

Driving down maintenance costs with predictive turbine monitoring

ONYX Insight is tackling one of offshore wind's biggest cost challenges with advanced predictive monitoring. By combining smart sensing, powerful analytics and engineering expertise, they enable earlier fault detection, reducing downtime and avoiding costly failures.

Before

ONYX had already established itself in offshore wind with ecoPITCH, a proven solution for detecting blade pitch bearing failures. Building on this success, they identified a major gap in the market: there was no accepted predictive maintenance solution for turbine blades, so minor faults often escalate into costly failures. To address this, ONYX secured OWGP Development Grant funding to accelerate the development of a new predictive monitoring approach.

During

Using the grant, ONYX developed advanced methods to continuously monitor turbine blades and detect structural damage such as root cracks and delamination. The project focused on mitigating critical risks like blade failure and liberation, which can shut down entire sites and lead to significant financial loss. By combining sensor innovation with advanced analytics, ONYX created a solution capable of identifying fault progression earlier than traditional inspection methods.

After

The solution is now deployed across multiple turbines, successfully detecting damage through predictive analytics and proving its value in live environments. Fully integrated into the FleetMONITOR platform and built on existing ecoPITCH hardware, the product is scalable and market-ready, positioning ONYX to support operators globally with smarter, more cost-effective maintenance strategies.

How does this help deliver the IGP?

- Accelerates the adoption of predictive maintenance in offshore wind
- Reduces operational costs by preventing catastrophic blade failures
- Strengthens UK capability in advanced turbine monitoring technologies
- Supports scalable deployment across existing and future wind farms

Continuous monitoring turns unpredictable blade failures into planned maintenance, cutting cost, reducing risk and keeping turbines turning.



2 jobs created



Product deployed on multiple turbines

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This initiative strengthens the UK's role in offshore wind innovation, drives down LCOE, improves turbine efficiency, and creates export opportunities.

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John Coultate
VP Advanced Sensing | Onyx Insight
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Advanced turbine technology

