

MAIN FEATURES OF THE GERMAN REFIT LAW

Name Renewable Energy Sources Act (Gesetz für den Vorrang Erneuerbarer Energien, EEG)

In Force: 1.8.2004, last major revision 7.11.2006

The EEG follows the Electricity-Feed-In Act of 1990, which already established the system of feed-in-tariffs.

Objective: § 1 EEG

“(1) The purpose of this act is to facilitate a sustainable development of energy supply, particularly for the sake of protecting our climate, nature and the environment, to reduce the costs of energy supply to the national economy, also by incorporating long-term external effects, to protect nature and the environment, to contribute to avoiding conflicts over fossil fuels and to promote the further development of technologies for the generation of electricity from renewable energy sources.

(2) This act is further intended to contribute to the increase in the percentage of renewable energy sources in power supply to at least 12.5 per cent by 2010 and to at least 20 per cent by 2020.”

This links into the general objective of the Energy Economy Act (Energiewirtschaftsgesetz, EnWG) which regulates the energy market generally (relationship between grid – production, etc.):

§ 1 EnWG:

“(1) The purpose of this act is to ensure the secure, low-cost, consumer-friendly, efficient and environmentally friendly grid-bound supply of the general public with electricity and gas.” (unofficial translation)

Addressee

- Grid System Operator (Definition in § 3.7)

“(7) Grid system operators shall mean the operators of all types of voltage systems for general electricity supply. The transmission system operators shall be the responsible grid system operators of high-voltage and extra-high-voltage systems which are used for the supraregional transmission of electricity to downstream systems.”

→ This means that the Act is primarily targeted at the four grid-system operators (EnBW, E.ON, RWE und Vattenfall) who operate the 380-kV- and 220-kV-Grid. These have originally bought the grid from the state/state owned entities. Only since 1999 are electricity production and ownership/operation of the grid system separate. This separation is mandatory by law (EnWG), which has transposed the EC directive on the common market for electricity (98/30/EC). According to the EnWG, the main obligations of the grid system operator are the upkeeping and upgrading of their grid infrastructure, the monitoring of feed-in of electricity (who, when and how much is fed into the national grid?), maintenance of the prescribed voltage and frequency in the grid. These technical requirements were arguments used by the grid owning companies against the feed-in-law as they said they would be unable to guarantee the availability of electricity at all times with such fluctuating, small scale installations (i.e. renewable energy) connected to the grid.

- Operator of the Installation/Plant (Definition in §§ 3.2, 3.3)

“(2) Plant shall mean any independent technical facility generating electricity from renewable energy sources or from mine gas. Several plants generating electricity from equivalent renewable energy sources or from mine gas, if constructed within the territorial application of this act and directly attached to building structures and commonly used installations technically required for operation shall be considered as one plant if Articles 6 to 12 do not provide for otherwise; inverters, access ways, grid connections as well as measuring, administrative and control facilities in particular are not technically required for such operation.

(3) Plant operator shall mean anyone who, notwithstanding the issue of ownership, uses the plant for the purpose of generating electricity from renewable energy sources or from mine gas.

→ This means that any household can require its roof-top PV system to be connected to the grid. On the other hand, house owners cannot directly use the electricity they generate. There is no general limit for renewable energy plants (the EEG 2000 still exempted plants of certain sizes generally), but see §§ 6-11.

→ The act is not applicable to plants owned by the federal state or the states (25% margin), § 2 II).

→ Eligible Plants are defined in detail in the provisions on the actual tariffs (§§ 6-11). For each technology, some type of differentiation is made, depending on either the size of the plants, their operation site, etc. This can only be fully assessed when reading the actual text of the law. For example, biomass plants are only eligible if they produce up to 20 MW and use biomass according to the Regulation on Biomass (Biomasseverordnung); hydropower plants with a capacity of more than 150MW are excluded from the REFIT scheme.

Main subjects of regulation (see § 2)

- Obligation to immediately and priority connect the renewable energy plants to the grid, §4
- Obligation to priority purchase the electricity, § 4
- Obligation to priority transmit the electricity, §4
- Payment for the electricity by technology, § 5, 6-11
- Compensation between the grid operators to level out regional differences (Equalisation scheme) (§14)
- Obligation to upgrade grids (§4.2)
- Obligation to document and publish data on grid and plants (§14a)

Obligation to connect, §4

“(1) Grid system operators shall immediately and as a priority connect plants generating electricity from renewable energy sources or from mine gas to their systems and guarantee priority purchase and transmission of all electricity from renewable energy sources or from mine gas supplied by such plants.”

(2) The obligation under paragraph (1) first sentence above shall apply to the grid system operator that is most closely located to the plant site and is in possession of a grid technically suitable to receive electricity ...

→ “as a priority” means that the grid operator cannot argue that its system has full capacity. He must, if the grid system is physically overloaded, refuse the purchase of other types of electricity, § 4.3

“(3) The obligation for priority connection to the grid system pursuant to paragraph (1) first sentence above shall apply even if the capacity of the grid system or the area serviced by the grid system operator is temporarily entirely taken up by electricity produced from renewable energy sources or mine gas, unless the plant does not have a technical facility for reducing the feed-in in the event of grid overload.”

→ the term "immediately" was inserted in 2004 after some grid system operators had made excuses resulting in long delays of the going online of the plants

→ The costs for the direct connection to the grid are borne by the plant operator, § 13.1

→ The grid operators must, up to a “reasonable economic expense”, upgrade their grid, § 4.2

→ In case conflicts arise, the civil courts have jurisdiction. There is no authority for any public institution to make a grid system operator connect the renewable energy provider. This could / should be solved differently, especially in countries with less rigid and enforcement-friendly court systems.

→ No contractual relationship between plant operator foreseen (§ 12.1),

“(1) Grid system operators shall not make the fulfilment of their obligations under Articles 4 and 5 conditional upon the conclusion of a contract.”

But grid system operator and plant operator can enter into a contract about the precise modus of connection (this is common practice):

§ 4.1 Notwithstanding Article 12(1), plant operators and grid system operators may agree by contract to digress from the priority of purchase, if the plant can thus be better integrated into the grid system. When determining the charges for use of the grid, grid system operators may add any costs incurred in accordance with a contractual agreement pursuant to the third sentence above, provided that such costs are substantiated.

This is important as it protects the small plant operators from arbitrary demands made by the grid operator (large companies). The obligation to connect follows directly from the law, but the parties can negotiate special conditions (see also §13 I EnWG)

Obligation to pay, § 5

“(1) Pursuant to Articles 6 to 12, the grid system operators shall pay fees for electricity generated in plants exclusively using renewable energy sources or mine gas and purchased in accordance with Article 4(1) or (5). The obligation in accordance with the first sentence above shall only apply to plants with a capacity of over 500 kilowatts where the capacity is measured and recorded.”

→ No (civil) contracts (between plant and grid operator) are necessary to implement the payment obligation. The actual volumes of feed-in electricity are measured by certified stations at the entry to the grid. These measurements form the basis for the payment.

Amount payable (feed-in-tariffs), differentiated according to technology, §§ 6 - 11

→ tariffs are generally based on electricity generation costs, generalised and not based on case-to-case assessments

→ stepped tariffs –tariffs are designed stepwise: for each technology a minimum tariff is prescribed (€/Cent/KWh) which is complemented by various criteria, which when met by plants, will increase the tariff substantially.

An example (Biomass), § 8

“(1) The fees paid for electricity produced in plants with a capacity of up to and including 20 megawatts using exclusively biomass as defined in an ordinance adopted pursuant to paragraph (7) below shall be

1. at least 11.5 cents per kilowatt-hour up to and including a capacity of 150 kilowatts,
2. at least 9.9 cents per kilowatt-hour up to and including a capacity of 500 kilowatts,
3. at least 8.9 cents per kilowatt-hour up to and including a capacity of 5 megawatts and
4. at least 8.4 cents per kilowatt-hour for a capacity of over 5 megawatts.

...

(3) The minimum fees in accordance with paragraph (1) first sentence above shall be increased by 2 cents per kilowatt-hour in the case of electricity within the meaning of Article 3(4) of the Combined Heat and Power Generation Act ... “

Another example is Wind energy where the tariff will vary depending on the wind energy potential of the region where the plant is situated, § 10

“(1) The fees paid for electricity generated by wind-powered plants shall amount to at least 5.5 cents per kilowatt-hour except as provided in paragraph (3) below. For a period of five years starting from the date of commissioning, the fees shall be increased in accordance with the first sentence above by 3.2 cents per kilowatt-hour for electricity generated in plants which during this period of time achieve 150 per cent of the reference yield calculated for the reference plant as defined in the annex to this act. For any other plants, this period shall be extended by two months for each 0.75 per cent of the reference yield which their yield stays below 150 per cent of the reference yield.”

(3) The fees paid for electricity generated in offshore wind-power plants which are located at least three nautical miles seawards from the shoreline shall be at least 6.19 cents per kilowatt hour.

... “

→ The criteria vary from technology to technology and are difficult to capture as a general rule.

→ There is a time limit for plants which will be afforded the guaranteed feed-in-tariff. (§ 6.2 S.1 for hydropower and § 11.3 for solar – the fixed tariffs will apply to certain plants constructed after a certain date only under exceptional circumstances). This limit is purely

political and based on macro-economic assumptions. Whether or not such a provision is necessary will depend heavily on the country set-up and political opposition / forces.
→ The fixed tariff is subject to a fixed degeneration, which is different for each technology. Solar energy is subject to most degeneration (up to 6,5%):

“§ 11 (1) The fees paid for electricity generated by plants using solar radiation shall amount to at least 45.7 cents per kilowatt-hour.
(5) The minimum fees pursuant to paragraph (1) and paragraph (2) first sentence above shall be reduced annually for plants starting operations after the specified date as of 1. January 2005 five percent of the relevant value for new plants commissioned in the previous year; the amounts payable shall be rounded to two decimals. As of 1 January 2006, the relevant percentage pursuant to the first sentence above for plants specified in paragraph (1) above shall be increased to 6.5 per cent.

→ This means that solar plant operators will receive 40,60 Cent/kWh in 2006, but only 31,02 in 2010 (6,5% degeneration annually)

Deadline /fixed time period:

§ 12.3 stipulates that the obligation to purchase will phase out after (normally) 20 years, which is when the plants are usually fully financed.

Other important aspects to make the REFIT law work:

- Planning law was also revised to ease planning preconditions and permit cycles. Without a major revision of the federal building Act (Baugesetzbuch), new plants, especially wind and biomass would have had a difficult start with respect to getting building permits on green fields. The REFIT law would have been practically unenforceable, as the general rule was that the landscape outside cities and dwellings should be preserved, save for agricultural structures and buildings. The local authorities would have had to enable planning through local building plans (Bebauungspläne) – which they would not have done given the opposition against wind plants in particular.

- Another interesting feature introduced recently into the EnWG (§ 43) is a special type of planning procedure for underground cables (110 KV). This enables especially off-shore wind farms to connect to the grid and – if necessary – expropriate private land owners. As it turned out in recent years, while there was connection obligation under the EEG, sometimes establishing the physical cables was a real issue as the plant and grid operators fully depended on the free will of land owners to allow the cables to cross their land. This development is even more interesting as traditionally – under German law – lines and cables as well as smaller pipelines do not require formal permits. The formal schemes only apply for over ground-high-voltage installations (pylons and lines).

Costs:

The costs for the support of renewable electricity under the EEG are borne by all electricity consumers. However, the 2006 changes to the EEG concerned a further financial relief from EEG payments for industry and railway companies consuming large amounts of electricity. These companies will only be charged 0.05 cent/kWh for electricity from renewable energies covered by the EEG. This is less than one tenth of the regular level. The savings will increase by around € 100 million and will amount to around € 365 million in 2007.

For the protection of all electricity consumers the amendment also assigns new competencies to the Federal Network Agency. The agency will ensure that electricity suppliers do not charge more than necessary for electricity from renewable energies.

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