

## GEEP Project – Energy Saving in a Dairy Factory

The factory was designed in the 1970s for the production of dairy products (milk, yoghurt, cheese) and ice cream. Today it has a production capacity in the range of 1,200 tons of ice cream and 300 tons of various milk products.

A site visit with walk-through audit established the management’s plans for an investment shows a high consumption of energy because:

- The operation of an old, inefficient refrigeration system working on ammonia, for the storage of the stock after production at the required temperatures (i.e. -25 °C) and for the shock freezing in the ice cream production line.
- Metering and overall control is absent in the plant and therefore the operational parameters of the refrigeration equipment (e.g. temperature set-points etc.) and its distribution system (e.g. ammonia leakage detection system, state of insulation) are not operating at the optimum conditions.

The following proposals were made to the Ice cream Factory:

- To separate the refrigerating capacity between the storage and the production line
- Replace the production line of ice cream with a new modern one.
- Replace the refrigeration capacity for the shock freezer in the production
- Replace the refrigeration capacity for the storage freezing cells

Today’s electricity consumption is of the order of 1.4 GWh/year at a cost of 81,000 USD. With the proposed measures the consumption will drop to 700,000 MWh/year with a cost of 40,000 USD. A saving of 50 %.



### The Company

<b>Main activities</b>	Ice cream production, milk, yogurt
<b>Region</b>	Kutaisi, Georgia

### Project Goal and Main Investments

<b>Project goals</b>	<ul style="list-style-type: none"> <li>▪ Replacing the refrigerating system of the storage area (-25°C)</li> <li>▪ Replacing the refrigerating system of the shock freezer in the ice cream line (-40°C)</li> <li>▪ Introduce a better control system for the deep freezing system</li> </ul>
<b>Main investments</b>	<ul style="list-style-type: none"> <li>▪ Installation of new compressors and evaporators, running on R404</li> <li>▪ Install better insulation in the freezing storage cells</li> </ul>
<b>Investment size</b>	Approximately USD 400.000

### Expected Results

<b>Operational results</b>	<ul style="list-style-type: none"> <li>▪ Better usage of the cooling power</li> <li>▪ Higher production volume</li> </ul>
<b>Investment profitability</b>	<ul style="list-style-type: none"> <li>▪ Annual savings of almost USD 41,000</li> <li>▪ Payback period of 5.5 years</li> <li>▪ Over 13% IRR on the investment</li> </ul>

For more information on how your company can receive financing for energy efficiency projects, visit [www.energocredit.ge](http://www.energocredit.ge), or call +995 32 224962.

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