

SUCCESS STORY

Compact power management system to Ajinomoto Group

Nakhon Luang, Ayutthaya Province, Thailand



Compact power management system for fast and accurate load-shedding with ABB's reliable IEC 61850-based protection solution.

Project at a glance

Customer: Ajinomoto Group

Segment: Food and beverage industry

ABB products: Air-insulated switchgear UniGear ZS1, Loadshedding controller PML630, Relion® 615 series protection and control relays, Remote I/O Unit RIO600, MicroSCADA Pro control system

Customer challenge

To ensure uninterrupted power to the plant, a new cogeneration plant was needed. To ensure continuous uptime of the plant's main process and avoid costly production downtime a load-shedding solution was sought.

ABB solution

To secure continued power supply to critical loads in the plant, ABB's solution was a compact power management system (cPMS). This compact approach to power management systems utilizes ABB's Relion protection and control devices to realize solutions for small to medium-sized industrial plants.

To prevent disturbance-related blackouts and power outages in the plant and achieve extensive load-shedding functionality, the solution is based on the load-shedding controller PML630, Relion 615 series protection relays and the Remote I/O unit RIO600.

To ensure power system reliability and performance, the compact solution utilizes the benefits of horizontal GOOSEbased communication technology for data flow between the protection and control devices. GOOSE (Generic Object Oriented Substation Events) is part of the IEC 61850 standard for power system automation. With GOOSE, the communication latency is approximately 100 ms, which is twice as fast using traditional programmable logic controllers (PLCs).

The time needed for engineering and commissioning is minimized when utilizing IEC 61850, as no hard-wiring is needed for communication purposes.

The seamless integration of the devices ensures a high performance load-shedding solution. In case of a disturbance, for example, loss of a power source, such as a grid connection, the load-shedding function prevents a total shutdown in the plant's power distribution. This is done via switching off non-critical loads and securing power to critical loads. It is managed accurately and quickly (within tens of milliseconds).

ABB also provided engineering services to make the needed modifications in the existing MicroSCADA Pro system to integrate the UniGear ZS1 7.2 kV switchgear at the new cogeneration plant.



Customer benefits

- Secured process up time to high priority process loads
- Fast and accurate load-shedding
- Reduced downtime, maintenance and repair cost
- Fast installation and commissioning using the IEC 61850 communication standard
- Seamless integration of protection and control, station automation and power management functionality in the medium-voltage switchgear

About the project

The Ayutthaya factory is located in the Nakhon Luang District, Phra Nakhon Si Ayutthaya Province in Thailand. The factory started its operation in 2013 and it uses advanced production technologies for the manufacturing of tapioca starch and cane molasses products.

ABB delivered the cPMS solution in 2015.

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