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IDEA Overall Report

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Executive Summary:

Aim of this document is to present the analysis of existing tools, methods and educational practices in the areas relevant for energy poverty, identification of knowledge gaps in existing tools, and the training needs assessment in the area of energy poverty in Bulgaria, Croatia, Cyprus and Slovenia, and to make a comparison of these findings.

This document presents the synthesis of key findings from the country reports. It includes country reports for Bulgaria, Croatia, Cyprus and Slovenia. Last chapter especially refers to aspects and results that are important for further development of ICT tools in the scope of the IDEA project. For that reason, relevant tools and contents related to energy poverty are presented. Furthermore, the needs of stakeholders and households related to energy poverty, which were identified in all 4 countries with the use of questionnaire, are synthesized. The last subsections of the chapter refers to important differences between countries regarding energy poverty and brings forward any specifics that we need to be careful about when developing the tools.

Most suitable and important content for education on energy poverty are tools and content developed in the scope of REACH project, which was implemented in Bulgaria, Croatia and Slovenia by partner organizations from these countries. These include textbooks (curriculum) for education of energy advisers, accompanying slide-show presentation, guidebooks for reducing energy use in households, energy auditors' guidance (very comprehensive education materials about energy efficiency in households).

REACH Data collection sheet and Excel tool present a combination of tools for energy advising and audits in energy poor households. These are comprehensive ICT tools for assessment of energy and water consumption and calculating energy savings. It is planned that they will be used in IDEA project, as on of the aims of the IDEA project is to develop a more user friendly version of the tools for energy advising or energy auditing in households.

Key findings from the stakeholders' survey carried out in 4 countries were analysed. The survey involved 144 participants: 35 from Bulgaria, 32 from Croatia, 39 from Cyprus, and 38 from Slovenia. It gives us an insight into what are the different stakeholders' needs, which topics and content do they think it's important, and which formats of tools would be most beneficial for them personally, for educational purposes, and for energy poor households. The results of the survey can give us the direction for development of IDEA ICT tools.

Findings include that there is a lack of definition of energy poverty in all four countries, nor is there a coherent set of indicators set and monitored regarding energy poverty.

Content

Introduction

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About the project

IDEA (Innovative Direction in Energy Advising) project's purpose is to develop innovations in education about energy poverty. Main objective is to improve existing and develop new innovative educational methods and materials for adult training on energy poverty. The partnership consists of experienced organizations strategically places in the most affected region regarding energy poverty - in Bulgaria, Croatia, Slovenia and Cyprus. Project is implemented by University of Cyprus, DOOR Society for Sustainable Development Design, Energy Agency Plovdiv and Focus Association for Sustainable Development. It is funded by Erasmus+ programme.

1. Bulgaria

The analysis show that in Bulgaria there is no still a clear definition for Energy poverty. It could be said that a household is considered to be energy poor if it has difficulty meeting its main energy needs. Energy-poor households spend a disproportionately large part of their income on energy - more than 10% to meet their energy needs. Another definition that is commonly used in the EU is: a household that spends twice as much energy over the median energy costs nationwide.

In Bulgaria, there are no existing educational programme, specifically related to Energy poverty issue, but some relevant materials including social and energy aspects could be found, for example, the materials developed in REACH and ACHIEVE projects, which deal with energy poverty. In the process of identifying existing materials and training practices has highlighted the useful documents, which can extract information about the mentioned above three aspects.

The identification of relevant stakeholders is based on GA statement that the target users of the project outcomes would be mainly:

- institutions active in adult training,
- social organisation active in energy poverty, social services, human rights, environmental etc.

In addition, we identified other relevant stakeholders that are engaged with social activities, and that would be interested in project outcomes and through which, the final beneficiaries could be easily reached. They can be summarized as follows:

- National and local authorities
- Energy agencies and centres
- Universities
- Employment agencies and Labour offices

The most important conclusions from the surveys could be summarized as follows: More than 50% of the respondents are familiar with the issue of energy poverty. 48,6% of the participants have indicated that in their work they rarely come across the topic of energy poverty. 45,7% think that the issue of energy poverty is very important. The most suitable tools for respondents' involvement in energy poverty is database on energy poverty in households. Most of the respondents are interested in implementation of structural measures and energy advising and auditing approaches.

The biggest share of respondent have indicated that they need more knowledge and external support in "policies and measures" and in cooperation with different stakeholders. The topics, that are indicated as most important for education about energy poverty are: "Social security aspect and related services (to be able to identify problem and give advice to household" and "Energy use of domestic devices and appliances." Most of the respondents find the Practical

part (energy advising, implementing measures, saving devices) as most important training sets for modules.

1.1 Existing tools, methods and educational practices for trainings in the areas relevant for energy poverty

In Bulgaria, there are no existing educational programme, specifically related to Energy poverty issue, but some relevant materials including social and energy aspects could be found, for example, the materials developed in REACH and ACHIEVE projects, which deal with energy poverty. In the process of identifying existing materials and training practices has highlighted the useful documents, which can extract information about the mentioned above three aspects.

The identified existing tools, methods and educational practices that could be used for developing the IDEA educational program are shown in the following table:

No.	Name of the tool	Author/Institution	Short description of the tool	Format of the tool
1	REACH Energy auditors Guidance	Energy Agency of Plovdiv, REACH partners	A document, developed in the framework of REACH project, that deals with Energy poverty issues and solutions	educational material (text)
2	Energy Auditor in households presentation	ACHIEVE partners	Presentation developed in framework of ACHIEVE project	other: Presentation
3	ACHIEVE_ENERGIJNATA_BEDNOST	ACHIEVE partners	Presentation developed in framework of ACHIEVE project	educational material (text)
4	Energy poverty National Action Plan	Energy Agency of Plovdiv	The purpose of this document is to analyse the existing situation and to describe the planned activities needed to put the problem of energy poverty in Bulgaria at a political level.	educational material (text)
5	Energy performance of Buildings Software	SEEA	Based on the Energy performance of Buildings Directive	ICT tool
6	Energy efficiency in households	SEEA	ICT tool for energy consumption assessment	ICT tool
7	CO2 emissions calculator	Energy Agency of Plovdiv	Web-based tool for calculating CO2 emissions from different energies	ICT tool
8	Energy Efficiency Policies and Measures in Bulgaria	SEEA	Document implemented in the framework of the project "Monitoring the Implementation of the European and National Energy Saving Goals - ODYSSEE-MURE	educational material (text)
9	Energy Poverty in Bulgaria Report	Open Community	Document - report on Energy poverty situation in Bulgaria	educational material (text)
10	Energy savings in households Platform	EnerGbg	The EnerGbg platform responds to the need to share more information about this: How can energy be used more efficiently by households; How can energy bills be reduced; How it is possible to reduce the release of harmful emissions into the atmosphere.	ICT tool
11	Teacher's Guide	Bimec, COOSS MARCHE, Mozaik, Partenalia, VM, Waterpolis	A teacher's guide has been developed within the framework of the Lifelong Learning program life "under the IGTrain Project:" Trained to Train - Transfer the Knowledge Acquired to workplace, from generation to generation ". The aim of the manual is to give teachers and training organizations information on	educational material (text)

			the procedures for developing and implementing the training program of the trainers	
12	Methodology for "Social Assistance" service providing	AGENCY FOR SOCIAL ASSISTANCE	The methodology regulates the process of provision of the service in the "Social Assistant" community in accordance with the requirements of the minimum quality standards for this service, stipulated in the Regulation on the Application of the Social Assistance Act.	educational material (text)
13	Energy Master Training - Powerpoint Presentation	Energy Agency of Plovdiv	Presentation developed in framework of Energy Neighbourhoods project	other: Presentation
14	Energy Masters handbook	EN2 project partners	Document developed in framework of Energy Neighbourhoods project	educational material (text)
15	Energy Saving Tips	DOMINO project partners	Document developed in framework of DOMINO project	educational material (text)
16	REACH energy assessment tool	REACH project partners	Excel tool developed in the framework if REACH project	ICT tool
17	Methodology Training of Trainers EN	Community Center "Future Now	Methodology is developed as a result of cooperation in the youth field between experts from Bulgaria and Romania, in the framework of the project "Non-formal learning for employability"	educational material (text)
18	Energy saving tips	Energy Agency of Plovdiv	Document, developed by Sustainable energy efficiency agency witn energy saving tips for households	educational material (text)
19	Fiesta energy efficiency guide	Fiesta project partners	Document developed in the framework of FIESTA project	educational material (text)
20	Fiesta Video Intelligent energy families	Fiesta project partners	Video animation developed in the framework of FIESTA project	video
22	Fiesta Video - Intelligent energy families	Fiesta project partners	Video animation developed in the framework of FIESTA project	video
22	Fiesta Video - Intelligent energy families	Fiesta project partners	Video animation developed in the framework of FIESTA project	video
23	Fiesta Video - Intelligent energy families	Fiesta project partners	Video animation developed in the framework of FIESTA project	video
24	FIESTA Tool Guidebook for Advisors	Fiesta project partners	Guidebook for energy advisors	educational material (text)
25	FIESTA tool for auditors	Fiesta project partners	FIESTA's energy tool incorporates the main energy features of a household. The formulas included in it allow for a rapid assessment of the energy performance of a building as well as of the heating and cooling appliances.	ICT tool

Table 1.1: Identified tools, methods and educational practices in Bulgaria

Each of these materials and tools contains useful information for the modules of the project (Technical, Social and Entrepreneurship) which could help in the development of the training packages and tools or to be used as additional literature in the preparation of the educational materials and implementing the training. Still, when adapting the IDEA educational programme, the share of practical exercises, should be increased.

After analysing the identified materials, some of them certainly stand out as very suitable for implementation in the IDEA educational programme:

- **REACH Energy auditors Guidance** – the author of the document are the partners of REACH project. It is very relevant to IDEA project as it consists **very comprehensive education materials about energy efficiency in households**, energy advices, examples of energy saving equipment for households.
- **REACH energy assessment tool** - Excel tool developed in the framework of REACH project- Very comprehensive ICT tool for assessment of energy and water consumption and calculating the energy savings. With big potential for replication.
- **Energy poverty National Action Plan** – the authors of the document are experts from Energy agency of Plovdiv. The purpose of this document is to analyse the existing situation and to describe the planned activities needed to put the problem of energy poverty in Bulgaria at a political level. **It provides very comprehensive plan, steps and recommendations for dealing with Energy poverty issue**.
- **Energy efficiency in households** - ICT tool, developed by SEEA (Sustainable energy efficiency agency). **It is a simplified calculator for assessing the energy savings in households.**
- **CO2 emissions calculator** – web-based tool for calculating CO2 emissions from different energies. It could help households to assess the **environmental impact** of their measures. Very relevant to IDEA project with replication potential.
- **Energy savings in households Platform** - The EnerGbg web-based platform responds to the need to share more information about How can energy be used more efficiently by households; How can energy bills be reduced; How it is possible to reduce the release of harmful missions into the atmosphere. **A lot of practical advices, interesting tools and a lot of relevant information.** The EnerGbg platform allows users to share their experiences, impressions, opinions and other energy efficiency, **sharing good examples**, and change the behaviour and habits towards a more rational and environmentally conscious consumption of energy resources.
- **Fiesta energy efficiency guide** - Document developed in the framework of FIESTA project. **It represents an interactive document with a lot tips for energy saving** in households.
- **FIESTA Tool Guidebook for advisors -** Document developed in the framework of FIESTA project. It consist tips and information for developing an energy audit in households. **Very useful information to train energy advisors. Gudance for use the ICT Fiesta tool.**
- **FIESTA tool for auditors** - FIESTA's energy tool incorporates the main energy features of a household. The formulas included in it allow for a

rapid assessment of the **energy performance of a building as well as of the heating and cooling appliances.**

1.2 Relevant stakeholders in the area of energy poverty and adult education

The identification of relevant stakeholders is based on GA statement that the target users of the project outcomes would be mainly:

- institutions active in adult training,
- social organisation active in energy poverty, social services, human rights, environmental etc.

In addition, we identified other relevant stakeholders that are engaged with social activities, and that would be interested in project outcomes and through which, the final beneficiaries could be easily reached. They can be summarized as follows:

- National and local authorities
- Energy agencies and centres
- Universities
- Employment agencies and Labour offices

In the following table there could be seen the identified the relevant stakeholders:

No.	Stakeholder	No.	Stakeholder	No.	Stakeholder
1	Social Assistance Directorate	22	Association Samaritans	43	Housing Policy¨ Directorate, ¨Strategies and Programs¨ Department
2	Plovdiv Regional Social Assistance Directorate	23	Animus Association" Foundation	44	Tulip Foundation
3	Plovdiv Regional Social Assistance Directorate	24	Gender Education, Research and Technologies	45	Center fo social rehabilitation
4	Employment Agency	25	Caritas	46	Association "Youth Impulse for the Future"
5	Plovdiv Labour Office	26	Trust for Social Achievement	47	"Avangard Personal Consulting" Ltd
6	National Agency for Vocational Education and Training	27	National Alliance for Volunteer Action	48	Time foundation
7	Sustainable Energy Development Agency (SEDA)	28	Youth information and consultancy centers	49	Adult Education Institute
8	Sustainable Energy Development Agency (SEDA)	29	Helping Hand Foundation	50	Time heroes
9	Sustainable Energy Development Agency (SEDA)	30	Eco mission Foundation	51	Holiday Heroes
10	Bulgarian Association of Municipal Environmental Experts	31	Za Zemiata (For the Earth)	52	Holiday Heroes
11	Association of Rhodope Municipalities	32	Institute Open Community	53	National Network for Children
12	Department “Social policy” Municipality of Plovdiv	33	Association Generations	54	Regional Labour Offices
13	Social Services Department, Faculty of Pedagogy, University of Plovdiv	34	Habitat for Humanity Bulgaria	55	Center for social support Sofia

14	Social entrepreneurship Department New Bulgarian University	35	Bulgarian Chamber of installers	56	Social services complex Vidin
15	Sofia green capital	36	Public Policy Institute	57	Social services complex Shumen
16	Public Policies Watchdog Forum Foundation - FORUM	37	Economic research institute, Bulgarian science academy	58	Protection Zone - Montana
17	Rinker Centre	38	Institute for knowledge and community	59	Center for Community Support Nadejda
18	SOFENA	39	Energy management institute	60	Ruvex Educational Center
19	Sofia energy Center	40	University of Sofia - Economy department	61	KT Podkrepa
20	Black Sea Energy Research Centre	41	Institute for economy	62	Distance learning platform
21	ECIP Foundation	42	Enefect		

Table 1.2: Identified stakeholders in the area of energy poverty and adult education in Bulgaria

All of the identified stakeholders are important to disseminate and use the educational programme.

As it can be seen from the charts below, the analysis shows that most active in in the survey are the energy agencies and centers then follows the labor offices and research institutes. Energy agency of Plovdiv has strong contacts with the other energy agencies and centers in Bulgaria as part of ABEA (Association of Bulgarian energy agencies).

We can indicate as extremely important and very relevant to our project outcomes the following stakeholders:

- **Employment Agnecy**: The Employment Agency is an executive agency to the Minister of Labor and Social Policy for the implementation of the state policy on employment promotion. Ensuring employment allows full use of the capabilities and capabilities of the individual, protects her right to dignified existence and full participation in society. The strategic objectives for employment are: **increasing employment and limiting unemployment increasing the economic activity and the labor potential of the population**. They participate in the development and implementation of programs and **measures for employment and training**, aimed at designated groups of unemployed, who due to various reasons find it hard to integrate on the labour market.
- **Social entrepreneurship Department New Bulgarian University:** The Master Program in Social Entrepreneurship responds to the pressing and significant problems of contemporary Bulgarian society and the globalizing world in general. It is in line with the growing complexity of the social world, and that is why it is multidimensional in a disciplinary sense. The program lasts for 3 semesters. **The training includes lectures on new forms of solidarity, civil society, non-governmental organizations, social problems, social economy, social capital, status and functions of social entrepreneurship, social innovation, etc.** The auditorium course also includes social entrepreneurship, social exclusion and poverty, culture of entrepreneurship, sociology of prostitution and drug addiction, social realization of Bulgarian Roma, public policies and evaluation studies, etc. **There are also relevant outreach theoretical**

areas of social entrepreneurship: internships, practices, projects and seminars.

- **Social Services Department, Faculty of Pedagogy, University of Plovdiv**: The Social Services Department to the University of Plovdiv prepares young professionals **in the field of social service to local/regional/national authorities, NGO, charity sector**. Bachelor and Master programmes include lectures on EU and national legislation and regulation, good practices in social service, taxation and funding schemes for socially vulnerable people, behavioral and social sciences, etc.
- **SOFENA**: non-governmental organization and non-profit legal entity. Their main objectives are To assist Sofia Municipality in developing a sustainable energy policy; To initiate, assist, and support scientific and implementation work, research programs and projects in the field of energy efficiency and new technologies; Assessment of the energy consumption and initiation of energy saving projects in the municipal, residential, industrial and office buildings. **They have an experience with training programs related to energy use and could be very useful for developing IDEA tools with their expertise.**
- **Sofia energy Center:** Sofia Energy Centre is an independent consultancy company working in the area of energy efficiency and renewable energy sources. The Centre provides services to the European Commission, international organizations, national, regional and local authorities and organizations for the development, management and implementation of energy projects and programs, market studies and assessments, training, information and promotion campaigns, energy management, policy and planning. **They have an experience with training programs related to energy use and could be very useful for developing IDEA tools with their expertise.**
- **Public Policies Watchdog Forum Foundation** – FORUM: Non-governmental organisation founded by people working to achieve a more moral, transparent and stable basis for policy making in Bulgaria public policies watchdog and impact assessment; **work with children and youngsters from vulnerable** and marginalised groups; project preparation, management and reporting as well as the organisation and implementation of public procurement procedures and training.
- **Rinker Centre**: Rinker Centre is a centre for entrepreneurship and training at Bulgarian Charities Aid Foundation. The mission of Rinker Centre is to support and develop a spirit of entrepreneurship in Bulgaria. The programmes are oriented towards **creating opportunities for sustainable employment, improving competitive power, adding value and innovation aiming to improve the quality of life** in Bulgaria, primarily rural areas of the country. The Centre's main programmes **work towards training** and spreading the spirit of entrepreneurship among children and adults.
- **Black Sea Energy Research Centre:** Black Sea Energy Research Centre is an association of energy experts prominent in the different fields of the energy science and practice. The center works on: Development and

application of models, forecasts and scenarios;Multidisciplinary research of energy consumers' behaviour; Cost-benefit (socio-economic, environmental, etc.) analyses of policies, feasibility studies of projects, evaluation of financial sources and schemes; Networking of research, policy and market actors in the BSR countries;Training and dissemination of energy-related information. **They have an experience with training programs for municipalities and could be very useful for dissemination the IDEA outcomes with their contacts databases.**

- **Association Samaritan:** The mission of the Samaritans Association is to work for the full inclusion of children, young people, adults and families in an unequal position on the territory of the municipality of Stara Zagora, supporting individuals, groups and communities through **the implementation of activities and provision of services are based on real needs; Assist and build ability to develop self-help skills in different situations**.support the integration process and promote personal development;promote or restore social functions;provide help to prevent consequences.
- **CARITAS:** Caritas Bulgaria is a Bulgarian non-profit organization implementing social work to support vulnerable people in society. Established in 1993 by decision of the Bishops' Conference of the Catholic Church in Bulgaria, Caritas Bulgaria is a federation of Diocesan Catholic organizations. **Help the people in need** through our network of member organizations and their local structures. Caritas places in the core of its focus people from the "global periphery" who live in poverty and suffering and who need care and support so that they can have a life of dignity. As a result, Caritas Bulgaria supports its member organizations **in carrying out social activities through their local structures**. Provide information to the network with a view of increasing the effectiveness of the social work. **Encourage the dialogue, cooperation, coordination and exchange of experience among the organizations of the network.**
- **Trust for Social Achievement:** Trust for Social Achievement is a nonprofit organization. Their **mission is to break the poverty cycle by promoting opportunities** that help Bulgaria's most disadvantaged citizens achieve educational and economic success. They support programs that, with integrity, scalability, and transparency, boost the long-term achievement of Bulgaria's poorest, with a focus on the Roma, who comprise a large segment of the poor. This is achieved by supporting three key areas: Early childhood development, with an emphasis on healthy parenting and increased participation in preschool. **Educational achievement** and drop-out prevention for at-risk pupils, with a focus on improving school participation/learning and increasing graduation from high school. Access to income opportunities for at-risk groups, specifically job connection, entrepreneurship, and home ownership. In addition they are interested in capacity building for local organizations, with an emphasis on financial accountability and data-based performance evaluation.

- **Helping Hand Foundation**: The vision of The Helping Hand Foundation is that more children in Bulgaria should grow in a loving environment, embraced the way they are and supported by both their families and society. **Their mission is to take part in the struggle against two of the worst problems around the world: poverty and illiteracy**. They support children and families who struggle for survival every day, focusing our efforts on the improvement of the opportunities for education and personal development of the children, so that they will be able to deal with the challenges of their future life as adults.
- **Eco mission Foundation:** The "Ecomission 21st Century" Public Benefit Society brings together citizens and young people in the town of Lovech who work for the sustainable development of the communities in the region for prudent management of the environment and natural resources. Performs an effective dialogue with institutions and the public to **build a new value system and environmental behavior, enhancing the effectiveness of environmental and civic education and awareness among young people**. Through its activities, it helps to promote the principles of sustainable development and civil society and creates conditions for the development of young people in the Lovech region.
- **Za Zemiata (For the Earth) :** Za Zemiata (For the Earth) is a Bulgarian enregistered in 1995 and determined to work for sustainable life on our planet and combat exploitation of people and nature. Za Zemiata strives for an outward-oriented policy and activities are carried out in co-operation with volunteers and other Bulgarian NGOs. Za Zemiata is the representative organisation of the Central - and Eastern European Bankwatch network and of the International Energy Brigades, and a member of GAIA and SEEEN (South Eastern Europe Environmental NGO) networks. Za Zemiata is committed to: **Suggesting and developing positive and sustainable alternatives to socially and environmentally harmful activities and projects; Actively involving in civil society building and raising awareness among the grassroots about existing environmental problems and ways to counteract;** Networking and co-operation between local and international non-governmental groups.
- **Association Generations: Association Generations is an association of experts working for many years in education and adult learning**, with extensive experience in project management of EU programs like Leonardo da Vinci, Grundtvig, other like Phare or some funded by the Social funds. The desire of the founders of the association is to follow the common European idea of Lifelong Learning.
- **Habitat for Humanity Bulgaria**: Habitat for Humanity is licensed in Bulgaria as the Podlson Za Chovechestvoto Foundation. As the local Habitat for Humanity affiliate, **they strive to eliminate poverty housing in Bulgaria and to make adequate housing a matter of conscience and action.** They work with **low-income families** from all walks of life to support them in their pursuit of decent and affordable

homes. They provide affordable loans with long repayment periods to those in need of proper shelter. We build and/or renovate houses in partnership with the people in need and other civil, government, and business organizations.

- **Public Policy Institute:** The Institute has the status of a private, non-governmental foundation. The Institute for Public Policy conducts **research and analysis on the different spheres of social, economic and cultural life in which public policy is essential to achieve the objectives of civil society.** In performing these analyzes rely both on its own expertise and the contribution of external and independent experts, civil society organizations and institutions.
- **Tulip Foundation:** Raise funds for social investment from individual donors, the business sector and public and private sources. Provide financial and technical support to civil society organisations addressing social needs of the community at a national level. **Contribute to the effectiveness, sustainability and diversity of social programmes** in Bulgaria by making targeted grants. Serve as a professional vehicle and **provide expert advice, consultancy, assessment**, monitoring and evaluation of projects and programmes. Promote transparency, accountability and professionalism to comply with the highest ethical standards. Work in partnership with other civil organisations at national or local level for greater social responsibility and sustainability of the civil sector in Bulgaria.
- **Holiday Heroes:** Holiday Heroes is a non-profit association for public benefit, registered in the Central Registry with the Ministry of Justice. **The aim of the association is to support the socially disadvantaged, the disabled, and families in need,** as well as to encourage charity and organize campaigns at national and Christian holidays.
- **Center for social support Sofia**: Institute of Social Activities and Practices **specializes in the development of research, training, and professional support for professionals in helping professions.**
- **Distance learning platform – Building Institutional Capacity of the Ministry of Labor and Social Policy**

1.3 Training needs assessment in the area of energy poverty

Training needs assessment was carried out with a web-based questionnaire. Purpose of the questionnaire was to collect information from different stakeholders on their current existing understanding of and involvement in the are of energy poverty. Inputs were collected anonymously.

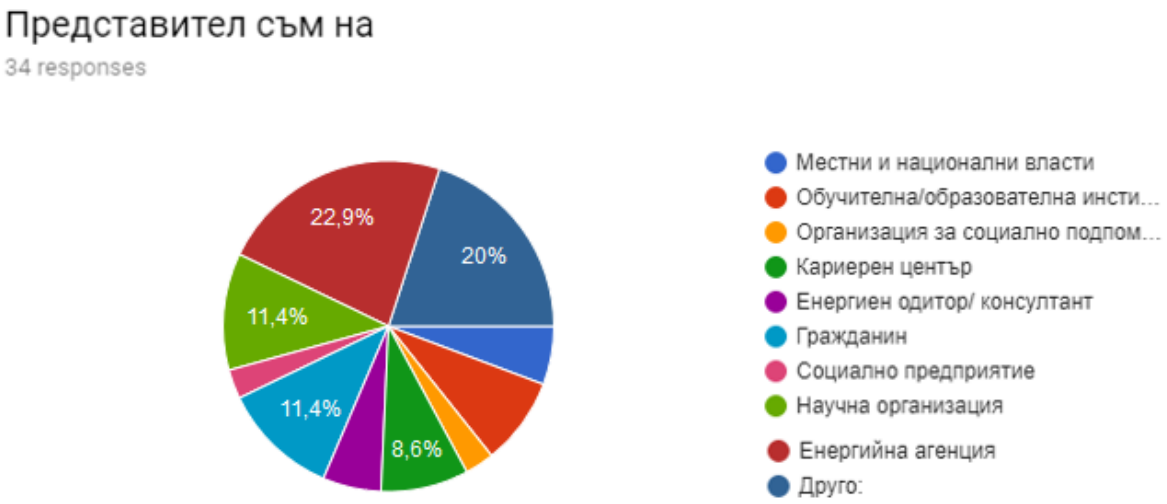
Questionnaire was filled in by 35 respondents.

Respondents of the questionnaire by their representation:

- 20% are representatives of public authority
- 22,9 % are representative of energy agencies
- 8,6 are representative of job centre
- 11,4 are citizens

- civil society organization
- 11,4 % are representative of research institution
- other: please specify

Figure 1.1: Respondents of the questionnaire by their representation

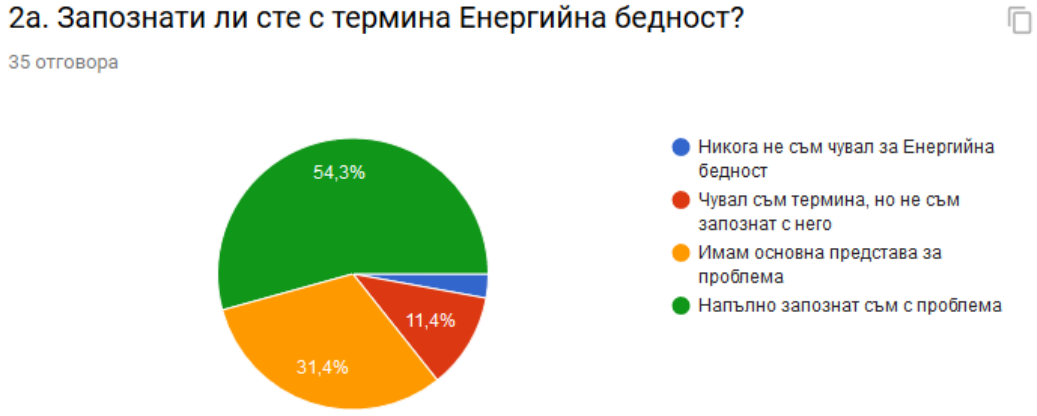


1.3.1 Understanding of energy poverty and involvement in the topic

Respondents' familiarity with the problem of energy poverty

- 31,4% have indicated that "I have heard the term, but am unfamiliar with it"
- 11,4% have indicated that "I know a bit about the problem"
- 54,3 % have indicated that "I am familiar with the problem."

Figure 1.2: Respondents' familiarity with the problem of energy poverty



Respondents dealing with the energy poverty at their work

Is topic of energy poverty something that you meet at your work? (*choose one answer*):

- 8,6 % have indicated that "in my work so far I have not met with the topic"
- 48,6% have indicated that "in my work I rarely come across the topic"
- 25,7% have indicated that "In my work I often deal with the topic"

- 8,6% have indicated that “in my work I am regularly dealing with the topic”

Figure 1.3: Respondents dealing with the energy poverty at their work

Respondents that are dealing with the topic of energy poverty in their work, are facing it in various kind of ways:

- Research
- I work on different projects
- Evaluation of problems in energy-efficient renovation of dwellings, problems with air quality, etc.
- Expert on Bulgaria's Energy Strategy Project in the Action VII - Social Dimensions of Electricity Sector - Measuring Energy Poverty and Analysis of Long-Term Intervention Measures
- European projects in this area
- Of interest and professional
- With research and policy recommendations
- conducting scientific research
- Research; teaching
- Development of policies and financial incentives for energy efficiency
- With reports and analyses on the subject and recommendations made to the government and the local government
- Analysis of the different definitions of energy poverty, the normative and regulatory instruments for impact on it, its manifestation in Bulgaria and other EU countries, methodological proposals for calculating its scope and depth in Bulgaria
- Our core business is energy efficiency, and it is the most sustainable solution to the problem of energy poverty.
- Most of all in terms of promoting energy renovation of residential buildings, social housing, but also in the context of policies and measures related to air cleanliness, climate change and adaptation to them.
- Analysis of empirical information

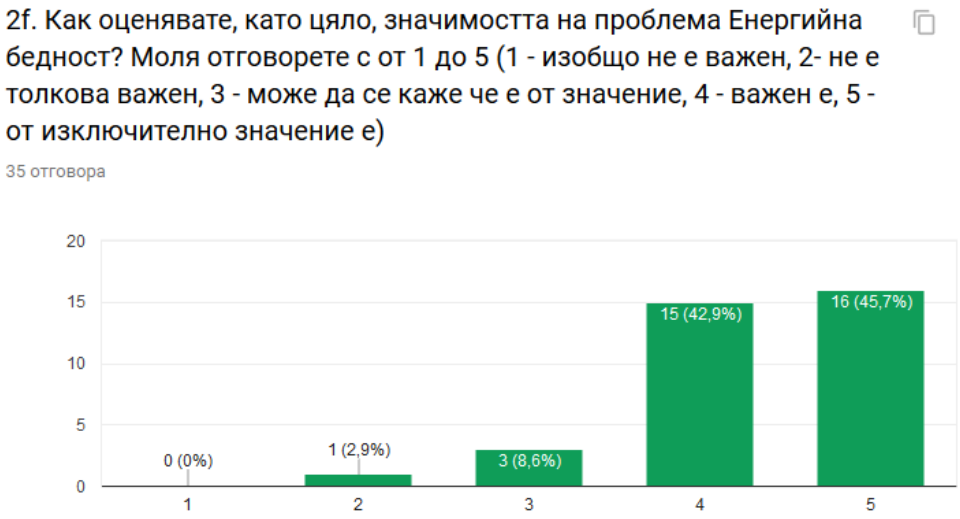
- We run educational programs, give recommendations and advice on the efficient use of energy
- I am activist about improving the air in Sofia and I am concerned about the problem. I understand the challenges and find airborne problems for predominantly social. In this sense, this is related to energy poverty.
- Part of energy policy
- We provide training for energy efficiency of the homes for families, who are beneficiaries of our programs for improving the living conditions
- I do not deal
- We perform RES campaigns
- Especially through projects related to energy efficiency and use of RES.Никакъв
- A large proportion of unemployed persons re-registered in the Labor Offices receive energy benefits. We work together with the Social Assistance Directorate to identify the energy poor.
- Our service users complain about this problem
- Training, improving the qualification of unemployed
- we serve such people, from the mentioned families.

18 participants or 51,4% say that energy poverty is relevant to their works. 6 participants or 17,1 % say that the topic of energy poverty is very related to their work and 11,4% say that the topic is very irrelevant to their work.

Figure 1.4: Relevancy of energy poverty for respondents' work (Is the topic of energy poverty relevant to your field of work? *1-very irrelevant, 2-irrelevant, 3-somewhat relevant, 4-relevant, 5-very relevant)*

16 participants or 45,7% say that the issue of energy poverty is very important. 1 participant has indicated that in his opinion the issue of energy poverty is not relevant.

Figure 1.5: Importance of the issue of energy poverty for respondents (What importance would you generally give to the issue of energy poverty? *1-very irrelevant, 2-irrelevant, 3-somewhat relevant, 4-relevant, 5-very relevant)*



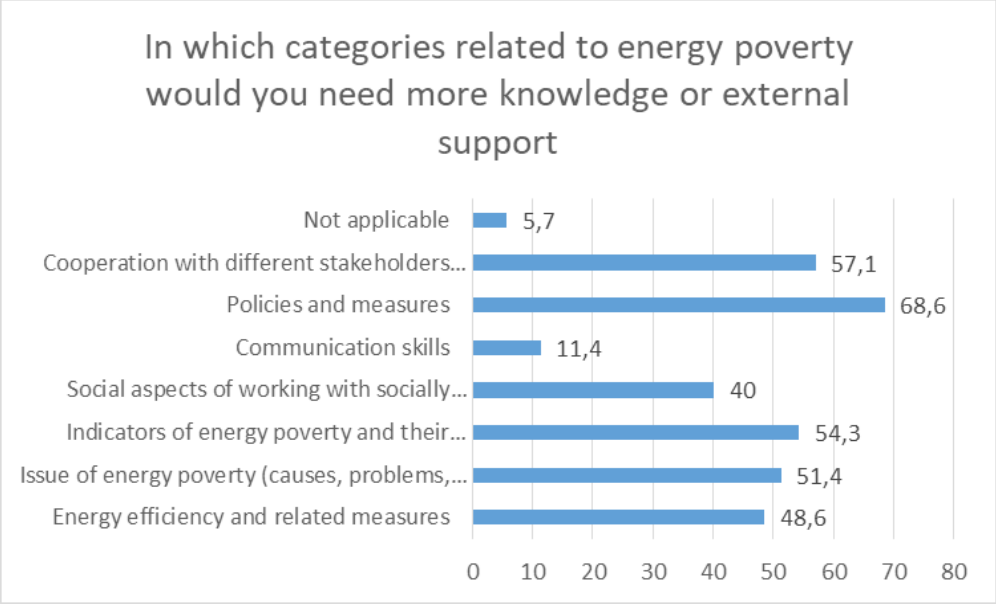
1.3.2 Stakeholders' needs in the are of energy poverty

Categories related to energy poverty where respondents would need more knowledge or external support

In which categories related to energy poverty would you need more knowledge or external support? (*rate the answers from 1 to 5 (1-very unimportant, 2-unimportant, 3-somewhat important, 4-important, 5-very important*)

Options:	**Number**	**%**
Energy efficiency and related measures	17	48.6
Issue of energy poverty (causes, problems, solutions, problem identification)	18	51.4
Indicators of energy poverty and their monitoring	19	54.3
Social aspects of working with socially disadvantaged households	14	40
Communication skills	4	11.4
Policies and measures	24	68.6
Cooperation with different stakeholders and cross-sectoral integration	20	57.1
Not applicable	2	5.7

Figure 1.6: Categories related to energy poverty where respondents would need more knowledge or external support

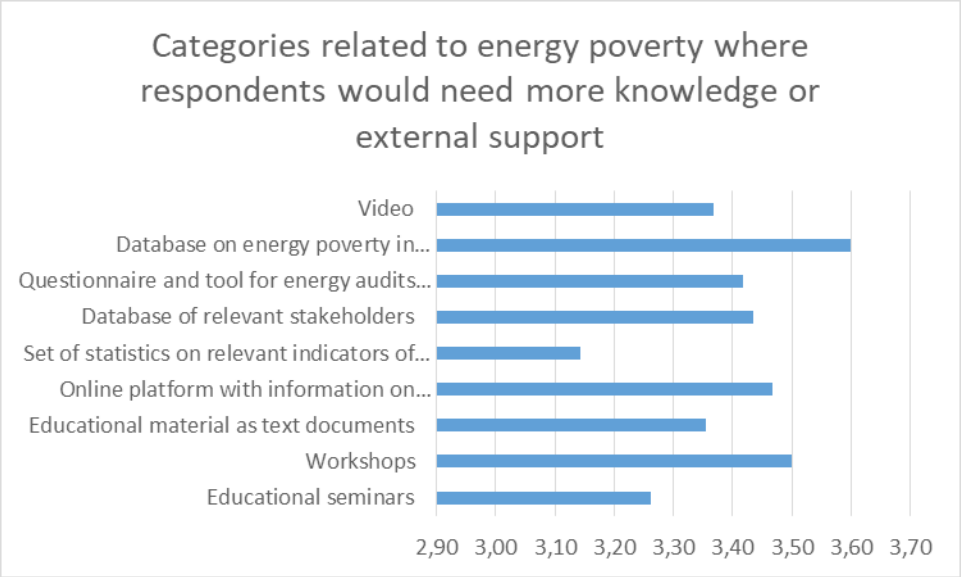


- Most suitable tools for respondents' involvement in energy poverty

The number of participants indicated the different categories for most suitable tools for respondents' involvement in energy poverty are shown below:

Options:	1	2	3	4	5	Average
Educational seminars		4	9	10		3,26
Workshops		2	9	15		3,50
Educational material as text documents		4	12	15		3,35
Online platform with information on energy poverty (measures, relevant actors,..)		2	4	9		3,47
Set of statistics on relevant indicators of energy poverty		4	4	6		3,14
Database of relevant stakeholders		2	9	12		3,43
Questionnaire and tool for energy audits in households		3	8	13		3,42
Database on energy poverty in households (on country/regional level)			6	9		3,60
Video		2	8	9		3,37

Figure 1.7: Most suitable tools for respondents' involvement in energy poverty



- Respondents have also mentioned some other tools and content that they see as useful for their work: *(answers on 3c)*

- Comparative analyses with other countries where there are measurable indicators other than Eurostat and the living conditions survey. We do not know what the energy characteristics of buildings in Bulgaria are. Very interesting data would be at the building level as the government is currently trying to launch a measure to protect vulnerable consumers by giving priority to rehabilitation buildings with more than 30% energy poor living - it would be interesting to do a similar study building, and how much such a policy at the building level is at all applicable. I think training for energy poverty should affect people in institutions responsible for energy services and energy efficiency in the Household sector, not so many universities and scientific organizations.
- Developing policies against energy poverty and their implementation
- Combination of various possible financial sources to support and stimulate energy poor citizens to undertake energy renovation of the dwellings, as well as replacement of fuel system / heating appliances, RES installation.
- working with social services that have direct contact with households
- Sample projects with external access

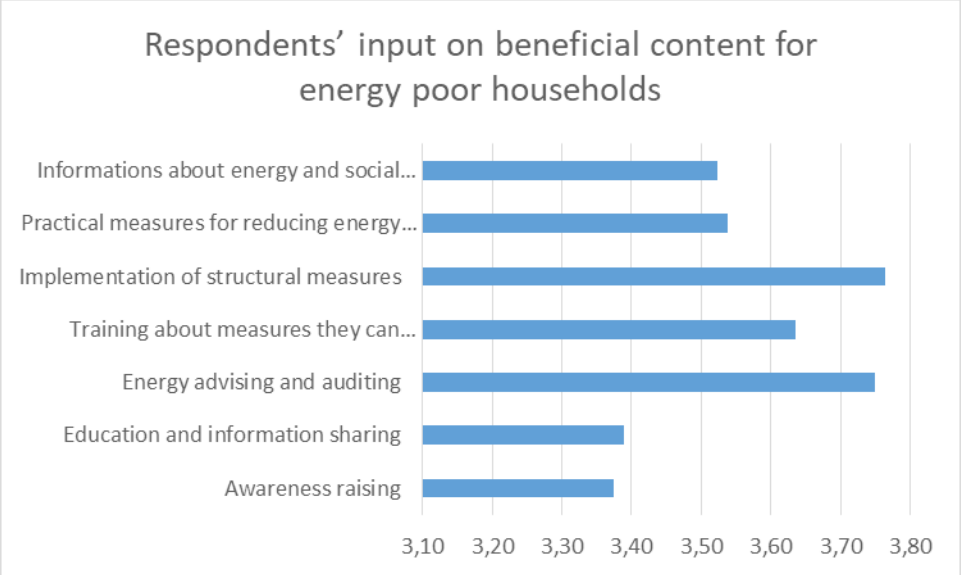
1.3.3 Households' needs in the are of energy poverty

- Respondents' input on beneficial content for energy poor households

Options:	1	2	3	4	5	Average
Awareness raising			10	6		3,38
Education and information sharing		1	9	8		3,39
Energy advising and auditing		1	2	13		3,75
Training about measures they can implement			8	14		3,64

themselves						
Implementation of structural measures			4	13		3,76
Practical measures for reducing energy and water use		1	4	8		3,54
Informations about energy and social actors that could help them		1	8	12		3,52

Figure 1.8: Respondents' input on beneficial content for energy poor households



- Respondents have also mentioned some other content that they see as beneficial for energy poor households:

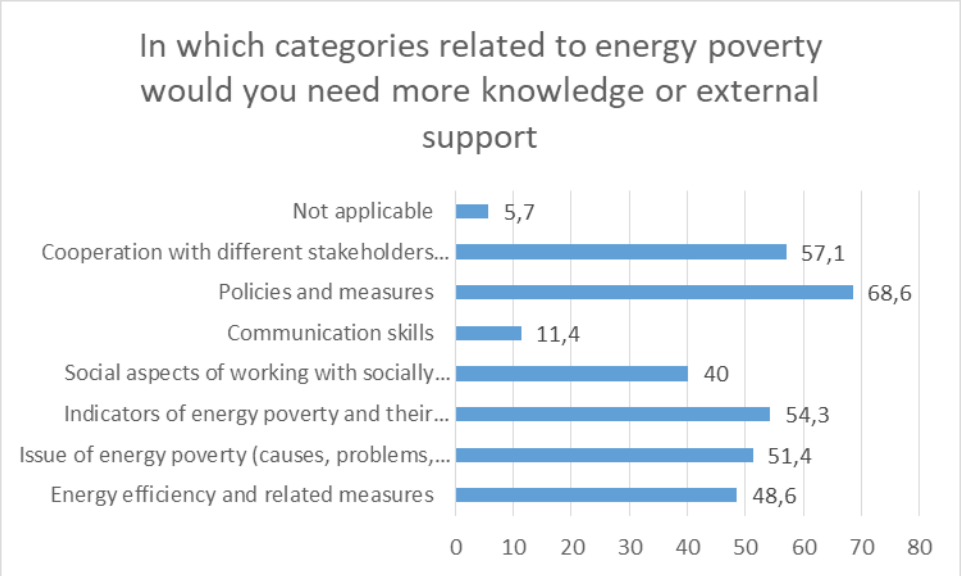
- First, I do not understand what structural measures mean, and what are the practical measures for savings - it would be good to give short examples. Structural - rehabilitation? Practical - the use of saving devices? Overall, the measures are technical and behavioural. Information campaigns and awareness are behavioural. The effect is smaller than the technical ones. The technical measures are accurately measured, have a measurable effect, and I do not need to appreciate them. The purely awareness-raising measures are predominant in the list above and have a lesser impact than the technical ones for which an investment is required.
- Objective real-time energy consumption in households to identify the largest appliance consumers and time ranges so as to make a comprehensive profile of household energy consumption, including to investigate the difference in behaviour of individual households and its impact on energy consumption.
- Accepting that energy poor citizens usually have other health, financial, housing, etc. problems at the local level to provide comprehensive comprehensive care and advice on the example of English initiatives such as Seasonal Health Intervention Networks (SHINE), Green Doctors, and Affordable Warmth Access Referral Mechanism (AWARM).
- interest-free loans for 0-energy buildings
- Financial instruments

1.3.4 Form of educational materials and tools on the topic of energy poverty

- Appropriateness of approaches and tools for education about energy poverty and measures for alleviating energy poverty
  Which approaches and tools are most appropriate for education about energy poverty and measures for alleviating energy poverty? (*rate the answers from 1 to 5 (1-very unimportant, 2-unimportant, 3-somewhat important, 4-important, 5-very important*)

Options:	**1**	**2**	**3**	**4**	**5**	Average
Lectures	2	5	13	7	4	3,19
Textbooks	3	9	8	9	1	2,87
ICT tools	2	3	10	7	10	3,63
Games	7	5	6	7	6	3,00
Web based tools	2	2	9	5	15	3,88
Role playing	7	4	10	5	4	2,83
Practical activities			1	6	26	4,76

Figure 1.9: Respondents' input on appropriateness of approaches and tools for education about energy poverty and measured for alleviating energy poverty



- Respondents have also mentioned some other approaches and tools that they see as appropriate for education about energy poverty and measures for alleviating energy poverty: *(answer 5b)*. Majority of respondents think that educational tools should/should not include the possibility of contributing new ideas, notifying the authors about shortcomings and bugs, and proposing solutions for improvement of the tool:

- Adequate citizens' initiatives and pressure on the government
- no
- Talks and advice in an informal environment such as Energy Cafe (SELECE)

- direct consultation, web-based tools are not always appropriate as these households usually do not have a computer or a smart background
- Directly assessing the possibilities for improvement - simulation with a particular house, for example, and how it could be adapted to more mild heating methods.
- Participation in voluntary mutual assistance networks (Habitat type)
- Raising awareness and developing a media campaign; information on projects of various organizations related to energy poverty.
- consultation with the energy poor themselves and with social assistance employees
- Why?

- Due to the dynamics of problems
- Of course, I even think that these tools should be tested by representatives of the target groups before being put into mass use. They should be updated at least once a year to reflect the market situation. Each country has typical poor characteristics due to different climate, building condition, and income. The structure of households is different - all this leads to different ranges of measures. Some tips may be useless, inappropriate, others may come as suggestions by the poor themselves in contact with them. It is important, however, that trained experts in ministries, organizations, etc. to have real contact with the poor - otherwise nothing makes sense.
- to have feedback
- Improvements are always good
- help to improve quality and are a means of feedback between countries in the learning process
- always the feedback is beneficial
- There are no ideal applications and a mechanism to improve them.
- Because the subject is under-researched. Among other things, there is no commonly accepted definition of "energy poverty", and there are misunderstandings.
- In order to improve the learning materials. Adaptation of materials to the local context may result in inaccuracies. After testing the proposed approaches and methods, it is advisable to correct the omissions that are being settled.
- These are new tools. They will not get right away.
- things are changing rapidly
- environment and technology are in continuous development
- Every knowledge is penultimate and there are many new developments every day
- The processes are very dynamic and the update is imperative at all times. The same applies to new ideas in this area. Always indicate gossips and downsides to get a good product.

- There may always be a mistake and there may always be a better idea and a better option
- Feedback is important.
- Everyday life requires permanent changes that need to be taken into account, so that tools need to be useful, need to be updated to the needs of consumers.
- Namely, because of the tool improvement!

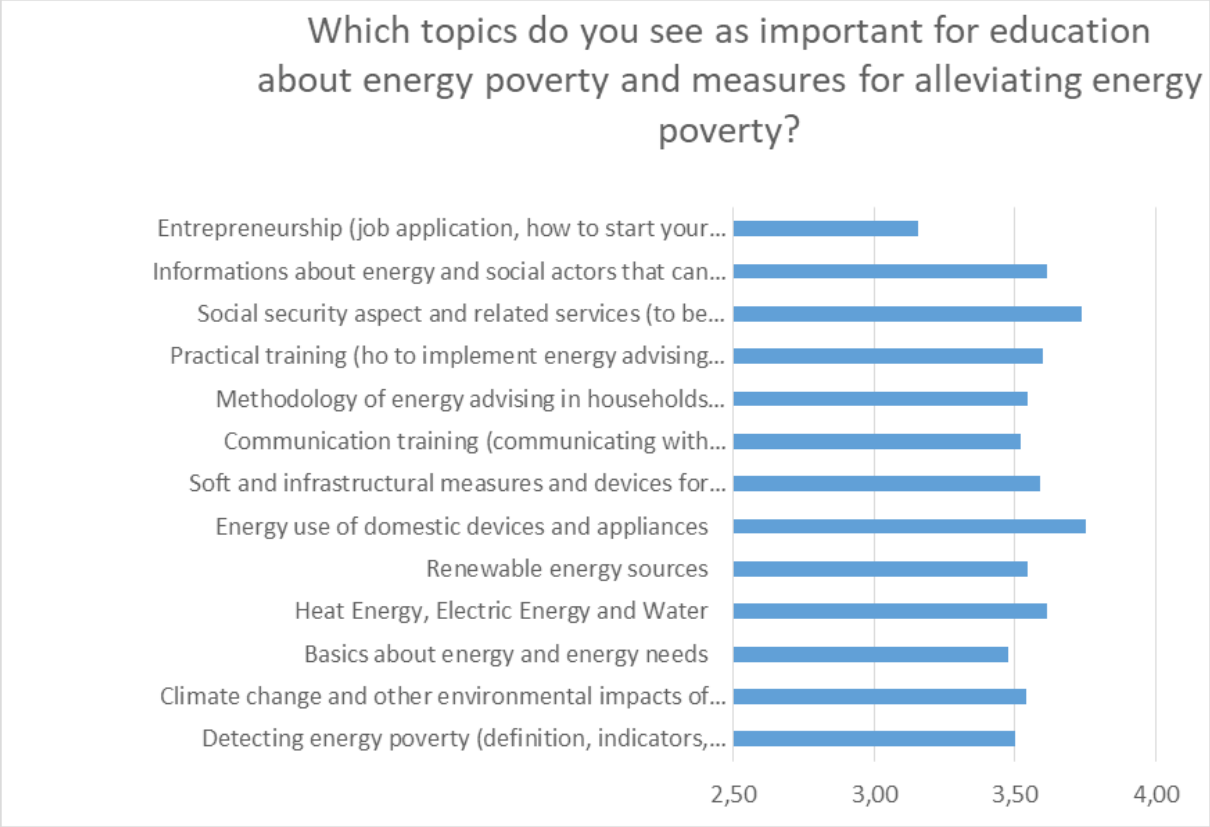
1.3.5 Content of educational materials and tools on the topic of energy poverty

- Respondents' input on importance of topics for education about energy poverty and measures for alleviating energy poverty

Which topics do you see as important for education about energy poverty and measures for alleviating energy poverty? (*rate the answers from 1 to 5 (1-very unimportant, 2-unimportant, 3-somewhat important, 4-important, 5-very important*)

Options:	1	2	3	4	5	Average
Detecting energy poverty (definition, indicators, causes, solutions)		1	5	8		3,50
Climate change and other environmental impacts of energy use		2	7	15		3,54
Basics about energy and energy needs		1	8	10		3,47
Heat Energy, Electric Energy and Water			7	11		3,61
Renewable energy sources			10	12		3,55
Energy use of domestic devices and appliances			3	9		3,75
Soft and infrastructural measures and devices for reducing energy and water consumption		1	5	11		3,59
Communication training (communicating with costumers, households members and other stakeholders)		2	7	14		3,52
Methodology of energy advising in households (process of implementation of energy advising, how to use question-naire and software tool, saving devices)		2	6	14		3,55
Practical training (ho to implement energy advising in households, measuring energy and water use, replacement of devices in household, identification of key problems in household)		1	4	10		3,60
Social security aspect and related services (to be able to identify problem and give advice to household		1	3	15		3,74
Informations about energy and social actors that can help energy poor household		2	3	13		3,61
Entrepreneurship (job application, how to start your own business initiative, marketing, etc.)		5	6	8		3,16

Figure 1.10: Respondents' input on importance of topics for education about energy poverty and measures for alleviating energy poverty

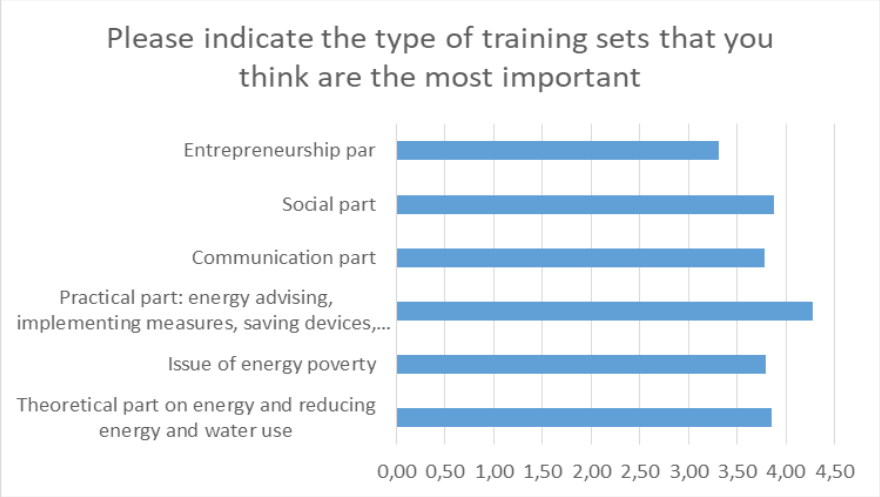


- Respondents have also mentioned some other content that they see as appropriate for education about energy poverty and measures for alleviating energy poverty:
- Road maps or scenarios for meeting energy poverty and achieve energy independency
- Respondents' input on importance of different types of modules for education about energy poverty

Please indicate the type of training sets that you think are the most important (*prioritize your selection from 1-most important to 6-least important*)

Option	1	2	3	4	5	6	Average
Theoretical part on energy and reducing energy and water use		2	10	6	10		3,86
Issue of energy poverty		5	3	9	8		3,80
Practical part: energy advising, implementing measures, saving devices, household visits		1	1	3	6		4,27
Communication part		5	3	7	8		3,78
Social part		3	7	5	10		3,88
Entrepreneurship par		6	8	3	5		3,32

Figure 1.11: Respondents' input on importance of different types of modules for education about energy poverty



The most important conclusions from the surveys could be summarized as follows: More than 50% of the respondents are familiar with the issue of energy poverty. 48,6% of the participants have indicated that in their work they rarely come across the topic of energy poverty. 45,7% think that the issue of energy poverty is very important. The most suitable tools for respondents' involvement in energy poverty is database on energy poverty in households. Most of the respondents are interested in implementation of structural measures and energy advising and auditing approaches.
The biggest share of respondent have indicated that they need more knowledge and external support in "policies and measures" and in cooperation with different stakeholders. The topics, that are indicated as most important for education about energy poverty are: "Social security aspect and related services (to be able to identify problem and give advice to household" and "Energy use of domestic devices and appliances." Most of the respondents find the Practical part (energy advising, implementing measures, saving devices) as most important training sets for modules.

1.4 Country specifics on energy poverty

In Bulgaria there is no still a clear definition for Energy poverty. It could be said that a household is considered to be energy poor if it has difficulty meeting its main energy needs. Energy-poor households spend a disproportionately large part of their income on energy - more than 10% to meet their energy needs. Another definition that is commonly used in the EU is: a household that spends twice as much energy over the median energy costs nationwide.

Energy poverty can be caused by the interaction of various factors:
• low income that is related to poverty as a whole
• high energy prices, including the use of relatively expensive energy sources (eg electricity)
• poor energy efficiency of the home - lack of insulation, old and inefficient heating systems.

In Bulgaria an energy poor household is considered a household that meets the criteria for receiving social benefits for heating.

How do people identify in energy poverty?

Indicators for potentially energy poor households:
• low income;
• difficulties in paying energy bills;
• old dwellings that have not been repaired;
• Insufficient heating level due to lack of heating, lack of insulation or inefficient heating system;
• Traces of moisture or mould that reflect the poor condition of the building and / or lack of heating;

There are some existing programs and project on energy poverty in Bulgaria:

REACH project - The aim of REACH was to contribute to energy poverty abatement at practical and structural level. With this project we wanted to empower energy poor households to take actions to save energy and change their habits, and to establish energy poverty as an issue that demands structural solutions at local, national and EU level.

The strategic objectives of the action were:

- to make available approaches for energy poverty abatement that are applicable to other regions in order to launch similar action in other countries,
- to sustain local actions in the pilot regions on a long run and spread it to other interested localities and countries by continued training of energy advisors in schools, continued implementation of visits, and promoting the action to variety of actors across the EU,
- to ensure that energy poverty receives structural solutions on local, national or EU level.

http://reach-energy.eu

Financial instruments for the improvement of energy efficiency in Bulgaria

NATIONAL ENERGY EFFICIENCY PROGRAM OF MULTI-FAMILY RESIDENTIAL BUILDINGS - Existing financial mechanism is the "National Energy Efficiency Program for Multifamily Residential Buildings", which grants 100% grant to eligible buildings up to the minimum energy class "C". This program finances measures for the realization of energy-efficient technologies in multifamily residential buildings built by industrial means - large-scale residential construction and large-format shuttering. The program provides financial support not only for the implementation of energy saving measures, but also for additional construction activities, technical design and energy audit of the building, author's and construction supervision, as well as the costs related to obtaining the necessary permits.

For more information: http://mrrb.government.bg/

LOAN ENERGY EFFICIENCY CREDIT PROGRAM - One of the most successful credit lines for improving energy efficiency in households and multifamily buildings in Bulgaria is REECL (the Home Energy Efficiency Credit Program). The REECL program provides households or associations of homeowners across the country with the opportunity to take advantage of energy efficiency and to obtain targeted credits and grants through the network of Bulgarian commercial banks. The credit line funds up to 20% for various energy saving measures. Between September 2006 and September 2014, over 50,000 loans were disbursed for a total amount of € 27.7 million. Among the most common energy saving measures is the purchase of energy-saving joinery for which over 22,700 credits were granted, followed by the purchase of air conditioning and insulation. It is expected in September 2015 to open the program again.

For more information about the program: http://www.reecl.org/

TARGET ASSISTANCE FOR HEATING

Targeted heating assistance, administered by the Ministry of Labor and Social Policy, is the only existing program providing direct support to vulnerable households. The program provides financial support to cover bills for district heating, electricity, coal, wood and natural gas. All households with incomes over the last 6 months, less than the differentiated minimum income, are eligible for heating aid. In order to receive the assistance, the applicant household must meet additional conditions, not to sell real estate for the past 5 years and not to have cross-border travel at their own expense in the last 12 months. The amount of social assistance is based on the monetary equivalent of 450 kWh of electricity, such as 300 kWh daily tariff and 150 kWh night at electricity prices at the beginning of the heating season. The aid is granted for a period of 5 months, from 1 November to 31 March. Targeted heating assistance is currently under the jurisdiction of the Ministry of Labor and Social Policy, which has a wide network of helpdesks and maintains a database of vulnerable consumers. In 2013, 251 876 households were assisted, each receiving a total of BGN 328.60 for the entire heating season.

Government social support

Monthly allowances are granted to people with permanently low incomes and / or disabilities. They can be divided into the following groups: differentiated minimum income, child allowance, monthly child-care allowance up to 1 year old, monthly supplement for children with permanent disabilities, integration. These are the types of assistance that cover more Bulgarian citizens and make more significant payments for them. The rest are insignificant both as the number of recipients and as funds.

Target assistance for heating

Targeted heating assistance, administered by the Ministry of Labor and Social Policy, is the only existing program providing direct support to vulnerable households. The program provides financial support to cover bills for district

heating, electricity, coal, wood and natural gas. All households with incomes over the last 6 months, less than the differentiated minimum income, are eligible for heating aid. In order to receive the assistance, the applicant household must meet additional conditions, not to sell real estate for the past 5 years and not to have cross-border travel at their own expense in the last 12 months. The amount of social assistance is based on the monetary equivalent of 450 kWh of electricity, such as 300 kWh daily tariff and 150 kWh night at electricity prices at the beginning of the heating season. The aid is granted for a period of 5 months, from 1 November to 31 March. Targeted heating assistance is currently under the jurisdiction of the Ministry of Labor and Social Policy, which has a wide network of helpdesks and maintains a database of vulnerable consumers. In 2013, 251 876 households were assisted, each receiving a total of BGN 328.60 for the entire heating season.

Some municipalities have started or will start funding programs for supporting measures for renovation of heating systems in households:

Sofia City Council approved soon the implementation of a pilot project "**Improving the air quality in the residential heating sector by replacing individual domestic solid fuel firing appliances”**. It provides for free delivery and installation of 30 pellet stoves for single-family residential buildings and provision of the necessary quantity of pellets for one heating season.

2. Croatia

This document provides a basic overview of the situation in the field of energy poverty in Croatia. Key stakeholders whose involvement is needed for successful implementation of both the project IDEA, and of the long term polices aimed at alleviating energy poverty while boosting employment and youth education, are listed in the document.

The document also assesses results of the survey undertaken amongst identified key stakeholders on their knowledge and work on energy poverty as well as on situation and possible outcomes for Croatia. The survey was designed to be used for designing possible training mechanisms within the IDEA project and to enable tailor-made solutions.

The last section of the report discusses in short the country specificities of energy poverty in Croatia and it suggests possible short term steps and long term solutions for alleviating energy poverty.

2.1 Existing tools, methods and educational practices for trainings in the areas relevant for energy poverty

The main tools identified can be divided into educational, promotional, advocacy and technical tools. Educational tools are aimed at different groups of stakeholders, ranging from energy poor households (advice on energy saving and energy efficiency on a household level) to official materials for national curriculum for training of energy advisors. Promotional tools can be used for raising awareness of general public and of different target groups on energy poverty and for increasing visibility of various energy poverty related actions – i.e. dissemination of leaflets and canvas bags on public events. Technical tools are aimed at collecting and analysing data.

There are also tools with multiple purposes, such as video and ICT tools, which can at the same time be used for promotion and visibility of the action and of the topic, while also serving as powerful advocacy tools for reaching interest of the media and of decision makers. List of tools identified in Croatia is presented in the Table 1.

Table 1 Identified tools, methods and educational practices in CROATIA

No.	Name of the tool	Author/Institution	Short description of the tool	Format of the tool
1	REACH excel tool for collecting and analysing data in Croatian	DOOR	The questionnaire (paper form) is used by energy advisers when implementing an energy audit in energy poor household. It contains questions related to the type and characteristics of the dwelling and energy and water use. Together with REACH excel tool it provides a good starting point for development of a new, more user friendly tool.	questionnaire - data collection sheet
2	REACH app form for field visits	DOOR	Application form which was delivered locally through LAs, NGOs and social welfare	Leaflet

			offices to potential beneficiaries of field visits	
3	REACH canvas bags	DOOR	Promo-visibility material delivered to beneficiaries and other stakeholders	other
4	REACH energy saving advices for HHs (HR)	DOOR	Short publication with useful low-cost energy and water saving advices	educational material (text)
5	REACH Bookmark with energy saving advices (HR and ENG)	DOOR	Bookmark with basic energy saving advices	educational material (text)
6	REACH videos about en. poverty and field visits	DOOR	Short videos	video
7	Higher efficiency lower energy bills	DOOR	Booklet about reducing energy use and energy bills and improving energy efficiency produced with SEE SEP project	educational material (text)
8	Recommendations for tackling energy poverty in Zagreb	DOOR	Policy recommendations for reducing en. poverty in Zagreb	other
9	With knowledge to warm home leaflet	DOOR	Leaflet with energy saving and energy bills advice	educational material (text)
10	Energy advisers curricula (HR)	ZEZ	Curriculum for energy advisers	educational material (text)
11	Energy advisors guidebook (HR)	ZEZ	Handbook for energy advisers	educational material (text)
12	Energy advisors for poor households (HR)	UNDP Croatia	Video about energy poverty and households' visits	video
13	Video manual for energy efficiency - Biomass heating, Condensing gas boilers, Individual heat metering	DOOR	Video tutorials for energy efficient biomass heating systems	video

Currently in Croatia, the most useful tools are those which can be used for education and dissemination. Such tools can be further developed and modified for specific needs. Excel tool for collection of household data on energy efficiency and energy consumption (including certain indicators of energy poverty such as occurrence of mould and draught) developed within the project “Achieve” which was further adapted within the project REACH, can be further modified to be made more user friendly and publicly available via some form of ICT tool, such as online platform.

Other useful tools are already developed guidebooks on energy saving and energy efficiency which can be re-printed and disseminated in current form to energy poor households, as well as any other interested stakeholders. Curriculum for education of energy advisors, which has been officially adopted by relevant institution in Croatia, can be used for providing employment opportunity for young and unemployed people. This kind of tool enables simultaneous boos of

national (or local) economy through promotion of employment while setting path to tackling energy poverty.

Video materials have been proven to be very powerful tool for motivating decision-makers and for increasing visibility of the energy poverty topic by putting focus on personal experience and real life struggles of the energy poor households.

2.2 Relevant stakeholders in the area of energy poverty and adult education

There are numerous stakeholders relevant in the area of energy poverty and adult education in Croatia. While some of the stakeholders are dealing with one of those issues separately, many of them have in recent years started trying to put focus of their actions on both issues - education and energy poverty. List of identified stakeholders in Croatia is given in the Table 2. This list of stakeholders was used for undertaking survey on training needs assessment presented in the "2.3 Training needs assessment in the area of energy poverty" in addition to public dissemination of the survey via the social media.

Table 2 Identified stakeholders in the area of energy poverty and adult education in CROATIA

No.	Stakeholder	No.	Stakeholder	No.	Stakeholder
1	Green Energy Cooperative (ZEZ)	2	University of Zagreb Faculty of Electrical Engineering and Computing	3	University of Zagreb Faculty of Mechanical Engineering and Naval Architecture
4	University of Zagreb Faculty of Geotechnical Engineering	5	Ministry of Energy and Environmental Protection	6	Ministry of Construction and Physical Planning
7	Ministry of demography, family, youth and social policy	8	Institute for Social Research in Zagreb	9	Environmental Protection and Energy Efficiency Fund
10	City of Zagreb	11	City of Petrinja	12	Ombudsman
13	Energy Institute Hrvoje Požar	14	Institute for Political Ecology	15	University of Zagreb Faculty of Law
16	Terra Hub	17	Green Action (FoE Croatia)	18	Croatian Employment Buerrau
19	Craft Colleges	20	Pučko otvoreno učilište	21	Regional Energy Agency North
22	Regional Energy Agency of North West Croatia	23	Dekra	24	Adecco privremeno zapošljavanje
25	Social Welfare Centre/s	26	Green Building Council Croatia	27	City of Sisak
28	Red Cross		Caritas		

As one of key stakeholders, at the moment, for energy poverty in Croatia are the ministries and governmental bodies as the key step is currently adapting the national legislation and starting with the implementation of different programmes for tackling energy poverty. There have been few pilot projects implemented already, but those have been led by NGOs in collaboration with some of the stakeholders from academia.

First steps in policy-making have been made, but now it is important to scale up tested solutions and to further develop national legislation creating for enabling environment for policy implementation in general.

Important stakeholders which have, up to date, not been sufficiently capacitated for energy poverty in Croatia and which play important role in other countries are social welfare centres' representatives as well as Red Cross and Caritas staff and volunteers. Those stakeholders can and should play an important role in tackling energy poverty as they have direct outreach to the energy poor households and they have trust and credibility within the local communities. They are also very likely to be already capacitated for undertaking basic evaluation of the living conditions and should be able, subject to further education on energy poverty and energy efficiency, to undertake preliminary assessment of households' eligibility criteria for various policies.

Important actors are also all educational institutions, from craft colleges to universities as they offer a valuable pool of both knowledge and teaching methods, as well as potential pools of future energy advisors.

2.3 Training needs assessment in the area of energy poverty

Training needs assessment was carried out with a web-based questionnaire. Purpose of the questionnaire was to collect information from different stakeholders (primarily focusing on the list of identified key stakeholders as presented in the Table 2) on their current existing understanding of, and involvement in, the area of energy poverty. Inputs were collected anonymously. The results of the survey will be used to assess potential for improving existing tools for education on energy poverty and to develop tailor-made training programme with ICT tools to be used in future education on energy poverty in Croatia.

Questionnaire was filled in by **32** respondents. The results of the survey are presented hereafter.

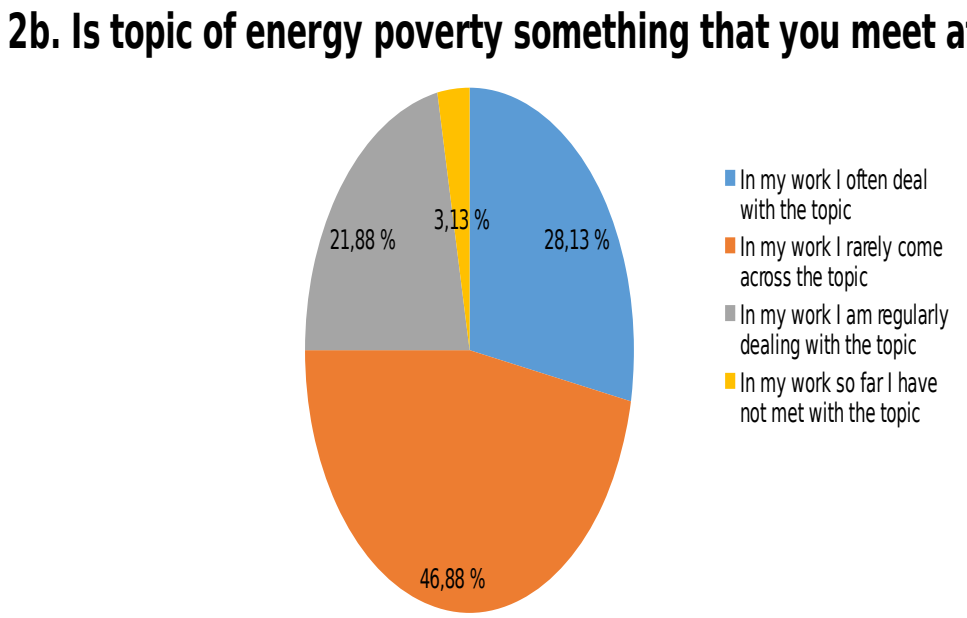


Figure 3.1: Respondents of the questionnaire by their representation

More than 80% of final beneficiaries of the respondents' services are general pupic/citizens. Around 28% of final beneficiaries are found to be adults, civil societies and households, and the rest are unemployed people, public authorities, students, energy poor/socially vulnerable households and children.

2.3.1 Understanding of energy poverty and involvement in the topic

Concerning the understanding of the topic, 6.3% of the respondents have heard of the term "energy poverty", but they are unfamiliar with it. 53.1% of the respondents have the basic insight of the problem and 40.6% of respondents are fully familiar with the problem of energy poverty. This result shows there is great need for further education on energy poverty even amongst the key stakeholder groups as they still have rather basic understanding of the problem and they are to great extent not equipped to further disseminate the knowledge and help in alleviating energy poverty.

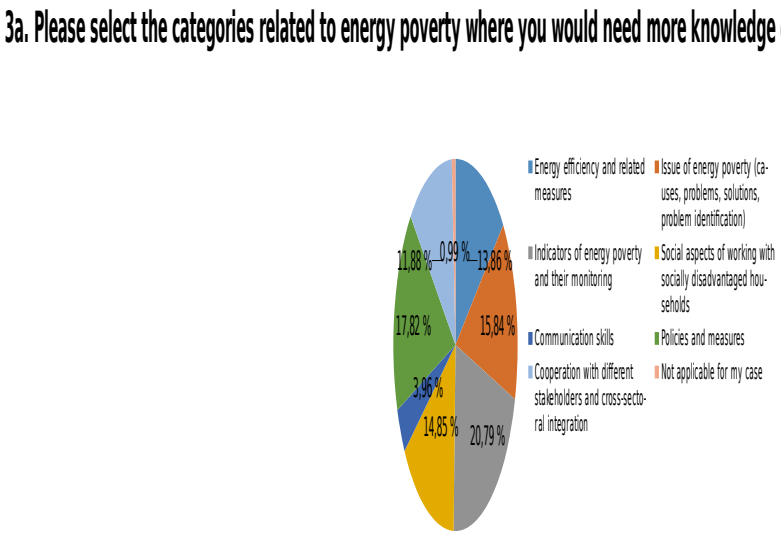


Figure 3.2: Respondents dealing with the energy poverty at their work

When it comes to relelavance of the topic of energy poverty on respondents every day work, 3.1% of respondents find energy poverty as not that relevant for their work, 2% find it somewhat relevant, but most of them find it relevant, as showed: 40.6% of respondents pinned relevant and 31.3% pinned very relevant, as their answer. In contrast to that, 3.1% of respondents find the issue of energy poverty somewhat important, whilst 43.8% finds it important and 53.1% finds it very important. This result, as compared to the high share of stakeholders (also 53.1%) that only have the basic understanding of the problem once again indicates the need and necessity of immediate education of stakeholders. This is a key first step needed for creating enabling environment for implementing training programmes for the unemployed and for creating employment opportunities in Croatia in the field of energy poverty.

2.3.2 Stakeholders' needs in the are of energy poverty

Stakeholders have been asked about what their main needs are in the field of energy poverty. 20% of the stakeholders have stated the biggest need is in getting clear understanding of the indicators to measure and monitor energy poverty and to have adequate policies and measures (18%). Respondents have also noted there is significant need to have more knowledge on the issue of energy poverty itself, its causes and possible solutions and to have more effective communication skills enabling them with insight into social aspects of working with vulnerable groups. Overview of all responses is provide in the Figure 3.3

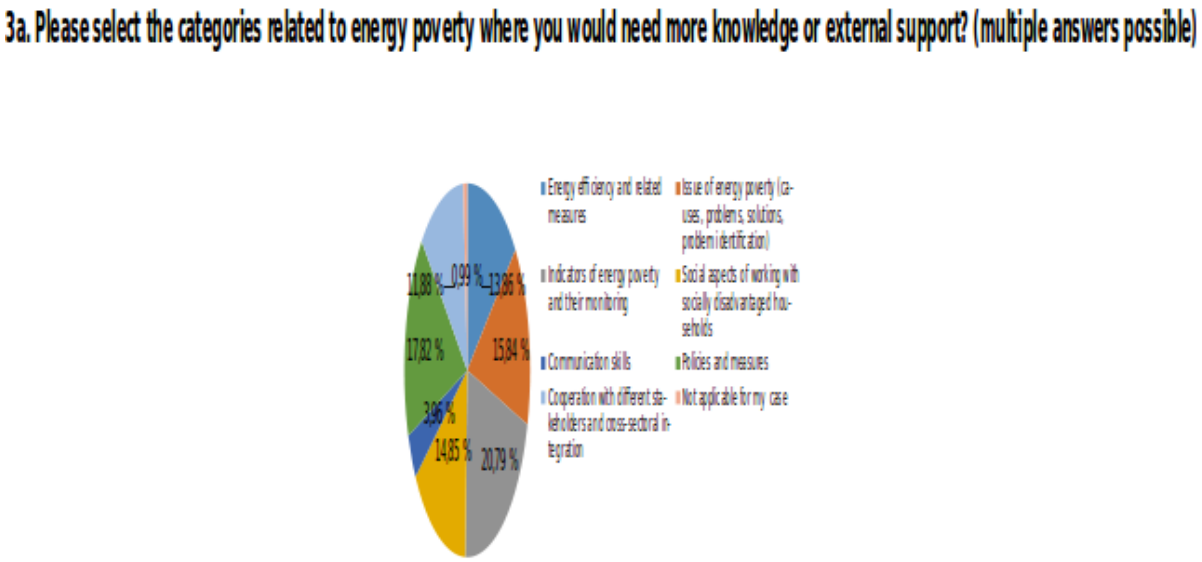


Figure 3.3: Categories related to energy poverty where respondents would need more knowledge or external support

The survey has also investigated which tools respondents find the most suitable for involvement and education on energy poverty. The best evaluated tools were Online platform , set of relevant statistics and database on energy poverty in households. These results (further presented in the Table 3).

Table 3 Most suitable tools for respondents' involvement in energy poverty

No.	Tools	Suitability of the tool (from *1-not suitable at all* to *5-very suitable*)
1	Educational seminars	3.80
2	Workshops	3.73
3	Educational material as text documents	3.90
4	Online platform with information on energy poverty (measures, relevant actors, ...)	4.23
5	Set of statistics on relevant indicators of energy poverty	4.00
6	Database of relevant stakeholders	- extra?
7	Managing stakeholders' dialogues	3.54
8	Questionnaire and tool for energy audits in households	3.83
9	Database on energy poverty in households (on country/regional level)	3.97
10	Videos and case studies on energy poverty	3.24

Results of this question analysis clearly indicate the importance of the various ICT tools. This finding is also in line with aims of the project IDEA and indicates the potential which project results could have in Croatia.

2.3.3 Households' needs in the area of energy poverty

Segment of the survey which was investigating what are main needs of energy poor households as seen by the key stakeholders has revealed that the most important step is provision of the training for the household members about measures which they could implement themselves. Stakeholders also find that it

is important to provide households with practical measures for reducing energy and water use and that information about energy and help options should be disseminated widely.

Table 4: Respondents' input on beneficial content for energy poor households

No.	Content for households	Beneficialness of content (from *1-not beneficial at all* to *5-very beneficial*)
1	Awareness raising	4.13
2	Education and information sharing	4.23
3	Energy advising and auditing	4.21
4	Training about measures they can implement themselves	4.82
5	Implementation of structural measures	4.47
6	Practical measures for reducing energy and water use	4.77
7	Information about energy and social actors that could help households	4.42

2.3.4 Form of educational materials and tools on the topic of energy poverty

While it was fond there is a great need for education of energy poverty in different segments of the society, from general public to decision makers, as a best way to provide this practical activities have been identified. Apart from concrete practical training lectures have been found as a good tool for disseminating knowledge coupled with various textbooks and ICT tools such as applications. The attitudes of stakeholders on best approaches to dissemination of knowledge are presented in the Table 5.

Table 5 Respondents' input on appropriateness of approaches and tools for education about energy poverty and measured for alleviating energy poverty

No.	Appropriateness of approaches and tools for education about energy poverty and measures for alleviating energy poverty	Appropriateness of approaches and tools (from *1-not appropriate at all* to *5-very appropriate*)
1	Lectures	4.00
2	Textbooks	3.78
3	Applications	3.70
4	Games	3.03
5	Web based tools	3.55
6	Role playing	2.52
7	Practical activities	4.55

Respondents have also mentioned some other approaches and tools that they see as appropriate for education about energy poverty and measures for alleviating energy poverty: *(answer 5b)*. Majority of respondents think that educational tools should include the possibility of contributing new ideas, notifying the authors about shortcomings and bugs, and proposing solutions for improvement of the tool.

2.3.5 Content of educational materials and tools on the topic of energy poverty

It has been found that most respondents find that it is very important to provide information on energy use of household appliances and that it should be coupled with information on different measures for reducing energy and water consumption. Respondents also find there is necessity to provide education on

various forms of energy, which is used on the household level, and to educate on potentials of renewable energy sources.

Table 6 Respondents' input on importance of topics for education about energy poverty and measures for alleviating energy poverty

No.	Topics for education about energy poverty and measures for alleviating energy poverty	Importance of the topic (from *1-not suitable at all* to *5-very suitable*)
1	Detecting energy poverty (definition, indicators, causes, solutions)	4.42
2	Climate change and other environmental impacts of energy use	3.94
3	Basics about energy and energy needs	3.94
4	Renewable energy sources	4.03
5	Heat Energy, Electric Energy and Water	4.29
6	Energy use of domestic devices and appliances	4.68
7	Soft and infrastructural measures and devices for reducing energy and water consumption	4.66
8	Communication training (communicating with costumers, households members and other stakeholders)	3.97
9	Methodology of energy advising in households (process of implementation of energy advising, how to use questionnaire and software tool, saving devices)	4.00
10	Practical training (how to implement energy advising in households, measuring energy and water use, replacement of devices in household, identification of key problems in household)	4.32
11	Social security aspect and related services (to be able to identify problem and give advice to household)	4.27
12	Information about energy and social actors and schemes that can help energy poor household	4.16
13	Entrepreneurship (job application, how to start your own business initiative, marketing, etc.)	3.60

Different modules for education on energy poverty have been assessed and as best tool once again practical work has been evaluated.

Table 7 Respondents' input on importance of different types of modules for education about energy poverty

No.	Type of modules for education about energy poverty	Importance of the module (from *1-least important* to *6-most important*)
1	Theoretical part on energy and reducing energy and water use	3.75
2	Issue of energy poverty	4.66
3	Practical part: energy advising, implementing measures, saving devices, household visits	5.03
4	Communication part: communicating with costumers, households members and other stakeholders	4.58
5	Social aspects of working with socially disadvantaged households	4.66
6	Entrepreneurship part: job application, marketing, how to start your own business	3.52

2.4 Country specifics on energy poverty

Households in Croatia are responsible for almost 30 percent of total country's final energy demand and 40 percent of electricity demand. While the whole residential building stock has poor energy performance with heating requirements typically exceeding 200 kWh/m2, the situation is even worse for the households with limited financial means. With high heating requirements, resulting from inefficient household stock and inadequate heating system, energy poor are living in deteriorated buildings with constant draft through the poorly insulated windows and doors, damp walls with mould and dark rooms as result of inadequate indoor lighting.

Croatian legislation does not much differentiate between energy poverty and general poverty, which is unfortunate for many vulnerable groups that are currently excluded from any help or support mechanisms related to energy poverty. In Croatia, there is no all-encompassing definition of a vulnerable consumer nor are there methods for confirming and monitoring energy poverty, however there is public policy which concerns (in part) vulnerable consumers (customers). Additionally, at the moment, in Croatia there is no program specifically aimed at energy poor households.

In The Energy Act (OG 120/12, 14/14) vulnerable consumer is defined as a consumer from the household category who, due to their socially vulnerable status and/or due to health status, has the right to receive energy under specific conditions. In September of 2015, the Regulation on criteria for achieving the status of vulnerable consumer was adopted (OG 95/15). The Regulation states that funding for the compensation for energy costs of vulnerable consumers shall be secured by way of solidarity fee in the amount of 3 lipa/kWh for all final customers, which for the average household will amount to roughly 6 HRK per month. To date, an agreement with suppliers is in effect in which they forswear profit as a way to satisfy funding, and social compensation for the end consumer was set to zero.

Only criteria on energy vulnerability is regulated via the Ordinance on criteria for achieving the status of vulnerable grid connected energy consumer was adopted (OG 95/15), which states that socially vulnerable and disabled are entitled to the 200 HRK/month (ca. 26 EUR/month) deduction of their electricity bills.

In the Social Welfare Act (OG 157/13, 152/14) it is stated that all recipients of guaranteed minimum compensation have the right to financial aid for the purpose of housing expenses and related bills and heating. In article 43 a decision was given regarding minimal compensation for households which use wood heating, on the basis of which they would be provided with either 3 m3 of wood for heating or an approved monetary amount to ease this expense. The decision regarding the manner of compensation shall be given by the local administrative unit, and be paid out on a yearly basis.

In The Energy Efficiency Act (OG 127/14), in article 13, distributors' obligations for accomplishing energy savings through measures of energy efficiency are defined. Distributors of energy are required to achieve energy savings in total energy expenditures by carrying out energy efficient measures. The cumulative goal of the new savings of energy in total energy expenditure, alternative measures, criteria for calculating energy savings, methodology for saving energy, obligatory savings quotas for every energy distributor, and so on, are legally defined under the regulation.

In the National Programme for Renovation of Multifamily Buildings for the period 2013-2020 [17] it is stated that energy poverty is one of Croatia's growing problems, which is the consequence of the increase in the price of energy, and, though there is still no clear definition (of energy poverty) in Croatia, its existence is shown in the inability of many to maintain adequate heating in the

household. It is recommended that the Ministry of Social Politics and Youth, as well as local providers of social welfare, become involved in carrying out and co-financing measures for the most vulnerable citizens and in this way contribute to a solution to the problem of energy poverty with which a long-term reduction in state subsidies for energy expenses for the socially vulnerable can be secured. Additionally, the Programme states that in carrying out these energy renewal measures, local administrative units, together with local providers of social welfare and competent bodies should envisage providing additional funding for the socially vulnerable, in the total amount of up to 85% of the total investment expenses.

First important step in that direction has been made by the Ministry of Construction and Physical Planning by forming of the working group which has aim to develop social criteria to be incorporate in future programmes for retrofitting of family houses and residential buildings enabling higher subvention rates.

In total, there were 1,535,635 households in Croatia in 2011.[1] The largest portions of household expenditures were related to food and non-alcoholic drinks, 31.7%, and housing and energy expenditures, 15.7%. Of that, 9.9% was spent on electricity, natural gas, or other types of fuel. Observed in total, according to results of the survey on household expenditures[2]:

- 9.9% of people lived in households which were unable to maintain adequate warmth during the coldest months,

- 30.4% of people lived in households which were unable to pay bills for communal services on time during the previous 12 months,

- 68.4% of people lived in households in which the total housing expenses presented a large financial burden, while only 2.1% of people lived in households in which the total housing expenses did not present a burden of any kind.

Energy poverty is not only caused by low income and lack of access to certain energy services, but is also directly related to inefficient housing stock and inefficient household appliance. Increasing disposable income alone is not likely to impact those other causes of energy poverty, unless the increase is significant. Most public policies, which are currently in place, as is the case in Croatia, only provide financial support for covering part of energy expenses. While this approach eases financial burden of energy costs, it does not offer solution to inefficiency of the building or appliances, and resulting it does not improve living and health conditions. Furthermore, this approach does not support rational use of energy, and as such, it does not have any positive impact on the environment.

1 Croatian Bureau of Statistics, “Popis stanovništva, kućanstava i stanova 2011.,” 2011. [Online]. Available: http://www.dzs.hr/Hrv_Eng/publication/2011/SI-1441.pdf. [Accessed: 14-Feb-2016].
2 Croatian Bureau of Statistics, “Statističko izvješće 1484: Rezultati Ankete o potrošnji kućanstava u 2011.,” Zagreb, 2013.

3. Cyprus

At the first part of the document, we present the tools and stakeholders identified in Cyprus. The tools presented can be useful in the procedure of developing this project's specific tools. Their features and functionalities could be analysed and reinforced, as to design the new tools. Stakeholders can be valuable providing their advices, tips and help throughout the duration of the project.

At the second part of this document, we present the results of the survey we conducted, by having questionnaires sent and filled in by stakeholders in Cyprus. The results are displayed in graphs.

3.1 Existing tools, methods and educational practices for trainings in the areas relevant for energy poverty

No.	Name of the tool	Author/Institution	Short description of the tool	Format of the tool
1	Social Electricity[3]	NetRL, Computer Science Department, University of Cyprus.	First a user has to register and connect (free). The user can then compare his latest month consumption with the one he had in past year or months, he can set up targets for energy saving, he can analyse his consumption based on the electrical appliances on his house and gain a better understanding of his consumption through examples. He can see several comparisons of his own consumption or of his own savings with other citizens or with his Facebook friends, he can enter a competition for the highest energy saving, he can see the areas with the higher and lowest consumption in Cyprus as well as consumption details for all of the areas. Also he can find there educational material like tips for better use of appliances, videos about energy, electricity, smart grids etc, and webinars. Finally he can find a games console where he can play four educational games such as a timed energy savings related quiz.	ICT tool
2	Local Energy Balances[4]	Cyprus Energy Agency	User chooses a village/town/area. He is presented with a graph showing the energy balances for several types of energy (e.g. Electricity, Heating Diesel, Kerosene etc) with the respective percentage for each energy type, a graph showing the type of usage (e.g. Residential, Transports etc), and a detailed table showing the correlation of the first and the second graphs in numbers.	ICT tool
3	ENERFUND[5]	Led by the Cyprus University of Technology (CUT) and consortium from 12 countries	ENERgy Retrofit FUNDing rating tool: it is a tool that will rate and score deep renovation opportunities. The tool will be based on a set of parameters such as EPC data, number of certified installers, governmental schemes running, etc. By providing a rating for deep renovation opportunities – whether for private establishments or for public buildings – funding institutes can provide targeted loans, retrofit companies can identify sound opportunities, municipalities can promote targeted incentives and the public's trust for retrofitting will	ICT tool

3 http://www.social-electricity.com/
4 http://www.cea.org.cy/app/CEA_energy.html
5 http://enerfund.eu/, http://www.cea.org.cy/enerfund/ http://app.enerfund.eu/

			be enhanced. User can select one of the four countries, and he is presented with the map. Houses are presented with scaling colors depending on the parameters. Also the user can filter the presented houses via some parameters: energy rating, potential energy rating and construction area. Finally the user can view some information about the country and the ease of doing several things there such as "Ease of getting electricity"	

Table 3.1: Identified tools, methods and educational practices in Cyprus

All the above described tools could be useful and important for the development of the IDEA tools. Each of them has important functionality that could be introduced in the IDEA tools, while the tools can be also reinforced with additional features specifically designed for the purposes of this project. In this way, the tools could be of real value to all the stakeholders in the energy field.

Displaying and monitoring the user's consumption month by month, and comparing the different values to see if he has decreased his consumption or not, could help him understand his mistakes and motivate him to try his best to reduce energy.

Also analysing the consumption based on the electrical appliances of a house will help households gain a better understanding of their consumption and basic knowledge on the subject of energy consumption.

Features such as social comparisons, graphs and maps displaying, educational material and tips provision could be embedded in the tools that will be implemented on this project.

Educational games are a good way to provide basic knowledge to people in a fun and simple way.

Furthermore, mapping the real data about households in need and rating them regarding their current needs in an interactive way could constitute a very helpful tool for energy agencies and energy consultants.

In each one of the above tools, various gaps in functionality, offered services and provided information can be found, that need to be filled by this project's tools. The most important is that the tools must be specified for the partner's countries data, and for the current needs of the energy offices.

Energy agencies are in need of tools to easily and efficiently save all the data recorded from households visits, analyse them by using the same tools and extract results by combining them in several ways.

The maps and graphs need to get upgraded, to present relevant and important information, hiding any personal or sensitive data. If tools like the aforementioned are implemented, they could definitely be of real value to the efforts against energy poverty.

3.2 Relevant stakeholders in the area of energy poverty and adult education

No.	Stakeholder	No.	Stakeholder	No.	Stakeholder
1	Cyprus Energy Agency	2	Sustainable Energy Laboratory - Cyprus University of Technology	3	Department of Environmental Science and Technology - Cyprus University of Technology
4	Energy Committee, Aglantzia Municipality	5	Commissioner for the Environment Bureau	6	Nicosia Municipality
7	Electricity Authority of Cyprus	8	Energy Service - Ministry of Energy, Commerce, Industry and Tourism	9	Team for the energy efficiency of buildings - Energy Service - Ministry of Energy, Commerce, Industry and Tourism
10	Cyprus Energy Regulatory Authority	11	Photovoltaic Technology Laboratory - University of Cyprus	12	Environment Department - Ministry of Agriculture Natural Resources and Environment
13	Youth Board of Cyprus	14	Cyprus Cooperative Bank - Energy Loan	15	Human Resources Development Authority
16	Architectural Department - University of Cyprus	17	Energy & Environment Service - Employers and Industry Federation	18	Open University of Cyprus - Studies for the Environment
19	The Cyprus Institute - The Energy, Environment & Water Research Centre	20	Cyprus Scientific and Technical Chamber (ETEK)		

Table 3.2: Identified stakeholders in the area of energy poverty and adult education in Cyprus

There are different categories of stakeholders listed in the above database. Most of them are energy related, one way or another, but there are also a few related to giving opportunities to unemployed people, and a few others related to helping socially disadvantage households. Also there are stakeholders related to protecting the environment.

All of them are important and relevant for the project, as our objectives include the reduction of energy poverty through educating the affected households –but also through connecting them with the proper authorities than can help them financially directly or indirectly- , training unemployed people to become the trainers thus giving them new job opportunities, and also contribute on preserving of the environment.

Each of those organisations has the capacity to assist the consortium in achieving the projects purposes in their field of occupation. They can provide us with useful advice and tips regarding energy consumption reduction, and also information about who is the appropriate carrier to financially or socially help the households in need.

Furthermore, it is of major importance that they indicate to us what tools they need in order to monitor energy poverty, make all the necessary calculations, educate the affected people, make them understand and help them face and solve this problem. In that way, the IDEA tools will be implemented so us to provide the most appropriate and useful functionalities, as well as be useful and have sustainability.

All of them can participate in dissemination activities, seminars and other events in Cyprus throughout the duration of the project.

3.3 Training needs assessment in the area of energy poverty

Training needs assessment was carried out with a web-based questionnaire. Purpose of the questionnaire was to collect information from different stakeholders on their current existing understanding of and involvement in the area of energy poverty. Inputs were collected anonymously.

Questionnaire was filled in by 39 respondents.

Figure 3.1: Respondents of the questionnaire by their representation

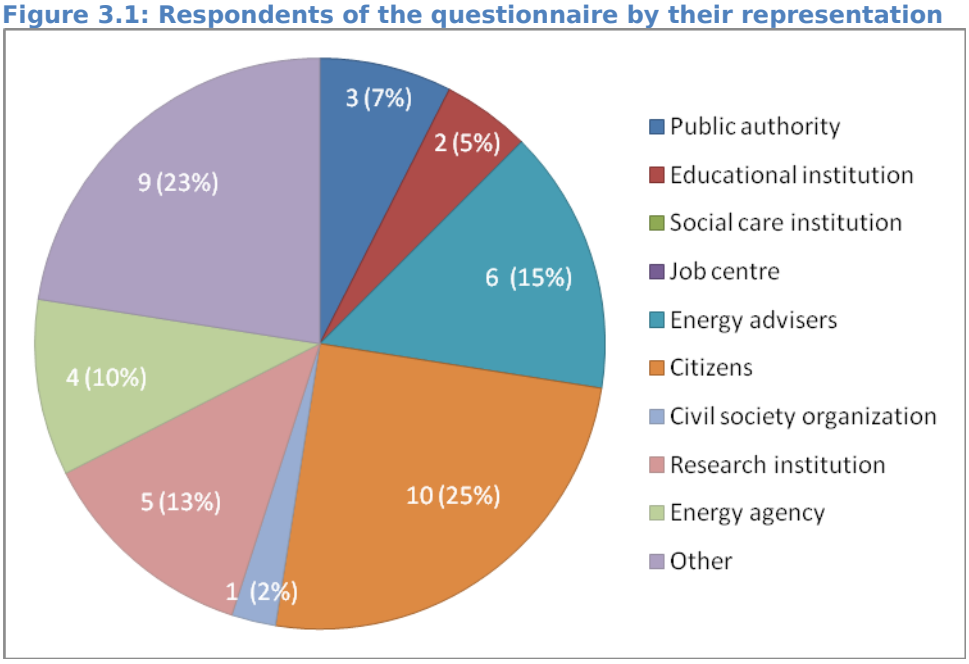


Figure 3.2: Final beneficiaries of the respondents' services

3.3.1 Understanding of energy poverty and involvement in the topic

Figure 3.3: Respondents' familiarity with the problem of energy poverty

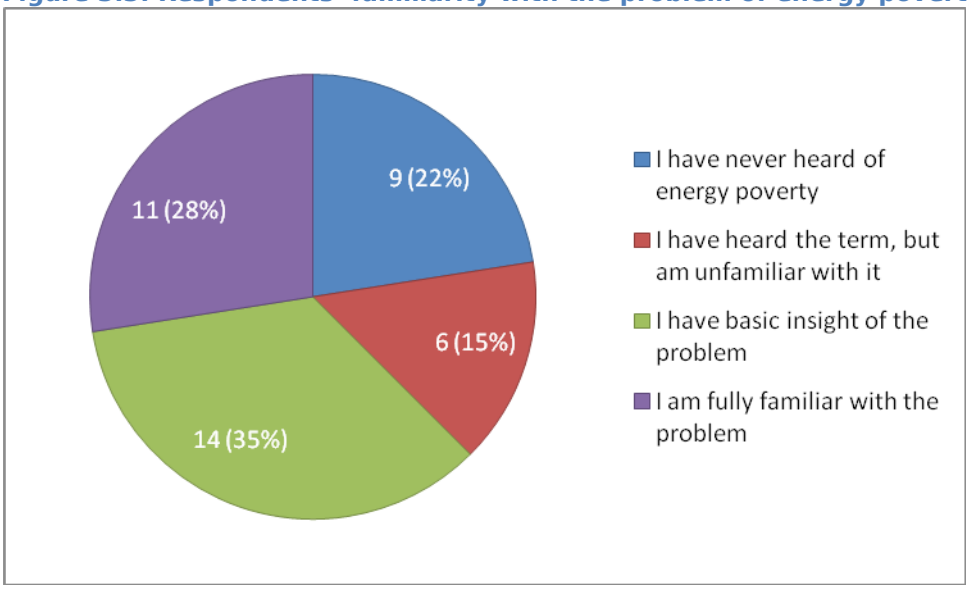
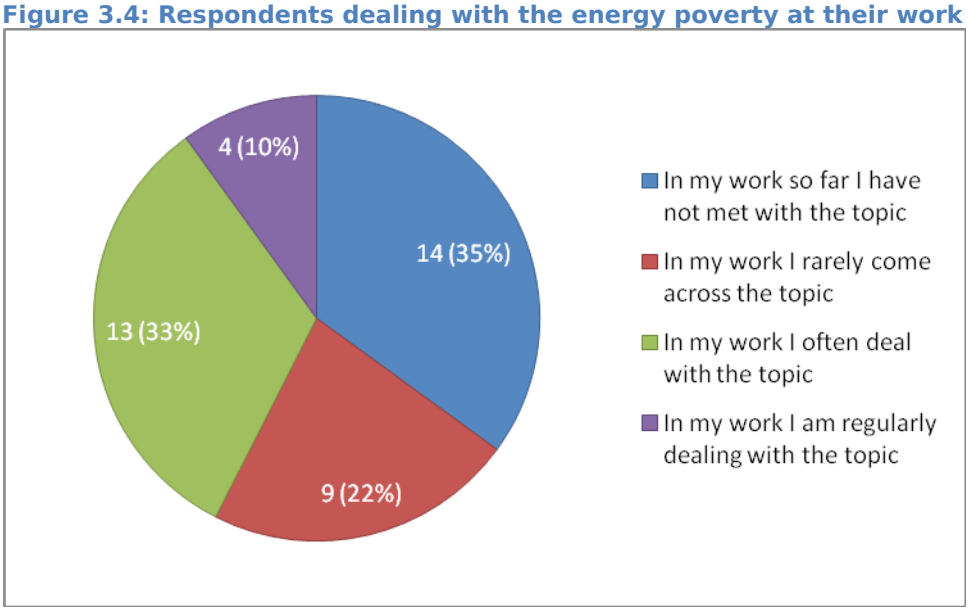


Figure 3.4: Respondents dealing with the energy poverty at their work



Respondents that are dealing with the topic of energy poverty in their work are facing it in various kinds of ways (as stated by them):

Energy policy analyses, which I conduct, may sometimes involve energy poverty considerations
support schemes recommendations
A lot of people are asking for advice from our agency in order to overcome this problem - Especially from households with low income where the expenses for heating are significant.
This topic is not relevant to our field of work.
it is a research topic for my pHs
informing civilians for grants available for groups of people in the categories of vulnerable consumers.
through the news
I am not dealing with it
My job is about the energy efficiency of buildings. Improvement of energy efficiency of households consists one of the mediums to stop energy poverty.
By giving lectures in cofounded programmes.Μέσω διαλέξεων σε συγχρηματοδοτούμενα προγράμματα
Some projects dealt with energy renovation of energy poor households
Because of European projects that are dealing with energy saving and through the constant communication with people through informative meetings and events.
Researching/Theoretically - Development of legislation
Energy poor people can get special prices for electricity and can get fundings for photovoltaic panels installations and energy renovations of their homes.
Search for the proper one based on needs and budget and not based on requirements
house insulations
designing houses for poor households
Architecture
Giving advises for building solutions of low cost.
Provide funding to vulnerable citizens for investments that will bring reduction to their energy needs.
We don't deal with this issue
Design bioclimatic houses- Use of environmental sources and natural elements=give equal and good living conditions in energy efficient houses. Reduction of non natural energy usage for heating and cooling.
With trying to preserve energy and design buildings with proper orientation and installation of photovoltaic panels.
I don't deal with this issue
I don't deal with this issue
Include in the electrical installation of buildings for energy usage reduction, photovoltaic panels, energy saving lamps, etc.
ARCHITECTURAL STUDIES
None at all
We have not deal with this issue so far

Figure 3.5: Relevancy of energy poverty for respondents' work

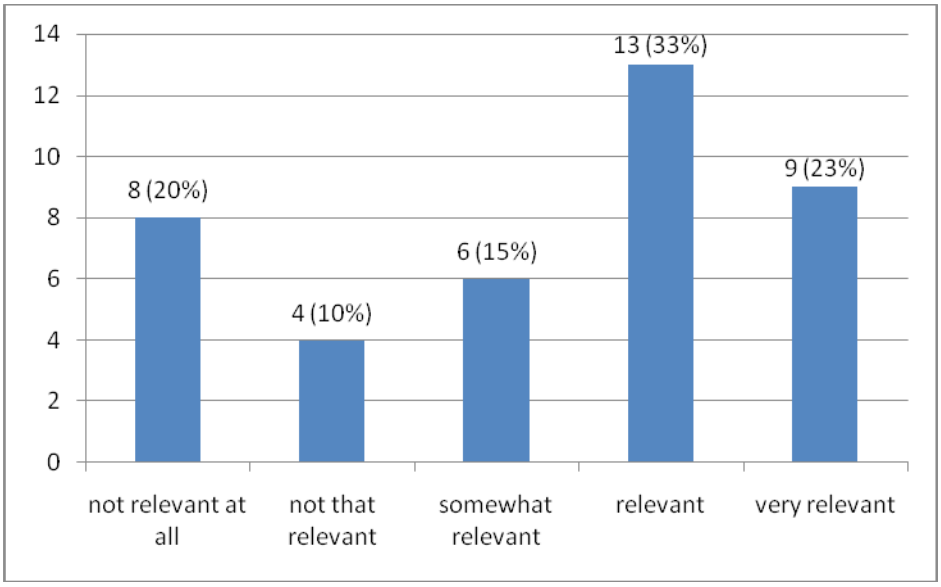
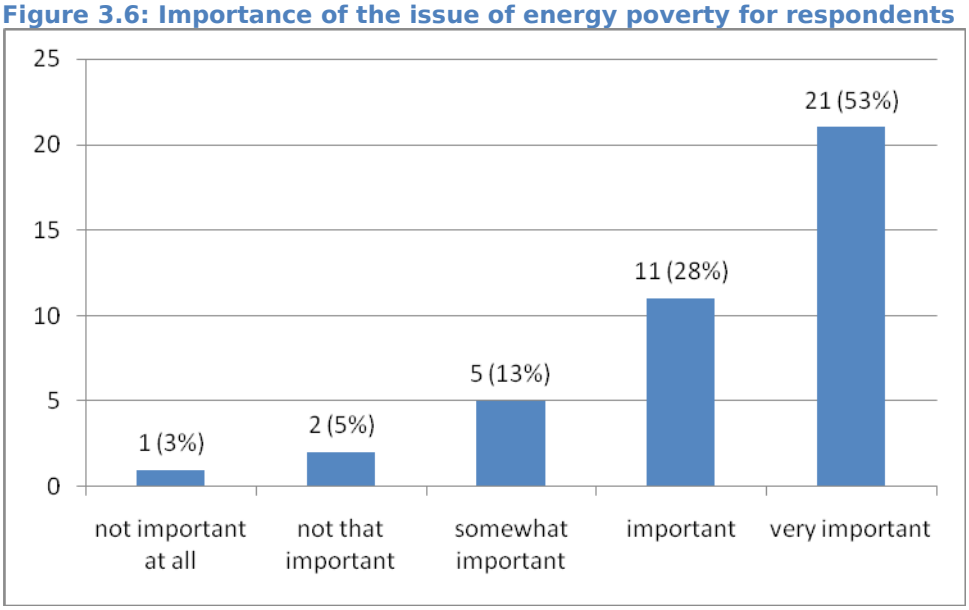


Figure 3.6: Importance of the issue of energy poverty for respondents



3.3.2 Stakeholders' needs in the area of energy poverty

Figure 3.7: Categories related to energy poverty where respondents would need more knowledge or external support

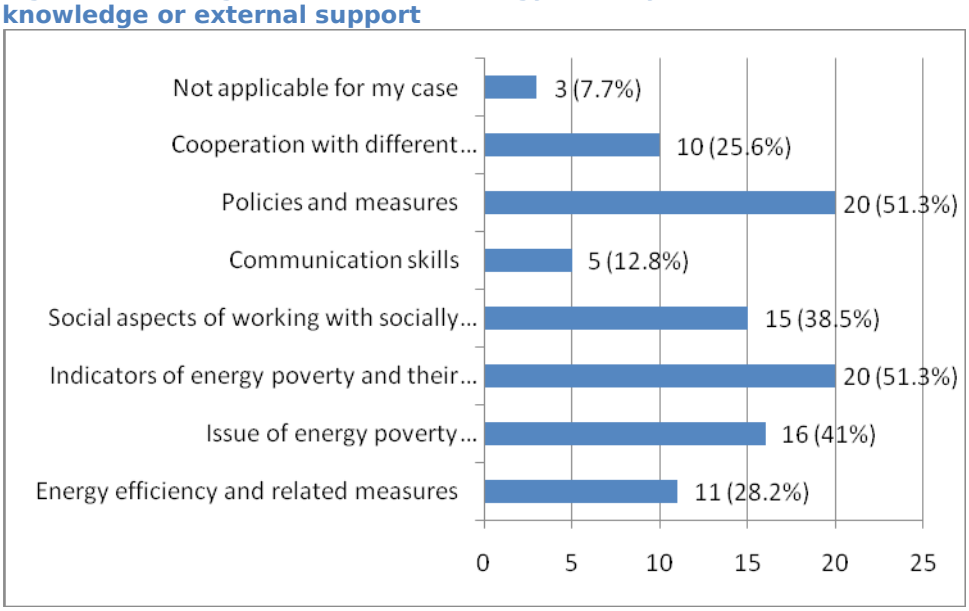
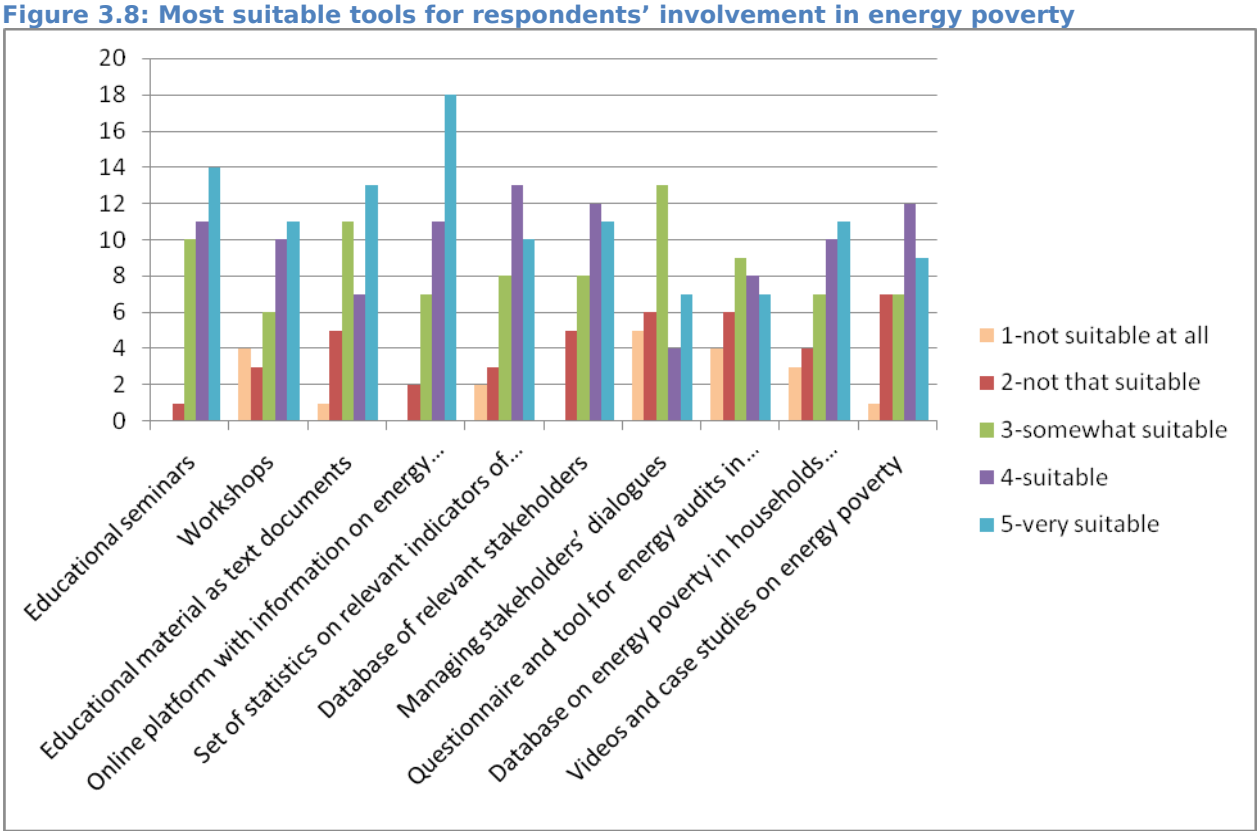


Figure 3.8: Most suitable tools for respondents' involvement in energy poverty

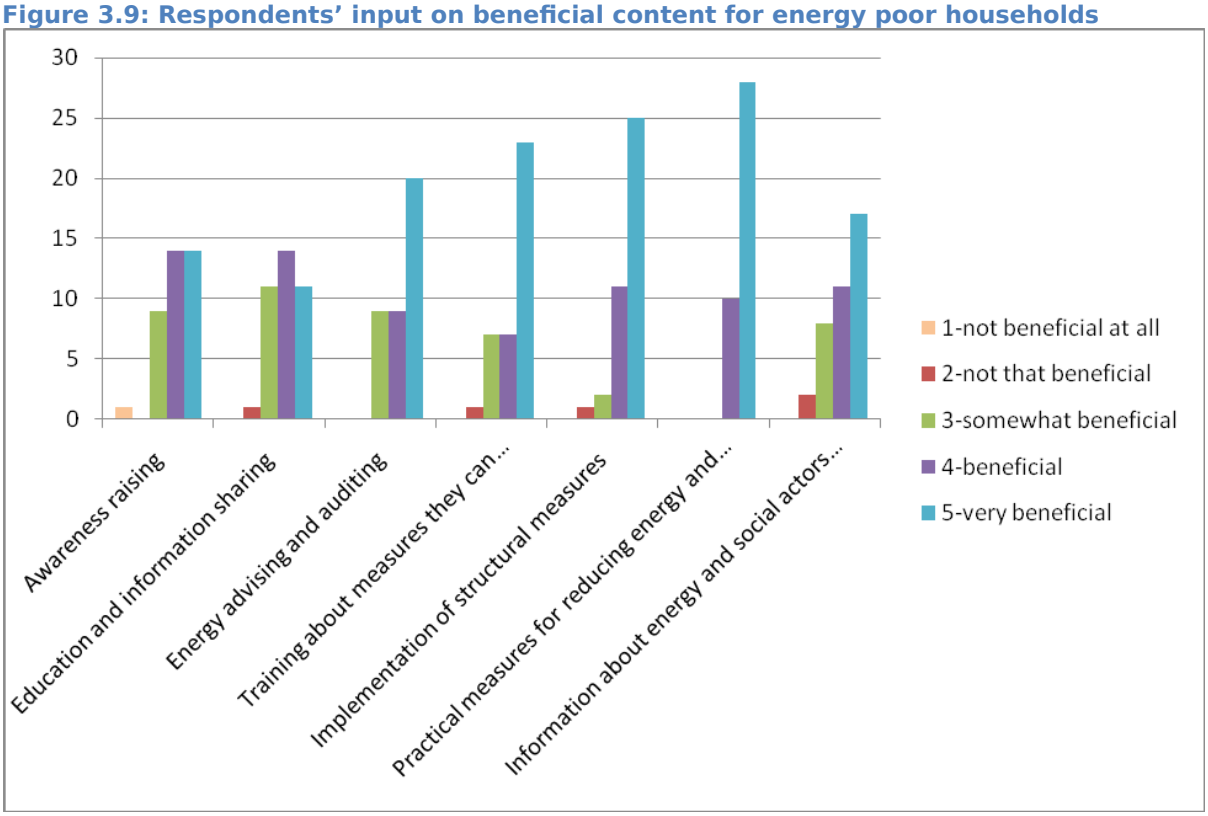


Respondents have also mentioned some other tools and content that they see as useful for their work (as stated by them):

Materials
Informing people
Change in the legislation and abolition of bureau-cracy

3.3.3 Households' needs in the area of energy poverty

Figure 3.9: Respondents' input on beneficial content for energy poor households

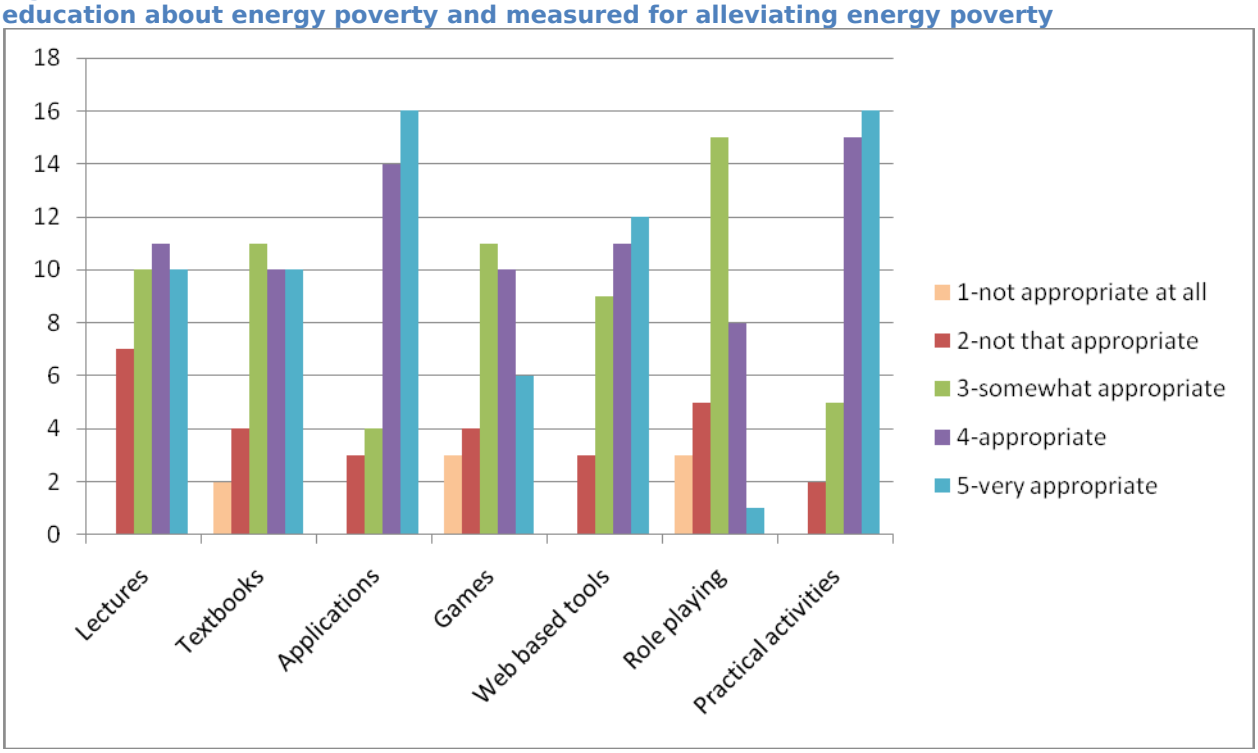


Respondents have also mentioned some other content that they see as beneficial for energy poor households:

In-House visits to see the problems & discuss possible solutions adjusted to the particularities of each case.
Availability of financing is important.
Grant access for energy poor households to implement energy efficiency measures
Energy poor households it's mostly a social issue not a technical one. Technical solutions are of course helpful but they don't solve directly the issue. There is need for political decisions and systematic change, so for the issue to be solved ones and for all.
National funding to reimburse, policies for reduced vat, funding for energy renovations
Motivation

3.3.4 Form of educational materials and tools on the topic of energy poverty

Figure 3.10: Respondents' input on appropriateness of approaches and tools for education about energy poverty and measured for alleviating energy poverty

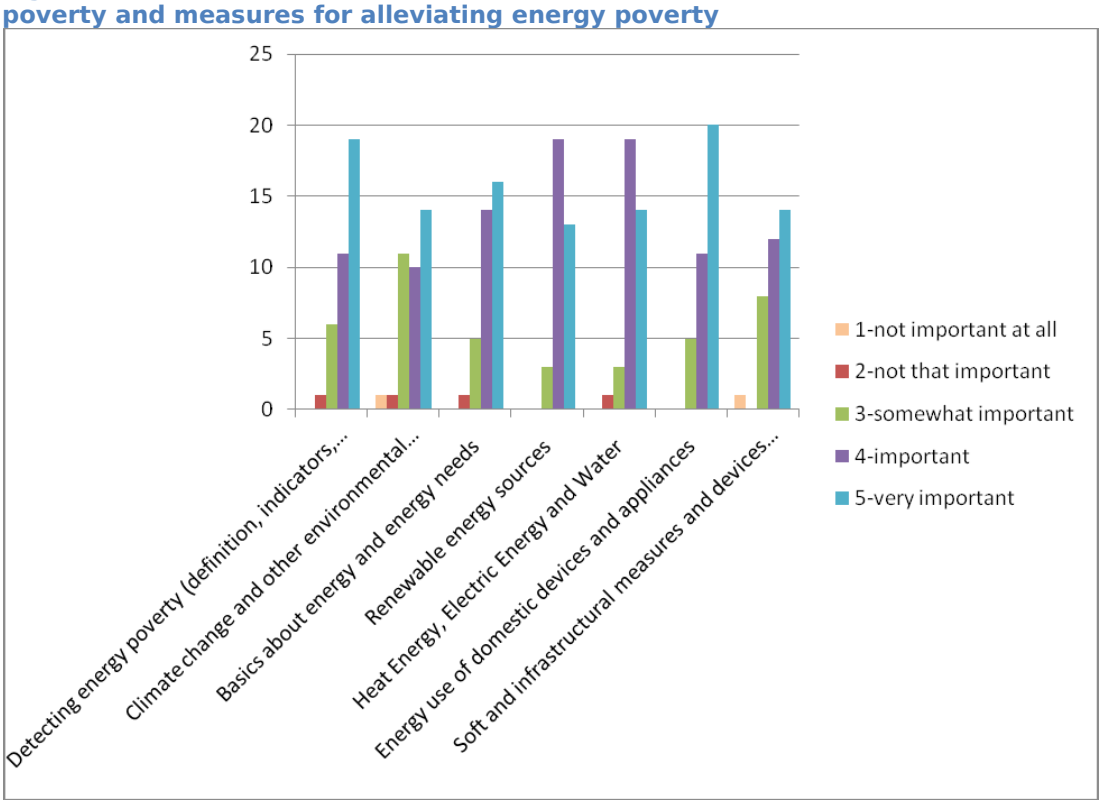


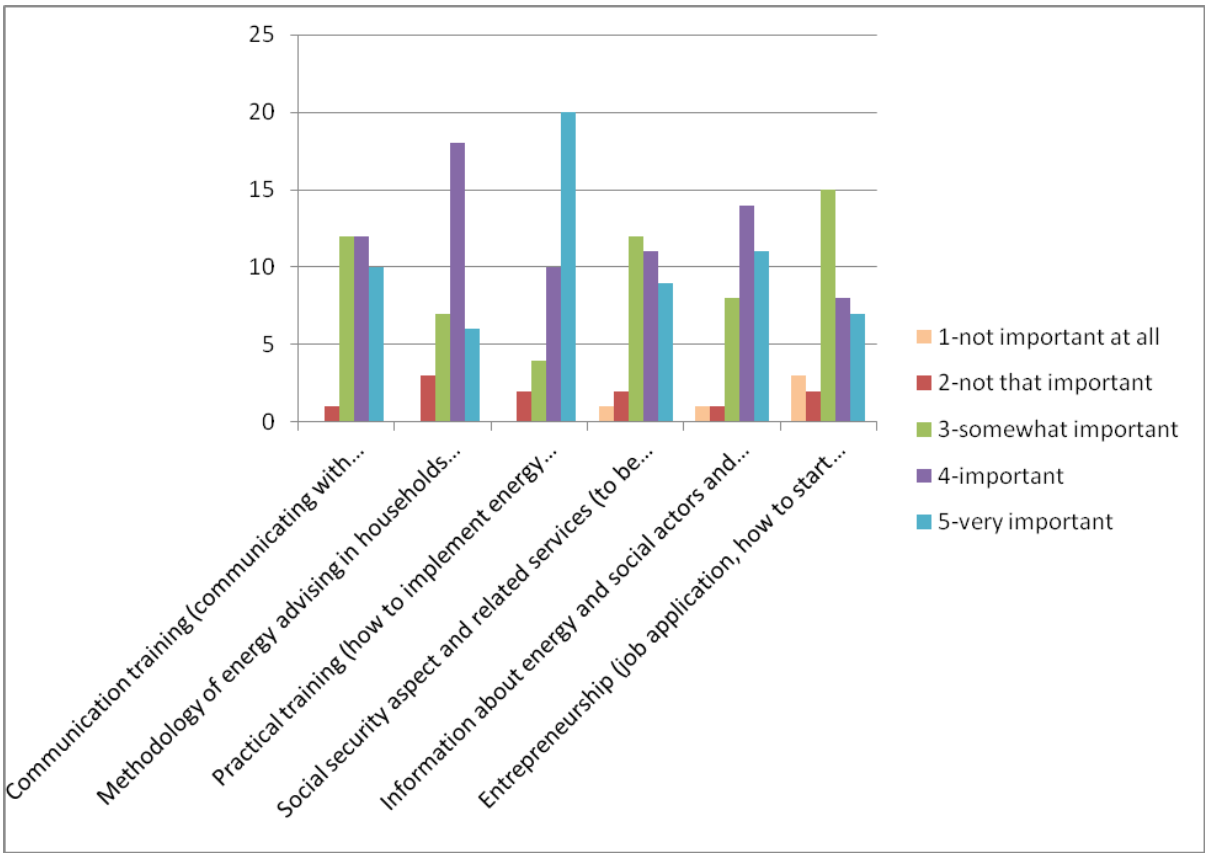
Respondents have also mentioned one more approach/tool that they see as appropriate for education about energy poverty and measures for alleviating energy poverty(as stated by them): calculation of economic profit.

Majority of respondents (85%) think that educational tools should include the possibility of contributing new ideas, notifying the authors about shortcomings and bugs, and proposing solutions for improvement of the tool. No one thinks that they should not have these features. Remaining 15% stated that they don't know.

3.3.5 Content of educational materials and tools on the topic of energy poverty

Figure 3.11: Respondents' input on importance of topics for education about energy poverty and measures for alleviating energy poverty

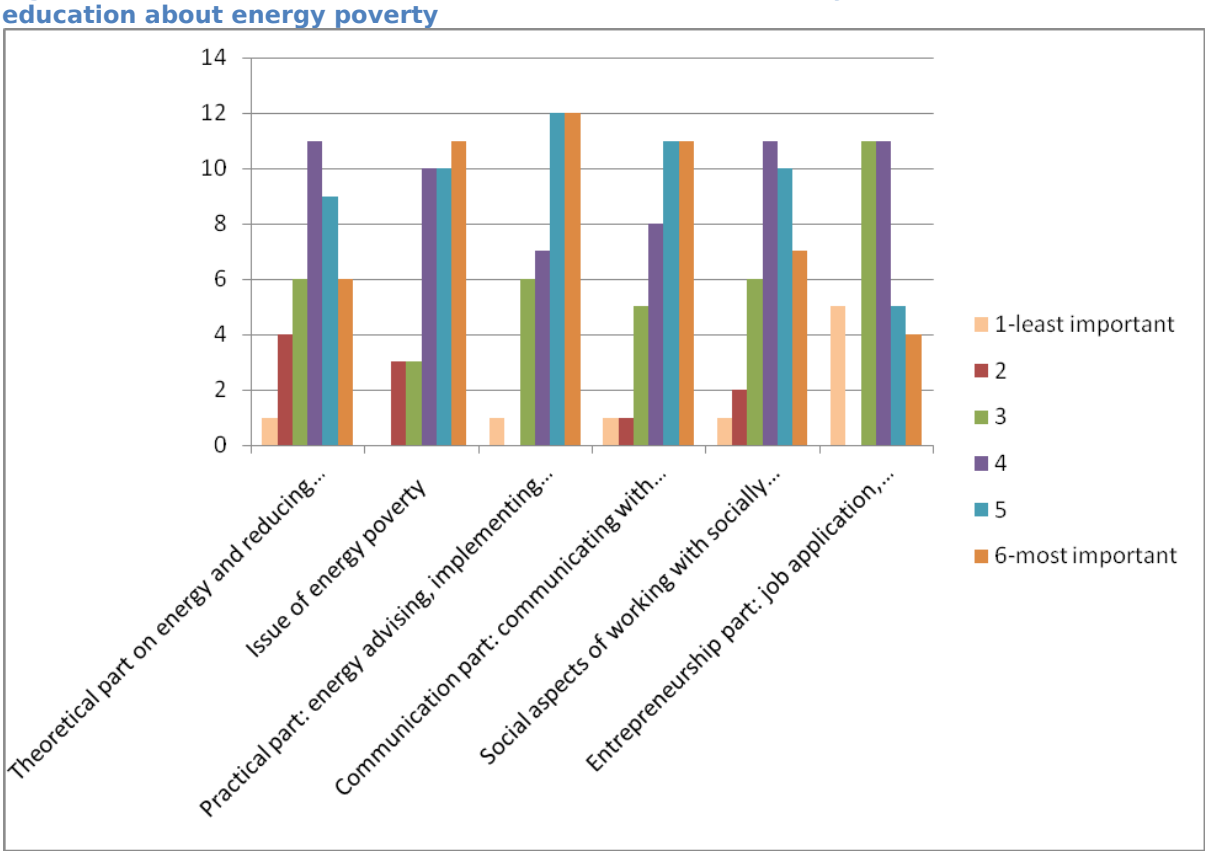




Respondents have also mentioned some other content that they see as appropriate for education about energy poverty and measures for alleviating energy poverty (as stated by them):

- “Energy efficiency certificate and the respected guidelines, as they comprise a trustful indicator of the energy situation of a building and how it can get better.”
- “Needs in education for households and for stakeholders are actually really different. For households it is really important to know the basics on energy consumption and not just the measures.”

Figure 3.12: Respondents’ input on importance of different types of modules for education about energy poverty



3.4 Country specifics on energy poverty

Average income in Cyprus cannot be considered as low according to recent statistics, but it is worth mentioning that the economical crisis that affected European Union, affected also Cyprus with a big decrease in salaries and a big increase in unemployment.

The prices of energy in Cyprus, for example electricity and diesel prices, are considered by citizens to be high in analogy with their salaries. According to Eurostat the electricity prices in Cyprus are average in comparison with other countries, but big price increases were observed in Cyprus between 2016 and 2018.[6]

6 http://ec.europa.eu/eurostat/statistics-explained/index.php/Electricity_price_statistics

We have to mention that special low prices for electricity are available in special cases, such as for households in need. Also, funding is given to energy poor households for instalment of photovoltaic panels, and other energy related upgrades into their house.

Building high energy efficiency homes is an issue that is just now beginning to be considered by construction companies. As an example, we can refer to the fact that even though in Cyprus there is mostly sun light during all months of the year, it is only a few months ago that the legislation changed as to be necessary for new houses constructed, to have photovoltaic panels installed.

Furthermore, the majority of the population still has negative feelings about consenting to have an energy efficient home designed and built, as they believe that it may be unnecessary. Thankfully, due to the new legislation and due to the new generation of architects and engineers, energy efficient homes will start to appear.

In Cyprus, cooling is a very important and major issue in households. During summer months the island experiences very high temperatures and humidity levels, demanding for cooling not only during day light hours but even after the sunset.

4. Slovenia

In first part of the document, the tools and stakeholders identified in Slovenia are presented. The tools presented can be useful in the procedure of developing this project's specific tools. Their features and functionalities could be analysed and reinforced, as to design the new tools. Stakeholders can be valuable providing their advices, tips and help throughout the duration of the project, and some of them are already recognized as beneficiaries of the project results.

In second part of the document, results of the survey are presented. The questionnaire was sent and filled in by relevant stakeholders in Slovenia. Needs of the stakeholders were identified (issue of energy poverty and cooperation with different stakeholders) and most appropriate and suitable tools (online platform, practical activities, applications, educational material and workshops) and content (detecting energy poverty, practical training on implementation of energy advising, energy use of domestic devices and appliances, social security aspect, information about social and energy actors and schemes that can help energy poor households, communication training) selected by respondents.

Last section is devoted to Slovenian specifics on energy poverty. Most of the energy is spent on heating of rooms and water, totalling at more 80 % of the energy used in households. Majority of the housing stock is energy inefficient and in need of energy refurbishment, as almost 70 % of the dwellings are older than 30 years. There is still no official definition of energy poverty. Regarding ongoing programs and schemes for alleviation of energy poverty, Eco Fund is running ZERO program (free energy advising in energy poor households), and Ministry of Infrastructure is starting with their 5 million EUR worth program for implementation of infrastructural measures for improving energy efficiency in homes of energy poor households.

4.1 Existing tools, methods and educational practices for trainings in the areas relevant for energy poverty

No.	Name of the tool	Author/Institution	Short description of the tool	Format of the tool
1	REACH Textbook: Training course for energy advisers	FOCUS	The tool was used as a script for students - future energy advisers of REACH project. It focuses on all relevant elements, connected to energy poverty (energy use, energy efficiency, electricity, heating, water, communication aspect). It is one of the most relevant tools for IDEA project - as a theory guidebook.	Educational material (text)
2	REACH Set of ppt presentations for training of energy advisers	FOCUS	The tool (set of ppt presentations) was used for training of students - future energy advisers of REACH project. It includes topics and most important elements from REACH training course; but it includes also the practical part of the training (how to implement visits in households; how to use the questionnaire and excel tool).	Educational tool
3	REACH Data collection sheet	FOCUS	The questionnaire (paper form) is used by energy advisers when implementing an energy audit in energy poor household. It containcs questions related to the type and characteristics of the dweling and energy and water use. Together with REACH excel tool it provides a good starting point for development of a new,	Questionnaire – data collection sheet

			more user friendly tool.	
4	REACH excel tool	FOCUS	The tool was used together with the REACH Data collection sheet. Data from the collection sheet was put in the excel tool, together with selection of devices for energy savings that were given to household. Based on this data, the tool calculates households' energy and water use and expected energy and water savings. Plan is to make it more user friendly.	ICT tool
5	REACH Guidebook for reducing energy use in households	FOCUS	Text guidebook with tips for energy and water savings in households. It includes a list of relevant stakeholders that can provide additional help to the household.	Educational material (text)
6	ACHIEVE Textbook: Educational modul for energy advisers	FOCUS/ACHIEVE consortium	The tool was used as a script for unemployed - future energy advisers of ACHIEVE project. It focuses on all relevant elements, connected to energy poverty (energy use, energy efficiency, electricity, heating, water, communication aspect). It is one of the most relevant tools for IDEA project - as a theory guidebook and more or less identical to REACH training modul.	Educational material (text)
7	ACHIEVE Textbook: Educational module for trainers	FOCUS/ACHIEVE consortium	The tool includes a set of recommendations on how to implement training for energy advisers (related to energy poverty) and is focusing of providers of the trainng - training the trainers. It includes basic information on how to implement trainings, and also includes steps on how to implement energy advising visits in energy poor households.	Educational material (text)
8	ACHIEVE Set of ppt presentations for training of energy advisers	FOCUS/ACHIEVE consortium	The tool (set of ppt presentations) was used for training of students - future energy advisers of REACH project. It includes topics and most important elements from REACH training course; but it includes also the practical part of the training (how to implement visits in households; how to use the questionnaire and excel tool). It also includes some exercises and games/role playing in communication part of the training.	Educational tool
9	ACHIEVE Modules for training	FOCUS/ACHIEVE consortium	The tool is based on ACHIEVE Textbook Educational modul for energy advisers and represents a starting point for preparation of ppt presentations for training of energy advisers. It includes all the relevant topics and excersises. It is available in EN and Si language.	Educational tool
10	GOLEA e-educational material	GOLEA	E-educational materials include ICT based tools for education about renewables and energy efficiency. It has a special section of IT games for various target groups, form small children to students and adults. It also inlcudes tests and exercises.	ICT tool
11	GOLEA Educational material on RES and EE	GOLEA	Materials consist of various forms and tools that local energy agency GOLEA uses for education about RES and EE. It also includes description of various tools and methods that can be used in education about energy topics.	Educational tool
12	Textbook for primary school teachers' training on energy efficiency	FOCUS	The textbook consists of ppt presentations that were used for training of primary school teachers on energy efficiency. it includes topics: basics about EE and RES, energy in buildings, EE measures, how to include topic of EE in curriculums	Educational tool
13	NEP Vitra	Vitra Cerknica	A web-based platform with information and measures for energy efficiency in homes. It includes a data base of good (and bad) practice examples of practical implementation energy efficiency measures in Slovenian households.	ICT tool
14	Climate Literacy	Inštitut Integra	Tools are focusing on the topic of climate change and related aspects. It consists of various educational modules on the topic, suggestions on how to include the modules in curriculums for various target groups, and a mobile application.	ICT tool
15	MOBISYTLE Recommendation	IRI UL	Recommendations for developers, when developing ICT tools for energy efficiency. Short	Educational material (text)

	s for ICT developers		set of 10 recommendations with focus on user experience.	
16	Application Use Less (manjporabi)	Informa Echo	Web-based application for calculating energy use in a household and for calculating potential savings in case of implementation of EE measures.	ICT tool
17	Uresničujmo, z energijo varčujmo	SODO	Web-based application for calculating energy use of domestic applicances and for calculating potential savings in case of implementation of EE measures.	ICT tool
18	iEnergija	EN-LITE	Web-based interactive platform that explains how electricity system is working and how it is changing from traditional to new, more decentralized.	ICT tool

Table 4.1: Identified tools, methods and educational practices in Slovenia

Identified tools can be divided into four main groups: content for education on energy poverty and related topics; tools for energy advising/audits in households; content for end users (energy poor households); and different ICT tools, that have interested form and will be useful in the development phase of IDEA tools.

Most suitable and important **content for education on energy poverty** are tools developed in the scope of **REACH** project (textbook, ppt presentations), **ACHIEVE** project (modules for training and educational module for trainers), and **NEP Vitra** web-based platform on measures for energy efficiency in homes. REACH and ACHIEVE tools have been specifically developed and designed for the purpose of education on energy poverty and would be for that reason present a good starting point for IDEA tools content. Their main weaknesses are that they don’t include social and entrepreneurship topics. Main strength of the NEP Vitra tool is it’s inclusion of good and bad practice examples of practical energy efficiency measures in households. It provides first hand access to ‘real-life’ situations and most common mistakes when implementing specific EE measure.

REACH Data collection sheet and Excel tool present a combination of **tools for energy advising/audits** in energy poor households. The tools were used in REACH project for more than 400 household visits in Slovenia and present an upgraded version of similar tools from ACHIEVE project. They will be used in IDEA project, as aim of the IDEA project is also to develop a more user friendlier versions of the tools for energy advising or energy auditing in households.

Tools with content for end users – (energy poor) households present: REACH Guidebook for reducing energy use in households, ‘Uresničujmo, z energijo varčujmo’, and in some aspects NEP Vitra web-based platform.

As positive examples of different forms and formats of the (ICT) tools we have identified GOLEA e-educational material and Climate Literacy ICT tools. Both include various forms and different interactive tools for educational purposes and both of them refer to climate and sustainable energy topics. Interesting interactive tools for end-users are Application Use Less, and ‘Uresničumo, z energijo varčujmo’, both of which are focusing on energy efficiency in households and provide a set of tools for calculation of savings for the end user.

When developing ICT tools it is important to have in mind the user friendliness aspects. For that reason we have included MOBISYTLE Recommendations for ICT developers, intended for developing ICT tools for energy efficiency.

4.2 Relevant stakeholders in the area of energy poverty and adult education

No.	Stakeholder	No.	Stakeholder	No.	Stakeholder
1	Ekosklad	2	ENSVET mreža	3	Andragoški center Slovenije
4	LEA Pomurje	5	LEAG	6	KSSENA
7	ENERGAP	8	LEA SP	9	LEAD
10	Zavod za zaposlovanje Ljubljana	11	GOLEA	12	MOP
13	Vitra Cerknica	14	Inštitut Integra	15	IRI UL
16	Informa Echo	17	MDDSZ	18	Karitas Ljubljana
19	Rdeči križ	20	ZPM Moste	21	ZPS
22	Statistični urad RS	23	CSD Zagorje ob Savi	24	CSD Trbovlje
25	MzI	26	Skupnost centrov za socialno delo	27	CSD Ljubljana
28	Elektro Ljubljana	29	GI ZRMK	30	Zenergija
31	IJS CEU	32	SODO	33	Srednja tehniška in poklicna šola Trbovlje

Table 4.2: Identified stakeholders in the area of energy poverty and adult education in Slovenia

Most important and relevant stakeholders on the topic of energy poverty are national institutions, primarily **Eco Fund**, **Ministry of Infrastructure** (MoI), **Ministry of Environment and Spatial Planning** (MESP), and **Ministry of Labour, Family, Social Affairs and Equal Opportunities** (MLFSE). While the role of MESP and MLFSE is mainly in supporting other two actors, MoI is responsible for implementation of a programme for alleviation of energy poverty, financed from Cohesion Fund, and Eco Fund is coordinating program ZERO for reduction of energy poverty through energy advising in households. Energy advising is carried out by **network of energy advisers ENSVET** (more than 60 individuals included) in cooperation with **Centres for Social Work** (CSW) from all over Slovenia. CSWs present an entry point, where energy poor households get information about ZERO program and can also apply for free-of-charge energy advising from ENSVET network.

Regional energy agencies (LEA Pomurje, LEAG, LEAD, GOLEA, LEAG, KSSENA) also represent important stakeholders, as they cover energy topics and have insights into regional and local policies, activities and problems. Some of them are already familiar with energy poverty (most notably **LEA Pomurje** and **LEAG**) and have already implemented projects on the topic. As one of the roles of energy agencies is also awareness raising, and education on energy issues, they could benefit from developed IDEA tools and might give some thoughtful inputs in the process of developing the ICE tools.

Humanitarian organizations (Red Cross, Caritas, ZPM Moste) are already familiar with energy poverty and some of them were involved in ACHIEVE and REACH projects in similar role as Centres for Social Work – as entry points for energy poor households, where they could apply for ‘free-of-charge’ energy

advising. They have good knowledge and experience regarding the needs of energy poor households.

Statistical Office of RS is important from the viewpoint of setting up and monitoring of indicators that are important from energy poverty aspect. **Job Centres** and **Slovenian Institute for Adult Education** are important from the view point of adult education, as both of the institutions organise educational activities. SIAE is also an expert institutions that can provide input in the development process of IDEA tools.

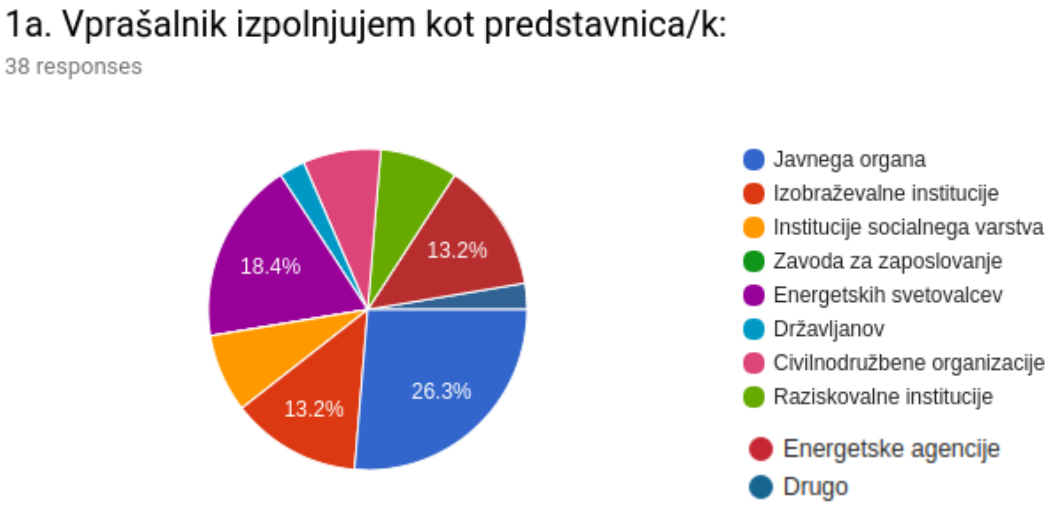
Apart from stakeholders included in the table above, we could add here also more than **30 adult education institutions** (Ljudske univerze) in different Slovenian cities. They could be important as beneficiaries of the project, when the IDEA tools will already be developed.

4.3 Training needs assessment in the area of energy poverty

Training needs assessment was carried out with a web-based questionnaire. Purpose of the questionnaire was to collect information from different stakeholders on their current existing understanding of and involvement in the area of energy poverty. Inputs were collected anonymously.

Questionnaire was filled in by 38 respondents. Majority of respondents were representatives of public authorities (26.3 %). These are followed by energy advisers (18.4 %), educational institutions (13.2 %) and energy agencies (also 13.2. %). Respondents from social care institutions, civil society organizations and research institutions were represented equally (each 7.9 %), as shown in Figure 3.1.

Figure 4.1: Respondents of the questionnaire by their representation



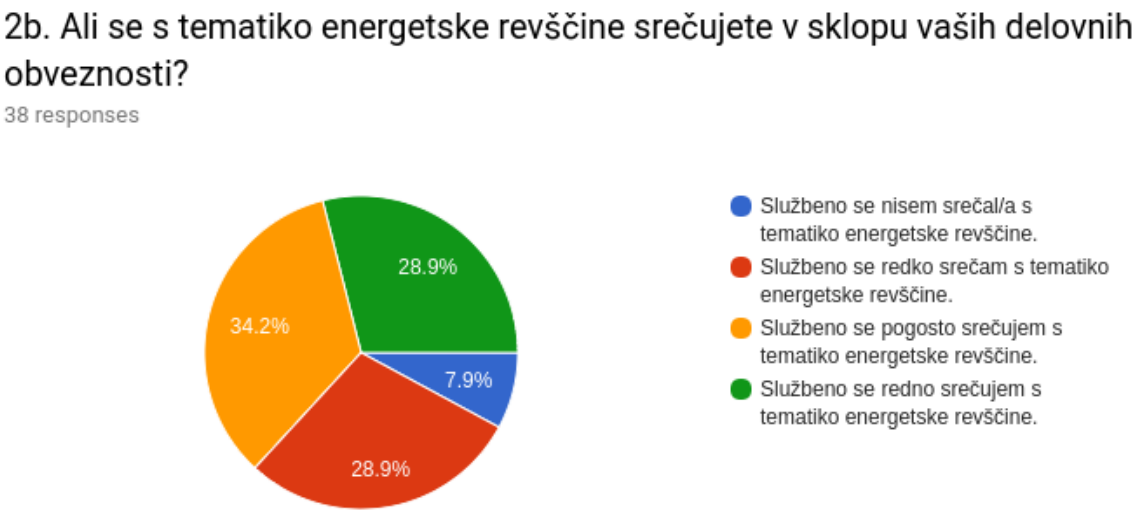
4.3.1 Understanding of energy poverty and involvement in the topic

Regarding the question if they are familiar with the problem of energy poverty, majority of respondents have stated that they are fully familiar with the problem of energy poverty (60.5 %) and 36.8 % have stated that they have basic insight of the problem. Only 1 respondent has stated that he/she has heard of the term,

but is unfamiliar with it and none of the respondents stated that they have never heard of energy poverty.

When it comes to dealing with the energy poverty at their work (Figure 3.2), majority of respondents have stated that at their work they are often dealing with the topic of energy poverty (34.2 %). 28.9 % of respondents have stated that they at their work they are regularly dealing with the topic and the same share of respondents have stated that they rarely come across the topic at their work. Only 7.9 % of respondents have stated that so far they have not met with the topic at their work.

Figure 4.2: Respondents dealing with the energy poverty at their work



Respondents that are dealing with the topic of energy poverty in their work, are facing it in various kind of ways:

- within energy advising to households and implementation of program ZERO for reducing energy poverty;
- within preparation and implementation of policies and programs for alleviation of energy poverty;
- when socially vulnerable individuals ask them for help in the form of energy saving advices and with payments for energy bills;
- cooperation in projects that address or research energy poverty;
- in educational processes and through taking with participants of educational programs for adults.

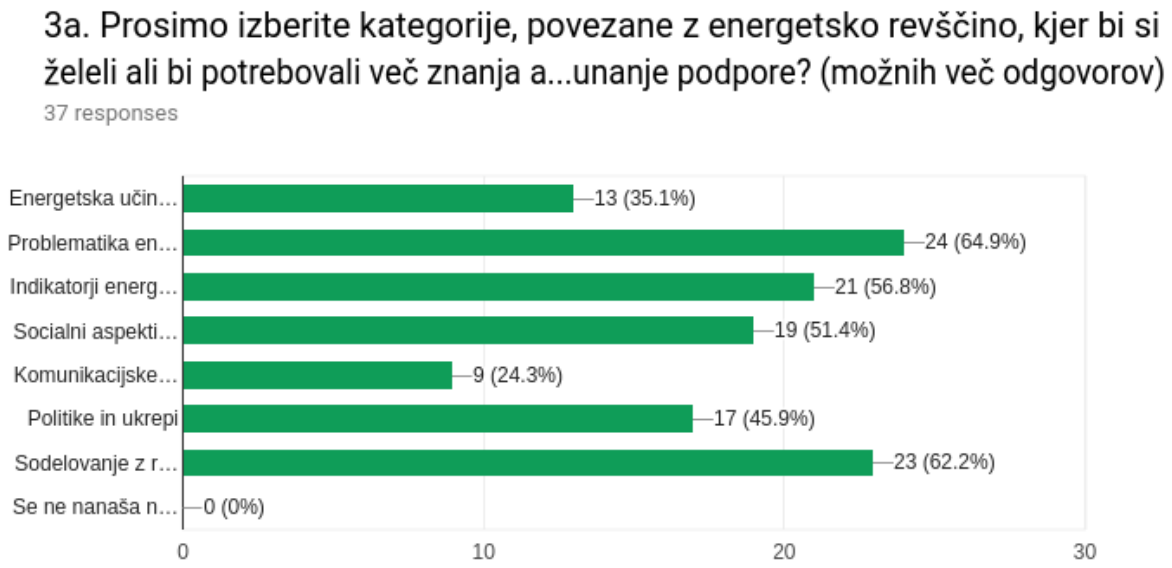
Big majority of respondents think that energy poverty is very relevant (44.7 %) and relevant (39.5 %) to their field of work. 4 respondents (10.5 %) have stated that energy poverty is somewhat important and only 2 (5.3 %) of them that it is not relevant for their field of work.

Almost all respondents (94.8 %) have stated that generally the issue of energy poverty is important (47.4 %) or very important (47.4 %).

4.3.2 Stakeholders' needs in the area of energy poverty

When asked in which categories related to energy poverty respondents would need more knowledge or external support, 64.9 % have stated 'issue of energy poverty (causes, problems, solutions, problem identification)', 62.2 % 'cooperation with different stakeholders and cross-sectoral integration', 56.8 % 'indicators of energy poverty and their monitoring', and 51.4 % 'social aspects of working with socially disadvantaged households'. Less than half respondents have stated they would need more knowledge or external support in 'policies and measures' (45.9 %), 'energy efficiency and related measures' (35.1 %), and 'communication skills' (24.3 %). Results are shown in Figure 3.3.

Figure 4.3: Categories related to energy poverty where respondents would need more knowledge or external support



When it comes to suitability of tools for respondents' involvement in energy poverty, in case of gaining more knowledge or external support, they have stated that the most suitable tool or format would be 'an online platform with information on energy poverty (measures, relevant actors,...)'. Second best was 'database on energy poverty in households (on country/regional level)', and third 'workshops' and 'educational material as text documents'. Out of all options, respondents have stated that 'videos and case studies on energy poverty' are a less suitable option. Detailed results are shown in Table 4.3.

No.	Tools	Suitability of the tool (from *1-not suitable at all* to *5-very suitable*)
1	Online platform with information on energy poverty (measures, relevant actors,...)	4.31
2	Database on energy poverty in households (on country/regional level)	4.06
3	Workshops	3.97
4	Educational material as text documents	3.97
5	Educational seminars	3.92
6	Set of statistics on relevant indicators of energy poverty	3.81
7	Database of relevant stakeholders	3.74
8	Managing stakeholders' dialogues	3.69
9	Questionnaire and tool for energy audits in households	3.64

10	Videos and case studies on energy poverty	3.63

Table 4.3: Most suitable tools for respondents' involvement in energy poverty

Respondents have also mentioned some other tools and content that they see as useful for their work:

- connecting energy poverty to health aspects (bad indoor air quality, cold homes, burning waste for heating);
- informational brochures for households;
- cooperation and coordinated actions between institutions and stakeholders;
- finding ways to motivate energy poor households for activation;
- how to access energy poor households or how to access data about energy poor households;
- project cooperation;
- defined definition of energy poverty;
- higher involvement of national institutions responsible for social policies;
- data base of good practices and efficient measures.

4.3.3 Households' needs in the area of energy poverty

Regarding the question 'Which of the following do you think would be most beneficial for energy poor households', respondents have stated that 'energy advising and auditing' is the most beneficial for energy poor households. This answer is closely followed by 'practical measures for reducing energy and water use', 'implementation of structural measures' and 'training about measures they can implement themselves'. Answers 'awareness raising', 'education and information sharing' and 'information about energy and social actors that could help households' were rated as slightly less beneficial then first four options, but still as beneficial for energy poor households. As seen in Table 4.4 below, all answers got a grade above 4 on a scale from 1 to 5.

No.	Content for households	Beneficialness of content (from *1-not beneficial at all* to *5-very beneficial*)
1	Energy advising and auditing	4.50
2	Practical measures for reducing energy and water use	4.42
3	Implementation of structural measures	4.36
4	Training about measures they can implement themselves	4.34
5	Awareness raising	4.16
6	Education and information sharing	4.11
7	Information about energy and social actors that could help households	4.03

Table 4.4: Respondents' input on beneficial content for energy poor households

Respondents have also mentioned some other content that they see as beneficial for energy poor households:

- monitoring on internal environment (air quality, temperature, humidity, mould);
- comprehensive approach (education, financial assistance for renovation, support throughout the process and post-process support);

- campaign for energy poor households with positive notion (so they see this as an option, not as ‘pity’);
- clear information for households where they can get help regarding energy poverty;
- individual advising in households;
- 100 % financial support for energy poor households for energy efficiency measures and advising;
- training for stakeholders that are working with energy poor households.

4.3.4 Form of educational materials and tools on the topic of energy poverty

As most appropriate approaches and tools for education about energy poverty and measures for alleviating energy poverty, respondents have selected ‘practical activities’, followed by ‘applications’, ‘web based tools’, and ‘lectures’. ‘Games’ and ‘textbooks’ were selected as somehow appropriate tools, and ‘role playing’ was seen as least appropriate tool on the list. Details can be found in Table 4.5.

No.	Appropriateness of approaches and tools for education about energy poverty and measures for alleviating energy poverty	Appropriateness of approaches and tools (from *1-not appropriate at all* to *5-very appropriate*)
1	Practical activities	4.37
2	Applications	3.76
3	Web based tools	3.71
4	Lectures	3.66
5	Games	3.37
6	Textbooks	3.11
7	Role playing	2.71

Table 4.5: Respondents’ input on appropriateness of approaches and tools for education about energy poverty and measured for alleviating energy poverty

Respondents have also mentioned some other approaches and tools that they see as appropriate for education about energy poverty and measures for alleviating energy poverty:

- formation of support groups for households, where they can share experience and efficient practical solutions;
- monitoring of status in households;
- best practice cases and examples of implemented EE measures and their results;
- presented different models for financing of EE measures;
- awareness raising media campaigns;
- practical workshops;
- compulsory training for social aid beneficiaries.

Majority of respondents think that educational tools should include the possibility of contributing new ideas, notifying the authors about shortcomings and bugs, and proposing solutions for improvement of the tool (89.5 % of all respondents).

In that way the tools can be made more user friendly, end users have a feeling of involvement, and improvements can be made based on users' experience and knowledge.

4.3.5 Content of educational materials and tools on the topic of energy poverty

As most important topic for education about energy poverty and measures for alleviating energy poverty, respondents have selected 'detecting energy poverty' and 'practical training', followed by 'energy use of domestic devices and appliances' and 'social security aspect and related services'. Lowest grade was assigned to 'entrepreneurship', but even that was ranked above 3 on the scale from 1 to 5. Details with listed all 13 topics for education about energy poverty and their accompanied grades are shown in Table 4.6.

No.	Topics for education about energy poverty and measures for alleviating energy poverty	Importance of the topic (from *1-not suitable at all* to *5-very suitable*)
1	Detecting energy poverty (definition, indicators, causes, solutions)	4.39
2	Practical training (how to implement energy advising in households, measuring energy and water use, replacement of devices in household, identification of key problems in household)	4.39
3	Energy use of domestic devices and appliances	4.32
4	Social security aspect and related services (to be able to identify problem and give advice to household)	4.26
5	Information about energy and social actors and schemes that can help energy poor household	4.13
6	Soft and infrastructural measures and devices for reducing energy and water consumption	4.11
7	Methodology of energy advising in households (process of implementation of energy advising, how to use questionnaire and software tool, saving devices)	3.92
8	Heat Energy, Electric Energy and Water	3.89
9	Basics about energy and energy needs	3.79
10	Communication training (communicating with costumers, households members and other stakeholders)	3.79
11	Renewable energy sources	3.74
12	Climate change and other environmental impacts of energy use	3.45
13	Entrepreneurship (job application, how to start your own business initiative, marketing, etc.)	3.16

Table 4.6: Respondents' input on importance of topics for education about energy poverty and measures for alleviating energy poverty

Respondents have also mentioned some other content that they see as appropriate for education about energy poverty and measures for alleviating energy poverty: health issues connected to energy poverty and interests of energy poor households.

When asked to rank types of modules for education about energy poverty based on their importance, respondents have selected 'practical part (energy advising, implementing measures, saving devices, household visits)' as the most important educational module. This was followed by 'communication part (communicating with costumers, households members and other stakeholders)', 'social aspects of working with socially disadvantaged households', and 'issue of energy poverty'. Respondents have selected 'theoretical part on energy and reducing energy and water use' and 'entrepreneurship part (job application, marketing, how to start your own business)' as least important modules,

although all of the modules got an average grade above 3 (out of 6), as shown in Table 4.7.

No.	Type of modules for education about energy poverty	Importance of the module (from *1-least important* to *6-most important*)
1	Practical part: energy advising, implementing measures, saving devices, household visits	5.53
2	Communication part: communicating with costumers, households members and other stakeholders	4.63
3	Social aspects of working with socially disadvantaged households	4.42
4	Issue of energy poverty	3.58
5	Theoretical part on energy and reducing energy and water use	3.29
6	Entrepreneurship part: job application, marketing, how to start your own business	3.08

Table 4.7: Respondents' input on importance of different types of modules for education about energy poverty

4.4 Country specifics on energy poverty

Energy poverty is becoming an increasingly pressing issue in Slovenia, as the rise in energy prices outweighs the rise of household income. In Slovenia, there is an increasingly obvious trend that households with lower income pay relatively more to ensure their energy needs. Thus, in households of the first income quintile (20 % of households with lowest income) expenditure for energy has increased sharply in recent years, and in 2010 it already accounted for 17.4 % of all available income of an individual household (in 2010 this number was at 13.1 %).[7]

Risk of poverty rate in Slovenia was increasing in last couple of years and this risk is much higher in the case of unemployed and relatively high in the group of self-employed and retired.[8] Share of wood and biomass for heating of homes is increasing, while use of extra light heating oil is decreasing, which can be linked to the dynamics of the prices of both energy carriers. Low-income households are increasingly choosing cheaper energy, especially wood, and disconnecting from district heating, which is mostly compensated by heating to electricity. Special problem arises from the increase in the use of wood, as households often burn it in older, inefficient furnaces that do not have adequate filters, resulting in lower air quality. Most of the energy is spent on heating of rooms and water, totalling at more 80 % of the energy used in households. For this reason, measures to reduce energy poverty should be oriented towards reducing the use of (heat) energy by energy refurbishments and increasing energy efficiency of dwellings. Majority of the housing stock is energy inefficient and in need of energy refurbishment, as almost 70 % of the dwellings are older than 30 years. In Slovenia, high proportion of the population is living in a dwelling where either the roof is leaking, the walls are damp or the window frames are inadequate: 27 % of the population in 2013.[9] Among households which according to their income are classified as socially vulnerable, this share is 39.6 %. In 2010, in the lowest quintile, 13 % of households could not afford adequately warm dwelling.

7 Statistični urad RS: http://www.stat.si/novica_prikazi.aspx?id=5164.

8 Statistični urad RS: http://www.stat.si/StatWeb/glavnanavigacija/podatki/prikazistaronovico?IdNovice=5164

9 EUROSTAT: http://epp.eurostat.ec.europa.eu/portal/page/portal/statistics/search_database

Energy poverty still lacks official definition. Appropriate definition would be very welcome, while at the same time researching energy poverty should be done more systematically. Another important challenge is the fact that social sector, due to lack of human and financial resources, does now show sufficient interest in energy poverty and is not sufficiently involved in the debate on addressing the problem. Strategies for housing and energy renovations of dwellings only partially recognize energy poverty as a problem, but do not foresee coherent and structural measures for addressing it. There are few programs and measures addressing energy poverty or energy poor households in Slovenia:

- ZERO program – free energy advising in energy poor households. Whole service is based on REACH project methodology. The program is included in the National Action Plan for Energy Efficiency. Program is coordinated by national Eco Fund and carried out by network of energy advisers ENSVET (more than 60 individuals included) in cooperation with Centres for Social Work. Every households, where the visit has been done, gets a free-of-charge package with energy and water saving devices that generate around 80 EUR/per year of savings.
- 5 million EUR are reserved in Cohesion Fund for implementing a national program for addressing energy poverty. Plan is to implement infrastructural measures for improving energy efficiency of homes (energy refurbishment of buildings, replacement of inefficient heating systems and expensive energy sources for heating). The program is still in it's designing phase and is included in the National Action Plan for Energy Efficiency. Ministry of Infrastructure is responsible for implementation of this program and it should start in 2018.
- Apart from ZERO program, Eco Fund has two other programs that are addressing socially vulnerable or energy poor households: (1) in the case of renovation of multi-apartment building, eligible households are provided with 100 % co-financing; (2) 100 % co-financing for socially weak citizens for replacement of old wood furnaces with new wood heating systems in municipal areas with adopted Decree on Air Quality Plan[10].
- Caritas Slovenia is implementing a project that helps households in need with one-time financial assistance for heating costs.

10 Ekosklad: https://www.ekosklad.si/razpisi/prikazi/tenderID=59

5. Comparison of country-specific reports and main findings

This chapter presents the synthesis of key findings from the country specific reports. It refers to aspects and results that are important for further development of ICT tools in the scope of IDEA project. For that reason, relevant tools and contents related to energy poverty are presented. Furthermore, the needs of stakeholders and households related to energy poverty, which were identified in all 4 countries with the use of questionnaire, are synthesized. The last subsection of this chapter refers to important differences between countries regarding energy poverty and brings forward any specifics that we need to be careful about when developing the tools.

5.1 Relevant existing tools about energy poverty

Here the tools that were recognized as most relevant for further IDEA project activities and development of the 15 ICT tools are presented. Tools were identified in activity A1 and we can divide them into content and format categories. The list includes examples from the 4 partner countries and further relevant tools from other countries. Most important identified tools and content are coming from the project REACH, which was implemented by 3 of the partner organizations.

5.1.2 Interesting content

Most suitable and important **content for education on energy poverty** is provided by the tools and the content developed in the scope of **REACH project**, which was implemented in Bulgaria, Croatia and Slovenia by partner organizations from these countries. These include **textbooks** (curriculum) for education of energy advisers, accompanying **slide-show presentation**, **guidebooks for reducing energy use** in households, **energy auditors' guidance** (very comprehensive education materials about energy efficiency in households). Croatian version of the curriculum for education of energy advisers, developed in cooperation between DOOR, UNDP and ZEZ, includes the **entrepreneurship part** as well.

We can add tools and content from the **project ACHIEVE**, that was implemented by partners EAP and FOCUS in time period 2011-2014. These include **modules for training and educational module for trainers**. One positive aspect of these tools is also the fact that they are **all available in English** and for that more appropriate for direct distribution between all partners. REACH and ACHIEVE tools have been specifically developed and designed for the purpose of education on energy poverty and would be for that reason a good starting point for IDEA tools content.

Other important content:

- Various **DOOR guidebooks on energy savings** and energy efficiency (HR);

- **NEP Vitra web-based platform** on measures for energy efficiency in homes (SI);
- **Energy savings in households Platform** with practical advices, interesting tools and relevant information regarding EE (BG);
- **TRIME Energy training materials** (other countries).

5.1.3 REACH tools for energy audits/advising in households

REACH Data collection sheet and **Excel tool** present a combination of tools for energy advising/audits in energy poor households. They represent comprehensive ICT tools for assessment of energy and water consumption and calculating energy savings. It is planned that they will be used in IDEA project, as aim of the IDEA project is also to develop a more user friendly version of the tools for energy advising or energy auditing in households.

5.1.4 Interesting formats of tools

Regarding interesting formats of tools, we would like to highlight **Social Electricity (ICT tool)** that is used for comparison of monthly consumption of energy for end users in Cyprus. It also includes advices for energy efficiency in home, and educational games. Displaying and monitoring the user's consumption month by month, and comparing the different values to see if user has decreased his consumption or not, could help him understand his mistakes and motivate him to try his best to reduce energy.

Bulgarian examples include **SEEA energy efficiency in households ICT tool** which is a simplified calculator for assessing energy savings in households. Next one is **CO2 emissions calculator** – a web-based tool for assessing environmental impacts of different measures. **FIESTA tools** (energy efficiency guide; guidebook for advisers and tools for auditors) could be useful for comparing it with REACH tools and optimising the latter accordingly.

In Slovenia we have identified **GOLEA e-educational material** and **Climate Literacy ICT tools**. Both include various forms and different interactive tools for educational purposes and both of them refer to climate and sustainable energy topics. Interesting interactive tools for end-users are **Application Use Less**, and **'Uresničumo, z energijo varčujmo'**, both of which are focusing on energy efficiency in households and provide a set of tools for calculation of savings for the end user.

From other countries we can highlight various tools and resources that can be found on **EU Energy Poverty Observatory** platform.[11] They are specifically focusing on energy poverty and can be of great importance content- and format-wise.

5.2 Stakeholders' and households' needs on energy poverty

This part of the document includes key findings from the stakeholders' survey carried out in 4 countries. The survey involved 144 participants: 35 from Bulgaria, 32 from Croatia, 39 from Cyprus, and 38 from Slovenia. It gives us an

11 https://www.energypoverty.eu/training-resources

insight into what are the different stakeholders' needs, which topics and content do they think it's important, and which formats of tools would be most beneficial for them personally, for educational purposes, and for energy poor households. The results of the survey can give us the direction for development of IDEA ICT tools.

5.2.1 Stakeholders' needs in the area of energy poverty

When asked in which categories related to energy poverty they would need more knowledge or external support, the respondents have highlighted 'Indicators of energy poverty and their monitoring', 'Policies and measures', and 'Issue of energy poverty (causes, problems, solutions, problem identification)'. Results for all countries separately and combined are shown in Table 5.1 below.

No.	Category related to energy poverty	BG	HR	CY	SI	All
1	Indicators of energy poverty and their monitoring	54.3	65.6	51.3	56.8	57
2	Policies and measures	68.6	56.3	51.3	45.9	55.53
3	Issue of energy poverty (causes, problems, solutions, problem identification)	51.4	50	41	64.9	51.83
4	Cooperation with different stakeholders and cross-sectora integration	57.1	37.5	25.6	62.2	45.6
5	Social aspects of working with socially disadvantaged households	40	46.9	38.5	51.4	44.2
6	Energy efficiency and related measures	48.6	43.8	28.2	35.1	38.93
7	Communication skills	11.4	12.5	12.8	24.3	15.25

Table 5.1: Categories related to energy poverty where respondents would need more knowledge or external support (*in %*)

When it comes to suitability of tools for respondents' involvement in energy poverty, in case of gaining more knowledge or external support, they have stated that the most suitable tool or format would be an 'Online platform with information on energy poverty (measures, relevant actors,...)'. The second best was 'Database on energy poverty in households (on country/regional level)', and the third 'Educational seminars'. Out of all options, respondents have stated that 'Managing stakeholders' dialogues' are a less suitable option, although the differences between the ratings of the tools are not high. Detailed results are shown in Table 5.2.

No.	Tools	BG	HR	CY	SI	All
1	Online platform with information on energy poverty (measures, relevant actors,...)	3.47	4.23	4.15	4.31	4.04
2	Database on energy poverty in households (on country/regional level)	3.60	3.97	3.63	4.06	3.82
3	Educational seminars	3.26	3.80	4.06	3.92	3.77
4	Educational material as text documents	3.35	3.90	3.70	3.97	3.73
5	Workshops	3.50	3.73	3.66	3.97	3.72
6	Set of statistics on relevant indicators of energy poverty	3.14	4.00	3.72	3.81	3.67
7	Database of relevant stakeholders	3.43	/	3.81	3.74	3.66
8	Questionnaire and tool for energy audits in households	3.42	3.83	3.24	3.64	3.53
9	Videos and case studies on energy poverty	3.37	3.24	3.58	3.63	3.46
10	Managing stakeholders' dialogues	/	3.54	3.06	3.69	3.43

Table 5.2: Most suitable tools for respondents' involvement in energy poverty (*suitability of the tool: from* 1-not suitable at all *to* 5-very suitable)

5.2.2 Households' needs in the area of energy poverty

Regarding the question 'Which of the following do you think would be most beneficial for energy poor households', respondents have stated that 'Practical

measures for reducing energy and water use'' is the most beneficial for energy poor households. This answer is closely followed by 'Training about measures they can implement themselves', and 'Implementation of structural measures', which was followed by 'Energy advising and auditing'. Answers 'Information about energy and social actors that could help households', 'Awareness raising', and 'Education and information sharing' were rated as slightly less beneficial than the first four options, but still as beneficial for energy poor households. As seen in Table 5.3 below, all answers got a grade above 4 or were very close to it on a scale from 1 to 5.

No.	Content for households	BG	HR	CY	SI	All
1	Practical measures for reducing energy and water use	3.54	4.77	4.74	4.42	4.37
2	Training about measures they can implement themselves	3.64	4.82	4.37	4.34	4.29
3	Implementation of structural measures	3.76	4.47	4.54	4.36	4.28
4	Energy advising and auditing	3.75	4.21	4.29	4.50	4.19
5	Information about energy and social actors that could help households	3.52	4.42	4.13	4.03	4.03
6	Awareness raising	3.38	4.13	4.05	4.16	3.93
7	Education and information sharing	3.39	4.23	3.95	4.11	3.92

Table 5.3: Respondents' input on beneficial content for energy poor households (*beneficialness of content: from* 1-not beneficial at all *to* 5-very beneficial)

5.2.3 Form of educational materials and tools on the topic of energy poverty

As most appropriate approaches and tools for education about energy poverty and measures for alleviating energy poverty, respondents have selected 'Practical activities', followed by 'Applications', 'Web based tools', and 'Lectures'. 'Textbooks' and 'Games' were selected as somehow appropriate tools, and 'Role playing' was seen as least appropriate tool on the list. Details can be found in Table 5.4.

No.	Appropriateness of approaches and tools for education about energy poverty and measures for alleviating energy poverty	BG	HR	CY	SI	All
1	Practical activities	4.76	4.55	4.18	4.37	4.47
2	Applications	3.63	3.70	4.16	3.76	3.81
3	Web based tools	3.88	3.55	3.91	3.71	3.76
4	Lectures	3.19	4.00	3.63	3.66	3.62
5	Textbooks	2.87	3.78	3.59	3.11	3.34
6	Games	3.00	3.03	3.35	3.37	3.19
7	Role playing	2.83	2.52	2.97	2.71	2.76

Table 5.4: Respondents' input on appropriateness of approaches and tools for education about energy poverty and measured for alleviating energy poverty (*appropriateness of the tool: from* 1-not appropriate at all *to* 5-very appropriate)

5.2.4 Content of educational materials and tools on the topic of energy poverty

As the most important topic for education about energy poverty and measures for alleviating energy poverty, respondents have selected 'Energy use of domestic devices and appliances', followed by 'Practical training' and 'Detecting energy poverty'. Lowest grade was assigned to 'Entrepreneurship', but even that was ranked above 3 on the scale from 1 to 5. Details with listed all 13 topics for education about energy poverty and their accompanied grades are shown in Table 5.5.

No.	Topics for education about energy poverty and measures for alleviating energy poverty	BG	HR	CY	SI	All
1	Energy use of domestic devices and appliances	3.75	4.68	4.42	4.32	4.29
2	Practical training (how to implement energy advising in households, measuring energy and water use, replacement of devices in household, identification of key problems in household)	3.60	4.32	4.33	4.39	4.16
3	Detecting energy poverty (definition, indicators, causes, solutions)	3.50	4.42	4.30	4.39	4.15
4	Soft and infrastructural measures and devices for reducing energy and water consumption	3.59	4.66	4.09	4.11	4.11
5	Social security aspect and related services (to be able to identify problem and give advice to household)	3.74	4.27	3.71	4.26	4.00
6	Heat Energy, Electric Energy and Water	3.55	4.29	4.24	3.89	3.99
7	Information about energy and social actors and schemes that can help energy poor household	3.62	4.16	3.94	4.13	3.96
8	Renewable energy sources	3.61	4.03	4.29	3.74	3.92
9	Basics about energy and energy needs	3.47	3.94	4.25	3.79	3.86
10	Methodology of energy advising in households (process of implementation of energy advising, how to use questionnaire and software tool, saving devices)	3.55	4.00	3.79	3.92	3.82
11	Communication training (communicating with costumers, households members and other stakeholders)	3.52	3.97	3.89	3.79	3.79
12	Climate change and other environmental impacts of energy use	3.54	3.94	3.95	3.45	3.72
13	Entrepreneurship (job application, how to start your own business initiative, marketing, etc.)	3.16	3.60	3.40	3.16	3.33

Table 5.5: Respondents' input on importance of topics for education about energy poverty and measures for alleviating energy poverty (*importance of the tool: from* 1-not important at all *to* 5-very important)

When asked to rank types of modules for education about energy poverty based on their importance, respondents have provided answers shown in the table below.

Most of the respondents find the 'Practical part (energy advising, implementing measures, saving devices)' as most important type of module for education about energy poverty. This was followed by 'Communication part (communicating with costumers, households members and other stakeholders)', 'Social aspects of working with socially disadvantaged households', and 'Issue of energy poverty'. Respondents have selected 'Theoretical part on energy and reducing energy and water use' and 'Entrepreneurship part (job application, marketing, how to start your own business)' as least important modules, although all of the modules got an average grade above 3 (out of 6), as shown in Table 5.6.

No.	Type of modules for education about energy poverty	BG	HR	CY	SI	All
1	Practical part: energy advising, implementing measures, saving devices, household visits	4.27	5.03	4.71	5.53	4.89
2	Communication part: communicating with costumers, households members and other stakeholders	3.78	4.58	4.62	4.63	4.40
3	Social aspects of working with socially disadvantaged households	3.88	4.66	4.30	4.42	4.32
4	Issue of energy poverty	3.80	4.66	4.62	3.58	4.17
5	Theoretical part on energy and reducing energy and water use	3.86	3.75	4.11	3.29	3.75
6	Entrepreneurship part: job application, marketing, how to start your own business	3.32	3.52	3.64	3.08	3.39

Table 5.6: Respondents' input on importance of different types of modules for education about energy poverty (*importance of the tool: from* 1-not important at all *to* 5-very important)

5.3 Important country differences on energy poverty

There is a lack of definition for energy poverty in all four countries, and a lack of a coherent set of indicators set and monitored regarding energy poverty. In

Bulgaria and Cyprus there is no existing educational programme, specifically related to energy poverty issue. In Slovenia a one-day training on energy poverty and energy advising in energy poor households is included in training of energy advisers that form the ENSVET network (it was formed and performed by FOCUS and is based on project REACH material). In Croatia UNDP and ZEZ have developed an educational programme (based on REACH project and with input from DOOR) for unemployed persons and have carried it out in several regions.

There are few existing programs and schemes specifically aimed at energy poor households or vulnerable consumers. In Bulgaria the only program for vulnerable households is targeted assistance for heating (Ministry of Labour and Social Policy) that is covering bills for heating of households in need. In Croatia there is no program specifically aimed at energy poor households, but there are few programs for vulnerable consumers: socially vulnerable and disabled are entitled to 200 HRK/month (ca. 26 EUR/month) deduction of their electricity bills; and recipients of guaranteed minimum compensation have the right to financial aid for the purpose of housing expenses and related bills and heating.

In Slovenia there are few programs and measures addressing energy poverty or energy poor households in Slovenia. Most notable is ZERO program in form of energy advising in energy poor households (run by Eco Fund and ENSVET, financed by Ministry of Environment and Spatial Planning). In Cyprus special low prices for electricity are available in special cases, such as for households in need. Also, funding is given to socially vulnerable households for instalment of photovoltaic panels, and other energy related upgrades into their house.[12]

We could say that an important challenge in all four countries is the fact that social sector, due to lack of human and financial resources, does not show sufficient interest in energy poverty and is not sufficiently involved in the debate on addressing the problem. Strategies for housing and energy renovations of dwellings only partially recognize energy poverty as a problem, but do not foresee coherent and structural measures for addressing it.

Biggest difference between countries, related to energy poverty, is that in Cyprus, cooling is a very important and major issue in households. During summer months the island experiences very high temperatures and humidity levels, demanding for cooling not only during day light hours but even after sunset. And in other three countries energy for heating is more emphasized, although in connection to climate change and warmer summers, energy for cooling is becoming also an issue.

5.4 Conclusions

Project REACH materials have been identified as the most relevant tools, especially content for education of energy poverty, and Data collection sheet and Excel calculating tool. These will present the base for developing the IDEA ICT tools. Regarding interesting formats and forms of the tools, other useful and interested materials have been identified and will be examined in the scope of

12 From few months ago it is necessary for new houses constructed, to have photovoltaic panels installed.

designing the IDEA tools. Survey showed that stakeholders' needs regarding content are focusing on knowledge about the issue of energy poverty and related measures, and less on communication skills and social aspects of the problem. As most suitable tools they see an online platform with information on energy poverty, database on energy poverty in households, and educational materials in various forms, as less attractive they see videos and case studies, and managing of stakeholders' dialogues.

When it comes to energy poor households, respondents have stated that practical and infrastructural measures for reducing energy use, and trainings about measures they can implement themselves are most beneficial for that specific target group. According to the survey, this should be done in the form of practical activities, applications, web based tools, and lectures.

As the most important topics for education about energy poverty and measures for alleviating energy poverty, the ones focusing on energy use, practical training, detecting energy poverty, and various measures and devices for reducing energy and water use have been identified. Social security aspects and related services, communication training, basics about energy, climate change issues, and entrepreneurship have been identified as less important.

When developing the IDEA ICT tools developers should have in mind that currently in non of the 4 countries there is a set definition for energy poverty, and that there is lack of educational materials and programs, specifically related to energy poverty issue. For that reason developers should include various relevant stakeholders from the beginning of the planning and implementation process for developing the ICT tools, to make these as useful and relevant as possible and to make sure that there will be end users of the tools.