

# 'VindØ' - Denmark's next step as a global leader in offshore wind

PensionDanmark

**PFA**  
Mere til dig

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Maritime hydrogen and Marine Energy conference  
20<sup>th</sup> October 2021

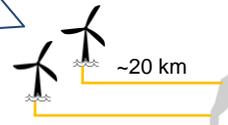
# What is an energy island?

- Cost-efficient harvesting of offshore wind resources

## Illustrative comparison of connection possibilities for offshore wind

**1 Traditional approach (near-shore)**

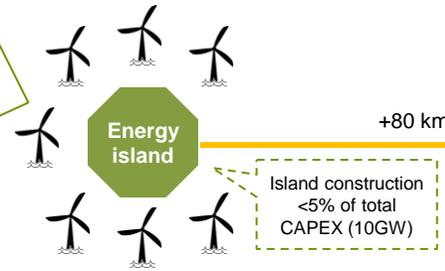
- ÷ High cost – no scale benefit
- ÷ Grid integration issues
- ÷ NIMBY (Not in my backyard)



ILLUSTRATIVE

**3 Energy island (hub-and-spoke)**

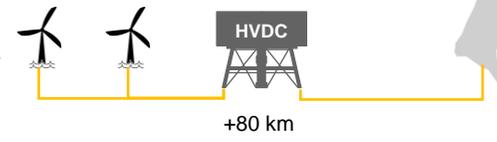
- ✓ Cost-efficient solution for large-scale offshore wind deployment (COWI, Roland Berger)
- ✓ Integration of innovative technologies (large-scale energy storage, PtX)
- ✓ Maximizing value of green product
- ✓ Minimizing power transmission and system costs
- ✓ Minimizing O&M costs



Denmark (example)

**2 Conventional approach (far-shore)**

- ✓ Enables transportation of energy over large distances
- ÷ High power transmission costs
- ÷ No room for innovative technologies



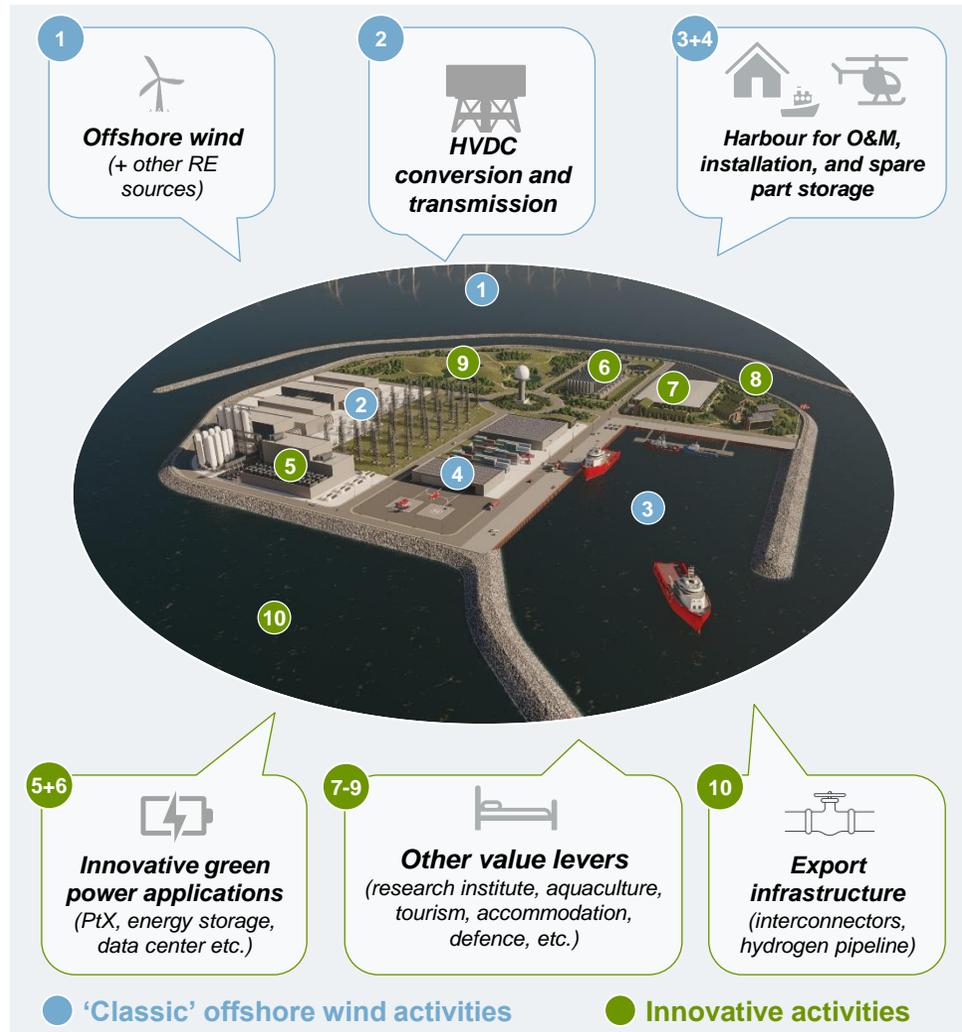
**Energy islands are essential for realizing the full potential of offshore wind – cost-efficient and highly integratable**

Sources: COWI (2021): "Cost benefit analyse og klimaaftryk af energier i Nordsøen og Østersøen"; Roland Berger for the European Commission (2019): "Cost efficient offshore development through hybrid projects".

# Energy island value proposition

- Combining classic offshore wind activities with large scale offshore innovation and integration

## Integration of large-scale offshore wind and related activities



## Energy island value proposition

Cost-efficient option	<ul style="list-style-type: none"> <li>✓ Cost-efficient grid connection and integration of large-scale offshore wind into the energy system</li> <li>✓ Savings on transmission capacity and O&amp;M</li> <li>✓ Connects markets and sectors</li> </ul>
Unlock innovative, value-enhancing use cases	<ul style="list-style-type: none"> <li>✓ Potential to unlock large-scale offshore green hydrogen production and large-scale energy storage – creating new innovative ways of enhancing the value of the green product</li> </ul>
External values	<ul style="list-style-type: none"> <li>✓ Enables very large-scale offshore wind deployment and market growth</li> <li>✓ Displays green leadership and ambition</li> <li>✓ Strong branding tool/Unique Selling Point, including in Government-to-Government relations</li> </ul>
Local job creation and growth	<ul style="list-style-type: none"> <li>✓ Strong local job creation and growth                             <ul style="list-style-type: none"> <li>– Estimated 84,000 full year equivalent jobs during construction phase and 54,000 full year equivalent jobs during operations phase (assuming 10GW offshore wind)</li> </ul> </li> </ul>

Sources: QBIS (2020): "Socio-economic impact study of offshore wind". Labour effects for 10GW build-out extrapolated from 3GW North Sea energy island scenario.

# VindØ – the world's first energy island ([www.windisland.dk](http://www.windisland.dk))

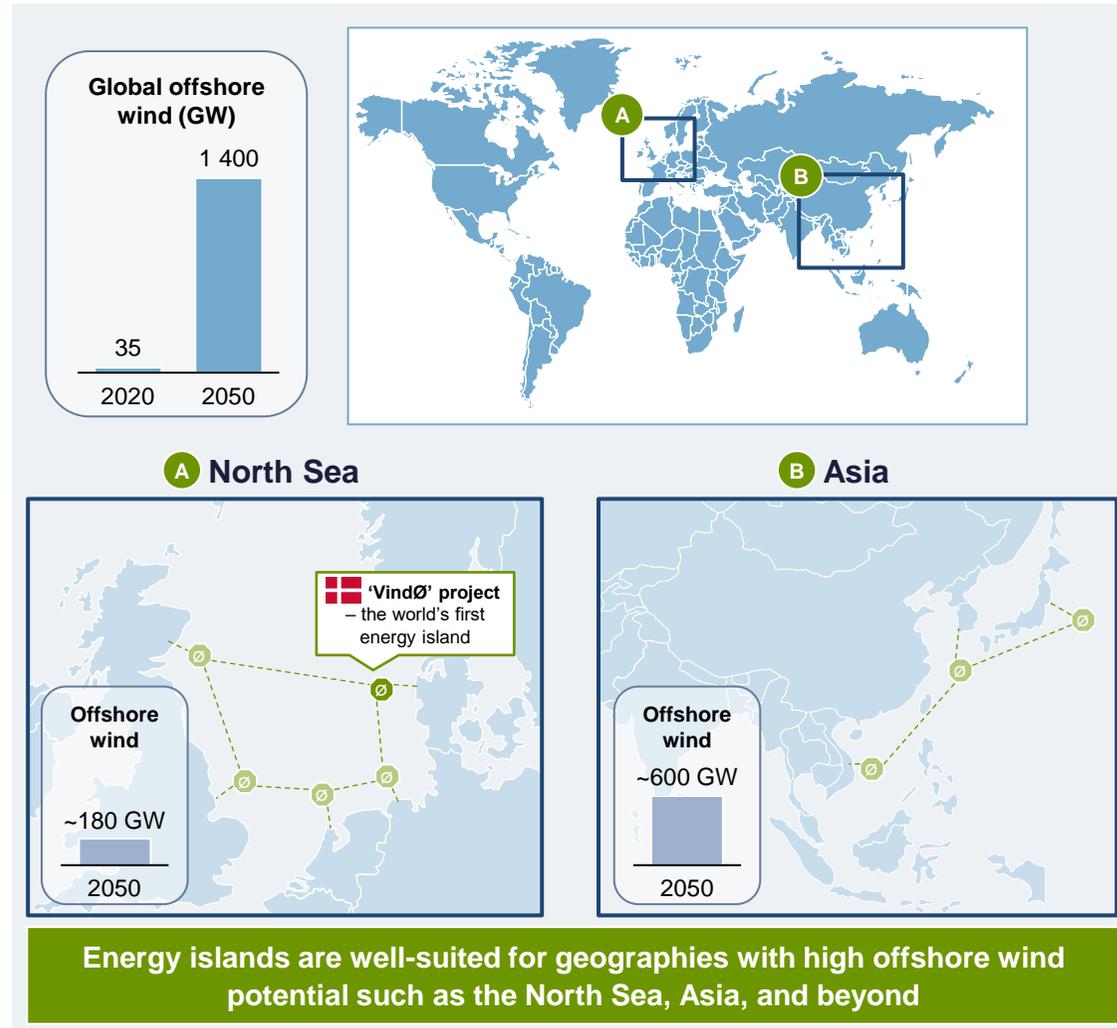
Illustrative depiction of 'VindØ' - Danish energy island project



# A global market opportunity for accelerating offshore wind

- Significant global market potential in the North Sea, Asia and beyond, including existing islands

## Illustrative mapping of potential energy islands – two major markets in focus



## Partnering proposition



**CIP is exploring opportunities for local and global partnerships, leveraging our experience and capabilities:**



Expertise within offshore wind, HVDC systems, PtX and energy storage



Expertise within energy island concepts: large-scale integration of offshore renewables into energy systems through market and sector coupling



Global reach and experienced public-private partner



Long-term financing, ensuring predictability and stability

Sources: OREAC (2020): "The Power of Our Ocean"; NSWPH (2019) "Industry Engagement"; GWEC (2021): "Global Wind Report 2021".