



SYSTEMATIC FOCUS ON ENERGY MANAGEMENT EQUALS LARGE SAVINGS

Viking Malt, which manufactures malt products for breweries, has worked systematically to cut energy consumption throughout its production for more than 20 years. So far, the company has succeeded in reducing its electricity consumption by 40 % and its heat consumption by 25 %.



Viking Malt A/S, Vordingborg

PRODUCTION

Malt products for breweries

INITIATIVE

Energy management and process optimisation

RESULT

- Electricity consumption reduced by 40 %
- Heat consumption reduced by 25 %



Economy

40 %

Electricity savings

>15 M DKK

Operational savings

25 %

Heat savings

<4 years

Simple pay back period

The result

- Electricity consumption reduced by 40 %
- Heat consumption reduced by 25 %

How much did it cost?

All improvement initiatives have been implemented with payback periods of less than four years.

Why was the project carried out?

The biggest cost of malt production is the cost of the raw material: barley. Energy, however, accounts for by far the majority of the remaining costs, namely 53 %.

Thus there is an incentive to save energy, and, on the basis of the international energy management standard, ISO50001, the company therefore began comprehensive optimisation of its processes.

Viking Malt has had an agreement with the Danish Energy Agency for energy efficient improvements since 1996. Under this agreement, Viking Malt has committed itself to e.g. introducing energy management and to carrying out all energy saving measures that have a payback period of less than four years.

How was the project carried out?

The systematic energy management effort has brought attention to energy consumption in the production process and has prompted the company to work with process control and process optimisation.

Optimising the drying process

The kiln stage is the most energy intensive part of the malt production

process. Here, the grain (green malt) is dried, and this is when the important aroma components are developed that help give the finished beer its distinctive flavour. The drying process alone accounts for 99 % of the factory's heat consumption and 52 % of total electricity consumption. The potential for savings is therefore huge.

Large amounts of electricity are used by the fans that blow hot air through the green malt to dry it. At Viking Malt, however, they have found out that electricity consumption by the fans can be periodically reduced, if the speed of the airflow is halved. Even small reductions in the rate can significantly reduce electricity consumption.

Smart control of the cooling system

Some stages of the malting process require cooling. Like other malthouses, Viking Malt utilises the cold outdoor air in the winter as free cooling. During the summer, when an energy-consuming cooling system is needed, Viking Malt has installed smart control of the system. This means that electricity is only used when there is an actual need.

Flue-gas heat exchanger saves energy

Heat usage has been reduced by optimising the installations that

produce process heat for the malthouse. For most of the time, the malthouse is supplied with heat from a gas boiler, the efficiency of which has been increased from 90 % to 103 % by installing a condensing flue-gas heat exchanger. The heat exchanger uses the condensation heat in the flue gas, which explains the efficiency of more than 100 %.

What were the results of the project?

Today Viking Malt uses only 88 kWh electricity and 607 kWh heat per tonne of malt - quite impressive figures compared with similar malthouses. Viking Malt owes its leading position solely to the fact that they have been systematic in optimising the malting processes, so that they match the product's actual energy demand.

Since 1997, the malthouse has been able to reduce electricity consumption by 40 % and heat consumption by 25 %, as illustrated in figure 1. As a result, Viking Malt is one of the world's least energy-consuming malthouses per tonne of malt produced. Moreover, the company has cut annual operating costs by more than DKK 15 million (approx. EUR 2 million).

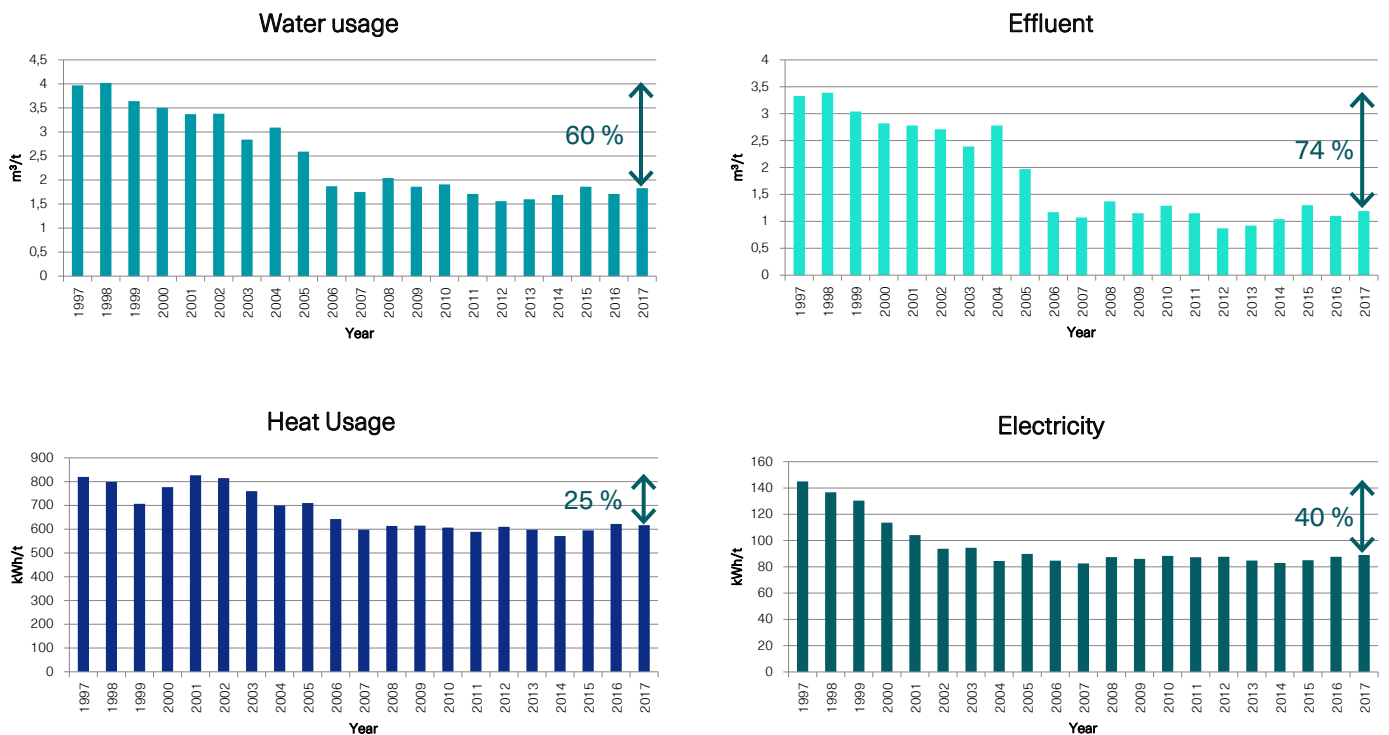


Figure 1: Energy - key figure development

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