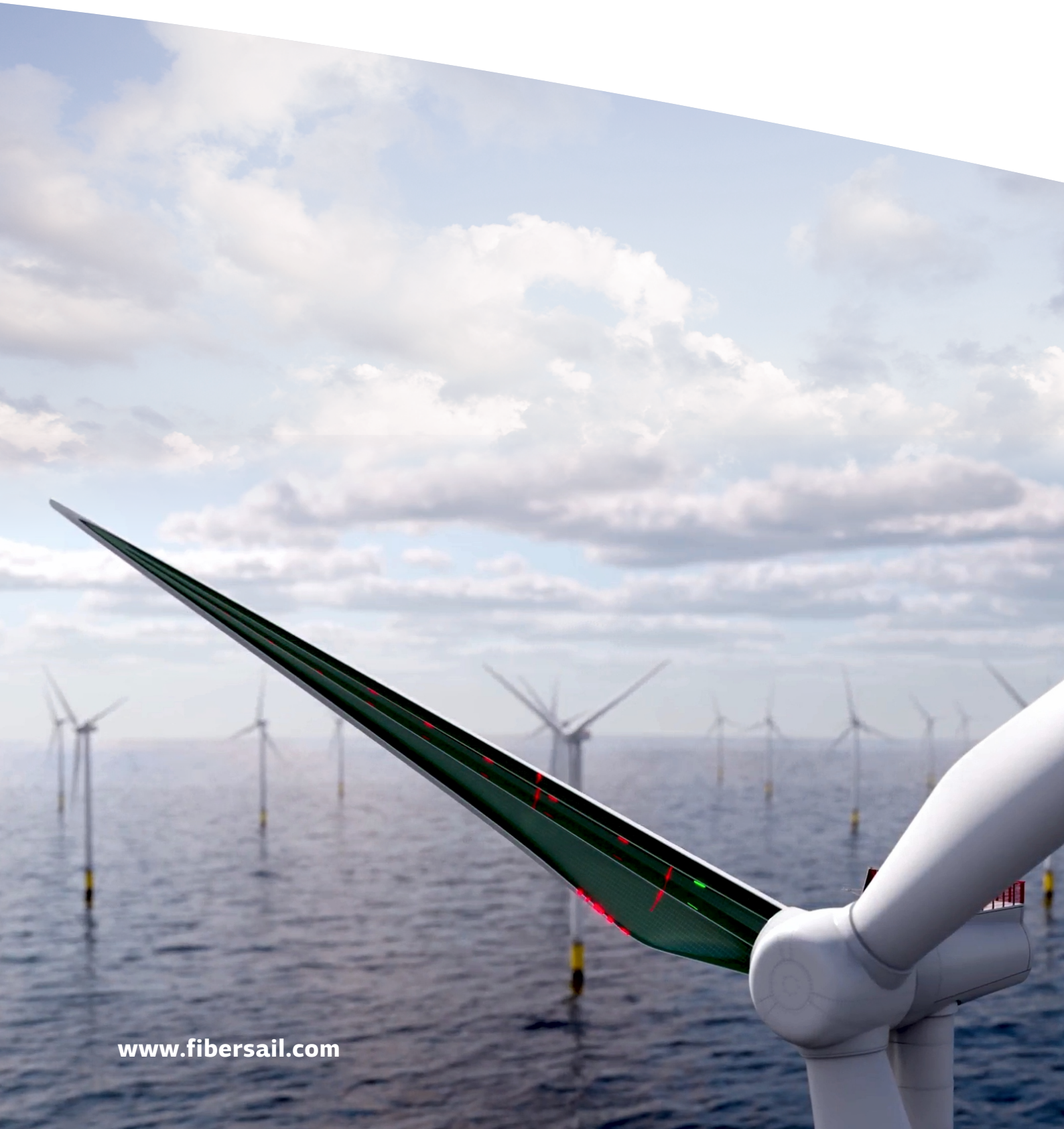




FIBERSAIL

Creating Value with Smart Blades



www.fibersail.com



Shaping
the future of wind
intelligence with
smarter blades

We design, develop, manufacture, test and integrate condition monitoring solutions based on fiber optic sensors. These solutions monitor and analyze wind turbine blades in terms of shape, condition and behavior.

BLADE VULNERABILITY, THE HIDDEN RISK UNDERMINING WIND ENERGY VIABILITY



Fibersail has developed a truly innovative solution that detects small internal blade damages, ensuring cost-effective repairs and maximizing turbine availability. The system supports the wind industry with possibility of being integrated in new OEM blades or retrofitted in Operators existing blades.

DAMAGE & FAILURES

High O&M costs

PITCH AND YAW MISALIGNMENT

Stress & revenue loss

IMPRECISE LIFETIME CALCULATION

Innaccurate asset valuation

€8.5B*
loss / year
in unplanned turbine
repair costs

Onshore
€10k-20k/MW
year unplanned

Offshore
€40k-80k/MW
year unplanned

* More than 50% of total O&M costs

WHAT WE DO

Advanced sensing

Our advanced solutions rely on high-performance, cost-effective, and new advanced fiber optics sensing hardware.



FsLoad

Strain and temperature measurement
Active temperature compensation



FsShape

Longitudinal strain
Temperature auto-compensated curvature
Displacement measurements in flap and edge



FsHotSpot

Accurate blade strain map monitoring
High sensitivity to small changes in stress map

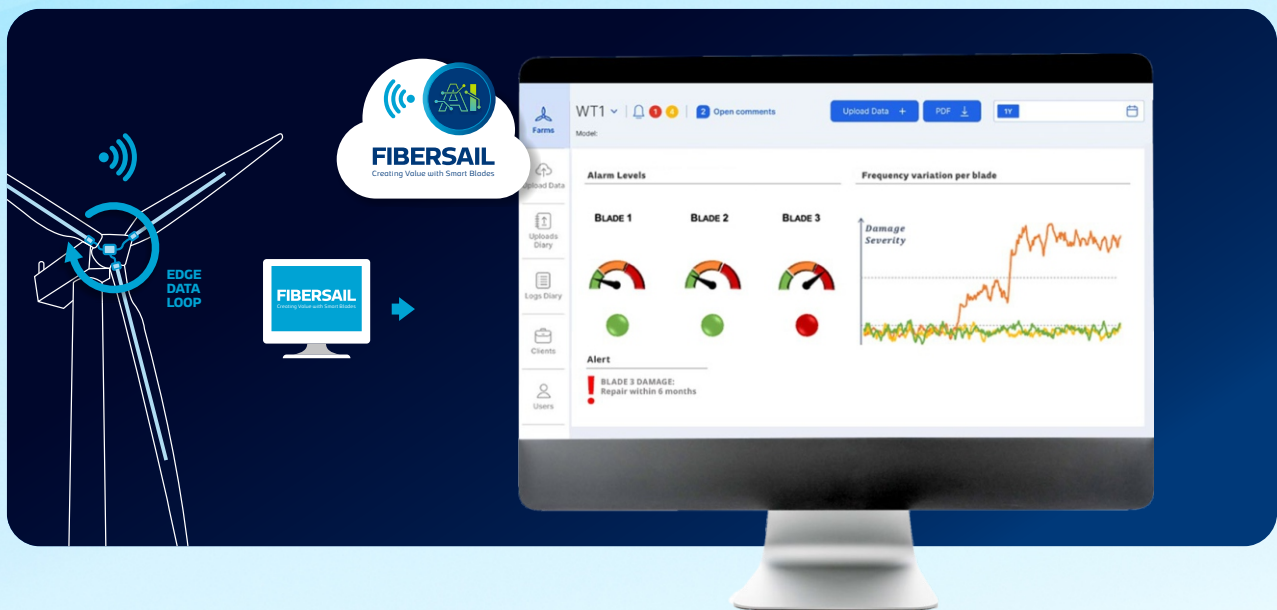


FsCab30

Robust design for outdoor environments (IP65)
Optimized internal layout and easy access for maintenance
Modularity approach

Software and analytics

Our cutting-edge AI and machine learning algorithms deliver unparalleled, game-changing control over your assets.



O&M Cost Reduction

Early detection of excessive loads and blade damage reduces unexpected failures



Revenue Increase

Monitoring blade deflections identifies the most efficient performance mode for your assets



Lifetime Extension

Continuous assessment of structural integrity optimizes your inspection and repair planning



Reporting

According to customer needs

Creating Value with Smart Blades

Engineering services

Unique problems require unique solutions. Our team works with you to create tailored solutions to your needs.

FIBERSAIL
Shaping the structures of tomorrow



Tailored CMS solutions for

- Early damage detection in turbines with high-failure-rate
- Revenue increase
- Calculate Remaining useful life
- OEM integration

O&M Technical Advisory

- Load assessment after blade aerodynamic upgrade
- De-risk wake steering implementation
- Wind Turbine control system integration
- Bird strike assessment
- Ice losses evaluation

Fibersail CMS solution

A fully integrated end-to-end system





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