

Green Energy and Societal Marketing in the Context of Climate Change

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Abstract

In the context of climate change, the objectives of this paper concern the perception of green energy and programs and plans that encourage it, the perception regarding the measures necessary to be taken in terms of green energy and the perception regarding societal marketing actions in the field of energy. The study was carried out by exploiting the primary sources of information, using direct qualitative research, the investigation being realized using semi-directed interviews, and the studied population consisted of potential consumers of green energy. The analysis of the results of the research indicates that most of the interviewed subjects perceived climate change as a danger and also that the majority are familiarised with the forms of green energy and have a formed opinion about the necessary measures. In the study, the measures were divided according to their ex-post (reduction of negative effects) or ex-ante (prevention) character and also function on the decision level at which the mentioned measures are taken: measures at the individual level, measures at the level of energy producers, measures at the level of energy-consuming companies and measures involving government programs and legislative power. In the paper, the perceived societal marketing role in the field of energy is also studied and the specific mix of marketing is presented, which can have important practical implications.

Keywords

Climate change, green energy, societal marketing, direct qualitative research

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Introduction

The aim of this study is to provide, in the context of climate change, the perception of green energy and of the role of societal marketing in the field. In the first part of the study, climate change, green energy and societal marketing challenges are presented using a review of the scientific literature. Then, the study continued using primary sources of information. A direct qualitative research was realized using semi-directed interviews, the studied population being potential consumers of green energy.

There are many studies regarding the climate change theme and green energy, but there are very few studies that relate the subjects with the societal marketing approach and, in the current context of the economy, this perspective could be an improvement of the activity in the energy sector and also can be the basis for a better perception of the energy sector at society level.

The green economy represents a serious effort to "green" the existing economy by using different instruments and ecological economics argue that it is necessary to make changes at the systemic level, if it is necessary to understand and solve serious problems such as climate change (Jakobsen and Storsletten, 2019) and new technologies, systems, societal organization and policies for energy saving are urgently needed in the context of accelerated climate change (Farghali et al., 2023). Renewable energy is perceived as a key tool in addressing the dual issue of increasing energy demand and climate change mitigation (Maxim, Jijie and Roman, 2022).

There are studies on renewable energy sources: wind power, hydro power and energy from crops and wood, which reveals that higher income, male gender, young age, and pro-environmental attitude increase

the probability to choose renewable energy instead of the current energy mix (Kosenius and Ollikainen, 2013).

In this paper, there is a qualitative research studying how green energy is perceived by potential consumers, the opinions regarding RepowerEU Plan and Green House Program and the perception regarding societal marketing actions in the field of energy. The principal findings of the research indicate that the population is aware of the danger of climate change and of the necessity of green energy, being familiarized with the forms of green energy. Most of the studied population has a formed opinion about the measures necessary to be taken. The measures are presented in the study according to their ex-post or ex-ante character and also function on the decision level at which the mentioned measures are taken: measures at the individual level, measures at the level of energy producers, measures at the level of energy-consuming companies and measures involving government programs and legislative power.

The value and the importance of the research are related to the fact that the study depicts the perception regarding climate changes and identifies the measures necessary to be taken in the context of climate change in terms of energy and gives an objective perspective regarding green energy and societal marketing.

The paper is structured as follows: in the first part the challenges of climate change, green energy and societal marketing are presented, in the second part the objectives and the methodology of the qualitative research are described, in the third part the results of the research are analyzed, pointing out the extent to which the population is familiar with green energy, with Green House Program, with RepowerEU Plan, with the prosumer concept and different types of green energy, the perception regarding climate changes and the measures considered necessary to be taken in the context of climate change in terms of energy and the measures considered inappropriate, the perception regarding green energy and the price of green energy, the views about the legislation on green energy consumption and the RepowerEU Plan, the opinions about prosumer and the perception regarding societal marketing actions in the field of energy.

1. Challenges of climate change, green energy and societal marketing

Climate change is by far the strongest driver and both high and low-income countries may benefit greatly from investing in adaptation measures to climate change (Winsemius et al., 2016).

An important challenge is related to the increasing demand for sustainable energy and it exists within the context of an increasingly interconnected world and climate change (Ward et al., 2016). Satisfying the growing energy demand, while reducing greenhouse gas emissions and mitigating climate change are some of the most challenging and ardent issues for the policymakers around the world (Maxim, Jijie and Roman, 2022) and the answer to the challenges are related to the green energy sector. Green energy alternatives include biomass boilers and stoves, hybrid heat pumps, geothermal heating, solar thermal systems, solar photovoltaics systems into electric boilers, compressed natural gas and hydrogen (Farghali et al., 2023).

Another important challenge is the social acceptance of green energy and, for example, for bioenergy it can be influenced by the awareness of climate change and its impacts, the knowledge of technologies and the perceived fairness of the preparatory and decision-making processes (Fytli and Zabaniotou, 2017).

At the level of the European Union, there are different plans related to the environment, such as The Green Deal which aims to make Europe carbon-neutral by 2050 (Popescu, Coroş, Pop and Bolog, 2022) and RePowerEU Plan (from 2022) aiming at making Europe independent from external fossil fuels, in light of the current geopolitical crisis.

In the context of tight interdependence between development and the environment, there are increasing societal exigencies regarding the environment protection and there are more and more severe regulations (Pamfilie, Procopie and Bobe, 2011). Government regulations are the most widely used policy instruments for environment protection (Ionciă, Petrescu and Ionciă, 2012), but there are also programs like Green House (Casa Verde) meant to stimulate the use of green energy, for installing photovoltaic panels on houses.

The societal marketing orientation appeared in the context of the deterioration of the environment, depletion of natural resources, population growth and social problems and the organizations that have a societal marketing orientation must serve the needs of consumers in the best conditions, while respecting the needs of society, even if the interests of society do not always coincide with the needs of the organization (Petrescu, 2008). In order to have a sustainable development, the societal marketing orientation is necessary in the sector of energy and the marketing policy must take into account

simultaneously three objectives: maximizing the profits, satisfying the needs of consumers in the best conditions and respecting the public interest.

2. Objectives and research methodology

In this context, the objectives of the research are:

1. Determining the extent to which the studied population is familiar with green energy, with Green House (Casa Verde) Program, with RepowerEU Plan, with the prosumer concept and the identification of known types of green energy,
2. Determining the perception regarding climate changes and identifying the measures considered necessary to be taken in the context of climate change in terms of energy and the measures considered inappropriate to the current context in terms of energy
3. Identifying the perception regarding green energy and the price of green energy
4. Identifying opinions about the legislation on green energy consumption and the RepowerEU Plan
5. Identifying opinions about the idea of being a prosumer and about the necessary conditions
6. Identifying the perception regarding societal marketing actions in the field of energy.

In this case, primary sources of information and qualitative research were used to analyze how green energy is perceived by potential consumers. The information from primary sources was obtained using semi-directed interviews. The main advantage of the information from primary sources is that they strictly respond to the objectives of the research. Direct research is the main method used to obtain actual information and depending on the type of information, the research can be classified into quantitative research: which aims to quantify data and generalize the results at the level of the entire studied population and qualitative research: which aims to understand and explain a variety of phenomena (Cătoiș et al., 2009, Petrescu, 2012). Through qualitative research the aim is to generate ideas and solutions, which will be quantified later with the help of quantitative research. Qualitative research uses specific methods and techniques that originally appeared in psychology (Petrescu, 2008).

This study was carried out by exploiting the primary sources of information and the studied population consisted of potential consumers of green energy. The observation unit in this case coincided with the survey unit, being the person over 18 years old, potential consumer of green energy from Romania. In the case of qualitative research, it is not necessary for the sample to be representative, given that its dimensions are small. The interviews were conducted in March 2023 on 45 subjects selected with the help of a selection questionnaire.

The research carried out is a qualitative research, and the technique used was that of the semi-directed interview, with the conversation guide as a tool. The conversation guide used comprises 10 discussion topics: it starts with general questions to identify the extent to which they are familiar with green energy, the Green House Program, the RepowerEU Plan and the prosumer concept, questions on the extent to which climate change is perceived as a danger, questions about the measures considered necessary to be taken in the context of climate change in terms of energy and measures considered inappropriate to the current context in terms of energy, questions about the types of green energy known, questions about opinions about green energy, about the price green energy, about the legislation regarding the consumption of green energy, about the RepowerEU Plan, about the idea of being a prosumer and about the necessary conditions and questions about the perception of societal marketing actions in the field of energy. The conversation guide is not an actual questionnaire, but contains the main axes of the discussion. In the conversation guide, the themes and sub-themes of the discussion are mentioned and it includes the main points of the discussion.

The stage that follows the collection of information is the content analysis, which involves: the study of each file, highlighting the themes addressed and the importance attributed to them by the interviewed subject, obtaining a list of themes summarized by keywords, then bringing together all the lists in a table with the subjects interviewed and the themes addressed, thus obtaining various typologies and finally formulating conclusions taking into account the overall structure, but also the particular characteristics. Content analysis includes several types of analysis: thematic analysis, in which the content is analyzed function of the frequency of ideas that appear and the frequency of associations, analysis of the syntax, in which the structure of the speech and the way the phrases are constructed are analyzed and lexical analysis, in which the vocabulary used is analyzed (Petrescu, 2012).

Content analysis requires a psychological approach, but also a statistical approach (on which this study is mainly based), in the analysis taking into account the frequency of occurrence of keywords, phrases,

expressions and ideas. The information was analyzed in this case, using content analysis by studying each file, highlighting the themes addressed and the importance attributed to them by the interviewed subject. The conclusions were formulated taking into account the overall structure.

There were 45 respondents selected to participate in the qualitative research regarding green energy. The profile of the respondents is diverse, so that all social categories of potential consumers can be studied, but focusing on the young and well-educated, mainly from the urban environment. Based on the answers to the recruitment questionnaire: function of age 42,2% are in the category 18-24 years old, 31,1% in 25-34 years old and 26,7% are in 35-65 years old, function of gender: 55.6% female and 44.4% male, function of the education: last school completed by 46.67% is high school and 48.89% have university studies, function of marital status 60% are bachelor and 36% married and function of the living environment: 80% were from the urban environment. The profile of the respondents' function of the type of energy used indicates that 95.56% used energy from traditional sources and 15.56% used green energy (a multiple choice question was used in the recruitment questionnaire).

The results obtained from the analysis cannot be extrapolated to the entire population, but they can be used as hypotheses for further research, for quantitative studies or they can be an important source of new ideas.

3. Analysis of the results of the research

3.1. The extent to which the studied population is familiar with green energy, with Green House Program, with RepowerEU Plan, with the prosumer concept and the known types of green energy

The extent to which they are familiar with green energy is average, even if most of them know the concept of green energy. The degree to which they are familiar with the Green House (Casa Verde) Program is also average, one third of respondents not being familiar with it, the degree to which they are familiar with the RepowerEU plan is lower, as well as regarding the concept of prosumer.

The majority of subjects know green energy forms, mentioning solar energy, photovoltaic panels, a large part mention hydroelectric power and wind power, and a small part mention geothermal energy and biomass as sources of green energy. The main sources of green energy discussed are solar energy (solar panels for water heating, photovoltaic panels for electricity production), hydroelectric energy (produces electricity), biomass (substitutes fossil fuels and comes from waste), wind energy (produces electricity), geothermal energy (hot water from boreholes is used, so that fossil fuels are no longer used for heating, this energy started to be used including in households through heat pumps).

3.2. The perception regarding climate changes and the measures considered necessary to be taken in the context of climate change in terms of energy and the measures considered inappropriate.

The extent to which climate change is perceived as a danger is high, over three quarters of the interviewees considering climate change a danger, only a very small part not considering it as such.

The necessary measures to be taken in the context of climate change related to energy mentioned in the interviews can be divided according to their ex-post (reduction of negative effects) or ex-ante (prevention) character in measures to reduce negative effects (for example, measures related to waste recycling and selective collection) and preventive measures related to reducing resource consumption, reducing energy consumption and reducing pollution.

Depending on the decision level at which the mentioned measures are taken, they can be divided into measures that can be taken at the individual level, measures at the level of energy producers, measures at the level of energy-consuming companies and measures involving government programs and legislative power (see Figure no. 1):

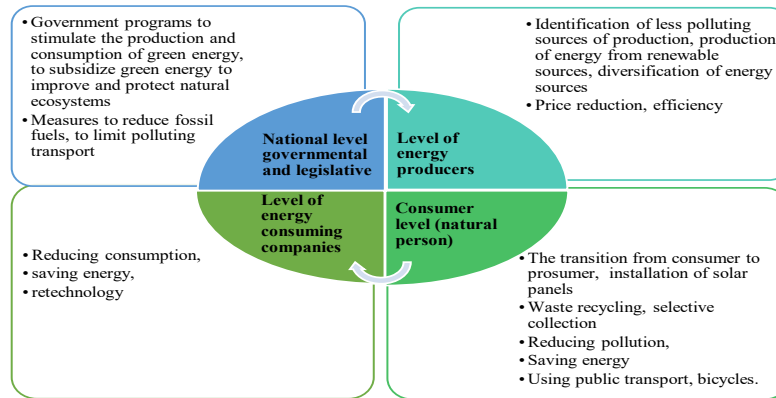


Figure no. 1. Necessary measures to be taken in the context of climate change in terms of energy function of the decision level

At the **individual level**, the main measures mentioned are related to waste recycling, selective collection, reducing resource consumption, saving energy, reducing pollution, gas emissions, switching from consumer to prosumer, installing solar panels, switching to more efficient modes of transport low polluting, for example: "public transport should be used instead of personal transport vehicles and electric vehicles", "use of bicycles as means of transport". Another change related to consumer behaviour is the proposal to "use electronics that charge in natural light".

The measures mentioned at the **level of energy producers** aim at the production of energy from renewable sources, such as hydroelectric energy, solar energy and wind energy, the production of energy from green sources such as biomass, the identification of less polluting sources for traditional energy production, diversification of energy sources, reduction of pollution from gas emissions in the case of traditional sources, but also economic measures are mentioned, such as: price reduction, efficiency.

The measures mentioned at the **level of energy-consuming companies** are: more prudent consumption of energy and reduction of pollution, gas emissions, reduction of industrial production, re-engineering.

The mentioned measures that involve **government programs** are proactive measures for prevention, programs for subsidizing green investments, respectively green energy production, increasing global access to green energy, subsidizing the planting of high biomass density plants and the production of briquettes and pellets, improving and protecting natural ecosystems that capture greenhouse gases, such as forests, laws to support eco-friendly energy use options, allocating funds to end consumers for the purpose of implementing mechanisms in homes that provide green energy, increasing energy independence through the development of green energy capacity, measures related to the restructuring of the National Energy System through the introduction of energy storage stations, simultaneously with the continuation of the transition towards the production of energy from renewable sources, but also coercive measures that provide obligations, such as the obligation to switch from the use of fossil to green energy, the reduction of fossil fuels, the limitation of energy consumption for existing and new buildings. Some of the respondents mention transport-related measures: the development of public transport, the encouragement of electric-powered public transport and the ban on polluting vehicles "Stop using Euro 2 and 3 cars on the streets".

Most of the interviewed subjects referred to measures that should be taken at the national level, either at the legislative level, for example, laws to encourage the use of green energy sources, or at the governmental level, for example, the allocation of funds for the implementation in homes of mechanisms to supply green energy. Most of the mentioned measures are aimed to stimulate and develop, but also there are taxation measures, limitation of fossil fuels, and limitation of transport that uses polluting energy. Most of the subjects interviewed mentioned measures that are taken at an individual level, more than half of them being related to the reduction of pollution, greenhouse gas emissions, some of the interviewees referred to the installation of panels solar or the use of alternative sources of green energy. A part referred to the necessary and positive character of the measures: "necessary", "good".

A very small part of the subjects interviewed stated that they do not know the necessary measures to be taken in the context of climate change in terms of energy.

As far as the **measures considered inappropriate to the current context in terms of energy** a small part believes that there are no inappropriate measures or actions with the current context regarding energy or states that they do not know, but the majority believes that there are inappropriate measures, among which are: increasing the price of energy, waste and excessive consumption "electricity consumption exaggerated", above-average pollution, unclear regulations, the transition to green means of transport, in conditions where the necessary technology and infrastructure do not exist.

3.3. The perception regarding green energy and the price of green energy

The vast majority of subjects have a favorable opinion about green energy, considering it "necessary", "useful", "vital", "the most viable option", "the energy of the future". The vast majority of words used to describe green energy have a positive character. One part mentions disadvantages of green energy related to costs and equipment: "requires substantial initial investments", "panels are expensive", "requires large investments", "too expensive", "the only reserve is related to the source of the equipment", "and access to green energy sources is easy in developed countries".

Regarding the perception of the price of green energy a small part of the subjects state that they do not have information or do not have a formed opinion about the price of green energy, the rest fall into three categories: a large part considers the price high, a significant number have a favorable opinion about the price considering it: "accessible", "fair", "the price of green energy is relatively low", "acceptable, compared to that of traditional electricity", "it is a good, honest one", "Given that green energy comes from natural sources, such as sunlight, wind, water and many others, its price is fair and considerably cheaper than for traditional forms of energy". A rather small part of the respondents present both the favorable and the unfavorable aspects, such as: "The price of green energy is low, but the investments to obtain it are expensive and long to amortize", "It drops, at the moment the price of solar energy being lower than that of fossil fuel", "Of course, there is also a higher initial cost for the implementation of this energy source, a cost that, in my opinion, is effectively amortized over time", "The price starts to decrease, especially since we have a local producer, which is the most competitive", "From what I found out and heard, I concluded that in the long term it is beneficial, moving the bills quite decently".

3.4. Opinions about the legislation on green energy consumption and the RepowerEU Plan

A large part of the subjects state that they do not know the legislation regarding green energy, and there is also an answer that tries to explain why it is not known: "I think that it should be spread through other channels, not only through the Internet, because a lot of the population, especially those from the rural area don't have access, in addition some of them are quite old and don't know how to use the internet".

Among those who have a formed opinion, the opinions are divided, those who have an unfavorable opinion mention that: "it is incomplete", "it needs improvements and the authorities are aware, because it is continuously updated, in the last 3 years it has been modified", "It is complex even though they are trying to standardize", "It is far too convoluted", "every distributor interprets it as he wants - it depends on how lucky you are", "they want to implement taxes for green energy ... this will destroy people's motivation to invest in green energy", "Creates blockages for investors", "it is not clarifying".

Those who have a favorable opinion consider that "it is in accordance with European legislation" and "the legislation has evolved positively in recent years, as the countries will become neutral from a climate point of view in the coming years".

There are some respondents that considers that "it is suitable, but it is really a little more difficult to implement due to some infrastructure deficiencies" and "Romanian legislation is in good agreement with the European one. Fortunately, the legislation is quite good; unfortunately, its application is difficult."

A large part of the respondents do not know the RepowerEU Plan, the rest have a favorable opinion about it: "it is important for an independent Europe", "The RepowerEU Plan is absolutely necessary, aiming both to reduce Russia's dependence on fossil fuels and to reduce pollution".

3.5. Opinions about the idea of being a prosumer and about the necessary conditions

A part of the respondents have heard of the prosumer concept and most of them have a favorable opinion: "A very good opinion, considering the context in which you can reduce your utility bill", "I think it is an advantageous plan, the fact that you can it produces renewable energy for its own consumption, and the surplus energy can be delivered to the public network for compensation, individually it helps us with substantial economies, and the conditions for obtaining it are quite accessible", "I think it's a very good idea, both from the point of view from a climate point of view as well as costs, considering that you produce most of the energy you need yourself and you can make money from the energy surplus. Another advantage is that if you can't produce enough energy yourself, you are connected to the grid anyway so

you don't run out of energy, which anyway has a positive impact on the environment", "In my opinion, as society evolves, we will all become prosumers. I consider that it is an advantageous alternative also from the point of view of the conditions to produce partially the energy consumed".

There are many respondents who believe that it is not easy to become a prosumer: "I have a very good opinion about the idea of being a prosumer regardless of the necessary conditions, but in order to become a normality, the conditions must be as accessible as possible, I do not say that there would be a lot of bureaucracy, because the process is simplified a lot, leaving the financial part as an impediment, which is discouraging for many potential beneficiaries. In the current economic context and considering the energy crisis, I think it is opportune to have friendly legislation with potential prosumers and it would be opportune to motivate the population to make long-term investments to produce green energy, accessing the related subsidies.", "It is a wonderful idea, but difficult to put into practice", "I believe that although the idea of becoming a prosumer would appeal to the majority of the population, the necessary conditions to be able to fit into this category are not within the reach of the majority", "The idea is good, the conditions are quite difficult to fulfil. From the difficulty of obtaining an approval for installations with higher power, to the reluctance of distributors to implement technical solutions", "It takes extremely long from 6 weeks to 1 year to process distributor / supplier documents", "Favorable opinion, but there are obstacles, however, from the State and energy suppliers".

There are also opinions that show that in the urban environment, for those who live in flats, it is not a solution: "Practically impossible if you live in flats", "Good idea, but it is not valid for those who live in flats."

3.6. The perception regarding societal marketing actions in the field of energy

There are formed opinions among potential consumers about the societal marketing actions that should be found in the policy of energy companies to meet the needs of consumers, while protecting society. The answers of a large part of the respondents show that the role of marketing actions is to inform about the green energy, to present consumers with the benefits of using green energy, to present the advantages of using green energy: "It should be highlighted that in addition to producing the energy you need yourself, you can also make money from surplus energy", to help consumers be aware of the need to reduce energy consumption, to educate: "Educating customers to better understand the phenomenon", "Companies can educate consumers so that they change their unhealthy habits for the environment, but also for their own pocket", "many energy supply companies have started various campaigns offering electrical objects with good energy efficiency in order to replace the old ones that consume a lot", to promote social responsibility: "afforestation campaigns, function of the degree of pollution produced", to involve and motivate clients in complying with environmental protection regulations (see Figure no. 2).



Figure no. 2. Perceived roles of societal marketing regarding green energy

The respondents consider that responsible activities towards the environment and society suppose that the energy companies will invest in obtaining renewable energy sources, allocate more funds for the regeneration of forests and finance awareness raising campaigns regarding energy efficiency.

The tools used can be found at the level of all four elements of the marketing mix: at the level of the product policy (to offer packages for the installation of production and/or energy saving equipment, to offer products with lower consumption of energy, to provide a customer service more adapted to the customer's profile), the price policy (price reduction, personalized price offers), the distribution policy (personalized distribution) and the communication policy (see Figure no. 3).



Figure no. 3. Societal marketing mix in green energy field

Most of the measures are mentioned at the level of the communication policy: "to help consumers to become aware using promotional campaigns with tips & tricks for reducing energy consumption", "promoting renewable energy and efficient use of energy", "Green energy should be marketed as a necessity", "promotion through social media", "Promoting the various sources of obtaining green energy", "Promoting in mass media financial advantageous offers for the consumer". An aspect mentioned is related to the diversity of communication channels, so as to provide access to information to the widest possible audience.

There are very few respondents who believe that there are no marketing actions with real impact or that marketing activity is not necessary and a small part of the respondents do not have an opinion about the societal marketing actions of energy companies.

Conclusions

There are numerous studies regarding the risk perceptions of climate change and there are different results, for example the 1992 Gallup Health of the Planet (HOP) Survey indicated that more than half of the respondents in 13 out of 24 countries worldwide felt that climate change was a serious problem (Lorenzoni & Pidgeon, 2006), but Leiserowitz in a study (2005) states that Americans perceived climate change as a moderate risk that will predominantly impact geographically and temporally distant people and places, and Kahan et al. (2012) shows that members of the public with the highest degrees of science literacy and technical reasoning capacity were not the most concerned about climate change. Surveys of the public in Canada, Mexico, and the United States regarding the levels of concern over climate change threats, perceived risk, knowledge of climate change policies, ... and other perception factors to help understand the relationships between public perceptions and policy preferences for renewable energy show national differences between the countries in nearly all climate change perceptions, with Mexico reflecting the highest levels of concern and the United States the lowest and Mexico showing the greatest support for renewable energy sources (Hagen and Pijawka, 2015).

In this research, the analysis of the results indicates that climate change is perceived as a danger and green energy is perceived as necessary in the current context. The potentials consumers are familiarized with the forms of green energy and have a formed opinion about the necessary measures which can be structured according to their ex-post (reduction of negative effects) or ex-ante (prevention) character and also function on the decision level at which the mentioned measures are taken: measures at the individual level, measures at the level of energy producers, measures at the level of energy-consuming companies and measures involving government programs and legislative power.

The originality and value of the research are related to the fact that the study provides an image of how the green energy is perceived and the societal marketing role in the field of energy is presented together with the specific characteristics of the marketing mix, which can have important practical implications for the energy sector. The purpose of societal marketing is to satisfy the needs and requirements of customers, to make profit respecting at the same time the conditions of long-term social responsibility.

The main limits of the research are related to the fact that the results obtained from qualitative research cannot be extrapolated to the level of the entire researched population, but they are useful because they provide an insight of green energy perception and of the marketing activity in the field and the results of this study can constitute the premises for quantitative research.

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