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Offshore Wind Market Report – global highlights for COP 27

November 7, 2022

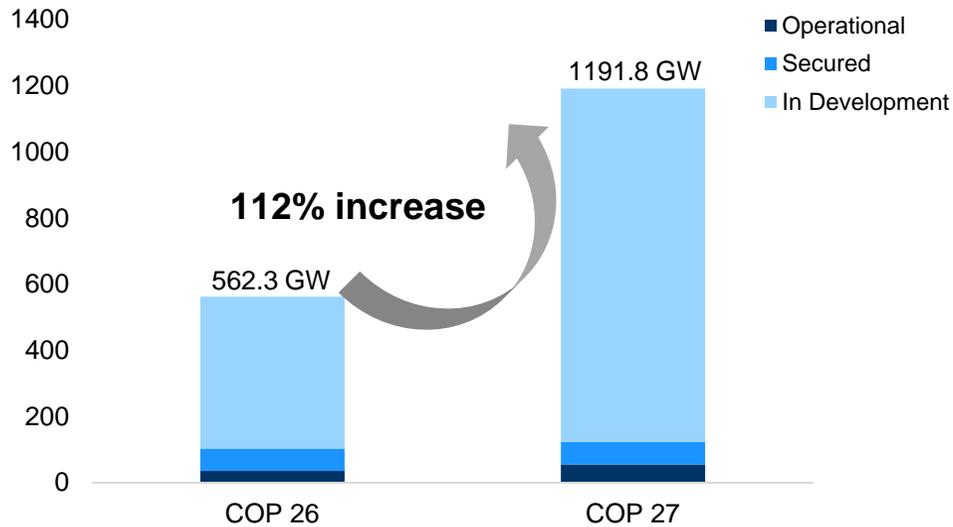


THE QUEEN'S AWARDS
FOR ENTERPRISE:
INTERNATIONAL TRADE
2021

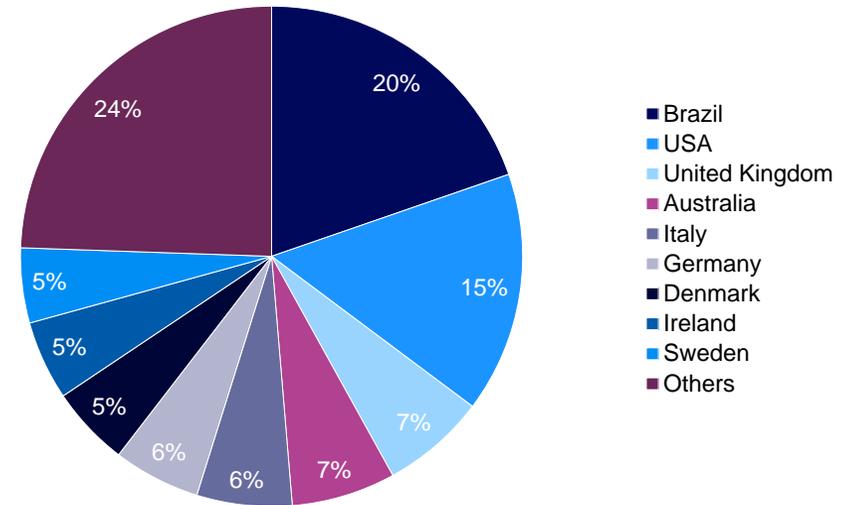
What Has happened in Offshore Wind Since COP26 – The Good News

The global offshore wind project portfolio has increased by **112% globally**

Total Offshore Wind Portfolio (GW)



Countries Driving Growth



Source: RCG GRIP database

Notes: OSW = offshore wind, Operational projects require all turbines to be commissioned and connected to the grid, secured project have reached financial investment decision (FID) but are not fully operational and in development is anything pre-FID

What Has Happened in Offshore Wind Since COP26 – The Good News

Brazil is committed to climate neutrality by 2050 and is responsible for 20% of the new OSW projects announced over the last year with over 160 GW under environmental review.

Under the Biden Administration, the **US** has aligned policies such as the Inflation Reduction Act which provides long-term security to accelerate OSW.

Already a leader in OSW, the **UK** has further increased its target from 40GW to 50GW by 2030 as LCOE falls making OSW more cost competitive.

Australia expects their first OSW project in operation by 2028 with targets of 4GW by 2035 and 9GW by 2040. In addition to their existing net zero ambition, **European** nations have accelerated growth plans in response to rising energy security concerns. Reduced cost of floating offshore wind has spurred over 20 GW of new projects announced across **Italy, France, Norway, Spain** and the **UK**.

Germany's “Easter package” aimed at built out of renewables and grid connections will increased the offshore wind target to 30 GW by 2030.

Denmark raised its 2030 offshore wind target by 45% to 12.9 GW.

The **Irish** government has increased the target for offshore wind capacity from 5 GW to 7 GW by 2030.

The **Netherlands** ramped up plans by doubling offshore wind targets.

Source: RCG GRIP database

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What Has Happened in Offshore Wind since COP26 – The Bad News

The following countries need to accelerate development if they are to achieve their 2030 targets

Of the 15 countries with stated 2030 targets, only Poland, Vietnam & Denmark are forecast to complete their 2030 ambitions of 6.0 GW, 5.2 GW & 12.7 GW, respectively the UK, Netherlands & USA are expected to fall short of their 2030 ambitions, however, are still forecast to add significant contributions of 43.4 GW, 19.3 GW and 25.3 GW respectively reaching 85% of their 2030 targets

RCG expects some emerging markets to have been too optimistic with the speed of growth of the OSW market –

- India forecast 30 GW by 2030 but to date no projects have taken off
- Portugal has doubled auction capacity in response to energy security concerns, however, it is unlikely these projects will be operational by 2030

Country	Ambition by 2030 (GW)	Operational (GW)	RCG Forecast to 2030 (GW)	On track for achievement?
Denmark	12.9	2.3	12.7	✓
Germany	30	7.6	22.2	✗
Greece	2	0	0.5	✗
India	30	0	0	✗
Italy	0.9	0.03	0.68	✗
Japan	10	0.05	5	✗
Lithuania	0.7	0	0	✗
Poland	5.9	0	6	✓
Portugal	10	0.025	0.025	✗
South Korea	12	0.1	5	✗
Spain	3	0.005	0.11	✗
The Netherlands	22.2	2.9	19.3	✗
United Kingdom	50	13.6	43.4	✗
USA	30	0.04	25.3	✗
Vietnam	5	0.7	5.2	✓

Source: RCG GRIP database

Notes: OSW = offshore wind, only 15 countries have stated 2030 targets others have targets for alternate dates or do not have stated targets. Forecast assumptions planned auctions will go ahead on time, average of 10 years required from development to commercial operations of a wind farm, adequate supply chain capacity

Challenges Facing the OSW Industry and How Government Should Help

Challenges

- **Lengthy process.** Developing and constructing an offshore wind project is a lengthy process. It can take up to 10 years from the site exclusivity agreement to the fully operational stage. Planning and obtaining consent approval takes 4 to 5 years on average. To deliver significant expansions to meet offshore wind commitments, regulatory bodies should investigate shortening the consenting process.
- **Supply chain.** Offshore wind capacity is increasing in a way to alter the supply vs demand balance. Developers are in a rush to secure the most capacity in auctions but supply chain companies are struggling to keep up with the increasing demand with low-profit margins. There are simply not enough capacity in the supply chain and workforce to manage the number of bids and contracts.
- **Inflation of raw materials.** Offshore wind faces serious cost inflation due to raw materials shortages and price increases. Also, interest rate hikes increase the cost of debt. Offshore wind remains competitive but increasing capital costs might undermine net-zero goals.
- Without **grid reinforcements**

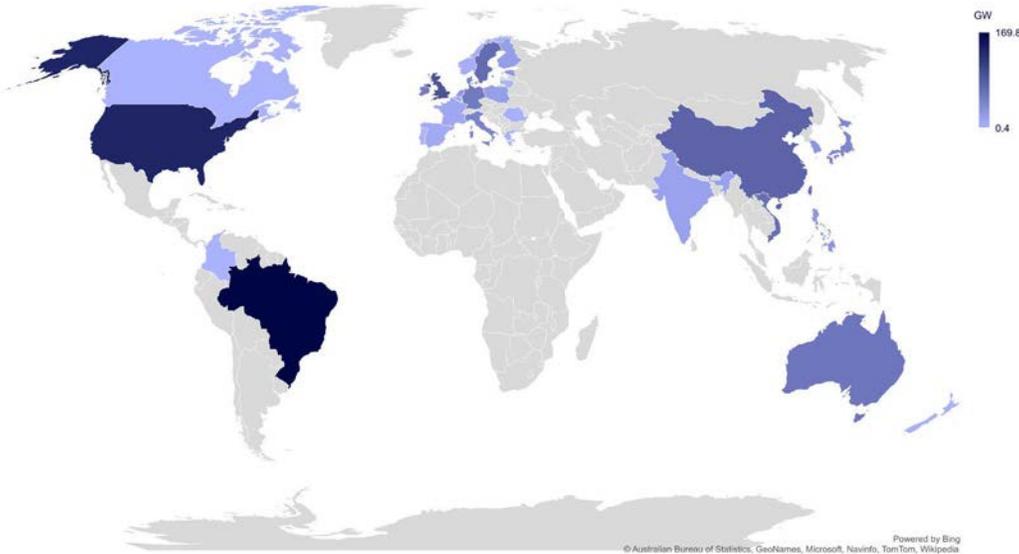
Challenges Facing the OSW Industry and How Government Should Help

Actions

- **Permitting processes.** Government bodies should investigate the most efficient permitting process and determine a best practices approach.
- **Grid timing.** Grid and offshore wind planning should be done in unison – therefore, power system stakeholders will be in alignment from the start of offshore wind activities.
- **Regional supply chain.** Governments, developers, and supply chain companies need to work together regionally to plan offshore wind portfolios, supply chain capacities, and localisation policies to determine the most achievable targets.
- Offshore wind **workforce development** and education should be on the government's agenda.
- There is a short list of suppliers capable of supplying bankable products to the offshore wind sector. **Sustainable profit margins** should be maintained while reducing the cost of offshore wind.

How to Accelerate the Offshore Wind Industry in Emerging Markets

Total Offshore Wind Portfolio



Country	Offshore Wind Target	Operational (GW)
Brazil	17 GW by 2045	0
China	1000 GW (inc. onshore) by 2050	24.6
Colombia	6 GW by 2050	0
Greece	2 GW by 2030	0
India	30 GW by 2030	0
Philippines	21 GW by 2040	0
Poland	5.9 GW by 2030	0
South Korea	12 GW by 2030	0.1
Taiwan	20.7 GW by 2035	0.2
Vietnam	5 GW by 2030 & 54 GW by 2045	0.7

Source: RCG GRIP database

- Offshore wind is driven by policy and requires strong frameworks to attract development
- Financing offshore wind is complex, risks need to be reduced and bankability should be ensured
- Offshore wind deployment will be different from Europe in emerging markets due to challenging water depths and seabed, less robust grid, and more seismic activities
- Offshore wind in emerging markets will require substantial investments to prepare the supply chain
- Regional cooperation is key to drive supply chain development

Source: RCG GRIP database Note: *Operational projects require all turbines to be commissioned and connected to the grid, secured project have reached financial investment decision (FID) but are not fully operational and in development is anything pre-FID

Intellectual Property: GRIP

RCG provides a range of data, forecasting, modelling and research tools. At the heart of its service is RCG's Global Renewable Infrastructure Project (GRIP) digital data hub.



GRIP: The authoritative source for essential offshore wind industry information.

- We successfully produced data extracts, analysis, and forecasts for a wide range of clients, from project developers, investors, manufacturers, supply chain players, and NGOs.
- GRIP 2.0 is our latest iteration of the product, with improved functionality, speed, and ease-of-use.



Highly usable

Simple design, searchable data, mobile friendly



Scalable functionality

Dashboards, charts, advanced analytics



Fast and frequent

Instant access to verified data, updated daily

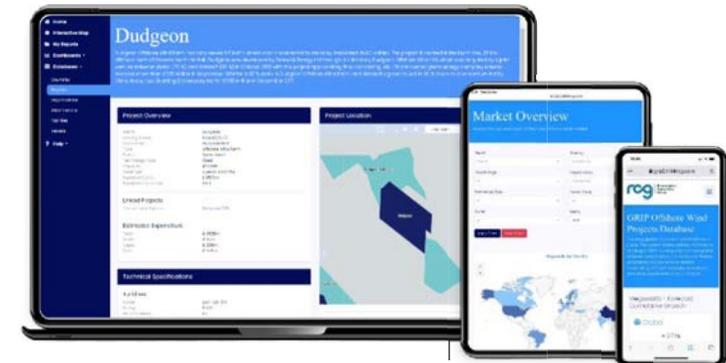


Built by experts

Proprietary models – with expert support and analysis

GRIP stores publicly available information relating to 1200+ existing and planned offshore wind projects, with worldwide coverage.

The global market intelligence system is available via personal computer, tablet and smartphone and can be accessed through any internet connection via our online data portal.





Thank you

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