STEP-IN

D6.5 - White Papers for Energy Policy Makers

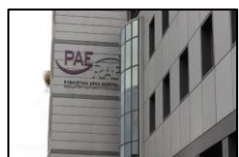**Academia and Think Tanks**

Local and Regional Authorities

Practitioners

Consumers & Advocacy Groups

EU & National Policy Makers and Regulators

Industrial Representatives

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Glossary

Abbreviation / acronym	Description
Citizen/Consumer	The term is used interchangeably throughout the document for individuals.
EEPI	European Energy Poverty Index
EPOV	European Energy Poverty Observatory
EU-SILC	European Union Statistics on Income and Living Conditions
GWh	Gigawatt Hours
kWh	Kilowatt Hours
LL	Living Lab
NoI	Network of Interest
WG	Working Group

1. Executive Summary

This document provides a compendium of policy white papers which summarise the key findings from six working groups within the STEP-IN project. Each working group represented a specific group of stakeholders and analysed their role in tackling energy poverty. The papers summarize the current role of these organisations and suggestions for the future. Six groups are concerned, these are:

- Academic and Think Tanks
- Local and Regional Authorities
- Practitioner groups
- Consumer and Advocacy Groups
- EU and National Policy Makers and Regulators
- Industrial Representatives

At a high level each of these groups provides a key role in reducing energy poverty, for example via providing help on the ground, ensuring consumers receive protection or drafting policies for implementation. While each group has a strong role to play individually, and it is only when they come together to provide solutions that energy poverty can be effectively tackled.

The results are drawn from working group meeting which brought together the individual set of stakeholders. Therefore, they document not only potential future policies, but quite often the views and opinions of the individuals concerned.

2. Overview

The STEP-IN project helped many vulnerable citizens across Europe. However, in the longer term there is a need for a set of policies which can continue this work and inform future programmes. To fulfil this need, this document provides a compendium of white papers which summarise the findings of the six working groups. These working groups are:

- Academic and Think Tanks
- Local and Regional Authorities
- Practitioner groups
- Consumer and Advocacy Groups
- EU and National Policy Makers and Regulators
- Industrial Representatives

The white papers summarise the roles, and possible actions which the above groups have in tackling energy poverty. The findings are based on a range of approaches but namely the identification of best practices, one or more workshops which brought together experts from one the groups above, discussions during the workshop and set of findings. The process was designed to bring in experts from outside of the STEP-IN project, therefore allowing for the sharing of experiences.

2.1 The Role of Academia and Think Tanks in Fighting Energy Poverty

This white paper discusses the role of academia, think tanks, and researchers in combating energy poverty. It focuses on the role of STEP-IN, the experience outside of STEP-IN, and the Interest Network meetings' outcomes. On March 9, 2021, the Network of Interest (NoI) meeting was held online and was dedicated to academics, think tanks, and researchers across Europe.

The workshop mainly addressed the following questions, besides discussing the roles of academia, researchers, and think tanks,

- How to determine who is energy deficient and what the detection measures are?
- What is the long-term feasibility of the projects?
- How to deal with data privacy issues during the home audit?
- What is the most successful measure found within the home visits to decrease energy costs while increasing comfort?
- What are the methods adopted for data collection?
- What are the primary needs of energy-poor people?
- What is the effect of COVID-19 on the ongoing projects?

From researcher's and academics' viewpoint, the workshop discussed the gaps and areas requiring future actions to tackle energy poverty.

1. There were initially many apprehensions about energy poverty, and it was not clear if it was a social or an energy issue.
2. Researchers should act as objective commentators on society and make such issues a political priority, which is an integral part of tackling energy poverty. Although researchers understand how to solve these problems, political will is required to make them a reality.
3. Researchers and academics are in an excellent position to speak out and persuade the government to enact policies to address this issue.

4. Publishing in top-ranked journals is inefficient because it does not reach a wider audience and ends up hidden somewhere due to the communication gap between researchers and the community.
5. It is critical to hear the perspective of those who have benefited from the project. We do not often ask the recipient to tell his or her version.
6. The importance of student awareness, as today's students could be tomorrow's policymakers and decision-makers. Therefore, student awareness through social media is essential.
7. Engager (http://www.engager-energy.net/), an international network of energy poverty researchers that can assist in identifying research gaps. They primarily work in four working groups, each of which is tasked with identifying research gaps around energy poverty.

Researchers can effectively provide a voice for this community by filling the gap with solutions and explanations of how things should be done. Although researchers understand how to solve these problems, political will is required to make them a reality. There is political will for an energy transition, and there is a requirement to report on energy poverty as part of that. Therefore, there is an incentive for researchers to seize this opportunity.

2.2 The Role of Local and Regional Authorities in Fighting Energy Poverty

This white paper discusses the role of local and regional governments in combating energy poverty. It focuses on the STEP-IN project's role, experiences outside of STEP-IN, and outcomes of the network of interest meeting (s). Based on the STEP-IN project's findings and the working group's input, this paper provides a set of recommendations for how regional and local governments should play a role in implementing this recommendation.

Local and regional authorities have a unique position in addressing energy poverty because they can bridge the gap between national/state governments on the one hand and their local communities on the other. They are also aware of other initiatives in related areas within their communities, such as those addressing poverty more broadly. In this workshop, the role of local authorities in the following key areas was discussed:

- Establish an overall strategy to address energy poverty.
- To ensure that the energy poverty population has holistic, practical advice and measures.
- Using their powers, especially in housing, planning, and social welfare, a more comprehensive environment is created to help the poor.

The first redevelopment that emerged was developing and implementing a general strategy for tackling energy poverty in their region with local and regional authorities. The strategy should be developed, taking into account:

1. Evaluating the region's energy poverty situation – this can be based on European data, national datasets, or local intelligence to show the spatial and demographic distribution of energy poverty.
2. An overview of the causes of energy poverty in their community, based on the available evidence at various scales, identification of the key places where intervention could reduce energy poverty.
3. Based on the current situation and causes of energy poverty, a collection of priorities for addressing energy poverty in the region.

In order to have a significant impact, the proposed solutions must address a wide range of problems/issues that have been identified by the local and regional authorities. This includes legal obligations or agreements to meet municipal carbon emission goals, taking steps to enhance the

quality of housing available to residents, and taking an active role and interest in their neighbourhoods' health.

2.3 Practitioners Perspectives on Living Labs as Instruments to Address Fuel Poverty

Energy Poverty Practitioners have been key stakeholders in the project, providing expert knowledge, fostering interactions with those who are energy insecure, and assisting with the implementation of the solutions. Three practitioners' best practices for addressing energy poverty in specific geographic contexts were presented. Each case study is set in a different socio-political environment and employs a different strategy to combat energy poverty. Case studies that had been chosen are, Samenlevingsopbouw West-Vlaanderen, Papillon Project, Belgium, Alliance Against Energy Poverty, Catalonia and DOOR (Society for Sustainable Development Design), Croatia.

Several topics were covered in the working group, including reflections on Living Labs' benefits and the pilot projects to develop approaches to energy poverty reduction. The definition of energy poverty varied between and within countries, affecting both the nature of developed interventions and the groups within society that can benefit from these interventions. Based on the reflections of energy poverty practitioners within the STEP-IN project, those outside of STEP-IN, and discussions from a network of interest meetings, several recommendations ensure that Living Labs and Pilot Projects support action on energy poverty have been developed. Such as,

1. Engaging those who are vulnerable to energy poverty is a critical component of Living Labs and Pilot Projects. To achieve the best results, this engagement must be meaningful, purposeful, and empowering.
2. Interventions developed in Living Labs and Pilot Projects must reflect the local context, not only in terms of the approaches developed but also in terms of the interventions' symptoms and issues.
3. Living Labs and Pilot Projects' adaptability and flexibility are important assets that contribute to their impact.
4. It is critical for Living Labs and Pilot Projects to establish and engage with relevant networks when developing and implementing interventions.
5. Living Labs and Pilot Projects provide a forum for bilateral knowledge sharing among a variety of actors, including those at risk of energy poverty, practitioners, industry, policymakers, regulators, think tanks, and local and regional authorities.

2.4 The Role of Consumers & Advocacy Groups in Fighting Energy Poverty

The whitepaper describes consumer and advocacy groups' role in combating energy poverty. It particularly examines the role of STEP-IN, the experience outside STEP-IN, and the Interest Network meetings results. The first workshop on STEP-IN NoI took place in Athens on May 29, 2019, as part of the General Assembly project, in the RAE partners' premises. On March 3, 2021, a second NoI meeting was held online and was dedicated to the Consumers & Advocacy Group.

The respective group leaders agreed to present four different best practices from various initiatives and contexts to address their possible contribution to the fight against energy poverty. These were chosen for the discussion: Padova (httpp://quipadova.com/il-progetto), Alliance Against Energy Poverty, and the Home Energy Efficiency Program for Scotland (https://www.povertaenergetica.it) (https://energysavrust.org/scotland).

The conversation resulted in a collection of policy guidelines as follows:

1. Using the European Green Deal's potential to ensure more affordable energy for all.
2. Improving existing schemes and measures with a larger and stronger involvement of Consumers and Advocacy Groups,
3. Providing free, unbiased, and qualified advice to strengthen individual support,
4. Achieving a high level of consumer protection in the energy market.
5. Contributing to an attitude towards innovation and fill the value-action gap focused on home retrofit stimulation.
6. Developing energy communities in various forms through local networking as well as wide-ranging networks.

2.5 The Role of EU & National Policy Makers and Regulators in Fighting Energy Poverty

The role of EU and national policymakers and regulators in combating energy poverty is outlined in this whitepaper. It looks at the STEP-IN project's position and experiences outside of STEP-IN and the outcomes of the network of interest meeting (s). The STEP-IN consortium arranged the first STEP-IN NoI workshop in Athens on May 29th, 2019 as part of the project General Assembly at the premises of project partners RAE. On December 4th, 2020, an online webinar was conducted as part of the STEP-IN project NoI's second round of interactive activities.

This paper examines the role of political decision makers and regulators to tackle energy poverty problems and presents a set of recommendations based on the STEP-IN research findings and the working group's contributions. The following suggestions are proposed taking into account the results of the NoI workshops,

1. The problem of defining energy poverty and calculating its indicators must be resolved before energy poverty-fighting actions can be implemented successfully.
2. Awareness campaigns and training should be considered horizontal interventions. Target dissemination of information and priority-making can start locally and play a key role in improving vulnerable households' living conditions.
3. Various studies have confirmed that the most effective way to combat energy poverty has been through energy renovation in vulnerable household residences. However, the main obstacle faced by the energy efficiency measures is the lack of initial funding, as most energy-deprived households have limited access to sources of funding.
4. Alongside energy upgrade actions on building envelopes and replacement by more efficient conventional domestic appliances, renewable sources of energy are listed as measures with the potential to form a sound base for addressing energy poverty once adequately funded.

2.6 The Role of Industrial Representatives in Fighting Energy Poverty

This first part of the second phase of the STEP-IN NoI involvement focused on existing best practices for tackling energy poverty throughout Europe and launches a discussion on how they are scalable and reproducible, based on needs and constraints observed during construction, but also considering the different geographical contexts. Results were presented at the second NoI workshop, where roles and responsibilities are defined for each sector to address energy poverty effectively. The entire debate was based on four case studies:

1. Energiakaland: E.ON launched its 'EnergiaKaland' learning program in 2008 to cooperate with schools and the Ministry of Education for supporting teachers in educating children on energy consciousness. One can also order educational material through the website www.energiakaland.hu

2. Energy consultancy: Lasting results achieved through cooperation between E.ON, TIGÁZ (gas industry stakeholders), the Hungarian Charity Service of the Order of Malta, the municipality and the customers. Since the usage is limited to the exact amount paid in advance by the customer, no additional debts can be accumulated. Before disconnecting, the service provider offers to install prepaid meters to customers to be protected.

3. Pole meter project: In Hungary, E.ON, wherever necessary, uses an all new and unique solution, i.e., metering right at the cable pole. Since this technology, on its own, is insufficient for solving the core problem, we need to act for the community's long-term development. This approach allows for maintenance and monitoring of the meter without requiring access to the home of the citizen.

4. New connections in Nyírpilis : In 2019 Nyírpilis was among the first 30 settlements which were involved in the 'Felzárkózó települések' ("Catching-Up Settlements") program. The new connections were performed for families where there was a pregnant family member and infants, kindergarteners or primary school pupils were brought up. Development of awareness and financial management was facilitated by the fact that supported connections were performed by installing prepayment meters whose application helps avoid arrears arising from non-payment of invoices or final bills and for their replenishment households to submit an application to the municipality for a housing allowance.

5. Socially Sensitive Power Plant Project: The Hungarian Charity Service of the Order of Malta and E.ON Hungária has implemented a support program that is unparalleled in Hungary, in one of the most problematic villages involved in the program for catching-up settlements. The purpose of the model program is to ensure at least one clean, technically safe room which is heated in an environmentally friendly manner for every family where a child below the age of 3 years is brought up.

3. Conclusions

In 2006, energy poverty was added to the European policy agenda. Significant progress has been made since the phenomenon was placed under the microscope. Energy poverty is a serious issue caused by a complex interaction of many factors, including rising energy prices, people's inability to pay their energy bills, stagnant or declining wages, high unemployment, and the slow speed at which energy-saving initiatives are implemented in residences. On a social, environmental, and financial basis, the evidence-based negative effects of the above relationship are felt. Overall, these findings are encouraging, emphasizing the importance of a context-sensitive solution that is adaptable and responsive to energy-strapped households' needs. Combating energy poverty necessitates cross-sector collaboration. These sectors are represented within STEP-IN by working groups that provide policy recommendations to each of these sectors based on project learnings.

4. Annexes

1. Annex 1: The Role of Academia and Think Tanks in Fighting Energy Poverty
2. Annex 2: The Role of Local and Regional Authorities in Fighting Energy Poverty
3. Annex 3: Practitioners Perspectives on Living Labs as Instruments to Address Fuel Poverty
4. Annex 4: The Role of Consumers & Advocacy Groups in Fighting Energy Poverty
5. Annex 5: The Role of EU & National Policy Makers and Regulators in Fighting Energy Poverty
6. Annex 6: 2nd STEP-IN Network of Interest workshop: Evaluating best practices and co-designing strategies to tackle energy poverty across Europe

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STEP-IN

The Role of Academia and Think Tanks in Fighting Energy Poverty

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Coordinator	Roderick McCall, LIST	01.04.2021
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1. Executive Summary

The integration of insights derived from the Network of Interest is critical for STEP-IN in order to develop policy recommendations for the effective analysis and eradication of energy poverty, as well as to ensure long-term benefits for energy-poor communities once the project is completed. STEP-IN welcomed interested parties who wanted to share their knowledge or simply gain a better understanding of the topic discussed at this workshop. The agenda below refers to an online webinar that took place as part of the STEP-IN project Network of Interest's (NoI) second round of engagement activities, with a particular emphasis on academia and think tanks working with vulnerable communities across Europe.

STEP-IN Academia and Think Tanks Working Group Workshop

AGENDA

Tuesday, March 9

11:00 AM	O	Event Start
11:00 AM - 11:10 AM	O	Welcome note and introduction to the STEP-IN project and Network of Interest
11:10 AM - 12:00 PM	O	Identification and evaluation of best practices
12:00 PM - 12:50 PM	O	The role of academia and think tanks in tackling energy poverty across Europe so far, gaps identified and the way ahead
12:50 PM - 1:00 PM	O	Concluding remarks
1:00 PM	O	Event End

Figure 1 Screenshot of the workshop programme

2. Introduction

The overall discussion on the *STEP-IN* NoI practitioner's WG online workshop is summarized in this article. The discussion focused on the involvement and role of academia and think tanks in addressing energy poverty across Europe, as well as the gaps identified and the way forward. The workshop was held on March 9th, 2021. There were 21 participants from different universities (*University of Leeds, University of West Attica, University of Basel, University of Athens, National Technical University of Athens etc.*), research institutes (*Luxembourg Institute of Science and Technology, ISR etc.*), and advisory firms (*Door, VaasaETT Ltd etc.*) working directly or indirectly in five EU funded projects - *STEP-IN*, EmpowerMed, SociallWatt, and *SAVES2*.

Rod McCall gave a brief overview of the *STEP-IN* project to kick off the workshop. Following that, Sukriti Bhattacharya gave a presentation on the current state of arts in addressing poverty issues by three EU-funded projects. *DicentLivingEnergy, EmpowerMed,* and *SAVES2* are those three EU-funded projects whose goals, milestones, and creative aspects were covered in the presentation. Because of the target group, each of these three projects is one-of-a-kind. The project *DecentLivingEnergy* aims to understand how poverty eradication contributes to climate change. *SAVES2* supports students in minimizing their carbon footprint in their accommodation, promoting energy efficiency and good sustainability habits that last beyond their education time. *EmpowerMed* aims to tackle energy poverty in Mediterranean countries' coastal areas, focusing on women, gender, and health.

The workshop mainly addressed the following questions, besides discussing the roles of academia, researchers, and think tanks,

1. How to determine who is energy deficient and what the detection measures are?
2. What is the long-term feasibility of the projects?
3. How to deal with data privacy issues during the home audit?
4. What is the most successful measure found within the home visits to decrease energy costs while increasing comfort?
5. What are the methods adopted for data collection?
6. What are the primary needs of energy-poor people?
7. What is the effect of COVID on the ongoing projects?

The following sections discuss each of the above questions answered by the participants from five EU-funded projects as mentioned above.

3. An Overview of STEP-IN

The STEP-IN project provides sustainable strategies which can be used to alleviate energy poverty across Europe. This is achieved through three main components: living labs, ICT tools and a large stakeholder engagement process via a Network of Interest. The overall objectives of the project spanned from the key issue of having a positive impact on the lives of citizens through to identifying relevant financial schemes which can alleviate energy poverty and contribute to the overall green energy agenda (Table 1).

Obj. 1	**Positive Impact on Citizens**.
Obj. 2	**Assessment and Benchmarking**.
Obj. 3	**Supporting Best Practices**.
Obj. 4	**Engaging with the Energy Poverty Community.**
Obj. 5	**Define Future Policies, Strategies and Research Areas.**
Obj. 6	**Support Clearly Defined Target Groups of Citizens**.
Obj. 7	**Reduce Environmental Impacts.**
Obj. 8	**Identifying viable financial schemes at local, national and European scale.**

Table 1 Objectives of the STEP-IN Project

The Living labs were located in Hungary, Greece and UK and while they are locally centred, they were based on an overall methodology that included aspects such as advisor visits and energy cafes. Importantly the living labs also leverage existing projects and schemes. The methodology can be adapted for local needs (e.g., particular energy issues), availability of existing schemes and circumstances. For example, during the project the methodology was adapted to fit the evolving Covid-19 pandemic. Within these living labs a range of ICT tools were used by citizens and energy advisors. These tools, including the knowledge base are used to share information collect data. STEP-IN also recognises that its true impact in the longer terms is based more on how the methodologies, tools and recommendations are adopted and used by others. To this end a large stakeholder network consisting of academics, NGOs, consumer organisations, energy providers, politicians and other selected individuals was created. This network provided advice as the project operated, but also contributed to the development of this and the other white papers. The network along with other participants also took part in the many STEP-IN events, this ensuring that results of this project and others were disseminated.

This white paper along with the others which form part of deliverable 6.5, provide the final set of recommendations from the project derived from the network of interest working group meetings. These recommendations bring together the knowledge gained from STEP-IN with views gained from the network of interest experts.

4. Academia and Think Tanks

Academic organisations and think tanks play a key role within the development of civilised societies. With academic institutions not only providing education but also conducting research which can go on to help define and solve societal problems. In contrast, think thanks focus more on forcing political debate among parties aligned around a topic and they often propose policies which may be adopted by Governments. In this section we review the role that both have played within STEP-In and within the wider energy poverty community. We also explore how the differences between them and how their role in different countries alters their impacts. The findings are based on desk research, our own experiences and the information gained during the STEP-IN Network of Interest on Academia and Think Tanks.

Academic organisations such as universities, colleges and research organisations have traditionally played a strong role within European Research Programmes, with for example LIST (the author of this document) leading the STEP-IN project. However, the variation in the nature and type of the organisations e.g. university vs RTO also shapes the role they are likely to have and can also provide.

Broadly speaking a university has the aim of undertaking basic research and to provide teaching. Although increasingly universities are working closer with industry and other partners in order to conduct more applied research which may have societal and economic impacts. This twin pronged approach (research and teaching provides them with a number of facets which can be leveraged in the field of tackling energy poverty.

Research organisations can vary again from those which provide more basic research, through to more applied organisations, which aim to take results closer to society. Examples of those seeking to take results to industry or closer to society include Fraunhofer (Germany) and LIST (Luxembourg). An example of organisations conducting more basic research is Max Planck (Germany).

5. Working Group Meeting

The question mentioned in the introduction will be discussed in each of the following subsections.

Home audits and Data Privacy:

Lidija Zivcic, the *EmpowerMed* project coordinator, shared her experiences with home audits and visits to energy-poor households. According to her, it's not so new to them because they've been doing it for almost a decade, and the approach appears to be relatively well replicable and scalable. REACH (https://reachenergy.door.hr/), another Intelligent Energy initiative, offered that experience. In that project, a decision has been taken with the Slovenian government under which the government will take over household visits and audits as a national program. Currently, it is a government-funded program where people can apply for free advice and even services.

In response to a query from *Paula Fonseca*, a researcher at ISR-UC Intelligent Energy Systems, **about data privacy**, *Lidija* said no one has access to the records. Attendees at the community assemblies and household visits signed a consent form agreeing to the project's personal data use. Furthermore, data is used in an anonymized form during testing and then electronically restored with limited access. During the study, and the data is not disclosable to anyone, including the European Commission.

According to *Rod McCall* of LIST, STEP-in, like EmpowerMed, uses a similar approach in practice. A wide-ranging discussion is underway with the European Commission on what data will be made available after the project, if any, also in anonymized form. This is an ongoing discussion that could alter or be addressed with the commission in the coming weeks.

Adam Xavier, a PhD student at the University of Basel, questioned **the project's long-term feasibility, precisely the most successful measure found within the home visits to decrease energy costs while increasing productivity.** *Lidija* stated that in the case of *EmpowerMed*, it depends on the specific circumstances of the location. She then explained it with two live case studies: in Bulgaria, where most households have single glazing windows, simple insulation by putting insulation volume over the windows was one of the best approaches. However, in Slovenia, this approach was ineffective because most households have double-glazed windows, resulting in little benefit. That is why, in her view, a home visit is appropriate to decide what the best savings opportunities are depending on the circumstances and arrangements.

In terms of visits, *EmpowerMed* initially agreed on two visits per home, one for the audit and the second for delivering the devices and speaking with the family about the recommendations. However, it eventually reduces to only one visit per household, followed by phone communication about necessary measures that they can take. Every six months, a follow-up is conducted, inquiring as to the steps they are implementing and how they are benefiting. But eventually, it turns into only one visit per household and afterward through communication over the phone about necessary measures that they can perform. Follow-up was made every six months by asking which standards they are implementing and how they benefit. It has been observed that some measures are not followed, but the majority of the time, the devices are used, and the measures are followed as instructed.

The *STEP-IN* project shares its own experience in this direction with Greece Living Lab. There are three rounds, each of the three rounds lasted six months. During the six months, an advisory team visited each household at least three or four times. The first visit's goal was to gather information about the various characteristics of the households and the system in use, among other things. After analyzing the data collected during the first visit, the team returned for a second visit to provide personalized advice. Depending on the household, another visit was made to assess progress. Significant behavioral changes and the adoption of low-cost measures were observed within six months, with some exceptions. *Dimitris Damigos* also provided some real-life examples of households saving nearly 300 Euros per year by following energy use guidance.

Rod McCall shares his experience based on the data from the Living Labs in Hungary and the United Kingdom. He used the example of households that hadn't had electricity in 30 years to demonstrate how severe the problem is. In the United Kingdom, simply switching energy providers can save people a lot of money in some cases. When dealing with such households, particularly during the visit, he made an interesting point. The concept of behavioral change can sound arrogant at times, especially when coming from researchers and academics. Still, many people in that situation are already modifying what they do to survive and pay the bills, so he believes we must be very sensitive to the other people who are already on the line.

Rod McCall responds to the following question **about how to determine who is energy deficient and what the detection measures are** by performing a baseline survey at the start or, in one case, looking at certain pre-existing data sets for that area. Based on the surveys, academic think tanks and consultancies with some background knowledge chose a few locations where there were already energy policy issues. As the project progressed, more information about those communities became available through home visits by energy advisors. Non-governmental organizations and municipalities did play a part in this since they were already collaborating with or directly with the individuals involved in certain situations, and in others, they served as a referral to the project.

EmpowerMed responded in the same vein, stating that their target group is not strictly limited to women. The project did not adhere to any specific methodology, instead attracting mostly women through communication and visualization. Reaching out to people is again location-specific; for example, in Spain, collective assembly is used to communicate with target groups, such as facing eviction or having irregular access to electricity because they do not have their connection. In Slovenia, on the other hand, it is clear that nearly 90 percent of cases of energy poverty overlap with the situation of social support. As a result, the target group is defined as those who receive social assistance and have an annual income of fewer than 400 euros.

PowerPoor project created a tool that uses data from surveys and assessments to calculate an energy-poor index. The tool is based on an improved 10% methodology. According to their research, Eleni Kanellou from *PowerPoor* said factors such as the building's age and the number of people who live there affect the 10% method. As she stated, the tool will be available online by the end of April.

Panagiotis Ktenidis of the University of West Attica shared his perspective on the household visit. Postgraduate students from the University worked with local authorities such as the municipality to gain easy access to those households. They issued an Energy Efficiency Certificate based on the household's condition to allow for additional necessary measures.

COVID Impact:

Finally, *Natalia Boemi* of the Aristotle University of Thessaloniki posed the most awaited question of recent times about **the COVID pandemic's effect on ongoing projects.**

According to *Rod McCall* of the STEP-IN project, data collection methods differed depending on the households. Since face-to-face meetings during home visits or at Energy Cafes are strictly forbidden, STEP-IN relied on remote assessment questionnaires and phone-based surveys instead.

Dimitris Damigos of the National Technical University of Athens presented data on electricity consumption in the STEP-IN Grece Living Lab, which has steadily increased from November 2019 to December 2020. Data showed that people used around 10% more electricity during the winter in terms of heating alone. Households with a higher income are more vulnerable to electric heating use; during the COVID restriction, electricity consumption increased by 25%. Low-income households, on the other hand, have seen a 1% to 5% rise.

One of *EmpowerMed* team members expressed an interest in the **scientific aspects of these measurements**. He inquired about **whether new electric meters were installed or whether the data Dimitris listed was collected using the current smart meters in those households**. He was also curious about the **humidity and temperature monitoring systems used by STEP-IN**.

Dimitires responded by mentioning the brand he used, the price of the meters, and the sensors he used in his study. Temperature and humidity measuring sensors cost 110-120 euros per item, while meters cost 150-160 euros. Since the Living Lab in Greece lacked smart meters, purchasing a new one was the only choice. On data collection, he stated that data from electric meters were collected online, but data from humidity and temperature sensors were collected manually by visiting households.

Identifying the Needs of Energy-poor Households:

Paula wondered if **the primary need of energy-poor people is indoor comfort; if not, what they are more interested in**.

Rod McCall responded that the visiting team for the *STEP-IN* project never asked about any supplementary needs because the need varies from country to country. Indoor comfort is unquestionably one of the most important needs, both in the summer and the winter, depending on the region. However, indoor comfort is not always the case. Cooking, for example, is a significant concern for some members of the UK Living Lab.

Dimitris also mentioned that the Living Lab in Greece is located in a mountainous area where the climate is harsh, with temperatures hovering around 11 degrees Celsius throughout the year, and where 80% of the houses were built between 1970 and 1980. As a result of the climate, indoor heating is an obvious concern.

Lidija responded by stating that one of the EmpowerMed pilots in Padova, Italy, was able to conduct a pre-research study on over 3000 households affected by energy poverty. She also admits that the project prioritized the proposal over the needs of the people. They mainly focused on the problem, if it's related to electric bills or related to insulation measures and thermal comfort measures, and act accordingly. They primarily focused on the issue, whether related to electric bills or insulation and thermal comfort measures and acted accordingly.

SocialWatt:

Andriana Stavrakaki then gave a presentation on the *SocialWatt* initiative. Adriana responded to a question about the **role of academia think tanks in SocialWatt** by saying, research institutions and academia thinktanks have been quite actively involved in basically supporting utilities and designing schemes into identifying best practices. They also helped with the development of decision-support tools and a better understanding of the weaknesses of energy poverty indicators that are sensitive to particular uncertainties and how to reach energy-poor households. They also aided in capacity building, and the project developed a policy brief based on their recommendations.

Lucie Middlemiss of the *University of Leeds* **inquired about the ease with which SocialWatt collaborated with policymakers at the national and EU levels.**

Andriana responded, *SocialWatt* enables obligated parties across Europe under Article 7 of the Energy Efficiency Directive to develop, adapt, test, and spread innovative schemes to alleviate energy poverty. Because there is an open communication channel with national authorities, at least in some countries, it has aided in the communication of key messages and national authorities' involvement. Two of the eight participating utilities have a regional focus, which means they serve specific areas within their country; the other utilities are national utilities, which means they provide services on a national scale. As a result, the project aims to target energy-poor households on a national scale rather than focusing on a local or regional level.

Role of Academia, Think Tanks, and Researchers:

The workshop's final section sought to examine academia's role in addressing issues across Europe. The entire discussion was built around three main questions. These are the questions: What role has academia and think tank representatives played in addressing energy poverty in Europe so far? How successful has the involvement been so far, and what obstacles have been found, as well as what needs to be done to make the group's contribution more important in combating the phenomenon in Europe?

According to *Lucie Middlemiss* of the *University of Leeds*, academics, think tanks, and researchers have been instrumental in bringing this issue to the forefront of European debate. She referred to *Dr. Harriet Thompson* of the University of Birmingham's School of Social Policy's research on quantitative energy poverty in Europe. There were initially many apprehensions about discussing energy poverty, and it wasn't clear if it was a social or an energy issue. She also referred to a book about energy poverty in the UK written by *Dr. Brenda Boardman*, Emeritus Research Fellow at the University of Oxford. She cited the book (*Housing, energy efficiency and fuel poverty, Taylor & Francis, 2015*) as the catalyst for bringing this problem to the United Kingdom's forefront. She believes that researchers should act as objective commentators on society and make such issues a political priority, which is an integral part of the process of tackling energy poverty. She is unsure about other EU countries, but she believes the UK has done a good job of recognizing the issue, but not so much in coping with it or effectively addressing it. She also believes that researchers are doing an excellent job of understanding the problem and devising solutions, but this is insufficient. Although researchers understand how to solve these problems, political will is required to make them a reality. There is political will for an energy transition, and there is a requirement to report on energy poverty as part of that. Researchers can effectively provide a voice for this community by filling the gap with solutions and explanations of how things should be done.

Rod McCall of the *STEP-IN* project commented on academic publications on EU deliverables and how to reach a broader audience. He believes that publishing in top-ranked journals is inefficient because it does not reach a wider audience and ends up hidden somewhere. Rod emphasized the communication gap that exists between researchers and the community at large.

Konstantinos agreed with Rod and made an interesting point: it's critical to hear the perspective of those who have benefited from the project. We don't often ask the recipient to tell his or her version.

According to *Paula Fonseca*, academia and researchers play a critical role in the development of innovative solutions to spearheaded awareness during this transition to digitalisation. She believes that researchers and academics are in an excellent position to speak out and persuade the government to enact policies to address this issue. She also brings up an important issue, emphasizing the importance of student awareness, as today's students could be tomorrow's policymakers and decision-makers. She also encourages the integration of these inventions and research, not only in Europe but also in countries such as Africa.

Eleni Kanellou contributed two points. First, she believes that social media is sometimes overlooked; however, social media campaigns with the appropriate target groups are effective and engaging. Her second observation is to harness the power of students. Students are young and highly motivated, and they are more exposed to social networking.

Andriana Stavrakaki thanked the researchers and academia for recognizing the issue of energy poverty and assisting in its resolution. According to her, the main barrier is communication with policymakers, but she believes that institutes and universities have stepped forward to overcome this barrier and have been closely working on decision-making processes.

Meanwhile, *Rod McCall* brought up the **role of think tanks in this debate**. He gave an example, saying that the British Computer Society does not directly speak to policymakers, but rather puts ideas into think tanks in the hope that those think tank people will eventually become advisers to the government. He solicited input from others in this regard.

Lidija Zivcic introduced Engager (http://www.engager-energy.net/), an international network of energy poverty researchers that can assist in identifying research gaps. They primarily work in four working groups, each of which is tasked with identifying research gaps in the area of energy poverty. She also believes that think thanks are important not only because they advise governments but also because they are frequently vocal in the public arena, and they have better relationships with the media and the general public than academia.

Eleni Kanellou brought up an excellent point about think tanks' position. She claims that in the Netherlands, think tanks are heavily active in ministry-level decision-making, while in Greece, academics may be members of governmental decision-making bodies, and think tanks are largely ignored.

Natalia Boemi proposed an efficient method of funding projects by the European Commission. She stated that it would be interesting to see what is missing in European Legislation on energy poverty. Once the gap is identified, the European Commission should open a new call. This way, all aspects of energy poverty will be addressed. She also proposed. The project think tanks should coordinate directly with the European Parliament's think tank (https://www.europarl.europa.eu/thinktank/en/home.html) for a deeper understanding and participation in combating energy poverty.

Adam Xavier picked up on Lucie Middlemiss's point that, at the moment, priorities are aligned in terms of political will for an energy transition, and as a result, there's an incentive for researchers to seize this opportunity. Otherwise, the entire issue of energy poverty will be swept aside so that specific areas that are being decarbonized do not become gentrified. He also questioned the accessibility of academia. The community speaks a language that is not intended to be shared with the general population, despite the fact that there is an increasing need for it. As a result, he advises researchers to use social media to bridge the communication gap

6. Conclusions

STEP-IN aims to contribute to the establishment of an adequate political, administrative and financial framework for the successful implementation of measures to alleviate energy poverty across Europe. To achieve this, the STEP-IN consortium implements a two-fold approach. In particular, involvement of local communities as well as a wider Network of Interest (NoI) consisting of a wide range of interested parties. These include industrial representatives, local and regional authorities, citizens and advocacy groups, practitioners, EU and national policymakers and regulators, academia and think-tanks. All of whom contribute to the findings of the LL, assist in the development of the results, generate policy recommendations and drive forward relevant ideas to help combat energy poverty in the longer term. The workshop, which included five EU-funded projects and 21 participants from universities, academic institutions, and consulting firms, provided a clear overview of some of the problems that need to be addressed, the research gaps that need to be filled. Also highlighted some of the critical detail that was overlooked. Finally, from domain experts with considerable experience, the audience received a simple picture of the existing state of arts to resolve the energy poverty issues.

STEP-IN

The Role of Local and Regional Authorities in Fighting Energy Poverty

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Glossary

Abbreviation / acronym	Description
EPOV	European Energy Poverty Observatory
LL	Living Lab
LRA	Local and Regional Authority
WG	Working Group

1. Executive Summary

This white paper outlines the role of Local and Regional Authorities (LRAs) in fighting energy poverty. It specifically examines their role within the STEP-IN project, experiences outside of STEP-IN as regards tackling energy poverty and results from the input of a Working Group set up to support the development of this paper.

The findings point to the importance of LRAs acting on the following within their areas:

Strategy
- Developing a strategy for tackling energy poverty within their area.
- Implementing a strategy for tackling energy poverty within their area.

Practical support and delivery
- Ensuring there is a single point of contact and referral for those in energy poverty.
- Ensuring tailored solutions are available via this single point of contact.

Policies and standards
- Using their powers and autonomy to tackle support tackling energy poverty.

The paper sets out in more detail the role LRAs should play in progressing these areas in partnership with others, particularly those represented by the other Working Groups established within the STEP-IN project.

2. Introduction

Tackling energy poverty requires coordination action across a wide range of sectors. Within STEP-IN, these sectors are represented by a set of Working Groups (WG) to provide policy recommendations to each of these sectors based on the project learnings. These working groups cover:

- Industry
- Consumer and advocacy
- Practitioners
- EU and national policy makers and regulators
- Think Tanks
- Local and Regional Authorities.

This paper focusses on the role of Local and Regional Authorities (LRAs) in tackling energy poverty within this wider context and makes a series of recommendations as to how they can do that.

LRAs have a crucial role in tackling energy poverty, as set out in the Commission's Recommendation on energy poverty [European Commission, 2020]:

> *"Regional and local authorities are well-placed to identify the key financial and social challenges facing households in energy poverty and to play a significant role in designing and implementing a green transition which is fair, inclusive and sustainable for everyone in Europe."*

It goes on to recommend that Member States:

> *"Develop measures to address energy poverty that build on close cooperation between all levels of administration, enabling, in particular, close cooperation between regional and local authorities on the one hand, and civil society organisations and private sector entities on the other."*

This paper sets out a set of recommendations as to how LRAs should play their part in delivering on this recommendation, based on findings of the STEP-IN project and input of the LRA WG.

To do so, it sets out the following:

- Background to the STEP-IN project.
- Background to Regional and Local Authorities, and their role in energy poverty and in STEP-IN.
- The input provided by LRAs through STEP-IN, and other inputs used.
- Discussion of the implications of the findings for LRAs role in tackling energy poverty.
- A summary of the recommendations made based on these findings.

This paper should be used by LRAs to understand the role they can play in implementing the Commission's recommendations on energy poverty in their area.

3. An Overview of STEP-IN

The STEP-IN project provides sustainable strategies which can be used to alleviate energy poverty across Europe. This is achieved through three main components: living labs, ICT tools and a large stakeholder engagement process via a Network of Interest. The overall objectives of the project spanned from the key issue of having a positive impact on the lives of citizens through to identifying relevant financial schemes which can alleviate energy poverty and contribute to the overall green energy agenda (Table 1).

Obj. 1	**Positive Impact on Citizens**.
Obj. 2	**Assessment and Benchmarking**.
Obj. 3	**Supporting Best Practices**.
Obj. 4	**Engaging with the Energy Poverty Community.**
Obj. 5	**Define Future Policies, Strategies and Research Areas.**
Obj. 6	**Support Clearly Defined Target Groups of Citizens**.
Obj. 7	**Reduce Environmental Impacts.**
Obj. 8	**Identifying viable financial schemes at local, national and European scale.**

Table 1: Objectives of the STEP-IN Project

The Living labs were located in Hungary, Greece and UK and while they are locally centred, they were based on an overall methodology that included aspects such as advisor visits and energy cafes. Importantly the living labs also leverage existing projects and schemes. The methodology can be adapted for local needs (e.g. particular energy issues), availability of existing schemes and circumstances. For example, during the project the methodology was adapted to fit the evolving Covid-19 pandemic. Within these living labs a range of ICT tools were used by citizens and energy advisors. These tools, including the knowledge base are used to share information collect data. STEP-IN also recognises that its true impact in the longer terms is based more on how the methodologies, tools and recommendations are adopted and used by others. To this end a large stakeholder network consisting of academics, NGOs, consumer organisations, energy providers, politicians and other selected individuals was created. This network provided advice as the project operated, but also contributed to the development of this and the other white papers. The network along with other participants also took part in the many STEP-IN events, this ensuring that results of this project and others were disseminated.

This white paper along with the others which form part of deliverable 6.5, provide the final set of recommendations from the project derived from the network of interest working group meetings. These recommendations bring together the knowledge gained from STEP-IN with views gained from the network of interest experts.

4. Local and Regional Authorities

4.1 What are Local and Regional Authorities?

The term "Local and Regional Authorities" encompasses the lower tiers of public administration of a particular state or nation. They are generally geographically specific and have powers that are limited, relative to those of the state or nation within which they sit.

LRAs generally only act within powers explicitly delegated to them by higher tiers of government, usually state-level or national governments. Across Europe, the level of power and autonomy granted to LRAs varies significantly with differences in areas such as powers in the areas of taxation, planning and infrastructure, transport and housing.

The structure of local government in England, Greece and Hungary – the locations of the 3 Living Labs within STEP-IN – is set out below.

Local and Regional Authorities in England:

England has 343 **local authorities**, with structures varying between them. In general, there are two main structures of local government, with no regional tier of government between them and national government:

- **Two-tier areas –** where two authorities, a county council and district council, share local government functions. 26 county councils provide social care and some aspects of transport and education. These county councils are sub-divided into 192 district councils, which manage neighbourhood services like waste collection. These are generally found in more rural areas.
- **Single-tier areas -** where one authority carries out all local government functions. These are generally found in more urban areas (including all of Greater London and Greater Manchester), but over recent years some rural two-tier areas have "unitarised" into a single tier authority.

Over the last decade, some local authorities (mostly in urban areas) have chosen to come together to share powers to coordinate services and investment in their areas. Some powers and functions, particularly for transport, skills and jobs and economic development have been transferred to a **combined authority**. There are 11 such authorities (including London), of which 9 have mayors leading these authorities.

Local and Regional Authorities in Greece:

Greece has 3 tiers of regional and local government beneath national government:

- **Municipal authorities** – there are 325 municipal authorities, run by a mayor and a municipal council. They have responsibility over local social and financial affairs including schools, adult education, emergency services, social services, housing, town planning and local transport. They are reliant on funding from state and regional budgets, with little scope for financial autonomy via local taxation.
- **Administrative regions** – municipal authorities are part of 14 administrative regions, run by a regional governor and regional council. In turn, these regions are sub-divided into 74 regional units, headed by a vice-regional governor.
- **Decentralised administrations** – one to three regions are part of 8 decentralised administrations, run by a general secretary appointed by the national government and assisted by an advisory council drawn from the regional governors and representatives of the municipal authorities. They have administrative and financial autonomy, with powers devolved from the national government in areas including planning and energy policy.

> **Local and Regional Authorities in Hungary:**
>
> Hungary has 4 tiers of local government beneath national government:
>
> - **Counties** – there are 20 counties in Hungary with responsibilities relating to territorial and rural development and land-use planning.
> - **Statistical sub-regions** (districts)– there are 174 s**tatistical sub-regions** in Hungary with a range of responsibilities. These include local transport, healthcare, social care, child welfare, environmental health, housing, local environmental protection, cultural service and waste management.

This translates into the following distribution according to the categories of the European Nomenclature of Territorial units for Statistics which categorises tiers of government as follows:

- NUTS – large regions.
- NUTS 2 – basic regions for the application of regional policies
- NUTS 3 – small regions for specific diagnoses
- LAU – Local Administrative Units

Country	NUTS1	NUTS2	NUTS3	LAU
England	N/A	N/A	26	192
			125	
Greece	N/A	13	74	325
Hungary	3	8	20	174

Table 2: Distribution of local and regional tiers of government across the countries within which the 3 STEP-IN Living Labs operated

The above discussion highlights the complex and different political landscapes in regional and local government across the 3 countries within which STEP-IN has operated, and which is reflected across Member States.

4.2   What role do regional and local authorities have in energy poverty?

Given the varying structures of local and regional government across Member States, LRA's role in tackling energy poverty will also vary. This will be particularly dependent on the <u>autonomy</u>, <u>powers</u> and <u>funding</u> that these authorities have in this area and which are generally set by national/state level policy and legislation. These have been set out for the 3 countries in STEP-IN above.

As compared to national and state governments, LRAs have the advantage of running services closer to those people in energy poverty than national governments. LRAs are generally well-placed to coordinate action at the local level, bridging the gap between national/state governments and agencies/organisations working locally to support those in energy poverty.

In broad terms, LRAs are likely to be able to act in the following areas:

- Understanding the nature of energy poverty within their area.
- Setting an overall strategy for tackling energy poverty within their area, in partnership with others.

-   Working with partners to ensure that there is support in place for those in energy poverty, including visits/advice, practical measures, fuel allowances, tax benefits and welfare payments and emergency financial assistance.

How far LRAs can act in each of these areas will depend on the factors considered above – the autonomy, powers and funding they have in relation to energy poverty.

These priorities and factors are reflected in the measures and policies to address energy poverty implemented by local government and captured by the European Union Energy Poverty Observatory (EPOV) (EU EPO 2021 – Figure 2)
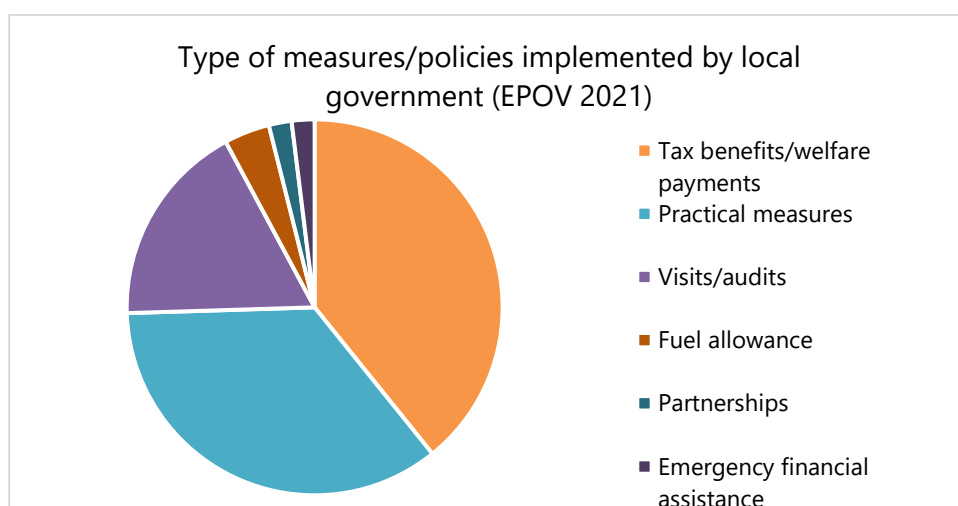

Figure 1: Type of measures/policies implemented by local government (EPOV 2021)

4.3 What role have regional and local authorities played in STEP-IN?

These different roles for LRAs are reflected in the Living Labs operated within STEP-IN.

Greater Manchester – the Greater Manchester Combined Authority (GMCA) coordinated the practical implementation of the Greater Manchester Living Lab in partnership with the University of Manchester. The activities themselves (including visits and energy cafes) has been led by Groundwork Greater Manchester, a charity that operates across the city region to create stronger, healthier communities, responsible businesses and greater prospects for local people. The GMCA integrated the STEP-IN Living Lab within existing energy poverty support provided within the city region. The service operated by Groundwork, and similar services, operate across and are supported by all 10 local authorities within Greater Manchester. The local authorities in Greater Manchester have provided input into the working group that has formed a key part of the production of this paper.

Nyírbátor district– the Living Lab in Nyírbátor district has been led by Magyar Máltai Szeretetszolgálat Egyesület (MALTAI), a civil association, Ariosz, a social and market research company and E.ON, an energy utility. The municipalities of Nyírmihálydi and Nyírkáta helped STEP-IN fieldwork in multiple rounds by allowing municipality premises to be used for surveying and energy advisory sessions and allowing public workers to participate in the survey. With the municipality of Nyírmihálydi's help, the project team was able to engage the local nursery, pasta factory, and municipality administration employees. During surveys and energy advisory sessions, it was common that participants raised their problems resulting in further support work. In Nyírkáta, the local family care worker, health visitor,

primary school employees, and nursery also helped to reach potential clients, and some of them even participated in the STEP-IN project. Staff provided support during surveys, making joint family visits, and gave useful information on typical energy consumption patterns in the area. In Nyírbéltek, the local government and minority representatives supported the work, and the project team could use the community house of the local minority government for energy advisory sessions and the Energy Cafe event.

Metsovo – within the Metsovo Living Lab, the National Technical University of Athens has led the implementation of the Living Lab, including setting up and operating it. This has been supported by the Municipality of Metsovo, who hosted and organised energy cafes, informed the local society about the project, provided data and organised dissemination events.

4.4 What role have do regional and local authorities played in developing this white paper?

In order to develop the proposals in this paper, input has been sought from regional and local authorities to develop the recommendations made. A WG was established which met to discuss the role and experience of LRAs in tackling energy poverty. The WG was comprised of individuals actively working in the area of energy poverty within their authorities.

The detail of this work is set out in Appendix to this document, which contains:

- A summary of the first Network of Interest workshop and engagement, which discussed broad issues around the definition, assessment and solutions to energy poverty.
- A summary of the best practice examples discussed at the second Network of Interest workshop, which discussed best practice examples of tackling energy poverty.

5. Discussion

5.1 Introduction

As set out in section 4 and informed by discussions at the WG, LRAs occupy a unique place in their ability to tackle energy poverty, being able to bridge the gap between national/state governments on the one hand, and their local communities on the other. They also have a view of other initiatives taking place in related areas within their communities, such as those tackling poverty more broadly.

This points to LRAs focussing on the following key areas:

1. Setting an overall strategy for tackling energy poverty in their area
2. Making sure holistic, practical advice and measures are available for those in energy poverty.
3. Using their powers, particularly in housing, planning and welfare to provide a wider environment of support to help those in energy poverty.

These need to be tailored according to the factors set out in section 4 that may facilitate or constrain the role that LRAs can play. The recommendations below are designed and discussed in such a way that they can be adapted to local and regional government structures, powers, autonomy and funding in individual Member States. These are discussed in further detail below and form the basis of the recommendations for LRAs coming out of STEP-IN.

5.2 Setting an overall strategy for tackling energy poverty

> Recommendation 1: Local and Regional Authorities should lead the development of an overall strategy for tackling energy poverty in their area.

The development of a strategy for tackling energy poverty is a key first step for Local and Regional Authorities. Without this, any practical interventions or measures risk being uncoordinated and ineffective. A strategy is important in setting out the current situation, issues and how these should be tackled within the context of the local area, which means Local and Regional Authorities are well-placed to lead on their <u>development</u> and their subsequent <u>implementation</u>. These are addressed in turn below.

The development of the strategy should include:

- An assessment of the <u>energy poverty situation</u> in their area – this can draw on information available at a European level, national datasets or local intelligence to set out the spatial and demographic distribution of energy poverty within their area. This approach allows the local situation to be put into the context of the energy poverty situation nationally and locally, particularly where people are particularly at risk from ill-health.
- An assessment of the <u>causes of energy poverty</u> in their area – again drawing on available evidence from different scales and identifying key areas where action would have an impact on reducing energy poverty.
- A set of <u>priorities for tackling energy poverty</u> in their area – informed by the current situation and causes of energy poverty.

In order to have maximum reach and impact this strategy needs to be developed in a way that it relates to a broader set of issues that local and regional authorities are likely to be working to tackle. Addressing these issues together is crucial in order that a strategic and holistic approach to talking

energy poverty is taken, rather than one in isolation from other economic, social and environmental issues. These broader issues are likely to include:

- Climate change – many local and regional authorities will be taking action to tackle climate change, either due to legal requirements or commitments regarding meeting carbon emissions targets in their area[1]. Given that reducing energy poverty, by measures such as increased energy efficiency, will also reduce carbon emissions, the strategy needs to set out how these objectives will be addressed together.
- Housing – many local and regional authorities will be taking action to improve the quality of housing available to their residents, due to legal requirements or voluntary policy objectives. Given that reducing energy poverty, by measures such as better insulation and more efficient heating, will also improve the quality of housing, the strategy needs to set out how these objectives will be addressed together.
- Health and well-being – the impact of cold homes and energy poverty on health is well-established[2]. Local and Regional Authorities are likely to have a key role and interest in the health of their local communities. The strategy therefore needs to set out how these objectives will be addressed together.

Finally, in order for the strategy to be holistic, robust and have buy-in, it needs to be developed in a collaborative partnership with the range of stakeholders set out in these policy papers. This will allow the strategy to reflect the extent to which these other groups can act individually and together to reduce energy poverty. Without this approach, the strategy is not likely to be realistic or deliverable and any implementation of measures to tackle energy poverty risk being undermined or uncoordinated across partners.

> Recommendation 2: Local and Regional Authorities should oversee the implementation of an overall strategy for tackling energy poverty in their area.

The implementation of the strategy should be set out in an implementation plan, as to how these priorities will be tackled by the range of organisations that came together to develop it and will need to continue to collaborate to implement it. The implementation plan should reflect:

- The autonomy and power of the Local and Regional Authority, and those of other key actors (particularly national policy makers and regulators, industry and practitioners (as set out in the accompanying white papers). This allows implementation to be tied to specific areas of responsibility.
- The funding available to the Local and Regional Authority (and to others, as listed above). This allows the Authority to set out what is and is not within its power and ability to fund, and where it must work in partnership with others to implement existing resources (e.g. with industry) or make the case for new/additional resources (e.g. by lobbying national policy makers).

As in the development of the strategy, its implementation needs to:

- Have regard and be joined up with initiatives in place driven by other priorities, particularly around climate change, housing and health and well-being.
- Be delivered in partnership, led and overseen by Local and Regional Authorities who should act as convenors to bring other key groups together.

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[1] Climate change planning for regional and local authorities — Climate-ADAPT (europa.eu)

[2] the-health-impacts-of-cold-homes-and-fuel-poverty.pdf (instituteofhealthequity.org)

STEP-IN has also highlighted the need for implementation of initiatives to be monitored and reviewed for their impact and effectiveness in tackling energy poverty.

5.3 Making sure key aspects of implementing an energy poverty strategy are in place in their local area

In the development of an implementation plan for an area's strategy for tackling energy poverty, Local and Regional Authorities are well-placed to ensure key aspects of any approach to tackling the problem are in place. Exactly how this is done, by whom and how it is funded will depend on the power, autonomy and funding available to the Local or Regional Authority, which will have been addressed above in the development of and implementation plan. Outcomes from the WG and the STEP-IN project have informed the building blocks identified below as key to implementing an energy poverty strategy.

5.3.1 A single point of contact for those in energy poverty to access support

Recommendation 3: Local and Regional Authorities should work with partners to ensure a single point of contact is in place for those in energy poverty to access support.

Local and Regional Authorities should work with partners to ensure year-round advice is available to those in energy poverty to access advice and support. The experience from STEP-IN and input from the WG points to the following areas as being key components of this intervention.

Type of advice and support

This should provide on-the-phone or in-person advice (via home visits), covering support on:
- How to improve energy efficiency in their home.
- Available financial and non-financial schemes in the area to support this.
- How to reduce the amount of household income spent on energy.
- How to manage wider household finances, income and benefits.

A "single" point of contact

Experience from the WG and STEP-IN points to the value in a single point of contact service. This ensures equity of access across a local area, consistent advice and the building up of the service's delivery, reputation and trust, which is crucial in facilitating access to hard-to-reach communities.

Other factors important to its success

As intimated above, the success of this service is reliant on its ability to reach those in energy poverty, who are often hard-to-reach. Again, LRAs can play a crucial role in integrating this service with other services they either provide or support that those in energy poverty may access. Experience from STEP-IN and the WG points to the importance of LRAs driving awareness of and referrals into this service.

This can be driven through awareness campaigns to households (e.g. leaflets, online, social media). However, experience from STEP-IN and the WG highlighted the importance of other individuals and agencies working in the community and with households in energy poverty. LRAs are well-placed to

raise awareness of the service with these agencies and organisations and support through training, who can then in turn drive awareness of and referrals to the single point of contact service. Those in the following agencies and organisations have been identified through STEP-IN and the WG as likely to be key, particularly where they visit people's homes:

- Health and social care workers and practitioners.
- Housing professionals.
- Religious and faith groups, and others representing minority groups.
- Voluntary sector workers.
- Heating engineers, meter installers and those carrying out home repairs/works.
- Other frontline staff – e.g. in welfare/benefits.

Through a functioning single point of contact service with good awareness in the local community, energy poor households can then be referred by this service to further practical support and initiatives that may be in operation in the local area, the key areas of which are set out in more detail below.

A comprehensive, tailored set of solutions for those in energy poverty:

Recommendation 4: Local and Regional Authorities should work with partners to ensure a comprehensive, tailored set of solutions is place for those in energy poverty.

Local and Regional Authorities should work with partners to ensure that a package of solutions is available to those in energy poverty in their area, and that these are tailored to the causes of energy poverty identified in their strategy. The experience from STEP-IN and input from the WG points to the following areas as being key components of practical solutions in place to tackle energy poverty.

Supporting energy poor households to improve the energy efficiency of their property:

Assisting energy poor households to improve the energy efficiency of their properties is a crucial part of any approach to tackle energy poverty, in particular requiring support in the following areas:

- Insulation – simple measures (e.g. draught exclusion) and more in-depth interventions (e.g. wall/roof insulation, more efficient doors/windows) should be available, with appropriate financial support.
- Heating systems – upgrades of inefficient heating systems (from room heaters to central heating systems, or from inefficient systems to renewable systems) should be available, with appropriate financial support.

Supporting energy poor households to be able to pay to heat their homes:

Affordable energy costs are a crucial part of any approach to tackle energy poverty, requiring support in the following areas:

- Providing direct financial support to households - several Member States (e.g. Hungary, Greece, Croatia) provide payments or allowances to energy poor households to use to pay for fuel (e.g. firewood) or put towards their energy bills.
- Reducing their energy bills – in private energy markets, such as the UK, switching energy providers and/or tariffs can significantly reduce energy bill costs.

Supporting energy poor households on wider household finances:

Given that energy poverty is an indicator combination of households with low incomes and high expenditure of disposable incomes on energy, it is likely to be indicative of a household in potential wider financial difficulties. There is therefore the opportunity to provide holistic advice to energy poor households on managing their wider household finances at the same time as advice/support on energy bills. Experience from the WG points to the following as being particularly important in increasing the amount of disposable incomes they are able to spend on energy:

- Income maximisation – advising households on what other sources of income, such as welfare payments and benefits, may be available and which they may be eligible to receive.
- Debt reduction – advising households on how to manage and reduce their debts.

5.3.2 Using LRA's powers and autonomy

Recommendation 5: Local and Regional Authorities should, where possible, use their powers and autonomy to tackle energy poverty.

As set out in section 4 and informed by discussions at the WG, the powers and autonomy afforded to LRAs by the national or state level governments vary across Member States. Use of these is therefore determined by the level of power and autonomy LRAs have and their ability to lobby for and secure extensions to this.

Given this, it is challenging to provide a comprehensive set of areas in which LRAs across Europe could act. The list below is therefore a guide to the areas in which LRAs should investigate as a priority:

- Planning – LRAs are likely to have a role in determining the standards and/or granting permission for new housing development in their area. LRAs should explore the opportunity to ensure new developments maximise their energy efficiency.
- Housing – LRAs are likely to have a role in either owning or being able to influence public, cooperative or social housing. LRAs should prioritise investment in housing stock that they directly own, or work with the providers of public, cooperative or social housing to improve its energy efficiency.
- Enforcement – LRAs are likely to have a role in enforcing national standards for energy efficiency in homes and should prioritise action under any legislation to identify where landlords are failing to provide homes to their tenants that meet these standards.

6. Recommendations

This white paper outlines the role of Local and Regional Authorities (LRAs) in fighting energy poverty. It specifically examines their role within the STEP-IN project, experiences outside of STEP-IN as regards tackling energy poverty and results from the input of a Working Group set up to support the development of this paper.

Taken together, these white papers demonstrate that tackling energy poverty requires coordination action across a wide range of sectors. The findings of this paper point to the importance of LRAs as part of this, in particular in bringing together this wide range of partners in context and circumstances of their area. In particular, it recommends that LRAs take action in the following areas, which provide a coordinated set of actions for LRAs to take in tackling energy poverty in their area:

Strategy
- Developing a strategy for tackling energy poverty within their area.
- Implementing a strategy for tackling energy poverty within their area.

Practical support and delivery
- Ensuring there is a single point of contact and referral for those in energy poverty.
- Ensuring tailored solutions are available via this single point of contact.

Policies and standards
- Using their powers and autonomy to tackle support tackling energy poverty.

7. Appendix

7.1 First Network of Interest Meeting – Summary of Discussion

7.1.1 Defining Energy Poverty

The Local and Regional authorities WG explained that, according to the UK Government's definition of fuel poverty, a household is considered to be fuel poor if they have required fuel costs that are above average (the national median level); and were they to spend that amount, they would be left with a residual income below the official poverty line. In addition, under the Greater Manchester Energy Company Obligation Local Authority Flexible Eligibility Statement of Intent, consumers are classed as vulnerable if their household annual disposable income (after deducting tax, mortgage / rent and Council Tax) is below determined thresholds and a member of the household has one of the listed vulnerabilities to the cold (Greater Manchester Combined Authority, 2019). The WG sees three important elements in determining whether a household is fuel poor: household income; household energy requirements (which can be determined by the Energy Performance Certificate rating for the property); and fuel prices.

7.1.2 Assessment of the current situation regarding energy poverty

The Local and Regional authorities WG reported a free home energy assessment visit to anyone struggling to stay warm at home, regardless of tenure in Oldham, a service including advice on how to reduce energy use around the home and use heating controls effectively; help with switching energy tariffs, claiming benefit entitlements (including the £140 Warm Homes Discount) and getting out of energy and water debt; a £30 emergency credit for prepayment meters; draught proofing, LED light bulbs and reflective radiator foils; temporary oil filled radiators if the main heating system has broken down; boiler replacements, central heating systems, cavity wall and loft insulation; and grants for furniture and white goods. In addition, the GMCA with the 10 districts, implements a Warm Homes Fund scheme across Greater Manchester. The scheme helps people in or at risk of falling into fuel poverty and is targeted at households that do not currently have a central heating system and instead have, for example, old storage heaters or gas fires that are expensive to run. The scheme runs from autumn 2018 to the end of August 2019. On the other hand, there is an urgent need to retrofit the pre-1919 solid wall properties using External Wall Insulation on a street-by-street basis. However, Energy Company Obligation funding is insufficient to cover the full cost of this and, as these properties are usually occupied by low-income households, residents are unable to meet the shortfall. Consequently, this essential work has come to a halt in most areas since the Government's Green Deal Communities scheme ended.

7.1.3 Proposed solutions to the problem of energy poverty

The Local and Regional authorities WG reported that housing retrofit has to be made a national infrastructure priority so that the necessary investment can be made in older housing stock in order to tackle fuel poverty and meet the 2050 target to reduce carbon emissions.

7.2 Second Network of Interest Workshop: Best practice #1: Local energy advice and outreach services: the LEAP service in Greater Manchester

7.2.1 Brief summary of the initiative and situation addressed

Eligible households in Greater Manchester's local authority areas qualify for free home visits from qualified energy advisers to support them in saving energy and money, helping them to keep their home warmer. These operate across all 10 local authority areas – in 7, this is provided by the Local Energy Advice Partnership (LEAP) service; the other 3 local authorities manage a similar service in-house.

7.2.2 Actors/stakeholders involved

There are several key stakeholders involved in this programme, whose respective roles are all key to delivering a successful service to Greater Manchester households:

- **Energy companies** – through UK legislation and policy[3], <u>medium and large licensed energy suppliers</u> are required to provide support people who are living in fuel poverty or a fuel poverty risk group, which they can choose to do through third parties (as is the case for LEAP visits through Agility Eco). This is part of the Warm Home Discount Scheme.
- **Private companies** – <u>Agility Eco</u>, a private company operating across the UK, provides services to energy suppliers (as well other organisations such as local authorities and suppliers). These services include providing the means for energy suppliers to discharge their responsibilities under the Warm Home Discount Scheme. Agility Eco puts the funding received under this scheme to the support of a Local Energy Advice Programme (LEAP) across over 120 local authority areas in the UK. In each area, it engages local organisations with frontline experience to carry out free home energy visits to eligible households.
- **Practitioners** – within Greater Manchester, local charity <u>Groundwork Greater Manchester</u> delivers the LEAP service in 7 of the 10 local authority areas, with similar services operating in the other 3. Groundwork Greater Manchester is part of a federation of charities working nationally and locally to transform lives in the UK's most disadvantaged communities. It employs a team of 8 "Green Doctors" in Greater Manchester to deliver the LEAP programme through:
    o Attending and speaking at public events, workplaces and community groups to raise awareness of the scheme with residents and those working with residents.
    o Carrying out visits to households referred to LEAP (through these routes, others or through a national helpline). Visits focus on a home health check, fuel debt advice, independent switching advice, tips on how to reduce damp, mould and condensation and money saving advice. A range of energy saving measures can also be fitted for free during the visit – such as LED lightbulbs, draught proofing and power down devices.

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[3] https://www.ofgem.gov.uk/environmental-programmes/warm-home-discount-whd-scheme

        o   Referring households to other schemes that are available in Greater Manchester, such as for first time central heating or replacements for broken boilers.
- **Local authorities** – local authorities in Greater Manchester, and elsewhere where the scheme operates, partner with Agility Eco so that eligible residents in their areas can receive LEAP visits. This includes:
  - Support of the scheme – overall backing of the scheme as one supported by the local authority.
  - Promotion of the scheme – raising the profile of the scheme online, through websites or social media, or through frontline staff working the local authority to ensure referrals into the scheme on an ongoing basis and targeting of those in need and eligible to receive it.
  - Raising awareness among staff – frontline workers in each local authority and their network of local partners can access training about the scheme in order to be able to explain it to households and refer them to the service.
- **City-region authority** – in Greater Manchester, the 10 local authorities come together to collaborate in key areas (transport, environment, skills, housing, planning) where policy and delivery is carried out in collaboration across Greater Manchester. This is formalised in the Greater Manchester Combined Authority (GMCA) under the leadership of the Mayor of Greater Manchester. The Combined Authority acts to:
  - Provide a way for the local authorities to coordinate and ensure consistency to residents across the city-region (i.e. that LEAP and other services across GM provide an equal service across the city-region).
  - Supporting and promoting the scheme at a Greater Manchester scale.
  - Regularly convening local authorities and partners to discuss the scheme, tackle any issues and identify opportunities.

7.2.3 Objectives

The objectives of the LEAP service are to provide free advice, support and energy saving measures to help people keep warm during the colder months and to reduce their energy bills. For local authorities, this contributes to their wider aims to:

- Support vulnerable residents in keeping warm and healthy and reducing their bills.
- Improve energy efficiency and quality of people's homes, in support of wider environmental and carbon reduction aims, addressing the climate emergency and achieving net zero by 2038
- Join up support services across their areas.

The ambitions to improve the residents' quality of life by reducing the energy poverty levels and reach carbon neutrality by 2038 requires significant improvements of the local housing stock.

7.2.4 Innovative elements

There are several innovative elements to how the service was established and has been developed since 2017, including:

- Developing partnerships – public, private and third sector partnerships have been key to the successful delivery of the programme. This has not been by way of traditional local authority procurement – e.g. specify a service to be delivered and procure an organisation to do so – but through more informal arrangements. The informal arrangement has also support networking between frontline staff that resulted in increased awareness of the scheme and improved communication between stakeholders.
- Integrating service with other offers – the service has successfully acted as a means of adding new schemes to over time, including those providing first time central heating systems, insulation upgrades and repairs for broken boilers. This has allowed for economies of scale – rather than having to set up new means of referring or recruiting households into these schemes, LEAP has acted as the mechanism to do this. It also provides greater justification to funders for projects in Greater Manchester given the partnerships already in place.
- Scale and local adaptability – the scheme has at the same time been able to operate across a large area (820,000 Greater Manchester households across 7 local authority areas) offering a single service to residents whilst at the same time allowing local authorities to adapt the service in their respective areas – e.g. providing top up funding for measures beyond those funded through the LEAP service. The scheme also enabled for existing services to be integrated and created improved experience for those seeking professional energy advice.
- Access to financial support – energy poor households were referred to access additional funding through ECO, ECHO and Warm Homes Fund. This enabled for more costly energy efficiency measures to be installed in their homes. In addition, the LEAP service allowed some residents to access further that improved their financial circumstances and reduced impact of energy bills on the household's income.

7.2.5 Actions taken so far

The following phases have been key actions in the scheme's establishment:

- Securing the backing of local authorities.
- Engaging Groundwork in Greater Manchester - the local delivery partners for home visits.
- Making public and third sector partners aware of the service being offered.
- Promotion of LEAP directly to the public through a variety of channels.
- Regular monthly feedback sessions by LEAP representatives to local authority officers.

7.2.6 Results

During 2019/20 there were a total of 1278 LEAP visits across Greater Manchester. These achieved a total of over £1.8 million in lifetime bill savings for clients of the service. Highlights included:

- The installation of over 10,600 small energy saving measures, such as LED bulbs and radiator reflector panels.
- Over 170 households being supported to access new benefits that they were entitled to and improving their overall household financial management.
- Over 200 vulnerable households being referred onwards for an emergency boiler replacement to ensure that they had heating and hot water.

7.2.7 Lessons learnt

Several lessons have been learnt through the implementation of this programme so far, including:

- Partnerships – the scheme relies on partnerships between private, public and third sector organisations in order to be able to operate successfully. These arrangements have become established in Greater Manchester over the past 3 years that has led to the scheme increasing its uptake each year of its operation. However, these arrangements are not delivered in the traditional/standard way of a local authority specifying a service to be delivered and then procuring it in accordance with public procurement rules. Instead, more informal partnerships develop whereby local authorities support the delivery of a third-party service in their area and integrate this with other services, including those offered directly by them and their partners. This can cause uncertainty and lack of clarity in local authorities around the arrangements in place – for example, queries about "liability cover" if a local authority supports a scheme that is delivered by a third party.

- Outreach – the LEAP service provides a wide range of different support – some of it crosses over with other advice services (such as switching energy tariffs) but other elements are unique in Greater Manchester. If a client is engaging interested in one of these elements – for example, access to a new heating system, then they may respond directly to the marketing of the service without having engaged with other support services in their area.

- Scale and local provision – demand for the service in the peak winter period rises dramatically and in 2018/19 the service was solidly booked up for many weeks in advance, which made it difficult to support very vulnerable households and led to some cancellations. Both Groundwork and the LEAP contact centre team worked very hard to scale up their operations for 2019-20, Time in traffic is also an issue for LEAP assessors, and efforts have been made to reduce the distance travelled between appointments when roads are busy.

- Maintaining support and awareness within local authorities – awareness raising of the service has been an ongoing process – in particular, engaging public and third sector frontline staff and giving them the confidence to refer. One helpful approach has been to invite these staff along on a visit so that they are aware of what it involves. This allows them to accurately explain LEAP to potential clients. Despite this , staff turnover and the long summer break mean that yearly refreshers are helpful for all but the most regular referrers.

- Capacity building and retention - schemes such as LEAP and LA-own energy services are highly valued for their role in building up the regional capacity to tackle energy poverty – this includes development of relevant skills, relationships, and know-how. They directly target some of the key challenges associated with the delivery of energy advice services (e.g. lack of resources, capacity, value for money considerations). Over time, such schemes build trust and are recognized by residents, which facilitates access to hard-to-reach communities. One of the biggest risks in this context is the loss of momentum when the funding runs out and the developed structures are no longer supported. At that point, energy poverty action can no longer capitalize on economies of scale, integration and recognition developed over time.

7.2.8 NoI remarks on the scalability and replicability of the elements of the initiative

Fuel poverty levels in the UK have decreased over the past decade (16.4% in 2010, 10% in 2013, 11.1% in 2016 and 10.5% 2018). A suggestion has been put forward that the combination of altered assessment methodologies and impact of energy poverty schemes were important contributing factors. Income remains the key area where energy poverty action has not accelerated considerably.

7.2.9 Further sources and other relevant practices shared by the NoI

Engagement Results

What do you think were the GM-specific opportunities that LEAP capitalized on?

What do you think were the biggest challenges for LAs in the effective delivery of the outreach services?

ECO & ECHO
Good networking
Outreach to vulnerable
free boilers / help
Partnership, eco echo,
GM Warm Homes Fund
ECHO, Energy Advice

Delays in delivery
Identifying households
Timescales, skills, top £
lack of staff resources
capacity
Finding most vulnerable

7.3 Best Practice #2: Delivering upgrades to home heating systems: the Greater Manchester Warm Homes Fund Scheme

7.3.1 Brief summary of the initiative and situation addressed

Under a recent nationally funded programme, eligible households in all 10 of Greater Manchester's local authority areas qualified for free installation of a first-time central heating system. This aimed to provide fuel poor and vulnerable residents with central heating where they did not have any before – helping them to keep warm and healthy and heat their homes more efficiently and cheaply.

7.3.2 Actors/stakeholders involved

Several key stakeholders were involved in this programme. Their respective roles were all key to delivering a successful service to Greater Manchester households:

- **Energy companies** – the National Grid, the UK's electricity grid operator and distributor, has made £150m available across Great Britain (between 2017 and 2022) to incentivise the installation of affordable heating solutions in fuel poor households who do not use mains gas currently as their primary heating fuel. This 'Warm Homes Fund' programme has been managed by Affordable Warmth Solutions, a Community Interest Company[4] working to improve heating systems for vulnerable households. This scheme is designed to support local authorities (and other organisations, including registered social landlords) working in partnership with them, to address some of the issues affecting fuel poor households.

- **Local authorities** – local authorities and the Greater Manchester Combined Authority have played several key roles throughout the lifecycle of the project:

  o <u>Funding application</u> – local authorities are eligible to apply for funding from the scheme. In 2017, Greater Manchester Combined Authority (GMCA) applied (on behalf of all 10 local authorities in Greater Manchester) for £1.9m of funding to deliver 500 installations to fuel poor households across the city-region. This required the 10 local authorities to agree apply for the scheme, to make commitments on funding requirements, to agree how the scheme would be delivered, to agree targets on numbers of households to recruit and to fit the programme within other schemes in operation (including outreach services to fuel poor households).

  o <u>Contracting and procurement</u> – the GMCA, on behalf of the 10 local authorities, entered into a legal agreement with the funder to deliver 500 installations across Greater Manchester. Subsequently, it was required to procure and contract for delivery of the scheme – to bring in expertise in project management of the scheme, as well as carrying out the central heating installations. This required specialist legal and procurement advice and the running of a procurement exercise in line with national and European regulations. Following procurement, contracts were required to be developed and signed with the two companies delivering this service to protect the interests of residents who would receive installations and the GMCA (as recipient of the funding) and local authorities (as backers and supporters of the project).

  o <u>Project setup</u> –once contracts were in place, the project needed to be established and set up ready for delivery. This required the integration of this offer within existing outreach programmes (including the LEAP programme), designing the customer journey to ensure a smooth experience for householders, creation of a dedicated website and social media channels, promotion of the scheme amongst front line services and establishment of government arrangements to monitor delivery of the programme.

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[4] A type of limited company for people wishing to establish businesses which trade with a social purpose (social enterprises), or to carry on other activities for the benefit of the community

- o <u>Project delivery</u> – once set up, the project then moved to delivery. Local authorities' main roles during this phase focused on ensuring delivery was in line with that agreed with the funder (in terms of financial/budget management, quantity and quality of installs), ongoing promotion of the scheme to drive referrals into it to meet targets and management of risks or issues that arose throughout the process (e.g. where exceptions to normal procedures needed to be made). This was done through governance arrangements established through the project, which included monthly meetings and reports between the GMCA, LAs and contractors.
  - o <u>Project closure, audit and lessons learnt</u> – once completed in October 2019, the project was required to be closed, a project report submitted and a full audit to be carried out by the funder. This also encompassed an evaluation of the impact of the programme and lessons learnt exercise.
- **Delivery bodies –** third parties were key in successful delivery of the project, given home visits, installations and project management were sub-contracted by the GMCA and local authorities. This included:
  - o **Groundwork –** who deliver energy outreach visits (the LEAP service) in 7 of the 10 local authority areas, assessing eligibility/suitability of households for the scheme. If eligible Groundwork helped clients to complete the necessary application paperwork and also followed up in a minority of cases where there were issues with the preparation of the property for installation, or the install itself.
  - o **Warm Homes Oldham, Wigan AWARM and Bolton Care and Repair** – operating in the other 3 LA areas, they delivered the same support as Groundwork (above**)**
  - o **Agility Eco Services Ltd** – who were contracted to carry out the project management of the scheme, liaising with all parties involved to deliver it successfully (including households referred to the scheme, Engie – see below, outreach providers and local authorities).
  - o **Engie Ltd** – who were contracted to carry out installations of central heating systems under the scheme.
  - o **Bolton at Home and Mosscare St Vincent Housing Associations** – who supported an element of the programme installing central heating powered by heat pumps into a number of their properties where low income residents had high fuel bills.

7.3.3 Objectives

The objectives of the Greater Manchester Warm Homes Fund programme were to deliver 500 first time central heating systems to fuel poor homes in Greater Manchester. LEAP service are to provide free advice, support and energy saving measures to help people keep warm during the colder months and to reduce their energy bills. For local authorities, this contributes to their wider aims to:

- Support vulnerable residents in keeping warm and healthy and reducing their bills.
- Improve energy efficiency and quality of people's homes, in support of wider environmental and carbon reduction aims, addressing the climate emergency and achieving net zero by 2038
- Join up support services across their areas.

The ambitions to improve the residents' quality of life by reducing the energy poverty levels and reach carbon neutrality by 2038 requires significant improvements of the local housing stock.

7.3.4 Innovative elements

There were several innovative elements to the initiative, including:
- Low carbon heating installation – as part of the scheme, 16% of installs were air source heat pumps (a low carbon heating source). Uptake of these has been limited across the UK due to costs and other requirements (e.g. for upgraded insulation) and lack of awareness of the technology. The project provided for a social housing provider in Greater Manchester to install these at 80 households and learn lessons from the process at the same time.
- Developing partnerships – public, private and third sector partnerships have been key to the successful delivery of the programme. This has not been by way of traditional local authority procurement – e.g. specify a service to be delivered and procure an organisation to do so – but through more informal arrangements. Schemes such as GM Warm Homes Fund build on the success of existing networks and partnerships (e.g. with housing associations) and require close collaboration to be deployed effectively.
- Integrating service with other offers – the initiative was successfully integrated at a Greater Manchester level with existing programmes, including 4 energy outreach services. This has allowed for economies of scale – rather than having to set up new means of referring or recruiting households into these schemes, existing outreach programmes acted as the mechanism to do this. The integration with energy advice services (LEAP and LA-own) enabled for the scheme to target the most vulnerable residents and was essential for successful completion.
- Awareness raising and advertising – referrals to the scheme were identified through a wide variety of communication and marketing routes. A clear message about reducing energy bills for fuel poor homes was circulated, especially on social media. Advertising via Facebook over winter 2018/19 generated significant response and was particularly innovative, having not been used in this way before for fuel poverty and energy efficiency programmes in Greater Manchester. It has been estimated that over 100 installations ultimately took place from leads generated through advertising on social media – in some cases the adverts were seen by younger family members who then made older relatives aware and supported them in applying. In addition, engagement with the energy advice services (e.g. LEAP) has increased awareness of the issue and mobilized coordinated action between the ten local authorities, the regional authority and the third sector

7.3.5 Actions taken so far

The following actions were taken in order to establish and deliver the scheme:
- The making available of appropriate funding from national government policy that aligned with local policy objectives for tackling fuel poverty.
- Local agreement to apply for funding at a significant scale (i.e. across all of Greater Manchester) and the taking on of risks associated with this

- Successful application for funding through making the case for investment in Greater Manchester and providing confidence in delivery through meeting scheme criteria.
- The running of procurement exercises to bring on board organisations to deliver the scheme and integrating this with the existing local landscape and other schemes.
- The contracting with successful bidders to protect the interests of households (particularly through ensuring quality of service) and also of the GMCA and local authority interests (e.g. financial/delivery liability).
- Preparing for delivery, ensuring join up with other services already in place and making local organisations aware of the scheme to drive referrals into it. Arrangements also needed to be established between the contracted organisations to ensure a smooth customer journey throughout the process.
- Managing delivery, including monitoring progress against targets and managing any issues and risks as they arose to ensure ultimate success of the project.
- Closing the project, evaluating its impact and understanding lessons learnt to make the case for future funding rounds.

7.3.6 Results

The scheme achieved:

- 500 installations of first-time central heating (421 gas, 79 "low carbon" air source heat pumps), delivering increased comfort and reduced bills to fuel poor households.
- Using mechanisms to estimate lifetime bill savings, the average lifetime bill saving for each household was £6267 (£522 a year over 12 years) – a total saving of £3.13 million. However, much of these savings would be expected to be taken up by households to increase the heat in their homes (having up to that point, underheated them).
- The mode average Energy Performance Certificate (EPC) rating of properties rose by two levels and 101 homes were connected to the gas network for the first time.

7.3.7 Lessons learnt

Several lessons have been learnt through the implementation of this programme so far, including:

- Public procurement – public procurement processes took a significant amount of time (9 months following the award of funding), delaying the start of the project and posing a risk to its delivery. Where public authorities are procuring services such as these for energy efficiency measures, sufficient time should be allowed. However, the procurement exercise carried out was successful in securing services that offered value for money and high quality of service, and also paid on results thereby protecting any financial risk to the GMCA and local authorities.
- Advertising and promotion – the scheme was highly successful in driving referrals through social media advertising, particularly through several rounds of Facebook advertising. This had not been used in previous similar schemes in Greater Manchester. The fact that this came through official GMCA and local authority channels added the authenticity required in advertising "free central heating" than many potential households might have thought to be a scam or too good to be true. Ultimately over 100 installations were achieved through promotion using social media channels.

- Partnerships – the scheme relied on partnerships between private, public and third sector organisations in order to be able to operate successfully. The ten local authorities acting as active supporters of the scheme was key in its success. These arrangements have become established in Greater Manchester over the past 3 years that has led to the scheme increasing its uptake each year of its operation. The utilization of existing structure and partnerships (e.g. LEAP, LA-own energy advice schemes, partnerships with housing associations) was essential to enable timely delivery given the lengthy procurement process.
- Outreach – the offer of free central heating, worth thousands of pounds, has been a significant driver in engaging fuel poor households who otherwise wouldn't seek to engage with energy advice services. Part of this was due to intra-family dialogue with younger children seeking to convince older family members to engage and to improve their heating systems
- Scale and local provision – the Warm Homes Fund has been a very complicated project to deliver, particularly in private households where every property and every circumstance is different. The 'cost per job' was fixed but the installers had to deal with multiple challenges in terms of the size and location of properties, issues with disrepair, resident hoarding and availability for surveys and installation. To secure the full amount of grant funding required a very large amount of paperwork that needed to be handled and stored appropriately. And inevitably there were repeat visits required to fix issues or support vulnerable residents in using their new systems.
- Maintaining support and awareness within local authorities – it was relatively easy to generate awareness of the project with partners in broad terms, as the overall offer (a free new heating system) was significant and very welcome. However, the detail of exactly which households could benefit and what information they needed to provide was often complicated and effort was required to give agencies confidence to make a referral and to manage client expectations over availability and timescale.
- Capacity building and retention - Finding the right properties and identifying qualifying households was enabled by the tight integration with existing offer – this suggests that energy poverty is best seen as a cumulative process. LEAP has been an integral part to facilitate GM WHF, while WHF will likely open doors for further funding bids and projects (such as Green Homes Grant Local Authority Delivery scheme). Capitalizing on successes from one scheme, such as LEAP, leads to further successful energy poverty action and delivers increasing impact.

7.3.8 NoI remarks on the scalability and replicability of the elements of the initiative

Fuel poverty levels in the UK have decreased over the past decade (16.4% in 2010, 10% in 2013, 11.1% in 2016 and 10.5% 2018). A suggestion has been put forward that the combination of altered assessment methodologies and impact of energy poverty schemes were important contributing factors. Income remains the key area where energy poverty action has not accelerated considerably.

7.3.9 Further sources and other relevant practices shared by the NoI

Engagement Results

What do you think were the GM-specific opportunities that GM Warm Homes Fund capitalized on?	What do you think were the biggest challenges for LAs in the effective delivery of GM Warm Homes Fund scheme?
Eco GM-wide-scale LEAP Good p'ship with HAs	Finding right properties Timescales identifying property finding suitable househol

7.3.9 Further sources and other relevant practices shared by the NoI

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STEP-IN

Practitioners Perspectives on Living Labs as Instruments to Address Fuel Poverty

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Table of Contents

Glossary

Abbreviation / acronym	Description
LL	Living Lab
WG	Working Group

1. Executive Summary

This White Paper outlines practitioners' reflections on Living Labs and Pilot Projects as methodologies for developing solutions to address energy poverty. It draws upon the experiences of energy poverty practitioners within the STEP-IN project, those outside of STEP-IN and discussions from the network of interest meetings.

The findings demonstrate positive reflections on the approaches and practices developed through Living Labs and Pilot Projects, with emphasis on the benefits that context-dependent and focused actions can have. Practitioners believe that Living Labs and Pilot Projects:

- Provide opportunities for knowledge sharing.
- Are able to influence policy through their evidence base.
- Support the establishment of networks.
- Are flexible.
- Offer the opportunity to experiment.

However, in order to achieve these outcomes, it is critical that Living Labs and Pilot Projects engage with individuals vulnerable to energy poverty and develop approaches based upon the issues that are present in the context they are being implemented.

Through the Practitioners Working Group, recommendations for how to ensure that Living Labs and Pilot Projects support action on energy poverty were established.

2. Introduction

The STEP-IN project focuses on using Living Labs (LLs) to roll out sustainable strategies for energy poor individuals/households. By adopting a Living Labs methodology, the intention was to bring real long-term benefits to communities, households and consumers in need through the project.

Living Labs were established in 3 different locations, each unique in their characteristics, demographics and energy context. The Living Labs include an Urban Living Lab in Manchester, UK, a mountainous Living Lab in Metsovo, Greece, and a rural Living Lab in Nyirabtor, Hungary.

The Living Labs focus on developing practical ways to address energy poverty that consider the context in which interventions are being implemented. This is achieved by co-designing strategies as a result of engagement with a range of actors, including energy poor consumers, policy makers, academics, stakeholders and practitioners.

This White Paper[1] focuses on the perspectives practitioners have of Living Labs and their potential to help address energy poverty.

There are a breadth of practitioners undertaking action to help alleviate energy poverty. The interventions developed and implemented by these practitioners reflect the context they are situated, the resources available to them, and the motivations that underpin their actions. Drawing upon experiences from the STEP-IN project and insights from its Practitioners Working Group[1] (footnote), this report outlines practitioners' perspectives on Living Labs and Pilot Projects as well as key considerations that need to be included when developing them. These insights have been used to develop recommendations on how to ensure best practice in Living Labs and Pilot Projects.

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[1]   Other working groups include Industry, Consumer and advocacy, EU and national policy makers and regulators, Think Tanks and Local and Regional Authorities. The final outputs/White Papers of these different working groups is being synthesised and published in D6.5.

3. An Overview of STEP-IN

3.1 STEP-IN Project Overview and Objectives

The STEP-IN project provides sustainable strategies which can be used to alleviate energy poverty across Europe. This is achieved through three main components: living labs, ICT tools and a large stakeholder engagement process via a Network of Interest. The overall objectives of the project spanned from the key issue of having a positive impact on the lives of citizens through to identifying relevant financial schemes which can alleviate energy poverty and contribute to the overall green energy agenda (Table 1).

Obj. 1	**Positive Impact on Citizens**.
Obj. 2	**Assessment and Benchmarking**.
Obj. 3	**Supporting Best Practices**.
Obj. 4	**Engaging with the Energy Poverty Community.**
Obj. 5	**Define Future Policies, Strategies and Research Areas.**
Obj. 6	**Support Clearly Defined Target Groups of Citizens**.
Obj. 7	**Reduce Environmental Impacts.**
Obj. 8	**Identifying viable financial schemes at local, national and European scale.**

Table 1 Objectives of the STEP-IN Project

The Living labs were located in Hungary, Greece and UK and while they are locally centred, they were based on an overall methodology that included aspects such as advisor visits and energy cafes. Importantly the living labs also leverage existing projects and schemes. The methodology can be adapted for local needs (e.g. particular energy issues), availability of existing schemes and circumstances. For example, during the project the methodology was adapted to fit the evolving Covid-19 pandemic. Within these living labs a range of ICT tools were used by citizens and energy advisors. These tools, including the knowledge base are used to share information collect data. STEP-IN also recognises that its true impact in the longer terms is based more on how the methodologies, tools and recommendations are adopted and used by others. To this end a large stakeholder network consisting of academics, NGOs, consumer organisations, energy providers, politicians and other selected individuals was created. This network provided advice as the project operated, but also contributed to the development of this and the other white papers. The network along with other participants also took part in the many STEP-IN events, this ensuring that results of this project and others were disseminated.

This white paper along with the others which form part of deliverable 6.5, provide the final set of recommendations from the project derived from the network of interest working group meetings. These recommendations bring together the knowledge gained from STEP-IN with views gained from the network of interest experts.

3.2 STEP-IN Living Labs

A living-lab methodology was adopted throughout the STEP-IN project. Living labs are defined as: *"User-centred, open innovation ecosystems based on systematic user co-creation approach, integrating research and innovation processes in real life communities and settings."* (ENOLL). There are a number

of core components of living labs, including being situated in a real life setting, using multi-method approach, multi-stakeholder participation, active user involvement, and co-creation. Through living labs a material benefit for those involved is provided, in the case of STEP-IN this is the members of society most vulnerable to energy poverty – STEP-IN focuses on the practical implementation of sustainable strategies for energy poor individuals and households.

Amongst stakeholders relevant to STEP-IN, over half of participants completing a pre-workshop questionnaire[2] commented that they had an understanding of the Living Lab methodology. These respondents provided a range of definitions for what constitutes a Living Lab including "a social experiment in which local stakeholders are trained in how to handle energy (domestic) issues" and "a useful methodology to assess real persons' needs in real situations" which capture the essence of the work undertaken in each of the 3 Living Labs.

Through the STEP-IN project, Living Labs were established in 3 different locations – an Urban Living Lab in Manchester, UK, a mountainous Living Lab in Metsovo, Greece, and a rural Living Lab in Nyirabtor, Hungary. Despite the unique demographics of each of these areas, they share a commonality of having a high prevalence of energy poverty. Within each living lab the focus was on developing interventions that assist citizens. These interventions primarily focused on the provision of meaningful assistance in reducing energy bills, reducing energy consumption and switching to greener energy sources.

The Living Labs focused on developing custom solutions that reflect the context by engaging with relevant stakeholders when developing intervention approaches, including direct engagement with households affected by energy poverty. ICT tools were used to support the interventions implemented as well as the analysis of their impacts. By using a Living Labs methodology, it enabled the approaches and outcomes of interventions to be analysed in real settings. A number of interventions were included within the STEP-IN living labs including energy cafes, expert home advisors and information campaigns.

The premise underpinning the STEP-IN Living Labs is that energy poverty needs to be understood as a systemic issue; it is not enough to implement certain interventions and then look at the effect of them at an individualised level. Rather there is the need to implement a set of more complex and interconnected interventions that can be evaluated over the course of the project. Consequently, each of the Living Labs is run in three iterations whereby interventions are implemented, and the strategies for implementation as well as the effects of these interventions are evaluated and reflected upon before running another iteration. Through these multiple iterations there is the opportunity to learn-by-doing, reflect on interventions and then improve these in the next iteration.

Greater detail on the global methodology that underpins each living lab and the justification for these methods is provided in D1.2.

3.3 Energy Poverty Practitioners

A practitioner can be defined as someone that is involved in a skilled job or activity (Cambridge Dictionary, 2021). Practitioners associated with energy poverty undertake a range of roles and provide support to vulnerable individuals in a number of ways. These practitioners are situated across a range of sectors, with the actions they undertake reflecting the resources available to them, their areas of

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[2] Further detail on these survey responses can be found in Section 4.1 of D6.4 pp. 18-23.

interest and their motivations. Practitioners typically undertake practical action on energy poverty; engaging with vulnerable individuals/households, providing support and facilitating change.

3.4 Energy Poverty Practitioners and STEP-IN

As the methodology adopted in the STEP-IN project involves engagement with stakeholders relevant to energy poverty, practitioners focusing on energy issues were incorporated throughout the project. These practitioners offer insight into actions that can be undertaken to support those in energy poverty, as well as providing connections to those vulnerable to energy poverty.

Within each of the Living Labs, practitioners supported the implementation of the core interventions; they were involved, in varying extents between the Living Labs, in both the energy cafes and the home visits to energy poor households. During the Manchester energy cafe, practitioners provided advice and supported discussions, drawing upon their knowledge and experience. Through energy cafes individuals were made aware of practical solutions and actions that they could implement in their homes based upon their particular context. In the Nyírbátor and Metsovo Living Labs energy cafes information was presented by STEP-IN Members and Partners.

In terms of the home visits, practitioners undertook different roles across the different labs including providing training to individuals that then conducted the home visits (Nyírbátor and Metsovo) or conducting the home visits themselves (Manchester). Home visits involved looking at the condition of the home and asking household members questions about their living conditions and issues they experience. These understandings were then used to provide advice on both small and large measures that the households could implement to improve efficiency and reduce costs.

4. Practitioners Working Group

The Practitioners Working Group was comprised of practitioners associated with energy poverty projects. These different practitioners engage with the issue of energy poverty from a variety of perspectives and deliver different services – the services provided reflect the context that the practitioner and fuel poor households are situated. The breadth of experience and knowledge held by these practitioners supported working group discussions considering the benefits provided by living labs and pilot projects.

4.1 Best Practice Examples of Energy Poverty Practitioners

As part of the Working Group focus was placed on existing best practices to tackle energy poverty across Europe, three best practices of practitioners addressing energy poverty within particular geographical contexts were presented. Each of the case studies are situated in a different socio-political environment with different strategies to address energy poverty being implemented. The strategies reflect the context in which the action taking place, and through the interventions practitioners are able to learn, reflect and adjust future practices. Despite each of the best practice case studies addressing the energy poverty problem relevant to their specific context, they can be considered complementary as they all aim for systemic rather than individualised solutions – with this reflecting the perspective of STEP-IN.

4.1.1 Best Practice Case Study 1: DOOR (Society for Sustainable Development Design), Croatia

DOOR's work on the energy poverty related agenda started developing with the CENEP project in 2011, where, for the first time in Croatia, social actors were included in energy efficiency planning. Since 2011, DOOR has implemented several pilot and policy related projects, while achieving relevant results at the local, national and EU level. These have included field visits to more than 600 energy vulnerable households in various parts of Croatia. There has been a particular focus on rural and less-developed regions. During field visits, households are provided with simple and low-cost energy efficiency packages including energy efficient lightbulbs, aerators for taps, reflective radiator foils, draught-proofing resources for windows and doors, and timers for electric boilers. Alongside these small energy efficiency measures that have already resulted in energy savings, energy audits and health and social consequences of energy poverty are also examined. In combination with desktop research, roundtables, semi-structured interviews, educational activities, awareness raising, DOOR has generated not only scientific results and expert publications, but also policy proposals that have been implemented at the regional and national levels. These measures have been developed in a participatory manner.

DOOR aims to improve knowledge and policy advice on energy poverty in rural areas through direct engagement and triangulation of different sources by a non-governmental organisation. This is achieved through a number of innovative practices including public engagement, direct collection of data, and working with hard-to-reach vulnerable households in rural areas. This action has resulted in multiple policy reports and influence on decision-making within Croatia in particular. Although it has illuminated the importance of sustained and long-term engagement with multiple stakeholders from different sectors in order to make progress.

4.1.2 Best Practice Case Study 2: Samenlevingsopbouw West-Vlaanderen, Papillon Project, Belgium

Energy-poor households often use domestic appliances with a high energy consumption, which are also outdated, unreliable and expensive to run, and often lead to energy debts in low-income households. The Papillon project breaks the spiral by providing an appliance rental model for low-income households that do not have the funds to purchase new, high efficiency appliances. The main benefits for the users are the fact that there is no upfront investment, just a monthly fee instead. From day one they save considerably on energy and water. Households do not have to worry about extra costs for repair and during the first two years they receive empowering guidance from 'Samenlevingsopbouw' to help them with their overall energy situation. All of the appliances are provided and owned by Bosch; the project is an innovative product as a service arrangement that supports households vulnerable to energy poverty.

The Papillon Project not only aims to assist low-income households in accessing energy efficient technologies but focuses on engaging hard-to-reach citizens to help them improve their quality of life and overall energy situation. New forms of engagement with businesses and low-income households are enabled through the project, as well as innovative financing schemes. The pilot scheme launched in 2018, with 104 appliances being installed in 63 homes at €7 a month. The scheme has reduced overall energy consumption and consequently the energy bill of the families concerned, this with improved comfort. There are plans to scale up the Papillon Project to the national level, as well as across to other European countries.

4.1.3 Best Practice Case Study 3: Alliance Against Energy Poverty, Catalonia

The Alliance Against Energy Poverty was created in February 2014 by, among others, movements that take direct action to stop evictions and campaign for housing rights, community and neighbourhood associations, the movement against the privatisation of water and energy, as well as Engineering Without Borders, to fight against the lack of access to basic services for all. The alliance is a movement led by people affected by energy poverty.

The Alliance Against Energy Poverty emphasises the intersectionality of energy poverty, aims to make the administration and supply companies jointly responsible in the fight against energy poverty, and defends models of management of basic public services with citizen control and participation. They achieve this through two main modes of action: collective assemblies and direct action. Collective assemblies provide the space for families in similar situations meet every two weeks, give mutual support, and share information about their rights and how to defend them. Through these assemblies there are opportunities for training and the generation of actions and strategies and contribute to building active citizenship.

4.2 Working Group Reflections on Living Labs and Pilot Projects

The Working Group discussions covered a range of topics, including reflections on the benefits of utilising Living Labs and Pilot Projects to develop approaches for addressing energy poverty, and the factors required to ensure these benefits are captured. Underpinning these discussions were

understandings of what energy poverty is and how it is defined in different contexts. During both Working Group meetings there were reflections that the definition of energy poverty varies both between and within countries. For many practitioners they commented on definitions being informal, and in some cases just an extension of more generic definitions of poverty. The definition of energy poverty influences the nature of interventions developed, as well as the groups within society that are able to engage with these interventions. This reflected discussions from the First Network of Interest Event[3].

Overall, members of the Practitioners Working Group reflected positively on the impact that Living Labs and Pilot Projects can have on addressing energy poverty. Within these discussions, emphasis was placed on the benefits associated with undertaking context-specific actions and analysing their impacts from a systemic perspective. Working Group members reflected upon their personal experiences and practices bringing rich insight.

Five beneficial attributes of Living Labs and Pilot Projects were highlighted through the Working Group discussions. Practitioners believe that Living Labs and Pilot Projects:
- Provide opportunities for knowledge sharing.
- Are able to influence policy through their evidence base.
- Support the establishment of networks.
- Are flexible.
- Offer the opportunity to experiment.

Living Labs and Pilot Projects provide opportunities for knowledge sharing

Living Labs and Pilot Projects provide a range of opportunities for knowledge sharing – in the context of energy poverty, knowledge is not only shared with households that are vulnerable to energy poverty but also with other actors working on the issue. By engaging with energy vulnerable households and sharing information, resources and supporting shifting energy practices it empowers these individuals.

There is also the opportunity to share knowledge with other actors and organisations involved with energy poverty; best practices on a range of aspects can be shared including how to engage with people and how to present advice. Alliance Against Energy Poverty commented that during one of their virtual collective assemblies (due to Covid restrictions) they had individuals from a similar voluntary group in Madrid attend, with the intention of understanding how the collective assemblies functioned.

Living Labs and Pilot Projects are able to influence policy through their evidence base

The data collected during Living Labs and Pilot Projects can be used as evidence to influence policy. By focusing on the experiences of individuals vulnerable to energy poverty, and the impact that particular policies or practices have on them, these insights can be drawn upon to shift the policy landscape.

Living Labs and Pilot Projects support the establishment of networks

The range of stakeholders associated with Living Labs and Pilot Projects – including practitioners, academia, policy makers and businesses – are able to come together and work in productive ways. By sharing insight and resources a network of actors working on the same issues is established. These

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[3] Further detail on the Network of Interest event can be found in Section 4.2 of D6.4 pp. 23-30.

networks of actors, associated collaborations and shared resources help increase the impact and influence of actions.

Through the STEP-IN Living Labs, it supports interactive communication amongst a range of relevant actors, in order to find solutions to energy poverty that account for local contexts, cultures, and creativity potentials.

Living Labs and Pilot Projects are flexible

As Living Labs and Pilot Projects are developed within a defined context and focus on particular issues, they are able to adapt when circumstances change. By focusing on specific contexts, Living Labs and Pilot Projects have the flexibility and understandings to be flexible and create new solutions is needed in reaction to changing contexts.

This discussion emerged during reflections on the impact of Covid-19 and how practitioners were shifting their approaches; for many practitioners their engagement with energy poor households was through typically through in-person events and engagement. In response to pandemic restrictions, practitioners have shifted to phone calls or online interactions - yet, in doing so there is the assumption that people have access to phones and the internet which is not always the case suggesting the need for further innovative processes being developed.

Living Labs and Pilot Projects offer the opportunity to experiment

The scale and contextual focus of Living Labs and Pilot Projects provide the opportunity to experiment with different solutions by testing out different approaches and analysing the impact. Based upon these analytic reflections, practices can be refined, and alternative approaches developed that build upon the understandings obtained. By testing these different solutions, it creates visibility of the issue.

However, in order to achieve these outcomes, a number of conditions were stipulated by the Working Group members. In particular, Living Labs and Pilot Projects need to:
-   Engage with individuals vulnerable to energy poverty.
-   Consider the context in which interventions are being implemented and use this to guide the approaches developed.

Living Labs and Pilot Projects need to engage with those vulnerable to energy poverty

During the Working Group discussions, the importance of involving and engaging with those vulnerable to energy poverty was raised a number of times. Working directly with vulnerable groups is considered by many of the practitioners the best way to evoke change - this engagement needs to be done is a way that empowers the individuals.

Reflections from DOOR commented on the benefits of incorporating the local community in the approaches developed, not just those who are vulnerable to energy poverty. By involving the local community, it helped with the functioning of activities and supported with the data collection.

Living Labs and Pilot Projects need to reflect the context they are situated in

The approaches developed need to reflect the issues being faced by those within that particular context; scalability and replicability of Living Labs and Pilot Projects is possible but the socio-political environment that they are being implemented needs to be considered. This is shown in the action undertaken by the different best practice examples: Alliance Against Energy Poverty place an emphasis

on disconnections as within Catalonia this is a particular problem for those in energy poverty. DOOR focus on shifting energy generation technologies and improving building quality in response to the key issues for energy poor experience in Croatia. For the Papillon Project, the focus on providing appliances with greater efficiency provides support as individuals have low-efficiency and energy costs are high. Thus, when establishing a Living Lab or Pilot Project it is important to identify the key issues and problems within an area and develop interventions that acknowledge them.

5. Recommendations

Based upon the reflections of energy poverty practitioners within the STEP-IN project, those outside of STEP-IN and discussions from the network of interest meetings, a number of recommendations for how to ensure that Living Labs and Pilot Projects support action on energy poverty.

- A key component of Living Labs and Pilot Projects is to engage those that are vulnerable to energy poverty. This engagement needs to be meaningful, purposeful and empowering in order to achieve the best outcomes. By engaging with these individuals, it provides insight into the issues they are facing and where support would be most effective.

- Interventions developed within Living Labs and Pilot Projects need to reflect the local context; not only in terms of the approaches developed but also in terms of the symptoms and issues that are being acknowledged through interventions. The nature of energy poverty differs between geographical contexts so there is a need to take the time to identify the issues that are most prevalent that could be addressed.

- The flexibility and adaptability of Living Labs and Pilot Projects are key assets that contribute to their impact. These characteristics facilitate the replicability and scalability of Living Lab approaches or Pilot Projects, but when shifting interventions to new contexts there is the need to assess whether they address the symptoms experienced in that context.

- In developing and implementing interventions it is important for Living Labs and Pilot Projects to establish and engage with relevant networks – with this supporting engagement, impact and knowledge sharing.

- Living Labs and Pilot Projects provide a platform for bilateral knowledge sharing, with a range of actors including those vulnerable to energy poverty, practitioners, industry, policy makers, regulators, think tanks and local and regional authorities. There is a need to ensure that information is shared that is relevant, useful and in an appropriate format.

6. Conclusions

The Living Lab methodology adopted throughout the STEP-IN project has provided a range of opportunities and saw the engagement with a range of different stakeholders. Energy Poverty Practitioners are a stakeholder that has played a large role throughout the project – providing expert understandings, facilitating connections with those that are energy vulnerable and supporting the implementation of approaches developed.

Based upon their experiences and practices, the Practitioners Working Group considered the impact that Living Labs and Pilot Projects can have on those living in Energy Poverty. Overall, these are positive highlighting value in having a context-dependent approach that is flexible and can respond to the needs of the energy poor households. Living Labs and Pilot Projects are considered to provide opportunities for knowledge sharing, influence policy through their evidence base, support the establishment of networks, are inherently flexible and adaptable, and offer the opportunity to experiment. Yet, to achieve these benefits practitioners emphasised the importance of engaging the energy poor households in an empowering and co-produced way. As well as developing projects that reflect the particular context in which they are situated. This is particularly relevant when thinking about scaling-up and replicating Living Lab and Pilot Project actions; it is not enough to simply implement the same practices elsewhere, there is the need to adapt these to reflect the context.

Through the Working Group, recommendations for how to ensure that Living Labs and Pilot Projects support action on energy poverty were developed.

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7. Bibliography

STEP-IN

The Role of Consumers & Advocacy Groups in Fighting Energy Poverty

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Glossary

Abbreviation / acronym	Description
Citizen/Consumer	The term is used interchangeably throughout the document for individuals.
EEPI	European Energy Poverty Index
EPOV	European Energy Poverty Observatory
EUSEW	European Sustainable Energy Week
EU-SILC	European Union Statistics on Income and Living Conditions
GWh	Gigawatt Hours
kWh	Kilowatt Hours
LL	Living Lab
WG	Working Group

1. Executive Summary

This whitepaper outlines the role of Consumers and Advocacy Groups in fighting energy poverty. It specifically examines the role within the STEP-IN project, experiences outside of STEP-IN and results from the Network of Interest meetings.

These Groups revealed to be hugely committed to individual households support, to awareness raising and information campaigns and to political activities addressing the decision makers. They are often involved in transnational projects and very active in the stakeholders' engagement work. Therefore, their contribution to the STEP-IN Network of Interest revealed to be really proactive and ensured qualified expertise, field-based experiences and a realistic approach.

Thanks to the pre-workshop activities, the Working Group members provided materials and research results, feedback on the project methodology and useful suggestions to best address the target needs.

Furthermore, they helped in deep analyzing the best practices at EU level and supported the evaluation of current policies and measures, in order to identify uncovered areas and social groups, but also to formulate policy recommendations.

Generally speaking, these Groups are considered as qualified interlocutors by the decision makers, but only in a few cases they are appointed to manage support schemes addressing energy poor people and mostly work with voluntary human resources, low financing and short-term projects.

So, within the recommendations released by the WG, there is to strengthen and make more systematic their involvement and role in public support programmes addressing energy poor households; then, to improve selectivity and progressivity of financing devoted to energy efficiency retrofits, thus enlarging the actual reach among households in need and avoiding to allocate resources to the most affluent ones; finally, to encourage long term-high impact measures and to foster the creation of Energy Communities, as a spontaneous money saving and solidarity mechanism.

2. Introduction

STEP-IN mobilised a network of stakeholders at European level, to establish effective, consistent and coherent interaction with all interested parties across Europe. The aim is twofold:
- To gain advice and insights from the stakeholders shaping the network, as well as to share experiences and results from the Living Labs during all stages of the project.
- To disseminate the results to the wider community through events and white papers

This paper contains an overview of the methodology implemented for the engagement of the NoI as well as the feedback obtained by the various activities. In particular, it outlines:
- The Consumer & Advocacy Working Group composition.
- The preliminary survey and its results.
- The 2 meetings held with the Consumers & Advocacy Working Group.
- The best practices presented and discussed.
- The policy recommendations resulted from the networking.

Besides these already tangible results, the NoI engagement activities also achieved the goal to establish a cooperation framework for many projects and experts committed to alleviate energy poverty. Such a framework already resulted in the exchange of invitations to events and in the exchange of materials, but it may also result in some follow up activities, after the project end, such as joint initiatives (surveys, lobby actions, law impact evaluation etc.) and new project partnerships, exchange of knowledge, data and experiences, best practices, mutual support in the dissemination work.

3. An Overview of STEP-IN

The STEP-IN project provides sustainable strategies which can be used to alleviate energy poverty across Europe. This is achieved through three main components: living labs, ICT tools and a large stakeholder engagement process via a Network of Interest. The overall objectives of the project spanned from the key issue of having a positive impact on the lives of citizens through to identifying relevant financial schemes which can alleviate energy poverty and contribute to the overall green energy agenda (Table 1).

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Table 1 Objectives of the STEP-IN Project

The Living labs were located in Hungary, Greece and UK and while they are locally centred, they were based on an overall methodology that included aspects such as advisor visits and energy cafes. Importantly the living labs also leverage existing projects and schemes. The methodology can be adapted for local needs (e.g. particular energy issues), availability of existing schemes and circumstances. For example, during the project the methodology was adapted to fit the evolving Covid-19 pandemic. Within these living labs a range of ICT tools were used by citizens and energy advisors. These tools, including the knowledge base are used to share information collect data. STEP-IN also recognises that its true impact in the longer terms is based more on how the methodologies, tools and recommendations are adopted and used by others. To this end a large stakeholder network consisting of academics, NGOs, consumer organisations, energy providers, politicians and other selected individuals was created. This network provided advice as the project operated, but also contributed to the development of this and the other white papers. The network along with other participants also took part in the many STEP-IN events, this ensuring that results of this project and others were disseminated.

This white paper along with the others which form part of deliverable 6.5, provide the final set of recommendations from the project derived from the network of interest working group meetings. These recommendations bring together the knowledge gained from STEP-IN with views gained from the network of interest experts.

4. Consumers and Advocacy Groups

The role of Consumers and Advocacy Groups in the project is to complement the existing expertise and knowledge base, with those belonging to citizens' representation and field social work, thus helping to understand from a larger perspective what shapes energy poverty in the EU and to address both the social, the economic and the political dimension of the phenomenon. The legislative framework for consumer protection at EU level, with its achievements, shortcomings, and future challenges (also dealing with the actual enforcement), is a peculiar viewpoint to look at the market factors contributing to cause energy poverty: price dynamics, contract conditions, commercial practices, competition, universal service, consumer empowerment needs, are all matters that consumers and advocacy groups very well know.

Also, the access to loans (and the reported difficulties of low-income households), known as a key barrier preventing the needed house retrofits, is systematically monitored by consumer organizations, as well as consumption habits and trends. Individual consumer support and case handling, together with surveys, allow early detecting of emerging problems and offer insights of people's needs and expectations. This way, the Consumers & Advocacy Working Group within the NoI created by the Step-In project intends to contribute to the discussion about policies, best practices, recommendations to address both decision makers and economic operators, in order to alleviate energy poverty.

The working Group was joined by consumer associations, charities and other NGOs, umbrella organizations, an energy consumers' cooperative and one EESC member, plus some experts/observers. Such a variety of members ensured a wide representation of different experiences and approaches to the issue: all of them are committed to some extent to fighting (or at least investigating) energy poverty from the households' perspective and bring their peculiar know-how, experience and point of view. The Group was leaded by Adiconsum, the Italian Association for Consumer and Environment Protection, whose contribution to the Network of Interest activities was relevant, thanks to the wide range of contacts across Europe.

The first meeting was preceded by the stakeholders' questionnaire, whose results were presented and discussed during the same meeting. It was part of the engagement strategy, which at first:
- Identified and mapped the most relevant categories (Consumers & Advocacy, Academia & Think Tanks, Industrial Representatives, Practitioners, Local and Regional Authorities, EU and National Policy Makers and Regulators).
- Collected contacts and invited the potentially interested parties, with the support of the project partners.
- Created adequate communication tools to secure interaction among the STEP-IN consortium and the NoI, including a devoted Project Newsletter and an Online Community Platform.
- Identified the feedback mechanisms to allow the STEP-IN consortium to make realistic and beneficial policy recommendations, including the Questionnaire.

The first part of the survey dealt with the awareness of project methodology, that is to say Understanding Living Labs as a methodology to examine and address energy poverty; The second part dealt with the initial assessment of stakeholders' key focus areas, targets, and measures, with the aim to: learn more on the stakeholders' primary area of work or interest in relation to energy poverty, on their views about defining and measuring energy poverty, on the knowledge of people considered energy poor in the area of interest, on the current initiatives and measures implemented to tackle energy poverty in the area of interest. The third part of the questionnaire dealt with the initial assessment of stakeholders' requirements and problem descriptions. Such a knowledge base revealed

to be crucial to work with defined targets and to achieve the maximum possible benefits from the networking with the NoI members.

5. Working Group Meetings

The first meeting

The first 1st STEP-IN NoI workshop was held in Athens on May 29th, 2019 at the premises of project partners RAE as part of the project General Assembly. The workshop had been accepted by the European Sustainable Energy Week (EUSEW) – the biggest event dedicated to efficient energy use in Europe – as an official Energy Day event. It brought together more than 35 participants, among which 9 were members of the STEP-IN NoI (4 of them belonging to the Consumers & Advocacy Group) and 3 local stakeholders. The workshop programme (Figure 1) provided the attendees with the opportunity to:

- Get insights from the work done in the STEP-IN project Living Labs.
- Get the broader picture of targeted efforts to reduce energy poverty in Europe.
- Discuss energy poverty definition issues, assessments of the current situation and proposed solutions with the STEP-IN Consortium partners and experts shaping our Network of Interest.

The following agenda refers to the 1st NoI workshop , where the various working groups had the occasion to meet and interact during the plenary discussion, each WG presented its conclusions and listened to those from the other WGs.
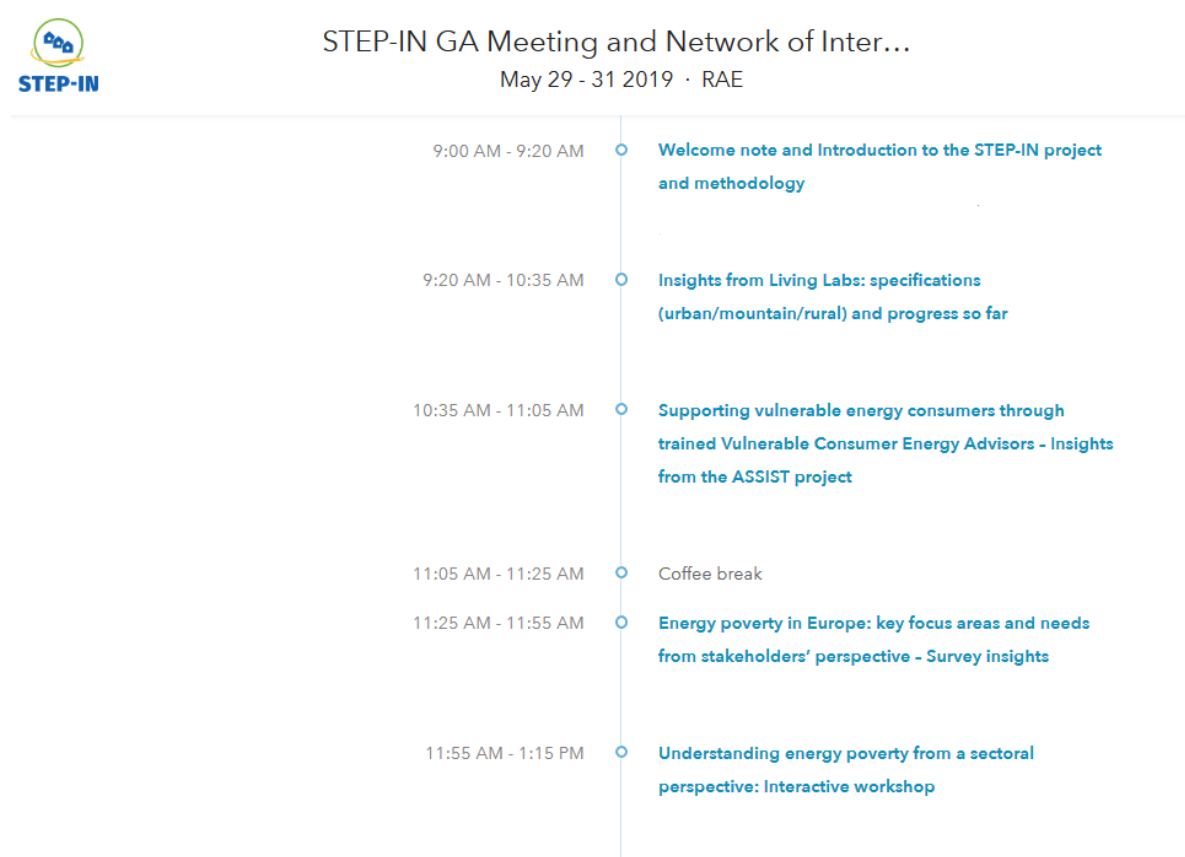

Figure 1: The 1st STEP-IN NoI workshop programme

The second meeting

The second NoI meeting, devoted to the Consumers & Advocacy Working Group, was held online on March 3rd, 2021. It was attended by 11 participants + project staff and speakers; it lasted around 2 hours. Overall, the participation was considered as fully satisfactory both from the qualitative and quantitative point of view and several useful content contributions/documents were delivered by WG members, both before and after the meeting.

The following agenda refers to the 2nd NoI workshop of the Consumers and Advocacy Group, who met online on March 3rd, 2021.
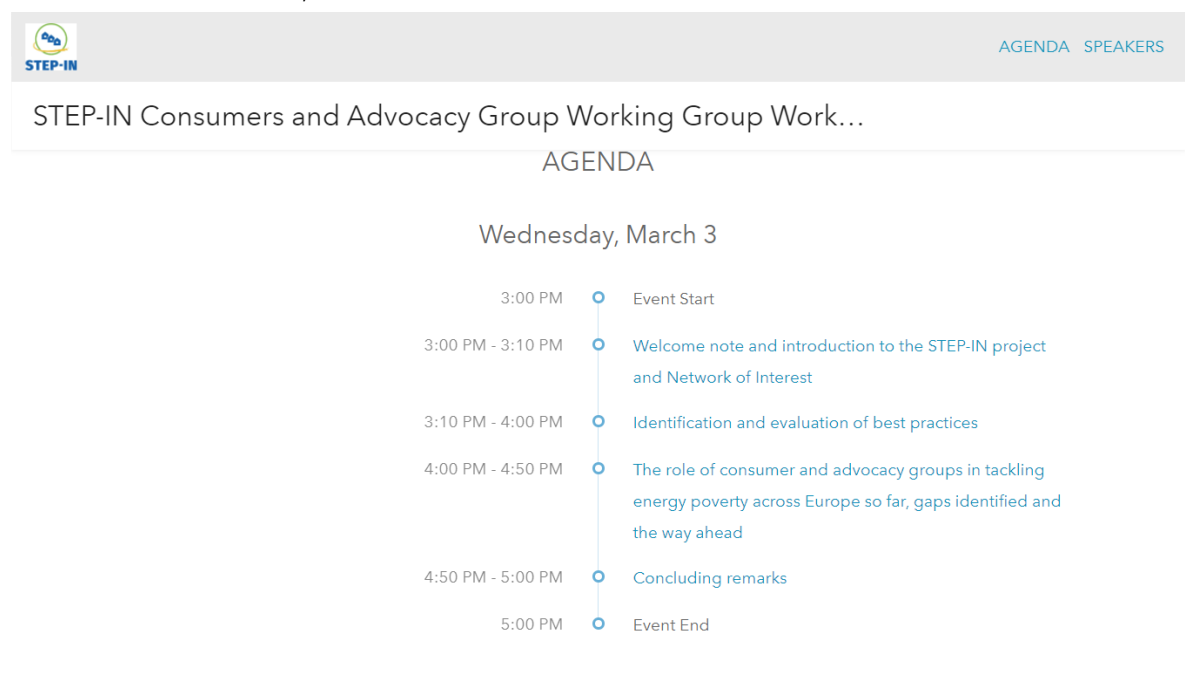
Figure 2: The 2nd STEP-IN NoI workshop programme

Best practices examples

The pre-workshop activity involved the preparation of the paper *"Evaluating best practices and co-designing strategies to tackle energy poverty across Europe"*, where some selected best practices were presented and analysed as regards the situation addressed, the Actors/stakeholders involved, the objectives, the innovative elements, the action taken so far, the innovative elements, the results and lessons learnt. The preparation work started with the collection of information and insights from the ongoing initiatives, projects, programmes and lobby actions in favour of energy poor households: the selection process focused on the innovative aspects and the assessed impact, and as a result it was decided by the Group Leader to present 4 different best practices, belonging to different kinds of initiatives and contexts, in order to discuss their potential contribution to the fight against energy poverty, by means of direct support to households, by establishing synergies with key actors to remove barriers preventing house retrofits, by raising awareness amongst decision makers. The practices were also evaluated according to the perceived replicability and scalability at EU level.

Case 1: Qui Padova (https://quipadova.com/il-progetto)

QuiPadova is an Italian pilot project focused on social housing, starting an experiment of collective self-consumption of energy from renewable sources, aimed at improving efficiency, implementing a community smart grid and allowing users to save money on the energy bills. A certain share of apartments was reserved to families in a situation of energy poverty. The project was officially launched in February 2020 and was preceded by an education and training project for vulnerable consumers to mitigate fuel poverty, granted to Enostra (leading partner of Qui Padova) from the Veneto Region, and a collective auto consumption research project. The Fund owner is a public entity (Fondo Veneto Casa, supported by the Municipality of Padova); there is a Social Manager, the Coop Nuovo Villaggio cooperative; there is a consumers' energy community (E'nostra cooperative); there is a technical partner, the Sinergia energy saving company. The social objectives are to reduce energy bills and mitigate fuel poverty; to increase awareness of tenants on energy use; to activate collective actions and interaction among tenants, thus engaging citizens on commons and revitalizing local communities; to create replicable formats where citizens are main players; to make the energy transition desirable and affordable; to build mutual benefit relationships among stakeholders in a win-win strategy. A Complex of 4 high efficiency buildings was set up with: 92 apartments with regulated rent, assigned with public proceeding and selection, with a large share of households in energy poverty; fully electric apartments (with centralised heating pump) with 2G smart meter; 1 polyclinic health service; 1 area reserved to local associations and tenants; 1 day centre for the elderly; additional services such as coworking area, restaurant, fitness center, common room. A PV plant was installed to provide the whole complex with energy. Total photovoltaic capacity of building complex: 45kWp Single PV plant: 10-12 kWp; estimated production: 47.250 kWh/year; estimated additional capacity: 40kWp; possible installation of battery and charging station.
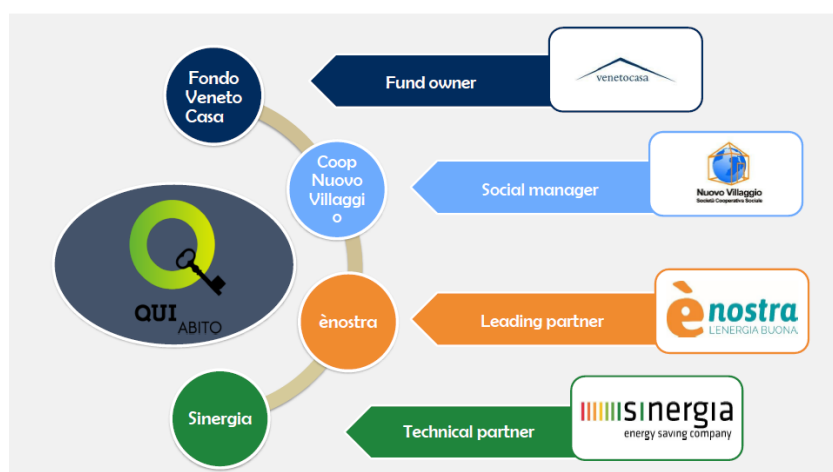

Figure 3: Structure of Qui Padova partnership

Case 2: Alliance Against Energy Poverty (https://www.povertaenergetica.it)

The Italian Alliance against Energy Poverty is a network of subjects committed to cooperate in order to maximise the efforts. There is a wide range of different stakeholders: freepress from the energy sector, institutional bodies, enterprises, environmental associations, energy utilities, business

associations, social supporters, and consumer representatives. Its objective is to share and promote activities and initiatives that are underway in Italy to fight energy poverty and together evaluate which measures are missing and how to improve the current state. Becoming a spokesperson to an expanded critical mass towards political stakeholders, the Alliance achieves visibility and media prominence, authoritativeness, ability to launch a call for action on specific measures. Approaching energy poverty also on the business side may stimulate new market solutions and foster the overcoming of regulatory barriers, thus starting cooperation between profit and non-profit actors to take action. It also created a brand ambassador team, composed by stakeholder as lawyers, specialists in different technologies, end-user assistance experts, energy efficiency experts and environmentalists. Now, the Alliance includes 8 brand ambassadors and 6 partners. So far, the action taken includes many events, publications and cooperation initiatives with other projects focusing on the matter.

Figure 4: Timeline of the Alliance development

Case 3: HEEPS - Home Energy Efficiency Programmes for Scotland (https://energysavingtrust.org.uk/scotland)

HEEPS - Home Energy Efficiency Programmes for Scotland is a Scottish large-scale intervention funded by the Scottish Government which was launched in April 2013 and which will end in 2023. Based on different integrated approaches in order to decrease energy poverty, this intervention provides loans to finance energy efficient renovations of owners and private landlords and gives vulnerable households living in energy poverty access to measures to make their homes energy efficient and reduce their bills. It consists of: Area Based Schemes, for tackling fuel poverty in the most deprived areas; a Loan scheme to finance energy efficient renovations of owners and private landlords; the Warmer Homes Scotland programme to give vulnerable households living in fuel poverty access to measures to make their homes energy efficient and reduce their fuel bills. The actors involved are: Local Municipalities and local authorities; Homeowners; Private Landlords/ tenants; Vulnerable Households living in energy poverty. HEEPS was designed to deliver a step-change in energy efficient homes through retrofitting existing stock. It recognised that the focus must be on measures necessary to meet both Fuel Poverty and climate change targets, which deliver more in terms of carbon savings and enable long-term reduction in fuel bills than the measures supported under previous schemes. This approach tended to deliver measures not being undertaken sufficiently by other schemes that often tend to focus on smaller measures. Innovative elements are: a wide range of measures suitable for both on and off gas properties funded through the different delivery mechanisms; additional

community benefits; supplemented with advice and other services via the network of local offices of Home Energy Scotland; help for the private rental sector which is generally receiving less benefits from energy efficient programs than home-owners or social housing tenants. Around 30,000 households every year in Scotland receive energy efficiency measures through HEEPS. Scottish households will save an estimated £421m in fuel bills over the lifetime of the measures installed and almost 1.8m tonnes of CO_2 will be saved as a result.
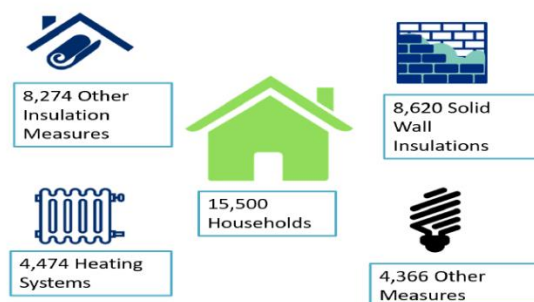

Figure 5: Breakdown of measures delivered by HEEPS in 2017/18

Case 4: REELIH – Residential Energy Efficiency for Low Income Households (https://getwarmhomes.org)

The project purpose is to facilitate cooperation between communities and the private and public sectors in order to obtain resources for energy efficient retrofits. This project supports individual homeowners living in multi-apartment blocks, formerly state-owned buildings, to mobilize and act as Homeowner Associations. This way, residents can take collectively loans for energy efficiency works. The project runs in North Macedonia, Armenia, Bosnia and Erzegovina. It is promoted since 2012 by Habitat for Humanity and USAID (United States Agency for International Development). It focuses on a specific target of households: those living in high density buildings that were built and managed by public housing programmes and extensively privatized in the 1990s: these buildings lack efficiency; these owners did not establish homeowners' associations as legal entities yet and so they lack both entitlement to make interventions and guarantees to get loans. REELIH provides practical solutions such as: legal support to create Homeowner Associations, assistance to approach banks; energy audits, technical advice to choose the most suitable renovation works; Involvement of local governments and other key actors to get funding and to improve homeowner legislation. As for the innovative elements: it relied on public and private partnerships; savings, loans, and subsidies were combined for residential energy efficiency investments; it motivated all stakeholders to discuss which regulatory changes may be needed; it helped banks develop loan products on purpose, and designed subsidy schemes with local governments. The initiative also created three online knowledge sharing platforms in different languages.
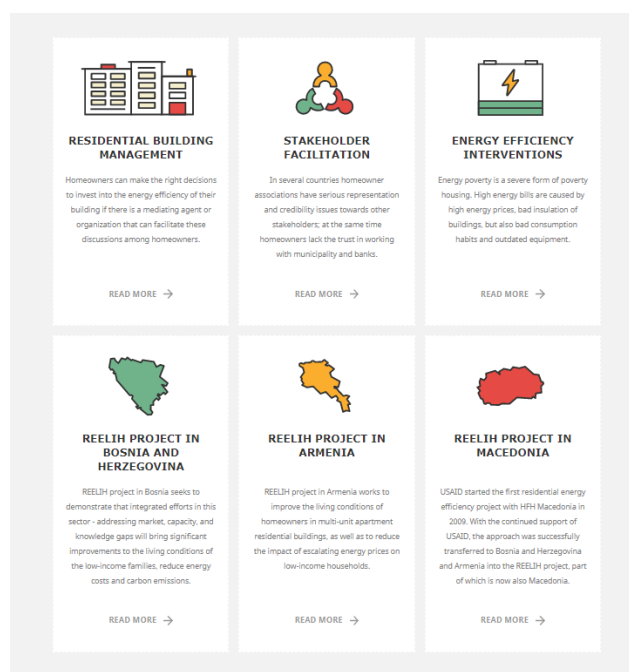
Figure 6: REELIH milestones

Case studies: a feasibility evaluation of technical and financial solutions to some typical energy poverty situations belonging to the Italian context.

In addition to the selected best practices, during the 2nd NoI workshop it was given a presentation of the results of the Italian study, carried out on behalf of Adiconsum by an expert working group within Coordinamento Free: it's an umbrella organization of highly specialised business and non-profit subjects, in the field of energy efficiency, energy communities and renewable energy sources, whose President is Professor De Santoli, vice-Rector of La Sapienza University of Rome, who played the role of Scientific Coordinator of the Work Group. The results of the analysis of multiple case studies in diverse climate and housing situations and with combinations of the most suitable technological interventions were illustrated, along with a cost-effectiveness evaluation, thus outlining the potential win-win situation in which both the household and the State experience diminished expenses ex-post. The work showed how, by targeting a specific part of the population with the already existing measures to incentivize house retrofits, it is possible to tackle energy poverty while at the same time increasing the performances of some of the most energy-intensive buildings of the national stock.

Figure 7: Example of case studies

6. Other Contents

The Consumers and Advocacy Working Group final composition is the following:

ORGANIZATION	REPRESENTATIVE'S NAME	COUNTRY
PINDOS PERIVALLONTIKI	TATIANA VRAZITOULI	GREECE
EKPIZO	VICKY TZEGA	GREECE
ATD QUART MONDE	JEAN-LUC DECHOUX	FRANCE
DOOR	MILJENKA KUHAR MASA PAUKOVIC	CROATIA
CEIP	TANIA POPOVIC FILIPOVIC	CROATIA
KEPKA	EVANGELIA KEKELEKI	GREECE
NEA	HELEN STOCKTON	UK
AGE PLATFORM	ANNE SOPHIE PARENT	BELGIUM (EU organization)
ECOSERVEIS	MARTA GARCIA	SPAIN
EU ECONOMIC AND SOCIAL COMMITTEE - ITALIAN CONSUMERS' REPRESENTATIVE	ANTONIO LONGO	BELGIUM (EU institution)
CANALE ENERGIA	AGNESE CECCHINI CAMILLA CALCIOLI	ITALY
External contributors attending the workshops: Francesco Luise (Energy Expert, Coordinamento Free); Thanh Nguyen (Vaasaett); Valeria Lai (Adiconsum); Geert Vielfont (Antwerpen).		

Table 2: NoI members confirmed – Consumers and Advocacy Working Group

7. Results

The STEP-IN methodology was found to be very interesting and effective, to reach the grass roots level, both in detecting risk factors and effective behaviours, and in delivering practical assistance. It was viewed positively as a pilot testing work. The WG recommended enlarging the experts and stakeholders' community to increase its effective networking by sharing of documents, research findings, data sets, observatories, and events.

As regards the energy poverty definition issue, during the first workshop, the *Consumers and advocacy WG* agreed with the definition adopted by the EU Energy Poverty Observatory being correct, however it feels the definition remains at a general level. There is the need for a concrete definition of energy poverty, in terms of a set of indicators shared and agreed throughout Europe, to be aligned to national situations: climate conditions, energy sources' accessibility, prices, taxation etc. A common reference basis and additional specific criteria are needed to allow a proper assessment of energy poverty across the EU; this would result in a benchmarking methodology to be applied by national statistics institutes and sector institutions. Energy poverty is the result of a combination of influencing factors, as vulnerable groups are not only low-income households, but also, for example, low schooling, people exposed to unfair commercial practices and contracts, higher prices, difficulty to access energy saving and efficiency technologies, low access to ICT. They have to face many barriers to the uptake of energy efficiency technologies.

On factors for monitoring and measuring the phenomenon, the income, but also the family size, which influence the consumption levels and is relevant whenever progressive tariffs apply, the age, the social and cultural conditions, and over-indebtedness should not be overlooked. In addition, the climate conditions, which determine a minimum energy requirement to ensure healthy living conditions, the available energy sources, and the average building technologies with related thermal efficiency should be considered.

The need for establishing a shared database at EU level, including active subjects, national insights on the phenomenon, and currently implemented schemes, emerged as a valuable tool to improve knowledge, enlarge cooperation and foster a wider uptake of the best practices.

8. Discussion

As the discussion focused on the replicability of the best practices presented, some participants highlighted that the different countries in Europe should try to put things in common, but they present such an heterogeneous situation, as regards housing stocks, welfare programmes, climate conditions etc, that an essential step should be trying to identify common situations where similar needs and conditions apply, in order to highlight to what extent the different case studies are replicable. It was underlined what a high potential the STEP-IN living labs have, to support the benchmarking work of replicability for the various tested solutions: the huge amount of collected data, also thanks to the IT tools, represent a valuable asset for the analysis and benchmarking work. What the living labs also showed was the importance of the energy supply mix, the infrastructures' degree of development (electricity and gas grids) and the relevance of trust levels in the energy providers: these are key market factors, also influencing the development of the available technologies). Also the psychological barriers that influence acceptability by poor households of certain solutions (maybe switching from solid fuels to gas) or also safety issues linked to irregular or unskilled use of energy sources and technical equipment, play a role in determining the feasibility.

Some of the participants to the workshops reported experiences in their own countries, stating the actual difficulties of managing hugely expensive programmes, whose sustainability in the long term is not ensured and whose benefits, by the way, are not always evident.

Another factor stated as relevant (and underlined as a requirement for specific targeting) is the ownership, and I particular the larger fuel poverty condition among tenants households: the STEP-IN coordinator explained the different average condition of the household reached in the UK, in Hungary and in Greece by the Living Labs experience and pointed out that in some cases, really critical situations were observed.

The Working Group also dealt with the role and future challenges for Consumers and Advocacy groups, to evaluate the best options to contribute to the fight against energy poverty, by means of direct support to households, by establishing synergies with key actors to remove barriers preventing house retrofits, by raising awareness among decision makers.

The first common objective was agreed to be developing consumer engagement strategies and delivering consumer education to conscious energy use and energy saving, Renewable Energy Sources, energy efficiency measures: most households waste energy unconsciously, thus affecting their bills with a worthless charge. The aim is spreading out awareness about low-cost, easy uptake measures, and to encourage decision making about more demanding works, by supporting the implementation of energy audits and helping to evaluate cost-effectiveness of the possible retrofits, repayment periods, access procedures to existing loans and incentives.

Furthermore, a high value support for energy poor households is their empowerment in understanding and managing contracts, both for the energy supply and the house retrofit works: accessing the best tariffs and prices, easily switching providers, avoiding to be subject to unfair contract conditions and unfair commercial practices (e.g. misleading advertising). In such a framework, Consumer representation is skilled and experienced, has got a wide access to the mass media for carrying out information and education campaigns and is perceived by people as an independent, reliable source of information.

Another important task is carrying out observatory work (statistical data gathering, analysis and survey work) and listening to peoples' needs and expectations, thus helping understand the real barriers tackling the uptake of the most efficient measures.

The role of Consumer and Advocacy groups is also identified as to dialogue with all key actors, to promote awareness about Energy Poverty among decision makers, to foster convergence of measures, to start synergies and joint initiatives with public and private support schemes. Synergies allow starting more ambitious programmes, whose objective should also be turning from the tendency to focus on short-term relief, to opt for more relevant energy requalification of buildings and achieve long term benefits.

9. Recommendations

Given that in a modern and equitable society, everybody should be able to access safe, clean and affordable energy to meet the minimum health and comfort requirements, a set of policy recommendations emerged from the discussion.

SDGs. *Exploiting the potential of the European Green Deal.* It is advisable to prioritize energy poverty in the context of the Green Deal in Europe and in the recovery plans following the COVID Crisis, thus making the infrastructure and market evolution meet the need of ensuring a more affordable energy provision to all.

CONSUMERS AS PROTAGONISTS. *To improve the existing schemes and measures with a larger and stronger involvement of Consumers and Advocacy Groups.* Fostering the large involvement of civil society means better understanding the barriers that prevent households from uptaking energy efficiency technologies and maximizing the outreach of awareness campaigns. These groups are often recognised as qualified interlocutors by policy makers and industry, they are often consulted, but no involvement is foreseen in the impact evaluation of support schemes and no funding is provided to deliver advice services to households. This makes their work rely on voluntary human resources, short term projects and limited geographical coverage, thus affecting its impact and sustainability. This is the political challenge for the next years for consumers' representation, charities, and other advocacy groups: to be systematically and concretely involved as a key actors in delivering public support and implementing programmes.

TAKING PEOPLE BY THE HAND. *Strengthening individual assistance*. Providing free, impartial, and qualified advice to citizens is a key factor to tackle energy poverty, to support choosing suppliers and understanding contracts/bills, to suggest the needed behavioural change aimed at increasing energy efficiency, to evaluate the most cost-effective retrofit works, to access incentives and benefits or loans and other financial schemes. Consumers and Advocacy Groups are of course the most reliable subject to deliver these services.

CONSUMER AT THE CENTRE OF ENERGY POLICIES. *Achieving a high level of consumer protection in the energy market*. An important goal is to strengthen consumer protection in the energy sector, by achieving concrete law enforcement as regards transparency in billing, fair commercial practices and tariff comparisons, contract clauses, all issues that represent a major threat for the most vulnerable consumers. Also, some harmonization across the EU, as regards the gas and electricity retail market, may be helpful, to improve consumer protection and empowerment in this particular sector.

EQUITABLE APPROACH. *Better targeting of the incentives*. As regards the incentives for house retrofits, aimed at co-financing the energy efficiency measures and the RES (namely tax deductions, such as the 110% eco-bonus currently provided by the Italian Government), it was remarked that a progressivity mechanism is always needed, to offer to the most vulnerable consumers an effective encouragement and support, thus avoiding to consume too many resources in favour of households that are not in need (once the same percentage of financing is offered regardless the income, the most affluent benefit at a larger extent). The energy transition isn't likely to involve low-income people, unless awareness raising, technical support and targeted financing for retrofits (rather than just paying for the energy bill) are provided jointly, so to help building attitude to innovation and filling the value-action gap. New poverty conditions linked to the economic crisis should be accounted and specific

indicators should be taken into consideration, to avoid the exclusion of beneficiaries.

SHARING AND COOPERATING. *Developing energy communities*, namely those based on RES. Another high potential solution to the problem of energy poverty is represented by the energy communities, which are gradually taking shape in several countries, also because of the recently introduced EU directives. In the energy community, solidarity is spontaneous and those who self-produce more, supply energy to those in distress or to those who are precluded from this possibility; energy communities also realize scale economies and share the financial burdens of starting and maintaining themselves. It is therefore desirable a huge increase of energy communities in the various forms, by means of both local-based networks and widespread networks.

10. Conclusions

The Working Group was evaluated by its members as a meaningful experience, a good occasion to share views and knowledge, and also an opportunity to synergize in the near future, in order to achieve better influencing power towards the decision makers.

Interpersonal knowledge and mutual understanding helped the WG participants achieve a clearer picture of the different nature, mission, objective and strategies of the subjects that are currently shaping the field work addressing energy poor households. They also shared views on the persisting barriers that challenge the progress of the European Countries in tackling energy poverty.

All the Working Group members expressed the will to further go on with the networking activities and to increase links, partnerships, joint initiatives. The high-quality discussion held, and the shared resources remain as a valuable common asset for the coming years, to be continuously increased and developed.

The STEP-IN projects gained a relevant benefit from their participation, in terms of expertise, support in the methodology evaluation and refining, interpretation of the Living Labs outcomes and impact assessment for most results indicators.

STEP-IN

The Role of EU & National Policy Makers and Regulators in Fighting Energy Poverty

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Internal Technical Auditor	Name (Beneficiary short name)	Date of approval
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WP leader	Konstantinos Kanellos, VaasaETT	31.03.2021
Coordinator	Roderick McCall, LIST	01.04.2021
PAST Team	Audrey Bretaud-Kelle, ARTTIC	01.04.2021

Dissemination Level: PU   Public

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Glossary

Abbreviation / Acronym	Description
AREA	Autorità di Regolazione per Energia Reti e Ambiente - Italy
CRE	Commission de régulation de l'énergie - France
CRES	Center for Renewable Energy Sources and Saving - Greece
CEER	Council of European Energy Regulators
ERO	Energy Regulatory Office - Poland
ERSE	Entidade Reguladora dos Serviços Energéticos - Portugal
LL	Living Lab
NCEP	National Energy and Climate Plan
NoI	Network of Interest
NRAs	National Regulatory Authorities
RAE	Regulatory Authority for Energy - Greece
RES	Renewable Energy Sources
SRT	Social Residential Tariff
WG	Working Group

1. Executive Summary

This whitepaper outlines the role of EU & National Policy Makers and Regulators in fighting energy poverty, and it is published as part of D6.5 – White papers for energy policymakers. It specifically examines the STEP-IN project's role, experiences outside of STEP-IN and results from the network of interest meeting(s). In general, it presents an overview of the NoI workshops conclusions, a brief summary of national policies to prevent and combat energy poverty in the European region, and policy recommendations. In particular, it outlines, the 1st STEP-IN NoI workshop conclusions; the STEP-IN Policy Makers and Regulators Working Group Workshop conclusions; national policies for preventing and fighting energy poverty in the European region; policy recommendations.

2. Introduction

The STEP-IN consortium implements a global methodology for analysing and tackling energy poverty through the establishment of three Living Labs in highly challenging locations with diverse characteristics across Europe, specifically a mountainous region in Greece, a rural area in Hungary and an urban area in the United Kingdom with low quality housing.

To allow the results of the Living Lab findings to be relevant in the post-project period, the STEP-IN consortium will provide specific policy recommendations. These will include the integration of insights drawn from the stakeholders shaping the STEP-IN Network of Interest as key inputs in order to develop an innovative global methodology for the effective analysis and tackling of energy poverty and to ensure long-term benefits for energy poor communities.

To achieve this, STEP-IN has so far engaged and will continue to engage stakeholders throughout the project period. In addition to the local stakeholders involved in the Living Lab areas, STEP-IN has engaged with interested parties across Europe, including industrial representatives, local and regional authorities, consumer and advocacy groups, practitioners, EU and national policy-makers, regulators, academia and think-tanks, in order to shape a motivated wider, pan-European Network of Interest (NoI). Prior to NoI workshops or other engagement activities, project partners were assigned as WG leads. The allocation of leads per WG is the following:

- Industrial representatives – Lead: E. ON
- Local/Regional authorities – Lead: GMCA
- Consumers and advocacy – Lead: ADICONSUM
- Practitioners – Lead: UMAN
- **EU & National policymakers and regulators – Lead: RAE**
- Academia & think tanks – Lead: LIST

The involvement of the NoI members in STEP-IN engagement activities is twofold. At the early stages of the project, the STEP-IN consortium gains advice and insights from the NoI and shares immediate experiences and results from the Living Labs. As the project progresses and reaches completion, this bi-directional communication will continue with the aim of co-designing strategies and policy recommendations and disseminating the results to the wider community via events and white papers.

The outcome of stakeholder consultations and Living Lab findings and experiences from European projects will feed into the policy assessment and recommendations included in the white papers. Results from own policy assessments, relevant measures found in literature and newly developed concepts, looking at renewable energy sources (RES) and refurbishment schemes, and examining the rebound effects that arise in the Living Labs and wider energy poverty field will also provide content for the white papers.

In the light of the above, among other actions and engagement activities, two NoI workshops took place. In particular:

I. The STEP-IN consortium held the 1st STEP-IN NoI workshop in Athens on May 29th 2019 at the premises of project partners RAE as part of the project General Assembly. The workshop has been accepted by the European Sustainable Energy Week (EUSEW) – the biggest event dedicated to efficient energy use in Europe – as an official Energy Day event. It brought together more than 35 participants, among which 9 were members of the STEP-IN NoI and 3 local stakeholders.

II. On December 4th, 2020 took place an online webinar as part of the second round of engagement activities of the STEP-IN project NoI, which specifically focused on EU and national policymakers as well as regulators working with vulnerable communities across Europe. This workshop focused on existing best practices to tackle energy poverty across Europe and launched a discussion on how scalable and replicable they are, according to the

needs and constraints observed during the implementation of the living labs and the different geographical contexts.

This report contains an overview of the NoI workshops conclusions, a brief summary of national policies to prevent and combat energy poverty in the European region, and policy recommendations. In particular, it outlines:

- The 1st STEP-IN NoI workshop conclusions.
- The STEP-IN Policy Makers and Regulators Working Group Workshop conclusions.
- National policies for preventing and fighting energy poverty in the European region.
- Policy recommendations.

3. An Overview of STEP-IN

The STEP-In project provides sustainable strategies which can be used to alleviate energy poverty across Europe. This is achieved through three main components: living labs, ICT tools and a large stakeholder engagement process via a Network of Interest. The project's overall objectives spanned from the key issue of having a positive impact on the lives of citizens through to identifying relevant financial schemes that can alleviate energy poverty and contribute to the overall green energy agenda (Table 1).

Obj. 1	**Positive Impact on Citizens**.
Obj. 2	**Assessment and Benchmarking**.
Obj. 3	**Supporting Best Practices**.
Obj. 4	**Engaging with the Energy Poverty Community.**
Obj. 5	**Define Future Policies, Strategies and Research Areas.**
Obj. 6	**Support Clearly Defined Target Groups of Citizens**.
Obj. 7	**Reduce Environmental Impacts.**
Obj. 8	**Identifying viable financial schemes at local, national and European scale.**

Table 1 Objectives of the STEP-IN Project

The Living labs were located in Hungary, Greece and UK, and while they are locally centred, they were based on an overall methodology that included aspects such as advisor visits and energy cafes. Importantly the living labs also leverage existing projects and schemes. The methodology can be adapted for local needs (e.g., particular energy issues) and the availability of existing schemes and circumstances. For example, during the project, the methodology was adapted to fit the evolving Covid-19 pandemic. Within these living labs, a range of ICT tools were used by citizens and energy advisors. These tools, including the knowledge base are used to share information collect data. STEP-IN also recognises that its true impact in the longer term is based more on how the methodologies, tools, and recommendations are adopted and used by others. To this end, a large stakeholder network consisting of academics, NGOs, consumer organisations, energy providers, politicians, and other selected individuals was created. This network provided advice as the project operated and contributed to the development of this and the other white papers. The network and other participants also took part in the many STEP-IN events, thus ensuring that this project and others were disseminated.

This white paper and the others that form part of deliverable 6.5 provide the final set of recommendations from the project derived from the network of interest working group meetings. These recommendations bring together the knowledge gained from STEP-IN with views gained from the network of interest experts.

4. EU & National policymakers and regulators

What are National Regulatory Authorities and what role do they have in energy poverty

National Regulatory Authorities (NRAs) have a key role in ensuring that each European country meets its targets for energy markets and implements all EU regulatory policies. National Regulatory Authorities can impose sanctions on operators and/ or market players that fail to comply with the regulatory framework's requirements or that do not implement its decisions. The key role of a NRA is to be active and to act in the interest of consumers, not political one.

According to European legislative framework NRA's core duties include:

- duties in relation to tariffs for access to transmission and distribution networks: fixing or approving, in accordance with transparent criteria, transmission or distribution tariffs or their methodologies;
- duties in relation to unbundling: ensuring that there are no cross-subsidies between transmission, distribution, liquefied natural gas, storage, and supply activities;
- duties in relation to the general oversight of energy companies: ensuring compliance of transmission and distribution system operators, system owners (where relevant) and electricity or gas undertakings with their obligations under the Directives and other relevant European Union legislation, including as regards cross-border issues;
- **duties in relation to consumer protection**: helping to ensure, together with other relevant authorities, that the consumer protection measures are effective and enforced; publishing recommendations, at least annually, ensuring access to customer consumption data.

Due to the fact that consumer protection measures are particularly important for vulnerable consumer protection in the context of trying to tackle energy poverty, there are strong roles for NRAs. These protections measures are critical for ensuring that markets operate in a way that does not disadvantage vulnerable consumers by guaranteeing supply, establishing codes of conduct for market players, and identifying vulnerable consumers.

What role have regulators and policymakers played in STEP-IN?

In order to develop the proposals in this paper, input has been sought from regulators and policymakers to develop the recommendations made. An EU & National policymakers and regulators WG was established, which met to discuss the role and experience of NRAs in tackling energy poverty. The WG was comprised of individuals actively working in the area of energy poverty within their authorities (Table 2)

Country	Type of Organisation	Organisation
Greece	Regulator	RAE
	Policymaker	Greek Ombudsman
	Policymaker	CRES
Italy	Regulator	AREA
France	Regulator	CRE
Poland	Regulator	ERO
Portugal	Regulator	ERSE

Table 2 NoI policymakers & regulators participants

5. Working Group Meetings

5.1 1st STEP-IN NoI workshop

As imprinted in the Deliverable 6.4, the first phase of stakeholder engagement brought to the surface various challenges identified by the STEP-IN NoI to combat energy poverty. Namely:

- On defining energy poverty, it is very difficult to have a uniformly applied definition of energy poverty, as it constitutes a notion that will always change. A common point of reference is energy needs being met with satisfaction. On meeting minimum requirements, energy needs are different across Europe.
- Issues with energy efficiency, income threshold, comfort level being subjective and sometimes set to general poverty level (e.g. Italy, France).
- A set of indicators shared and agreed throughout Europe has to be aligned to national situations: climate conditions, energy sources' accessibility, prices, taxation etc.
- A common reference basis and additional specific criteria are needed to allow a proper assessment of energy poverty across the EU; this would result in a benchmarking methodology to be applied.
- With reference to measures currently taken, there are a several ongoing efforts across Europe (e.g. frozen energy prices in Hungary, the energy bonus in Italy, social tariff in Greece, free home energy assessment visits to anyone struggling to stay warm at home, regardless of tenure in the United Kingdom).
- Emphasis from now on should be laid on prevention and increasing the energy awareness of poor people as solutions to go ahead. Priority must be given to designing specialised energy upgrade programmes for buildings, allowances open to a larger number of beneficiaries by decreasing the fixed income level as a ceiling to access benefits, fostering market based instruments (Energy Efficiency Obligation Schemes, energy communities), financial schemes that work for the energy-poor, as well as on the inclusion of housing retrofit in national policies.

5.2 STEP-IN Policy Makers and Regulators Working Group Workshop

The STEP-IN Policy Makers and Regulators Working Group Workshop took place as part of the second round of engagement activities of the STEP-IN project Network of Interest. It focused on EU and national policymakers and regulators working with vulnerable communities across Europe.

During the workshop, representatives of the Greek Regulatory Authority for Energy - focused on existing best practices to tackle energy poverty across Europe and launched a discussion with policymakers on how scalable and replicable these practices are, according to the needs and constraints observed during the implementation of the project Living Labs, but also taking into account the different geographical contexts. Participants were encouraged to share information on best practices (where policymakers or regulators have a role) from their own countries. The discussions then targeted the involvement and the role of policymakers and regulators on tackling energy poverty across Europe, the gaps identified and the way ahead. The workshop program (Figure 1) provided the attendees with the opportunity to:

- Be informed about the field study results of the three living labs established under the STEP-IN project to tackle energy poverty.

- Share their experiences and the gaps they have identified while dealing with energy poverty at the national and international level.

AGENDA

Friday, December 4

Time	Session
11:00 AM - 11:10 AM	Welcome note and introduction to the STEP-IN project and Network of Interest
11:10 AM - 12:00 PM	Identification and evaluation of best practices
12:00 PM - 12:50 PM	The role of EU and National policymakers and regulators in tackling energy poverty across Europe so far, gaps identified and the way ahead
12:50 PM - 1:00 PM	Concluding remarks

Figure 1 STEP-IN Policy Makers and Regulators Working Group Workshop program

Introduction

Dr. Dionysios Papachristou, Director of the Press and Public Relations Office of Regulatory Authority for Energy (RAE), informed the workshop participants on the STEP-IN project and its effort to develop and implement a global methodology to analyze and tackle energy poverty through the establishment of 3 Living Labs in 3 different locations with diverse characteristics across Europe, hence improving the life quality of the energy-poor consumers.

Konstantinos Kanellos, the Communication Expert at VaasaETT, highlighted the STEP-IN Network of Interest's key attributes and its role in detecting the best practices and tackling energy poverty.

Identification and evaluation of best practices

Mr. George Paidakakis, Head of the Directorate of European and International Affairs at RAE, presented the two main policy tools used in Greece to deal with energy poverty; the "*saving energy at home*" program which aimed to improve the household energy efficiency by buildings' renovation and the *residential social tariff* which is used to provide electricity to poor households. Other policy and regulatory initiatives such as special provisions included in the supply codes of electricity and gas as well as the winter fuel allowance to protect vulnerable households were also highlighted in the presentation.

The role of EU and national policymakers and regulators in tackling energy poverty across Europe

Mr. Paidakakis continued his presentation and highlighted the European Commission's general guidelines on tackling energy poverty while also mentioning the importance of the Renovation Wave Strategy to improve energy efficiency in buildings and therefore use it as a lever to address energy poverty.

Following this, the workshop participants were asked some questions (see below) with the aim to trigger discussions among them to identify specific measures taken at the national level, to address energy poverty.

- What is the role for EU and national policymakers and regulations in tackling energy poverty in Europe so far?
- How successful has the involvement been so far and which obstacles were identified?
- What needs to be done towards a more meaningful contribution by the EU and national policymakers and regulators to tackle the phenomenon in Europe?

Italy (Mr. Francesco Cariello, Head of EU regulation at Autorità di Regolazione per Energia Reti e Ambiente (ARERA)**)**

Mr. Cariello informed the participants on the Italian policy scheme to deal with energy poverty. Specifically, there is a partial contribution to the vulnerable households' energy expenses by the government. This scheme covers both electricity and natural gas, while it was recently extended to the water services sector. The beneficiaries that are entitled to the contribution are determined by a *"national synthetic economic index,"* which is also used to provide other benefits, such as free medicine, to the vulnerable citizens. AREA is the responsible body, under the Italian legislature, to design and implement the scheme proving support to vulnerable households, but the regulator is in constant cooperation with other bodies such as local municipalities, distribution system operators and energy suppliers.

Furthermore, insights on the challenges that ARERA faced during the implementation of the scheme were provided. The first challenge arisen from the implementation of the mechanism was that many vulnerable energy consumers were not familiar with the contribution mechanism that was in place and therefore unable to participate in the scheme even though they fulfilled the criteria to receive economic aid. This problem was addressed by bypassing the administrative procedures under which the consumers had to apply manually to the energy regulator. An automatic procedure was established, in which the consumers entitled to participate in the mechanism, received the contribution automatically, without any action on their part. The second problem noted was that ARERA had a difficulty defining energy poverty, which initially was linked with the perception that the consumers that could not warm their houses in the winter were the only energy poor. At a later phase, when the impacts of high temperatures on human health were evaluated in more detail by ARERA, the definition of energy poverty was extended to include the households that faced difficulties in cooling their houses in the summertime.

Mr. Cariello concluded his remarks by pointing out that problems could arise while implementing the Renovation Wave EU strategy, especially when the vulnerable consumers do not own the house they live in.

France (Mr. Jean-Laurent Lastelle, commissioner at Commission de régulation de l'énergie (CRE)**)**

Mr Jean-Laurent Lastelle stated that it must be acknowledged that most European energy regulators were not designated, found and armed to fight energy poverty as when they were mainly created to organize the energy markets, promote competition and innovation, create non-incumbent network operators and make networks more reliable but not to protect the consumers from social dangers. France created the Energy Ombudsman, an independent organization that carries out inquiries to find out about the difficulties the energy consumers face and communicates those issues over the media.

At the level of the Council of European Energy Regulators (CEER), the NRAs haven't been able to make considerable progress in tackling energy poverty. This comes as a result of a general disagreement among the regulators as energy poverty is not always part of the competencies of all NRAs. However, some steps have been taken at the EU level since the Directive (EU) 2019/944 includes some provisions related to protecting vulnerable consumers and tackling energy poverty. The recent COVID-19 crisis also led to the creation of an ad-hoc group at CEER that, among others, elaborates on vulnerable consumers' protection topics. It was also pointed out the huge social dimension of the Green Deal and its impact on the protection of vulnerable consumers by improving the building energy efficiency.

Subsequently, reference was made on the specific measures, put in place in France, to confront energy poverty. First of all, it was reported that an Energy Observatory on Energy and Security was founded on March, 2011. This Observatory aims to improve the availability of information on energy and security in France, both in the household and transport sectors, and to inform and contribute to the orientation of public policies. The Observatory developed three specific indicators to monitor and calculate the number of households in energy poverty and analyze their consumption profiles: (1) The energy cost threshold (TEE) (le taux d'effort énergétique), (2) The cold perceived (FR_3D) reflects whether the inhabitants 'feel' cold and (3) The challenge of having a low income / high costs (LI/HC) equation (bas revenus/dépenses élevées ou BRDE). However, the main tool in place to deal with energy poverty in France is a mechanism of financial support using energy vouchers. This mechanism replaced the former social tariffs for electricity and gas in 2018 and is targeted at low-income households to help them pay their energy expenses. This support scheme covers energy bills and the installation expenses of new innovative technologies as well. It was also noted the French Household Solidarity Fund which provides financial assistance to cover housing rents and energy expenses incurred by the households. Vulnerable consumers can also be exempt from some complements of final energy costs and be entitled to get economic support using the "Certificates d'Economie d'Energie," which were created in 2006 as an obligation to energy suppliers to promote energy efficiency. Finally, there were provided information on the "Live Better" program, executed by the French National Housing Agency and on energy transition tax credit both initiatives that aim to assist households in improving energy efficiency.

Portugal (Eugénia Alves, Head of Consumer Support Unit at Entidade Reguladora dos Serviços Energéticos (ERSE))

Ms. Alves agreed that the competence to tackle energy poverty does not always lie with the energy regulator, but all energy regulators should make an effort and cooperate to address the problem. She underlined the important role of the local authorities and public bodies in providing information to the energy consumers on how they can reduce their energy costs, chose the right supplier, and to which institution they should apply to receive financial assistance for their energy costs. Besides, in Portugal, the vulnerable consumers are entitled to receive energy under social regulated tariffs, both in electricity and gas. The eligibility criteria for the consumers to be granted social regulated tariffs are very similar in electricity and gas.

Greece (Mr Christos Tourkolias, Energy Expert at Greek Center for Renewable Energy Sources and Saving (CRES), Mrs. Daphne Filippaki, Greek Deputy Ombudsman)

Mr. Tourkolias briefly mentioned his role in creating the Energy Poverty Observatory in Greece and his involvement in the Greek National Energy and Climate Plan (NECP). It was stressed the importance of making a distinction between poverty and energy poverty, and it was noted that most of the measures taken in Greece were aiming to alleviate the energy vulnerable households only on a short-term basis. During the elaboration of the recent NECP, a different approach was considered with balanced policies to tackle energy poverty both in the short-term and long-term basis. The short-term measures to deal with energy poverty include a redesigned scheme of the residential social tariffs and heating oil financial aid. The long-term measures include a program that aims to improve the building energy efficiency of the vulnerable households and promote the installation of RES power plants by the consumers. Also, it was emphasized the importance of the smart meter rollout, which will bring more transparency and information on the consumption profiles of the vulnerable households and therefore

assist the policymakers in designing efficient and well targeted policies that will tackle energy poverty. Finally, it was underlined the importance of a bottom-up approach in monitoring and evaluating the executed policies, including their outcomes, that aim at addressing energy poverty while also comparing them with the top-down indicators set up by the EU Energy Poverty Observatory.

Mrs. Filippaki underlined that in Greece, there is not a specialized energy Ombudsman dealing with energy poverty, but there is another organization operating as a mediator called Hellenic Consumers' Ombudsman, which handles, among other cases, the complaints deriving from utilities (including energy). Those complaints concern energy poverty as there are many requests from the side of consumers who cannot pay their utility bills and seek ways to join Social Residential Tariff. The most common profile of people seeking for assistance is: unemployed or citizens with low income, persons with serious health issues or mobility problems and elderly people. The Hellenic Consumers' Ombudsman role is to mediate between the consumer and the relevant company/organization in cases of debt and collect as much information as possible to efficiently apply the Greek Law and support citizens.

Discussion

Regarding the Social Residential Tariff, it was stressed that many vulnerable consumers are still confused about the submission procedure of the relevant papers that prove their right to join SRT. More specifically, there have been cases where consumers were ignorant about their obligation to submit the papers proving their vulnerability on an annual basis. As a result, they were excluded from the SRT program for that year due to technological illiteracy and lack of personal computer resources.

Under this framework, it was mentioned that all EU Member States should create a single precondition scheme for vulnerable consumers who seek to enter SRT programme with common criteria, according to Directive 944/2019, in order to avoid the obstruction of competition in terms of energy prices. Each Member State should then justify its compliance with that precondition scheme and work on all European citizens' same assessment framework.

It was also annotated that the energy sector needs to stay pure with regard to competition which is affected by regulated prices. The financial assistance given to vulnerable consumers could be withdrawn from energy bills, rendering them more competitive, and be included in a social scheme which will reinforce consumers through State aid. In addition, it was highlighted that the adoption of automated systems, which can identify vulnerable customers, can be extremely valuable even outside the scope of the Electricity Directive as Greece is modernizing and digitalizing its energy infrastructure. From its side, the Greek Regulator (RAE) has a first-hand experience regarding the benefits of the new RES Regulation, which focuses on the different databases' interconnectivity and interoperability.

Finally, it was mentioned that RAE should include to its Opinion to the Ministry of Energy a clear and simple interoperability procedure of IT platforms with specific predetermined factors about the policy measures to be taken by the Ministry.

Subsequently, there was raised the issue of the existence of different approaches/ measures regarding energy poverty tackling among rural, urban, mountainous and/ or lowland regions. In this context, in Metsovo region, the average percentage of income spent on heating purposes reached 18%, which is an undoubtedly high percentage. Furthermore, it was indicated that Western Greece is the region with the highest rate of energy poverty.

It was reported that within the framework of the research made by the EU Energy Poverty Observatory, a few different practices were mapped concerning mainly rural areas, but no significant trends were identified regarding the design of such policy measures. The conclusion drawn from this research is that each Member State shapes its own measures according to its special characteristics and should examine energy-poor households' components to identify which aspects aggravate and alleviate the phenomenon of energy poverty in each region. The effectiveness of these measures will be verified by the bottom-up and top-down monitoring assessments. This approach can be applied to energy poverty measures and other parts of the energy sector such as RES or energy efficiency to either redesign and improve their effectiveness or introduce a new measure. All measures shall be

streamlined according to the framework of the national definition of energy-poor household and not adopt separate measures for different categories of vulnerable consumers.

Additionally, it was outlined the new focus of the European Commission on energy issues, which touches upon the core subject of STEP-IN project, meaning energy poverty. As Mr Paidakakis mentioned "*An important question is whether the EU's approach is moving towards the right direction and if there are possible improvements that could enhance implementation at national level. One of the main issues observed in some Member States is that not all regions can handle the digitalization and the transition of energy markets by themselves.*".

Workshop concluding remarks

Mr. Paidakakis, Mr Papachristou and Mr Kanellos summarized the lessons learnt from the STEP-IN Policy Makers and Regulators Working Group Workshop. It was mentioned that the option of Member States asking the European Commission for higher funding and guidance could be assessed in order to establish the most efficient methods on different cases according to geographical, financial and social needs.

The best method to be applied is to find the right balance mixture of measures. What is needed is the Regulatory Authority's intervention for the protection of vulnerable households, some targeted measures to facilitate the long-term parameter of building renovation, and the organization of awareness activities that can support local communities to become more active in the energy sector. Due to the fact that, from the side of the European Union, it seems that there is no intention to introduce a common definition of energy poverty, each Member State should design its own policy for the alleviation of vulnerable consumers.

Due to the lack of funds for certain regions' assistance, one proposal is that each Member State should try to maximize the potential of already existing synergies within a holistic framework. Additionally, for long-term alleviation of energy poverty, it was proposed that the measures concerning energy efficiency and RES would be the most suitable, while for short term alleviation, he mentioned that proper regulatory measures can contribute to the tackling of the phenomenon.

In this context, emphasis should be laid on resolving the energy poverty definition issue and computing its indicators. It was also stressed the importance of creating a simple and automated procedure for the identification of energy poor households.

Moreover, as it was pointed out, the STEP-IN project aims to collect feedback from different countries to become inclusive and bring together the knowledge of several key shareholders the experience of who can play a decisive role in tackling energy poverty.

6. National policies for preventing and fighting energy poverty in the European region

6.1 The framework of national policies to tackle energy poverty

Contrary to other traditional concepts of public policy, the systematic approach of **energy poverty** is a de facto difficult process, as its hardcore does not have a single socio-political background. The perception of energy poverty varies from time to time and from country to country, depending on the political model of power, socio-economic conditions, administrative structures, historically shaped trends, and theoretical perceptions in protecting social rights (access to energy).

A review of the relevant literature highlights that **energy poverty** is approached primarily as a discernible manifestation of **poverty** risks and social exclusion, which is observed in cases of **inability or difficulty of an individual or household to access the necessary energy resources and services**. It is a major challenge for the European Union, as it is an already experienced phenomenon which threatens a significant proportion of European citizens, especially those with low incomes, while at the same time has a negative impact on complex levels of public administration, such as energy policy, social protection and cohesion, public health and environment protection.

Research dedicated to energy poverty and the relevant experience accumulated at the international level show a broader consensus on the phenomenon's root causes. It is thus possible to identify the hardcore of a starting point (which can be completed, customized and adapted to national, regional and local conditions), as well as to reach consensus on the main axes which can formulate policies to prevent and combat the problem (Bouzarovski, Petrova, 2015).

In this light, the following are recognized as root causes of energy poverty (European Commission, 2020):

- **low incomes** leading to poverty and social exclusion
- spending a large percentage of households' disposable income in **energy expenditures** (electricity, gas and other energy sources) due to rising energy prices
- **energy inefficiency** of a house which results in an increase of its energy needs

Despite the fact that energy poverty is recognized as a major problem, the European Union's interventions to tackle it are, to date, fragmented. In particular, Treaties' provisions and European secondary law (mechanisms which create obligations and establish rights for European citizens) in the field of social protection do not promote binding interventions by European Union's institutions regarding the organization and operation of national policies dealing with energy poverty (Bouzarovski, Petrova, 2015). This happens mainly because there is no binding regulation of general application regarding national measures to tackle poverty and exclusion or thematic interventions to combat energy poverty, except for specific restrictive arrangements or recommendations at the level of guidelines which do not entail obligations for Member States.

However, the recent update of the energy regulatory framework (launched under the Energy Union Strategy and completed in 2019) extended the content of institutional provisions on energy vulnerability, as it clearly defined the meaning and the content of energy poverty and **established for the first time specific obligations for national authorities regarding the protection of energy vulnerable consumers**. In this light, the revised Energy and Climate Institutional Framework of the European Union has contributed to further recognize the issue and its high priority in both the legislative and the public debate within the EU, providing Member States with guidelines on defining energy poverty and creating a strong binding framework to include the energy poverty dimension in their national policies.

Despite the delay in drafting a clear strategy at the European Union level, the magnitude of the energy poverty issue has led many Member States to implement national policies to prevent and tackle this phenomenon. In particular, a review of the literature on national policies to prevent and oppose energy poverty shows that the **basic model of the relevant policies is direct or indirect income protection programs for vulnerable consumers**, such as:

- social tariffs of energy services for vulnerable households
- prohibition of electricity and heating interruptions during winter season or in cases of serious health issues
- the provision of income support (either through targeted "energy benefits" or benefits paid within the context of general Minimum Guaranteed Income).

At the same time, since the entry into force of the Energy Efficiency and Energy Performance of Buildings Directives and their transposition into the national legal order, there has been observed a remarkable development of subsidized intervention programs to improve the energy efficiency of residential buildings, the majority of which did not include special provisions for low-income households.

In summary, policies and measures implemented at national level include:

- general social policy measures, aiming low-income households which include special aid payments to cover energy costs
- interventions at energy supply level, with institutional initiatives for social pricing of energy services
- one-off energy vouchers for financially vulnerable households, taking into account income criteria or other vulnerabilities
- financial tools and incentives (financial interventions) to improve the energy efficiency of households
- tax exemptions and incentives to facilitate renovation costs
- disconnection protection due to accumulated debts as a result of late payment of bills mainly through legislative interventions but also mediation models with energy providers
- advisory consumer empowerment measures and actions to promote information of vulnerable consumers
- simultaneous on-site energy audits and implementation of limited and economic energy interventions (e.g., smart meters installation, small-scale construction works, etc.) and energy consulting in order to save energy and reduce energy needs.

6.2 The case of Greece

In Greece, there is neither a clear definition of energy poverty, nor specific indicators for monitoring the phenomenon. In general, a household is considered to be energy-poor if they spend more than 10% of their income on energy needs, combined with some other, usually social and geographical criteria for the allocation of benefits. Several studies have been carried out to measure energy poverty levels in Greece, in which both quantitative and qualitative indicators (subjective questionnaires) have been used, as well as the energy efficiency status of buildings through the statistics on Energy Performance Certificates (EPCs).

Most national social policies, which are indirectly related to addressing energy poverty, are in the form of subsidies: the "**Social Residential Tariff**", the rent subsidy, and the heating oil allowance. The most important policy for tackling energy poverty was the energy efficiency scheme for residential buildings called "**Saving Energy at Home**" Program.

6.2.1 Social Residential Tariff

The **Social Residential Tariff** (SRT), is a special electricity tariff and it was introduced to protect vulnerable groups of consumers. SRT is available in accordance with the terms of Ministry of the Environment, Energy and Climate change Decision No. Δ5-ΗΛ/Β/Φ29/16027/6.8.10 (Government Gazette 1403/B/06.09.2010), as amended and is in force.

The SRT was applied for the first time on 01.01.2011 specifying four (4) categories of beneficiaries, i.e. (a) Households with Low Income (total annual income below 12,000 €), (b) Households with three children (total annual income below 23,500 €), (c) Long-term unemployed (continuous unemployment period of at least 12 months and total annual income below 12,000 €) and (d) Households that include one or more individuals who have 67% or higher digrees of disability -(total annual income below 23,500 €). However, the escalating country's economic recession necessitated the amendment and expansion of the SRT beneficiaries. During 2013, SRT was expanded in terms of a) the number of consumers covered by adding one (1) more category i.e., Households that include individuals whose that their life depends on mechanical medical devices, and b) by increasing the consumption limits.

In 2018, the Ministerial Decision published in the Government Gazette B '242/01.02.2018 amended the abovementioned categories of the beneficiaries of the SRT, the criteria for its application and the discount granted.

6.2.2 Saving Energy at Home

Greece has 3.7 million high energy-consuming buildings. 60% of all buildings in Greece were constructed prior to 1980 and prior to the national regulation on insulation coming into force. 27% of those buildings have a low energy efficiency category H (173% energy consumption in relation to the reference building) (Ministry of Environment and Energy, 2015).

Buildings in Greece account for approximately 36% of the country's total energy consumption. Old age, poor maintenance, and a lack of energy efficient improvements and relevant legislation are the main reasons why Greek buildings consume so much energy. The principal problems in Greek buildings relate to:

- Partial or total lack of heat insulation;
- Outdated technology windows/doors (frames/single glazing);
- Lack of sun protection on southern and western sides;
- Inadequate use of Greece's high solar potential;
- Inadequate maintenance of heating / air conditioning systems, resulting in poor performance.

Energy consumption in buildings is also influenced by the behaviour of occupants. Many lack information and knowledge on how to use and manage their energy usage more efficiently. This often results in wasteful energy usage, such as the use of inefficient appliances, poorly maintained heating systems or the installation of individual air conditioning systems without contracting a professional assessment that takes a whole building view and provides considered energy-saving options.

Recognising the country's energy challenge and the need to adopt the European directives, the Ministry of the Environment and Energy (YPEN) developed a set of financial incentives, with co-financing from the European Union, to support energy-saving home improvements.

The "*Saving Energy at Home*" Programme is a grant and loan programme that ran between 2011 – 2015 (Phase I), 2018 – 2019 (Phase II) and 2020 (Phase III) to encourage and support increased energy efficiency in residential buildings. Specifically, the "*Saving Energy at Home*" Program offers citizens who meet specific income related criteria, incentives (subsidies up to 70% and interest-free loans) to carry out major interventions for improving their houses' energy efficiency. The program also sets an energy objective for improving the energy performance of the household by at least one energy class.

7. Recommendations

As already stated, the phenomenon of energy poverty and the resolution of the problems induced by it on modern society constitute a challenge on a global scale. Energy poverty is a pressing problem affected by the complicated interaction of multiple factors – the increase of energy prices, people's inability to pay their energy bills, flat or falling income, high levels of unemployment and the slow pace at which implementation of energy-efficient measures in residencies is taking place. The evidence-based, adverse effects of the aforementioned interaction are felt on social, environmental and financial levels.

Energy poverty was introduced in the European policy agenda in 2006. Having placed the phenomenon under the microscope, much progress has been made since. In particular, the EU strategy has been comprehensively updated and enriched by specific proposals included in the "Clean energy package for all Europeans". In order to achieve this and tackle energy poverty effectively, the European Commission set as its priority and brought forward key proposals for effective measures as part of its clean energy policy. This was materialised with the publication of the Internal Market for Electricity Directive, the Energy Efficiency Directive, the Energy Performance of Buildings Directive and the Regulation for the Governance of Energy Union. Nevertheless, the way to tackle the problem has yet to be paved.

In the light of the above and taking into account the conclusions derived from the NoI workshops, as well as the phenomenon's multifaceted nature, which is intrinsically linked to the financial status of vulnerable population groups, to excess energy consumption attributed to residencies' poor energy performance and to high energy and fuel costs, the following recommendations are proposed.

A. Defining energy poverty and monitoring indicators

Resolving the energy poverty definition issue and computing its indicators are prerequisites to successful implementation of actions, which combat energy poverty. The phenomenon's multifaceted nature should be deeply comprehended, and the difference between income poverty and energy poverty should be clarified. This is the only viable way to locate households that suffer from or are threatened by energy poverty and assess their status accordingly so that decision-makers may draw up an effective policy which will be inclusive of not only "income poor or vulnerable households" but also "energy-poor households".

At the same time, defining specific monitoring indicators and data collection to support progress measuring will result in effective implementation of the applied measures.

B. Public awareness and training

Consumers' behavior may affect a building's total energy consumption up to 25% - 30% (Delzendeh et al., 2017) either in a positive way following the application of suitable techniques that reduce energy consumption, or negatively by excess energy demand in cases when residents lack adequate practical knowledge or training. Deeply comprehending the concept of energy poverty is the keystone of enhancing public awareness of the phenomenon. Information on how this predicament came about, what and whom it concerns, how consumers are immediately affected and which actions can aid in tackling it, should become public knowledge. Enhancing public awareness is also fundamental in ameliorating citizens' living conditions (reduction in energy bills, generating financial saving) and in achieving long-term objectives set by the European Union.

The awareness campaigns and training should constitute horizontal interventions. Starting first locally, targeted dissemination of information and prioritizing can play a vital role in ameliorating vulnerable households' living conditions. More specifically, the contribution of local bodies such as municipalities, clubs, and associations is vital in locating vulnerable population groups due to proximity. Simple energy-saving and bill reduction tips along with adopted practices applied in daily routine can also be an essential constituent of the awareness campaigns for all target groups.

C. Retrofitting of vulnerable household's residencies

Several studies have confirmed that energy renovations in vulnerable households' residencies are proven to be the most effective energy poverty tackling action. Nevertheless, the main obstacle encountered during the implementation of energy efficiency measures is lack of initial capital since most energy poor households have restricted access to financing sources.

Collective/cooperative schemes can assist in surpassing this impediment.

Energy upgrade programmes should be based on stakeholders' (public and municipal authorities, social enterprise, energy companies etc.) synergies for fund allocation to vulnerable – or not – households. Electricity providers and companies pertaining to construction and real-estate could play a vital role in meeting energy-saving targets set under the guidance of the European Commission's directions (obligation schemes) and in improving their image in the competitive energy market. In that way, by ensuring that revenue generated from energy efficient practices will be directed to loan repayments is essential in increasing the number of loans approved for vulnerable households.

D. Empowering the role of prosumers and the utilization of RES

Along with energy upgrade interventions on the buildings' envelope and replacement of conventional household appliances with more efficient ones, the Renewable Energy Sources are listed as measures that once financed adequately, have the potential to form a sound foundation for tackling energy poverty. Utilization of RES technologies is conducive to citizens' active involvement in the energy system and their transition from consumers to prosumers (producers-consumers) (Heinrich Boll Stiftung Institute, 2019). Integrating RES in the effort to combat energy poverty is part of a strategy which requires joint efforts of stakeholders and individuals as well as collective plans of action. More specifically:

I.   Introducing integrated European policy to be extended and applied at national level

A pan-European policy to empower vulnerable households in such a way as to generate energy via RES and reduce energy bills should be developed in an integrated manner that will secure adequate financing tools and funding. The policy should adjust accordingly to each Member State's legislation.

II. Effective collaboration of multiple bodies

Being by definition collective initiatives, Energy Communities ought to form bonds of trust and foster tight collaboration among various bodies such as municipalities, research centres, scientific institutes, social and environmental agents, local entrepreneurs, businesses/industries, associations and citizens' groups. Proper operation of the Communities should deliver essential measurable outcomes for their members and for vulnerable households.

III. Awareness-raising campaigns and information on RES systems

Informing citizens on the basic principles of RES systems is the keystone of successful inception of the Energy Communities venture. Citizens should comprehend the positive impact of RES integration on the local economy, on energy saving and on de-carbonisation. Sufficient understanding will reinforce their trust in collective ventures and encourage them in assuming a more active role in the energy system.

8. Conclusions

This report illustrates that contrary to other traditional concepts of public policy, the systematic approach of energy poverty is a de facto difficult process, as its hardcore does not have a single socio-political background. The perception of energy poverty varies from time to time and from country to country, depending on the political model of power, socio-economic conditions, administrative structures, historically shaped trends and theoretical perceptions in the field of protection of social rights (access to energy).

Under this framework, it is more than obvious that tackling energy poverty requires coordination action across a wide range of sectors. Within STEP-IN, these sectors are represented by a set of working groups to provide policy recommendations to each of these sectors based on the project learnings.

This paper focusses on the role of policymakers and regulators in tackling energy poverty within this wider context and sets out a set of recommendations, based on findings of the STEP-IN project and input of the working group. In particular, it seems that: (a) resolving the energy poverty definition issue and computing its indicators, (b) enhancing public awareness and training,(c) promoting residencies' energy upgrade programmes based on stakeholders' (public and municipal authorities, social enterprise, energy companies etc.) synergies for fund allocation and (d) empowering the role of prosumers and the utilization of RES, are prerequisites to successful implementation of actions, which combat energy poverty.

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STEP-IN

The Role of Industrial Representatives in Fighting Energy Poverty

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1. Executive Summary

This whitepaper outlines the role of industrial representatives in fighting energy poverty, and it is published as part of D6.5 – White papers for energy policymakers. It specifically examines the STEP-IN project's role, experiences outside of STEP-IN and results from the network of interest meeting(s). In general, it presents an overview of the NoI workshops conclusions, a brief summary of national policies to prevent and combat energy poverty in the European region, and policy recommendations. In particular, it outlines, the 2nd STEP-IN NoI workshop conclusions; the STEP-IN Industry Representatives Group Workshop conclusions; national policies for preventing and fighting energy poverty in the European region; policy recommendations.

2. Introduction

The STEP-IN consortium implements a global methodology for analysing and tackling energy poverty through the establishment of three Living Labs in highly challenging locations with diverse characteristics across Europe, specifically a mountainous region in Greece, a rural area in Hungary and an urban area in the United Kingdom with low quality housing.

To allow the results of the Living Lab findings to be relevant in the post-project period, the STEP-IN consortium will provide specific policy recommendations. These will include the integration of insights drawn from the stakeholders shaping the STEP-IN Network of Interest as key inputs in order to develop an innovative global methodology for the effective analysis and tackling of energy poverty and to ensure long-term benefits for energy poor communities.

To achieve this, STEP-IN has so far engaged and will continue to engage stakeholders throughout the project period. In addition to the local stakeholders involved in the Living Lab areas, STEP-IN has engaged with interested parties across Europe, including industrial representatives, local and regional authorities, consumer and advocacy groups, practitioners, EU and national policy-makers, regulators, academia and think-tanks, in order to shape a motivated wider, pan-European Network of Interest (NoI). Prior to NoI workshops or other engagement activities, project partners were assigned as WG leads. The allocation of leads per WG is the following:

- **Industrial representatives – Lead: E. ON**
- Local/Regional authorities – Lead: GMCA
- Consumers and advocacy – Lead: ADICONSUM
- Practitioners – Lead: UMAN
- EU & National policymakers and regulators – Lead: RAE
- Academia & think tanks – Lead: LIST

The involvement of the NoI members in STEP-IN engagement activities is twofold. At the early stages of the project, the STEP-IN consortium gains advice and insights from the NoI and shares immediate experiences and results from the Living Labs. As the project progresses and reaches completion, this bi-directional communication will continue with the aim of co-designing strategies and policy recommendations and disseminating the results to the wider community via events and white papers.

The outcome of stakeholder consultations and Living Lab findings and experiences from European projects will feed into the policy assessment and recommendations included in the white papers. Results from own policy assessments, relevant measures found in literature and newly developed concepts, looking at renewable energy sources (RES) and refurbishment schemes, and examining the rebound effects that arise in the Living Labs and wider energy poverty field will also provide content for the white papers.

In the light of the above, among other actions and engagement activities, one virtual NoI workshop took place on November 20th, 2020.

This report contains an overview of the NoI workshops conclusions, a brief summary of national policies to prevent and combat energy poverty in the European region, and policy recommendations. In particular, it outlines:

- The STEP-IN NoI workshop conclusions.
- The STEP-IN Policy Makers and Regulators Working Group Workshop conclusions.
- National policies for preventing and fighting energy poverty in the European region.
- Policy recommendations.

3. An Overview of STEP-IN

The STEP-IN project provides sustainable strategies which can be used to alleviate energy poverty across Europe. This is achieved through three main components: living labs, ICT tools and a large stakeholder engagement process via a Network of Interest. The project's overall objectives spanned from the key issue of having a positive impact on the lives of citizens through to identifying relevant financial schemes that can alleviate energy poverty and contribute to the overall green energy agenda (Table 1).

Obj. 1	**Positive Impact on Citizens**.
Obj. 2	**Assessment and Benchmarking**.
Obj. 3	**Supporting Best Practices**.
Obj. 4	**Engaging with the Energy Poverty Community.**
Obj. 5	**Define Future Policies, Strategies and Research Areas.**
Obj. 6	**Support Clearly Defined Target Groups of Citizens**.
Obj. 7	**Reduce Environmental Impacts.**
Obj. 8	**Identifying viable financial schemes at local, national and European scale.**

Table 1 Objectives of the STEP-IN Project

The Living labs were located in Hungary, Greece and UK, and while they are locally centred, they were based on an overall methodology that included aspects such as advisor visits and energy cafes. Importantly the living labs also leverage existing projects and schemes. The methodology can be adapted for local needs (e.g., particular energy issues) and the availability of existing schemes and circumstances. For example, during the project, the methodology was adapted to fit the evolving Covid-19 pandemic. Within these living labs, a range of ICT tools were used by citizens and energy advisors. These tools, including the knowledge base are used to share information collect data. STEP-IN also recognises that its true impact in the longer term is based more on how the methodologies, tools, and recommendations are adopted and used by others. To this end, a large stakeholder network consisting of academics, NGOs, consumer organisations, energy providers, politicians, and other selected individuals was created. This network provided advice as the project operated and contributed to the development of this and the other white papers. The network and other participants also took part in the many STEP-IN events, thus ensuring that this project and others were disseminated.

This white paper and the others that form part of deliverable 6.5 provide the final set of recommendations from the project derived from the network of interest working group meetings. These recommendations bring together the knowledge gained from STEP-IN with views gained from the network of interest experts.

4. Working Group Meetings

4.1 1st STEP-IN NoI workshop

As imprinted in the Deliverable 6.4, the first phase of stakeholder engagement brought to the surface various challenges identified by the STEP-IN NoI to combat energy poverty. Namely:

- On defining energy poverty, it is very difficult to have a uniformly applied definition of energy poverty, as it constitutes a notion that will always change. A common point of reference is energy needs being met with satisfaction. On meeting minimum requirements, energy needs are different across Europe.
- Issues with energy efficiency, income threshold, comfort level being subjective and sometimes set to general poverty level (e.g., Italy, France).
- A set of indicators shared and agreed throughout Europe has to be aligned to national situations: climate conditions, energy sources' accessibility, prices, taxation etc.
- A common reference basis and additional specific criteria are needed to allow a proper assessment of energy poverty across the EU; this would result in a benchmarking methodology to be applied.
- With reference to measures currently taken, there are a several ongoing efforts across Europe (e.g. frozen energy prices in Hungary, the energy bonus in Italy, social tariff in Greece, free home energy assessment visits to anyone struggling to stay warm at home, regardless of tenure in the United Kingdom).
- Emphasis from now on should be laid on prevention and increasing the energy awareness of poor people as solutions to go ahead. Priority must be given to designing specialised energy upgrade programmes for buildings, allowances open to a larger number of beneficiaries by decreasing the fixed income level as a ceiling to access benefits, fostering market-based instruments (Energy Efficiency Obligation Schemes, energy communities), financial schemes that work for the energy-poor, as well as on the inclusion of housing retrofit in national policies.

4.2 STEP-IN Industry Representatives Working Group Workshop

The STEP-IN Industry Representatives Group Workshop took place as part of the second round of engagement activities of the STEP-IN project Network of Interest. It focused on EU and national policymakers and regulators working with vulnerable communities across Europe.

During the workshop, representatives of E.ON Hungary and MALTAI focused on existing best practices to tackle energy poverty across Europe and launched a discussion with policymakers on how scalable and replicable these practices are, according to the needs and constraints observed during the implementation of the project Living Labs, but also taking into account the different geographical contexts. Participants were encouraged to share information on best practices (where industry representatives have a role) from their own countries. The discussions then targeted the involvement and the role of industry representatives on tackling energy poverty across Europe, the gaps identified and the way ahead. The workshop program (Figure 1) provided the attendees with the opportunity to:

- Be informed about the field study results of the three living labs established under the STEP-IN project to tackle energy poverty.

- Share their experiences and the gaps they have identified while dealing with energy poverty at the national and international level.

AGENDA

Friday, November 20

1:00 PM - 1:10 PM	Welcome note and introduction to the STEP-IN project and Network of Interest
1:10 PM - 1:25 PM	The evolution of energy inspection - why we had to change our scopes?
1:25 PM - 1:40 PM	Proposed solution: Complex rehabilitation programme
1:40 PM - 1:50 PM	Pole meter projekt
1:50 PM - 2:00 PM	Energiakaland programme
2:00 PM - 2:10 PM	Energy Cafés
2:10 PM - 2:20 PM	Changing customer behaviour and customer attitude
2:20 PM - 2:30 PM	Individual consultations on energy related topics
2:30 PM - 3:00 PM	Q&A session

Figure 1 STEP-IN Industry Representatives Working Group Workshop program

5. Best practice examples

5.1 Case 1 Energiakaland

A SUMMARY OF THE INITIATIVE AND SITUATION ADDRESSED

- Today, obtaining a basic knowledge about energy technologies that help us make responsible decisions about using energy in our everyday lives is gaining importance. Under our 'EnergiaKaland' (Energy Adventure) program, we cooperate with schools to support the young generations by transferring this knowledge to them by using modern and creative tools for easy learning.

ACTORS/STAKEHOLDERS INVOLVED

- The www.energiakaland.hu internet portal delivers free knowledge on energy and energy-related technologies for young people aged between five and eighteen years.
- E.ON's volunteers contribute to the 'EnergiaKaland' program by giving lectures in the schools. Also, our educational materials can be ordered via our 'EnergiaKaland' website.

OBJECTIVES

- The objective of E.ON's 'EnergiaKaland' program is to, by using modern and creative tools, educate children on consciousness concerning energy and environment and to make them prepared for making responsible decisions about their energy use in the future.

INNOVATIVE ELEMENTS

- E.ON launched its 'EnergiaKaland' learning program in 2008 to cooperate with schools and the Ministry of Education to support teachers in educating children on energy consciousness.

ACTIONS TAKEN SO FAR

- Besides making the adult population more conscious, it is also important that children too know how to save, e.g. on energy. This is why we want to link the 'Energiakaland' program to the project in the future. The class on energy will be held by E.ON's staff in the school of reformed school in Nyírbátor in the first semester of the school year 2020.

RESULTS AND LESSONS LEARNED

Main program results and program milestones since 2008

- 'EnergiaKaland' classes held by our volunteers in 260 educational institutions, thousands of children reached.
- E.ON's educational materials ordered by more than 1,700 teachers via our 'EnergiaKaland' web site.
- Over 1,600 members in our 'EnergiaKaland' Facebook community.

NoI REMARKS ON THE SCALABILITY AND REPLICABILITY OF THE ELEMENTS OF THE INITIATIVE

- Presence at EDUCATOInternational Education Exhibition with own 'EnergiaKaland' exhibition booth, exhibitions presenting educational materials, Children's Literature Festival, National Play Day, family days, Children's Day and Earth Day attended, various sessions held by our volunteers during the week with a focus on the topic of sustainability.
- First, further training session held in 2011 for teachers at Újbuda Educational Institute ('Újbudai Pedagógiai Intézet'), training session complemented in 2012 with a training module for kindergarten teachers and held in Budapest, Nagykanizsa and Szolnok too, additional training

- courses for teachers held in Mátészalka, Nagykanizsa, Pécs, Szolnok, Nyíregyháza, Debrecen and Győr.
- Since 2012, several further training courses held for the students of the faculty of primary and pre-school education at the Eötvös Loránt University so that they learn our educational program already as students.

5.2 Case 2 Energy consultancy

A SUMMARY OF THE INITIATIVE AND SITUATION ADDRESSED

- Support consultations on energy-related topics for the long-term development of the community, as well as for achieving long-lasting and sustainable results.
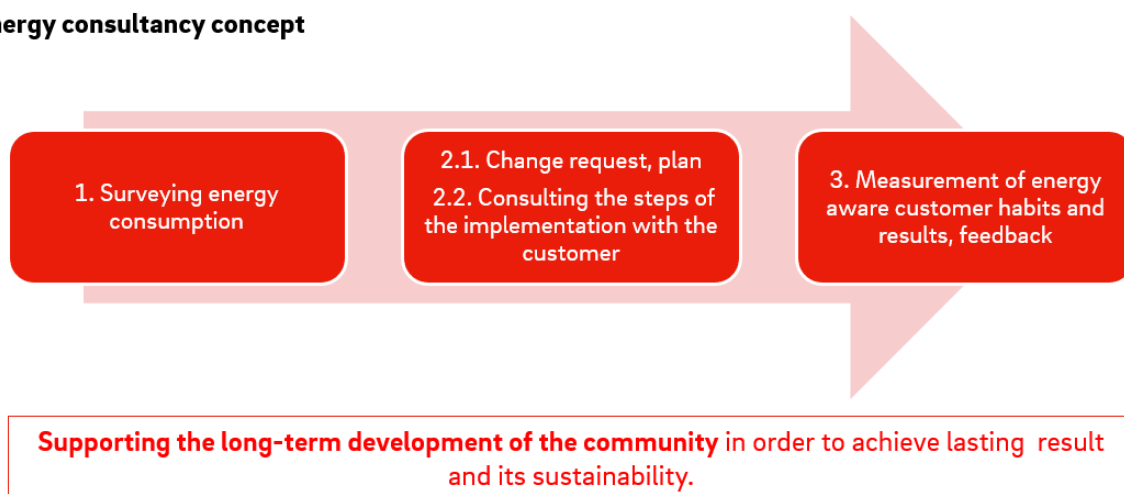

Figure 2 Energy consultancy concept

ACTORS/STAKEHOLDERS

- Lasting results achieved through cooperation between E.ON, TIGÁZ (gas industry stakeholders), the Hungarian Charity Service of the Order of Malta, the municipality and the customers.

OBJECTIVES

- Avoid situations that are a threat to life and property.
- Change customer behaviour and customer attitude.

INNOVATIVE ELEMENTS

- Support long-term development of the community for achieving long-lasting and sustainable results.
- Pre-paid meters: since the usage is limited to the exact amount paid in advance by the customer, no additional debts can be accumulated. Prior to disconnecting, the service provider offers to install a pre-paid meter to customers to be protected.

ACTIONS TAKEN SO FAR

Individual consultations on energy-related topics

- The questionnaire, individual analyses, spending on energy.
- Calculation of energy consumption in households.

- Benchmarks with similar households.
- Energy consumption by appliances.
- Proposals were delivered to families on the basis of questionnaire processed.

Energy Cafés – consultations on energy-related topics in groups

- Announce programs (local TV, billboard)..
- Venue: community spaces (e.g. club for seniors)
- Programme
    o More conscious energy consumption habits.
    o Reduce use of energy and so related expenses, useful advice for saving.
    o Information on bills.
    o Precautions for avoiding situations that are a threat to life and property.

RESULTS AND LESSONS LEARNED

- Detailed and individual proposals provided to customers at consultations on energy-related topics in respect of how to reduce energy consumption and how to better adjust the use of energy to own needs.
- Topics discussed during the consultation:
    o the efficiency of the heating system.
    o the energy demand of dwelling and appliances used there.
    o regular meter reading (daily, weekly, monthly), keeping logs on reading.
    o advises for learning and practicing energy efficiency (lighting, washing, baking, cooking, cooling, heating).
    o selecting right amount to appear on the monthly partial bill, the possibility of configuring this amount in the customer service offices.

5.3 Case 3 Pole meter project[1]

A SUMMARY OF THE INITIATIVE AND SITUATION ADDRESSED

- In Hungary, many people live in extreme poverty. It is typical for these families that they take electricity without any contract or against the rules, and so they risk their lives (e.g., illegal connection to feeder-line, peremptory re-connection).
- In Hungary, E.ON, wherever necessary, uses an all-new and unique solution, i.e. metering right at the cable pole for controlling that families take electricity legally. Since this technology, on its own, is insufficient for solving the core problem, we need to act for the community's long-term development.

ACTORS/STAKEHOLDERS INVOLVED

- Although we have made substantial investments, the technology solutions alone would not have been sufficient. Therefore, we needed the Hungarian Charity Service of the Order of Malta (Magyar Máltai Szeretszolgálat) and the municipality as partners who helped us change the attitude of the customers.

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[1] Video on the pole meter project with English subtitles: https://youtu.be/fvj7AUBCXrk

Proposed solutions

Pole meter project

- Cooperation: Hungarian Charity Service of the Order of Málta, Municipality and E.ON
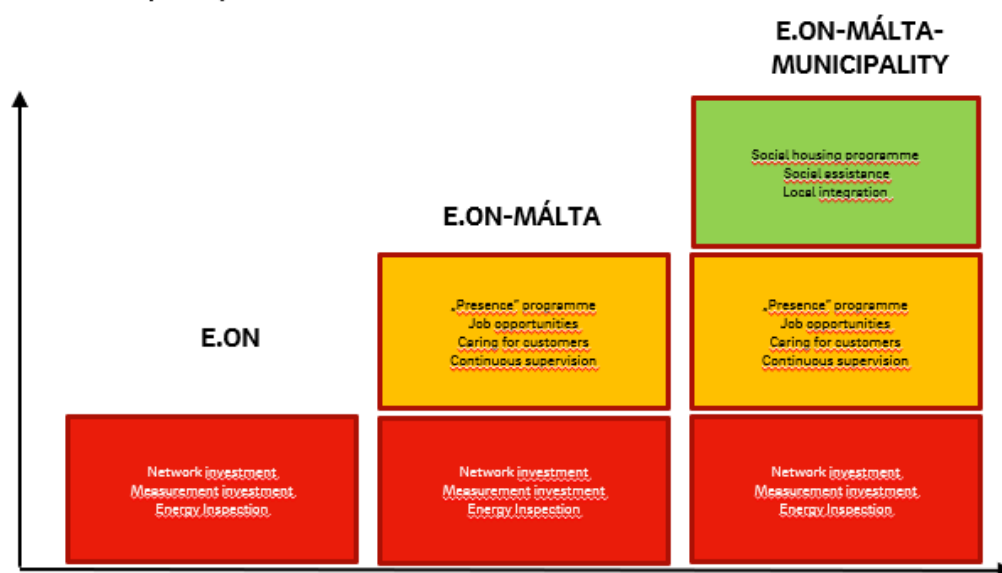

Figure 3 Overview of the roles of E.ON and MALTAI in the pole meter project

ACTIONS TAKEN SO FAR

- Increase level of network protection.
    - Raised poles, insulated cables.
    - Metering at poles (customers on regular scheme, customers on pre-paid scheme).
- Customer relations.
    - Provide points of payment.
    - 'Presence' Programme.
    - Energy advisory.

RESULTS AND LESSONS LEARNED

- No more taking energy by risking human lives.
- Seamless customer relations between users and E.ON.
- No more debts accumulated by families since the service is now used via pre-paid meters. outstanding debts can be reduced.

NoI REMARKS ON THE SCALABILITY AND REPLICABILITY OF THE ELEMENTS OF THE INITIATIVE

- Due to the high investment, operation and maintenance costs, the programme is, under consideration of the financial return, proposed to be implemented in certain districts / settlements only.

- Besides the technology, active cooperation with the Hungarian Charity Service of the Order of Malta and the municipality is inevitable.

5.4 Case 4 New connections in Nyírpilis[2]

A SUMMARY OF THE INITIATIVE AND SITUATION ADDRESSED

In 2019 Nyírpilis was among the first 30 settlements which were involved in the 'Felzárkózó települések' ("*Catching-Up Settlements*") program. On almost every property power supply used to be available but has been ceased due to a number of reasons. 90 percent of the families is indebted to utility companies, to the electricity service provider in particular.

In the first year, one of the most important elements of "Catching-Up Settlements" program was when 10 families in Nyírpilis were connected to the power network to draw power legally.

ACTORS/STAKEHOLDERS INVOLVED

In the background of these data mentioned above, a multifaceted problem requires a complex treatment. 'Felzárkózó települések', Hotel-S/ and Step-IN programs can effectively cooperate to solve this problem.

OBJECTIVES

In Nyírpilis, about half of the population would need support for legal power consumption therefore, criteria had to be laid down for selecting those families which would be involved in the first round to be helped in connecting to the grid. In addition to the size of the family and the number of minors, the financial position and indebtedness of the family as well as ownership and technical conditions of the property were crucial criteria.

INNOVATIVE ELEMENTS

Energy savings tips were given to the families involved in new connections. These advices were mostly simple tips that did not require contribution and could be realized only by paying attention. Even when preparing connections, we drew their attention to electrical devices' consumption and the operation of prepayment meters. We initiated to keep energy logs, but they had to learn this process. They also have to learn controlling of their consumption, i.e. reading kWh from the meter or the coupon verifying replenishment, which helps families become conscious consumers and raise the amount for replenishment.

ACTIONS TAKEN SO FAR

The new connections were performed for families with a pregnant family member and infants, kindergarteners, or primary school pupils. In their case legal consumption is an important tool not for convenience and entertainment purposes but for appropriate development and staying in the family. These families live in poverty month after month therefore they cannot pay the costs of new connections, in this case amounting to HUF 100,000, in one lump sum, and with this in mind this sum war advanced in the program, and they had to repay it in instalments.

RESULTS AND LESSONS LEARNED

Connection to the grid was supported in case of properties where stability or irreparable technical problems had not come to light, because with the connections we wanted to prevent dangers involved

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[2] An article on the initiative can be found at https://maltai.hu/cikk/hir/3476

in illegal consumption, i.e. accident hazards and life-threatening situations, as well as penalties and fines and to achieve long-term sustainable improvement of the quality of life.

Development of awareness and financial management was facilitated by the fact that supported connections were performed by installing prepayment meters whose application helps avoid arrears arising from non-payment of invoices or final bills and for their replenishment households to submit an application to the municipality for housing allowance.

NoI REMARKS ON THE SCALABILITY AND REPLICABILITY OF THE ELEMENTS OF THE INITIATIVE

Almost every family living in such minimum income situation which requires considerable time to work out a repayment scheme that will not threaten their livelihood.

5.5 Case 5 Socially sensitive power plant project[3]

A SUMMARY OF THE INITIATIVE AND SITUATION ADDRESSED

The Hungarian Charity Service of the Order of Malta and E.ON Hungária have implemented a support program that is unparalleled in Hungary, in one of the most problematic villages involved in the program for catching-up settlements. From the electricity generated by a solar farm in Tiszabő whose establishment was supported by the government, they will provide home heating assistance to families in need.

ACTORS/STAKEHOLDERS INVOLVED

Cooperation between E.ON and the Hungarian Charity Service of the Order of Malta goes back decades. The program implemented in Tiszabő is the third major common program after the Towering Inferno in Veszprém and the Lime Quarter in Tatabánya. In this program E.ON provides electricity knowledge, professional commitment and social sensitivity. At the same time, the contribution of the Hungarian Charity Service of the Order of Malta includes local knowledge, local presence and accurate knowledge of the social situation to a solution that points the way to the future, improving quality of life through a healthy and sustainable environment and a better and Tatabanya more comfortable future.

OBJECTIVES

The purpose of the model program is to ensure at least one clean, technically safe room heated in an environmentally friendly manner for every family where a child below the age of 3 years is brought up. To this end, E-ON has connected homes of many families to the grid through a ground cable. Within the houses, the company has established safe connections and installed prepayment meters.

INNOVATIVE ELEMENTS

The first facility of the model program was built in an area of 0.674 ha, consists of 1 158 polycrystalline solar panels and generates approx. 400 MWh of electricity a year. E.ON buys the electricity generated by the solar power plant at market price from the Hungarian Charity Service of the Order of Malta then the total income will be used to provide home heating assistance to families in need and involved in the program in the form of monthly amounts replenished to prepayment meters.

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[3] Further information available at https://www.szocialisnaperomu.hu/

The Ministry for Innovation and Technology has embraced the model program's idea since the support model based on green power generation can be one of the interconnections of communal and social power supplies.

ACTIONS TAKEN SO FAR

The Hungarian Charity Service of the Order of Malta has set the objectives. It plans to supply power generated by power panels to local villagers by paying attention to the power supply's security. On the other hand, E.ON proposed establishing a ground-mounted solar farm instead of installing solar panels on roofs and establishing such grid connection points that provide maximum security and effective protection against electric shock to people, young ones, and families. By paying particular attention to children, E.ON has contributed to the program's success by installing prepayment meters in a way that facilitates optimal use of supports, pointing toward responsible energy management.

RESULTS AND LESSONS LEARNED

As a result of the project, life-threatening illegal consumptions have ceased in Tiszabő and a secure power supply is available to all families.

NoI REMARKS ON THE SCALABILITY AND REPLICABILITY OF THE ELEMENTS OF THE INITIATIVE

The project is successful because the cooperating partners, E.ON Hungária and the Hungarian Charity Service of the Order of Malta, have achieved the declared objective, but mostly because since the beginning of November 2020 they can ensure, in a clean, smart and affordable manner, one warm and smoke-free room to 60 families where the children can learn and can be together with their parents in the winter.