

# Interreg

CENTRAL EUROPE



**ENERGY@SCHOOL**

European Union  
European Regional  
Development Fund

## FINAL REPORT ON PILOT ACTIONS IN FUSIGNANO (RA) - ITALY

DELIVERABLE D.T2.3.11

20/12/2018

<http://www.interreg-central.eu/Content.Node/ENERGY@SCHOOL.html>

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*In cooperation with CertiMaC Scarl (Italy)*





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## 1. Introduction

The goal of ENERGY@SCHOOL is to simplify the introduction of smart energy schools. With an integrated approach, teachers and students are trained as Senior and Junior Energy Guardians (EGs). They are committed to a sustainable increase in the energy efficiency of buildings and an understanding of the appropriate energy consumption ("energy culture") of a school building.

Within the project ENERGY@SCHOOL there was a pilot action in 3 schools in the city of Fusignano (RA).

The total amount of the investments costs is 69.184,00 (VAT included). Therefore, the pilot action was linked to an investment of 69.184,00 (VAT included), which included the procurement of necessary technical equipment.

This is the final report on the implementation of pilot actions in Fusignano (RA), which describes their quantitative results on energy savings as well as the experience gained.

## 2. Quantitative data on energy savings

The aim of this pilot action was to build a energy management system through the installation of devices (Smart meters) to monitor the qualitative and quantitative energy results by the Energy Guardians. The devices have been implemented in the 3 public school buildings of the Municipality of Fusignano (RA) corresponding to the headquarters of the Secondary School (Middle school), to the Primary School and to the Primary School branch. The energy consumption measurement system included devices for real-time collection of energy consumption and environmental (temperature, humidity and lighting) data through sensors, transmission circuits of this information to information systems for collating, consulting and processing. The devices ensured the measure consumption but didn't compare it with those of previous years (Energy Audit) to see if actions to improve energy behaviour contribute to reduce consumption. Smart meters measure electricity consumption, heat consumption and are able to provide information on school temperatures and humidity as well as useful information to determine the degree of indoor lighting. In addition to smart meters, the system also included Smart TVs, Tablets and Android Smartphones to display measurement data. The smart meters were also essential to participate in the Game through the app, to the competition between schools and are the prerequisite for a SMART School.

The Smart meter and software functioning system was illustrated during the training sessions of the SEG and JEG.

At the moment it is difficult to make any statements on the energy savings achieved, as the main focus of the pilot measures was to implement a fine-grained consumption recording of the schools (daily values) and to distinguish different consumption areas from each other in terms of measurement.



### 3. Experience gained

The installation of the smart meters has been essential to the participation and success of the Game (recording of consumption and display of both consumption and environmental parameters useful to avoid the "energy ghost"). Furthermore, devices were necessary to create awareness between Teachers and Students regarding energy consumption (and to involve them!). Furthermore, the recording of consumption through calibrated devices is the initial technological tool to become a Smart School.

The pilot project has a demonstrative relevance that will have positive implications not only on the 3 schools involved because the idea - concept of Smart School will be extended to all the other schools in the territory to get to the proposed measures for schools to be included in the next Regional Energy Plan.

In addition to specific results linked to the decrease in consumption and related climate emissions, the pilot project aims to increase awareness of the rational use of energy through monitoring both consumption and environmental data. A comfortable climate at School means having correct environmental parameters, debunking false myths among both students and teachers. The acquisition of skills at school will have positive repercussions also in the family and the concept of smart school can also be extended to the family and friends network.

Furthermore, the acquisition of awareness on the rational use of energy and on the potential of renewable energy sources can represent a possible professional future for students.

The lessons learned are many and concern several aspects. First of all, the training of SEGs and JEGs and the involvement of students gave way not only to transfer knowledge but also to receive back enthusiasm and positivity. Teachers and students together are a "laboratory of ideas".

Moreover, the collaboration with the international project partnership has given way to understand that there are many sustainability solutions adopted in the European schools, with remarkable results especially in small and medium-sized communities.

Where schools are placed in prestigious environmental and naturalistic settings, technical and technological solutions pay attention to the reduction of energy requirements.

### 4. Recommendations

The first recommendation concerns the planning timetable of the project tasks that must adapt to the school calendar. Project activities must be planned by the school and with the school in advance. It is necessary to plan the structural interventions (the pilot projects) during the holidays in order to do not interrupt the school activities. Involving more schools in the same municipality helps keep the initiative to maintain enthusiastic all over the time. Finally, all communication activities are very important and are one of the main key factors of the initiative.



## *5. Future development*

The idea behind the ENERGY@SCHOOL project is to create a Smart School network, a European network of schools where attention is paid to the rational use of energy, the use of renewable energy sources and, in general, environmental sustainability, energy and climate resilience can find fertile ground. The network, starting from the countries involved in the project, serves to exchange experiences and ideas because the sustainable solution must be sought through "tailor-made" solutions where local resources and experiences are valorised in each territory.

With a view to both environmental energy and educational training, the project will try to be transferred with the help of both financial-economic planning tools related to energy (Regional Energy Plan) and to the tools made available for Public Education.

The Nearly Zero Emission Building concept is already a reality that is applied above all in school buildings. The GAP remains between the schools built many years ago and the new ones but where the buildings have poor energy performance, teachers and students have the opportunity to put into practice what they have learned with the project and therefore to obtain good results on terms of savings.

The Game developed through the APP is certainly one of the best ways to learn especially among primary school children.