

30<sup>th</sup> March 2007



**SUBMISSION TO THE MINISTRY OF ECONOMIC DEVELOPMENT ON  
THE DRAFT NEW ZEALAND ENERGY STRATEGY  
AND  
NEW ZEALAND ENERGY EFFICIENCY AND CONSERVATION STRATEGY**

## **1. Executive Summary**

1. The Bioenergy Association of New Zealand (BANZ) supports the development of the New Zealand Energy Strategy (NZES) and National Energy Efficiency and Conservation Strategy (NEECS).
2. While we support the strategies per se, we believe that the policies and principles underlining the strategies and actions must be further developed, with some urgency, so that they provide specific policy guidance to decision-makers, the public, investors and energy users: enable New Zealand to take economically efficient pathways to achieve the stated goals.
3. BANZ believes that bioenergy can contribute significantly towards achieving the goals of the NZES and NEECS. However, the strategies do not cover all bioenergy options available. The strategies must include the widest scope of bioenergy options, and how each can contribute to achievement of the goals should be investigated.
4. BANZ believes that during the transition period there is a strong case for introducing a carbon charge sooner rather than later, whilst simultaneously providing industry with some clear options by which it can achieve exemptions from such a charge.
5. BANZ has considered possible policy mechanisms that should be signaled in the strategies as possible means of exemption from the carbon charge and advocates, in a separate submission on Transitional Measures, an **Automatic Carbon Charge Exemption and Accelerated Depreciation** (ACCEAD) mechanism specifically for the Industrial Heat and Power sector (IH&P) for the period 2008-2012.
6. This initiative would assist in the implementation of a broad range of carbon abatement projects across the bioenergy and non-bioenergy sectors without requiring Government funding.

## 2. Introduction

7. This submission is made by the Bioenergy Association of New Zealand (BANZ), which was established in 2001. BANZ represents a broad range of stakeholders who have a commercial interest in bioenergy, including foresters, wood processors, large energy companies, specialist service providers, energy users, equipment manufacturers, renewable energy proponents and well established sector consultants.
8. Members of BANZ promote the broader use of wood waste to industrial heat users and often encounter barriers that inhibit increased investment in bioenergy facilities. The content of this submission reflects more than six years of BANZ's collective experience in this specific field, and significantly more when individual members' experience is considered. However, we would like to stress that this submission attempts to demonstrate how a policy can be designed which provides New Zealand industry with many different types of abatement projects beyond just bioenergy, which have the potential to offer satisfactory returns.
9. This submission makes the case that under these proposals significant abatement can be achieved using private finance and without direct cash contribution from government.
10. We do not purport that this submission offers the whole answer to New Zealand's carbon deficit. Neither does BANZ want to over-sell wood waste as a solution to New Zealand's growing emissions profile. However, we do believe that policies to encourage a reduction in or reprieve from a tax or any other payment obligation in the industrial heat and power sector have not been considered in great detail. In this respect there is a danger that the opportunities remain un-tapped instead of playing their part in the overall solution.
11. In making this submission in support of the proposed strategies, BANZ is treating the strategies together as most of our concerns apply to both as the respective documents are intertwined in suggested actions and desired outcomes.

## 3. Contribution from Bioenergy

12. Given New Zealand's above average geothermal and woody biomass resource, significant opportunities exist in the Industrial Heat and Power (IH&P) sector for a significant contribution to achievement of the goals set out in the NZES, that is to;
  - Protect security of energy<sup>1</sup> supply
  - Promote energy efficiency measures
  - Promote low emissions energy sources
13. However, currently the opportunities tend to have an economic return, modeled using commercial discount rates, equating to a payback of six to seven years. It is clear that if an objective is to encourage industry to increase their investment, the payback time needs to be significantly

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<sup>1</sup> BANZ recommends the inclusion of the word energy to indicate that it is all energy supply and not just electricity as is often assumed.

reduced. The challenge becomes implementing policy that reduces this to a timeframe that will satisfy industry's financial hurdle rates. With clear and strong signals about the long term direction of energy and climate change policies, and the implementation of policies such as the one BANZ is recommending, the payback period can be reduced to four to five years which will be sufficiently attractive to industry. Well constructed policy can therefore tap into industry funding, without necessarily having to put a burden on Government – other than through deferred tax revenues.

14. Furthermore, successfully encouraging New Zealand's primary industry processors to reduce their energy consumption (including use of more renewables) will, over time, provide them with a marketing advantage in their overseas (and possibly domestic) markets. As the "food miles" debate becomes more objective, and given New Zealand's already high percentage of renewable electricity, this should provide a much stronger marketing message for industry to utilise over time to positively differentiate New Zealand produce in the marketplace.
15. Through sustainable forestry harvesting activities, NZ produces the equivalent of around 30-40PJ of natural gas per year – a good sized gas field. Current harvest is around 20 million tonnes, and this is forecast to grow significantly as more of the wall of wood is harvested. Even if only a percentage of these wood residues are recovered, this still represents a substantial carbon neutral and sustainable energy source that is currently being under-utilised. In addition to this the proposed policy would deliver other emissions abatement through energy efficiency, geothermal, co-generation, etc.
14. The strategies refer to wood biomass and transport biofuels but should also include bioenergy from other sources of organic waste. Many of these opportunities use anaerobic digester processes, have commercially significant scales and have wide potential application in the waste treatment, primary processing, food processing and farming sectors.

## 4. Principles of the Strategies

### Principles of the Strategies

16. BANZ is pleased that the draft energy strategies set out some significant principles. However, they are not consistent and lack clarity. The document quickly moves into very selective actions that in many cases, cut across the principles. The NZES should first present strategies with their specified principles, with underlying policies and for criteria for decision-making. Actions should then be determined from these policies and criteria.
17. Because of this it is difficult to provide useful comment on the principles on which the strategy is built.

**18. *It is recommended that before finalisation of the strategies that the principles be clarified and expanded.***

### Selective Technologies

19. As the strategy has not fully specified its principles (policies and criteria), it seems incongruous that it has selected particular

technologies e.g. marine energy, as options to support. The strategies should set out the principles for which investment in research and development (R & D) for technologies, is to be chosen e.g. weighting towards technologies with a high chance of early implementation. The identification of projects consequently listed in the action areas can then be based on the principles.

20. The list of actions in both documents refers to the need for a portfolio of opportunities but then picks specific technologies without any reference to principles e.g. marine-based electricity generation gets a high preference. Yet the marine option is more high risk and is costly, with less likelihood of success than most other more proven technologies.

***21. It is recommended that the principles for which policies and investment in technology R & D are to be developed be clarified prior to finalisation of the strategy.***

## **5. Mechanisms for Action**

22. There are several mechanisms that BANZ would like to promote for consideration, including one which we believe has particular merit and should be investigated by officials. These mechanisms are not just applicable to bioenergy projects but can be applied to most projects related to energy supply or demand. The comments on the Transitional Measures are covered in detail in a separate submission. In this submission we wish to draw attention to our preferred option.

### **5.1 Automatic Carbon Charge Exemption and Accelerated Depreciation (ACCEAD)**

23. BANZ has been exploring with private sector parties a mechanism based on providing automatic exemption to the carbon charge and an allowance for accelerated depreciation when new plant and equipment is installed that abates CO<sub>2</sub>. ACCEAD is a tentative title we have given it, which stands for Automatic Carbon Charge Exemption and Accelerated Depreciation. It assumes that a low level carbon charge is introduced sooner rather than later, at least for the larger end of the IH&P<sup>2</sup> sector.
24. The concept is simple, combining the effect of "gearing" a carbon charge, with the positive impact on cash flow that accelerated depreciation delivers, to improve the economic return of a range of carbon abatement projects to the point where the investment proceeds. As we conceive it, ACCEAD would work as follows:
- a. If a company can demonstrate a five per cent emission reduction – or offset – then it is entitled to an exemption from a carbon charge on 100 per cent of its remaining on-site fossil fuel use for one full year. This mechanism provides an automatic multiplier of twenty, hence the reference to "gearing".
  - b. For each tonne of CO<sub>2</sub> the company abates, it avoids paying the carbon charge on all emissions (This would be \$300 assuming a \$15/T carbon charge).

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<sup>2</sup> The Industrial Heat and Power Sector includes any manufactures and industry who use heat and electricity for processing product

- c. In addition, capital associated with the abatement project can be written off within the year of the investment, if the project delivers abatement of 25% or more.
- d. Many energy efficiency projects might deliver abatement of less than five per cent. Given that this is still a valuable contribution, there is a case to be made for also awarding automatic exemptions for projects that only cover a fraction of a year's carbon charges. The threshold could be set at two per cent of the sites on-site emissions (so using the five per cent rule this would achieve a 40 per cent exemption). (2% too small – not within the margin of error as discussed – not even sure 5% will cut it)
- e. Larger projects to qualify might include the retro-fitting of on site co-generation. The abatement apportioned to the project would be calculated based on an emissions factor multiplied by the KWh produced.
- f. If, through a larger project such as co-generation or renewables, an industrial user achieves 25 per cent reduction in emissions, then using the five per cent rule it would earn an automatic exemption for five years.
- g. An abatement of 40 per cent would earn an eight year exemption, or instead five years, plus some tradable permits that it can trade if/when emissions trading is phased in post 2012.
- h. At the top end, some sites may be able to reduce on-site emissions by 80-90 per cent (or even 100 per cent). In such cases, significant amounts would be banked for future trading, or could be sold to other IH&P participants who are "short".
- i. A new entrant with investment in a plant or equipment that is "new" can qualify for exemption from a carbon charge if they can demonstrate that they will and do perform at World's Best Practice.
- j. Also, if a site experiences growth during the period, so uses more energy, then it must demonstrate that its energy intensity per unit of product is as good as or better than before the project started.
- k. More detail and ideas regarding the administrative issues are included in the Appendix.

### **Abatement Options**

25. Such a scheme would create a broad range of options from which the emitter can chose to achieve their desired abatement including, amongst others :
  - Solar heating for wash-down water, or pre-heating.
  - Retrofitting of on site co-generation.
  - Upgrading old inefficient on-site turbines.
  - Heat recovery using flue gas economisers and/or heat exchangers and storage.
  - Woody biomass or wood pellets for heat (hot water, air or steam).
  - Geothermal for process heat or co-generation.
  - Switching to more energy efficient cool storage methods/technologies.
  - Co-firing of a coal boiler with some wood waste.
  - Fuel switching, such as conversion from coal to gas, or conversion from fuel oil to LPG etc.
  - Reductions in the use of electricity through e.g. fitting Variable Speed Devices (VSD) to large motors.
  - Utilise five per cent biodiesel in its transport fleet, or purchase credits direct from the manufacturer (if applicable).

- Purchase credits from a biogas project (which produces abatement that is verified by a Government approved agent).
- Reduction in the use of heat through upgrading/replacing its piping insulation.
- Purchase credits through a permanent forest sink (PFS) project, or other qualifying scheme.
- Purchase credits arising from the Projects to Reduce Emissions (PRE) scheme.
- If an independent energy audit shows that the company/site no potential abatement projects, then it must already be at World's Best Practice so can apply for an exemption, partial or full – provided that it can show that it is Competitive at Risk (CAR).
- Alternatively that site may be required to either purchase emissions allowances from other large projects in the IH&P sector (or from a centrally held reserve).
- Or the emitter could even be allowed to purchase allowances from the European Union Emissions Trading Scheme (EUETS), or from Clean Development Mechanisms (CDM) or Joint Implementation (JI) projects. (why should the multiplier effect apply to this?)
- If all other avenues are exhausted then it must pay the carbon charge.

26. We believe that New Zealand policy-makers have an opportunity to enable the IH&P sector to progress many energy efficiency projects and/or utilise a greater percentage of renewable energy. More specifically we feel that the principle of "Emitter Pays" needs to be introduced for the IH&P sector sooner rather than later during the transition period. If the ACCEAD scheme is introduced at the same time, the sector will have some clear options by which it can achieve exemptions from such a charge. Industry would then be able to pick from the menu of options, and chose those that best suit their particular circumstances.

27. One of the advantages of the ACCEAD scheme is that it does not rely on one industry to deliver – as there are so many abatement / off-set options that can be supplied by other sectors.

28. Through such a scheme New Zealand can implement the best opportunities for energy efficiency, and the IH&P sector will start to tap into our abundant renewable energy sources.

***29. It is recommended that further consideration be given to the Automatic Carbon Charge Exemption and Accelerated Depreciation scheme***

30. Note this is BANZ preferred option as it provides maximum benefits to investors and the nation.

## **6. Other Comments and Recommendations**

### **1. Direct Use (Heat and Power) (NZES 4.3.4)**

31. BANZ is disappointed that there is no recognition in 4.3.4 of NZES of the wide range of bioenergy sources that can be drawn on. The section also fails to consider the issues stopping greater uptake of bioenergy and identify the strategies that could be used to overcome barriers.

**32. It is recommended that a proper analysis be undertaken of the barriers and policy options that could be pursued to address these.**

**2. Sustainable Technologies (NZES Section 6)**

33. Section 6 addresses some of the actions that will assist greater uptake of some technologies but it fails to recognise that a key issue holding back the uptake of many technologies is the lack of skill and experience in their application. R & D is often well catered for while there is virtually no support for developing the engineering skill requirements, particularly in the trades and technician areas.

**34. It is recommended that a contestable applied research/investigation/engineering fund be established alongside the R & D programmes to cater for the transfer of international experience and development of applied engineering skills.**

35. With many technologies the knowledge is available but there are few demonstration plants to lead the way.

**36. It is recommended that a contestable technology demonstration programme be established.**

37. Section 6 indicates unsubstantiated bias in the choice of some technologies such as for marine energy.

**38. It is recommended that criteria for investment in the technology programmes be established and applied to the allocation of funding.**

39. The Biofuel sales obligation mechanism provides the option to sell biomethane (i.e. biogas derived) as biofuel if it is used to substitute diesel. Biomethane transport biofuel schemes are currently implemented as regional initiatives in parts of Scandinavia and Central Europe. Biomethane use as additional transport biofuel for commercial (bus, taxi) and farm operators in New Zealand would largely enhance the commercial viability of medium and large scale regional waste digester facilities and thus increase the indigenous biofuel resource at the lowest possible costs.

**40. It is recommended that a respective contestable biomethane technology demonstration programme be established.**

**3. Fiscal Mechanisms**

41. The strategy fails to give guidance on the mechanisms that could be considered e.g. tax credits should be extended to cover R&D and accelerated depreciation of renewable energy capital expenditure.

**4. Removing One of the Barriers to Uptake**

42. One of the most significant barriers to the uptake of renewables within the IH&P sector is the capital allocation process that industry uses, whereby projects compete for scarce funds, and so only the projects with the highest rate of return are successful. This means that a project is typically required to have an IRR of well over 20 per cent

before it is deemed worthy of funding from tightly rationed capital resources.

**43. We recommend that revenues from a carbon charge are used to provide a Carbon Abatement Fund, which can be supplied to the IH&P sector to remove the constraint of scarce capital. Finance could be provided to qualifying projects through such a fund, at a low interest rate over a 10 or 15 year period.**

44. Such a fund would complement and further assist the ACCEAD mechanism.

## **5. Timing of Decisions**

45. A strong theme coming from industry at recent MED workshops has been "make up your minds and we'll get on with it – we just need certainty". This has been voiced by several large emitters at various workshops. Industry has recently expressed an interest for the NGA mechanism (at least compared to the uncertainty of an emissions trading regime). We suggest that industry, more so the larger companies, is ready to accept a carbon charge being introduced soon, provided there are realistic possibilities for exemptions.

46. The longer that policy decisions are delayed the more difficult it becomes for "New Zealand Inc" and for industry to be competitive in the carbon-constrained world into which we are headed. In this respect, even though detailed decisions regarding the post 2012 world cannot be made at this time, there needs to be strong signals to stakeholders, to the effect that emitters will be facing a considerable price for carbon emissions after 2012. It seems that policy advisers are attempting to find a policy framework which keeps all stakeholders happy. Unfortunately when it comes to the area of climate change legislation, this is not possible. What we do need are clear decisions ideally with cross-party buy-in and clear and strong messages to all stakeholders.

Submitted on behalf of members of the Bioenergy Association of New Zealand

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