ACtions in low income **H**ouseholds
to **I**mprove **E**nergy **E**fficiency
through **V**isits and **E**nergy diagnosis

Final Evaluation Report

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Evaluation methodology and tools have been shared as far as possible. Each partner has written its own part and is responsible for the results they are presenting and sharing in the final evaluation report.

Find more details on ACHIEVE project on:

www.achieve-project.eu

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1 Executive summary

The Project ACHIEVE is a pan-European action supported by Intelligent Energy Europe offering practical solutions that help households in several European countries to reduce their energy and water consumption. In total, 1,920 households have been visited over the past three years by the project partners in Bulgaria, Slovenia, United Kingdom, France and Germany. The goal of this concerted effort was to reach low-income households, to reduce fuel poverty and to develop structural solutions to address energy poverty with new approaches. One of these new ideas was to mobilize and train long-term unemployed people, volunteers or students to participate in a large-scale campaign of home visits in households with low-income. Another purpose of the energy saving service was to identify simple measures which can have a real impact on these households' energy consumption and to install free devices to enable them to directly start saving energy and water.

The project evaluation was led by CARITAS in cooperation with an external evaluation institute and Ms. Kerstin Tews, PhD from the University of Berlin, who is known as a specialist for evaluating climate change projects. The evaluation is based on the results of 1,920 visits in households and on interviews with 458 of these households.

Based on the lifespan of the saving products, the project reached impressive long term savings: electricity 2,471,660 kWh, heating energy 3,721,906 kWh and water 191,214 m^3. Altogether this amounts to savings of 5,134,029 kg CO_2 and EUR 1,076,318 in costs for energy and water. Besides, 234 toe of primary energy could be saved per year.

The most frequently used devices were energy saving lamps (37%), followed by tap aerators (13%) and draught proofing (10 %). In total, 16,273 devices have been installed. Due to the energy saving service, a household could save on average 9.5% of electricity, 18% of water and 6,3% of their heat energy consumption. In monetary terms, these savings accumulate to an average of 144 € for each household per year.

Moreover, the interviewed households were very satisfied with the help they received and evaluated the assistance at a mean value of 8.5 (out of 10, with 10 being the highest). The visits contributed to learning effects as well, shown by the tips which were followed by households after the visits. The most frequently used tips across all countries were: to reduce the room temperature, to stop using lamps with high energy consumption, to reduce fridge temperature, to move furniture and curtains away from radiators and to wash with low temperature. Provided that these tips are regularly followed, the yearly average savings per household could rise from 299.9 kWh to 396 kWh per year.

The overview of the investments as a ratio to savings shows that the costs of devices for each household range from EUR 30 (in Bulgaria and Slovenia) to EUR 68 (in France), the project average being EUR 44. With regards to the return on investment, one general result is that in all countries the devices pay back in less than ten months and in several countries – in even less than five months. In addition to the financial savings realized by the project, there is whole range of other benefits which should also be considered, e.g. that long-term unemployed people learnt effective communication in different situations, got more self-confidence for next steps in their professional lives and gained some knowledge on the building energy sector as starting point for a new career. On the other hand, the visits helped households to improve the comfort in their homes and reduce energy costs. In addition, municipalities save resources by having to pay less money to support households to pay their energy bills. Improving the comfort at homes saves public health costs and thus eases state budgets. Furthermore, energy providers could have fewer problems with unpaid invoices after the implementation of the project.

Following the success of ACHIEVE, a long-term implementation of a similar service is envisioned to take place in each country of the consortium.

In Frankfurt, the cariteam-Energiesparservice became part of the so called Federal 100% Climate protection masterplan program. This program develops a detailed package of measures on how to reach zero impact on climate until 2050. The Energiesparservice is part of this package and will therefore be sustained during the next years. The ACHIEVE experiences with the heating devices will be developed further.

In the UK, the ACHIEVE methodology has influenced the wider Severn Wye work and their home visit process. Currently Severn Wye is integrating this into their organisational practices with regard to domestic energy advice. Severn Wye will also test the methodology with the tenants of a housing association based on the ACHIEVE model.

Within the new IEE project REACH, ACHIEVE experiences will be transferred into two other regions in Slovenia and they will also be implemented in Slovenia, Bulgaria, Croatia and Macedonia which means that ACHIEVE experiences will be transferred to these other countries as well. The program is led by FOCUS with EAP cooperating in this program.

In France, a national program that tackles fuel poverty which is managed by CLER has been initiated. IDEMU and GERES are partners and will bring in different experiences and knowledge into this program. The program is deeply based on ACHIEVE feedbacks and results. It targets French municipalities willing to set up an energy diagnosis program on their territories and will be financed through white certificates schemes. Many local authorities have shown their interest in the program, and about twenty have already been engaged in implementation.

All this shows that the cross-section of social, health, environmental, employment and education policy is an unique approach of the ACHIEVE project and the experience from the project indicates that it is a successful approach to address fuel poverty in a new and effective way.

2 Program description

2.1 What is ACHIEVE about?

Project ACHIEVE is an Intelligent Energy Europe supported pan-European action with practical solutions that help Europeans reduce unnecessary energy and water use. It links dispersed local actors into an EU-wide concerted effort to reduce fuel poverty and develops common tools and methodologies for addressing energy poverty at the European level.

ACHIEVE gathers 7 partners in 5 countries, while the project is carried out in 6 pilot areas:

- CLER, Réseau pour la transition énergétique (CLER), France: coordinates the project at the European level,
- Groupe Energies Renouvelables, Environnement et Solidarités (GERES), France: manages ACHIEVE activities in the pilot implementation area of Marseille,
- Croix-Rouge Insertion- IDEMU (CR Insertion), France: manages ACHIEVE activities in the pilot implementation area of Plaine Commune,
- Severn Wye Energy Agency (SWEA), United-Kingdom manages ACHIEVE activities in the pilot implementation area of Gloucester and Trowbridge,
- Caritasverband Frankfurt e.V. (CARITAS), Germany: manages ACHIEVE activities in the pilot implementation area of Frankfurt,
- Focus društvo za sonaraven razvoj (FOCUS), Slovenia: manages ACHIEVE activities in the pilot implementation area of Ljublana,
- Energy Agency of Plovdiv (EAP), Bulgaria, manages ACHIEVE activities in the pilot implementation area of Plovdiv.

Basing its approach on the best practices throughout Europe, ACHIEVE identifies households that are most vulnerable to fuel poverty and works with them to implement suitable steps to reduce unnecessary energy use and of course, costs.

Indeed, private households do often not take up or know the solutions they can mobilise to decrease their energy consumptions and bills. The information available often does not fit their specific situation. In addition, this target group lacks the financial resources to make energy efficiency investments in their homes A proper understanding of their situation, through a socio-technical diagnosis during a home visit, is the very first step to be able to help them further and orientate them towards existing solutions and support.

In ACHIEVE, long-term unemployed people, volunteers or students are mobilized and trained to develop a large-scale campaign of home visits to households who have hitherto not had access to help and support, and who are facing difficulties with paying their energy bills.

The service is based on home visits, with the main purpose to identify on a case-by-case basis the everyday actions that can have a real impact on their energy consumption. Visits focus on the following points:

- to understand vulnerable consumers' energy consumption, bills and habits, and to check their appliances with a set of reporting/analysing tools;
- to distribute and install a set of energy-efficient and water-saving devices (such as light bulbs, power strips, tap aerators…), which are free of charge for the households, and give advice to the households on how to implement further practical measures for saving energy;
- to analyse which longer term solutions can be introduced to improve the households' situation, by linking local actors into a concerted local action plan.

Fuel poverty and long-term unemployment are often linked with social marginalisation. ACHIEVE's important social innovation is that it contributes to social reintegration, both by empowering households to fight fuel poverty by improving understanding of their energy use, and by engaging people who have been unemployed long-term to raise awareness on fuel poverty.

A crucial programme activity is to trigger building improvement when thermal improvement works are needed: by better connecting tenants and landlords, informing, motivating and orientating them with easy to understand and tailored documents and methods. To do this, project partners cooperate closely with tenants, home owners, landlords, social services, consumer protection agencies and other relevant actors.

2.2 General methodology carried out in ACHIEVE and country specifications

ACHIEVE covers some countries where advising households on how to abate fuel poverty is already ongoing (Germany, UK and France) and some countries where fuel poverty is hardly tackled at all (Slovenia and Bulgaria). Consequently, the starting step of the action was to carry out a review of already existing best practises and projects at national and EU levels, to build on ACHIEVE knowledge and action plan. An important element of ACHIEVE approach was also to develop a methodology for accessing the target households, through the identification of local stakeholders and communication channels that would constitute a good intermediaries between the ACHIEVE partners and the households.

CARITAS Frankfurt has been running a program for empowering households to act on fuel poverty since 2005. The program, called 'Cariteam Energiesparservice', was developed as cooperation of the Energy Department, the Department of Social Services, the JobCenter Frankfurt am Main and the CARITAS Association Frankfurt. The program started with 12 people who were long-term unemployed and has now developed into a national initiative called 'Stromspar-Check PLUS' in over 100 cities and communities in Germany.

The program empowers households through two visits of energy-saving advisors. During the first visit, the advisors check the equipment in the household, as well as the energy bills of the household. Based on that information, calculations are made on where energy could be saved most efficiently. A set of recommendations is made, and during the second visit, the experts install easy to use energy-saving devices, such as efficient bulbs, tap aerators or power strips. They also provide advice on changes in behaviour to further save energy and water.

As this program has been successfully running since 2005, it was selected as the starting point of ACHIEVE. The project partners visited CARITAS in Frankfurt in May 2011 to see how the visits are implemented in practice. Apart from the visit, the partners also translated CARITAS' Guidelines Introducing Advisory Services on How to Save Energy For Low-income Households', which describe the concept of the Cariteam Energy-Saving Service and the procedure of introducing and implementing the project step by step. To provide material for the training of energy advisors, CARITAS also developed a Curriculum for Specialised Training Saving Energy and Water. The curriculum covers topics such as a general introduction to energy, detecting fuel poverty, the concept of thermal comfort and heat loss, procedure and data documentation, evaluation and installation of devices or communication training. For each chapter, a corresponding module has been developed including tips about the method of presentation (exercises, group work, role playing, homework, etc.) and time frame. This curriculum was taken as a general basis for the definition; design and development of training modules and exercises for all ACHIEVE partners.

Equipped with the materials, the partners implemented trainings for energy advisors. Each partner decided to use a different approach to identifying and training energy advisors (see Table 1), and some variations may also be observed in the number of energy advisors to visit a household (see Table 2).

Partner	Used approaches
CR Insertion	Working with people in an integration program and volunteers from the French voluntary community. They were recruited by CR Insertion, in cooperation with key recruitment offices.
GERES	Working with people in an integration program. The recruitment was organized by La Varappe Développement (LVD), a social company implementing back-to-work programs, in close cooperation with unemployed centre, youth organization and GERES.
SWEA	Working with people who have been long term unemployed. Advisors were recruited through Job Centre Plus.
CARITAS	Working with long-term unemployed people, people in an integration program and volunteers. People for the integration program come from the job centre. Volunteers are recruited by PR activities.
FOCUS	Working mostly with unemployed people, but also with students and volunteers
EAP	Working with students from professional schools

Table 1: Approaches to identifying and training energy advisors in project ACHIEVE[1]

Partner	Number of advisors
CR Insertion	Visits (both 1st and 2nd one) are made in pairs.
GERES	Advisors were implementing the visits two by two at the start of the experimentation. Then, depending on the skills and the personality of the 3 last advisors, it has been decided they could go on their own to do the visits, except for really difficult cases (sometimes in private sector for example).
SWEA	Two advisors per visit for at least the first 5 visits. After this, advisors will be expected to operate alone.
CARITAS	Two advisors, one with more experience, one with less, visit the households
FOCUS	First 1–2 visits of each advisor are done in a pair with a supervisor; the next visits are done by one advisor.
EAP	2 advisers per visit, sometimes advisers are also accompanied by an employee of unions of disabled people (if the visits are in a household of people with disabilities).

Table 2: Number of energy advisors for visiting households in project ACHIEVE

Helping low-income households to reduce their daily energy consumption and to save energy is a good start for involving them deeper in environmental concerns, for changing/adapting their day-to-day behaviour and raising their comfort and their awareness of the energy related issues.

However, in a great number of housing, actions in the household's flat itself can be limited by the technical characteristics of the building: its age, its thermal insulation, its type of heating (collective or individual) and the way it is managed, and the capacity to engage further renovation works when it is necessary (and possible). That is why ACHIEVE partners also took care of developing complementary tools and activities, at the consortium level or locally, to ensure the durability:

- Of the impacts of visits: promoting wider measures for energy efficiency and retrofit-ting works towards the targeted households and their landlords, when relevant,
- Of the concept of the visits: what should be the appropriate methodological tools and complementary local activities needed to fully and durably involve structures likely to replicate the project (municipalities/local governments, energy utilities, social housing companies…)?

[1] For more details see table 17

2.3 Program financial resources

The project is 75% co-funded by the European Commission, within the frame of the "Intelligent energy Europe" program.

Other co-funding sources had to be found by each partner, at the country level, to complete the funding:

	Co-funding sources	Support in kind
CLER	- Fondation Abbé pierre	
SWEA	- Wiltshire Council	EON and Wessex: devices for water
CARITAS	- City of Frankfurt for the salary of advisors -	Federal funding for the devices
FOCUS	- Eco fund of Slovenia - Public work fund - Municipality of Ljubljana	
EAP	- Agreement with Philips to provide CFLs at a below-market price	two vocational schools (Vocational School of Household Technology and Vocational School of Electrical Engineering and Electronics) to train their students to become energy advisors
GERES	- Fondation Abbé Pierre, - Fondation MACIF, - Solinergy	EDF for devices
CR Insertion	- Fondation Abbé Pierre, - Fondation de France, - The General council of Seine-Saint-Denis and the State for the salary/costs of the advisers.	EDF for devices

Table 3:Co-funding for each partner

3 Evaluation methodology

The evaluation of the project, for which the methodology has been defined from the start, focuses on one hand on the qualitative and quantitative impacts of the project.

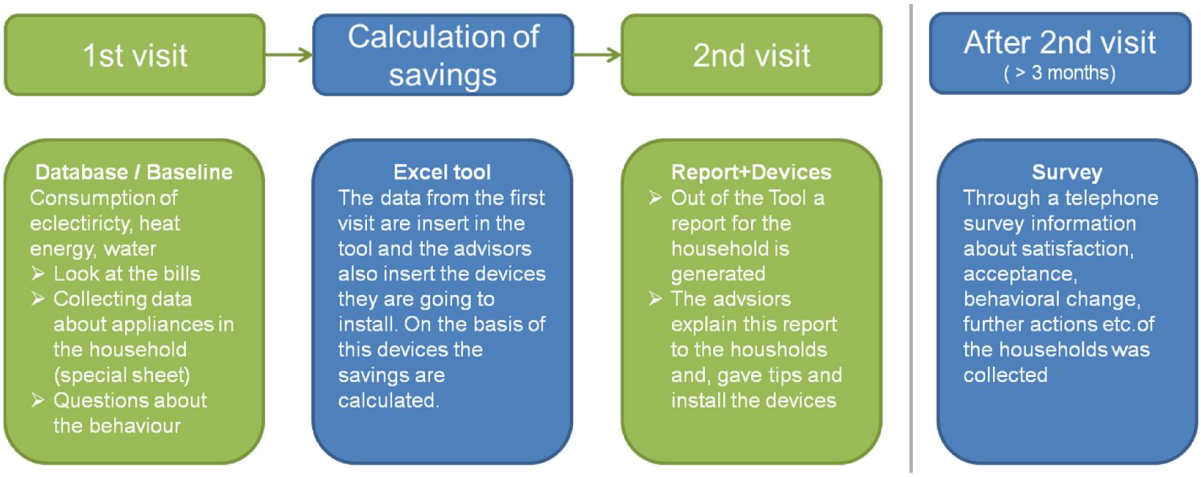


Figure 1: Evaluation process

The chart above shows how the evaluation process was implemented. For further information about our target group and calculation of the savings generated through ACHIEVE, the data recorded during the first visit were analysed: these latest contain information on the technical characteristics of housing, the household composition and its energy and water consumptions, appliances used, etc. This information was the basis for the advisors to decide, after their first visit, which were the most relevant devices to install. All this was recorded in an Excel tool that can calculate the energy and water savings for one year and long term. Below an example of the mode of calculation works:

A 60 watt incandescent light bulb is replaced with an energy saving bulb of 11 watt. The household stated that they use the lamp two hours a day. Way of calculation:

$$\frac{(60-11)W \times 2h \times 365d}{1000} = 35{,}77\ kWh/year$$

To get the savings in euro, we used the price noted on the electricity bill of the household. If the bill is not available we calculate with an average price.[2] The emission saving were also be calculated, simply by using the different emission factors in each country.

CO_2-eq. g/kWh	Slovenia	Bulgaria	United Kingdom	France	Germany
electricity	557	683	445,48	200	628
oil	266	311	268,76	300	266
gas	202	247	184,04	234	202
district heating	349	/	/	165	207
liquid gas	227	272	214,52	274	234
wood	6	6	0	/	6
coal	352	439 (black) 452 (brown)	295,82	/	354

Table 4: CO_2 emission factors

If there was no information about the energy carrier we assume 209 CO_2- e.q g/kWh[3] as emission factors.

[2] Please find the average prices for every country under topic 5.1.1.2

[3] Kerstin Tews, 2012, Einzelprojektevaluierung Stromspar-Check in einkommensschwachen Haushalte

Besides the savings per year the long-term savings of the project were also calculated in the excel tool. These savings are based on the lifespan of the saving products. For the CFL we are also taking into account the EU-Eco-Design Directive, which proscribe the production and import of simple light bulbs in the EU. It was assumed that after the year 2016 simple light bulbs will not exist in households anymore thanks to the Directive. After scientific research and with our experiences from the national project Stromspar-Check, we made the following assumptions for the calculation of the long-term savings.

Product	Assumptions
CFL	Based on the EU-Eco-Design Directive (2009) simple light bulbs are not allowed to be produced (savings cannot be fully counted). $1 + 0{,}5\ (2016 - year\ of\ consultation - 1)$ With the formula above we calculated the factor for the long term savings. In the first year the savings are counted fully (first term of the formula), after the first year until 2016 (scientific assumption that there will no simple light bulbs in the households after 2016) the savings are calculated with 50% (multiply with 0,5) . You have to subtract 1 for the reason that the first year is not counted twice.
LED	15 years lifespan
power switcher, TV power down	7 years lifespan
thermostopp, clocktimer	10 years lifespan
draught proofing	5 years lifespan
thermo cover foil window	2 years lifespan
insulation behind radiator	10 years lifespan
thermostatic valve	12 years lifespan
WC-stopp, save a flush	10 years lifespan
water saving showerhead, restrictor	10 years lifespan
tap aerator	10 years lifespan

Table 5. Assumptions for calculation long term savings

To calculate the primary energy savings in tons of oil equivalent (toe) we use the two following formulas.

$$final\ energy\ in\ kWh\ \times primary\ energy\ factor = primary\ energy\ in\ kWh$$

$$\frac{Primary\ energy\ in\ kWh}{11{,}626\ kWh} = primary\ energy\ in\ toe$$

The term *final energy in kWh* represents the long term savings which could be generated in the project. We differentiate the primary energy factor in two factors, one for electricity and one for heat energy. Also differences between the countries are taken into account as you can see in the table below.

primary energy factor	Slovenia	Bulgaria	United Kingdom	France	Germany
electricity	2.55	3	2.92	2.58	2.6
heat	1.1	2.29	1.02	1	1.1

Table 6: Primary energy factors

To know the level of satisfaction of the beneficiaries regarding the service and devices provided by the project, a questionnaire was developed and a telephone survey carried out. A sample of households large enough to be statistically reliable was surveyed in each country, supplemented by physical individual interviews to explore further certain points.

The evaluation also examines the impact of the project in terms of learning process and in the training of the advisors: who they are, how they experienced the project, where do they stand, professionally speaking, at the end of ACHIEVE? This information was obtained during physical interviews based on a guide common to all European partners. On the other hand, the second part of the evaluation is an overall process assessment concerning the implementation of the ACHIEVE activities. It is a primarily qualitative analysis: regarding the implementation of the project on the ground (recruitment and training of the energy advisors, organisation of the home visits and mobilization of the local partners ...), what worked? What was more complicated? The objective here is to provide feedbacks and recommendations on the method to encourage the reproducibility and dissemination of the concept of ACHIEVE, while saving time for future project managers.

4 Findings

4.1 CARITAS, Germany

4.1.1 Results and evaluation of the visits

At the Energiesparservice Frankfurt there is and was a different starting situation than in the other countries because there is already a project like ACHIEVE and ACHIEVE is built on the experience of the Energiesparservice, which was founded in 2005 as one of the first project for low-income households in Germany. This became a national project in 2008 which is now called Stromspar-Check PLUS and funded by the National Environmental Ministry and Frankfurt is also Part of this national project. So we applied for widen the national project with an approach especially for households who have special heating problems because this is not covered by the national project. Both results are entered into the ACHIEVE Exceltool.

The data from the Stromspar-Check were given to the ACHIEVE project for free. The devices which were given to households to save electricity and water were paid by the budget of the Stromspar-Check. Each household got devices for about EUR 40. Those household who had problems with heating their flat in an appropriate way got heating devices on top for round about EUR 12. They were paid from the ACHIEVE budget. Also there were used two databases, the national database for the Stromspar-Check data and the ACHIEVE Excel tool for all the ACHIEVE data. The ACHIEVE multiplicators had to enter the Stromspar-Check data into the Excel tool so that this could be used also for the ACHIEVE evaluation. This was needed to be able to compare the results from the different countries.

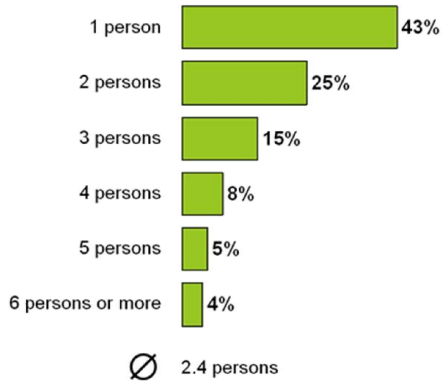
The results which are shown in the next chapters depend on the analysis in the ACHIEVE Exceltool. We started to use this Exceltool in January 2012. The first half year of ACHIEVE we needed to develop this tool. The evaluation is based on data of 480 consulted households. 165 households got the special heating consultation and heating device.

4.1.1.1 Impact evaluation of the visits

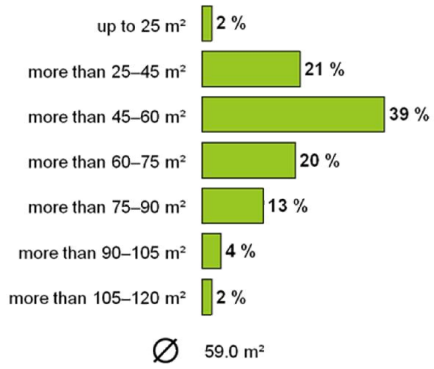
4.1.1.1.1 Presentation of the households and the dwelling reached

During the whole project duration we visited 504 households in the city of Frankfurt. The calculation of the savings is based on the data of 480 visited households.

The average household of our visits are 2.4 people living in a flat with of 59 m² (heat able). This numbers differ a little bit from the German figures with 2 people on average in one household and 69 m² per flat.[4]

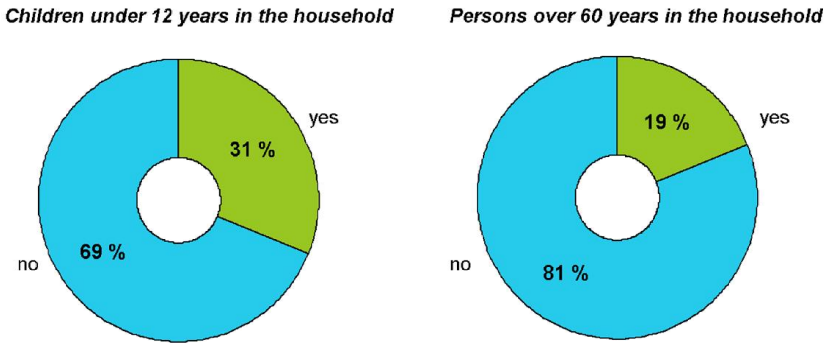


Germany - Figure 1: Number of persons in the household (n=475)



Germany - Figure 2: Heatable living space in m² (n=475)

In 31% of the households live children under 12 years and in 19% people over the age of 60 as you can see in the following chart.

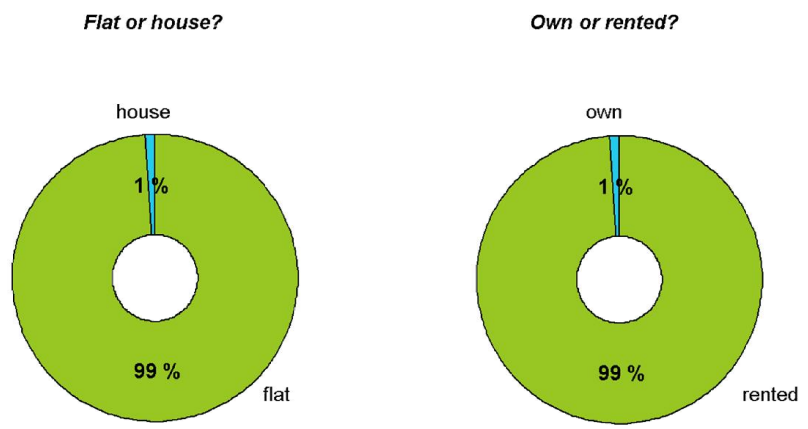


Germany - Figure 3: Composition of the household (n=372)

As we addressed low income households, all of the visited households got support from the government. The majority of the people received “Arbeitslosengeld II”, this is the subsistence income in Germany. In 2014 the basic rate for people without children is EUR 391 per month.

Mostly all of the people we reached live in a rented flat, only one percent live in a house or are owner occupier. This reflects the typical situation of our target group in Germany.

[4] Bundesinstitut für Bevölkerungsforschung (BiB), 2013, Pressemittelung Nr. 9/13 und Destatis, 2010, Bauen und Wohnen, S.22.



Germany - Figure 4: Housing situation (n=369)

44% of the visited households live in buildings with six to ten flats. 20% live in buildings with eleven to twenty flats. 25% live in buildings with more than 20 flats. More than half of the households live in buildings that were build between 1950 and 1975. Only 5% of the visited households live in buildings, that were build after 1983 up to today. When we have a look at the nationwide data for Germany about 10% live in dwellings build after 1990.[5] This also explains why most of the buildings had double glasses, but 65% of the buildings had no insulation. As a result of our experience in the project we were wondering how many of the people we visited live in social housing flats. The question was not included in our data collection sheet for the visits. Therefore we asked this question during the telephone survey (see chapter 4.6.1.1.3), where 100 visited people were asked. Half of these people live in social housing flats, means about 50%.

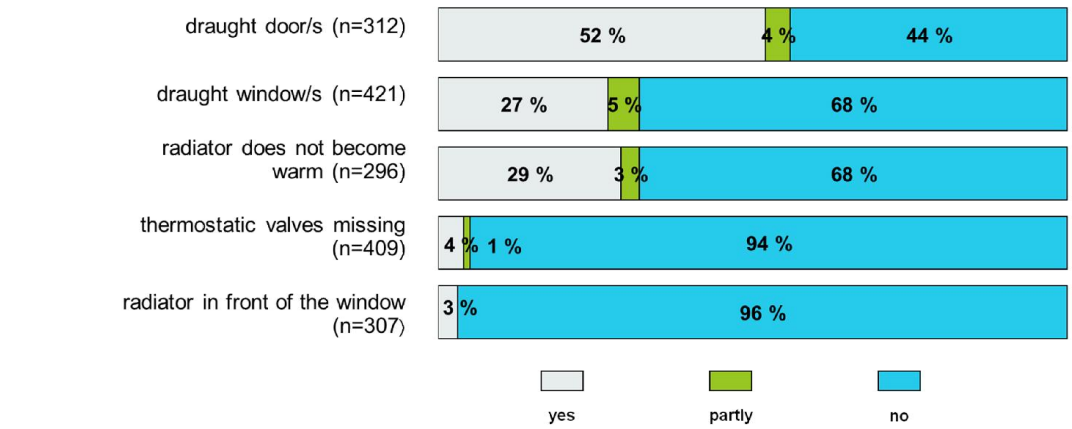
The main energy carrier in the reached household was gas with 73%. Half of the households have central heating and 22% have heating systems covering one floor. About 23% use electricity for water boiling. This is 7% above the average figure for rental housing in Germany.[6]

The state of the dwelling is one determinant of energy consumption another determinant is the behaviour and this is the one the households can change by themselves. The analysis of the questions about ventilation shows that a considerable proportion of the households are taking good care of ventilation, but there are still things to learn. When we asked about the way of ventilation 59% of the visited households answered that they turn the window wide open for some minutes. In contrast 38% tip over the window for a longer time. The question, if they switch down the thermostatic valve while ventilation, answered 23% of the households with no. Nearly the same percentage of households do not reduce the room temperature while absence. 45% of the households do not close the doors between heated and unheated rooms.

In the chart stated below problems that can occur in the household are listed. More than half of the visited households have problems with draught doors. Also 32% of the households have problems with draught windows partly or in the whole apartment. Missing thermostatic valves and radiators in the front of the window occur very seldom.

[5] Destatis, 2010, Bauen und Wohnen, S. 20

[6] Average value in Germany rental housing 23%. Source: Destatis, 2010, Bauen und Wohnen, S. 214



Germany - Figure 5: Problems heating

The advisors also noted when mould was visible. In 64% of the households mould was visible. One reason for this high number is that also small signs of mould where included, especially in bathrooms. This is less a problem of the building than more a problem of wrong ventilation and heating. Another reason is that a lot of the visited households were recommended to the Energiesparservice because they have problems with heating issues. In 2010 in the EU-SILC survey people where asked if they have problems with mould. 21,8 % of the people at risk of poverty answered that they have problems in comparison to 10,8% of the people with no risk of poverty.[7]

Considering the above facts we suppose that our target group of low income households live in dwellings with a low energy standard.

4.1.1.1.2 Quantification of the savings

When ever it was possible we use the facts from the energy bills to calculate our savings instead of average assumptions. Water bills are only in 38% of the households available. One reason might be that sometimes the costs for water are split in multi-storey buildings in equal parts for each tenant. Therefore you do not have bills with the real consumption. For electricity and heating energy bills 76% respectively 59% are available. Our advisors explained that some of the people just give the originals to the jobcentre and do not make any copies, so they do not have all bills.

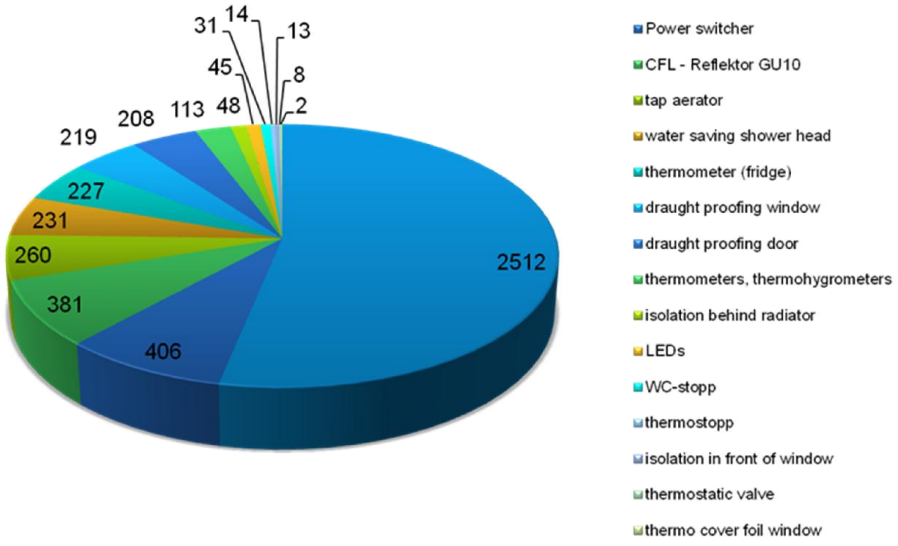
With the bills we had, we were able to calculate an average consumption and an average price our households pay for their energy as the table below shows.

	average consumption	average price
electricity	2,756 kWh	0.26 €/kWh
water	104.32 m³	4.02 €/m³
heat energy	11,839 kWh	0.08 €/kWh

Germany - Table 1: Average consumption and price (n=305)

In the 480 evaluated households we installed/the households received in total numbers 2512 energy saving bulbs, 406 power switcher, 381 Compact Fluorescent Lamps, 260 tap aerators, 231 water saving shower heads, 227 thermometer for the fridge, 219 draught proofing for the window, 208 draught proofing for the door, 113 thermometer/thermo hygrometers, 48 isolation panel behind the radiator, 45 LEDs, 31 WC-Stops, 31 keys for radiator, 14 clock timer, 8 thermostatic valves, 2 thermo cover foils for the window.

[7] Destatis, 2010, Leben in Europa/EU-SILC 2010, S. 163



Germany - Figure 6: Number of energy saving devices

79% of the visited household received energy saving bulbs. On average one household received about five energy saving bulbs. The investment costs per household on average are EUR 51.20 for all devices, the share of the heating devices is EUR 11.96.

With the installed devices the following savings could be generated.

		mean score	total
electricity	electricity (kWh)	312.52 kWh	130,312 kWh
	electricity costs	78.03 €	31,602 €
	electricity CO2	196.26 CO2 kg	81,842 CO2 kg
water	water (m³)	27.53 m³	6,827 m³
	water costs	104.00 €	22,775 €
heat energy	heat energy (kWh)	750.63 kWh	224,439 kWh
	heat energy costs	64.88 €	14,079 €
	heat energy (CO2)	155.75 CO2 kg	46,102 CO2 kg
total	costs	246,91 €	68,456 €
	CO2 (kg)	352.01 CO2 kg	127,944 CO2 kg

Germany - Table 2: Savings per year (n=296)

One household saved on average EUR 246.91 per year. The total amount is the sum of electricity savings EUR 78.03, water savings EUR 104.00 and heat energy savings EUR 64.88. The average household saved 11% electricity, 26% water and 6% heat energy from its original consumption.

In total all 480 households saved 168,697 CO_2 kg in one year.

Considering the life time of the energy saving products we came to the following long term savings.

		mean score	total
electricity	electricity (kWh)	1,202.53 kWh	489,430 kWh
	electricity costs	306.15 €	121,543 €
	electricity CO2 (kg)	755,19 CO2 kg	307,362 CO2 (kg)
water	water (m³)	275.28 m³	68,269 m³
	water costs	1,039.96 €	227,752 €
heat energy	heat energy (kWh)	4,679.75 kWh	1,394,565 kWh
	heat energy costs	388.13 €	84,224 €
	heat energy CO2 (kg)	8,627.52 CO2 kg	2,648,649 CO2 (kg)
total	costs	1,734.24 €	433,519 €
	CO2 (kg)	9,382.71 CO2 kg	2,956,011 CO2 (kg)

Germany - Table 3: Long term savings (n=470)

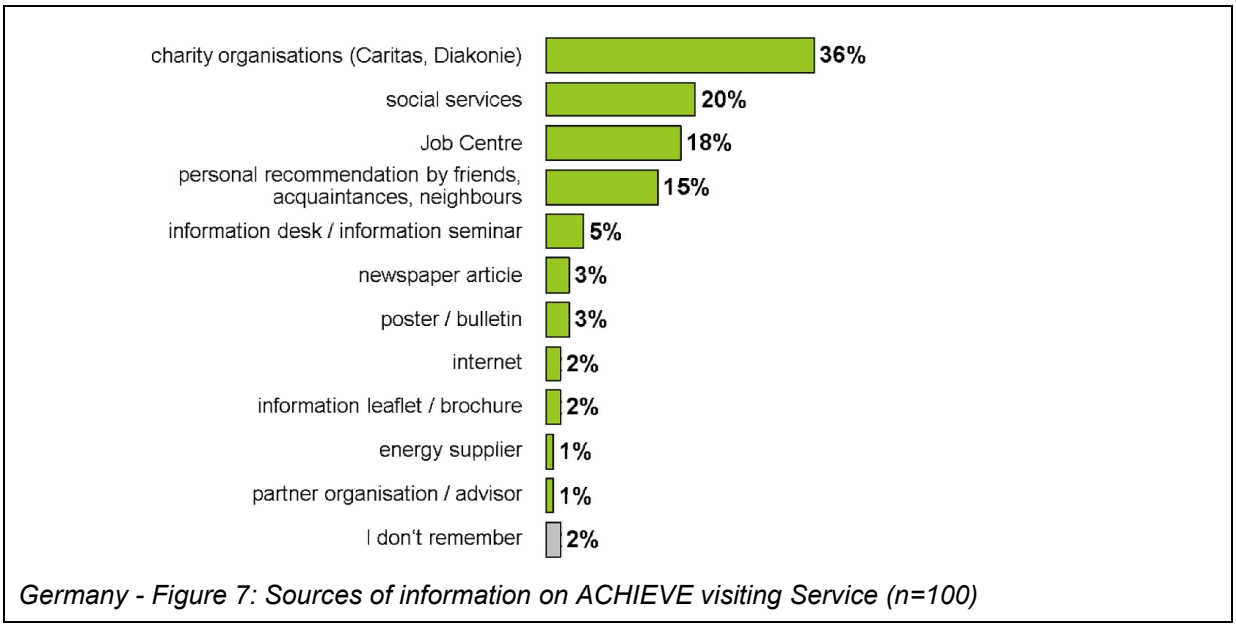
On the long run the average household saves EUR 1,734.21, 9,328.71 kg CO_2, 5.82,28 kWh (heat energy + electricity) and 275,28 m³ water. The highest cost savings can be generated in the water section. When looking on this results someone should have in mind the high costs for water (4.02 €/m³) in the city of Frankfurt. On the long run through the installed devices in 480 households 2956 tons CO_2 and EUR 433,519 were saved.

4.1.1.1.3 Satisfaction of the visited households

In this section we want to describe how satisfied the visited households were with our service and especially with the different devices. To know more about the satisfaction of the visited households we did a telephone survey with a professional institute. 100 people took part on this survey.

Before we go into detail of the satisfaction indicators, we will have a look, how the household get in touch with the service and what kind of sources they trust. Because only when you get in touch with the people and they trust your source, they can be satisfied with the service.

In the chart below you can see that most of the people get in touch with the service by a charity organisation. 20% know about the service because of social services and nearly the same amount got the information from the job centre. 15% know about the service because of personal recommendations. As already mentioned above people who are supported with basic security benefits from the government get their heat energy bills paid by the social service (for social assistance) or by the jobcentre (for unemployment benefits II) up to a fixed limit. We had an agreement with the social service and the jobcentre that they refer those people who are above this limit to our service. This explains why about 40% got the information of the service from social services or the jobcentre.

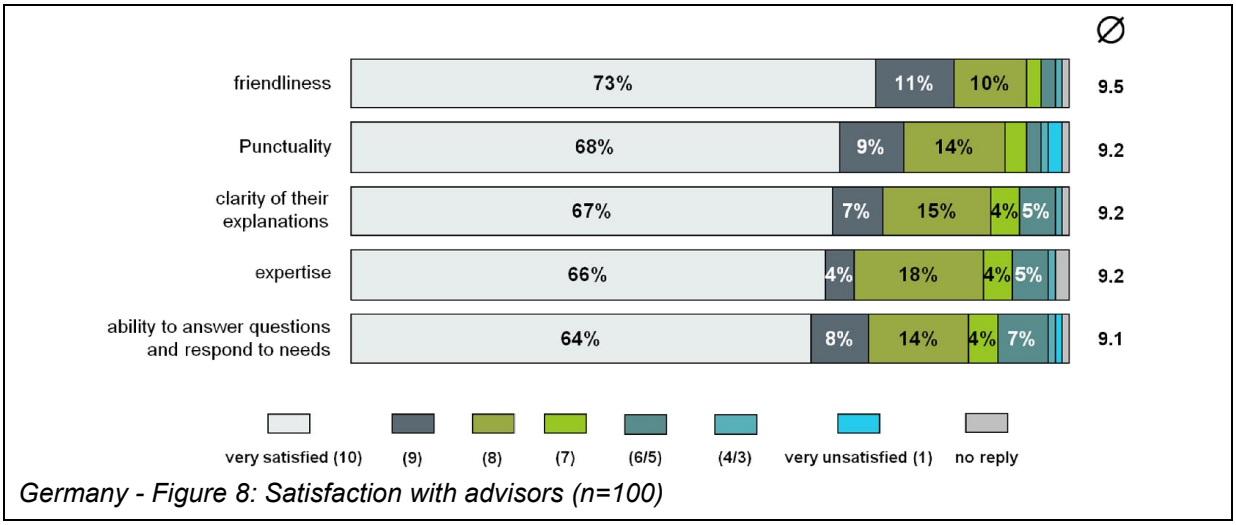


Germany - Figure 7: Sources of information on ACHIEVE visiting Service (n=100)

People are sometimes sceptical about the service, they think we are send by an energy provider. Therefore we wanted to know which source of information they trust. 87% of the interviewed people trust personal recommendations. 79% of the interviewees would trust social services and 77% trust local charity organisations. With 65% energy suppliers are less trustable than municipalities (66%) and environmental organisations (69%). This goes along with our experiences in the project. Because a lot of people can not believe that the service we provide is totally cost free. If the service is organised by a charity organisation they can trust that there is no financial interests behind the service. The best thing to promote the service is personal recommendation. For that reason, we pass our flyers with vouchers inside to every visited household with the request to let their friends now about our service.

To have good recommendations it is important that the people like the service. Therefore the interviewed persons we are asked to mark the service from 1 (very unsatisfied) to 10 (very satisfied). In the mean score the service got the mark 8.6. 56% of the interviewees were very satisfied (10) with the service.

We also asked about the satisfaction with our advisors, see the chart below.



Germany - Figure 8: Satisfaction with advisors (n=100)

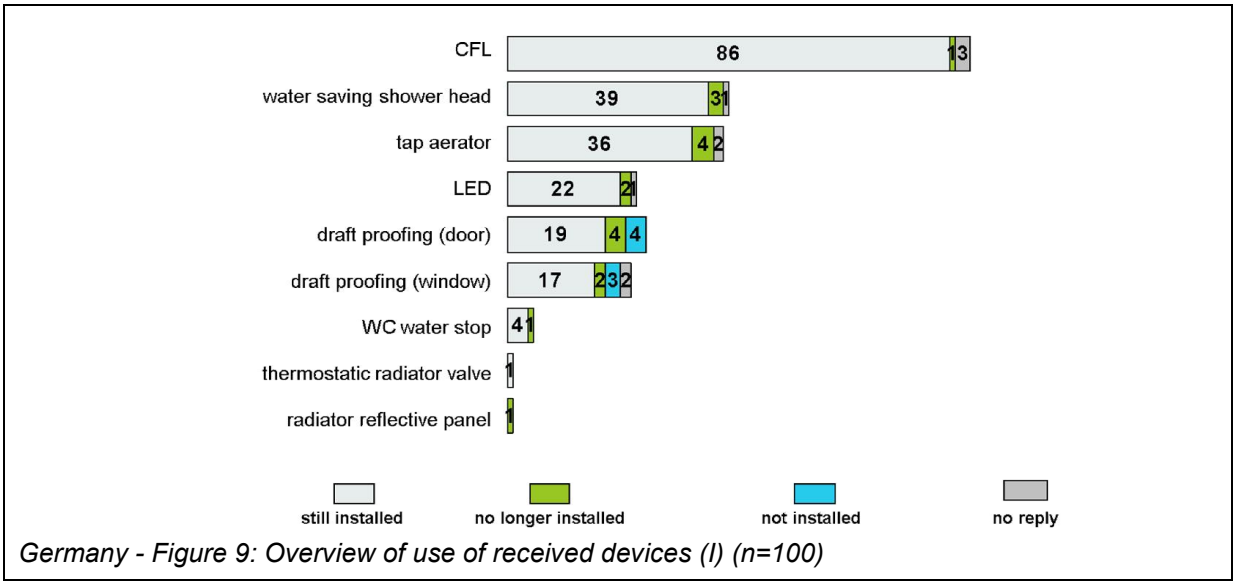
All attributes were scored above 9 on average. The highest mark got the advisors for their friendliness. These results show that the long term unemployed people did a very good job. Possibly it is a big advantage that the advisors know the situation of the target group and can advice them at eye level.

When we have a look at the satisfaction of the households it is also necessary to have a look, if problems in the household have been solved through our service. 77% are convinced that their energy bills have been/will be reduced thanks to the energy saving service.

Our service has different components. From the interviewed households we wanted to know how helpful they found the different components of the service with regard to possible energy savings. As most helpful the installation of the free energy saving devices was stated. This is also our experience in the project; the utilization of the service is dependent on the free energy saving devices.

As the energy saving devices play an important role in the project it is crucial to know more about the use of them.

From the interviewed households 90 received energy saving bulbs (CFL). Only one household answered that the bulb is not longer installed on the grounds that it broke/does not work properly. 43 households from the 100 interviewed households received a water saving shower head. Three of the households uninstalled this device, two of them because of the low pressure and one stated other reasons. Nearly the same applies to the tap aerator. For the device draft proofing we have additional the category “not installed”, because in some cases when the visits are too time consuming we explain or show for one window/door how they can install this device by themselves. Also if the sample size is small, we can conclude that the devices are widely accepted.

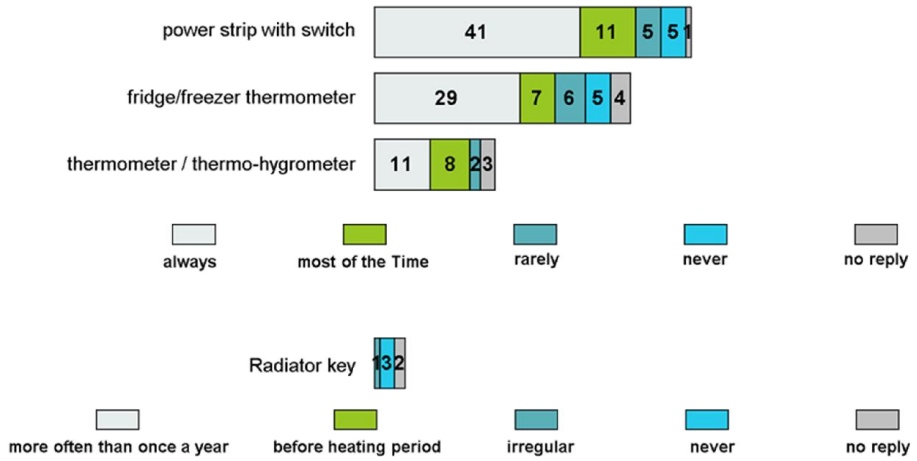


Germany - Figure 9: Overview of use of received devices (I) (n=100)

Beside the devices which are automatically generate savings after installation there are devices which generate savings or learning effects only when they were used. For example the power strips with on/off switch. 63 households of the interviewed households received this kind of power strip. 41 use it always means they switch it off after the use of the electronic devices. 11 use it most of the time, 5 use it rarely and 5 do not use it at all. This numbers are a little lower than the numbers of the evaluation of the Energiesparservice in 2009. In this survey 56% of the people stated that they switch of the power strip after the use of the electronic devices.[8]

For the fridge thermometer when the household stated he use it always this means he checks the temperature every day, most of the time means regular. Generally we can say that the thermometer and thermo-hygrometers are perfect devices to achieve learning effects in terms of heating and ventilation. The sample size for the radiator key is too low to make any conclusions.

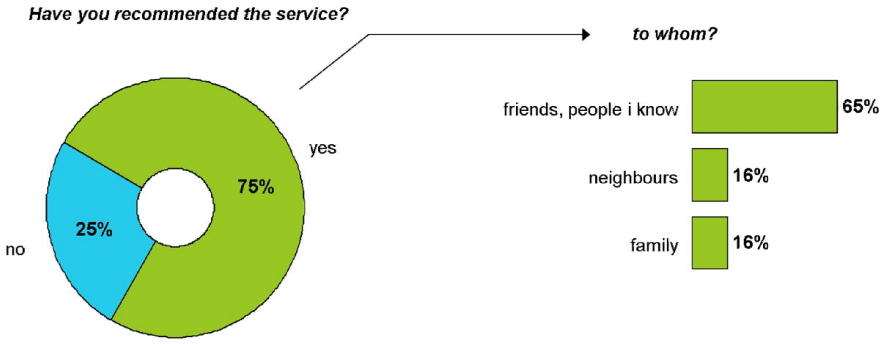
[8] Evaluation des Cariteam-Energiesparservice in Frankfurt a.M., ISOE u. ifeu. 2009, S. 26



Germany - Figure 10: Overview of use of received devices (II) (n=100)

Consequences of satisfaction are multiplier effects. Only when the participating households are satisfied multiplier effects can be generated.

Three quarters of the interviewed households answered that they recommended the service to people. Most of them recommended it to friends. See the figure below.



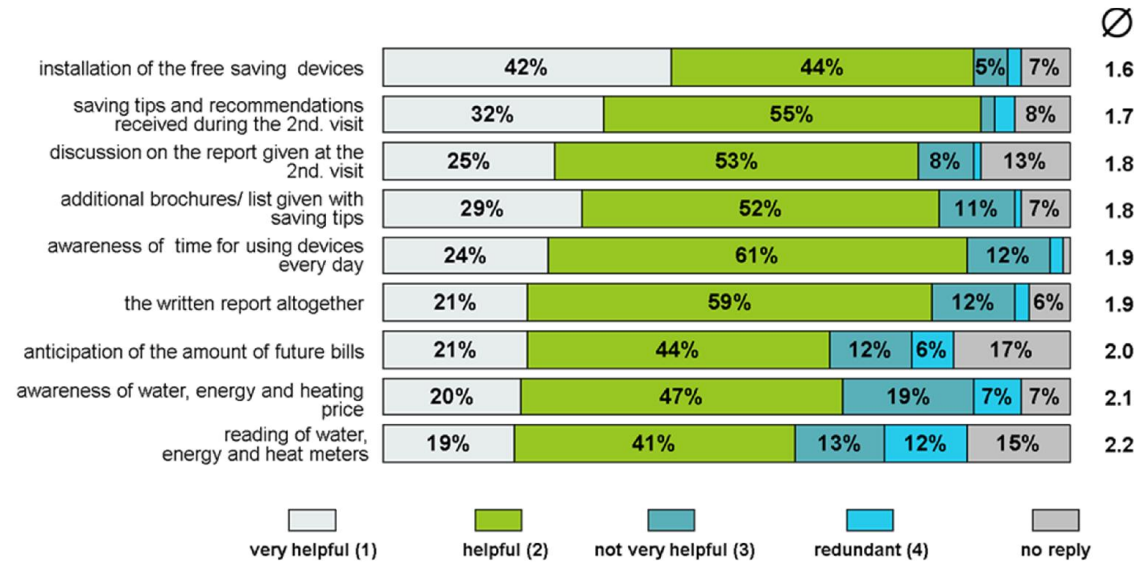
Germany - Figure 11: Recommendation of the service (n=100)

Another question was, if the visited households passed tips to other people. In fact 85% of the households indicate that they passed tips how to save energy to friends and acquaintances. This shows that the households were satisfied with the service and that the tips were useful for them. Passing the tips to friends and family is also an indicator for learning effects we will discuss in the next topic.

4.1.1.1.4 Learning effects

Energy savings in households can be generated through devices and behavioural changes. In this topic we want to have a look on the learning effects in the households with the specific question, did the visits animate the households to change their behaviour?

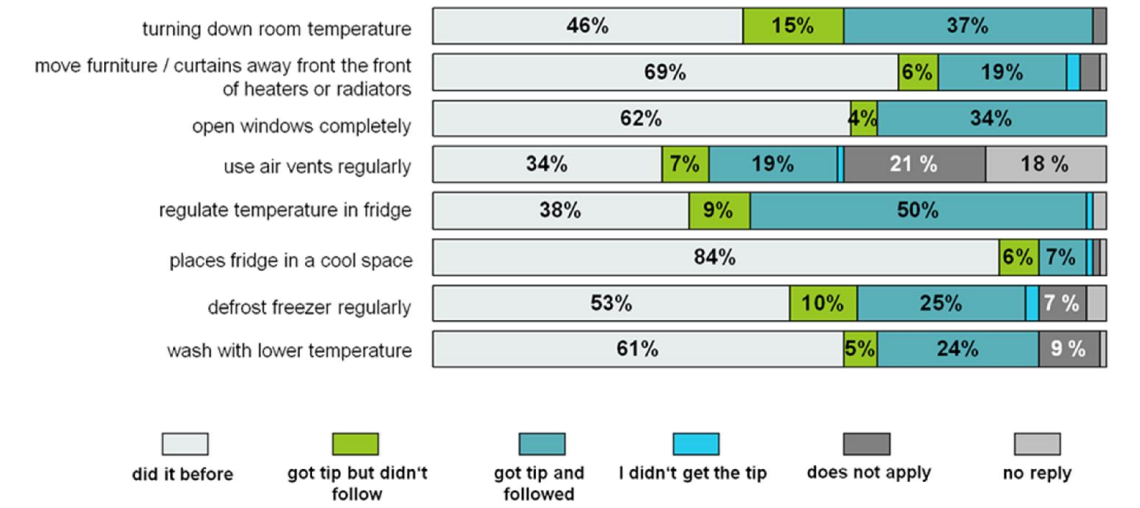
The chart below shows that 87% of the interviewed households think that the tips and recommendations of the advisors during the second visit were helpful or even very helpful. These answers will only occur when the household learn something new or it is as reminder for him. If the households know the tips before and they already adapt their behaviour they would have answered another way.



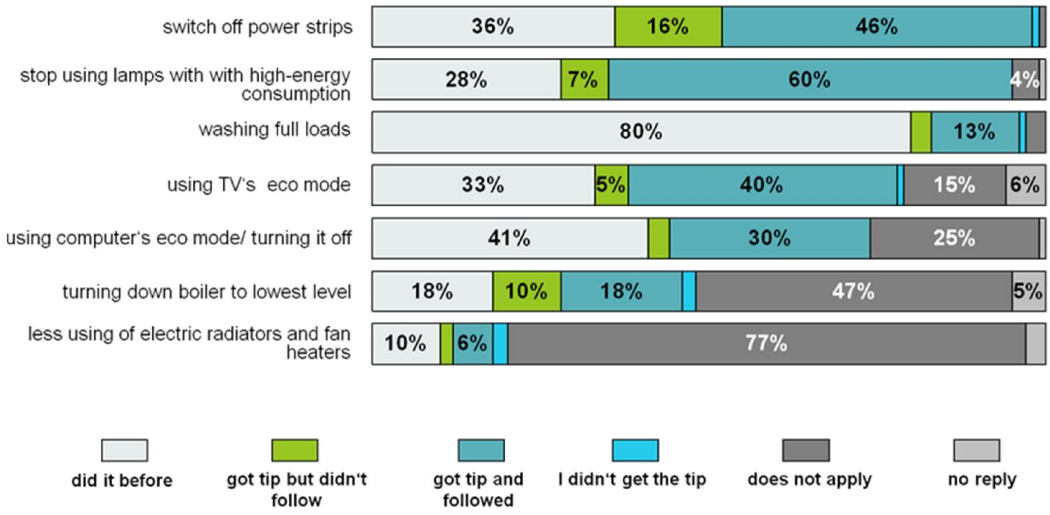
Germany - Figure 12: Benefit of the service with regard to different attributes (n=100)

When the interviewed households were asked if the tips motivate them to care more about their energy consumption 91% answered yes. This is a general statement, but does this also mean that the household followed the tips the advisers gave to them. The next two charts *Implementation of saving tips I & II* show, if they follow the tip, if they follow the tip before or if they didn´t follow the tip at all. The tip that is followed the most with 60% is the tip to stop using lamps that have high energy consumption. To regulate the temperature of the fridge seems to be a good tip to follow for half of the interviewed households.

In 84% of the in the interviewed households was the fridge already on the right place and also washing full loads is common in the households (80%).

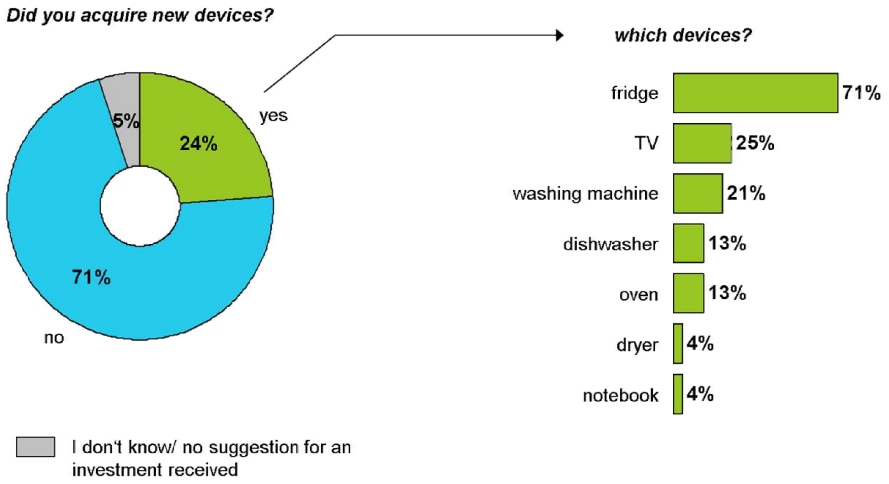


Germany - Figure 13: Implementation of saving tips (I) (n=100)



Germany - Figure 14: Implementation of saving tips (II) (n=100)

During the visits the advisors also gave suggestions for new efficient appliances. 24% of the interviewed households answered that they had the chance to buy one of the recommended appliances (see the chart below). Most of them bought a fridge (71%). Theses results can be generated because the environmental department of the city of Frankfurt implemented a fridge freezer exchange program in close cooperation with the Energiesparservice. The program provided A++ fridges at a low rate or EUR 120 coupons, when the households want to choose the fridge from another manufacturer.



Germany - Figure 15: Acquirement of recommended devices (n=100)

All in all through the advisory service, the households learn more about energy efficient behaviour and new opportunities to save energy occur.

4.1.1.2 Qualitative evaluation of the visits

4.1.1.2.1 Recruitment of the households

Although the Energiesparservice/Stromspar-Check is already well-known in Frankfurt the recruitment of the households is not going on its own. During the last years there was build up a very close local network with other social and welfare organisations and also with social programs in different districts of the city so called “active neighbourhood”, which developed special integration programs for households with low-income and for foreign residents. The most successful approach to reach low-income households is by promoting the service at the so called food bank (Tafeln und Lebensmittelausgaben) where people get food and supplies for very low prices. The multiplicators are having information desks at this places very regularly and so they are well-known and recommended from the visitors (...you can trust this service, they really help you saving money….). This word of mouth is one of the

most effective ways to gain referrals and you get it the more regular you are public. So CARITAS also works together with employment programs from other organisations, with the social department and their services and with the job centres. Also important is to continuously make publicity for the project in your own for e.g. work together with depth counselling, with the life counselling offices and so on to always have recommendations and support the word to mouth recommendation. Very important in case of recruitment is that you do it continuously. In the year 2012/beginning 2013 when the Energiesparservice only had a few advisors (4-6 instead of 12 -15 people) because of changes in the national employment program, they also had problems with getting enough households because they didn't have enough personal capacity to recruit households regularly and to do the visits at the same time. Therefore there was a drop in the number of visits from about 600 to 300 a year. So to reach about 700 households a year which is the actual goal for 2014 in Frankfurt you need to do minimum three informations desks for half a day each a week. For each you need two advisers, who are good in communication to carry them out.

The special offer CARITAS could make through ACHIEVE was to advise about heating issues and install heating devices. This is not part of the national program Stromspar-Check because the heating costs are paid by the municipality. But the municipality is interested in this part of the program because they can save public funds. Therefore there is a close cooperation with the social department and the CARITAS about households who have problems with their heating costs. They are sent to CARITAS to get heating advices and the households have to use the service because otherwise it could be that they don't get paid their heating bills anymore. And the visits were really helpful for the household because in most of the cases there were reasonable causes why the households had to high heating bills: sometimes the calculations were wrong, sometimes the heating cost were calculated from the actual year and the last year (which already was paid), sometimes people need is very warm because of their health situation, sometimes the building stock or heating system is very bad and therefore a lot of heating energy is needed. The households always were very happy because of the service.

4.1.1.2.2 Organisation of the visits

The organisation of the visits has run quite smoothly because this is well developed at the Energiesparservice. There are normally one or two long-term unemployed people who are mainly organizing total of the appointments of the first and second visits. Often these are people who already have skills in this issue for e.g. in office administration. Although it is important not to underestimate the time which is needed to liaise with clients. The main disruptions have been where the occasional customer has not been at the property at the appointed time. It's about 10 to 15% of all visits where the households are not reached at the agreed time.

4.1.2 Evaluation of the training and advisors

4.1.2.1 Training content and materials

The training of the advisors was delivered in two separate ways. The main program consisted of 60 hours of theory training and work experience modules. The training material was developed according to the structure agreed by the consortium, based on the Energiesparservice compendium and adapted to the heating program. Another part is also an introduction in how to use the Exceltool. The main advisors in ACHIEVE had already experience with working in the energy sector, one was a certified energy adviser, the other has an Ph.D in chemistry. Those long-term unemployed people who accompanied the main advisors had no or very less previous experience in working in the energy sector or in energy advice. The normal training of these people foresees one week of introduction to the main important theoretical and practical issues in the project by the skilled worker and practical leader of the Energiesparservice. After that the advisors accompany the more experienced advisors and develop their skills through learning by doing. The theory then is deepened by a regular class every week for about 1,5 hour. In that lessons all the practical questions will be discussed, e.g. how to use the devices in the right way, how to build them in etc. These weekly lessons last for the whole period the people are in the project. As the advisors of the employment promotion program is an ongoing project, where people will individually be sent from the job centre. That means the training is also ongoing and has to integrate newer and more experienced people. This is sometimes a bit challenging for the practical leader who does these trainings. So from time to time the advisors were put into groups and the more experience advisors give explanations to the newer ones.

4.1.2.2 Advisors

4.1.2.2.1 Profile, background and number of advisers

In total 20 advisors worked for the ACHIEVE project. ACHIEVE and Energiesparservice are part of an employment promotion program of the job centre and the city of Frankfurt which is conducted by CARITAS. The advisors have a limited contract for half a year which could be extended up to one year. Most of them stayed for one year. They work 5 hours a day. Three of them had a special funding, which gave them the opportunity to stay for two years. They work 8 hours a day. Most of them have an education as craftsman, e.g. as a confectioner, as metalworker, electricians, office management assistant or engineer. They are mostly between 40 and 50 years and mainly man. 18 of the advisers mostly worked for the Stromspar-Check and collected all this data about electricity and water consumption for ACHIEVE. They were paid by funding's from the Federal project or the City of Frankfurt. This is part of the 25% own funding of CARITAS

Most of the consulting work in the households for ACHIEVE was done by a certified energy advisors and a PhD of chemistry (working 25 hours per week). The energy advisor was partly paid by ACHIEVE, the chemist was partly a participant of the employment promotion program and partly worked as a volunteer. These two main ACHIEVE advisors primarily worked on heating and ventilation.

A small part also consisted in recently graduated young people (as volunteers), who wish to gain experience and skills that can help them to find a job in the future. Until the midst of 2012 the advisors were cofounded by the jobcentres as part of an employment promotion program. This was a national program which was closed down in April 2012. For more than half a year the Energiesparservice had problems to get and finance enough advisors. As a reaction to that the City of Frankfurt started a new employment promotion program in June 2013 and the Energiesparservice got new advisers for the ACHIEVE program and for the Stromspar-Check.

As the main work of the Energiesparservice is the training of long-term unemployed people there is also foreseen a supervision part by a social worker. How much time this needs depends. On average you can say about 1-2 hour a week/person. But this is important in case of preparing people for the regular job market, because sometimes people have problems to get back to a regular work structure, need support to clear things with the municipality etc. In all these things the social worker supports the participants of this program. This shows that the employment program is not only a special education which gives the people better skills for a new job but also important is the help how to order one's own affairs.

4.1.2.2.2 Skills knowledge developed thanks to the project

The advisors very much appreciate this project as social working program. They are very satisfied because they feel they can really help the low-income household and their work does make sense. In Germany often those long-term unemployed people have been in different working programs. Most of them are not very reasonable, the work at the Energiesparservice/ACHIEVE they really like. They get to know new interesting content, which they can also use for their own purpose and which helps them and others to save money. They also like the connection to the environmental topic, because they are interested in this issue and want to do something to save energy. As a projectleader you can notice how people get more and more self-confidence. And after a while they are open to speak about their future and the next steps how to find a regular job. I always find this very satisfying.

Through the ACHIEVE program CARITAS Frankfurt was able to hold the certified Serviceberater and to give them a contract. One became the practical project leader, one could be hold during the time the jobcentre didn't want to pay for them and now can be payed by CARITAS and the third one, the PhD in chemistry will get a new job at CARITAS in August 2014 to work together with a social housing company. He will offer energy efficiency consulting to the tenants of the company and the idea is that he finally can go into business for himself.

The connection of social and environmental aspects is a new approach in the environmental movement, but it is important to take all levels of society into account. This approach uses the idea of consulting on eye-level which means that those households who have only less money can advise people at the same level. They know what it does mean to live with less money and therefore can give good tips and share their experience. This is also very satisfying for the advisors to support others in this way.

4.1.3 Investment saving ratio

4.1.3.1 Investments

The types of investments in this project belong to different kinds of investments which are not one-on-one comparable. Therefore it is difficult to describe a typical “investment-saving-ratio”. Because of this reasons we decided to give a mixture of qualitative and quantitative description of important aspects of what belongs to this issue. And in the case of Frankfurt there is also to consider the relatedness between the Stromspar-Check and the ACHIEVE project. The main cost types are:

a) personnel costs

for the administration

for the advisers

for supervising the advisers

b) travel costs for the adviser

c) cost for the trainings of the adviser

d) costs for the equipment of the advisers

e) costs for the devices

f) costs for the overhead

As written in the previous chapters there were working mostly two advisers for the part of ACHIEVE which in Frankfurt means especially all consultations about saving heating energy. Each of the visits in the household (1st and 2nd visit) takes minimum about eight hours. This doesn’t include the time for the recruitment of the households.

The visits for ACHIEVE started in January 2012, when the Excel Tool was ready. From 2012 to 2014 one certified energy advisor has been employed partly on ACHIEVE. He especially controlled all the dates in the Excel Tool and the reports for the household. He also developed the work with the heating devices, how to build them in, to find out which are the most important ones etc. During this time his proportionate hours were 1.078 hours. The salary over this time was about EUR 25,075.

Beside the certified energy adviser a lot of the daily consulting work was done by a PhD en-gineer. He worked about 25 hours a week on the project in 2012, 2013 and 2014. During this time he worked as volunteer, from Dez. 2012 until End of May 2013 he was part of a Em-ployment promotion program of the Jobcentre. After this was finished he stayed as a volun-teer with the same amount of hours. In total he worked about 3.000 hours for this project. ACHIEVE paid the costs for public transport for him. The costs for employment program were paid by the Jobcentre.

In the years 2012 to 2014 the certified energy advisor and the PhD were supported by 18 advisors which were paid by the Stromspar-Check. They were doing the 1st and 2nd visit in the household for saving electricity and water, helped the main advisers with the installation of heating devices, worked a lot at information tables to recruit the households and organized part of the appointments. ACHIEVE paid parts of their costs for public transport and costs for the equipement of the advisors. The other costs were paid by the Jobcentre and the Stromspar-Check PLUS.

The travel costs which were paid by ACHIEVE are about EUR 1,652 for public transport for the advisers.

4.1.3.2 Savings

For the savings different saving types have to be considered too. The main types are:

a) savings for the households through the free devices

b) savings because of changing the habits

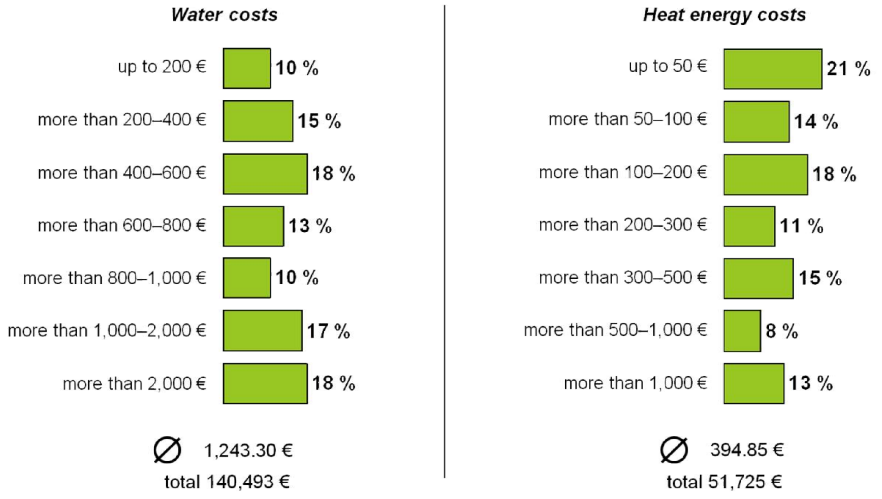
b) savings for the municipality

c) benefits for the advisers

d) re-integration of the advisers into the job market

e) costs for the advisers which could be saved for the job centres through this project

The energy and water savings for the households are calculated within the Excel Tool on the basis of the devices which were given and build in at the households. They are calculated for one year per household and on basis of the lifespan of the products. They describe in detail in previous chapters. The savings for the municipality are especially interesting in Germany because for the biggest group of the low-income households, those who get the so called Arbeitslosengeld II get their heating costs and costs of water paid by them. That means if households save heating energy or water, the municipality has to pay less money for this costs. There could be evaluated 113/135 households who are part of this category.



France (GERES) - Figure 1: Total amount of long term savings: ALG II-purchaser

Each households save EUR 1,242 water costs over the lifespan of the water saving devices of 10 years. In total this is EUR 140,493 for the 113 households in the City of Frankfurt.

In case of the heating costs each household saves EUR 395 over the lifespan of the devices which is most of the products between 5 and 10 years (draught proofing and insulation behind the radiator). In total this is about EUR 51,725 in the visited 135 households of this group.

4.1.3.3 Investments in ratio to savings

Because of the complexity of the different cost types the project consortium agreed on calcu-lation the investment in a ratio to savings only for the investments of the devices and the sav-ings through the devices. This means for Frankfurt:

The typical savings achieved per household on average were EUR 246.91 per year. The in-vestment costs per household on average are EUR 51.20 for all devices. This is more than 480% than the direct investment for the devices. That means that the investments could be saved already after 2.5 months.

4.1.3.4 Additional Benefits

The ACHIEVE intervention has brought additional benefits to those associated purely with financial savings. This can be described broadly as:

Benefits for the advisors:

Advisors who have worked on ACHIEVE have benefited directly from the knowledge that they have gained and could use in their own homes. They have also gained new skills and experience that can be used in the next stage of their professional lives. Specifically skills developed include; improved communication, IT literacy, report writing, time keeping, and providing advice. This gives them self confidence and new ideas what could be the next steps in their professional lives. And they all appre-ciate that they can do something meaningful during their employment promotion program. One of the advisors already got a contract at CARITAS at the Stromspar-Check project because of his experience in ACHIEVE. Another one will get a contract in August 2014.

Benefits for the households:

ACHIEVE also helps households to help themselves. They get all the important information how to save energy, how to read their energy bills and how to save money. So it fulfils not only an environ-

mental task but also a task of social policy. If needed the adviser seeks to identify other issues specific to the household and refer clients to appropriate partner agencies.

And last but not least it is also part of environmental education because it supports the understanding that we need to change our “energy habits” and become more efficient and conscious about energy using. And the low – income households are happy that they can also do something meaningful.

4.1.4 Dissemination and transferability of the project

4.1.4.1 Communication impacts and involvement of partners and networks

During the project there could be developed communication impacts on different levels:

- On the level of the recruitment of the households it is the improvement of the cooperation with other welfare organisations which now makes it easier to work together continuously to recruit the households.
- Another one is a new level of cooperation with the energy department of the City of Frankfurt: Since one year the City of Frankfurt is also part of a national project where there will be developed a “Masterplan of 100% climate protection until 2050”. The Energiesparservice was part of about five focus groups in this project. Now the project became established in the Masterplan and will be financially supported by the City minimum until the end of 2015. But there are already options to continue after 2015.
- The results of ACHIEVE especially the savings with heating devices are very interesting for the social department and for the energy department too and the Energiesparservice will present them to after finishing the evaluation. We expect that we can improve the cooperation and come up with new ideas of financing the project on the long term.
- On the level of the households there was created a new booklet, called “Mein Check-Heft: Tipps zum Energie/und Wassersparen im Haushalt” which is given to every household at the second visit to motivate them to save energy and change their habits in the long run. It gives well prepared and important information how to save energy, background information for e.g. of how to buy LEDs or CFIs, how to use a fridge in the right way and it has interactive elements which support the fun factor of saving energy.
- On the level of the advisers and the social housing provider there could be developed a new cooperation with social housing provider. In August 2014 there will start a program where he will offer energy efficiency consulting to all the tenants of the company low-income households or “normal” households. His employment for this will be paid by an integration program of the job-centre because of his qualification through ACHIEVE, by the City of Frankfurt and by the social housing company.

In the communication campaign during the ACHIEVE project it was difficult to use the ACHIEVE flyers because of the more known national campaign Stromspar-Check which has its own flyers. It would have confused the households and also the cooperation partners if we would come up with new flyers for the households. So we represent ACHIEVE more indirectly and used the flyers and Newsletter for the work with the stakeholder and to present ACHIEVE on national conference.

4.1.4.2 Transferability of the project

There are a lot of interesting results we reached in ACHIEVE and that will be used for the local and national project:

- The experience with the heating devices will influence the work at the Energiesparservice and in the national project Stromspar-Check in the long run, especially because we can raise the savings in heating energy which is very interesting for the municipality because these costs are paid by them.
- The new cooperation with a social housing company (see above)
- The experience with the energy audit, if it will influence the landlord in his decision to renovate more efficiently this will be an approach the Energiesparservice can develop together with the energy department. They are really interested in this result. Unfortunately we only could start this at the end of the project but at the moment the results are very encouraging.
- National and international discussion about fuel poverty
- More requests for presenting our experiences also on the EU-level and not only in the national project.

4.2 EAP, Bulgaria

4.2.1 Results and evaluation of the visits

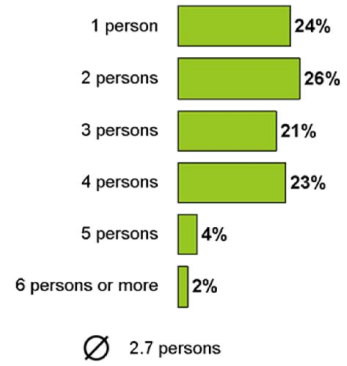
ACHIEVE was the first project to systematically tackle fuel poverty in Bulgaria. In this respect, there was no previous experience working on the topic. The cooperation within the consortium and the assistance from the more experienced partners on the topic made the project a success in Bulgaria. In addition, the involvement of the local actors, as well as the cooperation with vocational schools contributed to the slightly altered approach that was taken in Bulgaria. This resulted in visiting 301 households in need in the Plovdiv area, improved education of students on the topic, and establishment of a local network of actors in the area of fuel poverty.

4.2.1.1 Impact evaluation of the visits

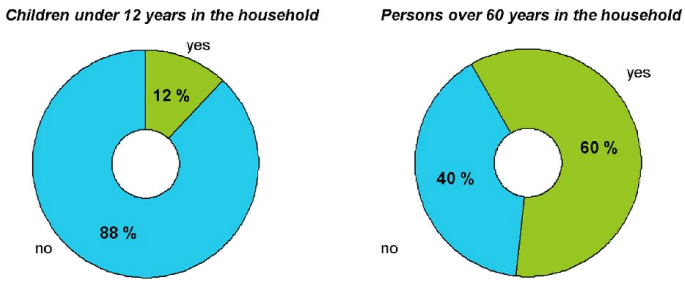
EAP created a sustainable and well-functioning network for the organisation of the visits. EAP worked with a number of social institutions such as the Social Aid Directorate – Plovdiv, Union of Handicapped People, its associated member “Hope for Decent Life”, Union of the retired people in order to identify potential households to receive visits. Households were either contacted by those structures or the households contacted the mentioned institutions to express interest in receiving a visit. Following the initial express of interest, EAP communicated with the households directly.

4.2.1.1.1 Presentation of the households and the dwelling reached

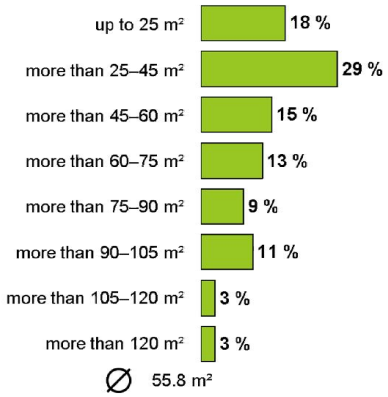
The ACHIEVE action in Bulgaria reached directly 301 households. On average there were 2.7 persons in a household, which is close to the national average household size of 2.5 persons. Almost all visited households owned their dwelling, which is common for Bulgaria – the rate of private ownership of homes in the country is 97%. Large share of households lived in multifamily buildings and 86% lived in a building more than 25 years old. In addition, 60% of the households had at least one person over 60 years of age. On average, the heatable living space per household was 55.8 m^2 (see charts below).



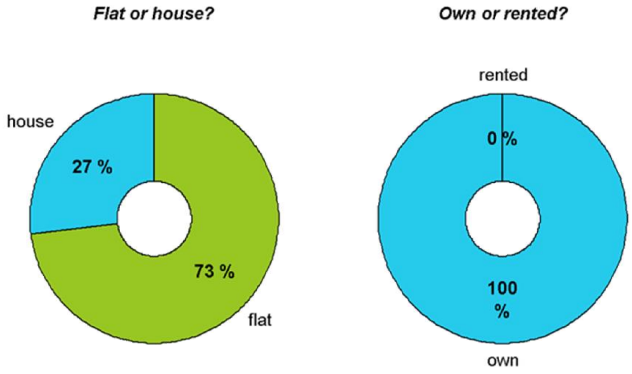
Bulgaria - Figure 1: Number of persons in the households (n=301)



Bulgaria - Figure 2: Composition of the households (n=301)

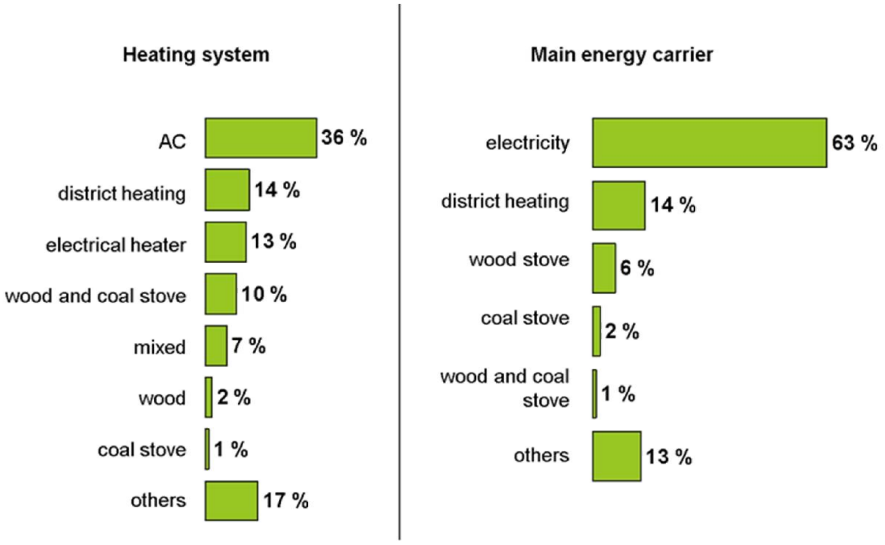


Bulgaria - Figure 3: Heatable living space in m² (n=301)



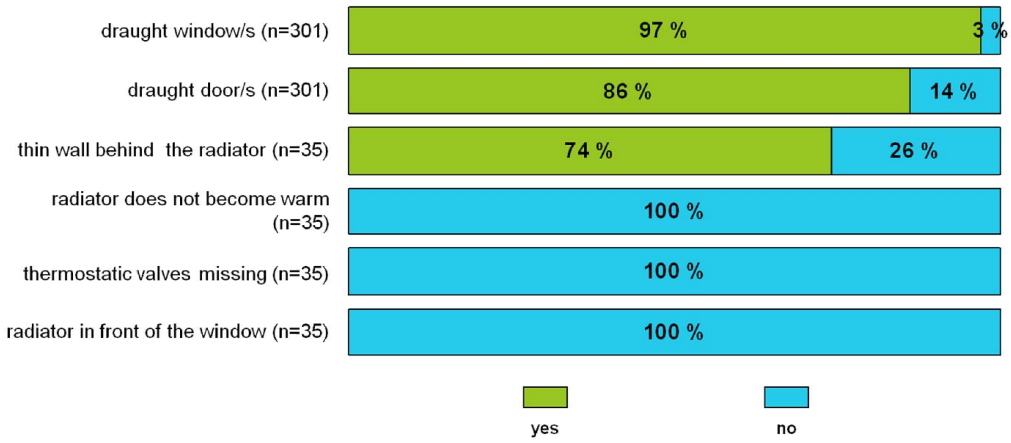
Bulgaria - Figure 4: Housing situation (n=301)

People in the households came from various educational and social backgrounds. Most of the households received financial aid for heating in the winter through the so-called Winter Supplement Programme. There was a wide variety of heating systems used. However, the main energy carrier for heating was electricity (63% of the households), which represents a paradox as it is the most expensive energy source for heating. Moreover, electrical energy is also predominantly used to heat water for use in the households as was the case in 83% of the visited households. Water meters were individual ones, rather than collective.



Bulgaria - Figure 5: Heating systems and main energy carriers (n=301)

In terms of heating behavior before the visits, the households mainly followed good practices such as: opening windows for a short time for ventilation and closing doors between heated and unheated rooms. On the other hand, most of the households did not switch down the thermostat (if they used district heating) while ventilating and did not reduce the temperature of the radiators while away. The biggest problems that reduced the heating efficiency for the households were draughts at windows and doors (see chart below).



Bulgaria - Figure 6: Problems heating (n=301)

4.2.1.1.2 Quantification of the savings

In general, the visited low income households try to use as little energy as possible. The result is that in most cases they sacrifice comfort in order to save money. In addition, most households did not have the knowledge of simple measures to save energy and in others, they did not have the means to invest in even simple energy saving devices like the ones distributed in the ACHIEVE project. The charts below show the average consumption and price of energy and water, as well as the realized and expected savings from the use of the installed devices. In the case of Bulgaria, the visited households received a package of de-vices: energy-saving light bulbs, tap aerators, draught proofing for windows and doors.

Energy/water	Consumption (average)	Price (average)
Electricity	3,538 kWh	0.10 €/kWh
Heating	6,405 kWh	0.09 €/kWh
Water	105.7 m^3	0.74 €/m^3

Bulgaria - Table 1: Average consumption and price of energy and water per year

Energy/water	Savings (kWh/m^3)		Savings (€)		Savings (CO_2)	
	Average	Total	Average	Total	Average	Total
Electricity	335.7	101,053	33.57	10,106	229.3	69,019
Heating	256.8	77,311	23.1	5,913	113.1	34,044
Water	9.4	2,833	6.97	2,098		
Total			63,64	18,117	342.4	103,063

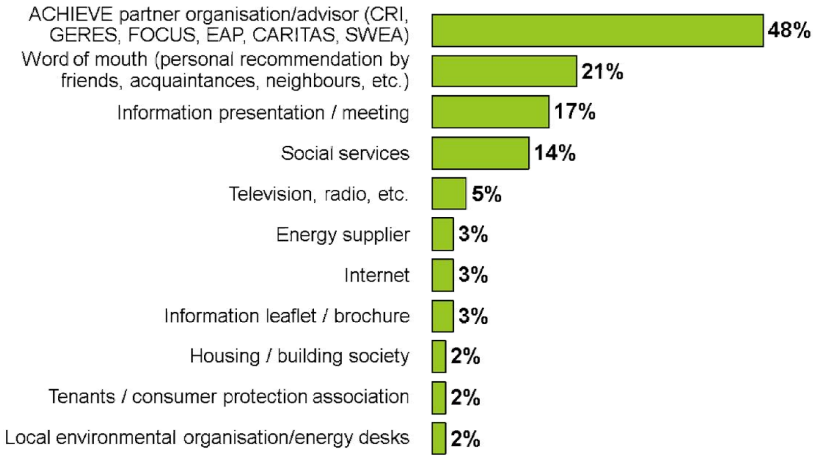
Bulgaria - Table 2: Achieved savings per year

Energy/water	Savings (kWh/m^3)		Savings (€)		Savings (CO_2)	
	Average	Total	Average	Total	Total	Average
Electricity	2,014.3	606,318	201.43	60,632	1,375.8	414,115
Heating	1,288.5	386,555	98.03	29,312	566.2	169,863
Water	94.1	28,334	69.66	20,967		
Total			369,12	110,911	1,942	583,978

Bulgaria - Table 3: Potential for long-term savings

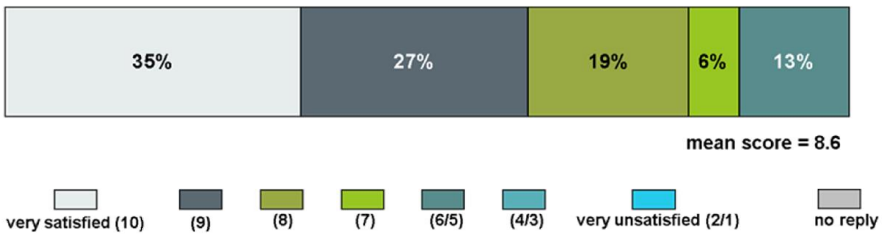
4.2.1.1.3 Satisfaction of the visited households

EAP was an active promoter of the ACHIEVE visits as seen in the chart below.



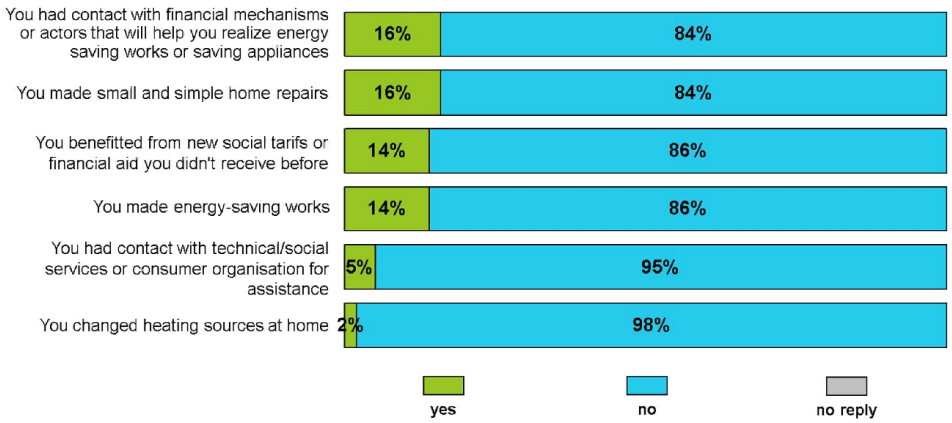
Bulgaria - Figure 7: Sources of information on ACHIEVE visiting Service (n=63)

In addition, the visited households were left satisfied from the service with 35% of the surveyed households rating their satisfaction level with the highest possible score of 10. Similarly, the different characteristics of the advisors were highly rated by the households (see chart below).

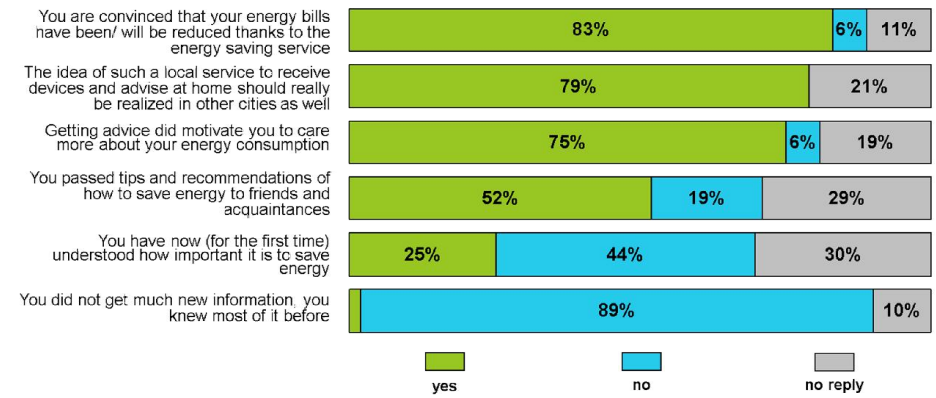


Bulgaria - Figure 8: Total satisfaction with the service (n=63)

Apart from the achieved savings by the households, the visits had the additional impact of empowering them to look for assistance and get in contact with relevant structures. More than 15% of the house-holds initiated contact with such structures, while some even made additional energy-saving works. In addition, 83% of the households are convinced that their energy bills will be reduced thanks to the ACHIEVE service (see charts below).



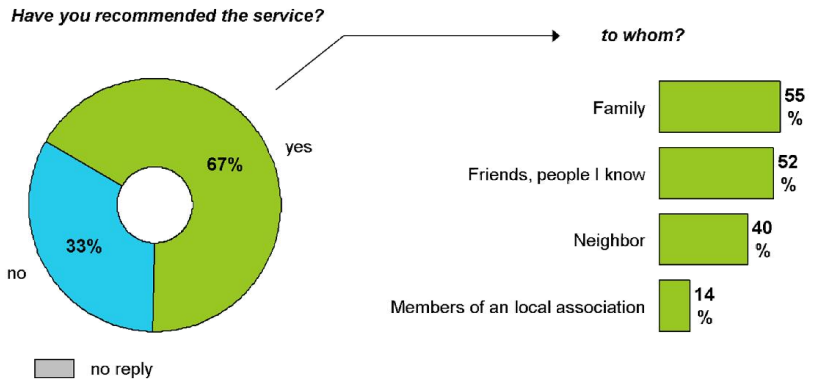
Bulgaria - Figure 9: New options/ changes after the visit (n=63)



Bulgaria - Figure 10: Approach to received advices (n=63)

As far as the installed devices are concerned, almost all of them are still used by the house-holds. There were only a few CFLs and tap aerators that were removed, most often because the households did not like the light produced by the CFL or in case of the tap aerator – due to old taps or not enough water flow.

In addition, the majority of households recommended the service, mostly to their family and friends (see chart below).

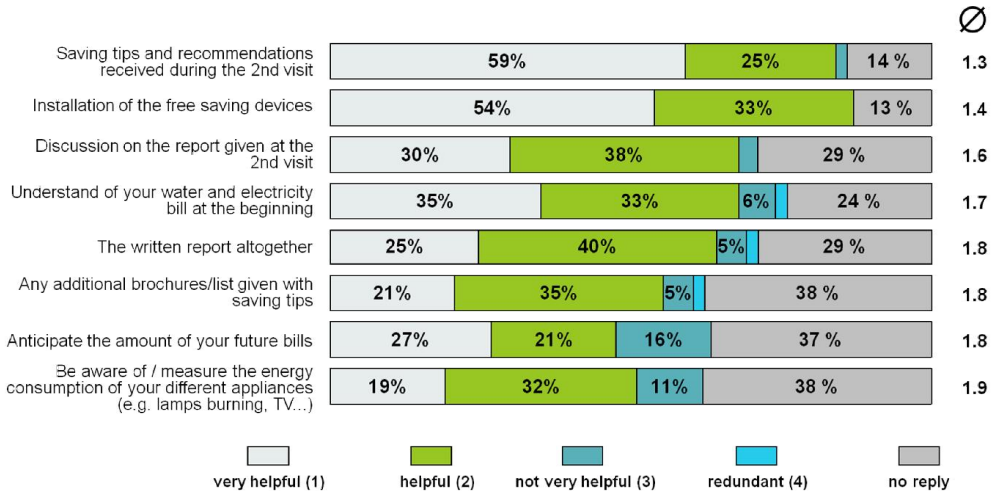


Bulgaria - Figure 11: Recommendation of the service (n=63)

In general, households were highly satisfied by the visits, the received advice and the devices. They were grateful for the fact that someone cares about their problems and gives them guidance on how to cope with some of their everyday issues. Some of the households wished that the visits could also provide funds for energy retrofit of their homes and in this case they were directed to the relevant structures that could provide assistance in this area.

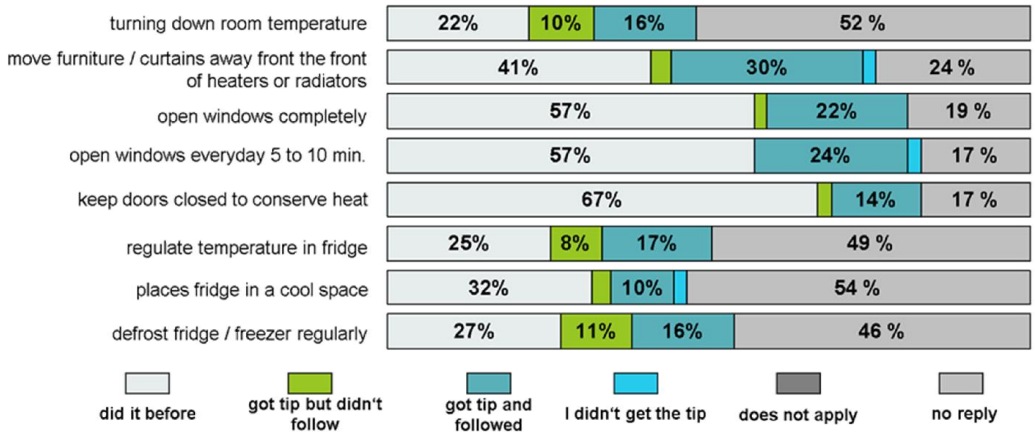
4.2.1.1.4 Learning effects

The visits were a good way for the households to learn more about their energy consumption. The additional attributes of the visits (apart from the installation of the devices) were also appreciated by the households. The majority of them deemed those additional attributes helpful in getting new knowledge and understanding about their energy consumption (see chart below).

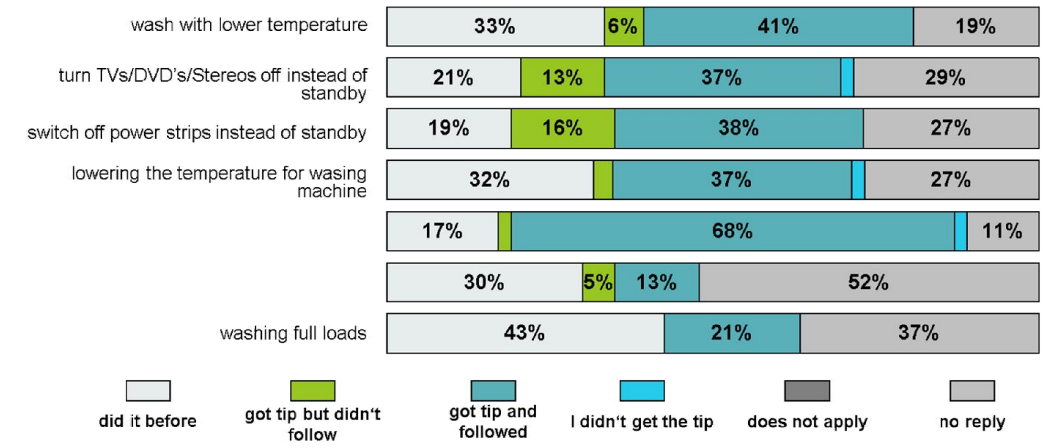


Bulgaria - Figure 12: Benefit of the service with regard to different attributes (n=63)

Apart from the households' conviction that the ACHIEVE visits will reduce their energy bills, the visits also triggered behavioural changes. More than 25% on average of the households followed the different tips given to them during the visit (see the charts below). In addition, just receiving advice motivated the households to care more about their energy use, as displayed in the chart "Approach to received advices" above.



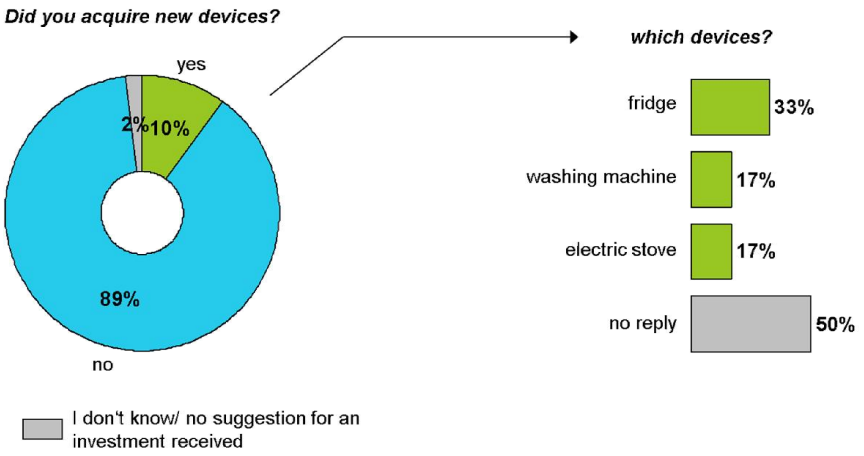
Bulgaria - Figure 13: Implementation of saving tips (I) (n=63)



Bulgaria - Figure 14: Implementation of saving tips (II) (n=63)

Households also received advice to change some of their appliances. However, most of the households were financially restricted to follow this advice and as a result only 10% of the households could afford to change some of their appliances (see chart below).

Another social benefit of the visits was that in some cases, there were handicapped people and people with mental illnesses who participated in the visit on the side of the households. In this way, their social isolation and marginalization were diminished and those households appreciated the care and social contact they received through the visits.



Bulgaria - Figure 15: Acquirement of new devices by the households (n=63)

4.2.1.2 Qualitative evaluation of the visit

4.2.1.2.1 Recruitment of the households

The households were recruited in close cooperation with the local partner organizations. EAP contacted various social organizations such as: Social Aid Directorate (responsible for ad-ministering the Winter Supplement Programme), Union of Handicapped People, "Hope for Decent Life", Union of Retired People, etc. These organizations were contacted because they deal mostly with people at risk of fuel poverty and people who are socially isolated. In this way, EAP sought to both empower households in risk of fuel poverty and provide social contact and assistance to households who were socially isolated.

The assistance of the above-mentioned organizations was essential in getting people interested in the visits. Because the local partner organizations knew their members very well, they were able to refer specific members to the service. In this way, the local partners disseminated initially the information about ACHIEVE to the households. Then, EAP contacted the interested households via the telephone and arranged a visit with them.

The organization of the visits was facilitated by the local partner organizations and this made the process of contacting households easier than initially expected. Therefore, it is highly recommended to involve as many local actors as possible in a service like ACHIEVE. The hardest part of organizing the visits was coordinating households' availability for a visit, handling cancellations and change of plans, as well as responding to last minute issues. However, these problems are to be expected when working with a large group of people.

4.2.1.2.2 Organisation of the visits

Each household was scheduled for a visit on a particular date at an agreed upon time. In most cases, the visits happened on the date and time initially agreed upon. There were very few cancellations or absence from the home at the time of the visit.

There were two advisors per visit who implemented the home visit. Often, the two advisors were accompanied by an expert from EAP or by an employee of a local partner organization. An EAP expert was always present when the visit was the first visit for the advisors. The employees of the local partner organizations assured easier access and a high level of trust for the household. The households knew the local partner organizations because they have worked with them or have been involved in their activities, so the households felt more secure when they saw someone they recognized.

During the first visit, advisors collected the required data according to the data collection sheet, developed for the project ACHIEVE. After the visit, they entered the data in the developed Excel tool. After entering all the required data, the tool generated a report. During the second visit, the advisors presented the report to the household, gave tips and installed the devices that each household received. Sometimes the households requested that they (often, some other member of their extended family) install the devices themselves. This was allowed for. All households signed a form acknowledging the receipt of devices.


Bulgaria - Figure 16: ACHIEVE advisors installing devices at second visit

Usually, the same advisors who made the first visit participated in the second one, as well. In general, the whole procedure from the first visit until the end of the second visit lasted around 5 hours for the advisors. This included the time needed for the calculations and the report.

Advisors were also presented with a set of guidelines that described how they should deal with different situations in the households. For example, describing when it is appropriate to install tap aerators or draught window proofing. In addition, the advisors presented to the households a number of factsheets, including factsheets about a retrofitting funding programme, information about the devices and other brochures and materials. The advisors were often accompanied by employees of the local partner organizations so they had an immediate source to turn to in case of problems or health/sanitary concerns.

In case of complains regarding the installed devices, the households were encouraged to get in contact with EAP. There were very few complains that devices were not working properly and in such cases they were replaced by EAP.

In most cases, the households were highly grateful and satisfied by the service. They appreciated the assistance, the advice they got and the acquired devices. The households were also willing to share information regarding their energy consumption, behaviour regarding energy use and problems they faced.

A definite success factor in the organization and implementation of the visits was the close cooperation and direct involvement of local partner organizations that the households were familiar with. This provided additional credibility of the advisors and the whole service in general. In addition, advisors appreciated the fact that they were always in a group of two and often accompanied by an expert from EAP or a local partner organization employee. Another feature that facilitated the implementation of the visits was that they were organized in bulk; meaning that there was a number of visits per day in the span of two weeks, for example. This was made possible by the fact that EAP trained a large number of advisors who could implement visits in this way. On the other hand, this represented a difficulty when a visit was cancelled because it changed the overall schedule. This, however, did not happen too often. Moreover, in some cases it was emotionally taxing for advisors to visit households living in poverty or a household of a handicapped person. Often, those people were also socially isolated so the presence of the advisors in their homes was a time for them to share their problems or just to confide in someone. In addition, working with young people required extra supervision from the side of EAP in order to ensure accuracy of results and establish credibility. Overall, though, the implementation of the visits in Bulgaria ran smoothly and without too many problems or complains from either side.

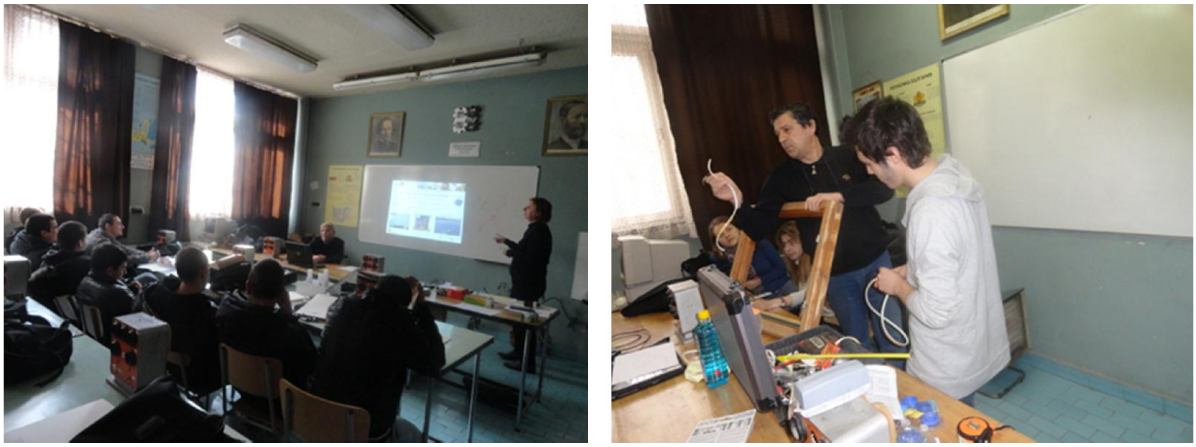
4.2.2 Evaluation of the training and advisors

The ACHIEVE advisors in Bulgaria were junior and senior vocational high school students. The training was delivered to them during the designated period of their practical education (usually in the summer and winter). The training was delivered by EAP experts and followed the prepared ACHIEVE training material. The training sessions took place in available rooms in the partner schools.

4.2.2.1 Training content and materials

The content of the training materials developed in ACHIEVE proved to be highly relevant to the educational needs of the students who were trained as advisors. Since the students were from vocational schools specializing in electrical and household equipment, they were already familiar with the energy basics. However, the concepts of fuel poverty, sustainable use of energy, and various behavioural and technological advices were all new for most of them. In this way, the training sessions did not only prepare the students for their work as ACHIEVE advisors, but also complemented their education in general.

One full training session lasted on average around 65 hours. It included theory (using the ACHIEVE training materials), communication training and practical training. The practical training had two parts: during the first part, the future advisors practiced using the Excel tool and during the second one – they were trained how to install the energy and water saving devices and had the chance to practice what they learned. There were 8 training sessions organized in the duration of the project.



Bulgaria - Figure 17: ACHIEVE training

The sheer number of training sessions and advisors trained represented a considerable effort on the side of EAP in terms of organization of the training sessions, time for delivery of the training material, distribution of training materials, and supervision. Although EAP received support from the vocational schools, this was limited to support in the relations with students and in finding adequate rooms for the training sessions. In future projects it will be helpful to also get assistance from the teachers to deliver some of the trainings and to implement “Train the trainer” schemes. Moreover, working with young people required extra effort for supervision and respecting of deadlines. On the other side, though, educating young people provided significant social benefits. The advisors were able to practice what they learned in school and during the training sessions in real-life situations. The advisors also engaged in activities outside of the classroom, which they enjoyed. In addition, they got familiar to an extent with the workings and management of a multipartner, European project. Again, the established partnerships with the vocational schools were essential to the success of the training sessions and the involvement of students as ACHIEVE advisors.

4.2.2.2 Advisors

4.2.2.2.1 Profile, background and number of advisers

The advisors were junior or senior year students in two vocational high schools in Plovdiv that specialized in electrical and household equipment. The advisors were mostly male, 18-20 years of age. The total number of advisors trained was 89. Each advisor performed 3-4 visits.

The large number of trained advisors along with the fact that they were mostly 18-20 year old men required extra effort in the training, supervision and quality check processes. EAP had to engage in activities such as: organizing the advisors to attend training sessions, presenting the material in an engaging way, accompanying advisors on their first visit to a household, checking the accuracy of the data entered in the Excel tool and the final report and getting feedback from the implementation of the second visit.

The positive side of having so many advisors available was that, we were flexible in scheduling appointments with households and were able to perform visits in bulk – several visits per day. In addition,

the advisors themselves appreciated work outside of the classroom, getting involved in something different than the regular school curriculum, and participating in a European project.

Bulgaria - Figure 18: ACHIEVE advisors

4.2.2.2.2 Skills knowledge developed thanks to the project

The practical work that the advisors got involved in helped them to put in practice what they learned in school and during the ACHIEVE training sessions. In this way, they honed their skills in their professional field. Moreover, the advisors gained experience communicating with different people, working in a team, and managing time and responsibilities. These are essential skills for their future development; regardless if it is further academic or professional development. To recognize their work on the project, each advisor received a certificate stating that he/she was a ACHIEVE advisor.

Large portion of the ACHIEVE advisors (more than 70%) continued with their formal education, whereas some others found jobs mostly in the construction, building management, household appliances, and electrical systems sectors.

The ACHIEVE advisors stated that the most important experience they got was working in real-life situations. Apart from the installation and technical skills they acquired, most of them highlighted the communicational skills that they had to practice and improve on. Another important skill gained was to recognize that different people have different problems and living situations and that they have to each be respected and attended to.

In general, working in real-life situations is the best way to learn, practice and improve one's skills. By engaging young people as ACHIEVE advisors EAP attempted to not only complement their learning experience, but also give them a headstart dealing with real-life situations and working on a project. Both the advisors and EAP experts deemed that this was a successful approach for the benefit of advisors and households alike.

4.2.3 Investment saving ratio

4.2.3.1 Investments

The ACHIEVE advisors in Bulgaria were vocational high school students and their work as advisors was meant to contribute to their learning experience by putting into practice what has been learned in the classroom and through the ACHIEVE training. In this sense, the ACHIEVE advisors in Bulgaria were not directly paid for their work. They did, however, receive tools that they could use in the installation of the devices. The cost of the tools was on average around EUR 10. The cost of the devices was on average EUR 30. Thus, the overall cost of the visit on average was EUR 40.

In addition to those costs, there were costs associated with training of the advisors and organization of the visits. The sheer number of training sessions and trained advisors increased the training costs in Bulgaria. There were some logistical costs such as securing rooms for the training sessions, printing and distributing the training handbook, providing materials at the training sessions, etc. On the other hand, there were also man-hour costs in the form of costs for experts who were leading the training (including experts who were demonstrating the installation of devices).

The cost of organization of the visits has to also be taken into account. There were man-hour costs for arranging and participating at meetings with the local partners who assisted in the identification of interested households. There were also man-hour costs for calling the interested households, setting

up and updating the schedule for the visits, following up after the first visit and making an appointment for a second visit. Moreover, there were some indirect costs because each advisor received an identification badge with their name and the project's logo, as well as a baseball cap with the logo of the project. At the second visit, the devices were brought to the households in a cloth bag, which the households kept, with ACHIEVE's logo on it.

Bulgaria - Figure 19: Cloth bags with energy and water saving devices

4.2.3.2 Investments in ratio to savings

ACHIEVE's intervention did not only lead to savings for the households, but also for other stakeholders. For instance, the visits saved some costs to the Social Services because the visited households were ones who fall under the supervision of different departments in Social Services. In this respect, the Social Service department received free information about the state of the visited households and did not have to go and implement visits themselves. On the other hand, this also saved money for the municipality because the Social Services are financed by the municipal budget. In addition, the ACHIEVE visits engaged in activities that usually municipalities and Social Services are responsible for. Moreover, the ACHIEVE visits also conducted work for the energy utility company in the sense that the visits helped households save energy, which is an obligation of the energy utility companies.

The average yearly saving per household from the ACHIEVE visits in Bulgaria was EUR 60.25. This is 200% more than the direct investment of EUR 30 for the devices Thus, the ACHIEVE visits in Bulgaria had an excellent return on investment. The investment in devices led to twice the amount of yearly savings in costs.

4.2.3.3 Additional Benefits

Last, but not least, one has to acknowledge the additional benefits of the ACHIEVE visits that are extremely hard to quantify. For instance, the additional skills that the advisors developed, the skills they honed, the time-management tasks they engaged in, the benefit for them that the participation in the project brought and could bring in the future (e.g. finding a job, getting accepted in university), etc. On the other hand, the households got satisfaction from the fact that someone is working to alleviate their problems, felt socially included and empowered; as the follow-up questionnaire showed, some 10-15% contacted social and technical structures, got access to new funding or implemented additional energy saving works. Both advisors and households changed or have the opportunity to change their energy consumption behaviour as a result of giving or receiving advice during the visits. They also became more aware of the environmental and social impacts of energy consumption. Moreover, the visits improved the comfort in households' homes which could reduce health problems and consequently, reduce public health expenditures.

4.2.4 Dissemination and transferability of the project

4.2.4.1 Communication impacts

Information about the project ACHIEVE was disseminated on multiple levels in Bulgaria. At the beginning of the project, EAP sent official letters to the municipality and the energy utility company asking to support the project; then EAP created a one-pager about the project that was used at the initial meetings with the relevant local organizations. Later on, the project leaflet in Bulgarian was also used at meetings, events, conferences, etc.

EAP also presented ACHIEVE at 10 events. These included technical exhibitions, Days of Green Energy, conferences and festivals. All of those, even though they were located at a particular place, were national events. In addition, there were some more localized dissemination activities. For example, at the beginning of the project EAP organized a focus group with interested stakeholders to discuss the idea of the service and the energy saving devices. EAP initiated a number of meetings with the local partner organizations and participated in their events, including with presentations about ACHIEVE. EAP also organized a press-conference during which experts from EAP provided information and some results from ACHIEVE. An article about ACHIEVE appeared in the biggest local newspaper following the press-conference.

Bulgaria - Figure 20: Press-conference, organized by EAP

4.2.4.2 Involvement of local or national partners and networks

The involvement of local partners was essential to the smooth running of the project in Bulgaria. EAP identified the potential partner organizations that could assist the implementation of the project and initiated meetings with them. The support received from the local partners ranged from institutional to assistance in implementation. The Municipality of Plovdiv and the energy utility company in Plovdiv provided institutional support for the project. The Bulgarian branch of Philips provided energy saving light bulbs at preferential prices for the project. On the other hand, the ACHIEVE advisors came from the Professional Vocational School of Electrical Engineering and Electronics and the Professional Vocational School of Household Appliances. The two schools also assisted with providing rooms for the training sessions and included the ACHIEVE training in their curriculums. The Social Aid Directorate, the Union of Handicapped People, the Union of Retired People, “Hope for Decent Life” organization and the other local social organizations assisted in the identification and communication with interested households and sometimes with the implementation of the visits.

The support of the above-mentioned partners facilitated the running of the project. All of them were helpful in their own way, so it is hard to say which ones were the most important. The most effort, however, was put from the organizations that helped with the identification and communication with the households. Sometimes members of these organizations even accompanied the advisors to the households so that the service could get more recognition and credibility. On the other hand, the Municipality of Plovdiv and the energy utility company could have provided a bit more active support for the project than institutional support.

However, the local partner organizations also benefitted from their participation in the project. The various developed tools in ACHIEVE were useful to them in different ways. For instance, teachers in the vocational schools made use of the training handbooks in their own teaching. The social services used some of the developed factsheets in their work and also benefitted from the information that was collected through the ACHIEVE visits. On the other hand, the involvement of the local partners in ACHIEVE further improved their image and recognition.

The biggest success factor was the involvement of multiple local organizations that were engaged in the project and performed their work professionally. ACHIEVE demonstrated that different organizations could work together on a multifaceted issue which full scope is often out of the range of any of the individual organizations. In this sense, the project was a catalyst for cooperation in the social, environmental, educational, and practical areas. It was beneficial to make the initial contact with all the local organizations at the beginning of the project so that an implementation plan could be devised at the very start of the project. On the other hand, the problem of fuel poverty is not a well-defined one.

Thus, there is no particular department in the municipality that deals specifically with energy poverty which was a barrier for the more active involvement of the municipality.

4.2.4.3 Transferability of the project

ACHIEVE is the first project that tackles fuel poverty systematically in Bulgaria. It also involved a number of different stakeholders and showed that fuel poverty is not only a social, economic or environmental issue. There is a large number of households who suffer from fuel poverty in Bulgaria. Only in Plovdiv, there are more than 9 000 households who apply for the Winter Supplement Programme each year, which means that at least 9 000 households are facing real hardships in paying their energy bills. ACHIEVE reached 301 households in the Plovdiv area; therefore, there is room for extending the service and helping more households in need.

On the other hand, ACHIEVE introduced the topic of fuel poverty in two vocational schools. It is important to improve education on the topic and to prepare future professionals in the area to be aware of and act on the issue. In this sense, the introduction of the topics of energy use and fuel poverty could be institutionally recognized as ones that have to be present in schools' curriculums or at least in the curriculums of the relevant vocational schools.

These are exactly some of the goals of the new Intelligent Energy Europe project – REACH. Inspired by the success of ACHIEVE and the approach taken in Bulgaria, REACH will strive to replicate the service in four Balkan countries – Bulgaria, Croatia, FYROM, and Slovenia. In this way, the ACHIEVE concept will reach to even more households in Bulgaria and in addition, REACH will pave the way for the ACHIEVE training to be institutionalized into the curriculum of relevant schools. In this respect, REACH will be the natural successor of ACHIEVE in Bulgaria.

4.3 FOCUS, Slovenia

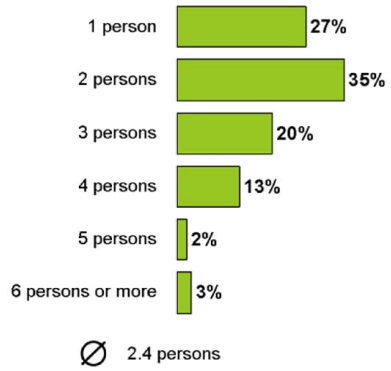
4.3.1 Results and evaluation of the visits

4.3.1.1 Impact evaluation of the visits

Visits in households were implemented by ACHIEVE energy advisers, who were trained specifically for this purpose. Households had to apply for the free visit by itself and were then contacted by one of our advisers via telephone, to arrange the date for the first visit. On the first visit, after the introduction part, bills for electricity, water and heating were checked by the adviser. That was followed by the analysis of electric devices and appliances, which was carried out with electric meter, then the water flow on taps and shower was metered and windows were checked for draft. All data was written in the Data collection sheet and later entered into Excel tool by the adviser. On the second visit adviser presented the results of the analysis, gave specific tips and recommendations for reducing energy consumption and installed free devices that were given to the households. Given devices were selected on the basis of the analysis from the first visit. Both visits were implemented by one adviser per household.

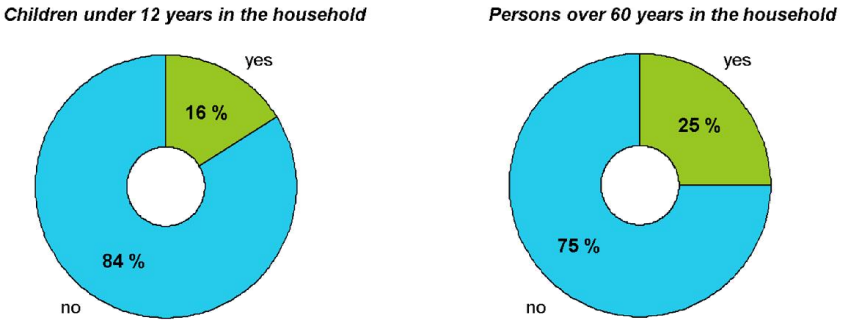
4.3.1.1.1 Presentation of the households and the dwelling reached

In Slovenia 220 households were visited. From that number, 186 were included in the evaluation process. On average, 2.4 persons live in one household. Majority of the visited households consisted out of one (27 %) or two persons (35 %).



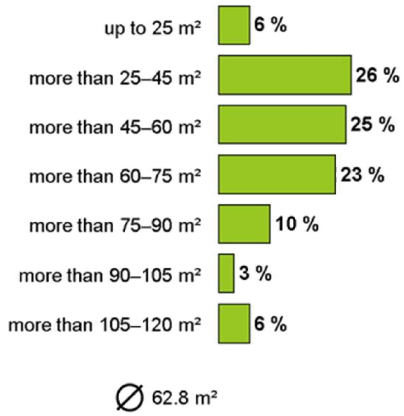
Slovenia - Figure 1: Number of persons in the household (n=186)

Children under 12 years old lived only in 16 % of visited households and in 25 % of households there was person over 60 years old living in there.



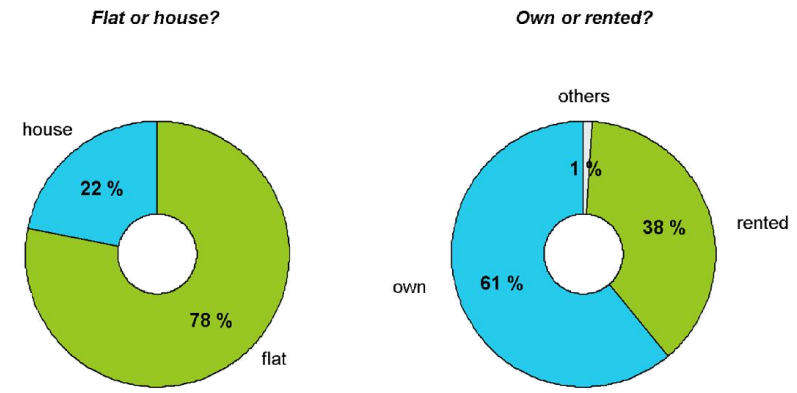
Slovenia - Figure 2: Composition of the household (n=186)

Size of the dwellings varied from less than 25 m^2 up to more than 200 m^2. Average visited dwelling had 62.8 m^2 of heatable living space. 32 % of visited dwellings were smaller than 45 m^2, which correlates to small number of persons living in them, presented in the first chart.



Slovenia - Figure 3: Heatable living space in m² (n=186)

78 % of visited households lived in a flat or apartment, which correlates to urban area where visits were implemented. 61 % of household lived in their own house of apartment and 38 % lived in rented one. In Slovenia share of owner occupied dwellings is even higher, but since this is urban area and since visits were implemented in fuel poor households, numbers differ slightly from the national average.



Slovenia - Figure 4: Housing situation (n=186)

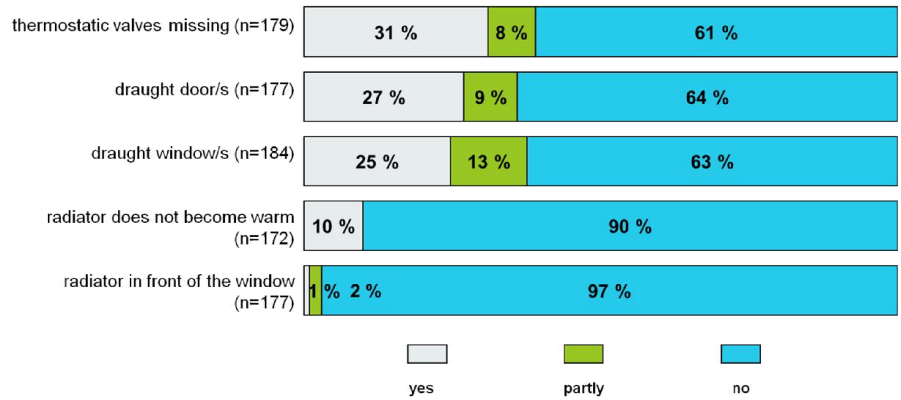
Visits were implemented in households with lower income. 19 % of them were receiving some kind of social support, others had their income lower than EUR 400 per member of household per month or were pensioners. Mostly women applied for the visits and age was not an important factor, because applicants were from student age up to seniors.

Majority of households were heating their dwellings with district heating (56 %), 29 % were heating it with central heating systems (mostly on gas), 7 % with stoves (gas, oil, or wood), 6 % with electricity and 2 % with heating pumps. Main energy carriers were district heating (which means coal in case of Ljubljana district heating) and gas. In 2012 a process of changing collective metering in multi-apartment buildings with individual metering was in its final stages, therefore metering was mostly individual.

That was not the case with water metering, because majority of older multi-apartment buildings still has collective metering and water is paid per capita and not by actual consumption of households. That presents a serious drawback in motivation for reducing one owns consumption. In 42 % of households water was heated with electricity and in other cases mainly with district heating or gas.

Regarding the behavior related to heating, 81 % of households opened the window for a short time in the heating season to ventilate the dwelling. Majority also switched down the thermostatic valve when ventilating the apartment and 57 % of households always reduced temperature in the apartment when being absent. Just 21 % of households used additional electric radiator in heating season to heat their living space, in addition to their primer heating system.

39 % of households didn't have thermostatic valves installed on their radiators, which is an efficient device to reduce heating energy consumption. 36 % had problems with draught at their doors and 38 % at their windows. 17 % had problems with mould. They were given advices on that matter.



Slovenia - Figure 5: Problems heating

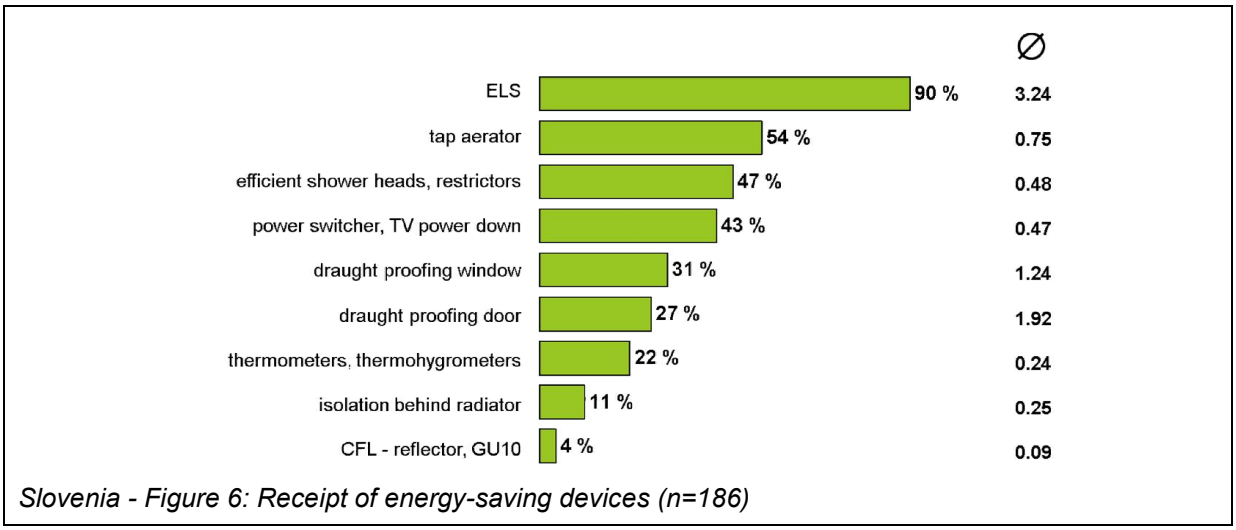
4.3.1.1.2 Quantification of the savings

Regarding bills and invoices in the visited households, 97 % of electricity bills were available to the advisers, 84 % of water bills and 77 % of bills for heating energy. Average energy and water consumption and price in visited households is presented in the table below.

Per household:	Average consumption	Price
Electricity	2,708 kWh	0.14 €/kWh
Water	107.3 m^3	2 €/m^3
Heating	8,325 kWh	0.07 €/kWh

Slovenia - Table 1: Average consumption and price per household (n=186)

Vast majority of households received energy efficient light bulbs. 54 % received tap aerators and 47 % efficient shower heads. 603 efficient light bulbs were installed, 140 tap aerators, 90 shower heads, 97 power switchers and approximately 600 meters of draft proofing seals.



Slovenia - Figure 6: Receipt of energy-saving devices (n=186)

On average, household saved EUR 108.87 per year on the basis of installed devices. That means 274 kWh of electricity, 17.5 m^3 of water and 554.9 kWh of heating energy saved. In sum, savings in all households on yearly basis are estimated around EUR 20,000.

		mean score	total
electricity	electricity (kWh)	274.0 kWh	50,967 kWh
	electricity costs	39.28 €	7,306 €
	electricity CO2	152.6 CO2 kg	28,389 CO2 kg
water	water (m³)	17.5 m³	3,256 m³
	water costs	35,98 €	6,692 €
heat energy	heat energy (kWh)	554.9 kWh	103,214 kWh
	heat energy costs	33.61 €	6,251 €
	heat energy (CO2)	168.1 CO2 kg	31,268 CO2 kg
total	costs	108.87 €	20,249 €
	CO2 (kg)	320,7.1 CO2 kg	59,657 CO2 kg

Slovenia - Table 2: Savings per year (n=186)

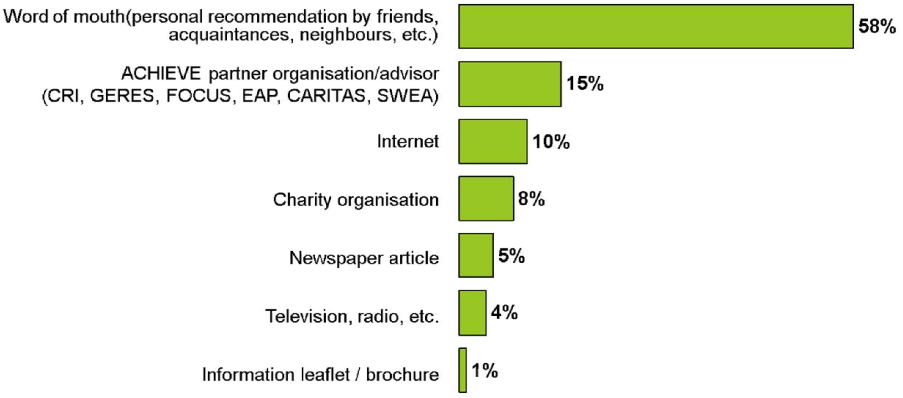
If we look at long term savings, the measures implemented in all visited households combined should result in EUR 149,454 of savings and 865,477 kg CO_2 saved.

		mean score	total
electricity	electricity (kWh)	274.0 kWh	50,967 kWh
	electricity costs	39.28 €	7,306 €
	electricity CO2	152.6 CO2 kg	28,389 CO2 kg
water	water (m³)	17.5 m³	3,256 m³
	water costs	35,98 €	6,692 €
heat energy	heat energy (kWh)	554.9 kWh	103,214 kWh
	heat energy costs	33.61 €	6,251 €
	heat energy (CO2)	168.1 CO2 kg	31,268 CO2 kg
total	costs	108.87 €	20,249 €
	CO2 (kg)	320,7.1 CO2 kg	59,657 CO2 kg

Slovenia - Table 3: Total amount of long term savings (n=186)

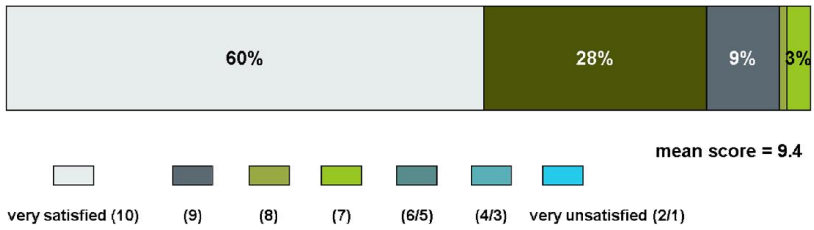
4.3.1.1.3 Satisfaction of the visited households

Word of mouth proved to be the most effective way of promoting the visits. Information leaflets and brochures, for which we laid high expectations, proved to have limited effect, as only 1 % of visited households received information through that mean. 88 % of people would trust environmental organization as a source of information for 'ACHIEVE-like' visits, 84 % would trust the 'word of mouth' approach, 64 % to local charity organizations. 28 % would not trust municipality, 31 % not to their energy supplier and 35 % not to poster at supermarkets.



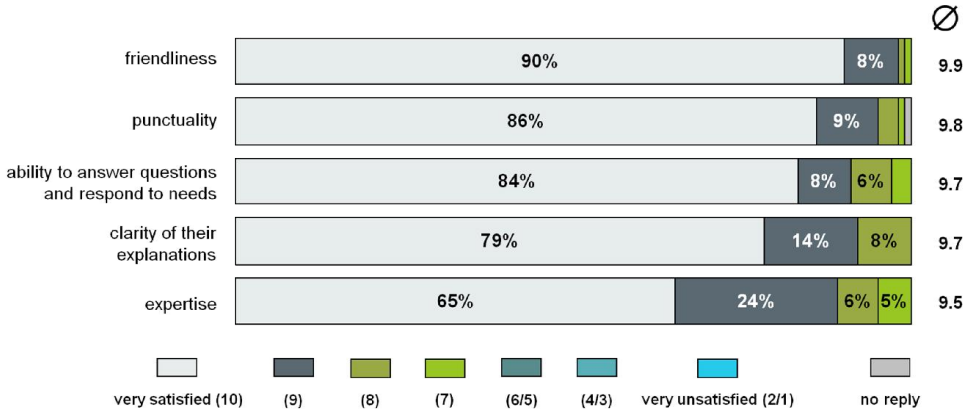
Slovenia - Figure 7: Sources of information on ACHIEVE visiting Service (n=80)

Majority of the visited households were very satisfied with the service, mean score was 9.4 (out of 10).



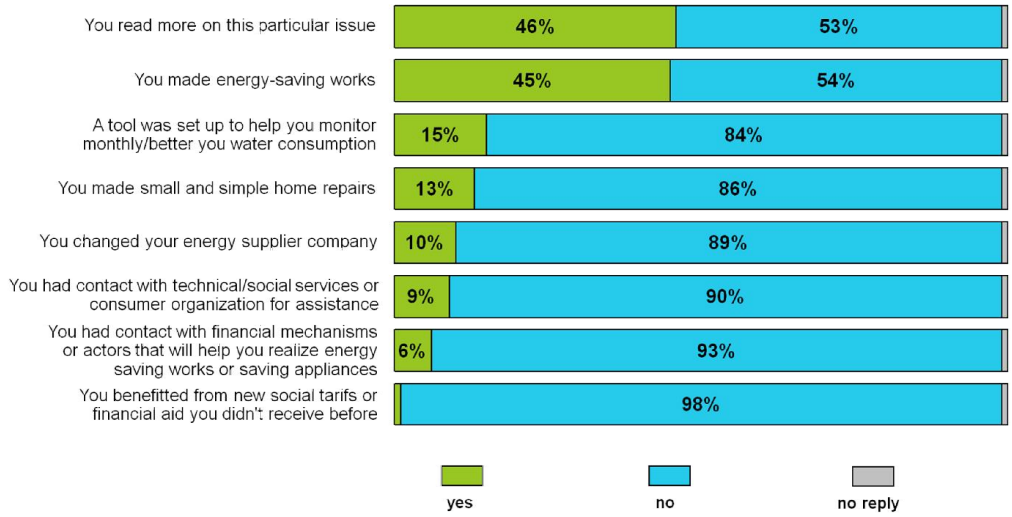
Slovenia - Figure 8: Total satisfaction with the service (n=80)

Similar satisfaction results were present when evaluating advisers. In general, all were satisfied with them. Advisers achieved best score in friendliness and lowest, although with 65% also very high, in their expertise.



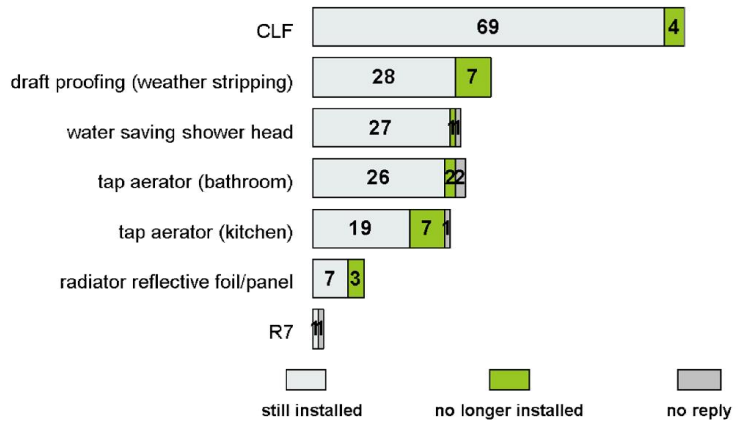
Slovenia - Figure 9: Satisfaction with advisors (n=80)

Changes after the implemented visits are visible mainly in their awareness about importance of efficient energy and water consumption and some small energy-saving works. Apart from that, when it comes to bigger measures, only small part of visited households made any changes or contacted other actors. 80 % of households are convinced that their energy bills will be reduced thanks to the energy saving service and 13 % think they will not reduce.

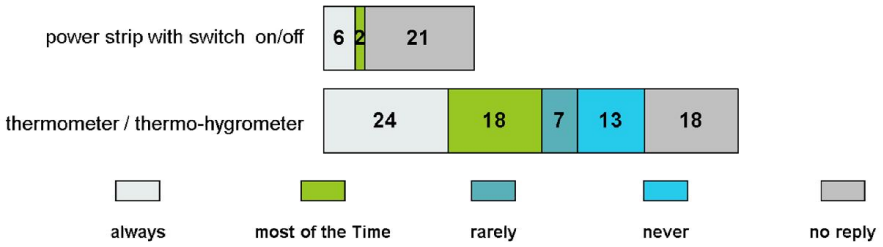


Slovenia - Figure 10: New options/ changes after the visit (n=80)

Majority of the devices installed are still in place. Few of them are not used any more, for various reasons. Reasons for not using installed efficient light bulbs are: it broke or did not work properly, one respondent didn't like the light and one respondent said it took to much time to reach full brightness.

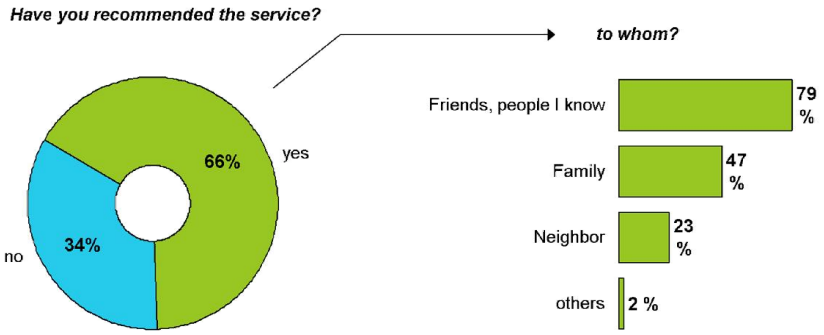


Slovenia - Figure 11: Overview of use of received devices (I) (n=80)



Slovenia - Figure 12: Overview of use of received devices (II) (n=80)

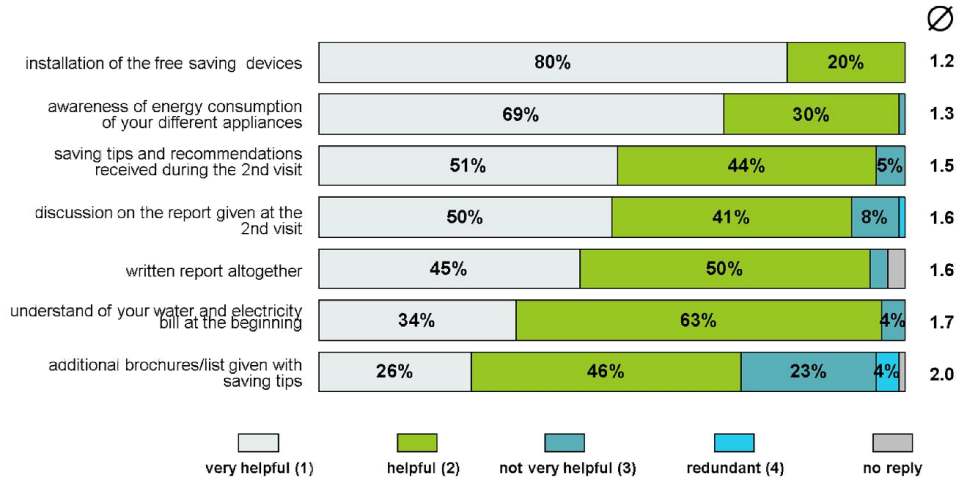
66 % of visited households recommended the ACHIEVE service to somebody else, mainly to their friends and acquaintances, their family and neighbours. 73 % of them also passed advices and recommendations of how to save energy to their friends and acquaintances.



Slovenia - Figure 13: Recommendation of the service (n=80)

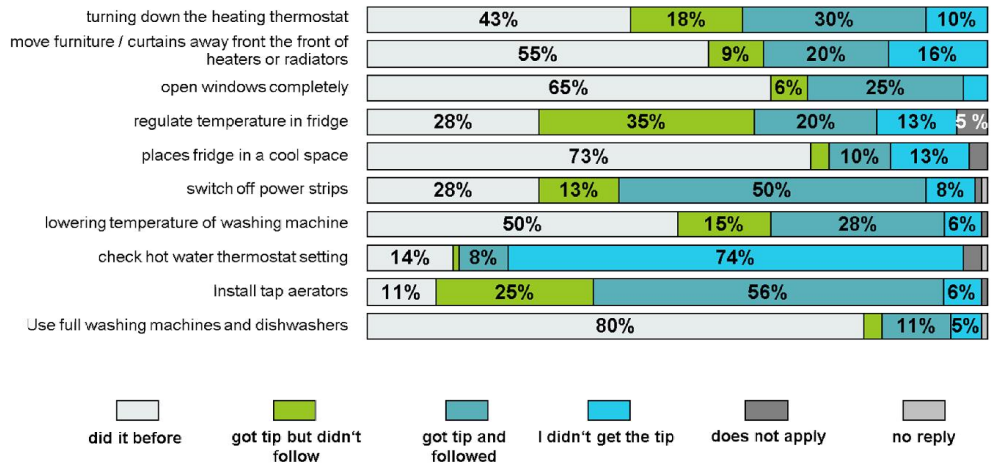
4.3.1.1.4 Learning effects

Installation of free devices was helpful to all of visited households, awareness of energy consumption of different appliances was helpful to 99 % of households, similarly beneficial were saving advices and the report, given at the second visit. Additional leaflets and brochures were helpful to 72 % of them. 98 % of households responded that they understand how important it is to save energy.



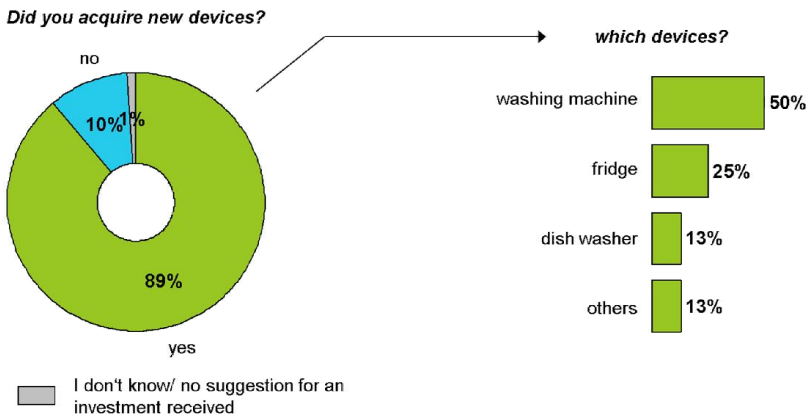
Slovenia - Figure 14: Benefit of the service with regard to different attributes (n=80)

Regarding the implementations tips, some of them were taken into account or were known to households before the visits. Mainly opening the windows for a short period of time, lowering temperature of washing machine and using full washing machines and dishwashers. Most followed tips were to switch off power strip and to install tap aerators. 88 % of households responded that getting the advice did motivate them to care more about their energy consumption.



Slovenia - Figure 15: Implementation of saving tips (n=80)

Only few of the households acquired new devices from the time of the visit until now.



Slovenia - Figure 16: Acquirement of new devices (only few number of cases) (n=80)

4.3.1.2 Qualitative evaluation of the visits

4.3.1.2.1 Recruitment of the households

Initial plan for recruiting households was to cooperate with various organizations (mainly CARITAS and Red Cross) and to be present in the mainstream media. For that purpose we have developed a partnership with CARITAS and Red Cross, both of organizations committed themselves to spread information about ACHIEVE free energy audits to their beneficiaries. We have also developed good connections with various media (TV, radio, newspapers, webportals), where we have presented the project itself and possibilities for free visits of energy advisers to our target group.

In the beginning we have worked under the assumption, that there will be huge interest for the visits and that we will have too many applications. But it turned out that was not the case and there were far less applications than we have expected. One reason for this was/is lack of trust for 'free of charge' initiatives from our target group, because there were several stories about some private organizations/small business companies with dubious intentions offering free devices or measures and in the end charging for them big amounts of money. Second reason was that a lot of people are uncomfortable about letting a stranger into their apartment or even ashamed of their poor living conditions and they don't want it to be seen by anybody. There were also few cases where people thought of the ACHIEVE service as unnecessary for them, because in their opinion they already knew about all the measures and were already saving as they best could.

Our target group was households with lower income in the area of Ljubljana. First we have set up a census for eligible households, which should receive social support or their incomes should be lower than EUR 300 per household member per month. Later the census was raised, partly for the reason that a lot of households wanted to apply, but were over the census, and partly because it was discovered that there are severe fuel poverty problems in the group of households that have slightly higher incomes as well. For that reason census was raised to EUR 400 incomes per household member per month and pensioners were added, because they were recognized as the social group with higher risk about fuel poverty than others and relatively low average pensions.

As our initial plan of promoting the visits was not providing satisfactory results, we have adjusted it. Our energy advisers were encouraged to promote the visits by their channels and to actively be involved in promotion of the visits at CARITAS. At least twice a year there were major pushes with the promotion of the visits in the media (in the beginning of the heating season and in the middle of the heating season). This kind of promotion was quite successful, as we were present in all relevant media (main TV channels, main radio channels, main daily newspapers,...) and in that time the number of new applications for visits had increased, although not as much as we hoped for.

Other ways of promotion were tried as well. A lot of organizations that work with vulnerable (social) groups were contacted, but majority of them were not too interested in promoting the project and free visits. That was also the case with Social Security Service in Ljubljana.

Occasionally, and especially after presence in main media, many people called from all over Slovenia, if the visits are being implemented in their region as well. Unfortunately we couldn't provide them with the service, but we tried to help them in other ways we could: provided them with suitable contacts (mainly for ENSVET energy advising offices in their region), tried answering to their questions via tele-

phone or e-mail, sending them brochures, advices for saving energy, doing analysis of their consumption via e-mails,...).

Although sometimes people didn't know what to expect from the visits and therefore were not interested too much into it, after getting detailed informations about how the service is going to be implemented, their attention was guaranteed – as was expressed by those households where visits had been implemented.

4.3.1.2.2 Organisation of the visits

In the start of the advising process, household is contacted via telephone to arrange the date for the first visit. Also additional questions are asked by the adviser about basic information of the dwelling, so he can prepare himself for the visit and to access approximate duration of the visit.

On the first visit invoices for electricity, heating energy and water are checked, analysis of consumption of electric appliances and equipment is made, windows and radiators are inspected and some additional questions about habits and behaviour relevant to energy consumption are being asked.

Analysis and data gathered on the first visit are the basis for conclusions and results, which are presented on the second visit, along with specific advices and installation of energy and water saving devices.

There were no major problems with selected devices for reducing energy and water consumption. CFL light-bulbs were installed on the second visit, unless member of the household expressed specific wish that he or she will do it on their own. Similar situations were with other devices, namely tap aerators, efficient shower heads and draft proofing. There were few cases where advisers could not install tap aerators because of the specific old types of taps. Most time-consuming device or equipment to install is draft proofing – window and door strips.

Duration of the first visit was approximately 1 hour on average (without time needed to get to the household and back). If it was a bigger house, it could last up to two hours. Data entry into the Excel tool, preparation of advices and selection of devices – work in the office between the two visits – takes about 1-2 hours. Duration of the second visit depends on what needs to be installed. It can take less than an hour, or up to 2 hours, if draft proofing needs to be installed on a large number of windows. During the second visit advisers also have to take some time to explain the results and advices for energy savings. If we sum up the time needed to implement both visits, office work and travel time to and from the household, than it takes approximately 8 hours for a treatment of one household.

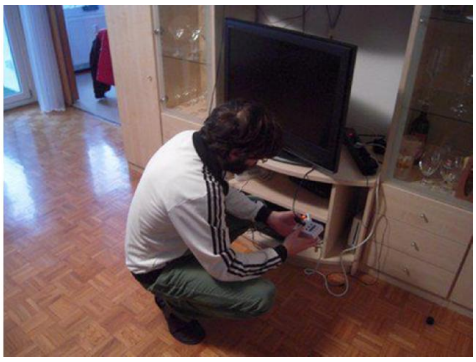
No cases were encountered where households would have complains about the devices. Reason for that is probably the fact, that they received the devices for free. Other reason might be that quality devices were chosen by the project team and no major defects or failures of devices were detected.

There were no cases where advisers refused to enter the apartment due to unsuitable conditions (health reasons, improper behaviour of members of household). However, advisers were prepared for that kind of situations; as such scenarios were dealt with at the training. There was also an agreement that in such a case household would be told, that the visit can't be carried out at that time and they can agree on other date, if conditions would be appropriate by then. If living conditions in an apartment or house would appear unsuitable for living, household would be advised to contact Social Security Service or CARITAS. Leaflets with contact information were prepared for that reason.

In all 220 cases both visits were implemented, except in one household. We have tried to contact member of that household, but we could not reach her (as it turned out, mainly due to distrust), that is why a letter was sent to her, were we explained that she can get the report, results of the analysis and devices in our office, which she eventually did. In few cases the time span between first and second visit was couple of months, due to unresponsiveness of households, because of health problems or their longer absence. However in all other cases, mainly because households understood that visits will only benefit them and that they will get free devices, there were no problems with arranging the second visit.

General experience from the visits is telling us, that the service is being carried out satisfactorily. There might be a bit too many questions in the Data collection sheet that is why in the future some of the less important ones can be left out. That was also a suggestion from the households where visits were implemented. Apart from that, they agreed that the questions raised were the right ones. Another suggestion is related to the analysis of consumption of electric appliances. Single appliance energy monitor, device used by our energy advisers, could be left in households for a few days, so they can

measure consumption of the fridge, washing machine and other bigger appliances. In that case we could get even better and more accurate data.



Slovenia - Figure 17: Implementing the visit

Source: FOCUS, 2013

Vast majority of households, where visits were implemented, was satisfied and grateful with our work and results. To a lot of them this kind of visit, advices and free saving devices meant a lot. In two cases we have implemented a thermographic inspection with a thermographic camera – as a precondition for further possible investment in energy renovation of the dwelling. Inspection was carried out by a professional company for free, because they liked the idea of ACHIEVE project.

There were some issues faced during the visits. Distrust of people was already mentioned. Poor state of some dwellings and apartment buildings, which need urgent energy renovation, was another one. It turned out that home-owners, tenants and managers of multi-apartment buildings lack information and knowledge in the field of energy efficiency and energy restoration. For that reason we have prepared some fact sheets with all relevant information and contacts.

4.3.2 Evaluation of the training and advisors

Training was intended for future ACHIEVE energy advisers: mostly unemployed persons, students and volunteers. The purpose of the training was to refresh their basic technical knowledge and to get them familiar with the project and implementation of visits. It consisted of technical part (basics about energy, part on electricity, heating energy and water), communication part and practical part of learning about the energy adviser's work with a final exam.

4.3.2.1 Training content and materials

Training was developed on the basis of Curriculum for Specialised Training on saving energy and water, developed by CARITAS Frankfurt. It was adapted to comply with the goal of the ACHIEVE project in Slovenia and with Slovenian circumstances.

Slovenia - Figure 18: Participants on ACHIEVE training in Ljubljana, Slovenia.

Source: FOCUS, 2012

Training for ACHIEVE energy advisers was held in Ljubljana in beginning of February 2012. It lasted for one week – 5 days of training for 8 hours. Content of the training and time dedicated for every topic can be seen in the table below. Introduction and topics related to the project (practical part, fuel pov-

erty, visits to households, computer tools) were carried out by FOCUS team. Technical part and communication part were presented by two competent external experts. The communication part was focusing on how to approach to the households, how to behave in stranger's apartment, how to deal with critical cases and how to respond to them).

	Monday	Tuesday	Wednesday	Thursday	Friday
9.00 – 11.00	Introduction Climate Energy needs	Electricity Introduction Appliances I	Concept of fuel poverty	Communication	Exam
11.00 – 11.20	Brake	Brake	Brake	Brake	Brake
11.20 – 13.00	Basic concepts Thermal comfort Heat losses Room heating Ventilation	Appliances II Lighting Lights Measures	Arrangement of the visit First visit	Communication	Discussion of the results
13.00 – 14.00	Lunch	Lunch	Lunch	Lunch	Lunch
14.00 – 15.30	Measures and costs Hot water heating Water consumption Measures and costs	Standby losses Measures and costs	Analysis of data Report Second visit Evaluation	Communication	Visit of household: group I Work on computer: group II
15.30 – 16.00	Brake	Brake	Brake	Brake	Brake
16.00 – 17.30	Exercises: Heating and Water	Exercises: Electricity	Exercises: Visits of households	Communication	Visit of household: group II Work on computer: group I

Slovenia - Figure 19: Schedule of training for energy advisors

For four of the advisers who joined the project later, we had prepared an individual training, which was based on previously developed curriculum. Their training lasted for shorter period of time and involved more individual work. It was carried out by a FOCUS team member responsible for practical implementation of the ACHIEVE project.

Evaluation of ACHIEVE training was also carried out. Participants assessed the training in whole as very successful; they were also satisfied with all the instructors. The only remark, which was recognized by the FOCUS team as well, was insufficient time for the practical part – preparations for the visits. For this reason a mentor was present on first visits of new ACHIEVE energy advisers to be sure there are no problems.

4.3.2.2 Advisors

4.3.2.2.1 Profile, background and number of advisers

Thirteen advisers finished the ACHIEVE training; although 16 participants started it (those 3 participants decided that this kind of work is not for them). Additional four advisers joined project afterwards. Altogether there were 17 advisers trained, but not all of them were implementing visits, because some of them were not comfortable with doing it and some on them were not capable of doing it by themselves.

Period of their involvement was varied from adviser to adviser. 5 of those who were present on the ACHIEVE training never implemented any visits (they found other job opportunities or did not feel comfortable doing it). 5 advisers implemented less than 5 visits (reasons for this are similar as with the previous group). One adviser that joined the project later was implementing visits for 6 months. 3 advisers, who were there from the training, and 3 that joined in September 2013, were implementing visits until the end of the project.

There were 13 male and 4 female advisers, aged from 25 to more than 60 years old. Their education varied from (technical) high school degrees and engineers to university degrees in construction, mechanics, biology and economy. They had experiences in various fields and as was seen from the implementation of the visits, technical background was not that important as good communication skills.

Supervision of advisers was carried out on two levels. First was a basic supervision on which adviser is scheduled to which household and what is the status of visits being implemented. Second level was related to the analysis of the first visits, data, results and selected devices to be given to the household. Every document for all households had to be reviewed to prevent errors in the tools. On average supervision took about 30 minutes to 1 hour per household.

4.3.2.2.2 Skills, knowledge developed thanks to the project

Skills, that proved useful for implementation of the visits, were:

- Good communication skills,
- Joy and motivation of working with various people,
- Technical knowledge (electricity, heating energy, water),
- Hand-technical skills,
- Mathematical knowledge,
- Computer skills.

Energy advisers have specifically pointed out computer skills, capability of planning of visits, previous experience with communication with clients, communication skills and knowledge about energy efficiency and consumption.

It is also important to indicate, that these skills were further developed through the activities of implementing the visits, communicating with experts and solving various problems in households, that were new also to them. So in the process advisers gained new knowledge and experience. That can be useful for future employment opportunities, although the current situation in Slovenia and its unemployment problem leaves some of the advisers a bit sceptical about further possibility of using this specific experience in future job opportunities. Another problem is that currently this kind of job does not exist yet on a structural level. Even though some steps are being made on the national level, lack of funding is blocking implementation of programs that could reduce fuel poverty or carry on with 'ACHIEVE-like' energy advising.

At least five of the advisers found another job, but these jobs are not closely related to ACHIEVE experience. We expect that in the coming years more activities and programs will be developed to enhance energy efficiency measures and that ACHIEVE experience will be valuable.

4.3.3 Investment saving ratio

4.3.3.1 Investments

Implementation of visits was dependent on number of applications from the households. Through the year and from month to month number of applications varied significantly. In the beginning of the heating season and when present in media, more households applied for the visits, on the other hand in the summer months there were no new applications, because people usually concentrate on other problems and not on energy costs in the summer time. For that reason it was not possible to employ energy advisers on the regular basis. Instead, energy advisers were paid per number of households visited, through contracts.

Although we employed one of the advisers for 6 months, through so called 'social work' employment. This proved not to be the most efficient management option, because in that time there were no sufficient applications for new visits.

Energy advisers were paid EUR 80 gross per one household. That included: arrangement of the date of the visit, first visit, entering data in to the computer tool and implementation of second visit. It was estimated that it would take up to 8 hours to implement all of these tasks.

Costs of the devices that were installed in households varied from household to household, because we didn't have prepared prearranged packages for them. Instead, households were given devices that would be most beneficial to them, as indicated at the analysis of consumption. Average cost of package of devices given to households is EUR 30.

These are direct costs with the implementation of the visits. There are other costs, which should not be forgotten when deciding on implementing a service like ACHIEVE visits. Advisers have to be supervised, which means a mentor has to check the results of every visit. If we have more independent and experienced advisers, who can be trusted, than supervision in this form is not necessary. There also has to be one person in charge of the data collection and distribution, promoting the visits and cooperation with partner organizations.

Advisers carry a bag with their tools to the visits, and these tools are also part of the total costs. Although these costs are not high, up to EUR 50 per bag with tools. We also had to train advisers, which

means hiring an adequate place, hiring experts for presentations and in our case, because training lasted for 8 hours per day, also providing lunch for the trainees.

Slovenia - Figure 20: Devices used for ACHIEVE project.

Source: FOCUS, 2012.

4.3.3.2 Investments in ratio to savings

It has to be mentioned, that annual (and long term) savings in households are calculated only on the basis of savings from the devices installed in households. Other possible impacts of the visit, such as more rational use of energy or changing of habits and behaviour, are not calculated in these savings. If we would consider these benefits as well, savings in households would be even higher. But it is hard to evaluate this kind of savings, due to the fact that some changes in behaviour are short-termed and others are hard to quantify.

The combined cost of the advisers and devices installed per household is EUR 110, which is comparable to annual savings of households – EUR 108.87. If we decide to look in more long-term perspective, than ratio is in favour of savings. If we take into account just the costs of devices, then argument for their wider installation in majority of households should be accepted. Costs of devices is EUR 30, annual savings are EUR 108.87, which is 1:3.6 ratio. When we take into account lifetime of devices, which is significantly longer than one year, then benefits are clearly visible.

Another aspect that we must not forget is the fact that households with low income, who save EUR 100 per year as a result of the ACHIEVE service, will present a bit lower burden to social welfare system and could spend this amount on other life important goods. That means that quality of their lives can be slightly improved. We are aware that ACHIEVE visits will not make a miracle, but we have to start with small things and make an effort to start with changes there, where we can accomplish it.

4.3.3.3 Additional Benefits

Another social component of the ACHIEVE project is that the job of energy advisers was primarily offered to unemployed persons. From our 17 advisers, that actively took part in the training or in the visits, 14 of them were unemployed, two had just part time job and one was still a student. Unfortunately we could not offer them a full time employment (except for one person for 6 months), but hopefully we managed to provide some paid work to them. They also gained new knowledge, skills, experience and various contacts that could prove beneficial in their future job opportunities.

For some of the households, mainly ones with only one person, the visit of an energy adviser was also an opportunity to socially interact and talk to somebody. Social exclusion is still sort of 'taboo' topic, but when implementing these visits, we have encountered several cases, where persons were happy to have someone in their home, to whom they can talk to.

Apart from that, a lot of households gained new informations and knowledge and also contacts, where they can further help them either with social or energy related problems. With informations that were presented to the households, special attention was also put on environmental aspects and benefits of energy savings and efficient use of it.

4.3.4 Dissemination and transferability of the project

4.3.4.1 Communication impacts

Most efficient tool for promoting ACHIEVE visits has proved to be word of mouth – either from the advisers themselves when promoting the visits to new potential users or from households, who already received the visit, when promoting the visits to their friends, family and acquaintances. It turned out, that leaflets were not an efficient way of promoting the visits, especially if leaflets were only available for picking it up and nobody was there to speak about the project. If leaflet was combined with word of mouth, that was a successful tool. Presence in media also showed some mixed results. Sometimes it resulted in new applications and sometimes in none.

ACHIEVE project and visits were present in all relevant media in Slovenia. Several times on national news on television, on radios, articles were published in main newspapers, magazines and web portals.

Individuals who are actively involved in the topic of energy efficiency and fuel poverty have soon recognized the idea and positive impacts of the project. It was recognized on national as well as on local level, as a conference on structural solutions for fuel poverty was organized by ACHIEVE project in cooperation with Municipality of Ljubljana in May 2013.

FOCUS was recognized as an organization that is working on fuel poverty issues and has expertise in this field. All that was a result of working on ACHIEVE project. That goes for national level, where officials are sometimes asking for advices, and also for local level, where some municipalities, which are more active in this field, are in constant contact with us. With some of them we will carry on working on this topic in the future as well.

Whenever topic of energy efficiency and fuel poverty is in high spot in the media, they know where to get the answers. ACHIEVE project and visits were promoted in various events and in various cities in Slovenia, from conferences, seminars, lectures, fares and festivals. Especially with lectures, we have spread advices on energy savings from ACHIEVE in various regions, and in that way we have tried to help people, where we could not implement visits. We can also mention several meetings with decision makers on the national level and several focus groups, which we organized or participated at.

4.3.4.2 Involvement of local or national partners and networks

From the beginning of the project many organizations and potential partners were contacted. With many of them we have developed some kind of cooperation, other weren't interested or had other things more important on their agenda.

On the national level, two ministries were approached: Ministry of Infrastructure and Spatial Planning (MISP) with its Directorate for Energy, and Ministry of Labour, Family, Social Affairs and Equal Opportunities (MLFSE). Directorate for Energy was one of the few institutions that tried to bring issue of fuel poverty on the agenda, while MLFSE was still further behind and up until now hasn't included fuel poverty issues into their programs related to social affairs.

It is hard to achieve some changes on the decision making side or to reach inclusion of programs for tackling fuel poverty on a policy and structural level, primarily due to the reason of insufficient funds on national and local level. A program for energy efficiency measures, which included addressing the fuel poverty issue, was already prepared in 2010 on the government level, but never got to the implementation faze due to insufficient funds. Problem of financing the ACHIEVE service and other ways of tackling fuel poverty will also be addressed in REACH project, which started in March 2014.

Partly a success story could be related to the new Energy Act, which was adopted in March 2014. Proposal of this act that was in public discussion in June 2013 had included parts on measures for tackling fuel poverty, but that part was removed after interdepartmental harmonization of the act. Problem of fuel poverty and ways of addressing it was completely deleted from the act itself. We have been assured that appropriate measures will be included on the secondary level of legislation, although it shouldn't be expected that 'ACHIEVE-like' service will be specifically mentioned as one form of activity for tackling fuel poverty.

Cooperation was developed with social organizations CARITAS and Red Cross, which would become a channel for promotion of the visits to fuel poor households. Similar cooperation was intended with various other organizations, however not all of them were interested or their capacity to promote ACHIEVE was limited (Association of friends of youth, Community of social institutions Slovenia, Consumer Association Slovenia, Association of pensioners Slovenia, Social Security Services, Job Centre,

managers of multi-apartment buildings, Housing Fund of Municipality of Ljubljana, Student counselling and many more). On professional level, regarding energy efficiency measures, we have cooperated with NEP Vitra platform, IJS CEU, SODO, VO-KA, GI ZRMK and energy advising offices ENSVET. For most of these organizations, leaflets were provided for visited households.

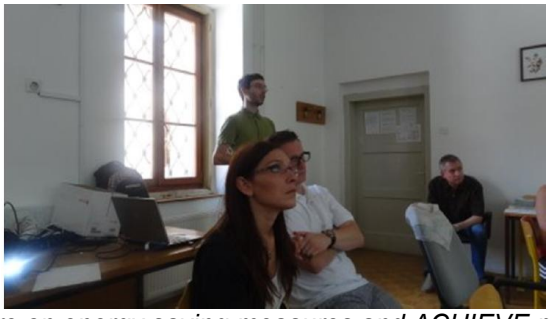
Eco fund was also involved in activities of ACHIEVE project, mainly regarding actions on structural level. All visited households were presented with options for co-financing EE measures, provided by Eco fund.

Municipality of Zagorje was interested in the project and wanted to bring ACHIEVE to their region. We have done this in a way of public lectures and presentations, also we will develop the service there as part of the REACH project.

Activities of ACHIEVE project were mostly implemented in Municipality of Ljubljana, which showed interest in the project, unfortunately they could not provide any funding to support the action after the end of the project. A nation wide conference on structural solutions for fuel poverty was organized jointly with them.

Project was presented on various festivals and as a part of a lecture on energy saving measures on the Week of lifelong learning (more than 5 lectures in various regions).

Cooperation was developed with another IEE project called E-seaP, which was in Slovenia implemented by GI ZRMK. Within this cooperation lectures were provided for female inmates of a correction facility near Ljubljana, in the sense of preparation for their return out of the facility. Leaflets were provided for inmates, their families and working staff in two correction facilities in and near Ljubljana.



Slovenia - Figure 21: Lecture on energy saving measures and ACHIEVE project in correction facility
Source: FOCUS, 2013.

Company 'Pametna energija' voluntarily performed thermopraphic inspections for two of the visited households, as a precondition for further energy renovation of the buildings. Company 'Informa Echo' provided us with data from a research on energy habits.

As we have tried to help households in all possible ways, we have tried to activate all relevant actors and contacts that were willing to help.

Regarding the success of project, it has been discovered that cooperation with actors, who work in social field and have contact with our target group, is extremely important. They can provide access to promotion of the visits and apart from that, households trust them and perceive them as relevant actors.

Regular meetings with various actors were held. Lecture about energy saving measures and project ACHIEVE has proved to be an effective tool for awareness raising and promotion of the visits, along with leaflets, as long as they are not just lying on a shelf somewhere. Best use of leaflets is in combination with word of mouth approach.

4.3.4.3 Transferability of the project

Already within the ACHIEVE project we had the opportunity to expand the area of the implementation of visits. Due to fact that few of the advisers moved from Ljubljana, we could start implementing visits in areas of the cities of Pivka, Postojna and Velenje. Especially in Pivka and Postojna a good cooperation with CARITAS was developed. One of the advisers moved to the Bela krajina region, where he wanted to initiate an 'ACHIEVE-like' initiative and got our full support, but eventually he moved abroad.

Within new IEE project REACH, ACHIEVE experience will be transferred to two other regions in Slovenia. Zasavje and Pomurje are regions with lowest social and economic indicators. In these two re-

gions partners were already identified (local energy agency in Pomurje, Municipality of Zagorje, Social Security Service Zagorje, Technical High school Trbovlje, CARITAS Zagorje, Red cross Zagorje, Youth Centre Zagorje). Cooperation with these organizations was unfortunately again dependent on EU project, due to lack of funds in other areas and with other actors. REACH will be implemented in Slovenia, Bulgaria, Croatia and Macedonia, which means that ACHIEVE experience will be transferred to these two other countries as well.

In Croatia one other case of transferability can be mentioned. UNDP Croatia initiated their plan for project, which hadn't started yet. Their project is also based on ACHIEVE and FOCUS was involved in consulting them with their proposal. On the basis of ACHIEVE curriculum for training of energy advisers, they have developed their own, for which they are waiting for approval from the national competent institution to get national certification.

Project ACHIEVE was presented as a case of good practise on a national level and was selected by the media house Finance for an award for best energy efficiency project.

There is interest about the project and possibilities of implementing it from various actors and organizations on national or local level, but the main barrier remains funding of a scheme like this.

Ongoing activities, which are also linked to ACHIEVE are related to dissemination of informations, advices and relevant contacts through our communication channels and also to those people, who might benefit from it.

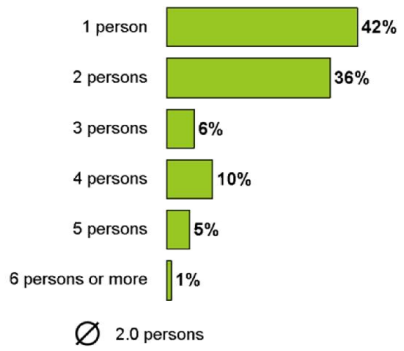
4.4 SWEA, United Kingdom

4.4.1 Results and evaluation of the visits

4.4.1.1 Impact evaluation of the visits

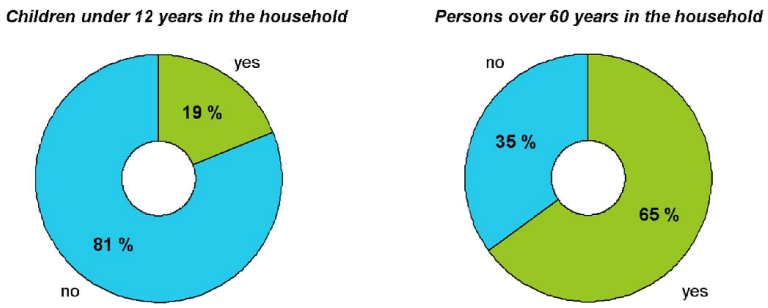
4.4.1.1.1 Presentation of the households and the dwelling reached

At the time of writing this report 136 households have had a complete ACHIEVE visit. A further 56 have had their initial visits and are due their return and 22 more are booked in for an initial visit. This totals 213.

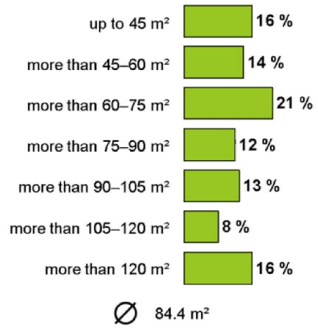


United Kingdom - Figure 1: Number of persons in the household (n=109)

We found that nearly half of the households we visited were occupied by one person and over two thirds occupied by one or two people. This is in part expected as over 60's were part of our target group, being a key group at risk of fuel poverty and specifically excess winter mortality- a key measurement indicator for fuel poverty interventions. As Figure 2, 'Composition of the household', shows we succeeded in ensuring that a good proportion of our visits (65% of the households) reached this key group. Figure 2 shows also that we succeeded in reaching another of our target groups, families with young children who are also vulnerable to being fuel poverty and made up nearly 20% of the households contacted.

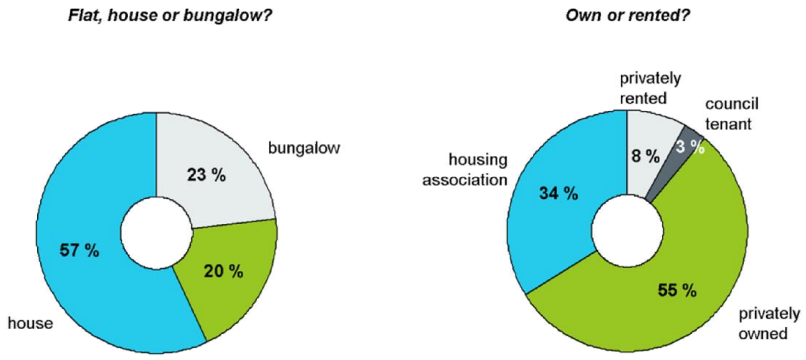


United Kingdom - Figure 2: Composition of the households (n=109)



United Kingdom - Figure 3: Heatable living space in m² (n=109)

As can be seen from Figure 3 there was a reasonably broad spread of heated living space in the categories defined. The majority of properties however being below 90m² as it would be expected from the target group, living in smaller properties.



United Kingdom - Figure 4: Housing situation (n=109)

Throughout the delivery of ACHIEVE we had strong relationships with social housing providers. It is surprising perhaps that there were not more visits conducted in social housing properties. One explanation for this however may be the higher levels of thermal efficiency (in general) that have been achieved in social housing in recent years under programmes such as Decent Homes. As can be seen from Chart 4, 8% of the visits were to privately rented properties this is broadly in line with what we would expect given that around 15% of properties in our target area are privately rented[9]. The privately rented sector is notoriously difficult to gain access too so we feel that this is some measure of success.

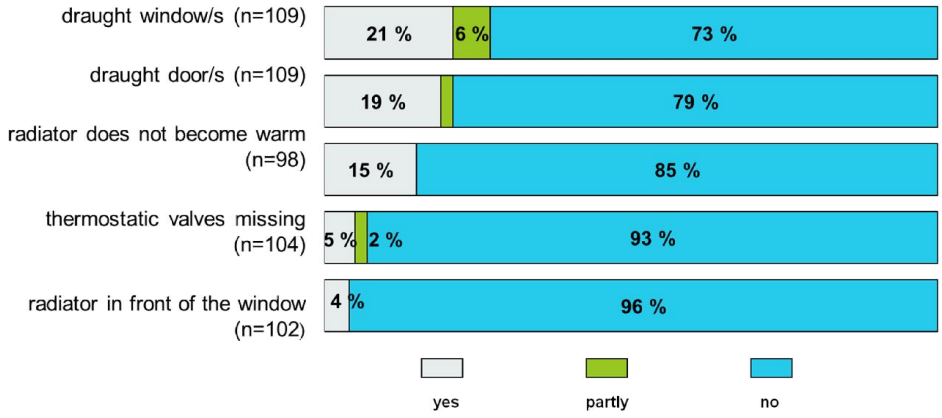
[9] Trowbridge Community Area Census 2011 *Selected Statistics* http://www.intelligencenetwork.org.uk/population-and-census/

The UK project has been delivered largely in urban areas, therefore by far the most common heating fuel was natural gas (over 70%), as other forms, such as heating oil or solid fuel are more commonly found in rural areas. Conversely natural gas is the least expensive heating fuel per useful kWh. The second most common heating fuel was electricity (19%), least common were wood and district heating at 2 and 1% respectively.

As the main source of heating is natural gas central heating it follows that most of these systems would heat the water as well, therefore there are a low percentage of properties that use electricity for heating water.

Historically in the UK properties have not had water meters, these are now installed on new properties and retrospectively where customers request them. Therefore a good proportion did not have a water meter, making the savings by installing water savings devices more abstract.

In the contacted sample, most customers (over 70%) were already always or generally closing doors between heated and unheated rooms. Only 11% were always using secondary heating to supplement their main heating system, with a further 14% often needing to do this. Over 70% used no secondary heating. This is in line with the number of clients who had a natural gas central heating installed. We would not expect therefore for these clients to need to use a secondary heat source as a matter of course.



United Kingdom - Figure 5: Problems heating (n=109)

The main problems reported with regards to heating were those of draughts at the windows (21%) and doors (19%). 15% of properties had radiators that were not heating up properly. Related to this were observations made by Advisors during site visits, 8% of properties had mould visible which may be related to the perceived thermal comfort issues described above. The fact that this is not higher in proportion to the percentage of clients complaining of draughts could indicate that customers are aware of the causes of condensation related damp and take steps to avoid it.

The majority of homes visited during ACHIEVE were built before 1975 (68%) and 28% of homes were built before 1950. This will have a direct impact on their thermal efficiency, with older properties typically requiring more energy to heat.. This may be broadly related to those clients who were more likely to express concerns over draughts at windows and doors. Only a small proportion of homes visited had single glazing where the retro-fitting of draught proofing may have been a viable option for ACHIEVE advisors. This is discussed in more detail in section 4.4.1.1.3.

4.4.1.1.2 Quantification of the savings

For electricity and heating fuel over 60% of properties had their bills available, this dropped to 31% for water bills, this is not unexpected due to water meters not being present in many UK properties. Although the information was not formally collected for ACHIEVE, anecdotally we know that many clients on a low income choose to use a pre-payment meter for their fuel consumption. This reduces the likelihood of there being a fuel bill available. It also limits the choice of tariffs that householders have access to. Advisors would supply information on tariff switching and meter reading as appropriate.

Average consumption and cost of energy	
Average Electricity Consumption (kWh)	3374
Average Electricity Cost per kWh (£)	0.1425
Average Heat Consumption (kWh)	11213
Average Heat Cost per kWh (£)	0.0582
Average Water Consumption (m³)	80
Average Water Cost per m³ (£)	1.9974

United Kingdom - Table 1: Average consumption and cost of energy (n=136)

Default figures were used for around two thirds of properties for water as they did not have bills available. Please note that as this represents such a large proportion of the sample the average figure for water consumption shown in the table above is concurrent with UK national (average) figures water consumption. Electricity consumption and heating consumption is broadly in line with what we would expect.

Across the sample properties 1319 energy saving devices were installed this included: 572 energy saving bulbs (82 LED's), 372 reflective radiator panels, 272 TV power downs, 42 save a flushes and draught proofing to 45 windows and 14 doors.

		mean score	total
electricity	electricity (kWh)	193.2 kWh	21,063 kWh
	electricity costs	27.10 £	2,954 £
	electricity CO2	86.1 CO2 kg	9,383 CO2 kg
water	water (m³)	3.5 m³	385 m³
	water costs	6.69 £	729 £
heat energy	heat energy (kWh)	400.0 kWh	43,600 kWh
	heat energy costs	20.15 £	2,196 £
	heat energy (CO2)	76.7 CO2 kg	8,359 CO2 kg
total	costs	53.94 £	5,879 £
	CO2 (kg)	162.8 CO2 kg	17,742 CO2 kg

United Kingdom - Figure 6: Savings per year (n=109)

As discussed later you can see that the investment in devices is paid back within the first year by savings shown in Figure 6 above. Conversely, towards the end of the project we were able to procure LED light bulbs (to replace halogen) at a much more favorable rate. As initially these were an expensive device (at around £9/ unit) we were restricting the number of bulbs that could be fitted in a property. The prices over time and with regular purchase have been negotiated to just over £6/bulb. In later visits we have been able to fit more than one LED bulb where appropriate and would therefore expect electricity savings to rise accordingly.

		mean score	total
electricity	electricity (kWh)	3,174.6 kWh	326,981 kWh
	electricity costs	468.53 £	48,259 £
	electricity CO2 (kg)	1,414.2 CO2 kg	145,663 CO2 (kg)
water	water (m³)	35.3 m³	917 m³
	water costs	66.78 £	1,736 £
heat energy	heat energy (kWh)	3,812.8 kWh	289,770 kWh
	heat energy costs	192.31 £	14,616 £
	heat energy CO2 (kg)	732.0 CO2 kg	54,899 CO2 (kg)
total	costs	727.62 £	64,611 £
	CO2 (kg)	2146.2 CO2 kg	200,562 CO2 (kg)

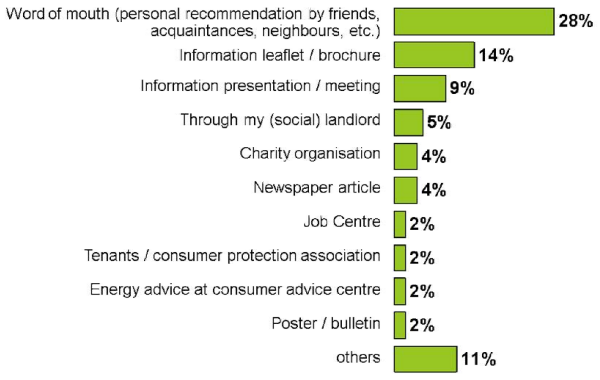
United Kingdom - Figure 7: Total amount of long term savings (n=103)

In addition to the installed devices Severn Wye were also able to help clients to access funding or influence the landlord to make thermal efficiency improvements to some properties. This has resulted in a further savings outlined in Table 2 below. More customers may have followed our advice on improvements through their own routes which would lead to further savings.

Measure installed	No of measures	Annual savings (£)	Annual savings CO_2 (kg)
Boiler upgrade	3	570	2460
Loft insulation	1	140	580
Cavity Wall insulation	1	145	600
Total		**855**	**3640**

United Kingdom - Table 2: Measures and savings

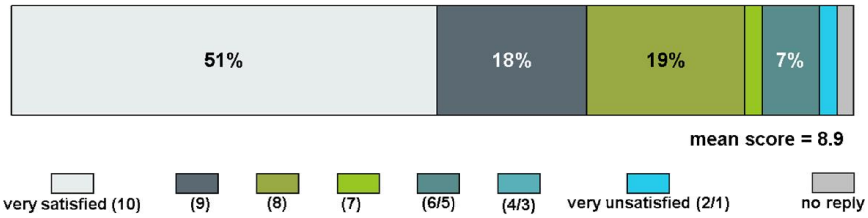
4.4.1.1.3 Satisfaction of the visited households



United Kingdom - Figure 8: Sources of information on ACHIEVE visiting Service (n=57)

Nearly a third of customers heard about ACHIEVE through word of mouth and anecdotally we often found that once one visit had been carried out on a street we would get some calls requesting visits from others living on the same street. The next highest source of information was the ACHIEVE leaflet; this was distributed through Severn Wye as well as third party organisations working with our target groups, such as Age UK. The leaflet included a freepost pull off option to post a request for a visit. Just below 10% of referrals came directly in response to attending a presentation.

There is still some work to be done in developing the profile of ACHIEVE as an independent, trusted source of information. We found a frequent barrier to uptake was that clients were often suspicious of a service that they perceived as 'too good to be true'. The most trusted source of support described by participants in the telephone interviews were either through friends, word of mouth or from the local authority. This will be key to developing the ACHIEVE service further.

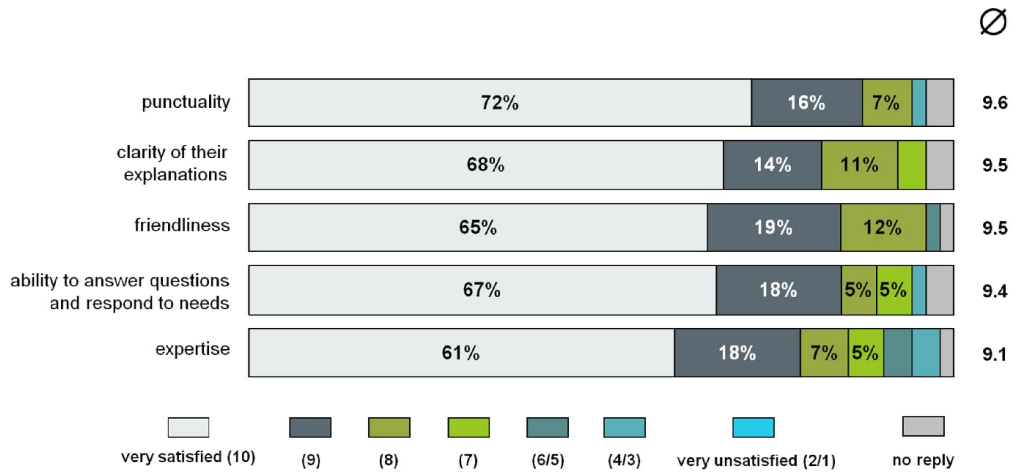


United Kingdom - Figure 9: Total satisfaction with the service (n=57)

On a scale of 1-10 where 10 was very satisfied, the average rating was 8.9.

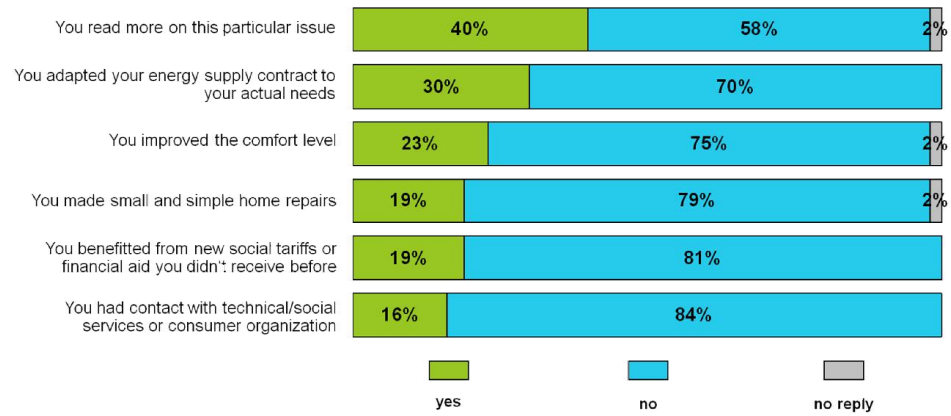
Over 90% of customers found the installation of free devices, the energy saving tips and the raised awareness of how long they are using their appliances, helpful or very helpful. This is encouraging and demonstrates that the service has a perceived impact beyond the concrete installation of devices, for some time after the intervention.

The least helpful parts of the visits appeared to be the anticipation of future energy bills and the reading of energy and water meters, where around 1/3 of customers said this was not very helpful or redundant, however around 2/3 still found these helpful or very helpful. This is interesting and warrants some more exploration. Current government policy promotes raising awareness of the choice of tariffs available. Advisors routinely leave literature with clients outlining how to explore the option of tariff switching where this is appropriate. We understand that many clients within our target group may choose to pay for their energy through a prepayment meter. This will limit the choices available to them in terms of tariffs and they are also more likely to make associations with their energy spend directly with cost so the reason for taking meter readings may also be less likely to be taken on board.

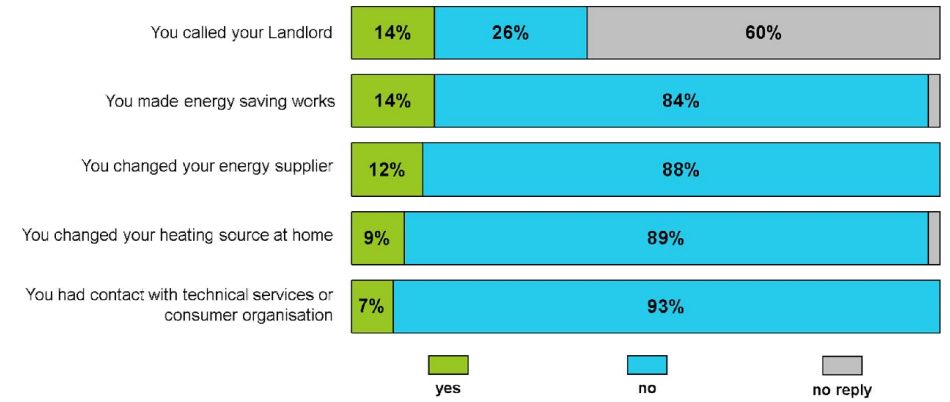


United Kingdom - Figure 10: Satisfaction with advisors (n=57)

The majority of visits were carried out by one advisor and he has been a real asset to the scheme, anecdotally the feedback we have had from customers has always been very positive and this is shown in the customer satisfaction response where the satisfaction with the advisor and their behaviour was on a scale of 1-10 where 10 is very satisfied the average for each category is over 9. This is encouraging both in terms of quality of delivery but also in terms of legacy going forward.



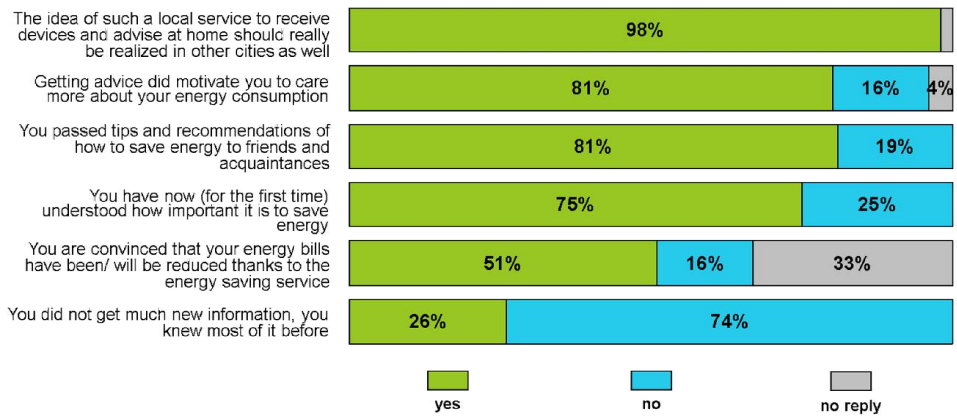
United Kingdom - Figure 11: New options/ changes after the visit (I) (n=57)



United Kingdom - Figure 12: New options/ changes after the visit (II) (n=57)

The main change following the visits was that people read more on the issue of energy saving (40% said they had done this), the next main activity following the visit was for clients to change their energy supplier to reduce their fuel tariff (30% of customers who answered the questionnaire did this). Around 1/5 of customers said their comfort levels had improved following the visit. It is interesting that only 14% of respondents have subsequently done more to improve the comfort level of their home. When ACHIEVE first began we expected that this would be a higher figure. The programs for financing energy efficiency improvements were at the time attractive and this was expected to continue. The landscape in this respect has changed with the introduction of the Green Deal and Energy Company Obligation[10]. Although some grant funding is available for certain measures in many cases these will no longer fund the entirety of traditional thermal efficiency improvements (such as loft and cavity wall insulation). This less attractive offer may have reduced the number of people taking the next step in terms of improving energy efficiency.

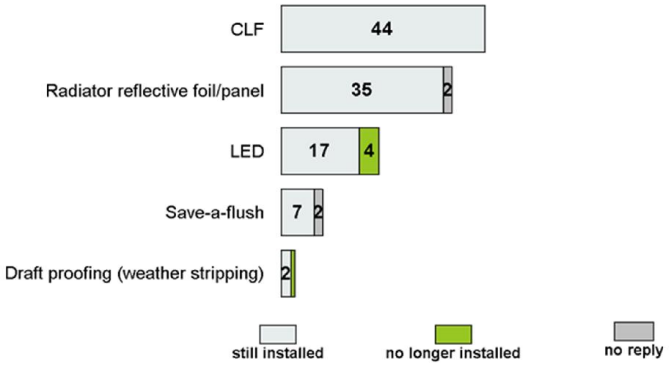
[10] https://www.gov.uk/green-deal-energy-saving-measures



United Kingdom - Figure 13: Approach to received advices (n=57)

Figure 13 above shows that there are obviously additional benefits to clients over and above any concrete savings to energy bills, for example while just over 50% of respondents felt that their energy bills would be reduced, nearly 100% saw enough value in the intervention to feel that a service such as ACHIEVE should be rolled out to other towns and cities. It is also encouraging to see that the objective of education clients in the relationship between energy use and cost has broadly been achieved, with 75% of respondents understanding for the first time how important it is to save energy.

The device installed most frequently were energy saving light bulbs and radiator reflective panels.

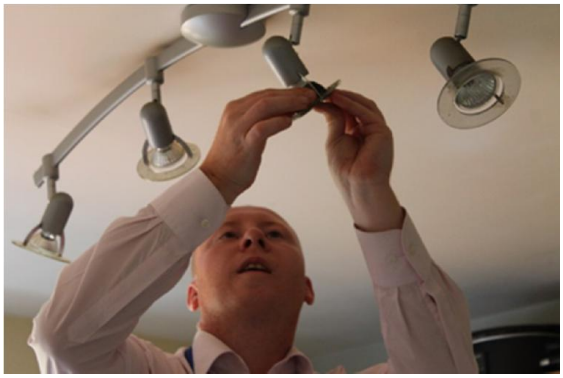


United Kingdom - Figure 14: Overview of use of received devices (n=57)

Of the devices installed none of the CFL's, reflective radiator panels, save-a-flushes or shower saves were reported as being not in use at the time of the customer satisfaction survey.

United Kingdom - Figure 15: Advisor installing a reflective radiator panel

21 LEDs were installed at the properties where the customer satisfaction survey was carried out. Of these one was reported as broken and three were reported as no longer in use for other reasons, mostly due to a problem with the fitting, not the bulb and one client did not like having only one replaced, but intends to upgrade all the bulbs to LED soon.



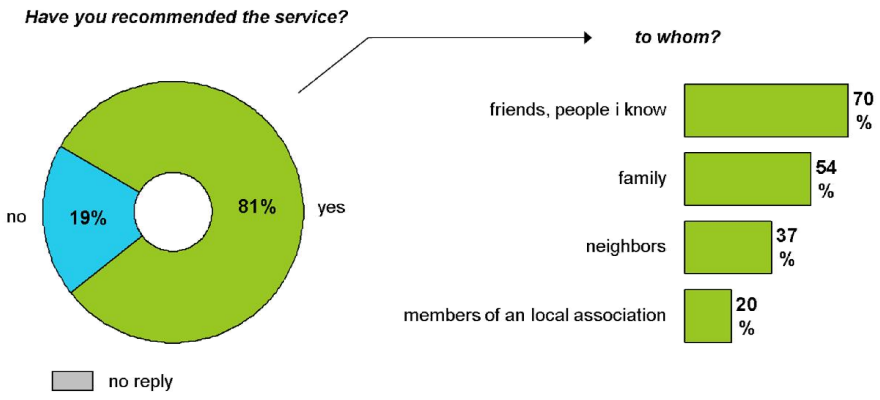
United Kingdom - Figure 16: Advisor installing an LED

Where draught proofing had been installed, one had removed. This was because, they had installed a more permanent solution.

TV Power downs had the most instances (8) where customers no longer had it installed, most people said this was down to issues in using it or that it was inconvenient. One person preferred to continue their habit of switching the TV off at the wall, and one client found that it did not work properly.

Only two shower timers had been left in the respondents properties, one was rarely used, the issue here being that their teenage sons did not use it. The other customer never used it as they felt their showers were short enough already.

As above it is in only a small number of cases that the devices are no longer installed. This may suggest that the devices installed were of sufficient quality and their importance explained well enough to the customer that they did not feel the need to uninstall them. Additionally some of the devices are very much 'fit and forget' so that the customer does not have to think about them post installation. The level of installed devices remaining in-situ also supports the methodology whereby they are installed by the advisor and not left with the customer, in which case it may take a while to be installed or be forgotten about and never installed.



United Kingdom - Figure 17: Recommendation of the service (n=57)

Over 80% of respondents said they had actively recommended the service and 70% of those said this was to friends and people they knew, over 50% said they had recommended the service to their family.

98% of respondents said they thought a service like ACHIEVE should be available more widely and 81% said they had passed tips to friends potentially widening the impact of the visits to other households.

The feedback from the customer survey was very positive and a couple of example comments are included below:

Quotes from customer satisfaction survey:

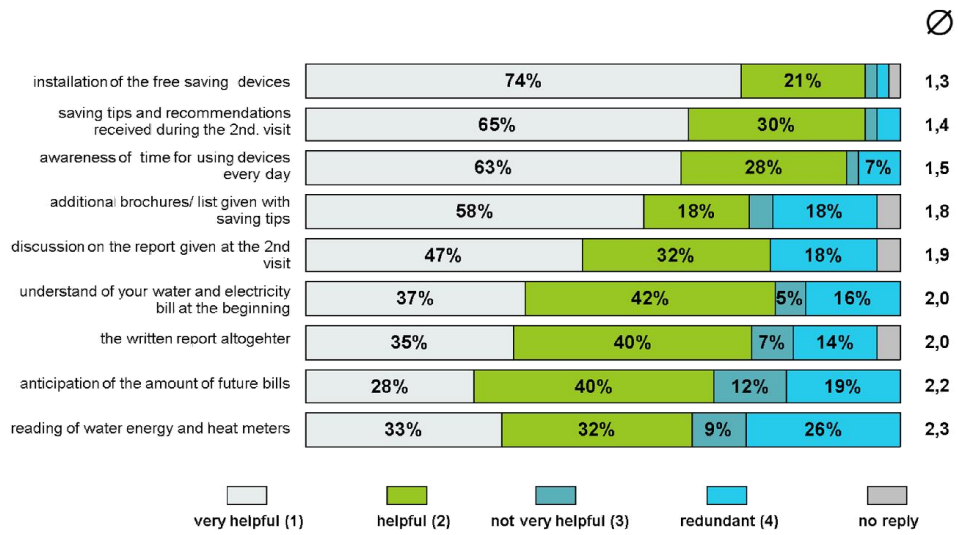
Customer felt "the advisors went above and beyond their job role when helping a friend with mobility, encouraged her to contact the local council and she has since had her bathroom adapted as it was unsafe before."

"Top service, thanks to your report, our HA funded our switch from E7 storage heaters to full gas central heating, making savings of about £45 a week."

Less than 10 participants in the phone survey suggested improvements, these were mixed. Three suggested increasing marketing so that more people were aware of the scheme, a couple would have liked more hi-tech devices (e.g. a power down that could be used in more situations) or more of the same device installed (they had one LED light bulb and would have liked more). Other suggestions were talks at elderly retirement flats and revisiting clients in a few years so that the customers were still up to date. The only truly negative comment was from a property were a light fitting was broken (and subsequently rectified) where they suggested more training for the advisor.

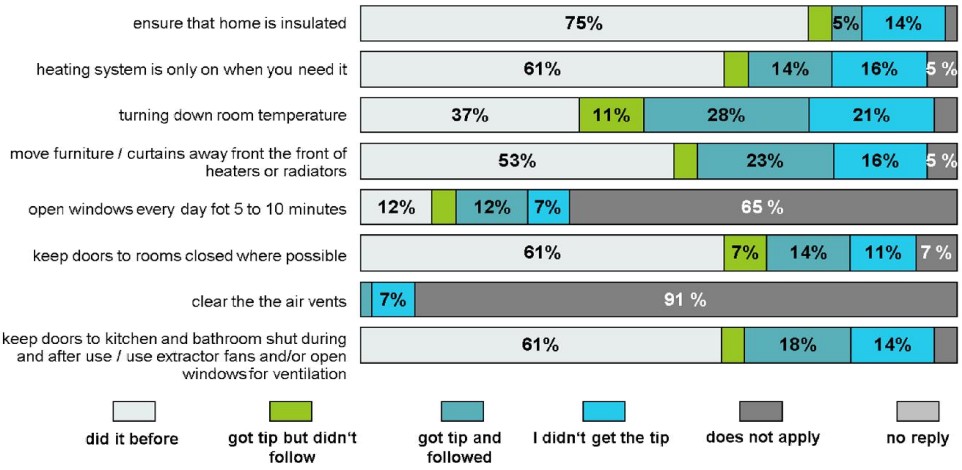
None of the customers interviewed face to face fed back anything that they did not like or would change about the process.

4.4.1.1.4 Learning effects

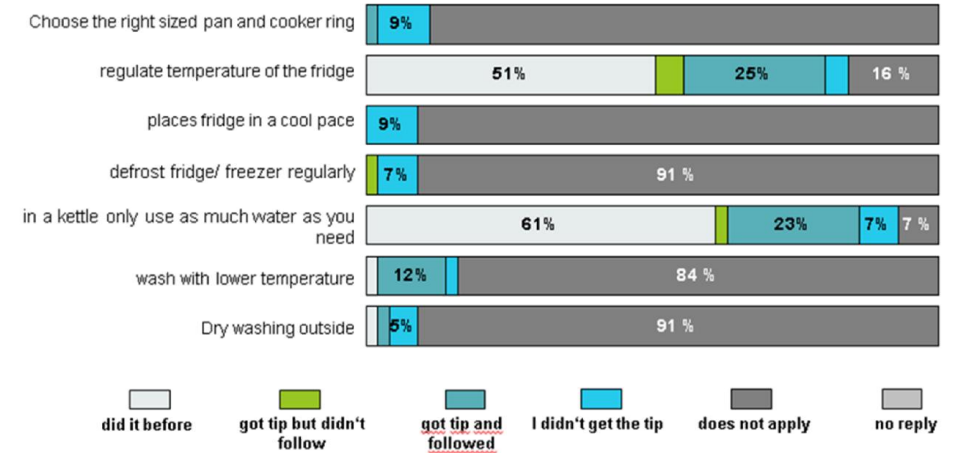


United Kingdom - Figure 18: Benefit of the service with regard to different attributes (n=57)

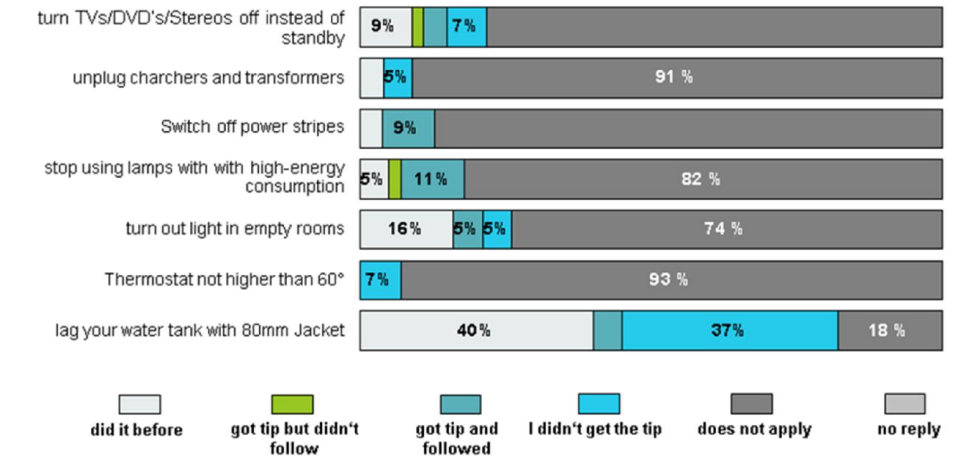
75% said that they now understood the how important it is to save energy, which they didn't before.



United Kingdom - Figure 19: Implementation of saving tips (I) (n=57)



United Kingdom - Figure 20: Implementation of saving tips (II) (n=57)

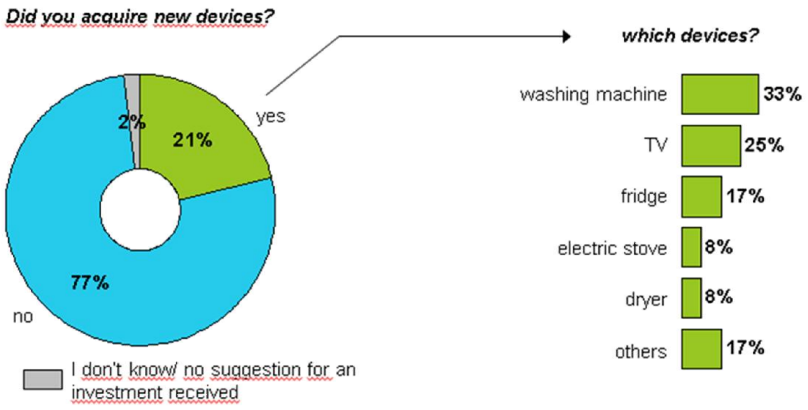


United Kingdom - Figure 21: Implementation of saving tips (III) (n=57)

Energy saving tips were tailored to the customer and therefore every piece of advice was not always given. As the above chart shows that in many cases the advisor was confirming good habits that the customer was already doing. The tips that were received and followed the most were turning down the room thermostat by one degree (which can save around £75 a year on fuel costs), regulating the tem-

perature of the fridge to an energy efficient level, moving furniture away from heaters and only using as much water as needed when boiling the kettle.

81% said that receiving the advice motivated them to care more about their energy consumption.



United Kingdom - Figure 22: New devices Acquired (n=57)

With regards to new appliances the majority of those questioned (77%) had not bought anything new. Of those that had a third had bought a washing machine, and a quarter a television. Advisors routinely discuss replacement strategies for appliances with clients as appropriate (for example on finding a very old or inefficient appliance in the property). This is supported with relevant literature regarding new energy labelling for domestic appliances.

4.4.1.2 Qualitative evaluation of the visits

4.4.1.2.1 Recruitment of the households

We have found that getting referrals for the visits has been one of the challenges of ACHIEVE. We have approached and promoted the scheme through a variety of third parties, including working with social organisations such as Age UK, Wiltshire Carers, Wiltshire Money and residents of housing associations. We also have promoted the service directly to our target groups with regular promotion in town centres and at community hubs such as libraries and Municipality offices. It has taken a lot of work to get referrals coming through. We have found that initially people are sceptical, being regularly canvassed for energy services and ACHIEVE can sound 'too good to be true'.

During the initial stakeholder consultation a very tightly defined target area was identified for the project activity. We found as anecdotal feedback from clients and partners that the way that this was presented in marketing material was a barrier to some people. In response we broadened the area and removed the strict definition in marketing material. Working with new advisors also broadened the geographical spread of the advice provision.

We have found that some methods of recruiting households have worked well, these tended to be where we talked directly to our target groups and were able then to sign people up there and then, for example at a 'golden oldies singing group'. In these instances we were also working in the presence of a professional or support worker who had an established rapport with the clients, helping to give ACHIEVE credibility very quickly. Another approach has been to work with a housing provider to focus in on particular blocks of sheltered housing, where a talk is advertised followed by having visits available to sign up for that day. We have generally found that word of mouth has been the most effective. It has taken some time to fully embed ACHIEVE and we now find toward the end of the project that ACHIEVE has become well established and we now have a higher demand than we have had throughout the whole project.

4.4.1.2.2 Organisation of the visits

Fortunately we have had very few complaints or issues with the devices that we have installed. This is partly due to our decisions regarding the specific devices that we used. For example, led by recommendations from the initial consultation with stakeholders in WP2 we procured reflective radiator pan-

els that did not need to be fixed using any adhesive. This means that they are both simple to install and will not cause any decorative damage should the client wish to remove them for any reason. We have had a few instances of the panels slipping from their brackets but this is simple to address and with a bit of direction it is something that clients can rectify themselves. We have had one example of an advisor inadvertently damaging a light fitting when replacing a halogen bulb. This is understandable as it was a tricky, recessed fitting. In this instance the situation was remedied by commissioning an electrician to replace the faulty fitting.

We have also found that some of the applications for the draught proofing materials we had available were restricted. Many clients complained of draughts that came from older double glazing units. In some cased these were in excess of 20 years old. Sometimes the seals were no longer viable and condensation was visible between the panes and occasionally the integral draught proofing had perished. However for many uPVC framed windows draught proofing materials were not appropriate as the window would have been difficult to shut following installation and this risked damaging the latch and or frame.

The time required by the ACHIEVE advisor for each visit is roughly one working day to cover the initial and return visit, the travel to and from each visit and the write up of the report. In addition to this an average of 30 minutes of an experienced advisors time is needed to quality check the report to ensure it is ready for the householder and contains no errors. It has taken some time to develop the advisors to a point where quality checking can be conducted relatively quickly. For many of the early visits advisors needed much more support to produce a good quality report.

As part of the visits the advisors leave contact details with clients that to use if they have any questions or require further advice, the report itself also provides the Severn Wye contact details. Should a client raise a complaint then Severn Wye complaints procedures are followed.

Advisors are required to follow Severn Wye's loan working policy, this ensures that the office knows where they are and when they are expected to communicate to say they have finished their visit. Advisors are also required to carry out a risk assessment prior to entering the property and the lone working procedure outlines what to do should an advisor not feel safe to enter a property or if they need to abandon a survey part way through. There were few examples of visits where the advisor came across a situation where they had concerns over their health or safety. In these instances advisors were provided with guidance on how to address their concerns and specific resources that could be used to signpost or refer the client to appropriate sources of support. Each advisor was provided with a suite of materials to this end with some examples of situations where each resource could be used. The re-sources are summarised in D5.2(b).

The organisation of the visits has run quite smoothly although it is important not to underestimate the time needed to liaise with clients to organise first and second visits. The main disruptions have been where the occasional customer has not been at the property at the appointed time; however this did not happen frequently and typically was resolved easily by booking another appointment. There were very few examples where we were unable to contact the client for the return visit. In almost all cases once the client had had the initial visit they were keen to progress with the second visit and receive their report and fitted devices. In the seven cases where this did occur we committed to attempting to contact the customer three times to arrange the return visit at a convenient time, if this was not possible then the second visit would not happen, no devices would be installed and they would not be counted in the savings.

We found that word of mouth was one of the most effective ways to gain referrals; we often found that we would complete one house in a street leaving some leaflets with the customer, then shortly after we would get enquiries from friends and neighbours in the same street. We also wrote to all previous recipients reminding them that the service is available and encouraging them to promote ACHIEVE to friends or family members who may benefit and got a good response from this. This is backed up by the customer satisfaction responses where the main ways customers had heard about the scheme where through word of mouth, the ACHIEVE information leaflet or through talks.

Overall, although the number of completed visits is lower than we had aimed to reach we are satisfied with both the delivery and the savings achieved for each household. Particularly given the context that the majority of clients were using natural gas as a heating fuel and that this is around a third of the cost of electricity we are pleased with the cost savings achieved. One way for us to improve this latter outcome would be to focus the intervention on properties that are in more rural areas and therefore using more expensive and carbon intensive fuels. We have also altered our policy on the installation of LED's due to changes in pricing that have happened over the lifetime of the project and we would

expect electricity and carbon savings to adjust accordingly. We also judge a very high level of success from the responses to the customer satisfaction surveys and face to face interviews.

One area that has been a particular barrier has been in the recruitment of households. As discussed above many approaches were used. A key example of this which we have identified as being critical is that of developing relationships with local organisations who would have been working with or in contact with the target groups. However we have still struggled to get the referrals needed to complete 500 surveys. We believe in part this is due to running ACHIEVE in a new geographical area where Severn Wye is not well known for this kind of intervention. In addition there have been large scale changes in the public funding landscape which has meant that not only are many agencies focusing on their core areas of work but also that they are competing for much reduced resources.

It has taken much more time than expected to be able to demonstrate the effectiveness of ACHIEVE and to help partner agencies see ACHIEVE as complimentary to their service offering rather than competing.

The advisors felt the most beneficial parts of the service were the increase in customer's awareness of their energy use and what they can do to reduce it, the installation of the devices and making the very real savings on their energy costs.

Customers interviewed face to face found the visits useful, some because it helped them with 'silly little things that you don't think about' and others because it confirmed to them that they were already doing the right things to be energy efficient.

4.4.2 Evaluation of the training and advisors

Training of advisors in the UK was delivered in two separate rounds. The first programme consisted of 70 hours of training and a work experience module. Training was delivered over two consecutive weeks. The training material was developed according to the structure agreed by the consortium, based on the CARITAS compendium and adapted to the local situation in Wiltshire and the wider UK. The training was aimed at people who had no previous experience in working in the energy sector or in energy advice. Trainees were recruited in the main through the local Job Centre Plus, administered by the Department of Work & Pensions where people who are unemployed go to claim financial support when seeking work and who also seek to reintegrate people into the labour market.

The second round of training was promoted to candidates via several routes, through paid-for advertising, also through Cambell Page (a private sector training provider for people who are unemployed), and on both Severn Wye's and Wiltshire Councils recruitment pages. Recruitment was more formal in this second round and candidates with a wider variety of skills and experience applied. The training programme was condensed to 37 hours but covered similar topics. This was followed by an intensive work experience element.

4.4.2.1 Training content and materials

The ACHIEVE training was based on the methodology developed for the project. A manual was developed as an adaptation of the Compendium written for the original Energiesparservice. From this manual we developed a series of training materials including presentations and practical exercises. The first round of training was designed to be over 70 hours long. However, this included specific adaptation made to the local context. We were keen to be able to offer a level of formal qualification to candidates, knowing that it was unlikely that we would be able to employ all participants. This desire was expressed by stakeholders including the co-financing partner who were keen to maximize the value of the training. After much exploration we found an appropriate module[11] that came under a national qualification framework that was suitable and relevant to the role of ACHIEVE Advisor. To this end the training was adapted to include elements needed to achieve this module and also the time needed for assessment.

We worked with Wiltshire College to deliver this first round of training and were able to make use of resources such as the trades education resource centre to assist on the training of the installation of water saving devices. The local water utilities supplier also contributed to this aspect of the training by offering an expert to provide a half day module on the subject. During the training it was ensured that there was ample time allowed for activities, such as role plays and to practice bill calculations. This

[11] ABBE (level 3) Energy Advice (Home) unit 4 M/600/3523

was to ensure that they were able to use the information we were providing them with and starting to build up the skills in providing advice/dealing with customers that would be needed on the visits.

We felt the candidates responded very well to the training and in many cases found they were able to do things they hadn't thought they would initially be able to. Much of this related to issues of confidence but advisors soon found that when equipped with the knowledge that they overcame this.

The second round of training was held over five days, followed by supervised visits and therefore there was less time available for role plays and activities. Due to this adaptation and the learning that we gained from taking candidates through the qualification we decided not to pursue the element of formal qualification. The trainers thought that it would have been beneficial to have spent more time training the candidates, largely as there were some confidence issues remaining among them, specifically related to going out into people's homes. The candidates on the training however felt that they had had sufficient training for the job and that the shadowing experience was an important element of this.

Some background on the recruitment of advisors:

The first round of recruitment and training was completed via the job centres based in and around the project target area.

The Job Centre advisors promoted the offer and the local housing association advertised the positions as an opportunity for their residents. We found it was difficult to recruit through these routes for the following reasons. Firstly, we found that the opportunity was one that the local job centre advisors found challenging to market. It is fair to say that this particular role is quite different from the jobs or opportunities that are typically offered through this route, (e.g. retail/manual jobs). Because of this the agency found it difficult to identify candidates, much of the data that is collected to profile clients and then to match them to specific job offers does not cover the kind of skills that we were looking for. Severn Wye found it necessary to support this recruitment drive by offering 'job shops', drop in sessions where potential candidates could find out more about the training and job opportunity.

Secondly, through our interaction with potential candidates at the 'job shops', it became apparent that there was a lack of confidence in the job seekers, specifically at the notion of visiting people in their homes despite reassurance that they would be supported for their initial visits and only go independently when they were ready to do so, this still seemed a big barrier.

Lastly we also found that some job seekers were skeptical that the service and installation of devices was and would remain free. The concern being that at some point they would be under pressure to sell products/services, thinking that it was simply too good to be true.

As a result of these barriers, lower numbers than expected applied for the training. At the start we had five candidates, three of whom completed. Of the two that did not complete one did not have the literacy and numeracy levels needed for the course and one moved away from the area.

A second round of recruitment was attempted the following summer advertised through three local universities, Wiltshire Council, Job Centre plus and two jobsites. In this round the positions were split in to the advisors roles which would carry out the surveys and an administrator that would be based in the Severn Wye office organizing the visits and writing up the reports. These were posted as unpaid work experience placements, one month in length. There were a good number of applicants for the admin position, but too few for the survey positions to make this round viable.

A third round of recruitment was carried out in December 2013, this had a similar format to the second round, however this time we offered a modest payment for the positions paid on a contractual basis (i.e. payment per survey) for the assessors and a pro rata basis for three days a week for the project administrator position. This was a much more successful format and as a result five assessors and one project administrator were taken on.

As part of the focus group process with stakeholders, a list of desirable characteristics for the advisors to have been established, this included qualities such as:

Good communicators, non-judgmental, have good IT skills, be flexible and diplomatic, be able to motivate clients, knowledgeable, reliable and friendly, personal experience in fuel poverty, confident, Criminal Records Bureau checked, able to manage own time, able to work independently.

We would not argue that these qualities are not needed, however some of the experience we have had has shown how it can sometimes be difficult to recruit people that have all of these, this was particularly the case where we directly recruited people who were out of work and had been for some time. Notably, confidence was a barrier in terms of getting job seekers signed up to the training.

4.4.2.2 Advisors

4.4.2.2.1 Profile, background and number of advisers

We have trained ten advisors in total, eight male and two female, aged between 24 & 57 prior to ACHIEVE, advisors had been in a mixture of circumstances that included unemployment, self-employed, middle management in private industry, and one local authority planning officer who had been made redundant due to ill health. Most had very little previous experience/knowledge about energy efficiency. In terms of education this was also mixed from NVQ to university level qualifications.

One of the key difficulties experienced in this project has been the supervision of advisors as the Severn Wye office is around 100 kilometres from the project target area. The level of support required by the advisors to carry out and write up the surveys was also more than had been anticipated and this was for various reasons.

An additional issue was the IT proficiency levels of the advisors initially recruited. In most cases these were low and much support was needed in the writing of reports, this was exacerbated by the complicated nature of the evaluation tool. This demanded a good understanding of excel to be able to pick it up quickly and a very good understanding in order to spot and subsequently attain the cause behind any errors that arose, or locate where data was missing. We have found that it can take an experienced excel user a lot of working through the complex background formulas to do this. Subsequently, in the later rounds of recruitment the job was split to include a project administrator who would be writing up the reports and be based in the Severn Wye office so that we could give the support needed to understand the tool.

Another issue that arose was quickly picking up when there were difficulties with the advisors on the ground. This was in part due to the geography of the situation and the fact that advisors were expected to work remotely and in part because there were some discrepancies in basic professional skills, linked to a prolonged period of unemployment. For example, time keeping. We found that Advisors needed a lot of supervision and support to help them to overcome this and we perhaps underestimated this requirement at the outset of the project. We adapted to this situation by ensuring daily telephone contact and by travelling regularly to the target area to meet with advisors and support them in their practice. One Advisor has been employed for the length of the project and he has also made monthly visits to the Severn Wye offices to help him become an established member of a wider team.

A key positive outcome from the project has been the feedback from customers, which has shown that clients have been overwhelmingly impressed with the service they received from their advisor. We have also noticed the development of experience in the main advisor employed. He is proficient at his job, expresses a high level of satisfaction and has demonstrated improvement during his employment.

4.4.2.2.2 Skills knowledge developed thanks to the project

To date in the UK we have only had one advisor who is no longer employed in the project, unfortunately we have not been able to contact them directly to find out what they are doing now but understand that they are currently employed. The feedback from the current advisors on their expectation of their ACHIEVE experience helping them to attain a new job had a mixed response. Some hoped that it would be of use to them, but that this would depend on the job opportunities that come up and others were more positive and felt that it would help them. None thought that it would be of no help at all.

The skills used and gained through the project included confidence, time management and problem solving. We believe that the increase in confidence, particularly for those who were previously out of work is one of the key outcomes and successes of the project and in addition to the skills just mentioned would add that those who have had the experience of writing reports have also improved their IT skills, particularly in Microsoft Excel.

4.4.3 Investment saving ratio

4.4.3.1 Investments

We have had advisors employed on two different basis:

One advisor has been employed on fixed term contracts that have extended to the end of the project starting as part time and ending as a full time employee, the salary was initially £14,000 p.a. FTE ris-

ing to £17,000 p.a. This does not include any overheads or social costs and translates to approximately £11 per hour or £81 per visit

We have also employed advisors on a sessional basis and advisors who are paid £30 per competed customer plus travel expenses (completed visit includes both a first and second visit).

The training programme has required some investment. To get the programme designed and developed required at least around 30 days of work. The initial training programme was ten days in length and was delivered by two trainers. The second round of training was four days in length and was again delivered by two trainers.

In addition to the costs of the advisors Severn Wye staff have, by necessity provided a lot of support to the advisors. This has included a 10-15 minute daily call to advisors on site to ensure everything is running smoothly, this is really important, we have found at any point where we have had reduced contact that issues start to arise. In addition for each report we estimate it takes around 30 minutes to quality check it ready for the customer. This stage has been crucial to ensure that the reports the customer receives are of consistent high quality. Lastly support has been provided on the promotion of the surveys themselves in the way of supporting advisors to develop and deliver presentations and promotion and also in delivering promotional activities in addition to those carried out by advisors.

4.4.3.2 Investments in ratio to savings

Advisor time costs typically £80 per survey; the typical savings achieved per household were £42.60. The typical cost of the installed devices was £34.22 per household.

Additionally potential savings were identified for some properties where insulation was assessed as inadequate. In these situations a recommendation was added to the report for the customer to have a survey. If all these were followed and subsequently installed we would expect savings of £3485/662.65 kWh (per year) through installation of cavity wall and solid wall insulation and a further £2192/ 448.15 kWh (per year) from loft insulation[12]. We know that some of the referred clients may have had measures installed through schemes not managed by Severn Wye. However, we can confirm measures installed through Severn Wye below.

As a standard practice though ACHIEVE Advisors make a brief assessment about the energy efficiency to gauge its basic level of insulation and heating system so that they can advise the customer of any help available for these measures. This lead to three customers having a free or discounted boiler installed, which is estimated to save them each £190[13] per year and 820 kg CO_2, one person has had loft insulation installed with an estimated saving of £140[14] and 580 kg CO_2 per year and one had their cavity wall insulated saving them £145[15] and 600 kg CO_2 per year. These combined totals add an additional annual saving of £855 and 3640 kg CO_2 per year.

4.4.3.3 Additional Benefits

The ACHIEVE intervention has brought additional benefits to those associated purely with financial savings. This can be described broadly as:

Social benefits for the advisors: Advisors who have worked on ACHIEVE have benefited directly from the knowledge that they have gained put to use in their own homes. They have also gained new skills and experience that can be used in the next stage of their professional lives. Specifically skills developed include; improved communication, IT literacy, report writing, time keeping, and providing advice. As well as improving their understanding of energy use in the home, advisors have developed their understanding of building construction and related thermal efficiency improvements. Our full time advisor includes copies of existing Energy Performance Certificates as standard with his reports.

Social benefits for the households: ACHIEVE seeks to identify other issues specific to the household and as appropriate signpost or refer clients to appropriate partner agencies. Signposting information

[12] Savings figures based on Energy Saving Trust figures October 2011

[13] http://www.energysavingtrust.org.uk/Energy-Saving-Trust/Press/Press-releases/Energy-Saving-Trust-savings-figures cost figures for semi-detached property upgrading boiler E-A used as an average.

[14] http://www.energysavingtrust.org.uk/Energy-Saving-Trust/Press/Press-releases/Energy-Saving-Trust-savings-figures figures for mid-terrace property as this matched the property type

[15] http://www.energysavingtrust.org.uk/Energy-Saving-Trust/Press/Press-releases/Energy-Saving-Trust-savings-figures figures for semi-detached property used as this matched property type

has been left with the majority of clients to agencies such as Fire and Rescue through to agencies that can offer financial income checks for vulnerable households to check that they are receiving any support that they are eligible for.

Working together of different political fields: Although it has been challenging to engage with all partner agencies in the target area fuel poverty is recognised as a distinct phenomenon. The Local Authority is currently working to embed action against this issue within their Public Health department and there is a political desire to see the action formally embedded within a wider triage system for agencies working with at risk groups.

4.4.4 Dissemination and transferability of the project

4.4.4.1 Communication impacts

At a local level it has been important to maintain the profile of ACHIEVE with relevant actors. This has been achieved by way of regular communication with key partners including housing associations, Wiltshire Money group, Citizens Advice, Age UK, health centres, libraries etc. Communication has taken formats such as face to face meetings, regular email contact, newsletter dissemination and staff briefings. The latter has been important and has also been used to introduce advisors to professionals to establish an ongoing relationship and clarify referral channels.

The project has also been presented to a national assembly of Local Authority Officers and Housing Associations in Scotland and to a similar group of professionals from regions across the South West. Crucially this audience were concerned with the costs involved in both the visits themselves and the delivery of the project. On both of these occasions it was too early to be able to provide a detailed breakdown of these costs. This will be revisited given the outcomes of the evaluation and a cost benefit ratio can be presented.

The project has also been presented to an Affordable Warmth Partnership in Wales to Local Authority Partners and third actor organisations. This has led to discussions in how the concept may be adapted or delivered with new partners in Cardiff, specifically through a time banking initiative.

4.4.4.2 Involvement of local or national partners and networks

In the UK the ACHIEVE project took place in partnership with Wiltshire Council who provided co-financing. Wiltshire Council was approached as we were working on some projects with them and knew that they were re-invigorating their affordable warmth partnership at the time. ACHIEVE is a good example of a practical affordable warmth advice project that would fit well with the objectives of the strategy.

We were pleased to have the local council on board as they could provide access to information on the households to target. In addition they were in a position to support housing schemes and housing renovations to secure sustainable energy consumption and improve the well-being of their occupants in the long run. The partnership with the local authority was also very beneficial in giving ACHIEVE a legitimate mandate.

Severn Wye also worked in partnership with Wiltshire College to provide the first round of advisor training. This included training on effective team member and communication skills. It was certainly beneficial to bring in an expert on this subject and also to work with Wiltshire Collage to share resources and have access to facilities.

The feedback from the focus groups that the partners took part in was very useful in shaping the project in the early days. Also as ACHIEVE was not an established initiative, working in partnership with the local authority is very useful as it provides some legitimate backing to the scheme both for households and for partners. As previously mentioned some people can think schemes that are offering free help ‘too good to be true’ and are reluctant to be involved for this reason, therefore having this backing helps to reduce this. The local authority was also able to support with some publicity of the scheme.

We also developed strong relationships with the two main social housing providers in the target area. This was very important in being able to reach households successfully. In practice the savings generated by visits to sheltered schemes were not as high as those generated in privately owned or rented properties. However the visits helped to recognise good practice among tenants and also gave ACHIEVE the opportunity to spot any energy related issues and report these independently to the provider. In two cases this resulted in a replacement heating system for clients.

The tools developed for WP5 have evolved as the requirements found by the advisors were expressed. All advisors were provided with a support tool during the initial visits. We found that there

were certain situations that arose often and that there was frequently a simple solution to addressing these. This may be by providing specific advice or in signposting or referring to a specific agency. In addition these tools helped to guide advisors in their responses to certain situations, for example in recognising the limitations of their role. This has been particularly true when finding issues related to social inequality or indeed examples of properties in major disrepair.

It has been a success to develop and deliver an energy advice project in partnership with the Local Authority. It has demonstrated a way of working and has also fed into the development of new services. The learnings we have noted in this evaluation with regard to the difficulties in recruiting and supervising long term unemployed have also been recognised more widely within the UK over the past few years and this has lead to programmes such as one run by Wiltshire Council that provides a support service to help people returning to work to maintain their employment with basic professional skills. This service did not exist at the beginning of the project.

ACHIEVE has also enabled the development of a successful relationship with two housing associations in the target area. It is hoped that the concept can be rolled out further and that the learning this relationship has provided will enable further development to take place to take ACHIEVE specifically into social housing.

It is important to find the right contacts within organisations. For example, when working with one social housing provider, although there was 'buy-in' from senior colleagues the initiative really became successful when more junior members of staff, who had an established rapport with clients, became involved. It was only when former Housing Officers attended sessions to discuss and promote visits that those tenants really became engaged. It is important therefore to be clear with a partner such as this the level of engagement that will be needed to make it a success.

An additional challenge as mentioned earlier has been in getting regular referrals from partner organisations. We have identified many agencies that work with our target group but have struggled consistently with getting referrals to be made. It is vital to communicate to partners that this service is complimentary to that which they provide.

4.4.4.3 Transferability of the project

We are finding increasingly that there is an emphasis for demonstrating the financial impact and benefits of energy advice given and to provide quantifiable savings. This is partly due to changes in the welfare system, which has meant that more people are having more difficulty keeping on top of their bills and therefore help with energy and bill management is even more important. It is also due to a large reduction in public sector funding which has meant that commissioners are keen to be able to demonstrate perceived value for money. This includes the impact that an intervention may have on other areas of public expenditure, for example, if a home is made warmer and cheaper to heat, it will reduce the risk of an elderly resident falling and the medical costs that this may incur. The ACHIEVE method fits this well as it inherently involves taking down the necessary information and using this to provide tailored savings per property. It is also not dependent on user behaviour unlike mainstream 'behavioural' energy advice.

It will be important going forward to include quantifiable savings associated with additional advice, and to incentivise clients to follow this. One way to develop this may be to include self-monitoring tools and support for visited households. Much of the ACHIEVE methodology can be transferred as it meets objectives on several levels.

4.4.5 On-going activities linked to ACHIEVE in each partner country

The ACHIEVE methodology has influenced the wider Severn Wye Home Visit process and we are currently integrating this into our organisational practices with regard to domestic energy advice. This will in turn enable us to report more clearly on outcomes to local partners.

Severn Wye has also secured a contract to carry out a project specifically based on the ACHIEVE model with a housing association in the Gloucestershire area. The intention of this project is to test the methodology with their tenants and to roll it out further if the savings can be shown to be cost effective for the housing association. This represents a wider opportunity for integrating ACHIEVE into work with Social Housing providers. In many cases good levels of thermal efficiency have been achieved by providers on the stock for which it is viable. This leaves some homes that are too costly to improve and also some properties that despite improvements the tenants still struggle to afford to live in. It is these groups where ACHIEVE can offer concrete solutions. This will form part of an ongoing offer to social housing providers.

Finally Severn Wye is also in discussion with a Community Development Organisation who is interested in adapting the model to work within a time banking scheme for communities in the Cardiff area of Wales.

4.5 GERES, France

4.5.1 Results and evaluation of the visits

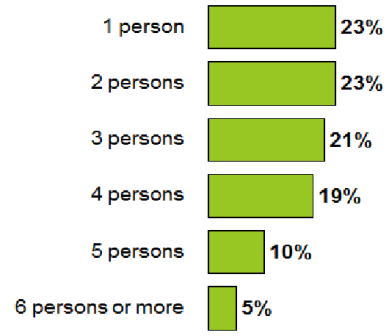
GERES implemented the ACHIEVE service in Marseille, in Provence-Alpes-Côte d'Azur. The visits were focused on one hand on a specific deprived area in the South of Marseille, in a social housing area, and on the other hand on low income households, identified by social workers in Marseille. The advisors, who implemented the visits, are people in integration path hired by a social company. Six advisors were trained and took part to the project, implementing the home visits. 370 households were visited twice during the project and the evaluation was conducted on 301 households-

4.5.1.1 Impact evaluation of the visits

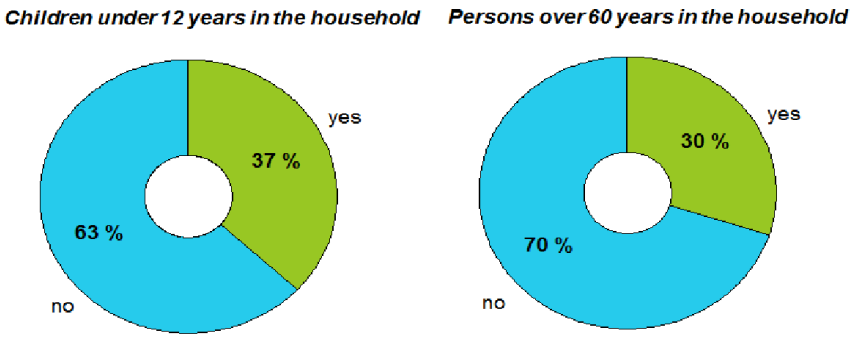
4.5.1.1.1 Presentation of the households and the dwelling reached

At the end of the project, 370 households were visited twice.

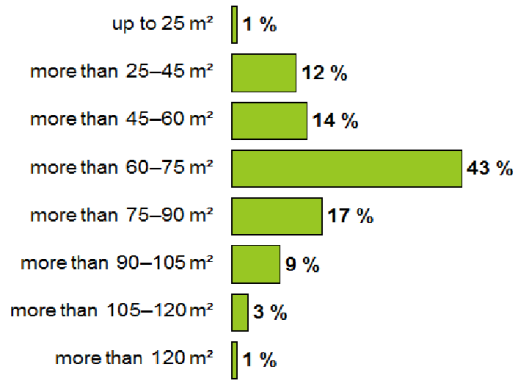
Almost ¼ of the visited households were single persons and an important part of the families were one parent families, vulnerable to energy poverty. On average 2.9 persons live in one household.



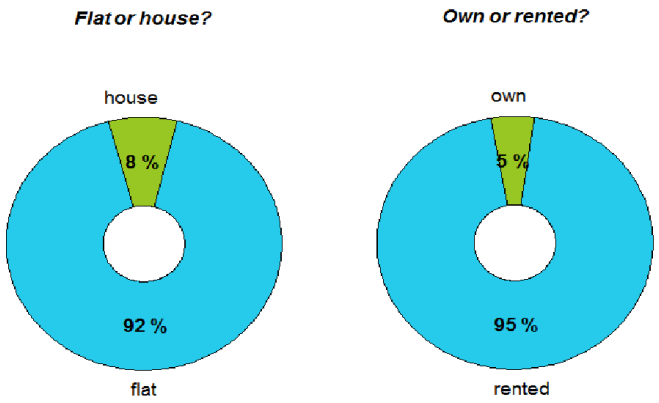
France (GERES) - Figure 2: number in a household (n=301)



France (GERES) - Figure 3: composition of the household (n=301)



France (GERES) - Figure 4: heatable living space (n=301)



France (GERES) - Figure 5: housing situation (n=301)

- education

The head of visited household is in half of the cases in a state of inactivity such as unemployed or retired or housewife (51%). And 38% of the head of households work but are in a precarious situation (low qualification, not hierarchical position, precarious work).

- income/social welfare

Overall the visited households are those targeted by the project, i.e. low income households. The majority (2/3 at least) of them receive at least one social benefit (rental assistance, family allowances, active solidarity income…).

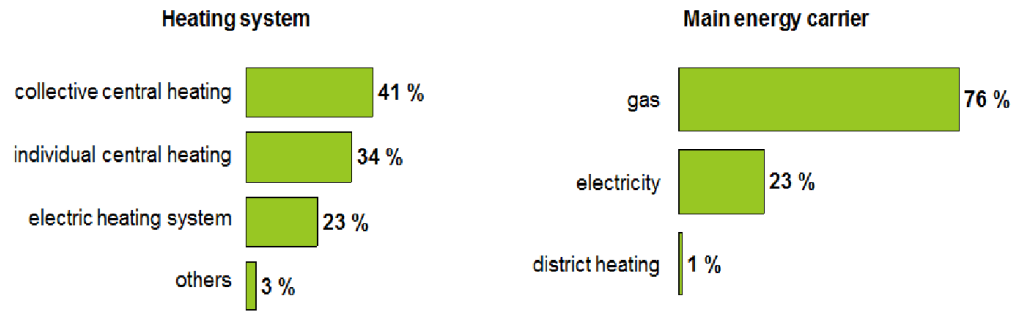
- who has taken part of the visit

In more than one case of 2 (53%), only one person was present at home during the visit of the advisor and for ¼, 3 persons took part to the visit.

The main part of the persons taking part in the visits, around 2/3, was between 35 and 64, (20% over 65 and 17% under 35).

A majority of women (73%) over 35 years took part in the visit.

- Type of heating system (energy used for heating/individual or collective metering)



France (GERES) - Figure 6: Heating system and main energy carrier (n=301)

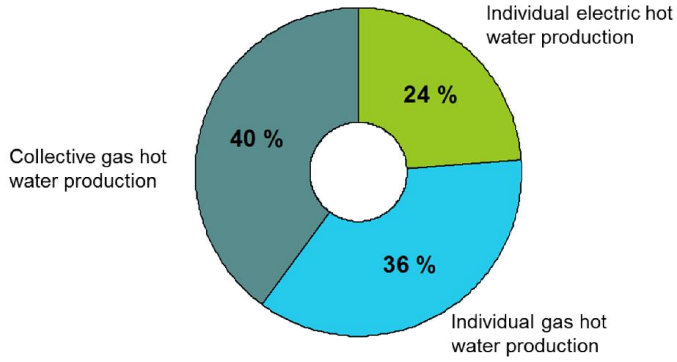
Most visited households (74%) have a central heating system: 39% have collective central heating, while others 35 % have individual central heating with an individual boiler.

Natural gas is the dominant energy in the visited dwellings, 76% of the households.

Furthermore, 24% are heated by electricity, with convectors.

Almost all of the households having electric heating are living in the private sector.

- Type of hot water system (energy used/ individual or collective metering)



France (GERES) - Figure 7: Type of hot water system (n=301)

Domestic hot water is partially produced by electricity (24%) or by gas (36%) with an individual system and an individual meter. 40% of visited households have collective hot water production with individual metering, this is the case of social housing tenants in one of the targeted area.

- Water systems (individual/collective metering)

The most part of the visited households have an individual water metering but the water consumption is only available for 70% of the visited households, and around 30% don't have their water bill or have no access to their meter.

- heating habits before the visits

France (GERES) - Figure 8: Use of additional electric radiator (n=301)

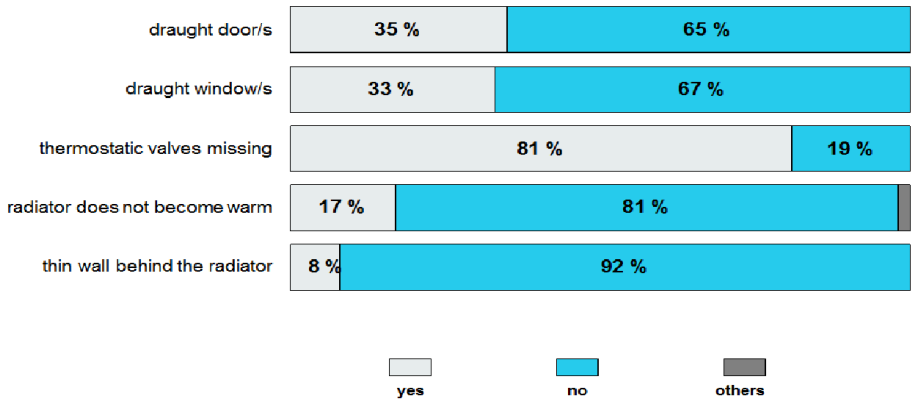
Few people use additional electric radiator, but some other households used oil stove as secondary heating system to reach a sufficient comfort level.

Overall 10% of all the visited households use a secondary heating system frequently or always as a heating system. But more than 25% of the tenants in the private sector are using secondary heating system.

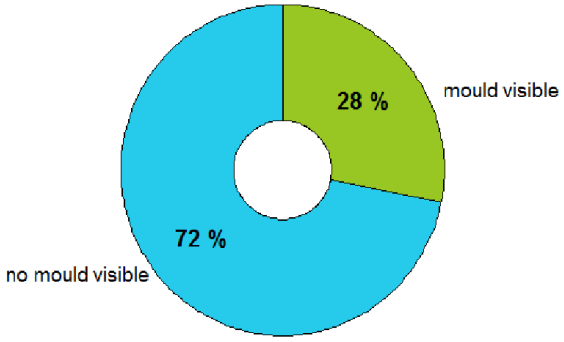
The tenants in the public sector (public social housing) are for the main part of them living in a specific deprived area in Marseille which actually benefits from a urban renewal project, with insulation measures and also collective heating system.

In the private sector, lots of visited households have no alternative to improve their comfort but to use additional electric convector and other secondary heating system.

- Problems in the household



France (GERES) - Figure 9: Problems heating (n=301)

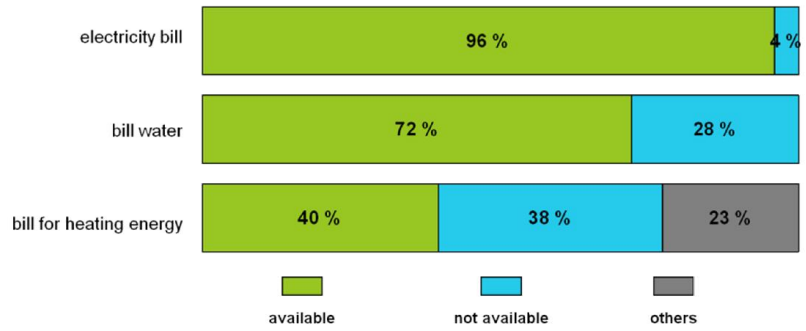


France (GERES) - Figure 10: Mould visible (n=301)

More than ¼ of the visited households are living in dwellings with mould. Advisors often identified mould in bathroom and kitchens (or even in rooms) because of ventilation problem (ventilation system off, or no ventilation system). In the latter case, the extent of the mould formation varies. The proportion of visited dwellings with mould is higher in private housing.

4.5.1.1.2 Quantification of the savings

- Overview of energy standard and energy use in low income households



France (GERES) - Figure 11: bills available (n=301)

Gathering the energy and water consumptions data is one of the main objectives of the first visit for advisors. The level of energy / water consumption gives already some information on the habits and the problems the households might encounter.

So the different bills had been prepared by each household before the visits as requested during the first telephone call.

Almost all households are able to find their electricity bills, ¾ have their water bills.

But regarding the heating energy bills, it really depends on the heating system:

- the households having collective heating systems are not often able to provide their heating energy bills (85% of them). It's included in the rental costs.
- Households with individual gas heating system have a gas bill, often including hot water preparation and cooking
- Households with electric heating system have a global electricity bill, including all the heating, hot water preparation, sometimes cooking, all the other electric consumption (appliances, lights…).

So having a separate bill for heating is rare and it's difficult to estimate a approximate heating bill without further calculation.

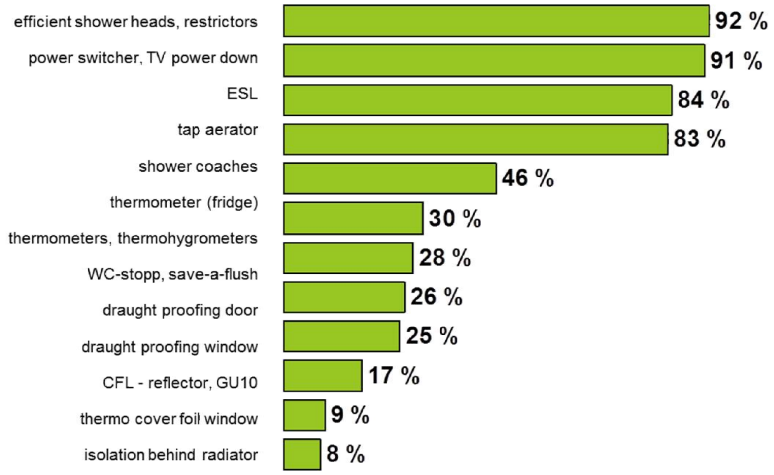
- Average consumptions and price for electricity, water and heating

Per household:	Average consumption per year	Price
Electricity	3560 kWh	0.13 €/kWh
Water	112 m^3	3.26 €/m^3
Heating	8,055 kWh	0.06 €/kWh

France (GERES) - Table 1: Average consumption and prices

The heating energy price depends on the energy: EUR 0.06 per kWh for gas, 0,13 for electricity.

- saving products
  - o *"Receipts of energy saving devices"*



France (GERES) - Figure 12: Receipt of energy saving devices (n=301)

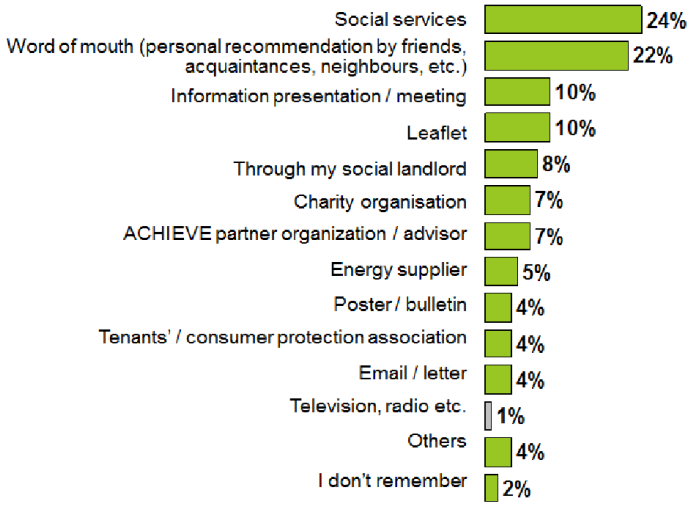
- calculated savings

		mean score	total
electricity	electricity (kWh)	345.8 kWh	102,009 kWh
	electricity costs	44.03 €	12,990 €
	electricity CO2	69.2 CO2 kg	20,402 CO2 kg
water	water (m³)	30.2 m³	8,727 m³
	water costs	74.15 €	20,465 €
heat energy	heat energy (kWh)	923.8 kWh	211,551 kWh
	heat energy costs	59.96 €	13,670 €
	heat energy (CO2)	301.2 CO2 kg	68,974 CO2 kg
total	costs	178.14 €	47,125 €
	CO2 (kg)	370.4 CO2 kg	89,376 CO2 kg

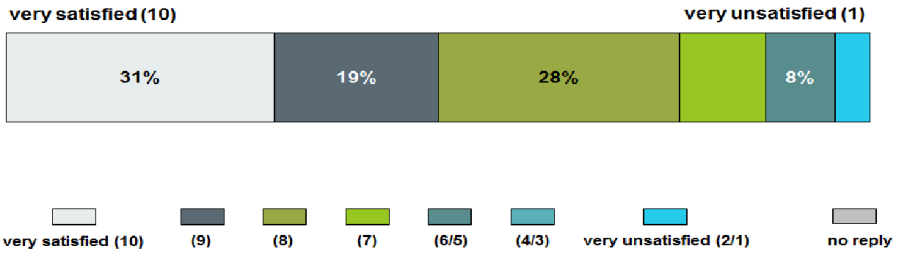
France (GERES) - Table 2: savings per year

4.5.1.1.3 Satisfaction of the visited households

- How/by whom households heard and got in touch with the service

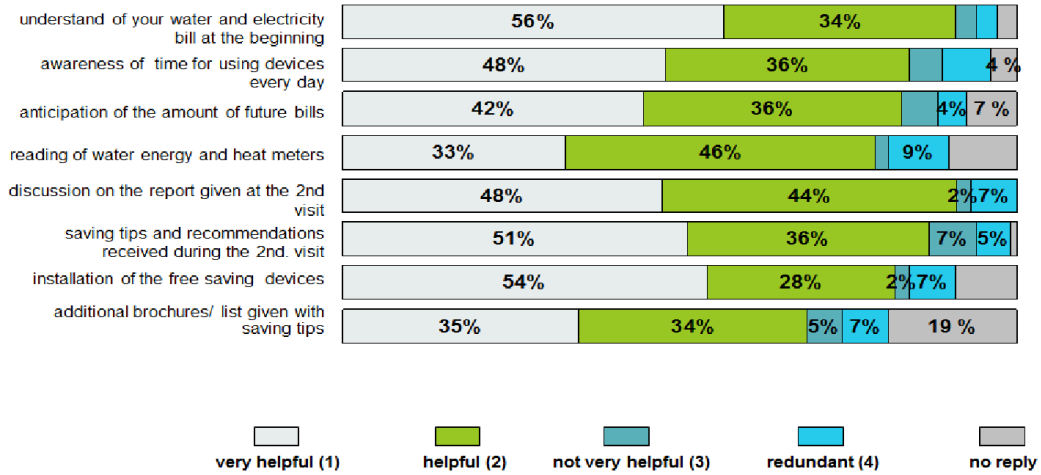


France (GERES) - Figure 13: By whom the household got in touch with the service (n=74)



France (GERES) - Figure 14: General satisfaction (n=74)

A high overall satisfaction of the service => 78% were satisfied (scores of 8 to 10) including a half of very satisfied households (score 9 or 10).

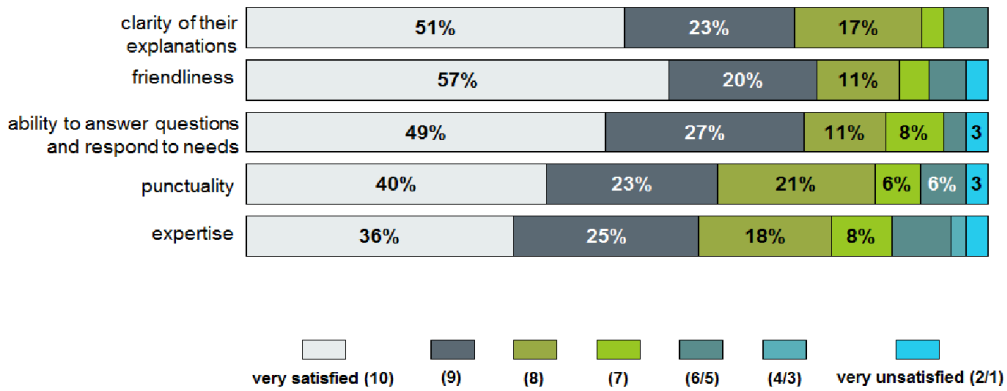


France (GERES) - Figure 15: Benefits from the service with regard to different attributes (n=74)

The visits are considered useful by households, particularly to understand energy and water bills (90%) and also to be aware of the consumption of various appliances and electrical devices (84%). Being able to anticipate bills (83%) and read meters (79%) is also appreciated by households. The discussion on the report and saving tips are also actions deemed useful. In conclusion, all of the proposed actions (discussions/awareness raising 92%, simple actions – saving tips 87%, installation of small devices 82%) are considered useful to reduce energy consumption,

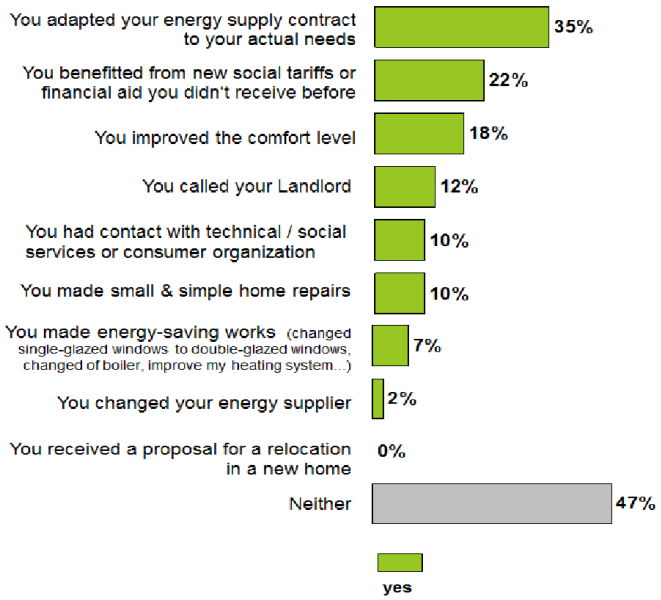
except brochures and documents that are of less interest (69 %). Households prefer a personal support.

- Satisfaction with advisors

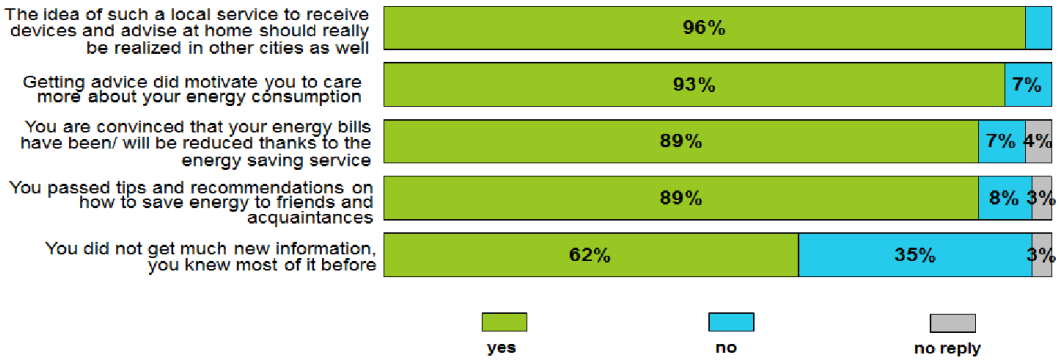


France (GERES) - Figure 16: satisfaction with advisors (n=74)

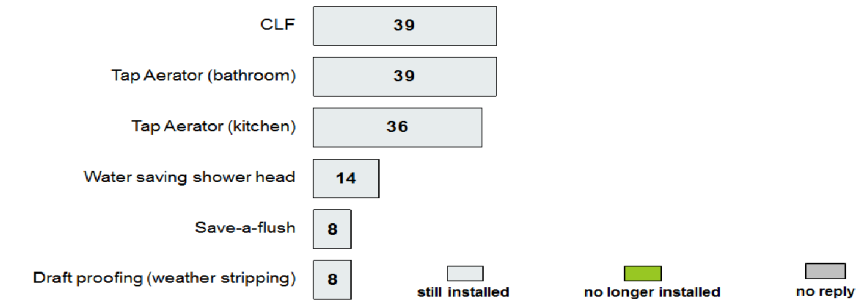
- Direct and indirect benefits of the service



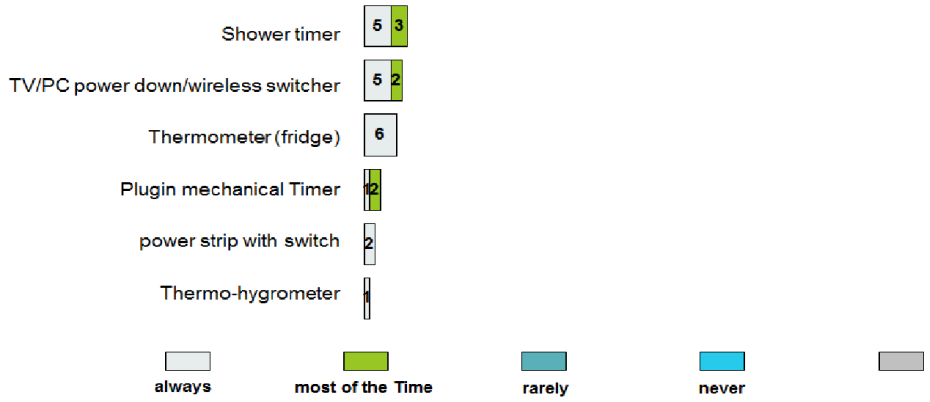
France (GERES) - Figure 17: New options/changes after the visit (n=74)



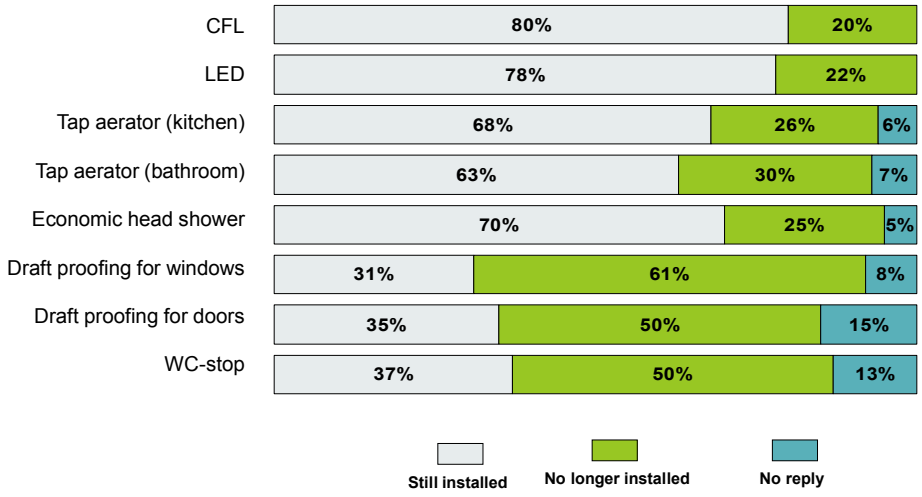
France (GERES) - Figure 18: received advices (n=74)



France (GERES) - Figure 19: Received devices with automatic savings after installation (n=74)



France (GERES) - Figure 20: Overview of the use of received devices (n=74)



France (GERES) - Figure 21: Received devices with automatic savings after installation (%) (n=74)

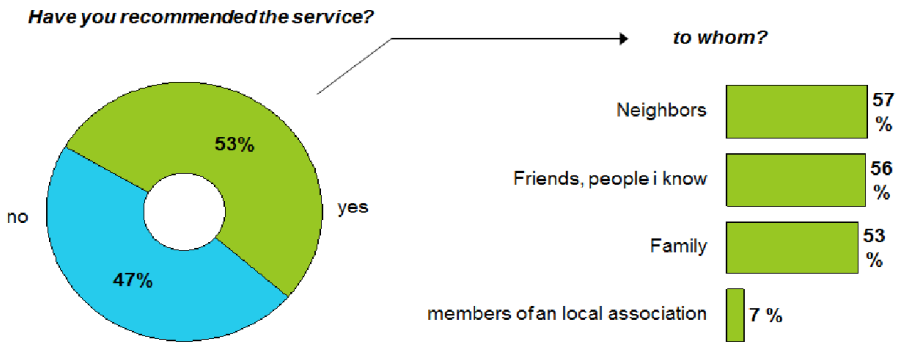
Economic bulbs and tap aerator are devices received by a majority of households, they are still installed six months after the visit, and are still ongoing in the homes. It is a good sign of satisfaction of the households with these products.

However, some households reported problems with few devices:

- Draft proofing for windows: some have peeled off or also there was not enough material offered so it was not possible to go all around the window (so people peeled off the draft proofing from the windows).
- Draft proofing for doors: In view of the poor quality of this devices, households took off
- WC-stop: It was often not heavy enough to work well.

Therefore, it means that using good quality materials (with a toolbox driver for installation) is very important in order to keep it installed after the visits.

- Multiplier effects (recommendation of the audits, recommendations/tips…)



France (GERES) - Figure 22: Recommendation of the service (n=74)

Word of mouth is important because 53% of interviewed households recommended the visits service to family, friends or colleagues.

The ACHIEVE service is seen as motivating, generating savings and discussions: 89% of interviewed households shared with friends or peers the energy and water saving tips (advice, recommendations) that they are implementing since the visit. It is also an indication on the appropriation of devices.

- What was good/bad

The home visits service is considered useful by the households. It contributes to raise awareness of low income people by supporting them to better understand their energy and water consumptions and to apply saving tips. Households are globally satisfied with the visits and with the advisors action: good appreciation of the provided support, of the energy and water saving tips and of their empowerment to better understand and anticipate their bills

This service is seen as motivating and effective, and according to the households, it should be disseminated.

More than half of the interviewed persons say they have improved their comfort by developing new actions or investments.... for more than 1/3 of respondents, however, problems persist.

<u>In detail, the positive remarks made are:</u>

- a clear service, easy to understand by all: a support for energy and water issues and also for money savings
- a good relationships with advisors: kindness, listening, understanding, simplicity
- flexible organization: making appointments, flexible, punctual
- a well done diagnosis
- well justified advice, with technical and pedagogic explanations related to financial saving
- a free supply of devices associated with installation and explanations
- in addition, positive appreciation of the report given to the households and forwarded to the social worker.

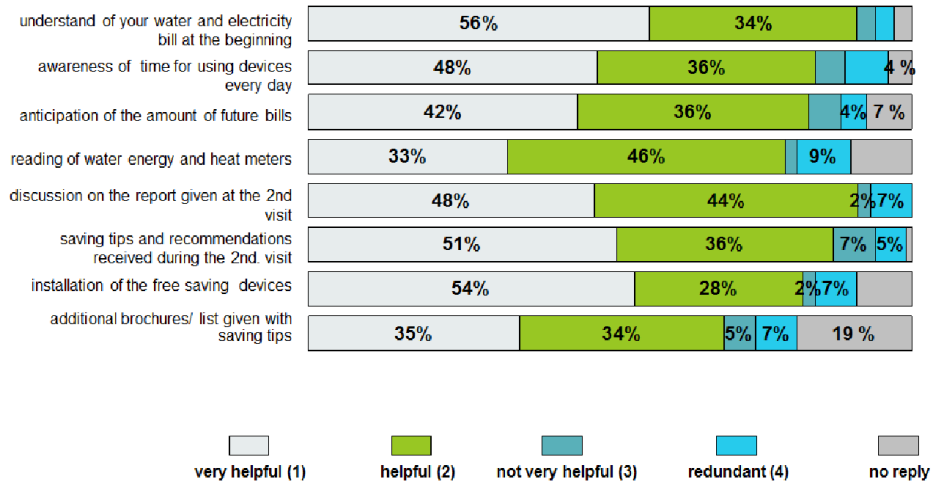
However bad comments of interviewed households are focused on the low efficiency of devices compared to their energy situation. The main quoted improvements would be more support and monitoring in time but also individual solutions that might solve structural problems of housing.

In this way, the service should be integrated into a more comprehensive approach including the behavioural aspects but also more important energy efficiency measures: mediation with landlords to achieve energy efficiency measures, financing proposal.

<u>In detail, the negative comments expressed are:</u>

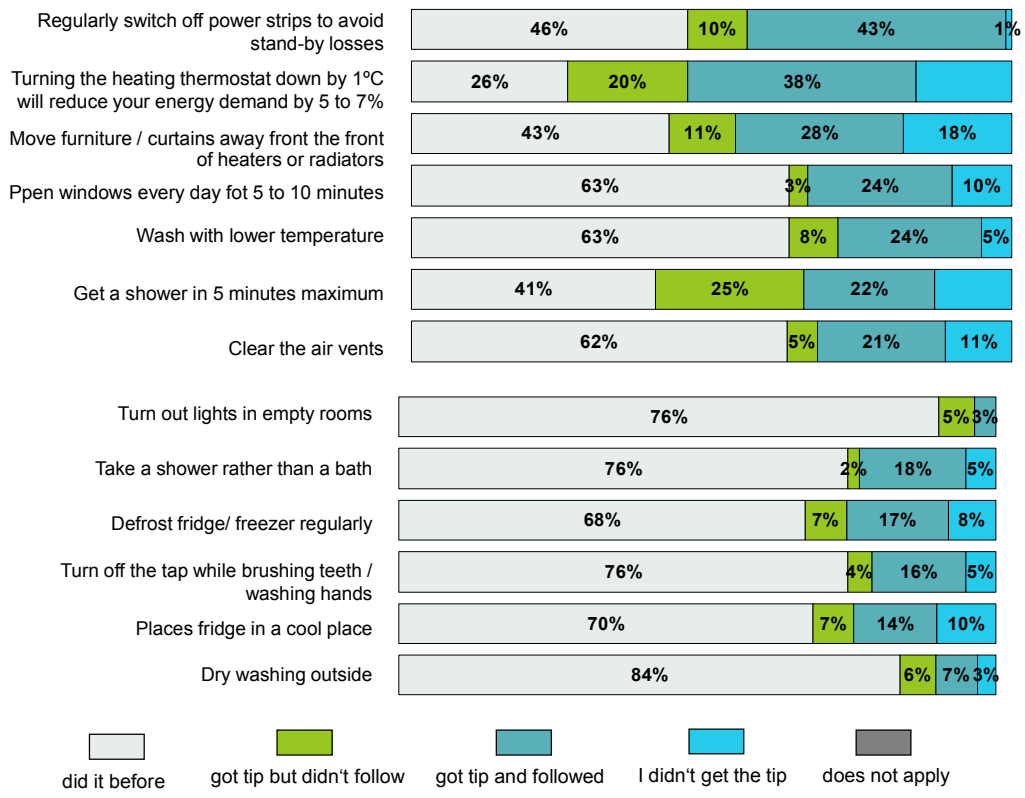
- no reduction of energy bills and / or lack of visibility for water
- no improvement of dwellings insulation, no intervention of the landlords
- a lack of monitoring of the situation and of the energy efficiency measures requests

4.5.1.1.4 Learning effects



France (GERES) - Figure 23: Benefit of the service with regard to different attributes (n=74)

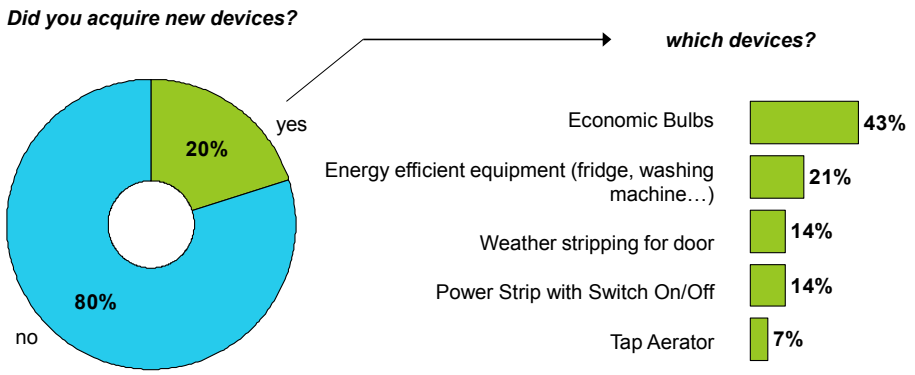
The visits were a good way for the households to learn more about their energy consumption.



France (GERES) - Figure 24: Implementation of saving tips (n=74)

In many cases, households were already doing some tips. During the visits, the advisors gave also suggestions about tips and recommendations in order to motive them to go deeper in their practice and understand better energy savings. Most followed tips after the visits were switch off regularly power strips to avoid stand-by losses (43%), reduce temperature by 1°C (38%), moving furniture away from the front oh heaters or radiators (28%), and opening windows every day.

59% of interviewed people totally agree about the fact the visit help them to improve their situation, and 20% of households bought news devices since the visit (economic bulbs, energy efficient appliances and equipment).



France (GERES) - Figure 25: Acquire new devices (n=74)

With regards to new appliances the majority of those questioned (80%) had not bought anything new. On the other 20%, 43% had bought economic bulbs and a quarter bought a new efficient appliance like fridge or washing machine.

- Did children take part of at the visit/advisory?

Some children attended mostly the second visit.

- Empowerment of women?

We had 5 women on 6 advisors and we visited lots of one parent families. We also worked with a women group in a neighbourhood. The project was not really focus on women empowerment, but in practice, women took an important place in the project.

An adviser (woman): *"If I'm able to do it, you are also!"*

4.5.1.2 Qualitative evaluation of the visits

4.5.1.2.1 Recruitment of the households

The recruitment of the households was only done on a voluntary basis.

Two different ways of identification of the households were tested during the project in Marseille:

1. Communication through key actors on a specific deprived area in the South of Marseille: involvement of local actors (tenants associations, social center, neighborhood organizations…) and social landlords. Social landlords have a key role in the awareness campaign / households recruitment, as they included the flyer of the project (to apply to the visits) several times in official mails to the tenants (with receipt rent). Collective activities and events had been made in order to inform households on the project, and do a first awareness raising activity.
2. Identification through Social workers organizations on the territory of Marseille. Identification of households in both public and private sectors.

The recruitment of the households was more difficult at the beginning of the project than after one year of mobilization of the partners (social landlords / social workers / local association and other key actors). The contacts with local key actors took time but became easier with the feedbacks of the first visited households.

It took around 6 months to one year to involve the key actors.

The following table summarizes the mobilization approaches tested in Marseille during the ACHIEVE project:

	what has worked well	what has not worked so well
Social Landlords	• Visit leaflet attached to the rent receipts sent by the landlords (good feedback: 10%) • Work with janitors / field staff of social housing landlords	• Information letter from the social landlord • Direct mailing (feedback: around 2%) • Posters These actions didn't give direct results but probably contributed to the success of the other actions
Local associations	• Being visible and taking part to local associations activities (example: food aid distribution) • Taking part to neighborhood events organized by local associations	• Collective meetings with tenants groups organised by local associations
Social Workers	• Collective meetings with social workers to be identified and to present the service • Direct contacts advisors – social workers	• Centralization of the detection/identification factsheets
Households	• Word of mouth : familiy, neighbourhood, • Good period to recruit households: when households receive actual rental charges bills, or energy bills on actual consumption (1 to 2 per year)	• Let too much time before the appointment => reduction of the motivation • Door-to-door: too commercial approach • Direct phoning campaign
Press / media		• The press articles in local and non local media

France (GERES) - Table 3: mobilization approaches

People are directly interested in the visit if they face some difficulties with their energy / water bills.

They are also interested when a pair promote them the service with a good image and talk about the positive results of the visits.

Globally they are interested in the visits but actually they have to trust the service to apply.

Local association staff:

"People do not like anyone coming at home, we must reassure them"

"Attention must be paid to scammers; so if it is presented by someone they know, it may work, it is more reassuring immediately."

After the identification of the households by actors of the partnership, an appointment is organized by advisers with the family by phone. This is an important step of the mobilization of the households. The adviser explains the service by phone and sometimes, households decide to not go on with the visit since they are not really convinced about the service.

Some of the advisors are facing with this difficulty, and this should be really well addressed during the training.

One adviser*: "I have no problem with the face to face contacts during the visits ; when I enter the dwelling, it's ok and people trust me, but the first contact by phone is almost the most difficult step for me".*

Success factors and barriers

The **partnership** was really a success factor of the mobilization of the households.

In Marseille, we noticed that the best ambassadors of the project were the actors who **personally benefitted from a visit** or who **took part to a visit**: a couple of janitors (field staff of social landlords) benefitted from the service and some social workers attended one or two visits with the advisors. This is important for them to very well understand the content of the action, the limits, and also the actions that could be implemented after the 2 visits. Then they are more likely to make referrals to the service.

A janitor – working for a social landlord: *"I benefitted from the visits at home, to understand well how it worked. Informing tenants about the action. checking the meters with the tenants encountering energy / water problems, being more aware of the energy and water consumption issues gave me the possibility to make my job more interesting for me"*

The ACHIEVE movie and/or direct testimonies of the advisors are also really valuable to present the action.

Organizing a **formal feedback** to the key actors (social workers, social landlords…) was also a key of success. They understand well the usefulness of the service and then don't hesitate to recommend it to households but also to colleagues / pairs.

The feedback was the transmission of visits reports to social workers (if households officially agree) and, if necessary a discussion with the social worker on the households situation and the possible solutions.

One of the most important success factors for the recruitment is to have a **moral support** to reassure the households: either an institutional moral support (official social services, social landlords, energy suppliers…) or pair referrals.

In conclusion, two different ways to communicate on the service are the following:

- in response to real energy and water issues (unpaid bills, …), recruitment of the households through social services or debt recovery services (social landlords or energy suppliers)
- to have a more preventive approach, the recruitment is more successful through a network of local ambassadors (well informed people, influential persons, janitors…)

4.5.1.2.2 Organisation of the visits

The main tasks of the advisors and the dedicated time are below listed, but practically the advisors are often facing with problems or other extra tasks (appointment cancellation, gathering of the contacts, weekly briefing…), we give an estimation of the number of visits per month in the following paragraph.

Step	Approximate duration
Contact + appointment	Around 30'
1st visit	1h30' to 2h
Calculation - report	30'
2nd visit	30' to 1 h with an average of 45'
Feedback to social workers / house-holds supporting organisation	30'
Travel in and back/ logistic issues	1h to 3h

France (GERES) - Table 4: organisation of the visits

Travel is a time consuming part of the visits organization, it depends on the possibility to plan several visits in the same area. This requires a good planning, on a weekly basis.

The advisers used public transportations for the visit, and this requests a good adaptability. The use of public transportation was less expensive than the use of personal vehicles and more in line with the project objectives.

Practically, the advisers did the visits in Marseille and had their office in Aubagne (30' far away from Marseille city center and around 45' away from the main targeted area).

The advisers faced a period of public transportation strike, which made it more difficult for the organization of the visits.

- ⇨ Beyond these figures for each visit, at the end of ACHIEVE project, we can estimate an approximate number of **8 to 12 households** supported each month **(around 20 visits),** for a **full time advisor**.

The time dedicated to advisors supervision should not be underestimated. It was for GERES more time consuming than foreseen.

We estimate a total of **5 to 8 days** each month for this task, depending on the number, on the background and the skills of the advisers.

Having the advisers hired by a third party company doesn't reduce the time dedicated to advisers' supervisions. This requests to implement clear management procedures including online shared tools needed…

Regarding the general organisation of the visits, an important challenge is actually the planning of the visits. This requires to be in line with the working time of advisors but also to target the most accurate day time for the **households, when they have time and could concentrate themselves on the visit.** The one-parent families (often women) are not so available; they have too much to do with the children care, the administrative duties and their professional integration.

The organisation of the visits is a difficulty the advisers are daily facing to: the job requests a daily flexibility and adaptability since lots of households change the time of the appointments, or cancelled their visit / adaptation for travel arrangements using public transport offer …

The organisation of the week is an important issue in the adviser's job and the related management.

An adviser: *"It's in a way an exhausting job, I have the impression to be on a moving walkway"*

Implementation of the visits:

The first visit objective is to get to know the households and its house (diagnosis of water and energy consumptions and habits);

And the second visit is focused on the installation of the most relevant devices according to previous observations and calculations and as well on the delivery of tips and advice.

Some of the difficulties and the success keys experimented in the ACHIEVE project are summarised in the following table.

Some difficulties encountered	What worked well
Find the electricity / water / gas meters => the households don't often know where their meters are, and which are theirs in collective buildings. And reading the meter is also sometimes a difficulty when the meters are not well situated: either inaccessible or face turned to the wall or outside etc.	Introducing the project and visits, their goals => people understand the issues, what they can benefit from the visits To raise awareness on the link between the equipment uses and the energy consumption.
Preparation by the household of the real bills to review the annual consumption: confusion between real and estimated bills or payment schedule. The adviser has to find the relevant bills and information, and this is actually not an easy work.	Give 2-3 practical tips by equipment or on their general consumption: people are immediately more interested and are more receptive to the visits results
Length of the first visit: households find it sometimes too long => requires a good explanation of the visits during the first call and for hard situations, a third visit could be useful.	The visit helped to break social isolation of households who found during this energy visit a way to express themselves on a topic they are offered to treat, energy, which was not their priority
Live answering to households questions, for example "Is my energy/water consumption high?"	The topic of energy is neutral, not a political problem: it somehow a technical issue, and this makes it easier to discuss with households
Keeping the visit focus on energy / water issues especially when households come back regularly to their personal problems.	Households are very receptive to questions on water consumption. It leads to a kind of complicity because it directly involves all the family without distinction: do not let the water running makes sense for all (more visual than energy)
Households don't answer spontaneously to all of the questions and particularly on social issues. Asking households incomes or number of occupants remains a difficult question (suspicion of administrative control) ...	

France (GERES) - Table 5: Success and difficulties

During the second visit, the advisors installed devices that fit with the households situation.

This installation is not really difficult (no professional act) and doesn't required a technical background for the advisors but more an ability to find practical solutions when needed.

One adviser: *"Resourcefulness is one of the qualities needed for this work."*

Advisors need a good tool box for the installation of the devices.

Even if it's not so complicated, advisers face practical difficulties due to:

- bad conditions of electrical systems

- Bad conditions of plumbing system
- Some problems with a reduced choice of devices (diameter problem with tap aerators, WC water stop not adapted for some cases…
- Some practical problems to install the devices, for eg. for light bulbs when the ceiling is high or surfaces preparation before the installation of transparent thermo cover insulation foil for window, reflective panels behind radiators not really easy to install…)

⇨ The choice and the quality of the devices are important issues, having the possibility to test the devices is a good opportunity.

If a household complains about the material, there isn't any written procedure, but in practice, households call back the advisers, who evaluate the type of problem. Depending on the problem, the adviser finds the right solution with the support of the manager if needed.

If the device doesn't work, advisers organize a very short 3rd visit to change the equipment.

Barriers and success factors

Some of the visits are cancelled or even not planned.

Around 3,5% of the identified households benefitted from the **first visit but not the second one**.

The advisers call back the households 2 or 3 times, but if it seems to be complicated to do the second visit, they don't insist.

The reasons why the second visit is not possible vary from one household to another:

The household is not able or doesn't want to benefit from the 2nd visit: hospitalization, misunderstanding of the objectives of the service (too many expectations, some of the households expected a financial support…), change of telephone number with no possibility to contact the households, move …

If the advisor do not want or can't to enter the home because of health or sanitary problems, he/she should alert the social workers, when households are supported by a social service and/or the communal hygiene service with the household. But this was maybe not enough included in the advisor training (should be for the next time). The advisors should apply this procedure otherwise this could be considered as a failure to assist a person in danger.

As a general conclusion for the implementation of the visits:

⇨ A nice result of the visits, is to see the households regain control of their situation: the ACHIEVE visit was the occasion to start a monitoring approach of their energy and water consumption or to update social and administrative situations.

A household: *"Since the visit of the adviser, I changed a lot's of things. It reminded me what I could do and it's already a good result if I'm able to slightly reduce my energy bills"*

⇨ The advisors faced strong expectations from the households and encountered hard situations. There is a need to really well define the service to the households with its limits. It is also necessary to have a large partnership with actors supporting households implementing retrofitting measures (wall / roof insulation…) to make referrals.

A household: *"it doesn't change anything, the adviser told me that it would be necessary to insulate my dwelling, but I can't do it"*

=> The energy visits don't give a comprehensive solution to the households but one of the objectives of the visits is also to make referrals to support the households further to globally improve their situations: social support, retrofitting measures implementation…

It should also lead to the development of new services for households, improving their living conditions.

4.5.2 Evaluation of the training and advisors

4.5.2.1 Training content and materials

The training was designed at the European level and adapted to the French context.

It includes 3 sections:

- ⇨ A technical section (35h): thermal comfort, energy context, electricity, heating, ventilation, bills understanding
- ⇨ A section on the process of visit and tools (10h)
- ⇨ A communication section (7h): relationship with the household, conflict management, make an appointment

Each section was divided in a theoretical part and a practical part with scenarios, including a simulation of a visit in a dwelling provided by the association.

The training was organised by GERES in the following way:

- A first session of **2 weeks training (52 hours)** + almost 4/5 accompanied visits per advisor (with a GERES technical supervisor) to apply their knowledge, practice their skills and gain work experience, before being independent.

- A more “à la carte” training for the last two advisors (~ one week around 30 hours) + almost 10 accompanied visits per each advisor (with a second adviser and 4-5 with a GERES technical supervisor). In this case, new advisors had only half the time of training module as previous advisors but they had twice as much “on the field training”.

In addition to these initial trainings, GERES provided extra sessions, depending on the needs of the advisers (seasonal needs).

Advisers implemented the visits by two at the start of the experimentation. Then, it was decided that advisors were able to go on their own to do the visits. In case of hard situations (identified by phone, or described by social workers), two advisors realised the visits together.

Globally, the advisers appreciated the training and the linked skill improvements. They were really interested in the energy / water issues and in the practical related solutions.

Their feedback on the training is to have not so much theoretical input in the first training session. So it seems necessary to reduce the initial session and add some more additional sessions during the year.

Theoretical / practical short sessions needed per season: for example one session on different heating systems at the start of heating season… They can gradually put into practice on the field what they've learned.

On the field training is quoted by advisers as valuable to really understand the job and to practice in an ‘easier’ context (with a support).

It’s a good way to observe and to implement the installation of devices.

The best situation is to have already trained and experienced advisors to be able to offer to new advisers more on the field visits during the training period in addition to those with a GERES energy adviser.

The knowledge of the targeted area and the different partners taking part to the action could take a larger place in the training.

Involving partners of the action – social workers, representative of landlords…- is a good way to make the training more practical.

Depending on advisors skills, some particular topics should be further studied or practiced: communication skills, phone calls, IT skills…

4.5.2.2 Advisors

GERES worked with people with integration contracts hired by a third party, LVD Energie, a social company.

The initial recruitment was organised in January 2012 by LVD (social company hiring people in professional integration path) in close cooperation with Pole Emploi (unemployed centre), and Mission Locale Jeune (youth local support organisation).

4.5.2.2.1 Profile, background and number of advisers

Profiles of advisors in the ACHIEVE pilot project in Provence-Alpes-Côte d'Azur are varied and heterogeneous: 3 young advisors (20-26 years old) and 3 more experienced 40-50 persons: mostly women (5) and only one man.

They are not specialists in energy, however they have various skills and experiences: tourism / wood logs company, / socio-medical sector / office assistant / accounting / guided walk (hiking).

Six advisors were trained by GERES. On average, they perform visits in ACHIEVE project for 4 months (for four of them) to more than 1 year (1.5/2) for two of them.

As a result of the ACHIEVE project, we experimented that the needed **skills** of the advisers are **good social contacts, resourcefulness, organisation capacity, adaptability**.

4.5.2.2.2 Skills knowledge developed thanks to the project

After the mission, the situation of the advisors is as follows:

- ⇨ 1 followed a training in social work, thanks to her experience in ACHIEVE project,
- ⇨ 1 works in a construction company – full times job
- ⇨ 1 finds a job after one month (she has now more opportunities to find a job than before because now, she doesn't fear anymore to work in Marseille. She experienced the travel in ACHIEVE project.
- ⇨ For 1 of them, we don't have any information
- ⇨ 1 is still unemployed and does not want to work
- ⇨ The last one will finish her mission in May 2014, she already received different job offers in mediation for example.

The advisers who worked more than 4 months passed an electrical security certificate.

Feedback from the advisors

Overall, the advisors appreciated the job realised in the framework ACHIEVE project.

Advisors: *"I was not sure to like this job, but yes!"*

"*This is a rewarding job but it's something you have to work for!"*

"It reinforced my belief in environmental protection."

Good experiences from the advisors are self-confidence improvement, enlargement of the professional skills, adaptability…

"It helped me to be able to go back to the city where I was born, Marseille, now I feel able to find a job there, this will enlarge substantially my professional perspectives (more job opportunities than in Aubagne, where I live."

"I like the creative side of this job, looking all the time for simple solutions to support the households."

Some of the households are facing hard situations (total lack of comfort, dwellings in very bad conditions, heating restriction => it's a difficulty for the advisors who faced regularly these situations, they experienced social work in a way and they really need to speak about the situations, find outlets, to step back…

"It is difficult to meet people used to live in horrible conditions, they are not conscious that they have the right to access to a standard level of comfort"

This job requests a daily flexibility and adaptability: lots of households change the time of the appointments, or cancelled their visit / adaptation for travel arrangements using public transport offer …

"It's in a way an exhausting job, I have the impression to be on moving walkway"

In general, the mission helps advisors:

- ⇨ Developing environmental / energy knowledge
- ⇨ Being able to deal alone with practical problems => finding solutions,

  This aspect was more important since the advisors did the visits alone.
- ⇨ Developing social and communication skills: be able to contact people by phone and catch their attention, having face to face meetings at home
- ⇨ Being able to practically organise the visits, to use public transportation…
- ⇨ Developing flexibility and adaptability
- ⇨ Developing necessary skills to install the devices

Raising awareness on institutional measures on energy (energy transition, energy policies at a regional and national level….)

4.5.3 Investment saving ratio

4.5.3.1 Investments

We give in this paragraph some elements on the costs of the visits in the context of ACHIEVE project in Marseille.

The **cost of the advisers** for GERES was 100 €/visit, but the global costs of the advisers was more around EUR 170 (since the social company decided to invest on this activity, that was a strategic activity).

EUR 44 of **devices** were installed by household (EUR 50 for the households in the private sector)

But in the ACHIEVE project, we choose the accurate devices for each household and we don't have a kit, so a stock is needed to be able to find the needed devices.

It seems reasonable to consider a global amount for each family of around EUR 50 for the devices.

- ⇨ The **global price for one visit (without the management costs) is around EUR 220**

The cost for training should include the cost of the trainer (preparation + realization of the training) but also the salary of the future advisers, if the training is not supported within a training program. If the salaries are not included in the training costs, it should be charged on the visit cost.

The time needed for the trainer is around 7.5 days + the preparation costs (around 2 days for one training day) but this could vary with the solution chosen for the training.

The costs for the organization of the visits are linked with the management of the advisers.

We estimate that 5 to 8 days / month are needed to manage the advisers, organize technical meetings in order to check the reports (on the critical points). But this amount will change in relation with the number of advisers, their qualification, their ability with computer, practical organisation…

4.5.3.2 Investments in ratio to savings

The costs of advisors (without installed devices) are around the same than the planned costs savings for the first year (EUR 160) and the costs of installed devices are around a quarter of the planned costs savings for one year.

4.5.3.3 Additional Benefits

The project was an opportunity for **advisors** to experiment a new job.

As already above mentioned advisors developed or reinforced new skills (energy / water consumption diagnosis, social contacts, better communication skills, patience…). This is valuable for them to find a job after the end of their mission.

3 of 6 advisors fund a job after their mission and 1 decided to follow a training in the social sector (since she liked the social aspect of the adviser job).

A success story is the **networking**: working in **partnerships** to support households improving their situation is a nice and fruitful experience, it really allow a comprehensive approach of the problem on social, energy and economy aspects.

> *"This partnership is valuable for us, as adviser, to find a valuable professional place and also to have a feedback on our work (for example, feedback from the social workers who positively assess the work with the households)."*

Beyond the energy and water savings possibility, some of the households saved money thanks to a change on the subscription or a correction of billing errors: the advisers detected billing errors in several cases with reimbursement up to EUR 400.

Home visits and their results have positive impacts on the self-confidence of visited households. They allow people to be active.

Initially, they apply to the visits to look for an emergency support, then they learn to better control their consumption and when it works, they are really convinced and start to talk about the visits around them ... It is a virtuous circle that goes beyond the control of consumption towards a form of citizenship.

Some households decided to go back to their social worker.

Households are aware of environmental issues, but this awareness is on standby. The visit allows to highlight this aspect of energy saving.

Overall, visits are welcome, useful, socially valuable but the solutions are considered as insufficient if no further support is implemented.

Within the ACHIEVE project, we also implemented further actions to promote retrofitting measures to owners and landlords. This is actually needed to have a comprehensive approach to improve households situations.

At the time, we are not able to assess a health improvement, but we can quote a visited household:

"The ACHIEVE project allowed people to better eat, because of the energy and water savings"

4.5.4 Dissemination and transferability of the project

4.5.4.1 Communication impacts

France (GERES) - Figure 26:Project leaflet

The communication actions at local level were implemented to recruit households for the visits.

The communication tools used are listed in the paragraph mobilization of the households.

At the national and regional level, the promotion of the program was mainly done through networks: National Energy Povery Network (RAPPEL) through the coordinator, CLER, and Regional Energy Poverty Network in Provence-Alpes-Côte d'Azur (RREP).

- ⇨ Press releases: CLER

- ⇨ Direct mailings of their member: RAPPEL and RREP
- ⇨ Newsletters to their members: RREP
- ⇨ Articles on their website: RAPPEL

It should be noted that the final ACHIEVE event held April 16, 2014 in Marseille, April 17, 2014 in Ile de France benefitted from a common communication (RAPPEL + RREP members emailing) to have a larger visibility.

In addition, the realization of a short one-minute video via Macif Foundation had a large audience in February 2014, just after the news.

And the 8-minute movie produced by GERES during the project was also a good tool to promote the service further.

Overall, the communication on the project at regional and national levels was successful, since the ACHIEVE project is well known and GERES / Croix Rouge Insertion and CLER received many questions and feedback solicitations on the project.

4.5.4.2 Involvement of local or national partners and networks

Financial partners:

Beyond the European financial support, private foundations and companies supported financially GERES to implement the ACHIEVE project.

Those private financial partners are really interested in the action because of the social and environmental positive impacts. Evaluating those impacts is an important issue to work on, we did some in ACHIEVE project, but some more in-depth research could be implemented.

Partnership

Developing or consolidating a large and strong partnership is one of the success factors to be able to mobilise households for the visits but also to provide further solutions to sustainably improve households' situations.

GERES involved in the action local partners in Marseille:

- ⇨ Social landlords (more than 1200 dwellings)
- ⇨ Social workers organisations (city social organisation, local branch of the council)
- ⇨ Local branch of ANRU - National Agency for Urban Renewal
- ⇨ Social centres in the targeted area
- ⇨ Local associations (neighbourhood associations / tenants associations)
- ⇨ Charity organisations
- ⇨ Housing support organisations (support households for retrofitting measures)

The partnership was necessary to recruit the households, as already mentioned in the "mobilisation of households" section.

Feedbacks for the social workers and housing support organisations are useful to further involve them in the actions, but it's useful for them to support the households improving their situations.

4.5.4.3 Transferability of the project

A national program against fuel poverty managed by CLER has been set up in 2012. This program is deeply based on ACHIEVE feedbacks and results. It aims for permitting French municipalities willing to set up an energy diagnosis program on their territory, to be financed through white certificates.

Many local authorities showed their interest in the program, and more than ten implemented it but at the time none in Provence-Alpes-Côte d'Azur.

GERES will take part to the national program, developing in cooperation with other actors, an online tool to facilitate the organisation of a home visits service.

Moreover, the regional Council Provence-Alpes-Côte d'Azur and ADEME support GERES to go on with the dissemination of the home visits service after the end of ACHIEVE project.

The objective of this project is to promote the implementation of home visit services in Provence-Alpes-Côte d'Azur since some local authorities are interested in developing such a service but as already mentioned, none of them implement the visits.

In Marseille, social landlords from the targeted area decided to pursue the awareness raising activities on energy and water during the planned retrofitting period. GERES and another association, Ecopolenergie were selected to implement this project, it's an activity really linked to ACHIEVE. It was also allowed by ACHIEVE, since the positive results of the project encouraged the social landlords to go further in supporting their tenants in terms of energy and water savings.

4.6 CR Insertion, France

4.6.1 Results and evaluation of the visits

In the area (Plaine Commune) ACHIEVE was carried out in partnership with Fondation Abbé Pierre, Fondation de France and EDF co-financing. CR Insertion also worked in partnership with social services and local associations to detect households, and job centres to support the recruitment of advisers.

11 advisors were recruited over the period of the project through two different approaches. The first round was primarily advertised through local job centres. The key target was people who had been out of work (disabled worker, young people). 4 advisors were recruited for 6 months and 1 subsequently had their contract extended until the end of the project. The sec-ond and third rounds were targeted young people in a voluntary program.

For each recruitment round, training was provided. The program consisted of 60 hours of training and a support during first visits (about 10 hours). The training material was developed according to the structure agreed by the consortium and based on the CARITAS compendium this was in turn adapted to the local situation.

353 visits were carried out. A total of EUR 54,216 of saving was expected (based on 313 visits), averaging EUR 172.66 per household. This equates to 53,301 CO_2 (kg) saved per year, averaging 170 CO_2 (kg) per household. Across these properties 3524 energy saving devices were installed this included 1160 energy saving bulbs, 586 tap aerators, 269 efficient shower head, 39 reflective radiator panels, 373 thermometers/ thermo-hygrometers and 317 TV power downs.

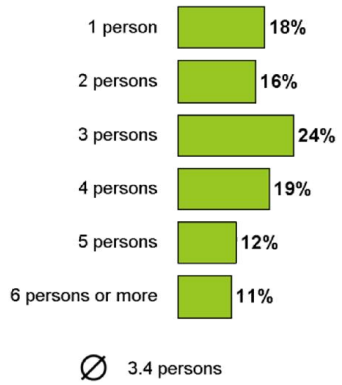
Customer satisfaction with the service was on average 7.3. 83% found the energy saving tips and recommendation provided helpful or very helpful. A lot of them had made (or had re-ceived) changes after the visit. For example 54% adapted their energy supply contract, and 39% benefitted from new social tariffs or financial aids.

The experience of ACHIEVE highlighted some important learning. For example, a high level of supervision was required for the advisors out in the field, particularly when they were also writing up the reports with minimal previous experience with word processing or Excel tool. We noticed also that visits were really useful to help social worker to better support house-holds. In addition, advisors developed new skills during their mission, and most of them found a job after their mission.

4.6.1.1 Impact evaluation of the visits

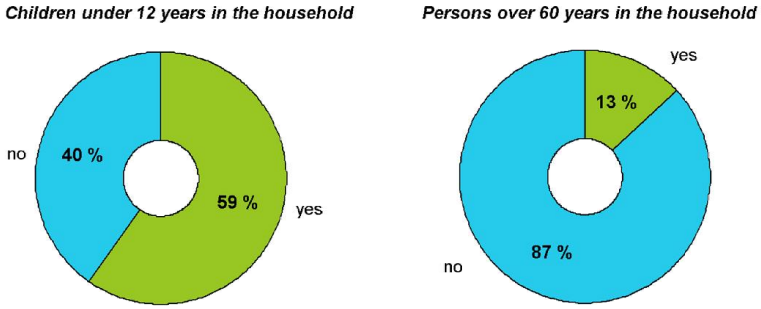
4.6.1.1.1 Presentation of the households and the dwelling reached

353 households received at least 1 visit (322 received a complete intervention with 2 visits). Base for the evaluation were 313 households.



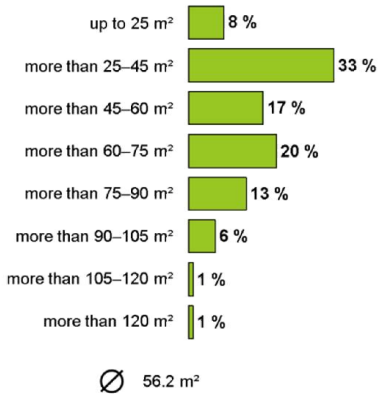
France (CR Insertion) - Figure 1: Number of persons in the household (n=313)

We found that most of the households were one-parent family. They appear as being particularly vulnerable to fuel poverty. 24% of households we visited were occupied by 3 persons, and 18% by only one. On average 3.4 persons live in one household.



France (CR Insertion) - Figure 2: Composition of the household (n=314)

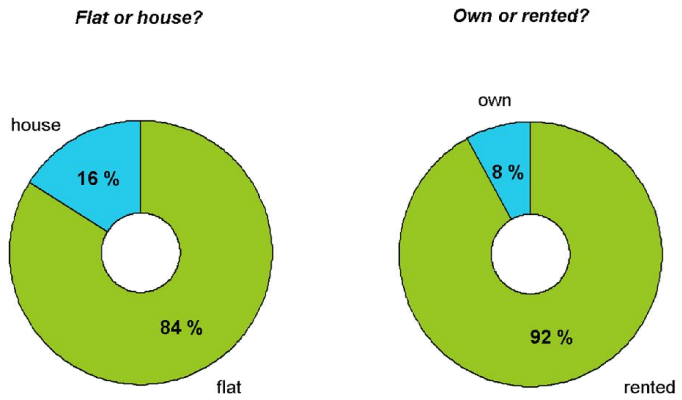
The main target was family with young children, as shown on this chart. Thus, 59% of our visits reached this key group



France (CR Insertion) - Figure 3: Heatable living space in m² (n=313)

The majority of properties were below 60 m². Most of visited households didn't choose their housing (provided by social landlord for example). They usually were living in small properties, with over-occupation of dwellings, causing high level of humidity. 56% of the visited households stated that they had problems with mold.

64% of buildings was built before 1975, 26% between 1975 and 1999, and 10% after 2000. These data are close to the average on the area.



France (CR Insertion) - Figure 4: Housing situation

A clear majority of visited households was living in collective building. That is quite equivalent to the average on the area (14% of houses). On the other hand, owners are under-represented compared to the average on the area, with 8% among visited households against 27% on the area. Indeed, tenants (especially in private housing) are more exposed to fuel poverty (they live in older building and have lower incomes).

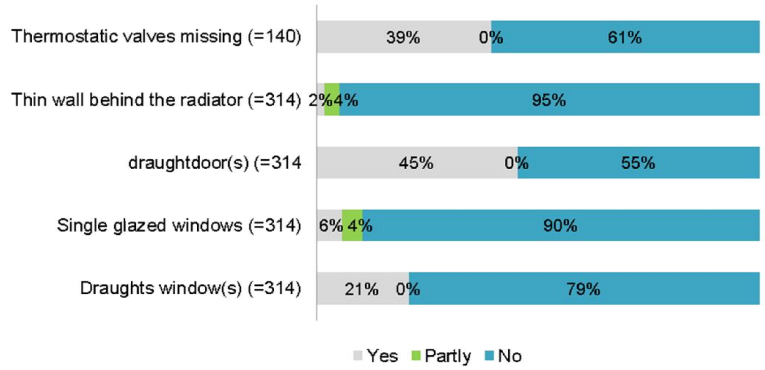
61% of households receive social welfare benefits (CAF, RSA, APL...). This is not surprising to the extent that households were mostly identified by social services.

76% of people who has taken part at the visit were women, and 24% was men. The majority of visited households were one-parent family, and most of time the parent was a woman.

The proportion of electric heating is very high (53%) compared to the national data (31%). This is explained by the fact that electricity is one of the most expensive energy, leading to a higher risk of fuel poverty. Gas is used in 33% of households (with individual metering in 78% of cases) and district heating in 11% of households.

As the main source of heating is electricity, it follows that most of these systems would heat the water as well; therefore 35% of households used gas. The proportion of individual metering is the same than heating system. Water metering is individual in 58% of households. Given the large proportion of collective housing, there is a significant number of collective metering. Plus, water bill was usually included in rental charges.

All interviewed people ventilate every days their dwelling by opening windows, and 94% reduce temperature while absence. 34% use additional heating in order to better control costs or because of the difficulty to heat with the main heating system.



France (CR Insertion) - Figure 5: Problems heating

The main problems reported with regards to heating were those of draughts at doors (19%), and the thermostatic valves missing. The majority of homes visited during ACHIEVE were built before 1975 (64%). This will have a direct impact on their thermal efficiency, with older properties being higher energy users.

56% of dwellings have mould problems, and it concerns several rooms in 32% of dwellings. This high level could be link to the over-occupation.

4.6.1.1.2 Quantification of the savings

Electricity bill was available in 69% of households (bill for heating energy was include in 37% of times). Concerning others bill for heating energy (except electricity), it was available in 5% of households, and water bill was available in 14% of households (most of time, collective heating and water are included in the rental charges).

	Average Consumption	Average price
electricity	9 648 kWh	0,13 € /kWh
water	171 m3	3,9 € /m3
heat energy	10 176 kWh	0,10 € /kWh

France (CR Insertion) - Table 1: Average consumption and price (n=314)

Energy saving devices most installed is tap aerator (95%), ELS (88%), efficient shower heads and restrictors (84%), power switcher (81%) and thermometers/ thermohygrometers (77%). Energy saving devices least installed is thermo cover foil windows (8%), isolation behind radiator (5%), CFL – reflector (5%) and LEDs (3%)

		mean score	total
electricity	electricity (kWh)	525.0 kWh	160,131 kWh
	electricity costs	65.96 €	20,118 €
	electricity CO_2	105.0 CO_2 (kg)	32,026 CO_2 (kg)
water	water (m³)	38.3 m³	11,650 m³
	water costs	89.68 €	27,262 €
heat energy	heat energy (kWh)	665.6 kWh	97,845 kWh
	heat energy costs	46.50 €	6,836 €
	heat energy (CO_2)	145.7 CO_2 (kg)	21,275 CO_2 (kg)
total	costs	202,14 €	54,216 €
	CO_2 (kg)	169.8 CO_2 (kg)	53,301 CO_2 (kg)

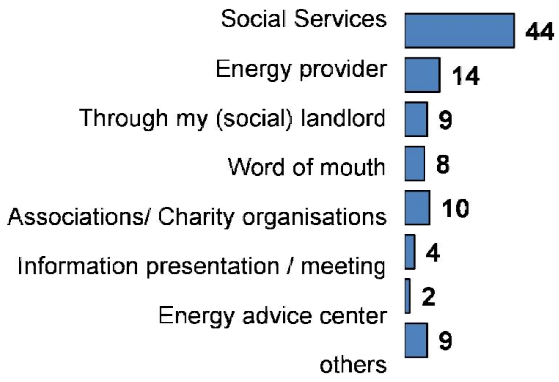
France (CR Insertion) - Table 2: Savings per year (n=313)

The investment in devices is paid back within the first year by savings shown in the chart above. Water saving are most important, think to efficient devices allowing up to 50% of savings.

4.6.1.1.3 Satisfaction of the visited households

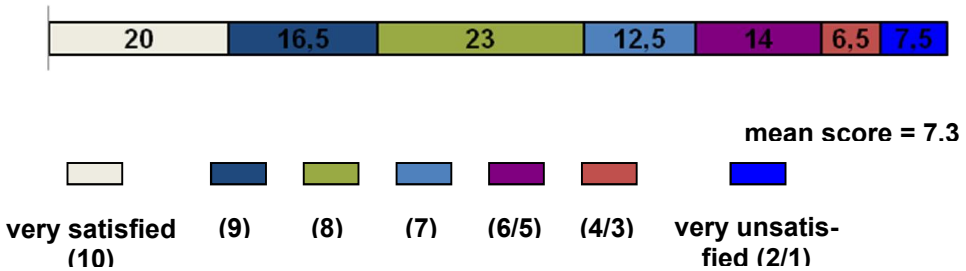
84 households took part at the telephone survey, which was carried out by a professional market research institute.

The chart below shows the results of the first question, how the households got in touch with the service. We choose to work with a network of partners to identify households rather than communicate directly to the public. It worked pretty well, as we can see. Almost half of households heard about ACHIEVE through social services, thanks to the close partnership made between them and us.



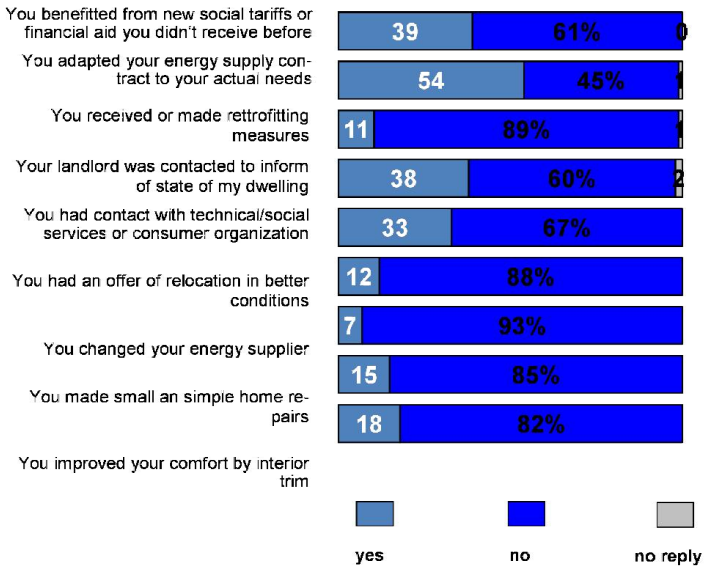
France (CR Insertion) - Figure 6: Sources of information on ACHIEVE visiting service

Interviewed households were asked how satisfied they are with the general service. The average rating was 7.3. We can notice that large family and people living in recent dwellings were more critical than the others.



France (CR Insertion) - Figure 7: Total satisfaction with the service

The advisors specific obtain the following results. 77% of households gave a score from 8 to 9 for the friendliness of the advisors and their ability to answer questions and respond to needs. 74% of them are satisfied/very satisfied by clarity of their explanations and their punctuality, and 68% by their expertise (score from 8 to 10).
The following chart summarizes the options/changes, which can occur after the service.

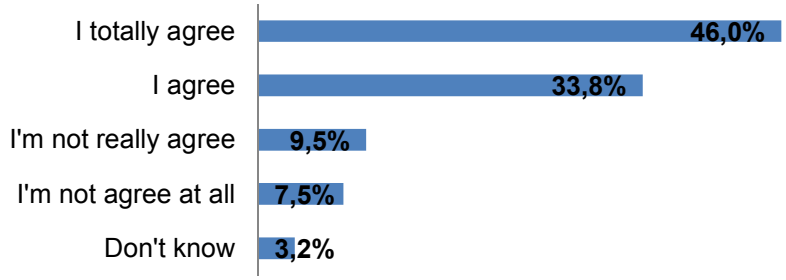


France (CR Insertion) - Figure 8: New options/changes after the visits

The main change following the visits was that people adapted their energy supply contract (54%) and benefitted from new social tariffs or financial aid (39%).

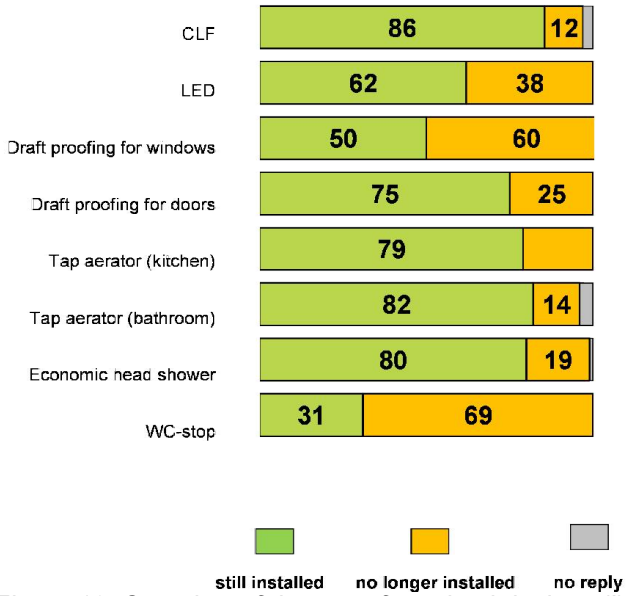
A quarter of households said that their comfort levels had totally improved following the visit, and 39% said that their comfort had partly improved. However, 28% said that their comfort had not improved, that shows the difficulty of setting on retrofitting measures.

A large majority agree/totally agree in the fact that their energy bills have been reduced (80%), as you can see in the chart hereafter. It is a proof of a real impact of the visits.



France (CR Insertion) - Figure 9: Question: "You are convinced your energy bills have been reduced…"

As the energy saving devices are a big part of our approach, it is also so important to have a look on the satisfaction of the households with these products. A good indicator is the information, if they are still installed.



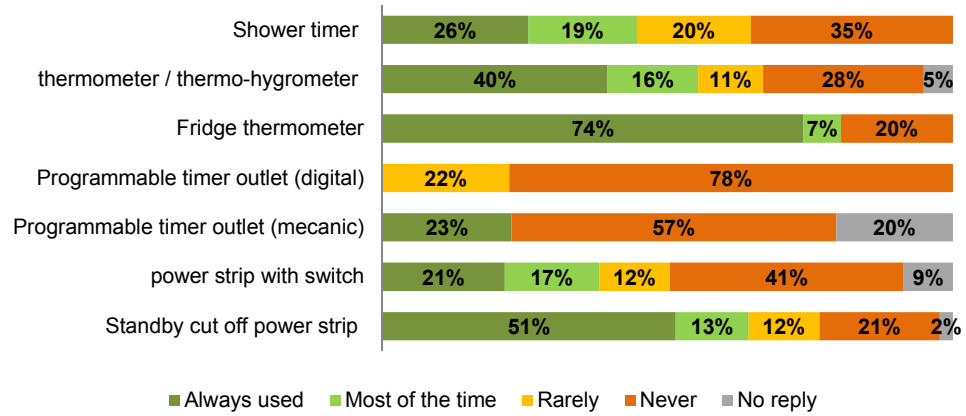
France (CR Insertion) - Figure 10: Overview of the use of received devices (I)

The most installed devices were saving bulbs, tap aerators and economic head shower. Some households reported problems with few devices:

- Draft proofing for windows: some have peeled off
- WC-stop: most caused leak/problems on the flush system
- thermo cover foil window: some have peeled off

That shows the important of using good quality materials to warrant durability.

Besides the products that automatically generate energy savings after installation, we also gave devices to the households which only generate savings or cause behavioural changes, when they are used. The chart below shows how often the households used this kind of devices.



France (CR Insertion) - Figure 11: Overview of the use of received devices (II)

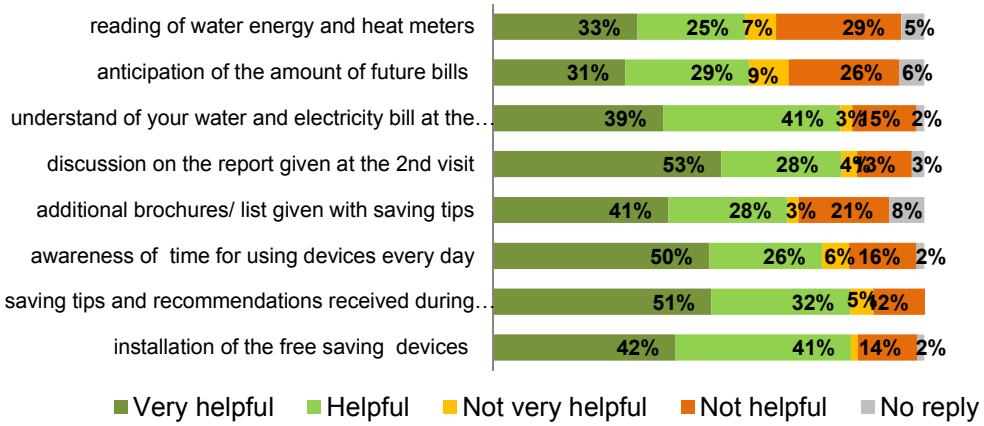
Among these products, most used devices were fridge thermometer and standby cut off power strip. Programmable timer outlets were not often used, mainly because people didn't know how to use it, or because they didn't think about using it.

Another question we asked in the survey was, if the households recommend the service. Only if a household was satisfied he would recommend the service. Half of the households recommended the service (59% to their relatives, 27% to their neighbours, and 79% to their friends). 92% are convicted that this service should be extended to other people.

Additionally 85% of interviewed people transmitted energy savings tips to their friends/relatives. This shows that multiplier affects could be obtained with the service.

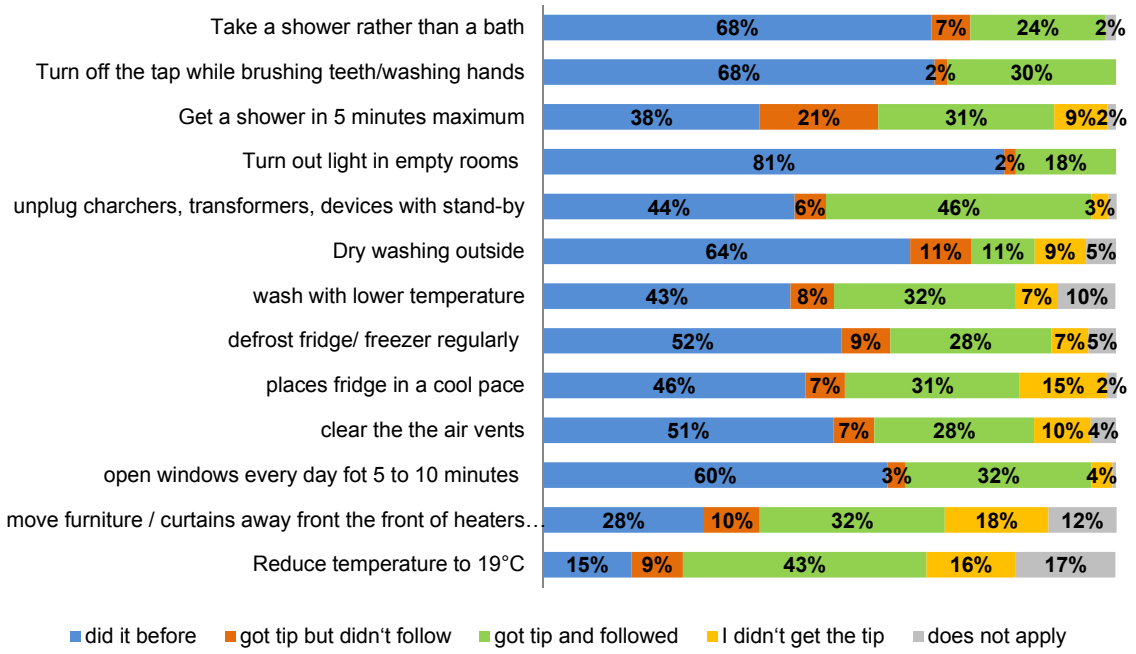
4.6.1.1.4 Learning effects

Another aim of the survey was to get more information about the learning effects of the project and which part of the visit was useful/helpful for them.



France (CR Insertion) - Figure 12: Benefit of the service with regard to different attributes

83% of households said that installation of the free saving devices was helpful or very helpful. In the same proportion, they really enjoyed saving tips and recommendations received during visits. Visits were also helpful to understand energy bills. The least helpful parts of the visits appeared to be the anticipation of future energy bills and the reading of energy and water meters, where around one third of customers said this was not (very) helpful. 65% of the interviewed households responded yes, when they were asked, if they learned more about energy savings.



France (CR Insertion) - Figure 13: Chart "Implementation of saving tips (I) & (II)

In many cases, customers was already doing the tips, demonstrating good habits, as you can see in the above figure. However, households were interested about tips and recommendations given during visits. Most following tips were reducing temperature to 19°C, washing with lower temperature, moving furniture away from the front of heaters or radiators and opening windows every day.

87% of interviewed people agree/totally agree about the fact the visit motive them to engage in a process of energy savings.

12% of households bought new devices since the visit (economic bulbs/new electrical appliances).

4.6.1.2 Qualitative evaluation of the visits

4.6.1.2.1 Recruitment of the households

At the very beginning of the project we faced some barriers in household recruitment process. The planned awareness campaign aimed to implicate professional partners, as municipal social services, proved to be not intense enough, so that some of them were not redirecting household to our services.

Thus, a new awareness campaign headed to them was set to widely and deeply promote the project and our services. That revealed to be a key factor to assure a good relay of our job by the professional partners on the field to the target households.

Without a previous link made by trusted partner, we noticed that families contacted directly by CR Insertion were mistrustful and often refuse to participate to the program.

On the contrary, when the families were informed by trusted partners of our approach they were more receptive.

Especially the partnerships with the municipal social workers were important both to inform households and to create a list of potential interested households. When social workers met families with important energy bills or problems with their energy consumption, they transferred us the name, address and phone number of those willing to be part of the project, so we could contact them. The majority (40%) of the visited households were recruited via municipal social services (for the rest we can mention three other trusted partners: energy suppliers (14%), landlords (9%) and entourage (8%).

Advisers contacted the households by phone.

We have noticed that the longer is the time between the moment information about the program is given by the trusted partner and the moment energy adviser calls the households, the smaller are the

chances households would remember the project and, thus, accept to be part of it. Time can be considered as a barrier to the success of the recruitment.

When at the phone the adviser mentioned that contact details were relayed by a trusted partner, we almost always had a positive reaction. Moreover, once they know we are working for the public interest, without any commercial aim, they are open to listen to our offer.

Two other arguments revealed to be successful to increase the chances households would accept visits: these were free of charge and the household would receive energy saving devices for free.

In order to prevent dissatisfaction due to misunderstandings and wrong expectations, another important thing to do is to carefully explain, in details, what the visits are about. That's to make the households understand that, for example, we're not going to help them finding a new accommodation and that our only goal is to give them advices to reduce their energy consumption.

4.6.1.2.2 Organisation of the visits

Once again the methodology followed in the implementation of the visits was satisfactory. Although we can say that the installation of the devices was globally not an issue, we had to face three kinds of problems:

- Some devices were not easy to install (ex: radiator foils installation was often difficult because of the lack of space between the radiator and the wall);
- Some of them were not always well installed (ex: 100% of the plastic window cover film installed fell because the windows were not polished enough);
- The quality of some devices was bad (ex: 8% of installed multi-plug adaptor stopped working after less than 1 year).

Nevertheless, the results of the evaluation made by BVA indicate that the beneficiaries were mostly satisfied of their energy saving devices: 86% of the interviewed households consider useful the installed devices. Moreover, the dissatisfaction expressed is mostly due to a difficulty to appropriate the devices and their functioning.

However, we have rarely been called because device's problems. It happened only three times and in those occasions we proposed to replace the devices.

The average time needed by an advisor was 10 hours per visit divided as follow:

- Contact of households: 1 hour
- 1st visit preparation: 0.5 hour
- 1st visit transport: 2 hours
- 1st visit: 1.5 hours
- Calculation and report: 1 hour
- Redirection to competent organizations: 0.5 hour
- 2nd visit preparation: 0.5 hour
- 2nd visit transport: 2 hours
- 2nd visit: 1 hour

It's important to notice that the visits were always implemented by two advisors. So we can say that for every household the global time needed by the advisor team was 15 hours.

It could happen that advisors weren't able to realize the second visit. Mostly that was due to a difficulty to organize the visit with the household: problems to reach the members of the family on the phone, unavailability of the family on the short term because of planned holidays or other reasons, families forgetting to call back the advisors to fix a new visit date once back from their holidays. Rarely, households refused to have a second visit.

When advisors were not able to reach households to fix the second visit (because of a wrong phone number or because the person was somehow impossible to reach), after few tentative we used to send them a letter inviting them to reach us.

In Ile-de-France 9% of the contacted households were visited only once.

Success factors:

- Trusted partners able to relay project information to households and guide them to our service
- A strong ahead awareness campaign in order to deeply implicate partners so they would widely promote it

- Importance to very well describe the process to the households during the first phone contact, in order to let them feel safe and to create a trusting relationship
- To call the households the day before the visit allowed to refresh their memories remembering the date and the time of the visit. It also permit to avoid a pointless return trip.

Barriers

- Difficulties to reach households by phone (some of them regularly change their phone number)
- Households are sometimes suspicious about a possible adviser's commercial interest. That implies to spend time to patiently explain our role and our goals. Despite that time, it happened few times that advisers were not allowed to enter the accommodation once there.
- We had to face rush periods, because of a high number of new contacts at the same time. During these periods, the time between the request of a visit and the call to set it with the household could be very long
- We also had to face some households reluctances to certain devices, considered as constraining and forcing an undesired change of habits.

4.6.2 Evaluation of the training and advisors

The training was conducted in a dedicated training room at the start of the mission, during the first 2 weeks (50-60 hours). It was divided into 3 parts:

- A technical section (35-40h): thermal comfort, energy context, electricity, heating, ventilation
- A section on the process of visit and tools (10h)
- A communication section (5-10h): relationship with the household, conflict management, make an appointment

Each section was divided in a theoretical part and a practical part with scenarios, including a simulation of a visit in a dwelling provided by the association.

In addition, each advisor was supported by a trainer during the first visits.

4.6.2.1 Training content and materials

After the first training session, the methodology has been revised with a distribution over the entire duration of the mission, to allow a better assimilation of knowledge. We also adapted the content to make it more participative, by adding more practical activities.

- Time dedicated to the training (per session + number of sessions organised during the project duration)
    - 1st session: 60h at the beginning of the mission (+ 10h on site with advisors)
    - 2nd session: 50h at the beginning of the mission (+ 15h on site with advisors), and 10 hours throughout the mission
    - 3th session: 45h at the beginning of the mission (+ 15h on site with advisers), and 15 hours throughout the mission
- Comments, barriers and success factors
    - Success factors
        - Give to advisers a lot of practical activities during the training
        - Train regularly the advisors throughout their mission
        - Go to visits with advisers regularly (particularly at the beginning)
    - Barriers
        - Difficulties to keep advisers focused during all the theoretical training
        - Difficulties to adapt the level of the training to the advisors (various background in the team)
        - Communication part of the training: only few skills in our association on this field, this section should be more developed to better prepare advisers to the visits.

4.6.2.2 Advisors

4.6.2.2.1 Profile, background and number of advisers

11 advisers took part to the project, from 4 months to 2 years, with various background and skills. The proportion of females is about 36%: All of them were trained.

	Advisers	Sex	Duration on the project	Age	Type of contract	Backgroung
1st session	n°1	Male	2 years	45-55 years old	Integration program	Midle school level, worker in the building field
	n°2	Male	8 months	45-55 years old	Integration program	High school level, career as locksmith and glazier
	n°3	Male	6 months	20-30 years old	Integration program	Vocational aptitude certificate, without significant professional experiences
	n°4	Male	6 months	25-30 years old	Integration program	Bachelor degree, without significant professional experiences
2nd session	n°1	Male	6 months	20-25 years old	Volonteer	Bachelor degree, without significant professional experiences
	n°2	Male	5 months	20-25 years old	Volonteer	Bachelor degree, without significant professional experiences
	n°3	Female	4 months	20-25 years old	Volonteer	Master degree, without significant professional experiences
	n°4	Female	1 year	20-25 years old	Volonteer	Master degree, without significant professional experiences
3th session	n°1	Male	6 months	20-25 years old	Volonteer	Bachelor degree, without significant professional experiences
	n°2	Female	6 months	20-25 years old	Volonteer	Bachelor degree, without significant professional experiences
	n°3	Female	6 months	20-25 years old	Volonteer	Master degree, without significant professional experiences

France (CR Insertion) - Table 3: An overview oft he advisers

The supervision of advisors team was conducted within the association by a supervisor. The time dedicated to supervising visits and the ACHIEVE team was about 8-10 hours a week. Every 2 weeks, a team meeting was organized to review visits made and discuss about the difficulties faced by advisors. Plus, an individual interview was performed once a month with advisors to support them on their career plan and review skills developed.

- Success story
  - Skills developed by advisors was useful to find a job after their mission
  - Performing visits with 2 advisers encourage the sharing of skills and knowledge between them
  - Various background and gender/age diversity is an asset to success.
- Barriers
  - High level of supervision to overcome the lack of expertise/ experience of advisors
  - Difficult sometimes to keep some advisers motivate until the end of their mission

4.6.2.2.2 Skills knowledge developed thanks to the project

Recruited advisors had very different backgrounds. Some had a quite long career, some were freshly graduated and some were young without any qualification. So they gained different knowledge and know-how according to their former carrier and professional experiences. For example, while a young advisor freshly graduated will gain energy technical knowledge, an older advisor already having technical knowledge in the building and energy field will develop other knowledge as social relation behaviour and IT tools use.
Mostly they didn't have any experiences and knowledge related to energy saving behaviours and energy systems.
Six advisers found a job at the end of their mission, in various fields:

- Social worker (1 of them)
- Construction worker/manager (2 of them)
- Project manager in association/institution (3 of them)

Three advisers were back to education at the end of their mission, in various fields:

- School social worker (1 of them)
- School construction (1 of them)
- School of engineering (1 of them)

4.6.3 Investment saving ratio

4.6.3.1 Investments

- Cost of the advisers (salary per month or per hour or per visit)
  - Salary per month for advisers in integration program (30 work hours per week): **about 1520 € /adviser**
  - Allowance per month for advisers in volunteering program (26 work hours per week): **about 180 € /adviser**
    - Time dedicated to the supervision of advisers team per month: **about 4 days**
- Cost of the devices installed in the households and material for advisers
  - Average cost of the saving devices installed per household: **EUR 68**
  - Cost of material for adviser over the entire duration of the project: **about EUR 1,500**
    ⇨ Global price for one visit (saving devices + devices and material used): **about EUR 72**
- Qualitative description of the costs for training
  - Design of the training session

    Many training materials were created in the ACHIEVE project:

    - Power point for the theoretical part of the training
    - Exercises and scenarios for the practical part of the training
    - Guides and memento for advisers
    - Guides for trainer
    - Tools for the visits (Excel tool calculation and on-site tools)

    We spent about **260 working hours** to create all this content. In addition, the cost for printing training material is about **EUR 150 for 3 training sessions**.

  - Mobilisation of advisers that will be trained
    Recruiting process:
    - Mobilization of partners for the recruitment of advisors (job center, "Mission locale"...)
    - Redaction and diffusion of the job offer to partners and media
    - Organization of an information meeting with applicants
    - Individual interview with selected applicants
    - Edition of contract and welcome

    The time dedicated to the 3 recruiting sessions is about **350 hours.**
  - Training of the selected advisers
    3 sessions of training were organized. The time needed for these sessions included:
    - The animation of the theoretical and practical training
    - The support during first visits

    The time dedicated for the training is about **260 hours**, meaning 85 hours per session.
- Qualitative description of the costs for organisation the visits
  The time dedicated to the organization of visits included:
  - The mobilization and the coordination with partners

- Promotion of visits
- Administration of the database
- Supervision of the advisers and visits
- Directing households to partners

The time dedicated to organisation of the visits is about **872 hours, over 2 years (355 households visited).**

4.6.3.2 Investments in ratio to savings

- costs of advisors in a ratio to savings per visit
  The time spent per household includes the appointment, administration of the data base, 2 visits (with 2 advisors), calculation and reports, supervision of visits, and redirection to competent organizations.
  Advisors spent about 15 hours per households. In addition, about 1.5 hour per household is needed for the supervision/management of the visit.
  Thus, the global time spent per household is about **16-17 hours, in a ratio to savings of EUR 202** per year and per household thanks to installed devices**.** It's important to notice that this ratio doesn't include the expecting savings by following tips, or other additional benefits from visits.
- Average cost savings per households in a ratio to average costs for installed devices
  Average cost savings per households and per year is about EUR 202, for an average cost of EUR 68 for installed devices. If we include the expecting savings by following tips about energy consumption, the global cost savings per household is about EUR 290

4.6.3.3 Additional Benefits

- Skills developed
  Advisers were constantly monitored and guided all along their staying in order to help them to add value to their developed competences and to define their career path. To do so, especially with volunteers, we used to set regular individual evaluation meetings to assess the developed competences and identify possible lacks.

  Below you'll find a list of the main competences, knowledge and know-how developed by advisors

  - Knowledge of building energy sector;
  - Know how to use basic measure tools and small energy saving devices
  - Heating and ventilation household appliances knowledge;
  - Human being basic needs knowledge;
  - Business trip organization;
  - Planning and deadlines observation
  - Adaptation to an assorted public
  - Effective communication in all kind of situation;
  - Spirit of initiative to be able to face every new situation (every fuel poverty situation is always different from another);
  - Know how to install energy saving devices in household's accommodations;
  - Knowledge of IT tools use, Excel and Word (basic level).
- Social benefits for the households
  As showed by the households satisfaction survey results, 40% of the visited families consequently got welfare financial assistances. Moreover, a consequent part of the households undertook new procedures as requiring their electric subscription adjustment, the investment in new energy saving devices or the implementation of renovation works. That shows visits incited households to go positively further in order to reduce their energy consumption.
- Working together of different political fields
  Thanks to the project, different stakeholders not used to cooperate, had the possibility to work together on fuel poverty issues in a constructive and positive way. This leaded to the formulation of a strong will to develop these kinds of projects on an experimental area.
- Health improvement
  It appears very complicate to estimate the effects of our action on households' health. That's because in France we don't have any indicator permitting to link fuel poverty to health situation.

4.6.4 Dissemination and transferability of the project

4.6.4.1 Communication impacts

A flyer has been created to locally communicate on the project. This flyer was distributed in targeted areas, as social services reception centre. We decided not to communicate too widely and directly to the households, but to go through project local partners, well-known and trusted by the target public.
Moreover, in partnership with municipal social services, two information meetings where set to present the project at its beginning.
Finally, some meetings where organized to make local stakeholders sensitive to the project and, thus, ensure a better diffusion of the information and a wider household recruitment. To be specific, we set up twenty of these meetings gathering different kind of local stakeholder as municipal social services, local association, municipal health and housing department, public institution's sustainable development departments and, globally, local municipalities.
We also organized an event after 12 months to present the firsts results to local stakeholder and local partners.
A communication plan was implemented at a national level through different media: CR Insertion's website, newsletters, radio and television report. Moreover, CR Insertion took part of five conferences at a regional and national level to present its feedbacks. A national event has been organized April 17th 2014 to present final results and project evaluation.

4.6.4.2 Involvement of local or national partners and networks

Other supports involved to finance the action: Fondation Abbé Pierre, Fondation de France, EDF. These financials supports were solicited directly or by responding to calls for proposals.

The Fondation Abbé Pierre and the Fondation de France has given financial supports, and EDF has given saving materials for free.

Moreover, we received a financial support for the salary of advisers from the national integration program.

More than 15 structures and organisations were mobilised to participate in the project:

- National level:
  - Anah (National agency of building improvement): got involved relative to a specific program on fuel poverty that aim to reach low income households and implement retrofitting measures.
  - Pacte energie solidarité: got involved relative to a specific program on fuel poverty that aim to reach low income households and implement retrofitting measures.
- Regional level:
  - SIPPEREC (Syndicat Intercommunal de la Périphérie de Paris pour l'Electricité et les Réseaux de Communication) : got involved relative to a program of retrofitting measures implemented for low income households
  - Regional Concil of Île-de-France: got involved relative to a specific program launched in 2013, with a financial support for the salary of advisers
- Departmental level:
  - Territorial unit manager : got involved to facilitate the coordination and the mobilization of keys actors on the area
  - Social department : got involved to help to identify and reach targeted households
  - Housing and urban renovation office: got involved to facilitate the coordination and the mobilization of keys actors on the area
  - Solidarity division of EDF (french electricity suplier): got involved to find solutions for visited households who had difficulties to pay energy bills
  - ADIL (departmental agency of the Housing Information): got involved to find solutions for visited households who had legal issues with their landlord
- Area level (Plaine Commune):
  - General Delegate to the urban ecology: got involved to facilitate the coordination and the mobilization of keys actors on the area
  - Private housing improvement coordinator : got involved to facilitate the coordination and the mobilization of keys actors on the area
  - Social landlords: got involved to implement solutions for their tenants
  - Job center: got involved to help for the recruitment of advisers
  - Integration office: got involved to help for the recruitment of advisers
- Municipality level:

- Territorial unit manager : got involved to facilitate the coordination and the mobilization of keys actors on the area
- Operators who implement programs to improve housing: got involved to find solutions for visited households who need retrofitting measures
- Agenda 21 manager: got involved to facilitate the coordination and the mobilization of keys actors on the area
- Social workers: got involved to help to identify and reach targeted households
- Municipal health department: got involved to find solutions for visited households living in an unhealthy dwelling.

The different actors helped to identify and target specific district particularly vulnerable to fuel poverty on the area, in which an enhanced detection in close collaboration with local actors has been done. These stakeholders (CCAS social workers, social services and CAF, local associations, retrofitting operators...) appear as key actors to make contact with the targeted households. Thanks to the partners, it was easier to make a trust relationship between households and us.

Indeed, the deep partnership made with social actors facilitated the redirection of households to other relevant actors such as municipal health department in case of unhealthy housing.

In addition, ACHIEVE appears as a link between actors in contact with the target households, such as social workers, and operators supporting building retrofit.

- Relevance of the developed tools:
  - Flyer to promote the project:
    As households were mostly reached by partners, the flyer was not really useful to promote the project. People didn't really trust this kind of communication; they preferred when visits were recommended by trusted relatives or professionals.
  - Registration form:
    This tool was really useful to make a link between households and partners who were helping to target people for visits. This registration form was given to partners in order to register households who were willing to participate. Each filled form was sent by email or fax to our service.
  - Technical visit report:
    In addition to the report given to household, another report was created and sent (with the agreement of the household) to the partner who identified the household. This technical report summed up the annual energy consumption, the characteristic of the households, energies used, and the state of the building. This tool was really useful for partners, who could better understand the situation of the household and gave them targeted financials aids or support.
- Success factors
  - Deep partnership with social actors to identify households
  - Link made between households and relevant actors, especially thanks to the technical visit report sent to partners.
- Barriers
  - Difficulties to involve local authorities on the area
  - Difficulties to implement retrofitting measures (non-involvement by landlords)

4.6.4.3 Transferability of the project

A national program against fuel poverty managed by CLER has been set up in 2012. This program is deeply based on ACHIEVE feedbacks and results. It aims for permitting French municipalities willing to set up an energy diagnosis program on their territory, to be financed through white certificates.
Many local authorities showed their interest in the program, and more than ten implemented it.
The regional authority of Ile de France and the National Agency of building improvements set up measures in order to finance the recruitments of advisors by local authorities. Again, those measures were inspired by experimental aspects of the ACHIEVE project.
The project has a strong impact in France and many local authorities are working to develop similar actions in their territories.
An eight days training session bound for energy advisor willing to realize fuel poverty and energy diagnosis is currently being implemented at a national level. CR Insertion contributes furnishing training materials developed thanks to ACHIEVE. It will animate the trainer training session set up to disseminate nationally the advisor training session.

CR Insertion is actually working with three local authorities in the Seine-Saint-Denis department (one of which, Plaine Commune, was the pilot authority in ACHIEVE) in order to implement fuel poverty and energy diagnosis program locally

5 Cross-cutting analysis: Results, lessons learnt and recommendations

5.1 Results and evaluation of the visits

5.1.1 Impact evaluation of the visits

5.1.1.1 Socio-demographics

During the whole project duration 1,920 households were visited in the European countries Slovenia, Bulgaria, United Kingdom, France and Germany.

	FOCUS (Slovenia)	EAP (Bulgaria)	SWEA (UK)	GERES (France)	CR Insertion (France)	CARITAS (Germany)	**Project scalel**
Number of visits	220	301	203	370	322	504	**1,920**

Table 7: Number of visits (by the end of the project)

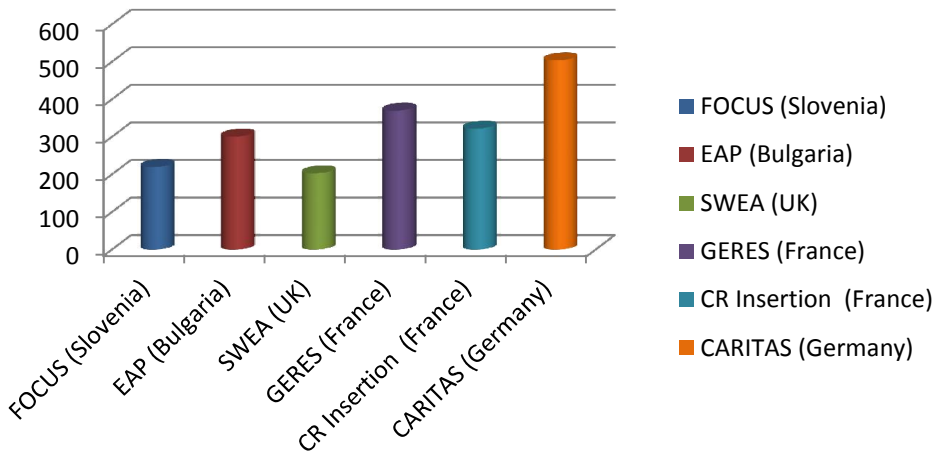


Figure 2: Total number of implemented visits by the end of the project

The number of persons living in an average one household varies from 2 persons in England to up to 3.4 persons per household in the area the organisation CR Insertion covered with their service. CR Insertion implemented their visits in an urban area of Paris (Plaine Commune) where as SWEA implemented their visits in a rural area. Besides CR Insertion mostly reached families with children in comparison to SWEA, that focused on elderly people.

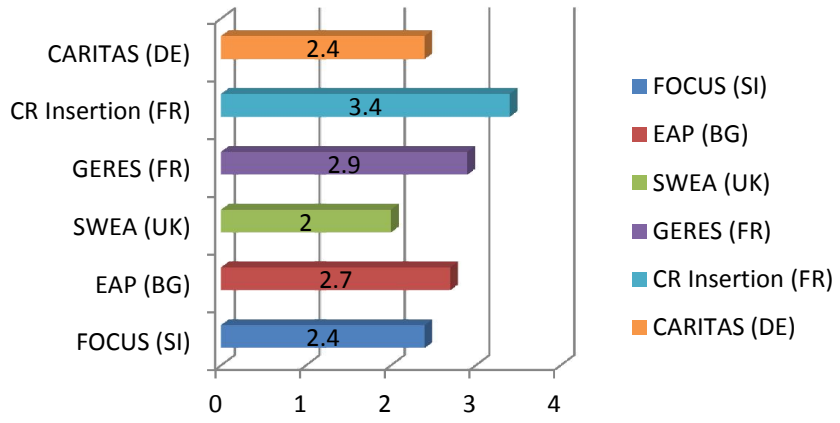


Figure 3: Average number of persons in one household

The next figure shows the average heatable space of an average household. It is interesting to see that the area with the lowest number of persons in the household has the highest amount of space. But this is also explained by the fact that the area SWEA covered was a really rural one. CARITAS, CR Insertion, FOCUS and EAP instead implemented their visits mostly in bigger cities.

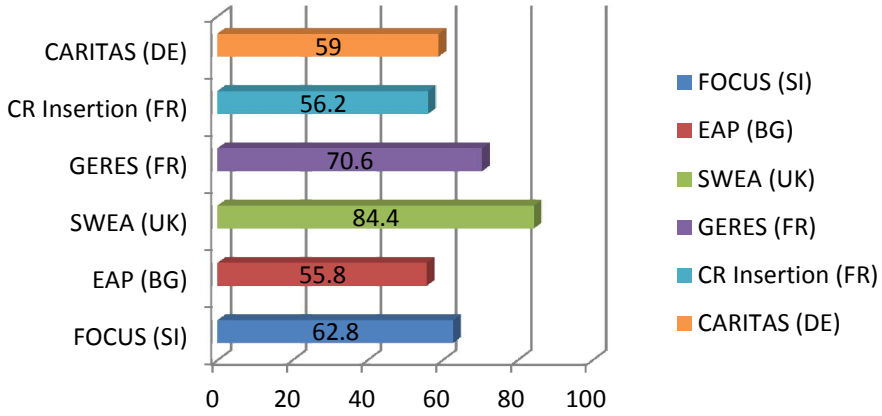


Figure 4: Average heat able living space m²

As already mentioned above, some of the partners targeted more elderly people while others targeted more families with children. In the two charts hereafter you can easily see which countries targeted on which group.

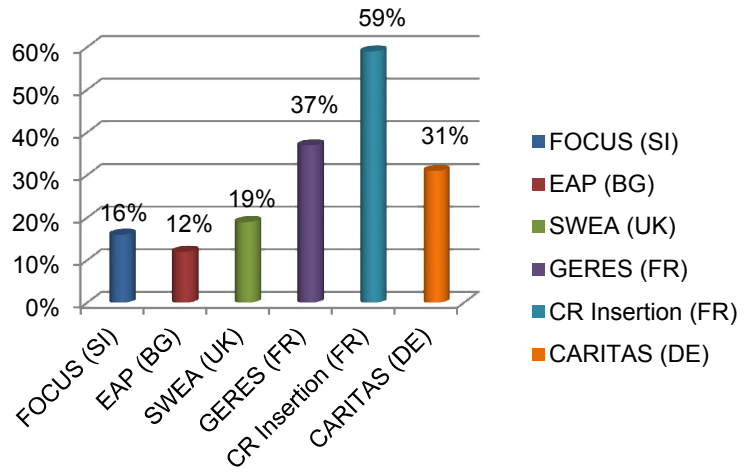


Figure 5: Children under the age of 12 in the household

For example for CR Insertion, in 59% of the households there were children under the age of twelve. For the partners EAP and SWEA on the other hand the percentage of persons over the age of 60 was more than 60%.

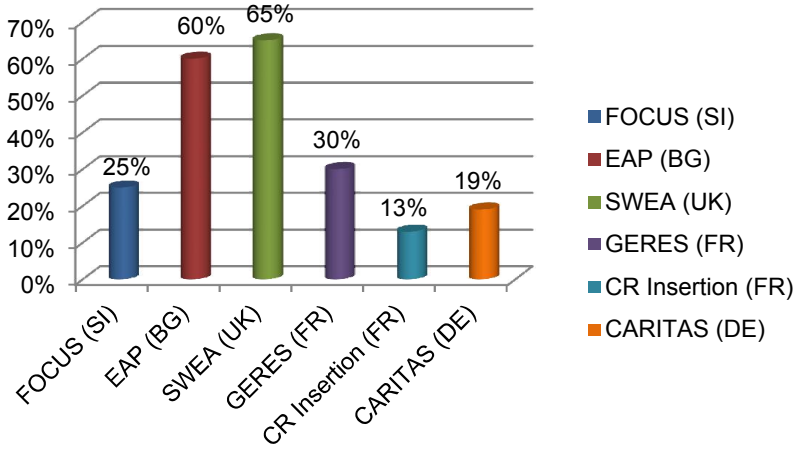
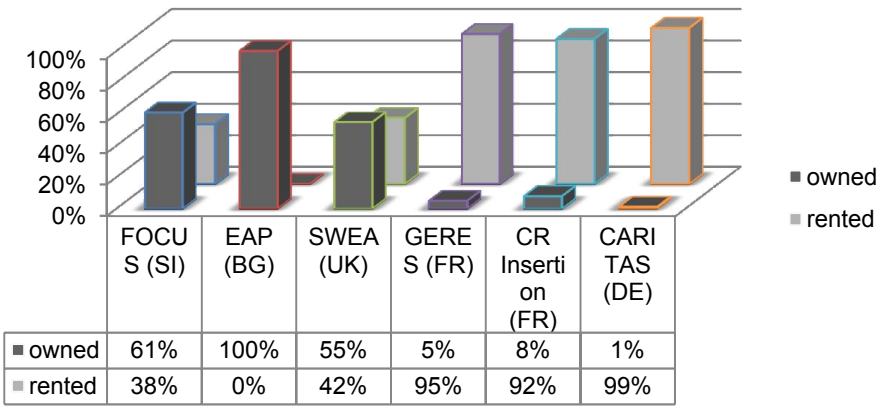


Figure 6: Persons over the age of 60 in the household

The chart below shows interesting differences, in which two characteristics that notably different. While in Bulgaria the reached households lived in their own dwellings, 99% of the reached households in Germany lived in rented apartments. In Slovenia 61% of the visited households live in their own dwellings and in England 55%. For GERES and CR Insertion it is nearly the same situation as in Germany. This information is important when thinking about retrofitting buildings, as one should have in mind that the people who live in their own homes have to take money out of their own pockets for the retrofitting measures.

The majority of the visited households in England live in houses with maximum two flats. In the four other countries the households mostly live in multi-storey buildings.



	FOCUS (SI)	EAP (BG)	SWEA (UK)	GERES (FR)	CR Insertion (FR)	CARITAS (DE)
owned	61%	100%	55%	5%	8%	1%
rented	38%	0%	42%	95%	92%	99%

Figure 7: Percentage of households living in owned or rented

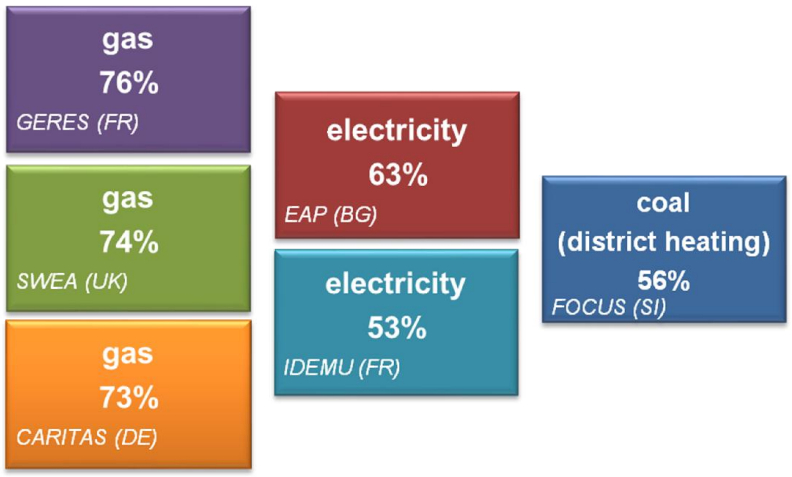


Figure 8: Main energy carrier for heat energy

The figure above shows the main energy carrier for heat energy. In the areas that SWEA, GERES and CARITAS visited the majority of the households heat themselves with gas. On the other hand, households visited by EAP and CR Insertion (IDEMU) use mainly electricity for heating. In Slovenia (FOCUS) district heating is very common, but in this case heat energy is generated with coal.
Water boiling with electricity is the case in most households visited in Bulgaria and also in more than half of the households CR Insertion reached. The results for all countries are visualised in the following figure.

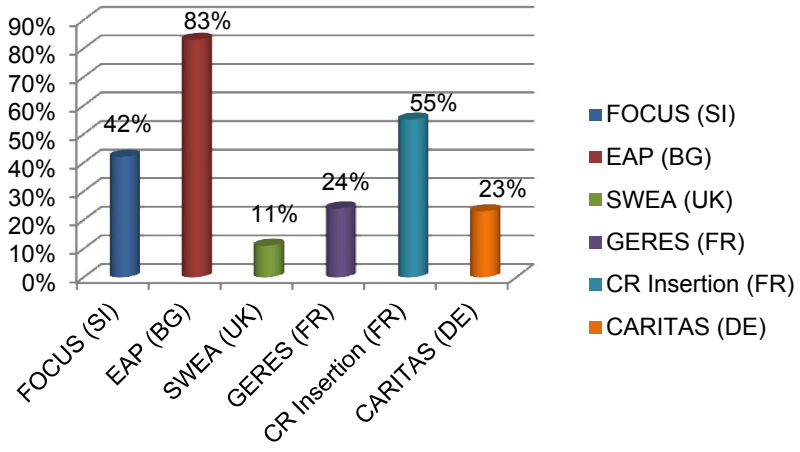


Figure 9: Water boiling with electricity

The next figure shows the percentage of households with draught at the windows. 97% of visited households in Bulgaria are affected by this problem, which is a very significant number. But also in the other countries every fourth/fifth household has such problems.

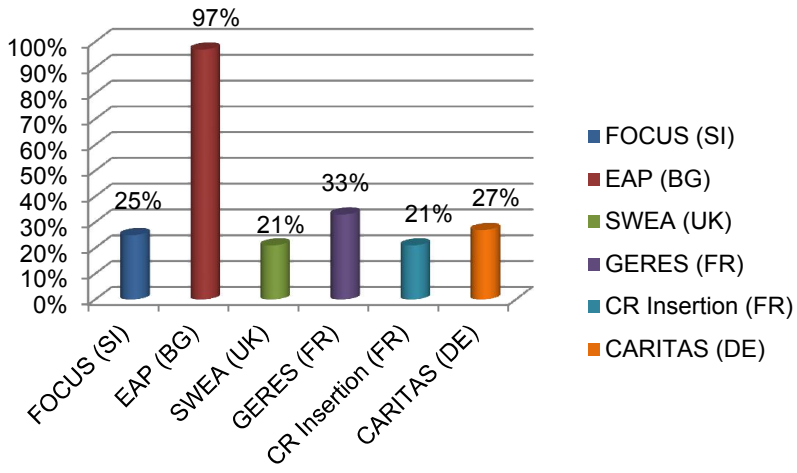


Figure 10: Draught windows

The problem of draught at the doors is also significant in Bulgaria. But also half of the households, who took part in the service in Germany, had this problem and just a little bit less of the households CR Insertion reached.

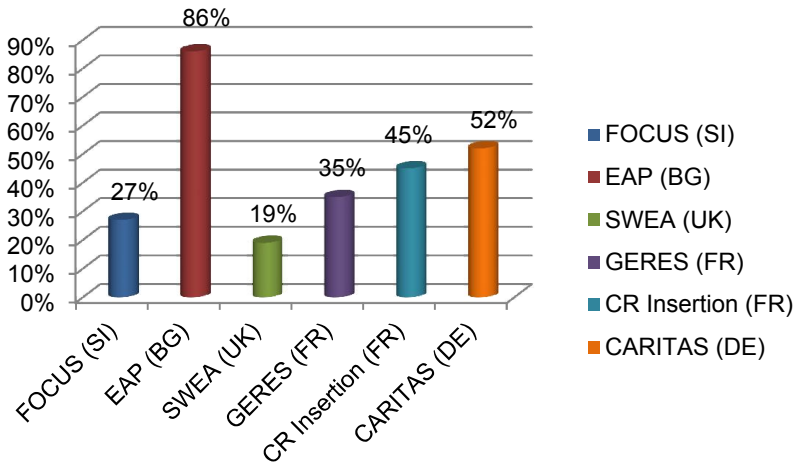


Figure 11: Draught doors

Missing thermostatic valves seems a big problem in the households GERES visited. In 81% of the households thermostatic valves are missing, whereas in the households EAP, SWEA and CARITAS this problem does not occur at all or just in view cases.

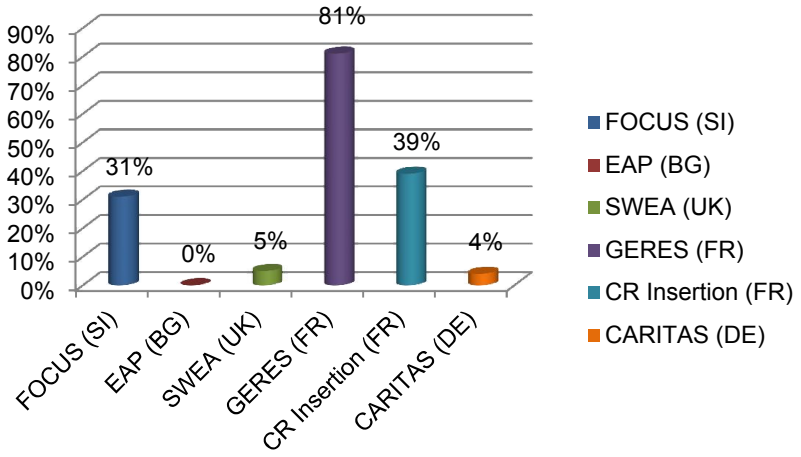


Figure 12: Thermostatic valves missing

Mould can be a sign of insufficiently heated and ventilated rooms and/or a bad building stock. Therefore we noted at the first visit in the household, if mould was visible. In Germany the percentage is the highest, in Bulgaria the lowest. The chart shows that for CR Insertion and CARITAS more than half of the target group has problems with mould in their apartments. In Germany households with heating problems were referred to the Energiesparservice, so we have the assumption that households with heating problems more often have problems with mould. The mould growth can vary from a small stead to mould growth on a whole wall. For further studies it would be interesting to distinguish between mould in the bathroom because of wrong habits and mould in other rooms.
In 2010 as part of the EU-SILC survey people where asked if they had problems with mould. 21,8 % of the people at risk of poverty answered that they have problems in comparison to 10,8% of the people at no risk of poverty.[16]

[16] Destatis, 2010, Leben in Europa/EU-SILC 2010, S. 163

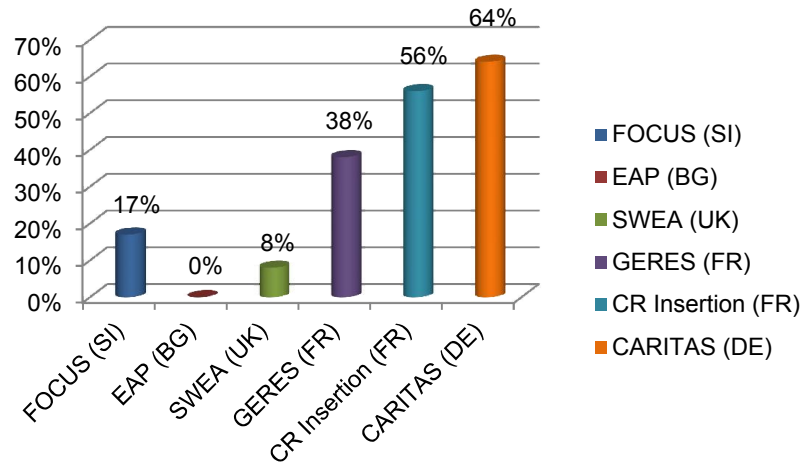


Figure 13: Mould visible

5.1.1.2 Quantification of the savings

The installed devices are strongly connected with the generated savings. The calculation of the savings is based on the installed devices. 16,273[17] energy saving devices have been given to the households and often were directly installed during the project. On average, a household received 9.44 devices worth EUR 44.08.

EAP worked with a standard kit of devices for the household. Therefore every household received the same eight devices worth EUR 30. The other partners decided which devices they are going to install according to observations during the first visit in the household. Hence the numbers of devices vary from household to household.

	FOCUS (Slovenia)	EAP (Bulgaria)	SWEA (UK)	GERES (France)	CR Insertion (France)	CARITAS (Germany)	**Project scale**
Average number of installed devices per household	8.86	8	8.07	10.67	11.11	9.91	**9.44**
Average investment costs € (devices) per household	29.08	30	41.41	44.25	68.55	51.20	**44.08**

Table 8: Installed devices and investment costs (average)

The following charts visualize the differences between the countries. The average number of installed devices only varies from 8 devices in Bulgaria to 11.11 devices for CR Insertion in France.

[17] By the specific date of 31.01.2014

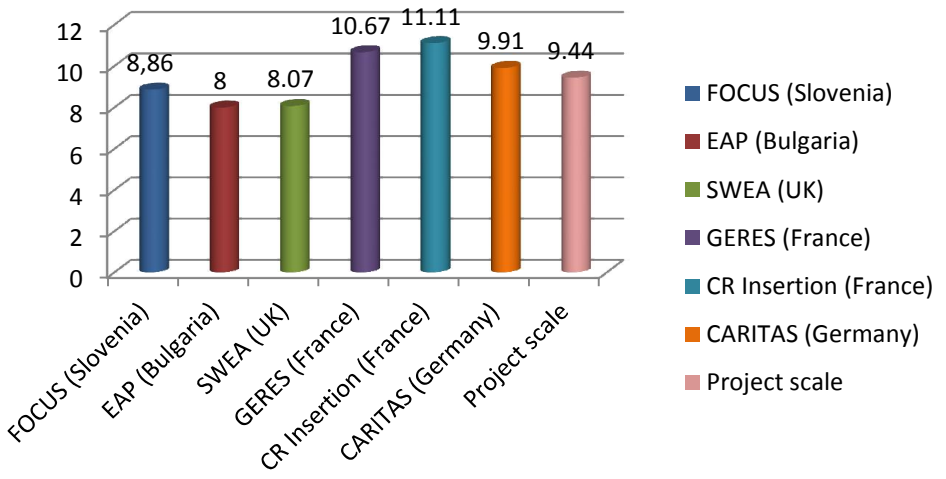


Figure 14: Average number of installed devices per household

To put the savings in the right context it is important to make a short summary of the average consumption rates and prices in the visited households. At the first visit using the energy and water bills, we noted the consumption of the households for electricity, water and heat energy. The following chart shows that the reached households by CR Insertion are the ones with the highest electricity consumption. This is not surprising because the averages size of the households is 3.4 people. The lowest average consumption is observed in the visited households in Slovenia.

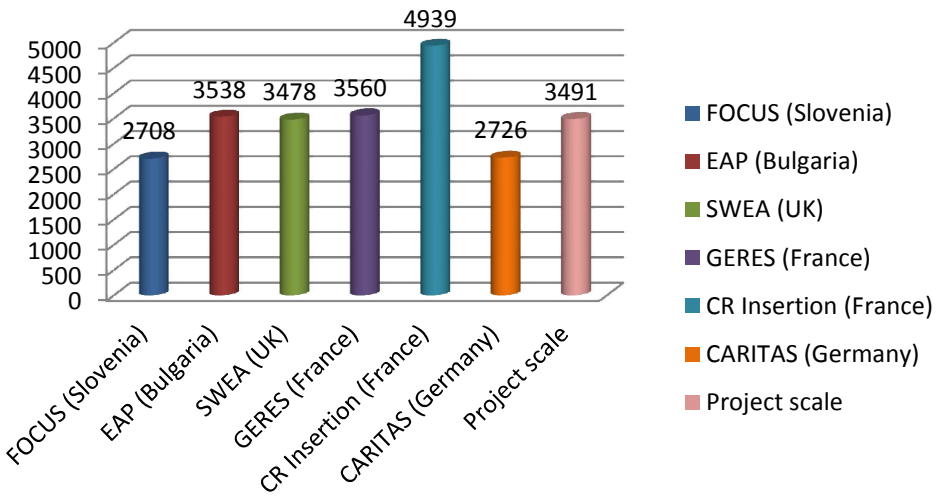


Figure 15: Average consumption electricity kWh per household and year

Because the saving devices that were given out reduced not only the consumption of electricity, but also of water and heat, the average water and heat consumption was analyzed too.

Not surprisingly, again the visited households by CR Insertion have the highest average water consumption with 271.4 m³ water per year. The households reached by SWEA have the lowest consumption, because in these households there are on average two people.

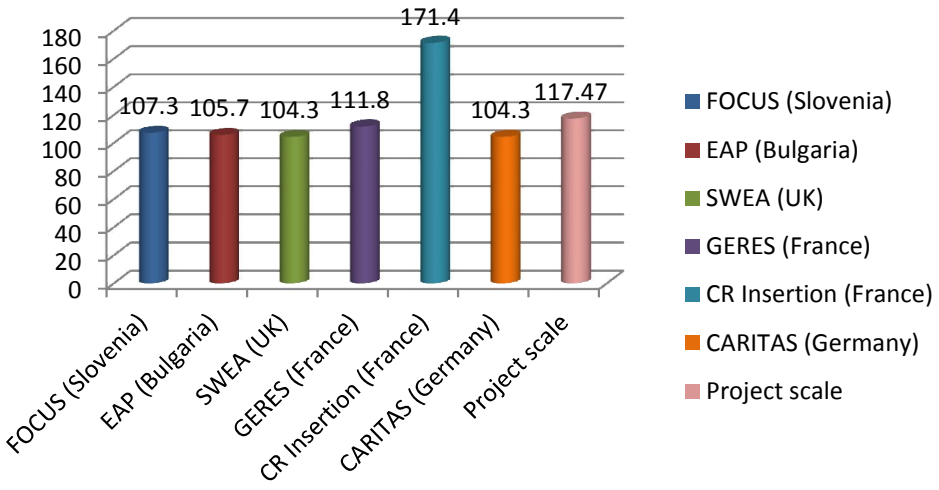


Figure 16: Average consumption water m³ per household and year

Looking at the heat consumption, it is not so easy to discern differences and similarities.The heat consumption is not only relative to the average number of people in a household, it also depends on the size of the apartment, the climate of the country and the state of the building and the heating system, to mention the most important determinants.

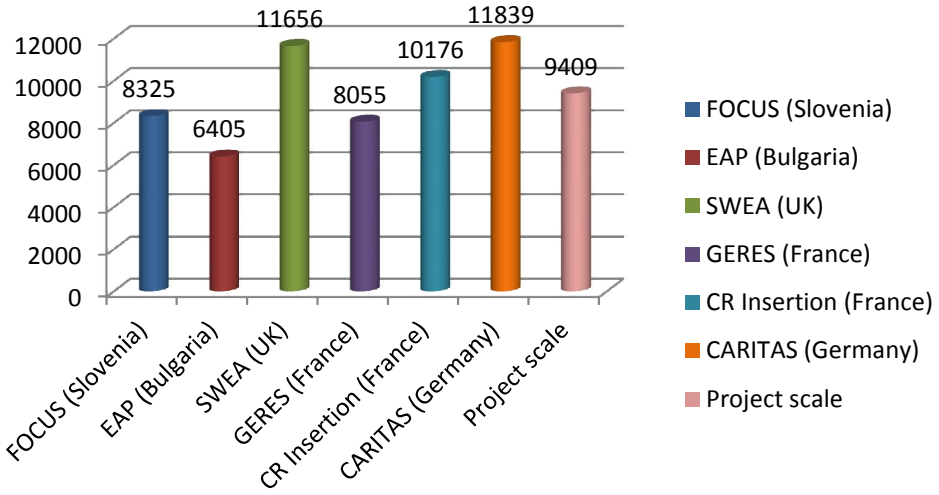


Figure 17: Average consumption heat energy kWh

In addition savings cannot only be expressed in kWh and m³. The savings in euro and kg CO_2, with regard to the aims of the project, are also essential. Under the topic evaluation methodology, we already had a look at the different emission factors for each country. The three charts hereafter visualise the different prices for electricity, water and heat energy for all partners. The price for electricity varies from EUR 0.10 in Bulgaria to EUR 0.26 in Germany. The picture is similar for water. Bulgaria with the lowest price (EUR 0.74) and Germany with the highest price(EUR 4.02). The households reached by CR Insertion pay the most for heat energy, followed by the visited households in Bulgaria. This is linked to the observations that in both areas there is a high percentage of electricity use for heating.

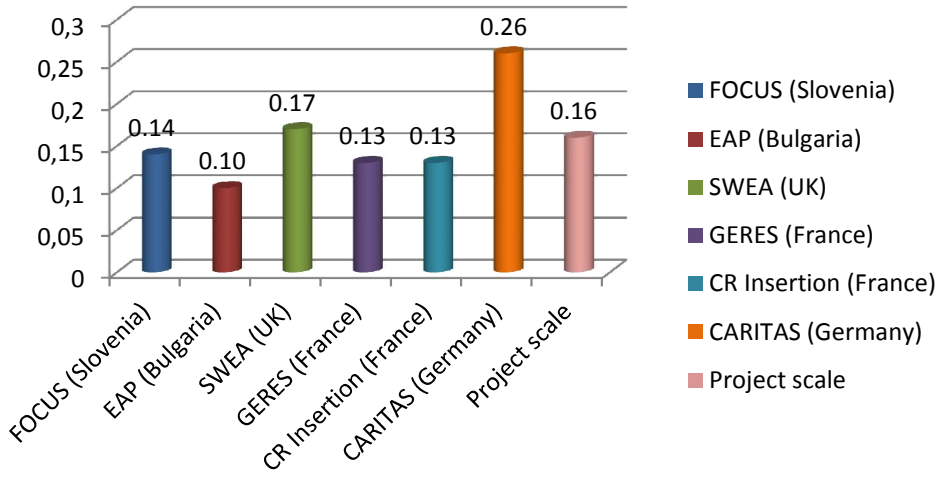


Figure 18: Average price electricity (€/kWh)

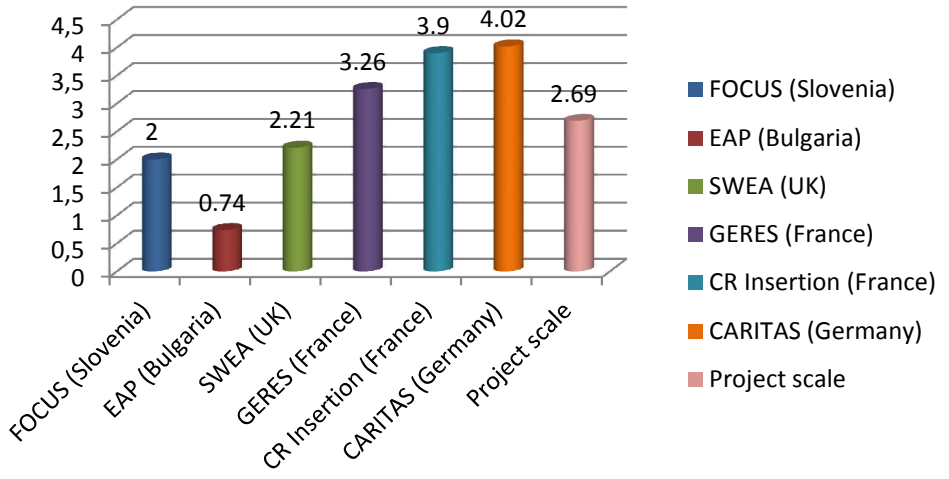


Figure 19: Average price water (€/m³)

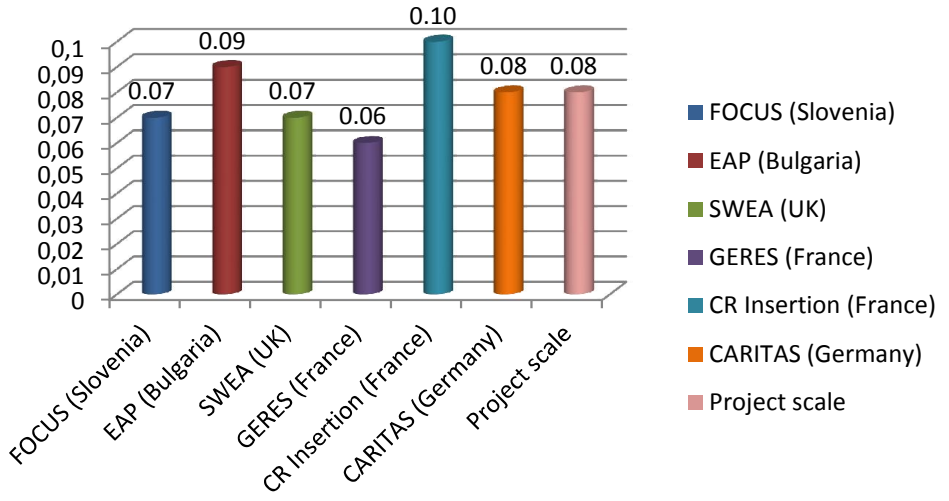


Figure 20: Average price heat energy (€/kWh)

The next table summarises the results for consumption rate and average prices on project scale.

	average consumption	average price
electricity	3,491.50 kWh	0.16 €/kWh
water	117.47 m³	2.69 €/m³
heat energy	9,409.33 kWh	0.08 €/kWh

Table 9: Average consumption and prices on project scale

With this information we can now have a look at the savings. The following table gives an overview of the average yearly savings per household partner by partner and on the project scale.

		FOCUS (SI)	EAP (BG)	SWEA (UK)	GERES (FR)	CR Insertion (FR)	CARITAS (DE)	Project level[18]
electricity	*kWh*	274	335.7	193.2	345.8	525	312.52	**331.04**
	€	39.28	33.57	32.89	44.03	65.96	78.03	**48.96**
	kg CO_2	152.6	229.3	86.1	69.2	105	196.26	**139.74**
water	*m³*	17.5	9.4	3.5	30.2	38.3	27.53	**21.07**
	€	35.98	6.97	8.12	74.15	89.68	104	**53.15**
heat energy	*kWh*	554.9	257.7	400	923.8	665.6	750.63	**592.11**
	€	33.61	19.71	24.46	59.96	46.5	64.88	**41.52**
	kg CO_2	168.1	113.5	76.7	301.2	145.7	155.75	**160.16**
total	€	108.87	60.25	65.47	178.14	202.14	246.91	**143.63**
	kg CO_2	320.7	342.8	162.8	370.4	250.7	352.01	**299.9**

Table 10: Average savings per year and household

For better asses of this information, we establish the relationship to the average consumption rates.

[18] Simple average

%	FOCUS (SI)	EAP (BG)	SWEA (UK)	GERES (FR)	CR Insertion (FR)	CARITAS (DE)	project scale
electricity	10.12	9.49	5.55	9.71	10.63	11.46	**9.48**
water	16.31	8.89	3.36	27.01	22.35	26.04	**17.94**
heat energy	6.67	4.02	3.43	11.47	6.54	6.34	**6.29**

Table 11: Savings in percentage of the average consumption

The actions implemented during ACHIEVE saved about 9.5% of electricity compared to the average consumption rate, almost 18% of water and 6.29% of heat energy on the project scale.

In total, this means the project saved 565,535 kWh electricity, 757,960 kWh heat energy, 33,678 m³ water, 494,640 kg CO_2 and EUR 215,322, as summarized in the table below. When you have a look at the results you should have in mind that not every household received all kind of devices. The second row shows the number of households which received devices differentiated by devices for electricity, heat energy and water.

	electricity	heat	water	CO_2	€
Total savings per year	565,535 kWh	757,960 kWh	33,678 m³	494,640 kg	215,322
number of households which received devices	1641	1328	1144		

Table 12: Calculated savings per year on project scale

On the long run over the lifetime of the energy saving products, the project saved 2,471,660 kWh electricity, 3,721,906 kWh heat energy, 191,214 m³ water, 5,134,029 kg CO_2 and EUR 1,076,318 over all countries and in the 1,920 households.

	electricity	heat	water	CO_2	€
Total long term savings	2,471,660 kWh	3,721,906 kWh	191,214 m³	5,134,029 kg	1,076,318

Table 13: Calculated long term savings on project scale

5.1.1.3 Satisfaction of the visited households & Learning effects

In this section we want to describe how satisfied the visited households were with our service and describe the learning effects of the project. To find out more about the satisfaction of the visited households all partners did a telephone survey. GERES, CR Insertion and CARITAS worked with a professional institute for the survey. SWEA, EAP, FOCUS did the survey in-house. 458 people took part in these surveys.

	EAP	FOCUS	SWEA	GERES	CR Insertion	CARITAS	Project scale
Number of interviewed households telephone survey	63	80	57	84	74	100	**458**

Table 14: Number of interviewed households

Before we go into detail of the satisfaction indicators, we will have a look, how the household got in touch with the service and what kind of sources they trust. This gives us an overview of how could people reached for this kind of projects. The majority of the interviewed households learned about the service by word of mouth recommendation and got in touch with the project partners through social services.

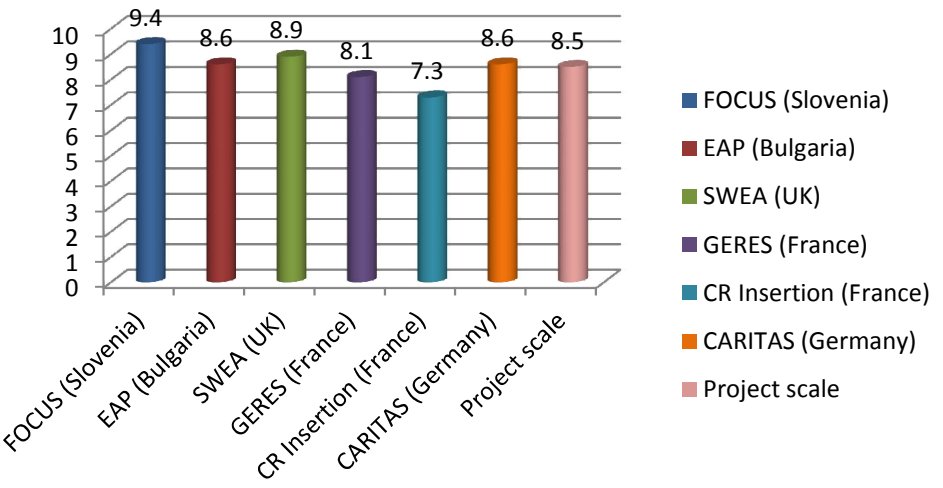


Figure 21: General satisfaction (10 – very satisfied; 1 – very unsatisfied)

The interviewed households were very satisfied with the service; mean score was 8.5 (out of 10, 10 being the highest). Frontrunner is FOCUS with a mean score of 9.4.

Furthermore a larger share of the households are convinced that their energy consumption will be reduced thanks to the ACHIEVE service. It seems like the households reached by SWEA are more sceptical, but appreciate the kind of service.

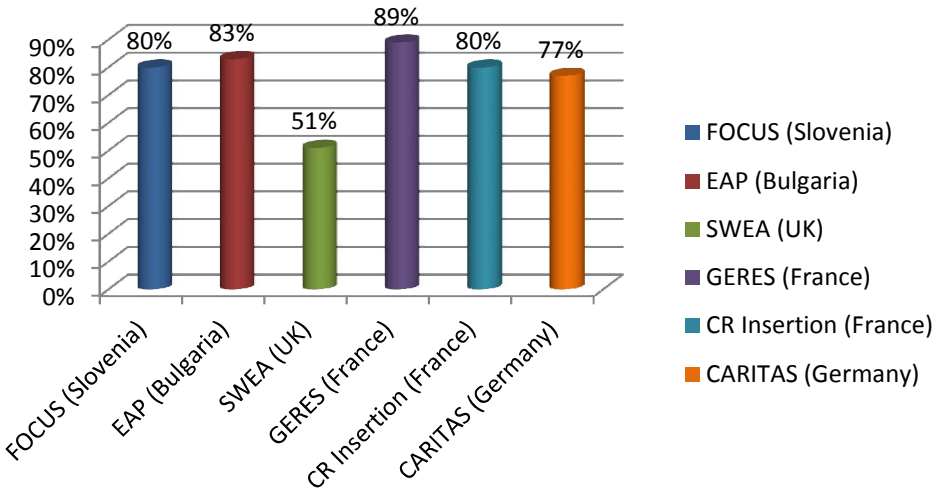


Figure 22: Convinced that the energy consumption will be reduced

SWEA has the highest recommendation rate with 81% followed by CARITAS with 75%.

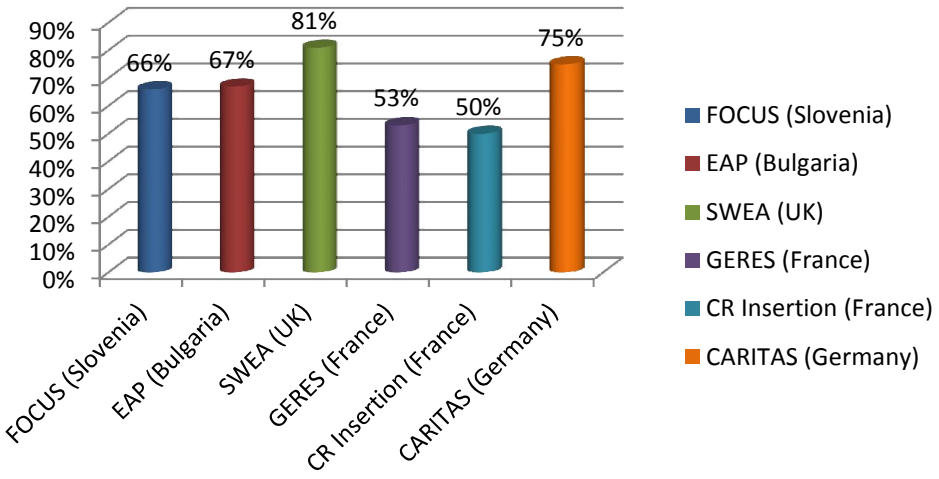


Figure 23: Recommendation of the service

One of the aims of the survey was to know more about the satisfaction of the visited households, but we also wanted to know, what the people learn from our consultation and which tips were useful for them.

	1	2	3
FOCUS	install tap aerators (56%)	switch of power strips (50%)	turning down the heating thermostat (30%)
EAP	stop using lamps with high energy consumption (68%)	wash with lower temperature (41%)	switch off power strips (38%)
SWEA	reduce room temperature (28%)	regulate temperature in the fridge (25%)	move furniture and curtains away from radiators (23%)
GERES	switch off power strips(43%)	reduce room temperature (38%)	move furniture and curtains away from radiators (28%)
CR Insertion	unplug chargers, transformers, devices with stand-by (46%)	reduce room temperature to 19 degrees (43%)	wash with low temperatur (32%)
CARITAS	stop using lamps with high energy consumption (60%)	regulate temperature in the fridge (50%)	switch off power strips (46%)

Table 15: The top three of followed energy saving tips

The above table summarizes the tips, which households got and followed the most after the visit. Besides the answer "got the tip and followed" the interviewed household could state "did the tip before", "got the tip but did not follow", "I did not get the tip" and "does not apply". For example for CR Insertion 46% of the interviewed households followed the tip "to unplug their chargers, transformer and devices with stand-by losses". 44% percent were already doing this before.

These behavioural changes also help to save energy. When we calculated the savings for ACHIEVE we did this on the basis of the devices we installed, behavioural changes were not included. As power strips and tap aerators are devices we install, this kind of behavioural change is included. For the rest of the tips one can see in the above chart, we did not include the savings from engaging in these activities in our calculation.

But it is good to know, how much savings could be achieved by following such tips. Therefore we utilized an approach, which was already used in the national evaluation of the German project Stromspar-Check.[19]

	heat energy per household	electricity per household
Additional energy savings through behavioural changes	74.20 kWh/a	21.47 kWh/a

Table 16: Energy savings through behavioural changes

Evaluating the tips that were followed the most (to reduce room temperature, to stop using lamps with high energy consumption; to wash with lower temperature, to reduce the fridge temperature and to move curtains and furniture form radiators) the yearly average savings per household could rise from 299.9 kWh to 395.57 kWh.

5.1.1.4 Focus on feedbacks from devices

The majority of the interviewed households stated that they thought the installation of the free energy saving devices was helpful or even very helpful as the figure below shows. For FOCUS there were no negative statements about the installation of the free energy saving devices.

[19] Kerstin Tews, 2012, Einzelprojektevaluierung Stromspar-Check in einkommensschwachen Haushalten, S. 42 ff.

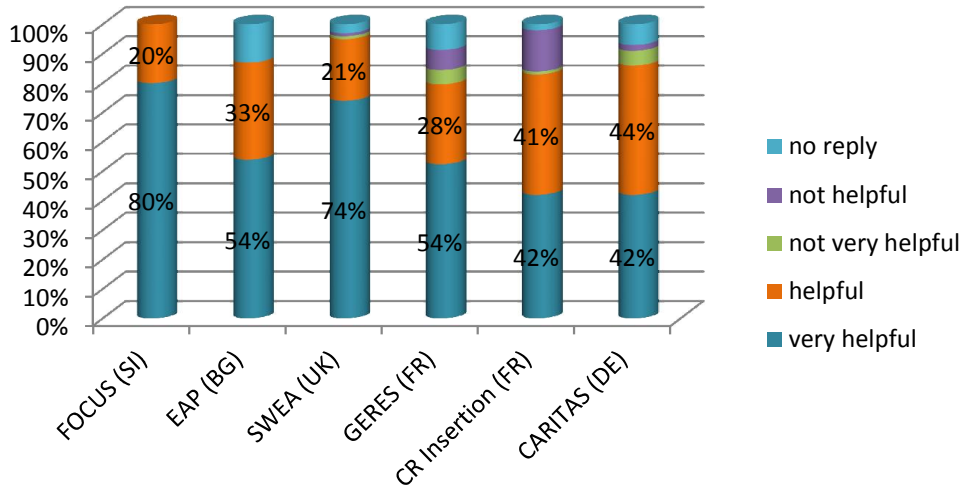


Figure 24: Installation of the free energy saving devices

In absolute numbers we installed 16,273 energy saving devices (as of 31.01.2014). The most used device, with 37%, was the energy saving lamp (ESL) (synonym with CFL - Compact Fluorescent Lamp), followed by tap aerators and then by draught proofing for windows.

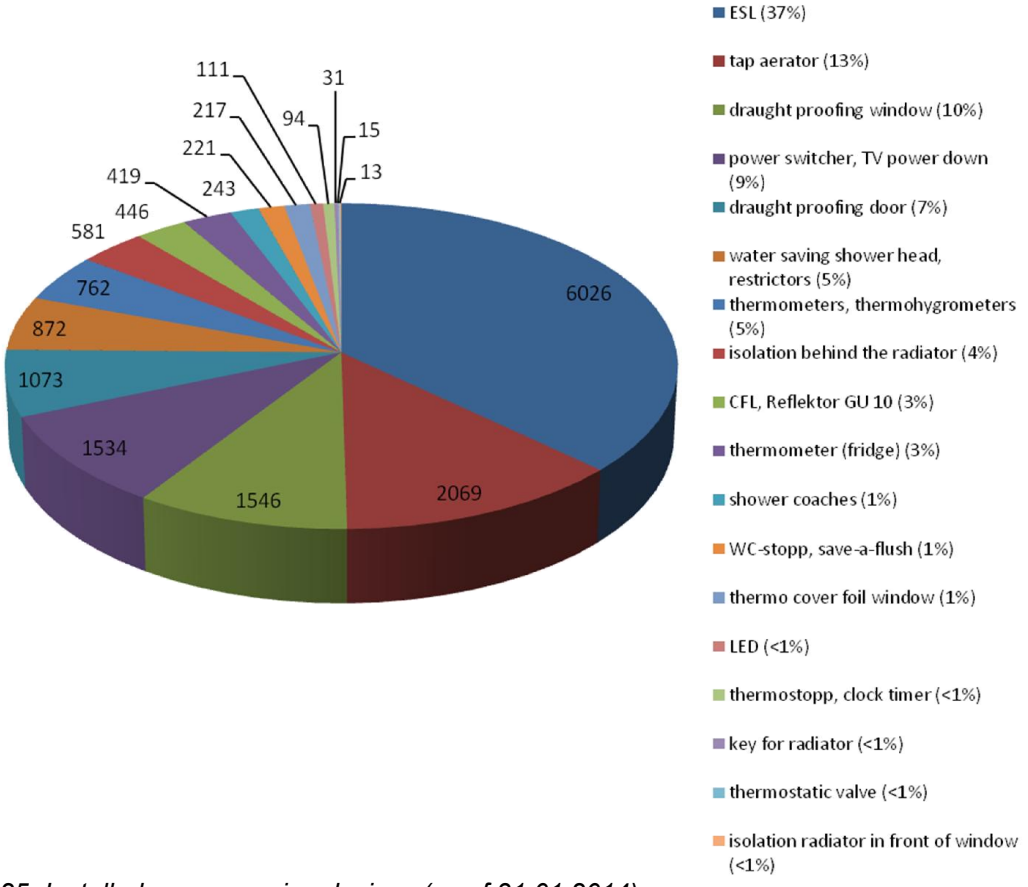


Figure 25: Installed energy saving devices (as of 31.01.2014)

In the course of the telephone survey, the households were asked, if the devices they received are still installed. The next chart presents the results for the most used device, the energy saving bulb.

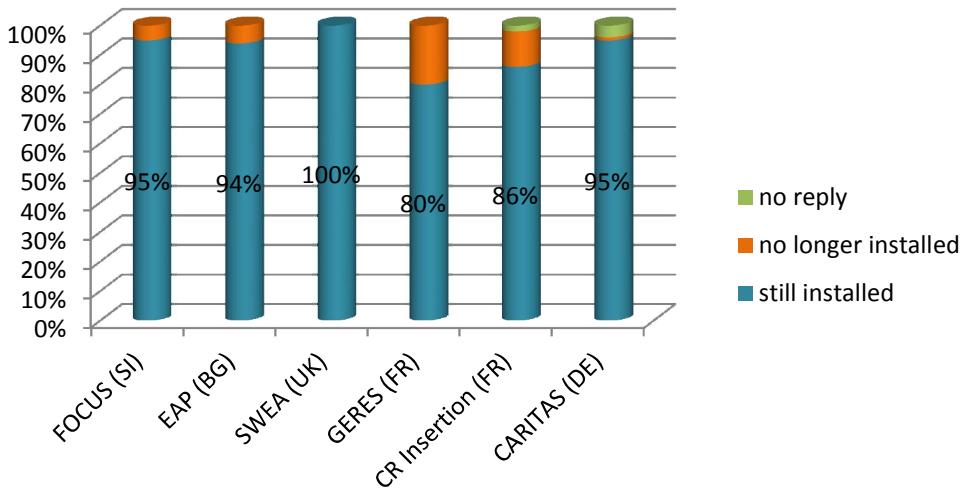


Figure 26: Energy saving lamp still installed

Due to our project experiences, we highly recommend the exchange of incandescent light bulbs with CFLs or LEDs. The decision between the two technologies in our project was made on the basis of a Cost-benefit-analyses and as the LED-technology was much more expensive than the CFL-technology without big differences in the possible savings, we mostly worked with CFLs. Today the price for LED is much lower and the technology has also improved. So for similar kinds of projects, the LED-technology should be more widely used.
The quality of the devices is also really important, when one chooses the devices he is going to install. It should be guaranteed that the devices work properly. For example, some of the partners had the experience that the draught proofing came off. If the quality standard is good, draught proofing easily improves the comfort level of the household and will generate savings right after installation. Therefore, we also highly recommend this kind of device.
Water efficient shower heads and tap aerators should definitely also be included in future projects. This kind of devices save water on one hand and heat energy/electricity on the other and their price is reasonable. And because water costs are often relatively high, these devices also save a considerable amount of money.
For learning effects and behavioural changes the distribution of thermometers and thermohygrometers play an important role. These tools remind the households about the tips they got and the households could check by themselves the temperature and humidity in the rooms. There is also a thermo-hygrometer on the market, which produces an alarm, when the humidity is too high in the room. Also the shower coach is a good tool for behavioural changes.
Power switchers are useful devices to reduce stand-by losses in an increasingly technical world and should not be omitted in future projects.
In contrast, insulation panels and thermo cover foil are devices which are very time-consuming and not easy to install. They could be given to households who are skilled to install these products themselves. Instead, radiator reflective panels are easier to install and also very helpful in case of improving the comfort.
Whether the following devices are useful, depends on the country, where a future project is implemented. WC-Stopp/save a flush for example was often used in the UK, whereas in Germany most household already had a water saving toilet. Thermostatic valves should be used in countries where it is not a standard. The key for radiator is a device, which is easy to use, not expensive and can improve the comfort for the household immediately, but is also not useful in every country.

Generally, all partners and households really appreciated the free energy saving devices; they are definitely a success factor of the project. Thanks to the devices we have a reliable basis to calculate the energy saving in this project. The results of the survey confirm this assessment. For the households they are a kind of “door opener” which motivates them to participate at the service.

5.1.2 Qualitative evaluation of the visits

Across all countries the recruitment of the households was challenging, but in the end successful:

- It takes quite an amount of work to get households interested in this project:
    - They often don't believe that the service is for free
    - They have other different problems so that are not that willing to discuss energy issues
    - Confidence and trust in the organisations have do be developed

It is important to plan enough time for preparing such kind of projects

- The households who got the service really appreciated the results:
    - They are glad to improve the comfort in their flat or house
    - They are happy to save money
    - They are happy to support energy efficiency
    - They are interested in supporting climate protection
    - They recommend the service to friends, families and neighbours.

Word of mouth promotion is the most successful way of reaching the households. Another way is to establish good contacts with local networks of welfare and health care organisations so that they recommend the service to the households and support awareness of the public.

Moreover, several aspects have to be taken into account when implementing the visits. Across all countries the partners agreed on the fact that it is good to work with an Excel Tool to gain reliable results. But one should design the Tool not to be too complicated for the advisors to fill in. It is important that the data could be analyzed in an easy way, otherwise one needs too much time and coaching of certified energy advisors. A nice result of the visits and the reports which were generated out of the Excel Tool, was to see the households regain control of their situation: the ACHIEVE visit was the occasion to start a monitoring approach of their energy and water consumption or to update social and administrative situations.

5.2 Results and evaluation of the training and advisors

The CARITAS Energiesparservice was selected as the starting point of ACHIEVE. One main issue of the Energiesparservice is the consideration of social and environmental issues. A special social topic of the project is the approach of carrying out the visits with trained long-term unemployed people with the idea to give them new job perspectives in the socially important working field of energy advising.

By engaging people who have been unemployed long-term to raise awareness on fuel poverty the households are getting advice from people who know their life situation and so can give them appropriate guidance.

This approach meant that all the partners defined the group of people that should be recruited to be trained on energy matters and to carry out home visits in their target area.

Partner	Approaches used
CR Insertion, France	A first round of 4 people in an integration program were recruited for 6 months in February 2012, and trained by CR Insertion. They also did the recruitment, in cooperation with key recruitment offices. An information event was organized in January 2012 to present the project and the mission to the applicants, followed by individual interviews. In October 2012, 4 volunteers from the French voluntary community programme have been recruited for 6 months. In April 2013, 4 new volunteers were recruited.
GERES, France	GERES works with people in an integration program. GERES decided to work with La Varappe Développement (LVD), a social company implementing back-to-work programs. The recruitment was organized by LVD in close cooperation with unemployed centre and youth organization.
SWEA, UK	Advisors are people who have been long term unemployed. Advisors were recruited through Job Centre Plus. Their training forms part of a national initiative to remove barriers to work (the Sector-Based Work Academy)
CARITAS, Germany	CARITAS works with long-term unemployed people, people in an integration program and volunteers. People for the integration program come from the job centre. Volunteers are often people who were part of the integration program and stayed after this was finished..
FOCUS, Slovenia	FOCUS works mainly with unemployed people (some long-term unemployed) and some recently graduated young people seeking professional experience. The recruitment was done through promotion (leaflet, mailing lists, news and social networks) and presentation at the Office for Employment; 12 advisors were selected and trained.
EAP, Bulgaria	EAP works with students from professional schools. Agreements with two professional schools (Vocational School of Household Technology and Vocational School of Electrical Engineering and Electronics) have been signed. The training served as an addition to the students' curriculum. The visits that they implement give a chance to put their knowledge and skills into practice.

Table 17: Approaches to identifying and training energy advisors in project ACHIEVE

With regards to selecting and training energy advisors, several notable findings came to light.

Varied profile of advisers could be considered (sex, ages, background) while keeping in mind that participants' ability to access the target group for home visits will be of high importance. As participants will need to be largely self-motivated and able to work to self-imposed deadlines the ability of self-organisation is also desirable.

The most important aspect is that when recruiting energy advisers to be trained, particular focus should be put on their social and communication skills; even if a large part of the work around the visits is technical (assessment and calculation of the main possible energy and water savings, advice given to households to reduce their consumption etc.), the visits are also largely about "'human"' contact. Technical capacities can be strengthened, but this is not necessary the case with the ability to speak and listen to people. This should be considered when recruiting future advisers.

It is also suggested that visits be performed by two advisors, one of whom has an emphasis on technical skills, and the other has an emphasis on social skills (roles can be switched from one visit to another).

Think of recruiting and training women and foreign languages speakers in the programme, especially when you plan to implement the service in a district where there is a large population with immigrant background.

It is also advisable to work closely with the job agencies and employment centres in order to define the competences needed for energy advising.

5.3 Investment saving ratio

To get a sense of how much projects like ACHIEVE have to invest and how much they could contribute to savings of CO_2, different aspects of this complex topic will be described in this chapter. The financing of ACHIEVE depends on a lot of different partners. The biggest part was financed by the IEE but there was also co-financing needed from each partner. Different ways of co-financing the project were developed. For e.g. the partner worked together with partners like job centers; municipalities, NGOs etc., some got devices sponsored by an energy provider, others worked together with students or volunteers etc.

Having these complex conditions in mind, the project consortium decided together with the project officer that each country will describe the costs for the devices in relation to the savings through the devices in the households. This gives a sense of how much savings can be achieved by using free energy saving devices. The second part of this chapter describes the different non-quantitative benefits of the project which were achieved in each country and which have also been taken into account to get a good overview of the whole project, its results and its useful effects.

We also only consider the savings per year and not over the whole lifespan of the devices. As described in Chapter 3 the lifespan between the different products differs between two to 15 years. Not all partners considered this difference in the same way, so it is not possible to compare it between the countries. More detailed information could be in the chapters of each country.

5.3.1 Investments

For the investments different cost types have to be considered. The main types are:

a) personnel costs

for the administration

for the advisers

for supervising the advisers

b) travel costs for the adviser

c) cost for the trainings of the adviser

d) costs for the equipment of the advisers

e) costs for the devices

f) costs for the overhead

5.3.2 Savings

For the savings different savings types have to be considered too. The main types are:

a) savings for the households through the free devices

b) savings because of changing the habits

b) savings for the municipality

c) benefits for the advisers

d) re-integration of the advisers into the labour market

e) costs for the advisers which could be saved for the job centers through this project

The savings for the households are calculated within the Exceltool on the basis of the devices which were given and installed at the households. They are calculated for one year per household and on the basis of the lifespan of the products.

The savings for the municipality are especially interesting in Germany because the low-income households get their heating costs and costs of water paid by the municipality. That means if households save heating energy or water, the municipality has to pay less money for these costs. But this is different in the other EU countries therefore we cannot give concrete calculations for this.

5.3.3 Investments in a ratio to savings

As described above in this chapter we will make a comparison between the costs for the devices and the savings through the devices per household and per year.

The average yearly saving per household from the ACHIEVE visits in Bulgaria was EUR 60.25. This is 200% more than the direct investment of EUR 30 for the devices. The investment in devices led to twice the amount of yearly savings in costs which means that the investment could be saved in mostly 6 month.

The typical savings achieved per household in Germany on average were EUR 246.91 per year. The investment costs per household on average are EUR 51.20 for all devices. This is more than 480% than the direct investment for the devices. That means that the investments could be saved already after 2.5 months

The average cost savings per households and per year in France is for CR Insertion about EUR 202, for an average cost of EUR 68 for the installed devices. This is about 297%, which means the investment is saved after 4 months.

The average cost savings per households and per year in France is for GERES about EUR 178, for an average cost of EUR 44 for the installed devices. This is about 402%, which means the investment is saved after less than 3 months.

If Slovenia takes into account the costs of devices, they are EUR 30, annual savings are EUR 108.87, which is more than 360%. This means the investment is saved after about 3 months.

In the UK the typical savings achieved per household were EUR 65.47. The typical cost of the installed devices was EUR 41.65 per household. This is about 158% per year or the investments are saved after less than 8 months.

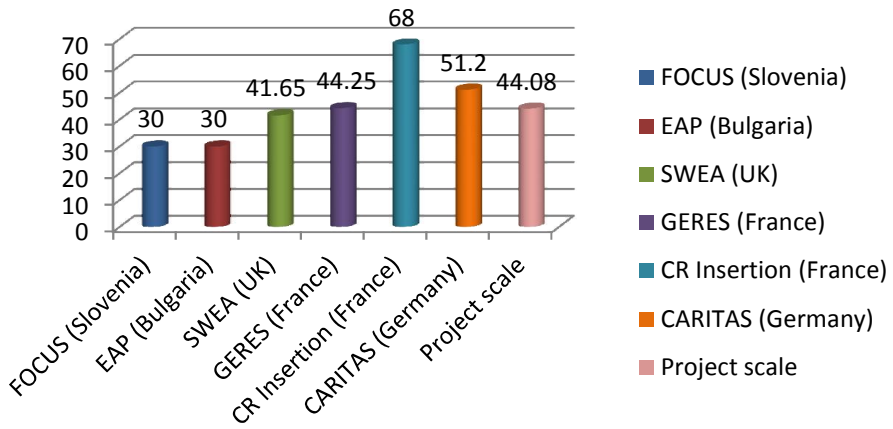


Figure 27: Average investment cost devices per household

The differences in the savings between the countries mostly are based on the different energy prices.

	Cost of devices per household in €	savings per household in €	percentage
EAP (BG)	30	60.25	200.6%
FOCUS (SI)	30	108.87	362.9%
SWEA (UK)	41.65	65.47	157.91%
CR Insertion (FR)	68	202.14	297.26%
GERES (FR)	44.25	178.14	402,58%
CARITAS (DE)	51.2	246.91	482.2%

Table 18: Return of investment

This overview shows that it is very meaningful to give free devices to the households because they save energy right from the beginning and take in every country less than one year to repay the cost of the devices. This kind of comparison may be too simple but it shows how important the installation of energy devices is. Even if the energy prices in each country are different (see previous chapter) the households always save money right away because they did not have to make the investment. Therefore the free devices are a social support for the households.

5.3.4 Additional benefits

In addition to the savings through the devices the ACHIEVE intervention has brought a lot of additional benefits which are difficult to quantify but also have to take into account. This can be described broadly as:

- Benefits for the advisors:
  - Saving energy in their own homes
  - Getting skills in IT literacy, report writing, time keeping, and providing advice.
  - Getting technical skills
  - Gaining more self-confidence because of the satisfying work.
  - Knowledge of the building and energy sector.
  - Knowledge to use basic measure tools.
  - Knowledge about heating and ventilation appliances.
  - Travel organization in their areas.
  - Planning and deadlines observation.
  - Effective communication in different situations.
  - Spirit of initiative to be able to face every new situation (every fuel poverty situation is always different from another).
  - Knowledge how to install energy saving devices in households.
  - Potential reintegration into the labour market

- Benefits for the households:
  - ACHIEVE helps households to help themselves.
  - Getting all the important information how to save energy, how to read their energy bills and how to save money. So it fulfils not only an environmental task but also a task of social policy.
  - Improving the comfort in households' homes which could reduce health problems and consequently, reduce public health expenditures.
  - Getting help when they are in difficult life situations.
  - Environmental education because it supports the understanding that we need to change our "energy habits" and become more efficient and conscious about energy using. And the low – income households are happy that they can also do something meaningful.
  - The households get empowered and feel socially included.
  - Will present a bit lower burden to social welfare system and could spend this amount on other life important goods. That means that quality of their lives can be slightly improved. We are aware that ACHIEVE visits will not make a miracle, but we have to start with small things and make an effort to start with changes there, where we can accomplish it.

- A lot of households gained new informations and knowledge and also contacts, where they can further help them either with social or energy related problems. With informations that were presented to the households, special attention was also put on environmental aspects and benefits of energy savings and efficient use of it.
- Go positively further in order to reduce their energy consumption.

- Benefits for local partners:
  - Municipalities save money in educating low-income household to be aware of their energy bills because the households directly save money through this project.
  - Municipalities can take care of their responsibility for poor people also in the energy field.
  - Energy provider can support this group of clients and have less stress with not paid invoices.
  - Health care organizations now have contact partner who can take care about bad old houses and high energy bills.
  - Thanks to the project, different stakeholders not used to cooperate, had the possibility to work together on fuel poverty issues in a constructive and positive way. This leaded to the formulation of a strong will to develop these kinds of projects on an experimental area.

5.4 Dissemination and transferability of the project

5.4.1 Ability to develop a comprehensive service

The first objective of the visits was to make a diagnosis of the energy and water consumption of the households, launch discussions on practices related to energy efficiency and install savings devices. Nevertheless, it appears that this type of intervention at a first level, while useful to reduce energy bills and to identify specific energy issues, is not sufficient for helping the households end fuel poverty in a sustainable way. As part of Project ACHIEVE, additional actions have been implemented to continue assisting the beneficiaries of the visits. It means each territory developed specific partnerships and tools, to allow a personalized and adapted orientation of the households. This includes:

• Meetings and exchanges with a wide range of stakeholders that might be able to help the households after the visit (depending on the situation of the family or of the housing), and that should then be part of the local network to be formed around the service: health authorities, legal services or associations specialised in the right of housing users, housing services or operators, social departments…

• Fact sheets for the households, to be distributed at the second visit according to the specific situation: fact sheet "understand your energy and water bills", fact sheet on "social tariffs" (in countries where such tariffs exist), fact sheet “relationship with my landlord”, fact sheet "the comfort in my dwelling", etc.

• A directory guide for advisors, including a presentation of the key operators in various fields, and fact sheets for a suitable orientation of the family after the second visit. The latter provide explanation and contacts for a range of situations potentially encountered during home visits: "indecent homes", “damp and moulds”, “seepage and leaks”…

• ACHIEVE also developed targeted materials with information for landlords and occupying-owners about the energy efficient retrofitting measures they could do their related benefits for the dwelling and for its occupants, and the financial grants they could use. These documents were designed to be delivered directly to the recipient of the visit when he/she was the homeowner, or sent by mail with a technical report to the landlord.

• To go further on retrofitting recommendations, some territories decided to realise, when the situation permitted it (agreement with the homeowner, first), an advanced energy audit of the housing or the building, with thermal cameras and specialised software. The resulting tailor-made reports were transmitted to the homeowner.

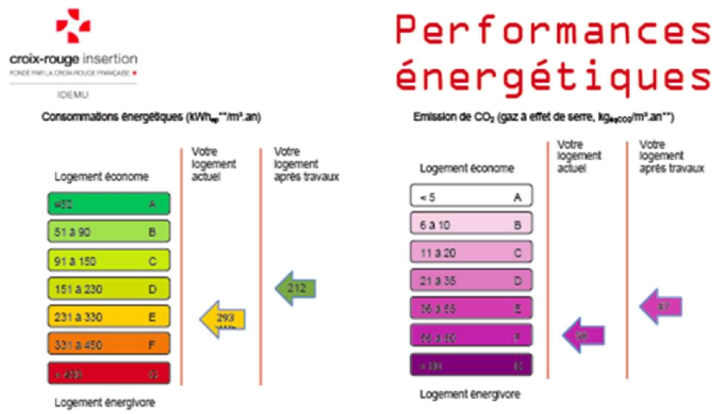


Figure 28: Energy performance

Also, a "promotional" document not dedicated to the potential beneficiaries but to the potential partners and authorities financing and/or running such a home visits services, was designed.

5.4.2 Communication impacts

An important element of ACHIEVE approach was developing a methodology for accessing the target households. The decision on methodology was based on lessons learned from various projects, which showed that there is a need to be proactive in approaching households:

- Community engagement (neighbourhood events for example) brings success,
- Opportunities for co-promotion with partner organisations working with the target group should be sought after,
- Promotion of the service through local media is useful, and advisors could explore the possibility of promoting the scheme in ways that the community responds to, e.g. by activity such as door-to-door canvassing as a method of reaching hard to reach households.

Bearing this in mind, the partners developed a variety of communication campaign approaches and tools to reach target households. The information about the project was disseminated to target households by a variety of local actors, such as welfare associations/non-profit associations, municipalities and local authorities, utility providers, presentations in newspapers, unions of low-income, handicapped or disadvantaged people, employment offices, social housing providers, social landlords, community foundations. Communicating with agencies that work with families is necessary to get access to the households. In addition, in Germany and UK projects have experienced that in order to empower households to make real lasting changes to the way that they use energy other agencies who interact with clients need also to be informed about the project, its aims, and possibly key messages that can help to keep households motivated.

ACHIEVE also demonstrated that different organizations could work together on a multifaceted issue which full scope is often out of the range of any of the individual organizations. In this sense, the project was a catalyst for cooperation in the social, environmental, educational, and practical areas. It was beneficial to make the initial contact with all the local organizations at the beginning of the project so that an implementation plan could be devised at the very start of the project. On the other hand, the problem of fuel poverty is not a well-defined one. Thus, there is no particular department in a municipality that deals specifically with energy poverty, which was a barrier for the more active involvement of the municipality.

CR Insertion	**Communication tools:** No large communication towards the public – detection is made through stakeholders (to avoid households that don't match the program), who fill in a standard sheet they transmit to CR Insertion's advisers. A leaflet is distributed by local partners (social welfare organisations, local associations, social centres) to present the project to the targeted public.
	Identification: Social workers, social landlords and local associations are in charge of the identification of households that may need a visit, and then an appointment is organised with the family by phone
GERES	**Communication tools:** Leaflets, posters, mails (from social landlords to households), contact fact sheet. Those materials are distributed through local partners (social land-

	lords and janitors, social welfare organisations, social centres, tenants organisations, inhabitants and local associations. Press / media campaign realised in July 2012. Word of mouth. Information meetings with stakeholders, local associations…
	Identification: only on a voluntary basis. Identification of households in both public and private sectors. 2 different ways of identification of the households: 1. On a specific deprived area in the South of Marseille: key role of the Social landlords in the awareness campaign / households recruitment, as they include the flyer of the project in one of their mails to the tenants; + Collective activities / events: meeting with 5 – 10 people to inform them on the project, and do a first awareness raising activity, taking part to "women group" for example. / information of the local associations (tenants, neighbourhood…) 2. Identification through Social workers organisations. GERES presented the service to social welfare organisations staffs and then they identify within their beneficiaries, those who need a support on energy / water / housing issues. (a contact sheet is sent by the social worker to GERES).
SWEA	**Communication tools:** Local medias campaign (radio, papers)
	Identification of target households: Agreement with the social housing providers, really interested in the project as their clients are at risk of fuel poverty. Main social housing provider has been directing clients to the programme - mainly those who receive support from the Financial Inclusion Officer. SWEA has also made good links with other community partners in the area and has presented the project. ACHIEVE advisers also deliver leaflets both directly to households and to community shops, schools and doctors surgeries. This also has a good return as people get to meet the advisers. The project is developing a profile and word-of-mouth referrals are also starting to come in. Advertising space has also been taken in local press.
CARITAS	**Communication tools:** Information events for households (working together with a local district program named "active neighbourhood"); Information desks in the job centre, Housing department (aid for the housing); word of mouth recommendation; food bank (Tafel).
	Identification of target households: job centre, second hand shops; food bank (Tafel), local district program named "active neighbourhood" – Mostly working with information desks. People give their contact details and so later on an appointment for the advisory service can be made. For heating: identification of the households mainly through the job centre. If a household is above the average consumption for heating, the job centre will recommend the ACHIEVE advisory service to them.
FOCUS	**Communication tools:** Web pages of Focus and Achieve; FB profiles of Focus; Leaflet for households (several versions, adjusted to the occasion); Small posters that informs about visits; Word to mouth recommendation; Caritas and Red Cross advisers; General media (newspapers, radio, TV…); Direct approach of the customers of the office of Caritas Ljubljana
	Identification of target households: Households are identified mainly through the Caritas and Red Cross advisers. Also Office for employment helps in promoting visits. Information about eligibility of households is in the communication for the general media, so that the households can also self-identify themselves. Eligibility is checked when the household applies for the visit.
EAP	**Communication tools:** one-pager, ACHIEVE's leaflet, specialized newspapers with target audience corresponding to the target groups of the project in Bulgaria.
	Identification of target households: Social Aid directorate, Union of Handicapped

	People, Union of Retired People

Table 19: Communication tools and identification of the households

There are many projects that have aspired to provide energy advice to households with the overarching aim of reducing households' expenditures on energy. A reoccurring theme of much of the partners' research demonstrated that web-based support tools can be remarkably effective in communicating energy advice messages to both households and stakeholders. Another successful approach is joining households together into a small 'neighbourhood' to help one another save energy as their community competes against other such communities. Furthermore, children may be a key agent of change as they are well versed in current discourses around environmental issues. This experience could be incorporated into tailored energy advice reports to help motivate behaviour change in the whole household. Other examples put forward by partners suggest that a competition element with the prospect of prizes could also stimulate households. Again, this may be an area where partners could explore the possibility of directing clients to such initiatives on a case-by-case basis.

The key messages communicated to the target households were shaped based on the inputs of focus groups and interviews, which showed that the emphasis should be on the reduction of costs (not environmental matters), on the fact that it is a free offer (no long term engagement), with free devices, and the neutrality of the advisers and the structures managing them.

With regards to mobilizing the local networks, the lessons learned are that creating and maintaining these networks (with social/health services mainly) is time consuming, and must be done regularly. One-time contacts do not deliver long-term results. There can be barriers when working with social/health services. A possible solution is to send them a report on the results of visits or to engage them in some visits, to show and clearly explain the benefit of the visits. Another possibility is to jointly design, together with these partners, some of the working tools used in the frame of the visit process, and notably the "liaison" documents they fill in when meeting a household that could benefit from a visit.

5.4.3 Transferability

Although ACHIEVE ended in April 2014, it created a good basis for continuation of the activities developed during 3 years. Therefore the project will go on in different formats in the partner countries, and beyond:

- *Bulgaria* - Energy Agency of Plovdiv (EAP) participated in an IEE project proposal that builds on ACHIEVE activities. The project REACH was selected for IEE funding and as a partner in the project, the EAP will continue its actions on fuel poverty abatement. REACH starts in April 2014 and aims to implement some of the ACHIEVE methodology in four Balkan countries – Bulgaria, Croatia, Former Yugoslav Republic Of Macedonia, and Slovenia. For the most part REACH will make use of the approach taken by EAP in ACHIEVE – training students from vocational schools to be energy advisers, so EAP will have to transfer its experience to the other partners in the project. The new features in REACH in comparison with ACHIEVE are: participation of students in all countries, involvement of teachers, introducing energy poverty into the curriculum of vocational schools and implementing more visits to households. In this way, the sustainability of ACHIEVE in Bulgaria is guaranteed for the foreseeable future.

- *France* - The General Directorate for Energy and Climate of the Ministry for environment made eligible to white certificate a program proposed by CLER, based on ACHIEVE methodology: the SLIME program (Local intervention services for energy savings). Any local authority implementing a home visit service for low-income household facing fuel poverty can now collect white certificates (allowing the local authority to recover 25 to 30% of the local scheme budget). The national program is open every 6 months to new candidates. So far, 22 local authorities, representing territories of very heterogeneous scales, have entered this national program. (more info: www.lesslime.org)

The national agency for housing (ANAH) showed interest in disseminating the concept of training long-term unemployed people to perform home visits for low-income households. A train the trainers programme, coordinated by CLER and using/adapting ACHIEVE materials, has been organised (supported by ADEME and REUNICA). By October 2014, all French regions will have a team of trainers operational on the ground.

In Marseille, social landlords from the ACHIEVE targeted area decided to pursue the awareness raising and support activities on energy and water during the planned urban renovation project (2014-2016). Also, GERES submitted a paper to a regional initiative and has been selected. The objective of this project that will follow ACHIEVE is to work on the dissemination of the home visits service in Provence-Alpes-Côte d'Azur. It will more specifically target the local authorities and municipalities. In this project, GERES plans to organise information events targeting local authorities, to explain in details the service and the implementation.

In Ile-de-France, The Regional Council launched a special financial aid for structures recruiting energy advisors to perform home visits (based on ACHIEVE experience). In Seine-Saint-Denis, several municipalities/urban communities are interested in implementing a similar program:

- The municipality of Montfermeil (26 000 inhabitants)
- The Urban Community of Plaine Commune (the ACHIEVE pilot area) is interested in supporting the project after the end of the action.
- The Urban Community of Terres de France (121 000 inhabitants)

- *Germany* - The Energiesparservice is in contact with the social department of the city of Frankfurt to find out together with them, in which way they could support the part of saving energy by using heating devices and give advices in saving heating energy. The heating energy part helps the households to feel more comfortable in their homes on the one hand, on the other hand it helps the municipality to save money because they pay the heating costs in this target group. The opportunity to test this heating part in ACHIEVE helped a lot to have good arguments for the municipality. For the Energiesparservice this part is a perfect add on to the national project on saving energy especially on electricity. The Energiesparservice is also in contact with a social housing company, as they will support the work of one multiplier, who will be able to give advices to all households in their multifamily houses, not only to low income households but also to other people who are living in this houses.

-*Slovenia* - During its implementation, ACHIEVE was presented to many decision-makers and institutions in Slovenia that can contribute to the continuation of the project. However, there is always a problem of financing the activities, which is exposed as a key obstacle. This is why it was necessary to look into financially more feasible options and options for self-sustaining activities, hence a project proposal was prepared. Project REACH was selected for IEE funding. As in Bulgaria, in Slovenia the activities of ACHIEVE will be continued through REACH. The future activities will be oriented to two areas of Slovenia, which are facing hard development situations, one of them being a region that is doing a transition from mining sector to other sectors, while the other region is one of the least developed regions in Slovenia. The regions will be served with training students of vocational schools to become energy advisers. This will help them to get to know the practice and build technical, energy and communication skills that they will need in their future careers. They will visit households to determine what can be done in terms of energy and water saving and prepare tailor made advice and package of energy and water saving devices for the households.

- *United-Kingdom* - ACHIEVE was a good opportunity to test a methodology that will assist in the development of future projects with similar aims and objectives. SWEA is beginning a similar project that will utilise some of the ACHIEVE survey and report methodology with a local Social Housing provider, the intent being to show measurable savings as a result of energy advice. The ACHIEVE methodology is appealing in this sense because it is straight forward to demonstrate estimated energy savings based on the devices installed. We will be combining this with additional behavioural and fuel tariff advice and self-monitoring tools to create a comprehensive advice package. Conversations with some of our social housing clients show that this is a concept that interests them greatly. Many providers have made all feasible thermal efficiency improvements at current funding levels so are looking to help tenants through advice projects. SWEA sees this as being an important part of its advice portfolio.

These are examples of how the project will continue its life…

6 Conclusion

The service of ACHIEVE was based on home visits and its main purpose was to identify on a case-by-case basis the everyday actions that can have a real impact on the energy consumption of low-income households. The visits focused on:

- Understanding vulnerable consumers' energy consumption, bills and habits and checking their appliances with a set of reporting/analysing tools.
- Distributing and installing a set of energy-efficient and water-saving devices (such as light bulbs, power strips, tap aerators, …), which are free of charge for the households and giving advice to the households on how to implement further practical measures for saving energy.
- Analysing which long-term solutions can be introduced to improve the households' situation, by linking local actors into a concerted local action plan.

The evaluation of the visits showed that there are two groups of people who are most endangered by fuel poverty: elderly people and families with young children. They often have to face difficult life situations in which they cannot afford to pay their energy bills. Often these households are tenant households but this varies in the different countries and areas. Broadly one can say that in West European countries in the more rural areas people own their houses, while in cities people have rented their flats. This seems to be different to East European countries (in this case Bulgaria and Slovenia) where most of the households own their dwellings. The approach of ACHIEVE took these different living situations into consideration. The different partners worked together with organisations which know the target group very well and developed materials which addressed them appropriately.

To mobilise households and to enable them to care about their energy consumption, free energy devices proofed to be very helpful. Installing these devices has a real impact on the households' energy consumption and enables them to directly start saving energy and water. This was motivating for all households in all countries and it is supporting them to further reduce their energy bills by changing their habits of energy use. As for the environmental goal, this was how energy efficiency mainly was targeted.

> *"I'm very pleased with the energy saving gadgets that have been installed, particularly the quality of the light bulbs that have been fitted, and I want to thank the project for all their hard work in improving my comfort throughout the property." (Household from UK)*

Fuel poverty and long-term unemployment are often linked with social marginalisation. ACHIEVE's important social innovation was that it contributed to social reintegration, both by empowering households to fight fuel poverty by improving their understanding of their energy use, and by engaging people who have been unemployed for a long time to raise awareness on fuel poverty. The households got advices from people who know their life situation well and thus could give them advice in an appropriate way, so to speak on "eye level".

Over all countries, the most important aspect was to work with energy multiplicators with social and communication skills; even if a large part of the work concerning the visits is technical (assessment and calculation of the main possible energy and water savings, tipps given to households to reduce their consumption, etc.). Technical knowledge can be trained, but the ability to speak, listen and motivate people is more difficult to develop. To fulfil the technical demands of the project there is needed a coaching by certified energy advisors. The multiplicators in return got additional benefits from their work, especially knowledge on new technical skills, in saving energy, in heating and ventilation and in the building sector and they improved their communication skills and their self-confidence as starting point for a new career. In each territory, different groups of people worked in the project: volunteers, students, long-term unemployed people. They all very much appreciated their job and the opportunities they got out of it.

> *It helped me to be able to go back to my hometown, and now I feel able to find a job there, this will enlarge substantially my professional perspectives." (Adviser from France)*

A crucial programme activity was to trigger building improvement where insulation works are needed: by better connecting tenants and landlords, by informing, motivating and orientating them with easy to understand and tailored documents and methods. To do this, project partners cooperated closely with tenants, home owners, landlords, social services, consumer protection agencies and other relevant actors. ACHIEVE partners developed specific partnerships and tools to tackle this issue. To establish these local networks turned out to be a very important but also time consuming part of the project. But

in the end it turned out as a good foundation for a further continuation of the project. Each partner will follow up with the ACHIEVE project or variations of it.

The ACHIEVE approach with its combination of social, health, environmental, employment and education policy is a good starting point for supporting climate protection and facing fuel poverty at the same time. At a long sight these different policies have to be brought together more closely and considered on an EU-level by:

- Developing a common EU definition (without making it too complex)
- Harmonising statistics and knowledge around the issue of energy poverty at the EU level
- Offering EU funds and projects for a comprehensive saving service for households, landlords and housing companies
- Integrating social issues into the strategy of energy transition (energy efficiency - cogeneration and renewables energy) on a European basis.

List of literature

ABBE

(level 3) Energy Advice (Home) unit 4 M/600/3523

BiB (2013)

Bundesinstitut für Bevölkerungsforschung (BiB), 2013 Pressemittelung Nr. 9/13

Destatis (2010)

Statistisches Bundesamt, Leben in Europa, EU-SILC

Energy saving trust

http://www.energysavingtrust.org.uk/Energy-Saving-Trust/Press/Press-releases/Energy-Saving-Trust-savings-figures

Green Deal

https://www.gov.uk/green-deal-energy-saving-measures

IFEU, ISOE (2009)

Evaluation des Cariteam-Energiesparservice in Frankfurt a.M.

Tews, Kerstin (2012)

Einzelprojektevaluierung Stromspar-Check in einkommensschwachen Haushalten

Trowbridge Community Area Census (2011)

http://www.intelligencenetwork.org.uk/population-and-census/

Annex-A Questionnaire survey

1	**How have you known ACHIEVE visits service:**
	Do not read options in the first place, only if necessary
.1	Word of mouth (personal recommendation by friends, acquaintances, neighbours, etc.)
.2	Job Centre
.3	Social services
.4	Charity organisation
.5	Energy supplier
.6	Energy department
.7	Housing / building society
.8	Through my (social) landlord
.9	Tenants' / consumer protection association
.10	Energy advice at consumer advice centre
.11	Local environmental organisation/energy desks
.12	Information presentation / meeting
.13	Internet
.14	Television, radio, etc.
.15	Newspaper article
.16	Information leaflet / brochure
.17	Poster / bulletin
.18	ACHIEVE partner organisation/advisor (CRI, GERES, FOCUS, EAP, CARITAS, SWEA)
.19	I don't remember
.20	Other - Specify:

2	**Considering your full experience with ACHIEVE, how satisfied are you with the provided service?**
	Please code from 1 - 10 (10 is the best grade, 1 is the worst grade).

3	**We will now discuss how ACHIEVE visit helped you to understand your energy consumption better. For each of the following component, please tell me how helpful ACHIEVE visit helped you. Very helpful, helpful, not very helpful, redundant**	1. Very helpful	2. Helpful	3. Not very helpful	4. Redundant
.1	Understand of your water and electricity bill at the beginning				
.2	Read your energy and water meters				
.3	Anticipate the amount of your future bills				
.4	Be aware of / measure the energy consumption of your different appliances (e.g. lamps burning, TV...)				
.5	Saving tips and recommendations received during the 2nd visit				
.6	Installation of the free saving devices				
.7	Discussion on the report given at the 2nd visit				
.8	The written report altogether				
.9	Any additional brochures/list given with saving tips				

	We will now discuss on the energy and water saving devices that have been installed in your household or given up to you during the visit.		
4	**Devices received by the hh - automatic use after installation (do not ask for all the devices of the list, but only thoose received by the hh)**	**Is it still installed?**	**If no, why?**
.1	CFL	1. Yes 2. No 3. I don't know	1. It broke/does not work properly 2. I didn't like the light produced with the bulb 3. It was too long to reach full brightness 4. I don't know 5. Other
.2	R7	1. Yes 2. No 3. I don't know	1. It broke/does not work properly 2. I didn't like the light produced with the bulb 3. I don't know 4. Other

.3	LED GU10/5,3	1. Yes 2. No 3. I don't know	1. It broke/does not work properly 2. I didn't like the light produced with the bulb 3. I don't know 4. Other
.4	Radiator reflective foil/panel	1. Yes 2. No 3. I don't know	1. It went off/does not work properly 2. It was not pretty 3. I don't know 4. Other
.5	Thermostatic radiator valve (TRV)	1. Yes 2. No 3. I don't know	1. It broke/does not work properly 2. The temperature in the room was not appropriate 3. I don't know 4. Other
.6	Draft Proofing (weather stripping)	1. Yes 2. No 3. I don't know	1. It went off/does not work properly 2. There was not enough material offered so it was not possible to go all around the window 3. I don't know 4. Other
.7	Transparent thermo cover insulation foil for window	1. Yes 2. No 3. I don't know	1. It went off/does not work properly 2. The light was filtered too much / it was darker in the room 3. The glass has not been cleaned before proceeding/it was dirty 4. I don't know 5. Other

.8	Movement sensor	1. Yes 2. No 3. I don't know	1. It broke/does not work properly 2. It was not well programmed (light is on too long/not enough time) 3. I didn't like it/it was not necessary in this room 4. I don't know 5. Other
.9	Door bottom seal	1. Yes 2. No 3. I don't know	1. It went off/does not work properly 2. It is too inconvenient to use it 3. It was not pretty 4. I don't know 5. Other
.10	Tap Aerator (kitchen)	1. Yes 2. No 3. I don't know	1. It broke/does not work properly 2. There was not enough pressure 3. There was not enough water/insufficient flow from the pipe 4. It was too long for hot water to reach the tap 5. I don't know 6. Other
.11	Tap Aerator (bathroom)	1. Yes 2. No 3. I don't know	1. It broke/does not work properly 2. There was not enough pressure 3. There was not enough water/insufficient flow from the pipe 4. It was too long for hot water to reach the tap. 5. I don't know 6. Other

.12	Tap Areator (with a stop position)	1. Yes 2. No 3. I don't know	1. It broke/does not work properly 2. There was not enough pressure 3. There was not enough water/insufficient flow from the pipe 4. It was too long for hot water to reach the tap. 5. I was always forgetting to shut off the tap 6. I don't know 7. Other
.13	Water saving shower head	1. Yes 2. No 3. I don't know	1. It broke/does not work properly 2. There was not enough pressure 3. There was not enough water/insufficient flow from the pipe 4. It was too long for hot water to reach the tap. 5. I don't know 6. Other
.14	Save-a-flush	1. Yes 2. No 3. I don't know	1. It broke/does not work properly 2. I have not noted even the slightest improvement 3. The flow was insufficient 4. I don't know 5. Other
.15	WC water stop	1. Yes 2. No 3. I don't know	1. It broke/does not work properly 2. I have not noted even the slightest improvement 3. It provides a bad/worst grip as you flush (loss of sensitivity) 4. The flow was insufficient 5. I don't know 6. Other

.16	Timer for the boiler (Thermostopp)	1. Yes 2. No 3. I don't know	1. It broke/does not work properly 2. The adjusted time did not fit and we were not able to change it 3. I don´t know 4. Others:

5	**Devices received by the hh only - need to be used/activated by the hh (do not ask for all the devices of the list, but only thoose received by the hh)**	**Do you use it?**	**If rarely or never, why?**
.1	TV/PC power down/wireless switcher	1. Always 2. Most of the time 3. Rarely 4. Never 5. I don't know	1. It broke/does not work properly 2. I don't think about it 3. It is too inconvenient to use it 4. I don't manage /don't understand how to use it 5. It is too long to switch on 6. I don't know 7. Other
.2	Power Strip with Switch On/Off (switch located on the strip)	1. Always 2. Most of the time 3. Rarely 4. Never 5. I don't know	1. It broke/does not work properly 2. I don't think about it 3. It is too inconvenient to do it (not readily / easily accessible - hidden behind furniture) 4. I don't manage /don't understand how to use it 5. I don't know 6. Other

.3	Power Strip with Switch On/Off (switch located apart the strip)	1. Always 2. Most of the time 3. Rarely 4. Never 5. I don't know	1. It broke/does not work properly 2. I don't think about it 3. It is too inconvenient to do it (not readily / easily accessible - hidden behind furniture) 4. I don't manage /don't understand how to use it 5. I don't know 6. Other
.4	Plugin mechanical Timer	1. Always 2. Most of the time 3. Rarely 4. Never 5. I don't know	1. It broke/does not work properly 2. I don't think about it 3. It is too inconvenient to use it 4. I don't manage /don't understand how to use it 5. I have no confidence in these products 6. It uses electricity even when convector is in off mode. 7. I don't know 8. Other
.5	Plugin digital Timer	1. Always 2. Most of the time 3. Rarely 4. Never 5. I don't know	1. It broke/does not work properly 2. I don't think about it 3. It is too inconvenient to use it 4. I don't manage /don't understand how to use it 5. I have no confidence in these products 6. It uses electricity even when convector is in off mode. 8. I don't know 9. Other

.6	Fridge/freezer thermometer	1. Always 2. Most of the time 3. Rarely 4. Never 5. I don't know	1. It broke/does not work properly 2. I don't think about it 3. It is too inconvenient to use it 4. I don't manage /don't understand how to use it 5. I don't know 6. Other
.7	Thermometer or Thermo- Hygrometer	1. Always 2. Most of the time 3. Rarely 4. Never 5. I don't know	1. It broke/does not work properly 2. I don't think about it 3. It is too inconvenient to use it 4. I don't manage /don't understand how to use it 5. I don't know how to read into the humidity results 6. I don't know 7. Other
.8	Shower timer (question for the whole famiy)	1. Always 2. Most of the time 3. Rarely 4. Never 5. I don't know	1. It broke/does not work properly 2. I don't think about it 3. It is too inconvenient to use it 4. I don't manage /don't understand how to use it 5. It is not visible in bathroom because of white paste 6. I don't know 7. Other

.9	Shower-stop system	1. Always 2. Most of the time 3. Rarely 4. Never 5. I don't know	1. It broke/does not work properly 2. I don't think about it 3. It is too inconvenient to use it 4. I don't manage /don't understand how to use it 5. I don't know 6. Other
		Do you use it?	**If irregular or never, why?**
.10	Radiator key	1. More than once a year 2. Before the heating period 3. Irregular 4. Never 5. I don´t know	1. It broke does not work properly 2. I do not think about it 3. It is too inconvenient to use it 4. I don´t manage/ don´t understand how to use it 5. I lost it 6. I don´t know 7. Others:

6	**If you received some suggestion for investment in new efficient appliances (fridge, TV, oven…), did you have the chance to buy any of the recommended equipments?**
.1	Yes
.2	No

7	**If yes, precise for which equipment(s):**
.1	
.2	
.3	
…	

8	**I will state some tips you might have been given during the visit, on how to save electricity. For each of them, please chose one of the following statements: you were already doing this before, you got the tip but didn't follow it, you got the tip and followed, you are not concerned :**	1. did it before	2. got tip but didn't follow	3. got tip and followed	4. does not apply	5. I didn't get the tip
	Tips for heating					
.1	Ensure that your home is insulated. In the loft 270mm/10.5 inches of insulation is recommended and insulate cavity walls where possible/appropriate					
.2	Make sure your heating system is only on when you need it: adjust the timer/programmer until your heating is only on for the hours that you need warmth.					
.3	Turning the heating thermostat down by 1ºC will reduce your energy demand by around 5 to 7%. It is recommended to set you main living space to 19°C (although inactive people and babies may need more).					
.4	Move furniture / curtains away from the front of heaters or radiators as this blocks the heat from the rest of the room					
.5	Regularly open windows completely (x) instead of leaving window slightly open					
.6	Opening windows everydays during 5 to 10 minutes					
.7	Keep doors to rooms closed where possible in winter to conserve heat and turn down TRVs in unoccupied rooms or bedrooms.					
.8	Keep clear the the air vents to allow air exchange					
	Tips to reduce humidity/condensation					
.9	Keep doors to kitchen and bathroom shut during and shortly after use, use extractor fans where possible and/or open windows for ventilation - this will help to reduce condensation					
	Tips for cooking					
.10	Choose the right sized pan and cooker ring for what you are cooking – on a gas cooker the flames should not cover the sides of the pan.					
	Tips for domestic appliance / electricity					
.11	Regulate temperature in refrigerator (less cold) = setting around 3 or 4 for the best efficiency, this is 5°C and - 18°C respectively					
.12	Place refrigerator in a cool space (not close to an oven, or in the sun)					
.13	Defrost fridge/ freezer regularly					

.14	When using a kettle only use as much water as you need					
.15	Wash with lower temperature/economy programme					
.16	Dry washing outside on a line whenever possible					
.17	Turn TVs/DVD's/Stereos off properly when not in use as leaving them on standby wastes energy					
.18	Unplug chargers and transformers when not in use					
.19	Regularly switch off power strips to avoid stand-by losses					
.20	Lowering the temperature from 60 to 40°C for wasing machine reduces consumption of energy up to 45 %.					
	Tips for lighting					
.21	Stop using lamps with high-energy consumption or use them less (e.g. ceiling floodlights)					
.22	Turn out the lights in empty rooms (making sure that areas like stairs are still adequately lit)					
	Tips for hot water					
.23	Check that your hot water thermostat is set no higher than 60ºC; setting it higher increases the risk of scalding and wastes fuel.					
.24	Lag your hot water tank with a 80mm jacket.					
.25	Use a shower-timer: having a 5 minute shower costs roughly 5 times less than a bath.					
	Tips to save water in your home					
.26	Fit aerators to your taps and an aerating shower head					
.27	Wash full loads in your washing machine and dish washer					
.28	Turn off the water while washing hands, dishes or while shaving/showering					
.29	Take showers instead of baths					

9	**I would now like to know how satisfied you were with the advisors who came to visit you. Please give a rate from 1-10 for each proposal I will now state (10 being the best rate).**	1. Grade	11. I don't remember
.1	Their friendliness	1 to 10	
.2	Their expertise	1 to 10	
.3	Their punctuality	1 to 10	
.4	Their ability to answer questions and respond to needs	1 to 10	
.5	The clarity of their explanations	1 to 10	

10	**Here are some statements concerning the advice you received on energy saving. Please answer "yes", "no" or "I don't know" for each of them**	1. yes	2. no	3. I don' know
.1	You are convinced that your energy bills have been/will be reduced thanks to the energy saving service			
.2	You did not get much new information, you knew most of it before			
.3	Getting advice did motivate you to care more about your energy consumption			
.4	You passed tips and recommendations on how to save energy to friends and ac-quaintances			
.5	The idea of such a local service to receive devices and advise a home should really be realised in other cities as well			
.6	You have now (for the first time) understood how important it is to save energy			

11	**Who in your household takes care of the topic/matter/issue of energy saving? (several answers possible)**
.1	Me
.2	My partner and I (the two of us together)
.3	My partner
.4	Parents
.5	Child/Children
.6	Nobody
.7	Another person, who?

12	**Considering general comfort, which statement(s) does best describe the current situation in your home? (several answers possible)**	1. yes	2. no
1.	My general comfort has improved fully		
	My general confort has improved but…		
.2	… I still feel cold in my home sometimes		
.3	… I still feel drought in some rooms		

.4	… I still have humidity problems		
.5	My general comfort has not improved		
.6	Does not apply		

13	**After the visit, did you have the chance to benefit from one of the following options or did you change anything for your household:**	1. yes	2. no
.1	You benefitted from new social tarifs or financial aid you didn't receive before		
.2	You adapted your energy supply contract(s) to your actual needs		
.3	You/a professional called your landlord		
.4	You had contact with financial mechanisms or actors that will help you realize energy saving works or saving appliances		
.5	You had contact with technical/social services or consumer organisation for a specific assistance concerning legal, sanitary or unpaid bills issue. (Social Services, etc.)		
.6	You received a proposal for a relocation in a new home		
.7	You changed your energy supplier company		
.8	A tool was set up to help you monitor monthly/better you water consumption		
.9	You made small and simple home repairs (fix a leak, replace a broken glass...)		
.10	You made energy-saving works (changed single-glazed windows to double-glazed windows, changed of boiler, improve my heating system...)		
.11	You read more on this particular issue (discussion forum, subscription to a newsletter, online consumption monitor, buy specific papers…)		
.12	You changed your heating sources at home		
.13	By interior design, you improved the comfort level (curtains, furnitures far away from the radiators…)		

14	**I will propose you several ways from which you or your friends could receive information about the visits service. Please tell me, for each proposal, whether you would trust it or not:**	1. yes	2. no	3. I don' know
.1	Letter/communication from the municipality			
.2	Letter/communication from your energy supplier			

.3	Letter/communication from local environmental organisation/energy desks			
.4	Letter/communication services/social welfare office			
.5	Communication/posters at supermarkets, local markets			
.6	Letter/communication from or posters at local charity organisations			
.7	From friends/peoole I know/word of mouth			
.8	Other - Specify:			

15	**Have you recommended the visit to other people**
.1	Yes
.2	No
16	**If yes, to whom (several answers possible):**
.1	Family
.2	Neighbor
.3	Friends, people I know
.4	Members of an local association
.5	Others: specify

17	**Do you want to suggest something for the improvement of the service?**
	Open answer

18	**Sociodemographics**	
	For all	
.1	Size of the family (total number of persons living in the hh)	
.2	Number of people under 12	
.3	Number of people over 60	1. not working (any more) 2. working part-time 3. working full-time

		4. in (vocati-onal) training 5. un-employed 6. retired 7. other
.4	Job status	1. collective housing (flat) 2. individual home 3. multifamily housing
.5	Type of housing	1. Owner occupier 2. Tenant public social housing 3. Tenant private social housing 4. Other
6.	Occupancy status	
.7	Size of the home (square meter)	
.8	Number of rooms	1. Before 1945 2. 1945-1975 3. 1975-2005 4. After 2005

		5. I don't know
.9	Period of construction of the property	
	Depending on the countries	
.10	Total household's income	
.11	Amount of social aid	1. Natural gas (network) 2. Gas (Other) 3. Electricity 4. Fuel 5. Wood 6. District heating 7. None 8. Other
.12	Type of energy used for heating	1. Individual 2. Collective 3. No heating system
.13	Type of heating system	

Annex-B Questionnaire Advisors

Information about the adviser:

- Before we start with the questions about the project I want to ask you some general information:
- How old are you?
- Please tell me about your background, what have you done before you came in the project? Your education and qualification?
- How long did you work in the ACHIEVE project?
- Are you still working in the project?
    - ***If yes***, what kind of employment? Fulltime, part-time, job promotion program, volunteer etc.?
    - ***If not***, what have you done after your time in the project?
        - Did you find a new job? ⇨ What kind of job? ⇨ Fulltime, part-time ⇨ in which field? Are you still working in this job?
        - Or are you self employed now? ⇨ What kind of self employment ⇨ in which field?
        - Or maybe you take part at another training? ⇨ What kind of training?
        - Still unemployed?

About ACHIEVE and the visits:

- Do you like this job (also for a long time period)?
- Did you feel well prepared for the visits (in terms of training, in terms of social experience)?
- What else would you have needed?
- What skills do you think you have?
- And what skills do you think is needed to be a good adviser?
- Do you think the training and the practical experience are useful to get a new job?
- What are the main issues you are facing in this job?
- What was/is your experience in the household? (contact, welcome…)
- What part of the visit do you consider to be most successful?
- What else do you think the households would need?
- Do you expect your advice to be taken into account?
- Did you get any advice, ideas, etc. from the households?
- Would you do the visits differently?
- What would you change about the visits?
- What was your best experience, what was your worst?

Additional Questions for EAP:

- Do you think it was helpful for your studies to take part in the project?
- Do you think it was helpful to get practical experience?
- Do you think it was helpful to find a job after your studies?

Additional information not to be asked: sex?

Annex-C Calculations

TOTAL SAVINGS PER YEAR					
	electricity	**heat**	**water**	**CO2 (kg)**	**€**
IDEMU	160131	97845	11650	53301	54216
GERES	102009	211551	8727	89376	47125
Bulgaria	101053	77311	2833	103063	18115
Slovenia	50967	103214	3256	103214	20249
UK	21063	43600	385	17742	7161
Germany	130312	224439	6827	127944	68456
	565535	**757960**	**33678**	**494640**	**215322**

TOTAL LONG-TERM SAVINGS					
	electricity	**heat**	**water**	**CO2**	**€**
FOCUS	262511	722828	32563	965447	149454
EAP	606318	386555	28334	583978	110911
SWEA	326981	289770	917	200562	78411
GERES	306027	634653	26181	268128	141375
IDEMU	480393	293535	34950	159903	162648
CARITAS	489430	1394565	68269	2956011	433519
Project level	**2471660**	**3721906**	**191214**	**5134029**	**1076318**

AVERAGE SAVINGS IN PERCENTAGE OF THE AVERAGE CONSUMPTION									
	electricity			**water**			**heat energy**		
	consumption kWh	savings kWh	percentage %	consumption m³	savings m³	percentage %	consumption kWh	savings kWh	percentage %
FOCUS	2708	274	10,12	107,3	17,5	16,31	8325	554,9	6,67
EAP	3538	335,7	9,49	105,7	9,4	8,89	6405	257,7	4,02
SWEA	3478	193,2	5,55	104,3	3,5	3,36	11656	400	3,43
GERES	3560	345,8	9,71	111,8	30,2	27,01	8055	923,8	11,47
IDEMU	4939	525	10,63	171,4	38,3	22,35	10176	665,6	6,54
CARITAS	2726	312,52	11,46	104,3	27,53	26,40	11839	750,63	6,34
Project scale	20949	1986,22		704,8	126,43		56456	3552,63	
average	3491,5	331,036667		117,466667	21,0716667		9409,33333	592,105	
percentage project scale			9,481216287			17,9384222			6,29274125

PRIMARY ENERGY SAVINGS TOE							
	primary energy factor electrici-ty	primary energy factor heat ener-gy	primary energy kWh electricity	primary energy kWh heat			
FOCUS	2,55	1,1	129965,85	113535,4			
EAP	3	2,29	303159	177042,19		number of visited households: 31.01.14	1690
SWEA	2,92	1,02	61503,96	44472			
GERES	2,58	1	263183,22	211551		total number of visited households end of the project	1920
IDEMU	2,58	1	413137,98	97845			
CARITAS	2,6	1,1	338811,2	246882,9			
			1509761,21	891328,49	2401089,7		
savings primary energy per household kWh			893,3498284	527,413308	1420,76314	total primary energy savings (1920 households) kWh	2727865,22
					total primary energy savings in toe		**234,634889**

LEARNING EFFECTS: ENERGY SAVINGS THROUGH BEHAVIORAL CHANGES						
	tip	followed by %	followed by abso-lut	savings for one houeshold kWh/a	savings kWh/a heat	savings kWh/a electricity
FOCUS	turning down heat	30%	66	228	15048	
EAP	stop using lamps with high energy consump-tion	68%	204	40		8160
	wash with lower temperature	41%	123	50		6150
SWEA	reduce room temperature	28%	56	228	12768	
	regulate temperature in the fridge	25%	50	32		1600
	move furniture and curtains away from radi-ators	23%	46	342	15732	
GERES	reduce room temperature	38%	140	228	31920	
	ove furniture and curtains away from radia-tors	28%	104	342	35431	
IDEMU	reduce room temperature to 19 degrees	43%	138	228	31569	
	wash with low temperatur	32%	103	50		5152
CARITAS	stop using lamps with high energy consump-tion	60%	302	40		12096
	regulate temperature in the fridge	50%	252	32		8064
	total savings kWh				**142468**	**41222**
	savings per household kWh				74,202125	21,4697917