Tender of Support for Renewable Energies in Germany

23 June, 2016

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Version 1.0

CONTENT

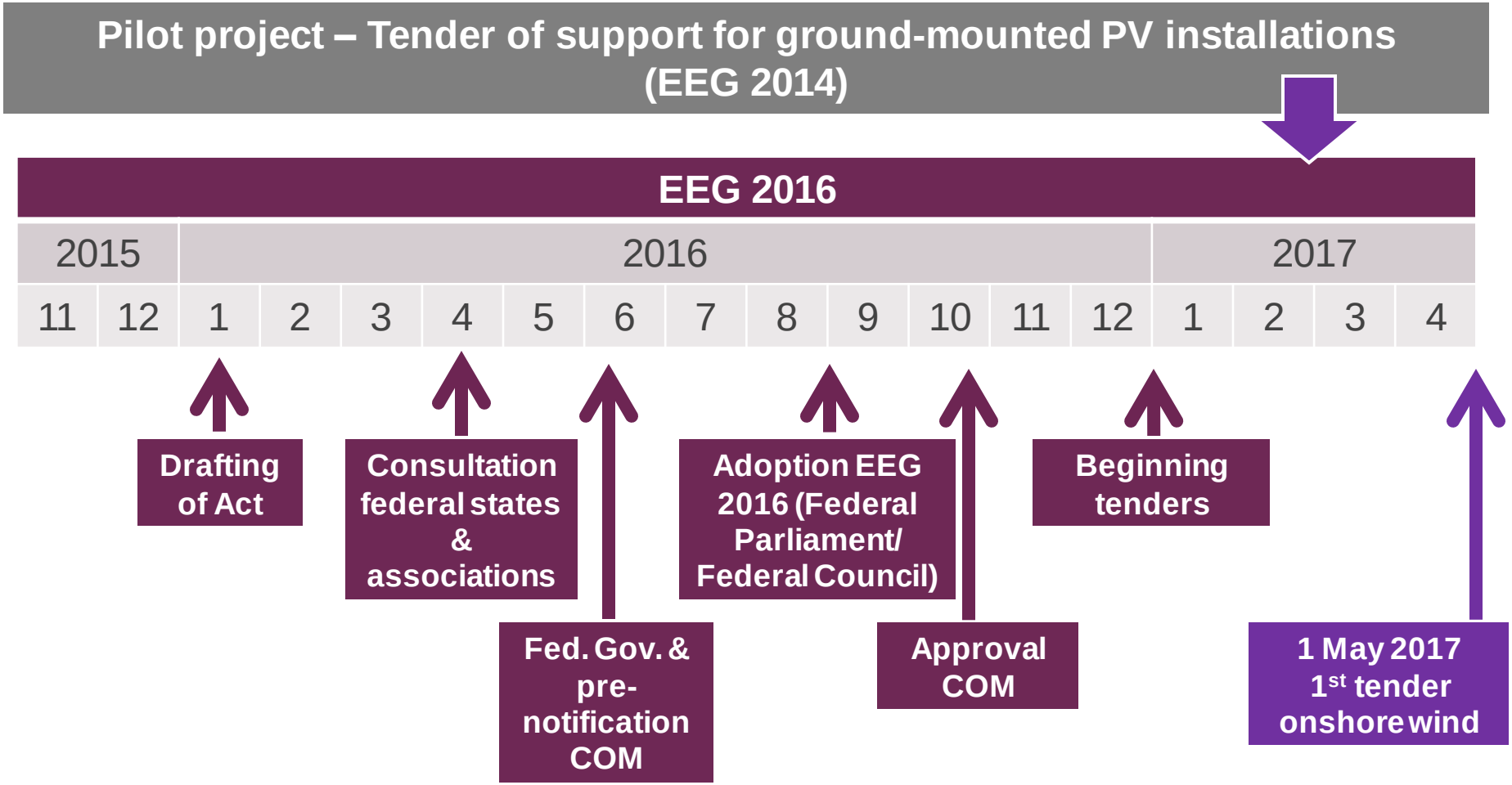
Overview — Tender of support for renewable energies in Germany

PV — tenders for ground-mounted PV installations (pilot project)

Wind — Tenders for wind

Overview –
Tender of support for renewable energies

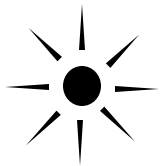
Amendment of the Renewable Energy Act (EEG 2016) - Timeline



Tender of support for renewable energies in Germany (EEG 2016)

Technology-specific tenders of support for wind and PV

- **Onshore wind**
  →Tenders starting from 750 kW
- **Offshore wind**
  → Tenders of pre-developed sites in the central model
- **PV**
  →Tenders also for roof-mounted PV installations starting from 750 kW
  →Auto-consumption forbidden
- **Biomass**
  → Possibly tenders for existing plants
  (power to issue statutory ordinances)
- **Hydro & geothermal**
  → No tenders

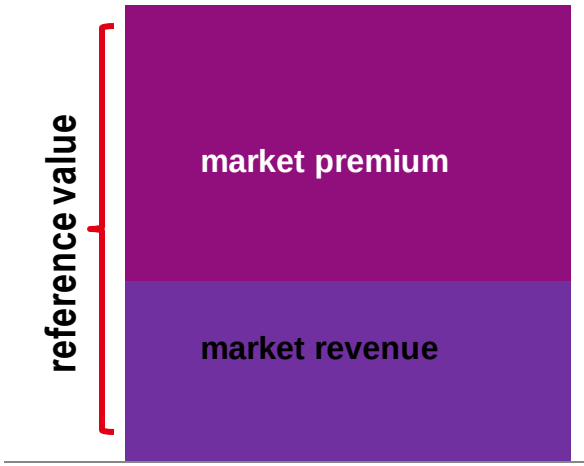


General design of tenders of support for renewable energies (EEG 2016)

Various common characteristics of tenders of support for wind and PV

- **Tendering authority: Federal Network Agency (BNetzA)**
- **Three to four rounds of tenders each per year (per technology)**
  → Announcement of the tenders eight weeks in advance
- **Tender of a pre-defined installed amount of capacity**
  → Provision of a deposit to guarantee seriousness of bid
  → Placing bids: single and sealed
- **Bid for so-called „reference value“**
  (Sum of market value and market premium)
  →Only criterion for the award of a contract
  →Level of support depends on the bid („pay-as-bid“)
  → Maximum price published in advance
- **Awards of contracts are project-specific**
  → Conditional transferability only for PV
- **Specified realisation period of the projects**
  → Contractual penalty in case of delay

Similar to contract for difference

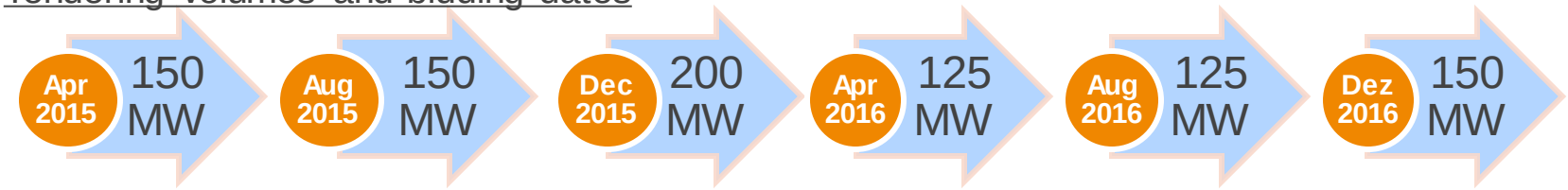


Pilot-Tenders for Ground-Mounted PV installations (EEG 2014)

How does the PV tender work?

- BNetzA publishes calls for tenders in order to determine the financial support for ground-mounted PV-installations
- Level of financial support of these installations is no longer determined by a law
- Level of support for ground-mounted PV installations is determined on the basis of bids. Bids refer to a **bidding value** (cent/kWh) and a **bidding volume** (kW)
- Bids with the lowest bidding value win contracts, until the bidding volume of the respective bidding date has been reached
- Tenderers state at which sites they intend to construct the ground-mounted PV installations
- At a later point in time, tenderers can allocate winning bids to other sites if they accept a small reduction of the remuneration level
- It is still possible, to sell installations, which have been put into operation

Tendering volumes and bidding dates



Overview over the design of tenders for ground-mounted PV installations

Objects	Ground-mounted PV installations (capacity in kW)
Remuneration	• Variable market premium (ct/kWh) • Bid for reference value (sum of market value and market premium)
Eligible sites	• Marginal strips (110 m alongside federal motorways and railways) • Conversion areas (such as former military training grounds) • Sealed areas • Not more than 10 agricultural areas in disadvantaged areas • Areas of the Federal Agency for Property (BImA)
Procedure	• Pay as cleared Aug. & Dec. 2015 • Since then pay as bid
Pre-qualification	Verification of a PV-specific development plan (at least preliminary planning approval)
Financial security	• First deposit for bids: 4 Euro/kW • Second deposit (in case bid wins): 50 Euro/kW
Sanctions	• Commissioning after more than 18 months → remuneration -0.3 ct/kWh • Commissioning after more than 24 months → Eligibility for support revoked and second deposit forfeited (bid bond)
Transferability	Project implementation at another site: → remuneration -0.3 ct/kWh

Results of the four latest rounds for tendering

	1st round (15 April, 2015)	2nd round (1 August, 2015)	3rd round (1 December, 2015)	4th round (1 April, 2016)
Pricing	Pay as bid	Pay as cleared	Pay as cleared	Pay as bid
Tender volume	150 MW	150 MW	200 MW	125 MW
Volume covered by bids	715 MW	558 MW	562 MW	540 MW
Number of bids	170	136	127	108
Bids excluded (due to formal errors)	37 (ca. 21.8 %)	15 (ca. 11.0 %)	13 (ca. 10%)	16 (57 MW)
Bids winning contracts	25	33	43	21
Value(s) of winning bids	8.48 to 9.43 ct/kWh mean value*: 9.17 ct/kWh	8.49 ct/kWh	8.00 ct/kWh	6.94 to 7.68 ct/kWh mean value*: 7.41 ct/kWh
Prescribed maximum value	11.29 ct/kWh	11.18 ct/kWh	11.09 ct/kWh	11.09 ct/kWh

* volume-weighted average

Tenders for Wind (EEG 2016)

Offshore wind – Overview of the planned tender design

Object	Offshore wind, capacity (kW) Expansion target: • 6.5 GW until 2020 (total) • 15 GW until 2030 (total) Intermediate stages: • 730 MW per annum (2021 to 2030)
Remuneration	• Variable market premium (ct/kWh) • Bid on reference value (sum of market value and market premium)
Procedure	• "Central modell"/"Danish model" (tender of sites which have been pre-analysed by the state) for installations, which will come online from 2024 onwards → advantage: easier coordination with grid development • Transition model for wind farms, which have already been planned, currently discussed • pay-as-bid

Onshore wind – Overview of the planned tender design

Object	• Onshore wind (Capacity in kW)*
Remuneration	• Variable market premium (ct/kWh) • Bid on reference value (sum of market value and market premium) according to new single-level "reference yield model" • Maximum value of bids: 7 ct/kWh (yearly degression of 1%)
Procedure	• pay-as-bid
Pre-qualification	• Authorisation according to Federal Immission Control Act (BImSchG) („late tender")
Financial deposit	• First deposit for bid submission: 30 Euro/kW
Realisation period	• 24 months • After 30 months, eligibility for support revoked • One-time possibility of extension if project is subject of lawsuit
Transferability	• None

* All installations which will be approved under the immissions control regulation before the end of 2016, can go online until the end of 2018 without participating in tenders

Onshore wind – Single-level reference yield model

- Examples of remuneration levels

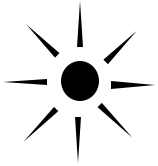
				Value of winning bid					
Reference yield value in %	60	70	80	90	100	110	120	130	140	150
Adjustment factor	1.29	1.29	1.16	1.07	1.00	0.94	0.89	0.85	0.81	0.79
Exemplary remuneration levels in ct/kWh	7.74	7.74	6.96	6.42	6.00	5.64	5.34	5.10	4.86	4.74
	8.39	8.39	7.54	6.96	6.50	6.11	5.79	5.53	5.27	5.14
	9.03	9.03	8.12	7.49	7.00	6.58	6.23	5.95	5.67	5.53

Conclusions

→**Support tenders** will be relevant for the **majority of new RES installations** in Germany

→**PV** support level dropped significantly, but **too early to evaluate project realization**

- → Long pipeline of older PV projects
- → Project realization deadline at least 24 month (April 2017)



→**Onshore wind** tender design is similar to pilot project design, but **„late tender“ leads to sunk costs**

- → When project is not awarded costs for emission permit are sunk
- → Critical not only for smaller actors (e.g local citizen projects)

→**Offshore wind** tender in **central model** facilitates grid connection, but transition from decentral project planning to central tenders is difficult