

CASE STUDY

How **Fred. Olsen Renewables** In-Housed Blade Inspections as Part of a 360° Blade Management Approach

ABOUT US

Perceptual Robotics is a UK based technology company, focused on drone automation and AI services in the field of Wind Turbine Blade Management. Our services cover from technology for field inspection to data processing and repair management. With presence worldwide and thousands of inspections made we keep investigating new solutions.

FIGURES

- **2 Eve systems in-house**
- **339 inspections in 2y**
- **6,000+ findings** identified
- **3/12 Wind Farms inspected** directly **by the owner**
- **Erosion: most frequent** damage
- **Open bonds & cracks: most severe**

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OVERVIEW

By adopting Dhalion autonomous drone system, **Fred. Olsen Renewables** transitioned from outsourced inspections to a fully in-house inspection and repair management model **in Scandinavia**, gaining full data ownership, faster decision-making, and a single source of truth for blade condition and repair management.

ABOUT THEM

Fred. Olsen Renewables is a leading developer, owner, and operator of renewable energy assets, primarily onshore wind. With **12 wind farms** and **342 turbines** across the **UK, Norway, and Sweden**, the company has an installed capacity of 804.9 MW.

Backed by a heritage of innovation dating back to 1848 **Fred. Olsen Renewables** combines long-term operational thinking with a strong commitment to sustainability and asset performance.

THE CHALLENGE



Delayed and incomplete reporting, often limited to summary PDFs without access to raw data.



Dependency on external logistics, causing scheduling delays and lost inspection days.



Limited insight, lacking visibility into the true condition of their turbines + **Repair data scattered** across reports and files



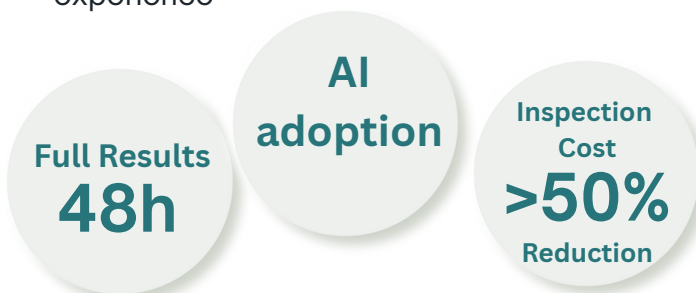
HOW

Fred. Olsen Renewables initially engaged Perceptual Robotics to **validate data quality and workflow**. Following this proof of concept, they **brought inspections in-house by acquiring two Dhalion Eve systems** for their teams in Sweden and Norway.

Inspections and repairs can now be managed through Perceptual Robotics' web platform, **centralising inspection data**, damage tracking, and **repair actions** all accessible to internal teams and suppliers.

RESULTS

- **Centralizing** inspection data, **high resolution** imagery, **damage tracking** and **repair actions**
- Improved **repair process**, **safety** and **accountability**
- **Upskilled technicians** with no prior drone experience



USE IMPACT

Over the past two years, several **severe blade cracks** have been **identified early** through regular in-house inspections, including Category 5 crack damages.

In one case, a 30 cm crack was monitored through frequent inspection and found to increase the size considerably within one year. Early detection enabled **immediate action**, **preventing major escalation** and **unplanned downtime**

TRANSITION

01

Proof of Concept

Outsourced 30 Dhalion inspections as a proof of concept

02

Inhouse systems and Train online

Upskill existing technicians with just online training

03

Execute

On-site inspections at optimal times and conditions

04

Analyse and Act

Results in 48h, act on insights to prioritise, prevent progressive damage and manage repairs in one place

CONCLUSIONS

- By internalising inspections **the loop between inspection, analysis, and repair has been closed**.
- The shift has **reduced downtime**, **lowered costs**, **improved data consistency** and the **level of safety**, and **strengthened accountability** -positioning Fred. Olsen Renewables not just as an operator, but as a leader in proactive, **data-driven blade management**.