



15 December 2008

Emissions Trading Team
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Dear Sir/Madam

Climate Change (Stationary Energy and Industrial Processes) Regulations 2008

Introduction

1. Thank you for the opportunity to make a submission on the draft Climate Change (Stationary Energy and Industrial Processes) Regulations (the draft regulations).
2. I advise that no part of Mighty River Power Limited's (Mighty River Power) submission is confidential.

Background to Mighty River Power's Operations

3. Mighty River Power is a State Owned Enterprise established under the State-Owned Enterprises Act 1986. Its principal operations are electricity generation and energy retail activities. The Company has over 340,000 customers, employs 680 staff, is the fourth largest electricity generator in New Zealand, (based on electricity produced annually), and the third largest retailer (based on customer numbers).
4. The Company produces electricity from renewable and other energy resources and sells energy and energy-related services and products to retail and wholesale customers.
5. Mighty River Power has a particular interest in the draft regulations because they will impact on the geothermal and gas generation aspects of our business. Mighty River Power has a significant and growing portfolio of geothermal assets. By 2015 Mighty River Power plans to have developed its geothermal generation portfolio to over \$1.4 billion of assets, providing 4,000GWh per annum representing 8% of electricity supply.
6. Current assets include a 25% shareholding in the Tuaropaki Power Company's 113MW geothermal power station at Mokai near Taupo, a 33MW geothermal power station at Rotokawa near Taupo and a 100MW geothermal power station near Kawerau. A second power station on the Rotokawa geothermal field with a capacity of 132MW is currently under construction and expected to be commissioned in 2010.

7. In terms of thermal generation Mighty River Power owns the 170MW Southdown gas fired co-generation plant near Auckland. This plant's gas consumption is of the order of 10PJ annually, which is purchased from the gas market both directly from gas field operators and from wholesale distributors.
8. Mighty River Power is one of the few major users of gas that will not have the option to opt-in as a point of obligation for gas because while it purchases at least 10PJ of gas per annum, the Company does not consistently purchase at least 2PJ of gas from a gas field operator. This requirement is imposed by Part 4 of the Forth Schedule to the Climate Change Response Act 2002 (the Act). Mighty River Power would like to have the ability to opt-in, for all gas used, so that it can have overall control over its carbon emissions. This point is discussed later in this submission.

Emissions factors for geothermal

9. The draft regulations contain a list of default emissions factors for each stationary energy or industrial process activity. The intention expressed by the Government is that these emission factors will result in accurate overall reporting so where there is more than one participant the factor is set above the level of average emissions for the activity. It is, expected that participants whose emissions are lower than the default will apply for unique emissions factors.
10. Default emissions factors are also expected to change from time to time, when informed by better information, including the number of participants who have sought a unique emissions factor and what those factors are, or a change in industry practice¹.
11. Section 164 of the Act allows for regulations that relate to unique emissions factors. Where there are default emissions factors, such as provided for in the draft regulations, regulations may enable a participant to seek a unique emission factor if they meet the relevant criteria and follow the specified process or method. Officials are working on developing an appropriate method for establishing unique emissions factors for use in stationary energy activities and will develop regulations outlining the process by mid-2009. Further consultation will be undertaken on the proposals for unique emissions in 2009.²
12. Mighty River Power has two key concerns regarding the emissions factor proposals in the draft regulations as they relate to geothermal emissions. First, we are concerned that the draft emissions factor proposed for our Kawerau plant substantially overstates (by five times) the actual omissions. Second, in terms of process, the Company is concerned that the detail around the setting of unique emissions factors

¹ Emissions Trading Bulletin No 8, NZ Government, October 2008, pg3.

²Ibid.

is to be developed only after the default emissions factors have been set in the current proposed regulations. Mighty River Power would prefer to have both the processes determined simultaneously as they are interrelated. These concerns are discussed below.

Emission Factor for Kawerau

13. The Company's concern relates to the substance of the proposed default emissions factors for geothermal energy, in particular the emissions factor proposed for our Kawerau plant. The proposed regulations suggest that the emissions factor for Kawerau should be 0.10240 but testing carried out shows a factor of 0.02866 would have been appropriate in August 2008 and 0.02755 in October 2008. Therefore Mighty River Power would have expected the emissions factor set for Kawerau to be in the order of 0.02800 ie five times less than what is being proposed.
14. Mighty River Power's testing over time for the Mokai and Rotokawa fields suggests that while emissions vary over time and between wells the proposed default emissions factors are roughly appropriate.
15. Copies of test data are attached as Appendix 1. Mighty River Power would be happy to meet with officials to discuss our test results.
16. Mighty River Power recommends that the default emissions factor for Kawerau be set at 0.02800.

Setting of Unique Emission Factors

17. Mighty River Power recommends that the draft regulations include provisions, as provided for in section 164 of the Act, for setting unique emissions factors so that industry participants can comment on the full set of regulations they will be required to comply with when the stationary energy and industrial processes sector is brought into the scheme.
18. Allowing for the periodic setting of the unique emission factors to be applied to geothermal fields is entirely consistent with the aim of the Act in allowing field operators to manage individual wells usage in a field with the intention of reducing the carbon liability of their operations. This will result in an ongoing reduction in emissions, which is unlikely to occur if the changes in operation are not reflected in the emission factors and the financial liability.
19. The Company is not prepared to sign off on default emission factors without knowing what the process will be for applying for and setting unique emissions factors. It does not make any sense to expect businesses to sign up to regulations with only part of the picture in view. Given that the parent legislation provides for unique emissions factors these should be developed now, as part of a comprehensive package of

measures designed to enable the stationary energy and industrial processes sector to be brought into any emissions trading regime.

20. Testing highlights another related concern which is that emissions factors for geothermal fields tend to vary through both time and space (different wells within a field may yield a different factor). Any default emissions factor needs to take this into account. While the commentary that accompanies the proposed regulations acknowledged this point there is no provision in the proposed regulations to give effect to this in practical terms.
21. Mighty River Power considers that providing this flexibility is crucial as it will allow field operators to optimise field use to minimise emissions. Without this flexibility field operators have no incentive to minimise emissions which is counterproductive in terms of the overall objective of the emissions trading regime.
22. It is recommended that a provision be included in the draft regulations providing for scope to test, and if necessary update default emission factors as circumstances change.
23. In practical terms it is probably more workable to withdraw all of the emission factors from the regulations and have these held by the Ministry of Economic Development as factors approved by the Chief Executive for use in the determination of emissions liabilities. If the emission factors remain in the regulations any change to them using the methodology outlined below would require a change to the regulations to be gazetted in order for them to be applied. This approach is likely to be time consuming and relatively difficult.
24. Mighty River Power is happy to work with officials to come up with some appropriate draft provisions. The Company's preliminary assessment is that it will be relatively easy to determine average well usage across any particular field over a year, or any other specified period, to establish an "average production day".
25. Mighty River Power would suggest that at the end of a specified time period, for example a year, the field operator sets up the field to the average day and an appropriate third party comes in to verify this has been done and to test the emissions under the average day configuration. These test results could then be analysed to establish the emission factor for the period in question and used to determine carbon dioxide equivalent liability. This emission factor could then be forwarded to the Chief Executive of the Ministry of Economic Development for gazettal or approval as appropriate as the factor for the geothermal field for the specified period of time and the field operator retires the appropriate number of New Zealand units.
26. In developing a methodology for the determination of the emission factors for geothermal fields the formulation outlined in the draft for consultation version of the

regulation is considered only a coarse starting point. The formula used in the draft regulation allows for an assessment of the gross emissions from the operation of the field and does not allow for emission reductions associated with condensing and reinjecting geothermal steam or reductions associated with any projects to reinject the non-condensable gas stream from the plant back into or near the field.

27. Allowing for such subfactors to be assessed and integrated into the formula for calculation of the field emissions would result in a formula much like that proposed for mining natural gas with only three factors. The final formula might be:

$$E = (A \times EF_1) - (B \times EF_2) - (C \times EF_3)$$

where –

A is the number of tonnes of geothermal steam separated by the entity during the year

B is the number of tonnes of steam condensed and reinjected during the year

C is the number of tonnes of non-condensable gases reinjected during the year

E is the total emissions in tonnes emitted

EF₁ is the emissions factor for the geothermal steam from this field

EF₂ is factor for the CO₂e emissions reinjected with the condensate

EF₃ is the emissions factor for the non-condensable gases reinjected

Steam Conversion Rate

28. The Ministry for the Environment is seeking comment on the steam conversion rate for geothermal which is an average of 7 tonnes of steam for each megawatt hour of electricity produced. Mighty River Power does not oppose a default setting mechanism if the regulations include a methodology to change the unique emission factors associated with field as a result of testing and assessment. If this change mechanism is not made available through inclusion in these regulations then Mighty River Power strongly opposes the use of default methodology to set default emission factors, because of the variability in emissions for geothermal fields both over time and between wells within the same geothermal field.

Emissions Factors for Natural Gas

29. Mighty River Power does not have any comment on the specific emissions factors proposed for gas. However, we would like the opportunity to opt-in as a point of obligation for gas. The Climate Change Response (Emissions Trading) Amendment Act 2008 (the Amendment Act), Part 4, Schedule 4 currently provides opt-in if " natural gas

is purchased from 1 or more participants who mine natural gas where the total natural gas exceeds 2 petajoules per year". As expected, the proposed regulations are currently drafted using the same wording as the Amendment Act.

30. In practical terms this drafting means that Mighty River Power cannot choose to opt-in, for all of its gas use, because while it purchases at least 10PJ of gas annually it does not purchase all of its gas from a gas field miner.
31. Mighty River Power generally purchases a significant portion of our gas from wholesale gas purchasers. Mighty River Power considers that it is desirable to allow gas purchasers who consume in the order of 10PJ annually from a combination of sources (gas miners but also entities one step further down the supply chain who on sell bulk gas), to have the option of being a point of obligation so they can proactively manage their carbon emissions. This will assist with the overall objective of the emissions trading scheme to minimise carbon emissions.
32. While most major wholesale consumers of gas are also field owners, or purchase directly from field operators, and can therefore opt-in as a point of obligation, it is expected that broadening the opt-in requirement would also allow other major gas customers to consider opting in, provided they purchase more than 2PJ of natural gas annually.
33. The appropriate remedy is to seek an amendment to the primary legislation under which the proposed regulations are to be made. Mighty River Power will be raising this issue with the select committee set up by the Government to review the Emissions Trading Regime. It will be requesting that Schedule 4, Part 4 of the Amendment Act be amended so that entities that purchase bulk gas from various sources, not just gas field miners are able to opt-in as a point of obligation if they wish to.
34. Mighty River Power recommends that when the Amendment Act is reviewed by select committee that Part 4, Schedule 4 be amended in order that the ability to opt-in as a point of obligation for gas be extended to anyone who purchases more than 2PJ of gas per annum regardless of who it is purchased from.

Concluding Remarks and Recommendations

35. Mighty River Power is concerned that the draft regulations substantially over-state (by five times) the emissions from our Kawerau geothermal plant. This should be rectified. The other main concern we have is that regulations have not yet been developed to allow the setting of unique emissions factors. We believe this should be completed in conjunction with the draft regulations.
36. For convenience, Mighty River Power's recommendations are repeated here.
37. Mighty River Power **recommends** that the draft regulations include provisions, as provided for in section 164 of the Act, for setting unique emissions factors so that

industry participants can comment on the full set of regulations they must comply with when the stationary energy and industrial processes sector is brought into the scheme.

38. Mighty River Power **recommends** that the default emissions factor for Kawerau be set at 0.02800.
39. Mighty River Power **recommends** that a provision be included in the draft regulations providing for scope to test, and if necessary update default emission factors as circumstances change.
40. Mighty River Power **recommends** that Schedule 4, Part 4 of the Amendment Act be amended to extend the ability to opt-in as a point of obligation for gas to anyone who purchases more than 2PJ of gas per annum regardless of who it is purchased from.
41. If you have any questions about any aspect of this submission please contact me, at either rob.hunter@mightyriverpower.co.nz or 07 857 0227 or 027 4726122.

Yours faithfully



Rob Hunter

Environmental Strategy and Policy Manager

Date:

15 December, 2008

Appendix 1

Mighty River Power Emission Factor Testing for Mokai, Rotokawa and Kawerau Geothermal Fields.