POWERPOOR

Empowering Energy Poor Citizens through Joint Energy Initiatives

Report on the Pilot support Programmes

Working on the ground with energy-poor households and policymakers to mitigate energy poverty.

August 2023

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Work Package 4: Engaging energy poor citizens in joint energy initiatives

Deliverable 4.5: Report on the Pilot support Programmes

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Abbreviation	Explanation
WP	Work Package
EPAO	Energy Poverty Alleviation Offices
SECAP	Sustainable Energy and Climate Action Plan

1. Introduction

The overall vision of POWERPOOR project is to support energy poor citizens to implement energy efficiency interventions and participate in **joint energy initiatives.** The main objective is to develop support programmes/schemes for energy poor citizens (led by 'Energy Supporters and Energy Mentors'), encourage the uptake of renewable energy by promoting energy communities, establish Energy Poverty Alleviation Offices (EPAO) and leverage alternative financing schemes (e.g. citizens' cooperatives and crowdfunding).

1.1 Purpose &Scope

This document - **D4.5. Report on the POWERPOOR Pilot support Programmes** contains a review of the established **Energy poor citizens support programmes** and **joint energy initiatives** in the **8 pilot countries - Bulgaria, Croatia, Estonia, Greece, Hungary, Latvia, Portugal, and Spain.**

In order to implement all the activities planned in the **Energy poor citizens support programmes** within the POWERPOOR project, it was necessary to establish **joint energy initiatives** with cities and municipalities, established energy communities and energy cooperatives, various platforms and stakeholders who implement innovative ways of financing and local stakeholders who work directly with energy-poor households.

The Pilot countries implemented various **Energy poor citizens' support programmes** with the energy supporters and mentors in the heart of the approach to alleviate energy poverty. The energy poverty support programmes include:

- Support actions powered by Energy Supporters and Mentors using the Energy Poverty Mitigation Toolkit i.e., POWER-TARGET and POWER-ACT tools
  - Households visits
  - On-line help (via e-mails, phones) and on-line help desk support through Energy Poverty Mitigation toolkit
- Participation in Energy Communities / Cooperatives
  - Joint energy initiatives with energy communities/cooperatives
- Crowdfunding and Innovative Financing
  - Establishing the platform POWER-FUND
  - Setting up crowdfunding campaigns
- Creation of Local Energy Poverty Alleviation Offices
  - Support to energy poor citizens through the Energy Poverty Alleviation Offices

Other activities were carried through the establishment of **joint energy initiatives** like:

- **Establishment of the Stakeholder Liaison groups** – initially the relevant stakeholders were mapped in Task 4.1.1 and about 10 stakeholders (representatives of organizations or individuals) per country were selected to be part of the Stakeholder Liaison group. The Stakeholder Liaison group includes municipalities, regions, energy agencies, universities, social services, non-governmental organizations, utilities and media. The Stakeholder Liaison groups meet regularly in a national level and they also co-created the **National Policy Roadmaps**
    - **The National Roadmaps** are policy roadmaps for alleviating energy poverty (more information in the report **D5.9 EU policy Recommendations & National Roadmaps to alleviate energy poverty**)
- **Info days** - Implementation of informational events in targeted regions (more information on D4.3)
- **Capacity Building Programmes for Energy Supporters and Mentors -** A strong network of Energy Supporters and Mentors has been established in each pilot country and at EU level to foster the development of energy poverty alleviation support schemes in cities/regions across Europe. Energy Supporters and Mentors have been trained locally by the project partners in each pilot country and in EU level, through:
    - **Training seminars,**
    - **Webinars,**
    - **Face to Face (F2F) tailor-made seminars.**
- **The POWERPOOR approach in creating measures and actions in SECAPs or other similar action plans-** tackling energy poverty in energy and climate action plans (more information in the report **D5.4 Report on actions for energy poor citizens in SECAPs)**

Also, by creating a partnership through **joint energy initiatives** it is assured that the POWERPOOR approach in alleviating energy poverty lives beyond the project's time scope. The establishment of the POWERPOOR alliance and the exploitation plan also ensures the sustainability of the approach beyond the project completion.

To monitor the energy poverty support programmes three templates were created:

- The first template named **"List for monitoring Supporters and Mentors - direct help and online help"** for easier monitoring of the number of household visits and online counselling provided to citizens by energy supporters and mentors– it was under Task 4.4 - Subtask 4.4.1.
- The second template named **"Initiatives monitoring"** for mapping Energy Communities/Cooperatives in the pilot countries, enabling the partners to map the situation in each country and to establish partnerships and reach out to them creating **joint energy initiatives** – it was under Task 4.4 - Subtask 4.4.2.
- The third template named **"Crowdfunding platforms"** for mapping the crowdfunding platforms on a national level enable the partners to both map the

situation and to create synergies as well as populate the POWER FUND tool–template was initially created under WP3, and used for WP4.

The aim of this deliverable is to report on the energy poverty support programmes that were established in the pilot countries. It includes information on the support actions powered by the energy supporters and mentors, the household visits, the participation in energy communities and cooperatives and how the POWERPOOR approach worked with them, and how innovative financing schemes were leveraged. The support that was provided through the energy poverty alleviation offices is also reported.

2.1 Structure of the document

This report is structured as follows:

- **Section 2** presents an introduction of what is "Energy poor citizens support programmes".
- **Section 3** presents actions like household visits, on-line help (via e-mails, phone calls) and on-line help desk support through Energy Poverty Mitigation toolkit and the results from the POWER TARGET and POWER ACT tools.
- **Section 4** presents the joint energy initiatives that were established with Energy Communities / Cooperatives while implementing the POWERPOOR project.
- **Section 5** presents Crowdfunding and Innovative Financing schemes within the POWERPOOR project.
- **Section 6** presents the support provided to energy poor through the Local Energy Poverty Alleviation Offices (EPAOs) and describes how the EPAOs in each pilot country were operating.
- **Section 7** presents review of the joint energy initiatives and key results per country.
- **Section 8** concludes this report.

2. Energy poor citizens support programmes

The aim of the **energy poor citizens support programmes** is to facilitate behaviour change and the implementation of small scale energy efficiency interventions by energy poor citizens while encouraging the uptake of renewable energy with energy communities and cooperatives while leveraging innovative financing schemes. The establishment and **participation of energy poor citizens in joint energy initiatives** was promoted and supported to help address the urgent challenges of energy poverty. To implement the **energy poor citizens support programmes** a stakeholder engagement process was established (Task 4.1: Stakeholder engagement plan and Liaison Groups) which resulted in the creation of partnerships with cities and municipalities, energy communities and energy cooperatives, various platforms and stakeholders who implement innovative ways of financing and local stakeholders who work directly with energy-poor households **to help energy poor communities and energy-poor households.**

Energy poor citizens support programmes contain the 4 following activities:

- Support actions powered by **Energy Supporters and Energy mentors** using the POWER TARGET and POWER ACT tools.
    - **Households visits** - Each Energy Supporter and Mentor, as part of their obligations, provided direct technical help to energy poor citizens, by undertaking selected home visits. (the home visits of energy supporters and mentors per country are presented in Table 1). During the home visits the Energy Supporters analysed the households' energy consumption and identified the behavioural changes that could have a real impact to mitigate energy poverty. Advice was given for implementing low cost/no regret measures, as these are more acceptable to energy poor citizens, although other measures were also proposed, alongside with available funding opportunities.

Table 1 KPI for direct household visits per country

Pilot country	POWERPOOR partner	KPI
Bulgaria	SOFENA	820
Croatia	DOOR	440
Estonia	EKYL	620
Greece	INZEB & SUST	380 (INZEB) & 590 (SUST)
Hungary	ENERGIAKLUB	530
Latvia	ZREA	500
Portugal	COOPERNICO	880
Spain	GOIENER	1,090
Total		5,850

    - **On-line help (via e-mails, phones) and on line help desk support through Energy Poverty Mitigation toolkit** - During the pilot support programmes, the use of on-line help desk in the Energy Poverty

Mitigation toolkit was promoted, enabling energy poor citizens to ask questions and gain further information on what they can do to reduce their energy consumption. Citizens that are interested in implementing energy efficiency interventions were also able to request further support. Also due to COVID-19, unplanned need appeared for higher involvement in online counselling of citizens.

- **Analysis of POWER ACT and POWER TARGET data input** - data analysis of tailored advice on possible interventions was provided, including effectiveness of the interventions in terms of energy savings and cost savings, as well as costs of implementation and available funding sources

- Participation in Energy Communities / Cooperatives
  - **Identification and mapping existing, established community level energy initiatives** - During the pilot support programmes in the targeted countries, POWERPOOR identified existing, established community level energy initiatives, most importantly those designed for energy poor communities, and supported them to further develop and take up new types of actions on energy poverty, whilst energy poor citizens engaged in POWERPOOR were encouraged to become active members of such initiatives.
  - **Online help (via e-mails, phones) and on line help desk support through Energy Poverty Mitigation toolkit -** Energy Supporters and Mentors provided direct technical help to energy poor citizens. In particular, interested citizens were able to use the POWER-FUND tool and contact the online help desk to ask questions and gain further information on energy communities / cooperatives and the benefits of participation.
- **Joint energy initiatives with energy communities/cooperatives** - Energy Supporters and Mentors, as part of their duties, provided on-line technical help, on how citizens can create and/or participate in joint energy initiatives. The Energy Supporters/Mentors also presented opportunities for joint initiatives to energy poor households and offered support to help them with Crowdfunding and Innovative Financing
  - **Identification and mapping of good energy crowdfunding practices and existing national platforms for crowdfunding -** POWERPOOR identified crowdfunding and other innovative financing opportunities in the pilot countries and promote their use.
  - **Support through Energy Poverty Mitigation toolkit - POWER FUND** - Each partner explored the possibility of creating a new crowdfund, using POWER-FUND, for financing some of the interventions that energy poor citizens were advised to implement. ECN supported citizens/communities/project promoters to launch campaigns. The use of existing and efficient platforms was promoted (ECN explored with members whether it is possible to open dedicated POWERPOOR sections for specific campaigns in their platforms). Energy Mentors also provided

support to energy poor citizens, so that they can join and benefit from such opportunities

- Creation of **Local Energy Poverty Alleviation Offices**
  - **Energy Poverty Alleviation Offices (EPAO)** - In order to strengthen energy poor citizens engagement, the creation of Local Energy Poverty Alleviation Offices was envisaged. Fifteen (15) Local Energy Poverty Offices (Table 2) were to be established in selected public authorities, social services and other organisations for providing and disseminating information to energy poor citizens, 22 EPAO were established.

Table 2 KPI for Local Energy Poverty Alleviation Offices per country

BG	HR	EE	GR	HU	LV	PT	ES
2/2	2/2	1/1	7/3	2/2	1/1	3/2	4/2

  - **Joint energy initiatives through support of Energy Poverty Alleviation Offices (EPAO)** - The local energy poverty alleviation offices also support energy poor households to participate in joint initiatives. More specifically, the benefits of implementing energy efficiency interventions and installing renewable energy sources were communicated, more energy efficient behaviours, practices and habits were encouraged, the use of the Energy Poverty Mitigation toolkit was promoted (and how this can help citizens reduce energy consumption by implementing behaviour changes and energy efficiency interventions) and the support of Energy Supporters and Energy Mentors was offered.

3. Support actions powered by Energy Supporters and Energy Mentors using the Energy Poverty Mitigation Toolkit

Household visits

POWERPOOR partners made a great effort to reach households even during the Covid-19 pandemic. Using the POWERPOOR toolkit, Energy Supporters and Mentors helped energy poor citizens with ready-made solutions to reduce their energy bills and improve the quality of life in their homes. In some households, Energy Supporters and Mentors did not even need to use the POWERPOOR toolkit because the problems were evident and the citizens knew what was causing them problems in paying their bills or keeping their home warm during winter or cool during summer, etc and they were eager for low-cost measures or financial advice for measures that require larger investments.

In the chapter below, each country described how they visited households and reached out to citizens. In total, the energy supporters had direct household visits with 3,664 households, the energy mentors supported 4,090 households through the EPAOs and the POWERPOOR toolkit; POWER ACT and TARGET (Figure 1) had 3.636 entries. It is worth mentioning that these entries were not all done by energy supporters or mentors and citizens used the tools directly. In total 7,754 households were supported either with direct home visits or with support through the EPAO or through using the tools directly. In total the KPI of supporting 5.850 households was met with 7,754 whether with direct household visits or through the energy poverty alleviation offices.

Table 3 KPIs of the home visits

Pilot country	POWERPOOR partner	KPI	Achieved number (Home visits by energy supporters)	Achieved number (Mentors providing support through the EPAO)	Total
Bulgaria	SOFENA	820	987	149	1136
Croatia	DOOR	440	440	85	525
Estonia	EKYL	620	620	105	725
Greece	INZEB, SUST	380 (INZEB) 590 (SUST)	500 (INZEB)	930 (SUST)	1430
Hungary	ENERGIAKLUB	530	508	90	598
Latvia	ZREA	500	395	39	434
Portugal	COOPERNICO	880	85	187	272
Spain	GOIENER	1,090	129	2,475	2 604
Total		**5,850**	3,664	4,090	**7,754**

Looking at the statistics of entries in POWER TARGET and POWER ACT, the data shows that the majority of users who completed the questionnaire come from **Greece,** i.e., 1492. Between 570 and 300 users come from **Latvia**, **Hungary**, **Croatia** and **Estonia,** while 264 are from **Spain** and 101 **Portugal.** About 33 people who filled out the tool come from **Bulgaria**.

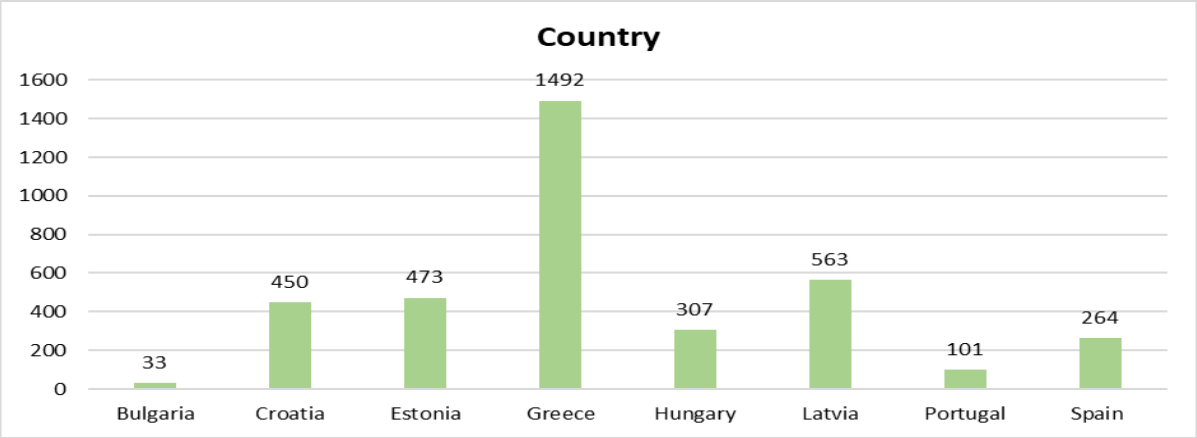


Figure 1 POWER ACT and TARGET users per country

Table 3 and Figure 1 are showing disproportion between the number of households visits and entries in POWERPOOR toolkit – this could be attributed to several reasons:

- Some users may not be energy supporters and mentors as the tools are open to everybody.
  - **Latvia** (395 household visits, but 563 entries in POWERPOOR toolkit),
  - **Spain** (129 household visits, but 264 entries in POWERPOOR toolkit), and
  - **Croatia** (440 household visits, but 450 entries in POWERPOOR toolkit),
- Some energy supporters and mentors provided support and consulted citizens without using the tools because citizens were more interested in individual consultation- in that countries there are more household visits than entries in the POWERPOOR toolkit. For example:
  - **Bulgaria** (987 household visits, but 33 entries in POWERPOOR toolkit),
  - **Greece** (1430 household visits, but 1492 entries in POWERPOOR toolkit),
  - **Estonia** (620 household visits, but 473 entries in POWERPOOR toolkit),
  - **Hungary** (598 household visits, but 307 entries in POWERPOOR toolkit), and
  - **Portugal** (272 household visits but 101 entries in POWERPOOR toolkit)

Online help (via e-mails, phones) and online help desk support through Energy Poverty Mitigation toolkit

In this chapter we will summarise the results of two activities from the **Energy poor citizens support programmes:**

- Support actions powered by **Energy Supporters and Energy mentors** using the POWER TARGET and POWER ACT tools.
- Participation in and working with Energy Communities / Cooperatives.

Both activities were also provided by online help, through the **Energy Poverty Mitigation toolkit**. The first activity focuses on reporting the results from the POWER TARGET and POWER ACT tools, while the second activity focuses on online help through the POWER FUND tool.

Due to Covid-19, there was a much greater need for online counselling via e-mail or phone calls. As a result, the POWEPOOR toolkit may not have been used in online consultations as citizens who used online help had specific questions and asked for individual consultation. Thus, the Energy Supporters and Mentors helped with tailor made measures and advice.

Results from the POWER TARGET and POWER ACT tools

This chapter presents a review of the POWER TARGET and POWER ACT data that are available for the pilot countries. In the following subsections an analysis of the data from the tools' (from their launch in March 2021 until the end of the project in August 2023) is presented for each of the POWERPOOR pilot countries (**Bulgaria, Croatia, Estonia, Greece, Hungary, Latvia, Portugal,** and **Spain**).

The POWER TARGET data-driven tool supports individuals, along with local and regional authorities to identify groups or communities of energy poor citizens. This tool uses qualitative and quantitative indicators, such as energy-related data, building characteristics and other sociodemographic data to identify energy poor citizens.

The POWER ACT tool that is a citizen centred application, focusing on the main drivers of energy consumption and it can be used by citizens to facilitate behaviour change and support them in implementing energy efficiency measures.

More information on the tools i.e., the methodology employed and a guide of use, can be found in D2.1, D2.2, D2.3 and D2.5

The POWER TARGET tool consists of questions that are filled out via the POWERPOOR toolkit platform. The tool consists of 18 questions listed below:

- Personal details:
  - country
  - city
  - annual income
  - age
  - number of children
  - marriage status
- Electricity consumption

- I only use electricity for heating and cooling in the household (Yes/No)
- Property size (in m^2) *
- Electricity supplier
- Annual consumption (in kWh) *
- Annual cost of electricity *
- I don't have air conditioning (Yes/No)
- My air conditioning thermostat is set to Celsius
  - In winter
  - In summer

- Heat consumption
  - Heating energy
  - Annual consumption
  - Annual heat consumption
  - My thermal comfort during the winter is*

The POWER ACT tool consists of questions that are filled in via the POWERPOOR toolkit platform. The tool consists of 16 questions listed below:

- Information about the building:
  - property size (in m^2) *
  - number of household members
  - electricity supplier
  - total number of hours spent at home / day (Note: A household with 3 members, each of whom spends an average of 14 hours at home, registers 42 hours/day.
- Heat consumption
  - Heating energy*
  - Annual consumption
  - I don't use a thermostat (Yes/No)
  - Heating thermostat (°C)
  - Last boiler service (year)
  - When I sit next to a closed window in winter*
- Air conditioning
  - Do you use an electric air conditioner?*
  - Last time I changed the filters in the air conditioner*
  - My air conditioning thermostat is set to Celsius
    - In winter
    - In summer
- Electrical devices and preparation of domestic hot water
  - What type of lighting do you use:*
  - How you use electrical devices
  - To heat sanitary water, I use:*

3.1 Bulgaria

POWERPOOR household visits

In Bulgaria the number of documented direct household visits is 987, during which simple energy audits were completed and the tenants were advised on how to improve the energy efficiency of their homes. The actual visits were probably more but not all the Energy Mentors/ Supporters kept proper documentation of their visits. For the household visits the Energy Supporters and Mentors targeted areas/ neighbourhoods where mostly financially vulnerable citizens live. In these places as it appeared digitization has fallen behind. Not only the people have no computers and use old models of mobile phones, which sometimes do not allow Internet access, but also, they feel intimidated by smart-looking officials with the latest technologies in their hands. Thus, to help them open up about their energy poverty situation, in most cases a paper version of the POWERPOOR Toolkit was used and technical advice was provided orally. The KPI for Bulgaria was 820 household visits and it has been met and exceeded.

The household visits covered the area of the city of Sofia, including several satellite towns and villages (Bankya, Yana, Podgumer, Dolni Bogrov, Gorni Bogrov, Kokalyane, Bistrica, Lozen, Pancharevo, etc.), as well as the area of the city of Plovdiv.

In the summer of 2021, SOFENA was already assisting Sofia Municipality in the project "Improving the quality of atmospheric air in the Metropolitan Municipality of Sofia by replacing solid fuel heating devices with ecological alternatives" (project No. BG16M1OP002-5.003-0001). The POWERPOOR team of SOFENA decided to take the cooperation further and began sending to the addresses participating in the project a certified POWERPOOR Energy Mentor or an Energy Supporter. Wherever in the household signs of possible energy poverty were present the Energy Supporter/Mentor would invite the family to take part in the POWERPOOR project. If/ When they agreed, the Energy Supporter/Mentor described to them the POWERPOOR approach and goals, made a simple energy audit of their home and gave advice on how to improve the energy efficiency by suggesting simple behaviour changes and small-scale no regrets interventions. The families were offered to be kept up to date with future POWERPOOR activities in their area and in many cases, they were happy to give their names and phone number/ address for further contact.

Since this approach proved very successful allowing direct access to the homes of energy poor citizens and providing a way to grab their attention, it was replicated in the city of Plovdiv. There, the local Energy Agency of Plovdiv expressed an interest to participate in the POWERPOOR trainings. They had several of their employees trained and certified as Energy Supporters/Mentors. The second Energy Poverty Alleviation Office in Bulgaria was established in Plovdiv. As the Energy Agency of Plovdiv also assisted the Municipality of Plovdiv in the project "Improving the quality of atmospheric air in the city of Plovdiv by replacing solid fuel heating devices with ecological alternatives", they began their house visits in the same way.

On-line help (via e-mails, phones), on - line help desk support trhough Energy Poverty Mitigation toolkit and work done through Energy Poverty Alleviation Offices (EPAO)

In Bulgaria online counselling was done through the Energy Poverty Alleviation Offices in Sofia and Plovdiv. As the people who approached us were if not energy poor, at least in a vulnerable situation, they often did not have computers, smart phones, or Internet access. Thus, the email requests were only 12 in Sofia (but coming from different places in Bulgaria), and none in Plovdiv. Plovdiv is a smaller city and the EPAO is conveniently located near the Central station, so people probably preferred to visit the EPAO directly. However, phone call requests were more common, especially after some media attention to the topic of energy poverty, or after a POWERPOOR event outside of Sofia. Even though officially there is no EPAO in the city of Vidin as yet, after the POWERPOOR training, which took place in the Municipality of Vidin, there were no less than 4 phone calls a day to SOFENA from Vidin for about two weeks. Some of the most frequently asked questions were:

- When will be the next call for proposals for state funding under the procedure "Energy efficiency in buildings"?
- What percentage of the cost of energy optimization of a multiapartment building will be covered by the government?
- Do you need to be poor in order to qualify for a grant for energy efficiency?
- Can we have the energy efficiency of our building evaluated? How much is the evaluation? How long will be valid?
- Is there government funding for solar panels for private households?
- Can you help me/ advise me how to install solar panels on my property?
- If I have solar panels and produce energy, can I sell it to the grid?
- What is an energy cooperative? What is the legislation related to it?
- Can I join an energy community?
- Is the owners' association of a building an energy cooperative? How can we become one?

Questions related to the so-called soft measures for energy efficiency were only seldomly asked. The idea of crowdfunding is still very new for Bulgaria, thus, when this possibility was mentioned by the Energy Mentors the citizens were interested to learn more about the concept, although some of them were sceptical if it can work in Bulgaria at all because "we, the Bulgarians, are mostly very poor/ do not help one another".

POWERPOOR project results from POWER TARGET and POWER ACT

The data collected covers 33 households. Not every household filled in all the questions (they didn't know the answer or didn't feel comfortable sharing that data) so that there is a disproportion in the amount of data for each question.

Annual income

Most Bulgarians who completed the questionnaire have a salary of € 5115 to € 25,574.

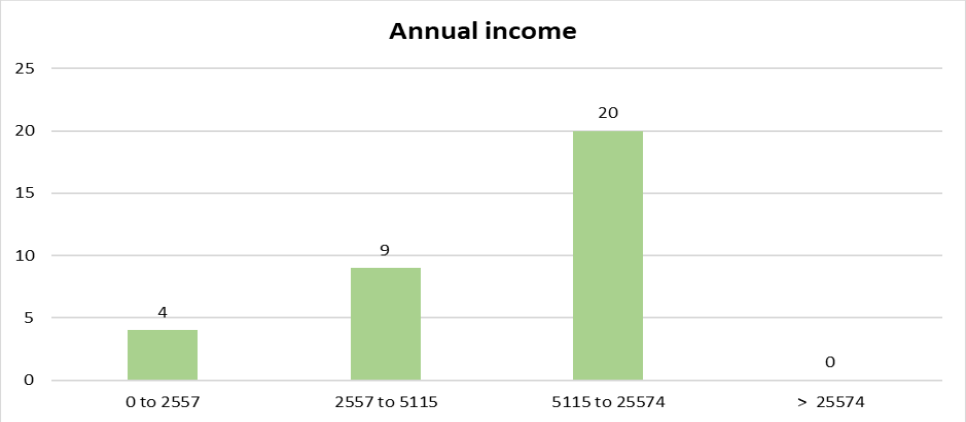


Figure 2 Annual income

Age

Most respondents are between 30 and 40 years old.

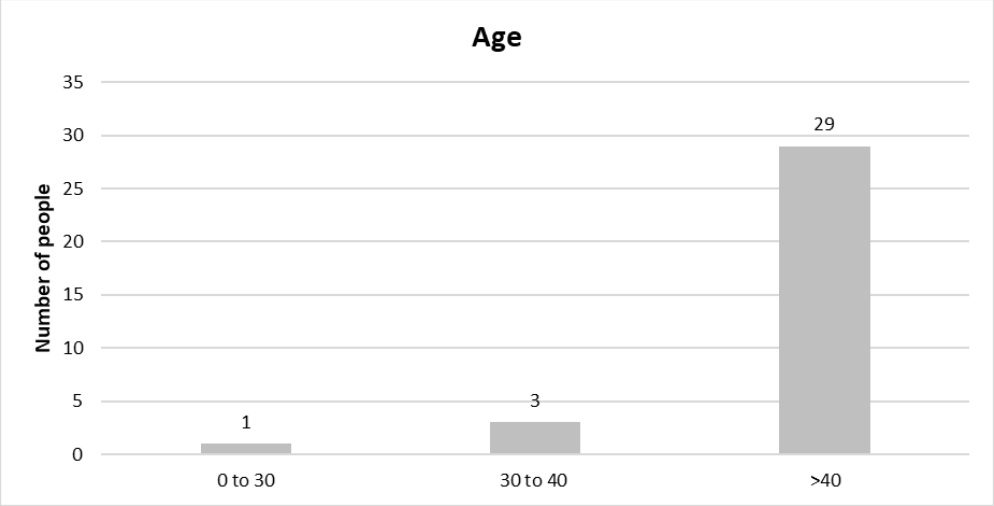


Figure 3 Age

Number of children

Most respondents do not have children or have one. (87%) of respondents do not have children or have one.

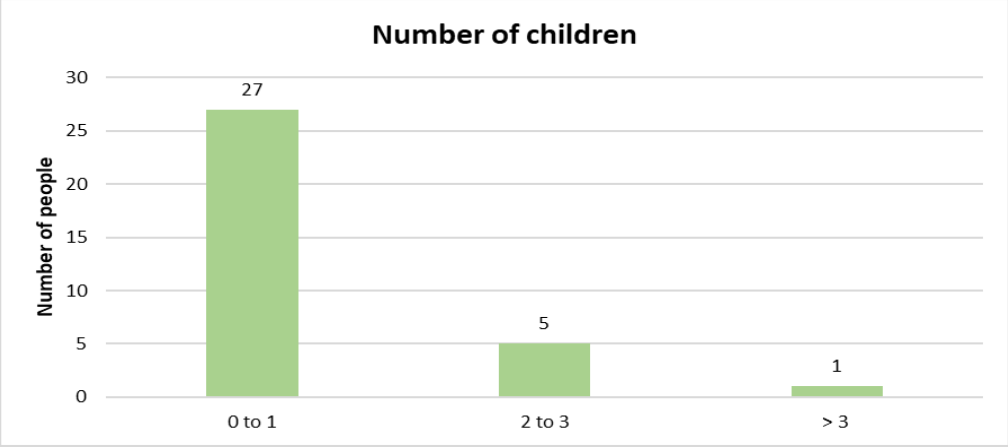


Figure 4 Number of children

Marriage status

Most respondents are married i.e., 57%. 24% are widowed, 12% single and 7% divorced.

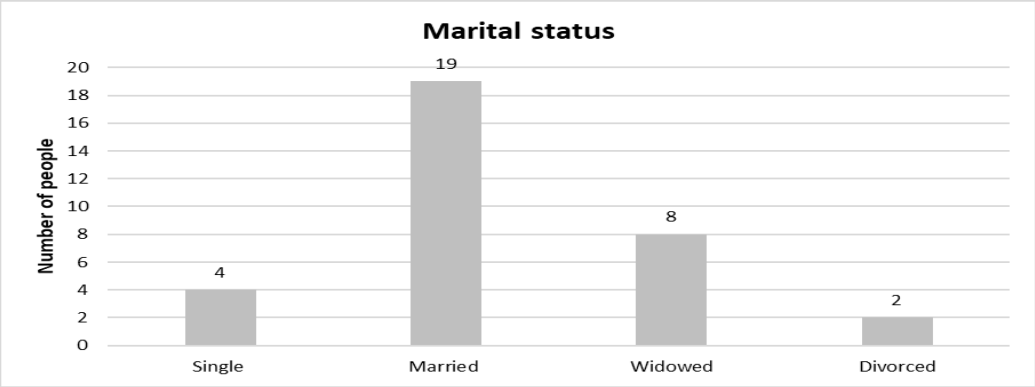


Figure 5 Marital status

Household members

From 33 people, 26 added data in the graph below. Most respondents have between zero and three household members. (26%) of respondents have four or five household members and (7%) have more than five household members.

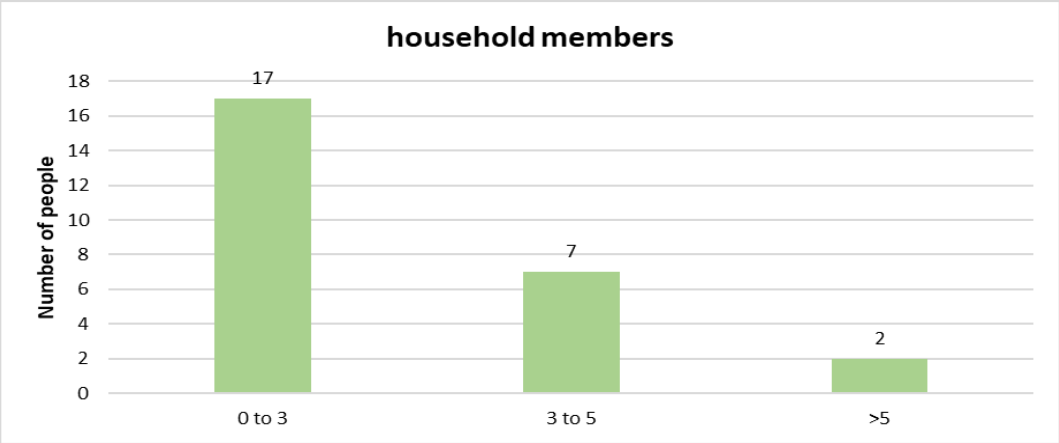


Figure 6 Household members

Property size (m^2)

39% of respondents live in a home ranging in size from 0 to 60 m^2 and 60 to 120 m^2. About 21% of them are in a home with more than 180 m^2

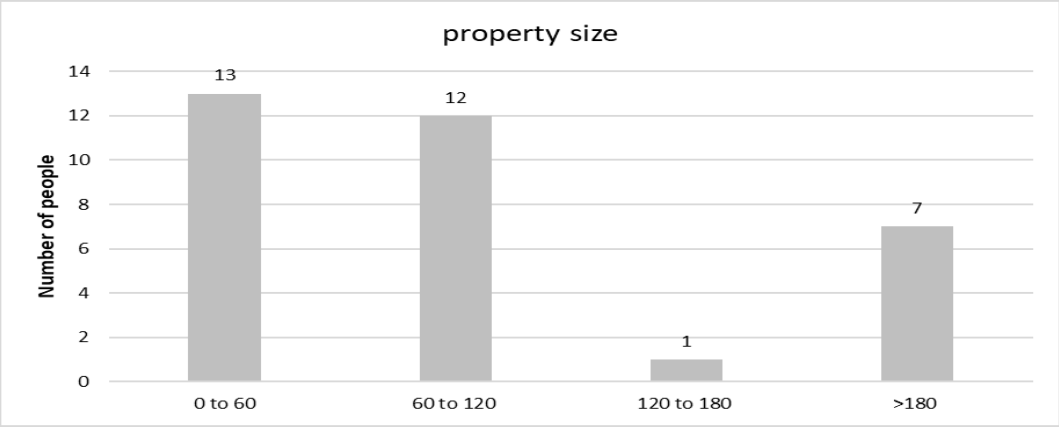


Figure 7 Property size

Type of building

From 33 people, 30 added data in the graph below. It can be observed that the number of people living in apartments and detached home is equal. 56% of respondents live in other cities.

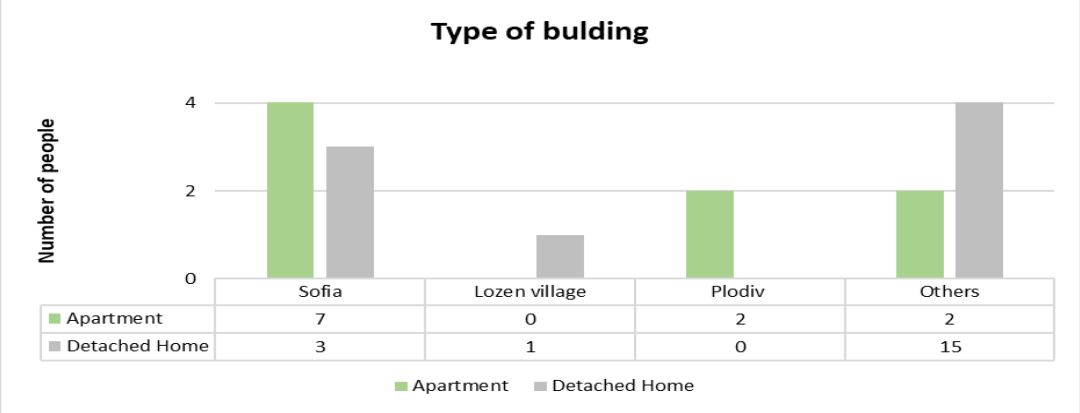


Figure 8 Type of building

Built year of the dwelling

From 33 people, 30 added data in the graph below. 57% of respondents live in a home which is built more than 10 years old.

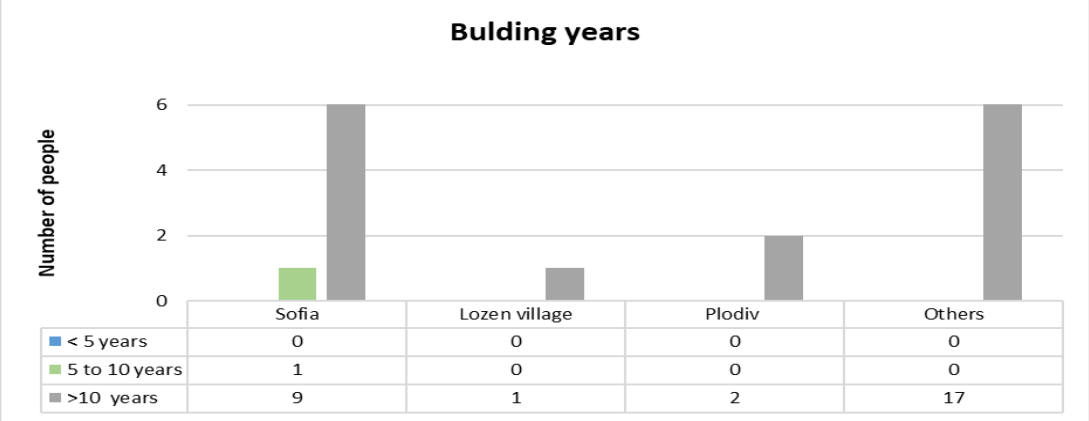


Figure 9 How old is the dwelling

Lighting appliances

From 33 people, 26 added data in the graph below. 38% of respondents live in a home, which they are using incandescent lamps for lighting appliances.

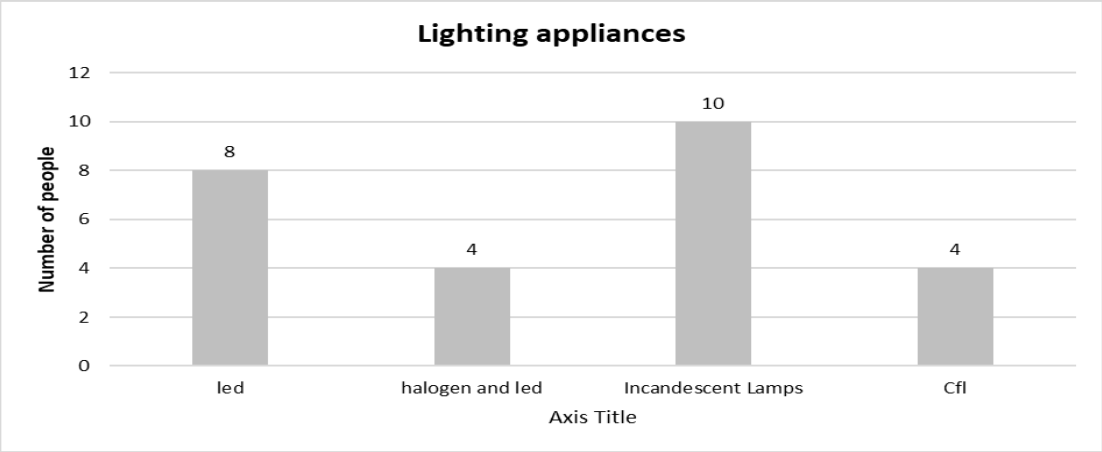


Figure 10 Lighting appliances

Thermostat (in Celsius)

The most common temperature in homes during the winter is more than 20°C.

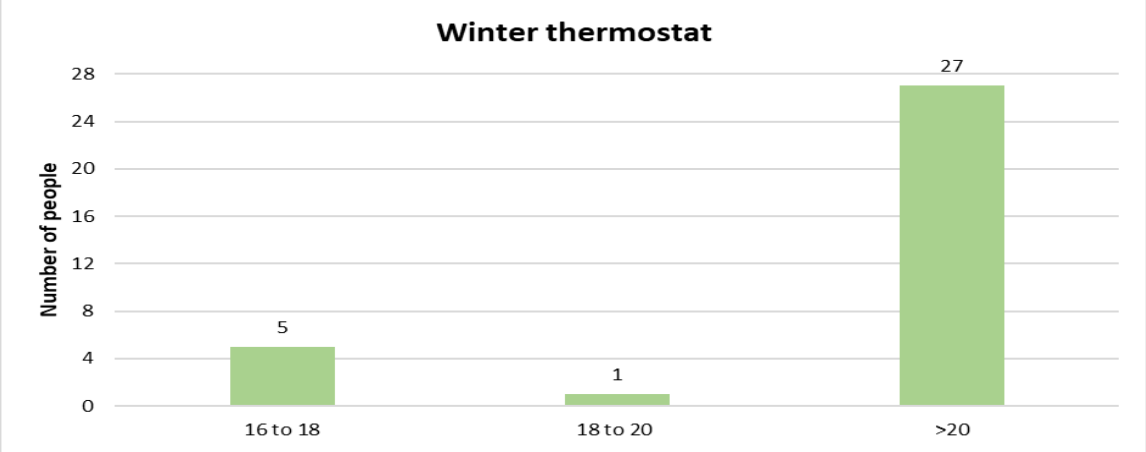


Figure 11 Winter thermostat

The most common temperature in homes during the summer is between 16 and 22°C.

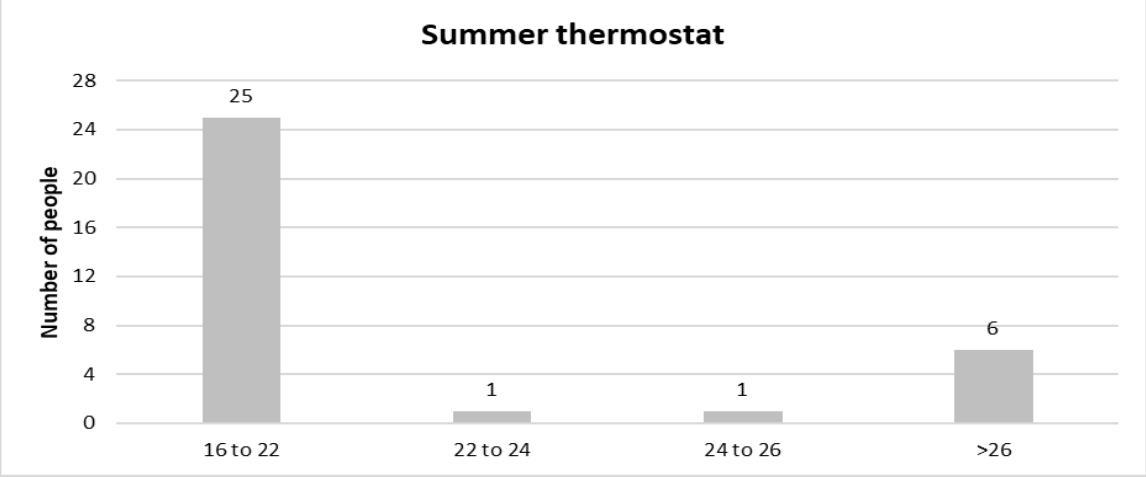


Figure 12 Summer thermostat

Heating annual cost

The most common annual cost in homes is between 0 and 512 EUR.

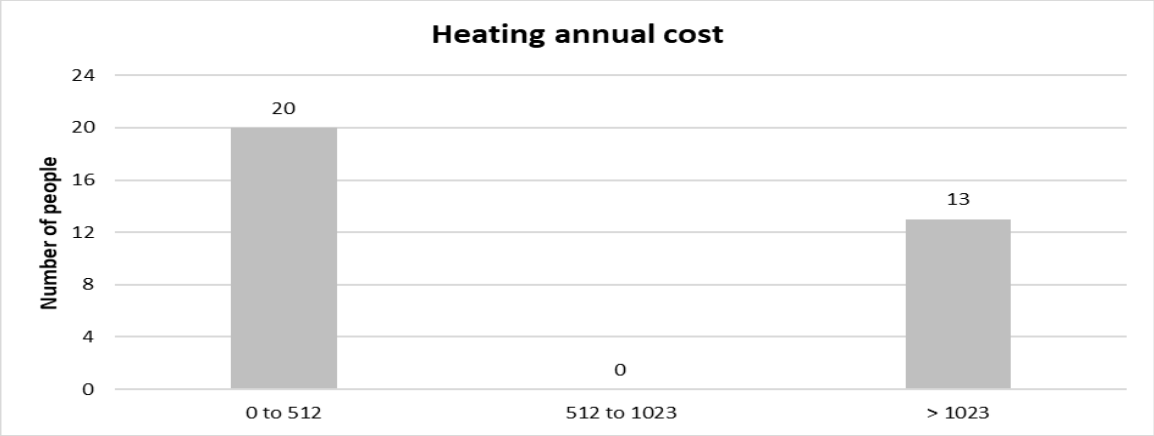


Figure 13 Heating annual cost

Heating fuel

From 33 people, 26 added data in the graph below. Most common heating fuels in Bulgaria is pellet.

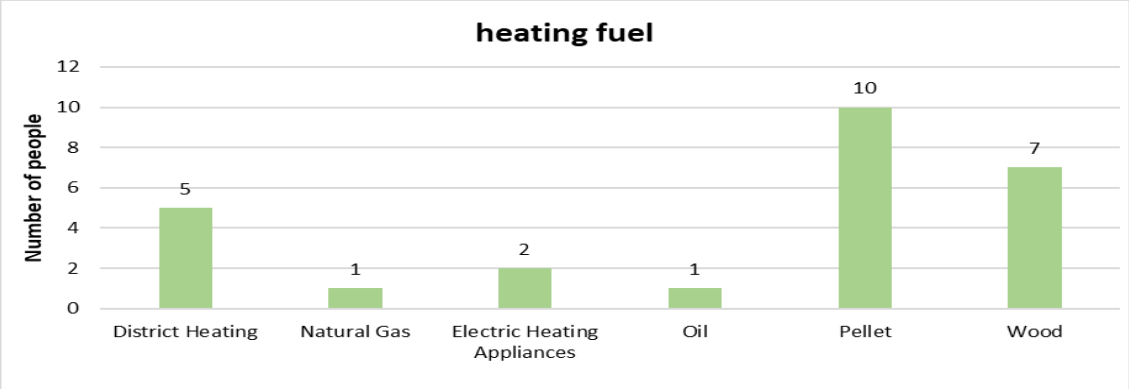


Figure 14 Heating fuel

Heating water

From 33 people, 26 added data in the graph below. Most common heating water in Bulgaria is electric boiler.

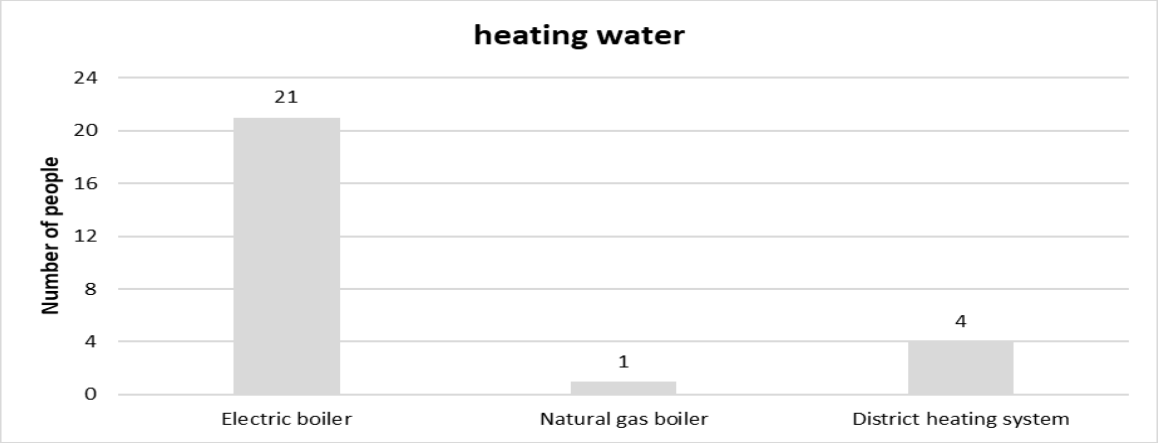


Figure 15 Heating water

Electric appliances often

From 33 people, 26 added data in the graph below. Most common electric appliances often are standby mode.

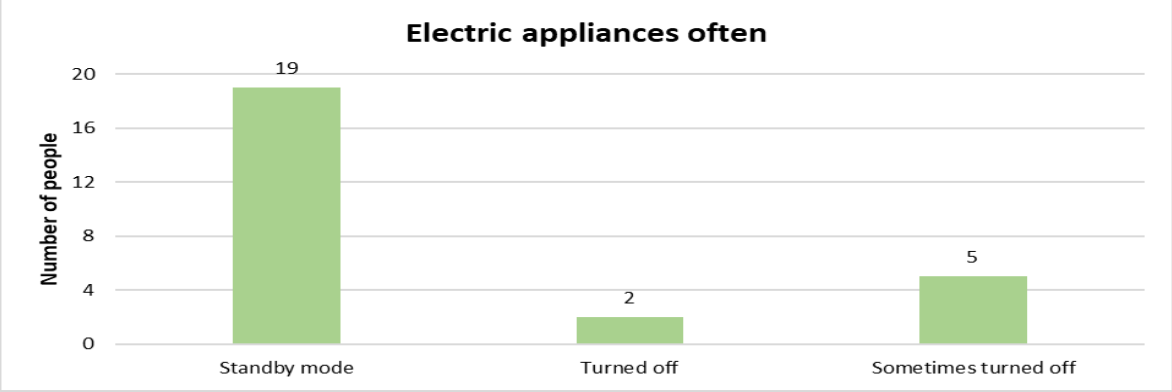


Figure 16 Electric appliances often

3.2 Croatia

POWERPOOR households visits

In Croatia, 440 simple energy audits were performed in households using POWERPOOR toolkit, so Croatia achieved the KPI of 440 household visits.

Three areas are covered: The City of Zagreb, the City of Križevci and the City of Varaždin. In the City of Križevci, between June and August 2022, trained Energy Supporters and Mentors from Red Cross Križevci have done simple energy audits in 275 households, using the POWERPOOR toolkit. This is an example of a cooperation between two organizations and is considered a best practice in reaching out to energy poor households. Red Cross – Križevci established chains of trust with citizens on the ground, and citizens were more willing to respond to the survey within the POWERPOOR toolkit.

In the City of Zagreb, between September and October 2022, trained Energy Supporters and Mentors have done simple energy audits in 151 households using the POWERPOOR toolkit. The Energy Supporters and Mentors were mostly students. It turned out that in urban areas it is much more difficult to carry out such a direct household visit. Urban citizens are much more self-contained, so this attempt was proved really challenging.

The combination of a well-developed trust like that of the Red Cross and a rural environment proved to be a winning combination for collecting data and disseminating information to reduce energy poverty.

In the City of Varaždin on 15 October 2022, on an Info Day trained Energy Supporters and Mentors from DOOR have done simple energy audits in 15 households using the POWERPOOR toolkit. It was an Info Day event, where POWERPOOR toolkit was used to assist households.

On-line help (via e-mails, phones), on - line help desk support through Energy Poverty Mitigation toolkit and work done through Energy Poverty Alleviation Offices (EPAO)

COVID 19 pandemic started a new trend of working online and this was also reflected in the work in advising citizens. The idea was for the energy supporters and mentors to do online consultations using the POWERPOOR toolkit so it was wise that the POWERPOOR project had foreseen online counselling and it was very well done during the lockdown during the time of COVID 19.

But part of online counselling stayed as trend in Croatia and continues to be one of most popular type of interactions with citizens due to several reasons.

The location of the Energy Poverty Alleviation Offices (EPAO) also contributed to whether citizens were more interested in coming to the office or requesting online help. In the EPAO in Zagreb, online help was more favourite among citizens because Zagreb is the capital of Croatia and covers a very large area, so the EPAO itself, which is located in the western part of the city may be too far for some citizens. EPAO in the city of Zagreb also covers the Zagreb county and satellite towns of the city of Zagreb (metropolitan area of the city of Zagreb), and the same help was provided to those citizens through online support. In EPAO in Križevci due to the location of the office (in the city center), and due to the fact that it is a smaller city more citizens stopped by the office.

Statistically, online counselling provided by Energy Supporters and Mentors in the area of the city of Zagreb was about few cases per month, while in Križevci it was about 8-10 cases per month.

An additional reason that in Križevci the number of online consultations was higher even though the city of Zagreb is a much larger city is in the activity of the city of Križevci itself, who was the first city in Croatia to open a tender at the local level for the installation of a small photovoltaic power plant for citizens - which had great interest among citizens.

Also when there was more media coverage on the topic of energy poverty and when EPAO's work was advertised, there was a spike rise in online inquiries not only from the

area covered by EPAO, but also at the national level i.e. from the whole of Croatia.

Here is a sum of the most frequently asked questions through online counselling:

- Could you calculate the cost-effectiveness of putting photovoltaic systems on my home?
- Could you calculate the cost-effectiveness of replacing a gas heating with a heat pump in my home?
- I have a house in which I would like to change the doors and windows and put on the thermal insulation could you calculate the cost-effectiveness?
- We live in a building that is cultural heritage is there any operational programs for renovation of cultural heritage buildings and could we define ourselves as energy poor household?
- When will the next public calls be opened to co-finance the energy renovation of a house?

POWERPOOR project results from POWER TARGET and POWER ACT

The data collected covers 450 households. Not every household filled in all the questions (they didn't know the answer or didn't feel comfortable sharing that data) so that there is a disproportion in the number of data for each question.

Annual income

From 450 people, 223 added data in the graph below. On average, Croatians who completed the questionnaire have a monthly income up to € 664. Croats most often report income on a monthly basis, so this data should be multiplied by 12 months and the amount of 7,968 EUR is annual income. The average salary in Croatia is 1,140 EUR, (the annual income of such a household would be 13,680 EUR), but the minimum wage is 546.07 EUR (the annual income of such a household would be 6,552.84 EUR), while the minimum pension is 145 EUR per month (the annual income of such a household would be 1,740 EUR). What we see from the data is that our mapped households are on the same level as households with minimal annual income, and that we have mapped vulnerable households.

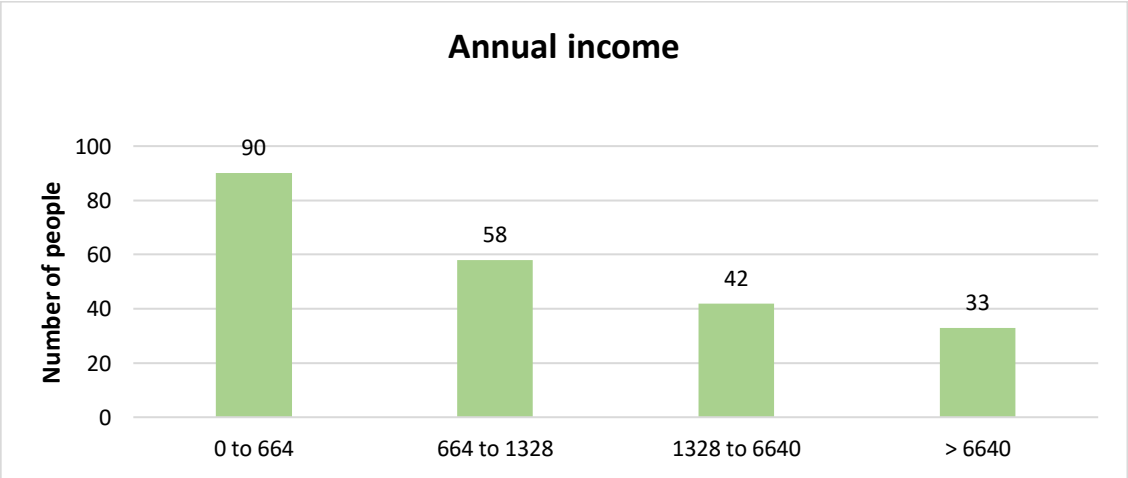


Figure 17 Annual income

Age

From 450 people, 223 added data in the graph below. Most respondents are more than 40 years old.

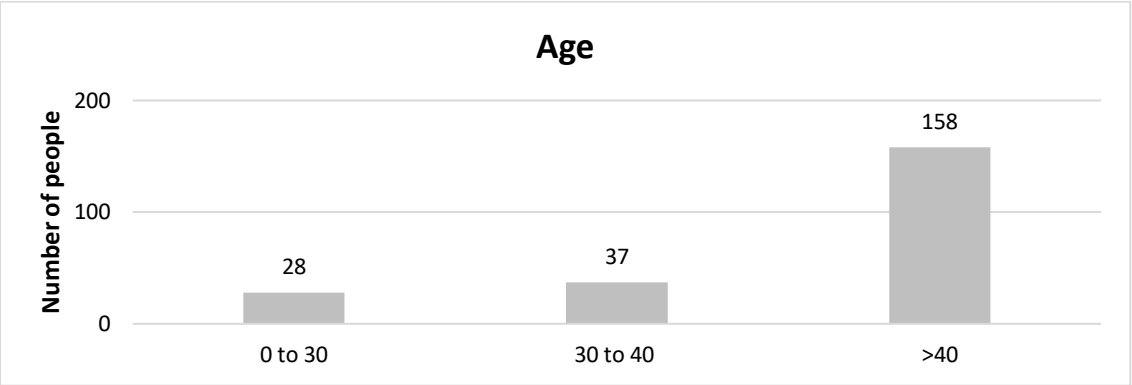


Figure 18 Age

Number of children

From 450 people, 223 added data in the graph below. Most respondents do not have children or have one. 27% of the respondents have two or three children.

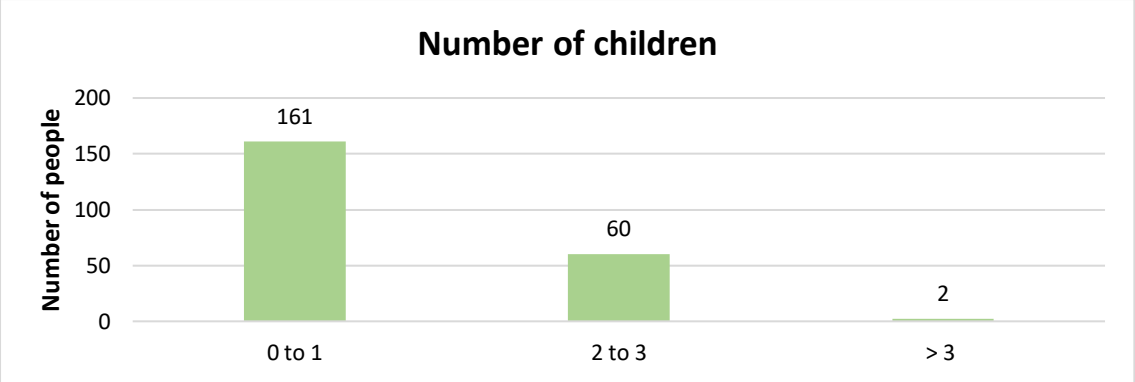


Figure 19 Number of children

Marriage status

From 450 people, 223 added data in the graph below. Most respondents are married i.e., 65%. 25% are single, 5% divorced and 5% widowed.

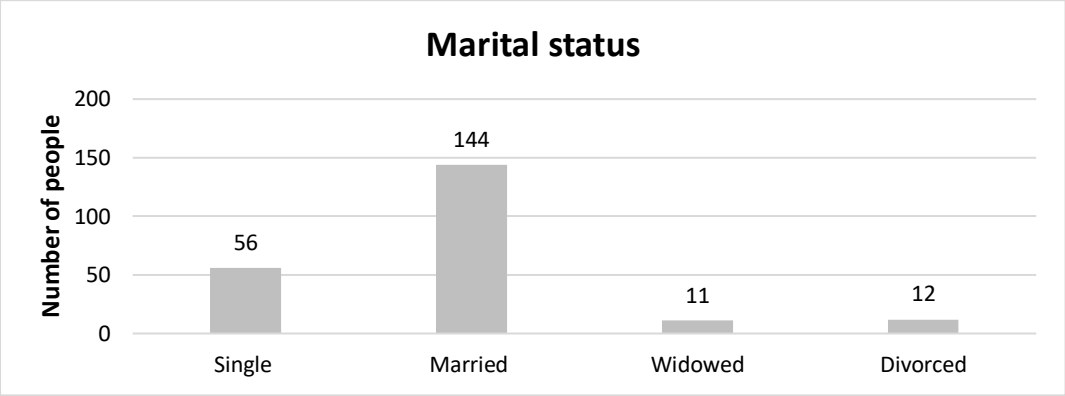


Figure 20 Marital status

Household members

Most respondents have up to three household members. 14% of the respondents have four or five household members and 8% of respondents have more than five members. Which coincides with EUROSTAT statistics that the average household in Croatia has 2.1 members per household.

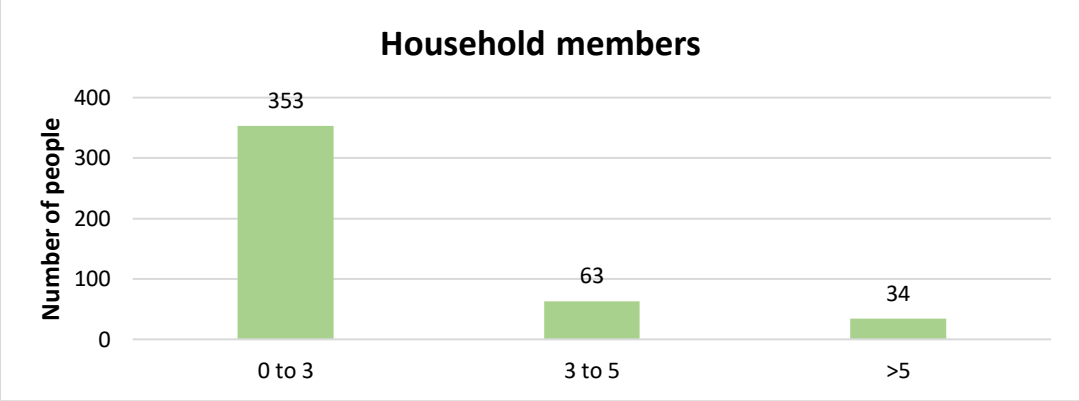


Figure 21 Household members

Property size (m^2)

47% of respondents are living in a home that is between 60 to 120 m^2. About 41% of them are living in a home that has up to 60 m^2, 6% of them are living in home that has 180 m^2 and 6% of them are living in home that is between 120 to 180 m^2.

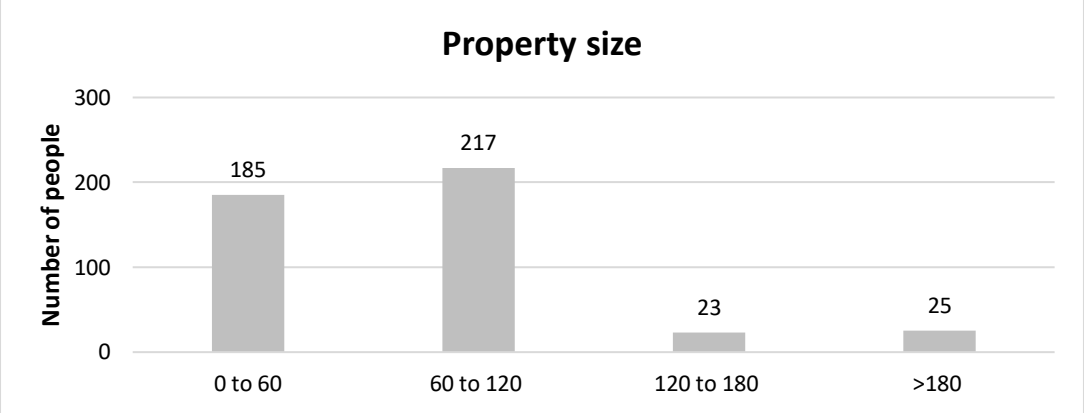
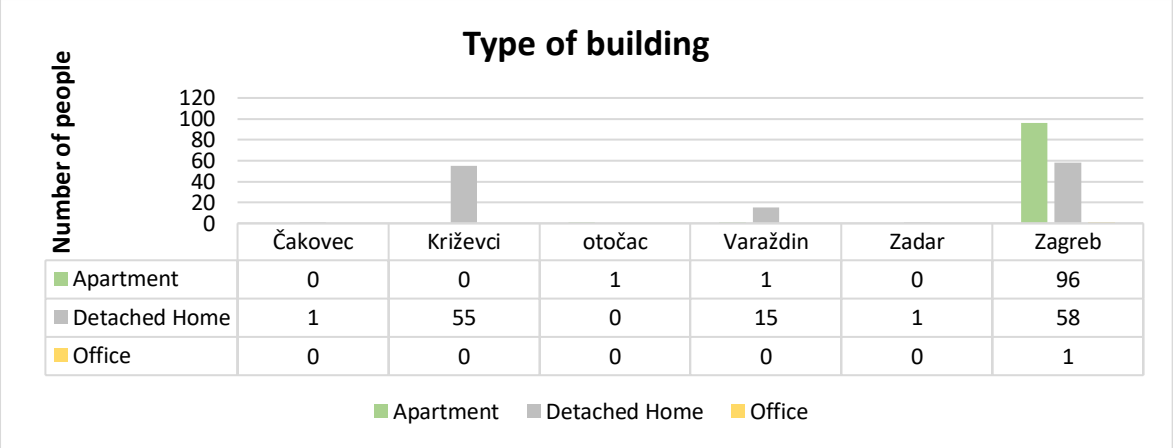


Figure 22 Property size

Type of building

From 450 people, 229 added data in the graph below. According to EUROSTAT statistics, in Croatia 78 % are living in house. Our data also went in that direction and graph shows that citizens live in detached home only exception is city of Zagreb which is the capital city, and most citizens are living in flats/apartments in multi-apartment buildings.

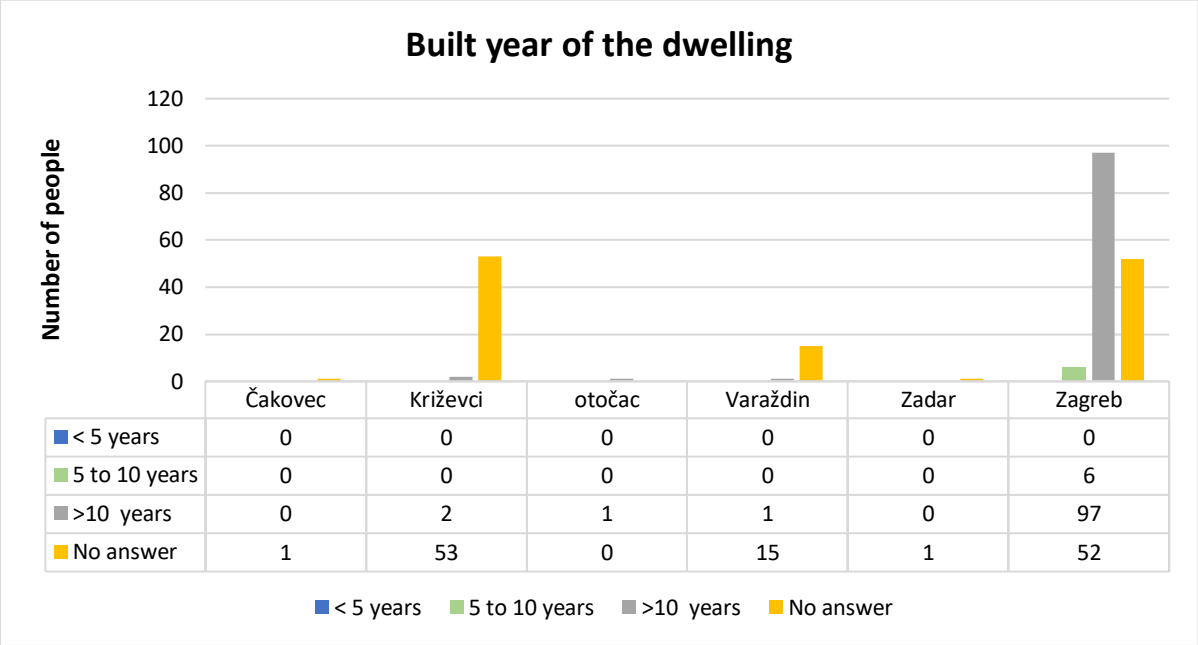


	Čakovec	Križevci	otočac	Varaždin	Zadar	Zagreb
Apartment	0	0	1	1	0	96
Detached Home	1	55	0	15	1	58
Office	0	0	0	0	0	1

Figure 23 Type of building

Built year of the dwelling

From 450 people, 229 added data in the graph below. 42% of respondents live in a home, which is built more than 10 years ago but mostly citizens do not know when their house /building was built. In other information - the median age of houses shows a growing trend and in 2017 it was 51 years. Another data says that most of the buildings in Croatia were built before 1987 and as such do not have adequate thermal protection. As many as 83% of buildings do not even meet the Technical Regulations from 1987 and have large heat losses, with an average heating energy consumption of 150 to 200 kWh/m2, which places them in energy class E!



	Čakovec	Križevci	otočac	Varaždin	Zadar	Zagreb
< 5 years	0	0	0	0	0	0
5 to 10 years	0	0	0	0	0	6
>10 years	0	2	1	1	0	97
No answer	1	53	0	15	1	52

Figure 24 How old is the dwelling

Lighting

68% of respondents are using incandescent lamps for lighting in their home. But such bulbs are prohibited in Croatia and are slowly going out of use, proportion of other types of bulbs will increase. But the incandescent lamps are 5 times cheaper than other types of bulbs, and there is a problem how energy-poor citizens will be able to afford other types of light bulbs.

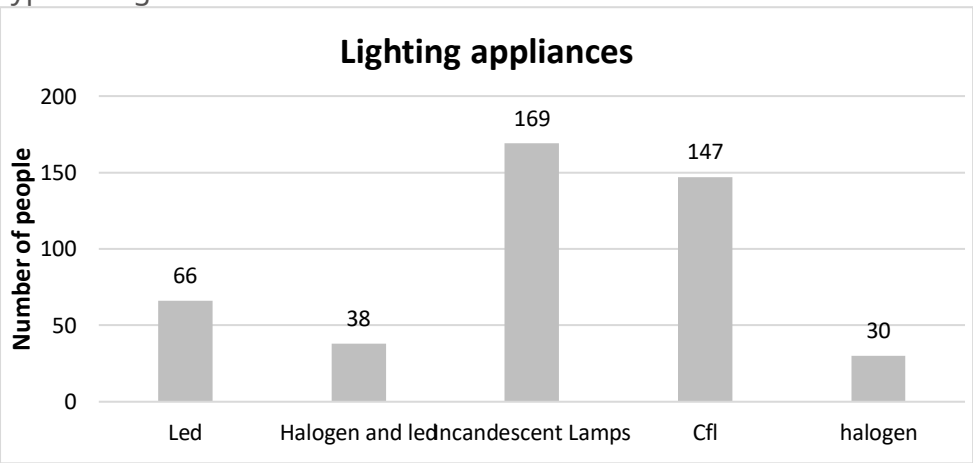


Figure 25 Lighting appliances

Thermostat (in Celsius)

The most common temperature in homes during the winter is more than 20°C.

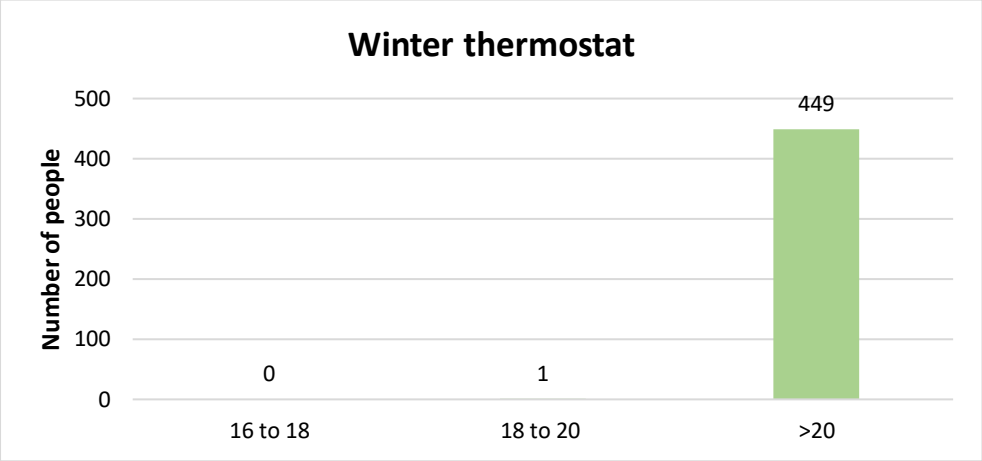


Figure 26 Winter thermostat

The most common temperature in homes during the summer is between 24 to 26°C.

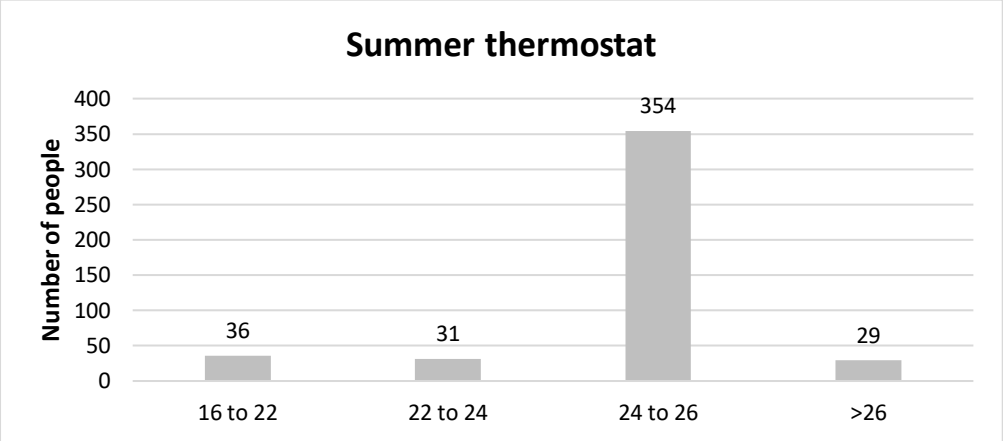


Figure 27 Summer thermostat

Heating annual cost

From 450 people, 223 added data in the graph below. The monthly cost in most homes for heating is up to 133 EUR. So the annual amount would be 798,00 EUR.

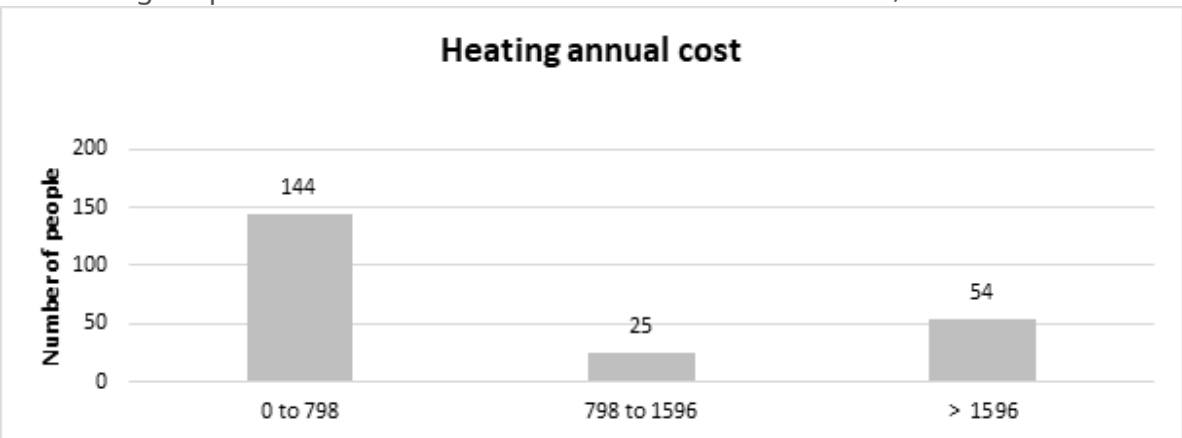


Figure 28 Heating annual cost

Heating fuel

Most common heating fuel in Croatia is wood. According to our POWERPOOR data 60% of households in Croatia uses wood for household heating. Official data for Croatia show that 48% of households use wood for heating. Our data is slightly larger because we mapped more households in rural areas of Križevci.

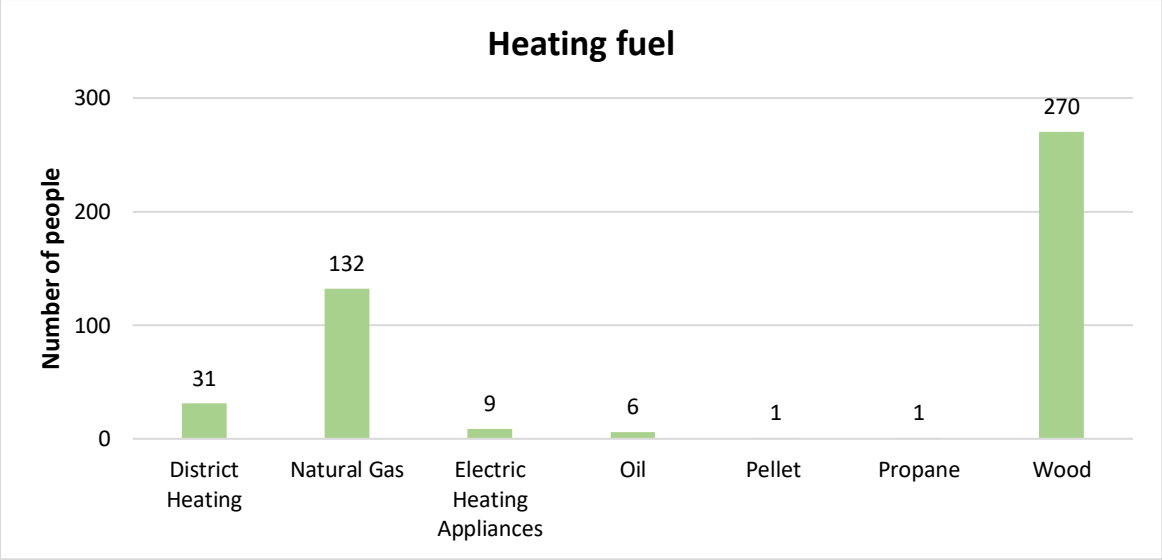


Figure 29 Heating fuel

Heating water

The most common way to heat water in Croatia is with electric boiler.

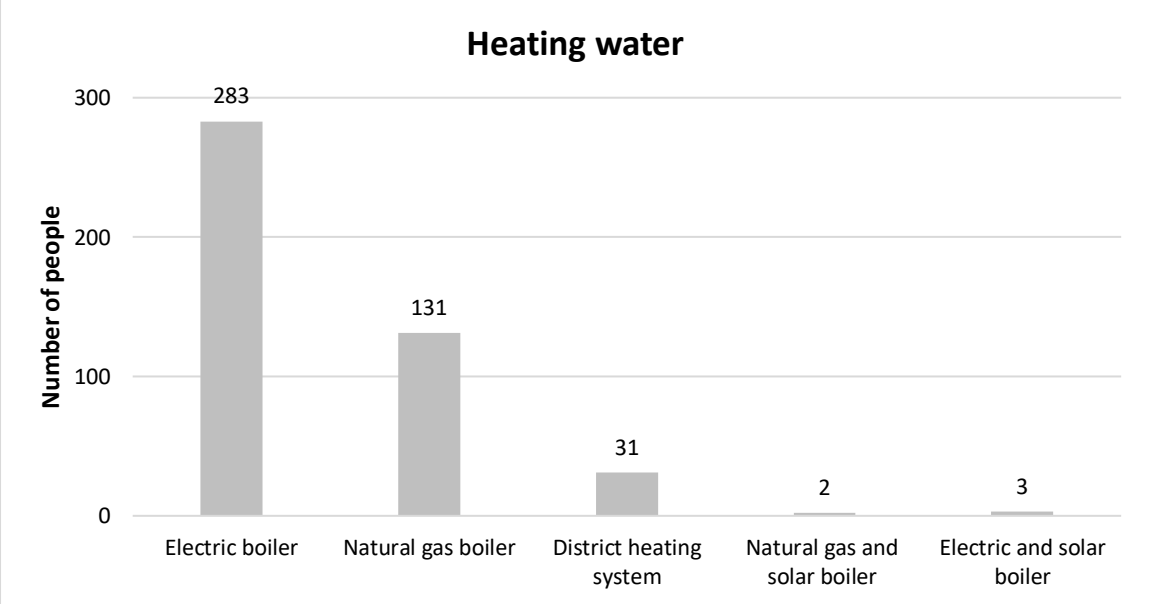


Figure 30 Heating water

Electric appliances often

The following graph shows that citizens often turned off their electric appliances. According to the data, the typical consumption of devices in "stand-by" mode in Croatia is 0.65 kWh per day or €53 per year. We see that citizens are aware of this and keep their devices turned off.

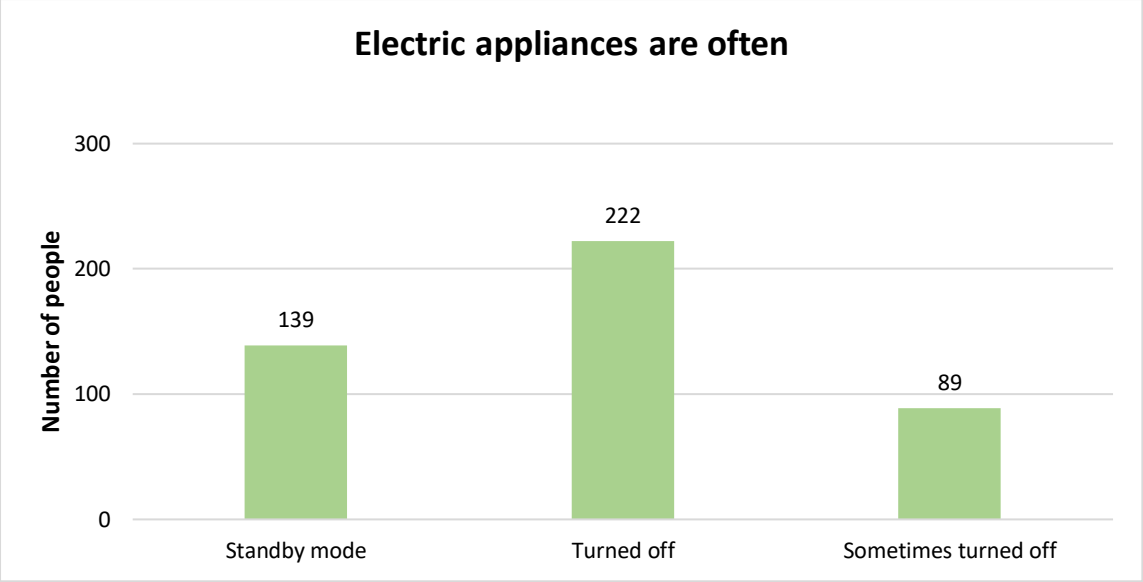


Figure 31 Electric appliances

3.3 Estonia

POWERPOOR households visits

In Estonia, 620 households were reached through visits or online counselling, achieving the KPI. The three main areas covered were the cities of Tallinn, Tartu, and Pärnu. In addition, household visits were held in rural regions surrounding these cities, where possible. As most of the Estonian population lives in multi-apartment buildings, the inhabitants of these buildings are most vulnerable to energy crises and high energy costs due to the buildings lack of energy efficiency. Therefore, the aim in Estonia was to reach the households in energy poverty or at risk of energy poverty in this type of multi-apartment building and block of flats.

The visits were held by certified POWERPOOR Energy Supporters and Mentors who finished the trainings organized by EKYL. To reach the vulnerable households and gain the trust of the residents, the Energy Supporters and Mentors were, in most cases, already members of the community—for example, active residents of the apartment associations where the visits were held. It provided a good basis for creating contacts and exchanging information for reducing energy costs and alleviating energy poverty in the targeted households.

Where possible, POWERPOOR tools were used in the household visits. The main obstacles were that residents didn’t have enough knowledge to read their energy bills, which means that Energy Supporters and mentors often started to figure out the exact energy consumption of the household, and residents’ unwillingness to share their income, as it is considered highly sensitive information in Estonia and not usually shared even inside the community. In these cases, when it was not possible to use the POWERPOOR tools, the Energy Supporters and Mentors counselled the household without using the tools or taught the residents to use the POWERPOOR tools themselves so that they could calculate their risk of energy poverty later themselves without showing anyone the data that they entered.

Since mitigating energy poverty in multi-apartment buildings is always a collective effort, the work of the Energy Supporters and Mentors frequently didn't end after home visits to the building's most vulnerable households. Instead, in many cases, they continued as invited speakers at the annual general meetings of the apartment associations to inform all the residents of the opportunities for collective energy actions in the building.

It takes a long time to reach a collective decision for building renovation or the installation of renewable energy sources in big multi-apartment buildings, but there are many encouraging signs that the POWERPOOR household visits sparked collective decision-making processes in the apartment associations to begin building renovation to lower energy costs and lessen the risk of energy poverty. Now the community as a

whole is impacted by the activity of the Energy Supporters and Mentors, which initially was intended to benefit households.

On-line help (via e-mails, phones), on - line help desk support through Energy Poverty Mitigation toolkit and work done through Energy Poverty Alleviation Offices (EPAO)

The online help for alleviating energy poverty in Estonia was organised via the Local Energy Poverty Alleviation Office in Tallinn, established by EKYL under the scope of the POWERPOOR project. The office is in the city center of Tallinn, on the premises of the main office of EKYL.

As in the household visits, the people can have a free online consultation on their energy consumption from an energy mentor, who helps identify if they are at risk of energy poverty and gives recommendations for energy-efficient living. Representatives of apartment associations can obtain online instructions for energy-efficient renovations and the installation of renewable energy solutions for large housing estates, including recommendations for financing solutions.

The amount of online counselling has changed over time, from 25 in month during the COVID period to 10 in month during the first half of 2023.

The residents or managers of apartment associations who ask for online support from the EPAO usually have already done their background search and come with very specific questions. The main questions have related to technical solutions for energy efficiency, financing of joint energy actions, and legal questions about making collective decisions to refurbish the buildings for energy efficiency together with neighbours.

POWERPOOR project results from POWER TARGET and POWER ACT

The data collected by Estonia in the tools are from 473 households. Not every household filled in all the questions (they didn't know the answer or didn't feel comfortable sharing that data) so that there is a disproportion in the amount of data for each question.

Annual income

On average, Estonians who completed the questionnaire have a salary of € 10,000 to € 50,000.

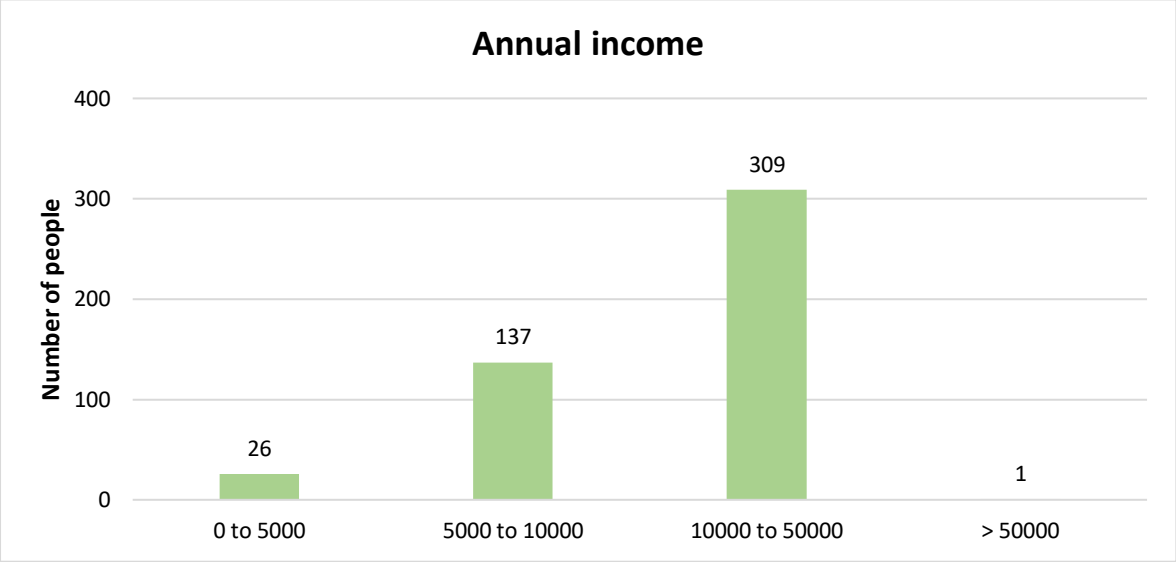


Figure 32 Annual income

Age

Most respondents are more than 40 years old.

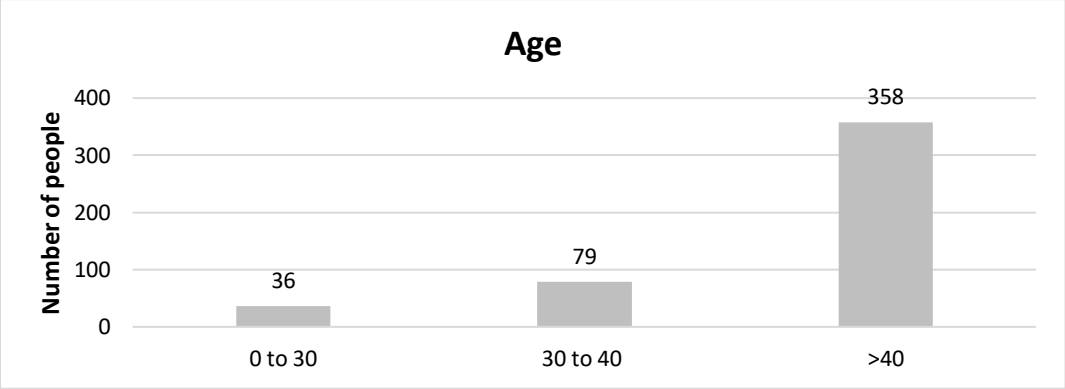


Figure 33 Age

Number of children

Most respondents do not have children or have one. 27% of the respondents have two or three children and (1%) more than 5 children.

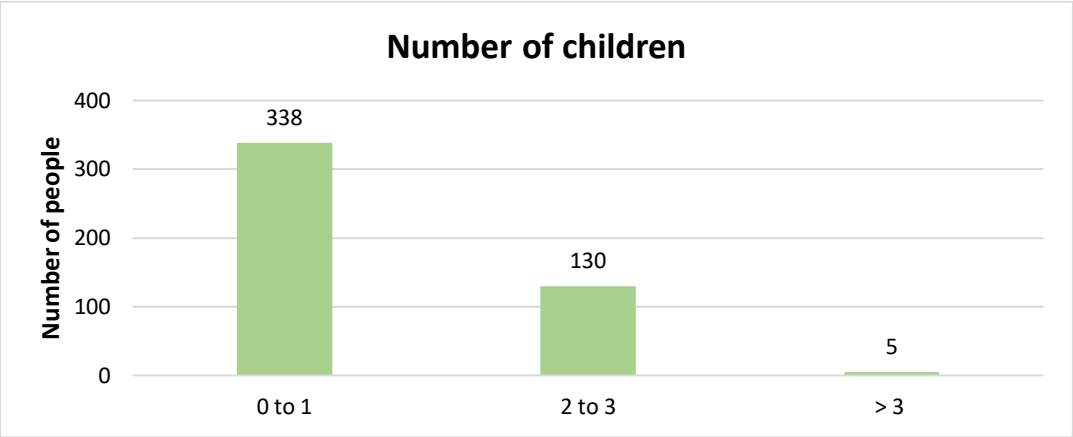


Figure 34 Number of children

Marriage status

Most respondents are married i.e., 43%. 35% are single, 12% divorced and 10% widowed.

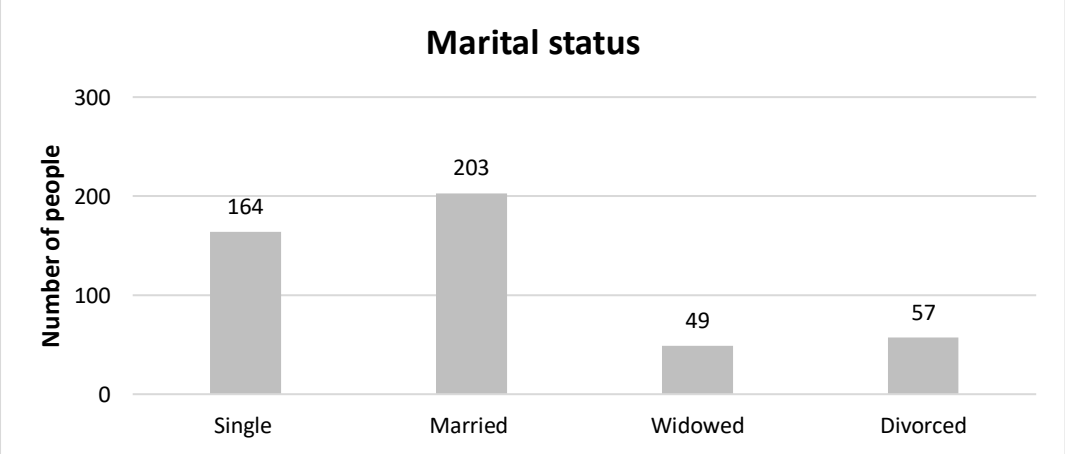


Figure 35 Marital status

Household members

From 473 people, 261 added data in the graph below. Most respondents have up to three household members. 16% of the respondents have four or five household members and 2% of the respondents have more than five members.

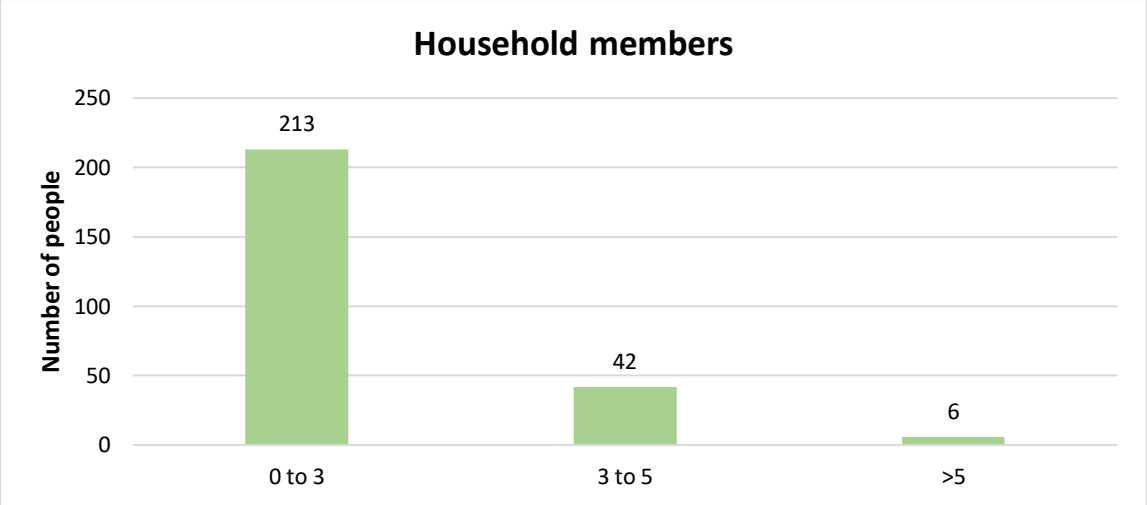


Figure 36 Household members

Property size (m^2)

47% of the respondents live in a home ranging in size from 0 to 60 m^2. About 46% of them are in home size from 60 to 120 m^2. About 3% of them are in a home size from 120 to 180 m^2, and about 4% more than 180 m^2

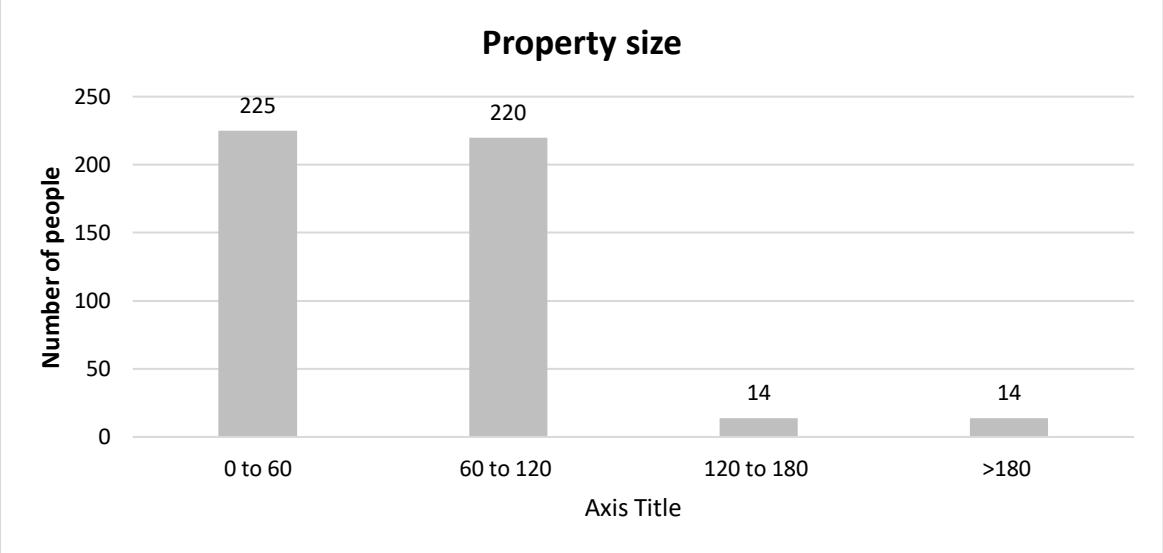


Figure 37 Property size

Type of building

From 473 people, 210 added data in the graph below. It can be observed that most citizens are living in apartments.

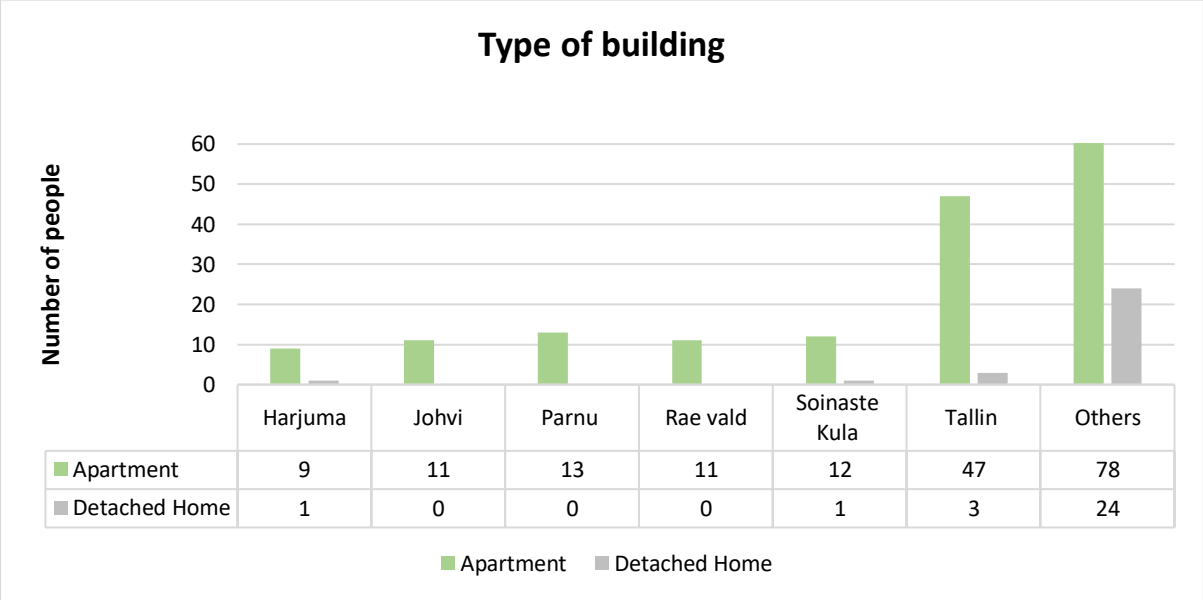


Figure 38 Type of building

Built year of the dwelling

From 473 people, 210 added data in the graph below. 48% of the respondents live in a home, which is built more than 10 years ago.

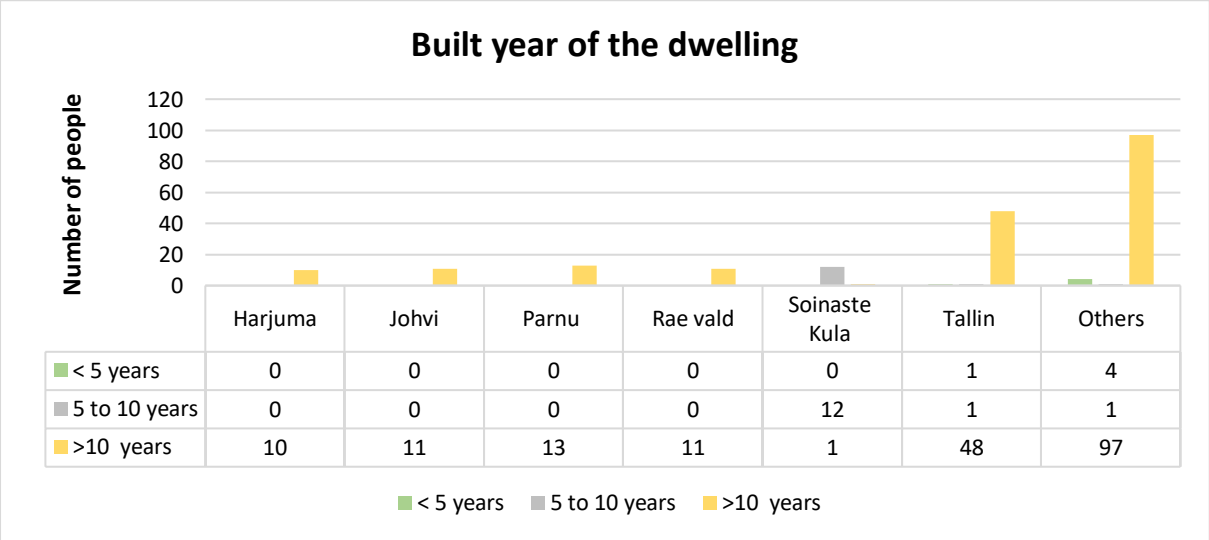


Figure 39 How old is the building

Lighting

From 473 people, 261 added data in the graph below. 60% of respondents are using LED for lighting in their home.

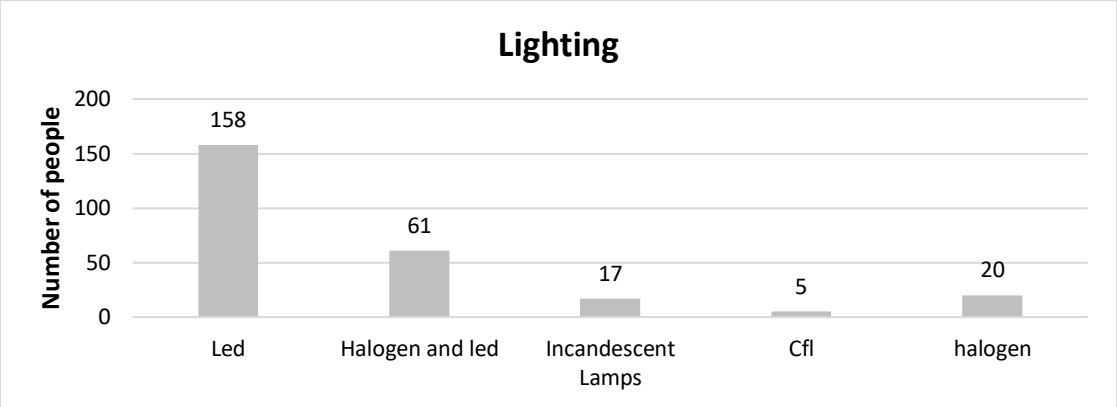


Figure 40 Lighting

Thermostat (in Celsius)

The most common temperature in homes during the winter is more than 20°C.

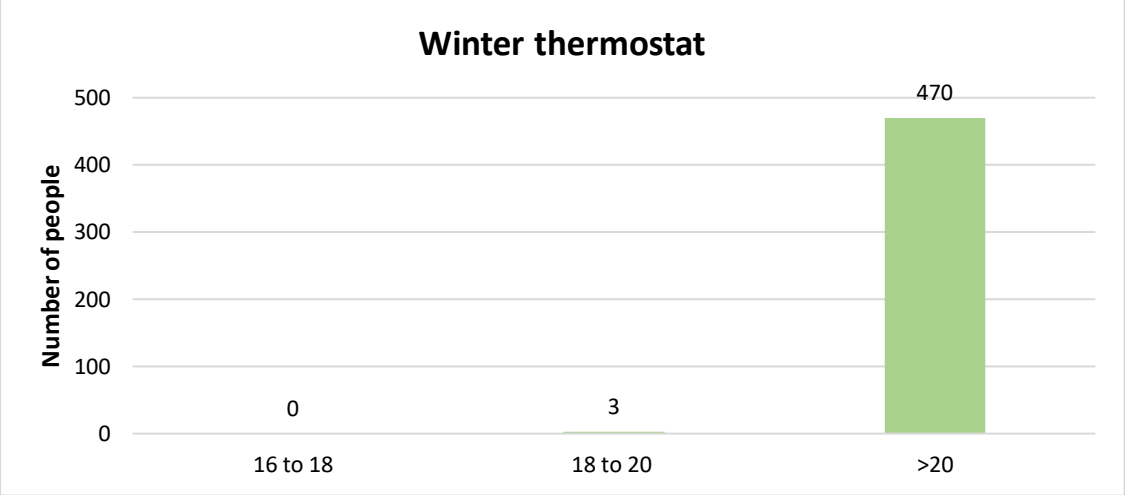


Figure 41 Winter thermostat

The most common temperature in homes during the summer is between 16 to 22°C.

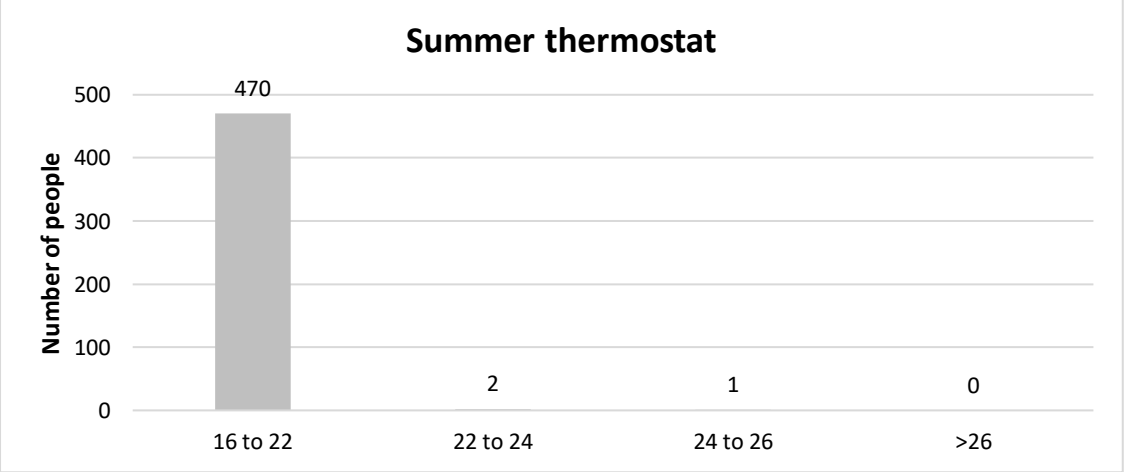


Figure 42 Summer thermostat

Heating annual cost

The most common annual cost in homes is between 0 and 1000 EUR.

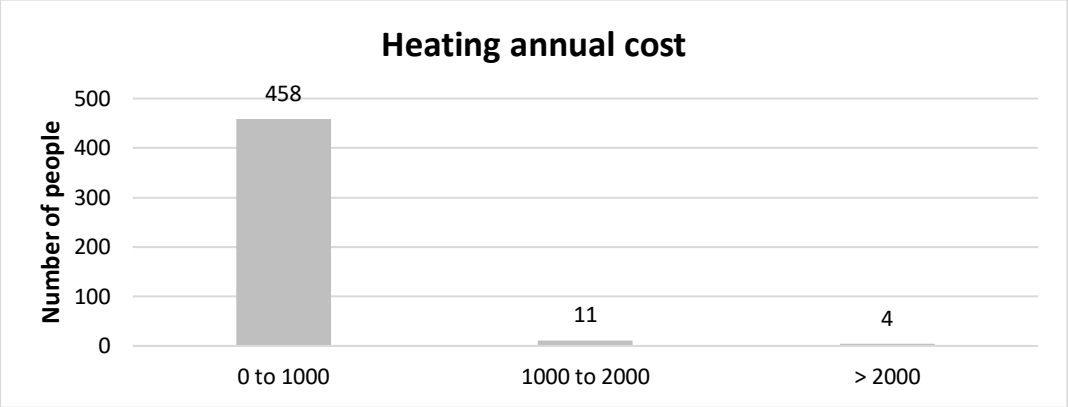


Figure 43 Heating annual cost

Heating fuel

The most common heating fuel in Estonia is district heating.

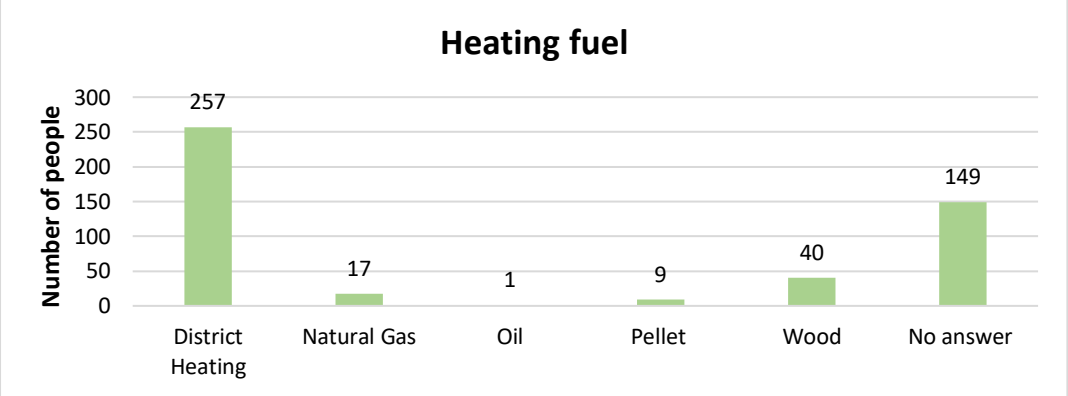


Figure 44 Heating fuel

Heating water

From 473 people, 261 added data in the graph below. The most common way to heat water in Estonia is through district heating system and electric boiler.

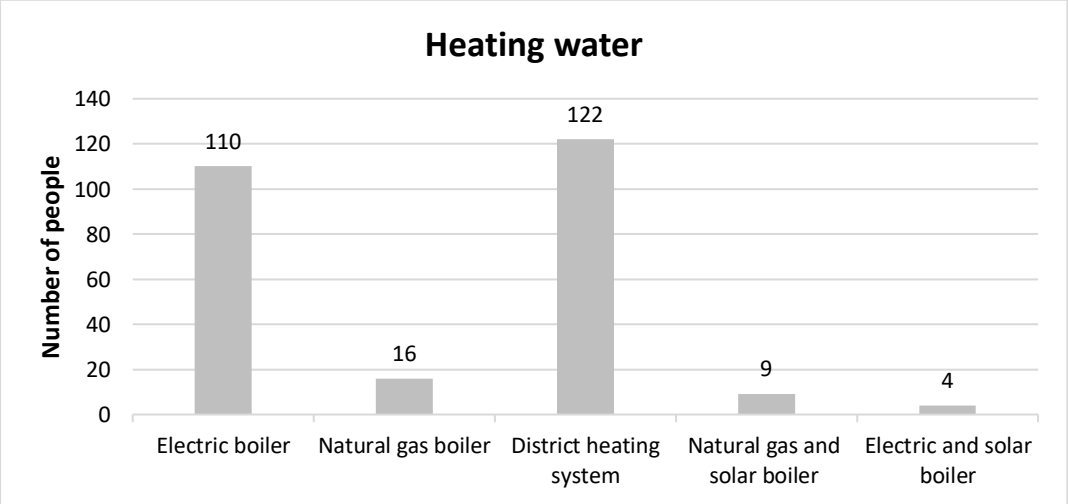


Figure 45 Heating water

Electric appliances often

From 473 people, 261 added data in the graph below. The graph shows that electric appliances are often in standby mode.

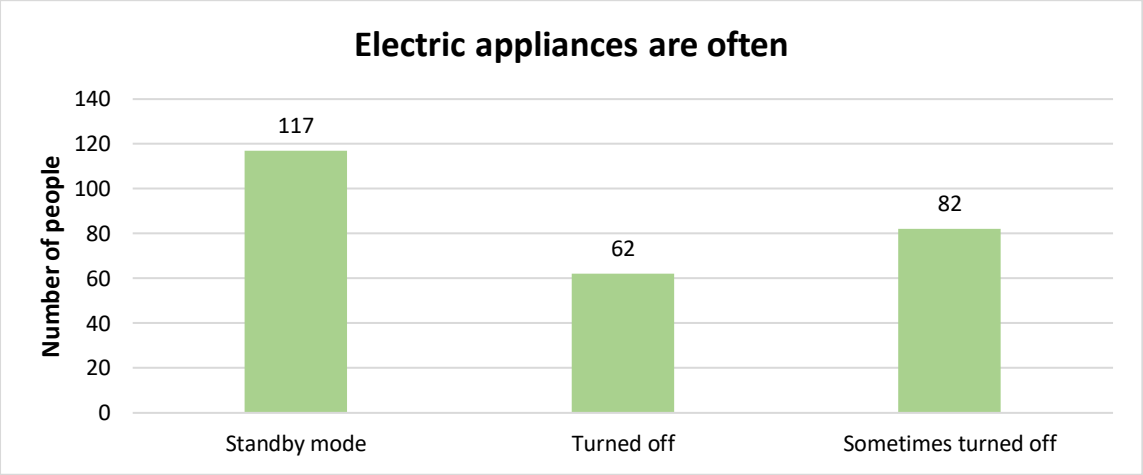


Figure 46 Electric appliances

3.4 Greece

POWERPOOR households visits

SUSTAINABLE CITY

In Greece, during the period June 2021 - June 2023 over 930 house visits were conducted by the Energy Supporters and Mentors, who used the POWERPOOR toolkit. Each one of them was trained and certified. The KPI of 590 house visits conducted by SUSTAINABLE CITY Network's certified mentors was fulfilled.

The Energy Supporters and Mentors visited mainly vulnerable households in their region, in order to provide them with online and / or direct technical help and consultation.
During the home visits the Energy Supporters and Mentors collected all the necessary information for the POWERPOOR toolkit, analysed together with the households their energy consumption and identified the behaviour changes actions that could have a real impact to reduce it.

The house visits were carried out in the following areas-Municipalities:
Agia Paraskevi, Agios Dimitrios, Aigialeia, Almyros, Athens, Corinth, Delta, Elliniko – Argyroupolis, Galatsi, Glyfada, Halki, Ierapetra, Ioannina, Kalamata, Kavala, Loutraki – Perachora – Agioi Theodoroi, Messini, Mouzaki, Nea Smyrni, Oichalia, Palaio Faliro, Pella, Pylos – Nestor, Souli, Tripolis, Western Achaia, Xylokastro – Evrostina.

Most of the Energy Supporters and Mentors work in Municipalities or Municipal enterprises and more specifically in technical or social departments. In addition, many people work in the "Help at Home" programme, so they had access to available information about vulnerable households. In cases where the Supporters and Mentors did not have access to such information, then they cooperated with the respective departments of the Municipality in order to conduct the house visits. As a result, an interdepartmental collaboration was achieved.

Some Energy Supporters and Mentors conducted house visits near the area they live in. This made the monitoring of the whole procedure difficult and to overcome this problem, the Supporters and Mentors were asked to share their energy inspections and reference forms of each household with SUSTAINABLE CITY, to verify that the house visits indeed occurred.

Out of all these areas covered by the Energy Supporters and Mentors, 5 of the Municipalities decided to provide further assistance to the energy poor households and established an Energy Poverty Alleviation Office.

Prior to the house visits, a phone call or email contact was made to arrange when the visit would take place. In cases where this was not possible, the information of the household was given to the Energy Supporters and Mentors over the phone, and they would enter the data into the POWERPOOR toolkit at the same time.

The municipality of Almyros expressed an interest in finding out more about how to identify and help the energy poor within their region. They also wanted to provide additional services not only to the energy poor but to all the citizens. Some of the municipality's employees got trained and certified as Energy Supporters and Mentors and an Energy Poverty Alleviation Office was established in the municipality staffed by them. However, their experience with house visits was not so good. Many people were suspicious of them and refused to let them into their homes. Many, in fact, thought they were from the Public Power Corporation of Greece or the Town Planning Department and refused to fill in their details, being afraid that they will receive a fine for not paying their utility bills in time. For this reason, the office decided to create an online form which included the data requested by the POWERPOOR toolkit, so that the citizens could fill it in themselves. In return, the Municipality would create an individual Energy Report for each household which would include data on the house's consumption and simple ways to save energy.

INZEB

The allocated KPI for home visits assigned to INZEB was 380 while during the project period, 500 house visits have been conducted in various regions and cities across Greece. The house visits have been conducted by Energy Supporters and Mentors that attended the numerous training activities that were organised. The majority of them used their network to conduct the house visits. Worth mentioning is that members of Energy Communities were mobilised to conduct the house visits supporting this way their commitment to energy democracy and to support citizens to be active in the energy transition. The Supporters and Mentors were fully supported by INZEB team who responded to every need or question that arose during the process. The Supporters and Mentors, especially the ones that are members of energy communities have stated that they will continue to use the POWERPOOR Toolkit to support energy poverty mitigation.

On-line help (via e-mails, phones), on - line help desk support through Energy Poverty Mitigation toolkit and work done through Energy Poverty Alleviation Offices (EPAO)

The Energy Supporters and Mentors who were assigned to work on site in the established Energy Poverty Alleviation Offices had the required equipment to conduct counselling through the Municipality's landline phone or using their work emails. However, those worked from their homes (due to COVID-19 pandemic) could only rely on their personal emails or phones to provide this type of consultation.

Citizens did not visit the EPAOs often because they were sceptical and wary and did not want to be socially stigmatised. It was more common for them to go to the City Hall to handle other obligations and visit the EPAOs after seeing the dissemination material or learning about them from the Municipality's social workers. As time passed, the EPAOs became more and more familiar to citizens and more people decided to visit them. In many cases, online consultation was more common than physical consultation, because citizens felt more secure with sharing their information without being face-to-face with the Supporters and Mentors.

The most frequently asked question was who "qualifies" as an energy poor citizen and whether they themselves fell into this category. Some of the office visitors asked for information on simple ways to improve the temperature comfort of their houses and in most cases, they were impressed by the suggested improvements because they were easy to be applied. Several people requested information about cost-free actions that citizens can take to maintain their houses warm in the winter. In addition, people wanted to get informed about financial programmes from which they can benefit to renovate their homes (e.g., National programme "Save" etc.).

However, when they were informed that their data were going to be uploaded to the POWERPOOR toolkit, people who asked for a consultation expressed their anxiety about the online platforms and requested to check which data were entered in the toolkit. The Supporters and Mentors had to reassure them by showing them the tools and the data entered. They also expressed their discomfort with sharing their income and in many cases, they did not know the information that was asked and where to find them (e.g., the total energy consumption of their household etc.)

The most interesting finding about the visits was that, even though many of them felt anxious and sceptical at first about sharing their data, after the reassurance of the Supporters and Mentors, they seemed excited about the fact that an online toolkit has the potential to export results on energy vulnerability and offer solutions.

POWERPOOR project results from POWER TARGET and POWER ACT

The data collected by Greece covers 1492 households. Not every household filled in all the questions (they didn't know the answer or didn't feel comfortable sharing that data) so that there is a disproportion in the amount of data for each question.

Annual income

On average, Greeks who completed the questionnaire have a salary of € 10,000 to € 50,000.

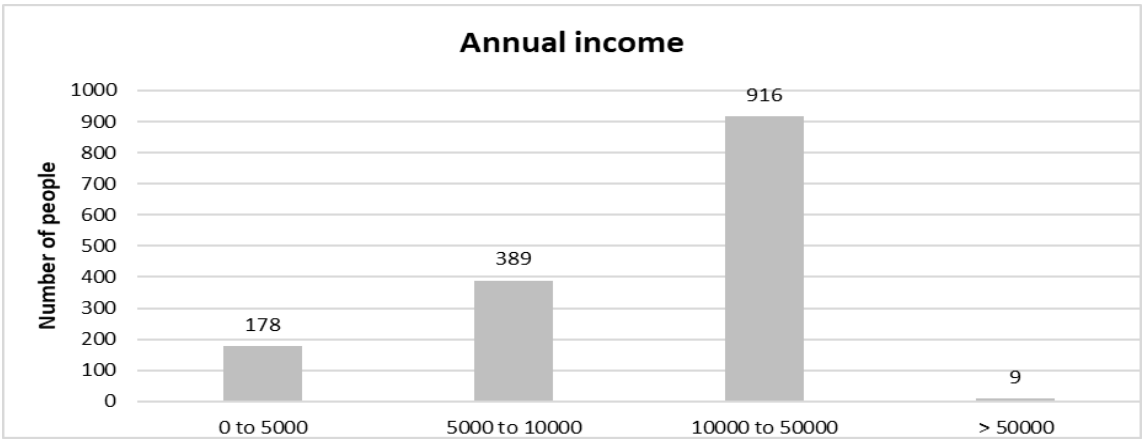


Figure 47 Annual income

Age

Most respondents are more than 40 years old.

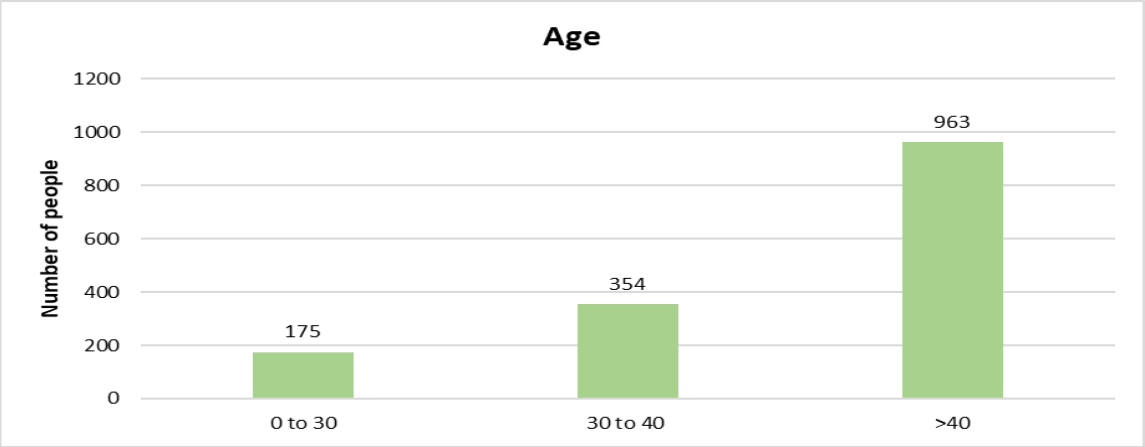


Figure 48 Age

Number of children

Most respondents do not have children or have one. 27% of respondents have two or three children and 2% has more than 5 children.

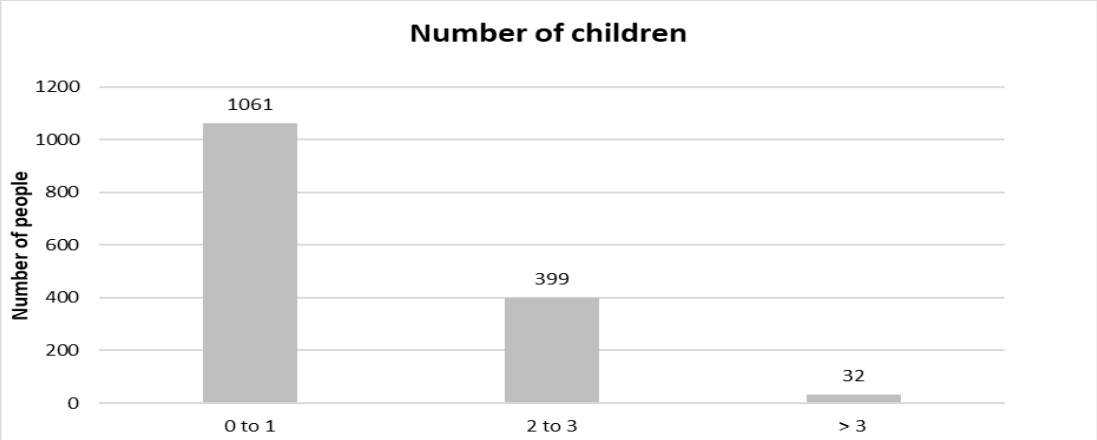


Figure 49 Number of children

Marriage status

Most respondents are married i.e., 62%. 20% are single, 9% divorced and 9% windowed.

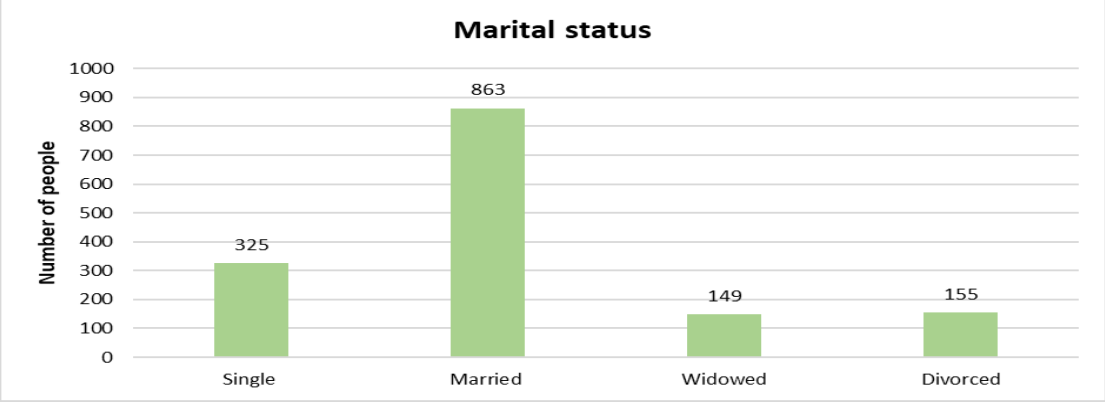


Figure 50 Marital status

Household members

From 1492 people, 1013 added data in the graph below. Most respondents have between zero and three household members. (29%) of respondents have four or five household members and 2% of respondents have more than five members.

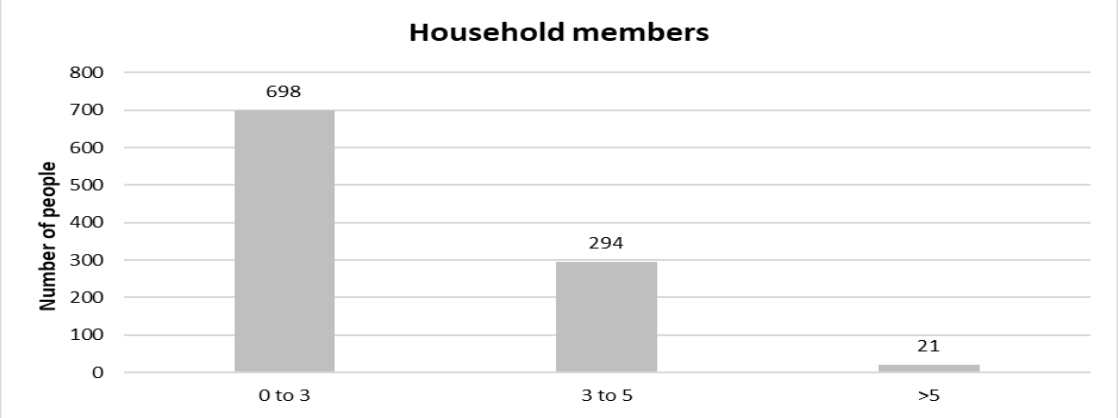


Figure 51 Household members

Property size (m^2)

70% of the respondents live in a home ranging in size from 60 to 120 m2. 24% of them are in a home from 0 to 60 m2. About 5% of them are in a home size from 120 to 180 m2, 1% of them are in a home from 180 m2

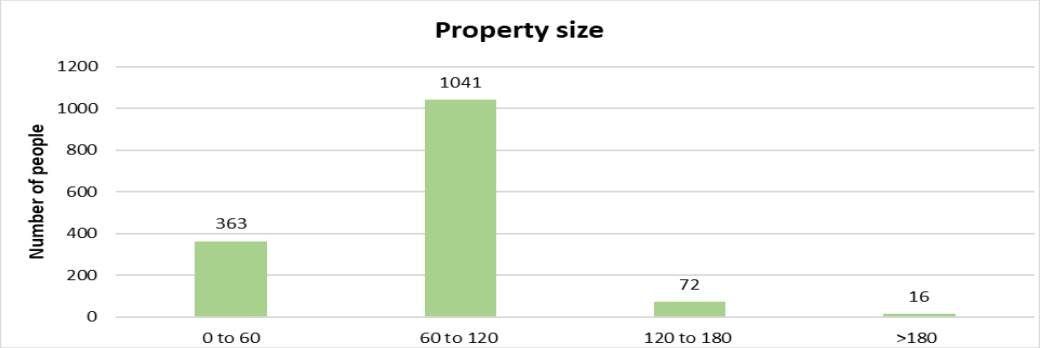
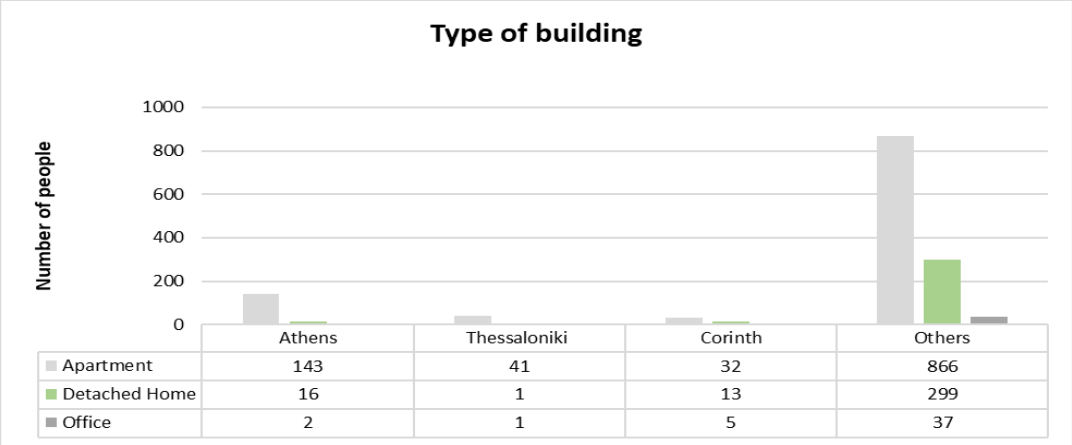


Figure 52 Property size

Type building

From 1492 people, 1456 added data in the graph below. It can be observed that the number of people living in apartments. Also we can notice that they are living in the secondary cities.



	Athens	Thessaloniki	Corinth	Others
Apartment	143	41	32	866
Detached Home	16	1	13	299
Office	2	1	5	37

Figure 53 Type of building

Built year of the dwelling

From 1492 people, 1456 added data in the graph below. 95% of respondents live in a home, which is built more than 10 years old.

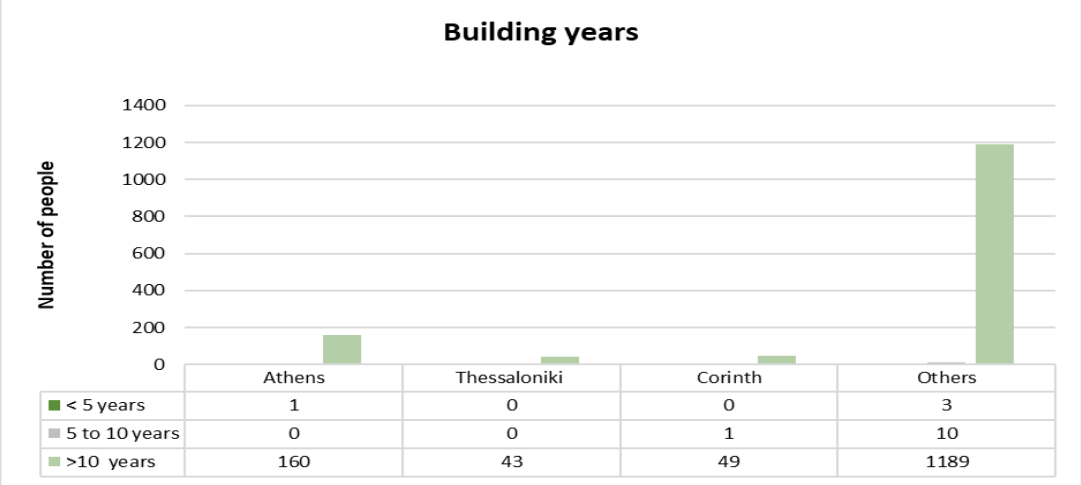


Figure 54 Building years

Lighting appliances

From 1492 people, 1013 added data in the graph below. 55% of the respondents live in a home which they are using led for lighting appliances.

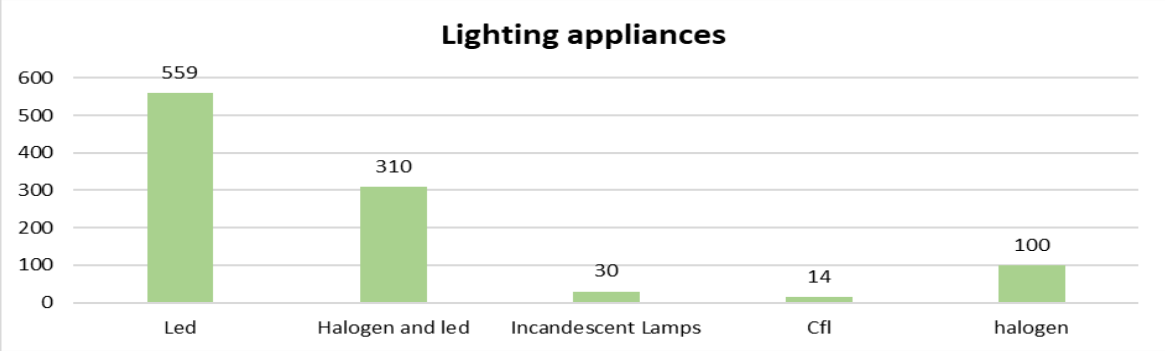


Figure 55 Lighting appliances

My air conditioning thermostat is set to Celsius

The most common temperature in homes during the winter is more than 20°C.

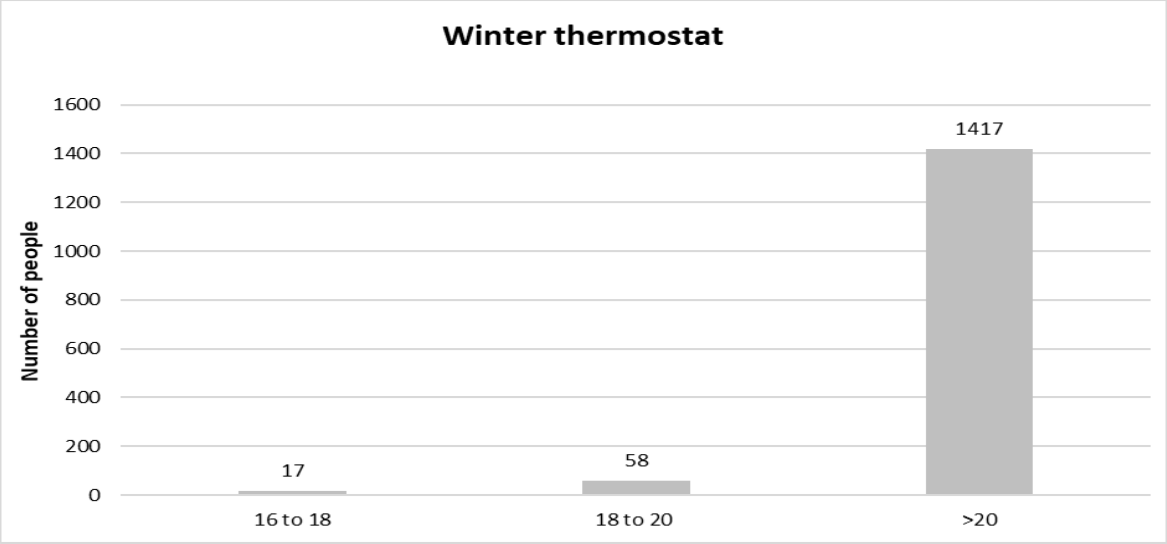


Figure 56 Winter thermostat

The most common temperature in homes during the summer is between 16 to 22°C.

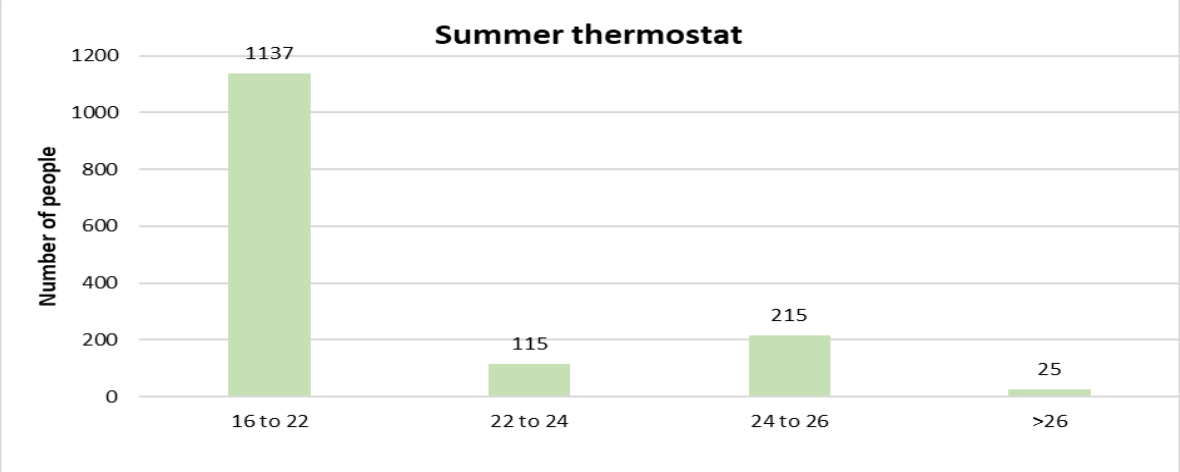


Figure 57 Summer thermostat

Heating annual cost

The most common annual cost in homes is between 0 and 1000 EUR.

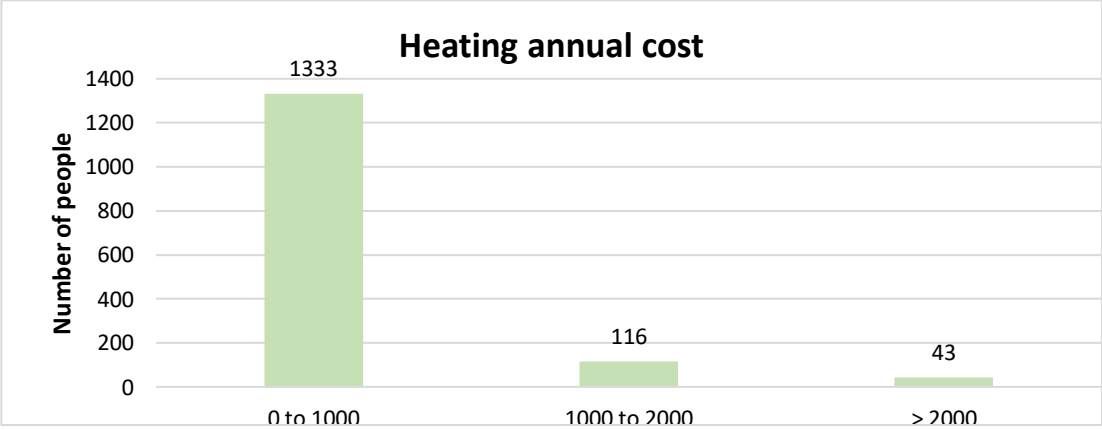


Figure 58 Heating annual cost

Heating fuel

From 1492 people, 1013 added data in the graph below. Most common heating fuels in Greece is oil.

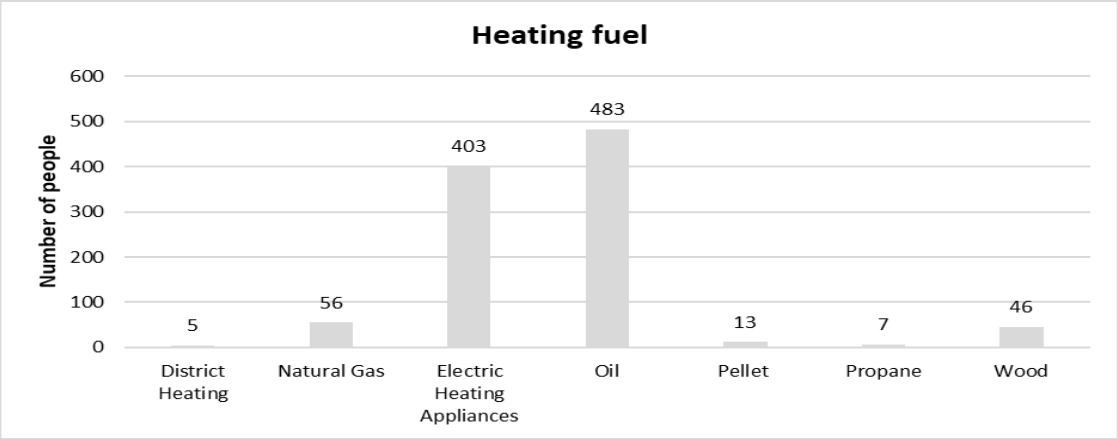


Figure 59 Heating fuel

Heating water

From 1492 people, 1013 added data in the graph below. Most common heating water in Greece are electric boiler and electric and solar boiler.

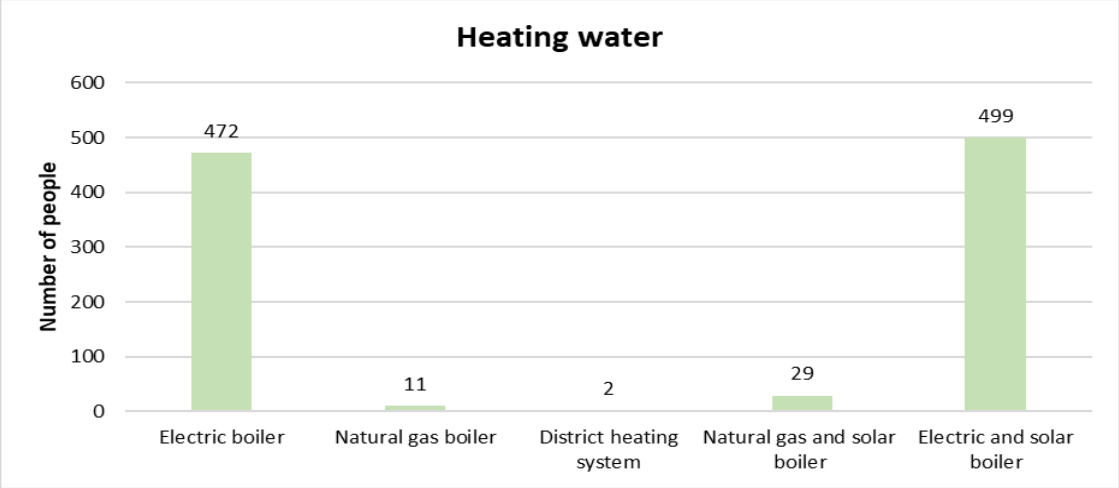


Figure 60 Heating water

Electric appliances often

From 1492 people, 1013 added data in the graph below. Most common electric appliances are often in standby mode.

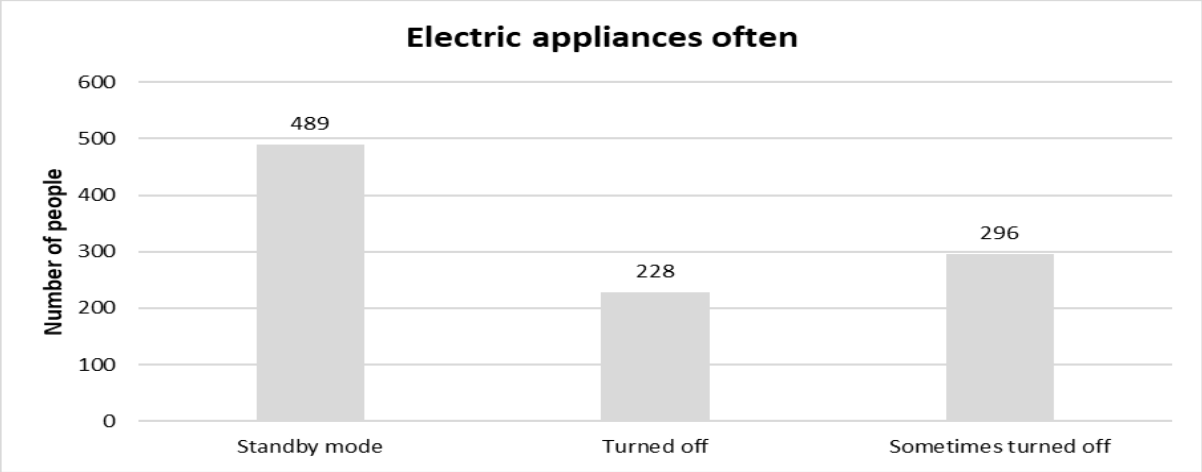


Figure 61 Electric appliances

3.5 Hungary

POWERPOOR households visits

In Hungary, 598 households were reached for energy efficiency advisory through the network of Energy Supporters and Energy Mentors. 508 from those were field visits and 90 through direct help in the successful EPAO of Terézváros. The KPI of 530 house visits was fulfilled.

Most of the households reached were in the Hungarian pilot municipalities of Józsefváros, Terézváros and Bükkszentkereszt, but also in Répáshuta and Budaörs. Household visits in Józsefváros and Bükkszentkereszt were mostly conducted by students as part of their mandatory field training.

Józsefváros (8th district of Budapest) is the most affected by energy poverty in the capital and it also has the highest number of dwellings owned by the municipality. These are usually in poor shape and rented by vulnerable families. The energy poverty assessment occurred mostly in these municipally owned apartments performed by students who completed the Energy Supporter training. They were accompanied by rental inspectors, which facilitated the entrance to such households, but it was also needed for security reasons. The questionnaire used for the survey was developed based on the POWERPOOR toolkit, but specialized and detailed in excel format for the municipalitys' monitoring needs. 134 household visits were performed in Józsefváros.

Bükkszentkereszt is a municipality in northern Hungary with 1200 inhabitants, who live almost exclusively in family houses. Students were involved in the field work in this case, too. The municipality helped to reach the households by pre-announcing the assessment and preparing the inhabitants to let the Energy Supporters conduct the survey and advisory. 150 household visits were performed here, mostly using the POWERPOOR toolkit.

Some Energy Supporters conducted counseling in their place of residence like several other areas of Budapest, Répáshuta, Budaörs or even Bátorliget, located in eastern Hungary at the Romanian border. After a while it became difficult to monitor each Energy Supporters' individual contribution. For this reason, a google sheet was developed, where the Energy Supporters could register the counseling and mark whether they have used the POWERPOOR toolkit. Although this double administration need made even more difficult to motivate the Energy supporters to perform the visits.

Maintaining the motivation of the Energy Supporters and Mentors encouraging the household visits was a challenge. Therefore, in February 2023 a campaign was launched providing coupons for Energy Supporters and Mentors to cover their travel and meal costs associated with the household visits. This campaign triggered 26 more advisory using the POWERPOOR toolkit.

Using the POWERPOOR toolkit for assessment was not possible or practical in some situations. Some people were reluctant to share information on their income or simply

didn't know the amount of their energy usage (kWh), which were mandatory questions in POWER TARGET tool. Municipalities wanted access to the data to use the tool for tracking energy poverty in their settlements but the results are not available for analyzing. General takeaway is that tailor made solutions could be more suitable for municipalities to analyze energy poverty and track results over time. This has been a real practice we experienced with certain ambitious municipalities.

On-line help (via e-mails, phones), on - line help desk support trhough Energy Poverty Mitigation toolkit and work done trhough Energy Poverty Alleviation Offices (EPAO)

The EPAO in Terézváros (6th district of Budapest) helped to reach a significant number of residents. The opening timing and the opening hours, the good location, and the ambitious approach of volunteering Energy Mentors attracted 90 visitors. The office opened at the time when Hungarian government changed regulations on utility subsidies. Since 2013, utility cost reduction programme had been in force, allowing energy prices to be independent from market prices and fixed at a low level. It covers natural gas, electricity, district heating, piped water services. Reduced energy costs were eliminated for above national average consumption since August 2022. Most frequently asked questions were related to the regulations change, such as:

- How much will my utility bills increase? (due to regulations change)
- What can I do to stay within the subsidised amount of energy use?
- Is there any financial aid for household renovation?

Typically, the visitors were owners of large civilian flats of over 80 sqm with high ceilings, poorly insulated windows and very high utility bills, with elderly residents living alone. Many of them had collected and recorded their consumption for years, but the data was difficult to interpret.
Overall, the Energy Mentors were able to provide quick-return and low-cost measure advice to most of the visitors. Some residents were only looking for confirmation that they are applying correct measures to lower their bills.

The innovation of the Terézváros's EPAO was that the office "went" to the crowd instead of trying to attract the residents to go to certain location. It opened on the local market on Saturday mornings. Sometimes a line was formed in front of the office on Saturdays.
The EPAO of Józsefváros has a very different, rather free conversation type of consulting. A handful of people visited the office for advisory especially during summer 2022, when the government announced changes in energy subsidies. According to the Energy Mentor, the nature of the advice requested did not create the environment or reason to use POWERPOOR toolkit. Residents were inquiring about specific utility allowances (due to disabled child, etc.) or have expressed their concern about the utility bills but were less interested in implementing low-cost behavioral changes. A counseling session was held by the municipality in a form of informal presentation about energy efficient behavioral changes.

Households were not contacted through specifically designated online help, although some Energy Supporters and Mentors might have chosen this form of help due to the COVID19 situation.

POWERPOOR project results from POWER TARGET and POWER ACT

The ***data collected by Hungary covers 307 households***. Not every household filled in all the questions (they didn't know the answer or didn't feel comfortable sharing that data) so that there is a disproportion in the amount of data for each question.

Annual income

From 307 people, 287 added data in the graph below. On average, Hungarians who completed the questionnaire have an annual income per household more than € 5000.

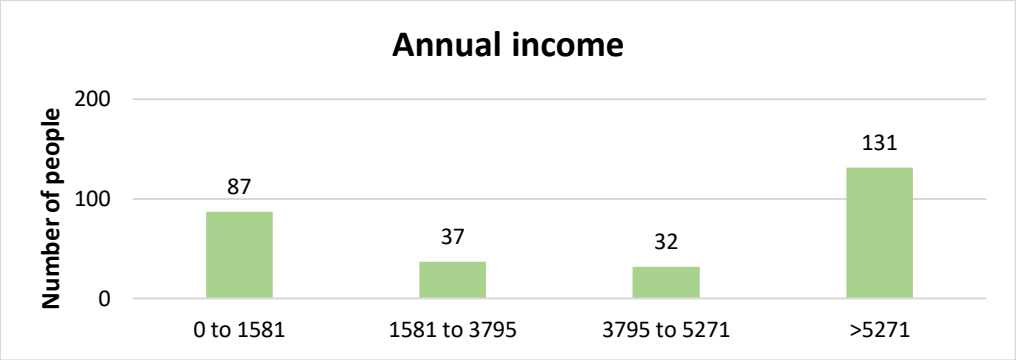


Figure 62 Annual income

Age

From 307 people, 287 added data in the graph below. Most of the respondents are more than 40 years old.

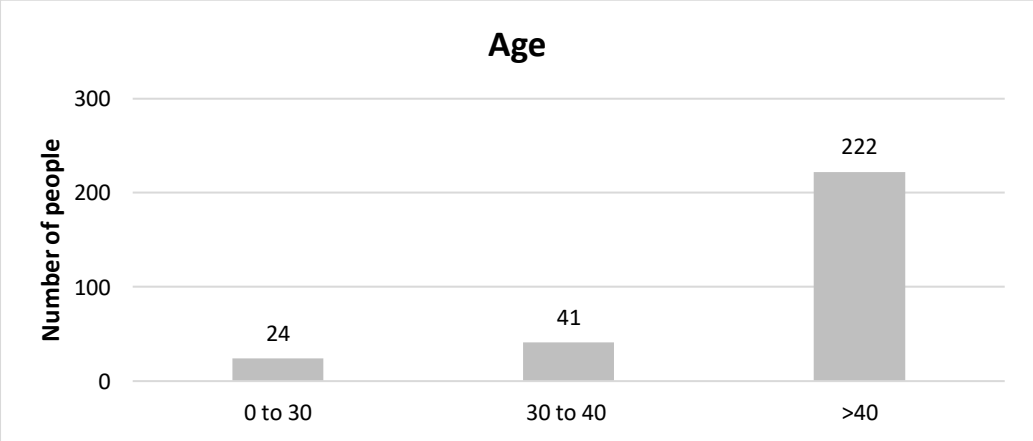


Figure 63 Age

Number of children

From 307 people, 287 added data in the graph below. Most of the respondents do not have children or have one. 20% of the respondents have two or three children and 4% have more than 5 children.

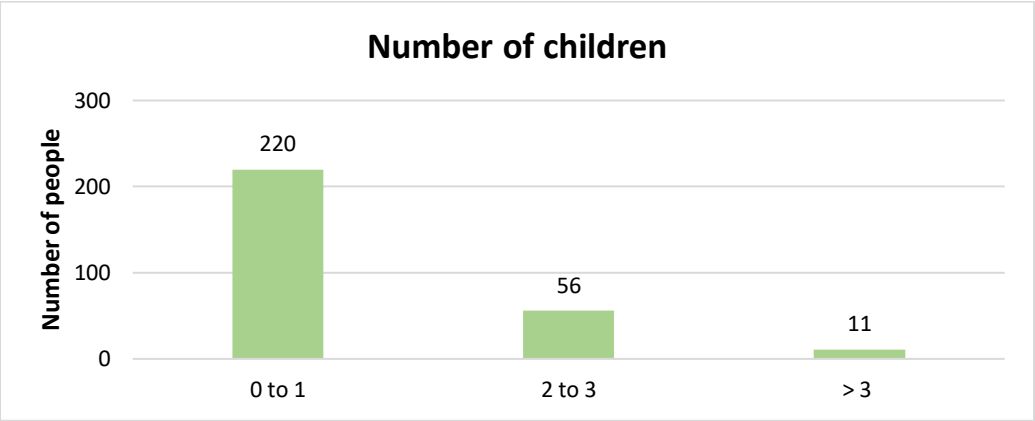


Figure 64 Number of children

Marriage status

From 307 people, 287 added data in the graph below. Most of the respondents are married i.e., 46%. 31% are single, 13% divorced and 9% widowed.

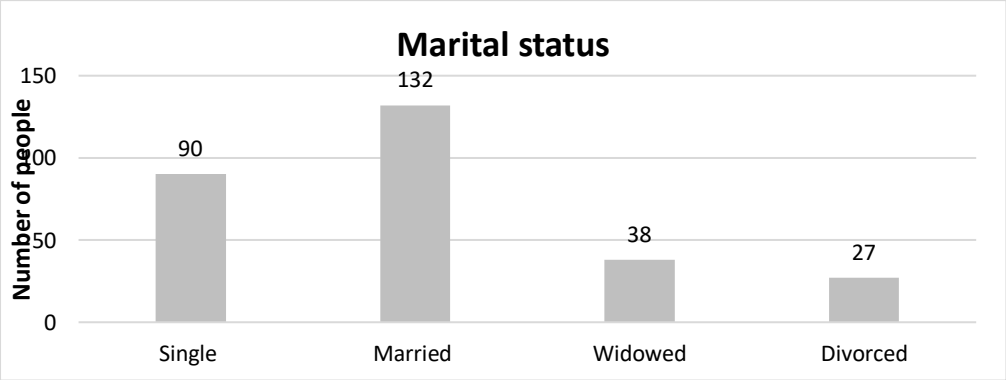


Figure 65 Marital status

Household members

From 307 people, 276 added data in the graph below. Most of the respondents have up to three household members. 27% of the respondents have four or five household members and 2% of them have more than five members.

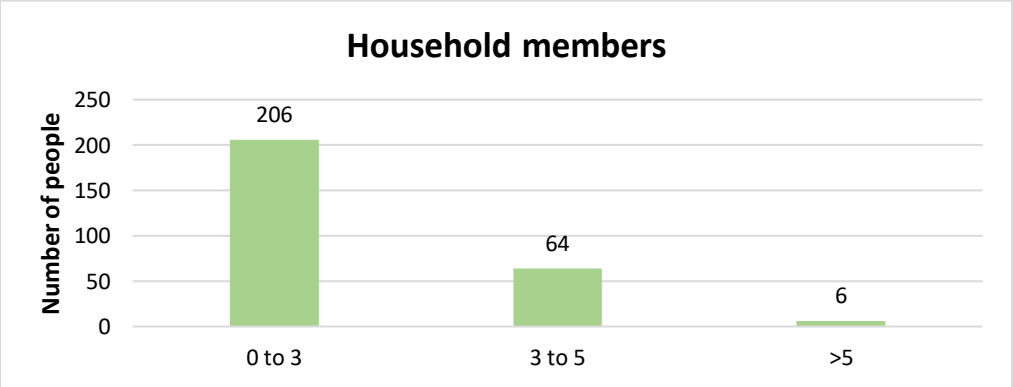


Figure 66 Household members

Property size (m^2)

From 307 people, 287 added data in the graph below. 39% of the respondents live in a home ranging in size from 60 to 120 m^2. 39% of them are in a home from 0 to 60 m^2. About 8% of them are in a home size from 120 to 180 m^2, 4% of them are in a home from 180 m^2.

Figure 67 Property size

Type building

It can be observed that mostly in rural areas citizens are living in detached homes.

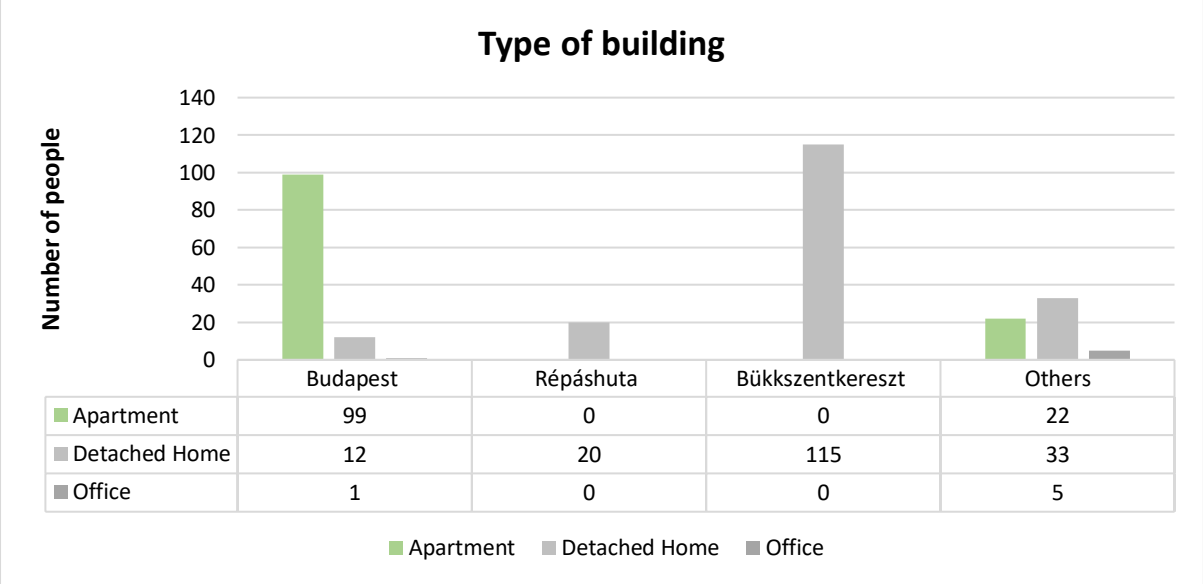


Figure 68 Type of building

Built year of the dwelling

87% of the respondents live in a home, which was built more than 10 years ago.

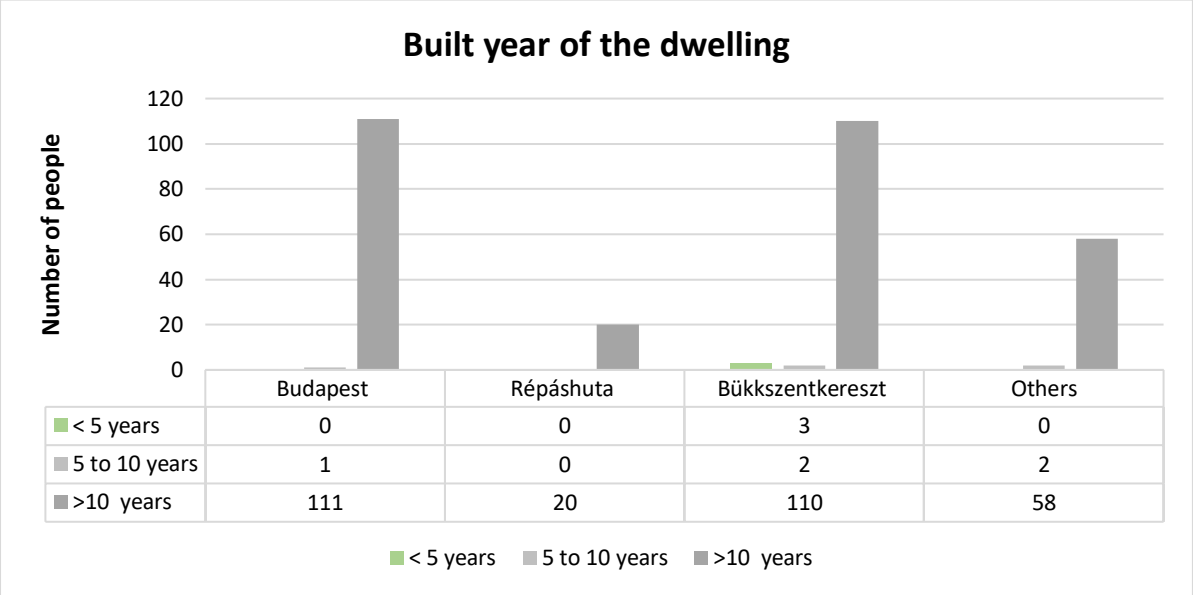


Figure 69 How old the building is

Lighting appliances

From 307 people, 276 added data in the graph below. 49% of the respondents are using LED for lighting in their home.

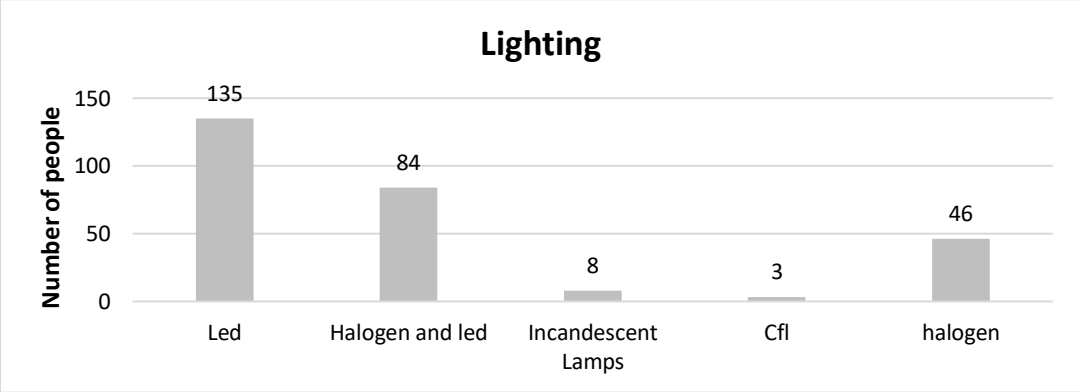


Figure 70 Lighting

Thermostat (in Celsius)

From 307 people, 287 added data in the graph below. The most common temperature in homes during the winter is more than 20°C.

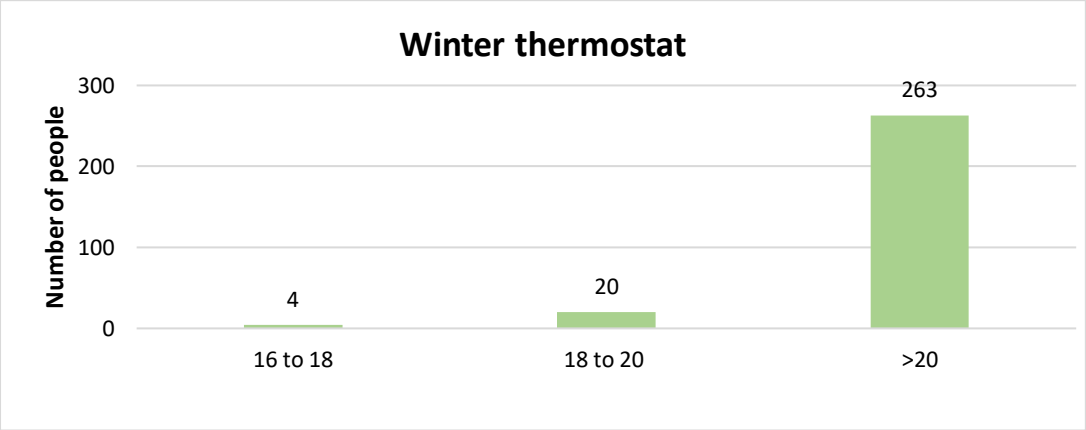


Figure 71 Winter thermostat

From 307 people, 287 added data in the graph below. The most common temperature in homes during the summer is between 16 to 22°C.

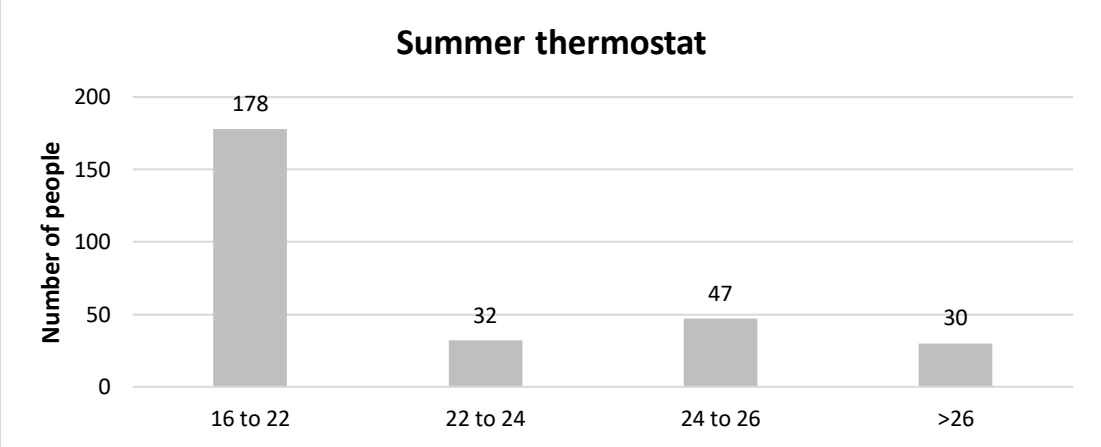


Figure 72 Summer thermostat

Heating annual cost

From 307 people, 287 added data in the graph below. The most common annual cost in homes is more than 264 EUR.

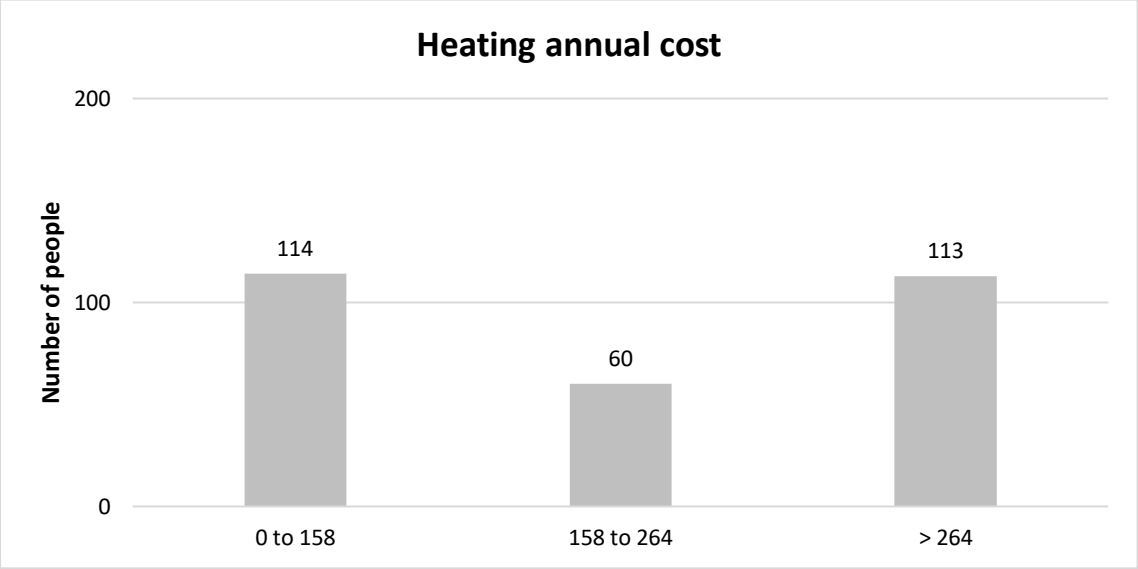


Figure 73 Heating annual cost

Heating fuel

From 307 people, 287 added data in the graph below. The most common heating fuel for home in Hungary is natural gas.

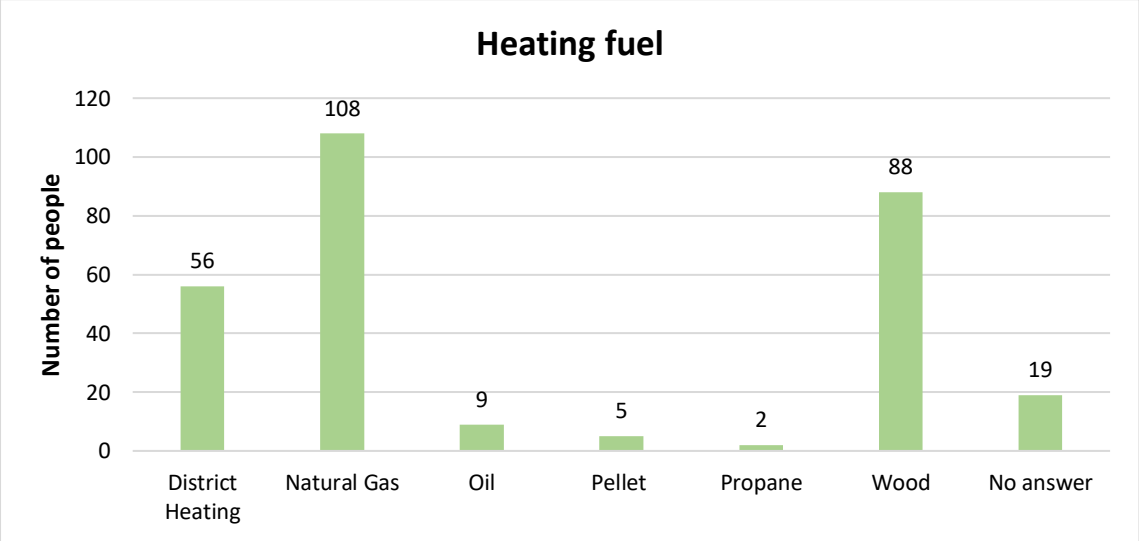


Figure 74 Heating fuel

Heating water

From 307 people, 276 added data in the graph below. The most common way to heat water in Hungary is electric boiler.

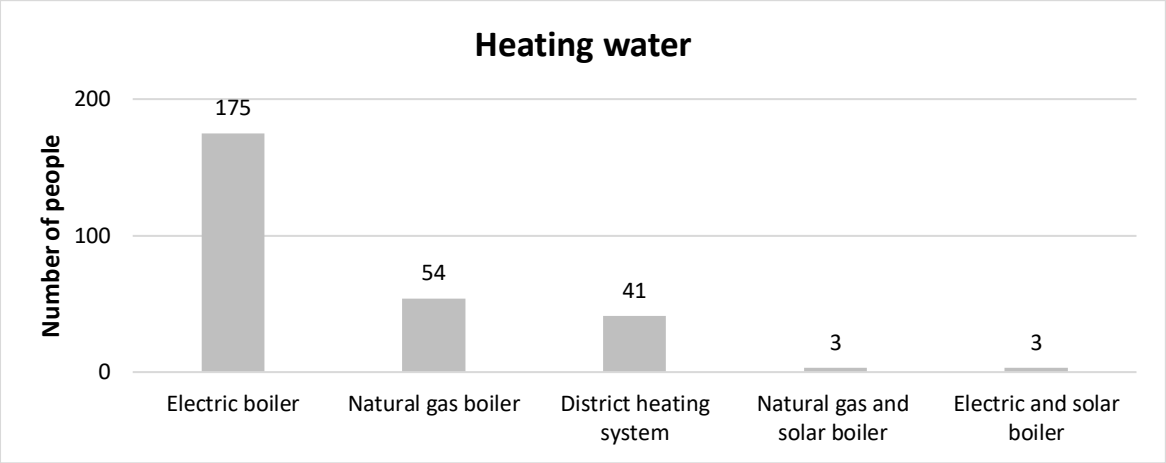


Figure 75 Heating water

Electric appliances

From 307 people, 276 added data in the graph below. The graph shows that electric appliances are often in standby mode.

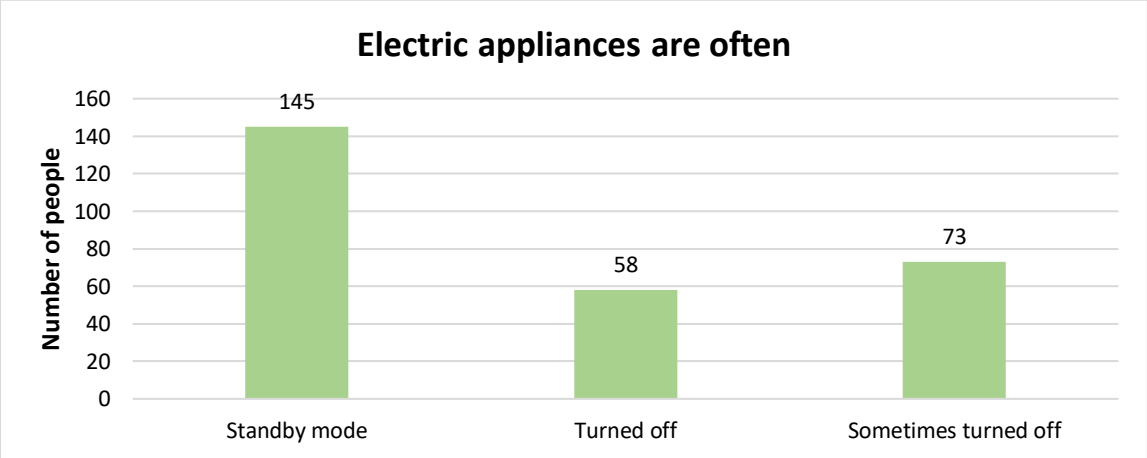


Figure 76 Electric appliances

3.6 Latvia

POWERPOOR households visits

In Latvia from September 2021 till July 2023 395 house visits/ consultations have been provided by trained and certified Energy Supporters and Mentors using POWERPOOR toolkit. The home visits/consultations were done in three municipalities of Latvia – Jelgava city, Jekabpils county and Dobele county, almost reaching the planned KPI of 500 house visits/consultations

In all the three municipalities the Supporters and Mentors were mix of people working in social services, people working in heat supply companies thus having the background of social work or energy efficiency, people working in municipalities and active members of society. Also, students and seniors were addressed but their participation was not that high, as students in many cases admitted that to provide their living they have to do paid, not voluntary work and for seniors the online internet tool seemed complicated. Also, the Red Cross was addressed, and some Energy Supporters/Mentors were from Red Cross.

It was beneficial that Supporters and Mentors were from social services, having information on the energy poor households, also that Energy Supporters and Mentors were from heat supply companies having information on which households have arrears of utility bills. The energy Supporters and Mentors from Red Cross had information on the vulnerable households. Part of the home visits/consultations were given also to the households which applied for the house visits/consultations during the POWERPOOR Info Days.

On-line help (via e-mails, phones), on - line help desk support through Energy Poverty Mitigation toolkit and work done through Energy Poverty Alleviation Offices (EPAO)

As implementation of the first two POWERPOOR project years coincided with the time of Covid 19 pandemic, part of the provided advice from Supporters and Mentors were given online - via e-mails and phones from the Energy Poverty Alleviation Office as well as their homes. This proved to be very efficient too, as all the invoices or pictures, if necessary, can be sent via e-mails or WhatsApp, all the questions can be asked and answered via the phone.

The online advice continues to be popular as people, especially (energy) poor, in many cases are not willing to let other people in their houses, they prefer to obtain online advice and ask all the questions via the phone. The most frequently asked questions during online counselling:

- What are the support programmes for energy efficiency of the house, for installing solar PV panels?
- Where can apply for help to use the support programmes?
- I believe, I know how to save energy – most of time I keep all the appliances switched off, what else can I do?

- Can I do anything if I live in a rented apartment?
- What is the feasibility of solar panels?

POWERPOOR project results from POWER TARGET and POWER ACT

The ***data collected by Latvia covers 563 households***. Not every household filled in all the questions (they didn't know the answer or didn't feel comfortable sharing that data) so that there is a disproportion in the amount of data for each question.

Annual income

On average, Latvians who completed the questionnaire have a salary between €10,000 to € 50,000.

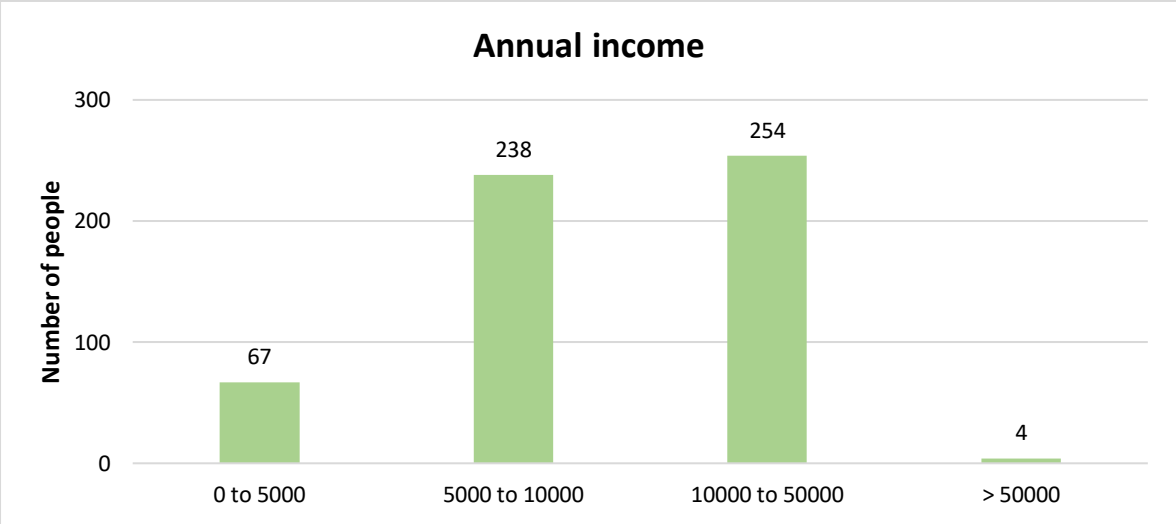


Figure 77 Annual income

Age

Most respondents are more than 40 years old.

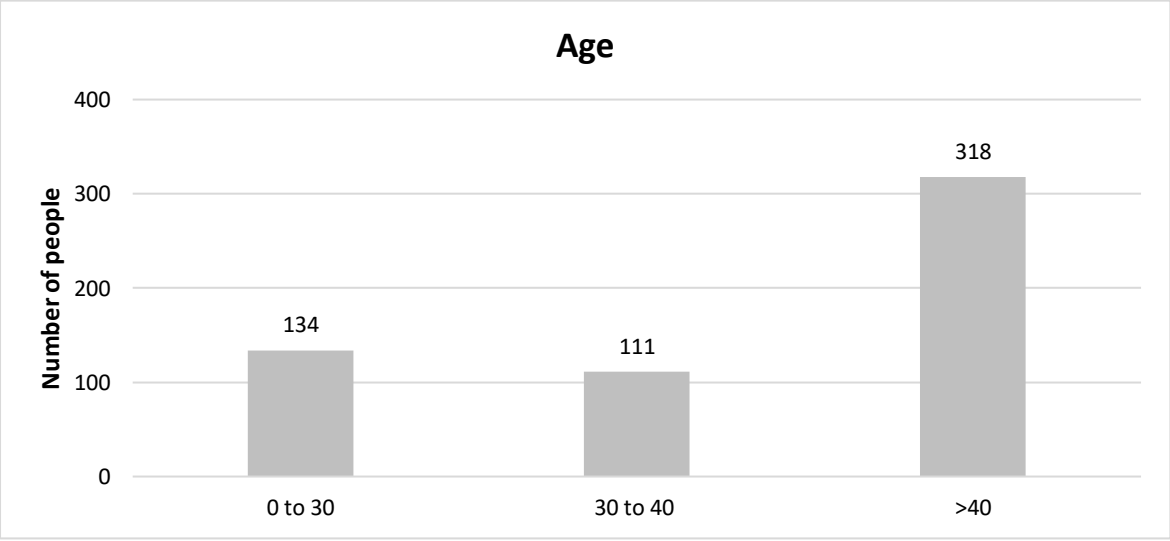


Figure 78 Age

Number of children

Most respondents do not have children or have one. 21% of the respondents have two or three children and 2% have more than 5 children.

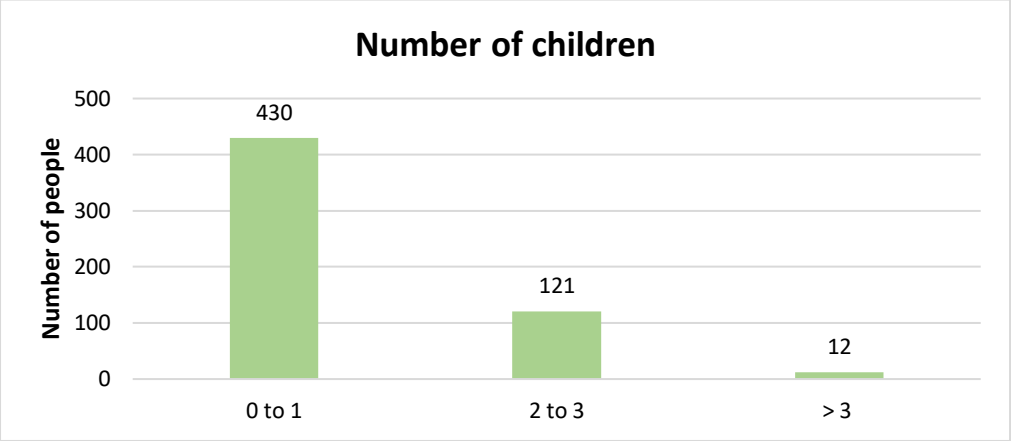


Figure 79 Number of children

Marriage status

Most respondents are married i.e., 51%. 29% are single, 10% divorced and 9% widowed.

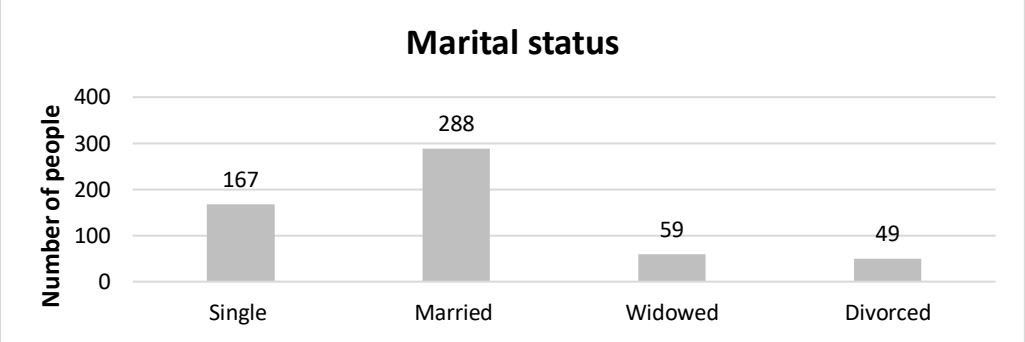


Figure 80 Marital status

Household members

From 563 people, 492 added data in the graph below. Most of the respondents have up to three household members. 23% of the respondents have four or five household members and 2% of respondents have more than five members.

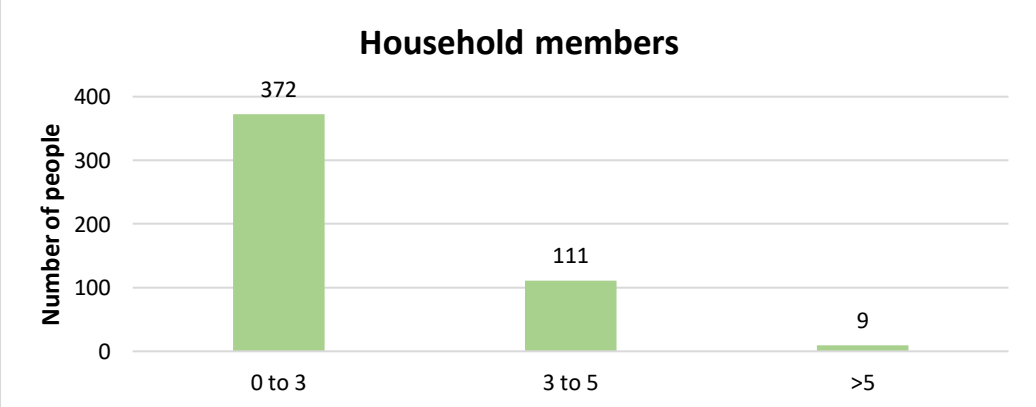


Figure 81 Household members

Property size (m^2)

46% of the respondents live in a home ranging in size from 0 to 60 m^2. 41% of them live in a home from 60 to 120 m^2. About 9% of them live in a home size from 120 to 180 m^2, 4% of them are in a home from 180 m^2 .

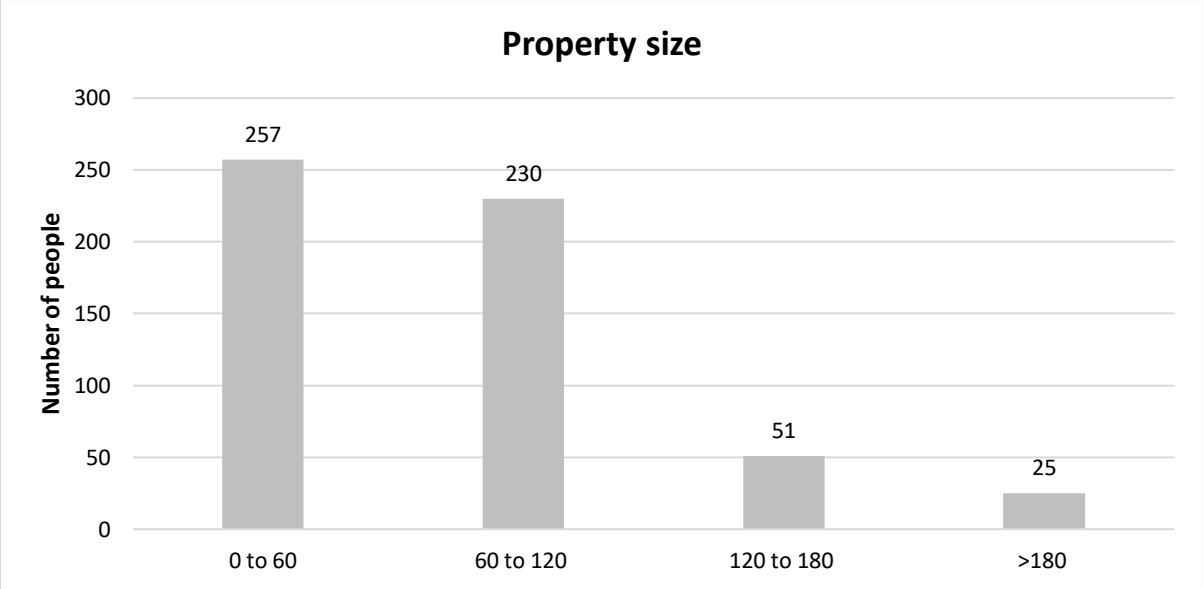
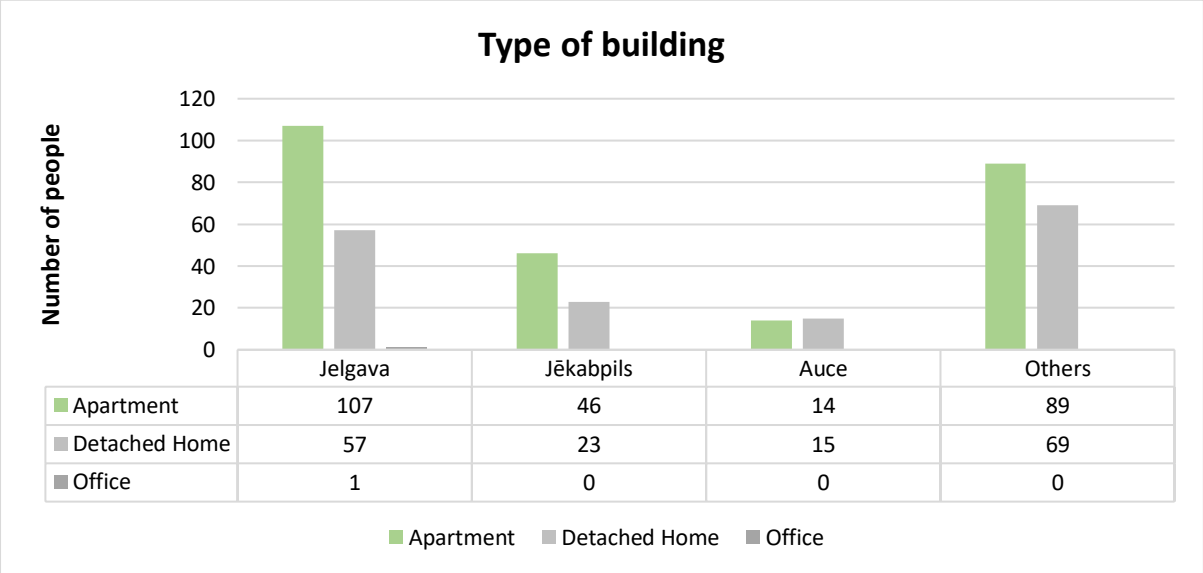


Figure 82 Property size

Type of building

From the 563 people, 421 added data in the graph below. It can be observed that the most citizens are living in apartment.



	Jelgava	Jēkabpils	Auce	Others
Apartment	107	46	14	89
Detached Home	57	23	15	69
Office	1	0	0	0

Figure 83 Type of building

Built year of the dwelling

From the 563 people, 421 added data in the graph below. 94% of the respondents live in a home which was built more than 10 years ago.

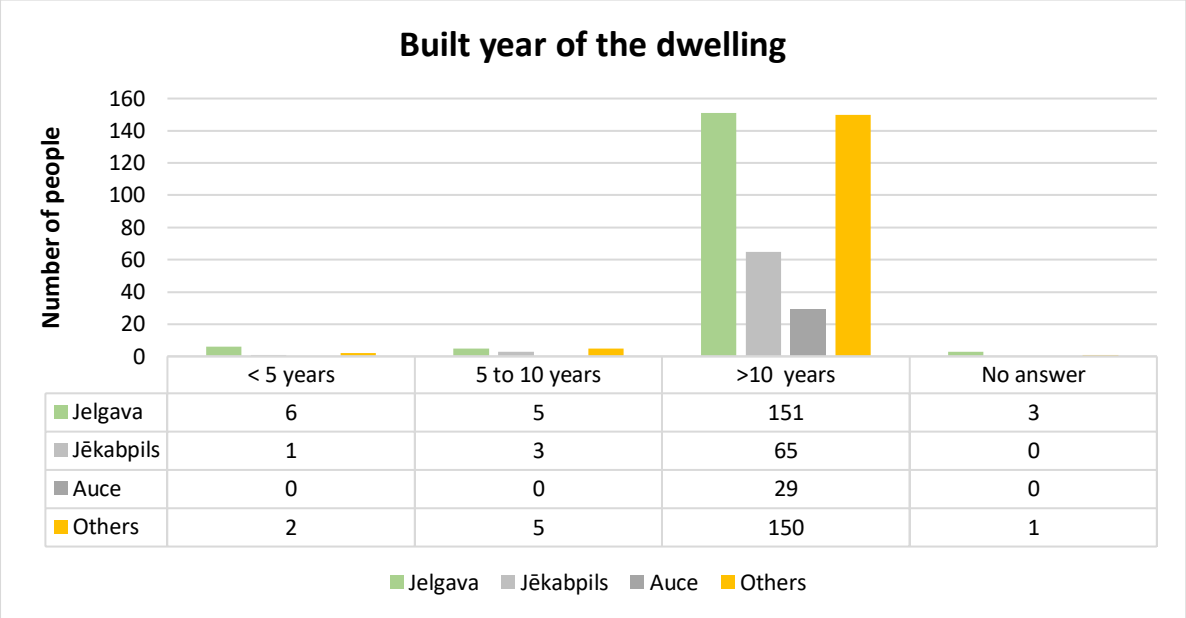


Figure 84 How old is the building

Lighting

From 563 people, 492 added data in the graph below. 65% of respondents are using LED for lighting in their home.

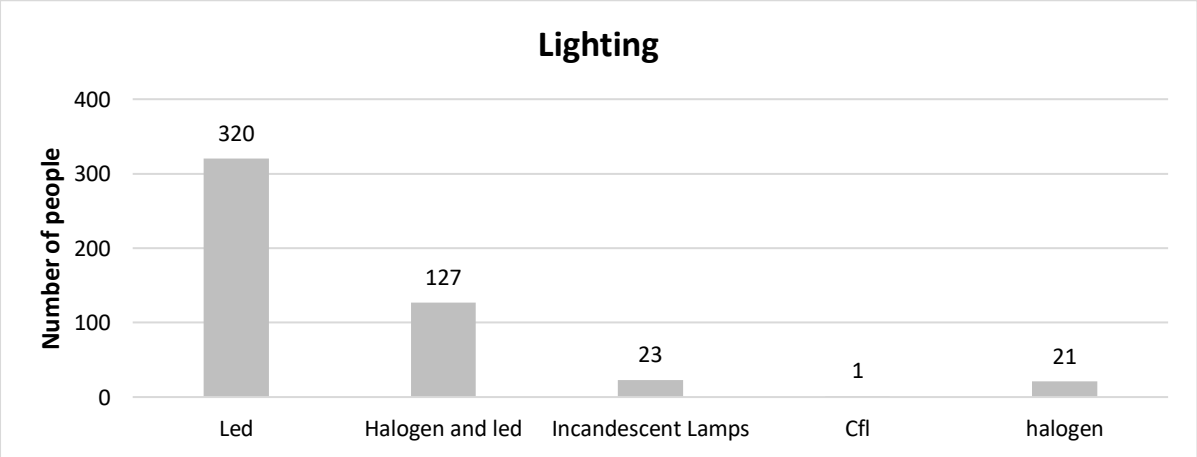


Figure 85 Lighting

Thermostat (in Celsius)

The most common temperature in homes during the winter is more than 20°C.

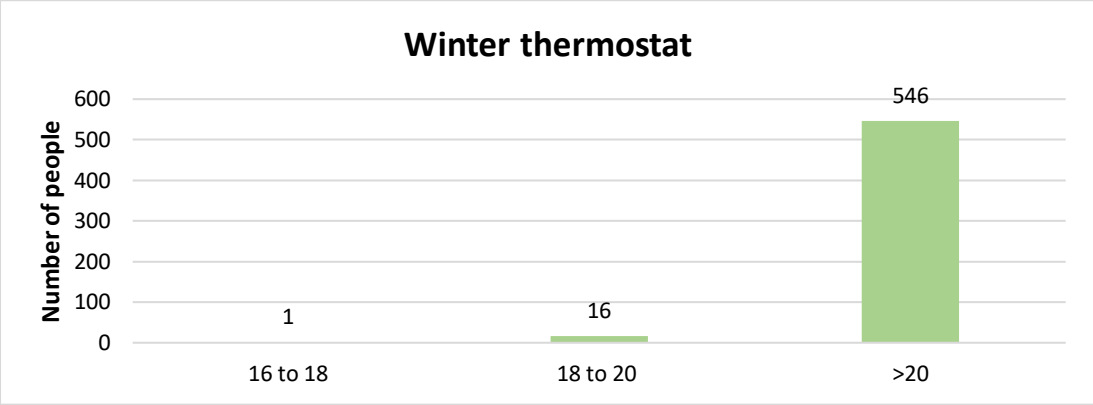


Figure 86 Winter thermostat

The most common temperature in homes during the summer is between 16 to 22°C.

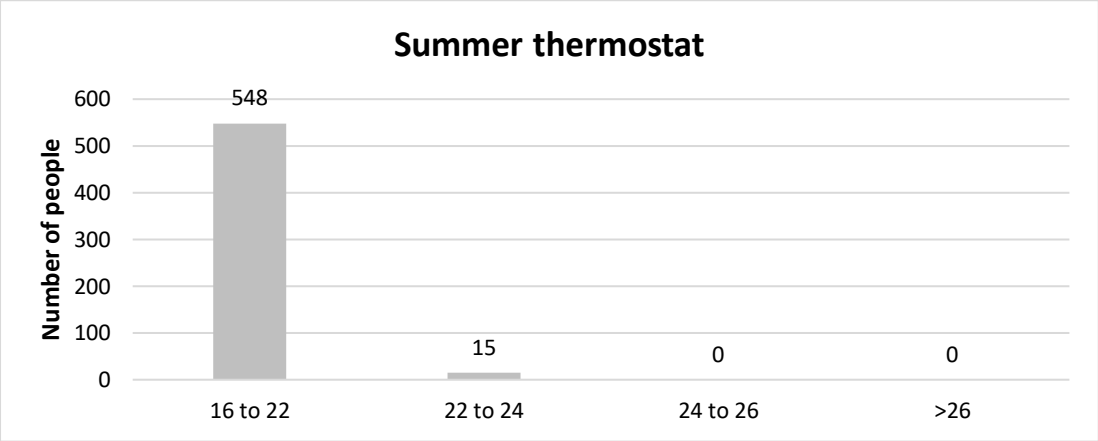


Figure 87 Summer thermostat

Heating annual cost

The most common annual cost in homes for heating is up to 1000 EUR.

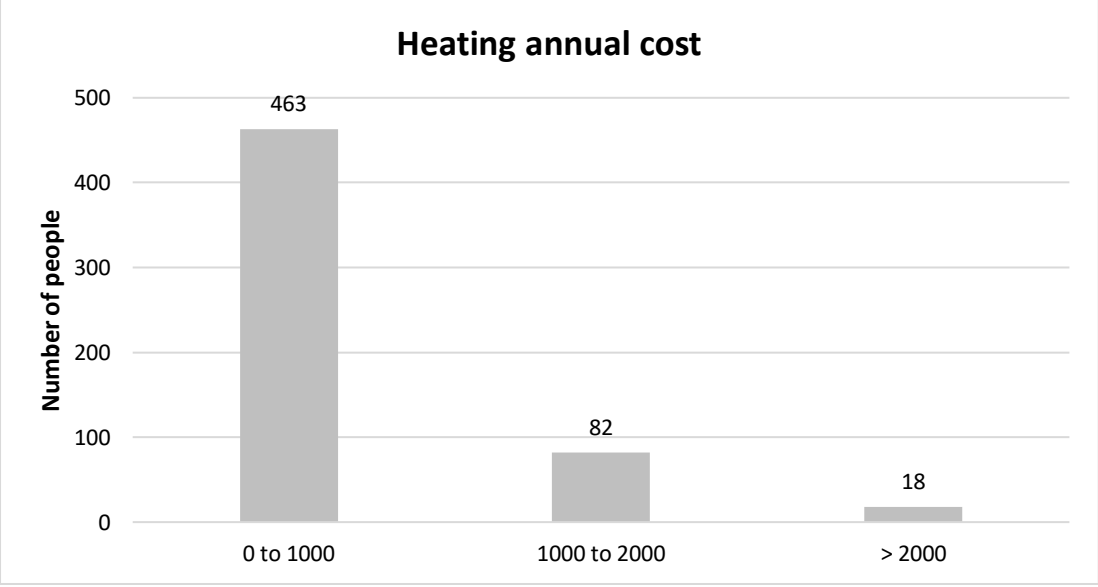


Figure 88 Heating annual cost

Heating fuel

Most common way for heating homes in Latvia is trough district heating, mainly wood chips and sometimes some small proportion of gas.

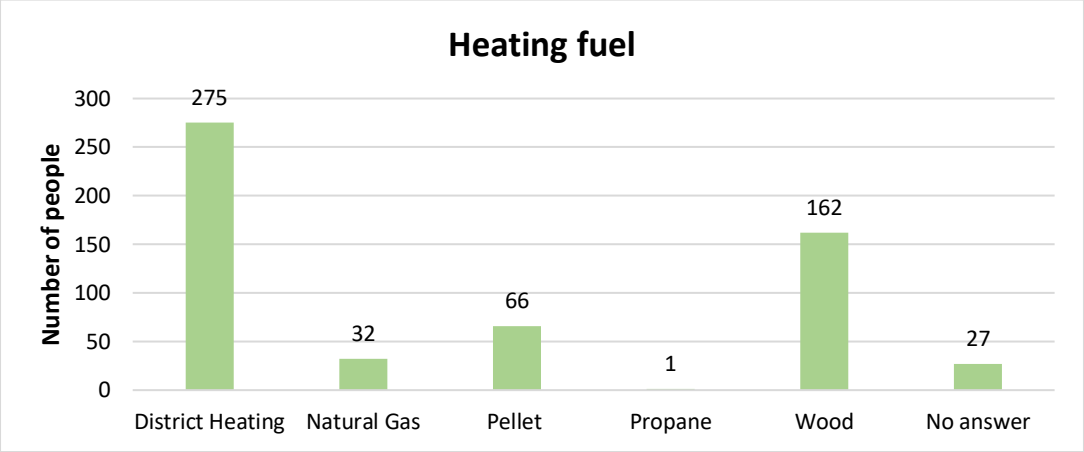


Figure 89 Heating fuel

Heating water

From 563 people, 492 added data in the graph below. The most common way to heat water in Latvia is through district heating system.

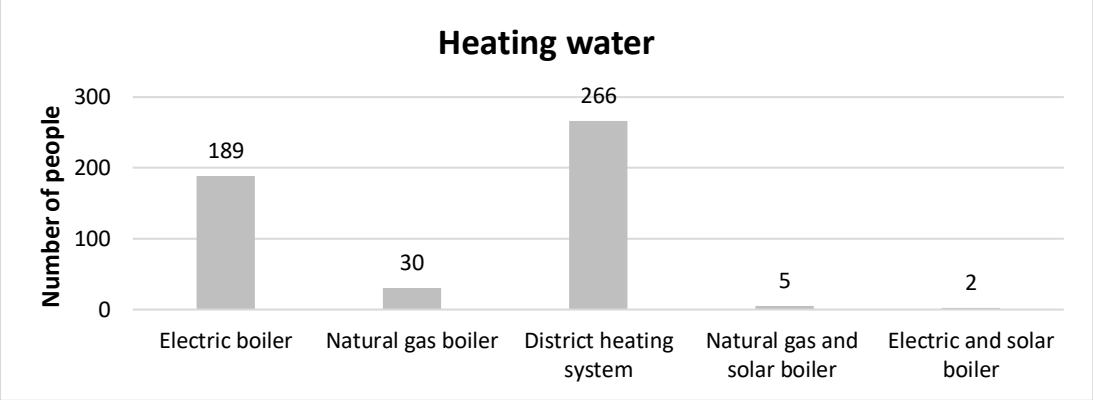


Figure 90 Heating water

Electric appliances

From 563 people, 492 added data in the graph below. The graph shows that electric appliances are often in standby mode.

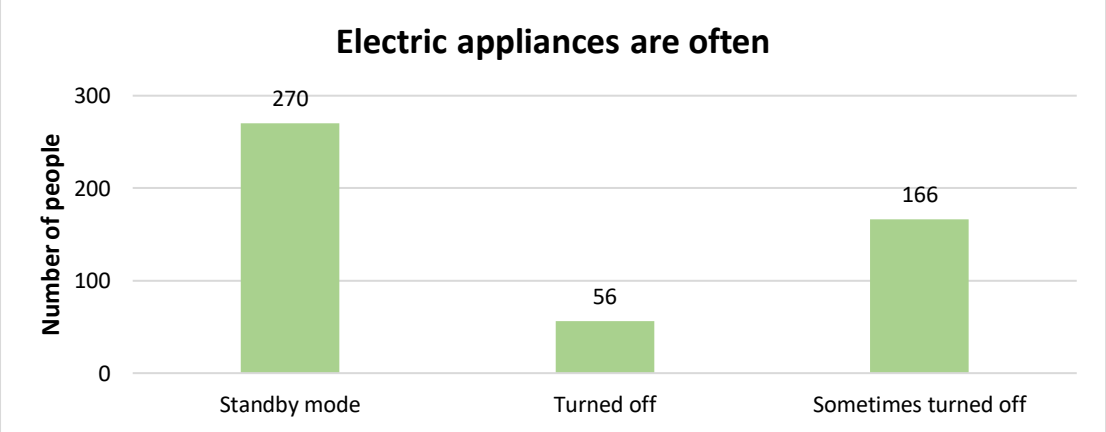


Figure 91 Electric appliances

3.7 Portugal

POWERPOOR households visits

National Energy Supporters and Mentors network established contacts with approximately 272 households through various actions.

Home visits from very early on proved to be difficult to carry out without the support of local authorities indicating or selecting energy poverty households, as Coopérnico is a renewable energy cooperative and does not have access to a database on vulnerable households.

All the Portuguese municipalities were contacted through electronic addresses available on their websites and, with those who showed interest, bilateral meetings were held online, namely Sintra, Oeiras, Braga, Lagos, Moura, Figueira da Foz, Mértola and Lisbon. These meetings served not only to present the project but also to attract people working in municipalities to be trained as Energy Supporters and Mentors, to inform municipalities they could get technical support in Local Energy Poverty Offices establishment and also in their Sustainable Energy and Climate Action Plans formulation/updating.

Over time Coopérnico observed that many certified Energy Supporters and Mentors did not undertake actions to develop home visits, making us reflect that perhaps many of them participated in the training to enrich their own knowledge on energy poverty, energy efficiency of buildings and to learn how to consume energy better, rather than to be able to develop home visits.

To motivate the Energy Supporters and Mentors network and break the ice to start home visits, Coopérnico made a tutorial video on home visits and organized regular monthly meetings with them from March 2022 until today. Still, the selection of home visits was not happening. To help solve this problem, Coopérnico began incessantly spreading the word about the cooperative's ability to conduct home visits through its website, social networks, communication agency and newsletter.

Coopérnico also developed an action not foreseen by POWERPOOR to increase home visits. An informative session for groups model was created on how to consume energy better and make homes more comfortable. At the end of these sessions, we publicised home visits and the importance of doing a more personalised job. A list to order home visits was circulated, but also this procedure proved unsuccessful in attracting home visits although the balance was positive in terms of participants empowerment.

Coopérnico established a Local Energy Poverty Offices itself to expand the opportunities to develop more home visits and at the same time to understand better issues related to management of similar spaces. This initiative would make it easier for us to support other POWERPOOR Local Energy Poverty Offices in Portugal. There were several appointments, online, but the result was not as expected. With a digital tool support

(Calendly), those who wanted to be attended in Coopérnico's office chose day and time and pointed the subject where they needed help.

Home visits were developed in various parts of Portugal by a dozen Energy Supporters and mentors from a network of 142 people.

Most of the home visits did not reach energy poor families, on the contrary, many of them were requested by informed people with economic power. Even so, this segment of the population also has energy efficiency problems in their homes and many doubts on decisions to be made.

Coopérnico continues to carry home visits driven by various articles on both POWERPOOR and home visits that recently appeared in newspapers and so we continue to respond to many requests. POWERPOOR home visits request remains and will continue on Coopérnico website and social networks.

Moreover, Coopérnico has recently signed a protocol with DECO (Portuguese Association for Consumer Protection), where Supporters and Mentors network lends itself to develop home visits to their Habitation & Energy One-Stop-Shop users, throughout the country. DECO was involved in STEP, a European project, and also undertook the POWERPOOR approach. The home visits will continue after the project ends.

Developed actions by the Energy Supporters and Mentors' network are divided into direct and online help reaching the following numbers:

- direct help enumerates to 85 home visits and 12 through the Local Energy Poverty Offices,
- and 145 people were reached through informative sessions for groups of 30 people supported through phone, email contacts or zoom meetings.

During COVID-19 lockdown, many local offices support actions were done remotely and were therefore accounted as online help.

Coopérnico has find it difficult to motivate the energy supporters and mentors to follow up with the home visits. This was brought forward in the Stakeholder Liaison Group meetings and cultural issues that hinder home visits were mentioned along with the voluntary nature that is not ideal.

On-line help (via e-mails, phones), on - line help desk support through Energy Poverty Mitigation toolkit and work done through Energy Poverty Alleviation Offices (EPAO)

The energy poverty alleviation office is a place to provide support to energy poor where the following issues are addressed:

- Improving thermal comfort at home
- Analysis and understanding of energy related documents (invoices, energy performance certificate, etc.)

- Use of IT-driven tools
- Applying for funding support programmes
- Community initiative (energy community, crowdfunding, etc.)

Coopérnico's energy poverty alleviation office received requests online through Calendly. Between 3rd of March 2022 and 7th of March 2023, 14 people were attended (in-person and online) at Coopérnico's Local Energy Poverty Offices according to the following subjects:

- Improving thermal comfort
- Energy bills analysis and comprehension
- Applying for funding for national support programmes
- Finding out more about community initiative

POWERPOOR project results from POWER TARGET and POWER ACT

The ***data collected covers 101 households***. Not every household filled in all the questions (they didn't know the answer or didn't feel comfortable sharing that data) so that there is a disproportion in the amount of data for each question.

Annual income

From 101 people, 99 added data in the graph below. On average, Portuguese who completed the questionnaire have a salary between € 10,000 and € 50,000.

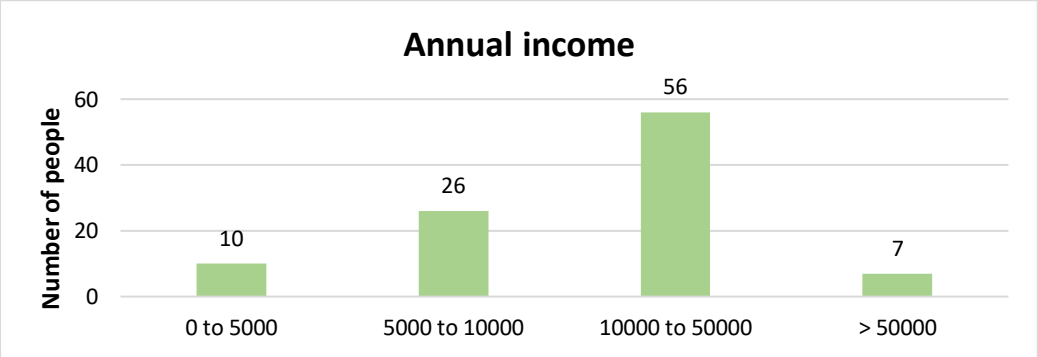


Figure 92 Annual income

Age

From 101 people, 99 added data in the graph below. Most respondents are more than 40 years old.

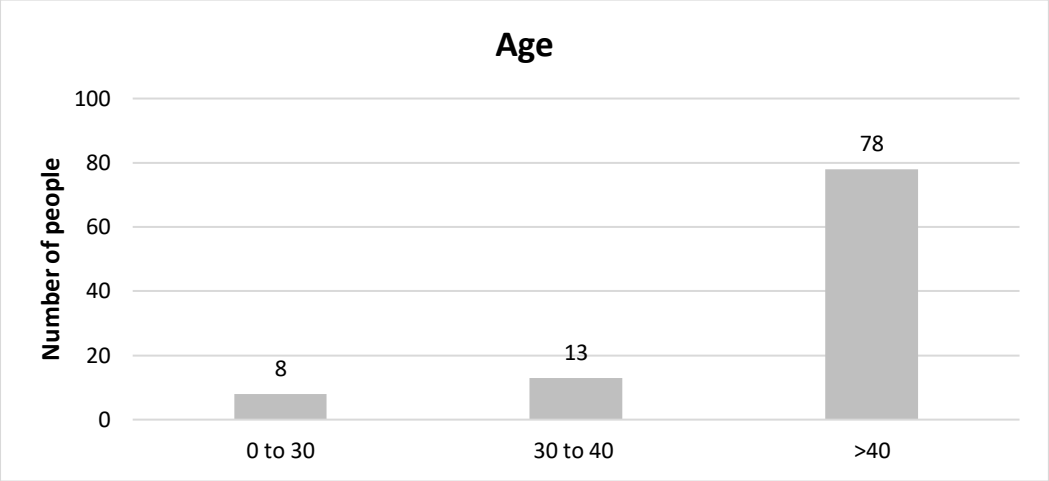


Figure 93 Age

Number of children

From 101 people, 99 added data in the graph below. Most respondents do not have children or have one. 32% of respondents have two or three children and 3% have more than three children.

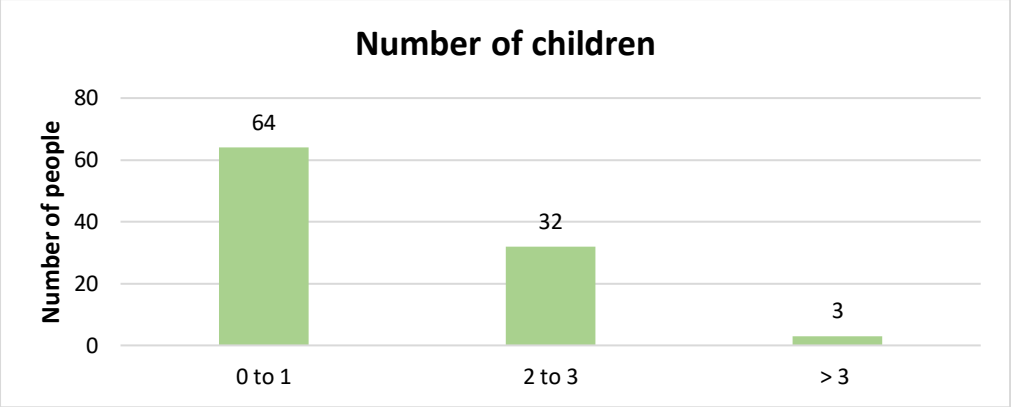


Figure 94 Number of children

Marriage status

From 101 people, 99 added data in the graph below. Most respondents are married i.e., 47%. 27% are single, 16% divorced and 9% widowed.

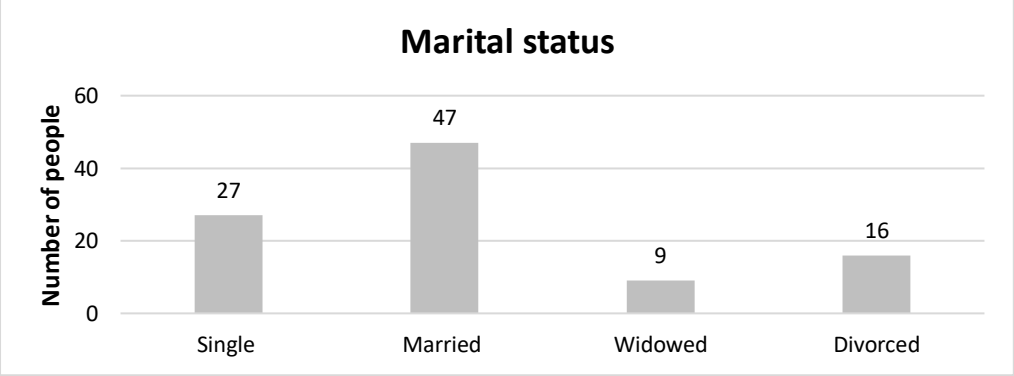


Figure 95 Marital status

Household members

From 101 people, 99 added data in the graph below. Most respondents have up to one household member. 32% of respondents have two or three household members and 3% of respondents have more than three members.

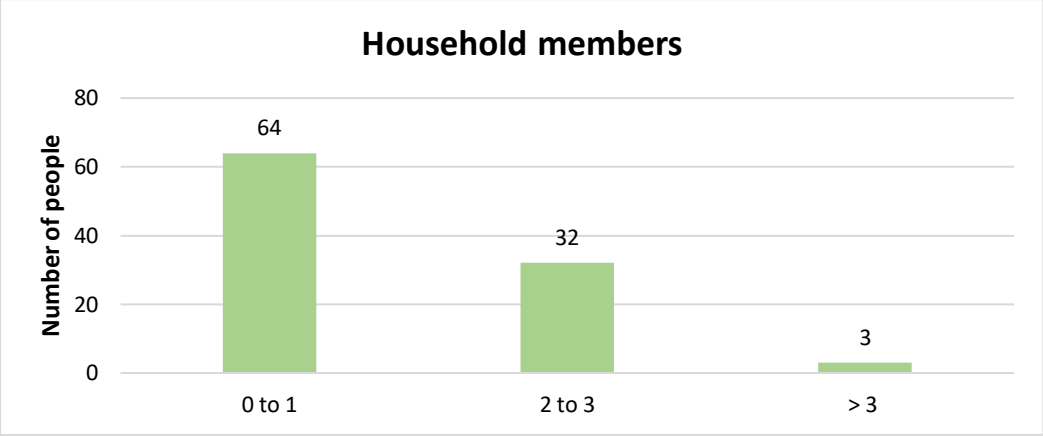


Figure 96 Household members

Property size (m^2)

48% of respondents live in a home ranging in size from 60 to 120 m^2. 27% of them are in a home from 120 to 180 m^2. About 18% of them are in a home size more than 180 m^2, 8% of them are in a home size up to 60 m^2

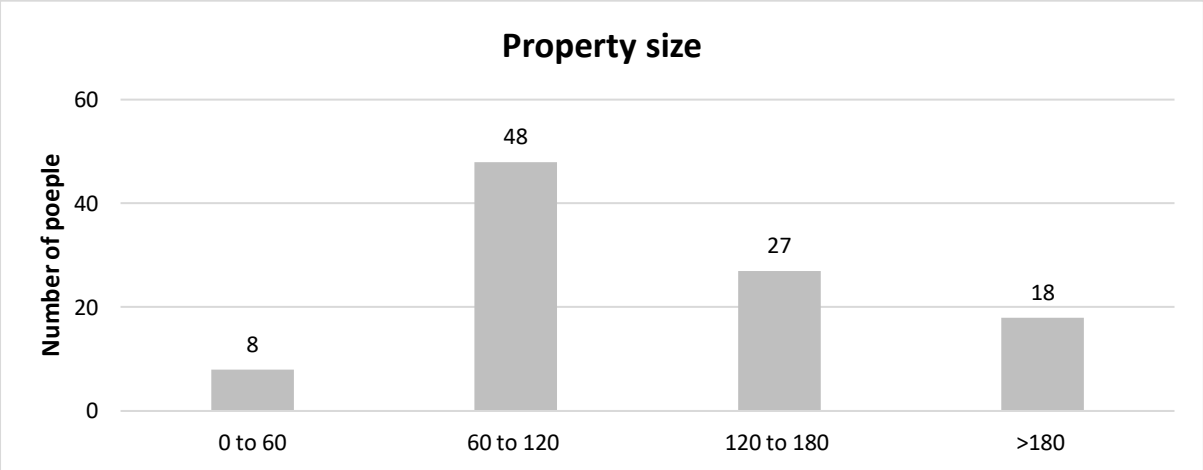
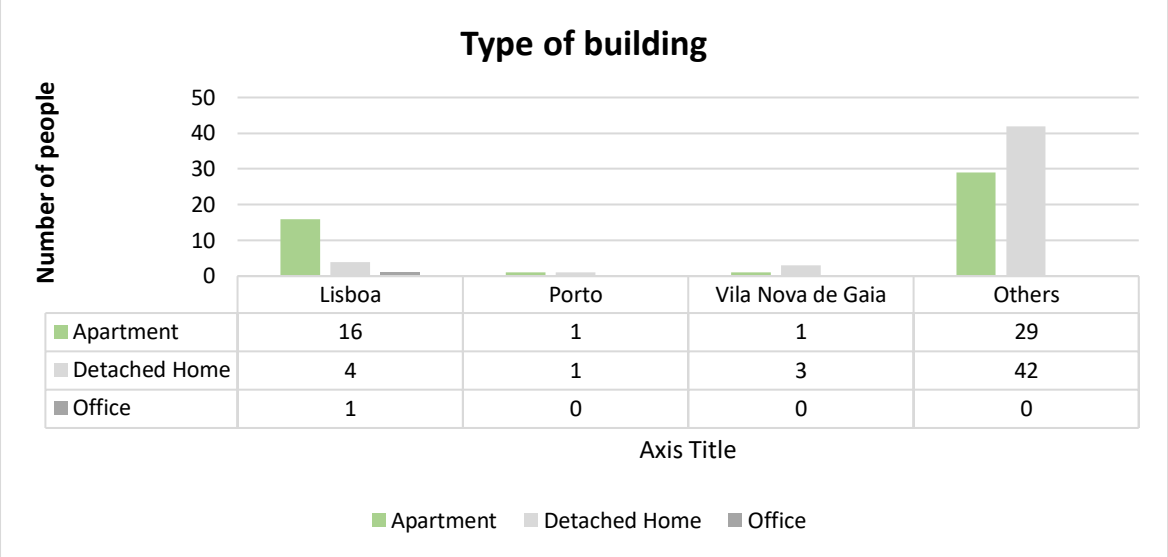


Figure 97 Property size

Type of building

From the 101 people, 98 added data in the graph below. Figure 96 represents people distributed by type of building, in detached home and apartment. It can be noticed that most part of home visits were realised out of main cities.

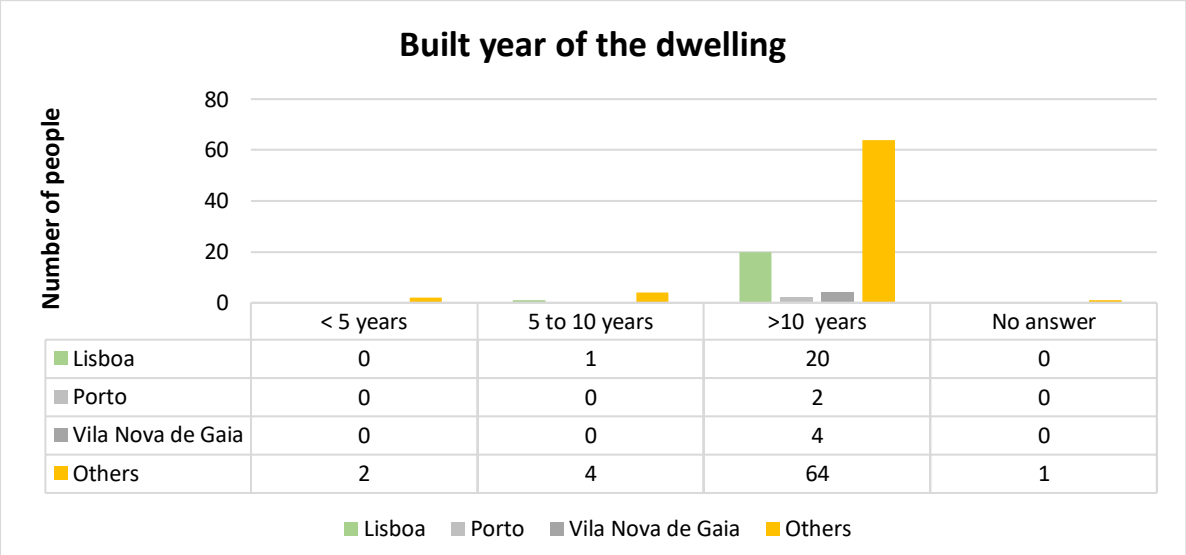


	Lisboa	Porto	Vila Nova de Gaia	Others
Apartment	16	1	1	29
Detached Home	4	1	3	42
Office	1	0	0	0

Figure 98 Type of building

Built year of the dwelling

From the 101 people, 98 added data in the graph below. 92% of respondents live in homes built more than 10 years ago.



	< 5 years	5 to 10 years	>10 years	No answer
Lisboa	0	1	20	0
Porto	0	0	2	0
Vila Nova de Gaia	0	0	4	0
Others	2	4	64	1

Figure 99 How old the dwelling is

Lighting

62% of respondents use LED lamps for lighting their home, 31% use half LED and half halogen lamps 8 people use incandescent or cfl bulbs.

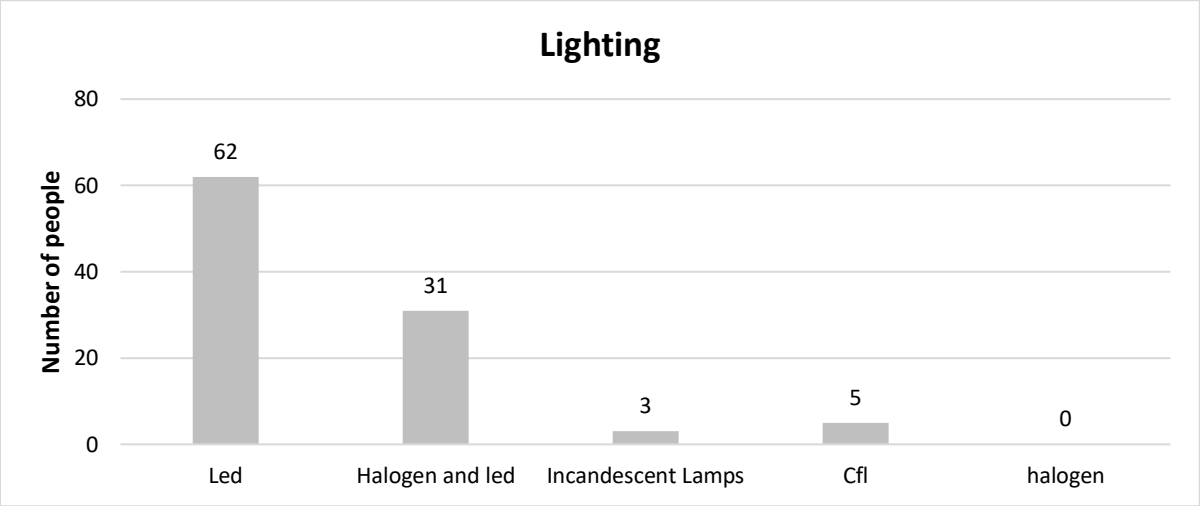


Figure 100 Lighting

Thermostat (in Celsius)

Most common temperature in homes during winter is more than 20°C.

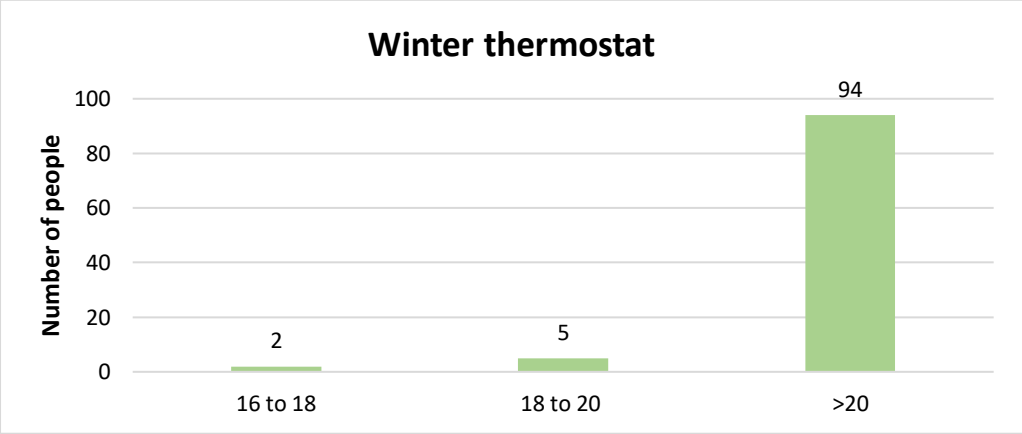


Figure 101 Winter thermostat

Most common temperature in homes during summer is between 24 to 26°C.

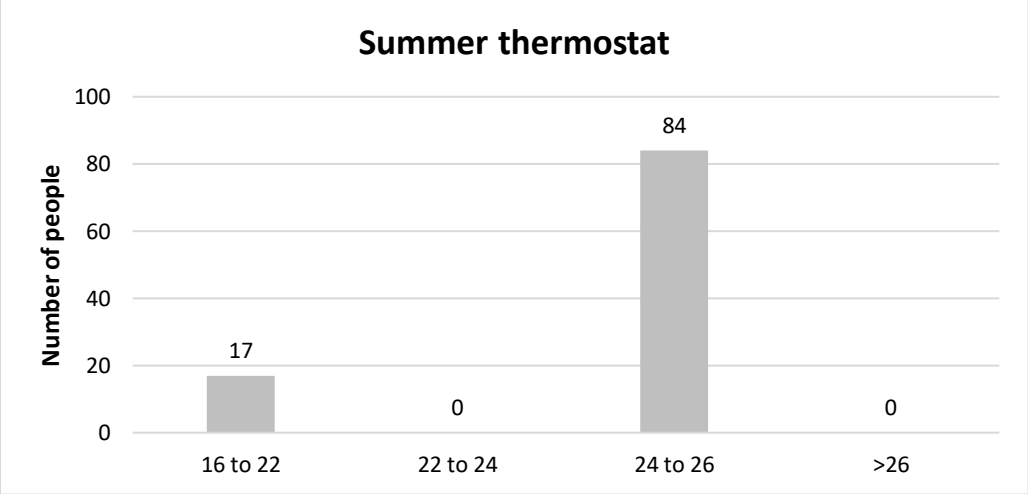


Figure 102 Summer thermostat

Heating annual cost

From 101 people, 99 added data in the graph below. Total annual cost in homes for heating is up to € 1000.

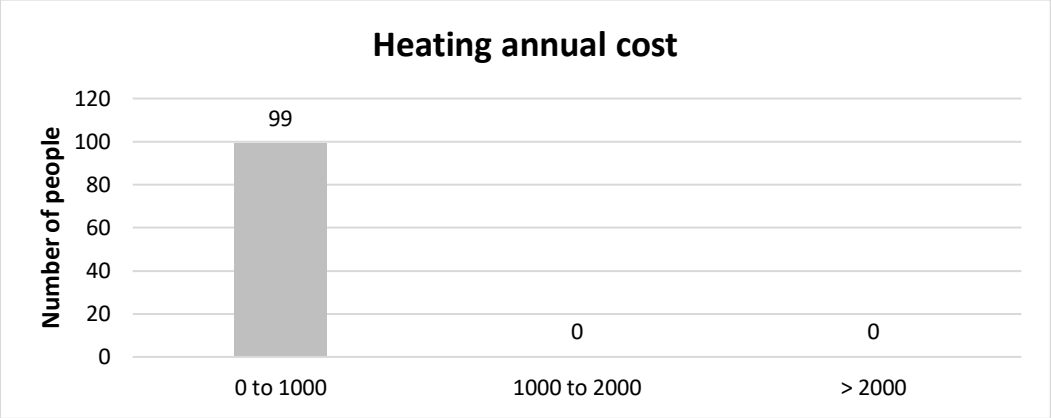


Figure 103 Heating annual cost

Heating fuel

Most common heating system in Portugal is through electric appliances. In second place comes heating through wood, immediately followed by natural gas and propane.

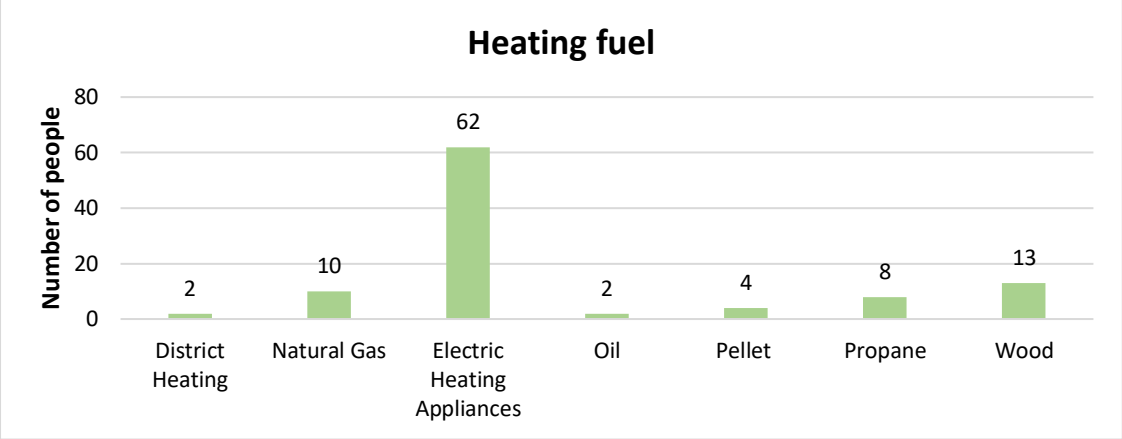


Figure 104 Heating fuel

Heating water

Most common way to heat water in Portugal is by natural gas boiler heating system

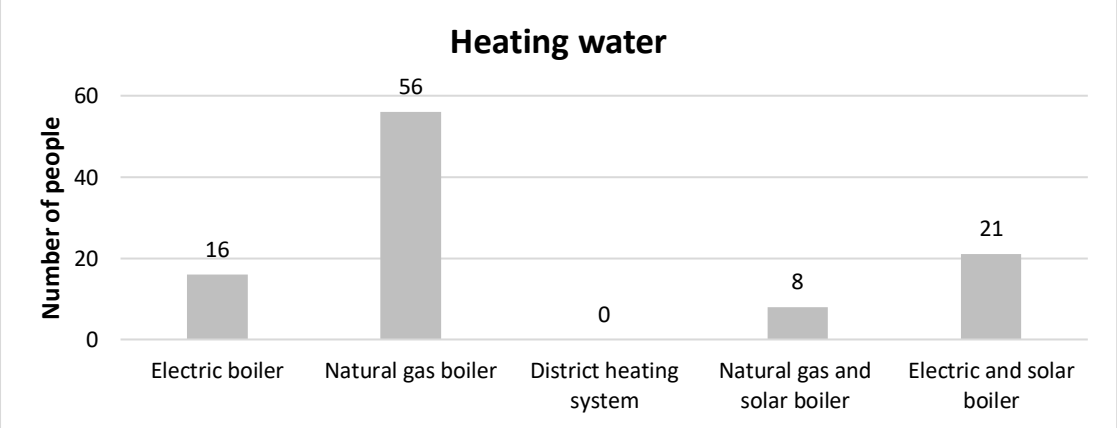


Figure 105 Heating water

Electric appliances

Collected data show that electrical appliances left in standby mode predominates and then an equivalent position, appliances always left in standby mode and turned off mode, 25 and 23 respectively, in a universe of 101.

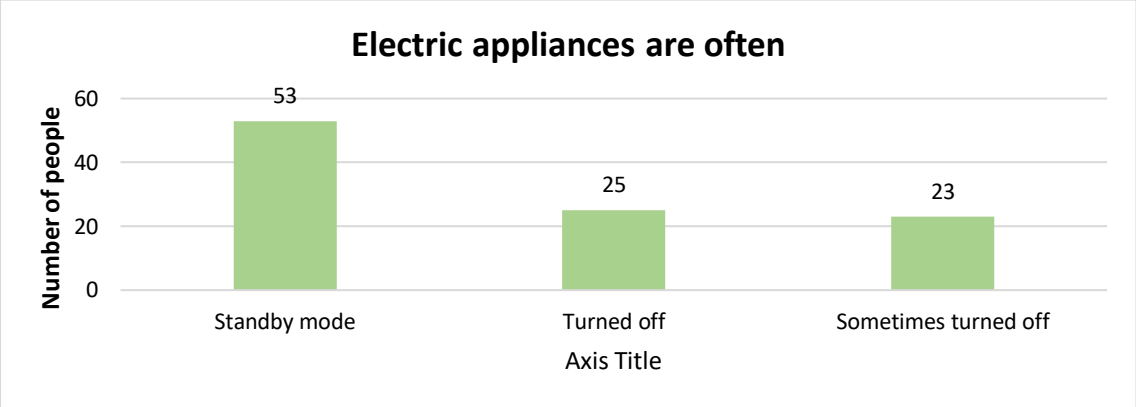


Figure 106 Electric appliances

3.8 Spain

POWERPOOR households visits

A total amount of 129 direct home visits have been registered in Spain during the duration of the project. (In addition, 2475 households were supported through the EPAOs. Details will be given on the next page.) It is known that the POWERPOOR methodology and tools have been used more broadly, reaching to actually more households, but there have been many difficulties to obtain the information about the rest of the visits and therefore there is no more detailed data about it. That is another sign of the complex reality that the sectors related to energy poverty live in their everyday work, encountered several times during the POWERPOOR project. The most common problem has been the lack of time of the Energy Supporters and Mentors, first to go through the trainings and certification process, then to carry out the home visits, and last to inform back about the visits and the support provided. Related to the irregular situations of many of the workers in the social sector, it is to mention also that some of the certified Energy Supporters have had to change their job positions during their participation on the project, resulting on that they have dropped from participating in POWERPOOR.

In addition, the pandemic caused by the COVID-19 virus directly affected to the implementation of the project, on one side regarding the trainings, but especially regarding the home visits. In this regard, because of the pandemic the implementation of the home visits was delayed, causing a shorter period to carry out them. On top of it, the pandemic affected to the whole society, resulting on a more complex situation for the implementation of the project. In this way the KPI of the home visits in Spain has not been reached, but in the other side the Local Energy Poverty Alleviation Offices have worked better than expected as it will be explained in the next section.

Several initiatives were set in place for reaching as much Energy poor households as possible during the project. Different social institutions such as Caritas, Eguzkilore, Nasuvinsa, Red cross, Jesuits social network or Grupo Servicios Sociales Integrados S. Coop were contacted for arranging visits to the households they support but no interest, or lack of resources were some of the answers we got, on the other hand, others accepted but from the initial estimation of 24 visits only three were arranged with a lot of time spent from Goiener workers. Another initiative was an open call with a link for those that might be in Energy poverty situation in order to apply for a home visit, but only 5 visits were done under this call. Also, a thermographic camera was offered for a loan to energy supporters and mentors for the visits, but nothing seemed enough for getting closer to the KPI request. We collaborated with other partners of the project for implementing some of their strategies in our country but not having another project that financed the visits made it very complicated in our case. For future projects, resources for institutions and organizations that support vulnerable families, seem to be mandatory for reaching their households.

Regarding the realised home visits, most of them have been carried out in the city of Madrid, through the Socaire association, through Mentors that have been certified by POWERPOOR. These home visits have been carried out in neighbourhoods identified as the most vulnerable areas of the city, in collaboration with the local associations, and using the POWERPOOR tools, mainly POWER-TARGET and POWER-ACT. Very different situations have been encountered in these visits, most of them with disproportionate energy contracts and inefficient home appliances. In addition, the quality of the infrastructure of the households was very low, and in several cases, risks related to the use of electricity and fire were identified, the optimisation of the energy contracts, the replacement of home appliances, improvements of the infrastructure in relation to security or the use of timers in the appliances. Besides the city of Madrid, the registered home visits have been carried out in the following municipalities: Arakil, Arrigorriaga, Barakaldo, Bilbo, Donostia, Errenteria, Eskoriatza, Gasteiz, Hondarribia, Illescas, Irun, Leioa, Ondarroa, Urduña, Portugalete, Santurtzi, Sestao, Tolosa, Atarrabia, Zalla, Markina, Trapagaran, Zumaia, and Galdakao.

In general, the experiences of the home visits have been positive, in the way that in all the cases the Energy Supporters/Mentors have identified and proposed ways and measures to improve the situation of each household. That means that literally in every visited house there has been something to improve, and that the project has directly helped them, in this case through the Supporters and Mentors. However, each of the household has its own particularity, and specially the most vulnerable ones have complex situations that often make it difficult to take measures that will bring substantial improvements. For example, one of the most common measures proposed by the Energy Supporters/Mentors have been the optimisation of the energy contract, but in some cases, it has not been possible to carry out due to the irregular situation of the persons living there. Besides the mentioned support, especially the Energy Mentors have advised citizens on the aspects related to renewable energies, energy communities and the innovative financing schemes.

On-line help (via e-mails, phones), on - line help desk support through Energy Poverty Mitigation toolkit and work done through Energy Poverty Alleviation Offices (EPAO)

As mentioned above, fewer home visits than expected have been carried out in the project, but in contrast the support provided by the offices has been very positive, qualitatively and quantitatively. In this regard, 2,475 households have received support in different ways, mainly direct support through the offices, but also through phone calls, emails, materials for energy efficiency (POWERPOOR kits) as well as through the POWERPOOR toolkit. The main support provided by the offices have been related to the energy bills, about how to understand them, improve them and to get the social discount related to the electricity bill. For example, the energy office in Hernani has estimated that counting the support provided to 325 citizens in the above-mentioned aspects, and mainly in relation to the natural gas contracts, the total amount of savings in energy bills has been about 300.000 € per year for the citizens. In this regard, it is important to mention that in many of the cases the households had high energy tariffs in their natural

gas contracts, as the majority of the visits were received during the period in which the market price of the natural gas was extremely high (as a result of the Russian invasion in Ukraine). Significant savings could be achieved simply by switching from the free market to the regulated one, where the price of the natural gas is controlled by the government. This was fact was not well known by the general public.

Besides the questions about the energy bills and the social discount on the electricity bill, other queries have been about renewable energies, grants, energy consumption, energy communities and energy efficiency. Following with the same example of Hernani, it is important to mention that thanks to the fact that the local energy community Enherkom is managing the office, citizens get to know from the first hand about the energy community at the same time they get support in energy-related aspects, and that has been seen as very positive by the citizens. As another example, the energy office in Tierra Estella informed that they also have many cases where people say they do not consume anything, and they do not understand why they have such a high consumption: after analysing the consumptions, the Mentor discovered that they had 2 freezers that were 20 years old, or that they slept with the television on.

Based on the available information, the most common profile of the people who assist to the offices are women over 45 years old. In the case of Oarsoaldea, for example, 65% of the people who assisted to the office were women, and 83% of the questions were related to the energy bills.

In conclusion, it has been found that the offices make a very important work on supporting the citizens, especially through providing and in the future. In this way, the relation of the offices with the local community has been seen as a key when reaching the citizens, especially the most vulnerable ones

POWERPOOR project results from POWER TARGET and POWER ACT

The ***data collected covers 264 households***. Not every household filled in all the questions (they didn't know the answer or didn't feel comfortable sharing that data) so that there is a mismatch in the amount of data for each question.

Annual income

On average, Spanish who completed the questionnaire have a salary between € 10,000 to € 50,000. The Interprofessional Minimum Wage (SMI) in 2023 is 1,080 per month in 14 payments, up to €15,120 per year. In 2023 the minimum benefit for pensioners aged 65 and over was set at EUR 10,963.4 per annum: 14 payments of € 783.1. In the case of pensioners with dependent spouses, this minimum is €13,526.8.

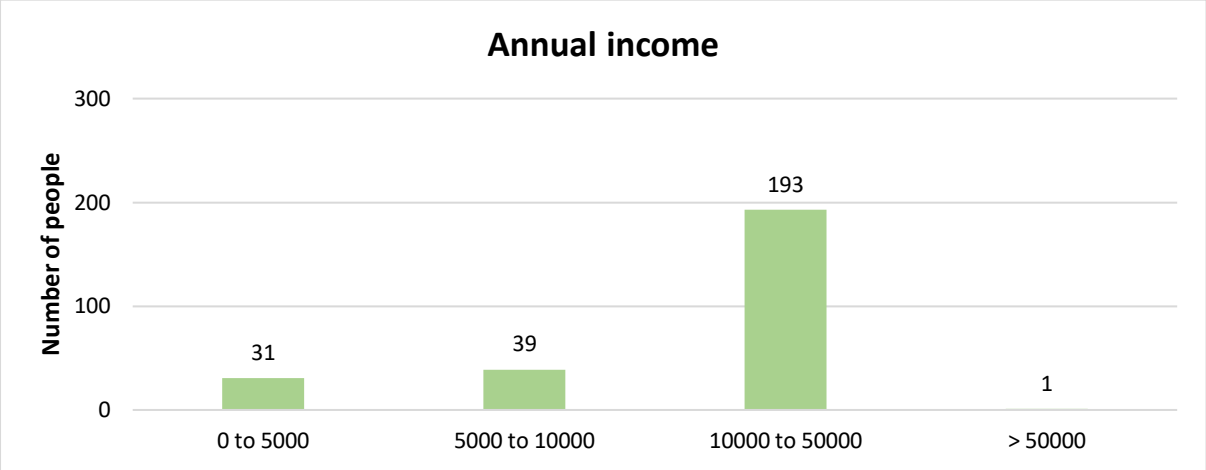


Figure 107 Annual income

Age

Most respondents are more than 40 years old.

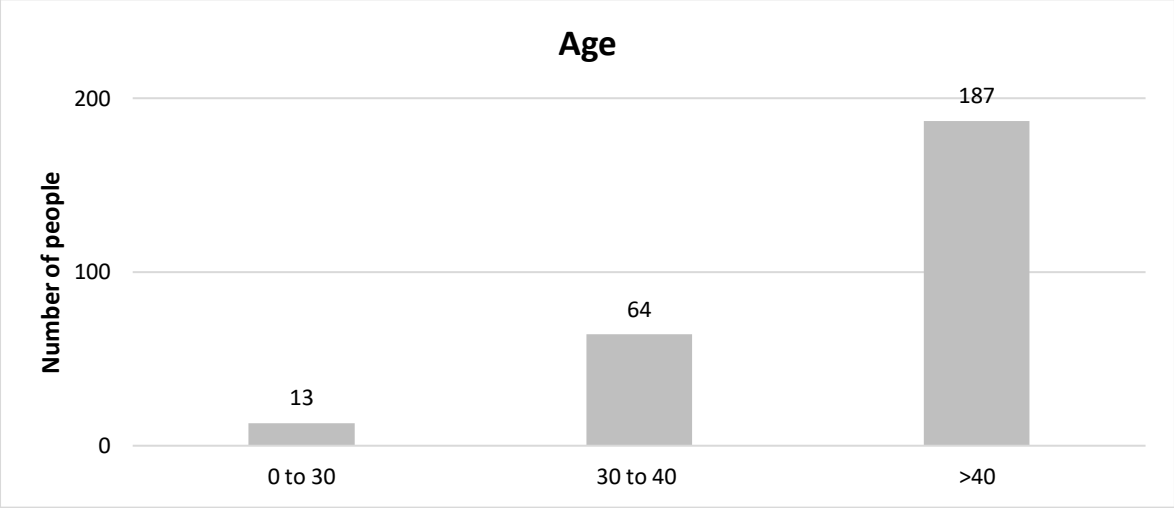


Figure 108 Age

Number of children

Most respondents have children between two and three. 45% of the respondents do not have children or have one child and 3% have more than three children.

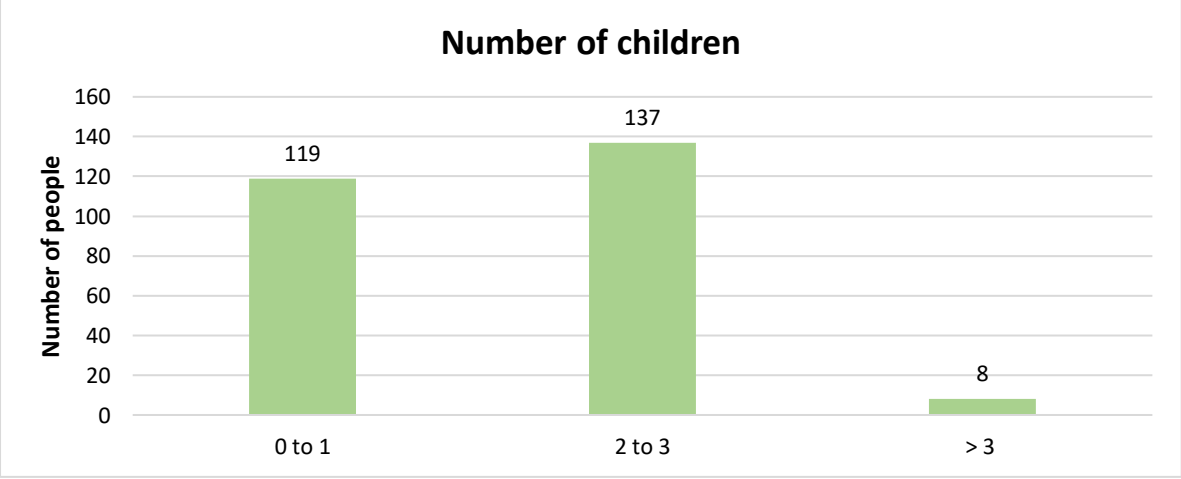


Figure 109 Number of children

Marriage status

Most respondents are married i.e., 56%. 21% are single, 14% divorced and 9% widowed.

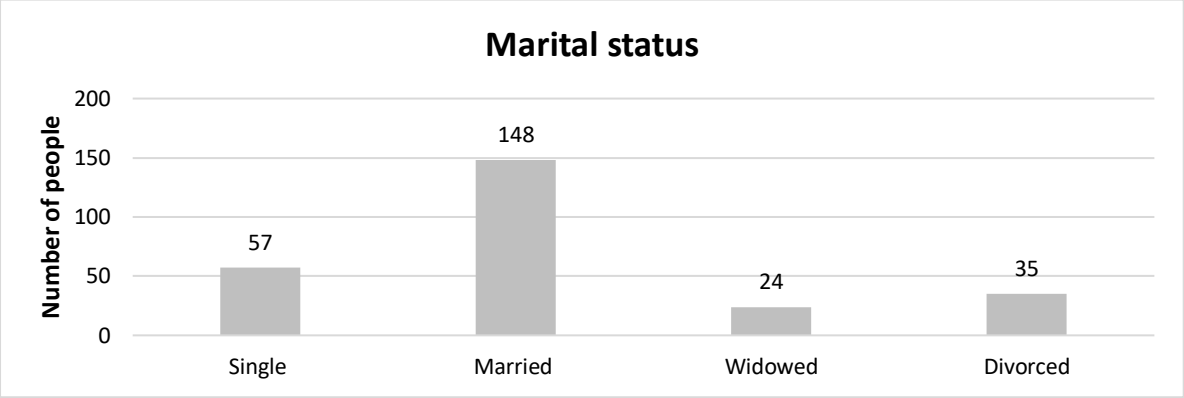


Figure 110 Marital status

Household members

From the 264 people, 234 added data to the graph below. Most respondents have up to three household members. 35% of respondents have four or five household members and 3% of respondents have more than five members. In Spain according to the data from the National Statistics Institute (INE), the average is 2,5 people per household.

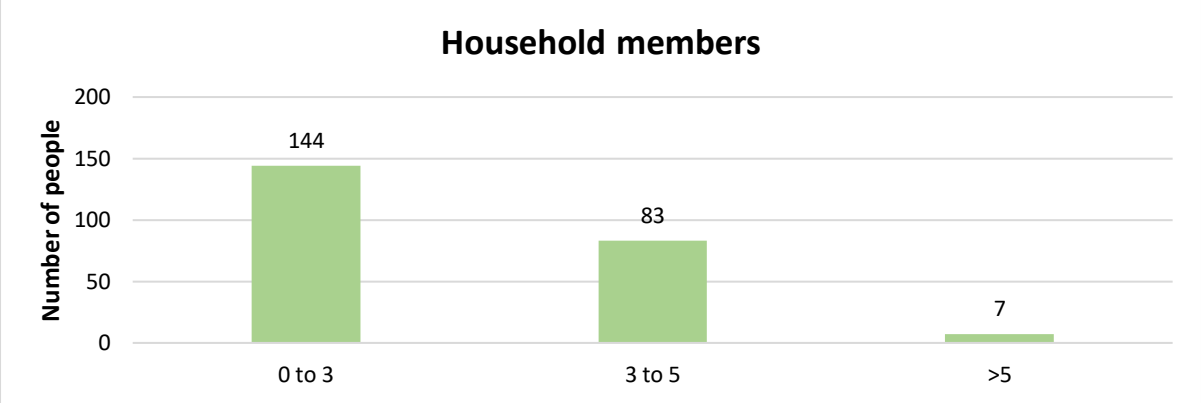


Figure 111 Household members

Property size (m^2)

51% of respondents live in a home ranging in size from 60 to 120 m^2. 27% of them are in a home from 0 to 60 m^2. About 7% of them are in a home size from 120 m^2 to 180 m^2, 15% of them are in a home size more than 180 m^2.

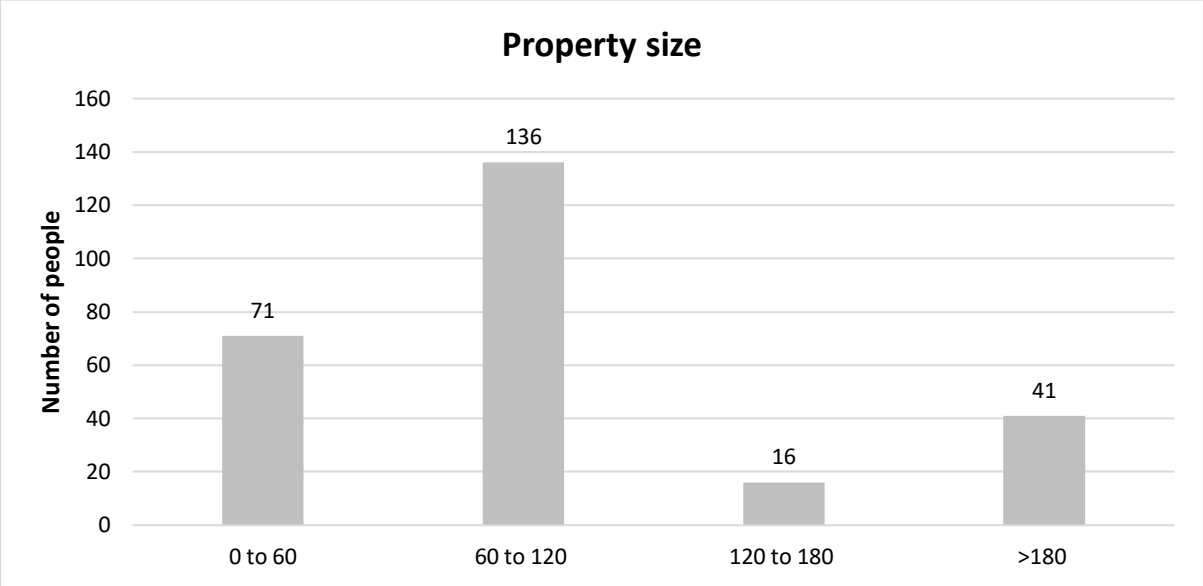
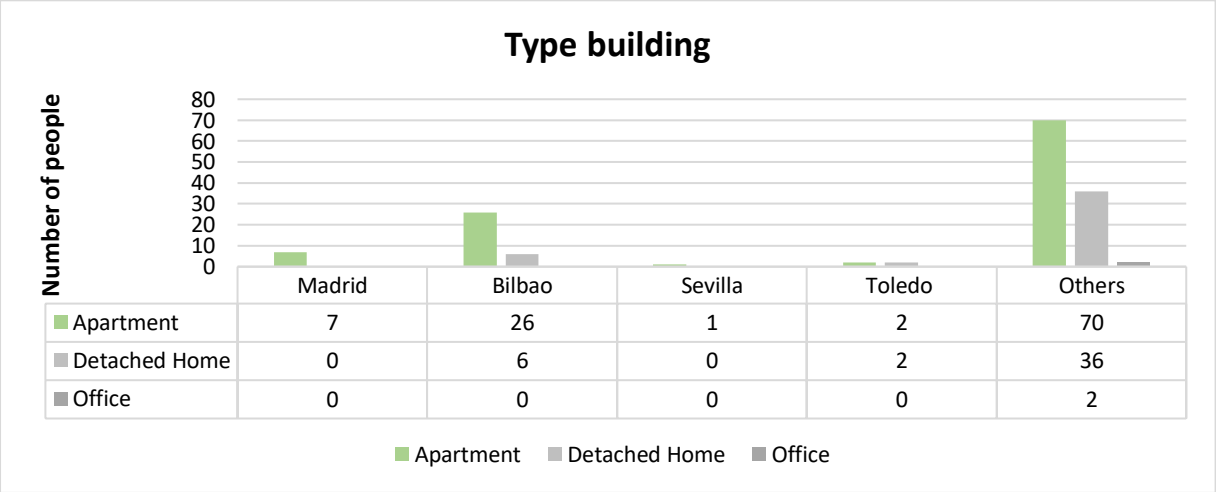


Figure 112 Property size

Type of building

From the 264 people, 152 added data to the graph below. It can be observed that citizens are living mostly in apartments.



	Madrid	Bilbao	Sevilla	Toledo	Others
Apartment	7	26	1	2	70
Detached Home	0	6	0	2	36
Office	0	0	0	0	2

Figure 113 Type of building

Built year of the dwelling

From the 264 people, 152 added data to the graph below. 95% of respondents live in a home which was built more than 10 years ago. This data is relevant, since in 2006 the Building Technical Code (CTE) was approved and establishes the basic quality requirements that the buildings must meet in relation to basic safety and habitability requirements. So it can be expected that buildings before that date will need renovation for energy efficiency.

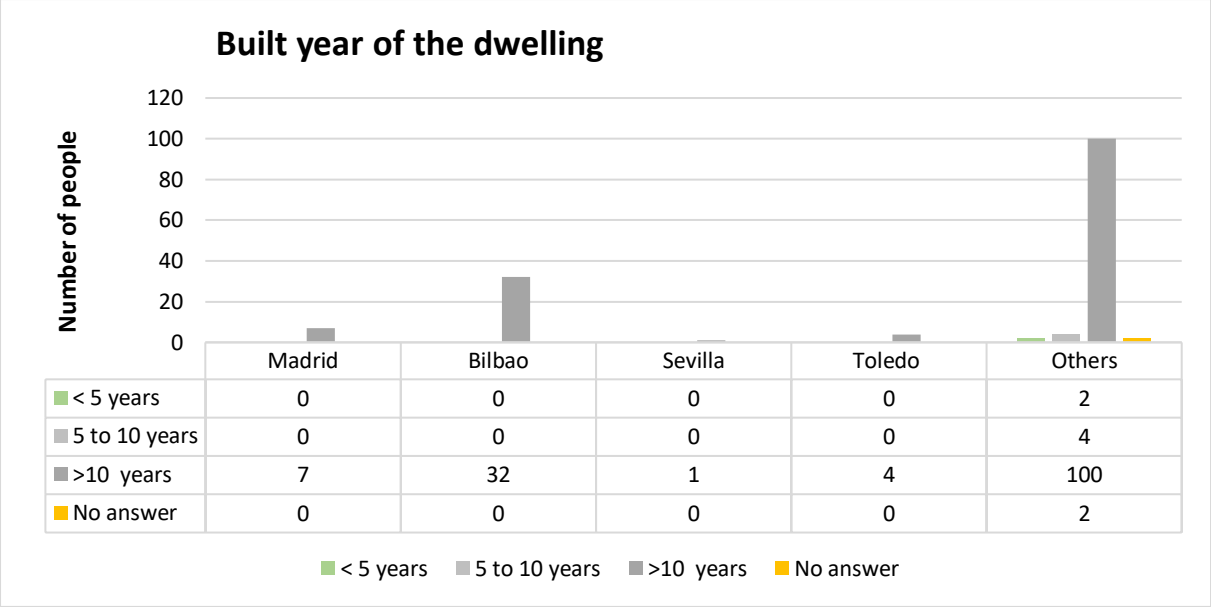


Figure 114 How old the building is

Lighting

From the 264 people, 234 added data to the graph below. 41% of respondents are using halogen and LED for lighting for their home.

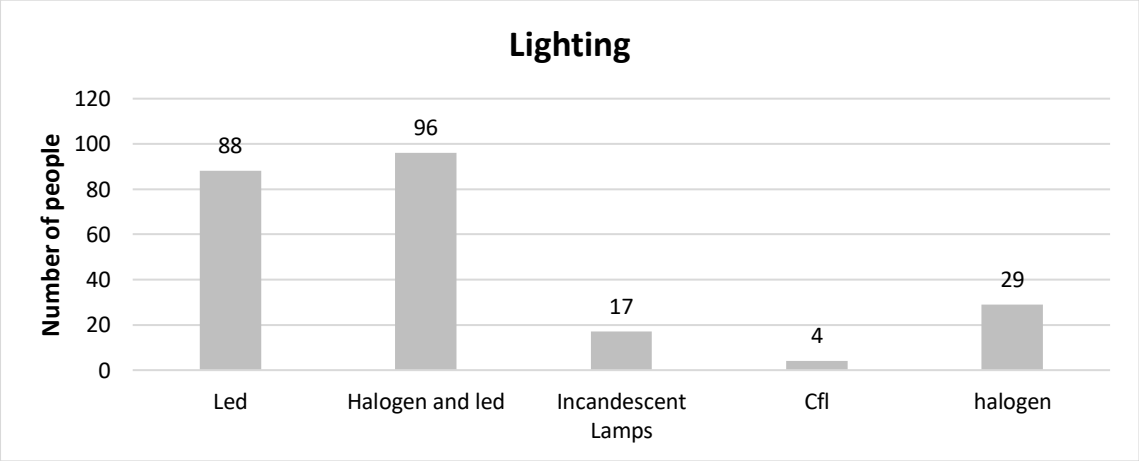


Figure 115 Lighting

Thermostat (in Celsius)

The most common temperature in homes during the winter is more than 20°C.

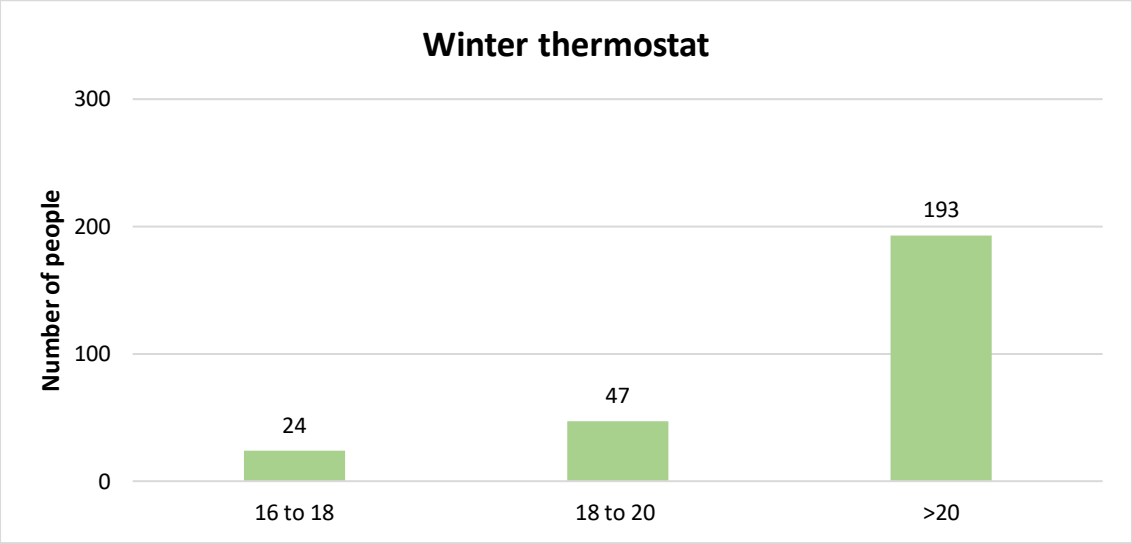


Figure 116 Winter thermostat

The most common temperature in homes during the summer is between 16 to 22°C.

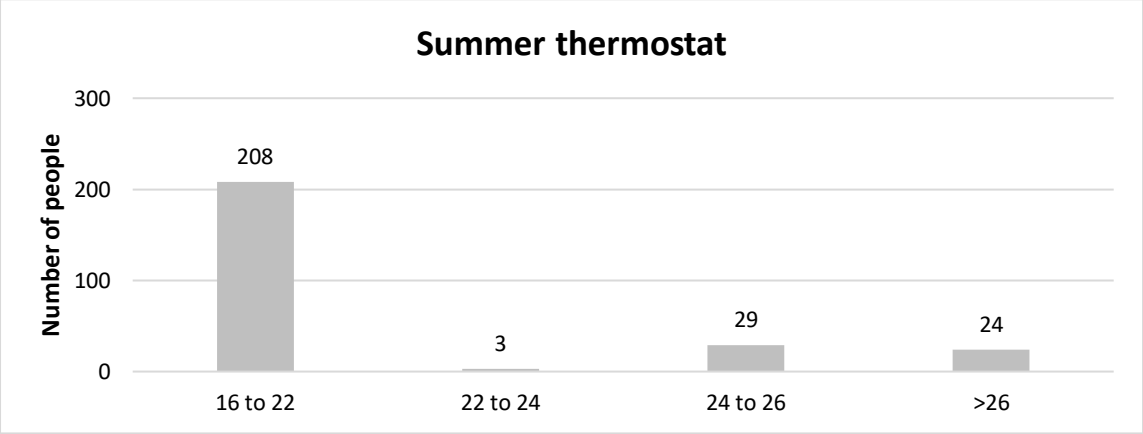


Figure 117 Summer thermostat

Heating annual cost

The total annual cost in homes for heating is up to 1000 EUR.

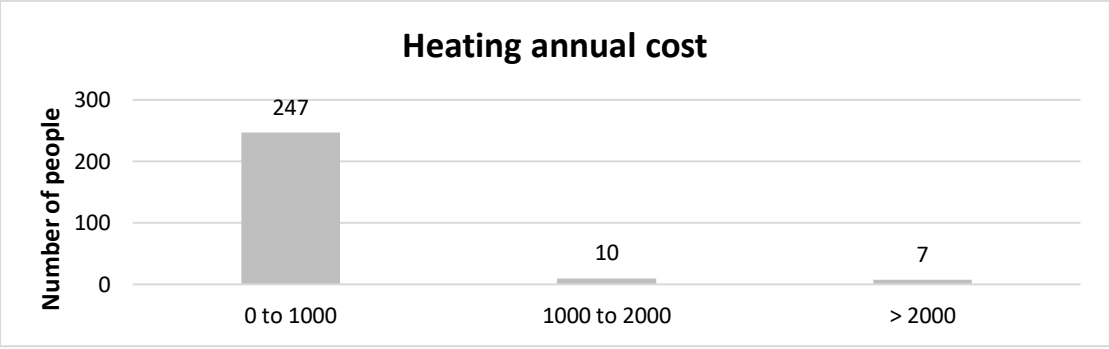


Figure 118 Heating annual cost

Heating fuel

Most common heating fuel in households in Spain is natural gas. Renewables penetration for thermal uses is still very low in general and especially in household heating. Heating pumps are being pushed to be the alternative to natural gas in cities with national funding programs, but high investment costs make it impossible to afford for energy-poor families.

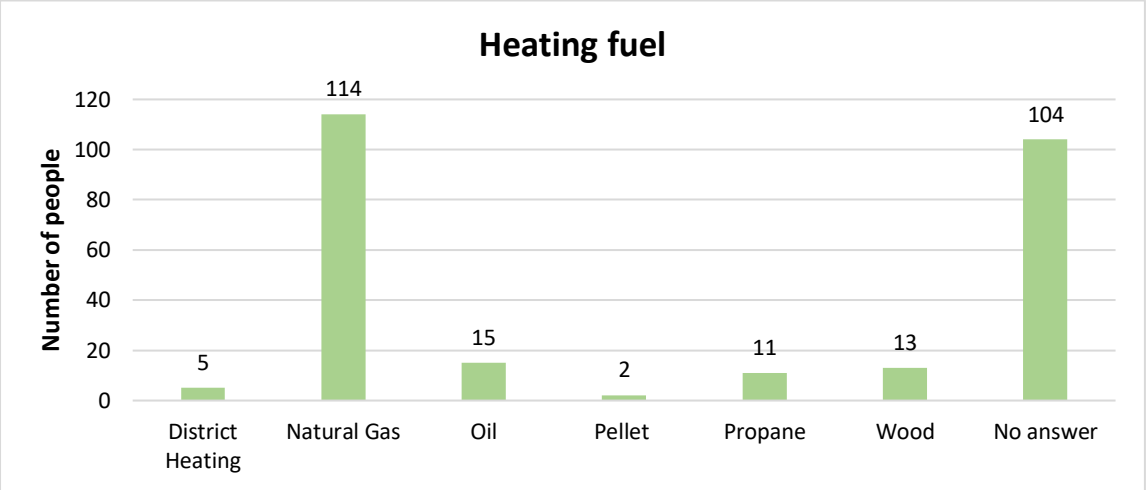


Figure 119 Heating fuel

Heating water

From the 264 people, 234 added data to the graph below. The most common way to heat water in Spain is with a natural gas boiler heating system.

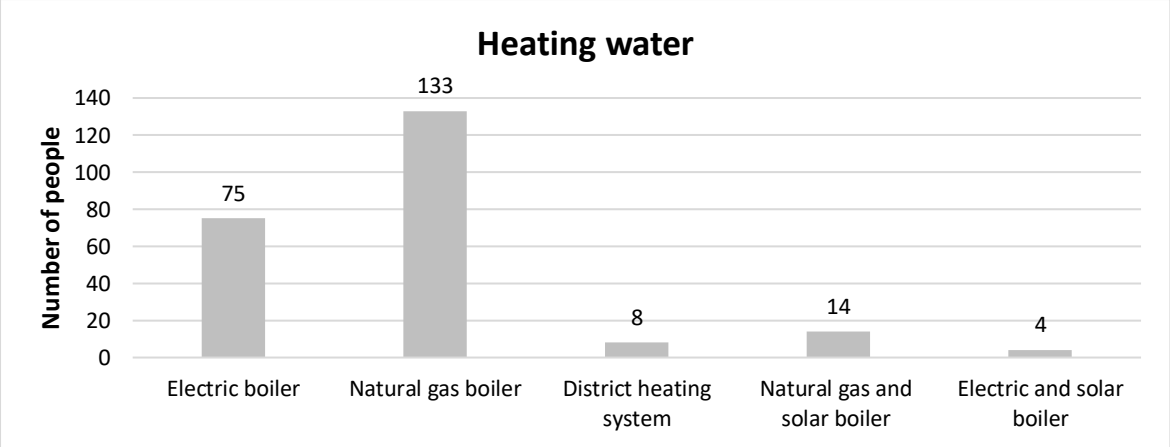


Figure 120 Heating water

Electric appliances

From the 264 people, 234 added data to the graph below. The graph shows that electric appliances are often in standby mode.

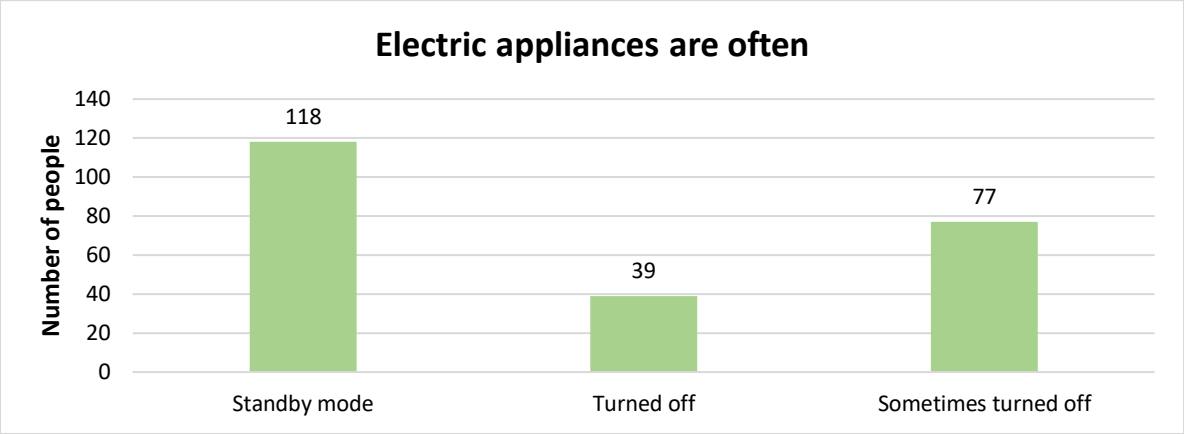


Figure 121 Electric appliances

4. Participating in Energy Cooperatives

As part of Work Package 4, in April 2021, under task 4.2, report **D4.2 Baseline assessment report** was created. In that report, the existing energy poverty policies and the situation in each pilot country was mapped – also taking into account the policies related to energy cooperatives and energy communities. Mapping of energy poverty policies – also taking into account the policies related to energy cooperatives and energy communities was also part of Work package 5. In December 2022 under task 5.5, report **D5.9 EU policy Recommendations& National Roadmaps to alleviate energy poverty** was created.

Each pilot partner also made a mapping of the existing energy communities and/or cooperatives (under subtask 4.4.2 and excel table shown in annex of this report) and established contact with selected cooperatives to create joint energy initiatives.
This chapter will provide an overview per country of:

- the situation before POWERPOOR (policies regarding energy cooperatives/communities and number of energy cooperatives/communities);
- the situation during POWERPOOR (policies regarding energy cooperatives/communities and number of energy cooperatives/communities);
- joint energy initiatives with energy communities / cooperative (number of actions, best practices established as part of POWERPOOR project in joint energy initiatives with energy cooperatives/communities).

4.1 Bulgaria

The situation before POWERPOOR in Bulgaria

Bulgaria's national energy policy relies heavily on large and expensive energy projects, including nuclear and gas facilities. The potential of sustainable and cost-competitive technologies, such as photovoltaic power plants, is underestimated in the overall political environment. Although some consumers, mostly from business and industry, are investing directly in photovoltaic installations, still projects owned by groups of citizens or energy communities remain rare in Bulgaria.

Being a Member State of the EU, by June 2021 Bulgaria had to transpose the EU Renewable Energy Directive II (RED II) into national legislation. This has not happened yet. Moreover, in order to facilitate the deployment of energy communities, the government must adopt a set of regulations providing a legal definition of energy communities and a regulatory framework for their activities. Currently, the energy legislation in Bulgaria favours a centralised energy model, meaning large-scale energy plants dominating the market and consumers who only have the rights to join the grid and to pay their bills.

The lack of specific legal provisions regarding prosumers and energy communities both at national and municipal levels in Bulgaria and the absence of systematic approach discourages potential investors to take the risk to develop an energy community. Energy cooperatives being a legal form of energy communities intended to benefit their members who all have the right to vote and to participate in the governance of the entity cannot be legally established in Bulgaria.

Before the beginning of the POWERPOOR project only a handful of initiatives in Bulgaria could be qualified as forerunners of energy communities. For example:

1. In 2010, the Property Owners' Association of one building with 117 flats in the Hristo Smirnenski district in Sofia invested in a rooftop PV installation of 28kW. The legal entity sells the produced energy to the grid and uses the profits for the maintenance of the building.
2. In 2016, the Municipality of Straldzha (part of Yambol Province) installed geothermal heating for the municipal school and kindergarten, within the project *Utilization of the local potential of geothermal energy in heating installations for schools and kindergartens in the town of Straldzha* (funding € 394 773.18, provided by the BG04 Energy Efficiency and Renewable Energy Program as part of the Financial Mechanism of the European Economic Area (EEAFM).
3. In 2019, the municipality of Burgas (a prominent city on the Black Sea coast) invested in a rooftop PV installation of 30kW to use for its own energy needs. The project was partly funded by EU's Regional Development Fund and partly by the municipality itself.

Table 4 No. Energy cooperatives in Bulgaria

Energy cooperative	Type of initiative	Description	Situation
Not one official energy cooperative/community due to lack of legislation.	/	/	/

The situation during POWERPOOR in Bulgaria

The current political situation, having 5 parliamentary elections within several years, has slowed the process of directives' transposition and legislative synchronization in Bulgaria. The new Government and elected Parliament must catch up with these urgent tasks.

Under Bulgaria's current legislation, until 2022 electricity is considered an excise product, creating an obligation for prosumers who wish to export a share of their generation to the grid to pay excise tax. As such, prosumers in Bulgaria were obliged to apply for a registration of their installations with the Customs Agency. At present, there is a proposal for changes in the Bulgarian Law on RES for the transposition of REDII 2018/2001 which was approved by the Council of Ministers on 17.01.2023 and has been presented to the Parliament. The adoption of the transposed regulation hopefully will happen during the second half of the year. The proposed text in the RES Act for REC is as follows:

"Art. 18b. (1) End users, including household users, may participate in a renewable energy community without losing their rights or obligations as end customers and without fulfilling unreasonable or discriminatory conditions or procedures that would prevent their participation in a renewable energy community. In case of participation of enterprises, their participation must not be related to their main commercial or professional activity.

(2) The renewable energy communities:

1. may produce, consume, store and sell excess amounts of energy from renewable sources as an equal participant in the energy markets under the conditions defined in the ZE and in the subordinate legal acts to it, including through agreements for the purchase of electric energy;
2. may share within the renewable energy community the energy produced by installations owned by the renewable energy community, respecting the rights and obligations of the members of the renewable energy community as consumers;
3. have access in a non-discriminatory manner to all relevant energy markets.

(3) The development of renewable energy communities is promoted through:

1. removal of unreasonable regulatory and administrative obstacles;
2. application of the requirements of the Energy Act when selling energy and other energy services;

3. ensuring cooperation with the relevant distribution network operator and heat transfer company for the transfer of energy in the community;
4. the competent authorities applying fair, proportionate and transparent administrative procedures, including registration and licensing, and ensuring that regulated prices for network services are applied to all network users, which should contribute in an adequate, fair and balanced way to the distribution of total costs for the system in accordance with a transparent analysis of the costs and benefits of the distributed energy resources;
5. application of non-discriminatory treatment to communities in relation to their activities, rights and obligations as end users, producers, suppliers, distribution system operators or as other market participants;
6. accessibility for all users to participate in communities, including low-income households or vulnerable clients;
7. facilitating access to financing and information;
8. providing regulatory support and assistance to build the capacity of public authorities in facilitating and creating renewable energy communities and in facilitating their direct participation;
9. Introduction of rules to guarantee the equal and non-discriminatory treatment of users participating in the renewable energy community.

(4) In order to promote the development of renewable energy communities, an assessment of the existing obstacles and the potential for the development of renewable energy communities shall be carried out.

(5) Information on the incentives under para. 3 is presented with reports on the progress and updating of the Integrated Plan in the field of energy and climate of the Republic of Bulgaria in accordance with Regulation (EU) 2018/1999."

The households are protected by the regulated electricity market, and they do not have enough stimuli to benefit from participation in an energy community. In addition, the installation of smart meters is delayed and has to be paid by the consumers if they wish to have one and use it. The households will join the free market in 2 years and the expectations are that that will lead to increase of energy prices for households. Hopefully, this will result in increase of interest to form, participate in, or build energy communities.

There are EU projects related to energy communities that are under implementation in the country, their role is to disseminate knowledge and good practices with regards to energy communities and implement pilots of energy communities in municipalities in order to test the ability of local administration to support such initiatives and participate in them. Some experimental forms of energy communities have been analysed in the municipalities of Burgas, Gabrovo and Dobrich and some associations of flat owners have installed PV panel for common use, which is a step forward to the establishment of energy communities in Bulgaria.

Another important component of the functioning of an energy community is the possibility to sell surplus power to the grid which is also hindered by unclear regulations.

Along with transposing the directives into Bulgarian legislation there is a need to update and synchronize many laws, bylaws and ordinances to make these concepts work in practice. This requires coordinated efforts from many different government agencies and ministries.

Despite the general lack of information and the gaps in the legislation concerning energy communities, since 2022 there is one organisation which calls itself the First energy community in Bulgaria. In the village of Belozem, in the region of Plovdiv there are frequent outages of power supply resulting in interruptions of water supply, which causes serious problems for local producers of fruits and vegetables. Thus, in 2022 Tsvetan Georgiev with friends and other like-minded people installed nine solar panels with 4 kW power (invested 15 000 BGN / 7614 Euro) and established Izgrei.com, which he calls the First energy community in Bulgaria, and which is a member of the European federation of Renewable Energy Cooperatives. Legally, the organisation has three members, and it is a limited company (ltd.). In a recent interview Mr Georgiev said that the absence of suitable legislation makes it very difficult for them to add new members to the community. He also complained that they are still waiting to be connected to the grid, dealing with bureaucracy and slow procedures. However, Mr Georgiev believes that they are other such communities in Bulgaria, only they cannot be registered as formal energy cooperatives.

Table 5 No. of new Energy Communities/Cooperatives after start of POWERPOOR project in Bulgaria

Energy cooperative	Type of initiative	Description	Situation
Municipality Burgas,	Pilot energy community	Municipal initiative	active
Municipality Gabrovo	Pilot energy community	Municipal initiative	active
Municipality Dobrich	Pilot energy community	Municipal initiative	active
Energy community IZGREI.BG	Energy community / informal cooperative, registered as a limited company (ltd.)	Private organisation with 3 members, installation of 9 panels, 4 kW, for shared use, not connected to the grid. It is situated in the village of Belozem, Plovdiv region.	active as a limited company (ltd.)

Joint energy initiatives with energy cooperatives

Since in Bulgaria there are no legally established energy cooperatives, there are no joint energy initiatives with such. The EPAO in Sofia is making an effort to promote the benefits of energy communities/ cooperatives, to educate individual households about

the notion, and to disseminate any news on the subject regarding national legislation and regulation of energy cooperatives. Together with other members of the POWERPOOR Stakeholders Liaison Group SOFENA has been disseminating information about the notion of energy communities/ cooperatives. Moreover, SOFENA has used its position as a consultant of different municipalities on the drafting of their energy efficiency and RES plans to promote the benefits of joint energy initiatives, and as a result some municipalities have decided to run experimental municipal energy communities for RES.

4.2 Croatia

The situation before POWERPOOR in Croatia

Analysis shows that before the start of POWERPOOR project there were 12 energy cooperatives in Croatia and there were no energy communities (table 6).

Table 6 No. Energy cooperative in Croatia

Energy cooperative	Type of initiative	Description	Situation
BAN -UNION	COOP (Energy Cooperative)	agricultural and energy cooperative in Sisak Moslavina County	it is not known if it is still active
Zelena energetska zadruga (ZEZ)	COOP (Energy Cooperative)	Energy cooperative focus on planning and managing RES and EE implementation projects	the most active cooperatives; established cooperation on the POWERPOOR project
Energetske zadruge Otok Krk	COOP (Energy Cooperative)	RES and EE on the island of Krk	the most active cooperatives;
Energetska zadruga Kaštela	COOP (Energy Cooperative)	energy cooperative in Split-Dalmatia county	it is not known if it is still active
Energetska zadruga Lug	COOP (Energy Cooperative)	LAG Vallis Colapis in order to encourage RES in the area of Karlovac County and Zagreb County	it is not known if it is still active
Energetske zadruge Sunčani Hvar	COOP (Energy Cooperative)	energy cooperative in Split-Dalmatia county	it is not known if it is still active
Braniteljske zadruge Ka-Solar	COOP (Energy Cooperative)	cooperative of veterans of the Homeland War - investing in RES	it is not known if it is still active
Energetska zadruga SPES	COOP (Energy Cooperative)	energy cooperative in Split-Dalmatia county - investing in RES	it is not known if it is still active
KLIK – energetska zadruga Križevci	COOP (Energy Cooperative)	energy cooperative Križevac Innovation Laboratory for Climate	the most active cooperatives; established cooperation on the POWERPOOR project
Novi otok	COOP (Energy Cooperative)	Energy and information office	active
Zeleni Prelog	COOP (Energy Cooperative)	Citizens' Energy Association	active

Apsyrtides (Cres i Lošinj)	COOP (Energy Cooperative)	implementation of the strategy of switching to clean energy	active

Before start of POWERPOOR project in Croatia there was policy which regulated the work of energy cooperatives but only energy cooperatives not any other form of energy association:

- **"Act on Cooperatives (Official Gazette, No. 34/11, 125/13, 76/14, 114/18, 98/19)"** - there is no need for definition of an energy cooperative, it can be established according to the principle of already existing act.

The situation during POWERPOOR in Croatia

One new energy cooperative was established during the POWERPOOR implementation (table 7).

Table 7 No. of new Energy Communities/Cooperatives after start of POWERPOOR project in Croatia

Energy cooperative	Type of initiative	Description	Situation
ZEZ Sunce	COOP (Energy Cooperative)	Enables legal and natural persons to invest in solar power plants on buildings. Through ZEZ Sunce, our goal is to increase the use of solar energy in Croatia with solar power plants owned by citizens, micro and small businesses and local communities.	From spring 2023

Also mapping of Energy cooperatives/communities in Croatia showed that 3 energy cooperatives are very active in Croatia: ZEZ, Energy Cooperatives Island of Krk and KLIK. Also, not a single Energy community has been established because policy did not exist until end of 2022, and there is still supplementary legislation to policy that has not been passed so Energy communities cannot be established.

Many changes in policies have occurred in comparison to the 2021 analysis in D4.2 of the Baseline Assessment Report among them the important change for POWERPOOR is introduction the concept of energy poverty in policies (but not yet the national definition of energy poverty) and passing policies that promote **community-ownership of energy** and **collective finance / crowdfunding.**

New articles in policies to promote community-ownership of energy:

- **Electricity Market Act (Official Gazette, No. 111/2021)"** – definition of Citizen

Energy Community (CEC) - for practical establishment and operation of CEC there is need to adopt by-laws that will define the details related to their establishment and operations.

- **"Renewable Energy Sources and High-Efficiency Cogeneration Act No. 138/2021)" -** definition of Renewable Energy Community (REC).

Joint energy initiatives with energy cooperatives

KLIK

KLIK energy cooperative in cooperation with the City of Križevci opened an Energy-climate Office and as part of Energy-climate Office – POWERPOOR Energy poverty alleviation office (EPAO) was opened. As part of the office, KLIK has developed a turnkey service for solar power plants for households, and the goal of the office is to expand services to other areas such as assisting citizens in alleviating energy poverty in their homes.

A step up in the POWERPOOR energy joint initiative between DOOR and KLIK is obtaining the LIFE project that will turn in already established Energy poverty alleviation office (EPAO) in fully operative OSS which will ensure the sustainability of POWERPOOR Energy poverty alleviation office (EPAO) even after the end of the project and continue helping citizens in energy renovation projects - with a focus on all citizens, including vulnerable ones.

ZEZ

ZEZ energy cooperative Synergies between two sister H2020 project CEES and POWERPOOR was established through various activities like membership of ZEZ project manager of CEES project in POWERPOOR Liaison Group, project manager of CEES project becoming Energy mentor, organizing together POWERPOOR online webinar with a focus on topics relevant to the POWERPOOR and CEES project such as: energy cooperatives, energy communities and innovative funding methods and organizing together Info day with focus on good energy and energy poverty.

The exchange of experiences is what was established between the project managers from Croatia in the POWERPOOR and CEES project.

After the POWERPOOR project finished visiting households in Križevci and Zagreb, the CEES project started with its own visits in the area of the city of Zagreb, and examples and experiences of how to reach energy-poor households are exchanged. It turned out that working with citizens presents a certain challenge and there is a need for shared experience and knowledge between these two projects in order to find the best approach in working with energy-poor citizens.

4.3 Estonia

The situation before POWERPOOR in Estonia

As it was mentioned in the POWERPOOR Baseline Assessment Report, cooperative collaboration has been widespread in Estonia, e.g., apartment associations, consumer associations, forestry associations, agricultural associations. For example, local communities can use the supports designed with measures that are related to reconstruction of buildings and heating sector primarily via apartment associations. Before POWERPOOR, Estonian legislation did not designate energy communities or energy association separately, but their activities overlapped with the forms highlighted in the Commercial Code, i.e., the renewable energy communities could act within the meaning of the Commercial Code as private or public limited companies.

Before POWERPOOR, more than 1200 apartment associations had renovated their buildings to be energy efficient, and the most innovative ones of them had implemented renewable energy solutions, for example, solar panels on roofs. Despite acting as small-scale energy cooperatives or energy communities, these associations were not considered to be energy cooperatives or energy communities by law.

Table 8 No. Energy cooperative in Estonia

Energy cooperative	Type of initiative	Description	Situation
No energy cooperatives	/	/	/

The situation during POWERPOOR in Estonia

During POWERPOOR, Estonia improves its legislation on Energy Communities/Cooperatives.

Electricity Market act

The Estonian Government has transposed the CEC definition through an amendment to the Electricity Market Act. Specifically, the legislation refers to 'energy community' instead of citizen energy community. The Electricity Market Act foresees a very open concept of forming energy communities, essentially allowing anyone to participate. Furthermore, any legal form that is capable of being used by an energy community is eligible to become one.

Energy Sector Organisation Act

The REC definition has been transposed through a subsequent amendment to the Energy Sector Organisation Act.

There are many obstacles to establishing energy cooperatives or communities in Estonia, including grid constraints, low awareness, a lack of information, experienced leaders, and best practices, as well as a lack of support from the national government in the planning and implementation of collective energy initiatives.

The closest widespread form of joint activity to energy cooperatives is currently the apartment association. In this way, energy cooperatives could gain momentum precisely from their surfaces. Especially since more than 100 of them have already started their own green energy production. Currently, these apartment associations are not considered to be energy cooperatives or energy communities by law.

A pilot project of so-called microgrids is underway in the city of Tartu, involving the local government, the private sector, and the emerging energy community. The local government is like a public service subscriber, this service is provided by a company that needs energy, and a cooperative is engaged in energy production, doing it on the local government's land. With this, it is hoped to create one specific working example that could be used as an example in the rest of Estonia in the future.

In 2021, an initiative called Energiaühistu was established, a for-profit energy cooperative that connects a green worldview with investing and brings together people who wish to invest in local energy projects, therefore acting also as a crowdfunding platform. The cooperative creates an opportunity for communities across Estonia to produce their own electricity. Through the energy cooperative, anyone can become a shareholder of a solar or wind farm and thus earn a long-term, stable income in an environmentally friendly way. In their cooperative model, the home owner buys electricity from those who decided to invest in the solar park. It is beneficial for the owner because network fees are sometimes avoided and the price of electricity is cheaper, and the owner also does not have to pay for the solar park. But for the members of the cooperative, it is an opportunity to earn money.

Table 9 No. of new Energy Communities/Cooperatives after start of POWERPOOR project in Estonia

Energy cooperative	Type of initiative	Description	Situation
Energiaühistu	COOP	For-profit energy cooperative that connects a green worldview with investing and brings together people who wish to invest into local energy projects.	Active

Joint energy initiatives with energy cooperatives

During the POWERPOOR project, EKYL has joined forces with TREA, the Tartu Regional Energy Agency, an organization very active in the process of analysing and defining the status of energy communities in Estonia. EKYL and TREA have cooperated in training apartment associations to be more aware of cooperative energy actions, made policy recommendations on energy cooperatives and communities, and engaged local municipalities in public debates on the role and responsibility of different stakeholders in the establishment of energy cooperatives and communities in Estonia. TREA is also a member of the POWERPOOR National Liaison Group and the newly established POWERPOOR Alliance.

4.4 Greece

The situation before POWERPOOR in Greece

Law 4513/2018 "Energy Communities and other provisions" introduces the institutional framework for the establishment and operation of Energy Communities in Greece, with the aim of promoting the social and solidarity economy and innovation in the energy sector, addressing energy poverty, promoting energy sustainability and innovation, energy production, storage, self-consumption, distribution, and supply, as well as improving energy efficiency in end-use at the local and regional level.
More than 1000 energy communities were established across Greece taking advantage of the new law but not all of them were active. Some of the energy communities are presented in table 10.

Table 10 No. Energy cooperatives in Greece

Energy cooperative	Type of initiative	Description	Situation
Chalkion	Renewable Energy Community	Photovoltaic panel technology production station on the island of Chalki.	Active.
Minoan Energy Community	Renewable Energy Community	Photovoltaic Power Stations in the Municipality of Minoa Pediada	Active.
Sifnos Island Cooperative	COOP (Energy Cooperative)	Hydropower, Wind onshore in the island of Sifnos.	Active.
Karditsa Energy Cooperative Company	Renewable Energy Community	Biomass plant for the production of solid biofuels to generate energy for heating (or cooling) purposes.	Active.
ATLAS CITIZENS ENERGY COMMUNITY	Renewable Energy Community	Photovoltaic Park in Lamia. Under the Genervest.	Active.
HELIOS ENERGY COMMUNITY LIMITED LIABILITY COMPANY	Renewable Energy Community	Production of electricity from photovoltaic systems in Thessaloniki.	Active.
PELOPONESE ENERGY COMMUNITY	Renewable Energy Community	The energy community is geared towards energy production, through a combined system that will operate using wind and solar energy.	Active.
Eleona Energy Community	Renewable Energy Community	Production of electricity from photovoltaic systems in Thiva.	Active.

MAZI Energy Community	Renewable Energy Community	Pv parks in Thessaloniki.	Active.
THERMI ENERGY COMMUNITY	Renewable Energy Community	RES.	Active.
ENERGY COMMUNITY OF PIERIA SYN.PE.	Renewable Energy Community	Photovoltaic station.	Active.

The situation during POWERPOOR in Greece

Energy communities were growing while the POWERPOOR project was active. According to the National Registry, 1300 energy communities and energy cooperatives as of November 2022. The installation of photovoltaic power plants with an installed capacity of ~784 MW (1,100 projects registered).

In March 2023 the new Law 5037/2023 for energy communities was launched with significant changes in comparison with the 2018 Law. Some of the newly established energy communities are presented in table 11.

Table 11 No. of new Energy Communities/Cooperatives after start of POWERPOOR project in Greece

Energy cooperative	Type of initiative	Description	Situation
More than 300 new energy communities and energy cooperatives	COOP (Energy Cooperative CEC (Citizen Energy Community) REC (Renewable Energy Community)	N/A	some are active and some are not
Good Parity	Energy Community	Renewable energy community – PV installation	Has gotten license from the relevant authorities – in the process establishing the PV installation
Hyperion Solar community	Energy Cooperative	The solar farm will be able to power more than 80 families, SMEs, NGOs, and energy-poor households.	Under Development.
CommonEn	Energy Cooperative	Solar park that will cover the electricity needs of	Under construction.

		35 families and local SMEs in Epirus.	

The new "opportunities", resulting from the new Law are:

"Self-consumer of renewable energy": a final user operating within its own premises located within defined boundaries or, where authorised by a Member State, other premises, who generates electricity from renewable energy sources for its own needs and may store or sell self-produced electricity from renewable energy sources, provided that, for non-domestic self-consumers of renewable energy sources, these activities do not constitute the main commercial or industrial activity of the customer. - Directive 2018/2001/EU.

"Active customer" means an end customer or a group of end customers acting jointly, who consume or store electricity produced on their premises within specified limits or, where allowed by Member States, on other premises, or sell self-generated electricity or participate in flexibility or energy efficiency programmes, provided that these activities do not constitute their main commercial or professional activity. - Directive 2019/944/EU.

"Renewable Energy Community": legal entity: (a) which, in accordance with applicable national law, is based on open and voluntary participation, has autonomy and is under the effective control of shareholders or members located near the renewable energy projects owned and developed by that legal entity; (b) whose shareholders or members are natural persons, SMEs or local authorities and municipalities; (c) whose primary objective is to provide its shareholders or members, or the local areas where it operates, with environmental, economic and social benefits in - Directive 2018/2001/EU.

"Citizen Energy Community": a legal entity that: a) is based on voluntary and open participation and is under the effective control of partners or members who are natural persons, local authorities, including municipalities, or small businesses; b) has as its primary purpose to provide environmental, economic and social benefits at community level for its members or partners or the local areas where it operates, and not to generate economic profits; and c) may be active in generation, including renewable generation; d) has as its primary purpose to provide environmental, economic and social benefits at community level for its members or partners or the local areas where it operates, and not to generate economic profits; and e) may be active in generation, including renewable energy production. - Directive 2019/944/EU

Joint energy initiatives with energy cooperatives

- **INZEB and Minoan Energy Community joined forces to support households in the island of Crete**

The Minoan Energy Community, the winner of the EUSEW 2022 for local action joined forces with INZEB to alleviate energy poverty in the region of Arkalochori in the island of Crete. TThe energy community is paving the way for free electricity for all and was recognised by the European Commission for pioneering citizen-led renewable energy initiatives. Focused on its values the community welcomed the idea to train its members to become Energy Supporters and Mentors and to organise an Info Day to promote the project's services and ICT tools. The training was organised in October 2022 on the

island of Crete with the participation of more than 50 community members who are now certified as Supporters and Mentors. Minoan Energy Community is using the tools to identify the energy-poor or vulnerable households and support them in exiting this uncomfortable situation. The focus is on the region of Arkalochori that was hit by a large earthquake two years ago and citizens are still unable to move into their homes and they stay in premanufactured houses.

- **INZEB and WenCoop agreed on the establishment of an Energy Poverty Alleviation Office.**

WenCoop is an innovative energy community located in the north of Greece. It was organised with the support of the Greek Association of Female Entrepreneurs with the aim to include more women in the energy sector. The energy community accepted the proposal to organise and operate an Energy Poverty Alleviation Office on its premises. Even though the activities of the EPAO have not reached the maximum potential, the energy community has promoted in various ways the activities organised in Greece by the POWERPOOR project.

- **INZEB and Iliotropio Energy Community addressing energy poverty on the island of Lesvos**

During the POWERPOOR project implementation, a new energy community was launched in the island of Lesvos. The members of the energy community were active in all project activities, attended the training activities for Energy Supporters and Mentors, and conducted house visits. The official launch of the energy community was in March 2023 and INZEB was in close contact with the BoD discussing potential joint activities. This was realised as the Energy Community was the first organisation that signed the MoU and joined the POWERPOOR Alliance in Greece. The energy community is committed to using the POWERPOOR ICT tools and working towards energy poverty mitigation in the island of Lesvos.

- **SUST and ChalkiOn Energy Community addressing energy poverty on the island of Chalki**

ChalkiOn is an established energy community including citizens and the municipality of Chalki in the not interconnected to the grid island of Chalki in Greece. The energy community used the POWERPOOR approach coupled with insights of the municipality's social services to identify the energy poor in the island and enable them to join the energy community with lower entry fee. The Major and Deputy Major of the municipality shared their experience in POWERPOOR's third EU inspiring event, held in the Urban Future conference in Stutgart, that focuses on sustainable cities

4.5 Hungary

The situation before POWERPOOR in Hungary

At the time of the project start, there was no legal definition or regulation of the energy communities in Hungary. The definition and basic legal background entered into force in 1.1.2021 (Act CLXXVI of 2020 No 26 (1.))

Table 12 No. Energy cooperative in Hungary

Energy cooperative	Type of initiative	Description	Situation
No energy cooperatives	/	/	/

The situation during POWERPOOR in Hungary

Currently, there are practically no energy communities in Hungary except for some pilot projects in progress. Awareness raising is continuous and stakeholders are more and more interested in being part of an energy community.

The Hungarian regulation derives renewable energy communities from energy communities, so for the time being, renewable energy communities are not defined beyond the electricity sector, e.g. for heating and cooling sector. Pilot projects are under development but they face numerous difficulties.

Although the basic rules for energy communities are included in the Hungarian Electricity Act (No. LXXXVI of 2007), the detailed rules are still incomplete, such as:

- Detailed rules of electricity sharing
- Taxation rules related to energy communities concerning environmental, social and economic benefits that energy communities can provide
- Rules of GDPR and data management
- Relationship between the energy community and the universal service provider with regard to energy community members entitled to universal service
- Clarification of the conditions of participation of municipalities in energy communities

This means that market-based energy communities are not able to be formed without subsidies at this time.

On average, two-thirds of energy usage in Hungary is used for heating, but unfortunately the government has not yet created the legal background allowing improvement in heat energy communities.

The public register of energy communities is kept by the Hungarian Energy and Public Utility Regulatory Authority. Based on their registry, there are still no registered energy cooperatives in Hungary (in June 2023).

In 2020 and 2021, tenders for energy community pilot projects have been launched by the (former) Ministry of Technology and Industry and Building Quality Control Innovation Non-profit Ltd. (ÉMI), listed in Table 13. However, none of the winning

projects have been fully implemented, reaching only partial successes while the deadline for using the funds is running out. The aim was to demonstrate the viability of energy communities in practice, but they are facing many challenges in the lack of effective public and legislative support. Challenges arose already during the tender process, when conditions were modified more times and the application time for ÉMI tender was only 5 weeks.

Currently the main obstacle is the ban on grid-connection of solar PV systems in force since October, 2022. This is preventing realization of projects based on shared small solar plants or based on sharing the production of several small household plants. The fact that there are no discounts on VAT or system charges does not make it easier to form energy communities. In this current concept, they are not attractive for the population in terms of financial savings.

Table 13 No. of new Energy Communities/Cooperatives after start of POWERPOOR project in Hungary

Energy cooperative	Type of initiative	Description	Situation
Project consortium including Municipality of Kistelek	Pilot project	Establishing an energy community pilot for PV electricity generation	Project in progress
Project consortium including Municipalities Gyöngyösfalu, Szabadszállás, Besenyeszög	Pilot project	Creating an Energy Community - involving renewable energy and storage technology	Not available
Project consortium including Municipality of Erzsébetváros	Pilot project	Creating and running an energy community in Erzsébetváros	Not available
CESCO	Pilot project	Establish and operate a Community Energy Service Company (CESCO)	In progress
Project consortium including University of Óbuda	Pilot project	Energy community project in Tállya	Not available
Project consortium incl. Municipality of Berkenye	Pilot project	Berkenye - the village of the future -	Not available

		Community PV+ES park pilot project	
Project consortium incl. Municipality of Felsőörs	Pilot project	Local solar community in Felsőörs	Not available
Energy community in Keszthely municipality	Pilot project	Energy Communities in Hungary - A model project for the establishment of energy communities and their owned community solar parks and the development of their sustainable operating models.	Not available

From the above listed, Kistelek energy community collaborates with Energiaklub. The pilot energy community project of Kistelek consists of 36 producer-consumers and 16 passive-consumer households. The producer-consuming households will be equipped with solar panels, while the passive users will be connected to the energy community via smart meters. According to the law, the community must be established in the form of a legal entity. Storage units, including an electric vehicle charger, will also be created within the community.

The purpose of the storage facilities, the electric vehicle charger and the passive members is to ensure that the energy produced by the generating households is fully utilized locally. The key is to ensure that the electricity network is not overloaded with excess voltage. The infrastructure built will be the property of the energy community and not the private property of the residents. The project duration is 18 months, with an official start date of 1 August 2022. Energiaklub is involved in the work of the consortium as a subcontractor.

Joint energy initiatives with energy cooperative

Solidarity Economy Center (SEC) is a nonprofit organisation supporting social enterprises through research, consultancy, and network-building towards building a solidarity economy. Community Energy Service Company (CESCO) is a nonprofit company developing community solar projects across the country established by a project consortium led by National Society of Conservationists - Friends of the Earth Hungary. Together the SEC and CESCO are working on developing the first citizen-lead energy communities in Hungary. As first step SEC has established the Kazán community solar project in Budapest in cooperation with the CESCO consortium. Coordinator of Energy Working Group of the SEC and co-founder of CESCO is an active member of the

Hungarian Stakeholder Liaison Group. His engagement in the Energy supporters and Mentors trainings and the Liaison group meetings provides valuable knowledge and a basis for further collaboration with energy community projects.

4.6. Latvia

The situation before POWERPOOR in Latvia

As stated in detail in POWERPOOR D4.2 Baseline analysis, shortly before POWERPOOR project start in Latvia there was the first kind of energy cooperative/ community established in the neighboring municipality of Zemgale region – Marupe municipality, as a pilot project of INTERREG programme. The sun PV panels were installed on the roof of multiresidential building for self-consumption thus promoting the possibility of citizens to become prosumers. It is not yet a full-scale energy community as by June 2023 the laws and regulations for Latvia energy communities are not yet complete – the necessary laws have been adopted, but the regulations of Cabinet of Ministers regulating the community work are still missing.

Table 14 No. Energy cooperatives in Latvia

Energy cooperative	Type of initiative	Description	Situation
"Marupe"	CEC /Citizen Energy Community	Joint prosumers for renewable energy generation for self consumption	Renewable energy cooperative/community partnership in municipality of Marupe county, implemented within INTERREG programme - the Co2mmunity project

The situation during POWERPOOR in Latvia

No new energy communities/cooperatives have been established during POWERPOOR lifetime, but there have been significant steps forward in terms of legislation – changes in Energy Law were adopted and changes in Electricity Market Law were adopted and came into force in January 2023, creating the basis for energy communities' operations in Latvia, as well as defining the rules for energy production for self-consumption as prosumers. A new Climate and Energy Ministry has been established and it has been planned that the remaining regulations of Cabinet of Ministers providing detailed regulations of the operation of energy communities and prosumers will be adopted in 2023 or first half of 2024.

Table 15 No. of new Energy Communities/Cooperatives after start of POWERPOOR project in Latvia

Energy cooperative	Type of initiative	Description	Situation
no new cooperative/community was founded	/	/	/

Joint energy initiatives with energy cooperative

POWERPOOR partner Zemgale Regional Energy Agency (ZREA) during the POWERPOOR lifetime got inspiration from the POWERPOOR project, and (outside the POWERPOOR

hours and scope) together with Baltic Sea Region partners elaborated a new project application for INTERREG BSR programme on establishment of 5 pilot energy communities, two of them in Zemgale region, Latvia, and this application has been approved in June 2023.

4.7 Portugal

The situation before POWERPOOR in Portugal

Coopérnico remains the only renewable energy cooperative in Portugal, before and after POWERPOOR.
According to data provided to Expresso newspaper (Miguel Prado, 22 June 2023) by the Secretary of State for Energy and Climate, by 20 June, "DGEG had received 694 licensing requests, of which 665 for collective self-consumption (or ACC) units and 29 for renewable energy communities (or CER). Of these, only six are in operation (five ACC and one CER), and there are still 33 in the final stages of certification.

Table 16 No. Energy cooperative in Portugal

Energy cooperative	Type of initiative	Description	Situation
COOPERNICO	COOP (Energy Cooperative)	renewable energy cooperative	active

The situation during POWERPOOR in Portugal

No new energy cooperative or community was established in Portugal during the POWERPOOR project.

Table 17 No. of new Energy Communities/Cooperatives after start of POWERPOOR project in Portugal

Energy cooperative	Type of initiative	Description	Situation
no new cooperative/community was founded	/	/	/

Joint energy initiatives with energy cooperatives

With Coopérnico's expertise in REC complemented by the support of internal capacity building workshops provided by POWERPOOR Team, Coopérnico and the Comunidade de Energia Renovável de Telheiras working group developed joint efforts. This partnership was further strengthened when Plataforma Local de Telheiras & Parish Council of Lumiar were jointly selected in 2022 to receive free technical assistance through the EPAH program.

4.8 Spain

The situation before POWERPOOR in Spain

No regulation about the energy communities was adopted before the start of the POWERPOOR project. The only relevant regulation was the Royal Decree 244/2019 that regulated the self-consumption, including the collective or shared self-consumption. That facilitated the implementation of such projects, allowing the use of the electricity grid by such installations, but the figure of energy communities was not legally recognised, thus it was complicated to legally work as such. Right before POWERPOOR started, in June 2020, the Royal Decree Law 23/2020 accepted the definition of Renewable Energy Communities but did not regulate the figure itself.

However, several energy cooperatives were already existing before the start of POWERPOOR, all of them within the framework of the cooperative legislation, with the characteristic of working on the sector of energy. In addition, there is a network of energy cooperatives called Unión Renovables, established in 2017, where more and more energy cooperatives have joined in the last years. The energy cooperatives related to the field of energy poverty that where existing before the POWERPOOR project are listed in the following table:

Table 18 No. Energy cooperative in Spain

Energy cooperative	Type of initiative	Description	Situation
Aeioluz	COOP (Energy Cooperative)	Energy cooperative from Valencia that provides services related to energy poverty	Active
Som Energia	COOP (Energy Cooperative)	Energy cooperative from Catalonia that supports project to tackle energy poverty	Active
Goiener	COOP (Energy Cooperative)	Energy cooperative from the Basque Country that provides services related to energy poverty	Active
Alginet	COOP (Energy Cooperative)	Energy cooperative from Valencia that provides services related to energy poverty	Active

The situation during POWERPOOR in Spain

During the implementation of the POWERPOOR project, there has not been updates about the regulation of energy communities in the Spanish legislation. However, several energy communities have been established in the mentioned period, and the most relevant ones which are working on alleviating energy poverty are listed in the following table:

Table 19 No. of new Energy Communities/Cooperatives after start of POWERPOOR project in Spain

Energy cooperative	Type of initiative	Description	Situation
Torreblanca ilumina	REC (Renewable Energy Community)	Energy community from Sevilla, working on energy poverty	Active
Energy community of Monachil	REC (Renewable Energy Community)	Energy community from Monachil, working on energy poverty	Active
Gares Bide	REC (Renewable Energy Community)	Energy community from Gares, working on energy poverty	Active
La Bordeta	REC (Renewable Energy Community)	Energy community from Barcelona, working on energy poverty	Active
Enherkom	REC (Renewable Energy Community)	Energy community from Hernani, working on energy poverty	Active
Berener	REC (Renewable Energy Community)	Energy community from Bergara, working on energy poverty	Active
Alumbra	REC (Renewable Energy Community)	Energy community from Arroyomolinos de León, working on energy poverty	Active
Moaña solar	REC (Renewable Energy Community)	Energy community from Moaña, working on energy poverty	Active
Baleki	REC (Renewable Energy Community)	Energy community from Balmaseda, working on energy poverty	Active

Joint energy initiatives with energy coopertive

Regarding the joint energy initiatives within POWERPOOR, three energy communities participated and carried out actions to tackle energy poverty: Enherkom, Berener and Baleki. In all of the three cases, members of the energy community participated in the POWERPOOR trainings, obtained the certification of Energy Mentors and are using the POWERPOOR toolkit to support their local community. In the case of Enherkom and Berener, they have been involved in the creation of the offices in Hernani and Bergara, respectively, and Baleki is in the process of establishing the energy office. In addition to the mentioned ones, members of other energy communities and cooperatives have also participated in the POWERPOOR trainings and certification process, to include the energy poverty perspective within their everyday activities, in the way to address the problem.

5. Crowdfunding and Innovative Financing

As part of this Work package 4, in 2021, under task 4.2, report **D4.2 Baseline assessment report** was created. In that report, the existing innovative financing and energy crowdfunding campaigns were mapped. Mapping of energy poverty policies – also taking into account the policies related to innovative financing and energy crowdfunding happened as part of Work package 5. In December 2022 under task 5.5, report **D5.9 EU policy Recommendations& National Roadmaps to alleviate energy poverty** was created.

Each pilot partner also made a mapping of the existing energy communities and/or cooperatives (under WP3 (for creating Module 3 and POWER FUND) and excel table shown in annex of this report) and established contact with selected crowdfunding platforms/ crowdfunding campaigns to create joint energy initiatives.

This chapter will provide an overview per country of:

- the situation before POWERPOOR (policies regarding innovative financing and number of energy crowdfunding campaign);
- the situation during POWERPOOR (policies regarding innovative financing and number of energy crowdfunding campaigns);
- how innovative financing schemes and the POWER FUND tool are integrated in every pilot country of the POWERPOOR project.

5.1 Bulgaria

The situation before POWERPOOR in Bulgaria

In Bulgaria before the start of the POWERPOOR project there was no proper regulation of crowdfunding (collective financing). Only since July 1, 2022, when a new amendment to the Public Offering of Security Actm (POSA) came into force, Regulation (EU) 2020/1503 has been legally adopted, regulating crowdfunding (or collective financing) in Bulgaria.

Regulation (EU) 2020/1503 regulates two main forms of crowdfunding using a crowdfunding platform for:

- facilitating of granting loans
- placement of transferable securities and eligible instruments for crowdfunding purposes without unconditional and irrevocable acquisition obligation (no firm commitment).

Providing crowdfunding services is an activity that requires a license. The Financial Supervision Commission is the authority, which is to license and supervise providers of this type of services. Additionally, the National Bank of Bulgaria supervises providers' credit institutions.

It is important to note that, in view of the need to freely transfer the investment in the capital markets, the provisions on crowdfunding do not apply to shares in limited liability companies or linked shares, among some other restrictions provided for in Regulation (EU) 2020 /1503. Requirements are introduced for the organization, licensing and supervision of crowdfunding service providers, for the operation of crowdfunding platforms, as well as for transparency and marketing communications in connection with the provision of crowdfunding services.

Significant property sanctions for violations of legal obligations in the amount of EUR 5,000 to EUR 250,000 or up to 2.5 percent of the total annual turnover are also foreseen.

There are many crowdfunding platforms functioning in Bulgaria that are specialized in various areas: medical treatments, education, NGO purposes, capital financing, niche fundraising, granting, etc. There have been a few foreign energy related crowdfunding campaigns advertised in Bulgaria, but so far there has not been a Bulgarian call for collective funding for energy.

Table 20 No. Energy crowdfunding initiatives in Bulgaria

Energy crowdfunding campaign	Description	Platform used
No energy crowdfunding campaign	/	/

Table 21 No. Crowdfunding platforms in Bulgaria

Energy crowdfunding platforms	CF Model	Sector	Part of POWER FUND
many crowdfunding platforms but not energy CF platforms	/	medical treatments, education, NGO purposes, capital financing, niche fundraising, granting,	No

The situation during POWERPOOR in Bulgaria

With the latest amendments to the Law on the Public Offering of Securities (IPO), which entered into force on July 1, 2022, for the first time in Bulgaria, regulation of the so-called crowdfunding or as the newly adopted legal term is - "collective financing". The new legal figure is dedicated to a whole separate section in the LPA, and the changes are dictated by the need to adopt measures to implement Regulation (EU) 2020/1503, which regulates collective financing at the European level.

As stated in the bill of the drafters by the Council of Ministers, crowdfunding is considered as a form of alternative financing for start-ups and for small and medium-sized enterprises that usually rely on small-scale investments. Such financing may be in the form of loans or through the acquisition of transferable securities or other instruments eligible for crowdfunding purposes.

Table 22 No. Energy crowdfunding initiatives after start of POWERPOOR project in Bulgaria

Energy crowdfunding campaignes	Description	Platform used
No energy crowdfunding campaign	/	/

Table 23 No. of new Crowdfunding platforms after start of POWERPOOR project in Bulgaria

Energy crowdfunding platforms	CF Model	Sector	Part of POWER FUND

No energy crowdfunding platforms	/	/	/

Integration of POWER FUND in Bulgaria

Crowdfunding is not widespread but through the trainings and the POWERPOOR approach some attention was brought to it.

During the POWERPOOR training sessions and Info Days, the third tool in the POWERPOOR toolkit, the POWER FUND, was the one which seemed to remain unnoticed by the audience. While the other two tools attracted many questions regarding their functionality and options, the POWER FUND was left out of the discussions. This was probably because crowdfunding is still a new concept in Bulgaria and the energy poor citizens in Bulgaria have little knowledge/ understanding about any new Internet trends. Aware of this lack of interest, the Bulgarian POWERPOOR team used every possibility to advertise the concept of crowdfunding and the possible benefit of a crowdfunding campaign as means of financing energy projects.

In the EPAO in Sofia where often representatives of associations of condominium owners come for advice on energy related issues, the POWER FUND is regularly demonstrated and its functionality explained, thus, attracting public attention to the tool. However, the first Bulgarian crowdfunding campaign benefitting energy poor citizens is yet to be initiated.

5.2 Croatia

The situation before POWERPOOR in Croatia

As for the legislative regulation of crowdfunding, before the start of the project, there was no law that regulated it, even though 3 crowdfunding initiatives were implemented in the field of energy alone, and there were other crowdfunding initiatives that were not related to energy.

Before the beginning of the POWERPOOR project in Croatia there were 3 energy crowdfunding initiatives in Croatia (table 24).

Table 24 No. Energy crowdfunding initiatives in Croatia

Energy crowfunding campaigne	Description	Platform used
Ray of the sun - the light of hope	The Green Action Association and the "People for the People" initiative collected 105 percent of the target amount as part of the humanitarian campaign "Ray of Sun - Light of Hope", and around 500 people, associations and companies donated, enabling 5 households in Sisak-Moslavina County to finally get access electricity.	GoGetFunding
KRIŽEVACKI SUN ROOFS - Development Center and Technology Park	A 30 kW photovoltaic power plant was installed on the roof of the Križevci Development Center and Technology Park, the first in Croatia to be fully financed by citizens using the micro-loan model. The main holder and conceptual originator of the project is Zelena energetska zadruga (ZEZ) and its partner REA Sjever, which prepared the Feasibility Study of a 30 kW photovoltaic power plant. 29,900 euros, or about 230,000 kuna, were collected and 53 citizen-investors invested in a short period of 10 days. The city of Križevci is the first city in Croatia that implemented a project of group investment in renewable energy sources according to the micro-loans model. - 5 households got access to electricity	ZEZinvest
KRIŽEVAC SUN ROOFS - City Library "Franjo Marković	After the successful implementation of the first solar power plant through a group investment campaign, ZEZ and the town of Križevci enabled citizens to finance the solar power plant on the roof of the "Franjo Marković" City Library in Križevci with their own funds, using the micro-loan model. 22,360 euros, or about 172,000 kuna, were collected	ZEZinvest

Mapping showed that there were 5 platforms in Croatia that were specialised as crowdfunding campaigns (table 25). Two platforms are specialised for energy crowdfunding campaigns, but one platform that is social has implemented a crowdfunding campaign for energy poverty, because energy poverty is energy and social problem.

Table 25 No. Crowdfunding platforms in Croatia

Energy crowdfunding platforms	CF Model	Sector	Part of POWER FUND
ZEZinvest	Lending	Energy	Yes
Croenergy	Lending	Energy	Yes
Soldarna	Donation	Social	Yes
Capital.hr	Lending/Equity	General	Yes
Croinvest.eu	Donation, Reward/Equity/Lending	General	Yes

The situation during POWERPOOR in Croatia

Many changes in policies have occurred in comparison to the 2021 analysis in D4.2 of the Baseline Assessment Report among them the important change for POWERPOOR is introduction the concept of energy poverty in policies (but not yet the national definition of energy poverty) and passing policies that promote **community-ownership of energy** and **collective finance / crowdfunding.**

New policy to promote (collective) finance / crowdfunding:

- **"Act on the implementation of Regulation (EU) 2020/1503 on European crowdfunding service providers (Official Gazette, No. 144/2021)"** – The regulation on crowdfunding represents for the first time a uniform, directly applicable set of rules for providers of crowdfunding services that have a place of business in the territory of the European Union, and it refers to providers of crowdfunding services that are based on lending. based) or on the acquisition of ownership shares (Eng. equity based). The Regulation does not apply to other types of crowdfunding, such as that based on awards, donations or when the owners of the project are civil persons - consumers.

Also there was one new energy crowdfunding initiatives in Croatia (table 26). ZEZ who is Croatian partner on CEES (H2020) project as project activities, had to launch a crowdfunding campaign. DOOR participated in the campaign by spreading the word through social networks and inviting citizens to donate.

Table 26 No. Energy crowdfunding initiatives after start of POWERPOOR project in Croatia

Energy crowdfunding campaigne	Description	Platform used
Let's Reduce Their Worries	As part CEES project ZEZ had campaign where it is collected HRK 64,713.47 from almost 200 individuals, companies and organizations. This provided funds for 111 energy boxes!	Solidarna

	Energy boxes will be distributed to households through direct household visits	

Regarding new crowdfunding platforms, not a single new national platform has been established therefore POWER FUND as a European platform on the Croatian market can encourage innovative ways of financing.

Table 27 No. of new Crowdfunding platforms after start of POWERPOOR project in Croatia

Energy crowdfunding platforms	CF Model	Sector	Part of POWER FUND
No new platforms	/	/	/

Integration of POWER FUND in Croatia

Crowdfunding is not widespread but through the trainings and the POWERPOOR approach some attention was brought to it. Also, a webinar was organized with the specific topic of innovative financing and the establishment of energy communities and cooperatives in Croatia. The POWER FUND was also presented at that webinar as all Croatian energy crowdfunding platforms.

Integration of POWER FUND in Croatia was done by adding all mapped Croatian platforms to the POWER FUND page.

5.3 Estonia

The situation before POWERPOOR in Estonia

In Estonia, crowdfunding started in 2012, when the portal Hooandja, which focuses on creative projects, was launched. By the end of 2021, more than 1,504 projects have been financed in Hooandja and more than 5.3 million euros have been donated. In 2015, the founders of Hooandja created Fundwise, the first participation-based crowdfunding platform in Estonia. Fundwise https://fundwise.me/ helps business ideas reach the international level.

Grant- and loan-based crowdfunding platforms have also been in use in Estonia for several years, available at https://thecrowdspace.com/directory/crowdfunding-platforms-in-estonia.

None of the crowdfunding portals specialized in energy crowdfunding, focusing mainly on creative projects or business investments. In principle, it would be possible to use these established crowdfunding platforms for energy projects, but at the time of this reporting, none of these types of projects have been included on the platforms.

Crowdfunding in Estonia is poorly defined by law. As of March 2016, according to the Credit Providers and Intermediaries Act, the credit provider must have an activity license from the Financial Supervision Authority. The activities of companies and investors are weakly regulated by legislation, to some extent the Law of Obligations Act and the Consumer Protection Act help entrepreneurs and investors. Only those crowdfunding providers that offer services to entrepreneurs are covered by investor protection regulations.

Before the POWERPOOR in Estonia, there were more than 50 apartment associations across Estonia that had coinvested their members' money into renewable energy installations, for example, a solar park on the roof of the apartment building. Still, as they collect money only from their own members, it is not considered an energy crowdfunding campaign.

Table 28 No. Energy crowdfunding initiatives in Estonia

Energy crowdfunding campaign	Description	Platform used
No energy crowdfunding campaign	/	/

Table 29 No. Crowdfunding platforms in Estonia

Energy crowdfunding platforms	CF Model	Sector	Part of POWER FUND

No energy crowdfunding platforms	/	/	/

The situation during POWERPOOR in Estonia

Still, none of the crowdfunding portals have specialized in energy crowdfunding, focusing mainly on creative projects or business investments. In principle, it would be possible to use these established crowdfunding platforms for energy projects, but at the time of this reporting, none of these types of projects have been included on the platforms.

Starting in 2022, crowdfunding providers who mediate loans to companies or enable investments in company securities or instruments accepted for crowdfunding purposes must have an operating license. Those crowdfunding providers who mediate loans to consumers or do not offer financial income do not need to apply for a crowdfunding activity license, but an activity license on the basis specified in the Law on Creditors and Intermediaries.

In 2021, an initiative called Energiaühistu was established, a for-profit energy cooperative that connects a green worldview with investing and brings together people who wish to invest in local energy projects, therefor acting as a crowdfunding platform. The cooperative creates an opportunity for communities across Estonia to produce their own electricity. Through the energy cooperative, anyone can become a shareholder of a solar or wind farm and thus earn a long-term, stable income in an environmentally friendly way.

During the POWERPOOR in Estonia, it is estimated that more than 100 apartment associations across Estonia coinvested their members' money into renewable energy solutions, for example, a solar park on the roof of the apartment building. Still, these are not considered energy crowdfunding campaigns.

Table 30 No. of new Energy crowdfunding initiatives after start of POWERPOOR project in Estonia

Energy crowdfunding campaigne	Description	Platform used
Energiaühistu	For-profit energy cooperative that connects a green worldview with investing and brings together people who wish to invest into local energy projects.	No crowdfunding platform used for investment collection, website of the initiative https://energiayhistu.ee/

Table 31 No. of new Crowdfunding platforms after start of POWERPOOR project in Estonia

Energy crowdfunding platforms	CF Model	Sector	Part of POWER FUND
No energy crowdfunding platforms	/	/	/

Integration of POWER FUND in Estonia

The POWER FUND tool has been used in Estonia in POWERPOOR activities—trainings and consultations provided by EPAO in Tallinn—to introduce innovative ways of financing collective energy initiatives. The information has been well received by the stakeholders, especially the focus on collective finance. Apartment associations have been using the POWER FUND tool to pull together the resources and capital required for capital-intensive energy project investments to alleviate energy poverty.

5.4 Greece

The situation before POWERPOOR in Greece

The current crowdfunding regulatory framework in Greece is provided by Law 4706/2020, which incorporated Regulation (EU) 2017/1129 on the prospectus to be published when securities are offered to the public or admitted to trading on a regulated market. The prospectus provides information about the offered securities, the guarantor, and data concerning the risks of the issuer.

There were not sufficient amount of energy crowdfunding campaigns (as seen in Table 31). "Solarization of the Greece" was one of them, however it was not embraced to a large extent.

Table 32 No. Energy crowdfunding initiatives in Greece

Energy crowdfunding campaigne	Description	Platform used
Solarization of Greece	The campaign "Solarization of Greece" on Indiegogo aims to support Greeks and pave the way out of the crisis by promoting solar energy. The campaign is seeking funding for an ambitious solar goal that embraces the country's most plentiful natural resource.	INDIEGOGO

Table 33 No. Crowdfunding platforms in Greece

Energy crowfunding platforms	CF Model	Sector	Part of POWER FUND
No energy crowdfunding platform	/	/	/

The situation during POWERPOOR in Greece

With Law 4920/2022, the Directive 2020/1504 was incorporated into the Greek legal framework, and the national legislation was adapted to Regulation 2020/1503 of the European Union concerning the framework for crowdfunding services for businesses ("crowdfunding").

Specifically, according to Article 148 of the aforementioned law, the institutional framework applied to crowdfunding services was updated, particularly concerning European providers of crowdfunding services for businesses, in order to remove

barriers to cross-border crowdfunding within the EU.

Furthermore, the issue of licensing for crowdfunding service providers, especially for European providers, was regulated to ensure that the same activity is not subject to multiple licenses within the EU.

In Greece, the use of crowdfunding has not been widely adopted for any initiatives including energy related ones. Instead, the majority of crowdfunding campaigns are geared towards social initiatives or raising donations to support situations such as wildfires. One crowdfunding campaign to gather the required funds to renovate one old building in Athens has been brought forward by Greenpeace using the INDIEGOGO platform.

Table 34 No. of new Energy crowdfunding initiatives after start of POWERPOOR project in Greece

Energy crowdfunding campaigne	Description	Platform used
Energy efficiency renovations and retrofits	The municipality of Tavros along with Greenpeace launched a crowdfunding campaign to retrofit one old and energy inefficient buiing[1].	INDIEGOGO

Table 35 No. of new Crowdfunding platforms after start of POWERPOOR project in Greece

Energy crowdfunding platforms	CF Model	Sector	Part of POWER FUND
No energy crowdfunding platform	/	/	/

Integration of POWER FUND in Greece

Throughout the duration of the POWERPOOR project, the POWER FUND tool played a crucial role during all the training sessions, serving as a support to elucidate the aforementioned collective initiatives. Subsequently, Energy Mentors utilised the tool to provide assistance to households and introduce them to the concept of collective initiatives and energy communities.

As a result of the POWERPOOR project and its training efforts, the knowledge of crowdfunding experienced a significant increase, transitioning from very limited awareness to a higher level of understanding. POWER FUND played a pivotal role as one of the contributors to this awareness, alongside the POWERPOOR training program.

[1] https://www.greenpeace.org/greece/issues/klima/47777/kampania-xrimatodotisis-polykatoikia-tavros/

Information about POWER FUND and crowdfunding was shared during seminars, home visits, and consultations conducted by the Energy Poverty Alleviation Office, aiming to facilitate greater awareness on the topic.

5.5 Hungary

The situation before POWERPOOR in Hungary

Community funding is relatively new in Hungary. Hungarian legislation did not previously contain any special provisions on crowdfunding, so it was assessed under the existing rules. According to the Magyar Nemzeti Bank's (MNB) previous view, several elements of community financing could be subject to regulatory requirements: for example, in the case of lending-based community financing, the investor's activity could even be considered as lending subject to authorisation. In such cases, the platform operator would be considered to be a financial services intermediary (an activity that also requires authorisation or notification).

The Hungarian regulation has been replaced by uniform European Regulation 2020/1503 on European crowdfunding service providers. As the Regulation introduces a completely new regulatory regime, which is directly applicable, only minor changes to the Hungarian rules were necessary.

Table 36 No. Energy crowdfunding initiatives in Hungary

Energy crowdfunding campaigne	Description	Platform used
Community funding of installing solar panels into Kazán Community Center	Solar panel of about 30kW on the roof of Kazán community center	Adjukossze.hu

Table 37 No. Crowdfunding platforms in Hungary

Energy crowdfunding platforms	CF Model	Sector	Part of POWER FUND
Adjukossze.hu	all	all	Yes
Tokeportal.hu	Donation/reward	all	Yes

The situation during POWERPOOR in Hungary

Brancs community is the first product-based crowdfunding marketplace in Hungary, launched in May 2022. They also call themselves the Hungarian Kickstarter and the platform follows the reward-based and grant-based scheme. It is an online platform where anyone can register their campaign and also user can sign up to support the ideas in exchange for products.

HelloCelo is a social networking platform similar to crowdfunding platforms. It promotes sustainability-related cases aligned with the UNs' Sustainable Development Goals. The platform helps the promoters to find resources they need. Contributors can help with financial contribution, voluntary work or signing a petition.

Table 38 No. of new Energy crowdfunding initiatives after start of POWERPOOR project in Hungary

Energy cooperative	Description	Platform used
Installing solar panels on four social institutions of the Fény Felé Foundation	The Light Up Foundation was established in 1993 with the aim of improving the social and economic situation of people with disabilities and autism. The foundation is planning to install a solar system on its four social institutions so that the energy crisis does not lead to the suspension or closure of social services.	Adjukossze.hu
Community funding of installing solar panels into Kazán Community Center	Solar panel of about 30kW on the roof of Kazán community center	Adjukossze.hu

Currently there are very limited numbers of ongoing energy related crowdfunding campaign. The Fény Felé foundation is leading a fundraising campaign on adjukossze.hu to be able to install solar panels on social institutions for people living with disabilities.

The aim of this crowdfunding initiative was to install a solar panel system of about 30 kW on the roof of the Kazán, which would cover the consumption of the ceramic kiln of the KözMű creative space, the beverage coolers and stage equipment of the Gólya community, and the lighting of the gym, among others. Savings from green electricity aim to be used to create an energy efficiency fund, which will be reinvested in energy efficiency improvements to further reduce the building's energy consumption and make the Kazán Community Centre even greener. The organisations are operating in the Kazán Community Center will jointly own the solar panels will decide together on the use of the energy efficiency fund. In this model, the benefits of community-based energy production will be locally captured, on the contrary to the corporate, for-profit energy production.

Table 39 No. of new Crowdfunding platforms after start of POWERPOOR project in Hungary

Energy crowfunding platforms	CF Model	Sector	Part of POWER FUND
Brancskozosseg.hu	all	gastronomy, art, culture, entertainmen,	Yes

		technology, innovation	
https://hellocelo.com/	donation	sustainability	Yes

Integration of POWER FUND in Hungary

Crowdfunding is not widespread but through the trainings and the POWERPOOR approach some attention was brought to it. The POWER FUND tool has been used in Hungary in POWERPOOR activities—trainings and consultations —to introduce innovative ways of financing collective energy initiatives.

Integration of POWER FUND in Hungary was done by adding all mapped Hungarian platforms to the POWER FUND page.

5.6 Latvia

The situation before POWERPOOR in Latvia

Crowdfunding platforms in Latvia develop quite slow. Before POWERPOOR project there was no specific law regulation for crowdfunding, there was just one visible crowdfunding platform "projektubanka.lv". But that platform mostly funds culture related projects. So before POWERPOOR project there was no energy crowdfunding campaign.

Table 39 No. Energy crowdfunding initiatives in Latvia

Energy crowdfunding campaign	Description	Platform used
no energy crowdfunding campaign	/	/

Mapping showed that there were just several crowdfunding platforms in Latvia which were collecting financing for different projects, including energy projects.

Table 40 No. Crowdfunding platforms in Latvia

Energy crowdfunding platforms	CF Model	Sector	Part of POWER FUND
projektubanka.lv	Crowdfunds different projects, for instance social project for inhabitants, how to reduce CO2 – Ecolife. Gdog project – monitoring of electricity consumption. But mostly funds culture related projects.	Different projects, including energy	Yes
Capitalia.com	Lending, leasing (for instance to wind generation company Aerones)	General, including energy	Yes

The situation during POWERPOOR in Latvia

In the end of 2021 Latvia started introduction of the Regula on European Crowdfunding service providers for entrepreneurship No.2020/1503 with which the regula (ES) 2017/1129 and the directive (ES) 2019/1937 were changed. In April 2022 Law on Crowdfunding Services came into force. The law appointed the monitoring institution for crowdfunding initiatives – Finance and Capital Market Commission which later was integrated in Latvia Bank. In spring 2023 Latvia Bank held several seminars how to register crowdfunding service platforms in Latvia, by spring 2023 only one service provider Crowdhero, Ltd had been registered for providing these services.

In 2021 Latvian Crowdfunding Association was established, but it has not been very active since then.

But regarding of new Energy crowdfunding initiatives after start of POWERPOOR there was none.

Table 40 No. of new Energy crowdfunding initiatives after start of POWERPOOR project in Latvia

Energy crowdfunding campaign	Description	Platform used
no energy crowdfunding campaign	/	/

Regarding new crowdfunding platforms, two new platforms were established in Latvia.

Table 41 No. of new crowdfunding platforms after start of POWERPOOR project in Latvia

Energy crowdfunding platforms	CF Model	Sector	Part of POWER FUND
Crowdedhero (since 2022)	investments in enterprizes, including energy enterprizes.	Enterprises of all sectors	Yes
Dalendo (since 2022)	International, including Latvia. Investments in green and renewable energy.	Green and renewable energy	Yes

Integration of POWER FUND in Latvia

During POWERPOOR project lifetime the knowledge of crowdfunding has gone up from very limited knowledge to higher level of awareness and POWER FUND has been one of the contributors, as well as the POWERPOOR training been the other contributor. In seminars, home visits /consultations, in the Energy Poverty Alleviation Office the information about POWER FUND and crowdfunding has been provided to facilitate the awareness.

Integration of POWER FUND in Latvia was done by adding all mapped Latvian platforms to the POWER FUND page.

5.7 Portugal

The situation before POWERPOOR in Portugal

Although there is no law that regulates the activity of crowdfunding before POWERPOOR project started in Portugal there was more then 30 energy crowdfunding initiatives in Portugal.

Table 42 No. Energy crowdfunding initiatives in Portugal

Energy crowdfunding campaign	Description	Platform used
29 campaigns	Coopérnico ran several crowdlending campaigns between May 2014 and June 2020 to finance 29 photovoltaic production plants equivalent to 2080kWp of installed power on the roofs of various institutions across the country.	Coopérnico
Many campaigns	GoParity is a Portuguese crowdlending platform for organizations to finance sustainable projects, including in the Energy area.	GoParity

Before POWERPOOR project started in Portugal there were two energy crowdfunding platforms in Portugal.

Table 43 No. Crowdfunding platforms in Portugal

Energy crowdfunding platforms	CF Model	Sector	Part of POWER FUND
Coopérnico	Crowdlending	Mostly social solidarity institutions, but also schools and cooperatives	yes
GoParity	Crowdlending	GoParity fund sustainable projects from for-profit and non-profit organization.	Yes

The situation during POWERPOOR in Portugal

After POWERPOOR project started there were 10 energy crowdfunding initiatives which 4 energy crowdfunding initiatives were organized by POWERPOOR partner.

Table 44 No. of new Energy crowdfunding initiatives after start of POWERPOOR project in Portugal

Energy crowdfunding campaign	Description	Platform used
4 campaigns • ASSP Setúbal • ASSP Carcavelos • ASSP Porto • Cerciespinho UPAC	Coopérnico ran 4 crowdlending campaigns between August 2020 and October 2022 to finance photovoltaic production plants equivalent to 97kWp of installed power on the roofs of various institutions in Setúbal, Lisbon, Porto and Aveiro.	Coopérnico
6 campaigns	In the coming days, Coopérnico will launch 6 crowdlending campaigns to finance photovoltaic production plants equivalent to 354kWp of power installed on the roofs of various institutions located in Benavente, Vila do Bispo, Grândola, Ílhavo, Venda do Pinheiro and Sobral de Monte Agraço.	Coopérnico

Table 45 No. of new Crowdfunding platforms after start of POWERPOOR project in Portugal

Energy crowfunding platforms	CF Model	Sector	Part of POWER FUND
/	/	/	/

Integration of POWER FUND in Portugal

The POWER FUND tool has been used in Portugal in POWERPOOR activities—trainings and consultations —to introduce innovative ways of financing collective energy initiatives.

Integration of POWER FUND in Portugal was done by adding all mapped Portuguese platforms to the POWER FUND page.

5.8 Spain

The situation before POWERPOOR in Spain

The crowdfunding model was accepted in the Spanish legislation in 2015, with the 5/2015 Law that established a legal regime for the participatory financing platforms. There were several initiatives and platforms working before the POWERPOOR project, listed in the following tables:

Table 46 No. Energy crowdfunding initiatives in Spain

Energy crowdfunding campaign	Description	Platform used
SorkWhtza (Goiener)	Goiener, with the support of its members, promotes collective investments for renewable energy projects (hydropower and photovoltaic so far). The members make contributions to the social capital of the cooperative, in form of equity crowdfunding.	Own platform
Som Energia	The projects that the cooperative currently has in operation were launched between 2011 and 2013, thanks to the contributions of partners who had two types of contribution: participatory titles and voluntary contributions to social capital.	Own platform

Table 47 No. Crowdfunding platforms in Spain

Energy crowfunding platforms	CF Model	Sector	Part of POWER FUND
Goteo	Reward	General	Yes
Ecrowd	Lending	Energy	Yes
Fundeen	Lending	Energy	Yes
Flobers	Lending	Energy	Yes
Ecoo	Lending	Energy	Yes
Coop57	Equity	General	Yes

The situation during POWERPOOR in Spain

During the POWERPOOR project, the initiative "La Energía del Cole" carried out a collective financing campaign to support the installation of photovoltaic panels in the school to share the energy with the citizens, focusing on the most vulnerable ones. In addition, the cooperative Garesbide launched a campaign to raise funds for their projects.

Table 48 No. of new Energy crowdfunding initiatives after start of POWERPOOR project in Spain

Energy crowdfunding campaign	Description	Platform used
La Energía del Cole	Collective financing campaign by the energy community Alumbra to support the installation of photovoltaic panels in the school of Arroyomolinos de León (Huelva) to share the energy with the citizens, focusing on the most vulnerable ones.	Goteo
Gares Bide	The objective of the cooperative Garesbide is to promote actions or projects that contribute to an energetic, economic and social transition in Puente la Reina-Gares (Navarre). In the first campaign, they offered their members the possibility of contributing to the voluntary social capital with a remuneration in the form of interest (1%), in order to launch their first pilot project consisting of a PV solar installation for collective self-consumption with a battery and two charging points for electric vehicles.	Own platform

Regarding new crowdfunding platforms not a single new national platform has been established during the POWERPOOR project.

Table 49 No. of new Crowdfunding platforms after start of POWERPOOR project in Spain

Energy crowdfunding platforms	CF Model	Sector	Part of POWER FUND
No new platforms	/	/	/

Integration of POWER FUND in Spain

During all the trainings of the POWERPOOR project, the POWER FUND tool has been used as a support to explain the collective initiatives above mentioned. After that, the Energy Mentors have also been using the tool to support the households and to introduce them to the topic of collective initiatives and energy communities.

Integration of POWER FUND in Spain was done by adding all mapped Spanish platforms to the POWER FUND page.

6. Creation of Local Energy Poverty Alleviation Offices

The Energy Poverty Alleviation Offices' (EPAOs) primary goal is to assist citizens in alleviating energy poverty in their homes. This is done through various services – bill reading and analyses, simple energy audits, advisory on simple measures to reduce energy consumption and increase living standards, advisory on possible technical solutions, as well as currently available funding and financing options for energy-poor households. POWERPOOR toolkit was a tool intended for Energy Supporters and Mentors to provide the best possible assistance to citizens.

The Local Energy Poverty Alleviation Offices (EPAO) act as a one-stop shop of information on implementing the POWERPOOR approach in alleviating energy poverty. Energy Supporters and Mentors provide support to energy-poor households both by directly proposing behavioural measures, low-cost energy efficiency interventions and by guiding them towards setting up or joining an existing energy community or cooperative and how to leverage innovative financing schemes.

Additionally, in the Energy Poverty Alleviation Offices, the benefits of implementing energy efficiency interventions and installing renewable energy sources are communicated, more energy efficient behaviours, practices and habits are encouraged, and the use of the Energy Poverty Mitigation toolkit is promoted also as a practical way of monitoring and guiding the progress. In total, there are 22 Energy Poverty Alleviation Offices; 2 in Bulgaria (Sofia, Plovdiv), 2 in Croatia (Zagreb, Križevci), 1 in Estonia (Tallinn), 6 in Greece (Messini, Souli, Almyros, Tripoli, Aspropyrgos, WeEnCoop Thessaloniki), 2 in Hungary (Józsefváros, Terézváros), 1 in Latvia (Jelgava), 3 in Portugal (Ermesinde, Lisbon and Mértola) and 5 in Spain (Tolosaldea region, REC Hernani, Tierra Estella, Oarsoaldea region, Bergara) (Table 51 and Figure 1)

Table 50 No. Local Energy Poverty Alleviation Offices

	BG	HR	EE	GR	HU	LV	PT	ES	Total
KPI	2	2	1	3	2	1	2	2	15
	2	2	1	6	2	1	3	5	22

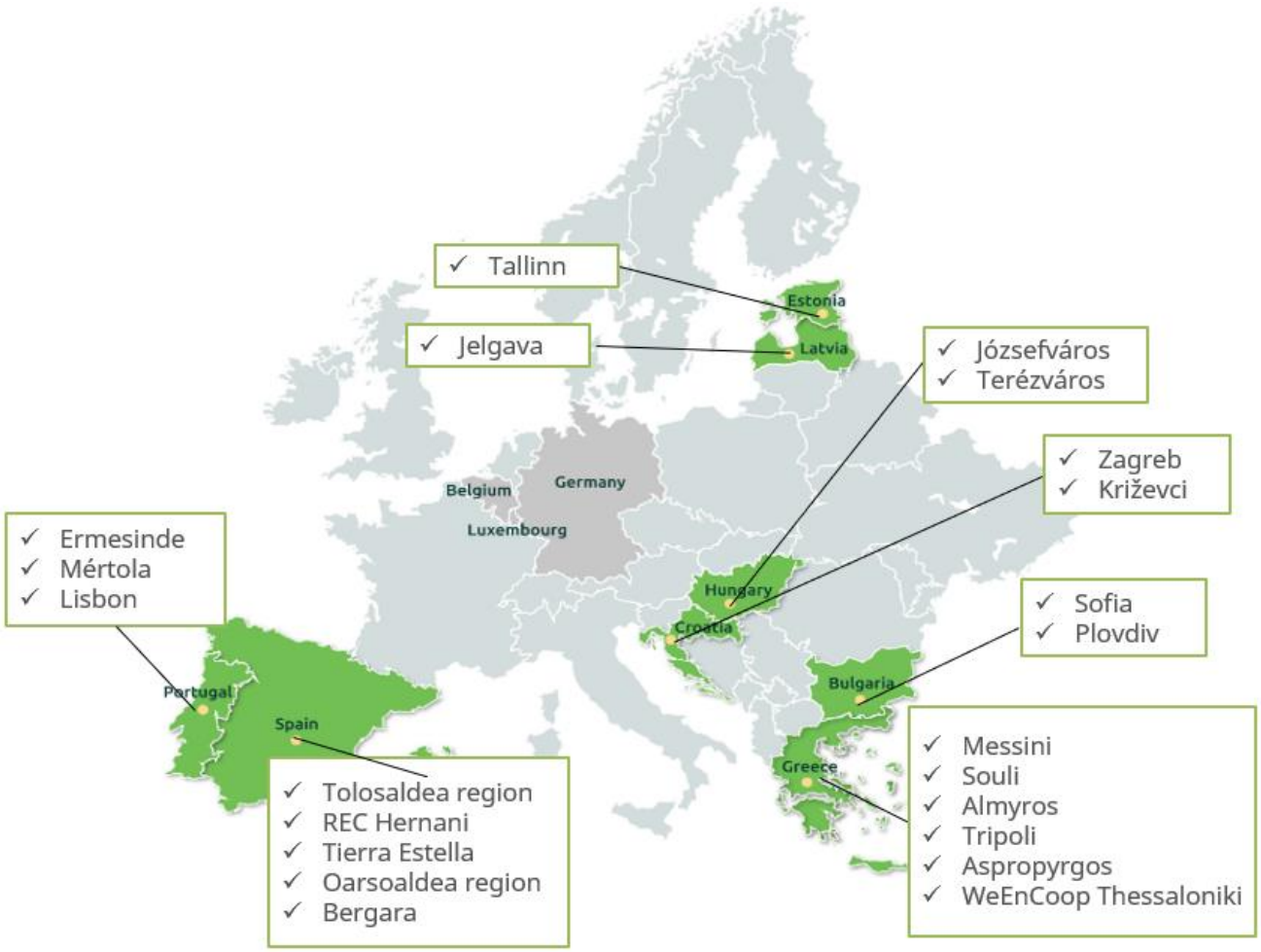


Figure 122 The local Energy Poverty Alleviation Offices across Europe

6.1 Bulgaria

Bulgaria has two local Energy Poverty Alleviation Offices (EPAOs). The first one is located in the capital Sofia, the second one is in the city of Plovdiv. Both offices were established in the summer of 2021, after the first POWERPOOR training events took place. The municipality of the city of Vidin has expressed interest to open an EPAO there as well, which will be done after the coming local elections in October 2023.

Бюро за облекчаване на енергийната бедност

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office@sofena.com

Energy Poverty Alleviation Office Sofia

The EPAO in Sofia is situated in the heart of the city, within the office of SEA SOFENA, at 65 Tsar Asen II Str., First floor. It consists of a dedicated desk and a sitting area for visitors, it is served by all of the SOFENA employees. The opening hours of the EPAO are the same as the office hours of SOFENA, every working day from 9am to 5pm.

The EPAO was opened during the COVID-19 pandemic and initially we did not expect to welcome many visitors. However, after conducting the first household visits, the EPAO seemed to gain popularity, receiving emails, phone calls, and visits in person. In most cases the visitors live in multiapartment buildings. Many of them are not energy poor, they are already aware of the soft measures for energy efficiency and have done as much as possible to improve the temperature comfort of their homes. They are interested to know what else they can do to reduce their energy bills and are asking about financial schemes that would help them finance larger scale improvements or will enable them to install PV systems.
EPAO Sofia:

- 12 email requests

- 38 office visits
- 41 phone calls

The most interesting story is probably about a man who came not to ask for advice or help but to tell us that he had managed to instal a PV system in his house and to get permission to connect it to the grid. He wanted to share his experience and to give advice to anyone else who would be interested in doing the same, so to spare them the madness of running from one institution to another.

Energy Poverty Alleviation Office Plovdiv

Plovdiv is a vibrant city, economically growing, a European capital of Culture for 2019. The Energy Agency of Plovdiv is one of the most active agencies in the field of energy efficiency and RES in Bulgaria. It was an easy decision to choose their office as Bulgaria's second EPAO, at 139 Ruski Blvd, fl. 3, of. 301. The EPAO Plovdiv consists of a dedicated desk and a sitting area for visitors, it is served by all of the Energy Agency of Plovdiv employees. The opening hours of the EPAO are the same as the office hours of the Energy Agency of Plovdiv, every working day from 9am to 5pm.It seems that whenever there is a POWERPOOR related event and the project gets publicity, visitors 'discover' the office and come in several at the same time. Regularly, the EPAO answers phone calls related to energy poverty alleviation. The people served by the EPAO very often come from the villages near Plovdiv, and in most cases are interested to find out how they could get help in improving the energy efficiency of their houses.

EPAO Plovdiv:

- no email requests
- 26 office visits
- 32 phone calls

One could say that the EPAO in Plovdiv is visited more often by people who live in detached houses in the countryside, whereas the EPAO in Sofia serves mostly the inhabitants of apartment blocks.

6.2 Croatia

Croatia has two local Energy Poverty Alleviation Offices (EPAO). One is located in Zagreb, the capital city, and the second is in the town of Križevci.

Zagreb
DOOR
Slavka Batušića 7
utorkom od 10 do 14
četvrtkom od 14 do 18 h

Križevci
KLIK
Ulica Ivana Zakmardija Dijankovečkog 8
Pon, uto i pet: 8-12 sati
Sri i čet: 12-16 sati

Opening Energy Poverty Alleviation Offices in Zagreb and Križevci

Energy Poverty Alleviation Office in Zagreb

As part of the POWERPOOR project in March 2022, DOOR opened first Local Energy Poverty Alleviation Office. This is the first Center for tackling energy poverty in Croatia. The Center is located in the capital city in Zagreb in neighbourhood Špansko, Slavka Batušića 7.

DOOR has been working for years to raise awareness and activities to alleviate energy poverty, and POWERPOOR initiatives to launch a Center that will help citizens to receive basic information on energy poverty and advice on how to increase energy efficiency of their household, how to read energy bills and how savings in energy consumption can be achieved was great success. This center is the energy poverty alleviation office. The aim is to explain to citizens in a simple way what they can do to make their home more comfortable to live in, while at the same time saving part of the household's income that they could use for other needs that raise the quality of life, such as better quality food or a longer annual vacation. Through the energy poverty alleviation office, energy boxes will be distributed, individual consultations will be organized in households and workshops on various topics in the field of energy poverty will be held.

The working hours of the energy poverty alleviation office are on Tuesdays from 10 am to 2 pm and on Thursdays from 2 pm to 6 pm, and some activities will be held on other dates, about which we will inform the citizens via the social networks of the DOOR association. Energy experts are also available for questions by phone calls, on social media and by e-mail energetsko.siromastvo@door.hr.

The center is open to all those who are already among energy poor citizens, but also to all those who just want to improve energy efficiency in their household.

Energy Poverty Alleviation Office in Križevci

In the town of Križevci in July, 2020 the second Croatian Energy Poverty Alleviation

Office was set up as part of Energy-Climate Office (based on one-stop-shop principles), opened in 2021 by the KLIK Energy Cooperative together with the Town of Križevci. The focus of this office is to support the installation of solar power plants (PV systems) for households, while the goal of EPAO is to extend and include energy poverty alleviation solutions.

The town of Križevci has opened two tenders for co-financing the installation of photographic system (PV system) for family houses which was very popular with the citizens and had contributed to the success of established Energy-Climate Office and Energy Poverty Alleviation Office.

The working hours of the Center are on Monday, Tuesdays and Friday from 8 am to 12 pm and on Wednesday and Thursdays from 12 am to 4 pm, and some activities will be held on other dates, about which KLIK will inform the citizens via the social networks of the KLIK association. Energy Supporters and Mentors are also available for questions by phone calls, on social media and by e-mail on website.

Operative work of Energy Poverty Alleviation Office

All activities of the energy poverty alleviation office are carried out with the aim of connecting the community and raising awareness in society about the problem of energy poverty.

Joining forces between the city of Zagreb and DOOR through synergies between two sister H2020 projects the Energy Poverty Advisory Hub and the POWERPOOR project as it was already described in "Energy Poverty Guidebook for Energy Planning. The City of Zagreb in 2023 has adopted the programme "Energy poverty Mitigation Program for city of Zagreb". The Programme will directly contribute to the decrease of energy poor households in Zagreb, an increase of energy savings and energy efficiency, and a decrease in carbon emissions which will contribute to the fulfilment of national climate goals. To provide support in preparation of the analysis and data collection for the "EPAH technical assistance" DOOR used the POWERPOOR "tools" like Energy poverty alleviation office (EPAO) in Zagreb and the trainings for educating Energy Supporters and Mentors to collect the required data to map the current energy poverty status in 388 households.

It is safe to say that the two EPAOs are successful. While in Zagreb POWERPOOR can count at least on a few visitors monthly, in Križevci, they are above 8-10 on a monthly basis.

Here is sum of the most frequently asked questions through EPAO:

- How can we change a distributor for electricity, water or heating?
- A list of institutions that can help me reduce my energy bills?
- Could we define ourselves as an energy poor household?
- Will there be similar calls as in 2020 - Public call for energy renovation of family houses with 100% subsidy?
- Could you calculate the cost-effectiveness of changing the doors and windows and installing thermal insulation on my home?

6. 3 Estonia

Energy Poverty Alleviation Office in Tallinn

Estonia has one local Energy Poverty Alleviation Office (EPAO), which is located in the capital city Tallinn, in the premises of the main office of EKYL with address Sakala str 23A.

The EPAO is a focal point for energy poverty-related issues, where an interested individual can find information about energy poverty, identify whether they suffer from the phenomenon, and get advice on low-cost energy efficiency measures, funding schemes, and/or behavioural changes that can enhance their energy efficiency. The office will disseminate various information materials in the Estonian language, such as relevant leaflets and brochures, and engage different stakeholders, including local authorities, in thematic events and public discussions.

The office:

- communicates the benefits of implementing energy efficiency interventions and installing renewable energy sources with special focus on multi-apartment buildings;
- encourages visitors to engage in more energy-efficient behaviours, practices, and habits;
- builds a network of Energy Supporters and Mentors in Estonia that will support energy-poor citizens in Estonia;
- promotes the use of the POWERPOOR Toolkit and how this can help citizens reduce energy consumption.

The visitors can have a free consultation on their energy consumption from an energy expert, who helps to identify if they are at risk of energy poverty and gives recommendations for energy efficient living. Representatives of apartment associations can obtain instructions for energy-efficient renovations and the installation of renewable energy solutions for large housing estates.

The EPAO has been successful in connecting different stakeholders of the community and providing answers to the questions of the homeowners and residents. The main questions are related to technical solutions for energy efficiency, financing of joint energy actions, and legal questions about making collective decisions to refurbish the buildings for energy efficiency together with neighbours. Many specific questions have

been asked about state calls for applications for the grant for solar panels for apartment associations and state calls for the reconstruction grant for apartment associations, as homeowners find preparing for these calls challenging and a lot of help with administrative tasks is needed.

The office is located in Tallinn but organizes pop-up office days also in other POWERPOOR pilot cities in Estonia: Tartu, Pärnu, and Kuressaare, as well as lectures in schools to introduce the energy poverty topic to the youth. The aim of the EPAO is to remain flexible and timely in its actions for all issues about energy poverty, not only in Tallinn but on a national level.

6.4 Greece

In Greece, 6 Energy Poverty Alleviation Offices have been established: in the Municipalities of Messini, Souli, Almyros, Tripolis, Aspropyrgos and in the WeEnCoop energy community in Thessaloniki.

The establishment of the EPAOs is a challenge for the municipalities in Greece, as a long-standing problem is that they are understaffed and have a lack of material equipment.

An efficient way for SUSTAINABLE CITY Network to support the establishment and operation of these offices was to provide them with a Mentor Kit, containing dissemination material and the following equipment: a multi-functional environmental tester (that combines the function of Sound Level, Luminometer, a Relative Humidity Meter, a Temperature Meter and an Anemometer), a pocket-sized solar power bank and a mechanical plug-in timer,

SUSTAINABLE CITY procured this special equipment which was delivered to the EPAOs when they became operational.

.

At the same time the SUSTAINABLE CITY team is also equipped with a similar Kit, which can be made available to Energy Supporters and Mentors who want to make households visits but do not belong to one of the municipalities where an office has been established.

The aim is to equip the offices and help the Energy Supporters and Mentors to carry out as many home visits as possible, while obtaining accurate data. By providing them with equipment to assist them in this process, more Energy Supporters and Mentors would be motivated to conduct home visits and engage greater number of citizens.

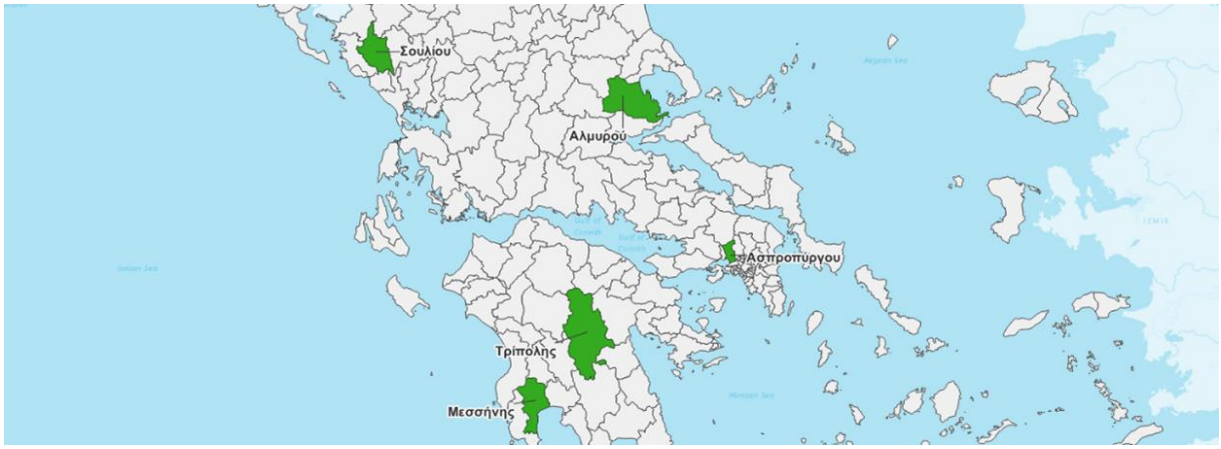
However, it was more convenient and faster for them to conduct accurate

measurements and get useful data on the condition of households in their municipalities' areas. The equipment enables them to measure factors such as temperature and humidity, which are directly linked to the concept of energy poverty, as well as other parameters such as light and noise in the homes of their citizens.

The purpose of the equipment, in combination with the dissemination material (banners, leaflets etc.), was to organize the operation of the Energy Poverty Alleviation Offices properly so that they can maintain the know-how and equipment even after the end of the project. It is worth noting that the equipment was provided by the Sustainable City network and not the POWERPOOR project.

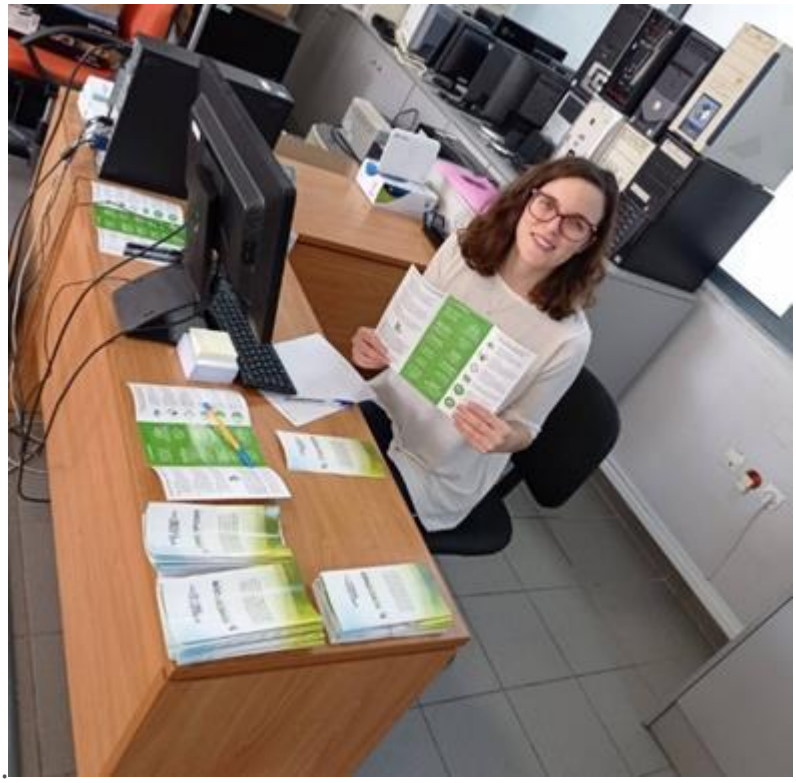
As said before, long-standing problem in Greek municipalities is that they are understaffed. It was therefore difficult to find personnel to staff and maintain the offices. In all the Municipalities, Energy Mentors staffed the offices, however, it was difficult to push them to participate in the home visits, since the majority of them were doing that on top of their day to day activities.

Therefore, it was a major challenge to convince the staff of the Energy Poverty Alleviation Offices to be active and to carry out as many home visits as possible, while using the equipment. Some municipalities however had motivated mentors that took it upon themselves to help in a local level. The municipalities understand the importance of maintaining these offices both to address the phenomenon of energy poverty in their municipality and also to collect data in order to design the necessary actions to include in the updated SECAPs, regarding the energy poverty pillar.



Energy Poverty Alleviation Office of the Municipality of Messini

The Energy Poverty Alleviation Office of the Municipality of Messini is located at the City Hall of Messini. The Municipality of Messini was chosen for the creation of the first Energy Poverty Alleviation office because it is a region with special characteristics. More specifically, the Municipality of Messini is a municipality located in the southern part of the country, surrounded by the sea and with a small rate of GDP. It was also the first Municipality-member of SUSTAINABLE CITY Network that expressed interest in establishing an EPAO.



Energy Poverty Alleviation Office of the Municipality of Souli

The Energy Poverty Alleviation Office of the Municipality of Souli is located at the Town Hall of Souli in Paramythia. The Municipality of Souli was chosen for the creation of the second Poverty Alleviation office because it is a region of special interest. Souli is a municipality in the northwestern part of Greece, which is characterised by a cold climate in winter, with no particular energy infrastructure and an average altitude that is quite high.

A large percentage of citizens who come to the Municipality learn about the office and thus find the opportunity to visit it to be informed about its purpose, as well as to be informed about immediate energy saving measures. Over time, citizens became more familiar with it and the number of citizens visiting the office increased.

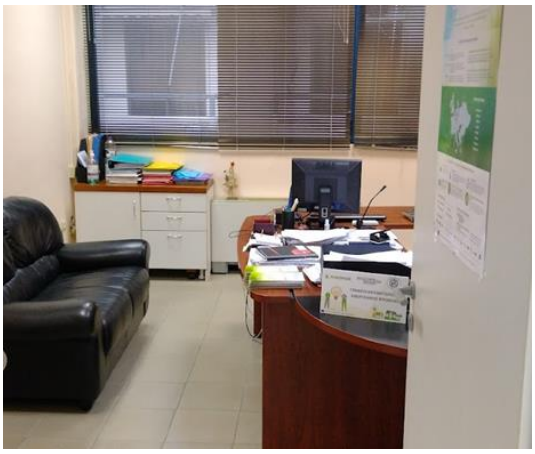
Energy Poverty Alleviation Office of the Municipality of Almyros

The third EPAO in Greece was established at the end of 2022 in the Municipality of Almyros.

The Municipality of Almyros is in the centre of Greece with a multi diversity in his geomorphological environment. In this specific region someone can visit from high mountains to a large plain and a long coastline.

Almyros was chosen for the creation of the EPAO because it is an area of particular interest and has a strong political willingness to combat energy poverty.

The EPAO of Almyros has a very ambitious vision of applying the mapping of energy poor households to almost the whole population through the use of online forms, simultaneously with the operation of the office.



Energy Poverty Alleviation Office of the Municipality of Tripolis

The fourth EPAO in Greece was established at the beginning of 2023 in the Municipality of Tripolis. The Municipality of Tripolis is the capital of the Prefecture of Arcadia in the Peloponnese Region. It is located in the center of the Peloponnese, at the western border of a large basin. The Municipality was chosen for the creation of the Office because they had a strong political willingness to combat energy poverty and support the energy poor households. The EPAO in Tripolis is organised as a subdepartment of the Social Services Department, following the organisational structure of the of the Municipality. In that way the EPAO was officially incorporated in the municipal services.

Energy Poverty Alleviation Office of the Municipality of Aspropyrgos

The fifth EPAO in Greece was established during March 2023 by the Municipality of Aspropyrgos, in cooperation with SUSTAINABLE CITY Network and the Municipal Public Utility Enterprise. Aspropyrgos is located 15 km northwest of the city center of Athens in the Thriasio Plain. The Municipality gives special priority to social issues and has many social structures, such as social grocery store, soup kitchen, social pharmacy, etc. For this reason, they showed special interest in establishing an EPAO to include energy services.

Energy Poverty Alleviation Office organised by WenCoop Energy Community

The newly formed energy community is located in Thessaloniki, Greece while the PV projects will be soon under operation in the Region of Chalkidiki. INZEB proposed to the members of the energy community to consider the operation of an EPAO, a proposal that was well accepted and approved by the BoD members. Since 2021 the EPAO was approved and mainly promoted the activities of POWERPOOR (training activities, promotional events) while the full operation of the EPAO is expected as soon as the PV plants will be in operation, thus the official offices of the energy community will be established in Chalkidiki, the actual location of the Energy Community.

Energy Poverty Alleviation Offices at INZEB premises

Since the inception of the POWERPOOR project, INZEB considered the operation of an Energy Poverty Alleviation Office. INZEB is a nonprofit organisation established in 2017 and since its establishment energy poverty mitigation was among the core activities of the organisation. The EPAO was launched in July 2023 and a hot line is available for every citizen who wishes to find ways to address energy issues and received advice on how to tackle energy issues. The EPAO will be also promoted to the members of the national POWERPOOR Alliance but also to the wide network that INZEB has across the country.

6.5 Hungary

In Hungary, 2 Energy Poverty Alleviation Offices were established. The 1st was established in Józsefváros (8th district of Budapest) in January 2022. The second opened in Terézváros (6th district of Budapest) in the summer of 2022. Both are POWERPOOR pilot municipalities and have a long-standing cooperation with Energiaklub.

Energy Poverty Alleviation Office in Terézváros

The EPAO in Terézváros was innovative in its' location as it was directly approaching the residents rather than inviting them to go to a certain location. It opened in one of the capitals' smallest and cosiest market halls in a frequented spot in the inner city. An enclosed space between the butcher and fish counters, near the entrance, was completely renovated for the purpose of EPAO. Currently, a complete renovation of the market hall is ongoing, pausing the functioning of the office, but there are ambitions for continued operation.

The office opened in summer 2022, at the time when Hungarian government changed regulations on utility subsidies. Since 2013, utility cost reduction programme had been in force, allowing energy prices to be independent from market prices and fixed at a low level. It covers natural gas, electricity, district heating, piped water services. Reduced energy costs were eliminated for above national average consumption since 08.2022. Therefore, it was not only interesting for the public, but also good for local politics that the office was ready to open at that time.

The office was open on Saturday mornings, the most frequented time of the market. Two people were needed in the office at the same time to avoid waiting in long lines. The POWERPOOR Toolkit was used for surveying the interested residents.

Most of the visitors were elderly people, partially because higher proportion of elderly residents is characteristic for Terézváros. The typical energy-poor resident here is an elderly living alone in an 80-100 square metre flat, with high ceilings, old windows, old convector heating or gas or electric heating in a tiled stove. There were also clients who

already had very good energy efficiency of their homes but were seeking advice for installing a smart device.
The advisory in the office was provided mostly by the municipality's sustainability officer who completed the Energy Mentor training. He also provided Energiaklub an interview, describing the success of the office and his personal experience in details.

Energy Poverty Alleviation Office in Terézváros

Terézváros is one of the capital districts most affected by energy poverty. Social housing is well above the Budapest average in this district.

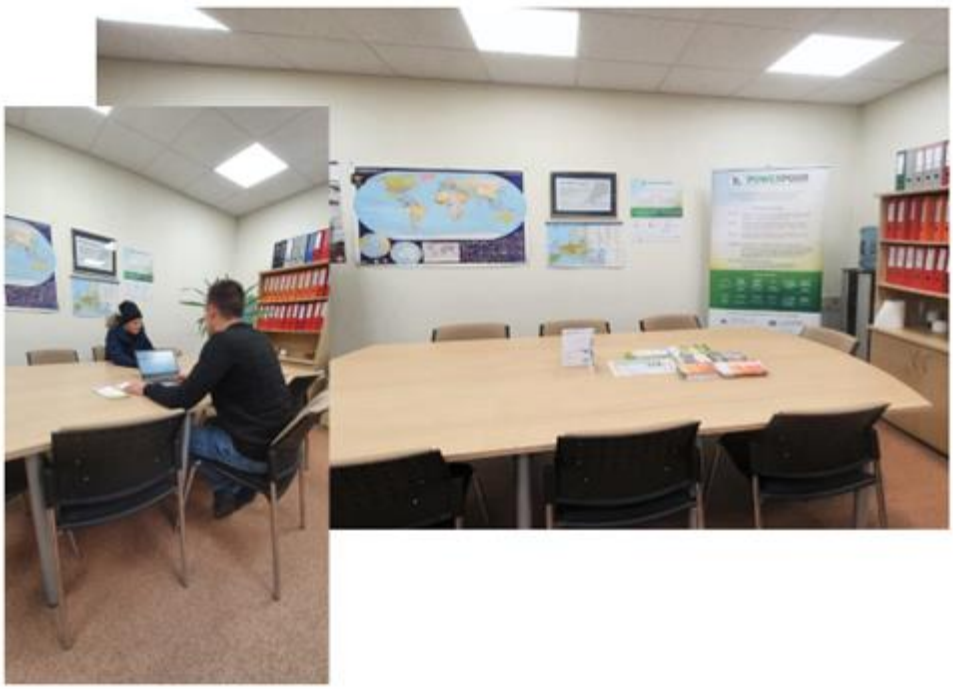
The EPAO was opened in Gutenberg square in collaboration with RenoPont office, which is specialised for energy efficiency renovation advisory.

The frequency of visitors increased here as well due to the utility regulation change in summer, 2022. On the other hand, only a handful people visited the office. The type of the advisory was rather in a form of free conversation, using the tools was rarely fit for purpose. Some were inquiring about utility allowances for disabled child, or expressed their worry about the increased energy prices. In general, the low-cost behavioural measures were not welcomed with an interest.

The municipality also held an open consulting workshop in the office, in a form of interactive talking and conversation. Low-cost and no-regret behavioural measures and leaflets were shared with the audience.

6.6 Latvia

During POWERPOOR project 1 Energy Poverty Alleviation Office (EPAO) was opened in Latvia – Jelgava city municipality.



Jelgava, ZREA
Pulkveza Brieza Street 26
Office hours: Mondays: 8-19
Tuesdays – Thursdays: 8-17
Fridays: 8-15

As part of POWERPOOR project Zemgale Regional Energy Agency (ZREA) opened the Local Energy Poverty Alleviation Office in Latvia. It is the first office for tackling energy poverty in Latvia. ZREA has more than 14 years' experience in providing advice and consultations on energy efficiency and renewable energy sources and now consultations on how to alleviate energy poverty have been integrated in its everyday work.

After the end of Covid-19 pandemic part of consultations with energy poor households - how to save energy and alleviate energy poverty were provided in this office and from this office, usually in the consultation tackling topics, such as:

- Heating system – what is existing, what could be improved, what are the support programmes;
- Energy efficiency of the house - what is existing, what could be improved, what are the support programmes;
- Energy efficiency of the electrical appliances - what is existing, what could be improved;
- Energy habits;
- Analysis of energy bills;

- Ventilation and other energy parameters affecting energy efficiency
- Use of POWERPOOR tools – for diagnosis, tips and inspiration for joint measures.

For energy poor households it was very important to have support programme for changing the heating systems from the old, inefficient, to a new efficient and using renewable energy sources, but to many of them the application process to these programmes seemed to be complicated. It was important for them to have support programme for installing solar panels, support programmes for raising energy efficiency of multiresidential buildings and individual private houses. It provided higher motivation for them to activate and improve energy efficiency of their houses. It turned out also beneficial that ZREA is energy agency. Most of the consultations dealt with how to reduce energy consumption and energy bills, as people did not want to be labelled as poor and that some consultation is given to them as to energy poor.

Energy experts are also available via e-mail: zrea@zrea.lv and via the phone, this is public information on zrea webpage: https://www.zrea.lv/.

The office is open to energy poor households, but also to others which would like to switch to renewable energy sources and are looking for support programmes or those who would like to improve energy efficiency of their house.

Activities of the office include raising awareness on the energy poverty. ZREA closely collaborates with its member municipalities Jelgava City, Jekabpils county and Dobele County. Energy poverty has been included in the SECAPs of Jelgava and Jekabpils, and is planned to be included in Dobele SECAP when it will be renewed.

The most frequently asked questions have been:

- I know a lot about saving energy, I do it all already, what else can I learn here?
- What are the support programmes? Could you help me to apply?
- Are sun PV panels feasible?
- Which sun PV installing company is better?

6.7 Portugal

In Portugal, 3 Local Energy Poverty Alleviation Offices were created, one in the north, in Ermesinde, one in the center, in Lisbon and another in the south of the country, in Mértola.

Energy Poverty Alleviation Office in Mértola

Gabinete Local de Apoio à Eficiência Energética in Mértola was created on January 2022 by the Associação de Moradores do Centro Histórico de Mértola and is managed by a POWERPOOR Energy Mentor.

The office operates in the Parish Council of Mértola and intends to "combat energy poverty, promote thermal comfort and energy efficiency in homes throughout the municipality and encourage the creation of renewable energy communities". The office is available to provide these services, both in Mértola municipality and throughout Baixo Alentejo area.

The Parish Council of Mértola and the Associação de Moradores do Centro Histórico de Mértola consortium applied to Happy Energy4ALL project in the 1st EPAH call in 2022 to get free technical support for 9 months and was accepted. The project aims to carry out a diagnosis of energy poverty in the Historic Center of Mértola.

Local Energy Poverty Office in city of Mértola

Local Energy Poverty Office in Ermesinde

Centro Social de Ermesinde (CSE) is a Private Institution of Social Solidarity that plays an important role in providing social support locally to needy populations.

A CSE technician with many years of experience, a member of Coopérnico too, took the POWERPOOR training and was certified as an Energy Mentor. A Local Energy Poverty Office establishment at CSE arose from the need to support some of the users to increase their energy literacy and access to existing support programms in energy efficiency.

Local Energy Poverty Office in Ermesinde

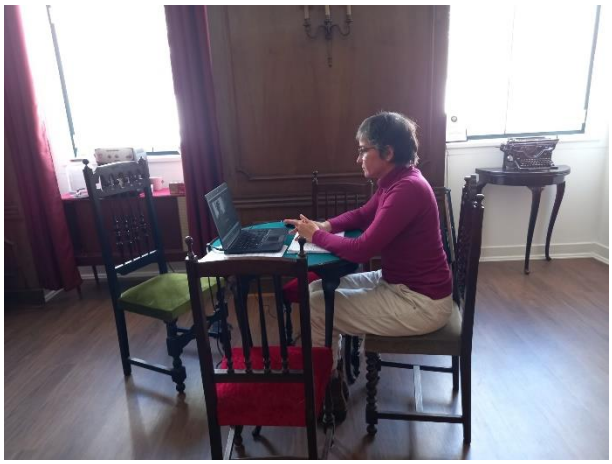
Local Energy Poverty Office in Lisbon (Coopérnico headquarter)

Coopérnico has its headquarters in downtown Lisbon, where it opened a Local Energy Poverty Office in March 2022, to serve its members and all beneficiaries of the social electricity tariff.

In downtown Lisbon and surroundings there are several old neighbourhoods with vulnerable populations and, therefore, Coopérnico announced the Local Office opening, in a first step in nearby Parish Councils and later in all Parish Councils of Lisbon, as well as in social media.

The office works on Tuesdays and Thursdays, between 11:00 and 15:00 and appointments are made through Calendly.

The service can be in person, by Zoom or by phone. Most of the services were carried out remotely during COVID-19 lockdown.



Local Energy Poverty Office in Lisbon (Coopérnico headquarter)

6.8 Spain

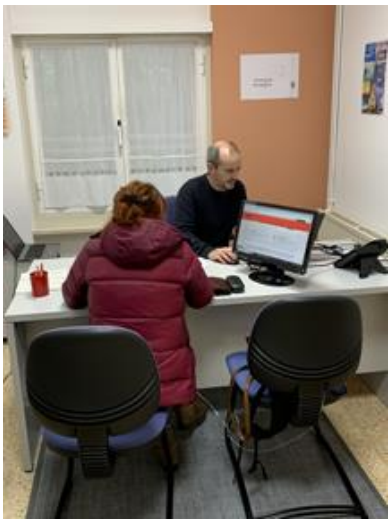
Five Energy Poverty Alleviation Offices have been established within the POWERPOOR project.

Energy Poverty Alleviation Office in Tolosaldea

Tolosaldea region: The energy office of Tolosaldea was established by the regional development agency Tolosaldea Garatzen, supporting the citizens with several aspects on energy. With the support of the POWERPOOR project, mainly through the trainings, face-to-face meeting and the POWERPOOR toolkit, the office started to work also as an Energy Poverty Alleviation Office, providing support to the vulnerable citizens. The office is located in the municipality of Tolosa, and it works also as an online energy office.

Energy Poverty Alleviation Office in Hernani

The energy office in Hernani was established by the local municipality and is managed by the local energy community Enherkom. Members of the community participated in the POWERPOOR trainings, and one of the Mentors is working in the energy office which also works as an Energy Poverty Alleviation office.



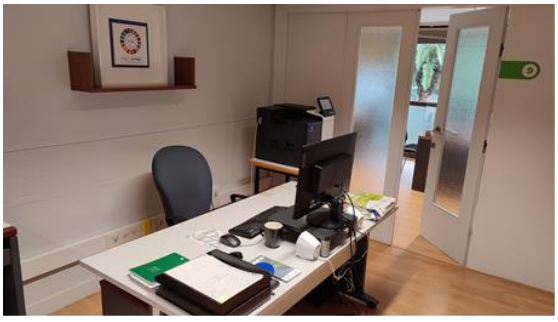
Energy Poverty Alleviation Office in Tierra Estella

The energy office Punto InfoEnergía was established by the regional development agency Tierra Estella Desarrollo rural, several years before the POWERPOOR project. It is located in the municipality of Lizarra-Estella, but it also has other offices that work as antennas for the main energy office, to better reach the whole of the region. With the

support of the POWERPOOR project, the office has deepened in the field of energy poverty, becoming an Energy Poverty Alleviation Office with two Energy Mentors that are working every day to support the citizens.

Energy Poverty Alleviation Office in Oarsoalde

Because of the pandemic, the energy office was first launched in 2021 in its online version by the regional development agency Oarsoaldea, and later they started to provide the service also in the physical office, located in the municipality of Oiartzun. With the support of the POWERPOOR project, they advanced on working on energy poverty and supporting the energy poor citizens through the Energy Mentor, becoming an Energy Poverty Alleviation Office.



Energy Poverty Alleviation Office in Bergara

The energy office was launched by the municipal council of Bergara, as part of the social transformation initiative and office EHUNDU. In this case, the local energy community Berener is working on the energy office through the Energy Mentors that were trained by the POWERPOOR project.

7. Key results from implementing the energy poverty support programmes

Pilot energy poor support programmes/schemes have been designed, developed, and implemented in the eight pilot countries across Europe and led by a network of certified Energy Supporters and Mentors. The Energy Supporters and Mentors support households and engaged energy poor citizens through various activities, such as Info Days, Local Energy Poverty Offices, and ICT-driven tools (POWERPOOR Toolkit). Also, Stakeholders Liaison Groups facilitate the engagement and the provision of support to energy poor households. In each pilot country the POWERPOOR approach was implemented and joint energy initiatives among key stakeholders were sought.

In the next chapter, the key results from implementing the energy poverty support programme are presented.

7.1 Bulgaria

The POWERPOOR Project, the 'Improvement of ambient air quality in Sofia Municipality by replacing solid fuel heating devices with environmentally friendly alternatives' Project, and Sofia Municipality

Being part of the Improvement of ambient air quality in Sofia Municipality by replacing solid fuel heating devices with environmentally friendly alternatives Project of Sofia Municipality, SOFENA had an obligation to monitor the process of replacement. This provided the team with an opportunity to visit households and to see the living conditions of the families. Whenever it seemed that a certain family is energy poor or vulnerable, an Energy Supporter was also invited to visit. He/ She used the POWERPOOR Toolkit in order to evaluate the situation and to offer soft measures for improvement of the energy efficiency of the house and for reducing energy consumption. Thus, the synergy of the two projects added value to both, while the Improvement of ambient air quality in Sofia Municipality project was supplying a modern heating system, the POWERPOOR approach proposed measures to enhance further the energy efficiency and was able to identify energy poor citizens who could benefit from the POWERPOOR Toolkit.

The POWERPOOR Project and the nZEB Roadshow for energy efficiency

The notion of energy communities as legal entities is very new in Bulgaria. In fact, there is no legal framework for their establishment yet. Consequently, there is very little awareness about the possible benefits of joint energy initiatives among the citizens of Bulgaria. SOFENA team joined forces with the nZEB Roadshow in order to disseminate the POWERPOOR Toolkit and to promote innovative financing schemes and the POWERFUND tool as a way to finance Collective Energy Initiatives. On June 2 – 3, 2022, in the City of Burgas was held the National Conference on Sustainable Financing of Projects for Energy Efficiency and RES. As part of the conference exhibition, a POWERPOOR stand was build offering information on energy poverty and advice about energy efficiency, and how citizens can use the POWERPOOR Toolkit as a way to improve their households' power consumption. In addition, the Conference

programme included a lecture POWERPOOR Toolkit for energy poor citizens discussing especially Collective energy initiatives and the POWERFUND tool. The talk was attended not only by experts in the field but also by many local citizens who expressed interest in being kept informed in the future about the possibilities for the establishment of energy cooperatives in Bulgaria.

The POWERPOOR Project and the City of Vidin

Located on the bank of the river Danube and lacking adequate infrastructure to connect it to the major economic centres of Bulgaria, the Municipality of Vidin has been severely affected by an economic crisis leading to a progressive depopulation of the region. Today the Municipality of Vidin is the poorest in Bulgaria, with high unemployment rate, few business opportunities, and aging population. Since there is still no legal definition on energy poverty in Bulgaria, it is difficult to estimate the levels of energy poverty, especially in areas like Vidin, where income poverty is on a steady rise. The Mayor of Vidin approached the POWERPOOR project expressing interest in learning more about energy poverty and how to identify energy poor citizens. On July 13 – 14, 2022, together with the mayor's office of Vidin, SOFENA organised a special POWERPOOR training session for the employees of the Municipality of the city of Vidin. The event was attended by 20 participants who work for different departments and are responsible for various aspects of the city's administration. All attendees were very active during the discussions and expressed interest in establishing a Local Energy Poverty Alleviation office in Vidin. (This is still to be done after the 2023 elections in Bulgaria.) As a result of the training 19 Energy Supporters and one Energy Mentor (including the deputy Mayor Dessislava Todorova) were certified. The trained Energy Supporters were very interested in the POWERPOOR Toolkit and its application. They discovered that using it, it is not only easier to measure the level of energy poverty of a given household but also it is possible to provide right away a useful advice on soft measures, which would have an immediate effect on the household comfort and their energy saving. The Municipality of Vidin has incorporated activities related to energy poverty alleviation in its work. Their results can be used as an inspiration for other municipalities to tackle energy poverty.

The POWERPOOR Project and the Association of the Bulgarian Energy Agencies (ABEA), The 16th National Conference of ABEA, Nov. 29 – 30, 2022

Since its very beginning, the POWERPOOR Project has been benefitting from the vast network of ABEA and has been informing the members of the Association about the project's activities and results. The topic of the 16th National Conference of ABEA, held in Sofia, Bulgaria, on Nov. 29 – 30, 2022, was Energy Efficiency and RES – the challenges of the energy transition and energy poverty. Clearly, a great opportunity for the POWERPOOR Project to present its latest achievements. On Nov. 30, 2022, SOFENA took part in the Conference with two lectures related to energy communities in the EU, their definition, and their legal framework (Nadya Nikolova-Deme), and one talk presenting the development of the POWERPOOR National Road Map for alleviating Energy Poverty in Bulgaria (Lilly Stammler). The Conference was exceptionally well attended, in person and remotely, and it was covered in the media. More information about it can be found on the website of ABEA: new.abea-bg.org. The event proved useful for the

popularisation of the POWERPOOR approach, since after it several cities (Sitovo, Radnevo, Shabla, Valchidol) decided to include the POWERPOOR approach as a good practise in the chapter on energy poverty of their programmes for energy efficiency/ for promotion of energy from RES and biofuels.

7.2 Croatia

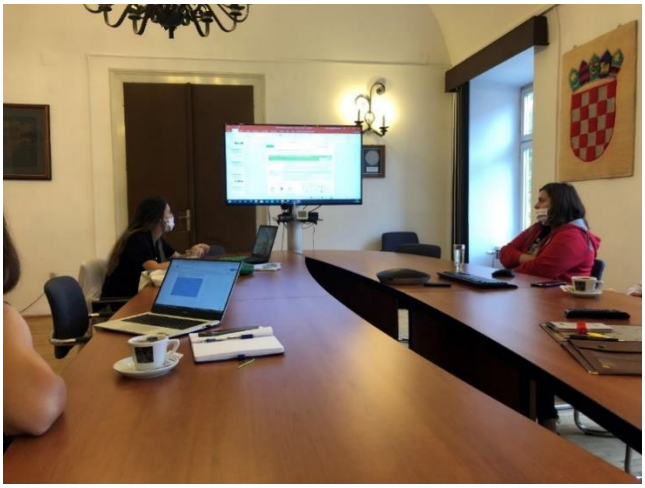
Establishment of cooperation with organisations in city of Križevci (this includes the city, KLIK and Red Cross) to create jonit energy initiatives

- **City of Križevci and DOOR together in the joint energy initiatives to help citizens**

City of Križevci is a key result of municipal action in the field of renewable and sustainable energy and energy poverty with project like **"Križevac sun roofs"** (crowdfunding of two project of 30 kW photovoltaic power plant (Development Center and Technology Park Križevci and City Library "Franjo Markovic")), **establishing energy corporative KLIK** and opening **public calls for financing PC systems.**

After two project of "Križevci Sun roof" there is interest among the citizens in instalment of PV systems and the city has so far opened three tenders for co-financing the installation of photovoltaic systems on the roofs of family houses and the users of the program are delighted that the city is helping to establish solar power plants.

One of the focuses of the POWERPOOR project is innovative ways of financing, such as crowdfunding. The City of Križevci was one of first city that implemented energy crowdfunding campaign in Croatia, and the exchange of knowledge is certainly benefiting for DOOR and City of Križevci.



F2F meetings - representatives of the city of Križevci

The approach to city management and planning is what led DOOR to collaborate with both the city authorities and associations in Križevci to establish a joint energy initiative. That cooperation initiative through the POWERPOOOR project brought representatives of the city of Križevci as members of POWERPOOR Liaison Group, energy cooperative KLIK established Energy poverty alleviation office and POWERPOOR home visits were conducted in collaboration with Red Cross – Križevci.

These energy poverty activities carried out through the POWERPOOR project prompted the organisation of a field trip to the City of Križevci in June 2022 as part of the EPAH conference on energy poverty held in Zagreb. The city of Križevci represents a best practice example in the field of renewable and sustainable energy, as well as in alleviating energy poverty.

EPAH conference on energy poverty in Zagreb – filed trip to city of Križevci

- **KLIK and DOOR together in the joint energy initiatives to offer turnkey service in energy renovation projects to citizens**

KLIK energy cooperative, in cooperation with the City of Križevci, opened an Energy-climate Office, and as part of this initiative, the POWERPOOR Energy Poverty Alleviation Office (EPAO) was also established there. Within the office, KLIK has developed a turnkey service for solar power plants for households, with the goal of expanding services to other areas, including assisting citizens in alleviating energy poverty in their homes.

Info day and opening POWERPOOR Energy poverty alleviation office (EPAO)

A step further in POWERPOOR's exploitation is the collaboration between DOOR and KLIK that resulted in obtaining the LIFE project that will turn in already established Energy Poverty Alleviation Office (EPAO) in fully operative OSS. This will ensure the sustainability of POWERPOOR's EPAO even after the end of the project and continue helping citizens in energy renovation projects - with a focus on all citizens, including vulnerable ones.

- **Red Cross and DOOR together in the joint energy initiatives to identify energy poor citizens**

Cooperation between the Red Cross and DOOR was already described in **"Energy Poverty Guidebook for Energy Planning"** as one of best practices in the development of synergy between the two organisations to identify and support energy poor households in Križevci.

The Red Cross of Križevci already works with households that are in a difficult social situation through various projects, i.e., "Active Aging for the period 2021/2022". Energy Supporters and Mentors from Red Cross – Križevci have pre-mapped the vulnerable households and conducted a survey of 275 households in the area of the city of Križevci using the POWERPOOR toolkit which provides information on energy performance of building.

Red Cross Energy Mentors

- **Joining forces - synergies ENPOR project and POWERPOOR project – focus on citizens/ tenants who are part of private rented sector in city of Križevci**

Synergies between two sister H2020 project ENPOR and POWERPOOR were already described in **"Energy Poverty Guidebook for Energy Planning"**. The ENPOR's experience about energy poverty in the private rented sector is expected to be combined with the findings of the Red Cross and POWERPOOR joint action, to provide insights about energy poverty in rented sector. This combined action can prove important for designing future public calls for energy renovations on buildings, such as the Energy renovation programme for multi-apartment buildings and the Energy renovation

programme for single family houses, taking into account the needs of landlords and tenants and to include them in the wider political context.

Establishment of cooperation with organisations in city of Zagreb (EPAH project (city of Zagreb), ENPOR project (sister project) and CEES project (energy cooperative and crowdfunding)) to create joint energy initiatives

- **Joining forces – the Energy Poverty Advisory Hub, the POWERPOOR project and the City of Zagreb**

Cooperation between the city of Zagreb and DOOR through synergies between two sister H2020 project EPAH and POWERPOOR was already described in **"Energy Poverty Guidebook for Energy Planning"**. The City of Zagreb in 2023 has adopted the programme "Energy poverty Mitigation Program for city of Zagreb". The Programme will directly contribute to a decrease of energy poor households in Zagreb, an increase of energy savings and energy efficiency, and a decrease in carbon emissions which will contribute to the fulfilment of national climate goals.

To provide support in preparation of the analysis and data collection for the "EPAH technical assistance", DOOR used POWERPOOR "tools" like EPAO in Zagreb and Program for educating Energy Supporters and Mentors to collect the required data to map energy poverty status in 388 households.

- **Joining forces - ZEZ and DOOR in synergies CEES project and POWERPOOR project – engaging energy poor citizens in joint energy initiative**

Synergies between two sister H2020 project CEES and POWERPOOR were established through various activities. These included the membership of the ZEZ project manager of CEES project in POWERPOOR Liaison Group, project manager of CEES project becoming Energy mentor, organising together POWERPOOR online webinar with a focus on topics relevant to the POWERPOOR and CEES project such as: energy cooperatives, energy communities and innovative funding methods and organising together Info Day with focus on good energy and energy poverty.

The exchange of experiences is what was established between the project managers from Croatia in the POWERPOOR and CEES project.

After the completion of POWERPOOR project's household visits in Križevci and Zagreb, the CEES project started its own visits in the city of Zagreb. During that time, examples and experiences of how to reach energy-poor households were exchanged. It became evident that working with citizens presents a certain challenge and there is a need for shared experience and knowledge between these two projects in order to find the best approach in working with energy-poor citizens.

Citizens were put in the focus of various activities, so CEES started crowdfunding for energy packages/boxes for citizens, and the distribution of packages is led by an Energy Mentor certified through the POWERPOOR Program for training Energy Supporters and Mentors.

Also, one of the aims of the POWERPOOR project is innovative ways of financing, such as crowdfunding, which was exactly what the CEES project implemented in Croatia, and the exchange of knowledge is certainly interesting.

- **Joining forces - synergies ENPOR project and POWERPOOR project – focus on citizens/ tenants who are part of private reneted sector in city of Zagreb**

The same will be implemented as in Križevici (described in the text above).

7.3 Estonia

POWERPOOR supporting Estonian national climate ambition – EKYL and BuildEST initiative joining forces to improve residential energy efficiency

Research and development program LIFE IP BuildEST is the largest national residential energy efficiency alliance in Estonia, coordinated by the Estonian Ministry of Economic Affairs and Communications, and aiming to pursue Estonia's national climate ambition, raise the capacity of key enablers of renovation, and deliver the needed toolset for the purpose while also making a significant contribution to the alleviation of energy poverty across the country. Since the beginning of the BuildEST initiative in 2021, it has been confirmed by its partners—ministries, universities, etc.—in Estonia that POWERPOOR must be considered an important partner initiative and input provider for BuildEST. The key partners of the BuildEST initiative are also members of the POWERPOOR Liaison Group in Estonia.

The experience gathered by EKYL from the POWERPOOR project has been applied in BuildEST to find and test better and more comprehensive solutions for the energy efficiency and sustainability of houses in Estonia. POWERPOOR tools are seen as examples while developing the necessary toolset for improving energy performance, reducing carbon emissions of Estonian building stock at the required rate, and providing a starter mechanism for carrying out the EU Renovation Wave Initiative on a national level.

Cooperation between POWERPOOR and BuildEST initiatives can be seen as an effective collaboration on European and national level in the field of energy efficiency, where POWERPOOR tools, methodology, results, and key outcomes are fully integrated into national activities, including the development of energy-efficient renovation policies, business models, and financial support measures.

EKYL and the City of Tallinn—European Green Capital 2023—together in raising awareness on how to develop energy efficient and sustainable homes

Tallinn, which is one of the POWERPOOR pilot cities in Estonia, has well recognised the challenge of renovating the city's building stock to alleviate energy poverty, but because most of the Estonian housing stock is privately owned, the city has few opportunities for improving the energy performance of those properties.

As European Green Capital 2023, Tallinn speeds up the process of becoming more sustainable and inclusive, cooperating more with citizens, companies, and organisations, and raising residents’ awareness about the environment.

By the beginning of 2023, the POWERPOOR project had significant experiences with home visits and outreach to energy-poor households in the city. Therefore, the forces were joint between EKYL, the POWERPOOR project, and the city of Tallinn with the aim of supporting energy-poor citizens, facilitating experience and knowledge sharing through the Energy Poverty Alleviation Office in Tallinn, as well as the implementation

of small-scale energy efficiency interventions and increasing the active participation of citizens. The joint initiative develops a local knowledge network to accelerate private renovation by contributing to the improvement of peer-to-peer learning and the exchange of experiences between cooperative apartment associations and other relevant stakeholders. This allows for the improvement of the energy efficiency of residential buildings, alleviating urban energy poverty, and responding to the aims of the city of Tallinn on carbon neutrality.

7.4 Greece

Municipality of Chalki and SUSTAINABLE CITY together in the joint energy initiatives to help citizens

The local community in Chalki is at the forefront of the energy transition. ChalkiON is the first energy community to own and operate a PV station on a non -interconnected Greek island, with the participation of the local authority.

The design of Chalki's initiative covers the energy needs of the island. And the virtual net metering is the most appropriate method for the members of the ChalkiON to offset the energy produced by the polar park with the actual consumption of their electricity bills.

The energy community ChalkiON with the support of SUSTAINABLE CITY impelemnted the POWERPOOR project and organised onsite training for the members of the community to familiarise them with the POWERPOOR approach, as they had interest in finding out more about how to identify and help the energy poor within their Municipality.

Three of the Municipality's employees got trained and certified as Energy Supporters Mentors, who identified eleven (11) Energy Poor Households on the island, and enabled them to immediately join the ChalkiOn Energy Community without paying any fees and they immediately benefited from the net metering.

Municipality of Almyros and SUSTAINABLE CITY together in the joint energy initiatives to help citizens

The Municipality of Almyros was impressed by the POWERPOOR project and with the support of SUSTAINABLE CITY received the necessary information for the establishment of an energy poverty alleviation office to address energy poverty in the region.

The aim of the Municipality was to raise awareness and inform citizens about energy poverty, as well as to identify and evaluate energy vulnerable households, which helps the Municipality to identify with relative accuracy the scale of the problem and to develop a policy to promote a change in the energy behaviour of citizens.

Through a Google form questionnaire, which contains all the questions of the POWERPOOR Toolkit, the residents of the Municipality of Almyros have the opportunity to fill in a questionnaire about their property, their electricity and heating consumption, the electrical appliances they use and generally their energy behaviour within their household etc.

The data from the questionnaire are used by the trained and certified mentor who is also staffing the local energy poverty alleviation office to compile a personalised advisory report on the energy efficiency of the household, which includes a mapping of the current situation, an assessment of vulnerability and energy behaviour, while suggestions for energy upgrading of the property and advice on better energy behaviour are provided. The advisory report was sent electronically by the personal e-mail of the mentor.

ΒΙΩΣΙΜΗ ΠΟΛΗ
ΔΙΚΤΥΟ ΠΟΛΕΩΝ
POWERPOOR

ΔΗΜΟΣ ΑΛΜΥΡΟΥ

Συμβουλευτική Δράση Ενεργειακής Επάρκειας Νοικοκυριών Δήμου Αλμυρού

Ο Δήμος Αλμυρού, στα πλαίσια δράσεων που στοχεύουν στη μείωση της ενεργειακής φτώχειας και σε συνεργασία με το Δίκτυο Πόλεων "Βιώσιμη Πόλη", του οποίου είναι μέλος, εφαρμόζει πρόγραμμα Συμβουλευτικής Ενεργειακής Επάρκειας Ευάλωτων Νοικοκυριών εντός των διοικητικών του ορίων.
Σκοπός αυτού του προγράμματος είναι η ευαισθητοποίηση - ενημέρωση των δημοτών μας, καθώς και η αξιολόγηση - εντοπισμός των ευάλωτων ενεργειακά νοικοκυριών, γεγονός που βοηθά τον Δήμο να αναγνωρίσει με σχετική ακρίβεια το μέγεθος του προβλήματος και να χαράξει ανάλογη πολιτική προσέγγισης αλλαγής της ενεργειακής συμπεριφοράς των πολιτών.
Έχει υπολογιστεί, ότι δράσεις που στοχεύουν στην αλλαγή της ενεργειακής συμπεριφοράς των χρηστών ενός νοικοκυριού, μπορούν να επιφέρουν σημαντική μείωση της τελικής κατανάλωσης ενέργειας, θέτοντας τους πολίτες στο επίκεντρο της λύσης μέσα από τη σταδιακή μετάβαση τους από την κατάσταση του παθητικού χρήστη σε αυτή του ενημερωμένου καταναλωτή και, σε επόμενο στάδιο, σε αυτή του ενεργειακά υπεύθυνου καταναλωτή.
Οι κάτοικοι του Δήμου Αλμυρού έχουν την δυνατότητα συμπλήρωσης ερωτηματολογίου σχετικά με το ακίνητό τους, την κατανάλωση ηλεκτρικής ενέργειας και θέρμανσης, τις ηλεκτρικές συσκευές που χρησιμοποιούν και γενικά την ενεργειακή τους συμπεριφορά εντός του νοικοκυριού τους.
Για όποιον επιθυμεί, τα δεδομένα του ερωτηματολογίου χρησιμοποιούνται για τη σύνταξη εξατομικευμένης συμβουλευτικής έκθεσης αναφορικά με την ενεργειακή επάρκεια του νοικοκυριού, στην οποία γίνεται αποτύπωση της υφιστάμενης κατάστασης - αξιολόγηση ευπάθειας και αξιολόγηση της ενεργειακής συμπεριφοράς και παρέχονται προτάσεις/πρακτικές ενεργειακής αναβάθμισης του ακινήτου και συμβουλές ορθότερης ενεργειακής συμπεριφοράς. Η συμβουλευτική έκθεση αποστέλλεται ηλεκτρονικά σε προσωπικό e-mail.
Η παρούσα πρακτική στοχεύει αποκλειστικά και μόνο στην παροχή συμβουλευτικών

POWER-TARGET
Μέσω του POWER-TARGET γίνεται αποτύπωση της υφιστάμενης κατάστασης του ακινήτου και αξιολόγηση ευπάθειας του νοικοκυριού

Όνομα / Επώνυμο *
Your answer

Επιλέξτε από το αναπτυσσόμενο μενού την Δημοτική Κοινότητα ή την Τοπική Κοινότητα που βρίσκεται το ακίνητο *
Choose

Διεύθυνση (Οδός / Αριθμός) *
Your answer

Τηλέφωνο Επικοινωνίας *
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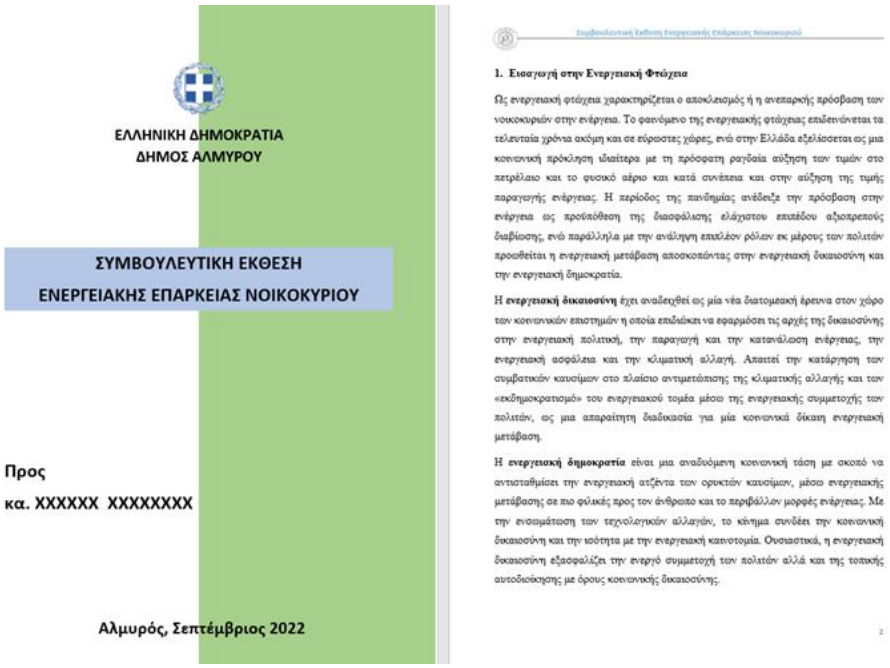


ΕΛΛΗΝΙΚΗ ΔΗΜΟΚΡΑΤΙΑ
ΔΗΜΟΣ ΑΛΜΥΡΟΥ

ΣΥΜΒΟΥΛΕΥΤΙΚΗ ΕΚΘΕΣΗ
ΕΝΕΡΓΕΙΑΚΗΣ ΕΠΑΡΚΕΙΑΣ ΝΟΙΚΟΚΥΡΙΟΥ

Προς
κα. XXXXXX XXXXXXXX

Αλμυρός, Σεπτέμβριος 2022

Συμβουλευτική Έκθεση Ενεργειακής Επάρκειας Νοικοκυριού

1. Εισαγωγή στην Ενεργειακή Φτώχεια

Ως ενεργειακή φτώχεια χαρακτηρίζεται ο αποκλεισμός ή η ανεπαρκής πρόσβαση των νοικοκυριών στην ενέργεια. Το φαινόμενο της ενεργειακής φτώχειας επιδεινώνεται τα τελευταία χρόνια ακόμη και σε εύρωστες χώρες, ενώ στην Ελλάδα εξελίσσεται ως μια κοινωνική πρόκληση ιδιαίτερα με τη πρόσφατη ραγδαία αύξηση των τιμών στο πετρέλαιο και το φυσικό αέριο και κατά συνέπεια και στην αύξηση της τιμής παραγωγής ενέργειας. Η περίοδος της πανδημίας ανέδειξε την πρόσβαση στην ενέργεια ως προϋπόθεση της διασφάλισης ελάχιστου επιπέδου αξιοπρεπούς διαβίωσης, ενώ παράλληλα με την ανάληψη επιπλέον ρόλων εκ μέρους των πολιτών προωθείται η ενεργειακή μετάβαση αποσκοπώντας στην ενεργειακή δικαιοσύνη και την ενεργειακή δημοκρατία.

Η **ενεργειακή δικαιοσύνη** έχει αναδειχθεί ως μία νέα διατομεακή έρευνα στον χώρο των κοινωνικών επιστημών η οποία επιδιώκει να εφαρμόσει τις αρχές της δικαιοσύνης στην ενεργειακή πολιτική, την παραγωγή και την κατανάλωση ενέργειας, την ενεργειακή ασφάλεια και την κλιματική αλλαγή. Απαιτεί την κατάργηση των συμβατικών καυσίμων στο πλαίσιο αντιμετώπισης της κλιματικής αλλαγής και των «εκδημοκρατισμό» του ενεργειακού τομέα μέσω της ενεργειακής συμμετοχής των πολιτών, ως μια απαραίτητη διαδικασία για μία κοινωνικά δίκαιη ενεργειακή μετάβαση.

Η **ενεργειακή δημοκρατία** είναι μια αναδυόμενη κοινωνική τάση με σκοπό να αντισταθμίσει την ενεργειακή ατέλεια των ορυκτών καυσίμων, μέσω ενεργειακής μετάβασης σε πιο φιλικές προς τον άνθρωπο και το περιβάλλον μορφές ενέργειας. Με την ενσωμάτωση των τεχνολογικών αλλαγών, το κίνημα συνδέει την κοινωνική δικαιοσύνη και την ισότητα με την ενεργειακή καινοτομία. Ουσιαστικά, η ενεργειακή δικαιοσύνη εξασφαλίζει την ενεργό συμμετοχή των πολιτών αλλά και της τοπικής αυτοδιοίκησης με όρους κοινωνικής δικαιοσύνης.

INZEB and Minoan Energy Community joined forces to support households in the island of Crete

The Minoan Energy Community, the winner of the EUSEW 2022 for local action joined forces with INZEB to alleviate energy poverty in the island of Crete. The energy community is paving the way for free electricity for all and was recognised by the European Commission for pioneering citizen-led renewable energy initiatives.

The Minoan energy community has about 230 members mainly residing in the island of Crete in the Heraklion prefecture. Among its members are public bodies, such as the

municipality of Minoa and the Holy Metropolis of Arkalohori. The community has already established one net metering project with a photovoltaic power station of 405kWp and is in the process of developing a second one. Within the municipality of Minoa lies the village Arkalohori which was struck by an earthquake in 2021 rendering many households uninhabitable. Within the vision of the energy community is to be an integral part of the local communities and to contribute to the rehabilitation of the citizens that were impacted by the earthquake who currently live in prefabricated structures located near the village.

The Minoan energy community reached out to the POWEPROOR project, and INZEB organised an onsite training for the members of the community to familiarise them with the POWERPOOR approach, what is energy poverty and how it can be addressed through joint energy initiatives so that they can be energy supporters and mentors and act as local heroes in their local communities and in Arkalohori but also on how they can incorporate energy poverty mitigation actions within the energy community's activities.

The training was followed by an info day held in the Arkalohori village aiming at engaging energy poor citizens and informing them about how they can benefit by being part of the energy community and how they can also benefit from an onsite home visit performed by the local energy supporter. The attendees expressed an interest in the POWERPOOR toolkit and how it can be used, so a dedicated presentation of the toolkit was given.

The energy supporters that got certified continue the work in Crete, by visiting households both in the village of Arkalohori and in other local communities. The board of directors of the energy community that was also in the training and got certified as energy supporters are looking into how they can incentivise energy poor people to join the energy community and how they can provide energy to them with special price. They are using the POWEPROOR toolkit to identify the energy poor within their existing members.

INZEB and WenCoop agreed on the establishment of an Energy Poverty Alleviation Office.

WenCoop is an innovative energy community located in the north of Greece. It was organised with the support of the Greek Association of Female Entrepreneurs with the aim to include more women in the energy sector. The energy community accepted the proposal to organise and operate an Energy Poverty Alleviation Office on its premises. Even through the activities of the EPAO have not reached the maximum, the energy community has promoted in various ways the activities organised in Greece by the POWERPOOR project.

INZEB and Iliotropio Energy Community addressing energy poverty on the island of Lesvos

During the POWERPOOR project implementation, a new energy community was launched in the island of Lesvos. The members of the energy community were active in all project activities, attended the training activities for Energy Supporters and Mentors, and conducted house visits. The main aim of the energy community was to use the POWERPOOR approach to incorporate energy poverty mitigation actions to its daily

activities. The official launch of the energy community was in March 2023 and INZEB was in close contact with the BoD discussing potential joint activities. This was realised as the Energy Community was the first organisation that signed the MoU and joined the POWERPOOR Alliance in Greece. The energy community is committed to using the POWERPOOR ICT tools and working towards energy poverty mitigation.

Enabling Attica energy community to identify their energy poor members.

An already established energy community, Attica energy community that is operating in the region of Attica Greece reached out to the POWERPOOR project. They wanted to identify the energy poor within the members of the energy community. The president of the community's managing board, Maya Andreou, participated in one of POWERPOOR's trainings and got certified as an energy supporter and mentor. She then took it upon herself to visit members of the community, using the POWERPOOR Toolkit to assess their vulnerability, identify the energy poor, and propose soft measures and behavioral changes to enhance their energy efficiency and lower their energy costs. She mainly visited members residing in the northern suburbs of Athens. Typically, people living in the northern suburbs are not considered vulnerable and even if they are they usually are not detected by the welfare system. The home visits however indicated that since the building stock is rather old, and the people's income has been decreasing over the years energy poverty can be found there as well. his project has received funding from the European Union's Horizon research and innovation programme under grant agreement 3 When the energy poor within the members of the energy community have been identified an info day was held in October 2021 to present the results of the home visits, the POWERPOOR approach, and discuss how an energy community and joint energy initiatives with municipalities can help the most vulnerable. The info day was held in the municipality of Kifisia, one of the biggest municipalities in the northern suburbs of Attica and the mayor participated. In the info day the notion of energy poverty was discussed, the results of the home visits in the households of the energy community's members were presented and how the municipality can take part in joint energy initiatives was looked into. The mayor expressed an interest to also establish an energy community within the municipality of Kifisia and both the barriers and the benefits of such a notion were brought forward. Knowledge and experience were shared by the established municipality. All in all, POWERPOOR supports the energy community to incorporate the energy poverty aspect in its day-to-day activities. Find out more about the energy community here.

POWERPOOR as a member of the energy communities cluster in Greece

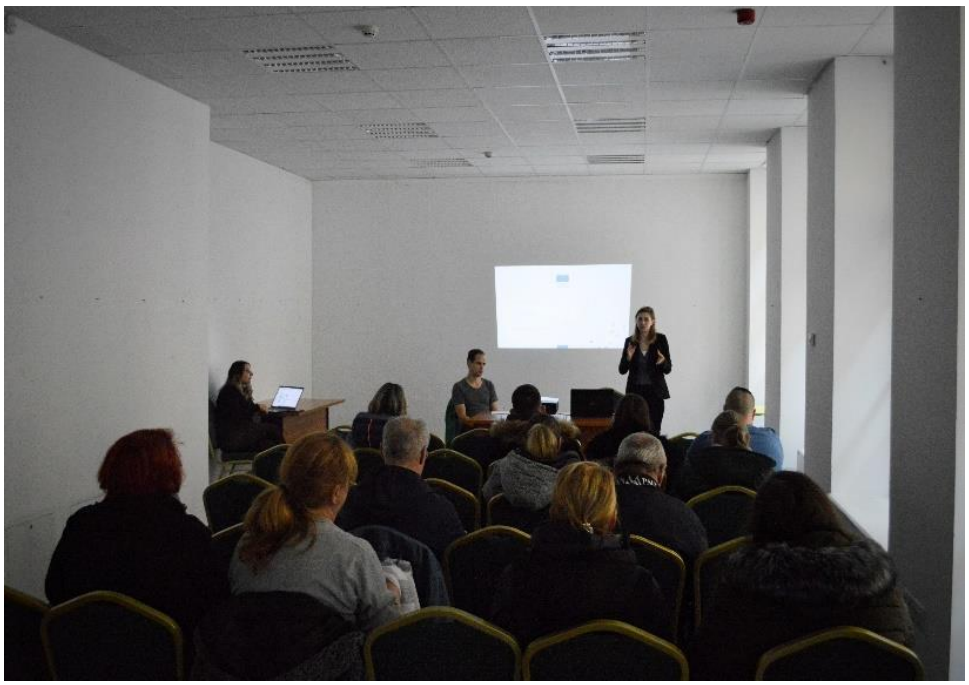
The notion of energy communities is rather new in Greece. They were established by law 4513 in 2018. The law covers several issues as number of members, the mission, the scope of activities, the statutory, etc. Since the law is relatively new, the existing energy communities along with other actors (e.g., NGOs, universities) established a cluster for energy communities, to act as a node of information and knowledge exchange. POWERPOOR is part of this cluster aiming at incorporating the aspect of energy poverty mitigation in the communities' activities as well as to investigate how joint energy initiatives can support energy poverty mitigation actions in general. The cluster meets once a month or sooner if urgent issues arise. In February 2023 the ministry of energy

in Greece reformed the law with an aim of updating the legislation on the use and production of electricity from renewable sources by integrating the EU Directives 2018/2001 and 2019/944. Within the cluster an open letter was drafted for the ministry encapsulating the hands-on experience of the energy communities and proposing changes to the reform that can further enhance the institution of energy communities.
Overall, the effort of aligning the national law with the EU directives is positive however the cluster of energy communities is troubled by the inclusion of new definitions about energy communities that could lead to bureaucratic barriers. The transition from the current to the new legislation can cause further uncertainty in the existing ecosystem of energy communities in Greece. The letter has been sent to the ministry of energy via email.

7.5 Hungary

Assessing energy poverty on local level – technical assistance for Józsefváros (8th district of Budapest)

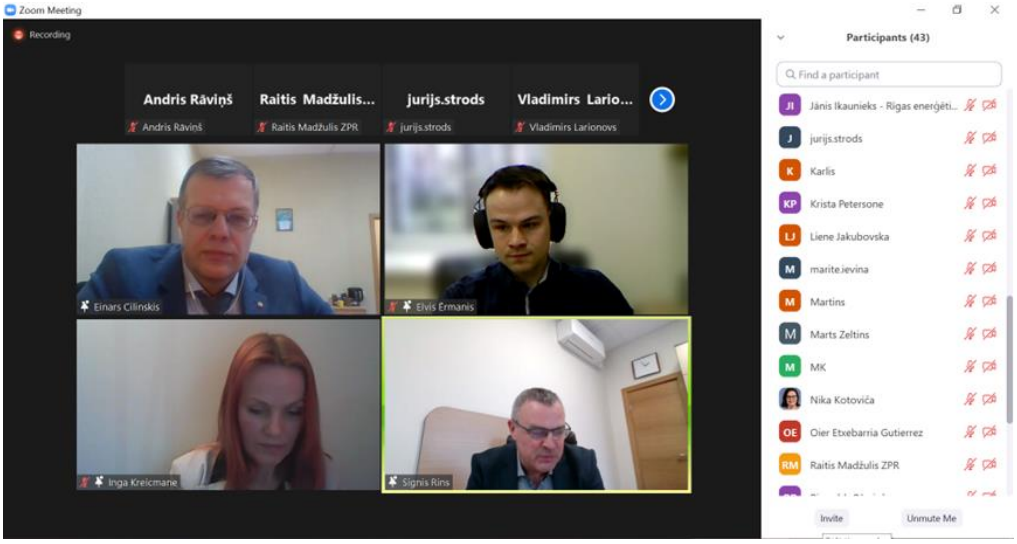
Representatives of Józsefváros Municipality attending the Energy Supporter and Mentor training reached out to Energiaklub to take further action of energy poverty alleviation. The training series provided basis for more detailed assessment of energy poverty situation in the municipality, for which the Energy Poverty Advisory Hub provided the necessary platform. The plan is to spread the concept of energy poverty and prepare social employees of the municipality to be able to provide energy efficiency consultancy to vulnerable households, while simultaneously recording and monitoring energy poverty data. A detailed and tailored questionnaire was developed, and it is constantly being improved to be user friendly, while still detailed enough to allow thorough assessment. Trainings for social workers were tailored based on energy poverty situation in Józsefváros, containing detailed energy efficiency practical lessons and presenting the municipality's SECAP measures currently in force. A certified Energy Supporter presented practical examples from assessing energy poor households. The trainings were highly interactive, gathering as many feedback and field experience from the audience as possible. The participants were municipality employees from social services, child welfare centre, family support office and economic centre of Józsefváros.



Residential workshops were held supposed to raise public awareness about the issue of energy poverty and about ongoing alleviation efforts.

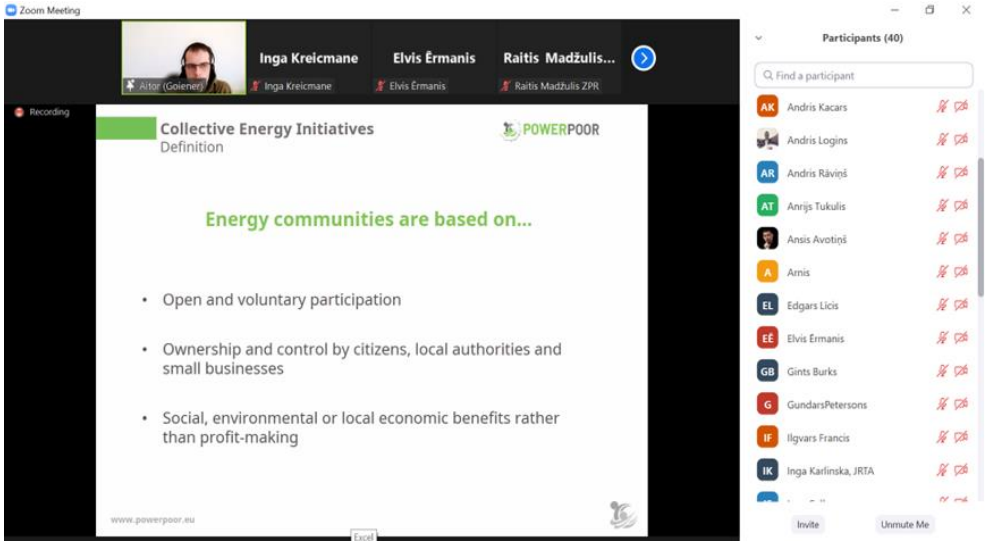
7.6 Latvia

Within POWERPOOR project on 22 February 2022 ZREA organized a special event in cooperation with GOIENER and COOPERNICO – training webinar devoted only to information on energy communities.

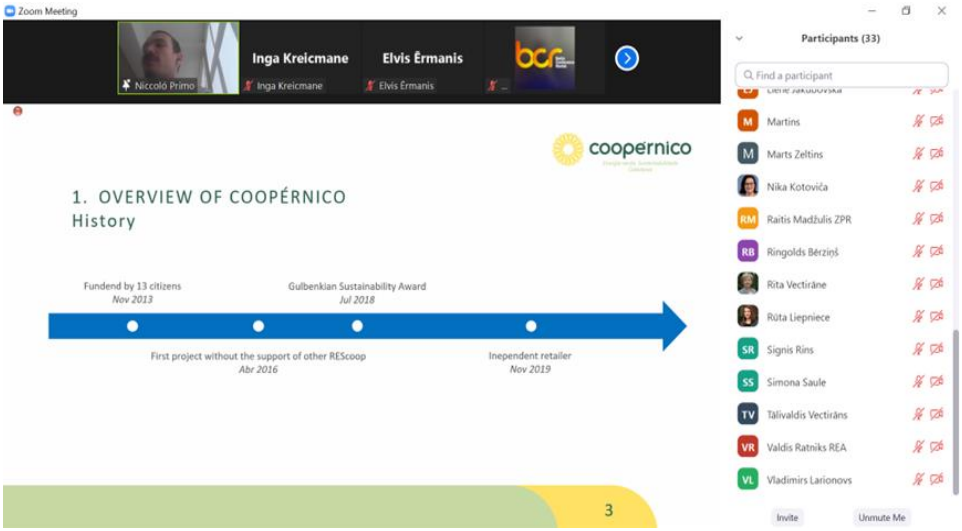


In this webinar the representative from Ministry of Economics, Republic of Latvia gave presentation on the newly adopted legislation on energy communities in Latvia.

POWERPOOR partner - Energy cooperative GOIENER, from Spain (which operates as a non-profit cooperative and generates 14,6 GWh of electricity for its 15`000 members annually) gave a presentation on principles, operation model, best practices and live samples on how the energy community can be established and can operate.



In the webinar the representative from POWERPOOR partner - Energy cooperative COOPERNICO, Portugal (cooperative generates 1.59 GWh for its 1092+ members annually) provided their best practice on how they have been established, what are the models of operation.



In the webinar there was presentation of representative from Riga Planning Region, Latvia, presenting the sample of the first (partial) energy community in Latvia - CO2MUNNITY project - first steps into establishing an energy community in Latvia.

The obtained information has been used further in individual house visits/consultations explaining the possibilities that will have each citizen currently and in the nearest time.

Such events on joint initiatives/energy communities have played a crucial role in raising awareness, educating stakeholders, fostering collaboration, and empowering communities. By bringing together diverse perspectives and knowledge, these events contribute to the transition to a more sustainable and resilient energy future.

As a result, ZREA worked with two municipalities – Jelgava city and Jekabpils county, (outside the POWRPOOR hours and scope) together preparing and submitting the project proposal for establishing two energy communities - one in Jelgava and one in Jekabpils, and in June 2023 this INTERREG BSR project proposal has been approved.

7.7 Portugal

Telheiras's Renewable Energy Community (Lisbon neighbourhood))

On 17 Feb 2022, Coopérnico participated as a speaker in an informative session called "Renewable Energy Communities: Why? How? and in Telheiras?", at the auditorium of Telheiras' library organized by Parceria Local de Telheiras.

Telheiras is a neighbourhood in Lisbon which has a dynamic citizen movement and Parceria Local de Telheiras, belonging to this area, associates various institutions, organizations and informal groups from Telheiras.

Coopérnico made its presentation "First steps towards achieving a local renewable energy community" and during this informative session could noticed the engagement and mobilization of a Working Group from Parceria Local de Telheiras, called Comunidade de Energia de Telheiras, for the creation of a REC, whose objective was to involve a local authority – the Parish Council of Lumiar, residents of Telheiras neighbourhood and also energy poor families.

Later, under the POWERPOOR project, several members of this Working Group of Telheiras became POWERPOOR Energy Supporter and Mentors, a situation that boosted several joint working meetings.

With Coopérnico's expertise in REC complemented by the support of internal capacity building workshops provided by POWERPOOR Team, Coopérnico and this Comunidade de Energia de Telheiras working group developed joint efforts. This partnership was further strengthened when Plataforma Local de Telheiras & Parish Council of Lumiar were jointly selected in 2022 to receive free technical assistance through the EPAH program. EPAH invited Coopérnico as an institution that provides technical assistance for the creation of the Telheira's REC, in Lisbon.
Comunidade de Energia de Telheiras working group aims to promote collective self-consumption and energy sharing in Telheiras neighbourhood. This REC integrates the implementation of measures to combat energy poverty through energy sharing

between local public entities and the citizens of Telheiras. In a first step, the REC will consist of a Parish Council of Lumiar building where the panels will be installed on the rooftop, the Parish Council of Lumiar itself and 17 residents of Telheiras's neighborhood where 3 of these people are beneficiaries of the social energy tariff.

Collaboration with the Sister project CEES

When the European project CEES started in June 2021, Coopérnico was already involved in POWERPOOR for 9 months. Both projects aim to tackle energy poverty and touch each other in some points.

Knowledge and experience gained during POWERPOOR's first months were applied in the way Coopérnico carried out CEES's tasks, namely the home visits. Home visits are quite difficult to raise without support of local entities able to identify vulnerable families in their territory and at the same time they can validate Coopérnico's work within the community thus ensuring our suitability. At CEES we added the offer of an energy box, albeit modest, to encourage people to accept home visits.

The start-up delay between the two projects allowed CEES not to start completely from scratch when it started, thus avoiding some barriers encountered in the course of POWERPOOR. That is, the approaches taken by CEES were already elaborated on top of the experience that POWERPOOR provided to Coopérnico.

We see as a positive point the application of knowledge and experiences acquired within the scope of POWERPOOR project, interconnecting with a sister project to achieve greater success.
Coopérnico is studying the possibility of CEES project incorporating the national network of POWERPOOR Energy Supporters and Mentors in order to maintain home visits in a sustainable way.

POWERPOOR Energy Supporters and Mentors
Several Energy Supporters and Mentors have completed POWERPOOR training and certification to support local communities with which they already have other commitments.

This was the case of an Energy Supporter from Olhão, Algarve (south of Portugal), who is involved with the fishing community on the island of Culatra and who, together with the University of the Algarve, intend to create a renewable energy community and support the population to implement measures to improve energy efficiency.

An Energy Mentor, from Porto, who is involved with a small town with 132 inhabitants, in Alfândega da Fé (north of Portugal), in a project that aims to transform it into an "intelligent village, a more sustainable place from an energy point of view" intends to empower the community with the knowledge acquired in the training and based on the experience of home visits that he has been developing.
The national network of Supporters and Mentors has a Mentor from Coimbra (central Portugal) who is a fellow in another European H2020 project, REVERTER, and who in

home visits reconciles both projects, further complementing capacity of citizens in vulnerable situations.
This POWERPOOR Energy Mentor represented Portuguese Supporters and Mentors network at International Social House Festival in Barcelona bringing his little daughter as he did on home visits carried out that made him more approachable and increased trust between him and the vulnerable consumers.

Coopérnico has been committed to presenting POWERPOOR in various community groups in Lisbon's neighbourhoods and with this developed collective capacity sessions triggering very interesting group dynamics, from which it has been able to attract home visits. These sessions help people to build confidence and better understand the work we are doing.


7.8 Spain

Energy communities, empowering the citizens

Enherkom is a Renewable Energy Community located in the municipality of Hernani, in the region of Gipuzkoa. The energy community is part of a broader project called Hernani Burujabe, which was initiated by the citizens and the Municipality of Hernani, to support and create collective initiatives in different sectors such as energy, food, care, housing or the local economy. The energy community was established as not-for-profit energy cooperative, and its main goal is to promote the energy transition in a participating, democratic and collective way.

From the very beginning, Enherkom has had a social perspective present throughout its creation process, and it has maintained communication with the municipal social services and AMHER, an association that supports marginalised collectives. In the same way, Fermin, one of the members of the energy community, participated in the POWERPOOR's trainings in October of 2021, and obtained the certification as a Mentor. Since then, more members of the energy community have participated in the trainings to better understand the problem of energy poverty and to take steps in alleviating this phenomenon.

As most of the energy communities usually do, one of the goals of Enherkom is to produce energy locally, and the energy community started working on a photovoltaic self-consumption system which will share the electricity among its members, including vulnerable households. However, they have further goals than to only produce energy, and from the beginning they identified two other activities to start from. One of them is to provide a service to the municipality, in close collaboration with the social services, to directly address energy poverty by improving the situation of the people who receive municipal grants. The most vulnerable families will be identified by the social services, in order to advise them on how to lower their energy costs as well as how to improve

their comfort at home, implementing the POWERPOOR methodology. For that purpose, Enherkom is in close collaboration with the energy cooperative Goiener, who supports it through the POWERPOOR trainings and resources as well as the cooperative's own expertise on the topic. Through this service, the energy community will contribute on improving the situation of the vulnerable collectives, at the same time it will improve the municipality's capacity to support the citizens on energy poverty.

In the same line, POWERPOOR Info Days where organised in Hernani by Goiener, the project's local partner, in collaboration with Enherkom and the local municipality. The event was held on the 22nd and 23rd of September 2022, and in total 75 people participated talking, listening and reflecting about how to address energy poverty from the different angles, focusing on energy communities and energy offices. It is to mention that many of the speakers where POWERPOOR's Energy Mentors, and that very interesting discussions came up during the two days.

In addition to the mentioned ones, the third activity that Enherkom wanted to carry out was to establish an energy office, to advise the citizens about energy-related aspects. In fact, that was the first activity of the energy community after its creation, as it is responsible of the energy office that the municipality opened in November 2022. The response of the citizens was unexpectedly high, as in its first 4 months of operation over 400 people attended, and all of them received the support from the Energy Mentor. When it comes to the profile of the assistants, the majority of assistants were women over 45 years of age. Most of the enquiries have been related to the energy bills, partly due to the increase of the energy prices in the last months, but they also advice about energy communities, energy efficiency or renewable energy sources for example, applying the POWERPOOR methodology. Seeing the large interest of the citizens for the energy office, several special sessions have been organised in the different neighbourhoods of the town and in a center for retired people.

When it comes to the location, the energy office was first located in Iturola, a collaborative space for socioeconomic initiatives that work on social transformation, where the local energy community Enherkom is based. However, in order to be closer to citizens and specially to vulnerable collectives, the energy office was moved to the Municipal Consumer Information Office, in the building of the municipal social services.

Looking towards the future, the energy community is in communication with another cooperative that works in the care sector, in order to collaborate in a project that pretends to improve the wellbeing of the elderly. The project will work with the elderly through the help of local volunteers, and Enherkom wants to bring its expertise on energy and community work to support this vulnerable collective.

Similar to Enherkom, there are many other energy communities that want to support citizens through energy offices and that have participated in the POWERPOOR trainings to take steps in this direction. To mention some, Berener in the town of Bergara and Baleki in Balmaseda are some examples that are supporting the citizens in energy-related aspects, both being part of larger social transformation initiatives in their local context. Another example is Alumbra, that carried out a crowdfunding campaign to finance a photovoltaic self-consumption project in the municipality of Arroyomolinos de León, and is working also in the pedagogic aspects of energy.

The public administration, key to address energy poverty

The Basque capital city of Vitoria-Gasteiz is also making steps towards alleviating energy poverty in the city from several angles, with the initiative and involvement of two key departments of the city council: the Social Policy Department and the Department of Territory and Action for Climate.

From one side, the municipality started to work on the energy poverty problem through the social services, as it is closely related to vulnerable collectives, and from the other side it is also supporting the creation of energy communities in the different districts and areas of the city. But empowering citizens and tackling energy poverty is not an easy task, and it requires time and effort to put the public administration as well as the society towards a more democratic and just system, in this case regarding the energy.

From the first moment that the POWERPOOR project started to organise the trainings, representatives from the city council participated on them in order to know more about the topic and to start enhancing the municipality's skills to alleviate energy poverty.

Concretely, three representatives of the Sustainability, Climate and Energy service as well as a representative of the public rehabilitation agency participated in the trainings, in June and October of 2021. In addition, later one of the representatives participated again in a training, to get updated about the situation of energy poverty and ways to tackle it.

At the same time, the municipality has been carrying out several activities in relation to energy poverty, thanks to the collaboration with Goiener, that was started previous to the POWERPOOR project. The activities were open to all citizens, but the focus was put mainly on the households that were receiving the support of the municipal social services, and in this way the identification of vulnerable citizens was done directly by the civil servants. The main activity carried out were workshops to understand the energy bills (electricity and natural gas) and to optimize the energy contracts in order to pay just what is needed and no more than the necessary. These workshops were offered to the general public, but also specifically to professionals that work on the fields as well as to the vulnerable households identified by these professionals. In addition to the workshops, other activities were also carried out, such as home visits, communication material or the one-on-one sessions on energy bills. Throughout all these activities, the POWERPOOR project, including its trainings, tools and home visits were promoted to the citizens as well as to the professionals, highlighting the relevance of collective initiatives, and giving them the opportunity to participate in the project.

In parallel, the city council carried out an awareness-raising campaign about energy communities, as part of its service to support the creation of energy communities in the

city. The campaign started on March 2022 in the Europa Conference Centre of the city, with around 300 participants that heard about what are the energy communities, what kind of projects can they carry out or what kind of economic and social benefits they can bring to the local community, and the POWERPOOR project was mentioned as a good practice to fight energy poverty. After this initial conference, the city council carried out over 15 events across the different neighbourhoods in the following months, to get closer to the citizens and to promote the creation of energy communities. About 400 citizens participated in these sessions in total, and some material of the POWERPOOR project was used to introduce the topic of energy poverty as well as to promote the project's trainings.

As a consequence of the dissemination and promotion, many citizens participated in the POWERPOOR trainings, many other showed interest but could not participate, and currently there are 13 certified Energy Supporters/Mentors in the city, many of them motivated to establish energy communities and supporting the vulnerable citizens among their communities or neighbourhoods. Besides, there are many other citizens and professionals that have not carried out or finished the certification process of POWERPOOR because of different reasons, but thanks to the project they know more about energy poverty and the different ways to fight it, including the project's tools, collective finance as well as energy communities.

Regarding the policy recommendations, the city council has received support by the POWERPOOR project from the beginning through several ways, for example through the training seminars, emails as well as face-to-face meetings. In this regard, the project, through the local partner Goiener, provided support to the city council on the preparation of the Integrated Energy Transition Action Plan, as part of the SECAP 2030, making contributions on how to tackle energy poverty from the municipal perspective. In addition, the project has also contributed to include the energy poverty perspective in the service that the local administration provides to support the creation of energy communities.

It is also worth mentioning that synergies have been created with an urban renovation project carried out by the municipality, which is focused on one of the most vulnerable neighbourhoods of the city. In this case, besides the workshops and informative sessions about energy bills and energy communities in the neighbourhood, the local administration has started to provide a direct advisory service about the energy bills to the citizens, in coordination with the renovation office, where Energy Mentors support the citizens.

In addition to the city of Vitoria-Gasteiz, many other local or regional administrations have participated in the POWERPOOR project in a similar way, establishing energy offices or including the energy poverty perspective on the already existing offices, to support the local community and to empower citizens on tackling energy poverty and participating in collective initiatives. In this case, some of the examples are the region of Oarsoaldea, Lizarraldea or Tolosaldea, all of them part of a network of energy offices that was created with the support of the POWERPOOR project.

From one, to many

Individual citizens can also lead the initiatives to tackle energy poverty by themselves, and that is the case of Nestor and Miren, two motivated and dedicated Energy Mentors. Both of them approached the POWERPOOR project thanks to the open calls that were made to promote the trainings, and after they participated in the online trainings, they got certified as Energy Mentors.

Miren Egiguren Maguregi
Prejubilada – Banca
(Bilbao / Ondarroa)
miren.egiguren@gmail.com

Miren likes to work as a volunteer to contribute to the community, and she was aware of that the issue of energy poverty needs many hands and a lot of energy, in its both senses, in order to improve the situation. So directly after she participated in the POWERPOOR trainings and got certified as an Energy Mentor, she started to help other

citizens in energy-related topics. First, she contacted the people around her, mainly the people she already knew before, and quickly started to advise them on how to improve their situations at the same time as they saved energy and money. She did this through phone calls, online communication and home visits, and she provided the support with the POWERPOOR toolkit as well as other resources and the knowledge obtained in the trainings. She has supported more than 20 households in her hometown Ondarroa and in the city of Bilbao, mainly through advice about how to improve the energy contracts and the energy use, as she explained in a newspaper interview. She also helped to improve the energy efficiency in the different cases she encountered in the home visits, for example fixing windows that do not close well or putting timers on electric appliances.

Miren also collaborated with the Red Cross, participating in several sessions, and thanks to this she reached more vulnerable households to support them on their energy use and bills. To keep updated on the situation of energy poverty and to keep learning, she participated again in the POWERPOOR trainings, where she also shared her experience, which was enriching for the rest of the participants. In that way, she has been a very motivated Mentor, not only supporting households but also supporting other Mentors and Supporters. In addition to the mentioned, she participated a couple of times in the informal online gatherings organised by POWERPOOR, where she could get answers to some of her questions. At the same time, she shared her experience together with the rest of Supporters and Mentors participating in these events. She also has been eager to help other Supporters and Mentors in carrying out home visits, helping them to make the first step. In order to broaden the POWERPOOR network, she has been motivating people around her to participate in trainings, and also trying to get involved her municipality in alleviating energy poverty.

In the case of Nestor, he had initiated a group in his town, Eskoriatza, to work on the collective self-consumption, and was interested in the creation of an energy community. That is why he joined the trainings of the POWERPOOR project; and he got more than what he was looking for, as he also got trained about other aspects such as energy efficiency, energy bills as well as improvement measures. With all the learnings of the trainings and the support of the project's resources, he started to advise the people of his town in energy-related aspects, mainly by helping them in understanding their energy bills and in improving their energy consumption and expenses with simple measures. He did it mainly through home visits or face-to-face communication, but he also used an online forum of the town to give advice. In addition, he also organised several workshops and collective sessions using the project's resources and with the support of the cooperative Goiener as well as the local group of Jauzi Ekosoziala, to inform and advise the citizens about energy-related aspects, among others the optimization of the energy contracts. Thanks to all these activities and advice, Nestor with the support of his local community, has contributed to empower the inhabitants of his town, and it is estimated that the total amount of economic savings has been about 20.000 €/year, to a large degree by optimizing the natural gas contracts. As an example of a particular case, only by improving the habits of energy consumption in a household, a yearly saving of 500 kWh was reached.

8. Conclusion

The POWERPOOR project has developed energy poverty support programmes in the eight pilot countries. The support programmes were based on the network of the trained and certified energy supporters and mentors and many key results were achieved from their work on the field with energy poor citizens and policy makers to lower energy poverty levels across Europe by encouraging behavioural changes and small-scale energy efficiency interventions and the uptake of renewables while leveraging innovative financing schemes. In this report the main outcomes of the energy poverty support programmes were presented. The KPIs and milestones to mitigate energy poverty in the national countries through the support programmes were mostly met and also key results and best practices in all the countries emerged. In the previous chapters a detailed elaboration of the activities was presented, and this conclusion summarises the key points of this report.

Bulgaria

- A total amount of 1136 households received direct help in Bulgaria during the duration of the project. ***987 from those were direct home visits and 149 was support through an EPAO.*** The KPI of supporting 820 households was met.
- 33 households provided data in the POWER TARGET and POWER ACT tools. In Bulgaria the use of ICT tools is not widespread and people were reluctant to use them.
- In Bulgaria there are no energy cooperatives established so joint energy initiatives were sought out with municipalities that have decided to run experimental municipal energy communities for RES.
- There are no energy crowdfunding platforms in Bulgaria so SOFENA's approach was to building awareness using the POWER FUND tool.
- 2 Energy Poverty Alleviation Offices (EPAOs) were established in Bulgaria in Sofia and Plovdiv reaching the KPI of 2 EPAOs.
- SOFENA has set up 4 joint energy initiatives in Bulgaria as part of the POWERPOOR energy poverty support programmes.

Croatia

- A total amount of 525 households received direct help in Croatia during the duration of the project. ***440 from those were direct home visits and 85 was support through an EPAO.*** The KPI of supporting 820 households was met.
- 450 households provided data in the POWER TARGET and POWER ACT tools.
- In Croatia joint energy initiatives with energy communities or cooperatives were established with two energy cooperatives KLIK (2nd EPAO) and ZEZ (CEES sister project).
- Integration of POWER FUND in Croatia was done by adding 5 Croatian platforms to the POWER FUND tool.
- 2 Energy Poverty Alleviation Offices (EPAOs) were established in Croatia (in

Zagreb, and Križevci) reaching the KPI of 2 EPAOs.

- DOOR has set up 3 joint energy initiatives in Croatia as part of energy poverty support programme.

Estonia

- A total amount of 725 households received direct help in Estonia during the duration of the project. ***620 from those were direct home visits and 105 was support through an EPAO.*** The KPI of supporting 620 households was met.
- 473 households provided data in the POWER TARGET and POWER ACT tools.
- In Estonia there are few energy cooperatives/communities established so EKYL has joined forces with TREA, the Tartu Regional Energy Agency, an organization very active in the process of analysing and defining the status of energy communities to incorporate the energy poverty mitigation in their endeavours.
- There are no energy crowdfunding platforms in Estonia so EKYL built awareness using the POWER FUND tool.
- 1 Energy Poverty Alleviation Office (EPAO) has been established in Estonia (in Tallinn) reaching the KPI of 1 EPAO.
- EKYL has set up 2 joint energy initiatives in Estonia as part of energy poverty support programmes.

Greece

- A total amount of 1430 households received direct help in Greece during the duration of the project. ***500 of them were direct home visits and 930 were supported through an EPAO.*** The KPI of supporting 970 households was met.
- 1492 households provided data in the POWER TARGET and POWER ACT tools.
- In Greece, joint energy initiatives with energy communities were established with four energy communities: the Minoan Energy Community, WenCoop (also an EPAO established there), Iliotropio Energy Community and ChalkiOn Energy Community.
- There are no energy crowdfunding platforms in Greece, only international platforms such as INDIEGOGO that are used in some cases so NTUA, INZEB and SUSTAINABLE CITY's approach was building awareness of POWER FUND.
- 6 Energy Poverty Alleviation Offices (EPAOs) have been established in Greece (Messini, Souli, Almyros, Tripolis, Aspropyrgos, WeEnCoop Thessaloniki), therefore the KPI of 3 EPAOs has been reached.
- NTUA, INZEB and SUSTAINABLE CITY have set up 7 joint energy initiatives in Greece, as part of energy poverty support programmes.

Hungary

- A total amount of 598 households received direct help in Hungary during the duration of the project. ***508 from those were direct home visits and 90 was support throught an EPAO.*** The KPI of supporting 530 households was met.
- 307 households provided data in the POWER TARGET and POWER ACT tools.

- In Hungary there are no energy cooperatives/communities established so joint energy initiatives were sought with the Solidarity Economy Center (SEC) and the Community Energy Service Company (CESCO) who are working on developing the first citizen-lead energy communities in Hungary.
- 4 Hungarian platforms have been integrated to the POWER FUND tool.
- 2 Energy Poverty Alleviation Offices (EPAOs) have been established in Hungary (Józsefváros, Terézváros), reaching the KPI of 2 EPAOs.
- ENERGIAKLUB has set up 1 joint energy initiative in Hungary as part of energy poverty support programme

Latvia

- A total amount of 434 households received direct help in Latvia during the duration of the project. ***395 from those were direct home visits and 39 was support through an EPAO.*** This number is close to the KPI of supporting 500 households which was also met with the entries in the POWERPOOR toolkit.
- 563 households provided data in the POWER TARGET and POWER ACT tools.
- One energy cooperative/community exists in Latvia so ZREA together with the Baltic Sea Region worked on a new project for the INTERREG BSR programme on the establishment of 5 pilot energy communities, two of them in Zemgale region, Latvia, and this project has been approved in June 2023 and is expected to start.
- Integration of the POWER FUND in Latvia was done by adding 4 Latvian platforms to the tool.
- 1 Energy Poverty Alleviation Office (EPAO) has been established in Latvia (Jelgava) reaching the KPI of 1 EPAO.
- ZREA has set up 1 joint energy initiative in Latvia as part of energy poverty support programmes.

Portugal

- A total amount of 272 households received direct help in Portugal during the duration of the project. ***85 from those were direct home visits and 187 was support through an EPAO.*** The KPI of supporting 880 households was not met but key results emerged from establishing the energy poverty support programmes.
- for 101 households provided data in the POWER TARGET and POWER ACT tools.
- COOPERNICO is the only renewable energy cooperative in Portugal so joint energy initiatives were established when Plataforma Local de Telheiras & Parish Council of Lumiar were jointly selected in 2022 to receive free technical assistance through the EPAH programme.
- Integration of POWER FUND in Portugal was done by adding 2 Portuguese platforms to the tool.
- 3 Energy Poverty Alleviation Offices (EPAOs) were established in Portugal (Ermesinde, Lisbon and Mértola) reaching the KPI of 2 EPAOs.
- Coopérnico has set up 3 joint energy initiatives in Portugal as part of energy

poverty support programmes.

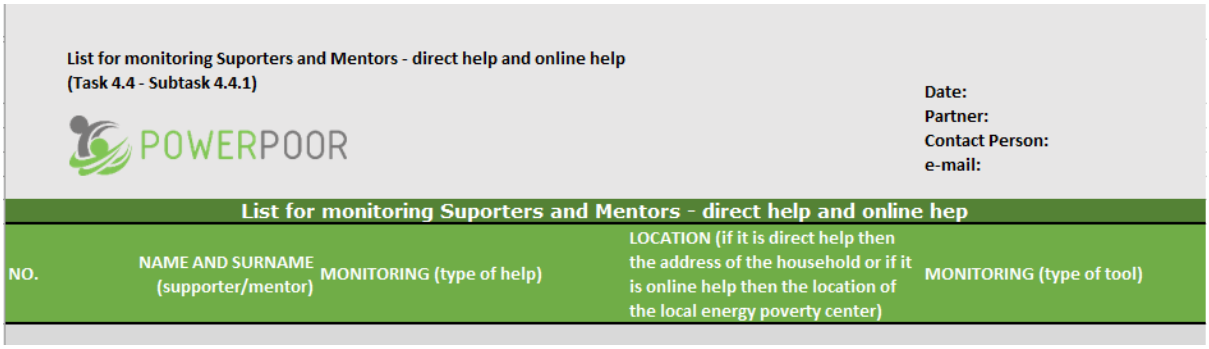
Spain

- A total amount of 2604 households received direct help in Spain during the duration of the project. ***129 from those were direct home visits and 2475 was support through an EPAO.*** The KPI of supporting 1090 households was met.
- 264 households provided data in the POWER TARGET and POWER ACT tools.
- Most energy communities participated but four carried out direct actions to tackle energy poverty: Enherkom (EPAO esablished), Berener (EPAO established), Baleki and Alumbra.
- Integration of POWER FUND in Spain was done by adding 6 Spanish platforms to the tool.
- 5 Energy Poverty Alleviation Offices (EPAOs) were established in Spain (Tolosaldea region, REC Hernani, Tierra Estella region, Oarsoaldea region, Bergara) reaching the KPI of 2 EPAOs.
- Goiener has set up 3 joint energy initiatives in Spain as part of energy poverty support programmes.

ANNEXES

Annex I: List for monitoring Supporters and Mentors - direct help and online help

In Annex I, the excel used to monitor the number of household visits and online counselling of citizens per Supporters and Mentors is presented



List for monitoring Suporters and Mentors - direct help and online help
(Task 4.4 - Subtask 4.4.1)

POWERPOOR

Date:
Partner:
Contact Person:
e-mail:

List for monitoring Suporters and Mentors - direct help and online hep				
NO.	NAME AND SURNAME (supporter/mentor)	MONITORING (type of help)	LOCATION (if it is direct help then the address of the household or if it is online help then the location of the local energy poverty center)	MONITORING (type of tool)

As the excel has many columns and through screenshots is not easy to read, the requested info for the Identification is the following:

- Name and surname

Name the individual (supporter/mentor) (full name).

- Monitoring (type of help)

Choose a category from the drop-down menu next to each of the below cells (direct help – household visit or online help).

- Location

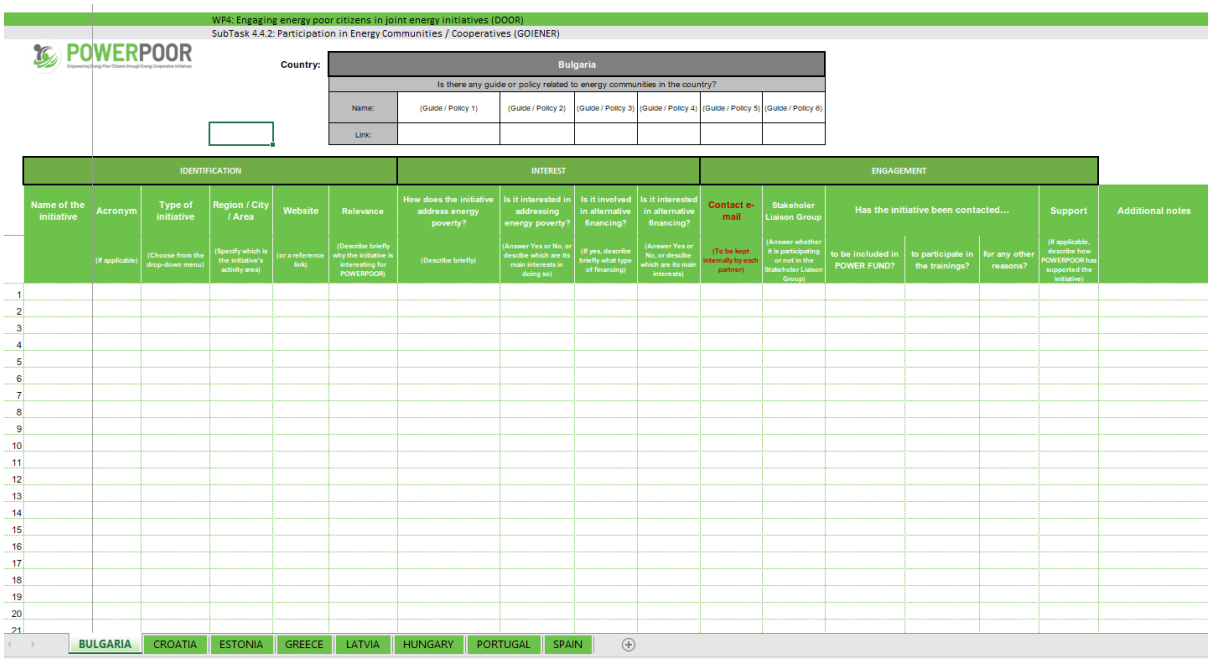
If it is direct help then the address of the household or if it is online help then the location of the local energy poverty center).

- Monitoring (type of tool)

Choose a category from the drop-down menu next to each of the below cells (POWER TARGET or POWER ACT or POWER TARGET and POWER ACT).

Annex II: Initiatives monitoring

In Annex II, the excel used for mapping Energy Communities/Cooperative is presented:



WP4: Engaging energy poor citizens in joint energy initiatives (DOOR)
SubTask 4.4.2: Participation in Energy Communities / Cooperatives (GOIENER)

POWERPOOR

Country: Bulgaria

Is there any guide or policy related to energy communities in the country?

Name:	(Guide / Policy 1)	(Guide / Policy 2)	(Guide / Policy 3)	(Guide / Policy 4)	(Guide / Policy 5)	(Guide / Policy 6)
Link:						

IDENTIFICATION						INTEREST				ENGAGEMENT					
Name of the initiative	Acronym	Type of initiative	Region / City / Area	Website	Relevance	How does the initiative address energy poverty?	Is it interested in addressing energy poverty?	Is it involved in alternative financing?	Is it interested in alternative financing?	Contact e-mail	Stakeholer Liaison Group	Has the initiative been contacted...			Support	Additional notes
	(If applicable)	(Choose from the drop-down menu)	(Specify which is the initiative's activity area)	(or a reference link)	(Describe briefly why the initiative is interesting for POWERPOOR)	(Describe briefly)	(Answer Yes or No, or descibe which are its main interests in doing so)	(If yes, describe briefly what type of financing)	(Answer Yes or No, or descibe which are its main interests)	(To be kept internally by each partner)	(Answer whether it is participating or not in the Stakeholer Liaison Group)	to be included in POWER FUND?	to participate in the trainings?	for any other reasons?	(If applicable, describe how POWERPOOR has supported the initiative)	
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21																

BULGARIA | CROATIA | ESTONIA | GREECE | LATVIA | HUNGARY | PORTUGAL | SPAIN

As the excel has many columns and through screenshots is not easy to read, the requested info for the Identification is the following:

- Is there any guide or policy related to energy communities in the country?
  - Name
  - Link
- IDENTIFICATION
  - Name of the initiative
  - Acronym (If applicable)
  - Type of initiative (Choose a category from the drop-down menu next to each of the below cells (REC (Renewable Energy Community or CEC (Citizen Energy Community or COOP (Energy Cooperative))
  - Region / City / Area (Specify which is the initiative's activity area)
  - Website (or a reference link)
  - Relevance (Describe briefly why the initiative is interesting for POWERPOOR)
- INTREST
  - How does the initiative address energy poverty? (Describe briefly)
  - Is it interested in addressing energy poverty? (Answer Yes or No, or describe which are its main interests in doing so)
  - Is it involved in alternative financing? (If yes, describe briefly what type of

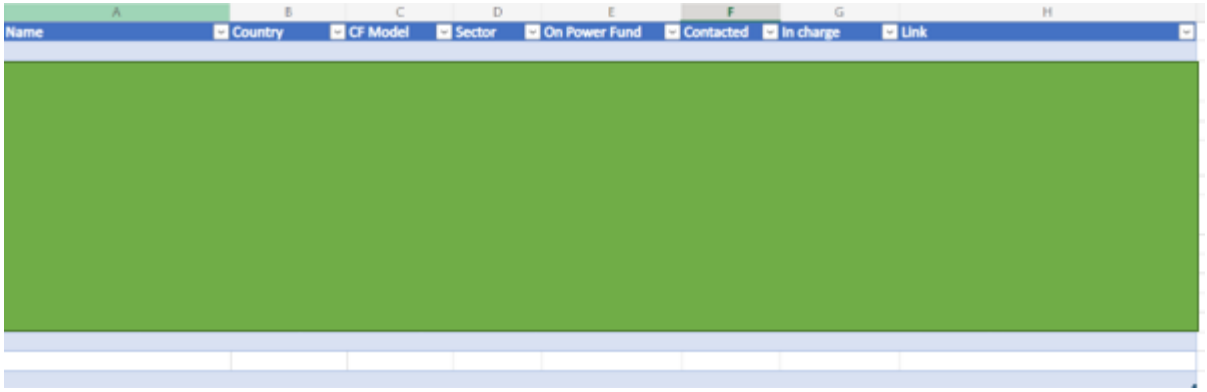
financing)

- Is it interested in alternative financing? (Answer Yes or No, or describe which are its main interests)

- ENGAGMENT
  - Contact e-mail (To be kept internally by each partner)
  - Stakeholders Liaison Group ((Answer whether it is participating or not in the Stakeholders Liaison Group) (Choose a category from the drop-down menu next to each of the below cells (Yes or No)
  - Has the initiative been contacted…
    - to be included in POWER FUND? ((Choose a category from the drop-down menu next to each of the below cells (Yes or No or Already included in POWER FUND))
    - to participate in the trainings? ((Choose a category from the drop-down menu next to each of the below cells (Yes or No or Already participated in the trainings))
    - for any other reasons?
  - Support (If applicable, describe how POWERPOOR has supported the initiative)
- Additional notes

Annex III: Crowdfunding platform mapping

In Annex II, the excel used for Crowdfunding platform is presented.



As the excel has many columns and through screenshots is not easy to read, the requested info for the Identification is the following:

- Name

Name of platform

- Country
- CF Model

Input: Lending, Donation, Reward

- Sector

Input: Genral Energy, Social, Sustainability

- On POWER FUND

Input: Yes or No

- Contacted

Input: Yes or No

- In charge

Input: Name of POWERPOOR partner

- Lin

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