

Commissioned* Offshore Wind Farms Worldwide						
Wind farm	No. turbines	MW	MW/turbine	Turbines	Year	Country
Tunø Knob	10	5	0.5	Vestas V39-500 kW	1995	DK
Irene Vorrink / Dronten	28	16.8	0.6	Nordtank NKT 600/43	1996	NL
Bockstigen-Valor	5	3.3	0.7	Wind World W-3700/500 kW, ab 11-2018 Vestas V47-660kW	1996	Sweden
Middelgrunden	20	40	2.0	Bonus 2.0 MW/76	2000	DK
Horns Rev 1	80	160	2.0	Vestas V80-2.0 MW	2001	DK
Frederikshavn	4	10.6	2.7	Nordex N90/2300 / Vestas V90-3.0 MW / Bonus 2.3 MW/82	2002	DK
Nysted (Rødsand I)	72	166	2.3	Bonus 2.3 MW/82	2003	DK
North Hoyle	30	60	2.0	Vestas V80-2.0 MW	2003	UK
Arklow Bank	7	25	3.6	GE 3.6 MW-104 Offshore	2003	IRL
Samsø	10	23	2.3	Bonus 2.3 MW/82	2003	DK
Scroby Sands	30	60	2.0	Vestas V80-2.0 MW	2004	UK
Rønland	8	17.2	2.2	Vestas V80-2.0 MW / Bonus 2.3 MW/82	2004	DK
Sakata North Port (nearshore)	5	10	2.0	Vestas V80-2.0 MW	2004	JP
Ems Emden (nearshore)	1	4.5	4.5	Enercon E-112	2004	GER
Hokkaido / Setana	2	1.2	0.6	Vestas V47-660 kW	2004	JP
Kentish Flats	30	90	3.0	Vestas V90-3.0 MW	2005	UK
Egmond aan Zee	36	108	3.0	Vestas V90-3.0 MW	2006	NL
Barrow	30	90	3.0	Vestas V90-3.0 MW	2006	UK
Breitling (nearshore)	1	2.5	2.5	Nordex N90/2500 (Offshore)	2006	GER
Lillgrund	48	110	2.3	Siemens SWT-2.3-93	2007	Sweden
Burbo Bank	25	90	3.6	Siemens SWT-3.6-107	2007	UK
Beatrice - Demo	2	10	5.0	REpower 5M	2007	UK
Liadong Bay/Suizhong 36-1 Oil Field	1	1.5	1.5	Goldwind GW 70/1500	2007	CN
Prinses Amalia	60	120	2.0	Vestas V90-3.0 MW	2008	NL
Inner Dowsing	27	97	3.6	Siemens SWT-3.6-107	2008	UK
Lynn	27	97	3.6	Siemens SWT-3.6-107	2008	UK
Thomton Bank 1	6	30	5.0	REpower 5M	2008	B
Horns Rev 2	91	209	2.3	Siemens SWT-2.3-93	2009	DK
Rhyl Flats	25	90	3.6	Siemens SWT-3.6-107	2009	UK
Vindpark Vänern	10	30	3.0	WinWind WWD-3	2009	Sweden
Sprogø	7	21	3.0	Vestas V90-3.0 MW	2009	DK
Avedøre Holme	2	7.2	3.6	Siemens SWT-3.6-120	2009	DK
Hywind (floating)	1	2.3	2.3	Siemens SWT-2.3-82 VS	2009	NOR
Dafeng Intertidal demonstration Turbine	1	2	2.0	Shanghai Electric SE2.0 93 m	2009	CN
Thanet	100	300	3.0	Vestas V90-3.0 MW	2010	UK
Rødsand II	90	201	2.2	Siemens SWT-2.3-93	2010	DK
Robin Rigg	60	180	3.0	Vestas V90-3.0 MW	2010	UK
Gunfleet Sands	48	172	3.6	Siemens SWT-3.6-107	2010	UK
Belwind Phase I	56	171	3.1	55 Vestas V90-3.0 MW, 1 GE-Alstom Haliade 150-6.0 (2013)	2010	B
Donghai Bridge 100 MW OWF DP	34	102	3.0	Sinovel SL3000/90	2010	CN
Alpha Ventus	12	62	5.2	Adwen AD 5 -116 / REpower 5M	2010	GER


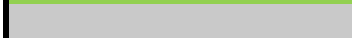


Commissioned* Offshore Wind Farms Worldwide						
Wind farm	No. turbines	MW	MW/turbine	Turbines	Year	Country
Longyuan Rudong intertidal Trial OWF	16	32	2.0	Mingyang MY 1.5s / Guodian UP82-1500 / SEWIND W2000M / Sany Electric SE9320III-S3 / Envision E82 / CSIC HZ93-2000 / BaoNan BN82-2MW / Sinovel SL3000/90 / Goldwind GW 100/2.5 MW	2010	CN
Kamisu nearshore Phase 1	7	14	2.0	Subaru 80/2.0 MW	2010	JP
Huaneng Rongcheng Power Prototype DP (onshore)	2	6	3.0	SL3000/105	2010	CN
DDHI Composite Bucket Foundation Test Project	1	2.5	2.5	XEMC-Darwin	2010	CN
Reposaaren tuulipuisto	1	2.3	2.3	Siemens SWT-2.3-101	2010	FIN
Walney 1	51	183.6	3.6	Siemens SWT-3.6-107	2011	UK
Baltic 1	21	48.3	2.3	Siemens SWT-2.3-93	2011	GER
Sinovel SL 6000 (onshore)	1	6	6.0	Sinovel SL 6000 - 128	2011	CN
Gothenburg Harbour (onshore)	1	4.1	4.1	GE Energy 4.1-113	2011	DK
Xiangshui Intertidal Pilot Project Goldwind	1	2.5	2.5	GW 100/2500	2011	CN
Xiangshui Intertidal Pilot Project Shanghai Electric	1	2	2.0	SE 2.0-93	2011	CN
Xiangshui Intertidal Pilot Project Shanghai Electric - W2000M-93-70	1	2	2.0	Shanghai Electric - Aerodyn W2000/93	2011	CN
Greater Gabbard	140	504	3.6	Siemens SWT-3.6-107	2012	UK
Sheringham Shoal	88	316.8	3.6	Siemens SWT-3.6-107	2012	UK
Thomton Bank 2	30	184.5	6.2	REpower 6M	2012	B
Walney 2	51	183.6	3.6	Siemens SWT-3.6-120	2012	UK
Ormonde	30	150	5.0	REpower 5M	2012	UK
Jiangsu Rudong 150 MW ODWF (intertidal) DP - Phase 1	38	99.3	2.6	17 x SL 3000/90, 21 X SWT 2.3-101	2012	CN
Jiangsu Rudong 150 MW ODWF (intertidal) DP - Phase 2	20	50	2.5	Goldwind GW 109/2500	2012	CN
Guodian United Power 6MW Prototype (onshore)	1	6	6.0	UP6000-136	2012	CN
Zhongmin Fujian XEMC Test Turbine (nearshore)	1	5	5.0	XEMC Darwin XD 115/5 MW (onshore)	2012	CN
The demonstrative offshore windpark of Jeju island	2	5	2.5	STX 72 2 MW (STX Windpower B.V.), WinDS 3000TM (Doosan Heavy Industries)	2012	SK
London Array	175	630	3.6	Siemens SWT-3.6-120	2013	UK
Anholt	111	400	3.6	Siemens SWT-3.6-120	2013	DK
Bard Offshore 1	80	400	5.0	Bard 5.0 - 122	2013	GER
Lincs	75	270	3.6	Siemens SWT-3.6-120	2013	UK
Thomton Bank 3	18	111	6.2	REpower 6.2M-126	2013	B
Teesside	27	62.1	2.3	Siemens SWT-2.3-93	2013	UK
Jiangsu Rudong 150 MW ODWF (intertidal) DP - Extension	20	50	2.5	Goldwind GW 109/2500	2013	CN
Kårehamn	16	48	3.0	Vestas V112-3 MW	2013	Sweden
Bac Lieu - Phase 1	10	16	1.6	GE 1.6-82.5	2013	Vietnam
Kamisu nearshore Phase 2	8	16	2.0	HTW 2.0-80 (Hitachi)	2013	JP
Gunfleet Sands 3	2	12	6.0	Siemens SWT-6.0-120	2013	UK
Samsung SHI 7.0-171 MW (nearsh.) Pro.	1	7	7.0	Samsung SHI 7.0-171	2013	UK

Commissioned* Offshore Wind Farms Worldwide						
Wind farm	No. turbines	MW	MW/turbine	Turbines	Year	Country
Xiangshui Intertidal Pilot Project Goldwind + DEC FD 119A	2	6	3.0	GW 3000 + FD 119A	2013	CN
Gamesa G132-5 MW Prototyp Arinaga Harbour (onshore)	1	5	5.0	Gamesa G132-5 MW	2013	SP
Choshi offshore demonstration project	1	2.4	2.4	MWT92 2.4 MW	2013	JP
Fukushima (FOWT, 66kV FPS) FOWARD Phase 1	1	2	2.0	Hitachi HTW 2.0-80	2013	JP
Goto/Nagasaki (FOWT)	1	2	2.0	Hitachi Subaru 50-2.0 MW	2013	JP
Kitakyushu	1	2	2.0	Japan Steel Works JSW J82-2.0	2013	JP
West of Duddon Sands	108	389	3.6	Siemens SWT-3.6-120	2014	UK
Meerwind Süd und Ost	80	288	3.6	Siemens SWT-3.6-120	2014	GER
Northwind	72	216	3.0	Vestas V112-3 MW	2014	B
Riffgat	30	113.4	3.8	Siemens SWT-3.6-120	2014	GER
Hydropower Rudong OWF (intertidal) 100 MW DP - Phase1	10	20	2.0	Haizhuang H102-2.0	2014	CN
Goldwind 6.0 MW - 150 (onshore)	1	6	6.0	Goldwind 6.0 MW - 150	2014	CN
Hyundai HHI 5.5MW Test Turbine (onshore)	1	5.5	5.5	HHI - 5.5 - 140	2014	SK
Hitachi Demonstration Prototype (onshore)	1	5	5.0	Hitachi HTW 5.0-126	2014	JP
Gwynt y Môr	160	576	3.6	Siemens SWT-3.6-107	2015	UK
Global Tech 1	80	400	5.0	AREVA M5000-116	2015	GER
Borkum Riffgrund 1	78	312	4.0	Siemens SWT-4.0-130	2015	GER
DanTysk	80	302.4	3.8	Siemens SWT-3.6-120 modif.	2015	GER
Nordsee Ost	48	295.2	6.2	Senvion 6.2M126	2015	GER
Baltic 2	80	288	3.6	Siemens SWT-3.6-120	2015	GER
Butendiek	80	288	3.6	Siemens SWT-3.6-120	2015	GER
Humber Gateway	73	219	3.0	Vestas V112-3 MW	2015	UK
Westermost Rough	35	210	6.0	Siemens SWT-6.0-154	2015	UK
Trianel Borkum Phase 1	40	200	5.0	AREVA M5000-116	2015	GER
Rudong OWFDP Expansion Project 200 MW	50	200	4.0	25 Siemens SWT 4.0-?, 25 Envision 4 MW-136	2015	CN
Luchterduinen	43	129	3.0	Vestas V112-3 MW	2015	NL
Donghai Bridge OWF Phase 2 ext	28	102.2	3.7	Shanghai Electric SE 3.6-116	2015	CN
Kentish Flats Extension	15	49.5	3.3	Vestas V112-3.3 MW	2015	UK
Longyuan Rudong intertidal Trial OWF Extension	12	49.2	4.1	Goldwind 3 MW, 2 x CSIC Haizhuang 5 MW, DEC 5.5 MW, MY 6 MW, 7 x Envision 4 MW	2015	CN
Eurus Akita Port WF (shoreline)	6	18	3.0	Siemens SWT-3.0-101	2015	JP
Longyuan Putian Nanri Island 400 MW Project - Phase 1 16 MW Prototype	4	16	4.0	Siemens SWT 4.0-130	2015	CN
Fukushima MHI (FOWT) FOWARD Phase 2	1	7	7.0	Mitsubishi MHI 7 MW (früher SeaAngel)	2015	JP
Typhoon class Ming Yang 6.0/6.5	1	6.5	6.5	Typhoon class Ming Yang 6.0/6.5-140 2 blade downwind	2015	CN
Amrumbank West	80	302.4	3.8	Siemens SWT-3.6-120 modif.	2016	GER
Xiangshui ODP	55	202	3.7	18 Goldwind, 37 Siemens	2016	CN
CGN Rudong Demonstration Project	38	152	4.0	Siemens SWT-4.0-120	2016	CN
Westermeerwind (nearshore)	48	144	3.0	Siemens SWT-3.0-108	2016	NL

Commissioned* Offshore Wind Farms Worldwide						
Wind farm	No. turbines	MW	MW/turbine	Turbines	Year	Country
Shanghai Lingang Demonstration - 2 OWF	28	100.8	3.6	W3600-122-90 SE	2016	CN
SPIC Binhai North H1 100MW	25	100	4.0	Siemens SWT 4.0-130	2016	CN
Bac Lieu - Phase 2	52	83.2	1.6	GE 1.6-82.5	2016	Vietnam
Hydropower Rudong OWF (intertidal) 100 MW demonstration project - phase 2	32	80	2.5	Siemens SWT 2.5-108S	2016	CN
Fujian Putian Flat Bay Demonstration Phase 1	10	50	5.0	XEMC XE128-5000 (XEMC-Darwind)	2016	CN
Projekt Måde im Hafen von Esbjerg (onshore)	4	23	5.8	2 MHI-Vestas V164-8.0, 2 MHI Vestas V117-3.45	2016	DK
Østerild, Test Center Stand 1 (onshore)	1	6	6.0	GE-Alstom Haliade 150-6.0	2016	DK
2B Energy Eemshaven Test (onshore)	1	6	6.0	2B6-140 (2-B Energy) Zweiflügler	2016	NL
Gunsan Port - KEPRI Suction Bucket Demonstrator	1	3	3.0	WinDS3000/134 (Doosan heavy Industries)	2016	SK
Sakiyama 2MW FOWT	1	2	2.0	Subaru 80/2.0 MW	2016	JP
Gemini	150	600	4.0	Siemens SWT-4.0-130	2017	NL
Dudgeon	67	402	6.0	Siemens Gamesa SWT-6.0-154	2017	UK
Veja Mate	67	402	6.0	Siemens SWT-6.0-154	2017	GER
Wikinger	70	353.5	5.1	Adwen AD 5-135	2017	GER
Nordsee One	54	332.1	6.1	Senvion 6.2M126	2017	GER
Gode Wind 1	55	330	6.0	Siemens SWT-6.0-154	2017	GER
Sandbank	72	302.4	4.2	Siemens SWT-4.0-130 modif.	2017	GER
Burbo Bank 2	32	256	8.0	Vestas V164-8.0 MW	2017	UK
Gode Wind 2	42	252	6.0	Siemens SWT-6.0-154	2017	GER
Jiangsu Luneng Dongtai OWFCP	50	200	4.0	Shanghai Electric 4.0 MW	2017	CN
Belwind 2 (Nobelwind)	50	165	3.3	MHI-Vestas V112-3.3	2017	B
Huaneng Rudong OWF North	34	156	4.6	14 Siemens Gamesa SWT 4.0-120, 20 Haizhuang 5.0 (H154)	2017	CN
Huaneng Rudong OWF South	36	146.4	4.1	12 Envision 4.2, 24 Siemens Gamesa SWT-4.0-120	2017	CN
Nordergründe	18	111	6.2	Senvion 6.2M126	2017	GER
Ajos	13	42.4	3.3	5 Siemens Gamesa SWT-3.2-113 onshore, 8 SWT-3.3-130	2017	FIN
Tahkoluoto	10	42	4.2	Siemens Gamesa SWT-4.2-130	2017	FIN
Blyth OWDP	5	41.5	8.3	MHI-Vestas V164-8.0	2017	UK
Block Island	5	30	6.0	GE-Alstom Haliade 150-6 MW	2017	USA
Tamra OWF Phase 1	10	30	3.0	WinDS 3000TM (Doosan Heavy Industries)	2017	SK
Hywind 2 (FOWT)	5	30	6.0	Siemens Gamesa SWT-6.0-154	2017	UK
Formosa 1 - Phase 1	2	8	4.0	Siemens SWT-4.0-120	2017	Taiwan
Bremerhaven Port ADWEN 8 MW Prototyp (onshore)	1	8	8.0	Adwen AD 8-180	2017	GER
Østerild, Test Center - Stand 7 (onshore)	1	7	7.0	Siemens SWT 7.0-154	2017	DK
Walney 3.1+3.2	87	659	7.6	Siemens Gamesa SWT-7.0-154, MHI-Vestas V164-8.0	2018	UK
Race Bank	91	573	6.3	Siemens Gamesa SWT-6.0-154	2018	UK
Borkum Riffgrund 2	56	450	8.0	MHI-Vestas V164-8.0	2018	GER
SPIC Binhai North H 2	100	400	4.0	Siemens Gamesa SG 4.0-130	2018	CN
Rampion	116	400	3.4	MHI-Vestas V112-3.45	2018	UK
Merkur	66	396	6.0	GE-Alstom Haliade 150-6.0	2018	GER
Arkona	60	385	6.4	Siemens Gamesa SG 6.0-154	2018	GER

Commissioned* Offshore Wind Farms Worldwide						
Wind farm	No. turbines	MW	MW/turbine	Turbines	Year	Country
Gallopier	56	353	6.3	Siemens Gamesa SWT-6.0-154	2018	UK
Rentel	42	309	7.4	Siemens SWT-7.0-154	2018	B
SPIC Jiangsu Dafeng H3	72	302.4	4.2	EN 4.2-136 (Envision Energy)	2018	CN
Jiangsu Longyuan Chiang Sand H1 300MW	75	300	4.0	EN 4.0-136 (Envision Energy)	2018	CN
Longyuan Jiangsu Dafeng (H12) 200MW (Concession)	80	200	2.5	Goldwind GW 109-2500	2018	CN
Zhuhai Guishan Hai OWFDP	37	120	3.2	34 MingYang SCD 3 MW, 3 United Power 6 MW	2018	CN
Aberdeen Bay - European Offshore Wind Deployment Centre EOWDC	11	93.2	8.5	6 MHI-Vestas V164-8.4 2 MHI-Vestas V164-8.8	2018	UK
Nissum Bredning Vind Testbed for new technologies and integrated design	4	28	7.0	Siemens Gamesa SG 7.0-154 DD	2018	DK
Østerild, Test Center Stand 6 (onshore)	1	8	8.0	Siemens Gamesa SG 8.0-167 DD	2018	DK
ELICAN (ELISA)	1	5	5.0	Siemens Gamesa SG 5.0	2018	SP
Kitakyushu - NEDO Floating Wind Project	1	3	3.0	SCD 3 MW (Aerodyn Engineering)	2018	JP
Kincardine - Phase 1 (FOWT)	1	2	2.0	MHI-Vestas V80-2.0	2018	UK
Floatgen Project Le Croisic	1	2	2.0	Vestas V80-2.0 FOWT	2018	FR
Vindeby	[11]	[5]	[0.5]	Bonus 450 kW/37	1991 - 2017	DK
Lely	[4]	[2]	[0.5]	Nedwind N40/500	1994 - 2016	NL
Utgrunden I	[7]	[10.5]	[1.5]	Enron EW 1.5s	2000 - 2018	Sweden
Blyth	[2]	[4]	[2]	Vestas V66-2.0 MW	2001 - 2013	UK
Yttre Stengrund	[5]	[10]	[2]	NEG Micon NM72/2000	2001 - 2016	Sweden
Hooksiel (nearshore)	[1]	[5]	[5]	Bard 5.0 - 122	2008 - 2016	GER
WindFloat Demonstration WF1 (floating)	[1]	[2]	[2]	Vestas V80-2.0 MW	2011 - 2016	POR
Sum	5587	22045.3				

Legend:

	wind farm in operation
	prototypes and onshore turbines
	wind farm in trial operation
	decommissioned

* definition commissioned: all turbines installed and first electricity being generated