

Reaching 30 GW offshore wind for Ørsted by 2030

CBS Global Case Competition 2023

Ørsted



Team
Renewables



**CBS
CASE
COMPETITION**

BLUEPRINT '30

Two-fold strategy to secure market leader position

Targeting +8 GW of offshore wind capacities through a two-fold auction strategy approach



Challenges

Changing climates are severely impacting the world's environment and biodiversity, while the offshore wind industry is affected by supply chain challenges, increasing competition and regulatory barriers.

Team Renewables initiates a strategic plan to support Ørsted in realising 2030 ambitions



BLUEPRINT '30 Objective

Figure out how Ørsted can best reach our target of 30 GW offshore wind by 2030, while ensuring a healthy financial business and industry



BLUEPRINT '30 Strategy

The Core Strategy approach is centered around established core offshore wind markets, and differentiated by offering battery system integration. The Growth Strategy approach is focused on East Asia, and differentiates the offering through local content




BLUEPRINT '30 Impact

The implemented strategy complies with the outlined capital constraints of 200 DKKbn while accommodating Ørsted's stakeholder. Ørsted's offshore wind expansion through the core and growth strategies underpins the company's offshore wind market leader position by 2030

Targeted awarded
capacity
8 GW

Core 
5GW, 12.9% win rate

Growth 
3 GW, 20.1% win rate

Total capital
committed
DKK 170.9bn



Team
Renewables

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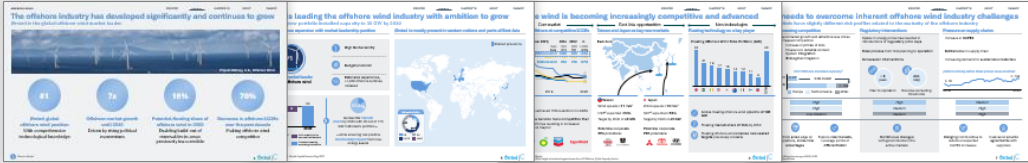
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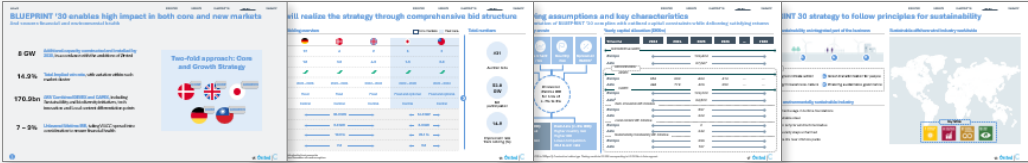
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The offshore industry has developed significantly and continues to grow

Ørsted is the global offshore wind market leader



Project Walney, U.K., Offshore Wind

#1

**Ørsted global
offshore wind position**

With comprehensive
technological knowledge

7x

**Offshore market growth
until 2030**

Driven by rising political
momentum

16%

**Potential floating share of
offshore wind in 2050**

Enabling build-out of
renewables in areas
previously inaccessible

70%

**Decrease in offshore LCOEs
over the past decade**

Making offshore wind
competitive

Ørsted is leading the offshore wind industry with ambition to grow

Ambition to grow portfolio installed capacity to 30 GW by 2030

Ørsted to continue expansion with market leadership position



Global **market leader**
within offshore wind



High Deliverability

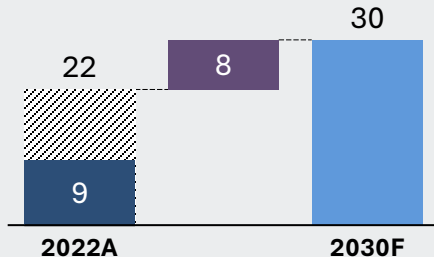


Budget precision



Extensive experience,
+1,600 offshore turbines
installed

GW



Under construction / Awarded capacity
 Current offshore capacity
 Add. capacity to be secured and installed
 Projected capacity according to ambition



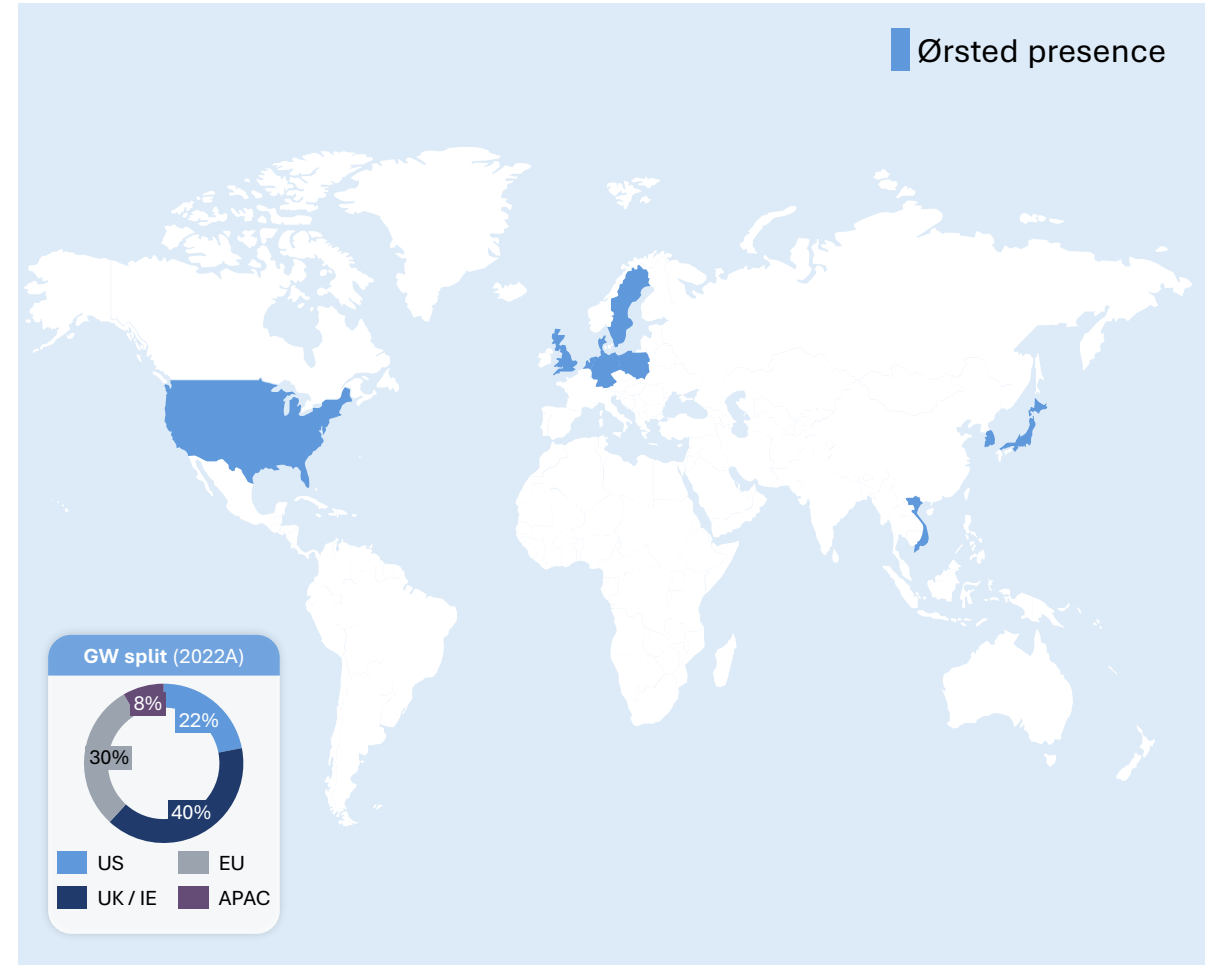
17.6%

Global OW **market share** by 2030 with 30 out of 170 GW in Ørsted's portfolio...

...while ensuring net-positive **biodiversity impact** from new energy assets

Ørsted is mostly present in western nations and parts of East Asia

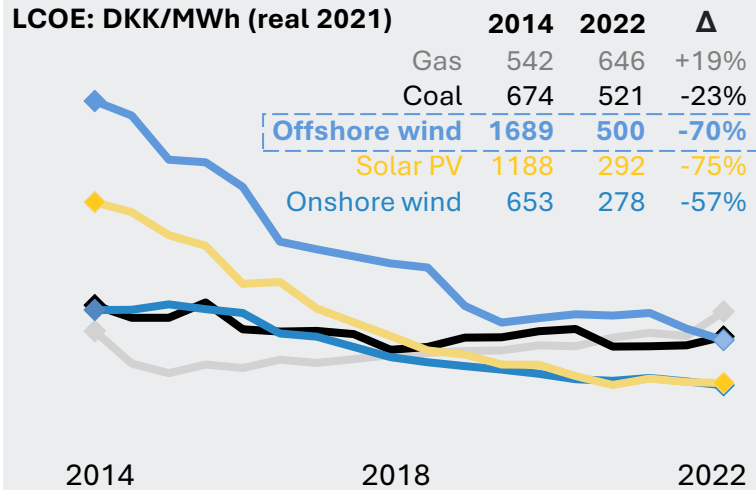
Ørsted presence



Offshore wind is becoming increasingly competitive and advanced

Core market

Fixed bottom offshore at competitive LCOEs



Offshore wind has achieved 70% reduction in LCOEs

Offshore wind has become more competitive than gas and coal, which has resulting in increased competition from oil majors:



East Asia opportunities

Taiwan and Japan as key new markets



Taiwan

Wind speeds **>11 m/s¹**

NCF² expected **>50%**

Target by 2040 of **40 GW**

Potential corporate PPA providers:



Japan

Wind speeds **>10 m/s¹**

NCF² expected **>50%**

Target by 2040 of **45 GW**

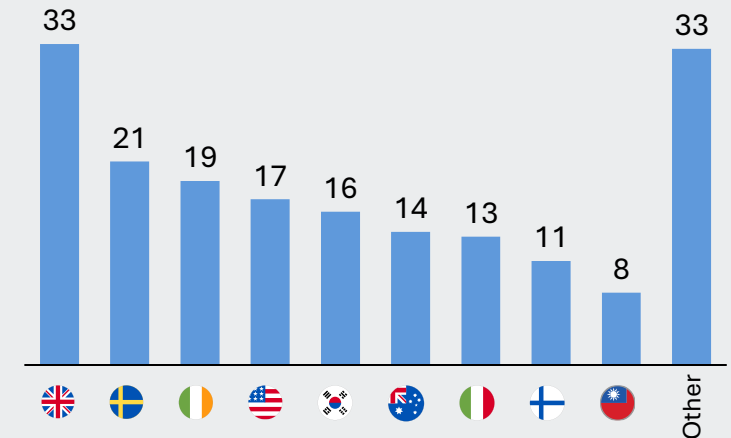
Potential corporate PPA providers:



New technologies

Floating technology as a key player

Floating Offshore Wind Total Portfolio (GW)



Global floating offshore wind **pipeline of 185 GW**

Floating **market share of 16%** by 2050

Floating offshore wind **enables new seabed targets** previously unviable

Ørsted needs to overcome inherent offshore wind industry challenges

Different markets have slightly different risk profiles related to the maturity of the offshore industry

Topic	Increasing competition	Regulatory interventions	Pressure on supply chains
Risk	<div><div>Rapid market growth and attractiveness drives increased competition</div><ul style="list-style-type: none">Increase in prices of bidsPressure to localize contentSystem integrationEcological mitigation</div> <div><div>GW Offshore Installed capacity¹</div><div><div>2021</div><div>c. 27</div><div>23% CAGR</div><div>2030</div><div>c. 169</div></div><div><div>Europe</div><div>North America</div><div>APAC</div></div></div>	<div><div>Spikes in energy prices has resulted in introductions of regulatory price caps</div><div>Slow process from first planning to operation</div><div>Consession interventions</div><div><div><div>~ 8 years</div><div>Plan to operation</div></div><div><div>Add. levy</div><div>Revenue exceeding thresholds</div></div></div></div>	<div><div>Increase in CAPEX</div><div>Bottlenecks in supply chain</div><div>Increasing demand for sustainable materials</div><div><div>(DKK nominal) ARCA Steel prices have doubled</div><div><div>c. 7k</div><div>c. 14k</div></div><div><div>2019</div><div>2023</div></div></div></div>
	<div><div>Rating</div><div><div>Europe</div><div>High</div></div><div><div>NA</div><div>High</div></div><div><div>E. Asia</div><div>Low-Medium</div></div></div>	<div><div>High</div><div>Medium</div><div>Medium</div></div>	<div><div>Medium</div><div>High</div><div>High</div></div>
Mitigation	<div><div><div>Portfolio scale edge on competitors, know-how advantages</div><div>Explore new markets, Leverage points of differentiation</div></div></div>	<div><div>Continuous dialogue with governments in the active markets</div></div>	<div><div>Hedging commodities to reduce unexpected CAPEX increases</div><div>In advance volume agreements with suppliers</div></div>

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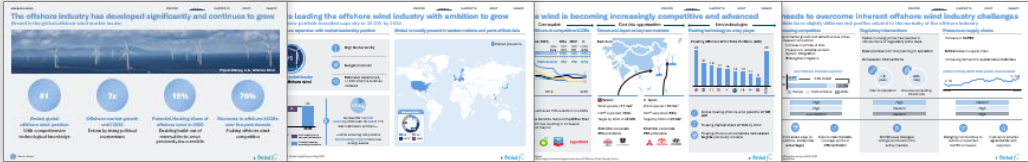
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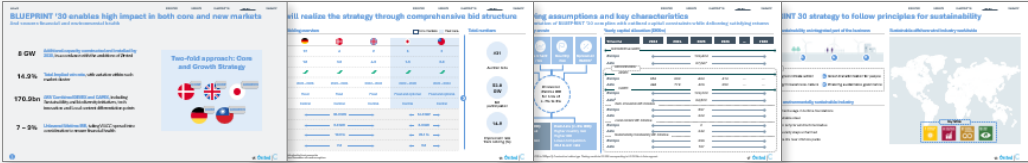
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BLUEPRINT '30 strategy will secure a future for Ørsted Offshore Wind

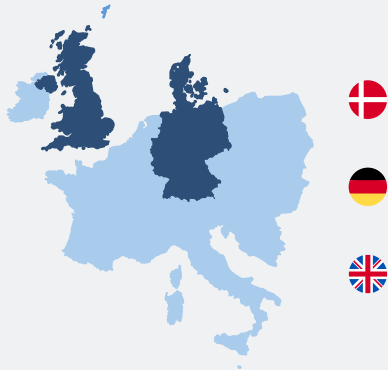
A two-fold approach to secure a valuable pipeline through the Core Strategy and Growth Strategy

A Core Strategy to leverage Ørsted's strong position in core markets

A Growth Strategy to secure future pipeline in new markets

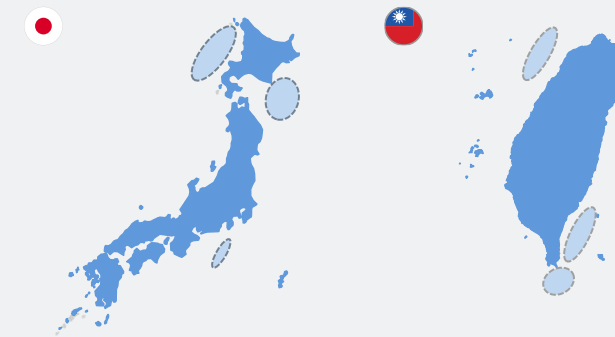
Core technologies in core markets with high competition

Denmark, Germany and the United Kingdom



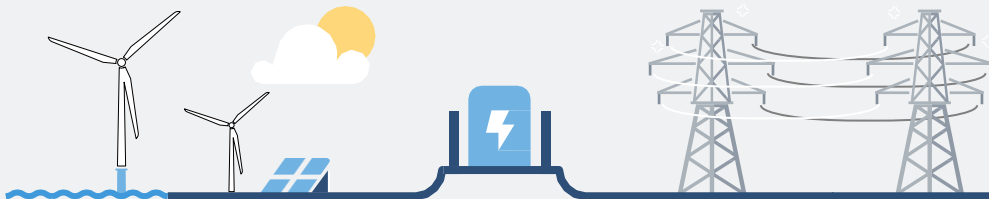
Core and advanced technologies in new markets

Japan and Taiwan, including floating



Differentiated bidding through system integration

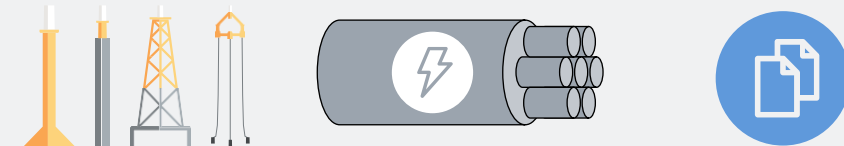
Battery system integration



...and standard initiatives

Differentiated bidding through local content

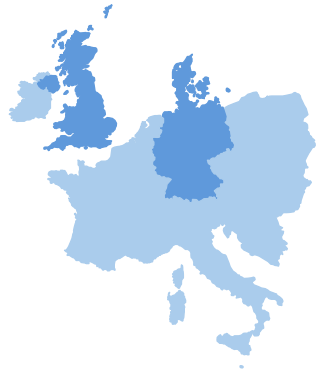
Local procurement of foundation, cables and contractors



...and standard initiatives

The Core Strategy will utilize core technologies in core markets

Ørsted has extensive experience in DK, DE and the UK



Denmark: 5.1 GW fixed bottom to be auctioned

Germany: 25.8 GW fixed bottom to be auctioned

UK: 8.0 GW fixed bottom to be auctioned



Ørsted has a proven project delivery model in core markets

Strong regulatory support


Ørsted has deep understanding of the energy systems


Ørsted to utilize the core competency of the firm to deliver significant amount of offshore wind capacity in core markets

The leading offshore wind supply chain is found in Europe

Home continent to major WTG suppliers

Vestas **SIEMENS Gamesa**

HQ:  Århus, DK

HQ:  Hamburg, DE



Most advanced offshore wind supply chain worldwide

Ørsted to leverage strong partnerships with WTG suppliers

High competition from majors

RWE

sse

VATTENFALL 

 **edf**

OW
OCEAN WINDS



 **IBERDROLA**



 **NORTLAND POWER**

equinor 

CIP
Copenhagen Infrastructure Partners



Large energy majors are increasingly allocating capital towards renewables

Competitors' capabilities and credentials are mostly in Europe





















Ørsted to differentiate offering by utilising cross-technology capabilities



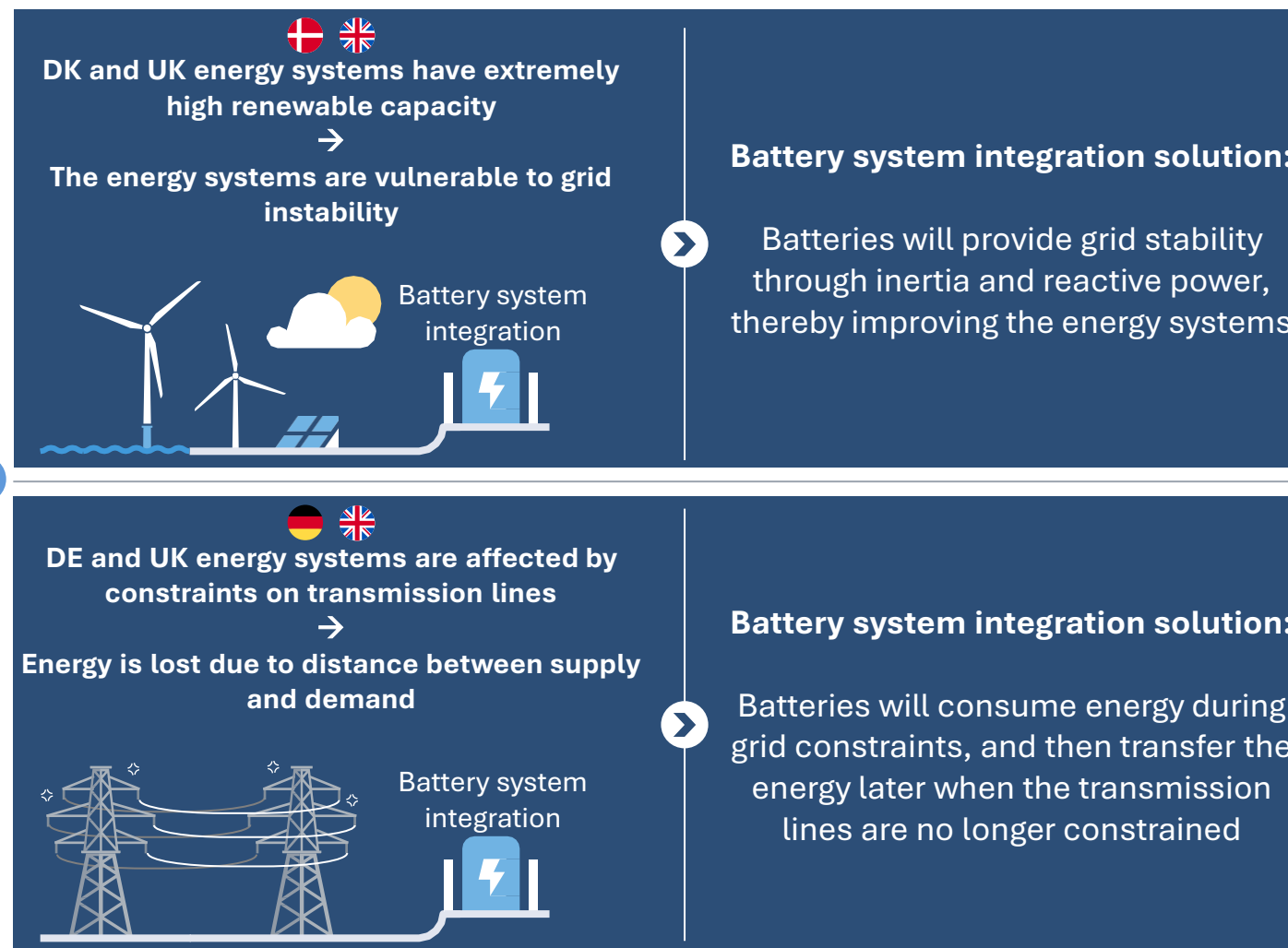
The Core Strategy will win bids by offering valuable system integration

Differentiated bidding through system integration

The differentiated DK, DE, NL bidding strategy will emphasize **system integration**¹

Auction parameter	DK	DE	UK	Value add
Price				
Local content				
System integration				
Ecological mitigation				
Sustain-ability				

Ørsted will win bids by including battery system integration in order to improve the energy systems through grid stability and mitigation of constraints on transmission lines



Ørsted's differentiated contribution:

- Significantly improving the energy systems by including needed system integration solutions in the bid

The Growth Strategy will focus on new markets with low competition

Ørsted to advance offshore wind in East Asia while only facing limited competition



Japan – 8.9 GW to be auctioned

- 5.5 GW fixed bottom, 3.4 GW optional

Taiwan – 6.0 GW to be auctioned

- 3.0 GW fixed bottom, 3.0 GW optional



1.

Synergies with Ørsted existing development portfolio (Japan, South Korea, Taiwan)

2.

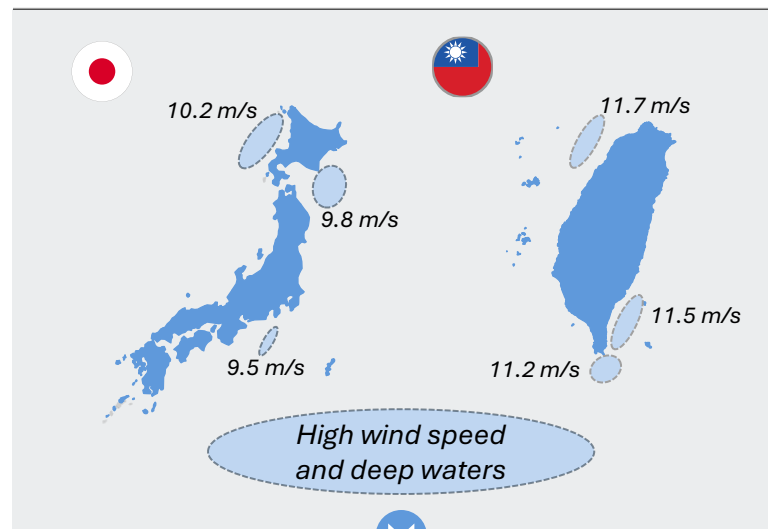
Low competition and strong regulatory support

3.

Ørsted has experience in creating and advancing offshore wind industry

Becoming the industry leader in East Asia presents a growth opportunity post 2030

Ørsted will advance floating offshore capabilities to enable better wind resource



Japan

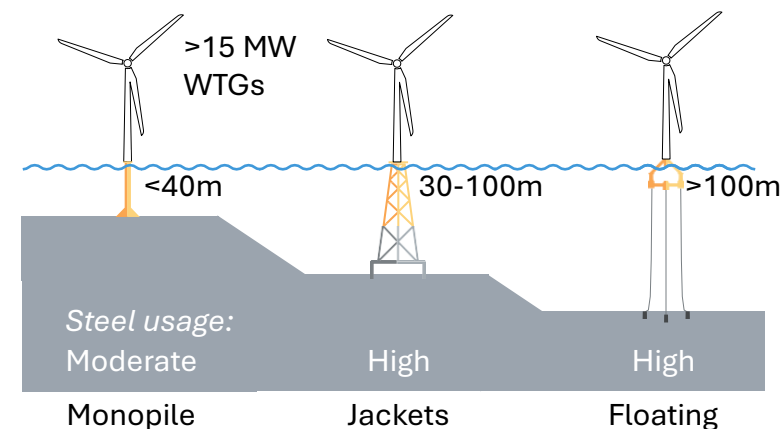
Clear corporate offtake demand with supportive government, however immature offshore wind market

Taiwan

One of the best offshore wind resources in the world, however challenged geopolitical situation

East Asian offshore wind opportunity seized with a combination of fixed and floating

Ørsted will mitigate supply chain challenges through strategic procurement



WTGs

Strategic procurement through global Ørsted competencies of >15 MW WTGs from:



Foundations and cables

Local procurement to ensure local benefits Ørsted to invest in local production facilities (see next slide)

Supply chain issues to be mitigated through strong partnerships and local suppliers



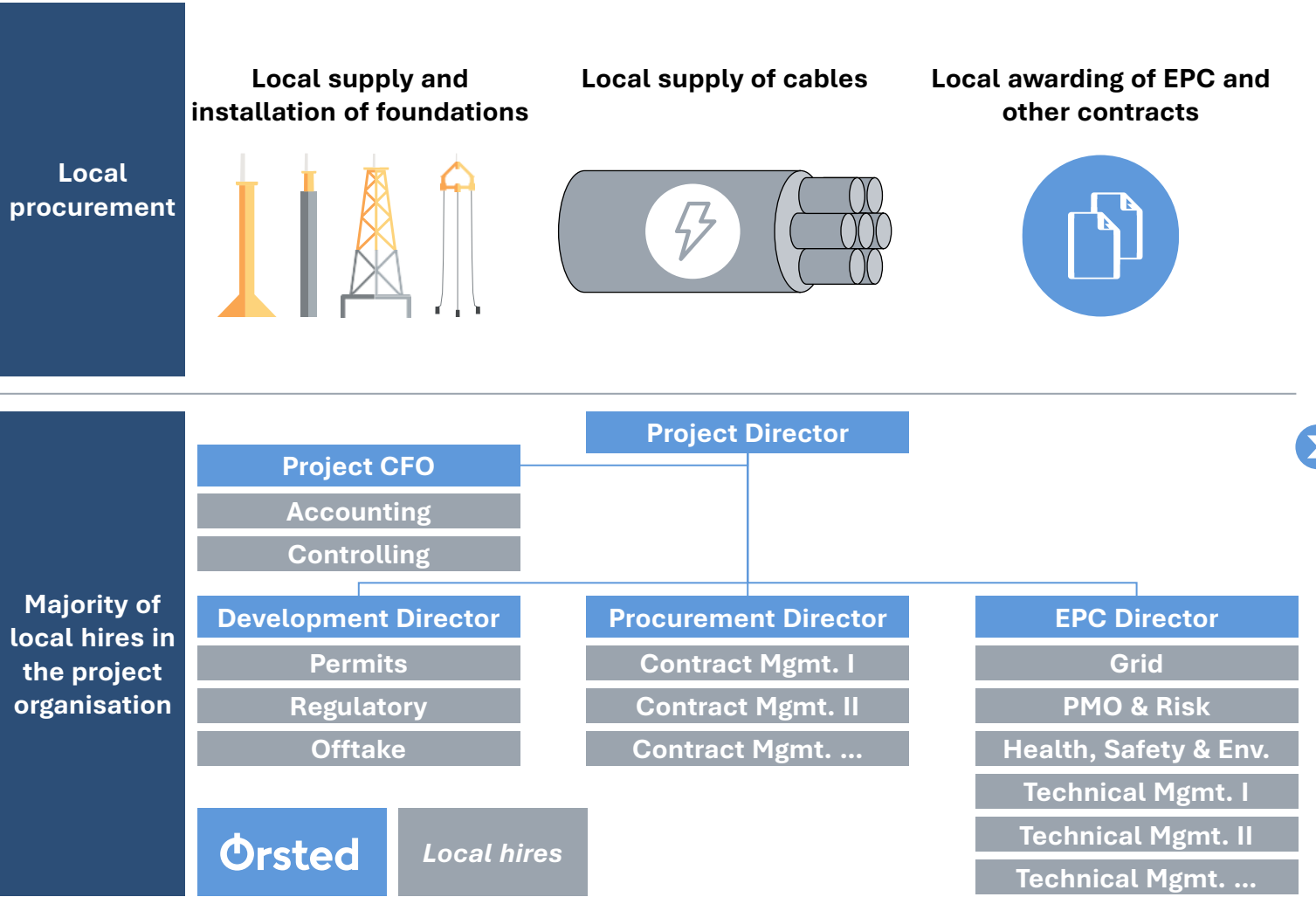
The Growth bids will be won by providing significant local investments

Differentiated bidding through local content

The differentiated East Asia bidding strategy will emphasize **local content**¹

Auction parameter	Japan	Taiwan	Value add
Price	<div></div>	<div></div>	<div></div>
Local content	<div></div>	<div></div>	<div></div>
System integration	<div></div>	<div></div>	<div></div>
Ecological mitigation	<div></div>	<div></div>	<div></div>
Sustain-ability	<div></div>	<div></div>	<div></div>

Ørsted can greatly benefit societies from local procurement and advancing local technical capabilities



Ørsted's differentiated contribution:

1. Significant upskilling of local hires and procurement of key deliverables from local companies
2. Shaping a financially healthy and environmentally sustainable offshore wind industry in East Asia region

Notes: 1) The bids will also commit to a standard ecological initiative and a standard local content initiative in case of being awarded the project;

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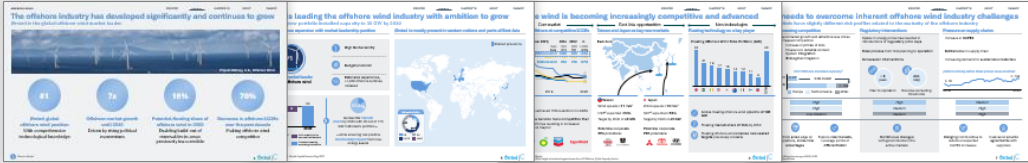
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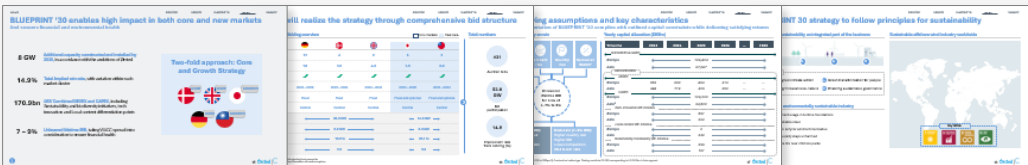
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BLUEPRINT '30 enables high impact in both core and new markets

And secures financial and environmental health

8 GW

Additional capacity constructed and installed by 2030, in accordance with the ambitions of Ørsted

14.9%

Total Implied win rate, with variation within each market cluster

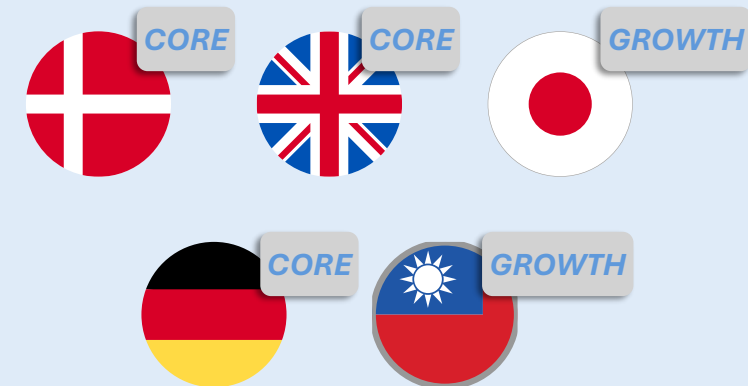
170.9bn

DKK Combined DEVEX and CAPEX, including Sustainability and biodiversity initiatives, tech innovation and Local content differentiation points

7 – 9%

Unlevered lifetime IRR, taking WACC spread into consideration to ensure financial health






Two-fold approach: Core and Growth Strategy



Ørsted will realize the strategy through comprehensive bid structure

BLUEPRINT '30 Bidding overview

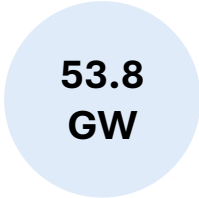
Core marketsEast Asia

				<div></div>	<div></div>
#Auctions	17	4	2	6	2
Avg. GW	1.5	1.3	4.0	1.5	3.0
Bid intended	✓	✓	✓	✓	✓
Auction Year	2023 – 2026	2023 – 2024	2023 – 2024	2023 – 2026	2023 – 2024
Turbine type	Fixed	Fixed	Fixed	Fixed and optional	Fixed and optional
Auction type	Central	Central	Central	Central	Central
Bid participation	← 38.9 GW →			← 14.9 GW →	
Regional targets	← 5.0 GW →			← 3.0 GW →	
Implied win rate from bidding	← 12.9 % →			← 20.1 % →	
Odds factor ¹	← 7.8 →			← 5.0 →	

Total numbers




Auction bids



Bid participation



Implied win rate from bidding (%)



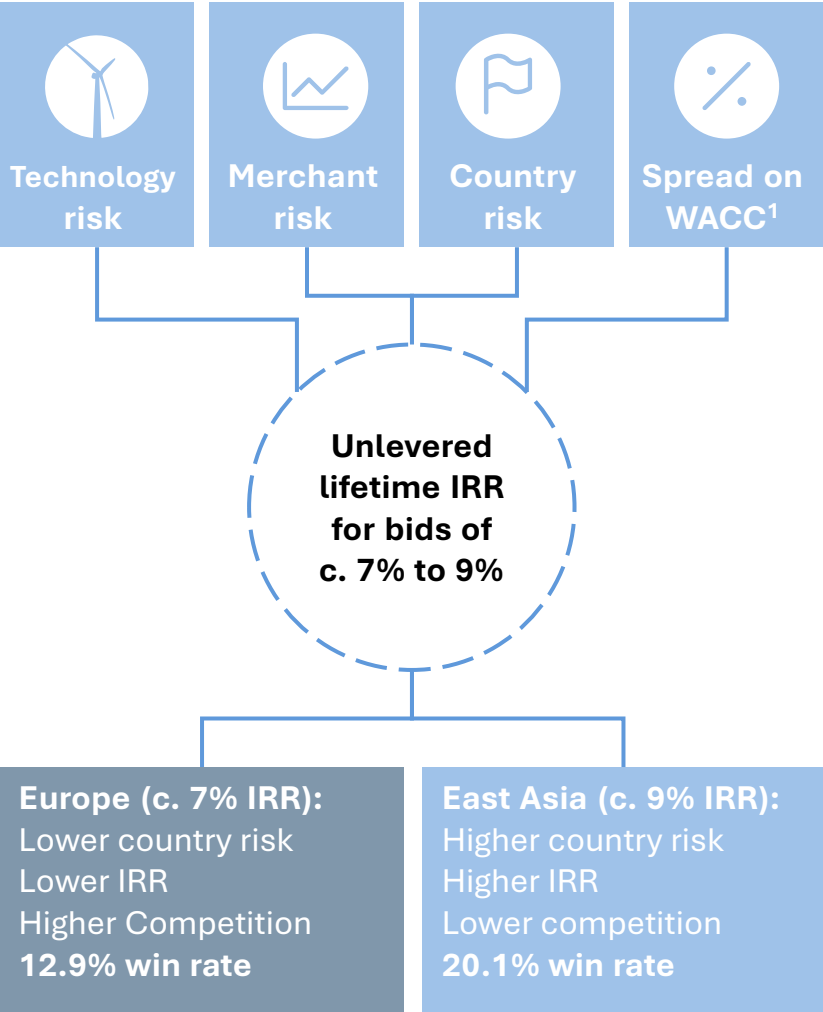
Notes: (1) Estimated # of bids submitted to win one auction

Sources: Case material, Team Renewables self-made assumptions

Underlying assumptions and key characteristics

The implementation of BLUEPRINT '30 complies with outlined capital constraints while delivering satisfying returns

Bidding strategy on win



Yearly capital allocation (DKKm)

Timeline	2023	2024	2025	2026	...	2030
— SUM DEVEX & CAPEX —						
Europe			103,804			
Asia			67,087			
DECOMPOSED						
— DEVEX —						
Europe	953	690	863	413
Asia	488	719	406	250
— CAPEX —						
Europe			100,000			
Asia ²			64,500			
Tech. innovation diff. initiative						
Europe			591			
Asia			322			
Local content diff. initiative						
Europe			0			
Asia			242			
Sustainability / biodiversity diff. initiative						
Europe			296			
Asia			161			

Notes: 1) Assumed at 150 to 300bps 2) Construction turbine type Floating constitute 0.9 GW corresponding to 4.5 DKKbn in Asia segment

BLUEPRINT 30 strategy to follow principles for sustainability

Principles for sustainability as integrated part of the business



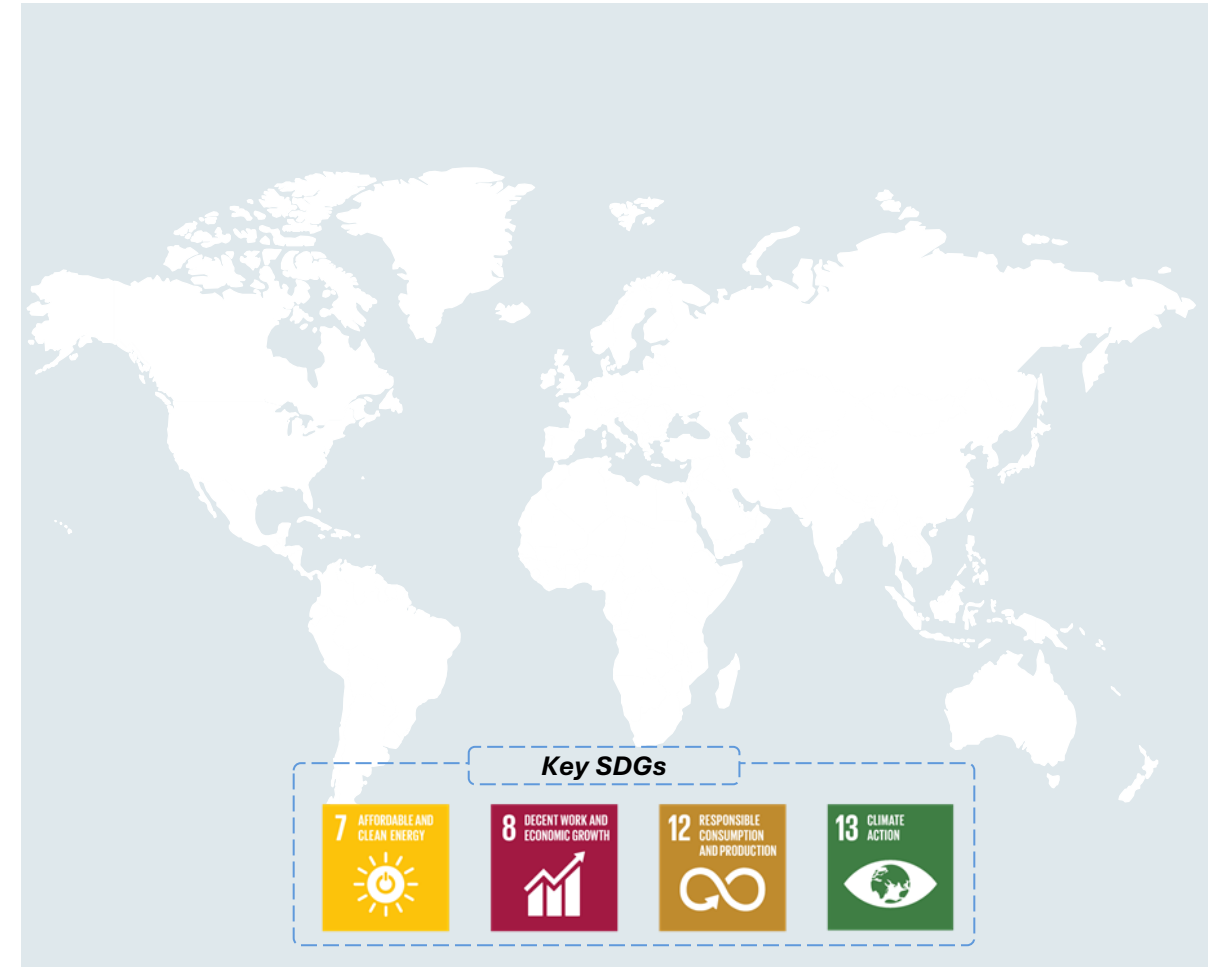
Key focus areas

- A Science-aligned climate action**
- B Green energy in balance w. nature**
- C Green transformation for people**
- D Enabling sustainable governance**

Principles for an environmentally sustainable industry

- I. Minimizing cement usage in turbine foundations
- II. Sourcing sustainable steel
- III. Commitment to recycle wind turbine blades
- IV. Ensuring biodiversity stays unharmed
- V. Increase marine life near offshore parks

Sustainable offshore wind industry worldwide



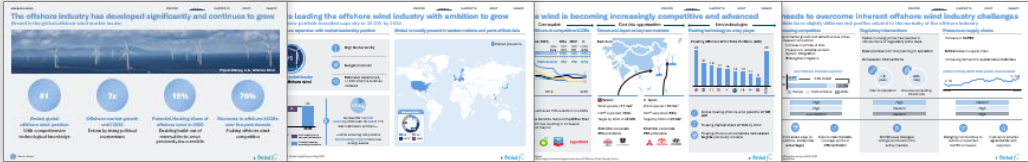
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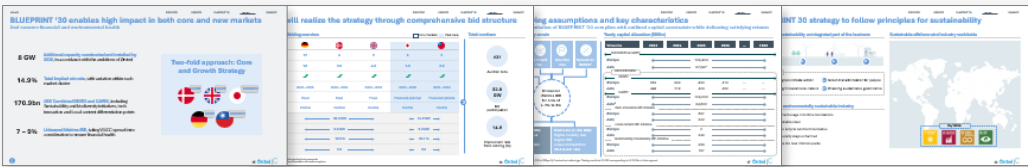
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Concluding on the BLUEPRINT '30 objective

Reaching 30 GW on offshore wind capacity

Asks from Ørsted

How should Ørsted prioritise its efforts to best reach its 2030 target of 30 GW offshore wind capacity, while helping to ensure a healthy financial business and industry?

How should Ørsted prioritise auctions over the next four years (2023-2026) to win 8 GW offshore wind capacity, considering the capital constraint of DKK 200 bn?

How can Ørsted differentiate its offering from competitors?

As a market leader, how can Ørsted help improve the general health of the offshore wind sector to enable long-term industry sustainability, both financially and environmentally?

BLUEPRINT '30 strategy

Focus on two areas (Growth in East Asia and Core Markets in Europe)

- Core Strategy: Utilise Ørsted's #1 offshore wind position to capture significant growth in established markets
- Growth Strategy: Expand to new markets with both floating and fixed bottom technologies to target deep water sea beds with high wind speeds

- Core Markets: Actively bid on 38.9 GW offshore wind tenders
- East Asia: Actively bid on 14.9 GW offshore wind tenders
- Additionally: Invest in sustainable initiatives to increase win rate

- Core Strategy differentiation: Add battery system integration into the offering to improve the nation's energy systems
- Growth Strategy differentiation: Significant emphasis on procuring key components locally (e.g. foundations, wire, EPC and other contracts) and local hiring most project roles (non-director roles)

- Ørsted can utilize cross-technological capabilities to advance energy systems
- Ørsted can be a first-mover in markets to significantly advance early-stage offshore industries and increase renewable deployment worldwide
- Ørsted to apply principles for sustainability and shape industry standard



