The value of cooperation

Integrating the Baltic Sea energy systems and markets

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Significant transformation of Ørsted over the past decade

Green energy today accounts for 80% of our heat and power generation

CO₂ emissions reduced by almost three quarters

<table>
<thead>
<tr>
<th>Year</th>
<th>2007</th>
<th>2018</th>
</tr>
</thead>
<tbody>
<tr>
<td>g/kWh</td>
<td>462</td>
<td>131</td>
</tr>
</tbody>
</table>

Operating profit (EBITDA)

<table>
<thead>
<tr>
<th>Year</th>
<th>2007</th>
<th>2018²</th>
</tr>
</thead>
<tbody>
<tr>
<td>DKK bn</td>
<td>9.3</td>
<td>15.0</td>
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</table>

Capital employed

<table>
<thead>
<tr>
<th>Year</th>
<th>2007</th>
<th>2018³</th>
</tr>
</thead>
<tbody>
<tr>
<td>DKK bn</td>
<td>57</td>
<td>83</td>
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</table>

International expansion

<table>
<thead>
<tr>
<th>Year</th>
<th>2007</th>
<th>2018</th>
</tr>
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<tbody>
<tr>
<td>International share</td>
<td>12%</td>
<td>85%</td>
</tr>
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</table>

Note 1: Figures taken from Ørsted’s Annual Report 2018 and Capital Markets Day 2018
Note 2: Excludes EBITDA contribution from new partnerships (EBITDA increased from USD 1.4 bn in 2007, to USD 2.3 bn in 2018)
Note 3: Capital employed increased from USD 8.6 bn in 2007, to USD 12.5 bn in 2018
Offshore Wind has seen rapid cost reductions

Decrease in Levelized Cost of Electricity (LCoE, in EUR/MWh)*: 2015 – 2019

- Borkum Riffgrund 2 (DE)
- Horns Rev III (DK)
- Borssele 1 + 2 (NL)
- Borssele 3 + 4 (NL)
- Hornsea Project 2 (UK)
- Dunkirk, AO3 (FR)**
- CfD Round 3 (UK)***

* Own calculations including costs for transmission to shore
** Estimated offshore transmission costs displayed on top of strike price for Dunkirk project (44 EUR/MWh)
*** Bids for UK CfD expressed in 2012 prices; offshore transmission included; uncertainty margin due to inflation until delivery year and fx-rates (EUR/GBP)
Low costs of wind and solar energy enables clean electrification

- Annual capacity to increase 6-fold
- Turbine sizes to treble
- Transmission to keep up with build-out
- Maritime spatial planning to reflect net-zero requirement

**EU Roadmap 1.5 tech scenario**

<table>
<thead>
<tr>
<th>TWh</th>
<th>Today's gross electricity production</th>
<th>2050 electricity consumption</th>
<th>2050 gross electricity production</th>
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<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>800</td>
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<td>D</td>
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<td>700</td>
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- e-liquids
- e-gas
- Hydrogen
- Offshore wind
- Onshore wind
- PV
- Hydro, biomass and other renewables
- Nuclear
- Fossil fuels
- Direct electricity use
- Other incl losses

**Increase by +150%**
450 GW of offshore wind requires offshore grids – where to start?

National and EU frameworks are not ready for complex assets...

- No regulatory models in place for hybrid solutions; and even simple hybrids require new models
- Cross-border political coordination required in the context of strong national interests; potentially requiring EU’s steer

... why individual demonstration projects are needed to pave the way

We have identified cross-border hybrid projects that deliver value for involved Member States. These should be developed and built.

Source: Offshore Innovation
Suggestion for European green deal – 3 actions by Commission and Member States

- **3 actions** - Commission and member states to:
  1. define >50 GW extra sea zone for offshore wind
  2. point out 10 robust onshore grid connection points and
  3. organise auctions for complete wind and interconnector projects

Using already created tools:
- CEF and innovation funding for cross-border projects
- Commission acts as facilitator for access to other existing tools like EFSI etc.
- Later stage: “Union renewable energy financing mechanism” (Governance)