CASE STUDY

CUSTOMER
VATTENFALL

LOCATION
OFFSHORE, ADRIATIC SEA / 2020

EQUIPMENT
WIND TURBINE GEARBOX

APPLICATION
GEAR OIL

PROVEN RESULTS

LARGE DEBRIS FROM A COMPONENT FAILURE WERE COLLECTED

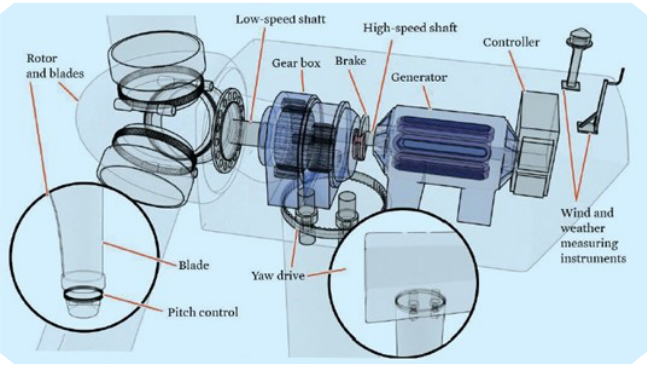
"The magnetic filter worked well on the return line from the pump internal lubrication of the pump."
-Thomas Stalin, Wind Technology Expert at Vattenfall

CHALLENGE

Vattenfall is a market leader in both onshore and offshore wind, with over 50 wind farms in operation across Europe. In efforts to advance wind energy's cost competitiveness and reliability, Vattenfall required a solution for reducing premature bearing failures in their turbine gearboxes.

Wind turbines create electricity when wind flows across the turbine blade and spins the motor. The rotor is connected to a generator directly in a direct drive turbine, or through a gearbox that speeds up the rotation and allows for a physically smaller generator.

Wind turbine gearboxes are susceptible to failure well before their designed service lives because 1) wind turbines consist of a dozen bearings that work simultaneously for years, and 2) the variability of wind patterns leads to fluctuating loads on wind turbine components. These failures are a major cause of downtime, unplanned maintenance, and parts replacement; they are the primary cause of increased opex for energy operators, and higher utility bills for customers.



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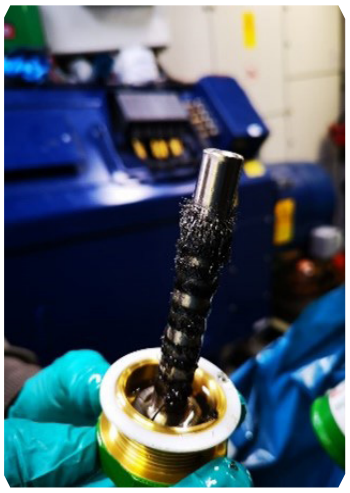
CASE STUDY

SOLUTION

Alex Priori with Renox S.R.L., a global importer and distributor of high-performance lubricants and magnetic filtration for compressors, pumps, turbines, gearboxes and engines, worked with Thomas Stalin, Senior Wind Technology Expert at Vattenfall, to determine the best solution for preventing gearbox failures. Priori recommended that Stalin deploy One Eye Industries magnetic filtration on the return line of the lubrication pump.



RESULTS

The magnetic filter y-strainers were installed in 2018, and the success of this deployment would be determined by how much wear contamination the filters would collect.

The magnetic filter element collected large debris from a component failure, as well as significant wear contamination down to and below 4 microns in size. If left in the system, this contamination would cause gearbox component failure, and ultimately catastrophic turbine failure.

Since the deployment, Priori has been in discussion with Stalin regarding the implementation of OEI magnetic filtration on hundreds of other off-shore wind turbines.

PRODUCT RECOMMENDATION

MAGNETIC FILTER Y-STRAINER

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