

Energy efficiency pays off the cost-effective implementation of the Large-scale Consumers Article



Buser Oberflächentechnik AG in Wiler is the leading Swiss supplier of premium-quality surface coatings. It is unique due to its wide range of services – from plastic to metal and ceramic coatings.

“For reasons concerning resources, we wanted to delegate development of the cantonal target agreement within the framework of the canton of Bern’s Large-scale Consumers Model [Grossverbrauchermodell] to an external company. After a selection process, we decided in favor of Endress+Hauser (Switzerland) AG. Subsequently, a proposal for the target agreement with the canton of Bern was developed and presented on schedule.”

Daniel Marti, COO,
Buser Oberflächentechnik AG,
Wiler



Daniel Marti, COO



Newly coated machine parts

In 2015, the canton of Bern introduced legislation governing large-scale consumers [Grossverbraucherartikel]. In order to identify the economic measures for the required optimization of consumption, Buser Oberflächentechnik AG worked together with Endress+Hauser to develop a draft for a cantonal target agreement based on the relevant regulations. As a result, the energy savings potential proved to be considerable.

The requirements

The introduction of the legislation governing large-scale consumers obliges production sites with annual heating requirements of more than five gigawatt hours or electricity consumption of more than 500,000 kilowatt hours to take consumption-optimizing measures. Due to its electricity consumption, Oberflächentechnik AG was also counted as a large-scale consumer.

Solution For reasons concerning resources, Buser Oberflächentechnik AG decided to develop the list of measures for optimizing consumption together with a professional external partner company. After a selection process, a decision was made in favor of Endress+Hauser (Switzerland) AG. Firstly, all the raw data on energy consumption and the main energy consumers were recorded and documented during a plant inspection. Economic measures were then proposed and verified on the basis of this data.

Benefits

- Professional support while developing the economic measures for consumption optimization
- Verification of the measures by temporary measurements
- Energy savings of up to 20% by 2026

The first step involved recording and documenting all the initial information on total energy consumption and the main energy consumers. A further important indicator was the production volume. Buser Oberflächentechnik AG then developed a system for visualizing the production indicators individually for each specific production line.

The base year was set as 2015 and the consumption of thermal (heating oil, natural gas, district heating, wood, biomass) and electrical energy was presented in a table. The characteristics of the main energy consumers were subsequently recorded and compared with the total energy consumption.

The main energy consumers were the refrigeration, compressed air and sandblasting systems, the electrically heated furnaces in the plastic coating production line, the thermal spraying systems, lighting in the facility and IT. A list of economic measures could then be drawn up based on this data. In order to determine the investment expenditure of the individual measures, quotations were obtained from relevant specialist companies. In addition to this, temporary measurements were taken in order to verify the defined measures. For example, a measurement of compressed air consumption was taken using an



Thermal mass flowmeter
t-mass B 150



Data logger Ecograph T - RSG35

Endress+Hauser thermal mass flowmeter. This enabled the compressed air consumption to be measured and documented over a six-week period using an Ecograph T data logger. In addition, the thermal radiation from the production furnaces was monitored using a thermal imaging camera.

The final energy study covers all the results in detail in one comprehensive document.

✓ Scope of delivery

- List of economic measures
- Temporary measurements taken with:
 - t-mass B 150
 - Ecograph T - RSG35
- Documentation of the energy study

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