ASSIST 2GETHER

D4.7 Final report on HEA Network Activity, Saved Energy, and Increased Comfort Level

This project has received funding from the European Union's Horizon 2020 research and innovation programme under grant agreement No 754051

Document Information			
Grant Agreement Number	754051	Acronym	ASSIST
Full Title		ASSIST - Support Network for Household Energy Saving'	
Horizon 2020 Call		H2020 - Engaging private consumers towards sustainable energy	
Type of Action		Coordination and Support Action	
Start Date	1st May 2017	Duration	36 months
Project URL		www.assist2gether.eu	
Project Coordinator		Marina Varvesi - AISFOR srl - Italy	
Deliverable: 4.7 Final report on HEA Network Activity, Saved Energy, and Increased Comfort Level			
Nature	R - Report	Dissemination Level	P - Public
Work Package		WP4	
Lead Beneficiary		VaasaETT	
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Revision history			
Number		Date of issue	Description
Rev. 0		18/02/2020	Report template and guidelines
Rev. 1	First	25/04/2020	First complete version
Rev. 2	Second	30/04/2020	Final revisions
Rev. 3	Third	05/05/2020	Inputs from partners
Rev. 4	Fourth	07/05/2020	Last inputs; Final publishable report

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1. Introduction to ASSIST Project

1.1 ASSIST introduction

ASSIST is a 36-months European 'market activation and policy orientation' project to tackle fuel poverty and support vulnerable consumers. It intends to actively engage consumers in the energy market and positively change behaviour in relation to energy consumption and to influence design of policy at all levels to tackle fuel poverty issues.

Based on the conclusion of the Energy Citizens' Forum and of the European Vulnerable Consumers Working Group, the project intends to combine activities addressing both energy and social dimensions as fuel poverty is not only an energy issue nor can it be tackled in isolation of the bigger issue of poverty. More specifically, ASSIST strategic objectives are to contribute to:

- tackle energy poverty both at the grassroot level and policy level.
- reduce the main barriers of the energy market faced by vulnerable consumers.
- support vulnerable consumers to be more efficient with their domestic energy consumption (electricity and gas).

In order to fulfil its goals, the project foresee very diversified, but correlated, research, networking activities as well as in-field actions, consistent with the relevant national and European-wide scenarios.

ASSIST intends to create a network of innovative professional figure to support vulnerable consumers in their domestic energy consumption, the Home Energy Advisor (HEA).

1.2 Home Energy Advisor Network Activity

WP4 objective is to create the network of "Home Energy Advisors (HEAs)" which will gather all the trained HEA to use common practices, materials and organization tools in each country. The HEA networks will guarantee to all consumers the fairness and non-commercial / tertiary activity of the trained HEA. An ICT platform is developed to serve as the network management tool.

- represent a virtual community platform where trained HEA may receive the latest advisory support materials, share their working experience as well as receive continuous training and relevant news

- be the main communication channel to the individual HEA, supporting their maintained interest, enthusiasm and encouraging good performance, and
- represent a first contact point for vulnerable consumers / fuel poor to ask and receive support on their domestic energy efficiency issues and / or social economic issues.

The membership to the HEA network will only be possible after the completion of the ASSIST training course, therefore the above mentioned three bullet points represent a motivation for the interested persons in undertaking and finishing the ASSIST course. The criteria of passing the HEA training vary in each country according to the planned actions and level of expertise required to reach the set energy saving goals for vulnerable consumers.

The work package will carry out the tasks to build and retain the European / National HEA networks, for this purpose a budget is maintained to provide each HEA with a small payment for their services. Partners, according to the national internal regulation of the ASSIST course / network, will foresee small payments to the HEA on completion of the engagement and action with the vulnerable consumers (each country will define the timing and payment schedules, such as a prepayment after the end of the training course, and the final payment after the action addressing 10 vulnerable consumers). The network will also enable to follow and ensure its regular work in supporting vulnerable consumers / energy poor, in order to:

- Address at least 30,000 vulnerable consumers / fuel poor (5,000 in each of the 6 countries involved) through specific mailshots and also regular communication channels (social networks, newsletters, etc.) to inform them on the network and its aim as well as useful and share practical information on energy efficient behaviours.
- Provide soft assistance and support to vulnerable consumers / fuel poor on domestic energy efficiency to 12,000 vulnerable consumers (2,000 in each country) and assisting them in reducing their energy consumption by 2%.
- Provide specific assistance to 750 vulnerable consumers / energy poor within each National action.

The vulnerable consumers to be addressed within the ASSIST action will be identified through several activities as described below:

1) The umbrella organisations identified in WP2 and with which the partners have collaborated for the identification and selection of the training participants (WP3) will

provide support also in designing the action (so as to design a feasible action able to address vulnerable consumers).

2) The most significant umbrella associations identified in WP2 will be invited to be part of the national steering committees. Within the work and activity of the steering committees, they will be able to support the design of a feasible action plan and supervise also its implementation providing useful information in means to address vulnerable.

3) The national nodes of the EAPN will also be members of the national Vulnerable Consumers Steering Committee and will not only support the design of a feasible action plan, supervise its implementation but will also engage their network of social national associations to support the addressing of vulnerable consumers throughout the action. This will be done through their internal communication channels: a communication will be sent to their national network of contacts at the beginning of the project to inform them of the launch of ASSIST, during the design of the action plan to inform them of the action and ask for feedback, and at the start of the action to trigger the process.

4) Partners will work also with municipalities to address vulnerable consumers in the action.

5) Participants of the ASSIST training course will also be used as a channel to reach and address the vulnerable consumers in the action (either those who can be considered as vulnerable consumers and those working in social structures) and in the same manner trainers of the course will also be activated in this stage.

6) Partners will also use their internal and the project communication channels (including the ICT platform) to spread the launch of the ASSIST action and to ensure that the message reaches the vulnerable consumers.

1.3 Deliverable overview and structure

The intention of this document is to assess the HEA networking and advisory activities in different partner countries and demonstrate the measurable results achieved through these different ASSIST activities. ASSIST HEA advisory actions were aiming to help vulnerable families to save energy through energy efficiency measures, reduce energy costs, and to increase the comfort levels in their homes. This deliverable assesses the eventual effectiveness of the advisory actions on the one hand, and the networking support offered by the ASSIST project on the other.

This deliverable consists of two independent parts. Firstly, Chapter 2 describes the national HEA networks and their final performance in each partner country. An overview of ASSIST actions and different types of HEAs performing these actions is provided in Sections 2.1 and 2.2. There is some repetition of content from WP5 (see details of different HEA advisory actions in deliverables D5.3 and D5.5), but as such, this document D4.7 serves also as a good overview of many ASSIST project outcomes. Section 2.3 includes the set of HEA monitoring indicators that were developed to measure the activities of different HEA groups. The indicators, first presented in the interim report D4.6, are updated by the national partners. Partners also analyse the factors that contributed to the HEAs remaining active network members. Recommendations for similar future HEA network projects are also offered.

The second part of this deliverable describes whether the anticipated energy-saving and comfort increase goals eventually were achieved by ASSIST HEA activities. Chapter 3 describes how partners implemented the common European methodology to monitor the impact of HEA actions. It presents how consumer data was collected by HEAs using a common European data collection methodology (ex-ante and ex-post surveys and energy saving calculation tool presented in D4.4 and D4.6). One target was to reduce energy consumption of vulnerable households with 7%. For measuring the change in energy consumption as a result of the HEA actions, we conducted two consumer data collection surveys during a monitoring period of at least 6 months. By comparing the values of consumed energy and the experienced comfort levels, we were able to demonstrate whether ASSIST HEA actions had some tangible outcome among vulnerable households.

Chapter 3 also contains interesting information on which types of consumers were eventually reached and assisted in this monitoring survey. Finally, project partners offer some critical analysis of the commonly developed ASSIST methodology to measure the effectiveness of the HEA networking and advisory activities.

2. HEA network and activities

2.1 Overview of the HEA network members

Home energy advisor (HEA) network members are ASSIST advisors who have successfully completed an ASSIST training programme or initiated a training without full completion but otherwise being an active HEA. ASSIST training programmes are described in deliverables of Work package 3. Typically, not all trained HEAs were carrying out ASSIST advisory actions. Perhaps, a person joined a training course through personal interest but decided not to further contribute to ASSIST project's VC advisory targets due to personal reasons. Table 1 shows the numbers in different countries. The category "Active" relates to those HEAs who are considered active HEA network members either through directly supporting vulnerable consumers as part of some ASSIST action, or otherwise contributing the realization of ASSIT advisory activities.

Table1: HEA Network by HEA category per country

HEA Network members		
HEA category	**Trained**	**Active**
Belgium		
Public Body (OCMW[1])	5	4
Social Workers (Samenlevingsopbouw)	3	3
Energy Companies (Fluvius + VITO)	41	27
Charity (Energy Masters of Camp C[2])	21	10
Others (retired people)	6	0
Soft engagement: Energy cutters	150	150
Soft engagement: Meter readers	250	250
Soft engagement: Public Body (OCMW)	800	800
Finland		
House renovation advisor	11	11
Social worker	1	7
Energy student	15	15
Energy advisor (Network coordinated by Motiva)	11	11
Peer advisor	0	2

[1] OCMW stands for "Openbaar Centrum voor Maatschappelijk Welzijn" in Dutch or Public Center for Social Welfare in English.

[2] Kamp C is the Center for Sustainable Building that supports the activities of the Energymasters in the region of the Kempen in Flanders. The Energy Masters are volunteers that give energy advice to households. However, they do not specifically target energy poor households and are only operational on a small geographical scale (Kempen). As such, the added value of the ASSIST project was that the Energy Masters received a specialised training in targeting households in energy poverty. They also received extra information and tools (e.g. Woonmeter) to not only reduce energy consumption and related costs but also to increase the comfort level of the vulnerable households they visit.

Other energy professionals and interested citizens	5	3
Village assistants	3	19
Italy		
High school students (198 Leroy Merlin, 6 RSE)	204	0
From trade union (FLAEI)	10	4
From various Consumers Associations (Federconsumatori, Adiconsum)	23	9
From various energy companies	24	2
From various private companies (and private consultants)	11	2
From various public bodies	40	0
From social housing operators	3	0
Unemployed (potential VC)	3	0
Social workers (students at University and operators)	25	4
From a charity organization	2	2
Poland		
Social workers	26	26
Municipality workers	44	20
Professional Energy Advisors	83	0
Consumer Associations	7	7
Spain		
Home care professionals from urban areas (home care service)	114	81
Home care professionals from rural areas (home care service)	10	5
Professionals from telecare service	10	3
Professionals from energy companies	4	4
UK		
CCP (Caring for Communities and People) Community Connectors	9	1
From various charities (Barnwood Trust, WECARE, Southern Brooks)	9	3
Energy assessor (EPC private company)	1	1
Money advisor (Citizens Advice)	1	1

In Belgium, there are 76 fully-trained HEAs (i.e. volunteers who completed all the modules of the HEA training successfully), of which 44 are actively working as HEAs, i.e. implementing the ASSIST action and doing home visits. Most trained HEAs are working in energy companies or are social workers. Also, the energy masters of Kamp C were trained as HEAs. In addition, **150 Energy Cutters** and **250 Meter readers** followed, respectively, two modules and one module of the ASSIST training. The network of the Energy Cutters already exists since 2008 and, on 24/05/2019 and 07/06/2019, the Energy cutters followed 2 modules of the HEA training (Module 9 “Relational skills” and Module 10 “Protection and prevention”). The meters readers followed Module 6 “Energy behaviour support”. As the Energy Cutters and meter

readers did not follow the complete HEA training, they were not involved in the implementation of the ASSIST action and they were only involved in the implementation of the soft/engagement activities. In Belgium, 6 information sessions on energy consumption, energy saving measures, energy bill and the use of the Woonmeter for social workers of the Public Centers for Social Welfare (OCMW) were organized. These information sessions had two objectives: on the one hand, to train social workers of the OCMW so that they could inform vulnerable clients about their energy consumption, comfort level and energy bills during their regular home visits; on the other hand, the OCMW had to invite their vulnerable clients to the Energyfit workshops and support to implementation of these workshops (Soft/engagement activity #2). And of course, it is much easier to convince the vulnerable households to register for workshops if they know what the aim of the workshops is in advance.

In Finland, 46 people have been fully-trained as HEAs, but ASSIST actions were performed in Finland by 68 different HEAs with a variety of backgrounds, mainly by energy and engineering professionals and students, house renovation advisors, social workers, and village assistants. The somewhat special proportion is explained through that there were many people who were keenly helping energy vulnerable consumers, but who had not formally completed all training modules required by their ASSIST training programme.

In Italy, there are 122 fully-trained HEAs and 204 high-school students trained with a short HEA course. Out of these, 23 HEAs are active having delivered and reported either soft actions or engagement actions. Most HEAs come from consumer associations, trade unions or are social workers.

In Poland, in total, there are 160 fully-trained HEAs and 53 HEAs who actively perform ASSIST actions. Main types of involved HEAs are social workers, municipality workers, professional energy advisors or people working in consumer associations.

In Spain, there are 93 fully active HEAs. In addition, there are 138 HEAs who completed the whole course and are active within the network and carrying out some soft action activities but are not reporting with ex-ante questionnaires.

In UK, there are 6 fully active HEAs with 17 HEAs who completed the whole course and are active within the network and carrying out some soft action activities but are not reporting with ex-ante questionnaires.

All trained, active, and non-active HEAs were interviewed using different survey tools in December 2019 – January 2020. The results of the interviews are included in

Deliverable 4.5. Please refer to this deliverable for more in-depth analysis on the motivation of different types of HEAs being involved in ASSIST activities.

2.2 Different ASSIST actions carried out by HEA network members targeting to energy saving in vulnerable households

A comprehensive set of innovative support services for vulnerable consumers or energy poor citizens has been developed and categorized in three groups which are 1) soft/engagement actions; 2) dedicated consultancy and 3) synergies with other projects as described in Figure 1. The first category of actions are energy cafés or other engagement events where vulnerable consumers receive advice in the form of factsheets or similar information material that can lead to smaller energy savings, mostly as a result of simple behavioural actions. ASSIST estimates that the soft/engagement actions have led to an average 2% energy saving among the reached vulnerable consumers. This decrease in energy consumption as a result of similar information dissemination campaigns has been proven by other studies. For this reason, the impact of the soft/engagement actions is not monitored in the context of the ASSIST project.

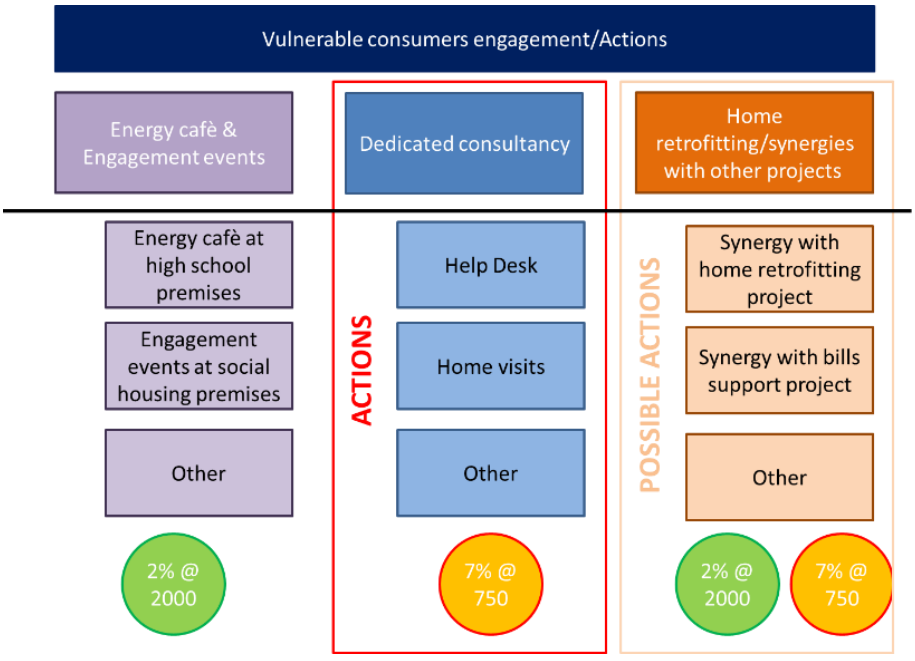

Figure 1. Summary of different ASSIST activities

The second category of actions are the “real” ASSIST actions that address vulnerable consumers directly, through dedicated consultancy. It was expected that these

actions would result into a 7% energy saving among the advised vulnerable consumers. The target of the 7% energy saving was measured through a two-stage questionnaire for a selected group of vulnerable consumers which are presented in D4.4 and briefly in Chapter 3 of D4.6.

ASSIST actions encompass home visits, customised phone calls or email services and help desk consultancy. Consultancy is given to vulnerable consumers in a customised manner, considering the household type and structure, habits, dwelling type, their current economic situation, and possibility to access social or financial support.

ASSIST actions carried out by the HEA network members are thoroughly described in D5.3 and D5.5. The following tables summarise these actions country per country but specifically highlighting which of these actions contributed to the 2% saving target (soft/engagement activities) and which actions contributed to the 7% saving target (ASSIST actions). Whether or not the 7% energy saving target was reached, is explained in Chapter 3.

2.2.1 Belgium

Table 2

ASSIST actions by HEA Network members in BELGIUM and VCs involved					
ID	**Soft/engagement activity**	**Involved HEAs (type)**	**HEAs involved**	**7% action target**	**Households involved**
#1	Home visits and dedicated consultancy by Energy cutters	Energy cutters	150	No	18,000 households
#2	Energyfit workshops for vulnerable consumers	Public body employees	800	No	136 households
#3	Fluvius meter readers give advice	Meter readers	250	No	16,800 households
#4	Flexmail with energy-saving tips	HEA	1	No	6,000 households
	Actions				
#1	Home visits and dedicated consultancy by HEAs	HEA	43	Yes	300 households
#2	Helpdesk counselling	Help desk employees	250	No(*)	168,000 households

(*) As the Helpdesk was already operational and well-functioning, no additional actions were undertaken in framework of the ASSIST project and, therefore, the number of involved HEAs and households reached during the course of the project are not taken into account in the results of the project.

2.2.2 Finland

Table 3

ASSIST actions by HEA Network members in FINLAND and VCs involved					
ID	**Soft/engagement activity**	**Involved HEAs (type)**	**HEAs involved**	**7% action target**	**Households involved**
#1	Energy cafés among vulnerable consumers and other events for VCs	Social worker, energy professionals	9	No	480
#2	Advising via email	Energy professionals, energy advisors	15	No	tens of thousands
#3	Advising via virtual community page (Facebook group @energiatuutorit)	Energy professionals, all HEAs	29	No	20,705
#4	Phone advising	Energy professionals	12	No	50 (minimum)
	Actions				
#1	Home visits	University students, energy professionals, Village Assistants, House renovation advisors	57	Yes	1,120
#2	Energy café follow-up	Peer advisors	2	Yes	10 (minimum)

2.2.3 Italy

Table 4

ASSIST actions by HEA Network members in ITALY and VCs involved					
ID	**Soft/engagement activity**	**Involved HEAs (type)**	**HEAs involved**	**7% action target**	**Households involved**
#1	Advice at home supplies shop (Leroy Merlin)	High school student	198	No	500 households
#2	Energy café at consumer association premises	Consumers Associations	2	No	130 households
#3	Consultancy on financial support	Social workers	1	No	82 households
#4	Education activity at disabled pupils' school	Social workers	1	No	20 households
#5	Energy café + education activity from social worker	Social workers	1	No	35 households
#6	Energy café at energy provider premises	Energy companies	1	No	2 households

#7	Energy café at energy at charity premises	Charity organization	1	No	13 households
#8	Education activity at trade union premises	Trade unions	1	No	7 households
#9	Distribution of material and provision of information to targeted consumers	Trade unions, consumers associations, energy companies, social workers	9	No	3,277 consumers
#10	Online help desk on efficient behaviour and energy bills	Public bodies	1	No	2,958 consumers
#11	Consumers' workshop	Charity organization	1	No	25 households
#12	Consumers' workshop	Consumers	1	No	50 households
	Actions				
#1	Home visits and dedicated consultancy by social/health workers	Social workers	3	Yes	28 consumers
#2	Help desks counselling for vulnerable consumers at consumers association premises	Trade unions, consumer associations	9	Yes	590 consumers

2.2.4 Poland

Table 5

ASSIST actions by HEA Network members in POLAND and VCs involved					
ID	**Soft/engagement activity**	**Involved HEAs (type)**	**HEAs involved**	**7% action target**	**Households involved**
#1	Helpdesk in Energy Bus;	1	15	No	430
#2	HEA's relatives;	3	20	No	500
#3	Helpdesk advice in local FK branches;	1	5	No	700
#4	Helpline – phone;	1	2	No	600
#5	Meetings with consumers.	2	5	No	100
	Actions				
#1	HEA's home visits by municipality advisors;	3	46	Yes	925
#2	HEA's home visits by consumer organisation;	1	7	Yes	250
#3	HEA's tailored desk advices and solutions.	1	10	Yes	700

2.2.5 Spain

Table 6

ASSIST actions by HEA Network members in SPAIN and VCs involved					
ID	**Soft/engagement activity**	**Involved HEAs (type)**	**HEAs involved**	**7% action target**	**Households involved**
#2	Energy cafès	Home care professionals from urban and rural Home Care Service and professionals from energy companies	11	No	190 households (456 consumers)
#3	Energy advice by coordinators of the Home Care Service	Coordinators from urban Home Care Service	4	No	60 households (144 consumers)
#4	Energy advice by HEAs from Home Care Service for users that are not participating in the ASSIST actions	Home care professionals from urban and rural Home Care Service	86	No	701 households (1682 consumers)
#5	Energy advice by HEAs from Tele Care Service for users that are not participating in the ASSIST actions	Professionals from Tele Care Service	3	No	200 households (480 consumers)
#6	Sending advice through newsletters	Professionals from energy companies	1	No	1134 households (2722 consumers)
	Actions				
#1	Home visits and dedicated consultancy from home care professionals from public social services in big urban areas;	Home care professionals from urban Home Care Service	49	Yes	141 households (280 consumers)
#1B	Home visits and dedicated consultancy from home care professionals from public social services in urban areas;	Home care professionals from urban Home Care Service	32	Yes	85 households (161 consumers)
#2	Home visits and dedicated consultancy from home care professionals from rural areas;	Home care professionals from rural Home Care Service;	5	Yes	26 households (54 consumers)

#4	Help desk in rural areas by tele care professionals.	Professionals from Tele Care Service	3	Yes	61 households (89 consumers)
#5	Contract adjustment and energy advice to end users through energy professional HEAs	Professionals from energy companies	4	Yes	62 households (171 consumers)

2.2.6 UK

Table 7

ASSIST actions by HEA Network members in UK and VCs involved					
ID	**Soft/engagement activity**	**Involved HEAs (type)**	**HEAs involved**	**7% action target**	**Households involved**
#1	Community Events – health support groups	Charity and money advisors (active and non-active).	2 active and 3 non active.	No	99 x vulnerable consumers at events; FOD Dementia Awareness Day x 38; Tewkesbury Mens Group x 16; NHS Health Bus x 25; Mental Health and Wellbeing Day x 20.
#2	Advice sessions Springboard Groups	Charity and money advisors (active and non-active).	2 active and 3 non active.	No	93
#3	Fuel Poverty Awareness day Information stand	Charity and money advisors (active and non-active).	1 active and 1 non active.	No	50
#4	Leaflet distribution to IMD areas	Charity/money advisors.	1	No	14200
#5	Energy advice at CCP Drop-In Centre	Non-active HEAs.	8	No	150 per month
	Actions				

#6	Home visits by social/health workers	Active HEAs recruited from charities, consumer organisations and private energy assessor company.	6	Yes	147

2.3 Performance of HEA networks

A set of HEA monitoring indicators, to measure the activity of different HEA groups, was presented in D4.6. The indicators were chosen to evaluate HEA management practices and their effectiveness. The HEA network activity was monitored by the project partners. Some partners used a dedicated area on the Moodle platform for monitoring the HEA network activities, however, also other tools such as Excel tables were utilised. We refer to deliverables D4.3 and D4.4 for a description of the Moodle platform and the dedicated area to monitor KPIs.

This section includes the monitoring results as well as best practices identified by the partners to encourage HEAs to remain in the network and be more active in their advisory actions. In addition, problems faced in keeping up the network are presented for each country.

2.3.1 Belgium

Table 8 - HEA Activity Monitoring Table, Belgium

Total amount of trained HEAs		**76**
HEA Activity (BE)		
How active have the trained HEAs been?	**Activity**	**Result**
	Has participated in at least one Action	44
	Has participated in a HEA meeting	35
	Has logged into the HEA platform	76
	Has contacted the HEA network coordinator	76
	Visits (monitoring 300 households)	44

Table 9 - HEA Reward Impact Monitoring Table, Belgium

HEA Rewards (BE)		
What type of rewards have been used to motivate HEAs?	**Reward**	**Result**
	Monetary compensation	0
	Public endorsement	5
	Gift card	0
	Employment opportunity networks	0
	Quality of HEA training	5
	Sponsorships for events/trainings	0
	Woonmeter[3] (each active HEA was given a woonmeter to support him/her in giving advice to the vulnerable consumers and were allowed to keep it)	5

0 = Engagement method not used
1 = Results have been very negative
2= Results have been slightly negative
3 = No Results
4 = Results have been slightly positive
5 = Results have been very positive

Table 10 - HEA Network Engagement Method Monitoring Table, Belgium

HEA Network Engagement (BE)		
How effective have the following HEA engagement activities been?	**Engagement method**	**Result**
	Newsletter bimonthly	5
	ICT Platform updates : extra information on Moodle platform	4
	Discussion facilitation in HEA communications tools	0
	HEA meetups question and answer session (by skype)	5
	Participating HEAs in ICT platform development	0
	Video with practical tips for the HEAs on Soapbox: what to do/not to do, questionnaires, information materials and supporting tools, etc.	5
	Work package for each HEA: woonmeter, energy consumption meter, information brochures, questionnaires, etc.	5
	Interviews with HEAs: 1 video and 1 written interview shared through social media.	5

[3] The "woonmeter" is a simple thermo- and hygrometer with four rules of thumb for correct heating and ventilation. It promotes energy-efficient behaviour, it helps with moisture and mould and it increases comfort. This meter is developed by "Samenlevingsopbouw" (social organisation) and is designed specifically to support vulnerable households.

	HEA Lunch & Learn (5 face-to-face meetings): information session about e.g. the existing network of energy cutters, introduction to the new digital budget meter, quick-start home visits (information materials, supporting tools, do's and don'ts), Belgian energy poverty report.	5

0 = Engagement method not used
1 = Results have been very negative
2= Results have been slightly negative
3 = No Results
4 = Results have been slightly positive
5 = Results have been very positive

Table 11 - HEA Network Management Monitoring Table, Belgium

HEA Network Management (BE)		
How effective have the following management tools been?	Helpdesk for HEA	0
	FAQ / Glossary on ICT platform	4
	Digital reporting tools for HEAs	4
	ICT platform emails	0
	Other email contacts	5
	Scheduled phone calls	5
	Chat software (such as WhatsApp)	5
	Other: HEA Lunch & Learn	5

0 = Engagement method not used
1 = Results have been very negative
2= Results have been slightly negative
3 = No Results
4 = Results have been slightly positive
5 = Results have been very positive

2.3.1.1 Conclusions

1. Factors that contributed to the HEAs remaining in the network and being active

- Work package for each HEA
  - with a small gift for each vulnerable consumer: a woonmeter. This tool measures the temperature and humidity of a house. Most vulnerable customers rent a house with a humidity problem (the fungus causes health problems and the humidity also increases the heating bill). Thanks to this meter vulnerable consumers can monitor humidity and ventilate their homes better. The HEA feels welcome because he/she can give a gift and it is a very useful tool for giving dedicated advice to the vulnerable consumer.
  - with various tools to support the HEA during the home visit: an energy consumption meter, follow-up documents (questionnaires), energy saving brochures for the customer, brochure for the HEA with a nice visual overview of energy saving tips.

- Support the HEA in engaging vulnerable consumers: The social workers had their own "customer database", but for the other types of HEA we supported them actively in engaging vulnerable consumers near their own place of residence.
- SPOC or Single point of contact: the HEA coordinator was also a volunteer; she could give practical tips and also coach and boost volunteers based on her own experience. This person was also responsible for the "helpdesk" for the volunteers.
- Show gratitude and recognition for the engagement of the HEA:
    - call the HEA at regular intervals to ask how the home visits went and to state explicitly that the work of an HEA is greatly appreciated.
    - sending a word of gratitude on the “Day of the Volunteer”.
    - more than half of the volunteers are Fluvius employees: an article appeared in the staff magazine and a video of the volunteers was shown on all screens throughout the company on volunteer's day. We also posted a message on Fluvius' Facebook and the CEO responded positively to it. The video was also shared on the national ASSIST website, Twitter and Facebook account.
- Support with extra knowledge and new material:
    - video message via Soapbox: because the volunteers are geographically dispersed, face-to-face communication is not always evident, so we worked with a video, with all kinds of tips and calls to action (https://Soapbox.nl: you see a video and at the same time you can show your screen with a presentation).
    - organization of Lunch & Learns: this is a face-to-face meeting between the coordinator and the HEAs where information is provided by the coordinator, but above all, these meetings are networking opportunities for HEAs to exchange experiences and practical tips.
- Communication plan: bi-monthly newsletter, phone calls, mails,… The communication plan was very important to keep an overview and to keep the volunteers committed.

	Communication channels	Frequentie	2018	2019	jan	feb	march	april	may	june	july	aug	sept	oct	nov	dec
In start blocks	Training : 2 information sessions + e-learning		x	x	x											
In start blocks	Work package with residential meter	one-time					x	x								
In start blocks	Start-up video	one-time						x								
In start blocks	Additional documentation : Quick Start	one-time								x						
In start blocks	Additional documentation : brochures	one-time									x			x		
Support	Contact by phone	ad hoc						x	x	x		x	x	x	x	x
Support	Mails from functional mailbox	ad hoc			x	x	x	x	x	x	x	x	x	x	x	x
Support	Newsletter	maandelijks				x	x	x						x		x
Support	Q&A session + skype	ad hoc							x	x		x	x			
Survey	Checkmarket 30 respondents	monthly														x
Training	Network moment at noon in Melle	quarterly								x			x			x
Training	Network moment in the evening in Melle	quarterly								x			x			
Communication	Facebook Fluvius											x				
Communication	Flexmail : mailing 40 000 vulnerable consumers	10 tips (1/wk)											x	x	x	
Communication	Staff magazine	nov													x	
Communication	Video clip volunteers	volunteer's day													x	
Communication	stakeholders														x	

Figure 2. HEA communication plan in Belgium

2. Problems faced in keeping up the network

- Practical training: the majority of the HEA's found the training very useful but also experienced the training as being very extensive and theoretical. An additional "practical training" (e.g. at a vulnerable consumer's or trainee's house) would added value: a complete scan of a house, with screening of the energy bill and change of supplier, measuring the electricity consumption of an appliance with the energy consumption meter, measuring humidity with the woonmeter, etc.. The majority of the HEA's that dropped out immediately after the training, described a lack of practical training as main reason for giving up.
- The administration (two-stage questionnaire) was a lot of work.
- Not everyone has the required ICT skills and ICT-hard/software at their disposal.

3. Recommendations for the future

- Recruiting HEAs: more volunteers of the public or social sector because they can include HEA action in their work and already have a good database/network of vulnerable consumers.
- Training: add a practical training and add training on administrative and ICT-related skills (e.g. SharePoint, Moodle, Skype, …).
- Support:
    - Work package for each HEA with information brochures and practical tools (e.g. woonmeter, energy consumption meter) to support the HEA in giving dedicated advice to vulnerable consumers.
    - Communication plan to provide information to the HEAs periodically and provide opportunities to ask questions, share practical experiences and

tips in a structured way; different communication strategies and tools should be used depending on the type of HEA (e.g. age, socio-economic background, qualifications).
    - Organize face-to-face meetings (in addition to online/telephone communication) to provide up-to-date information to the HEAs, to network with other HEAs and share practical experiences and tips.
    - Coordinator that is also engaged as a volunteer/HEA can support and motivate the HEAs based on his/her practical experiences.
- Reduction of the amount of administrative work.

2.3.2 Finland

Table 12 - HEA Activity Monitoring Table, Finland

Total amount of trained HEAs **Total amount of active HEAs**		**46** **68**
HEA Activity (FI)		
How active have the trained HEAs been?	**Activity**	**Result**
	Has participated in at least one Action	68
	Has participated in a HEA meeting	0
	Has logged into the HEA platform	5
	Has contacted the HEA network coordinator	68
	Has participated in a discussion through the HEA communication tools	1

Table 13 - HEA Reward Impact Monitoring Table, Finland

HEA Rewards (FI)		
What type of rewards have been used to motivate HEAs?	**Reward**	**Result**
	Monetary compensation	0
	Public endorsement	5
	Gift card	5
	Employment opportunity networks	3
	Quality of HEA training	4
	Sponsorships for events/trainings	0

0 = Engagement method not used 1 = Results have been very negative

2= Results have been slightly negative
3 = No Results
4 = Results have been slightly positive
5 = Results have been very positive

Table 14 - HEA Network Engagement Method Monitoring Table, Finland

HEA Network Engagement (FI)		
How effective have the following HEA engagement activities been?	**Engagement method**	**Result**
	Newsletter	0
	ICT Platform updates	2
	Discussion facilitation in HEA communications tools	3
	HEA meetups	0
	Participating HEAs in ICT platform development	4

0 = Engagement method not used
1 = Results have been very negative
2= Results have been slightly negative
3 = No Results
4 = Results have been slightly positive
5 = Results have been very positive

Table 15 - HEA Network Management Monitoring Table, Finland

HEA Network Management (FI)		
How effective have the following management tools been?	Helpdesk for HEA	3
	FAQ / Glossary on ICT platform	4
	Digital reporting tools for HEAs	3
	Video interviews	0
	ICT platform emails	2
	Other email contacts	5
	Scheduled phone calls	5
	Chat software (such as WhatsApp)	0

0 = Engagement method not used
1 = Results have been very negative
2= Results have been slightly negative
3 = No Results
4 = Results have been slightly positive
5 = Results have been very positive

2.3.2.1 Conclusions

1. Factors contributing that the HEAs remained in the network and active

All HEA categories had their specifically designed training programmes that often included a VC advisory part to qualify as trained HEAs. It depended on the HEA category whether they did home visits or other ASSIST actions. Gift cards were a good prize to motivate HEAs, however, never alone. HEAs felt connected mainly with their professional identity, and HEA identity served mainly as complementary to this. Many professional HEA groups were doing VC advisory in their daily job already.

Only in few cases HEAs were motivated to be active HEAs without some other motivation, such as a job obligation.

HEAs were mainly contacted directly, either per phone or during physical meetings, and often interviewed by a VaasaETT contact person. HEA surveys were utilised to gather information from HEAs on their network activities, too. These were possible channels to gather information and feedback; voluntary HEAs could not be requested to get involved with any heavy reporting, otherwise HEA role would have appeared too burdensome and de-motivating. HEAs networked and shared experiences mainly among their peers in their professional environments. The virtual platform in Moodle was not used for networking purposes simply as the majority of HEAs were not registered there.

2. Problems faced in keeping up the network

It is hard to encourage people to attend a 40-hours training course, which is non-audited, and work as VC advisors, just during one's free time. Therefore, encouragement from the side of an employer or teacher is necessary. For this reasons, the HEA activity offer needs to appear attractive (albeit free-of-charge). Substantial efforts were required to identify and design suitable forms of participation for each HEA category, and to market these forms for HEAs. HEAs also needed be reminded several times to take action.

3. Best practices

ASSIST consumer research study (ex-ante study reported in Chapter 3) turned out as interesting activity for many HEAs and they were happy to contribute to a data gathering activity of a European project with a meaningful purpose. They could also have a natural starting point when initiating communication about energy issues with the vulnerable consumers they were about to help. Most HEA groups collected ex-ante questionnaires during VC home visits or other ASSIST actions in the second half of 2019.

Combining household energy consumption data collection with VC home advisory has turned out powerful also in another programme (see ASSIST Synergy #4 *Contributing to a household consumption assessment project HARKKA* in D5.3 and this link in Finnish).

All printed consumer material produced by ASSIST that HEAs could distribute during VC advisory activities, turned out useful and motivated HEAs. Such material included the ex-ante surveys and different energy and electricity saving guides. Apparently,

there is a shortage of interesting energy saving material that would address consumers in their personal household contexts.

4. Recommendations for the future

There is a need for vulnerable consumers' energy advisory activities in Finland which is demonstrated by both two ASSIST consumer studies (reported in D5.1 and in Chapter 3 of this report). The energy markets are constantly changing so the need for non-biased information and advisory remains. Different types of professionals, volunteers or students could go on with the work. However, it is always relevant to identify the motivation of each HEA group to remain active network members. Combination VC advisory with their existing job obligations is fruitful and effective.

Setting up new virtual platforms for networking and learning purposes deserves critical assessment. As people these days are already using many different online communication platforms and software, introducing new ones should really pay itself off. Probably HEA networking is fluent using tools and media that HEAs are already using.

2.3.3. Italy

Table 16 - HEA Activity Monitoring Table, Italy

Total amount of trained HEAs by 28.06.2019 **Total amount of trained HEAs by end of February 2019**		**91** **122**
HEA Activity (IT)		
How active have the trained HEAs been? **Add the total number among all HEAs**	**Activity**	**Result**
	Has participated in at least one Action	12 (+20 soft actions)
	Has participated in a HEA meeting	Approx. 30
	Has logged into the HEA platform	74
	Has contacted the HEA network coordinator	Approx. 50
	Has participated in a discussion through the HEA communication tools	0

Table 17 - HEA Reward Impact Monitoring Table, Italy

HEA Rewards (IT)		
What type of rewards have been	**Reward**	**Result**
	Monetary compensation	4*

used to motivate HEAs?	Public endorsement	0**
	Gift card	0
	Employment opportunity networks	3
	Quality of HEA training	4
	Sponsorships for events/trainings	4***
	Other: Leverage on personal willingness to provide assistance (social leverage)	4

0 = Engagement method not used
1 = Results have been very negative
2= Results have been slightly negative
3 = No Results
4 = Results have been slightly positive
5 = Results have been very positive

* It had been agreed with different actors (mainly consumer associations, trade union) – more than 500 questionnaires had been budgeted to be carried out by 23 HEAs. Due to problems in the development of the actions only 164 ex-ante questionnaires were actually carried out by 14 HEAs

** Regular emails were sent to active HEAs thanking them of the work but it is difficult to state if and how much these were effective as incentives. Further the emails for privacy issues were not sent to all the network members

*** At least 3 HEAs used the ASSIST logo and context to carry out events (webinars, blogs, events). One HEA used the ASSIST model to submit a proposal to request funding at a foundation for the take-up of the model in a small municipality. We have been informed by other HEAs of the sponsorship for events but have never received any formal report.

Table 18 - HEA Network Engagement Method Monitoring Table, Italy

HEA Network Engagement (IT)		
How effective have the following HEA engagement activities been?	**Engagement method**	**Result**
	Newsletter	4*
	ICT Platform updates	3**
	Discussion facilitation in HEA communications tools	3***
	HEA meetup€€s	4 – 5****
	Participating HEAs in ICT platform development	0

0 = Engagement method not used
1 = Results have been very negative
2= Results have been slightly negative
3 = No Results
4 = Results have been slightly positive
5 = Results have been very positive

* Regular emails were going to HEAs on progress of the actions and of the projects – there was a slight reaction from some HEAs, but it proved to be a very tedious activity with a low reaction rate

** Regular updates were published on the ICT platform (and communications were sent to the members to inform them) but no reaction from the HEAs followed

*** Discussion topics were launched on the ICT platform forum but no reaction

**** One virtual meeting was organised between HEAs, only a small number of HEAs participated (approx. 15) but those who participated highly appreciated the event. It was a good opportunity to share experiences and difficulties

Table 19 - HEA Network Management Monitoring Table, Italy

HEA Network Management (IT)		
How effective have the following management tools been?	Helpdesk for HEA	3 - 4
	FAQ / Glossary on ICT platform	0
	Digital reporting tools for HEAs	5
	Video interviews	3
	ICT platform emails	4 - 5
	Other email contacts	4 - 5
	Scheduled phone calls	4
	Chat software (such as WhatsApp)	0

0 = Engagement method not used
1 = Results have been very negative
2= Results have been slightly negative
3 = No Results
4 = Results have been slightly positive
5 = Results have been very positive

2.3.3.1 Conclusions

1. Factors contributing that the HEAs remained in the network and active

The building of the network proved to be a very big challenge. In Italy, the training course was open to all interested operators and more than 200 people registered to take the course. Only in some cases an agreement had been signed beforehand to define the training and the action (with consumer associations, trade unions, municipalities, and high schools within the *Alternanza Scuola Lavoro* scheme). This two-fold strategy enabled the partners to verify the interest in the implementation of energy poverty actions on behalf of operators. Results show that both strategies proved successful but not fully successful:

1.1) **Agreement to implement the actions after the training**. It is important to state that none of these agreements contained a penalty clause (i.e. a clause that penalized HEAs in case the actions objective were not met). In some cases, the agreement included also a payment for the actions implemented whilst in other cases (with public bodies) there was no payment:

a. **5 agreements had been signed for the training of more than 50 HEAs to deliver actions to more than 500 householders with a financial retribution**. All 5 agreements led to some actions but the number of delivered actions was much lower than the one agreed on – only actions to 164 householders. The low number of actions has been justified by the single HEAs / relative stakeholders with the difficulty in addressing people in energy poverty / vulnerability. Another justification given is the lack of time to deliver the action.

b. **1 agreement had been signed with a municipality to train 15 – 20 HEAs and support operators of a municipality helpdesk to be created within the Sustainable Energy and Climate Action Plan (SECAP)**, however, due to internal political change the creation of the helpdesk was delayed and the trained operators did not deliver any action. The support for the implementation of the helpdesk is still in force and hopefully it will be implemented after the end of the project.

c. **1 agreement had been signed to train a very high number of high school students within the school – work programme and for the delivery of soft actions in shops.** The training was delivered as agreed, through a private training platform to satisfy all the privacy issues related with minors. However, the soft actions in the shops were carried out with a very small duration due to logistic issues and agreements with the shops.

1.2) **No agreement signed**. In the majority of the registered people (142), there was no agreement and approximately 50% of the freely registered people concluded the course (76 HEAs out of 142 registered people). This number is very significant for the interest on the topic of energy poverty and in the interest to autonomously increase knowledge and skills to support energy poor / vulnerable consumers.

It is interesting to note that 23 of the 142 registered people came from a private company interested in signing an agreement to have the support of ASSIST to deliver the action. All the registered people finished the training. However, due to internal changes in the private company and to the lack of a real strong interest of the private company, the agreement was never defined and only 2 trained HEAs actually delivered on a volunteer basis some actions.

The other 53 HEAs who registered on a volunteer basis and finished the training course, only 8 were active and delivered either a soft action or an action. All the HEAs were regularly contacted for updates on the action and to check if support was needed on behalf of the ASSIST partners. Most of the HEAs justified the non-delivery of the action with the difficulty in personally knowing and/or contacting consumers in energy poverty / vulnerability. Most HEAs undertook the course for personal reasons with the aim of wanting to help but realized at the end of the course of not being in a position to actually help. In these cases, the network of HEAs could have been a valuable resource but it proved a very difficult challenge to engage all HEAs to promote exchange of experiences and methods. The asynchronous tools (such as forums, emails, notifications, etc.) proved not effective – answers from HEAs were few and late. Synchronous tools such as a webinar, proved effective but it is time consuming.

In some cases, HEAs came from the same context and there was therefore collaboration in the delivery of the actions, in 1 case however the collaboration was managed by the partners and this proved to be very successful. An HEA with a social background organized an energy café in a social housing and the partners suggested the collaboration with an HEA with a technical background. The energy café was managed by the two HEAs with complementary backgrounds and both the HEAs and the participants expressed some very positive comments on the energy café.

The network represents a great added value of the ASSIST model, but a lot of effort is needed to build the network and facilitate the sharing of experiences between the HEAs.

Their long-term relationship with the consumer associations made them aware of all the issues connected to vulnerable consumers: they saw the ASSIST project as a powerful tool to strengthen their skills about such issue and thus be more effective in providing a practical help and concrete support to all the vulnerable consumers.

The idea of being part of a bigger network with other people willing to support vulnerable / poor consumers – collaborating on a social objective

- Using the above indicators, evaluate the VCEA network activity level in your country. Evaluate whether the indicators were useful in your country.
- What problems have you faced in keeping up the network?

As mentioned above, the level of involvement of the HEAs varies a lot and not all the trained HEAs showed the same enthusiasm or capability to carry out practical actions with vulnerable consumers.

Several activities have been implemented by the Italian team to motivate HEAs and promote network amongst the members:

- Publishing news / events on the working area – according to the updated news / events were published but these activities had a very low impact.
- Publishing interviews to key actors in the Italian scenario of energy poverty – videos with interviews to the 10 experts and published on the ICT working area however also in this case with a low impact

- Organisation of a webinar to promote dialogue and exchange of experiences – a webinar was organized and was attended by most of the active HEAs and it was considered very useful and valuable. It was decided to organize more.

- Direct and general communications – several emails were sent to inform the HEAs on the updates and timing of the activities. Impact of these activities, especially with the active HEAs, was positive

  After the summer (after 1 year from the launch of the training opportunity) a communication was sent to all Italian HEAs that in case they would not implement an action (be it informative or practical) their membership to the Italian HEA network (and their account on the ICT system) would be suspended. Most HEAs did not answer this email but it did help to push those HEAs that were slowing down or drifting away from ASSIST.

  The Italian partners adopted the strategy of “suspending” the account of non-active HEAs. 15 accounts were suspended during the training, 18 accounts are still active and on-going on the training (these are mainly the operators from the municipality). 36 accounts were suspended after the ending of the training course for not implementing the action and not showing any interest in the network. The “suspension” policy adopted by the Italian team filtered the HEAs and enabled to set the basis to build a network with ONLY HEAs active or at least truly interested in delivering the action.

2. Best practices

Some HEAs have carried out some very interesting actions which are worth reporting:

- An HEA has submitted a proposal to a foundation for the take-up of the ASSIST model (training – network – action) on behalf of a small municipality in Tuscany. The Italian partners have provided a letter of support to the proposal and in case the proposal will be funded will provide (free of charge) the resources of ASSIST. A sustainability plan for the future may be the replication of other proposals to foundations and or public bodies for the take-up of the ASSIST model
- An HEA has built a website to provide advice on domestic energy and has asked the permission to promote ASSIST resources for consumers (factsheets, videos, etc.). A collaboration for future activities may be another possible sustainability plan

- Several HEAs have organised energy café or have provided advice to consumers in need.

The above actions (detailed in D5.3) are only an example of the outputs of the ASSIST model. A network of HEAs may enable to share these experiences and may act as a leverage to push other HEAs to implement similar actions.

As best practice of the HEA network, the only activity to proved successful was a webinar amongst HEAs. **A lesson learnt is that more effort was needed to build the network and to favour the discussion between HEAs.**

3. Recommendations for the future

The Italian team is working to maintain the HEAs and the network of HEAs also after the end of the project. The steps undertaken are:

- Formalise the figure of the HEA within the regional qualification frame (RQF) starting with the Lazio region.

- Create a legal entity of the national HEA network – all the forms of legal entity ae being analysed in order to identify the best form (association, cooperative, social enterprise)

- Define the mechanism of self-sustainability of the network after the end of the project. Several meetings have been held with banks as possible donors or clients as well as National foundations

- Create a European network of the national networks. The partners have been asked to express their interest in working on the follow-up of

ASSIST at national and European level. With the interested parties, a strategy to keep up the work is being defined.

2.3.4 Poland

Table 20 - HEA Activity Monitoring Table, Poland

Total amount of trained HEAs by 28.06.2019		153
HEA Activity (PL)		
How active have the trained HEAs been? Add the total number among all HEAs	**Activity**	**Result**
	Has participated in at least one Action	53
	Has participated in a HEA meetings	12
	Has logged into the HEA platform	161
	Has contacted the HEA network coordinator	20
	Has participated in a discussion through the HEA communication tools	30

Table 21 - HEA Reward Impact Monitoring Table, Poland

HEA Rewards (PL)		
What type of rewards have been used to motivate HEAs?	**Reward**	**Result**
	Monetary compensation	5
	Public endorsement	4
	Gift card	0
	Employment opportunity networks	3
	Quality of HEA training	2
	Sponsorships for events/trainings	0
	Gifts for VCs	4

0 = Engagement method not used
1 = Results have been very negative
2= Results have been slightly negative
3 = No Results
4 = Results have been slightly positive
5 = Results have been very positive

Table 22 - HEA Network Engagement Method Monitoring Table, Poland

HEA Network Engagement (PL)		
How effective have the following HEA engagement activities been?	**Engagement method**	**Result**
	Newsletter	0
	ICT Platform updates	3
	Discussion facilitation in HEA communications tools	3
	HEA meetups	4

	Participating HEAs in ICT platform development	2
	Empowering advisory network	5

0 = Engagement method not used
1 = Results have been very negative
2= Results have been slightly negative
3 = No Results
4 = Results have been slightly positive
5 = Results have been very positive

Table 23 - HEA Network Management Monitoring Table, Poland

HEA Network Management (PL)		
How effective have the following management tools been?	Helpdesk for HEA	3
	FAQ / Glossary on ICT platform	3
	Digital reporting tools for HEAs	5
	Video interviews	0
	ICT platform emails	2
	Other email contacts	5
	Scheduled phone calls	5
	Chat software (such as WhatsApp)	0

0 = Engagement method not used
1 = Results have been very negative
2= Results have been slightly negative
3 = No Results
4 = Results have been slightly positive
5 = Results have been very positive

2.3.4.1 Conclusions

1. Factors contributing that the HEAs remained in the network and active

The main factor determining one's willingness to become HEA and then to stay active was their institutional affiliation. Numbers show that some groups of HEA, like municipality social workers or consumer organization stayed in the network because it was positive for their organization as a whole. Therefore, it was crucial to properly evaluate synergies between projects activities and stakeholders' interest and daily work targets/goals.

Other added value keeping HEA in the network is possibility to gain new competences in the field of energy market and energy effectiveness. Such personal development, useful in future projects was in some cases notified to us by HEA.

The overall HEA activity level is satisfactory. Significant number of trained HEA took part in project activities addressed to vulnerable consumers. Some of HEA (or organizations represented by them) is still active during the last stage of the project and ready to participate in follow-ups.

2. Problems faced in keeping up the network

Much bigger challenge is reporting – HEA uses knowledge from the trainings and methods proposed but are not happy when we expect detailed reports on their performance. This approach is easy to understand, project itself is not aimed on financing of HEA operative activities, but rather on creating common competence model and networking.

3. Best practices

The biggest success to engage HEA in collecting the questionnaires was the gadgets for vulnerable consumers. This low-cost "surprise" was a good way to help vulnerable consumers. They not only give poor people the gadgets but also, they have a possibility to give advices about it what they can do optimize their energy usage.

Second success we can point is an excel calculator for simple home energy audit. This tool created during the project gives to our HEAs the possibility to evaluate situation in a particular household, basing on short a interview with consumer and some data from invoices (energy, gas, other) and, in effect, to propose individual solutions for energy or money (or both) savings, with estimated savings rising from each solution, expressed in money. This was particularly interesting for consumers.

4. Recommendations for the future

Our HEA network should be supported and developed – we found a lot of synergies with other bodies and organizations.

Energy savings tool should be supported also – and updated each year (changes in pricing, winter factor etc.).

2.3.5 Spain

Table 24 - HEA Activity Monitoring Table, Spain

Total amount of trained HEAs by 28.06.2019		
HEA Activity (ES)		
How active have the trained HEAs been?	**Activity**	**Result**
	Has participated in at least one Action	93
	Has participated in a HEA meeting	130
	Has logged into the HEA platform	171
	Has contacted the HEA network coordinator	82
	Has participated in a discussion through the HEA communication tools	82

Table 25 - HEA Reward Impact Monitoring Table, Spain

HEA Rewards (ES)		
	Reward	**Result**
What type of rewards have been used to motivate HEAs?	Monetary compensation	0
	Public endorsement	0
	Gift card	0
	Employment opportunity networks	4
	Quality of HEA training	5
	Sponsorships for events/trainings	0

0 = Engagement method not used
1 = Results have been very negative
2 = Results have been slightly negative
3 = No Results
4 = Results have been slightly positive
5 = Results have been very positive

Table 26 - HEA Network Engagement Method Monitoring Table, Spain

HEA Network Engagement (ES)		
	Engagement method	**Result**
How effective have the following HEA engagement activities been?	Newsletter	0
	ICT Platform updates	0
	Discussion facilitation in HEA communications tools	3
	HEA meetups	5
	Participating HEAs in ICT platform development	0

0 = Engagement method not used
1 = Results have been very negative
2= Results have been slightly negative
3 = No Results
4 = Results have been slightly positive
5 = Results have been very positive

Table 27 - HEA Network Management Monitoring Table, Spain

HEA Network Management (ES)		
How effective have the following management tools been?	Helpdesk for HEA	5
	FAQ / Glossary on ICT platform	0
	Digital reporting tools for HEAs	2
	Video interviews	0
	ICT platform emails	0
	Other email contacts	4
	Scheduled phone calls	0
	Chat software (such as WhatsApp)	4

0 = Engagement method not used
1 = Results have been very negative
2 = Results have been slightly negative
3 = No Results
4 = Results have been slightly positive
5 = Results have been very positive

2.3.5.1 Conclusion

1. Factors contributing that the HEAs remained in the network and active

Having ASSIST action integrated into HEAs labour framework (paid hours) has been the key to maintain them active. However, it has been proved that a personal motivation on the topic is needed too to maintain the activity during the intervention.

Concerning the virtual network, HEAs did not remain much active in the context of a virtual network. However, they gave value to the possibility of having direct connection with the ASSIST referent person and to share doubts and experiences through informal network channels such as WhatsApp groups and face to face network activities (such as following meetings).

The most effective network activity was the direct helpdesk for the HEAs. Mail contact and informal network tools such as WhatsApp group have been appreciated by HEAs as a platform to share experiences and doubts during the implementation phase. Digital reporting tools have been used also HEAs were not comfortable using them due to their limitations in terms of IT appliances (some of them worked with the mobile phone without computer) or their limitations in terms of time to report.

2. Problems faced in keeping up the network

HEAs in Spain proved to be really active answering emails, interacting with other HEAs through WhatsApp and sharing experiences during the follow-up meetings. However, they did not find interest in participating in the virtual network though the Moodle platform. Taking into consideration the profile of Spanish social HEAs, which in general is not used to IT environment at work, and the fact that ASSIST network was an added platform not integrated in their existing ones, they showed no interest to participate even we promoted it and maintained it active. They reported preferring the use of informal tools such as WhatsApp to share experiences and solve doubts.

3. Best practices

In the case of Spanish HEAs the successful use of informal networking tools such as WhatsApp has been an interesting output of the project. For the social ASSIST HEA profile in Spain, a woman in their 50s with low academic profile and low digital skills middle-aged workers , to test, prove and succeed in the use of these kind of tools is a remarkable fact.

4. Recommendations for the future

Network activities on energy advice has been proved as really effective in terms of continuous training as HEAs have shared experiences, have been informed on

updates and have learned from their colleagues. However, the tool used to keep this network alive, needs to be adapted and designed taking into account the profile.

For the social ASSIST HEA profile in Spain, a woman in their 50s with low academic profile and low digital skills middle-aged workers from telecare and home services, our recommendation is to encourage more activities face-to-face and limit the virtual community to informal channels, because the online network is a limitation for them.

2.3.6 UK

Table 28 - HEA Activity Monitoring Table, UK

Total amount of trained HEAs		**23**
HEA Activity (UK)		
How active have the trained HEAs been?	**Activity**	**Result**
	Has participated in at least one Action	6
	Has participated in a HEA meeting	6
	Has logged into the HEA platform	n/a
	Has contacted the HEA network coordinator	4
	Has participated in a discussion through the HEA communication tools	0
	Attended further training	6

Table 29 - HEA Reward Impact Monitoring Table, UK

HEA Rewards (UK)		
What type of rewards have been used to motivate HEAs?	**Reward**	**Result**
	Monetary compensation	0
	Public endorsement	0
	Gift card	0
	Employment opportunity networks	4
	Quality of HEA training	5
	Sponsorships for events/trainings	3
	Joint working with other organisations	4

0 = Engagement method not used
1 = Results have been very negative
2= Results have been slightly negative
3 = No Results
4 = Results have been slightly positive
5 = Results have been very positive

Table 30 - HEA Network Engagement Method Monitoring Table, UK

HEA Network Engagement (UK)		
How effective have the following HEA engagement activities been?	**Engagement method**	**Result**
	Newsletter	0
	ICT Platform updates	0
	Discussion facilitation in HEA communications tools	0
	HEA meetups	4
	Participating HEAs in ICT platform development	1
	Shadowing & joint visits	5

0 = Engagement method not used
1 = Results have been very negative
2= Results have been slightly negative
3 = No Results
4 = Results have been slightly positive
5 = Results have been very positive

Table 31 - HEA Network Management Monitoring Table, UK

HEA Network Management (UK)		
How effective have the following management tools been?	Helpdesk for HEA	4
	FAQ / Glossary on ICT platform	3
	Digital reporting tools for HEAs	3
	Video interviews	0
	ICT platform emails	0
	Other email contacts	4
	Scheduled phone calls	4
	Chat software (such as WhatsApp)	0
	Personal phone calls emails	5

0 = Engagement method not used
1 = Results have been very negative
2= Results have been slightly negative
3 = No Results
4 = Results have been slightly positive
5 = Results have been very positive

2.3.6.1 Conclusion

1.Factors that contributed that the HEAs remained in the network and active

In the UK we had a small number of active HEAs (6) and so we were able to define which was the best method of training and engagement quite early on. Practical workshops and shadowing experienced energy advisors on their home visits was preferred over virtual online training platforms. All of the HEAs recruited were based in the same county of Gloucestershire, so physical meetings weren't a problem and did in fact help with building a connection between the HEAs.

2. Problems faced in keeping the network active

The main issue for the HEAs wasn't in carrying out the home visits but in providing the detailed reporting requested by SWEA. Often the information they were given relating to energy bills and consumption didn't fit with the KPI template e.g. not knowing the current tariff or having annual costs only rather than kWh. For the less active HEAs time restraints on their everyday job meant that they didn't have the extra time needed to do the reporting.

These problems meant that the HEAs needed a great deal of support from SWEA to be able to complete the reporting requirements. This was possible as there were only a limited number of HEAs active, and all were based regionally, but if the number of HEAs had been equivalent to that of our partner countries in the ASSIST project it would not have been feasible.

3. Best Practices

For the active HEAs the most positive learning came from workshops and shadowing. The HEA co-ordinator at SWEA kept in touch by email, phone calls and one to one meetings when needed. This personal contact was appreciated by the HEA as they could receive real encouragement and feel that their efforts were being noticed.

4. Recommendations for the Future

Future recommendations would include a consideration on the reporting criteria and consequently the time required to complete the reporting satisfactorily. The non-active HEAs all found the training useful but did not feel that they could commit the time from their every-day roles to be able to report the necessary data.

3. ASSIST survey among vulnerable energy consumers

To monitor whether dedicated consultancy actions (ASSIST actions) could lead to the target of at least 7% energy saving, and increases in comfort level among vulnerable consumers, a specific methodology was developed within the context of the ASSIST project. The methodology is described in detail in D4.4 and D4.6.

In short, a baseline dataset was collected through an on-purpose developed ex-ante questionnaire, which is presented in D4.4. The questionnaire was translated to national languages and modified to relevant parts, relevant to the country contexts. This ex-ante questionnaire was collected among 750 consumer representative group in all partner countries. Consumers were addressed through the consultancy actions

by HEA network members. A control group, representing 10% of these 750 consumers was identified in each country. In-depth follow-up interviews (ex-post surveys) were carried out at a later stage (with the target of having it earliest after 6 months since the ex-ante) among these consumer control groups.

In addition, two performance indicators, an Energy Savings Indicator (ESI) and Vulnerability Empowerment Factor (VEF) were developed within ASSIST project to measure the effectiveness of the advisory actions. The former assesses the actual energy saved by the engaged vulnerable consumers, their increased comfort inside their homes and, more in general, the quality of their lives. The latter assesses consumers' confidence in dealing with energy related issues inside their dwellings. The underpinning concept of the ASSIST monitoring mechanism and the ESI and VEF indicators was to also consider average consumptions levels in households of the same country, since it was expected, that many vulnerable customers are already saving on their energy costs to save money. An Excel based tool was developed for this purpose. The ESI and VEF calculation equations are explained more detailed in D4.4. In the table below an overview of the national results is shown for each country.

Table 32. Relevant key performance indicators (KPIs) of ASSIST (source: D5.5)

	Number of HEAs delivering ASSIST activities	Number of consumers reached with ASSIST Soft/engagement activities	Number of consumers engaged with ASSIST actions	ESI	VEF
Belgium	44	102,340	714	3.9%	0.9
Finland	68	~300,000	1,130	1.7%	0.3
Italy	23	8,428	618	5.5%	0.4
Poland	53	2,330	1,875	4.4%	N.A.
Spain	93	5,484	755	4.5%	3.9
United Kingdom	23	4,792	150	5.1%	1.5

	Energy savings [kWh]	Energy savings [%]
Belgium	99,060	7%
Finland	N.A.	3.9%
Italy	7,799	5%
Poland	130,207	4.4%
Spain	61,231	4.5%
United Kingdom	42,200	7%

Some attention must be paid to interpreting the results and explaining the differences between different partner countries. Each country adapted the approach to conduct

the consumer surveys and to identify the control group for the ex-post evaluation to its national context. Also, the timing of the ex-ante and ex-post survey collection and the energy advisory practices as such were not consistent between the partner countries.

However, as it can be seen in the above table, for most partner countries the ESI values are categorically smaller than the absolute energy saving (in kWh and %). Each partner was therefore offered the possibility to analyse reasons for this difference and to critically assess the ASSIST methodology and the developed indicators. In the following Sections 3.1–3.6 data collection methods, consumers reached, and results are presented for each country. Each country could fill up these sections rather free-form, using the guiding questions offered by the WP leader (see Annex).

3.1 Belgium

3.1.1 Data collection method

For the monitoring of the reference group of **75 vulnerable households** we used the two-stage (ex-ante and ex-post) questionnaire to collect information about:

- extrapolation parameters: household size, building type, m² heated space, heating system
- primary energy consumption (electricity and heating)
- comfort level
- vulnerability empowerment factor
- knowledge of vulnerable consumer about social tariff, V-test (to compare energy suppliers), financial support measures (e.g. premiums provided by DSO).

The HEA registered the requested information at the beginning and end of the monitoring period (with a duration of at least 6 months).

	Vragenlijst Comfort en empowerment				
Vraag ID	**Inhoud vraag**	**Verklaring vraag**	**Mogelijke antwoorden**	**Klant Nulmeting**	**Klant Eindmeting**
1	**Gezin ID**	Gezin woonplaats voornaam			
2	**HEA ID**	Naam vrijwilliger			
3	**Interview Datum**	Datum DD/MM/2019			
6	**Type woning**	Lijst met type woningen	1) open 2)half-open 3)gesloten 4)appartement		
7	**Aantal inwoners**	1-5+			
8	**Oppervlakte van verwarmde ruimten**	Oppervlakte van leefruimten	1)<50 2)50-100 3)100-150 4)150-200 4)>200		
9	**Primair verwarmingsinstallatie : type**	lijst met verwarmingsinstallaties	elektriciteit/gas/olie/pellets/kachel/ander/geen		
11	**Primaire verwarming: hoeveelheid**	in kWh (reken om naar kWh)	Brandstof Calorische waarde (Hs) per kg, liter of Nm³ Gasolie-verwarming 10,641 kWh/liter Gasolie-diesel (verwarmingstoepassingen) 10,648 kWh/liter Propaan 7,279 kWh/liter Arm aardgas 9,769 kWh/Nm³ Rijk aardgas 11,944 kWh/Nm³ Elektriciteit 1 kWh = 1 kWh Pellets 5 kWh/kg		
12	**Elektriciteitsverbruik**	in kWh			
13	**Gas (verwarming) meter cijfer**	Meterstand afgelezen tijdens bezoek			
14	**Elektriciteitsmeter cijfer**	Meterstand afgelezen tijdens bezoek	DAG		
			NACHT		
10	**Comfort Indicator (wat het gezin zelf vindt)**	5 indicator niveaus (volgens het gevoel van het gezin zelf)	1=heel oncomfortabel/2=een beetje oncomfortabel/3=aanvaardbaar/4=fatsoenlijk/5=comfortabel		
15	**Vulnerability Empowerment Factor**	Berekend op basis van VE-Factors 1-6	niets invullen, berekent zelf op basis van onderstaande	0	0
15a	**VE-Factor 1**	Ik vind dat ik bewust omga met mijn energieverbruik, ook al is het hoger of lager dan het verbruik van gelijkaardige gezinnen.	1=helemaal niet/2=een klein beetje/3=soms/4=tot op zekere hoogte wel/5=ja, helemaal akkoord		
15b	**VE-Factor 2**	Ik weet waar ik informatie kan vinden over energiebesparende maatregelen.	1=helemaal niet/2=een klein beetje/3=soms/4=tot op zekere hoogte wel/5=ja, helemaal akkoord		
15c	**VE-Factor 3**	Ik heb vertrouwen in mijn elektriciteits en gastarief, ik denk niet dat ik teveel betaal.	1=helemaal niet/2=een klein beetje/3=soms/4=tot op zekere hoogte wel/5=ja, helemaal akkoord		
15d	**VE-Factor 4**	Ik weet hoe ik energie kan besparen.	1=helemaal niet/2=een klein beetje/3=soms/4=tot op zekere hoogte wel/5=ja, helemaal akkoord		
15e	**VE-Factor 5**	Ik kan andere mensen helpen bij het verlagen van hun energiefactuur.	1=helemaal niet/2=een klein beetje/3=soms/4=tot op zekere hoogte wel/5=ja, helemaal akkoord		
15f	**VE-Factor 6**	Ik weet dat er verschillende energietarieven zijn en dat ik kan overschakelen om mijn energiefactuur te doen dalen.	1=helemaal niet/2=een klein beetje/3=soms/4=tot op zekere hoogte wel/5=ja, helemaal akkoord		
16	**VE-Factor 7**	Heeft klant sociaal tarief ?	1=J/2=N/3=Niet gekend		
17	**VE-Factor 8**	V-test uitgevoerd tijdens bezoek ?	1=J/2=N/3=Neen omwille van sociaal tarief		
18	**VE-Factor 9**	Wijzigt klant van leverancier ?	1=J/2=N/3=Neen omwille van sociaal tarief		
19	**VE-Factor 10**	Website Fluvius premies tonen	1=J/2=N		
20	**VE-Factor 11**	kortingsbon 150 Euro afgegeven ?	1=J/2=N		

Figure 3. Ex-ante and ex-post questionnaire in Belgium

In addition to the above-mentioned two-stage questionnaire, the HEAs also had an action list with 60 possible energy-efficiency measures to reduce the energy consumption and energy bill of vulnerable consumers on the one hand and increase their comfort level on the other hand (Figure 4). During the first home visit the HEA agreed with the vulnerable consumer on the specific energy saving measures to be implemented. The HEA monitored the implementation of the agreed energy-efficiency measures by contacting the vulnerable households on a regular basis (by phone or face-to-face visits).

Subcatego	G	E	Actie	Kolom1	kWh	TOT G	TOT E	€/jaar	% op kosten/jaar aardgas	% op kosten/jaar elektr	investering	NVT of reeds OK bij start (X)
			Totaal verbruik elektriciteit (niet invullen, wordt door Coördinator ingevuld)									
			Totaal verbruik gas (niet invullen, wordt door Coördinator ingevuld)									
Gedrag	1		Juiste temperatuur voor elke ruimte		1600	0	0	80	7,3%			
Gedrag	1		Sluiten deuren naar niet verwarmde ruimtes		1000	0	0	50	4,5%			
Gedrag	1		Schakel 30 min voor slapengaan verwarming in nachtstand		1000	0	0	50	4,5%			
Gedrag	1		Sluit 's avonds gordijnen		1200	0	0	60	5,5%			
Gedrag	1		Verlucht woning 10 min per dag met verwarming uit (ramen VOLLEDIG open)		800	0	0	40	3,6%			
Gedrag	1		Houd de radiatoren vrij, plaats geen zetels ervoor en reinig de radiatoren regelmatig		1000	0	0	50	4,5%			
Gedrag	1		Reinig radiatoren		200	0	0	10	0,9%			
Gedrag	1		Bedien zomer en winterknop (juiste temperatuur instellen) verwarming		200	0	0		0,0%			
Gedrag	1		Ontlucht radiatoren		200	0	0	10	0,9%			
Gedrag	1		Reinig filters (warme luchtverwarming)		400	0	0	20	1,8%			
Gedrag		1	Mijden bijverwarming		700	0	0	160	14,5%	3%		
Gedrag		1	Bijverwarming enkel voor korte periode en plaatselijk verwarmen (elektrisch)		300	0	0	80	7,3%	3%		
Investering	1		Plaats radiatorfolie (10m²) indien radiator op een niet geïsoleerde muur staat		600	0	0	30	2,7%		50	
Investering	1		Isoleer buizen in onverwarmde ruimten		700	0	0	35	3,2%		50	
Investering	1		Plaats tocht strips bij buitendeuren en -ramen		800	0	0	40	3,6%		40	
Investering	1		Gebruik thermostatische kranen om per kamer de temperatuur te regelen		1000	0	0	50	4,5%		50 stuk	
Investering	1		Thermostatische kranen in badkamer		600	0	0	160	14,5%		100	
Investering	1		Vervang filters (warme luchtverwarming)		400	0	0	20	1,8%			
Investering	1		Onderhoud van ketel		2000	0	0	100	9,1%		160	
Investering	1		Reinigen van schouw			0	0	50	4,5%			
Investering	1		Ontkalken boiler			0	0	100	9,1%		75 à 125	
Gedrag	1		Neem een douche i.p.v. een bad		1000	0	0	60	5,5%		-	
Gedrag	1		Beperk je tijd onder de douche		500	0	0	25	2,3%		-	
Gedrag	1		Plaats een spaardouchekop		600	0	0	30	2,7%		40	
Gedrag	1		Laat geen water lopen tijdens het tanden poetsen		600	0	0	30	2,7%		-	
Gedrag	1		Spoel met koud water		200	0	0	10	0,9%			
Gedrag	1		Plaats mengkraan in koudwaterstand na gebruik		100	0	0	5	0,5%			
Gedrag	1		Gebruik eco-stand		125	0	0	35	3,2%			

Figure 4. List of energy efficiency measures in Belgium

We provided the two-stage questionnaire and action list on paper (as part of the HEA work package) for the HEAs to use during the home visits with the vulnerable consumers. We recommended the HEAs not to take a laptop with them during the home visits. After the home visits the HEAs registered the data collected in an Excel file on a SharePoint server. Information about the use of the Excel file and SharePoint server was provided on the Moodle platform (see item “HEA acties”). A link on the model Platform facilitated the access to the SharePoint server for the HEAs. The use of the Excel file and SharePoint server was also explained during the Lunch & Learns sessions and, if requested by the HEA, additional support was given by mail or phone. The majority of the HEAs managed to complete their administrative tasks with the provided ICT-tools. Only 3 HEAs asked the coordinator to transfer the data collected on paper to the Excel file, mainly because they did not have the time available to complete this administrative task.

Only the vulnerable consumers for which the ex-ante questionnaire, ex-post questionnaire and action list were completed and delivered in time, were taken into account for the 10% reference group. For **75 households,** or 182 consumers, we received the completed ex-ante questionnaire, ex-post questionnaire and action list. For **300 households** that were visited by the HEAs, sufficient information was collected for the extrapolation of the reference group to 714 consumers.

In Belgium we had 44 active HEAs that delivered the ASSIST action. About 14 HEAs (including all 10 energy masters of Camp C) did not report the requested data on time or only provided the information required for the extrapolation to the 714 vulnerable consumers, namely household size, building type, m² heated space and heating system. Luckily, the remaining 30 HEAs fulfilled all the administrative tasks on time. The most active HEAs were the 3 social workers of Samenlevingsopbouw and 5 Fluvius employees who are Expert Rational Energy Consumption, as these HEAs were able to combine their volunteer work with their regular job.

3.1.2 Profile of consumers reached (ex-ante)

If we look at the profile of the **714 consumers** that were visited by the HEAs, we see that we have a rather equal distribution according to household size. App. 41% of the 714 vulnerable consumers lives in a terraced house, 44% lives in a house with 51-100 m² of heated space. The majority of the 714 vulnerable consumers has a heating system on gas.

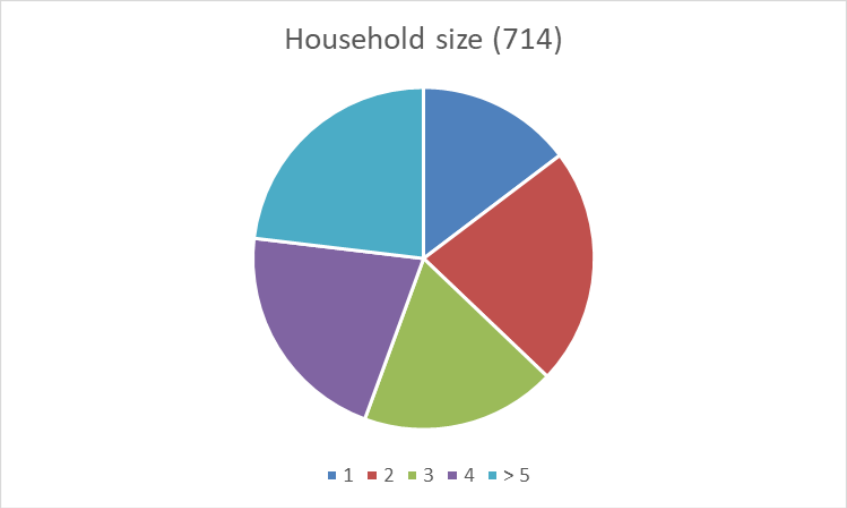

Figure 5. Distribution of consumers according to household size in Belgium

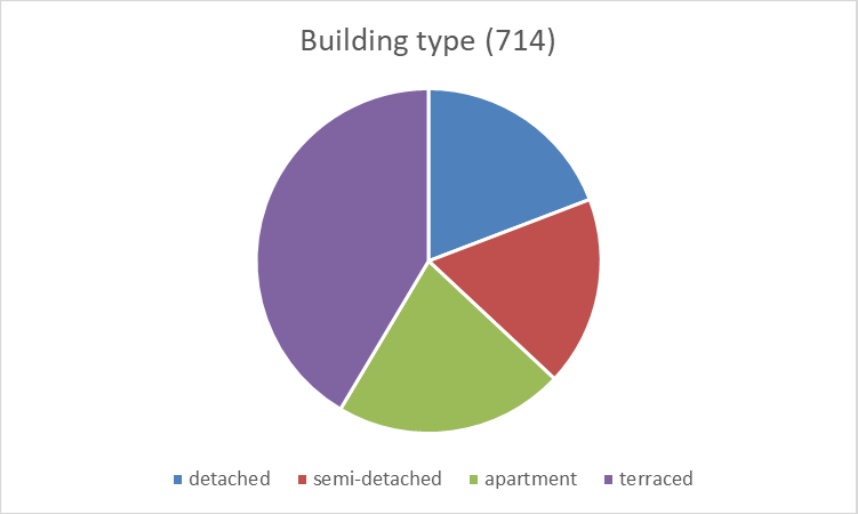

Figure 6. Distribution of vulnerable consumers according to building type in Belgium

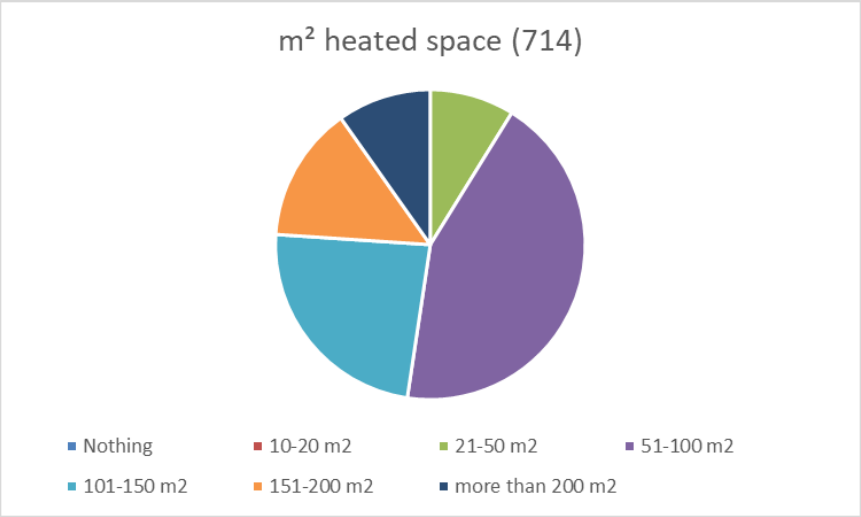

Figure 7. Distribution of vulnerable consumers according to heated space in Belgium

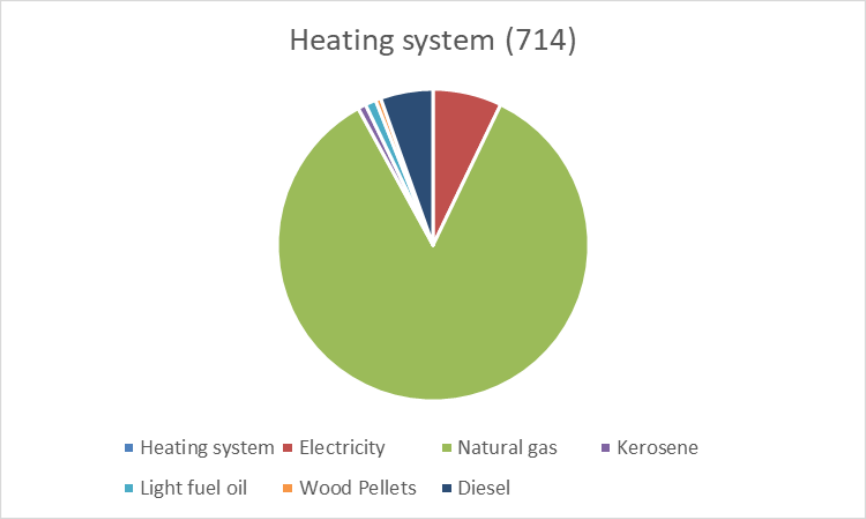

Figure 8. Distribution vulnerable consumers according to heating system in Belgium

If we look at the more detailed ex-ante data that the HEAs collected for the **75 households or 182 consumers**, we see that the average gas consumption is already low. The average (ex-ante) gas consumption of the vulnerable households is 12,680 kWh, while the gas consumption of an average Flemish household was 14,541 kWh in 2018 (according to the Flemish Regulator for electricity and gas: https://www.vreg.be/nl/evolutie-energieverbruik). However, it should be noted that this average includes both households that heat with natural gas as well as households that do not heat with natural gas, and thus have a consumption that is ten times lower. If natural gas is used for heating in addition to cooking and water, consumption will rise from an average of 2,326 kWh to 23,260 kWh (according to the Flemish Regulator for electricity and gas: https://www.vreg.be/nl/evolutie-energieverbruik). The average electricity consumption of the 75 households is 3,308 kWh, while the average Flemish household had an electricity consumption of 3,166 kWh in 2018 (according to the Flemish Regulator for electricity and gas: https://www.vreg.be/nl/evolutie-energieverbruik). However, it should be noted that the electricity consumption of an average Flemish household also includes the households that have installed PV.

The majority of the 75 vulnerable households engaged in the ASSIST action already had a social tariff (i.e. lowest tariff on the market).

On average, the vulnerable households considered the level of comfort already more than acceptable (score of 4 out of 5) before the home visit of the HEA and implementation of the energy-efficiency measures.

3.1.3. Results: Saved energy and increased comfort through dedicated consultancy

First, the calculations of the energy savings, changes in empowerment and comfort level have been performed for the reference group of 75 households or 182 consumers. Next, the results for the reference group have been extended to the entire group of 714 consumers. Finally, the calculations have been combined in order to obtain two overall indicators: ASSIST Energy Savings Indicator (ESI) and Vulnerability Empowerment Factor (VEF), calculated according to the methodology defined in Chapter 4 in D4.4. The Belgian partners decided to assign an equal weight to each parameter (25% each, as there are four parameters), because, from our experience on the field in the Belgian context, no predominant factor related to energy savings and comforts exist for vulnerable consumers.

Thanks to the ASSIST action, the 182 engaged vulnerable consumers were able to reduce their energy consumption and to improve the comfort in their homes. On average a 7% reduction of the gas consumption was achieved (or 1,000 kWh of gas per vulnerable household) and a 7% reduction of the electricity consumption (or 272 kWh of electricity per vulnerable household). The total amount of gas and electricity saved by the 75 households amounted to 99,060 kWh.

However, these results have to be interpreted carefully. The energy savings realized by the different energy-efficiency measures had to be estimated as we were not able to monitor the real impact of the action at the homes of the vulnerable consumers. We could not rely on digital meters for monitoring the impact of the implemented energy-efficiency measures as Belgium has only started recently with the distribution of smart meters. We asked the HEAs to collect ex-ante and ex-post meter readings as a proxy of the annual energy consumption after implementation of the energy-efficiency measures. However, a limited number of meter readings could be collected by the HEAs (confidentiality, administrative burden). Also, for the majority of the vulnerable consumers the ASSIST action started in July and, as such, the period of monitoring based on meter readings was not considered representative. Energy consumption for domestic heating represents a share of 60% of the total energy consumption of an average Flemish household and the coldest months of the year are mainly outside the monitoring period.

Fluvius made an estimate of the amount of fuel and/or electricity that can be saved for a list of more than 60 energy-efficiency measures. The potential energy savings per measure are an expert judgement based on several years of experience of Fluvius in the field of energy-efficiency. If a household implemented several efficiency-measures we did not take into account the interaction between the measures. Also, we considered the estimated impact as 100% realized (e.g. all light

bulbs replaced by LED while, in reality, perhaps 50% of the light bulbs are replaced). As such, the estimate of the impact is most likely overestimating instead of underestimating the real impact.

An energy savings indicator (ESI) of 3,9% can be considered a satisfactory level, as vulnerable consumers already have low annual energy consumption. As such, the potential to achieve additional energy savings, without recurring to intrusive intervention (such as for example, adding thermal insulation or replacing the heating boiler with a more efficient one), is quite limited. Also, the Belgian ESI indicator does not take into account the impact of lower energy prices as the majority of the vulnerable households engaged in the ASSIST action already have a social tariff (i.e. lowest tariff on the market). For 23 of the 75 vulnerable households (31%) there was an increase in the comfort level. The impact is considered limited as, on average, the vulnerable households considered the level of comfort as “more than acceptable” (score of 4 out of 5) before the energy-efficiency measures were implemented.

Also the positive value of the vulnerability empowerment factor (VEF), although not very large, can be considered acceptable. The home visits and dedicated advice had a positive impact on the awareness about energy saving measures and different tariffs. The vulnerable consumer felt more empowered to find information about energy-efficiency measures and help others to reduce their energy bill. While the average consumer felt sometimes empowered at the beginning of the monitoring period, he/she felt often empowered at the end of the monitoring period.

3.1.4 Critical analysis of the ASSIST method

- Impact of changes in energy price: As the majority of the Belgian vulnerable households that were engaged in the ASSIST action already had a social tariff, i.e. lowest tariff on the market, it was not relevant for the Belgian partners to take into account the impact of lower energy prices in the calculation of the ESI indicator. As such, we excluded this parameter from the calculation of the ESI indicator.

- Impact of changes in comfort level: In Belgium the implementation of the ASSIST action resulted in a 7% reduction of gas consumption (or 1,000 kWh of gas per vulnerable household) and a 7% reduction of electricity consumption (or 272 kWh of electricity per vulnerable household). Despite the anticipated reduction of 7% in energy consumption the energy savings indicator (ESI) amounts to 3,9%. This can be explained by the fact that the average vulnerable household engaged in the ASSIST action considered the level of comfort as “more than acceptable” before the energy-efficiency measures were implemented.

- Energy savings achieved: the energy savings realized by implementing the different energy-efficiency measures had to be estimated as we were not able to monitor the real impact of the action at the homes of the vulnerable consumers.
    - We could not rely on digital meters to monitor the impact of the implemented energy-efficiency measures.
    - Only a limited number of ex ante and ex post meter readings could be collected by the HEAs, as a proxy of the annual energy consumption after implementation of the energy-efficiency measures (due to reasons of confidentiality, administrative burden for the HEAs).
    - For the majority of the vulnerable consumers the ASSIST action started in July and, as such, the period of monitoring based on meter readings was not considered representative. Energy consumption for domestic heating represents a share of 60% of the total energy consumption of an average Flemish household and the coldest months of the year are mainly outside the monitoring period.
    - The potential energy savings per measure are an expert judgement for an average Flemish household. These estimates do not take in to account the specific context of vulnerable or energy poor consumers. If a vulnerable household implemented several efficiency-measures, we did not take into account the interaction between these measures. Also, we considered the estimated impact as 100% realized. As such, the estimate of the energy savings is most likely overestimating instead of underestimating the real impact

3.1.5 Lessons learned

- The Energy savings indicator does not give a correct picture of the impact of the ASSIST action. The impact that could be achieved by reducing energy prices and increasing comfort level was limited in Belgium, as the majority of the vulnerable consumers already had a social tariff before the ASSIST action. Also, the average vulnerable household engaged in the ASSIST action considered the level of comfort as “more than acceptable” before the energy-efficiency measures were implemented. the energy savings realized by implementing the different energy-efficiency measures had to be estimated as we were not able to monitor the real impact of the action at the homes of the vulnerable consumers. The estimate of the energy savings is most likely overestimating the real impact of the ASSIST action.

- The monitoring of the impact of the ASSIST action on energy consumption should be based on reliable meter readings, preferably registered by smart meters and during a representative period of time (in case of Belgium, at least covering the months with the highest consumption for heating).

- Monitoring the implementation of the ASSIST action requires a lot of administrative work from the HEA. It is especially demanding for those HEAs that cannot combine the volunteer work with their regular job and/or has limited ICT-related skills. The administrative tasks, if carried out by the HEAs, should be followed up closely by a central coordinator to guarantee reliable results. Preferably, centralized (professional) support is provided for assisting the HEA in collecting and processing the monitoring data.

3.1.6 Conclusions

The final results in terms of the Energy Savings Indicator (ESI), the amount of energy savings (both in kWh and in percentage) and the Vulnerability Empowerment Factor (VEF) are considered positive. The ASSIST action had a positive impact on the energy consumption and comfort level of the vulnerable consumers engaged in the action. Also, the vulnerable consumer felt more empowered at the end of the monitoring period.

3.2 Finland

3.2.1 Data collection method

Ex-ante questionnaires were made available for HEAs and vulnerable consumers both electronically and on paper. Two different electronic survey forms were developed. The first one, “household energy check-up” was interactive and more extensive. It included tailor-made energy saving tips that were popping out one-by-one, depending on each response. The second online survey was shorter, with an estimated response time of 10 minutes, and contained a minimum number of questions required following the common questionnaire template (as described in D4.4). Initially, it was targeted that most VCs would respond to the longer survey, in order to get a complete overview of the household’s energy questions.

The in-print ex-ante questionnaires were disseminated for hundreds of vulnerable consumers with the help of trained ASSIST HEAs during house advisory visits, regional consumer events and energy cafés in autumn 2019. Most of the ex-ante questionnaires were collected by the house renovation advisor HEAs (employed by the VTKL), university students and energy professionals. The surveys were annexed

a letter, signed by the project partner, to highlight that HEA advisory and ex-ante survey is part of a European energy poverty action project, and that their answers will provide important insights from Finland and thus are highly appreciated. Also return-envelopes were disseminated, and all participants could participate in a raffle of a gift card.

The most intensive data collection period of ex-ante surveys in Finland was July 2019–December 2019. The unfortunate delay with some crucial HEA training activities in Finland obliged us to postpone the campaign. However, the number 329 responses (representing 823 consumers) is a good number, considering the short data collection period. Most responses came electronically (191 shorter and 36 longer questionnaire filled) and 102 on paper.

Among all the ex-antes collected, we selected for ex-post a group fulfilling the following selection criteria: The responder 1) agreed to participate to ex-post and 2) could be considered being at risk of energy poverty; 3) there had been a direct contact with HEA and a 4) minimum 4 months' time span between ex-ante and ex-post. It was also required that the survey form had been filled completely. The selection was mandatory because gift card raffle may have attracted "non-vulnerable" also to answer the survey.

Ex-post results were collected per phone in January 2020. We decided to hold phone interviews because this was the most time-efficient also to collect missing values from ex-ante. The in-depth ex-post interviews lasted 30 minutes, covering questions on the consumer's heating practices, energy consumption, energy vulnerability indicators, perception on energy costs, trying to identify also qualitatively burdens relating to energy and heating issues.

3.2.2 Profile of consumers reached

As the ex-ante questionnaire had been available for all public, first, the responders were categorized according to how burdensome they perceive heating costs in their household economies, to focus on the consumers being at risk of energy poverty. Among all responders, 38% strongly agreed and 17% agreed with the question: "I perceive the heating expenses as a significant economic burden for my household's economy". These families (total 126) could be considered as energy vulnerable consumers and, thus this group is in the key focus from now on in this report. Figure 9 shows how this question was answered among all responders.

However, this classification may exclude some vulnerable responders because some of those not considering energy expenses as a burden may possess a mindset of evaluating energy costs as "obligatory" or "non-negotiable" among all of their

household expenditure even though their magnitude might be unbearably high. On the other hand, self-assessed high energy expenses may not necessarily signify a consumer is vulnerable.

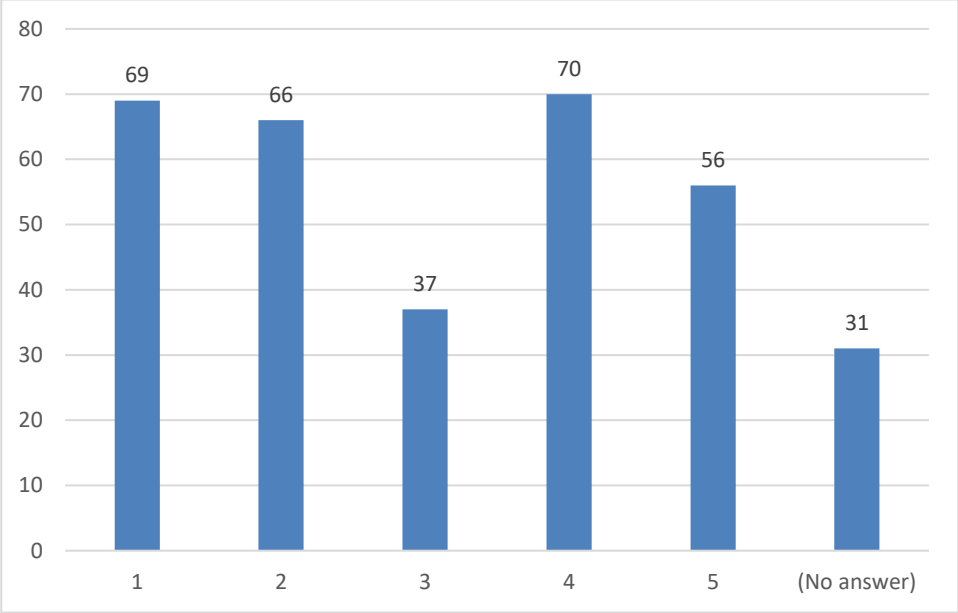

Figure 9. Responders of the ex-ante survey in Finland: the perception of heating costs being a financial burden. 1= I completely disagree, 5 = I completely agree. N=329.

Among the vulnerable consumers (N=126), the majority (88%) lived in detached houses. 7% lived in apartments and 4% in terraced houses. Among all responders (N=329), the share of people living in detached houses was 66%; a larger share was for apartments (28%). This means that the exclusion of the potentially "non-vulnerable" signified exclusion of apartment-dwellers mainly. This may be explained through the fact that heating costs are often not made visible for people living in flats in housing blocks. Typically, heating costs are included in rent and fixed. However, in some older and energy-wasteful buildings a higher rental cost may be partly due to high energy costs but there are not many studies understanding whether this is an issue (also was out of the scope of this study).

Most common heating source in vulnerable households (N=126) was light fuel oil (21%). In addition, 16% used electricity-only as their heating source and 14% used both electricity and chopped wood. See Figure 11. This result is in line with previous findings (ASSIST Vulnerable Consumers and Fuel Poverty Report and the energy poverty report by the Ministry of Environment of Finland in 2013) that people at a risk of energy poverty in Finland are often living in old oil heated detached houses.

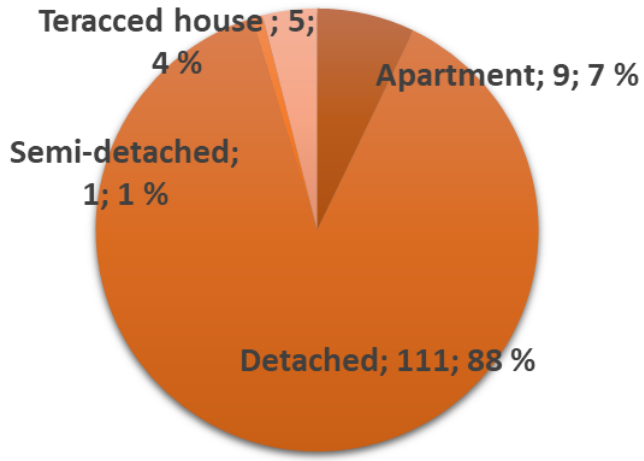

Figure 10. Housing types of vulnerable households in ex-ante. N=126.

Meanwhile, chopped wood often served as a relatively good heating source since it is rather affordable in Finland. However, it should be noted that sometimes wood heated houses may make certain groups to fall into the risk of energy poverty. Especially problematic are situations where older people who are no longer physically capable of procuring their own wood fuel for heating, are forced to shift to their other heating source, which is more expensive, or change heating system completely. For many wood-heated house owners interviewed in ex-post, this was unfortunately the case.

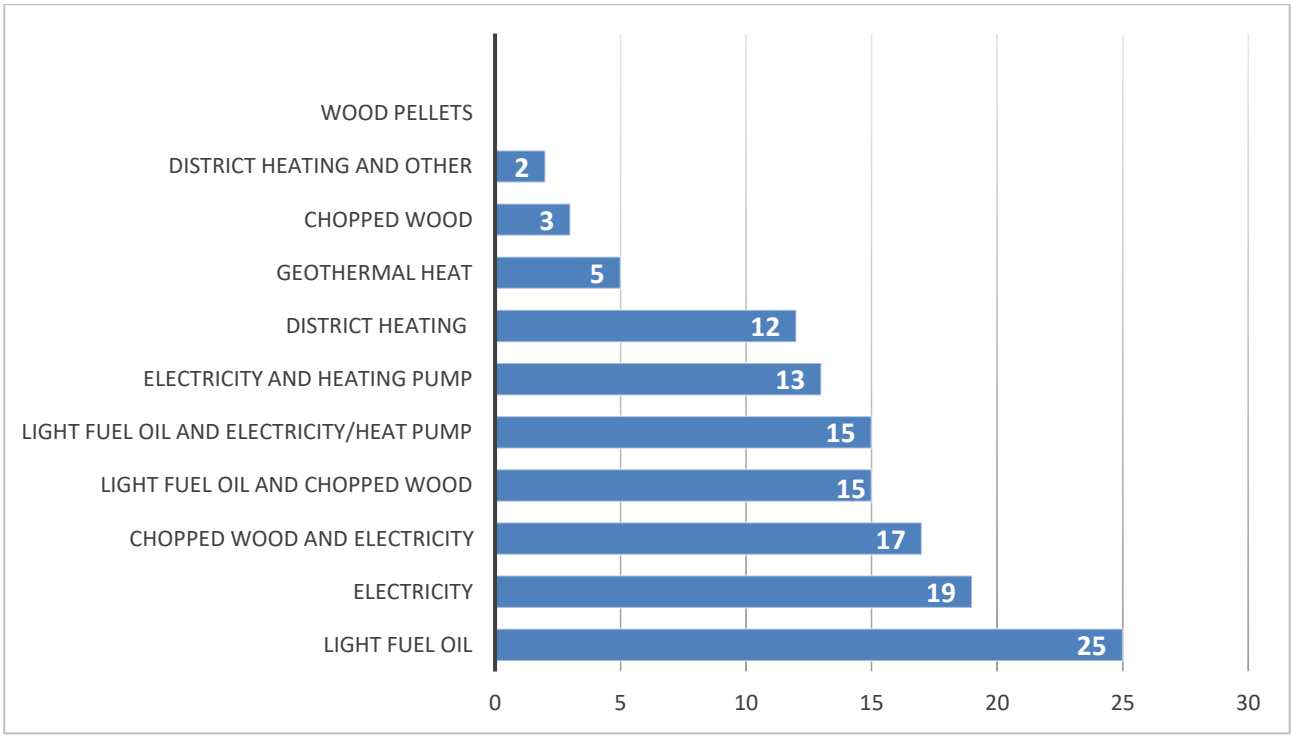

Figure 11. Primary heating sources of vulnerable households in ex-ante in Finland. N=126.

Adequacy of indoor temperature at home appeared as a problem for 14 vulnerable responders (11%); 83% were satisfied with the temperature at their home, and 8 (6%) did not know. Out of all responders, 49 (15%) were not satisfied with indoor temperature. In comparison, the share of all Finnish population not able to keep indoor temperature adequately warm, was 1.7% in 2018 according to Eurostat statistics. It would be important to keep on monitoring this indicator also through further and different studies in this Nordic country where heating question is crucial. It also matters how the question is being posed in a customer survey.

Interestingly, the majority of the ex-ante survey responders turned out rather "energy conscious", i.e. agreeing with the empowerment questions. For example, 94% of the vulnerable responders stated that they know how they can save energy by changing their behaviour (90% of all responders), as shown in Figure 12. 90% of vulnerable consumers said to know exactly the share of their household's incomes spent in electricity and heating (78% of all responders). The numbers attract to conclude that vulnerable consumers are more energy conscious, however, the difference might be also explained through detached house dwellers being more represented among the vulnerable groups. For them, heating costs might appear more concretely.

All in all, these numbers offer an indication that the group of people reached in ex-ante were already aware of the best ways to save energy. This starting point implies that there might not be much space for energy saving through simple energy advises either.

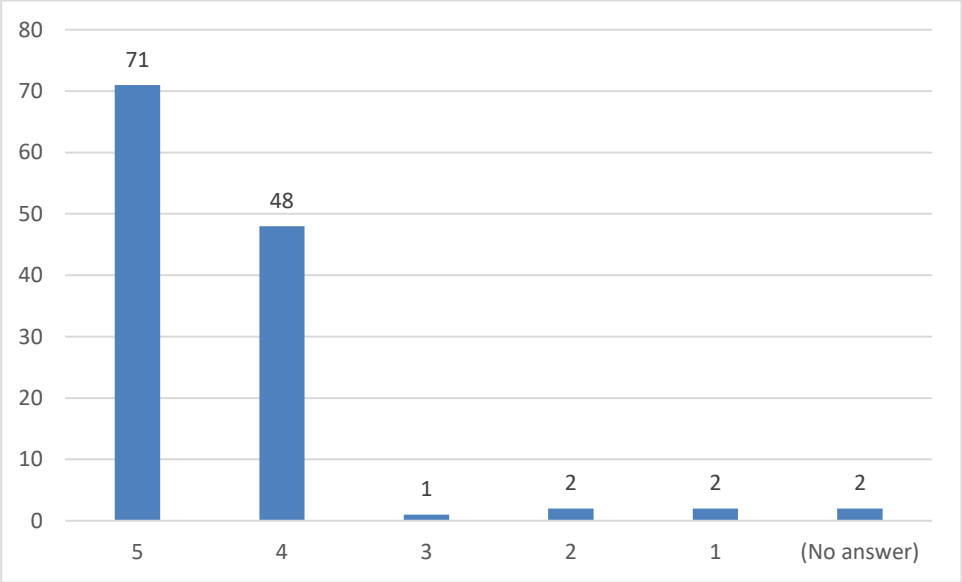

Figure 12. Knowledge about methods of saving energy in Finland. Answers to the question "I know how to save energy". 1 = completely disagree, 5 = I completely agree. N=126.

3.2.3 Results: Saved energy and increased comfort through dedicated consultancy.

41 households were selected for the ex-post survey. Most (83%) lived in detached houses and primary heating sources were oil (29%), electricity (27%) and district heating (17%). 60% were pensioners, and answers arrived from all around the country. Only 6 responders lived in the capital area. Half of control group had been assisted by house renovation advisors and energy students (on-paper sheets); others had filled electronic forms without a demonstrated interaction with an HEA at home. As only around half of ex-ante responders had agreed to participate to ex-post, we were obliged to choose 29% of responders among those who did not consider energy costs burdensome (see criteria setting in previous section).

ASSIST ESI calculation resulted in 1.7% for ESI and 0.3 for VEF. An average energy saving per household assisted was 3.9% but due to unavailability or incompleteness of heating data in most ex-antes of the control group, only electricity consumption values could be considered.

Lack of heating data was the main reason explaining that the target of 7% was not reached in Finland. Even though some heating values were available, and though some consumers could find, remember or report their ex-ante values when asked for it during ex-post interviews, the complete heating data set could not eventually be considered sufficiently reliable. Furthermore, ex-antes were collected primarily in later summer when heating issues are not on the agenda, and ex-post in January. Even though ASSIST method included heating degree days factor, we found that differences in heating situations are in most cases too huge. Furthermore, wood was an important complementary source for many control group members but use of wood was difficult to estimate for many (and such amounts are hard to compare, too within the time span of this study).

Reliable comparison was possible only for electricity-only heated houses. For them we compared household’s increase in electricity saving from the summer to winter and compared that with a national average increase in residential electricity consumption.

For these reasons, energy saving indicators shall be assessed with caution; that is also why kWh savings value was not provided as they would not be comparable with other partner countries’ values. Issue would have solved itself if there had been 12 months’ time span between two surveys. It must also be highlighted that few ”outlier” responses were left out in ESI calculation, even though they represented an energy renovation cases (e.g. installation of a heat pump), that might have significantly reduced the total energy consumed in the house.

Modest performance in the empowerment factor VEF is neither surprising, as VEF measures a difference between one's self-reported understanding between two moments of time. Since the beginning, the control group members appeared aware of their individual energy consumption levels and habits and this position remained unchanged through ex-post. Most interviewed consumers in the control group explicitly stated that they had already earlier done everything they can do to save energy in their own housing setting, even though not all of them said not to have had made a home energy analysis with an ASSIST energy advisor. Many were keeping their indoor temperatures low to save in energy costs, which is slightly alarming. This high awareness is probably connected with a modest ESI, too. How could more energy be saved through assistance, if measurable energy savings would be possible only through cost-intensive energy renovations, that a vulnerable consumer cannot afford?

3.3.4 Critical analysis of the ASSIST method

Considering small control group sizes, ASSIST energy saving calculation method was probably slightly too complex. In addition, problems arise when trying to achieve reliable data from vulnerable consumers on a voluntary basis. In a study like this, often the collected data and consumers' answers to single questions were more interesting (than their aggregated sum). A suggestion for the future methodology to study the effectiveness of energy advisory would be to categorize different types energy advisory tips and looking the power of each type of tip separately. For example, thrift use of electronic gadgets brings very different changes to the lives of people and the comfort levels at homes than making simple heating energy efficiency fixes (e.g. insolation tape); or let alone large energy efficiency renovations.

Furthermore, it might have been interesting to separately look how many families had changed to a cheaper energy supplier due to advisory, and how beneficial the change had been (in Finland there are no social tariffs for energy as in many countries). The energy price was surveyed, but ASSIST indicators did not highlight this item, but it was left for partner countries.

3.3.5 Lessons learned

As mentioned above, a less complex methodology of demonstrating influence of energy advisory is recommended; separately assessing how different energy saving tips were making difference; and ensuring a 12 months' time span between ex-ante and ex-post would be recommended for the future. It is also recommended to pay attention to the wording of consumer questions posed, to ensure they are comparable between countries because it is not only about languages but also small nuances

within a language that determine how different questions are interpreted by consumers.

This study gives many suggestions for further energy poverty research in Finland. One of them is the “ability to keep in indoor temperature adequately warm” indicator among different types of household occupants that requires more scrutiny.

Should there have been an extra six months to complete HEA actions, we might have demonstrated different numeric results. Delays were originally due to a late identification of enough local collaboration partners and collaboration forms, and consequently HEA involvement, but we learned a great deal about all that. We also learned on how to communicate energy vulnerability and translate different connected phenomena for different audiences or stakeholders in a country where ”energy poverty” is not a commonly used term in public discourses and still somewhat suspicious.

3.3.6 Conclusions

The ASSIST consumer survey conducted here is unique in the Finnish context and shall be repeated with a larger consumer group, but with some technical amendments to the methodology as explained above. A deviation from energy saving target in Finland was mainly due to a lack of reliable data, but also because the consumers in the control group turned out already being very energy conscious, and already having done many of the energy saving tricks that were possible for them. Two consumer studies conducted during ASSIST offer interesting information on forms of energy vulnerability in a country with many particularities on European scale. They also confirm that there is an enduring need for vulnerable consumer’s energy advisory.

3.3 Italy

3.3.1 Data collection method

In order to collect data, we used the survey template defined in D4.4, with a couple of added questions. We wanted to know exactly what kind of activity the HEAs have performed with the consumers – such as checking the bills, help filling social bonus documents, provide advice for energy efficiency – and what kind of issues the consumers have already found in the market. Most of them answered excessive billing, lack of building insulation and problems in obtaining the social bonus. We consider this to be valuable information about vulnerable consumers, also very useful for WP6 activities – thus making every HEA a kind of little help-desk operator.

Ex-ante and ex-post were collected by HEAs through the Moodle platform. The involved HEAs after the ex-ante kept staying in touch with the selected consumers in order to collect ex-post surveys smoothly.

In Italy, the most involved HEAs were the ones linked to Consumers Associations. In particular, the local offices of the associations were the most effective ones. Considering their diffusion on the national territory, consumers associations enjoy a peculiar relationship with consumers. On a local level, they are better equipped: they personally know people in the specific area – thus creating a mutual trust relationship. The role of HEAs working for local consumers association consequently affected the type of vulnerable consumers reached. In particular, elder people, mostly retired persons, are frequent users of consumers association – even though HEAs were able to involve households too. They are more diverse with regard to income and health conditions. Ex-post collection was mainly performed in a specific geographical area, were HEAs enjoyed a strong relationship with consumers.

Problems arose according to the different type of HEAs. Most of them had problems in collecting even the ex-ante data, because consumers were usually unwilling to talk about their vulnerability and distrustful in providing their own consumption data. Thus, problems in collecting ex-post were connected to the availability of the consumers, and to the ability of the HEA to keep a continuous contact with the consumers.

3.3.2 Profile of consumers reached

In Italy the large majority of households use natural gas as primary source of heating – that doesn't change too much with regard to the vulnerable. Anyway, some of them in order to save money prefer to use other materials or prefer to be cut off the gas grid and do not heat up their houses (mostly in the south).

Vulnerable consumers showed lower consumption than average - but in some cases vulnerable consumers do not have a clear idea of their consumption and are even in the need to be advice regarding consumption efficiency.

Most of the vulnerable consumers are on standard (or default) price (called "Servizio di Maggior Tutela"), which is based on AU's purchasing on sport markets and established by the Energy Authority every 3 months. Some vulnerable consumers are on a free market contract, and, in some cases, they seem to pay too much (as for lack of understanding of the offer they have picked) and asked for advice on their bills

3.3.3 Results: Saved energy and increased comfort through dedicated consultancy.

The actions carried out within the ASSIST framework can be considered successful and were able to achieve the desired results, although we could not reach the required target of 750 engaged vulnerable consumers due to a series of difficulties in interacting with the organization HEAs belonged to, in particular consumers associations and trade unions.

But, as said, the results of the ASSIST actions have been positive, as the engaged vulnerable consumers could both obtain energy savings, thus savings money, and improve the comfort in their homes.

As reported in D5.5, the overall ASSIST Energy Savings Indicator (ESI) is about 5.5% (slightly less than the expected target of 7%), a good level if you take into consideration that the annual consumption of vulnerable consumers in Italy is already much lower than the average end user's consumption (even less than one third in some cases): this implies that the margin to further reduce their consumption by activities such those carried out within the context of the ASSIST actions is greatly reduced. One possible way to increase the energy savings is through other types of a interventions such as, for example, the replacement of old windows with more efficient ones or of inefficient appliances with modern ones.

Vulnerable consumers also experienced an increase in the comfort level inside their dwellings in the ex-post evaluation with respect to the ex-ante evaluation, which were at least six months apart. The value of the overall Vulnerability Empowerment Factor (VEF) is 0.5 and, even if it is not high, it can be considered a good value; in fact, the houses in which vulnerable consumers usually live have low performances from an energy point of view; therefore, as already explained above, it very difficult to greatly increase the comfort levels inside such types of houses through activities like those carried out within the ASSIST frameworks. More radical interventions, such as adding thermal insulation to the house or installing a cooling system, would be necessary to increase the comfort inside the houses.

All this kind of activities, however, go far beyond the outreach, budget, and timeframe of the ASSIST project.

As regards the price paid by vulnerable consumers, most of them are already on the so-called "default market" ("Servizio di maggior tutela" in Italian), which allows them to get the most convenient price of electricity and gas; therefore, HEAs actions did not stress this aspect to save money, in favour of other activities such as, for example, providing energy efficiency tips.

The overall impact of the HEAs activities can be considered successful and the proof of this are the small improvements in the comfort inside their homes and the positive value of the energy savings achieved; moreover, most of the engaged vulnerable consumers gave positive feedbacks about the activities in which they were involved and this will be the basis upon which the continuation of the ASSIST activities beyond the project duration will be built.

3.3.4 Critical analysis of the ASSIST method

The European method proved to be correct in order to evaluate the consumption saving of the target. Anyway, the 7% hypothesis was probably not perfectly tailored to the consumption pattern of Italian vulnerable consumers, who are already used to reduce their consumption. A lower amount would have been more feasible and suitable to the Italian context.

The ASSIST method proved to be valuable as the results are quite good – considering that the tool was related to changing consumption habits, while the bigger problems concern building efficiency.

3.3.5 Lessons learned

In Italy, the strong involvement of local associations allowed to have a good activity on the field. We were able to create a large network of stakeholders, in several sectors – also charities – thus allowing to perform and communicate better the activities of the project.

Engagement of the HEAs was not homogenous: maybe it could have been better to create a stronger relationship with them (or the organizations to which they belong) since the beginning of the ASSIST project. In collecting the questionnaires, better results were obtained organizing events with consumers – but that proved to be difficult to be organized by most of the HEAs.

3.3.6 Conclusions

The Italian team put a lot of effort in communicating with the HEAs to push them to implement actions. However the effort did not enable to reach so far the final target of 750 consumers, but some HEAs have informed the partners of their idea to implement in the last months of the project some actions so hopefully by the very end of the project the target will be met.

The project has highlighted the interest on energy poverty and the willingness of people to increase their competencies and skills. The project has also proved the goodness of the ASSIST model as a holistic model to tackle energy poverty.

However, the project has also highlighted the need to have a strong “social” commitment of the operators and strong communication skills.

In order to optimize the ASSIST model a lot of effort is needed to support the HEAs in the delivery of the action. During the project, several existing networks based on the same model of ASSIST (such as the Energy cutters in Flanders the RAPPEL network in France, etc.) were encountered. A future activity for the follow-up of ASSIST would be to better study their sustainability model and to replicate it for the follow-up of ASSIST.

3.4 Poland

3.4.1 Data collection method

In Poland there were two types of ex-ante and ex-post questionnaires: Survey-Checklist which was used only as ex-ante questionnaire and the excel file as a tool of self-energy audit, used as both of them (ex-ante and ex-post questionnaires).

Survey-Checklist was a document with 17 questions. Most of the questions were closed: with 2 or more answers, which had to be chosen from the list. The checklist based on the survey template as in D4.4. We decided to add more questions, however, we underlined that it was no need to complete everything. These extra questions were prepared as a tip for HEAs to help them during contacts with vulnerable consumers. The questions and their order were prepared, basing on the meeting with consumers. This could help HEAs to feel free during the conversation and not to forget important points of energy and social issues.

Self-energy audit was an excel file, prepared to evaluate energy efficiency of the household and point potential savings. HEAs filled several groups of information into the excel sheets and in effect, individual output was generated for household examined. This was presented as list of solutions with potential yearly savings in PLN. During ex-post, HEAs used the same household file, updating data and interviewing consumers which (if any) of recommendation from first audit were implemented. This approach was chosen to collect much more detailed set of information from each household and to ensure there is a common methodology used by all HEAs. Unfortunately, this methodology did not allow us to measure VEF in period shorter than 1 year, therefore VEFs are not taken into account to count general KPIs’.

The questionnaires were collected by HEAs. They could send it to us (as a scan) or upload it in Moodle platform. However, all of the HEAs who participated in ASSIST

actions sent it to us by e-mail or by traditional post. Answers from surveys was collected in the database by Partners. As a result, we have collected 468 ex-ante surveys and 98 ex-post surveys.

All ex-ante surveys were collected by different types of HEAs. Most of the questionnaires were collected by social workers from Warsaw, municipality workers from Gdynia, Eco-Managers from Małopolska Region and workers from Consumer Organization, who conducted the survey in few different major cities in Poland. The main reason why these HEAs were the most active was the fact, that advising people who are financial and/or energy poor is a part of their work. ASSIST training helped these participants not only to become HEAs but also gave them an opportunity to broaden and strengthen their knowledge in both social and energy issues.

Ex-post surveys were collected only by workers from Federacja Konsumentów. Our HEAs returned back to 100 households and checked their ex-ante evaluations and compared outputs after a 6 months period.

Planning the survey collection process was not easy. People who took part in ASSIST trainings were not sure if they could find consumers who will be energy poor, then encourage to the meetings and to answer survey questions.

In Poland, there is no official definition of energy poverty or people who may be exposed to it. The easiest way to find such people is to use the knowledge of social assistance workers, who will indicate people under their care. Therefore, the first energy poor people were these with very difficult situations, either financial or health. In order not to discourage HEA who were supposed to make contacts with such people for the first time, we decided that most of them should do 2 actions: collect only ex-ante surveys (as a start of work) and, above all, find a way to help particularly difficult cases - such as advise opportunities obtaining co-financing for thermo-modernization of buildings.

Because of that, we decided that the easiest way to collect both ex-ante and ex-post surveys was to use experience professional group of HEA – workers from Consumer Organization. Federacja Konsumentów has experience in horizontal (not only energy) advising for vulnerable consumers, therefore our HEAs selected a control group of 100 households in several spots (big and small cities, also rural areas, please see the map next page), to ensure representativeness of this exercise.

In Poland there was no problem in reaching the target of ex-post questionnaires, however, sometimes HEAs had problems with other issue, which had not been considered during preparations of questionnaires. Among these problems can be mentioned:

- Changes in number of people living in household,
- Changes of addresses people who took part in ex-ante survey or change of inhabitants
- In 2 (of 100) households ex-post was not possible to perform
- In several households we could not collect data in the same scope as it was collected during ex-ante

Despite of above, accordingly to common methodology declared in the project, we ensured that in the probe of 10% (75 households) we collected full data scope necessary to make a comparison.

3.4.2 Profile of consumers reached

Below you can find the results of ex-ante questionnaires and a few insights of HEAs after contacts and discussions with consumers.

Like it was written before, HEAs, who conducted ex-ante questionnaires work in different towns and cities around the country. Below there is a map of towns and cities in Poland, where consumers were assisted by HEA.

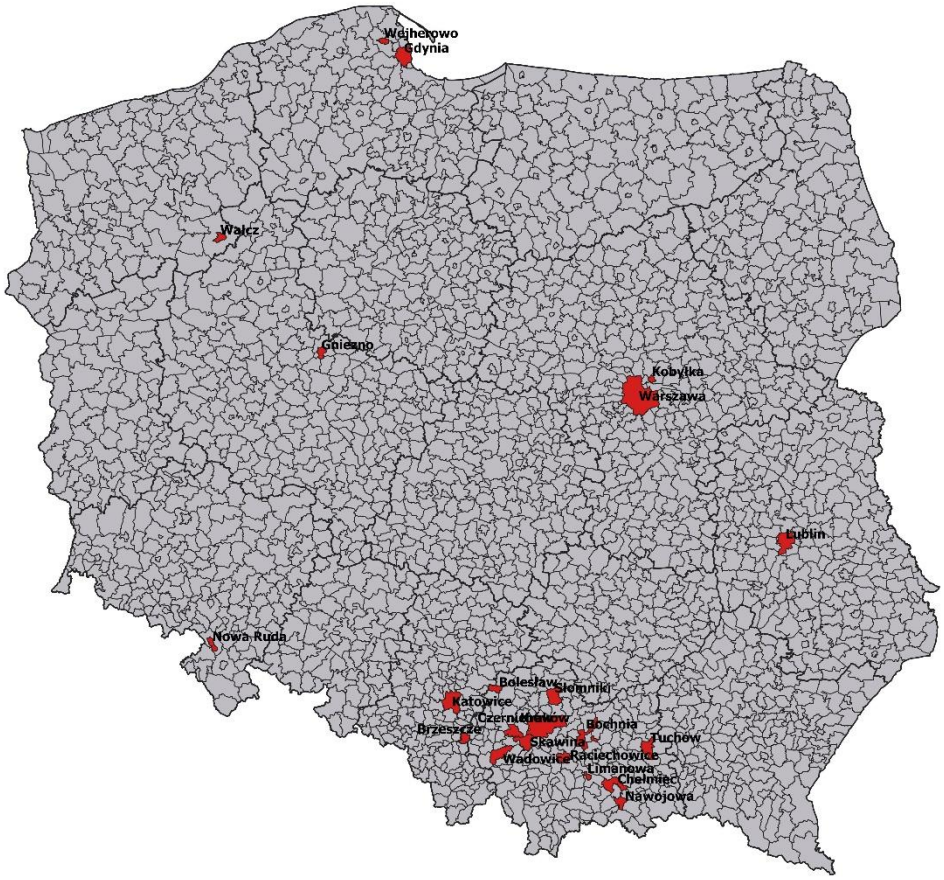

Figure 13 Regions where ex-ante survey where carried out in Poland

The area, types of families, households and buildings where they live are the reason why the results of polish surveys should be considered as quite representative.

Most of consumers and their families, who took part in the ex-ante survey were indicated by social welfare system. That is why most of the people were financially poor. They usually live in old buildings with bad conditions. Most of these people do not have enough funds to pay for heating throughout the winter. Renovations the building to reduce the building's energy needs are even more difficult. Families who live in single-family buildings are the owners of these buildings. However, some of the respondents live in rented apartments, where there is no direct possibility to influence the owner or manager to renovate or insulate buildings, replace electrical installations or central heating installations, including a boiler.

Almost 47% of respondents said their primary heating source was coal. More than 25% use natural gas to heat their houses and almost 19% use district heating. Result for all of the ex-ante surveys are shown on the graph below.

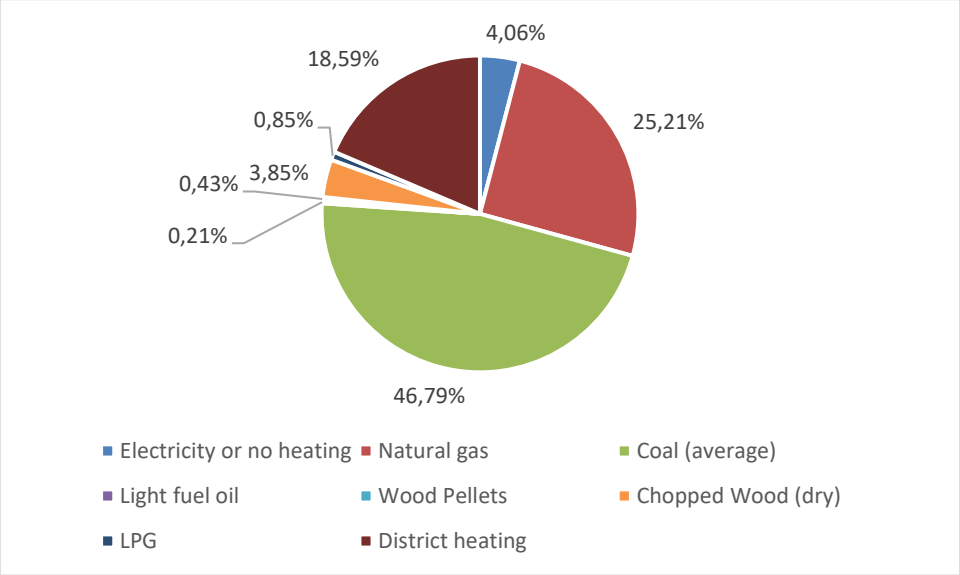

Figure 14 Primary heating sources of vulnerable households

The results of the questionnaires show that a lot of people use district heating. It has to be underlined that district heating is only in the bigger town and cities, however most of vulnerable consumers live in smaller towns and villages. That is why this result could not be seen as a representative value. People in villages usually use coal or wood as heating source. The last one is usually more popular because it is easier to buy it (near distance do forest and forester's lodge). In our survey only 3,85% of respondents said that use chopped wood and 4,06% - wood pellets.

However, these results show only the first and main heat source. A lot of respondents use more than one source to heat their houses and apartments. Below you can see the graph of result of that.

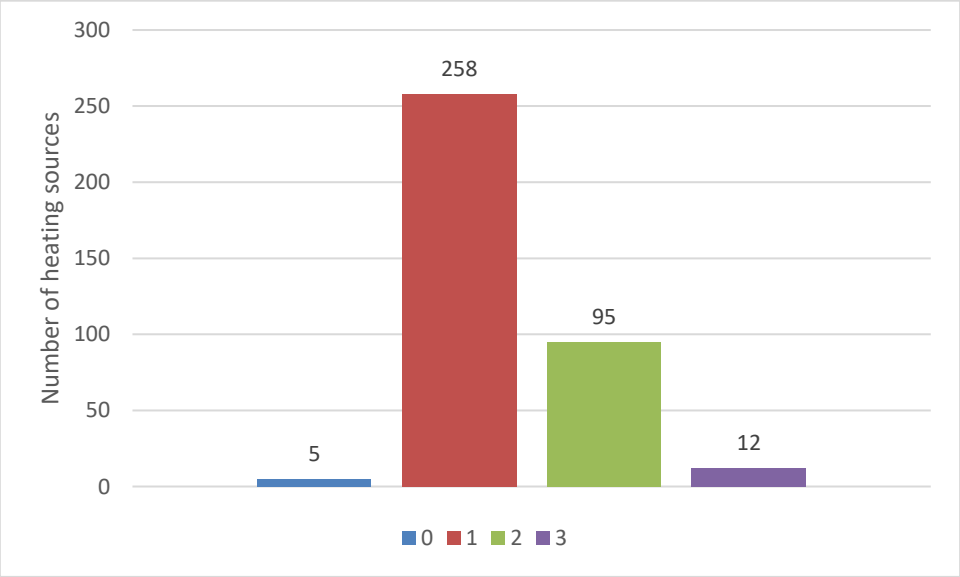

Figure 15 Fuels used in households
***Results only from surveys collected by "KAPE's HEAs"**

Despite of the fact, that most of the families (70%) use only one type of fuel to heat their living space, we observed that 95 households (26%) use 2 types of fuel and 12 households (3%) use 3 types of fuel. Our conclusions are supported by analyses of the group of 2 and 3 fuel types.

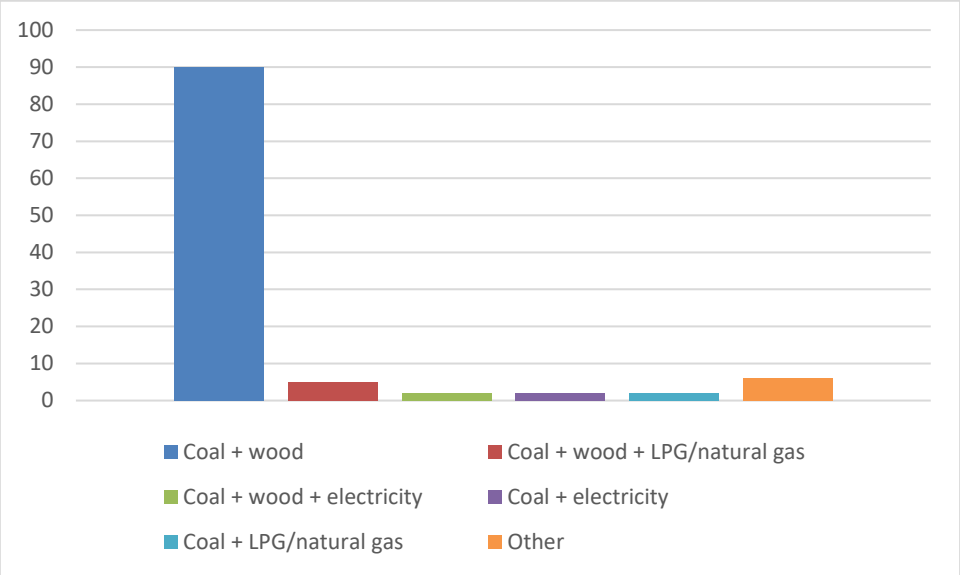

Figure 16 Fuels used in households with more than 1 type of fuel to heating houses

The graph above shows that most of the households use coal and wood to heat their houses (84%). However, other 7% also use coal and wood but also other fuels like: LPG, natural gas or electricity.

Looking at the results from our ex-ante survey we have to say that vulnerable consumer (who took part in our survey) and his/her family use usually 2 148 kWh per year for electricity and 25 344 kWh per year for heating. In total, results for whole group of 468 surveys are:

- 979 653 kWh/y for electricity consumption ex-ante,
- 11 557 050 kWh/y for heating consumption ex-ante.

Basing on that we can say that vulnerable consumers, who took part in the ex-ante survey use 12 536 704 kWh/y (all 468 summed together).

Typical polish family uses about 3 000 kWh/y for electricity. The numbers from survey say that vulnerable consumers use less than a typical Polish family. It could be caused by the fact, that these people do not have a lot of electric equipment. Most of them see how much they have to spend on electricity, and they have to use less

electricity to spend less money. However, in a lot of cases people just switch off the lights, because they do not know other examples of saving energy.

The main and the biggest problem of heating comfort in vulnerable households in the bad condition of buildings. Sometimes we do not need a specialist to say what should be done in the building to change the situation of households. However, there is still another big problem – finance.

In many towns, cities or even in whole municipalities there are several financial programmes. Because of the bad air quality and the statement that the main problem is local energy sources, which use coal and other fuels with high pollution emissions, the first thing that municipalities would like to change to ”repair” the air is to exchange old and bad boilers and other sources of energy. It is a good step, but first of all we should think about the building. Why do we choose boiler before thermal modernisation of the building? The building before this action need more energy to generate proper heating comfort. The answer is of course money. In case of vulnerable consumers, the money is always a problem. First of all, people have to spend the money for food and health, then they think about renovation of their houses.

Most of the houses of vulnerable consumers are old and non-renovated. A lot of people live in too big houses. Why do 2 persons need 200 m^2 of house, if they spend most of their time in two rooms? A lot of people during the winter close rooms which are not used to switch off the heating in these spaces. On the other hand, a lot of householders do not even think about this action.

Another very big problem is that people do not have enough money to buy fuel for the whole heating season. In case of wood, people prefer to buy wet wood (because it is cheaper) and then they do not dry it enough. This is not good for them, their health and for air quality. What is more, wet wood does not give as much energy as dry wood. A lot of people who are vulnerable consumers have health problems. They can buy wood or coal, but they do not have a possibility of chopping it (wood) or transfer the coal.

There are also more problems. Every example is new and a little bit different. However, HEAs could help every vulnerable consumer with little steps.

The average price of paid for electricity in vulnerable households in Poland is about 0.21 €/kWh. In comparison with the prices presented by Household Energy Price

Index database by VaasaETT, Energie-Control and MEKH[4], which indicates a price of 0.18 €/kWh for Poland, vulnerable consumers pay more.

Looking at the ex-ante surveys: 328 respondents said that the price is higher than average price of electricity in Poland[5], what is 70% of all of the respondents. Only 30% of respondents (140) said that the price is lower than the average one, so vulnerable consumers usually pay more for electricity.

The biggest group of respondents[6] (45%) said that they know how to save energy to some extent. The next group – 23%, for sure know easy methods of energy saving. Only 7% of respondents do not know anything about it. The graph below shows results.

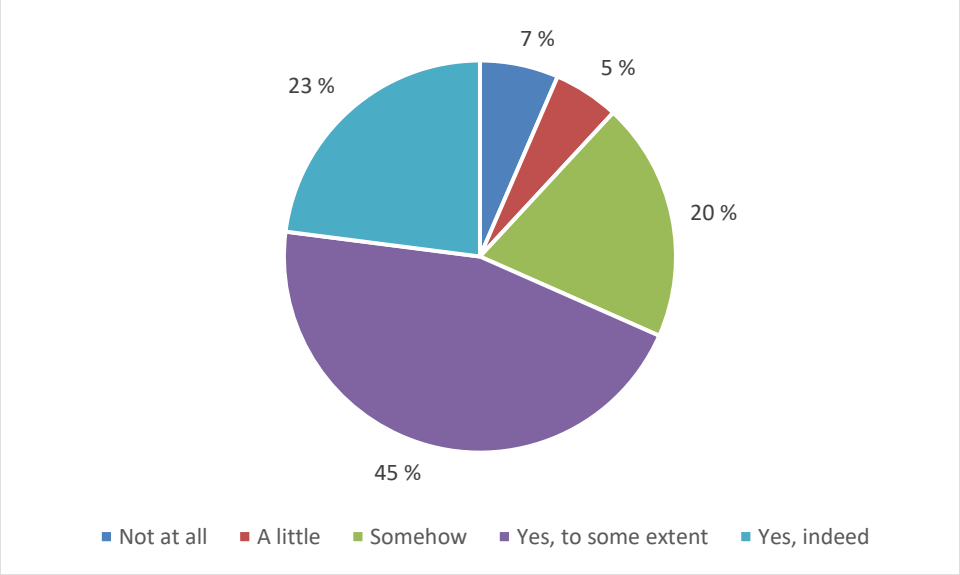

Figure 17 Knowledge about easy methods of saving energy

***Results only from surveys collected by "KAPE's HEAs"**

The question about that was not prepared in easiest way – with asking the question: "How do you feel about that, how to save energy?". The question was: "Do the householders know the methods of energy saving?" There were 9 answers, like switching off the lights etc. with possibility of adding their own answers. Only 5 respondents added their own answer, however one of that was not proper. Basing on numbers of answers in this question, we prepared the scale to find the right factor.

[4] Available at https://www.energypriceindex.com/
[5] The average price of Electricity is 0,18 €/kWh. Database: https://www.energypriceindex.com/, 27.03.2020 r.
[6] The average price of Electricity is 0,18 €/kWh. Database: https://www.energypriceindex.com/, 27.03.2020 r.
[6] The results only for surveys collected by "KAPE's HEAs"

3.4.3 Results: Saved energy and increased comfort through dedicated consultancy.

1. Saved energy:

Our HEAs during ex-ante estimated potential savings for particular household. Accordingly, to this estimation energy purchased (in all forms and purposes) can be reduced significantly – average savings potential was calculated at **29%** of current consumption.

However, proposed solutions were not always easy to implement, for several reasons: some are rather expensive (like PV installation or house insulation), some are not possible at all because of lack of municipal infrastructure (example of flats heated by electric energy because there is no system heating nor gas installation in the whole building).

In the first place, our HEAs tried to offer such solutions that are technically possible and not demanding in terms of costs. Such implementations gave us savings potential c.a. **14%** on average.

During ex-post evaluation we compared the initial situation (Jun 2019) and present one (Jan/Feb 2020), including changes made and solutions implemented by consumers during this period.

- 44 (of 75) households made some changes in their electric energy consumption
  - In which 13 saved more than 7% of EE (in kWh)
  - The biggest savings reached were above 20% (in kWh)
- 22 (of 75) households made some changes in their heating sources consumption
  - In which 6 saved more than 7% (in kWh)
  - The biggest savings reached were above 25% (in kWh)

General output numbers are, however, not so impressive. Overall KPI counted on the comparison bases is **3.36 %** (vs. expected 7%). There are several reasons for that:

2. Comfort level:

We decide not to include comfort level into evaluation. Ex ante surveys were conducted during summer and ex-post during the winter. Temperatures inside the house / flat are totally different as well as subjective to consumer's feeling. Our methodology allows to compare this on the basis of relevant season or on at least 1-year period base. Therefore, thermal comfort was excluded from calculation.

3. Electricity price:
Electricity price was excluded from the evaluation. The reason is that the vast majority of vulnerable households in Poland has no smart meters yet and the invoices are issued on the consumption prognoses and verified in 6-month periods by DSO's. This means consumers get real billing every half a year. During ex-post exercise, there were no latest calculation available in majority of households. Therefore, the supplier of tariff change recommended by HEA and implemented by consumer, will give results in forthcoming months, but during ex-post was not known yet.

4. Empowerment factor:
Consumer awareness empowerment seems to be one of the biggest successes of HEA activities and ASSIST project itself. From HEA relations we can state that consumers were much more conscious and realized that their budget spent on energy depends directly on their decisions and behaviour. Again, it was not possible to measure this factor by objective criteria, because the period between ex-ante and ex-post was too short.

3.4.4 Critical analysis of the ASSIST method
The calculation method was quite complex and professional. We did not use it in full just because we are using different set of criteria, more relevant to Polish background (including coal or even wood as main source of heating, regulated prices for G tariff, no smart metering and 6 months billing period).

We believe the main issue is not the method, but too short time between ex-ante and ex-post surveys. Full year would have been much more relevant.

3.4.5 Lessons learned
The main lessons learned are:

- HEA competence profile is good and should be further developed and disseminated
- HEA network is possible to maintain but without any financing for HEA a constant care and relationship management is needed (which is also costly).
- Thanks to the project, we are able to bring a real change for the consumers.

3.4.6 Conclusions
HEA activities in Poland have had some very positive impact. First, we have a map of entities, public and private, administration, NGO's, companies – who are interested in this model of competence and in further cooperation. Second, we have a lot of

experience collected by HEAs in reaching consumers and getting their trust – in many cases HEA visited homes twice and asked quite intrusive questions about number of persons in household or level of income. Last, but not least – our active HEAs are declaring their interest to follow-up and this is the best conclusion for us.

3.5 Spain

3.5.1 Data collection method

In Spain we started with the pilot months before the consortium agreed on the final questionnaires. This is why, during our first pilot with the Home care services in Barcelona we designed our own questionnaires. Once the ASSIST survey questions were agreed, we adapted ours to fulfil the criteria. This fact made the analysis of the first pilot a bit complex in order to adapt the data to the questionnaires finally agreed by the project.

Due to the complexity of our HEA profile (middle aged worker with low IT skills) we opted to be flexible in the collection method. This is why we have a variety of collection methods:

- In paper format in person
- In paper format by email
- Through Google surveys

HEAs were the connection between the vulnerable consumers and ASSIST so all HEAs were involved in the collection of the questionnaires both ex-ante and ex-post. The agreement needed from each beneficiary in order to comply with GRDP, limited the initially planned coverage of vulnerable consumers. Each HEA works with a fixed number of vulnerable consumers and they estimated they were able to give energy advice to all of them and the reality was a bit different and not all they users accepted to participate.

The vulnerable consumers who participated in the project were users of the home care and telecare services where the HEAs work. Their participation depended on the communication of the project by the HEAs and on the vulnerable consumer's own interest in improving their energy use in the home and saving in their bills.

All possible ex-post surveys have been collected. HEAs had regular contact with their users so they proposed all of them, when possible, to complete the ex-post questionnaire. However, home care and telecare services are public services that attend people in a very fragile and vulnerable situation so in some cases, the ex-post

collection was not possible (participant's death, relocations…). There had been no control group.

For the second HEA profile in Spain (energy professional HEAs) all the ex-ante questionnaires where collected in paper format, handed out by the HEAs at the energy company help desk to the vulnerable users attending the premises. For this case, the follow-up of the end users was more difficult, as HEAs did not have periodic contact with most of the vulnerable users and, therefore, the ex-post questionnaires were collected by telephone.

The complexities collecting ex-post surveys can be summarized as follows:

- Home care service or telecare are a fragile group, mostly old people in a situation of vulnerability. Some of them have died or have been relocated to nursing homes before the 6 months follow-up arrived.
- Home care services have many workers and some of the HEAs assigned to ASSIST have been relocated to other users in the middle of the project.
- In some other cases, HEAs have changed jobs and left the project.
- In some cases, committed HEA lost the initial push and did not boost the second questionnaire.
- For energy professional HEAs was not always possible to engage the VC by phone to collect the required information.
- Time constrains has also been an issue both for energy professional HEAs and for the end users, as, sometimes HEAs had a busy workload and end users did not want to invest the time to fulfil the questionnaires.

3.5.2 Profile of consumers reached

The most common primary heating source is electricity (44%), followed by Natural gas (23%) and others like wood pellets or diesel (1%). It should be noted that 31% of households do not have any type of heating system.

In general, vulnerable consumers reported that comfort in their homes is low. On one hand, in many cases, households are old, with simple glass windows and little or no thermal insulation. On the other hand, heating systems are in many cases inefficient and heating the house becomes weak.

In the case of Spain, energy demand in hot periods is also very important and most households do not have a cooling system.

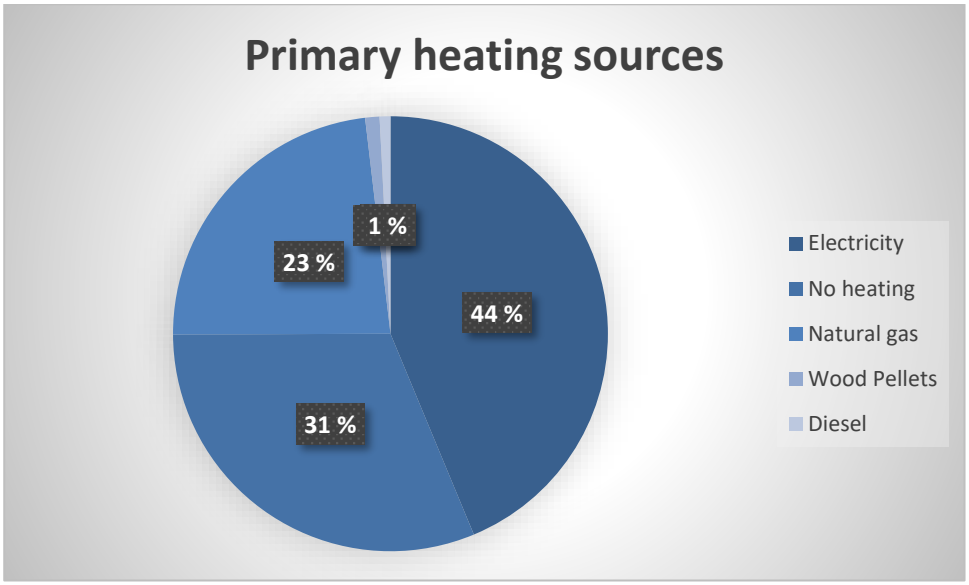

Figure 18. Primary heating sources of surveyed consumers in Spain

Vulnerable consumers do not pay more for their electricity. As expected, there was not difference between what ASSIST beneficiaries paid for electricity and the national average price.

The empowerment factor in the ex-ante questionnaires is very low. According to the Spanish National Regulator, CNMC, in Spain 8 out of 10 households don't know which kind of energy contract they have. This is why we were not surprised about the low rates of empowerment factor identified through ASSIST ex-ante questionnaires.

3.5.3 Results: Saved energy and increased comfort through dedicated consultancy.

- **Saved energy**: The savings achieved through interventions by ASSIST actions have represented an average of 4.5% savings per household.

The target was not reached, but this number is considered good considering that energy advice has been based on proposing measures focused on changing user behaviour regarding energy uses. In households with energy poverty, consumption is already lower than the average for all consumers, so 4.5% savings is a good value.

- **Comfort level:** The comfort level increased an average of 0,8 in the ex-post compared to the ex-ante. However, to considerably increase comfort levels, passives measures to refurbish the home or active heating measures are necessary. ASSIST interventions focused on improving energy habits of

vulnerable consumers and recommending low-cost materials to improve the efficiency of housing, so it was not possible to achieve a greater increase in comfort levels.

During the first ex-ante and ex-post interventions we identified that beneficiaries did not remember what they had reported before. A clear example was the question on comfort. As this is a quite subjective parameter, in the same conditions you can report different status just because of the inaccuracy of the parameter and the moment of making the question. To avoid these inaccuracies, in the following pilots we asked the question only in the ex-post questionnaire, asking if the comfort level had increased or not between the interventions.

- **Electricity price**: In Spain, consumers can contract electricity supply on a free market or on a regulated market (last resource). The regulated market is more economical, offers more protection to the vulnerable consumer and gives access to the electric social bonus. One of the tasks performed by the HEAs was to switch to the regulated market all consumers who were not and wanted to make the change and help to request the electric social bonus (with discounts of between 25 and 40%) to consumers who met the requirements.

Overall, 33% of vulnerable consumers reduced the cost of their energy bills thanks to advice from HEAs.

- **Empowerment factor**

Yes, generally vulnerable consumers feel more empowered after HEA intervention. The Vulnerability Empowerment Factor in Spain is high (3.9) thanks to the emotional bond that already exists between HEAs and vulnerable consumers. This is one of the most remarkable conclusions on the ASSIST experience

- **VCEA Network activity and impact**:

In the Spanish context, differences between the different pilots have been found on the effectiveness and the impact of the ASSIST actions.

On the one hand, the pilots carried out through the Home Care Service have had a greater impact in energy savings. This can be explained for two reasons. The first is the existing emotional bond that builds the confidence of vulnerable consumers in HEAs when they offer counselling. The second is the type of intervention. In the case the Home Care Service pilots, the HEAs not only carried out the intervention at home, but the visits were carried out weekly and, in some cases, even daily. This fact has made possible to monitor the measures implemented by vulnerable consumers and

to give advice and reminders many more times than in other pilots, such as the Tele Care Service or the technical advice in Alginet pilot.

On the other hand, the HEA profile of the Home Care Service have proven being good identifiers of energy poverty situations and good prescriptors of energy advice, but they need support while managing specific complex cases on energy issues or while giving advice on energy bills. Other pilots, such as the Tele Care Service pilot or the technical advice in Alginet, have given better results in advising on the energy bills of vulnerable consumers, since the professional profile has more training and capacity to understand the complex concepts of the energy market.

3.5.4 Critical analysis of the ASSIST method

Although the use of a global indicator has helped us to harmonize results, ASSIST KPI indicator presents limitations in terms of impact.

The KPI indicator has not been favourable in the case of a slight improvement in comfort or a lack of improvement in the price of energy. The indicator sometimes penalizes the results of energy savings as in many cases reported in Spain, KPI value is lower than the actual electricity or gas savings reached.

Concerning the overall ASSITS method, the evaluations of the HEAs and its users are very positive. Thanks to the ASSIST project, many vulnerable users have had access to valuable information on improving comfort and energy use, as well as saving on bills. And an added and intangible added value is that trained HEAs will act as multipliers, with a snowball effect beyond the project and will give advice to other users, relatives, friends, or other professionals.

3.5.5 Lessons learned

Working with local public bodies and incorporating ASSIST project as part of professionals' paid tasks is the key of our success. This ensured the high number of trained HEAs and gave us the opportunity to get in touch with vulnerable consumers, HEA's users from home care services and telecare. However, we underestimated the vulnerability of beneficiaries of these public services and we should have foreseen to train even more HEAs in order to reach widely the target. Each professional has an average of 4–6 users and initially we thought all users could be potential beneficiaries. However, reality is complex and not all were eligible due to their situation of fragility. The combined training methodology (online+ face-to-face) has been positive, too. However, the online follow-up with home care professionals has been complex. When we identified such complexity, we increased the number of face-to-face meetings which was a success as HEAs felt confident.

3.5.6 Conclusions

Working with different profiles has been useful to compare results. Carrying out ASSIST actions through two different profiles (technical and social) has been positive in order to compare the impact of these actions on vulnerable consumers. In addition, the variety of social profiles has also allowed the comparison of the results between them.

The methodology of ex-ante and ex-post has resulted an effective way to measure ASSIST impact through energy agents. Although there are more precise methodologies to make an impact assessment, taking into consideration that the action has been carried by non-energy professionals, the questionnaires have worked well. Making a diagnosis of the initial situation of vulnerable consumers not only at the energy level but also in comfort and empowerment, has successfully measured the impact of the ASSIST project.

To integrate ASSIST action in HEAs work hours has contributed in reaching the target. There have been two key factors in the success of achieving the target of the number of vulnerable consumers advised. On the one hand, the integration of the ASSIST actions in the working hours of the HEAs. On the other hand, the advice was focused to the users of the services where the HEAs work (Home care service, tele care service and energy companies).

Regular advice has resulted more effective than punctual advice. The impact on energy savings has been higher in the pilot carried out with the home care service, with continuous advice (weekly or even daily in some cases) than in the other pilots where the advice has been punctual.

Different HEA profiles, different impacts. HEAs' profile has been relevant in terms of the vulnerable empowerment factor. It has been detected that vulnerable consumers advised by professionals with previous knowledge and fewer IT barriers have reported a higher value in the vulnerable empowerment factor.

ASSIST impact assessment in terms of energy savings (4,5%) has been positive. A 4,5 % percentage of energy saving in households facing a situation of energy poverty is considered positive taking into account that their consumption is normally, lower than the average for all consumers. In some cases, the use of ASSIST indicator, due to its harmonizing effect, has reduced made invisible a greater reduction on electricity or gas.

ASSIST impact assessment in terms of Vulnerable Empowerment Factor evidences one of the ASSIST thesis: the emotional bond results in a more effective energy advice. The emotional bond has been a key factor in the impact of the ASSIST project in Spain. It has been proved that energy advice is more effective if it comes from a trustable person. Due to door to door aggressive techniques from energy suppliers, it is sometimes difficult to give advice as an external but with experiences like ASSIST, it has been proved that the emotional bond gives credibility to the energy agent advice.

3.6 UK

3.6.1 Data collection method used

In the UK we used the template of D4.4 without modifying the main questions but included a section for notes on the advice given so we could easily capture the energy issues and problems with the property, (not just the ones the consumers were aware of and wanted help with). The HEAs carrying out the home visits were given the option of either printed or digital versions of the questionnaire. They then could complete them on site during the visits or fill in the data on return to the office based on their home visits notes. Which process they chose depended on the working methods of their own organisations; (CCP, Barnwood Trust, WE Care Home Improvements, CAB etc)

As the UK had just 6 active HEAs, we collected ex- ante surveys by email which was collated by SWEA into an excel spreadsheet. Printed survey forms were collected from the HEA during catch up support meetings which took place from time to time with SWEA's ASSIST co-ordinator. The ex-post surveys were collected over the phone, as this seemed the most straight-forward way of contacting the consumers.

In the original activities plan, 60 home visits were expected to be completed by the 6 HEAs. However, the final number **was 90 home visits with 150 consumers supported**. The most active HEA involved in home visits was from CCP (Caring for Communities and People). CCP was one of the key partners in the ASSIST project and their drop-in centre was always planned to be central to the reaching vulnerable consumers in the region. The drop-in centre uses a triage system for assessing consumers' needs and a referral for a follow up HEA home visit was made if they needed more in-depth support. A large number of home visit referrals were made in this way, directly from the centre.

The consumers chosen for the ex-post survey were selected based on a number of factors;

- There was a six-month time period between first ex-ante survey and ex-post survey
- The HEA was able to contact the consumer- this was not always possible as some consumers had a negative change in their health situation e.g. hospitalisation or too frail to be visited
- The HEA knew the consumer would be willing to provide information for the second survey.

3.6.2 Profile of consumers reached

The profile of the vulnerable consumers supported by the HEA network fell into three categories: elderly people, people with health problems and low income families. Although these three categories are not at all mutually exclusive and are often inter-related.

The majority of UK households have access to the mains gas grid and have gas central heating installed. However, there are many rural places where the main fuel for central heating systems is either heating oil or LPG bottled gas. So, there are geographic considerations whether a household can access cheap heating fuel or not.

The other considerations around equitable fuel is within the rented sector where many properties are on electricity-only heating, usually with night storage heaters. These often do not meet the heating needs of the house and consumers resort to using expensive supplementary plug-in heaters to boost heat levels.

Pre-payment meters are also quite common in the rental properties, which unfairly impose a higher tariff than other forms of payment such as direct debit (the cheapest) and quarterly billing. Although payment type was not on the survey questionnaire, the HEAS observed that many of their low- income households were on pre-payment meters.

Of the 90 households in the survey 73% were gas central heating 3% LPG, 23% electric only and 1% solid fuel (coal). This is a fairly typical picture of semi-rural regions outside of the South East of England.

The average electricity consumption for the on-gas grid households was 3,280 kWh, which is higher than the current national average of 2,900kWh but closer to the average in 2019. (as referenced by https://www.ofgem.gov.uk/gas/retail-market/monitoring-data-and-statistics/typical-domestic-consumption-values)

NB – for a standardised comparison we are taking the medium profile on both gas and electricity class 1 to reflect the majority of users. See proviso below on electric only households.

However, for off-gas grid properties- those with electricity only heating systems (night storage heaters) - Ofgem provides separate data for 'Economy 7' users. In this category, the average electricity consumption in the surveyed households was 2,604 kWh which is below the national average for households at 4,200 kWh. This may be for various reasons including low income households under-heating their homes. Therefore, the profile of households in our survey would more closely following the 'LOW' user category of 2,500 kWh.

Table 33. Typical Domestic Consumption Values (TDCVs) for gas and electricity and Economy 7 consumption split. *Source Ofgem Jan 2020*.

	kWh	**Current TDCVs**	**Revised TDCVs**
Gas	Low	8,000	8,000
	Medium	12,000	12,000
	High	17,000	17,000
Electricity: Profile Class 1	Low	1,900	1,800
	Medium	3,100	2,900
	High	4,600	4,300
Electricity: Profile Class 2*	Low	2,500	2,400
	Medium	4,200	4,200
	High	7,100	7,100

3.6.3 Results; Saved energy and increased comfort through dedicated consultancy

Thanks to the ASSIST action, the 150 engaged vulnerable consumers were able to reduce their energy consumption and to improve the comfort in their homes.

Saved energy:
Of the 90 households in the ex-ante survey, 9 were followed up as a reference group with ex-post questionnaires. The 6-month time period between ex-ante and ex-post questionnaires covered part of the heating season (late summer to early winter) so gave a realistic reflection of a typical 12 months consumption. The target was to engage 60 households, so our target was not only met but exceeded due mainly to the dedication of a small number of HEAs.

The reference group households all showed energy savings and an increased empowerment and comfort level. Average fuel saving for households with gas central

heating (7) was just over **1,000 kWh** and the average electricity savings for all 9 households in the reference group was **400 kWh**. The results of this sample were then extended to the entire group of 90 households and 150 consumers. The estimated amount of saving in the UK is **84,401 kWh** which corresponds to about 7% of energy consumption and is approximately **930 kWh saving per household or 560 kWh per consumer.**

Feedback from the HEAs and from their home visits notes showed that there were common problems in the homes which the HEAs addressed; the heating programme set incorrectly (warm up and cool down times out of kilter) and room thermostats needing adjusting. Other common issues were old in-efficient use of freezers and hot water immersion heaters.

The estimated amount of savings from the reference group extrapolated to the whole extended group should have a caveat which is that it is not always possible to assume that the same level of savings would have been made across the board. The HEA might have advised the consumer to stop **under-heating** the home, as the heat level might have needed to be increased for the health and well-being of the vulnerable consumer. In this way savings in switching energy tariffs, energy efficiency advice about the property or behaviour change (all activities carried out in the home visit) might be counter balanced by longer period of heating or higher temperature settings.

Energy Price:
For the ASSIST consumers, many of them initially contacted the HEAs because of high bills and almost all of them were able to benefit from tariff switching advice and saw a reduction in their tariffs for both electricity and gas (where duel fuel was applicable).

In the UK, energy companies do not publish their tariffs in any clear way. Consumers need to search online and receive an annual cost quote based on their postcode and average consumption. The variety of rates is due to distribution costs that vary across the country. There can also be a penalty for low users, often being charged a higher standing order to make up for low consumption. The best and cheapest tariff deals are offered for 12 months only after which the tariff automatically defaults to a much higher tariff. Therefore, the onus is always on the consumer to switch every 12 months. This is very much an issue for elderly people especially those who are not connected and using the internet. The HEAs were able to help in this by directly researching the best deal and switching for the consumer or signposting them to tariff comparison websites such as energy helpline. www.energyhelpline.com

It was agreed that the monetary savings on energy price could contribute just 1% to the overall KPI on savings. However, in many cases the HEAs carried out on-the-spot switching for clients during the first home visit and were often able to save the consumers over £100 from their annual energy bill.

Increased comfort level and empowerment level:
The final results in terms of the Energy Savings Indicator (ESI), the amount of energy savings **(5.1)** and the Vulnerability Empowerment Factor (VEF) (**1.5)** can be considered positive and show the effectiveness of the ASSIST action in the UK. These were calculated according to the methodology defined in Chapter 4 in D4.4.

All the consumers in the 10% sample of ex-post questionnaires reported some increase in comfort level. The ex-post survey was carried out by telephone and so were not anonymous. There may therefore be some element of consumers wishing to reflect their positive experience with the HEAs by answering 'yes' to this question. But to a large extent it would be safe to assume that consumers did take action on the HEAs advice about improving the comfort levels in their homes.

From ex-ante surveys the picture presented of the consumers' empowerment level showed two areas where they didn't feel confident, especially for elderly consumers.

They weren't sure of where to get help on energy advice

They didn't feel confident to signpost or advise others on energy issues.

In the ex-post responses we saw a positive change in both these categories. It is hopeful that this shows that their link to energy support services will stay intact after the end of the project. And also, that the consumers have gathered enough knowledge to feel more confident about passing on what they have learnt, although this was felt to a lesser extent.

3.6.4 Critical analysis
The successful result of the ESI and VEF indicators may be due to the fact that the majority of the home visits were from self-referred consumers requesting help with their high bills and so would be pre-disposed to receiving advice and acting on it.

Two of the active HEAs were trained as money advisors who were able to find cheaper energy tariffs in almost every situation. In the UK the market is structured so that the onus is on the consumer to search out and switch to a cheaper tariff every 12 months. So with the HEA stepping in at this point it would be relatively easy to find a better deal for consumer, sometimes saving several hundreds of pounds a year.

The biggest challenge for SWEA was in the reporting requirement and encouraging

the HEAs to complete the surveys as part of their work. The main reason this was an issue for the non-active HEAS, were the time restraints on their already pressurised work schedules. SWEA worked hard to make the process of reporting as simple as possible for the HEA and also took a lot of time to translate the gathered information into the format needed.

Typical examples would be where HEAs did not have access to the actual energy bills and would only be told by the consumer that they spent £20 a week on electricity (pre-payment meters are rarely billed) or where a consumer has a monthly payment for both gas and electricity with no breakdown of the separate tariffs or costs per fuel. This would not normally be an issue for the HEAs' everyday work but to be able to use the data for ASSIST meant a great deal of extra calculations to translate the information to fit the ASSIST reporting template.

3.6.5 Lessons learnt

The main lessons to be learnt when considering maintaining the HEA network is about good communication and agreements between partner organisations. Without an understanding of the importance of energy poverty by the host organisation the HEA might not feel able to dedicate time to delivery energy advice in any kind of holistic way.

For future monitoring of the HEA network, the reporting would need to be simplified. Being able to quantify the effect of the HEAs engagement and to celebrate the success stories is important both for funders and the HEAs themselves. However, the components of the energy savings actions can be complex, including physical energy efficiency improvements as well as behaviour change actions and needs a careful monitoring programme like ASSIST to fully assess the impact. Without the financial support from ASSIST, which would be the best way to gather and present the results of the HEA network?

The case studies created by the HEA from CCP could be the way forward. These are short stories that highlight the problem and the solution in a very concise way. Some examples of these case studies are shown in D3.3. For monitoring of major energy efficiency improvement installations through schemes such as the Warm Homes Fund, pre and post EPCs (energy Performance Certificates) are issued which would show the before and after energy consumption.

3.6.6 Conclusion

Overall, the ASSIST project has supported some important new initiatives in SWEA particularly in deepening the working relationship with our partners in the community

and health sectors. The additional training and support provided by ASSIST to create the HEA network will be of benefit to residents of Gloucestershire well into the future.

The results of the home visits actions show that although energy advice schemes have been in place in the UK for many years, there is continually work to be done in helping vulnerable consumers save energy and money.

In the UK, it is significant that the current market policy of 12-month energy deals causes high spikes in energy costs for households. This has often triggered the referral to the HEA and is often the first action undertaken by the HEA. This can lead to substantial savings for the vulnerable consumer in terms of their energy costs, but would not, as a stand- alone action, automatically result in a reduction in energy use. The ASSIST package of training for HEA money advisors mean that the tariff switching advice is accompanied by energy efficiency advice that has a real beneficial effect on the vulnerable consumer's home comfort and financial budget.

The ESI results of around **930 kWh saving per household or 560 kWh per consumer** reflects the hard work of the HEAs involved in carrying out the home visits and submitting the information needed for the calculations.

4. Final conclusions

Through dedicated consultancy 750 vulnerable consumers were assisted and helped to reduce their energy consumption and increase their comfort level by specifically trained Home Energy Advisors (HEAs) in six European countries. Project partners trained volunteers or professional people for this endeavour. To test the efficiency and impact of these ASSIST advisory actions, a commonly agreed methodology and data collection process was implemented by the project partners. During dedicated consultancy, HEAs collected data on these vulnerable consumers' energy consumption, and their experiences regarding their energy use, related costs and comfort levels. After six months, HEAs in every country met a control group of 75 consumers, to monitor whether the ASSIST advisory actions had some positive impact on the energy consumption of the vulnerable households, either through increased energy efficiency, saved energy costs, or increased comfort in their homes.

Based on this extensive consumer data set collected, partners could draw conclusions on the manifestations of energy vulnerability in six very different European countries. In Chapter 3, ASSIST project partners offer valuable insights on the nature of energy poverty in their countries and highlight difficult situations in which some of their assisted consumers are living. For example, challenging housing situations or unbearably high energy costs may inconvenience some vulnerable groups such as elderly people or disabled. One measured European-wide finding

was that vulnerable consumers are using notably less energy than people in these countries on average. It was also noted that many consumers were relatively aware on how to easily save energy, however, they needed encouragement for implementing the measures. The need for energy advisory is persistent, also because many partners acknowledged that there were many, very vulnerable consumers groups that were left unreached through ASSIST.

The internally set target of 7% energy saving through ASSIST dedicated consultancy was reached in 4 out of 6 countries. This equals to tens of thousands of demonstrated kWhs of saved energy for the total of assisted vulnerable consumers. However, in many cases, household energy consumption data was not available for various reasons, including technical and consumer's personal reasons. Therefore, the real amount of energy saved may be even higher. Nevertheless, it was demonstrated that through personalized and targeted advisory, it is possible to gain considerable energy savings, and that energy savings achieved through dedicated consultancy are higher than just disseminating energy efficiency information or brochures. The energy savings were mainly achieved through simple energy efficiency fixes and behavioural changes. Although energy renovations are often the most effective ways to save energy, such investments are not possible for the most vulnerable and energy poor consumers due to e.g. financial or ownership issues.

ASSIST project partners developed a specific indicator to monitor the performance of the HEA network activities, namely the Energy Savings Indicator (ESI). However, four of the six partner countries reported the indicator problematic, as it resulted in categorically smaller energy saving values than the absolute values. However, it is important to note that the Energy Savings Indicator (ESI) is just a mathematical indicator that combined also other aspects, such as the comfort inside vulnerable consumers' homes and their money savings to assess interaction with vulnerable consumers.

The deliverable has also another point of focus. Chapter 2 describes the national HEA networks and their performances in each partner country. The different types of HEA network support structures are presented. As a general best practise, collaboration with existing local institutions is recommended. For the majority of HEAs involved in the ASSIST actions, the main factor determining their willingness to remain active was their institutional affiliation (company, public body, association, union, university, workplace, or other connection). Involving oneself fully independently and voluntarily to HEA activities happened only few times. Strategic partnerships with identified organizations and associations were utilized in attracting and involving new HEAs by all partner countries.

Smart involvement strategies and motivational efforts from the project partner coordinators' side were essential in keeping the HEAs engaged. Good practices include networking events among other co-HEAs, meals or lunch meetings, easy-going experience-exchanging events, and even compensations such as gift cards. Concrete tools for HEAs to facilitate their advisory work, such as home energy meters, energy efficient light bulbs, or home energy audit tools, are also a recommended practise. Overall, the support from the side of a committed HEA coordinator was found crucial. However, this type of action is time-consuming and will probably fade out in many countries after the duration of the project, if the activity did not get formally integrated in daily routines of organisations, or if the HEA character was not formalized otherwise.

Thanks to the ASSIST project, hundreds of vulnerable users have had access to valuable advisory services and information on improving comfort and saving on their energy bills. Through ASSIST actions, it was demonstrated that dedicated consultancy can lead to considerable energy savings and increases in domestic comfort levels for vulnerable households. The experiences and best networking and voluntary work coordination practices from 12 ASSIST project partners are presented in this deliverable. Many relevant insights are included to allow the replicability of sustainable HEA network models in the future.

Annex 1 Instructions for partners

The following guiding questions were offered to partners to write their Sections in Chapter 3 *ASSIST survey among vulnerable energy consumers in Europe*.

Data collection method

- Did you use the survey template as in D4.4? Did you modify the questions and why?
- How did you collect ex-ante and ex-post surveys and how many people answered?
- Which VCEAs were mainly involved in the ex-ante and ex-post collection? Why were these VCEAs active here? Did this influence which type of VC groups could be reached?
- How were consumers selected to the ex-post survey? Which were the specific selection criteria to the control group?
- If you had problems in reaching the target of collected ex-post questionnaires or in something else, you can explain the reasons here. For example, the percentage of people in ex-ante who did agree to the follow-up could be low, or there were not enough answers that reached the 6 months span. Also fill up the below table describing distributed and collected ex-ante and ex-poste by the different HEAs.

Profile of consumers reached

- How could you characterize the reached consumers through dedicated consultancy by the VCEA network members?
    - Primary heating sources of vulnerable households? (ex-ante)
    - Absolute usage levels of energy? (ex-ante)
    - How serious challenges with experienced comfortability are observed in your country? (Look also the reported average in ex-ante).
    - Compare the survey result (average price of paid electricity in vulnerable households in ex-ante) to the national average price in the database: https://www.energypriceindex.com/
        - Do vulnerable consumers pay more for their electricity or is there any difference?
    - Analyse the ex-ante empowerment factor results. Do vulnerable consumers generally know how to save energy?

Results: Saved energy and increased comfort through dedicated consultancy

- **Saved energy**: how much was the saved energy due to the ASSIST actions? (Compare ex-ante & ex-post)

  - Was the target reached? If not, please explain here.
- **Comfort level:** how much did the comfort level increase? (Compare ex-ante and ex-post).
  - Why did it (not) increase?
  - If available, add also information about the experienced thermal comfortability on average in residential buildings
  - Explain sources of inaccuracies. For example, the ex-ante questionnaires were conducted during the spring and summer time, which may give better comfort level values than the annual average would show.
- **Electricity price**: were HEA actions able to reduce the vulnerable consumers electricity price in relation to the national average prices? (Compare electricity price results between ex-ante and ex-post.)
- **Empowerment factor:** Was there any difference between ex-ante and ex-post answers with regard the empowerment factor? Please explain why/why not.
- **VCEA Network activity and impact**: Analyse the effectiveness of ASSIST actions in the context. How well were the VCs (in particular in ex-post) exposed to the advices in the first place? How did the vulnerable consumers implement the advices given?

Critical analysis of the ASSIST method

- Was the European method (as described in D4.6 and collectively elaborated by ASSIST partners) successful to test the 7% hypothesis in your country?
- Given the observed results do you think the ASSIST method was useful and valuable?
- If no significant differences between ex-ante and ex-post consumption levels were observed, comfort levels, electricity price results, energy saving indicators or empowerment factors were observed what could be reasons behind it? *For example, reasons may be data-related, consumer-related, ignorance and connected with the research setup (for example lack of proper or comparable data)*.

Lessons learned

- Further analysis of the reasons for the observed consumption levels, comfort levels, electricity price results, energy saving indicators and empowerment factors in the country contexts. Where did you succeed in your country? What could you have done differently?
- Do the observed/measured results (KPIs) give a correct picture on the impact of the ASSIST actions performed by VCEA network members in your country? What was the eventual impact?

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This project has received funding from the European Union's Horizon 2020 research and innovation programme under grant agreement No 754051