and the challenge of its unusual greenhouse gas emissions profile.

Progress on policy measures is summarised with a focus on the market activities, Kyoto compliant and grey market, that have resulted.

The latter section covers the inventory reassessment leading to a full review of New Zealand's climate change policies. This review ultimately led to the scrapping of the carbon tax and the need to develop new policies.

The paper ends with a forecast on the impacts of these changes on the potential for a New Zealand emission trading system and New Zealand's business and government engagement in international market trades.



Stuart Frazer [BEng Chemical Engineering MChemE]

Director, Frazer Lindstrom Limited.

Stuart has more than 20 years experience in the international energy sector. He has a degree in chemical engineering and held technical and operations roles with Shell prior to moving to New Zealand in 1995. Subsequently, in his executive position with The New Zealand Refining Company, he led the negotiation of New Zealand's first Negotiated Greenhouse Agreement.

In 2003 Stuart established Frazer Lindstrom, now a leading climate change and energy sector consultancy firm, with a client list that includes many of the best known businesses in New Zealand. He is currently providing strategic advice to clients in the energy, manufacturing and legal sectors.

Table of Contents

0	Abstract	2
1	Introduction.....	4
2	Background	4
2.1	New Zealand's Kyoto Protocol Obligations	4
2.2	New Zealand's Emissions Profile	4
3	Progress to Date	5
3.1	Policy Measures	5
3.1.1	Agriculture Sector	5
3.1.2	Forestry Sector	5
3.1.3	Energy, Industrial and Transport Sector.....	6
3.2	Market Activities	7
3.2.1	Kyoto Compliant International Trades	7
3.2.2	Kyoto Compliant Domestic Trades.....	7
3.2.3	Grey Market Trades.....	8
4	New Zealand Inventory Reassessment	9
4.1	New Zealand's Original Emissions Allocation	9
4.2	New Zealand's Emission Forecasts	9
5	Climate Change Policy Review	11
6	The Way Forward.....	12
6.1	Cabinet Decisions	12
6.2	Worsening Kyoto Deficit	12
6.3	Market Impacts.....	12
7	Conclusion.....	13

1 Introduction

At the time of the first Climate Change and Business Australia–New Zealand Conference in October 2004, the major climate change policy uncertainty for New Zealand business was whether the Kyoto Protocol would come into effect. With Russia’s ratification in February last year, it seemed that the key climate change policies that had been developed in the preceding years would now be fully implemented.

Yet by 2005 year end, uncertainty for business had increased markedly.

This paper tells the “story” of the events in this extraordinary period as they relate to the New Zealand climate change market and discusses the potential future outcomes for New Zealand business and government engagement in climate change markets.

2 Background

2.1 New Zealand’s Kyoto Protocol Obligations

New Zealand ratified the Kyoto Protocol on the 19th of December 2002. In the first commitment period 2008-12 (CP1) NZ is obligated to reduce its greenhouse gas emissions to 1990 levels or take responsibility for the excess emissions.

At the time of its ratifying the Protocol, the New Zealand government believed it had an advantageous position with an expected surplus of “emission units” which could be sold to other countries. This came about through the increase in forestry plantings post 1990 which, it was forecast, would more than offset growth in gross emissions.

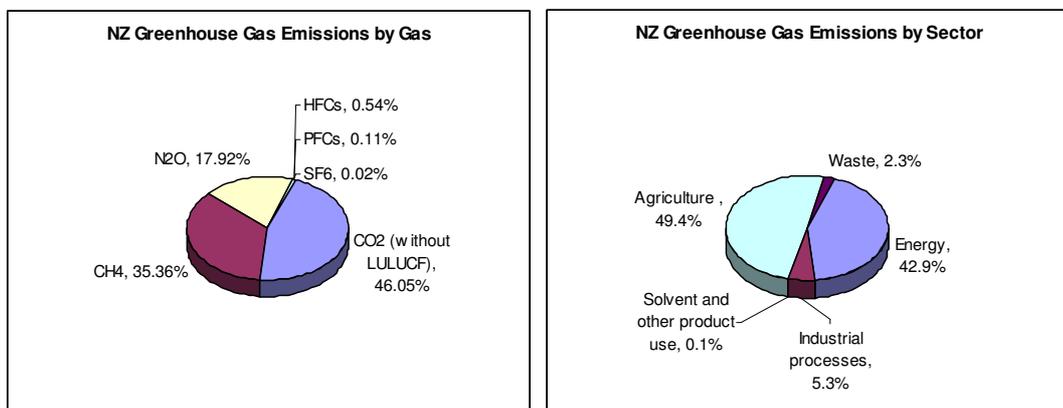
2.2 New Zealand’s Emissions Profile

New Zealand’s greenhouse gas emissions profile (Figure 1) is unique among Kyoto Protocol Annex I countries (those with binding commitments).

New Zealand’s emissions profile largely results from its strong agricultural sector (contributing 4.5% of GDP and with total primary-sector produce accounting for ⅓ of total exports). These agricultural methane emissions from enteric fermentation combined with nitrous oxide emissions from soil account for over 49% of total emissions on a CO₂-equivalent basis.

The energy emissions account for less than half with thermal electricity generation contributing less than 10% of the total, this resulting from New Zealand’s predominantly renewable generation (extensive hydro with some wind and geothermal).

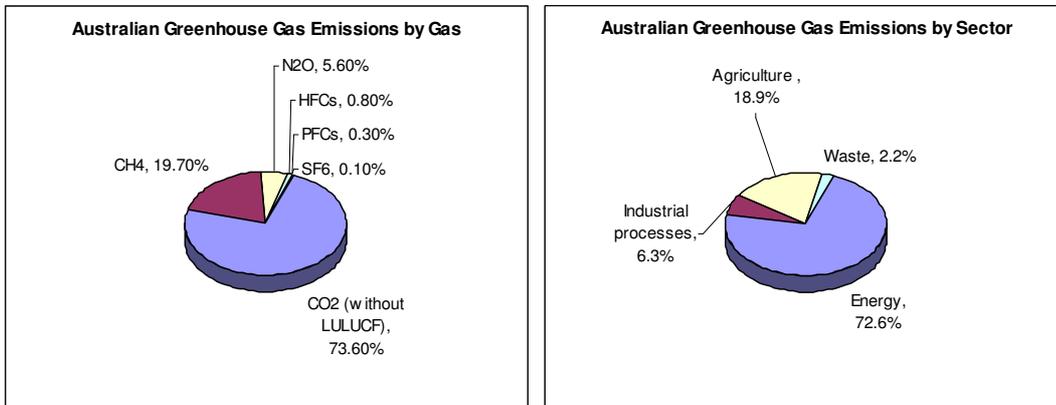
Figure 1. New Zealand’s greenhouse gas emissions broken down by gas type and sector



Source: NZ National Inventory Report 2003

By comparison Australia's greenhouse gas emissions profile (Figure 2) is dominated by energy sector emissions with some 37% of gross emissions resulting from electricity generation. Agriculture contributes less than 19% of the total.

Figure 2. Australia's greenhouse gas emissions broken down by gas type and sector



Source: Australia National Inventory Report 2003

When evaluating mitigation options the significance of New Zealand's unusual emissions profile quickly becomes apparent; effective and low cost mitigation options for agricultural methane and nitrous oxide have not yet been identified.

Any mitigation options are therefore concentrated on the remaining sectors, noting that New Zealand already has a low thermal generation base.

3 Progress to Date

3.1 Policy Measures

In 2002 the key policy instruments were set out in a climate change package¹ and these were implemented in the succeeding years.

3.1.1 Agriculture Sector

Recognising the difficulties of agricultural emissions, policies in this sector focussed on research and development through a jointly industry and government funded Pastoral Greenhouse Gas Research Consortium (PGGRC).

3.1.2 Forestry Sector

For **plantation forests**, the government retained the sink credits allocated to New Zealand under the Kyoto Protocol in recognition of the carbon sink value of post-1990 forest plantings. The government, rather than forest owners, also assumed the liability created by the Kyoto Protocol for deforestation, up to a specified cap of 10 percent of forests expected to be harvested during the Protocol's first commitment period (this equates to 21 million tonnes of carbon dioxide emissions).

For **indigenous forests**, the Permanent Forest Sink Initiative (PFSI) was to provide an opportunity for landowners to establish permanent forest sinks and obtain tradable Kyoto Protocol compliant emission units in proportion to the carbon sequestered in their forests.

To be eligible for this initiative the land must not have been covered in forest as at 31 December 1989 and the forest must be "direct human induced through planting,

¹ The government's preferred policy package - a discussion document - April 2002

seeding and/or the human-induced promotion of natural seed sources." This means some form of active management will be required in establishing the forest.

Limited harvesting of the forests established under this initiative is allowed after a period of 35 years. However, harvesting must leave a continuous canopy cover. Therefore, clear-fell plantation forests are not included in this Initiative.

Landowners will be expected to meet all the costs and risks associated with the PFSI.

3.1.3 Energy, Industrial and Transport Sector

It is in this sector that price based measures were introduced which provided the basis for market activities. Key policies were:

A **carbon tax** on energy, industrial and transport emissions, to be introduced in 2007 had been confirmed in May 2005 and was to be set at NZ\$15/tCO₂-e. The point of obligation for the tax was to be placed as far upstream in the supply chain as possible to minimise collection costs.

It was envisaged that the carbon tax could eventually be replaced by emissions trading.

Negotiated Greenhouse Agreements (NGAs) were introduced for "competitive at risk" firms, that is, firms that compete against international firms faced with less stringent climate change policies and that are therefore unable to absorb or pass on the carbon tax.

Sectors obtaining or likely to obtain an NGA included oil refining, gold mining, cement manufacturing, wood pulp processing, aluminium smelting and dairy sites.

Projects to Reduce Emissions (PRE) Programme provided incentives for projects that would reduce greenhouse gas emissions over the first Kyoto commitment period (CP1). The incentives mechanism was through the transfer of Kyoto emission units (AAUs or ERUs).

To be eligible projects had to:

- be additional² to "business as usual" i.e. it is Economically Additional – the project would not have been carried out but for the incentive of the transfer of emissions units;
- achieve reductions in emissions that would not have occurred without the project – i.e. it is Environmentally Additional;
- achieve reductions equal to or greater than the number of emission units requested from the government; and
- be implemented in New Zealand – financing & project ownership could be from elsewhere.

In total some 42 projects covering some 11 million tCO₂-e were selected through an early projects process and subsequently through two tender rounds (2003 for 4 million carbon credits and 2004 for 6 million carbon credits).

² According to the Kyoto Protocol Articles on Joint Implementation and the Clean Development Mechanism, Emissions Reduction Units (ERUs) will be awarded to project-based activities provided that the projects achieve reductions that are "additional to those that otherwise would occur". A distinction is made between environmental additionality and economic/financial additionality. This principle was followed in the NZ PRE programme in order to ensure "Kyoto compliance".

3.2 Market Activities

In the absence of a domestic emissions trading regime, the level of market activities has relatively low. There have however been some significant steps made in capacity building and some high profile international trades. In assessing the market activities it is useful to draw a distinction between Kyoto compliant trades and Grey market trades.

3.2.1 Kyoto Compliant International Trades

The active players in Kyoto Compliant units have been firms or organisations that received emission units through the PRE programme and its related earlier process.

Meridian Energy, a state owned electricity generator and retailer, has been particularly active with the sale of units from its 90 MW Te Apiti wind project. Announced in December 2003 was the sale to the Dutch government through the third Emission Reduction Unit Procurement Tender (ERUPT 3) for Joint Implementation (JI). The average price paid for units across all projects in the ERUPT 3 tender round was €5.5 (NZ\$9.64)/tCO₂-e.

Palmerston North City Council was awarded credits under the PRE2003 for a landfill gas project. In October 2005 it received the first payment following the sale of 149,000 tCO₂-e through Kommunalkredit, who administers the Austrian JI/CDM purchase programme, for NZ\$1.2 million – an average price of NZ\$8.05/tCO₂-e.

In reviewing these trades caution should be taken in comparing prices achieved. The true value of a trade will depend on timing of payments, allocation of risk for non-delivery and direct contribution to project costs associated with Kyoto compliance requirements.

Other PRE awarded projects have been actively seeking to achieve value for their emission units. For example seven PRE projects put in expressions of interest to the 5th Dutch ERUPT tender round in late 2004. However when it came to make an irrevocable offer (price) in April 2005, all seven pulled out. Stated reasons for these withdrawals included:

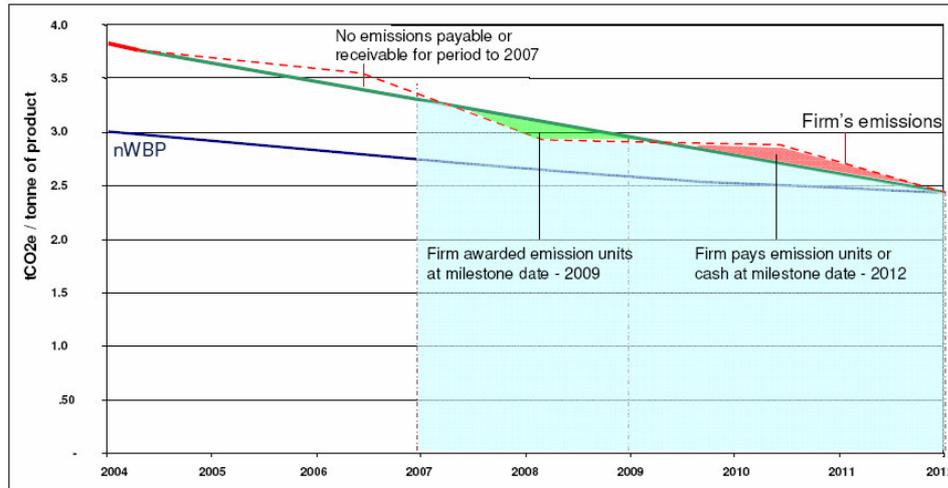
- uncertainty on project implementation timeline;
- a change in price expectation following the EU-ETS price movements; and
- the likely introduction of a carbon tax in New Zealand which would provide a domestic market through sale to NGA firms.

3.2.2 Kyoto Compliant Domestic Trades

Many of the smaller PRE projects owners anticipated a domestic market being established where NGA firms would seek carbon credits to offset excess emissions.

The need to purchase units arises when a firm operates above its pathway commitment line. Similarly an NGA firm could receive units if it operated below the line (Figure 3).

Figure 3 – NGA Target Pathway



Source: NZ Ministry for the Environment

This market was particularly attractive as with the New Zealand government being the issuing authority and ultimate recipient the cost burden of validation and verification could be minimised. Furthermore there was a minimum price expectation based on the carbon tax rate of NZ\$15/tCO₂-e, with potential upside if the government chose to declare a “Functioning Market” at which point paying the tax was not a remedy option.

No trade has been publicly declared however it is known that there has been ongoing dialogue between a number of NGA firms and PRE projects.

3.2.3 Grey Market Trades

Ahead of formal policy development, Waste Management New Zealand Limited took a proactive step to realise value from emissions reductions on its landfill sites. Waste Management reports the contracted annual sales of non-Kyoto Verified Emission Reductions (VERs) are 30,000 tCO₂-e per annum from 2001-2007 and 50,000 tCO₂-e per annum from 2008-12³.

Landcare Research, one of 9 independent Crown Research Institutes (CRIs), has been proactive in establishing a grey market for emission reductions from planting or regenerating native forest through its EBEX21⁴ programme.

This programme verifies the creation of these carbon credits by landowners and coordinates the sale of them. EBEX21 reports that that the price is a standard NZ\$15/tCO₂-e (+GST) with some 5,000 tCO₂-e sold in the past 3 years.

It is hoped that this scheme will be migrated into the aforementioned Permanent Forest Sink Initiative. This in turn is expected to increase demand for what would then be Kyoto compliant units.

In addition to its Kyoto compliant trade mentioned above, Meridian Energy has also entered the grey market. In Q4 2005, Meridian Energy sold VERs generated by its Te Apiti wind farm in the pre CP1 (2008-12) period. The buyer was HSBC who wanted credits for 170,000 tCO₂-e to cover its world-wide emissions. It paid an average price of US\$4.43 (NZ\$6.34)/tCO₂-e. Of this total Meridian provided 125,000 tCO₂-e, with the remainder sourced from India and Germany.

³ Waste Management NZ Limited 2003 Annual Report

⁴ www.ebex21.co.nz

4 New Zealand Inventory Reassessment

On 16th of June 2005 it was announced that New Zealand was unlikely to meet its obligations under the Kyoto Protocol without having to go out and buy carbon credits internationally. What this means is explained in the following section.

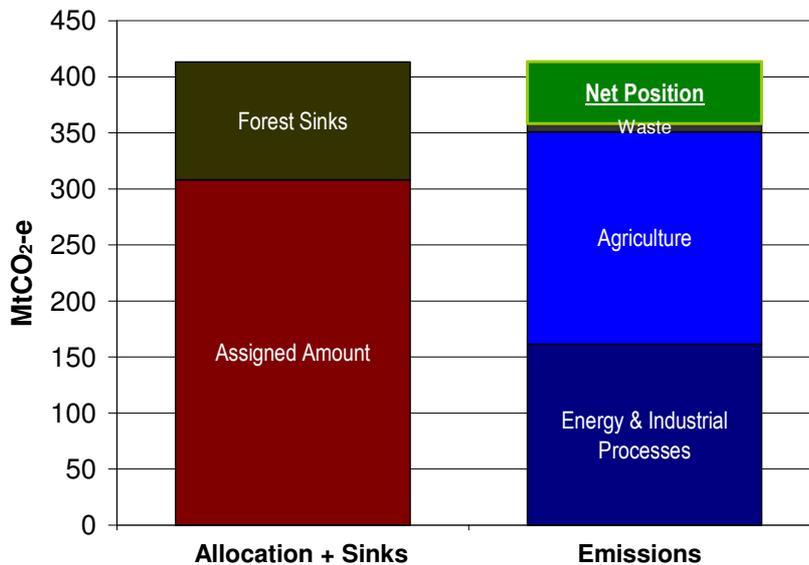
4.1 New Zealand's Original Emissions Allocation

Under the Kyoto Protocol, New Zealand starts with an initial allocation of emission units⁵ equal to 307.6 MtCO₂-e. This is equal to five times its 1990 level of emissions (= 62 MtCO₂-e). In addition the government has been relying on post 1990 forest planting "carbon sinks" to generate units⁶ additional to the initial allocation.

This Crown asset of units is then eroded by emissions over the first commitment period 2008-12 (the Crown retires emission units from its registry equal to New Zealand's emissions).

This is illustrated in Figure 4 below:

Figure 4 - New Zealand's emissions allocation over the 5 years of Kyoto Protocol CP1 2008-12 (2003 forecast data)



Source: NZ Ministry for the Environment

4.2 New Zealand's Emission Forecasts

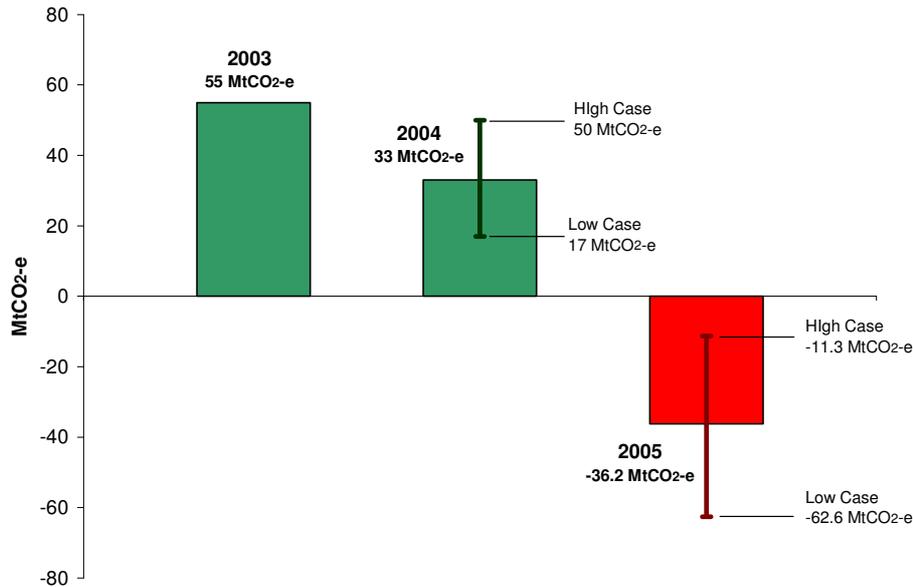
When the government agreed to ratify the protocol the expected surplus was 55 MtCO₂-e. This forecast was revised downwards to 33 MtCO₂-e in 2004. The May 2005 forecast indicated that in the most likely case New Zealand will fall short meeting its Kyoto Protocol 1st commitment period (CP1) target by 36 million tonnes of CO₂-e.

The projected balance over CP1 by year of forecast is shown in Figure 5.

⁵ Assigned Amount Units (AAUs)

⁶ Removal Units (RMUs)

Figure 5 - Projected Balance over CP1 by Projection Year



Source: NZ Ministry for the Environment

Factors contributing to the downwards revision included:

- Increased energy related emissions, resulting in part from stronger than expected growth; and
- Reduced forest sinks related to reduced replanting and a re-interpretation of previously accounted forest sinks credits where forestry was planted in scrub which could meet the definition of forest in the Kyoto Protocol (i.e. the planting was not onto “grassland” and so no net sinks can be claimed).

Table 1 provides a summary of the emissions inventory components.

Table 1: New Zealand Forecast Emissions over CP1 by year of projection

	MtCO ₂ -e		
	2003	2004	2005
Assigned Amount	308.3	308.3	307.6
Emissions			
Energy & Industrial Processes	161.5	156.4	194.4
Agriculture	189.5	201.3	202
Waste	7.5	3.3	5.3
Total CP1 Emissions	358.5	361	401.7
Total Removal Units	105	95.2	70.9
Liabilities for PRE	0	-10	-7.5
Net Position (most likely)	55	33	-36.2
High Case		50	-11.3
Low Case		17	-62.6

Source: NZ Ministry for the Environment

5 Climate Change Policy Review

Recognising that the benign context, that was the foundation of the original climate change policies, had now changed (deficit for CP1 now predicted), in June 2005 the government directed officials to undertake a review of climate change policy settings and objectives and to report back to Cabinet by 31st of October 2005.

The purpose of the Climate Change Policy Review was to investigate how New Zealand should respond to the forecast CP1 deficit. It would also give consideration to New Zealand's current high-level climate change goal of reducing emissions towards a "permanent downward path by 2012" (this now being unrealistic).

The review team comprised of officials from Treasury and relevant Ministries (Agriculture & Forestry, Economic Development, Environment and Transport).

The scope of the review covered:

- near term: a strategic level review of the appropriateness, likely effectiveness and costs and benefits of New Zealand's policies (including domestic carbon taxes & emissions trading and use of Kyoto protocol flexible mechanisms – emissions trading, JI and CDM); and
- long term: implications of known information on domestic emission trends for any obligations that New Zealand may choose to adopt beyond 2012.

The output of the review was expected to provide advice to the government on:

- Strategic choices about the direction and emphasis of New Zealand's climate change goals and policies in relation to CP1 obligations; and
- A negotiation mandate and strategy for the NZ delegation attending COP11/MOP1 in Montreal in November.

The report⁷ was issued to the Minister Responsible for Climate Change Issues on 9th of November 2005. Some of the key findings of the review were:

- the government should consider formulating an alternative internal climate change goal for New Zealand as its current internal goal - that by 2012 New Zealand's total gross emissions will be set towards a permanent downward path - is no longer realistic;
- the level of domestic reductions that can be achieved in a cost effective manner is likely to be small relative to New Zealand's net emission position:
 - some small and incremental gains can be made in transport and energy efficiency and conservation (that will have other non-CO₂ benefits);
 - the overall effects of a sustained, higher oil price may be more influential in reducing transport emissions than the current range of policies;
- to meet the projected Kyoto Protocol first commitment period (CP1) deficit entirely through domestic emission reductions will cost the economy more than a combination of domestic reductions and purchasing some units on the international market;
- work should commence quickly to determine potential buying strategies for New Zealand in the international carbon market;
- a new programme of large-scale new forest planting would not enable New Zealand to meet its Kyoto CP1 target because relatively little carbon would be sequestered in the CP1 period (2008-2012).

⁷ Public version released 21/12/2005 - <http://www.climatechange.govt.nz/resources/reports/policy-review-05/index.html>

6 The Way Forward

6.1 Cabinet Decisions

On the 21st of December 2005, it was announced that the proposed carbon tax would not go ahead. The government would instead consider other ways to ensure New Zealand meets its commitments⁸. This decision was justified on the basis that *“the proposed carbon tax would not cut emissions enough to justify its introduction”*. It is also noted that the government’s confidence and supply partners had expressed opposition to the tax.

Officials have been directed to report back with detailed proposals for climate change work programmes by the 3rd of March 2005. These programmes include:

- *Work on alternative measures to the announced carbon tax, including consideration of emissions trading and new, possibly voluntary, arrangements to replace Negotiated Greenhouse Agreements.*
- *Purchasing and other strategies for acquiring emission units for the first Kyoto commitment period (2008-2012) from appropriate sources including projects under the Kyoto Clean Development Mechanism and Joint Implementation, including the option of projects that would leverage the export of New Zealand’s expertise and technology.*
- *Work on forestry policy options for managing deforestation and encouraging afforestation (new tree planting) and reforestation (reversion to indigenous forest or replanting)*
- *Land-use and the links between forestry and agriculture policies.*
- *Incentives for renewable energy or disincentives for fossil fuel based electricity generation.*
- *The need for, and future shape of, cross-sectoral incentive programmes such as the Projects to Reduce Emissions programme.*

6.2 Worsening Kyoto Deficit

The need for action was strengthened on the 17th of February 2006, when Treasury released the Financial Statements of the Government of New Zealand for the six months ended 31st December 2005. In these accounts, Treasury estimates New Zealand’s Kyoto net position now to be a net deficit of 64 million tonnes of CO₂-e (no low and high range values were issued). This most recent change reflects revised forecasts of deforestation (up to the 21 MtCO₂-e cap) and the impact of the removal of the carbon tax. Treasury values this deficit at NZ\$562 million⁹.

6.3 Market Impacts

The key driver in New Zealand’s policy position and forecast market impacts is that the country is now in deficit against its Kyoto Protocol CP1 commitments.

Internationally New Zealand will be a buyer of international emission units and potentially a direct investor in CDM and JI projects.

Domestically New Zealand will be more cautious on the award of emission units. The future of PRE is in question but should it proceed it is probable that there will be far greater stringency when assessing the number of units to be awarded. Note that any

⁸ Hon David Parker, 21/12/2005

⁹ Treasury has assumed a price of US\$6/tCO₂-e for Kyoto compliant units.

reassessment of this policy does not impact on the validity of emission units already awarded through prior tender rounds.

In assessing policy for domestic major energy users and emitters, a further consideration is how to cap potential increases in the government's liability through ensuring that firms see a price signal on marginal emission. The ultimate measure here would be domestic emissions trading for large final emitters however there are many arguments against its implementation in such a small market. The Climate Policy Review gave a clear recommendation that the government should not develop a New Zealand Emissions Trading Scheme (NZ-ETS) to apply before 2012.

Even without an "NZ-ETS" it is likely that the flexibility mechanisms of the original NGA policy may prevail, providing for a limited domestic trading between firms and buyers for PRE credits not sold internationally. A consultation process has been initiated seeking industry views on a narrow form of Carbon Tax, Emissions Trading and Voluntary Agreements.

Plantation forestry presents perhaps the biggest challenge of all with planting rates reported to be still falling. Whether it would be appropriate to address this through award of carbon credits and consequential liability for harvesting is the subject for much ongoing debate.

7 Conclusion

New Zealand's climate change policies are now in transition with the end outcomes as yet unknown. The challenge is to ensure that future policies:

- remain appropriate to the characteristics of its economy and emissions profile;
- are compliant with the Kyoto Protocol through 2012; and yet
- are durable beyond 2012 to provide the degree of certainty required for business investment.

Whatever the domestic policy outcomes, it is clear that through engagement on policy development and implementation, New Zealand businesses' understanding and capacity to engage in climate change markets have been greatly enhanced.

Information & Advice

Frazer Lindstrom Limited is an independent consultancy firm which provides high quality strategic advice to companies who are seeking business opportunities in climate change and energy.

Our client list include some of the best known companies in Australia and New Zealand, covering major industrial energy users, energy infrastructure and legal firms.

If you would like further information and advice on climate change policy and energy sector matters, contact us at the details below.

FRAZER LINDSTROM LIMITED

Level 1, Old Public Trust Building
131 Lambton Quay
PO Box 10-310, Wellington
New Zealand

Phone: +64 4 499 7179

Fax: +64 4 499 7181

Email: info@frazerlindstrom.com

Website: www.frazerlindstrom.com