



Statkraft: Europe's Largest Renewable Energy Generator

Romax secures a confident post-warranty future for one of the UK's largest wind farms

Client

An international leader in the production of hydropower, Statkraft currently operate five UK wind farms, including the Sheringham Shoal Offshore Wind Farm (SSOWF) (jointly owned with the Norwegian gas and oil company Statoil). SSOWF is one of the UK's largest wind farms with 88 Siemens 3.6 MW turbines.

Challenge

Statkraft needed to gather valuable data regarding the health of their wind farm in order to ensure a seamless transition out of warranty with maintenance costs kept to a minimum, and to enable any warranty claims to be made with confidence.

Solution

Romax InSight provided a vast array of reports and results to equip Statkraft with a full understanding of their wind farm health, enabling continuous monitoring and subsequent confidence in bringing the wind farm successfully out of warranty.

Benefits

Appreciation of the health of the turbines has saved Statkraft costs in maintenance activities, as repairs are targeted rather than arbitrary, and has allowed warranty claims to be underpinned by extensive monitoring data provided by an independent, objective and trusted partner.

Sheringham Shoal Offshore Wind Farm is one of the UK's largest wind farms, with a total installed capacity of 315 MW produced by 88 Siemens 3.6 MW turbines. It is situated 10-15 nautical miles off the North Norfolk Coast, and is operated by Europe's largest generator of renewable energy, Statkraft. Having initially opted for a 2 year warranty with the manufacturer, Statkraft have decided to continue their service agreement for another 5 years as they learn to operate independently with support from Siemens. As part of a company-wide strategy to develop operations and maintenance expertise in-house, Statkraft identified Romax as a key partner in their journey to gain more ownership over their own O&M practices and increase visibility of their wind turbine health.

When Sheringham Shoal was due to come out of warranty, Statkraft set out to obtain a full independent review of their asset's health. Jason Halsey, Plant Manager at Sheringham Shoal, explains: "We had some key objectives going into this inspection campaign: we wanted to maintain a high level of turbine availability and continue our industry-leading health and safety practices. We wanted to conduct 100% population inspections on our drivetrains, a sample of walk downs and a 10% sample on blades utilising both rope access and telescopic lens techniques." To meet these objectives Romax utilised its proprietary health assessment process to analyse vibration and SCADA data in order to prioritise turbines, identify potential problem areas ahead of inspections and assist in the planning process.





Why Romax?

It was imperative for Statkraft that the review was carried out by a specialist independent services provider who would give an honest, unbiased and trustworthy opinion on the state of their wind farm after two years of service and almost 12 months of commissioning. "We ultimately selected Romax as our End of Warranty partner because of their knowledge, flexibility and experience, as well as their strong reputation in the wind turbine industry. They really came into their own during the claims process after the inspection campaign had successfully been completed. Their gearbox knowledge and expertise added value and credibility to the claims that we were submitting."

Romax' extensive experience in wind turbine gearbox design and testing has helped wind farm owners and operators to coordinate predictive maintenance strategies to reduce the cost of O&M and improve the yield from their wind farms. "We are very proud of the fact that we currently monitor over 2GW of wind turbines globally, including over 40% of the world's offshore fleet," says Alex Pucacco, Sales Operations Engineer at Romax Technology. "However, being the largest offshore wind farm to come out of warranty, Sheringham Shoal was a big challenge for us; we got off to a slow start as we worked out some of the operational issues such as implementing communication channels with technicians that were putting in 13 hour days with constantly changing sailing times varying between a 5am sail and 3am return to shore over a 14 day cycle."

Halsey reiterates: "If we had our time again we would have started earlier. Romax delivered a year's worth of inspections in 3 months despite the challenging weather conditions". The full EoW inspections provided included: gearbox and main bearing endoscope inspections; visual inspection of nacelle, HV area and tower; visual inspection of pitch, yaw and braking systems; visual inspection of electrical systems; blade and lightning protection inspections, and; qualitative and quantitative reporting tailored to the customer's specifications. In all, during its project work for Statkraft, Romax completed inspections for all 88 turbines, providing over 600 reports and around 500GBs of inspection photos within 3 months, at a site where tidal conditions, limited authorised technician availability and stormy northerly winds offered only 60% access.

A Confident Future

As well as this extensive list of results, Romax provided technical knowledge transfer training so that Statkraft could interpret their own endoscope images in the future. Romax also delivered a Fault Detection Assessment which assesses the turbine specific drivetrain failure modes, the risk of each fault and the capability of detecting that fault; this has helped Statkraft in their budgeting process for future O&M costs. Romax continue to deliver an annual vibration condition monitoring service to monitor, analyse and report monthly on the on-going status of each turbine with a monthly summary of wind farm alarm status and any observed progression in drivetrain vibration.

The comprehensive set of reports has allowed Statkraft to benchmark their asset to track the progress and development of damages and has also served as knowledge transfer to enable monitoring and endoscope inspection practices to be brought in-house. Together with process improvement and confidence going forward, achieved through expert independent assistance and advice in the claims process, Statkraft have been provided with a complete solution for their End of Warranty.

"Our End of Warranty campaign has been hugely successful, presenting an opportunity for us to gain a greater understanding of our wind turbines. The inspection report findings arising from this project will help us to make significant savings and benchmark the health of our turbines for future use," Halsey concludes, "We would definitely use Romax' services for similar projects in the future."

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Jason Halsey

Plant Manager at Sheringham Shoal

To find out more

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