



BLADE MAINTENANCE FUTURE

A GLANCE INTO THE CRYSTAL BALL OF WIND TURBINE BLADES OPERATION & MAINTENANCE

AIRTuB Seminar Vlissingen/ September 22 / 2022

By LM Engineering & Technology Team

AGENDA

1. **Intro to LM Wind Power**
 2. **Short term**
 3. **Mid term**
 4. **Long term**
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Highlights

LM WIND POWER
a GF Renewable Energy business



13 blade factories



11,492 people worldwide



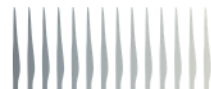
254,200 blades produced for wind turbines since 1978



282 million metric tons of CO₂ mitigated



133 GW installed capacity



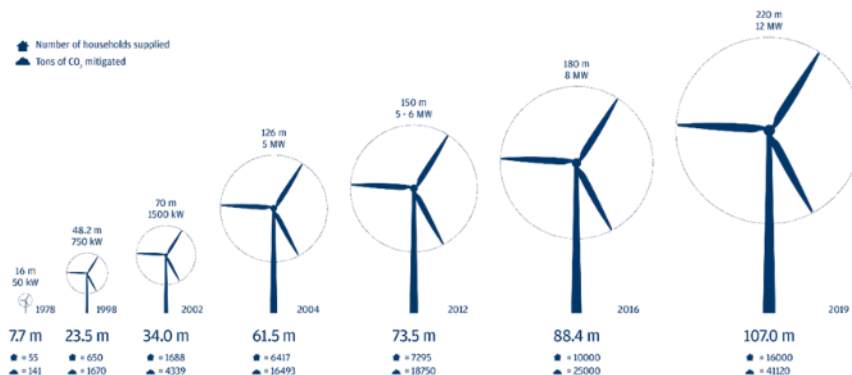
13,203 blades produced in 2021



» 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

🏠 Number of households supplied
⬆️ Tons of CO₂ mitigated



SHORT TERM



SHORT TERM O&M



- De-risk innovations onshore, use offshore
- Drone inspections
- Robot assisted rope teams
- Dedicated SOVs*

*Service Operating Vessel

Picture credit: Ulstein Group and World Class Maintenance

MID TERM

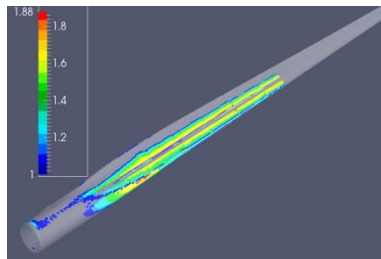


MID TERM O&M

Operation



Monitoring



Security



Wind farm control



- De-risk innovations onshore, use offshore
- Smarten the blades
- Digitalization of O&M
- Condition based maintenance
- Resident O&M UAVs*

* Unmanned Aerial Vehicle

LONG TERM

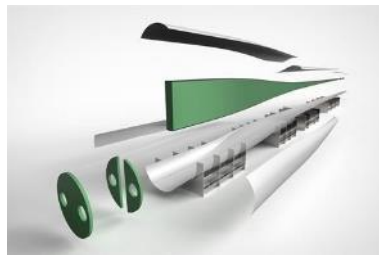


LONG TERM O&M

Advanced manufacturing



Exchangeable Parts



Durable systems



Digital wind farm



- De-risk innovations onshore, use offshore
- Zero defect manufacturing
- Predictive maintenance
- Durable exchangeable parts

ZERO DOWNTIME & ZERO ON-SITE MAINTENANCE

Thank you for your time

Contact details:

Martijn Koelers

Global Technology Partnership Leader
Engineering & Technology

E Martijn.Koelers@lmwindpower.com

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Headquarters:

LM Wind Power
Jupitervej 6
6000 Kolding
Denmark

Tel +45 79 84 00 00
Fax +45 79 84 00 01
E info@lmwindpower.com
W lmwindpower.com

