OFFSHORE WIND: THE INDUSTRY TODAY, TOMORROW

Ariola Mbistrova
WindEurope
Europe’s offshore wind gross potential
Europe’s offshore wind farms
European offshore wind sector

14 GW in 2017 H1
25 GW by 2020
€24bn Investment by 2020

Source: WindEurope
Annual Installed Offshore Wind Capacity in Europe (MW)

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Source: WindEurope
Investments in Europe (mEUR)

- Sweden
- Finland
- Denmark
- Netherlands
- Belgium
- Germany
- United Kingdom

30%
EUROPEAN OFFSHORE WIND
KEY TRENDS AND CHALLENGES
Installed turbine average capacity

5.83 MW, 39% larger than in H1 2016
Evolution of wind turbines

Sources: Various; Bloomberg New Energy Finance
Larger sites
Larger projects getting financed on attractive terms

Interest rates going down

Source: Green Giraffe
Better risk assessment in offshore wind

Contingency budget at Financial Close (% of CAPEX)

Contingency budget spent (% of budget at Financial Close)

Contingency budget spent (% of CAPEX)

Source: Green Giraffe
Major equity investors in 2016

- Power Producers: 1,912 MW (67.3%)
- Diversified Financial Services: 408.34 MW (14.4%)
- Institutional Investors: 360 MW (12.3%)
- Corporates: 171 MW (6%)

Source: WindEurope
Cost reduction: Offshore

Levelised revenue of electricity, incl. transmission costs
EUR/MWh\(^1\), 2016-prices

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<th>Project</th>
<th>Year</th>
<th>Price (EUR/MWh)</th>
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<td>Borssele III &amp; IV 2016</td>
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<td>Cluster 1 2017</td>
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\(^1\) Average costs for the period 2015-2017.

Source: WindEurope
Auctions leading to price reduction and high competition

Source: WindEurope
Project development timeline

- **Development**: 3-5 years
- **Pre-construction**: 2-4 years
- **Construction**: 2 years

**Support allocation**

**FID**: Final investment decision
Opening up the seas

• Breaking ice barrier,
• Floating offshore wind.

Image: Seppo Keranen
First offshore wind farm in Finland: \textit{Tahkoluoto}
First floating offshore wind farm: Hywind
Offshore outlook

- Market still focused on North West Europe
- Stable pipeline next 4 years
- Uncertainty after 2020 in some countries

WindEurope assessment based on regulatory signals, turbine orders and investment trends
Market Outlook 2020 - 2030

Projection based on real project data and firm government commitments

Min target 4GW/year

Avg. 1.8GW/year

Source: WindEurope
Ports fit for purpose
Green Port of Hull
Siemens Gamesa blade factory

40ha
75m blades

Promoting local benefits
Green Port of Hull
Siemens Gamesa blade factory

- €400m invested
- 1,000 direct jobs
- Social initiatives

Promoting local benefits
Egmond Aan Zee offshore wind farm
Egmond Aan Zee

Vattenfall

- 108MW
- €200m invested
- Local infrastructure upgrade (road, ports)
Egmond Aan Zee
Vattenfall

- 350 jobs (construction phase)
- Service centre for O&M
- 20 full-time employees
- Local sub-contractors
THIS YEAR, THE WIND INDUSTRY WILL BE MEETING IN AMSTERDAM

28 - 30 NOVEMBER 2017
Amsterdam RAI Exhibition and Convention Centre

windeurope.org/confex2017