Delivering Europe's Green Deal

What it takes to develop 450GW of offshore wind

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Decarbonisation → electrification → 450GW
Europe needs a new approach to offshore wind energy

Traditional approach

- 0.8GW
- 1.1GW
- 20 GW
- 3-4GW/y

‘Green Deal’-approach

- 12GW
- 10GW
- 450 GW
- 20GW/y
Finding the space for 450GW of offshore wind energy

Traditional approach

Martitime spatial planning for net-zero

'Green Deal'-approach
Need for more transmission

**ONSHORE**

Historical buildout of 220-400kV transmission

km per year

<table>
<thead>
<tr>
<th>Year</th>
<th>Buildout</th>
</tr>
</thead>
<tbody>
<tr>
<td>1978-1989</td>
<td>+3,500</td>
</tr>
<tr>
<td>1990-1999</td>
<td>+2,200</td>
</tr>
<tr>
<td>2000-2009</td>
<td>+250</td>
</tr>
<tr>
<td>2010-2018</td>
<td>+1,200</td>
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</tbody>
</table>

**OFFSHORE**

Need for 6x more capacity

Interconnectors

<table>
<thead>
<tr>
<th>Year</th>
<th>Need</th>
</tr>
</thead>
<tbody>
<tr>
<td>Today</td>
<td></td>
</tr>
<tr>
<td>2050</td>
<td>x6</td>
</tr>
</tbody>
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Bringing the offshore wind energy to Europeans

Scale / complexity (illustrative)

-25% stand alone offshore connections
-25% CAPEX for connection

2020s

2030s

2040s

Now

SEPARATE INTERCONNECTORS & OFFSHORE WIND FARMS

MULTICONNECTIONS

SMART LOCATION OF ELECTROLYSIS

-20% need for interconnectors

MESHED NETWORKS / ISLANDS

CLUSTER

Bornholm as the world’s first energy island

Rønne Banke
Designated Danish Windfarm area
First tender ~1GW

Rønne Banke
Designated Danish Windfarm area
Later tenders ~1GW each

--- Interconnector in first tender

--- Potential new interconnectors
Scaling up the industry ... We are ready

1991: Vindeby (5MW)  
2019: Hornsea 1 (1218MW)
Let’s create a world that runs entirely on green energy