STEP-IN

Alleviating Energy Vulnerability

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Project Partners

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Living Labs

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Countries

Helping Vulnerable Citizens

Not everyone can access the energy they need for cooking, heating and lighting.

STEP-IN helped many people in this situation.

STEP-IN Objectives

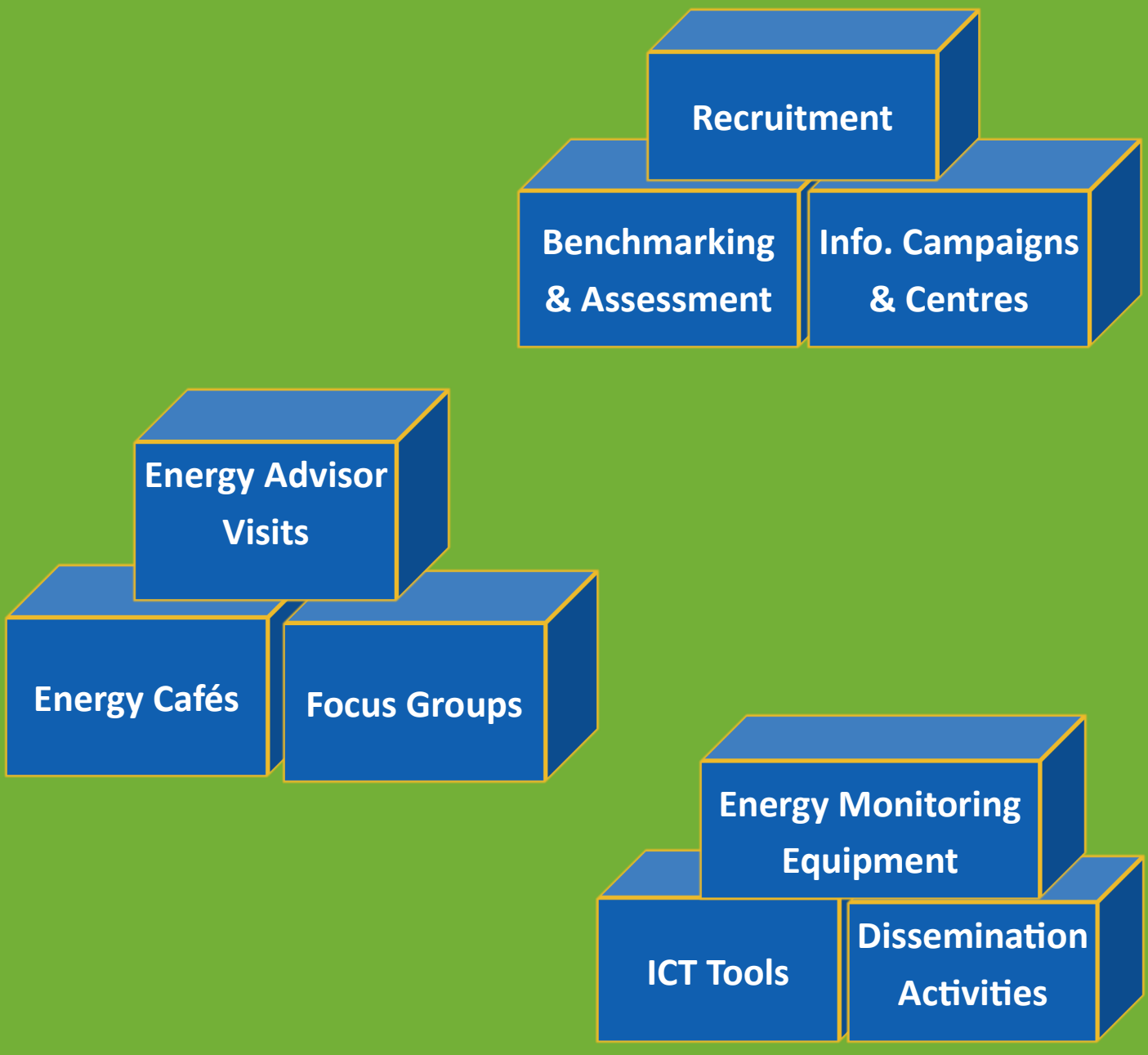
- Positive Impact on Citizens.
- Assessment and Benchmarking.
- Supporting Best Practices.
- Engaging with the Energy Poverty Community.
- Define Future Policies, Strategies and Research Areas.
- Support Clearly Defined Target Groups of Citizens.
- Reduce Environmental Impacts.
- Identifying viable financial schemes.

The Living Labs

STEP-IN developed an adaptable methodology for living labs. Our living labs operated in three European countries (UK, Hungary and Greece). The iterative approach, strong stakeholder network and local management allowed each living lab to provide solutions which best suited the citizens involved.

The STEP-IN Living Lab Approach

Citizens and Stakeholders



STEP-IN

FINAL REPORT
MOUNTAINOUS LIVING LAB

SUMMARY OF CONTEXT, WORKING METHODS AND RESULTS OF THE MOUNTAINOUS LIVING LAB (METSOVO AREA) WITHIN THE STEP-IN PROJECT

Metsovo area

3
municipal units

10
local units

32
rural settlements and villages

6.2
thousand inhabitants

2.2
thousand households

Challenges encountered

1. Harsh climate

Metsovo is a mountainous settlement of Greece, situated at an altitude of 1100 m. The heating degree-days range between 2,275 °C*days and 3,194 °C*days and are significantly high. It is noteworthy that heating degree-days in Metsovo are 50% more than in the nearby city of Ioannina, whose distance from Metsovo is only 50 km.

2. Remoteness and terrain inclination

Remoteness and terrain inclination, which characterise the mountainous areas increase fuel costs by about 5-7%. Apart from geographical characteristics, incomes of mountainous populations are usually lower than those of lowland and urban areas, due to various reasons (e.g. low productivity land, lack of investments, etc.).

3. Housing characteristics

More than 80% of Metsovo's residences were built before 1979 (1st Thermal Insulation Regulation applied in Greece). The building stock lacks energy efficiency (nearly 6 out of 10 residences in Metsovo have no insulation), reflecting the crucial issues of low energy performance and very high thermal losses of the residential sector in the area.

4. Limits to the advisor visits

The baseline assessment revealed that many energy-related household challenges concern the high portion of household budget absorbed by energy needs, especially heating (more than 20% on average). This is associated with the fact that heating is an "inelastic" need in Metsovo due to the cold climatic conditions, which means that people have to keep their houses warm, regardless of the housing characteristics.

5. Technological challenges and opportunities

Using monitoring equipment and IT tools helps convincing people to get involved in energy conservation and adopt advice provided by the Energy Advisors and is useful for identifying faulty appliances. 80% of the participants who had monitoring equipment installed said that it motivated them to check regularly their electricity consumption and almost all of the participants said that they were helped in taking energy efficiency decisions, i.e. replacement of thermostat, purchase of a dehumidifier, etc.

Methodology

Benchmarking

Market segmentation

Focus groups

Energy cafés

Recruitment of Lab participants

Information campaigns

Information centres

ICT tools

Impacts monitoring

Home energy advisor visits

Energy advisor home visits

- About 85% stated that the total area of their house is heated.
- About 80% use central heating systems. The main fuel used is diesel oil (about 51%), followed by firewood (23%) and pellet (3%).
- On average, households spend annually €2,100 for heating and €900 for electricity.
- About 30% reported moisture/mould problems, 14% reported thermal discomfort and a same percentage mentioned arrears in energy bills.
- Energy advisors implemented 'small' energy saving measures including the replacement of old analogue thermostats with digital ones and maintenance of heating systems in certain houses. Assuming an average annual household heating bill of €2,100, the small measures resulted in a minimum direct estimated saving of €110 per year and household.
- About 75% of those taking part in the LL activities stated that the project was useful to them and 40% stated that they realized an improvement in the quality of their lives during the LL's operation, mainly by improving the level of thermal comfort at home, by facing less moisture/mould problems and by reducing energy costs.

Energy cafés

- Practically all attendees found the information and advice provided at the energy cafés to be useful.
- Many attendees found the event useful and helpful towards gaining more detailed knowledge about energy saving issues.
- Many attendees said that the major value was in influencing them to plan energy efficiency interventions, such as purchase of energy efficient appliances, replacement of old incandescent light bulbs, maintenance of heating systems, etc.
- Several respondents stated that the value of energy cafés goes beyond the provision of energy advice, e.g. they reduce social isolation and increase social capital.

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related public deliverables https://bit.ly/30TMfc3

project newsletter https://bit.ly/3cWf0i8

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FINAL REPORT
RURAL LIVING LAB

SUMMARY OF CONTEXT, WORKING METHODS AND RESULTS OF THE RURAL LIVING LAB (NYIRBATOR AREA) WITHIN THE STEP-IN PROJECT

Nyirbator area

50
thousand inhabitants

20
settlements

12
thousand inhabitants in the main settlement

7%
unemployment rate (national rate is 3.5%)

Challenges encountered

1. Moratorium on arrears

Due to the COVID pandemic, the Hungarian government introduced a moratorium on arrears. In the short term, this could have a negative impact on energy awareness, as these households do not have to pay attention to their bills. In the long-term, accumulating arrears will cause additional problems.

2. COVID-19

The COVID pandemic had a serious impact on daily life. 46% of the Hungarian Living Lab participants said that they spent more time at home. The average increase was around 3 hours. 50% of the households reported a more frequent usage of electricity appliances after the COVID breakout.

3. Households without access to energy

In some households, especially in segregated areas, due to arrears there is no access to electricity. In these cases, work together with the utility company (E.ON) provides safe and legal energy access. Arrear handling also has to be applied here with the help of Máltai.

4. Heating with rubbish

During the winter period the air pollution level is very high in this area as several households use waste and rubbish to heat. This is a serious problem from an environmental perspective, and also affects the health condition of the household (and wider area), as well as damages the heating system.

5. Heating with firewood

There are several parts of the area where piped-gas service is not available. These households could use gas tanks to heat water and for cooking, but for heating they have to use firewood (other heating methods are not used). Fireplace and tile-stove are the most usual heating methods in these dwellings, which are much harder to control. Firewood prices are not frozen, and the proper storage of firewood could also be challenging.

Methodology

Recruitment of Lab participants

Benchmarking

Market segmentation

Focus groups

Home energy advisor visits

Energy cafés

Information campaigns

Information centres

ICT tools

Impacts monitoring

Energy advisor home visits

- 602 home visits were carried out in the rural Lab. 36% of the visited households (212) took part in the impact assessment.
- 67% of the households did some refurbishment or bought new energy efficient appliances. Based on these actions, a 5.3% possible reduction in energy bills and 5.9% reduction of energy usage in kWh can be estimated. If this is projected to the full sample, it leads to an estimation of an annual 0.66 GWh energy saving.
- It was not possible to measure a short-term change in the consumption based on the energy bills. The assumption is that some of the above calculated estimated energy savings were turned back to improve the comfort level of these households. And the impact of COVID-19 on the results needs to be considered as well.
- 13.2% of the households had better conditions regarding housing problems (mould, damp, condensation on the wall, leaking roof, ideal temperature), 15.3 % noticed improvement in arrears, and 18.8% of the households had an improvement on the quality of life. 36.8% of those who took part in the impact assessment questionnaire noticed improvement in at least one area.
- Overall 45% of the respondents changed their behaviour as a result of counselling and 70% said that they understood better their energy expenses.

Energy cafés

- 7 energy cafés took place, involving a total of 149 people. They served as promotion events and as cooperation building opportunities where people, such as public worker group leaders, municipality and commmunity house workers, could be involved and have a visible role in the settlements.
- In the long run, energy cafés helped to make our presence accepted and understood. It was a good start to engage with people, as most of the participants were involved in the surveys and advisory sessions.
- An important lesson learnt is that people prefer short, interactive events. Less relevant topics were skipped or shortened for the participants and the flow of discussion was changed in line with their questions and interest.

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FINAL REPORT
URBAN LIVING LAB

SUMMARY OF CONTEXT, WORKING METHODS AND RESULTS OF THE URBAN LIVING LAB (GREATER MANCHESTER METROPOLITAN AREA) WITHIN THE STEP-IN PROJECT

Greater Manchester metropolitan area

2
cities

8
metropolitan boroughs

2.8
million inhabitants

1.2
million households

4
local authorities among the UK's top 25 most deprived

Challenges encountered

1. COVID-19

The final part of the Manchester Living Lab was undertaken entirely during the COVID-19 pandemic and associated lockdown restrictions. As such, it necessitated far-reaching modifications and innovations in urban public engagement and energy interventions. The Lab was, in effect, the first of its kind to provide energy advice to vulnerable citizens through remote methods during a pandemic, across a wide urban metropolitan region. The Living Lab adapted its methods to an online working format, so as to ensure compliance with COVID-19 restrictions. Instead of physical energy advisor visits, the Lab set up a phone-based energy consultation service. The service was independent of the LEAP scheme that had been previously been integral to the Living Lab. Energy cafés were also held online in the form of drop-in consultations available to all citizens. As such, the lab generated valuable insights about fuel poverty and energy vulnerability challenges faced by low-income households during the pandemic.

2. Technological and IT challenges

In the first two iterations of the Lab (until March 2020), we also encountered specific challenges regarding the application of IT methodologies. The Lab functioned under the auspices of an already established IT scheme, as the advisors already used a distinct and well-built IT architecture (relying on the Zoho app). Rather than creating a new IT platform, we adapted the Zoho app and existing advice information system to the needs of the Lab, by adding a series of questions to the app, and generating data directly from them. The data processed in this manner was also used to generate a novel, free of charge advice web portal for general public use, directed at the general public (the portal is available at www.energyadvice.info).

3. Issues beyond energy advice

The baseline assessment revealed that many energy-related household challenges are connected with income poverty and other forms of vulnerability and deprivation, beyond the remit of the Lab. However, their visibility becomes apparent 'at the doorstep', during an energy advisor visit. The energy advisor visits and consultations often identified situations in which major fire safety, mental health and poor housing conditions were present. In such situations, we were able to provide multiple referrals to onward services, including health and social support as appropriate.

Methodology

Recruitment of Lab participants

Benchmarking

Market segmentation

Focus groups

Home energy advisor visits

Energy cafés

Information campaigns

Information centres

ICT tools

Impacts monitoring

Energy advisor home visits

- Over the lifetime of the Lab, 565 households received specialist advice from dedicated advisors, including 368 home visits in the first two iterations of the Lab, and 197 remote consultations in the third iterations. Overall, these households were estimated to contain 1085 people.
- The lab resulted in the installation of a total of 686 'small measures' such as efficient light bulbs, draught excluders, letterbox covers, radiator foil, draught proofing of windows and doors, shower aerators; as well as switches in energy and gas suppliers to tariff schemes better suited to individual consumer circumstances.
- A total of 341 referrals to further services were also implemented, including the Warm Home Discount, Priority Services Register and Citizens Advice Bureau.
- Altogether, the Lab achieved an estimated annual bill reduction of 8.47 per cent, or £91 per consumer.
- Before the pandemic, there was a significant decrease in the relative number of households who reported being unable to pay their bills on time. This percentage share went down by more than half during both the first and second living lab iteration (which ended in March 2020). However, there was a doubling of this rate in the third iteration – largely attributable to Covid-19.

Energy cafés

- There were a total of 5 physical and 5 online energy cafés, encompassing a total of 271 people. The online energy cafés took place during the pandemic.
- An overwhelming majority of participants at the cafés thought that they received highly useful information and advice from the specialist advisors present. Information on energy saving measures and tariff switching was particularly valuable.
- Before the pandemic, numerous participants stated that they enjoyed the interaction with others in their community, suggesting that the value of energy cafés goes beyond the provision of energy advice to encompass important issues, e.g. reducing social isolation and increasing social capital.

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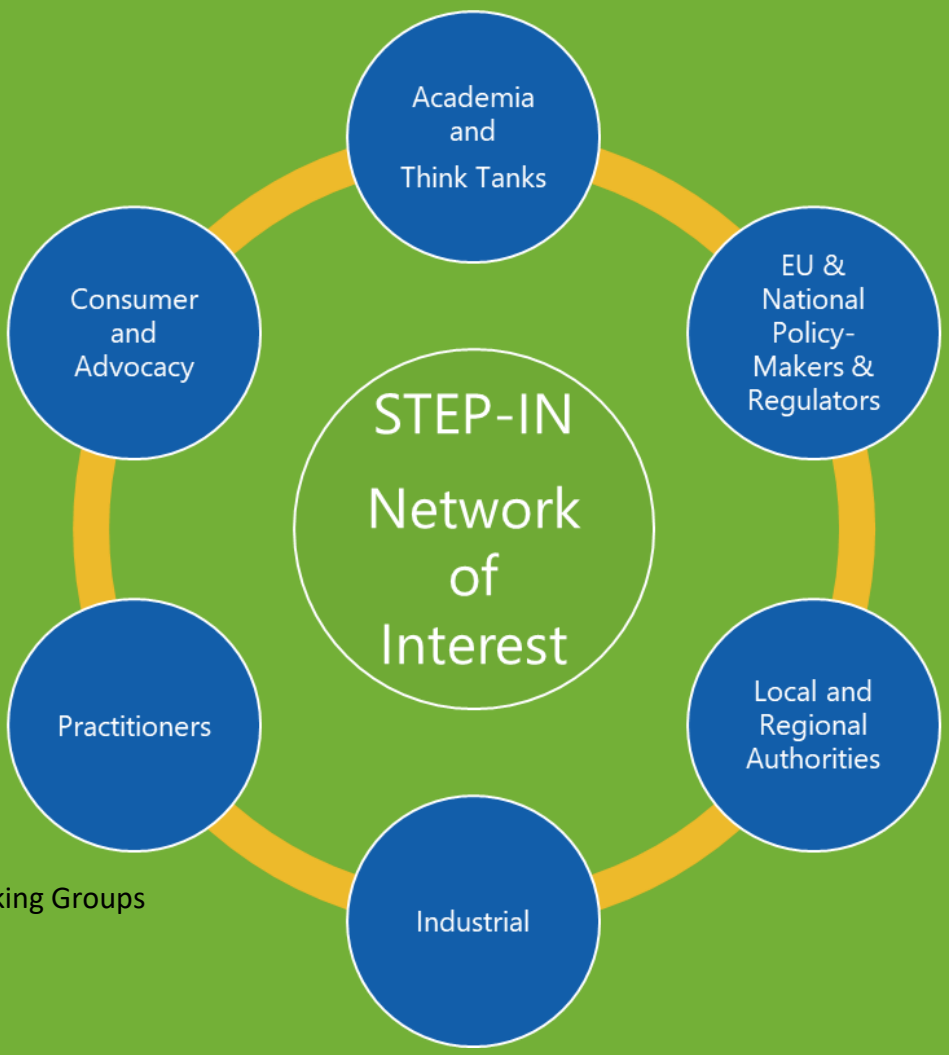
Policies for Alleviating Energy Vulnerability



Policy Working Groups

STEP-IN brought together experts in six stakeholder working groups. The results from these working groups and the living labs will help to shape future energy policy and help citizens.

The policy white papers are available for download from the STEP-IN website.

STEP-IN

For more information on how to set up a living lab in your country, or to find out more about the results of the project, please visit our website.

www.step-in-project.eu