

## **Press release**

## Data exploitation and management for wind turbine predictive maintenance

- IK4-TEKNIKER and ATTENT2 have developed a joint project to monitor wind turbine generators at the Los Monteros wind farm for the purpose of gathering operational information to lessen the risk of failures
- To achieve this goal, the centre has used an in-house methodology called Fingerprint that provides real-time WTG condition monitoring

(Eibar, Basque Country. 20 June, 2019).- Maintenance actions involving wind power infrastructures, especially those associated with *offshore* facilities, are critical to learn more about wind turbine operating behaviour, anticipate potential problems or breakdowns and, consequently, optimise costs and achieve maximum efficiency.

IK4-TEKNIKER has developed, together with its spin off ATTEN2, a monitoring solution for several wind turbines in operation at the P.E. Los Monteros to gather information at different operating regimes, predict gearbox behaviour and diminish risks associated with unexpected failures and unscheduled shutdowns. Thanks to this solution it has been possible to implement a **condition-based** maintenance strategy for wind turbine generators at the P.E. Los Monteros.



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In order to carry out the project and diagnose equipment properly, attention has been paid to the different regimes at which wind turbines operate. This is a basic task as equipment operations differ significantly in each **operating mode** and this could hinder data analysis.

This is why, in order to **pick up operating signals**, data from the SCADA system (*Supervisory Control And Data Acquisition*) has been selected, i.e., wind speed, turbine speed, active power, pitch angle (blade angle relative to the wind), gearbox oil temperature and operating status. Moreover, sensors have been installed to monitor oil degradation in gearboxes.

In order to monitor everything properly, IK4-TEKNIKER has used its own **Fingerprint methodology**. Real-time information is used to learn about wind turbine operating conditions and decide when conclusions can be drawn based on signals picked up in a controlled manner.





Thanks to this methodology, to the analysis of turbine operations and to the data delivered by sensors, information is generated to diagnose gearbox conditions, anticipate potential failures and reduce unscheduled shutdowns affecting wind turbine availability.

This information is then fed into IK4-TENIKER'S SAM (*Smart Asset Management*) platform to be processed and monitored with a view to **optimising equipment performance and extending service life**. The SAM platform combines technologies and expertise to detect, diagnose and anticipate failures and breakdowns involving mechatronic equipment and maximise maintenance returns by increasing asset availability and life cycles and reducing operating costs.

In the case of the P.E. Los Monteros, IK4-TEKNIKER is using the SAM platform to analyse the information provided by the SCADA system and the network of sensors, by incorporating intelligence by means of algorithms to process data and provide ATTEN2 with management capabilities for alarm monitoring and servitisation.

## **Concerning IK4-TEKNIKER**

With more than 35 years of experience in applied technology research that has been be transferred to companies, IK4-TEKNIKER has achieved a high degree of specialisation in four major areas (Advanced Manufacturing, Surface Engineering, Product Engineering and ICTs). This means that its cutting edge know-how has been made available to customers to meet their requirements.

## Further information

