

Explanatory note:

Climate Change (Liquid Fossil Fuels) Regulations 2008

No. 9 October 2008

The Regulations

The Climate Change Response Act 2002, as amended by the Climate Change (Emissions Trading) Amendment Act 2008 (the Act), has established an emissions trading scheme for New Zealand and creates mandatory reporting obligations for participants in the liquid fossil fuel sector from 1 January 2010 and full entry into the Scheme from 1 January 2011.

The Climate Change (Liquid Fossil Fuels) Regulations 2008, authorised by section 163 of the Act, set out the liquid fossil fuels that are covered by the New Zealand Emissions Trading Scheme (NZ ETS) and the methods for participants to monitor and calculate the emissions that result from the use of those fuels.

This bulletin explains, and should be read alongside, the Climate Change (Liquid Fossil Fuels) Regulations 2008 (the Regulations). It also provides some additional background information about how and when different aspects of the regulations may change over time, such as emissions factors.

Obligation fuels

Fuels covered by the Regulations are defined as obligation fuels. The obligation fuels include petrol, diesel, aviation gasoline, jet fuel, light fuel oil and heavy fuel oil. It also includes any other liquid fossil fuel that is directly combusted when used.

There are a number of products which are not usually combusted or the emissions from the product are negligible or the cost of collection of the necessary information about the product outweighs the benefit of including the product in the NZ ETS. So liquefied petroleum gas, lighting kerosene, solvents, chemicals and lubricants have been explicitly excluded from the Regulations to avoid doubt.

Biofuels, as defined in the Energy (Fuels, Levies, and

References) Act 1989, are exempt from the NZ ETS and are therefore not listed as obligation fuels. To enable appropriate monitoring of biofuels and biofuel blends, the Regulations specify that the volume of biofuels is to be subtracted in whole litres from the volume of obligation fuel for the purposes of emissions calculations.

New fuels that enter the market and that become a regular part of the market in New Zealand will initially be covered by the Regulations as “any other liquid fossil fuel” but may later be added to the obligation fuels that are covered by the Regulations. The decision about whether the addition of a new fuel is needed will be made by the government on a case-by-case basis.



Participants

Who is a mandatory participant is defined by Part 2 of Schedule 3 of the Act and includes at least five oil companies (BP, Caltex, Gull, Mobil and Shell) and a small number of other firms who import more than 50,000 litres of obligation fuel per year, such as for racing activities.

The Act also provides an opportunity for voluntary participation in the scheme. Voluntary (opt-in) participation is effectively limited to entities such as airlines that operate domestic flights and purchase jet

fuel in excess of 10 million litres a year. Currently, this includes Air New Zealand, Qantas and Pacific Blue. If they participate in the scheme, these voluntary participants take on all legal obligations associated with the NZ ETS and the Regulations for the fuel they purchase from mandatory participants.

Reporting

The Act enables voluntary reporting of emissions from 1 January 2009 and requires reporting of emissions from 1 January 2010. A registration process is involved to trigger voluntary reporting.

Under mandatory reporting, it is an offence if firms do not meet their responsibilities to collect data, calculate emissions and submit an end-of-year emissions return without reasonable excuse.



Getting ready

Participants have seven main tasks under the Act.

1. Notify the administering agency that they are participants in respect of the activity in Part 2 of Schedule 3 of the Act
2. Open a holding account in the emission unit registry.
3. Collect and keep data about their company's emissions for seven years.
4. Calculate the emissions according to the methods prescribed by regulations.
5. File an annual emissions return by 31 March.
6. Surrender emission units to match the emissions produced by 30 April.
7. Be ready to respond to enquiries about audit or verification of their emissions report initiated by the Crown.

Steps 1 and 2 must be done within 20 working days of 1 January 2010. Alternatively, if a participant wishes to undertake voluntary reporting, then they may do step 1 at any time from 1 January 2009 (and step 2 either earlier or at the same time as step 1).

For aviation participants who wish to opt in to the scheme on a voluntary basis, there are similar tasks except that at step 1 a person must apply to register in the NZ ETS. Registration as a participant normally takes one year to take effect. However, to permit voluntary reporting for the 2009 year, if an aviation participant registers on or before 31 December 2008, the registration takes effect immediately.

Calculation of emissions

From 1 January 2010, participants will have to collect data and calculate emissions.

Mandatory participants will be required to monitor the volume of each obligation fuel when removed from a refinery or when imported. Monitoring of fuel that is used for international aviation or marine travel, is exported, and fuel that is sold to voluntary participants who have opted into the NZ ETS will also be required. These items are deducted from the total volume of fuel imported or removed from a refinery. For emissions calculation purposes, the volume of any fuel that contains biofuels will need to be adjusted to exclude biofuel. Emissions are calculated by multiplying the resultant volume of the obligation fuel with the relevant emissions factor.

Voluntary participants who opt in to the scheme will be required to monitor the volume of fuel purchased from their suppliers, who would otherwise be mandatory participants for that fuel. Emissions are

calculated by multiplying the volume of jet fuel with the relevant emissions factor.

Emissions factors

The Regulations identify the standard emissions factors (based on volume, see Appendix 1) that have to be used for each obligation fuel.

Liquid fossil fuel emissions factors	
Obligation fuel	tonnes CO ₂ -e / kilolitre
Regular petrol	2.310
Premium petrol	2.367
Automotive and marine diesel	2.670
Aviation spirit	2.201
Jet fuel	2.525
Light fuel oil	2.908
Heavy fuel oil	2.999
Any other fuel (default emission factor)	3.299

In the event that a fuel is imported or removed from the refinery where the listed emissions factor is not appropriate or the fuel is not named, it would fall into the category of 'any other fuel that is directly combusted when used'. Participants have the choice of either using the default emissions factor as set out in the Regulations or obtaining a unique emissions factor specific to the new fuel.

At present the Regulations do not contain a mechanism to obtain unique emissions factors. However, work has started to develop such a mechanism in conjunction with policy for the stationary energy and industrial processes sector and the waste sector. This is to ensure consistency of the mechanism between the various industries and sectors.

How are emissions factors set and changed?

The Regulations provide a standard emissions factor that must be used for each obligation fuel. The emissions factors reflect emissions of carbon dioxide, methane and nitrous oxide. They also reflect the effect of incomplete combustion (oxidation factor). The carbon dioxide emissions factors have been set by using the New Zealand national inventory energy-based emissions factors for carbon dioxide for each fuel (as reported to the UNFCCC under the Kyoto Protocol). Energy data from the New Zealand Refining Company is used as a proxy for all fuel supplied in New Zealand. An average energy content

for each fuel over the past 10 years, taking into account step changes in some fuels, was used to convert the emissions factor to a per-litre format.

Policy for the review of emissions factors is still under development. It is proposed that the emissions factors be reviewed annually and only changed if the underlying carbon dioxide emissions factors that are used to establish the emissions factors vary by more than 0.5 percent. The first annual review of emissions factors is expected to take place in the second quarter of 2009.

An oxidation factor of 99 percent has been applied to the carbon dioxide emissions factor. This is sourced from the *2000 Intergovernmental Panel on Climate Change Guidelines for National Greenhouse Gas Inventories*. Emissions factors to reflect nitrous oxide and methane as well as relevant global warming potentials are sourced from the same document.

The emissions factor for 'any other fuel' has been set by multiplying the highest emissions factor, heavy fuel oil, by 110 percent.

Enforcement

As the regulations will operate under the NZ ETS, enforcement will be activated under the relevant provisions in the Climate Change Response Act 2002.

The compliance and enforcement system for the NZ ETS is based on a "self-assessment" model like that used in the New Zealand tax system. Rights are given to the chief executive of the department with responsibility for administering the NZ ETS to check the validity of information provided and to issue penalties where breaches are identified. There are also criminal penalties for various offences under the Act.

Review

The government can review the operation of the Regulations at any time. There will be a formal opportunity to review the Regulations and their methodologies in the context of scheduled reviews of the operation and effectiveness of the emissions trading scheme. The first review is to be completed within 12 months before the end of 2012.

The annual review of emissions factors could lead to a change to the regulations to update emissions factors. Also, it is likely that a mechanism to obtain a unique emissions factor will be added before 1 January 2011.

Key dates

From now: Voluntary participants may register in respect of purchase of jet fuel

1 January 2009: Mandatory participants may notify they are participants. Commencement of regulations and start of first annual period for voluntary reporting

1 January 2010: Start of first annual period for mandatory reporting

20 working days of 1 January 2010: Mandatory participants must notify that they are participants

31 March 2010: First annual report due if reporting voluntarily

1 January 2011: Start of first annual period for *full compliance* with the NZ ETS (ie, surrender requirements)

31 March 2011: Second annual report due under voluntary reporting (first annual report under mandatory requirements)

31 March 2012: Third annual report due under voluntary reporting (first annual report under *full compliance* with the NZ ETS)

30 April 2012: First date for surrender of emissions units (for the year ended 31 December 2011)

Consultation

A draft of the Climate Change (Liquid Fossil Fuels) Regulations 2008 was released in January 2008 for public comment. The consultation period closed on 28 February 2008. The draft Regulations were discussed in detail with the Transport Fuels Technical Advisory Group (TF TAG).

The TF TAG was established in January 2008 to provide advice to officials on the technical components of the Climate Change (Liquid Fossil Fuels) Regulations and the related commentary.

The TF TAG met four times (27 February, 3 April, 2 May and 10 June). The TF TAG directly addressed important issues such as the definition of obligation fuels, points of data collection, methods of accounting for biofuels, and possible future fuels. Members also raised a number of technical issues.

Recommendations by the TF TAG directly influenced the policy and technical content of the Regulations.

Changes to the Regulations

As a result of the public consultation and discussions with the TF TAG and further policy development, the following changes or confirmation of existing policy were made to the Regulations.

- Import or removal from a refinery as the initial **point of data collection** was retained
- **Emissions factors** were updated based on 2007 data
- **Fuels were defined** using descriptions from the Customs and Excise Act 1996 and the Tariff
- **Other products** such as liquefied petroleum gas, lighting kerosene, solvents, chemicals and lubricants were explicitly excluded from the obligation fuel list
- A **catch-all item** was included: 'any other liquid fossil fuel that is expected to be directly combusted'
- **Biofuels** were excluded by specifying in the calculation method that the volume of any biofuels be excluded on a whole-litre basis rather than using a biofuel component factor
- **Kilolitres** were used to monitor and measure fuels, rather than litres
- **Definition of a litre:** at import or removal from the refinery a litre is defined as at 15 degrees and all other transactions per litre should reflect ambient temperatures
- The **number of categories of fuel oils** in the obligation fuel list was reduced from five to two
- A **default emission factor** was included for the item 'any other liquid fossil fuel'; it is to be used unless a unique emissions factor is obtained; it has initially been calculated by multiplying the highest emissions factor (heavy fuel oil) by 110 percent
- The use of **two emission factors for petrol** (regular and premium) was confirmed

Where to go for more information

For more information on the New Zealand Emissions Trading Scheme or to read the Climate Change (Liquid Fossil Fuels) Regulations, visit www.climatechange.govt.nz.

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Appendix 1: Liquid fossil fuel emission factors for the New Zealand Emissions Trading Scheme

Emission Source Category	Emission Source	Gas	Carbon Dioxide Emission Factor kilo tonnes of carbon dioxide per peta joule	Energy Contents mega joules per litre	Global Warming Potential	Oxidation Factor	Default Emission Factors tonnes of carbon dioxide equivalent per kilolitre
Petrol	Premium (>= 95 RON) ⁴	CO2	67.0	35.24	1	99%	2.337
		CH4	0.01852	35.24	21	100%	0.014
		N2O	0.00143	35.24	310	100%	0.016
		Total					2.367
	Regular (< 95 RON)	CO2	66.2	34.81	1	99%	2.281
		CH4	0.01852	34.81	21	100%	0.014
		N2O	0.00143	34.81	310	100%	0.015
		Total					2.310
Diesel	Automotive diesel	CO2	69.5	38.12	1	99%	2.623
		CH4	0.00380	38.12	21	100%	0.003
		N2O	0.00371	38.12	310	100%	0.044
		Total					2.670
	Marine diesel	CO2	69.5	38.12	1	99%	2.623
		CH4	0.00380	38.12	21	100%	0.003
		N2O	0.00371	38.12	310	100%	0.044
		Total					2.670
Aviation	Aviation gasoline	CO2	65.0	33.87	1	99%	2.180
		CH4	0.00190	33.87	21	100%	0.001
		N2O	0.00190	33.87	310	100%	0.020
		Total					2.201
	Jet fuel	CO2	68.1	37.10	1	99%	2.501
		CH4	0.00190	37.10	21	100%	0.001
		N2O	0.00190	37.10	310	100%	0.022
		Total					2.525
Fuel Oil	Light fuel oil (< 85sct)	CO2	72.0	40.38	1	99%	2.878
		CH4	0.00665	40.38	21	100%	0.006
		N2O	0.00190	40.38	310	100%	0.024
		Total					2.908
	Heavy fuel oil (>85 cst)	CO2	73.5	40.81	1	99%	2.970
		CH4	0.00665	40.81	21	100%	0.006
		N2O	0.00190	40.81	310	100%	0.024
		Total					2.999