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**Offshore wind farms**

- Operational
- Operational out of Germany
- Under Construction
- Awarded in Tender / Grid Connection Claim
- Area for Future Tender
- Possible Area for Offshore Wind Energy
- Possible Areas out of Germany for Offshore Wind
- Area for Other Forms of Energy Generation

**Offshore substation**

- Alternating current (AC) from turbines is converted to high voltage level.
- (Preliminary) Operational
- Under Construction
- Planned

**Converter platform**

Alternating current from offshore substation/wind farms is converted to high voltage direct current (DC) and then transported onshore. Not needed for AC grid connections.

- (Preliminary) Operational
- Under Construction
- Planned

**Grid connection**

- (Preliminary) Operational
- Under Construction
- Planned
- (Expected) Interconnector

**EEZ = Exclusive Economic Zone**

- 12 Nautical Miles Zone
- Natural Gas Pipeline
- 1-21 Area
- Heliport
- Service/Installation Port
- Planned Broadband Coverage (Radio Mast) (RZNB)
- Accommodation Platform
- Priority Area Nature Conservation
- LNG Terminal
- UK- and Cabledgrate at Digital Ocean Lab, Fraunhofer Institute for Computer Graphics Research IGD
- Offshore Drone Campus Cuxhaven – ODCC

# OFFSHORE WIND FARMS IN THE GERMAN NORTH SEA / BALTIC SEA

## NORTH SEA

No.	Project Name (RDP 2021)	Area	Grid Connection	Location	Developer/Owner	Turbine Type	Number of DWT	Total (expected) Capacity (MW)	(Expected) Commissioning	Distance to Shore [km]	Water Depth [m]	Tender Round
<b>Operational (25)</b>												
4	Nearshore Ems Emden		nearshore	Altehrde	Emtec	E-112	1	4.5	2004	0.1	3	
1	alpha ventus (1)	2	NOR-2-1	EEZ	DOT (EWE, RWE, Vattenfall)	Repower S8 and AREVA Wind M5000-116	12	60	2010	54	28	
2	BARB Offshore 1 (EN)	6	NOR-6-1 (BarWin1)	EEZ	Ocean breeze Energy	Barb S10	80	400	2013	111	39	
3	Riffgat	9	NOR-9-1 (RifWin)	EEZ	12 NM Zone	EMW	80	400	2014	40	71	
6	Amrumbank West (EN)	4	NOR-5-1 (SylWin1)	EEZ	RWE	Siemens SWT-3.6-120	80	360	2015	60	21	
7	Borkum Riffgrund 1 (N2)	2	NOR-2-2 (DollWin1)	EEZ	British and German Renewable Energy	Siemens SWT-4.0-120	18	113.4	2015	55	25	
19	Butendiek	5	NOR-5-1 (SylWin1)	EEZ	Industries Pension, Siemens Financial Services, Greenact UK Wind, TIOCHI Europe, Citigroup, Skyburn Renewables and eor	Siemens SWT-3.6-120	80	360	2015	55	19	
8	DanTysk (EN)	5	NOR-5-1 (SylWin1)	EEZ	Vattenfall and Stadtwerke München	Siemens SWT-3.6-120	80	360	2015	94	26	
9	Global Tech 1 (EN)	8	NOR-8-1 (BarWin3)	EEZ	GE Ventures, Agor International, ENTEGA and Stadtwerke München	AREVA Wind M5000-116	80	400	2015	110	39	
10	Meerwind Süd Ost (EN)	4	NOR-4-1 (HelWin1)	EEZ	China Three Gorges Corporation and Windland	Siemens SWT-3.6-120	80	360	2015	54	24	
12	Nordsee Ost (EN)	4	NOR-4-1 (HelWin1)	EEZ	Semron 6.2M126	48	288	2015	60	23		
13	Trianel Windpark Borkum (EN)	2	NOR-2-2 (DollWin1)	EEZ	Trianel	AREVA Wind M5000-116	40	200	2015	65	30	
20	Gode Wind 1 (EN)	3	NOR-3-1 (DollWin1)	EEZ	British, Glenmorris and The Renewables Infrastructure Group	Siemens SWT-6.0-154	15	112.1	2016	43	30	
26	Gode Wind 2 (EN)	3	NOR-3-1 (DollWin1)	EEZ	British, AIP Management, Industries Pension, Larssen Pension and Lagares Pensionkasse	Siemens SWT-6.0-154	42	252	2016	48	33	
30	Nordergründe	12	NM	(Nordergründe) Zone	Gothaer Lebensversicherung, Skyburn Renewables and John Laing Group	Semron 6.2M126	18	110.7	2017	17	7	
32	Nordsee One (EN)	3	NOR-3-1 (DollWin1)	EEZ	Northland Power and RWE	Siemens SWT-4.0-120	54	324	2017	45	28	
35	Sandbank (EN)	5	NOR-5-1 (SylWin1)	EEZ	Vattenfall and Stadtwerke München	Siemens SWT-4.0-120	72	360	2017	117	28	
31	Vaja Mate (EN)	2	NOR-2-2 (DollWin1)	EEZ	Commerz Real, Ingia Group, KGA and ALM Group	Siemens SWT-6.0-154	67	400	2017	115	39	
16	Borkum Riffgrund 2 (EN)	2	NOR-2-2 (DollWin1)	EEZ	British, Gulf Energy Development, Koppel Infrastructure Trust and Koppel Corporation	Vestas V164-8.0 MW	56	450	2018	57	26	
29	Merkur Offshore (EN)	2	NOR-2-3 (DollWin1)	EEZ	APG and The Renewables Infrastructure Group	Halide 150-0HW	66	396	2019	61	30	
22	Deutsche Bucht (EN)	6	NOR-6-2 (BarWin2)	EEZ	Northland Power	Vestas V164-8.0 MW	31	252	2019	117	39	
24	EnBW Hohe See (EN)	8	NOR-8-1 (BarWin3)	EEZ	EnBW, EPSE and Enbridge	Siemens SWT-7.0-154	71	500	2019	104	39	
15	EnBW Albatros (EN)	8	NOR-8-2 (BarWin2)	EEZ	EnBW, EPSE and Enbridge	Siemens SWT-7.0-154	116	116.8	2020	112	39	
18	Trianel Windpark Borkum II (EN)	2	NOR-2-2 (DollWin1)	EEZ	EMW, eor, Trianel and 17 municipal utilities	Semron 6.2M152	12	200	2020	66	30	
74	Kaskas (EN)	4	NOR-4-2 (HelWin2)	EEZ	RWE	Siemens Gamesa SG 8.0-167 D3	38	342	2022	60	23	2018
Summary							1,387	6,916				

No.	Project Name (RDP 2021)	Area	Grid Connection	Location	Developer/Owner	Turbine Type	Number of DWT	Total (expected) Capacity (MW)	(Expected) Commissioning	Distance to Shore [km]	Water Depth [m]	Tender Round
<b>Awarded in Tender / Grid Connection Claim (6)</b>												
27	Gode Wind 3 (former Gode Wind 1)	3	NOR-3-3 (DollWin1)	EEZ	British	Siemens Gamesa SG 11.0-200 D3	23	241.8	2024	41	31	2017/18
17	Borkum Riffgrund 3 (former Borkum Riffgrund West 1, Borkum Riffgrund West 2 and OWP West) (EN)	1	NOR-1-1 (DollWin1)	EEZ	British and Glenmorris	Siemens Gamesa SG 11.0-200 D3	83	900	2025	78	31	2017/18
23	EnBW He Dreht (EN)	7	NOR-7-1 (BarWin5)	EEZ	EnBW	Vestas V236-10.5 MW	64	900	2025	104	39	2017
75	N-3.7 (EN)	3	NOR-3-3 (DollWin1)	EEZ	RWE and Northland Power		225	2026	43	31	2021	
76	Nordsee One (N-3.3) (EN)	3	NOR-3-3 (DollWin1)	EEZ	RWE and Northland Power		433	2026	50	31	2021	
77	Nordlicht (N-2.2) (EN)	7	NOR-7-2 (BarWin6)	EEZ	Vattenfall		980	2027	96	38	2022	

No.	Project Name (RDP 2021)	Area	Grid Connection	Location	Developer/Owner	Turbine Type	Number of DWT	Total (expected) Capacity (MW)	(Expected) Commissioning	Distance to Shore [km]	Water Depth [m]	Tender Round
<b>Area for Future Tender (18)</b>												
N-3.5 (EN)	3	NOR-3-3 (DollWin1)	EEZ				420	2028	2023 (centrally pre-investigated)			
N-3.6 (EN)	3	NOR-3-3 (DollWin1)	EEZ				480	2028	2023 (centrally pre-investigated)			
N-6.6 (EN)	6	NOR-6-1 (BarWin4)	EEZ				630	2028	2023 (centrally pre-investigated)			
N-6.7 (EN)	6	NOR-6-1 (BarWin4)	EEZ				270	2028	2023 (centrally pre-investigated)			
N-11.1 (EN)	11	NOR-11-1 (LanWin1)	EEZ				2,000	2030	2023 (not centrally pre-investigated)			
N-12.1 (EN)	12	NOR-12-1 (LanWin1)	EEZ				2,000	2030	2023 (not centrally pre-investigated)			
N-12.2 (EN)	12	NOR-12-2 (LanWin2)	EEZ				2,000	2030	2023 (not centrally pre-investigated)			
N-9.1 (EN)	9	NOR-9-1 (BarWin5)	EEZ				2,000	2029	2024 (centrally pre-investigated)			
N-9.2 (EN)	9	NOR-9-1 (BarWin5)	EEZ				2,000	2029	2024 (centrally pre-investigated)			
N-9.3 (EN)	9	NOR-9-1 (BarWin5)	EEZ				1,500	2029	2024 (centrally pre-investigated)			
N-11.2 (EN)	11	NOR-11-2 (LanWin2)	EEZ				1,500	2031	2024 (not centrally pre-investigated)			
N-12.3 (EN)	12	NOR-12-3 (LanWin3)	EEZ				2,000	2031	2024 (not centrally pre-investigated)			
N-10.1 (EN)	10	NOR-10-1 (DollWin2)	EEZ				2,000	2030	2025 (centrally pre-investigated)			
N-10.2 (EN)	10	NOR-9-3 (BarWin4)	EEZ				500	2030	2025 (centrally pre-investigated)			
N-13.1 (EN)	13	NOR-13-1 (LanWin4)	EEZ				500	2031	2026 (centrally pre-investigated)			
N-13.2 (EN)	13	NOR-13-1 (LanWin4)	EEZ				2,000	2031	2026 (centrally pre-investigated)			
N-21.1	21	NOR-21-1	EEZ				2,000	2032	2027 (centrally pre-investigated)			
N-13.3	13											2023 <sup>1)</sup>

No.	Project Name (RDP 2021)	Area	Grid Connection	Location	Developer/Owner	Turbine Type	Number of DWT	Total (expected) Capacity (MW)	(Expected) Commissioning	Distance to Shore [km]	Water Depth [m]	Tender Round
<b>Area for Other Forms of Energy Generation (1)</b>												
SEN-1 (Solar approx. 102 kW)	8		EEZ									2023 <sup>1)</sup>

## GRID CONNECTIONS

Project	Type	Converter Platform	(Expected) Capacity (MW)	Connecting Offshore Wind Farms (number on map)	TSD	Contractor(s)	(Expected) Commissioning
<b>NORTH SEA</b>							
<b>(Preliminary) Operational</b>							
NOR-2-1 (Alpha Ventus)	AC	BarWin alpha	62	(1) alpha ventus	Tennet	Transpower	2009
NOR-6-1 (BarWin1)	DC	BarWin alpha	400	(2) BARB Offshore 1	Tennet	ABB, Transpower	2010
NOR-9-1 (RifWin)	AC	BarWin alpha	113	(3) Riffgat	Tennet	NKT	2014
NOR-2-2 (DollWin1)	AC	DollWin alpha	800	(7) Borkum Riffgrund 1, (1) Trianel Windpark Borkum, (15) Trianel Windpark Borkum II	Tennet	ABB	2015
NOR-4-1 (HelWin1)	DC	HelWin alpha	576	(10) Meerwind Süd   Ost, (12) Nordsee Ost	Tennet	Siemens, Prysmian	2015
NOR-4-2 (HelWin2)	DC	HelWin beta	690	(6) Amrumbank West, (74) Kaskas	Tennet	Siemens, Prysmian	2015
NOR-5-1 (SylWin1)	DC	SylWin alpha	884	(19) Butendiek, (8) DanTysk, (35) Sandbank, (15) EnBW Albatros, (22) Deutsche Bucht, (13) Vaja Mate	Tennet	Siemens, Prysmian	2015
NOR-6-2 (BarWin2)	DC	BarWin beta	800	(15) Merkur Offshore	Tennet	Siemens, Prysmian	2015
NOR-3-1 (DollWin1)	DC	DollWin beta	916	(25) Gode Wind 1, (26) Gode Wind 2, (30) Nordergründe	Tennet	ABB	2016
NOR-0-2 (Nordergründe)	AC	DollWin gamma	111	(30) Nordergründe	Tennet	ABB	2017
NOR-2-3 (DollWin3)	DC	DollWin gamma	900	(16) Borkum Riffgrund 2, (29) Merkur Offshore	Tennet	GE, Prysmian	2018
NOR-8-1 (BarWin3)	DC	BarWin gamma	900	(24) EnBW Hohe See, (9) Global Tech 1	Tennet	Siemens, Prysmian	2019
<b>Under Construction</b>							
NOR-3-4 (DollWin4)	DC	DollWin kappa	900	(27) Gode Wind 3, (75) N-3.7, (76) Nordsee One	Tennet	Siemens, Dragados, Neams	2023
NOR-1-1 (BarWin5)	DC	DollWin epsilon	900	(21) Borkum Riffgrund 3	Tennet	Koppel, Aibel, ABB, Prysmian	2024
NOR-7-1 (BarWin6)	DC	BarWin kappa	900	(23) EnBW He Dreht	Tennet	McDemmet, GEIS, C-EPG, Neams	2025
NOR-7-2 (BarWin6)	DC	BarWin kappa	980	(77) Nordlicht	Tennet	McDemmet, GEIS, C-EPG, Neams	2027
NOR-3-2 (DollWin4)	DC	DollWin delta	900	N-3.5, N-3.6	Aerpinion	Siemens, Dragados, Prysmian	2028
NOR-6-3 (BarWin4)	DC	BarWin delta	900	N-6.6, N-6.7	Aerpinion	Siemens, Dragados, Prysmian	2028
<b>In Preparation</b>							
NOR-3-3 (BarWin1)	DC	BarWin1	2,000	N-9.1	Aerpinion	Siemens, Dragados	2029
<b>Planned<sup>1)</sup></b>							
NOR-9-2 (BarWin3)	DC	BarWin3	2,000	N-9.2	Tennet		2029
NOR-9-3 (BarWin4)	DC	BarWin4	2,000	N-9.1, N-9.1, N-10.2	Tennet		2029
NOR-10-1 (BarWin2)	DC	BarWin2	2,000	N-10.1	Aerpinion		2030
NOR-11-1 (LanWin3)	DC	LanWin3	2,000	N-11.1	Solhertz		2030
NOR-12-1 (LanWin2)	DC	LanWin2	2,000	N-12.1	Solhertz		2030
NOR-12-2 (LanWin2)	DC	LanWin2	2,000	N-12.2	Solhertz		2030
NOR-11-2 (LanWin4)	DC	LanWin4	2,000	N-11.2, N-13.1	Tennet		2031
NOR-13-1 (LanWin5)	DC	LanWin5	2,000	N-13.1, N-13.2	Tennet		2031

Project	Type	Converter Platform	(Expected) Capacity (MW)	Connecting Offshore Wind Farms (number on map)	TSD	Contractor(s)	(Expected) Commissioning
<b>BALTIC SEA</b>							
<b>(Preliminary) Operational</b>							
OST-3-3 (Baltic 3)	AC	Baltic 3	51	(107) EnBW Baltic 2	Solhertz	NKT	2015
OST-3-2 (Baltic 2)	AC	Baltic 2	288	(108) EnBW Baltic 2	Solhertz	NKT, Site Cable, NKT	2015
OST-1-1 (Windaid 1)	AC	Baltic 1	250	(111) Wikinger	Solhertz	Prysmian	2018
OST-1-2 (Windaid 2)	AC	Baltic 1	250	(109) Arkona	Solhertz	Prysmian	2019
OST-3-1 (Windaid 3)	AC	Baltic 1	250	(109) Arkona, (111) Wikinger	Solhertz	Prysmian	2019
<b>Under Construction</b>							
OST-2-3 (Windaid 2)	AC	Baltic 2	250	(115) Arcadis Ost 1	Solhertz	NKT, Boskalis	2023
OST-2-2 (Windaid 2)	AC	Baltic 2	250	(111) Baltic Eagle	Solhertz	NKT, Boskalis	2023
OST-2-1 (Windaid 2)	AC	Baltic 2	250	(121) Baltic Eagle	Solhertz	NKT, Boskalis</	