

Success Story

Yokogawa CENTUM VP Provides Fully Synchronized Control Environment for VEOLIA Biomass Power Plant in Hungary

Veolia Energy Hungary Co. Ltd.

Location: Szakoly municipality, Hungary
Completion: August 2009
Industry: Renewable Energy (Biomass Power)



Executive Summary

The Veolia biomass power plant is located in northeast Hungary, near the village of Szakoly in Szabolcs-Szatmár-Bereg county. It was the first plant of its type to be built in the country.

Construction was started in April 2008 and the plant entered commercial operation in August 2009. In mid-2016, ownership of the plant was transferred to the current plant operator, Veolia Energy Hungary Co. Ltd.

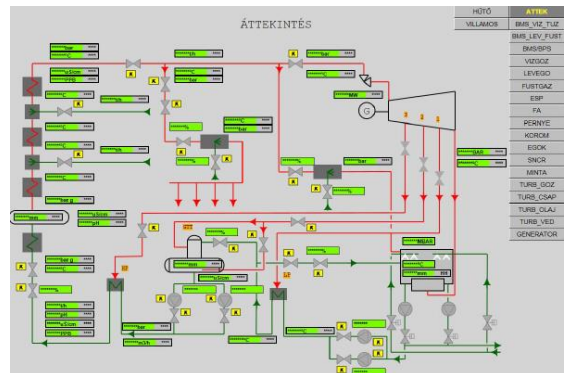
At nominal loading, the Veolia plant is capable of burning 55 metric tons of woodchips per day to produce 19.8 MWe of power, and has an efficiency of 30.7%. The power plant uses 2 MWe of this output.

Operations throughout the plant are controlled by a CENTUM VP distributed control system (DCS) engineered and installed by Yokogawa Central East Europe.

The Challenges and the Solutions

The procedures for starting up and shutting down operations at this plant are very complex, and must be executed in combination with control of the turbomachinery train.

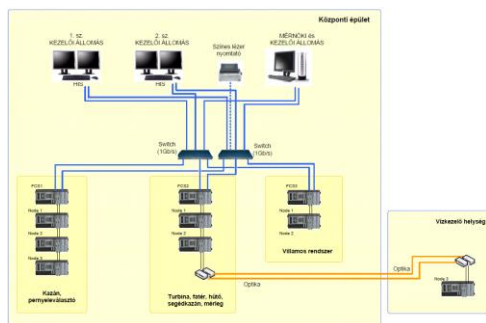
The automation at this power plant has two control levels, with the first consisting of the separate control systems for the biomass-fired boiler, steam turbine and generator, and other plant facilities, and the second centering on the plant-wide automation of operations with the CENTUM VP DCS.



HMI screen showing plant overview

The specific facilities and equipment covered at the first control level are as follows:

- Boiler main burners
- Electrostatic precipitator (ESP) of boiler
- Steam turbine and generator
- Cooling system
- Water system
- Secondary boiler burners
- Fuel (wood) area
- Shipped fuel scaling station
- Electrical system 10 kV protection
- Electrical system monitoring
- Electrical system switch-over automation
- 120 kV electrical system



CENTUM VP system architecture

Yokogawa was responsible for the engineering, installation, and commissioning of the CENTUM VP DCS, and also provided training to the plant’s operators and system engineers.

The CENTUM VP system at this biomass plant has four field control stations (FCSs). FCS1 and FCS4 are for boiler control, and they have a redundant serial connection to the burner management system (BMS) and a single serial connection to the ESP.

FCS2 is for the water and steam system, and it is connected to the fuel (wood) area via Profibus DP and to the cooling system and steam turbine control system via a redundant serial connection.

With the remote I/O for NODE3 of FCS2, a single serial connection to water system and a Profibus DP link to the secondary steam boiler are employed.

FCS3 is for electrical substation signals and control.

Two human interface stations (HISs) with two monitors each allow operators in the central control room to monitor and control operations throughout the plant. In real time, graphic windows display measurement, sequence, trend, and other information that give operators a real-time view of conditions throughout the plant. The system includes a combined engineering/operator station in the central control room.

Facilities and equipment at the first level are all controlled in full synchronization with the Yokogawa DCS. Together with turbomachinery train control, all processes from plant startup to plant shutdown are executed smoothly. With the exception of startups and intentional shutdowns, operator interventions are not required.

Thanks to Yokogawa’s leading edge DCS, all the processes at this advanced biomass power plant have been automated. Operator error has thus been eliminated in all critical processes, and high reliability and availability are ensured.

Customer Satisfaction

“The challenging control strategy was managed perfectly. Furthermore, the reliability of the Yokogawa DCS has exceeded our expectations.”

- Burai Bertalan, a member of the start-up team and head of Veolia’s Electrical and Instrumentation Department

For more Information and Contact

[CENTUM VP \(DCS\)](#)

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