Predictive Maintenance for the BP Wind fleet in the USA

585 assets protected by ONYX InSight across 10 wind farms

CLIENT
BP has the largest operated renewable business of any major international oil and gas company. 13 wind farms are directly operated and their gross generating capacity is 2,259 MW. Using advanced technology the remote operations center (ROC) teams monitor all BP sites 24/7.

CHALLENGE
The asset base is diverse and without existing or effective CMS hardware. Implementing predictive analytics required retrofit of vibration and oil sensors, with high performance while affordable, proven at scale and deployable to a multi-brand turbine asset base.

BENEFITS
With the market leading solution for independent multi-brand turbine monitoring and affordable next generation vibration sensing ecoCMS™ ONYX InSight was able to provide BP a state-of-the-art technical solution, that reduces long term unplanned OPEX with rapid payback.

BP Wind Energy has been supported by ONYX InSight for 5 years on a variety of engineering and predictive maintenance projects. In 2016, a fleet wide predictive expansion began, rolling out ONYX InSight’s technology, first with the cloud-based software, fleetMONITOR™ on six wind farms, connecting legacy condition monitoring hardware, and then in 2017/18 with the vibration measurement hardware, ecoCMS™, along with fleetMONITOR™ on four additional wind farms.

The most recent expansion covered Fowler II, Mehoopany and Cedar Creek, with ONYX InSight managing a turnkey installation of ecoCMS™, including installing ethernet cables down the towers and implementing the required IT security protocols. The system is unique in the market, utilizing MEMS sensor technology for tri-axial sensor data along with temperature and oil sensing, all at a remarkably low equipment cost and without compromise on reliability.

“We looked in the past at retrofit but it wasn’t affordable, however ONYX InSight brought a new value proposition to the table and combined with their track record of quality engineering with BP, it was an easy decision to move ahead with adopting this technology.”

Alistair Warwick, VP, BP Wind

Over $1.6m annual savings on complete ecoCMS™ retrofit

BP Wind Turbines under ONYX InSight Monitoring:

1. Cedar Creek I, 63 GE 1.6 SLE
2. Cedar Creek II, 59 Nordex N90
3. Flat Ridge I, 20 Clipper C96
4. Titan, 10 Clipper C89
5. Trinity Hills I, 90 Clipper C96
6. Sherbino II, 58 Clipper C96
7. Silver Star, 24 Clipper C96
8. Fowler Ridge I, 40 Clipper C96
9. Fowler Ridge II, 133 GE 1.5 SLE
10. Mehoopany, 88 GE 1.68 XLE
Rapid Return on Investment

With the dramatic reduction in hardware costs, a detailed study of the return on investment for the implementation of ONYX predictive maintenance technology showed a significant return, with payback of hardware and installation in under 12 months. Value is generated to the BP Wind Energy business in four principle ways:

- Reduced repair costs from more efficient crane mobilization
- Better pricing on repairs through competitive bidding
- Reduced turbine downtime
- Reducing the probability of lower cost repairs moving to catastrophic failures

The driver of this value? Sophisticated technology providing a simple result - ONYX InSight provides lead times of 6-18 months for most major component failures.

“Investing in our predictive maintenance capabilities forms an important part of our commitment to leading-edge technologies that enhance the safety and reliability of our operations. ONYX InSight was able to offer a solution that can be readily retrofitted to the diverse range of technologies employed within our fleet.”

Alistair Warwick, VP, BP Wind Energy

Most Valuable InSight

ONYX InSight’s predictive analytics are now deployed at 10 BP wind farms covering 585 wind turbines, 1.2 GW, 5 turbine models, 10 gearbox models, with further expansion planned in 2019.

With identified annual savings of $4,781 per turbine, a typical large fleet retrofit provides $1.6M savings every year - up to 30% O&M cost reduction.

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