

OUTPUT FACT SHEET

Output O.T3.1 / D.T3.2.5. PA5 design for 9 buildings in Poland

Project index number and acronym	CE51 TOGETHER
Lead partner	Province of Treviso
Output number and title	O.T3.1: Pilot actions for improving the energy performance of public buildings in involved Pas / Deliverable D.T3.2.5: PA5 design for 9 offices, educational/service & cultural buildings in 3 APs cities in PL.
Investment number and title (if applicable)	I7: Investment in an energy monitoring system for pilot actions in 9 public buildings in Poland (PA5)
Responsible partner (PP name and number)	PP5: Association of Municipalities Polish Network "Energie Cités" (PNEC)
Project website	https://www.interreg-central.eu/Content.Node/TOGETHER.html
Delivery date	20.01.2019

Summary description of the pilot action (including investment, if applicable) explaining its experimental nature and demonstration character

The Polish pilot engages 9 public buildings from 3 AP municipalities (3 administration buildings, 4 educational buildings and 2 service buildings) in energy saving activities integrating **analytical** and **behavioural** approach to reducing energy consumption & related costs. Analytical measures include installation of smart metering systems with dedicated software enabling better energy management, setting up alarms, etc., while behavioural ones include encouraging change of building exploitation and maintenance routines, as well as change of user behavior based on better awareness of the building, energy and energy saving methods.

In order to create sense of rivalry and strive for the highest possible savings a **competition** for the "**energy-saving master**" was organised with the building teams being rated both for level of savings achieved and for completing relevant tasks on the path leading towards them (with some extra points to be obtained for special creativity and finding "untypical" ways for energy saving). 6 tasks were prepared and given to the building team and PNEC's staff helped with the execution of some of them on the spot. The tasks prepared are: (1) internal energy review/audit of the building; (2) social audit of the building; (3) exploring and using heat saving potential; (4) exploring and using electricity saving potential assoc. with lighting; (5) exploring and using electricity saving potential assoc. with electric appliances. Each task was accompanied by a task report to be filled in by the building teams. In between the tasks the building teams received short thematic newsletters with further food for thoughts and energy-saving tips.

Installed smart metering systems are very important element of the pilot action, as they not only enable real-time monitoring of electricity & heat consumption and seeking possible optimizations, but also give immediate feedback on the results of implemented measures. They have been described in detail in the Investment Factsheet delivered with the previous report. Since the systems have been installed and launched into operation in more or less parallel time than start of the competition, historic data from energy bills and meters will be used to calculate achieved annual savings. These data have been already collected and analysed by PNEC.

Once energy savings are calculated for each building and collected points summarized, the "energy-saving master" will be announced during official award ceremony planned in **Spring 2019**. The experience is also being used for delivering "Reinvestment action plan" (for reinvesting financial savings achieved in further EE measures) and an "Action plan for energy efficiency in public buildings" (aimed at introducing tested and other project tools in a wider range of buildings).

NUTS region(s) concerned by the pilot action (relevant NUTS level)

Pilot action is implemented in 9 public buildings in 3 Polish municipalities (Associated Partners) located in the following NUTS region(s):

1. Municipality of Besko - NUTS 3: PL323
2. Municipality of Raciechowice - NUTS 3: PL214
3. Municipality of Żyraków - NUTS 3: PL325

Investment costs (EUR), if applicable

Total investment cost came to 221 031,00 PLN (51 406,14 EUR¹) and includes:

- cost of the installation of smart metering systems in 3 public buildings in the municipality of Besko - 73 677,00 PLN (17 135,38 EUR),
- cost of the installation of smart metering systems in 3 public buildings in the municipality of Raciechowice - 73 677,00 PLN (17 135,38 EUR),
- cost of the installation of smart metering systems in 3 public buildings in the municipality of Żyraków - 73 677,00 PLN (17 135,38 EUR).

The cost includes VAT.

Expected impact and benefits of the pilot action for the concerned territory and target groups and leverage of additional funds (if applicable)

¹ Using exchange rate from 20.08.2018: 1 EUR = 4,2997 PLN.

Expected impact/benefit for the concerned territory: Pilot action should contribute to the popularization of smart metering systems and more conscious energy management on a building level. We can already observe significant interest in pilot buildings' experiences from other municipalities and promoting these experiences (and also providing reliable information on encountered problems and solutions found) can encourage next building owners/managers to follow. The pilot action also affect local inhabitants - monitors installed in pilot building halls, which display data on energy consumption, catch the eyes of the visitors and draw their attention to the issue of energy efficiency. The PP and APs are working on exploiting this interest and using it to raise general energy awareness. Thus the activities and experiences of the pilot action are widely promoted and all relevant material and tools accessible to public. There is also an open access to the webpage, where the content of the monitors (real-time data) can be accessed remotely. What is also important, the pilot action demonstrates that there is important energy saving potential associated with "soft" measures such as DSM and change of behavior. Thus the experience should be widely promoted both as a single action or possible integrated action accompanying investment projects.

Expected impact/benefit of pilot action for the target groups: Pilot action improved knowledge and understanding of energy issues among pilot building owners, managers, technical managers and users. It made them better aware of the energy situation of their own building and encouraged to adopt energy-saving measures and behaviours. It is to be hoped that these will be transferred to their own homes and other places that they visit.

Expected impact/benefit of pilot action for the leverage of additional funds: Although yet to be calculated and verified, it is expected that the pilot action will result in concrete energy and financial savings, at least part of which shall be spent to further energy saving measures (through the "reinvestment plans"). Example of the City Hall of Besko shows that also additional savings can be achieved (not related with energy consumption) thanks to the smart metering systems installed (reduction of excessive reactive power resulting in 120-190 EUR less spent every two months).

Sustainability of the pilot action results and transferability to other territories and stakeholders.

Sustainability of pilot action results: Smart metering systems installed in pilot buildings will remain there and will be further used to monitor and optimize energy consumption and quickly react to any anomalies and other issues identified. Buildings' personnel have been trained in using the systems and data analysis therefore they should be able to do it individually in the long term. Also new knowledge passed to building users and energy-saving solutions proposed will remain with them and it is expected that at least some of encouraged habits will be kept in the long term. To ensure that PNEC will further work with the building owners (APs being members of the network), possibly also within new projects and initiatives that could build on the existing experience. The pilot action also improved pilot municipalities (local authorities and administrations) capacities to work on their own energy -related projects in the future and increase their commitment to work on energy issues. This commitment should be exposed i.a. in the reinvestment plans and action plans for energy efficiency foreseen within WPT4.

Transferability of pilot action results: All elements of the pilot action are transferrable to other municipalities, regions and countries. Regarding smart metering systems, although different technologies, equipment and solutions may be available in different of them, the whole knowledge and experience acquired (e.g. concerning ways of using monitoring data to optimize energy consumption, educate and involve users, etc.) can be applied also in other contexts. Regarding other tools tested, they are mostly of behavioural nature and foresee building users exploring their own energy-saving potential and creating sense of competition among them, therefore also can be transferred outside and replicated (after some possible adaptations). To enable that all pilot action documents and experiences are progressively published on project-related webpage on PNEC's website.

Lessons learned and added value of transnational cooperation of the pilot action implementation (including investment, if applicable)

Main lesson learnt from the pilot action are following:

- There is significant energy-saving potential associated with low-cost and no-cost measures that is often underestimated and even if such measures are implemented, their results are often not properly followed, measured and verified. TOGETHER project and pilot actions implemented within it (also in Poland) propose alternative approach, showing that there is a lot that can be done in terms of improving building management, maintenance and users behaviours and there are tools (smart metering systems) that can prove effectiveness of such actions. Tested tools should be further explored and promoted to encourage others to follow.
- Awareness raising and behavior change activities seem simple and easy, but in fact achieving real change is more difficult than doing thermal retrofitting works. The TOGETHER project developed and tested several tools facilitating that, some of which were part of the pilot action like social audit (which proved that - to plan improvements - you need to know what users think about the building and what motivates them) or competition, which creates sense of rivalry and thus engages people more deeply in seeking energy saving solutions.
- Change of behaviour is a process that cannot be initiated and just left alone. It requires constant work (like giving new tasks to building teams), support (participating in some of the tasks) and reminders (energy-saving hints in between the tasks).
- It is easier to work with buildings with established routings and more “permanent” groups of users (like schools, sports centers, etc.). In case of buildings with multiple and varying group of users, it is better to focus efforts on those who can really make a change (i.e. have influence on how building systems are used). For the rest it is just enough to remind them on closing the doors, turning off light, etc. (e.g. visitor of the city hall most probably will not have any contact with electronic equipment used there or engage in airing rooms).

Added value of transnational cooperation: Transnational cooperation was very important for developing and executing Polish pilot. It is very much based on the tools developed together in WP2 and was fine tuned during many discussions and meetings (also Skype) meetings with partners planning similar activities. We learnt from each other, inspired each other and explored each other’s best practices. Very important were so called peer reviews, during which partners looked with critical eye on discussed pilots and provided many useful suggestions.

Contribution to/ compliance with:

- relevant regulatory requirements
- sustainable development - environmental effects. In case of risk of negative effects, mitigation measures introduced
- horizontal principles such as equal opportunities and non-discrimination

The pilot action and smart metering systems installed in connection with it comply with all relevant regulatory requirements. Following national guidelines, their environmental impact was assessed and no negative influence on local environment was detected. In all cases the systems received positive assessment from Regional Environmental Protection Directorate, who stated that their installation shall not have actual influence on the nearest Nature 2000 area. In fact, the pilot action supports and contributes to the sustainable development of the region as it teaches an important target group (public building owners, managers and users) how to use resources efficiently and gives them tools for that. Regarding horizontal principles, they were met to the full extent. All relevant building users were invited to take part in the pilot action, regardless of their sex, nationality, etc. and the PP was always open to any suggestions concerning the action or the approach that should be used in specific buildings. Also the Negotiating Panel and Building Alliance concepts (developed within the project) helped to ensure non-discrimination and equal voice.

References to relevant deliverables (e.g. pilot action report, studies), investment factsheet and web-links

If applicable, additional documentation, pictures or images to be provided as annex

References to the relevant deliverables and factsheets:

- D.T3.2.5 PA5 design for 9 offices, educat/service & cultural buildings in 3 APs cities in PL.
- D.T3.3.6 Report on PA5 realised by PNEC in 9 buildings-offices,educat/service& cultural in 3 APs cities in PL

Web-link:

- www.pnec.org.pl/together (general PL webpage on the TOGETHER project)
- <https://gminy.numeron.pl/ui/#/3> (webpage where energy data displayed on monitors placed in PL pilot buildings can be seen in real time)

Additional documents:

- Post-implementation technical documentation of installed smart metering systems
- Pictures of the installed equipment with TOGETHER labels
- Exemplary task for building teams competing for the title of “energy-saving master” (task 1: internal energy review/audit)
- Exemplary task report for building teams competing for the title of “energy-saving master” (task 1: internal energy review/audit)