

CASE STUDY: Bearing Failure Prediction Model

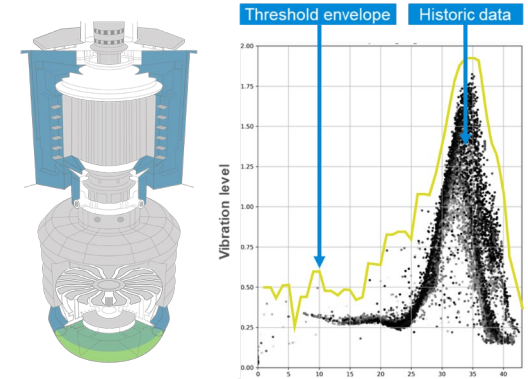
CHALLENGE

Our customer needed to minimise its bearing failures on their hydropower generators on-site, which were causing 2 months of unplanned outage.

Bilfinger UK were awarded a contract to create a solution to predict bearings failures before they happened to remove the implications of downtime on-site.

SOLUTION

- Using the Bilfinger Connected Asset Performance (*BCAP*) platform, we developed a SMART early failure predictor.
- The predictor was used to signal vibration levels that had started to move out of defined thresholds. This was not to provide alerts of failures in thresholds but instead to deliver early indication levels that were used for failure predictions.



BENEFITS | 5% Cost Reduction | 8% Uptime Improvement |

TECHNOLOGY USED

Bilfinger Connected Asset Performance (BCAP)

Bilfinger Connected Asset Performance (BCAP) can significantly increase the effectiveness of a plant, to decrease maintenance costs and to reduce unplanned downtimes. With this platform we can offer consulting, digital networking, data collection and analysis as well as forward-looking maintenance all from a single source.

The benefits of our BCAP platform include:

- 7-15% Enhanced effectiveness of the overall plant.
- 10-30% Reduced maintenance costs.
- 15% Increased work productivity.
- Up to 25% Reduction of unplanned downtimes.
- Generally amortisation of employed capital within one year.

CASE STUDY: Downtime Prediction Model

CHALLENGE

Our customer was incurring significant costs due to a high number of unplanned stops of their mill during operation.

Bilfinger UK were awarded a contract to create a solution to remove the issue, which was causing productivity issues and resulting in the start and stop cycles putting significant wear on the mill components, that was increasing maintenance costs.

SOLUTION

- Using the Bilfinger Connected Asset Performance (BCAP) platform, we implemented a decision-tree based machine-learning model predicting 90% of stops 10 minutes in advance.
- The solution also uses analytics to provide the operators with prevention recommendations to prevent future unplanned stops.



BENEFITS | 30% Maintenance Cost Reduction | 3% Productivity Improvement |

TECHNOLOGY USED

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CASE STUDY: Wind Farm Installation & Testing

CHALLENGE

Our customer required 14 38t containers to be installed to the base of their wind turbines on their wind farm and to be tested on-site.

The containers would house a transformer, control panel, DC tripping unit and switchgear.

Bilfinger UK were awarded a contract to deliver the containers with initial supervision by the container manufacturers in Germany.

The contract value of £250K.

SOLUTION

- We were responsible for the unloading of the container, with close site liaison for arranging delivery times, requirements and traffic management.
- We completed additional modification works and LV testing of wind turbine container substations.
- We provided HV testing of switchgear, transformer signals and phase indication.
- We supplied scaffolding, access and generators as required.



Technical Information Summary



- Due to the design/fabrication of the concrete container our customer used a leading manufacturer in Germany to complete the build and LV internal electrical works as part of a packaged substation solution. However, on review of the specifications it became apparent that the equipment and build levels provided by the German manufacturer would not meet UK specification.
- Bilfinger UK procured and shipped the correct equipment to Germany and provided a team of three supervisors to oversee the internal container works and ensured that all dispatch dates were met.
- The program of site work was scheduled for over the winter period, and adverse weather conditions required significantly increased levels of management, planning and occasional rapid response. To ensure that all deliveries were able to access the final location on-site and that they would be offloaded in the within the allocated time slot our site manager had to develop good lines of communication and have continual correspondence with not only the crane company and haulage company but also with the site traffic planning department.
- Bilfinger UK had to ensure that the crane and haulage simultaneously arrived and was met by a snow plough at an agreed time when no other HGV's, dump trucks, or roadworks would impede the delivery on its way up or back down the windfarm access roads. This is because any issues would have meant that the vehicles may be stranded on-site overnight, but due to our planning and management this was successfully avoided.