

DRAFT FOR CONSULTATION

Climate Change (Unique Emissions Factors) Regulations 2009 (Draft for Consultation)

Governor-General

Order in Council

At Wellington this day of 2009

Present:
in Council

Pursuant to sections 163 and 164 of the Climate Change Response Act 2002, His Excellency the Governor-General, acting on the advice and with the consent of the Executive Council and on the recommendation of the Minister for Climate Change Issues, makes the following regulations.

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fuel participants, and thresholds for unique emissions
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Regulations

- 1 Title**
These regulations are the Climate Change (Unique Emissions Factors) Regulations 2009 (Draft for Consultation).
- 2 Commencement**
These regulations come into force on 1 January 2010.

Part 1
Preliminary matters

- 3 Interpretation**
 - (1) In these regulations, unless the context otherwise requires,—
Act means the Climate Change Response Act 2002
chief executive means the chief executive of the department responsible for the administration of Part 4 of the Act

coal participant means—

- (a) a person who is a participant under section 54(1)(a) of the Act in respect of the activities listed in Part 3 of Schedule 3 of the Act of—
 - (i) importing coal;
 - (ii) mining coal where the volume of coal mined exceeds 2 000 tonnes in a year;
- (b) a person who is a participant under section 54(1)(b) of the Act in respect of the activity listed in Part 4 of Schedule 4 of the Act of purchasing coal from 1 or more participants who mine coal where the total coal purchased exceeds 250 000 tonnes per year

fuel means obligation fuel, obligation jet fuel, coal, geothermal fluid, used oil, waste oil, used tyres, or waste

geothermal participant means a person who is a participant under section 54(1)(a) of the Act in respect of the activity listed in Part 3 of Schedule 3 of the Act of using geothermal fluid for the purpose of generating electricity or industrial heat

obligation fuel has the same meaning as in regulation 3 of the Climate Change (Liquid Fossil Fuels) Regulations 2008

obligation fuel participant means—

- (a) a person who is a participant under section 54(1)(a) of the Act in respect of an activity listed in Part 2 of Schedule 3 of the Act;
- (b) a person who is a participant under section 54(1)(b) of the Act in respect of an activity listed in Part 3 of Schedule 4 of the Act

obligation jet fuel has the same meaning as in regulation 3 of the Climate Change (Liquid Fossil Fuels) Regulations 2008

recognised verifier means—

- (a) a person recognised under Part 3 to verify unique emissions factors for 1 or more activities specified in regulation 22; and
- (b) in relation to an activity specified in regulation 22, a person recognised under Part 3 to verify unique emissions factors for the activity

waste combustion participant means a person who is a participant under section 54(1)(a) of the Act in respect of the ac-

tivity listed in Part 3 of Schedule 3 of the Act of combusting used oil, waste oil, used tyres, or waste for the purpose of generating electricity or industrial heat.

- (2) A reference to a test method containing an acronym listed in the left-hand column in the following table means a standard, or test method related to an organisation, that is listed in the right-hand column of the table:

Test method	Standard or organisation
AS	Australian Standard
ASTM	ASTM International
BS	British Standard
CEN/TS	Comité Européen de Normalisation (European Committee for Standards—Technical Specification)
EN	European Standard
IEC	International Electrotechnical Commission
IP	Energy Institute, which replaced the Institute of Petroleum, London
ISO	International Organization for Standardization
NZS	New Zealand Standard
USEPA	United States Environmental Protection Agency

- (3) If a test method prescribed in these regulations provides for alternative methods, each method has equal standing, and any of the methods may be used.

4 Application for approval to use unique emissions factor

- (1) A participant applying for approval to use a unique emissions factor must make the application using the form prescribed by the chief executive.
- (2) The application must—
- (a) describe the class of fuel in respect of which the person applies for approval to use a unique emissions factor; and
 - (b) specify the unique emissions factor for which approval is sought; and
 - (c) be accompanied by—
 - (i) a statement that complies with subclause (3), signed by a recognised verifier:

- (ii) a plan for ongoing testing of the fuel in the class to which the application relates:
 - (iii) any other information the chief executive may require.
- (3) The verifier's statement must certify that the verifier—
 - (a) is satisfied that any samples collected by the participant and tested for the purposes of the application meet the prescribed standard for sampling of the class of fuel that the application relates to; and
 - (b) is satisfied that any fuel samples have been tested by a person with the prescribed certification or accreditation to carry out the prescribed tests; and
 - (c) is satisfied that any measurements or other tests required to be carried out by the participant for the purposes of a regulation have been carried out in accordance with the requirements of the regulation; and
 - (d) has conducted his or her own calculations using the test or measurement results provided by the participant and is satisfied that the unique emissions factor has been calculated correctly in accordance with the prescribed methodology.
- (4) An application for approval to use a unique emissions factor to calculate emissions in relation to a year must be submitted to the chief executive by 31 January in the following year.

5 Approval by chief executive of use of unique emissions factor

- (1) The chief executive may approve the use by a participant of a unique emissions factor when calculating emissions from an activity if satisfied that—
 - (a) the person's application complies with regulation 4; and
 - (b) the class of fuel to which the application relates meets the criteria in regulation 6; and
 - (c) the proposed unique emissions factor varies by the prescribed amount from the default emissions factor that would otherwise apply to calculation of the emissions from the class of fuel; and
 - (d) the verifier who has provided the statement required by regulation 4(2)(c) has been recognised by the chief ex-

executive as able to verify a unique emissions factor for the activity and that the recognition has not expired, or been surrendered, suspended, or revoked.

- (2) A unique emissions factor approved for use by a participant—
- (a) may be used by the participant to calculate emissions only in relation to fuel within the class that the unique emissions factor approval relates to; and
 - (b) is subject to any conditions notified by the chief executive at the time of approval.

6 Criteria for class of fuel for which unique emissions factor may be used

A class of fuel for which the chief executive may approve the use of a unique emissions factor must comply with the following criteria:

- (a) if the activity for which the approval is sought—
 - (i) relates to owning or purchasing obligation fuel, the class must be a subset of a type of obligation fuel described in paragraphs (a) to (i) of regulation 4(1) of the Climate Change (Liquid Fossil Fuels) Regulations 2008;
 - (ii) relates to importing, mining, or purchasing coal, the class must not be larger than coal from a designated mine;
 - (iii) relates to using geothermal fluid, the class must not be larger than a class specified in Part A or Part B of Table 5 of the Climate Change (Stationary Energy and Industrial Processes) Regulations 2009;
 - (iv) relates to combusting used or waste oil, used tyres, or waste, the class must be a subset of one of the classes in Table 3 of the Schedule; and
- (b) the class must have well defined parameters so that fuel within the class may be easily identified and accounted for separately from fuel that is not within the class.

Part 2
**Activities for which unique emissions
factor may be sought**

Owning and purchasing obligation fuel

7 Obligation fuel participant may apply for unique emissions factor

- (1) An obligation fuel participant may apply to the chief executive for approval to use a unique emissions factor when calculating emissions in relation to a class of obligation fuel in accordance with the Climate Change (Liquid Fossil Fuels) Regulations 2008.
- (2) However, an obligation fuel participant may apply for approval to use a unique emissions factor only if the unique emissions factor varies by more than 2% from the emissions factor that would otherwise apply to the obligation fuel under the Climate Change (Liquid Fossil Fuels) Regulations 2008.

8 Requirements relating to application for unique emissions factor by obligation fuel participant

An obligation fuel participant who wishes to apply for approval to use a unique emissions factor in relation to a class of obligation fuel must—

- (a) obtain a representative sample of the class of obligation fuel for which the unique emissions factor is sought at intervals and in accordance with a procedure that complies with ISO/IEC 4259:2006; and
- (b) have the following tests carried out on each of the fuel samples by a person or laboratory that is accredited according to ISO/IEC 17025:2005 by International Accreditation New Zealand or by an overseas accreditation agency recognised under New Zealand's mutual recognition arrangements to carry out the test:
 - (i) ASTM D5291-02 (carbon content);
 - (ii) ASTM D1298 or ISO 3675:1998 (density at 15°C); and
- (c) calculate the emissions factor for carbon dioxide for the class of obligation fuel according to the following formula:

$$EFC = C \times D \times 36.7$$

where—

EFC is the emissions factor for CO₂ of the class of obligation fuel in tonnes of carbon dioxide per kilolitre (tCO₂/kl)

C is the mean carbon content of the obligation fuel samples determined under the tests in paragraph (b)(i) and expressed as a percentage of mass divided by 100 ((%mass)/100)

D is the mean density of the obligation fuel samples determined under the tests in paragraph (b)(ii) and expressed in kilograms per litre (kg/l); and

- (d) calculate the unique emissions factor for the class of obligation fuel according to the following formula:

$$UEF = EFC \times 0.99 \text{ (oxidation factor)} + X + Y$$

where—

UEF is the unique emissions factor for the class of obligation fuel expressed in tonnes of carbon dioxide equivalent gases per kilolitre (tCO₂/kl)

EFC is the emissions factor for CO₂ determined under paragraph (c) expressed in tonnes of carbon dioxide per kilolitre (tCO₂/kl)

X is the emissions factor for CH₄ from table 1 of the Schedule that applies to the obligation fuel whose specifications are closest to the fuel for which a unique emissions factor is sought

Y is the emissions factor for N₂O from table 1 of the Schedule that applies to the obligation fuel whose specifications are closest to the fuel for which a unique emissions factor is sought; and

- (e) submit the following material to a recognised verifier:
- (i) a record of the sampling regime that complies with the standard referred to in paragraph (a); and
 - (ii) confirmation that the person or laboratory that carried out the tests in paragraph (b) carries the certification or accreditation required by that paragraph; and
 - (iii) the test results for the tests in paragraph (b); and

- (iv) the calculations undertaken under paragraphs (c) and (d); and
- (v) any other information required by the recognised verifier as necessary to provide verification of the unique emissions factor under regulation 19.

Importing, purchasing, and mining coal

9 Coal participant may apply for unique emissions factor

- (1) A coal participant may apply to the chief executive for approval to use a unique emissions factor when calculating emissions in relation to a class of coal in accordance with the Climate Change (Stationary Energy and Industrial Processes) Regulations 2009.
- (2) However, a coal participant may apply for approval to use a unique emissions factor only if the unique emissions factor is lower than the threshold emissions factor for the relevant type of coal specified in Table 2 of the Schedule.

10 Requirements relating to application for unique emissions factor by coal participants

A coal participant who wishes to apply for approval to use a unique emissions factor in relation to a class of coal must—

- (a) obtain at least 3 representative samples, taken at intervals of not less than a month, unless impracticable, of the coal for which the unique emissions factor is sought according to the procedures in ISO 18283:2006 (hard coal and coke); and
- (b) have the following tests carried out on each of the coal samples by a person or laboratory that is accredited according to ISO 17025:2005 by International Accreditation New Zealand or by an overseas accreditation agency recognised under New Zealand's mutual recognition arrangements to carry out the test:
 - (i) AS 1038.6.4–2005 or ISO 12902:2001 (carbon content):
 - (ii) ISO 5068–1:2007, or ASTM D3302 (total moisture content):

- (iii) ISO 1171:1997 or ASTM D3174–04 (ash content);
- (iv) ISO 1928:1995 (gross calorific value); and
- (c) calculate the emissions factor for carbon dioxide for the coal according to the following formula:

$$\text{EFC} = C \times 3.67/\text{CV}$$

where—

EFC is the emissions factor for CO₂ of the class of coal (in tonnes of CO₂ per gigajoule)

C is the mean carbon content of the coal samples determined under the tests in paragraph (b)(i) and expressed as %mass/100

CV is the mean gross calorific value of the coal determined under the tests in paragraph (b)(iv) expressed in megajoules per kilogram; and

- (d) calculate the unique emissions factor for the class of coal according to the following formula:

$$\text{UEF} = (\text{EFC} \times 0.98 \text{ (oxidation factor)}) + X + Y$$

where—

UEF is the unique emissions factor for the class of coal expressed in tCO₂e/GJ (tonnes of carbon dioxide equivalent gases per gigajoule)

EFC is the emissions factor for CO₂ determined under paragraph (c)

X is 0.000015 (the emissions factor for CH₄)

Y is 0.000465 (the emissions factor for N₂O); and

- (e) submit the following material to a recognised verifier:
 - (i) a record of the sampling regime that complies with the standard referred to in paragraph (a); and
 - (ii) confirmation that the person or laboratory that carried out the tests in paragraph (b) carries the certification or accreditation required by that paragraph; and
 - (iii) the test results for the tests in paragraph (b); and
 - (iv) the calculations undertaken under paragraphs (c) and (d); and

- (v) any other information required by the recognised verifier as necessary to provide verification of the unique emissions factor under regulation 19.

Using geothermal fluid

11 Geothermal participant may apply for unique emissions factor

- (1) A geothermal participant may apply to the chief executive for approval to use a unique emissions factor when calculating emissions in relation to a class of geothermal fluid in accordance with the Climate Change (Stationary Energy and Industrial Processes) Regulations 2009.
- (2) However, a geothermal participant may apply for approval to use a unique emissions factor only if the unique emissions factor varies by more than 5% from the emissions factor that would otherwise apply to the geothermal fluid under the Climate Change (Stationary Energy and Industrial Processes) Regulations 2009.

12 Requirements relating to application for unique emissions factor by geothermal participant

A geothermal participant who wishes to apply for approval to use a unique emissions factor in relation to a class of geothermal fluid defined by reference to—

- (a) a plant that uses, or a particular use of, geothermal steam, must comply with regulation 13:
- (b) a plant that uses, or a particular use of, geothermal fluid that does not relate to steam production must comply with regulation 14.

13 Requirements for applications for unique emissions factor for geothermal fluid use calculated by reference to steam production

- (1) A geothermal participant who wishes to apply for approval to use a unique emissions factor in relation to a class of geothermal fluid defined by reference to a matter in regulation 12(a) must—

- (a) obtain representative samples of the geothermal steam to which the application relates—
- (i) over a period of at least 6 months; and
 - (ii) at intervals of not more than 3 months; and
 - (iii) in accordance with the following procedures and standards:
 - (A) ASTM E947–83 (Reapproved 2007) – (equipment to be used for the collection of uncontaminated and representative samples from single-phase steam pipelines); and
 - (B) ASTM E1675 for Sampling 2–Phase Geothermal Fluid for Purposes of Chemical Analysis (as applicable to sampling single phase steam only); and
- (b) have the following tests carried out on each of the samples of the steam by a person or laboratory that is accredited according to ISO 17025:2005 by International Accreditation New Zealand or by an overseas accreditation agency recognised under New Zealand’s mutual recognition arrangements to carry out the test:
- (i) standard chemistry titration analysis methods (to determine CO₂ content); and
 - (ii) gas chromatography (to determine CH₄ content); and
- (c) measure the tonnes of steam produced per hour at each separation point, or if a system has multiple steam transmission lines, then at each point where those lines mix the steam (a **mix point**); and
- (d) calculate the emissions factor for each steam separation point or mix point according to the following formula:
- $$EF_N = CO_2/t \text{ steam}_N + (CH_4/t \text{ steam}_N \times 21)$$
- where—
- EF_N is the emissions factor for the steam at separation or mix point N expressed as CO₂e/t steam
- CO₂/t steam_N is the mean CO₂ emissions factor for the steam samples at separation or mix point N as determined by reference to the tests in paragraph (b)(i)

$CH_4/t\text{ steam}_N$ is the mean CH_4 emissions factor for the steam samples at the separation or mix point N as determined by reference to the tests in paragraph (b)(ii)

N is each separation or mix point; and

- (e) calculate the unique emissions factor for geothermal steam of the class according to the following formula:

$$UEF = (\sum(EF_N \times t\text{ steam}_N/\text{hr}) / \sum(t\text{ steam}_N/\text{hr})) - EF_R$$

where—

UEF is the unique emissions factor for the class of geothermal fluid use expressed in $tCO_2e/t\text{ steam}$ (tonnes of carbon dioxide equivalent gases per tonne of steam)

EF_N is the emissions factor for each steam separation or mix point determined under paragraph (d)

EF_R is, if relevant, the emissions factor for steam condensate being reinjected as determined in accordance with subclause (2)

$t\text{ steam}_N/\text{hr}$ is the tonnes of steam produced by each separation or mix point per hour as measured in accordance with paragraph (c); and

- (f) submit the following material to a recognised verifier:
- (i) a record of the sampling regime that complies with the standards and procedures referred to in paragraph (a) and, if relevant, a record of the sampling regime that complies with the standards referred to in subclause (2)(a); and
 - (ii) confirmation that the person or laboratory that carried out the tests in paragraph (b) and, if relevant, subclause (2)(b), carries the certification or accreditation required by that paragraph; and
 - (iii) the test results for the tests in paragraph (b) and, if relevant, the test results for the tests in subclause (2)(b); and
 - (iv) the calculations undertaken under paragraphs (d) and (e) and, if relevant, subclause (2)(c); and

- (v) any other information required by the recognised verifier as necessary to provide verification of the unique emissions factor under regulation 19.
- (2) A geothermal participant who wishes claim an adjustment to a unique emissions factor calculated under subclause (1) to account for the reinjection of condensate from the class of geothermal fluid must—
- (a) obtain representative samples of the steam condensate being reinjected—
 - (i) over a period of at least 6 months; and
 - (ii) at not more than 3 monthly intervals; and
 - (iii) in accordance with the following procedures and standards:
 - (A) ASTM E947–83 (Reapproved 2007) – (equipment to be used for the collection of uncontaminated and representative samples of single-phase geothermal fluid and steam); and
 - (B) ASTM E1675 (for Sampling 2–Phase Geothermal Fluid for Purposes of Chemical Analysis); and
 - (b) have the following tests carried out on each of the samples of the steam condensate by a person or laboratory that is accredited according to ISO 17025:2005 by International Accreditation New Zealand or by an overseas accreditation agency recognised under New Zealand’s mutual recognition arrangements to carry out the tests:
 - (i) standard chemistry titration analysis methods (to determine CO₂ content); and
 - (ii) gas chromatography (to determine CH₄ content); and
 - (c) calculate an emissions factor for the reinjected condensate according to the following formula:
$$EF_R = CO_2/t \text{ condensate} + (CH_4/t \text{ condensate} \times 21)$$
where—

EF_R is the emissions factor for the condensate being reinjected expressed as CO₂e/t condensate

CO₂/t condensate is the mean CO₂ emissions factor for the condensate being reinjected as determined by reference to the tests in paragraph (b)(i)

CH₄/t condensate is the mean CH₄ emissions factor for the condensate being reinjected as determined by reference to the tests in paragraph (b)(ii).

- (3) The following rules apply to measurement of steam for the purposes of this regulation:
- (a) measurement of the steam quantity produced must be undertaken with a venture flow or annubar meter (or other equipment with at least the same accuracy); and
 - (b) the sample port where the samples are collected for the purposes of subclauses (1)(a) and (2)(a) must be located—
 - (i) immediately after the separation points; or
 - (ii) if the system has multiple steam transmission lines, at a point where a good mixed sample of the steam can be obtained; and
 - (c) the calculation of steam quantities must be conducted on a continuous basis and should be in accordance with ISO 5167–1:2003.

14 Requirements for applications for unique emissions factors for geothermal fluid use calculated by reference to non-condensable gas concentrations

- (1) A geothermal participant who wishes to apply for approval to use a unique emissions factor in relation to a class of geothermal fluid defined by reference to a matter in regulation 12(b) must—
- (a) obtain representative samples of the 2–phase geothermal fluid for which the unique emissions factor is sought—
 - (i) for a period of at least 6 months; and
 - (ii) at intervals of not more than 3 months; and
 - (iii) in accordance with the procedures and standards in ASTM E1675 (for Sampling 2–Phase Geothermal Fluid for Purposes of Chemical Analysis); and

- (b) have the following tests carried out on each of the samples of the 2-phase geothermal fluid by a person or laboratory that is accredited according to ISO 17025:2005 by International Accreditation New Zealand or by an overseas accreditation agency recognised under New Zealand's mutual recognition arrangements to carry out the tests:

- (i) standard chemistry titration analysis methods (to determine CO₂ content); and
(ii) gas chromatography (to determine CH₄ content);
and

- (c) calculate the emissions factor for the 2-phase fluid according to the following formula:

$$EF_s = CO_2/t \text{ fluid}_s + (CH_4/t \text{ fluid}_s \times 21)$$

where—

EF_s is the emissions factor for the class of 2-phase fluid expressed as CO₂e per tonne of geothermal fluid

CO₂/t fluid_s is the mean CO₂ emissions factor for the samples of the 2-phase geothermal fluid as determined by reference to the tests in paragraph (b)(i)

CH₄/t fluid_s is the mean CH₄ emissions factor for the samples of the 2-phase geothermal fluid as determined by reference to the tests in paragraph (b)(ii); and

- (d) calculate the unique emissions factor for the class of geothermal fluid use according to the following formula:

$$UEF = EF_s - EF_T$$

where—

UEF is the unique emissions factor for the class of geothermal fluid use expressed in tCO₂e/t fluid (tonnes of carbon dioxide equivalent gases per tonne of 2-phase fluid)

EF_s is the emissions factor for the 2-phase fluid relating to the class as calculated in accordance with paragraph (c) expressed as CO₂e per tonne of geothermal fluid

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- EF_T is,—
- (a) if relevant, the emissions factor for reinjected single-phase fluid relating to the class, calculated under subclause (2), and expressed as CO₂e per tonne of geothermal fluid; or
 - (b) zero; and
- (e) submit the following material to a recognised verifier:
- (i) a record of the sampling regime that complies with the standards and procedures referred to in paragraph (a) and, if relevant, subclause (2)(a); and
 - (ii) confirmation that the person or laboratory that carried out the tests in paragraph (b) and, if relevant, subclause (2)(b), carries the certification or accreditation required by those provisions; and
 - (iii) the test results for the tests in paragraph (b) and, if relevant, the test results for the test in subclause (2)(b); and
 - (iv) the calculations undertaken under paragraph (c) and (d), and if relevant subclause (2)(c).
- (2) A geothermal participant who wishes to claim an adjustment to a unique emissions factor calculated under subclause (1) to account for the reinjection of single phase geothermal fluid from the class of geothermal fluid into a geothermal field must—
- (a) obtain representative samples of the single phase geothermal fluid reinjected which results from use of the 2-phase geothermal fluid—
 - (i) for a period of at least 6 months; and
 - (ii) at intervals of not more than 3 months; and
 - (iii) in accordance with the procedures in ASTM E947–83 (Reapproved 2007) (for the equipment to be used for the collection of uncontaminated and representative samples from single-phase geothermal liquid and steam pipelines); and
 - (b) have the following tests carried out on each of the samples of the single phase geothermal fluid by a person or laboratory that is accredited according to ISO 17025:2005 by International Accreditation

New Zealand or by an overseas accreditation agency recognised under New Zealand's mutual recognition arrangements to carry out the test:

- (i) standard chemistry titration analysis methods (for CO₂ content); and
 - (ii) gas chromatography (to determine CH₄ content); and
- (c) calculate an emissions factor for the reinjected single phase geothermal fluid according to the following formula:

$$EF_T = CO_2/t \text{ fluid}_T + (CH_4/t \text{ fluid}_T \times 21)$$

where—

EF_T is the emissions factor for the reinjected single-phase fluid expressed as CO₂e per tonne of geothermal fluid

CO₂/t fluid_T is the mean CO₂ emissions factor for the samples of the single phase geothermal fluid as determined by reference to the tests in paragraph (c)(i)

CH₄/t fluid_T is the mean CH₄ emissions factor for the samples of the single phase geothermal fluid as determined by reference to the tests in paragraph (c)(ii).

*Combusting used or waste oil, used tyres, or
waste*

15 Waste combustion participant may apply for unique emissions factor

- (1) A waste combustion participant may apply to the chief executive for approval to use a unique emissions factor when calculating emissions in relation to a class of used or waste oil, used tyres, or waste in accordance with the Climate Change (Stationary Energy and Industrial Processes) Regulations 2009.
- (2) However, a waste combustion participant may apply for approval to use a unique emissions factor only if the unique emissions factor is lower than the threshold emissions factor for the relevant type of used or waste oil, used tyres, or waste specified in Table 3 of the Schedule.

16 Requirements relating to application for unique emissions factor by waste combustion participant

A waste combustion participant who wishes to apply for approval to use a unique emissions factor in relation to a class of used or waste oil, used tyres, or waste that—

- (a) consists of or contains non-biomass, may calculate a unique emissions factor for that class in accordance with regulation 17 or 18:
- (b) consists of or contains only biomass, must calculate a unique emissions factor for that class in accordance with regulation 18.

17 Requirements for applications for unique emissions factor for waste calculated on mass balance approach

(1) A waste combustion participant who wishes to calculate a unique emissions factor for a class of used or waste oil, used tyres, or waste in accordance with this regulation must—

- (a) obtain a representative sample of the used or waste oil, used tyres, or waste for which the unique emissions factor is sought by collecting samples at no more than monthly intervals, over a period of at least 6 months, in accordance with the procedures in,—
 - (i) for solid fuels, CEN/TS 14778-1:2005 or CEN/TS 15442:2006;
 - (ii) for used or waste oil, ASTM D4057-06, ASTM D4177-95 (2005), or ISO 3170:2004; and
- (b) have the following tests carried out on each of the samples of the fuel by a person or laboratory that is accredited according to ISO 17025:2005 by International Accreditation New Zealand or by an overseas accreditation agency recognised under New Zealand's mutual recognition arrangements to carry out the tests:
 - (i) for solid fuels—
 - (A) CEN/TS 15407:2006 (carbon content); and
 - (B) CEN/TS 15400:2006 (gross calorific value); and

- (C) CEN/TS 15440:2006 or ASTM D6866–8 (determination of content as a percentage) subject to subclause (2):
- (ii) for used or waste oil:
- (A) ASTM D 5291–02 2007 (carbon content); and
- (B) ASTM D240–02 2007 (gross calorific value); and
- (c) calculate the emissions factor for carbon dioxide for the fuel according to the following formula:

$$EFC = (C \times 3.67 \times F)/H$$

where—

EFC is the emissions factor for CO₂ of the class of used or waste oil, used tyres, or waste in tonnes of CO₂ per terajoule

C is the mean carbon content of the fuel samples determined under the tests in paragraph (b)(i)(A) or (b)(ii)(A) and expressed as terajoules per tonne of fuel

F is the mean non-biomass fraction of the fuel determined under the tests in paragraph (b)(i)(C) and expressed as a percentage of the fuel

H is the mean gross calorific value of the fuel samples determined under the tests in paragraph (b)(i)(B) or (b)(ii)(B) and expressed as terajoules per tonne of fuel; and

- (d) calculate the unique emissions factor for the class of waste or used oil, used tyres, or waste, according to the following formula:

$$UEF = EFC + X + Y$$

where—

UEF is the unique emissions factor for the class of used or waste oil, used tyres, or waste expressed in tCO₂e/TJ (tonnes of carbon dioxide equivalent gases per terajoule)

EFC is the emissions factor for CO₂ determined under paragraph (c)

X is 0.03 (the emissions factor for CH₄)

- Y is 0.004 (the emissions factor for N₂O):
- (e) submit the following material to a recognised verifier:
 - (i) a record of the sampling regime that complies with a standard referred to in paragraph (a); and
 - (ii) confirmation that the person or laboratory that carried out the tests in paragraph (b) carries the certification or accreditation required by that paragraph; and
 - (iii) the test results for the tests in paragraph (b); and
 - (iv) the calculations undertaken under paragraphs (c) and (d); and
 - (v) any other information required by the recognised verifier as necessary to provide verification of the unique emissions factor under regulation 19.
 - (2) In subclause (1)(b)(i)(C), selective dissolution under CEN/TS 15440:2006 is not to be used if—
 - (a) the sampled fuel contains more than 10% of rubber residues (whether natural, synthetic, or a combination of both); or
 - (b) the sampled fuel contains a combination of more than 5% by weight of nylon, polyurethane or other polymers containing molecular amino groups, or biodegradable plastics of fossil fuel origin; or
 - (c) the sampled fuel contains a combination of more than 5% by weight of wool or viscose, or non biodegradable plastic of biogenic origin, or oil or fat present as a constituent of biomass.

18 Requirements for applications for unique emissions factor for waste calculated on continuous equipment monitoring approach

- (1) A waste combustion participant who wishes to calculate a unique emissions factor for a class of used or waste oil, used tyres, or waste in accordance with this regulation must—
 - (a) obtain a representative sample of the class of used or waste oil, used tyres, or waste for which the unique emissions factor is sought by collecting samples at no more than monthly intervals, over a period of at least 6 months, in accordance with the procedures in,—

- (i) for solid fuels, CEN/TS 14778–1:2005 or CEN/TS 15442:2006;
- (ii) for used or waste oil, ASTM D4057–06, ASTM D4177–95(2005), or ISO 3170:2004; and
- (b) have the following tests carried out on each of the samples of the fuel by a person or laboratory that is accredited according to ISO 17025:2005 by International Accreditation New Zealand or by an overseas accreditation agency recognised under New Zealand’s mutual recognition arrangements to carry out the tests:
 - (i) for solid fuels, CEN/TS 15400:2006 (gross calorific value); or
 - (ii) for used or waste oil, ASTM D240–02 (2007) (gross calorific value); and
- (c) measure the volumetric flow rate for the stacks from which gases resulting from combustion of the class of fuel are emitted in accordance with the procedures in ISO 10780:1994 or ISO 14164:1999; and
- (d) have tests to measure CO₂, CH₄, and N₂O concentrations in the gas stream from the stacks carried out in accordance with one of the following standards by a person or laboratory that is accredited according to ISO 17025:2005 by International Accreditation New Zealand or by an overseas accreditation agency recognised under New Zealand’s mutual recognition arrangements to carry out the tests:
 - (i) ISO 12039:2001;
 - (ii) USEPA – Method 3A – 2006;
 - (iii) USEPA – Method 3C – 1996; and
- (e) calculate the rate of emissions of CO₂, CH₄, and of N₂O from the stacks according to the following formula:

$$mr_{\text{gas type}} = (mw_{\text{gas type}} \times P \times F \times C) / (8.314 \times T)$$

where—

$mr_{\text{gas type}}$ is the rate of each of CO₂, CH₄, and N₂O emitted in tonnes of gas type released per second

$mw_{\text{gas type}}$ is the molecular mass of CO₂, CH₄, or N₂O, as the case may be, in tonnes per kilomole, where—

- (a) CO₂ and N₂O values are 0.044; and
- (b) CH₄ value is 0.016

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- P is the pressure of the gas stream in kilopascals at the time of measurement of the gas concentrations in the stacks
- F is the flow rate of the gas stream in cubic metres per second, at the time of measurement of the gas concentrations in the stacks
- C is the proportionate amount or concentration of CO₂, CH₄, or N₂O, as the case may be, in the gas stream (either in volume GHG/total volume or mass GHG/total mass units, but not in volume/mass or mass/volume) at the time of measurement of the gas concentrations in the stacks, and
- T is the temperature, in degrees Kelvin, of the gas at the time of measurement of the gas concentrations in the stacks; and
- (f) calculate the unique emissions factor for the class of waste or used oil, used tyres, or waste, according to the following formula:

$$\text{UEF} = \frac{((\text{mr}_{\text{CO}_2} \times \text{t})/\text{TJ}) + ((\text{mr}_{\text{CH}_4} \times \text{t})/(\text{TJ} \times 21)) + ((\text{mr}_{\text{N}_2\text{O}} \times \text{t})/(\text{TJ} \times 310))}{\text{H}}$$

where—

UEF is the unique emissions factor for the class of used or waste oil or used tyres expressed in tCO₂e/TJ (tonnes of carbon dioxide equivalent gases per terajoule)

mr_{CO₂} is—

- (a) the rate of CO₂ emitted in tonnes released per second as calculated in paragraph (e); or
- (b) zero, if the fuel consists of or contains only biomass

mr_{CH₄} is the rate of CH₄ emitted in tonnes released per second as calculated in paragraph (e)

mr_{N₂O} is the rate of N₂O emitted in tonnes released per second as calculated in paragraph (e)

-
- t is 31,536,000 (the time interval of measurement in seconds)
- H is the mean gross calorific value of the fuel samples determined under the tests in paragraph (b)(i) or (ii) and expressed as terajoules per tonne of fuel; and
- (g) submit the following material to a recognised verifier:
- (i) a record of the sampling regime that complies with the standard in paragraph (a); and
 - (ii) a record of the measurement regime that complies with the procedures in paragraph (c); and
 - (iii) confirmation that the person or laboratory that carried out the tests in paragraphs (b) and (d) carries the certification or accreditation required by that paragraph; and
 - (iv) the calculations undertaken under paragraphs (e) and (f); and
 - (v) any other information required by the recognised verifier as necessary to provide verification of the unique emissions factor for the purposes of regulation 19.
- (2) For the purposes of the tests in subclause (1)(c) and (d),—
- (a) the relevant monitoring equipment must operate for more than 90% of the time period over which emissions are monitored, (excluding any period during which the equipment is not in operation because it is being calibrated); and
 - (b) if part of the monitoring equipment is not operating for a period, readings taken during periods when the equipment was operating may be used to estimate data on a pro rata basis for the period that the equipment was not operating; and
 - (c) measurements for CO₂, CH₄, and N₂O must be made at least every 30 minutes during operation of the monitoring equipment; and
 - (d) the calibration gases used in characterisation of the monitoring equipment must be certified, by a person or laboratory accredited to ISO 34:2000 by International Accreditation New Zealand or by an overseas accredi-

ation agency recognised under New Zealand's mutual recognition arrangements, as being within 2% of the concentration specified on the cylinder label.

Verification

19 Verification

- (1) A recognised verifier may verify a unique emissions factor for an activity if the verifier—
 - (a) has been recognised under these regulations as able to verify unique emissions factors for the activity and the recognition has not expired, or been surrendered, suspended, or revoked; and
 - (b) is satisfied that—
 - (i) any samples collected by the participant and tested for the purposes of the relevant regulation meet the standard for sampling required by the regulation; and
 - (ii) any samples have been tested by a person with the prescribed certification or accreditation to carry out the prescribed tests; and
 - (c) is satisfied that any measurements or other tests required to be carried out by the participant for the purposes of a regulation have been carried out in accordance with the requirements of the regulation; and
 - (d) has conducted the verifier's own calculations using the test or measurement results provided by the participant and is satisfied that the unique emissions factor has been calculated correctly in accordance with the prescribed methodology.
- (2) Despite anything in these regulations, a recognised verifier may not verify a unique emissions factor for the purposes of an application for approval of a unique emissions factor by a participant if the verifier—
 - (a) was involved in any way with the taking or testing of any samples, or the taking of any measurements, that support the application; or
 - (b) is an employee of, or contractor to, the applicant or any person involved in the taking or testing of any samples

- or the taking of any measurements that support the application; or
- (c) has any other relationship with any of the following persons that can reasonably be regarded as likely to influence him or her in carrying out his or her responsibilities under these regulations with impartiality:
 - (i) the applicant or any associated person of the applicant;
 - (ii) any person involved in the taking or testing of any samples or the taking of any measurements;or
 - (d) has any other conflict of interest with respect to the verification function.

Part 3

Recognition of verifiers

20 Applications for recognition

- (1) An application for recognition as a verifier in relation to any activity must—
 - (a) be made to the chief executive on the form prescribed for the purpose by the chief executive; and
 - (b) be accompanied by any supporting information that the chief executive may require.
- (2) For the purpose of assessing the application, the chief executive may require an applicant to supply information additional to that contained in the application.
- (3) If the applicant fails to supply the information within 3 months after the request, or within such further time as the chief executive may allow, the application lapses.

21 Chief executive may recognise individuals as verifiers

- (1) The chief executive may, on the application of an individual who meets the requirements in subclause (2), recognise the individual as a person who can verify unique emissions factors for 1 or more of the activities referred to in regulation 22.
- (2) An applicant must—
 - (a) be—

- (i) a chartered accountant (within the meaning of section 19 of the Institute of Chartered Accountants of New Zealand Act 1996); or
 - (ii) a chartered professional engineer (within the meaning of section 6 of the Chartered Professional Engineers of New Zealand Act 2002); and
 - (b) have at least 5 years' full-time work experience as an accountant or engineer, obtained since becoming a chartered accountant or chartered professional engineer.
- (3) In carrying out the verification functions for which he or she is recognised, a recognised verifier must—
- (a) perform verification functions only in relation to the activities in respect of which he or she is recognised;
 - (b) comply with the relevant requirements of these regulations;
 - (c) maintain an appropriate degree of impartiality and independence in carrying out his or her verification functions.

22 Activities in respect of which recognition can be given

The activities for which the chief executive may recognise an individual to verify unique emissions factors are 1 or more of the following:

- (a) the activities relating to owning obligation fuel (Part 2 of Schedule 3 of the Act) and purchasing obligation jet fuel (Part 3 of Schedule 4 of the Act);
- (b) the activities relating to importing coal (Part 3 of Schedule 3 of the Act), mining coal (Part 3 of Schedule 3 of the Act), and purchasing coal (Part 4 of Schedule 4 of the Act);
- (c) the activity relating to using geothermal fluid (Part 3 of Schedule 3 of the Act);
- (d) the activity relating to combusting used oil, waste oil, used tyres, or waste (Part 3 of Schedule 3 of the Act).

23 Grant of recognition

- (1) Where the chief executive grants an application by an individual for recognition to verify unique emissions factors, the

- chief executive must supply to the applicant a notice of recognition that specifies—
- (a) the activities for which the applicant may verify unique emissions factors; and
 - (b) any conditions applying to the recognition; and
 - (c) whether the duration of the recognition is indefinite or for a stated period.
- (2) A grant of recognition—
- (a) comes into force on the date specified in the notice of recognition; and
 - (b) continues in force until—
 - (i) it is surrendered under regulation 27; or
 - (ii) it is suspended under regulation 25 or revoked under regulation 26; or
 - (iii) in the case of recognition granted for a stated period, the expiry of the period.
- (3) If the chief executive proposes to refuse to grant recognition for the activities applied for, the chief executive must first give the applicant—
- (a) a notice containing the particulars that will clearly inform the applicant of the substance of the grounds on which the chief executive proposes to refuse to recognise the applicant; and
 - (b) a copy (or adequate summary) of any information on which the chief executive relies in proposing to refuse to grant recognition; and
 - (c) a reasonable opportunity to make written submissions or be heard in respect of the matter.
- (4) If the chief executive subsequently decides to refuse to grant recognition, the chief executive must, as soon as practicable, give the applicant written notice of his or her decision and the reasons for the decision.

24 Conditions of recognition

- (1) A recognition under regulation 21 may be subject to any conditions that the chief executive thinks fit to specify in the notice of recognition.
- (2) A recognised verifier must notify the chief executive if for any reason the verifier breaches the conditions of recognition.

- (3) The chief executive may at any time, by written notice to a recognised verifier, revoke, amend, or add to any conditions imposed under subclause (1).
- (4) The chief executive may not vary any condition of recognition imposed under this regulation without (to the extent practicable) first giving the organisation or person concerned a reasonable opportunity to make written submissions to, or be heard by, the chief executive in relation to the matter.
- (5) However, subclause (4) does not apply where any variation to the conditions of recognition is made on the application of the recognised organisation or person concerned and in accordance with the terms of the application.

25 Suspension of recognition

- (1) The chief executive may, by notice in writing to a recognised verifier, suspend the verifier's recognition for a period not exceeding 3 months if the chief executive has reasonable grounds to believe that the performance of the verifier is unsatisfactory having regard to the requirements of these regulations.
- (2) The chief executive may impose conditions or requirements that must be satisfied if the suspension is to be lifted.
- (3) If the chief executive considers that conditions or requirements have not been satisfied within the suspension period, the chief executive may, by notice in writing, extend the suspension for a further period not exceeding 3 months.
- (4) If the chief executive suspends recognition or extends a period of suspension, the notice of suspension or extension must specify—
 - (a) the reason for the suspension or extension; and
 - (b) the period of the suspension or extension; and
 - (c) the date and time the suspension or extension commences; and
 - (d) the functions and activities that the suspension or extension relates to; and
 - (e) any conditions or requirements to be met before or during the suspension.

26 Revocation of recognition

- (1) The chief executive may at any time, by notice in writing to a recognised verifier, revoke the verifier's recognition if satisfied that—
 - (a) the verifier is not, or is no longer, competent or able to undertake the functions or activities for which the recognition was granted; or
 - (b) the verifier has failed to comply with any conditions of the recognition; or
 - (c) the verifier has contravened, or failed to comply with, any requirement of these regulations in any particular that in the opinion of the chief executive casts doubt on the verifier's competency to undertake the functions or activities for which the recognition was granted.
- (2) The chief executive may not revoke recognition unless he or she has first given the verifier a reasonable opportunity to be heard.
- (3) If recognition is revoked by the chief executive, the verifier whose recognition is revoked must, as soon as practicable,—
 - (a) surrender to the chief executive their notice of recognition; and
 - (b) take all reasonable steps to notify the fact of the revocation of recognition to each person who was a client of the verifier (in the verifier's capacity as a recognised verifier) immediately before the revocation.

27 Surrender of recognition

- (1) A recognised verifier may at any time surrender his or her recognition by notice in writing to the chief executive.
- (2) A surrender takes effect on—
 - (a) the expiry of 3 months after the date of receipt of the notice by the chief executive; or
 - (b) any earlier date that the chief executive may approve.
- (3) On or before the surrender takes effect, the recognised verifier must return his or her notice of recognition to the chief executive.

28 Substituted notice of recognition

The chief executive may, if he or she thinks fit, cancel a notice of recognition, and issue a new notice in substitution for it,—

- (a) if the terms or conditions of the recognition are to be or have been varied under regulation 24; or
- (b) if the existing notice has become disfigured or dilapidated, or contains a mistake; or
- (c) if the chief executive is satisfied that the notice has been lost or destroyed.

29 List of recognised individuals

- (1) The chief executive must keep a list of individuals who have been recognised as verifiers.
 - (2) The list must—
 - (a) contain—
 - (i) the names of recognised individuals; and
 - (ii) the activities for which the recognised individual is authorised to undertake verification functions under these regulations; and
 - (b) be available on—
 - (i) the Internet site of the chief executive; and
 - (ii) on request from the office of the chief executive at no cost.
 - (3) The chief executive must note next to an individual's name if his or her recognition has been suspended, and must remove the name immediately if the recognition expires or is revoked.
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Schedule

rr 6(9), 8(d), 9(2), 10(d),
15(2)

**Emissions factors for CH₄ and N₂O
for obligation fuel participants, and
thresholds for unique emissions
factors for coal participants and waste
combustion participants**

Table 1
Emissions factors for CH₄ and N₂O for
obligation fuel participants

Types of obligation fuel	Emissions factor for CH₄ in tCO₂e/kl	Emissions factor for N₂O in tCO₂e/kl
Regular petrol, as defined in regulation 4(1)(a) Climate Change (Liquid Fossil Fuels) Regulations 2008	0.014	0.015
Premium petrol, as defined in regulation 4(1)(b) Climate Change (Liquid Fossil Fuels) Regulations 2008	0.014	0.016
Automotive and marine diesel, as defined in regulation 4(1)(c) and (d) Climate Change (Liquid Fossil Fuels) Regulations 2008	0.003	0.044
Aviation spirit, as defined in regulation 4(1)(e) Climate Change (Liquid Fossil Fuels) Regulations 2008	0.001	0.020
Jet fuel, as defined in regulation 4(1)(f) Climate Change (Liquid Fossil Fuels) Regulations 2008	0.001	0.022
Light fuel oil, as defined in regulation 4(1)(g) Climate Change (Liquid Fossil Fuels) Regulations 2008	0.006	0.024
Heavy fuel oil, as defined in regulation 4(1)(h) Climate Change (Liquid Fossil Fuels) Regulations 2008	0.006	0.024

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Table 2
Unique emissions factor thresholds for coal

Emissions source category	Class	Emissions factor tCO₂e/GJ
Coal	Lignite – all other mines, or peat	0.0941
	Lignite – Waimumu or Roxburgh mines	0.0908
	Sub-bituminous	0.0904
	Bituminous, including anthracite	0.0871

Table 3
Unique emissions factor thresholds for
combusting used oil, waste oil, used tyres,
or waste

Emissions source category	Unique emissions factor t CO₂e/TJ
Used or waste oil consisting of or containing non-biomass	69.43
Biomass sourced used or waste oil	0.83*
Used tyres	105.83
Municipal waste – biomass	0.83*
Municipal waste consisting of or containing non-biomass	70.43
Solid biofuels – wood and wood waste	0.83*
Solid biofuels – sulphate lyes	0.52*
Solid biofuels – charcoal	2.09*
Solid biofuels – other than wood, wood waste, sulphate lyes or charcoal	0.83* (*excludes CO ₂)

Clerk of the Executive Council.

**Climate Change (Unique Emissions
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Explanatory note

This note is not part of the regulations, but is intended to indicate their general effect.

These regulations, which come into force on 1 January 2010,—

- provide for the activities for which applications for a unique emissions factor may be made:
- provide the process by which a participant may apply for approval to use a unique emissions factor:
- prescribe the information that must be collected to support an application for use of a unique emissions factor:
- provide for certain persons to be recognised verifiers for the purpose of verifying unique emissions factors.

Issued under the authority of the Acts and Regulations Publication Act 1989.

Date of notification in *Gazette*:

These regulations are administered by the Ministry for the Environment.
