



# BOOSTEE-CE PILOT ACTION PA3-CZECH REPUBLIC

**Interreg**   
CENTRAL EUROPE European Union  
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Development Fund

**BOOSTEE-CE**

 **ENERGETICKÁ AGENTURA  
ZLÍNSKÉHO KRAJE, o.p.s.**

 **Zlínský kraj**



### Introduction

The **BOOSTEE-CE** (*Boosting Energy Efficiency in Central European Cities through Smart Energy Management*) project will develop and implement technical solutions, strategies, management approaches & financing schemes to achieve higher Energy Efficiency (EE) in public buildings. This will be achieved through a transnational cooperation and using geospatial data, smart energy management tools and energy audit to facilitate the implementation of EE buildings. The final aim is to improve the governance of EE in existing public buildings (within Pilot Actions) and ultimately reduce energy consumption.

### Aims

The pilot action to improve energy efficiency is implemented in 8 buildings.

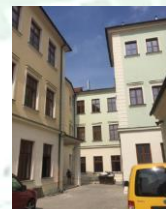
Dormitory and pathology buildings in Hospital Uherske Hradiste were built in the 70s and were prepared for comprehensive modernization of the building envelope into energy class B. Both buildings are connected to the district heating system of the hospital. The project also included optimization of project documentation for construction of the new building of internal medicine. After the optimization building is in the A energy class and building were finally inspected in 2019.



Other 5 historical buildings have been modernized with regards to the care of historical monuments. The four-story building of **Grammar school in Holešov** with an area of 4 948,1 m<sup>2</sup>, volume of 22 878,3 m<sup>3</sup> was built in 1902. The building is used by 408 students, 33 teachers and other staff. **Secondary pedagogical and social school Kroměříž** with an area of 5 232,4 m<sup>2</sup>, volume of 25 629,7 m<sup>3</sup> was built in 1902. The building is used by 180 students and 35 teachers. **Basic school 1. Máje Kroměříž** with an area of 3 406,2 m<sup>2</sup>, volume of 9 055,7 m<sup>3</sup> was built in 1887. The building is used by 50 children and 11 teachers. **Grammar school Valašské Klobouky** with the area of 4 649,83 m<sup>2</sup>, volume of 20 835 m<sup>3</sup> was built in 1906 (historical part) and 1995 (newer part). The building is used by 210 students, 23 teachers and 11 other staff. **All four buildings have own natural gas boilers for the heating and preparing of hot water.**



The three-story building of **Grammar school and secondary medical school Vsetín** with the area of 2 929,99 m<sup>2</sup>, volume of 13 476,4 m<sup>3</sup> was built at the beginning of 20<sup>th</sup> century. The building is used by 276 students, 20 teachers and other staff. The building is connected to the district heating system.



Windows have been replaced with high-quality wooden windows, new doors and the front door was renovated and, finally, the ceilings and courtyard were insulated in all historical buildings.



Teachers, janitors and the students were trained in compliance with established energy management. The quality of the indoor environment is monitored by CO<sub>2</sub> sensors and proper ventilation of classrooms ensured.

**Renovation of the buildings means annual savings of ore than 1 million CZK for heating.**

The following objectives have been agreed as part of the pilot:

- thermo-modernization of buildings
- construction of a new hospital building in modern standards (low energy consumption)
- increasing of the comfort of the building users and easier operation of the building
- promotion and dissemination knowledge about energy efficiency measures in buildings

## Solutions

The pilot action includes an investment into the **energy management system** in the hospital building and the connection to existing central boiler room. **Thermo-modernization of buildings** was carried out, consisting of the replacement of windows with  $U = 0.9 \text{ W/m}^2\cdot\text{K}$  and doors with  $U = 1.2 \text{ W/m}^2\cdot\text{K}$  and heat insulation of the roof with mineral wool or EPS ( $\lambda = 0.039 \text{ W/m}\cdot\text{K}$ ) in the minimum thickness of 22 cm and the walls with EPS ( $\lambda = 0.039 \text{ W/m}\cdot\text{K}$ ) and 16 cm thickness.

## PA idea (MONITOR -> CONTROL -> MANAGE -> SAVE)

The implementation of the energy consumption **monitoring and management** system contributes to a significant reduction in the value of energy bills. The data collected by the system, which constantly **controls** the level of energy consumption, allow to optimize the level of contracted capacity, which in turn generates **annual savings**. The system constantly monitors the level of energy consumption, provides information about where it is distributed, where it is lost. The tools provided by the system allow to easily analyse this data and draw conclusions about ways to reduce the costs associated with the use of energy. **Energy management** allows to optimize the contracted capacity, selection of a cost-effective tariff, energy monitoring and provides knowledge about energy flows in the building.



Reduction of CO<sub>2</sub> emission, improvement of air quality



Reduction of energy consumption



Optimization of costs (financial savings)



Increasing the comfort of the building use

## PA indicators & results

- investment period **11.2016-09.2018 (18 months)**
- investment cost **16 092 920 € (402 mil. CZK)** - with the new building people involved in PA implementation (**EAZK, representatives from the Zlín region, energy auditor, project engineers, representatives from the hospital, energy specialist, project developer**)
- **3 tools / instruments used (energy management led by EAZK, energy audit and project blueprints)**
- trainings, meetings, seminars
- **953 919 kWh** annual reduction of energy consumption
- **55 060 €** annual cost savings
- **190,695 tons** annual reduction of CO<sub>2</sub> emission
- change in people's behaviour by raising awareness

## Added values for replication and dissemination


The activities can be transferable and replicated in other cases and regions. Information about the pilot action is promoted and disseminated in the region and beyond.

### Contact

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