1st Half
2015

DEUTSCHE
WINDGUARD

STATUS OF OFFSHORE WIND ENERGY DEVELOPMENT IN GERMANY

On behalf of:

AGOW
Arbeitsgemeinschaft
Offshore-Windenergie e.V.

BWE
Bundesverband WindEnergie

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STATUS OF OFFSHORE WIND ENERGY DEVELOPMENT

The status of offshore wind energy development in Germany as of the 30th June 2015 is described within this factsheet. Table 1 shows the data for additions during the first half of 2015, as well as the cumulated offshore portfolio data.

TURBINES FEEDING-IN TO THE GRID

During the first half of 2015 422 offshore wind turbines (OWT) with a cumulative capacity of 1 759.9 MW achieved their first feed-in to the grid. In addition, an overall capacity increase of 5.4 MW has been applied to 30 OWT, which originally started feeding-in in 2014. This results in a capacity of 1 765.3 MW feeding-in for the first time during the first half of 2015. The newly feeding-in OWT belong to nine offshore wind energy projects (OWP). 267 of the newly feeding-in OWT (1 178.3 MW) have been installed during previous years (2013/14), the remaining 155 OWT (581.6 MW) have been installed and first commissioned in 2015.

Table 1: Offshore Wind Energy Development as of 30.06.2015

	Status of Offshore Wind Energy Development	Capacity [MW]	Number of OWT
Additions 1st half 2015	OWT's (feeding-in)	1 765.3	422
	Installed OWT's (no feed-in)	219.2	60
	Foundations w/o OWT		67
Cumulative (30.06.2015)	OWT's (feeding-in)	2 777.8	668
	Installed OWT's (no feed-in)	380.7	90
	Foundations w/o OWT		84

Figure 1 illustrates the progress of offshore wind energy development, with regard to the feeding-in OWT (in MW). The capacity feeding-in for the first time during the first half of 2015 significantly exceeds the additional capacity feeding-in for the first time throughout the previous year (492.2 MW). The cumulative capacity of OWT feeding-in to the grid has increased by 174% during the first six months of 2015, to 2 777.8 MW (668 OWT).

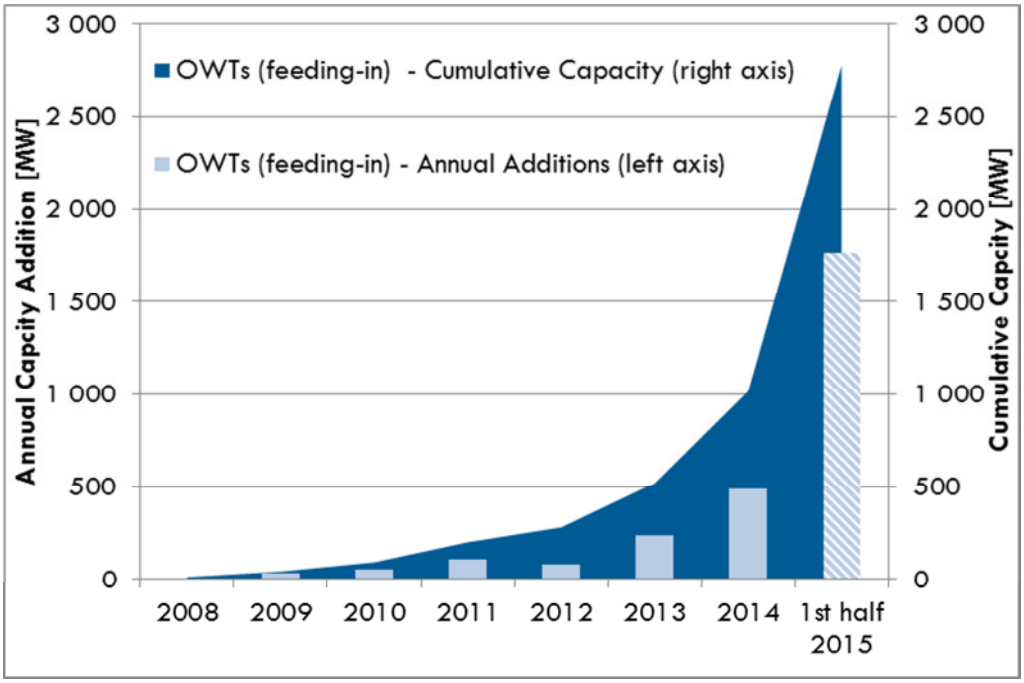

Figure 1: Development of Offshore Wind Energy in Germany (Capacity of OWT feeding-in) as of 30.06.2015

The data were obtained through a survey with industry representatives, as well as additional research.

Data for the previous year was adjusted.

On behalf of: AGOW, BWE, OFFSHORE WINDENERGIE, wab windenergie agentur, VDMA

INSTALLED TURBINES AND FOUNDATIONS

Installation activities took place in six OWP during the first half of 2015. An additional 215 OWT with a capacity of 800.8 MW have been installed during the first half of 2015. 60 of those OWT (219.2 MW) did not feed-in to the grid by the end of June 2015. Another 30 OWT (161.5 MW), which have been installed in the previous year, did not achieve first feed-in during the first half of 2015. Therefore, the number of completely installed OWT, not yet feeding-in, add up to a total of 90 OWT which equals a cumulative capacity of 380.7 MW on the 30th June 2015.

During the first half of 2015, another 79 foundations have been installed. By the 30th June 2015 67 of these have been awaiting the erection of an OWT. Including foundations installed in the previous year, which have not been fitted with an OWT, there is a total of 84 foundations completed which are ready for turbine installations on the 30th June 2015.

POLITICAL DEVELOPMENT TARGET

The current political target for offshore wind energy, set by the federal government of Germany, aims for a total installed capacity of 6 500 MW by 2020. The progress towards meeting this target, as of 30th June 2015, is shown in Figure 2 below. The figure depicts total capacity feeding-in to the grid, as well as OWT installed and under construction (if at least the construction of the OWP's foundations had commenced) and capacity which for a final investment decision has been made.

Additional to 2 777.8 MW feeding-in and 380.7 MW completely installed, a capacity of 704.4 MW was under construction as of 30th June 2015. A final investment decision had been made for another 1 482.8 MW. In total, 82 % of the 6 500 MW-target has been finalised or is in solid progress, as of 30th June 2015. This means, additional OWP with a total capacity of 1 154.3 MW have to be financed and implemented within the next couple of years to ensure accurate achievement of the 2020 target.

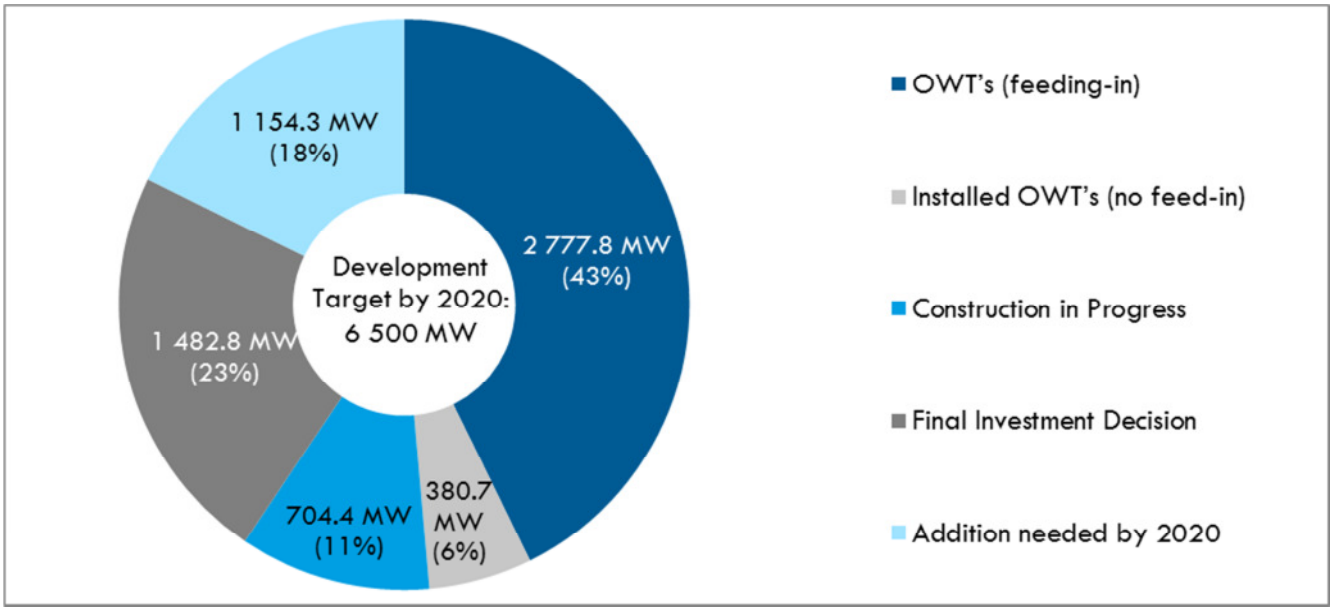

Figure 2: Offshore Capacity in solid progress (meaning at least final investment decision) and its Share of the Development Target as of 30.06.2015

The data were obtained through a survey with industry representatives, as well as additional research.

Data for the previous year was adjusted.

On behalf of: AGOW, BWE, Offshore Windenergie, wab, VDMA

DISTRIBUTION ACROSS NORTH SEA AND BALTIC SEA

The distribution of installations (OWT and foundations) as well as commissioning activities between the North Sea and the Baltic Sea in the first half of 2015 is shown in Table 2. Additionally, the cumulative status of the development for both offshore regions is displayed. During the first six months of 2015, first feed-in as well as installation activities took place in both sea basins.

Overall, by 30th June 2015, 574 OWT located in the North Sea with a cumulated capacity of 2 467.8 MW feed-in to the grid, and 94 OWT with 310.0 MW in the Baltic Sea. This corresponds to a share of 89 % in the North Sea and 11 % in the Baltic Sea. Additionally, another 82 OWT (351.9 MW) were installed in the North Sea but without feeding-in to the grid. Furthermore, 84 foundations without OWT were installed by the end of June 2015. In the Baltic Sea eight OWT, (28.8 MW) were awaiting first feed-in as of 30th June 2015.

Table 2: Distribution across the North and Baltic Seas as of 30.06.2015

Regional Distribution		North Sea		Baltic Sea	
		Capacity [MW]	Number of OWT	Capacity [MW]	Number of OWT
Additions 1st half 2015	OWT (feeding-in)	1 506.1	350	259.2	72
	Installed OWT (no feed-in)	190.4	52	28.8	8
	Foundations w/o OWT		67		0
Cummulative (30.06.2015)	OWT (feeding-in)	2 467.8	574	310.0	94
	Installed OWT (no feed-in)	351.9	82	28.8	8
	Foundations w/o OWT		84		0

TURBINE CONFIGURATION

The average turbine configuration is displayed in Table 3. The average nameplate capacity of OWT feeding-in for the first time in the first half of 2015 was 4 170 kW. The average rotor diameter was 119.6 m and the average hub height was 87.8 m. Compared to the average turbine configuration of OWT commissioned during the previous year, average rotor diameter and hub height barely changed, whilst the average nameplate capacity increased by 9 %.

The cumulated feeding-in OWT portfolio turbine configurations are displayed in Table 3 as well. The average nameplate capacity of all turbines feeding in was 4.158 kW, the average rotor diameter was 119.1 m and the average hub height was 88.2 m.

Table 3: Average Turbine Configuration of OWT (feeding-in) as of 30.06.2015

Average Turbine Configuration of OWT (feeding-in)	Additions 1st half 2015	Cummulative (30.06.2015)
Average Nameplate Capacity	4 170 kW	4 158 kW
Average Rotor Diameter	119,6 m	119,1 m
Average Hub Height	87,8 m	88,2 m

The data were obtained through a survey with industry representatives, as well as additional research.

Data for the previous year was adjusted.

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OFFSHORE-WIND PROJECTS – ACTIVITIES IN THE FIRST HALF OF 2015

During the first half of 2015, full commissioning of two OWP (Meerwind Süd|Ost and DanTysk) was achieved. Therefore as of 30th June 2015, there are six OWP completely feeding-in. One OWP (Riffgat), which was operative in 2014, received a capacity increase in the first half of 2015. Furthermore, in the period under consideration, commissioning activities took place in three OWP (Borkum West II, Global Tech I and Nordsee Ost) which had already been completely installed in 2014. Another four OWP (Amrumbank West, Baltic II, Borkum Riffgrund I and Butendiek) were subject to installation as well as commissioning activities in the first half of 2015. In the OWP mentioned above, not all turbines achieved first feed-in by the end of June 2015. In two OWP (Godewind I & II), foundations have been installed during the first half of 2015. One OWP (Sandbank) with final investment decisions started construction preparations offshore (e.g. scour protection) in the first half of 2015. A final investment decision was made for another four OWP (Nordergründe, Nordsee One, Veja Mate and Wikinger). A graphic overview of the status and the location of the German OWP is displayed in Figure 3.

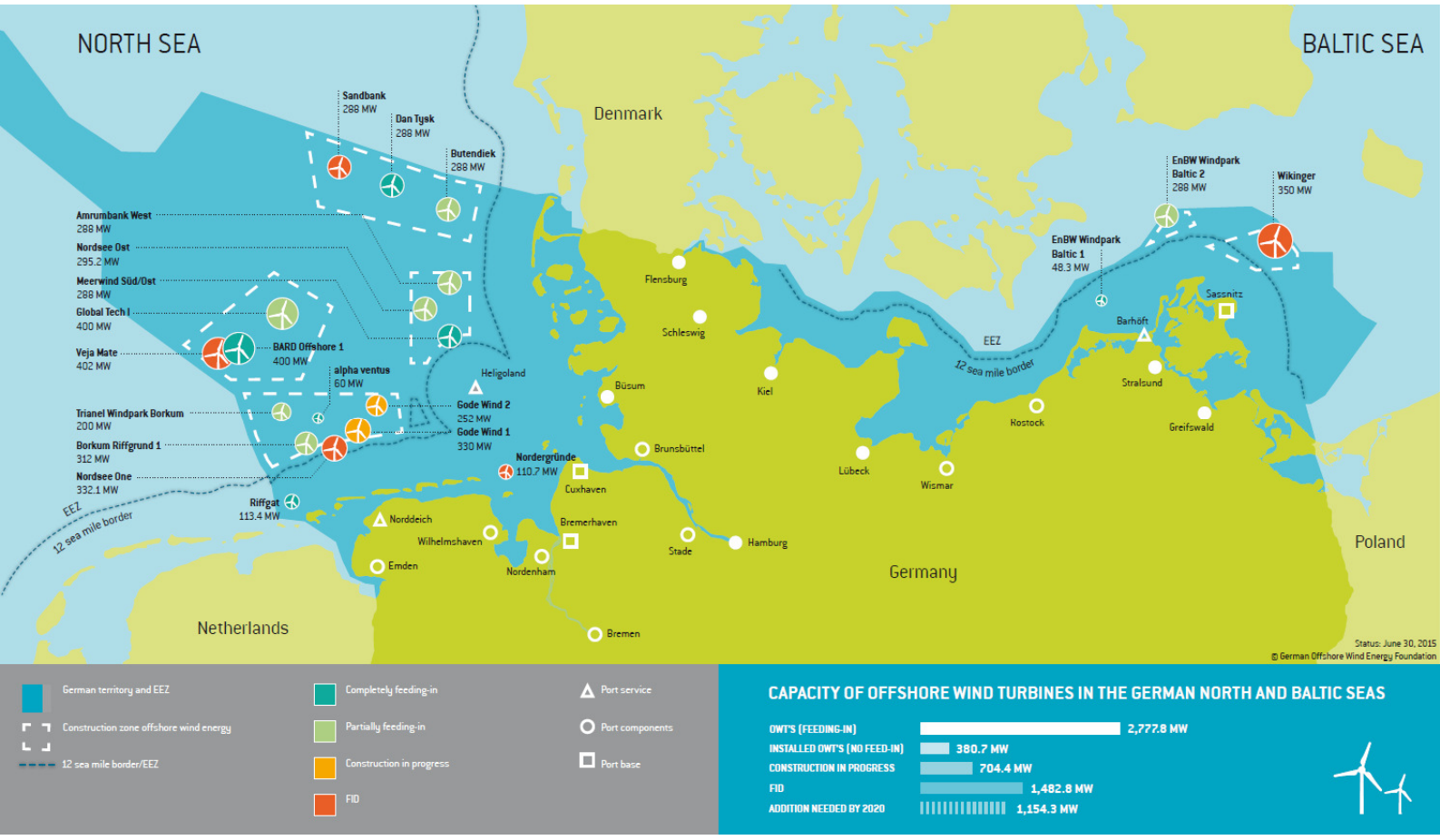

Figure 3: Completely/partially feeding-in OWP, OWP under construction and OWP with Final Investment Decision as of 30.06.2015

Data Collection and Adaptation:
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www.windguard.com

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