2017 Amendment of the Renewable Energy Sources Act and Development of ground mounted PV in Germany

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Paris, 2017 November 7
Overview

- Auction scheme basics
- Auction scheme Photovoltaics
- Auction results Photovoltaics
- Stakeholder diversity
- Area types and potentials
- Expiry of the subsidy and outlook
Revision of RES Act is based on **three principles**:

1. The **deployment corridor** for renewable energy will be **adhered to**:
   - 40 - 45% Electricity generation by RES until 2025
   - 55 - 60% Electricity generation by RES until 2035

2. Future RES expansion will be continuously ongoing, cost-efficient and grid compatible.

3. All stakeholders will have a fair chance in the auctions. **Stakeholder diversity** will be maintained.
Auction scheme - Basics

- Restraining factor: restricted auctioned volume
- Awarding procedure: only price is decisive
- Bids on floating market premium (ct/kWh)
- Pay as bid

Exemptions:
- installations ≤ 750 kW and new installations using biomass ≤ 150 kW
- pilot wind energy plants (125 MW/yr)
- hydro and geothermal power plants
# Auction scheme - Basics

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<tr>
<th>Phase 1</th>
<th>Phase 2</th>
<th>Phase 3</th>
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<tbody>
<tr>
<td>Federal Network Agency</td>
<td>• Announcement</td>
<td>• Check and verify bids and Bid bonds</td>
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<td>• Sorting, awarding</td>
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<td>Investor</td>
<td>• Bidding</td>
<td>• Realisation within the period prescribed</td>
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<td>• Penalty in case of no realisation</td>
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**Phase 1**
- Announcement

**Phase 2**
- Check and verify bids and Bid bonds
- Sorting, awarding
- Publication and information

**Phase 3**
- Realisation within the period prescribed
- Penalty in case of no realisation
## Auction scheme - Photovoltaics

<table>
<thead>
<tr>
<th>Technology</th>
<th>Month</th>
<th>Year</th>
<th>Volume/MW</th>
<th>Total amount</th>
</tr>
</thead>
<tbody>
<tr>
<td>Photovoltaics</td>
<td>February</td>
<td>2017</td>
<td>200</td>
<td></td>
</tr>
<tr>
<td>Photovoltaics</td>
<td>June</td>
<td>2017</td>
<td>200</td>
<td>600 MW</td>
</tr>
<tr>
<td>Photovoltaics</td>
<td>October</td>
<td>2017</td>
<td>200</td>
<td></td>
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</tbody>
</table>
PV installations > 750 kW:

- Ground mounted PV installations (conversion areas, areas close to motorways)
- Rooftop installations and PV installations installed on other physical structures (e.g. landfills)
- „Opening clause for Federal States“
Auction scheme - Photovoltaics

- PV installations > 750 kW:
  - Volume: Max. 10 MW
  - Maximum price: 8.84 ct/kWh (Oktober 2017)
  - Transfer: Transfer to other site possible but with discount
  - Realisation period: 24 months, bid bond: 50 €/kW
  - Prequalification: Admission by local authorities and/or land development plan
Tenders for pv (ground mounted)

- Tendered volume: 150 – 200 MW per round
- Bidden volume: 3 – 6 times higher

Realisation rate: nearly 100%
## Auction scheme PV - Results

<table>
<thead>
<tr>
<th></th>
<th>1st February 2017</th>
<th>1st June 2017</th>
<th>1st October 2017</th>
</tr>
</thead>
<tbody>
<tr>
<td>Tendered Volume</td>
<td>200 MW</td>
<td>200 MW</td>
<td>200 MW</td>
</tr>
<tr>
<td>Bids in total</td>
<td>97</td>
<td>133</td>
<td>110</td>
</tr>
<tr>
<td>Volume (bids)</td>
<td>488 MW</td>
<td>646 MW</td>
<td>754 MW</td>
</tr>
<tr>
<td>Awarded bids</td>
<td>38</td>
<td>32</td>
<td>20</td>
</tr>
<tr>
<td>Awarded volume</td>
<td>200 MW</td>
<td>201 MW</td>
<td>222 MW</td>
</tr>
</tbody>
</table>
Development of PV realisation 2005 to 2016

New installations pv in 2016*

*2016 provisional ground mounted pv
Auctions (April 2015 – June 2017)

- 244 awards, 1343 MW awarded volume
- Eight auctions (April 2015 – June 2017)
Auction scheme PV - Results

The Development of necessary areas (hectar per megawatt)

*2016 provisional 1,56 ha/MW
Auction scheme PV - Results

- Intensive competition
- Volume several times oversubscribed
- Decreasing reference value
  (9,17 → .. 8,00 → .. 5,66 ct/kWh)
- Nearly all bids that were awarded a contract deposited a second bid bond
- Different actors participated, also smaller actors and projects had been successful
- Realisation rate of first rounds ~ 90 %
Stakeholder diversity

- Objective: Maintaining a high level of stakeholder diversity

- This is the intention behind the 750 kW de minimis threshold:
  - This mainly exempts small and medium-sized PV installations from the obligation to take part in auctions.

- This is also the aim of the simple and transparent auction design.

- The Federal Government will also be providing advisory and support services for smaller players.
Realisation after first auction – sorted by installation size and types of area

- about 23% areas close to motorways
- about 77% conversion areas
Installed capacity and annual realisation - sorted by types of area
Types of areas and land use under EEG 2016 (old system)
Potential of conversion areas

- In the end of 2016, 16,400 hectares were already used by ground mounted pv installations.
- Total potential of conversion areas: 3,503.4 ha.
- Results of the OSM-data analysis for available conversion areas.
Potential of areas close to motorways

- 22,400 hectares are still available
- Above all: areas close to railways
The expiry of subsidy

- By the end of the year 2020, the FITs for approx. 70 MW installations will expire.

- From 2024/25, the FIT of the first generation ground mounted installations will expire.

- Possibilities and conditions for continuing the operation have to be considered.
Outlook

- EEG 2017 in force on 1.1.2017, state aid approval until 2021
- As of 2017 opening for cross-border auctions for PV systems (DE-DK)
- As of 2018: Technology-neutral pilot tender about 400 MW/yr (2018-2020)
- As of 2018: Innovation pilot about 75 MW/yr (2018-2020)
- March 2018: Ordinance on the determination of a grid expansion zone
Thank you for your attention.

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