

# Executive Summary

## Operational capacity

The total capacity of operational offshore wind projects reached near 68 GW by the end of 2023, with over 3 GW worth of projects becoming fully operational throughout 2023 across the EMEA and APAC (excl. China) regions. Operational capacity increased due to projects reaching Commercial Operation Date (COD) in the Netherlands, Germany, Taiwan, Japan and the UK. Notably, operational capacity in the UK is attributed to the 1.1 GW Seagreen project in Scotland, which became Scotland's largest offshore wind farm and the project with the deepest fixed foundations globally, at depths reaching 58.7 meters.

Floating operational capacity increased throughout 2023 due to the 4 MW X-30 DemoSath project in Spain reaching COD and the 88 MW Hywind Tampen project in Norway reaching COD. Hywind Tampen consists of 11 turbines and is now the largest floating offshore wind project globally.

## Project development

Turbine commissioning continued at Hollandse Kust Zuid, while Saint-Brieuc and Fecamp in France and Dogger Bank A in the UK generated first power. Projects in EMEA (France, Denmark, Germany, the Netherlands, the UK), APAC (Japan, South Korea, Taiwan) and the US progressed through foundation and turbine installation. 2023 was the first year the U.S. market was in a major project construction phase, with two projects installing foundations and turbines for COD in 2024.

Throughout 2023, Final Investment Decision (FID) was reached for two projects in both France and the UK as well as the 1.2 GW Baltic Power project in Poland. The five projects awarded through Round 3.1 in Taiwan, totalling around 2.3 GW, signed administrative contracts (ACs) and are on the way to secure Corporate Power Purchase Agreement (CPPA).

Development of some consented projects in the UK stalled in 2023 as no offshore wind capacity was awarded in the Contract for Difference (CfD) allocation round, AR5. Furthermore, Vattenfall announced it was halting the development of Norfolk Boreas due to financial constraints. The project was later acquired and continued by RWE. In the US, multiple projects cancelled existing offtake contracts, awarded years earlier, because the contract payment rates were challenged by the new 2020+ era of high costs.

## Auctions

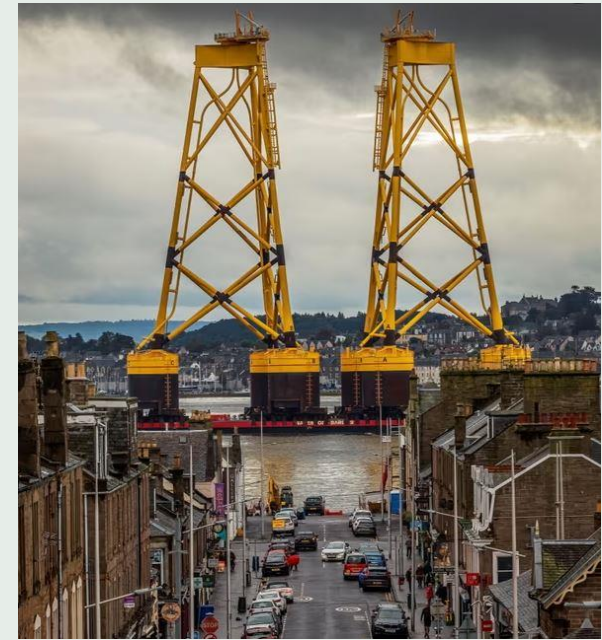
Near 40 GW of capacity was awarded through auctions in 2023, as auction activity progressed in both mature and newer markets across all regions.

### *Mature markets*

The French government announced the results of A04 and continued to progress the tenders for A05 – A08. In the UK, Crown Estate Scotland allocated 5.4 GW of capacity through the Innovation and Targeted Oil & Gas (INTOG) leasing round. 8.8 GW of capacity was awarded in Germany; 7 GW of this was awarded through a negative bidding approach, which saw EUR 12.6 billion offered to the government by two successful bidders, BP and Total.

The U.S. also saw 7.7 GW of new offtake contracts awarded in 2023 by New York and New Jersey.

Following the Round 3-1 auction results in Taiwan at the end of 2022, the government finalised the rule and continues progressing toward the Round 3-2 auction. Taiwan expects to open the tender for floating demonstrations in 2024. In Japan, 1.4 GW of sites were awarded through Round 2. The Round 3 (1 GW) auction process has been commenced and will be awarded in 2025. South Korea initiated and announced its second offtake auction in Q4 2023 – with almost 1.5 GW awarded, which is a significant growth compared to its first offtake auction (99 MW).



In 2023, all 114 suction caisson jacket foundations and turbines at the 1.1 GW Seagreen were commissioned. Source: Seagreen Wind Energy Ltd.



In 2023, the first of 62 GE Haliade 13 MW turbines were installed using feeder barges at the 800 MW Vineyard Wind 1 project in the U.S. Source: BargeMaster.

### First auctions

First auctions took place in Estonia for the Liivi 1 area, and in Lithuania for a 700 MW area. Winners of Poland's leasing round (their first allocation round) were announced throughout the first half of 2023. In total, 10 sites, totalling 8.3 GW, were awarded to three developers. Ireland held its first offshore wind auction, securing a route to market for 3.1 GW of capacity.

Colombia launched its first offshore wind auction in December 2023 for seabed leasing. Developers have until June 2024 to submit their intention to pre-qualify. In Australia, feasibility licence application rounds were opened for two declared zones, with a combined capacity of up to 15.2 GW. The preliminary results for the Gippsland zone in Victoria were announced in December 2023.

### Planned auctions

The Finnish government announced plans to launch five tenders totalling 6 GW of capacity and the Portuguese government identified seven areas for offshore wind development before launching the first offshore wind auction with a call for EOI. Denmark progressed plans to tender 9 – 14 GW of capacity, while a draft framework was announced in Romania, which foresees a CfD scheme to be in place by 2027, with the first auction allocating 3 GW.

Offshore wind frameworks were published in India and the Philippines. India is set to launch its first offshore wind tender for 4 GW of capacity in early 2024 while the Philippines plans to launch its first auction by the end of 2024.

### Policy

Both Denmark and Ireland announced significant changes to their offshore wind policy frameworks in 2023, leaving developer-led capacity stranded without a route to realisation, in favour of planned regimes.

In Germany, an updated Area Development Plan added 17 GW of capacity to the tender schedule. In Vietnam, the long-awaited Power Development Plan VIII (PDP8) was finally approved by the government, setting a 6 GW offshore wind target by 2030. Frameworks defining areas for offshore wind development were published in Spain and Greece.

In Brazil, a bill to allow allocation of offshore areas in the EEZ to be granted by the federal government was passed by Congress. A similar bill was established to enable offshore wind development in two regions in Canada. Following this, Nova Scotia announced plans to tender up to 1 GW of capacity in 2025. The New Zealand government was also discussing the development of a regulatory framework for offshore renewable energy.

### Forecast

Over 340 GW of global offshore wind capacity could be operational by 2033. Projects in EMEA account for over 175 GW of this capacity, with continued increases in annual commissioning activity from 2028 onwards as commercial-scale projects allocated after 2020 begin to enter construction. Further leasing rounds and tenders support a sustained build-out in the region.

Installed capacity in the Americas regions is expected to ramp up beginning from 2026, as developments are enabled by leasing and route-to-market allocation activity from 2021. Almost 40 GW of capacity is expected to be installed in the Americas by 2033.



*In 2023, the 88 MW Hywind Tampen floating project reached COD. It consists of 11 turbines and is now the largest floating offshore wind project globally. Source: Equinor*



*In 2023, first power was achieved at Dogger Bank, the world's largest offshore wind project. Source: SSE*