

German Wind and Solar – from FiT to tender.

Roadmap to EEG 2016

EEG 2014 vs. Draft EEG 2016 – General principles

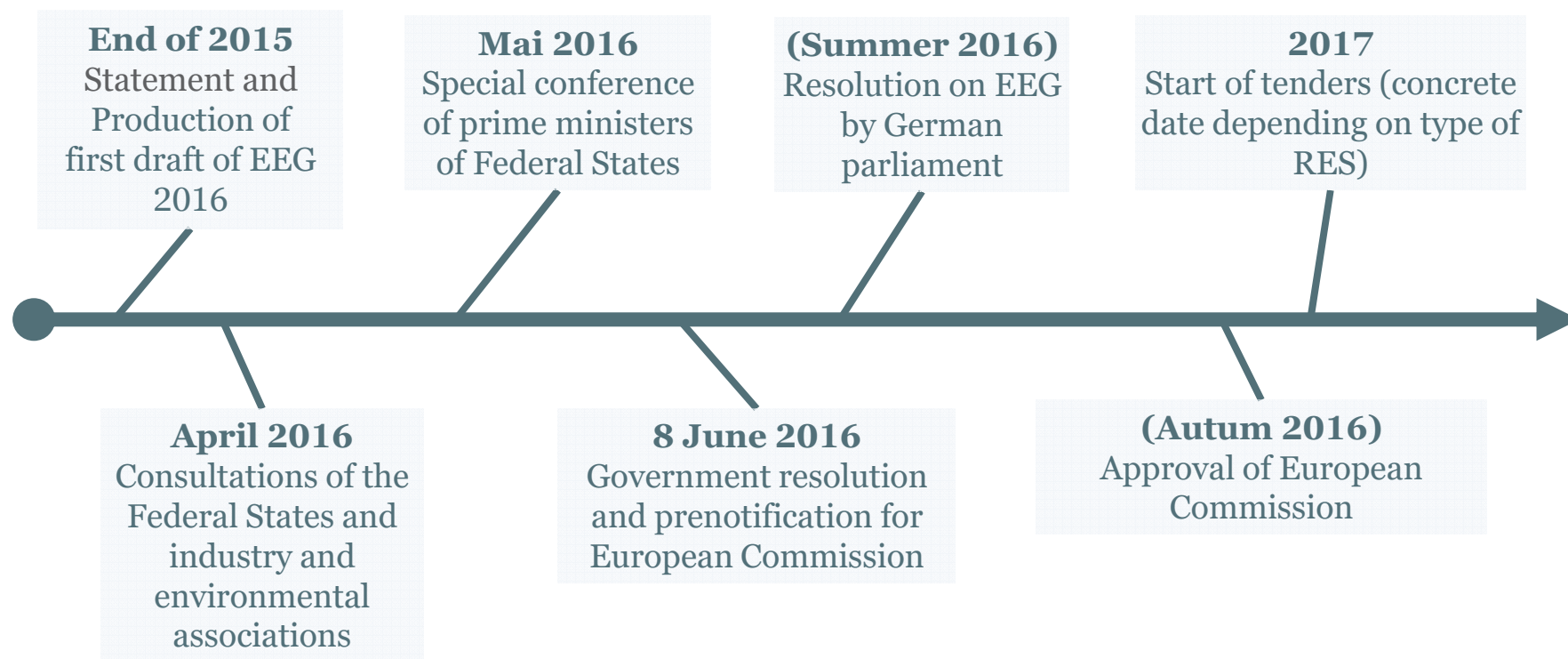
Direct marketing – How does it work?

FiT or tenders applicable?

Framework for specific RES under EEG 2014 and 2016

- Onshore Wind
- Offshore Wind
- Photovoltaics

Roadmap to EEG 2016



EEG 2014 vs. Draft EEG 2016

EEG 2014	Draft EEG 2016
<ul style="list-style-type: none"> Grid operator to connect, take off, transmit and distribute all electricity produced from renewables energy sources (RES) with priority over thermal production (subject to curtailment to avoid blackouts and negative electricity prices) 	<ul style="list-style-type: none"> Remains applicable, but only for tendered capacity
<ul style="list-style-type: none"> Largely mandatory, i.e. no (detrimental) modification by contract possible 	<ul style="list-style-type: none"> Modification possible – contracts with grid operator will require scrutiny
<ul style="list-style-type: none"> Market- and system integration of RES through direct marketing of electricity 	<ul style="list-style-type: none"> Still applicable

EEG 2014 vs. Draft EEG 2016* (2)

EEG 2014	Draft EEG 2016
<ul style="list-style-type: none"> • A „FiT“ sets the minimum level of remuneration, combining the average market price at EPEX Spot topped up by a market premium 	<ul style="list-style-type: none"> • The individual bid sets the minimum level of remuneration, still combining market price and premium
<ul style="list-style-type: none"> • Level of „FiT“ is set by lawmakers and varies within certain limits if newly built capacity exceeds or falls below targets 	<ul style="list-style-type: none"> • Minimum level of remuneration is set by market by way of reverse tenders
<ul style="list-style-type: none"> • No ceiling for newly built capacity 	<ul style="list-style-type: none"> • Strict ceilings for newly built capacity

Direct marketing – how does it work?

- Direct marketing, i.e. the sale of the electricity by a generator at market is mandatory for new plants (exception for small plants with capacity of max. 100 kW)
- Electricity produced is typically sold to specialised intermediaries, i.e. direct marketers (approx. 30 active in German market) at or above average EPEX Spot level
- Sales price is topped up with market premium to the „applicable value“, i.e. the „FiT“ by grid operators
- „FiT“ directly payable by grid operator available as fall-back (e.g. insolvency of direct marketer);
 - Curtailed to 80% of the otherwise applicable value
 - Max 6 months per year (3 months continuously)*

FiT or Tenders applicable?

RES	Fixed Feed-in Tarifs	Tenders
Onshore Wind	<ul style="list-style-type: none"> Permitted until end of 2016 (registered until end of Jan 2017) <u>and</u> commissioned until end of 2018 Installations up to 750 kW Prototypes up to 125 MW per year 	<ul style="list-style-type: none"> Either permitted after 2016 <u>or</u> not registered until end of Jan 2017 <u>or</u> commissioned after 2018 <u>or</u> tendering elected Installations bigger than 750 kW
Offshore Wind	<ul style="list-style-type: none"> Unconditional grid connection confirmation or capacity allocation until end of 2016 <u>and</u> commissioned until end of 2020 Prototypes up to 50 MW per year (no separate grid connection) 	<ul style="list-style-type: none"> As there are no new grid confirmations/capacity allocations all other projects will be subject to transitional tender

FiT or Tenders applicable? (2)

RES	Fixed Feed-in Tarifs	Tenders
Photovoltaics	Currently all PV except brownfield PV (already tendered)	All PV installations above 750 kWp (EEG 2016)



Framework for specific types of generation

EEG 2014

Onshore Wind (1)

- “FiT” payable for 20 years from commissioning (plus remainder of year) split between initial increased amount (minimum 5 years) and later basic amount

Commissioning from	Increased Amount in ct/kWh	Basic Amount in ct/kWh
1 April 2016	8.69	4.83
1 July 2016	8.58	4.77
1 October 2016	8.48	4.72
1 January 2017	8.38	4.66

- Duration of increased amount is calculated based on reference yield of a certain site to a reference yield of the respective WEC model, i.e. the better the wind yield the shorter the period

- Acceptable corridor: 2,400 – 2,600 MW/per year
- Currently change of the FiT every quarter between 0.4 and 1.2 % depending on net increase of installation (in practice maxed out at 1.2% for the third quarter due to high installation volume in 2014/15)
- 1.2% digression foreseen for 1 April 2017(EEG 2016*)
- 5% digression for 1 June 2017
- Thereafter increase of maximum digression from 1.2 to 2.4 % possible if 2.500 MW is exceeded by more than 1.000 MW
- Actual FiT only visible 5 months prior to commissioning

EEG 2014

Onshore Wind (3)

Ratio to reference yield	Period of increased amount
80% or less	240 months
90%	192 months
100%	143 months
110%	116 months
120%	88 months
130%	60 months

General rules for Wind and Solar

- FiT is finally replaced by tenders
- Individual support level ("applicable value") is determined by winning bid during reverse tenders
- Separate tenders for individual types of RES
- Tenders run by BNetzA
- Multiple tender dates per year
- Hidden, one-time bid
- The same applicable value remains applicable during the entire remuneration period of 20 years (proper) (including for Offshore Wind) – no indexation for inflation
- Bid value is only determining factor (Exceptions: smaller volumes with same bid value preferred; grid capacity during transitional tender for offshore wind)

General rules for Wind and Solar (2)

- Pay-as-bid, no uniform pricing model
- Low pre-qualification but high bid bonds required
- Penalties for missed milestones
- Maximum values
- Transfer and redemption of winning bids restricted
- Annual maximum volume
- All electricity needs to be fed into the grid – no play against high retail prices by self-consumption or direct delivery to close-by customers
- No market premium if release from electricity tax is used
- Fall-back-FiT (80%) only for 6 months p.a. and max 3 months continuously

EEG 2016*

Annual goals for new-built capacity

-
- Onshore-Wind: 2.8 GW p.a. (2017-2019), 2.9 GW p.a. (from 2020)
 - Offshore-Wind: 6.5 GW [expected: 7.7 GW] until 2020, 15 GW until 2030 (evenly distributed)
 - Photovoltaics: 2.5 GW p.a.
(52 GW ceiling removed for tendered capacity)
 - Biomass: 0.15 GW p.a. (2017-2019)
0.20 GW p.a. (2020-2022)

- Maximum level is fixed at 7 ct/kWh for 2017 (100% yield site)
- From 2018 – average value of highest successful bid in last three auctions + 8%
- Surcharges/discounts on the bid value (based on a 100% yield site) dependent on the ratio of the actual site yield compared with the reference yield, e.g. a winning bid of 6.5 ct/kWh during tender will bring a 70% project to an applicable value of 8.39 ct/kWh

				Bid					
Yield in %	70	80	90	100	110	120	130	140	150
Factor	1.29	1.16	1.07	1.00	0.94	0.89	0.85	0.81	0.79
Aplicable Value	7.74	6.96	6.42	6.00	5.64	5.34	5.10	4.86	4.74
	8.39	7.54	6.96	6.50	6.11	5.79	5.53	5.27	5.14
	9.03	8.12	7.49	7.00	6.58	6.23	5.95	5.67	5.53

Onshore Wind (3)

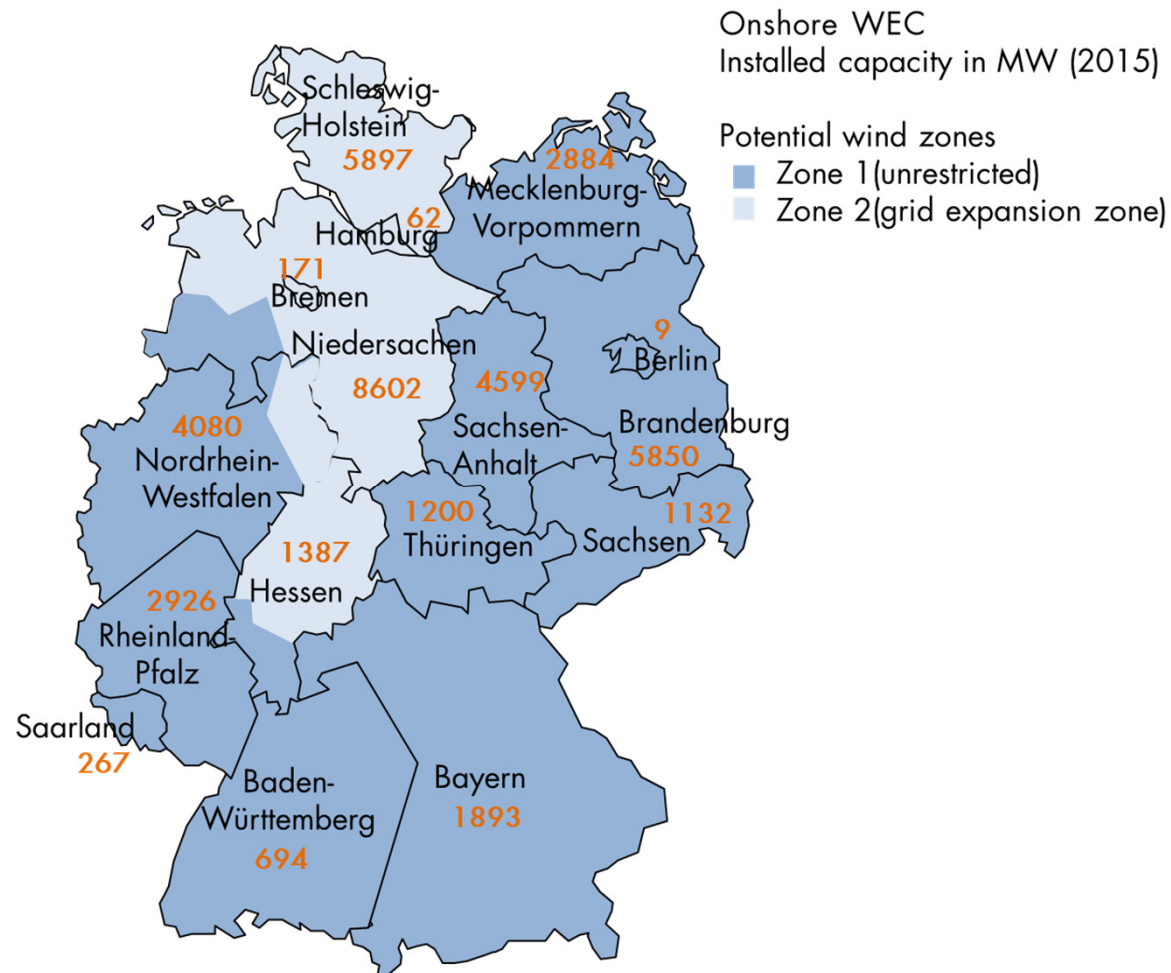
- Calculation of reference value is amended
- New: 100 m hub height (adapted for different heights with Hellmannindex of 0.25) and 6.45 m/s wind speed
- Old: 30 m, logarithmic height profile and 5.5 m/s wind speed
- Effect: 2-3 percentage points increase expected, i.e. at 120 m hub height a 78% site (EEG 2014) becomes a 80% site
- Idle times (not caused by missing wind) of more than 24 hours or more than 100 hours p.a. are not taken into account for reference yield calculation in the relevant period
- Hence – voluntarily curtailing yield to reach a longer period of high remuneration will no longer be possible

EEG 2016*

Onshore Wind (4)

Tender dates and volume:

- 2017: 1 May (800 MW), 1 Aug (1,000 MW) and 1 Nov (1,000 MW))
- 2018/2019: 1 Feb, 1 May, 1 Aug and 1 Nov (700 MW each)
- From 2020: 1 February (1,000 MW), 1 June (950 MW) and 1 October (950 MW)
- Announcement earliest 8 and latest 5 weeks prior to tender date
- Tender volume is limited to 58% of 2013-2015 average in grid expansion zone (which is basically the whole north-west of Germany)
- P2H model to be introduced to avoid feed-in management



Mandatory content of tender announcement:

- Tender date
- Tender volume
- Maximum value
- Required format of bid
- Other requirements under [Sec. 85 para. 2] EEG 2016

- Pre-qualification:
 - BImSCHG-permit (not necessary unapealable) six weeks prior to tender
- Bid bond (EUR 30,000 per MW)
- Lower requirements for local community projects
- 24 months realisation term, may be prolonged once if contentious
- Forfeiture of bid bond in steps of 10,000 Euro per MW after 26, 28 and 30 months
- Forfeiture of winning bid after 30 Months, prolongation possible if permit contentious
- No transfer to different project or redemption possible
- No waiting list
- Limited legal recourse against other bidders

- Verification of the actual yield after 5, 10 and 15 years with respective payment claims for over- or underpayments (200bps de minimis)+ interest (12m EURIBOR + 100bps)
- P: If the actual yield of a wind farm should exceed the initial yield assessment by more than 200bps then an appropriate reserve should be considered to cover repayment claims of the grid operator after the relevant 5 year period

EEG 2016*

Onshore Wind (9)

Only for non-tender projects:

- Similar provisions on check of reference yield (also for WEC commissioned after 1 Jan 2012)
- From 2019 FiT is calculated based on the average highest successful bid (and adapted for site yield) of the pre-preceding year, i.e. for 2019 based on 2017 bids

- Tariff amount

	Tariff in ct/kWh	Tariff-20% in ct/kWh
Basic Amount	3.9	3.12
Increased Amount	15.4	12.32
Compression modell	19.4	15.52

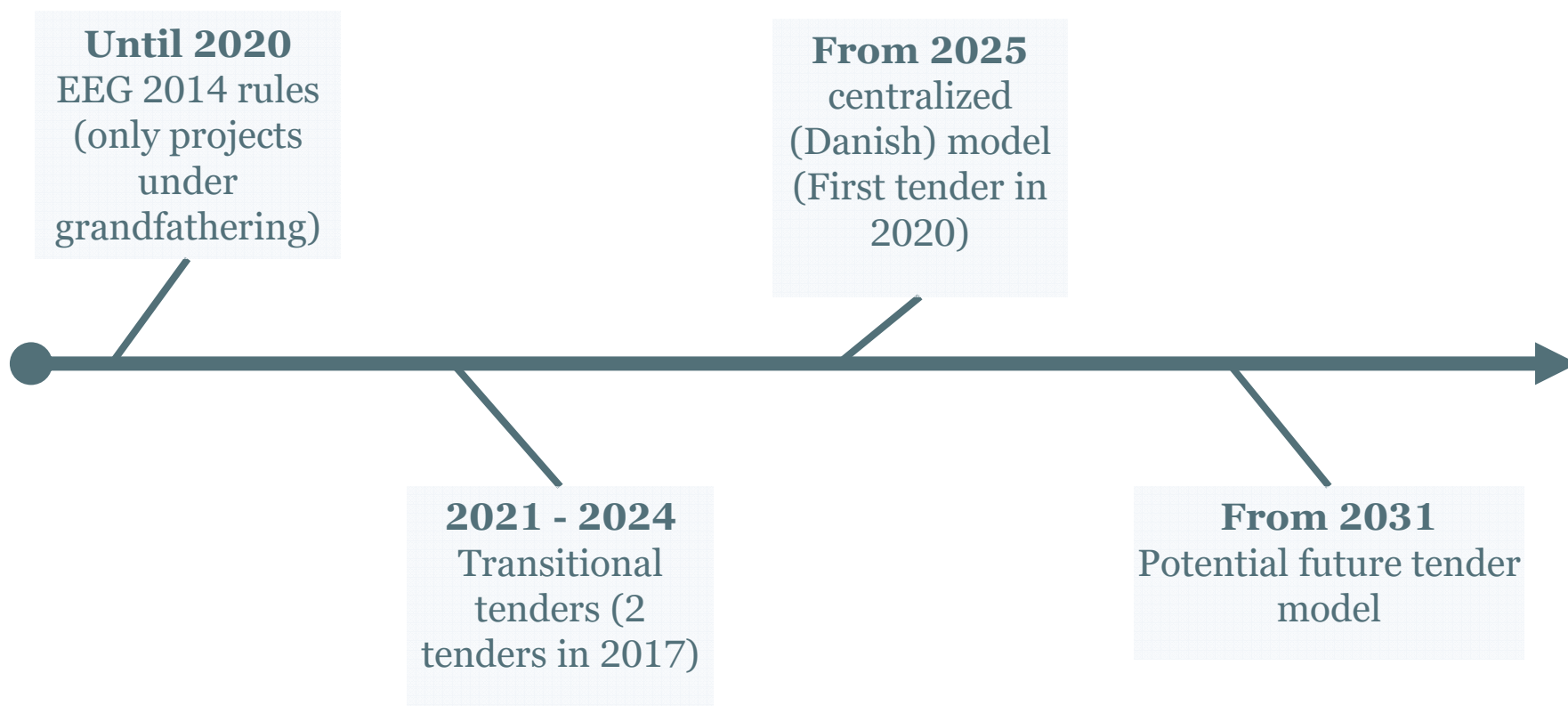
- Prolongation mechanism for increased amount (0,5 months per m, 1,7 months per sm)
- Mandatory direct marketing applicable
- Tariff decrease

Compression modell	1 January 2018	1.0 ct/kWh
Regular modell	1 January 2018	0.5 ct/kWh
	1 January 2020	1.0 ct/kWh
	From 1 January 2021	0.5 ct/kWh

- Prolongation of the compression model for plants commissioned prior to 1 January 2020
- Capacity withdrawal possible, also in cases where wind farm has unconditional grid connection confirmation
- Withdrawal shall take place in the following cases:
 - No proof of financing 24 months prior to the binding grid connection date
 - No start of construction 12 months prior to the binding grid connection date
 - No technical availability 18 months after the binding grid connection date

EEG 2016 + WindSeeG*

Offshore Wind (1) – timing by commissioning dates



EEG 2016* + WindSeeG*

Offshore Wind (2) – Transitional Tenders

- 2 tender dates in 2017 (1 March and 1 December)
- 1.46 GW per tender (6-7 GW bidder demand expected)
- If first tender falls short of 1.46 GW, second tender volume is increased accordingly
- Announcement of eligible projects by BSH until 30 November 2016
- Announcement of actual tenders by BNetzA 8 weeks prior to tender date (around year end 2016 for first tender)

Mandatory content of tender announcement:

- Tender date
- Tender volume
- Maximum value
- Available grid connection capacity in individual clusters including cross-cluster capacity
- Name and commissioning year of grid connection systems
- Calendar year in which market premium will be paid at the earliest
- Required format of bid
- Other requirements under [Sec. 85 para. 2] EEG 2016
- Notice regarding required undertakings

Prequalification:

- Project in
 - Coastal waters
 - Cluster 1-8 (North Sea) or
 - Cluster 1-3 (Baltic Sea) of the Bundesfachplan Offshore 2013/2014 for German EEZ

In each case either (i) permitted or (ii) after final hearing for permit on 8 June 2016 plus positive evaluation by BSH
- Available grid connection capacity for the respective cluster or coastal waters project
- EUR 150,000 per MW bid bond

Offshore Wind (5) – Transitional Tenders

- Maximum bid level is 12 ct/kWh (for 20 years)
- Bonus on top based on water depth (0.02 ct/kWh per m exceeding 25 m) (no language on distance from shore as under EEG 2014)

Some flexibility for bids in price and volume:

- Minimum volume level for main bid possible (if same bid level smaller volume preferred)
- Secondary bid for higher price and smaller volume possible (with a view to grid limitations), e.g. 10.5 ct if 400 MW and 11.5 ct if only 200 MW possible
- Reverse tender based on price level and grid capacity in relevant cluster, i.e. level of winning bids might be different by cluster

EEG 2016* + WindSeeG*

Offshore Wind (4) – Transitional Tenders

Legal consequences of successful bid:

- Claim for market premium (at the earliest from calendar year notified in tender)
- Claim for grid connection and capacity
- No right to use installations longer than 20 years – site might be used for new tender

Realization period: minimum 48 months (starting however 30 months prior to the binding completion date of the grid connection system as the earliest)

- Complex system of penalties for missed milestones (application documents permission process, financing, start of construction, taking into operation)
- Right of first refusal for unsuccessful bidders in centralised model (with respect to their legacy projects) - trade able

Offshore Wind (6) – Transitional Tenders

- Winning bids might not be transferred to other projects, however might be transferred to third parties
- Return of winning bid not possible, save for:
- errors in pre-development materials (e.g. soil study) which detrimentally affect commercial operation of the project or
 - unforeseeable obstacle (legal or factual) for construction of the WEC that can not be avoided (including commercially) by modification of the planning
 - and become visible in the planning approval procedure, the later procedure for construction/operation releases or during construction in any case latest 24 months prior to the binding grid installation date

- No financial compensation for legacy projects without winning bid
- Right of first refusal with a view to later use of legacy project in centralised system
- Transferable latest until announcement of tender in centralised model (P: step up in value after announcement vs. clarity on ownership for bidders)
- Draft Site Development Plan available in 2018 at the earliest, hence valuation currently problematic
- Requirements include (unsuccessful) participation in both transitional tenders, bid in centralised system as well as waiver of claims under original permit /transfer of planning

- New Site Development Plan ([Flächenentwicklungsplan](#)) – replaces Offshore Grid Development Plan (ONEP) from 2025 (preparation of ONEP ceases in 2017) and Federal Sector Plan Offshore (preparation ceases in 2018)
- Projects are pre-inspected by BNetzA via BSH or German coastal states (12 sm)
- Pre-inspection comprises:
 - Limited marine environment for environmental impact analysis
 - Preliminary soil studies
 - Wind- and oceanographic conditions

EEG 2016* + WindSeeG*

Offshore Wind (8) – Centralised System

- Tender on 1 September of each year (start 2020)
- Separate tender per pre-inspected site
- Notice latest 6 months prior to tender
- 600 -900 MW per year (max 730 in average, min 400 per tender)
- Maximum bid level is lowest successful bid of last transitional auction
- BNetzA may modify max level subject to certain requirements (max 10%)
- Bid volume has to match volume of pre-inspected site
- EUR 300,000 per MW bid bond required

Mandatory content of tender announcement:

- Tender date
- Tender volume
- Site
- Maximum value
- Name and commissioning year of grid connection systems
- Calendar year in which market premium will be paid at the earliest
- Pre-inspection materials
- Right of first refusal
- Required format of bid
- Other requirements under [Sec. 85 para. 2] EEG 2016
- Notice regarding required undertakings

Offshore Wind (9) – Centralised System

- Realisation period, return of bid and penalization similar to transitional tenders
- No right to use installations after 20 year period, area might be subject to new tender
- Claim for transfer of ownership and handover in installations after 20 years (without compensation) or transfer of operational data might be foreseen by statutory provision – undertaking required from bidder
- Extensive competencies granted to Federal Ministry for Economic Affairs and Energy (BMWi) to put in place future amendments to tender system – In consequence a lot may change until 2025

Market split between:

- smaller roof-top installations (mostly residential property) driven by savings on high consumer electricity prices/levies + FiT for surplus electricity and
- large (up to 10 MW) brownfield installations

Roof-top market

- FiT remains available for roof-top and comparable installations
- Quarterly digression depending on net increase of installation (in practice at 0 % for some time due to low installation volume in 2014/15)
- Automatic end of statutory support scheme once installed capacity reaches a total of 52 GW

Brownfield market

- Tenders already introduced for brownfield installations (currently 5th round (125 MW) on 1 August 2016)
- Individual support level (the “applicable value”) is determined by winning bid during reverse tender
- Maximum bid level is currently fixed at 11.09 ct/kWh
- Highest winning bid in 4th round: 7,68 ct/kWh.
- General concept of direct marketing shall remain largely unchanged, i.e. generator shall receive a combination of sales price and market premium to top-up sales price to level of applicable value
- 3 - 4 rounds per year
- Overall tender volume is about 400 MW for 2016

Photovoltaics – Brownfield market (2)

- Announcement min. 8 weeks prior to tender date
- Pre-qualification:
 - development (zoning) plan (B-Plan) or process of establishing a development (zoning) plan, i.e. Resolution on creation (Aufstellungsbeschluss) or disclosure (Offenlegungsbeschluss)
 - 1. Bid bond: Max. €4,000 per MW prior to tender;
 - 2. Bid bond: Max. € 50,000 per MW after winning bid
- 24 months realisation term, after 18 months decrease of winning bid by 0.3 ct/kWh
- Forfeiture of bid bond after 24 months
- Transfer to different project against reduction by 0.3 ct/kWh possible
- Return of winning bid within 9 months possible against 50% of bid bonds

- Tender system for brownfield PV will be applicable to all PV installation types foreseen in EEG bigger than 750 kWp
- Scope of eligible sites widened (e.g. commerce and industry sites)
- Opener for regulation by Federal States allowing PV on agricultural areas
- 600 MW in three rounds per year
- Only pay-as-bid rounds (no uniform pricing)
- Bid bonds: EUR 5,000 and 45,000 (per MW)
- Breathing lid for remaining FiT installations will be amended (6 months periods, quicker reaction if newly built volume (incl. tenders) drops below 2 GW)
- Otherwise tender system stays largely unchanged

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