Reduced energy consumption saved half a million euros

Sandvik's plant in Västberga has successfully reduced its energy needs, with significant savings and several hundred tons in reduced carbon dioxide emissions as a result. It has been crucial to work systematically on the basis of the Six Sigma methodology, says *Bengt Seger,* site manager.

IN VÄSTBERGA, Sandvik has several different types of functions. A special organization serves these functions with issues related to the plant operations, including contract management, energy, environment, safety and other issues. Bengt Seger is manager of the support organization and has spent years looking for potential reductions of energy consumption.

In the work of reducing energy consumption, Bengt Seger has made great use of the systematics of the Six Sigma concept.

Extensive analysis

About eight years ago, an extensive mapping of the energy consumption was initiated, primarily concerning electricity and heating. The purpose was to distribute energy costs correctly among the various businesses and to improve energy efficiency.

– We realized, among other things, that our heating and electricity consumption was equivalent to the amount of the consumption of a small town, says Bengt Seger.

With the help of energy experts, an analysis was done in order to understand how the heating system was constructed, since there were heat leaks and other problems. It was discovered that the energy consumption was quite large per unit area. The survey and analysis led to a long list of possible energy saving measures, which were divided into three categories according to how quickly the measures could be implemented and become profitable.

– We implemented measures from the list for several years. A lot of them could be taken within our own budget frame. During this time, a new energy target also came from the Sandvik top management: by 2020 all plants are to reduce their energy consumption by 20 per cent.

Million savings and reduced carbon dioxide

Many of the measures in Sandvik's plant in Västberga were relatively easy to implement, while others required investments. An example of the latter was the use of heat pumps to utilize the energy in the cooling water system in parts of the production. The saving within this area was calculated to amount to 7,20 euros per each invested euro.

– The heat pumps will soon be up and running and we will almost be self-sufficient in heating. In total, we will save several hundred thousand euros each year and get a very large reduction in carbon dioxide emissions, says Bengt Seger.

When this work began in the Västberga plant, the energy consumption of heating was approximately 7,700 MWh per year. After all measures, annual consumption will have decreased to approximately 1,600 MWh. Each MWh costs around 80 euros and corresponds to emissions of 70-80 kilos of carbon dioxide. Together, these improvements will reduce the cost of district heating by approximately half a million euros per year compared with the reference year 2012. Carbon dioxide emissions will similarly be reduced by about 440 tons per year.

Electricity use has also been reduced, among other things by replacing old water pump motors and unnecessarily large fan motors for ventilation. The main building in the Västberga plant is now Green Building certified, where the requirement is a 25 per cent reduction in energy consumption. This proves that quality and improvements are often closely related to sustainability.

The systematic approach is the key

Bengt Seger is Black Belt trained and has propelled the improvements by using the systematics of the Six Sigma concept. First the actual situation of energy consumption was mapped, measurements were taken, facts were analyzed, and measures were identified, implemented and closely tracked.

– The Six Sigma systematics is unbeatable and it has been absolutely crucial to work in this way: the problem is defined and then deeply analyzed so that it becomes clear to everyone involved where and how to take action. It makes things happen. Otherwise it is easy to get stuck in opinions and gut feeling. Everyone in the project team can see the results of their efforts and realize that it pays to be persistent in the improvement work, says Bengt Seger.

Sandholm Associates has supported Sandvik with training in quality management, Six Sigma and Lean during many years. Bengt Seger has completed his Black Belt training at Sandholm Associates.