

# 4<sup>th</sup> Report

## Opinions and Attitudes about Renewable Energy Solutions

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### 1. Introduction

After the disaster in Fukushima, renewable energies are seen even more as the only viable solution in order not to put at risk future generations. They are secure and cleaner; they help to reduce climate change and to diminish the greenhouse effect. They can help also poor states, which cannot count on oil or natural gas in their territories, to solve their energy issues. They could also help worldwide economies to overcome the recent crisis, opening the labour market to green economy.

Renewable energy solutions have been developing with significant differences among European member states. This depends not just on the availability of the energy source on the territory, but even more on the policy which is adopted by each single member state.

Opinion and attitudes of the general public towards renewable energy solutions are pivotal elements which heavily influence government and thus the policies it decides to implement.

As in a circle, opinions and attitudes are as well influenced by government information policies.

The best way of improving the policies about RES is working with the new generations, informing them of the advantages which this kind of solutions can bring to the environment and to their life. This is the reason why students and teachers have been the preferred target group of this project. The partnership includes professors and students from Romania, Turkey, Italy Germany, Portugal and The Netherlands.

### 2. Aims

Main aim of the 4<sup>th</sup> report is to evaluate opinions, attitudes and population's sensitivity vis-à-vis renewable energy solutions.

Special attention has been given to perception about energy policies, especially concerning the local positioning of the power plants. Agreement on site location may, in fact, vary considerably the attitudes thus regarding.

The 4<sup>th</sup> report consists in a statistical and sociological analysis of the questionnaire results. The In the "criteria section" will be reported some proposals about criteria of analysis. They will

include: age, gender, education, job, nationality, competency regarding renewable energy sources (questionnaire score).

Furthermore, some of the data acquired will be crossed, in order to better understand difference and similarities among countries, age and level of education.

### 3. Methodology and criteria for analysis

#### 3.1 Distribution of the questionnaires

Questionnaires have been submitted during the period which goes from January 2011 to June 2011 to a population of 965 European and Turkish citizens, spread among six countries: Germany, Italy, Netherlands, Portugal, Romania, Turkey. At the end of June 2011 results for each country can count on different figures:

Country	Number of interviewees
Germany	101
Italy	133
Netherlands	21
Portugal	135
Romania	35
Turkey	540
Total	965

The questionnaire has been mainly submitted online, at the address:

<http://itismattei.altervista.org/inchiesta/>

Nevertheless, the project participants in most of the cases guided the interviewed through the online submission process.

This methodology was useful in two ways. It was easy to made available the online questionnaires in all local languages and the DATA and results have been made immediately available for comparative processing via the IT system, regardless of the language in which the questionnaire has been filled in.

#### 3.2 Structure of the questionnaire

In order to better guide the interviewees thought the online questionnaire, it has structured in four subsequent steps.

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| <p><b>Step 1.</b> Verification of the level of knowledge and awareness of the interviewee on the topic of renewable energies</p> <p><b>Step 2.</b> Evaluation of the opinions and attitudes of the interviewees regarding renewable energy solutions</p> <p><b>Step 3.</b> Population's sensitivity regarding renewable energies and their local positioning: this section aims to</p> |
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investigate the population's perception of renewable energies and their agreement on site localization.

**Step 4.** It is present as well a final box for expressing personal comment or notes.

The first step is the most “objective one”. It aims in checking the knowledge and awareness of the interviewees about RES. Many times, people know about RES in a very vague and confuse way. Asking very precise questions as “Which of the following do you believe to be renewable energy sources?” and including in the list also options as “crude oil”, gives to us an indicator about the interviewee’s real knowledge about RES in the respective countries.

Both the second and the third sections of the questionnaire deal with opinions and attitudes. The third section in particular deals with the famous nimby (Not in my backyard) issue. Attitudes toward certain type of RES may change, even dramatically, when they relates to the construction of power plants in the interviewee’s close geographical proximity.

The fourth step will help us to understand which the profile of the interviewed is. In this section we will know about gender, age, country of residence, occupation and education of the people which compiled the questionnaire. Having these data is of paramount importance, because they need to be cross checked with the attitudes toward RES expressed into the other sections.

### 3.3 Criteria for analysis

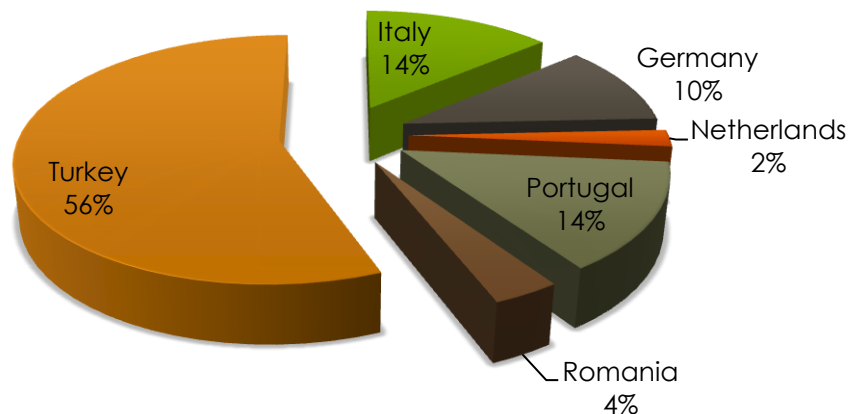
In order to reach the aims indicated above, the statistical analysis about EU populations attitudes toward RES is based on the following criteria:

- A) All the “profile data” (step 4) have been crossed with all the variables from the other sections (step 1, 2, or 3), to understand if any of them offers a positive correlation. Sometime the profile data (i.e. gender or nationality) is neutral, some others it is very relevant instead. In the case in which we find positive correlations, these could be considered a first results of the sociological survey about RES.  
Special attention has been granted to the answers gathered from Turkey. A part from the overwhelming number of answered obtained by Turkish citizens during this survey; it would be interesting to understand whether the answers from Turkey differ somehow from the ones given by EU citizens.
- B) Another point for an interesting comparison has been to cross-reference the results from step 1 (knowledge) with the data from step 2 (general attitude toward RES). This helped us to understand whether there is relevance between objective knowledge and positive/negative attitudes toward RES.
- C) The last set of Criteria for analysis has dealt with the perceptions about local policies and RES in the different countries analysed. “Not in my backyard” attitudes have been taken into account and related with the different types of RES. It may happen that people would be happy to have close to their neighbourhood some type of Renewable power plants and not others.

#### 4. General results

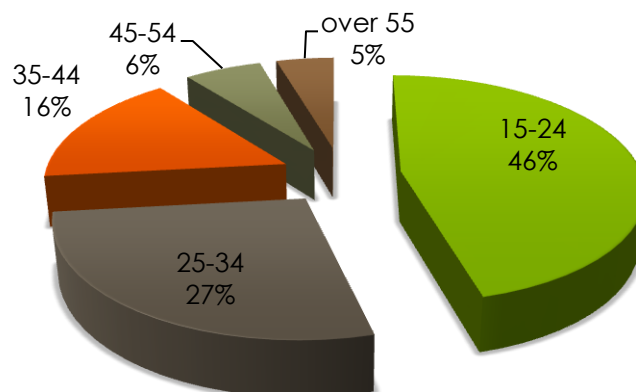
In this paragraph are going to be presented all the results about opinions and attitudes of the people who answered the questionnaires submitted in the five countries participating into the RES research.

Before going the actual results, let us analyse their profile. In Graph 1 we can see the participation by countries of residence. The vast majority of the people (56%) who answered to the international questionnaire live in Turkey. At the second place, we have Portugal and Italy (14% each), followed by Germany (10%) and Romania (4%). The Netherlands had a very low answer rate.



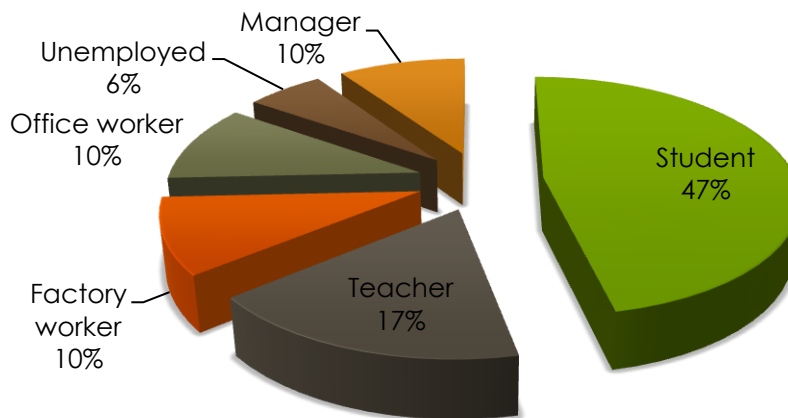
**Graph 1: Country of residence**

These differences in participation percentages may have some relationship to the different general population involvement into the public discourse about renewable energies. As our colleagues from Turkey confirmed, in Turkey the discussion is vivid and most people are trying to install some kind of renewable energy solutions also privately.



**Graph 2. Age**

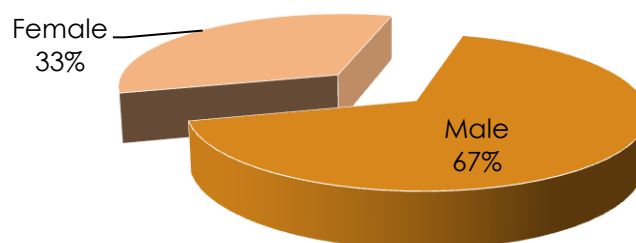
In Graph 2, it is possible to see the profile of the participants by age. As the project included mostly secondary schools, the majority of the participants (46%) ranged from 15 to 24 years old. The second age range, which goes from 25 to 34 years old, capitalize 27%. This is due to the fact that also some university students were involved into the research. The rest of the age ranges are probably to be identified with professors, teachers and school personal.



### Graph 3. Occupation

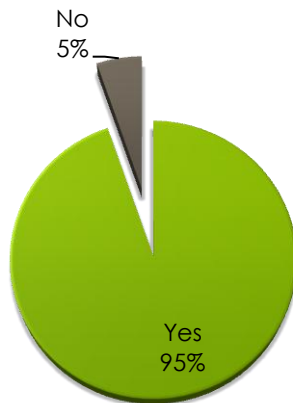
The distribution seen in Graph 2 is confirmed also by Graph 3. The 47% of the people answering the questionnaire were students, followed by the teachers with 17%. Most of the managers (10%) were probably the school managers involved as the office workers. The 10% of the people who identified themselves as "factory workers" were to be identified as people participating into technical classes for updating their skills.

This means that over 90% of the people participating were somehow related with the schools which were organizing the RES project. This also means that the schools are the best vehicle for informing the general population about policies and social changes.



### Graph 4. Gender

As regarding the gender distribution, we can notice a big predominance of male participants (67%) over the female ones (33%). This confirms as in most countries in Europe, technical



schools still sees an overwhelming male participation. It happens differently for law or literary schools.

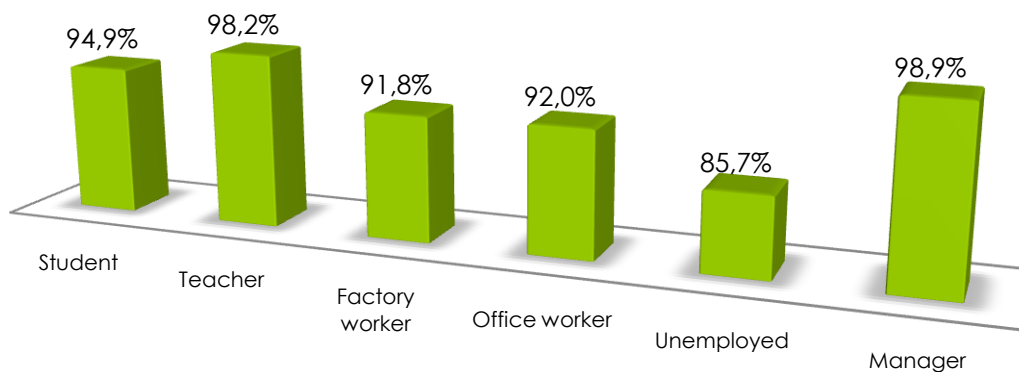
Having seen the profile of the participants, let us pass now the analysis of the verification of the knowledge level and awareness of the interviewees on the topic of renewable energies.

**Graph 5. Do you know what renewable energies are?**

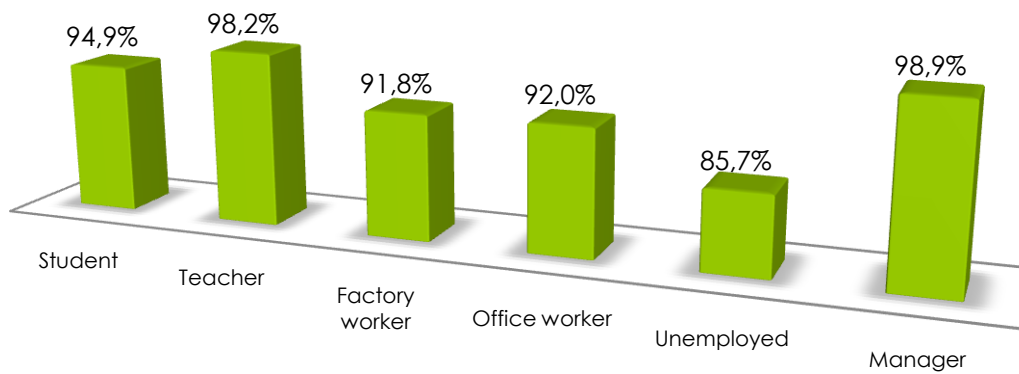
As we can see in the

Graph 5, to the direct question “Do you know what renewable energies are?”, 95% answered “yes”. Just 5% did not feel to be sure enough. This means that almost everybody *think* that they know about renewable energies and they *feel* to be somehow informed about the issue.

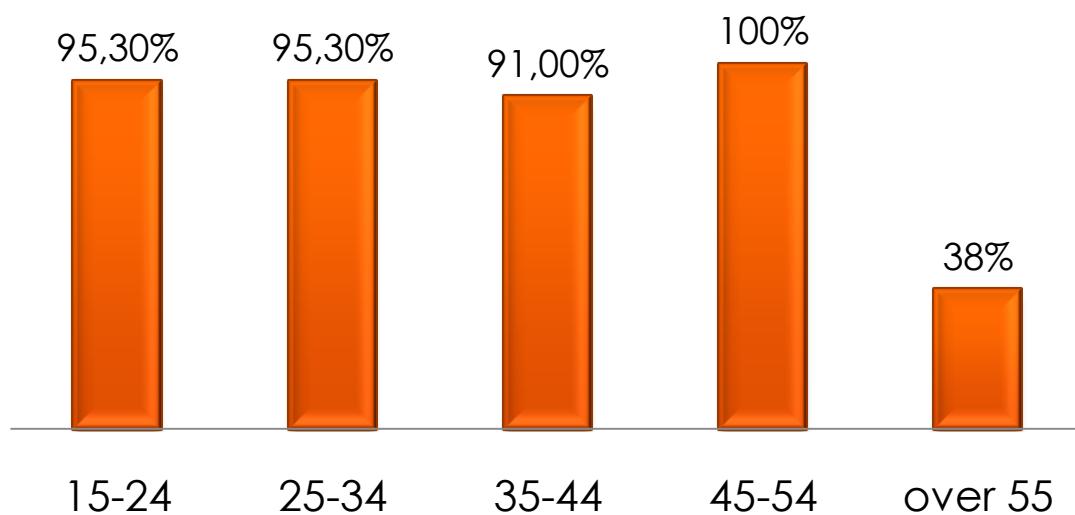
We were very curious about this 5% of people which were not sure about what RES were. We crossed these data with occupation and we had the results it is possible to see in Graph 6



Graph 6 The most secure about their knowledge were teachers and managers (headmasters) while the most dubious were the unemployed. This confirms how there is still much work to do in order to diffuse furthermore the awareness and consciousness about the possibilities which RES could bring into the job market. People which may need the most this kind of information are the ones which are less informed about it. Nevertheless the percentage are very high, with the unemployed declaring to know about RES with the 85,7%.

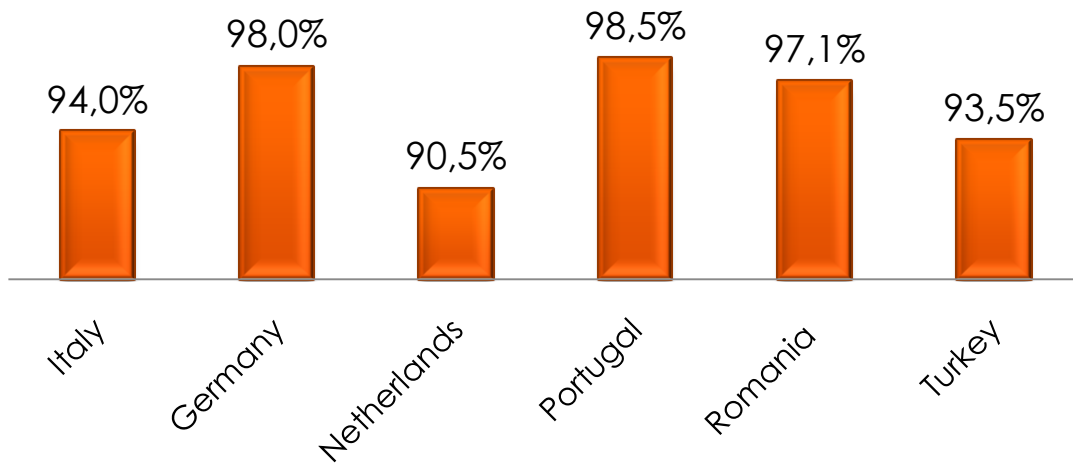


**Graph 6. Do you know what renewable energies are? (by occupation)**



**Graph 7. Do you know what renewable energies are (by age)**

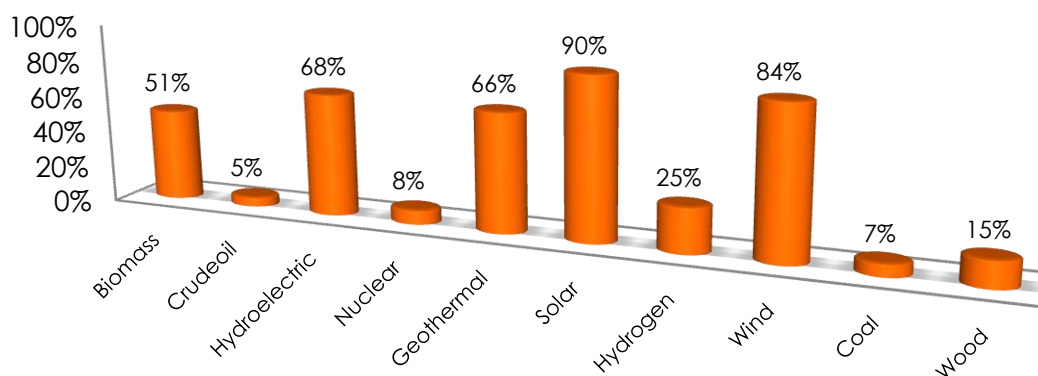
It was very important to understand as well how these consciousness about RES was distributed by age. The results were clear and somehow obvious, the only group which declared not to know enough about RES (38%) were the people with over 55 years of age. All the other age groups had a very high perceived knowledge.



**Graph. Do you know what renewable energies are (by country)**

Another interesting variable to analyse was the country of residence. As we can see in Graph, the Netherlands is the country in which the knowledge is lower while in Germany, Portugal and Romania almost everybody declare to have heard about RES.

The next question was finalized in understading if the high perceived knowledge about RES was real and precise, or instead a general and unprecise one. We asked in to the questionnaire the following question: "Which of the following do you believe to be renewable energy sources?" providing a list of energy sources. The results were astonishing.



**Graph 8. Which of the following do you believe to be renewable energy sources?**

As we know renewable energy is not only energy which comes from natural resources such as sunlight, wind, rain, tides, and geothermal heat, but which is also fully replenished. Crude oil, coal and wood, even if natural in essence cannot be fully replenished in a brief period of time.

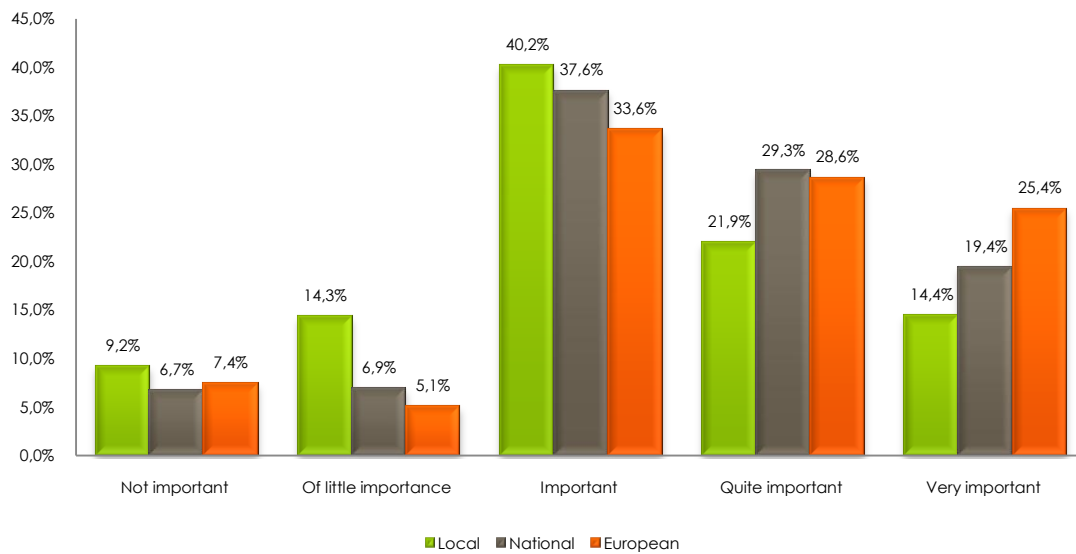
Nevertheless many of our interviewed declared that crude oil (5%), nuclear (8%), coal (7%) and Wood (15%) were renewable energy sources. While most of the people were able to correctly identify wind (84%) and solar (94%) as renewable energies. For other sources the doubts were very high. Half of the people interviewed declared that biomass is NOT an renewable energy, and many doubts raised also for hydroelectric (68%) and geothermal (66%).

The possibility of creating energy from biomass is nevertheless to be deepened. It could be considerable sustainable when land is not used just for this purpose. Otherwise it gets in competition with forest growing or agriculture and it can become dangerously not sustainable.

The hydrogen generated energy has to be treated as a special case. Even if the actual fuel for hydrogen generated energy is fully replenished, the procedure necessary for obtain electricity from it, needs still many technological development as it requires more energy than the one produced.

In general from the Graph 8 we may deduct that there is a general good knowledge about RES, but that this is imprecise and vague. There is the need for a more specific and clear information about advantages and disadvantages which different RES bring with itself in each single location and situation.

For this reason we asked to evaluate the importance of promoting the use of renewable energy sources at various levels of government. We identified three level of government: Local, National and European. As we can see from Graph 9, the vast majority of people think that promoting the use of renewable energy sources at all levels is "important", "quite important" or "very important". Just very few instead think that this is "not important" or "of little important". In order to better distinguish the attitude about the three levels of government, we grouped the data from the positive answers (important, quite important, very important). We obtained the following data: the 76,5% think the local as the most important, the 86,3% the national and the 87,6% the European. These DATA show on one side the will to coordinate efforts at European level, on the other the consciousness that it is not possible to leave this kind of policies just at local level. Different territories may need different energy sources and just a general (European) overview could provide the organizational umbrella for coordinating the local and state efforts.



**Graph 9. Please evaluate the importance of promoting the use of renewable energy sources at various levels of government.**

In order to further test our assumption about the attitudes toward the localisation of power plants, we asked the interviewed about the agreement on positioning different types of power plants near their own village or town. Table 1 summarize the results, divided by countries and gives us interesting insights on the general NIMBY attitude toward the installation of different power plants. Germany is are very much against any kind of energy plants, while the other countries as Portugal, Netherlands, Romania, Turkey and Italy differentiate very much their attitude in relationship with the type of plant and energy considered.

As it is possible to see in Graph 10, the general attitude against wind power is limited. A part from Germany which shows to be against any kind of power plant, including wind plant, there is much opposition to wind installation in The Netherlands (23,8%) and in Portugal (19,3%).

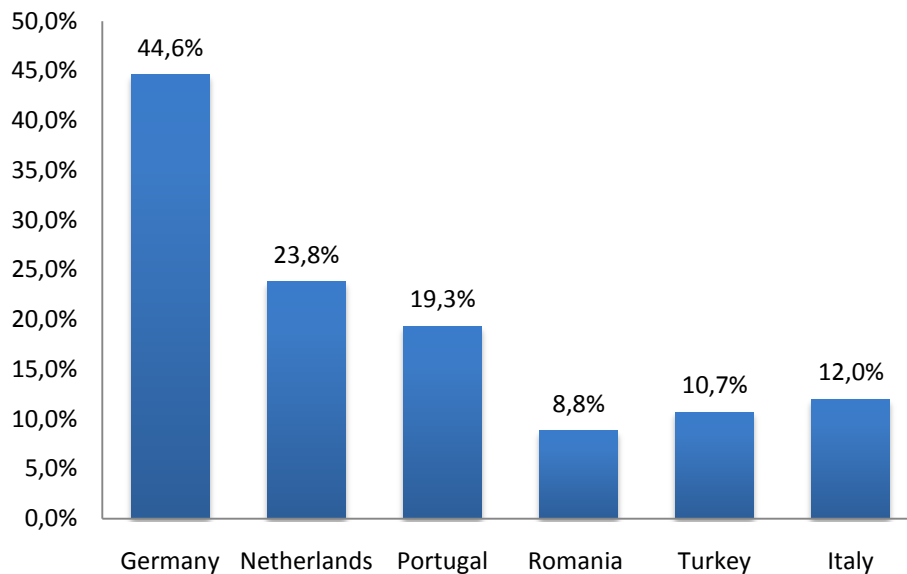
**Table 1: Agreement on localization of plant near own village or town.**

Country/Energy	no wind	no solar	no geothermal	no sea	no hydroelectric	no biomass
<b>Germany</b>	44,6%	41,6%	45,5%	54,5%	44,6%	58,4%
<b>Netherlands</b>	23,8%	9,5%	9,5%	47,6%	28,6%	14,3%
<b>Portugal</b>	19,3%	4,1%	38,5%	29,6%	29,6%	33,3%
<b>Romania</b>	8,8%	29,4%	52,9%	52,9%	2,9%	41,2%
<b>Turkey</b>	10,7%	3,9%	9,1%	28,1%	14,1%	23,3%
<b>Italy</b>	12,0%	3,0%	15,8%	18,8%	12,8%	22,6%

This strong opposition may be due the relatively high diffusion of wind turbines in both countries. Especially Portugal produces more than 17% of its total energy via wind plants and

it is the second highest wind power mix contribution in the World. (<http://economia.publico.clx.pt/noticia.aspx?id=1416469>)

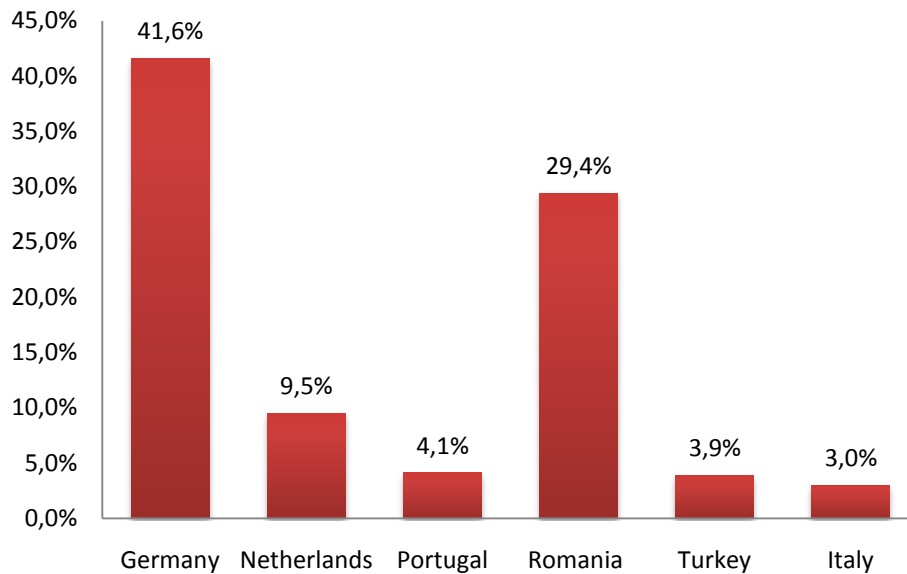
Being both the Netherlands and Portugal small countries and being the turbine very visible and space consuming, many people probably considered to be enough the amount of turbines already present and operating into the country.



**Graph 10. Attitude against wind power by country.**

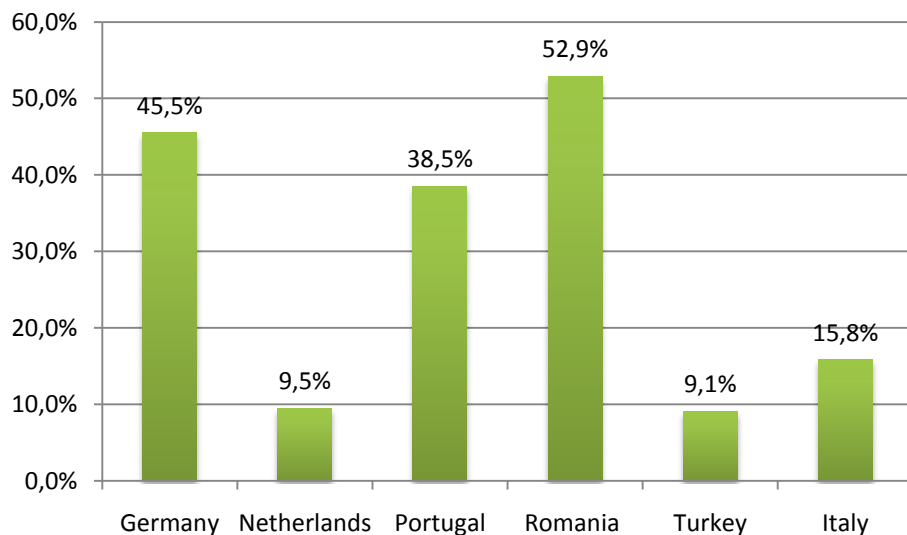
This could be considered as a very good result, because it shows a rational attitude toward RES instead of an irrational NIMBY attitude. This is confirmed as well by the fact the bigger countries as Romania, Turkey and Italy have shown a much more limited concern.

Opposition to solar power has a completely different geographical distribution, except from Germany which, also in this case, shows a strong opposition. The smaller countries as the Netherlands (9,5%) and Portugal (4,1%), join the bigger ones as Turkey (3,9%) and Italy (3%) in seeing much potential into the development of solar plants. In general the opposition to solar power is the weaker one in all countries, showing as it is considered to be the future of the RES in Europe and Turkey. The only notable exception is Romania which shows a very strong opposition to solar (29,4%) in favour of wind (8,8%) and hydroelectric generated power (2,9%).



**Graph 11. Attitude against solar power by country.**

Attitudes against geothermal power plant (see Graph 12) show again the rational approach described above. Countries without geothermal natural power plant are obviously against investing in this kind of power production.

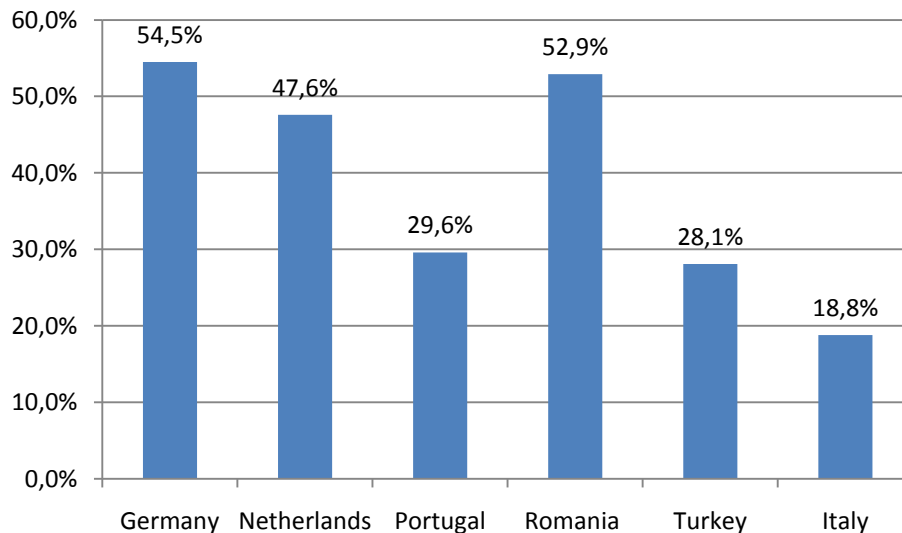


**Graph 12. Attitude against geothermal power by country**

Others instead (as Turkey or Italy) are generally in its favour as in this case there are no problems regarding the visual impact on the landscape of the installations.

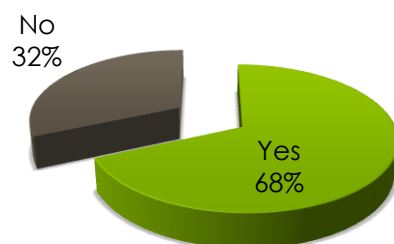
As the Graph 13 shows, much more opposition is present against energy generated by sea installations. This stronger opposition may be caused by the fact that this kind of technology is relatively unknown by the big public, no clear policies have been carried on about it and it

cannot be used individually. Solar and wind power plants, on the contrary, are much more present in the public discourse and it is even possible to use them individually in each single house.



**Graph 13: Attitude against Sea power by country.**

This not only guarantees a stronger familiarity with the technology, but also a stronger support, especially because of the fiscal incentives which all countries provide for individual solar or wind installations. As the Graph 14 shows, 68% of the interviewed have got some type of fiscal incentive for installing individual systems for producing energy. Again not a pure NIMBY attitude, but a very rational explanation for not wanting to invest in particular renewable energy solutions.



**Graph 14. Does the acquisition of systems using RES get any type of fiscal incentives in your country?**

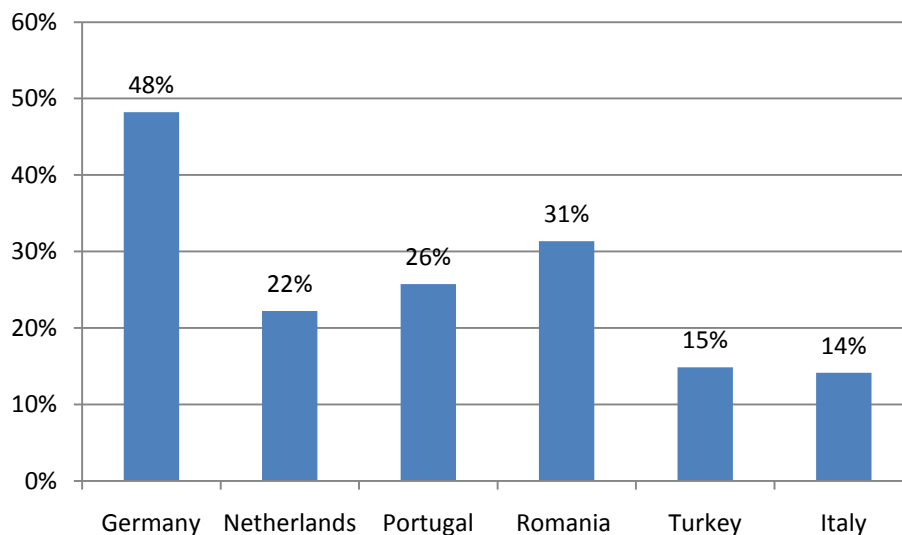
In general we may say that, against some sociological works on the NIMBY issue, most of the people which have taken part into the survey had shown a very mature and rational attitude toward RES plant installation near their village or town.

The NIMBY (Not in my backyard) attitude refers to the position that recognize the necessity of having some public installations, useful for the common good, but it wants them constructed

somewhere else. This kind of approach, which can be applied to any type of infrastructure (being it highways, train lines, tunnels, wind turbines, etc) is highly dangerous. It destroys inter-group solidarity in favour of an intra-group one and makes very difficult to implement effective environmental policies. If this kind of reasoning extends, in fact, nobody would like to have installed any type of installation, even the most cleaner one.

In order to have a comparative overview of where to position the different countries we have made an average of the attitude against all types of RES and normalized the results. These can be seen in Graph 15.

Our survey shows that the only state serially affected by the NIMBY approach to Renewable Energy Solutions is Germany, which confirms a very strong opposition to any kind of that installations. Almost half of the Germans interviewed (48%) were very much against positioning any kind of RE power plant near to their home.



**Graph 15. Attitude against Renewable Energy in your village or town by country.**

All the other countries have much more modest opposition and a much more rational approach to the issue. This is demonstrated by the fact that different countries were able to rationally differentiate between the different power plant installations, correlating them with the possibilities offered by each single climate and environment. Italy shows the smallest concern (14%) toward the installation of RES close to Italian villages.

## Conclusions

The results of this survey show a very good attitude by Europeans and Turks equally in favour of Renewable Energy Solutions. Almost everybody declare to know much about Renewable

energy and the vast majority is informed as well about fiscal incentives present in the respective countries.

The knowledge about the different form of energy production is firm but with some gaps. If everybody recognize the sun and the wind as renewable source of energies, some doubts arrive when confronted with less obvious choices as “wood” or “biomasses”.

At the beginning of our research we were afraid the this general good attitude toward RES was destined to change when connected with the need to install RE power plants locally. The NIMBY attitude constitutes a very strong deterrent against the development of a rational and organic environmental policy. Our fear were misplaced. With the notable exception of Germany, all states included into the research have not shown any particular aversion against the installation of power plants in their own village or town. On the contrary, all opposition was justifiable on the base of rational arguments (i.e. the lack of the particular resource, as sun or water, in a particular location)

Let us hope that the German NIMBY attitude towards RES does not spread in Europe.

Indeed, this is a solid ground on which it could be possible to construct a truly European Policy which extends also to Turkey for a clean production of energy, where everybody is aware of its own limits, resources and potentialities

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