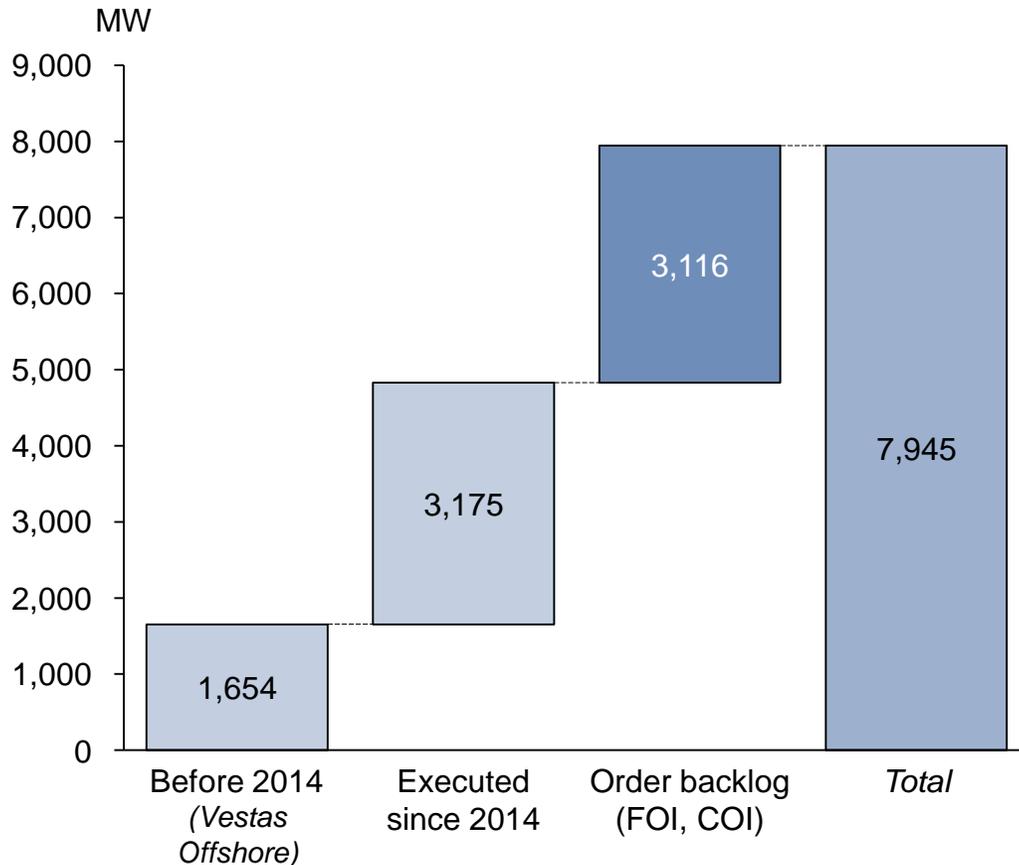


# MHI Vestas Offshore Wind A/S

# Journey since the Joint Venture was established in 2014

## Installations and focus areas

4.8 GW installations and 3.1 GW order backlog



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

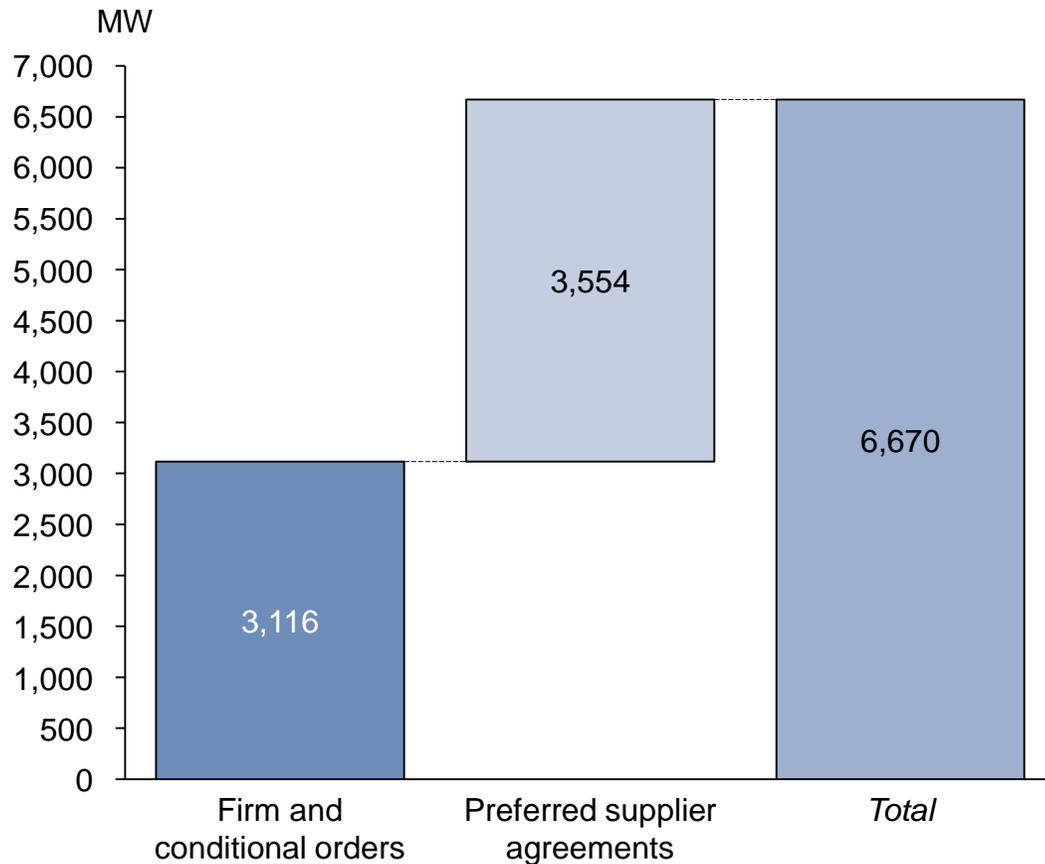
### Growth

- Continuous safety performance
- Sustainable profitability through:
  1. Core market execution
  2. Expanding reach
- Continuous platform capacity improvement

# Current Pipeline

6.6 GW of projects selected V164 or V174

## Overview of the order pipeline



## Project pipeline

### Firm & conditional orders

- Northwester 2 (Parkwind), BE - 224 MW (23 x V164-9.5 MW) inst. 2019
- Windfloat Atlantic (Windplus), PT – 25 MW (3 x V164-8.4 MW) inst. 2019
- Borssele 3+4 (Blauwind), NL - 731 MW (77 x V164-9.5 MW) inst. 2020
- Borssele 5 (Two Towers), NL – 19 MW (2 x V164-9.5 MW) inst. 2020
- Kincardine (Cobra Wind International), UK - 50 MW (5 x V164-9.5) inst. 2020
- Triton Knoll (Innogy/Statkraft), UK - 855 MW (90 x V164-9.5 MW) inst. 2021
- Moray East (EDPR), UK - 950 MW (100 x V164-9.5 MW) inst. 2022
- Arcadis Ost 1 (Parkwind), DE – 257 MW (V174-9.5 MW)

### Preferred supplier agreements

- Seagreen (SSE), UK – 1100 MW (up to 114 WTGs)
- Hibikinada (Hibiki Wind Energy), JP – 220 MW (V174-9.5 MW)
- Groix & Belle-Île (France Consortium), FR – 28.5 (3 x V164-9.5 MW)\*
- Eoliennes Flottantes du Golfe du Lion (France Consortium), FR – 30 MW (3 x V164-10 MW)\*
- Vineyard Wind (CIP/Avangrid), US – 800 MW (84 x V164-9.5 MW)
- Zone 27 (CIP), TW - 100 MW inst. 2022, 100+452 MW
- Baltic Eagle (Iberdrola), DE – 476 MW
- Xi Dao (CIP), TW - 48 MW
- Zone 29 (CSC), TW - 300 MW (33 x V174-9.1 MW)

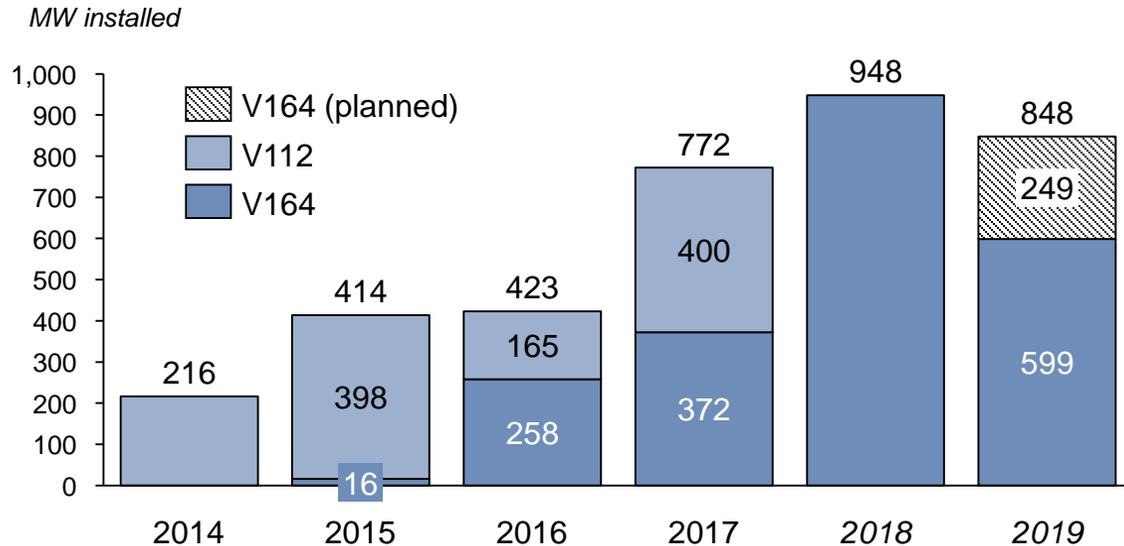
\*Floating project

MHI VESTAS OFFSHORE WIND™

# The V164

## Technology split and platform evolution

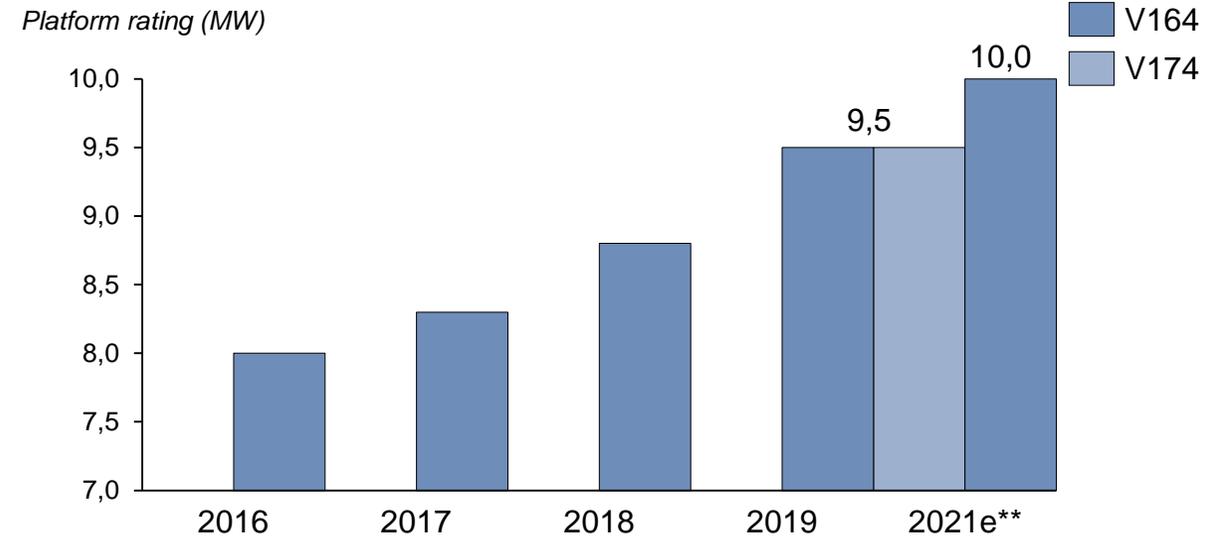
Installed MW split by Technology since the beginning of the JV in 2014\*



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

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

Installation years for the V164 platform



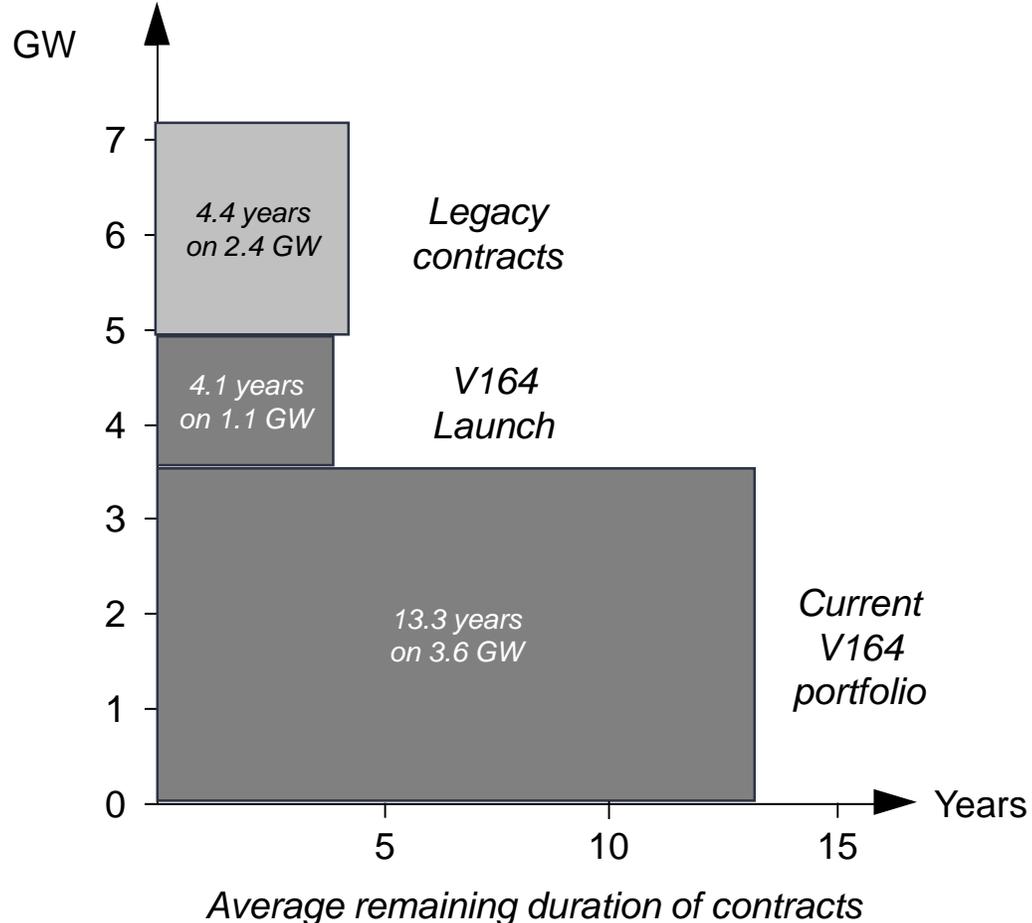
- The power rating continues to increase on the V164 platform:
  - In 2017, MVOW revealed the V164-9.5 MW
  - In 2018, MVOW announced the V164-10 MW
- In 2019, MVOW announced the V174-9.5 MW
- Continuous innovation on the product offerings including not only the rating, but also the MAX performance and the SMART turbine products

\*\*Commercial installation ready from 2021

# Service

## The offshore service business

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



Time to invest in offshore services

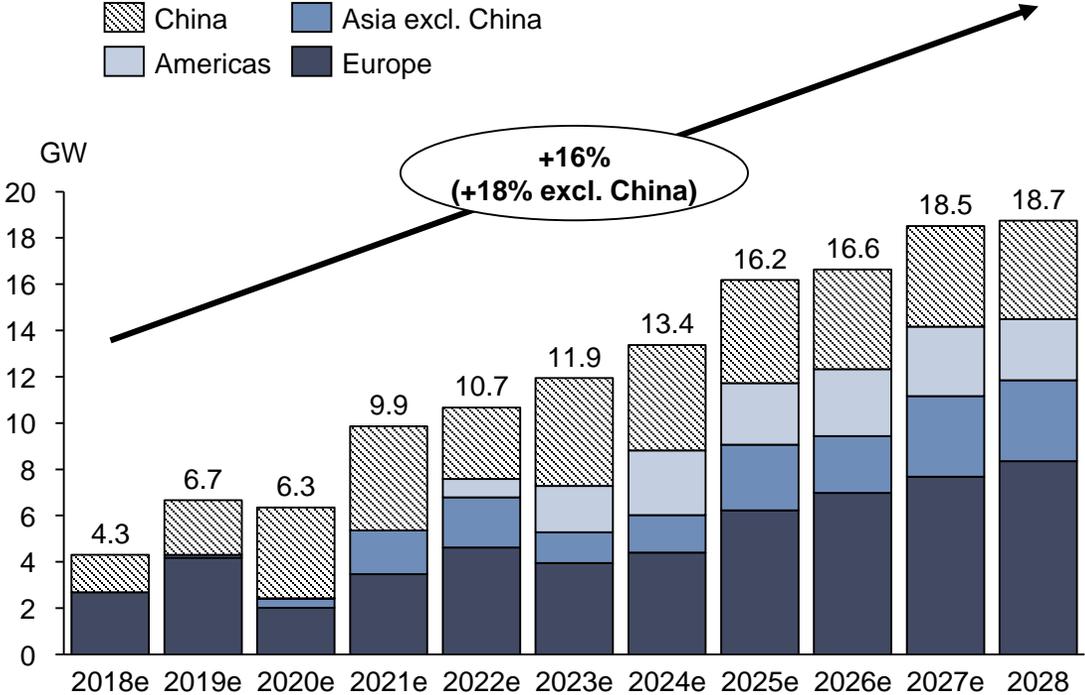
## Past the initial launch phase, V164 brings long term services contract portfolio

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

# Global offshore market

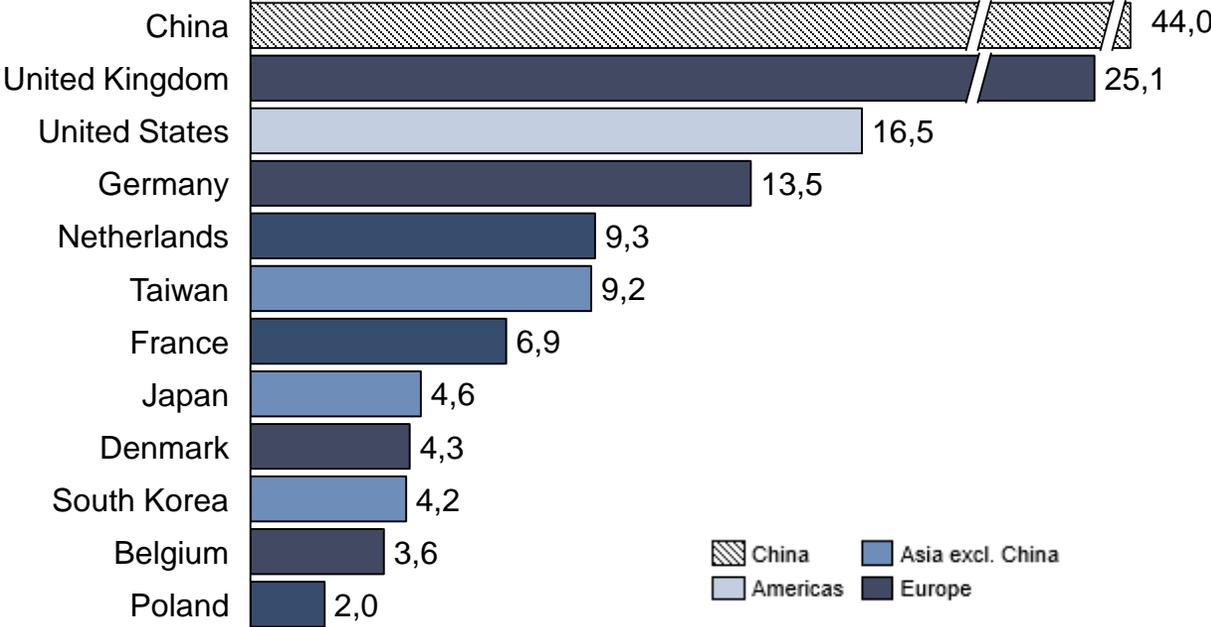
## Volume outlook

Annual forecasted installed capacity split by region, 2018-2028 (GW)\*



\*Source: Make Consulting – Q3 2019 Global Wind Power Market Outlook

Future top 12 markets (accumulated installation in GW 2028e)\*



Continuous growth in Europe, significant additional volume expected in Asia and the US

# Global offshore market

## Price levels

Global bottom-fixed LCOE (USD/MWh)\*



### 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

#### 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

\*\*Source: Fraunhofer Institute for Wind Energy and Energy Systems

LCoE reductions and system benefits drive offshore wind growth

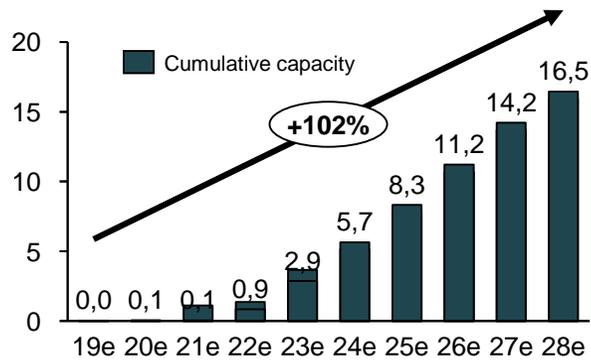
\*Source: WoodMackenzie Global Bottom Fixed LCOE 2019-2028

# Strategic focus area: establish footprints in emerging markets

USA, Japan and Taiwan drive growth in new markets



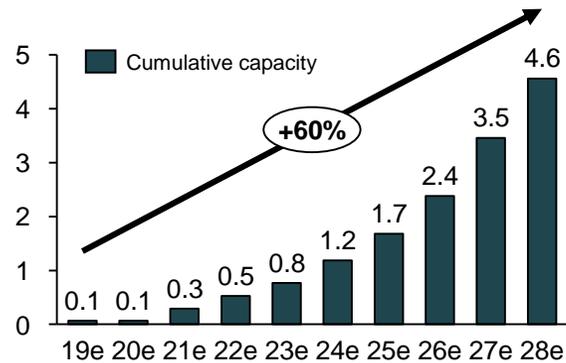
Forecasted installed capacity, 2019-2028e (GW)\*



- Market potential of approx. 20 GW by 2035
- Offshore wind takes off (record lease sales/investment)
- Congress considering ITC extension for offshore wind
- Recent uncertainty about environmental impact studies (causing delays to first lines of projects)



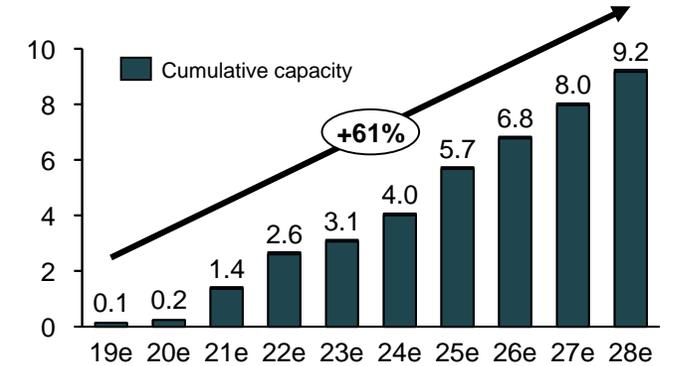
Forecasted installed capacity, 2019-2028e (GW)\*



- Offshore Wind Promotion law now in force
- 4 areas prioritized for the first auction, first award 2021
- MHI Vestas well positioned through MHI, on track to secure early volume
- MHI Vestas' floating wind track record an advantage in Japan



Forecasted installed capacity, 2019-2028e (GW)\*



- MHI Vestas has preferred supplier agreements with CIP/CSC (900 MW) and WPD (350 MW)
- 1.4 GW still open
- Challenging localization requirements
- Additional auctions expected – avg. 1 GW p.a.

\* Source: WoodMackenzie, Global Wind Power Market Outlook Update, Q3 2019

# MVOW global footprint – our offices, manufacturing & assembly facilities



MVOW to **double its business** and **increase profitability** over the next three 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

## Financial performance

kEUR	2016/17	2017/18	2018/19
Revenue	531,243	942,155	1,299,545
Gross profit	-11,892	20,001	133,009
Profit before financial items and depreciation/amortization (EBITDA)	-38,558	-7,775	112,633
Operating profit (EBIT)	-119,453	-98,566	20,882
Profit/loss from financial income and expense	5	1,587	-1,314
Profit for the year	-120,525	-98,287	52,989

## Financial guidance and expected 2019/20 result for MVOW



**Vestas**<sup>®</sup>

*Accordingly, MHI Vestas Offshore Wind expects to double its revenue over a four-year period from a base of its completed financial year 2017/2018, while continuously improving profitability. In addition, the ambition is to build a leading offshore service business from the growing installed base.*

Vestas Wind Systems A/S' Annual report 2018



**MHI VESTAS OFFSHORE WIND**<sup>™</sup>

*In 2019/20, MHI Vestas will continue profitability measures, secure and advance projects in both core and emerging markets, including the UK, Germany, Belgium, Taiwan, the US and Japan, and focus on quality, health, and safety throughout the company.*

MHI Vestas Offshore Wind A/S' Annual report 2018/19

# 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 three years

Let's move the horizon.