

FRAZER LINDSTROM

CLIMATE CHANGE & ENERGY SECTOR STRATEGIC ADVICE

A paper presented at the

**New Zealand Wind Energy
Conference 2004**

Wind Farms and the Projects Mechanism: *Does it Work?*

Stuart Frazer
Frazer Lindstrom Limited

16 July 2004

NEW ZEALAND
WIND ENERGY



ASSOCIATION

Abstract

The Projects Mechanism is one element of the New Zealand Government's climate change policy package. It is also a key component of New Zealand's Renewable Energy Target, itself a part of the National Energy Efficiency and Conservation Strategy.

The concept of the Project Mechanism is the provision of emission units to fund an investment gap: "near viable" projects receive Kyoto compliant carbon credits which the project owner can then sell.

The first Projects Mechanism tender round was completed in 2003 under the new title "Projects to Reduce Emissions". 4 million carbon credits were offered and the tender round was heavily oversubscribed. Wind energy projects, with 100MW of planned installed capacity, were awarded over 30% of these carbon credits.

A second tender round will be held in the 2nd half of 2004 with 6 million carbon credits on offer.

This paper summarises the background to the policy, evaluates the 2003 tender round and looks ahead to the 2004 tender round.

The paper concludes with an assessment of whether the policy works from project developer, government and general wind power industry perspectives.

The Author: **Stuart Frazer** [BEng Chemical Engineering MIChemE]



Stuart is a director of Frazer Lindstrom Limited.

He has more than 18 years international energy sector experience.

Past achievements include the negotiation of the first ever NZ Negotiated Greenhouse Agreement on behalf of NZ Refining Co Ltd.

In the 2003 Projects Mechanism tender round he advised a successful wind farm developer and legal firms on policy & contractual matters.

Background to the Projects Mechanism Policy

The Projects Mechanism (later referred to by Government as the "Projects to Reduce Emissions programme" has two clear objectives:

- 1) To contribute to the Government's target of an additional 30 Petajoules of consumer energy from renewable resources by 2012; and
- 2) To help reduce New Zealand's greenhouse gas emissions, contributing to its Kyoto Protocol commitment of maintaining its emissions in the 2008-12 period at 1990 levels.

Administration of the Projects Mechanism is by the New Zealand Climate Change Office (CCO), a division of the Ministry for Environment.

The Projects Mechanism policy was confirmed in April 2003 following a lengthy consultation process both as part of the Climate Change Policy development and as part of the National Energy Efficiency and Conservation Strategy administered by EECA. The New Zealand Wind Energy Association endorsed the policy in its June 2002 submission.

It is one of three "Price Based Measure" Kyoto policies that the Government is introducing, the other two being:

- An Emission Charge (or "carbon tax") to be introduced from 2007, set at the international price of carbon but capped at NZ\$25/tCO₂
- Negotiated Greenhouse Agreements (NGA's), to prevent the risk of economic production "leaking" from New Zealand to countries with less stringent policies. In return for an exemption from the emissions charge a firm contractually commits to being on a pathway to worlds best practice in emissions management.

Both of these policies are relevant when assessing the Projects Mechanism for wind farm projects.

How Does the Projects Mechanism Work?

The Projects Mechanism provides incentives through the award of Kyoto Protocol emissions units, commonly called "carbon credits", in return for the emission reductions the project achieves.

In the case of wind power projects, the net emissions reduction is calculated based on the alternative fossil fuel generation route less any embedded project emissions related to the use of steel, concrete and diesel in the construction.

The project owner is expected to be able to sell the awarded emission units on the international carbon trading market.

What has happened so far?

Early action

Prior to the formal policy announcement of the Projects Mechanism, in March 2003 the Government allocated carbon credits to two wind farm projects:

- Trustpower's 36MW Tararua stage 2 project; and
- Meridian's 90MW Te Apiti project.

In both cases "carbon credits" were awarded based on the emissions savings in the 2008-12 period. The Government stated that the allocation of the units helped ensure that the projects were economically viable and would proceed.

The 2003 Tender Round

The 2003 Tender Round represented the opening up of the Projects Mechanism with 4 million carbon credits on offer.

Although the CCO had given briefings prior, the tender round was characterised by a very short time period in which to prepare and submit bids; instructions were issued 15th September with a closing deadline of 24th October. Despite the short timeline 46 bids were submitted, this perhaps indicating that many projects had been sat there waiting for the policy to be implemented.

Eligibility

To be eligible projects had to:

- achieve a minimum reduction in emissions of 10,000 tonnes of CO₂-equivalent during the first commitment period of the Kyoto Protocol (2008-2012) - *For wind farms this set a minimum generating capacity of 3.3 GWh per annum, less than 1MW installed capacity;*
- be additional¹ to "business as usual" *i.e. it is Economically Additional – the project would not be carried out but for the incentive of the transfer of emissions units;*
- achieve reductions in emissions that would not occur 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
- Had to be implemented in New Zealand – *financing & project ownership could be from elsewhere.*

Firms in the process of negotiating an NGA were not eligible to bid as a no double-dipping principle was applied meaning that the Projects incentive could not be used to assist in achievement of NGA targets. This had the effect of blocking major energy user sector firms (pulp & paper, steel, aluminium, dairy etc) from entering the tender round.

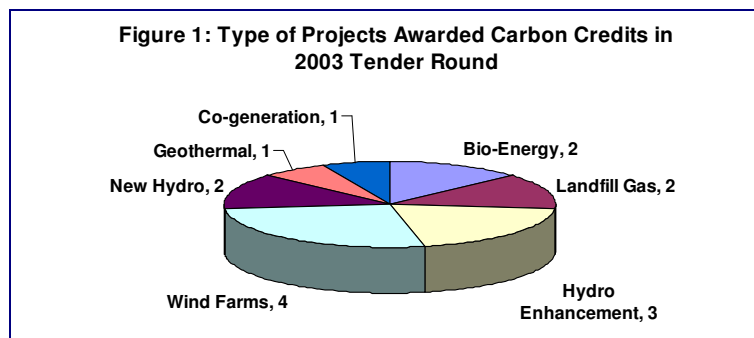
Prioritisation

Projects that contributed to near-term electricity security were given priority over other projects. In addition those offering the most reductions (including those pre 2008) in exchange for the least number of units were also ranked higher than others.

Outcomes

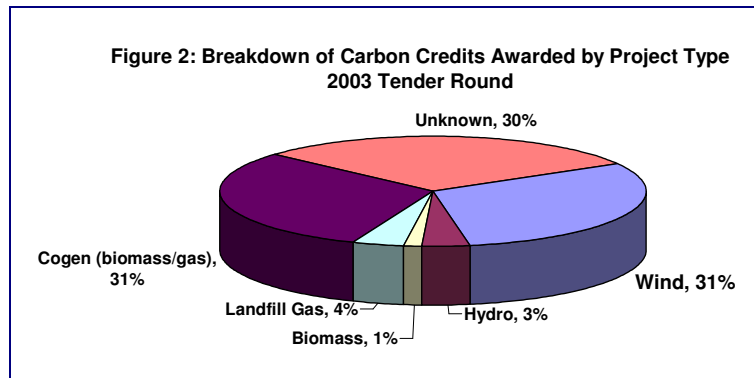
On the 7th December 2003, the Minister Hon Pete Hodgson announced that 15 projects out of 46 had been awarded carbon credits.

The breakdown of these projects by type is shown in Figure 1 below:



¹ 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 Projects Mechanism in order to ensure "Kyoto compliance".

Based on Government press releases up to 1 July 2004, the breakdown of the carbon credits awarded by project type is seen in Figure 2 below.

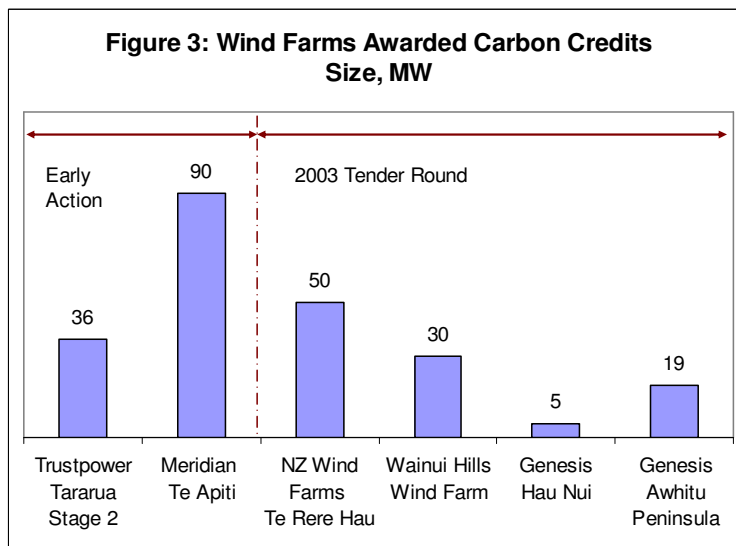


A full listing of the projects announced to date is provided below:

Company name	Location	Project name	Project Type	Size, MW	Carbon credits awarded	Power to be generated, MWh/year	Commissioning date
The New Zealand Refining Company	Marsden Point	Co-generation plant	Cogen using biomass and gas	80	1,225,545	N/A	2007?
Esk Hydro Power (CJ Pask Winery)	Hawke's Bay	Toronui Mini-Hydro Power Scheme	Hydro	1	12,000	4300	2005
TrustPower	Waipori, Dunedin	Waipori project	Hydro	1 total	114,258 (total)	35000	2005
	Taranaki	Taranaki project	Hydro			3500	2005
Watercare Services Limited	Upper Mangatawhiri, Hunua Ranges and Waitakere Ranges	Hydro energy generation turbines	Hydro	4	10,829	N/A	2004-2008
Palmerston North City Council	Palmerston North	Awapuni Landfill Gas to Electricity Generation Project	Landfill Gas	1	149,000	N/A	July 2004
Southern Paprika	Warkworth	Bio-energy plant	Renewable fuel (wood)	N/A	58,824	N/A	2005
NZ Windfarms, (Windflow Technology)	Manawatu	Te Rere Hau Windfarm	Wind	50	519,000	180000	2005
Wainui Hills Wind Farm	Wainuiomata hills, Wellington	Wainui Hills Wind Farm	Wind	30	378,000	N/A	2005
Genesis Power	Southern Wairarapa	Hau Nui Windfarm	Wind	5	330,414 (total)	N/A	2004
	Auckland	Awhitu Peninsula	Wind	19		N/A	2005

In summary: 4 wind farm projects with a combined generation capacity of 104MW were awarded 31% of the carbon credits available.

Figure 3 highlights the Early Action and 2003 Tender Round wind farm projects that have been awarded carbon credits to date.



The 2004 Tender Round

Details of the 2004 tender round are to be announced in the week of the 12th July. Tenders are due to open end August with a closing date of mid October.

It is already known that the number of carbon credits available will be **6 million**.

It is understood that while the tender process will be largely the same as in 2003, the prioritisation will not be so heavily focussed on electricity generation and abatement prior to 2008. Firms that unsuccessfully applied in 2003 can re-apply in 2004.

As before, firms in NGA negotiations will still be blocked due to the no double-dipping principle. With only one NGA signed to date (April 2003) and that firm NZ Refining having already been awarded credits in the 2003 round, the 2004 round will again preclude many of the large industrial site operators from participating.

This constraint on the number of participating firms combined with the increased availability of units may mean that for smaller firms and generators, the 2004 tender round is the best opportunity to bid for carbon credits for many years to come.

What does getting awarded carbon credits mean?

What does a successful bidder get?

The successful Project Company will enter into a contract with the Crown. In the agreement, the Crown's promise is effectively to:

"purchase emission abatement in exchange for the promise to transfer a Crown asset (units) at regular intervals during the 1st Kyoto Commitment Period (CP1 i.e. 2008-12) following delivery of the abatement.

*A Project Company will be able to sell the rights to the expected emission units prior to the commitment period through a forward contract with a third party."*²

The carbon credits awarded by the Government are Assigned Amount Units or AAU's. These are New Zealand's original allocation based on 1990 emission levels.

Alternatively the Project Company may request that the Crown transfers Emission Reduction Units (ERU's). However this requires that the project meets the eligibility criteria for a Kyoto Protocol Joint Implementation (JI) project.

What are the main risks?

The main risks to the Project Company are:

- a) The Kyoto Protocol not being ratified; and
- b) The value of the carbon credits.

Under the contract with the Crown it is stated quite clearly that should the Kyoto Protocol not be ratified, no carbon credits will be transferred. This is because the emission units are directly linked to the Climate Change Response Act 2002 and the Kyoto Protocol.

In developing the policy and contractual terms, NZ Government officials were guided by the principle that: *"Uncertainty over the market for units means that there is a 'price risk' for those trading the units, and the Crown is not willing to bear that risk".*

These risks should clearly be considered when factoring in the value of the units in final project implementation decisions.

² Climate Change: The Projects Mechanism – Details of the model Project Agreements [Ref POL (03)240]

Obtaining value for the units awarded

Although the Kyoto Protocol has not yet been ratified, trading of Kyoto compliant units is developing rapidly.

Meridian Energy were successful in tendering their Te Apiti wind farm carbon credits to the Netherlands Government through its 3rd Emissions Reductions Unit Procurement Tender (ERUPT)³. The introduction of the EU Emissions Trading System (EU-ETS) from 2005 and linking arrangements with Kyoto Protocol mechanisms including JI, would provide a large and active market for potential sale of Emission Reduction Unit's.

The 3rd Tender round of the ERUPT process yielded an average bid price of €5 per tCO₂⁴ while forward trades for the EU ETS range from €7.2 for 2007 to €9.15 for 2005⁵.

Outside of the EU, the market tends to be fragmented with non-government recognised trades taking place between firms, assisted by trading houses.

A New Zealand emission trading system is still a possible development, ultimately replacing the carbon tax. Even in the absence of a national trading system NGA firms may "create" a market to purchase carbon credits to offset under performance against their contracted emissions pathway. The alternative option available to them is to pay the carbon tax for the amount of emissions that needs to be offset. Although the carbon tax is not due to be introduced until 2007, it is possible that some NGA firms may seek to build up a pool of credits early.

Under any advance sale (domestic or international) the value of emission units will be discounted to reflect project uncertainties and future delivery of the units.

The allocation of risks between the parties is critical in such forward agreements. The International Emissions Trading Association (IETA) has prepared a discussion paper on 'Drafting Contracts for the Sale of Projects Based Emissions' and this presents a useful overview of the points to be considered.⁶

Does the Policy Work for Wind Farms?

On the face of it, from both Government and wind farm development company perspectives, the policy is apparently working:

- It has been announced that In the 2003 tender round, 4 wind farm projects representing 104MW of generation capacity have been awarded credits.
- This will reduce greenhouse gas emissions and will contribute towards a sustainable energy future.
- *"None of these projects would have happened without the award of these units – that's the basis of the programme."*⁷

Certainly if you are a developer it would be almost "financially negligent" not to seek the additional value available through the Projects Mechanism for your wind farm.

³ <http://www.senter.nl/asp/page.asp?id=i000003&alias=erupt>

⁴ €5/tCO₂ equates to approximately 0.57 NZ cents / kWh generated based on CCO Projects Tender 2003 guidelines.

⁵ Point Carbon – Carbon Market Europe 25 June 2004

⁶ <http://www.ieta.org>

⁷ Hon Pete Hodgson – 7 December 2003

The Dilemma

The wind power industry is trying to shift from being a marginal to a mainstream technology. It will only do this if it is perceived to be economically viable:

NZWEA states that:

Costs of generating power from the wind have already fallen ten-fold in the last 20 years. Independent studies have shown that hundreds of MW could be installed today at a cost of around NZ 6 cents/kWh.

This means that without any consideration of Kyoto charges for fossil-fuel powered forms of generation, the domestic wind industry is already directly competitive with other fossil fuel-based forms of generation.

From 2007 a carbon tax is due to be introduced. This will add 0.8 and 1.5 cents/kWh to the cost of gas & coal fired generation respectively⁸. With the current market design these costs will flow through to wind generators when gas or coal is on the margin. This alone should have a significant positive impact on the viability of wind power.

Yet still every significant wind farm development announced has or will receive additional value through carbon credits.

The Government, and all project developers who receive the credits, are subsequently locked into the public statements that reinforce the message that wind power is not economically viable without financial assistance in some form. This is an inherent result of the application of Kyoto policies where the principle of "Economic Additionality" is applied.

Hence we have a dilemma, one faced by new technologies elsewhere, in moving from marginal to mainstream acceptance:

Will wind ever be perceived to be economically viable as long as developers use the Projects Mechanism to increase project value?

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 New Zealand, covering major industrial energy users, energy infrastructure and legal firms.

If you would like further information and advice on the Projects Mechanism or other climate change 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.co.nz

Website: www.frazerlindstrom.co.nz

⁸ Source MED Energy Outlook – based on a NZ\$15/tCO₂ carbon charge. The charge could be as high as NZ\$25/tCO₂.