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## **Submission on the New Zealand Energy Strategy and New Zealand Energy Efficiency and Conservation Strategy**

Draft Energy Strategies  
Ministry of Economic Development

On behalf of the New Zealand Geothermal Association

2 September 2010

### **Introduction**

The following submission made by the New Zealand Geothermal Association comments on both the New Zealand Energy Strategy (NZES) and the New Zealand Energy Efficiency and Conservation Strategy (NZECS). We would like to thank officials for the opportunity to comment on these complementary key industry strategies.

The New Zealand Geothermal Association (NZGA) is an independent, non-profit association that provides information on geothermal phenomena and utilisation for industry, government and educational organisations. In addition, the NZGA, as a member of the International Geothermal Association, contributes to the international exchange of information within the geothermal development industry. NZGA membership comprises participants, regulators, and interested parties within the geothermal community. It totals 285 members currently.

### **Overall Comment**

Overall this is a short document, lacking the detail of visible analysis of other policy documents, though containing simple rationales for the strategies.

The Association is pleased with the frequent mention of geothermal energy options which shows that Government is aware of the current role and future potential of this low-emission, reliable, competitive, renewable energy source. As the Hon. Gerry Brownlee points out in his Foreword "we continue to be a world leader in geothermal energy", and as an industry we want to promote this leadership role further.

To a limited extent, first thoughts reflect priorities. In that respect, it is disappointing that the first area of focus in the NZES is development of petroleum and mineral fuel resources. While these elements are essential, the primary areas of focus should be on a long term sustainable energy supply and demand management, rather than satisfying and sustaining our current fossil-fuel energy addiction.

The broad goal set out on page 6 of the Strategy is succinct. NZGA is supportive of this goal that focuses on economic growth while requiring this be done through "environmentally-responsible development and efficient use" of our resources, while providing secure and affordable energy.

The previous version of the NZES and NZEECS, treated the NZES as a high level document while the NZEECS was a more detailed document outlining a path to the broad goals of the NZES. In our view, the current NZEECS lacks substance.

### **Some Specific Comments**

#### *Area of Focus 2 Develop Renewable Energy Sources*

We are broadly supportive of Government intention to investigate how it can support the development of new geothermal applications, improve access to geothermal information and improve geothermal consenting processes.

Similarly we would encourage working with the NZGA and other Associations in a broad sense and specifically to remove unnecessary barriers to the uptake of medium and smaller scale renewable technologies.

One method of working with the Associations is through partial but direct funding of activities. The Associations are directly involved with the industries concerned so are in a good place to provide insight and to develop information bases that can assist technology uptake i.e. to support the intent of the NZES. Current funding does limit the activity of these groups.

We do recognise the effectiveness of some Associations in securing funding via different routes. However, in this regard we think that Government needs to be careful to avoid picking winners. As an example the draft NZES specifically supports continuing the Marine Energy Deployment Fund to encourage that industry. It is the NZGA's view that such renewable technology deployment funds should be continued or established, but that they should be broadened in nature to allow all renewable technologies to seek funding through a competitive bidding arrangement. The national marine industry is seeking to establish itself, while geothermal specialists have a proven ability to lead the world, while still struggling to find funding to develop new ideas.

The NZGA continues to support the aspirational target of 90% of electricity generation to be from renewable energy sources by 2025. Geothermal energy will be a major contributor to meeting this target. In the short- to medium-term there are a number of high temperature fields that are being actively explored and developed by the major players. Landowners (including Maori Trusts) are now more aware of the potential of the resources under their land or in their area of interest, and are now looking to convert this into projects. Together, these developments represent both first and second phases of geothermal development, and much of this will likely take place in the next 10 years. However, in the timeframe to 2025 it may be possible for a third phase of geothermal development centred around Enhanced Geothermal concepts and prospects to enter the picture. When considering distant targets, the Government should bear in mind the need to lend necessary support to the full range of technologies required.

#### *Area of Focus 3 Embracing New Energy Technologies*

Our comments here continue our comments from "area of focus 2". We fully support the statement "no one can pick which new technologies will be the 'winners'. In the face of this uncertainty, it is most important to keep an open mind and not to close off options." Refer to our previous comment on making funding contestable across renewable energy technologies.

We also fully support the concept of New Zealand keeping abreast of international developments and innovations. The NZES specifically lists a number of international energy relationships. We would like to reinforce the need to build strong international relationships, and especially with other leading geothermal countries such as the USA and Iceland. To the list of recognised international relationships we would add the International Partnership on Geothermal Technologies. This partnership brings access to the hundreds of millions of dollars of US-funded geothermal research, along with knowledge developed in Australia and Iceland including into enhanced geothermal developments and is essential if we want to retain New Zealand's world-leading status. If not world-leading we can at least be a fast-follower. Some of our consultants are already involved with enhanced geothermal projects in

Australia, and can be developing expertise and experience long before the technology becomes competitive in New Zealand itself.

It is not clear where the topic of distributed energy should be discussed against the various areas of focus. In future, a significant number of distributed energy projects (both for electricity and heat) should be developed, so should reasonably be covered by an area of focus under the priority of developing resources. These projects may not necessarily be new technology. However, distributed energy projects can make a contribution to both our overall energy supply and energy security, so should continue to be facilitated by Government.

#### *Area of Focus 4 Competitive Energy Markets Deliver Value for Money*

We broadly support a concept of 'value for money' under which prices reflect the cost of supply including environmental costs. We support the concept of competitive markets.

We do note some unexpressed conflicts in the discussion of gas supply. The NZES notes that "discovery of more gas in New Zealand will support electricity supply security". This is true if the gas supplies are linked to generators, which is likely. However, such discovery and linkage, if at a sufficiently competitive price could undermine the 90% renewable electricity target.

#### *Area of Focus 6 Reliable Electricity Supply*

Following the electricity market review in 2009, the Government has decided to "identify barriers to geothermal energy development". We support investigation of barriers generally, but note that significant large scale investment in geothermal electricity generation is proceeding in New Zealand now, and has been for the last 5 years or so. This particular strategy/activity better lies under "area of focus 2" covering all uses of geothermal energy, and we would recommend considering barriers across the breadth of geothermal applications rather than focussing on electricity industry.

#### *Area of Focus 10 Warm, Dry, Energy Efficient Homes*

We note that many studies that have shown that New Zealand homes are often too cold to the detriment of the health of affected New Zealanders. Insulation will achieve so much but there will often be a need for more energy input, though ideally in a more energy efficient manner. There are a number of geothermal options to achieve this, including geothermal heat pumps and direct heating options in some locations, but these options are often capital intensive. Over the life of an investment the geothermal options can be attractive compared to alternatives, but some means is necessary to enable either the spread of payments, or a realisation of the true value of the improvement in the value of the home. We suggest that a means be investigated whereby home energy values can be equated to annual dollars of expenditure. If such a scheme existed then investors in energy efficient options may have a way of recovering some of the costs at the time of house sale.

#### *Area of Focus 11 Best Practice in Environmental Management for Energy Projects*

The NZGA broadly supports the programmes outlined in the NZES, including:

- Maintaining our good environmental record internationally
- Streamlining of consenting and planning processes as appropriate
- The use of the Environmental Protection Authority to consider projects of national significance – though we would add "when requested by the applicant".
- The use of a National Policy Statement on Renewable Electricity Generation to emphasise renewable energy options to planners and decision makers.

#### *Area of Focus 12 Reduce Energy-Related Greenhouse Gas Emissions*

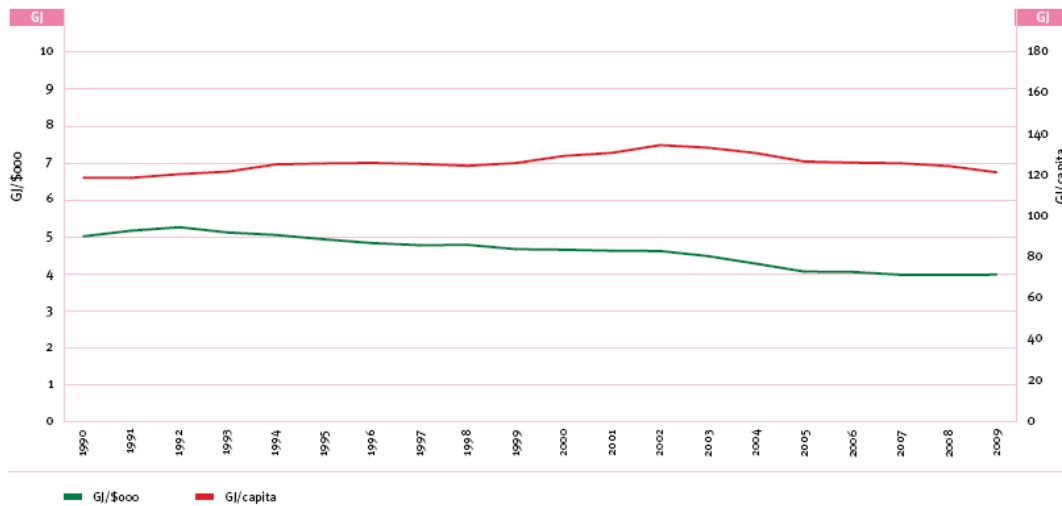
We note that any use of geothermal energy to displace fossil fuels will have the desired effect of reducing energy-related greenhouse gas emissions. Geothermal energy does have some CO<sub>2</sub> and methane but these are small in comparison with fossil fuels. It can be argued that many of these gases would have been released naturally by the resources even if they are not developed, but putting that argument aside, geothermal energy use will still significantly offset the level of emissions associated with fossil fuels.

### NZEECS Introduction

As noted earlier we expected more detail within the NZEECS.

We note the discussion around improving New Zealand’s energy intensity, and the apparent conflict between the NZEECS graph and the graph below sourced from the MED’s Energy Data File. The Energy Data File values are about 5 – 10% higher than the NZEECS data, apparently because of gas use by Methanex and Balance that can be included or excluded in the calculation of energy intensity (and has been treated differently in the two data sets by MED). Wherever possible, all targets for both the NZES and NZEECS should be measurable, and measured against a clearly defined methodology.

Figure A.5e: Consumer Energy Intensity



### Transport

We simply note that geothermal will only be able to contribute to transport energy in so far as some transport is electric.

### Business

The NZEECS sets a target of “An additional 9.5 PJ of energy utilised for heat and/or fuel from biomass and/or geothermal sources, per year by 2025”. Geothermal energy can contribute to this total. There is continuing investment in direct use applications around New Zealand, with a recent significant step increase in the use of steam at Kawerau being one example.

In practise the use of geothermal heat will be distributed between industry and homes, but no targets have been set for homes.

### Homes

A “target” of historical trends of increasing energy use by households levelling off is in conflict with the objective of “homes with improved air quality to avoid ill-health and lost productivity”. As discussed earlier and in the NZES, New Zealand homes have generally been too cold. While some of this can be countered by home insulation and more efficient heating, the fact remains that New Zealanders must wind up their temperatures and change culture to

increase home temperatures. People must first wake up to this need which will see energy consumption increase. Following from that will be the obvious need to invest in more energy efficient options. The primary need is to increase home temperatures, and targets should not be set that are in conflict with this.

### *Electricity System*

The target set for the electricity system is that “90 per cent of electricity will be generated by renewable sources by 2025, providing supply security is maintained”.

This statement (particularly the last proviso) does not reflect the reality of the market. It could only be made if it was backed up with a moratorium on the building of fossil fuel stations subject to security of supply considerations. In practice, the generators will build whatever plant seems best and most competitive from their perspectives. If cheap gas or coal becomes available then that will influence their investment decisions.

If no moratorium is in place then the only proviso is “if the price of renewables remains competitive”.

In practice, the NZGA favours market-led initiatives that reflect the full costs of operations, including a cost of carbon. Beyond that, the electricity market participants should be able to build whatever generation seems appropriate to them. In many cases this will be a geothermal option. Allowing the market to select the lowest cost options will help to keep electricity prices at the lowest possible level which is a desirable outcome, and may impact on the possible achievement of the 90% renewable target.

Within the policy discussion on the electricity system is a policy aimed at “fostering the deployment of new renewable sources such as marine and solar sources of energy”. Again, we caution against picking winners, especially when they exclude geothermal options such as enhanced geothermal systems. Policies should always be broad. Where funds are to be set up then they should be contestable with all renewables able to bid for a portion.

### **Final Comments**

In the past, a number of potential geothermal developers of a range of development scales have approached the Association asking what help can be expected from the Government. Having read this draft NZES and NZEECS, apart from the broad framework initiatives (e.g. RMA streamlining, and an emissions trading scheme that puts a price on carbon), we would struggle to identify any practical help.

EECA has introduced some useful programmes in the past e.g. assistance with feasibility studies that could usefully help potential investors look more closely at geothermal options. We would encourage this as a policy.

We continue to point to the value of demonstration projects and of good case studies in accelerating technology uptake. This could apply to geothermal heat pump applications, downhole heat exchangers and small generation projects as examples.

Similarly there have been some specific industry incentives e.g. the marine technology fund or the school heating biomass programme, where government has picked winners, and which could reasonably have been open to contestable entry by renewable options including geothermal options. We repeat a request for fund contestability across renewable energy options.

As a final comment, this industry is built around skilled people. While resourcing and training are fundamental issues within industry, this whole aspect is missing from the strategy. The Government is in a position to influence the influx of people into the energy industry from the youngest child upwards. In addition, our geothermal training programmes have been internationally recognised, and provide a means of marketing New Zealand skills and experience into developing countries within the region. In developing policies on training,

Government should recognise that there are such centres of excellence that can give New Zealand a marketing edge, and seek to reinforce that position.

We would be happy to discuss details of this submission.

Yours faithfully

A handwritten signature in black ink, appearing to read 'B. White', followed by a long horizontal line extending to the right.

Brian White  
Executive Officer  
New Zealand Geothermal Association