

Application Story

Industry: **Power / Process**

Products: **Control Systems**

Energy Supply Center Dresden



Reference project
Energy Supply Center
Dresden

 **MITSUBISHI ELECTRIC Group**
ME-Automation Projects GmbH

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Reference project
Energy Supply Center
Dresden

Customer:	EVC Dresden Wilschdorf GmbH & Co. KG
Plant:	Energy Supply Center I
Electric power output:	35 MW
Project value:	~ 7 million Euro
Project duration:	1997 – present (in discrete construction stages)

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-Wilschdorf 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.





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 |
| ■ Topology | distributed system |
| ■ Network | Ethernet fiber optic – single-fault tolerant |
| ■ Automation system | Philips P8, Siemens S7 (also redundant), Mitsubishi System Q |
| ■ Data points | about 10 000 |
| ■ 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 Weißenhorn	Wastewater treatment plant Erdinger Moos	Wastewater treatment plant Bad Homburg 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 Dotternhausen
				
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	Barthel 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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