



Public Awareness of Energy Efficiency in Household

Results of CATI research



Podgorica, November 2008

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INTRODUCTION

CEED Consulting conducted research on **Public Awareness of Energy Efficiency in the household** as the result of the initiative of the Ministry for Economic Development supported by GTZ and Federal Ministry for Economic Cooperation and Development of the Republic of Germany.

The Government of Montenegro, in the previous period, has adopted several significant strategic documents in the area of energy efficiency, based on which the Ministry for Economic Development prepared the Operational Plan for energy efficiency, which will be presented through the project 'The Year of Energy Efficiency'. Within the scope of the project, 17 measures have been prepared which have for their focus different target groups: from households to economy and public sectors. Strengthening awareness among the target groups of the importance and possibilities of energy efficiency implementation is a special goal of the planned activities.

In this respect, the initial activity was research on public familiarity with energy efficiency in their households. The aim of the research is the following:

- Identify whether the citizens know what is meant by the term energy efficiency;
- Indicate to what extent the citizens are familiar with measures of energy efficiency;
- Comprehend (Perceive) the citizens' readiness to implement some of the above-mentioned measures in the future.

RESEARCH METHODOLOGY

The research on public awareness of energy efficiency in households was conducted in the period from September 28th to November 05th. The questionnaire has been designed and defined within the scope of prepared activities of the research, as agreed with the requestor. For realization of the research, CATI method (Computer Aided Telephone Interviews) was used.

The research was conducted in nine Montenegrin municipalities on the sample of 450 respondents. The structure of the realized sample was presented in the table below where the number of respondents was given by municipalities and the region.

Table 1. Sample structure by municipalities

Municipalities	Sample
CENTRE	150
Podgorica	90
Niksic	60
SOUTH	150
Budva	40
Ulcinj	40
Bar	35
Herceg Novi	35
NORTH	150
Bijelo Polje	60
Berane	45
Pljevlja	45
	450

Classification of the sample was performed by the region and urban/rural settlement. Upon sample classification by the region, the municipality of Podgorica was particularly set aside due to a large number of inhabitants even though by spatial classification it belongs to the Central part of Montenegro.

Data acquisition was carried out in the period from September 29th to November 1st and was performed in a way that the respondents were interviewed directly by phone and the obtained data, due to specially designed software, were entered and processed. The poll-takers (telephonists) attended training to introduce them to the questionnaire content, the goal of the research and deadlines for completion. Special attention was dedicated to the selection of poll-takers and it was performed according to defined quotes in the sample, (classification by the region and urban/rural settlement), open questions and questions with multiple choice answers, for the purpose of obtaining valid results. For the realization of this research, the 11-question interview was used including the demographic characteristics of the respondents. Data entry was performed in Microsoft Excel, and data processing with necessary logical controls was performed in SPSS program (Statistical Package for Social Science). SPSS is a software program for data processing and analysis.

ANALYSIS OF THE RESULTS

In order to get better insight into public awareness of energy efficiency, the research included several parts:

- Energy consumption,
- Energy efficiency,
- Energy saving measures.

1. ENERGY CONSUMPTION

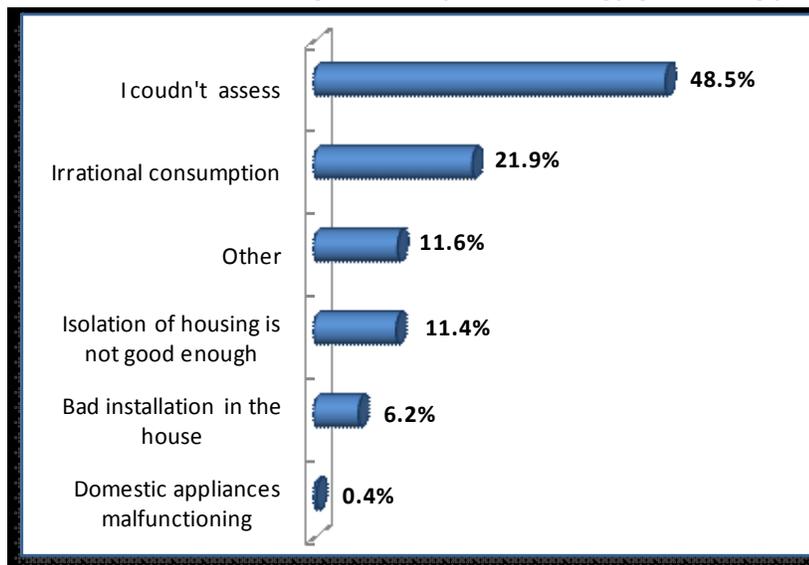
The research included those citizens who are well informed about energy consumption in their households living in their **own house or apartments**. It is implied that exactly for this reason those citizens would be the most interested in financial investments on the basis of energy efficiency measures.

The range of the electricity bill amount **was regularly controlled** by 80.9% respondents. It is especially important to notice that in the focus of citizens' attention, expenses were expressed in cash and not the actual energy consumption expressed in kWh.

Out of all the energy-generating products used in one household, the highest expenses went toward electric energy (86.9%), while every tenth respondent pays the most for some other energy source (gas, coal, heating oil, central heating).

As **reasons for high consumption**¹ almost every second respondent stressed that they are not able to assess why the consumption of certain energy-generating product is so high.

Graphic 1. Reasons for high consumption of energy-generating products



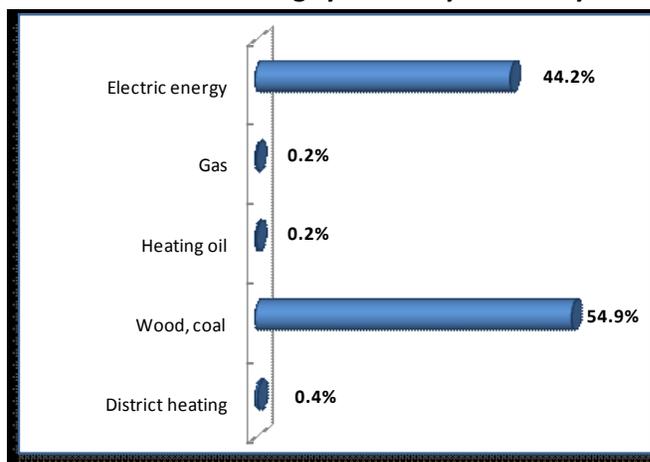
The poll-takers have had a possibility to state some other reason, beside those already offered. It is especially important to emphasize that in the focus of citizens' attention, expenses were expressed

¹ Weighted values

in cash and not the actual energy consumption expressed in kWh. Therefore, it is not surprising that the poll-takers have stated a high price (in 11,6% of cases) as a reason for high energy consumption. This is the reason why there is still not enough consciousness at people's mind that consumption is kWh amount used constrained, and not only by the price.

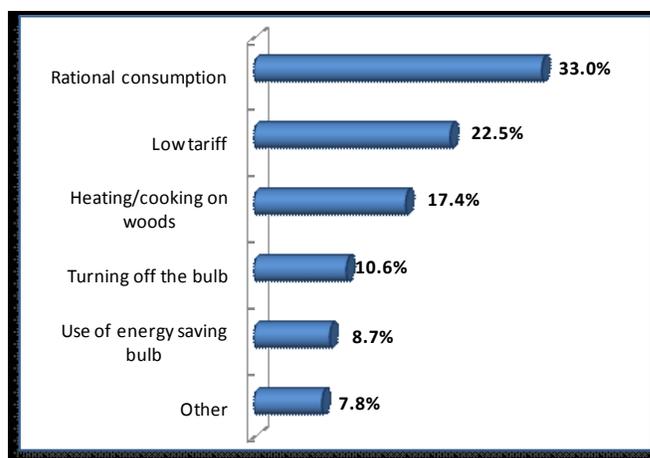
Every second respondent **used wood for heating** and slightly more than two fifths with electricity. A detailed analysis shows that every tenth citizen combines heating with electricity and wood.

Graphic 2. What heating system do you use in your home?



Every second citizen **often thought** about ways to decrease their total electricity bill in the household, while every fifth **sometimes thought** about this. Out of all respondents who **were thinking**² about the consumption, 48.5% of them, for the purpose of decrease of electricity bill, took the following actions presented on the graphic below.

Graphic 3. Undertaken measures in order to decrease energy bill³



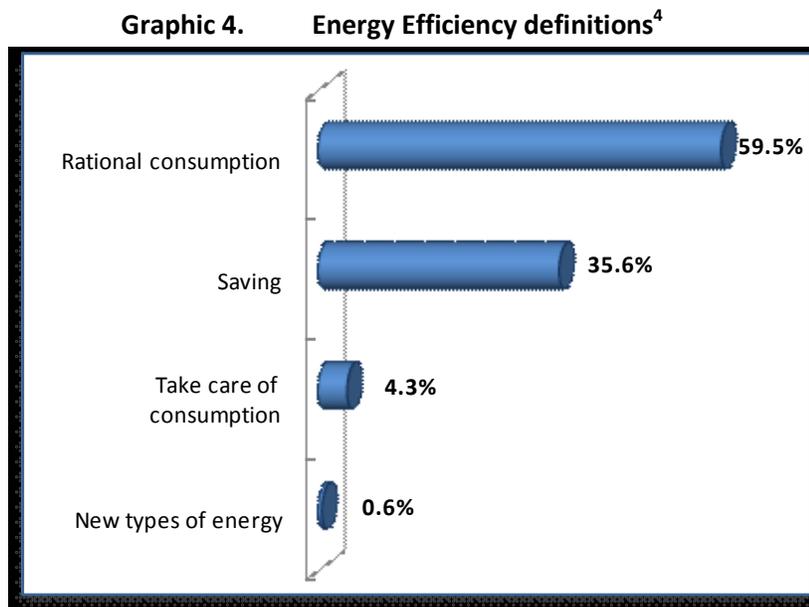
² Often (52.2%) + Sometimes (24.0%) + Seldom (10.4%) = 89.6%

³ Under rational consumption the citizens state: more rational usage of devices, switching of bulbs, consumption controlling of certain devices (less ironing, vacuuming), energy intensive devices are rarely used

Under item-Other, the respondents stated central heating with wood, house isolation, gas usage, PVC on doors and windows. Citizens in the North and in Central part of the country consider more often about energy saving measures in comparison to those in the South.

2. ENERGY EFFICIENCY

When asked if they knew what the term energy efficiency entailed 23.6% of the respondents responded yes and 13.1% assumed that they knew, but they were not sure what this term stands for. The following graphic is illustrating how respondents defined energy efficiency.



Almost two thirds of the respondents (63.3%) **did not know** what energy efficiency was. The least familiarity with this term was stated by the citizens from the North.

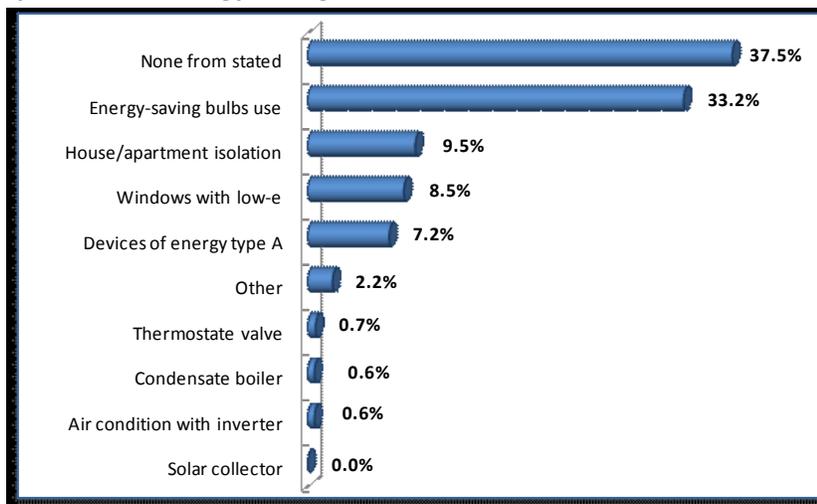
Two fifths of the respondents **had noticed information in media regarding the energy saving by increasing energy efficiency**. Respondents in the South region are the least informed about this topic.

3. ENERGY SAVING MEASURES

Asked to state **if they implemented any of the saving energy measures⁵** in last 12 months, the respondents pointed out.

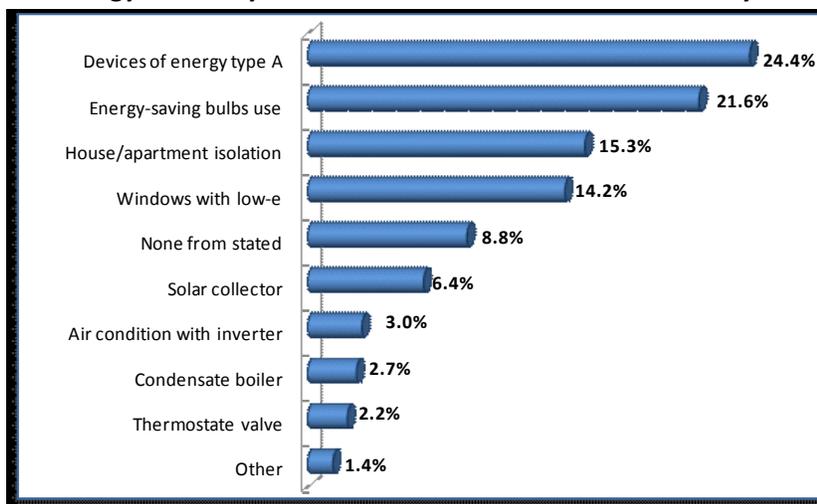
⁴ Rational consumption: measures for energy decrease, better usage of consumption, cost-effective consumption

⁵ Weighted values

Graphic 5. Energy saving measures undertaken in last 12 months


Under item 'other' the respondents most often stated heating with wood, cheap electricity, and rational consumption. Precisely these answers indicate that the respondents are not so well informed about what is implied under saving energy measures.

On the question of which **energy saving measures would they implement in their households**⁶, the respondents in the first line mentioned energy-saving light bulbs and as the second devices of energy type A. As the respondents were offered the possibility to choose between several measures (rated as first, second, third reason, etc.) the gained weighted values are presented on the following graphic. Citizens think that more energy, observed in long term, can be saved by using devices of energy type A, than by using energy-saving light bulb, which supply costs less.

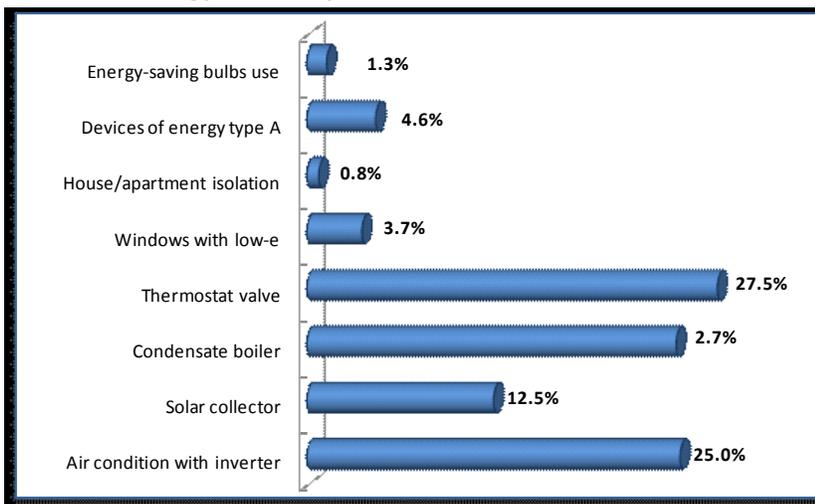
Graphic 6. Energy efficiency measures which citizens would be ready to implement


⁶ Weighted values

Respondents most often under item 'other' indicated: usage of heating oil, marble panels, installation of user software for remote control of the main consumers in the household.

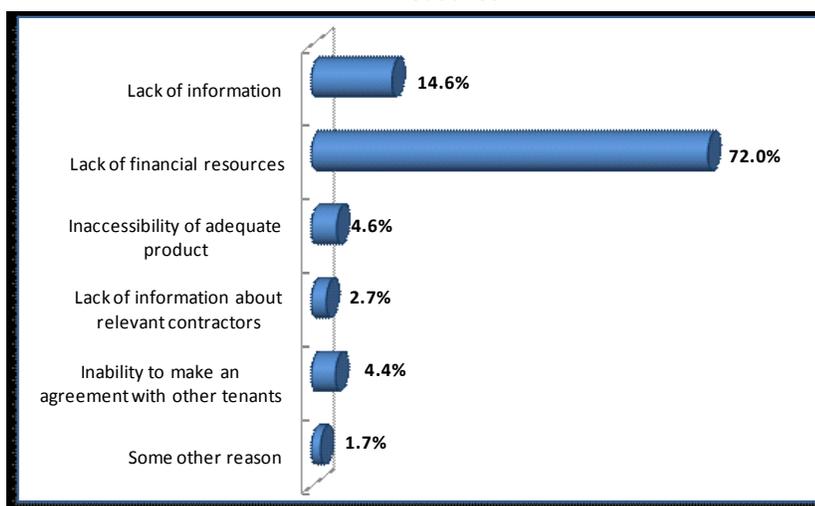
Every fourth citizen **had not heard about thermostat valves, condensate boilers and air conditioning with inverters**. Every tenth respondent had heard of solar collectors.

Graphic 7. Energy efficiency measures which citizens haven't heard of



For almost three quarters of respondents **the lack of financial resources** was a very significant reason for not implementing some of the above-mentioned measures.

Graphic 8. Most important reasons for not implementing some of above mentioned measures

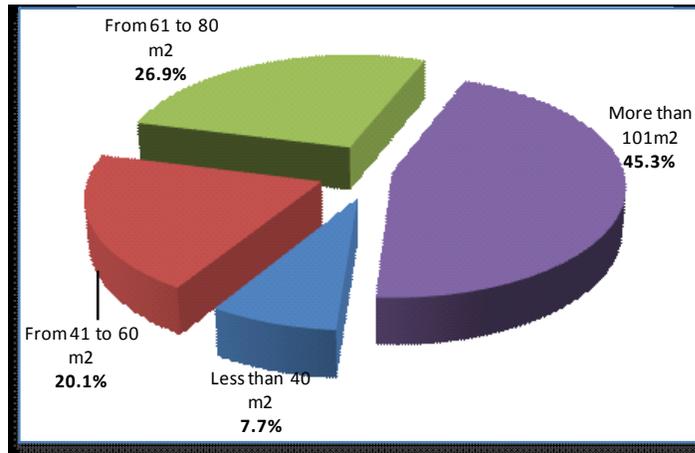


The respondents from the Central and Northern region as the reason for not implementing measures most often mentioned the lack of financial resources, while those in the South pointed out the lack of information.

DEMOGRAPHIC CHARACTERISTICS

Slightly more than two thirds of respondents live in the house, contrary to one third that live in apartment. Almost every second respondent lives in household which floor area is bigger than 101m².

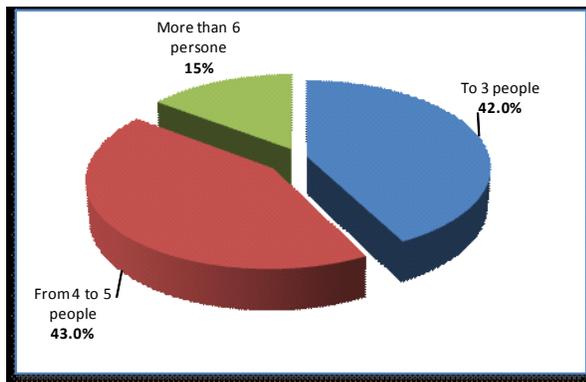
Graphic 9. Floor area in which respondents live



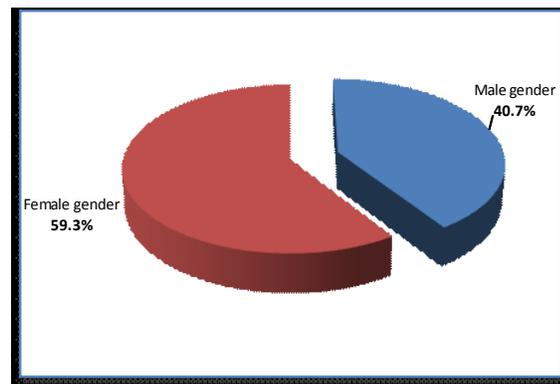
A household most often has up to three members or between 4-5 members.

Three fifths of the participants in the research were female.

Graphic 10. Number of members in household



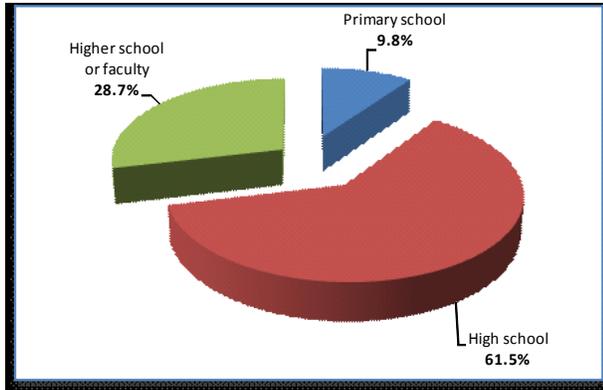
Graphic 11. Gender structure of respondents



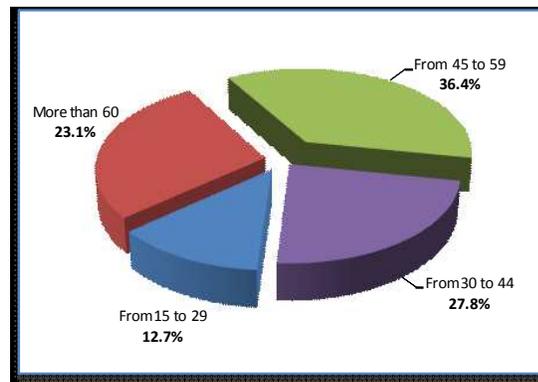
Respondents in 61.5% of cases finished high school which is illustrated on the following graphic.

In 36% of cases respondents are between 45 and 59 years of age.

Graphic 12. The level of education

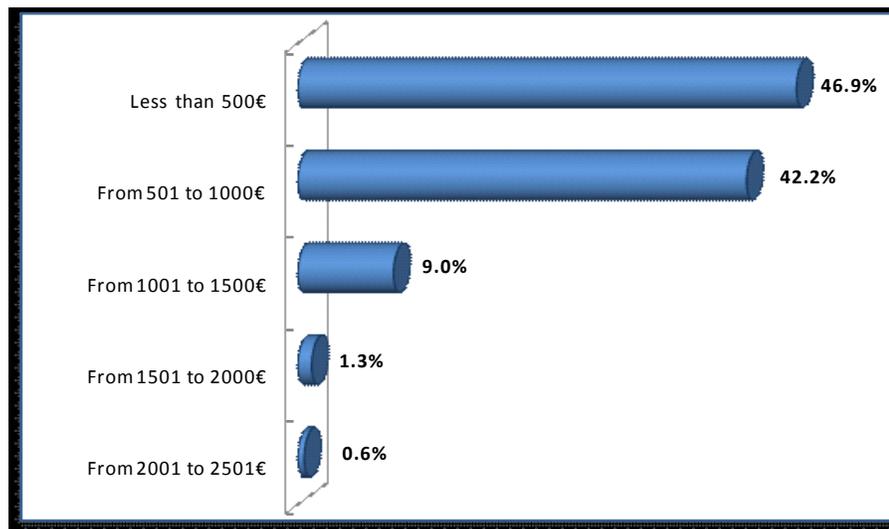


Graphic 13. Age structure



Total monthly revenues of household in 46.9% of cases amounted up to €500.

Graphic 14. Total monthly revenue of respondents' household



CONCLUSIONS

The research on public awareness of energy efficiency in households was conducted with the purpose of getting insight into citizens' familiarity with energy efficiency in their own households and defining their readiness to implement some of the above-mentioned measures in the future. The research was conducted in nine Montenegrin municipalities on the sample of 450 respondents.

- The amount of the electricity bill is **regularly controlled** by 80% of respondents. In the focus of their attention are financial expenses and not the actual electricity consumption in kWh.
- Out of all the energy-generating products used in a household, **the highest expenses are for electric energy (87%)**
- Every second respondent is not able to assess why the electricity consumption is so high.
- Every second respondent **is often thinking about** decreasing the electricity bill.
- In order to **decrease the electricity bill** the respondents undertake rational consumption, cheap electricity tariff and heating/cooking with wood.
- The respondents are **not familiar enough with the energy efficiency concept (63%)**.
- The citizens most often under the term energy efficiency imply **rational consumption and savings**.
- Every third citizen uses **energy-saving light bulbs as the measure for saving energy**
- Every fifth citizen would be ready to **implement devices of energy type A as the energy efficiency measure**.
- Even though they admitted that they are not well informed, three quarters of respondents pointed out **the lack of financial resources as the main reason for not implementing the energy efficiency measures**.

ANEX: QUESTIONNAIRE

1. **Are you in control of the amount of your electricity bill?**
 1. regularly
 2. occasionally
 3. never

2. **For which energy-generating product do you allocate most of the money?**
 1. electric energy
 2. other source of energy used for heating (gas, heating oil, coal, central heating)
 3. water
 4. I don't know, I am not able to assess

3. **Do you know the reasons for such high consumption of that energy-generating product? (more than one answer is possible)**
 1. Isolation of housing is not good enough
 2. (occasional) irrational consumption of that energy-generating product
 3. Bad installation in the house
 4. Faulty domestic appliances malfunctioning
 5. I am not sure that I could assess why the consumption of that particular energy-generating product is so high
 6. I don't know

4. **What heating system are you using in your home? (more than one answer is possible)**
 1. electric energy ("on electricity")
 2. gas
 3. heating oil
 4. wood, coal
 5. solar energy
 6. district heating
 7. no answer

5. **Do you think about decreasing the electricity bill in your household?**
 1. yes, very often
 2. Yes, sometimes
 3. Seldom
 4. I don't think about that at all

- 5a. **Have you taken any actions in order to decrease the total electricity bill in your household? _____**
6. **Do you know what energy efficiency is?**
 1. Yes (go on question 6a.)
 2. I suppose I know, but I am not sure (go on question 6a.)
 3. No (skip to question 7)
- 6a. **How would you define energy efficiency? _____**

7. **Have you heard of any information in the media regarding energy savings by increasing energy efficiency in last 12 months?**
 1. Yes
 2. No

8. **Have you implemented any of the energy saving measures in last 12 months in your household? (more than one answer is possible)**
 1. Use of energy-saving light bulbs
 2. Devices of energy type A (*explanation: devices which minimally use energy*)
 3. House/apartment isolation
 4. Windows with low-e (low emission) (*explanation: windows with better isolation*)
 5. Thermostat valve
 6. Condensate boiler
 7. Solar collector
 8. Air condition with inverter
 9. Other, specify _____
 10. Nothing of the above

9. **9. Which of the following measures would you implement in your household? (more than one answer is possible)**
 1. Use of energy-saving light bulbs
 2. Devices of energy type A (*explanation: devices which minimally use energy*)
 3. House/apartment isolation
 4. Windows with low-e (low emission) (*explanation: windows with better isolation*)
 5. Thermostat valve
 6. Condensate boiler
 7. Solar collector
 8. Air condition with inverter
 9. Other, specify _____
 10. Nothing of the above

10. **Among mentioned examples is there any which you haven't heard of so far? (specify)**
 1. Use of energy-saving light bulbs
 2. Devices of energy type A (*explanation: devices which minimally use energy*)
 3. House/apartment isolation
 4. Windows with low-e (low emission) (*explanation: windows with better isolation*)
 5. Thermostat valve
 6. Condensate boiler
 7. Solar collector
 8. Air condition with inverter

11. What is the most important reason for not implementing
some of above mentioned measures?

1. Lack of information
2. Lack of financial resources
3. Inaccessibility of adequate products
4. Lack of information about relevant contractors
5. Inability to make an agreement with other tenants of the residential building
6. Some other reason, specify _____

SET OF DEMOGRAPHIC QUESTIONS
1. How many persons lives in your household, specify _____
2. Do you live in:

1. a house, specify floor area _____
2. an apartment, specify floor area _____

3. Gender of respondent:

1. Male
2. Female

4. Education level?

1. Primary school
2. High school
3. Higher school or faculty

5. Age

1. 15 to 29
2. 30 to 44
3. 45 to 59
4. 60 and more

6. What is the amount of the total monthly revenues in Your household (the sum of all incomes of household members)?

1. Up to 500 €
2. From 501 to 1000 €
3. From 1001 to 1500 €
4. From 1501 to 2000 €
5. From 2001 to 2500 €
6. More than 2501 €
7. I don't want to answer