

## IGSS protects Czech electric power plant from unwanted downtime

IGSS proved as the best and cheapest solution, when the Czech energy group, CEZ Group, wanted to protect their new steam generators from damaging temperature fluctuations. The temperature diagnostics tool based on IGSS increases uptime for the power company and extends the life of the huge boilers.



### SYSTEM INTEGRATOR:

Miroslav Rytír

### INDUSTRY:

Energy

### COUNTRY:

Czech Republic

### DATA:

- Temperatures are visualized as bar charts with temperature limits marked and as numeric values in a table format. All values are archived, enabling the creation of curves based on historical values.
- The system has two dualized, separate IGSS servers based on the Windows 2008 operating system. Operator stations are running on a terminal server set up, allowing up to 5 simultaneous operators on the system, either locally or remotely.



### The challenge

Temperature changes that damage the vapor transferring tubes in the steam boilers are a serious problem for the Czech CEZ Group, which is among the ten largest European energy groups. CEZ Group is currently undergoing a thorough renovation and eco-efficiency improvement of all of its 16 plants. In 2011 the CEZ Group selected the 4 x 200 Megawatt Tušimice Power II power plant as a pilot for the other coal-fired plants.

Four new 60-meter-high steam boilers were installed. The boilers are characterized by being very efficient and almost a hundred percent CO<sub>2</sub> neutral. However, it turned out that the new boilers had trouble keeping a stable temperature, which meant that 22 of the tubes leading the steam to the power turbines ruptured over a shorter period of time. The replacement of even a single tube causes a 3 to 4 day stop in operations and the situation of the vulnerable tubes was therefore

## Interactive Graphical Scada System





completely unacceptable.

Each boiler block at the Tušimice plant has 1,000 separate tubes and if the temperature in each tube had to be monitored and kept under constant control, data from no fewer than 4,000 points had to be recorded.

### The solution

The overall controlling SCADA system of the Tušimice plant is supplied by Siemens, but a temperature diagnostic solution from Siemens that can be scaled to 4,000 measuring points proved to be expensive to implement and the Tušimice management chose to contact the local distributor IGSS Ing. Miroslav Rytír.

- IGSS is localized in a Czech version, which is an advantage in daily operations. IGSS was chosen because it met the requirements with regards to price, functionality in the temperature diagnostics and (real-time) data display, says Miroslav Rytír.

The IGSS solution evaluates the measured values, via external devices sent from thermocouples mounted on the heat pipes. The values are transmitted digitally to a central unit, where they are

stored in an IGSS version 9 server. Approximately 900 temperature measurements are read every 30 seconds from each block.

IGSS sends the measured data to the controlling SCADA system of the Tušimice plant, which subsequently adjusts the steam levels if the diagnostic tool shows that the temperature is heading in the wrong direction.

- The boilers involved are huge and the temperature cannot be lowered from hour to hour. But with measurements received from IGSS, the overall controlling SCADA system is now alerted in good time - often several days before critical temperatures are reached, says Miroslav Rytír.

### The result

The main objective of the IGSS installation was to keep the boiler temperature at a level that was not harmful to the vapor transfer tubes. This objective was achieved, and as a result the Tušimice plant has increased the uptime on each boiler block considerably. The implementation has taken Miroslav Rytír a little more than a year, but there is no doubt that it is an investment that has long since been proved it worth for CEZ Group. According to Miroslav Rytír the next probable step is that the Prunérov Power Station, which is the largest coal-fired power plant in Czech Republic, will also have the same installation. But it is not only CEZ Group, who is interested in Miroslav Rytír. The detailed control of the temperature of the steam transfer tubes has lessened the wear and tear on the boilers and resulted in prolonged service life of the boilers. Vítkovice Power Engineering, which produces the huge boilers, is, according to Miroslav Rytír, considering the IGSS temperature control solution as a standard component for their boilers.

