

Submission to the Emissions Trading Scheme Review Committee

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Introduction

I am the author of *Hot Topic - Global Warming & The Future Of New Zealand*, a book published by Auckland University of Technology Media in August 2007, and the publisher of the Hot Topic web site, which covers climate science and policy in its New Zealand context. I monitor and comment on climate science and policy on a daily basis through the web site, as well as write on the subject for other media. I own and operate a small farm in the Waipara Valley, producing truffles and grapes. I am immediate past president of the NZ Truffle Association, a committee member of the NZ Meteorological Society, a trustee for the North Canterbury Radio Trust (which is working to establish a community radio station for the Waimakariri and Hurunui districts), and chairman of the Waipara River Protection Group, but I make this submission as a private citizen with a special interest in climate science and policy.

I wish to make an oral presentation to the committee, provided that it hears submissions in Christchurch.

Overview

Action on climate change is not a bolt-on accessory to the normal business of government. Global warming and the climate change it brings is already a major factor in international relations through the UN Framework on Climate Change, the Kyoto Protocol and its associated mechanisms, and current negotiations on follow-up arrangements.

The direct effects of climate change are already being felt in many parts of the world, through heatwaves, drought, the melting of glaciers and ice sheets and the decline in

Arctic sea ice. There are also worrying indications that the pace of climate change may exceed projections made by the Intergovernmental Panel on Climate Change (IPCC) in their Fourth Report, published in 2007.

Over the next decade climate policy and dealing with climate change will become central to the day to day business of government. Policy developed now needs to be very carefully framed so as to be adequate for current circumstances, but flexible enough to respond to future developments, in particular if the international response picks up pace.

Action on climate change will be the prime driver of international relations over the medium term, especially when climate change impacts begin to bite.

NZ's primary short term vulnerability is to the economic consequences of actions taken by trading partners to address climate change.

Action to mitigate carbon emissions implies significant changes to energy and transport infrastructures. New Zealand, thanks to its existing high proportion of renewable energy generation and significant potential to develop extensive new resources (geothermal, wind, tidal, biomass), is well placed to make these changes at modest cost.

Adaptation to the direct impacts of climate change in NZ is likely to be relatively minor in the near term, thanks to our geographical location in the southern ocean, but we will be vulnerable to impacts overseas and the actions taken to deal with them - in both economic and human terms.

Global warming, if allowed to run its course with no attempt by nations to restrain and reduce carbon emissions, has the potential to cause enormous damage to New Zealand and the globe, but the impacts are likely to be felt first overseas. The Asian megadeltas, for instance, are home to hundreds of millions of people but are extremely vulnerable to even small amounts of sea level rise. Significant sea level rises in these areas could cause economic and social disruption on an unimaginable scale, with extensive international repercussions.

Terms of reference

The committee's terms of reference were very widely drawn, but I have chosen to interpret them in a way that I hope will assist the committee to make relevant recommendations to the House. I will comment on each item, before making recommendations for the committee to consider.

- *Consider the prospects for an international agreement on climate change post Kyoto 1, and the form such an agreement might take:*

The new US administration has indicated that climate change is one of its main priorities, thus greatly increasing the likelihood of a post-Kyoto (K2) deal.

Considerable progress has already been made without the US, but two crucial issues remain to be addressed - the emissions reduction targets that nations will adopt, and the means by which rapidly developing economies such as India and China are brought into the deal.

Current atmospheric greenhouse gas (GHG) levels result primarily from development in the US and Europe over the last 150 years. Rapidly growing countries such as China and India argue that simple equity demands they be allowed to grow in the same way - without undue costs and restrictions. The form any long term deal will take is likely to be based in some fashion on “cap and converge” - set a per capita limit to GHG emissions at some future date (2050) designed to achieve a limit on atmospheric GHG levels, and allow emissions to “converge” to this level. This allows headroom for growth in China and India, and sets a clear path for the developed world to follow. This will have to be accompanied by technology transfer to encourage “clean growth” in developing nations. India has described cap and converge as “the only game in town” as far as they are concerned.

An important consequence of cap and converge is that developed countries will face steeper emissions reductions than many currently envisage - of the order of 80 to 90 percent of 1990 levels by 2050.

Emissions reductions in NZ will need to mirror those of our key trading partners, whatever our local circumstances, in order that we are seen to be playing our part.

In the event that a global K2 deal proves impossible in the short term, then the most likely aftermath is that key countries/blocs with functioning carbon markets will band together to create international carbon markets. Tough carbon tariffs will protect industries inside those markets from freeloaders outside. NZ therefore needs to be “inside the tent”, whether or not there’s a truly global K2 deal.

- *Hear views from trade and diplomatic experts on the international relations aspects of this issue*

I am neither a trade nor diplomatic expert, but it is clear that NZ’s primary vulnerability is to actions taken by our trading partners, and to perceptions of NZ in key markets - for tourism and agricultural produce particularly.

Being “outside the tent” brings risk of cross-border “leakage” charges - effectively a carbon tariff on our exports. Being seen in our target markets as avoiding emissions reductions will be extremely damaging to exports and inbound tourism.

• *Identify the central/benchmark projections which are being used as the motivation for international agreements to combat climate change; and consider the uncertainties and risks surrounding these projections*

The key figures to consider are:

- Expected global temperature increases for a given atmospheric greenhouse gas (GHG) load: 3°C for a doubling of CO₂ over pre-industrial levels (if no carbon cycle feedbacks).
- The possible range of atmospheric GHG loads in future, and what constitutes a “safe” level of atmospheric GHGs?
- The European Union aims its climate policy at restricting global temperature increase to 2°C over pre-industrial levels. This is widely held to mean remaining under a ceiling of 450 ppm CO₂. We are currently at 387 ppm and increasing at about 2 ppm per annum.
- However, modelling suggests that achieving 450 ppm only delivers a 50% chance of staying under 2°C, and recent signs that carbon cycle feedbacks (primarily from methane releases from permafrost and seafloor methane hydrate deposits) are commencing, together with the rapid decline in Arctic sea ice coverage, make even that target look risky.
- Recent work by Hansen et al suggests that a “safe” level of atmospheric CO₂ is around 350 ppm, if we are to prevent major ice sheet loss and significant sea level rise.
- This means not only reducing emissions far more than currently envisaged, but moving into actively extracting CO₂ from the atmosphere - “fixing” carbon. It will therefore make sense to prioritise processes (biochar/afforestation) that can adapt to moving beyond carbon neutrality.
- Recent indications are that the pace of climate change has speeded up. Summer sea ice decline in the Arctic has been steep in recent years, ice mass loss in Greenland and Antarctica has increased, and expert views on likely sea level rise over the course of this century now run from 1m upwards.
- A scientific meeting to provide an update to the findings of the IPCC’s 2007 report, taking into account current research, will be held in Copenhagen in March (*International Scientific Congress on Climate Change*, March 10 - 12, 2009). I

would strongly suggest the committee take into account the findings of this congress, as it will provide an overview of the current state of our understanding of the science of climate and what that tells us about the risks of change.

A note on risk:

The risks associated with the effects of climate change, and of action to restrict such change are not symmetric

Many of the impacts of climate change are effectively irreversible on human timescales. Species lost to climate change can't simply be "put back". Ice, once melted from Greenland or Antarctica, will not be easy to replace. Land flooded by rising seas will be lost for ever.

While it is possible to be certain that increasing GHG levels will bring warming, it is not possible to put an upper limit on what that warming might be on long timescales because of the risk of carbon cycle and other positive feedbacks. In other words, we can be sure it's going to get worse, but we can't be sure it isn't going to be catastrophic.

While the most extreme climate change impacts may be judged to be low probability, the risk cannot be discounted. Early and decisive emissions reductions is the most effective insurance we can purchase.

- *Consider the impact on the New Zealand economy and New Zealand households of any climate change policies, having regard to the weak state of the economy, the need to safeguard New Zealand's international competitiveness, the position of trade-exposed industries, and the actions of competing countries*

NZ's vulnerabilities lie in doing nothing, or not enough to be seen to be part of the solution. That would be immensely damaging to exporters and to tourism.

The "costs of action" have been overstated. One highly-touted study by the NZ Institute for Economic Research, which found the economy would face huge costs, was explicitly based on the unrealistic assumption that New Zealand would act on its own for 30 years.

Modelling by Treasury showed much more modest impacts, and international studies (Stern, Garnaut, McKinsey) show that the costs of action are minor in comparison with the damages likely through inaction. The McKinsey & Company report referenced below demonstrates that it is feasible to achieve global emissions cuts of up to 35 percent below 1990 levels, for a cost of about one percent of global GDP.

- *Examine the relative merits of a mitigation or adaptation approach to climate change for New Zealand*

This is a false dichotomy. Mitigation and adaptation are required in both national and international climate policy. Adaptation is necessary to enable us to cope with the inevitable consequences of the warming that's already in the pipeline. Even if atmospheric GHGs could be capped at current levels, there would be another 20-30 years' warming - a direct consequence of the thermal inertia of the planet's oceans. This is known as the "climate commitment", the warming that is unavoidable. Mitigation through emissions reduction and carbon capture is necessary to prevent the worst damages later in the century, but will have no impact in the short term.

Mitigation via cuts in carbon emissions has tended to be the focus of policy here and overseas, but adaptation to the changes that are inevitable and unavoidable over the next 30 years needs much more attention, especially as the indications of significant changes are already to be seen. I make some specific recommendations below.

- *Consider the case for increasing resources devoted to New Zealand-specific climate change research*

Much more work needs to be done, on both the basic science of climate change in our region (improved modelling of regional impacts, research on adapting agricultural systems to increased drought, heat etc), and developing resilience to change as it happens. I make some specific recommendations below.

- *Examine the relative merits of an emissions trading scheme or a tax on carbon or energy as a New Zealand response to climate change*

This particular horse has fled the stable. The European Union already operating an emission trading scheme, 23 US states are involved in emissions trading and the new US administration looks certain to put "cap and trade" at the heart of its emissions policy. Australia has committed to an ETS. NZ, of course, already has an ETS on the statute books which is already operating in the forestry sector.

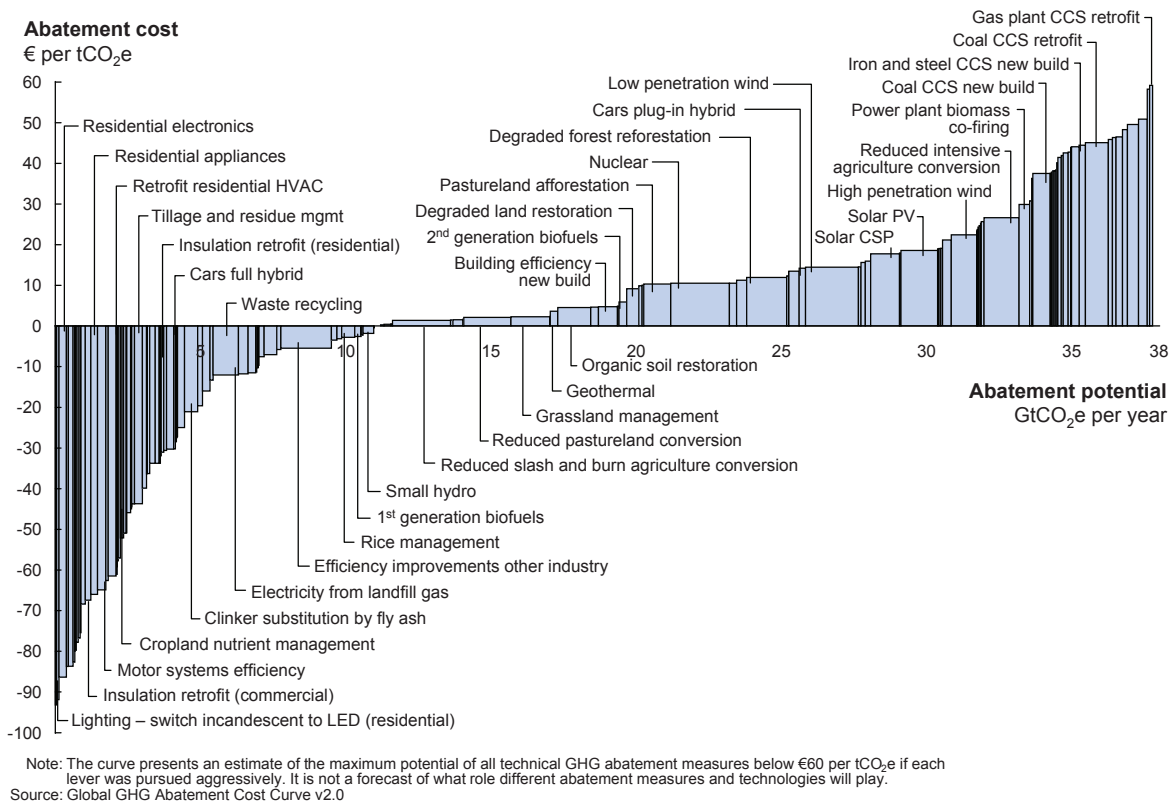
Any future international deal on emissions reductions is going to be built around enabling emissions trading. To move to a tax at this stage would be quixotic, to say the very least.

- *Consider the need for any additional regulatory interventions to combat climate change if a price mechanism (an ETS or a tax) is introduced*

Price signals are necessary, but not sufficient to achieve the best/least cost emissions reductions. Whatever the absolute merits of the climate policies of the last government, they were at least were a cohesive attempt to mix price signals with sensible regulation.

Consider this “abatement curve” from *Pathways to a Low-Carbon Economy: Version 2 of the Global Greenhouse Gas Abatement Cost Curve* a report by the international business consultancy McKinsey & Company (2009).

Global GHG abatement cost curve beyond business-as-usual – 2030



Items with negative costs are those that produce immediate savings: the low hanging fruit. Some of these (housing insulation, efficiency measures) are best dealt with through regulation or direct funding (such as the Green Homes Initiative of the last government).

- Consider the timing of introduction of any New Zealand measures, with particular reference to the outcome of the December 2009 Copenhagen meeting, the position of the United States, and the timetable for decisions and their implementation of the Australian government

NZ already has an operational Emissions Trading Scheme. To reduce the cost of participating in Kyoto (and K2), it is important that price signals be in the market for as long as possible. This is also important for consumer and business adaptation to the price signal.

Delaying the introduction of price signals does no-one any favours in the long run, because consumers and businesses will remain locked in to high emissions profiles. When reductions are inevitable - and they are, as any sensible reading of the science and international situation indicates - then moving to a lower emissions path as soon as possible will be a lower cost option over time.

Delaying the ETS further has the net effect of transferring the cost of emissions under the Kyoto Protocol rules from emitters to taxpayers. This amounts to a direct subsidy (and will be seen as such by our international competitors).

• Require a high quality, quantified regulatory impact analysis to be produced to identify the net benefits or costs to New Zealand of any policy action, including international relations and commercial benefits and costs

This is a good idea, and if it were to be applied to all government policy initiatives, then I would support its application in this instance. However, in the context of this committee's deliberations, it's difficult to see such an impact analysis as anything other than a delaying tactic. It also ignores the fact that the current climate policy framework hasn't just been plucked from thin air - it is the culmination of many years work by successive administrations.

Summing up

Climate policy must not become a political football. It is too important, and too long term to allow for incessant tinkering on a three year political cycle.

It is therefore important that NZ build a political and social consensus on the need for action, and develop shared goals on where NZ should be heading. The last government's goal of "carbon neutrality" was a worthy one, and in the light of the sorts of emissions targets discussed earlier, effectively essential, but very little effort was made to get the NZ community to "buy in" to that goal.

The new government has a one-off strategic opportunity to begin a process to build a long term consensus on action to deal with climate change. It should take that opportunity.

Much has been made of the costs of introducing climate policies in NZ, but there has been very little work on our vulnerability to the direct impacts of climate change, and the policy actions taken by our trading partners. It is important that growth targets for the economy be "green growth" and sustainable in the broadest sense.

We need to consider "lifeboat New Zealand" as more than a pleasant place to ride out climate change. NZ will be vulnerable to stresses caused by population movements on a global scale - both returning expatriates and increased refugee numbers.

Recommendations

1. Build a multi-party, multi-sector, strong consensus on the need for action on climate change and the steps to be taken.

- Create a Parliamentary Commissioner for Climate (or equivalent), to be responsible for preparing regularly updated reviews of climate science and global climate policy development to enable parliament to have a “single source” of best advice to inform policy development.
- Appoint a Chief Scientist to advise Cabinet on science and technology issues related to climate change (and other areas where science impacts policy).
- Develop scientifically and internationally credible emissions reduction targets and ensure buy-in to those targets by business and consumers.
- Build public and business awareness of need for action.
- Develop NZ’s “clean green” brand values to include “low carbon” as a highly visible brand asset.
- Support international marketing by tourism industry and exporters
- Provide certainty for business and consumers by framing policy on a long time scale.

2. Establish NZ equivalent of UK’s Carbon Trust

- To support businesses and consumers to move to low carbon operation
- To develop an NZ carbon labelling scheme to international standards
- To develop strategic understanding of areas where NZ has “carbon advantage” (ie where “food miles” are not an issue), and encourage exporters to exploit that advantage
- To set standards for NZ-based carbon offset schemes that harmonise with emerging global standards
- To encourage the establishment of high quality national carbon offset schemes to allow carbon vulnerable exporters and tourism operators to achieve credible zero carbon status.

3. Implement current ETS design without further delay

- Encourage early adoption by agriculture of emissions reduction strategies to ease participation in the ETS when it arrives.
- Begin urgent work to assess potential for large scale use of biochar for both carbon offsets in agriculture, and as a long term potential approach to fixing carbon.

- Support biofuel initiatives, especially second generation cellulosic ethanol and algal fuel developments, and the use of biomass for fuel.
- Create carbon innovations fund to support NZ companies working on innovative low-carbon technologies/crops/processes.
- Reintroduce funding for housing improvements to increase energy efficiency.
- Provide “feed-in’ tariffs and similar incentives to encourage local small-scale generation initiatives.
- Discourage the building of new thermal power generation, and support renewable generation investment.
- Create renewable energy innovation funding to encourage investment in energy R&D, and the construction of innovative new plant (tidal generation, for example)

4. Develop national strategy for adaptation to expected near term (20/30 yr) climate changes

- Support improved local modelling of climate change impacts
- Create national soil/climate/crop database (topoclimate mapping) to allow agriculture to plan land use change
- Increase new crop research, esp on developing warm climate alternatives to present crops/cultivars
- Develop coastal hazard plan to prepare for sea level rise
- Support low-impact irrigation schemes for east coast NZ agriculture, preferring water harvesting and on-farm storage to large storage lake development

5. Place climate policy at the centre of government decision making

- All policy should be examined for its potential effects on both adaptation and mitigation policy, to avoid unintended consequences.
- Consider inevitable climate change and its global impacts when developing long term policy and strategies (including defence and immigration policy).

In conclusion

An Emissions Trading Scheme, in whatever its final form, is only one part of the process of achieving cost-efficient emissions reductions in the NZ economy, and a small part of the national response to climate change in its broadest sense. The ETS has to be seen as a key part of an overall strategy. I hope this submission has suggested some ways in which such a strategy can be developed and implemented, and what it might contain.

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