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Consultation
Climate Change Programme
Box 55
Wellington

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Dear Sirs

**New Zealand Geothermal Association
Submission on Climate Change Consultation Paper**

The New Zealand Geothermal Association welcomes the opportunity to provide comments following the Summit meeting in Auckland on 12 December. We have already made a previous submission on this issue, and a response by Email on using the feedback form on the Climate Change Consultation Paper. This submission addresses more general issues.

Geothermal energy offers several competitive advantages in localities where the resource is available. Geothermal power plants can be tailored to individual supply needs, with an emphasis on smaller scale generation capacity, when compared to conventional thermal plant. Current geothermal power generation technologies enable economic use of many moderate temperature (<150 C) geothermal resources, as well as the higher temperature heat sources. Geothermal resources can also furnish inexpensive direct heat to consumers. Geothermal energy is naturally relatively benign to the environment as well as having available developed technologies to abate problematic emissions.

Inter-Relationship with EECA Strategy

We are concerned that climate change and energy efficiency strategies are being developed in isolation. An outcome creating two parallel systems of permits would be counterproductive as conflicting policies will likely result. A single integrated framework is essential.

Potential for Geothermal to Substitute for Fossil Fuels

We wish to re-iterate our previous statement that geothermal has the potential to substitute for a large proportion of New Zealand's current fossil fuel usage in electricity generation and subordinately for process heat. New Zealand has abundant geothermal resources and most remain un-tapped. A median estimate of New Zealand's high temperature geothermal resource base, using only current technology and considering a realistic economic drilling depth, is 4,100 MW of electrical equivalent, or about 75% of the country's peak demand. Only about 10 % of this potential has been developed.

Emissions of Carbon Dioxide From Geothermal Power Plants

Geothermal electricity generation emits a fraction of the CO₂ produced by fossil fuel generation. The average CO₂ emissions from current geothermal plants in New Zealand per GWh are around 25 % of those of combined cycle gas turbine plant (representing the most efficient form of fossil fuel generation readily available), or less than 10% of that of a modern coal-fired plant. If geothermal heat is used directly, rather than for electricity generation, the ratio improves by a factor of up to five. Furthermore, the CO₂ emissions from future plants can be expected to be less than the average to date, because two out of the six existing geothermal plants are based on geothermal resources with gas contents significantly higher than average.

We find it disturbing therefore, that in the Table on page 34 of the Consultation Paper geothermal is lumped together with fossil fuels with no acknowledgement of this advantage.

Carbon Dioxide Mitigation Mechanisms

The NZGA reasons that either an emission trading regime or a carbon tax would correctly account for the advantages of geothermal, while acknowledging that it does have some greenhouse emissions.. However this endorsement is subject to reviewing the mechanism details, which have yet to be developed.

Need for Trading Across Sectors

The Association has no consensus view on the relative merits of a carbon tax vs. an emission trading scheme.. Whichever mechanism is chosen, we consider it imperative that the same scheme is used for all sectors to allow permits to be tradable across sectors. A single arrangement is more likely to achieve the objective of an overall reduction in greenhouse gas emissions at the lowest cost.

The NZGA wishes to engage in the formulation of any emission permit system to ensure the greenhouse advantages of geothermal power systems are recognised. We are concerned that if fossil fuel use permits are superseded by a form of carbon-emitting permit that geothermal is not then categorised as a full carbon-emitting energy source and is unfairly penalised for its modest greenhouse emissions.

The NZGA believes that if a tax is imposed, by whatever mechanism, the funds collected should be returned to support renewable energy and not just disappear into the consolidated fund.

The Resource Management Act

The Consultation Paper does mention the inter-relationship of the climate change policies with the RMA. In our view the analysis understates the role the RMA will play in determining the cost of greenhouse reduction.

Firstly the Association supports the objectives and principles of the RMA. The Association is not just an industry lobby group; it includes representatives from regulatory authorities and environmental organisations and Iwi as well.

However, current RMA *procedures* are a major obstacle to further geothermal and wind power developments. Of the potential 3,650 MW of new geothermal capacity identified

above, it is doubtful whether more than about 750 MW could be developed at all because of regulatory limitations, and the delays and costs inherent in the current process may make much of the remaining 750 MW uneconomic.

Economies of scale are vital if renewable technologies are to substitute for fossil fuels without unduly burdening the economy. The RMA makes the attaining of such economies problematic. Recent geothermal projects in New Zealand have been small in comparison both to the size of the resources and to developments overseas, largely because of regulatory constraints. This in turn has led to dis-economies of scale. Two of the successful resource consent applications for geothermal projects in recent years have had the quantity of fluid that can be taken restricted to only about 25 % of that applied for (Poihipi and Ngawha), and in another case 40% (Tauhara).

Any programme designed to reduce greenhouse emissions should recognise that the RMA sustainability requirement places renewable energy developments at an economic disadvantage to fossil fuels. The requirement for sustainability of the energy content of the geothermal resource is not applied to an oil or gas field. As a consequence, the “mining” development has an economic advantage in minimising the period required to recover the investment. . This leads to a highly advantaged position for fossil fuels under the RMA irrespective of the relative national merits in terms of economic and environmental impacts.

The regulatory process leads to long delays which impose a significant up-front cost on the projects, greatly reducing their relative financial attractiveness. It is exceedingly unlikely that a new geothermal project of 100 MW would be permitted anywhere in the country without an appeal to the Environment Court, adding at least two years and probably over a million dollars in costs in comparison to, say, a new gas turbine project.

The NZGA submits that the government should add national energy objectives to the RMA in order that national benefits of renewable energy are given an appropriate weight in local decision making. Whether a project is in the national interest is currently not taken into account – and greenhouse gas emissions are clearly in the latter category. Therefore, the perfectly valid argument that building a new geothermal project in the Waikato Region, say, would remove the need to build a new gas-fired plant in Taranaki, carries no weight in decisions under the RMA. This situation is obviously counter-productive to climate change management.

An increased use of renewable energy can only follow reform of the RMA.

We are agreeable to this submission being posted on the website.

Yours sincerely

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President

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