WIND ENERGY #3:

SUPPLY CHAIN IMPACTS

GREEN ENERGY
EXPORT DAY 2025

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PANELISTS

Morten Dyrholm, Group Senior Vice President, Vestas

Mads Ole Astrupgaard, CEO, Resolux

Rasmus Skov, Vice President - Public & Regulatory Affairs, KK Wind Solutions

SPEAKERS

Peter Constantin Brun, Global Segment Leader Offshore Wind, DNV Energy Systems

Henrik Martens, Global Head of Maritime Export, Ministry of Foreign Affairs of Denmark

MODERATOR

Jan Hylleberg, Deputy CEO, Green Power Denmark

Danish Energy Agency
MINISTRY OF FOREIGN AFFAIRS OF DENMARK
STATE OF GREEN
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PETER CONSTANTIN BRUN

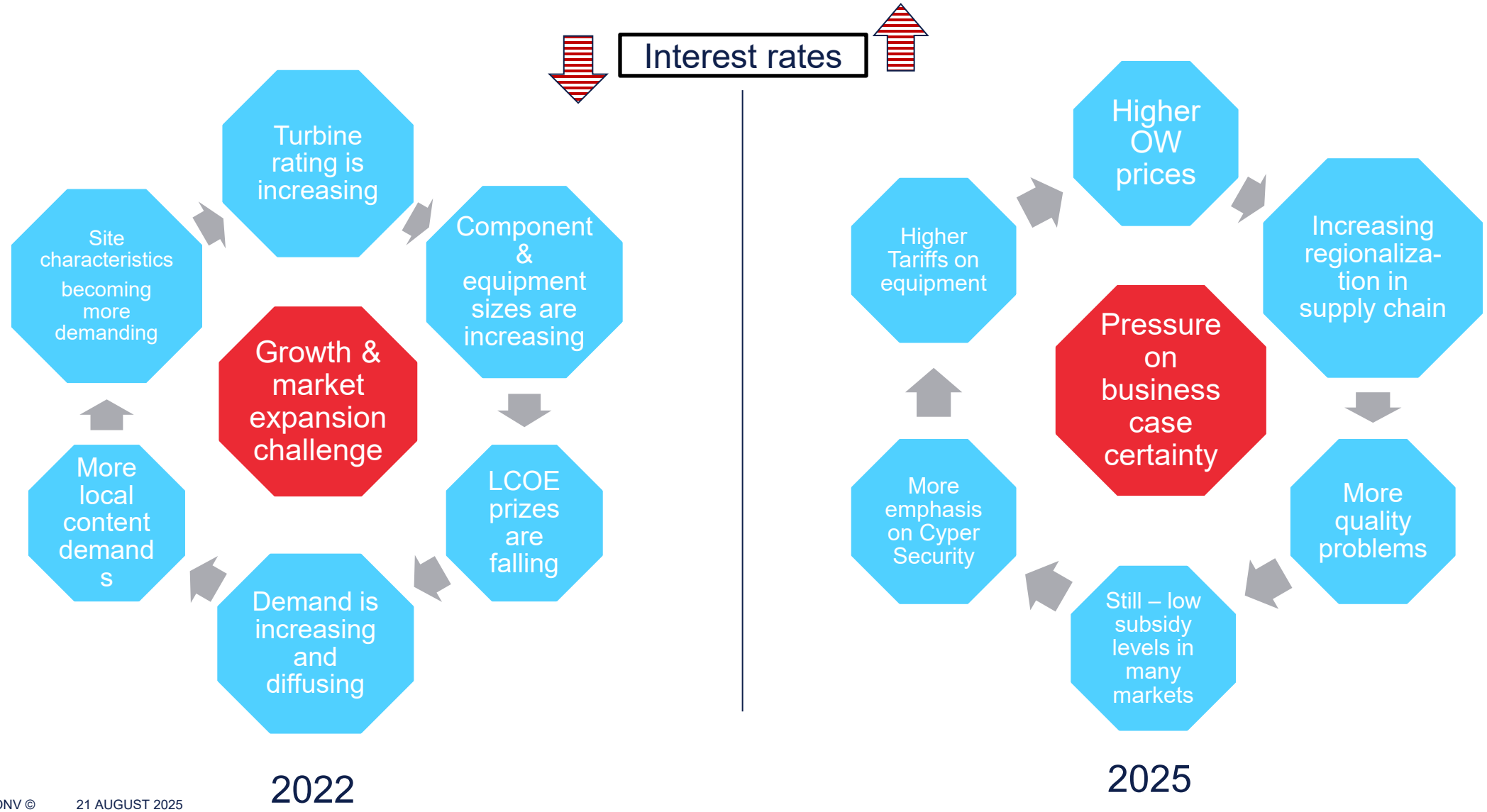
Global Segment Leader Offshore Wind
DNV Energy Systems

Supply chain challenges and Industrialization for wind

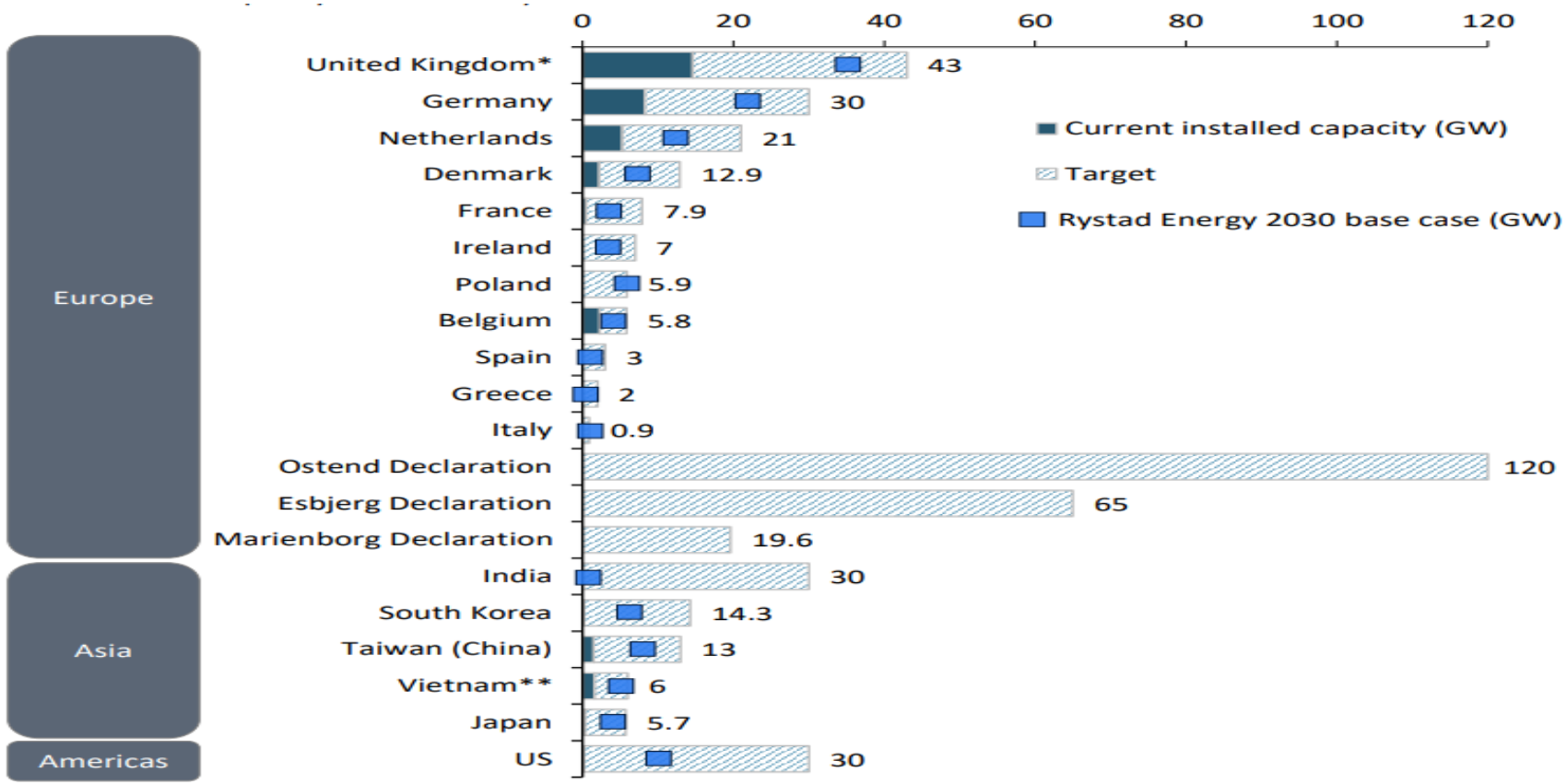
Inspirational pitch: Peter C. Brun, Global Offshore Wind Leader, DNV

DNV

Major changes for Offshore Wind from 2022 to 2025



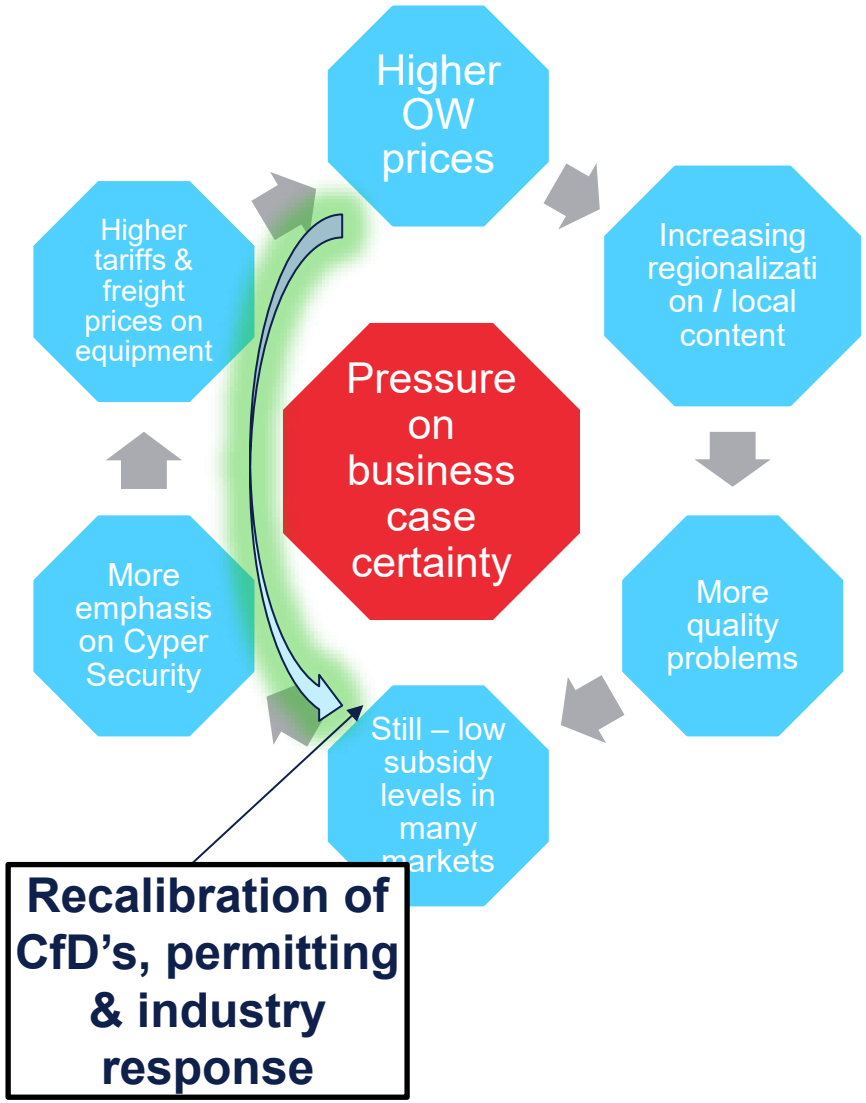
Dynamics in the markets, far away from OW targets in 2030



*The minimum target for the UK is presented in this chart.**Vietnam's target only includes projects in water depths over 20 meters. Nearshore/intertidal developments are included in the collective onshore and nearshore wind targets in the latest plans
Source: Rystad Energy OffshoreWindCube

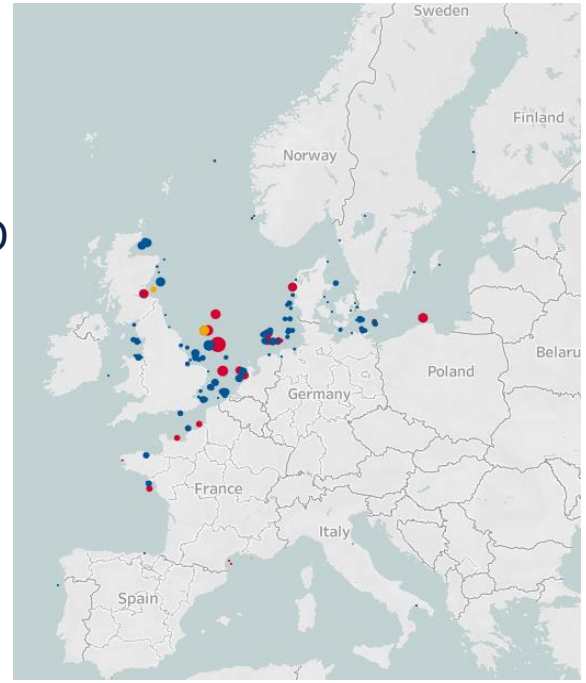
….because governments are lacking behind adjusting their subsidies and industry needs new approach.

Governments can do some of the fix – but not all.....



Subsidy changes, done or pending:

- In UK from AR5/6 to AR/7
- In DK from concession bid to C-CfD
- In Norway for FOW/Utsira Nord
- In NL from merchant to CfD?
- In Germany from Merchant to CfD?
- In Baltics levels of CfD?
- France and Med ?



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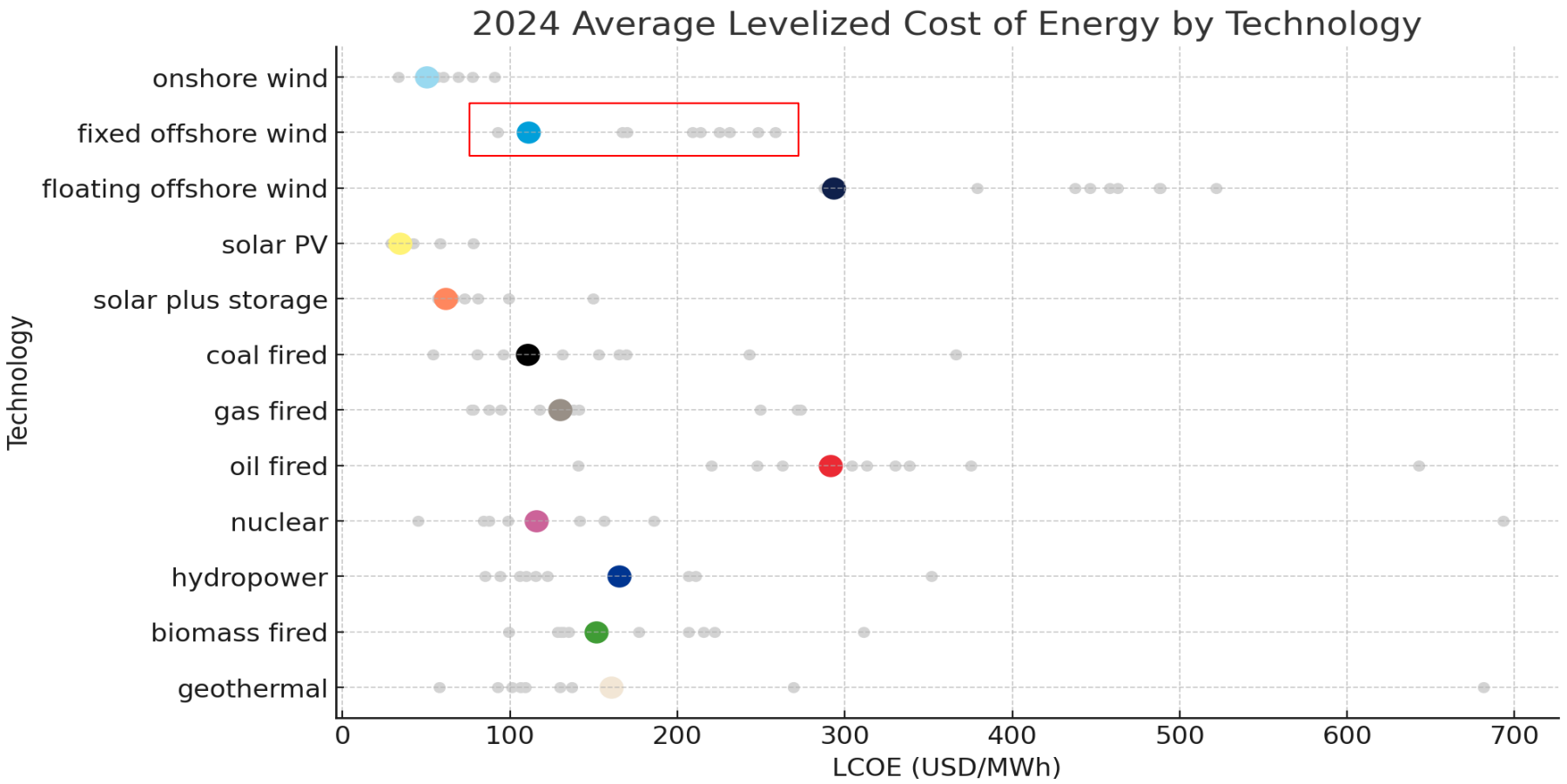
Wind and solar are the least costly power technologies …..but Offshore Wind is seen as too expensive…….

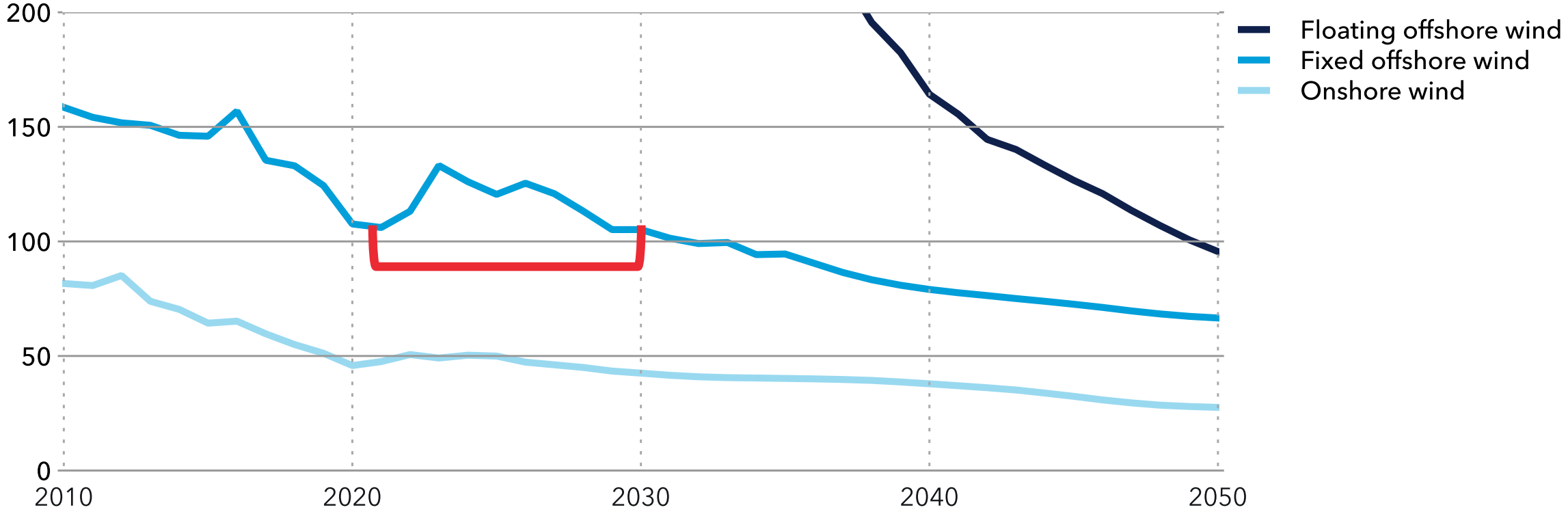


Each point represents one of the 10 regions of the world. Coloured circles denote the weighted world average. Costs correspond to projects at FID stage in 2024.

Levelized cost for wind

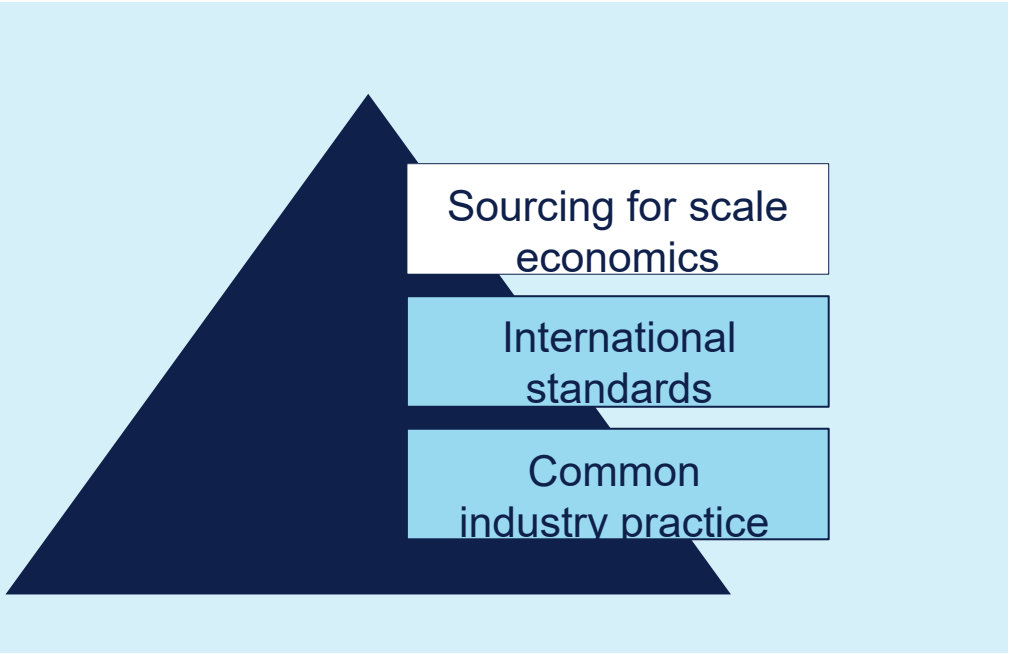
World average levelized cost of wind energy

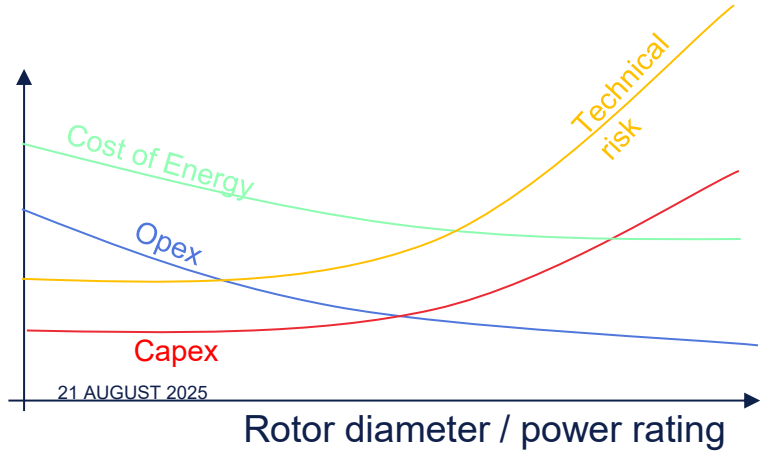
Units: USD/MWh



Historical data source: GlobalData (2024), DNV analysis

What can industry do themselves? Just bigger WTGs?





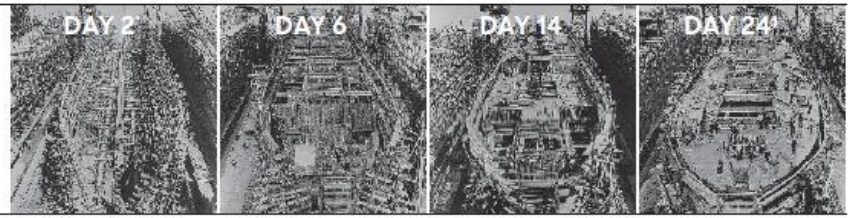
Industry need a serious discussion on alignment of standardization to drive volume sourcing and industrialization.

This could target different parts of the turbine, ratings, towers, foundations – without undermining competition & innovation

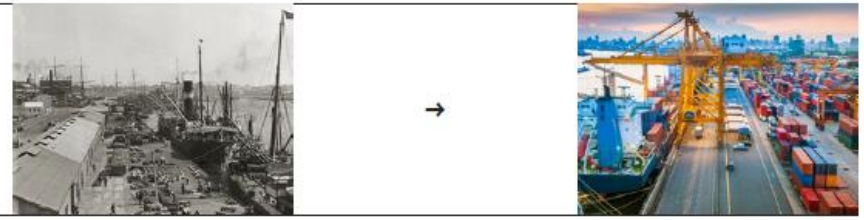
Having such alignment of equipment (for a while) could have huge positive cost consequences for transportation, installation, service etc. efficiency to scale.

JIP Standardisation in offshore wind: historic examples

Liberty ships in WWII

Industry	**Shipbuilding, maritime**
Building phases (illustration[2])	
Scope of standardization	Design and construction standardized to a simple, easy-to-manufacture design
Impact of standardization	**Efficiency:** Accelerated shipbuilding, enabling quicker mass production of 39 days/ship from 230 days/ship achieved in 2 years (1941-1943) **Costs:** Reduced costs per ship via economies of scale and reduction in complexity

Shipping containers

Industry	**Shipping/logistics**
Shipping container evolution[3+4] (illustration)	
Scope of standardization	Size, shape and construction standardized globally to enable mechanized loading (replacing labor-intensive work)
Impact of standardization	**Efficiency:** Streamlined loading, unloading and transfer processes, reducing container loading costs by 95% - From USD 5.86 per ton to USD 0.16 per ton **Interoperability:** Seamless transportation and incentivized global adoption of loading equipment

..are we ready for our "Truman moment"?

[1]Record production time in a Baltimore shipyard in 1943
[2]Images: Library of Congress, https://www.loc.gov
[3]State Library of South Australia
[4]iStock/primeimages

Source: Navalhistoria.com, ISO, IMO, Roland Berger

New JIP: Opportunities for Industrialisation and Standardisation in the North Sea offshore wind market

CHALLENGE

Over the past 15 years, the offshore wind industry has concentrated on developing increasingly larger Wind Turbine Generators (WTGs) to reduce the levelized cost of energy (LCOE). However, the advantages of scaling up are beginning to plateau and continuous upscaling places significant strain on the supply chain.

Shifting focus instead to Industrialization and Standardisation, can reduce LCOE (in an industry sustainable manner), increase installation rates (needed to meet European targets), and improve project quality. However, achieving this will require greater industry alignment, better utilization and lifecycle management of factories and equipment, and pausing new market introductions of much larger WTG's.

PROJECT DETAILS

Standardisation and industrialisation North Sea market, 2030-onwards

SOLUTION

The JIP brings together offshore wind supply chain stakeholders to align on key topics that can benefit from increased Industrialisation and Standardization and to lever collective industry knowledge and experience into the project. Initially targeting the North Sea market, the JIP aims to deliver data-driven market insights. The goal is to foster alignment within the offshore wind industry and facilitate discussions on Industrialisation and Standardisation.

In JIP Phase 1, the study will assess the impact of periodically stabilising wind turbine capacity (i.e., size) on industrialisation and standardisation, while taking into account existing supply chain constraints. The investigation will explore various stabilisation intervals and evaluate key supply chain limitations. The analysis will be based on representative offshore wind sites in the North Sea and will focus on a single, representative wind turbine size (objective is not to determine the optimal turbine size).

BENEFITS/VALUE

1. Provide new insights based on industry knowledge and experience
2. Create a forum for collaboration between key industry members, enabling mutual-understanding and alignment
3. Evidence based quantification of the impact of standardisation and the most appropriate parameters within which to standardise

CURRENT STEERING GROUP (TBC)

- Fred Olsen Windcarrier ASA
- Groningen Seaports N.V.
- Jan de Nul N.V.
- RWE Offshore Wind GmbH
- Sif Netherlands B.V.
- Smulders Group N.V.
- Van Oord Offshore Wind B.V.
- Vestas Wind Systems A/S
- [Vattenfall]
- [Ørsted]

Thank you for your attention

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WIND ENERGY #3:

HENRIK MARTENS

Global Head of Maritime Export
Ministry of Foreign Affairs of Denmark

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THANK YOU