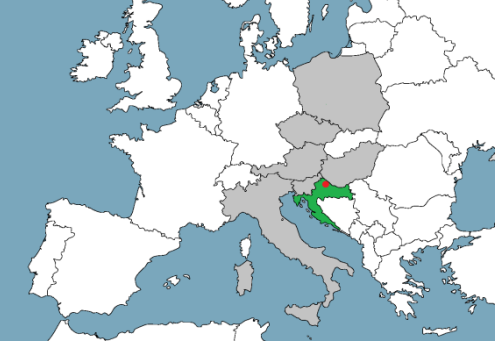


CROATIA

PA6. EE with OnePlace platform in a kindergarten of Koprivnica

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.

Photo created by D. Mandić

Source: https://epodravina.hr/

Aims

The pilot action to improve energy efficiency is implemented in the **Kindergarten Loptica** with an area of 1 035.46 m^2, volume of 3 037 m^3 and **Primary school Braca Radic** building with an area of 6 681.31 m^2, volume of 15 540 m^3. The kindergarten is a two-story building (basement and ground floor), while the primary school is a three-story building (ground floor, first floor and attic). The buildings were built in 1982 and 1989, respectively. The kindergarten building is used by 200 people, and 894 users attend primary school. City of Koprivnica is the owner of the buildings and responsible for implementation. The energy class of the kindergarten building has been identified as D, average annual consumption of energy needed for heating is 132 666 kWh. The building has a central heating system which is in good condition, but the overall condition of the building is poor. The energy class of the primary school building has been identified as C. The building is despite of certain refurbishment measures in pretty much bad condition and an urgent reconstruction of the building envelope is needed.

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

- improvement of energy performance, saving and efficiency of the buildings
- increasing the comfort of the building use
- easier operation of the building
- promoting and disseminating knowledge about energy efficiency measures in buildings

Benefits

For the owner of the building regarding financial and energy savings, energy monitoring and management, using PA solution for educational purposes (students, young experts and possible new investors).

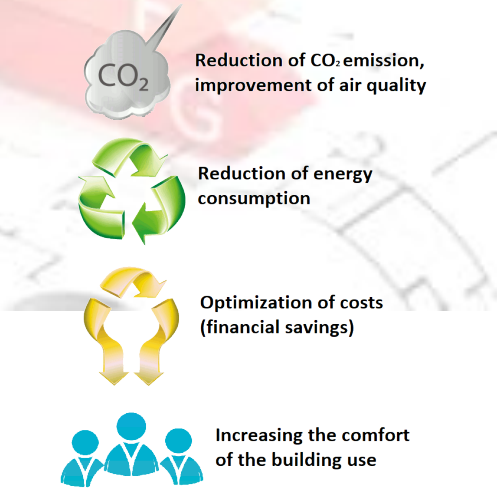
Project supported by the Interreg CENTRAL EUROPE Programme and funded under the European Regional Development Fund

Solutions

The pilot action includes an investment in **smart metering and monitoring system installation** for demonstrating energy management and consumption control. The main electricity meter, central water meter and air quality meter are installed in the kindergarten. The connection of the gas meter is also implemented in this building. In the primary school, the purchased equipment contains the main electricity meter and 3 other electricity meter for sports hall, kitchen, distribution cabinet. Besides the water meter in boiler room and air quality meter are installed. The connection of two gas meters is made in the kitchen and boiler room. In addition, the integration of measuring variables such as external temperature, solar irradiance, wind speed, power generation from the existing PV system is also carried out. All **OnePlace** modules are implemented to manage energy in the buildings.

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 analyze 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.



PA indicators & results

- 07.2018 investment period
- 13 900 € investment cost
- _ people involved in PA implementation
- _ tools / instruments used
- _ trainings, meetings, seminars etc.
- _ reduction of energy consumption
- _ annual cost savings
- _ reduction of CO_2 emission
- change in people's behavior

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.

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