

# OUTPUT FACT SHEET

## Pilot actions (including investment, if applicable)

Version 2

Project index number and acronym	CE51 TOGETHER
Lead partner	Province of Treviso
Output number and title	O.T1.2 Pilot actions for improving the energy performance of public buildings in involved PAs
Investment number and title (if applicable)	I3 - Investment in an energy monitoring system for pilot actions in 9 public buildings in Hegyvidek (PA7)
Responsible partner (PP name and number)	PP7 - Hegyvidék (Municipality of 12th District of Budapest)
Project website	<a href="http://www.interreg-central.eu/Content.Node/TOGETHER.html">http://www.interreg-central.eu/Content.Node/TOGETHER.html</a>
Delivery date	31.01.2019

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

Before designing and introducing DSM tools in the 9 pilot buildings of Hegyvidék, the external experts - engineers from the Technical University of Budapest - visited all the pilot buildings conducting interviews with building managers and users and checked the technical condition of the buildings from energy efficiency point of view. Based on the experiences of these visits, the experts prepared a suggestion list for the pilot buildings including recommendations for the technical improvement and energy efficient usage of the buildings as well as for the application of DSM tools.

As the first step of the pilot, some pilot building users were invited to work voluntary in designing and implementing pilot actions. Their task was to observe the building users' behaviour and detect anti-energy efficient habits. Meetings were regularly organised for the voluntaries which were called energy commando meetings led by the external experts and the project team of the municipality **including trainings how to extract data from the smart meter system and understand the graphs presented on the dashboards.**

Energy efficiency competition was organized between the pilot buildings with the participation of the energy commandoes. In addition, energy days were organized with the Humphry character (puppet show and workshop) in 4 pilot kindergartens during Autumn 2018. Also, the Humphrey drawing book, as DMS tool, was applied in the kindergarten pilot buildings. The key success of this tool is rooted in the fact that both parents and children learn about energy efficient behaviour colouring the drawing book as while children are colouring, parents are explaining them the texts. Furthermore, Humphry crochet were produced by voluntaries which will also be used among children in the pilot kindergartens. Moreover, Humphrey puppets, posters and stickers will be distributed in the kindergartens. **Beside DSM tools, parents were addressed by a short guiding document which explains the meaning of the measured smart meter data placed next to the dashboard in the kindergartens (see picture in Annex).**

In the Budai Drawing School pilot building, a local workshop was organized in the frame of a one week long open event where students of the drawing school designed sticker and poster graphics. Each graphic was designed for raising awareness and attention of building users for energy efficiency and other environmental issues. The best graphics were printed out and will be placed in the pilot buildings (Kis János atb, Börszörményi Office, Municipality Office Building) addressing behavioral change at building users. For instance, posters will be placed on the corridors, stickers above the light switchers. In order to raise the building users' attention for the posters, stickers **and present the results of the measurements made by the smart meters**, a one-day long game will be organized in each office building.

In the MOM Cultural and Sport Centers an adult coloring canvas was created, and a drawing exercise was organized for the building users in December 2018. While people colored the picture, they discussed energy efficiency issues and **the smart meter data measured which is partly the result of their building usage behavior.** In the Mom Cultural Centre, also the tutorial video produced by Hegyvidék was displayed continuously in the main hall where visitors could watch it.

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

HU10, Közép-Magyarország

**Investment costs (EUR), if applicable**

The contract of the company being responsible for the smart meter installation includes two tasks:

- 1) Setting up smart meter data collection system including the installation of smart meters, operation of smart meters, data analyses and monthly consultation - 12 231 760 HUF +VAT = 38 032,89 +VAT EURO

Details:

<b>Pilot buildings</b>	<b>net HUF</b>
01_KIMBI Kindergarten	856 223
02_Normafa Kindergarten	1 345 494
03_Táltos Kindergarten	978 541
04_Buda Drawing School	856 223
05_Kiss János Altábornagy Office building	1 100 858
06_Böszörmény Office building	1 957 082
07_Municipality Office building	2 201 717
08_MOM Cultural Center	1 467 811
09_MOM Sport Center	1 467 811
<b>TOTAL for instalaltion and maintenance</b>	<b>12 231 760</b>

- 2) Installation of dashboards in order to visualize the measured data; setting up and operating the technical background of the dashboards - 1 630 800 HUF +VAT = 5070,73 +VAT EURO

Total contracted amount: 13 862 560 HUF+VAT = 43103,63 + VAT EURO

Declared amount: € 33 249,77 EURO

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

The concerned territory of the pilot is the 12th district of Budapest who benefited from the pilot actions by the involvement of 9 pilot public buildings into the project installing smart meter system and applying DSM tool which was resulted in energy savings at the Municipality.

Thanks to the project, smart meters and dashboards were placed in the pilot buildings which help the building managers to detect inefficient building usage. Based on the first measurements and by the support of the external experts, technical improvements/corrections were made in the energy system of some pilot buildings contributing to the energy efficient usage of the buildings.

The most significant positive behavioral change achieved by the DSM tools applied were recognized at the children of the pilot kindergartens and their parents thanks to the effective DSM tools such as energy days, Humphrey stickers, posters and drawing book. However, also the office buildings' users learned to take more attention for energy efficiency. For instance, they switch off the light in the copy machine room and switch off their monitor after work. It has to be noted, though, that an overall behavioral change evaluation has not been carried out yet. A questionnaire is planned to be distributed in March to measure the behavioral change reached but could not be measured by the smart meters due to their soft character.

Regarding the leveraged funds came along with the project, firstly, 25.000 euro extra fund were invested in the smart meter installation covered from the own resources of the Municipality. Second, the Municipality invested extra costs into the elaboration of advanced action plans for the public buildings of the municipality.

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

The sustainability of the pilot actions including the maintenance of the smart meter system is ensured by the Green Office of the Municipality of Hegyvidék who owns and operate the smart meter system and implemented the pilot. In addition, the Municipality plans to install further smart meters into the other public buildings owned by the Municipality. In parallel with the extension of the smart meter system, DSM tools (stickers, posters, energy days, energy competitions) are planned to be applied in other public buildings in the district. **Therefore, not only the pilot action results (behavioral change achieved at the pilot building users and managers) will be sustained by the continuous application of the DSM tools in the pilot buildings, but further public buildings of the Municipality will be involved.**

Regarding the transferability of the pilot results, the most adaptable DSM tools are the tutorial video, the Humphrey stickers, posters, and the stickers and posters designed by the students of the Budai Drawing School. The graphic of these posters and stickers are electronically available, this way they are re-printable by any other municipalities or organizations in other territories. It is also an adaptable idea to involve the building users into the preparation of the DSM tools which will be applied there. In the case of the Budai Drawing School it worked quite well that the students designed the DSM tools such as stickers and posters, and they were also the target group of these tools.

The different types of events such as the energy days in kindergartens, games organized for the users of the office buildings and the coloring wall tool are also easily adaptable and basically low-cost ones, all raise the attention of the building users for energy efficiency.

Due to the fact that 4 completely different types of public buildings were involved into the project as pilot buildings: office buildings, kindergartens, cultural and sport centres, the Municipality had to and managed to develop a variety of DSM tools can be applied for a wide range of target groups. Therefore, a wide range of organizations can apply these tools selecting from DSM tools for children or adults. The DSM tools developed by Hegyvidék will be disseminated during the local closing event, the project final event and during other local events organized by the Green Office of the Municipality.

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

The international workshops and conferences organized in the frame of the project highly supported the work of the external experts who produced the thematic documents (tools), training materials and planned the pilot activities including DSM tools.

In addition, the Didactic Toolbox (training material) provided a strong bases for the development of the local trainings' content. Based on the knowledge gained during the trainings the participants could actively be involved into the pilot implementation.

Hegyvidék learnt a lot from the experienced project partners, especially from the Lead Partner, Treviso about how to organize behavioral change programs for children. It can be noted, that the partnership learnt also from Hegyvidék adapting the Humphrey character for their own behavior change campaign. For instance, Humphrey become the character of a cartoon and the planet defender video game produced by other partners.

**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 characteristics of the systems used for the pilot buildings comply with the laws and regulations in force at the date of the contract (e.g. requirements of the fire department and local authorities, the requirements and indications of DSO and the gas company, IEC standards, EC conformity). Prior to the execution of the works, appropriate documents proving the possession of the above mentioned requirements have been provided.

Regarding the sustainability and environmental effect of the pilot, the pilot actions combined with the investment contribute to stimulate market transformation towards more efficient buildings, rationalize public expenditure, stimulate building users and managers to adopt more efficient behavior that can be replicated in other contexts (e.g. at home).

Horizontal principles such as equal opportunities and non-discrimination were taken into consideration at the pilot implementation working with people from different target groups from children to adults, from students, teachers to visitors, office employees, energy managers, building maintainers.

**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 relevant deliverables:

- Deliverable D.T3.2.7 - PA7 design for 9 offices, community&sport incl. swimming pool&schools in Hegyvidek HU.Report+EN sum
- Deliverable D.T3.3.8 - Report on PA7 realised by Hegyvidek in 9 -offices,community&spo rt centers, swimming pool in city- HU
- I3 - Investment in an energy monitoring system for pilot actions in 9 public buildings in Hegyvidek (PA7)

Pictures and images:

DSM tools:

- Humphry coloring book - short story



- Humphrey stickers:





- Humphrey poster





# Hümér

## a Zöld oviban és otthon



Bizonyára már mindenki ismeri Hümért, a kedves kis trollt. Hümér messzi troll-bírodalomból érkezett, ahol nem törődnek azzal, ha a csapból folyik a víz, égve marad a villany, télen tárva-nyitva vannak az ablakok, nyáron pedig melegít a fűtést. Hümér nem tudta, hogy ez pazarlás, amivel árt a fákknak, virágoknak és az embereknek is, viszont Nektek köszönhetően már sejtí hogyan kell okosan használni az energiát és így jobban vigyázni a környezetre az óvodában. **Bonnon** nyuszi Hümér barátja, aki meg szeretné tanulni a kis trolltól ezeket a módszereket, hogy otthon is spórolhasson az energiával. Segítsétek Bonbont a tanulásban és figyeljétek otthon is az alábbiakra!



**Csukd be az ajtót magad után!**  
Télen, amikor hideg van és fűtünk, nagyon sok hő távozhat a nyitott ajtókon keresztül. Ne felejtsd el becsukni!



**A kisgomb-nagygomb dilemma**  
A WC lezuhásakor is rengeteg vizet megtakaríthatsz, ha okosan használod a kis és nagy nyomógombokat.



**Ne pazarold a szappant!**  
Kézmosásnál elég csak egyszer megnyomnod a szappanadagolót. Épp annyit adagol, amivel kezed tudsz mosni.



**Ne folyasd a csapot!**  
Fogmosás közben használj inkább poharat, és zárd el a csapot! Így sok vizet takaríthatsz meg!


**Ha fűtesz, csukd be az ablakot!**  
Télen, amikor hideg van, és fűtünk a lakásban, csukd be az ablakot, mert a hő kiszökik és magasabb lesz a fűtés számla.






**Okosan szabályozd a radiátort!**  
Ne tekerd föl túl magas hőmérsékletre a radiátort, 20-23 fok is már bőven elég. Ha nincs szükség fűtésre, tekerd le a termosztátot!

**Kapcsold le a villanyt!**  
Ha kimeész a szobából, kapcsold le a villanyt, így a villanyszámla sem lesz annyira magas! Napközben használj inkább természetes fényt.



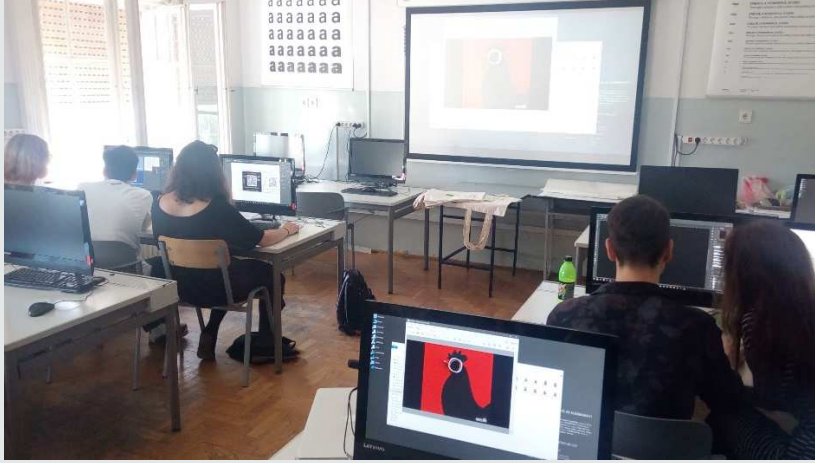
**interreg**   
CENTRAL EUROPE European Union  
European Regional  
Development Fund

**YOGEHES**   
Helyi és Regionális  
Együttműködés

- Humphrey puppets



- Local Workshop in the Budai Drawing School



- Stickers and posters developed by the students of the Budai Drawing School



- Energy Days in Kindergartens:



- Energy commando meeting



- Coloring wall in MOM Kult and Sport



- Smart meter dashboards

