



COLLABORATIONS IN O&M

SMART MAINTENANCE FOR OFFSHORE WIND TURBINE BLADES BY ROBOTIZED
COATING TECHNOLOGY PROGRAM

AIRTuB Event Delft / May 20 / 2022

By LM Engineering & Technology Team

AGENDA

1. Intro to LM Wind Power
 2. Collaboration in AIRTuB
 3. Operation & Maintenance Outlook
-

Highlights



13 blade factories



11,492 people worldwide



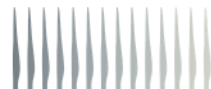
254,200 blades produced for wind turbines since 1978



282 million metric tons of CO₂ mitigated



133 GW installed capacity

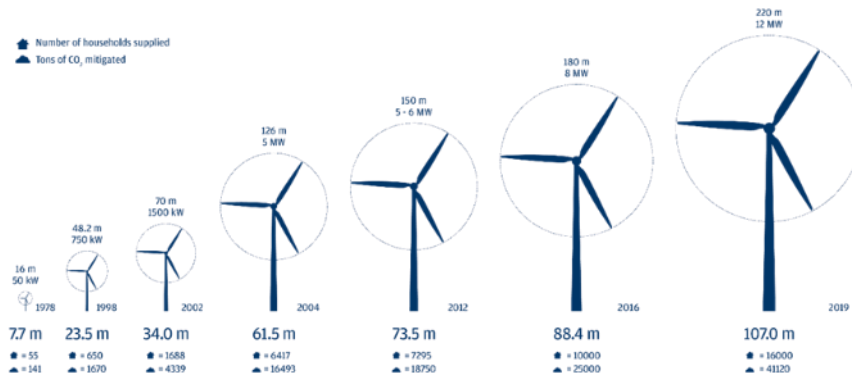


13,203 blades produced in 2021



» A broad customer portfolio
We supplied rotor solutions to most of the leading wind turbine manufacturers worldwide

» Strategic partnerships
Our business is based on long-term customer relationships, integrated product development and business development cooperation



AIRTuB

Automated coating of blades



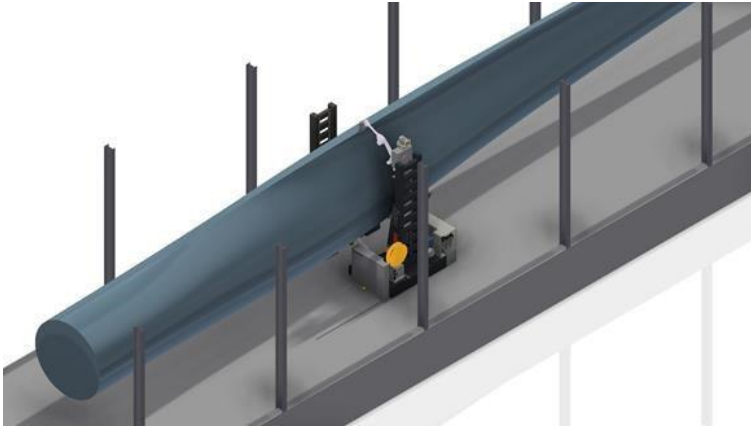
Collaboration in AIRTuB



- » Test blades for partners
- » Sounding board for WP's
- » Work package 5
- » Operational turbine for test

Collaboration with Qlayers

Mid term



- Use in manufacturing
- Automated coating.....
- Mounted on a tool changing robot?

<https://www.qlayers.com/bl8robot.html>

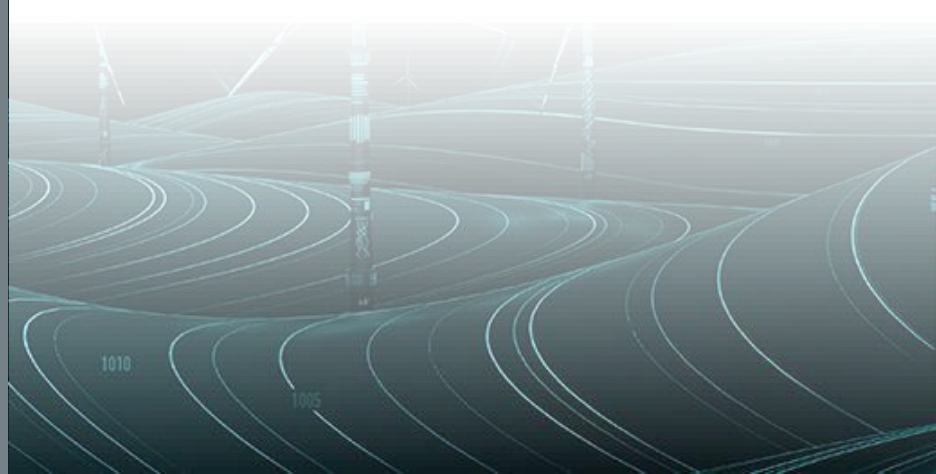
Long term



- Smoothing of repairs
- Up tower on the blade
- What about the Leading Edge?

<https://www.qlayers.com/10qrobot.html>

Outlook Operation & Maintenance in the future



Offshore O&M

Mid term

- » Dedicated SOVs*
- » Condition based maintenance
- » Drone inspections and monitoring
- » Robot assisted rope team repairs

*Service Operating Vessel



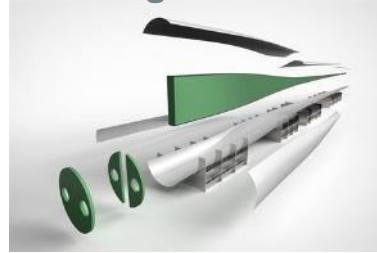
Picture credit: Ulstein Group and Acta Marine

Offshore O&M

Operation & control



Exchangeable Parts



Digital twins/skins



Artificial?



Long term

- » Digitalization of O&M
- » Durable exchangeable parts
- » De-risk innovations onshore, use offshore
- » Predictive maintenance
- » Resident O&M UAVs*

* Unmanned Aerial Vehicle

Thank you for your time



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