Application Story

Industry: Power / Process
Products: Control Systems

Energy Supply Center Dresden

Reference project
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Energy Supply Center
Dresden
## Description

Apart from economical and ecological aspects of energy supply systems, the quality (availability, stability, etc.) of the generated electric power and heat also plays a decisive role. The Energie-Versorgungs-Center (EVC = Energy Supply Center) in Dresden-Wilsdorf supplies electric power, heat, and refrigeration for the production of semiconductor devices. Utmost availability and quality of the supplied energy are critical factors in semiconductor production, and disturbances can lead to high commercial losses.

The Energy Center works according to the principle of combined heat & power (CHP). Hereby, natural gas is used as primary fuel for the generation of electric power as well as heat and refrigeration. The utilization ratio of the primary fuel is more than 85%. The heart of the Energy Center consists of nine gas engines with an installed electric generation capacity of about 35 MW.

In order to ensure highest availability and quality of the energy supplied to the semiconductor factory, utmost reliability is demanded from all of the plant’s technical components. Although plant availability in such complex installations does not depend exclusively on the process management & control system, it plays a very important role. Consequently, reliability of the process management equipment is directly related to efficient plant operation, and is therefore decisive when assessing the overall system.

ME-Automation Projects, formerly known as KH-Automation Projects, received the order for supplying, installing, and commissioning the automation & control equipment based on the PMSX pro process management system. PMSX pro is structured and configured in such a way that all demands regarding availability, efficiency, safety, and quality are satisfied completely. Similarly, highly efficient plant and maintenance management is ensured by system-wide configuration and parameter setting from a central point. Also in critical situations, the operators are supported by a transparent display of the process, which enables them to make the necessary decisions quickly and confidently.

What’s more, the integrated Help function plus powerful tools for diagnostics, simulation, and quality assurance assist the personnel in efficient plant operation.

Comprehensive sequencing & control functions were implemented for the fully automatic operation of the power generating plant. By means of active redundancies, and by avoiding “single points of failure” in the architecture, it was possible to achieve the high availability demanded for the control system.

<table>
<thead>
<tr>
<th>Customer:</th>
<th>EVC Dresden Wilsdorf GmbH &amp; Co. KG</th>
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<tbody>
<tr>
<td>Plant:</td>
<td>Energy Supply Center I</td>
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<tr>
<td>Electric power output:</td>
<td>35 MW</td>
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<td>Project value:</td>
<td>~7 million Euro</td>
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<td>Project duration:</td>
<td>1997 – present (in discrete construction stages)</td>
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Technical requirements

Process management of entire plant from a central point
Vertical and horizontal data consistency
Automation stations, also redundant
Process servers, also redundant
Data acquisition via central I/O modules
Time stamping in central modules
High automation & control levels
Plant-wide redundant system bus using optic fiber technology
Consistent data coupling with office network
System-wide engineering from a central engineering workplace
Strict data consistency in all software tools
Access to all process values from the office environment
Standardized software tools

Scope of delivery

- Process management system PMSX®pro
- Automation equipment
- Control room instrumentation
- Network using switch technology
- Low-voltage switchgear in plug-in rack units
- Electrical installations
- Installation / wiring / field instrumentation
- Target specifications / engineering / programming
- Documentation / factory testing
- Commissioning / trial operation / training

Process management characteristics

- Process management system PMSX®pro
distributed system
- Topology Ethernet fiber optic – single-fault tolerant
- Network Automation system Philips P8, Siemens S7 (also redundant), Mitsubishi System Q
- Data points about 10000
- Automation stations 34
- Operating stations 8
- Process servers 18 (redundant)
Excerpt from our reference list

Waste incineration plant Frankfurt
Waste incineration plant Iserlohn
Waste incineration plant Weißenthaln
Wastewater treatment plant Erdinger Moos
Wastewater treatment plant Bad Honburg Ober-Eschbach

Milk production Regensburg
Energy supply center Dresden
Energy supply center Oberhausen
Pellet production plant Offenbach
Biomass CHP plant Wiesbaden

Energy supply center Munich Airport
Waste incineration plant Frankfurt
Drinking water plant Haltern
Sewage network and wastewater treatment plant Hamburg
Pellet production plant Dottemhausen

Wastewater treatment plant Düsseldorf-Nord
Waste incineration plant Frankfurt
Waste incineration plant Hamm
Waste incineration plant Frankfurt
Facility Management Control System Dresden

Facility Management Control System Nijmegen
Tank terminals Rotterdam
Bartel Pauls Söhne AG Biomass CHP plant
Wastewater treatment plant Stuttgart-Mühlhausen
Wastewater treatment plant Nuremberg

Wastewater treatment plant Nidderau
Wastewater treatment plant Landshut
Drinking water plant Friesland

Tank terminal Botlek
Sewage network Wuppertal

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