Federal Ministry
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Joint auctions for wind and solar installations

The approval of the 2017 Renewable Energy Sources Act (EEG) under state-aid rules stipulates that from 2018 to 2020, Germany must pilot joint auctions for onshore wind energy installations and solar installations (of more than 750 kW). This three-year pilot project will test the way in which the cross-technology auctions work, will look at their effects, and will evaluate final funding awards, particularly compared to those granted as part of technology-specific auctions.

The running of a pilot project does not necessarily mean that joint auctions are to be held beyond 2020. The Federal Ministry for Economic Affairs and Energy continues to view technology-specific auctions as the auction method of choice.

The key points for an ordinance introducing these joint auctions are set out below.

A. Volumes of the auctions and bid deadlines

The total volume of installed capacity being auctioned in joint auctions is 400 megawatts per year. This is divided up equally into two rounds of bidding, with bid deadlines of 1 April and 1 November. The installed capacity of wind or solar energy that is awarded funding within the space of one calendar year based on joint auctions will be deducted from the volume that is to be auctioned in the following year as part of technology-specific auctions for each technology respectively. This reciprocal effect is already laid down in the Renewable Energy Sources Act (Section 28 subsection 1a number 2 and subsection 2a number 2). The result is that the expansion targets set out in the Renewable Energy Sources Act for each technology will be met, irrespective of the technology for which funding awards are granted across the joint auctions. Based upon this, no further instruments are needed in the pilot phase in order to ensure that the distribution of funding awards between wind and photovoltaics is appropriate.

B. Conditions of auction and auction procedure

As a general rule, the same conditions of auction apply to each of the two technologies as those applied in the technology-specific auctions. This means that the general conditions of auction that apply to both of the technologies under Sections 28 ff. Renewable Energy Sources Act apply. In the case of onshore wind installations, the conditions of auction under Sections 36 ff. Renewable Energy Sources Act also apply; for solar installations, the conditions under Sections 37 ff. also apply. This continuity enables the funding awards to be compared more easily between the joint and the technology-specific auctions.

Due to the particularities of the joint auctions, certain technology-specific conditions of auction cannot, however, be applied. The following derogations are envisaged:

- The reference yield model envisaged under Section 36h Renewable Energy Sources Act for onshore wind installations will not be used in the joint auctions. This is expressly stipulated in the approval under state aid rules of the 2017 Renewable Energy Sources Act.

- In the case of solar installations in joint auctions, the maximum values in line with the rule in Section 37b Renewable Energy Sources Act apply. In the case of onshore wind installations in joint auctions, the same maximum value as that for solar installations under Section 37b Renewable Energy Sources Act will apply for the year 2018. For the years 2019 and 2020, differentiated maximum values for wind installations will be established (for more detailed information, see below).

- The special conditions of auction for citizens' energy companies under Section 36g Renewable Energy Sources Act do not apply to the joint auctions. In view of the small overall volume in question, it is justifiable that citizens' energy companies – even though eligible to take part – will not enjoy any special privileges in the pilot phase. The fact that citizens' energy projects need a long time to be realised would impact the viability of subjecting the pilot project to evaluation. In addition, the joint auctions must be based on a uniform award procedure. For this reason, the uniform pricing envisaged for bids by citizens' energy companies cannot be applied. If joint auctions continue to be held after the end of the pilot phase, the issue of bidder diversity should also be dealt with as regards this aspect, also.

C. Grid and system integration costs

The approval under state-aid rules of the 2017 Renewable Energy Sources Act (EEG) stipulates that the grid and system integration costs for onshore wind installations and for solar installations should be taken into consideration in the joint auctions.

1. Grid expansion area

The first way in which this provision will be implemented is by additionally applying the special requirements for funding awards for the grid expansion area under Section 36c 2017 Renewable Energy Sources Act for onshore wind installations in joint auctions. The rule set down for the grid expansion area in the 2017 Renewable Energy Sources Act will also be applied to this type of auction. This mechanism, which is designed to prevent the curtailment of onshore wind installations as far as possible, is to ensure that the restrictions that apply at transmission-system level are taken account of. No additional instrument is to be introduced to map transmission costs as part of grid and system integration costs.

Specifically, joint auctions can be used to grant funding awards for onshore wind installations located within the grid expansion area up to a combined installed capacity of 130 megawatts per year. This is equivalent to around 14 per cent of the annual volume available in the grid expansion area (902 megawatts), which corresponds to the share of the joint auctions (400 megawatts) in the maximum annual expansion volumes for onshore wind installations (2,800 megawatts). These 130 megawatts per year are distributed equally between the two rounds of bidding. The grid expansion area is due to be reviewed for the period after 2019 as part of routine reviewing. Depending on the results, the volume to be auctioned within the grid expansion area in 2020, also as part of joint auctions, may need to be revised.

2. Distribution system components

In addition, a new instrument is to be introduced in the form of distribution system components. These components are to be used to take account of the costs of expanding distribution grids in the joint auctions. What the distribution system components mean is that when bids made in the joint auctions are put into ascending order, an additional amount is added on top if the relevant installations are to be erected in rural districts in which the construction of further renewables installations means that a/another distribution system will need to be built.

a. Distribution grid expansion areas

In order to put the concept of distribution grid components into practice, the first task is for the individual distribution grid expansion areas to be delineated. This requires the rural areas to each be divided up into areas in which a/another distribution grid will need to be built following the construction of further renewables installations. A rural district becomes a distribution grid expansion area if the maximum fee-back of renewables-based energy from high voltage to ultra-high voltage level in this district is higher than the highest maximum load is. The maximum feed-back of energy per rural district is calculated based on the total installed generation capacity spread across renewables installations – which is weighted using 'capacity factors' – minus the minimum load that occurs at the same time.

This model-based approach is built upon the assumption that the generation capacity of renewables installations is relevant to the size of the grid if the maximum feed-back of energy from renewables is larger than the

highest maximum load. Following this logic, this would mean that every additional renewables installation would trigger the need for the grid to be expanded. If, however, the load is greater, it can be assumed that further renewables installations can be built without this making it necessary to expand the grid.

The installed generation capacity per rural district that is used to calculate the maximum feed-back is determined using the market data register. All of the renewables installations that have been registered in the market data register before a certain date which are connected to the high voltage grid or to lower grid levels (levels 3-7) are used in the calculation.

Account is also taken of the fact that renewables-based installations do not all feed electricity into the grid at the same time. This is the reason why the ordinance stipulates capacity factors. There will be a factor for onshore wind installations, one for solar installations, and one for other distributed installations. A minimum load factor will also be set, which will be used to take account of the fact that the maximum volume of electricity generated at a given moment is always offset by a minimum share of the maximum load.

Capacity factors will not be differentiated according to region. The balance between the installed capacity of onshore wind installations and that of solar installations will, however, be taken account of. This ensures that only the limited concurrence of feed-in from wind and solar installations is taken into account. In addition, it will also be ensured that the construction of further solar installations, for examle, can indeed take place in a rural district dominated by wind installations.

The highest maximum load which is also required for delineating the distribution grid expansion areas will similarly be identified for each rural district using an appropriate load model. This is a standard and solid procedure that is also used in grid expansion planning.

In the process of delineating the distribution grid areas, the actual grid and load situation in a rural district is not taken into account. Doing so would be most impracticable, as it would require a great deal of work, and the benefit would only be very small. Furthermore, if the actual grid situation were also to be taken into account, this would require a firm decision to be made on which renewables installations trigger specific expansion work. Contrasting with this, the strategy of using distribution grid components is built upon the fact that, in certain areas, the expansion of the distribution grid is generally driven by renewables and that the expansion has to be attributed to all additional renewables installations built in this this area.

The *Bundesnetzagentur* will delineate the distribution grid expansion areas annually, with the first map to be in place on 31 December 2017, and the second and third to follow on 31 December 2018 and 2019 respectively. In order to undertake this task, they will first need to gather the data on the installed generation capacity for each rural district recorded in the market data register, and then run this through a load model, which will enable them to calculate the relevant load. The capacity factors and the minimum load factor will be stipulated in the ordinance.

b. Additional amount added to bid amount

Within the scope of the auctions, bids made for installations that are to be built within a distribution grid expansion area will have an additional amount added to them. The ordinance will stipulate a baseline value for onshore wind installations and for solar installations respectively. This baseline figure will then be multiplied by the capacity factor (see above) for the relevant technology in the respective distribution grid expansion area. The resulting figure is the specific additional bid amount awarded for a wind or a solar installation in the rural district in question.

The additional amount will be calculated for each rural district, for each of the two technologies, prior to the start of the auction. The additional amount will be taken account of when the bids are put in ascending order, but not in the disbursement of funding. This means that for a bidding amount of “x” for an installation in a rural district where grid expansion is required, the additional amount “y” would be added to the bid amount during the listing of bids in ascending order. The bid would be ordered in the list of bids based on the combined value of “x” and “y”, but the funding amount actually disbursed for the installation is only “x”.

The baseline value is determined based on the typical costs for the expansion of the high voltage section of the distribution grid, which is usually the most expensive part to expand. The costs, which are calculated using a model, are spread across the average number of full-load hours for the two technologies. The grid expansion costs per kW of wind energy will be distributed across a higher number of full-load hours than for solar installations. The baseline value for onshore wind installations is therefore lower than for solar installations.

D. Differentiated maximum prices

The approval under state-aid rules of the 2017 Renewable Energy Sources Act stipulates that the reference yield model is not to be applied in the case of joint auctions. The reference yield model has hitherto been used to balance out the funding amount awarded where wind conditions differ, which has also served to limit the maximum possible profits for sites in differing locations. In the case of purely cross-technology auctions, any bids submitted for sites with the best wind conditions would be done so in full knowledge of the anticipated market clearing price. Bids for these sites could therefore win considerably higher funding awards than are needed for their operation to be economically viable.

One way to limit possible yields on sites with stronger winds, without using a reference yield model, is to introduce maximum values based on region. Under this approach, different classes of regional maximum values would be stipulated based on objective wind data and current costs analyses. In accordance with objective wind data available for the different rural districts, each of these districts can be assigned to a particular maximum value class.

The differentiated maximum values will only be applied in the joint auctions in 2019 and 2020. The highest funding amount that a bidder would receive would be the highest amount stipulated for the site where his installation is to be located. The differentiated maximum values would not be used in the joint auctions in 2018. As the reference yield model will not be applied, the maximum values for onshore wind installations in technology-specific auctions cannot be used either. Therefore, the maximum value for solar installations will also be applied to onshore wind installations.

The number of maximum value classes to which differentiated maximum values are assigned will depend on the accuracy of the wind data, the range and geographic distribution of sites, and on the economic viability of operating the respective installations based upon these factors. In the relevant discussion based upon the data currently available, it is becoming apparent that three to a maximum of five maximum value classes would be most appropriate.

The exact delineations of the different rural districts will be indicated in the ordinance. Each rural district will then be assigned to a specific maximum value class. This process will therefore be exclusively based on the objective wind data available for the respective rural district including the relevant inaccuracies.

E. General provisions of the 2017 Renewable Energy Sources Act

In addition to the above, the installations for which funding is granted in joint auctions are also subject to the general provisions of the 2017 Renewable Energy Sources Act on the construction and operation of installations. This also applies to the right to be connected to the grid and to priority access to the grid, the lowering of the entitlement to payment in the case of negative prices and other penalties, and to notification and publication requirements. The installations that are awarded funding in joint auctions are therefore not treated any differently to installations that are awarded funding in technology-specific auctions.