

Ordinance on the Generation of Electricity from Biomass

(Biomass Ordinance - BiomasseV)

Consolidated (non-binding) version of the Ordinance
in the version applicable as of 1 January 2012¹

(Basis: Draft of the Federal Government of 6 June 2011 – Bundestag printed paper 17/6071 and
Decision of the German Bundestag of 30 June 2011 – Bundestag printed paper 17/6363)

Section 1 Scope of duties

For the scope of application of the Renewable Energy Sources Act (Erneuerbare-Energien-Gesetz), this Ordinance regulates which substances are classed as biomass, the substances for which an additional substance-based tariff may be claimed, which energy-related reference values are to be used to calculate this tariff and how the substance-based tariff is to be calculated, which technical procedures for electricity generation from biomass fall within the scope of application of the Act and which environmental requirements must be met in generating electricity from biomass.

Section 2 Recognised biomass

(1) Biomass within the meaning of this Ordinance shall mean energy sources from phytomass and zoomass. This also includes secondary products and by-products resulting from phytomass and zoomass, residues and waste whose energy content derives from phytomass and zoomass.

(2) Biomass within the meaning of subsection (1) shall include, in particular:

1. plants and parts of plants;
2. energy sources derived from plants or parts of plants, whose entire components and intermediate products were generated from biomass within the meaning of subsection (1);
3. waste and by-products of plant or animal origin from the agricultural, forestry or fishing industry;
4. biowaste within the meaning of section 2 no. 1 of the Ordinance on Biowastes (*Bioabfallverordnung*);
5. gas produced from biomass within the meaning of subsection (1) through gasification or pyrolysis and secondary and by-products derived therefrom;
6. alcohols produced from biomass within the meaning of subsection (1), whose components, intermediate, secondary and by-products were generated from biomass.

(3) Notwithstanding subsection (1), the following shall be classed as biomass within the meaning of this Ordinance:

1. flotsam from water management or management of lake and river banks;

¹ Note: The following consolidated version is non-binding. All liability for its accuracy is excluded. Only the version published in the Federal Law Gazette (*Bundesgesetzblatt – BGBl.*) is binding. Please direct any comments by e-mail to KIII4@bmu.bund.de.

2. biogas produced from anaerobic fermentation, provided no substances pursuant to section 3 nos. 3, 7 or 9 and no more than 10 percent by weight of sewage sludge are used for fermentation.

(4) Substances from which electricity is generated in existing installations within the meaning of section 2 (3), fourth sentence of the Renewable Energy Sources Act of 29 March 2000 (BGBl. I 2000, 305) in the version applicable on 31 July 2004 and for which a tariff has already been paid as electricity generated from biomass prior to 1 April 2000 shall continue to be classed as biomass in such installations. This shall not apply to substances pursuant to section 3 no. 4. Section 5 (2) shall not apply.

Section 2a Energy yields from recognised biomass

(1) Entitlement to payment of a substance-based tariff pursuant to section 27 (2) no. 1 (substance tariff class I) and no. 2 (substance tariff class II) of the Renewable Energy Sources Act shall apply for substances referred to in Annexes 2 and 3 to this Ordinance. The calculation of the substance-based tariff for electricity generated from any substance for which the substance-based tariff may be claimed is performed on a pro rata basis according to its share in the electricity generation.

(2) In order to calculate the substance-based tariff, the share of a substance according to substance tariff class I or II in the generation of electricity in the installation shall be determined based on its energy yield pursuant to Annex 2 (substance tariff class I) or Annex 3 (substance tariff class II) to this Ordinance. For each substance used, its share in the total electricity generated is calculated by multiplying the quantity of such substance used by the energy yield according to Annex 1, Annex 2 or Annex 3 to this Ordinance. In order to calculate the percentage share of a substance tariff class in the total electricity generation, the shares of the substances of a substance tariff class in the total electricity generation are added and placed in proportion to the total shares of all substances used in the total electricity generated. The share in the total electricity generated, for which the tariff to which the substance tariff class entitles is paid, is calculated by multiplying the percentage share of the substances of a substance tariff class by the total quantity of electricity generated. Substances used that cannot be allocated to any of the substances specified in Annexes 1 to 3 to this Ordinance shall be deemed substances pursuant to Annex 1 to this Ordinance when determining the percentage of the substances used in the electricity generated. Should liquid biomass be used for start-up, priming and supporting fuel, the share of electricity generated from the necessary use of liquid biomass shall be allocated to the other substances used in accordance with their percentage share in the remaining electricity generation.

(3) Should proof be produced of the energy yield of substances used for solid materials combustion or thermochemical gasification (calorific value $H_{i,N}$) by submitting certification of delivery by the substance supplier, the certification of delivery must include the following information:

1. the calorific value $H_{i,N}$ of the substance used;
2. the name of the testing laboratory that determined the calorific value $H_{i,N}$;
3. the number of the test report;
4. the sample number; and
5. the date of the sampling.

Moreover, the certification of delivery must have a copy of the analysis result (determination of the calorific value according to DIN EN 14918 (2010:04)) attached.

Section 3 Substances not recognised as biomass

The following shall not qualify as biomass within the meaning of this Ordinance:

1. fossil fuels and secondary and by-products produced therefrom;
2. peat;
3. mixed municipal waste from private households and similar waste from other origins including biomass fractions derived from mixed municipal waste;
4. waste wood with the exception of industrial residual wood;
5. paper, cardboard;
6. sewage sludge within the meaning of the Sewage Sludge Ordinance (Klärschlammverordnung);
7. harbour mud and other water body sludge and sediments;
8. textiles;
9. animal by-products within the meaning of Article 3 no. 1 of Regulation (EC) No. 1069/2009 of the European Parliament and of the Council of 21 October 2009 laying down health rules as regards animal by-products and derived products not intended for human consumption and repealing Regulation (EC) No. 1774/2002 (OJ L 300 of 14 November 2009, page 1) amended by Directive 2010/63/EU (OJ L 276 of 20 October 2010, page 33), where:
 - a) category 1 material pursuant to Article 8 of Regulation (EC) No. 1069/2009 is involved;
 - b) category 2 material pursuant to Article 9 of Regulation (EC) No. 1069/2009 is involved, with the exception of manure, digestive tract content separated from the digestive tract and colostrum within the meaning of the aforementioned regulation;
 - c) category 3 material pursuant to Article 10 of Regulation (EC) No. 1069/2009 is involved, with the exception of hides, skins, hooves, feathers, wool, horns, hair and furs pursuant to Article 10 (b) (iii) to (v), (h) and (n), and such material is directly disposed of as waste by incineration; or
 - d) category 3 material pursuant to Article 10 of Regulation (EC) No. 1069/2009 is involved, which is processed in processing establishments for category 1 or 2 material, and substances produced or otherwise created by being processed there;
10. landfill gas;
11. sewage treatment gas.

Section 4 Technical processes

(1) Single stage and multistage processes for electricity generation using the following types of installations are deemed technical processes for generation of electricity from biomass within the meaning of this Ordinance:

1. combustion installations in combination with steam turbine, steam engine, Stirling engine and gas turbine processes, including Organic Rankine Cycle (ORC) processes;
2. combustion engine installations;
3. gas turbine installations;
4. fuel cell installations;
5. other installations that, as with the technical processes referred to in nos. 1 to 4, are operated with respect to the goal of climate and environmental protection.

(2) As far as electricity generation from biomass within the meaning of this Ordinance and using a process pursuant to subsection (1) is only possible using priming and supporting fuel with substances other than biomass, such substances may also be used.

(3) In installations pursuant to subsections (1) and (2), up to 10 percent of the energy content may also involve the use of sewage treatment gas or gas produced through thermal processes with a lack of oxygen (syngas) if the gas (syngas) has been produced from sewage sludge within the meaning of the Sewage Sludge Ordinance.

Section 5 Environmental requirements

In order to avoid and reduce environmental pollution, to protect against and to act as a precaution against harmful environmental impacts, to avert risks and to protect resources, and to ensure environmentally sound management of waste, the public law provisions applicable for the respective technical processes and for the use of the relevant substances shall be complied with.

Section 6 Entry into force

This Ordinance shall enter into force on the day after its promulgation.

Annex 1
(to section 2a (2))

Substances that do not entitle to payment of a
substance-based tariff, and their energy yield

	Substances used for biogas generation	Energy yield (Methane yield in m ³ per tonne of fresh mass)
1.	Old bread	254
2.	Baking waste	344
3.	Spent grains (fresh/pressed)	61
4.	Buttermilk fresh (not or no longer suitable for consumption)	32
5.	Casein	392
6.	Grease separator contents	15
7.	Flotation fats	43
8.	Flotation sludge	81
9.	Frying oil and fats	562
10.	Vegetables (rejected)	40
11.	Vegetable trailings	26
12.	Cereals (trailings)	254
13.	Cereal waste	272
14.	Cereal vinasse except for no. 15	22
15.	Cereal vinasse from alcohol production	18
16.	Grain dust	172
17.	Glycerine	421
18.	Green cuttings from private and public garden and park maintenance	43
19.	Medicinal and spice plants (rejected)	58
20.	Potato waste water from starch production	11
21.	Potatoes (rejected)	92
22.	Potatoes (pulped, medium starch content; not or no longer suitable for consumption)	66
23.	Potato processing water from starch production	3
24.	Potato pulp from starch production	61

	Substances used for biogas generation	Energy yield (Methane yield in m ³ per tonne of fresh mass)
25.	Potato peels	66
26.	Potato vinasse except for no. 27	18
27.	Potato vinasse from alcohol production	17
28.	Bran	270
29.	Rennet whey	44
30.	Rennet whey fresh	18
31.	Guts (pork)	27
32.	Skimmed milk fresh (not or no longer suitable for consumption)	33
33.	Skimmed milk dry	363
34.	Molasses from beet sugar production	166
35.	Milk (not or no longer suitable for consumption)	70
36.	Lactose	378
37.	Lactose molasses	91
38.	Lactose molasses low protein	69
39.	Whey except for no. 40	18
40.	Whey, low sugar, dry	298
41.	Fruit and grape marc (fresh/untreated)	49
42.	Ruminal contents	33
43.	Curd cheese (not or no longer suitable for consumption)	92
44.	Rapeseed meal	274
45.	Rapeseed cake	317
46.	Small beet pieces (from sugar processing)	50
47.	Acid whey	42
48.	Acid whey fresh	20
49.	Cut flowers (rejected)	55
50.	Food leftovers	57
51.	Green strip grass	43
52.	Animal blood	83
53.	Press cake from sugar production	64

54.	Sugar beet shavings	64
55.	For substances used for the generation of biogas that do not appear in this list and are not referred to in Annex 2 or Annex 3, the following energy yield "E 0" shall be used: 110 m ³ per tonne of fresh mass.	

	Substances used for solid materials combustion or thermochemical gasification (no specific technology)	Energy yield (Calorific value Hi,N in GJ per tonne of dry mass – absolutely dry)
56.	Sawing by-products	19
57.	For other substances used for solid materials combustion or thermochemical gasification made from wood that do not appear in this list and are not referred to in Annex 2 or Annex 3, the installation operator may use the following energy yield "H 0": 17.2 GJ per tonne of fresh mass.	
58.	For substances used for solid materials combustion or thermochemical gasification for which there is no lower calorific value Hi,N, the installation operator may have the calorific value Hi,N determined pursuant to DIN EN 14918 (2010:04). If a lower calorific value of Hi,N cannot be stated for all substances used for generating electricity from solid materials combustion or from thermochemical gasification, the entitlement to payment of the substance-based tariff pursuant to section 27 (2) of the Renewable Energy Sources Act (<i>Erneuerbare-Energien-Gesetz</i>) lapses for all substances used.	
Instead of using the values according to nos. 56 to 58, the installation operator may have the calorific value determined pursuant to DIN EN 14918.		

Annex 2
(to section 2a (1) and (2))

Substances for substance tariff class I and their energy yield

	Substances used for biogas generation	Energy yield (Methane yield in m ³ per tonne of fresh mass)
1.	Corn cob mix (CCM)	242
2.	Fodder beet	52
3.	Fodder beet leaf	38
4.	Cereals (whole crop)*)	103
5.	Cereal grain kernels	320
6.	Grass including ley grass	100
7.	Forage rye (whole crop)*)	72
8.	Legumes (whole crop)*)	63
9.	Haulm	30
10.	Grain maize	324
11.	Ground ear maize	148
12.	Maize (whole crop)*)	106
13.	Sunflower (whole crop)*)	67
14.	Sorghum (whole crop)*)	80
15.	Sudan grass	80
16.	Ryegrass	79
17.	Sugar beet	75
18.	Sugar beet leaf with sugar beet parts	46
19.	<p>For other plants or parts of plants for biogas generation that occur in agricultural, forestry or garden operations and that were not subjected to any preparation or change other than that for harvesting, conservation or use in the biomass installation (renewable raw materials), the following energy yield "E I" shall be used:</p> <p>50 m³ per tonne of fresh mass.</p>	

*) Values for whole crops and grasses apply to ensiled and non-ensiled substrates.

	Substances used for solid materials combustion or thermochemical gasification (no specific technology)	Energy yield (Calorific value $H_{i,N}$ in GJ per tonne of dry mass – absolutely dry)
20.	Cereals (whole crop)	16.5
21.	Grass including ley grass	16.1
22.	Wood from short rotation plantations with the exception of no. 18 under Annex 3. Short rotation plantations shall mean plantations for woody crops with a rotation time of no less than 3 and a maximum of 20 years on agricultural land that is used solely, or within the context of agroforestry usage, for wood energy generation and that is not forest within the meaning of the Federal Forest Act (<i>Bundeswaldgesetz</i>), including bark.	18.6
23.	Miscanthus	17.7
24.	Bark	19.1
25.	Forest waste wood. Forest waste wood shall mean solid crown wood, the X wood, that is processed but cannot be classified under any customer-oriented grading, and the aboveground part of the block wood, including bark. Root stock, leaves and needles are not forest waste wood within the meaning of a raw material qualifying for remuneration.	19
26.	For other plants or parts of plants for solid materials combustion or thermochemical gasification that occur in agricultural, forestry or garden operations and that were not subjected to any preparation or change other than that for harvesting, conservation or use in the biomass installation (renewable raw materials), the installation operator may use the following energy yield "H I": 6.2 GJ per tonne of fresh mass.	
Instead of using the values according to nos. 20 to 26, the installation operator may have the calorific value determined according to DIN EN 14918.		

Annex 3
(to section 2a (1) and (2))

Substances for substance tariff class II and their energy yield

	Substances used for biogas generation	Energy yield (Methane yield in m ³ per tonne of fresh mass)
1.	Blooming strips, blossoming areas, buffer strips, field margins, wildflower growth	72
2.	Silphium perfoliatum	67
3.	Poultry manure, dry poultry manure	82
4.	Clover (as catch crop from arable land)	86
5.	Landscape management material, including landscape management grass. Landscape management material shall include all materials that occur in the case of measures that are primarily and primarily intended for the goals of nature conservation and landscape management within the meaning of the Federal Nature Conservation Act (<i>Bundesnaturschutzgesetz</i>) and that were not cultivated in a targeted manner. Market fruits such as maize, rapeseed or cereals as well as green cuttings from private and public garden and park maintenance or from green strips, cuttings from green areas at airports and buffer spaces in industrial and commercial areas do not constitute landscape management material. Only cuttings from grasslands mowed at most twice annually qualify as landscape management grass.	43
6.	Legume mix	79
7.	Lupines	80
8.	Lucerne grass (as catch crop from arable land)	79
9.	Horse dung	35
10.	Phacelia	80
11.	Cow dung	53
12.	Liquid cow manure	17
13.	Sheep dung, goat dung	59
14.	Pig dung	45
15.	Liquid pig manure	12
16.	Straw. Straw shall mean the stalk-type by-product of cereals, oilseeds or grain legumes if the primary product (grain) is not used for energy and the stalk-type by-product is separated from the grain.	161

17.	Winter beet	70
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	Substances used for solid materials combustion or thermochemical gasification (no specific technology)	Energy yield (Calorific value $H_{i,N}$ in GJ per tonne of dry mass – absolutely dry)
18.	Wood from short rotation plantations within the meaning of no. 22, second sentence of Annex 2, provided the short rotation plantations were not cultivated on grasslands (with or without grassland tilling), in nature conservation areas, in Natura 2000 sites or in national parks and provided no adjacent area in excess of 10 ha was used, including bark.	18.6
19.	Tree and bush cuttings that occur in the case of measures that are not primarily and largely intended for the goals of nature conservation and landscape management within the meaning of the Federal Nature Conservation Act, e.g. roadside tree wood. This does not include garden and park waste.	19
20.	Landscape management material within the meaning of no. 5, e.g. landscaped wood. In accordance with no. 5, this does not include, in particular, garden and park waste.	19
21.	Straw within the meaning of no. 16	17.6
Instead of using the values according to nos. 18 to 21, the installation operator may have the calorific value determined for all substances under Annex 3 including nos. 1 to 17 according to DIN EN 14918.		