

## **2016 Revision amending the Renewable-Energy-Sources-Act**

- Key points -

### **I. Introduction**

Expanding the share of renewable energy in the electricity sector is one of the key pillars of the German energy transition. This share is to be increased from a current 33 per cent to between 40 and 45 per cent by 2025, to between 55 and 60 per cent by 2035, and to at least 80 per cent by 2050. The Renewable Energy Sources Act is the key instrument that will enable Germany to meet these targets.

In order for this extra capacity to be added and used, renewables will have to be better integrated into the electricity markets. This is why the 2014 revision of the Renewable Energy Sources Act, which was passed by a large majority, stipulates that funding for renewables is to be allocated through auctions, from 2017 at the latest. The introduction of auctions marks a major step in Germany's drive to render the Renewable Energy Sources Act more market-driven and allow for more competition. The 2016 revision will deliver this transition to a system based on auctioning.

### **II. Guiding principles**

The new system of auctioning is to ensure that the expansion of renewables continues at a steady pace, in a cost-efficient manner, and with strong public support. This is why the 2016 revision of the Renewable Energy Sources Act will be guided by three underlying principles:

#### **1. To keep within the agreed 'deployment corridors' for the development of renewable energy**

The pace at which renewables are expanded should be in line with the 'deployment corridors' that have been defined, i.e. it should neither be too fast, nor too

slow. Ensuring that auctions are held for just the right amount of capacity will make it possible to prevent the expansion from proceeding too rapidly. At the same time, care must be taken to ensure that as many as possible of the projects that are successful in the auctioning process are actually undertaken and completed. This is to ensure that the minimum targets are met. The auction processes are therefore designed to ensure maximum rates of project implementation.

**2. To keep to a minimum the overall cost arising from the Renewable Energy Sources Act**

The amount of funding paid for renewable electricity should not exceed the amount that is needed in order for the installation to be operated in a way that is economically viable. This can only be achieved if there is sufficient competition, which is why auctions will only be held where this is the case.

**3. To use auctions to create a level playing field for all of the players involved**

The auctions are to provide a level playing field for all of the players involved. This must apply across different regions (e.g. northern/southern Germany) and for all of the various types of players (e.g. small and medium-sized firms, energy cooperatives set up by individuals, local project developers, etc.). The high level of diversity of players is to be upheld.

For these reasons, the auctions are being designed to be as straightforward and transparent as possible. At the same time, a great deal of regulation is needed to ensure that the process is equitable and that the best-possible balance is struck between the conflicting goals of a high rate of implementation, cost-effectiveness, diversity of players, and public acceptance.

### **III. Technologies for which auctions will be held**

Auctions will be held for installations using the following technologies:

- onshore wind energy
- offshore wind energy, and
- large scale photovoltaic installations.

These technologies will continue to provide the bulk of Germany's renewable energy as the energy transition proceeds. Auctions for these three technologies will begin in 2017 and cover approx. 80 per cent of all of the additional power that is generated each year as a result of new renewable energy installations being deployed.

There will be an exemption for installations with a capacity of 1 MW or less. The level of funding that is available for these small-scale installations will be set out in statute. The exemption helps avoid red tape and is designed to maintain a diversity of players in the market. Furthermore, there will be a transitional period during which the following types of installation will be exempted from auctioning:

- onshore wind installations, provided that approval under immissions control law is granted by the end of 2016, and that the installation starts operating before the end of 2018; and
- offshore wind installations, provided that an unconditional commitment is made by the end of 2016 to connect them to the grid, or that the installation has been given a connection capacity by the end of 2016, and that the installation starts operating before the end of 2020.

Biomass is another technology for which specific rules apply. A market analysis has shown that a system which would restrict auctioning to new biomass installations would not make sense, given the limited potential of these installations and given their cost structure. This is different for existing installations, for which funding will be phased out incrementally from 2020. Unless follow-up funding is provided, it is likely that almost all of these installations will become economically unviable and cease to operate. If auctions were to be held for follow-up funding, this might result in the most cost-effective and efficient biomass installations remaining in operation and being modernised and upgraded to allow for greater flexibility. Work is currently underway to explore how this can be achieved in the most cost-effective way possible. The

2016 revision of the Renewable Energy Sources Act will therefore include a number of initial key points of reference, and authorise the Federal Government to issue an ordinance that will make it possible for a combined auctioning procedure to be developed for new, existing, and extended biomass installations.

## **IV. Design of the auctions**

### **1. General information**

The auctions held for each of the three technologies (onshore and offshore wind power and photovoltaics) will be based on a different design perfectly tailored to the technology and its specific needs.

Nevertheless, there are certain features that all three designs have in common. These include the following:

- In those cases where auctions become mandatory, funding will only be provided for installations that have been successful in an auction. All auctions will be conducted by the Federal Network Agency (BNetzA).
- Every year, the Federal Network Agency will be organising three to four rounds of auctions for onshore wind power and for photovoltaics. Each round, the Federal Network Agency will be auctioning a predefined amount of capacity.
- The auction rounds will be open to single, sealed bids.
- In the interest of ensuring that only serious bids are submitted, it will be mandatory for every bidder to lodge a security.
- Bids will be placed for the floating market premium, and based on the “value-to-be-applied”. This is defined as the sum of the market value the electricity would fetch on the power exchange and the market premium. It will be the only criterion used to decide which bids are accepted.
- Bids will be accepted, starting with the lowest, and until the amount of capacity that is being auctioned is reached. In principle, the amount of funding corresponds to the individual bid (pay-as-bid principle).
- There is also a maximum price. Bids higher than the maximum price will not be accepted. The maximum price will be published in advance. It is guided by the amount of funding that has so far been provided.

- As a general rule, the Federal Network Agency will announce auctions at least eight weeks in advance. Bids will be evaluated and decisions taken swiftly. There are no plans to make use of reserve lists.
- In principle, bids will be tied to projects. In the case of onshore wind energy, it will not be possible for approvals to be transferred to other projects. In the case of photovoltaics such transfers are possible, provided that certain requirements are met. They will however, result in the funding being reduced. At the time when operations start, proof must be provided that the installation has been set up at the location specified in the bid/that the requirements for a transfer have been met.
- Once a bid has been accepted, the project must be implemented within a specified timeframe. In the interest of maximising the rate of project implementation, a contractual penalty applies in the event of non-completion of a project.

## **2. Photovoltaics**

- The auctioning system for PV is very similar to the one used for the pilot auction for ground-mounted installations, which has been in place since the beginning of 2015.
- Funding for all PV installations with a capacity greater than 1 MW will be subject to successful bidding in the auction. Hence the auction is open to the following types of installations:
  - ground-mounted installations,
  - rooftop installations and
  - PV systems installed on other types of physical structures, e.g. landfills.
- The rules for ground-mounted installations will remain unchanged from the pilot auctions. This means that future auctions will remain open to PV systems
  - installed on road and rail-side strips of land (110 metres wide alongside motorways and railways);
  - installed in conversion areas;
  - installed in sealed areas;
  - installed on a maximum of ten pieces of arable land per year (in disadvantaged areas).
  - installed on land administered by the Institute for Federal Real Estate (BImA).

These restrictions will ensure that only a limited amount of arable land and of areas that are key to conservation is used for installing PV systems. The maximum size of 10 MW per installation will continue to apply.

- Just as has been the case under the pilot auctioning systems for ground-mounted installations, there will be three auctions held per year. The dates by which bids must be submitted will, however, be changed as of 2018 (1 February, 1 June, 1 October).
- In the light of the experience gained from the pilot auction, the initial security to be lodged will be raised by a small margin. Otherwise, the design used for the PV auctions will remain the same as that of the pilot auction.

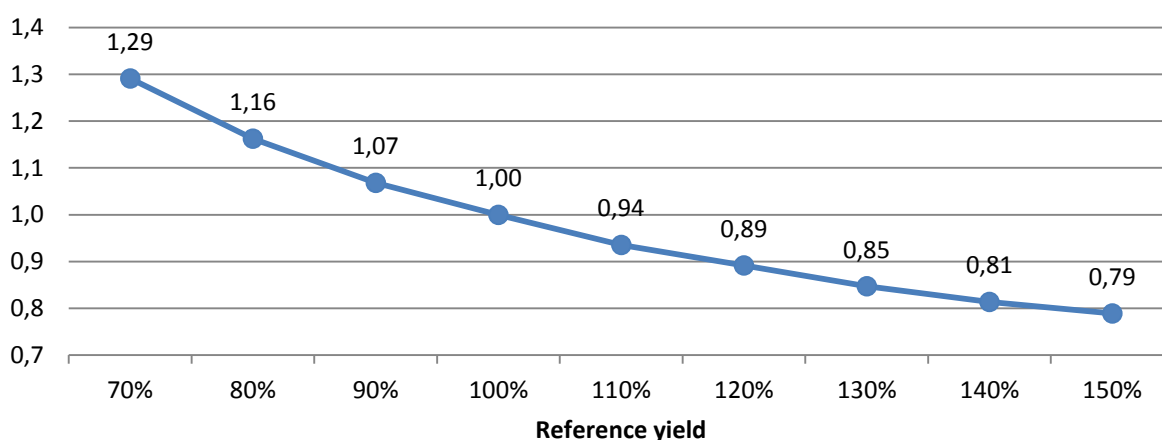
### **3. Onshore wind energy**

- In future, auctions will now also be held for onshore wind power installations. Exceptions apply for
  - installations started up during the transitional period (see above);
  - installations with up to 1 MW of capacity (see above); and
  - prototypes with a maximum capacity of 100 MW/year.
- Auctions are open to all installations that have been approved under the Federal Immissions Control Act (“late-stage auctions”).
- The first deadline for bids to be submitted is 1 May 2017. This is to ensure that there is a sufficient number of installations for which bids can be submitted during the first round. Installations approved under German immissions control law before the end of 2016 can be built in accordance with the provisions of the 2014 version of the Renewable Energy Sources Act (transitional installations, see above). It is possible for these transitional installations to switch to the new auctioning system, provided that a binding decision to this effect is taken by 15 March 2017.
- There will be two more rounds of auctions held in 2017; another four will take place in 2018. The decision to initially hold auctions more frequently is made in the interest of having a price level establish itself as soon as possible. As of 2019, there will only be three auctions held per year, which will increase competition. The deadlines for bids will then be the same as for photovoltaics.
- Bids must be based on the “value-to-be-applied”, which is calculated using a one-tier reference revenue model at a reference site (the ‘100-per-cent site’).

This advanced model is to level the playing field across Germany and provide incentives for the construction of efficient installations.

- More specifically, this means that:
  - A new reference site will be defined which will provide stronger incentives for the construction of efficient installations. In future, the reference value will be calculated based on the assumption that the wind speed at 100 m above the ground is 6.45 m/s. For higher installations, the wind speed is to be calculated based on the 'power-law formula', using a Hellmann Index of 0.25.
  - Operators will submit their bids based on these calculations, once these have been adjusted so that they fit the '100-per-cent site'. This means that the actual reference value expected for the installation will be multiplied by a statutory adjustment factor, and thus be converted into a reference value for a '100-per-cent site'. This makes it possible for the various bids to be compared.
  - It allows the Federal Network Agency to decide which bids will be accepted. Funding for those onshore wind installations that have been accepted will then be calculated based on the actual reference value (rather than the value adjusted to 100 per cent). This actual reference value will be defined for each individual installation, based on the results of expert opinions drawn up in accordance with the FGW Guidelines.
  - Once calculated, the funding rate calculated will apply for the entire 20-year funding period.
  - The figure used as a reference yield will be revisited after 5, 10, and 15 years so that the funding can be adjusted in line with the installation's actual yields.
  - Additional information on how the level of the funding will be calculated: The price at which the project was accepted will be multiplied by an adjustment factor, to yield the 100-per-cent adjustment factor. The Renewable Energy Sources Act will set out interpolation values in increments of ten (between 70 and 150 per cent). Linear extrapolation will be used to calculate values that fall in between these intervals. Below a reference value of 70 per cent, the adjustment factor will not be increased further. The adjustment factors have been chosen to provide

incentives for new installations to be built across Germany, but with even stronger incentives for them to be built on sites where there is strong wind. The following interpolation values have been put forward:



- The maximum level for bids will be 7.0 cents per kilowatt hour for the 100-per-cent reference site, over 20 years. This rate is roughly the same as the one that currently applies under the two-tier reference revenue model (based on mixed calculations). Every year, this figure will be reduced by 1 per cent. The Federal Network Agency is free to increase/decrease this maximum rate by up to ten per cent if this is warranted by circumstances linked to the competitive situation and/or the cost situation.
- The security that must be lodged by bidders amounts to 30 euros per kilowatt hour. This smaller amount compared to the one that applies for bids on PV is reflective of a much higher likelihood of implementation at the time of the auctioning. This is turn is due to the “late-stage auctioning system” for wind-powered installations, under which projects will enter the auction at a more advanced stage. For the same reason, bids on wind power only require an initial security (unlike bids on photovoltaics).
- Installations should be completed within two years after the bid has been accepted. After 30 months, the acceptance will no longer be valid. This deadline can be extended once in cases where a lawsuit has been filed against a project.

#### 4. Offshore wind energy

- The funding scheme set out in the 2014 version of the Renewable-Energy-Sources-Act will continue to apply for all offshore wind energy installations that



start operating before the end of 2020. Funding will continue to be regulated by the Renewable-Energy-Sources-Act.

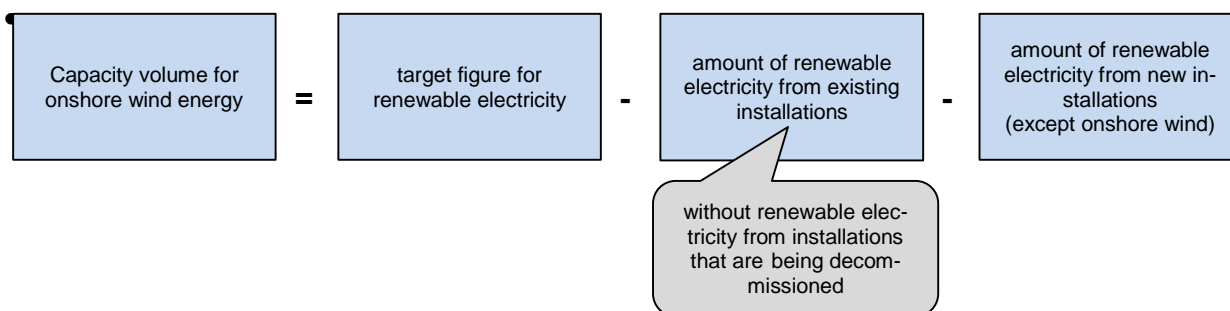
- Funding for all installations that begin to operate in 2021 or later will be allocated by auction. In the interest of coherence within the legal framework for spatial development and for the design of the auctions, a new law on offshore wind energy will be introduced (Article 2 in the draft legislation). This law will apply for all offshore wind-powered installations that start to operate in 2021 or later. The auctioning system will not include prototypes.
- In future, the government will explore sites at which future offshore wind farms are to be established so as to ensure that there is sufficient competition in the auction (“centralised model”). Bidders will compete for the right to establish a wind farm at the site that has been explored. The centralised model will ensure dovetailing between site planning, regional planning, approval of installations, funding under the Renewable-Energy-Sources-Act, and grid connection, which will improve the system and render it more cost-effective.
- The long run-up periods required for planning and approval mean that the centralised system under which the government takes care of pre-development will only come into force in [2024], following a transitional period.
- During this transitional period (2021-[2023]), existing capacities will continue to be expanded as wind farms that have already been planned and approved will be constructed. This is to ensure that the expansion continues and that it proceeds within the defined deployment corridor.
- The Energy Industry Act will also be amended, so as to ensure that the expansion of offshore capacity can be synchronised with the construction of power lines connecting the turbines to the shore.

## **V. Capacity volumes to be auctioned**

The 2014 Renewable-Energy-Sources-Act set out a deployment corridor for renewable energy that all players can rely on. This deployment corridor is crucial to ensuring that the expansion of capacity is synchronised with the expansion of the power grids. Furthermore, the corridor provides for planning security, which is important with regard to developments in the conventional power plant fleet, and also for Germany’s neighbours and their power systems.

For all these reasons, it is important that the expansion should proceed within the specified deployment corridor. This is why capacity volumes will be defined for the auctions for each technology:

- For offshore wind energy, the expansion targets set out in the 2014 version of the Renewable-Energy-Sources-Act will remain unchanged, meaning that 6.5 GW is to be installed by 2020/ 15 GW by 2030. A maximum volume of 11 GW of capacity has been defined for 2025. This is to ensure that the expansion does not proceed faster than is set out in the corridor. The capacity volumes to be auctioned will be defined in line with these targets – and that of adding 800 MW of capacity every year. All this applies both for the transitional system and the centralised system.
- For large-scale PV installations, the annual capacity volume to be auctioned is 500 MW. This is 100 MW more than the amount auctioned as part of the pilot system for ground-mounted installations. The reason for the increase is that the auction will now be opened up for PV systems installed on physical structures (such as landfills), and for large rooftop installations.
- The capacity volume for onshore wind is the one that is key to ensuring that the rate of expansion does not deviate from the corridor. It will be calculated using a formula that essentially works like this:



- The formula takes into account the development of the amount of renewable electricity and of gross energy consumption. The latter is key to determining how much renewable electricity is needed. This target figure is calculated using the highest percentage that is still within the deployment corridor, i.e. 45 per cent of Germany's electricity should be renewable by 2025.
- Each year, the capacity volume to be auctioned will be adjusted using the formula, so that it reflects the developments that are actually taking place. The

formula will not only be used to calculate the capacity volume for the year in question, but will also look at the development up until 2025. This ‘rolling method’ ensures that the rate of expansion remains within in the deployment corridor, whilst also taking a mid-term approach that helps avoid strong variations in the capacity volumes, which are undesirable in terms of industrial policy.

- The formula uses as its starting point the actual development of all renewables combined. This is to ensure that capacity added by technologies for which no auction is held is also taken into account. The ‘breathing cap’ for PV installations that are not subject to auctioning will remain in place. This is to avoid the calculations from being distorted and to add to the reliability of this method of quantitative steering.
- The initial capacity volume for onshore wind is expected to be calculated at around 2,900 MW (gross figure). In the event that the rate of expansion should develop in an extreme way at some point in the future, the capacity volumes calculated using the formula might drop below 2,000 MW. For this reason, a minimum annual capacity volume of 2,000 MW (gross figure) has been defined, which would apply in this unlikely event.

## **VI. Diversity of players**

- Maintaining the current level of diversity of players is key for Germany to be able to reach its expansion targets. Having a great many different individuals, companies and associations – including energy cooperatives formed by members of the public – has been instrumental in Germany achieving its current levels of renewables capacity. This high level of diversity of players is to be maintained as the system changes to one based on auctions. For this reason, installations with less than 1 MW of capacity will be exempt from the auctions. This mainly applies to small and medium-scale rooftop PV installations. Furthermore, the auctioning system for onshore wind, in particular, has been kept simple and transparent. It is designed to cater to the needs of smaller players and increase their chances of winning (e.g. the element of “late-stage auctioning”).
- Other than that, the Renewable-Energy-Sources-Act does not provide for any further exemptions designed to maintain current levels of diversity of players. The exemption for wind farms composed of no more than six installations that

exists under the guidelines on state aid for environmental protection and energy, for instance, has not been included on the grounds that it would result in a more segmented market for installations, reduce the level of competition, and lead to solutions that are economically inefficient.

- The Federal Government will, however, be providing advisory and support services for smaller players and regularly assess the impact on diversity of players in Germany.

## **VII. Technologies for which no auctions will be held**

In principle, the rules of the 2014 version of the Renewable-Energy-Sources-Act will continue to apply for all types of installations for which no auctions are held. This applies to all installations with no more than 1 MW of capacity; to prototypes of onshore wind-powered installations and onshore wind-powered installations covered by the transitional system; to offshore wind-powered installations up until 2020, and to all technologies for which funding is not allocated by way of auctioning.

In the 2016 version of the Renewable-Energy-Sources-Act, the rules governing funding for these facilities will be set out in the subsections on statutory rules on funding. In principle, the rules that have been in place until now will remain unchanged. This means that, as far as these installations are concerned,

- the two-tier reference revenue model for onshore wind energy,
- the compressed tariff model for offshore wind energy,
- and the breathing cap for rooftop PV installations

will remain in place. Only small adjustments apply, notably the following two:

- Whilst the new system will still be based on funding for onshore wind being reduced each quarter (quarterly degression), the rate of this degression will no longer depend on how much capacity has been added. Instead, a fixed rate of - 0.4 percentage points per quarter will apply.
- The breathing cap for PV installations will continue to apply. However, it will be amended so that it can respond more quickly to changes on the market. This is why it will be calculated based on a six-month period, rather than the current

12 months. If less than 2,000 MW of capacity is added, degression rates will decrease faster.