

New Zealand's contribution to the new
international climate change agreement

**Submission to the Minister for Climate Change Issues
and the Minister for the Environment**

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Te Kaitiaki Taiao a Te Whare Pāremata

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Introduction

In December this year, a climate change conference is being held in Paris with the intent of establishing a new international agreement on reducing emissions of greenhouse gases. This is the next climate change conference in a sequence that began with the creation of the United Nations Framework Convention on Climate Change (UNFCCC) at the Earth Summit held in Rio de Janeiro in 1992.

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As part of the process leading up to Paris, each country is to submit an Intended Nationally Determined Contribution (INDC) to the United Nations. An INDC outlines the way each country intends to tackle climate change. This includes setting a target for reducing emissions after 2020.¹

Each country must explain why it considers its INDC is *“fair and ambitious, in light of its national circumstances.”*²

This submission is being made in response to the discussion document on New Zealand's INDC.³ As an overall comment, the discussion document is disappointing – it is long on national circumstances, but short on ambition.

This submission contains two recommendations – one on developing a credible plan for meeting emission reduction targets and one on ensuring the integrity of carbon units.

Planning the transition to a low-carbon economy

Despite setting a target of reducing greenhouse gas emissions by 2050 to 50% of 1990 levels, the measures currently in place to achieve this target are inadequate.

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The Emissions Trading Scheme (ETS) is currently the primary mechanism for reducing greenhouse gas emissions. Unfortunately the ETS is currently little more than a framework. Excessively generous allocations of free carbon credits (subsidies) to major emitters and very low carbon prices mean that the ETS has been ineffective in encouraging the reduction of greenhouse gas emissions within New Zealand.

In the global economy of the future, emitting carbon dioxide will become increasingly expensive.⁴ New Zealand needs to prepare the ground for a smooth transition to a low-carbon economy by, for instance, phasing out the allocations of free carbon credits. A reconfiguration of the economy will bring new economic opportunities.

The discussion paper indicates that the Government will continue to rely heavily on the purchase of reductions in emissions offshore. This is economically rational when they are cheaper than they would be in New Zealand. However, this strategy does little to incentivise investment in low-carbon technologies within the country.

Moreover, a UNFCCC principle is that:

*"The acquisition of emission reduction units shall be **supplemental** to domestic actions for the purpose of meeting commitments..."*⁵ (Emphasis added)

Since the use of markets is seen as supplemental, a commitment to 'domestic actions' will be expected at Paris. New Zealand's main domestic action in meeting its 2012 target was storing carbon in forests which had fortuitously been planted in the early 1990s.

The discussion document argues that our "*national circumstances*" make it difficult for us to take domestic actions, particularly because about half our emissions come from agriculture. I am not persuaded – all countries have their challenges and we have opportunities that others do not.⁶

Taking up these opportunities may in some instances require the use of so-called 'non-price' or 'complementary' measures, but a strong price signal from the ETS is essential.⁷

Certainly reducing the methane and nitrous oxide emitted from the agricultural sector is challenging. This is one area where New Zealand is not only taking domestic action through initiatives such as the Pastoral Greenhouse Gas Research Consortium, but is also taking a leadership role internationally. Currently, an investigation is underway in my office on the ETS looking particularly at how agricultural emissions might be addressed.

However, New Zealand has great opportunities in forestry, electricity, and transport (see Box 1).

Box 1 Opportunities in New Zealand

Forestry

As noted above, it was the increasing storage of carbon in forests that has enabled New Zealand to meet its 2012 target for reduction of greenhouse gases. However, over recent years, there has been a net loss of forested land.

Between 1996 and 2008, the area of land planted in plantation forest grew by over 200,000 hectares. But between 2008 and 2012, the area of land planted in plantation forest shrunk by about 10,000 hectares.⁸ The recently announced second Afforestation Grant Scheme will help, but will not necessarily reverse this trend.⁹

There is great potential for planting permanent forest (or allowing native forest to regenerate) on hundreds of thousands of hectares of hill country land that is of marginal value for grazing. As well as storing carbon, such forests also reduce erosion and thus the loss of sediment into waterways.

Electricity

The discussion document states that New Zealand has less potential than many other countries to reduce emissions from electricity generation because most of our electricity already comes from renewable sources. But New Zealand has a high proportion of renewable electricity precisely because of our large rivers, the geothermal heat due to our location on the Pacific Ring of Fire, and the strong winds – the Roaring Forties – that buffet much of the country.

The potential for generating more electricity from these renewable sources is considerable.¹⁰

The Government has a goal of 90% renewable electricity generation by 2025. However, electricity demand in New Zealand is characterised by high winter peaks. Geothermal, wind, and run-of-river hydro cannot be stored – they are 'use it or lose it' forms of electricity. Consequently, a number of 'gas peakers' – power plants that burn natural gas and thus emit carbon dioxide – have been built in recent years to meet the winter peaks. This is the main impediment to reducing the carbon dioxide emissions from electricity generation.

A much smarter grid would help enable the shifting or shaving of the winter peaks, reducing carbon dioxide emissions from electricity generation, as well as improving the efficiency of the electricity system overall.¹¹

Transport

Nearly half of New Zealand's carbon dioxide emissions come from the transport sector and electric cars provide the big opportunity potential for reducing emissions.

In contrast with internal combustion engines, electricity is a very efficient way of moving vehicles. The amount of electricity required to run the entire light vehicle fleet in New Zealand could be less than 20% of the total now generated, and only a little more than the electricity used to run the Tiwai Point aluminium smelter.¹²

New Zealand has waived road user charges for electric vehicles – a more significant incentive than is probably generally recognised. Incentives for electric vehicles in other countries include free parking and exemption from registration fees.¹³ It will be important to ensure that charging occurs at off-peak times, to minimise the carbon dioxide emissions from peak electricity generation.

Major opportunities for reducing emissions have been identified above, but will not just happen of their own accord. One obvious area that requires action is the phasing out of the allocations of free carbon credits, particularly those to high intensity emitters. As it currently stands, high intensity emitters could still be paying for only five percent of their emissions by 2050.¹⁴

Trust in the ETS needs rebuilding. Foresters, in particular, feel they have been treated unjustly, and frequent changes do not engender investor confidence.

But the ETS alone is not enough – it is far from the comprehensive all-sectors all-gases scheme originally envisaged. New Zealand needs to develop a plan for achieving whatever target is set.

Part of the plan needs to be better information for developing good climate policies, for guiding investments, and for educating the public. What is thought to be 'green' is not always so. Equally, what appears to be damaging to the environment may be less so than the alternatives. This is particularly the case when it comes to the mitigation of greenhouse gases. Non-price measures need close examination to ensure they really will be effective.¹⁵

Developing a plan that will effectively move New Zealand toward a low-carbon economy would require the knowledge and expertise of many different people. Widespread support is essential to provide enough stability for investor confidence.

This could be achieved by using the collaborative model pioneered in New Zealand by the Land and Water Forum.¹⁶

Recommendation 1:

I recommend that the Ministers for Climate Change Issues and the Environment include a statement within our Intended Nationally Determined Contribution to the effect that a collaborative process for developing a plan for moving New Zealand toward a low-carbon economy will be established.

Ensuring the integrity of carbon credits

Buying carbon credits offshore – paying for emission reductions in other countries – is often the most cost-effective way to reduce global emissions.¹⁷ But we have to ensure that the credits we buy are of high quality, that is, they must represent real greenhouse gas reductions.

Under the ETS, New Zealand has allowed unlimited access to international units of almost any quality.¹⁸

When the ETS was introduced, a carbon price of \$25 was envisaged and used in the modelling.¹⁹ Box 7 in the discussion document cites the Intergovernmental Panel on Climate Change saying:

“... to drive sufficient global action to limit warming to 2°C, global carbon prices need to be in the range of \$60 – \$200 NZD per tonne by 2030.”

But over the last few years, most carbon credits purchased by New Zealand companies have been extremely cheap ‘hot air’ units. Under the Kyoto Protocol, countries were given carbon units based on their emissions in 1990. In Russia and Ukraine, emissions fell after 1990 because their economies contracted, but they have been able to stockpile and sell on many of their free carbon units to other countries. These ‘hot air’ units do not represent real reductions in emissions.

The price of these hot air units has been running at a few cents. Taking advantage of the difference in price between these hot air units and the units allocated by the Government to emitters has damaged the integrity of the ETS.^{20, 21}

The discussion document states that:

*“New Zealand is on track to meet its current 2020 target through a mix of reducing domestic emissions, use of forestry sinks, and **recognising a surplus of emission reduction units from its first target under the Kyoto Protocol.**”*²² (Emphasis added.)

New Zealand's net emissions fell beneath the 2012 target that New Zealand committed to under Kyoto. However, achievement of the current 2020 target will rely almost entirely on the surplus of emission reduction units referred to above. In effect, New Zealand will achieve the 2020 target *only* because it allowed the purchase of hot air units.

As of 31 May this year, companies can no longer buy hot air units. But it is critically important that this situation does not arise again. Buying units offshore allows for us to have a more ambitious target, but the units must represent real greenhouse gas reductions.²³

Recommendation 2:

I recommend that the Ministers for Climate Change Issues and the Environment include a statement in New Zealand's Intended Nationally Determined Contribution that the Government will limit the purchase of carbon units to those that represent real and verifiable emission reductions.

In conclusion

There are two arguments that have commonly been used to justify New Zealand taking little action on greenhouse gas emissions.

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The first is that New Zealand's contribution to global emissions is tiny, so what we do has no effect. But every city in China and every state in the United States could make the same argument.

The second is that the world's biggest emitters are not committed to reducing greenhouse gases. This is no longer the case. In November 2014, the Presidents of China and the United States together announced their respective commitments to action on climate change.

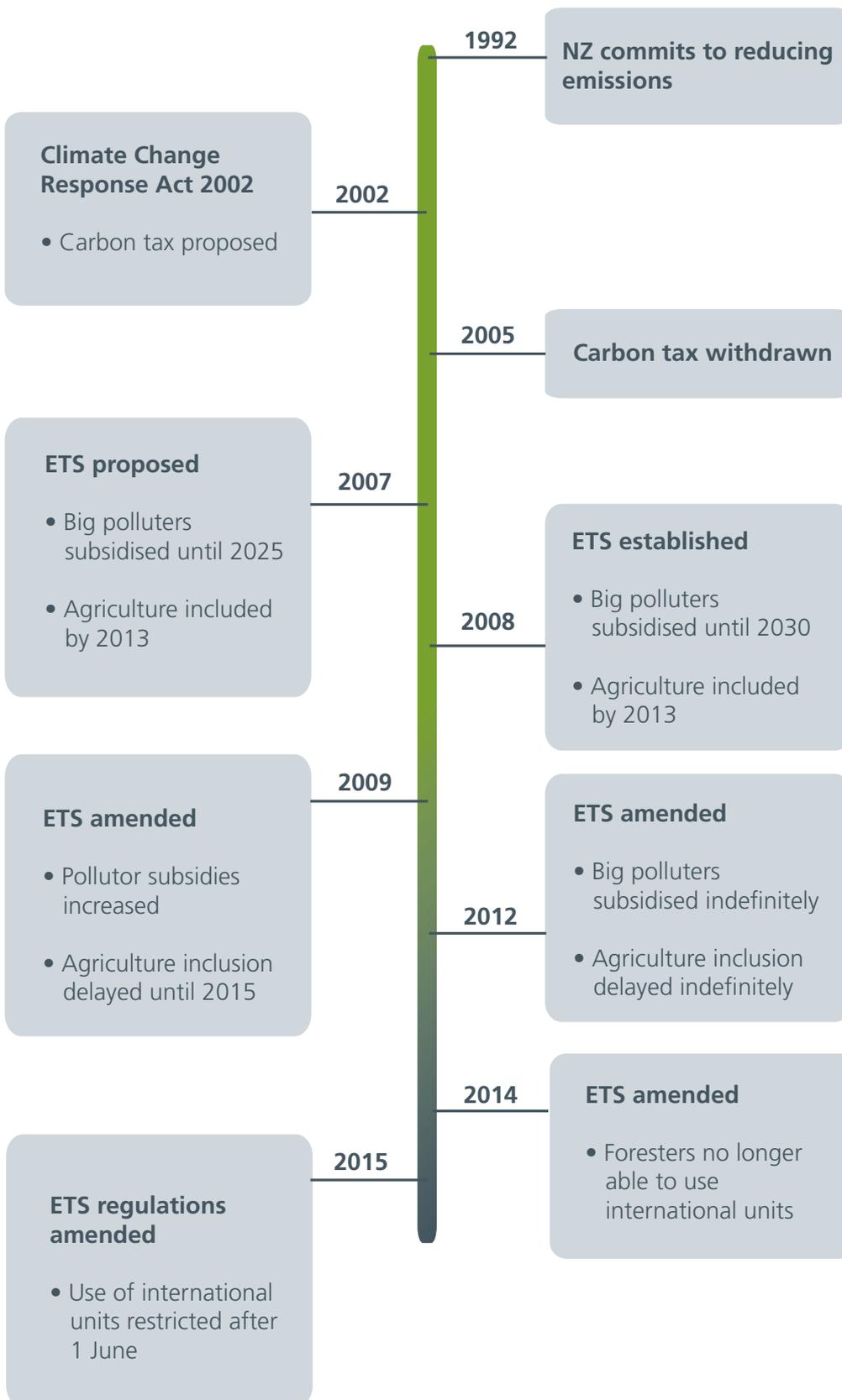
"The United States intends to achieve an economy-wide target of reducing its emissions by 26%-28% below its 2005 level in 2025 and to make best efforts to reduce its emissions by 28%. China intends to achieve the peaking of CO₂ emissions around 2030 and to make best efforts to peak early and intends to increase the share of non-fossil fuels in primary energy consumption to around 20% by 2030. Both sides intend to continue to work to increase ambition over time." ²⁴

These two countries have set ambitious carbon dioxide reduction targets, and intend to become increasingly ambitious over time.

New Zealand's Intended Nationally Determined Contribution should contain not just an ambitious target, but a commitment to developing a plan that will achieve it and a commitment to carbon units that represent real reductions in greenhouse gases.

Appendix

Timeline of major climate change legislation in New Zealand



Notes

- 1 New Zealand has set three targets for greenhouse gas emissions:
 - Reducing emissions to 1990 levels between 2008 and 2012. This target was set when New Zealand signed up to the first commitment period under the Kyoto Protocol.
 - Reducing emissions to 5% below 1990 levels between 2012 and 2020. New Zealand did not sign up to the second commitment period under the Kyoto Protocol, but has made this commitment under the UNFCCC.
 - Reducing emissions to 50% below 1990 levels by 2050. This target was set in 2011, but is not legally binding.
- 2 UNFCCC, 1/CP.20, Lima Call for Climate Action, clause 14. Clause 10 also states that a country's INDC must *"represent a progression beyond the current undertaking"*.
- 3 Ministry for the Environment, 2015. New Zealand's climate change target: Our contribution to the new international climate change agreement: Discussion document.
- 4 There is a new impetus for action with the world's two largest economies. China and the United States are setting ambitious targets and working together to *"... address major impediments to reaching a successful global climate agreement in Paris"*. White House press release, *"U.S.-China Joint announcement on climate change"*, 11 November 2014.
- 5 Kyoto Protocol, Article 6, 1 (d). The draft negotiating text for the Paris agreement also refers to use of market mechanisms as supplementary to domestic action, indicating that this is likely to remain an important principle.
- 6 *"Overall, due to our national circumstances, New Zealand has fewer low-cost options to reduce our domestic emissions compared with other **developed** countries."* (MfE Discussion document, p.8, emphasis added).
- 7 Non-price measures need careful consideration and need to be based on quantitative analysis.
- 8 Data from the Land Cover Database cited in the 2013 PCE report, *"Water quality in New Zealand: Land use and nutrient pollution"* and in the upcoming update of this report.
- 9 Beehive Press Release – Goodhew, *"Budget 2015: New Afforestation Grant Scheme"*. The intent is to establish about 15,000 hectares of new forest by 2020.

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	Installed capacity (MW)	Consented capacity (MW)
Hydro	5,200	245
Wind	622	2234
Geothermal	731	263

Installed capacity data from MBIE, Energy in New Zealand 2013 edition.
Consented capacity data obtained in an email from MBIE

- 11 Currently a major impediment to the development of a smarter grid in New Zealand is that most of the cost would be borne by lines companies, but most of the benefit would accrue to the retail companies. (NZ Smart Grid Forum, 2014, p.24). The Chair of New Zealand's first Smart Grid Summit summed up the situation: *"Nobody is currently taking leadership in the country; and this is certainly not helped by the fact that the electricity industry structure in New Zealand is rather unique. While the line companies (distributors) would accrue the greatest benefits from a smart grid, the retail companies*

are the ones that have been put in charge of the so-called smart meters." Budde, Paul. 2010. New Zealand - Smart Grids Analysis 2010.

- 12 In 2013, the total distance travelled by the light vehicle fleet was 37.2 billion kilometres. Mercury Energy has estimated a commute efficiency of 17 kWh per 100 km. Thus, running the entire light vehicle fleet on electricity would take about 6 or 7 billion kWh per year – about 16% of the 39 billion kWh of consumer electricity in 2013. (Ministry of Transport, 2014: Annual Fleet Statistics 2014, p. 29, Mercury Energy, 2015, <https://www.mercury.co.nz/EV.aspx>, MIBE, 2013: Energy in New Zealand, p. 15). The aluminium smelter at Tiwai Point consumes about 14% of New Zealand's electricity (Electricity Authority, 2011: Electricity in New Zealand, p. 2).
- 13 International Energy Agency, accessed 2015: Hybrid and Electric Vehicle Implementing Agreement, Denmark – Policies and Legislation, <http://www.ieahev.org/by-country/denmark-policy-and-legislation/>; and, Tesla Motors, 2015: <http://my.teslamotors.com/incentives/DK>
- 14 High intensity emitters emit more than 1,600 tonnes of CO₂_{eq} per million dollars of revenue. Currently, high intensity emitters receive free allocations of units for 90% of their emissions, and are only required to surrender one unit for every two tonnes of emissions (Section 222A, Climate Change Response Act 2002). The legislated provision to phase-out free allocation of units has been temporarily suspended (Section 85A, Climate Change Response Act 2002). Until this suspension is lifted, major emitters will pay for only one twentieth of their emissions.
- 15 'Doing the numbers' is vital if actions intended to reduce greenhouse gas emissions are to be effective. One issue is that renewable energy has become largely synonymous with low-carbon energy. But forms of renewable energy vary in their carbon intensity, and so do forms of non-renewable energy.
- For instance, solar energy is not a 'magic bullet' for reducing emissions from generating electricity in New Zealand, because electricity consumption peaks in winter. It is in winter that gas power plants are fired up to meet these peaks, but in winter, day-length is short and sunlight is weak.
- Neither are all fossil fuels alike when it comes to emissions of carbon dioxide. Coal is about twice as carbon-intensive as natural gas – each unit of energy obtained by burning coal is accompanied by twice as much carbon dioxide as each unit of energy obtained by burning natural gas.
- 16 The Land and Water Forum has been instrumental in developing freshwater policy in New Zealand. The National Objectives Framework devised by the Forum has provided the method for implementing the Government's policy on water quality.
- 17 Although as discussed in the previous section, it does not help New Zealand make its own transition to a low-carbon economy.
- 18 New Zealand has banned the use of some units from the ETS, following announcements from the European Union and Australia. Ministry for the Environment, *Guidance on the use of Emission Reduction Units and Certified Emission Reduction units in the ETS*, December 2012.
- 19 Infometrics, 2007, *"General equilibrium analysis of options for meeting New Zealand's international emissions obligations"*.
- 20 Companies have been able to use cheap hot air units to met their obligations and hold on to their New Zealand Units (NZUs). This has resulted in a large number of NZUs that have been issued but not used. These NZUs can now be put towards meeting New Zealand's 2020 target.

- 21 The opportunity to arbitrage NZUs was taken away for the forestry sector in May 2014 and for other sectors on 31 May 2015. (Beehive press release – Groser, Goodhew, *"Government amends Climate Change Response Act 2002 to change forestry surrender obligations"*, 16 May 2014.)
- 22 MfE discussion document, pp.10-11.
- 23 For example, in 2013 Norway committed to stop buying offsets from wind and hydro projects due to concerns about 'additionality', and instead to purchase offsets from projects at risk of folding due to low carbon prices ('stranded' projects). Norway states in its INDC that *"Strict criteria will be applied to ensure that (credits) represent real and verifiable emission reductions and that double counting is avoided"*. Switzerland has a similar statement in its INDC.
- 24 White House press release, *"U.S.-China Joint announcement on climate change"*, 11 November 2014.