

Expansion of electrical systems in Würzburg at minimum costs and resources

Electrical Solutions Reference

Instrumentation, Controls & Electrical



The Result

- Intelligent interaction between electrical and I&C systems from a single source is seen to be the best economic solution
- High planning and scheduling reliability thanks to trouble-free project execution with Siemens as a central partner

SPPA-E3000 Complete Electrical Package

formed the basis for adapting the electrical components and systems during integration of an additional gas turbine at the CHP Würzburg.

The Plant

The transition from coal to natural gas firing has ensured that the combined heat and power plant Würzburg will be able to meet the long-term requirements for electricity and district heat in the Würzburg region based on environmentally sustainable cogeneration.

The first gas turbine went into operation in 2005 and the second in 2009. The power plant, which is operated by Heizkraftwerk Würzburg GmbH, has a total installed electrical capacity of 125 MW.

The Task

Like the predecessor project GuD I, GuD II presented special challenges with respect to the electrical and I&C systems. All the new components necessary for the second gas turbine had to be installed intelligently in an existing power plant with severe space restrictions. Moreover the components from the project GuD I had to be modified and retrofitted.

Our Solution

The SPPA-E3000 Complete Electrical Package allowed to optimally integrate the second gas turbine in the electrical system of the CHP Würzburg.

In order to feed the electrical energy into the 110-kV grid of the Würzburg municipal utility company, the generator bus ducting was supplied, a new 40-MVA unit transformer was erected and a further switchgear panel was added to the existing 110-kV power system of the transformer substation. The existing 6.3-kV system and the protection system were replaced and protection based on IEC 61850 was integrated directly in the new SPPA-T3000 control system. This meant that the existing

switchgear I&C did not need to be extended.

The new turbine was connected to the original bus bar system. A feedwater pump was fitted with a frequency converter drive to ensure more economic operation.

In addition, the following were among the systems supplied, installed and integrated in the process:

- Low-voltage systems as withdrawable units
- UPS systems, LV and AC/DC distribution systems
- Fire alarm, intercom and lighting systems
- Grounding and lightning protection.



“The complete supply of all the electrical and I&C systems from a single source paved the way for a perfect symbiosis as far as cooperation was concerned. This made it possible to restrict the utilization of resources in line with the proposed schedule on both the customer and the supplier sides. Investment costs were kept to a minimum as a result.”

Armin Lewetz, Power Plant Manager
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