

SCHEDULE 3

Regulations 47 and 49

Greenhouse gas criteria

1. Solid biomass, biogas or biomethane meets the greenhouse gas criteria if the lifecycle greenhouse gas emissions associated with each consignment of that solid biomass, biogas or biomethane are less than or equal to 34.8g of CO₂ eq per MJ of heat generated (in the case of solid biomass or biogas) or biomethane injected.

2. Lifecycle greenhouse gas emissions are to be calculated as follows—

(a) where heat and power are generated from solid biomass or biogas, the following formula must be used—

$$\frac{E}{\eta_h \left(\frac{C_h \times \eta_h}{\eta_{el} + C_h \times \eta_h} \right)}$$

(b) where heat (and not heat and power) is generated from solid biomass or biogas, the following formula must be used—

$$\frac{E}{\eta_h}$$

(c) where biomethane is produced from biogas, lifecycle greenhouse gas emissions must be E.

3. For the purposes of paragraph 2—

(a) η_h is the efficiency of the plant in which the heat is generated, calculated as $\frac{H}{F}$ where—

(i) H is the heat produced by the plant in the form of liquid or steam from all fuels used in that plant; and

(ii) F is the energy content of all those fuels;

(b) η_{el} is the efficiency of the plant in which electricity is generated, calculated as $\frac{A}{F}$ where—

(i) A is the total amount of electricity generated by the plant from all the fuels used by that plant; and

(ii) F is the energy content of all those fuels;

(c) C_h is equal to—

(i) where the temperature (T) is less than 423 kelvin, 0.3546; and

(ii) $\frac{T - 273}{T}$, where T is the temperature measured in kelvin of the heat produced by the plant in the form of liquid or steam;

(d) E is the greenhouse gas emissions expressed in grammes of CO₂ eq per MJ of heat produced, from the production of the biomass, biogas or biomethane and calculated—

(i) using the actual value method in the case of participants producing biomethane for injection or using heat for a process in an accredited RHI installation with an installation capacity of 1MWth or above; or

(ii) in all other cases, using the actual value method or the default value method.

4. In this Schedule—

“actual value method” means the method set out in Part C of Annex 5 of [Directive 2009/28/EC](#) of the European Parliament and of the Council on the promotion of the use of energy from renewable sources and amending and subsequently repealing Directives [2001/77/EC](#) and [2003/30/EC](#)⁽¹⁾ but with the following modifications to that Part—

- (a) in paragraph 1—
 - (i) for “and use of transport fuels, biofuels and bioliquids” substitute “of solid biomass, biogas or biomethane”;
 - (ii) for “E=total emissions from the use of the fuel” substitute “E=greenhouse gas emissions from the production of the solid biomass, biogas or biomethane”; and
 - (iii) for “ e_u =emissions from the fuel in use” substitute “ e_u =zero”;
- (b) in paragraph 2, for “fuels” and “fuel” substitute “solid biomass, biogas or biomethane”;
- (c) omit paragraphs 3 and 4;
- (d) in paragraph 7—
 - (i) for each reference to “biofuel” substitute “solid biomass, biogas or biomethane”; and
 - (ii) omit the words “or bioliquid” in each place in which they occur;
- (e) in paragraph 11—
 - (i) at the end of the first sentence add “and in the case of biomethane shall include emissions from processing biogas into biomethane”;
 - (ii) for “fuel” substitute “solid biomass, biogas or biomethane”;
- (f) in paragraph 12, after “storage and distribution of finished materials” insert “, except in the case of biomethane”;
- (g) omit paragraph 13;
- (h) in paragraph 14, for “fuel” substitute “solid biomass, biogas or biomethane”;
- (i) in paragraph 16, for each reference to “fuel” substitute “solid biomass or biogas”;
- (j) in paragraph 17, for each reference to “fuel” substitute “solid biomass or biogas”;
- (k) in paragraph 18—
 - (i) for “fuel” and “fuels” substitute “solid biomass or biogas”;
 - (ii) omit the words “In the case of biofuels and bioliquids,”;
 - (iii) before “and residues from processing” insert “residues from forestry, arboriculture, aquaculture and fisheries”;
- (l) for paragraph 19 substitute—

“**19.** Where material is added to the solid biomass to act as a binding agent or to reduce the emissions of dust, carbon dioxide, methane or nitrous oxide from the use of the biomass, the material so added shall be considered to have zero greenhouse gas emissions provided that the material so added does not exceed 2% by weight of the solid biomass.”;

“default value method” means the use of the figures set out in the second column of the following table headed “Default values for solid biomass and biogas” to represent ‘E’ in relation to the corresponding type of fuel set out in the first column of that table;

(1) OJ L 140 5.6.2009, p16.

“energy content” means the energy contained within a substance (whether measured by a calorimeter or determined in some other way) expressed in terms of the substance’s net calorific value within the meaning of BS 7420:1991 (Guide for the determination of calorific values of solid, liquid and gaseous fuels (including definitions))(2).

Default values for solid biomass or biogas

<i>Primary solid biomass or biogas</i>	<i>Default value for greenhouse gas emissions (in grams of CO₂ eq per MJ of heat produced)</i>
Wood chips from forest residues (European temperate continental forest)	1
Wood chips from forest residues (tropical and sub-tropical forest)	25
Wood chips from short rotation forestry (European temperate continental forest)	4
Wood chips from short rotation forestry (tropical and sub-tropical, for example, eucalyptus)	28
Wood briquettes or pellets made from European temperate continental forest residues where the production process uses wood as fuel	2
Wood briquettes or pellets made from tropical or sub-tropical forest residues where the production process uses natural gas as fuel	20
Wood briquettes or pellets made from tropical or sub-tropical forest residues where the production process uses wood as fuel	17
Wood briquettes or pellets made from the product of short rotation forestry in European temperate continental forest where the production process uses wood as fuel	4
Wood briquettes or pellets made from the product of short rotation forestry in European temperate continental forest where the production process uses natural gas as fuel	22
Wood briquettes or pellets made from the produce of short rotation forestry in tropical and sub-tropical forest, for example eucalyptus, where the production process uses wood as fuel	22
Wheat straw	2

(2) The ISBN for the English language version of this standard is ISBN 0 580 19482 5. This standard was published by the British Standards Institution on 28th June 1991 and copies, including hard copies, can be obtained at www.bsigroup.com.

<i>Primary solid biomass or biogas</i>	<i>Default value for greenhouse gas emissions (in grams of CO₂ eq per MJ of heat produced)</i>
Bagasse briquettes using wood as process fuel	17
Bagasse bales	20
Palm kernel	27
Rice husk briquettes	28
Miscanthus bales	7
Biogas from wheat and straw (wheat whole plant)	21
Biogas from organic maize as a whole plant (maize as main crop)	19