



Climate Change (Unique Emissions Factors) Amendment Regulations 2010

Anand Satyanand, Governor-General

Order in Council

At Wellington this 23rd day of September 2010

Present:

His Excellency the Governor-General 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 (having had regard to the matter specified in section 163(5) of that Act), makes the following regulations.

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Regulations

- 1 Title**
These regulations are the Climate Change (Unique Emissions Factors) Amendment Regulations 2010.
- 2 Commencement**
These regulations come into force on 1 January 2011.
- 3 Principal regulations amended**
These regulations amend the Climate Change (Unique Emissions Factors) Regulations 2009.
- 4 Interpretation**
 - (1) Regulation 3(1) is amended by inserting the following definitions in their appropriate alphabetical order:

“**IPCC waste model** means the waste model described in chapter 3, volume 5 (Waste) of the *2006 IPCC Guidelines for National Greenhouse Gas Inventories*, published by the Intergovernmental Panel on Climate Change

“**LFG** means landfill gas

“**SWAP** means the *Solid Waste Analysis Protocol* published by the Ministry for the Environment in March 2002

“**waste participant** means a person who is a participant under section 54(1)(a) of the Act in respect of the activity listed in Part 6 of Schedule 3 of the Act of operating a disposal facility”.

(2) The definition of **fuel** in regulation 3(1) is amended by adding “if the waste is combusted for the purpose of generating electricity or industrial heat”.

(3) The definition of **representative** in regulation 3(1) is revoked and the following definition substituted:

“**representative**, in relation to samples of a fuel or LFG or to measurements or calculations, means taken or made at a sufficient frequency and duration to produce data that may be reliably extrapolated to provide estimates of, as relevant,—

“(a) the properties of a class of fuel or LFG:

“(b) emissions across the full range of operating conditions:

“(c) for waste disposed of at a disposal facility, the composition of the waste”.

5 Application for approval to use unique emissions factor

(1) Regulation 4(2)(b)(ii) is amended by omitting “; and” and substituting “; or”.

(2) Regulation 4(2)(b) is amended by adding the following subparagraph:

“(iii) if the unique emissions factor relates to waste disposed of at a waste disposal facility, the class of waste in respect of which the person applies for approval to use a unique emissions factor; and”.

(3) Regulation 4(2)(d)(ii) is amended by omitting “or gas” and substituting “, gas, or waste”.

6 Chief executive may approve use of unique emissions factor

- (1) Regulation 5(1) is amended by revoking paragraph (b) and substituting the following paragraph:

“(b) the criteria in—

“(i) regulation 6 are met, if the application relates to a class or category of fuel:

“(ii) regulation 6A are met, if the application relates to a class of waste disposed of at a disposal facility; and”.

- (2) Regulation 5(2) is amended by revoking paragraph (a) and substituting the following paragraph:

“(a) may be used by the participant to calculate emissions only in relation to—

“(i) fuel within the class (or in the case of fugitive coal seam gas, coal within the category), if the approval relates to a class or category of fuel:

“(ii) waste within the class, if the approval relates to a class of waste disposed of at a disposal facility; and”.

7 New regulation 6A inserted

The following regulation is inserted after regulation 6:

“6A Criteria for class of waste disposed of at disposal facility for which unique emissions factor may be used

A class of waste disposed of at a disposal facility for which the chief executive may approve the use of a unique emissions factor—

“(a) may relate to all waste disposed of at the facility; or

“(b) if it is calculated in accordance with regulation 23B or 23D, may relate to—

“(i) waste from a particular source or sources that is disposed of at the facility; or

“(ii) all other waste disposed of at the facility that is not covered by a class referred to in subparagraph (i).”

8 New heading and regulations 23A to 23D inserted

The following heading and regulations are inserted after regulation 23:

“Operating disposal facility

“23A Waste participant may apply for approval to use unique emissions factor

- “(1) A waste participant may apply to the chief executive for approval to use a unique emissions factor when calculating emissions in relation to a class of waste disposed of at a disposal facility in accordance with the Climate Change (Waste) Regulations 2010.
- “(2) A waste participant may calculate a unique emissions factor for a class of waste disposed of at a disposal facility—
- “(a) in accordance with regulation 23B (which relates to waste composition); or
 - “(b) if the disposal facility has an LFG collection and destruction system, in accordance with—
 - “(i) regulation 23C (which relates to the use of an LFG collection and destruction system); or
 - “(ii) regulation 23D (which relates to waste composition and the use of an LFG collection and destruction system).
- “(3) However, the chief executive may not approve the use of a unique emissions factor calculated in accordance with regulation 23B or 23D in relation to a class of waste unless—
- “(a) all waste disposed of at the facility is waste of that class; or
 - “(b) the participant either—
 - “(i) already has approval to use 1 or more unique emissions factors that—
 - “(A) were calculated under the same regulation; and
 - “(B) relate to classes of waste that, together with the class of waste for which approval is sought to use an emissions factor, cover all waste disposed of at the facility; or
 - “(ii) at the same time as applying for approval to use the unique emissions factor in relation to the class

of waste, applies for approval to use 1 or more other unique emissions factors that—

“(A) are calculated under the same regulation; and

“(B) relate to classes of waste that, together with the class of waste for which approval is sought to use an emissions factor, cover all waste disposed of at the facility.

“23B Requirements relating to application for unique emissions factor relating to waste composition

A waste participant who wishes to calculate a unique emissions factor that relates to the composition of a class of waste disposed of at a disposal facility must—

“(a) obtain representative data in relation to the composition of the class of waste disposed of at the facility in a year by carrying out at least 2 surveys of 1 or more weeks’ duration of the class of waste—

“(i) as it enters the facility; and

“(ii) over a period of 12 months; and

“(iii) at intervals of at least 3 months; and

“(iv) in accordance with Procedure 2 in section 5 of the SWAP; and

“(b) record the fractions by weight of each of the following components of the samples of the class of waste taken during each survey period:

“(i) garden waste:

“(ii) nappy and sanitary waste:

“(iii) all putrescible waste other than garden waste:

“(iv) paper waste:

“(v) sewage sludge:

“(vi) timber waste:

“(vii) textile waste:

“(viii) other waste (including plastics, ferrous metals, non-ferrous metals, glass, rubber, rubble, concrete, and potentially hazardous waste); and

“(c) calculate a unique emissions factor for the class of waste in accordance with the following formula:

$$\text{UEF} = (1.26 \times \text{GW}) + (1.512 \times \text{NSW}) + (0.945 \times \text{OPW}) + (2.52 \times \text{PW}) + (0.315 \times \text{SSW}) + (2.709 \times \text{TMW}) + (1.512 \times \text{TXW})$$

where—

GW is the weighted average fraction of garden waste in the class of waste determined by reference to the results of the surveys

NSW is the weighted average fraction of nappy and sanitary waste in the class of waste determined by reference to the results of the surveys

OPW is the weighted average fraction of putrescible waste other than garden waste in the class of waste determined by reference to the results of the surveys

PW is the weighted average fraction of paper waste in the class of waste determined by reference to the results of the surveys

SSW is the weighted average fraction of sewage sludge in the class of waste determined by reference to the results of the surveys

TMW is the weighted average fraction of timber waste in the class of waste determined by reference to the results of the surveys

TXW is the weighted average fraction of textile waste in the class of waste determined by reference to the results of the surveys

UEF is the unique emissions factor for the class of waste; and

- “(d) submit the following material to a recognised verifier:
- “(i) a record of the surveys undertaken to comply with paragraph (a), including the survey plan for each survey; and
 - “(ii) the results of the surveys referred to in paragraph (b); and
 - “(iii) the calculation done under paragraph (c); and
 - “(iv) any other information required by the recognised verifier as necessary to provide verification of the unique emissions factor under regulation 24.

“23C Requirements relating to application for unique emissions factor approval in relation to LFG collection and destruction system

- “(1) A waste participant who wishes to calculate a unique emissions factor that relates to the use of an LFG collection and destruction system at a disposal facility must,—
- “(a) using monitoring equipment over the period of 1 year, carry out representative measurements of the volumetric flow rate (in cubic metres per hour) of the LFG collected and conveyed to the destruction equipment; and
 - “(b) obtain representative samples of the LFG collected and conveyed to the destruction equipment over the period of 1 year; and
 - “(c) have tests carried out to measure the CH₄ concentration by volume in each of the samples taken under paragraph (b); and
 - “(d) using the data collected under paragraphs (a) and (b) and the results of the tests done under paragraph (c), calculate the tonnes of CH₄ conveyed to the destruction equipment in the year; and
 - “(e) estimate the gross amount of CH₄ in tonnes that the disposal facility is expected to generate in the year in accordance with subclause (2); and
 - “(f) calculate the estimated efficiency of the LFG collection and destruction system over the year in accordance with the following formula:

$$C = D \times \frac{Q}{G}$$

where—

- C is the estimated efficiency of the LFG collection and destruction system
- D is the destruction factor for the type of destruction equipment in use at the facility as documented in the manufacturer’s specifications for the equipment or, if such information is not available, the destruction factor in Schedule 2

- G is the estimated gross generation of CH₄ for the year in tonnes calculated in accordance with subclause (2)
- Q is the tonnes of CH₄ conveyed to the destruction equipment in the year as determined in accordance with paragraph (d); and
- “(g) calculate a unique emissions factor for the facility in accordance with the following formula:
- $$\text{UEF} = 1.10 \times (1 - C)$$
- where—
- C is the lesser of—
- (i) 0.9; and
 - (ii) the figure for the estimated efficiency of the LFG collection and destruction system determined under paragraph (f)
- UEF is the unique emissions factor for the facility; and
- “(h) submit the following material to a recognised verifier:
- “(i) a record of the measurement, sampling, and testing regime that complies with paragraphs (a) to (c); and
 - “(ii) the calculations done under paragraphs (d), (f), and (g) and subclause (2); and
 - “(iii) any other information required by the recognised verifier as necessary to provide verification of the unique emissions factor under regulation 24.
- “(2) The estimated gross methane generation for the disposal facility for a year must be calculated in accordance with either the IPCC waste model or another equivalent first-order decay model and in accordance with the following rules:
- “(a) modelling must start from the date the facility started accepting waste for disposal; and
 - “(b) if actual data in relation to waste composition and tonnage is not available in relation to any year and the participant—
 - “(i) has historical data available for waste composition and tonnage, the participant must interpolate data for the year from the historical data if—

- “(A) the historical data covers all waste disposed of at the facility during the year in which the data was collected; and
 - “(B) there has been no material change in the composition of the waste since the year the data was collected; and
 - “(C) the data was collected in accordance with, or substantially in accordance with, the same method as data is collected for the year in respect of which the estimated gross methane generation is being calculated:
- “(ii) does not have historical data available that meets the criteria in subparagraph (i), the participant must—
- “(A) use the default figures for waste composition from the second column in Schedule 3 for the year; and
 - “(B) base tonnage for the year on the average filling rate over the life of the disposal facility up to the first year in which weighbridge data is available; and
- “(c) a split of 50:50 by weight between garden and other putrescible waste must be assumed when inputting historical or interpolated data; and
- “(d) the estimated time for anaerobic generation to commence at the disposal facility is 6 months; and
- “(e) the following inputs must be used to the extent relevant when applying the model:

Parameter	Input
Methane correction factor	1
Fraction of degradable organic carbon (DOC) that degrades to methane	0.5
Fraction of LFG by volume that is methane	0.5
Oxidation factor	10%
Density of methane at normal temperature and pressure	0.668 kg per cubic metre

Parameter	Input
Equivalent methane generation potential	As per the third or fourth column of Schedule 3
Decay rate constant	As per the fifth column of Schedule 3

“(3) For the purposes of the measurement in subclause (1)(a), measurements must be undertaken using devices that are regularly maintained and calibrated in accordance with the manufacturer’s specifications.

“23D Requirements relating to application for unique emissions factor approval in relation to waste composition and LFG collection and destruction system

A waste participant who wishes to calculate a unique emissions factor for a class of waste disposed of at a disposal facility that relates to waste composition and the use of an LFG collection and destruction system must—

- “(a) follow the procedure in regulation 23B and calculate a unique emissions factor for waste composition in relation to the class of waste; and
- “(b) determine the estimated efficiency of the LFG collection and destruction system for the facility by following the procedure in regulation 23C(1)(a) to (f); and
- “(c) calculate a unique emissions factor for the class of waste in accordance with the following formula:

$$UEF = UEF_{wc} \times (1 - C)$$

where—

C is the lesser of—

- (i) 0.9; and
- (ii) the figure for the efficiency of the LFG collection and destruction system for the facility determined in accordance with paragraph (b)

UEF is the unique emissions factor for the class of waste

UEF_{wc} is the unique emissions factor relating to waste composition for the class of waste determined in accordance with paragraph (a); and

- “(d) submit the following material to a recognised verifier:
- “(i) the information referred to in regulation 23B(d)(i) to (iii) in relation to the waste composition factor for the unique emissions factor; and
 - “(ii) a record of the measurement, sampling, and testing regime that complies with regulation 23C(1)(a) to (c) in relation to the LFG collection and destruction system component of the unique emissions factor; and
 - “(iii) the calculations done under—
 - “(A) regulation 23C(1)(d) and (f) and (2); and
 - “(B) paragraph (c); and
 - “(iv) any other information required by the recognised verifier as necessary to provide verification of the unique emissions factor under regulation 24.”

9 Activities in respect of which recognition can be given

Regulation 27 is amended by adding the following paragraph:

- “(f) the activity relating to operating a disposal facility (Part 6 of Schedule 3 of the Act).”

10 New Schedules 2 and 3 added

The schedules set out in the Schedule of these regulations are added as Schedules 2 and 3.

Schedule

r 10

New Schedules 2 and 3 added

Schedule 2

r 23C

Destruction factors

Destruction equipment	Destruction factor
Open flare	0.5
Enclosed flare	0.9
Internal combustion engines, gas turbines, and boilers	0.9

Schedule 3

r 23C

First-order decay model parameters

Waste stream component	Default waste composition data (SWAP)	IPCC DOC	Equivalent methane generation potential Lo (m³ CH₄/tonne)	Decay rate constant k
Food	0.0%	0.15	75	0.185
Garden	23.3%	0.20	100	0.100
Paper	14.9%	0.40	200	0.060
Wood	13.9%	0.43	215	0.030
Textile	3.9%	0.24	120	0.060
Nappies	2.7%	0.24	120	0.100
Sewage sludge	0.0%	0.05	25	0.185
Other	41.3%	0.00	0	0.000

Rebecca Kitteridge,
Clerk of the Executive Council.

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 2011, amend the Climate Change (Unique Emissions Factors) Regulations 2009. The amendments extend the scope of those regulations to the activity of operating a disposal facility.

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

Date of notification in *Gazette*: 24 September 2010.

These regulations are administered by the Ministry for the Environment.