

centrica

Client

Multi-national integrated energy business, parent company of British Gas; Centrica Energy has 27.9 million customer accounts, total operating profit of £1.7bn.

Challenge

Ensuring reliability in extensive offshore wind farm operations; gain new insights and take proactive steps to leverage equipment investments and optimise O&M activity.

Solution

Romax's fleet monitoring services for turbines gives a complete solution for drivetrain health services, including: monitoring, inspecting, giving advice, performing grease flushing and root cause analysis.

Benefits

More reliable running, lower cost and more efficient O&M, extended equipment lifespan, optimised energy production and reduction in overall cost of energy.

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Tom Kent, Centrica Energy

Centrica Energy

Romax InSight Optimises Wind Farm O&M, Extends Equipment Life and Reduces LCOE

Centrica Energy produces energy from wind assets in the UK. Romax InSight wind energy services support the company's Lincs, Lynn and Inner Dowsing wind farms with a reliability service that includes condition monitoring, gearbox and main bearing inspections, main bearing grease flushing and CMS repairs at a fraction of the cost of providing new units. Romax provides a complete solution for both identifying potential issues and enabling focused remedial action.

Keeping wind farms running

"Our offshore wind assets comprise three extensive wind farms, with a total of 129 Siemens 3.6 megawatt turbines," says Tom Kent, Senior Wind Turbine Engineer. "We also operate an onshore wind farm with 20 1.3 megawatt turbines."

With the Lynn and Inner Dowsing (LID) farms co-owned and operated by Centrica Energy and investment management firm EIG Global Energy, as part of a joint venture agreement, Tom explains why drivetrain health services are so important: "When turbines are running they make money, when they are down they don't. It's logical to keep a close eye on anything that could not only stop the turbine but also keep it down for long periods while spare parts and lifting services are found. Monitoring means you can fix an issue before it becomes critical, or plan ahead and keep downtime to a minimum." He says Romax was chosen over a number of other suppliers "because it offered the most suitable services for the best price. We were impressed by the technical ability of its people, and the clear way the condition of equipment was reported." Romax has continuously monitored the LID wind farms for almost 3 years; analysing data, providing monthly performance and condition reports, and advising on lead times to major component failure.





A positive and proactive approach to O&M

Tom says, "All our offshore turbines are monitored by Romax for vibration issues and emerging trends, and we receive monthly reports. We also get individual event reports, and have benefited from the occasional health assessment report, gearbox endoscopic inspection and main bearing grease flush." He says monitoring has revealed "certain issues with gearbox bearings, especially high-speed issues,

- **Improved** reliability and extended equipment lifespan
- **Optimised** running and energy production for turbines
- **Reduced** overall cost of energy
- **Better** protected and leveraged investments
- **Support** for the control (and ideally reduction) of O&M costs
- **Peace of mind:** experts guarding asset integrity

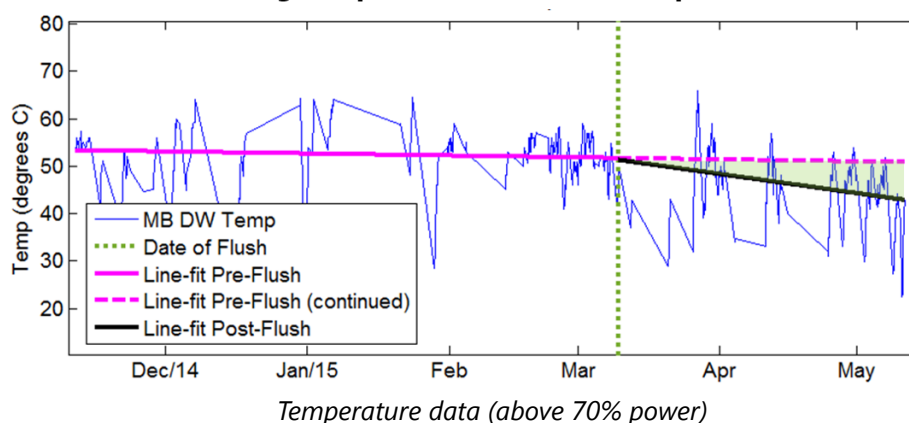
enabling us to take fast and focused action, including replacing bearings under warranty. This is about ensuring smooth running and optimising the lifecycle of valuable equipment: accurate and reliable data to, say, understand the degradation rate of a main bearing. You can then arrange remedial action such as main bearing grease flushing when equipment starts running hot, to remove metallic debris, enabling a turbine to continue to run while you organise jack-up barges and spare parts, and then change the main bearing as part of other scheduled activity."

In one investigation, vibration increases prompted main bearing inspections to confirm micropitting damage and metallic debris in the grease. This was closely monitored by Romax and derated through the winter months to ensure that the damage progression did not reach a critical level when turbine access is limited. After the weather improved, Romax deployed its patented flushing process to remove the contaminated grease and allow a complete inspection of the downwind main bearing on both sides. The bearing was then repacked with fresh grease, improving the operating conditions of the rolling elements. Post-flush condition monitoring of both the vibration and SCADA data showed a plateau in the vibration levels in the bearing and a reduction in operating temperature of between 5 and 10°C. The bearing was then removed from service in more favourable craning conditions and at the same time as other remedial works over the two sites.

Reducing the overall cost of energy

"Romax provides technical insights to guide our investigations," Tom says, "to ensure turbines operate more reliably and have an extended lifespan: we can better protect and leverage our investments." While it's difficult to quantify, he adds, "Romax helps us to understand and control rising O&M costs. We have the peace of mind that we are highly unlikely to experience a serial drivetrain issue any time soon, and have an opportunity to optimise the smooth running of our operations and energy production - to reduce the overall cost of energy. I'm confident we've achieved a good return on investment but it's impossible to put a precise value on that. All sites have different condition monitoring needs and this would have to be looked at on a case to case basis but we will continue working with Romax: I'm happy with the current set-up and also looking forward to new developments."

Main Bearing Temperature – Ambient Temperature



Reduction of average running temperature post-flushing by more than 5°C, extending bearing life

To find out more



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