



EUCF
European City Facility

CASE STUDIES

— Examples from the Slovak Republic



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BACKGROUND

In Slovakia, [MunSEFF](#), a Municipal Instrument to Finance Sustainable Energy Investments implemented by the European Bank for Reconstruction and Development (EBRD) between 2007 and 2015, realized several interesting projects to support sustainable energy investments across the Slovak Republic.

The loans to finance sustainable municipal investment under MunSEFF were provided by Slovak banks (Slovenská sporiteľňa - ERSTE Group and VUB - Intesa Sanpaolo), that participated in the MunSEFF programme. Those loans were supported by grant funding from the donors (the European Union).

PURPOSE

This selection of case studies should give you an idea about what kind of investment projects could be supported within the frame of the [EUCF](#).

1 CONTENT

1 / Energy Efficiency in Public Lighting

EPC/ESCO scheme in the Slovak Republic

2 / Energy Efficiency in Public Buildings

Children's center in Bratislava and Kindergarten in Nitra

3 / Energy Savings in Public Transport

Trolleybuses in Žilina

4 / Energy Efficiency in Public District Heating System

Municipal district heating system in Krásno nad Kysucou





1 / ENERGY EFFICIENCY IN PUBLIC LIGHTING – EPC/ESCO Scheme

A Grouping of Towns realizing Technical and Economic Assessment of public infrastructure through Energy Performance Contracting

OVERVIEW OF INVESTMENT PROJECT /

Energy Service Companies (ESCOs) can play a crucial role when it comes to replacing inefficient lightning systems with LED lamps, upgrading electrical wiring and replacing booms and poles. In this case, 14 towns and villages modernized their complete public lightning systems, replacing or modernizing a total of about 1,800 lights together with their ESCOS. As such, it represents a perfect example of how a grouping of towns and villages bundles resources and capacities to develop an investment project of scale. The projects focused on replacement of the lamps with LED, booms and poles replacement, and upgrade of the electrical wiring. In total, some 1,800 lights were modernized or newly installed, providing safe and pleasant lighting environment for the street users. The projects generate mainly savings on energy costs, as well as cost savings of maintenance & operation of the public lighting systems.

RESULTS /

110,000 EUR	60 – 90 %	65 %	170 tons
Total Cost Savings	Reduction of maintenance and operation costs	Reduction of electricity consumption (575 MWh annually/)	Co2 Emissions Savings per year
			



The new LED lamps were realized through [MunSEEE](#)



KEY FACTS OF THE INVESTMENT PROJECT /

14	1,800	935,000 EUR	7.5 YEARS
Towns	Lights installed	costs for project implementation	simple payback period (average)





2 / ENERGY EFFICIENCY IN PUBLIC BUILDINGS (I)

Realizing Energy Efficiency in a Children's Center in Bratislava

OVERVIEW OF INVESTMENT PROJECT /

In Bratislava, a children's center, established in 1870, was refurbished with the aim to save energy. Prior to project implementation, the building, which is divided into several physically distinctive blocks, consisting out of 2 aboveground floors, a gable roof and no basement, had no thermal insulation: The external walls were made of bricks with no thermal insulation. The timber-framed, double-glazed windows were installed in 1968 and in a very poor condition. The single-glazed entrance doors were made of timber, heating was supplied through the local boilers. DHW was prepared locally in electric boilers. There were no thermostatic valves on the radiators. Despite this, the entire building needed to be heated. The project resulted in great savings on energy costs, as well as a great reduction of maintenance & operation costs. The consumption of natural gas was reduced by 280 MWh annually, which equals a 65% reduction compared to the initial state.

RESULTS /

21,000 EUR	18,500 EUR	65 %	80 tons
Total Cost Saving per year	Annual Energy Savings Costs	Reduction natural gas consumption (280 MWh annually)	Co2 Emissions Savings per year
			



Buildings before and after project implementation through [MunSEEF](#)





KEY FACTS OF THE INVESTMENT PROJECT /

- 380,000EUR costs for project implementation
- thermal insulation of the external walls and attics floor
- replacement of the old timber windows and doors with insulating double-glazing uPVC ones
- new heating boilers installation in one of the blocks

OVERVIEW OF INVESTMENT PROJECT /

In Nitra, a kindergarten, built in 1967, underwent relevant energy efficiency measures. Before the implementation of the project, the building, consisting out of one aboveground floor, no basement and a flat roof, was equipped with an external wall made of ceramic bricks with no thermal insulation. About half of the windows were original timber frames, while half of the windows were new with uPVC-frames and double-glazing. Similarly, half of the doors were old timber and half of the windows were new uPVC. Heating was supplied via the hot water district heating system. DHW was prepared locally in electric boilers. There were no thermostatic valves on the radiators. The entire building needed to be heated. The project resulted in great savings of energy costs and maintenance & operation costs. The consumption of natural gas was reduced by 180 MWh annually (this equals to a 60% reduction compared to the initial state). The project also generates savings of some 50 tons of CO₂ emissions per year. The loan was provided by a commercial financial institution in Slovakia.

RESULTS /

22,000 EUR	19,000 EUR	60 %	50 tons
Total Cost Saving per year	Annual Energy Savings Costs	Reduction natural gas consumption (180 MWh annually)	Co ₂ Emissions Savings per year
			



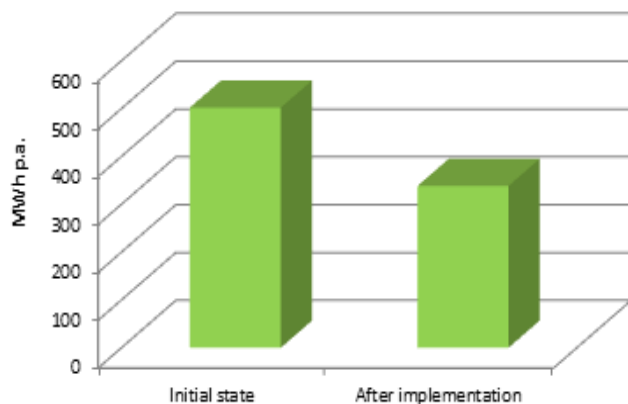
KEY FACTS OF THE INVESTMENT PROJECT /

- costs for the project implementation were 443,500 EUR
- thermal insulation of external walls and roof
- replacement of old timber windows and doors with insulating double-glazing windows
- installation of thermostatic valves on the radiators
- hydraulic balancing of the heating system

Buildings before and after the project implementation through [MunSEEE](#)





OVERVIEW OF INVESTMENT PROJECT /

In **Žilina**, the modernization of the town's bus fleet with low-floor trolleybuses, generated great cost savings on electricity for trolleybuses and maintenance costs. Žilina is situated in the northwest of Slovakia and is one amongst five Slovak cities with a trolleybus network. The Municipal Transportation Company's vehicle fleet consists of 42 trolleybuses, of which 29 are 18 meters long and 13 are short (12 meters). The company uses mainly the Škoda 15Tr and Škoda 14Tr vehicles manufactured in between 1993 – 2002. Since 2012, the fleet has been continuously modernized. Energy consumption was greatly reduced through the project, saving about EUR 19,000 EUR annually.



Before and after the project implementation through [MunSEEE](#)

RESULTS /

40,000 EUR	19,000 EUR	336 %	63 tons
Total Cost Savings	Annual Energy Savings Costs	Reduction of electricity consumption (164 MWh per year)	Co2 Emissions Savings per year
			

KEY FACTS OF THE INVESTMENT PROJECT /

- costs for the project implementation were 2.1 million EUR
- the project primarily focused on the traction consumption, representing approximately 70-80% of the total electricity consumption

OVERVIEW /

In Krásno nad Kysucou, Slovakia, residential buildings of about 400 apartments and non-residential buildings are managed by a municipal company. This company, called Krasbyt, established in 2007, is also a district heating company, responsible for the production and distribution of heat within the town. In 2011, Krasbyt teamed up with [MunSEEE](#), to Finance Sustainable Energy Investments, in order to revamp the production, distribution and delivery of heat for the public and residential sector. The technical modernization of the district heating system included a new natural gas boiler, and heat exchanger stations. The costs for project implementation were 680,000 EUR. Today, local heat stations that are equipped with condensation natural gas boilers, equithermal control systems and heating water circulation pumps with frequency controls provide the heating for buildings. The installation of condensation and low temperature boilers, allows for an average annual heat production efficiency of a minimum level of 95%. The fully automated operation of the local heat stations, result in great fuel and operational savings.

RESULTS /

**40,000
EUR**

Total Cost
Saving per
year



**32
%**

Reduction of natural
gas consumption
(215,00 cubic meters
p.a.)



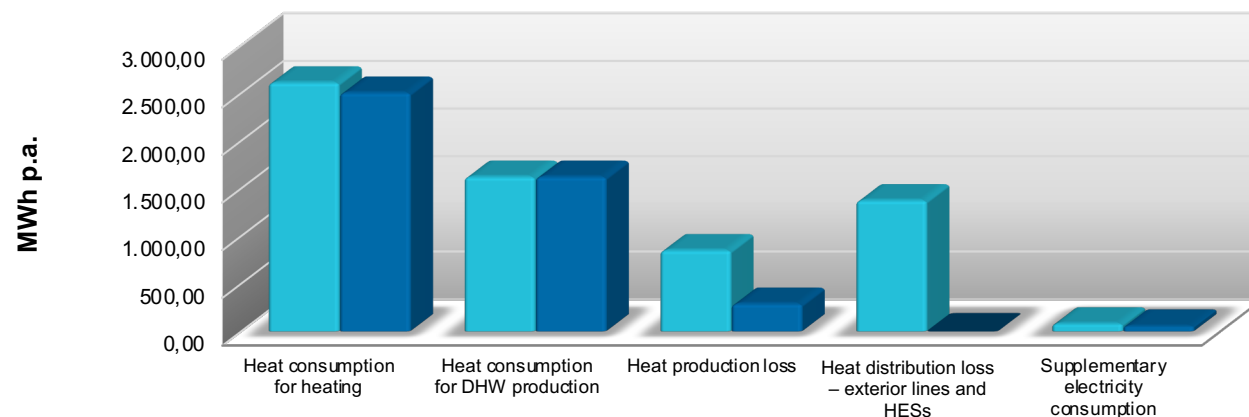
KEY FACTS OF THE INVESTMENT PROJECT /

- The costs for project implementation were 680,000 EUR
- The project generates mainly fuel and operational savings, because the operation of local heat stations is fully automated
- The annual cost savings are about 40,000 €
- By implementation of the project, the consumption of natural was reduced by 215,000 cubic meters p.a. = 32% compared to initial state

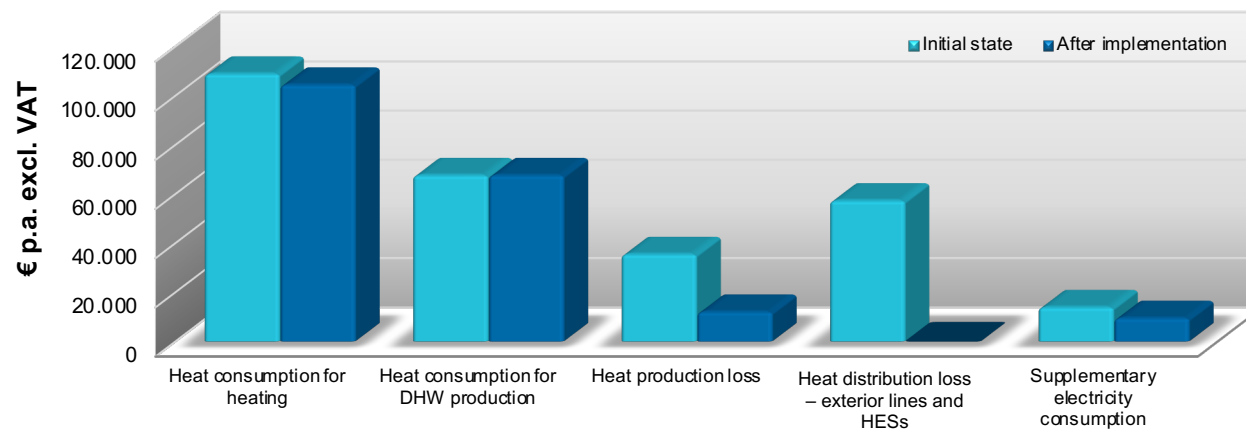
Modernizing Public District Heating

Municipal District Heating System in Krásno nad Kysucou, Slovakia

Total fuel and energy consumption



Total costs



Initial state

After implementation

through [MunSEFF](#)

Initial state

After implementation

through [MunSEFF](#)