To ensure the success of your wind farm project, we provide a range of services to support you at every phase of the project life cycle – from site selection, design and manufacturing, right through to operation.

Early detection of defects in wind energy components and parts with condition monitoring systems

The continuous growth of wind turbine capacities and the consistently increasing loads of plants require greater consideration. As a consequence of this growth, the wear and tear of central components for operation is increased as well and can have a negative impact on the availability and safety of wind turbines. Manufacturers, operators and owners can benefit from the WKA COMOS condition monitoring system developed by TÜV Rheinland ISTec because it helps to detect damage and performance losses at an early stage.

Scope of services includes the system installation, commissioning and parameterization. Comprehensive CMS incorporates a rapid and appropriate response to notifications of changes in condition as well as valuable feedback necessary to enhance diagnostic depth. In addition to supplying and (remote) commissioning of the condition monitoring system, TÜV Rheinland ISTec CMS services also provide for optimally adapted continuous system support in data management, data evaluation and reporting.

The monitoring of running processes within wind turbines results in more efficient plant operation. The CMS uses special diagnostic algorithms to detect changes in relevant components or component parts and failures in auxiliary systems or structure components.

Following guidelines

The Condition Monitoring System WKA COMOS as well as the Monitoring Body are certified according to the GL “Guideline for the Certification of Monitoring Systems for Wind Turbines”, Edition 2013.
Data evaluation
The CMS monitors various data taken from time domain and frequency range. Time domain records are used to calculate peak values, root mean square, crest factors and provide information about the kurtosis. With regular observation of monitoring bands in the amplitude as well as in the coherence, phase or envelope spectra can track variation of peak amplitude, frequency or damping. Raw data-based rotor-synchronous spectra can also be scanned with an optional add-on. Moreover, there are tools for raw data storage and variable-dependent command functions for a purposeful diagnostic strategy to reduce data.

Online analysis and monitoring concept
CMS is easily integrated into existing control technology to analyze wind turbine data online. The frequency range is analyzed online to detect exceeded limits within the system condition and an html error memory page is provided. Data storage is compliant to GL (Germanischer Lloyd) and AZT (Allianz Zentrum für Technik) specifications.

Offline analysis and service concept
Data management based on fail-safe server architecture and the optional offline monitoring of data editing allow for expanded diagnostic depth. Event- and cycle-controlled reporting supports maintenance personnel and allows plants to be operated more efficiently.

Workflow of the condition monitoring system service
1. Commissioning of the CMS
2. Tailored continuous system support
3. Data evaluation and reporting
4. Long-term and safe archiving of sensitive surveillance data
5. Periodic reports
6. System support

About TÜV Rheinland
Founded more than 140 years ago, TÜV Rheinland is a global leader in independent inspection services, ensuring quality and safety for people, the environment and technology in nearly all aspects of life.

Our experience – your benefit
With a global network of experts, TÜV Rheinland has the flexibility and capacity to adapt solutions to individual customer needs. The CMS gives manufacturers, operators and owners complete access to comprehensive data regarding wind energy component condition, anywhere and at any time. Let the extensive TÜV Rheinland experience in early failure detection assure your techniques and strategies.

TUVRheinland®
Precisely Right.