

DELIVERABLE D.T4.2.4

Implementation of pilot actions for EE
improvement

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D.T4.2.4: Implementation of capitalized pilot actions solutions in 25 pilot buildings in Bassa Romagna

Activity A.T4.2 Implementation of pilot actions for
EE improvements

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1. Introduction

The deliverable T4.2.4 belongs to the activity related to the implementation of pilot actions for EE improvement (A.T4.2). In particular, for each implemented pilot action, a document has been created reporting the information on how Pilot Action is developed, what upstreamed and downstreamed TARGET-CE tools are used in the new pilot areas and what is the overseen outcome of performed Pilot Action. This document describes Pilot Action included in D.T4.2.4 and performed by PP4 / Union of Bassa Romagna Municipalities in TARGET-CE project.

2. Pilot Action Statement

The Union of Bassa Romagna Municipalities (UCBR) put in place, during the last 12 months, a multiple pilot action in order to capitalize different EE solutions coming from TARGET-CE project on its territory.

To allow a better energy planning for buildings by professional users and stakeholders, the Union capitalized BOSTEE-CE project with the aim of collecting and representing buildings' data in a more informative and usable way.



To involve the school environment in the measurement of energy consumption in school buildings, and thus to raise awareness in the new generations of students, the Energy@School project was also capitalized in 5 out of 9 Municipalities of the Union.

To foster behavioural change also at work, the Union capitalized GreenSoul project by giving life to a communication campaign targeting employees of the Carmine building in Lugo.

With respect to what originally planned, some changes had to be made in order to reach the targets and to match the objectives in a period of uncertainty due to the ongoing COVID-19 crisis, that seriously affected everyday life in schools and at the workplace. While the GreenSoul roadmap was quite easy to comply with, only shifting the ignition of the campaign a couple of months later, the major changes occurred for Energy@School implementation, translating most of the training activities in online format and concentrating them in fewer pilot schools.

3. Pilot Action Objectives

The overall goal of PP4's pilot action was to work on the behavioural side of people reached by project activities, and namely to raise awareness of students, their families, teachers but also public employees and professional planners about buildings' energy efficiency, through educational and communication programs.

To quantify in numbers the pilot action undertaken by the Union, more than half of its Municipalities was involved in the experience of Energy@School, considered the most important activity to focus on in the framework of the pilot action itself. In fact, 5 Municipalities out of 8 took part in the capitalization, involving 1 school per Municipality (2 schools in the case of the Municipality of Conselice) and a total of 15 classes, 323 pupils and 5 reference teachers.

Considering the numbers of BOSTEE-CE implementation, a total of 25 buildings distributed in the 9 Municipalities was included in 3DEMS – OnePlace platform.

With respect to GreenSoul, nearly 70 employees located in the Carmine building have been reached by the communication campaign. 80 steel bottles were distributed, 4 informative boards were placed in the building and 50 stickers were applied on printers. More than 20 pop-up messages have been sent so far, reaching the mentioned employees.

3.1 Objective scope and targets values

BOSTEE-CE capitalization had the specific goal of improving the energy performance of buildings since the very early planning phase, providing planners and professional users with a set of integrated data offered by a technological innovative tool such as 3DEMS – OnePlace.

The specific goal of the capitalization of Energy@School was the promotion of an energy-efficient behaviour in the whole territory of the Union, making students the energy guardians of the future. Aim of the action was to replicate the positive experience of previous Interreg-CE project Energy@School, held in the Municipality of Fusignano, in the other Municipalities of the Union and thus to engage a larger piece of youth in the effort of energy sustainability.



Coming to GreenSoul, the specific goal of its capitalization consisted in increasing consciousness towards energy habits of public employees, promoting the awareness that small actions taken every day at work could make the difference in saving energy. The aim was then to leverage minor but effective improvements in public employees' daily behaviour towards EE.

3.2 Target indicators

Objective	Target indicator	Method of measurement and validation
BOSTEE-CE		
To provide planners and professional users an informative and integrated platform for buildings' energy planning	Building data integrated in 3DEMS - OnePlace platform Users provided with 3DEMS - OnePlace platform	Number and types of dataset integrated Users of 3DEMS - OnePlace platform
Energy@School		
To promote an energy-aware and efficient behaviour in students and new generations	Data inserted in the Energy@School app Students' knowledge on EE	App storage Presentations, infographics, drawings and other material created by students on TARGET-CE topics Students' answers to the training activities' final quiz
GreenSoul		
To draw the attention of public employees towards daily energy habits at the workplace	Promotional and communication material installed in the pilot building People reached and informed	Number and type of communication material spread (steel bottles distributed, stickers applied, boards installed, pop-ups sent) Employees' answers to the questionnaire Data of electricity and gas bills

4. Pilot Action description



4.1 Business-as-usual

Buildings involved by PP4 in its pilot action are mostly made up of old structures, devoted to educational functions or to the delivery of public services. Quite a technological backwardness, along with scarce attention towards energy consumption in people attending the buildings, caused UCBR not to be efficient in the management of energy and in the energy performance of its public buildings. Energy data describing the situation from which PP4 came from can be consulted in the attached Excel file [D.T4.1.2 Pilot action preparation_UCBR].

With respect to schools, as well as to recreational and cultural centres, it could be stated that without TARGET-CE activities the potential of new generations in fostering energetic change would not be fully deployed. Students and young people gathering social centres (meaning also their families and teachers) would not be part of the change they actually and strongly want.

Public buildings hosting government seats and departments, often criticized for bad management of public resources, thanks to TARGET-CE had the chance to prove the contrary and to give good example first in terms of energy efficiency. Without the awareness-raising campaign and the introduction of energy-audit tools, energy in the public buildings of UCBR would be managed in a less attentive and responsive way by planners and stakeholders.

4.2 Action and development scenario

BOSTEE-CE

To implement the capitalization of 3DEMS - OnePlace platform, steps started from the collection of spatial and non-spatial data for all the 25 pilot buildings, to be subsequently integrated in the platform itself by the Union's department for Urban planning, energy and mobility with the collaboration of external expertise, in order to make the tool available to users and stakeholders while planning the energy performance of buildings.

Energy@School

To capitalize the Energy@School app, first of all the app itself was updated to a new TARGET-CE version and constantly fixed by the app developer. The new app is now lighter in its structure and functionalities, offering also the possibility of choosing the flag of the country. A specific formative session on the app use was held, with the direct collaboration of the app developer, for the teachers that would successively work with it during the training activities.

At the same time, the equipment to be installed in schools (sensors, smart meters, lamps and valves) was purchased through public procurement. Energy Labs could be then installed in a specific point of school buildings, with the collaboration of the Municipalities' public works departments and the school staff.

At the core of Energy@School project, training activities were defined pursuing an educational aim and following the guidelines of the Energy Guardians Smart-School Management Plan (EGSSMP). The training content explained and related, in an attractive and interactive way, many aspects of EE – from



UNO Sustainable Development Goals, to EE possibilities in everyday lifestyle – as best illustrated by attached material [TARGET-CE Training activities_UCBR].

The training offer was proposed to schools through the Sustainability Education Center CEAS Bassa Romagna and training activities were scheduled in accordance with teachers and principals, to be best complemented and combined with school programs. Such activities could then take place from the 14th of February to the 11th of March – according to the attached calendar [TARGET-CE Training activities calendar_UCBR]. Most of them were held online, some also in presence and had a duration of 1 or 2 hours. Each class experienced two sessions and participated in a third final session on March 11th – an online plenary meeting where all the classes reported their experience and presented original works on lessons learnt within the project. Moreover, for the event, a funny final quiz to test students’ and teachers’ knowledge on EE was submitted and commented on at the beginning of the meeting. Materials emerging from training activities are also attached [TARGET-CE Training activities presentation of pilot school_UCBR, TARGET-CE Training activities final quiz_UCBR].

GreenSoul

The implementation of the GreenSoul campaign was based on the submission of the first round of questionnaires to the Carmine building’s employees, to detect their energy habits and opinions. Meanwhile, electricity and gas bills of the building were collected to serve as a baseline. Followingly, all the communication material (steel bottles, stickers, boards, pop-up messages) was translated and installed in the building.

A second round of questionnaires and bills was collected at the end of the campaign (that is, of TARGET-CE project itself) in order to evaluate the results gained. A good level of information emerged, as better illustrated by the attached report itself [Green Soul_ II questionnaire_UCBR]. Bills were rather affected by the current energy crisis, doubling prices and biasing results, but a good energy performance could be assessed anyway [Green Soul_II bills_UCBR].

4.3 Time schedule and milestones

PP4 – Union of Bassa Romagna Municipalities (UCBR)			
Pilot action: “Implementation of capitalized pilot action in 25 pilot buildings in Bassa Romagna”			
Capitalized pilot action	Implementation steps	Period	Milestones
BOSTEE-CE	<ol style="list-style-type: none"> Buildings’ data collection Data integration in 3DEMS Diffusion of 3DEMS to users 	<ol style="list-style-type: none"> 1. - 3. Sept. 2020 – Dec. 2021 	<ol style="list-style-type: none"> Data collected Data integrated in 3DEMS Diffusion of 3DEMS to potential users (e.g. during national workshop on 22/02/2022)
Energy@School	<ol style="list-style-type: none"> Energy@School app update Equipment purchasing Energy Labs installation Training activities organization 	<ol style="list-style-type: none"> 1. Sept. 2020 – Mar. 2022 2. Aug. 	<ol style="list-style-type: none"> Updated version of the app (and following updates) released



	5. Training activities realization	2021 3. Dec. 2021 – Feb. 2022 4. Dec. 2021 – Mar. 2022 5. Feb. 2022 – Mar. 2022	2. Public procurement procedure carried out, equipment arrived 3. Energy Labs installed 4. Calendar of training activities 5. Training activities held
GreenSoul	1. Submission of 1st questionnaire 2. Collection of 1st bills 3. Preparation and setting-up of communication material 4. Submission of 2nd questionnaire 5. Collection of 2nd bills	1. - 2. Mar. 2021 – Apr. 2021 3. Aug. - Sept. 2021 4. - 5. Mar. 2022	1. 1st questionnaire submitted and collected 2. 1st bills collected 3. Material translated and installed 4. 2nd questionnaire submitted and collected 5. 2nd bills collected

5. Pilot Action imported solutions

a) TARGET-CE tools

The EE tools coming from TARGET-CE project were used in the pilot action of PP4 with different scopes, depending on the type of pilot building involved and activity carried out.

With reference to 3DEMS - OnePlace platform, the use of such tool consisted in the visualization and query of energy audits relating to schools and public utilities by the Union technical officers and employees, as well as professional users and stakeholders. To import and adapt the platform as pilot action, UCBR's department for Urban planning, energy and mobility has been actively involved in collecting and integrating buildings' spatial and non-spatial data, also with the support of external expertise.

The Energy@School app was central in the training activities realized with students, since the measurement and monitoring tasks connected to behavioural change relied on the app itself and on the equipment installed in the Energy Labs. The app was thus updated and fixed in order to match the technical needs of a bigger audience, composed by many schools of the territory.

The GreenSoul communication material was indeed crucial to the spreading of an energy efficiency culture in targeted UCBR employees. Such awareness was pursued through the setting-up of an ad-hoc campaign in the Carmine building, made up of informative boards to be placed in common rooms or near coffee machines; stickers applied on printers; steel bottles distributed to replace disposable plastic water bottles; pop-up reminders showing up on PC desktops on a regular base (twice a week, on Tuesday and Thursday at 10:00).



b) Other EE measures

6. Pilot Action barriers

The multiple and massive actions that were planned and implemented under PP4's pilot action aimed at overcoming many barriers.

From the political and institutional point of view, the main aim was to promote a joint approach to the theme of energy efficiency and thus a common commitment in improving the energy performance of public buildings in the whole territory of Bassa Romagna, fostering the collaboration of all the Municipalities of the Union, a challenge not always easy to address.

Technological obstacles were also faced by providing, thanks to the TARGET-CE project, a range of technical tools and solutions with an innovative concept.

Strictly related to the point above, also financial matters were faced by offering solutions capable of influencing energy consumption levels and thus to generate savings for the Union's buildings. This is particularly true in a period like the current one, between February and March 2022, during which the energy crisis dramatically raised energy spending.

7. Pilot Action Monitoring

As previously explained, the uncertain COVID-19 situation has seriously delayed and threatened the implementation of actions involving schools, but also public utilities. It was then decided not to monitor energy saving data in a strict sense, but to link the monitoring activities more to the behavioural change fostered by the pilot actions, and in particular by the training activities for students and the communication campaign for public employees.

To monitor the usage of 3DEMS – OnePlace platform for pilot buildings, a check of access and usage may be carried out by the platform manager.

To have feedback about the success of the training activities made with students, along with insights during activities themselves, the most precious occasion was provided by the bar camp held on the 11th of March 2022. Organized as a common final session for all participating classes, the event gave back impressions and experiences directly by students and teachers, as concretely shown in their presentation material.

To test the effectiveness of the Green Soul campaign, the second round of questionnaires helped in measuring the knowledge acquired by public employees reached by communication material in the last months. At the same time, collecting the electricity and gas bills for the second time helped in checking if and how much consumption in the Carmine building was reduced thanks to such increased awareness.

8. Conclusions

In short, the Union of Bassa Romagna Municipalities as TARGET-CE PP4 implemented a multi-level pilot action based on the capitalization of BOSTEE-CE, Energy@School and GreenSoul projects. Focusing on pilot



buildings located in the whole territory of Bassa Romagna, PP4's pilot action pursued the overall aim of optimizing energy consumption and performance in the territory acting primarily on the behavioural side of targeted people.

Despite organizational problems caused by the uncertain health situation, the implementation of the pilot action was successfully undertaken in the last 12 months of the project. Energy data of pilot buildings, located in all the 9 Municipalities of the Union, were integrated in 3DEMS – OnePlace platform at the disposal of urban planners and professional users. Energy@School training activities, based on an innovative app and equipment installed in Energy Labs, raised awareness upon energy efficiency topics in more than 300 students of 6 pilot schools. The ignition of the GreenSoul communication campaign allowed a significant part of the Union's employees to act more consciously towards energy consumption at their workplace – the Carmine building in Lugo.

At the conclusion of such massive pilot action, the Union of Bassa Romagna Municipalities confirms the importance of implementing innovative and cooperative solutions for energy efficiency of the territory.