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Overview of Offshore Wind in the UK

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An overview of offshore wind in the UK

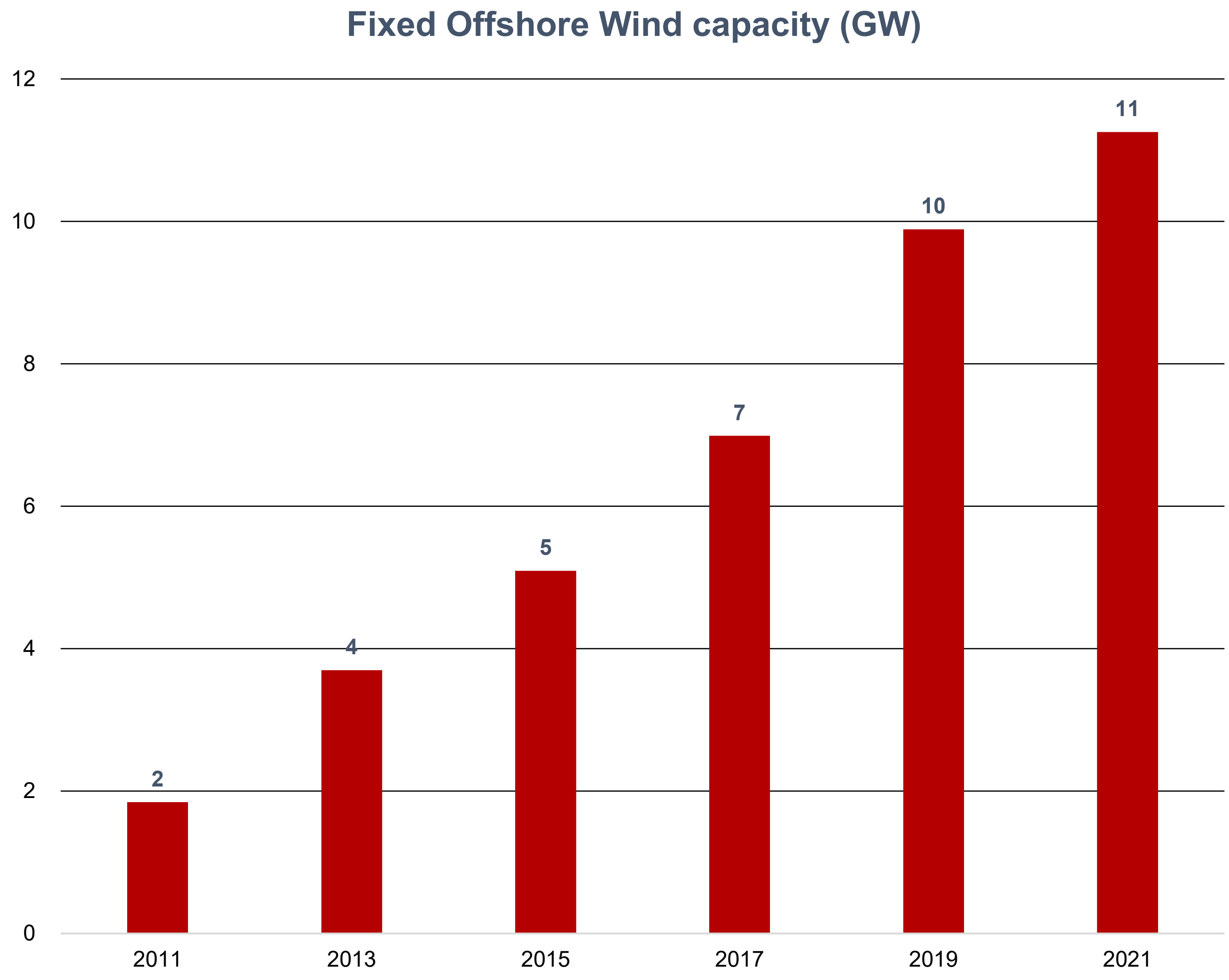
12.71 GW
installed capacity

£160 m
in Government support

50 GW
ambition by 2030 including 5 GW floating

£31m
floating wind innovation support

100 GW
estimated to be needed by 2050 by the Climate Change Committee



Source: Energy Trends data, Gov.uk

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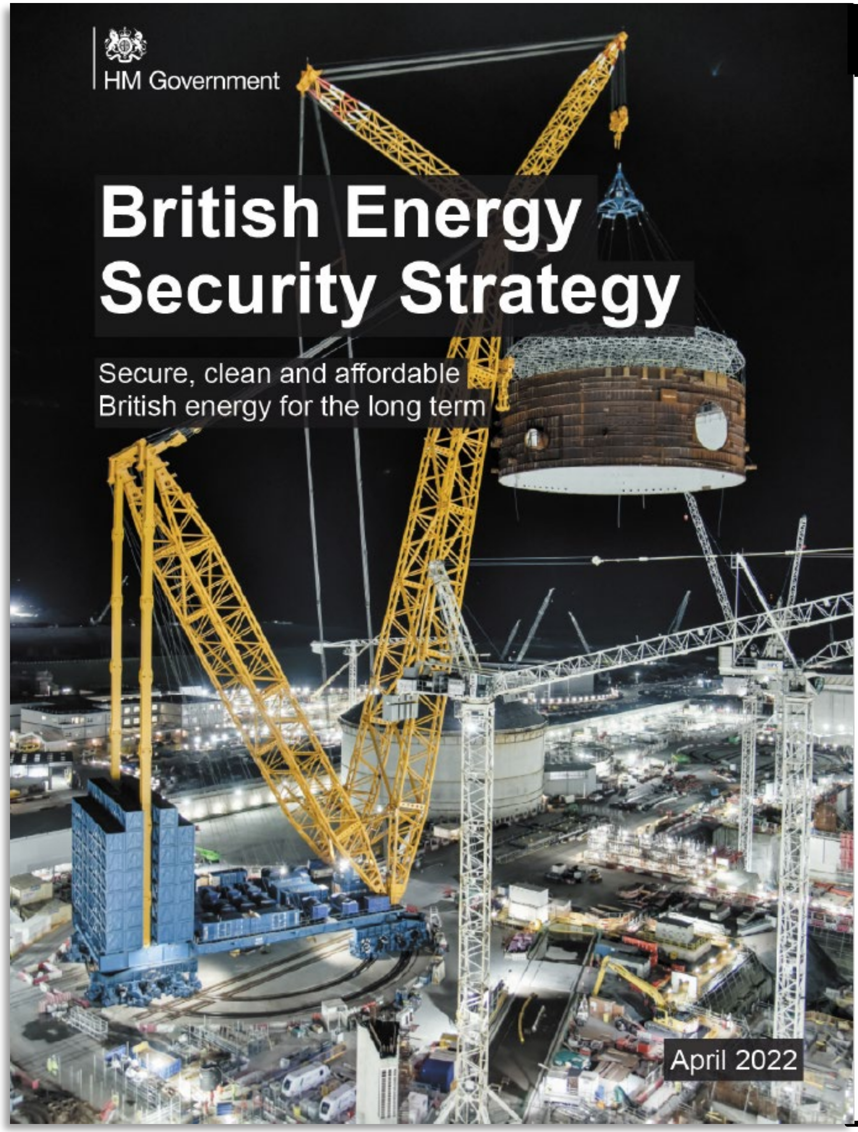
British Energy Security Strategy (BESS)

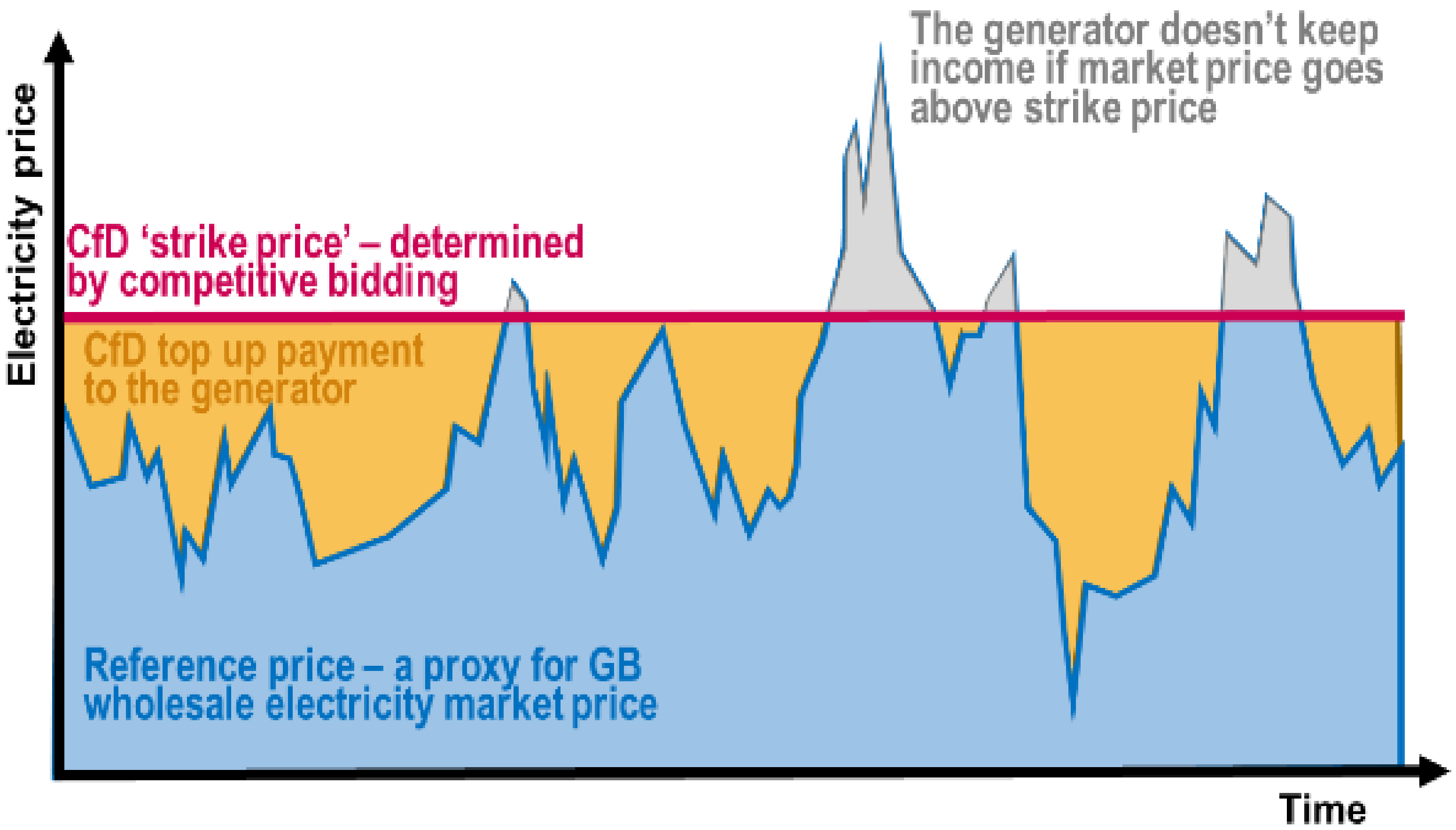


British Energy Security Strategy

- Offshore wind will play a critical role in delivering **energy security** in the context of Russia/Ukraine conflict and soaring energy bills
- Increased **offshore wind** ambitions to **50 GW**, including up to **5 GW** of floating by 2030. This is enough capacity to power every home in the UK
- Our increased ambition for offshore wind means that up to 90,000 jobs could be created by 2030
- **The Offshore Wind Acceleration Taskforce (OWAT)** was established with industry experts to speed up end to end deployment, focusing on **planning**, **grid connection, skills capabilities** and **manufacturing capability** required to meet ambitions

Contracts for Difference Scheme

- Provides long term **stability of income** (15 years of stability on a 25-35 year project lifetime)
- Designed to be **bankable**. Private law contract (so well understood legal framework) with a Government-owned Low Carbon Contracts Company (so low risk)
- Uses **competition** to drive efficiency and cost reduction
- **Supply Chain Plans** encourage the development of open and competitive supply chains and the promotion of innovation and skills



Allocation round	Total No. of Projects	Total Capacity (GW)	Strike Price (£/MWh)
AR4	5	6.994	37.35

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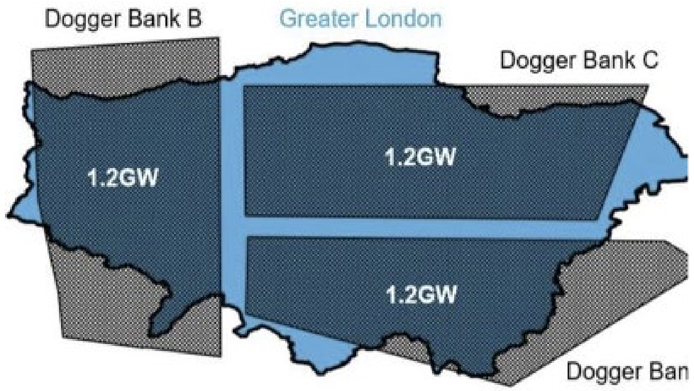
Current UK Offshore Wind Deployment / Issued

Allocation Round (AR)	Auction Year	No. projects	Developer	GW	Strike Price(s)
AR1	2014-2015	2	SPR / Iberdrola and EdF Energy	1.161	119.89 114.38
AR2	2017	3	RWE, Orsted, Ocean Winds	3.193	74.75 57.5
AR3	2019	5	RWE, SSE/ Equinor (A, B and C), SSE	5.56	41.61 39.65
AR4	2022	5	Ocean Winds, Red Rock Power, Orsted, Vattenfall, Scottish Power	6.994	37.35
Total (GW) to have received a Contract for Difference (CfD)				**16.908**	

Area of Dogger Bank offshore wind farm compared to Greater London



Source: BloombergNEF, The Crown Estate

Note: Creyke Beck A, B and Teeside A renamed to Dog
Bank A, B and C. Their total area spans 1,675km2. The ar
of Greater London 1,569km2.

- Other deployment though ROC and FiDer accounts for circa 5GW

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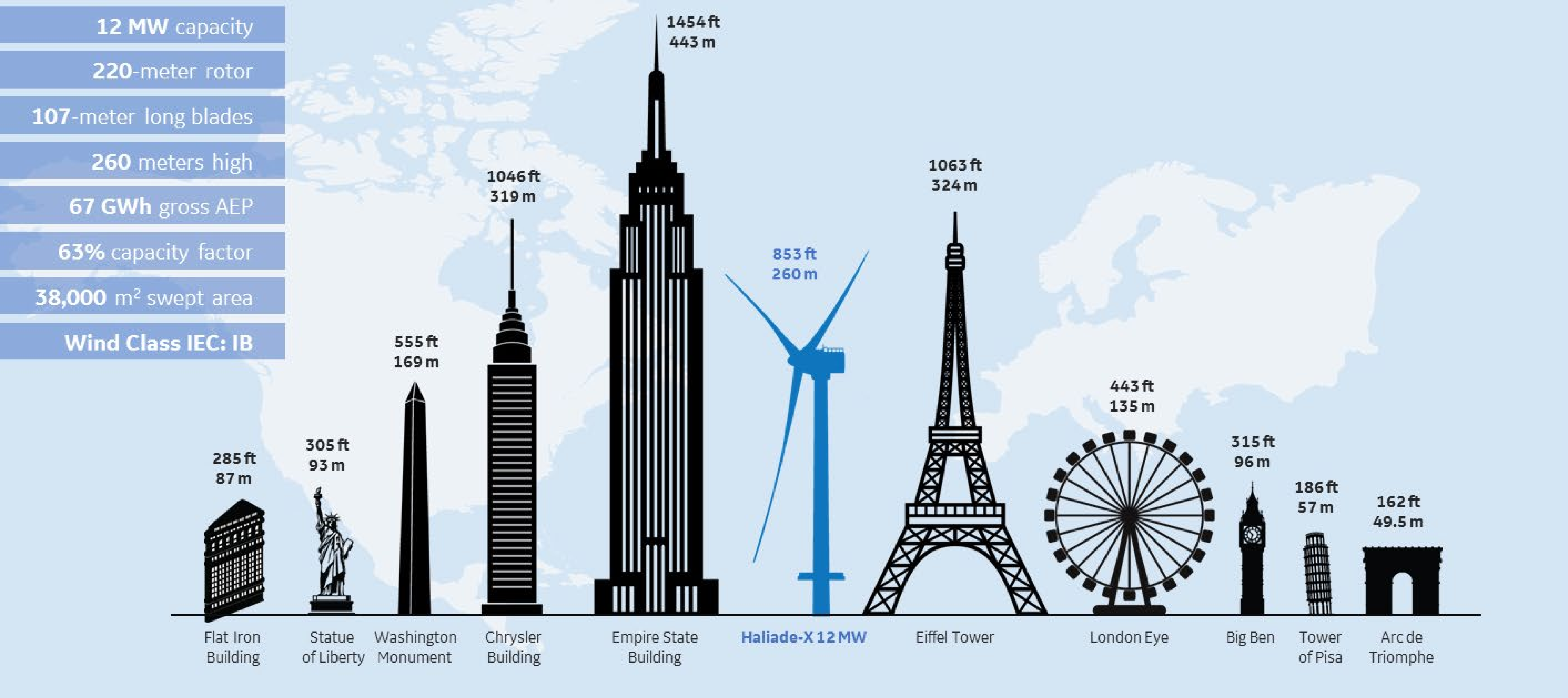

Source: https://www.ge.com/news/reports/switch-tech-helps-take-worlds-largest-offshore-wind-turbine-new-level

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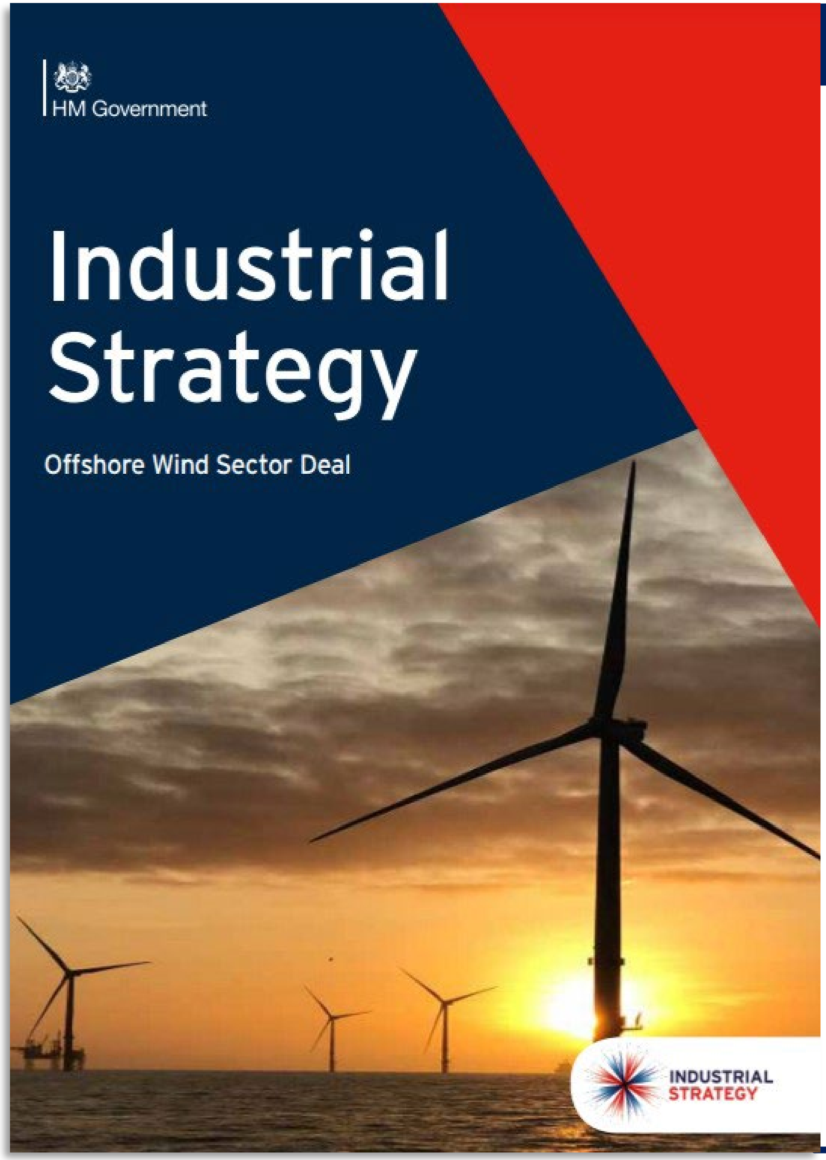
Supportive Policy and Legislative Environment



Current Environment

Established regulatory regime:

- The CfD scheme recently held **Allocation Round 4** (AR4) auctions
- ~7GW (37.35 £/MWh) of offshore wind was secured, as well as 32MW of floating offshore wind (£87.30/MWh)
- **Annual** CfD auctions will be launched in the UK from 2023
- The Low Carbon Contracts Company (LCCC) estimate that **over £390m** in 2022 will be given **back to consumers** by the offshore wind CfDs

Seabed leasing:

- Floating leasing round by The Crown Estate (TCE) in **Celtic Sea** (up to **4 GW**)
- **Innovation Targeted Oil and Gas** (INTOG) (up to **6.2 GW**) is leasing this year
- **8 GW** of offshore wind recently approved through TCE's leasing round 4
- **10 GW** of fixed bottom and **15 GW** of floating announced through **ScotWind**
- A further **2.8 GW** has been announced through **ScotWind** clearing

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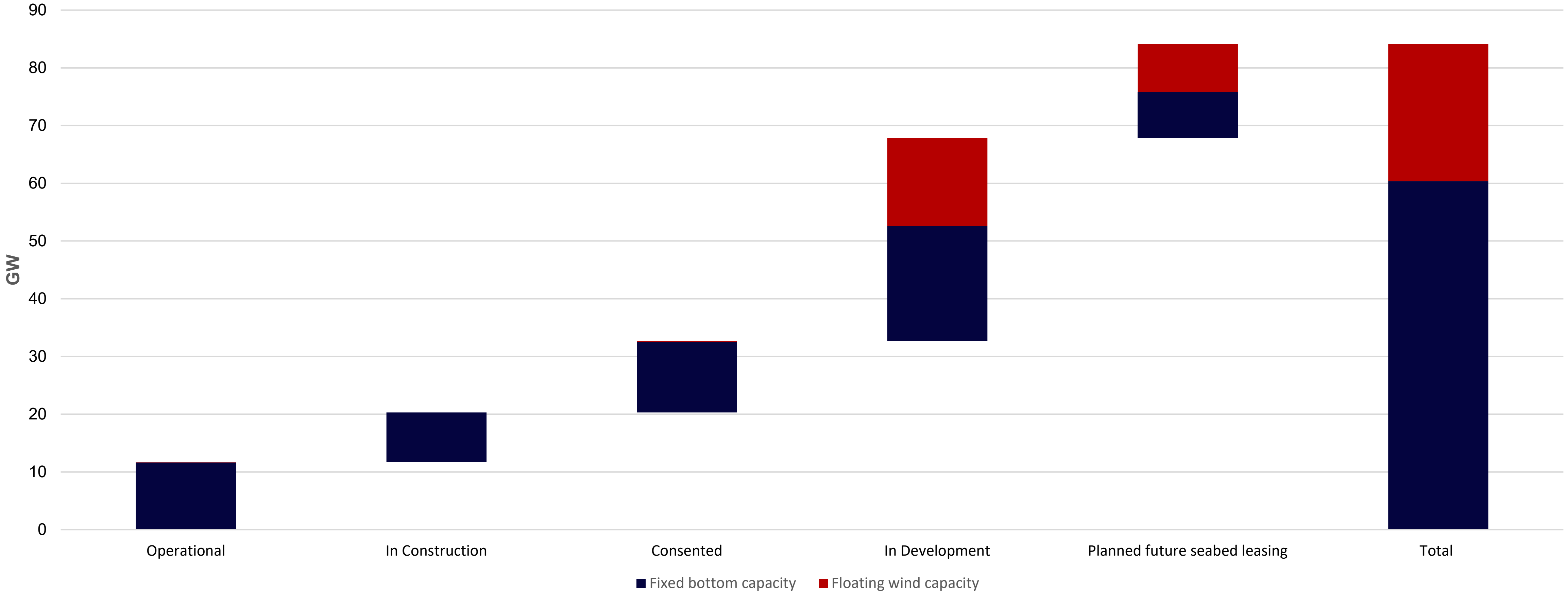
Project Pipeline in the UK

The Crown Estate estimates a total project pipeline of up to ~86 GW

Potential UK fixed-bottom offshore and floating offshore wind pipeline (GW)



Source: The Crown Estate
Footnote: “In Development” refers to projects that are either in planning, preparing for planning or are one of the projects that were successful in the recent ScotWind seabed leasing round.

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Offshore Wind Acceleration Taskforce (OWAT)

OWAT was launched following the British Energy Security Strategy (BESS) to speed up end to end deployment, focusing on Leasing, grid connection, manufacturing supply chain

Leasing

<u>We plan to cut the process time of projects by over half:</u>

- Reducing consent time from up to four years down to **one year** and establishing a fast-track consenting route for priority cases
- Undertaking environmental assessment and compensation at a more strategic level

Grid

- The grid infrastructure in the UK needs enhancing to accept **50GW by 2030** – adding an additional **23GW** of connection.
- The Offshore Transmission Network Review (OTNR) and Holistic Network Design (HND) have been launched.

Manufacturing capability

- The UK and Europe have a total combined ambition of 160 GW of offshore wind by 2030.
- Wind Europe say the European and UK supply chain can produce enough components for up to 7 GW a year but from 2026 it needs to be making >15 GW per year.

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Offshore Wind Manufacturing Investment Support (OWMIS)

- UK Government launched **OWMIS** scheme in October 2020 to provide grant funding for major investments in the manufacture and infrastructure.
- The scheme was supported by **£160m** in funding.
- Through the OWMIS scheme, last year we were able to announce **four foreign direct investors and one major manufacturing port or hub**
- The scheme has triggered around **£1bn over public and private sector investment** and over 2,500 direct jobs

Source: https://www.thenorthernecho.co.uk/news/20087281.seah-briefs-supply-chain-300m-plan/

Lessons Learned from Fixed Bottom

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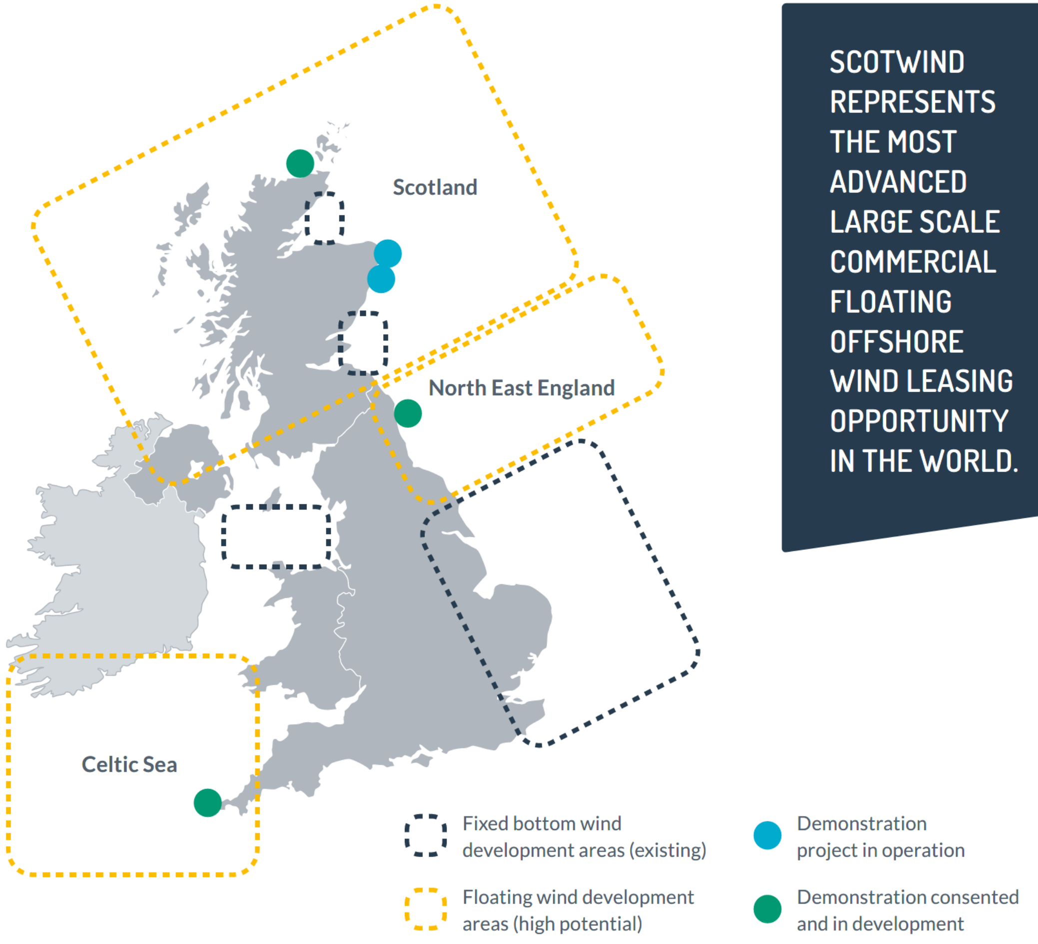
- Futureproofing
- Innovation
- Infrastructure Requirements
- Overcoming the ‘chicken and egg’ problem and pipeline certainty
- State specific strategy and understanding limitations



SCOTWIND REPRESENTS THE MOST ADVANCED LARGE SCALE COMMERCIAL FLOATING OFFSHORE WIND LEASING OPPORTUNITY IN THE WORLD.

Source: Offshore Renewable Energy Catapult

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Floating Offshore Wind in UK

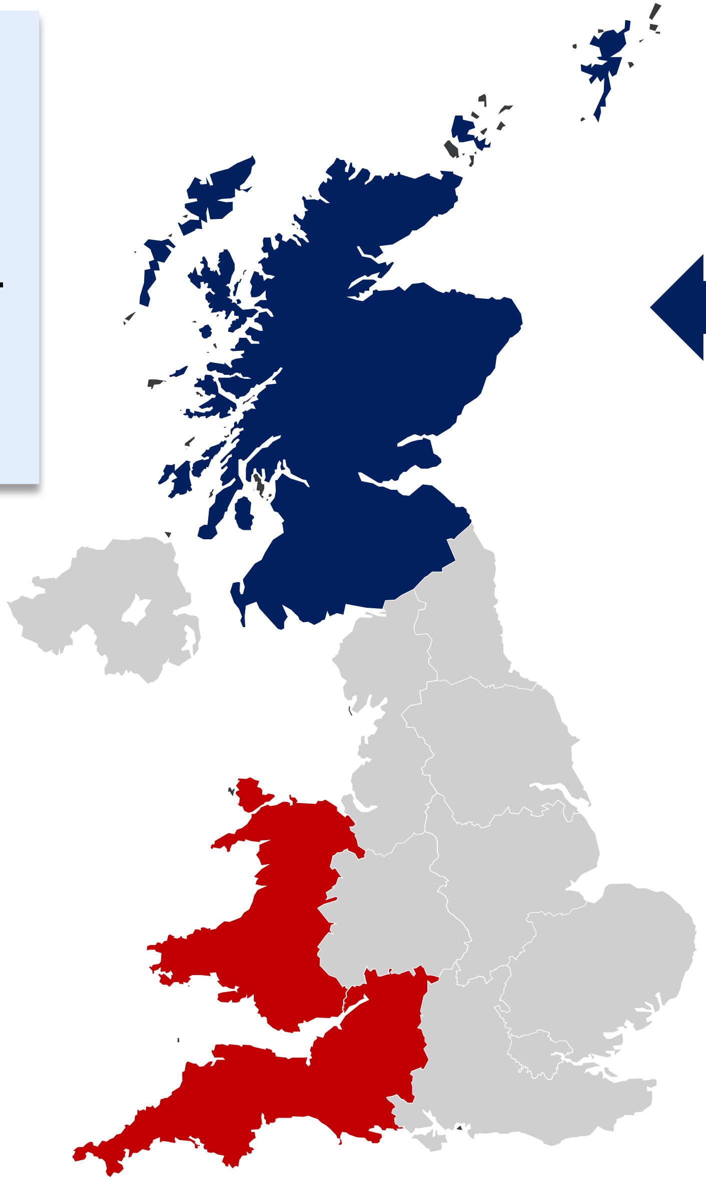
Overview

- Floating can unlock **80% of the world's offshore wind generation potential** in waters deeper than 60m.
- British Energy Security Strategy has an ambition to reach up to **5 GW** of floating by **2030**.

4 GW of floating wind sites will be leased **by 2023,** with an additional **20 GW** of potential sites to be leased in the Celtic Sea **by 2045**.

Hexicon's TwinHub project (32 MW) has been awarded the first CfD for floating in Allocation Round 4, at a strike price of **£87.30/ MWh**.

Celtic Sea



Scotland

Home to the world's **first** floating offshore wind farm (Hywind Scotland, 30 MW) and the world's **largest** floating offshore wind farm (Kincardine, 48 MW).

ScotWind was one of the largest leasing rounds for floating, with a capacity of up to **15 GW**. A further **2.8 GW** has been announced through ScotWind clearing. **The Innovation and Targeted Oil and Gas** leasing process could add a further **6.2 GW** of floating wind.

[1]https://ore.catapult.org.uk/press-releases/unlocking-floating-winds-potential-deliver-43bn-29000-jobs-uk-economy/

Thank you! Questions / AOB

Source: https://www.theguardian.com/environment/2020/oct/06/powering-all-uk-homes-via-offshore-wind-by-2030-would-cost-50bn