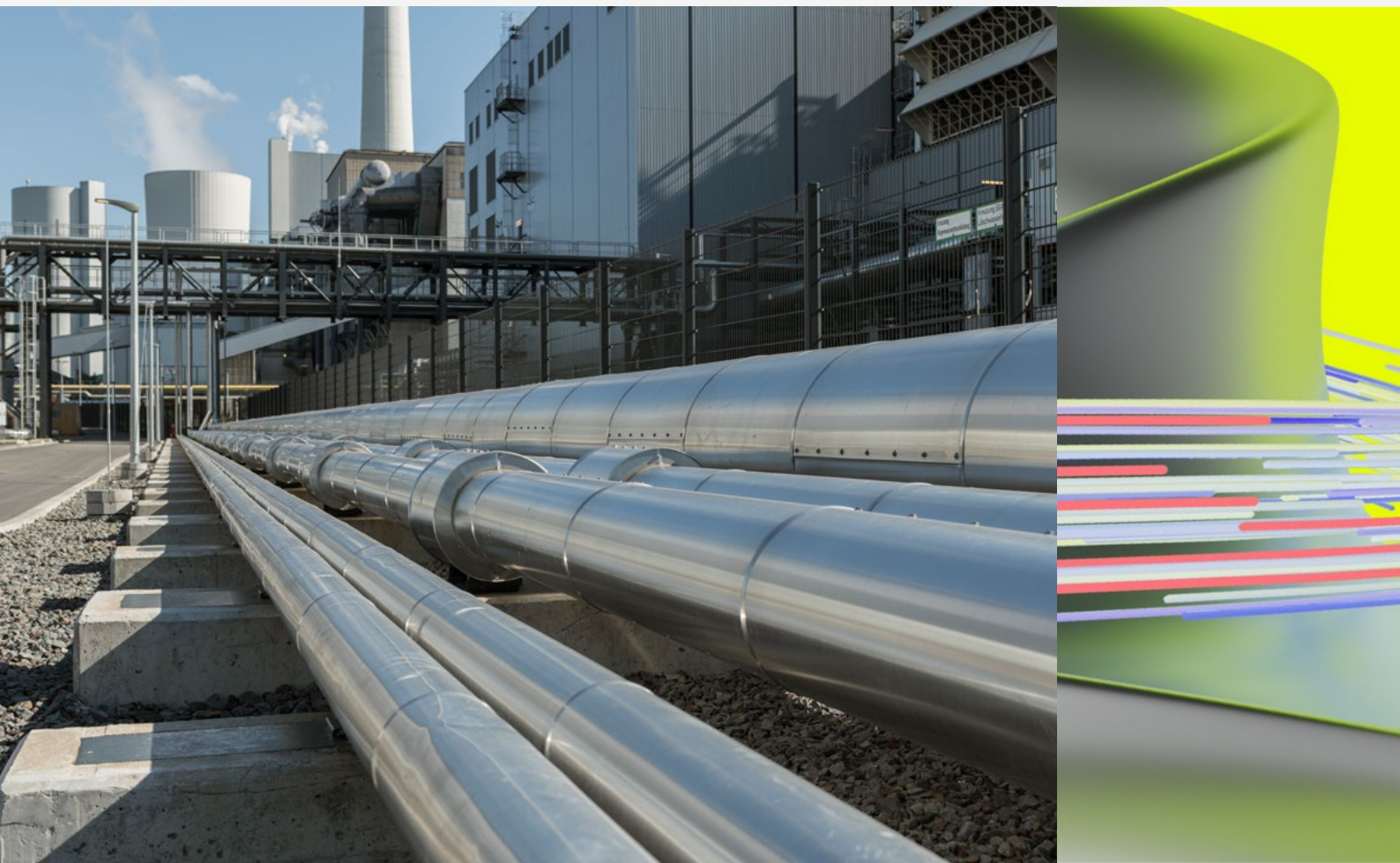**iqony**

Intelligent Soot Blowing Management

SR::BCM by Iqony optimizes the cleaning of the heating surfaces in coal-fired steam generators, thus keeping the boiler and unit efficiency at a high level. Owing to the application of a detailed thermodynamic model, additional information that cannot be measured directly is provided.

In coal-fired steam generators, the ash content of the coal regularly leads to a fouling of the heating surfaces and thus to a deterioration of the boiler efficiency. For the power generation from coal to be as efficient as possible, this fouling has to be removed by means of soot blowing. The fouling speed and type and effects of the fouling differ depending on the fuel composition, the position of the heating surfaces in the furnace, and the current operating conditions. SR::BCM is an intelligent system for the automatic optimization of the cleaning of the steam generator's heating surfaces that considers all adverse effects on the heating system.

SR::BCM is based on advanced process control uses predictive model based on first principle & fuzzy logic. SR::BCM exclusively uses existing performance values as a basis of information for determining the current condition of the steam generator in detail. A prominent feature is the possibility to freely configure the cleaning strategy, which allows to define different criteria for the optimization. An appropriate cleaning strategy by means of SR::BCM allows to reduce the reheat spray flow and/or to stabilize the hot reheat steam temperature.

Typical operating parameters that are evaluated for optimizing the soot blowing:

• fouling of each individual heating surface
• flue gas temperature at the end of the furnace
• spray flow in the reheater
• hot reheat steam temperature
• CO in the flue gas
• load, coal type, max. generator output

SR::BCM enables the long-term storage of data including data export to MS Excel and thus the analysis of the operating data over long periods of time. SR::BCM is an indispensable tool for analyzing the important information on the soot blower operation and for monitoring the success of previous operations.

Fouling trend

Besides parameters relevant in terms of thermodynamics or operation, additional boundary conditions are considered as well. For instance, SR::BCM allows to
• autonomously detect an increase in the basic fouling of individual heating surfaces
• adjust the soot blowing strategy to this new boundary condition
• utilize additional cleaning effects of adjacent heating surfaces

Integration of third-party systems:
If the steam generator is equipped with a separate analysis system (like e.g. heat flow sensors or infrared cameras), this additional information will be integrated into the superordinate optimization of the cleaning strategy by SR::BCM.

Diagnosis of the steam generator

An overview of the most important benefits:

• Calculation of the current fouling of each heating surface
• Detailed heating surface assessment by means of a thermodynamic boiler model
• Optimization of the cleaning frequency by means of fuzzy logic
• Automatic adjustment of the soot blowing frequency in the event of a deteriorating cleaning effect
• Flexible reaction to different fuel qualities by automatic adjustment of the soot blowing strategy
• Automatic control of the soot blower levels (closed-loop operation)
• Flexible optimization goals (efficiency, reheat spray flow, time between overhauls, etc.)
• Easy integration of third-party systems
• Improvement of the unit efficiency by up to 0.1 %

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