



13 July 2009

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Dear Sir or Madam

## **Climate Change Regulations for stationary energy, industrial processes and liquid fossil fuels**

### Introduction

1. Thank you for the opportunity to comment on the redrafted climate change regulations for stationary energy, industrial processes and liquid fossil fuels. Mighty River Power is pleased our comments on the original regulations have been taken on board and we are submitting now to support the changes made and, in addition, to clarify outstanding points.
2. No part of Mighty River Power's submission is confidential and we are happy for it to be publicly released.

### Background to Mighty River Power's Operations

3. 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.
4. 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. In partnership with Tauhara Number 2 Trust a second power station on the Rotokawa geothermal field with a capacity of 132MW is currently under construction and is expected to be commissioned in 2010.
5. 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.

## **Responses to December 2008 Submission**

6. Mighty River Power submitted on the early draft regulations in terms of the emission factors for the Kawerau Geothermal Power Plant and the setting of unique emission factors.
7. We are pleased to have been able to work with officials on the matters submitted on and note positively that the latest draft for consultation addresses the concerns we previously raised.
8. Mighty River Power supports the amendments made in response to our initial submissions and recommends retaining them in the final regulations.

## **Emission Factor for Kawerau**

9. Mighty River Power's concern relating to the proposed default emissions factors for our Kawerau plant have been resolved by amending the factor from 0.1024 to 0.0275 as justified by the supporting material provided in the original submission. However, the current draft of the regulations has added two additional emission sources from the Kawerau geothermal field and has left these emission factors as 0.1024.
10. This raises additional concerns which are that there is risk of ongoing confusion over the factor to be applied to the Kawerau field. This would suggest a common factor should be applied to all of these identified emission sources and that there remains no justifiable reason for setting the emission factor at 0.1024. These are emission sources from bores within the same geothermal field and although some slight variation might be expected a factor of 5 difference is not justified. The rationale for the factor being set at 0.1024 is not clear and there seems no justification for setting this value.
11. To assist in the resolution of this matter attached to this submission are additional test results for the NTGA bores which justify amending the two additional emission factors for Kawerau. The results show tested emission factors in the range of 0.02126 and 0.02820 for analysis undertaken between 2006 and 2009. Mighty River Power recommends setting the default emission factor for the "Kawerau I Industrial Use" to 0.0275 in order to reflect the starting factors that should be applied to the emissions which may then be subject to the setting of unique emission factors in the future.
12. Copies of test data are attached as Appendix 1. Mighty River Power would be happy to meet with officials further to discuss our test results.

## **Setting of Unique Emission Factors**

13. Mighty River Power has reviewed the Unique Emission Factor regulations and is now comfortable that the regulations reflect the concerns raised in the initial submission on this matter.

## Emissions Factors for Natural Gas

14. Mighty River Power understands the intent of the regulations relating to the emissions from natural gas and they include an assumption opt-in participants are directly linked to the miner/supplier of gas and this is the mechanism by which emission obligations are determined.
15. Mighty River Power would like to clarify the point of obligation as the first revenue meter after any gas is processed. This will give consistency of point of obligation.
16. To ensure purchasers are not subjected to errors made by miner's equipment, Mighty River Power would like assurance that any change in obligation due to equipment error outside purchaser control is worn by the miner only.
17. On the basis of this understanding Mighty River Power does not wish to comment further on the regulations on the emissions from natural gas.

### Concluding Remarks and Recommendations

18. Mighty River Power notes that the Climate Change Response Act 2002 allows for a review of these regulations in 2011 to assess workability and other issues or concerns and supports the use of this review opportunity if problems arise in the use of the regulations.
19. For convenience, Mighty River Power's recommendations are repeated here.
20. Mighty River Power **recommends** the regulations set the emission factors for the Kawerau I Industrial plant to 0.0275.
21. Mighty River Power **recommends** the amendments made in response to the Mighty River Power original submissions be retained in the final regulations..
22. If you have any queries please contact either Aaron Smith, Carbon Analyst, Mighty River Power [aaron.smith@mightyriver.co.nz](mailto:aaron.smith@mightyriver.co.nz), phone 0272484622 or 09 3086332 or Sharron Came, Regulatory Strategist, Mighty River Power [sharron.came@mightyriver.co.nz](mailto:sharron.came@mightyriver.co.nz) 0272175997 or 044604231.

Yours faithfully



Rob Hunter

Manager – Environmental Strategy & Policy

Appendix 1: Mighty River Power Emission Factor Testing for Kawerau Geothermal Field

To: Brent Hamblyn, Spence McClintock  
 Copy to: Wayne Richards, Tom Powell, Christine Siega  
 From: Farrell Siega  
 Date: 10 July 2009  
 Pages: 1  
 Subject: **Kawerau NTGA Emission Factor Update**

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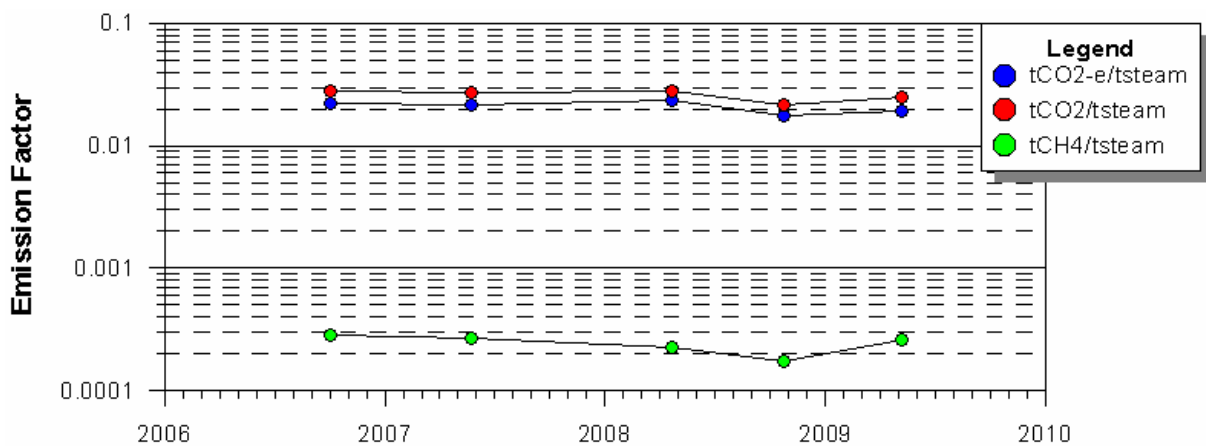
**SUMMARY**

Summarized below is the updated emission factor for Kawerau NTGA based on latest HP and LP steam chemistry data as of May 2009. The emission factor was calculated based on the set method for calculating greenhouse gas discharges for geothermal industry.

**Table 1. Emissions factor (EF) in terms of ton CO2-e/ton steam.**

| Date       | HP Steam (t/h) | LP Steam (t/h) | Total Steam (t/h) | CO2 Total Flow (t/h) | CH4 Total Flow (t/h) | tCO2/ t steam | tCH4/ t steam | tCO2-e/t steam |
|------------|----------------|----------------|-------------------|----------------------|----------------------|---------------|---------------|----------------|
| 4/10/2006  | 46             | 188            | 233               | 5.18                 | 0.07                 | 0.0222        | 0.00028       | <b>0.02820</b> |
| 25/05/2007 | 63             | 199            | 262               | 5.71                 | 0.07                 | 0.0218        | 0.00027       | <b>0.02737</b> |
| 21/04/2008 | 52             | 232            | 284               | 6.61                 | 0.06                 | 0.0233        | 0.00023       | <b>0.02806</b> |
| 23/10/2008 | 72             | 229            | 301               | 5.31                 | 0.05                 | 0.0176        | 0.00017       | <b>0.02126</b> |
| 7/05/2009  | 73             | 241            | 314               | 6.06                 | 0.08                 | 0.0193        | 0.00026       | <b>0.02467</b> |

Note: *tCO2-e/tsteam = tCO2/tsteam plus tCH4/tsteam (based on 1 ton CH4 to 21 ton CO2 ratio)*



For your info and comments.