



The New Zealand
REFINING COMPANY LTD

15 December 2008

Emissions Trading Group
Ministry for the Environment
PO Box 10362
WELLINGTON 6143

Dear Sir/Madam,

**New Zealand Refining Company Submission – Climate Change
(Stationary Energy and Industrial Processes) Regulations 2008 (Draft for
Consultation)**

Please find enclosed a submission from the New Zealand Refining Company in response to the Climate Change (Stationary Energy and Industrial Processes) Regulations 2008 (Draft for Consultation) released in October 2008.

If there are any queries regarding this submission I can be contacted on (09) 432 8311 ext 8861.

Yours sincerely,

Ken Rivers
Chief Executive Officer

NZRC Submission – Climate Change (Stationary Energy and Industrial Processes) Regulations 2008

1. Introduction

- (1) This is a submission by the New Zealand Refining Company Ltd (NZRC) on the Climate Change (Stationary Energy and Industrial Processes) Regulations 2008 (Draft for Consultation) (“the Regulations”) released for consultation in October 2008.
- (2) Where appropriate reference is made to the Climate Change Response Act 2002 as published 26th September 2008 (“the Act”) which incorporates the primary legislation for the New Zealand Emissions Trading Scheme (NZ ETS).

1.1.1 Confidentiality Considerations

- (3) The Government is reminded that NZRC has a Negotiated Greenhouse Agreement (NGA) with the Crown, dated April 2003. This agreement covers the period in which the New Zealand Emissions Trading Scheme is to be introduced.
- (4) NZRC is aware that some aspects of the NGA are considered to be commercially sensitive by the Crown and that in the past these have been withheld under the Official Information Act (OIA).
- (5) NZRC therefore recommends that the Government reviews the commercial sensitivity of the points raised in this submission. NZRC understands that the Government may choose to withhold all or part of this submission from public release.

1.1.2 Submission Approach

- (6) The submission is structured as follows:
 - Section 2 presents a background of the Company to provide context to this submission.
 - Section 3 highlights how refining in general is treated under the NZ ETS, identifying specific issues of ETS design philosophy.
 - Section 4 highlights how NZRC’s refining operation is treated under the NZ ETS.
 - Section 5 presents specific comments on the Regulations.
 - Section 6 proposes a meeting with officials to discuss this submission.

2. Company Background

- (7) NZRC owns and operates New Zealand's only oil refinery at Marsden Point and is a publicly listed company on the New Zealand Stock Exchange.
- (8) Some relevant facts about the company:
- NZRC refines more than 65% of New Zealand's transport fuels.
 - NZRC supplies fuels to the Auckland region directly by pipeline. This saves significant greenhouse gas emissions that would otherwise be incurred through coastal shipping and road tankering.
 - NZRC has 310 direct employees, Total site employment, including contract staff, exceeds 450 full time equivalents.
 - Annual direct expenditure in the Northland region amount to more than NZ\$35 million.
 - Annual Foreign Exchange savings from purchase and refining of crude oil rather than importing more expensive finished products, are in excess of NZ\$300 million.
 - Direct Tax Revenue generated is in excess of NZ\$60 million dollars per annum.
 - The presence of a refinery in New Zealand is strategically important as it provides the country increased security of supply than would otherwise be the case.
- (9) NZRC operates in a very competitive refining market. Its major competitors, in the Asia/Pacific region, are not subject to obligations imposed by the Kyoto Protocol first commitment period (2008 to 2012). Furthermore, there is no certainty that they will take on meaningful targets post 2012 through the second Kyoto commitment period or alternative international agreements..
- (10) NZRC's refining operations encompass direct emissions from combustion of crude oil intermediates, industrial process emissions from the manufacture of hydrogen and indirect emissions from purchased electricity. Climate Change Policy is significant to NZRC as oil refining is inherently an energy intensive process. The Company's greenhouse gas emissions are in excess of 1 million tonnes of CO₂ per annum.
- (11) NZRC has been and continues to be actively engaged with Government on Climate Change issues. The Company participated in the Voluntary Agreement programme for greenhouse gas (GHG) emissions and, in line with New Zealand's climate change policy as it existed in the 2002-2005 period, NZRC sought and obtained a Negotiated Greenhouse Agreement (NGA). This agreement was signed by NZRC and the Crown in April 2003. NZRC continues to honour its contractual obligations under the NGA

including progress in the reduction of energy intensity (a proxy for emissions intensity) along a world's best practice pathway.

(12) NZRC highlights that the NGA has allowed it to make further (and significant) investment in the NZ Refinery operations as a direct result of certainty of the conditions in which it operates. This investment has been in terms of the:

(a) Future Fuels project (\$180M) which provided improved quality fuels for New Zealand by reducing the sulphur from diesel and benzene from petrol thus providing significant health and environmental benefits. This project has also enabled NZRC to supply improved specification fuels to the New Zealand market such as the zero sulphur diesel that will be introduced early next year.

and

(b) Point Forward Project (\$180M) which is currently in progress and will increase the capacity of the refinery and enable greater security of supply for petroleum products for New Zealand in order to meet increases in New Zealand domestic fuel demand.

(13) The benefits of these investments have had a positive impact on New Zealand in terms of health and environmental affects as well as economically. NZRC has worked closely with the Ministry for Economic Development to ensure that it can adapt to the changing requirements of New Zealand fuel, to implement more sustainable solutions for the country including biodiesel. NZRC believes collaborative relationships like this are a fundamental part of building sustainable solutions for New Zealand.

(14) NZRC recognises that it is the role of Government to set Climate Change Policy and institutional frameworks to control GHG emissions. NZRC believes that long-term solutions to Climate Change lie in international co-operation. This should take into account the needs of both industrialised nations and the developing countries pursuing sustainable development requiring more energy but at affordable prices.

3. Treatment of Refining under the Act

- (15) The activity of “refining petroleum” is a mandatory Participant under Schedule 3 Part 3 (stationary energy) of the Act:

“Refining petroleum where the refining involves the use of intermediate crude oil products (for example, refinery fuels and gases) for energy or feedstock purposes.”

Although none of the terms used in the above sentence are defined in the Act.

- (16) Petroleum refining is a trade exposed activity; however no provision for an allocation in respect of emissions arising from the “use of intermediate crude oil products (for example, refinery fuels and gases) for energy or feedstock purposes” is made under Section 73 of the Act.
- (17) Allocation for a typical refinery is instead restricted to direct emissions from purchased natural gas or indirect emissions from offsite electricity (section 73(2)(iii)(B)).
- (18) This anomaly was recognised by officials and following discussions NZRC raised it in a supplementary submission to the Finance and Expenditure Select Committee in April 2008 (refer Attachment 1).

4. Treatment of NZRC under the Act

- (19) As noted previously NZRC has a Negotiated Greenhouse Agreement (NGA) with the Crown, dated April 2003.
- (20) Section 60 of the Act provides for Exemptions in respect of activities listed in Schedule 3 and specific reference to negotiated agreement holders is made in Section 60 subpart (6).

(6) Despite anything in subsection (2) or (3), the Minister may make a recommendation for the making of an order under subsection (1) in respect of a person with whom the Crown has signed a negotiated greenhouse agreement if—

- (a) the negotiated greenhouse agreement was signed before 31 December 2005; and
- (b) the order relates to an activity of the person that is covered by the negotiated greenhouse agreement; and
- (c) the order is in force for a period not exceeding the term of the negotiated greenhouse agreement, including any extension of the term made in accordance with the agreement.

- (21) It is anticipated that NZRC will seek an exemption from being a Participant under this provision.
- (22) As an exemption would only be valid for the term of the NGA (refer Section 60(6)(c) of the Act), NZRC is still very keen to ensure that the NZ ETS legislation is appropriate and operable. It is in this context that the submission points on the regulation are made.

5. Submission Points on the Regulations

- (23) Taking into account the temporary nature of any exemption from the NZ ETS granted to NZRC (refer Section 4 above), NZRC's has approached the review of the Regulations as if they would be required for NZRC's operations in the short term.

5.1. Refining Specific Issues

- (24) Emission factors for refining are presented in Schedule 2 Table 8 of the Regulations. Further information on the derivation of the emission factors is provided in 58) The Emissions Trading Bulletin No. 8¹, October 2008 ("the Bulletin") issued with the Regulations.
- (25) NZRC is surprised that there has not been an attempt to align the Regulations with the pre-existing and well documented NGA². Accepting that the Regulations are aimed at a generic refinery, the Regulations are not fit for purpose for application to the sole refinery in New Zealand. These deficiencies are:
- (a) Inadequate treatment of industrial process CO₂ emissions from the Hydrogen Manufacturing Unit (HMU);
 - (b) Inadequate treatment of flaring;
 - (c) Fuel terminology not aligned with existing NGA; and
 - (d) Incorrect emission factors

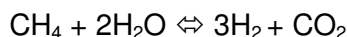
Each of these is covered in more detail below:

¹ <http://www.mfe.govt.nz/publications/climate/emissions-trading-bulletin-8/emissions-trading-bulletin-8.pdf>

² Schedule 6 of the NGA provides a full explanation of the refinery fuel system and emissions sources. Only the specific emission factors have been withheld under the Official Information Act.

5.1.1 Industrial Process Emissions

(26) Industrial process emissions in the form of CO₂ are a by-product from the production of hydrogen (H₂) from hydrocarbon feedstock and steam (H₂O) in the Hydrogen Manufacturing Unit (HMU). The reaction for the manufacture of hydrogen where methane is the hydrocarbon feedstock is provided below:



(27) The hydrocarbon feedstock to the HMU is variable ranging from refinery fuel gas, butane and tops (a mixture of pentanes and hexane liquid). This feedstock variability is in response to changes in crude diet, unit shutdowns and H₂ demand.

(28) As the CO₂ emissions are measured using a flow meter, this negates the need for multiple emission factors and a blend thereof for each of the possible feedstock components.

(29) Should the alternative approach of defining each feedstock component and applying emission factors be taken, these emission factors would be unique to the HMU process. The use of combustion emission factors would not be appropriate as no CH₄ and N₂O is generated in the H₂ manufacturing process.

(30) It is recommended that the regulations incorporate industrial process emissions in the manner currently prescribed in the NGA.

5.1.2 Flaring

(31) The refinery has a flare stack for the safe relief of hydrocarbons during unplanned events and compromised operations at the refinery as process units are started up or shut down.

(32) The composition of hydrocarbons to the flare is a blend for which a specific emission factor is warranted.

(33) It is recommended that the regulations incorporate an emission factor for flaring.

5.1.3 Fuel terminology not aligned with existing NGA

(34) The choice of names for 'Intermediate crude oil product' in the Regulations/Bulletin does not fully align with those in the NGA. This is illustrated below:

Regulations (Bulletin if different)	NGA
Refinery gas	Fuel gas
Fuel oil	Fuel oil
Asphalt (Bitumen)	Asphalt
Other intermediate crude oil	-
-	Flaring
-	HMU CO ₂ (industrial process emissions)

(35) It is recommended that names are aligned with the NGA to avoid any confusion.

5.1.4 Incorrect emission factors

(36) The proposed emission factors in the Regulations vary markedly from those in the NGA. This is illustrated below:

Name	Emission Factors	
	Regulations ktCO _{2-e} /t	NGA (withheld under OIA ³) tCO ₂ /t
Refinery/Fuel gas	5.5345	2.86
Fuel oil	3.0223	3.14
Asphalt (Bitumen)	3.1229	3.205
Other intermediate crude oil	3.1507	-

(37) Specific observations on the emission factors proposed in the Regulations are:

- (a) The units of measurement shown in Schedule 2 Table 8 of the Regulations is incorrect – it should be tCO_{2-e}/t and not **kt**CO_{2-e}/t (the Bulletin is correct).
- (b) The proposed emission factor for refinery gas is erroneous. It should be lower than that for liquid fuels and cannot be greater than that of pure carbon (3.67).

³ Note: NGA emission factors are withheld under Sections 9(2)(b)(ii), 9(2)(ba)(i) and 9(2)(j) of the Official Information Act

- (c) The emission factors for fuel oil and asphalt are lower than those for the NGA. As no reference has been provided for the source of the Regulation factors NZRC cannot comment on their appropriateness.
 - (d) The Regulations incorporate CH₄ and N₂O in the emission factors on a CO₂ equivalent basis. This approach differs from the NGA where it was determined that these emissions were not material.
 - (e) It is recommended that a new fuel category of “other refinery gases” is introduced to compliment “other intermediate crude oil”, with an appropriate (i.e. lower) emission factor.
- (38) It is recommended that all emission factors and associated units of measure are thoroughly reviewed.

5.2. Generic Issues

- (39) The Bulletin indicates that the development of an appropriate method for establishing unique emission factors (UEFs) is to be completed by mid 2009. NZRC recommends that the current Regulations consultation be repeated once those UEF methods are established.
- (a) The UEF methods/regulations need to be assessed in parallel with the default emission factors.
 - (b) Should the UEF methods/regulations not be fit for purpose then NZ ETS Participants will be more heavily reliant on the recognition of all appropriate emission sources and the accuracy of their associated default emission factors.
- (40) The Regulations have no provisions for removal activities. These will be important for NZRC (for sold liquid CO₂) and other firms.
- (41) The Act is to be formally reviewed by a Select Committee. Should any changes to the legislation result from that review, it would be appropriate to hold a further consultation process on the (amended) regulations.

6. Next Steps

- (42) NZRC recommends that a meeting be arranged between NZRC representatives, officials from the Emissions Trading Group and officials from the Ministry for the Environment who have been administering the NGA on behalf of the Crown.
- (43) The objective of the meeting would be to allow open dialogue on the points raised in this submission (including those raised Section 3 and Attachment 1).
- (44) The need for a meeting is governed by the confidentiality requirements of the NGA, which restrict dialogue (for both officials and NZRC representatives) in more public forums and submissions.

Attachment 1

Supplementary Submission to the Finance and Expenditure Select Committee dated 21 April 2008



The New Zealand
REFINING COMPANY LTD

21 April 2008

Mr Charles Chauvel MP
Chairman
Finance and Expenditure Select Committee
Select Committee Office
Parliament Buildings
WELLINGTON

Dear Mr Chauvel,

New Zealand Refining Company Supplementary Submission – Climate Change (Emissions Trading and Renewable Preference) Bill

Since making our written submission in response to the Climate Change (Emissions Trading and Renewable Preference) Bill, Government Emissions Trading Group Officials and New Zealand Refining Company staff have identified a significant oversight in the Bill and its treatment of the Marsden Point refinery.

In the attached document we set out the issue and our initial proposed amendments to the Bill.

If there are any queries regarding this submission I can be contacted on (09) 432 8311 ext 8861.

Yours sincerely,

Ken Rivers
Chief Executive Officer

NZRC Supplementary Submission – Climate Change (Emissions Trading and Renewable Preference) Bill

This is a supplementary submission by the New Zealand Refining Company Ltd (NZRC) on the Climate Change (Emissions Trading and Renewable Preference) Bill, tabled in December 2007.

Introduction

Through discussions arising from the Government's Transport Technical Advisory Group (TAG), Emissions Trading Group (ETG) and NZRC TAG representatives, it is our belief that there is an oversight in the treatment of emissions from the refining process at Marsden Point Refinery.

This matter is significant as upon expiry of the existing Negotiated Greenhouse Agreement (NGA) between NZRC and the Crown, the refinery would be a participant in the NZ ETS.

Description of Issue Identified

It has been identified that the Bill does not correctly recognise the nature of the direct fuels used at the Marsden Point Refinery site.

While Schedule 3 Part 3 of the Bill identifies

“Refining petroleum where the refining involves the combustion of obligation fuel or obligation fuel”

as an

“Activity with respect to which persons must be participants”,

this does not properly represent the refinery operation:

1. The Bill's intent is understood to identify obligation fuel as final products for the purpose of inclusion and treatment of *Liquid fossil fuels* in the NZ ETS.
2. The refinery does not combust such obligation fuels but instead combusts non finished product crude oil components in its stationary furnaces.

The unforeseen and unintended consequence of this oversight is for the refinery to be excluded from any allocation of NZU's in recognition of it being a trade exposed industry as previously and clearly recognised through the current NGA.

Proposed Remedy

To remedy this oversight, it is proposed that Bill be amended. Our preliminary thoughts on appropriate amendments are outlined below.

Proposed Drafting Changes

Section 4(1) is amended by inserting the following definition:

“Refinery fuel and gas means Hydrocarbons derived from crude oil or residues and generated by refinery processes which are consumed as fuel in a refinery

Part 3 Schedule 3 be amended to:

“Refining petroleum where the refining involves the combustion of **refinery fuel and gas**.

Part 1 Clause 43 Section 70

Amend 70(1)(b)(ii)(A) to

“(A) direct use of coal, natural gas, refinery fuel or gas, or geothermal steam; or

Amend 70(2)(a)(ii) to

“(ii) directly using any coal, natural gas, refinery fuel or gas, or geothermal steam in 2005; and

Amend 70(4)(b) to

“(b) directly using any coal, natural gas, refinery fuel or gas, or geothermal steam in 2005; and