2017 German Renewable Energy Law (EEG 2017) and cross-border renewable energy tenders

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Structure

• Background

• Auctions for renewable energy under the EEG 2017

• First experiences with PV tenders in Germany

• Cross-border auctions for renewable energy
Renewables have overtaken each conventional source to become the largest electricity source in just ten years.
Objective of introducing tenders

- Switching the funding for renewable energy from prices fixed by administration/government/parliament to prices set by competitive auctions
- System change from Feed-In-Tariffs to market instrument
- Auctions can help to achieve further support cost reductions and a faster response to market developments
RES technologies up for auction

• From 2017, funding will be **auctioned** for:
  • onshore wind energy (2.8 GW; 2.9 GW from 2020 per year)
  • offshore wind energy (15 GW by 2030)
  • photovoltaics (600 MW per year)
  • Biomass (150 MW, later 200 MW per year)

• **Exempted:** installations ≤ 750 kW (biomass: ≤ 150 kW)
Tendering scheme in general

Technology specific, but common features:

• Tendering of **total amount of installed capacity (MW)**; 3-4 auction rounds per year conducted by Federal Network Agency

• **Only price is decisive for awarding contracts**

• Bids will be accepted, starting with the lowest 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)
Market premium

- **Bids for floating market premium (ct/kWh)**
- **Market premium** = reference value of the respective renewable energy plant minus its technology-specific market value
- **Market premium** is paid for a period of **20 years**
Tendering scheme for onshore wind

- In 2017, 2018 and 2019, 2,800 MW and from 2020, 2,900 MW (gross) will be auctioned each year (1st of May, 1st of August, 1st of November)
- Prequalification: Approval pursuant to Federal Immission Control Act (final administrative decision)
- Bid bond: 30 €/kW or bank guarantee to discourage non-realisation
- Realisation period: 30 months
Tendering scheme for photovoltaics

- PV installations > 750 kW
- 600 MW will be auctioned each year (1\textsuperscript{st} of February, 1\textsuperscript{st} of June, 1\textsuperscript{st} of October)
- Prequalification: admission by local authorities and/or area development plan (early planning stage)
- Bid bond: 50 €/kW to discourage non-realisation
- Realisation period: 24 months
### Results of the (pilot) PV tenders since 2015

<table>
<thead>
<tr>
<th>Bidding deadline</th>
<th>15.04.2015</th>
<th>01.08.2015</th>
<th>01.12.2015</th>
<th>01.04.2016</th>
<th>01.08.2016</th>
<th>01.12.2016</th>
<th>01.02.2017</th>
</tr>
</thead>
<tbody>
<tr>
<td>Tendered volume</td>
<td>150 MW</td>
<td>150 MW</td>
<td>200 MW</td>
<td>125 MW</td>
<td>125 MW</td>
<td>160 MW</td>
<td>200 MW</td>
</tr>
<tr>
<td>Bids (volume)</td>
<td>715 MW</td>
<td>558 MW</td>
<td>562 MW</td>
<td>539 MW</td>
<td>311 MW</td>
<td>423 MW</td>
<td>488 MW</td>
</tr>
<tr>
<td>Successful bids (awarded volume)</td>
<td>25 (157 MW)</td>
<td>33 (159 MW)</td>
<td>43 (204 MW)</td>
<td>21 (128 MW)</td>
<td>22 (118 MW)</td>
<td>27 (163 MW)</td>
<td>38 (200 MW)</td>
</tr>
<tr>
<td>Ø reference value ct/kWh</td>
<td>9,17</td>
<td>8,49</td>
<td>8,0</td>
<td>7,41</td>
<td>7,25</td>
<td>6,90</td>
<td>6,58</td>
</tr>
<tr>
<td>Realisation rate (% of capacity)</td>
<td>66%</td>
<td>58%</td>
<td>16%</td>
<td>19%</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
</tbody>
</table>
Lessons learned from German PV auctions

• Intensive competition
• Volume several times oversubscribed
• Decreasing reference value from 1st to 7th round (9,17 ct/kWh -> 6,58 ct/kWh = - 28 % in less than two years)
• Different actors participated, also smaller actors & projects have been successful
• High implementation rate so far
Cross-border support: background

• In the case of cross-border support /opening of support schemes, support is paid to installations located in other Member States

• Key goals:
  • Regional integration of national energy policies
  • EU compatibility of national support schemes
  • Joint learning curve and alignment of support schemes
  • Using regional synergies (e.g. diversification of RES)
  • More competition in auctions

• Germany will open up support for 5% of yearly new installed renewable capacity to installations in other Member States from 2017 onwards (ca. 300 MW per year)
Basic Requirements

- Cooperation agreement
- Reciprocity
- „Physical“ Import
Models for Reciprocity

Reciprocity „light“

Country A  Country B

Mutually-opened auctions

Joint auction

Country A  Country B

Cluster auction

Country A  Country B

Country ...

Country C
Auction design elements vs. location-specific conditions

- **Auction design elements** can stay different in a mutually opened auction but must be aligned in a joint/cluster auction
  - Examples: auction object, maximum bid size, pricing rule

- **Location-specific conditions**: The local rules of the country where the installation will be built apply (unless countries can agree to align them)
  - Examples: site restrictions, construction permits, grid connection, compensation for curtailment, taxes and levies
Cooperation pilot with Denmark

- Cooperation agreement for mutually opened auctions for ground mounted PV installations signed in July 2016
- First cooperation of its kind
- German and Danish opened auctions conducted in 4th quarter of 2017
  - Volume of German auction: 50 MW, fully opened for installations in Denmark
  - Volume of Danish auction: 20 MW, of which 2.4 MW were opened for installations in Germany
Results of the German opened pilot auction with Denmark

<table>
<thead>
<tr>
<th>Bidding deadline</th>
<th>23.11.16</th>
</tr>
</thead>
<tbody>
<tr>
<td>Tendered volume</td>
<td>50</td>
</tr>
<tr>
<td>Bids (volume)</td>
<td>297 MW</td>
</tr>
<tr>
<td>Successful bids (awarded volume)</td>
<td>5 bids with 10 MW each, all successful projects located in Denmark</td>
</tr>
<tr>
<td>Ø reference value ct/kWh</td>
<td>5,38</td>
</tr>
</tbody>
</table>
Outlook: Cross-border support under the EEG 2017

- Substantially higher volumes than in pilot phase (5% of yearly new installed capacity correspond to ca. 300 MW)

- Extension of cross-border support to onshore wind (pilot phase: PV only)

- Entry into force of revised ordinance for cross-border support foreseen for 2nd quarter of 2017
Thank you for your attention.

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