Special Report

EFFECTS OF THE BIDDING PROCESS

Heinrich Degenhart

REA 2014 [1] contains for the first time the political agreement to introduce generally by 2017 at the latest bidding processes for the financial funding of electricity from renewable energy (§ 2 Section 5 REA). To gain experience, the REA provides for pilot bids for ground mounted PV installations (§ 55 REA). The associated power to issue statutory instruments contains a number of specifications for this bid process (§ 88 REA). Included here is the requirement to retain the diversity of players in electricity generation with renewable energy installations. During the course of the legislative procedure, different studies have been published which deal critically with the planned tender process. Accordingly, experience abroad with tender systems is mixed. The positive effects expected with auctions were rarely realized as implementation was difficult [2]. There is also concern that all forms of tender process do not maintain the diversity of players and systematically disadvantage public energy cooperatives and citizen participation in particular [3].

For the key points paper from the federal ministry for economic affairs and energy for an auction design for free-field PV installations [4], 75 responding statements were sent in [5]. The project developers involved in the process fundamentally welcomed the bid process, but criticized the planned penalties and securities. Ultimately the legislators decided to test the bid process in a form as simple as possible, broadly oriented towards REA tariffs. The enactment for free-field PV installations [6] non-exhaustively stipulates that:

- the bid value is the only award criterion
- at least one ruling on the specification of or change to a building plan (also) with the purpose of erecting a ground-mounted installation must be in place for sub mission of a bid
- securities must be deposited and graduated penalties paid to ensure implementation
- no specific regulations for safeguarding the diversity of players (e.g. for public energy projects) are in place

Transfer from PV to wind energy?
The bid process for wind turbines is being introduced on the basis of experience gained from bids for free-field PV installations as part of the next REA amendment (anticipated in 2017). Experience with free-field PV bids can only be transferred up to a point. The much longer planning and approval times, and considerably higher specific planning and development costs for onshore and offshore wind turbines, would result in discrepancies in the process. Nevertheless, initial effects on the future realization of wind turbines can already be discussed on the basis of this draft and under certain assumptions.

Planning and development effects
A tender process has considerable effects on the planning and development durations for wind farms, and the costs incurred within this period. Figure 1 shows the realization perspectives of wind farms in the various phases. Many project ideas are submitted relatively quickly in the initiative phase. However, half of the projects initiated remain in the securing, draft generation and contract award phases, for which much higher planning and development costs are incurred. In the initial phase early larger cost positions are related to land securing. A lot of complex investigations must be conducted in the subsequent phases up to the issuing of the permit in line with the Federal Emission Control Law. Wind. Nature conservation (wildlife and landscape protection), emissions (noise and shadow casting) and turbulence expertises must be sought for this purpose. An environmental impact study is also required for large wind farms. Onshore planning costs sum up to 95 €/kW on average [8].

The planning and development process for wind turbines, which is already long, would be prolonged by months by the bidding process, and would add a risk dimension. It is inherent to an efficient bidding process that far more bids must be submitted than can ultimately be realized. To date, 1 in 5 to 10 projects has been implemented. If the assumption is that only one in 2 to 3 bids in the bidding process wins, the chances of success decrease by a factor of 2 to 3.
Given that legislators are interested in a higher realization rate, the bid time will likely have to be specified at the end of the planning and development phase. The important approval certificates must be in place, and the necessary permits be imminent as a minimum, for a project to have any chance of realization. To avoid penalties in the event of no realization, every potential bidder must attach importance to only introducing to the process projects which have excellent prospectives, are cost-effective, and are ready for approval or already approved. We know from experience that, up to this point, 7-digit cost amounts incur for wind farms with a 30 to 50 MW capacity.

These costs must be borne by the project developers from their own pockets (as securing bank loans for financing is only possible in exceptional circumstances). Failing to be awarded in the bid process devalues this upfront investment. Investment costs spent to no avail must be covered by successful projects. A portfolio of projects ready for the bid phase is therefore required. Only very experienced and well-funded project developers are able to allocate the additional time and raise the additional capital. Less financially solid project developers must presumably get together with well-backed investors in the planning and development phase, and submit consortium bids in the tender process. Whether the costs of REA funding are reduced by the tender when wasted upfront expenditure and risks are calculated into tenders is yet to be seen.

**Regional distribution of wind turbines**

The associated power to issue statutory instruments (pursuant to § 88 of REA 2014) permits regional differentiation of the tender process. However, no regional differentiation is provided in the ground-mounted PV installation tender currently being discussed. The regionally different periods of sunshine would justify this as would different wind resources. Without differentiation by region, it would be mainly the high-yield wind locations near the coast which would come out on top in a tender process oriented towards price alone.
If legislators were to continue down their current path, correction factors as laid down in REA 2014 for determining the duration of increased initial remuneration for different wind strengths would become a consideration.

**Financing of wind turbines**

Given orientation towards the tender process stipulated for ground-mounted PV installations in the draft, the conditions for actual investment financing do not decrease in the process itself. A conditional financing commitment could already be available at the time of tender submission in the bid process provided the wind farm satisfies the usual credit lending criteria and the price bid guarantees a sufficient level of cost-effectiveness.

The financing of securities required in the tender process for orientation towards the planned process for the ground-mounted PV installation tender is considerably more difficult. Since wind farms are far more powerful than PV installations, the security payments stipulated by legislators for the seriousness of offers (initial security) would amount to considerably higher totals. While in line with current thinking, the figure will be up to €40,000 for ground-mounted PV installations with a capacity of 10 MW, and could well be €120,000 to €200,000 for wind farms with a capacity of 30 to 50 MW. Such securities could represent a financing problem.

This becomes clearer still for the required securities for implementing projects with surcharge (secondary security). Here, for ground-mounted PV installations, a security for protection against a penalty of up to 50 €/kW is planned in case of non-realization or late realization. For a wind farm with a 30 to 50 MW capacity, securities amounting to €1.5 million - €2.5 million may be required. The financing of such amounts is likely to be difficult. A bank guarantee of this magnitude covering the realization risk is only available to large-scale, very financially strong companies or on a project basis, i.e. within the framework of project financing agreed by the bank. Project-related credit commitments are only usual however under the provision of wind farm approval. This approval is not likely to be in place.

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**Figure 2: Regional distribution of existing wind turbines in 2014, installed capacity per km², source: [9]**

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power density [MW/km²]
- 0 - 0.05
- 0.05 - 0.1
- 0.1 - 0.5
- 0.5 - 1
- 1 - 5
- 5 - 10
in many cases at the time of contract award from the tender process. Under these circumstances, the realization risk is too high for many lending banks. This is why only very financially strong project developers who assume the liability for the guarantee receive such a realization guarantee at all.

Diversity of players
Public participation in wind energy projects has thus far been very high (Figure 3). Only 10% of the installed capacity is held by large energy suppliers. According to the legislators, the diversity of players is to remain, also for tenders (§ 2 Para. 5 Section 3 REA). The assumption in the PV tender enactment is that the process is so easy that the diversity of players is virtually automatic. It is for this reason that special regulations for public projects are not required [10].

However, if it is assumed concluding from the ground-mounted PV installation tenders that

- the price generated is the major criterion for contract award
- larger wind farms are more economical than smaller wind farms given otherwise identical conditions
- the opportunity for public participation is lower the bigger the wind farms and required capital are, and the bigger the portfolio must be to reimburse lost tender costs, then the biggest possible projects will be won by financially strong bidders with the largest project portfolios in a tender process.

The procedure as with the planned ground-mounted PV tender is not an absolute requirement however. The associated power to issue statutory instruments in the REA permits in § 88 Para. 1 No. 4 the specification of criteria for issuing surcharges in the tender process. This allows an array of activities for safeguarding the diversity of players, such as special tender lines, allotments and development subsidies for particular bidder groups [12]. Dispensing with the tender process for smaller wind projects is also conceivable.
Whilst the new EU guidelines for national environmental protection and energy subsidies [13] dated 28/6/2014 stipulate tenders from 2017 onwards, they do permit subsidies without tenders for wind turbines with a maximum installed electricity generating capacity of 6 MW or 6 generating units (no. 127).

Conclusion
In order to guarantee planning security and managed transition to the new REA 2017, legislators drew up in REA 2014 transition regulations for installations under construction or in the planning stage (§ 102 REA). Accordingly, wind turbines approved by the end of 2016 can enter service up to the end of 2018 under the conditions in REA 2014. The transition period applies to the end of 2020 for offshore wind turbines. Significant expansion of wind turbines can be anticipated over the next 2 to 4 years. These WTs are already in the planning phase. Given the very long upfront time periods required for wind turbines of up to 5 years, the transition periods are possibly too short. Many installations entering the planning stage after 2015 will not be able to keep to these deadlines. The expansion of wind turbines could therefore stagnate in a few years time. Therefore it makes sense to deal now with designing and debating the tender process for wind energy.

Sources
[7] Begründung zum Gesetzentwurf der Bundesregierung zur grundlegenden Reform des erneuerbare Energien Gesetzes und zur Änderung weiterer Bestimmungen des Energiewirtschaftsrechts, German Bundestag printed material 18/1304, 05/05/2014, Page 2
[8] Deutsche WindGuard, Kostensituation der Windenergie an Land in Deutschland, Varel 2013 Pages 2 - 4