



EnergyMeasures

Tailored measures supporting energy vulnerable households

D5.1

Synthesis of the project's energy poverty actions in participating countries (BE, BG, IE, NL, MK, PL, UK)



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Table of contents

1	Introduction	9
1.1	Organisation of the report	9
1.2	Connections to other EnergyMeasures activities and tasks	9
2	Methodology	10
2.1	Background	10
3	National household energy engagement programmes	14
3.1	Evaluation of the programme in Belgium	14
3.1.1	Introduction	14
3.1.2	Behaviour change measures	14
3.1.3	Other considerations	15
3.1.4	Several such steps have been taken on a multi-level governance basis:	15
3.1.5	Conclusions & takeaways from Belgian activities	16
3.2	Evaluation of the programme in Bulgaria	17
3.2.1	Introduction	17
3.2.2	Behaviour change measures	17
3.2.3	Other observations	18
3.2.4	Conclusions & takeaways from Bulgarian activities	19
3.3	Evaluation of the programme in Ireland	20
3.3.1	Introduction	20
3.3.2	Behaviour change measures	21
3.3.3	Other observations	22
3.3.4	Conclusions & takeaways from Irish activities	23
3.4	Evaluation of the programme in the Netherlands	24
3.4.1	Introduction	24
3.4.2	Behaviour change measures	25
3.4.3	Other observations	25
3.4.4	Conclusions & takeaways from the Dutch activities	26
3.5	Evaluation of the programme in North Macedonia	27
3.5.1	Introduction	27
3.5.2	Behaviour change measures	27
3.5.3	Other considerations	27
3.5.4	Conclusions & takeaways from North Macedonian activities	28
3.6	Evaluation of the programme in Poland	28
3.6.1	Introduction	28
3.6.2	Behaviour change measures	29
3.6.3	Other considerations	30
3.6.4	Conclusions & takeaways from Polish activities	30
3.7	Evaluation of the programme in UK (Scotland)	31

3.7.1	Introduction	31
3.7.2	Behaviour change measures	32
3.7.3	Other considerations	33
3.7.4	Conclusions & takeaways from Scottish activities	33
4	Discussion of findings	34
4.1	Comparative discussion on the effectiveness of engagement programmes	34
4.2	Suggestions for policy improvement.....	35
4.3	Potential for replicability of methods & measures	36
4.4	Concluding remarks	37
5	Bibliography	38
	Appendix 1:	39

About EnergyMeasures

EnergyMeasures is working to address energy poverty in seven European countries, namely: Belgium, Bulgaria, Ireland, Netherlands, North Macedonia, Poland, and the United Kingdom. The project comprises two complementary and synergistic strands of work.

The first strand involves working with energy poor households to improve their energy efficiency through a combination of low-cost measures, and changes in energy-related behaviours and practices. Recruited householders will be provided with low-cost energy measures and empowered to change their energy-related behaviours and practices through an approach that takes account of existing housing conditions and is reflective of their lived experience.

The second strand comprises working with municipalities, energy authorities, housing associations and other relevant actors to assess how current multi-level institutional contexts affect efforts to alleviate energy vulnerability in the participating countries. This knowledge will be used to develop and support the implementation of policy and practice measures which will address structural issues that combine to trap households in energy poverty.

Through this work the project contributes to reducing participants' vulnerability to energy poverty, while at the same time cutting household energy consumption and associated GHG emissions.

For more information see <http://www.EnergyMeasures.eu>

Description of the deliverable and its purpose

The report serves a crucial purpose in providing a comprehensive understanding of the household energy engagement programs implemented with energy poor households across seven diverse countries. Through a comparative analysis and synthesis of outcomes from local actions, the report delves into the intricate dynamics shaped by socio-political contexts, socio-demographic profiles, and cultural specificities in each locale. The emphasis on cross-border socio-demographic groups, including lower-income occupants of multi-family buildings, enriches the depth of insights. Drawing on data regarding energy usage and behaviour change, the report evaluates the effectiveness of the methods employed in promoting behavioural shifts and extracts valuable lessons for further development. By identifying critical aspects, challenges, and successes, the report lays the groundwork the next stages of the EnergyMeasures activities, where recommendations for supporting the replication of best practices will be formulated. In essence, this report not only consolidates the accomplishments and learnings from the implemented programs but also serves as a guiding document for future endeavours in addressing energy poverty through targeted engagement strategies.

Glossary

DoA	Description of Action
EU	European Union
EP	Energy Poverty
EPOV	EU Energy Poverty Observatory
RES	Renewable Energy Sources
NECP	National Energy and Climate Plan
NGO	Non-Governmental Organisation
RES	Regional Energy Strategies (Netherlands)
WP	Work Package

1 Introduction

1.1 Organisation of the report

The current document attempts at evaluating the effectiveness of the methods in promoting behaviour change in the seven project locales, distilling the most significant lessons to be learnt from the implementation of the activities carried out up to November 2023.

It consists of 4 sections, starting off with an introduction, followed by the description of the methodology used and the rationale for the approach taken, followed by a brief note on the comparative approach with regards the specific demographic and cultural peculiarities in each focal country. Section 3 provides an evaluation of each of the national implementation programmes. Lastly, in section 4, a discussion of the key findings provides the main challenges and success factors for the success of the carried-out engagement actions in the countries, which are analysed and synthesised towards the development of recommendations to support the replication of the best practices, which will lay the foundation for T5.2.

1.2 Connections to other EnergyMeasures activities and tasks

The report presents the findings from across the entire project – moving from the theoretical and sociological comparative research on energy poverty in the respective countries to the lived experience of implementing behaviour change activities – within the framework of the political, cultural, and socio-demographic realities in each country. The analysis covers the various dimensions of the work across the different work packages, considering the “how” – integrating behaviour change into energy poor household engagement (T1.2)¹, tracking the actual energy-related changes (T4.1, T4.3²), and the “what” – the provision of different measures and practices (T2.2³ and T2.3⁴). Lastly, the development of different structural initiatives and policy initiatives (T3.1⁵, T3.2⁶) is taken into account for the elaboration of the final recommendations.

Importantly, the Covid-19 pandemic delays in the household recruitment resulted in their commencement in January 2022 in most countries. As the initial report on energy consumption in the households (D4.1) revealed, there are country-specific approaches to data collection and analysis applied, and by April 2022 the work towards establishing a baseline was described and the mechanism for obtaining the historical data explained. The existing summaries and lessons learnt in the process have been taken into consideration for

¹ D1.2 - Guidelines for integrating behaviour change approaches while engaging energy poor.

<https://doi.org/10.5281/zenodo.6941341>

² D4.3 - Initial report on behaviour change initiatives amongst energy poor households.

<https://doi.org/10.5281/zenodo.10371558>

³ D2.2 - Report on identification and recruitment of energy poor households.

<https://doi.org/10.5281/zenodo.10370935>

⁴ D2.3 - Periodic update #1 on engagement of energy poor for behaviour change.

<https://doi.org/10.5281/zenodo.10371327>

⁵ D3.1 - Report on emerging innovative governance and business instruments.

<https://doi.org/10.5281/zenodo.10371060>

⁶ D3.2 - Energy poverty policy agenda and recommendations.

<https://doi.org/10.5281/zenodo.10371380>

the current report. However, given the ongoing process data analysis for the households, the critical assessment of energy consumption has not been a subject of the current report. This will be presented in D4.2 'Report on energy consumption in participating energy poor households, updated', which is due in February 2024.

2 Methodology

2.1 Background

This report aims to develop insights, recommendations, and conclusions from the household energy engagement programmes with energy poor households conducted in the EnergyMeasures countries - Belgium, Bulgaria, Ireland, the Netherlands, North Macedonia, Poland, and UK (Scotland) which will feed into potential replication of the actions. The analysis considers the socio-political context, socio-demographic profiles, and cultural specificities associated with the participating stakeholders' communities in each locale, assessed by the respective country leader – *i.e.*, a designated partner in the EnergyMeasures project (see information regarding the EnergyMeasures consortium above). It is also based on review of existing publications and analyses, surveys with final beneficiaries of project's services, direct observations during the pilot action, and expert discussions. It will be further enriched by the information regarding the impact quantification of the pilot actions, which is expected further on in the project and will be included in the final version of the report.

The synthesis of the results from the implemented action is performed on the basis of a thorough review of the relevant reports produced by the project, starting from the background papers "Review of methods of identifying energy poor households"⁷, "Guidelines for integrating behaviour change approaches while engaging energy poor"⁸, "Summary of citizen perspectives from the participating countries on policy needs and institutional support to reduce energy vulnerability"⁹, and "Review of EU and national policies affecting energy vulnerabilities in the participating countries"¹⁰. The findings and recommendations were applied in the design of the first participative workshop, conducted in Krakow, Poland, in February 2023. It included a survey identifying the biggest barriers, success factors and the hardest to reach target groups in the countries, with results convincingly identifying major action areas to be pursued in further replication activities and guiding the enhancement of communication and engagement strategies focused on the most appropriate argumentation.

⁷ D1.1 - Review of methods of identifying energy poor households.

<https://doi.org/10.5281/zenodo.6867434>

⁸ D1.2 - Guidelines for integrating behaviour change approaches while engaging energy poor.

<https://doi.org/10.5281/zenodo.6941341>

⁹ D1.3 - Citizen views on policy needs for energy poverty alleviation.

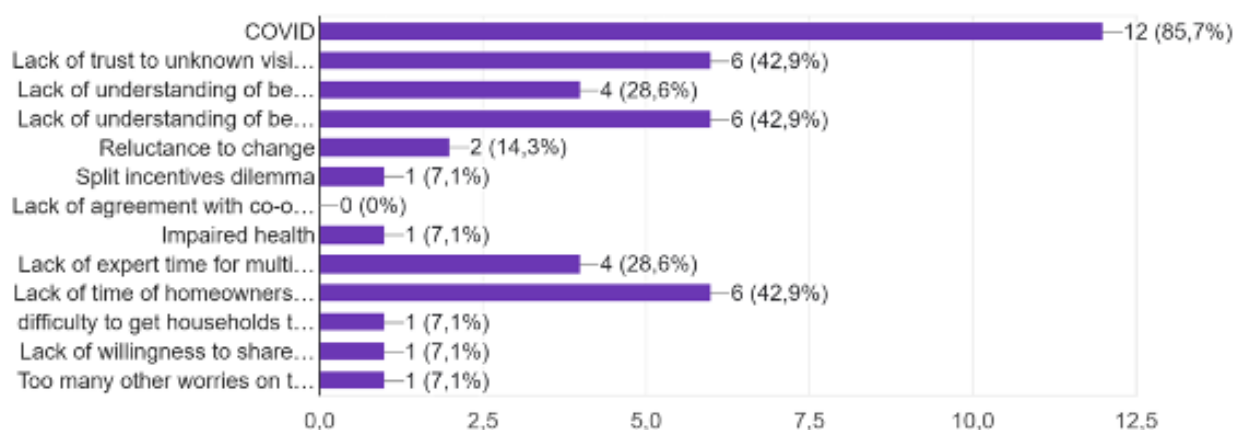
<https://doi.org/10.5281/zenodo.6869444>

¹⁰ D1.4 - Review of EU and national policy affecting energy vulnerabilities in the participating countries.

<https://doi.org/10.5281/zenodo.6869333>

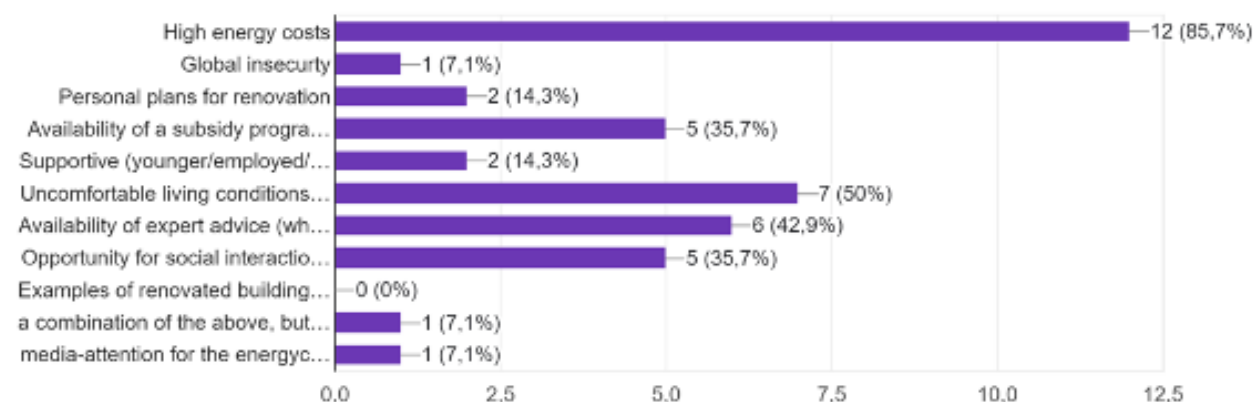
What were the biggest barriers to the engagement process?

14 отговора



What were the strongest factors for successful engagement?

14 отговора



What were the social groups that were hardest to engage?

14 отговора

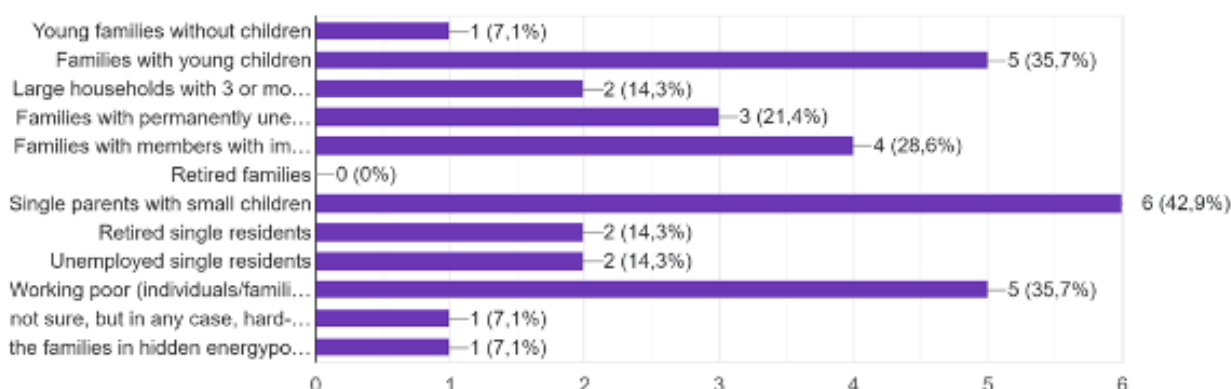


Figure 1: Survey among project partners on the biggest barriers, success factors and target group assessment resulting from the actual engagement process.

The workshop continued with work in small groups, focusing on the structural measures for building successful strategies by identifying and commenting on the individual success stories in each of the countries and the policy, financial and communication factors that contributed to the success. The workshop was finalised with an interactive exercise situating the findings in entirely practical contexts by identifying the right communication arguments for various “personas” with individual profiles and hints for their behavioural patterns. This “gaming” experience outlined the cultural differences between the partner countries, as different approaches and argumentation were suggested in the interactive process.

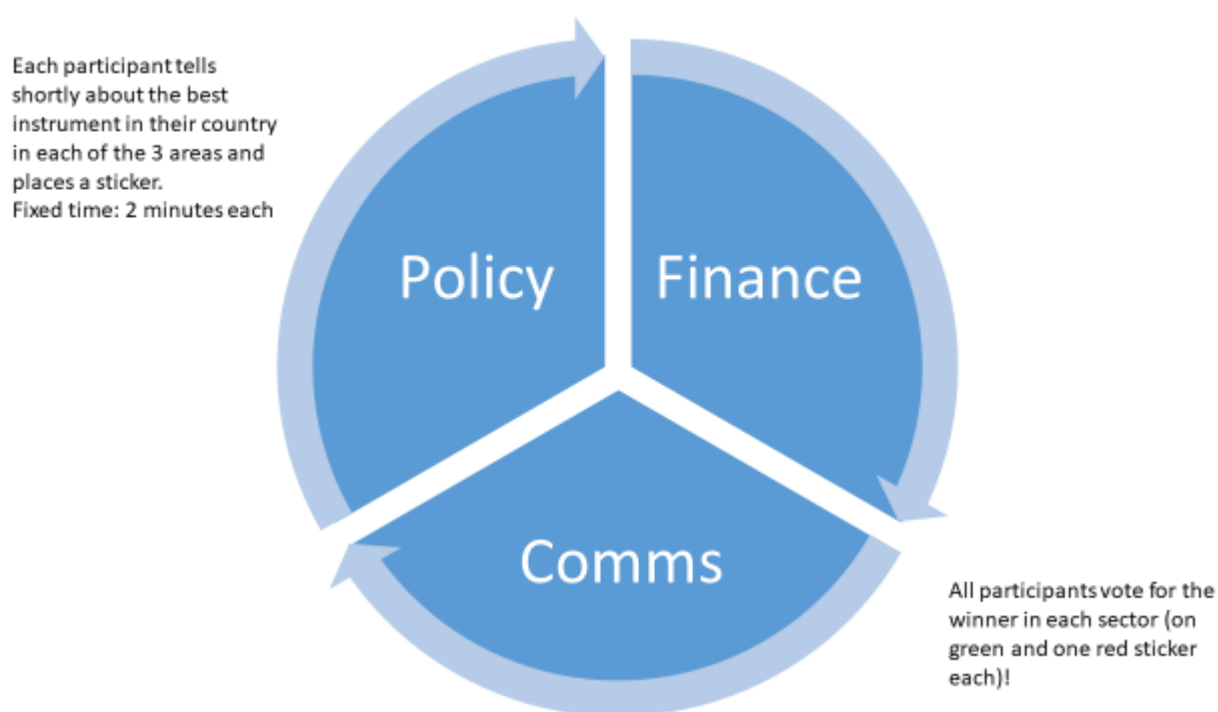


Figure 2: Identification of key factors for successful energy poverty mitigation action

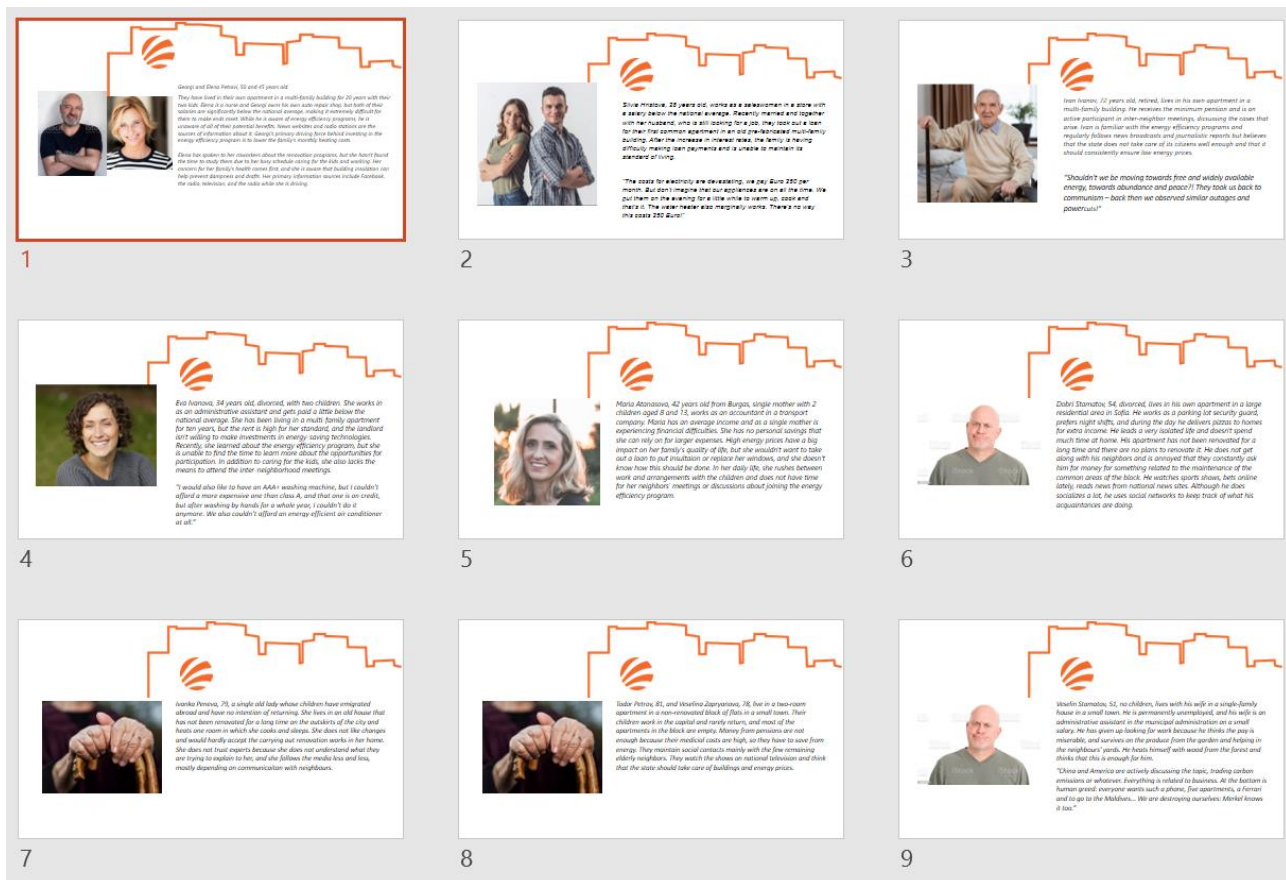


Figure 3: Imaginary “persons” with distinct individual profiles used for identification of cultural and social differences in the selection of appropriate communication arguments.

In the next phase, the results of the workshops were analysed together with the outcomes of the project’s activities published under “Report on identification and recruitment of target energy poor households to participation in EnergyMeasures”¹¹ and “Periodic update #1 on engagement of energy poor for behaviour change”¹², as well as the draft “Energy poverty policy agenda”¹³. The resulting conclusions were used to design the second participative workshop, conducted in October 2023 in North Macedonia. Building on the already collected and processed information, it was based on an in-depth analytical approach for each of the main project areas of activities and for each of the countries, providing opportunities for synthesising the outcomes of work in a questionnaire prepared in advance. This led to preparation of a dedicated template for individual National Synthesis Reports (included in this document as Appendix I), providing the basis of a **comparative analysis and a synthesis of the outcomes of the seven local actions**, as presented in the following chapters.

¹¹ See D2.2 Report on identification and recruitment of energy poor households.

<https://doi.org/10.5281/zenodo.10370935>

¹² See D4.3 Report on success of behaviour change initiatives amongst energy poor households.

<https://doi.org/10.5281/zenodo.10371558>

¹³ See D3.2 Energy poverty policy agenda and recommendations.

<https://doi.org/10.5281/zenodo.10371380>

3 National household energy engagement programmes

3.1 Evaluation of the programme in Belgium

3.1.1 Introduction

Belgium's high cost of living, including rising energy prices and housing expenses, coupled with relatively low incomes for certain demographics, exacerbates the challenge of meeting energy needs. Most energy-poor households are single people or single-parent families (almost 70%). Single elderly women (+65) and single-parent families headed by a woman are identified as particularly vulnerable. There are also twice as many renters as owners who are affected by energy poverty. Although households with no income from employment are more at risk of energy poverty (36% of households with no income from employment experience energy poverty), almost 15% of households with one income from employment fall within the category of energy poor. Inefficient and poorly insulated housing further contributes to the problem, as residents face increased energy consumption and costs – 1 in 3 people in poverty also live in non-insulated houses, suffer from mould, and damp or have inadequate sanitary facilities, with a third of families in poverty using energy-guzzling appliances.

3.1.2 Behaviour change measures

The initial plan for the Belgian action cluster, composed by SAAMO and Kamp C, was to engage 500 households. By the end of April 2022, only 35 households were reached in the city region of Turnhout – a small town with a surprisingly high percentage of poverty in comparison to others. The households engaged have been very diverse: single parents, old people, singles, immigrants with smaller or larger families. On the building level, most visited locations have been terraced brick apartments in poor condition, with old windows and doors, bad insulation, old boilers, and other structural problems.

To convince more people to participate in the project and allow an energy scan, measures such as fleece blankets, draft dogs, warm house socks were distributed, and, although of little or no energy-saving effect, this approach was confirmed by households to increase the level of comfort, and were a starting step towards discussions about potential low-budget energy efficient interventions.

Towards the end of 2022, SAAMO and KAMP C started a collaboration with the Energiesnoeiers¹⁴ in areas of the province of Antwerp, which led to an expansion of the region to recruit households, and by the end of October 2023, 614 households were contacted. Energiesnoeiers (directly translates to energy savers) are commissioned by the grid operator and have had structural support offered for years. They were tasked with making home visits to vulnerable households, providing energy-saving tips and measures, and together with the Belgium EnergyMeasures partners, they participated in the evaluation of the provided supporting materials during the "Dag van de energiesnoeiers" in October 2023.

¹⁴ <https://herwin.be/businessmodel/energiesnoeiers/>

In addition to the cooperation with the Energiesnoeiers, SAAMO organised neighbourhood activities, using cargo-bike tours to spread leaflets, energy break-in visits (helping people with their energy bill) and awareness raising presentations at poverty organisations and popular spaces for community gatherings.

3.1.3 *Other considerations*

Partly due to increased bureaucracy and a backlog of problems related to the Covid-19 crisis, mainly due to GDPR regulations, SAAMO and Kamp C were faced with challenges at the onset of the recruitment campaign. On the one hand, there was the delay of the conformity attest obligation for private landlords, on the other, having signed contracts with the city of Turnhout and the OCMW (the public centre for social welfare in Turnhout) in 2021, very few referrals were available for households. Thus, the Belgian team decided to revise the primary sources of referrals (less dependence on organisations, more efforts on the ground) and recruiting strategy (collective engagement), adjusting the data collection process accordingly. The start of the war in Ukraine and the surge in energy prices added an extra layer of uncertainty and mistrust to all citizens, however, the complex situation did indeed contribute to raising awareness for the need for structural measures to make homes more energy efficient.

3.1.4 *Several such steps have been taken on a multi-level governance basis:*

The Federal government

- VAT reduction from 21% to 6% on natural gas and electricity permanently. (1st of April 2023) It was inserted as a temporary measure during the energy-crisis (before it was 21%).
- Extension of the social tariff during the energy crisis but abolished the measure from July 1, 2023. 500.000 families are affected. The measure is being currently revised. SAAMO is involved as a stakeholder.
- Discharge of the costs for reminder letters (consumer protection)

Steps taken by the Flemish government

- Introduction of a Capacity tariff (a part of the grid tariff is calculated differently to stimulate consumers to diversify their energy consumption) (January 2023).
- Prepaid metering (and payment of debts) is installed immediately for electricity.
- Reformed interest-free loan for renovation to 'Mijn Verbouwlening' (up to €60.000, 2,25% interest) with focus on housing quality and energy saving measures.
- Facilitation of 'Mijn Verbouwbegeleiding', which is technical support during home renovation. (From 2024)
- After buying a house with low energy efficiency (EPC label E or F), homeowners are obligated to renovate within 5 years to a minimum energy efficiency level (EPC label D). Fines from €500 to €200 000 can be a consequence if not performed. (enforcement of minimal energy performance standards is planned)
- Revision of the Emergency Purchase Fund: a higher loan, and an increase of the amount for social guidance during renovation processes.
- Expansion of the functioning of energy houses – expanding services, also focused on vulnerable groups in society.

Local authorities

- In the Local Climate Plan (LEKP) 2.1, local governments commit to operationalize access to Energy Community activities for 1 per 500 residents by the end of 2025. First focus is energy poverty.
- The LEKP is for two years, and funding is conditional. The activities included in the plan are structural (collective renovation, neighbourhood improvement contract, energy community, etc.)

3.1.5 Conclusions & takeaways from Belgian activities

SAAMO and Kamp C have managed to overcome the initial challenges (increased bureaucracy, GDPR issues, Covid-19 complications, and gridlocks) related to the recruitment and engagement of households looking for solutions outside of the box. Thanks to the improved cooperation and networking between Energiesnoeiers, the grid operator and the Flemish government, both organisations have managed to build a solid foundation for future endeavours.

Several new tools have been tested, such as "Woonmeter," a simple thermo- and hydrometer with tips for heating and ventilation. This useful tool was designed by SAAMO and proved to be invaluable, as it's still being deployed in all other energy-related initiatives. Another innovative practice was the use of so-called radiator fans (dispersing heat in a room that is emitted by a radiator). However, a drawback in the case is the high price of this tool, making it infeasible for vulnerable households and too expensive for the Energiesnoeiers' savings package.

A measure that received positive feedback, without surprise, was giving out free gifts to people. Cosy fleece blankets and warm house socks were just small gestures to open the conversation about all possible means for improving the living environments in the households. Following the great example from the project partners from the Netherlands, giving people energy boxes has been stimulating for their engagement. To obtain second meter readings from participating households, a contest was organised where people could win air fryers – another idea that has risen within the project, pioneered by the Scottish colleagues. To sum up, the most valuable lessons that keep giving:

1. Be flexible and make a timely risk-assessment about commitments of key cooperation partners – alternatives need to be sought quickly enough if the proposed cooperation does not seem to be working.
2. Ensure collaboration with key actors on the ground – working with Energiesnoeiers as partners has extended the field of influence and recruitment wider than just the Turnhout region.
3. Plan ample time and resources to reach the target groups – working with experienced energy advisors on the ground can be of great benefit.

3.2 Evaluation of the programme in Bulgaria

3.2.1 Introduction

Renovation of multifamily residential buildings in Bulgaria is extremely problematic due to the distributed ownership of the individual Flats and the low investment capacity of the homeowners. Additionally, in the vast majority of the buildings, there are multiple unoccupied flats, with hardships to reach the individual owners, which are usually outside the country. This is in no less extent attributed to insufficiency of the Bulgarian condominium law, which – while presenting acceptable organisational procedures – does not have the mechanisms for control and sanctions of homeowners who do not abide by the decisions of the homeowner associations.

On the other hand, the fragmentation of the investments process is another barrier, which is typically outside the grasp of the homeowners' associations, which do not have either the technical or the administrative capacity to lead and appropriately manage a building renovation process. According to Bulgarian legislation, the investment process for building renovations starts with a technical assessment of the status of the building (a technical passport, including energy efficiency audit). This service is not widely established on the market and considering the comparatively high cost, it is not accepted with trust by the homeowner associations.

In this context, the EnergyMeasures project provides the necessary foundations for homeowner associations to overcome these initial barriers and start the renovation process by participating in the national program for energy efficiency of the multifamily renovation buildings, thus significantly alleviating the situation of energy poverty in which the majority of the Bulgarian household appear to be.

3.2.2 Behaviour change measures

The engagement process of the EnergyMeasures project started with several visits in the target municipalities of Burgas and Gabrovo, aimed to discuss with the local policy makers and responsible officials the scope of the action and the potential benefits for the residents. The next step was the establishment of an open procedure for attracting the interest of homeowner associations which, even if not knowing if there would be a support program, were to be convinced that in the future such a programme would exist and as a result the activities promoted by Energy Measures would not be futile. After doing this the selected homeowners associations were provided with questionnaires with the purpose to identify and measure the different parameters of energy poverty which could be alleviated through the proposed action. These questionnaires were duly completed by the majority of the individual homeowners, demonstrating a picture of low to medium incomes and expenses for energy typically exceeding 10% of the disposable income of the households. In addition, it was evidenced that a significant number of the residents are suffering diseases typically associated with energy poverty and compromised housing conditions.

Although the activities were hampered by the spread of the Covid pandemic the action was successfully completed. The technical information was collected from the individual homeowners with the support of the

local authorities, and energy audits were performed in-house. After that the results of the energy audits were communicated to the homeowner associations in person. Individual advice was presented to each household which demonstrated interest in further understanding the suggested measures and wanted particular advice on their own management and use of energy resources. These visits were organised at regular intervals and combined with regular workshops providing additional information on both the administrative requirements of the newly starting energy efficiency program, and the technical details which have to be considered in the execution of the multiple stages of the investment process.

At the end of the project additional services were performed to sound out the satisfaction and increased understanding of the homeowners' associations regarding the renovation process. Unfortunately, due to delays in the implementation of the national program, the construction measures have not been completed at the time of writing this report, but they are planned for the summer of 2024. It is also expected that immediately after that, the first results would be measured and communicated with the local professional and policy stakeholders.

3.2.3 Other observations

The impact of the proposed action was to a certain extent influenced by the spread of the Covid pandemic and the Russian war in Ukraine resulting in significant increase of the energy carriers in the autumn of 2022. At first place, the Covid pandemic hampered direct engagement actions, so that the limited opportunities for face-to-face communication had to be wisely utilised. On the other hand, the energy and economic crisis after Russia's invasion in Ukraine resulted in increased interest in energy efficiency measures and many of the homeowners' associations in the partner cities were additionally prompted to participate actively in the renovation program. Unfortunately, this situation was not used appropriately by the national authorities which tried to mitigate the impact of the crisis with social actions and direct financial assistance to certain kinds of natural and business entities, while no proper attention was given to the role of energy efficiency measures as direct insurance against further crises.

From a cultural perspective, the renovation of the multifamily buildings in Bulgaria is typically hampered by the cultural and social heritage of the Soviet era, in which the blocks of flats were built by the state and apartments were distributed to households without the right to select in size, type of building or location. After the changes of 1989, the rules for maintenance of the common parts were abandoned, as the state and the local authorities did not pay any attention to the condition of the building stock for decades. This resulted in a "my home is my fortress" attitude, as nothing outside the four walls of the flat is of any concern for the individual homeowner. Thus, even if the regulations theoretically forbid any action without the consent of the homeowners' association, individual owners undertake renovation measures without any plan or coordination, and then become uninterested in any common action (even if it is for free, as it would disturb their comfort). This attitude, together with the lack of a functional mechanism to impose the decisions of the majority in the homeowners' association, is one of the biggest challenges in front of renovation action.

Due to the specific design of the Bulgarian engagement action, it was difficult to differentiate between specific types of households regarding the demographic parameters. However, it has to be noted that the situation that was experienced in the project resembles to a significant extent the results from other similar surveys showing that specific profiles are demonstrating varying attitudes toward renovation programs. While certainly elderly households and individual residents are more difficult to persuade that certain action has to be taken which requires an extraordinary level of effort and a certain investment, there are other types of households that are actually presenting a bigger barrier towards the common action. These are in general either people that have issues with the professional or social realisation or, on another account, households which have already renovated their individual apartments.

In all of these cases, the unlocking factor was the readily available technical expertise combined with guaranteed administrative support by the municipality, largely facilitating the decision-making process. Without these factors acting in parallel with the national financial support programme, the implementation of the renovation action at scale would hardly be possible.

3.2.4 Conclusions & takeaways from Bulgarian activities

The project has designed a process of stakeholder communication which engages multiple actors, among which the most stable connection is between the local public official and the technical expert performing the energy audits. This has been proven as a decisive factor for guiding the Investment behaviour of the homeowners' associations and can be applied as a future service, for example for One Stop Shops for building renovation.

The feedback received can be distinguished at media, political/institutional and end-user level. The Energy Measures activities gave space and food to increased coverage of the renovation topic as general (as one project cannot be subject to coverage); in this regard, the feedback is evaluated as extremely positive, as this is a crucial step to the mass uptake of the renovation programmes. At institutional level, the action was endorsed by the key actors at local level - mayors and deputy mayors of the pilot cities, as well as by representatives of relevant national authorities joining local thematic events, resulting in interviews, videos and extended coverage of the action. There are also statements and videos shot from direct beneficiaries, demonstrating their appreciation of the support given by the project's experts, voicing their problems within the overall setting of the programme, and sharing their hopes and expectations from the successful finalisation of the renovation action. In this regard, the following lessons were taken from the Bulgarian case:

1. Always look for synergies with policies and other initiatives as this multiplies the impact of the action.
2. Find, train, and engage professionals from the local authorities as they are the key to maintaining close relations with the stakeholders.
3. Do not estimate the power of communication, both as media appearances, and as local workshops where stakeholders can meet, discuss, share problems and solutions, and motivate each other.

3.3 Evaluation of the programme in Ireland

3.3.1 Introduction

There are relatively weak local government structures in Ireland and consequently, there are no regional differences in the government's response to energy poverty. However, there is a Community Welfare Service (CWS) operating under the Department of Social Protection which operates an Additional Needs Payment for those who are working and on a low income (and not already in receipt of a social welfare payment). Eligible citizens can avail of this payment to help pay for different needs, including the increased cost of heating and electricity. Additional Needs Payments are paid under the Supplementary Welfare Allowance, which is administered by the CWS.

However, these payment schemes do not result in changes to the structural capacity in the buildings the energy poor reside in. The government's grants scheme for improving the energy performance in buildings (funded through the Sustainable Energy Authority of Ireland) does not account for the lack of affordability many energy poor households experience when trying to avail of the grants. The required matching funding needed for these grants is not available to most energy poor households.

In 2016, the Government's Energy Poverty Strategy saw it change its focus somewhat and highlight the central role it was also placing on energy efficiency (DCENR, 2016). Since 2000, over 135,000 lower income households have received free energy upgrades to their homes through schemes operated by the Sustainable Energy Authority of Ireland (SEAI). Additionally, over 70,000 retrofits have been carried out in Local Authority homes. The measures provided have moved from shallower measures to deeper whole-house upgrades. In 2020, Government investments of over €100 million were allocated to these schemes. This commitment is also reflected in increased funding for schemes such as:

- Better Energy Warmer Homes Scheme – free-of-charge energy efficiency measures for households who meet certain eligibility criteria.
- Better Energy Communities Scheme – grant support for community-based energy projects, which must include energy poor households.
- Warmth and Wellbeing – pilot scheme to improve the living conditions of vulnerable people living with chronic respiratory conditions.”

As a parallel it should be mentioned that in Ireland, a recent development has been the shift by energy suppliers to move beyond just addressing the energy bills of customers and to offer programmes whereby they also offer services providing energy upgrades to the homes of energy poor customers. Upgrades can include improved attic insulation, upgrades to gas and oil-fired boilers, *etc.* However, these efforts are very much still in the trialling phase for the energy suppliers and are yet to be scaled up.

3.3.2 Behaviour change measures

For Ireland, the goal of the programme was to recruit and engage 450 households (300 – Dublin¹⁵ & 150 – Cork¹⁶). The methodology involved implementing an informed approach to recruitment and engagement with the energy vulnerable. Irish partners took the approach that householders are experts in their own lived experience of energy poverty. Therefore, they chose to apply co-creation approaches to identifying the specific needs of individual households, which factored in both the technical challenges but also the social factors that impact households, making them vulnerable to energy poverty.

The targeted beneficiaries included households comprising people from key socio-demographic cohorts based on age (*e.g.*, elderly people recruited from active retirement groups, which are present in towns and villages in the geographic areas); gender (*e.g.*, women led households recruited with help from local); income levels (most participants were in receipt of state pensions or other supports); and housing conditions (*i.e.*, most dwellings had little or no energy upgrades undertaken). There were two principal challenges in this engagement. The first reflected the problems faced by project partners in other countries, the identification and recruitment of often hard-to-reach energy vulnerable households, while the second arose from the low density and in many cases the dispersed nature of housing in Ireland. These were overcome by working with a variety of gatekeepers (*e.g.*, housing associations, active retirement groups, *etc.*) and through on-the-ground direct action. The Dublin partner has a long history working with energy vulnerable households and has built up a significant network across the charity, government, and energy sectors. The Cork partner has a record of working on the topic of energy poverty and has considerable research experience working on the wider issue of the human factor and energy.

The Irish partners leveraged networks they had built up with aligned organisations (including housing organisations, charities operating at local and national levels, municipal governments, national financial advice services, *etc.*) to identify and recruit participants who already had a history working with energy vulnerable households. In addition, they were able to build on established relationships with national energy providers to cocreate and identify synergies across the existing engagement activities. While the energy providers have access to funds and products, they have identified difficulty in reaching energy vulnerable households. In comparison, the aligned organisations have access to energy vulnerable households but struggle to finance their activities. Therefore, the Irish partners wanted to help close this gap by helping develop new partnerships between the respective organisations that capitalised on the strengths of each organisation.

Given the impact of the COVID-19 pandemic and the responses to containing it, the planned in-person engagements had to be postponed until restrictions were lifted. Consequently, the Irish partners pivoted to a hybrid approach with the initial household engagement with the householder engaging with the project

¹⁵ Originally the Dublin target was 500 households, following the liquidation of Energy Action, the Dublin partner, this was adjusted to 300 households. This was compensated by increases elsewhere in the project.

¹⁶ The Cork household engagement will likely be c. 100 households higher than originally envisaged, partially compensating for the reduction in Dublin.

through audio-visual software or via telephone whereby they would take the project partner on an interactive mapping of the issues they face in their home involving energy. On foot of this engagement, a bespoke report is generated to help the householder better understand their situation and offer solutions (both in terms of small measures we can offer them and potential changes to energy behaviours they currently engage in) that meet the specific needs of the householder. This report is then shared with them, during the follow-up in-person meeting (this usually takes place in the householder's home at an agreed date and time that best suits them). During the in-person meeting the Irish partner also shares the suite of small energy measures identified as most appropriate to the householder. The Irish partner also retrieves energy data from the householder from the household bills they are asked to provide prior to the home-visit.

In conjunction with these engagements, participants are first asked to register their interest in the project after being provided with a briefing document on what is involved in participating. They are also informed of their rights should they choose to join the project, including how their personal data is handled. If the householder agrees to join the project, they are asked to sign a consent form which details how data relating to the engagement process will be used. The householder is also informed that they can leave the project at any time, should they choose to do so. Each household has a subsequent follow-up engagement which focuses on collecting the energy data for the household for analysis to track consumption. From this effort, the Irish partners will see how consumption has reduced, increased, or indeed remained the same, over the period. From further discussions with the householder, the Irish partners are examining the reasons for these results.

Following the initial data collection and interviews, each participating household was provided with **bespoke energy advice** (along with tailored small energy measures) which matched their household's relationship with energy, and the way in which they lived their lives. Changes in energy-related behaviours are being captured through **household surveys** (coupled with follow up contact as required). While it is too early to report on these results, many participating householders have expressed being more '**empowered**' to engage with energy suppliers, to make decisions about energy and to regulate their energy consumption (this is in contrast to the malaise that many felt prior to engaging with the project). Participants expressed that they had a **positive experience** engaging with the project partners. While the small measures provided obviously did not have the significant impact deeper retrofit actions would have, participants were happy to receive the measures and advice.

3.3.3 Other observations

The key social, economic, and environmental factors that have impacted the effort of Irish partners to recruit and engage with energy poor households has been the profound effect official responses to the COVID-19 pandemic had on societies in the participating countries of the project. Partners also noticed a shift in attitudes to interacting with people by some individuals in the cohorts being engaged. Some householders expressed a reluctance to meet in person and were happier to engage with partners online. As societies opened up after the pandemic shifted to endemic status, most participants no longer held any fear for engaging in person. However, householders had to then deal with the repercussions of the Russian invasion of Ukraine and the subsequent energy crisis to occur as a result. The sharp rise in energy costs resulted in

participants refocusing their participation in the project and looking at how the project could improve their capacity to deal with the shock. However, with some adaptation by the partners in Ireland, a safe way of working was applied, starting with hybrid meetings and telephone consultations.

Irish partners observed a noticeable improvement in attitudes expressed by elderly participants in the project. After engaging with the project, participants expressed the view that they were more inclined to make a more proactive response to their predicament, whether that was to actively engage with government services or to investigate how they might make the required improvements to their homes on their own.

In addition, a noticeable observation made by the Irish partners has been how participants were inclined to respond to them during the consultations. The stigmatisation associated with being considered energy poor has resulted in some householders being more reluctant to engage about energy (or to change their energy behaviours). There is a vicious cycle whereby the householder thinks about the changes needed to be made to improve the situation in their home, they must also recognise they are in fact experiencing energy poverty. This has resulted in a certain resistance to change. When the information was presented in a positive way, where the participant's own agency was acknowledged and factored in the reports, respondents were more inclined to respond to this information more positively. There was also a certain reluctance by many householders to acknowledge that they were 'in energy poverty'. While they acknowledged that their circumstances were challenging, they were reluctant to accept that they were energy poor. When project partners described their situation using more neutral language/terminology, participants were more likely to positively engage in making changes to their individual circumstances.

Another interesting observation from Ireland relates to the government's (continued) energy-related support in response to energy crises. Households' expectations of energy support have risen and their interest in "small measures" has waned, as the focus of many has turned to deep retrofitting and other large-scale intervention. This is a common behavioural response and the only tool to overcome it is constant coordinated communication activities and field work with households.

3.3.4 Conclusions & takeaways from Irish activities

The following three key lessons can be drawn for Ireland:

1. Develop Relationships with Gatekeeper Organizations:

In many contexts, gatekeeper organisations play a crucial role in controlling access or influencing decisions within a particular sector or group. Building strong relationships with these gatekeepers can open doors to opportunities and collaborations that might otherwise be challenging to access. This lesson underscores the importance of networking, communication, and collaboration.

2. Foster Collaboration between NGOs and Energy Companies:

This lesson highlights the potential synergies between non-governmental organisations (NGOs) and energy companies, particularly in addressing issues related to energy poverty. NGOs often bring grassroots connections, and a focus on social impact, while energy companies may provide technological expertise,

resources, and infrastructure. Collaborations between these two types of organisations can result in more comprehensive and effective solutions for communities facing energy poverty challenges. Identifying and leveraging each party's strengths can lead to innovative approaches that have a positive impact on energy-poor households.

3. Prepare for Unintended Consequences of Policy Change:

This lesson underscores the need for careful consideration and analysis before implementing policy changes, especially at the local level. Policies can have unintended consequences that may negatively impact communities or unravel years of progress. Conducting thorough policy impact studies is essential to anticipate potential repercussions and ensure that changes align with the intended goals without causing harm. It emphasises the importance of a holistic understanding of the potential effects of policies on different stakeholders and the need for adaptive strategies to address any unforeseen challenges.

In summary, these lessons highlight the significance of relationship-building, collaboration, and thoughtful policy implementation in achieving positive outcomes, particularly in areas like energy poverty and community development.

3.4 Evaluation of the programme in the Netherlands

3.4.1 Introduction

In the Netherlands the project activities were implemented in the municipality of Eindhoven. The main cluster of households targeted was low-income, often single-parent households run by women and/or older people. Predominantly, they would occupy social housing, and, although housing associations are obliged to make their housing stock more sustainable, this is not happening very quickly. On average, 35% of the homes in a municipality belong to a housing association. Given the dependence of households on legislation and regulations for social benefits, the most important stakeholders that were engaged in the work were the (local) government and housing associations.

Initially, in 2020, similarly to the other implementing countries, household recruitment was delayed due to Covid-19. Energy coaches were not allowed to enter households and people themselves were not open to receiving them at home, thus, initial energy consultations had to take place online. With the start of the war in Ukraine and the rising costs of energy in the Autumn of 2022, more and more households were saving energy in one way or another, and the number of households living in energy poverty rose sharply. This influenced the implementation of several financial support measures between 2021 and 2022 by the Dutch government – an energy price cap, Temporary Energy Emergency Fund for vulnerable households, tax reduction on fuels, or subsidy schemes, such as the energy-savings mortgage loan and energy savings loans. The primary focus has been on providing financial aid and promoting renovation measures, particularly the insulation of homes with the lowest energy labels. Notably, funds were also delegated to local authorities, enabling the widespread deployment of energy coaches, offering services like energy advice and small efficiency measures to households. It is within this context that EnergyMeasures could find its place and support the efforts to engage households and contribute to the improvement of their lived situations.

3.4.2 Behaviour change measures

The engagement plan for the Netherlands envisioned the support of 400 households in the municipality of Eindhoven that had already been dealing with tackling energy poverty for over a year. Households received energy coaching (for behavioural interventions) and simple energy-saving measures. They were selected based on a low income, difficulty paying the energy bill or sometimes the intuitive judgement of the energy coaches.

Considering the social stigma, and the overall difficult situation of the energy poor households that were to be approached, in December 2021 there was an internal training of energy coaches that would provide information about the project, about behavioural change, healthy living environment, energy efficiency and similar topics. Later, in 2022, the Dutch project partners opted to team up with the food bank and other social organisations within the municipality, exploring different communication channels, advertising on local newspapers, giving out flyers in the food bank packages, attending meetings, giving presentations at places where potential households would visit.

The actual interventions with the households consisted of two parts. First, experienced energy coaches had an energy box with them for each household, containing different small and simple energy-saving measures, *e.g.*, draft excluders, power strips with a switch, shower timers, *etc.* A household would fill in a questionnaire collecting information about their energy consumption. They would then receive the energy box and energy advice with tips on how they could save more. Secondly, the energy coaches would maintain contact with the households, asking questions about energy savings, giving advice about the installation of the energy box tools, and in the case of other problems, the energy coach could serve as an intermediary with the municipality. What the project offered and what they did not yet have was an insight into energy consumption, energy-saving products, energy coaching.

3.4.3 Other observations

During the engagement activities, the Dutch national government provided different financial support measures, among which one-off subsidies for municipalities to support energy poverty alleviation. This enabled a large-scale set-up of energy coaching for all citizens in Eindhoven, including service provision to help implement small measures. There was further a collaboration in recruitment of households – whereby those households in a situation of energy poverty were referred to the specific EnergyMeasures household engagement programme and related coaches.

After the outbreak of the war in Ukraine and the worsening of the energy crisis, a steep increase in funds available for local energy poverty alleviation was visible, yet these budgets were difficult to use due to various strings attached (*e.g.*, procurement rules). However, efforts to overcome such hurdles in the end were successful as they resulted in a fruitful collaboration between the municipality and the social housing associations in Eindhoven – expanding energy coaching with additional support service at home (klusbus¹⁷ - minivans going through neighbourhoods to offer direct small measures and services).

¹⁷ <https://www.eindhovenduurzaam.nl/klusbus>

3.4.4 Conclusions & takeaways from the Dutch activities

During the project activities, the collaboration between the municipality of Eindhoven and social housing associations has been immensely strengthened. Together with DuneWorks they jointly set up the 'klusbussen', which turned out to be highly successful. Acknowledging this, the municipality and the social housing associations are now doing a set of workshops – set up by DuneWorks as part of *T3.2 Policy recommendations for tackling energy poverty* - to co-create a vision and strategy for more structural collaboration and interventions to alleviate energy poverty among social tenants in Eindhoven.

Project partners from DuneWorks have been involved in behavioural change research, and action-research on how to engage vulnerable citizens in the energy transition before and the acquired experiences have fed into the discussions with Het PON & Telos and Eindhoven Municipalities.

The visit of the energy coaches revealed that many people inhabit poor dwellings, with lots of moisture, mould, and drafts. Improving people's knowledge and understanding about different aspects of their buildings and raising their awareness about the related health problems has been a serious impact of the projects, and a motivation for them to get started (although, admittedly, the high energy prices are really a faster route to engagement). However, in many cases of visiting older people living alone, even just spending quality time talking to someone attentive, and having their worries heard would be highly appreciated.

Other out-of-the-box solutions involved raising awareness about the benefits that renewable energy generation can play in the alleviation of energy poverty. This is something still to be taken up by the municipality (e.g., investing in PV on rooftops of municipal buildings, ensuring that any revenues (financial or energy) are allocated to tackling energy poverty. The most important takeaways from the household engagement process:

1. Consider the bigger picture - people engaged in similar initiatives to EnergyMeasures need to be alert on how the energy transition is increasing social-economic inequalities and identify which institutional arrangements contribute to this and how this can be mended (can be legislation, policy, informal rules). Unless the structural institutional context changes, then interventions such as energy-coaching will be regarded as a form of tokenism/symbolic politics.
2. RES generation can be a powerful means - renewable energy generation by energy communities provides a stronger opportunity to arrive at a more transparent and affordable energy provision (in the Netherlands, Belgium, Scotland and potentially in other countries as well) – than the supply by commercial companies.
3. Look out for the most vulnerable people - there is much more poverty underground, how to reach these people remains a goal/challenge. Social poverty is also very great or even greater.
4. Work together with local authorities - having the local authorities on board is crucial, as municipalities have access to different communication channels (online and offline) and a lot of experience on how to use these channels the best way to reach the designated target audience. Furthermore, experts working in the Social Domain know the target group very well, as they have daily dealings with them on all kinds of (financial) matters.

3.5 Evaluation of the programme in North Macedonia

3.5.1 Introduction

The energy crisis was strongly felt in North Macedonia as well, and has increased the price of electricity, leading to financial issues for most of the households. In addition, the Covid-19 pandemic naturally left an imprint, forcing people to stay in their homes, increasing even more their energy bills. Unfortunately, in this context, public support has been insufficient on the local level, with only one municipality in the territory of Skopje (the municipality of Karpos) seeking to effectively improve energy efficiency through provision of incentives for the renovation of the facades of the old collective buildings, which was before EnergyMeasures started. Crucially, during the time of project implementation there were no existing support measures, both financial and non-financial, from national and local authorities.

Considering the above, the main challenge that had to be overcome during the project was the lack of trust in citizens based on controversial policies and the high level of fraud in the country. This has led to a low level of engagement of people, as they would be mistrustful even of potentially beneficial interventions and any form of 'free gifts', *e.g.*, experts' advice and energy saving toolsets.

3.5.2 Behaviour change measures

The initial plan for North Macedonia was the engagement of 600 households. By October 2022, Habidom had recruited 550, and later in March 2023, the number of households increased up to 620. Since Habidom has been in charge of managing the recruited households in the project, being a residential building management company, a detailed database was already available and the most vulnerable ones were contacted first. The focus was on women-led households inhabiting old buildings, with low incomes. Most households were single-parent families, families with disabilities, and families where only one person from the family receives a salary. Each household that met the criteria above was contacted and interviews were held in order to involve them in the project activities. In addition, the project team advised people on different topics like ways to save energy by purchasing effective devices, changing the lighting, replacing old windows and balcony doors, *etc.* The project team would then collect the electricity bills of the interested households.

During the recruitment period, Habidom experts provided energy saving and behaviour change tips, such as turning the radiator off when not in the given room, boiling only the amount of water necessary, abstaining from prewash programmes, *etc.* At the second household visits, small presents were prepared for the families (instant water heater taps and LED lights), which were installed and demonstrated. The partners from Habidom were pleased to report that following the initial advice given upon the first home visits, they observed that most of the inhabitants have put some of the small measures into practice and were glad to test their new habits around the households.

3.5.3 Other considerations

The energy crisis and the increased cost of the energy carriers can be said to have an overall positive impact on the project activities. Households being aware of this fact were additionally motivated to share information and apply the recommended improvements. Furthermore, non-energy benefits of energy efficiency were also recognised. This was the case in many of the dwellings built in the 70s and 80s without

proper insulation and centralised heating had high levels of humidity, thus moisture and mould were visible. Communicating the additional benefits, namely a healthier and improved indoor environment, was also a major factor in the active household engagement.

3.5.4 Conclusions & takeaways from North Macedonian activities

During the communication with the households, it was important to consider all internal and external factors in order to win their trust. Notably, COVID has been a common barrier shared across all countries, however, in North Macedonia there were also challenges arising from deeper social and cultural peculiarities, with the general population having lower trust in experts and a lack of understanding of the benefits of renovation. The reluctance to change, strongly experienced from the interactions with older inhabitants, as well as a lack of time for them to engage in multiple exchanges has also been something that the experts from Habidom had to battle with along the way.

Overall, the biggest lesson that has been drawn from the work on household engagements in North Macedonia has been that relating to families and discussing their issues and concerns about energy bills is the most effective way to understand, and also to support them. Paying attention to their needs and providing small presents was enough to win their trust initially and have them open to receiving further information about energy efficiency of their buildings. Knowing that this was the first project for Habidom, the team has been also very satisfied about the successful implementation of the planned activities.

3.6 Evaluation of the programme in Poland

3.6.1 Introduction

In Poland, the concept of energy poverty emerged in late 2021, initially focusing solely on income factors. However, a new Energy Law introduced in July 2023 expands the definition to encompass the level of expenses and energy efficiency considerations. Polish energy poverty policies are closely tied to initiatives aimed at improving air quality, such as the Clean Air Programme, Stop Smog Programme, local Low-Stack Emission Liquidation Programmes, and the Polish Energy Strategy until 2040. The latter seeks to reduce emissions from vulnerable households by promoting thermal retrofitting and replacing pollutant heat sources. Despite several policy support schemes, challenges remain, such as the need for comprehensive financing options for building thermal retrofitting alongside heat source replacement. The government, recognizing the issue's importance, has incorporated energy poverty mitigation measures in the National Energy and Climate Plan (NECP) for 2021-2030. This includes enhancing building energy efficiency, providing allowances to vulnerable households, and expanding district heating networks.

Poland is also aligning with EU directives, intending to present a Social Climate Plan that addresses energy and transportation poverty. The latest update to the Polish Energy Strategy until 2040 (EPOV, 2020b) in March 2022, focuses on source diversification, renewable energy development, efficiency improvement, nuclear power integration, grid expansion, and energy storage investment. The plan aims to reduce the scale of energy poverty to 6% by 2030. Additionally, a Central Records of Building Emissions tool has been introduced for data collection, and an Expert Team supports the development of solutions to reduce energy poverty under the Minister of Climate and Environment.

Recently, there have been two international initiatives providing further support: EnPover municipalities - aiming to capacitate municipal actors to fight energy poverty on their territories and equip them with a set of universal and ready-to-use tools boosting implementation of low-cost energy efficiency measures in households most prone to energy poverty. And Energy Poverty Advisory Hub (EPAH), in which PNEC is member, on tackling energy poverty, responsible among others for collecting good practices, providing capacity building activities targeting municipalities and providing them with individual consultancies.

3.6.2 Behaviour change measures

In Poland the EnergyMeasures project is implemented on the territory of Bielsko-Biała, in cooperation with city authorities. The recruited households were provided with low-cost energy measures and empowered to change their energy related behaviours and practices through an approach that takes account of existing housing conditions and is reflective of their lived experience. The target groups covered were:

- Private owners occupying single-family buildings (with the focus on the elderly and the families leaving on social benefits).
- Private owners of flats in multi-family buildings (again, with the focus on the elderly and the families leaving on social benefits).

Since there was no local data and analyses allowing for easy identification of energy poor households, the selection/recruitment of households was mostly made on the basis of: (1) income per person, (2) building technical state. Accordingly, in assessing eligibility for participation in, the following indicators was used:

1. Household income per person (households falling under income poverty).
2. Energy expenditure in excel of 10% of the income.
3. Technical state of the building (lack of insulation, old and inefficient heating source).
4. Inadequate living comfort (inability to keep home adequately warm, lit, high humidity, mould, etc.).

The aim of the work with households was to maximise the impact of the low-cost energy efficiency measures being applied and use this as an intervention point to initiate a wider discussion about how they use energy, and how this is intertwined with everyday practices, habits and expectations as well as the characteristics of technical systems within the household. Advisors (trained by the project) visited each household and assessed each house's energy use. Surveys, interviews, and focus-groups were conducted to identify the best options of saving energy for each market segment, and specific actions which each household can take to reduce their energy demand will be identified.

The implementation of the engagement process has faced some barriers. Similar to other countries, the Covid-19 pandemic made it impossible to start engagement as it was originally planned. The dissemination was rescheduled and started at the end of 2021. Further difficulties arose when the war in Ukraine began in the mid of February 2022, which led to the reduced involvement of local institutions in activities aimed at residents due to the new challenges from the influx of immigrants. The war has also contributed to a decrease in the level of trust in interviewers visiting households, hindering data collection. Due to the large number of people renting apartments, conducting surveys has been problematic. Initially, to gather energy consumption data, given that landlords, not tenants, possess this information. Additionally, many residents are uncertain about their long-term residence in the same apartment, potentially leading to discontinuation of participation even after obtaining energy consumption data from their landlord.

3.6.3 Other considerations

Both the residents of Bielsko-Biala and the whole of Silesia are strongly connected to the mining sector by virtue of its size and therefore find it difficult to move away from coal. In Poland, climate education is still not effective enough and does not reach a wide enough audience as indicated by survey results. They indicate that some behaviours are highly unpopular, those are mainly turning the heating lower when leaving the house for a few hours (going to work/school) and carefully reading energy invoices. In addition, another survey of Bielsko-Biala residents showed that knowledge of subsidy programs in the region is low. 47% of all answers about subsidies were “never heard about it” and in contrast only 6% of answers accounted for actually taking advantage of them. Notably, a common reluctance to change can be observed in general, which can be attributed to many reasons such as the aforementioned unawareness, lack of adequate promotion of subsidy programs, financial constraints, etc.

It should be also considered that the housing stock in Bielsko-Biała is characterised by unfavourable age and technological structure - buildings built until 1945 dominate, which constitute over 73% of the total number of buildings. Such a state of the resource is associated with significant renovation and modernization needs, and thus requires significant costs and financial outlays for their maintenance. Municipality manages around 1,400 buildings across the city, of which only about 6% of the buildings were built after 1970.

Lastly, the volatile economic situation in the country causes unpredictability of energy prices. First, Covid caused a greater demand for energy in households, due to remote work and stopping the economy and companies for a long period. Then, the war in Ukraine caused unpredictable jumps in energy prices, as well as it is also worth to notice that the energy is provided for a larger number of inhabitants - including immigrants. That affects consumption and prices.

3.6.4 Conclusions & takeaways from Polish activities

In summary, the lessons from Poland emphasise the significance of direct user engagement, collaborative data collection efforts with energy suppliers, and the power of comprehensive awareness campaigns involving local influencers and community engagement. These lessons underscore the importance of tailoring initiatives to the specific needs and fostering collaboration across various stakeholders for effective and sustainable outcomes.

1. The possibility of **direct contact** with users has a positive effect on the implementation of measures and their adaptation to needs.
2. The **collection of data** and observation of changes and costs of consumption would be more meaningful with the support of energy suppliers and constant regular collection of meters. It would be good to establish cooperation with cooperatives, municipal companies in the field of data collection - it is worth considering awareness building for cooperatives/communities and surveys on a wider scale in an active society in this respect.
3. A broad **public and media campaign** is going to raise awareness of the programme. The best results are achieved by involving local activists, authority figures (e.g., mayor, community employees involved in the PR projects, people supporting elderly etc.) who build trust and commitment among participants.

3.7 Evaluation of the programme in UK (Scotland)

3.7.1 Introduction

Scotland has overall targets by 2040 concerning energy poverty set by the Scottish Parliament: no more than 5% of households would be in fuel poverty, and no more than 1% of households would be in extreme fuel poverty. In Scotland there are three levels of support to energy poor people. Home Energy Scotland is the telephone energy advice service for residents. It also has a limited home visit service, which is there to consider Home Energy Scotland loans (for efficiency, renewables or EV's). Warmer Homes Scotland is the free heating and insulation service for fuel poor households. It provides limited advice and focuses on insulation and replacements for broken heating systems in fuel poor households. Home Energy Efficient Scotland: Area Based Schemes are Scottish Government funded, but delivered by local municipalities, where councils provide energy efficiency measures (insulation, heating) for local fuel poor households.

According to the results of the annual Scottish House Condition Survey surveys conducted by the Scottish Government the numbers of households in fuel (energy) poverty in the Outer Hebrides are rising each year. Latest figures available put levels in the Outer Hebrides at 40%, compared to national average of 24%. To supplement the EnergyMeasures project, in early 2023 Tighean Innse Gall sent an energy use survey to all homes in the Outer Hebrides, receiving 2,000 responses (the largest energy use survey conducted in a single local authority area in Scotland). A representative sample was taken from responses, taking into account age, health and disabilities in the home. Over 80% of the sample allocated over 10% of their adjusted income to heating costs, with approximately 50% spending over 20%. There are key groups that are affected by energy poverty in the Outer Hebrides. For example, the following groups are key cohorts amongst fuel poor:

- single pensioners (77%)
- social renters (80%)
- families with children (57%)
- disabled households (92%)
- those earning less than GBP£16,500 (97%)

The state of the buildings is a key factor for energy poverty. Local municipal taxes in the UK (Council Tax) are broken down by bands, linked to the estimated value of homes as of 1990 (retrospectively if built after then), where band A is the lowest value. Energy poverty in the Outer Hebrides is highest in Band A, at 58%. In addition, certain ages of homes play a role too, because of their energy efficiency with dwellings built before 1919 and between 1950 and 1991 at 66% fuel poor. Heating types play a role too, with purely electricity heated homes suffering higher bills, with 67% of local homes energy poor. However, a key indicator for higher levels of energy poverty can be linked to energy efficiency, with 85% of homes in the Outer Hebrides being D-F energy efficiency rated. Low incomes are as important as energy efficiency, when combined create the perfect conditions for energy poverty to thrive. 96% of private housing in the islands is in home ownership and only a modest number of homes are privately rented. Along with demographics within the islands, where depopulation has become a significant issue due to ageing population, private ownership provides the main influence on support activities for the energy poor people.

3.7.2 Behaviour change measures

The need for support by the EnergyMeasures project on the Outer Hebrides is threefold: identify, support with practical help and reduce costs for these households. The project sought to reach households in need via a 'boots on the ground' approach, involving multiple layers of community engagement, through printed media, public events, word of mouth, social media and cross referrals between agencies. Once reached, the support of EnergyMeasures is there to advise and reduce costs directly.

The focus originally was on the single pensioners, however, after Covid and the cost-of-living crisis becoming apparent, the project was opened to wider groups. Tighean Innse Gall (TIG) adopted the use of a 'smart survey', widely advertised, which captured data on energy use, income, household and house type. The survey involved 59 questions that most of the potential beneficiaries completed online. The smart survey ranged from personal details, including income, to energy expenditure on either an annual, monthly or weekly basis (depending on what information households had available or whether they used a prepayment meter) and details of house type, levels of energy efficiency and how water and their home was heated. This meant by the time the consultants could visit, they already knew significant issues and whether the person was energy poor. Due to prioritising single households, women and vulnerable people, telephone interviews were held to capture the data on some people's behalf, *i.e.* where no internet access was present. Adverts were placed in printed publications, social media, and joining online public events. As covid dwindled and controls relaxed, TIG adopted a 'get out everywhere, attend the opening of an envelope' strategy. This took considerable person-hours. Over 30 events across the island chain were conducted or supported by the project. Consultants have consistently emphasised to potential recruits that the measures are customised, providing in-person support and furnishing an energy plan for future reference. This has proved popular.

Every household recruited into the project has received advice on energy saving, referrals for other potential support and this was given via a comprehensive email, or for those households without internet access via telephone or letter. TIG has exceeded 800 households with energy advice, looking for a balance between helping energy poor households and those vulnerable to it, however resources (time principally) meant to focus on the strictest definition of energy poverty - those in energy poverty directly. For those vulnerable to energy poverty, TIG kept their details on file, and reviewed data quarterly, in line with energy price rises. This subsequently brought more households from the 'vulnerable column', into energy poor and thus eligible for measures and in person behavioural change advice. TIG then recontacted all these households for home visits to conduct advice and installation of bespoke measures for their household.

The flow of advice to households has been: 1) initial response to the smart survey, with key messages; 2) After the initial response, once covid had reduced in threat, conducting home visits, and delivering face to face behavioural change advice. 3) Post installation of measures (*e.g.*, radiator panels installed or provided an air fryer to help with costs in the kitchen and LEDs fitted to take the worry out of turning on lights through the dark winter months), a bespoke energy plan was issued to each household. The energy plan provided the mechanism for households to understand how they can meet suggested energy savings.

3.7.3 Other considerations

EnergyMeasures offers households comprehensive help, which is advice, instant energy saving through installation of energy saving measures and an energy plan that helps secure savings, both energy and financial. No other programme of support is available to residents of the Outer Hebrides. In addition to identifying small measures and behavioural change advice, further potential support came via referrals for income maximisation, larger energy efficiency measures from national energy company obligations, and ideas for decarbonisation. This meant partnering with key local and national authorities. This included energy company obligations such as Warm Home Payments and larger insulation measures, alongside other financial support such as social benefit advice to maximise income levels. Also, households in energy poverty often were found to have debt from credit cards or store cards, so the project established a referral mechanism to Western Isles Citizens Advice Service, for them to assist the household with debt advice.

The project provided referrals to all three levels of support in Scotland. However, during Covid most programmes stopped completely. Warmer Homes Scotland was subject to a contract renegotiation after this and since October 2023 has restarted. Nonetheless the project has referred over 100 households to this scheme. The Area Based Scheme for the Outer Hebrides was delivered by Tighean Innse Gall, however due to changes in national regulations for ventilation, where TIG disagreed with the implementation due to weather in the Outer Hebrides (wind and lots of it) and consequently stopped delivery in the islands.

A referral for further support has led to people being supported through national energy efficiency schemes. The number of households supported by national schemes in the islands (until the point of contract renegotiations for Warmer Homes Scotland is the highest numbers per capita in Scotland. This was proven in a presentation given by the CEO of Warmer Homes Scotland, which showed the number of households sent on from the Home Energy Scotland Advice Centre – and a large proportion of households were referred by TIG to them. Since early 2023 all local authorities in Scotland have been obliged to deliver a Local Heat and Energy Efficiency Strategy. EnergyMeasures have given evidence to the public consultation on the proposed strategy.

Tighean Innse Gall had previously established a partnership with health services and third sector agencies dealing with drug and alcohol issues in the home. This is called Gluasad Comhla (Moving Together), where vulnerable people were able to be offered comprehensive help with energy and finance issues. This partnership has been maintained and helped provide referrals to the project.

In the islands there are several newspapers, and newsletters, which are either paid for or are delivered free to homes. TIG have worked with the editors of each of these, with bespoke stories to individual islands. They have also promoted project activities via social media, linked to community pages. For example, each island has its own page on Facebook, and we have placed adverts and stories across the island pages.

3.7.4 Conclusions & takeaways from Scottish activities

The biggest achievement gained through participation in EnergyMeasures project has been changing the processes of supporting energy poor households in the Outer Hebrides. The success of this process change

is being shared at Energy Action Scotland annual conference, helping to shape other local advice services across the country. The process change has led to these distinct aspects of support for energy poor households:

1. Embedding the smart survey system – gaining as much data from the household before any home visit, saving time and resources, and ensuring at the point of contact people get an immediate positive response: “you told us this, we think you should do that; we are investigating further and will visit; we are referring you for this help”.
2. Data collection methodologies – the smart survey gives the platform for gaining consistent data from across households. It also informs the basis for filling ‘gaps’ at the subsequent home visit. Again, this change in procedure means we know far more about potential issues and possible ways to help.
3. Energy plans for each household – the energy plan uses data collected, advice given, any impacts of measures installed and distils this into a clear and easy to follow energy plan. This aspect of changing the process of helping people has led to a far greater understanding by the household on how they use energy and what they can safely save.
4. Affirming the link between agencies – finally the process change helps ensure that the household can access wider support, through referrals to other key agencies. Using the previous three elements combined, overall, the capacity to analyse need, identify potential support from other groups like citizens advice means that households receive the best possible assistance.

4 Discussion of findings

4.1 Comparative discussion on the effectiveness of engagement programmes

Project-wide, up to September 2023, the weekly monitoring from the household engagement activities reported a total of 3,883 households recruited (with a target set at 3,650), out of which 3,666 have been successfully engaged, and 3,547 supplied with energy saving measures.

While each country offers unique insights (establishing data collection methodologies and smart survey systems in Scotland, good practices in cooperation with local authorities in the Netherlands and Bulgaria, ample resource allocation for awareness raising, media coverage and capacity building efforts), common themes have emerged. Flexibility, local collaboration, and effective communication have been reported as essential across all contexts. The emphasis on understanding and engaging with local communities is evident, with approaches varying based on cultural and institutional nuances. Collaboration between diverse stakeholders, including local authorities, NGOs, and energy companies, consistently emerges as a key success factor. Additionally, addressing social-economic inequalities, recognizing the power of renewable energy, and adapting strategies to vulnerable populations are shared considerations. These lessons collectively highlight the importance of context-specific approaches, adaptive strategies, and holistic engagement for successful energy poverty alleviation initiatives.

In terms of the challenges faced along the process of household engagements, there were common themes across countries related to conducting surveys or home visits, financial constraints, and resistance or reluctance among residents. In Poland, issues related to immigration and rented apartments impact data collection and participation. The Netherlands faces a survival-mode mindset, limiting engagement, while Ireland grapples with stigmatisation and shifting expectations. Scotland encountered staffing and financial challenges, exacerbated by the COVID-19 pandemic. A shared theme has been the need for nuanced approaches to address these barriers, emphasising community engagement, tailored communication, and adaptability to specific socio-cultural contexts. Addressing these barriers collectively requires a holistic understanding of local dynamics, a focus on stigmatisation, and strategies for overcoming financial and staffing challenges.

4.2 Suggestions for policy improvement

The project has identified several policy propositions that would benefit each country to a varying degree. An in-depth analysis and argumentation has been the goal of work package 3, particularly of the Report on policy agenda and recommendations (D3.2). A summary of the 10 suggestions for governance-level policy improvements can be seen below:

1. **Align National Legislation with Local Implementation:** Recognize the crucial role of local actors, such as municipalities and societal organisations, in implementing energy poverty alleviation measures. National policies should address regulatory and financial barriers to support effective local implementation.
2. **Stimulate Collaboration Across Levels and Sectors:** Foster collaboration among actors at different levels (local, regional, national) and sectors (market, public, civil society) to develop comprehensive and effective approaches against energy poverty. Explicit attention is needed for cross-sectoral, multi-level collaborations.
3. **Focus on the Mid- and Longer Term:** Shift from short-term financial measures to long-term strategies for structurally alleviating energy poverty. Policy instruments and eligibility criteria should be consistent and anchored more strongly in national policy frameworks.
4. **Build on Local Initiatives:** Recognize and build upon the efforts of local initiatives, collaborations, and organisational models addressing energy poverty. Unleash the full potential of these local endeavours to reach households in or vulnerable to energy poverty.
5. **Increase Accessibility and Outreach of Support Measures:** Design support measures with the specific needs of households in precarious situations in mind. Enhance accessibility by addressing awareness gaps, simplifying administrative procedures, and overcoming language barriers.
6. **Apply Consistent and Locally Applicable Monitoring Methodologies:** Provide local policy actors with fine-grained knowledge on the prevalence of energy poverty by employing consistent and locally applicable methodologies for monitoring. Overcome the challenges of diverse and cumbersome measurement methodologies.

7. **Develop Targeted Measures for Energy Poverty:** Design measures specifically targeting households in or vulnerable to energy poverty. Ensure inclusivity by avoiding policies that may inadvertently exclude the most vulnerable and focus on those with high pre-financing requirements.
8. **Embrace Renewable Energy Generation:** Leverage the potential of renewable energy generation as an alleviation measure. Facilitate policies that direct benefits towards vulnerable households, ensuring they can access and benefit from renewable energy initiatives.
9. **Recognize Diversity Within the Target Group:** Acknowledge the diversity within households experiencing energy poverty. Tailor support to accommodate different experiences, capabilities, and needs, especially considering tenants in the private rental market.
10. **Encourage innovative approaches and solutions.** Learn from successful examples, such as municipalities and energy communities in the Netherlands, energy suppliers in Ireland and Scotland, and the NGO Habidom's loan scheme in North Macedonia. Foster creativity and openness to develop innovative solutions within or despite existing policy frameworks.

4.3 Potential for replicability of methods & measures

The multifaceted analysis of the stakeholders' engagement programmes in the EnergyMeasures pilot countries, considering socio-political contexts, socio-demographic profiles, and cultural specificities of participating stakeholders' communities, assessed through surveys, direct observations, and expert discussions, provides multiple opportunities for further replication actions. Based on the synthesis report presented in this document, options for replication include integrating energy poverty strategies into national policies, tailoring local programs, designing targeted subsidy schemes, supporting continuous policy adjustments, and contributing to ongoing research in diverse contexts, as follows:

1. **National Policies:**
 - Advocate for the integration of energy poverty reduction strategies into national energy policies.
 - Encourage development of national guidelines for identifying and supporting energy poor households.
 - Collaborate with relevant government departments to establish dedicated funds or programs for addressing energy poverty.
 - Lobby for the inclusion of behaviour change approaches in national energy efficiency initiatives.
2. **Local Policies:**
 - Work closely with local governments to tailor energy efficiency programs to the specific needs of each community.
 - Support the creation of local task forces or committees that focus on energy poverty issues.
 - Explore the possibility of local incentives or regulations that promote energy-efficient practices in vulnerable communities.
 - Advocate for the inclusion of energy vulnerability considerations in local urban planning and development policies, as per the requirements of the Energy Efficiency Directive.

3. Design of Subsidy Schemes:

- Recommend the development of targeted subsidy schemes for energy poor households.
- Propose subsidies that incentivize energy-efficient technologies and home improvements.
- Advocate for flexible subsidy structures that can adapt to the socio-economic diversity within vulnerable communities.
- Collaborate with financial institutions to explore innovative financing options for energy efficiency.

4. Future Policy Support Actions:

- Emphasize the importance of continuous engagement with vulnerable communities in shaping future energy policies.
- Encourage the establishment of feedback mechanisms to assess the effectiveness of implemented policies and make necessary adjustments.
- Support ongoing research to stay informed about emerging issues related to energy poverty.
- Advocate for the integration of energy poverty considerations into broader social welfare and poverty reduction policies.

5. Further Research:

- Explore the applicability of the EnergyMeasures methodology in different cultural and socio-political contexts.
- Conduct in-depth studies on the long-term impact of behaviour change approaches in mitigating energy poverty.
- Investigate the potential of technology-driven solutions in addressing energy vulnerabilities.
- Collaborate with academic institutions and research organizations to contribute to the knowledge base on energy poverty and efficiency.

4.4 Concluding remarks

Addressing energy poverty requires a multifaceted and collaborative approach, as highlighted by the findings of the report. Recognizing the pivotal role of local actors, aligning national policies with local implementation, and fostering collaboration across different levels and sectors emerge as fundamental strategies. Long-term commitment, consistency in policy instruments, and anchoring within national frameworks are essential for achieving structural alleviation of energy poverty.

The importance of building on the efforts of local initiatives and increasing the accessibility of support measures cannot be overstated. Moreover, employing consistent and locally applicable monitoring methodologies and developing targeted measures that embrace renewable energy generation are critical for informed decision-making and effective interventions. Acknowledging the diversity within the target group and keeping an open mind to innovative solutions are key considerations to ensure inclusivity and adaptability. By embracing these recommendations, policymakers can pave the way for more impactful and sustainable efforts to alleviate energy poverty, ultimately fostering positive changes for vulnerable households.

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Appendix 1:

National Synthesis Reports Template

EnergyMeasures National Synthesis Report	
<i>National Engagement Plan</i>	
Purpose (1500 symbols)	<i>Describe the problem you are addressing (the problem the potential beneficiaries have) and your selected approach to solve it. Define what you wanted to achieve with the selected approach (the goal of the action).</i>
Alternative solution (500 symbols)	<i>Describe what are the alternatives of the potential beneficiaries to achieve the same.</i>
Potential beneficiaries and other stakeholders (2000 symbols)	<i>Describe in brief the profile of your targeted beneficiaries based on your expert assessment of key socio-demographic aspects (age, gender, income level, housing conditions, etc.)</i> <i>Which are the key stakeholders who influence the decision-making process of your selected target audience?</i>
Early adopters (1000 symbols)	<i>Early adopters are the beneficiaries who are most prone to uptake the proposed solution and promote it in their networks. They are usually the ones that feel the problem harder than all the others. Typically, you are willing to address them first. Please describe their profile if you were able to identify them.</i>
Unique value proposition (1000 symbols)	<i>Please describe what you were offering to the beneficiaries to solve their problem that no one did better (or at better terms).</i>
Background (500 symbols)	<i>Please outline if you have used specific previous experience or instruments available from previous work/project</i>
Methodology (1500 symbols)	<i>Describe in a few lines your methodology: what were the methods and instruments you used to complete the engagement process?</i>
Description (2000 symbols)	<i>Please describe the actual engagement process and the achieved result, providing a general timeline.</i>
Resulting outputs (1000 symbols)	<i>Can you define a solution produced within the process (i.e. product, service, process, standard, course, policy recommendation, publication, etc.) that can be used in further related activities? Please provide a brief description.</i>
<i>Policy context</i>	
Existing support schemes (1500 symbols)	<i>Please describe the existing national, regional or local support schemes which were related to your action. Please analyse their impact on the engagement activities and the achieved results.</i>

Parallel developments (1500 symbols)	<i>Please outline any concurrent policy developments that were initiated during the engagement campaign. Please analyse their impact on the engagement activities and the achieved results.</i>
Key recommendations (1000 symbols)	<i>Please list the key policy recommendations stemming from the action</i>
Socio-demographic and cultural factors	
Key social factors (1500 symbols)	<i>Please describe briefly the key social, economic, and environmental factors that have impacted the action. Effect of COVID and energy crisis come in here</i>
Focus on specific groups (2000 symbols)	<i>Please describe the outcomes of your cooperation with elderly people, lower-income occupants of multi-family building, female-headed households, or any other specific target groups you have approached in your engagement action</i>
Cultural identity (1000 symbols)	<i>Please provide your expert opinion on cultural or community-specific factors that have influenced the action</i>
Barriers and success factors	
Key barriers (2000 symbols)	<i>Please identify the key barriers for the engagement action and elaborate on the impact of the 2-3 key examples</i> <i>Examples:</i> <ul style="list-style-type: none"> • COVID • Lack of trust to unknown visitors • Lack of understanding of benefits of renovation • Lack of understanding of benefits from joining a project • Reluctance to change • Split incentives dilemma • Lack of agreement with co-owners • Impaired health • Lack of expert time for multiple visits • Lack of time of homeowners to engage in multiple exchanges
Success factors (2000 symbols)	<i>Please identify the key success factors for the engagement action and elaborate on the impact of the 2-3 key examples</i> <i>Examples:</i> <ul style="list-style-type: none"> • High energy costs • Global insecurity • Personal plans for renovation • Availability of a subsidy programme • Supportive (younger/employed/healthy) family members • Uncomfortable living conditions (draughts, cold, humidity) • Availability of expert advice (which is otherwise hard to get) • Opportunity for social interactions (in the community or with the experts) • Examples of renovated buildings in the vicinity

<i>Results and lessons learned</i>	
Direct feedback <i>(2000 symbols)</i>	<i>What is the feedback from the engagement action? Please provide references/quotes, if any</i>
Behaviour changes <i>(2000 symbols)</i>	<i>Is there any evidence for behaviour changes taking place as a result from the engagement action? Who was affected (social/target group)? What were the methods to bring the change in? What are the means to monitor it?</i>
Media coverage <i>(1000 symbols)</i>	<i>How would you describe the media coverage of the action? Are there any major successes or difficulties engaging the media?</i>
Success story <i>(2000 symbols)</i>	<i>Please outline the story of the biggest achievement of the action, or a national or local-level good practice which emerged under the impact of the project?</i>
Out-of-the-box solutions <i>(2000 symbols)</i>	<i>Please think of solutions that you have identified and applied out of the regular course of work, if any.</i>
Lessons learned <i>(1500 symbols)</i>	<i>Please synthesize up to 3 key lessons for you and/or your organisation, learned through the EnergyMeasures experience.</i>
Quantifiable results	<i>to be defined further</i>