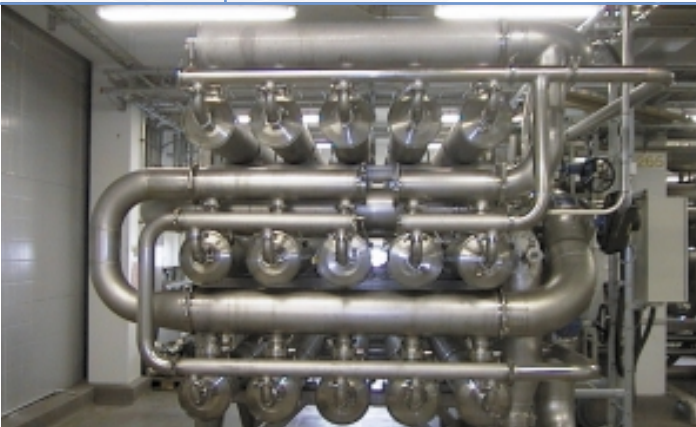


Sustainable Development Manager, Ms Kirsti Koli and
Technology Manager, Mr Antti Kosola of Genencor International Oy, Hanko Factory

Energy Efficiency as Stabiliser of Operations



Sustainable development is one of the focus areas of Genencor International. It requires energy efficient measures, both in the facility management and in production.

“Energy efficiency is an essential part of all operations of Genencor International. Biotechnology is exploited at the Hanko factory: We grow bacteria that produce enzymes mainly for detergents. Using enzymes it is possible lower washing temperatures and thus save energy.

However, our production – growing bacteria, as well as sterilisation of the devices required by the process – consumes quite a lot of energy. Attention has to be paid to this fact, as our production costs and our profitability are very closely linked with each other.

High Consumption and Potential

The Hanko factory was built in the beginning of the 1970s. During last decade, the factory was extended twice, due to the requirements of postproduction and the enzyme drying process. In 1994, we implemented our first energy audit. Already then energy consumption was

one of the focuses of our company. In recent years we have been able to save electric and heating energy in proportion to our steadily growing production. However, as we at the same time were becoming slightly dazzled by our own patterns, we again needed outside help in analysing our energy efficiency.

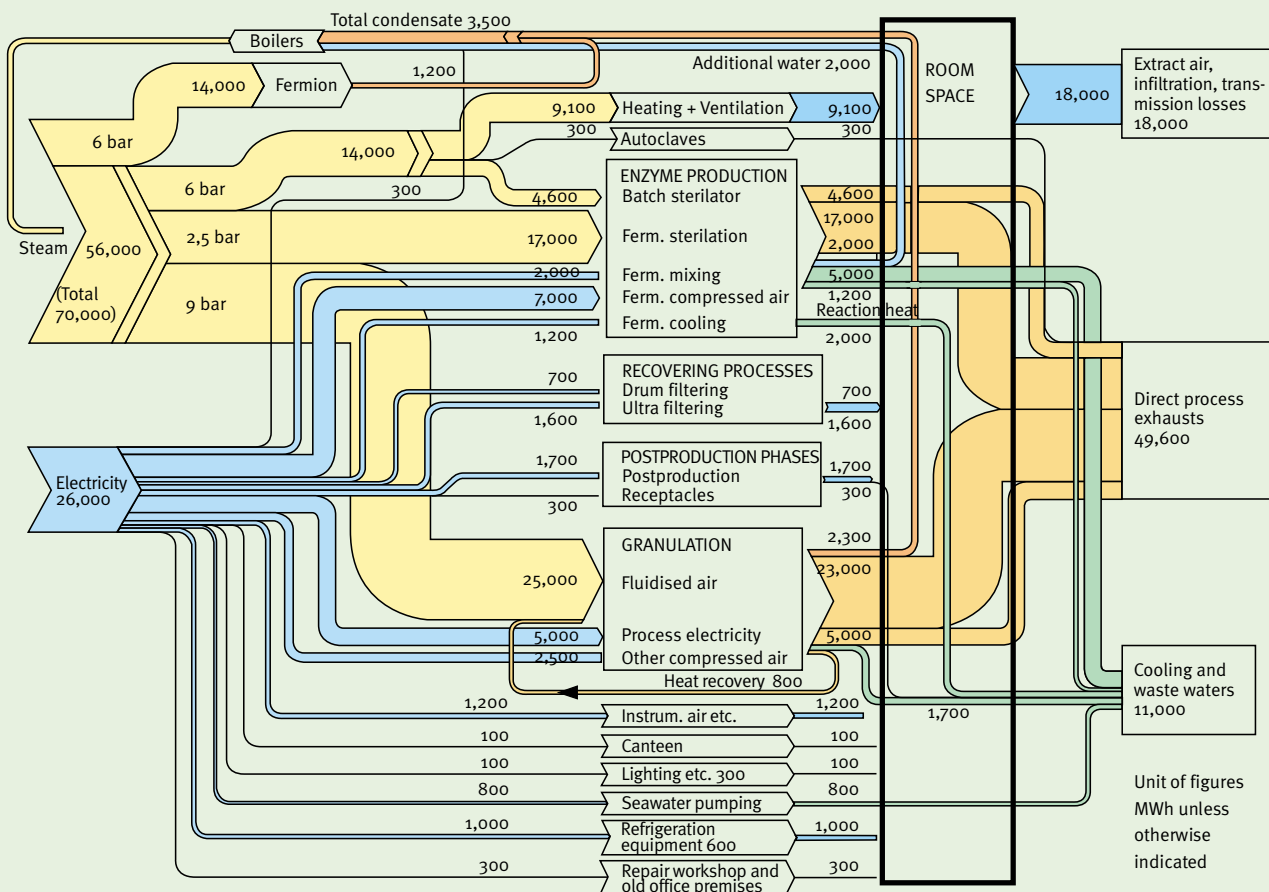
We use plenty of energy, and therefore we also had plenty of energy-saving potential: 15% (200,000 €/a) in heating, 9% (100,000 €/a) in electricity and 9% (76,000 €/a) in water. It was relieving to know that somebody outside the company was considering alternatives for us, calculated the savings, as well as the payback periods, and presented a visual summary of the biggest energy losses and potentials for us.

The energy analysis offered several opportunities to improve our operations in compliance with the requirements of our certified environmental management system.

Even Processes Improved

We are going to implement 80 to 90 per cent of the proposed measures with the average payback periods of under two years. In the facility management, there are clear and rather advantageous solutions, such as the adjustments of lighting and air conditioning. However, there was a great deal to be improved within the scope of the production processes, although they are today controlled in a more and more accurate, intelligent and energy-saving way.

All process innovations require careful considerations and plenty of money. The biggest project now is the implementation of the heat recovery system of the enzyme drier or granulator, based on the fluidised bed technology. This system will be built for our biggest unit, later perhaps also for other granulators. Even our United States factory has been interested in this technology.”



The Sankey Diagram drawn up in the energy analysis shows the energy flows. (Energy figures have been manipulated for this brochure.)

Significant Saving Items Detected in the Analysed Factories

In the energy analysis of the processing industry, the items to be clarified are the total energy use of the factory, the breakdown of the energy use, and all profitable possibilities to improve energy efficiency.

Motiva Oy, together with the actors of the processing industry, has developed a general model for energy analyses in the processing industry. This model is followed in the energy analyses subsidised by the Ministry of Trade and Industry.

The first stage of the energy analysis was implemented at the Hanko factory of Genencor International Oy in 2000. The energy analysis was continued in 2001 by supplementary analyses.

Additional information:

Motiva Oy (www.motiva.fi)

- audit models
- analysis models
- audit results



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Potentials for improvement of fuel use / heat use

Intensifying of drying processes
Replacing fuels / optimising fuel purchase
Sealing / isolation of devices / repairs of leaks
Heat recovery / exploitation of secondary energy flows
Adjustment changes of ventilation units
Exploitation of condensing heat
Improvement of the efficiency of heat production

Potentials for improvement in electricity use

Increasing local power production
Modernisation of production hardware / to be used when needed
Increasing the use of frequency transformers
Optimising of pumping
Improvement of the efficiency of pumps and fans
Use in compliance of the needs of electric heating and lighting
Changes in the compressed air system

Potentials for improvement in the use of water

Enhancing the recovery of condensing water
Changing the cooling water systems
Circulation of process waters
Changes in waste water payments