Emissions trading bulletin

Climate Change (Liquid Fossil Fuels) Regulations 2008: draft for consultation

No 2, February 2008

This bulletin explains, and should be read alongside, the draft Climate Change (Liquid Fossil Fuels) Regulations 2008. The draft regulations have been released to provide transport sector participants with greater certainty about the nature of their proposed obligations under the New Zealand Emissions Trading Scheme (ETS), as provided for in the Climate Change (Emissions Trading and Renewable Preference) Bill.

The Bill covers liquid fossil fuel participants in relation to "obligation fuels" from 1 January 2009. Once the Bill is enacted, these participants' obligations will include collecting data and information and calculating emissions under section 62 of the Climate Change Response Act by methodologies prescribed in the liquid fossil fuels regulations. The methodologies include the definition of obligation fuels, collection of information, the calculation of emissions, and emission factors for all obligation fuels. The regulations also cover matters such as commencement, interpretation, fees and charges and hourly rates.

This bulletin discusses a series of considerations that formed the basis of the methodologies in the draft regulations. In addition, a series of unresolved issues are noted. The bulletin also considers the balance struck between the level of detail included in the regulations themselves versus detail recorded in policy documentation.

Background

The regulations will set out the liquid fossil fuels that are covered by the Bill and the methodologies for participants to monitor and calculate their emissions from those fuels. They will also set out methodologies for participants who opt in for jet fuel use to monitor and calculate their emissions.

The regulations will be authorised by new section (section 148) of the Climate Change Response Act 2002, which is to be inserted by clause 43 of the Bill.

Mandatory participants are expected to include at least five oil companies (BP, Caltex, Gull, Mobil and Shell) and possible voluntary participants, including airlines. Participants are also expected to include a small number of other firms who import fuel directly above the *de minimus* threshold, such as for racing activities.

Engagement to date

The following engagement activities have taken place that relate specifically to the liquid fossil fuel methodologies.

- **Framework document:** *The Framework for a New Zealand Emissions Trading Scheme* was released on 20 September 2007. This document contained the 'Indicative Detailed Activity and Mandatory Participant Table' as an appendix that was an early summary of the liquid fossil fuel methodologies.
- **Transport sector introductory workshop:** A workshop was held on 26 September 2007 in Wellington for transport participants only as an introduction to the emissions trading scheme and how it would affect the transport sector.
- **Liquid fossil fuels presentation:** The presentation at the liquid fossil fuels session during the public cross-sectoral workshop series between 1 and 9 October 2007 contained a full list of potential emission sources for the liquid fossil fuels sector and a more developed description of how to calculate emissions.
- **Transport sector technical workshop:** A second workshop for transport participants only was held on 24 October 2007 that focused on

more technical aspects of the Bill, including methodologies. Participants were asked to bring technical and financial staff to the session. Further developed activity descriptions and a liquid fossil fuels activity table were presented and discussed with potential transport participants.

The major issues raised during the technical workshop regarding methodologies included the following:

- how to monitor fuels – what would be the exact point of obligation
- emission factors – how to select the best emission factor, if and how often to change it, and whether to allow for unique emission factors for fuels that have emission factors which are different from the standard or default factors
- scope of liquid fossil fuels – whether any of the items listed should be excluded based on de minimis grounds
- opt in – whether to provide for some users of liquid fossil fuels the option to opt in and take on obligations for fuel they use, especially large users of jet fuel.

Discussion of major issues

Monitoring

The Bill has identified the participants (in relation to liquid fossil fuels) as fuel suppliers and those who purchase jet fuel (should they choose to opt in). However, the exact point in the supply chain when data relating to obligation fuels (emission source) must be collected by these participants needs to be reflected in the regulations.

The two main options for fuel suppliers are: either upstream at the time of import or removal from a refinery; or downstream at the time of sale.

The advantages of an upstream point of obligation include the following:

- very reliable data is gathered and audited at this point by Customs.
- existing or proposed legislation already requires compliance at this point, for example, the Biofuel Bill, the ACC levy and excise duty.
- the need to account for biofuels may be less frequent if biofuel blends are not produced by refineries in New Zealand (but imported).

However, disadvantages include the following.

- the cost of emission units arises sooner for participants and there is a timing difference between the need to account for fuel when it is removed from the refinery or imported
- the need to account for fuel when it is sold for export or to participants who have opted in to the scheme (so that it can be excluded).

While there are a variety of reasons in support of a point of obligation being at the time of sale, the fact that data reliability is stronger at an upstream point of obligation is a compelling reason for its recommendation. Further, the problems arising with this recommendation are manageable. The draft regulations are therefore designed on this basis.

Emission factors

Emission factors are an important part of the methodology. In many ways they are a simple scientific calculation, but there are some key policy decisions to make including how to set the emission factors in the first instance, whether to have standard emission factors, how often to update standard emission factors, and whether to allow for unique emission factors.

The emission factors used for the National Greenhouse Gas Inventory (the national inventory) are based on typical qualities of fuel produced at the New Zealand Refining Company and expressed in an energy basis as advised by the IPCC Good Practice Guide.

The draft regulations propose that a standard emission factor should be used for each obligation fuel type. This means that all premium petrol would have one emission factor (although there is more than one type sold in New Zealand ie, at least 95 and 98). This is consistent with the approach used for the national inventory and in other countries.

Additionally, it is suggested that the option of a unique emissions factor should be available, but only where the characteristics of the fuel mean that there is more than a 2 per cent variation between the standard emission factor and the emission factor of the unique fuel. The unique emission factor could be used for either a one-off bundle of fuel or possibly, as is discussed later in this document, for a new fuel (that would be categorised as a sub-group of one of the fuels on the list of obligation fuels but for which the stated emission factor is not

appropriate) supplied by one participant only. In the event that the fuel is supplied by more than one participant on an ongoing basis, the Crown would establish the appropriate standard emission factor by amendment to the regulations. Thus, a unique emission factor may over time become a standard emission factor for that fuel should it form a regular part of New Zealand's fuel supply.

Currently, it is proposed that any unique emission factors will require an amendment to the Liquid Fossil Fuel Regulations (but will need to be initiated by the participant). However, consideration is being given to whether a different administrative process would be appropriate for one-off factors. In either case, the ETS administering agency will set out procedures that need to be followed to establish the emission factor (eg, a review by an independent third party and use of an appropriately qualified reviewer and laboratory).

Emission factors could be expressed in energy terms (giga joules) or volume (litres). The national inventory uses energy. There are a range of transactions that participants need to monitor to calculate emissions. In all cases, litres are used. Therefore the draft regulations propose that volume is used for the emission factor calculations under the ETS.

Emission factors that are expressed in energy terms can be converted to a per-litre basis by multiplying by the volume-based calorific value of the appropriate fuel. The volume-based calorific values available are based on New Zealand Refining Company fuel quality as representative of the majority of the New Zealand product supply. The New Zealand Refining Company provides average product qualities with density and energy content to the Ministry of Economic Development each year in February for the previous year's qualities.

The volume-based calorific value can be sourced from a particular year's data or could be an average over a range of years. The emission factors listed in this bulletin (and in the draft regulations) reflect a volume-based calorific value from the 2006 fuel quality. It is proposed that a five-year average be used for the ETS, such as 2002–2007, except where there has been a significant change in specification, in which case only data since the specification change would be used.

Following a technical review of the energy emission factors that are currently used to calculate the national inventory (calculated based on fuel data in 2003), it is also proposed that these factors be used to determine the ETS emission factors. During the technical review, some 2006 fuel data was compared with the data used to determine the 2003 emissions factors. Some minor variation was noted. However, the variation was not considered to be sufficient to suggest a more robust process would be needed to establish new energy emission factors.

It is proposed that emission factors will be reviewed annually but only changed if the underlying energy emission factors that are used to establish the emission factors vary substantively, such as a 1 per cent variation in a given year or a 0.5 per cent variation over a period of 3 years. It is expected this regime would result in infrequent changes to emission factors (every 5 years for example), unless there is a significant change in fuel qualities as a result of a specification change through the Petroleum Products Specifications Regulations.

Following a review of the 2007 fuel data (for data needed to determine energy per litre), the emission factors for the draft regulations will be confirmed.

It is expected that, should the emission factors used for the ETS differ from those used historically for the national inventory (as a result of a change to a standard emission factor or a unique emission factor being established as guided by the proposals in this bulletin), this change would be reflected in the emission factors used for the national inventory.

Opt in

Some users of liquid fossil fuels may wish to have the option to opt in and take on legal obligations for the fuel they use. The Bill provides this opportunity for large users of jet fuel, in particular those who buy 10 million plus litres of jet fuel per year. The methodologies will provide for firms who purchase jet fuel and who opt in to the ETS.

Some major users of other liquid fossil fuels such as diesel have suggested that the opt-in provisions be extended to include diesel and other fuels. The choice of point of obligation is made on the basis of a range of criteria, including administrative simplicity. An upstream point of obligation, as contained in the Bill, ensures simplicity (as well as good coverage of emissions). It appears that the potential inclusion of jet fuel users does not affect the overall administrative and compliance simplicity of the ETS.

Jet fuel purchasers are a small number of organisations and purchases take place in a small number of defined locations. Analysis indicates that this simplicity may be altered if the opt-in provisions are extended to other fuels.

Proposed methodologies

The methodologies for calculating emissions by participants in the liquid fossil fuels sector that are set out in the draft regulations are based on:

- the methodologies that are used for reporting the national inventory (also consistent with the Intergovernmental Panel on Climate Change's recommendations)
- technical review and advice by an external consultant
- review and comments by participant firms
- analysis by officials.

There are two activities listed in the Bill that the methodologies for calculating liquid fossil fuel emissions will apply to: owning obligation fuel as described in Schedule 3, Part 2; and purchasing obligation jet fuel as described in Schedule 4, Part 3.

The methodologies for mandatory and voluntary participants covered in the regulations include the following:

- definition of obligation fuels
- collection of information for the purpose of calculating emissions
- method of calculating emissions
- collection of information for the purpose of calculating emissions for jet fuel participants only
- method of calculating emissions for jet fuel participants only
- emission factors for all obligation fuels.

Issues to resolve

Definition of obligation fuels

Obligation fuels have been defined in the draft of the regulations by reference to the Customs and Excise Act 1996 or the Tariff.

Another option would be to define the fuels by way of a technical description, as has been done in the Petroleum Products Specifications Regulations.

These regulations cover only petrol and diesel. They have been defined as follows:

- Premium grade petrol means petrol supplied as having a research octane number of 95 or higher.
- Regular grade petrol means petrol supplied as having a research octane number of at least 91 but less than 95.
- Diesel means a refined petroleum distillate having a viscosity and distillation range that is intermediate between those of kerosene and light lubricating oil, whether or not it contains additives, and that is intended for use as fuel in internal combustion engines ignited by compression.

There are two obligation fuels that are not defined in the draft regulations: these are bunker fuel oil and power station oil. These fuels need an appropriate definition.

Complete list of obligation fuels

A complete list of obligation fuels is required to ensure the ETS captures all material sources of greenhouse gas emissions from liquid fossil fuels. The list of obligation fuels should not include those fossil fuels that do not tend to be used in such a way that results in emissions (ie, are not combusted).

It should also not include fuels where the emissions from the fuel are negligible or the cost of collection of the necessary information about the fuel outweighs the benefit of including the fuel in the ETS. Thus, it has been determined that the ETS should not cover lightening kerosene, solvents (eg, napthna), chemicals (eg, methanol) and lubricating oils because the emissions associated with them are negligible (about 0.0235 tCO_2 per year) and, further, they are often not combusted and therefore may not result in emissions.

Future fuels

At present the draft liquid fossil fuel regulations include a finite list of obligation fuels. If a fuel is imported or produced in New Zealand which is a fossil fuel but is not on the list, then it would not be captured by the ETS without amendment to the regulations. One possibility would be to amend the Bill to provide for such a situation and require the participant concerned to obtain a unique emission factor. Without a change to the Bill, it is effectively up to the government to keep abreast of what is happening in the market and add new fuels to the obligation fuels covered by the regulations (with

default emission factor) as they come to market.

It is not clear how likely it is that a fuel which is not listed in the regulations would be supplied in New Zealand. Also, the way in which the fuels are defined will influence whether a new fuel is more likely to be captured or not.

Fuels made from biomass

Biofuels are exempt from the ETS and are therefore not listed as an obligation fuel. Biofuel blends are managed through the use of the biofuel factor when calculating emissions from a particular fuel. However, if a fuel is made by processing crude oil and biomass together, the biofuel factor may not enable a reduction in emissions from fossil fuels to be recognised. This situation needs to be clarified in the liquid fossil fuel regulations so that emissions from fossil fuels are not overstated (ie, so the ETS does not capture emissions from fuels made from biomass).

Background policy documents

This commentary contains some substantive background information relevant to the draft of the liquid fossil fuel regulations. The content of the draft is made up of the core elements of the methodology for monitoring and calculating emissions. These are the aspects of the methodology that will have legal force.

However, in theory, the regulations could contain some or all of the 'decisions' contained in this commentary. For example, the regulations could set out the process for calculation of the emission factors that are reflected in Annex 1 and include the table, which provides full details of the calculation of the emission factors for all fuels.

The draft regulations reflect the view that these matters are appropriately dealt with outside the regulations and to include them would merely be confusing to those using the regulations.

Process for feedback

Feedback on the draft regulations and other proposals outlined in this bulletin is welcome. Please email **emissionstrading@climatechange.govt.nz**.

This feedback will inform the ongoing development of the regulations. The regulations cannot be enacted until after the passage of the Climate Change (Emissions Trading and Renewable Preference) Bill, which is expected to occur in July 2008.

The final content of the regulations is dependent on the provisions of that Bill once passed into law. The Bill is currently before Select Committee and its provisions are subject to change from current wording.

Nonetheless, work will continue prior to the Bill's passage about the approach to be taken in regulations, and any feedback will inform that work.

Any feedback you provide on the draft regulations will not constitute a submission on the Bill itself. Submissions on the Bill should be made to the Finance and Expenditure Committee before the closing date (29 February 2008).

Where to go for more information

- For more information about liquid fossil fuel participants under the NZ ETS, refer to *The Framework for a New Zealand Emissions Trading Scheme* at **www.climatechange.govt.nz**
- To view the draft Climate Change (Liquid Fossil Fuels) Regulations, visit **www.climatechange.govt.nz**
- To find out how to make a submission on the Climate Change (Emissions Trading and Renewable Preference) Bill, visit **www.parliament.nz/en-NZ/SC**

Also refer to Annex 1 Liquid Fossil Fuels Emission Factors (see overleaf)

Publication number: INFO 249

Annex 1 Liquid Fossil Fuels Emission Factors

Emission Source Category	Emission Source	Gas	CO_2 Emission Factor [A] ktCO2/PJ	Energy Content [B] MJ/litre	GWP [C]	Emission Factor (includes GWP) [D] tCO2/l
Petrol	Premium (95 octane and above)	CO_2	67.0	35.24	1	0.0023600
		CH_4	0.01852	35.24	21	0.0000137
		N_2O	0.00143	35.24	310	0.0000156
		Total				0.0023900
	Regular	CO_2	66.2	34.82	1	0.0023100
		CH_4	0.01852	34.82	21	0.0000135
		N_2O	0.00143	34.82	310	0.0000154
		Total				0.0023300
Diesel	Automotive and Marine diesel	CO_2	69.5	38.04	1	0.0026400
		CH_4	0.00380	38.04	21	0.0000030
		N_2O	0.00371	38.04	310	0.0000437
		Total				0.0026900
Aviation	Aviation gasoline	CO_2	65.0	33.87	1	0.0022016
		CH_4	0.00190	33.87	21	0.0000014
		N_2O	0.00190	33.87	310	0.0000199
		Total				0.0022229
	Jet fuel	CO_2	68.1	37.09	1	0.0025300
		CH_4	0.00190	37.09	21	0.0000015
		N_2O	0.00190	37.09	310	0.0000218
		Total				0.0025500
Fuel Oil	Light fuel oil (40sct)	CO_2	72.0	40.45	1	0.0029100
		CH_4	0.00665	40.45	21	0.0000056
		N_2O	0.00190	40.45	310	0.0000238
		Total				0.0029400
	Medium fuel oil (80 cst)	CO_2	72.8	40.64	1.00	0.0029600
		CH_4	0.00665	40.64	21	0.0000057
		N_2O	0.00190	40.64	310	0.0000239
		Total				0.0029900
	Heavy fuel oil (180 cst)	CO_2	73.5	40.83	1	0.0030000
		CH_4	0.00665	40.83	21	0.0000057
		N_2O	0.00190	40.83	310	0.0000240
		Total				0.0030300
	Bunker fuel oil (380 cst)	CO_2	73.5	40.93	1	0.0030100
		CH_4	0.00665	40.93	21	0.0000057
		N_2O	0.00190	40.93	310	0.0000241
		Total				0.0030400
	Power station fuel oil	CO_2	73.5	40.83	1	0.0030000
		CH_4	0.00665	40.83	21	0.0000057
		N_2O	0.00190	40.83	310	0.0000240
		Total				0.0030300