WFO

Global Offshore Wind Report

2024

APRIL 2025

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WFO is the world's leading business platform for the offshore wind industry. By connecting and supporting our members, WFO is helping to make offshore wind one of the world's leading sources of renewable energy.

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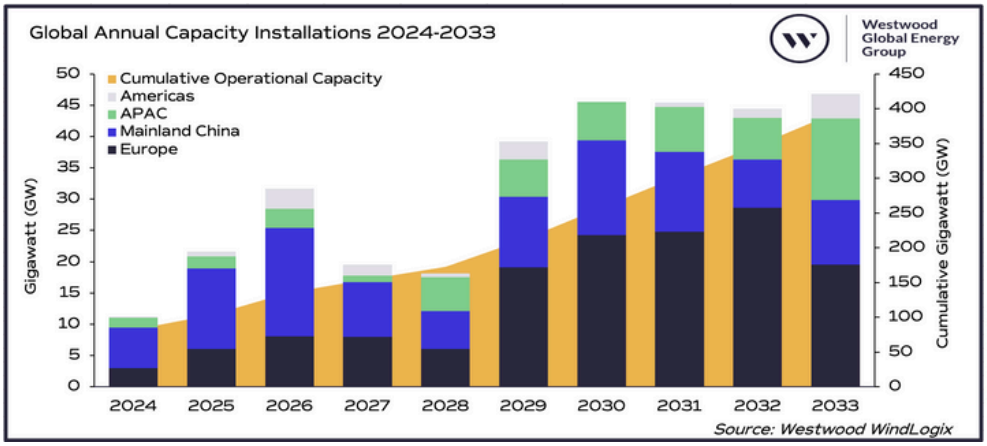
Global Offshore Wind Outlook

The offshore wind sector experienced a dynamic year in 2024, with a mix of record-breaking milestones and significant challenges. The industry saw a stark contrast between record lease awards and the cancellation of lease tenders due to cost concerns or shifts in government policy. 2024 also accounted for the second highest year for final investment decisions (FID), with 2023 holding the top spot, and it also witnessed record offshore wind project transaction volumes closing.

2024 accounted for the highest amount of awarded global offshore wind lease capacity to date. A total of 69.0 GW of capacity was awarded (64.1 GW excluding Mainland China) and 2025 is forecast to be even higher, with 79.8 GW of lease sites expected to be awarded.

- Major lease capacity that was awarded in 2024 included over 25.0 GW of capacity in Australia via the Gippsland Bay auction and 4.0 GW in the Netherlands for the rights to develop the Ijmuiden Ver I-IV sites.
- Westwood expects 79.8 GW of lease capacity to be awarded in 2025, a 16% increase in comparison to 2024. This capacity will come from a mixture of incumbent as well as new markets such as Australia (up to 34.3 GW), Finland (3.0 GW) and Columbia (1.5 GW). It is worth noting that the final capacity that is awarded in Australia may be below the intended amount that is on offer across the three renewable energy areas which includes Bass Strait, Illawarra and Bunbury. The UK is also anticipated to award 4.5 GW of floating wind capacity via the Celtic Sea leasing round and 3.5 GW of capacity is also scheduled to be awarded in Germany.
- Although leasing activity has been on an upward trajectory, increased costs have factored into some leasing rounds to be cancelled or delayed. The Nordsøen I lease round in Denmark resulted in no bids being placed. As a result of this the Danish government cancelled all ongoing offshore wind lease tenders as the zero-subsidy model was not working in the current market conditions. Preparations are underway to re-tender between 2.0-3.0 GW of sites, and these may now include subsidies.
- Changes in offshore wind policy have also played a role in leasing activity to be stunted. The executive order issued by President Trump has resulted in all future leasing rounds in the US to be effectively terminated for all, or at least a substantial part, of the president's term in office. The order nixed the planned five-year leasing schedule established by the Biden administration in April 2024.



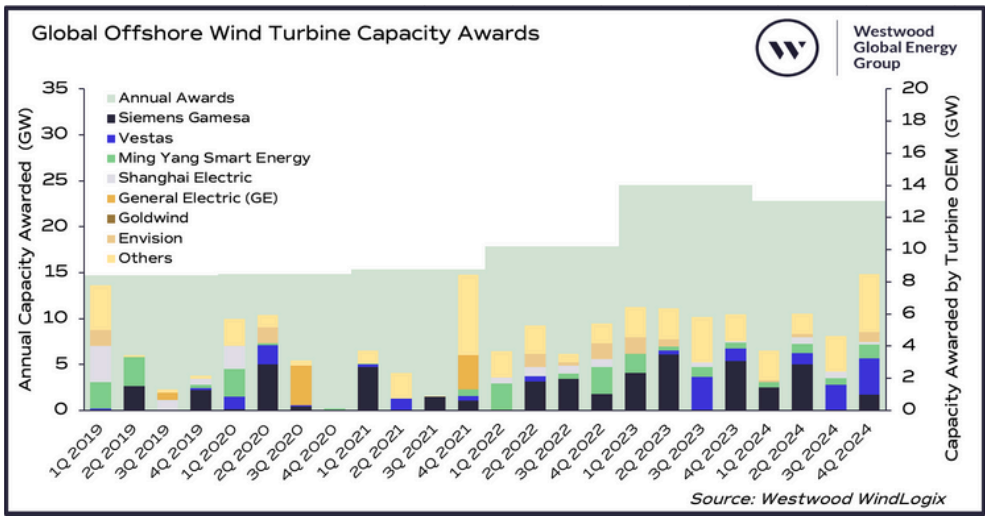
Cumulative global offshore wind capacity is forecast to reach 394.4 GW by 2033, with Europe accounting for 45% of this capacity.

- By 2033, operational capacity is expected to reach 394.4 GW. Fixed-bottom developments will account for the majority of projected additions (95%), while commercial floating wind projects will contribute the remaining 5%.
- The offshore wind industry has experienced project delays and cancellations over the past two years totalling nearly $100 billion in CAPEX, driven by factors such as supply chain challenges, rising costs, and regulatory issues. Despite the turbulence, strong market fundamentals remain and a further 19.6 GW of capacity is anticipated to come online by the end of 2025.
- Activity regarding FIDs has also remained robust, with FIDs being taken on 20.7 GW of projects in 2024. FIDs in 2025 are expected to be slightly higher, with total project capacity sitting at 21.8 GW.

Global Offshore Wind Turbine OEM Market Share

22.9 GW worth of turbine contracts were awarded in 2024, with Siemens Gamesa leading in terms of turbine orders, accounting for 23% of the total.

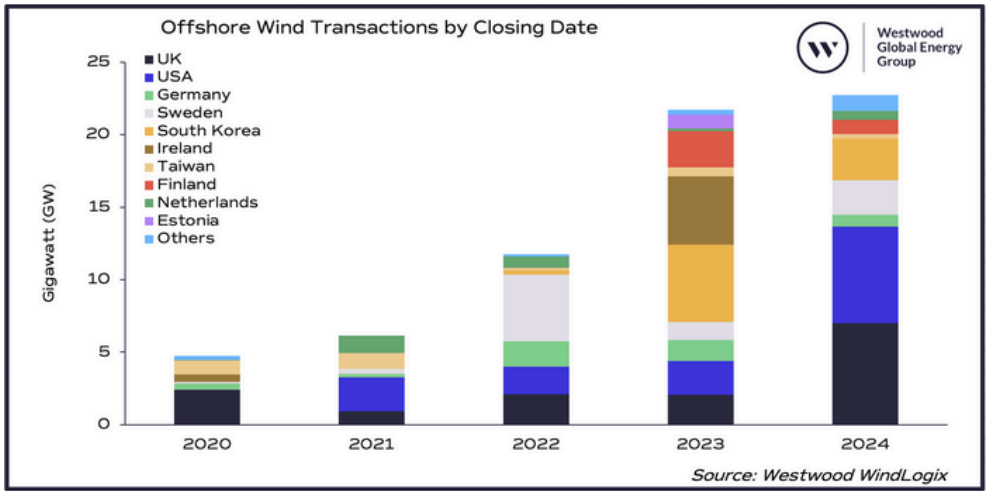
- Siemens Gamesa led in terms of overall turbine awards for the year, with key contract wins coming from the East Anglia Two wind farm, where it will supply 64 SG 14-236 DD turbines.
- Vestas and Ming Yang Smart Energy (MYSE) came in second (4.6 GW) and third (2.2 GW) respectively.
- In the overall period of 2019-24, Siemens Gamesa leads with a 28% market share, followed by MYSE (13%) and Vestas (9%).
- 2024 witnessed some turbine OEMs continuing the practice of developing ever larger units, especially in Mainland China, while others are focusing on profitable, serial production of standardised units in the face of financial pressures.



Key Theme: Record Transactions

Turbulent times in the offshore wind industry, as well as a growing base of installed and planned capacity, contributed to record transaction volumes in 2024, with the US a particular hotspot.

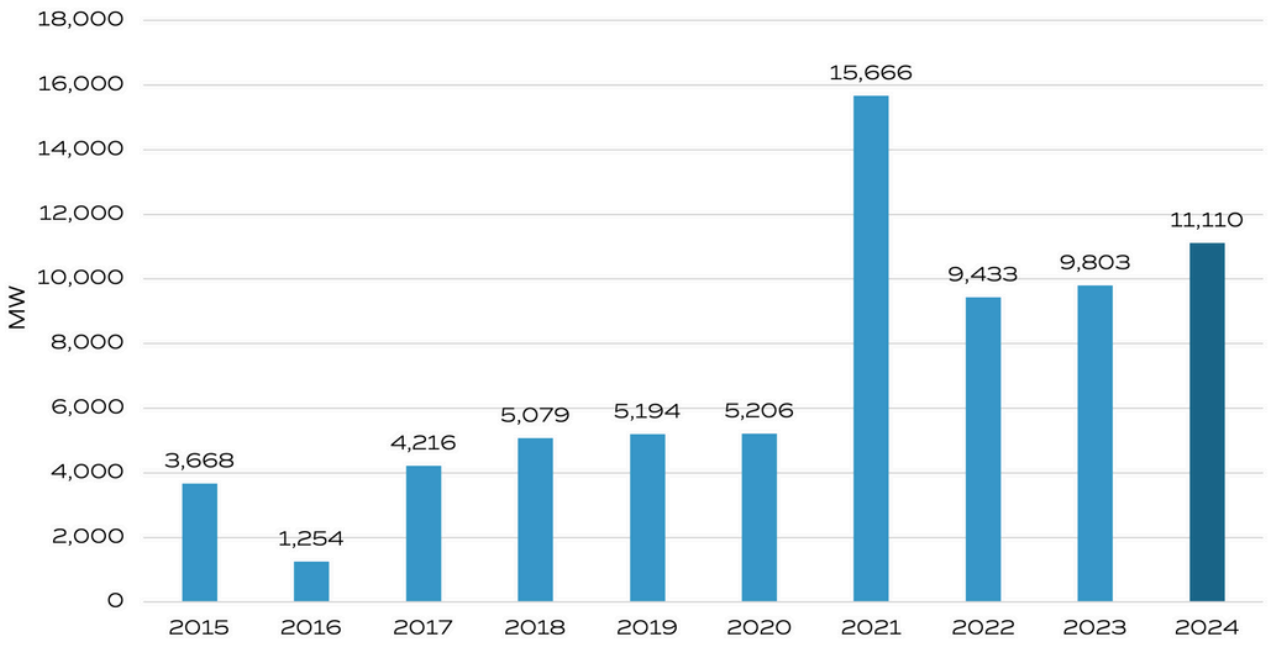
- Offshore wind transactions by capacity reached record levels in 2024, driven by portfolio readjustments, challenging financial circumstances and planned farm downs. Over $11.0 bn of deals were concluded in the year, with at least four transactions valued at over $1.0 bn. Increasing transaction volumes are to be expected as the sector grows.
- The largest single deal in the 2024 by reported value was Dominion Energy's sale of 50% of the Coastal Virginia project in the US to alternative investment firm Stonepeak Infrastructure Partners for $3.0 bn. Dominion's farm-down was a long-planned move in line with the firm's development of the project within Virginia's regulated electricity market.
- The largest transaction by capacity in 2024 was RWE's acquisition of the 4.2 GW Norfolk Boreas / Vanguard area off the UK for $1.2 bn. This followed Vattenfall's decision to halt development of the Norfolk Boreas area in July 2023 and cancel the Contract for Difference (CfD) that the project had received in 2022's Allocation Round 4 following a reported cost increase of 40%.
- Continued uncertainty in the US market contributed to elevated transaction volumes in the country. Equinor and bp concluded the winddown of their Beacon Wind / Empire Wind partnership in April 2024, while Shell withdrew from the SouthCoast projects, selling its 50% share to JV partner Ocean Wind. US utility Eversource Energy also began the process of disposing of its offshore wind projects to focus on its core business of 'regulated pipes and wires', disposing of 0.8 GW of capacity.



Global Offshore Wind Growth

Global growth increases compared to 2023

Annualy Added Offshore Wind Capacity



A total of 11 GW of global offshore wind capacity was added in 2024.

New capacity in 2024 increased in comparison to 2023 (9.8 GW).

Globally, 31 new offshore wind farms were taken into operation in Asia (23), Europe (7) and the United States (1).

11 GW

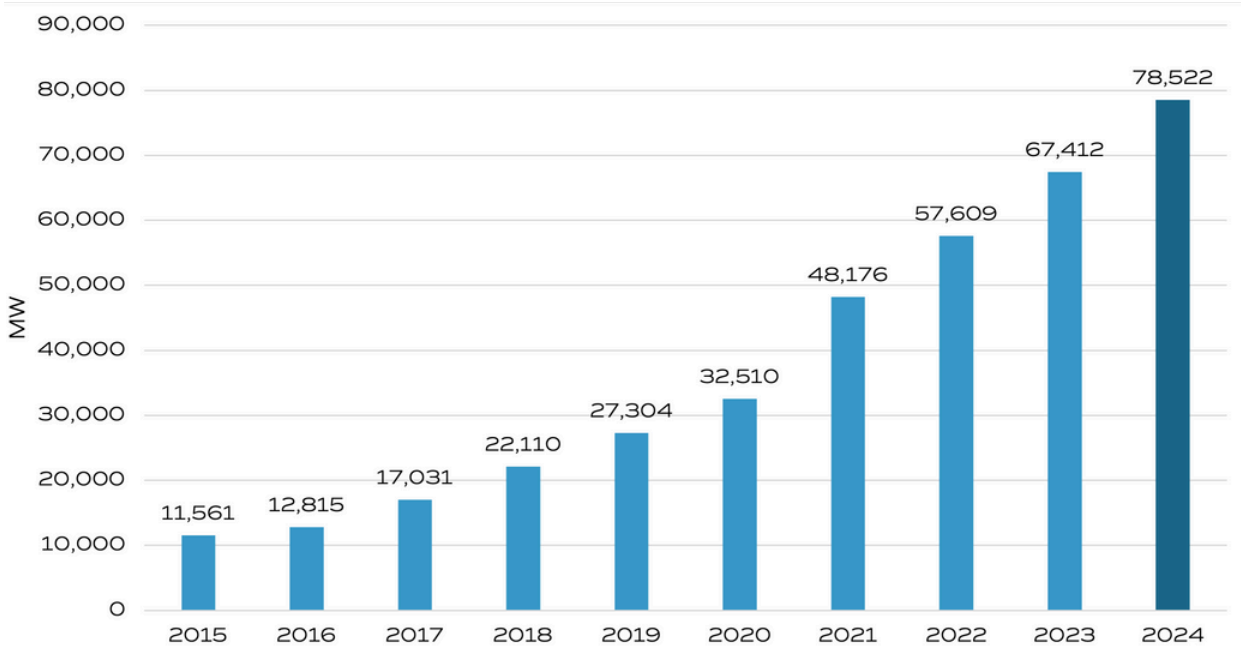
Globally added offshore wind capacity in 2024

Global Offshore Wind Capacity

Global offshore wind capacity reaches nearly 80 GW

Global offshore wind capacity in operation[1] - Cumulative

IN OPERATION



Globally installed offshore wind capacity reached 78.5 GW by the end of 2024, almost half of which is now installed in China.

The average size of a newly added offshore wind farm in 2024 slightly decreased to 336 MW (compared to 392 MW in 2023).

Worldwide, 313 offshore wind farms are currently in operation, 181 of which are in Asia, 129 in Europe and 3 in the USA.

78.5 GW

Global offshore wind capacity in operation

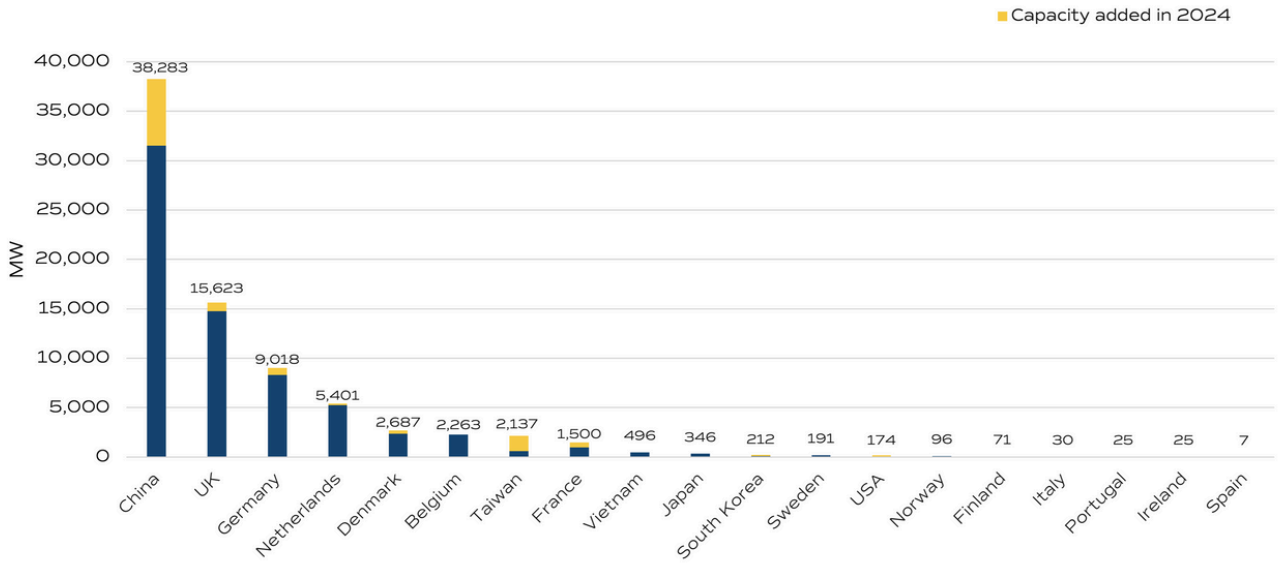
1 In operation: All turbines installed and first power

Top Markets

Asia and Europe lead offshore wind growth

Global offshore wind capacity in operation — by country

IN OPERATION



China's growth continues with more than 6.8 GW of newly installed capacity in 2024, increasing its total installed capacity to 38 GW.

South Korea put its largest project so far into operation – the Jeju Hanlim offshore wind farm (100 MW).

France commissioned its first floating offshore wind farm - Provence Grand Large (25 MW).

6.8 GW

Offshore wind capacity added in China

In Detail:

Global offshore wind farms put into operation in 2024

No.	Wind Farm	MW	Units	MW/Unit	Turbine	Country
1	CTG Yangjiang Qingzhou 6	1,006	116	9	-	CN
2	Moray West	882	60	14	SG 14-222 DD	UK
3	Guangxi Fang Cheng Gang A	706	83	8.5	-	CN
4	Yunlin	640	80	8	SG 8.0-167 DD	TW
5	Guangdong Electric Qingzhou 2	605	55	11	MySE11-203	CN
6	Changfang and Xidao	589	62	9.5	V174-9.5 MW	TW
7	Guodian Xiangshan 1 phase 2	504	56	9	WD225-9000-OS	CN
8	Ming Yang Yangjiang Qingzhou 4	503	44	11	MySE11-203,MySE12-242	CN
9	Fécamp	497	71	7	SWT-7.0-154	FR
10	Baltic Eagle	476	50	9.5	V174 9.5	DE
11	SPIC Shandong Peninsula South Site U Phase 2	451	53	9	8.5MWD230,MySE8.5-230	CN
12	Zhangpu Liuao Phase 2	400	21	13/16	D13000-245. GWH252-16MW	CN
13	Vesterhav Nord, Syd	344	41	8	SG 8.0-167 DD	DK
14	Huaneng Cangnan No. 2	306	36	9	EN-226/8.5	CN
15	Zhejiang Province Daishan 1	306	36	9	EN-226/8.5	CN
16	Huadian Yuhuan Phase 1	301	43	7	DEW-D7000-186	CN
17	SPIC Xuwen Expansion	300	25	12	MySE12-242	CN
18	Zheneng Taizhou No. 1	300	40	8	DEW-D7500-186	CN
19	Fujian Pingtan Datang Changjiangao	295	48	6	MySE5.0-133	CN
20	Zhong Neng	295	31	9.5	V174-9.5MW	TW
21	CGN Xiangshan Tuci	280	35	8	-	CN
22	Huaneng Shandong Peninsula North BW Site Section 2	255	30	9	-	CN
23	Gode Wind 3	242	23	11	SG 11.0-200 DD	DE
24	Huaneng Zhuanghe (Dalian 4) - IV2	200	25	8	-	CN
25	South Fork	132	12	11	SG 11.0-200 DD	US
26	Windplanblauw	132	24	6	GE-158	NL
27	Jeju Hanlim	100	18	5.5	WinDS5500/140	KR
28	Provence Grand Large (floating)	25	3	8	SWT-8.0-154	FR
29	Shantou Wind Power Coastal Test Base	18	1	18	Dongfang Electric 18MW	CN
30	Ming Yang Tian Cheng	17	2	8	MySE8.3-180	CN
31	Longyuan Putian Nanri Island Floating Pilot (Guoneng Gong Xiang Hao)	4	1	4	-	CN
	TOTAL	11,110				

1 GW

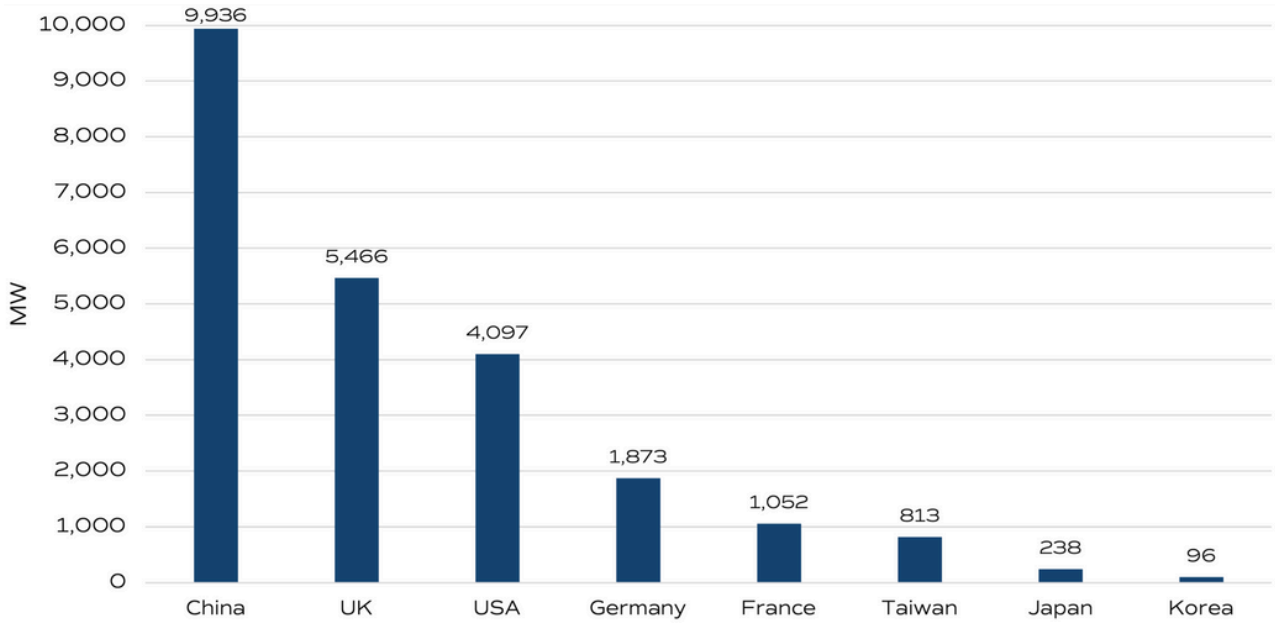
Largest project put into operation in 2024

Construction

Offshore wind growth continues in 2024

Global offshore wind capacity under construction[2] by the end of 2024

UNDER CONSTRUCTION



China's offshore wind sector continues to grow with almost 10 GW currently under construction.

UK and the US are following in considerable distance with 5.4 GW and 4 GW, respectively.

Japan is currently constructing its largest project so far – Kitakyushu Hibikinada Offshore Wind Farm (238 MW).

23 GW

Global offshore wind capacity under construction

2 Under construction:
First foundation/ offshore component installed (e.g. cables)

In Detail:

Offshore wind farms under construction

No.	Wind Farm	MW	Units	MW/Unit	Turbine	Country
1	Coastal Virginia	2,587	176	15	SG 14-222 DD (14.7 MW Power Boost)	US
2	Sofia	1,400	100	14	SG 14-222 DD	UK
3	Dogger Bank C	1,218	87	14	Haliade-X 14 MW	UK
4	Shenneng Hainan CZ2 Demonstration	1,204	117	10	-	CN
5	Dogger Bank A	1,200	95	13	Haliade-X 13MW	UK
6	Dogger Bank B	1,200	95	13	Haliade-X 13MW	UK
7	CGN Yangjiang Fan Shi 2	1,008	63	16	-	CN
8	CGDG Shantou Zhongpeng II	1,001	91	11	-	CN
9	CTG Yangjiang Qingzhou 5	1,000	125	8	-	CN
10	He Dreiht	960	64	15	V236-15MW	DE
11	Borkum Riffgrund 3	913	83	11	SG 11.0-200 DD	DE
12	Vineyard Wind 1	806	62	13	Haliade-X 13MW	US
13	Revolution Wind	704	64	11	SG 11.0-200 DD	US
14	Lianjiang Waihai	702	39	18	Dongfang Electric 18MW	CN
15	Hainan Lingao	600	60	10	-	CN
16	Yuedian Yangjiang Qingzhou 2	600	55	11	MYSE11-230	CN
17	Huaneng Yuhuan No. 2	508	31	16	Dongfang Electric 18MW,SEW16.0-252	CN
18	Guohua Investment Shandong 500MW	500	63	8	-	CN
19	Hainan CZ8 Dongfang West	500	50	10	MySE10-242	CN
20	Le Treport	496	62	8	SG 8.0-167 DD	FR
21	Noirmoutier	496	62	8	SG 8.0-167 DD	FR
22	Neart na Gaoithe	448	54	8	SG 8.0-167 DD	UK
23	Shantou Datang Le Men I expansion	354	27	13	-	CN
24	Guohua Peninsula South Phase 1	306	36	8.5	-	CN
25	Shanghai Jin Shan Phase 1	306	36	9	GW175-8.0MW	CN
26	Laoting Yuetuo Island Phase 1 Demonstration Project	304	31	10	-	CN
27	CTG Shandong Yantai Muping Phase 1	301	36	8	-	CN
28	Guohua Peninsula South Phase 2	300	35	8.5	-	CN
29	Changhua TPC Phase 2	295	31	10	V174-9.5MW	TW
30	Hai Long Offshore Wind 2A	294	21	14	SG 14-222 DD	TW
31	Zhuanghe (Dalian 5)	250	28	9	-	CN
32	Kitakyushu Hibikinada Offshore Wind Farm Project	238	25	10	V174-9.5 MW	JP
34	Hai Long Offshore Wind 2B	224	16	14	SG 14-222 DD	TW
35	Hainan PFS-1 Wanning Southeast	192	12	16	-	CN
36	Jeonnam 1	96	10	10	SG 10.0-193 DD	KR
37	EFGL*	30	3	10	V164-10.0 MW	FR
38	EOLMED*	30	3	10	V164-10.0 MW	FR
	TOTAL	23,570				

* At least one floater in final assembly

2.6 GW

Largest offshore wind farm under construction

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Photography credits:
EnBW/Weltenangler

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