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The main features of the Act on granting priority to renewable energy sources (Renewable Energy Sources Act) of 21 July 2004

IT'S OUR FUTURE.

The Renewable Energy Sources Act of 21 July 2004

We cannot imagine life without an energy supply. To secure our own well-being and protect the natural foundation of life for future generations, a sustainable energy system must exhibit a number of characteristics: it must be climate friendly, resource saving, low risk, and socially sound; it must offer energy supply security, cost effectiveness and be acceptable to society. Renewable energies can meet these demands to a particularly high degree. In Germany, the Act on Granting Priority to Renewable Energy Sources (Renewable Energy Sources Act - EEG) is an effective and efficient instrument for increasing the use of renewable energies on the road towards a sustainable energy system.

How the EEG works

The core elements of the EEG are:

- the priority connection of installations for the generation of electricity from renewable energies and from mine gas to the general electricity supply grids
- the priority purchase and transmission of this electricity and
- a consistent fee for this electricity paid by the grid operators, generally for a 20-year period, for commissioned installations. This payment is geared around the costs
- the nationwide equalisation of the electricity purchased and the corresponding fees paid.

The fee paid for the electricity depends on the energy source and the size of the installation. The rate also depends on the date of commissioning; the later an installation begins operation, the lower the tariff (degression).

The EEG ensures the increased use of environmentally friendly renewable energies, not through subsidies but through apportioning the costs. The grid operators and energy supply companies can pass on the difference in costs for electricity from renewable energies to the final consumer.

The effects and advantages of the EEG

The EEG is very effective. From 2000 to 2004 the volume of electricity generated from renewable energies supported by this Act increased from around 13.6 TWh to 34.9 TWh. During the same period the Act resulted in the volume of electricity generated from wind and biomass more than doubling, and brought about a nine-fold increase in electricity generated from photovoltaic systems in Germany.

A total of around 70 million tonnes of carbon dioxide were already saved in 2004, with 33 millions tonnes of these being attributable directly to the EEG.

The EEG is very efficient, because the costs for renewable energies hinge largely on investment security. If an investment is high risk, banks demand high interest rates for the loan and the investors demand high-risk mark-ups. Since the structure of the EEG guarantees a particularly high investment security, credit interest rates and risk mark-ups are low compared with other instruments. Furthermore, the lowering of fees as laid down in the EEG for installations commissioned at a later date ensures further price reductions. This degression has already had an impact: The costs for installing photovoltaic systems dropped by 25% between 1999 and 2004; for wind turbines, costs were reduced by 30% between 1993 and 2003.

The degression also leads to installations being constructed as quickly as possible, in order to obtain a high payment level. This rules out the possibility of operators waiting until installations become cheaper. The EEG ensures very high-quality installations as - because payment is made per kilowatt-hour produced - there is great incentive for operators to run their installations efficiently and with as little interruption of operation as possible, at least during the usual 20-year payment period. Operators therefore demand high standards from the installation manufacturers.

The amendment to the EEG

In order to continue advancing the positive development of renewable energies in all sectors, and to adapt the EEG to this development, the Act was amended on 1 August 2004. The particular aims of the amended EEG are to increase the share of renewable energies in the total electricity supply to at least 12.5% by the year 2010 and to at least 20% by the year 2020, and the further development of technologies for the generation of electricity from renewable energies, thus contributing to the reduction in costs.

The EEG amendment also assists the implementation of the September 2001 European Union directive on the promotion of renewable energies in the electricity sector, ensuring that all the renewable energies defined in the directive fall under the scope of the EEG. However payments are only compulsory if the electricity is generated exclusively from renewable energies.

The EEG regulations in detail

Obligation to purchase and transmit

Grid operators must give immediate priority to connecting installations for the generation of electricity from renewable energies or from mine gas to their grid and to purchasing and transmitting all the electricity available from these installations.
Installation operators bear the costs of connection. Grid operators take on the necessary costs for upgrading the grid. They can take these costs into consideration in their charges for use of the grid. The grid upgrading costs must be declared to ensure the necessary transparency. This obligation aims, in the interests of consumer protection, to prevent costs being shifted unfairly to the electricity purchaser.

The amendment creates incentives for operators of installations for the utilisation of renewable energies to agree on generation management with the grid operators in their mutual interest. This is especially relevant for grid upgrading and stand-by energy. Such an agreement can take the at times fluctuating electricity supply into consideration in a way that enables the costs for grid upgrades, reserves and stand-by energy to be minimised. To facilitate better integration of renewable energies into the electricity system, the amendment to the EEG contains an obligation to measure and record the capacity for installations with a capacity of 500 kilowatts or more.

Fees

The EEG prescribes fixed tariffs which grid operators must pay for the feed-in of electricity from hydropower, landfill gas, sewage treatment and mine gas, biomass, geothermal and wind energy and solar radiation. The minimum payments, which are differentiated according to energy source, vary depending on the size of the installation, and, in the case of wind energy, on the local wind conditions on site and whether it is generated on land or offshore. For 2005, fees under the new EEG range from 5.39 euro cents/kWh for electricity from wind energy (basic payment) and 6.65 euro cents / kWh for electricity from hydropower, to 59.53 euro cents / kWh for solar electricity from small façade systems.

In principle the guaranteed payment period is 20 calendar years, for hydropower 15 or 30 years. The fee valid for the year of commissioning remains constant for this period, with the exception of wind energy. For wind-generated electricity, special regulations are laid down which deviate from the fixed fees for other energy sources. Electricity from wind

energy is paid for with two different rates: for an onshore wind park, a starting fee is paid for electricity produced for the first five years after commissioning, thereafter a lower basic fee. The period of higher starting fees can be extended according to the wind conditions at the site, the total payment period is still restricted to 20 years. For offshore wind parks, starting fees are paid for 12 years. This period is extended for installations located further from the coastline and erected in deeper water.

In order to take account of technological developments and their economic efficiency, and to optimise the use of cost reduction potential, the tariffs for most branches are degressive in structure. The degression annually lowers the payment rates in all branches for new installations (except small hydropower plants). For installed plants, the fee valid for the respective year of commissioning applies for the entire payment period. For geothermal and offshore wind installations, degression takes effect later.

Compared with the previous EEG, the amendment provides for a more differentiated fee structure, taking account of efficiency aspects. In particular, the payment conditions for geothermal energy and biomass were improved. If existing large hydropower plants are modernised or expanded, the additional electricity generated is included in the fee. The degressive structure was strengthened and further developed.

For the area of bioenergy, in addition to the minimum fees laid down, the new version of the EEG provides for additional fees (bonuses), if the electricity is exclusively produced from self-regenerating raw materials, combined heat-power, or if the biomass was converted using innovative technologies (e.g. thermal chemical gasification, fuel cells, gas turbines, organic Rankine systems, Kalena cycle plants or Stirling engines). The bonuses can be used cumulatively.

The payment rate for wind energy on land was lowered in the amendment. Wind parks which could not achieve at least 60% of the reference yield at the planned location can no longer claim payment under the 2004 law. For coastal sites in particular there are new incentives for so-called repowering - the replacement of old, smaller installations with modern, more efficient ones. The higher starting fees for offshore wind parks will now be paid for installations commissioned before 2010 (previously 2006).

Equalisation scheme

Due to wind conditions, considerably more electricity is generated from wind power in northern Germany than in the south. To prevent regional inequality in the treatment of electricity consumers, the transmission grid operators must undertake a nationwide equalisation of the electricity volumes purchased under the EEG and the corresponding fees.

Supplementary regulations

The new EEG gives greater consideration to aspects of nature conservation, in particular with regard to the use of hydropower, photovoltaics and wind energy. To improve transparency, the new EEG introduces an obligation on the part of the grid operators to publish energy volumes and payment figures. To improve information on the increased use of renewable energies even further in future, an installation register will be created.
Since July 2003 there has been an equalisation regulation for electricity intensive companies in the producing sector. This regulation is expanded in the amended EEG. Electricity intensive companies in the producing sector and environmentally friendly railways can be included under the equalisation regulation if their electricity consumption is higher than 10 gigawatts (previously 100 gigawatts) and the ratio of electricity costs to gross value added exceeds 15% (previously 20%). The amendment to the EEG limits the total relief volume. This limits the extra costs incurred by non-privileged companies due to the equalisation scheme. The electricity volumes which are distributed among the non-privileged electricity consumers are limited to a maximum of 10% above the share calculated pursuant to the EEG.

In accordance with the provisions laid down by the European Union, the new EEG allows authorised bodies to issue guarantee of origin for electricity from renewable energies. This promotes consumer information and protection. The prohibition of multiple sales makes plain that the positive environmental characteristics of electricity from renewable energies may not be sold multiple times. The ban includes relevant guarantees and the simultaneous payment for and passing on of guarantees for the same electricity.
To clarify issues of application and to solve basic disputes, a clearing house can be established.

The Federal Environment Ministry must make regular reports to the German Bundestag on the impact of the EEG. This aims i.a. at enabling payment structures to be adapted where

necessary to the actual circumstances. This reporting obligation was expanded to include the impacts of the EEG on environmental protection and nature conservation.

Annex I: payment rates for new installations commission in 2004 (from 1.8.).

Branch	Installation capacity	Fee paid (ct/kWh)	Capacity range	Degression[1]	Comments
hydropower	up to 5 MW	9.67 6.65	up to 500 kW from 500 kW to 5 MW	-	as of 2008 certain site restrictions
	from 5 MW to 150 MW	7.67 6.65 6.10 4.56 3.70	up to 500 kW from 500 kW to 10 MW from 10 MW to 20 MW from 20 MW to 50 MW from 50 MW to 150 MW	1%	only in case of modernisation and only payment for the capacity increase
landfill gas, sewage gas, mine gas	unrestricted	7.67 6.65 6.65	up to 500 kW from 500 kW to 5 MW mine gas from 5 MW	1.5%	in the case of landfill and sewage gas, payment will apply to the electricity to be attributed to the capacity range exceeding 5 MW, according to the market price
	unrestricted	9.67 8.65 8.65	up to 500 kW from 500 kW to 5 MW mine gas from 5 MW	1.5%	if certain innovative technologies used
biomass[2]	up to 20 MW	11.50 9.90 8.90 8.40	up to 150 kW from 150 to 500 kW from 500 kW to 5 MW from 5 MW to 20 MW	1.5%	
	Bis 20 MW	3.90	to 20 MW	1.5%	if waste wood of category A III and A IV is used for installations commissioned from 01.07.2006
	up to 20 MW	17.50 15.90 12.90	up to 150 kW from 150 kW to 500 kW from 500 kW to 5 MW	1.5%[3]	para. 2 applies only for particular substances (self regenerating raw materials).

[1] The rate of payment also depends on the year of commissioning. For newly commissioned installations, the rate is reduced annually (degression). This provides a continual incentive to improve efficiency and reduce costs.
[2] For biomass, other combinations are possible pursuant to paras. 2 to 4 in Article 8, which are not described here.
[3] Degression relates only to the basic payment pursuant to para. 1, not to the bonus pursuant to para. 2

	up to 20 MW	17.50 15.90 11.40	up to 150 kW from 150 kW to 500 kW from 500 kW to 5 MW	1.5%[3]	para. 2 sentence 2 applies to the combustion of wood as defined in sentence 1.
	up to 20 MW	13.50 11.90 10.90 10.40	up to 150 kW from 150 kW to 500 kW from 500 kW to 5 MW from 5 MW to 20 MW	1.5[3]	para. 3 applies to electricity co-generated from combined heat-power installations
	up to 20 MW	13.50 11.90 10.90	up to 150 kW from 150 kW to 500 kW from 500 kW to 5 MW	1.5%[3]	para. 4 applies to the total electricity from combined heat-power installations using certain innovative technologies
geothermal energy	unrestricted	15.00 14.00 8.95 7.16	up to 5 MW from 5 MW to 10 MW from 10 MW to 20 MW from 20 MW	1% as from 2010	
wind energy on land		8.7[4] / 5.5[5]		2%	Depending on reference yield, the higher payment rate is granted for 5 to 20 years
offshore wind energy		9.10[4] / .6.19[5]		2% as from 2008	The higher starting rate is paid for installations commissioned prior to 2011; depending on the site, it is granted for 12 to 20 years.
solar radiation	Attached on or to buildings or noise protection walls	57.4 54.6 54.0	up to 30 kW from 30 kW to 100 kW from 100 kW	5%	
	façade systems	62.4 59.6 59.0	up to 30 kW from 30 kW to 100 kW from 100 kW	5%[6]	

[4] Starting fee
[5] End fee
[6] Die Degression bezieht sich nur auf die Grundvergütung, nicht auf den Bonus nach Absatz 2 Satz 2

	other systems	45.7		5% from 2005, 6.5% from 2006	certain site criteria must be met

[6]Degression relates only to the basic payment, not to the bonus