

Presenter



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Securing finance and protecting income

Subsidies from governments





Subsidies from governments

- Why ?
- How ?
- What ?

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Subsidies from governments

- Why ?
- How ?
- What ?

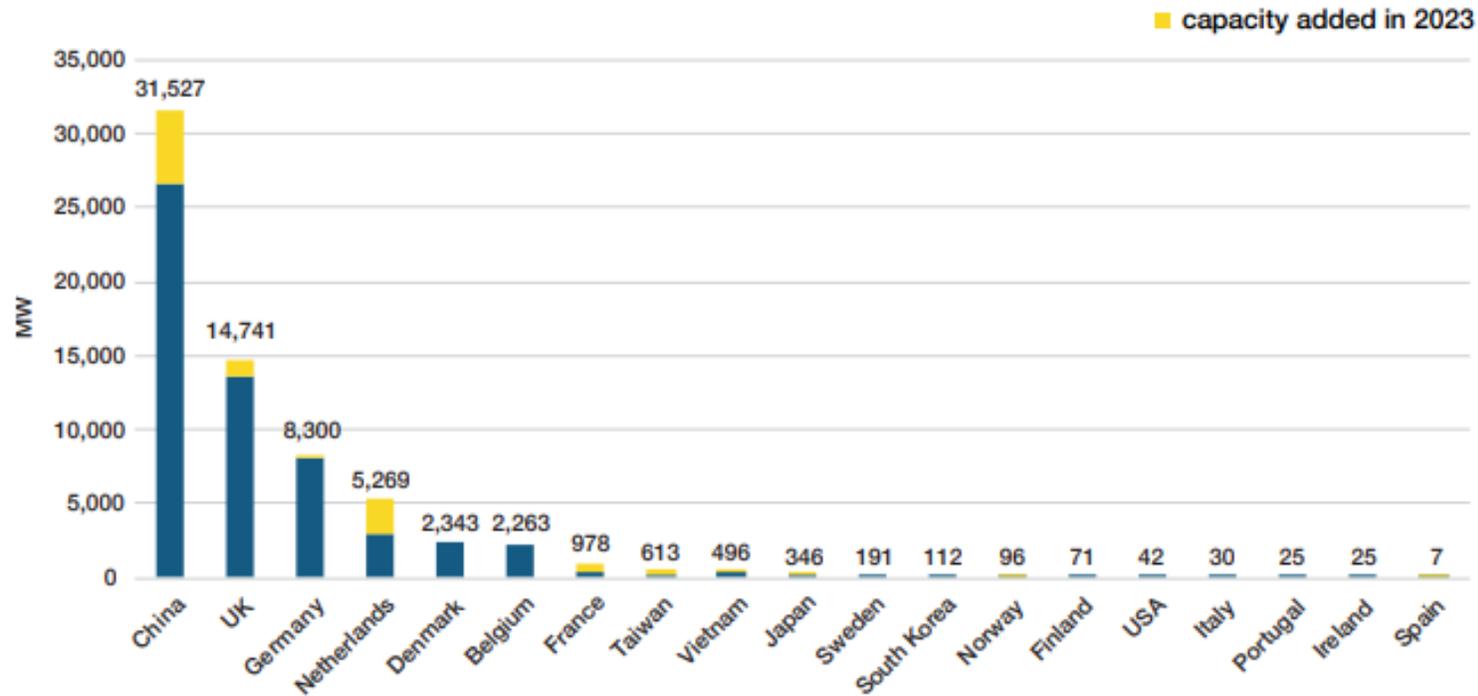
Top markets

GLOBAL OFFSHORE WIND REPORT 2023 | 07

Floating offshore wind turbines installed in Europe and Asia

Global offshore wind capacity in operation – by country

IN OPERATION



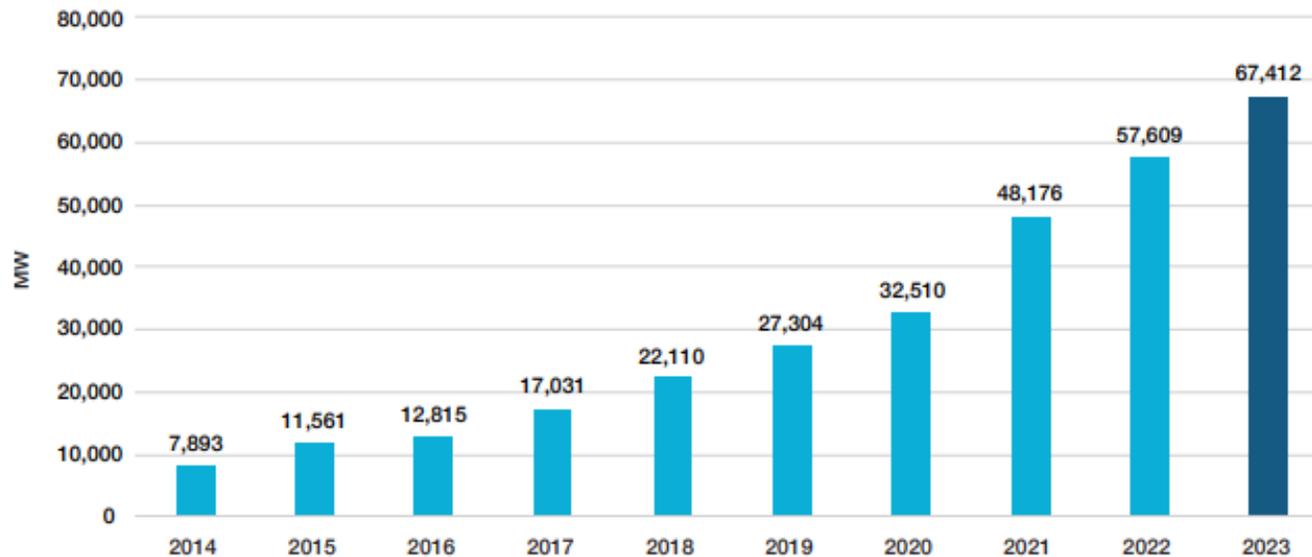
Global growth

GLOBAL OFFSHORE WIND REPORT 2023 | 07

Global offshore wind capacity reaches nearly 70 GW

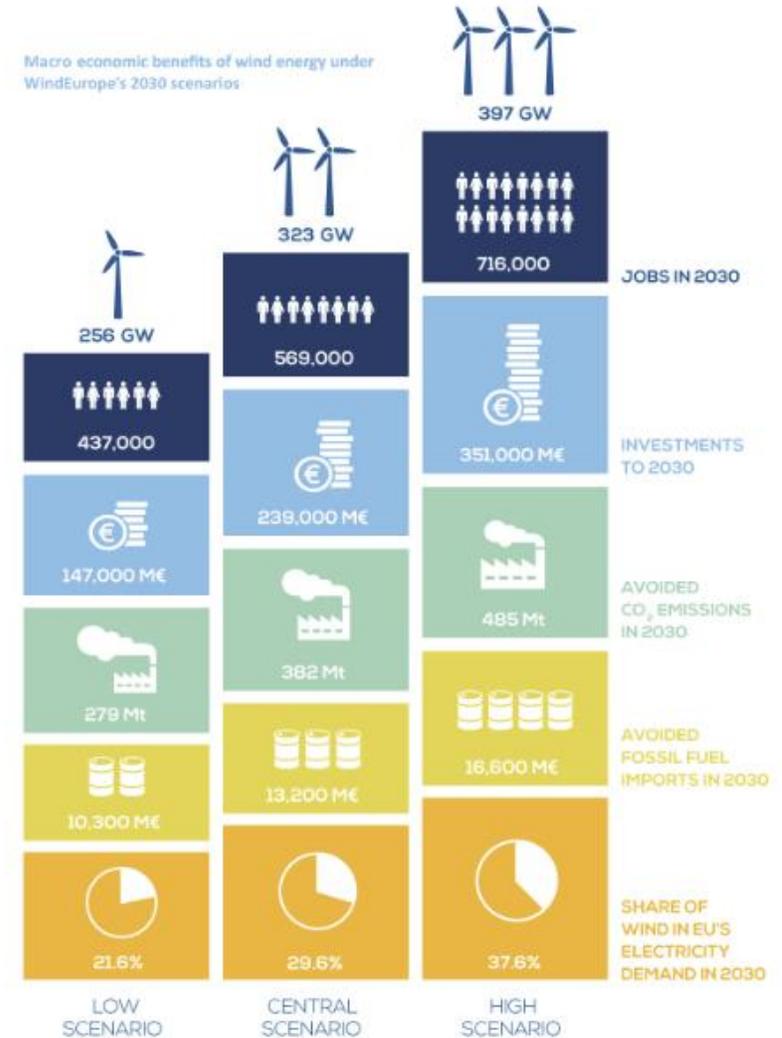
Global offshore wind capacity in operation – by country

IN OPERATION



Expected growth in offshore wind (GW)

	2023 market share	2023 GW	Target GW 2030	Growth 2023-2030
China	47 %	31,5	61	29
UK	22 %	14,7	50	35
EU	26 %	17,2	110	93
US	1 %	0,4	30	30
Other	5 %	3,6	10	6
Total	100 %	67,4	261	193
				286 %



Renewables Intelligence Network

No. of active farms: 318 No. of active turbines: 13,555 Share of global energy: 0.4% Total GW Active: 72.90 GW, 2050 (f): 1187.37 GW

The ocean wind industry is facing several financial challenges:

- Project cancellations
- Approval process
- Supply chain issues
- Economic factors



Subsidies from governments

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Subsidy - a definition



Subsidy
[ˈsʌb-sə-dē]

A benefit given to an individual, business, or institution, usually by the government.

 Investopedia

- A subsidy is a **direct** or **indirect** payment to individuals or firms, usually in the form of a **cash payment** from the government or a targeted **tax cut**.
- *In economic theory, subsidies can be used to offset market failures and externalities to achieve greater economic efficiency.*

Subsidies for offshore wind:

- **Direct subsidies:**

- Feed-in Tariff Premiums
- Contract for Differences (CfDs)
- Investment Subsidies
- Tax Credits and Incentives

- **Indirect subsidies:**

- **CO2 emission allowances:**

- Offshore wind projects benefit from the sale of CO2 emission allowances.

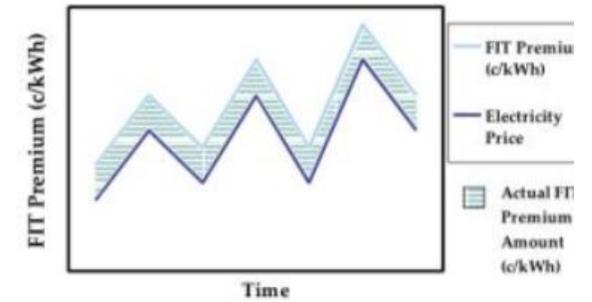
- **Renewable portfolio standards:**

- These standards encourage the use of renewable energy sources.

- **Equipment manufacturers:**

- Subsidies to manufacturers of offshore wind equipment.

Feed-in tariff premiums



- A feed-in tariff (FIT) is a policy tool that provides renewable energy producers with an above-market price for the electricity they deliver to the grid.
- These policies are usually designed to promote investment in renewable energy sources:
 - **Purpose:** Guaranteeing a price above the market rate for energy produced.
 - **Long-term contracts:** Often spanning 15 to 20 years.

Two-sided contracts for difference (CfDs)

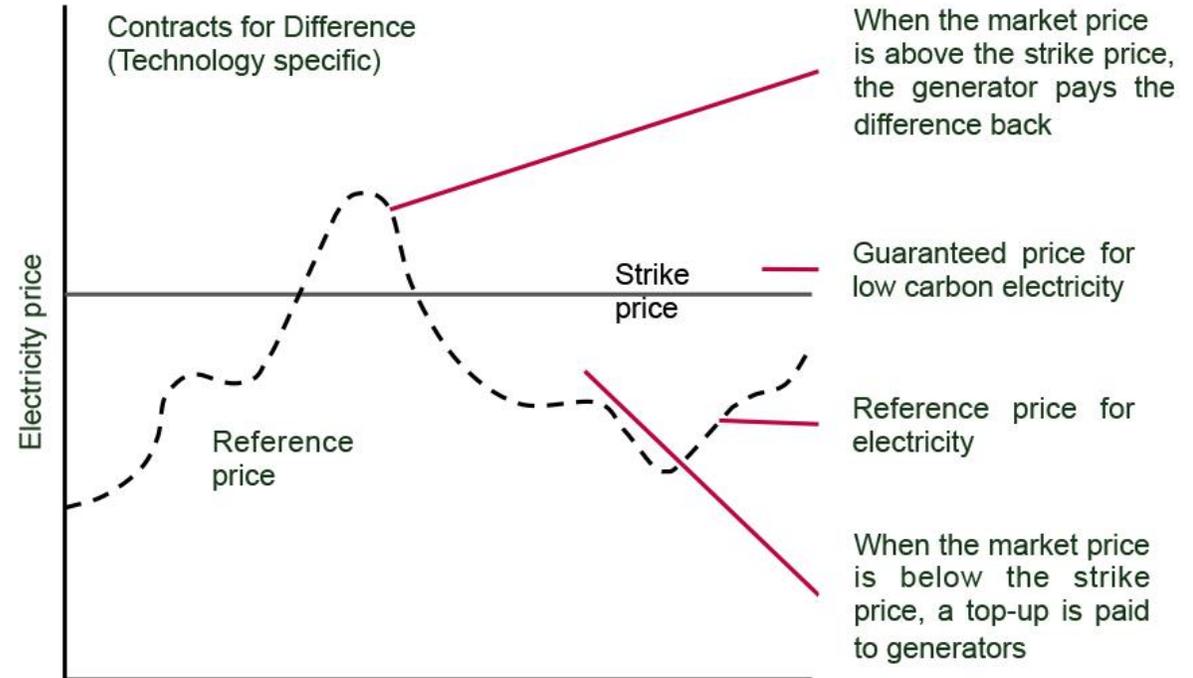
- **Two-sided Contracts for Difference (CfDs)** are financial instruments used in various markets to facilitate transactions and hedge against price volatility.
- A **state-backed risk-sharing tool**



Contract for Differences (CFD)
[ˈkən-ˌtrakt fər ˈdi-f(ə)rən-(t)sɪz]

An arrangement made in financial derivatives trading where the differences in the settlement between the open and closing trade prices are cash-settled.

Investopedia



Menon subsidy publication no. 51/2023 - key points

- **EU and US subsidies:**

- Highlights the Inflation Reduction Act (IRA) in the US and the EU's response to it.

- **Offshore wind expansion:**

- Offshore wind energy is rapidly expanding, with China leading in installed capacity.
- The EU and US have set targets for offshore wind generation capacity by the end of the decade.

- **Subsidy mechanisms:**

- Various subsidy mechanisms including direct subsidies like feed-in-tariffs and indirect subsidies through carbon pricing mechanisms.
- Auction process for offshore wind land leases.

REPORT
OFFSHORE WIND SUBSIDIES IN THE EU,
NORWAY, AND THE US



MENON PUBLICATION NO. 51/2023
Authors: Jesse Enns, Henrik Poulsen, Piotr Szymankowski, Evert Wijnje and Einar S. Wold

Key differences subsidy programs in EU and US :

- **Subsidy mechanisms:**
 - The **EU** utilizes a variety of instruments, including **feed-in tariffs** through competitive bidding
 - The **US** offers **fixed subsidies like production (PTC) or investment tax credits(ITC)** under the IRA (inflation reduction act)
- **Subsidy design:**
 - **EU** subsidies are designed to reduce capital costs by providing **revenue stability**
 - **US** relies on individual states or local utilities to offer long-term contracts, leading to potential risks and uncertainties.

Subsidies in the United Kingdom (UK)

- **Increased maximum prices in renewable energy auctions:**
 - ***Allocation Round 6 -AR6*** - the government has raised the maximum price that offshore wind in the next Contracts for Difference (CfD) auction.
 - **For offshore wind**
 - Maximum strike price + 66%, from £44 - 73/MWh
 - **Floating offshore wind**
 - + 52% in maximum strike price, from £116 -176/MWh
- **Separate funding pot for offshore wind:**
 - In AR6, offshore wind will have a separate funding pot due to the high number of projects ready to participate.

Subsidies in Norway

- **Government initiative:**

- Aiming to generate new electricity equivalent to the total amount currently produced in Norway.
- The target is to open areas for offshore wind power production that will generate 30 000 MW of power in Norway by 2040.

- **Subsidy schemes:**

- Subsidizing offshore wind in Norway will be the first time such projects are treated according to the Guidelines on State aid for climate, environmental protection, and energy (**CEEAG**), which came into force in 2022.

- **Licensing and auctions:**

- For **fixed-foundation offshore wind**, licensing areas will be granted based on auctions, and **no subsidies** will be available.
- For **floating** turbine technology, the Norwegian government is willing to **consider subsidies**.

Subsidies in China

- **Subsidy phase-out:**
 - China has phased out central-level subsidies for new offshore wind projects starting from 2022.
 - This decision is expected to slow down the installation of offshore wind capacity from its peak in 2021.
- **Provincial support:**
 - Despite the end of central-level subsidies, some provincial governments may offer fiscal support to maintain the growth of offshore wind installations.
- **Cost reductions:**
 - The economic viability of new offshore wind installations will depend on further reductions in the levelized cost of energy
- **Growth expectations:**
 - China plans to expand its offshore wind capacity by 5x-6x from end-2020 levels by 2025, with most installations anticipated to occur between 2024 and 2025.



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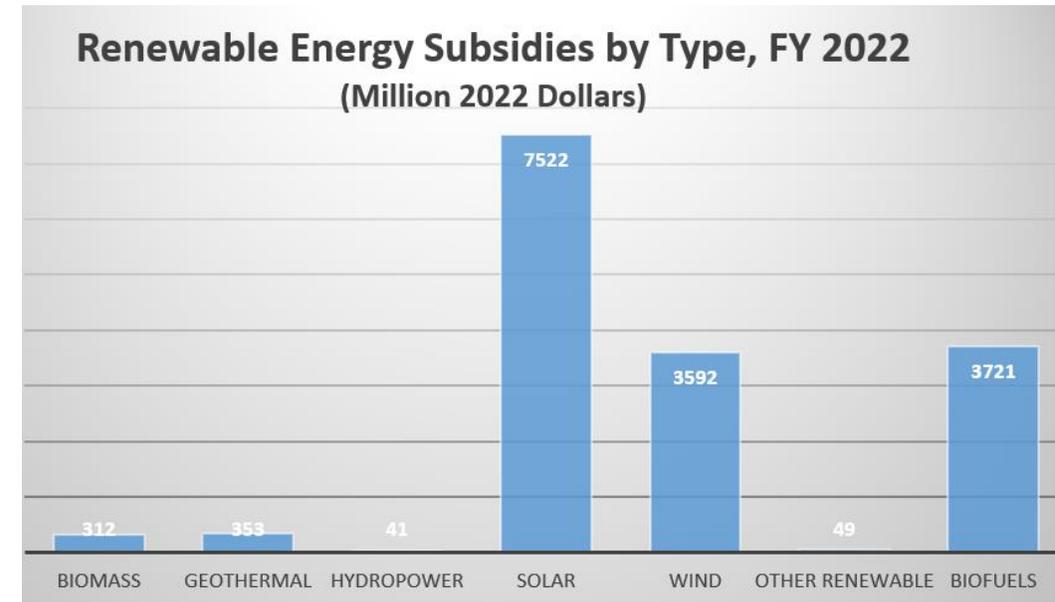
Overview of the amounts of subsidies

- **The European Union (EU)** has a variety of funding programs
 - In 2020, the total subsidy for offshore wind was estimated to be over **£4.3 billion**.
- **In the US, the Inflation Reduction Act** is considered one of the world's largest subsidy programs for green technologies
 - **FLoating Offshore Wind ReadINess (FLOWIN)** Prize, a three-phase, **\$5.75 million** initiative
- **In the UK**, more than **£31 million** of government funding, matched by more than **£30 million** of industry funding, has been allocated for the development of innovative floating offshore wind technologies.

US - investment and production tax credits

Most important provisions under IRA (Inflation Reduction Act) subsidizing offshore wind facilities

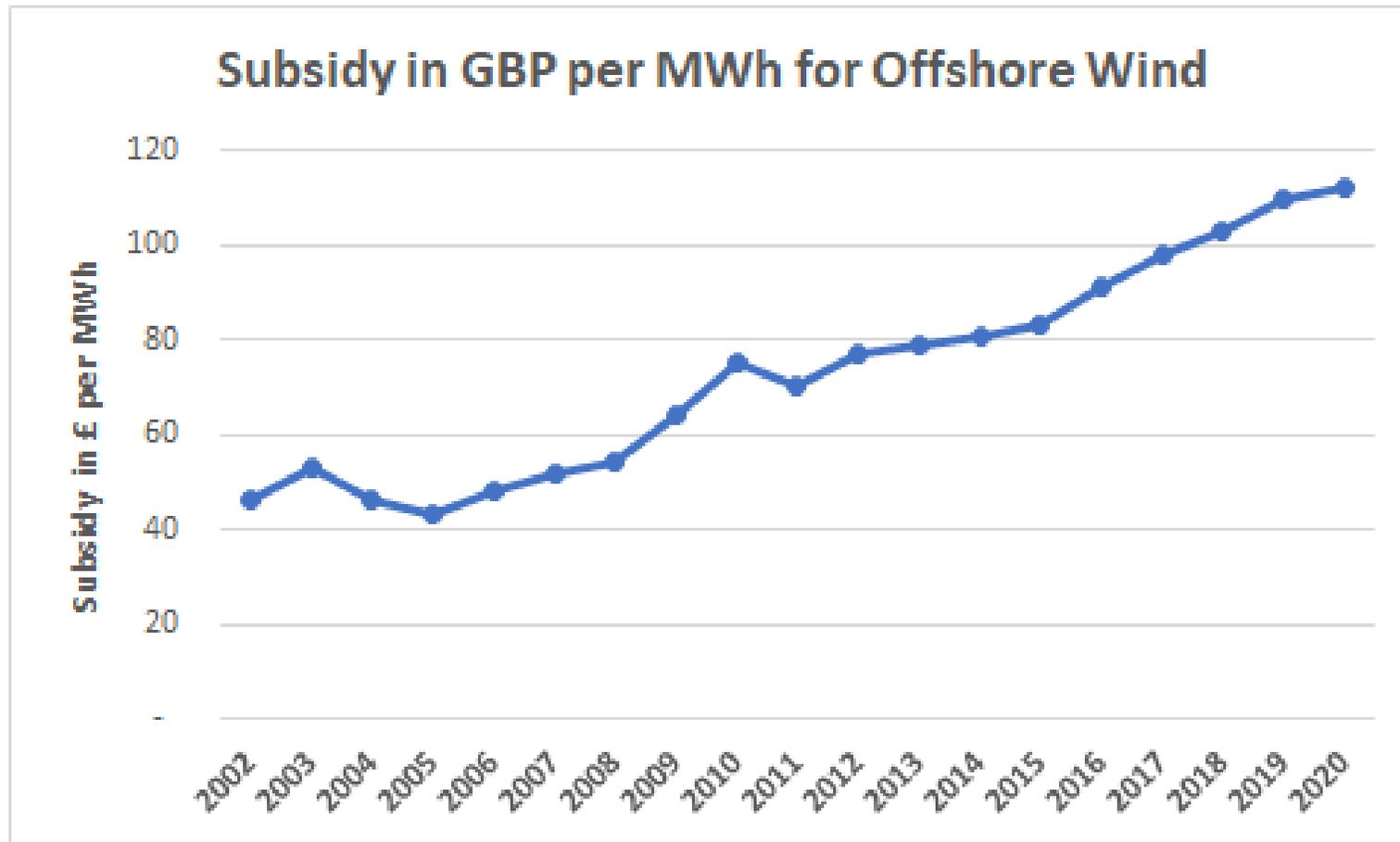
Type of support	Subsidy	Requirements
Electricity produced from certain renewables resources (§45) / Clean Electricity Production Credit (§45Y)	0.52 cent per kWh (2022 USD) produced over 10 years. Adjusted for inflation.	
	2.6 cent per kWh (2022 USD) produced over 10 years. Adjusted for inflation.	Wage requirements and use of apprentices.
	Increased by 10 percent if: <ul style="list-style-type: none"> - Local content - Energy community 	If local content requirements are met or located in an energy community. Can be stacked.
Energy Credit (§48) / Clean Electricity Investment Credit (§48E)	6 percent of investment cost.	
	30 percent of investment cost.	Wage requirements and use of apprentices.
	Additional 10 percentage points if: <ul style="list-style-type: none"> - Local content - Energy community 	If local content requirements are met or located in an energy community. Can be stacked.



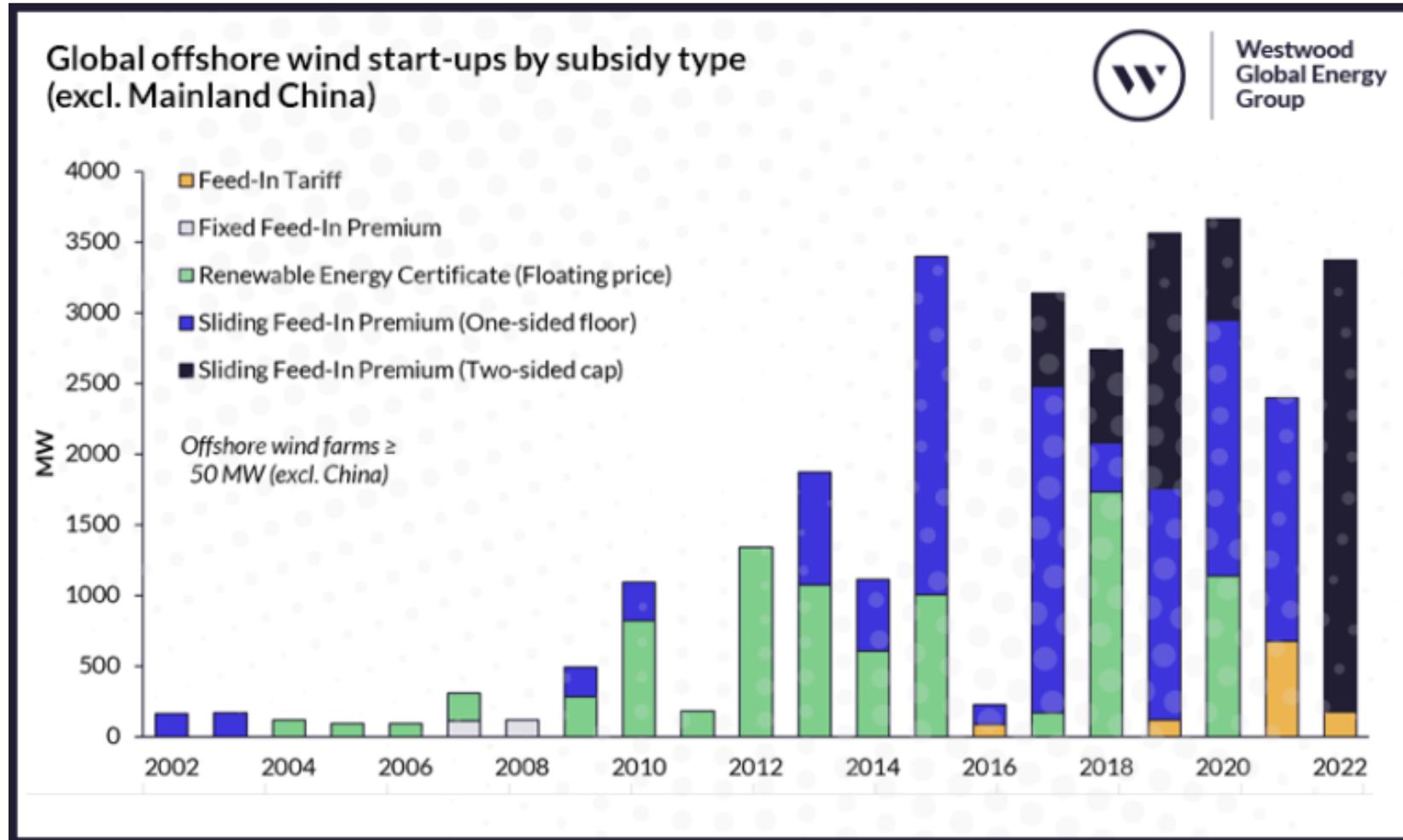
The Energy Information Administration (EIA) (an independent agency of the U.S. Department of Energy)

UK - offshore wind subsidies per MWh

<https://www.world-energy.org/>



Global offshore wind by subsidy type



Zero-subsidy auctions

- **Background:**

- **Cost savings** and governments are now **reducing subsidies**
- The emergence of "zero-subsidy bids" in auctions.

- **Definition:**

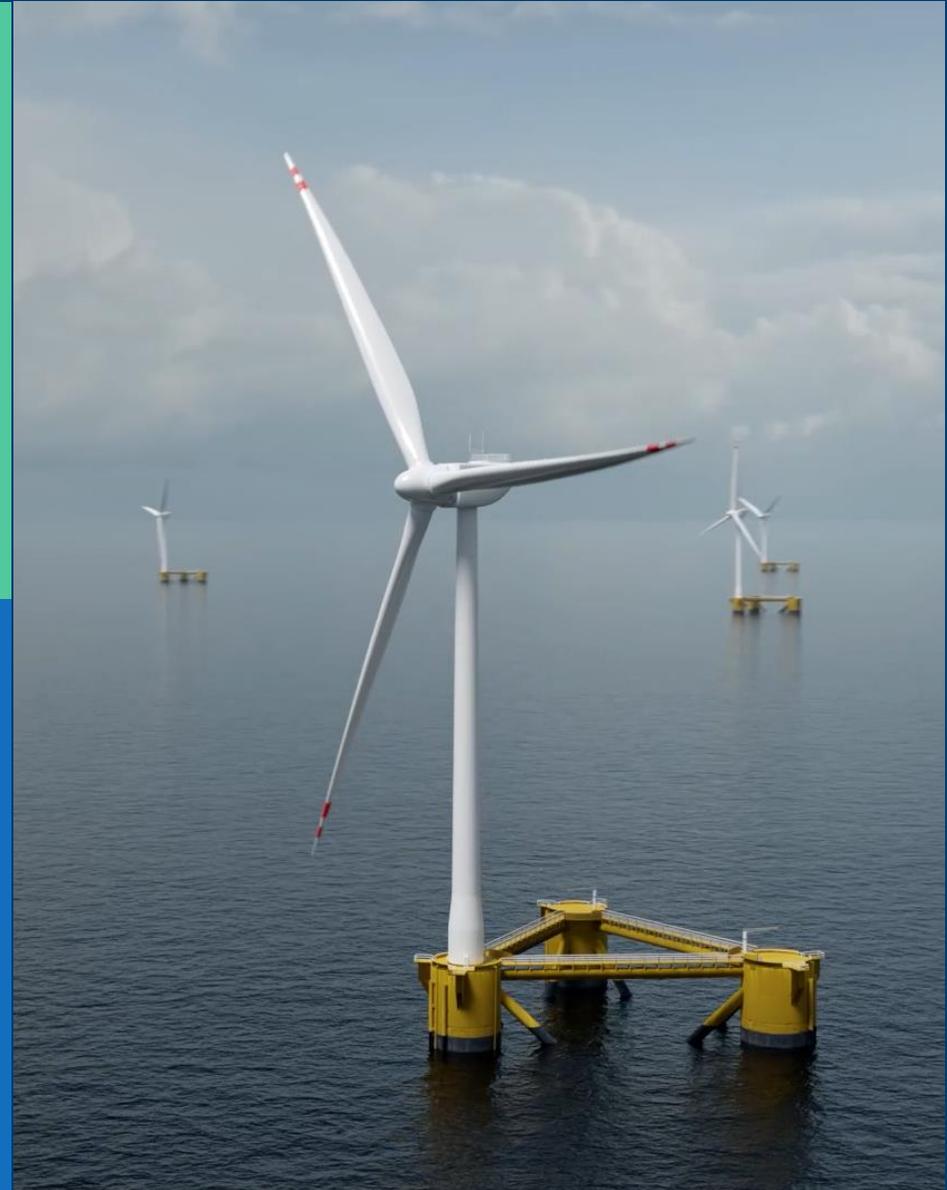
- Zero-subsidy bids occur when wind farms bid to sell their electricity at the wholesale price, **without any government financial support.**

- **Challenges:**

- Without subsidies, the industry faces full variability and merchant risk.
- To attract finance, developers rely on long-term power purchase agreements (PPAs) that run for the project's lifetime (25-30 years).

Budget, revenue and subsidy

- Capex/mw = EUR 2 549 mill.
/540 mw
- Estimated annual revenue: EUR 247 mill.
- Assumed:
 - CFD 110 EUR/MWh
- ***Floating wind is expected to need subsidies for some time***
- **???**



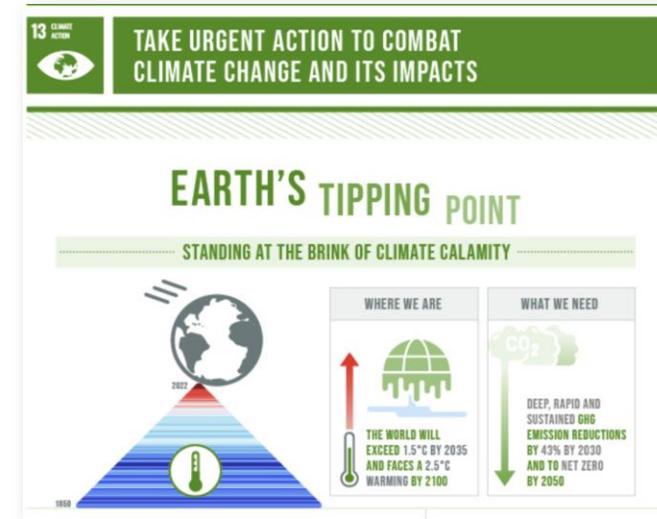


Summary - subsidies from governments

- **Why ?**
 - Probably needed for the extensive plan to shift to greener energy sources
- **How ?**
 - In various forms..
 - CFDS, ITC & PTC
- **What ?**
 - Depending on country, jurisdiction and know-how

Executive summary subsidies from governments

- The offshore wind industry is expanding **rapidly**, subsidies will play a **crucial** role in supporting its growth and ensuring **a transition to cleaner energy sources**.
- A critical consideration for policymakers and investors is to find the **right balance between public support and market dynamics**.



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