

Form 3
**Submission on proposal for national policy statement for
renewable electricity generation**

In accordance with section 49 of the Resource Management Act 1991

To the Chairperson
Board of Inquiry

This is a submission on the (following) proposed national policy statement for renewable electricity generation (the proposal) that was publicly notified on 6 September 2008.

The specific provisions of the proposal that my submission relates to are:

The five policy items

First a comment is that it is a little disappointing that the effects of deliberate improvement of utilisation efficiency is not included, since there is no doubt that this approach would be more economic than merely providing more generation capacity. I should therefore like to see another policy devoted solely to this aspect of power demand being studied.

Draft Proposed NPS for renewable electricity generation.

Policy 1

I endorse this fully. It is essential for our honouring of the obligations we have accepted under the Kyoto agreement. We MUST eventually electrify our rail system to meet the close approaching massive increase in the cost of world oil and improve the efficiency of our internal transport system.

Policy 2

National grid where necessary should be reinforced to encourage renewable generation. This should surely be the major consideration for every new generation option, and is another probable benefit of a FIT tariff option.

I have appended my summary of the options for renewable generation which are now or in the future will be available to us, and they are very great indeed.

Policy 3

I endorse this also, but observe that reversibility of many civil engineering installations should not be a "sine qua non". For instance shore based wave generation installations will be no more reversible than our hydro dams, even though the ultimate destiny of a hydro dam is probably a swamp.

Policy 4

I see no objection to this, but observe that research scale investigations (item ii) should be a priority.

Policy 5

This section should include a Feed-In Tariff (FIT) which is mandated by most European countries and is now about to be adopted by UK.. See appendix below.

Interpretation

Add..."Osmosis" *Osmosis is being actively experimented on by both Norway and Netherlands. Should suitable membranes be developed there is a huge potential for any country eg NZ which has river mouths where fresh and salt water exist together.*

Small and community –scale distributed renewable electricity generation

This presumably includes onshore wave generation? Both the Norwegian and the Isle of Islay installations are less than 4MW

I seek the following changes to the proposal:

Add in osmosis under the definition "interpretation".

I wish to be heard in support of my submission if there is a hearing in Christchurch.

* If others make a similar submission, I will consider presenting a joint case with them at a hearing.

Signature of submitter (or person authorised to sign on behalf of submitter)



Date

28 October 2008

(A signature is not required if you make your submission by electronic means.)

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APPENDIX

I add below a summary of the various options simply to emphasise the importance of the issue for policy advisers. No doubt they are aware of much of the content, but hopefully it will assist in placing the various aspects in perspective.

So-called Renewable Energy Generation is in all cases except Geothermal and Osmosis (Not yet economic) are intermittent and should be more correctly described as energy conversion. New Zealand is exceptionally wealthy in its opportunity to exploit all these energy forms except perhaps direct thermal solar generation which needs very hot desert conditions. If exploited strenuously there should be no reason why our entire electricity industry could not be driven by these systems.

It should not be overlooked that the world's peak oil has probably already passed, 2005 has been suggested, but in any case if in the future, it is not far away. We have not discovered any significant oil deposits for many years now. Therefore fossil fuel will get dearer as time goes on. Equipment to exploit renewables has only the installation cost and the operating and maintenance cost. The fuel itself has no direct cost and will therefore not be subject to increases.

Many Renewables are Distributed Energy sources, Solar photovoltaic, Micro wind and micro hydro. Major sources, Irrigation canal flows, Hydro, Geothermal, Wind, Wave, Tide, not quite so much. I will deal with the opportunities for each in turn, but first observe that we should not consider nuclear because it demands more infrastructure than our country could possibly afford and in any case uranium is not renewable. Similarly fossil fuels not only generate greenhouse gases but also are an irreplaceable chemical feedstock for a vast range of products. We would be robbing future generations of their birthright to merely burn them for their energy content, and even more so if we lower their efficiency by including sequestration equipment for the CO₂. Distributed energy places no increased load on transmission lines. Even so, no doubt increased use of distributed energy sources will demand grid improvements in some relevant areas.

A further vital issue in NZ's specific case is that our existing hydro system was with two exceptions designed for a 100% hydro system. Hydro machines have a major operating advantage that they can be started up and put on load very rapidly. The dams can therefore be managed as a prime energy battery for the whole system. So if the various renewable sources have non-operating times, they can be filled by the hydro machines. The lake storage can be refilled either by not running machines when the renewables can maintain supply to enable storage to build up. In the eventual case even extra penstocks could be relatively cheaply inserted into existing dam structures.

Yet a further issue is that when we have a range of different energy conversion machinery in operation, their down times will not coincide so they will by this characteristic actually cover each other to a great extent.

The benefit of a Feed-In Tariff is now apparent in the many countries which have mandated one. England is the latest country to accept the benefit and is drafting a requirement for a FIT after many years of criticising the scheme. Despite objections

from the big generators we should do likewise and will find a large number of consumers will install PV or Micro –Wind as a conscience relieving act, only then realising the personal benefit.

Solar Photovoltaic

The insolation level for NZ is similar to the South of France. The policy should encourage individuals to install PV. The present rules from most lines companies do not encourage its installation. The opportunities so missed are demonstrated amply in the (current) 47 countries which have a Feed In Tariff (FIT). Extreme examples are Germany, Japan, Spain and California. In all these places the results are a very large number of PV installations. An important benefit is that the investment necessary is all by individual homeowners. Incidentally PV installation costs are still reducing and factories are still being built to manufacture them.

Micro- wind

Wind at low heights is not as efficient as the greater height of larger commercial units. However overseas experience has demonstrated that provided surplus electricity generated is guaranteed to be paid for, individuals will still install these units. Stewart Island residents have demonstrated that lay groups will install and use these units provided the lines company encourages them. Micro-wind units are available in UK, US and even NZ has a manufacturer.

Micro-hydro

Opportunity for this is restricted to largely back country areas, and up until the 1950's there were many such units. Most were unsophisticated, but now modern units are available to provide grid compatible equipment.

Irrigation canals

Most irrigation canals can operate current operated hydro machines using the kinetic energy of the canal flow, and some drop structures also could operate small hydro sets of about 1MW using the potential energy in the fall. There is now a Christchurch firm able to design and manufacture suitable installations.

Central Stations

Hydro

These require no comment as our system was constructed around large hydro systems mostly designed to 50 % load factor. Therefore they are capable of providing a carry over service of energy storage for intermittently available systems. They could in an eventual limitation on their capacity for supplementary supply even be equipped with additional turbines to increase output if necessary.

Geothermal

NZ may not have been the first country to have exploited this energy form, but it now

has considerable experience in operating it. It provides an excellent base load contribution and should be exploited as much as possible. There is this caution however that it may not be entirely renewable.

Wind

This technology is now well established. NZ has one of the best supplies of wind derived energy in the world. We expect about 40% capacity factor on shore while most European companies have to construct offshore to obtain a mere 35% capacity factor. Historically wind is still available in a "dry" year, so WECs should enable hydro systems to sustain a "dry" season to economise stored water better.

Wave

Wave energy converters are being developed in many countries, and already one type is commercially successful, others are under development. NZ's wave resource is huge, amongst the highest in the world. The reason is the reach before the next landfall. Wave energy conversion is about at a similar stage to that of wind 20 years ago, but the international effort being put into its development is much more intense so the probability is that the optimum design will be known within a very few years, and the economics will be positive within 5 years at most.

Tide

NZ's situation almost North-South means that our tide moves clockwise around the country. Therefore dead water occurs at different times in all coastal sites. Thus electrical grid operation is regular and straightforward. Our tidal movement is increased by two straits, one of them in the centre of the country. We also have a harbour which moves one of the largest tidal movements in the world. Our wave energy resource is vast.

Osmosis

Osmosis has the potential for generating a large amount of electricity wherever fresh water and salt water exist at the same site. It is a renewable energy resource which requires new technology. It is not yet economic but its feasibility has been demonstrated and development is proceeding in Norway and in the Netherlands. A suitable membrane is under development.

Guardian Letter to Editor

I attach also a letter to the Editor of the Guardian Weekly of 24th October from a Bryan Furnass of Canberra which brings out the importance of this issue internationally.

Reply

Send letters to: 119 Farringdon Road, London EC1R 3ER, United Kingdom or weekly.letters@guardian.co.uk

Please include a full postal address the article. We may edit letters. To contact the editor directly weekly.feedback@guardian.co.

How grim will it get?

Financial turbulence has displaced climate change and environmental degradation from the headlines, and so it remains mostly unrecognised that the collapse of life-supporting ecosystems poses a far greater risk to humanity and to the biosphere than we inhabit than does the collapse of human economic systems. (It's going to get grim, but just how grim?, October 10).

The depression of the 1930s ended with massive investment in the destructive armaments industry, still apparent today from the fact that the Pentagon's unchallenged budget exceeds the \$700bn bail-out for Wall Street.

We are at a turning point in history when the triple problems of climate change, peak oil and financial collapse could be solved constructively, and in the long term sustainably, by investment in a new low-carbon industrial and agricultural revolution.

The prescription for a healthier future requires the preservation of the carbon sinks in soils and forests and the progressive replacement of ancient solar capital, stored as fossil fuels, by endlessly renewable solar currency.

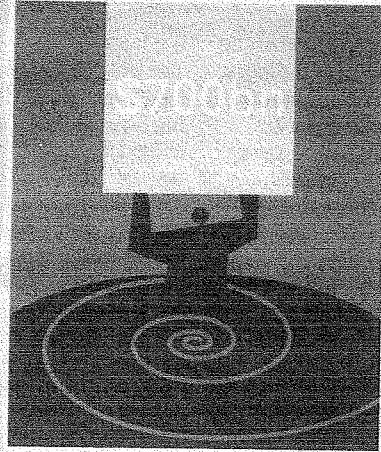
The sun provides our planet with 15,000 times as much energy as is used by industrial civilisation, which can now be harvested, stored and transported with an efficiency of 25%. At the local level, energy can be stored under roadways; captured geothermally, by wind, tides or by roof photovoltaics; and used in transport biofuels rescued from wastes.

Given the social and political will, things need not be so grim for economics, ecology or for employment. What is grim is the "bozone layer" surrounding powerful people that stops any bright ideas from penetrating.

Bryan Furnass
Canberra, Australia

● The Masters of the Universe and the doom gloom loons in the media are paper tigers! If they have no confidence in the real economy, the unchanging basis of which is ordinary people, their industry, their commercial acumen and their innovation, why then should we have any confidence at all in them?

It seems that they not only want the ordinary taxpayer to bail them out, but also to be prepared to lose livelihoods and homes, just so that they can continue to live high on



Gary Kempston

able but also totally unnecessary. Cleaning up the planet and the dire straits it and our societies are in, particularly in relation to world poverty, will be a labour of Hercules.

So let's give the Masters of the Universe the boot, accept the challenge ourselves and make it the new groom, bloom and boom.

Peter Marcer
Frejus, France

● Madeleine Bunting's piece is fantastic. Will it be read with the clarity with which it was written? Or will it be obscured by the dark riders of the capitalistic apocalypse, as has happened with so many messages of light?

Henryk Skolimowski
Warsaw, Poland

● Anyone who wants to understand how the financial collapse occurred should do a crash course in banking.

Leaf Fielding
Vieuxos, France

● After bailing out the bankers, George Bush should, at least, show some decency by granting a posthumous pardon to Al Capone. After all, Capone's takings from loan-sharking, which landed him in prison, were peanuts compared to those of today's bailed-out bankers.

Sammy Meilaq
Bahar ic-Caghaq, Malta

● As a grateful America rolls out its socialist safety net, perhaps we can now refer to this bastion of capitalist chicanery as "the good ol' USSA".

Dave Robinson
Gladesville, NSW, Australia

● It was amusing to read your October 3 issue on October 12. Your lead story of October 10 will look a lot like that of October 3. The first sentence will change from "Congress rejects bailout" to "Congress

The problem with Palin

Ewen MacAskill discussed "negative campaigning", the US disease that is spreading through western democracies (Smears are flying but the voters won't penalise the candidates for them, October 10). He mentions the subtle messages that smear campaigns can transmit, and the unconscious doubts that they raise about a candidate. Calls of "traitor" and "kill him" at rallies demonstrate the extreme responses they arouse.

It is bad enough that people with a vote are stupid enough to fall for this sort of campaigning, but there is something of even more concern. What happens when lies and innuendo about a candidate convince a significant enough percentage of voters to make such tactics a "success", as pollsters are quoted as saying, but that candidate still manages to win office? You end up with a president whom a significant minority do not trust. They may even have a homicidal attitude towards him.

John McCain has attempted to calm his unbalanced supporters, and is to be commended. But his running mate, Sarah Palin, seems to be doing all she can to encourage misguided beliefs about Barack Obama's patriotism, skills and honesty.

Palin seems likely to damage US politics whether she wins or loses. Judging by her performance in the so-called debate with Joe Biden, she seems better equipped for a career as a daytime talkshow host, wink and all.

Ray Brindle
Kyneton, Victoria, Australia

● Who's winking at whom? Sarah Palin at the men or the women in the US TV audience? Or the editor of the Guardian Weekly at her readers, who she assumes to be sophisticated enough to realise that when a serious newspaper devotes space to such trivialities, it is really delivering brilliant political analysis? I'm in awe of the postmodern irony of it all.

Nick Inman
Larreule, France

History of capitalism

Will Hutton's short history of capitalism (October 10) is short on credibility. He dates "modernity" from 1899, whereas most thoughtful people prefer circa 1500 when Europe began to dismantle feudalism and take over the world.

Apparently the Industrial Revolution wasn't important to capitalism.

confused about the past understand the present the future.

Niall Clugston
Parramatta, NSW, Austr

Two views on far

As I understand it, the c in archaeology differs fr your two French comm farming man's first big r October 10).

Man was the hunter, the gatherer of roots, be fruit and grain. It is belie it was the gatherers who the potential of discarde sprout and provide a ne haps encouraged by a pr a settled life for the bear of children.

It would have taken g for the new culture to be of life, during which the hunter took command o of that culture. In view c happened since, it was p that was the greatest mit **Franklin Medhurst**
Stockton-on-Tees, UK

Briefly

● Full marks for publish Karmi's The future is one (October 3), advocating a encompassing all Palesti equality before the law f zens regardless of race. I please partisans of the tr onist ideal of a *goyimrein* state. But it must come a **Bruce Inksetter**
Rapide-Danseur, Québec

● The comments on the i of a two-hour marathon z nificent of the comments sub-four minute mile (Oc Scientists actually showe was not possible for hum to do that. Athletic achiev have shown us that the o science can predict is that will ever run faster than I **Frank Okoh**
Detroit, Michigan, US

● As Jonathan Freedland points out, the US electio an effect on the entire wo ber 10). This being the ca a pity that the entire adul tion of the world can't cas would be logistically and impossible of course, but much doubt about the ou **Elizabeth Keating**