

## SCHEDULE 1

Article 9

### “SCHEDULE A1A

#### Greenhouse gas emission criteria for solid and gaseous biomass

## PART 1

### Greenhouse gas emission criteria

#### **Interpretation**

1. In this Schedule—

“actual value method” means the calculation method provided for in Part 2;

“default value method” means the calculation method provided for in Part 3;

“post-2013 dedicated biomass station” means a generating station which—

- (a) was not accredited on or before 31st March 2013; and
- (b) has, in any month after March 2013, generated electricity in the way described as “dedicated biomass” in Schedule 2 (electricity to be stated in NIROCs);

“relevant biomass” means biomass other than animal excreta, bioliquid, landfill gas, sewage gas or waste;

“relevant ceiling” means—

- (a) in relation to biomass used by a post-2013 dedicated biomass station to generate electricity before 1st April 2020, 79.2 grams per mega joule of electricity;
- (b) in relation to biomass used to generate electricity on or after 1st April 2020 and before 1st April 2025, 75 grams per mega joule of electricity; and
- (c) in relation to biomass used to generate electricity on or after 1st April 2025, 72.2 grams per mega joule of electricity;

“relevant target” means—

- (a) in relation to biomass used to generate electricity before 1st April 2020 by a station other than a post-2013 dedicated biomass station, 79.2 grams per mega joule of electricity;
- (b) in relation to biomass used by a post-2013 dedicated biomass station to generate electricity before 1st April 2020, 66.7 grams per mega joule of electricity;
- (c) in relation to biomass used to generate electricity on or after 1st April 2020 and before 1st April 2025, 55.6 grams per mega joule of electricity; and
- (d) in relation to biomass used to generate electricity on or after 1st April 2025, 50 grams per mega joule of electricity.

#### **The greenhouse gas emission criteria**

2. Biomass meets the greenhouse gas emission criteria for solid and gaseous biomass—

- (a) if the greenhouse gas emissions from its use are equal to, or less than, the relevant target; or
- (b) if—

- (i) the biomass is used by a post-2013 dedicated biomass station or the biomass is used to generate electricity after 1st April 2020;

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- (ii) the greenhouse gas emissions from its use are equal to, or less than, the relevant ceiling; and
- (iii) the biomass is used in an obligation period in which the average greenhouse gas emissions from the relevant biomass used by the station to generate electricity during that obligation period are equal to, or less than, the relevant target.

**Calculating the greenhouse gas emissions**

3. For the purposes of paragraph 2, and subject to paragraph 4, the greenhouse gas emissions from the use of biomass to generate electricity—
  - (a) is to be calculated by the operator of the generating station using the actual value method or the default value method; or
  - (b) is 91 grams per mega joule of electricity.
4. The default value method must not be used to calculate the greenhouse gas emissions from the use of biomass unless—
  - (a) the biomass was used in a generating station with a total installed capacity of less than one megawatt;
  - (b) the biomass is described in the first column of the table in Part 4; and
  - (c) in relation to the biomass, the result of the calculation in paragraph 7 of Part C of Annex 5 to the Renewables Directive is equal to, or less than, zero.
5. For the purposes of paragraph 4(c), paragraph 7 of Part C of Annex 5 to the Renewables Directive is to be read as if—
  - (a) for each reference to “biofuel” there was substituted “biomass”; and
  - (b) the words “or bioliquid” were omitted in each place in which those words occur.

**PART 2**

**Actual value method**

6. Where the greenhouse gas emissions from the use of biomass are calculated using the actual value method the greenhouse gas emissions from the use of the biomass are equal to—
  - (a) in the case of biomass used by a combined heat and power generating station,
 
$$\frac{E}{\eta_{el}} \left( \frac{\eta_{el}}{\eta_{el} + C_h \times \eta_h} \right);$$
 and
  - (b) in any other case,  $\frac{E}{\eta_{el}}$ .
7. In paragraph (6)—
  - (a)  $\eta_{el}$  is equal to  $\frac{A}{F}$  where—
    - (i) A is the total amount of electricity generated by the generating station during the month; and
    - (ii) F is the energy content of all of the fuels used in generating that electricity during the month;

- (b)  $\eta_h$  is equal to  $\frac{H}{F}$  where—
- (i) F has the same meaning as in sub-paragraph (a)(ii); and
  - (ii) H is the energy content of all of the heat supplied to any premises by the generating station during the month; and
- (c)  $C_h$  is equal to—
- (i) where the maximum temperature in degrees kelvin of heat or steam which is (or may be) supplied by the generating station to any premises (“ $T_{max}$ ”) is less than 423 degrees kelvin, 0.3546;
  - (ii)  $\frac{T_{max} - 273}{T_{max}}$ ; and  
in any other case,
- (d) E is the greenhouse gas emissions from the production of the biomass and is to be calculated in accordance with Part C of Annex 5 to the Renewables Directive but as if the following modifications were made to Part C of that Annex:—
- (i) in paragraph 1—
    - (aa) for “and use of transport fuels, biofuels and bioliquids” there was substituted “of biomass”;
    - (bb) for “E = total emissions from the use of the fuel” there was substituted “E = greenhouse gas emissions from the production of the biomass”; and
    - (cc) for “ $e_u$  = emissions from the fuel in use” there was substituted “ $e_u$  = zero”;
  - (ii) in paragraph 2, for the references to “fuels” and “fuel” there was substituted in each case “biomass”;
  - (iii) paragraphs 3 and 4 were omitted;
  - (iv) in paragraph 7—
    - (aa) for each reference to “biofuel” there was substituted “biomass”; and
    - (bb) the words “or bioliquid” were omitted in each place in which those words occur;
  - (v) in paragraph 11, for “fuel” there was substituted “biomass”;
  - (vi) paragraph 13 was omitted;
  - (vii) in paragraph 14, for “fuel” there was substituted “biomass”;
  - (viii) for paragraph 16 there was substituted—

“16. Emission saving from excess electricity from cogeneration shall be taken to be zero.”;
  - (ix) in paragraph 17, for each reference to “fuel” there was substituted “biomass”;
  - (x) in paragraph 18—
    - (aa) for “fuel” there was substituted “biomass”;
    - (bb) the words “In case of biofuels and bioliquids,” were omitted;
    - (cc) before “and residues from processing” there was inserted “residues from aquaculture, arboriculture, fisheries and forestry”; and
    - (dd) for “fuels” there was substituted “biomass”; and

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(xi) for paragraph 19 there was substituted—

“19. Where material is added to the 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 life-cycle greenhouse gas emissions, provided that the material so added does not exceed 2% by weight of the biomass.”.

### PART 3

#### Default value method

8. The greenhouse gas emissions from the use of biomass are calculated using the default value method where the greenhouse gas emissions from the use of the biomass are equal to—

(a) in the case of biomass used by a combined heat and power generating station,

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

(b)  $\frac{E}{\eta_{el}}$  in any other case,

9. In paragraph (8)—

(a)  $\eta_{el}$ ,  $\eta_h$  and  $C_h$  have the same meaning as in Part 2; and

(b) E, in relation to a type of biomass described in the first column of the table in Part 4, is the number of grams which corresponds to that description in the second column of that table.

### PART 4

#### Default greenhouse gas emissions from the production of biomass

| <i>Biomass</i>  | <i>Default greenhouse gas emissions from the production of biomass (in grams)</i> |
|---|---|
| Wood chips made from residue from forestry carried out in European temperate continental forest         | 1   |
| Wood chips made from residue from forestry carried out in tropical or subtropical forest                | 25  |
| Wood chips from short rotation forestry carried out in European temperate continental forest            | 4   |
| Wood chips from short rotation forestry carried out in tropical or subtropical forest                   | 28  |
| Wood briquettes or wood pellets—  | 2   |
| (a) which are made from residue from forestry carried out in European temperate continental forest; and |   |

| <i>Biomass</i>   | <i>Default greenhouse gas emissions from the production of biomass (in grams)</i> |
|--|---|
| (b) where the process to produce the wood briquettes or wood pellets was fuelled by wood   |   |
| Wood briquettes or wood pellets—<br>(c) which are made from residue from forestry carried out in tropical or subtropical forest; and<br>(d) where the process to produce the wood briquettes or wood pellets was fuelled by natural gas          | 20  |
| Wood briquettes or wood pellets—<br>(e) which are made from residue from forestry carried out in tropical or subtropical forest; and<br>(f) where the process to produce the wood briquettes or wood pellets was fuelled by wood                 | 17  |
| Wood briquettes or wood pellets—<br>(g) which are made from residue from forestry carried out in European temperate continental forest; and<br>(h) where the process to produce the wood briquettes or wood pellets was fuelled by natural gas   | 35  |
| Wood briquettes or wood pellets—<br>(i) which are made from short rotation forestry carried out in European temperate continental forest; and<br>(j) where the process to produce the wood briquettes or wood pellets was fuelled by wood        | 4   |
| Wood briquettes or wood pellets—<br>(k) which are made from short rotation forestry carried out in European temperate continental forest; and<br>(l) where the process to produce the wood briquettes or wood pellets was fuelled by natural gas | 22  |
| Wood briquettes or wood pellets—<br>(m) which are made from short rotation forestry carried out in tropical or subtropical forest; and<br>(n) where the process to produce the wood briquettes or wood pellets was fuelled by wood               | 22  |
| Wood briquettes or wood pellets—<br>(o) which are made from short rotation forestry carried out in tropical or subtropical forest; and<br>(p) where the process to produce the wood briquettes or wood pellets was fuelled by natural gas        | 40  |
| Charcoal made from residue from forestry carried out in European temperate continental forest  | 41  |

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| <i>Biomass</i>   | <i>Default greenhouse gas emissions from the production of biomass (in grams)</i> |
|--|---|
| Charcoal made from residue from forestry carried out in tropical or subtropical forest   | 50  |
| Charcoal made from short rotation forestry carried out in European temperate continental forest  | 46  |
| Charcoal made from short rotation forestry carried out in tropical or subtropical forest   | 57  |
| Wheat straw  | 2   |
| Bagasse briquettes where the process to produce the bagasse briquettes was fuelled by wood   | 17  |
| Bagasse briquettes where the process to produce the bagasse briquettes was fuelled by natural gas  | 35  |
| Bagasse bales  | 20  |
| Palm kernel  | 27  |
| Rice husk briquettes   | 28  |
| Miscanthus bales   | 7   |
| Biogas produced from wet manure  | 8   |
| Biogas produced from dry manure  | 7   |
| Biogas produced from wheat, where the whole plant was used to produce the biogas   | 21  |
| Biogas produced from straw   | 21  |
| Biogas produced from maize, where—<br>(q) the whole maize plant was used in the process to produce the biogas; and<br>(r) the maize was not grown by organic farming methods | 34  |
| Biogas produced from maize, where—<br>(s) the whole maize plant was used in the process to produce the biogas; and<br>(t) the maize was grown by organic farming methods”    | 19  |