Legal support of photovoltaic in Germany – a report related to practice

M A S L A T O N

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Content of this lecture:

I. Introduction

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Most of the people think that the use of solar power is the embodiment of an environmental friendly energy production. Using photovoltaic enables you to produce energy without additional emissions and often also without additional areas (i.e. on roof tops).

In the year 2006, the share of photovoltaic regarding the whole energy production from renewable energy sources in Germany has increased to 2.8 %. The estimated technical usable potential of electricity is tremendous and comes a close second behind wind energy:

(1) wind energy	167 TWh/a
(2) photovoltaic	84 TWh/a
(3) geothermal energy	65 TWh/a
(4) biomass	59 TWh/a
(5) hydro power	25 TWh/a

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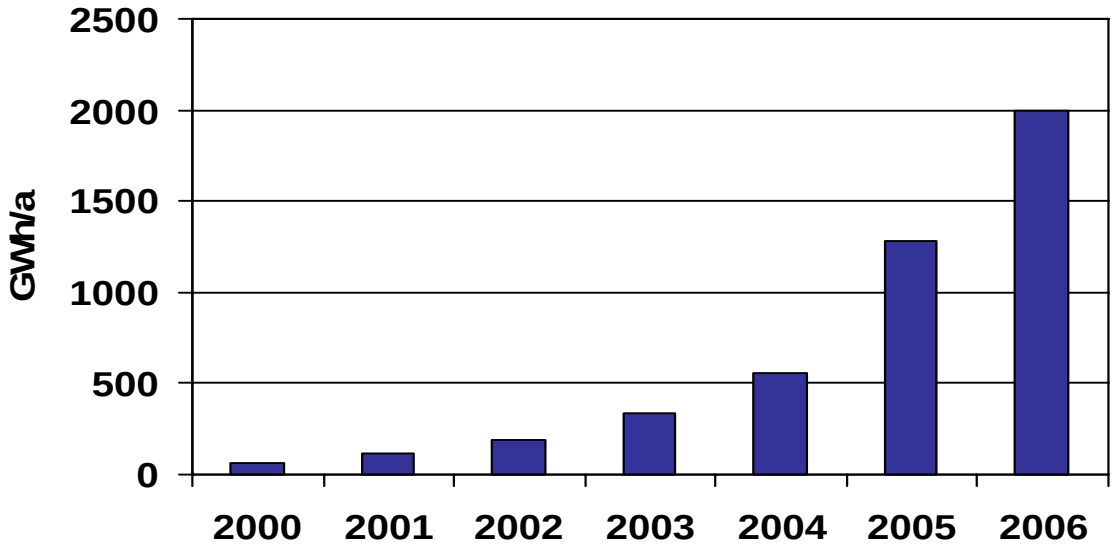
Since 2000, the contribution of photovoltaic regarding energy production has increased sharply:



The back ground therefore lies in the support of energy production concerning photovoltaic because of the Renewable Energy Sources Act from the year 2000, which has been amended in 2004.

II. Legal basics

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In Germany, the support of renewable energies is regulated by the Renewable Energy Sources Act (EEG) from the year 2000. This act does not only concern photovoltaic plants, but also other alternative kinds of energy production (i.e. wind energy, biomass, hydro power, geothermal energy).

This act is **no subsidy** for the benefit of renewable energies, it regulates the relations between the operator of a plant and the grid operator. Therefore, it is only under private law.

In 2004, the EEG has been amended. That is why the conditions for the erection of photovoltaic plants have been improved.

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Important provisions of this act concerning photovoltaic plants are:

- Liability of the grid operator to treat the grid connection of photovoltaic plants with priority
- Liability of a priority purchase and reimbursement of the supplied electricity
- Assessment of a minimum reimbursement
- Regulations concerning the distribution of costs for grid connection and measures for grid extension

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The support of photovoltaic plants is limited to 20 years from the opening of the plant; after that time the operator of a plant has no legal claim to get EEG-reimbursement any longer.

In the years 1999 until 2004, the erection of photovoltaic plants has been supported by the so called “100,000-roofs-programme”. In the scope of this programme, it was possible to receive a low-interest credits for solar power plants.

This programme has expired in 2004 as a total of 65,740 plants with a total capacity of 345 MWp had been supported.

III. Grid connection of photovoltaic plants

a. Grid connection and purchase

According to § 4 section 1 sentence 1 EEG, grid operators are obliged to **connect** plants for energy production through renewable energy sources to their grid and to **purchase** the produced electricity with priority.

Every operator of a grid for general supply (grid for distribution or transmission) is an obliged grid operator.

That is why an (enforceable) liability for grid connection is justified, the conclusion of an agreement concerning grid connection/feed-in is not necessary.

a. Grid connection and purchase

The grid connection takes places at the **mixing point**, which is technically and economically beneficial.

At first, the mixing point with the shortest distance to the feed-in cable has to be used. Only when this mixing point is technically not adequate, it is possible to take the one, that creates the lowest costs.

The liability of grid connection also persists, when is connection is only possible through a **grid extension**, i.e. when the capacity is limited.

a. Grid connection and purchase

“With priority” means, that plants for the production of renewable energy sources take precedence over plants for energy production through fossil fuels concerning connection as well as concerning purchase.

When the grid is overloaded, fossil power stations have to be taken off the grid at first. When this has happened, it is possible to take plants for the production of renewable energy sources off the grid.

In general you can say that the EEG gives precedence to photovoltaic plants concerning grid connection und purchase of the produced energy.

b. Distribution of costs for grid connection and grid extension

In general, the central subject of the dispute concerning grid connection of photovoltaic plants is who has to bear the costs for connection. The grid operator as well as the operator of the plant are trying to shift costs on to each other.

Therefore § 13 EEG reaches a conciliatory provision concerning the distribution of costs. According to this provision, the operator of the plant has to pay for the **grid connection**, whereas the grid operator has to pay for the **grid extension**. Therefore, criterion for demarcation is the necessity for the operation of the grid and the property of the operator of the plant.

b. Distribution of costs for grid connection and grid extension

Costs concerning grid connection = costs for all measures beyond the public grid, which are necessary for grid connection

→ i.e. laying of cables at the estate of the operator of the plant, modifications at the service entrance box

Costs concerning grid extension = costs in connection with the necessary extension of the grid

→ i.e. extension of transformers, leads and control technology, boosting of the feed-in point

b. Distribution of costs for grid connection and grid extension

The act contains one help for plants with a capacity of up to 3 kW, which is normally the case for photovoltaic plants on roof tops:

When the plant is situated on a piece of land, where a house service connection already exists, then this mixing point will be the one, which is technically and economically beneficial. If the grid operator has to take another mixing point or has to extend the house service connection, he has to pay all the costs.

IV. Reimbursement of electricity from photovoltaic plants

a. Basic reimbursement

Within § 11, the EEG determines a basic reimbursement for electricity from photovoltaic plants, which is fed-in to the grid of the grid operator.

The particular reimbursement is sophisticated according to the kind of plant:

- basic reimbursement
- special reimbursement for plants within buildings
- bonus for upright plants

Moreover, there are special conditions for the reimbursement for electricity from plants on open space.

b. Basic reimbursement

The basic reimbursement for solar power amounts to **45,7 ct/kWh**, when the plant began to operate in the year 2004.

This relatively high reimbursement explains itself with the fact, that the technologies of photovoltaics are relatively young and the necessary market drive only gets slowly under way. The high reimbursement should promote the development of innovative technologies for the transformation of solar radiant energy into electricity. Moreover, this high reimbursement is compensated by a relatively strong degression.

c. Special reimbursement for plants within buildings

The legislator wants to grant a special privilege to plants at or on buildings or on noise protection walls, because they do not need an additional soil compaction.

Compared with the basic reimbursement, a **performance-oriented increase** is planned to improve the stance of smaller plants:

- 11,7 Cent/ kWh for plants with a capacity of up to 30 kW,
- 8,9 Cent/ kWh for a capacity of 30 kW onwards,
- 8,3 Cent/ kWh for a capacity of 100 kW onwards.

d. Bonus for upright plants

There is a special bonus of 0,5 ct/kWh for **upright plants within buildings**.

The photovoltaic plant has to be an important part of the building to get the benefit of this bonus, that means the plant has to replace the external wall.

On the one hand, this bonus should accommodate the higher costs, which are connected to upright plants. On the other hand, the legislator wants to stimulate the use of this high potential.

d. Degression

The legally determined basic reimbursement for the feed-in of electricity from photovoltaics decreased about **5 %** per year for every plant, that begins to operate newly (degression). Since 2006, the degression has been around **6,5 %**.

This applies for the basic reimbursement as well as for the increased reimbursement for plants on or at buildings, but not for the additional bonus for upright plants within building.

When the reimbursement was 45,7 ct/kWh in 2004, only **37,96 ct/kWh** will be paid for plants, which started to operate in **2007**.

d. Degression

With 5 %/6,5 %, the degression for photovoltaic plants is very high. The yearly degression for other renewable energy sources in the scope of the EEG is around 2 %.

The high degression should compensate the expected progress of the technical development in the field of the energetically use of solar radiant energy.

When photovoltaic plants have been connected to the grid, the level of reimbursement remains at the same level for a period of 20 years.

V. Special case: plants on open space

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There are some special features for the installation of **plants on open space**:

Plants on open space are the ones, which are not fixed at or on another architectural construction, but on especially manufactured racks.

It is possible to rebuild whole areas, which had been originally used for agriculture.

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The legislator wants to ensure, that ecologically sensitive areas are not rebuild in an extensive way. He also tries to reach the highest possible acceptance of the affected population.

That is why plants on open space only get the basic reimbursement under certain conditions. The plant has to be put into operation before **1 January 2015**

- either in the scope of a development plan, which displays an area for photovoltaic plants on open space
- or on an area, which was part of a licensing procedure.

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If the plant will be erected in the scope of a development plan, the Renewable Energy Sources Act envisages further limitations. A demand on reimbursement only exists, when

- the plant is situated on an area, which was already sealed, when the development plan was arranged, or
- the plant is situated on an area of conversion from economic or military use, or
- the plant is situated on farmland.

Thereby, the legislator tries to avoid **immoderate soil compaction**.

VI. Summary

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With the EEG, the German legislator has created an efficient instrument for the production of electricity from renewable energy sources.

Potential operators of a plant obtain the necessary guarantee for investment by the fixation of a legal basic reimbursement and by an obligation of connection and purchase.

That is why the installation of photovoltaic plants has increased massively during the last years. The production of modules could also denote some important technical imporvements.

Thank you very much for your attention!

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