

Improved process control at Sandviken power plant

Real-time access to process data provides plant operators with new tool to improve power generation efficiency at large southern Swedish power plant.



About Växjö Energi

Växjö Energi AB (VEAB) is a municipal power company based in the city of Växjö in southern Sweden, supplying both electrical power and district heating. Power and energy are delivered to local consumers and industry as well as the national electrical power grid. The main production unit is the Sandviken power plant. VEAB also manages the local power grid in Växjö where it has 27,000 customers. In 2003, VEAB had sales of USD 55 million and 141 employees.

Business Challenge

The Sandviken power plant produces energy in two biofuel furnaces, built in 1980 and 1996. About 15 per cent of fuel is peat, the rest sawdust, bark and wood chips. During production, the process control system registers data from some 10,000 measuring points. For plant operators, control of different

processes is of course a key factor for optimal power generation. But the process information that was generated under production was difficult to access in a simple manner. A lot of work was necessary to show data in a usable format. A common procedure was to manually extract stored data as text files and to import these files in Excel spreadsheets.

"Putting together analysis data took a very long time. What we wanted was a system where we could integrate all process information. This would give us a better grip on production processes and help us to quickly collect production figure statistics", said Mr. Bengt Fransson, chief production engineer at Sandviken. "Another important requirement for such a new system was to make information about processes available to all employees".

VEAB was assisted by consultants to write a system specification that would meet future requirements. Many VEAB employees were also interviewed

to get input on how to design the system to meet end-user needs. After a public request for tenders, PlantVision was chosen as supplier.

Solution

The plant process control system was connected to a database that makes all data accessible in real time. Today, information from the Sandviken plant and other VEAB production facilities is presented in an easy to use, web-based interface. Some information is restricted to certain categories of users, who can also access special applications for statistical and analytical processing of production data.

The new system registers all production data from the plant, such as pressure, temperature, flow measurements, pump and furnace control. Three other systems are also connected to the database: environmental control, fuel quality control (for purchasing) and electricity production and demand.

Today, some fifteen users are connected to the database, but when training is completed, all 140 employees will have open access to the system. "Among our 140 employees there are at least 30-40 persons who definitely need all this data that was extremely difficult to access before", said Bengt Fransson.

Business Benefits

like Sandviken can make very profitable use of historical processing data.

"In fact, we should always try to store as much production data as possible, because it's not always obvious which type of information you might need in the future. For instance, if you put together a completely new control procedure, you can compare present figures with historical data and improve or calibrate processes accordingly. This simply wasn't possible with our old system", said Bengt Fransson.

The goal for VEAB is therefore to retrieve and transfer production data from the last ten years to the new database. It's also clear that the new system is a success with users and fills a real need for information.

"Users have begun to extract information on their own initiative, and that's proof positive that the system meets our requirements. Our operators now find use for information that they didn't earlier realize that they needed. I'm absolutely positive that such a system is both profitable and necessary to handle the huge amounts of data generated by a power plant", Fransson said.

Future Installations

From the start, the system has made work more efficient for many operators at VEAB. In the future, the system will be developed further to handle more complex tasks.

"When all employees have been introduced to the system, we'll connect control and maintenance information systems to the database. We will then be able to monitor the whole plant from one single, integrated system, allowing us to directly detect problems in processes such as combustion or gas cleaning. Another development that lies further ahead is to use the system for process optimization, where operators could get on-line action alternatives. It would also be possible to develop the system as a platform for step-by-step instructions in different plant startup procedures, Bengt Fransson concludes.

About PlantVision

PlantVision is the leading Swedish company supplying solutions for information and operational support in research and production. Staffed by software and production engineers with extensive hands-on experience of industrial processes, PlantVision offers solutions based on a combination of proprietary applications and standard systems by world-leading suppliers. A typical PlantVision installation helps customers get more information and control over production processes, thus increasing both efficiency and profitability. Customers come mainly from the pulp & paper, process, power generation, biochemical and pharmaceutical industries. ■