Success Story Predictive Maintenance

Coal-Fired Power Plant

Background

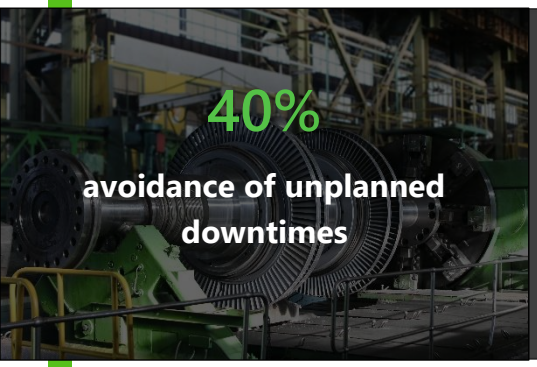
Coal-fired power plants are still the foundation for a readily regulatable base and medium load in the power generation of many countries. Increased regulation of waste gas treatment ensures that environmental influences are kept to a minimum. However, additional process steps repeatedly cause a reduction in the availability of the plants. Comprehensive monitoring of all components allows to detect faults at an early stage and to transform unplanned downtimes into shorter planned maintenance breaks.

The Case

- Coal-fired power plants can have different Single Points of Failure depending on their design
- Examples are boiler feed pump turbines or flue gas fans
- These turbines drive a feed water pump that supplies the steam boiler with fresh water
- The drive turbine is exposed to high mechanical and thermal loads
- If the turbine fails, the corresponding power plant block must be shut down
- Early notification can prevent or shorten any unplanned downtime, as necessary repairs due to secondary damages becomes more extensive as the damage progresses

Highlights

- Signs of a critical change can often be detected half a day before a total loss for the turbines and weeks for the fans
- The short warning time requires a perfect detection rate without false alarms to ensure a fast reaction process
- The operation of coal-fired power plants can be very dynamic in order to take over tasks in the medium load supply
- The necessary accuracy in the operation of the plant is achieved through the construction of a special data model



The malfunction of individual components can shut down an entire power plant unit. Even if damage cannot be prevented completely, its consequences can be greatly mitigated. The volume of damage can be reduced from tens of thousands to thousands of euros, as a special component such as a turbine can be reconditioned in a short time instead of being replaced by an expensive new turbine weeks later.

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About Us

Often, a lot of unused potential is hidden in data from industrial plants. Only with experience and mathematical knowledge is it possible to uncover this value for companies. We offer these competences.