

Success Story

Company name: Ro-Credo S.R.L. – Constanta, Dobrogea County

Country: Romania

1) Company overview and energy consumption

Ro-Credo SRL was founded in 1995 and its field of activity is the "manufacture of bread, manufacture of fresh pastry goods and cakes", CAEN Code 1071. The company is part of the milling and bakery group called "Dobrogea Group Constanța" which produces today more than 100 varieties of bread and bakery specialties, manufactured according to own recipes, based on modern technologies complying with the European legislation on food safety and environmental protection, and its products are marketed under the brand "Dobrogea". The company has three automated production lines with the latest technology equipment from Germany, which produce over 90 000 breads and cakes per day.



Figure - Cooling Tower - final product

The company gas and electricity consumption (MWh) (before the PINE audit)

Electricity consumption	Gas/fuel/heat consumption
2, 075 MWh	Natural gas : 5,800 MWh Fuel oil: 786 MWh

The main reasons for selecting this company to be included in the PINE "Success Stories" are the following:

- Willingness to provide the information requested and reliability throughout the collaboration (completing the audit tool with detailed information, submitting the information within the deadline requested by the auditor, ...);
- As there is an Energy Manager appointed in the company, most probably the aspects related to energy saving will be monitored continuously and saving measures will be applied in the future;
- Willingness to invest in the implementation of concrete measures to save energy and capability to identify and implement the most appropriate energy saving measures using its own staff;
- The company was honored and agreed enthusiastically to be included in the PINE "Success Stories" and we hope that this example will become a model to be followed by other Romanian companies as well (small and medium enterprises in any field).

2) Description of activities carried out with the company and suggested energy savings measures

CREDO SRL was one of the first companies of the 20 selected in audit stage 2 which expressed willingness to cooperate in the project PINE and which fully understood from the start the purpose of the energy audit. The data were based on consumption records from invoices and on-site measurements.

The fact that there is an Energy Manager at CREDO SRL further facilitated the achievement of an energy audit in line with the envisioned project objectives.

CREDO SRL understood very well the energy audit purposes and how important it is for a company to continuously monitor energy consumption and to implement, when necessary, energy saving measures. Measures from the cheapest and easiest to apply to those requiring large investments and detailed

technical – economic analyses could be taken into consideration, primarily aiming at substantial energy savings and implicitly a good return on investment.

The collaboration with the company for data collection and interpretation for the audit was based primarily on telephone conversations and emails, whenever necessary. At the end of the audit period, a visit to the company was paid in order to conduct a general inspection and to establish together the necessary energy saving measures.

It is important to note that the Energy Manager had a leading role in this action, and that he also contributed significantly to the joint identification of the most appropriate energy saving measures, of which some have already been implemented and others are planned for future periods.

Important measures of saving energy, recommended and implemented

a) The use of frequency converters at the 3 main mixers

The equipping of the electric motors with frequency converters had numerous advantages, such as:

- Eliminate power surges which may damage the operating mechanisms and the motor windings;
- Eliminate vibration and noise specific to the operating modes;
- Extend motor life due to operation with currents lower than the rated current;
- Substantially reduce maintenance costs due to a lower number of contactors and other control elements that have a shorter lifespan.

Furthermore, the most important effect of installing these converters is the reduction of active power losses, resulting in lower power consumption. Excellent results have been obtained by equipping the electric motor compressors as well as the fans and the motors driving the conveyor belts with frequency converters

b) The installation of an automatic unit for temperature heat control

The automatic unit installed to optimize thermal energy consumption ensures the supply of heating medium and in parallel, in instantaneous mode, the supply of domestic hot water at a fixed temperature, depending on the ambient temperature, thus obtaining a minimum consumption of thermal energy, within the lowest possible limits. The nominal thermal load of this is of 250 kW for heating and of 100 kW for domestic hot water.

Other advantages obtained:

- Thermal load adjustment according to the outdoor temperature and heat recirculation on the heating circuit;
- Domestic hot water supply at a constant temperature, according to a preset operating program;
- Expansion of consumer heating circuit;
- Recording of thermal energy for the primary and domestic hot water;
- Measurement of the parameters (temperature, pressure) in all circuits.



Figure - Heating Substation (Unit)/250kW - warm up/100kW - domestic hot water

The point of view expressed by the company representatives regarding the collaboration with the PINE project

“Working with the PINE project was extremely useful for our company as it made us aware of the importance of energy efficiency in the production department and of the necessity to fall in line with the European standards in this area. We are aware that a high level of energy efficiency means a high equipment operation performance, increased productivity and economic efficiency and, last but not least, a reduced impact on the environment by lowering energy consumption. We are honored to be included in the “PINE Success stories” and we take this opportunity to thank the representatives of the PINE project.”

3) Savings

Besides the main energy saving measures adopted and implemented as mentioned under point 2, the following additional energy saving measures have been implemented lately, as follows:

- a) Installation of an automatic system for tracking hourly electricity consumption - June 2014;
- b) Replacement of conventional lamps with LED lamps on floors 1, 2 of the manufacturing plant - September 2014;

Energy saving measures proposed for implementation in the next 3 years

- a) Full implementation of a start/stop lighting system, as required;
- b) Purchase and installation of a cogeneration plant to supply part of the necessary electricity and heat. The auditor recommends purchasing a high-efficiency cogeneration plants Wolf Heiztechnik (brief technical description below).

These types of plants have powers from 7kW to 2,000 kW electric and 18 kW to 1,970 kW thermal. The Wolf high-efficiency cogeneration units are equipped with MAN thermal engines and Marelli generators and can achieve an efficiency of over 90% in ideal conditions.

The Wolf cogeneration units are manufactured in Germany, with components and parts of the highest quality, providing savings in operation. The fuel used is natural gas, biogas derived from digestion of organic waste or from sludge treatment process.

The energy savings achieved after the implementation of the measures proposed by the PINE auditor

	<i>Electricity savings</i>	<i>Gas/fuel/ savings</i>
<i>Actual saving</i>	<i>270 MWh</i>	<i>Natural gas: 1500 MWh Fuel oil: 78 MWh</i>
<i>Future saving (in 3 years)</i>	<i>900 MWh</i>	<i>Natural gas: 4500 MWh Fuel oil: 234 MWh</i>



Figure - Compressor



Figure - Furnaces type tunnel