

The Last Few Percent

With innovative energy management, the cellulose fiber specialist **Lenzing AG** wants to further increase its already high energy efficiency.



Gottfried Rosenauer, Vice President of Lenzing AG: "A more detailed perspective on the production processes."

Lenzing AG

With revenue exceeding 1.7 billion euros and an export share of over 90 percent, the globally active cellulose fiber producer Lenzing AG numbers among the innovation and technology leaders in the market. According to the company, the site in Lenzing, Upper Austria, is home to the largest integrated cellulose fiber production in the world, and 2,900 staff are employed at this location alone. The Lenzing Group has production sites in all important markets as well as a global network of sales and marketing offices.

Fiber production is energy-intensive

Shirts, blouses, underwear, bed linens or moist towelettes, bandages, operating room coverings and much more. Our everyday life is filled with countless products made from or improved with fibers produced by the Lenzing Group. They can also be found in technical fields and in construction. All of these fibers originate from the renewable raw material of wood. "Producing fibers from cellulose is so energy-intensive that we handle our energy supply ourselves and have been optimizing our energy consumption for decades," reported Gottfried Rosenauer, head of the Energy Business Unit of the Austrian company Lenzing AG (LAG).

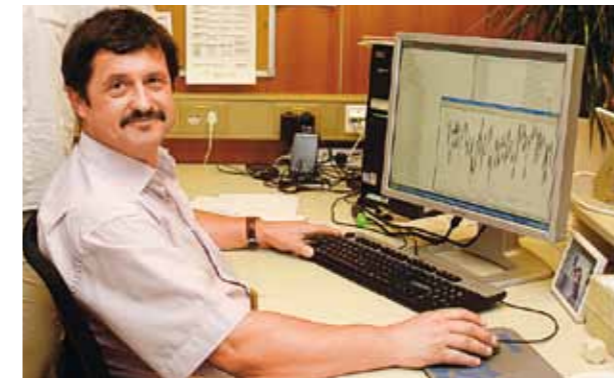
LAG supplies roughly 3,600 GWh per year to the Upper Austrian production plant in the form of heat and electricity. The electricity demand alone amounts to 648 GWh per year. The share of fossil fuels has been systematically reduced from 1995 to 2009, taking it from 35 percent down to 13.5 percent. Instead, biogenic materials such as bark or sawdust and sewage sludge from the production of cellulose are used as energy sources. On its grounds, Lenzing AG operates Austria's largest waste incineration plant with an output of 110 MW.

"Thanks to decades of optimizing our energy supply, nearly every improvement potential has been exhausted," explained Gottfried Rosenauer, adding:

"We are now systematically working on obtaining an even more detailed perspective on the production processes with an energy management system based on B.Data from Siemens in order to utilize the last few percent." This system quantifies the energy flows of electricity, steam, water, hot water, compressed air, cold, inert gas and vacuum and associates the amounts with individual processes and systems. Roughly 2,200 standardized variables are monitored at the Lenzing plant for this purpose. "Roughly 95 percent of the data flows automatically into B.Data via an existing real-time data collection system; only five percent of the values require manual entry," reports Karl Eder, head of the Accounting and Optimization department at Lenzing Energy.

Graphing of envelope curves

While in-house energy management solutions based on tables and lists were previously used for the monthly energy balance sheet, all measurement points can now be monitored and analyzed in real-time in 15-minute increments. "This allows us to take the important aspect of time into account for the optimizations," emphasized Wolfgang Hemetsberger, energy specialist in the Energy Optimization & Quality Management department. Representing electricity consumption in 15-minute increments, as is typical of energy providers, allows the graphing of envelope curves that clearly reflect the demand.



Through systematic energy management, it is possible to respond proactively to demand changes in order to achieve another two to three percent of potential savings.

Wolfgang Hemetsberger, energy optimization: "With B.Data, we can also take the important time factor into account for optimizations."

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"One important aspect of the decision for B.Data was that the relatively open system architecture offers simple modeling processes, flexible variable assignment and practically-oriented application creation," explained Karl Eder. A web server module was introduced for exchanging information with the system operator in Lenzing as well as for global use. This module provides access to the B.Data viewer on the intranet via a stan-

dard web browser.

The new system supports company-wide transparency on a cost center basis. The energy consumption can be clearly assigned to the 540 existing accounting items. "This makes it possible to identify optimization potential more quickly and generate new figures," emphasized Wolfgang Hemetsberger. The goal of the B.Data introduction is to increase the data quality and verify the data integrity, which are difficult tasks considering the

high complexity of the processes.

The batch operation of some process steps often results in fluctuations of up to 30 tons of steam per hour and 10 MW of electrical output. By observing the energy flows at the energy management level, it is possible to proactively respond to these demand changes, making the energy production even more efficient. In total, the systematic energy management can capture another two to three percent of savings potential – no small amount considering 12 million gigajoules of fuel usage.

The new software is standardized with an open system architecture and also satisfies all the requirements of the fiber producer with regard to sustainability and future viability. Thanks to its multilingual features and web compatibility, it can be integrated into the entire Lenzing Group. Gottfried Rosenauer on the next steps: "Next, we want to outfit our plants in Indonesia and China with this software and then all our locations around the world where additional streamlining potential exists."

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