Vestas Capital Markets Day
MHI Vestas Offshore Wind A/S
Journey since the Joint Venture was established in 2014

Installations and focus areas

**2.7 GW installations and 3.8 GW order backlog since the beginning of the JV**

<table>
<thead>
<tr>
<th></th>
<th>Before 2014 (Vestas Offshore)</th>
<th>Executed since 2014*</th>
<th>Order backlog (FOI, COI)</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>MW</strong></td>
<td>1,650</td>
<td>2,726</td>
<td>3,833</td>
<td>8,209</td>
</tr>
</tbody>
</table>

*Including expected installations for this fiscal year

**Focus areas**

**Establishing MVOW (2014-2018)**

**Safety performance**
- Strong Health and Safety discipline from shareholders

**Winning market access through:**
- Establishing a brand
- Successfully deploying the V164 in the first projects

**Claiming the position by:**
- Improving CoE and product performance
- Establishing tight partnerships with customers and suppliers
- Increase order backlog

**Growth (2018 and onwards)**
- Continuous safety performance
- Sustainable profitability through:
  1. Core market execution
  2. Expanding reach
- Continuous platform capacity improvement
Current Pipeline
5.6 GW of projects selected V164

Overview of the order pipeline

Project pipeline

Firm orders
- Horns Reef 3 (Vattenfall), DK - 406 MW (49 x V164-8.3 MW) inst. 2018
- Norther (Norther NV), BE - 370 MW (44 x V164-8.4 MW) inst. 2019
- Northwester 2 (Parkwind), BE - 219 MW (23 x V164-9.5 MW) inst. 2019
- Windfloat Atlantic (Windplus), PT – 25 MW (3 x V164-8.4 MW) inst. 2019
- Deutsche Bucht (British Wind Energy), DE – 277 MW (33 x V164-8.4 MW) inst. 2019
- Borssele 3+4 (Blauwind), NL - 731 MW (77 x V164-9.5 MW) inst. 2020
- Triton Knoll (Innogy/Statkraft), UK - 855 MW (90 x V164-9.5 MW) inst. 2021

Conditional orders
- Moray East (EDPR), UK - 950 MW (100 x V164-9.5 MW) inst. 2021

Preferred supplier agreements
- Nautilus Offshore Wind (EDF), US – 25 MW (3 x V164-8.3 MW) inst. 2020
- Vineyard Wind (CIP/Avangrid), US – 800 MW (84 x V164-9.5 MW) inst. 2021
- Zone 27 (CIP), TW - 100 MW inst. 2022, 452 MW inst. 2023
- Xi Dao (CIP), TW - 48 MW, inst. 2023
- Zone 29 (CSC), TW - 300 MW (33 x V174-9.1 MW) inst. 2024
The V164
Technology split and platform evolution

Installed MW split by Technology since the beginning of the JV in 2014*

- Change in demand in current active markets towards the larger machines due to the CoE improvements and reliability of the V164 platform
- V164 the next offshore workhorse

Installation years for the V164 platform

- The power rating continues to increase on the V164 platform
  - In 2017, MVOW revealed the V164-9.5 MW
  - In 2018, MVOW announced the V164-10 MW
- Continuous innovation on the product offerings including not only the rating, but also the MAX performance and the SMART turbine products

*Illustration is based on FY, which runs from April to April

**Commercial installation ready from 2021
Service
The offshore service business

**Average remaining contract durations of the Service Backlog (Incl. FOI, COI)**

- **Legacy contracts**
  - 7.7 years on 2 GW
  - 4.6 years on 1.2 GW

- **Current V164 portfolio**
  - 13.7 years on 3.8 GW

**Time to invest in offshore services**

**Past the initial launch phase, V164 brings long term services contract portfolio**

1. OPEX optimization by mutualizing services infrastructure across larger windfarms

2. Technical upgrades for installed base, as V164 platform continues to increase performance

3. Synergies with world leader in services: Vestas
Continuous growth in Europe, significant additional volume expected in Asia and the US
Global offshore market
Price levels

Price Levels in Recently Awarded Global Projects (EUR/MWh)*

<table>
<thead>
<tr>
<th>Striko Price</th>
<th>Year</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>2015</td>
</tr>
<tr>
<td>25</td>
<td>2016</td>
</tr>
<tr>
<td>50</td>
<td>2017</td>
</tr>
<tr>
<td>75</td>
<td>2018</td>
</tr>
<tr>
<td>100</td>
<td>2019</td>
</tr>
</tbody>
</table>

Comments

**Increasingly competitive prices**
- Significant LCoE reductions achieved in recent years
- “Zero subsidy” bids in Germany and the Netherlands
- New markets leaning towards LCoE levels from established markets, yet under specific conditions

**Offshore wind provides benefits for energy systems**
- Large scale projects
- High number of full-load hours
- High predictability of output
- Reduces need for balancing power plants

[LCoE reductions and system benefits drive offshore wind growth](#)

*Source: MAKE Consulting
The illustration shows the results for the UK auctions converted into 2016 euros for ease of comparison with the euro-dominated auctions
Vineyard results shows the price in 2017

**Source: Fraunhofer Institute for Wind Energy and Energy Systems**
Expanding reach
Development in new MVOW markets

- Ambitious targets: 5.5 GW until 2025
- Plans for 1 GW p.a. from 2026-30
- Preferred supplier agreement: 900 MW package (CIP & CSC)
- On track to secure further pipeline
- Localization efforts in progress

- Market expectation: 8 GW+ until 2030
- Significant East Coast volume potential
- Preferred supplier agreements: Vineyard (CIP, 800 MW) & Nautilus (EdF, 25 MW)
- MVOW in good position to support upcoming tenders

- Diet expected to pass offshore wind bill this year: 10 GW target by 2030
- Award of 5 offshore wind zones in 2019
- MVOW excellently positioned through MHI – on track to secure early volume
- MVOW’s floating wind track record an advantage in Japan

*Source: Make Consulting – Q3 2018 Global Wind Power Market Outlook
MVOW global footprint – our offices, manufacturing & assembly facilities

OFFICE location

MANUFACTURING / ASSEMBLY facility
MVOW to **double its business** and **increase profitability** over the next four years

**Operational Excellence:**
- Double revenue
- Build offshore service business
- Continuously improve profitability

**Financial Discipline:**
- Earn freedom to grow
- Selective investment in capacity
- Maintain high product development
Financial performance

Financial performance is progressing to exceed initial expectations

<table>
<thead>
<tr>
<th></th>
<th>kEUR</th>
<th>2016/17</th>
<th>2017/18</th>
<th>2018/19</th>
</tr>
</thead>
<tbody>
<tr>
<td>Revenue</td>
<td></td>
<td>531,243</td>
<td>942,155</td>
<td>↑</td>
</tr>
<tr>
<td>Gross profit</td>
<td></td>
<td>-11,892</td>
<td>20,001</td>
<td></td>
</tr>
<tr>
<td>Profit before financial items and depreciation/amortization (EBITDA)</td>
<td>-38,558</td>
<td>-7,775</td>
<td>Positive</td>
<td></td>
</tr>
<tr>
<td>Operating profit (EBIT)</td>
<td></td>
<td>-119,453</td>
<td>-98,566</td>
<td>Positive</td>
</tr>
<tr>
<td>Profit/loss from financial income and expense</td>
<td>5</td>
<td>1,587</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Profit for the year</td>
<td></td>
<td>-120,525</td>
<td>-98,287</td>
<td></td>
</tr>
</tbody>
</table>

Accordingly, MHI Vestas Offshore Wind expects to double its revenue over the three-year period from a base of its completed financial year 2015/16, EBITDA is expected to reach break-even by 2018 and pre-tax profit is anticipated to reach break-even by 2019.

Vestas Wind Systems A/S’ Annual report 2017

2018/19 is set to be a watershed year for MHI Vestas as EBIT is expected to break-even by the end of the year.

MHI Vestas Offshore Wind A/S’ Annual report 2017/18
Summary

- MVOW is a market leader in the offshore wind industry and will remain a market leader by:
  - Continuously improving health and safety
  - Executing and further building on the strong pipeline through:
    1. Execution in robust core markets
    2. Expansion in new markets
    3. Development of service
  - Leverage and improving the performance and reliability of the current V164 platform
- MVOW is meeting financial targets and is expected to grow sustainably
- MVOW to double its business and increase profitability over the next four years
Let’s move the horizon.