

The IT solution SR::SPC by STEAG Energy Services enables an optimal plant operation with simultaneously decreasing maintenance costs by means of continuous process quality and condition monitoring.

# Predictive Analytics

Power plants and their components are subject to continuous changes in their operating behavior. These regularly lead to undetected degradations of the plant efficiency and to what appear to be sudden failures of components with a significant impact on the sustainable, economically efficient operation. SR::SPC is clever

and can analyze the most important data on processes and main components out of the vast amount of data from the DCS so that creeping and critical changes are detected safely and early on. As an early warning system, SR::SPC uses tried and tested modeling techniques for determining reference values.

## Depending on the task, you have the choice:

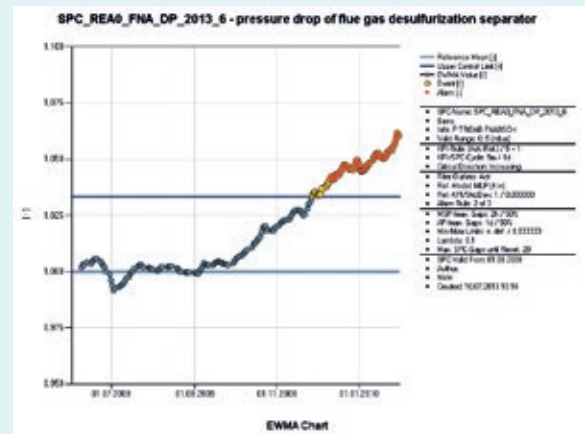
### Physical models:

- Determination of reference values for process variables on the basis of a closed cycle model
- Balances and simulates complex processes very efficiently
- Enables the monetary assessment of weak spots

### Data-based models:

- Determination of reference values on the basis of previous component conditions by means of neural networks
- Reference value calculation even if precise physical coherences are unknown
- Modeling of the reference values in a very short time

SR::SPC uses neural networks and statistical tools to analyze the behavior of important key performance indicators (KPIs) online and automatically. SR::SPC detects significant trends and patterns like creeping changes and frozen measured values as well as untypical fluctuations and leaps etc., even in noisy measured values.



**Benefit from the potentials of a field-tested real-time monitoring:**

- Objective assessment of the plant's mode of operation, the process quality, and the component condition
- Reliable early detection of weak spots and impending damages
- Lasting improvement of the efficiency
- Appreciable decrease in maintenance costs
- Significant reduction of unplanned shutdowns and increase in plant availability
- Systematic trend projections for a conditionbased maintenance

**Detecting irregular changes of condition and process and estimating their further behavior in only six steps:**

- Extraction of relevant DCS data
- Modeling the reference condition by means of neural networks as part of SR::SPC
- Online calculation of the actual and reference value, precisely consistent with the current mode of operation
- Actual/reference value comparison provides a KPI that is independent of the mode of operation
- Statistical evaluation of the KPI behavior identifies significant changes
- Projection of the further KPI behavior provides information on residual operating times