



The Sustainable Energy Forum

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Consultation on Policy
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Submission on the discussion document Climate Change—the government's preferred policy package

1 Introduction

The objective of the Sustainable Energy Forum is to facilitate the transition to sustainable energy. The Forum has about 120 members, including politicians, business people, academics and corporate members. This submission has been finalised after circulating a draft to the Forum's committee and incorporating the feedback received.

The information requested on page 23 of the discussion document is:

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2 Summary

On the whole we are supportive of the preferred policy package, but we have substantial doubts. We see it as a 'glass half-full' rather than a complete package. This is partially because so much work remains to be done — inevitably — but also because we see ominous signs that the early promise has been diluted, the sense of vision and opportunity lost. Two key instances are the retreat from a strong 'risk management' approach to a weak 'economic' approach (Section 6). The economic approach taken has a 'classical' emphasis on market balance, after a carbon charge has internalised the external costs, when a more radical approach, using the economic theories of information and learning, gives answers much closer to the risk management approach. See Section 7.

Other issues we highlight include:

- The key importance of rate of growth of new technologies and businesses, and with it the need for making an early start to maximise gains (Section 4).



- Potentially serious weaknesses in the competitiveness-at-risk area (Section 8).
- A lack of balance in the National Energy Efficiency and Conservation Strategy (NEECS), because the emphasis is on efficiency of use rather than greenhouse gas abatement (Section 10).
- The need to strengthen the RMA as a climate change policy instrument (Section 11).
- Weaknesses around the late introduction of a carbon charge (Section 12).
- The lack of any effective transport policy before the start of the first commitment period (Section 13), with effects out to at least the third commitment period.

All this leaves a depressing sense of lost opportunity. In effect we are to rely on our Kyoto forests while we delay changes for a few years more. We note that New Zealand has good or excellent resources in biomass; hydro-electricity; wind energy; and offshore energy, ranging from wind turbines in shallow water to tidal and wave energy. Probably no other country is better placed to develop a fully renewable-energy economy. There is an enormous opportunity here, for technology development and intellectual capital; independence from declining and increasingly expensive non-renewable energy; joint ventures and demonstration projects. There are strategic opportunities, building partnerships with other countries in the Asia/Pacific area through the Clean Development Mechanism or Joint Implementation provisions of the Kyoto Protocol. We have the chance to punch well above our weight in reducing the threat of climate change.

The preferred policy has the potential to capture all of this. So why the quaint superimposed notion that delaying real change for as long as possible is a low-risk, low cost approach?

General feedback

3 Approach

The Sustainable Energy Forum strongly supports the Government's approach to climate change, taken in the policy document, *Climate Change — the government's preferred policy package*. A comprehensive framework has been developed quickly, and while much work remains to be done, the approach taken is broad-based, long-term and realistic. In particular, the Forum supports:

- A basis on the goals and key principles, set out on page 4 of the policy document.
- Acceptance of the complexities, uncertainties and opportunities of the task.
- No simplistic reliance on market forces, a level playing field or a limited range of instruments.
- A focus looking beyond the immediate target of the First Commitment Period, ending in 2012.

4 A glass half full

But having expressed our support, we have our doubts, encapsulated by one of our members as a glass half full. At least some of the 'half emptiness' is justified. It would be unreasonable to expect all policies to be fully developed at this stage, and as the discussion document rightly points out, there are many uncertainties.

Some disappointments would be unreasonable. An example, (from the paper on renewables targets) is 'only' 10 000 solar thermal installations a year by 2012: nowhere near enough. However, a check shows that achieving this limited target needs an annual growth rate of 20%, starting now: a reasonable limit for planning purposes. We draw two important conclusions from this:

- The need for 'reality checks' such as the rate of growth proposed.



- The importance of making an early start and maintaining a high growth rate in all areas where growth rate is a factor — which means most areas. Taking the current installation rate of 1500 solar hot water units a year as an example, theoretical installation rates in 2012 would be:

Start year	20% growth	30% growth
2002	11 000	30 100
2004	7400	16 500
2006	5000	9000

However, policy development is itself one of the factors that will develop speed wobbles if taken too fast, and we accept the need for prioritising. With incomplete information this will inevitably lead to mistakes, which can be minimised but must then be accepted.

or half empty?

Despite some excellent work and a useful reality check, we are still left with a half-empty feeling:

- There is very little change of direction until 2008, with no price measures before 2007. The risks of such an approach run right through the economy: once investments in this period are made, managers and individuals will pay almost any fuel price to realise the benefits. To take a transport example (Section 13), we shall have replaced about a quarter of our vehicle fleet by 2008, with very little pressure to change existing attitudes, and will then continue to refuel most of those vehicles for fifteen years or more.
- There is an assumption that risk will be minimised if changes are delayed for as long as possible. We highlight the dangers of such a mindset in Sections 6 and 7.
- We sense a tiptoeing around the edge of carbon avoidance. Surely a tonne of carbon avoided is worth more than a tonne emitted and taxed, or offset against 'sinks.'
- There is no recognition of the value of international trading of carbon credits beyond the minimum needed to meet our Kyoto commitments,

5 Balance and fairness

The overall balance is good, although improvements are no doubt possible and can be incorporated over time. However, a specific question in the policy document asks if the right balance has been achieved, "between addressing climate change and keeping the New Zealand economy as strong as possible." Our answer has to be 'no.' The emphasis is too much on avoiding short-term losses, and not enough on securing long-term gains.

6 Risk Management

In an article in the *NZ Herald* (2/12/01), Minister of Energy Pete Hodgson said:

"Climate change policy is an exercise in risk management, not accountancy. The short-term costs of action on climate change can be roughly estimated, but the costs of doing nothing, while undoubtedly large, are virtually impossible to quantify."

The preferred package shows a disappointing retreat from this stand. The main reason will be pressure from business, with motives ranging from valid concerns to corporate policy set in the US. There has been some scaremongering and much confusion. Did anyone *really* think that the Government would cripple the economy by taxing farm methane emissions? Reducing stock numbers would further increase costs, because of overheads, so a tax would give many farmers the choice of re-mortgaging, overstocking or getting out. Did we *really* need repeated assurances that this was a non-starter? Similarly, is up to seven cents a litre on diesel *really* the biggest threat faced by industry?



Risks to be managed

It goes without saying that the risks to be managed include sea level rise and climate changes, but there are other risks:

- Oil scarcity, with new development falling behind the combination of demand growth and production decline. Associated risks are rising production costs; current account problems and supply disruption. The US administration's policy of a huge stimulation of domestic oil and gas production can only increase this risk — possibly for the US, certainly for NZ — by diverting drilling resources into areas of high profitability but low gain in production or reserves.
- The supertanker effect: not being able to change course quickly enough. The response to policy will tend to be very slow — like a large ship — and the climate response to new policy will be much slower again — like a very large iceberg.
- Sudden climate change, with the temperature rise expected in a century or more happening in a decade or less. This is unpredictable and the risk is unknown, but it has happened before and is more likely during periods of other climate change. Fortunately, New Zealand is relatively immune from this risk: our oceans provide thermal mass on a grand scale.

Most OECD countries have gone onto a war economy at least once in the last century, and will do it again if the climate indicators frighten them enough. Hopefully they will then be fighting climate change and not each other, but either has very large risks.

It follows from all this that a risk management approach goes beyond economics, let alone cost:benefit. Risk management calls for some acceptance of short-term economic damage, to minimise the risk of later having to face a war economy, or even economic collapse. The question is, 'how much economic damage should New Zealand accept?' but the answer is probably unknowable, even in hindsight. We can only look at the IPCC report and some rather disturbing developments since, and suggest 'more.'

Risk management in arrears

Another aspect of risk management is that New Zealand already faces some uncomfortably high risks, looking in vain to be managed. In electricity supply we have dry-year risks, and apparently price risks even in not-so-dry years. We still have transmission risks, and may be heading towards generation risks too — we note Contact Energy's decision not to proceed with Otahuhu C. Are we willing to risk turning off Auckland, again? The writers of the consultation paper on the renewables target coyly describe wind turbines as near-commercial but having 'intermittent characteristics,' but then have nothing more to say. They seem unaware of the likely effects of rising gas prices, or a carbon charge, or the gains to be had from using wind turbines and hydro together. Similarly in transport we have high costs and high exposure to predictable oil 'shocks.' And again we are behind the play: Bangkok's air quality is improving and even Delhi is making some progress. Auckland isn't.

There are useful benefits to be had before 2008, in areas such as tighter building codes, domestic insulation refits and smaller cars. Further out, we can imagine New Zealand becoming the world's first economy to use fully renewable energy sources, perhaps by 2050. But that will need investment and 'kick starting.' Renewables tend to have high up-front costs, with heavy capital demands and low operating cost. Much of this investment can and should be private, but to imagine that it can all be private is to return to the mythology of the level playing field. Probably the most important change before 2012 is in our ways of thinking, and the necessary education can hardly be funded privately.

7 Economics

We have argued above that a risk management approach is needed, requiring greater efforts than suggested by economics. However, economics is itself pointing towards a more vigorous approach. In a recent *EnergyWatch* article¹ Massey University economist Peter Read argued that the content of the NEECS strategy suggested economic advice that was "dead wrong:"

¹Read, P (2001): Outdated economics defeats government's climate policy. *EnergyWatch* 21, 9/2001, ISSN 1173-5449



"Economics is in ferment; a bit like physics 100 years back, when traditional Newtonian mechanics was fraying at the edges as strange effects in cosmology came to be explained by relativity, and quantum mechanics took over at the atomic scale. Traditional 'Newtonian economics' says that the single best possible outcome — including the best pattern of electricity investment — will be delivered as the equilibrium of perfectly competitive markets, so long as the costs of greenhouse gas (GHG) pollution are reflected in a 'carbon tax.'

"But the economic theory of information — analogous to relativity — says that some markets, needed for the best outcome to be achieved, cannot logically exist. How can you know the right price to pay for finding out about the best innovations, when you can't know what the payoff from the best innovations will be? So risk-averse managers under-invest in new technology. Their problem is that a lot of other markets that might exist, and that might help them, in fact don't exist — say an insurance market against the risk of droughts induced by climate change reducing future hydro dam output.

"And the economic theory of learning — analogous to quantum mechanics — says there are many possible equilibria because learning results in reducing costs. This contradicts the traditional 'Newtonian economics' world of increasing marginal costs, the standard stuff of Economics 101. With competing technologies — say thermal power plant versus wind power — the outcome depends on small initial events... Once one technology takes hold, its costs fall and other technologies are 'locked out.'"

It follows that industry will need incentives to innovate in new areas — wind turbines rather than gas turbines, fuel cells rather than petrol engines — if they are to apply the economic theory of learning to renewables and energy efficiency technologies. However, this argument needs a little care when the technologies are imported; Germany has very generous terms for buying surplus power from consumers using renewable technologies, but relies on those technologies being mainly German.

We see a range of factors pointing towards the need for some fairly large-scale government intervention in one form or another. Clearly, few businesses are going to move outside their comfort zones on either economics or risk management.

8 Competitiveness-at-risk firms and Negotiated Greenhouse Agreements

We fully agree that there is no point in risking carbon leakage as businesses move overseas to avoid the costs of climate change policies. However, we believe that the risks have been seriously overstated. OECD experience is that moderate levels of carbon taxation have not had this effect. Moving to Australia — the most usually touted destination — will seldom be a real option, despite the Australian government's decision not to ratify the Kyoto Protocol. For example, major new developments in Australia must now include a quantified assessment of likely greenhouse gas emissions in their Environmental Impact Statement. See Section 11. Where we *have* missed out is that Australian incentives have attracted New Zealand expertise in wind power.

Loss of competitive advantage is the standard argument of industry lobbies, but in reality is unlikely to stand out from risks which they routinely accept. Less well touted is that BP's world-wide internal carbon trading system — only three years old — has already saved the company NZ\$ 2 billion. Or that in New Zealand, the Business Council for Sustainable Development has identified savings for a wide range of industries. The Europeans are very much awake to the competitive advantages open to them as the US backs away from Kyoto, but New Zealand seems to be sleep walking.

The criteria for identifying 'competitiveness-at-risk' firms are very basic, and potentially have 'scam' written all over them. The criteria rightly exclude domestic freight businesses, but few of the businesses whose freight is carried. The definitions of who might *not* be at-risk are better, but still very wide. Much more detailed criteria will be needed, to stem a potential avalanche of claims for competitiveness-at-risk status. Those criteria will need to cover both claimant's situations and ground rules for Negotiated Greenhouse Agreements (NGAs).

When an NGA is negotiated, two difficulties will arise, neither addressed in the preferred policy:



- Conflicting requirements for transparency and commercial confidence.
- Unequal technical expertise. It is difficult enough to find informed and independent advice for the Referee's office of a regulated industry. These difficulties will be much greater in the NGA office, which will need to master a wide range of technologies.

Can the NGA office avoid becoming either a bureaucratic nightmare or a gravy train? Or even both? How will we know that these pitfalls have been avoided?

9 Projects

Projects have their risks, identified in the working paper, but seem to be an important mechanism for channelling the increased Government investment we urge in Sections 6 and 7.

Underlying policies

10 NEECS

A weakness of the NEECS strategy is that it focuses on consumer energy efficiency, rather than avoiding emissions. In some cases the difference matters:

- Conversion losses are ignored, such as losses in changing one fuel to another, evaporation losses in petrol handling and electricity transmission losses. Two conspicuous examples in New Zealand are carbon dioxide discharged to atmosphere from geothermal power stations, and from the Kapuni and Maui gas treatment stations. Logically these should be subject to the carbon tax, because emission reductions are possible.
- Renewables are treated in the same way as abatement measures: there is no recognition that a tonne of carbon avoided is worth more than a tonne emitted and either taxed or offset against sinks. This approach takes no account of avoided pollutants other than carbon; avoided transmission losses from distributed renewables sources; or the contrast between the sustainability of renewable energy sources and the stop-gap nature of carbon sinks.

We present these points in greater detail in our submission on the renewables target.

11 Local Authorities and the Resource Management Act

The RMA, with its underlying requirement an Assessments of Environmental Effects, has the potential to make a major contribution to climate change policy. Inclusion of quantified greenhouse gas emission data is a logical step. So why the soft-peddalling? Why is a National Policy Statement considered unnecessary? Why not amend the RMA? The preferred policy expects that, "in time, climate change price instruments will address greenhouse gas emissions in a more efficient manner than RMA controls on emissions to air." (page 48). Why is another five years to be thrown away, when we are already behind the Australians and even some States of the US?

The answer to these questions is to be found on page 15 of the preferred policy document. "The foundation policies, provided they are fully funded during the pre-commitment period, will position New Zealand well for meeting its first commitment period targets. There is therefore no need to introduce any price measures before 2007." Really?

One of our members has drawn our attention to the system used in Australia: An Environmental Impact Statement (EIS) is required for major new developments, and must now include a quantified assessment of greenhouse gas emissions caused by the project, and show that they have been minimised. Consenting authorities normally refer the EIS to the Australian Greenhouse Office for approval, allowing both expert review and consideration of the national interest. The result is that scheme proponents are required to calculate the effects of their proposal and consider alternatives. This alone may be enough



to ensure the development of low-emission alternatives to what would otherwise have been a business-as-usual project, and if not, case-by-case review by a central government office will ensure that reasonably thorough assessments are made.

The working paper on local government makes depressing reading, with no progress likely until well after 2008. If developers are not to quantify the greenhouse effects of their projects, as in Australia, then who will? Is local authority planning going to be immune to the supertanker effect, of slow response? Hardly. Surely this is a key area, needing a rapid response, even if this means that the response needs to be tidied up later.

12 The Carbon Charge

We are concerned to see that the carbon charge will be introduced as late as 2007. We would prefer to see it introduced by 2004 and perhaps increased progressively to the 'full' price — whether international or capped — in 2007. Our thinking is that early introduction will begin to affect investment before 2008, and that a series of small price rises will do more to concentrate minds — the fundamental purpose of the exercise in the early stages — than a single large step.

One point to be decided is where the carbon charge is to be collected. Our preference is generally for collection as far up the energy supply chain as practicable, both for simplicity and to ensure that supply chain losses are included, but we see two exceptions:

- Locally produced oil, refined at the Marsden Point refinery, will be in competition with imported products already refined overseas, and would be at a disadvantage if refinery and supply losses were charged. This could either be covered by charging for carbon at the start of the national distribution chain, or by use of the competitiveness-at-risk provisions.
- Carbon charges will make very little difference to electricity prices, but the renewables content of electricity could be made clear to customers if the carbon charge were collected at the retail level, by electricity retailers acting on behalf of the government. This would allow electricity suppliers to gain a competitive advantage by offering a high proportion of electricity with a renewable origin.

We do not see gas as an exception, and suggest that the carbon price be charged at the wellhead.

13 Transport

Road transport use is growing at around 4 %/yr, or more like 6 %/yr for heavy truck transport. It is the largest single contributor to New Zealand's emissions growth, making it crucial to climate change policy. We note that both these growth figures are higher than the rate of economic growth, and that urban transport costs in New Zealand are already unusually high. Auckland's non-freight transport operating costs (public and private) are 15.5% of Gross Regional Product (1999), compared with 10.4% in Sydney, 8.0% in London, and 5.0% in Paris. Wellington is a little better than Auckland, at 14.0%, probably because of slightly better public transport. The only measured cities with higher costs than Auckland are very dispersed North American cities such as Phoenix (16.4%), or very poor cities such as Manila (18.2%).

Controlling transport use in New Zealand is an issue of sustainability in all three senses: economic, social and environmental, making it an important target. However, the proposed measures are very weak:

- A carbon tax, which will increase the cost of petrol by a maximum of 6 c/litre. We have seen larger increases in the last year, with very little effect, but the carbon tax will not be introduced for another 5 years.
- Transport system pricing (in NEECS). This is likely to be the most effective measure, but there is no indication of what is to be included and the only timeframe given is 'ongoing.'



- A range of other measures (in NEECS), none of them with targets and only two with timeframes: vehicle efficiency standards and vehicle fuel consumption information.

Against this must be set the decision that no price measures will be introduced before 2007, so the most effective measure is to be delayed by another five years — unless transport pricing is considered to be separate from other climate change policies. In that time our transport energy use will have grown by nearly 20%. Nearly as bad is that we will have replaced about a quarter of the fleet, and will effectively be committed to fuelling the replaced vehicles for another fifteen years or more, into the third or fourth commitment period of the Kyoto Protocol.

The assumption that more efficient vehicles and reduced congestion will make a difference to transport energy use is not credible. The evidence is that gains in both these areas simply disappear: efficiency gains into larger and more powerful vehicles, and congestion gains into more traffic. There is good evidence that the most effective way to reduce traffic congestion is often to reduce travel times by public transport, and that such measures would be effective in New Zealand's main centres. Cities that have tried speeding up public transport have achieved good results, and even restricting traffic capacity to make room for public transport has both theoretical and practical support. None of the 39 cities on the database held by the Institute for Science and Technology Policy, (Murdoch University, Perth) has fast public transport which is little used.

It is misleading to say that New Zealand has no effect on the design of imported vehicles, because the models imported are influenced by Government policy as well as individual choice. The models which are *not* imported show a definite bias towards smaller and more economical vehicles; in European or Japanese terms, we tend to import gas-guzzlers. Perhaps NEECS will persuade vehicle buyers to think outside this square, but we doubt it. We only know that there is no published NEECS target for reducing fleet energy use. Until 2007 the only proposed barriers to someone who 'always' has a V-8 Urban Assault Vehicle as a company car, are fuel efficiency labelling and perhaps a conscience. Is this credible?

14 Conclusion

The Government has made an excellent start in achieving a 'glass half full' policy, but now needs to work on the other half. Some of this 'second half' is ongoing policy development, extending into and beyond the first commitment period; present indications are that under current policy directions it will happen so long as funding is made available. But other aspects of the second half-glass are more worrying:

- The retreat from a risk management approach.
- A dubious economic approach.
- Unnecessary delays in starting the change-over, when a major limitation is the rate at which new or marginalised technologies can grow into the mainstream.

We look forward to an early start on further work in these areas.