



CASE STUDY: BRAN LOCAL COUNCIL

Projects Name	Modernization of the public lighting system in Bran city
Sector	Municipality
Borrower	BRAN Local Council, Braşov County
Lender	Romanian Energy Efficiency Fund
Financing Starting Date	August 2005
Project Size/Loan Amount	USD 125,000 / 100,000

Summary

Bran city, located in Braşov County, has a population of about 5,350 inhabitants. The Local Council has decided to modernize the public lighting system. Presently, the lighting is ensured by 272 devices.

The lighting devices used today are obsolete (being based on old technology) having a short life span, high energy consumption and not meeting all standards and norms for public lighting.

The actual lighting system has an installed capacity of 63.7 kW. It is important to notice that the street lighting is covering approximately 29.1% comparing to the existing palls. The maintenance costs of the public lighting system are high, especially due to short life span of the lighting devices.

By implementing the project, the Local Council intends to reduce the electricity bill of the Municipality and at the same time to increase the quality of the provided service. The project, which is co-financed by the Romanian Energy Efficiency Fund with 80%, generates great electricity savings. It also has a positive impact on the environment by reducing the Greenhouse Gasses emissions at the energy generating facility site.

Project description

The project consists in installing 523 new lighting devices, increasing the covering ratio up to 56%. The new lighting devices are high pressure sodium having a high efficiency and great lighting efficiency. The new lighting devices will have a rated power between 125 W and 400 W and will be chosen according to all the norms and standards for public lighting.

The life span of the new lighting devices is considerably longer compared to the old ones, being between 12,000 and 24,000 hours of operation. The new lighting devices are keeping their characteristics during a longer period of time, thus leading to reducing of maintenance costs and increasing the quality of lighting in the city.

The installed capacity of the modernized system is about 29.1 kW. The new lighting devices with installed capacities over 150 W are equipped with „dimmer” type relays, which can generate savings of up to 35%.

Aim of the project

The new public lighting system uses devices with high energy efficiency and also respects all the existing standards and norms regarding public lighting. The main advantages of the project are the following:

- **Reducing electricity consumption.** The implementation of the new public lighting system will generate electricity savings of about 50 %.
- **Reducing pollutant emissions.** Reducing the consumption of electricity leads to diminishing of pollutant emissions, especially of CO₂ emissions.
- **Positive social impact.** Increasing the quality of the public lighting service has a positive social impact.

Economic evaluation of the project

Modernization of the public lighting system will commence in the month of November 2005. The project implementation period is estimated at about 2-3 months.

The total costs of the project are USD 125,000 and are detailed in table 1.

Savings

The estimated savings after the project implementation are presented below:

- **Electricity.** Modernization of the public lighting system will lead to electricity savings of about 399 MWh per year, i.e. 37,000 USD/year.
- **Maintenance.** The installation of new lighting devices based on modern technologies will lead to decreasing of the maintenance costs. Maintenance savings are of about USD 4,000 per year.

Financial evaluation

The feasibility evaluation of the projects has been performed using the following criteria: the simple payback period, internal rate of return and net present value calculated for an actualization rate of 12% and a study period of 20 years. Table 2 presents a synthesis of the financial analysis.

The Local Council of Bran city has decided to invest USD 125,000 for implementation of the energy efficiency project. The Romanian Fund for Energy Efficiency finances 80 % of the entire investment, i.e. with a credit of USD 100,000, Local Council assuring the rest of 20%, i.e. USD 25,000 from the own sources. The Romanian Energy Efficiency Fund credit is for 4 years having a grace period of 3 months. Credit disbursement will be made every 3 months using equal installments, as the Municipality has requested.

Expected Impact

The annual electricity savings are estimated at about 399 MWh (equivalent of 97.4 toes). The CO₂ emissions will annually decrease with 373 tones after the project's implementation.

Table 1

Item	USD*
Equipment	100,000
Design and installing costs	25,000
Total project	125,000

* - Figures include VAT, all import, customs and other taxes.

**Table 2**

	Year										
	0	1	2	3	4	5	6	7	19	20
	kUSD	kUSD	kUSD	kUSD	kUSD	kUSD	kUSD	kUSD	kUSD	kUSD	kUSD
Initial investment	-125	-	-	-	-	-	-	-	-	-	-
Cash Flow	-125	41.407	41.407	41.407	41.407	41.407	37.407	37.407	...	37.407	37.407
Accumulated Cash Flow	-125	-83.593	-42.186	-0.779	40.628	82.035	119.442	156.849	...	605.733	643.140
Discount Factor	1.00	0.89	0.80	0.71	0.64	0.57	0.51	0.45	...	0.12	0.10
Present Value of the Cash Flow	-125	-88	-55	-26	1	24	43	60	...	165	169
Payback Period	3	years									
Discount Payback Period	4	years									
Net Present Value	169	kUSD									
Internal Rate of Return	32	%									

The Romanian Energy Efficiency Fund financing advantages

Main advantages of the Romanian Energy Efficiency Fund financing are:

- FREE is a unique Romanian financier in energy efficiency field;
- FREE is actively supporting the companies during the energy efficiency project analysis;
- FREE offers flexible and attractive ways to guarantee the loans;
- FREE facilitates the access of the companies for financing feasibility studies, energy audits, etc.;
- FREE offers low cost financing for companies;
- FREE offers technical assistance.