



# Presentation about SME Loans



The GEEP assignment is funded using grant funds provided by:

**European Bank**  
for Reconstruction and Development



United Kingdom Sustainable  
Energy Initiatives Fund



Early Transition Countries  
Fund

[www.EnergoCredit.ge](http://www.EnergoCredit.ge)

- What is Energocredit
- Why Energy Efficiency
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- How can Energy Efficiency loans help your customers
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- Investment Appraisal Issues
- Marketing for EE Loans

# What is EnergoCredit

- EBRD has 35M USD Credit Line for energy efficiency loans: **EnergoCredit**
- So far three banks: TBC, Cartu, Bank of Georgia;
- GEEP is team of consultants who help banks assess projects
- GEEP: **Georgian Energy Efficiency Programme**
- Banks assess client creditworthiness and decide interest rate loan approval
- GEEP checks technical and financial details of project and reports to the bank about the loan
- GEEP also helps banks market the loans

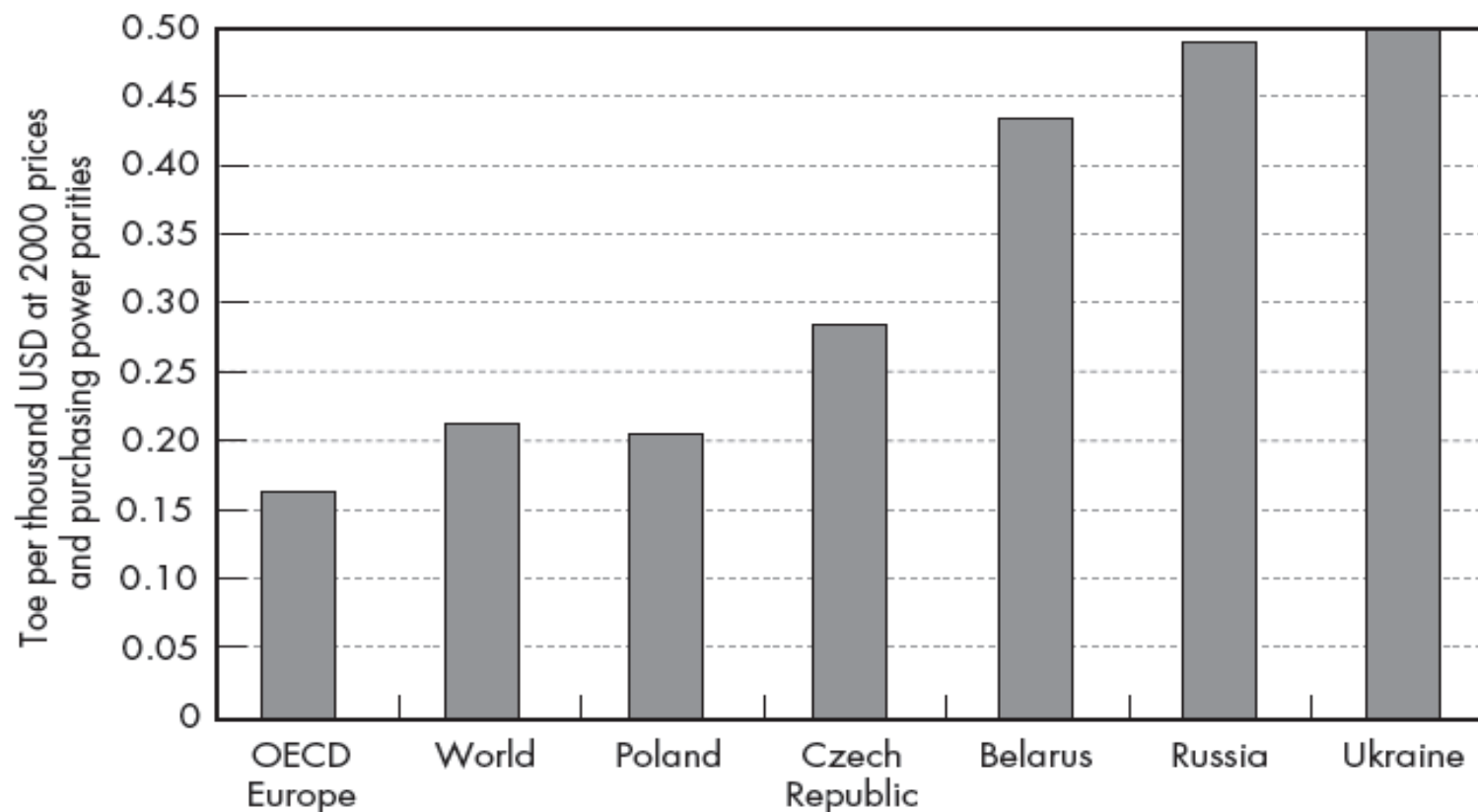
# Why energy efficiency?

- Former Soviet countries use up to 3 times more energy in production compared with modern standards
- Many Georgian companies use too much energy and water through old production facilities (30-40 years old)
- Repair and maintenance costs for old plant are expensive
- Old designs and technologies did not use modern materials, controls and instrumentation

# Why Energy Efficiency

## Energy intensity and post-communist countries

*Energy Intensity in Ukraine and Other Countries, 2004*



© OECD/IEA, 2006

Source: IEA statistics.

# What is an energy efficiency loan?

Ordinary business loan eg working capital

Short term loan is paid back out of future income

Investment project loan

Requires business plan to show how investment will generate extra income to pay back loan over longer period

Energy efficiency loan

Requires investigation to see how investment will save energy, so that annual energy savings, reducing operating costs, can be used to pay back loan. Pay back period may be long (not attractive) or short (very attractive)

# How does an EE loan help your customers?

## Variant I For the same level of production:

- Energy costs (operating costs) are permanently reduced, unit costs are reduced
- Production quality can be improved by better controls of process
- Production can be modernised reducing the need for repairs, maintenance and avoiding breakdowns

## Variant II Production levels can be increased:

- Unit costs are reduced, so more product can be made for the same energy consumption
- New technology allows better/different range of products

# What is an EE loan for?

## The loan is used to make an investment:

- replacement in current technology, eg new condensing boiler,
- change of fuel (from mazut or diesel to gas)
- change of process (ammonia refrigeration to R404 refrigeration)
- change of production line (shock freezing to overnight freezing)
- energy efficient building (insulation, double glazing, low energy lighting, building management system, ventilation with heat recovery)

# What is an EE Loan for?

## Energy Intensive Industrial Sub-sectors

- ✓ Food industry
- ✓ Glass and Ceramics
- ✓ Iron and steel
- ✓ Chemicals/Pharmaceuticals
- ✓ Petroleum refining
- ✓ Pulp and Paper
- ✓ Cement production
- ✓ Wood processing

# Case Study Production



## GEEP Project – White sugar production

Sugar production saves \$ 2.7M by reduced natural gas consumption

### Modern boilers and new power supply will increase profitability

The enterprise is one of the largest sugar producers in the Caucasus region and the only sugar producer in Georgia. The sugar factory meets 60% of the local demand of local market and exports sugar to the other Caucasus Countries.

The project completely replaces the old steam and electricity generation on the site. New boilers supply steam at lower temperature and pressure to the process. Electricity will be taken directly from the local HV network, with a diesel engine generator backup. In addition improvements will be made to the steam condensate return circuit, and instrumentation and control systems.

This will lead to natural gas savings of almost \$2.7M per year, showing over 70% IRR on the investment, and significantly reducing the benchmarks of steam and electricity used per ton of sugar produced.



### The Company

<b>Main activities</b>	White Sugar Production.
<b>Region</b>	Agara, Georgia

### Project Goal and Main Investments

<b>Project goals</b>	<ul style="list-style-type: none"> <li>On-site electricity generation process changed to supply from HV public network</li> <li>Expensive and inefficient on site production of superheated and high pressure steam eliminated</li> <li>Production costs reduced by natural gas savings</li> <li>Increased competitiveness of the final product</li> </ul>
<b>Main investments</b>	<ul style="list-style-type: none"> <li>Replacement of old oversized boilers</li> <li>Diversification of electricity supply sources</li> <li>New gen set (diesel) for full backup</li> <li>Improvements of condensate return circuit</li> <li>Introduction of instrumentation and control systems</li> </ul>
<b>Investment size</b>	Approximately \$ 3.3M

### Expected Results

<b>Operational results</b>	<ul style="list-style-type: none"> <li>Decreased natural gas consumption of almost 8M m<sup>3</sup> per year</li> <li>Specific electricity and steam consumption per ton of sugar reduced from 81 kWh and 1,7 t of steam to 65 kWh/t and 1,2 tons of steam respectively</li> </ul>
<b>Investment profitability</b>	<ul style="list-style-type: none"> <li>Annual savings of almost \$2.7M</li> <li>Payback period of 1.3 years</li> <li>Over 70% 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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# Case Study Production

*Audit of Georgian factory showed:*

- Twice as much energy used per kg of sugar compared with international benchmarks
- Inefficient and old boilers and turbines (1974 and 1956)

*GEEP provided 3 new alternatives for replacement:*

Which should they choose and why?

	AG-1	AG-2	AG-3
Investment	\$3.3m	\$1.3m	\$3.9m
Annual Saving gas	30%	30%	25%
Annual saving	\$2.712m	\$2.712m	\$2.260m
Technical Risk	Medium	High	Low

# Case Study RE



Georgia

## GEEP Project – Small Hydro Power Plant Rehabilitation

Country saves around 7 GWh/year from avoided electricity import

### New hydro-power units make savings for Company and Country

Renewable hydro resources for power generation are the basic component of the country's energy strategy. Georgia has a potential to produce about 15 GW energy from hydro resources.

The proposed project includes rehabilitation of almost the complete water supply and electro-mechanical systems of two units with total power of 5MW. Improvements on the water supply and elimination of losses together with replacement of hydro turbine and power generator, gives company possibility to increase annual electricity output from 6 GWh up to 13 GWh. The results will help the company to improve its financial position and saves the country around 7 GWh imported electricity. Reduced dependence on imported energy is the way to energy security and economic development.



### The Company

<b>Main activities</b>	Electricity generation
<b>Region</b>	Chkhorotsku, Georgia

### Project Goal and Main Investments

<b>Project goals</b>	<ul style="list-style-type: none"> <li>Eliminate water losses on the water supply line and increase reliability of water supply</li> <li>Increase annual electricity output</li> </ul>
<b>Main investments</b>	<ul style="list-style-type: none"> <li>Rehabilitation works in the headrace channel</li> <li>Rehabilitation of the damaged concrete surfaces of water intake structure</li> <li>Rehabilitation of both hydro turbines</li> <li>Rehabilitation of generators</li> <li>Rehabilitation of the substation</li> </ul>
<b>Investment size</b>	Approximately \$ 1.7 M

### Expected Results

<b>Operational results</b>	<ul style="list-style-type: none"> <li>Increased annual power output from 6 GWh to 13 GWh</li> <li>Decreased Green House Gas Emission of almost 5,200 tons of CO<sub>2</sub> equivalent per year</li> <li>Annual savings on outsourced power supply around 7 GWh/year</li> </ul>
<b>Investment profitability</b>	<ul style="list-style-type: none"> <li>Payback period of 1.3 years</li> <li>Over 75% IRR on the investment</li> </ul>

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# Case Study Construction



## GEEP Project – Energy saving systems in an Educational Building

Company saves around 1.3 GWh/year on energy and has more to spend for education

### Saving in building operating costs means more money for education

The proposed project includes complete renovation of the existing building heating, cooling and ventilation systems using energy saving solutions. Double glazing, the installation of energy efficient cooling and heating systems together with a Building Management System leads to significant reductions in energy consumption.

Students and staff experience increased comfort in both summer and winter, resulting in better conditions for learning. Reduced energy consumption means not only less expenses, it also contributes to the solution of a global problem – emission of Green House Gases. The installation of energy saving systems saves 420 tonnes CO<sub>2</sub>equivalent emission.



### The Company

Main activities	University
Region	Tbilisi, Georgia

### Project Goal and Main Investments

Project goals	<ul style="list-style-type: none"><li>Reduce energy consumption through energy saving systems</li><li>Create more comfort in education facilities</li></ul>
Main investments	<ul style="list-style-type: none"><li>Double glazed windows</li><li>Energy saving cooling and heating systems</li><li>Introduction of Building Management System in building operation</li></ul>
Investment size	Approximately \$ 550,000

### Expected Results

Operational results	<ul style="list-style-type: none"><li>Reduced energy consumption from 3.4 GWh to 2.1 GWh per year</li><li>Improved building and energy consumption control through introduction of Building Management System</li><li>Annual energy savings corresponds to \$ 83,000</li></ul>
Investment profitability	<ul style="list-style-type: none"><li>Payback period of 6.6 years</li><li>Over 10% IRR on the investment</li></ul>

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# How can GEEP help your customers?

- **Our service is free** (but should not be wasted)
- We are happy to visit all relevant businesses and see whether there is scope for energy efficiency
- We can make an energy audit of how their business uses energy, and make recommendations on what to do to reduce consumption
- We can help provide advice, ideas and get information on what technology is available internationally
- We can support the customer in his pre- and post loan negotiations with suppliers, planning etc
- Guide to investors coming soon (in Russian and English)



Thank you!



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