



Federal Ministry of
Food, Agriculture
and Consumer Protection

Energie
für Deutschland

The Renewable Energy Sources Act

Facts and figures on biomass –
The 2012 amendment



Foreword



Dear Reader,

Renewable energy sources are an integral part of the German government's Energy Concept for phasing out nuclear power. Our goal is to expand the share of renewable energy sources in the total amount of electricity consumed in Germany to 35 per cent by the year 2020 and to 80 per cent by 2050. And we are making good progress: Eighteen per cent of the gross amount of electricity produced in Germany today is generated from renewable energy sources, with biomass accounting for approximately one third. We want to increase this share significantly in the future!

In terms of its fundamental structures, the Renewable Energy Sources Act has proven itself as an instrument for promoting electricity that is generated from biomass. Some points however require improvement. The amendment that went into effect in 2012 consequently expanded the range of raw materials for which a tariff can be paid and established new incentives for the use of alternative substances. This will make it possible to limit the negative impact of the growing competition for land arising from the increased use of maize as a source of energy.

In addition, a limit of 60 per cent was placed on the amount of maize and cereal grain kernels allowable in fermentation substrate. To ensure that the Renewable Energy Sources Act can also keep pace with current market developments, the landscape conservation material bonus was eliminated and the slurry bonus was decoupled from the bonus for electricity from energy crops. As a result, the Renewable Energy Sources Act is not only easier to apply today, it is also less bureaucratic.

The aim of this amendment is to make effective and prudent use of the potential offered by biogenic residual materials. It is clear here: There will be no competition with food or feeding-stuff production! For this reason we particularly want to make even greater use of slurry in the future. Special slurry-based biogas installations will accordingly receive assistance in the future. This step is not only economical; it also makes ecological sense. As a result, the amended Renewable Energy Sources Act of 2012 is now fit to meet the challenges of the future.

The following brochure provides relevant information and explains the changes in the Renewable Energy Sources Act.

Sincerely,



Ilse Aigner
Federal Minister of Food,
Agriculture and Consumer Protection



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Act on Granting Priority to Renewable Energy Sources (Renewable Energy Sources Act – EEG)

The Renewable Energy Sources Act aims to advance the production of electricity from renewable sources of energy. When the Act on the Sale of Electricity from Renewable Energy Sources to the Grid went into force in 1991, the conditions for feeding renewable power into the grid system and the rules for tariff payments for electricity from renewable energy sources were regulated in Germany for the first time ever, significantly improving the incentives for producing renewable electricity. This law was superseded on 1 April 2000 by the Act on Granting Priority to Renewable Energy Sources (also called the Renewable Energy Sources Act). The amendments to this act that have been undertaken in the intervening years have been necessary in order to accommodate changing conditions and new objectives, particularly in connection with biomass. The amended Renewable Energy Sources Act of 2012 entered into force on 1 January 2012.

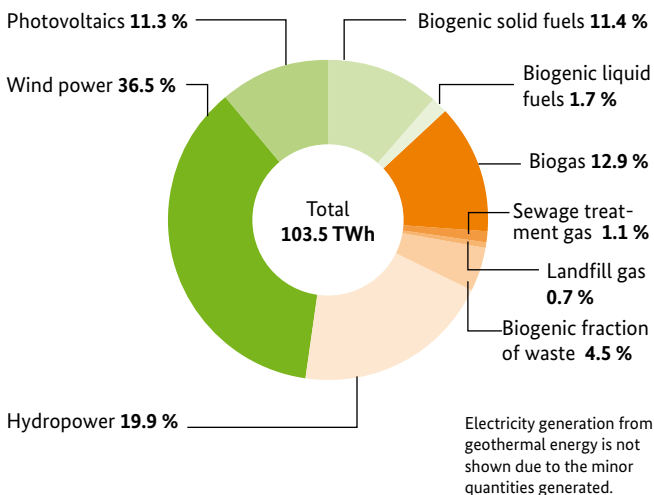
The Renewable Energy Sources Act established a high level of investment security for investors in energy from renewable sources. The priority assigned to feeding renewable energy into the grid, the fixed feed-in tariffs and the obligation placed upon grid system operators to connect to the grid system installations that generate energy from renewable energy sources and to expand their grid systems are vital for this.

The Renewable Energy Sources Act – An instrument for realising energy-policy goals

Alongside climate protection, ensuring a sustainable energy supply and energy security while limiting the burdens on consumers is of central importance to the German government. Energy from renewable sources helps realise these objectives and makes a contribution toward replacing fossil sources of energy. The Renewable Energy Sources Act has proven itself as an instrument for fostering renewable energy sources in the electricity sector and for the progressive development of technologies for generating electricity from renewable sources.

The share that renewable energy sources represents out of the gross amount of electricity consumed in Germany has risen to 16 per cent in the last ten years. In addition to wind power (36.5%) and hydropower (19.9%), some 32.3 per cent of the electricity generated from renewable energy sources was produced from biomass in 2010.

Production of electricity from renewable energy sources in 2010



Source: Federal Ministry for the Environment, Nature Conservation and Nuclear Safety, AGEE-Stat (July 2011)

In the wake of the third amendment of the Renewable Energy Sources Act which entered into force on 1 January 2012, the production of electricity from renewables is to be stepped up, with due regard given to the increased use of waste materials from agricultural sources (slurry, litter), landscape conservation materials and forest waste wood as well as fast-growing wood from short-rotation plantations. A limit was placed on the amount of maize and cereal grain kernels that may be used. The tariff structures were also optimised, with the basic tariff being lowered for larger installations and assistance in the form of a special remuneration category being introduced for small slurry-based biogas installations (up to 75 kW).

Section 1(2) EEG

„... the purpose ... this Act ... increase the share of renewable energy sources in electricity supply to at least ... 35 per cent by no later than 2020 ... 50 per cent by no later than 2030 ... 65 per cent by no later than 2040; and ... 80 per cent by no later than 2050.“

Rules governing the payment of tariffs for electricity from renewable energy sources

Commencement and duration of tariff payment

Section 21 EEG

„(1) The tariffs shall be paid from the time when the generator first produces electricity exclusively from renewable energy sources or from mine gas and has fed this electricity into the grid system in accordance with section 8(1) or (2) ... [and]

(2) The tariffs shall each be paid for a period of 20 calendar years, as well as for the year in which the installation was commissioned. The period ... shall commence when the generator is commissioned.“

Existing and new plants

Existing plants (section 66 (1), no. 3 EEG):

The provisions of the Renewable Energy Sources Act of 2009 (from 25 October 2008, Federal Law Gazette I p. 2074) as last amended apply to electricity generated in installations which were put into service prior to 1 January 2012, subject to the proviso that the following technical requirement is complied with from 1 January 2014 onwards:



Operators of installations generating electricity from biogas must ensure that, when generating the biogas, an additional appliance is used to burn waste gas and avoid any escape of biogas (section 6(4) no. 2 EEG).

Starting 1 May 2012, installations which process biogas to natural gas quality and feed it into the natural gas network are required to comply with the maximum permissible level of 0.2 per cent for methane emissions into the atmosphere (section 66(1) no. 7 EEG).

Annex 1 of this brochure contains the remuneration table for the Renewable Energy Sources Act of 2009.

New installations

All installations that go into operation in accordance with the above requirements on or after 1 January 2012 are subject to the provisions of the Renewable Energy Sources Act of 2012.

Annex 2 of this brochure contains the remuneration table for the Renewable Energy Sources Act of 2012.

Technical requirements

Operators of installations generating electricity from biogas must ensure that, when generating the biogas, any new digestate storage facility to be constructed at the site of biogas installation is gas-proof, and the average hydraulic retention time in a gas-tight system (digesters and digestate storage facility) connected to an appliance for burning waste gas is at least 150 days and that an additional appliance for burning waste gas is used to avoid any escape of biogas (section 6(1) EEG).

Entitlement to tariff payment under section 16 is reduced to zero for as long as installation operators contravene section 6(1 – 5) of the Renewable Energy Sources Act.

Definition of ‘installation’

The term ‘installation’ designates any facility generating electricity from renewable energy sources or from mine gas. Facilities which receive energy that has been temporarily stored and originates exclusively from renewable energy sources or from mine gas and convert it into electricity are also deemed “installations generating electricity from renewable energy sources or from mine gas” (see section 3(1) EEG).

The definition of ‘installation’ previously laid down in the Renewable Energy Sources Act of 2009 continues to apply for all installations. According to section 19(1) of the Renewable Energy Sources Act of 2009: “Several installations shall be classified as one installation, notwithstanding ownership, and solely for the purpose of determining the tariff to be paid for the latest generator commissioned where they are located on the same plot of land or are otherwise in the immediate vicinity 2012, they generate electricity from the same kind of renewable energy source, the electricity generated in them is paid for in accordance with the provisions of this Act depending on the capacity of the installation (for new installations: rated capac-

ity or installed capacity), and they were commissioned within a period of twelve consecutive calendar months.”

This definition was expanded in the Renewable Energy Sources Act of 2012. Consequently the following rule additionally applies to new installations starting 1 January 2012:

In departure from the above rule, several installations are classified “... as one installation, notwithstanding ownership, and solely for the purpose of determining the tariff to be paid for the latest generator commissioned where they generate electricity from biogas, except biomethane, and the biogas originates from the same installation generating biogas.”

Tariffs paid for electricity from biomass

Basic tariff

The tariff paid for electricity from biomass consists of a basic tariff that is graduated according to the capacity of the installation.

Threshold values for the basis tariff according to section 27(1) of the Renewable Energy Sources Act (for the year 2012):

- 14.3 cents per kilowatt-hour for the first 150 kilowatts of the rated average annual capacity
- 12.3 cents per kilowatt-hour for the rated average annual capacity between 150 and 500 kilowatts
- 11.0 cents per kilowatt-hour for the rated average annual capacity between 500 kilowatts and 5 megawatts
- 6.0 cents per kilowatt-hour for the rated average annual capacity between 5 and 20 megawatts



A special tariff was introduced for installations with an installed capacity of less than 75 kilowatts, in which the share of slurry used to generate biogas is at least 80 per cent by mass and where the electricity is generated on the site of the biogas generation installation. The tariff paid for this new class of installation is 25.0 cents per kilowatt-hour (section 27b EEG).

For the purposes of Section 27b, horse dung, cow dung, liquid cow manure, sheep dung, goat dung, pig dung and liquid pig manure are considered slurry.

Increase in the basic tariff paid – Substance tariff classes I and II (section 27(2) EEG)

The basic tariff paid pursuant to section 27(1) of the Renewable Energy Sources Act increases (except as provided for under section 27b of the Act) where the electricity is generated from substances listed in Annex 2 to the Biomass Ordinance (substance tariff class I) following the accompanying energy yield table or from substances listed in Annex 3 to the Biomass Ordinance (substance tariff class II) following the accompanying energy yield table. Annex 3 to this brochure contains the substance lists for substance tariff classes I and II.

For substance tariff class I, the tariff increases

- by 6.0 cents per kilowatt-hour for the first 500 kilowatts of the rated average annual capacity,
- by 5.0 cents per kilowatt-hour for the rated average annual capacity between 500 and 750 kilowatts,
- by 4.0 cents per kilowatt-hour for the rated average annual capacity between 750 kilowatts and 5 megawatts,
- in the case of electricity generated from bark or forest waste wood, by 2.5 cents per kilowatt hour in each case for the rated average annual capacity between 500 kilowatts and 5 megawatts.

For substance tariff class II, the tariff increases

- by 8.0 cents per kilowatt-hour for the first 5 megawatts of the rated average annual capacity,
- in the case of electricity generated from slurry, by 8.0 cents per kilowatt-hour for the first 500 kilowatts of the rated average annual capacity and by 6.0 cents per kilowatt-hour for the rated average annual capacity between 500 kilowatts and 5 megawatts.

Substance tariff class I includes energy crops (such as maize and sugar beets). The tariffs for substance class II were set higher than those for substance class I in order to create an incentive to use substances from the substance tariff class II. From a sustainability standpoint, substance tariff class II contains particularly valuable substances (such as liquid pig manure and wildflower growth). The tariff paid for substances from substance tariff class I (including maize and cereal grain kernels) was lowered to counter the problem of the excessive use of maize and cereal grain kernels.

In the case of some substances, no additional tariff is paid on the basis of one of the above substance tariff classes (example: rejected potatoes). These substances are assigned to substance tariff class 0 and only the basic tariff laid down in section 27(1) of the Renewable Energy Sources Act is paid for them. The list of these substances is also included in Annex 3.

The above entitlement to tariff payment is given only when, inter alia,

- at least 25 per cent by the end of the first calendar year following the first-time commissioning of the installation and thereafter 60 per cent of the electricity generated in the installation in the respective calendar year is from combined heat and power generation with the heat being used as specified by the Positive List (Annex 2, no. 3 of the Renewable Energy Sources Act) or with the heat demonstrably replacing fossil energies or when the electricity is generated in installations utilising biogas and the share of slurry used to generate the biogas (in the respective calendar year) is at least 60 per cent by mass.
- a record of the substances used is kept as required by section 27(5) of the Renewable Energy Resources Act and
- the share of maize (whole crop) and cereal grain kernels (including corn-cob mixes) as well as grain maize in each calendar year totals no more than 60 per cent by mass.



Fermentation of biowaste (section 27a EEG)

When the electricity is generated in an installation where the share of biowaste (as defined by the Biowaste Ordinance) used in the respective calendar year is at least 90 per cent by mass, the tariff paid is

- 16.0 cents per kilowatt-hour for the first 500 kilowatts of the rated average annual capacity and
- 14.0 cents per kilowatt-hour for the rated average annual capacity between 500 kilowatts and 20 megawatts.

However, entitlement to tariff payment exists only when the installation for the anaerobic fermentation of the biowaste is directly connected to a final composting facility for solid fermentation residues and the composted material is recovered (section 27a(3) EEG).

Bonus for gas processing

In addition to its traditional use for generating electricity and heat, biogas can also serve as a substitute for natural gas. This requires processing the biogas to the quality of natural gas so that it can be fed into the natural gas network as 'biomethane'. In this form, the processed biogas can be transported any distance through the natural gas network's existing infrastructure and, for example, be converted into electricity in combined heat-power plants where there is a corresponding demand for the resulting heat.

"Entitlement to the bonus for gas processing ... shall apply to electricity generated in installations with a maximum rated average annual capacity of 5 megawatts, provided the gas was fed in pursuant to section 27c(1) and was processed before being fed into the natural gas network..." (Annex 1 to the EEG).

The following criteria must also be met:

- Methane emissions into the atmosphere during processing do not exceed 0.2 per cent.
- Electricity consumption during processing does not exceed 0.5 kilowatt-hours per standard cubic metre of crude gas.
- Supply of the process heat for ... processing and generation ... without the use of additional fossil energies.
- A rated gas output of the gas processing installation not exceeding 1,400 standard cubic metres of processed ... biogas per hour.

The amount of the bonus for gas processing is:

- 3.0 cents per kilowatt-hour for a gas processing installation with a maximum rated gas output of 700 standard cubic metres of processed gas per hour,
- 2.0 cents per kilowatt-hour for a gas processing installation with a maximum rated gas output of 1,000 standard cubic metres of processed gas per hour,
- 1.0 cent per kilowatt-hour for a gas processing installation with a maximum rated gas output of 1,400 standard cubic metres of processed gas per hour.

Degression

Section 20(2) of the Renewable Energy Sources Act

„The tariffs and bonuses shall decrease by the following percentage ... each year for electricity generated from ... biomass ... from the year 2013 onwards: 2.0 per cent...“



This two per cent depression applies to the tariff rates for the basic tariff payments, the bonus for gas processing and the biowaste fermentation bonus. The depression does not apply to the substance tariff rates.

Direct marketing

Direct marketing was strengthened and developed as a separate pillar in the Renewable Energy Sources Act. The aim behind this is to ensure a more demand-based generation of electricity from renewable energy sources. The key change in the Renewable Energy Sources Act of 2012 is the introduction of a market premium (sections 30g and 33h EEG) and a flexibility premium (section 33i EEG).

“Installation operators may sell electricity generated in installations exclusively utilising renewable energy sources ... to third parties...(direct marketing)” (section 33a(1) EEG).

According to section 33b of the Act, direct marketing may take one of three different forms:

1. Direct marketing for the purpose of claiming the market premium under section 33g,
2. Direct marketing for the purpose of a electricity supplier reducing the EEG surcharge in accordance with section 39 or
3. Other direct marketing.

Premiums for direct marketing – Market premium and flexibility premium

Market premium:

Market premiums give operators of installations pursuant to the Renewable Energy Sources Act an incentive to operate their installations on a market-oriented basis (section 33g EEG). Installation operators directly market the electricity they generate rather than deliver it to the grid system operator in return for payment of the tariff under the Renewable Energy Sources Act (EEG tariff). Installation operators receive a market premium in addition to these sales revenues. The premium is the difference between the EEG tariff for the particular installation and the reference figure for the specific energy source including a management premium to offset the necessary costs of admission to the energy exchange, accessing the electricity market, IT infrastructure and adjustments for forecast errors, among other things. The market premium for biogas installations with an installed electrical capacity of 750 kilowatts or more will be binding starting 1 January 2014.

The market premium is calculated on a calendar-month basis for the preceding month using the following formula:

$$MP = EV - MW_{EPEX} + PM$$

(MP = Market premium; EV = The installation-specific EEG tariff payment; MW_{EPEX} = Monthly average of hour contracts on the spot market of the EPEX Spot SE energy exchange in Leipzig; PM = So-called management premium, 0.30 cents per kilowatt-hour for 2012)

It is possible to switch between the different forms of direct marketing or back to the EEG tariff on the first day of the new month.

Existing installations may also claim the market premium. In this case, the calculation of the market premium is based on the applicable version of the Renewable Energy Resources Act (section 66(1) no. 1 EEG 2012).

Flexibility premium:

The flexibility premium was specifically designed to promote investment that puts operators in a position to generate electricity from biogas installations on a market-oriented basis. It enables investment in larger gas storage facilities and additional generators so that it is possible to defer generating electricity by approximately 12 hours. The aim of the flexibility premium is to ensure that electricity is generated on a demand basis. The prerequisite for payment of this premium is that the electricity is sold directly through the market premium model.



Like the market premium, existing installations may also claim the flexibility premium. The flexibility premium is paid for a period of ten years when

- the entire electricity generated in the installation is directly sold,
- the installation is technically suited to producing electricity on a demand basis and
- the installation has been registered with the Federal Network Agency.

The amount of the flexibility premium is calculated as follows:

$$FP = \frac{(P_{inst} - (f_{Kor} \times P_{Bem})) \times KK \times 100}{P_{Bem} \times 8760 \text{ h/a}}$$

(FP = Flexibility premium; P_{inst} = Installed capacity; f_{Kor} = Correction factor, is 1.1 for biogas und 1.6 for biomethane; P_{Bem} = Rated average annual capacity; KK = Capacity components, in accordance with section 64f(4) letter b = €130 per kilowatt-hour)

Compliance with sustainability criteria

A fundamental prerequisite for the use of plant-based raw materials and energy sources is their sustainable production and usage. The utmost importance is attached to ensuring sustainability in the provision of not only domestically-produced biomass but also imported biomass. Germany has issued sustainability ordinances on the basis of Directive 2009/28/EC. The Biomass Electricity Sustainability Ordinance and the Biofuel Sustainability Ordinance have been in effect since 2009.

All important regulations on the future production of biofuels and bioelectricity from sustainable biomass in accordance with Directive 2009/28/EC are summarised in the publication “Leitfaden Nachhaltige Biomasseherstellung” (condensed in the Information Leaflet Sustainable Biomass Production) from the Federal Office for Agriculture and Food. Key requirements include not using biomass from land with a high degree of biodiversity, nature conservation areas or moors and compliance with good agricultural practice (cross compliance – sustainable agriculture). Further information is available at www.ble.de.

There are many approaches to sustainable production methods for agriculture and forestry in Europe. Testing and progressively developing these methods in research projects is one of the core funding priorities of the Federal Ministry of Food, Agriculture and Consumer Protection (BMELV).

The strategies being pursued in this connection include:

- Increasing biodiversity in the cultivation of energy crops,
- Breeding new varieties,
- New methods of cultivation that use less pesticides and fertilisers, plus year-round grassland fields,
- Use of particularly efficient conversion processes,
- Cascading use models which make non-energetic use and subsequently energetic use of renewable raw materials and
- The recovery and reuse of waste materials as fertiliser.

Agricultural markets have been globalised for some time now. As a result, demand for bioenergy and renewable resources is also being increasingly met in global markets. This also impacts sustainability issues. For example, the problems arising in the tropics are different than those that arise in Europe when rain forests in tropical countries are cleared to make space for the cultivation of food crops, feed plants and energy crops such as oil palm or soya beans, workers are exploited and indigenous populations are driven away.

Further information regarding the documentation of compliance with sustainability criteria for renewable resources has been published on the website <http://www.nachwachsenderohstoffe.de/basisinfonachwachsende-rohstoffe/nachhaltigkeit/zertifizierung/>.

Clearingstelle EEG (EEG Clearing House)

The EEG Clearingstelle took up its work in October 2007. It has a statutory mandate to settle disputes and clarify questions regarding the application of the Renewable Energy Sources Act.

The Clearingstelle mediates in disputes involving the Renewable Energy Sources Act, with the aim of reaching a consensual solution between two or more parties (conciliatory action) as a neutral mediator. It also assesses the actual case on a non-binding basis upon application of the parties (vote action) or issues recommendations regarding the interpretation and application of the Renewable Energy Sources Act (recommendation action).

Further information regarding the Clearingstelle EEG and its work is available from

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Permit procedures

Two permit procedures are used for the approval of biogas installations: the more simple building permit procedure and the more complex procedure conducted pursuant to the Federal Immission Control Act.

The building permit procedure

This procedure examines only the requirements set forth in the building code for granting permission to build. German construction planning law regulates where the respective type of building may be erected and building regulations govern how buildings may be built. In Germany, planning and building laws and regulations include federal regulations and legislation (Federal Building Code and the Building Use Ordinance) and state-level laws and regulations (state building codes). Biogas installations are also subject to the general regulations. However, section 35(1) no. 6 of the Federal Building Code provides for a privileged status for building in undesignated outlying areas. This is permissible when:

- a. The project is part of an agricultural or forestry operation or livestock farm and is closely linked to this operation in terms of location and operation,
- b. The biomass comes primarily from the operation or primarily from the operation and from nearby operations and
- c. Only one installation is operated per farmstead or location.

The amendment to the Federal Building Code from 22 July 2011 redefined the maximum permissible installation size:

- d. The heat input of the installation may not exceed 2.0 MW and the installation's capacity for the production of biogas may not exceed 2.3 million Nm³ biogas per year.

With the building permit procedure, it is possible that additional permits (such as permits that fall under water-protection legislation, ensure sanitation or nature conservation) have to be applied for separately.

The permit procedure pursuant to the Federal Immission Control Act

Above a certain size, biogas installations are subject to immission control law. This permit procedure is more involved because it includes all the other permits which are required for the installation under public law. The type of installation determines whether the regular ('formal') procedure or the simplified (shorter) procedure is to be used. Since the simplified procedure does not include public participation, it requires only three months. By contrast, the regular procedure can be expected to last seven months. The regular procedure is to be used when an environmental impact assessment pursuant to the Environmental Impact Assessment Act must be conducted for the biogas installation or in the event that certain threshold values are exceeded when waste is used.

The Fourth Ordinance on the Implementation of the Federal Immission Control Act prescribes which permit procedure is to be used. The type and amount of substances used and the rated thermal input of the attendant stationary internal combustion engine or gas turbine plants are key factors in determining which procedure applies. Installations with a rated thermal input of less than 1 MW generally require only a building permit.

Biogas installations require a permit pursuant to immission control law when the following conditions are given:

- The rated thermal input of the combined heat-power plant or gas turbine is 1 MW or more.
- The installation is connected with a livestock farming installation that requires a permit under immission control law.
- Use of hazardous wastes with a daily throughput of more than 1 tonne.
- Storage of more than 1 tonne of hazardous wastes per day.
- Use of non-hazardous wastes with a throughput of 10 tonnes or more.
- Storage of more than 10 tonnes of non-hazardous wastes per day or a total storage capacity of 100 tonnes or more.
- Storage of biogas in tanks with a storage capacity of 3 tonnes or more or a total storage capacity of 30 tonnes or more.
- Installations for storing slurry with a storage capacity of 6,500 cubic metres or more.
- (Non-exhaustive list: See the Annex to the Fourth Ordinance on the Implementation of the Federal Immission Control Act.)

In the wake of the Act Reorganising the Law on Closed Cycle Management and Waste of 28 October 2011 installations for generating biogas that have a production capacity of at least 1.2 million Nm³ are required to obtain a permit under the Federal Immission Control Act in the future.

Below these threshold values only a building permit is required.

Examples:

1. Pilot installation with 75 kilowatts, uses renewable raw materials and at least 30 per cent slurry. This installation would normally require only a building permit because its rated thermal input is small.
2. Pilot installation with 75 kilowatts, uses 80 per cent slurry and 20 per cent renewable raw materials. In this case as well, this installation would normally require only a building permit firstly because its rated thermal input is small and secondly because the volume size of the installations for slurry and digestate storage is significantly less than 6,500 cubic metres.
3. Pilot installation with 500 kilowatts, uses 80 per cent renewable raw materials and 20 per cent slurry. This installation would require a permit under the Federal Immission Control Act because the CHP has an electrical efficiency of 40 per cent and, as a result, exceeds a rated thermal input of 1 MW.
4. Pilot installation with 1 megawatt, uses 80 per cent renewable raw materials and 20 per cent slurry. This installation would require a permit under the Federal Immission Control Act because the CHP has an electrical efficiency of 40 per cent and, as a result, exceeds a rated thermal input of 1 MW.

Further programmes to promote renewable energy sources

Energy from the Countryside assistance programme

The Landwirtschaftliche Rentenbank, the central refinancing institution in Germany for agriculture and the food industry, fosters investment in the use of energy from renewable sources. The particular focus of this programme is on the use of renewable raw materials from agriculture and forestry and other organic compounds for energy production.

What is assistance provided for?

Investments in the use of renewable raw materials and other organic compounds for the production of energy (such as biogas installations and biomass-based combined heat-power plants).

Who can receive funding?

Enterprises that produce energy (regardless of the respective company's chosen legal form) may be funded. They must however be a 'small or medium-sized enterprise' (SME) as defined by the European Commission (enterprises which have fewer than 250 employees and an annual turnover not exceeding € 50 million or an annual balance sheet total not exceeding € 43 million).

Applications

Applications must be submitted to the respective farmer's house bank since the Landwirtschaftliche Rentenbank does not make loans directly. Information can also be obtained directly from the Landwirtschaftliche Rentenbank. Its address: Hochstr. 2, 60313 Frankfurt/Main, Tel.: +49 (0) 69 / 2107-700, www.rentenbank.de



Joint Task for the Improvement of Agricultural Structures and Coastal Protection (GAK)

Investment measures, such as investments to support environmentally-friendly farming practices, can receive assistance through the German Agricultural Investment Aid Programme. Assistance that is provided for investments aimed at diversification supports agricultural enterprises in their efforts to create additional sources of income from self-employment.

What is assistance provided for?

Assistance is provided under the rules governing support for individual agricultural enterprises (Part A: Agricultural Investment Aid Programme), assistance for the improvement of immovable property (such as thermal and low-temperature insulation measures); Part B: Investments to create additional sources of income from self-employment such as the construction of biogas production plants or solar and voltaic power plants.

Who can receive funding?

Small and medium-sized enterprises ...

- whose operations consist in large part (more than 25 per cent of revenues) of producing plant or animal products through soil cultivation or through livestock farming that is connected with soil cultivation and
- which have reached or exceeded the minimum size set forth in section 1(2) of the Farmers' Old Age Security Act or when the respective enterprise runs an agricultural operation and directly pursues church-related, non-for-profit or charitable aims.

Livestock farming for the purposes of the first point also includes bee-keeping, aquaculture, freshwater fisheries and migratory herding.

Applications

The individual state (Bundesland) decides whether it will include the support options available through the Joint Task for the Promotion of Agricultural Structures and Coast Protection in its state programmes. Applications must be submitted to the relevant office of the respective state.

Renewable Resources Funding Programme

What is assistance provided for?

Projects revolving around the energetic and non-energetic use of renewable resources (agricultural or forestry-related raw materials of plant or animal origin) outside of the food field.

Who can receive funding?

Scientific institutions and business enterprises

Applications

www.fnr.de

Guidelines on a Federal Programme for Increasing Energy Efficiency in Agriculture and Horticulture

What is assistance provided for?

Costs for investment measures which serve the production of agricultural or horticultural products or the processing and marketing of horticultural products and which lead to a significant energy savings compared to the current standard (reference) or the actual state.

Who can receive funding?

Agricultural or horticultural enterprises that work in the area of the production, processing and sale of agricultural and horticultural products.

Information regarding applications

www.ble.de

Further information is available at www.bmelv.de.

Annex 1 – Previous remuneration rates under the Renewable Energy Sources Act of 2009 (EEG 2009)

Remuneration table under EEG 2009				
Remuneration in euro cents per kilowatt-hour				
		2009	2010	2011
Basic tariff ^b	up to 150 kW _{el} ^a	11.67	11.55	11.44
	> 150 kW _{el} to 500 kW _{el}	9.18	9.09	9
	> 500 kW _{el} to 5 MW _{el}	8.25	8.17	8.09
	> 5 MW _{el} to 20 MW _{el} ^h	7.79	7.71	7.63
Bonus for electricity from energy crops ^{a, b, m}	up to 150 kW _{el}	6.00/ 7.00 ^c	5.94/ 6.93 ^c	5.88/ 6.86
	> 150 kW _{el} to 500 kW _{el}	6.00/ 7.00 ^c	5.94/ 6.93 ^c	5.88/ 6.86
	> 500 kW _{el} to 5 MW _{el}	4.00 ^{c,d} / 2.50 ^e	3.96 ^{c,d} / 2.48 ^e	3.92 ^{c,d} / 2.46 ^e
Slurry bonus ^{a, c, f, k}	up to 150 kW _{el}	4.00	3.96	3.92
	> 150 kW _{el} to 500 kW _{el}	1.00	0.99	0.98
Landscape conservation material bonus ^{a, c, l}	up to 500 kW _{el}	2.00	1.98	1.96
Emission reduction bonus ^{a, c, f, n}	up to 500 kW _{el}	1.00	0.99	0.98
CHP bonus ^b	up to 20 MW _{el}	3.00 ⁱ / 2.00 ^j	2.97 ⁱ / 1.98 ^j	2.94 ⁱ / 1.96 ^j
Technology bonus				
Innovative plant technology ^b	up to 5 MW _{el}	2.00	1.98	1.96
Gas processing	up to 350 Nm ³	2.00/ 1.00 ^g	1.98/ 0.99 ^g	1.96/ 0.98 ^g

These figures are not legally binding.



- a. Also for existing installations (commissioned up to 31 December 2008)
- b. No entitlement for electricity from liquid biomass for new plants > 150 kW_{el} (from 1 January 2009)
- c. For biogas installations
- d. For combustion of short-rotation wood and landscape conservation material
- e. For other wood qualifying for the bonus for electricity from energy crops
- f. No entitlement for installations that use gas from a gas grid
- g. For installations that upgrade biogas to biomethane from 350 to 700 (max.) Nm³/h
- h. For CHP electricity generation only
- i. For existing installations (pro rata, up to 500 kW_{el}) new installations whose heat use meets the requirements of the second amendment of the Renewable Energy Sources Act (EEG)
- j. For existing installations whose heat use does not meet the requirements of the second amendment of the Renewable Energy Sources Act (EEG)
- k. The bonus for electricity from energy crops is increased in the case of constant use of at least 30 per cent slurry or manure (by mass)
- l. The bonus for electricity from energy crops is increased in the case of constant use of at least 50 per cent landscape conservation material (by mass)
- m. If biomass crops are used (Positive List III); compatible with plant by-products (Positive List V); Federal Immission Control Act additionally requires new plants to have a gas-tight digestate storage facility and additionally an appliance to burn waste gas.
- n. Basic tariff is increased for plants that are compliant with the Federal Immission Control Act when compliance with the applicable limits for formaldehyde stipulated by the emission minimisation rule under Technical Instructions on Air Quality Control (TA Luft) is given.

Annex 2 – New remuneration rates under the Renewable Energy Sources Act of 2012 (EEG 2012)

Remuneration for biomass/biogas installations under EEG 2012			
		Remuneration in euro cents per kilowatt-hour	
		2012	2013⁹⁾
Basic tariff^{1), 3)}			
	up to 150 kW _{el}	14.30	14.01
	> 150 kW _{el} to 500 kW _{el}	12.30	12.05
	> 500 kW _{el} to 5 MW _{el} ⁸⁾	11.00	10.78
	> 5 MW _{el} to 20 MW _{el} ⁸⁾	6.00	5.88
Special tariff ²⁾	up to 75 kW _{el}	25.00	24.50
Substance tariff³⁾			
Substance tariff class I	up to 500 kW _{el}	6/6 ⁴⁾	6/6 ⁴⁾
	> 500 kW _{el} to 750 kW _{el}	5/2.5 ⁴⁾	5/2.5 ⁴⁾
	> 750 kW _{el} to 5 MW _{el}	4/2.5 ⁴⁾	4/2.5 ⁴⁾
Substance tariff class II	up to 500 kW _{el}	8	8
	> 500 kW _{el} to 5 MW _{el}	8/6 ⁵⁾	8/6 ⁵⁾
Gas processing bonus⁶⁾			
	up to 700 Nm ³	3.00	2.94
	up to 1000 Nm ³	2.00	1.96
	up to 1400 Nm ³	1.00	0.98
Biowaste fermentation bonus⁷⁾			
	up to 500 kW _{el}	16.00	15.68
	> 500 kW _{el} to 20 MW _{el}	14.00	13.72

These figures are not legally binding.

1. Including the obligation to make use of the generated heat, in other words: At least 60% of the electricity generated in the installation must be generated through combined heat and power generation and the heat must be used according to the requirements set forth in the Renewable Energy Sources Act of 2012. Exceptions: Installations using $\geq 60\%$ slurry (by mass) and installations participating in direct marketing
2. Small slurry installations, using $\geq 80\%$ slurry/manure (by mass) (without poultry manure/dried poultry manure)
3. Basic and substance tariff only if $\leq 60\%$ maize and cereal grain is used (by mass)
4. Bark and forest waste wood
5. 6 euro cents/kWh for slurry/manure for installations > 500 kW to 5 MW
6. $700 \text{ Nm}^3/\text{ha}$. (approx. $2.8 \text{ MW}_{\text{el}}$), $1,000 \text{ Nm}^3/\text{ha}$. (approx. $4.0 \text{ MW}_{\text{el}}$), $1,400 \text{ Nm}^3/\text{ha}$. (approx. $5.5 \text{ MW}_{\text{el}}$)
7. $\geq 90\%$ biowaste (by mass) in accordance with the Ordinance on Biowaste (BioAbfV), with an installation for the anaerobic fermentation and non-energetic use of the fermentation residues
8. Starting 2014, for new installations $> 750 \text{ kW}_{\text{el}}$: remuneration only through direct marketing (market premium model)
9. Annual degression of 2% on basic tariff and bonuses (not on substance tariffs)



Annex 3

Substance class 0		
Substances that do not entitle payment of a substance-based tariff and their energy yield		
Substances used for biogas generation		Energy yield (Methane yield in m³ 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 separate 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
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

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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 $H_{i,N}$ 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 $H_{i,N}$, the installation operator may have the calorific value $H_{i,N}$ determined pursuant to DIN EN 14918 (2010:04). If a lower calorific value of $H_{i,N}$ 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 (Erneuerbare-Energien-Gesetz) 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.

Substance class I**Substances from substance tariff class I and their energy yield**

Substances used for biogas generation		Energy yield (Methane yield in m³ 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.	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: 50 m ³ per tonne of fresh mass.	
20.	Cereals (whole crop)	16,5

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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.

Substance class II**Substances from substance tariff class II and their energy yield**

Substances used for biogas generation		Energy yield (Methane yield in m³ 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 conservation material, including landscape conservation grass. Landscape conservation 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 conservation 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 conservation material. Only cuttings from grasslands mowed at most twice annually qualify as landscape conservation 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

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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
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 conservation 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 conservation 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.

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